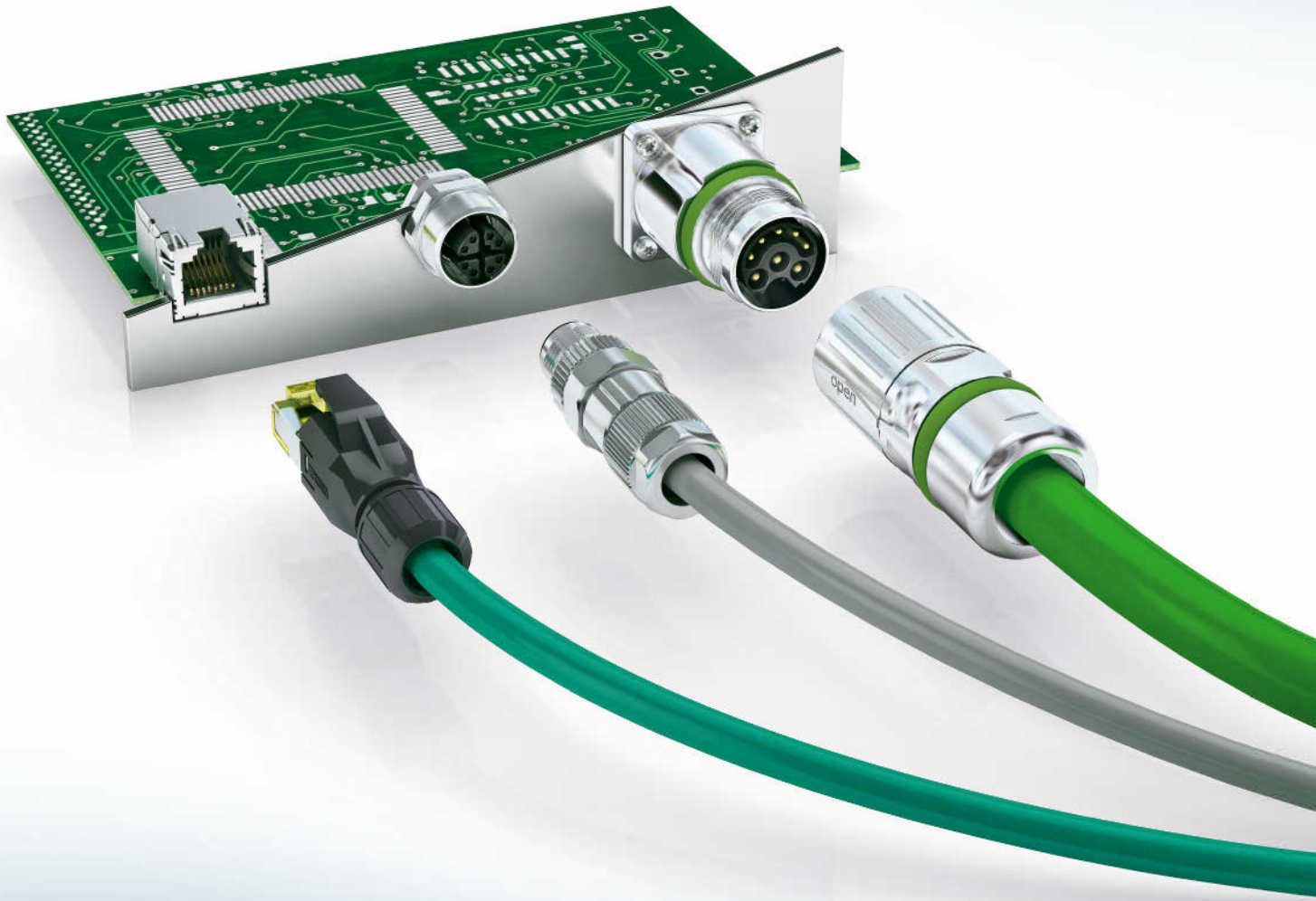
Connection Technology for Field Devices

2

2013 / 2014



PHOENIX CONTACT
INSPIRING INNOVATIONS



PCB connection technology and electronics housing
- PCB terminal blocks and plug-in connectors
- Electronics housing



Connection technology for field devices



Modular terminal blocks
- Modular terminal blocks



Sensor/actuator cabling and industrial plug-in connectors
- Sensor/actuator cabling
- Cables and connectors
- Plug-in connectors



Marking systems, tools, and mounting material
- Marking and labeling
- Tools
- Installation and mounting material



Surge protection and power supply units
- Lightning monitoring system
- Surge protection and interference filters
- Power supply units and UPS
- Protective devices



Interface technology and switching devices
- Electronic switching devices and motor control
- Measurement and control technology • Monitoring
- Relay modules • System cabling for controllers



Control technology, I/O systems and automation infrastructure
- Ethernet networks • Functional safety • HMIs and industrial PCs • I/O systems
- Industrial lighting and signaling • Industrial communication technology
- Fieldbus components and systems • Wireless data communication
- Process infrastructure • Software • Controllers

Table of contents

Connection technology for field devices from Phoenix Contact 2
Universal for signal/data and power transmission

Individual connection solutions 4
Implement your individual connection for devices and field cabling with the expertise of Phoenix Contact

Overview - connection technology for field devices PLUSCON 14
The illustrated table of contents will help you find the right product more quickly.

Rectangular plug-in connectors PLUSCON device  19
Device plug-in connectors with modular contact system for signals, power, and fiber optics.

Data plug-in connectors PLUSCON data  61
Plug-in connectors, flush-type plug-in connectors, and cables for fieldbuses and networks: D-SUB, RJ45, M8, M12, 7/8", SCRJ, and USB.

M5 to M12 circular plug-in connectors PLUSCON circular  223
Flush-type plug-in connectors and plug-in connectors for assembly from M5 to M12, for signals, data, and power.

M17 to M58 circular plug-in connectors PLUSCON circular  303
Flush-type plug-in connectors and plug-in connectors for assembly from M17 to M58, for signals, data, and power.

Photovoltaic plug-in connectors PLUSCON solar  417
AC and DC connection systems for photovoltaic modules, inverters, and micro inverters.

Charging plug-in connectors PLUSCON power  431
Plug-in charging systems for electromobility up to 400 A and plug-in connectors for power electronics up to 150 A.

Technical information 442
General information on the degree of protection, properties of plastics, approvals, insulation coordination, etc.

Index 454

Connection technology for field devices from Phoenix Contact

COMBICON control

Connection technology for measurement and control technology and I/O modules: PCB terminal blocks and plug-in connectors with 2.54 to 7.62 mm pitch, screw, spring-cage, and insulation displacement connection, wave soldering.

See Catalog 1



COMBICON high density & data

Plug-in connectors in miniature format - fast insulation displacement, spring, and pierce connection technology, T-branches for easy bus connections.

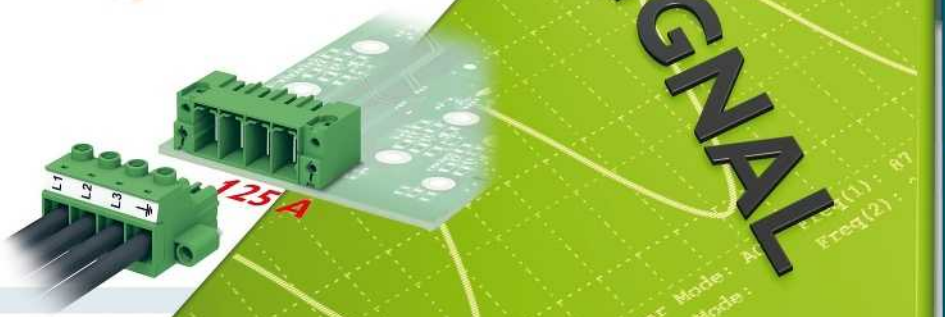
See Catalog 1



COMBICON power

Connection technology for power electronics: PCB terminal blocks and plug-in connectors for currents up to 125 A, screw and spring-cage connection, panel feed-throughs.

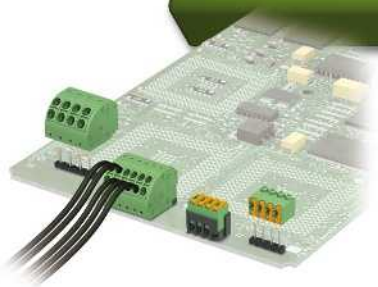
See Catalog 1



COMBICON compact

Device connections for building technology and LED applications: PCB terminal blocks and plug-in connectors with 2.5 to 7.5 mm pitch, screw and spring-cage connection as well as pin strips.

See Catalog 1



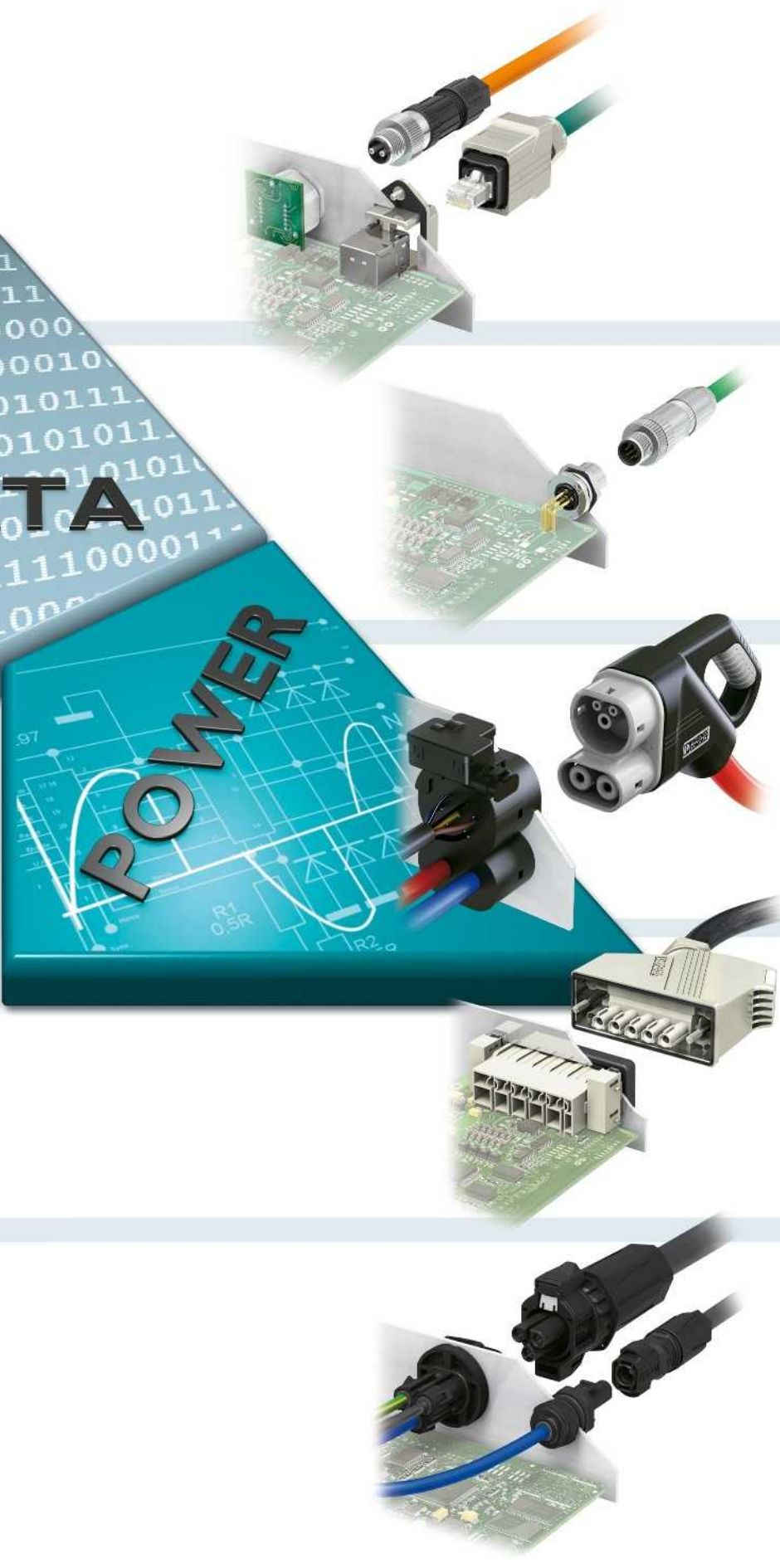


Housing

Plastic and aluminum electronics housing: component housing and panel mounting bases for industrial electronics, component housing for building installation, innovative bus connections between housing.

See Catalog 1





PLUSCON data

Plug-in connectors, panel feed-throughs, and cables for fieldbuses and networks.

See 61

PLUSCON circular

Flush-type plug-in connectors, plug-in connectors for assembly, and cables from M5 to M58 for signals, data, and power.

For M5 to M12, see 223
For M17 to M58, see 303

PLUSCON power

Plug-in charging systems for electromobility up to 400 A and plug-in connectors for power electronics up to 150 A.

See 431

PLUSCON device

Rectangular plug-in connectors with modular contact system for signals, power, and fiber optics with IP67 protection and available in various sizes.

See 19

PLUSCON solar

AC and DC connection systems for photovoltaic modules, inverters, and micro inverters.

See 417

Connection technology for field devices from Phoenix Contact



Individual connection solutions





Customer-specific adaptation of standard products

Found a product in our catalogs that meets your technical requirements, but you'd prefer a tailored solution? No problem – our Solution Center will be happy to provide you with support in implementing your requirements. Whether it's individual colors, special printing, a specific number of contacts or complete cable assembly – just let us know what you want.



Ideas transformed into innovative products

Phoenix Contact has been producing high-quality products for worldwide use for over 80 years.

Benefit from our extensive development, manufacturing, and process expertise for your individual solution. Together with you, we can transform great ideas into innovative products.

Intelligent solutions in housing and connection technology increasingly require custom concepts.

As a manufacturer, you can develop products with us that meet the requirements of today's markets, such as high quality, individual design, and great customer benefits at a reasonable price.

You will have the entire expertise of the Phoenix Contact Group at your disposal. From our own tool shop and machine building through plastic injection molding and metal production to expertise in electronics production, we offer a depth of manufacturing that enables us to implement even demanding projects and complex products within a short development period.

Our own laboratory carries out testing throughout the process, handles the necessary qualifications and, of course, international approvals.

As a manufacturer, you can focus on your core competencies and benefit from our expertise as specialists in connection and housing technology.

Great products need great ideas and experience. Together with the expertise of Phoenix Contact, you can implement your individual solution - right from the initial idea to cost-effective series production.

Our products and services range from customer-specific PCB connection technology with screw, spring-cage or IDC fast connection, in all conceivable designs and colors...



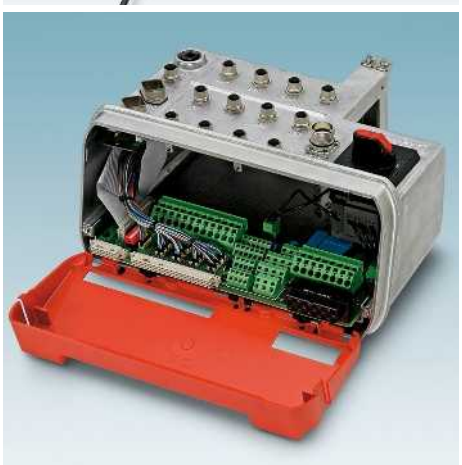
...through corresponding electronics housing in special designs in the color and size of your choice, together with the appropriate connection technology...



...individual field cabling, with plug-in connectors with shielding for high data transmission rates, splash-proof housing for harsh industrial environments...



...to complete solutions consisting of, for example, splash-proof housing including the appropriate connection technology for signal, data, and power transmission, plus the ideal PCB connection.



Connection technology for field devices from Phoenix Contact

Our service – added value for you

Phoenix Contact doesn't just offer the right products, it also provides a professional service for all aspects of connection technology for field devices and field cabling. Wherever you are in the world, Phoenix Contact's global network means that you can rely on our service. Being at home all over the world and speaking the language of the user is what we understand by customer proximity. Proximity that ensures the best service for our partners. We live up to this with more than 40 customer-oriented subsidiaries and around 30 representatives in other countries.





Personal consultation and support

As our customer, you are always the focus of attention at Phoenix Contact, whether during consultation or as part of after sales support. Expert and personal consultation forms the basis of this approach. Even though we live in the age of the Internet, personal interaction with our customers is of great importance to us.

Our team of highly motivated staff are available to you at locations around the world.



Reliable delivery service

It goes without saying that our products are delivered reliably and on time. In addition to our optimized delivery service, we offer numerous options for making the purchasing process more efficient and transparent.

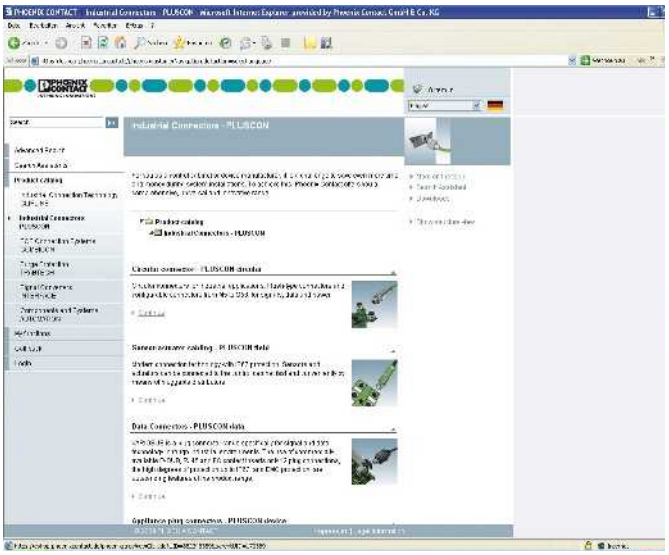
With warehouses in key industrial locations throughout the world, we ensure that you receive your products from Phoenix Contact cost-effectively and within the required delivery time.

Online catalog

The online catalog provides comprehensive, up-to-date information in 7 languages for more than 22,000 products from Phoenix Contact. Here you can find product-specific information such as technical data, notes on approvals, dimensional drawings, 3D data, etc. At the click of the mouse, you can easily generate a product data sheet in PDF format.

In over 15 countries, e-shop functions complete the online catalog. Following successful registration, you can therefore access your prices and delivery schedules at any time and you also have the option of placing orders directly online.

www.phoenixcontact.net/products

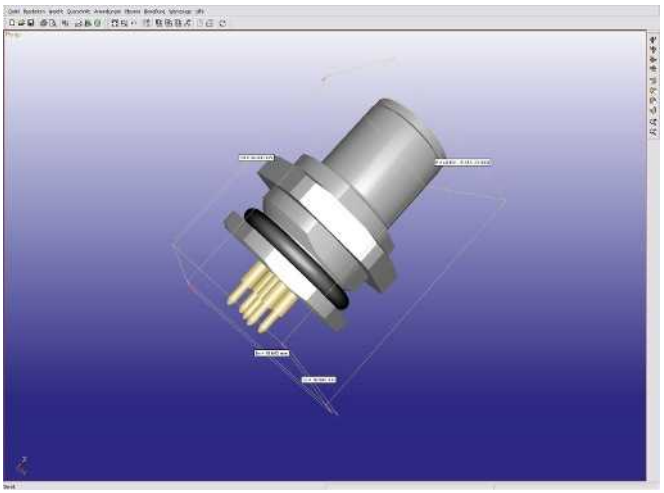


Quickly find product-specific information in the online catalog

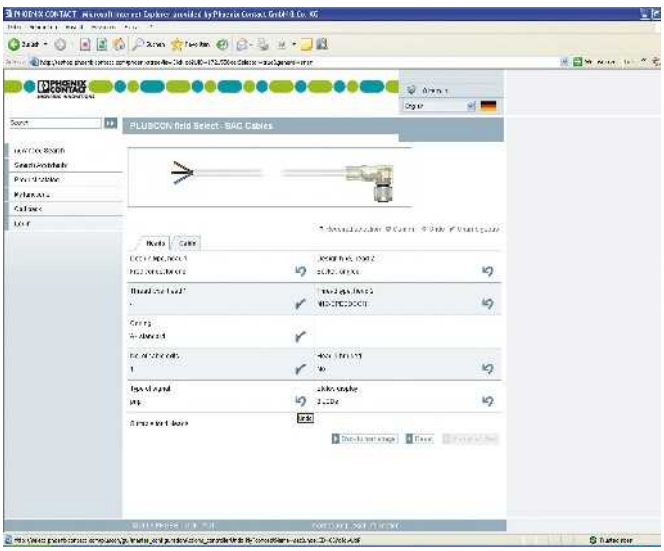
Online search assistants

Online search assistants help you to search systematically and quickly for products from our extensive range of plug-in connectors. By selecting electrical values and other product properties, you are taken directly to the products that meet your requirements.

– COMBICON select
  PCB connection and electronics housing
– PLUSCON field select
  Sensor/actuator cabling
– PLUSCON data select
  Data plug-in connectors for fieldbuses and networks



Easy download of 3D data



User-friendly product search with PLUSCON field select

Fast connection technology from Phoenix Contact

QUICKON - proven fast connection technology

The secret behind QUICKON at Phoenix Contact is the tried-and-tested IDC connection technology. The term "IDC" stands for Insulation Displacement Connection - a form of insulation displacement contacting.

The key advantage is the lack of conductor preparation, which can save 60 - 80% of the usual connection time compared to spring-cage or screw connections.

In the field of automotive engineering, telecommunications, and household appliances, this type of fast contacting has been established for many years, but now Phoenix Contact has made it suitable for industrial applications. This includes contacts which can accommodate both solid and stranded conductors, which cover a large range of cross sections, which penetrate various wire insulations, and which function reliably and permanently under harsh industrial conditions.

Advantages of QUICKON

– Time-saving connection
– High degree of reliability thanks to defined contact force
– Can be connected multiple times using standard tools

Individual conductors are simply inserted into the wiring space without preparation and pushed into the IDC terminal block by a screw or lever mechanism. Here the wire insulation is displaced without damaging or weakening the copper litz wires in any impermissible way, and a force-defined and thereby user-independent and gas-tight contact is established. The contact resistance values lie between the values for spring-cage or screw connections.

Notes on IDC fast connection technology

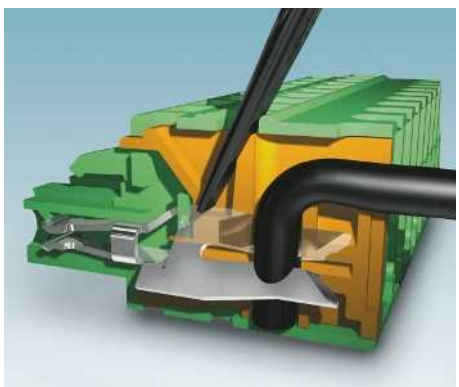
The specified cross section range must be observed.

If the conductors are too thin, the insulation will not be correctly displaced since the contact gap is too large, and if the conductors are too thick, it will either not be possible to connect them at all, or the system may be damaged as a result of excessive wiring forces.

QUICKON connections should not be installed at extremely low or high ambient temperatures.

Furthermore, the specified wire insulation must be observed or approved by Phoenix Contact on request. Extremely hard insulation materials, such as Teflon, or very viscoplastic insulation, such as silicone, can only be wired with IDC contacts specifically designed for this purpose. Solid and stranded conductors make very good contact. In the case of highly stranded Category 6 conductors, the minimum litz wire diameter must be observed.

For geometric reasons, two different types of contact have emerged:

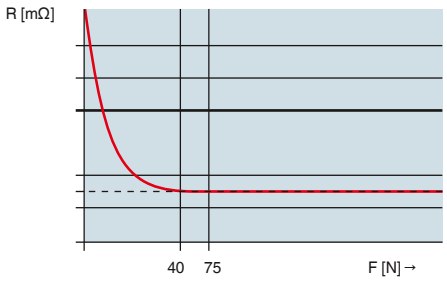


1. Flat contacts are characterized by their space-saving and cost-effective design.

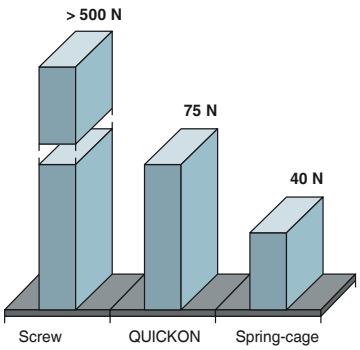


2. Tube contacts cover an even greater cross section range.

Contact resistance



Contact force



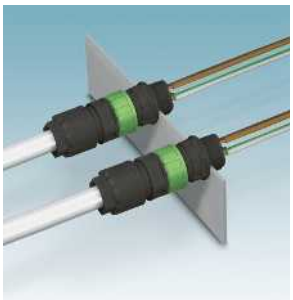
The positive properties and strong market acceptance of QUICKON have encouraged Phoenix Contact to develop a whole range of different products. This range covers numerous modular terminal blocks, PCB plugs, industrial plug-in connectors, and various customer-specific integrations within a cross section range from 0.14 mm² to 6.0 mm².



Heavy-duty plug-in connectors



Sensor/actuator boxes



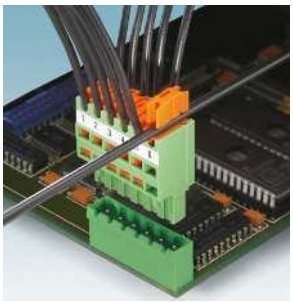
Power distributors



M8 and M12 plug-in connectors



Time savings with QUICKON fast connection



PCB plug-in connectors



Modular terminal blocks



A series plug-in connectors



Special solutions



T-distributors



RJ45 plug-in connectors

Rapid interlock system from Phoenix Contact



SPEEDCON is the logical development of the M12 plug-in connector system that has been established and accepted for many years. Following the principle of "Plug & Turn", the connection time for M12 plug-in connectors is reduced by 90%.

The SPEEDCON rapid interlock system is 100% compatible with all M12 connections available on the market. It goes without saying that the SPEEDCON plug-in connectors meet all accepted standards and requirements for current M12 plug-in connector systems.



Complete product range

The following pages contain a complete range of SPEEDCON products, consisting of molded cables, plug-in connectors for assembly, flush-type plug-in connectors, adapters, and passive distributor boxes. I/O modules with SPEEDCON connection can be found in the AUTOMATION catalog.

SPEEDCON system partners

A number of well-known and international companies have been won over by the advantages and benefits of the SPEEDCON rapid interlock system and are now fully reliant on the new standard in the M12 world.

Amphenol
BERNSTEIN safe solutions
binder
BIZERBA
CONINVERS
FANUC
FESTO
INTER CONTROL
LUTZE
Leuze electronic
MATROX IMAGING
menerga
Mercedes-Benz
Miele
numatics
PEPPERL+FUCHS
pulsotronic
Rexroth Bosch Group
SCHUBERT
SEW EURODRIVE
SICK Sensor Intelligence.
SIEMENS
SMC
TRUMPF
ThyssenKrupp Fahrtreppen
ThyssenKrupp

Your advantages of using the SPEEDCON rapid interlock system

Compatibility

SPEEDCON is 100% compatible with all current M12 plug-in connector systems. The user does not have to learn anything new, since the "Plug & Turn" principle has been retained.

Fast assembly

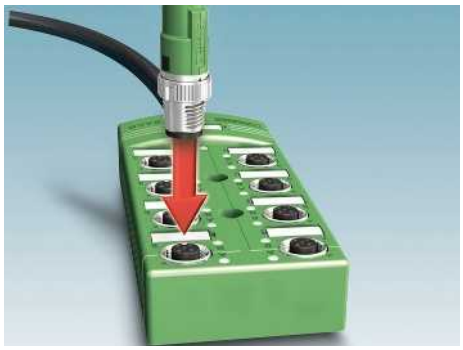
Just half a turn and SPEEDCON creates a perfect plug-in connection. The assembly time is reduced by 90% as a result.

Safe operation

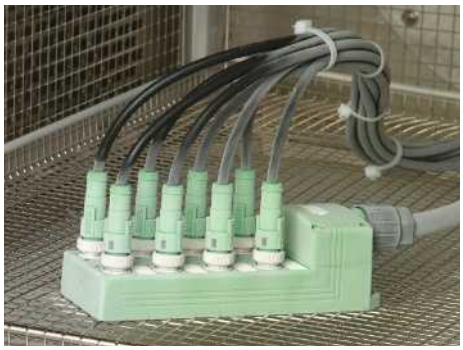
SPEEDCON has all the electrical and mechanical properties required of conventional M12 plug-in connector systems.



Classic – SPEEDCON



Insert



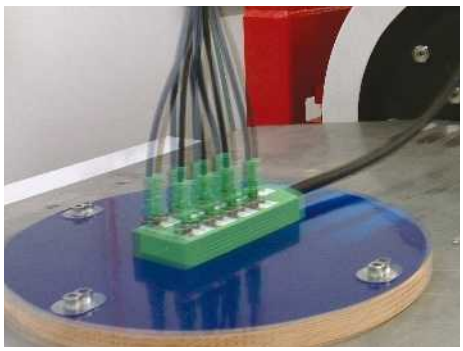
Temperature



SPEEDCON – Classic



1/2 turn



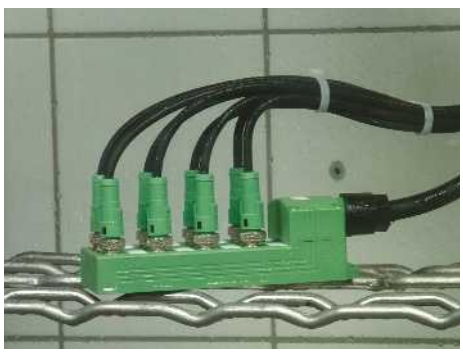
Vibration and shock



SPEEDCON – SPEEDCON



Done!



Noxious gases

– Pin assignment, requirements, and testing according to **IEC 61076-2-101**
– IP65/IP67/IP69K protection according to EN 60529
– Vibration and shock resistance according to IEC 60512-6d



Screw connection

The screw connection is the most universal and globally accepted conductor connection technology. An important characteristic is the maintenance-free conductor contact. It is not necessary to tighten the terminal screw again. All kinds of copper cables can be clamped without pretreatment, thereby making gas-tight and reliable contact. The wire protector, which protects the individual litz wires from damage, is located between the screw and the conductor. It also performs a screw locking function to prevent release due to vibrations and temperature fluctuations. Splicing protection can be implemented in the form of ferrules. With a screw connection, several wires may also be clamped under one screw. The current-carrying parts of the screw connections are made of high-grade, strain-crack, and corrosion-proof copper alloys.



Axial screw connection

With this method, the wire end to be contacted is guided into the connection area of the pin or socket contact. A cone-shaped prong (part of the contact) is then screwed into the stranded wire from the front. The strands of the wire are radially pressed against the contact wall. This results in a gas-tight connection with long-term stability between the wire and contact. It is important that the specified tightening torque is observed. The prong is pressed in using a hexagon key which is applied to the front of the contact. This connection technology combines the advantages of screw and crimp connection. It requires very little space, is easy to execute, and only requires a standard Allen key.



Crimp connection

The crimp connection impresses with its small space requirements and its cost-effective creation in series production. For a reliable connection, it is essential that the conductor cross section, the crimp contact, and the crimping tool are compatible. Furthermore, the crimping process must be monitored during large-scale production as the crimping tools are subject to a certain degree of wear.

Crimp connections can be established with the aid of crimping pliers or crimp machines through specific deformation of the crimping ranges of the contact. The requirements for crimp connections are defined in DIN EN 60352-2. Proof of the quality of a crimp connection can be seen in the tensile strength of the connection and crack-free deformation of the crimp contact. Crimping must not result in impermissible elongation of crimp contacts, as this would prevent them from latching correctly in the contact carrier. The contact is released using a contact removal tool. Assembly tools are also available for very thin conductors.



Spring-cage connection

The spring-cage connection contains a steel spring which pushes the stripped conductor against a power rail. The terminal point is opened with a standard screwdriver. After the conductor has been inserted into the clamping space, the screwdriver is removed and the conductor automatically makes contact. The contact force is independent of the user and a vibration-proof, gas-tight connection with long-term stability is established. The front connection provides an additional advantage. The conductor and screwdriver come in parallel from the same direction and are always within the user's field of vision. Contact inserts can thereby also be connected or re-wired even when mounted. All kinds of copper cables can be clamped without pretreatment, thereby making gas-tight and reliable contact. Splicing protection can also be implemented in the form of a ferrule.



Push-in connection

Stranded conductors with ferrules or solid conductors can be quickly and easily inserted directly into the connection without tools. The contact spring is formed in such a way that it opens automatically when the conductor is pushed in and thereby provides the required pressure force against the current bar for a gas-tight, vibration and shock-proof connection. With the aid of the orange pusher, the terminal block can be opened manually so that conductors with smaller cross sections can also be securely connected. To release the conductor, the orange pusher features a confusion-free and defined operating element. The conductive metals are made from high-grade copper alloys. All metal parts of the connection are made of corrosion-resistant materials.



QUICKON fast connection for single wires

The QUICKON connection is equipped with an IDC insulation displacement contact. The term “IDC” stands for Insulation Displacement Connection. With this connection method, a non-stripped wire with insulation is positioned in front of the gap of the insulation displacement contact and then pushed into the blade gap through insulation displacement. In so doing, the wire insulation is severed and a gas-tight contact is made between the wire and the contact. This can save at least 60% of connection time.

The connection force is independent of the user and completely reliable provided the permitted conductor cross sections and connection conditions are observed. Solid and stranded conductors can be rewired up to 10 times. However, the wire end should be cut off before connecting again.

QUICKON connections have proven themselves in numerous applications for Phoenix Contact over recent years, such as plug-in connectors, for COMBICON, and modular terminal blocks to CEE plug-in equipment from 0.14 to 6.0 mm².

Circular plug-in connectors – PLUSCON device



Panel mounting plug-in connectors
Page 24



Sleeve plug-in connectors
Page 32



Contact carriers and contacts
Page 38



Screw connections and accessories
Page 42

Data plug-in connectors - PLUSCON data



RJ45 plug-in connectors for Industrial Ethernet with IP20/IP67 protection
Page 78



M12 plug-in connector for Industrial Ethernet
Page 88



Assembled network cables
Page 97



Patch panels, terminal outlets
Page 114



Power plug-in connectors for network cabling
Page 124



Fiber optic network plug-in connectors
Page 126



Assembled fiber optic cables
Page 138



D-SUB-based fieldbus plug-in connectors
Page 184



M12 flush-type plug-in connectors, plugs, and cables for fieldbuses
Page 186



Cable range
Page 194



IP20/IP67 USB plug-in connector
Page 205



D-SUB-based plug-in connectors
Page 185

M5 - M12 circular plug-in connectors - PLUSCON circular



M5 device plug-in connectors
Front mounting Page 224
Rear mounting Page 224



M8 device plug-in connectors
Front mounting Page 225
Rear mounting Page 226



M12 device plug-in connectors with litz wire
Front mounting Page 232
Rear mounting Page 242



M12 device plug-in connectors with square flange
Page 236



M12 device plug-in connectors for PCB mounting, wave soldering processes
Page 246



M12 device plug-in connectors for PCB mounting, THR
Page 256



7/8" device plug-in connectors with litz wire
Front mounting Page 265
Rear mounting Page 266



M12 device plug-in connectors, stainless steel design
Page 268



M8 plug-in connectors for assembly with insulation displacement connection
Page 272



M8 plug-in connectors for assembly with screw and solder connection
Page 273



M12 plug-in connectors for assembly with Piercecon® connection
Page 275



M12 plug-in connectors for assembly with insulation displacement connection
Page 278



M12 plug-in connectors for assembly, screw and spring-cage connection, shielded and unshielded
Page 279



7/8" plug-in connectors for assembly with screw connection
Page 285



M12 power device plug-in connectors
Page 286



M12 power plug-in connectors and cables for assembly
Page 283

M17 - M58 circular plug-in connectors - PLUSCON circular



M17 - signal plug-in connectors
Page 308



M23 - signal plug-in connectors
Page 324



M23 - feedback plug-in connectors
Page 340



M17 - power plug-in connectors
Page 352



M23 - power plug-in connectors
Page 368



M40 - power plug-in connectors
Page 380



M58 - power plug-in connectors
Page 390



Signal/power plug-in connectors, plastic molded
Page 394



Tools and accessories
Page 404

Photovoltaic plug-in connectors - PLUSCON solar



SUNCLIX panel feed-throughs and DC plug-in connectors
Page 420



SUNCLIX assembled cables
Page 425



SUNCLIX mini - plug-in connectors and module junction boxes
Page 426



Spring-cage terminal blocks for PCB connection
Page 428

Charging plug-in connector systems - PLUSCON power



Combined AC/DC charging system
Page 435



Type 2 charging cables
Page 436



Type 2 and GB sockets
Page 438



GB charging cables
Page 440



Rectangular plug-in connectors

Direct PCB connection and elimination of a panel mounting base – these are some of the outstanding features of the modular, compact, IP67 plug-in connector system.

This range is particularly suitable for use in devices, as well as terminal boxes and control cabinets in harsh industrial environments. Thanks to the modular structure and the numerous contact inserts, from signal to power connections with 70 A, VARIOCON provides proven solutions, particularly in the field of electrical drive technology.

The modular contact inserts with screw and PCB connection form the basis of the range, in addition to fixed contact inserts with crimp connection for turned and rolled contacts. The universal screw connections feature a high degree of reliability, low contact resistance, and a compact design. The contact insert modules are consistently touch proof and can be coded to prevent incorrect connection. The direct PCB connection saves you a complete jumpering level and enables controlled and space-saving device assembly.

Sleeve housing is available in plastic and seawater-resistant die-cast aluminum. The robust screw locking prevents the plug-in connectors from being unintentionally opened and protects them against mechanical disturbances such as shock and vibration.

Note:

VDE 0100/1.97 § 411.1.3.2 and DIN EN 60 204/11.98 § 14.1.3 are applicable when combining several circuits in a cable and/or a plug-in connector.

Product range overview 20

System configuration 22

Panel mounting plug-in connectors

Panel feed-throughs with screw connection 24
Panel feed-throughs with PCB connection 26
Panel feed-throughs with power crimp connection 28
Supporting base elements with screw connection 30

Sleeve plug-in connectors

Sleeve frames and contact inserts 32
Sleeve housing 34

Contact carriers and contacts

Fiber optic contact insert modules with screw connection 36
Contact carriers for turned and rolled crimp contacts 38
Crimp contacts 40

Screw connections and accessories

Full screw connections 42
Half screw connections 44
Protective covers and adapter plates 48
Accessories 49

Hybrid plug-in connectors 52

Derating diagrams and dimensional drawings 54



VARIOCON is suitable for use in devices, terminal boxes, and control cabinets.

Thanks to its modular structure and the variety of contact inserts from fiber optics to power connections, the range offers virtually unlimited application possibilities.

The range is based on modular contact inserts with screw and PCB connection, as well as fixed contact inserts with crimp connection for turned and rolled contacts. The variable structure enables the optimum and therefore inexpensive customization of the plug-in connector to suit individual applications.

Housing for direct wall mounting is available in various versions:

Plastic housing made of tough polyamide and aluminum housing with seawater-resistant surface and conductive seal. Together with EMC cable glands, these housings offer outstanding protection against electromagnetic interference fields.

Six good reasons to use VARIOCON device plug-in connectors in industrial applications

The advantages	Your benefits
1. Modularity of the contact inserts and housing	– Tailored solution for contact inserts by combining power up to 70 A, signal up to 40 positions, and fiber optics – Space savings thanks to compact design – Free choice of housing designs: plastic, metal, and EMC protection
2. No panel mounting base required	– Reduced assembly time – IP67 protection with just one housing seal – Outstanding EMC protection
3. Robust housing screw locking for startup and servicing	– Resistant to mechanical disturbances (vibration, shock) – Protected against unintentional opening of the plug-in connection – Space savings compared to levers
4. COMBICON screw connection technology	– High degree of reliability – Touch-proof – Low contact resistance – Compact design – Can be coded to prevent incorrect connection – Can be used universally
5. Direct PCB connection in the device	– Jumpering level eliminated – Controlled assembly by means of soldering-in – Space-saving installation
6. Power crimp connection	– Easiest means of wall mounting by snapping-in – Cost-effective as no panel mounting frame or panel mounting flange required – Controlled factory installation

The product range

Modular contact inserts

VARIOCON Modular enables power and signal transmission to be combined in a single plug-in connector.

The contact system is based on the proven COMBICON connection technology with tension sleeve principle and coding options. The panel mounting side can be supplied with screw connection or alternatively with direct PCB connection.

The connection capacity ranges from 4-pos./70 A/690 V to 40-pos./10 A/160 V.

For data transmission, additional fiber optic modules are available.



from page 24

Crimp contact carriers

The crimp contact carriers are available as pin or socket contact carriers and meet the requirements for high-position plug-in connections.

Turned and rolled crimp contacts from the proven HEAVYCON D series (EN 175301-801) are available for 15, 30, 50, and 65-pos. crimp contact carriers, plus 2 leading PE connections each.

All the advantages of crimp technology, such as machine pre-assembly or partial assembly, are available with VARIOCON Crimp.



from page 38

Sleeve housing and supporting base elements

Sleeve housing is available in plastic and seawater-resistant die-cast aluminum:

VARIOCON sleeve housing is sealed directly to the mounting panel with two locking screws. This locking method saves space, is easily accessible from above, is vibration-resistant, and meets the requirements of IP65/IP66/IP67 protection (IP68 on request).

Versions with an easy-grip knurled screw are available for tool-free attachment.



from page 31

Accessories

Half cable glands with Pg16 and Pg21 threads are available for VARIOCON housing. Alternatively, housing is also available with M20 and M25 threads.

With the VC adapter plates, VARIOCON plug-in connectors can also be easily used in standard panel cutouts for heavy-duty industrial plug-in connectors.

Protective covers protect the contact inserts when they are not plugged in.

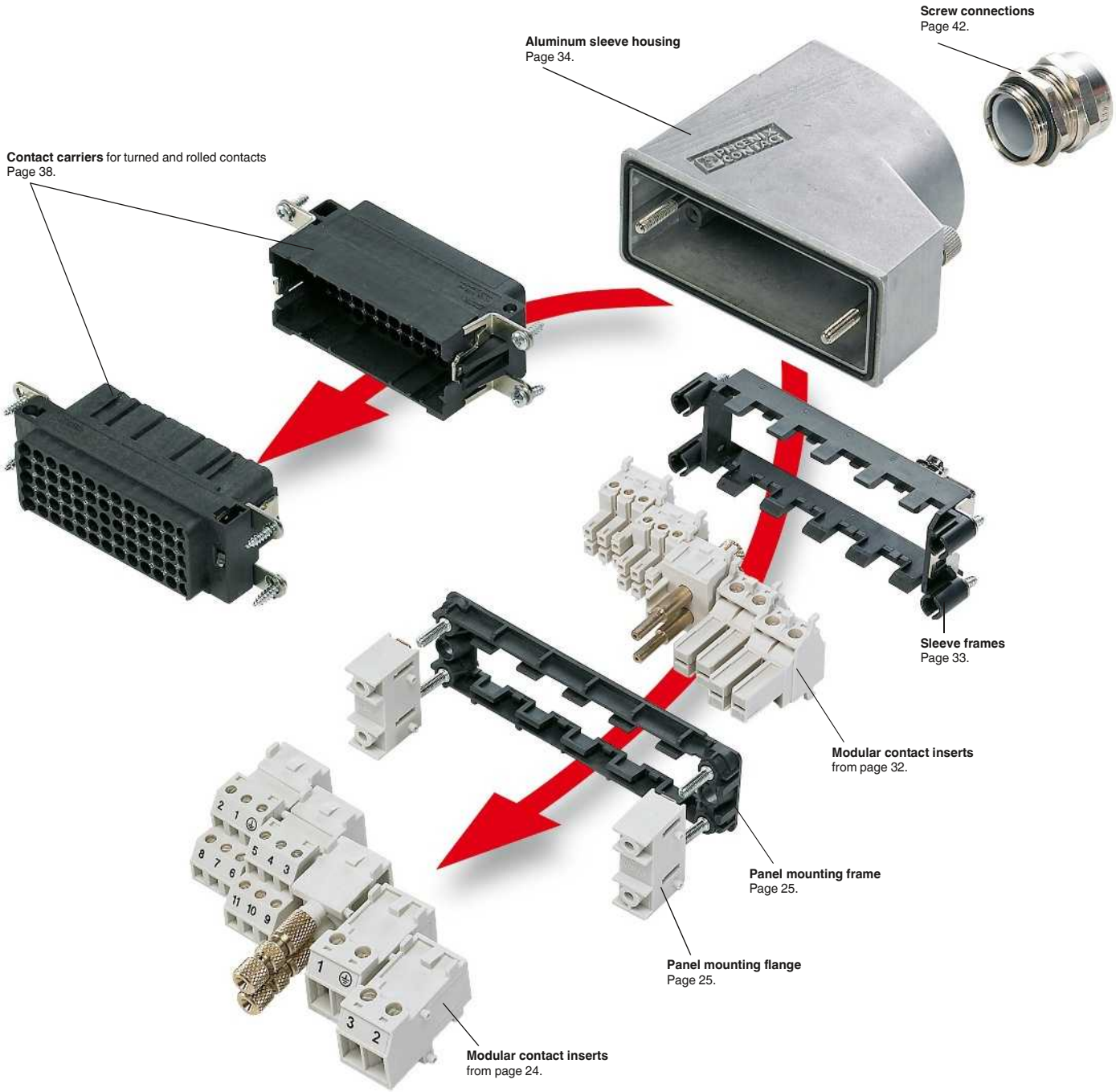


from page 42

Modular plug-in connector

The key advantage of VARIOCON plug-in connectors is that a panel mounting base with mounting brackets is not required. The panel mounting plug-in connector is mounted directly on the device panel as a panel feed-through without a panel mounting base. Optional contact inserts with screw connection, crimp connection, and PCB connection are available. The PCB versions are available for parallel (180°) and perpendicular positioning (90°) of the PCB to the housing panel. The sleeve plug-in connector consists of sleeve housing, sleeve contact inserts, and sleeve frame.

Sleeve housing is available in plastic and seawater-resistant die-cast aluminum. The aluminum housings have an electrically conductive seal. In combination with the EMC cable glands, they possess outstanding shield attenuation. The easy and secure mounting principle applies to both the sleeve and housing side. The contact insert modules are snapped into the frame in the desired order and then screwed to the housing or the sleeve.

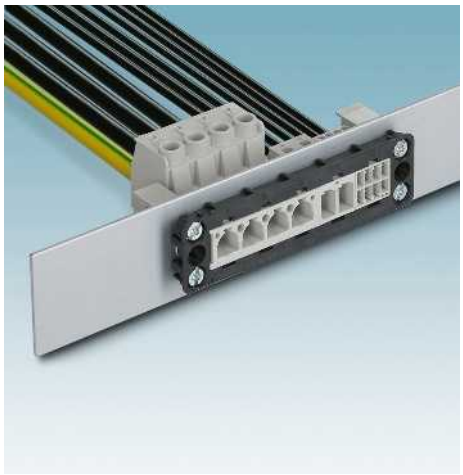


Rectangular plug-in connector configurator

The VARIOCON Select software enables rapid and targeted configuration of modular contact inserts to form a plug-in connector system. The contact inserts are available with different numbers of positions and rated data. They can also be combined in any order. The modularity of the contact inserts and housing allow you to configure tailored combinations of power up to 70 A, signal up to 40 positions, and fiber optics to form a modular plug-in connector. There is a choice of plastic and aluminum housing. In combination with EMC screw connections, the aluminum housing offers safe protection against electromagnetic interference fields.



Panel feed-through with screw connection



- One panel mounting frame and two panel mounting flanges are required for each connector
- Contact insert sets make logistics easier
- Positions are consecutively marked with PE and from 1 to n.
- On the panel mounting frame, each module position is labeled from A-E

Advantages:

- Proven COMBICON technology
- Can be coded to prevent confusion of connectors
- Suitable for universal connection
- Compact design

Notes:

- The hinged cover on the power contact inserts must be closed after assembly to maintain insulation data
- VARIOCON contact insert modules meet the requirements of DIN EN 61984 (connectors without switching capacity)
- They should, therefore, only be operated under no load condition
- All inserts are protected against finger contact according to DIN EN 60529
- They fulfil the requirements of BGV A2 accident prevention regulations
- An insertion bridge EB3-10/ST (Order No. 5020823) is available for the power contact insert modules
- The power contact inserts cannot be used in VC supporting elements for space reasons

Notes:
For dimensional drawings, refer to page 54
For drilling diagrams, see page 55
For accessories, refer to page 50



Contact insert sets

Technical data

		VC-AR...S2...	VC-AR...S6...	VC-AR...S8...
Rated voltage	[V]	400	250	160
Rated current	[A]	20	10	10
Connection cross section	[mm²]	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
Insertion/withdrawal cycles		≥ 100	≥ 100	≥ 100

Ordering data

Description	Design	Module slots	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 2-pos. modules with screw connection, six coding profiles						
	VC1	2	4	**VC-AR1/2M-S22-SET**	**1607298**	5
	VC2	3	6	**VC-AR2/3M-S222-SET**	**1607311**	5
	VC3	4	8	**VC-AR3/4M-S2222-SET**	**1607322**	5
	VC4	5	10	**VC-AR4/5M-S22222-SET**	**1607335**	5
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 6-pos. modules with screw connection, six coding profiles						
	VC1	2	12	**VC-AR1/2M-S66-SET**	**1607346**	5
	VC2	3	18	**VC-AR2/3M-S666-SET**	**1607359**	5
	VC3	4	24	**VC-AR3/4M-S6666-SET**	**1607370**	5
	VC4	5	30	**VC-AR4/5M-S66666-SET**	**1607383**	5
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 8-pos. modules with screw connection, six coding profiles						
	VC1	2	16	**VC-AR1/2M-S88-SET**	**1607394**	5
	VC2	3	24	**VC-AR2/3M-S888-SET**	**1607407**	5
	VC3	4	32	**VC-AR3/4M-S8888-SET**	**1607418**	5
	VC4	5	40	**VC-AR4/5M-S88888-SET**	**1607431**	5
Power contact insert module, for panel mounting frame, with screw connection						
	VC2	3	4			
	VC3	4	5			
	VC4	5	7			
Contact insert module, marking on screw connection:						
		1	2			
		1	6			
		1	8			
Contact insert module, marking on screw connection:						
PE, 2		1	2			
PE, 2 ... 6		1	6			
PE, 2 ... 8		1	8			
Panel mounting frame, for panel feed-throughs and for VARIOCON supporting base elements at voltages < 42 V						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
EMC shield adapter, for EMC connectors						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
Panel-mounting flange for screw locking, for wall thicknesses of 1-5 mm, 2 pcs. per panel feed-through required, not for supporting base element						



Power contact insert modules



Contact insert modules



Panel mounting frame, panel mounting flange

Technical data			
	VC-AMS 2	VC-AMS 6	VC-AMS 8
690	400	250	160
70	20	10	10
0.5 mm² ... 16 mm²	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
≥ 500	≥ 100	≥ 100	≥ 100

Technical data
-
-
-
-

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AMS 4	**1607745**	5
VC-AMS 5	**1607748**	5
VC-AMS 7	**1607751**	5

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AMS 2	**1853528**	50
VC-AMS 6	**1854019**	50
VC-AMS 8	**1854022**	50
VC-AMS 2-PE	**1583542**	50
VC-AMS 6-PE	**1583555**	50
VC-AMS 8-PE	**1583568**	50

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AR1/2M	**1852972**	5
VC-AR2/3M	**1852985**	5
VC-AR3/4M	**1852998**	5
VC-AR4/5M	**1853007**	5
VC-AR1-EMV	**1853214**	5
VC-AR2-EMV	**1853227**	5
VC-AR3-EMV	**1853230**	5
VC-AR4-EMV	**1853243**	5
VC-AF	**1852862**	50

Panel feed-through with PCB connection



- One panel mounting frame and two panel mounting flanges are required for each connector
- Panel mounting plug-in connector for two to five contact insert modules
- Module positions are labeled from A - E

Advantages:

- Proven COMBICON technology
- Can be coded to prevent confusion of connectors
- Direct PCB connection
- Compact design

Notes:

- VARIOCON contact insert modules meet the requirements of DIN EN 61984 (connectors without switching capacity)
- They should, therefore, only be operated under no load condition
- All inserts are protected against finger contact according to DIN EN 60529
- They fulfil the requirements of BGV A2 accident prevention regulations

Notes:
For dimensional drawings, refer to page 54
For drilling diagrams, see page 55
For accessories, refer to page 50



Power contact insert modules 90°

Technical data

Rated voltage	[V]	690
Rated current	[A]	63
Insertion/withdrawal cycles		≥ 50

Ordering data

Description	Design	Module slots	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Power contact insert module						
	VC2	3	4	**VC-AML 4**	**1607509**	10
	VC3	4	5	**VC-AML 5**	**1607523**	5
	VC4	5	7	**VC-AML 7**	**1607537**	5
Power contact insert module, with capacitive PE contact						
	VC2	3	4	**VC-AML 4-PEA**	**1607516**	5
	VC3/-4		5	**VC-AML 5-PEA**	**1607530**	5
	VC4		7	**VC-AML 7-PEA**	**1607544**	5
Contact insert module, marking on screw connection:						
		1	2			
		1	6			
		1	8			
Contact insert module, marking on screw connection:						
		1	2			
		1	6			
		1	8			
Panel mounting frame, for panel feed-throughs and for VARIOCON supporting base elements at voltages < 42 V						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
EMC shield adapter, for EMC connectors						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
Panel-mounting flange for screw locking, for wall thicknesses of 1-5 mm, 2 pcs. per panel feed-through required, not for supporting base element						



Contact insert modules 90°



Contact insert modules 180°



Panel mounting frame, panel mounting flange

Technical data

VC-AML 2	VC-AML 6	VC-AML 8
400	250	160
20	10	10
≥ 100	≥ 100	≥ 100

Technical data

VC-AMLV 2	VC-AMLV 6	VC-AMLV 8
400	250	160
20	10	10
≥ 100	≥ 100	≥ 100

Technical data

-	
-	
-	

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AML 2	**1852859**	50
VC-AML 6	**1853531**	50
VC-AML 8	**1852833**	50

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AMLV 2	**1884979**	50
VC-AMLV 6	**1884872**	50
VC-AMLV 8	**1884885**	50

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AR1/2M	**1852972**	5
VC-AR2/3M	**1852985**	5
VC-AR3/4M	**1852998**	5
VC-AR4/5M	**1853007**	5
VC-AR1-EMV	**1853214**	5
VC-AR2-EMV	**1853227**	5
VC-AR3-EMV	**1853230**	5
VC-AR4-EMV	**1853243**	5
VC-AF	**1852862**	50

Panel feed-through with power crimp connection



Notes:

16 mm² contacts can only be crimped by machine.

For mounting cutout, see page 56

For accessories, refer to page 50



POWER crimp contact inserts

Advantages:

- No need for panel mounting frame
- No need for panel mounting flange
- Simply snap into the VC-AR... panel cutout and you're done!
- Crimp contacts are released using flat-bladed screwdriver

Typical applications

- Motors
- Inverter AC output
- Power supplies

Notes:

- VARIOCON contact insert modules meet the requirements of DIN EN 61984 (connectors without switching capacity)
- They should, therefore, only be operated under no load condition
- All inserts are protected against finger contact according to DIN EN 60529
- They fulfil the requirements of BGV A2 accident prevention regulations
- Combination with other VC modules is not possible

Technical data

Rated voltage	[V]	690
Rated current	[A]	70
Insertion/withdrawal cycles		≥ 50

Ordering data

Description	Design	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact carriers for pin crimp contacts, for snapping into mounting panel					
	VC2	4	**VC-AMC 4**	**1583877**	5
	VC3	5	**VC-AMC 5**	**1583878**	5
Crimp contacts, for conductor cross section:					
4 mm²					
10 mm²					
16 mm²					
Crimp contacts, taped, for conductor cross section:					
4 mm²					
10 mm²					
Crimping tool, for crimp contacts					
IPCC 16-4...		1			
IPCC 16-10...		1			



Power crimp contacts



Crimping tool

Technical data		
4 mm²	10 mm²	16 mm²
-	-	-
32	50	60
>= 25	>= 25	≥ 50

Technical data
-
-
-

Ordering data

Type	Order No.	Pcs. / Pkt.
IPCC 16- 4-MT	**1733385**	100
IPCC 16-10-MT	**1733372**	100
IPCC 16-16-MT	**1733367**	100
IPCC 16- 4-MT BAND	**1761467**	3800
IPCC 16-10-MT BAND	**1761470**	2700

Ordering data

Type	Order No.	Pcs. / Pkt.
CRIMPFOX PCC 16 CS 4QMM	**1743427**	1
CRIMPFOX PCC 16 CS 10QMM	**1743430**	1

Supporting base elements and contact inserts with screw connection

– The panel mounting bases are designed for panel feed-throughs and create space in the interior of the device.
– Box mounting elements make it possible for the plug-in wiring to be directly on the device panel.
– Coupling housings are suitable for free-hanging connections where jumpering is necessary in the field.

Notes:
For dimensional drawings, refer to page 54
For drilling diagrams, see page 55
For accessories, refer to page 50



Contact insert modules



Panel mounting frames with PE

Technical data

		VC-AMS 2	VC-AMS 6	VC-AMS 8
Rated voltage	[V]	400	250	160
Rated current	[A]	20	10	10
Material data				
Housing material		-	-	-
Housing surface material		-	-	-
Degree of protection		-	-	-
Connection cross section	[mm²]	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
Insertion/withdrawal cycles		≥ 100	≥ 100	≥ 100

Technical data

-
-
-
-
-
0.5 mm² ... 4 mm² (for PE conductor)
-

Ordering data

Description	Design	Module slots	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact insert module, marking on screw connection:						
		1	2	**VC-AMS 2**	**1853528**	50
		1	6	**VC-AMS 6**	**1854019**	50
		1	8	**VC-AMS 8**	**1854022**	50
Contact insert module, marking on screw connection:						
PE, 2		1	2	**VC-AMS 2-PE**	**1583542**	50
PE, 2 ... 6		1	6	**VC-AMS 6-PE**	**1583555**	50
PE, 2 ... 8		1	8	**VC-AMS 8-PE**	**1583568**	50
Panel mounting frame, with PE, for VARIOCON supporting base elements with voltages > 42 V						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				
Housing, metal, powder-coated						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AR1/2M-PEA	**1607761**	1
VC-AR2/3M-PEA	**1607774**	1
VC-AR3/4M-PEA	**1607787**	1
VC-AR4/5M-PEA	**1607790**	1

Accessories

Marker labels, unprinted, 5-section, for individual labeling with B-STIFT or CMS system (25 labels per pack), white			

Accessories



Panel mounting base with open bottom



Box mounting base with fixing holes



Coupling housing with enclosed bottom

Technical data	
VC-MP-A...	
-	
-	
Zinc die-cast	
Powder coating	
IP65/IP66/IP67	
-	
-	

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
VC-MP-A1	**1884403**	5
VC-MP-A2	**1884416**	5
VC-MP-A3	**1884429**	5
VC-MP-A4	**1884432**	5

Accessories		
VC-BZS WH	**1852875**	5

Technical data	
VC-MP-S...	
-	
-	
Zinc die-cast	
Powder coating	
IP65/IP66/IP67	
-	
-	

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
VC-MP-S1	**1884720**	5
VC-MP-S2	**1884733**	5
VC-MP-S3	**1884746**	5
VC-MP-S4	**1884759**	5

Accessories		
VC-BZS WH	**1852875**	5

Technical data	
VC-MP-K...	
-	
-	
Zinc die-cast	
Powder coating	
IP65/IP66/IP67	
-	
-	

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
VC-MP-K1	**1884568**	5
VC-MP-K2	**1884571**	5
VC-MP-K3	**1884584**	5
VC-MP-K4	**1884597**	5

Accessories		
VC-BZS WH	**1852875**	5

Sleeve frames and contact inserts

Notes:
For dimensional drawings, refer to page 54
For accessories, refer to page 50



- Contact insert sets make logistics easier
- Positions are consecutively marked with PE and from 1 to n.
- On the panel mounting frame, each module position is labeled from A-E

Advantages:

- Proven COMBICON technology
- Can be coded to prevent confusion of connectors
- Suitable for universal connection
- Compact design

Notes:

- The hinged cover on the power contact inserts must be closed after assembly to maintain insulation data
- VARIOCON contact insert modules meet the requirements of DIN EN 61984 (connectors without switching capacity)
- They should, therefore, only be operated under no load condition
- All inserts are protected against finger contact according to DIN EN 60529
- They fulfil the requirements of BGV A2 accident prevention regulations
- An insertion bridge EB3-10/ST (Order No. 5020823) is available for the power contact insert modules
- The power contact inserts cannot be used in VC supporting elements for space reasons



Contact insert sets

Technical data

		VC-TR...S2...	VC-TR...S6...	VC-TR...S8...
Rated voltage	[V]	400	250	160
Rated current	[A]	20	10	10
Connection cross section	[mm²]	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
Insertion/withdrawal cycles		≥ 100	≥ 100	≥ 100

Ordering data

Description	Design	Module slots	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 2-pos. modules with screw connection, six coding profiles						
	VC1	2	4	**VC-TR1/2M-PEA-S22-SET**	**1607143**	5
	VC2	3	6	**VC-TR2/3M-PEA-S222-SET**	**1607154**	5
	VC3	4	8	**VC-TR3/4M-PEA-S2222-SET**	**1607167**	5
	VC4	5	10	**VC-TR4/5M-PEA-S22222-SET**	**1607178**	5
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 6-pos. modules with screw connection, six coding profiles						
	VC1	2	12	**VC-TR1/2M-PEA-S66-SET**	**1607191**	5
	VC2	3	18	**VC-TR2/3M-PEA-S666-SET**	**1607202**	5
	VC3	4	24	**VC-TR3/4M-PEA-S6666-SET**	**1607215**	5
	VC4	5	30	**VC-TR4/5M-PEA-S66666-SET**	**1607226**	5
Contact insert set, consisting of: frame, four mounting screws and pre-assembled 8-pos. modules with screw connection, six coding profiles						
	VC1	2	16	**VC-TR1/2M-PEA-S88-SET**	**1607239**	5
	VC2	3	24	**VC-TR2/3M-PEA-S888-SET**	**1607250**	5
	VC3	4	32	**VC-TR3/4M-PEA-S8888-SET**	**1607263**	5
	VC4	5	40	**VC-TR4/5M-PEA-S88888-SET**	**1607274**	5
Sleeve contact insert module, with PE conductor connection to the metal sleeve housing and integrated sleeve frame						
	VC2		4			
	VC3		5			
	VC4		7			
Sleeve contact insert module, with PE conductor connection to the metal sleeve housing						
One extra module	VC3	3	4			
Two extra modules	VC4	3	4			
One extra module	VC4	4	5			
Contact insert module, marking on screw connection:						
1 ... 2		1	2			
1 ... 6		1	6			
1 ... 8		1	8			
Contact insert module, marking on screw connection:						
PE, 2		1	2			
PE, 2 ... 6		1	6			
PE, 2 ... 8		1	8			
Sleeve frame, with PE, for contact insert modules in metal sleeves and operating voltages > 42 V						
	VC1	2				
	VC2	3				
	VC3	4				
	VC4	5				



Power contact insert modules



Contact insert modules



Hood frames with PE

Technical data			
	VC-TFS 2	VC-TFS 6	VC-TFS 8
690	400	250	160
70	20	10	10
0.5 mm² ... 16 mm²	0.2 ... 4	0.14 ... 1.5	0.14 ... 1.5
≥ 50	≥ 100	≥ 100	≥ 100

Technical data	
-	
-	
0.5 mm² ... 4 mm² (for PE conductor)	
-	

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-TFS 4-PEA	1607467	5
VC-TFS 5-PEA	1607474	5
VC-TFS 7-PEA	1607481	5
VC-TFS 4/1M-PEA	1607488	5
VC-TFS 4/2M-PEA	1607495	5
VC-TFS 5/1M-PEA	1607502	5

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-TFS 2	1852846	50
VC-TFS 6	1853476	50
VC-TFS 8	1852820	50
VC-TFS 2-PE	1583513	50
VC-TFS 6-PE	1583526	50
VC-TFS 8-PE	1583536	50

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-TR1/2M-PEA	1607059	5
VC-TR2/3M-PEA	1607062	5
VC-TR3/4M-PEA	1607075	5
VC-TR4/5M-PEA	1607088	5

Sleeve housing

Notes:
For dimensional drawings, see from page 58
For cable glands, see from page 42





Die-cast aluminum sleeve housing with metric cable outlet

- There is no need for a panel mounting base with standard panel feed-throughs.
- Seal housing directly to the wall with two attachment screws.

This screw locking is:
- Space-saving
- Easily accessible from above
- Vibration-resistant
- Conformant with requirements for protection up to IP69K
- Knurled head screw for fixing without tools
- Cylinder head screw for operation with standard bladed screwdriver

Advantages:
- Angled cable outlet so the cable can be routed as desired, from the side and straight
- Aluminum housing with extended cabling space for high-position and power contact inserts
- This allows space for M32 cable glands
- Housings with two cable inlets are available

For EMC applications:
- Conductive seals
- Mounting panel must also be conductive

Technical data

	Cylinder head locking	Knurled head locking
Degree of protection	IP65/IP68/IP69K	IP65/IP68/IP69K
Seal material	NBR, conductive	NBR, conductive

Ordering data

Description	Design	Screw connection	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
			Cylinder head locking		Knurled head locking	
Sleeve housing, with metric cable outlet and screw locking						
	VC1	M20 x 1.5	**1583597**	5	**1583610**	5
	VC1	M25 x 1.5	**1583607**	5	**1583623**	5
	VC2	M20 x 1.5	**1583636**	5	**1583652**	5
	VC2	M25 x 1.5	**1583649**	5	**1583665**	5
	VC3	M25 x 1.5	**1583678**	5	**1583704**	5
	VC3	M25/M20 x 1.5	**1583681**	5	**1583717**	5
	VC3	M32 x 1.5	**1583694**	5	**1583720**	5
	VC4	M25 x 1.5	**1583733**	5	**1583762**	5
	VC4	M25/M20 x 1.5	**1583746**	5	**1583775**	5
	VC4	M32 x 1.5	**1583759**	5	**1583788**	5
Sleeve housing, with metric cable outlet and screw locking						
	VC1	M20				
	VC2	M25				
	VC3	M25				
	VC4	M25				
Sleeve housing , with Pg screw connection gland and screw locking						
	VC1	Pg16				
	VC2	Pg21				
	VC3	Pg21				
	VC4	Pg21				
Sleeve housing, black, locking screws with Allen screw head, **housing material:**						
PA	VC2	Pg29				
PBT	VC3	Pg29				
Sleeve housing, plastic, locking screws with plus/minus head						
	VC2	6 x 20.5 mm				
	VC2	7.5 x 29.5 mm				
	VC2	6 x 24 mm				
	VC2	9 x 35 mm				



Polyamide sleeve housing with metric cable outlet



Polyamide sleeve housing, with Pg screw connection gland



Special types

Technical data		Technical data		Technical data	
Cylinder head locking	**Knurled head locking**	**Cylinder head locking**	**Knurled head locking**	**Power sleeve housing**	**Flat-ribbon cable sleeve housing**
IP65	IP65	IP67	IP67	IP65, IP67, IP68	IP54
EPDM	EPDM	EPDM	EPDM	NBR	EPDM

Ordering data				Ordering data				Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
Cylinder head locking		**Knurled head locking**		**Cylinder head locking**		**Knurled head locking**		**Power sleeve housing**		**Flat-ribbon cable sleeve housing**	
1852935	5	**1855097**	5								
1852948	5	**1855107**	5								
1852961	5	**1855120**	5								
1852974	5	**1855133**	5								
				1852930	5	**1855092**	5				
				1852943	5	**1855102**	5				
				1852956	5	**1855115**	5				
				1852969	5	**1855128**	5				
								1583880	1		
								1424368	1		
										1607703	10
										1607680	10
										1607677	10
										1607693	10

FO contact insert modules with screw connection

Notes:

Other fiber optic accessories and cables can be found from page 126



The fiber optic modules of VARIOCON enable optical signal transmission over distances of up to 50 m by using polymer fiber optic cables.

Quick-assembly on the connector side and passive panel feed-through make assembly possible in 2 minutes, even in the field.

The single core is stripped, fixed in the ferrule with the knurled screw and then polished for the optical connection.

Coding:

The FO contact insert modules can be additionally protected against incorrect plugging with the red CP-HCC 4 coding profiles (Order No. 1600027).

Instructions for the fiber optic module

– Do not exceed the permissible bending radii for fiber optics
– Follow the instructions on the package slip when handling individual conductors
– Using a passive coupling reduces the transmission range by approx. 10 m



Contact insert module ferrules with F-SMA screw connection

Technical data

Material data		
Contact material		Nickel silver
Contact carrier material		PA
Inflammability class in acc. with UL 94		V0
Mechanical data		
Connection profile		F-SMA type 905, IEC 874-2
Torque value knurled screw		0.1 Nm (hand tight)
Connection data		
Stripping length	[mm]	12
Cable type		Polymer fiber (980 / 1000 µm)
Insertion/withdrawal cycles		> 100
Attenuation		< 3 dB
Temperature data		
Ambient temperature (operation)		-20 °C ... 70 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Contact insert module, for sleeve frames	**VC-TFOS 2**	**1855814**	10
Contact insert module, for panel mounting frames for accommodating VC-FSMA-M ... quick mounting connectors			
FSMA connector, for polymer fiber cable, for contact carrier module VC-AFOS 2, (2 pcs. each as set)			
FSMA connector set, with bend protection sleeve for polymer fiber cable, for contact carrier module VC-AFOS 2, (2 pcs. each as set)			

Accessories

Stripping tool for FO cables	**PSM-FO-STRIP**	**2744199**	1
Polisher, metal, for repeated preparation of VARIOCON fiber optic ferrules	**VC-POLISHER/M FSMA**	**1884982**	1
Polymer fiber polishing set for quick mounting connectors, comprising polishing pads and polishing disks	**PSM-SET-FSMA-POLISH**	**2799348**	1



Mounting contact insert



F-SMA quick mounting plug for polymer fiber cables



F-SMA quick mounting plug for polymer fiber cables

Technical data

Nickel silver	
PA	
V0	
F-SMA type 905, IEC 874-2	
0.1 Nm (hand tight)	
12	
Polymer fiber (980 / 1000 µm)	
> 100	
< 3 dB	
-20 °C ... 70 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-AFOS 2	1885240	10

Accessories

Technical data

Nickel silver	
-	
-	
F-SMA type 905, IEC 874-2	
0.1 Nm (hand tight)	
12	
Polymer fiber (980 / 1000 µm)	
> 100	
< 3 dB	
-20 °C ... 70 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-FSMA-M-2 SET	1855432	1

Accessories

PSM-FO-STRIP	2744199	1
VC-POLISHER/M FSMA	1884982	1
PSM-SET-FSMA-POLISH	2799348	1

Technical data

Nickel silver	
-	
-	
F-SMA type 905, IEC 874-2	
0.1 Nm (hand tight)	
-	
Polymer fiber (980 / 1000 µm)	
> 100	
< 3 dB	
-20 °C ... 70 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-FSMA-M-KT-2 SET	1855703	1

Accessories

PSM-FO-STRIP	2744199	1
VC-POLISHER/M FSMA	1884982	1
PSM-SET-FSMA-POLISH	2799348	1

Contact carriers for turned and rolled crimp contacts





Pin contact carrier for turned and rolled contacts

- 15, 30, 50, and 65 positions are available, in accordance with housing sizes VC 1 - VC 4
- Pin and socket contacts can be used on both the connector and device sides
- Contact carriers additionally have two pre-mating protective ground contacts
- Connection data is 250 V/10 A and corresponds to that of the HEAVYCON DD series.
- Use of turned and even rolled contacts
- Contact types meet the requirements of IEC 60352/DIN EN 60352

Safety note:

- PE conductor must always be connected to the directly opposite positions
- Connectors may only be operated when not under load.

Technical data

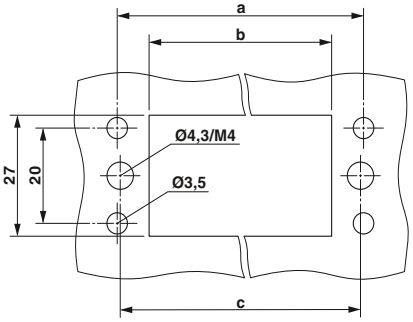
Electrical data in acc. with IEC 61076-2-101		
Rated voltage	[V]	250
Rated surge voltage	[kV]	4
Rated current	[A]	10
Surge voltage category / pollution degree		III / 2
Material data		
Contact carrier material		PA-GF
Connection data		
Stripping length	[mm]	8
Connection cross section	[mm²]	0.14 mm² ... 1.5 mm² (stranded)
Connection cross section	AWG	22 ... 16
Temperature data		
Ambient temperature (operation)		-40 °C ... 125 °C

Ordering data

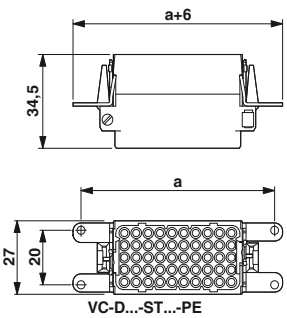
Description	Design	Number of positions Incl. PE	Type	Order No.	Pcs. / Pkt.
Contact carrier, with four ST 2,9 fastening screws					
	VC1	15	**VC-D1-ST15-PE**	**1855018**	10
	VC2	30	**VC-D2-ST30-PE**	**1855021**	10
	VC3	50	**VC-D3-ST50-PE**	**1855034**	10
	VC4	65	**VC-D4-ST65-PE**	**1855047**	10
Mounting flange, to screw the contact insert to the housing panel			**VC-D-AF**	**1855319**	20
Coding pins, with ST2,9 thread for sleeve housings, to prevent identical plug-in connectors from being confused			**VC-CB-T**	**1607884**	10
Coding pins, with M3 thread for VC panel mounting bases, to prevent identical plug-in connectors from being confused			**VC-CB-A**	**1607888**	10

Design	Number of positions	a [mm]	b [mm]	c [mm]
VC 1	15	42.8	31.5	40.0
VC 2	30	57.8	46.5	55.0
VC 3	50	72.8	61.5	70.0
VC 4	65	87.8	76.5	85.0

Dimensions table



Mounting cutout for VC-D...-PE



VC-D...-ST...-PE



**Socket contact carrier,
for turned contacts**



**Socket carrier,
for rolled contacts**

Technical data

250	
4	
10	
III / 2	
PA-GF	
8	
0.14 mm² ... 1.5 mm² (stranded)	
22 ... 16	
-40 °C ... 125 °C	

Technical data

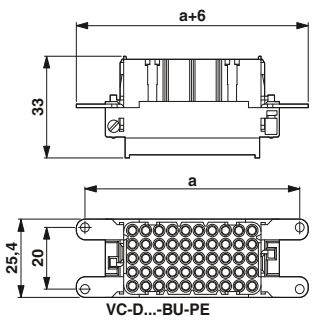
250	
4	
10	
III / 2	
PA-GF	
8	
0.14 mm² ... 1.5 mm² (stranded)	
22 ... 16	
-40 °C ... 125 °C	

Ordering data

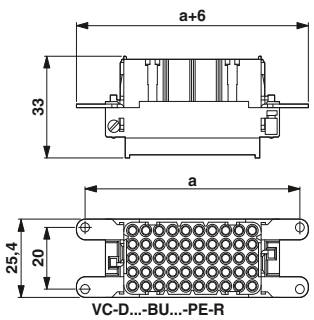
Type	Order No.	Pcs. / Pkt.
VC-D1-BU15-PE	**1855050**	10
VC-D2-BU30-PE	**1855063**	10
VC-D3-BU50-PE	**1855076**	10
VC-D4-BU65-PE	**1855089**	10
VC-D-AF	**1855319**	20
VC-CB-T	**1607884**	10
VC-CB-A	**1607888**	10

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-D1-BU15-PE-R	**1884801**	10
VC-D2-BU30-PE-R	**1884791**	10
VC-D3-BU50-PE-R	**1884788**	10
VC-D4-BU65-PE-R	**1884775**	10
VC-D-AF	**1855319**	20
VC-CB-T	**1607884**	10
VC-CB-A	**1607888**	10



VC-D...-BU-PE



VC-D...-BU...-PE-R

Crimp contacts

The quality of a crimp connection is specified in DIN EN 60352 Part 2. The single most important criterion for the reliability of a crimp connection is the holding force of the litz wires in the crimp contact. DIN EN 60352-2 describes the extraction force of the cores from the crimp contact in relation to the conductor cross section.

Notes:

For voltages less than 5 V and currents less than 5 mA, gold-plated contacts are recommended.

Crimping pliers can be found in Catalog 4, in the "Heavy-duty plug-in connectors" section.



Turned crimp contacts, Ø 1.6 mm, for VC-D contact carriers



Rolled crimp contacts, taped, Ø 1.6 mm, for VC-D...R contact carriers, contact entry from left

Technical data

Material data	Hard silver-plated	Hard gold-plated
Contact material	Copper alloy	Copper alloy
Stripping length of the individual wire	8 mm (6 mm in case of 2.5 mm²)	8 mm (6 mm in case of 2.5 mm²)
Insertion/withdrawal cycles	≥ 500	≥ 500
Ambient temperature (operation)	-40 °C ... 125 °C	-40 °C ... 125 °C

Technical data

CK1,6-BR-0,5...	CK1,6-BR-1,5...
Copper alloy	Copper alloy
3 mm +1	3.5 mm +1
≥ 500	≥ 500
-40 °C ... 125 °C	-40 °C ... 125 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Turned socket contacts, silver-plated contact surface, for conductor cross section:			
0.14 mm² ... 0.37 mm²/26 ... 22 AWG	**CK1,6-ED-0,37BU AG**	**1663394**	100
0.50 mm² / AWG 20	**CK1,6-ED-0,50BU AG**	**1663404**	100
0.75 mm² / AWG 18	**CK1,6-ED-0,75BU AG**	**1663417**	100
0.75 mm² ... 1.00 mm² / AWG 18	**CK1,6-ED-1,00BU AG**	**1663420**	100
1.50 mm² / AWG 16	**CK1,6-ED-1,50BU AG**	**1663433**	100
2.50 mm² / AWG 14	**CK1,6-ED-2,50BU AG**	**1663446**	100
Turned pin contacts, silver-plated contact surface, for conductor cross section:			
0.14 mm² ... 0.37 mm² / AWG 26 ... 22	**CK1,6-ED-0,37ST AG**	**1663336**	100
0.50 mm² / AWG 20	**CK1,6-ED-0,50ST AG**	**1663349**	100
0.75 mm² / AWG 18	**CK1,6-ED-0,75ST AG**	**1663352**	100
0.75 mm² ... 1.00 mm² / AWG 18	**CK1,6-ED-1,00ST AG**	**1663365**	100
1.50 mm² / AWG 16	**CK1,6-ED-1,50ST AG**	**1663378**	100
2.50 mm² / AWG 14	**CK1,6-ED-2,50ST AG**	**1663381**	100
Turned socket contacts, gold-plated contact surface, for conductor cross section:			
0.14 mm² ... 0.37 mm²/26 ... 22 AWG	**CK1,6-ED-0,37BU AU**	**1674969**	100
0.50 mm² / AWG 20	**CK1,6-ED-0,50BU AU**	**1674480**	100
0.75 mm² / AWG 18	**CK1,6-ED-0,75BU AU**	**1672440**	100
0.75 mm² ... 1.00 mm² / AWG 18	**CK1,6-ED-1,00BU AU**	**1674943**	100
1.50 mm² / AWG 16	**CK1,6-ED-1,50BU AU**	**1674930**	100
2.50 mm² / AWG 14	**CK1,6-ED-2,50BU AU**	**1674985**	100
Turned pin contacts, gold-plated contact surface, for conductor cross section:			
0.14 mm² ... 0.37 mm² / AWG 26 ... 22	**CK1,6-ED-0,37ST AU**	**1674901**	100
0.50 mm² / AWG 20	**CK1,6-ED-0,50ST AU**	**1672453**	100
0.75 mm² / AWG 18	**CK1,6-ED-0,75ST AU**	**1674914**	100
0.75 mm² ... 1.00 mm² / AWG 18	**CK1,6-ED-1,00ST AU**	**1674888**	100
1.50 mm² / AWG 16	**CK1,6-ED-1,50ST AU**	**1674875**	100
2.50 mm² / AWG 14	**CK1,6-ED-2,50ST AU**	**1674927**	100
Rolled pin contacts, silver-plated contact surface, for conductor cross section:			
0.14 mm² ... 0.50 mm² / AWG 26 ... 20	**CK1,6-BR-0,50ST AG**	**1884157**	2000
0.50 mm² ... 1.50 mm² / AWG 20 ... 16	**CK1,6-BR-1,50ST AG**	**1884144**	2000
Rolled socket contacts, silver-plated contact surface, for conductor cross section:			
0.14 mm² ... 0.50 mm² / AWG 26 ... 20	**CK1,6-BR-0,50BU AG**	**1884186**	2000
0.50 mm² ... 1.50 mm² / AWG 20 ... 16	**CK1,6-BR-1,50BU AG**	**1884173**	2000
POF fiber optic contact, turned, for VC-D contact carriers			
Socket			
Plug			



Rolled crimp contacts, single contacts, Ø 1.6 mm, for VC-D...R contact carriers



Crimp contacts for fiber optic cables, polymer fibers (POF)

☞

Technical data	
CK1,6-ER-0,5...	**CK1,6-ER-1,5...**
Copper alloy	Copper alloy
3 mm +0.5	3.5 mm +1
≥ 500	≥ 500
-40 °C ... 125 °C	-40 °C ... 125 °C

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
CK1,6-ER-0,50ST AG	**1884092**	100
CK1,6-ER-1,50ST AG	**1884089**	100
CK1,6-ER-0,50BU AG	**1884128**	100
CK1,6-ER-1,50BU AG	**1884115**	100

☞

Technical data		
Nickel silver		
-		
≥ 500		
-		

Ordering data		
Type	**Order No.**	Pcs. / Pkt.
CK1,6-ED-BU-POF	**1885004**	50
CK1,6-ED-ST-POF	**1884995**	50

Full cable glands





Plastic gland

Plastic cable screw connections are easy to install and cover a wide range of conductor diameters, thanks to the clamping cage principle combined with excellent strain relief. They are suitable for universal application in mechanical and plant engineering, in measuring and control technology, in automation and electrical engineering and in robot construction.

- Full screw connection for use in housing with thread
- High strain relief forces and high cable diameter ranges thanks to clamping cage principle
- Brass screw connections for especially high demands in terms of stability and safety
- EMC screw connections offer an easy way of connecting shielded cables
- Easy to assemble thanks to highly elastic contact springs
- AS-Interface screw connections are available for inserting AS-Interface cables

Technical data

Material data	
Cable gland material	Polyamide
Material, insert	-
Seal material	Neoprene
Material, O-ring	-
Inflammability class according to UL 94	V2
Mechanical data	
Degree of protection	IP68, to 5 bar
Temperature data	
Ambient temperature (operation)	-20 °C ... 100 °C

Ordering data

Description	Thread type	Type	Order No.	Pcs. / Pkt.
Plastic gland, gray, for cable diameter [mm]:				
8 mm ... 13 mm	M20	**HC-K-KV-M20(8-13)**	**1690626**	25
11 mm ... 17 mm	M25	**HC-K-KV-M25(11-17)**	**1690639**	25
15 mm ... 21 mm	M32	**HC-K-KV-M32(15-21)**	**1690642**	10
Metal gland, for conductor diameter [mm]:				
9 mm ... 13 mm	M20			
11 mm ... 16 mm	M20			
11 mm ... 16 mm	M25			
14 mm ... 21 mm	M25			
14 mm ... 21 mm	M32			
19 mm ... 27 mm	M32			
EMC screw connection, for conductor diameter [mm]:				
7 mm ... 12.5 mm	M20			
9 mm ... 16.5 mm	M25			
11 mm ... 21 mm	M32			
Metal gland, for AS-Interface flat-ribbon conductor				
Thread type: M20	M20			
Thread type: M25	M25			
Special cable screw connection M25, brass				
With 10 mm and 11 mm hole	M25			

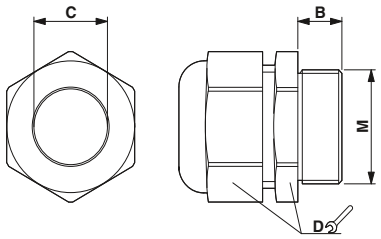


Metal gland



EMC gland

Type	Dimensions [mm] B	C	Thread M	D
HC-K-KV-M20...	8	13.5	20	24
HC-K-KV-M25...	8	17.5	25	29
HC-K-KV-M32...	10	21.5	32	36



Dimensional drawing: HC-K-KV-M...

Technical data

Nickel-plated brass	Nickel-plated brass
PA	PA
Neoprene	TPE
NBR	NBR
-	-
IP68, to 5 bar	IP65
-20 °C ... 100 °C	-20 °C ... 100 °C

Technical data

Nickel-plated brass
PA
Neoprene
NBR
-
IP68, to 5 bar
-20 °C ... 100 °C

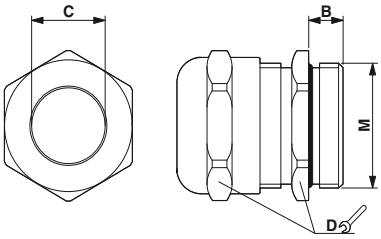
Ordering data

Type	Order No.	Pcs. / Pkt.
HC-M-KV-M20(9-13)	**1690561**	25
HC-M-KV-M20(11-16)	**1645998**	25
HC-M-KV-M25(11-16)	**1690574**	25
HC-M-KV-M25(14-21)	**1646007**	25
HC-M-KV-M32(14-21)	**1690587**	10
HC-M-KV-M32(19-27)	**1646010**	10
HC-M-KV-M20(1ASI)	**1584017**	10
HC-M-KV-M25(1ASI)	**1584020**	10
HC-M-KV-M25(1X10/1X11)	**1580228**	10

Ordering data

Type	Order No.	Pcs. / Pkt.
HC-EMV-KV-M20(7-12,5)	**1690503**	25
HC-EMV-KV-M25(9-16,5)	**1690516**	25
HC-EMV-KV-M32(11-21)	**1690529**	25

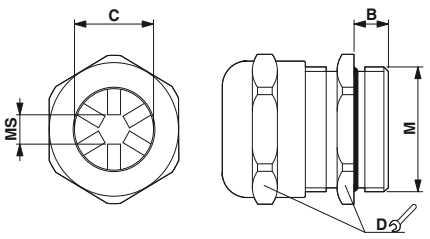
Type	Dimensions [mm] B	C	Thread M	D
HC-M-KV-M20(9-13)	6	13.3	20	22
HC-M-KV-M20(11-16	6	16.2	20	27
HC-M-KV-M25(11-16)	7	17.3	25	27
HC-M-KV-M25(14-21)	7	21.2	25	34
HC-M-KV-M32(14-21)	8	21.3	32	34
HC-M-KV-M32(19-27)	8	27.5	32	43
HC-M-KV-M20(1ASI)	6	-	20	22
HC-M-KV-M25(1ASI)	7	-	25	27
HC-M-KV-M25(1X10X11)	7	-	25	34



Dimensional drawing: HC-M-KV-M...

Type	Dimensions [mm] B	C	M	MS[1]	D
HC-EMV-KV-M20...	8	12.5	20	5	24
HC-EMV-KV-M25...	8	16.5	25	7.5	29
HC-EMV-KV-M32...	9	21.0	32	9	36

[1] Minimum shield diameter



Dimensional drawing: HC-EMV-KV-M...

Pg16 cable glands for one cable



Screw connection with plastic pressure screw



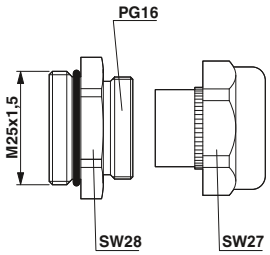
Screw connection with brass pressure screw, EMC screw connections with iris spring

Technical data

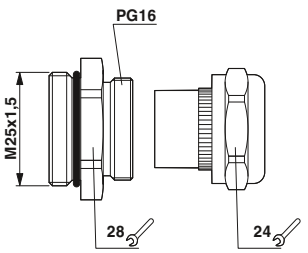
Material data		
Sealing material	TPE	TPE
Cable gland material	-	-
Material, pressure screw	Polyamide	Nickel-plated brass
Degree of protection	IP67	IP67
Torque [Nm]	5.00	7.50
Ambient temperature (operation)	-20 °C ... 100 °C	-40 °C ... 125 °C

Ordering data

Description	Cable Ø [mm]	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M25							
		VC-M-KV-PG16/M25 ST	**1644407**	10	**VC-M-KV-PG16/M25 ST**	**1644407**	10
Half screw connection Pg16, consisting of rubber seal with a hole and a pressure screw, for type VC1 housing							
	4 ... 6.5	**VC-K-KV-PG16(4- 6,5)**	**1854459**	5	**VC-M-KV-PG16(4- 6,5)**	**1853942**	5
	5 ... 8	**VC-K-KV-PG16(5- 8)**	**1853735**	5	**VC-M-KV-PG16(5- 8)**	**1853955**	5
	6,5 ... 9.5	**VC-K-KV-PG16(6,5- 9,5)**	**1853748**	5	**VC-M-KV-PG16(6,5- 9,5)**	**1853968**	5
	7 ... 10.5	**VC-K-KV-PG16(7-10,5)**	**1853751**	5	**VC-M-KV-PG16(7-10,5)**	**1853971**	5
	9 ... 13	**VC-K-KV-PG16(9-13)**	**1853764**	5	**VC-M-KV-PG16(9-13)**	**1853984**	5
	11,5 ... 15.5	**VC-K-KV-PG16(11,5-15,5)**	**1854844**	5	**VC-M-KV-PG16(11,5-15,5)**	**1854857**	5
Elongated hole	7 x 14	**VC-K-KV-PG16 7/14**	**1607664**	5	**VC-M-KV-PG16 2X6/1X7**	**1885512**	5
	3 x 7	**VC-K-KV-PG16 3X7**	**1885444**	5	**VC-M-KV-PG16 3X7**	**1885525**	5
EMC half screw connection Pg16, for metal housing, consisting of rubber seal, iris spring, cone disc and pressure screw, for type VC1 housing, shield diameter:							
6.5 mm	6.5 ... 9.5				**VC-EMV-KV-PG16(6,5- 9,5/ 6,5)**	**1854132**	1
8.5 mm	7 ... 10.5				**VC-EMV-KV-PG16(7-10,5/ 8,5)**	**1854161**	1
10.5 mm	9 ... 13				**VC-EMV-KV-PG16(9-13/10,5)**	**1854174**	1
Closing cap, for closing unused bore holes in multiple seals and cable glands							
Ø 3 mm		**SEALING PLUG 3X12 RD**	**1400238**	10	**SEALING PLUG 3X12 RD**	**1400238**	10
Ø 5 mm		**SEALING PLUG 5X12 RD**	**1400253**	10	**SEALING PLUG 5X12 RD**	**1400253**	10
Ø 6 mm		**SEALING PLUG 6X16 RD**	**1400254**	10	**SEALING PLUG 6X16 RD**	**1400254**	10
Ø 7 mm		**SEALING PLUG 7X16 RD**	**1400255**	10	**SEALING PLUG 7X16 RD**	**1400255**	10
Ø 8 mm		**SEALING PLUG 8X16 RD**	**1400257**	10	**SEALING PLUG 8X16 RD**	**1400257**	10
Ø 12 mm		**SEALING PLUG 12X22 RD**	**1400260**	10	**SEALING PLUG 12X22 RD**	**1400260**	10



VC-M-KV-PG16/M25 ST / VC-K-KV-PG16...



VC-M-KV-PG16/M25 ST / VC-M-KV-PG16...

Pg21 cable glands for one cable



Screw connection with plastic pressure screw



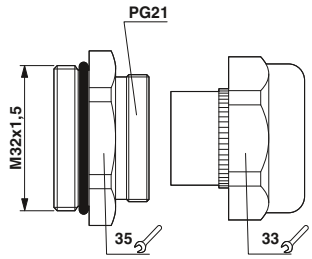
Screw connection with brass pressure screw, EMC screw connections with iris spring

Technical data

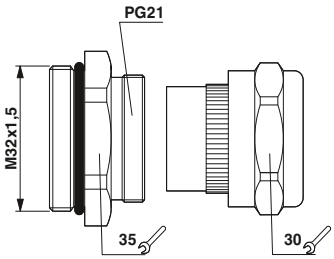
Material data			
Sealing material		TPE	TPE
Cable gland material		-	-
Material, pressure screw		Polyamide	Nickel-plated brass
Degree of protection		IP67	IP67
Torque	[Nm]	7.50	10.00
Ambient temperature (operation)		-20 °C ... 100 °C	-40 °C ... 125 °C

Ordering data

Description	Cable Ø [mm]	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M32							
		VC-M-KV-PG21/M32 ST	**1644397**	10	**VC-M-KV-PG21/M32 ST**	**1644397**	10
Half screw connection Pg21, consisting of rubber seal with a hole and a pressure screw, for type VC2 ... VC4 housing							
	7 ... 10.5	**VC-K-KV-PG21(7-10,5)**	**1853890**	5	**VC-M-KV-PG21(7-10,5)**	**1853997**	5
	9 ... 13	**VC-K-KV-PG21(9-13)**	**1853900**	5	**VC-M-KV-PG21(9-13)**	**1854006**	5
	11.5 ... 15.5	**VC-K-KV-PG21(11,5-15,5)**	**1853913**	5	**VC-M-KV-PG21(11,5-15,5)**	**1854035**	5
	14 ... 18	**VC-K-KV-PG21(14-18)**	**1853926**	5	**VC-M-KV-PG21(14-18)**	**1854048**	5
	17 ... 20.5	**VC-K-KV-PG21(17-20,5)**	**1853939**	5	**VC-M-KV-PG21(17-20,5)**	**1854051**	5
Elongated hole	20 x 7	**VC-K-KV-PG21(20X7)**	**1885198**	5	**VC-M-KV-PG21(20X 7)**	**1885305**	5
EMC half screw connection Pg21, for metal housing, consisting of rubber seal, iris spring, cone disc and pressure screw, for type VC2 ... VC4 housing, shield diameter:							
9.5 mm	9 ... 13				**VC-EMV-KV-PG21(9-13/ 9,5)**	**1854200**	1
12 mm	9 ... 13				**VC-EMV-KV-PG21(9-13/12)**	**1854213**	1
13.5 mm	11.5 ... 15.5				**VC-EMV-KV-PG21(11,5-15,5/13,5)**	**1854242**	1
14.5 mm	14 ... 18				**VC-EMV-KV-PG21(14-18/14,5)**	**1854255**	1
Dummy screw connection, rubber seal without hole							
		VC-K-KV-PG21-O	**1885363**	5	**VC-M-KV-PG21- 0**	**1854983**	5
Closing cap, for closing unused bore holes in multiple seals and cable glands							
Ø 3 mm		**SEALING PLUG 3X12 RD**	**1400238**	10	**SEALING PLUG 3X12 RD**	**1400238**	10
Ø 5 mm		**SEALING PLUG 5X12 RD**	**1400253**	10	**SEALING PLUG 5X12 RD**	**1400253**	10
Ø 6 mm		**SEALING PLUG 6X16 RD**	**1400254**	10	**SEALING PLUG 6X16 RD**	**1400254**	10
Ø 7 mm		**SEALING PLUG 7X16 RD**	**1400255**	10	**SEALING PLUG 7X16 RD**	**1400255**	10
Ø 8 mm		**SEALING PLUG 8X16 RD**	**1400257**	10	**SEALING PLUG 8X16 RD**	**1400257**	10
Ø 12 mm		**SEALING PLUG 12X22 RD**	**1400260**	10	**SEALING PLUG 12X22 RD**	**1400260**	10
Ø 13 mm		**SEALING PLUG 13X22 RD**	**1400265**	10	**SEALING PLUG 13X22 RD**	**1400265**	10



VC-M-KV-PG21/M32 ST / VC-K-KV-PG21...



VC-M-KV-PG21/M32 ST / VC-M-KV-PG21...

Pg16 cable glands for several cables

The screw connection glands allow multiple grommets to be used.



Screw connection with plastic pressure screw



Screw connection with brass pressure screw

Technical data

	VC-K-KV.../...	VC-M-KV...ST
Material data		
Material	-	Brass, nickel-plated
Sealing material	TPE	-
Material, O-ring	-	NBR
Degree of protection	IP65	-
Temperature data		
Ambient temperature (operation)	-20 °C ... 100 °C	-

Technical data

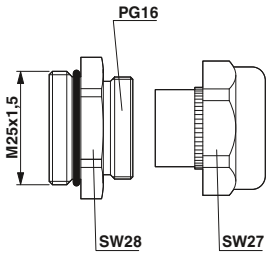
	VC-M-KV.../...	VC-M-KV...ST
Material data		
Material	Brass, nickel-plated	Brass, nickel-plated
Sealing material	TPE	-
Material, O-ring	-	NBR
Degree of protection	IP65	-
Temperature data		
Ambient temperature (operation)	-40 °C ... 125 °C	-

Ordering data

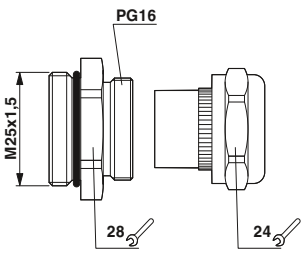
Description	Cable Ø [mm]	Type	Order No.	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M25				
		VC-M-KV-PG16/M25 ST	**1644407**	10
Half screw connection Pg16, consisting of rubber seal with several holes and a pressure screw, for type VC1 housing and HEAVYCON, further types upon request				
	1 x 3 / 1 x 8	**VC-K-KV-PG16 1X3/1X8**	**1885376**	5
	1 x 3 / 1 x 9	**VC-K-KV-PG16 1X3/1X9**	**1885389**	5
	1 x 6 / 1 x 8	**VC-K-KV-PG16 1X6/1X8**	**1885392**	5
	1 x 5 / 1 x 9	**VC-K-KV-PG16 1X5/1X9**	**1885402**	5
	1 x 3 / 2 x 8	**VC-K-KV-PG16 1X3/2X8**	**1885415**	5
	1 x 5 / 2 x 6	**VC-K-KV-PG16 1X5/2X6**	**1885428**	5
	2 x 6 / 1 x 7	**VC-K-KV-PG16 2X6/1X7**	**1885431**	5
	3 x 7	**VC-K-KV-PG16 3X7**	**1885444**	5
Closing cap, for closing unused bore holes in multiple seals and cable glands				
Ø 3 mm		**SEALING PLUG 3X12 RD**	**1400238**	10
Ø 5 mm		**SEALING PLUG 5X12 RD**	**1400253**	10
Ø 6 mm		**SEALING PLUG 6X16 RD**	**1400254**	10
Ø 7 mm		**SEALING PLUG 7X16 RD**	**1400255**	10
Ø 8 mm		**SEALING PLUG 8X16 RD**	**1400257**	10
Ø 12 mm		**SEALING PLUG 12X22 RD**	**1400260**	10
Ø 13 mm		**SEALING PLUG 13X22 RD**	**1400265**	10

Ordering data

Type	Order No.	Pcs. / Pkt.
VC-M-KV-PG16/M25 ST	**1644407**	10
VC-M-KV-PG16 1X3/1X8	**1885457**	5
VC-M-KV-PG16 1X3/1X9	**1885460**	5
VC-M-KV-PG16 1X6/1X8	**1885473**	5
VC-M-KV-PG16 1X5/1X9	**1885486**	5
VC-M-KV-PG16 1X3/2X8	**1885499**	5
VC-M-KV-PG16 1X5/2X6	**1885509**	5
VC-M-KV-PG16 2X6/1X7	**1885512**	5
VC-M-KV-PG16 3X7	**1885525**	5
SEALING PLUG 3X12 RD	**1400238**	10
SEALING PLUG 5X12 RD	**1400253**	10
SEALING PLUG 6X16 RD	**1400254**	10
SEALING PLUG 7X16 RD	**1400255**	10
SEALING PLUG 8X16 RD	**1400257**	10
SEALING PLUG 12X22 RD	**1400260**	10
SEALING PLUG 13X22 RD	**1400265**	10



VC-M-KV-PG16/M25 ST / VC-K-KV-PG16...



VC-M-KV-PG16/M25 ST / VC-M-KV-PG16...

Pg21 cable glands for several cables

The screw connection glands allow multiple grommets to be used.



Screw connection with plastic pressure screw



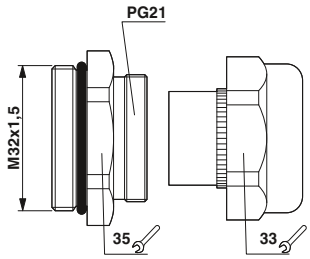
Screw connection with brass pressure screw

Technical data		
	VC-K-KV.../...	VC-M-KV...ST
Material data		
Material	PA	Brass, nickel-plated
Sealing material	TPE	-
Material, O-ring	-	NBR
Degree of protection	IP65	-
Temperature data		
Ambient temperature (operation)	-20 °C ... 100 °C	-

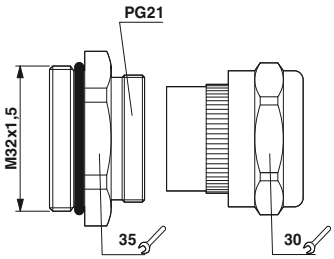
Technical data		
	VC-M-KV.../...	VC-M-KV...ST
Material data		
Material	Brass, nickel-plated	Brass, nickel-plated
Sealing material	TPE	-
Material, O-ring	-	NBR
Degree of protection	IP65	-
Temperature data		
Ambient temperature (operation)	-40 °C ... 125 °C	-

Description	Cable Ø [mm]	Type	Order No.	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M32				
		VC-M-KV-PG21/M32 ST	**1644397**	10
Half screw connection Pg21, consisting of rubber seal, several holes and a pressure screw, for type VC2 ... VC4 and HEAVYCON housing, additional types available on request				
	1 x 6 / 2 x 9	**VC-K-KV-PG21 1X6/2X9**	**1885538**	5
	1 x 8.5 / 1 x 12	**VC-K-KV-PG21-1X8,5/1X12**	**1885279**	5
	2 x 4.5 / 1 x 13	**VC-K-KV-PG21-2X4,5/1X13**	**1885282**	5
	2 x 6 / 2 x 8	**VC-K-KV-PG21 2X6/2X8**	**1885554**	5
	2 x 7.2 / 1 x 10.5	**VC-K-KV-PG21 2X7,2/1X10,5**	**1885567**	5
	3 x 7	**VC-K-KV-PG21 3X7**	**1885570**	5
	3 x 9	**VC-K-KV-PG21 3X9**	**1885583**	5
	4 x 6.5	**VC-K-KV-PG21 4X6,5**	**1885596**	5
	4 x 8	**VC-K-KV-PG21 4X8**	**1885606**	5
Closing cap, for closing unused bore holes in multiple seals and cable glands				
	Ø 3 mm	**SEALING PLUG 3X12 RD**	**1400238**	10
	Ø 5 mm	**SEALING PLUG 5X12 RD**	**1400253**	10
	Ø 6 mm	**SEALING PLUG 6X16 RD**	**1400254**	10
	Ø 7 mm	**SEALING PLUG 7X16 RD**	**1400255**	10
	Ø 8 mm	**SEALING PLUG 8X16 RD**	**1400257**	10
	Ø 12 mm	**SEALING PLUG 12X22 RD**	**1400260**	10
	Ø 13 mm	**SEALING PLUG 13X22 RD**	**1400265**	10

Description	Cable Ø [mm]	Type	Order No.	Pcs. / Pkt.
Cable screw connection gland, for adapting the Pg half screw connections to metric cable entry, M32				
		VC-M-KV-PG21/M32 ST	**1644397**	10
Half screw connection Pg21, consisting of rubber seal, several holes and a pressure screw, for type VC2 ... VC4 and HEAVYCON housing, additional types available on request				
	1 x 6 / 2 x 9	**VC-M-KV-PG21 1X6/2X9**	**1885619**	5
	1 x 8.5 / 1 x 12	**VC-M-KV-PG21- 1X8,5/1X12**	**1854970**	5
	2 x 6 / 2 x 8	**VC-M-KV-PG21 2X6/2X8**	**1885635**	5
	2 x 7.2 / 1 x 10.5	**VC-M-KV-PG21 2X7,2/1X10,5**	**1885648**	5
	3 x 7	**VC-M-KV-PG21 3X7**	**1885651**	5
	3 x 9	**VC-M-KV-PG21 3X9**	**1885664**	5
	4 x 6.5	**VC-M-KV-PG21 4X6,5**	**1885677**	5
	4 x 8	**VC-M-KV-PG21 4X8**	**1885680**	5
Closing cap, for closing unused bore holes in multiple seals and cable glands				
	Ø 3 mm	**SEALING PLUG 3X12 RD**	**1400238**	10
	Ø 5 mm	**SEALING PLUG 5X12 RD**	**1400253**	10
	Ø 6 mm	**SEALING PLUG 6X16 RD**	**1400254**	10
	Ø 7 mm	**SEALING PLUG 7X16 RD**	**1400255**	10
	Ø 8 mm	**SEALING PLUG 8X16 RD**	**1400257**	10
	Ø 12 mm	**SEALING PLUG 12X22 RD**	**1400260**	10
	Ø 13 mm	**SEALING PLUG 13X22 RD**	**1400265**	10



VC-M-KV-PG21/M32 ST / VC-K-KV-PG21...



VC-M-KV-PG21/M32 ST / VC-M-KV-PG21...

Protective covers

– Easy to assemble
– Contact inserts are protected when not plugged in



Protective cover for panel mounting bases and sleeve housings



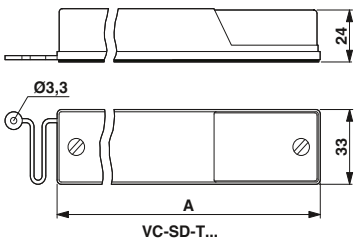
Protective cover for panel mounting frame

	Technical data	Technical data
Material	PA	PA
Inflammability class in acc. with UL 94	V0	V0
Degree of protection	IP50	IP40
Temperature data		
Ambient temperature (operation)	-40 °C ... 80 °C	-40 °C ... 80 °C

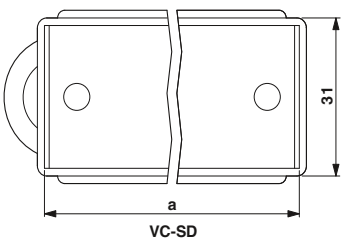
		Ordering data			Ordering data		
Description	Design	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Protective covers, for sleeve housings							
	VC1	**VC-SD-T1**	**1886728**	5			
	VC2	**VC-SD-T2**	**1886731**	5			
	VC3	**VC-SD-T3**	**1886744**	5			
	VC4	**VC-SD-T4**	**1886757**	5			
Protective cover, for the panel mounting side							
	VC1	**VC-SD-A1**	**1886760**	5			
	VC2	**VC-SD-A2**	**1886773**	5			
	VC3	**VC-SD-A3**	**1886786**	5			
	VC4	**VC-SD-A4**	**1886799**	5			
Protective cover, for panel mounting frame							
	VC1				**VC-SD1**	**1853670**	5
	VC2				**VC-SD2**	**1853683**	5
	VC3				**VC-SD3**	**1853696**	5
	VC4				**VC-SD4**	**1853706**	5

Type	A [mm]	a [mm]
VC-SD…1	59	53.5
VC-SD…2	74	68.5
VC-SD…3	89	83.5
VC-SD…4	104	98.5

Dimensions table



VC-SD-T...



VC-SD

Adapter plates for modular contact inserts

Notes:
For dimensional drawings, refer to page 58



The adapter plates can be used to mount VARIOCON plug-in connectors on the popular panel cutouts of the HEAVYCON B series.



Adapter plates for modular contact inserts

Technical data

Material	V2A
Sealing material	NBR
Degree of protection	IP65

Ordering data

Description	Design	Type	Order No.	Pcs. / Pkt.
Adapter plates, 2 mm thick, for HEAVYCON-B16 panel cutouts, incl. flat gasket				
	VC1	**HC-B 16-ADP-VC-1**	**1885758**	5
	VC2	**HC-B 16-ADP-VC-2**	**1885761**	5
	VC3	**HC-B 16-ADP-VC-3**	**1885774**	5
Adapter plates, 2 mm thick, for HEAVYCON-B24 panel cutouts, incl. flat gasket				
	VC1	**HC-B 24-ADP-VC-1**	**1885813**	5
	VC2	**HC-B 24-ADP-VC-2**	**1885826**	5
	VC3	**HC-B 24-ADP-VC-3**	**1885839**	5
	VC4	**HC-B 24-ADP-VC-4**	**1885842**	5

Adapter plates for crimp contact carriers

Notes:
For dimensional drawings, refer to page 58



Adapter plates for crimp inserts

Technical data

Material	V2A
Sealing material	NBR
Degree of protection	IP65

Ordering data

Description	Design	Type	Order No.	Pcs. / Pkt.
Adapter plates, 2 mm thick, for HEAVYCON-B16 panel cutouts, incl. flat gasket				
	VC1	**HC-B 16-ADP-VC-C1**	**1885787**	5
	VC2	**HC-B 16-ADP-VC-C2**	**1885790**	5
	VC3	**HC-B 16-ADP-VC-C3**	**1885800**	10
Adapter plates, 2 mm thick, for HEAVYCON-B24 panel cutouts, incl. flat gasket				
	VC1	**HC-B 24-ADP-VC-C1**	**1885855**	5
	VC2	**HC-B 24-ADP-VC-C2**	**1885868**	5
	VC3	**HC-B 24-ADP-VC-C3**	**1885871**	5
	VC4	**HC-B 24-ADP-VC-C4**	**1885884**	5

Accessories





Description		Ordering data		
		Type	Order No.	Pcs. / Pkt.
Dummy modules	①			
for panel mounting connectors		**VC-A 2-BM**	**1607815**	50
for sleeve connectors		**VC-T 2-BM**	**1607813**	50
Replacement profile gasket, for sleeve housings and supporting base elements of type:	②			
VC1		**VC-T1-PR-D1**	**1607832**	50
VC2		**VC-T2-PR-D1**	**1607835**	50
VC3		**VC-T3-PR-D1**	**1607838**	50
VC4		**VC-T4-PR-D1**	**1607841**	50
FSMA connector set, with bend protection sleeve for polymer fiber cable, for contact carrier module VC-AFOS 2, (2 pcs. each as set)	③	**VC-FSMA-M-KT-2 SET**	**1855703**	1
FSMA connector, for polymer fiber cable, for contact carrier module VC-AFOS 2, (2 pcs. each as set)	④	**VC-FSMA-M-2 SET**	**1855432**	1
Polisher, metal, for repeated preparation of VARIOCON fiber optic ferrules	⑤	**VC-POLISHER/M FSMA**	**1884982**	1
Polymer fiber polishing set for quick mounting connectors, comprising polishing pads and polishing disks - For F-SMA connectors	⑥	**PSM-SET-FSMA-POLISH**	**2799348**	1
Stripping tool for FO cables	⑦			
- **stripping tool** for individual elements		**PSM-FO-STRIP**	**2744199**	1
Electronic diagonal cutter, round head, with chamfer, with opening spring	⑧	**MICROFOX-SB**	**1212489**	1
Replacement screws	⑨			
for panel mounting frames		**VC-AR-S**	**1607829**	50
for sleeve frames		**VC-TR-S**	**1607826**	50
Coding pins, to prevent identical connectors from being confused	⑩			
Coding bolts with ST 2.9 thread for sleeve housings		**VC-CB-T**	**1607884**	10
Coding bolts with M3 thread for panel mounting bases		**VC-CB-A**	**1607888**	10
Coding profile, for VC-...6 and VC...-8		**CP-MSTB**	**1734634**	100
Coding profile		**CP-HCC 4**	**1600027**	100
Marker labels, unprinted, 5-section, for individual labeling with B-STIFT or CMS system (25 labels per pack), white	⑪	**VC-BZS WH**	**1852875**	5
Plastic label sheet, self-adhesive double-layer plastic labels, material thickness: 0.8 mm, with rounded corners, radius: 2 mm 1 sheet = 32 labels	⑫	**GPE 22X22 SR/R**	**0806628**	10

Corrugated pipe, corrugated pipe screw connections

Using the Corrugated pipe screw connection, any number of wires or single cores can be led to one plug-in connector.

To disassemble the Corrugated pipe screw connection, the matching WR-OEF.. Corrugated pipe opener is necessary.



Corrugated pipe



Corrugated pipe screw connections, seals, and N/C contacts

	Technical data	Technical data
Material	PA	PA
Inflammability class according to UL 94	HB	HB
Degree of protection	-	IP65
Temperature data		
Ambient temperature (operation)	-40 °C ... 110 °C	-40 °C ... 110 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Corrugated pipe, design:						
Pg16, bending radius: 35 mm	**WR/PG16-50M**	**1666841**	1			
Pg21 / M25, bending radius: 40 mm	**WR/PG21-50M**	**1666867**	1			
Pg29 / M32, bending radius: 55 mm	**WR/PG29-25M**	**1666854**	1			
M40, bending radius: 60 mm	**WR/M40-25M**	**1644889**	1			
Pg Corrugated pipe screw connection, for Corrugated pipes to lead individual conductors and wires into the housings of HEAVYCON industrial connectors, Design:						
Pg16				**HC-WRV-PG16**	**1666812**	10
Pg21				**HC-WRV-PG21**	**1666825**	10
Pg29				**HC-WRV-PG29**	**1666838**	10
Metric Corrugated pipe screw connection, for insertion of individual conductors and wires in the housings of the HEAVYCON industrial connectors, Design:						
M25				**HC-WRV-M25**	**1644902**	10
M32				**HC-WRV-M32**	**1644915**	10
M40				**HC-WRV-M40**	**1644850**	10
Seal, outside, to increase protection type to IP66, Design:						
Pg16				**WR-DA-PG16**	**1686685**	5
Pg21 / M25				**WR-DA-PG21**	**1686698**	5
Pg29 / M32				**WR-DA-M32/PG29**	**1644847**	5
M40				**WR-DA-M40**	**1644876**	5
Opener for Corrugated pipe, to corrugated pipe screw connection, design:						
Pg16				**WR-OEF-PG16**	**1853638**	5
Pg21 / M25				**WR-OEF-PG21**	**1853612**	5
Pg29 / M32				**WR-OEF-PG29**	**1853641**	5
M40				**WR-OEF-M40**	**1644892**	5

Hybrid plug-in connector for motor connection



Are motor terminal boxes the cheapest option?

Not always! When considered as a whole, a sophisticated connector concept is quite capable of replacing the motor terminal box.

The increasing automation of machines and systems, the demand for the best possible system availability and the need for a quick, uncomplicated startup are calling for new connector concepts.

The motor connectors from the DUPLICON series can save a huge amount of time:

The new hybrid plug-in connector combines signals and power in parallel in the same housing. The two cables are connected to the contact insert using the push-in connection method without tools, quickly, and above all, reliably.

The housing on the motor side has an M12 thread for an external brake cable gland.



Thanks to the robust locking latch, the motor connection can be isolated in seconds. There is no need to call out a skilled electrical engineer.



With a motor connector, the star-delta bridge of the motor is located in the sleeve housing. In the event of changes to the wiring, the motor does not need to be opened in order to replace the bridges of the terminal board. Now, only the sleeve needs to be lifted and the star-delta bridge piece rotated.
The rewiring is complete.



Protection against mismating - the coding of the connector - is implemented by plastic profiles. Laborious and time-consuming coding using metal bolts is thus eliminated. coding is performed in a matter of moments by the simple placement of plastic profiles.

Hybrid plug-in connector for motor connection

- Panel mounting base also available with third-party logo
- Other flange dimensions on request
- Crimp contacts can be removed without tool

Notes:
Connectors may only be operated when not under load.
For dimensional drawings, connector pin assignments, and flange drawing, see page 59



Sleeve connector, 3-pos. + PE power contacts / 4-pos. control contacts



Panel mounting base, 6-pos. + PE power contacts / 4-pos. control contacts

Technical data

Electrical data according to DIN EN 61984:2001	Power contacts	Control contacts
Rated voltage	400/800 V	250 V
Rated current	16.5 A	2.5 A
Surge voltage category / pollution degree		III / 3
Material data		
Housing material		GD-Zn
Locking latch material		Stainless steel
Contact material	Copper alloy	Copper alloy
Contact surface material	Ag	Au
Contact carrier material	PA	PA
Inflammability class according to UL 94	V0	V0
External cable diameter	7 mm ... 14.5 mm (Unshielded cable)	4 mm ... 8.3 mm (Unshielded cable)
External cable diameter	9 mm ... 14.5 mm (Shielded cable)	4 mm ... 8.3 mm (Shielded cable, 4 mm min. shield diameter)
Mechanical data		
Conductor cross section	0.5 mm² ... 2.5 mm²	0.5 mm² ... 1.5 mm²
Connection cross section AWG	20 ... 14	20 ... 16
Insertion/withdrawal cycles		≥ 100
Degree of protection		IP67
Temperature data		
Ambient temperature (operation)	-30 °C ... 100 °C	-30 °C ... 100 °C

Technical data

Electrical data according to DIN EN 61984:2001	Power contacts	Control contacts
Rated voltage	400/800 V	250 V
Rated current	16.5 A	2.5 A
Surge voltage category / pollution degree		III / 3
Material data		
Housing material		GD-Zn
Locking latch material		-
Contact material	Copper alloy	Copper alloy
Contact surface material	Au	Au
Contact carrier material	PA	PA
Inflammability class according to UL 94	V0	V0
Mechanical data		
Conductor cross section	0.35 mm² ... 2.5 mm²	0.14 mm² ... 1 mm²
Connection cross section AWG	20 ... 14	26 ... 18
Insertion/withdrawal cycles		≥ 100
Degree of protection		IP67
Temperature data		
Ambient temperature (operation)	-30 °C ... 100 °C	-30 °C ... 100 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Motor connector for three-phase drive, metal housing with EMC sleeves incl. push-in contact insert, with screw connections (power and control circuit), with filler plugs in the control cable screw connection, 4-pos. control circuit, with star-delta bridge, with IP54 protective cover	**HC-MOT-TML-SET**	**1409066**	1
Plug-in connector on motor side, EMC metal housing attachment incl. crimp contact insert, with flat gasket and coated protective cover, without crimp contacts, housing with coatable thick-layer passivation			

Ordering data

Type	Order No.	Pcs. / Pkt.
HC-MOT-AFL-SET	**1409053**	1

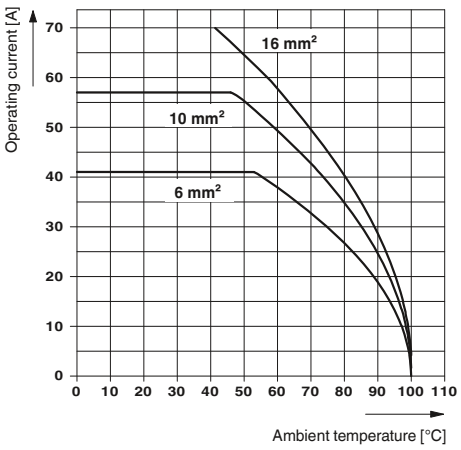
Accessories

Protective cover for the sleeve housing, IP54	**HC-MOT-SD-FLT-KU-IP54**	**1409134**	10
Coated protective cover for the housing on the motor side			
Star-delta replacement bridge	**HC-MOT-ST/DR-BR**	**1409150**	10
Turned power crimp contacts, for connection cross section:			
0.25 - 1.0 mm², pin			
1.0 - 2.5 mm², pin			
Turned signal crimp contacts, for connection cross section:			
0.14 - 0.5 mm², pin			
0.50 - 1.0 mm², pin			
Crimping pliers			
Coding profile, prevents similar connectors from being mixed up	**CP-HCC 4**	**1600027**	100

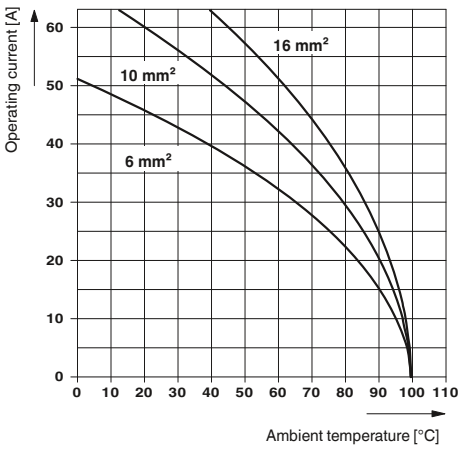
Accessories

Type	Order No.	Pcs. / Pkt.
HC-MOT-SD-L-KU	**1409147**	10
CK2,0-ED-1,0ST AU	**1409118**	100
CK2,0-ED-2,5ST AU	**1409095**	100
CK1,0-ED-0,5ST AU	**1409121**	100
CK1,0-ED-1,0ST AU	**1409082**	100
CRIMPFOX-TC MP-1	**1212620**	1
CP-HCC 4	**1600027**	100

Power inserts
Derating diagrams

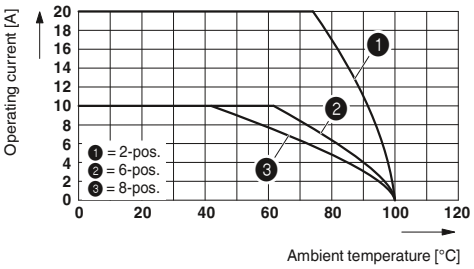


Derating diagram: VC-AMS 4



Derating diagram: VC-AML 4

Contact inserts
Derating diagrams



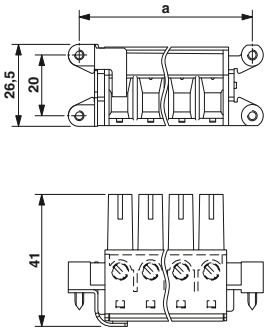
Derating diagram

Dimensional drawings of power contact inserts

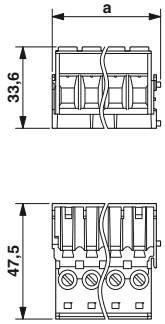
Type	Dimension a [mm]
VS-TFS 4...	57.8
VS-TFS 5...	72.8
VS-TFS 7...	87.5

Type	Dimension a [mm]
VS-AMS 4...	45
VS-AMS 5...	60
VS-AMS 7...	75

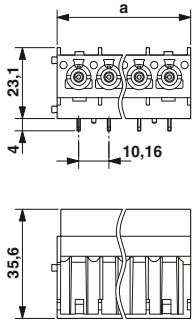
Type	Dimension a [mm]
VS-AML 4...	45
VS-AML 5...	60
VS-AML 7...	75



Dimensional drawing: VC-TFS...



Dimensional drawing: VC-AMS...

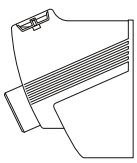


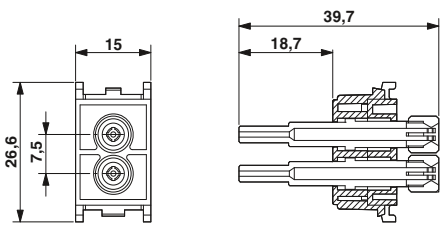
Dimensional drawing: VC-AML...

Fiber optic contact insert modules with screw connection

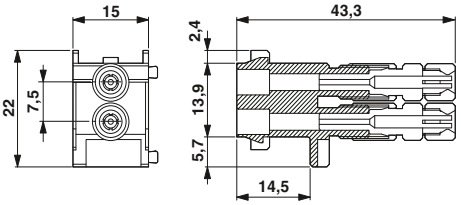
Recommended slots in the sleeve frame

Sleeve frame size	VC-TFOS 2 module at position	
1	1	Pos. 1
2	1	Pos. 2
3	1 and/or 2	
4	2	



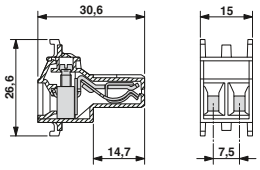


Dimensional drawing: VC-TFOS 2

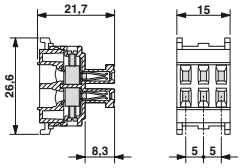


Dimensional drawing: VC-AFOS 2

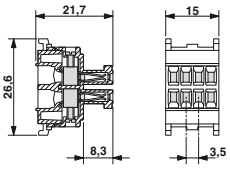
Dimensional drawings of contact inserts



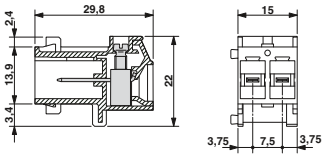
VC-TFS 2



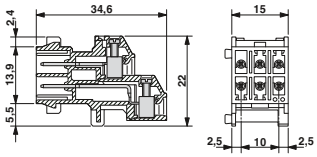
VC-TFS 6



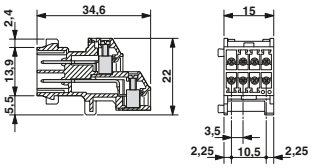
VC-TFS 8



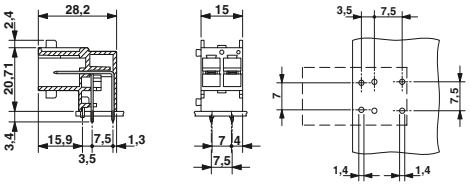
VC-AMS 2



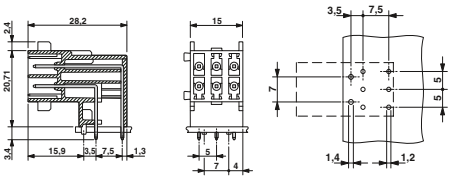
VC-AMS 6



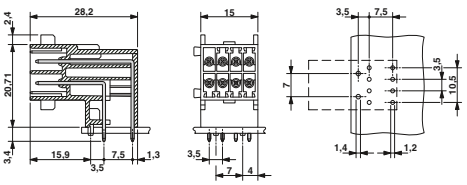
VC-AMS 8



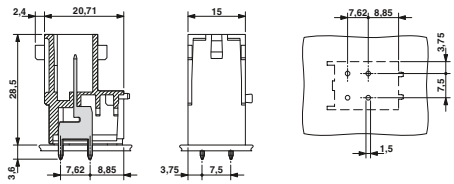
VC-AML 2



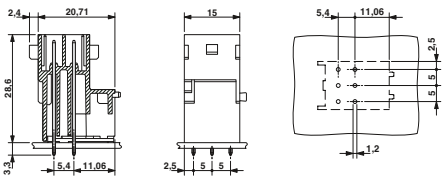
VC-AML 6



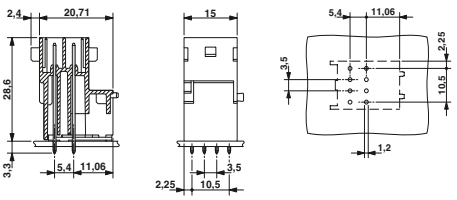
VC-AML 8



VC-AMLV 2



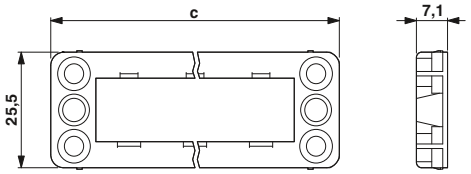
VC-AMLV 6



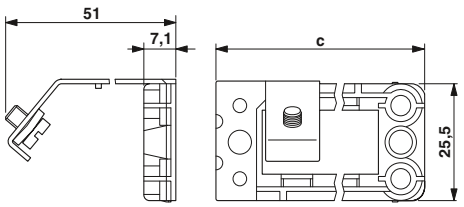
VC-AMLV 8

Panel mounting frame

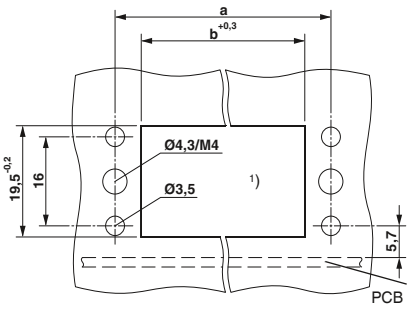
Panel mounting frame type	Dimensions [mm]		
	a	b	c
VC-AR1/2M...	40.0	32.4	50.6
VC-AR2/3M...	55.0	47.4	65.6
VC-AR3/4M...	70.0	62.4	80.6
VC-AR4/5M...	85.0	77.4	95.6



Dimensional drawing: VC-AR...M

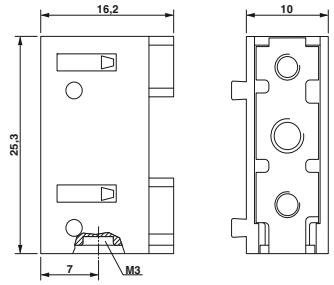


Dimensional drawing: VC-AR...M PEA

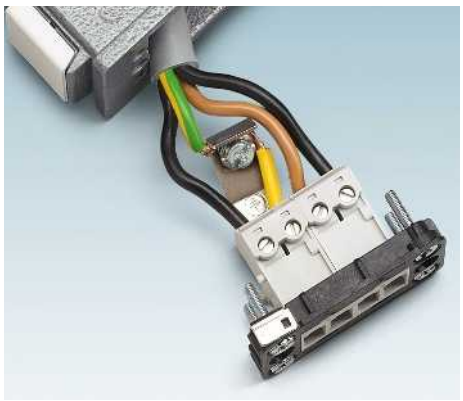


Mounting cutout: VC-AR...

1) M3 and M4, if VC-AF is not needed.

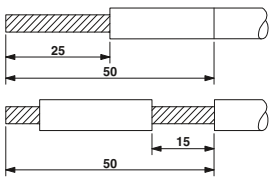


Dimensional drawing: VC-AF panel mounting flange



Assembly instructions:

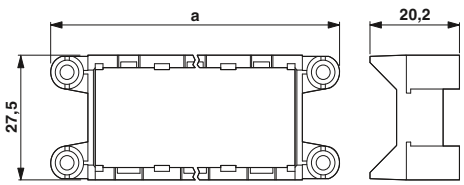
Supporting base elements must be grounded at operating voltages > 42 V. The VC-AR...M-PEA frame has a PE sheet with a PE connection for this purpose.
Strip 25 mm off the PE conductor and cut the insulation at 50 mm. Push the cut insulation forward by 15 mm. Connect the PE conductor to the contact of the module and clamp it to the PE sheet under the PE screw (see photo).



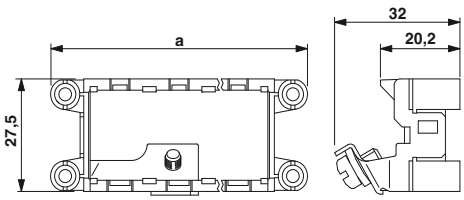
Stripping length of the PE conductor

Sleeve frames

Sleeve frame type	Design	a [mm]
VC-TR1/2M...	VC 1	50.2
VC-TR2/3M...	VC 2	65.2
VC-TR3/4M...	VC 3	80.2
VC-TR4/5M...	VC 4	95.2



Dimensional drawing: VC-TR...M

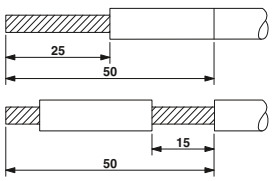


Dimensional drawing: VC-TR...M PEA



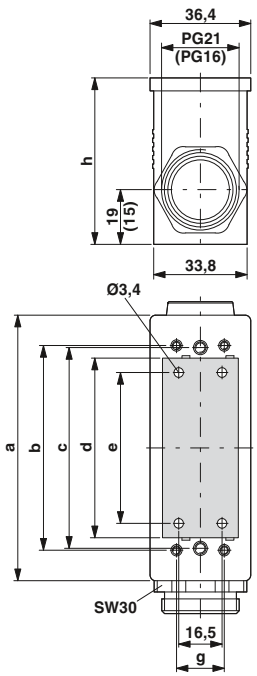
Assembly instructions:

Metal sleeves must be grounded at operating voltages > 42 V. The VC-TR...M-PEA frame has a PE sheet with a PE connection for this purpose. Strip 25 mm off the PE conductor and cut the insulation at 50 mm. Push the cut insulation forward by 15 mm. Connect the PE conductor to the contact of the module and clamp it to the PE sheet under the PE screw (see photo).

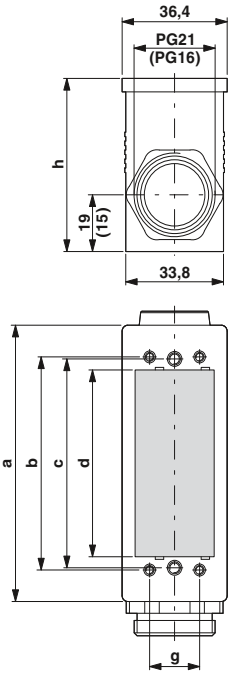


Stripping length of the PE conductor

Supporting base element



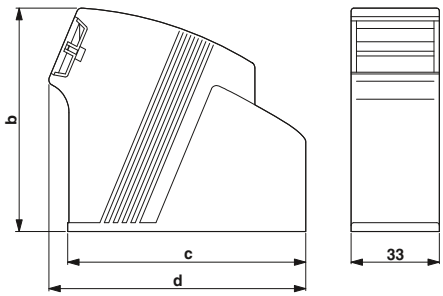
Box mounting base
Base with 4 fixing holes



Coupling housing
Enclosed base

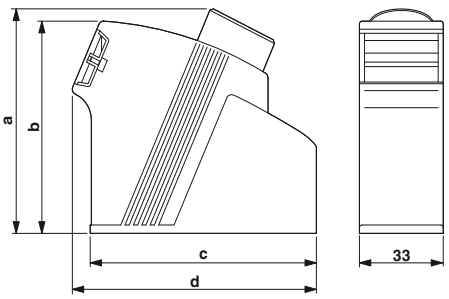
Dimensions VC-M...	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]	g [mm]	h [mm]	Cable gland
Size 1	62.6	42.8	40	33	22.6	16	49	Pg16
Size 2	77.6	57.8	55	48	37.6	16	55	Pg21
Size 3	92.6	72.8	70	63	52.6	16	58	Pg21
Size 4	107.6	87.8	85	78	67.6	16	61	Pg21

Sleeve housing with metric cable entry

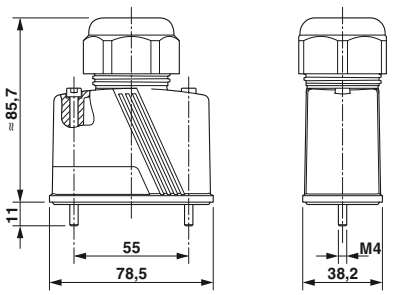


Sleeve housing with Pg cable outlet

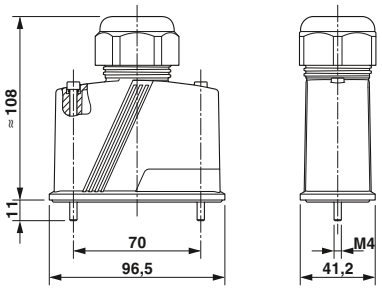
Sleeve housing		Dimensions [mm]			
Design	Width [mm]	a	b	c	d
VC 1	33	71	65	59	66
VC 2	33	73	65	74	81
VC 3	33	79	75	89	96
VC 4	33	79	75	104	111



Sleeve housing special designs

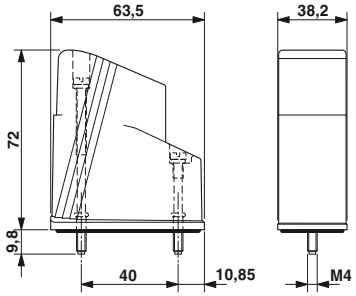


Power sleeve housing, VC2 design

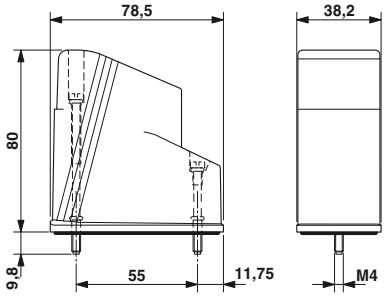


Power sleeve housing, VC3 design

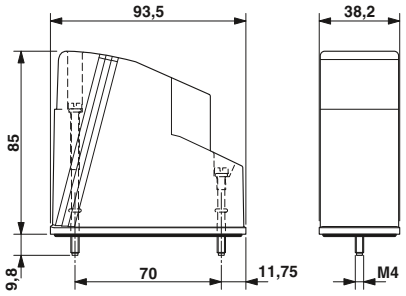
Sleeve housing, with metric cable entry, EMC-compatible



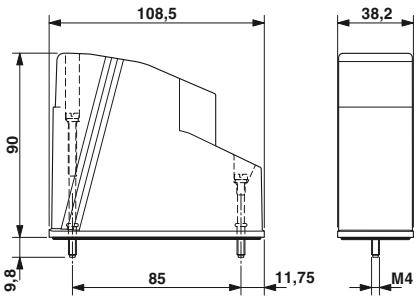
Dimensional drawing: VC1 design



Dimensional drawing: VC2 design



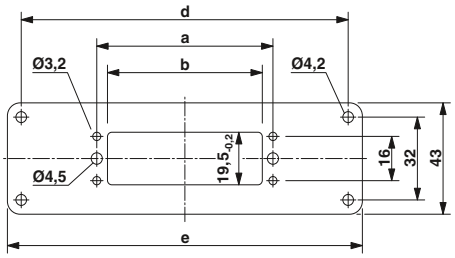
Dimensional drawing: VC3 design



Dimensional drawing: VC4 design

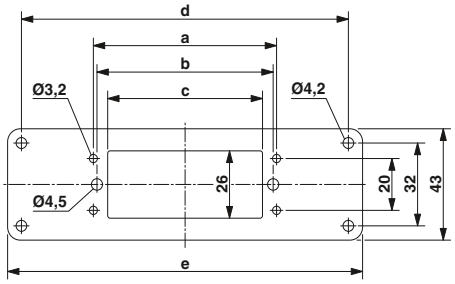
Dimensional drawings of adapter plates

Type	a [mm]	b [mm]	d [mm]	e [mm]
HC-B 16-ADP-VC-1	40.0	32.0	114	103
HC-B 16-ADP-VC-2	55.0	47.0	114	103
HC-B 16-ADP-VC-3	70.0	62.0	114	103
HC-B 24-ADP-VC-1	40.0	32.0	141	130
HC-B 24-ADP-VC-2	55.0	47.0	141	130
HC-B 24-ADP-VC-3	70.0	62.0	141	130
HC-B 24-ADP-VC-4	85.0	77.0	141	130



HC-B...-ADP-VC-...

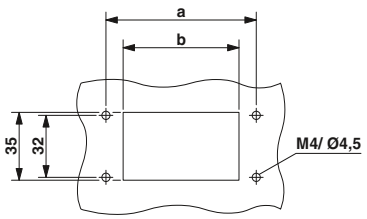
Type	a [mm]	b [mm]	c [mm]	d [mm]	e [mm]
HC-B 16-ADP-VC-C1	42.8	40.0	31.5	114	103
HC-B 16-ADP-VC-C2	57.8	55.0	46.5	114	103
HC-B 16-ADP-VC-C3	72.8	70.0	61.5	114	103
HC-B 24-ADP-VC-C1	42.8	40.0	31.5	141	130
HC-B 24-ADP-VC-C2	57.8	55.0	46.5	141	130
HC-B 24-ADP-VC-C3	72.8	70.0	61.5	141	130
HC-B 24-ADP-VC-C4	87.8	85.0	76.5	141	130



HC-B...-ADP-VC-C...

Type	a [mm]	b [mm]
VC-B 6-ADP...	70.0	52.0
VC-B 10-ADP...	83.0	65.0
VC-B 16-ADP...	103.0	86.0

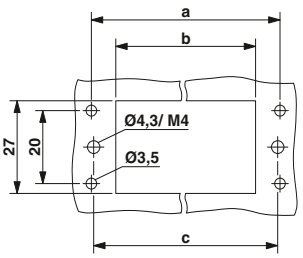
Dimension table: VC-B…-ADP/2DSUB...



Dimensional drawing: VC-B…-ADP/2DSUB...

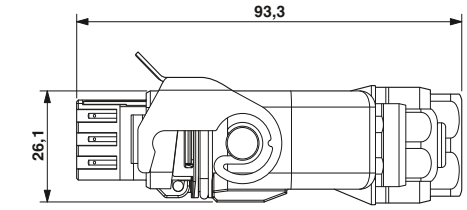
Type	a [mm]	b [mm]	c [mm]
VC-C1-ADP...	42.8	32.4	40.0
VC-C2-ADP...	57.8	47.4	55.0
VC-C3-ADP...	72.8	62.4	70.0

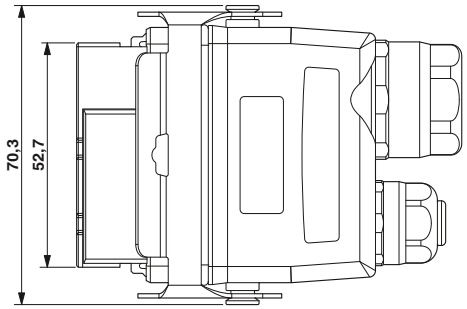
Dimension table: VC-C…-ADP/2DSUB...



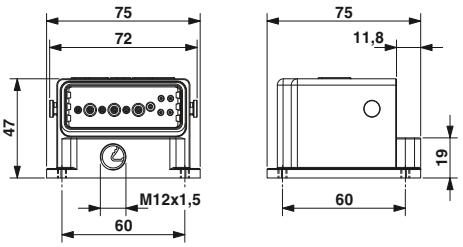
Dimensional drawing: VC-C…-ADP/2DSUB...

Hybrid plug-in connectors

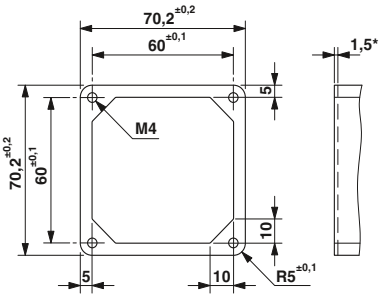




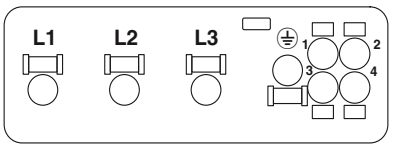
Dimensional drawing: sleeve plug-in connector



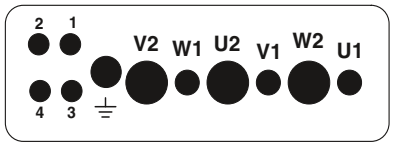
Dimensional drawing: panel mounting base



Dimensional drawing: flange
(1.5* = min. interface dimensions up to this height).



Pin assignment: socket
(connection side)



Pin assignment: pin
(connection side)



Data plug-in connectors and cables

Standardized data interfaces are increasingly being used in industrial applications as part of the decentralization of complex manufacturing systems and the increasing need for rapid information and data exchange. Industrial conditions place high demands on plug-in connectors, the connection technology, and cabling, which are completely different from office environments. Conventional fieldbuses include INTERBUS and PROFIBUS, Industrial Ethernet, PROFINET, and USB. With PLUSCON data, Phoenix Contact offers components suitable for industrial applications with IP20 and IP65/IP67 protection for these communication interfaces.

Complete installation system

The product range consists of plug-in connectors, panel feed-throughs, assembled cables, patch panels, terminal outlets, plus corresponding accessories and thereby forms a complete installation system. PLUSCON data is suitable for use in field and industrial hall cabling inside the control cabinet and for integration in devices with a high degree of protection.

Easy field assembly

User-friendly fast connection technologies are available for plug-in connector assembly, even under the harshest industrial conditions. RJ45, M12 QUICKON, and M12 Piercecon® can be assembled for Ethernet and PROFINET cabling without the need for special tools.

Copper and fiber optic

The SCRJ fiber optic plug-in connectors with IP20 and IP67 protection, which are particularly suitable for Industrial Ethernet and PROFINET, are available for all standard fiber types and are also equipped with established fast connection technologies. The assembly tool sets contain all the tools and materials needed for field assembly.

System overview - network	**62**
System overview - fieldbuses	**64**
Network components	
Topologies	**66**
RJ45 plug-in connectors	**78**
M12 plug-in connectors	**88**
Assembled cables	**96**
Patch panels, terminal outlets	**114**
Power plug-in connectors	**124**
Fiber optic plug-in connectors	**126**
Assembled fiber optic cables	**138**
Accessories	**168**
Fieldbus components	
Topologies	**172**
D-SUB plug-in connectors	**184**
M12 plug-in connectors	**186**
M12 flush-type plug-in connectors	**188**
Cable range	**194**
USB plug-in connectors	**205**
D-SUB-based plug-in connectors	**206**

	Industrial Ethernet			
	Ethernet	**Ethernet**	**Ethernet**	**Ethernet**
Area of application	Ethernet M8 (4-pos.) All industrial environments	Ethernet M12 (4-pos.) All industrial environments	Ethernet M12 (8-pos.) All industrial environments	Ethernet M12/10G (8-pos.) All industrial environments
Topology	Star, tree or line topology	Star, tree or line topology	Star, tree or line topology	Star, tree or line topology
Data transmission	Up to 100 Mbps	Up to 100 Mbps	Up to 1 Gbps	Up to 10 Gbps
Special plug-in connectors				M12 with shield crossover

Pin assignment

Signal des.	Plug-in connector RJ45	Plug-in connector M8
TD+	1	1
TD-	2	4
RD+	3	2
RD-	6	3

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
D1+	1	6
D1-	2	4
D3-	5	1
D3+	4	7
D2+	3	5
D2-	6	8
D4+	7	2
D4-	8	3

Signal des.	Plug-in connector RJ45	Plug-in connector M12
D1+	1	1
D1-	2	2
D3-	5	7
D3+	4	8
D2+	3	3
D2-	6	4
D4+	7	5
D4-	8	6

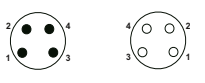
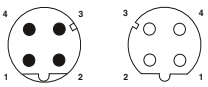
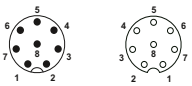
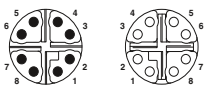
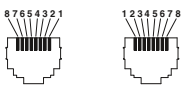
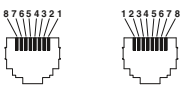
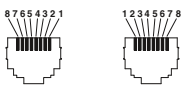
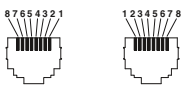
Signal designation, wire assignment

Wire color	Signal
YE	TD+
OG	TD-
WH	RD+
BU	RD-

Wire color	Signal
WHOG	TD+
OG	TD-
WHGN	RD+
GN	RD-

Wire color	Signal
WHOG	D1+
OG	D1-
WHBU	D3-
BU	D3+
WHGN	D2+
GN	D2-
WHBN	D4+
BN	D4-

Wire color	Signal
WHOG	D1+
OG	D1-
WHBU	D3-
BU	D3+
WHGN	D2+
GN	D2-
WHBN	D4+
BN	D4-

Segment length	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device
User organization				
Standardization of cabling	ISO/IEC 24702	ISO/IEC 24702	ISO/IEC 24702	ISO/IEC 24702
Plug-in connector pin assignments				
	Plug / Socket	Plug / Socket	Plug / Socket	Plug / Socket
	M8, 4-pos.	M12, 4-pos., D-coded	M12, 8-pos., A-coded	M12, 8-pos., X-coded
				
	Plug / Socket	Plug / Socket	Plug / Socket	Plug / Socket
	RJ45, 8-pos.	RJ45, 8-pos.	RJ45, 8-pos.	RJ45, 8-pos.
Topology	See page page 66	See page 66	See page 66	See page 68

Ethernet

	EtherNet/IP™	PROFINET	EtherCAT	sercos III	VARAN
Ethernet hybrid M12 (8-pos.) All industrial environments	Automation applications in industrial control technology	Production, process automation in the automotive industry	Automation technology	Motion control applications	Automation technology
Star, tree or line topology	Usually active star topology	Star, line, tree, and ring structures. Hybrid forms also supported.	Line, tree, star, and combinations of these	Line, ring, and hierarchical, cascaded network structures	Tree, line, and star topology
Up to 100 Mbps	Up to 100 Mbps	100 Mbps to 1 Gbps	100 Mbps, upgrade to Gigabit Ethernet possible	Fast Ethernet with 100 Mbps	Up to Gigabit Ethernet
M12 with Y-shield					2+4 power/Ethernet connection technology (IP65 and IP67)

Signal des.	Plug-in connector M12
TD+	1
TD-	2
RD+	3
RD-	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	1	1
TD-	2	3
RD+	3	2
RD-	6	4

Signal des.	Plug-in connector RJ45	Plug-in connector M12
TD+	2	3
TD-	1	2
RD+	3	5
RD-	6	8

Wire color	Signal
WHOG	TD+
OG	TD-
WHGN	RD+
GN	RD-
BU	
WH	
BN	
BK	

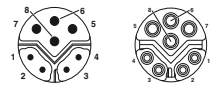
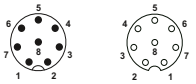
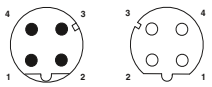
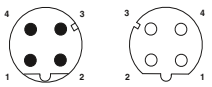
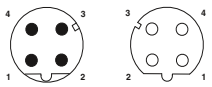
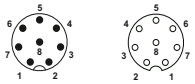
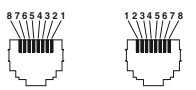
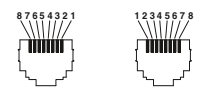
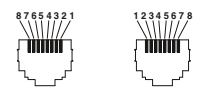
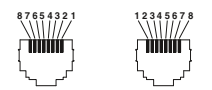
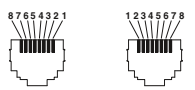
Wire color	Signal
WHOG	TD+
OG	TD-
WHBU	
BU	
WHGN	RD+
GN	RD-
WHBN	
BN	

Wire color	Signal
YE	TD+
OG	TD-
WH	RD+
BU	RD-

Wire color	Signal
YE	TD+
OG	TD-
WH	RD+
BU	RD-

Wire color	Signal
YE	TD+
OG	TD-
WH	RD+
BU	RD-

Wire color	Signal
n. c.	
OG	TD-
WHOG	TD+
n. c.	
WHGN	RD+
BU	
BN	
GN	RD-

Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device	Up to 100 m from hub/switch to termination device
	www.odva.org	www.profibus.com	www.ethercat.org	www.sercos.de	www.varan-bus.net
	IEC 61784-5-2	IEC 61784-5-3	IEC 61784-5-12	IEC 61784-5-16	
					
Plug / Socket	Plug / Socket	Plug / Socket	Plug / Socket	Plug / Socket	Plug / Socket
M12, hybrid, 8-pos., Y-coded	M12, 8-pos., A-coded	M12, 4-pos., D-coded	M12, 4-pos., D-coded	M12, 4-pos., D-coded	M12, 8-pos., A-coded
					
	Plug / Socket	Plug / Socket	Plug / Socket	Plug / Socket	Plug / Socket
	RJ45, 8-pos.	RJ45, 8-pos.	RJ45, 8-pos.	RJ45, 8-pos.	RJ45, 8-pos.
See page 66	See page 72	See page 74	See page 76	See phoenixcontact.net/products	See phoenixcontact.net/products

	INTERBUS	PROFIBUS DP	PROFIBUS PA	DeviceNet™
Area of application	Sensor/actuator level, process automation, monitoring PC	Distributed I/O devices for networking several controllers	Process automation for potentially explosive areas (Ex zone 0 and 1)	Automation technology
Topology	Active ring structure	Line, tree, ring or star depending on the physical network design	Line, tree or ring	Line
Data transmission	Between 500 kbps and 16 Mbps depending on the segment length	Up to 12 Mbps	Up to 31.25 kbps	Up to 500 kbaud
Special plug-in connectors				

Pin assignment

Signal designation	Plug-in connector D-SUB 9	Plug-in connector M12
DO	1	1
DO	6	2
DI	2	3
DI	7	4
COM	3	5

Signal designation	Plug-in connector D-SUB 9	Plug-in connector M12
A cable	8	2
B cable	3	4

Signal designation	Plug-in connector M12
DATA+	1
DATA-	3
Shield	4

Signal designation	Plug-in connector COMBICON	M12	7/8"	M8
CAN_L	2	5	5	5
CAN_H	4	4	4	3
V+	5	2	2	2
V-	1	3	3	4
Drain	3	1	1	1

Signal designation, wire assignment

Wire color	Signal
YE	DO
GN	DO
GY	DI
PK	DI
BN	COM
WH	NC

Shield on housing

Wire color	Signal
GN	A cable
RD	B cable

Shield on housing

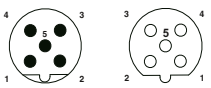
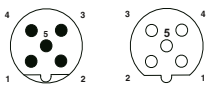
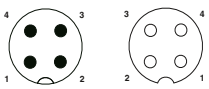
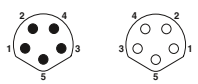
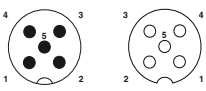
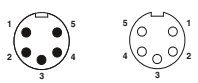
Wire color	Signal
OG	DATA+
BU	DATA-

Filler litz wire

Shield on pin

Wire color	Signal
BU	CAN_L
WH	CAN_H
RD	V+
BK	V-

Shield on pin

Segment length	400 m segment length between two devices; max. 13 km total length	Up to 1200 m with copper installation, up to 15 km with fiber optic installation	Max. 1900 m	Up to 500 m
User organization	www.interbusclub.com	www.profibus.com	www.profibus.com	www.odva.org
Standardization of cabling	IEC 61158	IEC 61158/IEC 61784	IEC 61158/IEC 61784	IEC 61158 IEC 61784-1 CPF 2/3
Plug-in connector pin assignments				
	Plug / Socket	Plug / Socket	Plug / Socket	Plug / Socket
	M12, 5-pos., B-coded	M12, 5-pos., B-coded	M12, 3-pos., A-coded	M8, 5-pos., B-coded
				
	Plug / Socket	Plug / Socket		Plug / Socket
	D-SUB 9	D-SUB 9		M12, 5-pos., A-coded
				
				Plug / Socket
				7/8" 16UNF, 5-pos.
Topology	See page 172	See page 174	See page 175	See page 178

CANopen®

Automation technology and for networking within complex devices

Line or tree (when using repeaters)

10 kbaud to 1 Mbaud

Signal designation	Plug-in connector				
	COMBICON	D-SUB 9	M12	RJ45	7/8"
CAN_L	2	2	5	2	5
CAN_H	4	7	4	1	4
V+	5	9	2	8	2
V-	1	3	3	3	3
Drain	3	4	1	6	1

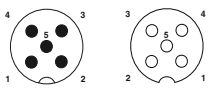
Wire color	Signal
BU	CAN_L
WH	CAN_H
RD	V+
BK	V-

Shield on pin

Up to 1000 m depending on the transmission speed; can be increased by using repeaters

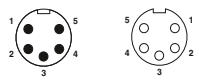
www.can-cia.de

EN 50325-4



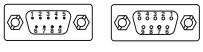
Plug	Socket

M12, 5-pos., A-coded



Plug	Socket

7/8" 16UNF, 5-pos.



Plug	Socket

D-SUB 9

See page 176

AS-Interface

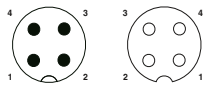
Sensor/actuator level

Bus, star, ring, and tree structures

167 kbps

Signal designation	Plug-in connector
	M12
AS-i+	1
AS-i-	3

Wire color	Signal
BN	AS-i-
WH	
BU	AS-i+
BK	



Plug	Socket

M12, 4-pos., A-coded

See page 180

FOUNDATION Fieldbus

Process automation

Point-to-point line (with branch lines), tree structure, combination of all topologies

H1: 31.25 kbps, IEC physical transmission channel, incl. Ex bus
H2: 1.0 and 2.5 Mbps data rate, via two-wire cable or fiber optics

Signal designation	Plug-in connector	
	M12	7/8"
DATA+	2	1
DATA-	1	4
Shield	3	3

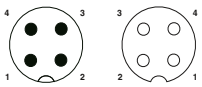
Wire color	Signal
OG	DATA+
BU	DATA-
Filler litz wire	

Shield on pin 3

Max. 1900 m; max. 9500 m when using repeaters depending on the selected cable

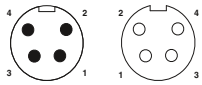
www.fieldbus.org

IEC 1158, IEC 61158



Plug	Socket

M12, 4-pos., A-coded



Plug	Socket

7/8" 16UNF, 4-pos.

See page 182

USB

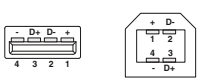
All industrial environments

Star topology, the connection is established at the star nodes via hubs

Up to 480 Mbps

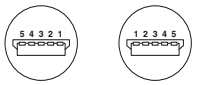
Signal designation	Plug-in connector	
	M12, MINI - USB	USB
V_{BUS}	1	1
D-	2	2
D+	3	3
ID	4	
GND	5	4

Wire color	Signal
WHOG	D-
WH	V_{BUS}
OG	D+
n.c.	ID
BK	GND



Plug, type A	Socket, type B

USB, 4-pos.



Plug	Socket

M12 mini-USB, 5-pos.

See page 204

CC-Link

Production level applications

Bus, multi-drop, T-branching, star

Up to 10 Mbps

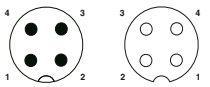
Signal designation	Plug-in connector
	M12
SLD	1
DS	2
DG	3
DA	4

Wire color	Signal
Shield	SLD
WH	DS
YE	DG
BU	DA

Max. 1200 m; max. 13.2 km with repeaters

www.clpa-europe.com

IEC 61784-1 CPF 8

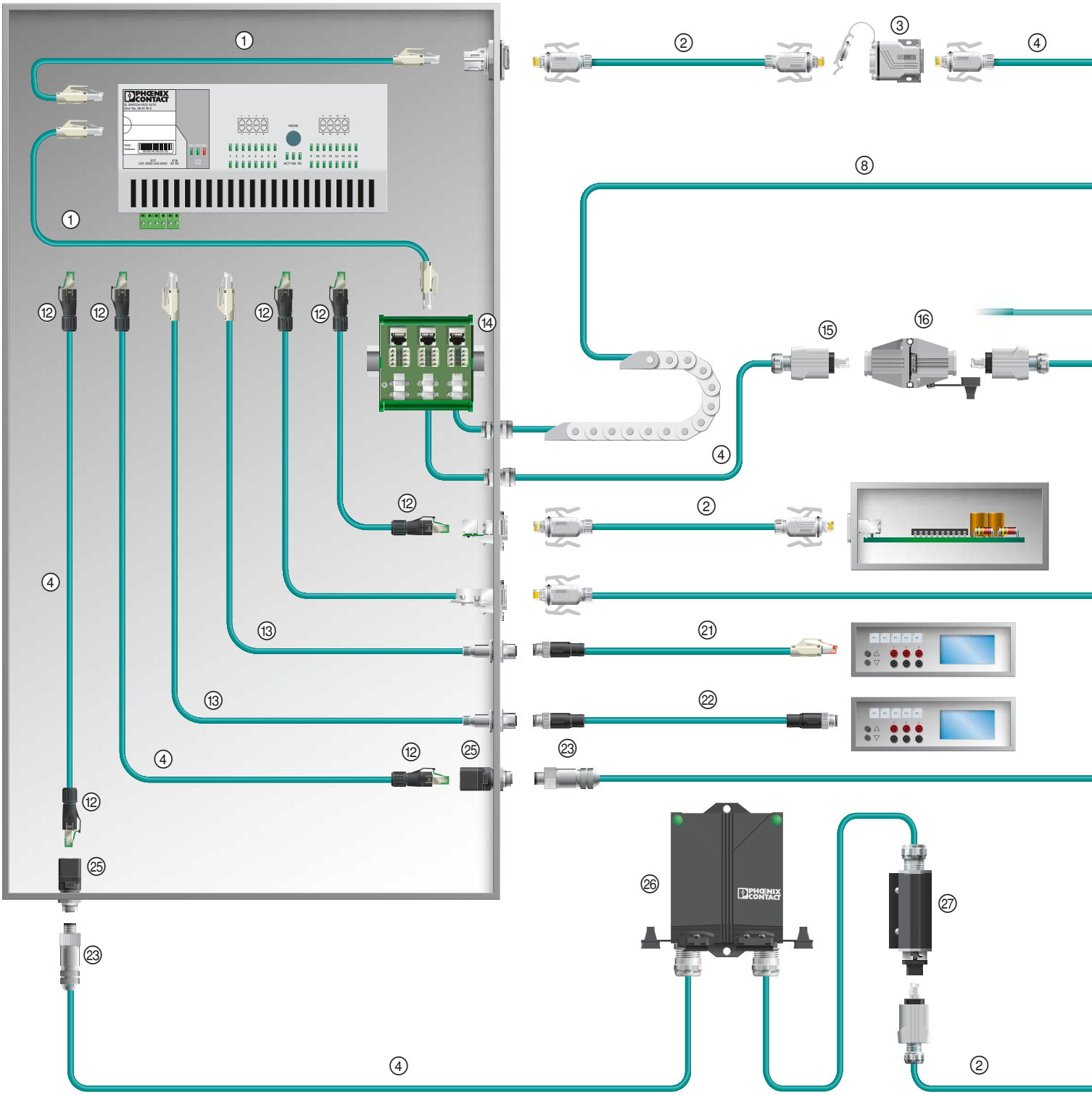


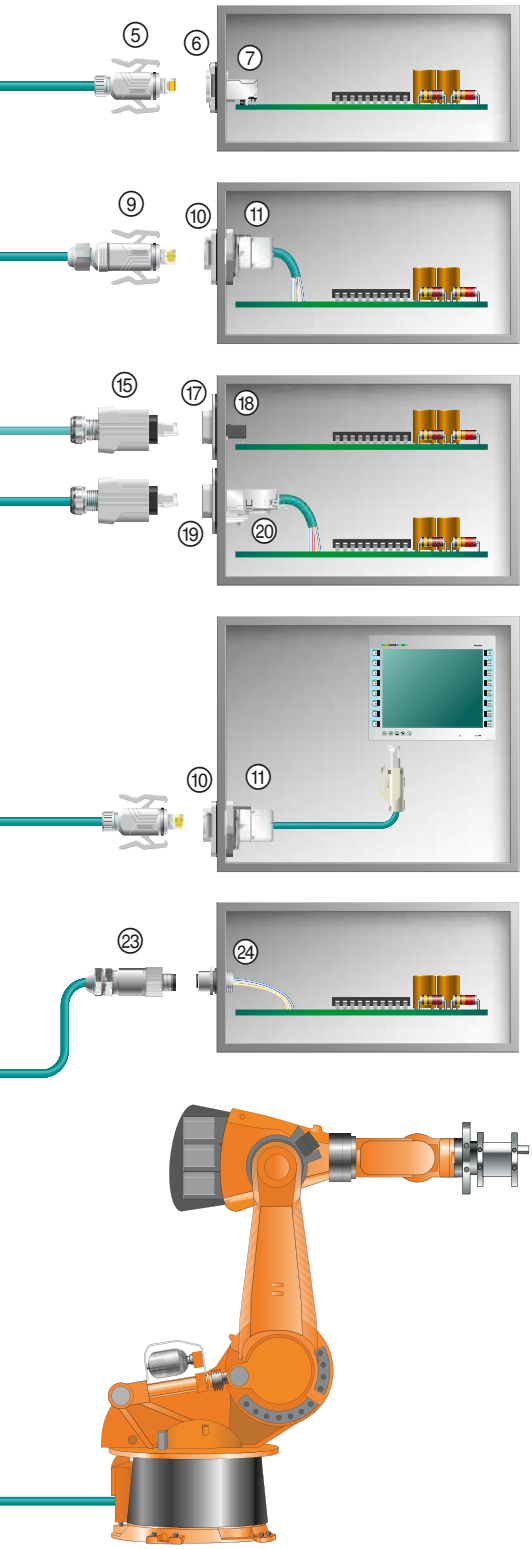
Plug	Socket

M12, 4-pos., A-coded

See phoenixcontact.net/products

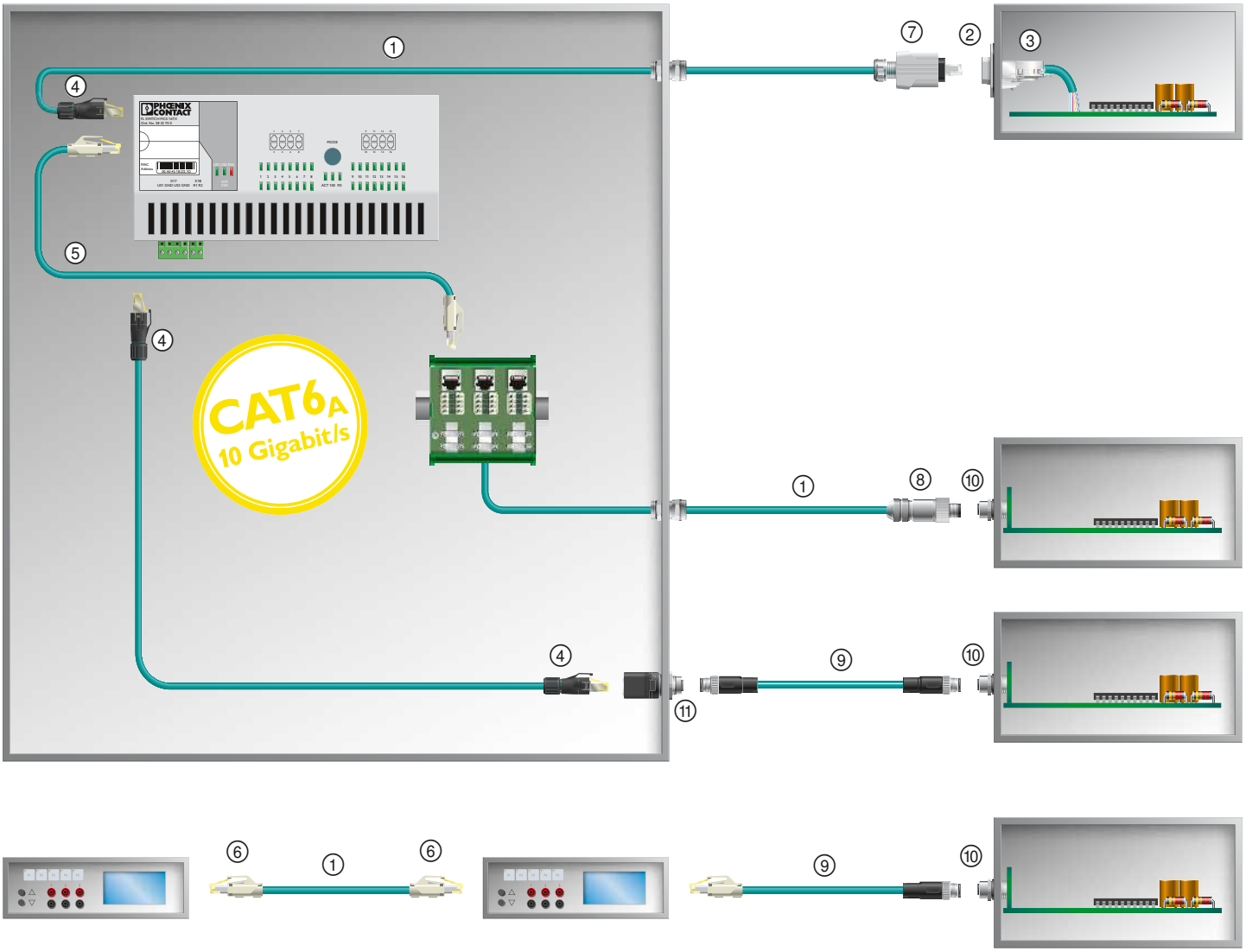
Topology – copper-based cabling for Industrial Ethernet





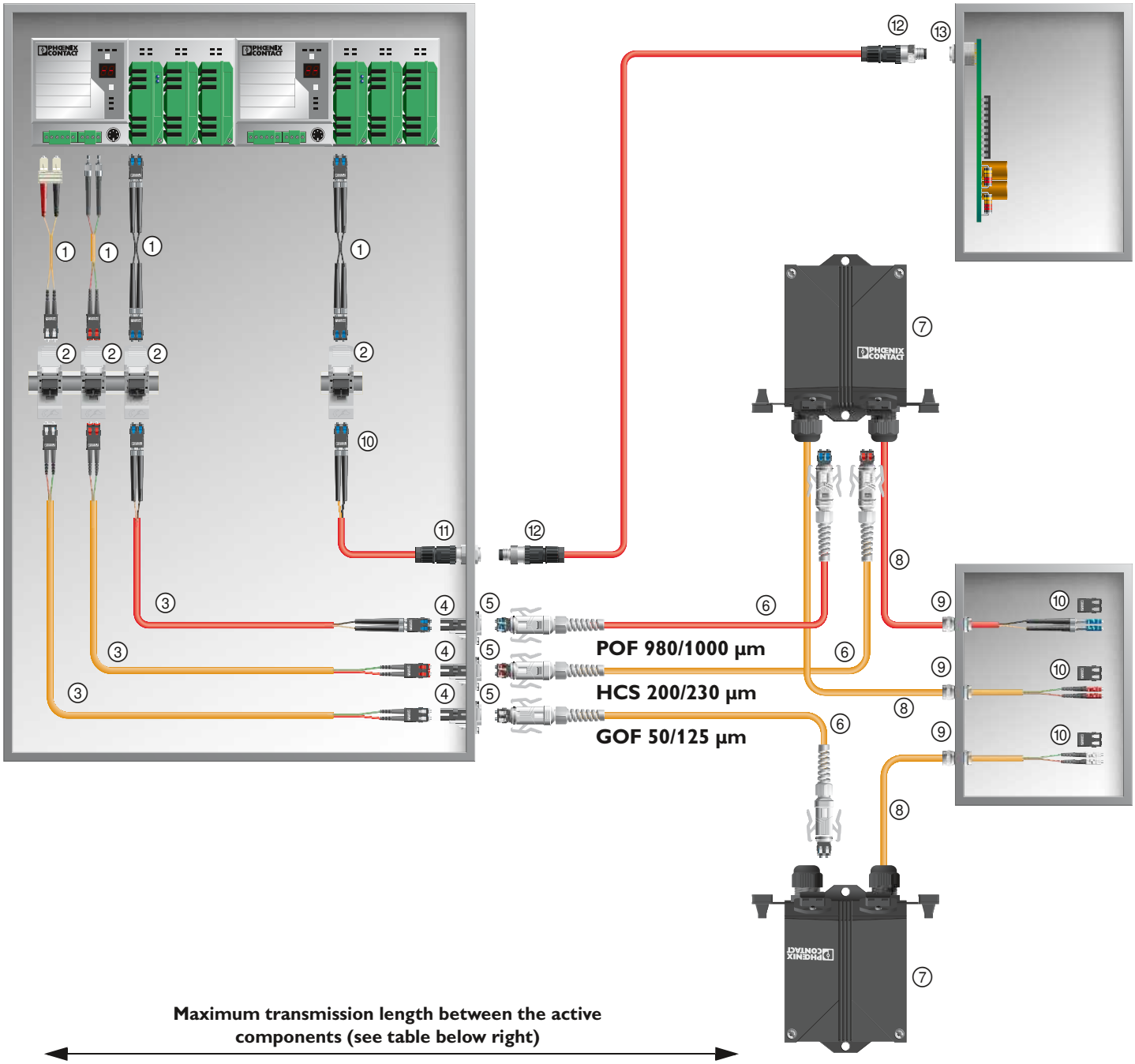
No.	Designation	Page
①	Assembled Ethernet cable with RJ45 plug-in connectors, IP20	100
②	Assembled Ethernet cable with RJ45 plug-in connectors, IP67	100
③	RJ45 coupling, IP67, version 6	119
④	Ethernet cable, by the meter	96
⑤	RJ45 plug-in connector, IP67, version 6, consisting of sleeve housing and pin insert	82
⑥	RJ45 panel mounting frame, IP67, version 6, for PCB socket inserts	83
⑦	RJ45 socket insert for PCB mounting	85
⑧	Ethernet cable, for drag chain, by the meter	96
⑨	RJ45 plug-in connector, IP67, for assembly without special tools	82
⑩	RJ45 panel mounting frame, IP67, for keystones, version 6	84
⑪	RJ45 keystone socket inserts	84
⑫	RJ45 plug-in connector, IP20, CAT5e, 8-pos., for assembly without special tools	78
⑬	Assembled Ethernet cable, RJ45 to M12	98
⑭	RJ45 patch panel for the DIN rail	120
⑮	RJ45 plug-in connector, IP67, push/pull, version 14, for assembly without special tools	80
⑯	RJ45 field couplings, IP67	119
⑰	RJ45 panel mounting frame, IP67, push/pull, for PCB socket inserts, version 14	85
⑱	RJ45 socket insert for PCB mounting, version 14	85
⑲	RJ45 panel mounting frame, IP67, for the Freenet system, version 14	83
⑳	RJ45 socket inserts for the Freenet system	83
㉑	Assembled Ethernet cable with RJ45 and M12 plug-in connectors	98
㉒	Assembled Ethernet cable with M12 plug-in connectors	98
㉓	M12 plug-in connector, shielded, for assembly without special tools	88
㉔	M12 flush-type plug-in connector	92
㉕	RJ45 to M12 bulkhead	94
㉖	Terminal outlets, IP65/IP67	118
㉗	RJ45 multi-port robot interface	117

Topology – 10 Gbps Industrial Ethernet



No.	Designation	Page
①	Ethernet cable, by the meter, for 10 Gbps	96
②	RJ45 panel mounting frame, IP67, for the Freenet system, version 14	83
③	RJ45 socket inserts for the Freenet system	83
④	RJ45 plug-in connector, IP20, for 10 Gbps, for assembly without special tools	78
⑤	Assembled Ethernet cable for 10 Gbps	102
⑥	RJ45 plug-in connector, IP20, consisting of sleeve housing and pin insert for 10 Gbps	78
⑦	RJ45 plug-in connector, IP67, version 14	80
⑧	M12 plug-in connector for 10 Gbps, for assembly without special tools	88
⑨	Assembled Ethernet cable for 10 Gbps	102
⑩	M12 flush-type plug-in connector for 10 Gbps, for PCB mounting	90
⑪	Control cabinet feed-through, $CAT6_A$, M12, 8-pos., X-coded to RJ45 socket	94

Topology – fiber optic cabling for Industrial Ethernet

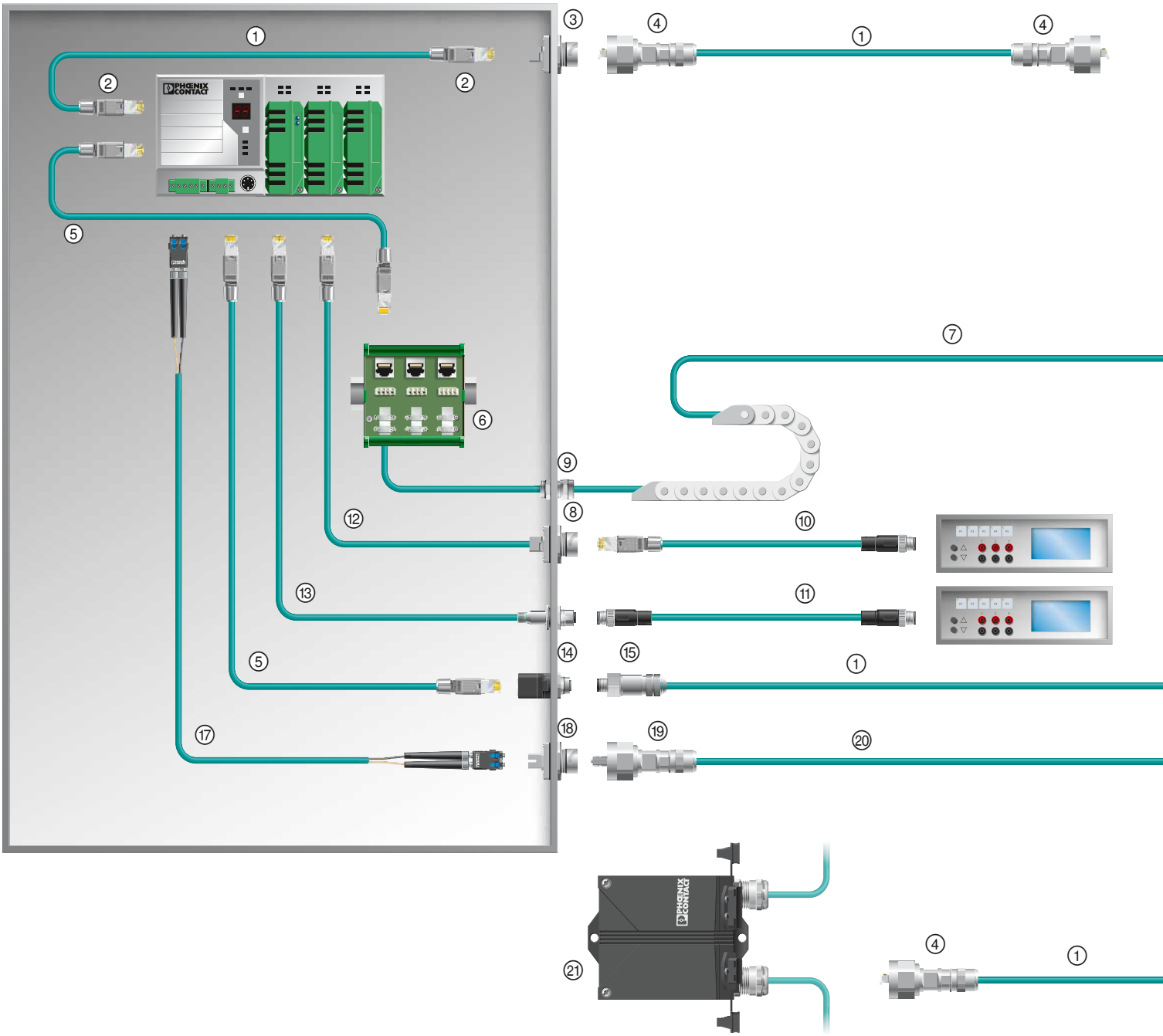


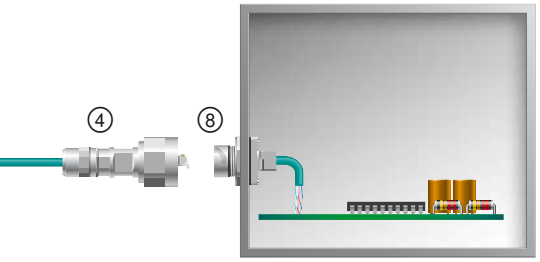
No.	Designation	Page		
		POF	HCS	GOF
①	Adapter cable, SCRJ/IP20 to FSMA (with POF/HCS) or SCRJ/IP20 to SC duplex (with GOF)			
②	Patch panel, SCRJ/IP20, for DIN rail mounting	134	134	134
③	Assembled industrial cable, assembled at both ends with SCRJ/IP20 plug-in connectors	138	152	156
④	SCRJ socket insert for panel mounting frames	From 127	From 130	From 132
⑤	SCRJ/IP67 panel mounting frames	From 127	From 130	From 132
⑥	Assembled fiber optic round cable with SCRJ plug-in connectors, IP67	From 138	From 148	From 156
⑦	IP67 terminal outlet with 2 SCRJ/IP67 slots and integrated SCRJ socket inserts	134	134	134
⑧	Industrial cable for fixed indoor installation	From 138	From 148	From 156
⑨	IP68 cable gland	From 42	From 42	From 42
⑩	SCRJ plug-in connector, IP20	127	130	132
⑪	Panel feed-through assembled with the cable	126		
⑫	M12 plug-in connector	126		
⑬	M12 transceiver	126		

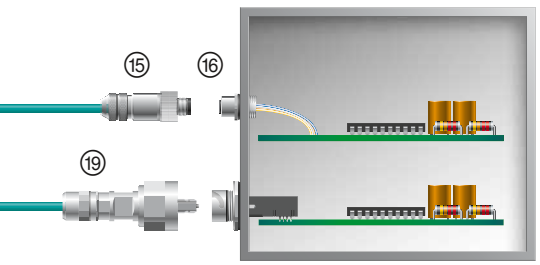
Standard	Transmission speed	Fiber type	Wavelength	Length
–	10 Mbps	POF 980/1000 µm	660 nm	50 m*
–	10 Mbps	HCS 200/230 µm	660 nm	300 m
IEC 61784-5-3 (PROFINET)	100 Mbps	POF 980/1000 µm	660 nm	50 m*
IEC 61784-5-3 (PROFINET)	100 Mbps	HCS 200/230 µm	660 nm	100 m
100Base-SX	100 Mbps	GOF 50/125 µm	850 nm	3800 m
100Base-FX	100 Mbps	GOF 50/125 µm	1300 nm	10,000 m
1000Base-SX	1000 Mbps	GOF 50/125 µm	850 nm	550 m
1000Base-LX	1000 Mbps	GOF 50/125 µm	1300 nm	550 m

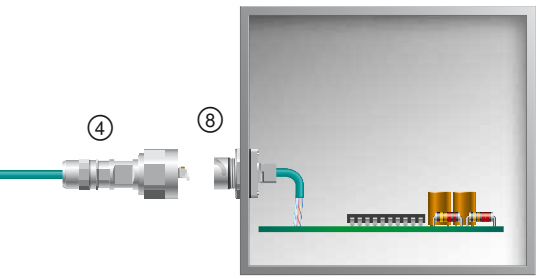
* minus 10 meters per passive coupling, e.g., patch panel, panel feed-through or terminal outlet

Topology – EtherNet/IP™



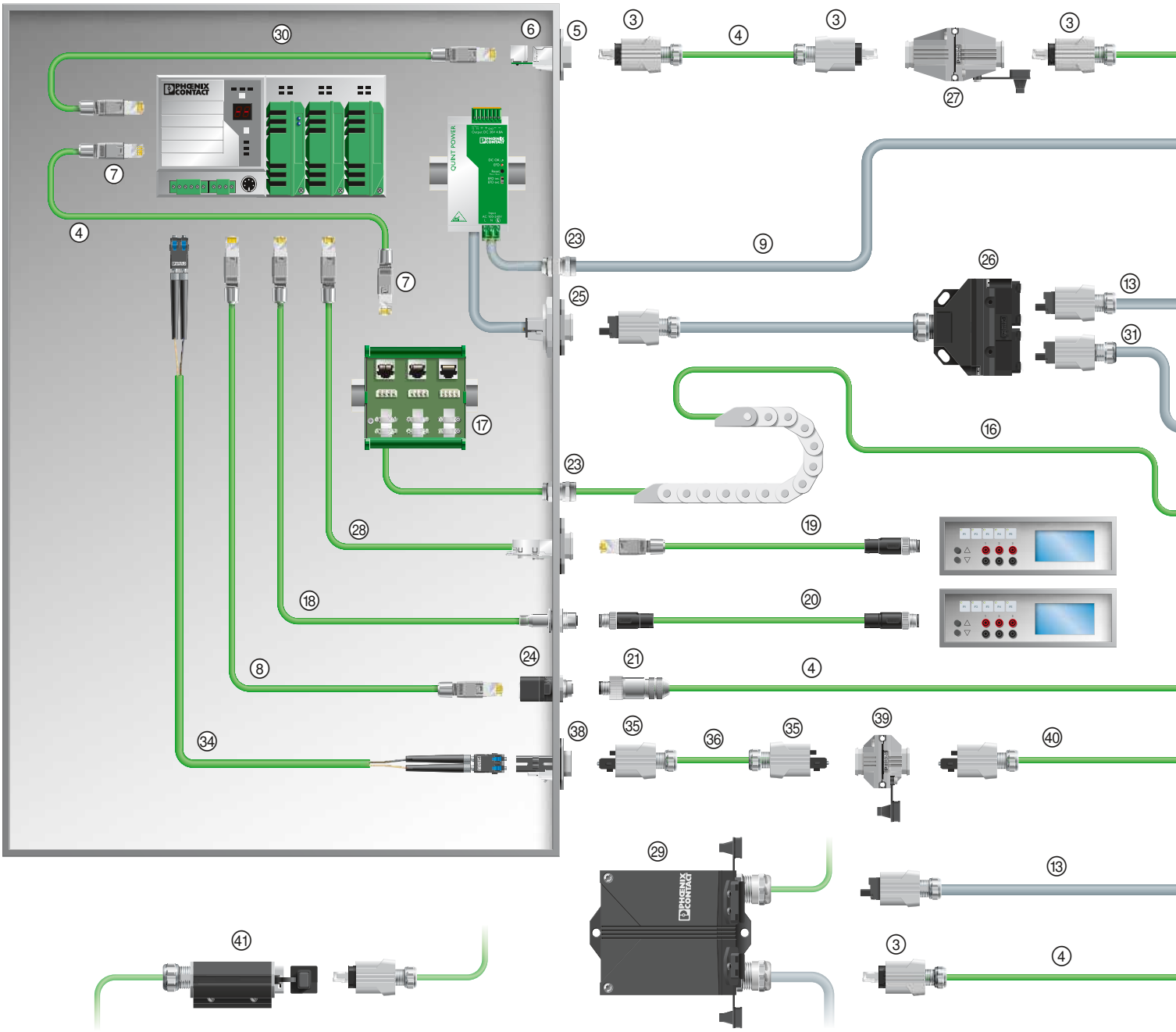




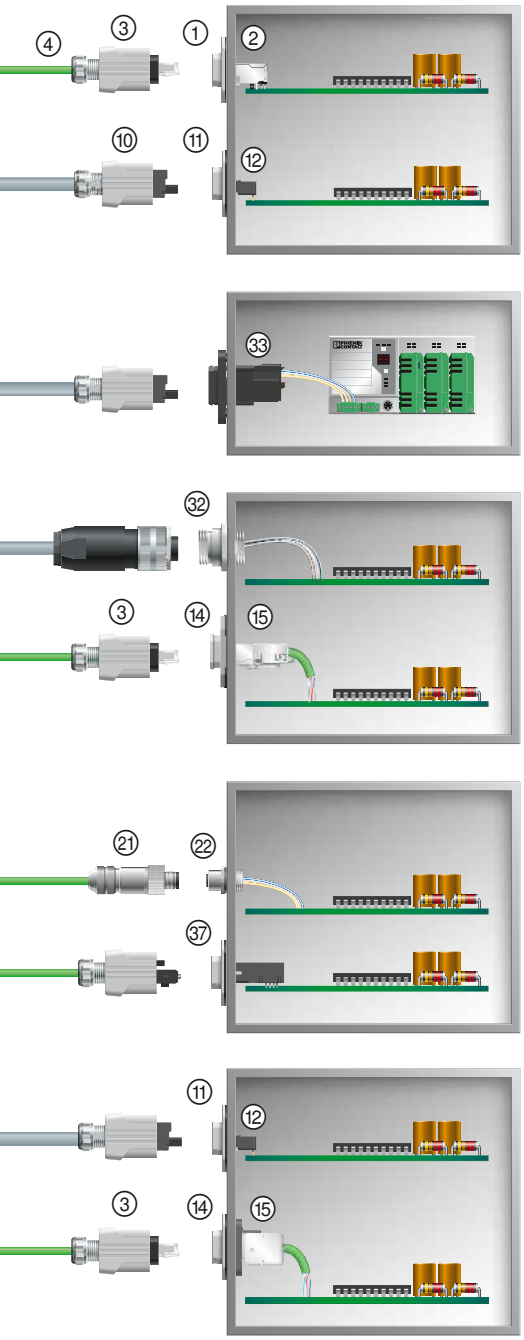


No.	Designation	Page
①	Cables for flexible installation, by the meter	96
②	RJ45 plug-in connector, IP20, for tool-free assembly	78
③	RJ45 panel feed-through, IP67, socket/socket	86
④	RJ45 plug-in connector, IP67, with bayonet locking	82
⑤	Assembled cables with RJ45 plug-in connectors, IP20	100
⑥	RJ45 patch panel, IP20, for DIN rail mounting	120
⑦	Cables for continuous motion applications, suitable for use with drag chain, by the meter	96
⑧	RJ45 panel feed-through, IP67, with cable connection	86
⑨	IP68 cable gland	42
⑩	M12 plug-in connector, with Ethernet cable and assembled RJ45 plug-in connector	98
⑪	Assembled cable with M12 plug-in connectors, IP65/IP67	98
⑫	Assembled cables with RJ45 plug-in connector and free cable end	98
⑬	Assembled cable with M12 flush-type socket to free cable end	98
⑭	Control cabinet feed-through, M12/RJ45, 180°	94
⑮	M12 plug-in connector, IP65/IP67, shielded, for tool-free assembly	89
⑯	M12 flush-type plug-in connector, with litz wires	92
⑰	Assembled fiber optic cable with SCRJ plug-in connector, IP20	144
⑱	SCRJ panel mounting frame, IP67, with bayonet locking, with SCRJ coupling	129
⑲	SCRJ plug-in connector, IP67, with bayonet locking	129
⑳	Fiber optic cable, for flexible installation, by the meter	137
㉑	Terminal outlets, IP65/IP67	118

Topology – PROFINET

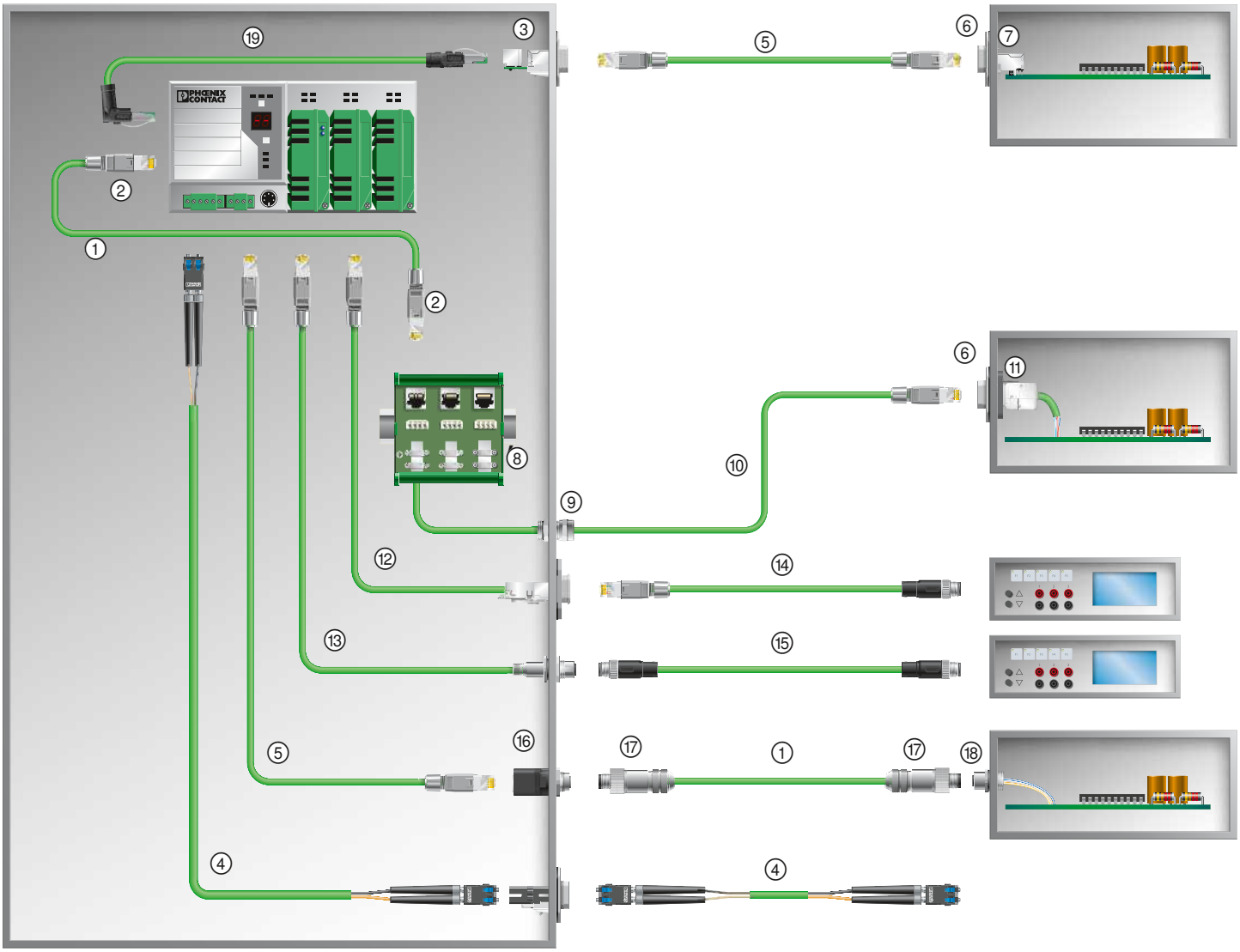


No.	Designation	Page	
		POF	HCS
㉞	Assembled fiber optic cable with SCRJ plug-in connector, IP20	144	148
㉟	SCRJ push/pull plug-in connector, IP67, with fast connection technology	128	131
㊱	PROFINET fiber optic cable, for flexible installation, by the meter	144	148
㊲	SCRJ panel mounting frame, IP67, for push/pull interlocking, for transceivers for PCB mounting	128	128
㊳	SCRJ panel mounting frame, IP67, for push/pull interlocking, with SCRJ coupling, Freenet system	128	128
㊴	SCRJ coupling, IP67, for push/pull interlocking	136	136
㊵	Assembled fiber optic cable with SCRJ plug-in connector, IP67	144	148



No.	Designation	Page
①	RJ45 panel mounting frame, IP67, for push/pull interlocking, for PCB mounting	83
②	RJ45 socket insert, for PCB mounting	83
③	RJ45 push/pull plug-in connector, IP67, for tool-free assembly	80
④	PROFINET cables, for flexible installation, by the meter	105
⑤	RJ45 panel mounting frame, IP67, for push/pull interlocking, for Freenet socket inserts	83
⑥	RJ45 socket insert, socket/socket, Freenet	83
⑦	RJ45 plug-in connector, IP20, for tool-free assembly	78
⑧	Assembled cables with RJ45 plug-in connectors, IP20	106
⑨	Power cables, for flexible installation, by the meter	See Catalog 4
⑩	MSTB push/pull plug-in connector, IP67, for 24 V, 5-pos., for free assembly	124
⑪	MSTB panel mounting frame, IP67, for 24 V, for push/pull interlocking	124
⑫	MSTB contact insert for 24 V, for PCB mounting	124
⑬	Assembled 24 V cable with MSTB push/pull plug-in connectors, IP67	See Catalog 4
⑭	RJ45 panel mounting frame, IP67, for push/pull interlocking	83
⑮	RJ45 socket insert, with cable connection, for tool-free assembly, Freenet	83
⑯	PROFINET cables, for continuous motion applications, suitable for use with drag chain, by the meter	105
⑰	RJ45 patch panel, IP20, for DIN rail mounting	120
⑱	M12 flush-type plug-in connector, with PROFINET cable and assembled RJ45 plug-in connector	106
⑲	M12 plug-in connector, with PROFINET cable and assembled RJ45 plug-in connector	106
⑳	Assembled cable with M12 plug-in connectors, IP65/IP67	106
㉑	M12 plug-in connector, IP65/IP67, shielded, for tool-free assembly	89
㉒	M12 flush-type plug-in connector, with litz wires	92
㉓	IP68 cable gland	42
㉔	Control cabinet feed-through, M12/RJ45, 180°	94
㉕	MSTB panel mounting frame, IP67, for 24 V, for push/pull interlocking, with contact insert for conductor connection	124
㉖	Power Y-distributor, IP67, with push/pull interlocking	125
㉗	Multi-port data coupling	119
㉘	Assembled cables with RJ45 plug-in connector and socket, IP20	106
㉙	Terminal outlet with 1 x RJ45, 1 x power connection, IP67, for push/pull interlocking	118
㉚	PROFINET patch cable, RJ45 to RJ45, IP20	106
㉛	Assembled 24 V cable with MSTB push/pull plug-in connector, IP67, and 7/8" circular plug-in connector	See Catalog 4
㉜	Flush-type plug-in connector, 5-pos., 7/8"	266
㉝	Panel mounting frame, IP67, for 24 V or 400 V, for push/pull interlocking with MSTB contact insert for conductor connection, plastic	124
㊶	Multi-port robot interface	117

Topology – EtherCAT



No.	Designation	Page
①	EtherCAT cable, by the meter	108
②	RJ45 plug-in connector, IP20, for tool-free assembly	78
③	RJ45 socket insert, socket/socket, Freenet	83
④	Assembled fiber optic cable with SCRJ plug-in connector, IP20	144
⑤	Assembled cable with RJ45 plug-in connectors, IP20	108
⑥	RJ45 panel mounting frame, IP20	79
⑦	RJ45 socket insert, for PCB mounting	85
⑧	RJ45 patch panel, IP20, for DIN rail mounting	120
⑨	IP68 cable gland	42
⑩	Assembled cable with RJ45 plug-in connector to free cable end	108
⑪	RJ45 socket insert, with cable connection	83
⑫	Assembled cable with RJ45 plug-in connector to RJ45 socket	108
⑬	Assembled cable with M12 flush-type socket to free cable end	108
⑭	Assembled cable with RJ45 plug to M12 plug	108
⑮	Assembled cable with M12 plug-in connectors	108
⑯	Control cabinet panel feed-through, M12/RJ45, 180°	94
⑰	M12 plug-in connector, shielded, for tool-free assembly	89
⑱	M12 flush-type plug-in connector, with litz wires	92
⑲	EtherCAT patch cable, RJ45 to RJ45, IP20	108

RJ45 plug-in connector, IP20



RJ45 plug-in connector with fast connection technology, for up to 10 Gbps



RJ45 pin inserts, CAT6$_A$ and CAT5

	Technical data		Technical data	
	VS-08-RJ45-10G/Q	VS-...-RJ45-...-Q...	VS-08-RJ45-10G/C	VS-08-ST-H...-RJ45
Electrical data				
Transmission characteristics (category)	CAT6$_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT6$_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Surge voltage category	I	I	I	I
Material data				
Housing material	PA 6.6	PA 6.6	-	-
Contact material	CuSn	CuSn	Phosphor bronze	Copper alloy
Inflammability class according to UL 94	V2	V2	V2	V2
Pollution degree	2	2	-	2
External cable diameter	4.5 mm ... 8 mm	4.5 mm ... 8 mm	-	-
Insertion/withdrawal cycles	≥ 750	≥ 750	-	≥ 750
Temperature data				
Ambient temperature (operation)	-20 °C ... 70 °C	-20 °C ... 70 °C	-25 °C ... 60 °C	-25 °C ... 60 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 plug-in connector, IP20, **CAT6$_A$**, 8-pos., with QUICKON fast connection technology, for 1-wire and 7-wire AWG 26 ... 24 conductors, color: black	**VS-08-RJ45-10G/Q**	**1419001**	1			
RJ45 plug-in connector, IP20, **CAT5**, 8-pos., with QUICKON fast connection technology, for 1-wire and 7-wire AWG 26 ... 24 conductors, color: black	**VS-08-RJ45-Q**	**1402420**	1			
RJ45 plug-in connector, 4-pos., with QUICKON fast connection technology, for 22 AWG, color: gray	**VS-PN-RJ45-5-Q/IP20**	**1658435**	1			
RJ45 pin insert, CAT6$_A$, 10 Gbps				**VS-08-RJ45-10G/C**	**1418853**	5
RJ45 pin insert, 8-pos., shielded, IDC connection technology, for 27 ... 26 AWG litz wires, with strain relief						
CAT5				**VS-08-ST-H11-RJ45**	**1652716**	5
RJ45 bend protection sleeve, for VS-08-ST-H11-RJ45 and VS-08-RJ45-10G/C pin inserts, for cable diameters up to 7 mm						
Gray				**VS-08-KS-H/GY**	**1654743**	5
Green				**VS-08-KS-H/GN**	**1654756**	5
	Accessories			**Accessories**		
Crimp tool, pliers with die, for VS-08-ST-H…-RJ45				**VS-CT-RJ45-H**	**1653265**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1
Shielding foil set, 25 pcs., replacement for RJ45 and M12-QUICKON connectors	**VS-08-RJ45-FOLIEN-SET**	**1417184**	1			

RJ45 panel mounting frames with IP20 and socket inserts



RJ45 socket inserts and IP20 panel mounting frame, modular system, keystone

Technical data

	VS-08-BU-RJ45-6/KA/LSA	VS-08-A-RJ45/MOD-1-IP20
Electrical data		
Rated current	2 A	-
Transmission characteristics (category)	CAT6	-
Material data		
Housing material	Nickel-plated brass	PA
Contact material	Copper alloy	-
Inflammability class according to UL 94	V0	V0
Mechanical data		
No. of pos.	8	-
Connection method	LSA	-
Conductor cross section	0.13 mm² ... 0.32 mm² (solid)	-
Connection cross section AWG	26 ... 22 (solid)	-
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-40 °C ... 80 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
RJ45 socket insert, 8-pos., shielded, socket to socket CAT5	**VS-08-BU-RJ45/BU**	**1689064**	5
RJ45 socket insert, 8-pos., shielded, with cable connection CAT6	**VS-08-BU-RJ45-6/KA/LSA**	**1653168**	5
RJ45 panel mounting frame, single, for modular socket inserts (keystone), without mounting screws	**VS-08-A-RJ45/MOD-1-IP20**	**1689433**	5

Accessories

Split-core tool, for connecting the copper wires to the LSA Plus strips	**CT-WZ/A**	**2765505**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1

RJ45 plug-in connector, version 14, IP65/IP67

Ethernet



RJ45 plug-in connector, version 14, push/pull, 10 Gbps

Ethernet

PROFINET

sercos the automation bus

EtherCAT



RJ45 plug-in connector, version 14, push/pull, fast connection technology

Technical data

	VS-PPC-C1-...-8/10G
Electrical data	
Nominal voltage U_N	50 V
Rated current	1.75 A
Transmission characteristics (category)	$CAT6_A$
Surge voltage category	I
Material data	
Housing material	Zinc die-cast
Contact material	Copper alloy
Inflammability class according to UL 94	V0
Pollution degree	2
Connection data	
Connection method	IDC fast connection
Connection cross section AWG	26 ... 24 (solid)
Connection cross section AWG	26 ... 24 (7-wire)
External cable diameter	5 mm ... 8 mm
Insertion/withdrawal cycles	≥ 250
Temperature data	
Ambient temperature (operation)	-40 °C ... 70 °C

Technical data

	VS-PPC-C1-...-PG9-8Q5	VS-PPC-C1-...-PG9-4Q5
Electrical data		
Nominal voltage U_N	50 V	50 V
Rated current	1.75 A	1.75 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Surge voltage category	I	I
Material data		
Housing material	Zinc die-cast	Zinc die-cast
Contact material	Copper alloy	Copper alloy
Inflammability class according to UL 94	V0	V0
Pollution degree	2	2
Connection data		
Connection method	IDC fast connection	IDC fast connection
Connection cross section AWG	26 ... 22 (solid)	26 ... 22 (solid)
Connection cross section AWG	26 ... 22 (stranded)	26 ... 22 (stranded)
External cable diameter	5 mm ... 8 mm	5 mm ... 8 mm
Insertion/withdrawal cycles	≥ 250	≥ 500
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Push/pull plug-in connector (version 14) for 10 Gbps, with RJ45 crimp connection, for 26 ... 24 AWG stranded conductors, 5.0 mm ... 8.0 mm cable diameter			
Metal housing	**VS-PPC-C1-RJ45-MNNA-8I10G**	**1422108**	1
Plastic housings	**VS-PPC-C1-RJ45-POBK-8I10G**	**1422205**	1
Push/pull plug-in connector (version 14) optimized for use in environments subject to EMI, with RJ45 QUICKON fast connection technology, for 5.0 mm ... 8.0 mm cable diameter			
4-pos., 22 AWG 1-wire and 7-wire conductors			
8-pos., 26 ... 24 AWG 1-wire and 7-wire conductors			
Push/pull plug-in connector (version 14) for 1 Gbps, 8-pos., with RJ45 QUICKON fast connection technology, for 26 ... 24 AWG 1 and 7-wire conductors, 5.0 mm ... 8.0 mm cable diameter			
Metal housing			
Plastic housings			
Push/pull plug-in connector (version 14) for 1 Gbps, 4-pos., PROFINET with RJ45 QUICKON fast connection technology, for 22 AWG 1-wire and 7-wire conductors, 5.0 mm ... 8.0 mm cable diameter			
Metal housing			
Plastic housings			

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-PPC-C1-MNNA-4Q5-EMC	**1403366**	1
VS-PPC-C1-MNNA-8Q5-EMC	**1403367**	1
VS-PPC-C1-RJ45-MNNA-PG9-8Q5	**1608016**	1
VS-PPC-C1-RJ45-POBK-PG9-8Q5	**1657834**	1
VS-PPC-C1-RJ45-MNNA-PG9-4Q5	**1608100**	1
VS-PPC-C1-RJ45-POBK-PG9-4Q5	**1608126**	1

Accessories

	Type	Order No.	Pcs. / Pkt.
Protective cover, IP65, with push/pull interlocking, for covering the contact insert in the push/pull connector for RJ45 and SCRJ, plastic	**VS-PPC-F1-PC-POBK**	**1405316**	1
Shielding foil set, 25 pcs., replacement for RJ45 and M12-QUICKON connectors	**VS-08-RJ45-FOLIEN-SET**	**1417184**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1

Accessories

Type	Order No.	Pcs. / Pkt.
VS-PPC-F1-PC-POBK	**1405316**	1
VS-08-RJ45-FOLIEN-SET	**1417184**	1
VS-CABLE-STRIP-VARIO	**1657407**	1

RJ45 plug-in connector, version 4, IP65/IP67



RJ45 plug-in connector



RJ45 socket insert

	Technical data	Technical data
	-	-
Electrical data		
Transmission characteristics (category)	$CAT6_A$	-
Material data		
Housing material	Plastic	-
Inflammability class according to UL 94	V0	V0
Mechanical data		
No. of pos.	8	8
Connection method	Crimp connection	-
Connection cross section AWG	28 ... 24 (stranded)	-
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 plug-in connector, IP67, with push/pull interlocking (version 4), plastic housing, for 10 Gbps, for 24 ... 28 AWG stranded conductors	**CUC-V04-RJ45-POBK-8**	**1407413**	1			
RJ45 socket insert, 1-way, for PCB mounting, CAT5e, 8-pos., shielded						
Straight solder pins				**CUC-V04-BU-180**	**1407409**	1
Angled solder pins				**CUC-V04-BU-90**	**1407408**	1
Panel mounting frame						
For 180° socket insert				**CUC-V04-F-POBK-180**	**1407410**	1
For 90° socket insert				**CUC-V04-F-POBK-90**	**1407411**	1
Panel mounting frame set						
Socket / Socket				**CUC-V04-F-BU/BU-RJ45**	**1407412**	1
	Accessories			**Accessories**		
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1			
Electronic diagonal cutter, tapered head, without chamfer, with opening spring, non-reflective phosphate-treated surface, punched version	**MICROFOX-SP-1**	**1212487**	1			
Crimping pliers, for assembling the RJ45 plug-in connectors	**FL CRIMPTOOL**	**2744869**	1			

RJ45 plug-in connector, version 6 and version 1, IP65/IP67

Ethernet



RJ45 plug-in connector, version 6

EtherNet/IP



RJ45 plug-in connector, version 1

	Technical data	Technical data
	VS-08-RJ45-5-Q/IP67...	VS-V1-C-RJ45-MNNA-PG9-8-I-5-S
Electrical data		
Rated voltage	50 V	50 V
Rated current	1.75 A	1.75 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Surge voltage category	I	I
Material data		
Housing material	PA	Zinc die-cast
Contact material	Copper alloy	-
Inflammability class according to UL 94	V0	V0
Pollution degree	2	2
Connection data		
Connection method	IDC fast connection	IDC connection
Connection cross section AWG	26 ... 22 (solid)	27 ... 24 (stranded)
Connection cross section AWG	26 ... 22 (stranded)	-
External cable diameter	5 mm ... 8 mm	5 mm ... 10 mm
Insertion/withdrawal cycles	≥ 1000	750
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-40 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 plug-in connector, 8-pos., with QUICKON fast connection technology, for AWG 26 ... 22						
Military gray RAL 7042	**VS-08-RJ45-5-Q/IP67**	**1656990**	1			
Deep black RAL 9005	**VS-08-RJ45-5-Q/IP67-BK**	**1658493**	1			
RJ45 pin insert, 8-pos., shielded, IDC connection technology, for 27 ... 26 AWG litz wires, with strain relief						
CAT5	**VS-08-ST-H11-RJ45**	**1652716**	5			
CAT6	**VS-08-ST-H21-RJ45**	**1652729**	5			
RJ45 pin insert, 8-pos., shielded, IDC pierce connection, for litz wires AWG 27 ... 24, with strain relief						
CAT6	**VS-08-ST-H21P-RJ45**	**1404388**	5			
RJ45 pin insert, $CAT6_A$, 10 Gbps	**VS-08-RJ45-10G/C**	**1418853**	5			
RJ45 sleeve housing for pin insert VS-08-ST-H...-RJ45, with push/pull interlocking for panel mounting frames, for cable diameters 5.0 mm … 8.5 mm						
Military gray RAL 7042	**VS-08-T-H-RJ45/IP67**	**1652732**	5			
Deep black RAL 9005	**VS-08-T-H-RJ45/IP67-BK**	**1658671**	5			
RJ45 plug-in connector, IP67, with bayonet locking, metal housing, CAT5e, 8-pos., IDC connection method, for 26 AWG 7-wire conductors, for cable diameter						
5.0 mm ... 8.0 mm				**VS-V1-C-RJ45-MNNA-PG9-8-I-5-S**	**1419182**	1
	Accessories			**Accessories**		
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1
Protective cover, IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ connector				**VS-V1-C-PC-POBK**	**1419183**	1
Crimp tool, pliers with die, for VS-08-ST-H…-RJ45	**VS-CT-RJ45-H**	**1653265**	1			

IP65/IP67 RJ45 panel mounting frame and Freenet socket inserts



Push/pull, version 14, Freenet system



Version 6, Freenet system

Technical data

	VS-08-BU-RJ45/10G-F	VS-PPC-F1-RJ45-MNNA-1R-F
Electrical data		
Nominal voltage U_N	50 V	-
Rated current	1 A	-
Housing material	Polycarbonate	Zinc die-cast
Contact material	CuSn	-
Inflammability class according to UL 94	V0	V0
No. of pos.	8	-
Connection method	IDC	-
Insertion/withdrawal cycles	≥ 750	-
Temperature data		
Ambient temperature (operation)	-10 °C ... 60 °C	-40 °C ... 70 °C

Technical data

	VS-08-BU-RJ45-5-F/PK	VS-A-F-IP67
Electrical data		
Nominal voltage U_N	50 V	-
Rated current	1 A	-
Housing material	-	PA
Contact material	Copper alloy	-
Inflammability class according to UL 94	V0	V0
No. of pos.	8	-
Connection method	IDC	-
Insertion/withdrawal cycles	≥ 750	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-40 °C ... 80 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
RJ45 Freenet socket insert, 8-pos., shielded, with cable connection			
10 Gbps, CAT6$_A$	**VS-08-BU-RJ45/10G-F**	**1424009**	1
RJ45 Freenet socket insert, 8-pos., shielded, with cable connection			
1 Gbps, CAT5	**VS-08-BU-RJ45-5-F/PK**	**1652936**	1
RJ45 Freenet socket insert, 8-pos., shielded, socket to socket			
1 Gbps, CAT5	**VS-08-BU/BU-RJ45-F**	**1405617**	1
RJ45 Freenet panel mounting frame, version 14, IP65/IP67, for rectangular mounting cutout, with seal, without mounting screws			
Metal housing	**VS-PPC-F1-RJ45-MNNA-1R-F**	**1405358**	1
Plastic housings	**VS-PPC-F1-RJ45-POBK-1R-F**	**1608197**	1
RJ45 Freenet panel mounting frame, version 14, IP65/IP67, for round mounting cutout, with seal and central nut			
Metal housing	**VS-PPC-F1-RJ45-MNNA-1C-F**	**1405222**	1
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws			
Military gray RAL 7042	**VS-A-F-IP67**	**1653744**	5
Deep black RAL 9005	**VS-A-F-IP67-BK**	**1658668**	5

Accessories

Protective cover for version 6 panel mounting frame			
Military gray RAL 7042	**VS-08-SD-F**	**1652606**	5
Deep black RAL 9005	**VS-08-SD-F-BK**	**1658066**	5
Protective cover			
For data port	**VS-PPC-C1-PC-ROBK-L**	**1405293**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1

Accessories

Protective cover for version 6 panel mounting frame			
Military gray RAL 7042	**VS-08-SD-F**	**1652606**	5
Deep black RAL 9005	**VS-08-SD-F-BK**	**1658066**	5
Protective cover			
For data port			
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1

IP65/IP67 RJ45 panel mounting frame and socket inserts

Ethernet



Version 6, keystone

Technical data

	VS-08-BU-RJ45-6/KA/LSA	VS-08-A-RJ45/MOD-1-IP67
Electrical data		
Rated voltage	250 V	-
Rated current	2 A	-
Transmission characteristics (category)	CAT6	-
Housing material	Nickel-plated brass	PA
Contact material	Copper alloy	-
Inflammability class according to UL 94	V0	V0
No. of pos.	8	-
Connection method	LSA	-
Connection cross section AWG	26 ... 22 (solid)	-
Insertion/withdrawal cycles	≥ 1000	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-40 °C ... 80 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
RJ45 socket insert, 8-pos., shielded, with cable connection			
CAT6	**VS-08-BU-RJ45-6/KA/LSA**	**1653168**	5
RJ45 socket insert, 8-pos., shielded, socket to socket			
CAT5	**VS-08-BU-RJ45/BU**	**1689064**	5
CAT6	**VS-08-BU-RJ45-6-MOD/BU**	**1653155**	5
RJ45 keystone panel mounting frame, version 6, for round mounting cutout, with seal and central nut			
Military gray RAL 7042	**VS-08-A-RJ45/MOD-1-R-IP67**	**1689844**	1
Deep black RAL 9005	**VS-08-A-RJ45/MOD-1-R-IP67 BK**	**1658053**	5
RJ45 keystone panel mounting frame, version 6, with rectangular mounting cutout, with seal, without mounting screws			
Military gray RAL 7042	**VS-08-A-RJ45/MOD-1-IP67**	**1689080**	5
Deep black RAL 9005	**VS-08-A-RJ45/MOD-1-IP67-BK**	**1658642**	5

Accessories

Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1
Protective cover for version 6 panel mounting frame			
Military gray RAL 7042	**VS-08-SD-F**	**1652606**	5
Deep black RAL 9005	**VS-08-SD-F-BK**	**1658066**	5

IP65/IP67 RJ45 panel mounting frame and socket inserts



Push/pull, version 14, with PCB connection

Ethernet



Version 6, with PCB connection

	Technical data		Technical data	
	VS-08-BU-RJ45-6/...	VS-PPC-F1-RJ45-MNNA-1R-PHA	VS-08-BU-RJ45/LP-1	VS-08-A-RJ45/LP-1-IP67...
Electrical data				
Rated voltage	125 V	-	150 V	-
Rated current	1 A	-	1.5 A	-
Housing material	Copper alloy	Zinc die-cast	-	PA
Contact material	Copper alloy	-	Copper alloy	-
Inflammability class according to UL 94	V0	V0	V0	V0
No. of pos.	8	-	8	-
Insertion/withdrawal cycles	≥ 750	≥ 500	≥ 750	≥ 1000
Temperature data				
Ambient temperature (operation)	-25 °C ... 80 °C	-40 °C ... 70 °C	-40 °C ... 85 °C	-40 °C ... 80 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 socket insert, for PCB assembly, CAT6, 8-pos., shielded, with angled solder pins, 1x	**VS-08-BU-RJ45-10G/LH-1**	**1420401**	1			
RJ45 socket insert, for PCB mounting, CAT5, 8-pos., shielded, with angled solder pins				**VS-08-BU-RJ45/LP-1**	**1688586**	5
RJ45 socket insert, single, for PCB mounting, CAT6, 8-pos., shielded						
Straight solder pins	**VS-08-BU-RJ45-6/LV-1**	**1653090**	5	**VS-08-BU-RJ45-6/LV-1**	**1653090**	5
Angled solder pins	**VS-08-BU-RJ45-6/LH-1**	**1653087**	5	**VS-08-BU-RJ45-6/LH-1**	**1653087**	5
RJ45 panel mounting frame, version 14, IP65/IP67, for rectangular mounting cutout, with seal, without mounting screws						
Metal housing	**VS-PPC-F1-RJ45-MNNA-1R-PHA**	**1608029**	1			
Plastic housings	**VS-PPC-F1-RJ45-P0BK-1R-PHA**	**1657847**	1			
RJ45 panel mounting frame, version 6, for rectangular mounting cutout, with seal, without mounting screws						
Military gray RAL 7042				**VS-08-A-RJ45/LP-1-IP67**	**1689446**	5
Deep black RAL 9005				**VS-08-A-RJ45/LP-1-IP67-BK**	**1658655**	5

	Accessories			Accessories		
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1
Protective cover						
For data port	**VS-PPC-C1-PC-ROBK-L**	**1405293**	1			
Protective cover for version 6 panel mounting frame						
Military gray RAL 7042				**VS-08-SD-F**	**1652606**	5
Deep black RAL 9005				**VS-08-SD-F-BK**	**1658066**	5

IP65/IP67 RJ45 panel mounting frame including socket inserts



RJ45 panel mounting frame with socket insert, version 1



RJ45 panel mounting frame with socket insert, version 1

	Technical data	Technical data
Electrical data		
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Housing material	Zinc die-cast	Zinc die-cast
Inflammability class according to UL 94	V0	V0
No. of pos.	8	8
Connection cross section AWG	-	26 ... 22 (stranded)
Insertion/withdrawal cycles	750	750
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 panel mounting frame, IP67, for bayonet locking, metal, **with socket/socket contact insert**, for round mounting cutout, with seal, without mounting screws	**VS-V1-F-RJ45-MNNA-1-C-S-JJ-S**	**1419184**	1			
RJ45 panel mounting frame, IP67, for bayonet locking, metal, **with contact insert for cable connection,** for round mounting cutout, with seal, without mounting screws				**VS-V1-F-RJ45-MNNA-1-C-S-JI-S**	**1419185**	1
	Accessories			**Accessories**		
Protective cover, IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ **panel mounting frame**	**VS-V1-F-PC-POBK**	**1419186**	1	**VS-V1-F-PC-POBK**	**1419186**	1

M12 plug-in connector, for assembly

Ethernet



M12 plug-in connector, 10 Gbps, Piercecon® connection

Ethernet



M12 plug-in connector, 100 Mbps, screw connection

Technical data

	VS-08-M12...-10G-P SCO
Electrical data	
Nominal voltage U_N	48 V
Rated current	0.5 A
Transmission characteristics (category)	$CAT6_A$
Material contact / contact surface	CuSn / Ni/Au
Material of grip body	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0
No. of pos.	8
Connection method	Piercecon®
Connection cross section AWG	26
Insertion/withdrawal cycles	≥ 100
Temperature data	
Ambient temperature (operation)	-40 °C ... 85 °C

Technical data

	SACC-M12MSD-4CON-...-SH
Electrical data	
Nominal voltage U_N	60 V
Rated current	4 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Material contact / contact surface	CuZn / Au
Material of grip body	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	HB
No. of pos.	4
Connection method	Screw connection
Connection cross section AWG	24 ... 18
Insertion/withdrawal cycles	≥ 100
Temperature data	
Ambient temperature (operation)	-40 °C ... 85 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Plug-in connector, $CAT6_A$, plug, 8-pos., shielded, X-coded, **cable diameter: 4 mm ... 8 mm**			
straight	**VS-08-M12MS-10G-P SCO**	**1417430**	1
angled	**VS-08-M12MR-10G-P SCO**	**1417443**	1
Plug-in connector, Pg7 screw connection, 4-pos., D-coded, **cable diameter: 4 mm ... 6 mm**			
Plug, straight	**SACC-M12MSD-4CON-PG 7-SH**	**1521258**	1
Plug-in connector, Pg9 screw connection, 4-pos., D-coded, **cable diameter: 4 mm ... 8 mm**			
Plug, straight	**SACC-M12MSD-4CON-PG 9-SH**	**1521261**	1

Accessories

Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1

Accessories

	VS-CABLE-STRIP-VARIO	**1657407**	1

M12 plug-in connector, for assembly

Notes:

For description of connection method, see page 8

Ethernet



M12 plug-in connector, 100 Mbps and 1 Gbps, QUICKON connection



M12 plug-in connector, 100 Mbps, QUICKON connection

Technical data

	SACC-M12...-4Q SH	SACC-M12...-8Q SH
Electrical data		
Nominal voltage U_N	60 V	30 V
Rated current	1.75 A	1.75 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuSn	CuSn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
No. of pos.	4	8
Connection method	Insulation displacement connection	Insulation displacement connection
Connection cross section AWG	26 ... 22	26 ... 22
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Plug-in connector, 4-pos., shielded, D-coded, color-coded terminal blocks for Ethernet, **max. cable diameter: 8 mm**			
Plug, straight	**SACC-M12MSD-4Q SH**	**1543223**	1
Plug, angled	**SACC-M12MRD-4Q SH**	**1553624**	1
Socket, straight	**SACC-M12FSD-4Q SH**	**1553611**	1
Socket, angled	**SACC-M12FRD-4Q SH**	**1553637**	1
Plug-in connector, 8-pos., shielded, A-coded, color-coded terminal blocks for Ethernet, **max. cable diameter: 8 mm**			
Plug, straight	**SACC-M12MS-8Q SH**	**1543236**	1
Plug, angled	**SACC-M12MR-8Q SH**	**1553653**	1
Socket, straight	**SACC-M12FS-8Q SH**	**1553640**	1
Socket, angled	**SACC-M12FR-8Q SH**	**1553666**	1

Accessories

Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1

Technical data

	SACC-M12...-4Q SH PN	SACC-M12...-6Q SH VARAN
Electrical data		
Nominal voltage U_N	60 V	30 V
Rated current	1.75 A	2 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	-
Contact material	CuSn	CuSn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
No. of pos.	4	6
Connection method	Insulation displacement connection	Insulation displacement connection
Connection cross section AWG	26 ... 22	26 ... 22
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Plug-in connector, 4-pos., shielded, D-coded, color-coded terminal blocks for PROFINET, **max. cable diameter: 8 mm**			
Plug, straight	**SACC-M12MSD-4Q SH PN**	**1554513**	1
Plug, angled	**SACC-M12MRD-4Q SH PN**	**1554539**	1
Socket, straight	**SACC-M12FSD-4Q SH PN**	**1554526**	1
Socket, angled	**SACC-M12FRD-4Q SH PN**	**1554542**	1
Plug-in connector, 6-pos., shielded, A-coded, color-coded terminal blocks for VARAN, **max. cable diameter: 8 mm**			
Plug, straight	**SACC-M12MS-6Q SH VARAN**	**1429130**	1
Plug, angled	**SACC-M12MR-6Q SH VARAN**	**1429156**	1
Socket, straight	**SACC-M12FS-6Q SH VARAN**	**1429143**	1
Socket, angled	**SACC-M12FR-6Q SH VARAN**	**1429169**	1

Accessories

Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1

M12 flush-type plug-in connector, solder connection



CAT6$_A$



CAT5/CAT5e

	Technical data		Technical data	
	SACC-DSI-...-L180-10G SCO		SACC-DSI-...4CON-L180/...	SACC-DSI-...8CON-L180/...
Electrical data				
Nominal voltage U_N	48 V		250 V	30 V
Rated current	0.5 A		4 A	2 A
Transmission characteristics (category)	CAT6$_A$		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn		CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated		Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0		V0	V0
No. of pos.	8		4	8
Insertion/withdrawal cycles	≥ 100		≥ 100	≥ 100
Temperature data				
Plug / socket [°C]	-40 ... 85		-25 ... 85	-25 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Flush-type plug-in connector, CAT6$_A$, Ethernet, 8-pos., M12 SPEEDCON, rear/screw mounting with Pg9 thread, with straight solder connection						
Socket	**SACC-DSIV-FS-8CON-L180-10G SCO**	**1440669**	20			
Contact carrier, CAT6$_A$, Ethernet, 8-pos., rear mounting, with straight solder connection						
Socket	**SACC-CI-M12FS-8CON-L180-10G**	**1402457**	20			
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers						
Socket	**SACC-M12-SCO NUT L 90**	**1432460**	10			
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M16 thread, with straight solder connection						
Socket				**SACC-DSI-FSD-4CON-L180/SH TQ**	**1456527**	20
Plug				**SACC-DSI-MSD-4CON-L180/SH TQ**	**1456514**	20
Flush-type plug-in connector, Ethernet, **8-pos.,** M12 SPEEDCON, with shield contact, rear/screw mounting with M16 thread, with polarity protection, with straight solder connection						
Socket				**SACC-DSI-FS-8CON-L180/SH TQ**	**1456543**	20
Plug				**SACC-DSI-MS-8CON-L180/SH TQ**	**1456530**	20
Flush-type plug-in connector, PROFINET, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M16 thread, with straight solder connection						
Socket				**SACC-DSI-FSD-4CON-L180/SH GN**	**1456569**	20
Plug				**SACC-DSI-MSD-4CON-L180/SH GN**	**1456556**	20
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with angled solder connection						
				SACC-DSIV-FSD-4CON-L90 SCO	**1436550**	10
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with polarity protection, with straight solder connection						
Socket				**SACC-DSIV-FSD-4CON-L180 SCO**	**1542619**	10
Flush-type plug-in connector, Ethernet, **8-pos.,** M12 SPEEDCON, with shield contact, A-coded, rear/screw mounting with M12 thread, with straight THR solder connection						
Socket				**SACC-DSIV-FS-8CON-L180-THR SH**	**1557549**	60
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with polarity protection, with straight THR solder connection						
Socket				**SACC-DSIV-FSD-4CON-L180 SCO-THR**	**1542648**	60

M12 flush-type plug-in connector, solder connection

Ethernet



X-coded



Y-coded

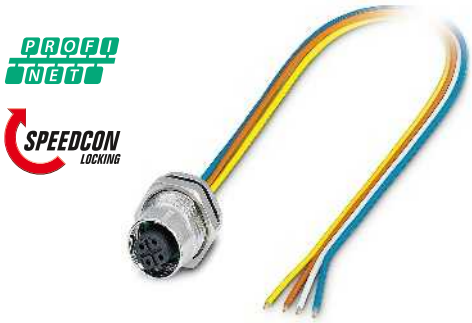
	Technical data	Technical data
	SACC-DSI-FSX-8CON...	VS-08-DSIV-L180-HYB SCO
Electrical data		
Nominal voltage U_N	48 V	30 V (Data)
Rated current	0.5 A	0.5 A (Data) / 6 A (Power)
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
No. of pos.	8	8
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Flush-type socket, $CAT6_A$, Ethernet, one-piece, 8-pos., M12 SPEEDCON, with straight solder connection, rear/screw mounting with:						
M16 fastening thread	**SACC-DSI-FSX-8CON-M16-L180 SCO**	**1424177**	20			
Pg9 fastening thread	**SACC-DSI-FSX-8CON-PG9-L180 SCO**	**1404741**	20			
Hybrid flush-type plug-in connector for the reflow soldering process, with straight solder connection, 4 x power contacts, 4 x signal contacts, rear mounting, SPEEDCON						
Socket				**VS-08-DSIV-L180-HYB SCO**	**1456666**	20
Hybrid flush-type plug-in connector for the wave soldering process, with straight solder connection, 4 x power contacts, 4 x signal contacts, rear mounting, SPEEDCON						
Socket				**SACC-DSI-FSY-8CON-M16-L180 SCO**	**1407503**	20
Contact carrier, two-piece, $CAT6_A$, Ethernet, 8-pos., rear mounting, with angled solder connection	**SACC-CI-M12FSX-8CON-L90**	**1424180**	20			
Hybrid contact carrier, **two-piece**, Ethernet, 8-pos., rear/screw mounting, with angled solder connection				**SACC-CI-M12FSY-8CON-L90**	**1424193**	20

M12 flush-type plug-in connector, with 0.5 m litz wires



Front mounting, D-coded



Rear mounting, D-coded

	Technical data	Technical data
	SACC-E-...-4CON-M16/0,5 SCO	SACC-DSI-FSD-4CON...
Electrical data		
Nominal voltage U_N	250 V	250 V
Rated current	4 A	4 A
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
Connection method	Individual wires	Individual wires
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Plug / socket [°C]	-25 ... 85	-25 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Bus system flush-type socket, PROFINET, 4-pos., M12 SPEEDCON, D-coded, front/screw mounting with M16 thread, with 0.5 m TPE litz wire, 4 x 0.34 mm²						
Socket	**SACC-E-FSD-4CON-M16/0,5 SCO**	**1535202**	1			
Bus system flush-type socket, PROFINET, 4-pos., M12 SPEEDCON, D-coded, front/screw mounting with M16 thread, can be positioned, with 0.5 m TPE litz wire, 4 x 0.34 mm²						
Socket	**SACC-EC-FSD-4CON-M16/0,5 SCO**	**1535215**	1			
Bus system flush-type socket, PROFINET, 4-pos., M12 SPEEDCON, D-coded, rear/screw mounting with Pg9 thread, with 0.5 m TPE litz wire, 4 x 0.34 mm²						
Socket				**SACC-DSI-FSD-4CON-PG9/0,5 SCO**	**1551529**	1

M12 flush-type plug-in connector, with Ethernet cable



Ethernet, X-coded, cable type: 94F

Ethernet



Ethernet hybrid, Y-coded, cable type: 94I

	Technical data	Technical data
	VS-FSBPXS-OE-94F...	VS-FSBPYS-OE-94I...
Electrical data		
Nominal voltage U_N	48 V	30 V (Power and data)
Rated current	0.5 A	6 A (Power) / 0.5 A (Data)
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Plug / socket [°C]	-40 ... 90	-40 ... 85

		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Assembled Ethernet cable, $CAT6_A$, shielded, 4-pair, 26* AWG stranded (7-wire), RAL 5021 (water blue), M12 flush-type socket, rear/screw mounting with M16 fastening thread to free cable end							
	0.5 m	**VS-FSBPXS-OE-94F/0,5**	**1424135**	1			
	1 m	**VS-FSBPXS-OE-94F/1,0**	**1424148**	1			
	2 m	**VS-FSBPXS-OE-94F/2,0**	**1424151**	1			
	5 m	**VS-FSBPXS-OE-94F/5,0**	**1424164**	1			
Assembled Ethernet cable, hybrid, shielded, 4 x 26 AWG (data) and 4 x 20 AWG (power), RAL 9005 (black), M12 flush-type socket, rear/screw mounting with M16 fastening thread to free cable end							
	0.5 m				**VS-FSBPYS-OE-94I/0,5 SCO**	**1407504**	1
	1 m				**VS-FSBPYS-OE-94I/1,0 SCO**	**1407505**	1
	2 m				**VS-FSBPYS-OE-94I/2,0 SCO**	**1407506**	1
	5 m				**VS-FSBPYS-OE-94I/5,0 SCO**	**1407507**	1

Control cabinet feed-through/ bulkhead, M12/RJ45



Bulkhead, 10 Gbps



Bulkhead, 100 Mbps and 1 Gbps

		Technical data	Technical data	
		VS-BH-M12FSX-10G-RJ45/...	VS-BH-M12FS-8CON-RJ45...	VS-BH-M12FSD-RJ45...
Electrical data				
Nominal voltage U_N		60 V	50 V	50 V
Rated current		0.5 A	1 A	1 A
Transmission characteristics (category)		$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material		Copper alloy	Copper alloy	Copper alloy
Material of grip body		PA	PA	-
Inflammability class according to UL 94		V0	V0	V0
Connection method		-	-	-
Insertion/withdrawal cycles		≥ 100	≥ 100	-
Temperature data				
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Control cabinet feed-through, $CAT6_A$, M12, 8-pos., X-coded to RJ45 socket						
90° socket outlet	**VS-BH-M12FSX-10G-RJ45/90**	**1404548**	1			
180° socket outlet	**VS-BH-M12FSX-10G-RJ45/180**	**1404549**	1			
Control cabinet feed-through, M12, 8-pos., A-coded to RJ45 socket						
90° socket outlet				**VS-BH-M12FS-8CON-RJ45/ 90**	**1405057**	1
180° socket outlet				**VS-BH-M12FS-8CON-RJ45/180**	**1405060**	1
Control cabinet feed-through, M12, 4-pos., D-coded to RJ45 socket						
90° socket outlet				**VS-BH-M12FSD-RJ45/90**	**1657261**	1
180° socket outlet				**VS-BH-M12FSD-RJ45/180**	**1657494**	1

Network cables, sold by the meter, Ethernet, shielded

Ethernet



2-pair, twisted pair

Ethernet



4-pair, twisted pair

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
PUR stranded - blue, 2 x 2 x 26 AWG, CAT5e, SF/UTP						
100 m cable ring	**VS-OE-OE-93E-100,0**	**1416295**	1			
Variable cable length	**VS-OE-OE-93E/...**	**1417320**	1			
PUR solid - blue, 4 x 2 x 24 AWG, CAT5e, SF/UTP						
100 m cable ring				**VS-OE-OE-94A-100,0**	**1416305**	1
Variable cable length				**VS-94A/...**	**1416415**	1
PUR stranded - blue, 4 x 2 x 26 AWG, CAT5e, SF/UTP						
100 m cable ring				**VS-OE-OE-94B-100,0**	**1416567**	1
Variable cable length				**VS-OE-OE-94B/...**	**1417333**	1
PUR suitable for use with drag chain - blue, 4 x 2 x 26 AWG, CAT5e, S/UTP						
100 m cable ring				**VS-OE-OE-94C-100,0**	**1416318**	1
Variable cable length				**VS-OE-OE-94C/...**	**1417346**	1
PVC stranded, outdoor - black, 4 x 2 x 26 AWG, CAT5e, SF/UTP						
100 m cable ring				**VS-OE-OE-94D-100,0**	**1416334**	1
Variable cable length				**VS-94D/...**	**1416444**	1
FRNC solid - blue, 4 x 2 x 23 AWG, CAT6$_A$, S/FTP						
100 m cable ring				**VS-OE-OE-94E-100,0**	**1416350**	1
Variable cable length				**VS-94E/...**	**1416460**	1

Ordering example for cables with variable cable lengths:

For a network cable type **94A** with a cable length of 34.0 m, the ordering data is as follows:

Order No.		Length [m] Max. 100 m
1416415	/	**34.0**
		Increment: 1.0 m ... 100 m = **1.0 m**

Assembled cables, Ethernet, 4-pos., shielded



Ethernet

		M8 plug		M8 socket	
					
		M8MS		M8FS	
		Ordering data		Ordering data	
			Order No.		Order No.
Open cable end					
		1 m	1407344		
		2 m	1407345		
		5 m	1407346		
		10 m	1407347		
	OE	Variable	1408719	Variable	1408716
M8 plug					
		1 m	1407348		
		2 m	1407349		
		5 m	1407350		
		10 m	1407351		
	M8MS	Variable	1408718	Variable	1408715
RJ45 plug, IP20					
		1 m	1407352		
		2 m	1407353		
		5 m	1407354		
		10 m	1407355		
	R4AC	Variable	1408717	Variable	1408714

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **93B** cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type **93B**, fitted with a **straight M8 plug** at one end and an **RJ45 plug with IP20 protection** at the other end, and **4.5 m in length,** the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408717	93B	4.5

Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

Minimum order amount = 25

Pin M8	Pin RJ45	Wire color		Signal
1	1	YE		TD+
4	2	OG		TD–
2	3	WH		RD+
3	6	BU		RD–

		Technical data
		PROFINET [93B]
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure		1x4xAWG22/7; SF/TQ
Conductor cross section		4x 0.34 mm²
Conductor structure for signal		7x 0.25 mm
AWG signal line		22
Cable diameter		6.5 mm
Conductor resistance		≤ 120 Ω/km
Type of shield		Aluminum-coated foil, tin-plated copper braided shield
Conductor material		Tin-plated Cu litz wires
Outer sheath material		PVC
Color of outer sheath		Green RAL 6018
Color, single wire		White, yellow, blue, orange
Ambient temperature		
Fixed installation	[°C]	-40 ... 70
Flexible installation	[°C]	-40 ... 70

Assembled cables, Ethernet, 4-pos., shielded



Ethernet

	RJ45 plug, IP20	RJ45 plug, version 6	RJ45 plug, version 14, metal
			
	R4AC	R4MC	R4RC
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Open cable end  OE	1 m 1405633	2 m 1405675	5 m 1405743
RJ45 plug, IP20  R4AC	1 m 1408933 2 m 1408934 5 m 1408935 10 m 1408936	2 m 1405921	5 m 1405992
RJ45 plug, version 6  R4MC		1 m 1408937 2 m 1408938 5 m 1408939 10 m 1408940	
RJ45 plug, version 14, metal  R4RC			1 m 1408941 2 m 1408942 5 m 1408943 10 m 1408945
RJ45 plug, version 14, plastic  R4QC			
M12 plug, SPEEDCON  MSD SCO			
M12 plug, SPEEDCON  MRD SCO			

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **93E** cable type and are available from stock.

Cable description	Cable type
PUR stranded - blue, 2 x 2, CAT5e	93E

Pin M12	Pin RJ45	Wire color	Signal
1	1	WHOG	TD+
3	2	OG	TD–
2	3	WHGN	RD+
4	6	GN	RD–

Ordering data for cables with variable cable lengths:

For a network cable, type **93E**, fitted with a **straight M12 plug** at one end and an **RJ45 plug with IP20 protection** at the other end, and **4.5 m in length,** the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408712	93E	4.5

Minimum order amount = 25

Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

RJ45 plug, version 14, plastic		M12 plug, SPEEDCON		M12 plug, SPEEDCON		M12 socket, SPEEDCON		M12 socket, SPEEDCON		M12 flush-type socket, rear mounting	
											
R4QC		MSD SCO		MRD SCO		FSD SCO		FRD SCO		FSDBP	
Ordering data		**Ordering data**		**Ordering data**		**Ordering data**		**Ordering data**		**Ordering data**	
	Order No.		**Order No.**		**Order No.**		**Order No.**		**Order No.**		**Order No.**
		1 m	**1407356**			1 m	**1407380**				
		2 m	**1407357**			2 m	**1407381**			2 m	**1405866**
5 m	**1405772**	5 m	**1407358**			5 m	**1407382**				
		10 m	**1407359**			10 m	**1407383**				
		Variable	**1408713**	Variable	**1408705**	Variable	**1408697**	Variable	**1408690**		
		1 m	**1407360**			1 m	**1407384**				
		2 m	**1407361**			2 m	**1407385**			2 m	**1406085**
5 m	**1406030**	5 m	**1407362**			5 m	**1407386**				
		10 m	**1407363**			10 m	**1407387**				
		Variable	**1408712**	Variable	**1408704**	Variable	**1408696**	Variable	**1408689**		
		1 m	**1407364**			1 m	**1407388**				
		2 m	**1407365**			2 m	**1407389**			2 m	**1406247**
		5 m	**1407366**			5 m	**1407390**				
		10 m	**1407367**			10 m	**1407391**				
		Variable	**1408710**	Variable	**1408703**	Variable	**1408695**	Variable	**1408688**		
		1 m	**1407368**			1 m	**1407392**				
		2 m	**1407369**			2 m	**1407393**			2 m	**1406519**
		5 m	**1407370**			5 m	**1407394**				
		10 m	**1407371**			10 m	**1407395**				
		Variable	**1408709**	Variable	**1408702**	Variable	**1408694**	Variable	**1408687**		
1 m	**1408947**	1 m	**1407372**			1 m	**1407396**				
2 m	**1408948**	2 m	**1407373**			2 m	**1407397**			2 m	**1406603**
5 m	**1408946**	5 m	**1407374**			5 m	**1407398**				
10 m	**1408949**	10 m	**1407375**			10 m	**1407399**				
		Variable	**1408707**	Variable	**1408701**	Variable	**1408693**	Variable	**1408686**		
		1 m	**1407376**			1 m	**1407400**				
		2 m	**1407377**			2 m	**1407401**				
		5 m	**1407378**			5 m	**1407402**				
		10 m	**1407379**			10 m	**1407403**				
		Variable	**1408706**	Variable	**1408700**	Variable	**1408692**	Variable	**1408684**		
				Variable	**1408699**	Variable	**1408691**	Variable	**1408683**		

		Technical data
		Ethernet [93E]
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure		2x2xAWG26/7; SF/UTP
Conductor cross section		2x 2x 0.14 mm²
Conductor structure for signal		7x 0.16 mm
AWG signal line		26
Cable diameter		6.4 mm
Conductor resistance		≤ 290 Ω/km (at 20 °C)
Type of shield		Aluminum-coated foil, tin-plated copper braided shield
Conductor material		Bare Cu litz wires
Outer sheath material		PUR
Color of outer sheath		water blue RAL 5021
Color, single wire		white/orange-orange, white/green-green
Ambient temperature		
Fixed installation	[°C]	-20 ... 80
Flexible installation	[°C]	-20 ... 80

Assembled cables, Ethernet, 8-pos., shielded



Ethernet

	RJ45 plug, IP20	RJ45 plug, version 6	RJ45 plug, version 14, metal
			
	R4AC	R4MC	R4RC
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Open cable end  OE	5 m 1407699	5 m 1407725	5 m 1407783
RJ45 plug, IP20  R4AC	1 m 1408950 2 m 1408951 5 m 1408952 10 m 1408953	5 m 1407932	5 m 1407990
RJ45 plug, version 6  R4MC		1 m 1408955 2 m 1408956 5 m 1408954 10 m 1408958	
RJ45 plug, version 14, metal  R4RC			1 m 1408961 2 m 1408962 5 m 1408959 10 m 1408963
RJ45 plug, version 14, plastic  R4QC			
M12 plug, SPEEDCON  MS SCO			
M12 plug, SPEEDCON  MR SCO			

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **94B** cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type **94C**, fitted with a **straight M12 plug** at one end and an **RJ45 plug with IP20 protection** at the other end, and **4.5 m in length,** the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408681	94C	4.5

Minimum order amount = 25

Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

Cable description	Cable type
PUR stranded - blue, 4 x 2, CAT5e	94B
PUR suitable for use with drag chain - blue, 4 x 2, CAT5e	94C

Pin M12	Pin RJ45	Wire color	Signal
6	1	WHOG	D1+
4	2	OG	D1–
1	5	WHBU	D3+
7	4	BU	D3–
5	3	WHGN	D2+
8	6	GN	D2–
2	7	WHBN	D4+
3	8	BN	D4–

RJ45 plug, version 14, plastic		M12 plug, SPEEDCON		M12 plug, SPEEDCON		M12 socket, SPEEDCON		M12 socket, SPEEDCON		M12 flush-type socket, rear mounting	
											
	R4QC		MS SCO		MR SCO		FS SCO		FR SCO		FSBP
Ordering data		Ordering data		Ordering data		Ordering data		Ordering data		Ordering data	
	Order No.		Order No.		Order No.		Order No.		Order No.		Order No.
		1 m	1407404			1 m	1407439				
		2 m	1407405			2 m	1407440				
5 m	1407819	5 m	1407406			5 m	1407441			5 m	1407877
		10 m	1407407			10 m	1407442				
		Variable	1408682	Variable	1408675	Variable	1408665	Variable	1408657		
		1 m	1407414			1 m	1407443				
		2 m	1407415			2 m	1407444				
5 m	1412024	5 m	1407416			5 m	1407445			5 m	1412082
		10 m	1407417			10 m	1407446				
		Variable	1408681	Variable	1408674	Variable	1408664	Variable	1408655		
		1 m	1407422			1 m	1407451				
		2 m	1407423			2 m	1407452				
		5 m	1407424			5 m	1407453			5 m	1412231
		10 m	1407425			10 m	1407454				
		Variable	1408679	Variable	1408671	Variable	1408662	Variable	1408653		
		1 m	1407426			1 m	1407455				
		2 m	1407427			2 m	1407456				
		5 m	1407428			5 m	1407457			5 m	1412503
		10 m	1407429			10 m	1407458				
		Variable	1408678	Variable	1408670	Variable	1408661	Variable	1408652		
1 m	1408965	1 m	1407430			1 m	1407459				
2 m	1408966	2 m	1407431			2 m	1407460				
5 m	1408964	5 m	1407432			5 m	1407461			5 m	1412590
10 m	1408967	10 m	1407433			10 m	1407462				
		Variable	1408677	Variable	1408668	Variable	1408660	Variable	1408651		
		1 m	1407434			1 m	1407463				
		2 m	1407435			2 m	1407464				
		5 m	1407436			5 m	1407465				
		10 m	1407438			10 m	1407466				
		Variable	1408676	Variable	1408667	Variable	1408659	Variable	1408650		
				Variable	1408666	Variable	1408658	Variable	1408649		

		Technical data	Technical data
		Ethernet [94B]	Ethernet [94C]
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure		4x2xAWG26/7; SF/UTP	4x2xAWG26/19; S-UTP
Conductor cross section		4x 2x 0.14 mm²	4x 2x 0.14 mm²
Conductor structure for signal		7x 0.16 mm	19x 0.10 mm
AWG signal line		26	26
Cable diameter		6.4 mm	6.9 mm
Conductor resistance		≤ 290 Ω/km (at 20 °C)	≤ 290 Ω/km (at 20 °C)
Type of shield		Aluminum-coated foil, tin-plated copper braided shield	Tin-plated copper braided shield
Conductor material		Bare Cu litz wires	Bare Cu litz wires
Outer sheath material		PUR	PUR
Color of outer sheath		water blue RAL 5021	water blue RAL 5021
Color, single wire		white/blue-blue, white/orange-orange, white/green-green, white/brown-brown	white/blue-blue, white/orange-orange, white/green-green, white/brown-brown
Ambient temperature			
Fixed installation	[°C]	-40 ... 80	-20 ... 80
Flexible installation	[°C]	-40 ... 80	-20 ... 80

Assembled cables, Ethernet, 8-pos., shielded, CAT6$_A$



CAT6$_A$ 10 Gigabit/s

Ethernet

	RJ45 plug, IP20		M12 plug, SPEEDCON	
	R4AC		MSX SCO	
	Ordering data		Ordering data	
	Order No.			Order No.
Open cable end				
 OE			1 m	1407467
			2 m	1407468
			5 m	1407469
			10 m	1407470
			Variable	1408648
RJ45 plug, IP20				
 R4AC	1 m	1418866	1 m	1407471
	2 m	1408360	2 m	1407472
	5 m	1418879	5 m	1407473
	10 m	1408367	10 m	1407474
			Variable	1408647
RJ45 plug, version 14, metal				
 R4RC			1 m	1407475
			2 m	1407476
			5 m	1407477
			10 m	1407478
			Variable	1408646
RJ45 plug, version 14, plastic				
 R4QC			1 m	1407479
			2 m	1407480
			5 m	1407481
			10 m	1407482
			Variable	1408645
M12 plug, SPEEDCON				
 MSX SCO			1 m	1407483
			2 m	1407484
			5 m	1407485
			10 m	1407486
			Variable	1408644

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **94F** cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type **94F**, fitted with a **straight M12 plug** at one end and an **RJ45 plug with IP20 protection** at the other end, and **4.5 m in length,** the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408647	94F	4.5

Minimum order amount = 25

Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

Cable description	Cable type
PUR stranded - blue, 4 x 2, CAT6$_A$	94F

Pin M12	Pin RJ45	Wire color	Signal
1	1	WHOG	D1+
2	2	OG	D1–
7	5	WHBU	D3+
8	4	BU	D3–
3	3	WHGN	D2+
4	6	GN	D2–
5	7	WHBN	D4+
6	8	BN	D4–

		Technical data
		Ethernet [94F]
Transmission characteristics (category)		$CAT6_A$
Cable structure		4x2xAWG26/7; S/FTP
Conductor cross section		4x 2x 0.14 mm^2
Conductor structure for signal		7x 0.16 mm
AWG signal line		26
Cable diameter		6.4 mm
Conductor resistance		≤ 290 Ω/km (at 20 °C)
Type of shield		Tin-plated copper braided shield
Type of pair shielding		Aluminum-lined foil
Conductor material		Bare Cu litz wires
Outer sheath material		PUR
Color of outer sheath		water blue RAL 5021
Color, single wire		white/blue-blue, white/orange-orange, white/green-green, white/brown-brown
Ambient temperature		
Fixed installation	[°C]	-20 ... 80
Flexible installation	[°C]	-20 ... 80

Assembled cables, Ethernet hybrid, 4+4-pos., shielded



Ethernet

SPEEDCON LOCKING

Open cable end



OE

M12 plug, SPEEDCON



MSY SCO

M12 plug, SPEEDCON



MSY SCO

Ordering data

	Order No.
1 m	**1407487**
2 m	**1407488**
5 m	**1407489**
10 m	**1407490**
Variable	**1408642**
1 m	**1407491**
2 m	**1407492**
5 m	**1407493**
10 m	**1407494**
Variable	**1408641**

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **94H** cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type **94H**, fitted with a **straight M12 plug** at one end and an **RJ45 plug with IP20 protection** at the other end, and **4.5 m in length,** the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408717	94H	4.5

Minimum order amount = 25

Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

Pin M12	Wire color	Signal
1	WHOG	TD+
2	OG	TD–
3	WHGN	RD+
4	GN	RD–
5	BU	
6	WH	
7	BN	
8	BK	

Technical data

		Ethernet hybrid [94H]
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure		1x4xAWG26+1x4xAWG20
Conductor cross section for signal	[mm²]	0.15
Conductor structure for signal		19x 0.10 mm
AWG signal line		26
Conductor cross section for power	[mm²]	0.6
Conductor structure for power		19x 0.20 mm
AWG power supply		20
Cable diameter		7.6 mm
Type of shield		Tin-plated copper braided shield
Conductor material		Bare Cu litz wires
Outer sheath material		PUR
Color of outer sheath		Black RAL 9005
Color, single wire		White/orange-orange, white/green-green, white, blue, brown, black
Ambient temperature		
Fixed installation	[°C]	-40 ... 90
Flexible installation	[°C]	-30 ... 70

Network cables, sold by the meter, PROFINET, shielded



4-wire, star quad

Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
PVC solid - green, 1 x 4 x 22 AWG, CAT5e, SF/TQ, type A			
100 m cable ring	**VS-OE-OE-93A-100,0**	**1416392**	1
Variable cable length	**VS-93A/...**	**1416486**	1
PVC stranded - green, 1 x 4 x 22 AWG, CAT5e, SF/TQ, type B			
100 m cable ring	**VS-OE-OE-93B-100,0**	**1416389**	1
Variable cable length	**VS-OE-OE-93B/...**	**1417362**	1
PUR suitable for use with drag chain - green, 1 x 4 x 22 AWG, CAT5e, SF/TQ, type C			
100 m cable ring	**VS-OE-OE-93C-100,0**	**1416376**	1
Variable cable length	**VS-OE-OE-93C/...**	**1417491**	1
PUR suitable for use with robots - green, 1 x 4 x 22 AWG, CAT5e, S/TQ			
100 m cable ring	**VS-OE-OE-93R-100,0**	**1416363**	1
Variable cable length	**VS-OE-OE-93R/...**	**1417388**	1
RADOX® for railway applications - black, 1 x 4 x 22 AWG, CAT5e, SF/TQ			
Variable cable length	**VS-OE-OE-937/...**	**1402687**	1

Ordering example for cables with variable cable lengths:

For a network cable type **93A** with a cable length of 34.0 m, the ordering data is as follows:

Order No.		Length [m] Max. 100 m
1416486	/	**34.0**
		Increment: 1.0 m ... 100 m = **1.0 m**

Assembled cables, PROFINET, 4-pos., shielded



	RJ45 plug, IP20	RJ45 plug, IP20	RJ45 plug, version 14, metal
			
	R4AC	R4ACR	R4RC
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Open cable end  OE			5 m 1416162
RJ45 plug, IP20  R4AC	1 m 1408968 2 m 1408969 5 m 1408970 10 m 1408971	1 m 1418248 2 m 1418277	5 m 1416138
RJ45 plug, IP20  R4ACR		1 m 1409002 2 m 1409003 5 m 1409004 10 m 1409005	
RJ45 plug, version 14, metal  R4RC			1 m 1408974 2 m 1408975 5 m 1408972 10 m 1408976
RJ45 plug, version 14, plastic  R4QC			
M12 plug, SPEEDCON  MSD SCO			
M12 plug, SPEEDCON  MRD SCO			

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **93B** cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type **93C**, fitted with a **straight M12 plug** at one end and an **RJ45 plug with IP20 protection** at the other end, and **4.5 m in length,** the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408639	93C	4.5

Minimum order amount = 25

Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

Cable description	Cable type
PVC stranded - green, 1 x 4, CAT5e	93B
PUR suitable for use with drag chain - green, 1 x 4, CAT5e	93C
PUR for robot applications - green, 1 x 4, CAT5e	93R
RADOX® for railway applications - black, 1 x 4, CAT5e	937
PUR stranded - green, 1 x 4, CAT5e	93M

Pin M12	Pin RJ45	Wire color	Signal
1	1	YE	TD+
3	2	OG	TD–
2	3	WH	RD+
4	6	BU	RD–

RJ45 plug, version 14, plastic		M12 plug, SPEEDCON		M12 plug, SPEEDCON		M12 socket, SPEEDCON		M12 socket, SPEEDCON		M12 flush-type socket, rear mounting	
											
R4QC		MSD SCO		MRD SCO		FSD SCO		FRD SCO		FSDBP	
Ordering data		**Ordering data**		**Ordering data**		**Ordering data**		**Ordering data**		**Ordering data**	
	Order No.		**Order No.**		**Order No.**		**Order No.**		**Order no.**		**Order No.**
		1 m	**1407495**			1 m	**1407528**			1 m	**1437779**
		2 m	**1407496**			2 m	**1407529**			2 m	**1437782**
5 m	**1416168**	5 m	**1407497**			5 m	**1407530**			5 m	**1437795**
		10 m	**1407498**			10 m	**1407531**				
		Variable	**1408640**	Variable	**1408633**	Variable	**1408623**	Variable	**1408615**		
		1 m	**1407499**			1 m	**1407532**				
		2 m	**1407500**			2 m	**1407533**				
5 m	**1416141**	5 m	**1407501**			5 m	**1407534**				
		10 m	**1407502**			10 m	**1407535**				
		Variable	**1408639**	Variable	**1408632**	Variable	**1408622**	Variable	**1408613**		
		1 m	**1407508**			1 m	**1407536**				
		2 m	**1407509**			2 m	**1407537**				
		5 m	**1407510**			5 m	**1407538**				
		10 m	**1407511**			10 m	**1407539**				
		Variable	**1408638**	Variable	**1408631**	Variable	**1408621**	Variable	**1408612**		
		1 m	**1407516**			1 m	**1407544**				
		2 m	**1407517**			2 m	**1407545**				
		5 m	**1407518**			5 m	**1407546**				
		10 m	**1407519**			10 m	**1407547**				
		Variable	**1408636**	Variable	**1408628**	Variable	**1408619**	Variable	**1408610**		
1 m	**1408978**	1 m	**1407520**			1 m	**1407548**				
2 m	**1408979**	2 m	**1407521**			2 m	**1407549**				
5 m	**1408977**	5 m	**1407522**			5 m	**1407551**				
10 m	**1408980**	10 m	**1407523**			10 m	**1407552**				
		Variable	**1408635**	Variable	**1408626**	Variable	**1408618**	Variable	**1408609**		
		1 m	**1407524**			1 m	**1407553**				
		2 m	**1407525**			2 m	**1407554**				
		5 m	**1407526**			5 m	**1407555**				
		10 m	**1407527**			10 m	**1407556**				
		Variable	**1408634**	Variable	**1408625**	Variable	**1408617**	Variable	**1408608**		
				Variable	**1408624**	Variable	**1408616**	Variable	**1408607**		

		Technical data	Technical data	Technical data	Technical data
		PROFINET [93B]	**PROFINET [93C]**	**PROFINET [93R]**	**PROFINET [937]**
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure		1x4xAWG22/7; SF/TQ	1x4xAWG22/7; SF/TQ	1x4xAWG22/19; S/TQ	1x4xAWG22/7; SF/TQ
Conductor cross section		4x 0.34 mm²	4x 0.34 mm²	4x 0.38 mm²	4x 0.34 mm²
Conductor structure for signal		7x 0.25 mm	7x 0.25 mm	19x 0.16 mm	7x 0.25 mm
AWG signal line		22	22	22	22
Cable diameter		6.5 mm	6.5 mm	6.5 mm	6.6 mm
Conductor resistance		≤ 120 Ω/km	≤ 120 Ω/km	≤ 120 Ω/km	≤ 54 Ω/km
Type of shield		Aluminum-coated foil, tin-plated copper braided shield	Aluminum-coated foil, tin-plated copper braided shield	Tin-plated copper braided shield	Plastic-coated aluminum foil, tin-plated copper braided shield
Conductor material		Tin-plated Cu litz wires	Tin-plated Cu litz wires	Tin-plated Cu litz wires	Silver-plated Cu litz wires
Outer sheath material		PVC	PUR	PUR	RADOX® GKW S
Color of outer sheath		Green RAL 6018	Green RAL 6018	Green RAL 6018	Black RAL 9005
Color, single wire		White, yellow, blue, orange	White, yellow, blue, orange	White, yellow, blue, orange	White, yellow, blue, orange
Ambient temperature					
Fixed installation	[°C]	-40 ... 70	-40 ... 70	-40 ... 80	-40 ... 90
Flexible installation	[°C]	-40 ... 70	-40 ... 70	-40 ... 80	-25 ... 90

Assembled cables, EtherCAT, 4-pos., shielded



EtherCAT Technology Group

	RJ45 plug, IP20		RJ45 plug, IP20		M12 plug, SPEEDCON	
						
	R4AC		R4ACR		MSD SCO	
	Ordering data		Ordering data		Ordering data	
	Order No.		Order No.		Order No.	
Open cable end					1 m	**1407557**
 OE					2 m	**1407558**
					5 m	**1407559**
					10 m	**1407560**
					Variable	**1408600**
RJ45 plug, IP20	1 m	**1408981**	1 m	**1402505**	1 m	**1407561**
 R4AC	2 m	**1408982**	2 m	**1402508**	2 m	**1407562**
	5 m	**1408983**			5 m	**1407563**
	10 m	**1408984**			10 m	**1407564**
					Variable	**1408599**
RJ45 plug, IP20			1 m	**1409006**	1 m	**1407565**
 R4ACR			2 m	**1409007**	2 m	**1407566**
			5 m	**1409014**	5 m	**1407567**
			10 m	**1409015**	10 m	**1407568**
					Variable	**1408598**
M12 plug, SPEEDCON					1 m	**1407569**
 MSD SCO					2 m	**1407570**
					5 m	**1407571**
					10 m	**1407572**
					Variable	**1408597**
M12 plug, SPEEDCON						
 MRD SCO						
RJ45 socket, Freenet	2 m	**1419142**				
 F4AC						

Information for products with fixed cable lengths:

Products with fixed cable lengths are produced with the **93G** cable type and are available from stock.

Ordering data for cables with variable cable lengths:

For a network cable, type **93H**, fitted with a **straight M12 plug** at one end and an **RJ45 plug with IP20 protection** at the other end, and **4.5 m in length,** the ordering data is as follows:

Order No.	Cable type	Length [m] Max. 100 m
1408599	/ 93H	/ 4.5

Minimum order amount = 25

Increments:
0.2 ... 3 m = 0.1 m
> 3 m = 0.5 m

Cable description	Cable type
PVC stranded - green, 1 x 4, CAT5e	93G
PUR suitable for use with drag chain - green, 1 x 4, CAT5e	93H

Pin M12	Pin RJ45	Wire color	Signal
1	1	YE	TD+
3	2	OG	TD–
2	3	WH	RD+
4	6	BU	RD–

M12 plug, SPEEDCON	M12 socket, SPEEDCON	M12 socket, SPEEDCON	M12 flush-type socket, rear mounting
			
MRD SCO	FSD SCO	FRD SCO	FSDBP
Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.
			1 m 1419135 2 m 1419136 5 m 1419137
Variable 1408596	Variable 1408590	Variable 1408584	
			2 m 1419146
Variable 1408595	Variable 1408589	Variable 1408583	
Variable 1408594	Variable 1408587	Variable 1408582	
Variable 1408593	Variable 1408586	Variable 1408581	
Variable 1408592	Variable 1408585	Variable 1408580	

		Technical data	Technical data
		EtherCAT [93G]	EtherCAT [93H]
Transmission characteristics (category)		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Cable structure		1x4xAWG22/7; SF/TQ	1x4xAWG22/7; SF/TQ
Conductor cross section		4x 0.34 mm²	4x 0.34 mm²
Conductor structure for signal		7x 0.25 mm	7x 0.25 mm
AWG signal line		22	22
Cable diameter		6.5 mm	6.5 mm
Conductor resistance		≤ 120 Ω/km	≤ 120 Ω/km
Type of shield		Aluminum-coated foil, tin-plated copper braided shield	Aluminum-coated foil, tin-plated copper braided shield
Conductor material		Tin-plated Cu litz wires	Tin-plated Cu litz wires
Outer sheath material		PVC	PUR
Color of outer sheath		Green RAL 6018	Green RAL 6018
Color, single wire		White, yellow, blue, orange	White, yellow, blue, orange
Ambient temperature			
Fixed installation	[°C]	-40 ... 70	-40 ... 70
Flexible installation	[°C]	-40 ... 70	-40 ... 70

Ethernet RJ45, patch cables



Ethernet

	RJ45 plug, IP20, straight		RJ45 plug, IP20, angled	
				
	Ordering data		Ordering data	
		Order No.		Order No.
RJ45 plug, IP20, straight 	0.3 m	**1417993**	0.3 m	**1418002**
	0.5 m	**1418028**	0.5 m	**1418031**
	1 m	**1418057**	1 m	**1418070**
	2 m	**1418109**	2 m	**1418125**
	5 m	**1418141**	5 m	**1418154**
RJ45 plug, IP20, angled 			0.3 m	**1418015**
			0.5 m	**1418044**
			1 m	**1418099**
			2 m	**1418138**
			5 m	**1418167**

Notes:

For information about the cable qualities, see page 200

Pin RJ45*)	Pin RJ45*)	Wire color	Signal
1	1	WHOG	D1+
2	2	OG	D1–
5	5	WHBU	D3+
4	4	BU	D3–
3	3	WHGN	D2+
6	6	GN	D2–
7	7	WHBN	D4+
8	8	BN	D4–

*) RJ45 assignment according to TIA568B

		Technical data
		Ethernet cable
Transmission characteristics (category)		$CAT6_A$
Cable structure		4x2xAWG26/7; S/FTP
Conductor cross section		4x 2x 0.14 mm²
Conductor structure for signal		7x 0.16 mm
AWG signal line		26
Cable diameter		6.4 mm
Conductor resistance		≤ 290 Ω/km (at 20 °C)
Type of shield		Tin-plated copper braided shield
Conductor material		Bare Cu litz wires
Outer sheath material		PUR
Color of outer sheath		water blue RAL 5021
Color, single wire		white/blue-blue, white/orange-orange, white/green-green, white/brown-brown
Ambient temperature		
Fixed installation	[°C]	-40 ... 70
Flexible installation	[°C]	-10 ... 50

RJ45 patch cables

Ethernet



RJ45 patch cables for IP20 applications

Technical data

	FL CAT5 PATCH 0,3	FL CAT6 PATCH 0,3
Cable, properties		
External diameter	5.5 mm	5.5 mm
Single wire, material	Cu litz wire	Cu litz wire
Individual wires per module	8	8
Single wire, cross section	0.14 mm²	0.14 mm²
Outer sheath, material	LSFROH	LSFROH
Smallest bending radius, fixed installation	30 mm	30 mm
Shielding	SF/UTP	S/FTP
Connector		
Volume resistance	≤ 0.003 Ω (IEC 60603-7)	≤ 0.003 Ω (IEC 60603-7)
General data		
Ambient temperature (operation)	-10 °C ... 60 °C	-10 °C ... 60 °C

Ordering data

Description	Length of cable	Type	Order No.	Pcs. / Pkt.
Patch cable, CAT5, pre-assembled				
	0.3 m	**FL CAT5 PATCH 0,3**	**2832250**	10
	0.5 m	**FL CAT5 PATCH 0,5**	**2832263**	10
	1 m	**FL CAT5 PATCH 1,0**	**2832276**	10
	1.5 m	**FL CAT5 PATCH 1,5**	**2832221**	10
	2 m	**FL CAT5 PATCH 2,0**	**2832289**	10
	3 m	**FL CAT5 PATCH 3,0**	**2832292**	10
	5 m	**FL CAT5 PATCH 5,0**	**2832580**	10
	7.5 m	**FL CAT5 PATCH 7,5**	**2832616**	10
	10 m	**FL CAT5 PATCH 10,0**	**2832629**	10
Patch cable, CAT6, pre-assembled				
	0.3 m	**FL CAT6 PATCH 0,3**	**2891181**	10
	0.5 m	**FL CAT6 PATCH 0,5**	**2891288**	10
	1 m	**FL CAT6 PATCH 1,0**	**2891385**	10
	1.5 m	**FL CAT6 PATCH 1,5**	**2891482**	10
	2 m	**FL CAT6 PATCH 2,0**	**2891589**	10
	3 m	**FL CAT6 PATCH 3,0**	**2891686**	10
	5 m	**FL CAT6 PATCH 5,0**	**2891783**	10
	7.5 m	**FL CAT6 PATCH 7,5**	**2891880**	10
	10 m	**FL CAT6 PATCH 10**	**2891877**	10
	12.5 m	**FL CAT6 PATCH 12,5**	**2891369**	5
	15 m	**FL CAT6 PATCH 15,0**	**2891372**	5
	20 m	**FL CAT6 PATCH 20,0**	**2891576**	5

Accessories



Dust protection
for SFN switches and patch fields



Security lock
for SFN switches and patch fields

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Dust protection with color coding, for SFN switch and angled patch connector						
- Black	**FL DUST CVR BK**	**2891107**	10			
- Blue	**FL DUST CVR BU**	**2891204**	10			
- Brown	**FL DUST CVR BN**	**2891301**	10			
- Yellow	**FL DUST CVR YE**	**2891408**	10			
- Gray	**FL DUST CVR GY**	**2891505**	10			
- Green	**FL DUST CVR GN**	**2891602**	10			
- Red	**FL DUST CVR RD**	**2891709**	10			
- Violet	**FL DUST CVR VT**	**2891806**	10			
- White	**FL DUST CVR WH**	**2891903**	10			
Security frame for SFN switch and patch fields						
- Green				**FL PLUG GUARD GN**	**2891615**	20
- Red				**FL PLUG GUARD RD**	**2891712**	20
- White				**FL PLUG GUARD WH**	**2891819**	20
Locking element for security frame FL PLUG GUARD...						
- Locking element				**FL PORT GUARD**	**2891220**	20
- Key				**FL PLUG GUARD KEY**	**2891327**	1
Color coding for FL CAT ...PATCH...						
- Black						
- Blue						
- Brown						
- Yellow						
- Gray						
- Green						
- Red						
- Violet						
Security element for FL CAT ...PATCH...						
- Security element						
Lockable security element for FL PATCH...						
- Security element, lockable						
- Key						







Color coding
for RJ45 FL patch cables



Security element
for RJ45 FL patch cables



Lockable security element
for RJ45 FL patch cables

Ordering data

Type	Order No.	Pcs. / Pkt.
FL PATCH CCODE BK	2891194	20
FL PATCH CCODE BU	2891291	20
FL PATCH CCODE BN	2891495	20
FL PATCH CCODE YE	2891592	20
FL PATCH CCODE GY	2891699	20
FL PATCH CCODE GN	2891796	20
FL PATCH CCODE RD	2891893	20
FL PATCH CCODE VT	2891990	20

Ordering data

Type	Order No.	Pcs. / Pkt.
FL PATCH SAFE CLIP	2891246	20

Ordering data

Type	Order No.	Pcs. / Pkt.
FL PATCH GUARD	2891424	20
FL PATCH GUARD KEY	2891521	1







Modular distribution panel



19" mounting frame



Assembled modules
for 19" mounting frames

	Technical data	Technical data
	CUC-PP-FRAME-19	CUC-PP-MODUL-RJ45:6-RJ45:6/...
Electrical data		
Transmission characteristics (category)	-	$CAT6_A$
Material data		
Housing material	Steel, powder-coated	Stainless steel
Inflammability class according to UL 94	V0	V0
Connection data		
Connection method	-	-
Connection cross section AWG	-	-
External cable diameter	-	18 mm
Insertion/withdrawal cycles	-	≥ 750
Temperature data		
Ambient temperature (operation)	-20 °C ... 60 °C	-20 °C ... 60 °C

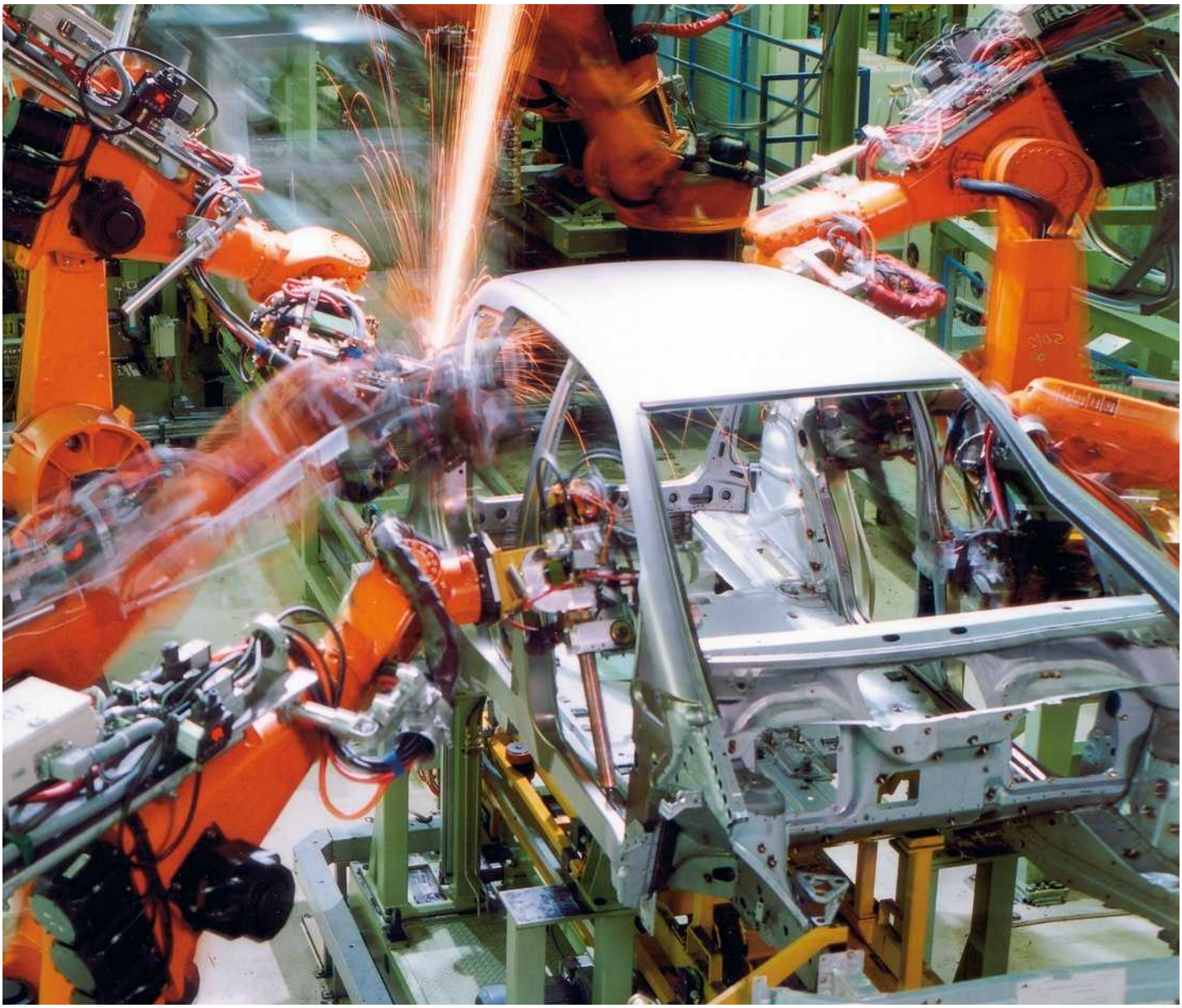
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
19" frame, empty, for using 8 modules (RJ45)	**CUC-PP-FRAME-19**	**1407986**	1			
Jumpering panel	**CUC-PP-PATCHBAY**	**1407994**	1			
RJ45 module, 6 x RJ45 to 6 x RJ45, $CAT6_A$, can be unlocked from the front, variable length				**CUC-PP-MODUL-RJ45:6-RJ45:6/...**	**1407995**	1
Dummy frame, size of one module, for use in the frame				**CUC-PP-MODUL-COVER**	**1407988**	1

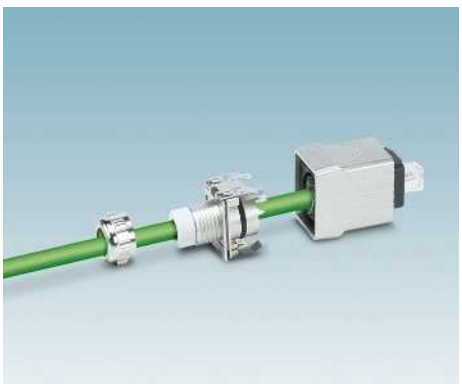
	Accessories			Accessories		
Screw set, fixing material for the frame	**CUC-PP-FRAME-SCREWSET**	**1407989**	1			
Cable binder, fixing material for module cable routing				**CUC-PP-MODUL-CABLEFIXSET**	**1407991**	1

Ordering example for modules of variable length:

For an RJ45 module with a cable length of 25.0 m, the ordering data is as follows:

Order No.		Length [m] Max. 80 m
1407995	/	25
		Increment: 1.0 m ... 80 m = **0.5 m**

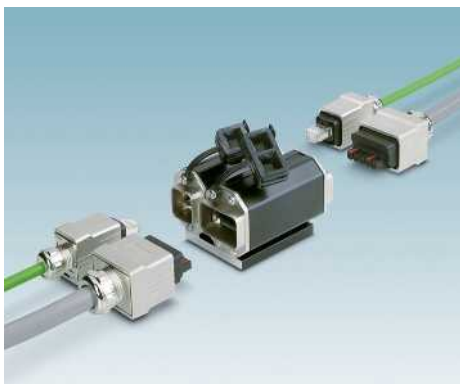




The EMC-protected installation concept facilitates easy and EMC-safe cabling with hose packs from the control cabinet to the robot head based on the cabling guidelines for PROFINET.



The integrated installation system significantly reduces assembly effort and consists of cascadable individual components that are coordinated with one another for flexible connection of the hose packs.



Particularly in the field of welding robots or conveyer systems, it is important to use a consistent shielding concept for installation in order to prevent interference on the data cables.

Copper-based, EMC-safe installation systems



Push/pull robot interface, with RJ45 and power inserts



Push/pull robot interface, with RJ45 inserts

	Technical data	Technical data
	VS-MP-PPC/CG-PO/10G	VS-MP-PPC/CG-10G
Electrical data		
Transmission characteristics (category)	$CAT6_A$	$CAT6_A$
Material data		
Housing material	Aluminum alloy	Aluminum alloy
Connection data		
Connection method	-	-
Connection cross section AWG	-	-
Cable cross section	5 mm ... 8 mm (Data cable gland)	5 mm ... 8 mm (Data cable gland)
Insertion/withdrawal cycles	> 1000 (Data)	> 1000 (Data)
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Multi-port connection, for passive PROFINET cabling to robots, including mounting foot, for **cable diameter**:						
5 mm ... 8 mm	**VS-MP-PPC/CG-PO/10G**	**1403682**	1	**VS-MP-PPC/CG-10G**	**1403678**	1
7 mm ... 10.5 mm	**VS-MP-PPC/CG-XL-PO/10G**	**1403688**	1	**VS-MP-PPC/CG-XL-10G**	**1403686**	1
Multi-port power connection: push/pull power, for passive PROFINET cabling to robots, including mounting foot	**VS-MP-PPC/CG-PO**	**1403681**	1			
Multi-port power coupling: for passive PROFINET cabling to robots, including mounting foot	**VS-MP-PPC/PPC-PO**	**1403684**	1			
Multi-port data coupling: for passive PROFINET cabling to robots, including mounting foot Metal housing				**VS-MP-PPC/PPC-1G**	**1403685**	1

	Accessories			Accessories		
Protective cover						
For data port	**VS-PPC-C1-PC-ROBK-L**	**1405293**	1	**VS-PPC-C1-PC-ROBK-L**	**1405293**	1
For power port	**VS-PPC-C2-PC-ROBK-L**	**1405303**	1	**VS-PPC-C2-PC-ROBK-L**	**1405303**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1

RJ45 terminal outlets, IP65/IP67

Ethernet

PROFINET

sercos the automation bus



Terminal outlet with RJ45 slots

Ethernet

PROFINET

sercos the automation bus



Terminal outlet with M12 slots

	Technical data	Technical data
	VS-TO-RO-MCBK-F141...	VS-TO-RO-MCBK-F142...
Electrical data		
Transmission characteristics (category)	CAT6	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Material data		
Housing material	Aluminum cast alloy, powder-coated	Aluminum cast alloy, powder-coated
Mechanical data		
Color	black	black
Degree of protection	IP65/67	IP65/67

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Terminal outlet, IP65/IP67, 2 slots, version 14, with protective plugs, 2 cable entries Push/pull with 2 x RJ45	**VS-TO-RO-MCBK-F1411/1411**	**1404281**	1			
Terminal outlet, RJ45, IP65/67, 2 slots version 6, with protective plugs, 2 cable entries 2 x RJ45	**VS-TO-RO-MCBK-F1418/1418**	**1404278**	1			
Terminal outlet, IP65/IP67, 2 slots, version 14, with protective plugs, 2 cable entries Push/pull with 1 x power and 1 x RJ45	**VS-TO-RO-MCBK-F1411/1413**	**1404333**	1			
Terminal outlet, M12, IP65/67, 2 slots, with protective plugs, 2 cable entries						
M12 with 2 x sockets, 8-pos., A-coded				**VS-TO-RO-MCBK-F1422/1422**	**1404304**	1
M12 with 2 x socket, 4-pos., D-coded				**VS-TO-RO-MCBK-F1421/1421**	**1404294**	1

RJ45 couplings, IP65/IP67

Ethernet



RJ45 coupling, version 6, with protective cover



RJ45 push/pull coupling, version 14, with protective cover

	Technical data	Technical data
	VS-08-KU-IP67	VS-PPC-J-1-RJ45-MNBK
Electrical data		
Rated voltage	50 V	-
Rated current	1 A	-
Transmission characteristics (category)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5
Material data		
Housing material	PBT	Aluminum alloy
Contact material	Copper alloy	-
Inflammability class according to UL 94	V0	-
Mechanical data		
No. of pos.	8	-
Degree of protection	IP67	IP65
Temperature data		
Ambient temperature (operation)	-10 °C ... 60 °C	-

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
RJ45 coupling, IP67, CAT5e, with protective cover						
Military gray RAL 7042	**VS-08-KU-IP67**	**1689268**	1			
Deep black RAL 9005	**VS-08-KU-IP67-BK**	**1658684**	1			
Multi-port data coupling: for passive PROFINET cabling to robots, including mounting foot						
Metal housing				**VS-MP-PPC/PPC-1G**	**1403685**	1

RJ45 patch panel, IP20

Ethernet

PROFINET



Patch panel, 1 port,
with various connection types

Ethernet

PROFINET



Patch panel with IDC fast connection

	Technical data	Technical data
	FL-PP-RJ45-...	VS-PP-F-RJ45-CAT6
Electrical data		
Rated voltage	-	50 V
Rated current	-	1 A
Transmission characteristics (category)	-	CAT6
Material data		
Housing material	PVC/PA	PC-GF
Contact material	-	Copper alloy
Inflammability class according to UL 94	-	V0
Mechanical data		
No. of pos.	-	8
Color	green	gray
Degree of protection	IP20	IP20
Connection method	-	IDC fast connection
Conductor cross section	-	0.2 mm² ... 0.32 mm²
Connection cross section AWG	-	24 ... 22
Temperature data		
Ambient temperature (operation)	-25 °C ... 70 °C	-10 °C ... 60 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Patch panel, one **RJ45 socket to 8 IDC connection terminal blocks** (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail mounting, IP20, option of shield contacting on DIN rail via jumpers	**FL-PP-RJ45-LSA**	**2901645**	1			
Patch panel, one **RJ45 socket to 8 screw connection terminal blocks** (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail mounting, IP20, option of shield contacting on DIN rail via jumpers	**FL-PP-RJ45-SC**	**2901643**	1			
Patch panel, two RJ45 sockets (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail mounting, IP20, option of shield contacting on DIN rail via jumpers	**FL-PP-RJ45/RJ45**	**2901646**	1			
Patch panel, one **RJ45 socket to 8 spring-cage connection terminal blocks** (1:1 assignment), CAT5e, 10/100/1000 Mbps, DIN rail mounting, IP20, option of shield contacting on DIN rail via jumpers	**FL-PP-RJ45-SCC**	**2901642**	1			
RJ45 patch panel, DIN rail mounting, IP20, CAT6 for 1 Gbps				**VS-PP-F-RJ45-CAT6**	**1658118**	1

Patch fields

Ethernet

PROFI NET



Patch fields with Freenet RJ45 sockets

Technical data

	FL PF 2TX CAT5E	FL PF 8TX CAT5E
Ethernet interface		
Interface	Ethernet (RJ45)	
Number of ports	2	8
Weight	125 g	260 g
Width	38 mm	124 mm
Height	112 mm	135 mm
Depth	88 mm	140 mm
Degree of protection	IP20	
Ambient temperature (operation)	0 °C ... 55 °C (no condensation)	
Housing material	Metal	

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Patch field, 2 RJ45 network connections			
- CAT5e	**FL PF 2TX CAT5E**	**2891165**	1
- CAT6	**FL PF 2TX CAT 6**	**2891068**	1
Patch field, 8 RJ45 network connections			
- CAT5e	**FL PF 8TX CAT5E**	**2891178**	1
- CAT6	**FL PF 8TX CAT 6**	**2891071**	1

RJ45 patch panel and terminal outlet, IP20



RJ45 patch panel for 19" rack and matching socket inserts



IP20 terminal outlets for surface and flush-type mounting, plus corresponding RJ45 socket inserts

	Technical data		Technical data	
	VS-PP-19-1HE-16-F	VS-08-BU-RJ45-5-F/PK	VS-TO-OW-2-F-9010	VS-08-BU-RJ45-6-F/PK
Electrical data				
Rated voltage	-	50 V	-	50 V
Rated current	-	1 A	-	1 A
Transmission characteristics (category)	-	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	-	CAT6
Material data				
Housing material	PC-GF	-	PC+ABS	-
Contact material	-	Copper alloy	-	Copper alloy
Inflammability class according to UL 94	V0	V0	HB	V0
Mechanical data				
No. of pos.	-	8	-	8
Color	gray	-	Pure white RAL 9010	-
Degree of protection	IP20	IP20	IP20	IP20
Connection method	-	IDC	-	IDC
Conductor cross section	-	0.2 mm² ... 0.32 mm² (solid)	-	0.14 mm² ... 0.35 mm²
Connection cross section AWG	-	24 ... 22 (solid)	-	26 ... 22 (7-wire)
Temperature data				
Ambient temperature (operation)	5 °C ... 55 °C	-20 °C ... 70 °C	5 °C ... 55 °C	-20 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Patch panel, 19" mounting, IP20, 16 slots for Freenet contact inserts	**VS-PP-19-1HE-16-F**	**1652994**	1			
Terminal outlet, IP20, with slots for Freenet contact inserts						
Flush-type socket, two slots				**VS-TO-IW-2-F-9010**	**1653016**	1
Surface-mounted socket, two slots				**VS-TO-OW-2-F-9010**	**1653003**	1
RJ45 Freenet socket insert, 8-pos., shielded, socket to socket						
1 Gbps, CAT5	**VS-08-BU/BU-RJ45-F**	**1405617**	1			
RJ45 Freenet socket insert, 8-pos., shielded, with cable connection						
1 Gbps, CAT5	**VS-08-BU-RJ45-5-F/PK**	**1652936**	1	**VS-08-BU-RJ45-5-F/PK**	**1652936**	1
10 Gbps, CAT6$_A$	**VS-08-BU-RJ45/10G-F**	**1424009**	1	**VS-08-BU-RJ45/10G-F**	**1424009**	1

Power plug-in connectors and panel mounting frames, IP65/IP67



Push/pull plug-in connector, version 14, IP65/67, with spring-cage fast connection technology



Socket inserts and push/pull panel mounting frames, for PCB connection

	Technical data	Technical data	
	VS-PPC-C2-MSTB-MNNA...	VS-MSTBA...-BK-A	VS-PPC-F2-MSTB-MNNA...
Electrical data			
Rated current	16 A	16 A	-
Material data			
Housing material	Zinc die-cast	-	Zinc die-cast
Inflammability class according to UL 94	V0	V0	V0
Conductor cross section	0.75 mm² ... 2.5 mm²	-	-
Connection cross section AWG	18 ... 13	-	-
Insertion/withdrawal cycles	≤ 100	≥ 100	≥ 500
Temperature data			
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C	-40 °C ... 80 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
MSTB plug-in connector, IP67, with push/pull interlocking, 5-pos., with a spring-cage connection, for cable diameter 9.0 mm … 13.0 mm						
Metal housing, 24 V	**VS-PPC-C2-MSTB-MNNA-P13-A5-SP**	**1608074**	1			
Plastic housing, 24 V	**VS-PPC-C2-MSTB-POBK-P13-A5-SP**	**1657892**	1			
Plastic housing, 400 V	**VS-PPC-C2-MSTB-POBK-P13-B5-SP**	**1608236**	1			
MSTB contact insert, for PCB mounting, 24 V, 5-pos., RAL 9005 (black), for panel mounting frame VS-PPC-F2-MSTB-…-1R-P						
Angled solder pins				**VS-MSTBAH 2,5/ 5-GB-5,08-BK-A**	**1657915**	50
Straight solder pins				**VS-MSTBVA 2,5/ 5-GB-5,08-BK-A**	**1609565**	50
MSTB contact insert, for PCB mounting, 400 V, 5-pos., RAL 3000 (red), for panel mounting frame VS-PPC-F2-MSTB-…-1R-P						
Angled solder pins				**VS-MSTBAH 2,5/ 5-GB-5,08-RD-B**	**1609549**	50
Straight solder pins				**VS-MSTBVA 2,5/ 5-GB-5,08-RD-B**	**1609581**	50
MSTB panel mounting frame, IP67, for push/pull interlocking, for PCB connection, for rectangular assembly opening, with gasket, without mounting screws						
Metal housing				**VS-PPC-F2-MSTB-MNNA-1R-P**	**1608087**	1
Plastic housings				**VS-PPC-F2-MSTB-POBK-1R-P**	**1608281**	1
MSTB panel mounting frame, IP67, for push/pull interlocking, with an integrated contact insert for conductor connection, spring-cage connection, for rectangular mounting cutout, with seal, without mounting screws						
24 V, plastic				**VS-PPC-F2-MSTB-POBK-1R-SPSA5**	**1608294**	1
400 V, plastic				**VS-PPC-F2-MSTB-POBK-1R-SPSB5**	**1608304**	1
24 V, metal				**VS-PPC-F2-MSTB-MNNA-1R-SPSA5**	**1608249**	1
400 V, metal				**VS-PPC-F2-MSTB-MNNA-1R-SPSB5**	**1608252**	1
MSTB panel mounting frame, IP67, for push/pull interlocking, metal, with an integrated contact insert for conductor connection, spring-cage connection, for round mounting cutout, with seal, without mounting screws						
24 V				**VS-PPC-F2-MSTB-MNNA-1C-SPSA5**	**1405248**	1
400 V				**VS-PPC-F2-MSTB-MNNA-1C-SPSB5**	**1405167**	1
Protective cover, IP67, to cover the contact insert in the push-pull panel mounting frame for power						
Metal housing				**VS-PPC-C2-PC67-MNNA**	**1404045**	1
Protective cover for push/pull panel mounting frame				**VS-PPC-C2-PC-ROBK**	**1405125**	1
Protective cover						
For power port				**VS-PPC-C2-PC-ROBK-L**	**1405303**	1
Protective cap, IP65, with push/pull Interlocking for covering the contact insert in the push/pull connector for power, plastic				**VS-PPC-F2-PC-POBK**	**1405329**	1

POWER distributors, IP67



Push/pull Y-distributor



Power H-distributor

	Technical data	Technical data
	VS-PPC-J-1220-1227-1020-0,2	VS-PPC-J-4X-1227
Electrical data		
Rated voltage	24 V	24 V
Rated current	16 A	16 A
Material data		
Housing material	Aluminum, die-cast	Zinc die-cast
Mechanical data		
No. of pos.	5	5
Degree of protection	IP65/67	IP65/67
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C (cable, fixed installation)	-40 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
PROFINET Y-distributor with assembled power cable, 5-pos., IP65/IP67, **MSTB connector** with metal housing to 2 x sockets in metal housing, conductor length:						
0.2 m	**VS-PPC-J-1220-1227-1020-0,2**	**1404799**	1			
Variable	**VS-PPC-J-1220-1227-1020-...**	**1405484**	1			
PROFINET Y-distributor with assembled power cable, 5-pos., IP65/IP67, **7/8" connector** with metal housing to 2 x sockets in metal housing, conductor length:						
0.2 m	**VS-PPC-J-1226-1227-1021-0,2**	**1404812**	1			
Variable	**VS-PPC-J-1226-1227-1021-...**	**1405497**	1			
Power H-distributor, 4 x MSTB contact inserts, metal housing, without mounting screws				**VS-PPC-J-4X-1227**	**1405387**	1
	Accessories			**Accessories**		
Mounting foot for power distributors, plastic	**VS-PPC-J-M**	**1405390**	1	**VS-PPC-J-M**	**1405390**	1

Ordering example for products with variable cable:

For a distributor with a cable length of 34.5 m, the order data is as follows:

Order No.		Length [m]
1405484	/	**34.5** **Increment:** 0.5 m; **Maximum length:** 50 m

Fiber optic plug-in connectors, cables, and panel feed-throughs for POF, HCS, and GOF, IP65/IP67

Ethernet



M12 optic plug-in connectors



M12 transceiver

	Technical data	Technical data
Material data		
Ferrule material	Copper alloy	-
Inflammability class according to UL 94	V0	V0
Degree of protection	IP65/67	IP65/67
External cable diameter	-	-
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-20 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Assembled fiber optic cable, round cable, M12 FO to M12 FO, for installation inside buildings, length: 5 m						
For 980/1000 µm POF fiber	**FOC-PN-B-1000/M12-C/M12-C/5**	**1416680**	1			
For 200/230 µm HCS fiber	**FOC-HCS-GI-1005/M12-C/M12-C/5**	**1416693**	1			
Assembled fiber optic cable, round cable, M12 FO to SCRJ/IP20, for installation inside housing, length: 5 m						
For 980/1000 µm POF fiber	**FOC-PN-B-1000/M12-C/SCRJ/5**	**1416648**	1			
For 200/230 µm HCS fiber	**FOC-HCS-GI-1005/M12-C/SCRJ/5**	**1416651**	1			
M12 fiber optic transceiver, duplex, for POF fiber, for PCB mounting, M16 fastening thread, with sealing cap						
Wavelength: 650 nm				**FOC-M12-MNNA-TC-650**	**1416716**	1
M12 fiber optic coupling, duplex, suitable for all fibers, with wall bracket, IP65 protection				**FOC-M12-BU/BU**	**1416677**	1
Repair set, 10 replacement ferrules for M12 fiber optic plug-in connectors in plastic box						
For 980/1000 µm POF fiber	**FOC-M12-RS-POF**	**1406421**	1			
For 200/230 µm HCS fiber	**FOC-M12-RS-HCS**	**1406422**	1			

Fiber optic plug-in connectors, panel mounting frames, and couplings for POF, IP20 and IP65/IP67

Ethernet



SCRJ plug-in connector, version 6, for 980/1000 µm polymer fibers

Ethernet



SCRJ panel mounting side, version 6, for 980/1000 µm polymer fibers

Technical data

	VS-SCRJ-...-IP20	VS-SCRJ-...-IP67
Material data		
Housing material	PBT	PA
Ferrule material	Copper alloy	Copper alloy
Inflammability class according to UL 94	V0	V0
Color	black	gray
Degree of protection	IP20	IP67
Insertion/withdrawal cycles	≥ 1000	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-20 °C ... 70 °C

Technical data

	VS-SCRJ-GOF-BU/BU
Housing material	PBT
Ferrule material	Zirconia ceramics
Inflammability class according to UL 94	V0
Color	-
Degree of protection	IP20
Insertion/withdrawal cycles	≥ 500
Ambient temperature (operation)	-25 °C ... 70 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, duplex, with fast connection			
IP20	**VS-SCRJ-POF-FA-IP20**	**1654879**	1
IP67	**VS-SCRJ-POF-FA-IP67**	**1657009**	1
Connector set for polymer fibers (diameter of the individual elements: 2.2 mm), for self-assembly, with bend protection			
- F-SMA set, 4 connectors	**PSM-SET-FSMA/4-KT**	**2799720**	1
- SCRJ set, 2 duplex connectors	**PSM-SET-SCRJ-DUP/2-POF**	**2708656**	1
SCRJ socket insert, duplex, for panel mounting frame VARIOSUB IP67, can be used for glass, multi-mode, HCS and polymer			
- 1x SCRJ/SCRJ (duplex)	**VS-SCRJ-GOF-BU/BU**	**1652978**	1
VS-SCRJ panel mounting frame, for use with an AVAGO transceiver, type: AFBR 5978Z	**VS-SCRJ-A-TC-IP67**	**1658545**	1
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws			
Military gray RAL 7042	**VS-A-F-IP67**	**1653744**	5
Deep black RAL 9005	**VS-A-F-IP67-BK**	**1658668**	5

Accessories

Protective cover for version 6 panel mounting frame			
Military gray RAL 7042	**VS-08-SD-F**	**1652606**	5
Deep black RAL 9005	**VS-08-SD-F-BK**	**1658066**	5
SCRJ cutting tool set, for polymer fiber, for field assembly of SCRJ/IP20 and SCRJ/IP67 push/pull plug-in connectors with fast connection technology, consisting of stripping tool, aramid scissors, SCRJ cutting tool, microscope	**TF-SCRJ-POF KONF SET**	**1405246**	1
Protective cover SCRJ/IP67, for covering the SCRJ pin insert on the SCRJ/IP67 sleeve housing	**VS-SCRJ-PC**	**1653757**	5

Accessories

	VS-08-SD-F	**1652606**	5
	VS-08-SD-F-BK	**1658066**	5

Fiber optic connectors, panel mounting frames and couplings for POF, push/pull

Ethernet



SCRJ plug-in connector, version 14, for 980/1000 µm polymer fibers

Ethernet



SCRJ panel mounting side, version 14, for 980/1000 µm polymer fibers

Technical data

	Metal housing	Plastic housing
Material data		
Housing material	Zinc die-cast	PA-GF
Ferrule material	Copper alloy	Copper alloy
Inflammability class according to UL 94	V0	V0
Color	silver	black
Degree of protection	IP65/67	IP65/67
Insertion/withdrawal cycles	≥ 500	≥ 500
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-20 °C ... 70 °C

Technical data

	Metal housing	Plastic housing
Material data		
Housing material	Zinc die-cast	PA-GF
Ferrule material	-	-
Inflammability class according to UL 94	V0	V0
Color	silver	black
Degree of protection	IP65/67	IP65/67
Insertion/withdrawal cycles	≥ 500	≥ 500
Temperature data		
Ambient temperature (operation)	-40 °C ... 80 °C	-40 °C ... 80 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
SCRJ fiber OPTIC plug-in connector, IP67, with push/pull interlocking, duplex, with fast connection technology			
Metal housing	**VS-PPC-C1-SCRJ-MNNA-PG9-A4D-C**	**1608032**	1
Plastic housings	**VS-PPC-C1-SCRJ-POBK-PG9-A4D-C**	**1657850**	1
SCRJ panel mounting frame, IP67, for push/pull interlocking, for rectangular mounting cutout, for **AVAGO transceiver (type: AFBR5978Z)** on PCB, with seal, without mounting screws			
Metal housing			
Plastic housings			
SCRJ panel mounting frame, IP67, for push/pull interlocking, with Freenet system, for rectangular mounting cutout, with seal, without mounting screws			
Metal housing			
Plastic housings			
SCRJ panel mounting frame, IP67, for push/pull Interlocking, metal, with Freenet system, for round mounting cutout, with seal			

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-PPC-F1-SCRJ-MNNA-1RP	**1608061**	1
VS-PPC-F1-SCRJ-POBK-1RP	**1657889**	1
VS-PPC-F1-SCRJ-MNNA-1RF	**1405374**	1
VS-PPC-F1-SCRJ-POBK-1RF	**1608210**	1
VS-PPC-F1-SCRJ-MNNA-1C-F	**1405235**	1

Accessories

Protective cover			
For data port			
SCRJ cutting tool set, for polymer fiber, for field assembly of SCRJ/IP20 and SCRJ/IP67 push/pull plug-in connectors with fast connection technology, consisting of stripping tool, aramid scissors, SCRJ cutting tool, microscope	**TF-SCRJ-POF KONF SET**	**1405246**	1
Scrj polishing tool SET, for polymer fiber, for field assembly of scrj/ip20 and SCRJ/IP67 plug-in connectors with fast connection system	**VS-SCRJ-POF-KONFTOOL-POLISH**	**1658820**	1
Protective cover, IP65, with push/pull interlocking, for covering the contact insert in the push/pull connector for RJ45 and SCRJ, plastic	**VS-PPC-F1-PC-POBK**	**1405316**	1

Accessories

VS-PPC-C1-PC-ROBK-L	**1405293**	1

Fiber optic plug-in connectors and panel feed-throughs, version 1, for POF, IP65/IP67



SCRJ plug-in connector, version 1



Fiber optic panel mounting frame, version 1

	Technical data	Technical data
	VS-V1-C-...-A4A-G	VS-V1-F-...-C-S-A1
Material data		
Housing material	Zinc die-cast	Zinc die-cast
Color	silver	-
Degree of protection	IP67	IP67
Insertion/withdrawal cycles	500	500
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, IP67, with bayonet locking, metal housing, duplex, with adhesive connection technology, for 5.0 mm ... 8.0 mm cable diameter						
For POF fiber	**VS-V1-C-SCRJ-MNNA-PG9-A4A-G**	**1419189**	1			
SCRJ panel mounting frame, IP67, for bayonet locking, metal, SCRJ to 2 x SC, for round mounting cutout, with seal, without mounting screws, **with coupling for:**						
Multi-mode, PCF, and POF				**VS-V1-F-SCRJ-MNNA-PG9-C-S-A1**	**1420197**	1
	Accessories			**Accessories**		
Protective cover, IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ connector	**VS-V1-C-PC-POBK**	**1419183**	1			
Protective cover, IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ **panel mounting frame**				**VS-V1-F-PC-POBK**	**1419186**	1

Fiber optic plug-in connectors, panel mounting frames, and couplings for HCS, IP20 and IP65/IP67

Ethernet



SCRJ plug-in connector, version 6, for 200/230 µm HCS fibers

Ethernet



SCRJ panel mounting side, version 6, for 200/230 µm HCS fibers

Technical data

	VS-SCRJ-...-IP20	VS-SCRJ-...-IP67
Material data		
Housing material	PBT	PA
Ferrule material	Copper alloy	Copper alloy
Inflammability class according to UL 94	V0	V0
Color	black	gray
Degree of protection	IP20	IP67
Insertion/withdrawal cycles	≥ 1000	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-20 °C ... 70 °C

Technical data

	VS-SCRJ-GOF-BU/BU
Material data	
Housing material	PBT
Ferrule material	Zirconia ceramics
Inflammability class according to UL 94	V0
Color	-
Degree of protection	IP20
Insertion/withdrawal cycles	≥ 500
Temperature data	
Ambient temperature (operation)	-25 °C ... 70 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, IP20, duplex, with fast connection technology, for 200/230 µm HCS fiber			
For single wire diameter: 2.9 mm	**VS-SCRJ-HCS-FA-IP20**	**1654866**	1
Connector set for HCS fibers (diameter of the individual elements: 2.9 mm), for self-assembly, with bend protection			
- F-SMA set, 4 connectors	**PSM-SET-FSMA/4-HCS**	**2799487**	1
- B-FOC (ST®) set, 4 connectors	**PSM-SET-B-FOC/4-HCS**	**2708481**	1
- SCRJ set, 2 duplex connectors	**PSM-SET-SCRJ-DUP/2-HCS**	**2313070**	1
SCRJ fiber optic plug-in connector, IP67, duplex, with fast connection technology, for HCS fiber 200/230 µm, for individual wire diameter 2.9 mm, for cable cross section 5.0 mm ... 8.5 mm			
	VS-SCRJ-HCS-FA-IP67	**1657012**	1
SCRJ socket insert, duplex, for panel mounting frame VARIOSUB IP67, can be used for glass, multi-mode, HCS and polymer			
- 1x SCRJ/SCRJ (duplex)			
VS-SCRJ panel mounting frame, for use with an AVAGO transceiver, type: AFBR 5978Z			
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws			
Military gray RAL 7042			
Deep black RAL 9005			

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-SCRJ-GOF-BU/BU	**1652978**	1
VS-SCRJ-A-TC-IP67	**1658545**	1
VS-A-F-IP67	**1653744**	5
VS-A-F-IP67-BK	**1658668**	5

Accessories

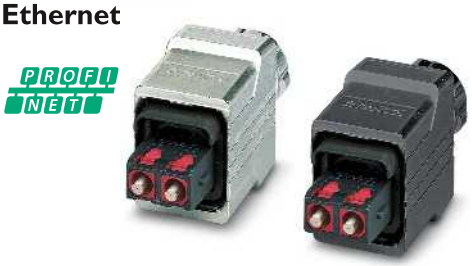
Protective cover for version 6 panel mounting frame			
Military gray RAL 7042			
Deep black RAL 9005			
Protective cover SCRJ/IP67, for covering the SCRJ pin insert on the SCRJ/IP67 sleeve housing	**VS-SCRJ-PC**	**1653757**	5
HCS (GI) DIY case for SCRJ and SC duplex quick mounting connectors, stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope	**PSM-HCS-KONFTOOL/SC-RJ**	**2708876**	1

Accessories

VS-08-SD-F	**1652606**	5
VS-08-SD-F-BK	**1658066**	5
PSM-HCS-KONFTOOL/SC-RJ	**2708876**	1

Fiber optic plug-in connectors, panel mounting frames, and couplings for HCS, IP20 and IP65/IP67

Ethernet



SCRJ plug-in connector, version 14, for 200/230 µm HCS fibers

Ethernet



SCRJ plug-in connector, version 14, for 200/230 µm HCS fibers

Technical data

	Metal housing	Plastic housing
Material data		
Housing material	Zinc die-cast	PA-GF
Ferrule material	Copper alloy	Copper alloy
Inflammability class according to UL 94	V0	V0
Color	silver	black
Degree of protection	IP65/67	IP65/67
Insertion/withdrawal cycles	≥ 500	≥ 500
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-20 °C ... 70 °C

Technical data

	Metal housing	Plastic housing
	Zinc die-cast	PA-GF
	-	-
	V0	V0
	silver	black
	IP65/67	IP65/67
	≥ 500	≥ 500
	-40 °C ... 80 °C	-40 °C ... 80 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, IP67, with push/pull interlocking, duplex, with fast connection technology			
Metal housing	**VS-PPC-C1-SCRJ-MNNA-PG9-A3C-C**	**1608045**	1
Plastic housings	**VS-PPC-C1-SCRJ-POBK-PG9-A3C-C**	**1657863**	1
SCRJ fiber optic plug-in connector, IP20, duplex, with fast connection technology, for 200/230 µm HCS fiber			
For single wire diameter: 2.2 mm	**VS-SCRJ-HCS-FA-IP20-PN**	**1404087**	1
Connector set for PROFINET HCS fibers (diameter of the individual elements: 2.2 mm), for self-assembly, with bend protection			
- SC duplex set, 2 duplex connectors	**PSM-SET-SC-DUPLEX/2-HCS/PN**	**2313779**	1
- B-FOC (ST®) set, 4 connectors	**PSM-SET-B-FOC/4-HCS/PN**	**2313782**	1
- SCRJ set, 2 duplex connectors	**PSM-SET-SCRJ-DUP/2-HCS/PN**	**2313546**	1
SCRJ panel mounting frame, IP67, for push/pull interlocking, for rectangular mounting cutout, for **AVAGO transceiver (type: AFBR5978Z)** on PCB, with seal, without mounting screws			
Metal housing			
Plastic housings			
SCRJ panel mounting frame, IP67, for push/pull Interlocking, with Freenet system, for rectangular mounting cutout, with seal, without mounting screws			
Metal housing			
Plastic housings			
SCRJ panel mounting frame, IP67, for push/pull Interlocking, metal, with Freenet system, for round mounting cutout, with seal			

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-PPC-F1-SCRJ-MNNA-1RP	**1608061**	1
VS-PPC-F1-SCRJ-POBK-1RP	**1657889**	1
VS-PPC-F1-SCRJ-MNNA-1RF	**1405374**	1
VS-PPC-F1-SCRJ-POBK-1RF	**1608210**	1
VS-PPC-F1-SCRJ-MNNA-1C-F	**1405235**	1

Accessories

Protective cover For data port			
Protective cover, IP65, with push/pull interlocking, for covering the contact insert in the push/pull connector for RJ45 and SCRJ, plastic	**VS-PPC-F1-PC-POBK**	**1405316**	1
HCS (GI) DIY case for SCRJ and SC duplex quick mounting connectors, stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope	**PSM-HCS-KONFTOOL/SC-RJ**	**2708876**	1

Accessories

VS-PPC-C1-PC-ROBK-L	**1405293**	1

Fiber optic plug-in connectors, panel mounting frames, and couplings for GOF, IP20 and IP65/IP67

Ethernet



SCRJ plug-in connector, version 6, for 50/125 µm multi-mode fiberglass

Ethernet



SCRJ panel mounting side, version 6, for 50/125 µm multi-mode fiberglass

Technical data

	VS-SCRJ-...-IP20	VS-SCRJ-...-IP67
Material data		
Housing material	PBT	PA
Ferrule material	Zirconia ceramics	Zirconia ceramics
Inflammability class according to UL 94	V0	V0
Color	black	gray
Degree of protection	IP20	IP67
Insertion/withdrawal cycles	≥ 1000	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-20 °C ... 70 °C

Technical data

VS-SCRJ-GOF-BU/BU
PBT
Zirconia ceramics
V0
-
IP20
≥ 500
-25 °C ... 70 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, duplex, with fast connection technology, for fiberglass multi-mode 50/125 µm, for individual wire diameter 2.9 mm			
IP20	**VS-SCRJ-GOF-FA-IP20**	**1657070**	1
IP67	**VS-SCRJ-GOF-FA-IP67**	**1657083**	1
SC duplex fiber optic plug-in connector, IP20, with fast connection technology	**VS-SCDU-GOF-FA-IP20**	**1658529**	1
SCRJ socket insert, duplex, for panel mounting frame VARIOSUB IP67, can be used for glass, multi-mode, HCS and polymer - 1x SCRJ/SCRJ (duplex)			
VS-SCRJ panel mounting frame, for use with an AVAGO transceiver, type: AFBR 5978Z			
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws			
Military gray RAL 7042			
Deep black RAL 9005			

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-SCRJ-GOF-BU/BU	**1652978**	1
VS-SCRJ-A-TC-IP67	**1658545**	1
VS-A-F-IP67	**1653744**	5
VS-A-F-IP67-BK	**1658668**	5

Accessories

Assembly tool set for fiberglass, for field assembly of SCRJ and SC duplex plug-in connectors, with fast connection technology			
EU version	**VS-GOF-FA-KONFTOOL-EU**	**1658228**	1
US version	**VS-GOF-FA-KONFTOOL-US**	**1658231**	1
Protective cover for version 6 panel mounting frame			
Military gray RAL 7042			
Deep black RAL 9005			
Protective cover SCRJ/IP67, for covering the SCRJ pin insert on the SCRJ/IP67 sleeve housing	**VS-SCRJ-PC**	**1653757**	5

Accessories

VS-08-SD-F	**1652606**	5
VS-08-SD-F-BK	**1658066**	5

Fiber optic plug-in connectors and panel mounting frames, version 1, for GOF, IP65/IP67



Fiber optic plug-in connector, version 1



Fiber optic panel mounting frame, version 1

	Technical data	Technical data
	VS-V1-C-SCRJ-MNNA-PG9...	VS-V1-F-SCRJ-MNNA-PG9-C-S...
Material data		
Housing material	Zinc die-cast	Zinc die-cast
Inflammability class according to UL 94	V0	V0
Color	silver	-
Degree of protection	IP67	IP67
Insertion/withdrawal cycles	500	500
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ fiber optic plug-in connector, IP67, with bayonet locking, metal housing, duplex, with adhesive connection technology, for 5.0 mm ... 8.0 mm cable diameter						
For multi-mode fiber	**VS-V1-C-SCRJ-MNNA-PG9-A1-G**	**1419187**	1			
For single mode fiber	**VS-V1-C-SCRJ-MNNA-PG9-B1-G**	**1419188**	1			
LC fiber optic connector, IP67, with bayonet locking, metal housing, duplex, with adhesive connection technology, for 5.0 mm ... 8.0 mm cable diameter						
For multi-mode fiber	**VS-V1-C-LC-MNNA-PG9-A1-G**	**1419190**	1			
For single mode fiber	**VS-V1-C-LC-MNNA-PG9-B1-G**	**1419191**	1			
SCRJ panel mounting frame, IP67, for bayonet locking, metal, SCRJ to 2 x SC, for round mounting cutout, with seal, without mounting screws, **with coupling for:**						
Multi-mode, PCF, and POF				**VS-V1-F-SCRJ-MNNA-PG9-C-S-A1**	**1420197**	1
Single mode				**VS-V1-F-SCRJ-MNNA-PG9-C-S-B1**	**1420207**	1
LC panel mounting frame, IP67, for bayonet locking, metal, for round mounting cutout, with seal, without mounting screws, **with coupling for:**						
Multi-mode				**VS-V1-F-LC-MNNA-PG9-C-S-A1**	**1420210**	1
Single mode				**VS-V1-F-LC-MNNA-PG9-C-S-B1**	**1420223**	1
	Accessories			**Accessories**		
Protective cover, IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ connector	**VS-V1-C-PC-POBK**	**1419183**	1			
Protective cover, IP67, plastic, for covering the contact insert in the RJ45, LC, and SCRJ **panel mounting frame**				**VS-V1-F-PC-POBK**	**1419186**	1

Fiber optic patch panel



Patch panel, SCRJ, socket/socket, for polymer fibers, HCS fibers, and multi-mode fiberglass



Patch panel for 19" rack and matching socket inserts

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ patch panel, DIN rail mounting, IP20, 1 slot	VS-PP-F-SCRJ	1658121	1			
Patch panel, 19" mounting, IP20, 16 slots for Freenet contact inserts				VS-PP-19-1HE-16-F	1652994	1

Fiber optic terminal outlet



IP20 outlet boxes



IP65/IP67 terminal outlet, with SCRJ and power slots

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Terminal outlet, IP20, with slots for Freenet contact inserts						
Surface-mounted socket, two slots	VS-TO-OW-2-F-9010	1653003	1			
Flush-type socket, two slots	VS-TO-IW-2-F-9010	1653016	1			
Surface-mounted socket, six slots	VS-TO-0W-6-F-9010	1653029	1			
Terminal outlet, SCRJ/power, IP65/67, push/pull, 2 slots version 14, with protective plugs, 2 cable entries				VS-TO-RO-MCBK-F1417/1413	1404346	1
Terminal outlet, SCRJ, IP65/67, push/pull, 2 slots version 14, with protective plugs, 2 cable entries				VS-TO-RO-MCBK-F1417/1417	1404320	1

Installation system for fiber optics, IP56/IP67



Push/pull robot interface, with SCRJ and power inserts



Push/pull robot interface, with SCRJ inserts

Technical data

	VS-MP-PPC/CG-PO/FO	VS-MP-PPC/CG-PO
Material data		
Housing material	Aluminum alloy	Aluminum alloy
Connection data		
Connection profile	Data/power: SCRJ/5-pos.	Power: 5-pos.
Insertion/withdrawal cycles	≥ 500 (Data) // ≤ 100 (Power)	≤ 100 (Power)
Temperature data		
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 70 °C

Technical data

	VS-MP-PPC/CG-FO
Material data	
Housing material	Aluminum alloy
Connection data	
Connection profile	Data: SCRJ
Insertion/withdrawal cycles	≥ 500 (Data)
Temperature data	
Ambient temperature (operation)	-40 °C ... 70 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Multi-port connection, for passive PROFINET cabling to robots, including mounting foot, for **cable diameter**:			
5 mm ... 8 mm	**VS-MP-PPC/CG-PO/FO**	**1404321**	1
7 mm ... 10.5 mm	**VS-MP-PPC/CG-XL-PO/FO**	**1404325**	1
Multi-port power connection: push/pull power, for passive PROFINET cabling to robots, including mounting foot	**VS-MP-PPC/CG-PO**	**1403681**	1
Multi-port power coupling: for passive PROFINET cabling to robots, including mounting foot	**VS-MP-PPC/PPC-PO**	**1403684**	1

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-MP-PPC/CG-FO	**1404319**	1
VS-MP-PPC/CG-XL-FO	**1404324**	1

Accessories

Protective cover			
For data port	**VS-PPC-C1-PC-ROBK-L**	**1405293**	1
For power port	**VS-PPC-C2-PC-ROBK-L**	**1405303**	1
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1

Accessories

Type	Order No.	Pcs. / Pkt.
VS-CABLE-STRIP-VARIO	**1657407**	1

Fiber optic couplings

Ethernet



SCRJ coupling



Couplings for connecting FO cables

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
SCRJ coupling, for terminal outlets VS-TO-... and 19" patch panels VS-PP-19-1HE-16-F and front plate VS-SI-FP-2F	**VS-SCRJ-GOF-KU**	**1654358**	1			
Coupling; set, consisting of: - 2 x F-SMA/F-SMA - 2 x B-FOC (ST®)/B-FOC (ST®) - 1 x SCRJ/SCRJ (duplex) - 1 x LC/LC (duplex, multi-mode fiber) - 1 x LC/LC (duplex, single mode fiber) - 1 x SC duplex/SC duplex				**PSM-SET-FSMA-LINK/2** **PSM-SET-BFOC-LINK/2** **VS-SCRJ-GOF-BU/BU** **FL MM PATCH COUPLER LC-LC** **FL SM PATCH COUPLER LC-LC** **FL COUPLER SC-DUPLEX**	**2799416** **2799429** **1652978** **2700312** **2700313** **2901788**	1 1 1 1 1 1

Coupling, version 14, IP65/IP67

Ethernet



Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
SCRJ push/pull coupling, IP67, metal, with protective cover, color: nickel-plated	**VS-PPC-J-1-SCRJ-MNBK**	**1405206**	1

Fiber optic outdoor cables, sold by the meter

- Robust round cable for outdoor installation
- Ozone and UV resistant
- Watertight lengthwise
- Integrated vapor barrier and rodent-proof scrim



GOF fiber type



PCF fiber type

	Technical data		Technical data	
	FOC-OE-OE-GB01/...	FOC-OE-OE-GB02/...	FOC-OE-OE-GB03/...	FOC-OE-OE-HB01/...
Cable data				
Cable abbreviation in accordance with IEC 61977:2010	02-G50/FJ(ZNG)H-...22	02-G50/FJ(ZN)Z-...22	04-G50/FJ(ZNG)H-...22	02-H200/VJ(ZNG)H-...22
Fibers	50/125 µm OM2	50/125 µm OM2	50/125 µm OM2	200/230 µm
Attenuation, typical	2.7 dB/km (at 850 nm); 0.8 dB/km (at 1300 nm)	2.7 dB/km (at 850 nm); 0.8 dB/km (at 1300 nm)	2.7 dB/km (at 850 nm); 0.8 dB/km (at 1300 nm)	10 dB/km (at 660 nm), 8 dB/km (at 850 nm)
Outer sheath				
Material	PE	PUR	PE	PE
Color	black	black	black	black
Strain relief elements	Aramid/glass fibers	Non-metallic, aramid fiber	Aramid/glass fibers	Aramid/glass fibers
Diameter	7.5 mm	7.5 - 8 mm	9 mm	7.5 mm
Individual wire				
Color	Black/orange	Black/orange	Black/orange	Black/orange
Diameter	2.2 mm	2.2 mm	2.15 mm	2.2 mm
Strain relief elements	Non-metallic, aramid fibers	Non-metallic, aramid fibers	Non-metallic, aramid fibers	Non-metallic, aramid fibers
General data				
Weight	59.00 kg/km	46.00 kg/km	90.00 kg/km	67.00 kg/km
Ambient temperature (operation)	-40 °C ... 70 °C	-40 °C ... 85 °C	-40 °C ... 70 °C	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-45 °C ... 70 °C	-45 °C ... 85 °C	-40 °C ... 70 °C	-25 °C ... 70 °C
Ambient temperature (installation)	-20 °C ... 60 °C	-20 °C ... 60 °C	-20 °C ... 60 °C	-10 °C ... 60 °C
Halogen-free as per:	According to IEC 60754-1/2	According to IEC 60754-1/2	According to IEC 60754-1/2	According to IEC 60754-1/2

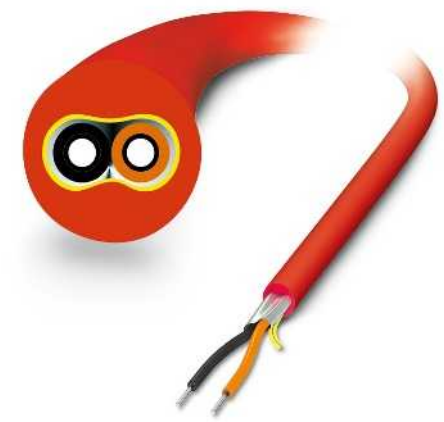
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
GOF outdoor cable, 2-wire, full breakout cable for **fixed** installation	**FOC-OE-OE-GB01/...**	**1406429**	1			
GOF outdoor cable, 2-wire, full breakout cable for **flexible** installation	**FOC-OE-OE-GB02/...**	**1406430**	1			
GOF outdoor cable, 4-wire, full breakout cable for **fixed** installation	**FOC-OE-OE-GB03/...**	**1406431**	1			
PCF outdoor cable, 2-wire, full breakout cable for **fixed** installation				**FOC-OE-OE-HB01/...**	**1406432**	1

Ordering example for cables with variable cable lengths:

For fiber optic outdoor cable type **GB02** with a cable length of 34.0 m, the ordering data is as follows:

Order No.		Length [m] Max. 1000 m
1406430	/	**34.0**
		Increment: 1.0 m ... 1000 m = **1.0 m**

Universal POF cable for assembly, type KDHEAVY-1011



- Universal installation cable for fixed installation indoors
- 2.2 mm individual wires made from extremely hard-wearing polyamide chloride (PA)
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath

	Free end		FSMA plug, IP20		SCRJ plug, IP20	
						
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
	Order No.		Order No.		Order No.	
Free end						
 OE	By the meter	2744319	Variable	2901553	Variable	2901553
FSMA plug, IP20						
 FSMA	Variable	2901553	Variable	2901553	Variable	2901553
SCRJ plug, IP20						
 SCRJ	Variable	2901553	Variable	2901553	Variable	2901553
B-FOC (ST®) plug, IP20						
 BFOC	Variable	2901553	Variable	2901553	Variable	2901553
SCRJ plug, IP67						
 IP67	Variable	1402188	Variable	1402188	Variable	1402188
Push/pull SCRJ, plastic						
 PPCPL	Variable	1402188	Variable	1402188	Variable	1402188
Push/pull SCRJ, metal						
 PPCME	Variable	1402188	Variable	1402188	Variable	1402188

Ordering example for configured cable:

For a **POF cable**, fitted with an **SCRJ plug** at one end and a **plastic SCRJ push/pull plug-in connector** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402188	SCRJ	PPCPL	15

Length:	Min. 0.5 m Max. 100 m	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 100 m

Ordering example for cable sold by the meter:

For a **POF cable 70 m in length**, the ordering data is as follows:

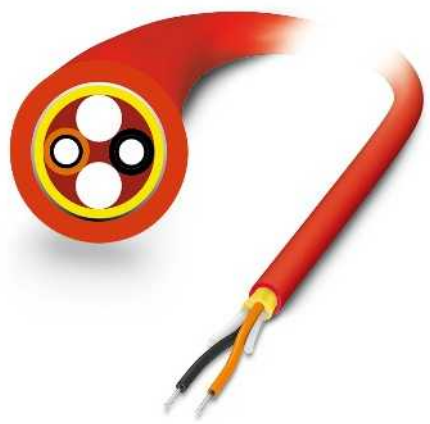
Order No.	Length [m]
2744319	70

Length:	Min. 0.5 m Max. 500 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 500 m

B-FOC (ST®) plug, IP20	SCRJ plug, IP67	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
			
BFOC	IP67	PPCPL	PPCME
Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order no.	Order No.
Variable 2901553	Variable 1402188	Variable 1402188	Variable 1402188
Variable 2901553	Variable 1402188	Variable 1402188	Variable 1402188
Variable 2901553	Variable 1402188	Variable 1402188	Variable 1402188
Variable 2901553	Variable 1402188	Variable 1402188	Variable 1402188
Variable 1402188	Variable 1402188		
Variable 1402188		Variable 1402188	
Variable 1402188			Variable 1402188

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 160A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	230 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	red
Diameter	5.5 - 6.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	black/orange
Diameter	2.2 mm ±0.07 mm
General data	
Weight	33 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Robust POF cable for free assembly, type RUGGED-1012



- Robust installation cable for fixed installation indoors
- Dimensioned for higher requirements in respect of tensile load and lateral pressure
- 2.2 mm individual wires made from extremely hard-wearing polyamide chloride (PA)
- Halogen-free, ozone and UV resistant
- Reinforced polyurethane (PUR) outer cable sheath

	Free end		FSMA plug, IP20		SCRJ plug, IP20	
						
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.
Free end						
 OE	By the meter	2744322	Variable	2901548	Variable	2901548
FSMA plug, IP20						
 FSMA	Variable	2901548	Variable	2901548	Variable	2901548
SCRJ plug, IP20						
 SCRJ	Variable	2901548	Variable	2901548	Variable	2901548
B-FOC (ST®) plug, IP20						
 BFOC	Variable	2901548	Variable	2901548	Variable	2901548
SCRJ plug, IP67						
 IP67	Variable	1402185	Variable	1402185	Variable	1402185
Push/pull SCRJ, plastic						
 PPCPL	Variable	1402185	Variable	1402185	Variable	1402185
Push/pull SCRJ, metal						
 PPCME	Variable	1402185	Variable	1402185	Variable	1402185

Ordering example for configured cable:

For a **POF cable**, fitted with an **SCRJ plug** at one end and a **plastic SCRJ push/pull plug-in connector** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402185	SCRJ	PPCPL	15

Length:	Min. 0.5 m Max. 100 m	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 100 m

Ordering example for cable sold by the meter:

For a **POF cable 70 m in length**, the ordering data is as follows:

Order No.	Length [m]
2744322	70

Length:	Min. 0.5 m Max. 500 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 500 m

B-FOC (ST®) plug, IP20	SCRJ plug, IP67	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
			
BFOC	IP67	PPCPL	PPCME
Ordering data	**Ordering data**	**Ordering data**	**Ordering data**
Order No.	**Order No.**	**Order No.**	**Order No.**
Variable **2901548**	Variable **1402185**	Variable **1402185**	Variable **1402185**
Variable **2901548**	Variable **1402185**	Variable **1402185**	Variable **1402185**
Variable **2901548**	Variable **1402185**	Variable **1402185**	Variable **1402185**
Variable **2901548**	Variable **1402185**	Variable **1402185**	Variable **1402185**
Variable **1402185**	Variable **1402185**		
Variable **1402185**		Variable **1402185**	
Variable **1402185**			Variable **1402185**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 160A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	230 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	red
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	black/orange
Diameter	2.2 mm ±0.07 mm
General data	
Weight	54 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Highly flexible POF cable for free assembly, type RUGGED-FLEX-1013



- Highly flexible round cable for use in trailing cables or drag chains
- Dimensioned for an alternating bending frequency of up to 5,000,000 cycles
- 2.2 mm individual wires made from extremely hard-wearing polyamide chloride (PA)
- Halogen-free, ozone and UV resistant
- Robust Polyurethane (PUR) outer cable sheath

	Free end		FSMA plug, IP20		SCRJ plug, IP20	
						
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.
Free end						
 OE	By the meter	2744335	Variable	2901549	Variable	2901549
FSMA plug, IP20						
 FSMA	Variable	2901549	Variable	2901549	Variable	2901549
SCRJ plug, IP20						
 SCRJ	Variable	2901549	Variable	2901549	Variable	2901549
B-FOC (ST®) plug, IP20						
 BFOC	Variable	2901549	Variable	2901549	Variable	2901549
SCRJ plug, IP67						
 IP67	Variable	1402187	Variable	1402187	Variable	1402187
Push/pull SCRJ, plastic						
 PPCPL	Variable	1402187	Variable	1402187	Variable	1402187
Push/pull SCRJ, metal						
 PPCME	Variable	1402187	Variable	1402187	Variable	1402187

Ordering example for configured cable:

For a **POF cable**, fitted with an **SCRJ plug** at one end and a **plastic SCRJ push/pull plug-in connector** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402187	SCRJ	PPCPL	15

Length:	Min. 0.5 m Max. 100 m	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 100 m

Ordering example for cable sold by the meter:

For a **POF cable 70 m in length**, the ordering data is as follows:

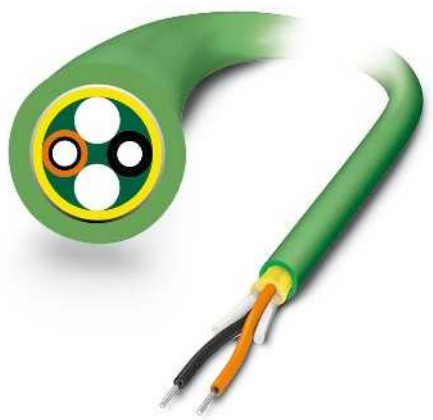
Order No.	Length [m]
2744335	70

Length:	Min. 0.5 m Max. 500 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 500 m

B-FOC (ST®) plug, IP20	SCRJ plug, IP67	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
			
BFOC	IP67	PPCPL	PPCME
Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.
Variable 2901549	Variable 1402187	Variable 1402187	Variable 1402187
Variable 2901549	Variable 1402187	Variable 1402187	Variable 1402187
Variable 2901549	Variable 1402187	Variable 1402187	Variable 1402187
Variable 2901549	Variable 1402187	Variable 1402187	Variable 1402187
Variable 1402187	Variable 1402187		
Variable 1402187		Variable 1402187	
Variable 1402187			Variable 1402187

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 180A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	275 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	red
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	black/orange
Diameter	2.2 mm ±0.07 mm
General data	
Weight	54 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

PROFINET B POF cable for free assembly, type PN-B-1000



- Universal installation cable for fixed installation indoors
- 2.2 mm individual wires made from extremely hard-wearing polyamide chloride (PA)
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath
- PROFINET type B

Ethernet

		Free end		FSMA plug, IP20		SCRJ plug, IP20	
							
		OE		FSMA		SCRJ	
		Ordering data		Ordering data		Ordering data	
			Order No.		Order No.		Order No.
Free end							
	OE	By the meter	2313397	Variable	2901551	Variable	2901551
FSMA plug, IP20							
	FSMA	Variable	2901551	Variable	2901551	Variable	2901551
SCRJ plug, IP20							
	SCRJ	Variable	2901551	Variable	2901551	Variable	2901551
B-FOC (ST®) plug, IP20							
	BFOC	Variable	2901551	Variable	2901551	Variable	2901551
Push/pull SCRJ, plastic							
	PPCPL	Variable	1402172	Variable	1402172	Variable	1402172
Push/pull SCRJ, metal							
	PPCME	Variable	1402172	Variable	1402172	Variable	1402172

Ordering example for configured cable:

For a **POF cable**, fitted with an **SCRJ plug** at one end and a **plastic SCRJ push/pull plug-in connector** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402172	/ SCRJ	/ PPCPL	/ 15

Length:	Min. 0.5 m Max. 100 m	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 100 m

Ordering example for cable sold by the meter:

For a **POF cable 70 m in length**, the ordering data is as follows:

Order No.	Length [m]
2313397	/ 70

Length:	Min. 0.5 m Max. 500 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 500 m

B-FOC (ST®) plug, IP20	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
		
BFOC	PPCPL	PPCME
Ordering data	**Ordering data**	**Ordering data**
Order No.	**Order No.**	**Order No.**
Variable **2901551**	Variable **1402172**	Variable **1402172**
Variable **2901551**	Variable **1402172**	Variable **1402172**
Variable **2901551**	Variable **1402172**	Variable **1402172**
Variable **2901551**	Variable **1402172**	Variable **1402172**
Variable **1402172**	Variable **1402172**	
Variable **1402172**		Variable **1402172**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 160A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	230 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	Green
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	Black and orange with arrow labeling
Diameter	2.2 mm ±0.07 mm
General data	
Weight	49 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Highly flexible PROFINET C POF cable for free assembly, type PN-C-1003



- Highly flexible round cable for use in trailing cables or drag chains
- Dimensioned for an alternating bending frequency of up to 5,000,000 cycles
- 2.2 mm individual wires made from extremely hard-wearing polyamide chloride (PA)
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath
- PROFINET type C

Ethernet

	Free end	FSMA plug, IP20	SCRJ plug, IP20
			
	OE	FSMA	SCRJ
	Ordering data	Ordering data	Ordering data
	Order No.	Order no.	Order No.
Free end			
 OE	By the meter 2313407	Variable 2901552	Variable 2901552
FSMA plug, IP20			
 FSMA	Variable 2901552	Variable 2901552	Variable 2901552
SCRJ plug, IP20			
 SCRJ	Variable 2901552	Variable 2901552	Variable 2901552
B-FOC (ST®) plug, IP20			
 BFOC	Variable 2901552	Variable 2901552	Variable 2901552
Push/pull SCRJ, plastic			
 PPCPL	Variable 1402175	Variable 1402175	Variable 1402175
Push/pull SCRJ, metal			
 PPCME	Variable 1402175	Variable 1402175	Variable 1402175

Ordering example for configured cable:

For a **POF cable**, fitted with an **SCRJ plug** at one end and a **plastic SCRJ push/pull plug-in connector** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Plug 1	Plug 2	Length [m]
1402175	SCRJ	PPCPL	15

Length:	Min. 0.5 m Max. 100 m	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 100 m

Ordering example for cable sold by the meter:

For a **POF cable 70 m in length**, the ordering data is as follows:

Order No.	Length [m]
2313407	70

Length:	Min. 0.5 m Max. 500 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 500 m

B-FOC (ST®) plug, IP20	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
		
BFOC	PPCPL	PPCME
Ordering data	**Ordering data**	**Ordering data**
Order No.	**Order No.**	**Order No.**
Variable **2901552**	Variable **1402175**	Variable **1402175**
Variable **2901552**	Variable **1402175**	Variable **1402175**
Variable **2901552**	Variable **1402175**	Variable **1402175**
Variable **2901552**	Variable **1402175**	Variable **1402175**
Variable **1402175**	Variable **1402175**	
Variable **1402175**		Variable **1402175**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V11Y 4Y2P 980/1000 180A 10
Fibers	Polymer fiber, 980/1000 µm
Attenuation, typical	275 dB/km (at 660 nm)
Outer sheath	
Material	PUR
Color	Green
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PA
Color	Black and orange with arrow labeling
Diameter	2.2 mm ±0.07 mm
General data	
Weight	51 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 80 °C
Ambient temperature (installation)	5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Universal PROFINET B HCS cables for assembly



- Universal installation cable for fixed installation indoors
- 2.2 mm individual wires made from extremely hard-wearing polyvinyl chloride (PVC)
- Halogen-free, ozone and UV resistant
- PVC outer cable sheath
- PROFINET type B

	Free end	SCRJ plug, IP20	SC duplex plug, IP20
			
	OE	SCRJ	SCDUP
	Ordering data	Ordering data	Ordering data
	Order No.	Order No.	Order No.
Free end			
 OE	Variable 1408458	Variable 1408460	Variable 1408461
SCRJ plug, IP20			
 SCRJ		Variable 1408466	Variable 1408467
SC duplex plug, IP20			
 SCDUP			Variable 1408471
B-FOC (ST®) plug, IP20			
 BFOC			
Push/pull SCRJ, plastic			
 PPCPL			
Push/pull SCRJ, metal			
 PPCME			

Ordering example:

For an **HCS cable** with two **SCRJ plugs with IP20 protection** and **70 m in length**, the ordering data is as follows:

Order No.	Length [m]
1408466	/ 70

Length:	Min. 1 m Max. 2000 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m

B-FOC (ST® plug, IP20	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
		
BFOC	PPCPL	PPCME
Ordering data	**Ordering data**	**Ordering data**
Order No.	**Order No.**	**Order No.**
Variable **1408462**	Variable **1408463**	Variable **1408464**
Variable **1408468**	Variable **1408469**	Variable **1408470**
Variable **1408472**	Variable **1408473**	Variable **1408474**
Variable **1408475**	Variable **1408476**	Variable **1408480**
	Variable **1408477**	
		Variable **1408479**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	AT-V(ZN)YY 2K200/230 HCS
Fibers	HCS, 200/230 µm
Attenuation, typical	10 dB/km (at 660 nm), 8 dB/km (at 850 nm)
Outer sheath	
Material	PVC
Color	Green
Diameter	6.7 - 7.7 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PVC
Color	Black and orange with arrow labeling
Diameter	2.2 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	45 kg/km
Ambient temperature (operation)	-40 °C ... 90 °C
Ambient temperature (storage/transport)	-40 °C ... 90 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	-

PROFINET C HCS broadband cable (GI) for free assembly, type PN-C-HCS-GI-1005



- Highly flexible round cable for use in trailing cables or drag chains
- Robust installation cable for indoor use
- Gradient index fiber for maximum power requirements in respect of transmission bandwidth
- Can be used in 10/100/1000 Mbps Ethernet systems
- 2.2 mm individual wires made from polyvinyl chloride (PVC)
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath
- Highly tear-resistant aramid strain relief elements
- PROFINET type C

Ethernet

PROFINET

	Free end		FSMA plug, IP20		SCRJ plug, IP20	
						
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.
Free end  OE	By the meter	2313410	Variable	2901554	Variable	2901554
FSMA plug, IP20  FSMA	Variable	2901554	Variable	2901554	Variable	2901554
SCRJ plug, IP20  SCRJ	Variable	2901554	Variable	2901554	Variable	2901554
SC duplex plug, IP20  SCDUP	Variable	2901554	Variable	2901554	Variable	2901554
B-FOC (ST®) plug, IP20  BFOC	Variable	2901554	Variable	2901554	Variable	2901554
LC plug  LC	Variable	2901554	Variable	2901554	Variable	2901554
Push/pull SCRJ, plastic  PPCPL	Variable	1402189	Variable	1402189	Variable	1402189
Push/pull SCRJ, metal  PPCME	Variable	1402189	Variable	1402189	Variable	1402189

Ordering example for configured cable:

For an **HCS cable** fitted with an **SCRJ plug** at one end and an **SCRJ push/pull plastic plug-in connector** at the other end, and **15 m in length**, the ordering data is as follows

Order No.	Connector 1	Connector 2	Length [m]
1402189	SCRJ	PPCPL	15

Length:	Min. 1 m Max. 2000 m	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m

Ordering example for cable sold by the meter:

For an **HCS cable 70 m in length**, the ordering data is as follows:

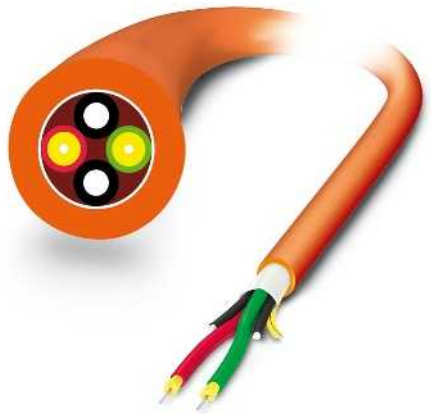
Order No.	Length [m]
2313410	70

Length:	Min. 1 m Max. 2000 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug	Push/pull SCRJ, plastic	Push/pull SCRJ, metal
				
SCDUP	BFOC	LC	PPCPL	PPCME
Ordering data	Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.	Order No.
Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189
Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189
Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189
Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189
Variable 2901554	Variable 2901554	Variable 2901554	Variable 1402189	Variable 1402189
Variable 1402189	Variable 1402189	Variable 1402189	Variable 1402189	
Variable 1402189	Variable 1402189	Variable 1402189		Variable 1402189

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	J-V(ZN)12Y(ZN)11Y 2GK200/230 GI-HCS
Fibers	HCS gradient index, 200/230 µm
Attenuation, typical	18 dB/km (at 660 nm), 12 dB/km (at 850 nm)
Outer sheath	
Material	PUR
Color	Green
Diameter	7.5 - 8.5 mm
Strain relief elements	Non-metallic, aramid fiber
Individual wire	
Material	PVC
Color	Black and orange with arrow labeling
Diameter	2.2 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	52 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Robust HCS cable for free assembly, type HCS-RUGGED-1014



- Robust installation cable for indoor use
- Highly tear-resistant aramid strain relief elements
- 2.9 mm individual wires made from highly flexible FRNC material
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath

	Free end		FSMA plug, IP20		SCRJ plug, IP20	
						
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.
Free end						
 OE	By the meter	2799885	Variable	2901555	Variable	2901555
FSMA plug, IP20						
 FSMA	Variable	2901555	Variable	2901555	Variable	2901555
SCRJ plug, IP20						
 SCRJ	Variable	2901555	Variable	2901555	Variable	2901555
SC duplex plug, IP20						
 SCDUP	Variable	2901555	Variable	2901555	Variable	2901555
B-FOC (ST®) plug, IP20						
 BFOC	Variable	2901555	Variable	2901555	Variable	2901555
LC plug						
 LC	Variable	2901555	Variable	2901555	Variable	2901555
Push/pull SCRJ, plastic						
 PPCPL	Variable	1402191	Variable	1402191	Variable	1402191
Push/pull SCRJ, metal						
 PPCME	Variable	1402191	Variable	1402191	Variable	1402191
SCRJ plug, IP67						
 IP67	Variable	1402191	Variable	1402191	Variable	1402191

Ordering example for configured cable:

For an **HCS cable** fitted with an **SCRJ plug** at one end and an **SCRJ push/pull plastic plug-in connector** at the other end, and **15 m in length**, the ordering data is as follows

Order No.	Connector 1	Connector 2	Length [m]
1402191	SCRJ	PPCPL	15

Length:	Min. 1 m Max. 2000 m	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m

Ordering example for cable sold by the meter:

For an **HCS cable 70 m in length**, the ordering data is as follows:

Order No.	Length [m]
2799885	70

Length:	Min. 1 m Max. 2000 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 2000 m

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug	Push/pull SCRJ, plastic	Push/pull SCRJ, metal	SCRJ plug, IP67
					
SCDUP	BFOC	LC	PPCPL	PPCME	IP67
Ordering data	Ordering data	Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order no.	Order No.	Order No.
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 2901555	Variable 2901555	Variable 2901555	Variable 1402191	Variable 1402191	Variable 1402191
Variable 1402191	Variable 1402191	Variable 1402191	Variable 1402191		
Variable 1402191	Variable 1402191	Variable 1402191		Variable 1402191	
Variable 1402191	Variable 1402191	Variable 1402191			Variable 1402191

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	I-VH11Y 2K200/230 HCS
Fibers	HCS, 200/230 µm
Attenuation, typical	10 dB/km (at 660 nm), 8 dB/km (at 850 nm)
Outer sheath	
Material	PUR
Color	orange
Diameter	7.5 - 8.5 mm
Individual wire	
Material	FRNC material
Color	Red/green
Diameter	2.9 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	54 kg/km
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 70 °C
Ambient temperature (installation)	-20 °C ... 60 °C

Outdoor cables for free assembly, type HCSO-1015



- Robust round cable for laying outdoors
- Longitudinally water-tight
- Integrated vapor barrier and rodent-proof scrim
- 2.9 mm individual wires made from highly flexible FRNC material
- Ozone and UV resistant
- Extremely robust polyethylene outer cable sheath

	Free end		FSMA plug, IP20		SCRJ plug, IP20	
						
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order no.
Free end  OE	By the meter	2799445	Variable	2901557	Variable	2901557
FSMA plug, IP20  FSMA	Variable	2901557	Variable	2901557	Variable	2901557
SCRJ plug, IP20  SCRJ	Variable	2901557	Variable	2901557	Variable	2901557
SC duplex plug, IP20  SCDUP	Variable	2901557	Variable	2901557	Variable	2901557
B-FOC (ST®) plug, IP20  BFOC	Variable	2901557	Variable	2901557	Variable	2901557
LC plug  LC	Variable	2901557	Variable	2901557	Variable	2901557

Ordering example for configured cable:

For an **HCS cable** fitted with an **SCRJ** plug at one end and an **IP20 B-FOC(ST®)** plug at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Connector 1	Connector 2	Length [m]
2901557	SCRJ	BFOC	15

Length:	Min. 1 m Max. 1000 m	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 1000 m

Ordering example for cable sold by the meter:

For an **HCS cable 70 m in length**, the ordering data is as follows:

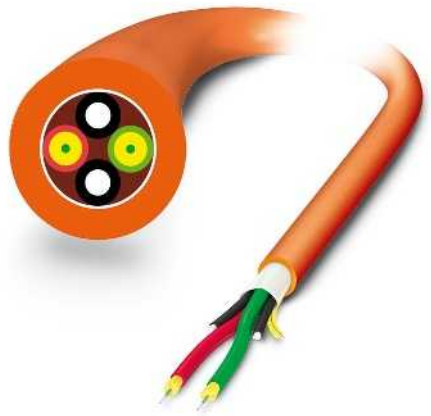
Order No.	Length [m]
2799445	70

Length:	Min. 1 m Max. 1000 m/cable drum	
Increment:	0.25 m 1 m	1 m ... 5 m 5 m ... 1000 m

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug
		
SCDUP	BFOC	LC
Ordering data	**Ordering data**	**Ordering data**
Order No.	**Order No.**	**Order No.**
Variable **2901557**	Variable **2901557**	Variable **2901557**
Variable **2901557**	Variable **2901557**	Variable **2901557**
Variable **2901557**	Variable **2901557**	Variable **2901557**
Variable **2901557**	Variable **2901557**	Variable **2901557**
Variable **2901557**	Variable **2901557**	Variable **2901557**
Variable **2901557**	Variable **2901557**	Variable **2901557**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	AT-VQHB2Y 2K200/230 10A17+8B20
Fibers	HCS, 200/230 µm
Attenuation, typical	10 dB/km (at 660 nm), 8 dB/km (at 850 nm)
Outer sheath	
Material	PE
Color	black
Diameter	10 - 11 mm
Strain relief elements	Non-metallic, aramid fiber
Rodent protection	Glass fibers
Lengthwise waterproofing	IEC 60794-1-2
Individual wire	
Material	FRNC material
Color	Red/green
Diameter	2.9 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	97 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Multi-mode fiberglass cables for free assembly, type GDM-RUGGED-1016



- Robust installation cable for indoor use
- Highly tear-resistant aramid strain relief elements
- 2.9 mm individual wires made from highly flexible FRNC material
- Halogen-free, ozone and UV resistant
- Robust polyurethane (PUR) outer cable sheath

	Free end		FSMA plug, IP20		SCRJ plug, IP20	
						
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
	Order no.		Order No.		Order No.	
Free end  OE	By the meter	2799322	Variable	2901558	Variable	2901558
FSMA plug, IP20  FSMA	Variable	2901558	Variable	2901558	Variable	2901558
SCRJ plug, IP20  SCRJ	Variable	2901558	Variable	2901558	Variable	2901558
SC duplex plug, IP20  SCDUP	Variable	2901558	Variable	2901558	Variable	2901558
B-FOC (ST®) plug, IP20  BFOC	Variable	2901558	Variable	2901558	Variable	2901558
LC plug  LC	Variable	2901558	Variable	2901558	Variable	2901558
Push/pull SCRJ, plastic  PPCPL	Variable	1402193	Variable	1402193	Variable	1402193
Push/pull SCRJ, metal  PPCME	Variable	1402193	Variable	1402193	Variable	1402193
SCRJ plug, IP67  IP67	Variable	1402193	Variable	1402193	Variable	1402193

Ordering example for configured cable:

For a **fiberglass cable** fitted with an **SCRJ plug at one end and an SCRJ push/pull plastic plug-in connector** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Connector 1	Connector 2	Length [m]
1402193	SCRJ	PPCPL	15

Length	Min. 1 m Max. 1000 m
Increment:	1 m 1 m ... 1000 m

Ordering example for cable sold by the meter:

For a **fiberglass cable 70 m in length**, the ordering data is as follows:

Order No.	Length [m]
2799322	70

Length	Min. 1 m Max. 1000 m/cable drum
Increment:	1 m 1 m ... 1000 m

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug	Push/pull SCRJ, plastic	Push/pull SCRJ, metal	SCRJ plug, IP67
					
SCDUP	BFOC	LC	PPCPL	PPCME	IP67
Ordering data	Ordering data	Ordering data	Ordering data	Ordering data	Ordering data
Order No.	Order No.	Order No.	Order No.	Order No.	Order No.
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 2901558	Variable 2901558	Variable 2901558	Variable 1402193	Variable 1402193	Variable 1402193
Variable 1402193	Variable 1402193	Variable 1402193	Variable 1402193		
Variable 1402193	Variable 1402193	Variable 1402193		Variable 1402193	
Variable 1402193	Variable 1402193	Variable 1402193			Variable 1402193

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	I-V(ZN)H11Y 2G50/125 2,5B600+0,7F1200
Fibers	Fiberglass, 50/125 µm
Attenuation, typical	2.5 dB/km (at 850 nm), 0.7 dB/km (at 1300 nm)
Outer sheath	
Material	PUR
Color	orange
Diameter	7.5 - 8.5 mm
Individual wire	
Material	FRNC material
Color	Red/green
Diameter	2.9 mm ±0.1 mm
General data	
Weight	50 kg/km
Ambient temperature (operation)	-20 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Outdoor multi-mode fiberglass cables for free assembly, type GDO-1017



- Robust round cable for laying outdoors
- Longitudinally water-tight
- Integrated vapor barrier and rodent-proof scrim
- 2.9 mm individual wires made from highly flexible FRNC material
- Ozone and UV resistant
- Extremely robust polyethylene outer cable sheath

	Free end		FSMA plug, IP20		SCRJ plug, IP20	
						
	OE		FSMA		SCRJ	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.
Free end  OE	By the meter	2799432	Variable	2901559	Variable	2901559
FSMA plug, IP20  FSMA	Variable	2901559	Variable	2901559	Variable	2901559
SCRJ plug, IP20  SCRJ	Variable	2901559	Variable	2901559	Variable	2901559
SC duplex plug, IP20  SCDUP	Variable	2901559	Variable	2901559	Variable	2901559
B-FOC (ST®) plug, IP20  BFOC	Variable	2901559	Variable	2901559	Variable	2901559
LC plug  LC	Variable	2901559	Variable	2901559	Variable	2901559

Ordering example for configured cable:

For a **fiberglass cable** fitted with an SCRJ plug at one end and an **IP20 B-FOC(ST®)** plug at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Connector 1	Connector 2	Length [m]
2901559	SCRJ	BFOC	15

Length:	Min. 1 m Max. 1000 m
Increment:	1 m 1 m ... 1000 m

Ordering example for cable sold by the meter:

For a **fiberglass cable 70 m in length**, the ordering data is as follows:

Order No.	Length [m]
2799432	70

Length:	Min. 1 m Max. 1000 m/cable drum
Increment:	1 m 1 m ... 1000 m

SC duplex plug, IP20	B-FOC (ST®) plug, IP20	LC plug
		
SCDUP	BFOC	LC
Ordering data	**Ordering data**	**Ordering data**
Order No.	**Order No.**	**Order No.**
Variable **2901559**	Variable **2901559**	Variable **2901559**
Variable **2901559**	Variable **2901559**	Variable **2901559**
Variable **2901559**	Variable **2901559**	Variable **2901559**
Variable **2901559**	Variable **2901559**	Variable **2901559**
Variable **2901559**	Variable **2901559**	Variable **2901559**
Variable **2901559**	Variable **2901559**	Variable **2901559**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	AT-VQH(BN)2Y 2G50/125 2,5B600+0,7F1200
Fibers	Fiberglass, 50/125 µm
Attenuation, typical	2.5 dB/km (at 850 nm), 0.7 dB/km (at 1300 nm)
Outer sheath	
Material	PE
Color	black
Diameter	10 - 11 mm
Strain relief elements	Non-metallic, aramid fiber
Rodent protection	Glass fibers
Lengthwise waterproofing	IEC 60794-1-2
Individual wire	
Material	FRNC material
Color	Red/green
Diameter	2.9 mm ±0.1 mm
Strain relief elements	Non-metallic, aramid fibers
General data	
Weight	97 kg/km
Ambient temperature (operation)	-25 °C ... 70 °C
Ambient temperature (storage/transport)	-30 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-2

Zip cord fiberglass cable for assembly, OM2

– Fiber optic cable for indoor installation
– Ideal for use in distributor systems and for connecting termination devices
– 2.8 mm single elements made from halogen-free and flame-retardant material
– UL approval type OFNR (riser) for USA and Canada

	SCRJ plug, IP20		SC duplex plug, IP20		B-FOC (ST®) plug, IP20	
						
		SCRJ		SCDUP		BFOC
	Ordering data		Ordering data		Ordering data	
		Order No.		Order no.		Order No.
SCRJ plug, IP20  SCRJ	2 m	1400697	2 m	1400690	2 m	1400706
	Variable	1405703	Variable	1405700	Variable	1405710
SC duplex plug, IP20  SCDUP			2 m	1400685	2 m	1400703
			Variable	1405697	Variable	1405708
B-FOC (ST®) plug, IP20  BFOC					2 m	1404768
					Variable	1405712
LC plug  LC			2 m	1400639	2 m	1400701
			Variable	1405691	Variable	1405706

Ordering example for configured cable:

For a **zip cord fiberglass cable,** fitted with an **IP20 SC duplex plug** at one end and an **SCRJ plug** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Length [m]
1405700	/ 15

Length:	Min. 1 m Max. 1000 m
Increment:	1 m 1 m ... 1000 m

LC plug



	LC
Ordering data	
	Order No.
2 m	**1400682**
Variable	**1405694**
2 m	**1400604**
Variable	**1405688**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	I-V(ZN)H
Fibers	50/125 µm OM2
Attenuation, typical	2.7 dB/km (at 850 nm); 0.8 dB/km (at 1300 nm)
Outer sheath	
Material	-
Color	orange
Diameter	2.8 - 5.7 mm
Strain relief elements	-
Individual wire	
Material	-
Color	-
Diameter	900 µm
General data	
Weight	15.80 kg/km
Ambient temperature (operation)	-10 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-1/2

Zip cord fiberglass cable for assembly, OM3

- Fiber optic cable for indoor installation
- Ideal for use in distributor systems and for connecting termination devices
- 2.8 mm single elements made from halogen-free and flame-retardant material
- UL approval type OFNR (riser) for USA and Canada
- Low-bend fiber
- Data rate: up to 10 Gbps up to 300 m

	SCRJ plug, IP20		SC duplex plug, IP20		B-FOC (ST®) plug, IP20	
						
		SCRJ		SCDUP		BFOC
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.
SCRJ plug, IP20  SCRJ	2 m	1400699	2 m	1400691	2 m	1400711
	Variable	1405704	Variable	1405701	Variable	1405711
SC duplex plug, IP20  SCDUP			2 m	1400688	2 m	1400705
			Variable	1405698	Variable	1405709
SC duplex plug, IP20  LC			2 m	1400673	2 m	1400702
			Variable	1405692	Variable	1405707

Ordering example for configured cable:

For a **zip cord fiberglass cable,** fitted with an **IP20 SC duplex plug** at one end and an **SCRJ plug** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Length [m]
1405701	/ 15

Length:	Min. 1 m Max. 1000 m
Increment:	1 m 1 m ... 1000 m

LC plug	
	
	LC
Ordering data	
	Order No.
2 m	**1400683**
Variable	**1405695**
2 m	**1400621**
Variable	**1405695**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	I-V(ZN)H
Fibers	Fiberglass, 50/125 µm
Attenuation, typical	2.5 dB/km (at 850 nm), 0.7 dB/km (at 1300 nm)
Outer sheath	
Material	-
Color	Aqua
Diameter	2.8 - 5.7 mm
Strain relief elements	-
Individual wire	
Material	-
Color	-
Diameter	900 µm
General data	
Weight	15.80 kg/km
Ambient temperature (operation)	-10 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-1/2

Zip cord fiberglass cable for assembly, OM4

- Fiber optic cable for indoor installation
- Ideal for use in distributor systems and for connecting termination devices
- 2.8 mm single elements made from halogen-free and flame-retardant material
- UL approval type OFNR (riser) for USA and Canada
- Low-bend fiber
- Data rate: up to 10 Gbps up to 550 m

	SCRJ plug, IP20		SC duplex plug, IP20		LC plug	
						
	SCRJ		SCDUP		LC	
	Ordering data		Ordering data		Ordering data	
		Order No.		Order No.		Order No.
SCRJ plug, IP20  SCRJ	2 m	1400700	2 m	1400695	2 m	1400684
	Variable	1405705	Variable	1405702	Variable	1405696
SC duplex plug, IP20  SCDUP			2 m	1400689		
			Variable	1405699		
LC plug  LC			2 m	1400681	2 m	1400622
			Variable	1405693	Variable	1405690

Ordering example for configured cable:

For a **zip cord fiberglass cable,** fitted with an **IP20 SC duplex plug** at one end and an **SCRJ plug** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Length [m]
1405702	/ 15

Length:	**Min. 1 m** **Max. 1000 m**
Increment:	**1 m** **1 m ... 1000 m**

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	I-V(ZN)H
Fibers	Fiberglass, 50/125 µm
Attenuation, typical	2.5 dB/km (at 850 nm), 0.7 dB/km (at 1300 nm)
Outer sheath	
Material	-
Color	Violet
Diameter	2.8 - 5.7 mm
Strain relief elements	-
Individual wire	
Material	-
Color	-
Diameter	900 µm
General data	
Weight	15.80 kg/km
Ambient temperature (operation)	-10 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	According to IEC 60754-1/2

Zip cord fiberglass cable for assembly, OM1

- Fiber optic cable for indoor installation
- Ideal for use in distributor systems and for connecting termination devices
- 2.8 mm single elements made from halogen-free and flame-retardant material
- UL approval type OFNR (riser) for USA and Canada

	FSMA plug, IP20		
			
	FSMA		
	Ordering data		
			Order No.
FSMA plug, IP20			
 FSMA		Variable	1406532
SC duplex plug, IP20			
 SCDUP		Variable	1406536
B-FOC (ST®) plug, IP20			
 BFOC		Variable	1406535

Ordering example for configured cable:

For a **zip cord fiberglass cable,** fitted with an **IP20 FSMA plug** at one end and an **IP20 SC duplex plug** at the other end, and **15 m in length**, the ordering data is as follows:

Order No.	Length [m]
1406536	/ 15

Length:	Min. 1 m Max. 1000 m
Increment:	1 m 1 m ... 1000 m

	Technical data
Cable data	
Cable abbreviation in accordance with IEC 61977:2010	I-V(ZN)H
Fibers	62.5/125 µm
Attenuation, typical	3.2 dB/km (at 850 nm); 0.9 dB/km (at 1300 nm)
Outer sheath	
Material	-
Color	orange
Diameter	2.8 - 5.7 mm
Strain relief elements	-
Individual wire	
Material	-
Color	-
Diameter	900 µm
General data	
Weight	15.80 kg/km
Ambient temperature (operation)	-10 °C ... 70 °C
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Halogen-free as per:	A0ccording to IEC 60754-1/2

Fiber optics patch cables



LC plug

Plugs:
– LC
– SC duplex
– SCRJ
– B-FOC (ST®)

Fixed lengths:
– 1 m
– 2 m
– 5 m

Fiber types:
– Multi-mode fiberglass (MM)
– Single-mode fiberglass (SM)

Sheath colors:
– Multi-mode: orange
– Single mode: yellow

Technical data:
– Halogen-free
– Flame-retardant
– No corrosive or toxic fumes
– External dimensions: 2.8 mm x 5.7 mm

Technical data

Cable, properties	
Individual wire diameter	2.8 mm
Outer sheath, material	FRNC
Outer sheath, strain relief elements	Non-metallic, aramid fiber
Lateral pressure, long-term	60 N/cm
Tensile strength short-term/long-term	600 N
Halogen-free	According to IEC 60754-2
General data	
Ambient temperature (storage/transport)	-25 °C ... 70 °C
Ambient temperature (installation)	-5 °C ... 50 °C
Ambient temperature (operation)	-5 °C ... 70 °C

Ordering data

Description	Length of cable	Type	Order No.	Pcs. / Pkt.
FO patch cable with **multi-mode fiberglass (OM2)** - **LC plug** to LC, SC duplex, B-FOC or SCRJ plug				
	1 m	**FL MM PATCH 1,0 LC-LC**	**2989158**	1
	2 m	**FL MM PATCH 2,0 LC-LC**	**2989255**	1
	5 m	**FL MM PATCH 5,0 LC-LC**	**2901799**	1
FO patch cable with **multi-mode fiberglass (OM2)** - **SC duplex plug** to SC duplex, B-FOC or SCRJ plug				
	1 m			
	2 m			
	5 m			
FO patch cable with **multi-mode fiberglass (OM2)** - **B-FOC plug** to B-FOC or SCRJ plug				
	1 m			
	2 m			
	5 m			
FO patch cable with **multi-mode fiberglass (OM2)** - **SCRJ plug** to SCRJ plug				
	1 m			
	2 m			
	5 m			
FO patch cable with **single-mode fiberglass (OS1)** - **LC plug** to LC, SC duplex or B-FOC plug				
	1 m	**FL SM PATCH 1,0 LC-LC**	**2989187**	1
	2 m	**FL SM PATCH 2,0 LC-LC**	**2989284**	1
	5 m	**FL SM PATCH 5,0 LC-LC**	**2901826**	1
FO patch cable with **single-mode fiberglass (OS1)** - **SC duplex plug** to SC duplex or B-FOC plug				
	1 m			
	2 m			
	5 m			
FO patch cable with **single-mode fiberglass (OS1)** - **B-FOC plug** to B-FOC plug				
	1 m			
	2 m			
	5 m			



SC duplex plug



B-FOC plug



SCRJ plug

Technical data	
2.8 mm	
FRNC	
Non-metallic, aramid fiber	
60 N/cm	
600 N	
According to IEC 60754-2	
-25 °C ... 70 °C	
-5 °C ... 50 °C	
-5 °C ... 70 °C	

Technical data	
2.8 mm	
FRNC	
Non-metallic, aramid fiber	
60 N/cm	
600 N	
According to IEC 60754-2	
-25 °C ... 70 °C	
-5 °C ... 50 °C	
-5 °C ... 70 °C	

Technical data	
2.8 mm	
FRNC	
Non-metallic, a7ramid fiber	
60 N/cm	
600 N	
According to IEC 60754-2	
-25 °C ... 70 °C	
-5 °C ... 50 °C	
-5 °C ... 70 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
FL MM PATCH 1,0 LC-SC	2989161	1
FL MM PATCH 2,0 LC-SC	2989268	1
FL MM PATCH 5,0 LC-SC	2901800	1
FL MM PATCH 1,0 SC-SC	2901805	1
FL MM PATCH 2,0 SC-SC	2901807	1
FL MM PATCH 5,0 SC-SC	2901808	1
FL SM PATCH 1,0 LC-SC	2989190	1
FL SM PATCH 2,0 LC-SC	2989297	1
FL SM PATCH 5,0 LC-SC	2901827	1
FL SM PATCH 1,0 SC-SC	2901829	1
FL SM PATCH 2,0 SC-SC	2901830	1
FL SM PATCH 5,0 SC-SC	2901831	1

Ordering data

Type	Order No.	Pcs. / Pkt.
FL MM PATCH 1,0 LC-ST	2989174	1
FL MM PATCH 2,0 LC-ST	2989271	1
FL MM PATCH 5,0 LC-ST	2901801	1
FL MM PATCH 1,0 SC-ST	2901809	1
FL MM PATCH 2,0 SC-ST	2901810	1
FL MM PATCH 5,0 SC-ST	2901811	1
FL MM PATCH 1,0 ST-ST	2901815	1
FL MM PATCH 2,0 ST-ST	2901816	1
FL MM PATCH 5,0 ST-ST	2901817	1
FL SM PATCH 1,0 LC-ST	2989242	1
FL SM PATCH 2,0 LC-ST	2989349	1
FL SM PATCH 5,0 LC-ST	2901828	1
FL SM PATCH 1,0 SC-ST	2901832	1
FL SM PATCH 2,0 SC-ST	2901833	1
FL SM PATCH 5,0 SC-ST	2901834	1
FL SM PATCH 1,0 ST-ST	2901836	1
FL SM PATCH 2,0 ST-ST	2901837	1
FL SM PATCH 5,0 ST-ST	2901838	1

Ordering data

Type	Order No.	Pcs. / Pkt.
FL MM PATCH 1,0 LC-SCRJ	2901802	1
FL MM PATCH 2,0 LC-SCRJ	2901803	1
FL MM PATCH 5,0 LC-SCRJ	2901804	1
FL MM PATCH 1,0 SC-SCRJ	2901812	1
FL MM PATCH 2,0 SC-SCRJ	2901813	1
FL MM PATCH 5,0 SC-SCRJ	2901814	1
FL MM PATCH 1,0 ST-SCRJ	2901820	1
FL MM PATCH 2,0 ST-SCRJ	2901821	1
FL MM PATCH 5,0 ST-SCRJ	2901822	1
FL MM PATCH 1,0 SCRJ-SCRJ	2901823	1
FL MM PATCH 2,0 SCRJ-SCRJ	2901824	1
FL MM PATCH 5,0 SCRJ-SCRJ	2901825	1

Accessories for processing fiber optics





Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Ceramic blade	**FOC-TOOL-CERAMIC-BLADE**	**1407019**	1			
Solvent dispenser, 100 ml, lockable pump dispenser				**FOC-TOOL-DISPENSER**	**1406995**	1

Polishing fiber optic plug-in connectors





Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Polishing film, silicon carbide						
15 µm	**FOC-POLISHINGFILM-SK-15.0**	**1407034**	1			
Polishing film, ALO^2						
1 µm	**FOC-POLISHINGFILM-AO-01.0**	**1407037**	1			
3 µm	**FOC-POLISHINGFILM-AO-03.0**	**1407039**	1			
Polishing film, diamond						
0.1 µm	**FOC-POLISHINGFILM-D-00.1**	**1407046**	1			
1 µm	**FOC-POLISHINGFILM-D-01.0**	**1407042**	1			
9 µm	**FOC-POLISHINGFILM-D-09.0**	**1407044**	1			
Polishing disc						
1.25 mm, for LC				**FOC-POLISHINGDISC-1.25**	**1407024**	1
2.50 mm, for ST, SC, FC				**FOC-POLISHINGDISC-2.50**	**1407021**	1

Cleaning tools
for fiber optic connection technology





Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Ferrule cleaner, approx. 500 cleaning cycles						
1.25 mm, for LC	**FOC-TOOL-FERRULECLEANER-1.25**	**1407032**	1			
2.50 mm, for ST, SC, FC	**FOC-TOOL-FERRULECLEANER-2.50**	**1407029**	1			
Stick cleaner for couplings and plug end faces						
1.25 mm, for LC				**FOC-TOOL-STICKCLEANER-1.25**	**1407000**	1
2.50 mm, for ST, SC, FC				**FOC-TOOL-STICKCLEANER-2.50**	**1407002**	1

Tool for processing fiber optics





Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Fiber stripper, for stripping the coating from 250 µm to 125 µm						
For 1 fiber	**FOC-TOOL-STRIPPING-1HOLE-250**	**1407004**	1			
For 2 fibers	**FOC-TOOL-STRIPPING-2HOLE-250**	**1407008**	1			
T-stripper						
18 ... 10 AWG/1.0 mm ... 2.6 mm				**FOC-TOOL-STRIPPING-T-1**	**1407016**	1
30 ... 22 AWG/0.25 mm ... 0.64 mm				**FOC-TOOL-STRIPPING-T-2**	**1407014**	1
	Accessories			**Accessories**		
Electrician's scissors, high cutting performance thanks to micro-serrated cutting area, suitable for copper, aluminum, Kevlar fibers, and plastic, two-component non-slip soft-grip handles, ergonomic design, adjustable screw joint	**CUTFOX-ES**	**1212621**	1	**CUTFOX-ES**	**1212621**	1

Tools for FO cabling, POF

Ethernet

PROFINET



Ethernet

PROFINET



Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Scrj polishing tool set, for polymer fiber, for field assembly of scrj/ip20 and SCRJ/IP67 plug-in connectors7 with fast connection system	**VS-SCRJ-POF-KONFTOOL-POLISH**	**1658820**	1			
Refill set for VS-SCRJ-POF-KONFTOOL-POLISH, consisting of two polishers and a polishing disc						
- For SCRJ connectors	**VS-SCRJ-POF-POLISH**	**1656673**	1			
SCRJ cutting tool set, for polymer fiber, for field assembly of SCRJ/IP20 and SCRJ/IP67 push/pull plug-in connectors with fast connection technology, consisting of stripping tool, aramid scissors, SCRJ cutting tool, microscope				**TF-SCRJ-POF KONF SET**	**1405246**	1
Cutting tool, SCRJ, for polymer fiber				**CUTFOX-SCRJ-POF**	**1405247**	1
Sheath stripping tool, for polymer fiber				**WIREFOX-PN POF**	**1405249**	1

Tools for FO cabling, HCS



Assembly tool for fiber optics

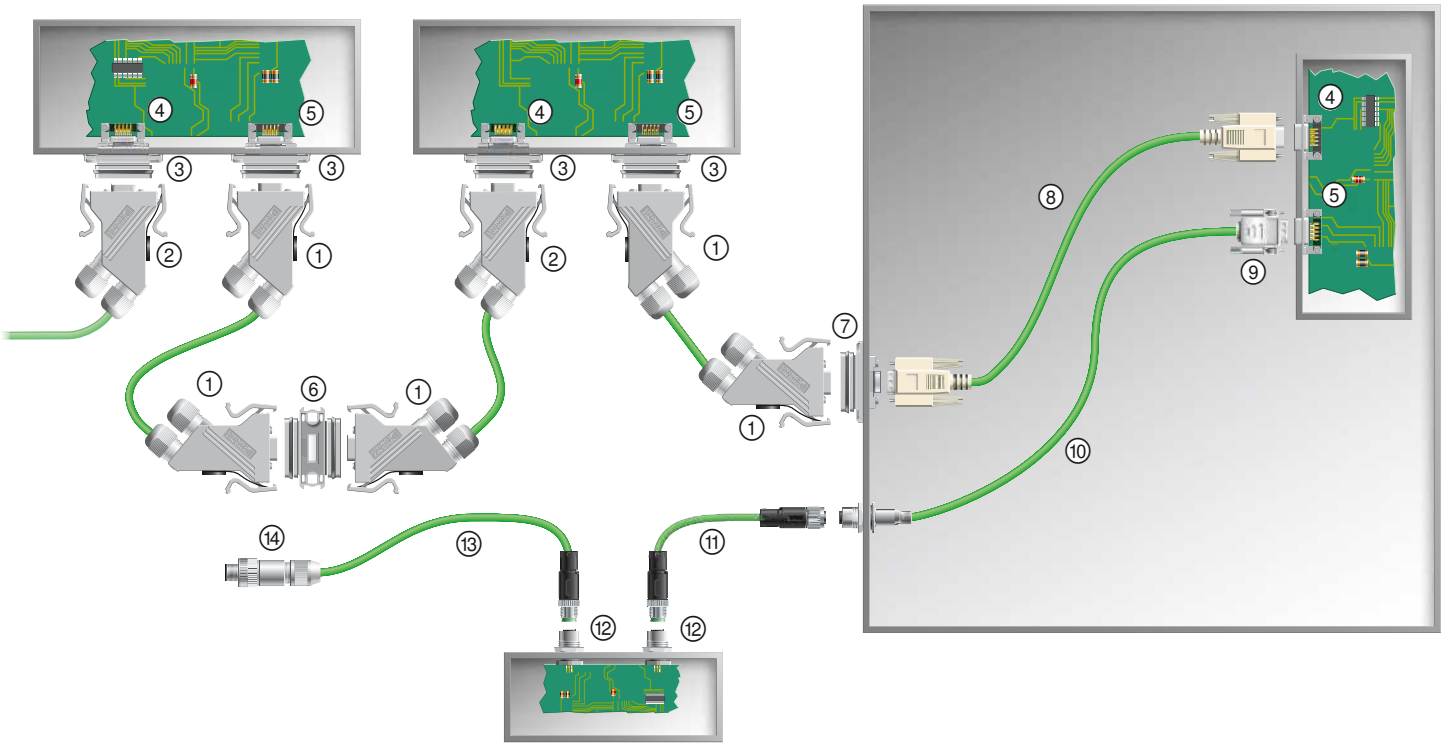
Description	Type	Order No.	Pcs. / Pkt.
	Ordering data		
HCS (GI) DIY case for SCRJ and SC duplex quick mounting connectors, stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope			
- For SCRJ/SC duplex connectors	**PSM-HCS-KONFTOOL/SC-RJ**	**2708876**	1
HCS (GI) DIY case for B-FOC (ST®) quick mounting connectors, stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope			
- For B-FOC (ST®) connectors	**PSM-HCS-KONFTOOL/B-FOC**	**2708465**	1
HCS DIY case for F-SMA quick mounting connectors, comprising stripping blade, stripping pliers, aramid yarn scissors, fiber stripper, fiber cleaving tool, and microscope			
- For F-SMA connectors	**PSM-HCS-KONFTOOL**	**2799526**	1

Tools for FO cabling, GOF



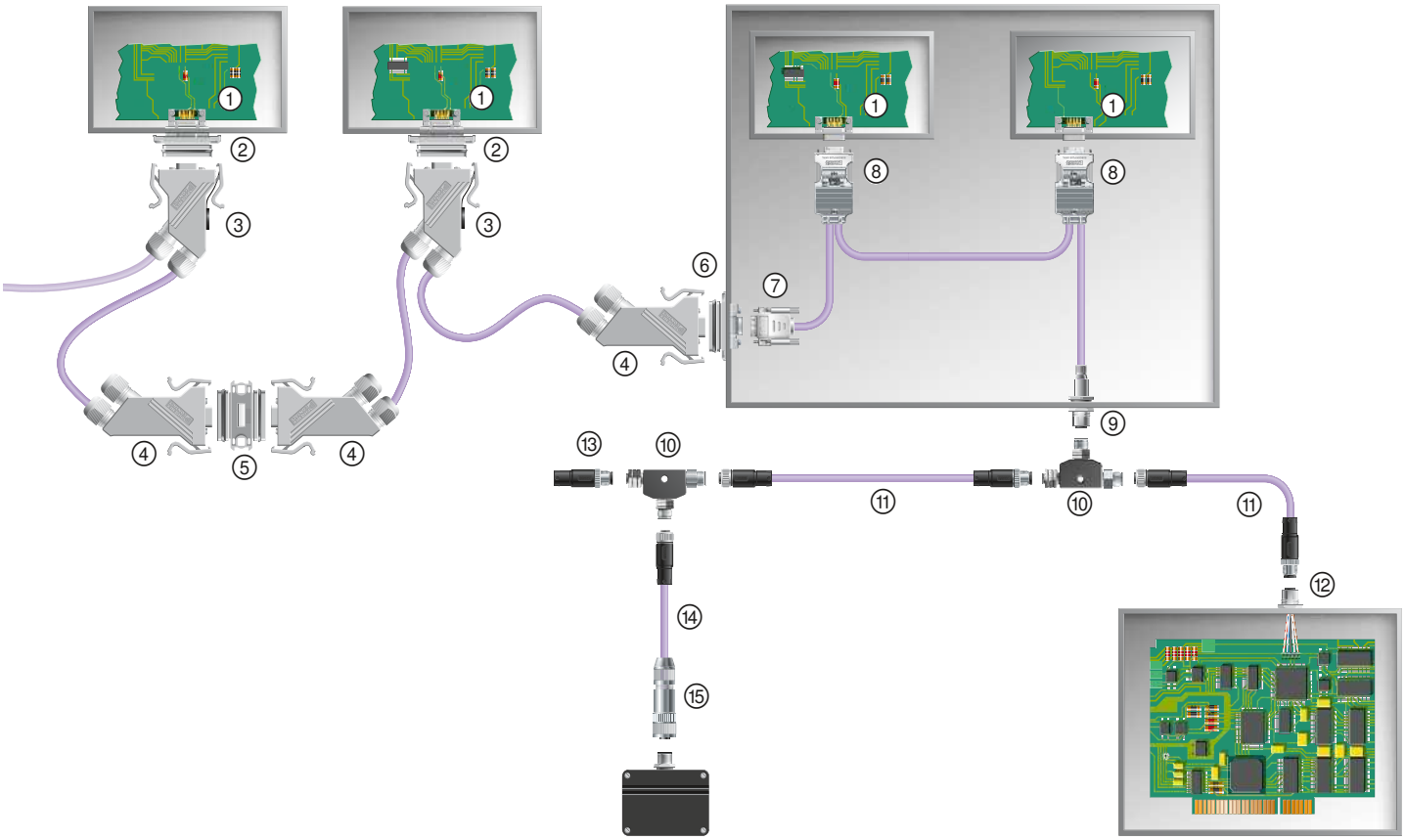
Description	Type	Order No.	Pcs. / Pkt.
	Ordering data		
Assembly tool set for fiberglass, for the field assembly of the SCRJ and SC-Duplex connectors, with a fast connection technology			
EU version	**VS-GOF-FA-KONFTOOL-EU**	**1658228**	1
US version	**VS-GOF-FA-KONFTOOL-US**	**1658231**	1
Consumables for VS-GOF-FA-KONFTOOL-…			
Glue cartridge	**VS-GOF-FA-KONFTOOL-ADHESIVE**	**1658244**	1

Topology – INTERBUS

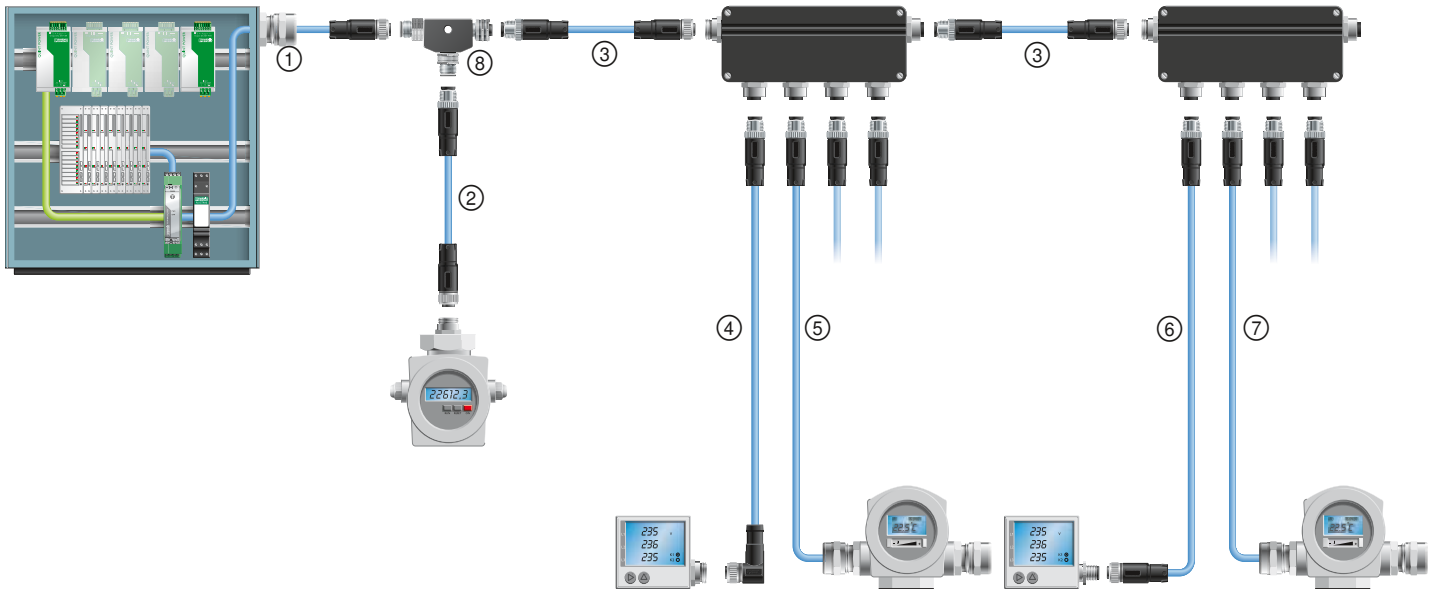


No.	Designation	Page
①	IP67 D-SUB complete plug-in connectors, pin	184
②	IP67 D-SUB complete plug-in connectors, socket	184
③	IP67 D-SUB panel mounting frames for D-SUB contact inserts	206
④	D-SUB contact inserts, pin	206
⑤	D-SUB contact inserts, socket	206
⑥	IP67 D-SUB coupling, socket/socket	185
⑦	IP67 D-SUB panel mounting frames with integrated D-SUB gender changer, socket/socket	185
⑧	Assembled D-SUB cable with D-SUB plug-in connectors, IP20	218
⑨	IP20 D-SUB sleeve housing and D-SUB contact insert, pin	219
⑩	M12 panel feed-through with INTERBUS cable and free cable end	190
⑪	Assembled INTERBUS cable with M12 plug-in connectors	See Catalog 4
⑫	M12 panel feed-through with solder connection	188
⑬	Assembled INTERBUS cable with M12 plug-in connector and free cable end	See Catalog 4
⑭	M12 plug-in connector for free assembly	186

Topology – PROFIBUS DP

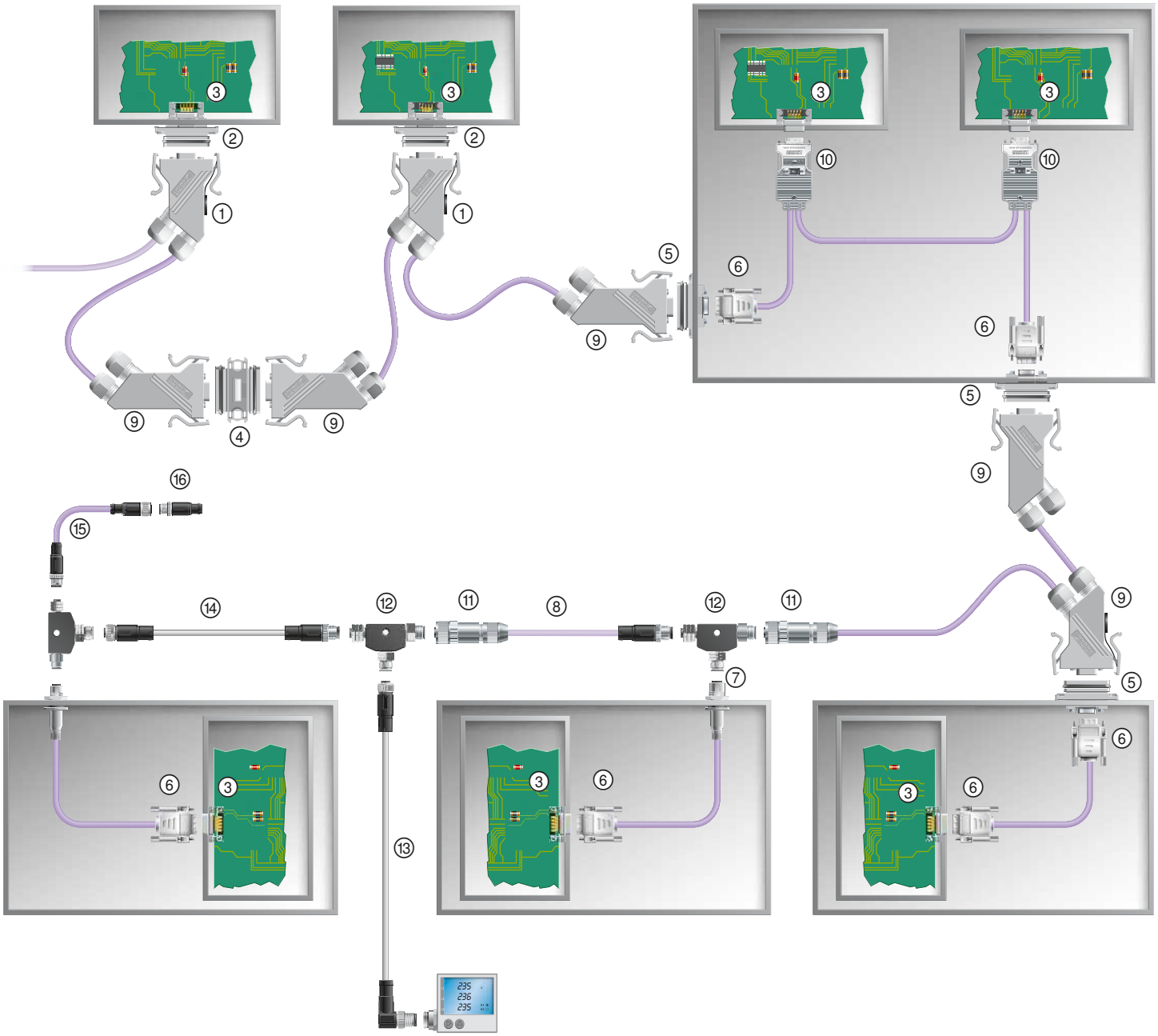


No.	Designation	Page
①	D-SUB contact inserts	206
②	IP67 D-SUB panel mounting frames for D-SUB contact inserts	206
③	IP67 D-SUB complete plug-in connectors	184
④	IP67 D-SUB sleeve housing with accessories and D-SUB contact insert	206
⑤	IP67 D-SUB coupling	185
⑥	IP67 D-SUB panel mounting frames with integrated D-SUB gender changer	185
⑦	IP20 D-SUB sleeve housing and D-SUB contact insert	219
⑧	IP20 D-SUB complete plug-in connectors	219
⑨	M12 panel feed-through with fieldbus cable and free cable end	191
⑩	M12 T-piece	See Catalog 4
⑪	Assembled fieldbus cable with straight M12 plug-in connector and straight M12 socket	See Catalog 4
⑫	Flush-type plug-in connector	189
⑬	PROFIBUS M12 termination resistor	See Catalog 4
⑭	Assembled fieldbus cable with straight M12 socket and free cable end	See Catalog 4
⑮	M12 plug-in connector, for free assembly	186

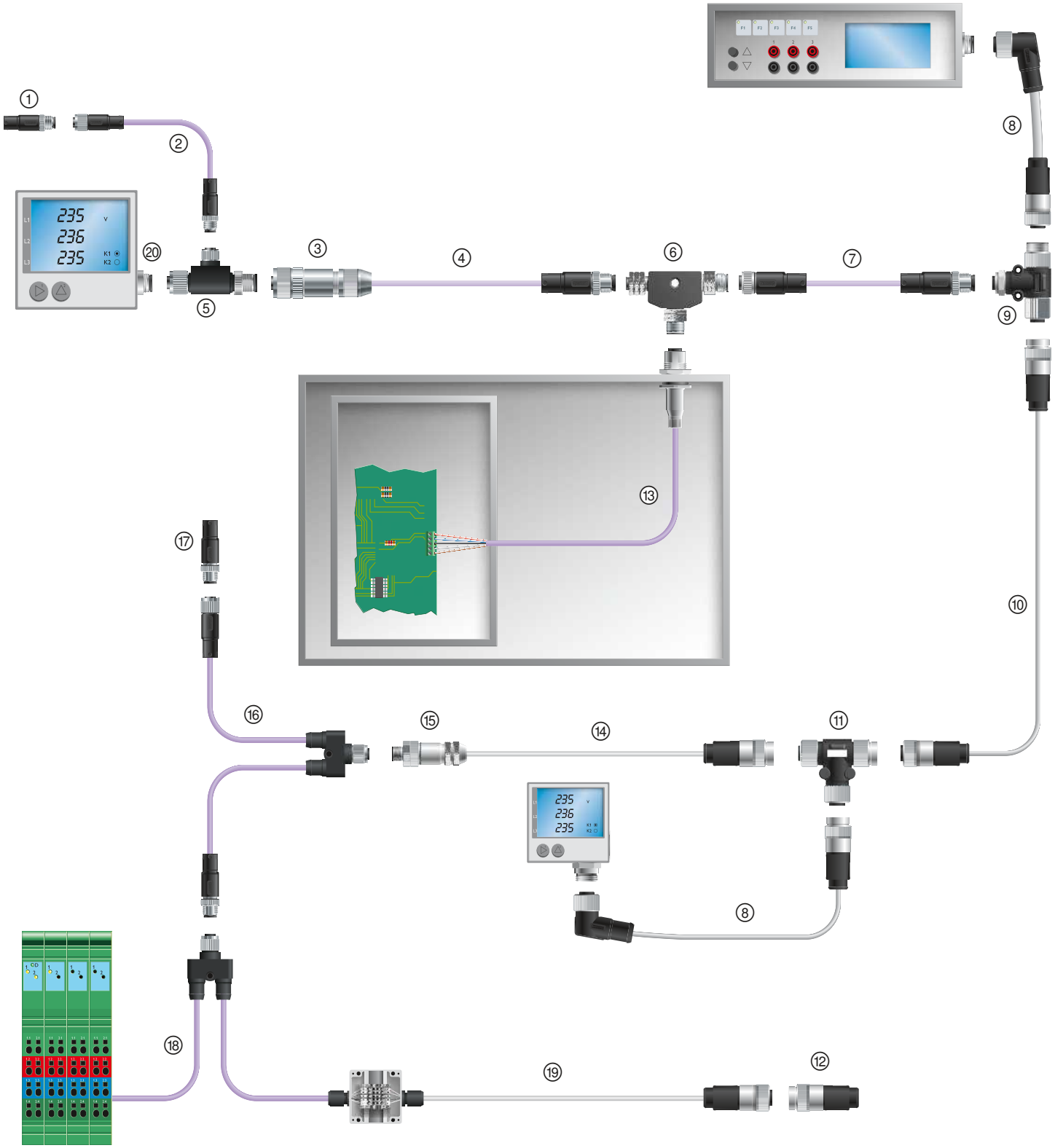


No.	Designation	Page
①	Assembled cable with straight M12 socket and free cable end, 2 m	See Catalog 4
②	Assembled cable with straight M12 socket and straight M12 plug, 1 m	See Catalog 4
③	Assembled cable with straight M12 socket and straight M12 plug, 5 m	See Catalog 4
④	Assembled cable with straight M12 plug and angled M12 socket, 5 m	See Catalog 4
⑤	Assembled cable with straight M12 plug and free cable end, 5 m	See Catalog 4
⑥	Assembled cable with straight M12 socket and straight M12 plug, 2 m	See Catalog 4
⑦	Assembled cable with straight M12 plug and free cable end, 20 m	See Catalog 4
⑧	M12 T-distributor	See Catalog 4

Topology – CANopen®

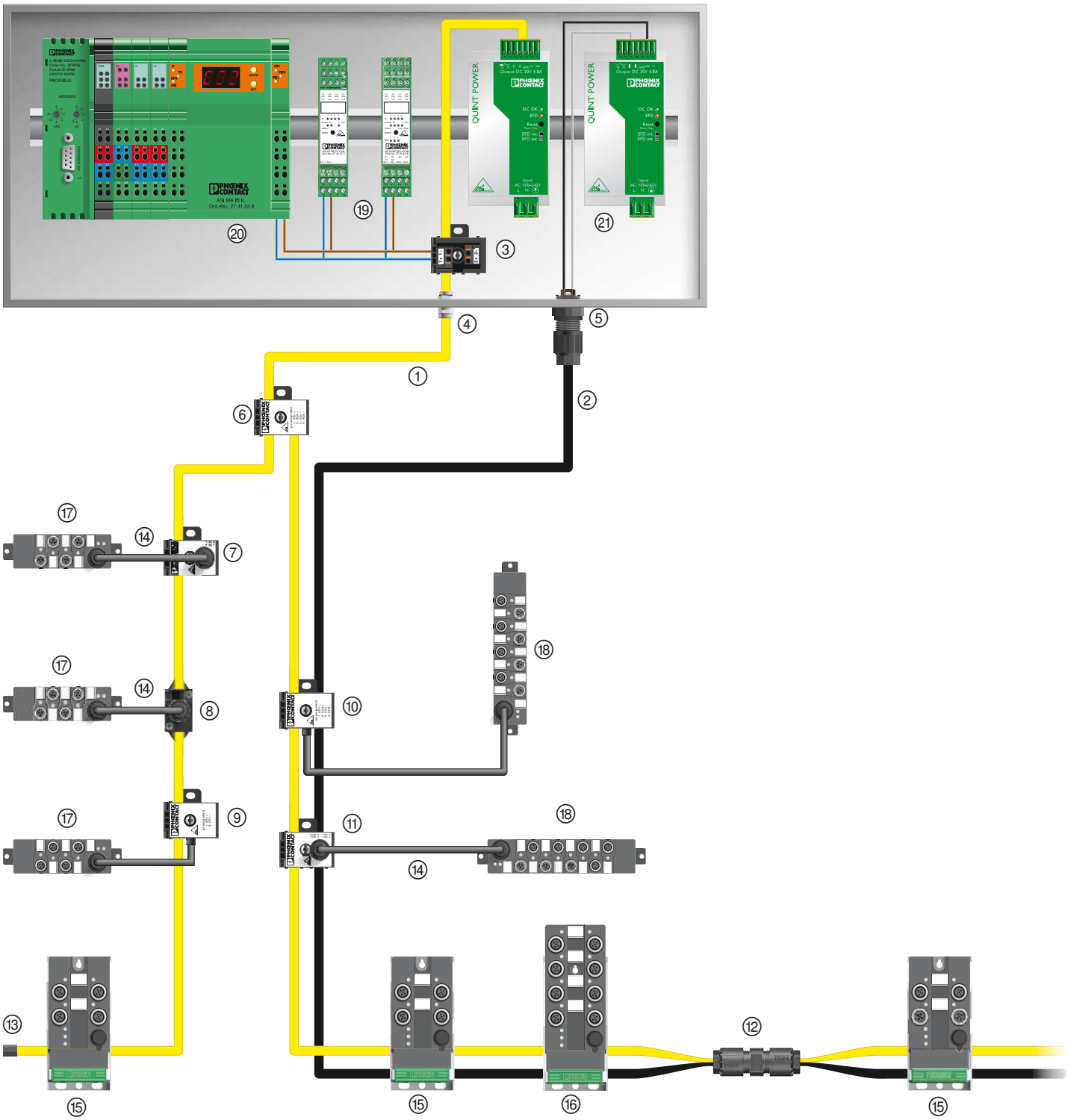


No.	Designation	Page
①	IP67 D-SUB complete plug-in connectors	184
②	IP67 D-SUB panel mounting frames for D-SUB contact inserts	206
③	D-SUB contact inserts	206
④	IP67 D-SUB coupling	185
⑤	IP67 D-SUB panel mounting frames with integrated D-SUB gender changer	185
⑥	IP20 D-SUB sleeve housing and D-SUB contact insert	219
⑦	M12 panel feed-through with fieldbus cable and free cable end	192
⑧	Assembled fieldbus cable with M12 plug-in connector and free cable end	See Catalog 4
⑨	IP67 D-SUB sleeve housing with accessories and D-SUB contact insert	206
⑩	IP20 D-SUB complete plug-in connectors	219
⑪	M12 plug-in connectors, for assembly	187
⑫	M12 T-piece	See Catalog 4
⑬	Assembled cable with angled M12 plug-in connector to straight M12 socket, 5 m	See Catalog 4
⑭	Assembled cable with straight M12 plug-in connector to straight M12 socket, 2 m	See Catalog 4
⑮	Termination resistor	See Catalog 4
⑯	Assembled fieldbus cable with M8 plug-in connector and M8 socket	See Catalog 4


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⑰
⑱
⑲
⑳
235
236
235

No.	Designation	Page
①	M8 termination resistor	See Catalog 4
②	Assembled fieldbus cable with straight M8 plug to straight M8 socket	See Catalog 4
③	M12 plug-in connector for free assembly, socket	186
④	Assembled fieldbus cable with M12 plug and free cable end	See Catalog 4
⑤	Bus system T-distributor, M8 socket to M12 plug and M12 socket	See Catalog 4
⑥	Bus system T-distributor, M12 socket to M12 plug and M12 socket	See Catalog 4
⑦	Assembled fieldbus cable with straight M12-SPEEDCON plug to straight M12-SPEEDCON socket	See Catalog 4
⑧	Assembled trunk cable with angled 7/8" plug to straight 7/8" socket	See Catalog 4
⑨	Bus system T-distributor, 5-pos., M12 socket to 7/8" socket and 7/8" plug, 7/8", stainless steel knurl	See Catalog 4
⑩	Assembled trunk cable with straight 7/8" plug to straight 7/8" socket	See Catalog 4
⑪	Bus system T-distributor, 5-pos., 7/8" socket to 7/8" socket and 7/8" plug, stainless steel knurl	See Catalog 4
⑫	Termination resistor, 7/8" plug	See Catalog 4
⑬	M12 flush-type plug-in connector	190
⑭	Assembled trunk cable with straight 7/8" plug and free cable end	See Catalog 4
⑮	M12 plug-in connector for free assembly, plug	186
⑯	Y-distributor, bus system cable, straight M12-SPEEDCON socket to straight M12-SPEEDCON plug and straight M12-SPEEDCON socket	See Catalog 4
⑰	M12 termination resistor	See Catalog 4
⑱	Y-distributor, bus system cable, straight M12-SPEEDCON socket and 2 free cable ends	See Catalog 4
⑲	7/8" assembled drop cable, straight 7/8" socket and free cable end	See Catalog 4
⑳	M12 panel feed-through with solder connection	188

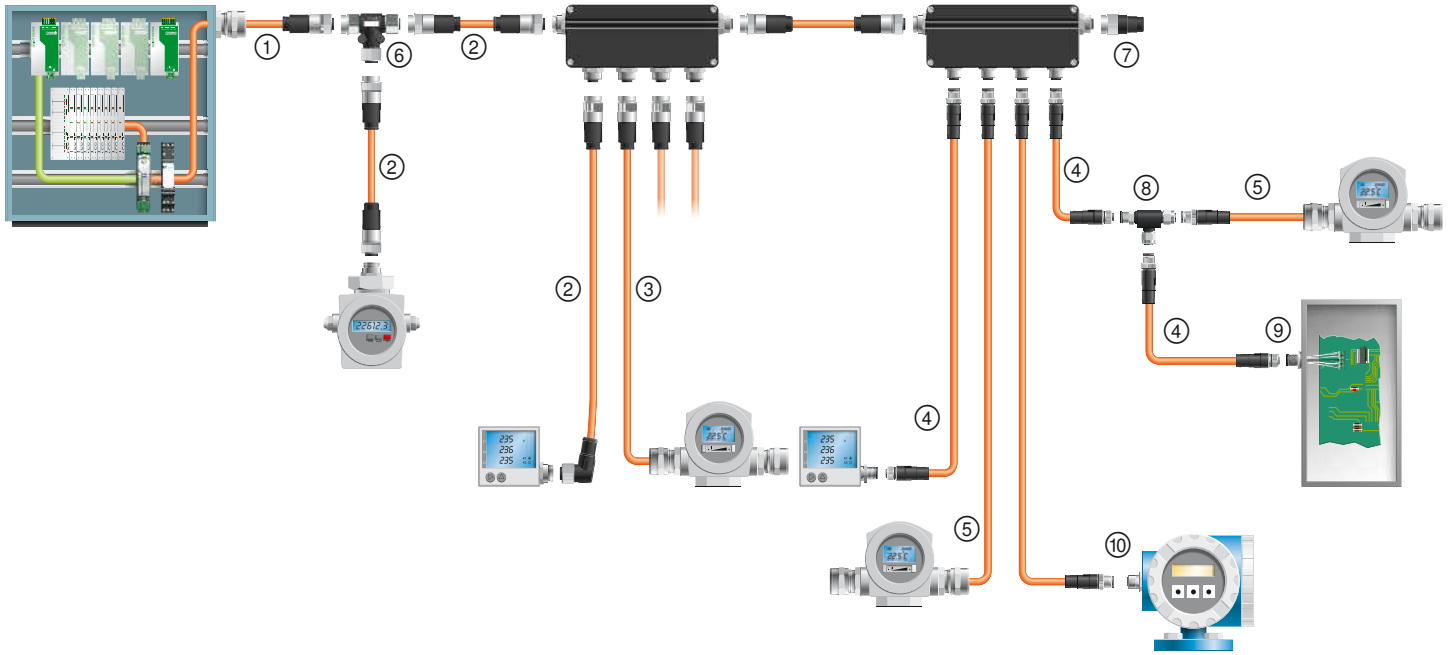
Topology – AS-Interface



No.	Designation	Page
①	AS-Interface flat-ribbon conductor, yellow	See Catalog 4
②	AS-Interface flat-ribbon conductor, black	See Catalog 4
③	AS-Interface distributor, 4-pos., with spring-cage terminal blocks up to 1.5 mm²	See Catalog 4
④	Metal screw connection for an AS-Interface flat-ribbon conductor	See Catalog 4
⑤	Panel feed-through with QUICKON fast connection technology for accommodating up to two AS-Interface flat-ribbon conductors	See Catalog 4
⑥	AS-Interface H-distributor for the distribution of AS-Interface flat-ribbon conductors	See Catalog 4
⑦	AS-Interface distributor, 2-pos., with straight, A-coded M12 socket	See Catalog 4
⑧	AS-Interface distributor, 2-pos., with straight, A-coded M12 socket	See Catalog 4
⑨	AS-Interface distributor, 2-pos., with round cable and molded, A-coded M12 socket	See Catalog 4
⑩	AS-Interface distributor, 4-pos., with round cable and molded, A-coded M12 socket	See Catalog 4
⑪	AS-Interface distributor, 4-pos., with straight, A-coded M12 socket	See Catalog 4
⑫	Cable connector with QUICKON fast connection technology for connecting up to four AS-Interface flat-ribbon conductors	See Catalog 4
⑬	End clip for AS-Interface flat-ribbon conductor	See Catalog 4
⑭	Assembled round cable with M12 plug-in connectors	See Catalog 4
⑮	AS-Interface digital M12 I/O devices, 4 slots, IP65/IP67	See Catalog 4
⑯	AS-Interface digital M12 I/O devices, 8 slots, IP65/IP67	See Catalog 4
⑰	AS-Interface digital M8 input devices, 4 slots, IP65/IP67	See Catalog 4
⑱	AS-Interface digital M8 I/O devices, 8 slots, IP65/IP67	See Catalog 4
⑲	AS-Interface digital I/O devices, ME-Line, IP20	.
⑳	AS-Interface gateway for Inline Modular, IP20	.
㉑	Power supply unit, primary-switched	.

*) Further AS-Interface components for the control cabinet can be found in Catalog 8.

Topology – FOUNDATION Fieldbus

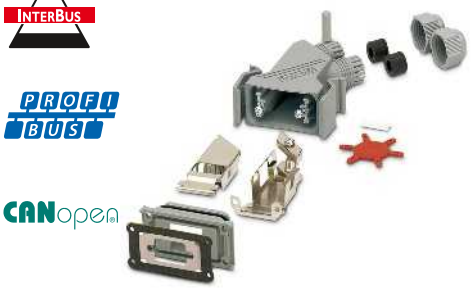


No.	Designation	Page
①	Assembled FOUNDATION Fieldbus cable with 7/8" socket and free cable end	See Catalog 4
②	Assembled FOUNDATION Fieldbus cable with 7/8" plug and 7/8" socket	See Catalog 4
③	Assembled FOUNDATION Fieldbus cable with 7/8" plug and free cable end	See Catalog 4
④	Assembled FOUNDATION Fieldbus cable with M12 plug and M12 socket	See Catalog 4
⑤	Assembled FOUNDATION Fieldbus cable with M12 plug and free cable end	See Catalog 4
⑥	FOUNDATION Fieldbus 7/8" T-distributor	See Catalog 4
⑦	FOUNDATION Fieldbus 7/8" termination resistor	See Catalog 4
⑧	FOUNDATION Fieldbus M12 distributor	See Catalog 4
⑨	FOUNDATION Fieldbus M12 system flush-type plug-in connector	193
⑩	FOUNDATION Fieldbus M12 flush-type plug	193

D-SUB plug-in connectors, IP67



D-SUB complete plug-in connector for INTERBUS with IP67 protection



D-SUB plug-in connector set, IP67, consisting of: sleeve housing, panel mounting frame, and accessories, shielded design

	Technical data	Technical data
Electrical data		
Rated voltage	63 V	-
Rated current	1 A	-
Surge voltage category	II	-
Material data		
Housing material	PA	PA
Contact material	Copper alloy	-
Contact surface material	Gold over nickel	-
Contact carrier material	PBTP	-
Inflammability class according to UL 94	V0	V0
Mechanical data		
No. of pos.	9	9
Color	gray	gray
Pollution degree	2	2
Degree of protection	IP67	IP67
Connection method	Screw connection	-
Conductor cross section	0.14 mm² ... 0.5 mm²	-
Connection cross section AWG	26 ... 20	-
Insertion/withdrawal cycles	≥ 200	≥ 1000
Temperature data		
Ambient temperature (operation)	-20 °C ... 70 °C	-40 °C ... 80 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB complete plug-in connector, for INTERBUS, shell size 1, screw connection, shielded						
Plug	**VS-09-IBS-ST**	**1689271**	1			
Socket	**VS-09-IBS-BU**	**1689284**	1			
D-SUB complete plug-in connector, for PROFIBUS, shell size 1, plug, shielded						
Screw connection	**VS-09-PROFIBUS-SC**	**1654549**	1			
Spring-cage connection	**VS-09-PROFIBUS-SP**	**1654345**	1			
D-SUB complete plug-in connector, for CANopen®, shell size 1, socket, screw connection, shielded						
Socket	**VS-09-CAN**	**1689307**	1			
D-SUB panel mounting frame, for accommodating D-SUB contact inserts						
D-SUB 09				**VS-09-A**	**1688366**	5
D-SUB EMC shroud, for the IP67 panel mounting frame, for shield contacting to the housing panel						
D-SUB 09				**VS-09-A-EMV-S**	**1688463**	5
D-SUB plug-in connector set						
D-SUB 09				**VS-09-SET-EMV**	**1689158**	1



Screw connection
Fixing: 2.5 mm hole



D-SUB panel mounting frame IP67, with integrated gender changer

	Technical data	Technical data	
Electrical data			
Rated voltage	60 V	125 V	125 V
Rated current	5 A	5 A	5 A
Surge voltage category	III	III	III
Material data			
Housing material	-	PA	PA
Contact material	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Gold over nickel	Hard gold-plated over nickel	Hard gold-plated over nickel
Contact carrier material	PBTP	Polyester GF	Polyester GF
Inflammability class according to UL 94	V0	V0	V0
Mechanical data			
No. of pos.	9	9	9
Color	-	gray	gray
Pollution degree	2	2	2
Degree of protection	IP20	IP67	IP67
Connection method	Screw connection	-	-
Conductor cross section	0.14 mm² ... 0.5 mm²	-	-
Connection cross section AWG	26 ... 20	-	-
Insertion/withdrawal cycles	≥ 200	≥ 200	≥ 200
Temperature data			
Ambient temperature (operation)	-20 °C ... 80 °C	-40 °C ... 80 °C	-40 °C ... 80 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB contact insert						
Plug	**VS-09-ST-DSUB/10-MPT-0,5**	**1688379**	10			
Socket	**VS-09-BU-DSUB/9-MPT-0,5**	**1688395**	10			
D-SUB panel mounting frame, with integrated gender changer, shielded						
D-SUB 09, pin/pin				**VS-09-A-GC-ST/ST**	**1689705**	5
D-SUB 09, socket/socket				**VS-09-A-GC-BU/BU**	**1689695**	5
D-SUB coupling, with integrated gender changer, shielded						
D-SUB 09, pin/pin				**VS-09-KU-ST/ST**	**1689640**	5
D-SUB 09, socket/socket				**VS-09-KU-BU/BU**	**1689637**	5

M12 plug-in connector, shielded



M12 plug-in connectors that can be assembled for INTERBUS



M12 plug-in connectors that can be assembled for PROFIBUS

		Technical data		Technical data	
		Spring-cage connection	**Screw connection**	**Spring-cage connection**	**Screw connection**
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67
Connection method		Spring-cage conn.	Screw connection	Spring-cage conn.	Screw connection
Electrical data					
Rated voltage		60 V	60 V	60 V	60 V
Rated current		4 A	4 A	4 A	4 A
Volume resistance		≤ 8 mΩ	≤ 3 mΩ	≤ 8 mΩ	≤ 3 mΩ
Insulation resistance		≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ
Material data					
Contact material		CuSn	CuSn	CuSn	CuSn
Contact surface material		Ni/Au	Au	Ni/Au	Au
Contact carrier material		TPU	PA 66	TPU	PA 66
Inflammability class according to UL 94		V0	HB	V0	HB
Coding		B - inverse	B - inverse	B - inverse	B - inverse
No. of pos.		5	5	2	5
Temperature data					
Plug / socket	[°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	Spring-cage connection		**Screw connection**		**Spring-cage connection**		**Screw connection**	
Plug-in connector								
Socket, straight	**1432826**	1	**1507777**	1	**1432868**	1	**1507777**	1
Plug, straight	**1432800**	1	**1507764**	1	**1432842**	1	**1507764**	1
Socket, angled	**1432839**	1			**1432871**	1		
Plug, angled	**1432813**	1			**1432855**	1		

M12 plug-in connector, shielded



M12 plug-in connectors that can be assembled for DeviceNet™



M12 plug-in connectors that can be assembled for CC-Link

	Technical data		Technical data	
	Spring-cage connection	**Screw connection**	**Spring-cage connection**	
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	-
Degree of protection	IP67	IP67	IP67	-
Connection method	Spring-cage conn.	Screw connection	Spring-cage conn.	-
Electrical data				
Rated voltage	60 V	60 V	60 V	-
Rated current	4 A	4 A	4 A	-
Volume resistance	≤ 8 mΩ	≤ 3 mΩ	≤ 8 mΩ	-
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	-
Material data				
Contact material	CuSn	CuSn	CuSn	-
Contact surface material	Ni/Au	Au	Ni/Au	-
Contact carrier material	TPU	PA 66	PA 66	-
Inflammability class according to UL 94	V0	HB	V0	-
Coding	A - standard	A - standard	A - standard	-
Temperature data				
Plug / socket [°C]	-40 ... 85	-40 ... 85	-40 ... 85	-

	Ordering data				Ordering data		
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	Spring-cage connection		**Screw connection**		**Spring-cage connection**			
Plug-in connector								
Socket, straight	**1432787**	1	**1508365**	1	**1559770**	1		
Plug, straight	**1432761**	1	**1508352**	1	**1559767**	1		
Socket, angled	**1432790**	1						
Plug, angled	**1432774**	1						

Flush-type plug-in connector, one-piece, rear mounting



M12 flush-type plug-in connector with solder connection



M12 flush-type plug-in connector with solder connection

	Technical data		Technical data	
	Without shield contact	**With shield contact**	**Without shield contact**	**With shield contact**
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data				
Rated voltage	60 V	60 V	60 V	60 V
Rated current	4 A	4 A	4 A	4 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ
Material data				
Material contact / contact surface	CuZn / Au	CuZn / Ni/Au	CuZn / Au	CuZn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	V0	V0	V0	V0
Coding	B - inverse	B - inverse	A - standard	A - standard
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	Without shield contact		**With shield contact**		**Without shield contact**		**With shield contact**	
Flush-type plug-in connector, Pg9 fastening thread								
Socket			**1553022**	20	**1542761**	20	**1553019**	20
Plug	**1543647**	20	**1553051**	20	**1542745**	20	**1553048**	20
Flush-type plug-in connector, M12 fastening thread								
Plug	**1551846**	20	**1552971**	20	**1551833**	20	**1552968**	20
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:								
Pg9 fastening thread	**1440177**	10	**1440177**	10	**1440177**	10	**1440177**	10
M12 fastening thread	**1440151**	10	**1440151**	10	**1440151**	10	**1440151**	10

Flush-type plug-in connector, two-piece, rear mounting



M12 flush-type plug-in connector with solder connection



M12 flush-type plug-in connector with solder connection

	Technical data		Technical data	
	Wave soldering	**THR process**	**Wave soldering**	**THR process**
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Solder pins	THR solder connection	Solder pins	THR solder connection
Electrical data				
Rated voltage	60 V	60 V	60 V	60 V
Rated current	4 A	4 A	4 A	4 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ
Material data				
Material contact / contact surface	CuZn / Ni/Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA 66	PPA	PA 66	PPA
Inflammability class according to UL 94	HB	V0	HB	V0
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	Wave soldering		**THR process**		**Wave soldering**		**THR process**	
Flush-type plug-in connector, M12 fixing, straight contacts								
Socket	**1437180**	10	**1542635**	60	**1694237**	10	**1434879**	60
Plug	**1437203**	10	**1552188**	60	**1694211**	10	**1439968**	60
Flush-type plug-in connector, M12 fixing, angled contacts								
Socket	**1436576**	10			**1438024**	10		
Plug	**1436615**	10			**1438037**	10		

Flush-type plug-in connector, with pre-assembled cable, type 900



Rear mounting



Front mounting, can be positioned

		Technical data		Technical data	
		M16 fastening thread	Pg9 fastening thread	M16 fastening thread	
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	-
Degree of protection		IP67	IP67	IP67	-
Electrical data					
Rated voltage		60 V	60 V	60 V	-
Rated current		4 A	4 A	4 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Insulation resistance		≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	-
Material data					
Material contact / contact surface		CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	-
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data				Ordering data			
Description	Cable length	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		M16 fastening thread		Pg9 fastening thread		M16 fastening thread			
Flush-type plug-in connector, B-coded, with bus system cable, 6-wire, shielded, PUR halogen-free, green outer cable sheath, 3 x 2 x 0.25 mm²									
Socket	0.5 m	**1534546**	1	**1437601**	1	**1529742**	1		
Plug	0.5 m	**1534504**	1	**1437643**	1	**1529629**	1		
Socket	1 m	**1534559**	1	**1437614**	1	**1529755**	1		
Plug	1 m	**1534517**	1	**1437656**	1	**1530223**	1		
Socket	2 m	**1534562**	1	**1437627**	1	**1529768**	1		
Plug	2 m	**1534520**	1	**1437669**	1	**1529726**	1		
Socket	5 m	**1534575**	1	**1437630**	1	**1529771**	1		
Plug	5 m	**1534533**	1	**1437672**	1	**1529739**	1		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:									
M16 fastening thread		**1440164**	10						
Pg9 fastening thread				**1440177**	10				

Flush-type plug-in connector, with pre-assembled cable, type 910



Rear mounting



Front mounting, can be positioned

		Technical data		Technical data	
		M16 fastening thread	Pg9 fastening thread	M16 fastening thread	
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	-
Degree of protection		IP67	IP67	IP67	-
Electrical data					
Rated voltage		60 V	60 V	60 V	-
Rated current		4 A	4 A	4 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Insulation resistance		≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	-
Material data					
Material contact / contact surface		CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	-
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data			Ordering data	
Description	Cable length	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		M16 fastening thread		Pg9 fastening thread		M16 fastening thread	
Flush-type plug-in connector, B-coded, with bus system cable, 2-wire, shielded, PUR halogen-free, violet outer cable sheath, 1 x 2 x 0.25 mm²							
Socket	0.5 m	**1534384**	1	**1437449**	1	**1525597**	1
Plug	0.5 m	**1534342**	1	**1437481**	1	**1525555**	1
Socket	1 m	**1534397**	1	**1437452**	1	**1525607**	1
Plug	1 m	**1534355**	1	**1437494**	1	**1525568**	1
Socket	2 m	**1534407**	1	**1437465**	1	**1519574**	1
Plug	2 m	**1534368**	1	**1437504**	1	**1519561**	1
Socket	5 m	**1534410**	1	**1437478**	1	**1525610**	1
Plug	5 m	**1534371**	1	**1437517**	1	**1525571**	1
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:							
M16 fastening thread		**1440164**	10				
Pg9 fastening thread				**1440177**	10		

Flush-type plug-in connector, with pre-assembled cable, type 920



Rear mounting



Front mounting, can be positioned

		Technical data		Technical data	
		M16 fastening thread	Pg9 fastening thread	M16 fastening thread	
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	-
Degree of protection		IP67	IP67	IP67	-
Electrical data					
Rated voltage		60 V	60 V	60 V	-
Rated current		4 A	4 A	4 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Insulation resistance		≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	-
Material data					
Material contact / contact surface		CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	-
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data			Ordering data	
Description	Cable length	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		M16 fastening thread		Pg9 fastening thread		M16 fastening thread			
Flush-type plug-in connector, A-coded, with bus system cable, 4-wire, shielded, PUR halogen-free, violet outer cable sheath, 2 x 0.34 mm²; 2 x 0.25 mm²									
Socket	0.5 m	**1534465**	1	**1437520**	1	**1525678**	1		
Plug	0.5 m	**1534423**	1	**1437562**	1	**1525623**	1		
Socket	1 m	**1534478**	1	**1437533**	1	**1525681**	1		
Plug	1 m	**1534436**	1	**1437575**	1	**1525636**	1		
Socket	2 m	**1534481**	1	**1437546**	1	**1525694**	1		
Plug	2 m	**1534449**	1	**1437588**	1	**1525649**	1		
Socket	5 m	**1534494**	1	**1437559**	1	**1525704**	1		
Plug	5 m	**1534452**	1	**1437591**	1	**1525652**	1		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:									
M16 fastening thread		**1440164**	10						
Pg9 fastening thread				**1440177**	10				

M12 flush-type plug-in connector, shielded



With 0.5 m long litz wires, front mounting



With solder pins, rear mounting

	Technical data	Technical data
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3
Degree of protection	IP67	IP67/IP69K
Connection method	Individual wires	Solder pins
Electrical data		
Rated voltage	250 V	60 V
Rated current	4 A	4 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ
Material data		
Material contact / contact surface	CuZn / Ni/Au	CuZn / Au
Contact carrier material	PA66 GF	PA 66
Inflammability class according to UL 94	V0	V0
Temperature data		
Plug / socket [°C]	-25 ... 85	-25 ... 85

		Ordering data			Ordering data		
Description	Coding	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Device plug-in connectors							
Socket	A - standard	**SACC-E-M12FS-4CON-PG9/0,5 FFVA**	**1431429**	1	**SACC-DSI-M12FS-5CON-L180 VA**	**1554733**	20
Plug	A - standard	**SACC-E-M12MS-4CON-PG9/0,5 FFVA**	**1431432**	1	**SACC-DSI-M12MS-5CON-L180 VA**	**1554746**	20

Symbol key

With UL Style

Suitable for use with drag chain

Resistant to welding sparks

UV resistant

Extremely flame-retardant

High temperature resistance

Good oil resistance

Good resistance to chemicals

Suitable for torsional stress

Halogen-free

Transmission properties

INTERBUS cable – type 900

INTERBUS cable for highly flexible use in dry and humid areas and harsh industrial environments. The remote bus cable is certified in accordance with the requirements of the INTERBUS Club under No. 117.

The cable is halogen-free and flame-retardant according to VDE 0482, Part 265-2-1/ IEC 332-1. The wire insulation of the inner conductor is made from polyethylene.

Outer sheath material	**PVC**
Minimum bending radius	**7.5 x D**
Tested at	**20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
900 **PVC** Green	6-pos.	M12	3 x 2 x 0.25 mm² 32 x 0.1 mm		Yellow, green, white, brown, pink, gray	PE	-30°C ... 70°C	190

PROFIBUS cable – type 910

PROFIBUS cable, suitable for use in drag chains in harsh industrial environments. The cable is also oil resistant.

Outer sheath material	**PUR**
Number of bending cycles	**5 million**
Minimum bending radius	**10 x D**
Traverse path	**10 m**
Acceleration	**7 m/s²**
Speed	**180 m/min.**
Tested at	**20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
910 **PUR** Violet	2-pos.	M12	1 x 2 x 24 AWG 19 x 0.15 mm		Green, red	PE	-40°C ... 80°C	191

DeviceNet™/CANopen® cable – type 920



DeviceNet™/CANopen® cable for flexible installation. The cable is suitable for use with drag chain and in harsh industrial environments. The cable is also oil resistant.

Outer sheath material	**PUR**
Number of bending cycles	**5 million**
Minimum bending radius	**10 x D**
Traverse path	**10 m**
Acceleration	**7 m/s²**
Speed	**180 m/min.**
Tested at	**20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
920 **PUR** Violet	4-pos.	M12, M8	1 x 2 x 22 AWG 19 x 0.15 mm + 1 x 2 x 24 AWG 19 x 0.15 mm		Red, black, blue, white	PO, PE	-40°C ... 80°C	192

DeviceNet™/CANopen® cable - type 923

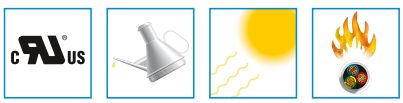


DeviceNet™/CANopen® cable for flexible installation. The cable is suitable for use with drag chain and in harsh industrial environments. The cable is also oil resistant.

Outer sheath material	**PUR**
Number of bending cycles	**5 million**
Minimum bending radius	**10 x D**
Traverse path	**10 m**
Acceleration	**7 m/s²**
Speed	**180 m/min.**
Tested at	**20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
923 **PUR** Gray	4-pos.	M12, 7/8"	1 x 2 x 22 AWG 19 x 0.15 mm + 1 x 2 x 24 AWG 19 x 0.15 mm		Red, black, blue, white	PO, PE	-40°C ... 80°C	See Catalog 4

DeviceNet™ cable - type 928



DeviceNet™/CANopen® cable for fixed installation. The cable is suitable for use in harsh industrial environments. The cable is also oil resistant.

Outer sheath material	**PVC**
Minimum bending radius	**10 x D**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
928 **PVC** Gray	4-pos.	7/8"	1 x 2 x 18 AWG 19 x 0.26 mm + 1 x 2 x 15 AWG 19 x 0.34 mm		Red, black, blue, white	PVC	Fixed: -40°C ... 80°C	See Catalog 4

FOUNDATION Fieldbus cable – type 960
FOUNDATION Fieldbus/PROFIBUS PA cable – type 961

FOUNDATION Fieldbus cable for fixed installation. The cable is UV resistant and flame-retardant according to UL 1685. This makes it suitable for use both outdoors and indoors.

Cable type 961 is available in a blue version designed specifically for use in the Ex area.

Outer sheath material **PVC**

Minimum bending radius **10 x D**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
960 **PVC** Orange	2-pos.	7/8", M12	2 x 20 AWG 7 x 0.3 mm		Blue, orange	PO	-30°C ... 105°C	See Catalog 4
961 **PVC** Blue	2-pos.	7/8", M12	2 x 20 AWG 7 x 0.3 mm		Blue, orange	PO	-30°C ... 105°C	See Catalog 4

CC-Link cable – type 990

CC-Link cable for fixed indoor installation. The cable is flame-retardant according to UL 1685.

Outer sheath material **PVC**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
990 **PVC** Red	3-pos.	M12	3 x 22 AWG 7 x 0.28 mm		White, blue, yellow	Foam PE	-30°C ... 60°C	See: phoenix contact.net/ products

PROFINET cable – type 93A

PROFINET cable for fixed installation. The cable is flame-retardant and its transmission properties meet CAT5e.

Outer sheath material **PVC**

Minimum bending radius **7.5 x D**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93A **PVC** Green	4-pos.	M12, RJ45	4 x 22 AWG single-strand		White, yellow, blue, orange	PE	-25°C ... 80°C	105

PROFINET cable – type 93B



PROFINET cable for flexible installation. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and therefore also suitable for outdoor use.

The cable's transmission properties meet CAT5e.

Outer sheath material **PVC**

Minimum bending radius **7 x D**
Tested at **20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93B **PVC** Green	4-pos.	M12, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	PE	-40°C ... 70°C	97 105 106

PROFINET cable – type 93C



PROFINET cable for use in drag chains. The cable is halogen-free and oil resistant. It is UV resistant and therefore also suitable for outdoor use. The cable's transmission properties meet CAT5e.

Outer sheath material **PUR**

Number of bending cycles **3 million**
Minimum bending radius **7.5 x D**
Traverse path **10 m**
Acceleration **4 m/s²**
Speed **4 m/s**
Tested at **20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93C **PUR** Green	4-pos.	M12, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	PE	-40°C ... 70°C	105 106

PROFINET cable – type 93R



PROFINET cable for robot applications. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and therefore also suitable for outdoor use.

The cable's transmission properties meet CAT5e.

Outer sheath material **PUR**

Torsion angle **±180°**
Torsion cycles **1 million**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93R **PUR** Green	4-pos.	M12, RJ45	4 x 22 AWG 19 x 0.15 mm		White, yellow, blue, orange	PE	-40°C ... 80°C	105 106

PROFINET cable – type 937



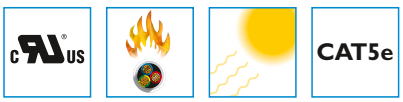
PROFINET cable for railway applications. The cable is oil resistant. It meets fire safety standard BS6853.
The cable's transmission properties meet CAT5e.

Outer sheath material **RADOX® GKW S**

Minimum bending radius **6 x D**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
937 **RADOX®** Black	4-pos.	M12, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	RADOX®	-40°C ... 90°C	105 106

EtherCAT cable - type 93G



EtherCAT cable for flexible installation. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and is therefore also suitable for use in harsh industrial environments.

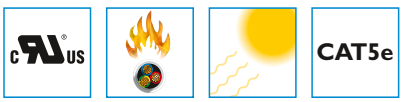
The cable's transmission properties meet CAT5e.

Outer sheath material **PVC**

Minimum bending radius **7 x D**
Tested at **20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93G **PVC** Green	4-pos.	M12, PP, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	PE	-40°C ... 70°C	108

sercos III cable - type 93K



sercos III cable for flexible installation. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and is therefore also suitable for use in harsh industrial environments.

The cable's transmission properties meet CAT5e.

Outer sheath material **PVC**

Minimum bending radius **7 x D**
Tested at **20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93K **PVC** Red	4-pos.	M12, PP, RJ45	4 x 22 AWG 7 x 0.25 mm		White, yellow, blue, orange	PE	-40°C ... 70°C	See: phoenix contact.net/ products

Ethernet cable – type 93E



Ethernet cable for flexible use. The cable is halogen-free and oil resistant. Its transmission properties meet CAT5e.

Outer sheath material **PUR**

Minimum bending radius **5 x D**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
93E **PUR** Blue	4-pos.	M12, RJ45	2 x 2 x 26 AWG 7 x 0.25 mm		White/orange-orange, white/green-green	PE	-20°C ... 80°C	96 98

Ethernet cable – type 94A



Ethernet cable for fixed installation. The cable's transmission properties meet CAT5e.

Outer sheath material **PUR**

Minimum bending radius **7 x D**
Tested at **20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94A **PUR** Blue	8-pos.	M12, PP, RJ45	4 x 2 x 24 AWG single-strand Twisted pair		White/blue-blue, white/orange-orange, white/green-green, white/brown-brown	PE	-20°C ... 70°C	96

Ethernet cable – type 94B



Ethernet cable for flexible installation. The cable is resistant to oil and chemicals and is flame-retardant. The cable's transmission properties meet CAT5e.

Outer sheath material **PUR**

Minimum bending radius **5 x D**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94B **PUR** Blue	8-pos.	M12, RJ45	4 x 2 x 26 AWG 7 x 0.25 mm		White/blue-blue, white/orange-orange, white/green-green, white/brown-brown	PE	-40°C ... 80°C	96 100

Ethernet cable – type 94P



Ethernet cable for flexible installation. The cable is flame-retardant and halogen-free. The cable's transmission properties meet CAT5e.

Outer sheath material **PUR**

Minimum bending radius **90 mm (mobile)**
50 mm (fixed installation)

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94P **PUR** Blue	8-pos.	M12, RJ45	4 x 2 x 26 AWG 7 x 0.16 mm		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PE	-20°C ... 70°C	110

Ethernet cable – type 94C



Ethernet cable for universal use in drag chains. The cable is resistant to oil and chemicals and is flame-retardant. The cable's transmission properties meet CAT5e.

Outer sheath material **PUR**

Minimum bending radius **5 x D**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94C **PUR** Blue	8-pos.	M12, RJ45	4 x 2 x 26 AWG 19 x 0.10 mm		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PP	-20°C ... 80°C	96 100

Ethernet cable – type 94D



Ethernet cable for flexible installation. The cable is oil resistant. It is UV resistant according to UL 1581 Sec. 1200 and therefore also suitable for outdoor use. The cable's transmission properties meet CAT5e.

Outer sheath material **PVC**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94D **PVC** Black	8-pos.	M12, PP, RJ45	4 x 2 x 26 AWG 7 x 0.16 mm Twisted pair		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PP	-40°C ... 80°C	96

Ethernet cable – type 94E



Ethernet cable for fixed installation. The cable is resistant to oil and chemicals and is flame-retardant. It is also halogen-free and its transmission properties meet $CAT6_A$.

Outer sheath material **PUR**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94E **PUR** Blue	8-pos.	M12, PP, RJ45	4 x 2 x 23 AWG single-strand Twisted pair		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PE	-20°C ... 80°C	96

Ethernet cable – type 94F



Ethernet cable for flexible installation. The cable is resistant to oil and chemicals and is flame-retardant. It is also halogen-free and its transmission properties meet $CAT6_A$.

Outer sheath material **PUR**

Minimum bending radius **10 x D**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94F **PUR** Blue	8-pos.	M12, PP, RJ45	4 x 2 x 26 AWG 7 x 0.16 mm Twisted pair		White-blue, blue, white-orange, orange, white-green, green, white-brown, brown	PE	-20°C ... 80°C	102

Ethernet hybrid cable – type 94H



Ethernet hybrid cable for use in drag chains. The cable has four wires for data transmission and four wires for power supply. It is oil resistant and flame-retardant. It is also halogen-free and its transmission properties meet CAT5e.

Outer sheath material **PUR**

Number of bending cycles **2 million**
Minimum bending radius **10 x D**
Traverse path **4.5 m**
Acceleration **3 m/s²**
Speed **3 m/s**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
94H **PUR** Black	8-pos.	M12	1 x 4 x 26 AWG 19 x 0.15 mm 1 x 4 x 20 AWG 19 x 0.6 mm		White-orange, orange, white-green, green, white, blue, brown, black	PP	-40°C ... 90°C	104

VARAN cable – type 970

CAT5e

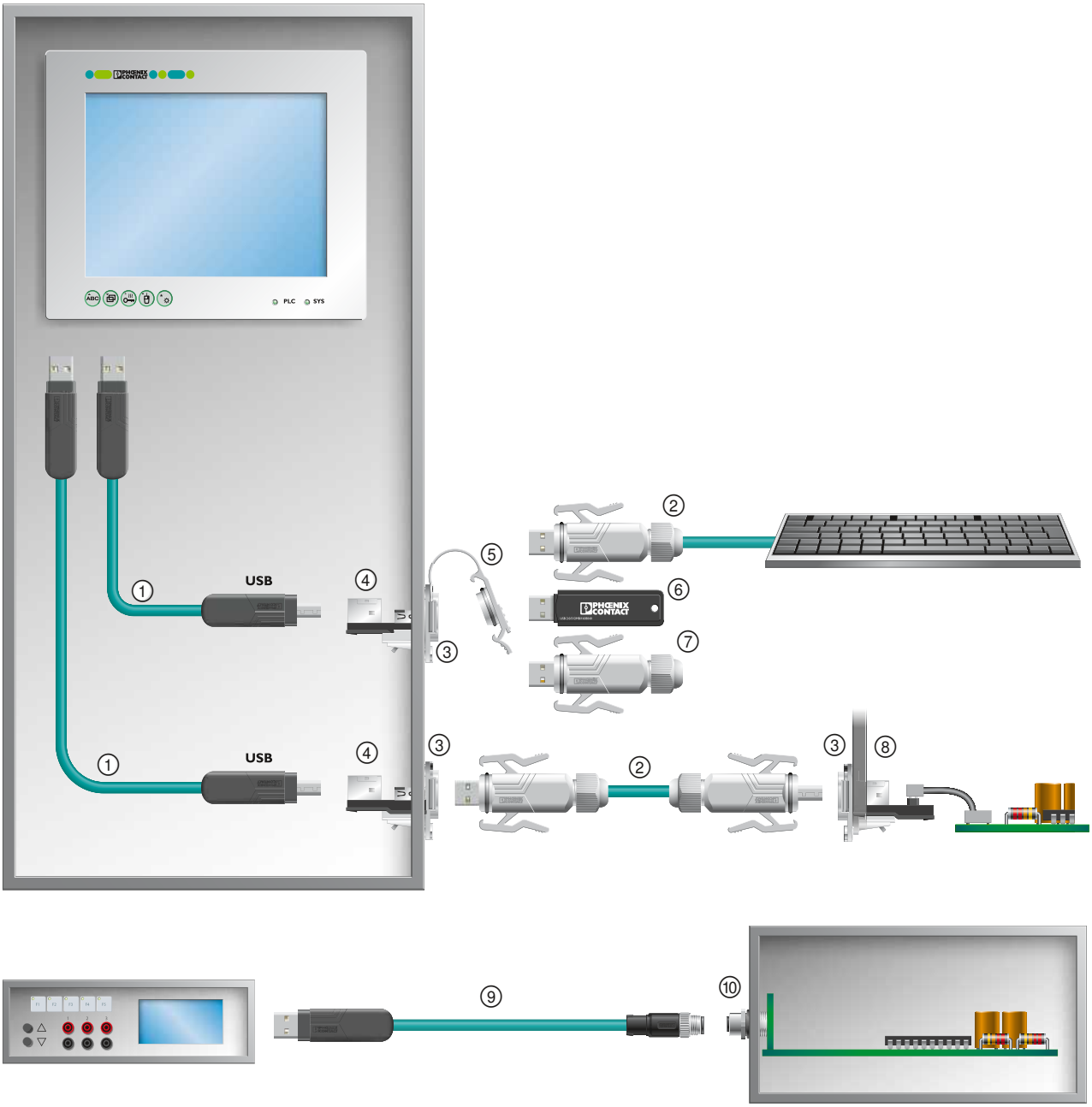
VARAN cable for flexible installation. The cable is resistant to oil and chemicals and is flame-retardant. The cable's transmission properties meet CAT5e.

Outer sheath material **Santoprene**

Minimum bending radius **7.5 x D**
Tested at **20 ... 25°C**

Type	No. of positions	Use	Structure	Cross section	Wire colors	Wire insulation	Temperature range	Page
970 **Santoprene** Black	6-pos.	M12, PP, RJ45	1 x 2 x 22 AWG 19 x 0.1 mm + 2 x 2 x 26 AWG 19 x 0.1 mm		Brown, blue White-orange, orange, white-green, green	PE	-40°C ... 80°C	See: phoenix contact.net/ products

USB



No.	Designation	Page
①	Assembled USB cables	See Catalog 4
②	Assembled USB cables, IP65/IP67	See Catalog 4
③	Panel mounting frame with IP65/IP67 protection for Freenet system, version 6	205
④	Socket-socket modules for Freenet system	205
⑤	Protective cover for the panel mounting frame with IP65/IP67 protection	205
⑥	USB memory stick with IP20 protection	205
⑦	USB memory stick with IP67 protection	205
⑧	USB socket insert with pin plug connection	205
⑨	Assembled USB cables with M12 mini-USB	See Catalog 4
⑩	M12 flush-type plug-in connector, mini-USB, for PCB mounting	See Catalog 4

Panel feed-throughs, memory sticks, protective cover

Panel feed-throughs can be implemented with the IP67 panel mounting frame and the USB socket inserts. The USB memory sticks with IP67 protection enable wireless data transmission in rough industrial environments.



Mini-B USB, M12 fastening threads, wave soldered contacts, integrated shield contact



USB socket inserts and panel mounting frames, IP67, Freenet system

Technical data

	VS-EC-MSDB SH SCO
Electrical data	
Rated voltage	-
Transmission speed	-
Material data	
Housing material	-
Inflammability class according to UL 94	V0
Mechanical data	
No. of pos.	4
Degree of protection	IP67
Insertion/withdrawal cycles	≥ 100
Temperature data	
Ambient temperature (operation)	-25 °C ... 85 °C (Plug / socket)

Technical data

	VS-04-BUA-BUB-F/IP67	VS-04-MS-IP20
Electrical data		
Rated voltage	30 V	-
Transmission speed	480 Mbps	480 Mbps
Material data		
Housing material	PC	-
Inflammability class according to UL 94	V0	-
Mechanical data		
No. of pos.	4	4
Degree of protection	IP20	IP20
Insertion/withdrawal cycles	≥ 1000	-
Temperature data		
Ambient temperature (operation)	-15 °C ... 65 °C	-15 °C ... 60 °C

Ordering data

Description	Cable length	Type	Order No.	Pcs. / Pkt.
Sensor/actuator flush-type connector, mini-B USB, M12 SPEEDCON, with straight solder connection		**VS-EC-MSDB SH SCO**	**1440711**	20
USB socket insert, 4-pos., USB socket type A to USB socket type B, can be plugged in both directions				
USB socket insert, 4-pos., USB socket to flat-ribbon cable terminal strip, 2.54 pitch				
Socket, type A				
Socket, type B				
USB cable, assembled on one side with USB connectors				
Connector type: A, length: 0.3 m	0.3 m			
Connector type: B, length: 0.3 m	0.3 m			
Connector type: A to B, length: 1.8 m	1.8 m			
Freenet panel mounting frame, version 6, for round mounting cutout, with seal, without mounting screws				
Military gray RAL 7042				
USB memory stick, USB 2.0				
IP20				
IP67				
Protective cover for version 6 panel mounting frame				
Military gray RAL 7042				

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-04-BUA-BUB-F/IP67	**1653838**	1
VS-04-BUA-FK-F/IP67	**1653854**	1
VS-04-BUB-FK-F/IP67	**1653867**	1
VS-04-C-SDA/PH/0,3	**1405552**	1
VS-04-C-SDB/PH/0,3	**1405565**	1
VS-04-C-SDA/SDB/1,8	**1405578**	1
VS-A-F-IP67	**1653744**	5
VS-04-MS-IP20	**1402490**	1
VS-04-MS-IP67	**1402489**	1
VS-08-SD-F	**1652606**	5

				Screw connection			Solder connection					
							Straight solder cups					
												
				VS-...-ST-DSUB/...-MPT-0,5 VS-...-BU-DSUB/...-MPT-0,5			VS-...-ST-DSUB-EG VS-...-BU-DSUB-EG			VS-...-ST-DSUB-HD-EG VS-...-BU-DSUB-HD-EG		
Shell size 1 to 3				D-SUB contact insert Fixing: 2.5 mm hole			D-SUB contact insert Fixing: 3 mm hole			D-SUB contact insert, high-position Fixing: 3 mm hole		
	Type	**Order No.**		**No. of positions**	**Pin**	**Socket**	**No. of positions**	**Pin**	**Socket**	**No. of positions**	**Pin**	**Socket**
	**IP67 panel mounting frame**											
	VS-09-A	**1688366**		**9**	**1688379**	**1688395**	**9**	**1688793**	**1688803**	**15**	**1655111**	**1655108**
	VS-15-A	**1688036**		**15**	**1688078**	**1688094**	**15**	**1688874**	**1688887**	**26**	**1655179**	**1655166**
	VS-25-A	**1689750**		**25**	**1689789**	**1689776**	**25**	**1689899**	**1689909**	**44**	**1655234**	**1655221**
	**IP20 sleeve housing**											
	VS-09-T-20-1-S-A	**1655661**		**9**	**-**	**-**	**9**	**1688793**	**1688803**	**15**	**1655111**	**1655108**
	VS-15-T-20-1-S-A	**1655687**		**15**	**-**	**-**	**15**	**1688874**	**1688887**	**26**	**1655179**	**1655166**
	VS-25-T-20-1-S-A	**1655700**		**25**	**-**	**-**	**25**	**1689899**	**1689909**	**44**	**1655234**	**1655221**
	**VS-09-T-20-1-S-S**	**1655658**		**9**	**-**	**-**	**9**	**1688793**	**1688803**	**15**	**1655111**	**1655108**
	VS-15-T-20-1-S-S	**1655674**		**15**	**-**	**-**	**15**	**1688874**	**1688887**	**26**	**1655179**	**1655166**
	VS-25-T-20-1-S-S	**1655690**		**25**	**-**	**-**	**25**	**1689899**	**1689909**	**44**	**1655234**	**1655221**
	**IP67 sleeve housing**											
	VS-09-T-2M16	**1688353**		**9**	**1688379**	**1688395**	**9**	**1688793**	**1688803**	**15**	**1655111**	**1655108**
	VS-15-T-2PG11	**1688052**		**15**	**1688078**	**1688094**	**15**	**1688874**	**1688887**	**26**	**1655179**	**1655166**
	VS-25-T-2M20	**1689792**		**25**	**1689789**	**1689776**	**25**	**1689899**	**1689909**	**44**	**1655234**	**1655221**
	**VS-09-SET-STD**	**1689145**	**Panel mounting frame**	**9**	**1688379**	**1688395**	**9**	**1688793**	**1688803**	**15**	**1655111**	**1655108**
			Sleeve housing	**9**	**1688379**	**1688395**	**9**	**1688793**	**1688803**	**15**	**1655111**	**1655108**
	VS-15-SET-STD	**1689129**	**Panel mounting frame**	**15**	**1688078**	**1688094**	**15**	**1688874**	**1688887**	**26**	**1655179**	**1655166**
			Sleeve housing	**15**	**1688078**	**1688094**	**15**	**1688874**	**1688887**	**26**	**1655179**	**1655166**
	VS-25-SET-STD	**1652198**	**Panel mounting frame**	**25**	**1689789**	**1689776**	**25**	**1689899**	**1689909**	**44**	**1655234**	**1655221**
			Sleeve housing	**25**	**1689789**	**1689776**	**25**	**1689899**	**1689909**	**44**	**1655234**	**1655221**
	**VS-09-SET-EMV**	**1689158**	**Panel mounting frame**	**9**	**1688379**	**1688395**	**9**	**1688793**	**1688803**	**15**	**1655111**	**1655108**
			Sleeve housing	**9**	**1688379**	**1688395**	**9**	**1688793**	**1688803**	**15**	**1655111**	**1655108**
	VS-15-SET-EMV	**1689132**	**Panel mounting frame**	**15**	**1688078**	**1688094**	**15**	**1688874**	**1688887**	**26**	**1655179**	**1655166**
			Sleeve housing	**15**	**1688078**	**1688094**	**15**	**1688874**	**1688887**	**26**	**1655179**	**1655166**
	VS-25-SET-EMV	**1652208**	**Panel mounting frame**	**25**	**1689789**	**1689776**	**25**	**1689899**	**1689909**	**44**	**1655234**	**1655221**
			Sleeve housing	**25**	**1689789**	**1689776**	**25**	**1689899**	**1689909**	**44**	**1655234**	**1655221**

Note:
The EMC inner sleeve of the IP67 sleeve housing cannot be used on the panel mounting side.

Signal transmission

Solder connection

Angled solder pins



VS-...-ST-DSUB-ER
VS-...-BU-DSUB-ER

D-SUB contact insert
Fixing:
4-40 UNC thread and solder pins

No. of positions	Pin	Socket
9	1688382	1688405
15	1688081	1688120
25	1689873	1689886
9	-	-
15	-	-
25	-	-
9	-	-
15	-	-
25	-	-
9	-	-
15	-	-
25	-	-
9	1688382	1688405
9	-	-
15	1688081	1688120
15	-	-
25	1689873	1689886
25	-	-
9	1688382	1688405
9	-	-
15	1688081	1688120
15	-	-
25	1689873	1689886
25	-	-



VS-...-ST-DSUB-HD-ER
VS-...-BU-DSUB-HD-ER

D-SUB contact insert, high-position. Fixing:
4-40 UNC thread and solder pins

No. of positions	Pin	Socket
15	1655098	1656136
26	1655153	1655140
44	1655218	1655205
15	-	-
26	-	-
44	-	-
15	-	-
26	-	-
44	-	-
15	-	-
26	-	-
44	-	-
15	1655098	1656136
15	-	-
26	1655153	1655140
26	-	-
44	1655218	1655205
44	-	-
15	1655098	1656136
15	-	-
26	1655153	1655140
26	-	-
44	1655218	1655205
44	-	-



VS-...-ST-DSUB-LH-B
VS-...-BU-DSUB-LH-B

D-SUB contact insert
Fixing:
2.5 mm hole and solder metal plate

No. of positions	Pin	Socket
9	1654785	1654798
15	1654808	1654811
25	1654824	1654837
9	1654785	1654798
15	1654808	1654811
25	1654824	1654837
9	1654785	1654798
15	1654808	1654811
25	1654824	1654837
9	1654785	1654798
9	1654785	1654798
15	1654808	1654811
15	1654808	1654811
25	1654824	1654837
25	1654824	1654837
9	1654785	1654798
9	1654785	1654798
15	1654808	1654811
15	1654808	1654811
25	1654824	1654837
25	1654824	1654837

Crimp connection

Contact carriers for crimp contacts



VS-...-ST-DSUB-CD-...G
VS-...-BU-DSUB-CD-...G

D-SUB contact carrier
Fixing:
4-40 UNC thread

No. of positions	Pin	Socket
9	1688832	1688845
15	1688913	1688926
25	1689938	1689941
9	-	-
15	-	-
25	-	-
9	-	-
15	-	-
25	-	-
9	-	-
15	-	-
25	-	-
9	1688832	1688845
9	-	-
15	1688913	1688926
15	-	-
25	1689938	1689941
25	-	-
9	1688832	1688845
9	-	-
15	1688913	1688926
15	-	-
25	1689938	1689941
25	-	-



VS-...-ST-DSUB-CD-...
VS-...-BU-DSUB-CD-...

D-SUB contact carrier
Fixing: 3 mm hole

No. of positions	Pin	Socket
9	1688858	1688861
15	1688939	1688942
25	1689954	1689967
9	1688858	1688861
15	1688939	1688942
25	1689954	1689967
9	1688858	1688861
15	1688939	1688942
25	1689954	1689967
9	1688858	1688861
9	1688858	1688861
15	1688939	1688942
15	1688939	1688942
25	1689954	1689967
25	1689954	1689967
9	1688858	1688861
9	1688858	1688861
15	1688939	1688942
15	1688939	1688942
25	1689954	1689967
25	1689954	1689967



VS-...-ST-DSUB-HD-CD-B
VS-...-BU-DSUB-HD-CD-B

D-SUB contact carrier, high-position
Fixing: 3 mm hole

No. of positions	Pin	Socket
15	1655137	1655124
26	1655195	1655182
44	1655250	1655247
15	1655137	1655124
26	1655195	1655182
44	1655250	1655247
15	1655137	1655124
26	1655195	1655182
44	1655250	1655247
15	1655137	1655124
15	1655137	1655124
26	1655195	1655182
26	1655195	1655182
44	1655250	1655247
44	1655250	1655247
15	1655137	1655124
15	1655137	1655124
26	1655195	1655182
26	1655195	1655182
44	1655250	1655247
44	1655250	1655247

Note:
For crimp contacts, see page 216.

Shell size 1 to 3				Signal transmission								
				Flat-ribbon cable connection			Gender changer					
												
										No. of positions 2PK/3PK/5PK		
				VS-...-ST-DSUB-FK VS-...-BU-DSUB-FK			VS-...-GC-ST/ST VS-...-GC-BU/BU			VS-...-ST-DSUB-...P VS-...-BU-DSUB-...P		
				D-SUB contact insert Fixing: 3 mm hole			D-SUB contact insert Fixing: 4-40 UNC thread			D-SUB contact carrier Fixing: 3 mm hole		
	Type	Order No.		No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket
	IP67 panel mounting frame											
	VS-09-A	1688366		9	1688816	1688829	9	1652651	1688722	2PK	1688418	1688421
	VS-15-A	1688036		15	1688890	1688900	15	1652677	1652664	3PK	1688201	1688214
	VS-25-A	1689750		25	1689912	1689925	25	1652693	1652680	5PK	1689970	1689983
	VS-25-A	1689750										
	IP20 sleeve housing											
	VS-09-T-20-1-S-A	1655661		9	-	-	9	-	-	2PK	-	-
	VS-15-T-20-1-S-A	1655687		15	-	-	15	-	-	3PK	-	-
	VS-25-T-20-1-S-A	1655700		25	-	-	25	-	-	5PK	-	-
	VS-25-T-20-1-S-A	1655700										
	VS-09-T-20-1-S-S	1655658		9	-	-	9	-	-	2PK	-	-
	VS-15-T-20-1-S-S	1655674		15	-	-	15	-	-	3PK	-	-
	VS-25-T-20-1-S-S	1655690		25	-	-	25	-	-	5PK	-	-
	VS-25-T-20-1-S-S	1655690										
	IP67 sleeve housing											
	VS-09-T-2M16	1688353		9	-	-	9	-	-	2PK	1688418	1688421
	VS-15-T-2PG11	1688052		15	-	-	15	-	-	3PK	1688201	1688214
	VS-25-T-2M20	1689792		25	-	-	25	-	-	5PK	1689970	1689983
	VS-25-T-2M20	1689792										
	VS-09-SET-STD	1689145	Panel mounting frame	9	1688816	1688829	9	1652651	1688722	2PK	1688418	1688421
			Sleeve housing	9	-	-	9	-	-	2PK	1688418	1688421
	VS-15-SET-STD	1689129	Panel mounting frame	15	1688890	1688900	15	1652677	1652664	3PK	1688201	1688214
			Sleeve housing	15	-	-	15	-	-	3PK	1688201	1688214
	VS-25-SET-STD	1652198	Panel mounting frame	25	1689912	1689925	25	1652693	1652680	5PK	1689970	1689983
			Sleeve housing	25	-	-	25	-	-	5PK	1689970	1689983
	VS-25-SET-STD	1652198	Panel mounting frame									
			Sleeve housing									
	VS-09-SET-EMV	1689158	Panel mounting frame	9	1688816	1688829	9	1652651	1688722	2PK	1688418	1688421
			Sleeve housing	9	-	-	9	-	-	2PK	-	-
	VS-15-SET-EMV	1689132	Panel mounting frame	15	1688890	1688900	15	1652677	1652664	3PK	1688201	1688214
			Sleeve housing	15	-	-	15	-	-	3PK	-	-
	VS-25-SET-EMV	1652208	Panel mounting frame	25	1689912	1689925	25	1652693	1652680	5PK	1689970	1689983
			Sleeve housing	25	-	-	25	-	-	5PK	-	-
	VS-25-SET-EMV	1652208	Panel mounting frame									
			Sleeve housing									

Note:
The EMC inner sleeve of the IP67 sleeve housing cannot be used on the panel mounting side.

Note:
When installing the gender changer in the front plate of the VARIOSUB service interface, VS-SI-SCREW-GC screws (1656961) should be used.

Power and signal transmission									Power				
	Angled solder pins					Angled solder pins			Angled solder pins			Screw connection	
													
	No. of positions 2PK/3PK/5PK			No. of positions 1PK-4S/2PK-5S/4PK-5S/3PK-10S					No. of positions 3/5				
	VS-...-ST-DSUB-...P-LH VS-...-BU-DSUB-...P-LH			VS-...-ST-DSUB-...P-...S VS-...-BU-DSUB-...P-...S			VS-...-ST-DSUB-...P-...S-LH VS-...-BU-DSUB-...P-...S-LH			VS-PSC 1,5/...-M PE VS-PSC 1,5/...-M			PSC 1,5/...-F	
	D-SUB contact carrier Fixing: 4-40 UNC thread and solder pins			D-SUB contact insert Fixing: 3 mm hole			D-SUB contact insert Fixing: 4-40 UNC thread and solder pins			D-SUB contact insert Fixing: M3 thread and solder pins			D-SUB contact insert Fixing: 3 mm hole	
	No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Socket	No. of positions	Pin	Pin with PE	No. of positions	Socket
	2PK	1655292	1655289	1PK-4S	1689006	1689019	1PK-4S	1655315	1655302	3	1689310	1689336	3	-
	3PK	1655331	1655328	2PK-5S	1688227	1688230	2PK-5S	1655360	1655344	5	1688825	1689323	5	-
	5PK	1655441	1655438	3PK-10S	1689996	1690008	3PK-10S	1655425	1655412					
				4PK-5S	1655386	1655373	4PK-5S	1655409	1655399					
	2PK	-	-	1PK - 4S	-	-	1PK - 4S	-	-	3	-	-	3	1841909
	3PK	-	-	2PK - 5S	-	-	2PK - 5S	-	-	5	-	-	5	1841912
	5PK	-	-	3PK - 10S	-	-	3PK - 10S	-	-					
				4PK - 5S	-	-	4PK - 5S	-	-					
	2PK	-	-	1PK - 4S	-	-	1PK - 4S	-	-	3	-	-	3	1841909
	3PK	-	-	2PK - 5S	-	-	2PK - 5S	-	-	5	-	-	5	1841912
	5PK	-	-	3PK - 10S	-	-	3PK - 10S	-	-					
				4PK - 5S	-	-	4PK - 5S	-	-					
	2PK	-	-	1PK - 4S	1689006	1689019	1PK - 4S	-	-	3	-	-	3	1841909
	3PK	-	-	2PK - 5S	1688227	1688230	2PK - 5S	-	-	5	-	-	5	1841912
	5PK	-	-	3PK - 10S	1689996	1690008	3PK - 10S	-	-					
				4PK - 5S	1655386	1655373	4PK - 5S	-	-					
	2PK	1655292	1655289	1PK - 4S	1689006	1689019	1PK - 4S	1655315	1655302	3	1689310	1689336	3	-
	2PK	-	-	1PK - 4S	1689006	1689019	1PK - 4S	-	-	3	-	-	3	1841909
	3PK	1655331	1655328	2PK - 5S	1688227	1688230	2PK - 5S	1655360	1655344	5	1688825	1689323	5	-
	3PK		-	2PK - 5S	1688227	1688230	2PK - 5S	-	-	5	-	-	5	1841912
	5PK	1655441	1655438	3PK - 10S	1689996	1690008	3PK - 10S	1655425	1655412					
	5PK	-	-	3PK - 10S	1689996	1690008	3PK - 10S	-	-					
				4PK - 5S	1655386	1655373	4PK - 5S	1655409	1655399					
				4PK - 5S	1655386	1655373	4PK - 5S	-	-					
	2PK	1655292	1655289	1PK - 4S	1689006	1689019	1PK - 4S	1655315	1655302	3	1689310	1689336	3	-
	2PK	-	-	1PK - 4S	-	-	1PK - 4S	-	-	3	-	-	3	1841909
	3PK	1655331	1655328	2PK - 5S	1688227	1688230	2PK - 5S	1655360	1655344	5	1688825	1689323	5	-
	3PK		-	2PK - 5S	-	-	2PK - 5S	-	-	5	-	-	5	1841912
	5PK	1655441	1655438	3PK - 10S	1689996	1690008	3PK - 10S	1655425	1655412					
	5PK	-	-	3PK - 10S	-	-	3PK - 10S	-	-					
				4PK - 5S	1655386	1655373	4PK - 5S	1655409	1655399					
				4PK - 5S	-	-	4PK - 5S	-	-					

Contact inserts



Screw connection
Fixing: 2.5 mm hole



Straight solder cups
Fixing: 3 mm hole

	Technical data	Technical data	
	VS-...-MPT-0,5	VS-...EG	VS-...-HD-EG
Electrical data			
Rated voltage	60 V	125 V	60 V
Rated current	5 A	5 A	3 A
Surge voltage category	III	III	III
Material data			
Contact material	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Gold over nickel	Hard gold-plated over nickel	Hard gold-plated over nickel
Contact carrier material	PBTP	Polyester GF	Polyester GF
Inflammability class according to UL 94	V0	V0	V0
Mechanical data			
Pollution degree	2	2	2
Conductor cross section	0.14 mm² ... 0.5 mm²	0.5 mm²	0.34 mm²
Connection cross section AWG	26 ... 20	20	22
Insertion/withdrawal cycles	≥ 200	≥ 200	≥ 200
Connection method	Screw connection	Solder cup	Solder cup
Temperature data			
Ambient temperature (operation)	-20 °C ... 80 °C	-55 °C ... 125 °C	-55 °C ... 125 °C

			Ordering data			Ordering data		
Description	Design	No. of pos.	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB contact insert								
Plug	09	9	**VS-09-ST-DSUB/10-MPT-0,5**	**1688379**	10			
Socket	09	9	**VS-09-BU-DSUB/9-MPT-0,5**	**1688395**	10			
Plug	15	15	**VS-15-ST-DSUB/16-MPT-0,5**	**1688078**	10			
Socket	15	15	**VS-15-BU-DSUB/16-MPT-0,5**	**1688094**	10			
Plug	25	25	**VS-25-ST-DSUB/25-MPT-0,5**	**1689789**	10			
Socket	25	25	**VS-25-BU-DSUB/25-MPT-0,5**	**1689776**	10			
D-SUB contact insert								
Plug	09	9				**VS-09-ST-DSUB-EG**	**1688793**	10
Socket	09	9				**VS-09-BU-DSUB-EG**	**1688803**	10
Plug	15	15				**VS-15-ST-DSUB-EG**	**1688874**	10
Socket	15	15				**VS-15-BU-DSUB-EG**	**1688887**	10
Plug	25	25				**VS-25-ST-DSUB-EG**	**1689899**	10
Socket	25	25				**VS-25-BU-DSUB-EG**	**1689909**	10
D-SUB contact insert, high density								
Plug	09	15				**VS-09-ST-DSUB-HD-EG**	**1655111**	10
Socket	09	15				**VS-09-BU-DSUB-HD-EG**	**1655108**	10
Plug	15	26				**VS-15-ST-DSUB-HD-EG**	**1655179**	10
Socket	15	26				**VS-15-BU-DSUB-HD-EG**	**1655166**	10
Plug	25	44				**VS-25-ST-DSUB-HD-EG**	**1655234**	10
Socket	25	44				**VS-25-BU-DSUB-HD-EG**	**1655221**	10
D-SUB contact insert								
Plug	09	9						
Socket	09	9						
Plug	15	15						
Socket	15	15						
Plug	25	25						
Socket	25	25						



Angled solder pins
Fixing: 4-40 UNC threads and solder pins



Angled solder pins
Fixing: 2.5 mm bore hole and solder metal plate

Technical data		
VS-...-ER	VS-...-HD-ER	VS-...-LH-...
125 V	60 V	125 V
5 A	3 A	5 A
III	III	III
Copper alloy	Copper alloy	Copper alloy
Hard gold-plated over nickel	Hard gold-plated over nickel	Gold over nickel
Polyester GF	Polyester GF	PBT-GF
V0	V0	V0
2	2	2
-	-	-
-	-	-
≥ 200	≥ 200	≥ 200
Solder connection	Solder connection	Solder connection
-55 °C ... 125 °C	-55 °C ... 125 °C	-55 °C ... 125 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-ER	**1688382**	10
VS-09-BU-DSUB-ER	**1688405**	10
VS-15-ST-DSUB-ER	**1688081**	10
VS-15-BU-DSUB-ER	**1688120**	10
VS-25-ST-DSUB-ER	**1689873**	10
VS-25-BU-DSUB-ER	**1689886**	10
VS-09-ST-DSUB-HD-ER	**1655098**	10
VS-09-BU-DSUB-HD-ER	**1656136**	10
VS-15-ST-DSUB-HD-ER	**1655153**	10
VS-15-BU-DSUB-HD-ER	**1655140**	10
VS-25-ST-DSUB-HD-ER	**1655218**	10
VS-25-BU-DSUB-HD-ER	**1655205**	10

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-LH-B	**1654785**	10
VS-09-BU-DSUB-LH-B	**1654798**	10
VS-15-ST-DSUB-LH-B	**1654808**	10
VS-15-BU-DSUB-LH-B	**1654811**	10
VS-25-ST-DSUB-LH-B	**1654824**	10
VS-25-BU-DSUB-LH-B	**1654837**	10

Contact carriers, inserts and gender changers



D-SUB crimp inserts, with thread



D-SUB crimp inserts, with bore hole

	Technical data	Technical data	
	VS-...-CD-...	VS-...-CD-B	VS-...-HD-CD-B
Electrical data			
Rated voltage	125 V	125 V	60 V
Rated current	5 A	5 A	3 A
Surge voltage category	III	III	III
Material data			
Contact material	-	-	-
Contact surface material	-	-	-
Contact carrier material	Polyester GF	Polyester GF	Polyester GF
Inflammability class according to UL 94	V0	V0	V0
Mechanical data			
Pollution degree	2	2	2
Insertion/withdrawal cycles	≥ 500	≥ 500	≥ 500
Connection method	Crimp connection	Crimp connection	Crimp connection
Temperature data			
Ambient temperature (operation)	-55 °C ... 125 °C	-55 °C ... 125 °C	-55 °C ... 125 °C

Description	Design	No. of pos.	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
D-SUB contact support								
Plug	09	9	**VS-09-ST-DSUB-CD-G**	**1688832**	10	**VS-09-ST-DSUB-CD-B**	**1688858**	10
Socket	09	9	**VS-09-BU-DSUB-CD-G**	**1688845**	10	**VS-09-BU-DSUB-CD-B**	**1688861**	10
Plug	15	15	**VS-15-ST-DSUB-CD-MG**	**1688913**	10	**VS-15-ST-DSUB-CD-OG**	**1688939**	10
Socket	15	15	**VS-15-BU-DSUB-CD-MG**	**1688926**	10	**VS-15-BU-DSUB-CD-OG**	**1688942**	10
Plug	25	25	**VS-25-ST-DSUB-CD-G**	**1689938**	10	**VS-25-ST-DSUB-CD-B**	**1689954**	10
Socket	25	25	**VS-25-BU-DSUB-CD-G**	**1689941**	10	**VS-25-BU-DSUB-CD-B**	**1689967**	10
D-SUB contact carrier, high density								
Plug	09	15				**VS-09-ST-DSUB-HD-CD-B**	**1655137**	10
Socket	09	15				**VS-09-BU-DSUB-HD-CD-B**	**1655124**	10
Plug	15	26				**VS-15-ST-DSUB-HD-CD-B**	**1655195**	10
Socket	15	26				**VS-15-BU-DSUB-HD-CD-B**	**1655182**	10
Plug	25	44				**VS-25-ST-DSUB-HD-CD-B**	**1655250**	10
Socket	25	44				**VS-25-BU-DSUB-HD-CD-B**	**1655247**	10
D-SUB contact insert								
Plug	09	9						
Socket	09	9						
Plug	15	15						
Socket	15	15						
Plug	25	25						
Socket	25	25						
D-SUB gender changer								
Plug/plug	D-SUB 9	9						
Socket / Socket	D-SUB 9	9						
Plug/plug	D-SUB 15	15						
Socket / Socket	D-SUB 15	15						
Plug/plug	D-SUB 25	25						
Socket / Socket	D-SUB 25	25						

	Accessories	Accessories
Crimp contacts		
Crimp contact, high-pos.	See page 216	See page 216 See page 216



D-SUB
with flat-ribbon cable connection



Gender changer

Technical data	
VS-...-FK	
125 V	
5 A	
III	
Copper alloy	
Hard gold-plated over nickel	
Polyester GF	
V0	
2	
≥ 200	
Flat-ribbon cable connection	
-55 °C ... 125 °C	

Technical data	
VS-...-GC-...	
125 V	
5 A	
III	
Copper alloy	
Hard gold-plated over nickel	
Polyester GF	
V0	
2	
≥ 200	
Gender changer	
-55 °C ... 125 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-FK	**1688816**	10
VS-09-BU-DSUB-FK	**1688829**	10
VS-15-ST-DSUB-FK	**1688890**	10
VS-15-BU-DSUB-FK	**1688900**	10
VS-25-ST-DSUB-FK	**1689912**	10
VS-25-BU-DSUB-FK	**1689925**	10

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-GC-ST/ST	**1652651**	10
VS-09-GC-BU/BU	**1688722**	10
VS-15-GC-ST/ST	**1652677**	10
VS-15-GC-BU/BU	**1652664**	10
VS-25-GC-ST/ST	**1652693**	10
VS-25-GC-BU/BU	**1652680**	10

Accessories

Accessories

Combination contact carriers and inserts



For power contacts, fixing: 3 mm hole



For power contacts, fixing: 4-40 UNC threads and solder pins

	Technical data	Technical data
	VS-...-DSUB-..P	VS-...-DSUB-...P-LH
Electrical data		
Rated voltage	-	-
Rated current	-	-
Surge voltage category	-	-
Material data		
Contact material	-	-
Contact surface material	Gold over nickel	Gold over nickel
Contact carrier material	PBTP	PBTP
Inflammability class according to UL 94	V0	V0
Mechanical data		
Pollution degree	-	-
Insertion/withdrawal cycles	≥ 500	≥ 500
Connection method	Accommodation of combined contact	Accommodation of combined contact
Temperature data		
Ambient temperature (operation)	-55 °C ... 125 °C	-55 °C ... 125 °C

			Ordering data			Ordering data		
Description	Design	No. of pos.	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB contact support								
Plug	09	2 PK	**VS-09-ST-DSUB-2P**	**1688418**	10	**VS-09-ST-DSUB-2P-LH**	**1655292**	10
Socket	09	2 PK	**VS-09-BU-DSUB-2P**	**1688421**	10	**VS-09-BU-DSUB-2P-LH**	**1655289**	10
Plug	15	3 PK	**VS-15-ST-DSUB-3P**	**1688201**	10	**VS-15-ST-DSUB-3P-LH**	**1655331**	10
Socket	15	3 PK	**VS-15-BU-DSUB-3P**	**1688214**	10	**VS-15-BU-DSUB-3P-LH**	**1655328**	10
Plug	D-SUB 25	5 PK	**VS-25-ST-DSUB-5P**	**1689970**	10	**VS-25-ST-DSUB-5P-LH**	**1655441**	10
Socket	D-SUB 25	5 PK	**VS-25-BU-DSUB-5P**	**1689983**	10	**VS-25-BU-DSUB-5P-LH**	**1655438**	10
D-SUB contact insert								
Plug	09	1 PK 4 S						
Socket	09	1 PK 4 S						
Plug	15	2 PK 5 S						
Socket	15	2 PK 5 S						
Plug	25	3 PK 10 S						
Socket	25	3 PK 10 S						
Plug	25	4 PK 5 S						
Socket	25	4 PK 5 S						
D-SUB contact insert								
Plug	09	3						
Pin with capacitive PE	09	3						
Socket	09	3						
Plug	15	5						
Pin with capacitive PE	15	5						
Socket	15	5						

	Accessories	Accessories
Power contacts	See page 217	See page 217



**For power contacts,
with signal contacts (solder cups),
fixing: 3 mm hole**



**For power contacts,
with signal contacts (angled solder pins),
fixing: 4-40 UNC threads**



**Socket insert
with angled solder connection,
pin insert with screw connection**

Technical data	
VS-...-DSUB-...P-...S	
250 V	
5 A	
III	
Copper alloy	
Gold over nickel	
PBTP	
V0	
2	
≥ 200	
Solder cup	
-55 °C ... 125 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-1P-4S	**1689006**	10
VS-09-BU-DSUB-1P-4S	**1689019**	10
VS-15-ST-DSUB-2P-5S	**1688227**	10
VS-15-BU-DSUB-2P-5S	**1688230**	10
VS-25-ST-DSUB-3P-10S	**1689996**	10
VS-25-BU-DSUB-3P-10S	**1690008**	10
VS-25-ST-DSUB-4P-5S	**1655386**	10
VS-25-BU-DSUB-4P-5S	**1655373**	10

Accessories

See page 217

Technical data	
VS-...-DSUB-...P-...S-LH	
250 V	
5 A	
III	
Copper alloy	
Gold over nickel	
PBTP	
V0	
2	
≥ 200	
Solder connection	
-55 °C ... 125 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-ST-DSUB-1P-4S-LH	**1655315**	10
VS-09-BU-DSUB-1P-4S-LH	**1655302**	10
VS-15-ST-DSUB-2P-5S-LH	**1655360**	10
VS-15-BU-DSUB-2P-5S-LH	**1655344**	10
VS-25-ST-DSUB-3P-10S-LH	**1655425**	10
VS-25-BU-DSUB-3P-10S-LH	**1655412**	10
VS-25-ST-DSUB-4P-5S-LH	**1655409**	10
VS-25-BU-DSUB-4P-5S-LH	**1655399**	10

Accessories

See page 217

Technical data	
VS-PSC 1,5/3-M	
250 V	
8 A	
III	
Copper alloy	
Tin-plated	
PA	
V0	
3	
≥ 100	
PCB connection	
-20 °C ... 80 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-PSC 1,5/3-M	**1689310**	10
VS-PSC 1,5/3-M PE	**1689336**	10
PSC 1,5/ 3-F	**1841909**	50
VS-PSC 1,5/5-M	**1688825**	10
VS-PSC 1,5/5-M PE	**1689323**	10
PSC 1,5/ 5-F	**1841912**	50

Accessories

Signal contacts



Contacts
for standard D-SUB contact carriers



Contacts
for high-density D-SUB contact carriers

	Technical data		Technical data
	AWG 28 … 24	AWG 24 … 20	VS-...-CD-HD-1,0/13,5/0,37
Electrical data			
Rated voltage	125 V	125 V	60 V
Rated current	5 A	5 A	3 A
Contact material	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Hard gold-plated over nickel	Hard gold-plated over nickel	Hard gold-plated over nickel
Mechanical data			
Connection method	Crimp connection	Crimp connection	Crimp connection
Conductor cross section	0.08 mm² ... 0.2 mm²	0.2 mm² ... 0.5 mm²	0.34 mm²
Connection cross section AWG	28 ... 24	24 ... 20	22
Insertion/withdrawal cycles	≥ 200	≥ 200	≥ 200
Temperature data			
Ambient temperature (operation)	-55 °C ... 125 °C	-55 °C ... 125 °C	-55 °C ... 125 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Turned pin crimp contacts, for D-SUB contact inserts with standard contact density, gold-plated surface						
AWG 28 ... 24	**VS-ST-CD-1,0/14,8/0,2**	**1688971**	30			
AWG 24 ... 20	**VS-ST-CD-1,0/14,8/0,5**	**1688968**	30			
Turned crimp contacts VS 1,0						
Gold-plated	**VS-BU-CD-1,0/14,4/0,2**	**1688997**	30			
	VS-BU-CD-1,0/14,4/0,5	**1688984**	30			
Turned crimp contacts, for D-SUB contact inserts with high density, gold-plated surface						
AWG 22, plug				**VS-ST-CD-HD-1,0/13,5/0,37**	**1655276**	100
AWG 22, socket				**VS-BU-CD-HD-1,0/13,5/0,37**	**1655263**	100

	Accessories			Accessories		
Crimping pliers						
- For rolled D-SUB contacts, high-density, 0.08 mm² - 0.5 mm², incl. contact locator	**CRIMPFOX-DSUB 5**	**1212111**	1	**CRIMPFOX-DSUB 5**	**1212111**	1
Insertion/extraction tool, for fitting and removing D-SUB **standard** signal contacts						
	VS-IET-DSUB-SIGNAL-STD	**1658794**	1			
Insertion/extraction tool, for fitting and removing D-SUB **high-density** signal contacts						
				VS-IET-DSUB-SIGNAL-HD	**1658503**	1

Power contacts



With straight solder cups or angled solder pins



With screw connection

	Technical data		Technical data
	VS.../2,6	VS-.../4,6	VS-...SC-2,6
Electrical data			
Rated voltage	-	-	-
Rated current	20 A	40 A	40 A
Material data			
Contact material	Copper alloy	Copper alloy	Copper alloy
Contact surface material	Hard gold-plated over nickel	Hard gold-plated over nickel	Hard gold-plated over nickel
Mechanical data			
Connection method	Solder cup	Solder cup	Screw connection
Conductor cross section	2 mm^2 ... 3.5 mm^2	4.5 mm^2 ... 8.5 mm^2	0.75 mm^2 ... 2 mm^2
Connection cross section AWG	14 ... 12	10 ... 8	18 ... 14
Insertion/withdrawal cycles	≥ 500	≥ 500	≥ 500
Temperature data			
Ambient temperature (operation)	-55 °C ... 155 °C	-55 °C ... 155 °C	-55 °C ... 155 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Power contact, for D-SUB combination inserts, with straight solder cup, gold-plated surface						
Up to 20 A, plug	**VS-ST-LK-3,6/22,4/2,6**	**1688243**	30			
Up to 40 A, plug	**VS-ST-LK-3,6/22,4/4,6**	**1688269**	30			
Up to 20 A, socket	**VS-BU-LK-3,6/22,8/2,6**	**1688256**	30			
Up to 40 A, socket	**VS-BU-LK-3,6/22,8/4,6**	**1688272**	30			
Power contact, for D-SUB combination inserts, with angled solder pins for PCB mounting, gold-plated surface						
Up to 40 A, plug	**VS-ST-LH-3,6/18/3,8**	**1655467**	30			
Up to 40 A, socket	**VS-BU-LH-3,6/18/3,8**	**1655454**	30			
Power contact, for D-SUB combination inserts, with straight screw connection, gold-plated surface						
Up to 40 A, plug				**VS-ST-SC-2,6**	**1655483**	30
Up to 40 A, socket				**VS-BU-SC-2,6**	**1655470**	30

	Accessories			Accessories		
Removal tool	**HC-M4-KOAX-EWZ**	**1676747**	1	**HC-M4-KOAX-EWZ**	**1676747**	1

Assembled cables and housing with IP20 and IP67 protection



Assembled D-SUB cable, IP20, plug to socket



D-SUB sleeve housing, IP20, with 4-40 UNC knurl screws

	Technical data	Technical data
	VS-...-DSUB-20-LI...	VS-...-T-20-1-S...
Electrical data		
Rated voltage	125 V	-
Rated current	1 A	-
Material data		
Housing material	PVC	ABS
Housing surface material	-	Metal-plated
Contact material	Copper alloy	-
Contact surface material	Gold-plated	-
Inflammability class according to UL 94	-	V0
Mechanical data		
Color	-	Bare metallic
Degree of protection	IP20	IP20
External cable diameter	-	4 mm ... 8.5 mm
Insertion/withdrawal cycles	≥ 50	-
Temperature data		
Ambient temperature (operation)	0 °C ... 70 °C	0 °C ... 70 °C

		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Assembled D-SUB cable, shielded, stranded (7-wire), plug to socket							
D-SUB 09	1 m	**VS-09-DSUB-20-LI-1,0**	**1656233**	1			
D-SUB 09	2 m	**VS-09-DSUB-20-LI-2,0**	**1656246**	1			
D-SUB 09	5 m	**VS-09-DSUB-20-LI-5,0**	**1656259**	1			
D-SUB 15	1 m	**VS-15-DSUB-20-LI-1,0**	**1656262**	1			
D-SUB 15	2 m	**VS-15-DSUB-20-LI-2,0**	**1656275**	1			
D-SUB 15	5 m	**VS-15-DSUB-20-LI-5,0**	**1656288**	1			
D-SUB 25	1 m	**VS-25-DSUB-20-LI-1,0**	**1656291**	1			
D-SUB 25	2 m	**VS-25-DSUB-20-LI-2,0**	**1656301**	1			
D-SUB 25	5 m	**VS-25-DSUB-20-LI-5,0**	**1656314**	1			
D-SUB sleeve housing, shielded							
D-SUB 09, straight design					**VS-09-T-20-1-S-S**	**1655658**	1
D-SUB 09, angled design					**VS-09-T-20-1-S-A**	**1655661**	1
D-SUB 15, straight design					**VS-15-T-20-1-S-S**	**1655674**	1
D-SUB 15, angled design					**VS-15-T-20-1-S-A**	**1655687**	1
D-SUB 25, straight design					**VS-25-T-20-1-S-S**	**1655690**	1
D-SUB 25, angled design					**VS-25-T-20-1-S-A**	**1655700**	1
D-SUB sleeve housing							
D-SUB 09, M16 design							
D-SUB 15, Pg11 design							
D-SUB 25, M20 design							
D-SUB cap nut with line seal, for sleeve housing VARIOSUB IP67, design / line Ø:							
M16 / 3 mm ... 6 mm							
M16 / 5 mm ... 9 mm							
Pg11 / 3 mm ... 7 mm							
Pg11 / 5 mm ... 10 mm							
M20 / 5 mm ... 13 mm							
EMC inner sleeve, for shielding for sleeve housing VARIOSUB IP67							
For D-SUB 09 sleeve housing							
For D-SUB 15 sleeve housing							
For D-SUB 25 sleeve housing							
D-SUB protective cover, IP54 protection, for panel mounting frame and sleeve housing VARIOSUB IP67							
D-SUB 09							
D-SUB 15							
D-SUB 25							



IP67 D-SUB sleeve housing and IP54 protective cover



Accessories for IP67 D-SUB sleeve housing

Technical data	
VS-09-T-2M16	VS-...-SD
-	-
-	-
PA	PA
-	-
-	-
-	-
V0	V0
gray	gray
IP67	IP54
3 mm ... 9 mm	-
≥ 1000	≥ 1000
-40 °C ... 80 °C	-40 °C ... 80 °C

Technical data	
VS-M16(3-6)	VS-...TI-...EMV
-	-
-	-
PA	Nickel silver
-	-
-	-
-	-
V0	-
gray	Bare metallic
IP67	-
3 mm ... 6 mm	-
-	-
-40 °C ... 80 °C	-40 °C ... 80 °C

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-T-2M16	**1688353**	5
VS-15-T-2PG11	**1688052**	5
VS-25-T-2M20	**1689792**	5
VS-09-SD	**1887086**	5
VS-15-SD	**1887099**	5
VS-25-SD	**1652211**	5

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-M16 (3-6)	**1688450**	5
VS-M16 (5-9)	**1688447**	5
VS-PG11 (3- 7)	**1688117**	5
VS-PG11 (5-10)	**1688104**	5
VS-M20 (5-13)	**1652127**	5
VS-09-TI-2EMV	**1688476**	5
VS-15-TI-2EMV	**1688065**	5
VS-25-TI-2 EMV	**1689802**	5

IP67 housing sets, gender changer, and IP67 couplings



IP67 D-SUB panel mounting frame and EMC shroud



IP67 D-SUB connector set consisting of: sleeve housing, panel mounting frame, and accessories

	Technical data	Technical data
	VS-...A...	VS-09-SET-STD
Electrical data		
Rated voltage	-	-
Rated current	-	-
Material data		
Housing material	PA	PA
Contact material	-	-
Contact surface material	-	-
Seal material	Flat gasket: NBR; profile gasket: EPDM	Flat gasket: NBR; profile gasket: EPDM
Inflammability class according to UL 94	V0	V0
Mechanical data		
Color	gray	gray
Degree of protection	IP67	IP67
External cable diameter	-	3 mm ... 9 mm
Temperature data		
Ambient temperature (operation)	-40 °C ... 80 °C	-40 °C ... 80 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
D-SUB panel mounting frame, for accommodating D-SUB contact inserts						
D-SUB 09	**VS-09-A**	**1688366**	5			
D-SUB 15	**VS-15-A**	**1688036**	5			
D-SUB 25	**VS-25-A**	**1689750**	5			
D-SUB EMC shroud, for the IP67 panel mounting frame, for shield contacting to the housing panel						
D-SUB 09	**VS-09-A-EMV-S**	**1688463**	5			
D-SUB 15	**VS-15-A-EMV-S**	**1688049**	5			
D-SUB 25	**VS-25-A-EMV-S**	**1689763**	5			
D-SUB connector set						
D-SUB 09				**VS-09-SET-STD**	**1689145**	1
D-SUB 15				**VS-15-SET-STD**	**1689129**	1
D-SUB 25				**VS-25-SET-STD**	**1652198**	1
D-SUB panel mounting frame, with integrated gender changer, shielded						
D-SUB 09, pin/pin						
D-SUB 09, socket/socket						
D-SUB 15, pin/pin						
D-SUB 15, socket/socket						
D-SUB 25, pin/pin						
D-SUB 25, socket/socket						
D-SUB coupling, with integrated gender changer, shielded						
D-SUB 09, pin/pin						
D-SUB 09, socket/socket						
D-SUB 15, pin/pin						
D-SUB 15, socket/socket						
D-SUB 25, pin/pin						
D-SUB 25, socket/socket						
	Accessories			**Accessories**		
D-SUB protective cover, IP54 protection, for panel mounting frame and sleeve housing VARIOSUB IP67						
D-SUB 09	**VS-09-SD**	**1887086**	5	**VS-09-SD**	**1887086**	5
D-SUB 15	**VS-15-SD**	**1887099**	5	**VS-15-SD**	**1887099**	5
D-SUB 25	**VS-25-SD**	**1652211**	5	**VS-25-SD**	**1652211**	5



IP67 D-SUB connector set consisting of: sleeve housing, panel mounting frame, and accessories, shielded design



IP67 D-SUB panel mounting frame with integrated gender changer



IP67 D-SUB coupling with integrated gender changer

Technical data	
VS-09-SET-EMV	
-	
-	
PA	
-	
-	
Flat gasket: NBR; profile gasket: EPDM	
V0	
gray	
IP67	
3 mm ... 9 mm	
-40 °C ... 80 °C	

Technical data	
VS-...-A-GC-...	
125 V	
5 A	
PA	
Copper alloy	
Hard gold-plated over nickel	
Flat gasket: NBR; profile gasket: EPDM	
V0	
gray	
IP67	
-	
-40 °C ... 80 °C	

Technical data	
VS-...-KU-...	
125 V	
5 A	
PA	
Copper alloy	
Hard gold-plated over nickel	
EPDM	
V0	
gray	
IP67	
-	
-40 °C ... 80 °C	

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-SET-EMV	**1689158**	1
VS-15-SET-EMV	**1689132**	1
VS-25-SET-EMV	**1652208**	1

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-A-GC-ST/ST	**1689705**	5
VS-09-A-GC-BU/BU	**1689695**	5
VS-15-A-GC-ST/ST	**1689721**	5
VS-15-A-GC-BU/BU	**1689718**	5
VS-25-A-GC-ST/ST	**1689747**	5
VS-25-A-GC-BU/BU	**1689734**	5

Ordering data

Type	Order No.	Pcs. / Pkt.
VS-09-KU-ST/ST	**1689640**	5
VS-09-KU-BU/BU	**1689637**	5
VS-15-KU-ST/ST	**1689666**	5
VS-15-KU-BU/BU	**1689653**	5
VS-25-KU-ST/ST	**1689682**	5
VS-25-KU-BU/BU	**1689679**	5

Accessories

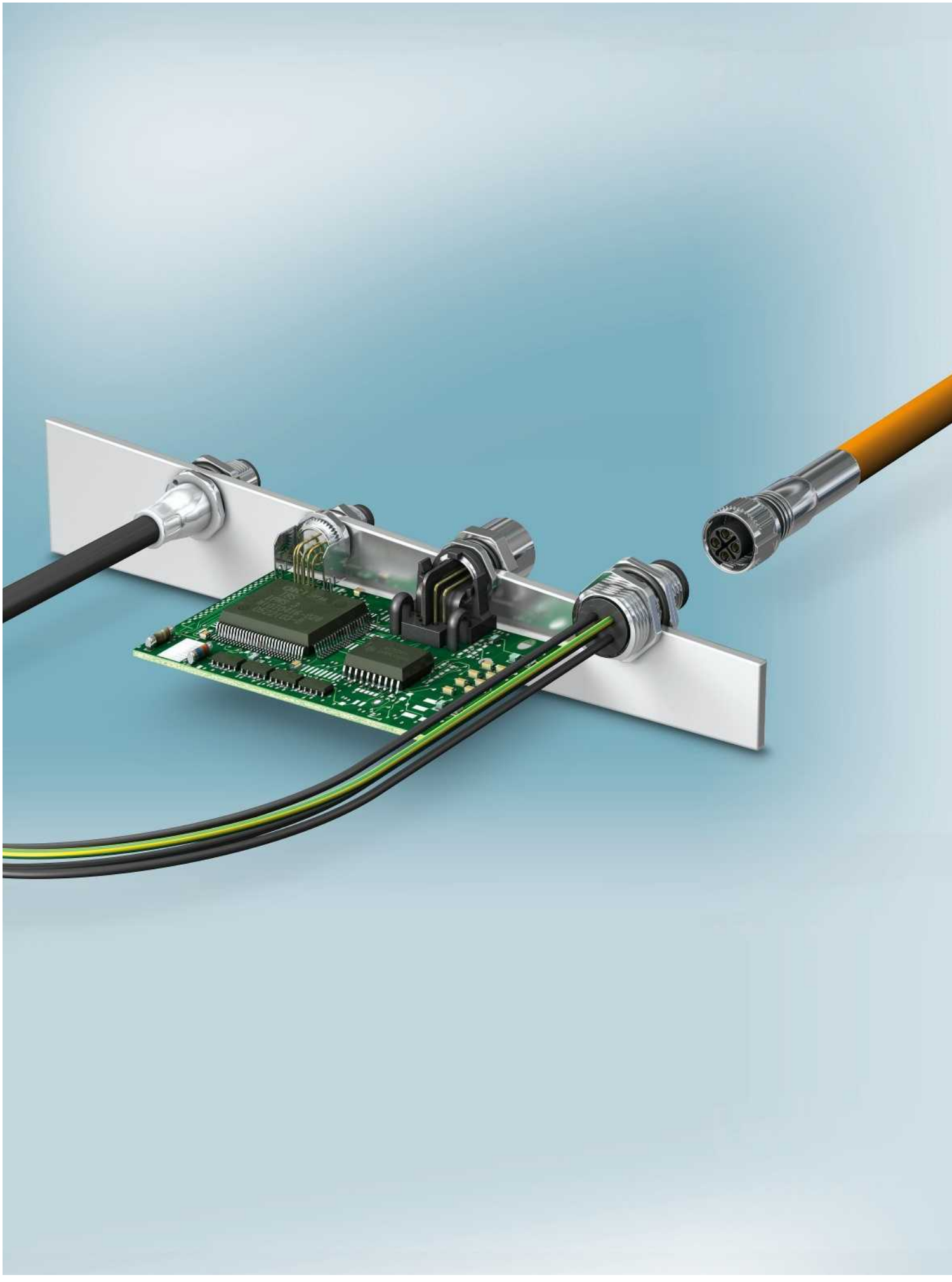
VS-09-SD	**1887086**	5
VS-15-SD	**1887099**	5
VS-25-SD	**1652211**	5

Accessories

VS-09-SD	**1887086**	5
VS-15-SD	**1887099**	5
VS-25-SD	**1652211**	5

Accessories

VS-09-SD	**1887086**	5
VS-15-SD	**1887099**	5
VS-25-SD	**1652211**	5



M5 to M12 circular plug-in connectors

Sensor/actuator device plug-in connectors

A comprehensive range of M5, M8, and M12 flush-type plug-in connectors and panel feed-throughs has emerged as a result of the various requirements for sensor/actuator device connection technology in industrial environments. Customer-specific developments enable optimum adaptation to individual device concepts.

Sensor/actuator plug-in connectors for assembly

Safe and efficient assembly is of utmost importance in field wiring. The 5 selection options of the connection technology enable precise adaptation to the respective application or requirements in the field. The plug-in connectors for assembly are available in various versions, unshielded and EMC-compliant.

Sensor/actuator device plug-in connectors

M5, front/rear mounting	**224**
M8, front mounting	**225**
M8, rear mounting	**226**
M12, front mounting	**232**
M12, rear mounting	**242**
M12, rear mounting, two-piece	**252**
M12, for fieldbus systems	**260**
M12, plastic	**263**
M12, control cabinet feed-throughs	**264**
M12, stainless steel	**268**
7/8", front mounting	**265**
7/8", rear mounting	**266**

Sensor/actuator plug-in connectors for assembly

M8 plug-in connectors	**272**
M12 plug-in connectors	**275**
7/8" plug-in connectors	**285**

M12 power plug-in connectors

Device plug-in connectors with litz wires	**286**
Two-piece device plug-in connectors for reflow processes	**288**
Plug-in connectors for assembly	**289**
SPEEDCON power cable	**290**

Accessories	**296**
Pin assignments	**298**

M5, front/rear mounting

Notes:

Flat nut recommended for housing wall thicknesses < 2.5 mm.



Front mounting, with 0.5 m long litz wires

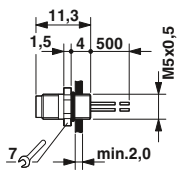


Rear mounting, one-piece, straight, for wave soldering processes

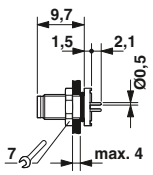
	Technical data		Technical data	
	3-pos.	4-pos.	3-pos.	4-pos.
General data				
M5 circular plug-in connector according to:	IEC 61076-2-105	IEC 61076-2-105	IEC 61076-2-105	IEC 61076-2-105
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Individual wires	Individual wires	Solder pins	Solder pins
Electrical data				
Rated voltage	60 V	60 V	60 V	60 V
Rated current	1 A	1 A	1 A	1 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface	CuSn / Au	CuSn / Au	CuSn / Au	CuSn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	HB	HB	HB	HB
Cable type	TPE litz wire	TPE litz wire	-	-
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 80	-25 ... 85

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		3-pos.		4-pos.	
Device plug-in connectors									
Socket	A - standard	1530605	1	1530618	1	1530647	20	1530650	20
Plug	A - standard	1530582	1	1530595	1	1530621	20	1530634	20

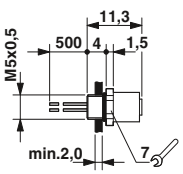
	Accessories			Accessories		
Flat nut, with:						
M5 thread	SACC-E-MU-M 5	1535901	100			



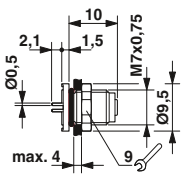
M5 flush-type plug



M5 flush-type plug, one-piece



M5 flush-type socket



M5 flush-type socket, one-piece

M8, front mounting, with 0.5 m long litz wires



M8, 3, 4, 5-pos.

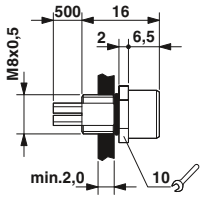


M8, 6, 8-pos.

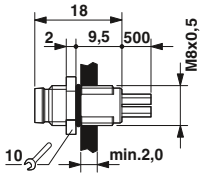
		Technical data			Technical data		
		3-pos.	4-pos.	5-pos.	6-pos.	8-pos.	
General data							
M8 circular plug-in connector according to:		IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		60 V	30 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	3 A	2 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		HB	HB	HB	HB	HB	-
Cable type		TPE litz wire	TPE litz wire	PVC litz wire	TPE litz wire	PVC litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.		6-pos.		8-pos.			
Device plug-in connectors													
Socket	A - standard	**1500350**	1	**1500363**	1			**1542677**	1	**1424231**	1		
Plug	A - standard	**1500334**	1	**1500347**	1			**1542664**	1	**1424232**	1		
Socket	B - inverse					**1424233**	1						
Plug	B - inverse					**1424234**	1						

	Accessories			Accessories		
Flat nut, with: M8 thread	**SACC-E-MU-M 8**	**1504071**	100	**SACC-E-MU-M 8**	**1504071**	100



M8 flush-type socket



M8 flush-type plug

M8, rear mounting, one-piece, straight, for wave soldering processes



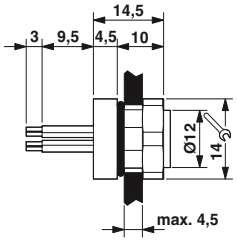
M8, 3, 4-pos.



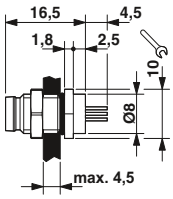
M8, 6, 8-pos.

		Technical data		Technical data	
		3-pos.	4-pos.	6-pos.	8-pos.
General data					
M8 circular plug-in connector according to:		IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Pollution degree		3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67
Connection method		Solder pins	Solder pins	Solder pins	Solder pins
Electrical data					
Rated voltage		60 V	30 V	30 V	30 V
Rated current		4 A	4 A	1.5 A	1.5 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data					
Material contact / contact surface		CuSn / Au	CuSn / Au	CuSn / Au	CuSn / Au
Contact carrier material		PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94		HB	HB	HB	HB
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data		Ordering data				
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		6-pos.		8-pos.	
Device plug-in connectors									
Socket	A - standard	**1694363**	20	**1694376**	20	**1436534**	20	**1424237**	20
Plug	A - standard	**1694334**	20	**1694347**	20	**1436521**	20	**1424238**	20



M8 flush-type socket



M8 flush-type plug

M8, rear mounting, with 0.5 m long litz wires



3, 4-pos.

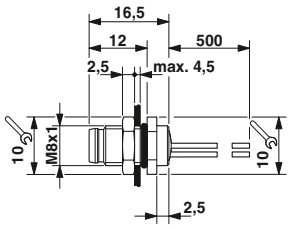


6, 8-pos.

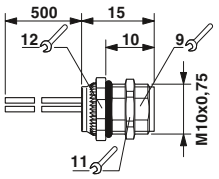
		Technical data		Technical data	
		3-pos.	4-pos.	6-pos.	8-pos.
General data					
M8 circular plug-in connector according to:		IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Pollution degree		3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67
Connection method		Individual wires	Individual wires	Individual wires	Individual wires
Electrical data					
Rated voltage		60 V	30 V	30 V	30 V
Rated current		4 A	4 A	2 A	1.5 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data					
Material contact / contact surface		Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au
Contact carrier material		PUR / PA66	PUR / PA66	PUR / PA66	PUR / PA66
Inflammability class according to UL 94		HB	HB	HB	HB
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	PVC litz wire
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-25 ... 90	-25 ... 90	-25 ... 90	-25 ... 85

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		6-pos.		8-pos.	
Flush-type plug-in connector, M8 fastening thread									
Plug	A - standard	1453478	1	1453481	1	1453494	1	1424230	1
Flush-type plug-in connector, M10 fastening thread									
Socket	A - standard	1456080	1	1456093	1	1456103	1	1424229	1
Flush-type plug-in connector, M12 fastening thread									
Socket	A - standard	1453449	1	1453452	1	1453465	1		

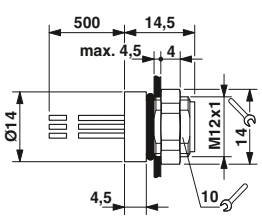
	Accessories			Accessories		
Flat nut, with: M8 thread	SACC-E-MU-M 8	1504071	100	SACC-E-MU-M 8	1504071	100



M8 flush-type plug, M8 fastening thread



M8 flush-type socket, M10 fastening thread



M8 flush-type socket, M12 fastening thread

M8, rear mounting, two-piece, for wave soldering processes, shielded



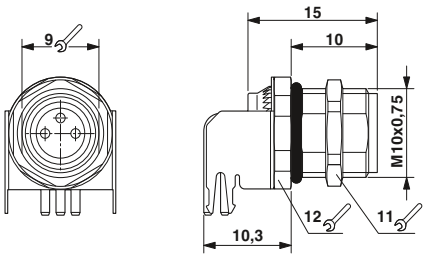
Angled, 3, 4-pos.



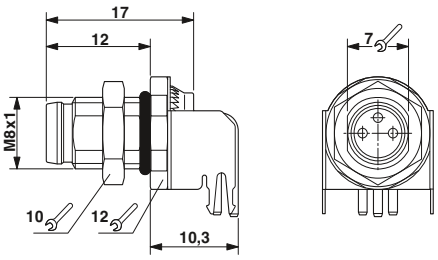
Angled, 5, 6-pos.

		Technical data		Technical data	
		3-pos.	4-pos.	5-pos.	6-pos.
General data					
M8 circular plug-in connector according to:		IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Pollution degree		3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67
Connection method		Solder pins	Solder pins	Solder pins	Solder pins
Electrical data					
Rated voltage		30 V	30 V	30 V	30 V
Rated current		4 A	4 A	3 A	1.5 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data					
Material contact / contact surface		Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au
Contact carrier material		PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94		HB	HB	HB	HB
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data			Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.			4-pos.		5-pos.		6-pos.	
Device plug-in connectors										
Socket	A - standard	**1456145**	20		**1456158**	20			**1424243**	20
Plug	A - standard	**1456035**	20		**1456048**	20			**1424244**	20
Socket	B - inverse						**1424239**	20		
Plug	B - inverse						**1424240**	20		



M8 flush-type socket, angled



M8 flush-type plug, angled

M8, rear mounting, two-piece, for wave soldering processes, shielded



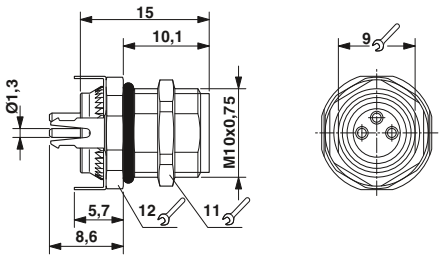
Straight, 3, 4, 5-pos.



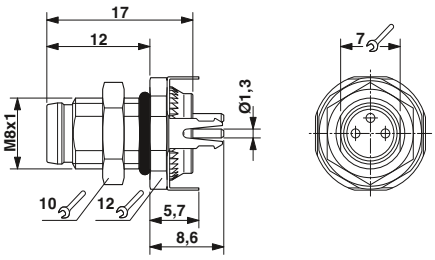
Straight, 6, 8-pos.

		Technical data			Technical data		
		3-pos.	4-pos.	5-pos.	6-pos.	8-pos.	
General data							
M8 circular plug-in connector according to:		IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data							
Rated voltage		60 V	30 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	3 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	Cu alloy / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		HB	HB	HB	HB	HB	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.		6-pos.		8-pos.			
Device plug-in connectors													
Socket	A - standard	**1456116**	20	**1456129**	20			**1456132**	20	**1424235**	20		
Plug	A - standard	**1455997**	20	**1456019**	20			**1456022**	20	**1424236**	20		
Socket	B - inverse					**1424241**	20						
Plug	B - inverse					**1424242**	20						



M8 flush-type socket, straight



M8 flush-type plug, straight,

M8, rear mounting, two-piece, for wave soldering processes, unshielded



Angled, 3, 4-pos.

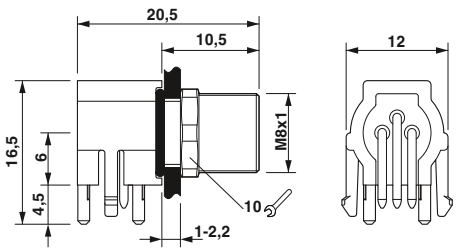


Straight, 3, 4-pos.

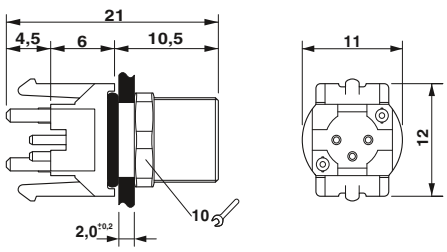
		Technical data		Technical data	
		3-pos.	4-pos.	3-pos.	4-pos.
General data					
M8 circular plug-in connector according to:		IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104	IEC 61076-2-104
Pollution degree		3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67
Connection method		Solder pins	Solder pins	Solder pins	Solder pins
Electrical data					
Rated voltage		60 V	30 V	60 V	30 V
Rated current		4 A	4 A	4 A	4 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data					
Material contact / contact surface		CuSn / Au	CuSn / Au	CuSn / Au	CuSn / Au
Contact carrier material		PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94		HB	HB	HB	HB
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data			Ordering data		
Description	Coding	Order No.	Pcs. / Pkt.		Order No.	Pcs. / Pkt.	
		3-pos.			4-pos.		
Device plug-in connectors							
Socket	A - standard	**1524788**	20		**1526169**	20	
Plug	A - standard	**1440070**	20		**1440096**	20	

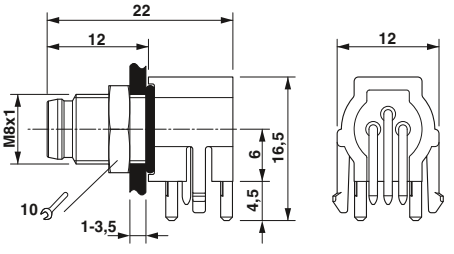
		Ordering data			Ordering data		
Description	Coding	Order No.	Pcs. / Pkt.		Order No.	Pcs. / Pkt.	
		3-pos.			4-pos.		
Device plug-in connectors							
Socket	A - standard	**1524776**	20		**1524789**	20	



M8 flush-type socket, angled



M8 flush-type socket, straight



M8 flush-type plug, angled

Pg9 fastening thread, with 0.5 m long litz wires



4, 5, 8-pos.

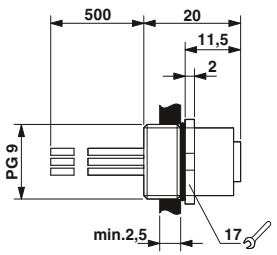


Can be positioned, 4, 5, 8-pos.

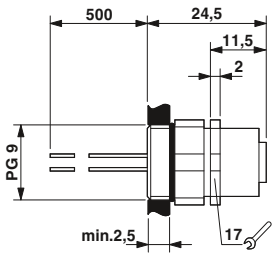
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	4-pos.	5-pos.	8-pos.
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67
Connection method	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires
Electrical data						
Rated voltage	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A	4 A	2 A	4 A	4 A	2 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data						
Material contact / contact surface	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au
Contact carrier material	PA66	PA66	PA66	PA66	PA66	PA66
Inflammability class according to UL 94	V0	V0	V0	V0	V0	V0
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		4-pos.		5-pos.		8-pos.	
Device plug-in connectors													
Socket	A - standard	**1693788**	1	**1671098**	1	**1513758**	1	**1693791**	1	**1671108**	1	**1513761**	1
Plug	A - standard	**1693762**	1	**1671111**	1	**1513774**	1	**1693775**	1	**1671124**	1	**1513787**	1
Socket	B - inverse									**1515044**	1		
Plug	B - inverse									**1515057**	1		

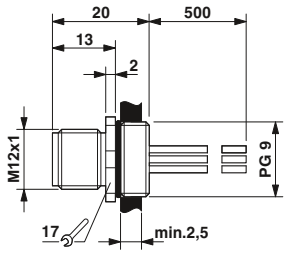
	Accessories			Accessories		
Flat nut, with:						
Pg9 thread	**SACC-E-MU-PG9**	**1504084**	100			



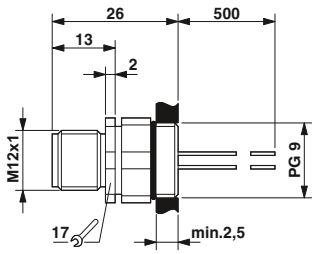
M12 flush-type socket



M12 flush-type socket, can be positioned



M12 flush-type plug



M12 flush-type plug, can be positioned

M16 fastening thread, with 0.5 m long litz wires



4, 5, 8-pos.

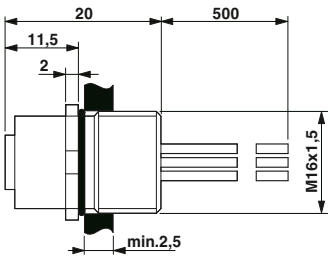


12, 17-pos.

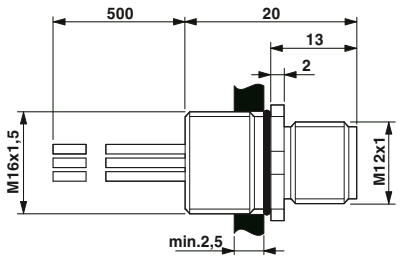
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Cable type	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data				
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1523434**	1	**1520039**	1	**1523476**	1	**1556252**	1	**1556294**	1		
Plug	A - standard	**1523450**	1	**1520055**	1	**1523492**	1	**1556265**	1	**1556304**	1		
Socket	D - data	**1535202**	1										
Plug	D - data	**1551558**	1										
Socket	B - inverse			**1520000**	1								
Plug	B - inverse			**1520013**	1								

	Accessories			Accessories		
Flat nut, with: M16 thread	**SACC-E-MU-M16**	**1504097**	100	**SACC-E-MU-M16**	**1504097**	100



M12 flush-type socket



M12 flush-type plug

M16 fastening thread, with 0.5 m long litz wires, can be positioned



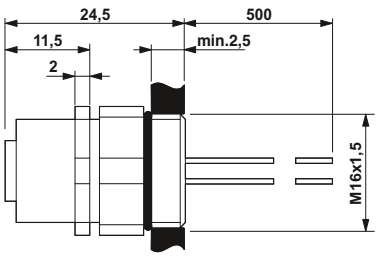
Can be positioned, 4, 5-pos.



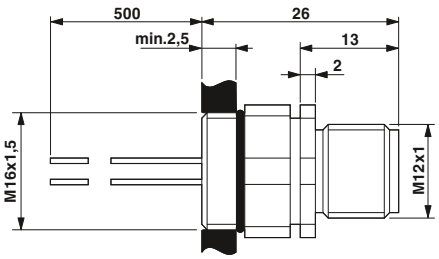
Can be positioned, 8-pos.

		Technical data		Technical data	
		4-pos.	5-pos.	8-pos.	
General data					
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	-
Degree of protection		IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	-
Electrical data					
Rated voltage		250 V	60 V	30 V	-
Rated current		4 A	4 A	2 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data					
Material contact / contact surface		CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data			Ordering data	
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.			
Device plug-in connectors									
Socket	A - standard	**1523447**	1	**1520042**	1	**1523489**	1		
Plug	A - standard	**1523463**	1	**1520068**	1	**1523502**	1		
Socket	D - data	**1535215**	1						
Plug	D - data	**1552256**	1						
Socket	B - inverse			**1519998**	1				
Plug	B - inverse			**1520026**	1				



M12 flush-type socket, can be positioned



M12 flush-type plug, can be positioned

M20 fastening thread, with 0.5 m long litz wires

N

– Housing material: brass, nickel-plated



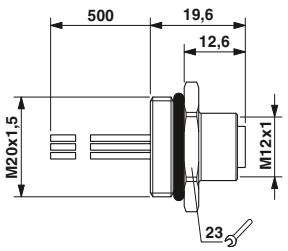
4, 5, 8-pos.

Technical data

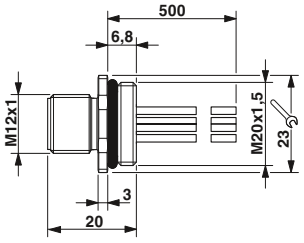
		4-pos.	5-pos.	8-pos.
General data				
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3
Degree of protection		IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method		Individual wires	Individual wires	Individual wires
Electrical data				
Rated voltage		250 V	60 V	30 V
Rated current		4 A	4 A	2 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		PA 66	PA 66	PA 66
Inflammability class according to UL 94		V0	V0	V0
Cable type		TPE litz wire	TPE litz wire	TPE litz wire
Temperature data				
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-25 ... 90	-25 ... 90	-25 ... 90

Ordering data

Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.	
Device plug-in connectors							
Socket	A - standard	**1408436**	1	**1408454**	1	**1408453**	1
Plug	A - standard	**1408451**	1	**1408446**	1	**1408442**	1



M12 flush-type socket



M12 flush-type plug

One-piece, 20 mm square flange, with 0.5 m long litz wires

– 4 x fixing hole, 3.2 mm
– With form seal for M3 screws



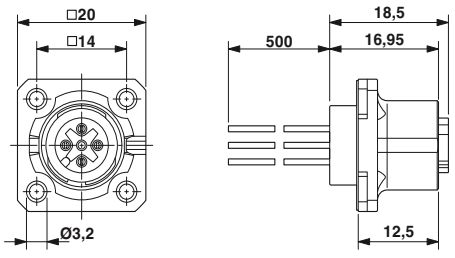
4, 5, 8-pos.



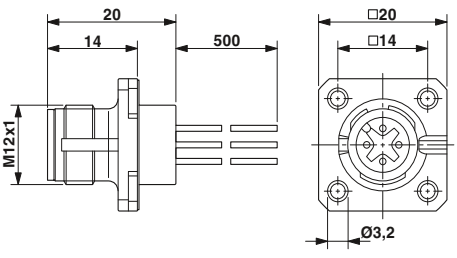
12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.	
Device plug-in connectors											
Socket	A - standard	**1419797**	1	**1441655**	1	**1441697**	1	**1441710**	1	**1441736**	1
Plug	A - standard	**1419784**	1	**1441642**	1	**1441684**	1	**1441707**	1	**1441723**	1
Socket	D - data	**1441639**	1								
Plug	D - data	**1441626**	1								
Socket	B - inverse			**1441671**	1						
Plug	B - inverse			**1441668**	1						



M12 flush-type socket, square flange



M12 flush-type plug, square flange

One-piece, 25 mm square flange, with 0.5 m long litz wires

– 4 x fixing hole, 2.7 mm
– With form seal for M2.5 screws



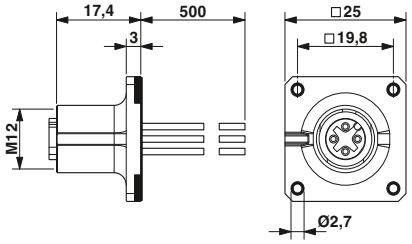
4, 5, 8-pos.



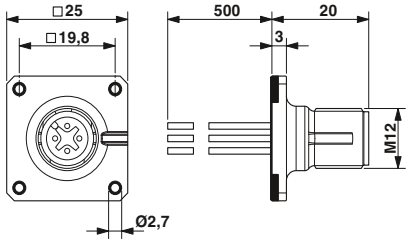
12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	CuZn / Ni/Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1420003**	1	**1440986**	1	**1441574**	1	**1441590**	1	**1441613**	1		
Plug	A - standard	**1419991**	1	**1440973**	1	**1441561**	1	**1441587**	1	**1441600**	1		
Socket	D - data	**1440960**	1										
Plug	D - data	**1440957**	1										
Socket	B - inverse			**1441558**	1								
Plug	B - inverse			**1440999**	1								



M12 flush-type socket, square flange



M12 flush-type plug, square flange

Modular, 25 mm square flange, pre-assembled



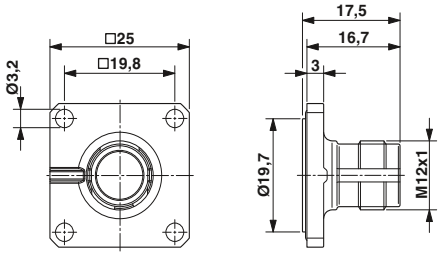
Flange housing, housing bore holes 3.2 mm



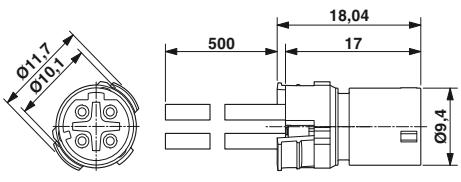
With 0.5 m long litz wires, assembled contact carrier and insulating body

		Technical data			Technical data		
					4-pos.	5-pos.	8-pos.
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	-	-	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		-	-	-	3	3	3
Degree of protection		-	-	-	IP67	IP67	IP67
Connection method		-	-	-	Crimp contacts	Crimp contacts	Crimp contacts
Electrical data							
Rated voltage		-	-	-	250 V	60 V	30 V
Rated current		-	-	-	4 A	4 A	2 A
Volume resistance		-	-	-	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data							
Material contact / contact surface		- / -	- / -	- / -	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		-	-	-	PA 66	PA 66	PA 66
Cable gland material		Zinc die-cast, nickel-plated	-	-	-	-	-
Inflammability class according to UL 94		-	-	-	V0	V0	V0
Cable type		-	-	-	TPE litz wire	TPE litz wire	TPE litz wire
Temperature data							
Plug / socket	[°C]	-25 ... 85	-	-	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-	-	-	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
								4-pos.		5-pos.		8-pos.	
Square flange housing, with O-ring		**1419959**	10										
Assembled contact carrier and insulating body, with 0.5 m litz wires and crimp contacts													
Plug	A - standard							**1440805**	1	**1440818**	1	**1457827**	1
Plug	D - data							**1440821**	1				
Plug	B - inverse									**1440759**	1		



M12 square flange housing



M12 contact carrier, with litz wires

Modular, 25 mm square flange, for free assembly



Flange housing, housing bore holes 3.2 mm

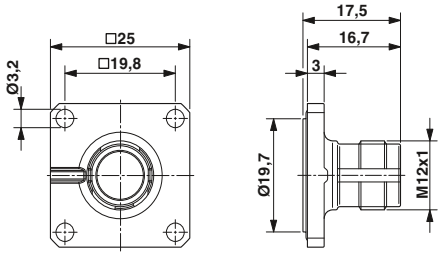


Contact carriers and insulating bodies for assembly

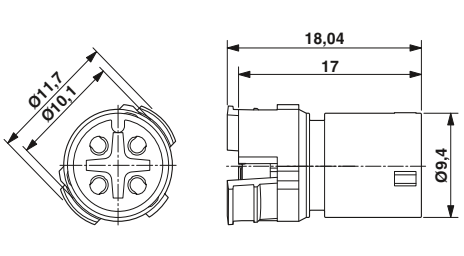
		Technical data			Technical data		
					4-pos.	5-pos.	8-pos.
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	-	-	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		-	-	-	3	3	3
Degree of protection		-	-	-	IP67	IP67	IP67
Connection method		-	-	-	Crimp contacts	Crimp contacts	Crimp contacts
Electrical data							
Rated voltage		-	-	-	250 V	60 V	30 V
Rated current		-	-	-	4 A	4 A	2 A
Volume resistance		-	-	-	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data							
Contact carrier material		-	-	-	PA 66	PA 66	PA 66
Cable gland material		Zinc die-cast, nickel-plated	-	-	-	-	-
Inflammability class according to UL 94		-	-	-	V0	V0	V0
Temperature data							
Plug / socket	[°C]	-25 ... 85	-	-	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
								4-pos.		5-pos.		8-pos.	
Square flange housing, with O-ring		**1419959**	10										
Contact carriers and insulating bodies													
Plug	A - standard							**1440931**	10	**1419988**	10	**1440928**	10
Plug	D - data							**1440944**	10				
Plug	B - inverse									**1440915**	10		
Crimp contacts, for 4 and 5-pos. contact carriers, contact material: CuZn, surface: gold-plated, connection cross section: 0.08 mm² ... 0.34 mm²													
Contact Ø: 1.0 mm								**1452356**	100	**1452356**	100		
Crimp contacts, for 8-pos. contact carriers, contact material: CuZn, surface: gold-plated, connection cross section: 0.08 mm² ... ... 0.34 mm²													
Contact Ø: 0.8 mm												**1452372**	100

	Accessories			Accessories		
Crimping pliers						
CRIMPFOX-TC MP					**1212510**	1



M12 square flange housing



M12 contact carrier

One-piece, 20 mm square flange, for wave soldering processes

– M12 PCB connector for direct soldering with integrated torsion protection and shield connection



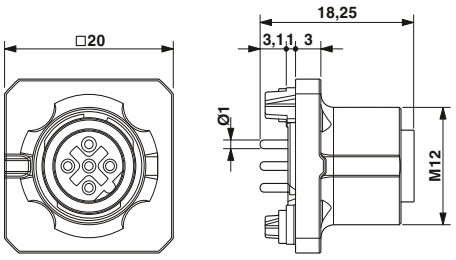
4, 5-pos.



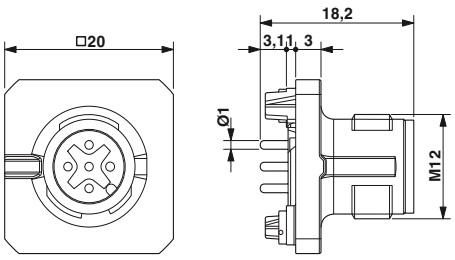
8-pos.

	Technical data		Technical data	
	4-pos.	5-pos.	8-pos.	
General data				
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	-
Degree of protection	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	-
Electrical data				
Rated voltage	250 V	60 V	30 V	-
Rated current	4 A	4 A	2 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data				
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	-
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data		Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.			
Device plug-in connectors									
Socket	A - standard	**1456420**	10	**1456446**	10	**1408573**	10		
Plug	A - standard	**1456417**	10	**1456433**	10	**1408574**	10		
Socket	D - data	**1456404**	10						
Plug	D - data	**1456394**	10						
Socket	B - inverse			**1456462**	10				
Plug	B - inverse			**1456459**	10				



M12 flush-type socket, square flange (4/5-pos. version)



M12 flush-type plug, square flange (4/5-pos. version)

Contact carrier, plastic, with solder cups or with litz wires



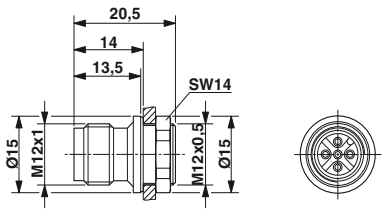
Solder connection, 5, 8-pos.



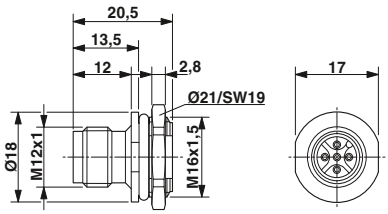
With 0.5 m long litz wires, 5, 8-pos.

		Technical data		Technical data	
		5-pos.	8-pos.	5-pos.	8-pos.
General data					
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67
Connection method		Solder cup	Solder cup	Individual wires	Individual wires
Electrical data					
Rated voltage		60 V	30 V	60 V	30 V
Rated current		4 A	2 A	4 A	2 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data					
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94		HB	HB	HB	HB
Cable type		-	-	TPE litz wire	TPE litz wire
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-	-	-25 ... 90	-25 ... 90

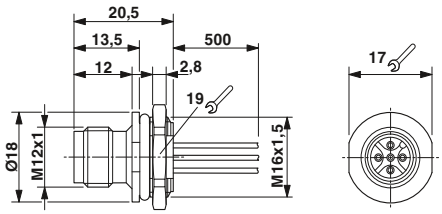
		Ordering data			Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		5-pos.		8-pos.		5-pos.		8-pos.	
Flush-type plug-in connector, M16 fastening thread									
Plug	A - standard	1436398	20	1436408	20	1436411	1	1436424	1
Flush-type plug-in connector, M12 fastening thread									
Plug	A - standard	1436437	20	1436440	20				



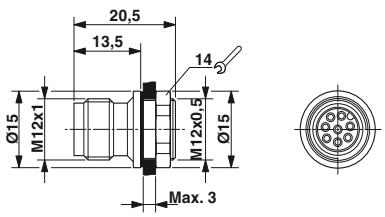
M12 pin, M12 fastening thread, solder cups



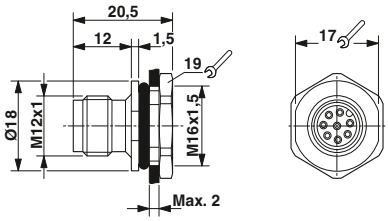
M12 pin, M16 fastening thread, solder cups



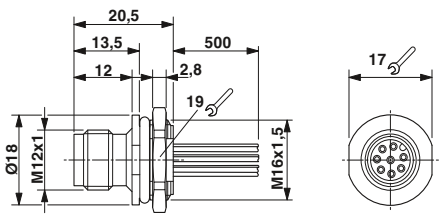
M12 pin, M16 fastening thread



M12 pin, M12 fastening thread, solder cups



M12 pin, M16 fastening thread, solder cups



M12 pin, M16 fastening thread

Pg9 fastening thread, with 0.5 m long litz wires



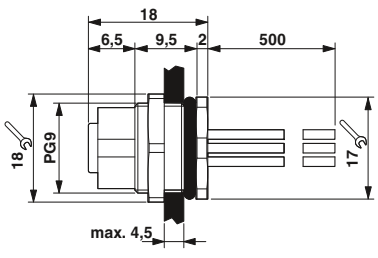
4, 5, 8-pos.



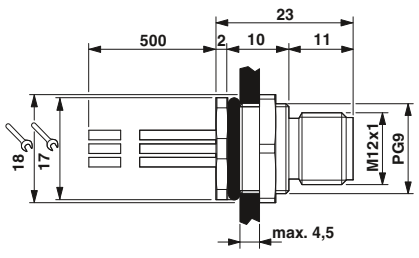
12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-
Cable, fixed installation	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1556621**	1	**1542729**	1	**1542732**	1	**1430446**	1	**1430462**	1		
Plug	A - standard	**1556618**	1	**1542703**	1	**1542716**	1	**1430459**	1	**1430475**	1		
Socket	D - data	**1551529**	1										
Plug	D - data	**1551532**	1										
Socket	B - inverse			**1543676**	1								
Plug	B - inverse			**1543663**	1								



M12 flush-type socket



M12 flush-type plug

M12 fastening thread, with 0.5 m long litz wires



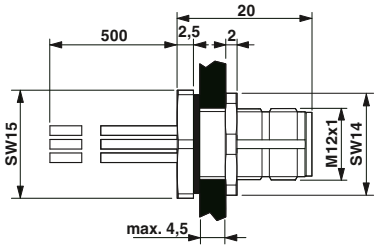
4, 5, 8-pos.



12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-
Cable, fixed installation	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Plug	A - standard	**1551875**	1	**1551888**	1	**1551914**	1	**1437122**	1	**1437135**	1		
Plug	D - data	**1551901**	1										
Plug	B - inverse			**1551891**	1								



M12 flush-type plug, M12 fastening thread

M16 fastening thread, with 0.5 m long litz wires



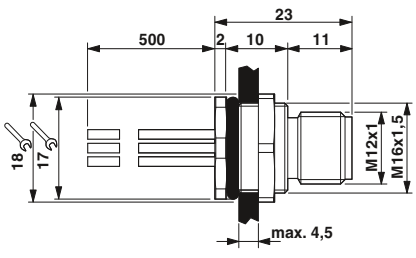
4, 5, 8-pos.



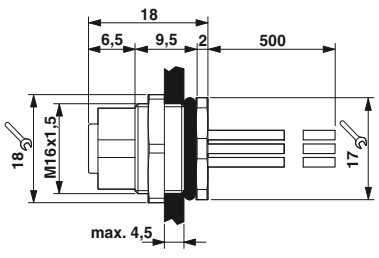
12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector According to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-
Cable, fixed installation	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data									
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1419632**	1	**1419658**	1	**1419690**	1	**1419713**	1	**1419739**	1		
Plug	A - standard	**1419629**	1	**1419645**	1	**1419687**	1	**1419700**	1	**1419726**	1		
Socket	D - data	**1419616**	1										
Plug	D - data	**1419603**	1										
Socket	B - inverse			**1419674**	1								
Plug	B - inverse			**1419661**	1								



M12 flush-type plug



M12 flush-type socket

M16 fastening thread, with assembled cable, shielded



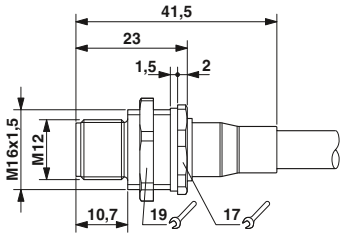
PUR cable, 4, 5, 8-pos., shielded



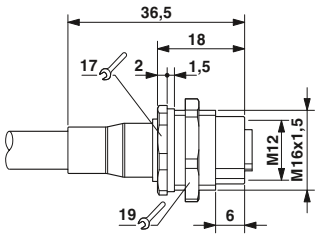
PVC cable, 12, 17-pos., shielded

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Free cable end	Free cable end	Free cable end	Free cable end	Free cable end	-
Electrical data							
Rated voltage		60 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Cable type		PUR halogen-free black	PUR halogen-free black	PUR halogen-free black	PVC black	PVC black	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-
Cable, fixed installation	[°C]	-30 ... 85	-30 ... 85	-30 ... 85	-30 ... 85	-30 ... 85	-

		Ordering data										Ordering data					
Description	Cable length	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.							
Flush-type plug-in connector, A-coded																	
Socket	1 m	**1419302**	1	**1419328**	1	**1419357**	1	**1442188**	1	**1442269**	1						
Plug	1 m	**1419399**	1	**1419409**	1	**1419425**	1	**1442227**	1	**1442308**	1						
Socket	2 m	**1419315**	1	**1419331**	1	**1419344**	1	**1442191**	1	**1442272**	1						
Plug	2 m	**1419386**	1	**1419412**	1	**1419438**	1	**1442230**	1	**1442311**	1						



M12 flush-type plug



M12 flush-type socket

Pg9 fastening thread, one-piece, for wave soldering processes



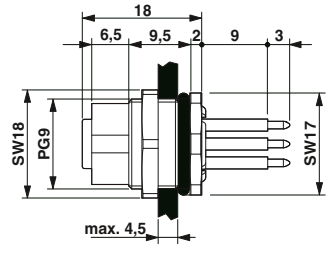
Straight, 4, 5, 8-pos.



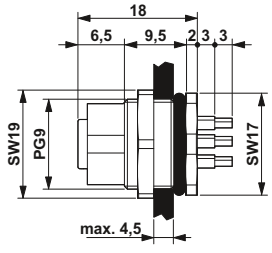
Straight, 12, 17-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree	3	3	3	3	3	-
Degree of protection	IP67	IP67	IP67	IP67	IP67	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data						
Rated voltage	250 V	60 V	30 V	30 V	30 V	-
Rated current	4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94	V0	V0	V0	V0	V0	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

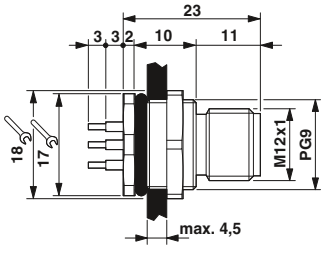
		Ordering data						Ordering data				
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connector, solder pin length: 6 mm													
Socket	A - standard	**1553462**	20	**1542761**	20	**1542774**	20	**1559929**	20	**1559958**	20		
Plug	A - standard	**1553459**	20	**1542745**	20	**1542758**	20	**1559932**	20	**1559961**	20		
Socket	D - data	**1551503**	20										
Plug	D - data	**1551516**	20										
Socket	B - inverse			**1543650**	20								
Plug	B - inverse			**1543647**	20								
Device plug-in connector, solder pin length: 12 mm													
Socket	A - standard			**1552285**	20	**1408770**	20						
Plug	A - standard			**1552311**	20								
Socket	D - data	**1552272**	20										
Plug	D - data	**1552308**	20										
Socket	B - inverse			**1552298**	20								
Plug	B - inverse			**1552324**	20								



M12 flush-type socket, contact length: 12 mm



M12 flush-type socket, contact length: 6 mm



M12 flush-type plug, contact length: 6 mm

Pg9 fastening thread, one-piece, for wave soldering processes, shielded

PROFINET

SPEEDCON LOCKING

Ethernet

SPEEDCON LOCKING



Straight, 4, 5, 8-pos.

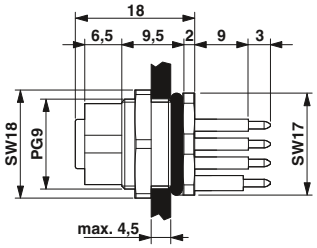


Straight, 12, 17-pos.

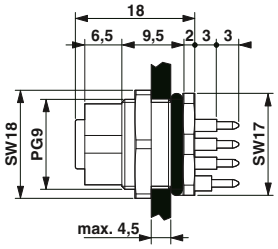
		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connector, solder pin length: 6 mm													
Socket	A - standard	**1556841**	20	**1553019**	20	**1553860**	20	**1436770**	20	**1436806**	20		
Plug	A - standard			**1553048**	20	**1553873**	20	**1436783**	20	**1436819**	20		
Socket	D - data	**1553006**	20										
Plug	D - data	**1553035**	20										
Socket	B - inverse			**1553022**	20								
Plug	B - inverse			**1553051**	20								
Device plug-in connector, solder pin length: 12 mm													
Socket	A - standard	**1558522**	20	**1558548**	20	**1408771**	20						
Plug	A - standard	**1558535**	20	**1558551**	20								
Socket	D - data	**1558506**	20										
Plug	D - data	**1558519**	20										
Socket	B - inverse			**1558564**	20								
Plug	B - inverse			**1558577**	20								

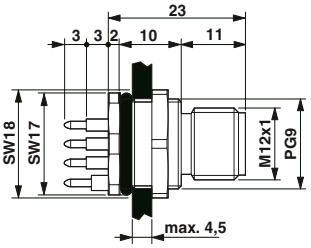
	Accessories			Accessories		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with: **Pg9** fastening thread	**SACC-PG9-KD-NUT-SH**	**1440177**	10	**SACC-PG9-KD-NUT-SH**	**1440177**	10



M12 flush-type socket, contact length: 12 mm



M12 flush-type socket, contact length: 6 mm



M12 flush-type plug, contact length: 6 mm

M12 fastening thread, one-piece, for wave soldering processes



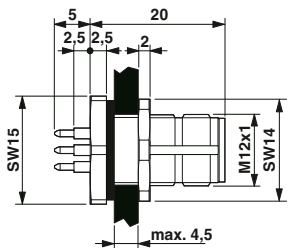
Straight, 4, 5, 8-pos.



Straight, 12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data									
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Plug	A - standard	**1551820**	20	**1551833**	20	**1551862**	20	**1559945**	20	**1559974**	20		
Plug	D - data	**1551859**	20										
Plug	B - inverse			**1551846**	20								



M12 flush-type plug

M12 fastening thread, one-piece, for wave soldering processes, shielded



Straight, 4, 5, 8-pos.

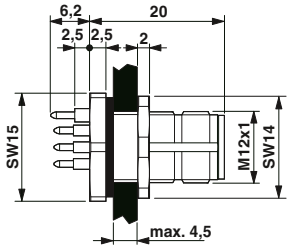


Straight, 12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Plug	A - standard	**1552955**	20	**1552968**	20	**1552997**	20	**1437106**	20	**1437119**	20		
Plug	D - data	**1552984**	20										
Plug	B - inverse			**1552971**	20								

	Accessories			Accessories		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with: **M12** fastening thread	**SACC-M12-KD-NUT-SH**	**1440151**	10	**SACC-M12-KD-NUT-SH**	**1440151**	10



M12 flush-type plug

M16 fastening thread, one-piece, for wave soldering processes



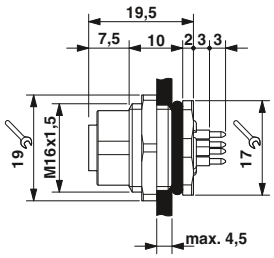
Straight, 4, 5, 8-pos.



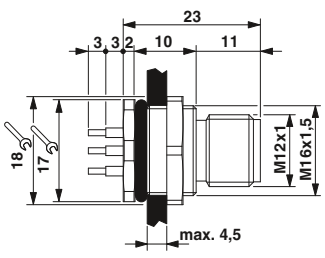
Straight, 12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data		Ordering data							
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1419755**	20	**1441778**	20	**1441817**	20	**1441833**	20	**1441859**	20		
Plug	A - standard	**1419742**	20	**1441765**	20	**1441804**	20	**1441820**	20	**1441846**	20		
Socket	D - data	**1441752**	20										
Plug	D - data	**1441749**	20										
Socket	B - inverse			**1441794**	20								
Plug	B - inverse			**1441781**	20								



M12 flush-type socket



M12 flush-type plug

M16 fastening thread, one-piece, for wave soldering processes, shielded



Straight, 4, 5, 8-pos.

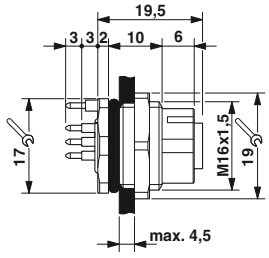


Straight, 12, 17-pos.

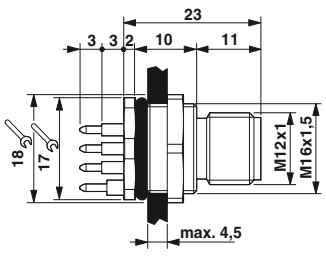
		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	PA 66	PA 66	PA 66	PA 66	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1419771**	20	**1441891**	20	**1441930**	20	**1441956**	20	**1441972**	20		
Plug	A - standard	**1419768**	20	**1441888**	20	**1441927**	20	**1441943**	20	**1441969**	20		
Socket	D - data	**1441875**	20										
Plug	D - data	**1441862**	20										
Socket	B - inverse			**1441914**	20								
Plug	B - inverse			**1441901**	20								

	Accessories			Accessories		
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with: **M16** fastening thread	**SACC-M16-KD-NUT-SH**	**1440164**	10	**SACC-M16-KD-NUT-SH**	**1440164**	10



M12 flush-type socket



M12 flush-type plug

Contact carrier, two-piece, angled, for wave soldering processes



Angled, 4, 5, 8-pos.

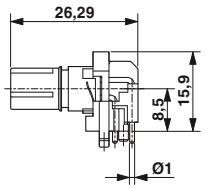


Angled, shielded, 4, 5, 8-pos.

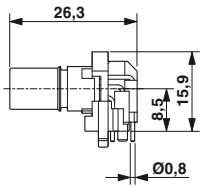
	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	4-pos.	5-pos.	8-pos.
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67	IP67	IP67
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data						
Rated voltage	250 V	60 V	30 V	250 V	60 V	30 V
Rated current	4 A	4 A	2 A	4 A	4 A	2 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA 66	PA 66	PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94	V0	V0	V0	V0	V0	V0
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		4-pos.		5-pos.		8-pos.	
Contact carrier													
Socket	A - standard	**1436628**	20	**1436644**	20	**1436990**	20	**1432444**	20	**1432431**	20	**1437009**	20
Plug	A - standard	**1436660**	20	**1436686**	20	**1436987**	20	**1439887**	20	**1439890**	20	**1437038**	20
Socket	D - data							**1432457**	20				
Plug	D - data							**1436673**	20				
Socket	B - inverse									**1432512**	20		
Plug	B - inverse									**1436699**	20		

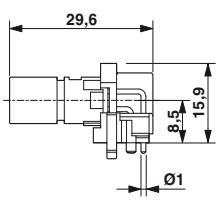
Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards
	See page 258 onwards



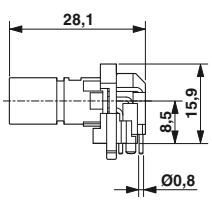
M12 socket contact carrier, angled, 4, 5-pos.



M12 socket contact carrier, angled, 8-pos.



M12 pin contact carrier, angled, 4, 5-pos.



M12 pin contact carrier, angled, 8-pos.

Contact carrier, two-piece, angled, for wave soldering processes



Angled, 12, 17-pos.

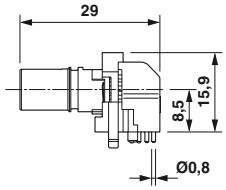


Angled, shielded, 12, 17-pos.

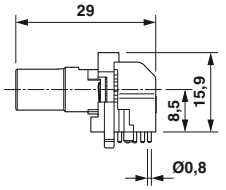
		Technical data			Technical data		
		12-pos.	17-pos.		12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	-	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	-	3	3	-
Degree of protection		IP67	IP67	-	IP67	IP67	-
Connection method		Solder pins	Solder pins	-	Solder pins	Solder pins	-
Electrical data							
Rated voltage		30 V	30 V	-	30 V	30 V	-
Rated current		1.5 A	1.5 A	-	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	-	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	- / -	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA6T	PA6T	-	PA6T	PA6T	-
Inflammability class according to UL 94		V0	V0	-	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		12-pos.		17-pos.				12-pos.		17-pos.			
Device plug-in connectors													
Socket	A - standard	**1424195**	20	**1424197**	20			**1424199**	20	**1424201**	20		
Plug	A - standard	**1424194**	20	**1424196**	20			**1424198**	20	**1424200**	20		

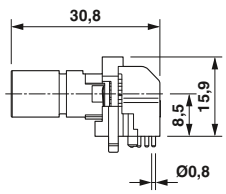
	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards



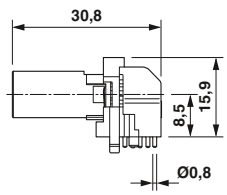
M12 socket contact carrier, angled, 12-pos.



M12 socket contact carrier, angled, 17-pos.



M12 pin contact carrier, angled, 12-pos.



M12 pin contact carrier, angled, 17-pos.

Contact carrier, two-piece, for wave soldering processes



Straight, 5-pos.

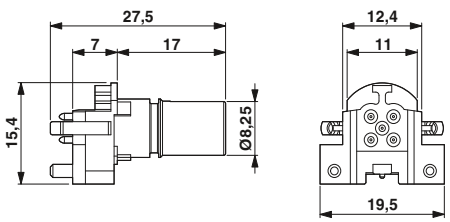


Straight, shielded, 4, 5-pos.

		Technical data			Technical data		
		5-pos.			4-pos.	5-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	-	-	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	-	-	3	3	-
Degree of protection		IP67	-	-	IP67	IP67	-
Connection method		Solder pins	-	-	Solder pins	Solder pins	-
Electrical data							
Rated voltage		60 V	-	-	250 V	60 V	-
Rated current		4 A	-	-	4 A	4 A	-
Volume resistance		≤ 3 mΩ	-	-	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	- / -	- / -	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PA 66	-	-	PA 66	PA 66	-
Inflammability class according to UL 94		V0	-	-	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-	-	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		5-pos.						4-pos.		5-pos.			
Contact carrier													
Socket	A - standard	**1551464**	20										
Socket	D - data							**1551480**	20				
Socket	B - inverse									**1551477**	20		

Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards
	See page 258 onwards



M12 socket contact carrier, straight, 4, 5-pos.

Two-piece, for reflow processes, tray packaging, tape-on-reel packing



Straight, 4, 5, 8-pos.

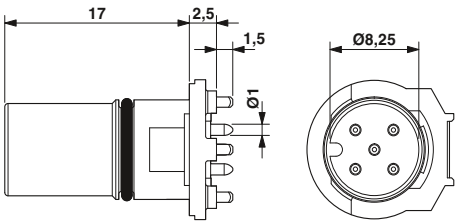


Straight, 12, 17-pos.

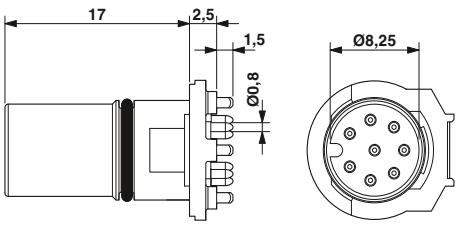
		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		THR solder connection	THR solder connection	THR solder connection	THR solder connection	THR solder connection	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PPA	PPA	PPA	PPA	PPA	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data				
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Contact carrier, tray packaging													
Socket	A - standard	**1439942**	60	**1551448**	60	**1557808**	60	**1441970**	60	**1441998**	60		
Plug	A - standard	**1437164**	60	**1552227**	60	**1552269**	60	**1441985**	60	**1442007**	60		
Contact carrier, tape-on-reel packing with assembly pad													
Socket	A - standard	**1457610**	100	**1457649**	100	**1457678**	100	**1457694**	100	**1457717**	100		
Plug	A - standard	**1457490**	100	**1457526**	100	**1457555**	100	**1457571**	100	**1457597**	100		

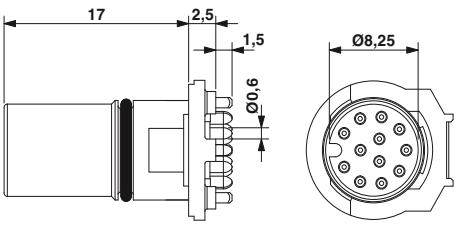
	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards



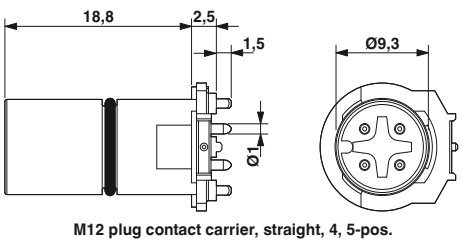
M12 socket contact carrier, straight, 4, 5-pos.



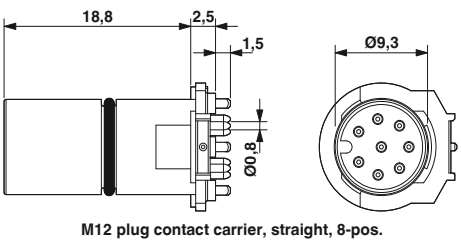
M12 socket contact carrier, straight, 8-pos.



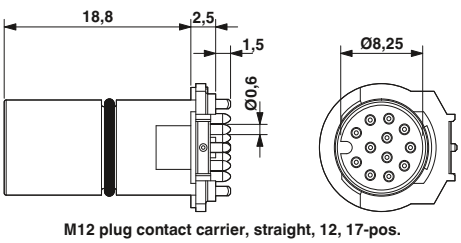
M12 socket contact carrier, straight, 12, 17-pos.



M12 plug contact carrier, straight, 4, 5-pos.



M12 plug contact carrier, straight, 8-pos.



M12 plug contact carrier, straight, 12, 17-pos.

Two-piece, for reflow processes, shielded, tray packaging, tape-on-reel packing



Straight, 4, 5, 8-pos.



Straight, 12, 17-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	12-pos.	17-pos.	
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-
Pollution degree		3	3	3	3	3	-
Degree of protection		IP67	IP67	IP67	IP67	IP67	-
Connection method		THR solder connection	THR solder connection	THR solder connection	THR solder connection	THR solder connection	-
Electrical data							
Rated voltage		250 V	60 V	30 V	30 V	30 V	-
Rated current		4 A	4 A	2 A	1.5 A	1.5 A	-
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PPA	PPA	PPA	PPA	PPA	-
Inflammability class according to UL 94		V0	V0	V0	V0	V0	-
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		12-pos.		17-pos.			
Contact carrier, tray packaging													
Socket	A - standard	**1439955**	60	**1432363**	60	**1551422**	60	**1442052**	60	**1442078**	60		
Plug	A - standard	**1439939**	60	**1432350**	60	**1557581**	60	**1442065**	60	**1442081**	60		
Socket	D - data	**1551451**	60										
Plug	D - data	**1552214**	60										
Socket	B - inverse			**1551435**	60								
Plug	B - inverse			**1552230**	60								
Contact carrier, tape-on-reel packing with assembly pad													
Socket	A - standard	**1457623**	100	**1457652**	100	**1457681**	100	**1457704**	100	**1457720**	100		
Plug	A - standard	**1457500**	100	**1457539**	100	**1457568**	100	**1457584**	100	**1457607**	100		
Socket	D - data	**1457636**	100										
Plug	D - data	**1457513**	100										
Socket	B - inverse			**1457665**	100								
Plug	B - inverse			**1457542**	100								

	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards

Housing screw connections, screw versions

– For two-piece M12 device plug-in connectors



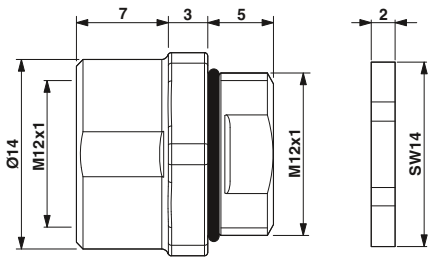
With O-ring



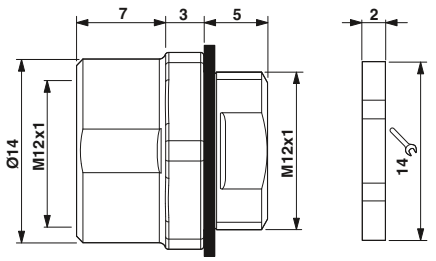
With flat gasket

	Technical data	Technical data
Material data		
Material	Zinc die-cast (nickel-plated)	Zinc die-cast (nickel-plated)
Temperature data		
Ambient temperature (operation)	-25 °C ... 85 °C	-25 °C ... 85 °C

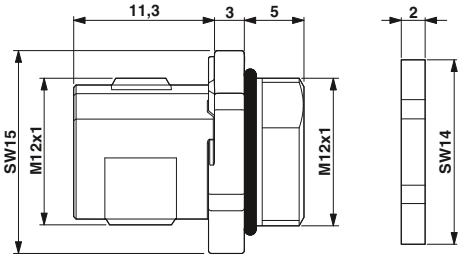
	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Housing screw connections, SPEEDCON screw versions for all two-piece THR and wave soldering contact carriers						
Socket	**SACC-M12-SCO NUT**	**1552243**	60	**SACC-M12-SCO NUT L 90**	**1432460**	10
Plug	**SACC-M12-SCO PLUG**	**1551493**	60	**SACC-M12-SCO PLUG L90**	**1436709**	10



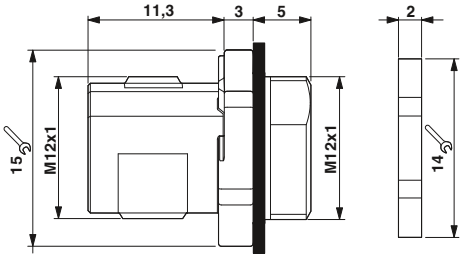
Socket housing screw connection, with O-ring



Socket housing screw connection, with flat gasket



Pin housing screw connection, with O-ring



Pin housing screw connection, with flat gasket

Housing screw connections, press-in versions

– For two-piece M12 device plug-in connectors



M12 socket



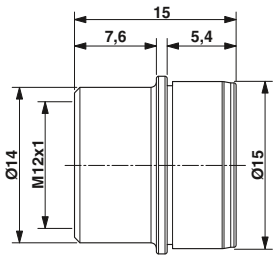
M12 pin

	Technical data
Material data	
Material	CuZn (nickel-plated)
Temperature data	
Ambient temperature (operation)	-25 °C ... 85 °C

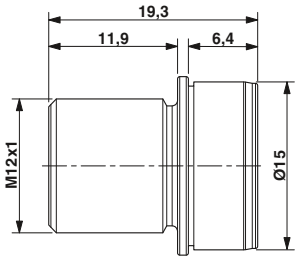
	Technical data
CuZn (nickel-plated)	
-25 °C ... 85 °C	

	Ordering data		
Description	Type	Order No.	Pcs. / Pkt.
Housing screw connection, for all two-piece THR and wave soldering contact carriers Socket	**SACC-M12 NUT PRESS**	**1437889**	10
Plug			

	Ordering data		
	Type	Order No.	Pcs. / Pkt.
	SACC-M12 PLUG PRESS	**1437892**	10



Socket housing screw connection



Pin housing screw connection

M12 flush-type plug-in connector, solder connection



CAT6$_A$, X-coded



CAT5/CAT5e

	Technical data		Technical data	
	SACC-DSI-...-L180-10G SCO		SACC-DSI-...4CON-L180/...	SACC-DSI-...8CON-L180/...
Electrical data				
Nominal voltage U_N	48 V		250 V	30 V
Rated current	0.5 A		4 A	2 A
Transmission characteristics (category)	CAT6$_A$		CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn		CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated		Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0		V0	V0
No. of pos.	8		4	8
Insertion/withdrawal cycles	≥ 100		≥ 100	≥ 100
Temperature data				
Plug / socket [°C]	-40 ... 85		-25 ... 85	-25 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Flush-type plug-in connector, CAT6$_A$, Ethernet, 8-pos., M12 SPEEDCON, rear/screw mounting with Pg9 thread, with straight solder connection						
Socket	**SACC-DSIV-FS-8CON-L180-10G SCO**	**1440669**	20			
Contact carrier, CAT6$_A$, Ethernet, 8-pos., rear mounting, with straight solder connection						
Socket	**SACC-CI-M12FS-8CON-L180-10G**	**1402457**	20			
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers						
Socket	**SACC-M12-SCO NUT L 90**	**1432460**	10			
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M16 thread, with straight solder connection						
Socket				**SACC-DSI-FSD-4CON-L180/SH TQ**	**1456527**	20
Plug				**SACC-DSI-MSD-4CON-L180/SH TQ**	**1456514**	20
Flush-type plug-in connector, Ethernet, **8-pos.,** M12 SPEEDCON, with shield contact, rear/screw mounting with M16 thread, with polarity protection, with straight solder connection						
Socket				**SACC-DSI-FS-8CON-L180/SH TQ**	**1456543**	20
Plug				**SACC-DSI-MS-8CON-L180/SH TQ**	**1456530**	20
Flush-type plug-in connector, PROFINET, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M16 thread, with straight solder connection						
Socket				**SACC-DSI-FSD-4CON-L180/SH GN**	**1456569**	20
Plug				**SACC-DSI-MSD-4CON-L180/SH GN**	**1456556**	20
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with angled solder connection						
				SACC-DSIV-FSD-4CON-L90 SCO	**1436550**	10
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with polarity protection, with straight solder connection						
Socket				**SACC-DSIV-FSD-4CON-L180 SCO**	**1542619**	10
Flush-type plug-in connector, Ethernet, **8-pos.,** M12 SPEEDCON, with shield contact, A-coded, rear/screw mounting with M12 thread, with straight THR solder connection						
Socket				**SACC-DSIV-FS-8CON-L180-THR SH**	**1557549**	60
Flush-type plug-in connector, Ethernet, **4-pos.,** M12 SPEEDCON, with shield contact, D-coded, rear/screw mounting with M12 thread, with polarity protection, with straight THR solder connection						
Socket				**SACC-DSIV-FSD-4CON-L180 SCOTHR**	**1542648**	60

M12 flush-type plug-in connector, solder connection



CAT6$_A$, X-coded

Ethernet



CAT5e, Y-coded

	Technical data	Technical data
	SACC-DSI-FSX-8CON...	VS-08-DSIV-L180-HYB SCO
Electrical data		
Nominal voltage U_N	48 V	30 V (Data)
Rated current	0.5 A	0.5 A (Data) / 6 A (Power)
Transmission characteristics (category)	CAT6$_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Contact material	CuZn	CuZn
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	V0
No. of pos.	8	8
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Flush-type socket, CAT6$_A$, Ethernet, one-piece, 8-pos., M12 SPEEDCON, with straight solder connection, rear/screw mounting with:						
M16 fastening thread	**SACC-DSI-FSX-8CON-M16-L180 SCO**	**1424177**	20			
Pg9 fastening thread	**SACC-DSI-FSX-8CON-PG9-L180 SCO**	**1404741**	20			
Hybrid flush-type plug-in connector for the reflow soldering process, with straight solder connection, 4 x power contacts, 4 x signal contacts, rear mounting, SPEEDCON						
Socket				**VS-08-DSIV-L180-HYB SCO**	**1456666**	20
Hybrid flush-type plug-in connector for the wave soldering process, with straight solder connection, 4 x power contacts, 4 x signal contacts, rear mounting, SPEEDCON						
Socket				**SACC-DSI-FSY-8CON-M16-L180 SCO**	**1407503**	20
Contact carrier, two-piece, CAT6$_A$, Ethernet, 8-pos., rear mounting, with angled solder connection						
	SACC-CI-M12FSX-8CON-L90	**1424180**	20			
Hybrid contact carrier, **two-piece**, Ethernet, 8-pos., rear/screw mounting, with angled solder connection						
				SACC-CI-M12FSY-8CON-L90	**1424193**	20

	Accessories	Accessories
Housing screw connection, SPEEDCON, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards

M12, two-piece, for wave soldering processes

Ethernet



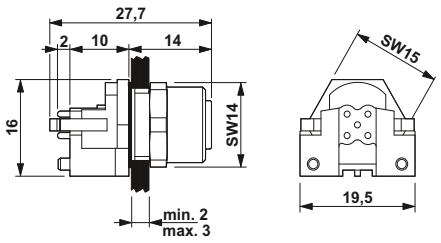
Straight, 4, 5, 8-pos.



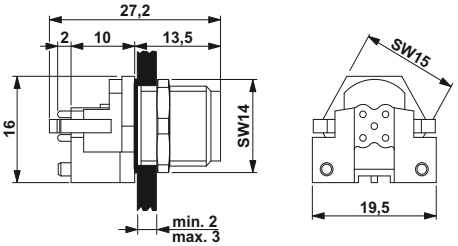
Straight, shielded, 5-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	5-pos.		
General data						
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	-	-
Pollution degree	3	3	3	3	-	-
Degree of protection	IP67	IP67	IP67	IP67	-	-
Connection method	Solder pins	Solder pins	Solder pins	Solder pins	-	-
Electrical data						
Rated voltage	250 V	60 V	30 V	60 V	-	-
Rated current	4 A	4 A	2 A	4 A	-	-
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	-	-
Material data						
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	- / -	- / -
Contact carrier material	PA 66	PA 66	PA 66	PA 66	-	-
Inflammability class according to UL 94	HB	HB	HB	HB	-	-
Temperature data						
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-	-

		Ordering data						Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		5-pos.			
Flush-type plug-in connector, straight											
Socket	A - standard			**1694237**	10	**1556854**	10				
Plug	A - standard			**1694211**	10			**1437193**	10		
Socket	D - data	**1534627**	10								
Socket	B - inverse			**1515934**	10			**1437180**	10		
Plug	B - inverse			**1514883**	10			**1437203**	10		



M12 flush-type socket, straight,



M12 flush-type plug, straight,

Pg9 fastening thread, plastic



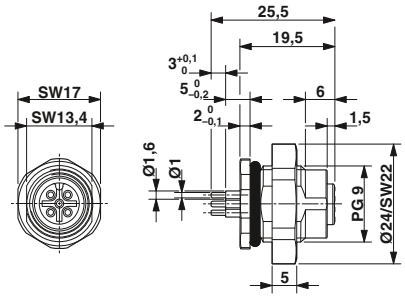
Solder connection, 5, 8-pos.



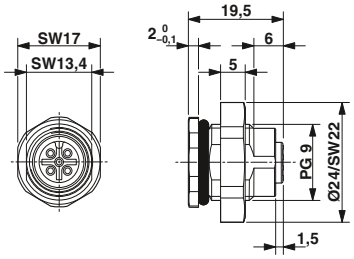
With 0.5 m long litz wires, 5, 8-pos.

		Technical data		Technical data	
		5-pos.	8-pos.	5-pos.	8-pos.
General data					
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67
Electrical data					
Rated voltage		60 V	30 V	60 V	30 V
Rated current		4 A	2 A	4 A	2 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data					
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		PA 66	PA 66	PA 66	PA 66
Inflammability class according to UL 94		HB	HB	HB	HB
Temperature data					
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-	-	-25 ... 85	-25 ... 85

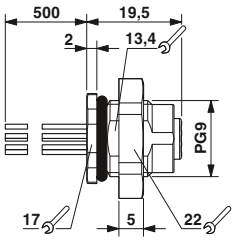
		Ordering data			Ordering data		
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		5-pos.		8-pos.		5-pos.		8-pos.	
Flush-type plug-in connector, with solder pins									
Socket	A - standard	**1436330**	20	**1436343**	20				
Flush-type plug-in connector, with solder cups									
Socket	A - standard	**1436314**	20	**1436327**	20				
Flush-type plug-in connector, with litz wires									
Socket	A - standard					**1436356**	1	**1436369**	1



M12, Pg9 fastening thread, solder pins



M12 socket, Pg9 fastening thread, solder cups



M12 socket, Pg9 fastening thread, with litz wires

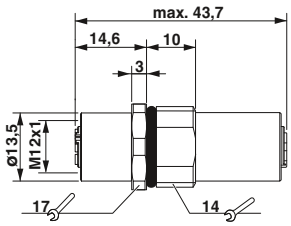
Control cabinet feed-through



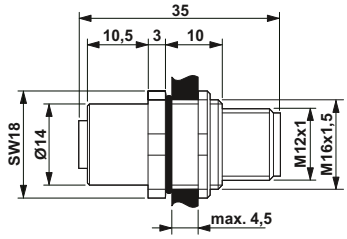
4, 5, 8-pos.

		Technical data		
		4-pos.	**5-pos.**	**8-pos.**
General data				
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3
Degree of protection		IP67	IP67	IP67
Electrical data				
Rated voltage		60 V	24 V	24 V
Rated current		4 A	4 A	1.5 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Contact material		CuZn	CuZn	CuZn
Contact surface material		Au	Au	Au
Contact carrier material		PA 66	PA 66	PA 66
Inflammability class according to UL 94		HB	HB	HB
Temperature data				
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85

		Ordering data					
Description	Coding	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
		4-pos.		**5-pos.**		**8-pos.**	
Control cabinet feed-through, M16 fastening thread							
Plug on socket	A - standard			**1551671**	1	**1551697**	1
Plug on socket	B - inverse			**1551684**	1		
Socket to socket	D - data	**1424326**	1				



Control cabinet feed-through, socket to socket on both sides



Control cabinet feed-through, socket to pin on both sides

Front mounting, Pg13.5 fastening thread, with 0.5 m long litz wires

Notes:

Flat nut recommended for housing wall thicknesses < 2.5 mm.



3, 4-pos.

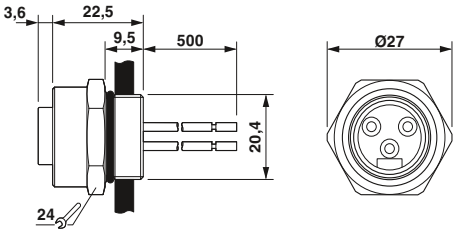


5-pos.

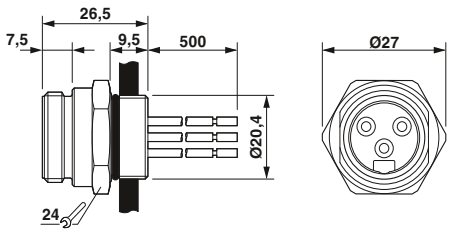
		Technical data		Technical data	
		3-pos.	4-pos.	5-pos.	
General data					
Pollution degree		3	3	3	-
Degree of protection		IP67	IP67	IP67	-
Connection method		Individual wires	Individual wires	Individual wires	-
Electrical data					
Rated voltage		250 V	250 V	250 V	-
Rated current		12 A	9 A	9 A	-
Volume resistance		≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	-
Surge voltage category		II	II	II	-
Material data					
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	- / -
Contact carrier material		PUR	PUR	PUR	-
Inflammability class according to UL 94		HB	HB	HB	-
Cable type		PVC litz wire	PVC litz wire	PVC litz wire	-
Temperature data					
Plug / socket	[°C]	-40 ... 85	-40 ... 85	-40 ... 85	-
Cable, fixed installation	[°C]	-40 ... 85	-40 ... 85	-40 ... 85	-

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.			
Device plug-in connectors									
Socket	A - standard	**1521407**	1	**1521423**	1	**1521449**	1		
Plug	A - standard	**1521410**	1	**1521436**	1	**1521452**	1		

	Accessories			Accessories		
Flat nut, with: Pg13.5 thread	**SACC-E-MU-PG13,5**	**1539143**	100	**SACC-E-MU-PG13,5**	**1539143**	100



7/8" flush-type socket



7/8" flush-type plug

7/8" sensor/actuator device plug-in connectors, rear mounting

7/8", with 1.0 m long litz wires



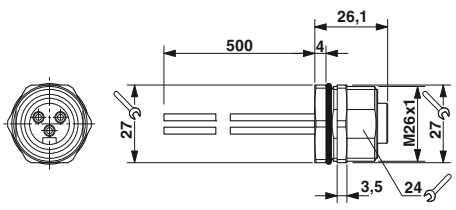
3, 4, 5-pos.



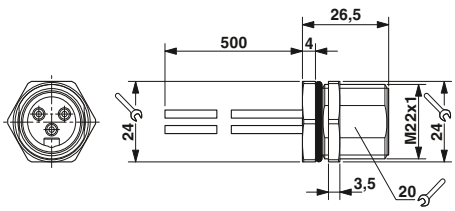
3, 4, 5-pos.

		Technical data			Technical data		
		3-pos.	4-pos.	5-pos.	3-pos.	4-pos.	5-pos.
General data							
Pollution degree		3	3	3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67	IP67	IP67
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires
Electrical data							
Rated voltage		250 V	250 V	250 V	250 V	250 V	250 V
Rated current		12 A	9 A	9 A	12 A	9 A	9 A
Volume resistance		≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Surge voltage category		II	II	II	II	II	II
Material data							
Contact material		CuZn	CuZn	CuZn	CuZn	CuZn	CuZn
Contact surface material		Au	Au	Au	Au	Au	Au
Contact carrier material		PUR	PUR	PUR	PUR	PUR	PUR
Inflammability class according to UL 94		HB	HB	HB	HB	HB	HB
Temperature data							
Plug / socket	[°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85
Cable, fixed installation	[°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85

	Ordering data						Ordering data					
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		5-pos.		3-pos.		4-pos.		5-pos.	
Flush-type plug-in connector, M26 fastening thread												
Socket	**1453782**	1	**1453795**	1	**1453805**	1						
Flush-type plug-in connector, 7/8" fastening thread												
Plug							**1453753**	1	**1453766**	1	**1453799**	1



7/8" flush-type socket



7/8" flush-type plug

7/8" rear mounting, for wave soldering processes



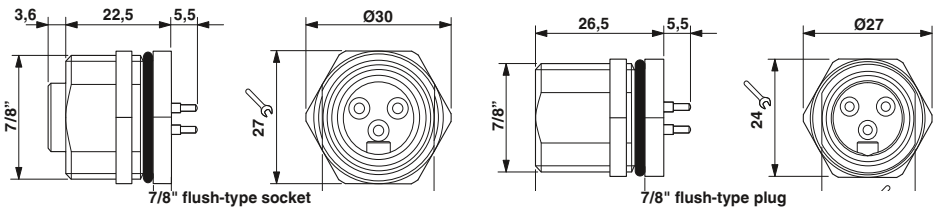
3, 4, 5-pos.



3, 4, 5-pos.

		Technical data			Technical data		
		3-pos.	4-pos.	5-pos.	3-pos.	4-pos.	5-pos.
General data							
Pollution degree		3	3	3	3	3	3
Degree of protection		IP67	IP67	IP67	IP67	IP67	IP67
Connection method		Solder pins	Solder pins	Solder pins	Solder pins	Solder pins	Solder pins
Electrical data							
Rated voltage		250 V	250 V	250 V	250 V	250 V	250 V
Rated current		12 A	9 A	9 A	12 A	9 A	9 A
Volume resistance		≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ	≤ 5 mΩ
Surge voltage category		II	II	II	II	II	II
Material data							
Contact material		CuZn	CuZn	CuZn	CuZn	CuZn	CuZn
Contact surface material		Au	Au	Au	Au	Au	Au
Contact carrier material		PUR	PUR	PUR	PUR	PUR	PUR
Inflammability class according to UL 94		HB	HB	HB	HB	HB	HB
Temperature data							
Plug / socket	[°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3-pos.		4-pos.		5-pos.		3-pos.		4-pos.		5-pos.	
Flush-type plug-in connector, M26 fastening thread													
Socket	A - standard	**1457830**	1	**1457843**	1	**1457775**	1						
Flush-type plug-in connector, 7/8" fastening thread													
Plug	A - standard							**1455007**	1	**1455010**	1	**1457487**	1



7/8" flush-type socket

7/8" flush-type plug

Front mounting, Pg9/M16 fastening thread, with 0.5 m long litz wires

– Housing material, stainless steel 1.4404



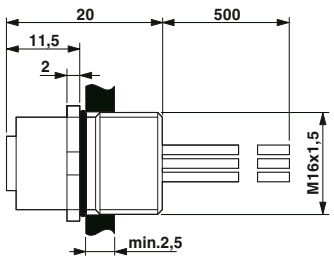
4, 5, 8-pos.



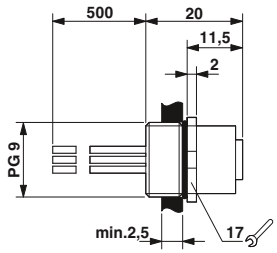
Can be positioned, 4, 5, 8-pos.

		Technical data			Technical data		
		4-pos.	5-pos.	8-pos.	4-pos.	5-pos.	8-pos.
General data							
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3	3	3	3
Degree of protection		IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method		Individual wires	Individual wires	Individual wires	Individual wires	Individual wires	Individual wires
Electrical data							
Rated voltage		250 V	60 V	30 V	250 V	60 V	30 V
Rated current		4 A	4 A	2 A	4 A	4 A	2 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data							
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		PA66 GF	PA66 GF	PA66 GF	PA66 GF	PA66 GF	PA66 GF
Inflammability class according to UL 94		V0	V0	V0	V0	V0	V0
Cable type		TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire	TPE litz wire
Temperature data							
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85

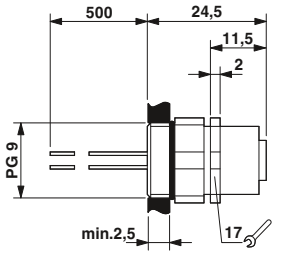
		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		4-pos.		5-pos.		8-pos.	
Device plug-in connector, Pg9 fastening thread													
Socket	A - standard	**1555448**	1	**1699863**	1	**1554607**	1	**1554649**	1	**1554652**	1	**1554665**	1
Plug	A - standard	**1554555**	1	**1554568**	1	**1554571**	1	**1554610**	1	**1554623**	1	**1554636**	1
Device plug-in connector, M16 fastening thread													
Socket	A - standard	**1458855**	1	**1458871**	1	**1458842**	1						
Plug	A - standard	**1405233**	1	**1458868**	1	**1405221**	1						



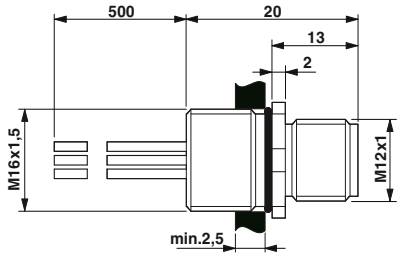
M12 flush-type socket



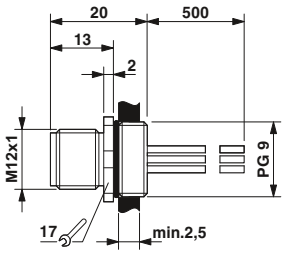
M12 flush-type socket



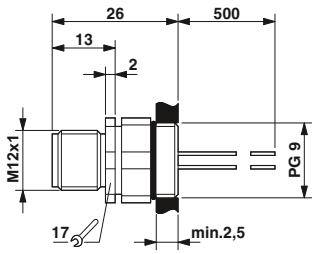
M12 flush-type socket, can be positioned



M12 flush-type plug



M12 flush-type plug



M12 flush-type plug, can be positioned

Front mounting,
M20 fastening thread,
with 0.5 m long litz wires

– Housing material, stainless steel 1.4404



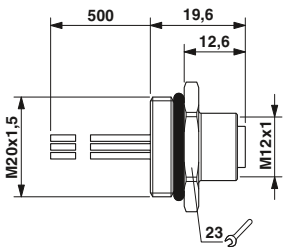
4, 5, 8-pos.

Technical data

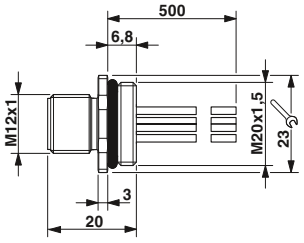
		4-pos.	5-pos.	8-pos.
General data				
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3
Degree of protection		IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method		Individual wires	Individual wires	Individual wires
Electrical data				
Rated voltage		250 V	60 V	30 V
Rated current		4 A	4 A	2 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		PA 66	PA 66	PA 66
Inflammability class according to UL 94		V0	V0	V0
Cable type		TPE litz wire	TPE litz wire	TPE litz wire
Temperature data				
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85

Ordering data

Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.	
Device plug-in connectors							
Socket	A - standard	**1408416**	1	**1452071**	1	**1452110**	1
Plug	A - standard	**1408415**	1	**1452068**	1	**1452107**	1
Socket	B - inverse			**1452097**	1		
Plug	B - inverse			**1452084**	1		



M12 flush-type socket



M12 flush-type plug

Device plug-in connector, rear mounting

– Housing material, stainless steel 1.4404



With 0.5 m long litz wires, 4, 5, 8-pos.



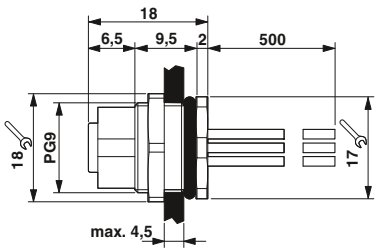
For wave soldering processes, 4, 5, 8-pos.

		Technical data		
		4-pos.	5-pos.	8-pos.
General data				
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3	3
Degree of protection		IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method		Individual wires	Individual wires	Individual wires
Electrical data				
Rated voltage		250 V	60 V	30 V
Rated current		4 A	4 A	2 A
Volume resistance		≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data				
Material contact / contact surface		CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material		PA 66	PA 66	PA 66
Inflammability class according to UL 94		V0	V0	V0
Cable type		TPE litz wire	TPE litz wire	TPE litz wire
Temperature data				
Plug / socket	[°C]	-25 ... 85	-25 ... 85	-25 ... 85

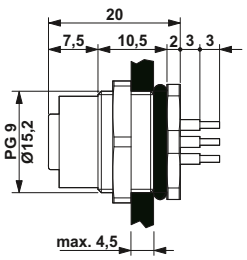
		Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.	
Device plug-in connectors							
Socket	A - standard	**1405240**	1	**1554717**	1	**1554720**	1
Plug	A - standard	**1405239**	1	**1554681**	1	**1554694**	1

	Technical data		
	4-pos.	5-pos.	8-pos.
General data			
M12 circular plug-in connector according to:	IEC 61076-2-101	IEC 61076-2-101	IEC 61076-2-101
Pollution degree	3	3	3
Degree of protection	IP67/IP69K	IP67/IP69K	IP67/IP69K
Connection method	Solder pins	Solder pins	Solder pins
Electrical data			
Rated voltage	250 V	60 V	30 V
Rated current	4 A	4 A	2 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Material data			
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA 66	PA 66	PA 66
Inflammability class according to UL 94	V0	V0	V0
Cable type	-	-	-
Temperature data			
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85

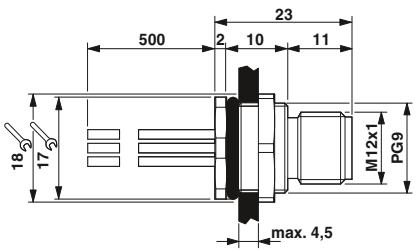
	Ordering data					
Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.		8-pos.	
1404974	20	**1554733**	20	**1529797**	20
1404979	20	**1554746**	20	**1529807**	20



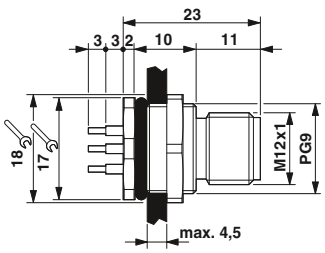
M12 flush-type socket



M12 flush-type socket



M12 flush-type plug



M12 flush-type plug

M8, insulation displacement connection



0.08 mm² - 0.25 mm², 3, 4-pos.



0.25 mm² - 0.5 mm², 3, 4-pos.

	Technical data		Technical data	
	3-pos.	4-pos.	3-pos.	4-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104		IEC 61076-2-104	
Pollution degree	3		3	
Degree of protection	IP65/67		IP65/67	
Connection method	Insulation displacement connection		Insulation displacement connection	
Cable diameter	2.5 mm ... 5 mm ± 0.2 mm		2.5 mm ... 5 mm ± 0.2 mm	
Electrical data				
Rated voltage	60 V	30 V	60 V	30 V
Rated current	4 A		4 A	
Volume resistance	≤ 5 mΩ		≤ 5 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuSn / Ni/Au		CuSn / Ni/Au	
Contact carrier material	TPU GF		TPU GF	
Inflammability class according to UL 94	HB		HB	
Temperature data				
Plug / socket [°C]	-25 ... 80		-25 ... 80	

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		3-pos.		4-pos.	
Plug-in connector								
Socket, straight	**1441040**	1	**1441053**	1	**1441066**	1	**1441079**	1
Plug, straight	**1441008**	1	**1441011**	1	**1441024**	1	**1441037**	1

M8, screw connections



Unshielded, 3, 4-pos.



Shielded, 3, 4-pos.

	Technical data		Technical data	
	3-pos.	4-pos.	3-pos.	4-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104		IEC 61076-2-104	
Pollution degree	3		3	
Degree of protection	IP67		IP67	
Connection method	Screw connection		Screw connection	
Cable diameter	3.5 mm ... 5 mm		3.5 mm ... 5.5 mm	
Connection cross section [mm²]	0.14 mm² ... 0.5 mm²		0.14 mm² ... 0.5 mm²	
Electrical data				
Rated voltage	60 V	30 V	60 V	30 V
Rated current	4 A		4 A	
Volume resistance	≤ 3 mΩ		≤ 3 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuZn / Au		CuSn / Au	
Contact carrier material	PA		PUR / PA66	
Inflammability class according to UL 94	HB		HB	
Temperature data				
Plug / socket [°C]	-40 ... 85		-40 ... 85	

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		3-pos.		4-pos.	
Plug-in connector								
Socket, straight	**1506888**	1	**1506891**	1	**1542907**	1	**1542910**	1
Plug, straight	**1501252**	1	**1501265**	1	**1542884**	1	**1542897**	1
Socket, angled	**1407582**	1	**1407584**	1				
Plug, angled	**1407583**	1	**1407585**	1				

	Accessories			Accessories		
Pressure screw and seal, for cable diameters:						
2.5 mm ... 3.5 mm	**SACC-M 8-SET/2,2-3,5**	**1436945**	5			

M8, solder connection



Unshielded, 3, 4-pos.



Shielded, 3, 4-pos.

	Technical data		Technical data	
	3-pos.	4-pos.	3-pos.	4-pos.
General data				
M8 circular plug-in connector according to:	IEC 61076-2-104		IEC 61076-2-104	
Pollution degree	3		3	
Degree of protection	IP67		IP67	
Connection method	Solder connection		Solder connection	
Cable diameter	3.5 mm ... 5 mm		3.5 mm ... 5 mm	
Connection cross section [mm²]	0.08 mm² ... 0.25 mm²		0.08 mm² ... 0.25 mm²	
Electrical data				
Rated voltage	60 V	30 V	60 V	30 V
Rated current	4 A		4 A	
Volume resistance	≤ 3 mΩ		≤ 3 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuSn / Au		CuSn / Au	
Contact carrier material	PUR / PA66		PUR / PA66	
Inflammability class according to UL 94	V0		HB	
Temperature data				
Plug / socket [°C]	-40 ... 85		-40 ... 85	

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		3-pos.		4-pos.	
Plug-in connector								
Socket, angled	**1529399**	1	**1513444**	1	**1436479**	1	**1436482**	1
Plug, angled	**1699902**	1	**1554209**	1	**1436453**	1	**1436466**	1
Socket, straight	**1681172**	1	**1681185**	1	**1506927**	1	**1506930**	1
Plug, straight	**1681156**	1	**1681169**	1	**1506901**	1	**1506914**	1

	Accessories			Accessories		
Pressure screw and seal, for cable diameters:						
2.5 mm ... 3.5 mm	**SACC-M 8-SET/2,2-3,5**	**1436945**	5			

M12, solder and Piercecon® connection



Solder connection, 12-pos.



Piercecon® connection, 12, 17-pos.

		Technical data		Technical data	
		Unshielded	Shielded	12-pos.	17-pos.
General data					
M12 circular plug-in connector according to:		IEC 61076-2-101		IEC 61076-2-101	
Pollution degree		3		3	
Degree of protection		IP67		IP67	
Connection method		Solder connection		Piercecon® fast connection	
Cable diameter		6 mm ... 8 mm		5.4 mm ... 8.2 mm	
Electrical data					
Rated voltage		30 V		30 V	
Rated current		1 A		1.5 A	
Volume resistance		≤ 3 mΩ		≤ 5 mΩ	
Insulation resistance		> 10 GΩ		≥ 100 MΩ	
Material data					
Material contact / contact surface		CuSn / Au		CuZn / Ni/Au	
Contact carrier material		PA		PA	
Inflammability class according to UL 94		-		V0	
Temperature data					
Plug / socket	[°C]	-25 ... 85		-25 ... 85	

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		Unshielded		Shielded		12-pos.		17-pos.	
Plug-in connector									
Socket, straight	A - standard	**1404420**	1	**1404411**	1	**1559631**	1	**1559644**	1
Plug, straight	A - standard	**1404419**	1	**1404410**	1	**1559592**	1	**1559602**	1
Socket, angled	A - standard	**1404423**	1	**1404413**	1				
Plug, angled	A - standard	**1404421**	1	**1404412**	1				

M12 plug-in connector, for assembly

Ethernet



M12 plug-in connector, 10 Gbps, Piercecon® connection

Ethernet



M12 plug-in connector, 100 Mbps, screw connection

	Technical data	Technical data
	VS-08-M12...-10G-P SCO	SACC-M12MSD-4CON-...-SH
Electrical data		
Nominal voltage U_N	48 V	60 V
Rated current	0.5 A	4 A
Transmission characteristics (category)	$CAT6_A$	CAT5 (IEC 11801:2002), CAT5e (TIA 568B:2001)
Material contact / contact surface	CuSn / Ni/Au	CuZn / Au
Material of grip body	Zinc die-cast, nickel-plated	Zinc die-cast, nickel-plated
Inflammability class according to UL 94	V0	HB
No. of pos.	8	4
Connection method	Piercecon®	Screw connection
Connection cross section AWG	26	24 ... 18
Insertion/withdrawal cycles	≥ 100	≥ 100
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Plug-in connector, $CAT6_A$, plug, 8-pos., shielded, X-coded, **cable diameter: 4 mm ... 8 mm**						
Straight	**VS-08-M12MS-10G-P SCO**	**1417430**	1			
Angled	**VS-08-M12MR-10G-P SCO**	**1417443**	1			
Plug-in connector, Pg7 screw connection, 4-pos., D-coded, **cable diameter: 4 mm ... 6 mm**						
Plug, straight				**SACC-M12MSD-4CON-PG 7-SH**	**1521258**	1
Plug-in connector, Pg9 screw connection, 4-pos., D-coded, **cable diameter: 4 mm ... 8 mm**						
Plug, straight				**SACC-M12MSD-4CON-PG 9-SH**	**1521261**	1
	Accessories			**Accessories**		
Stripping tool, for multiple-stage repositioning of shielded conductors	**VS-CABLE-STRIP-VARIO**	**1657407**	1	**VS-CABLE-STRIP-VARIO**	**1657407**	1

M12, insulation displacement connection



0.14 mm² ... 0.34 mm²



0.34 mm² ... 0.75 mm²

		Technical data	Technical data
		4-pos.	**4-pos.**
General data			
M12 circular plug-in connector according to:		IEC 61076-2-101	IEC 61076-2-101
Pollution degree		3	3
Degree of protection		IP65/67	IP65/67
Connection method		Insulation displacement connection	Insulation displacement connection
Cable diameter		3.5 mm ... 6 mm	4 mm ... 8 mm
Electrical data			
Rated voltage		125 V	250 V
Rated current		4 A	4 A
Volume resistance		≤ 5 mΩ	≤ 5 mΩ
Insulation resistance		≥ 100 MΩ	≥ 100 MΩ
Material data			
Material contact / contact surface		CuSn / Ni/Au	CuSn / Ni/Au
Contact carrier material		TPU	TPU
Inflammability class according to UL 94		V0	V0
Temperature data			
Plug / socket	[°C]	-25 ... 80	-25 ... 80

		Ordering data			Ordering data		
Description	Coding	**Type**	**Order No.**	Pcs. / Pkt.	**Type**	**Order No.**	Pcs. / Pkt.
Plug-in connector, with plastic knurl							
Socket, straight	A - standard	**SACC-M12FS-4QO-0,34**	**1641701**	1	**SACC-M12FS-4QO-0,75**	**1641756**	1
Plug, straight	A - standard	**SACC-M12MS-4QO-0,34**	**1641714**	1	**SACC-M12MS-4QO-0,75**	**1641769**	1
Plug-in connector, with metal knurl, SPEEDCON							
Socket, straight	A - standard	**SACC-FS-4QO-0,34-M SCO**	**1521588**	1	**SACC-FS-4QO-0,75-M SCO**	**1521601**	1
Plug, straight	A - standard	**SACC-MS-4QO-0,34-M SCO**	**1521575**	1	**SACC-MS-4QO-0,75-M SCO**	**1521591**	1
Plug-in connector, with metal knurl							
Socket, straight	A - standard	**SACC-M12FS-4QO-0,34-M**	**1641688**	1	**SACC-M12FS-4QO-0,75-M**	**1641772**	1
Plug, straight	A - standard	**SACC-M12MS-4QO-0,34-M**	**1641691**	1	**SACC-M12MS-4QO-0,75-M**	**1641785**	1
Plug-in connector, with stainless steel knurl							
Socket, straight	A - standard	**SACC-M12FS-4QO-0,34-VA**	**1440766**	1	**SACC-M12FS-4QO-0,75-VA**	**1440782**	1
Plug, straight	A - standard	**SACC-M12MS-4QO-0,34-VA**	**1440753**	1	**SACC-M12MS-4QO-0,75-VA**	**1440779**	1

M12, spring-cage connections



Unshielded, 4, 5-pos.



Shielded, 4, 5-pos.

		Technical data		Technical data	
		4-pos.	5-pos.	4-pos.	5-pos.
General data					
M12 circular plug-in connector according to:		IEC 61076-2-101		IEC 61076-2-101	
Pollution degree		3		3	
Degree of protection		IP67		IP67	
Connection method		Spring-cage conn.		Spring-cage conn.	
Cable diameter		4 mm ... 8 mm		4 mm ... 8 mm	
Connection cross section [mm²]		0.14 mm² ... 0.5 mm²		0.14 mm² ... 0.5 mm²	
Electrical data					
Rated voltage		250 V	60 V	60 V	
Rated current		4 A		4 A	
Volume resistance		≤ 8 mΩ		≤ 8 mΩ	
Insulation resistance		≥ 100 MΩ		≥ 100 MΩ	
Material data					
Material contact / contact surface		CuSn / Ni/Au		CuSn / Ni/Au	
Contact carrier material		TPU		TPU	
Inflammability class according to UL 94		V0		V0	
Temperature data					
Plug / socket	[°C]	-40 ... 85		-40 ... 85	

		Ordering data				Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		4-pos.		5-pos.	
Plug-in connector, terminal marking: standard color coding and numbering									
Socket, angled	A - standard	**1432622**	1	**1432596**	1	**1432758**	1	**1432677**	1
Plug, angled	A - standard	**1432606**	1	**1432570**	1	**1432732**	1	**1432651**	1
Socket, straight	A - standard	**1432619**	1	**1432583**	1	**1432745**	1	**1432664**	1
Plug, straight	A - standard	**1432635**	1	**1432567**	1	**1432729**	1	**1432648**	1

M12, screw connections



Plastic knurl, 4, 5-pos.



Metal knurl, SPEEDCON, 4, 5-pos.

		Technical data				Technical data			
		4-pos.	5-pos.			4-pos.	5-pos.		
General data									
M12 circular plug-in connector according to:		IEC 61076-2-101		-		IEC 61076-2-101		-	
Pollution degree		3		-		3		-	
Degree of protection		IP67		-		IP67		-	
Connection method		Screw connection		-		Screw connection		-	
Connection cross section [mm²]		0.25 mm² ... 0.75 mm²		- ... -		0.25 mm² ... 0.75 mm²		- ... -	
Electrical data									
Rated voltage		250 V	60 V	-		250 V	60 V	-	
Rated current		4 A		-		4 A		-	
Volume resistance		≤ 8 mΩ		-		≤ 8 mΩ		-	
Insulation resistance		≥ 100 MΩ		-		≥ 100 MΩ		-	
Material data									
Material contact / contact surface		CuZn / CuSnZn		- / -		CuZn / CuSnZn		- / -	
Contact carrier material		PA 66		-		PA 66		-	
Inflammability class according to UL 94		HB		-		HB		-	
Temperature data									
Plug / socket	[°C]	-40 ... 85		-		-40 ... 85		-	

		Ordering data						Ordering data					
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.				4-pos.		5-pos.			
Plug-in connector, with **Pg7** screw connection, **cable diameter: 4 mm ... 6 mm**													
Socket, angled	A - standard	**1681130**	1	**1662308**	1			**1543058**	1	**1543061**	1		
Plug, angled	A - standard	**1681091**	1	**1662269**	1			**1542981**	1	**1542994**	1		
Socket, straight	A - standard	**1681114**	1	**1662298**	1			**1543029**	1	**1543032**	1		
Plug, straight	A - standard	**1681088**	1	**1662256**	1			**1542952**	1	**1542965**	1		
Plug-in connector, with **Pg9** screw connection, **cable diameter: 6 mm ... 8 mm**													
Socket, angled	A - standard			**1500790**	1					**1543414**	1		
Plug, angled	A - standard			**1513431**	1					**1543003**	1		
Socket, straight	A - standard			**1500787**	1					**1543045**	1		
Plug, straight	A - standard			**1500774**	1					**1542978**	1		
Power plug-in connector, with **Pg11** screw connection, **cable diameter: 8 mm ... 10 mm, rated current:** up to 8 A (5th pos. max. 2 A) with 1.5 mm² wires/litz wires													
Socket, straight	A - standard												
Plug, straight	A - standard												

	Accessories			Accessories		
Pressure screw and seal, for cable diameters:						
2.5 mm ... 3.5 mm	**SACC-M12-SET/2,5-3,5**	**1436505**	5	**SACC-M12-SET/2,5-3,5**	**1436505**	5



Metal knurl, 4, 5, 8-pos.



Metal knurl, 4, 5-pos., with SKINTOP® screw connection



Stainless steel knurl, 4, 5-pos.

Technical data

4-pos.	5-pos.	8-pos.
	IEC 61076-2-101	
	3	
	IP67	
	Screw connection	
0.25 mm² ... 0.75 mm²		0.25 mm² ... 0.5 mm²
250 V	60 V	30 V
	4 A	2 A
	≤ 8 mΩ	≤ 3 mΩ
	≥ 100 MΩ	
CuZn / CuSnZn		CuZn / Au
	PA 66	
	HB	
	-40 ... 85	

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.		8-pos.	
1681143	1	**1662984**	1		
1681101	1	**1663129**	1		
1681127	1	**1662968**	1		
1662528	1	**1663116**	1		
		1681499	1		
		1681473	1		
		1681486	1	**1513347**	1
		1681460	1	**1513334**	1
1404416	1	**1404418**	1		
1404415	1	**1404417**	1		

Accessories

SACC-M12-SET/2,5-3,5	**1436505**	5

Technical data

4-pos.	5-pos.	
	IEC 61076-2-101	-
	3	-
	IP67	-
	Screw connection	-
0.25 mm² ... 0.75 mm²		- ... -
250 V	125 V	-
	4 A	-
	≤ 8 mΩ	-
	≥ 100 MΩ	-
CuZn / CuSnZn		- / -
	PA 66	-
	HB	-
	-20 ... 80	-

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.			
1430381	1	**1559000**	1		
1556870	1	**1456466**	1		
		1556812	1		
		1561742	1		
		1556838	1		
		1556825	1		

Accessories

Technical data

4-pos.	5-pos.	
	IEC 61076-2-101	-
	3	-
	IP67/IP69K	-
	Screw connection	-
0.25 mm² ... 0.75 mm²		- ... -
250 V	60 V	-
	4 A	-
	≤ 3 mΩ	-
	≥ 100 MΩ	-
CuZn / Au		- / -
	PA 66	-
	V0	-
	-40 ... 85	-

Ordering data

Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
4-pos.		5-pos.			
1553284	1	**1553297**	1		
1553200	1	**1553213**	1		
1553242	1	**1553255**	1		
1553161	1	**1553187**	1		
		1553307	1		
1553226	1	**1553239**	1		
1553268	1	**1553271**	1		
1553174	1	**1553190**	1		

Accessories

M12, screw connection, shielded



Zinc die-cast housing, 4, 5, 8-pos.



Stainless steel housing, 5-pos.

	Technical data			Technical data		
	4-pos.	5-pos.	8-pos.	5-pos.		
General data						
M12 circular plug-in connector according to:		IEC 61076-2-101		IEC 61076-2-101	-	
Pollution degree		3		3	-	
Degree of protection		IP67		IP67/IP69K	-	
Connection method		Screw connection		Screw connection	-	
Connection cross section [mm²]		0.25 mm² ... 0.75 mm²		0.25 mm² ... 0.75 mm²	- ... -	
Electrical data						
Rated voltage	60 V		30 V	60 V	-	
Rated current	4 A		2 A	4 A	-	
Volume resistance		≤ 3 mΩ		≤ 3 mΩ	-	
Insulation resistance		≥ 100 MΩ		≥ 100 MΩ	-	
Material data						
Material contact / contact surface		CuZn / Au		CuZn / Au	- / -	
Contact carrier material		PA 66		PA 66	-	
Inflammability class according to UL 94		HB		V0	-	
Temperature data						
Plug / socket [°C]		-40 ... 85		-40 ... 85	-	

		Ordering data						Ordering data			
Description	Coding	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		4-pos.		5-pos.		8-pos.		5-pos.			
Plug-in connector, with **Pg7** screw connection, **cable diameter: 4 mm ... 6 mm**											
Plug, angled	A - standard	**1694279**	1	**1693429**	1						
Socket, straight	A - standard	**1694295**	1	**1694305**	1						
Plug, straight	A - standard	**1693830**	1	**1693416**	1						
Plug-in connector, with **Pg9** screw connection, **cable diameter: 6 mm ... 8 mm**											
Socket, angled	A - standard			**1430433**	1						
Plug, angled	A - standard			**1694282**	1						
Socket, straight	A - standard	**1515170**	1	**1694318**	1	**1511860**	1				
Plug, straight	A - standard	**1501540**	1	**1694266**	1	**1511857**	1				
Plug-in connector, with **Pg9** screw connection, **cable diameter: 6 mm ... 8.5 mm**											
Socket, straight	A - standard			**1508365**	1						
Plug, straight	A - standard			**1508352**	1						
Plug-in connector, with **M16** screw connection, **cable diameter: 3 mm ... 5.5 mm**											
Socket, straight	A - standard							**1440038**	1		
Plug, straight	A - standard							**1440012**	1		
Plug-in connector, with **M16** screw connection, **cable diameter: 5.5 mm ... 8.6 mm**											
Socket, straight	A - standard							**1440041**	1		
Plug, straight	A - standard							**1440025**	1		

M12, power plug-in connector, screw connection



Metal knurl, 3-pos. + PE, S-coded



Metal knurl, 4-pos., T-coded

	Technical data	Technical data
	3-pos. + PE	**4-pos.**
General data		
Pollution degree	3	3
Degree of protection	IP67	IP67
Connection method	Screw connection	Screw connection
Connection cross section [mm²]	0.75 mm² ... 1.5 mm²	0.75 mm² ... 1.5 mm²
Electrical data		
Rated voltage	630 V	60 V
Rated current	12 A	12 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance	> 10 GΩ	> 10 GΩ
Material data		
Material contact / contact surface	CuZn / Au	CuZn / Au
Contact carrier material	PA 46	PA 46
Inflammability class according to UL 94	V0	V0
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85

	Ordering data			Ordering data		
Description	**Type**	**Order No.**	Pcs. / Pkt.	**Type**	**Order No.**	Pcs. / Pkt.
Plug-in connector, with **Pg11** screw connection, **cable diameter: 8 mm ... 10 mm**						
Socket, straight	**SACC-M12FSS-3PECON-PG11-M**	**1404642**	1	**SACC-M12FST-3PECON-PG11-M**	**1404644**	1
Plug, straight	**SACC-M12MSS-3PECON-PG11-M**	**1404641**	1	**SACC-M12MST-3PECON-PG11-M**	**1404643**	1

M12, DUO plug-in connector, screw connection

Notes:

SPEEDCON and plastic knurls without key areas.



Metal knurl, 4, 5-pos.



SPEEDCON metal knurl/plastic knurl, 5 pos.

	Technical data		Technical data	
	4-pos.	**5-pos.**	**Metal knurl, SPEEDCON, 5-pos.**	**Plastic knurl, 5-pos.**
General data				
M12 circular plug-in connector according to:	IEC 61076-2-101		IEC 61076-2-101	
Pollution degree	3		3	
Degree of protection	IP67		IP67	
Connection method	Screw connection		Screw connection	
Connection cross section [mm²]	0.25 mm² ... 0.75 mm²		0.25 mm² ... 0.75 mm²	
Electrical data				
Rated voltage	250 V	60 V	60 V	
Rated current	4 A		4 A	
Volume resistance	≤ 8 mΩ		≤ 8 mΩ	
Insulation resistance	≥ 100 MΩ		≥ 100 MΩ	
Material data				
Material contact / contact surface	CuZn / CuSnZn		CuZn / CuSnZn	
Contact carrier material	PA 66		PA 66	
Inflammability class according to UL 94	V0		V0	
Temperature data				
Plug / socket [°C]	-40 ... 85		-40 ... 85	-25 ... 85

		Ordering data				Ordering data			
Description	Coding	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
		4-pos.		**5-pos.**		**Metal knurl, SPEEDCON, 5-pos.**		**Plastic knurl, 5-pos.**	
Plug-in connector, with **Pg11 DUO** screw connection, **cable diameter: 2 x 3 mm ... 5.2 mm**									
Socket, straight	A - standard							**1694596**	1
Plug, straight	A - standard	**1507052**	1	**1662748**	1	**1543016**	1	**1662285**	1
Plug, angled	A - standard							**1531044**	1

7/8", screw connection



Connection cross section: 1.5 mm², 3, 4, 5-pos.



Connection cross section: 2.5 mm², 5-pos.

	Technical data			Technical data		
	3-pos.	4-pos.	5-pos.	5-pos.		
General data						
Pollution degree		3		3	-	
Degree of protection		IP67		IP67	-	
Connection method		Screw connection		Screw connection	-	
Connection cross section		0.34 mm² ... 1.5 mm²		0.34 mm² ... 2.5 mm²	- ... -	-
Connection cross section AWG		22 ... 16		22 ... 14	- ... -	-
Electrical data						
Rated voltage		250 V		250 V	-	
Rated current	12 A	9 A		9 A	-	
Volume resistance		≤ 5 mΩ		≤ 5 mΩ	-	
Insulation resistance		≥ 100 MΩ		≥ 100 MΩ	-	
Material data						
Material contact / contact surface		CuZn / Au		CuZn / Au	- / -	
Contact carrier material		PUR / PA66		PUR / PA66	-	
Inflammability class according to UL 94		HB		HB	-	
Temperature data						
Plug / socket [°C]		-25 ... 85		-25 ... 85	-	

	Ordering data						Ordering data					
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-pos.		4-pos.		5-pos.		5-pos.					
Plug-in connector, with **Pg9** screw connection, **cable diameter: 6 mm ... 8 mm**												
Socket, angled	**1521478**	1	**1521494**	1	**1521517**	1						
Plug, angled	**1521465**	1	**1521481**	1	**1521504**	1						
Socket, straight	**1521300**	1	**1521342**	1	**1521384**	1						
Plug, straight	**1521287**	1	**1521326**	1	**1521668**	1						
Plug-in connector, with **Pg11** screw connection, **cable diameter: 8 mm ... 10 mm**												
Socket, angled					**1456297**	1						
Plug, angled					**1456242**	1						
Socket, straight					**1456271**	1						
Plug, straight					**1456226**	1						
Plug-in connector, with **Pg13.5** screw connection, **cable diameter: 10 mm ... 12 mm**												
Socket, angled							**1456307**	1				
Plug, angled							**1456255**	1				
Socket, straight	**1521313**	1	**1521355**	1	**1521397**	1	**1456284**	1				
Plug, straight	**1521290**	1	**1521339**	1	**1521371**	1	**1456213**	1				
Plug-in connector, with **Pg16** screw connection, **cable diameter: 12 mm ... 14 mm**												
Socket, straight					**1559071**	1	**1456268**	1				
Plug, straight					**1559039**	1	**1456239**	1				

M12 power flush-type plug-in connectors, with 0.5 m long litz wires



S-coded, 3-pos. + PE



T-coded, 4-pos.

	Technical data		Technical data	
	Front mounting	Rear mounting	Front mounting	Rear mounting
General data				
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	Individual wires	Individual wires	Individual wires	Individual wires
Electrical data				
Rated voltage	630 V	630 V	60 V	60 V
Rated current	12 A	12 A	12 A	12 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Insulation resistance	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ	≥ 100 MΩ
Surge voltage category	III	III	III	III
Material data				
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA6	PA6	PA6	PA6
Cable type	PP litz wire	PP litz wire	PP litz wire	PP litz wire
Temperature data				
Plug / socket [°C]	-25 ... 85	-25 ... 85	-25 ... 85	-25 ... 85
Cable, fixed installation [°C]	-40 ... 90	-40 ... 90	-40 ... 90	-40 ... 90

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	Front mounting		Rear mounting		Front mounting		Rear mounting	
Flush-type plug-in connector, M16 fastening thread								
Socket	**1424137**	1	**1424133**	1	**1424138**	1	**1424134**	1
Plug	**1424139**	1	**1424132**	1	**1424140**	1	**1424136**	1

	Accessories			Accessories		
Flat nut, with: M16 thread	**SACC-E-MU-M16**	**1504097**	100	**SACC-E-MU-M16**	**1504097**	100

M12 power flush-type plug-in connectors, modular, 25 mm square flange, pre-assembled



Flange housing, 2.7 mm housing bore holes



Pre-assembled contact carrier and insulating body with 0.5 m long litz wires

		Technical data		Technical data	
				S-coded, 3-pos. + PE	T-coded, 4-pos.
General data					
Pollution degree		-	-	3	3
Degree of protection		-	-	IP67	IP67
Connection method		-	-	Individual wires	Individual wires
Electrical data					
Rated voltage		-	-	630 V	60 V
Rated current		-	-	12 A	12 A
Volume resistance		-	-	≤ 3 mΩ	≤ 3 mΩ
Surge voltage category		-	-	III	III
Material data					
Material contact / contact surface		- / -	- / -	CuZn / Au	CuZn / Au
Contact carrier material		-	-	PA6	PA6
Cable gland material		Zinc die-cast, nickel-plated	-	-	-
Cable type		-	-	PP litz wire	PP litz wire
Temperature data					
Plug / socket	[°C]	-40 ... 85	-	-25 ... 85	-25 ... 85
Cable, fixed installation	[°C]	-	-	-40 ... 90	-40 ... 90

	Ordering data		Ordering data		Ordering data		Ordering data	
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
					S-coded, 3-pos. + PE		T-coded, 4-pos.	
Square flange housing, with flat gasket								
	1424131	10						
Assembled contact carrier and insulating body, with 0.5 m litz wires and crimp contacts Plug					**1424129**	1	**1424130**	1

M12, power device plug-in connector, two-piece, for reflow processes, rear mounting



S-coded, 3-pos. + PE

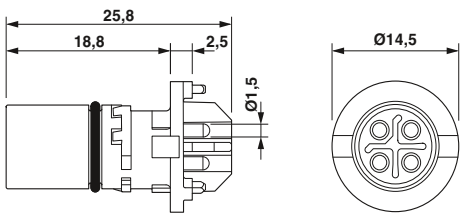


T-coded, 4-pos.

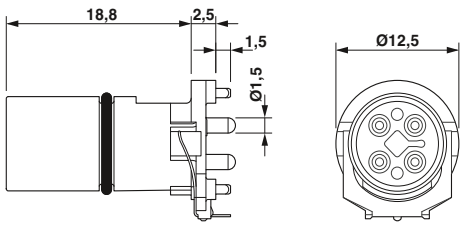
	Technical data		Technical data	
	Plug	Socket	Plug	Socket
General data				
Pollution degree	3	3	3	3
Degree of protection	IP67	IP67	IP67	IP67
Connection method	THR solder connection	THR solder connection	THR solder connection	THR solder connection
Electrical data				
Rated voltage	630 V	630 V	60 V	60 V
Rated current	12 A	12 A	12 A	12 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ	≤ 3 mΩ
Surge voltage category	III	III	III	III
Material data				
Material contact / contact surface	CuZn / Au	CuZn / Au	CuZn / Au	CuZn / Au
Contact carrier material	PA4T	PA4T	PA4T	PA4T
Inflammability class according to UL 94	V0	V0	V0	V0
Temperature data				
Plug / socket [°C]	-40 ... 85	-40 ... 85	-40 ... 85	-40 ... 85

	Ordering data			Ordering data		
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	Plug		Socket		Plug		Socket	
Contact carrier, for reflow processes	1406410	20	1406409	20	1406396	60	1406411	60
Contact carrier, shielded, for reflow processes					1406397	60	1406412	60

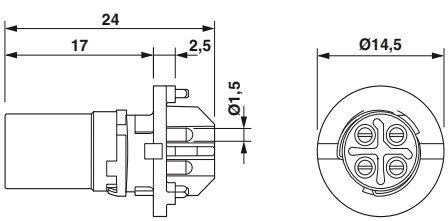
	Accessories	Accessories
Housing screw connections, SPEEDCON screw versions and press-in versions, for all two-piece THR and wave soldering contact carriers	See page 258 onwards	See page 258 onwards



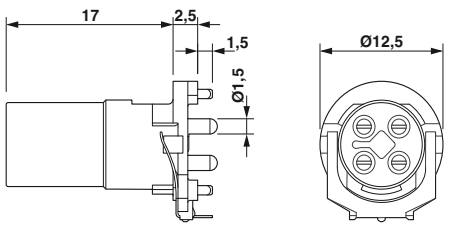
M12 flush-type plug



M12 flush-type plug



M12 flush-type socket



M12 flush-type socket

M12, power plug-in connector, screw connection



S-coded, 3-pos. + PE



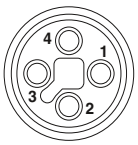
T-coded, 4-pos.

	Technical data	Technical data
General data		
Pollution degree	3	3
Degree of protection	IP67	IP67
Connection method	Screw connection	Screw connection
Cable diameter	8 mm ... 10 mm	8 mm ... 10 mm
Connection cross section [mm²]	0.75 mm² ... 1.5 mm²	0.75 mm² ... 1.5 mm²
Electrical data		
Rated voltage	630 V	60 V
Rated current	12 A	12 A
Volume resistance	≤ 3 mΩ	≤ 3 mΩ
Surge voltage category	III	III
Material data		
Material contact / contact surface	CuZn / Au	CuZn / Au
Contact carrier material	PA 46	PA 46
Temperature data		
Plug / socket [°C]	-40 ... 85	-40 ... 85

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Plug-in connector, with **Pg11** screw connection, **cable diameter: 8 mm ... 10 mm**						
Socket, straight	**SACC-M12FSS-3PECON-PG11-M**	**1404642**	1	**SACC-M12FST-3PECON-PG11-M**	**1404644**	1
Plug, straight	**SACC-M12MSS-3PECON-PG11-M**	**1404641**	1	**SACC-M12MST-3PECON-PG11-M**	**1404643**	1



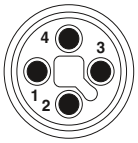
Pin assignment of M12 socket, 4-pos., S-coded, view of socket side



Pin assignment of M12 socket, 4-pos., T-coded, view of socket side



Pin assignment of M12 plug, 4-pos., S-coded, view of plug side



Pin assignment of M12 plug, 4-pos., T-coded, view of plug side

M12-SPEEDCON power cable, 3-pos.+PE, S-coded, unshielded

	Free end	M12 plug, SPEEDCON	
			
			

	Ordering data	Ordering data	Ordering data
Free end	**Order No.**	**Order No.**	**Order No.**
		1 m **1408835** 2 m **1408836** 5 m **1408837** 10 m **1408838**	1 m **1408839** 2 m **1408840** 5 m **1408841** 10 m **1408842**
M12 socket, SPEEDCON, straight			
 	1 m **1408843** 2 m **1408844** 5 m **1408845** 10 m **1408846**		
M12 socket, SPEEDCON, angled			
 	1 m **1408848** 2 m **1408852** 5 m **1408853** 10 m **1408854**		

Cable description	Cable type	Color coding		Pin assignment
PUR, halogen-free - black	**PUR**	BK1	1	1
		BK2	2	2
		BK3	3	3
		GNYE		PE

		Technical data
		M12
Rated voltage	[V]	630
Rated current	[A]	12
Volume resistance		≤ 3 mΩ
Material contact M12		CuZn
Material contact surface M12		Au
Material handle M12		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

M12-SPEEDCON power cable, 3-pos.+PE, S-coded, shielded

	Free end	M12 plug, SPEEDCON, 360° shielded	
			
			

	Ordering data		Ordering data		Ordering data	
Free end		**Order No.**		**Order No.**		**Order No.**
			1.5 m	**1424104**	1.5 m	**1424108**
			3 m	**1424105**	3 m	**1424109**
			5 m	**1424245**	5 m	**1424110**
			10 m	**1424107**	10 m	**1424111**
M12 socket, SPEEDCON, straight, 360° shielded						
 		1.5 m	**1424096**			
		3 m	**1424097**			
		5 m	**1424098**			
		10 m	**1424099**			
M12 socket, SPEEDCON, angled, 360° shielded						
 		1.5 m	**1424100**			
		3 m	**1424101**			
		5 m	**1424102**			
		10 m	**1424103**			

Cable description	Cable type
PUR, halogen-free - orange	**PUR**

Color coding		Pin assignment
BK1	**1**	1
BK2	**2**	2
BK3	**3**	3
GNYE		PE

		Technical data
		M12
Rated voltage	[V]	630
Rated current	[A]	12
Volume resistance		≤ 3 mΩ
Material contact M12		CuZn
Material contact surface M12		Au
Material handle M12		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

M12-SPEEDCON power cable, 4-pos., T-coded, unshielded

Free end	M12 plug, SPEEDCON








	Ordering data		Ordering data		Ordering data	
Free end		**Order No.**		**Order No.**		**Order No.**
			1 m	**1408812**	1 m	**1408816**
			2 m	**1408813**	2 m	**1408819**
			5 m	**1408814**	5 m	**1408820**
			10 m	**1408815**	10 m	**1408822**
M12 socket, SPEEDCON, straight						
 	1 m	**1408823**	1 m	**1408808**		
	2 m	**1408824**	2 m	**1408809**		
	5 m	**1408825**	5 m	**1408810**		
	10 m	**1408826**	10 m	**1408811**		
M12 socket, SPEEDCON, angled						
 	1 m	**1408827**				
	2 m	**1408828**				
	5 m	**1408829**				
	10 m	**1408830**				

Cable description	Cable type
PUR, halogen-free - black	**PUR**

Color coding		Pin assignment
BN		1
WH		2
BK		4
BU		3

		Technical data
		M12
Rated voltage	[V]	60
Rated current	[A]	12
Volume resistance		≤ 3 mΩ
Material contact M12		CuZn
Material contact surface M12		Au
Material handle M12		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

M12-SPEEDCON power cable, 4-pos., T-coded, shielded

	Free end	M12 plug, SPEEDCON 360° shielded	
		 	 
	Ordering data	Ordering data	Ordering data
Free end	Order No.	Order No.	Order No.
		1.5 m **1424120** 3 m **1424121** 5 m **1424122** 10 m **1424123**	1.5 m **1424124** 3 m **1424125** 5 m **1424126** 10 m **1424127**
M12 socket, SPEEDCON, straight, 360° shielded			
 	1.5 m **1424112** 3 m **1424113** 5 m **1424114** 10 m **1424115**		
M12 socket, SPEEDCON, angled, 360° shielded			
 	1.5 m **1424116** 3 m **1424117** 5 m **1424118** 10 m **1424128**		

Cable description	Cable type
PUR, halogen-free - black	**PUR**

Color coding		Pin assignment
BN		1
WH		2
BK		4
BU		3

		Technical data
		M12
Rated voltage	[V]	60
Rated current	[A]	12
Volume resistance		≤ 3 mΩ
Material contact M12		CuZn
Material contact surface M12		Au
Material handle M12		TPU, hardly inflammable, self-extinguishing
Material, knurls		Zinc die-cast, nickel-plated
Degree of protection		IP65 / IP67
Temperature data		
Plug / socket	[°C]	-25 ... 85

Sealing elements

During transport or in the field, unoccupied plug-in connections must be protected or closed. The screw plugs, sealing caps and closing caps made of plastic or metal are suitable for this purpose. IP65/IP67 protection as well as IP69K protection is thereby achieved.



Description	Ordering data		
	Type	Order No.	Pcs. / Pkt.
M5 screw plug ① For unoccupied M5 sockets of the sensor/actuator cables, boxes and flush-type plug-in connectors	**PROT-M5**	**1533288**	10
M8 screw plug ② For unoccupied M8 sockets of the sensor/actuator cables, boxes and flush-type plug-in connectors	**PROT-M8**	**1682540**	5
M12 screw plug ③ For the unused M12 sockets of the sensor/actuator cables, boxes and flush-type plug-in connectors	**PROT-M12**	**1680539**	5
M12 screw plug with SPEEDCON quick locking ④ For unoccupied M12 sockets of the sensor/actuator cables, boxes and flush-type plug-in connectors	**PROT-MS SCO**	**1553129**	5
M12 sealing cap ⑤ For unoccupied M12 plugs of the sensor/actuator cables, flush-type plug-in connectors and I/O devices in the field	**PROT-M12 FS**	**1560251**	5
M12 screw plug,metal ⑥ For unoccupied M12 sockets of the shielded sensor/actuator cables, boxes and flush-type plug-in connectors	**PROT-M12 SH**	**1503302**	5
M12 sealing cap, metal ⑦ For unoccupied M12 plugs of the sensor/actuator cables, flush-type plug-in connectors and I/O devices in the field	**PROT-M12 FS-M**	**1430488**	10
M12 screw plug, stainless steel ⑧ For unused M12 sockets of the sensor/actuator cables, boxes, and flush-type plug-in connectors in the food and outdoor range	**PROT-M12 FB**	**1555538**	5
Closing cap ⑨ For Pg9/ Pg11, to close unoccupied connections	**Q-PROT 9/11**	**1670235**	10
M16 locking screw ⑩ With flat nut for oval housing cutouts	**SACC-M16-SEALING PLUG SET**	**1453368**	10

Sealing elements with holding band or fixing chain

All IP67 interfaces can be closed tightly using the screw plugs and sealing caps in sizes M8, M12 and 7/8". The holding bands are fastened on the cable or the housing and are thus held captive.

The M12 metal protective cap with fixing chain is suitable for all pin versions. It is used in harsh industrial environments or for EMC applications.



Description		Ordering data		
		Type	Order No.	Pcs. / Pkt.
Screw plug made from **plastic** with retaining strap, for sealing unused **sockets**	①			
M8 for SAC cables		**PROT-M 8 MS-PA-CHAIN**	**1430860**	10
M8 with 3 mm fastening eye		**PROT-M 8 MS-PA-CHAIN-EYE-DM3**	**1441105**	10
M8 with 12 mm fastening eye		**PROT-M 8 MS-PA-CHAIN-EYE**	**1441095**	10
M12 for SAC cables		**PROT-M12 MS-PA-CHAIN**	**1430899**	5
M12 with 15 mm fastening eye		**PROT-M12 MS-PA-CHAIN-EYE-DM14**	**1456200**	5
7/8" for SAC cables		**PROT-MINMS-PA-CHAIN**	**1430925**	10
Plastic sealing cap with holding band, for closing unoccupied **connectors**	②			
M8 for SAC cables		**PROT-M 8 FS-PA-CHAIN**	**1430857**	10
M8 with 8 mm fastening eye		**PROT-M 8 FS-PA-CHAIN-EYE**	**1441082**	10
M12 for SAC cables		**PROT-M12 FS-PA-CHAIN**	**1430873**	5
M12 with 12 mm fastening eye		**PROT-M12 FS-PA-CHAIN-EYE-DM12**	**1456187**	5
M12 with 15 mm fastening eye		**PROT-M12 FS-PA-CHAIN-EYE-DM14**	**1456190**	5
7/8" for SAC cables		**PROT-MINFS-PA-CHAIN**	**1430912**	10
Metal sealing cap with fixing chain, for closing unoccupied **connectors**	③			
M12 with 16 mm fastening eye		**PROT-M12 FS-M-CHAIN**	**1430491**	10

Accessories for flush-type plug-in connectors

Special fixing nuts are available for EMC-compliant installation of M12 flush-type plug-in connectors on coated or varnished housing surfaces. When tightened, these cut through the surface coating, thus establishing contact between the housing and the connector.

Alternatively, flat gaskets can be used as the seal between the housing panel and the device plug. Flat gaskets are recommended for thin panels, as the housing cutouts do not have to be chamfered.



Description		Ordering data		
		Type	Order No.	Pcs. / Pkt.
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:	①			
M12 fastening thread		**SACC-M12-KD-NUT-SH**	**1440151**	10
EMC hexagonal nuts with fine toothing, for all flush-type plug-in connectors with:	②			
M16 fastening thread		**SACC-M16-KD-NUT-SH**	**1440164**	10
Pg9 fastening thread		**SACC-PG9-KD-NUT-SH**	**1440177**	10
Flat gasket for all flush-type plug-in connectors with:	③			
M16 fastening thread		**SACC-M16-SEAL CLM**	**1430394**	10
Pg9 fastening thread		**SACC-PG9-SEAL CLM**	**1556320**	10

Assembly tools for sensor/actuator cables

To achieve tight plug-in connections, we recommend using assembly tools. M12 and 7/8" circular plug-in connectors can be assembled using a torque screwdriver and plug attachment.

The benefits of the plug attachment become particularly clear when connecting the connectors to the distributor boxes. Thanks to the open design, it enables quick adjustment and installation even when space is at a premium.

The version for M12 connectors with hexagonal stainless steel knurl is also made from stainless steel. This prevents the connector knurls from being contaminated by corrosive materials.

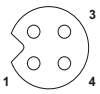
For greater flexibility, screwdrivers with adjustable torque are also available. When used in conjunction with the adapter insert, they can also be used to accommodate the available plug attachments.



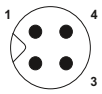
Description	Type	Order No.	Pcs. / Pkt.
	Ordering data		
Torque screwdriver ① With a preset torque of 0.8 Nm and a 4 mm hexagonal drive	**TSD 08 SAC**	**1212597**	1
Nut ② For assembling 7/8" plug-in connectors, with 4 mm hexagonal drive	**SAC BIT MIN-D25**	**1212512**	1
Torque screwdriver ③ With preset torque of 0.4 Nm and 4 mm hexagonal drive	**TSD 04 SAC**	**1208429**	1
Nut ④ For mounting M12 plug-in connectors with hexagonal stainless steel knurl, wrench size 14, with 4 mm hexagonal drive	**SAC BIT M12-W14**	**1212513**	1
Torque screwdriver, accuracy according to standard EN ISO 6789 ⑤			
Adjustable from 0.3 - 1.2 Nm	**TSD-M 1,2NM**	**1212224**	1
Adjustable from 1.2 - 3 Nm	**TSD-M 3NM**	**1212225**	1
Adjustable from 3 - 6 Nm	**TSD-M 6NM**	**1212226**	1
Adapter insert ⑥ For torque screwdrivers with adjustable torque, for accommodating plug attachments with 4 mm hexagonal drive	**TSD-M SAC-BIT ADAPTER**	**1212600**	1

M5 flush-type plug-in connectors

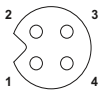
Pin assignments



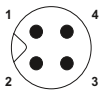
Socket, 3-pos.



Plug, 3-pos.



Socket, 4-pos.



Plug, 4-pos.

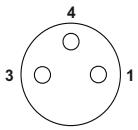
Litz wire colors

Pin	Wire color			
	3-pos.		4-pos.	
1	BN		BN	
2	–		WH	
3	BU		BU	
4	BK		BK	

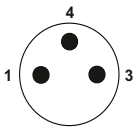
Assignment: M5 flush-type plugs/sockets

M8 flush-type plug-in connectors

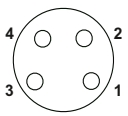
Pin assignments



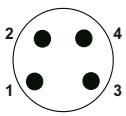
Socket, 3-pos.



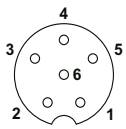
Plug, 3-pos.



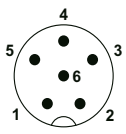
Socket, 4-pos.



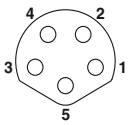
Plug, 4-pos.



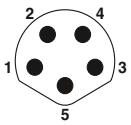
Socket, 6-pos.



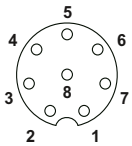
Plug, 6-pos.



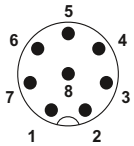
Socket, 5-pos., DeviceNet™, B-coded



Plug, 5-pos., DeviceNet™, B-coded



Socket, 8-pos.



Plug, 8-pos.

Litz wire colors

Pin	Wire color							
	3-pos.		4-pos.		6-pos.		8-pos.	
1	BN		BN		BN		WH	
2	–		WH		WH		BN	
3	BU		BU		BU		GN	
4	BK		BK		BK		YE	
5	–		–		GY		GY	
6	–		–		PK		PK	
7	–		–		–		BU	
8	–		–		–		RD	

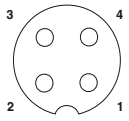
Assignment: M8 flush-type plugs/sockets

Pin	Wire color		Signal DeviceNet™
1	Shield		Drain
2	RD		V+
4	BK		V–
3	WH		CAN_H
5	BU		CAN_L

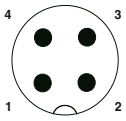
Assignment: CANopen®/DeviceNet™

M12 flush-type plug-in connectors

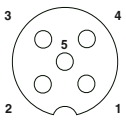
Pin assignments



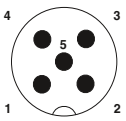
Socket, 4-pos., A-coded



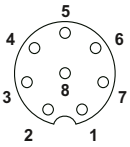
Plug, 4-pos., A-coded



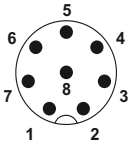
Socket, 5-pos., A-coded



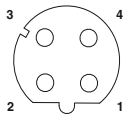
Plug, 5-pos., A-coded



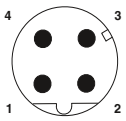
Socket, 8-pos.



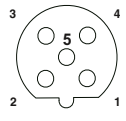
Plug, 8-pos.



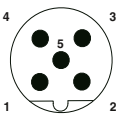
Socket, 4-pos., D-coded



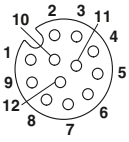
Plug, 4-pos., D-coded



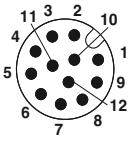
Socket, 5-pos., B-coded



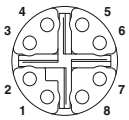
Plug, 5-pos., B-coded



Socket, 12-pos.



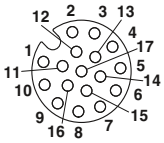
Plug, 12-pos.



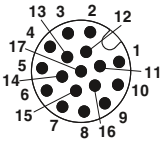
Socket, 8-pos., X-coded



Socket, 8-pos., Y-coded



Socket, 17-pos.



Plug, 17-pos.

Litz wire colors

Pin	4-pos., A-coded	4-pos., D-coded
1	BN	YE
2	WH	WH
3	BU	OG
4	BK	BU
	–	–

Assignment: M12 flush-type plugs/sockets

Pin	5-pos., A-coded	5-pos., B-coded
1	BN	BN
2	WH	WH
3	BU	BU
4	BK	BK
5	GY	GY

Assignment: M12 flush-type plugs/sockets

Pin	8-pos.	12-pos.
1	WH	BN
2	BN	BU
3	GN	WH
4	YE	GN
5	GY	PK
6	PK	YE
7	BU	BK
8	RD	GY
9	–	RD
10	–	VT
11	–	GYPK
12	–	RDBU

Assignment: M12 flush-type plugs/sockets

Pin	Wire color	Signal PROFIBUS
1	–	–
2	GN	A cable
3	–	–
4	RD	B cable
5	Filler litz wire	–
Shield on housing		

Assignment: PROFIBUS

Pin	Wire color	Signal CANopen®
1	Shield	–
2	RD	–
3	BK	CAN_GND
4	WH	CAN_H
5	BU	CAN_L
Shield on housing		

Assignment: CANopen®

Pin	17-pos.
1	BN
2	BU
3	WH
4	GN
5	PK
6	YE
7	BK
8	GY
9	RD
10	VT
11	GYPK
12	RDBU
13	WHGN
14	BNGN
15	WHYE
16	YEBN
17	WHGY

Assignment: M12 flush-type plugs/sockets

Pin	Wire color	Signal DeviceNet™
1	Shield	Drain
2	RD	V+
3	BK	V-
4	WH	CAN_H
5	BU	CAN_L
Shield on housing		

Assignment: DeviceNet™

Pin	Wire color	Signal Ethernet
1	WHOG	TD+
2	WHGN	RD+
3	OG	TD–
4	GN	RD–
Shield on housing		

Assignment: Ethernet

Pin	Wire color	Signal INTERBUS
1	YE	DO
2	GN	DO
3	GY	DI
4	PK	DI
5	BN	COM
-	WH	NC
Shield on housing		

Assignment: INTERBUS

Pin	Wire color	Signal Ethernet
1	WH	D1+
2	OG	D1-
3	WH	D2+
4	GN	D2–
5	WH	D4+
6	BN	D4–
7	WH	D3–
8	BU	D3+

Assignment: Ethernet CAT6$_A$

M12 power flush-type plug-in connectors

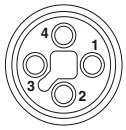
Pin assignments



Socket, S-coded, 3+PE



Plug, A-coded, 3+PE



Socket, T-coded, 4-pos.



Plug, T-coded, 4-pos.

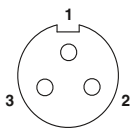
Litz wire colors

Pin	3+PE, S-cod.	Pin	4-pos, T-cod.
1	BK1	1	BN
2	BK2	2	WH
3	BK3	3	BU
PE	GNYE	4	BK

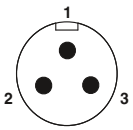
Assignment: M12 flush-type plugs/sockets

7/8" flush-type plug-in connectors

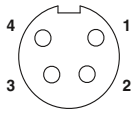
Pin assignments



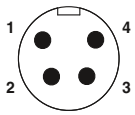
Socket, 3-pos.



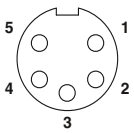
Plug, 3-pos.



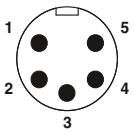
Socket, 4-pos.



Plug, 4-pos.



Socket, 5-pos.



Plug, 5-pos.

Litz wire colors

Pin	3-pos.	4-pos.	5-pos.
1	BK	BK	BK
2	BN	BU	BU
3	BU	BN	GNYE
4	–	WH	BN
5	–	–	WH

Assignment: 7/8" flush-type plugs/sockets

THR processing notes

Information for THR processing	
PCB thickness	Max. 1.6 mm
Residual ring	Recommended: 0.5 mm
Overprinting on soldering mold	Residual ring diameter: 0.2 mm
Soldering mold thickness	150 µm
Soldering profile	IEC 61760-3

Further information	
RoHS conformance	Attained


locked

M17 to M58 circular plug-in connectors

PLUSCON circular is the complete range of electrical circular plug-in connectors designed for use in industrial automation. The wide range of available versions covers sizes M17 to M23, M40, and M58 locking threads.

The product portfolio covers all common applications in industrial environments for signal and power plug-in connectors up to 630 V/150 A. This also includes requirements relating to tightness, vibration resistance, and EMC shielding. These solid metal plugs are particularly suitable for harsh ambient conditions. The circular plug-in connector range is rounded off with a complete portfolio of plastic molded cable plug-in connectors.

Among the numerous applications, the area of electrical drives is worth highlighting. Here, the entire range covers all the power ranges and designs required for wiring from the drive to the control cabinet.

M17 - signal plug-in connectors

Technical data/pin assignments **304**
Selection guide **306**
Plug-in connectors **308**
Crimp contacts **318**

M23 - signal plug-in connectors

Technical data/pin assignments **320**
Selection guide **322**
Plug-in connectors **324**
Crimp contacts **334**

M23 - feedback plug-in connectors

Technical data/pin assignments **336**
Selection guide **338**
Plug-in connectors **340**
Crimp contacts **346**

M17 - power plug-in connectors

Technical data/pin assignments **348**
Selection guide **350**
Plug-in connectors **352**
Crimp contacts **362**

M23 - power plug-in connectors

Technical data/pin assignments **364**
Selection guide **366**
Plug-in connectors **368**
Crimp contacts **374**

M40 - power plug-in connectors

Technical data/pin assignments **376**
Selection guide **378**
Plug-in connectors **380**
Crimp contacts **385**

M58 - power plug-in connectors

Technical data/pin assignments **386**
Selection guide **388**
Plug-in connectors **390**
Crimp contacts **392**

Signal/power plug-in connectors, plastic molded **394**

Tools and accessories **404**

Mechanical and electrical data

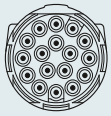
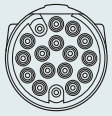
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 3.5 - 11 mm, shielded (M17 Compact) 5 - 12.5 mm, shielded (M17)
Type of locking:	M17 SPEEDCON rapid interlock system, cable plug-in connector Optionally with M17 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100, punched-rolled C-HC crimp contacts: up to 500
Protection class:	IP67 in the locked state

Electrical data

Number of positions		**8**	**17**
Contacts		8	17
Contact Ø	[mm]	1	0.6
Litz wire cross section, crimp contacts Turned	[mm²]	0.06 ... 1.0	0.06 ... 0.5
Litz wire cross section, C-HC crimp contacts Punched-rolled	[mm²]	0.06 ... 0.56	–
Nominal current per contact at 25°C [1]		3.6	3.6
Specifications according to DIN EN 61984:2009			
Rated voltage	[V AC/DC]	60	60
Test/surge voltage	[kV AC]	1.5	1.5
Surge voltage category		III	III
Pollution degree [2]		3	3
Installation height	[m]	Up to 3000	Up to 3000
Cable clamping area [3]	max. Ø [mm]	12.5	12.5

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[3] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Pin assignments and coding

Number of positions	Contact chamber numbering (view of plug-in side) Pin	Socket
8-pos. Crimp		
17-pos. Crimp		

Note:
The plug-in connectors can be equipped with pin or socket contacts according to the application.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Selection guide

M17 signal plug-in connectors, 8 and 17-pos., crimp ranges: 0.06 mm² to 1.0 mm²
– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)

The plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

Plug-in connectors with knurled nuts can be optionally equipped with SPEEDCON rapid interlock system or with M17 x 1 coarse-pitch thread. The plug-in connectors with external thread are fully compatible with standard threads and the SPEEDCON rapid interlock system.

The product chart provides an overview of the available components.

Plug-in connector type

Shielded

Cable plug-in connector

SPEEDCON rapid interlock system, M17 Compact, see page 308.



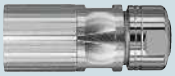
M17, see page 312.



Square mounting flange for M17 cable and coupler plug-in connectors for wall mounting, see page 410.



M17 x 1 standard interlocking, M17, see page 313.



Coupler plug-in connector/panel feed-through

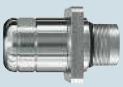
Coupler plug-in connector M17 Compact, see page 309.



M17, see page 314.



Panel feed-through M17 Compact, see page 310.



Device plug-in connector

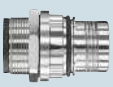
Straight, M17 Compact, see page 311.



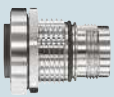
Straight, M17, see page 315.



Straight, with central fastening thread, front mounting, M17, see page 317.



Straight, with central fastening thread, rear mounting, M17, see page 317.



Angled, rotatable, M17, see page 316.



All housing can be fitted with pin or socket crimp contacts

Crimp contacts

Socket contacts

Turned, see page 319.



Punched-rolled, taped,
see page 318.



Pin contacts

Turned, see page 319.



Punched-rolled, taped,
see page 318.



Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Tools/accessories

Crimping tools

Crimping pliers for punched-rolled C-HC crimp contacts,
see page 406.



Crimping pliers with digital display for turned crimp contacts,
see page 407.



Tools/accessories

Contact removal tool for device plug-in connectors with contact carriers for snapping in from the device side,
see page 410.



Color rings for individually marking the plug-in connectors,
see page 412.



M17 Compact cable plug-in connector

– High packing density in a compact product
– Individual marking of plug-in connectors with color rings

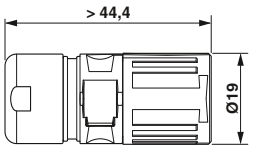


Cable plug-in connector, socket assembly



Cable plug-in connector, pin assembly

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		8-pos.		17-pos.		8-pos.		17-pos.	
Cable plug-in connector, with contact carrier, **without** contacts									
	3.5 mm ... 5.5 mm	**1613370**	1	**1613288**	1	**1618641**	1	**1618682**	1
	5 mm ... 9 mm	**1613371**	1	**1613324**	1	**1618648**	1	**1618683**	1
	9 mm ... 11 mm	**1613372**	1	**1613325**	1	**1618649**	1	**1618684**	1
		Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			



M17 Compact coupler plug-in connector

– Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
– Individual marking of plug-in connectors with color rings



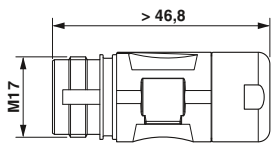
Coupler plug-in connector, socket assembly



Coupler plug-in connector, pin assembly

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		8-pos.		17-pos.		8-pos.		17-pos.	
Coupler plug-in connector, with contact carrier, **without** contacts									
	3.5 mm ... 5.5 mm	**1618724**	1	**1618756**	1	**1617799**	1	**1613497**	1
	5 mm ... 9 mm	**1618725**	1	**1618757**	1	**1617813**	1	**1613896**	1
	9 mm ... 11 mm	**1618726**	1	**1618758**	1	**1617830**	1	**1614532**	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412	For pin contacts, see page 318 onwards See page 412



M17 Compact panel feed-through

- Panel feed-throughs suitable for front and rear mounting
- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 25.7 mm x 25.7 mm**



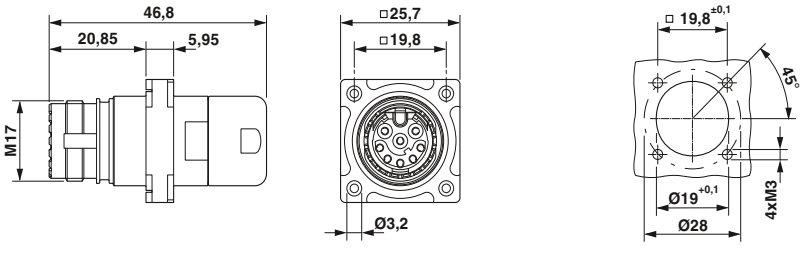
Panel feed-through, socket assembly



Panel feed-through, pin assembly

Description	Cable clamping area	Ordering data: Order No. (8-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (8-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Panel feed-through, with contact carrier, **without contacts**									
	3.5 mm ... 5.5 mm	**1618801**	1	**1618834**	1	**1617925**	1	**1617863**	1
	5 mm ... 9 mm	**1618802**	1	**1618835**	1	**1617929**	1	**1617872**	1
	9 mm ... 11 mm	**1618805**	1	**1618836**	1	**1617932**	1	**1617873**	1

Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412	For pin contacts, see page 318 onwards See page 412



Installation dimensions

M17 Compact device plug-in connectors, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 21.6 mm x 21.6 mm**

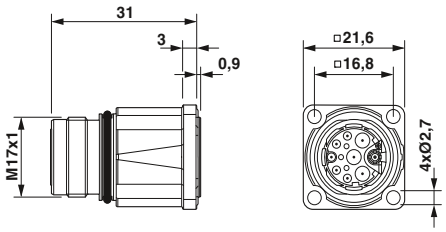


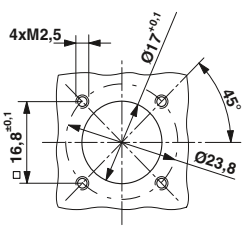
Device plug-in connector, straight, socket assembly



Device plug-in connector, straight, pin assembly

Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	8-pos.		17-pos.		8-pos.		17-pos.	
Device plug-in connector, with contact carrier, **without** contacts, contact insert **can be snapped in**	1619039	1	1607654	1	1613286	1	1607636	1
Device plug-in connector, with contact carrier, **without** contacts, contact insert **for support** on the device	1619038	1	1607653	1	1619037	1	1607634	1
	Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			





Installation dimensions

Cable plug-in connector, SPEEDCON rapid interlock system

– Individual marking of plug-in connectors with color rings

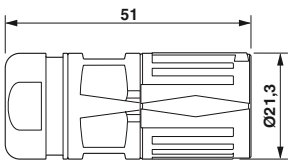


Cable plug-in connector, socket assembly



Cable plug-in connector, pin assembly

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		8-pos.		17-pos.		8-pos.		17-pos.	
Cable plug-in connector, with contact carrier, **without** contacts									
	5 mm ... 8 mm	**1619007**	1	**1607642**	1	**1618999**	1	**1607625**	1
	8 mm ... 10 mm	**1619008**	1	**1607644**	1	**1619000**	1	**1607627**	1
	10 mm ... 12.5 mm	**1619009**	1	**1624532**	1	**1619001**	1	**1624529**	1
		Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			



Cable plug-in connector, M17 standard interlocking

- Standard knurled nuts compatible with mating plugs with SPEEDCON or M17 standard external thread
- Individual marking of plug-in connectors with color rings



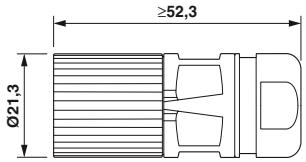
Cable plug-in connector, socket assembly



Cable plug-in connector, pin assembly

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		8-pos.		17-pos.		8-pos.		17-pos.	
Cable plug-in connector, with contact carrier, **without** contacts									
	5 mm ... 8 mm	**1619003**	1	**1607641**	1	**1618995**	1	**1607624**	1
	8 mm ... 10 mm	**1619004**	1	**1607643**	1	**1618996**	1	**1607626**	1
	10 mm ... 12.5 mm	**1619005**	1	**1624531**	1	**1618997**	1	**1624528**	1

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412	For pin contacts, see page 318 onwards See page 412



Coupler plug-in connector

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings

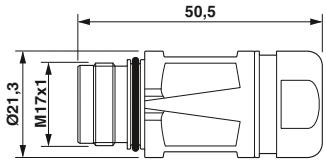


Coupler plug-in connector, socket assembly



Coupler plug-in connector, pin assembly

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
		8-pos.		**17-pos.**		**8-pos.**		**17-pos.**	
Coupler plug-in connector, with contact carrier, **without** contacts									
	5 mm ... 8 mm	**1619015**	1	**1607647**	1	**1619011**	1	**1607630**	1
	8 mm ... 10 mm	**1619016**	1	**1607649**	1	**1619012**	1	**1607631**	1
	10 mm ... 12.5 mm	**1619017**	1	**1624533**	1	**1619013**	1	**1624530**	1
		Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			



Device plug-in connector, straight, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Contact insert for support on the device or can be snapped in
- Individual marking of plug-in connectors with color rings

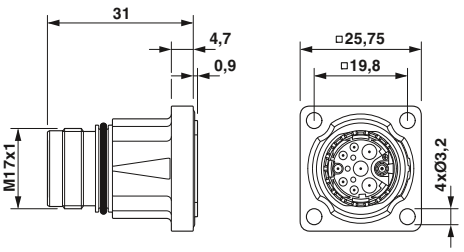


Device plug-in connector, straight, socket assembly

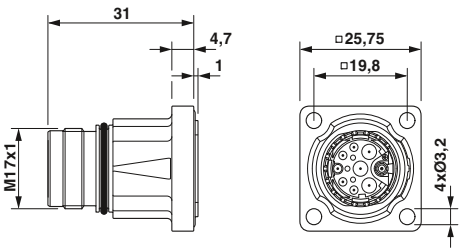


Device plug-in connector, straight, pin assembly

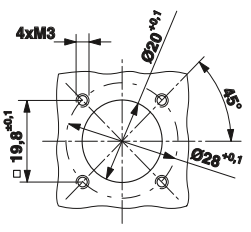
Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	8-pos.		17-pos.		8-pos.		17-pos.	
Device plug-in connector, with contact carrier, **without** contacts, contact insert **for support** on the device								
Flange dimensions: 25.75 mm x 25.75 mm	**1619197**	1	**1619206**	1	**1619196**	1	**1619202**	1
Device plug-in connector, with contact carrier, **without** contacts, contact insert **can be snapped in**								
Flange dimensions: 25.75 mm x 25.75 mm	**1619220**	1	**1619226**	1	**1619219**	1	**1619225**	1
	Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412				For pin contacts, see page 318 onwards See page 412			



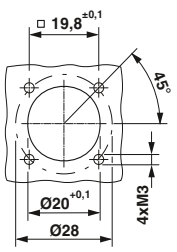
Contact insert for support on the device



Contact insert can be snapped in



Installation dimensions



Installation dimensions

Device plug-in connector, angled, rotatable, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Housing can be freely rotated up to 308°
- Individual marking of plug-in connectors with color rings
- Flange versions for M2.5/M3 attachment



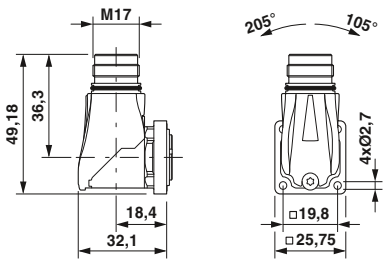
Device plug-in connector, angled, rotatable, for socket contacts



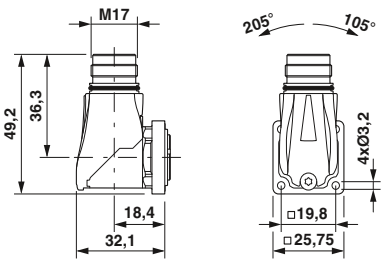
Device plug-in connector, angled, rotatable, for pin contacts

Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	8-pos.		17-pos.		8-pos.		17-pos.	
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts								
Fixing with M2.5	1620440	1	1620442	1	1620439	1	1620441	1
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts								
Fixing with M3	1620455	1	1620457	1	1620456	1	1620458	1

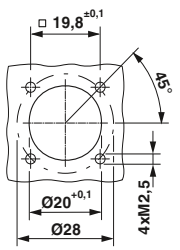
	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412	For pin contacts, see page 318 onwards See page 412



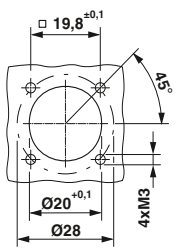
Fixing with M2.5



Fixing with M3



Installation dimensions



Installation dimensions

Device plug-in connector, central fastening thread, front/rear mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Contact carrier snapped in from the device side
- Individual marking of plug-in connectors with color rings



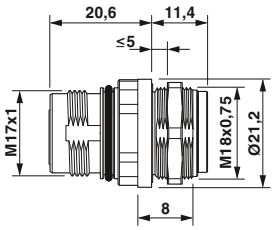
Device plug-in connector, central fixing, socket assembly



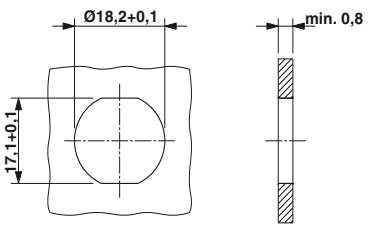
Device plug-in connector, central fixing, pin assembly

Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	8-pos.		17-pos.		8-pos.		17-pos.	
Device plug-in connector, **front mounting**, M18 x 0.75 fastening thread, with contact carrier, without contacts	1619036	1	1613542	1	1618584	1	1613540	1
Device plug-in connector, **rear mounting**, M20 x 1.5 fastening thread, with contact carrier, without contacts	1619035	1	1613543	1	1619034	1	1613541	1

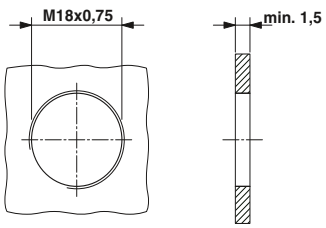
Description	Accessories			Accessories		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Locking nut, for mounting bore holes and anti-rotation protection						
M18 x 0.75	ST-E2015151	1613831	10	ST-E2015151	1613831	10
M20 x 1.5	RC-13041	1600417	10	RC-13041	1600417	10
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 318 onwards See page 412			For pin contacts, see page 318 onwards See page 412		



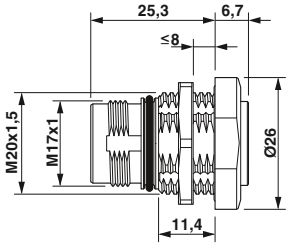
Front mounting, M18 x 0.75, order locking nut separately



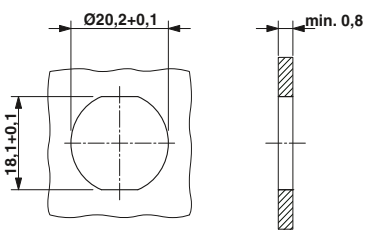
Installation dimensions: mounting with anti-rotation protection and locking nut



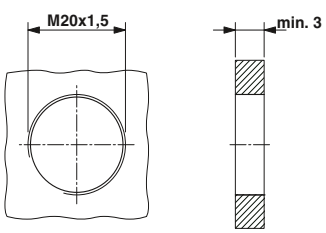
Installation dimensions: mounting with thread



Rear mounting, M20 x 1.5, order locking nut separately



Installation dimensions: mounting with anti-rotation protection and locking nut



Installation dimensions: mounting with thread

Crimp contacts, punched-rolled

C-HC® are punched-rolled contacts. They are designed for high insertion/ withdrawal cycles.

The contacts are available taped on rolls for manual or automatic processing.

Note: depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the listed values. For reasons of safety, only socket contacts may be used in the live part of the plug.



C-HC socket contacts



C-HC pin contacts

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Crimp contacts, C-HC punched-rolled, Ø 1.0 mm, **2500 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS320**	**1607031**	1	**SF-10KP320**	**1615961**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS350**	**1607032**	1	**SF-10KP350**	**1615963**	1
Crimp contact C-HC punched-rolled, Ø 1.0 mm, **10,000 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS330**	**1607358**	1	**SF-10KP330**	**1615962**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS360**	**1607361**	1	**SF-10KP360**	**1615964**	1
		Accessories			Accessories		
Crimping tools		Order separately, see page 406			Order separately, see page 406		

Crimp contacts, turned

M17 signal plug-in connectors are fitted with contacts with Ø 1.0 mm or Ø 0.6 mm depending on the number of positions.
– 8-pos. versions: contacts with Ø 1.0 mm
– 17-pos. versions: contacts with Ø 0.6 mm

Note:
Depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the values listed below.



Crimp contacts, socket



Crimp contacts, pin

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contact socket Ø 0.6 mm							
	0.06 mm² ... 0.25 mm²	**ST-06KS010**	**1607580**	100			
	0.14 mm² ... 0.34 mm²	**ST-06KS020**	**1607581**	100			
	0.34 mm² ... 0.50 mm²	**ST-06KS030**	**1607582**	100			
Contact socket Ø 1.0 mm							
	0.06 mm² ... 0.25 mm²	**ST-10KS010**	**1618239**	100			
	0.34 mm² ... 0.5 mm²	**ST-10KS020**	**1618251**	100			
	0.5 mm² ... 1.0 mm²	**ST-10KS030**	**1618254**	100			
Contact pin Ø 0.6 mm							
	0.06 mm² ... 0.25 mm²				**ST-06KP010**	**1607577**	100
	0.14 mm² ... 0.34 mm²				**ST-06KP020**	**1607578**	100
	0.34 mm² ... 0.50 mm²				**ST-06KP030**	**1607579**	100
Contact pin Ø 1.0 mm							
	0.06 mm² ... 0.25 mm²				**ST-10KP010**	**1618255**	100
	0.34 mm² ... 0.5 mm²				**ST-10KP020**	**1618256**	100
	0.5 mm² ... 1.0 mm²				**ST-10KP030**	**1618261**	100
		Accessories			Accessories		
Crimping tools		Order separately, see page 407			Order separately, see page 407		

Notes:
Every plug-in connector housing type can be fitted with pin or socket contacts.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Mechanical and electrical data

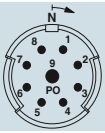
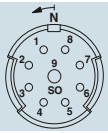
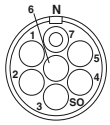
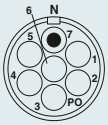
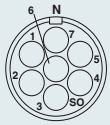
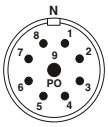
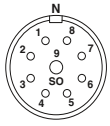
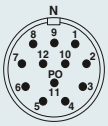
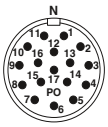
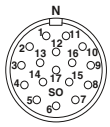
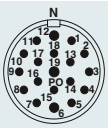
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Thermoplastic polyester (PBT), polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Solder cup, crimp, solder-in pin
Sealing and O-ring:	NBR
Flat gasket:	NBR, fiber reinforced NBR
Temperature range:	-40°C ... +125°C
Cable entry:	cable and coupler plug-in connectors for cable outside diameter of 3 - 14.5 mm, shielded
Type of locking:	M23 SPEEDCON rapid interlock system, Cable plug-in connector optionally with M23 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100, punched-rolled C-HC crimp contacts: up to 500
Protection class:	IP67 in the locked state

Electrical data

Number of positions		**6**	7	**9 (8+1)**	**12**	**17**	19 (16+3)
Contacts		6	7	8 + 1	12	17	16 + 3
Contact Ø	[mm]	2	2	1 2	1	1	1 1.5
Litz wire cross section							
Solder connection: contacts x [mm²] maximum		6 x 2.5	7 x 2.5	8 x 1.0 + 1 x 2.5	12 x 1.0	17 x 1.0	16 x 1.0 + 3 x 1.0
Crimp connection: contacts x [mm²] maximum		6 x 2.5	7 x 2.5	8 x 0.56 + 1 x 2.5	12 x 0.56	17 x 0.56	16 x 1.0 + 3 x 1.0
Nominal current per contact at 25°C[1)]		20	20	8 20	8	8	8 10
Specifications according to DIN EN 61984:2009							
Rated voltage	[V AC/DC]	300	300	300	150	150	150
Test/surge voltage	[kV AC]	2.5	2.5	2.5	1.5	1.5	1.5
Surge voltage category		II	II	II	II	II	II
Pollution degree [2)]		3	3	3	3	3	3
Installation height	[m]	Up to 2000	Up to 2000	Up to 2000	Up to 2000	Up to 2000	Up to 2000
Cable clamping area [3)]	max. Ø [mm]	14.5	14.5	14.5	14.5	14.5	14.5

[1)] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2)] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[3)] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Note:
Unlike plug-in equipment, plug-in connectors must not be plugged or unplugged under load.

	Contact chamber numbering (view of plug-in side)	
Direction of rotation for contact chamber numbering (view of plug-in side)		
	Clockwise (standard)	**Counter-clockwise** (standard)
Number of positions	**Pin**	**Socket**
6-pos. Solder/crimp/solder-in		
7-pos. Solder/crimp/solder-in		
9-pos. (8+1) Solder/crimp/solder-in		
12-pos. Solder/crimp/solder-in		
17-pos. Solder/crimp/solder-in		
19-pos. (16+3) Solder/crimp		

Note:
The plug-in connectors can be equipped with pin or socket contacts according to the application.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Selection guide

M23 signal plug-in connector, 6 to 19-pos., up to 20 A/300 V, solder, crimp, and solder-in connection.

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)

In the case of crimp connection, the respective crimp contacts must be added according to the connection cross section.

Each housing type can be equipped with pin or socket contacts. The product chart provides an overview of the available components.

	Plug-in connector type
Shielded	**Cable plug-in connectors** SPEEDCON rapid interlock system, see page 324.  M23 x 1 standard interlocking, see page 325. 
Shielded	**Coupler plug-in connectors** See page 326. 
Shielded	**Device plug-in connectors** Front mounting, Pg13.5 fastening thread, see page 327.  Front mounting, M20 fastening thread, see page 328.  Front mounting, flange dimensions 25 mm x 25 mm, see page 329.  Front mounting, solder-in connection flange dimensions 25 mm x 25 mm, see page 330.  Rear mounting, central fastening nut, see page 332. 

All housing can be fitted with pin or socket crimp contacts

For crimp connection:

Socket contacts

Turned, see page 334.



Rolled, taped,
see page 334.



Pin contacts

Turned, see page 334.



Rolled, taped,
see page 334.



Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Tools/accessories

Crimping tools

Crimping pliers for rolled crimp contacts,
see page 404.



Crimping pliers with digital display for turned crimp contacts,
see page 404.



Tools/accessories

Contact removal tool for device plug-in connectors for releasing the contact carriers from the plug-in side,
see page 410.



Color rings for individually marking the plug-in connectors,
see page 412.



Cable plug-in connector, SPEEDCON rapid interlock system

– 6 to 19-pos. versions, solder/crimp connection
– Individual marking of plug-in connectors with color rings

N



6, 7, 8+1-pos.

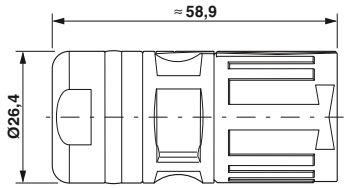
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12, 17, 16+3-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Cable plug-in connector, with contact carrier, with **socket contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	1619605	1	1619601	1	1619597	1	1619593	1	1619585	1	1619581	1
	4 mm ... 6 mm	1619579	1	1619575	1	1619571	1	1619567	1	1619541	1	1619537	1
	6 mm ... 10 mm	1619534	1	1619530	1	1619526	1	1619522	1	1619514	1	1619510	1
	10 mm ... 14.5 mm	1619508	1	1619504	1	1619500	1	1619496	1	1619483	1	1619479	1
Cable plug-in connector, with contact carrier, with **pin contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	1619604	1	1619600	1	1619596	1	1619592	1	1619584	1	1619580	1
	4 mm ... 6 mm	1619578	1	1619574	1	1619570	1	1619548	1	1619540	1	1619536	1
	6 mm ... 10 mm	1619533	1	1619529	1	1619525	1	1619521	1	1619513	1	1619509	1
	10 mm ... 14.5 mm	1619507	1	1619503	1	1619499	1	1619495	1	1619482	1	1619478	1
Cable plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	1619603	1	1619599	1	1619595	1	1619591	1	1619583	1		
	4 mm ... 6 mm	1619577	1	1619573	1	1619569	1	1619547	1	1619539	1		
	6 mm ... 10 mm	1619532	1	1619528	1	1619524	1	1619520	1	1619512	1		
	10 mm ... 14.5 mm	1619506	1	1619502	1	1619498	1	1619489	1	1619481	1		
Cable plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	1619602	1	1619598	1	1619594	1	1619590	1	1619582	1		
	4 mm ... 6 mm	1619576	1	1619572	1	1619568	1	1619546	1	1619538	1		
	6 mm ... 10 mm	1619531	1	1619527	1	1619523	1	1619519	1	1619511	1		
	10 mm ... 14.5 mm	1619505	1	1619501	1	1619497	1	1619488	1	1619480	1		

Accessories	Accessories
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412
	Order separately, see page 334 onwards See page 412



Cable plug-in connector, M23 standard interlocking

- Standard knurled nuts compatible with mating plugs with SPEEDCON or M23 standard external thread
- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

N



6, 7, 8+1-pos.

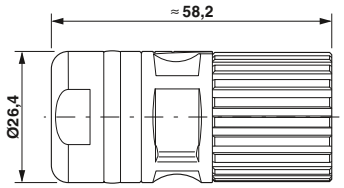
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12, 17, 16+3-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Cable plug-in connector, with contact carrier, with **socket contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	1619776	1	1619772	1	1619768	1	1619764	1	1619756	1	1619752	1
	4 mm ... 6 mm	1619750	1	1619746	1	1619742	1	1619738	1	1619730	1	1619726	1
	6 mm ... 10 mm	1619724	1	1619720	1	1619716	1	1619710	1	1619702	1	1619661	1
	10 mm ... 14.5 mm	1619659	1	1619655	1	1619651	1	1619647	1	1619639	1	1619635	1
Cable plug-in connector, with contact carrier, with **pin contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	1619775	1	1619771	1	1619767	1	1619763	1	1619755	1	1619751	1
	4 mm ... 6 mm	1619749	1	1619745	1	1619741	1	1619737	1	1619729	1	1619725	1
	6 mm ... 10 mm	1619723	1	1619719	1	1619715	1	1619709	1	1619701	1	1619660	1
	10 mm ... 14.5 mm	1619658	1	1619654	1	1619650	1	1619646	1	1619638	1	1619634	1
Cable plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	1619774	1	1619770	1	1619766	1	1619762	1	1619754	1		
	4 mm ... 6 mm	1619748	1	1619744	1	1619740	1	1619736	1	1619728	1		
	6 mm ... 10 mm	1619722	1	1619718	1	1619714	1	1619708	1	1619700	1		
	10 mm ... 14.5 mm	1619657	1	1619653	1	1619649	1	1619645	1	1619637	1		
Cable plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	1619773	1	1619769	1	1619765	1	1619761	1	1619753	1		
	4 mm ... 6 mm	1619747	1	1619743	1	1619739	1	1619735	1	1619727	1		
	6 mm ... 10 mm	1619721	1	1619717	1	1619711	1	1619707	1	1619699	1		
	10 mm ... 14.5 mm	1619656	1	1619652	1	1619648	1	1619644	1	1619636	1		

Accessories	Accessories
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412	Order separately, see page 334 onwards See page 412



Coupler plug-in connector

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

N



6, 7, 8+1-pos.

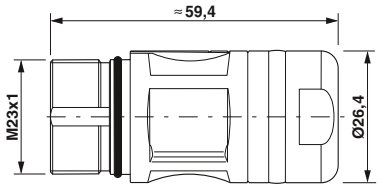
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12, 17, 16+3-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Coupler plug-in connector, with contact carrier, with **socket contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	1620172	1	1620168	1	1620164	1	1620160	1	1620151	1	1620147	1
	4 mm ... 6 mm	1620145	1	1620141	1	1620137	1	1620133	1	1620125	1	1620121	1
	6 mm ... 10 mm	1620119	1	1620115	1	1620079	1	1620075	1	1620052	1	1620048	1
	10 mm ... 14.5 mm	1620046	1	1620042	1	1620036	1	1620032	1	1620024	1	1620020	1
Coupler plug-in connector, with contact carrier, with **pin contacts**, **solder connection**													
Universal gasket	3 mm ... 14.5 mm	1620171	1	1620167	1	1620163	1	1620159	1	1620150	1	1620146	1
	4 mm ... 6 mm	1620144	1	1620140	1	1620136	1	1620132	1	1620124	1	1620120	1
	6 mm ... 10 mm	1620118	1	1620114	1	1620078	1	1620074	1	1620051	1	1620047	1
	10 mm ... 14.5 mm	1620045	1	1620041	1	1620035	1	1620031	1	1620023	1	1620019	1
Coupler plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	1620170	1	1620166	1	1620162	1	1620158	1	1620149	1		
	4 mm ... 6 mm	1620143	1	1620139	1	1620135	1	1620131	1	1620123	1		
	6 mm ... 10 mm	1620117	1	1620081	1	1620077	1	1620073	1	1620050	1		
	10 mm ... 14.5 mm	1620044	1	1620038	1	1620034	1	1620030	1	1620022	1		
Coupler plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection**													
Universal gasket	3 mm ... 14.5 mm	1620169	1	1620165	1	1620161	1	1620157	1	1620148	1		
	4 mm ... 6 mm	1620142	1	1620138	1	1620134	1	1620130	1	1620122	1		
	6 mm ... 10 mm	1620116	1	1620080	1	1620076	1	1620072	1	1620049	1		
	10 mm ... 14.5 mm	1620043	1	1620037	1	1620033	1	1620029	1	1620021	1		

Accessories	Accessories
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412
	Order separately, see page 334 onwards See page 412



Device plug-in connectors, front mounting

N

N

– Pg13.5 fastening thread

– Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts

– 6 to 19-pos. versions, solder/crimp connection

– Individual marking of plug-in connectors with color rings

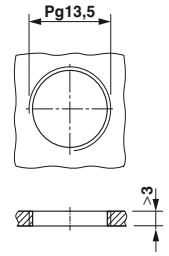


6, 7, 8+1-pos.

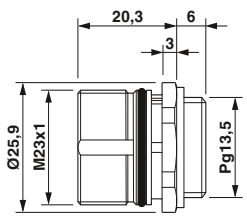


12, 17, 16+3-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Device plug-in connector, with contact carrier, with **socket contacts**, **solder connection, Pg13.5 central fastening thread,** axial seal	1619903	1	1619899	1	1619895	1	1619891	1	1619883	1	1619879	1
Device plug-in connector, with contact carrier, with **pin contacts**, **solder connection, Pg13.5 central fastening thread,** axial seal	1619902	1	1619898	1	1619894	1	1619890	1	1619882	1	1619878	1
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection, Pg13.5 central fastening thread,** axial seal	1619901	1	1619897	1	1619893	1	1619889	1	1619881	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection, Pg13.5 central fastening thread,** axial seal	1619900	1	1619896	1	1619892	1	1619888	1	1619880	1		
	Accessories						Accessories					
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412						Order separately, see page 334 onwards See page 412					



Installation dimensions



Device plug-in connectors, front mounting

N

N

– M20 fastening thread

– Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts

– 6 to 19-pos. versions, solder/crimp connection

– Individual marking of plug-in connectors with color rings



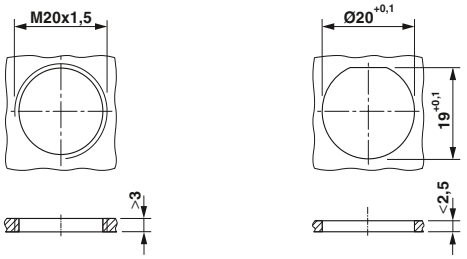
6, 7, 8+1-pos.



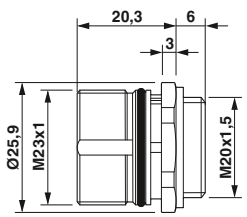
12, 17, 16+3-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Device plug-in connector, with contact carrier, with **socket contacts**, **solder connection, M20 central fastening thread,** axial seal	1619877	1	1619873	1	1619869	1	1619865	1	1619857	1	1619853	1
Device plug-in connector, with contact carrier, with **pin contacts**, **solder connection, M20 central fastening thread,** axial seal	1619876	1	1619872	1	1619868	1	1619864	1	1619856	1	1619852	1
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection, M20 central fastening thread,** axial seal	1619875	1	1619871	1	1619867	1	1619863	1	1619855	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection, M20 central fastening thread,** axial seal	1619874	1	1619870	1	1619866	1	1619862	1	1619854	1		

Description	Accessories			Accessories		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Locking nut, for mounting bore holes and anti-rotation protection						
M20 x 1.5	RC-13041	1600417	10	RC-13041	1600417	10
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412			Order separately, see page 334 onwards See page 412		



Installation dimensions



Device plug-in connectors, front mounting

N

N

- **Flange dimensions 25 mm x 25 mm**
- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

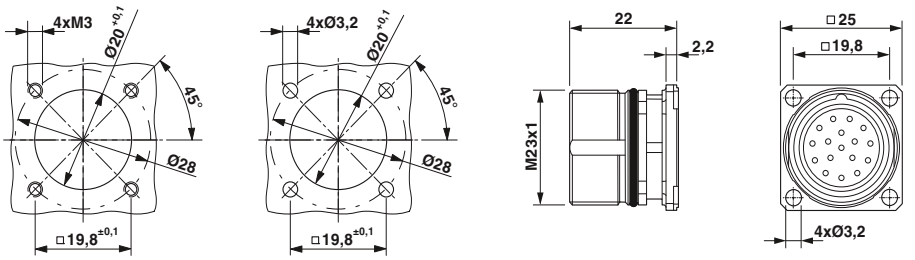


6, 7, 8+1-pos.



12, 17, 16+3-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Device plug-in connector, with contact carrier, with **socket contacts**, **solder connection,** flat gasket	1619993	1	1619989	1	1619973	1	1619969	1	1619961	1	1619957	1
Device plug-in connector, with contact carrier, with **pin contacts**, **solder connection,** flat gasket	1619992	1	1619988	1	1619972	1	1619968	1	1619960	1	1619956	1
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection,** flat gasket	1619991	1	1619987	1	1619971	1	1619967	1	1619959	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection,** flat gasket	1619990	1	1619986	1	1619970	1	1619966	1	1619958	1		
	Accessories						Accessories					
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412						Order separately, see page 334 onwards See page 412					



Installation dimensions

Device plug-in connectors, front mounting

N

N

- **Flange dimensions 25 mm x 25 mm**
- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 6 to 17-pos., **solder-in connection**
- Individual marking of plug-in connectors with color rings

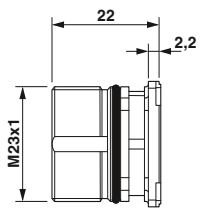


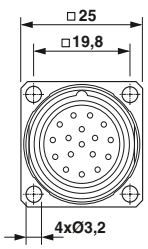
6, 7, 8+1-pos.

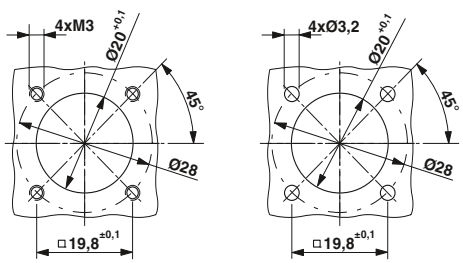


12, 17-pos.

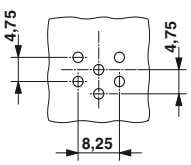
Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.			
Device plug-in connector, with contact carrier, with contacts, solder-in connection, **free solder pin length of 3.5 mm,** flat gasket												
Socket	1619955	1	1619953	1	1619951	1	1619949	1	1619933	1		
Plug	1619954	1	1619952	1	1619950	1	1619948	1	1619932	1		
Device plug-in connector, with contact carrier, with contacts, solder-in connection, **free solder pin length of 10.0 mm,** flat gasket												
Socket	1619931	1	1619929	1	1619927	1	1619925	1	1619918	1		
Plug	1619930	1	1619928	1	1619926	1	1619924	1	1619917	1		
Device plug-in connector, with contact carrier, with contacts, solder-in connection, **free solder pin length of 17.5 mm,** flat gasket												
Socket	1619916	1	1619914	1	1619912	1	1619910	1	1619905	1		
Plug	1619915	1	1619913	1	1619911	1	1619909	1	1619904	1		
	Accessories						Accessories					
Color rings, 50 pcs. in set (to be ordered separately)	See page 412						See page 412					



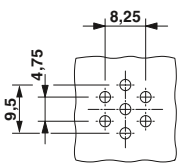




Installation dimensions



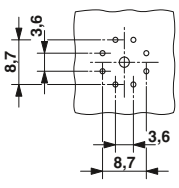
6-pos.



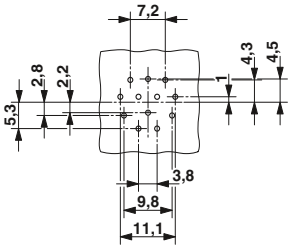
7-pos.

Device plug-in connectors, front mounting, PCB hole patterns

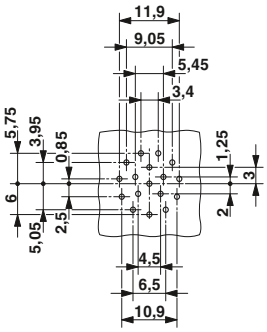
The free solder pin length is the distance between the mounting flange of the device connector and end of the soldered-in pin. In this measurement, the housing wall thickness and distance to the PCB are included.



8+1-pos.



12-pos.



17-pos.

Device plug-in connector, rear mounting

N

N

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 6 to 19-pos. versions, solder/crimp connection
- Individual marking of plug-in connectors with color rings

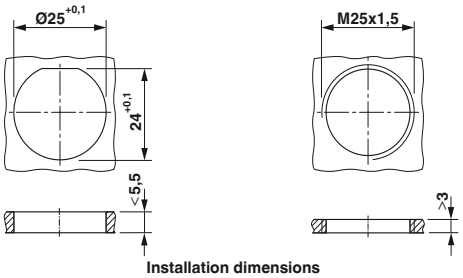


6, 7, 8+1-pos.

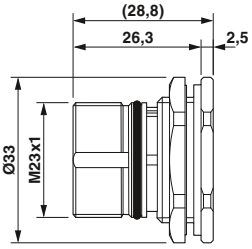


12, 17, 16+3-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	6-pos.		7-pos.		8+1-pos.		12-pos.		17-pos.		16+3-pos.	
Device plug-in connector, with contact carrier, with **socket contacts**, **solder connection, central fixing nut,** axial seal	1619851	1	1619847	1	1619843	1	1619790	1	1619782	1	1619778	1
Device plug-in connector, with contact carrier, with **pin contacts**, **solder connection, central fixing nut,** axial seal	1619850	1	1619846	1	1619842	1	1619789	1	1619781	1	1619777	1
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly, crimp connection, central fixing nut,** axial seal	1619849	1	1619845	1	1619841	1	1619788	1	1619780	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly, crimp connection, central fixing nut,** axial seal	1619848	1	1619844	1	1619791	1	1619787	1	1619779	1		
	Accessories						Accessories					
For crimp connection: crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 334 onwards See page 412						Order separately, see page 334 onwards See page 412					



Installation dimensions



Crimp contacts

Pin and socket crimp contacts with various connection cross sections can be ordered for each crimp contact carrier.



Rolled crimp contacts



Turned crimp contacts

Description	Contacts / connection cross section [mm²]	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.	Ordering data: Type	Ordering data: Order No.	Ordering data: Pcs. / Pkt.
Crimp contacts for contact carriers, 6-pos., 6 x Ø 2.0 mm							
	Pin Ø 2.0 mm / 1.0 ... 1.5				**RC-5CP2000**	**1603513**	50
	Socket Ø 2.0 mm / 1.0 ... 1.5				**RC-5CS2000**	**1603517**	50
	Pin Ø 2.0 mm / 1.5 ... 2.5				**RC-5AP2000**	**1603505**	50
	Socket Ø 2.0 mm / 1.5 ... 2.5				**RC-5AS2000**	**1603509**	50
Crimp contacts for contact carriers, 7-pos., 7 x Ø 2.0 mm							
	Pin Ø 2.0 mm / 1.0 ... 1.5				**RC-5CP2000**	**1603513**	50
	Socket Ø 2.0 mm / 1.0 ... 1.5				**RC-5CS2000**	**1603517**	50
	Pin Ø 2.0 mm / 1.5 ... 2.5				**RC-5AP2000**	**1603505**	50
	Socket Ø 2.0 mm / 1.5 ... 2.5				**RC-5AS2000**	**1603509**	50
Crimp contacts for contact carriers, 9-pos. (8+1), 8 x Ø 1.0 mm, 1 x Ø 2.0 mm							
	Pin Ø 1.0 mm / 0.14 ... 0.56				**RC-12P2000**	**1597862**	100
	Socket Ø 1.0 mm / 0.14 ... 0.56				**RC-12S2000**	**1599600**	100
	Pin Ø 2.0 mm / 1.5 ... 2.5				**RC-5AP2000**	**1603505**	50
	Socket Ø 2.0 mm / 1.5 ... 2.5				**RC-5AS2000**	**1603509**	50
	Pin Ø 2.0 mm / 1.0 ... 1.5				**RC-5CP2000**	**1603513**	50
	Socket Ø 2.0 mm / 1.0 ... 1.5				**RC-5CS2000**	**1603517**	50
Crimp contacts for contact carriers, 12-pos., 12 x Ø 1.0 mm							
	Pin Ø 1.0 mm / 0.22 ... 0.56	**RC-22P2000**	**1603321**	100			
	Socket Ø 1.0 mm / 0.22 ... 0.56	**RC-22S2000**	**1603327**	100			
	Pin Ø 1.0 mm / 0.14 ... 0.56				**RC-12P2000**	**1597862**	100
	Socket Ø 1.0 mm / 0.14 ... 0.56				**RC-12S2000**	**1599600**	100
Crimp contacts for contact carriers, 16-pos., 16 x Ø 1.0 mm							
	Pin Ø 1.0 mm / 0.22 ... 0.56	**RC-22P2000**	**1603321**	100			
	Socket Ø 1.0 mm / 0.22 ... 0.56	**RC-22S2000**	**1603327**	100			
	Pin Ø 1.0 mm / 0.14 ... 0.56				**RC-12P2000**	**1597862**	100
	Socket Ø 1.0 mm / 0.14 ... 0.56				**RC-12S2000**	**1599600**	100

Accessories	Accessories
Crimping tools	**Crimping tools**
See page 404	See page 404

Mechanical and electrical data

Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 3 ... 14.5 mm, shielded
Type of locking:	M23 SPEEDCON screw locking, cable plug-in connector optionally with M23 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100, punched-rolled C-HC crimp contacts: up to 500
Protection class:	IP67 in the locked state

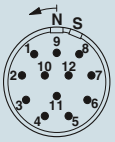
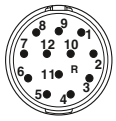
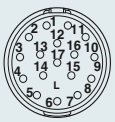
Electrical data

Number of positions		**12**		**17**
Contacts		12		17
Contact Ø	[mm]	1		1
Litz wire cross section, crimp contacts turned	[mm^2]	0.08 ... 1.0		0.08 ... 1.0
Litz wire cross section, C-HC crimp contacts punched-rolled	[mm^2]	0.06 ... 0.56		0.06 ... 0.56
Cable clamping area	max. Ø [mm]	14.5		14.5
Nominal current per contact at 25°C [1]	[A]	8		8
Specifications according to DIN EN 61984:2009				
Rated voltage	[V AC/DC]	150		100
Test/surge voltage	[kV]	2.5		1.5
Surge voltage category		III		III
Pollution degree [2]		3		3
Installation height	[m]	Up to 3000		Up to 3000
Cable clamping area 3)	max. Ø [mm]	14.5		14.5

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[3] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Note:
Unlike plug-in equipment, plug-in connectors must not be plugged or unplugged under load.

Pin assignments and coding

	Contact chamber numbering (view of plug-in side)			
Direction of rotation for contact chamber numbering (view of plug-in side)				
	Clockwise (standard) **R** marked	**Counter-clockwise** (standard) **L** marked	**Counter-clockwise** (reverse) **L marked**	**Clockwise** (reverse) **R** marked
Number of positions	**Pin**	**Socket**	**Pin**	**Socket**
12-pos. **N-coding** Crimp				
17-pos. **N-coding** Crimp				

Note:
Standard coding is “N”. Other coding types and numbers of positions available on request

The plug-in connectors can be equipped with pin or socket contacts according to the application.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Selection guide

M23 signal plug-in connector, 12/17-pos., N-coding, up to 8 A/150 V, crimp ranges up to 1 mm²

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)

Crimp contacts must be ordered separately depending on the connection cross section.

Each housing type can be equipped with pin or socket contacts.

The plug-in connectors can be supplied with clockwise or counter-clockwise contact chamber numbering.

N (0°) and S (20°, on request) coding positions are possible.

The product chart provides an overview of the available components.

	Plug-in connector type	
Shielded	**Cable plug-in connectors** SPEEDCON rapid interlock system, see page 340.  M23 x 1 standard interlocking, see page 341. 	 Square mounting flange for cable and coupler plug-in connectors for wall mounting, see page 410.
Shielded	**Coupler plug-in connectors** see page 342. 	 Square mounting flange for cable and coupler plug-in connectors for wall mounting, see page 410.
Shielded	**Device plug-in connectors** Straight, 4-hole mounting Ø 3.2, see page 344. 	
	Contact carriers for snapping in from the device side, straight, 4-hole mounting Ø 3.2, see page 344. 	
	Angled, rotatable, flange dimensions 26 mm x 26 mm, see page 345. 	
	Angled, rotatable, Flange dimensions 28 mm x 28 mm, see page 345. 	

All housing can be fitted with pin or socket crimp contacts

Crimp contacts

Socket contacts

Turned, see page 347.



Punched-rolled, taped,
see page 346.



Pin contacts

Turned, see page 347.



Punched-rolled, taped,
see page 346.



Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Tools/accessories

Crimping tools

Crimping pliers for punched-rolled C-HC crimp contacts,
see page 406.



Crimping pliers with digital display for turned crimp contacts,
see page 407.



Tools/accessories

Contact removal tool for device plug-in connectors with contact carriers for snapping in from the device side,
see page 410.



Color rings for individually marking the plug-in connectors,
see page 412.



Cable plug-in connector, SPEEDCON rapid interlock system

– 12 or 17-pos. versions
– Individual marking of plug-in connectors with color rings

N



Cable plug-in connector, socket assembly

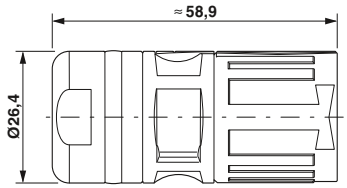
N



Cable plug-in connector, pin assembly

Description	Cable clamping area	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Cable plug-in connector, with contact carrier, **without** contacts, **standard** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1619472**	1	**1619470**	1	**1619471**	1	**1619469**	1
	4 mm ... 6 mm	**1619466**	1	**1619464**	1	**1619465**	1	**1619463**	1
	6 mm ... 10 mm	**1619460**	1	**1619458**	1	**1619459**	1	**1619457**	1
	10 mm ... 14.5 mm	**1619454**	1	**1619452**	1	**1619453**	1	**1619451**	1
Cable plug-in connector, with contact carrier, **without** contacts, **reverse** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1619474**	1			**1619473**	1		
	4 mm ... 6 mm	**1619468**	1			**1619467**	1		
	6 mm ... 10 mm	**1619462**	1			**1619461**	1		
	10 mm ... 14.5 mm	**1619456**	1			**1619455**	1		

Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412	For pin contacts, see page 346 onwards See page 412



Cable plug-in connector, M23 standard interlocking

- M23 standard knurled nut
- 12 or 17-pos. versions
- Individual marking of plug-in connectors with color rings

N



Cable plug-in connector, socket assembly

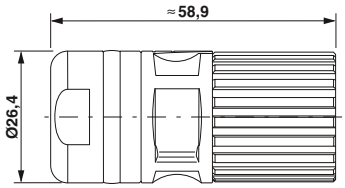
N



Cable plug-in connector, pin assembly

Description	Cable clamping area	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Cable plug-in connector housing, with contact carrier, **without** contacts, **standard** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1619631**	1	**1619629**	1	**1619630**	1	**1619628**	1
	4 mm ... 6 mm	**1619625**	1	**1619623**	1	**1619624**	1	**1619619**	1
	6 mm ... 10 mm	**1619616**	1	**1619614**	1	**1619615**	1	**1619613**	1
	10 mm ... 14.5 mm	**1619610**	1	**1619608**	1	**1619609**	1	**1619607**	1
Cable plug-in connector housing, with contact carrier, **without** contacts, **reverse** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1619633**	1			**1619632**	1		
	4 mm ... 6 mm	**1619627**	1			**1619626**	1		
	6 mm ... 10 mm	**1619618**	1			**1619617**	1		
	10 mm ... 14.5 mm	**1619612**	1			**1619611**	1		

Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412	For pin contacts, see page 346 onwards See page 412



Coupler plug-in connector

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- 12 or 17-pos. versions
- Individual marking of plug-in connectors with color rings

N



Coupler plug-in connector, socket assembly

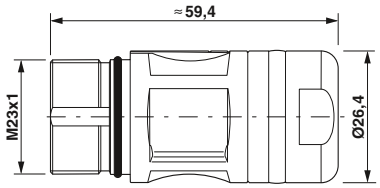
N



Coupler plug-in connector, pin assembly

Description	Cable clamping area	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.	Ordering data: Order No. (12-pos.)	Pcs. / Pkt.	Ordering data: Order No. (17-pos.)	Pcs. / Pkt.
Coupler plug-in connector housing, with contact carrier, **without** contacts, **standard** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1620016**	1	**1620014**	1	**1620015**	1	**1620013**	1
	4 mm ... 6 mm	**1620009**	1	**1620007**	1	**1620008**	1	**1620006**	1
	6 mm ... 10 mm	**1620003**	1	**1620001**	1	**1620002**	1	**1620000**	1
	10 mm ... 14.5 mm	**1619997**	1	**1619995**	1	**1619996**	1	**1619994**	1
Coupler plug-in connector housing, with contact carrier, **without** contacts, **reverse** direction of rotation									
Universal gasket	3 mm ... 14.5 mm	**1620018**	1			**1620017**	1		
	4 mm ... 6 mm	**1620011**	1			**1620010**	1		
	6 mm ... 10 mm	**1620005**	1			**1620004**	1		
	10 mm ... 14.5 mm	**1619999**	1			**1619998**	1		

Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412	For pin contacts, see page 346 onwards See page 412



Device plug-in connectors, straight, front mounting

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- Contact insert for support on the device or can be snapped in

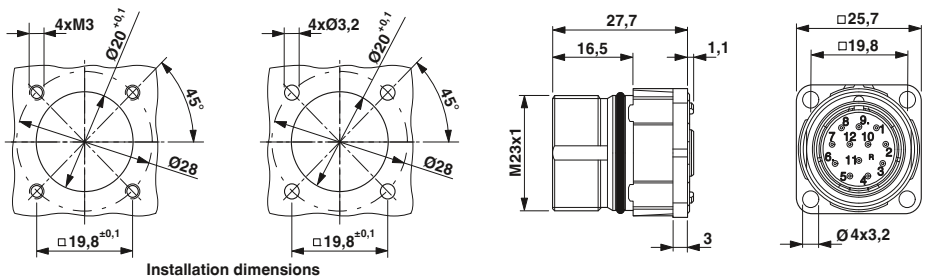


Device plug-in connector, straight, socket assembly



Device plug-in connector, straight, pin assembly

Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	12-pos.		17-pos.		12-pos.		17-pos.	
Device plug-in connector, straight, with contact carrier, **without** contacts, 4-hole fastening with **Ø 3.2 mm**								
Standard direction of rotation	**1607283**	1	**1607892**	1	**1607236**	1	**1607860**	1
Reverse direction of rotation	**1607307**	1			**1607260**	1		
Device plug-in connector, straight, with contact carrier, **without** contacts, 4-hole fastening with **Ø 3.2 mm**, contact insert **can be snapped in**								
Standard direction of rotation	**1607830**	1	**1607893**	1	**1607804**	1	**1607863**	1
Reverse direction of rotation	**1607844**	1			**1607817**	1		
	Accessories				**Accessories**			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412				For pin contacts, see page 346 onwards See page 412			



Installation dimensions

Device plug-in connectors, angled, rotatable, front mounting

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- Flange dimensions 26 mm x 26 mm or 28 mm x 28 mm



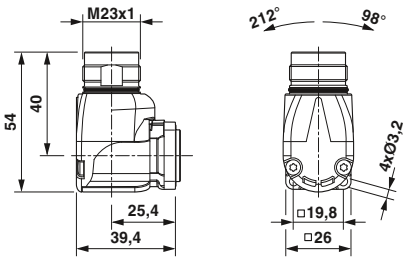
Device plug-in connector, angled, rotatable, for socket contacts



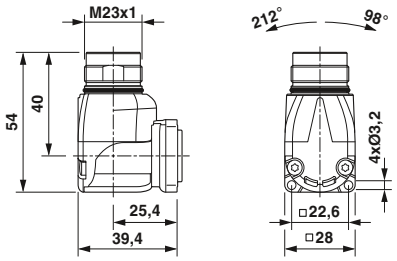
Device plug-in connector, angled, rotatable, for pin contacts

Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	12-pos.		17-pos.		12-pos.		17-pos.	
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, flange dimensions: **26 mm x 26 mm**								
Standard direction of rotation	1607280	1	1607345	1	1607233	1	1607328	1
Reverse direction of rotation	1607304	1			1607257	1		
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, flange dimensions: **28 mm x 28 mm**								
Standard direction of rotation	1607827	1	1607887	1	1607802	1	1607852	1
Reverse direction of rotation	1607842	1			1607814	1		

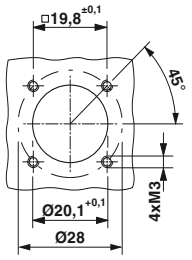
	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 346 onwards See page 412	For pin contacts, see page 346 onwards See page 412



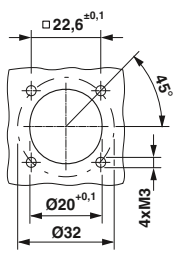
Flange dimensions 26 mm x 26 mm



Flange dimensions 28 mm x 28 mm



Installation dimensions



Installation dimensions

Crimp contacts, punched-rolled

C-HC® are punched-rolled contacts. They are designed for high insertion/ withdrawal cycles.

The contacts are available taped on rolls for manual or automatic processing.

Note: depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the listed values. For reasons of safety, only socket contacts may be used in the live part of the plug.



C-HC socket contacts



C-HC pin contacts

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Crimp contacts, C-HC punched-rolled, Ø 1.0 mm, **2500 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS320**	**1607031**	1	**SF-10KP320**	**1615961**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS350**	**1607032**	1	**SF-10KP350**	**1615963**	1
Crimp contact C-HC punched-rolled, Ø 1.0 mm, **10,000 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS330**	**1607358**	1	**SF-10KP330**	**1615962**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS360**	**1607361**	1	**SF-10KP360**	**1615964**	1
		Accessories			Accessories		
Crimping tools		Order separately, see page 406 onwards			Order separately, see page 406 onwards		

Crimp contacts, turned

M23 feedback plug-in connectors are fitted with 12 or 17 SF series signal contacts with Ø 1 mm depending on the number of positions.

These contacts are also used with M23 power plug-in connectors as signal contacts. This simplifies handling and warehousing considerably.

Note: depending on the litz wire used, the connection cross sections (crimp ranges) can differ from the values mentioned below.



Crimp contacts socket



Crimp contacts pin

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contact socket Ø 1.0 mm							
	0.06 ... 0.2	**SF-6CS2000**	**1605562**	100			
	0.14 ... 0.5	**SF-10KS004**	**1607356**	100			
	0.5 ... 1.0	**SF-6AS2000**	**1605557**	100			
Contact pin Ø 1.0 mm							
	0.06 ... 0.2				**SF-6CP2000**	**1605559**	100
	0.14 ... 0.5				**SF-10KP004**	**1607355**	100
	0.5 ... 1.0				**SF-6AP2000**	**1605554**	100
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 407			Order separately, see page 407		

Notes:
Every plug-in connector housing type can be fitted with pin or socket contacts.

For reasons of safety, only socket contacts may be used in the live part of the plug.

Mechanical and electrical data

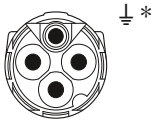
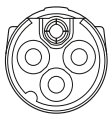
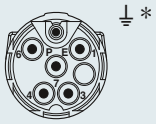
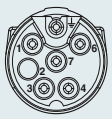
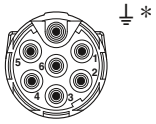
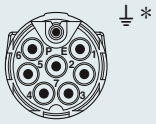
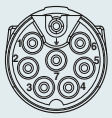
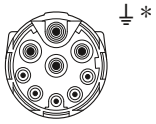
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 3.5 - 11 mm, shielded (M17 Compact) 5 - 12.5 mm, shielded (M17)
Type of locking:	M17 SPEEDCON rapid interlock system, cable plug-in connector Optionally with M17 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100, punched-rolled C-HC crimp contacts: up to 500
Protection class:	IP67 in the locked state

Electrical data

Number of positions		**4 (3+PE)**	**6 (5+PE)**	**7 (6+PE)**	**8 (7+PE)**	**9 (5+3+PE)**		
Contacts		3 + PE	5 + PE	6 + PE	7 + PE	5	+ 3 +	PE
Contact Ø	[mm]	2	1	1	1	0.6	1	1
Litz wire cross section, crimp contacts Turned	[mm²]	0.25 ... 2.5	0.06 ... 1.0	0.06 ... 1.0	0.06 ... 1.0	0.06 ... 0.5	0.06 ... 1.0	0.06 ... 1.0
Litz wire cross section, C-HC crimp contacts Punched-rolled	[mm²]	–	0.08 ... 0.56	0.06 ... 0.56	0.06 ... 0.56	–	–	–
Nominal current per contact at 25°C [1]		20 (25)[2]	14	14	14	3.6	14	–
Specifications according to DIN EN 61984:2009								–
Rated voltage	[V AC/DC]	630	630	630	630	60	630	–
Test/surge voltage	[kV AC]	6	6	6	6	1.5	6	–
Surge voltage category		III	III	III	III		III	
Pollution degree [3]		3	3	3	3		3	
Installation height	[m]	Up to 3000	Up to 3000	Up to 3000	Up to 3000		Up to 3000	
Cable clamping area [4]	max. Ø [mm]	12.5	12.5	12.5	12.5		12.5	

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] 25 A in the case of assignment with 3 x 2.5 mm²
[3] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[4] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Pin assignments and coding

Number of positions	Contact chamber numbering (view of plug-in side) Pin	Socket
4-pos. (3+PE) Crimp		
6-pos. (5+PE) (Contact chambers 2+5 closed) Crimp		
7-pos. (6+PE) Crimp		
8-pos. (7+PE) Crimp		
9-pos. (5+3+PE) Crimp		
	* with grounding spring **PE leading**	* with grounding spring **PE leading**

Note:
The plug-in connectors can be equipped with pin or socket contacts according to the application.

For reasons of safety, only socket contacts may be used in the live part of the plug.

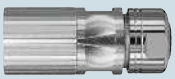
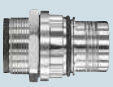
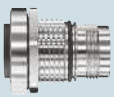
Selection guide

M17 power plug-in connectors, 4/6/7/8/9-pos., up to 20 A/630 V, crimp ranges: 0.06 mm² to 2.5 mm²
– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)

The plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

Each housing type can be equipped with pin or socket contacts. Cable plug-in connectors can be optionally equipped with SPEEDCON rapid interlock system or with M17 x 1 coarse-pitch thread. The plug-in connectors with external thread are fully compatible with standard threads and the SPEEDCON rapid interlock system.

The product chart provides an overview of the available components.

	Plug-in connector type
Shielded	**Cable plug-in connector** SPEEDCON rapid interlock system, M17 Compact, see page 352.  M17, see page 356.  M17 x 1 standard interlocking, M17, see page 357.  Square mounting flange for cable and coupler plug-in connectors for wall mounting, see page 410. 
Shielded	**Coupler plug-in connector/panel feed-through** Coupler plug-in connector M17 Compact, see page 353.  M17, see page 358.  Panel feed-through M17 Compact, see page 354. 
Shielded	**Device plug-in connector** Straight, M17 Compact, see page 355.  Straight, M17, see page 359.  Straight, with central fastening thread, front mounting, M17, see page 361.  Straight, with central fastening thread, rear mounting, M17, see page 361.  Angled, rotatable, M17, see page 360. 

All housing can be fitted with pin or socket crimp contacts

Crimp contacts

Socket contacts

Turned, see page 363.



Punched-rolled, taped,
see page 362.



Pin contacts

Turned, see page 363.



Punched-rolled, taped,
see page 362.



Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Tools/accessories

Crimping tools

Crimping pliers for punched-rolled C-HC crimp contacts,
see page 406.



Crimping pliers with digital display for turned crimp contacts,
see page 407.



Tools/accessories

Contact removal tool for device plug-in connectors with contact carriers for snapping in from the device side,
see page 410.



Color rings for individually marking the plug-in connectors,
see page 412.



M17 Compact cable plug-in connector

– High packing density in a compact product
– Individual marking of plug-in connectors with color rings



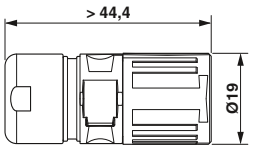
3+PE, 5+PE, 6+PE-pos.



7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Cable plug-in connector, with contact carrier, without contacts, for socket assembly													
	3.5 mm ... 5.5 mm	1618312	1	1618621	1	1618632	1	1618633	1	1618674	1		
	5 mm ... 9 mm	1618408	1	1618620	1	1618631	1	1618634	1	1618675	1		
	9 mm ... 11 mm	1618603	1	1618619	1	1618630	1	1618635	1	1618676	1		
Cable plug-in connector, with contact carrier, without contacts, for pin assembly													
	3.5 mm ... 5.5 mm	1618602	1	1618614	1	1618622	1	1618640	1	1618681	1		
	5 mm ... 9 mm	1618574	1	1618615	1	1618623	1	1618639	1	1618680	1		
	9 mm ... 11 mm	1618575	1	1618616	1	1618624	1	1618638	1	1618679	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412	Order separately, see page 362 onwards See page 412



M17 Compact coupler plug-in connector

– Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
– Individual marking of plug-in connectors with color rings



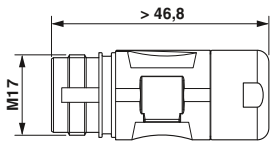
3+PE, 5+PE, 6+PE-pos.



7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Coupler plug-in connector, with contact carrier, **without** contacts, for **socket assembly**													
	3.5 mm ... 5.5 mm	**1618695**	1	**1618696**	1	**1618708**	1	**1618716**	1	**1618748**	1		
	5 mm ... 9 mm	**1618694**	1	**1618697**	1	**1618709**	1	**1618717**	1	**1618749**	1		
	9 mm ... 11 mm	**1618693**	1	**1618698**	1	**1618710**	1	**1618718**	1	**1618750**	1		
Coupler plug-in connector, with contact carrier, **without** contacts, for **pin assembly**													
	3.5 mm ... 5.5 mm	**1620614**	1	**1618703**	1	**1618704**	1	**1618712**	1	**1618740**	1		
	5 mm ... 9 mm	**1618406**	1	**1618702**	1	**1618705**	1	**1618713**	1	**1618741**	1		
	9 mm ... 11 mm	**1618690**	1	**1618701**	1	**1618706**	1	**1618714**	1	**1618742**	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412	Order separately, see page 362 onwards See page 412



M17 Compact panel feed-through

- Panel feed-throughs suitable for front and rear mounting
- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 25.7 mm x 25.7 mm**

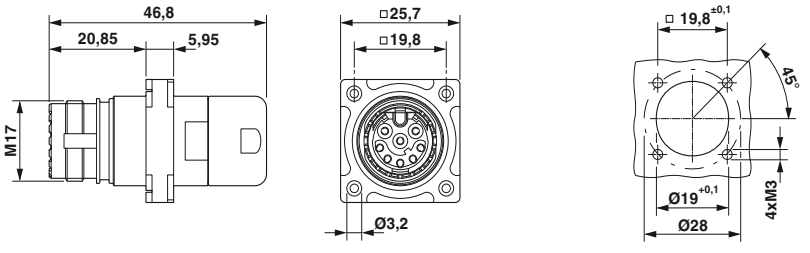


3+PE, 5+PE, 6+PE-pos.



7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Panel feed-through, with contact carrier, **without** contacts, for **socket assembly**													
	3.5 mm ... 5.5 mm	**1618762**	1	**1618772**	1	**1618780**	1	**1618787**	1	**1618825**	1		
	5 mm ... 9 mm	**1618763**	1	**1618773**	1	**1618781**	1	**1618786**	1	**1618824**	1		
	9 mm ... 11 mm	**1618764**	1	**1618774**	1	**1618782**	1	**1618785**	1	**1618823**	1		
Panel feed-through, with contact carrier, **without** contacts, for **pin assembly**													
	3.5 mm ... 5.5 mm	**1618402**	1	**1618767**	1	**1618776**	1	**1618788**	1	**1618818**	1		
	5 mm ... 9 mm	**1618407**	1	**1618768**	1	**1618777**	1	**1618790**	1	**1618819**	1		
	9 mm ... 11 mm	**1618760**	1	**1618769**	1	**1618778**	1	**1618791**	1	**1618820**	1		
		Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



Installation dimensions

M17 Compact device plug-in connectors, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 21.6 mm x 21.6 mm**

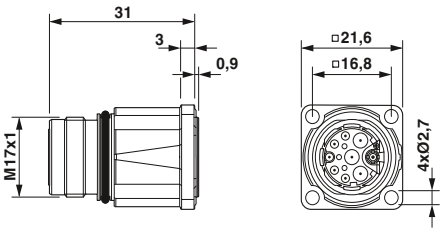


3+PE, 5+PE, 6+PE-pos.

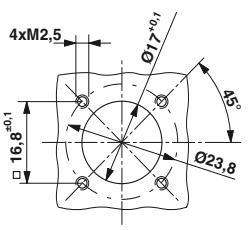


7+PE, 5+3+PE-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly**												
Contact insert for support on the device	1607694	1	1607728	1	1613589	1	1607769	1	1613631	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly**												
Contact insert for support on the device	1607675	1	1607711	1	1613570	1	1607747	1	1613612	1		
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly**												
Contact insert can be snapped in	1607692	1	1607727	1	1613588	1	1607768	1	1613630	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly**												
Contact insert can be snapped in	1607674	1	1607710	1	1613569	1	1607746	1	1613611	1		
	Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



Flange dimensions 21.6 mm x 21.6 mm



Installation dimensions

Cable plug-in connector, SPEEDCON rapid interlock system

- SPEEDCON rapid interlock system or M17 standard interlocking
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M17 standard external thread
- Individual marking of plug-in connectors with color rings



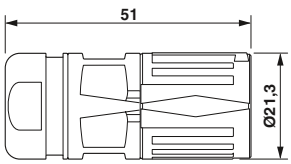
3+PE, 5+PE, 6+PE-pos.



7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Cable plug-in connector, with contact carrier, **without** contacts, for **socket assembly**													
	5 mm ... 8 mm	**1607683**	1	**1607718**	1	**1613578**	1	**1607756**	1	**1613620**	1		
	8 mm ... 10 mm	**1607685**	1	**1607720**	1	**1613580**	1	**1607759**	1	**1613622**	1		
	10 mm ... 12.5 mm	**1624538**	1	**1624544**	1	**1624550**	1	**1624556**	1	**1624639**	1		
Cable plug-in connector, with contact carrier, **without** contacts, for **pin assembly**													
	5 mm ... 8 mm	**1607665**	1	**1607700**	1	**1613559**	1	**1607736**	1	**1613601**	1		
	8 mm ... 10 mm	**1607667**	1	**1607702**	1	**1613561**	1	**1607738**	1	**1613603**	1		
	10 mm ... 12.5 mm	**1624535**	1	**1624541**	1	**1624547**	1	**1624553**	1	**1624637**	1		

Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412	Order separately, see page 362 onwards See page 412



Cable plug-in connector, M17 standard interlocking

- Standard knurled nuts compatible with mating plugs with SPEEDCON or M17 standard external thread
- Individual marking of plug-in connectors with color rings



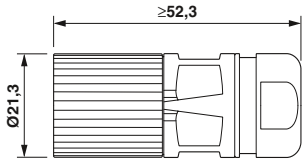
3+PE, 5+PE, 6+PE-pos.



7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Cable plug-in connector, with contact carrier, **without** contacts, for **socket assembly**													
	5 mm ... 8 mm	**1607682**	1	**1607717**	1	**1613577**	1	**1607755**	1	**1613619**	1		
	8 mm ... 10 mm	**1607684**	1	**1607719**	1	**1613579**	1	**1607758**	1	**1613621**	1		
	10 mm ... 12.5 mm	**1624537**	1	**1624534**	1	**1624549**	1	**1624555**	1	**1624638**	1		
Cable plug-in connector, with contact carrier, **without** contacts, for **pin assembly**													
	5 mm ... 8 mm	**1607663**	1	**1607699**	1	**1613558**	1	**1607735**	1	**1613600**	1		
	8 mm ... 10 mm	**1607666**	1	**1607701**	1	**1613560**	1	**1607737**	1	**1613602**	1		
	10 mm ... 12.5 mm	**1624534**	1	**1624540**	1	**1624546**	1	**1624552**	1	**1624636**	1		

	Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412	Order separately, see page 362 onwards See page 412



Coupler plug-in connector

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Individual marking of plug-in connectors with color rings



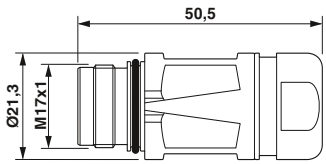
3+PE, 5+PE, 6+PE-pos.



7+PE, 5+3+PE-pos.

Description	Cable clamping area	Ordering data						Ordering data					
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Coupler plug-in connector, with contact carrier, **without** contacts, for **socket assembly**													
	5 mm ... 8 mm	**1607688**	1	**1607723**	1	**1613583**	1	**1607764**	1	**1613625**	1		
	8 mm ... 10 mm	**1607689**	1	**1607724**	1	**1613584**	1	**1607765**	1	**1613626**	1		
	10 mm ... 12.5 mm	**1624539**	1	**1624545**	1	**1624551**	1	**1624557**	1	**1624654**	1		
Coupler plug-in connector, with contact carrier, **without** contacts, for **pin assembly**													
	5 mm ... 8 mm	**1607670**	1	**1607706**	1	**1613564**	1	**1607741**	1	**1613606**	1		
	8 mm ... 10 mm	**1607671**	1	**1607707**	1	**1613565**	1	**1607742**	1	**1613607**	1		
	10 mm ... 12.5 mm	**1624536**	1	**1624542**	1	**1624548**	1	**1624554**	1	**1624653**	1		

Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412	Order separately, see page 362 onwards See page 412



Device plug-in connector, straight, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Contact insert for support on the device or can be snapped in
- Individual marking of plug-in connectors with color rings
- **Flange dimensions 25.7 mm x 25.7 mm**

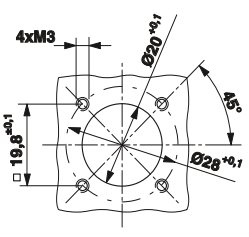


3+PE, 5+PE, 6+PE-pos.

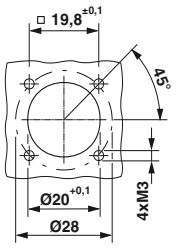


7+PE, 5+3+PE-pos.

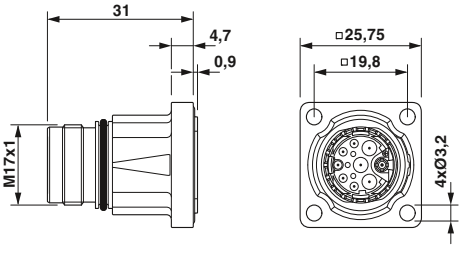
Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly** Contact insert for support on the device	1619189	1	1619191	1	1619193	1	1619195	1	1620459	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly** Contact insert for support on the device	1619186	1	1619190	1	1619192	1	1619194	1	1620460	1		
Device plug-in connector, with contact carrier, **without** contacts, for **socket assembly** Contact insert can be snapped in	1619212	1	1619214	1	1619216	1	1619218	1	1620461	1		
Device plug-in connector, with contact carrier, **without** contacts, for **pin assembly** Contact insert can be snapped in	1619209	1	1619213	1	1619215	1	1619217	1	1620462	1		
	Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



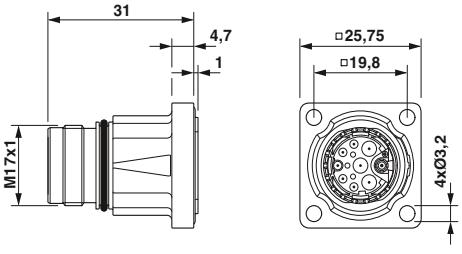
Installation dimensions



Installation dimensions



Contact insert for support on the device



Contact insert can be snapped in

Device plug-in connector, angled, rotatable, front mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Housing can be freely rotated up to 308°
- Individual marking of plug-in connectors with color rings
- Flange versions for M2.5/M3 attachment
- **Flange dimensions 25.7 mm x 25.7 mm**

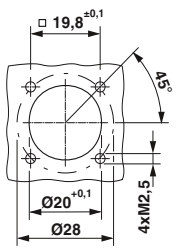


3+PE, 5+PE, 6+PE-pos.

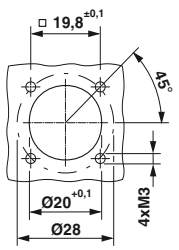


7+PE, 5+3+PE-pos.

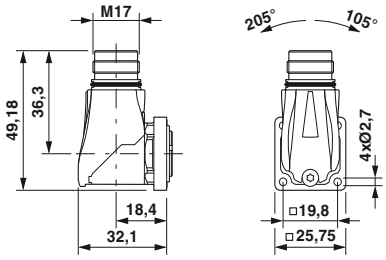
Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, for **socket contacts**												
Fixing with M2.5	1620428	1	1620432	1	1620434	1	1620436	1	1620438	1		
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, for **pin contacts**												
Fixing with M2.5	1620427	1	1620431	1	1620433	1	1620435	1	1620437	1		
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, for **socket contacts**												
Fixing with M3	1620443	1	1620447	1	1620449	1	1620451	1	1620453	1		
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts, for **pin contacts**												
Fixing with M3	1620444	1	1620448	1	1620450	1	1620452	1	1620454	1		
	Accessories						Accessories					
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412						Order separately, see page 362 onwards See page 412					



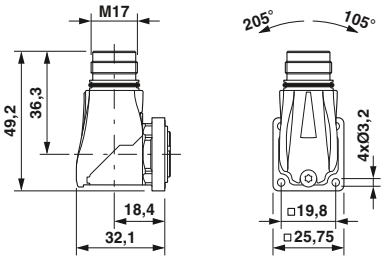
Installation dimensions



Installation dimensions



Fixing with M2.5



Fixing with M3

Device plug-in connector, central fastening thread, front/rear mounting

- Compatible with mating plugs with SPEEDCON or M17 standard knurled nuts
- Contact carrier snapped in from the device side
- Individual marking of plug-in connectors with color rings



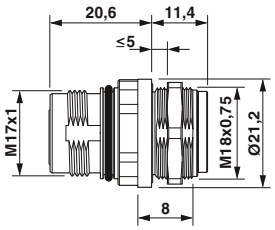
3+PE, 5+PE, 6+PE-pos.



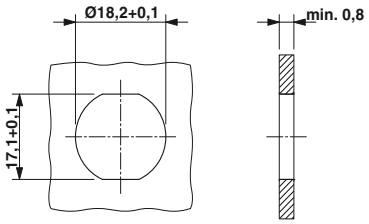
7+PE, 5+3+PE-pos.

Description	Ordering data						Ordering data					
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3+PE-pos.		5+PE-pos.		6+PE-pos.		7+PE-pos.		5+3+PE-pos.			
Device plug-in connector, **front mounting**, M18 x 0.75 fastening thread, with contact carrier, without contacts, **for socket assembly**	1613546	1	1613550	1	1613572	1	1613592	1	1613614	1		
Device plug-in connector, **front mounting**, M18 x 0.75 fastening thread, with contact carrier, without contacts, **for pin contacts**	1613544	1	1613548	1	1613553	1	1613590	1	1613595	1		
Device plug-in connector, **rear mounting**, M20 x 1.5 fastening thread, with contact carrier, without contacts, **for socket contacts**	1613547	1	1613551	1	1613587	1	1613593	1	1613629	1		
Device plug-in connector, **rear mounting**, M20 x 1.5 fastening thread, with contact carrier, without contacts, **for pin contacts**	1613545	1	1613549	1	1613568	1	1613591	1	1613610	1		

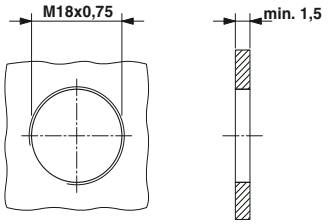
Description	Accessories			Accessories		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Locking nut, for mounting bore holes and anti-rotation protection						
M18 x 0.75	ST-E2015151	1613831	10	ST-E2015151	1613831	10
M20 x 1.5	RC-13041	1600417	10	RC-13041	1600417	10
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	Order separately, see page 362 onwards See page 412			Order separately, see page 362 onwards See page 412		



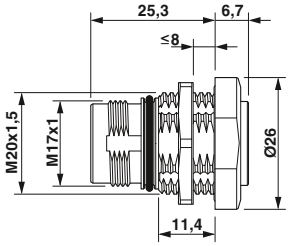
Front mounting, M18 x 0.75, order locking nut separately



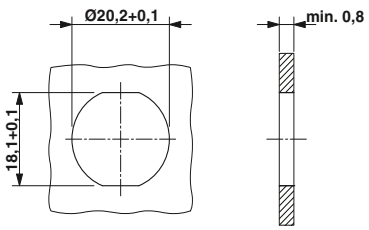
Installation dimensions: mounting with anti-rotation protection and locking nut



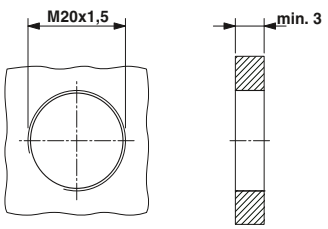
Installation dimensions: mounting with thread



Rear mounting, M20 x 1.5, order locking nut separately



Installation dimensions: mounting with anti-rotation protection and locking nut



Installation dimensions: mounting with thread

Crimp contacts, punched-rolled

C-HC® are punched-rolled contacts. They are designed for high insertion/withdrawal cycles.

The contacts are available taped on rolls for manual or automatic processing.

Note: depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the listed values. For reasons of safety, only socket contacts may be used in the live part of the plug.



C-HC socket contacts



C-HC pin contacts

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Crimp contacts, C-HC punched-rolled, Ø 1.0 mm, **2500 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS320**	**1607031**	1	**SF-10KP320**	**1615961**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS350**	**1607032**	1	**SF-10KP350**	**1615963**	1
Crimp contact C-HC punched-rolled, Ø 1.0 mm, **10,000 pcs./roll**							
	0.06 mm² ... 0.25 mm²	**SF-10KS330**	**1607358**	1	**SF-10KP330**	**1615962**	1
	0.2 mm² ... 0.56 mm²	**SF-10KS360**	**1607361**	1	**SF-10KP360**	**1615964**	1
		Accessories			Accessories		
Crimping tools		Order separately, see page 406 onwards			Order separately, see page 406 onwards		

Contact diameter

Number of positions	Number of contacts	Contact Ø [mm]
4(3+PE)	4	2
6(5+PE)	6	1
7(6+PE)	7	1
8(7+PE)	8	1
9(5+3+PE)	5+3+PE	0.6+1+1
17	17	0.6

Crimp contacts, turned

M17 power plug-in connectors are fitted with contacts with Ø 2 mm, Ø 1 mm or Ø 0.6 mm depending on the number of positions (see table below).

Note: depending on the litz wire used, the connection cross sections (crimp ranges) may deviate from the listed values. For reasons of safety, only socket contacts may be used in the live part of the plug.



Crimp contacts socket



Crimp contacts pin

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contact socket Ø 2.0 mm							
	0,25 ... 1,0	**ST-20KS010**	**1607657**	50			
	1.0 ... 2.5	**ST-20KS020**	**1607658**	50			
Contact socket Ø 1.0 mm							
	0.06 mm² ... 0.25 mm²	**ST-10KS010**	**1618239**	100			
	0.34 mm² ... 0.5 mm²	**ST-10KS020**	**1618251**	100			
	0.5 mm² ... 1.0 mm²	**ST-10KS030**	**1618254**	100			
Contact socket Ø 0.6 mm							
	0.06 mm² ... 0.25 mm²	**ST-06KS010**	**1607580**	100			
	0.14 mm² ... 0.34 mm²	**ST-06KS020**	**1607581**	100			
	0.34 mm² ... 0.50 mm²	**ST-06KS030**	**1607582**	100			
Contact pin Ø 2.0 mm							
	0,25 ... 1,0				**ST-20KP010**	**1607655**	50
	1.0 ... 2.5				**ST-20KP020**	**1607656**	50
Contact pin Ø 1.0 mm							
	0.06 mm² ... 0.25 mm²				**ST-10KP010**	**1618255**	100
	0.34 mm² ... 0.5 mm²				**ST-10KP020**	**1618256**	100
	0.5 mm² ... 1.0 mm²				**ST-10KP030**	**1618261**	100
Contact pin Ø 0.6 mm							
	0.06 mm² ... 0.25 mm²				**ST-06KP010**	**1607577**	100
	0.14 mm² ... 0.34 mm²				**ST-06KP020**	**1607578**	100
	0.34 mm² ... 0.50 mm²				**ST-06KP030**	**1607579**	100

	Accessories	Accessories
Crimping tools	Order separately, see page 407	Order separately, see page 407

Contact diameter

Number of positions	Number of contacts	Contact Ø [mm]
4(3+PE)	4	2
6(5+PE)	6	1
7(6+PE)	7	1
8(7+PE)	8	1
9(5+3+PE)	5+3+PE	0.6+1+1
17	17	0.6

Mechanical and electrical data

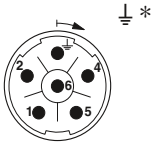
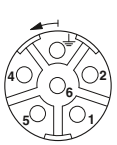
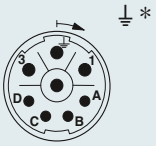
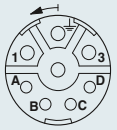
Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 7.5 - 18 mm, shielded
Type of locking:	M23 SPEEDCON screw locking, cable plug-in connector optional M23 x 1 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 100
Protection class:	IP67 in the locked state

Electrical data

Number of positions		**6 (5+PE)**	**8 (4+3+PE)**				
Contacts		5 + PE	4	+	3	+	PE
Contact Ø	[mm]	2	1		2		2
Litz wire cross sections							
Short version, cable Ø max. 14 mm	[mm²]	0.25 ... 2.5	0.06 ... 1.0		0.25 ... 2.5		0.25 ... 2.5
Long version, cable Ø max. 18 mm	[mm²]	0.25 ... 4.0	0.06 ... 1.0		0.25 ... 4.0		0.25 ... 4.0
Device plug-in connectors	[mm²]	0.25 ... 4.0	0.06 ... 1.0		0.25 ... 4.0		0.25 ... 4.0
Nominal current per contact at 25°C [1]		30	9		30		–
Specifications according to DIN EN 61984:2009							–
Rated voltage	[V AC/DC]	630[2]	250		630[2]		–
Test/surge voltage	[kV AC]	6	4		6		–
Surge voltage category		III			III		
Pollution degree [3]		3			3		
Installation height	[m]	Up to 3000			Up to 3000		
Cable clamping area 4)	max. Ø [mm]	18			18		

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] 400 V when equipped with punched-rolled C-HC contacts
[3] The values specified assume that the plug-in connector pair is correctly locked and is only disconnected for testing and maintenance purposes. If the plug-in connector is unlocked and exposed to ambient conditions, and if there is a danger of contamination, the plug-in connector must be sealed using a protective cap ≥ IP54.
[4] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selection and testing is the responsibility of the user.

Pin assignments and coding

	Contact chamber numbering (view of plug-in side)			
Number of positions	**Pin**		**Socket**	
6-pos. **(5 + PE)** Crimp		* with grounding spring, **Pos. 3 leading**		* with grounding spring, Pos. 3
8-pos. **(4 + 3 + PE)** Crimp		* with grounding spring, Pos. 2		* with grounding spring, **Pos. 2 leading**

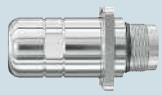
Selection guide

M23 power plug-in connector up to 30 A/630 V, crimp ranges up to 4 mm²

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)
– Feed-throughs/panel feed-throughs

The plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

The product chart provides an overview of the available components.

	Plug-in connector type	
Shielded	**Cable plug-in connectors** Short, SPEEDCON rapid interlock system, see page 368. M23 x 1 standard interlocking, see page 368. 	Long, SPEEDCON rapid interlock system, see page 368. M23 x 1 standard interlocking, see page 368. 
	Device plug-in connectors with knurled nut Straight, see page 371. 	Angled, see page 371. 
Shielded	**Coupler plug-in connectors** Short, see page 369.  With mounting flange Short, see page 372. 	Long, see page 369.  With mounting flange Long, see page 372. 
Shielded	**Device plug-in connectors** Straight, see page 370.  Angled, rotatable, flange dimensions 26 mm x 26 mm, see page 370. 	Angled, rotatable, flange dimensions 28 mm x 28 mm see page 370. 
	Panel feed-through External socket - internal pin, see page 373. 	Panel feed-throughs are fully wired at the time of delivery

Socket contacts

Pin contacts

Pin contacts

Crimp contacts

Socket contacts

Turned, see page 374.



Pin contacts

Turned, see page 374.



Tools/accessories

Crimping pliers with digital display for turned crimp contacts,
see page 407.



Accessories

Color rings for individually marking the plug-in connectors,
see page 412.



Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Cable plug-in connectors, long and short design

- SPEEDCON rapid interlock system or M23 standard interlocking
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M23 standard external thread
- Individual marking of plug-in connectors with color rings

N



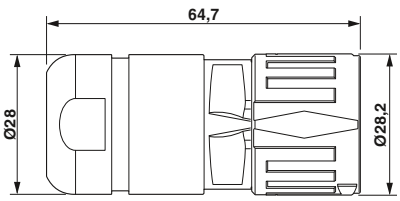
Cable plug-in connector, SPEEDCON



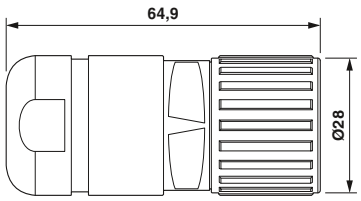
Cable plug-in connector, M23 standard interlocking

Description	Cable clamping area	Ordering data: Order No.	Pcs. / Pkt.	Ordering data: Order No.	Pcs. / Pkt.	Ordering data: Order No.	Pcs. / Pkt.	Ordering data: Order No.	Pcs. / Pkt.
		5+PE-pos.		4+3+PE-pos.		5+PE-pos.		4+3+PE-pos.	
Cable plug-in connector, **short**, with contact carrier, **without** contacts, **for cable Ø 7.5 mm to 14 mm,** connection cross section up to 2.5 mm²									
Universal gasket	7.5 mm ... 14 mm	**1618197**	1	**1618207**	1	**1605532**	1	**1605602**	1
	7.5 mm ... 9 mm	**1618194**	1	**1618204**	1	**1605524**	1	**1605595**	1
	9 mm ... 11 mm	**1618195**	1	**1618205**	1	**1605526**	1	**1605596**	1
	11 mm ... 14 mm	**1618196**	1	**1618206**	1	**1605529**	1	**1605597**	1
Cable plug-in connector, **long,** with contact carrier, **without** contacts, **for cable Ø 7.5 mm to 18 mm,** connection cross section up to 4 mm²									
Universal gasket	7.5 mm ... 18 mm	**1618202**	1	**1618212**	1	**1605549**	1	**1605617**	1
	7.5 mm ... 9 mm	**1618201**	1	**1618211**	1	**1605548**	1	**1605614**	1
	9 mm ... 12 mm	**1618200**	1	**1618210**	1	**1605546**	1	**1605610**	1
	12 mm ... 15 mm	**1618199**	1	**1618209**	1	**1605545**	1	**1605607**	1
	15 mm ... 18 mm	**1618198**	1	**1618208**	1	**1605543**	1	**1605605**	1

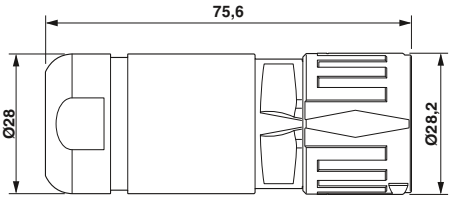
Accessories	Accessories
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 374 See page 412
	For socket contacts, see page 374 See page 412



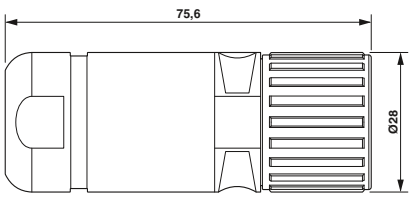
Short design



Short design



Long design



Long design

Coupler plug-in connectors, long and short design

- Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts
- Individual marking of plug-in connectors with color rings

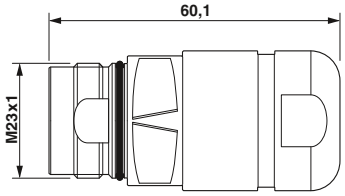


Coupler plug-in connector, short

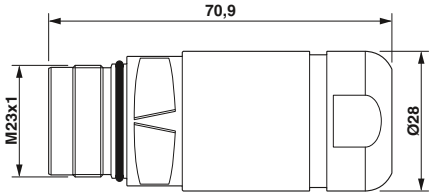


Coupler plug-in connector, long

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		5+PE-pos.		4+3+PE-pos.		5+PE-pos.		4+3+PE-pos.	
Coupler plug-in connector, **short**, with contact carrier, **without** contacts, **for cable Ø 7.5 mm to 14 mm,** connection cross section up to 2.5 mm²									
Universal gasket	7.5 mm ... 14 mm	**1605499**	1	**1605575**	1				
	7.5 mm ... 9 mm	**1605494**	1	**1605568**	1				
	9 mm ... 11 mm	**1605496**	1	**1605570**	1				
	11 mm ... 14 mm	**1605498**	1	**1605571**	1				
Coupler plug-in connector, **long,** with contact carrier, **without** contacts, **for cable Ø 7.5 mm to 18 mm,** connection cross section up to 4 mm²									
Universal gasket	7.5 mm ... 18 mm					**1605510**	1	**1605583**	1
	7.5 mm ... 9 mm					**1605509**	1	**1605582**	1
	9 mm ... 12 mm					**1605508**	1	**1605581**	1
	12 mm ... 15 mm					**1605507**	1	**1605580**	1
	15 mm ... 18 mm					**1605505**	1	**1605578**	1
		Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For pin contacts, see page 374 See page 412				For pin contacts, see page 374 See page 412			



Short design



Long design

Device plug-in connector, straight and angled, rotatable

– Compatible with mating plugs with SPEEDCON or M23 standard knurled nuts

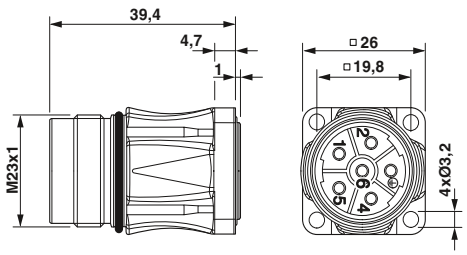


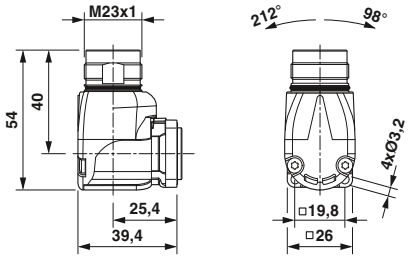
Device plug-in connector, straight



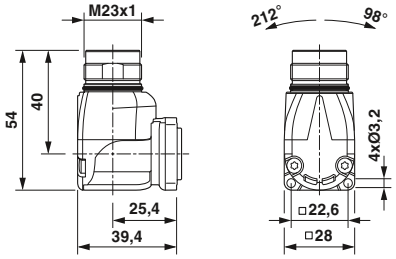
Device plug-in connector, angled rotatable

Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	5+PE-pos.		4+3+PE-pos.		5+PE-pos.		4+3+PE-pos.	
Device plug-in connector with contact carrier **without** contacts								
Flange dimensions: 26 mm x 26 mm	1605520	1	1605589	1	1620657	1	1620660	1
Device plug-in connector, with **reinforced contact carrier** (black) for angled mating plugs, **without** contacts								
Flange dimensions: 26 mm x 26 mm	1620619	1	1620620	1				
Device plug-in connector with contact carrier **without** contacts								
Flange dimensions: 28 mm x 28 mm					1620661	1	1620662	1
	Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For pin contacts, see page 374 See page 412				For pin contacts, see page 374 See page 412			

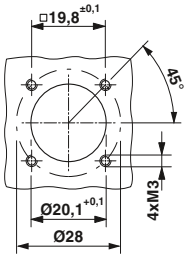




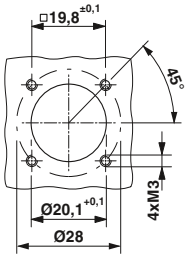
Flange dimensions 26 mm x 26 mm



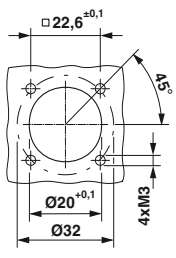
Flange dimensions 28 mm x 28 mm



Installation dimensions



Installation dimensions



Installation dimensions

Device plug-in connector with knurled nut

Device plug-in connectors with knurled nuts must be equipped with socket contacts.

– Standard knurled nuts compatible with mating plugs with SPEEDCON or M23 standard external thread

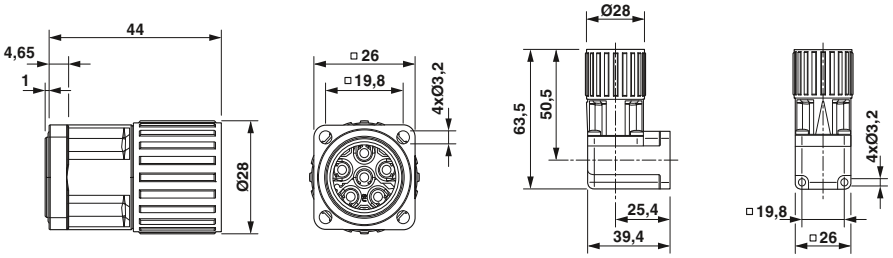


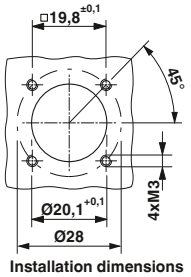
Device plug-in connector with knurled nut, straight



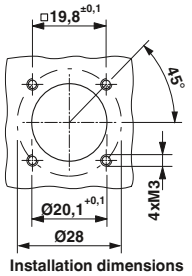
Device plug-in connector with knurled nut, angled, fixed

	Ordering data		Ordering data	
Description	**Order No.** Pcs. / Pkt.	**Order No.** Pcs. / Pkt.	**Order No.** Pcs. / Pkt.	**Order No.** Pcs. / Pkt.
	5+PE-pos.	**4+3+PE-pos.**	**5+PE-pos.**	**4+3+PE-pos.**
Device plug-in connector with knurled nut, **straight**, with contact carrier, without contacts	**1607082** 1	**1605622** 1		
Device plug-in connector with knurled nut, **angled, fixed**, with contact carrier, without contacts			**1607405** 1	**1607429** 1
	Accessories		**Accessories**	
Crimp contacts	For socket contacts, see page 374		For socket contacts, see page 374	





Installation dimensions



Installation dimensions

Panel feed-through, long and short design

– Rear mounting
– Compatible with mating plugs with M23 standard knurled nuts

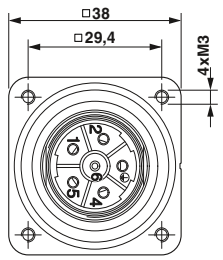


Panel feed-through, short

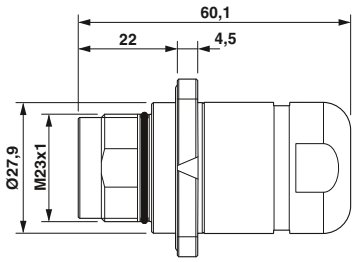


Panel feed-through, long

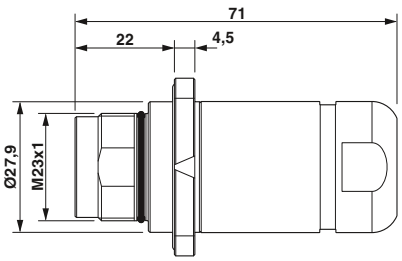
Description	Cable clamping area	Ordering data: Order No.	Pcs. / Pkt.	Ordering data: Order No.	Pcs. / Pkt.	Ordering data: Order No.	Pcs. / Pkt.	Ordering data: Order No.	Pcs. / Pkt.
		5+PE-pos.		4+3+PE-pos.		5+PE-pos.		4+3+PE-pos.	
Panel feed-through, short with contact carrier, without contacts, for cable Ø 7.5 to 14 mm, connection cross section up to 2.5 mm²									
Universal gasket	7.5 mm ... 14 mm	**1605517**	1	**1607051**	1				
	7.5 mm ... 9 mm	**1605516**	1	**1607048**	1				
	9 mm ... 11 mm	**1607037**	1	**1607049**	1				
	11 mm ... 14 mm	**1607038**	1	**1607050**	1				
Panel feed-through, long with contact carrier, without contacts, for cable Ø 7.5 to 18 mm, connection cross section up to 4 mm²									
Universal gasket	7.5 mm ... 18 mm					**1605518**	1	**1607056**	1
	7.5 mm ... 9 mm					**1607042**	1	**1607055**	1
	9 mm ... 12 mm					**1607041**	1	**1607054**	1
	12 mm ... 15 mm					**1607040**	1	**1607053**	1
	15 mm ... 18 mm					**1607039**	1	**1607052**	1
		Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For pin contacts, see page 374 See page 412				For pin contacts, see page 374 See page 412			



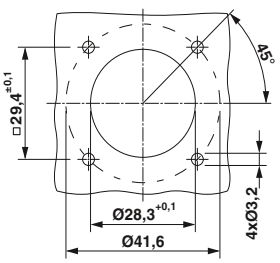
Flange dimensions for short and long design



Short design



Long design



Installation dimensions for short and long design

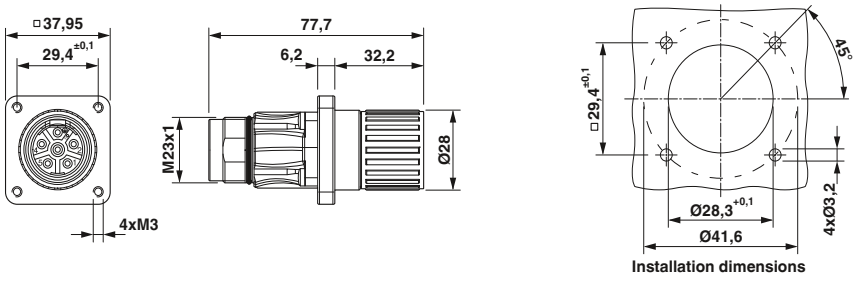
Panel feed-through, fully wired

- Front mounting
- Internally fully wired and fitted with contacts
- Compatible with mating plugs with M23 standard knurled nuts



Panel feed-through, pin/socket

	Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	5+PE-pos.		**4+3+PE-pos.**	
Panel feed-through, pin inside - socket outside, fully wired				
	1605492	1	**1605567**	1



Installation dimensions

Crimp contacts, turned

The 6-pos. (5+PE) versions are assembled with 2 mm Ø contacts. The 8-pos. (4+3+PE) versions are equipped with four 1 mm Ø signal contacts and four 2 mm Ø contacts.

Note: observe the crimp ranges for cable and coupler plug-in connectors.

– Short version: connection cross sections up to 2.5 mm², max. cable diameter of 14 mm
– Long version: connection cross sections up to 4 mm², max. cable diameter of 18 mm



Crimp contacts, socket



Crimp contacts, pin

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contacts, socket Ø 2.0 mm for cable and device plug-in connectors with knurled nuts, power and PE contacts							
	0.25 ... 1.0	**SF-7PS2000**	**1605636**	50			
	0.75 ... 1.5	**SF-7NS2000**	**1605631**	50			
	1.0 ... 2.5	**SF-7QS2000**	**1605643**	50			
	4.0	**SF-7MS2000**	**1605628**	50			
Contacts, socket Ø 1.0 mm for cable and device plug-in connectors with knurled nuts, signal contacts							
	0.06 ... 0.2	**SF-6CS2000**	**1605562**	100			
	0.14 ... 0.5	**SF-10KS004**	**1607356**	100			
	0.5 ... 1.0	**SF-6AS2000**	**1605557**	100			
Contacts, pin Ø 2.0 mm for coupler plug-in connectors, power and PE contacts							
	0.14 ... 0.25				**SF-7RP2000**	**1605646**	50
	0.25 ... 1.0				**SF-7PP2000**	**1605634**	50
	0.75 ... 1.5				**SF-20KP004**	**1607376**	50
	1.0 ... 2.5				**SF-7QP2000**	**1605639**	50
	4.0				**SF-7MP2000**	**1605626**	50
Contacts, pin Ø 1.0 mm for coupler plug-in connectors, signal contacts							
	0.06 ... 0.2				**SF-6CP2000**	**1605559**	100
	0.14 ... 0.5				**SF-10KP004**	**1607355**	100
	0.5 ... 1.0				**SF-6AP2000**	**1605554**	100
Contacts, pin Ø 2.0 mm for device plug-in connectors, power and PE contacts							
	0.14 ... 0.25				**SF-7RP2000**	**1605646**	50
	0.25 ... 1.0				**SF-7PP2000**	**1605634**	50
	0.75 ... 1.5				**SF-20KP004**	**1607376**	50
	1.0 ... 2.5				**SF-7QP2000**	**1605639**	50
	4.0				**SF-7MP2000**	**1605626**	50
Contacts, pin Ø 1.0 mm for device plug-in connectors, signal contacts							
	0.06 ... 0.2				**SF-6CP2000**	**1605559**	100
	0.14 ... 0.5				**SF-10KP004**	**1607355**	100
	0.5 ... 1.0				**SF-6AP2000**	**1605554**	100
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 407 onwards			Order separately, see page 407 onwards		

Contact diameter

Number of positions	Number of contacts	Contact Ø [mm]
6(5+PE)	5+PE	2+2
8(4+3+PE)	4+3+PE	1+2+2

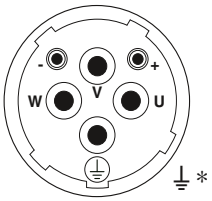
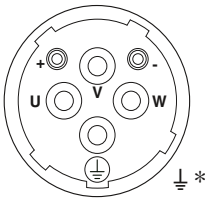
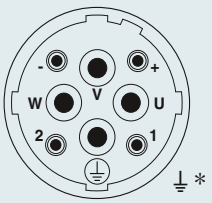
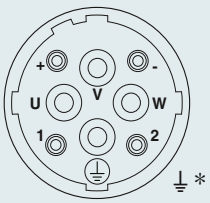
Mechanical and electrical data

Mechanical data	
Housing material:	Copper zinc alloy (CuZn), die-cast zinc (GD-Zn)
Housing surface:	Nickel-plated/thick layer passivated (can be coated)
Insulating body:	Polyamide (PA 66)
Contact material:	Copper zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold coating (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FKM)
Ambient temperature:	-40°C ... 125°C
Cable entry:	Cable outside diameter 9.0 - 26.5 mm, shielded
Type of locking:	M40 SPEEDCON rapid interlock system, cable plug-in connector optionally with M40 x 1.5 coarse-pitch thread
Mechanical insertion/withdrawal cycles:	Standard: 50
Protection class	IP67 in the locked state

Electrical data

Number of positions		**6 (2+3+PE)**					**8 (4+3+PE)**				
Contacts		2	+	3	+	PE	4	+	3	+	PE
Contact Ø	[mm]	2.0		3.6		3.6	2.0		3.6		3.6
Litz wire cross sections											
Cable and coupler plug-in connectors	[mm²]	0.14 ... 4.0		0.75 ... 16		0.75 ... 16	0.14 ... 4.0		0.75 ... 16		0.75 ... 16
Device plug-in connectors	[mm²]	0.14 ... 4.0		0.75 ... 10		0.75 ... 10	0.14 ... 4.0		0.75 ... 10		0.75 ... 10
Nominal current per contact at 25°C [1]	[A]	30		70		–	30		70		–
Specifications according to DIN EN 61984:2009											
Rated voltage	[V AC/DC]	250		630		–	250		630		–
Test/surge voltage	[kV]	4		6		–	4		6		–
Surge voltage category				III					III		
Pollution degree				3					3		
Installation height	[m]			Up to 3000					Up to 3000		
Cable clamping area [2]	max. Ø [mm]			26.5					26.5		

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selecting and testing is the responsibility of the user.

Number of positions	Contact chamber numbering (view of plug-in side) Pin	Socket
6-pos. **(2 + 3 + PE)** Crimp		
8-pos. **(4 + 3 + PE)** Crimp		

* with grounding spring

Selection guide

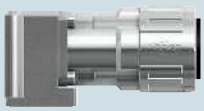
M40 power plug-in connectors up to 70 A/630 V, crimp ranges up to 16 mm²

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors (device flanges)
– Feed-throughs/panel feed-throughs

The plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

In order to specify an M40 power plug-in connector for the cable and device plug-in connector side, the fully pre-assembled plug housing is supplemented by the corresponding crimp contacts. M40 plug-in connectors with knurled nuts can be optionally supplied with SPEEDCON rapid interlock system or with M40 x 1.5 coarse-pitch thread.

The product chart provides an overview of the available components.

Plug-in connector type	
Shielded	**Cable plug-in connectors** SPEEDCON rapid interlock system, see page 380.  Mounting flange for wall mounting, see page 410.  M40 x 1.5 standard interlocking, see page 380. 
Shielded	**Device plug-in connectors with knurled nut** Straight, see page 382.  Angled, see page 383. 
Shielded	**Coupler plug-in connectors** See page 380. 
Shielded	**Device plug-in connectors** Angled, rotatable, M17, see page 384.  Straight, see page 381. 

Socket contacts

Pin contacts

Crimp contacts

Socket contacts

Turned, see page 385.



Pin contacts

Turned, see page 385.



Tools/accessories

Crimping tools

Crimping pliers, see page 407.



Crimping pliers with digital display for turned crimp contacts,
see page 407.



Accessories

Color rings for individually marking the plug-in connectors,
see page 412.



Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Cable plug-in connector

- SPEEDCON rapid interlock system or M40 standard interlocking
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M40 standard external thread
- Individual marking of plug-in connectors with color rings

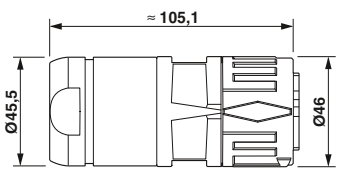


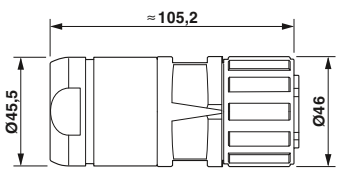
Cable plug-in connector, SPEEDCON



Cable plug-in connector

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		2+3+PE-pos.		4+3+PE-pos.		2+3+PE-pos.		4+3+PE-pos.	
Cable plug-in connector housing, with contact carrier, **without** contacts, connection cross section up to 16 mm²									
	9 mm ... 14 mm	**1613428**	1	**1613434**	1	**1613518**	1	**1613528**	1
	14 mm ... 20.5 mm	**1613429**	1	**1613435**	1	**1613519**	1	**1613529**	1
	20.5 mm ... 26.5 mm	**1613430**	1	**1613436**	1	**1613520**	1	**1613530**	1
		Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For socket contacts, see page 385 See page 412				For socket contacts, see page 385 See page 412			





Coupler and device plug-in connectors

– Compatible with mating plugs with SPEEDCON or M40 standard knurled nuts
– Individual marking of plug-in connectors with color rings

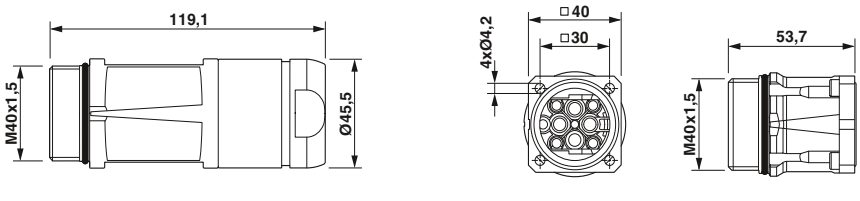


Coupler plug-in connector



Device plug-in connector, straight

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		2+3+PE-pos.		4+3+PE-pos.		2+3+PE-pos.		4+3+PE-pos.	
Coupler plug-in connector, with contact carrier, **without** contacts, connection cross section up to 16 mm²									
	9 mm ... 14 mm	**1613425**	1	**1613431**	1				
	14 mm ... 20.5 mm	**1613426**	1	**1613432**	1				
	20.5 mm ... 26.5 mm	**1613427**	1	**1613433**	1				
Device plug-in connector, straight, with contact carrier, **without** contacts Connection cross section up to 10 mm²						**1613517**	1	**1613527**	1
		Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)		For pin contacts, see page 385 See page 412				For pin contacts, see page 385 See page 412			



Installation dimensions

Device plug-in connector with knurled nut

- SPEEDCON rapid interlock system or M40 standard interlocking
- Standard knurled nuts compatible with mating plugs with SPEEDCON or M40 standard external thread
- Device plug-in connectors with knurled nuts must be fitted with socket contacts

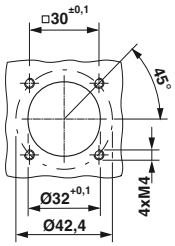


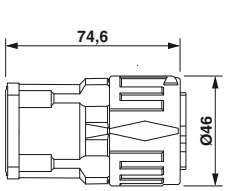
Device plug-in connector with knurled nut, straight, SPEEDCON

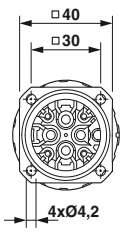


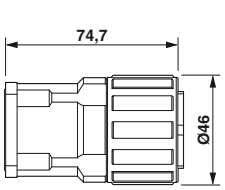
Device plug-in connector with knurled nut, straight

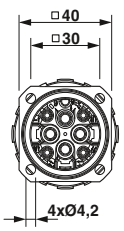
Description	Ordering data		Ordering data	
	Order No. Pcs. / Pkt.	**Order No.** Pcs. / Pkt.	**Order No.** Pcs. / Pkt.	**Order No.** Pcs. / Pkt.
	2+3+PE-pos.	**4+3+PE-pos.**	**2+3+PE-pos.**	**4+3+PE-pos.**
Device plug-in connector with SPEEDCON knurled nut, **straight,** with contact carrier, **without** contacts Connection cross section up to 16 mm²	**1613524** 1	**1613534** 1		
Device plug-in connector with standard knurled nut, **straight,** with contact carrier, **without** contacts Connection cross section up to 16 mm²			**1605823** 1	**1605865** 1
	Accessories		**Accessories**	
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 385 See page 412		For socket contacts, see page 385 See page 412	











Installation dimensions

Device plug-in connector with knurled nut

Device plug-in connectors with knurled nuts must be equipped with socket contacts.

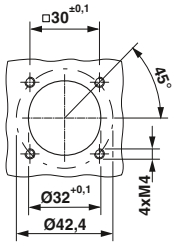


Device plug-in connector with knurled nut, angled, SPEEDCON

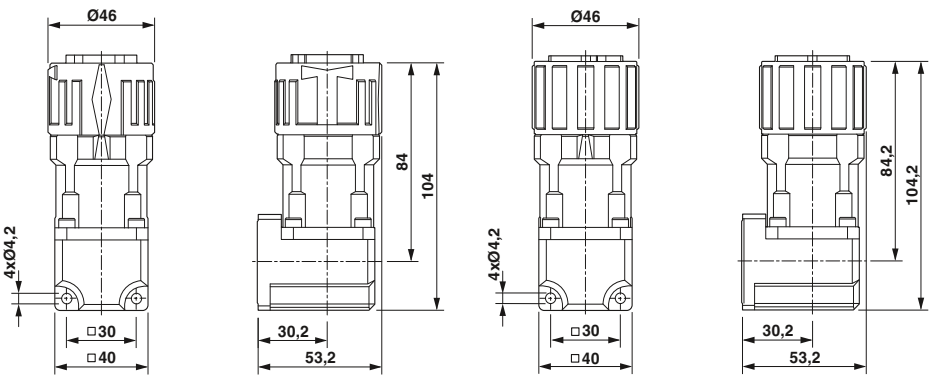


Device plug-in connector with knurled nut, angled

Description	Ordering data				Ordering data			
	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	2+3+PE-pos.		4+3+PE-pos.		2+3+PE-pos.		4+3+PE-pos.	
Device plug-in connector with SPEEDCON knurled nut, **angled,** with contact carrier, **without** contacts								
Connection cross section up to 16 mm²	1613525	1	1613535	1				
Device plug-in connector with knurled nut, **angled,** with contact carrier, **without** contacts								
Connection cross section up to 16 mm²					1607532	1	1607543	1
	Accessories				Accessories			
Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For socket contacts, see page 385 See page 412				For socket contacts, see page 385 See page 412			



Installation dimensions



Device plug-in connector, angled, rotatable

- Compatible with mating plugs with SPEEDCON or M40 standard knurled nuts
- The rotatable angled housing can be rotated freely through 310°
- Individual marking of plug-in connectors with color rings



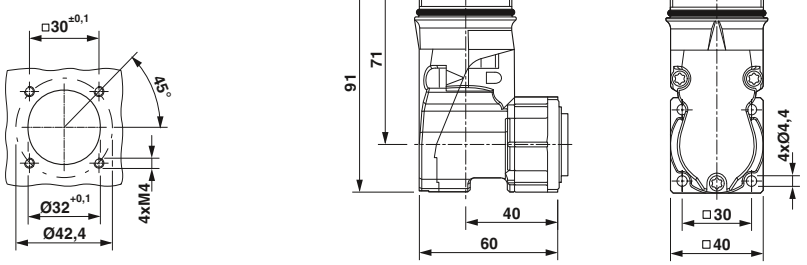
Device plug-in connector, angled rotatable

Ordering data

Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	2+3+PE-pos.		4+3+PE-pos.	
Device plug-in connector, angled, rotatable, with contact carrier, **without** contacts Connection cross section up to 10 mm²	**1620663**	1	**1620664**	1

Accessories

Crimp contacts **Color rings,** 50 pcs. in set (to be ordered separately)	For pin contacts, see page 385 See page 412



Installation dimensions

Crimp contacts, turned

The 6-pos. (2+3+PE) versions are equipped with two Ø 2 mm signal contacts and four 3.6 mm contacts (three power, 1 PE contact).

The 8-pos. (4+3+PE) versions are equipped with four 2 mm signal contacts and four 3.6 mm contacts (three power, 1 PE contact).

Note: depending on the litz wire used, the connection cross sections (crimp ranges) can differ from the values mentioned below.



Crimp contacts, socket



Crimp contacts, pin

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contacts, socket Ø 3.6 mm, for cable and device plug-in connectors with knurled nuts, power and PE contacts							
	1.0 ... 2.5	**SM-36KS001**	**1605756**	20			
	2.5 ... 4.0	**SM-36KS002**	**1605758**	20			
	4.0 ... 6.0	**SM-36KS003**	**1605760**	20			
	6.0 ... 10.0 (16.0)	**SM-36KS004**	**1605762**	20			
Contacts, socket Ø 2.0 mm, for cable and device plug-in connectors with knurled nuts, signal contacts							
	0.25 ... 1.0	**SF-7PS2000**	**1605636**	50			
	0.75 ... 1.5	**SF-7NS2000**	**1605631**	50			
	1.0 ... 2.5	**SF-7QS2000**	**1605643**	50			
	4.0	**SF-7MS2000**	**1605628**	50			
Contacts, pin Ø 3.6 mm, for coupler plug-in connectors, power and PE contacts							
	1.0 ... 2.5				**SM-36KP005**	**1605749**	20
	2.5 ... 4.0				**SM-36KP006**	**1605750**	20
	4.0 ... 6.0				**SM-36KP008**	**1605754**	20
	6.0 ... 10.0 (16.0)				**SM-36KP007**	**1605752**	20
Contacts, pin Ø 2.0 mm, for coupler plug-in connectors, signal contacts							
	0.25 ... 1.0				**SM-20KP006**	**1605738**	50
	0.75 ... 1.5				**SM-20KP005**	**1605736**	50
	1.0 ... 2.5				**SM-20KP007**	**1605739**	50
	4.0				**SM-20KP008**	**1605741**	50
Contacts, pin Ø 3.6 mm, for device plug-in connectors, power and PE contacts							
	0.75 ... 1.5				**SM-36KP001**	**1605743**	20
	1.0 ... 2.5				**SM-36KP009**	**1607057**	20
	1.0 ... 4.0				**SM-36KP002**	**1605744**	20
	4.0 ... 6.0				**SM-36KP003**	**1605745**	20
	6.0 ... 10.0				**SM-36KP004**	**1605747**	20
Contacts, pin Ø 2.0 mm, for device plug-in connectors, signal contacts							
	0.14 ... 0.25				**SF-7RP2000**	**1605646**	50
	0.25 ... 1.0				**SF-7PP2000**	**1605634**	50
	0.75 ... 1.5				**SF-20KP004**	**1607376**	50
	1.0 ... 2.5				**SF-7QP2000**	**1605639**	50
	4.0				**SF-7MP2000**	**1605626**	50
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 407			Order separately, see page 407		

Number of positions	Number of contacts	Contact Ø [mm]
6(2+3+PE)	2+3+PE	2+3,6+3,6
8(4+3+PE)	4+3+PE	2+3,6+3,6

Mechanical and electrical data

Mechanical data	
Housing material:	Aluminum
Housing surface:	Aluminum, anodized
Insulating body:	Polyamide (PA 66)
Contact surface:	Power and PE contacts: silver-plated (Ag), signal contacts: gold-plated (Au)
Contact connection method:	Crimp version
Sealing and O-ring:	Fluorocarbon rubber (FPM)
Ambient temperature:	-40°C ... 120°C
Cable entry:	Cable and coupler plug-in connectors for cable outside diameter of 17 - 36 mm, shielded
Type of locking:	M58 x 2 screw locking
Mechanical insertion/withdrawal cycles:	Standard: 100
Protection class:	IP67 in the locked state

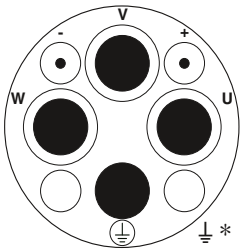
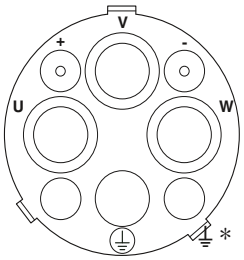
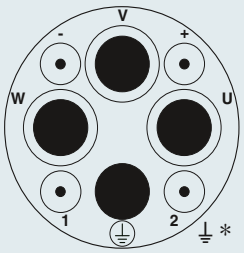
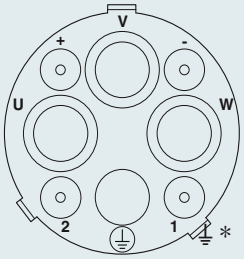
Electrical data

Number of positions		**6 (2+3+PE)**					**8 (4+3+PE)**				
Contacts		2	+	3	+	PE	4	+	3	+	PE
Contact Ø	[mm]	1.6		10		10	1.6		10		10
Litz wire cross section											
Crimp contacts, turned	[mm^2]	0.75 ... 1.5		10 ... 50		10 ... 50	0.75 ... 1.5		10 ... 50		10 ... 50
Nominal current per contact at 25°C [1]	[A]	12		150		–	12		150		–
Specifications according to DIN EN 61984:2009											
Rated voltage	[V AC/DC]	250		630		–	250		630		–
Test/surge voltage	[kV AC]	4		6		–	4		6		–
Surge voltage category				III					III		
Pollution degree				3					3		
Installation height	[m]			Up to 2000					Up to 2000		
Cable clamping area [2]	max. Ø [mm]			36					36		

[1] The effective current carrying capacity must be determined via a derating curve, if necessary, according to the application.
[2] The cable clamping areas specified on the following pages may vary depending on the cable material/structure. Selecting and testing is the responsibility of the user.

Note:
Unlike plug-in equipment, plug-in connectors must not be plugged or unplugged under load.

Pin assignments and coding

Number of positions	Contact chamber numbering (view of plug-in side)	
	Pin	Socket
6-pos. **(2 + 3 + PE)** Crimp		
8-pos. **(4 + 3 + PE)** Crimp		

*** with grounding spring, PE leading**

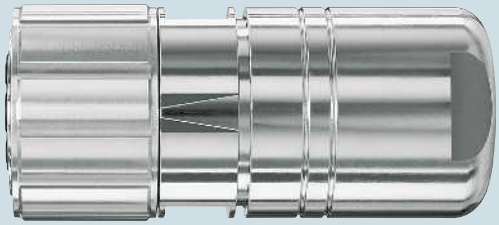
Selection guide

M58 power plug-in connectors up to 150 A/630 V, crimp ranges up to 50 mm²

– Cable plug-in connectors
– Coupler plug-in connectors
– Device plug-in connectors, straight

The power plug-in connectors are supplied fully pre-assembled and are complemented by the respective crimp contacts.

The product chart provides an overview of the available components.

Plug-in connector type	
Shielded	**Cable plug-in connectors**  See page 390.
Shielded	**Coupler plug-in connectors**  See page 390.
Shielded	**Device plug-in connectors**  See page 391.

Socket contacts

Pin contacts

Pin contacts

Crimp contacts

Socket contacts

Turned, see page 392.



Pin contacts

Turned, see page 392.



Note:
For reasons of safety, only socket contacts may be used in the live part of the plug.

Tools/accessories

Crimping tools

Crimping device for power and PE contacts Ø 10 mm,
see page 408.



Crimping pliers, for signal contacts Ø 1.6 mm,
see page 408.



Cable and coupler plug-in connectors

- High transmission capacities of up to 630 V and 150 A
- Connection cross sections up to 50 mm²
- Cable clamping area from 17 mm to 36 mm

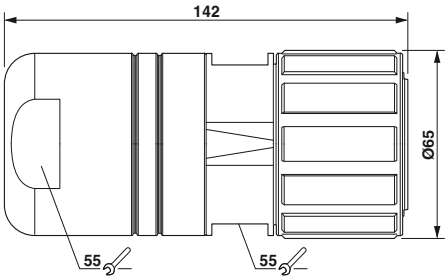


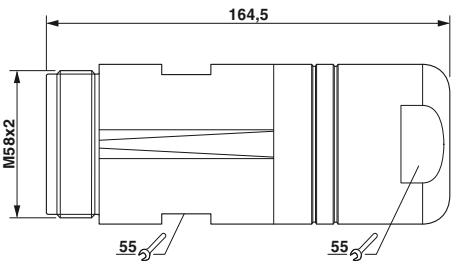
Cable plug-in connector



Coupler plug-in connector

Description	Cable clamping area	Ordering data				Ordering data			
		Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
		2+3+PE-pos.		4+3+PE-pos.		2+3+PE-pos.		4+3+PE-pos.	
Plug-in connector housing, with contact carrier, **without** contacts, for cable diameter:									
	17 mm ... 25 mm	1607503	1	1607508	1	1607500	1	1607506	1
	25 mm ... 36 mm	1607501	1	1607507	1	1607499	1	1607505	1
		Accessories				Accessories			
Crimp contacts		For socket contacts, see page 392				For pin contacts, see page 392			





Device plug-in connector for front mounting

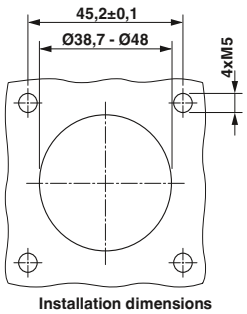
Coupler and device plug-in connectors must be fitted with pin contacts, cable plug-in connectors must be fitted with socket contacts.



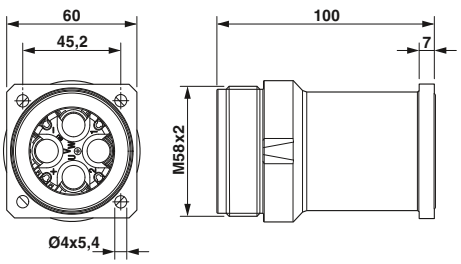
Device plug-in connector, straight

	Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	2+3+PE-pos.		4+3+PE-pos.	
Device plug-in connector, straight, with contact carrier, **without** contacts	1615686	1	1615687	1

Accessories	
Crimp contacts	For pin contacts, see page 392



Installation dimensions



Crimp contacts, turned

The 6-pos. (2+3+PE) versions are equipped with two Ø 1.6 mm signal contacts and four 10 mm contacts (three power, 1 PE contact).

The 8-pos. (4+3+PE) versions are equipped with four 1.6 mm signal contacts and four 10 mm contacts (three power, 1 PE contact).

Note: depending on the litz wire used, the connection cross sections (crimp ranges) can differ from the values mentioned below.



Crimp contacts, socket



Crimp contacts, pin

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contacts, socket Ø 10.0 mm for cable plug-in connectors, power and PE contacts							
	10.0	**SL-1CKS010**	**1607916**	4			
	16.0	**SL-1CKS020**	**1607917**	4			
	25.0	**SL-1CKS030**	**1607918**	4			
	35.0	**SL-1CKS040**	**1607919**	4			
	50.0	**SL-1CKS050**	**1607920**	4			
Contacts, socket Ø 1.6 mm for cable plug-in connectors, signal contacts							
	0.75 ... 1.5	**SL-16KS010**	**1607956**	4			
Contacts, pin Ø 10.0 mm for coupler and device plug-in connectors, power and PE contacts							
	10.0				**SL-1CKP010**	**1607911**	4
	16.0				**SL-1CKP020**	**1607912**	4
	25.0				**SL-1CKP030**	**1607913**	4
	35.0				**SL-1CKP040**	**1607914**	4
	50.0				**SL-1CKP050**	**1607915**	4
Contacts, pin Ø 1.6 mm for coupler and device plug-in connectors, signal contacts							
	0.75 ... 1.5				**SL-16KP010**	**1607909**	4
		Accessories			**Accessories**		
Crimping tools		Order separately, see page 408 onwards			Order separately, see page 408 onwards		

Number of positions	Number of contacts	Contact Ø [mm]
6(2+3+PE)	2+3+PE	1,6+10+10
8(4+3+PE)	4+3+PE	1,6+10+10

M17 and M23 plastic molded signal plug-in connectors

- Feedback plug-in connectors
- Contact resistance <= 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard and counter direction contact numbering
- M17 and M23 standard thread - SPEEDCON rapid interlock system on request
- Angled versions rotatable

	M17, 17-pos., socket, standard, 60 V, 9 A		M23, 12-pos., socket, reverse, 150 V, 9 A		M23, 12-pos., socket, reverse, 150 V, 9 A	
						
	E01		E00		E00	
	Ordering data		Ordering data		Ordering data	
		Order no.		Order no.		Order no.
Free end 	2 m	**1624780**	2 m	**1619247**	2 m	**1619280**
	5 m	**1624781**	5 m	**1619248**	5 m	**1619281**
	10 m	**1624782**	10 m	**1619249**	10 m	**1619282**
M17, 17-pos., pin 	2 m	**1624778**				
	5 m	**1624783**				
	10 m	**1624784**				
M23, 12-pos., pin 			2 m	**1619289**		
			5 m	**1619290**		
			10 m	**1619291**		
M23, 12-pos., pin 						
M23, 17-pos., pin 						

Cable information:

Type/ application	Color	Structure	Sheath/core material	Assignment		Temperature range
E00 Feedback	Orange	Shielded, 4 x 2 x 0.25 + 2 x 0.5	TPU/PP	1 - pink 2 - red 3 - black 4 - blue 5 - brown 6 - green	7 - violet 8 - gray 9 - exterior shield 10 - white 11 - n.c. 12 - brown	**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C
E01 Feedback	Green	Shielded, 3 x 2 x 0.14 + 2 x 0.5 + 4 x 0.14 + 4 x 0.22	TPU/TPM	1 - yellow 2 - green 3 - red 4 - n.c. 5 - blue 6 - n.c. 7 - brown-blue (encoder) 8 - green-black (+temp.) 9 - green-red (-temp.)	10 - brown-red (P encoder) 11 - black 12 - brown 13 - orange 14 - white-black 15 - brown-gray (OV sense) 16 - brown-yellow (sense) 17 - interior shields 1 - 3"	**Flexible:** -30°C ... 60°C **Fixed:** -30°C ... 80°C

M23, 12-pos., socket, standard, 150 V, 9 A	M23, 12-pos., socket, standard, 150 V, 9 A	M23, 17-pos., socket, standard, 100 V, 9 A	M23, 17-pos., socket, standard, 100 V, 9 A
			
E00	E00	E01	E01
Ordering data	Ordering data	Ordering data	Ordering data
Order no.	Order no.	Order no.	Order no.
2 m **1619250**	2 m **1619285**	2 m **1619277**	2 m **1619286**
5 m **1619273**	5 m **1619283**	5 m **1619278**	5 m **1619287**
10 m **1619274**	10 m **1619284**	10 m **1619279**	10 m **1619288**
2 m **1619292**			
5 m **1619293**			
10 m **1619294**			
		2 m **1619295**	
		5 m **1619296**	
		10 m **1619297**	

M17 plastic molded power plug-in connectors

- Contact resistance <= 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard contact numbering
- M17 standard thread - SPEEDCON rapid interlock system on request

	M17, 3+PE-position, Socket, 630 V, 18 A		M17, 3+PE-position, Socket, 630 V, 26 A		M17, 5+PE-position, Socket, 630 V, 12 A	
						
	B00		B01		C00	
	Ordering data		Ordering data		Ordering data	
		Order no.		Order no.		Order no.
Free end 	2 m 5 m 10 m	**1619298** **1619299** **1619300**	2 m 5 m 10 m	**1619301** **1619302** **1619303**	2 m 5 m 10 m	**1619307** **1619308** **1619309**
M17, 3+PE-pos., pin 	2 m 5 m 10 m	**1619304** **1619305** **1619306**	2 m 5 m 10 m	**1619326** **1619327** **1619328**		
M17, 5+PE-pos., pin 					2 m 5 m 10 m	**1619316** **1619317** **1619318**
M17, 7+PE-pos., pin 						

Cable information:

Type	Color	Structure	Sheath/core material	Assignment		Temperature range
B00 Servo	Orange	Shielded, 4 x 1.50	PUR/TPM	1 - black U 2 - black V 3 - black W PE - green/yellow"		**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C
B01 Servo	Orange	Shielded, 4 x 2.50	TPU/TPM			**Flexible:** -20°C ... 70°C **Fixed:** -50°C ... 80°C
C00 Servo	Orange	Shielded, 4 x 0.75 + 2 x 0.5	PUR/TPM	1 - black U 6 - black V 7 - black W PE - green/yellow	3 - black , 5 (brake) 4 - black, 6 (brake)	**Flexible:** -30°C ... 70°C **Fixed:** -40°C ... 80°C
C01 Servo	Orange	Shielded, 4G1 + 2 x 0.5	PUR/TPE			**Flexible:** -5°C ... 70°C **Fixed:** -30°C ... 70°C
D00 Servo	Orange	Shielded, 4 x 0.75 + 2 x 2 x 0.34	PUR/TPM	1 - black U 2 - black V 3 - black W PE - green/yellow	A - black 5 (brake) B - black 6 (brake) C - black 7 (motor temp. +) D - black 8 (motor temp. -)	**Flexible:** -30°C ... 90°C **Fixed:** -40°C ... 90°C
D01 Servo	Orange	Shielded, 4 x 1.0 + 2 x 2 x 0.75	PUR/TPM			**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C

M17, 5+PE-position, Socket, 630 V, 15 A	M17, 7+PE-position, Socket, 630 V, 12 A	M17, 7+PE-position, Socket, 630 V, 15 A
		
C01	D00	D01
Ordering data	**Ordering data**	**Ordering data**
Order no.	**Order no.**	**Order no.**
2 m **1619310**	2 m **1624785**	2 m **1619313**
5 m **1619311**	5 m **1624786**	5 m **1619314**
10 m **1619312**	10 m **1624792**	10 m **1619315**
2 m **1619319**		
5 m **1619321**		
10 m **1619322**		
	2 m **1624787**	2 m **1619323**
	5 m **1624788**	5 m **1619324**
	10 m **1624789**	10 m **1619325**

M23 plastic molded power plug-in connectors

- Contact resistance <= 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard contact numbering
- M23 standard thread - SPEEDCON rapid interlock system on request
- Angled version rotatable (only with reinforced device plug-in connector 1620619)

	M23, 3+PE-position, Socket, 630 V, 34 A		M23, 4+PE-position, Socket, 630 V, 34 A		M23, 5+PE-position, Socket, 630 V, 18 A	
						
	A00		A01		C02	
	Ordering data		Ordering data		Ordering data	
	Order no.		Order no.		Order no.	
Free end 	2 m	**1624771**	2 m	**1625776**	2 m	**1618957**
	5 m	**1619622**	5 m	**1625777**	5 m	**1618958**
	10 m	**1624772**	10 m	**1625775**	10 m	**1618959**
M23, 3+PE-pos., pin 	2 m	**1624773**				
	5 m	**1619606**				
	10 m	**1624774**				
M23, 4+PE-pos., pin 			2 m	**1625779**		
			5 m	**1625781**		
			10 m	**1625780**		
M23, 5+PE-pos., pin 					2 m	**1618964**
					5 m	**1618965**
					10 m	**1618966**

Cable information:

Type	Color	Structure	Sheath/core material	Assignment		Temperature range
A00 Energy	Gray	Shielded, 4 x 4.0	PVC/PVC	1 - nc 2 - black 3 PE - green/yellow	4 - black 1 5 - black 2 6 - nc	**Fixed:** -40°C ... 90°C
A01 energy	Gray	5 x 4.0	PVC/PVC	1 - black 4 2 - black 3 PE - green/yellow	4 - black 1 5 - black 2 6 - nc	**Fixed:** -40°C ... 90°C
C02 servo	Orange	Shielded, 4 x 1.50 + 2 x 1.5	PUR/TPM	1 - black U 2 - black V 6 - black W PE - green/yellow	4 - black, (BR1 brake) 5 - white, (BR2 brake)	**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C
C03 servo	Orange	Shielded, 4 x 2.50 + 2 x 1.5	TPU/TPM			**Flexible:** -20°C ... 70°C **Fixed:** -50°C ... 80°C

M23, 5+PE-position, Socket, 630 V, 18 A



C02

Ordering data

	Order no.
2 m	**1620415**
5 m	**1620416**
10 m	**1620417**

M23, 5+PE-position, Socket, 630 V, 26 A



C03

Ordering data

	Order no.
2 m	**1620396**
5 m	**1620397**
10 m	**1620398**

2 m	**1620406**
5 m	**1620407**
10 m	**1620408**

M23, 5+PE-position, Socket, 630 V, 26 A



C03

Ordering data

	Order no.
2 m	**1620418**
5 m	**1620419**
10 m	**1620420**

Signal/power plug-in connectors, plastic molded

M23 plastic molded power plug-in connectors

- Contact resistance <= 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard contact numbering
- M23 standard thread - SPEEDCON rapid interlock system on request
- Angled version rotatable (only with reinforced device plug-in connector 1620620)

	M23, 4+3+PE-pos., socket, 250 V/630 V, 18 A		M23, 4+3+PE-pos., socket, 250 V/630 V, 18 A		M23, 4+3+PE-pos., socket, 250 V/630 V, 26 A	
						
	D02		D02		D03	
	Ordering data		Ordering data		Ordering data	
		Order no.		Order no.		Order no.
Free end 	2 m	1620399	2 m	1620421	2 m	1620402
	5 m	1620400	5 m	1620422	5 m	1620404
	10 m	1620401	10 m	1620423	10 m	1620405
M23, 4+3+PE-pos., pin 	2 m	1620409			2 m	1620412
	5 m	1620410			5 m	1620413
	10 m	1620411			10 m	1620414

Cable information:

Type	Color	Structure	Sheath/core material	Assignment		Temperature range
D02 servo	Orange	Shielded, 4 x 1.5 + 2 x 2 x 0.75	PUR/TPM	1 - black U 3 - black V 4 - black W PE - green/yellow	A - black 5 (brake) B - black 6 (brake) C - black 7 (motor temp. +) D - black 8 (motor temp. -)	**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C
D03 servo	Orange	Shielded, 4 x 2.5 + 2 x 2 x 0.75	PUR/TPM			**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C

M23, 4+3+PE-pos., socket, 250 V/630 V, 26 A



D03

Ordering data

	Order no.
2 m	**1620424**
5 m	**1620425**
10 m	**1620426**

Signal/power plug-in connectors, plastic molded

M40 plastic molded power plug-in connectors

- Contact resistance <= 0.3 ohms
- Contact material gold-plated CuZn
- Flame-retardant TPU handle material
- Knurl CuZn/Gd-Zn, nickel-plated
- IP67 protection
- Plug head temperature range -40 to +105°C
- Standard contact numbering
- M40 standard thread - SPEEDCON rapid interlock system on request

	M40, 2+3+PE-pos., socket, 250 V/630 V, 26 A		M40, 2+3+PE-pos., socket, 250 V/630 V, 34 A		M40, 2+3+PE-pos., socket, 250 V/630 V, 44 A	
						
	C03		C04		C05	
	Ordering data		Ordering data		Ordering data	
		Order no.		Order no.		Order no.
Free end 	2 m 5 m 10 m	**1619329** **1620309** **1620310**	2 m 5 m 10 m	**1620311** **1620313** **1620314**	2 m 5 m 10 m	**1620316** **1620317** **1620318**
M40, 2+3+PE-pos., pin 	2 m 5 m 10 m	**1620345** **1620346** **1620347**	2 m 5 m 10 m	**1620348** **1620349** **1620375**	2 m 5 m 10 m	**1620376** **1620377** **1620378**
M40, 4+3+PE-pos., pin 						

Cable information:

Type	Color	Structure	Sheath/core material	Assignment		Temperature range
C03 Servo	Orange	Shielded, 4 x 2.50 + 2 x 1.5	TPU/TPM	1 - black U 2 - black V 6 - black W PE - green/yellow	4 - black, (BR1 brake) 5 - white, (BR2 brake)	**Flexible:** -20°C ... 70°C **Fixed:** -50°C ... 80°C
C04 Servo	Orange	Shielded, 4 x 4.00 + 2 x 1.5	TPU/TPM			**Flexible:** -20°C ... 70°C **Fixed:** -50°C ... 80°C
C05 Servo	Orange	Shielded, 4 x 6.00 + 2 x 1.5	PUR/TPE			**Flexible:** -40°C ... 80°C **Fixed:** -50°C ... 90°C
C06 Servo	Orange	Shielded, 4 x 10.0 + 2 x 1.5	TPU/TPM			**Flexible:** -20°C ... 70°C **Fixed:** -50°C ... 80°C
D03 Servo	Orange	Shielded, 4 x 2.5 + 2 x 2 x 0.75	PUR/TPM	1 - black U 3 - black V 4 - black W PE - green/yellow	A - black 5 (brake) B - black 6 (brake) C - black 7 (motor temp. +) D - black 8 (motor temp. -)	**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C
D04 Servo	Orange	Shielded, 4 x 4.0 + 2 x 1.5 + 2 x 1.0	PUR/TPM			**Flexible:** -30°C ... 80°C **Fixed:** -45°C ... 80°C
D05 Servo	Orange	Shielded, 4 x 6.0 + 2 x 1.5 + 2 x 1.0	PUR/TPM			**Flexible:** -30°C ... 60°C **Fixed:** -30°C ... 80°C
D06 Servo	Orange	Shielded, 4 x 10 + 2 x 1.5 + 2 x 1.0	PUR/TPM			**Flexible:** -20°C ... 60°C **Fixed:** -40°C ... 80°C

M40, 2+3+PE-pos., socket, 250 V/630 V, 61 A	M40, 4+3+PE-pos., socket, 250 V/630 V, 26 A	M40, 4+3+PE-pos., socket, 250 V/630 V, 34 A	M40, 4+3+PE-pos., socket, 250 V/630 V, 44 A	M40, 4+3+PE-pos., socket, 250 V/630 V, 61 A
				
C06	D03	D04	D05	D06
Ordering data	**Ordering data**	**Ordering data**	**Ordering data**	**Ordering data**
Order no.	**Order no.**	**Order no.**	**Order no.**	**Order no.**
2 m **1620319**	2 m **1620322**	2 m **1620325**	2 m **1620339**	2 m **1620342**
5 m **1620320**	5 m **1620323**	5 m **1620337**	5 m **1620340**	5 m **1620343**
10 m **1620321**	10 m **1620324**	10 m **1620338**	10 m **1620341**	10 m **1620344**
2 m **1620379**				
5 m **1620380**				
10 m **1620381**				
	2 m **1620382**	2 m **1620385**	2 m **1620390**	2 m **1620393**
	5 m **1620383**	5 m **1620386**	5 m **1620391**	5 m **1620394**
	10 m **1620384**	10 m **1620387**	10 m **1620392**	10 m **1620395**

Tools and accessories for M23 signal plug-in connectors

For RC crimp contacts, RC-Z2130 and RC-Z2514 crimping pliers are used for rolled or turned crimp contacts.

RC-Z2514 crimping pliers with 4-arbor pressing are suitable for crimping turned RC contacts. Detailed operating instructions are included in the packaging.



Crimping tools for rolled/turned contacts



Contact insertion/contact removal tool

Description	Ordering data			Ordering data		
	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Crimping pliers for rolled RC crimp contacts Ø 1 mm						
Litz wire cross section of 0.08 ... 0.56 mm²	**RC-Z2130**	**1604267**	1			
Crimping pliers for turned RC crimp contacts Ø 1 mm / Ø 1.5 mm / Ø 2 mm						
Litz wire cross section of 0.08 ... 2.5 mm²	**RC-Z2514**	**1614590**	1			
Insertion and contact removal tool for RC crimp contacts						
Socket/plug Ø 1 mm				**RC-Z2494**	**1614123**	1
Socket/plug Ø 1.5 mm				**RC-Z2274**	**1604409**	1
Socket/plug Ø 2 mm				**RC-Z2490**	**1611803**	1

Crimping tools for punched-rolled C-HC crimp contacts

The manual crimping pliers are suitable for single processing. For processing taped products, a bench-mounted electric crimping device with integrated feed mechanism is available.

– The SF-Z0041 adapter enables tools for the manual crimping pliers for single processing to be used with the electric crimping device.



Manual crimping tools for punched-rolled C-HC crimp contacts



Electrical crimping device for punched-rolled C-HC crimp contacts

Description	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Manual crimping pliers, basic tool for individual processing						
for C-HC crimp contacts	**SF-Z0029**	**1607458**	1			
Tool head for crimping pliers SF-Z0029, for C-HC crimp contacts						
Contacts **Ø 2 mm**	**SF-Z0030**	**1607459**	1			
Contacts **Ø 1 mm**	**SF-Z0031**	**1607461**	1			
Electric crimping device, for processing taped products						
for C-HC crimp contacts				**SF-Z0032**	**1607462**	1
Tool head for electrical crimping device SF-Z0032, for C-HC crimp contacts, processing for taped products						
Contacts **Ø 2.0 mm** / connection **1.0 mm²**				**SF-Z0033**	**1607463**	1
Contacts **Ø 2.0 mm** / connection **1.5 mm²**				**SF-Z0047**	**1614689**	1
Contacts **Ø 2.0 mm** / connection **2.5 mm²**				**SF-Z0035**	**1607465**	1
Contacts **Ø 1.0 mm** / connection **0.08 ... 0.2 mm²**				**SF-Z0039**	**1607470**	1
Contacts **Ø 1.0 mm** / connection **0.2 ... 0.56 mm²**				**SF-Z0040**	**1607471**	1
Media hub for electrical crimping device SF-Z0032 for accommodating rolls up to Ø 60 cm				**SF-Z0052**	**1615413**	1
Adapter for electrical crimping device SF-Z0032, for accommodating tool heads **for single processing**				**SF-Z0041**	**1607472**	1

Crimping tools for turned contacts

The crimping pliers are suitable for crimping turned contacts with Ø 0.6 mm, Ø 1 mm, Ø 2 mm, and Ø 3.6 mm (excl. M23 signal plug-in connectors). For large litz wire cross sections, a pneumatic crimping tool is available.

Notes:

For crimping tools for M23 signal plug-in connectors, see page 404



Manual crimping pliers



Crimping tool, pneumatic

Description	Litz wire cross section [mm²]	Ordering data			Ordering data		
		Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Manual crimping pliers with digital display for turned crimp contacts with Ø 1 mm, Ø 2 mm, Ø 3.6 mm	0.06 ... 6	SF-Z0025	1607452	1			
Positioners for crimping the SF-6FS2000 / SF-6DP2000 contacts with a connection cross section of 1.5 mm²		SF-Z0042	1613666	1			
Manual crimping pliers with digital display for turned crimp contacts with Ø 2 mm, Ø 3.6 mm	1.5 ... 10	SF-Z0026	1607454	1			
Manual crimping pliers with digital display for turned crimp contacts with Ø 0.6 mm, Ø 1 mm, Ø 2 mm	0.06 ... 2.5	SF-Z0054	1615585	1			
Crimping tool, pneumatic for turned crimp contacts with Ø 3.6 mm	6.0 ... 16				SF-Z0014	1607446	1
Crimp head for crimping tool, pneumatic					SF-Z0003	1605657	1
Positioner for crimp head **SF-Z0003**, for device plug-in connectors	**"D" marking**				SF-Z0011	1605675	1
Positioner for crimp head **SF-Z0003**, for cable and coupler plug-in connectors	**"F" marking**				SF-Z0013	1605681	1

Crimping tools for turned contacts for M58 power plug-in connectors

For turned crimp contacts with Ø 1.6 mm for M58 power plug-in connectors, SF-Z0025 manual crimping pliers are used. For user-friendly crimping of contacts with Ø 10 mm, the SL-Z0007 electric crimping tool is available.

Crimping stamps for processing contacts with Ø 10 mm are used in pairs. The stamps are tailored to the connection cross sections and marked.



Electro-hydraulic crimping device



Manual crimping pliers

Description	Connection cross section [mm²]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Electro-hydraulic crimping device incl. charger and rechargeable battery, for Litz wire cross section of 10 ... 50 mm² (power and PE contacts Ø 10 mm)		**SL-Z0007**	**1613484**	1			
Crimping stamp for crimping device SL-Z0007	10	**SL-Z0011**	**1613488**	1			
Crimping stamp for crimping device SL-Z0007	16	**SL-Z0012**	**1613489**	1			
Crimping stamp for crimping device SL-Z0007	25	**SL-Z0013**	**1613490**	1			
Crimping stamp for crimping device SL-Z0007	35	**SL-Z0014**	**1613491**	1			
Crimping stamp for crimping device SL-Z0007	50	**SL-Z0015**	**1613492**	1			
Crimping tool with digital display	0.06 ... 6				**SF-Z0025**	**1607452**	1
Accessories for electro-hydraulic crimping device SL-Z0007							
Replacement battery		**SL-Z0008**	**1613485**	1			
Table bracket incl. foot actuation switch		**SL-Z0010**	**1613487**	1			

Notes:
The manual crimping pliers SF-Z0025 with digital display are also suitable for crimping turned crimp contacts ST / SF / SM.

Special wrench

The torque screwdriver is specially adapted to the M23 circular plug-in connectors and simplifies the process of tightening and loosening the knurled nut safely even in places where space is restricted.

The tool consists of a hook wrench as well as a torque screwdriver with a fixed torque of 2.5 Nm.



Torque screwdriver for M23 plug-in connectors with knurled nuts



Special wrench for screwing the adapter

Description	Wrench size [mm]	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Torque screwdriver incl. hook wrench							
For M23 plug-in connectors with knurled nuts		**SF-Z0028**	**1607456**	1			
Replacement hook wrench for torque screwdriver							
		SF-Z0027	**1607455**	1			
Special wrench for cable/coupler plug-in connectors for screwing the adapter. Connection dimensions for torque wrench: 8.9 mm x 11.9 mm							
For M17 plug-in connectors, WAF 19					**ST-Z0012**	**1613667**	1
For M23 plug-in connectors, WAF 24					**RF-Z0007**	**1614347**	1
For M40 plug-in connectors, WAF 41					**SM-Z0012**	**1614349**	1
For M58 plug-in connectors, WAF 55					**SL-Z0016**	**1614348**	1

Contact removal tools, square mounting flange

The removal tool is used for contact carriers which are snapped into the housing without rear support. They are removed from the plug-in side using the removal tool.

The square mounting flange is used for cable and coupler plug-in connectors. In this way, the product range is easily extended to include plug-in connectors as panel feed-throughs.



Contact removal tool for snap-in contact carriers



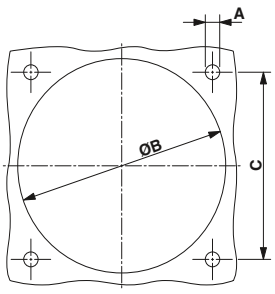
Square mounting flange for cable/coupler plug-in connector for wall mounting

Description	Wall mounting	Ordering data: Type	Order No.	Pcs. / Pkt.	Ordering data: Type	Order No.	Pcs. / Pkt.
Contact removal tool for contact carriers, device plug-in connectors							
	For M17 signal/power plug-in connectors	**ST-Z0001**	**1607770**	1			
	For M23 feedback plug-in connectors	**RF-Z0001**	**1607904**	1			
	For M23 signal plug-in connectors	**CA-Z0001**	**1620699**	1			
Square mounting flange, metal, with O-ring seal, for M17 (excl. M17 Compact) cable and coupler plug-in connectors for wall mounting							
	4 x Ø 2.7 mm				**ST-Z0002**	**1607771**	1
	4 x M3				**ST-Z0003**	**1607772**	1
Square mounting flange, metal, without seal, for M17 (excl. M17 Compact) cable and coupler plug-in connectors for wall mounting							
	4 x Ø 2.7 mm				**ST-Z0004**	**1607773**	1
	4 x M3				**ST-Z0005**	**1607775**	1
Square mounting flange, metal, with O-ring seal, for M23 feedback, cable, and coupler plug-in connectors for wall mounting							
	4 x M3				**RF-Z0003**	**1607905**	1
Square mounting flange, metal, with O-ring seal, for M58 cable and coupler plug-in connectors for wall mounting							
	4 x Ø 4.3 mm				**SM-Z0003**	**1607935**	1
Square mounting flange, metal, without seal, for M58 cable and coupler plug-in connectors for wall mounting							
	4 x Ø 4.3 mm				**SM-Z0004**	**1607937**	1

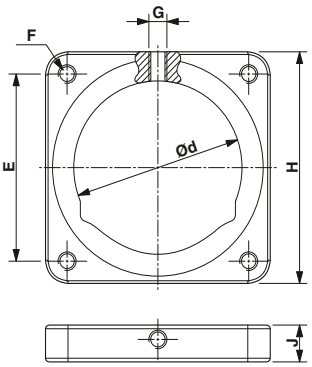
Installation dimensions for square mounting flanges

Type	Installation dimensions			Flange dimensions					
	A	B	C	D	E	F	G	H	J
ST-Z0002 ST-Z0003 ST-Z0004 ST-Z0005	4 x M2.5/∅ 3.2	∅ 22.9 + 0.2	□ 22.6 ±0.1	∅ 21.6	□ 22.6 ±0.1	4 x M3/∅ 2.7	M2.5	□ 28.0 ±0.1	5
RF-Z0003	4 x ∅ 3.2	∅ 27.9 ±0.1	□ 28.3 ±0.1	∅ 26.2	□ 28.3 ±0.1	4 x M3	M3	□ 35.0	6
SM-Z0003 SM-Z0004	4 x M4/∅ 4.2	∅ 46.1 ±0.1	□ 42.4 ±0.1	∅ 45.0	□ 42.4 ±0.1	4 x ∅ 4.3	M3	□ 55.0 ±0.1	5.5

Installation dimensions



Flange dimensions



Note:
For insulating wall mounting, plastic mounting flanges are available on request.

Color rings

The color rings are used for individually marking the plug-in connectors



Color rings for marking plug-in connectors with cable entry



Color rings for marking device plug-in connectors

Description	Color	Ordering data			Ordering data		
		Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
Color rings for M17 plug-in connectors, 50 pcs. in set							
	Green	**ST-Z0016**	**1617993**	50	**ST-Z0019**	**1620621**	50
	Orange	**ST-Z0017**	**1618049**	50	**ST-Z0020**	**1620622**	50
	Black	**ST-Z0018**	**1618050**	50	**ST-Z0021**	**1620623**	50
Color rings for M23 signal plug-in connectors, 50 pcs. in set							
	Green	**RF-Z0014**	**1620588**	50			
	Orange	**RF-Z0015**	**1620592**	50			
	Black	**RF-Z0016**	**1620593**	50			
Color rings for M23 signal device plug-in connectors, front mounting, Pg13.5 and M20 fastening thread/rear mounting, central fastening thread, 50 pcs. in set							
	Green				**CA-Z0110**	**1620700**	50
	Orange				**CA-Z0111**	**1620701**	50
	Black				**CA-Z0112**	**1620702**	50
Color rings for M23 signal device plug-in connectors, front mounting, flange dimensions: 25 mm x 25 mm, 50 pcs. in set							
	Green				**CA-Z0120**	**1620704**	50
	Orange				**CA-Z0121**	**1620705**	50
	Black				**CA-Z0122**	**1620706**	50
Color rings for M23 feedback plug-in connectors, 50 pcs. in set							
	Green	**RF-Z0014**	**1620588**	50	**RF-Z0017**	**1620624**	50
	Orange	**RF-Z0015**	**1620592**	50	**RF-Z0018**	**1620625**	50
	Black	**RF-Z0016**	**1620593**	50	**RF-Z0019**	**1620626**	50
Color rings for M23 power plug-in connectors, 50 pcs. in set							
	Green	**SF-Z0064**	**1620585**	50	**RF-Z0017**	**1620624**	50
	Orange	**SF-Z0065**	**1620586**	50	**RF-Z0018**	**1620625**	50
	Black	**SF-Z0066**	**1620587**	50	**RF-Z0019**	**1620626**	50
Color rings for M40 plug-in connectors, 50 pcs. in set							
	Green	**SM-Z0025**	**1620558**	50	**SM-Z0028**	**1620627**	50
	Orange	**SM-Z0026**	**1620559**	50	**SM-Z0029**	**1620628**	50
	Black	**SM-Z0027**	**1620560**	50	**SM-Z0030**	**1620629**	50

Dust protection caps, plastic

A range of protective caps is available for signal and power plug-in connectors to protect the contact elements in the case of a separate plug connection.

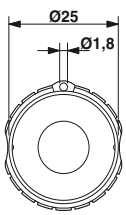
These prevent penetration of dust and humidity.

Plastic protective caps enable IP40 protection to be achieved when locked.



Plastic dust protection caps

Description	Degree of protection when locked	Ordering data: Type	Order No.	Pcs. / Pkt.
Plastic dust protection cap, for signal/power plug-in connectors, with M17 external thread	IP40	**ST-Z0006**	**1607776**	25
Plastic dust protection cap, for signal/power plug-in connectors, with M17 knurled nut (SPEEDCON and standard)	IP40	**ST-Z0007**	**1607777**	25
Plastic dust protection cap with lug for signal/power plug-in connectors with M23 external thread	IP40	**SF-Z0019**	**1607449**	25
Plastic dust protection cap, for signal/power plug-in connectors, with M23 knurled nut	IP40	**RC-Z2058**	**1604223**	25
Plastic dust protection cap, for signal/power plug-in connectors, with M23 external thread	IP40	**RC-Z2059**	**1604225**	25
Plastic dust protection cap, anti-static, black, for signal/power plug-in connectors, with M23 knurled nut	IP40	**RC-Z2468**	**1611796**	25
Plastic dust protection cap, anti-static, black, for signal/power plug-in connectors with M23 external thread	IP40	**RC-Z2469**	**1611797**	25
Plastic dust protection cap for power plug-in connectors with M40 external thread	IP40	**SM-Z0001**	**1605866**	25
Plastic dust protection cap for power plug-in connectors with M58 external thread	IP40	**SL-Z0005**	**1607926**	25



SF-Z0019, eye for fixing rope

Dust protection caps, metal

Metal protective caps are available for applications that require a higher degree of protection. These enable IP67 protection to be achieved when locked.

The wire is fixed to the housing panel and prevents the metal protective caps from being lost.



Metal dust protection caps

Description	Degree of protection when locked	Ordering data		
		Type	Order No.	Pcs. / Pkt.
Metal dust protection cap, for power plug-in connectors with M23 external thread	IP67	SC-Z2319	1605456	10
Metal dust protection cap with steel wire, for power plug-in connectors with M23 external thread	IP67	SC-Z2320	1605457	10
Metal dust protection cap with steel wire, for power plug-in connectors with M23 knurled nut	IP67	SC-Z2322	1605459	10
Metal dust protection cap, for signal plug-in connectors, with M23 external thread	IP67	RC-Z2104	1604260	10
Metal dust protection cap with steel wire, for signal plug-in connectors with M23 external thread	IP67	RC-Z2068	1604236	10
Metal dust protection cap with steel wire, for signal plug-in connectors, with M23 knurled nut	IP67	RC-Z2062	1604228	10



Photovoltaic plug-in connectors

SUNCLIX – the unique connection system for photovoltaics

Are you looking for innovative and reliable connection technology for your PV modules, inverters or for cabling complete PV systems?

We have the right connection solution for you – from connection technology for junction boxes through DC plug-in connectors for field cabling to device connection for power. The tailored, high-quality components contribute to the long-term and increased availability of your system.

SUNCLIX – DC plug-in connectors with fast connection

The one-piece DC plug-in connectors can be connected quickly and easily by means of spring technology without using special tools. The unique spring technology ensures reliable and long-term stable contacting of the conductors.

Miniature plug-in system for building-integrated photovoltaics - BIPV

Absorb solar energy not only from the roof of a building, but from its entire surface.

Phoenix Contact has developed a new DC plug-in system in miniature format for this new trend in energy production using photovoltaics. In this way, the facade of a building is efficiently used to produce energy.

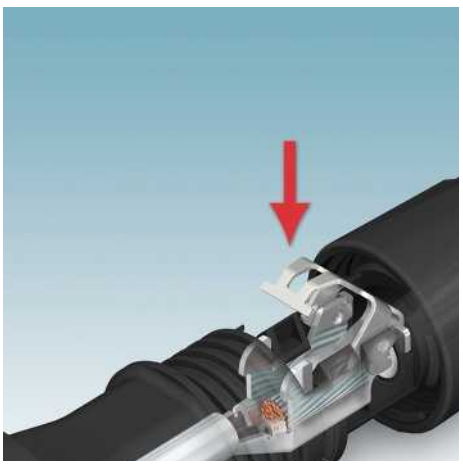
Product range overview	**418**
Device plug-in connectors	**420**
DC plug-in connectors	**422**
Y plug-in connectors	**424**
Cables	**425**
Building-integrated photovoltaic applications (BIPV)	**426**
PCB connection for PV applications	**428**



Assembly



– Insert the stripped PV conductor



– Press down on the spring and snap in



– Tighten the screw connection
- and you're done!



SUNCLIX DC device plug-in connectors
– see page 420



SUNCLIX DC plug-in connectors, 2.5 mm² to 16 mm², can be assembled
– see page 422



SUNCLIX Y-distributors
– see page 424



Photovoltaic cables
– see page 425



PCB connection
– see page 428



SUNCLIX building-integrated photovoltaic applications
– see page 426

Release



– Can only be released using a screwdriver

SUNCLIX DC device plug-in connectors

– With connected cable as standard
– IP65 when not plugged in
– Anti-rotation protection with coding
– For voltage up to 1500 V

Notes:

Further cable types and lengths are available on request



With 0.13 m litz wire

Technical data

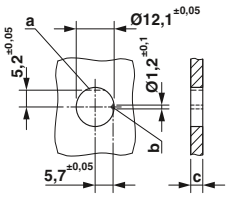
General data			
Degree of protection	IP65 / IP66 / IP68 (2m / 24h)		
Electrical data			
Rated voltage	1500 V		
Nominal current I_N	27 A	40 A	
Conductor cross section	2.5 mm²	4 mm²	6 mm²
Temperature data			
Ambient temperature (operation)	-40 °C ... 85 °C		

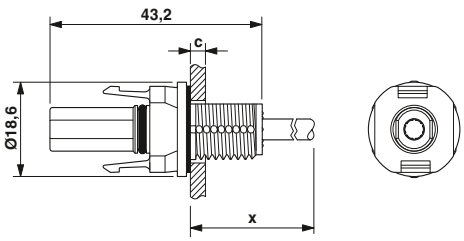
Ordering data

Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
DC device plug-in connector						
Socket (+)	**1805135**	50	**1805151**	50	**1805177**	50
Plug (-)	**1805148**	50	**1805164**	50	**1805180**	50

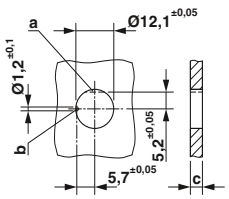
Accessories

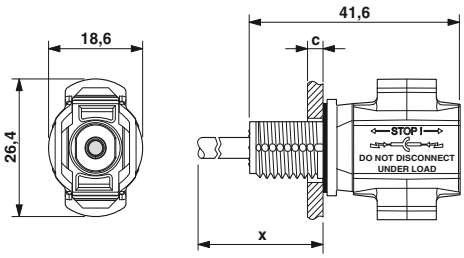
Nut for attaching SUNCLIX device plug-in connectors	**PV-FT-C NUT BK**	**1775880**	100
Protective cap for SUNCLIX photovoltaic plug-in connector; degree of protection: IP67	**PV-C PROTECTION CAP**	**1785430**	100
Flat gasket for photovoltaic plug-in connector	**PV-FT-FLAT GASKET**	**1705561**	1000





Dimension: socket (+), dimension x = cable length





Dimension: pin (-), dimension x = cable length

SUNCLIX DC device plug-in connectors for self-assembly

Plastic housing
– Anti-rotation protection with coding
– For voltage up to 1500 V

Contacts for crimp connection
– Contacts on roll





	Technical data		Technical data	
General data				
Degree of protection (when plugged in)	-		IP66 / IP68 (2m / 24h)	
Electrical data				
Rated voltage	1500 V	-	1500 V	
Rated current	-		40 A (for 4 mm²)	40 A (for 6 mm²)
Connection capacity	-		2.5 mm² ... 4 mm²	6 mm²
Temperature data				
Ambient temperature (operation)	-40 °C ... 85 °C	-	-40 °C ... 85 °C	

	Ordering data				Ordering data			
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
Plastic housing								
Socket (+)	**1704926**	50						
Plug (-)	**1704925**	50						
Metal contact								
Socket (+)					**1704930**	1000	**1704931**	1000
Plug (-)					**1704927**	1000	**1704928**	1000

	Accessories			Accessories		
Nut for attaching SUNCLIX device plug-in connectors	**PV-FT-C NUT BK**	**1775880**	100			
Protective cap for SUNCLIX photovoltaic plug-in connector; degree of protection: IP67	**PV-C PROTECTION CAP**	**1785430**	100			
Flat gasket for photovoltaic plug-in connector	**PV-FT-FLAT GASKET**	**1705561**	1000			
Test pin for SUNCLIX device plug-in connectors for free assembly	**PV-FT-TEST PIN**	**1705589**	1			

SUNCLIX DC plug-in connectors

– Quick and easy connection without special tools
– Reliable and long-term stable contacting of the conductors, thanks to proven spring technology



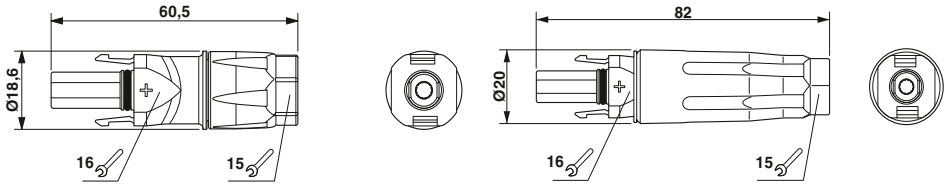
SUNCLIX,
1100 V, 2.5 to 6 mm²

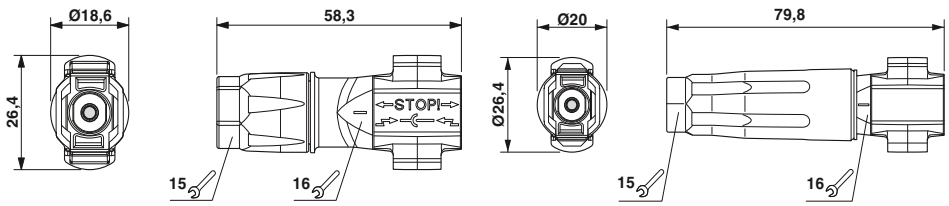


SUNCLIX,
1500 V, 2.5 to 6 mm²

	Technical data	Technical data
General data		
Degree of protection	IP66 / IP68 (2m / 24h)	IP66 / IP68 (2m / 24h)
Connection method	Spring-cage	Spring-cage
Electrical data		
Rated voltage	1100 V	1500 V
Nominal current I_N	40 A (from 4 mm²; 27.5 A for 2.5 mm²)	40 A (from 4 mm²; 27.5 A for 2.5 mm²)
Connection capacity	2.5 mm² ... 6 mm²	2.5 mm² ... 6 mm²
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

	Ordering data			Ordering data		
Description	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
DC plug-in connectors						
Socket (+)	**PV-CF-S 2,5-6 (+)**	**1774674**	50	**PV-C1F-S 2,5-6 (+)**	**1789821**	50
Plug (-)	**PV-CM-S 2,5-6 (-)**	**1774687**	50	**PV-C1M-S 2,5-6 (-)**	**1789834**	50
	Accessories			**Accessories**		
Protective cap for SUNCLIX photovoltaic plug-in connector; degree of protection: IP67	**PV-C PROTECTION CAP**	**1785430**	100	**PV-C PROTECTION CAP**	**1785430**	100
Filler plug for protection against dust and humidity	**PV-C PLUG**	**1775631**	200			
Screwdriver	**SZF 1-0,6X3,5**	**1204517**	10	**SZF 1-0,6X3,5**	**1204517**	10
Stripping tool, for standard 2.5, 4, and 6 mm² solar cables, with 15 mm length stop, for SUNCLIX field connectors	**WIREFOX-D SR 6-1**	**1212511**	1	**WIREFOX-D SR 6-1**	**1212511**	1







SUNCLIX,
1500 V, 6 to 16 mm²

Technical data

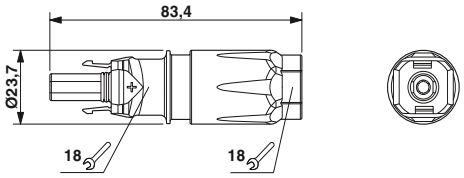
IP66 / IP68 (2m / 24h)
Spring-cage
1500 V
65 A (at 16 mm²; 40 A at 6 mm²; 50 A at 10 mm²)
6 mm² ... 16 mm²
-40 °C ... 85 °C

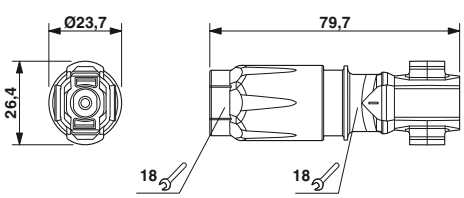
Ordering data

Type	Order No.	Pcs. / Pkt.
PV-CF-S 6-16 (+)	**1790784**	25
PV-CM-S 6-16 (-)	**1790797**	25

Accessories

PV-C PROTECTION CAP	**1785430**	100
PV-C PLUG	**1775631**	200
SZF 1-0,6X3,5	**1204517**	10





SUNCLIX DC accessories

Y-distributors
– Flexible and compact configuration
– Customer-specific configurations on request
– Variable cable lengths, number of branches, cable cross section, and processing of free cable ends

DC test plugs
– Can be released without tools
– For test applications with high insertion/withdrawal cycles



Y-distributor

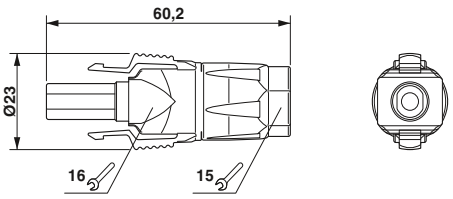


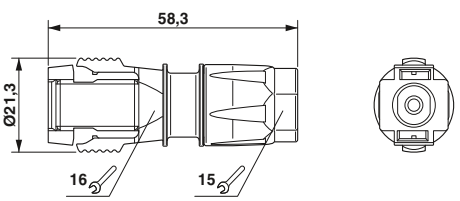
DC test plug

	Technical data		Technical data	
	4 mm²	6 mm²	Socket (+)	Pin (-)
General data				
Degree of protection	IP66 / IP68 (2m / 24h)		IP20	
Electrical data				
Rated voltage	1100 V		1100 V	
Nominal current I_N	40 A (observe derating)		40 A	
Conductor cross section	4 mm²	6 mm²	10 mm²	
Insertion/withdrawal cycles	-		≥ 4000	
Temperature data				
Ambient temperature (operation)	-40 °C ... 85 °C		-20 °C ... 55 °C	

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	4 mm²		6 mm²		Socket (+)		Pin (-)	
Y-distributor, length of each individual cable: 0.12 m								
Plug (-) to 2 x socket (+)	**1795019**	10	**1787726**	10				
Socket (+) to 2 x plug (-)	**1795022**	10	**1787739**	10				
DC test plug, can be released without tools, for test applications with high insertion/withdrawal cycles					**1780451**	50	**1780464**	50

	Accessories	Accessories
	For dimensional drawings, see www.phoenixcontact.net/products	





Solar cables

- Suitable for fixed and flexible routing
- Insulating and sheath material offers excellent resistance to weather, UV, and wear
- PV1-F cable certified by TÜV and VDE



Technical data

Temperature data	
Ambient temperature (operation)	-40 °C ... 90 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Solar cable, tin-plated single litz wires, 100 m ring, **cross section:**			
2.5 mm²	**PV-1P-100,0/S01-2,5**	**1459509**	1
4 mm²	**PV-1P-100,0/S02-4,0**	**1459511**	1
6 mm²	**PV-1P-100,0/S03-6,0**	**1459524**	1
10 mm²	**PV-1P-100,0/S04-10,0**	**1459537**	1
Solar cable, tin-plated single litz wires, 500 m drum, **cross section:**			
2.5 mm²	**PV-1P-500,0/S01-2,5**	**1459540**	1
4 mm²	**PV-1P-500,0/S02-4,0**	**1787700**	1
6 mm²	**PV-1P-500,0/S03-6,0**	**1787713**	1
10 mm²	**PV-1P-500,0/S04-10,0**	**1459553**	1
Solar cable, tin-plated single litz wires, 1000 m drum, **cross section:**			
2.5 mm²	**PV-1P-1000,0/S01-2,5**	**1459566**	1
4 mm²	**PV-1P-1000,0/S02-4,0**	**1459579**	1
6 mm²	**PV-1P-1000,0/S03-6,0**	**1459582**	1
10 mm²	**PV-1P-1000,0/S04-10,0**	**1459595**	1

SUNCLIX mini DC plug-in connector



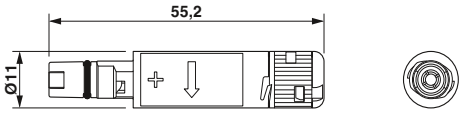
- For building-integrated photovoltaic applications (BIPV)
- Narrow design, just 11 mm in diameter
- Easy to hide in the facade structure
- Quick and easy connection without special tools

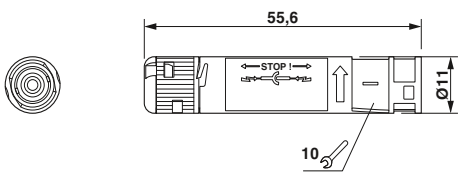
Technical data

General data	
Degree of protection	IP67
Connection method	Pierce connection
Electrical data	
Rated voltage	1000 V
Nominal current I_N	15 A
Connection capacity	2.5 mm²
Temperature data	
Ambient temperature (operation)	-40 °C ... 85 °C

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
DC plug-in connectors			
Socket (+)	**PV-CF-P 2,5(+)**	**1795323**	50
Plug (-)	**PV-CM-P 2,5(-)**	**1795336**	50





SUNCLIX DC diode and junction box





- For building-integrated photovoltaic applications (BIPV)
- Compact design
- Easy to hide in the facade structure
- High density due to molding compound

SUNCLIX diode box

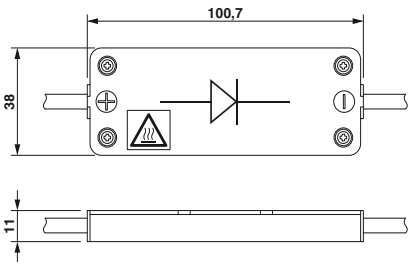
- Optimum heat management

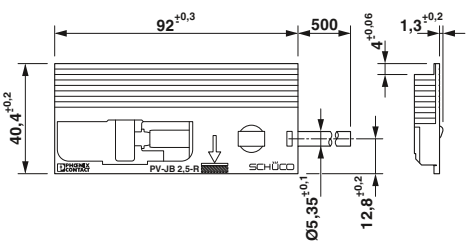
Junction box

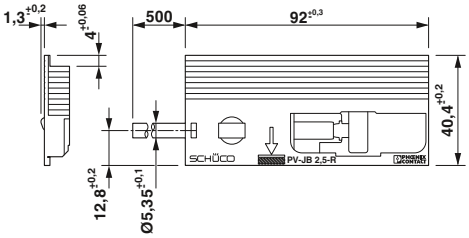
- Ribbon contacting with spring connection

	Technical data	Technical data
General data		
Degree of protection	IP67	-
Connection method	Open cable end	Spring-cage
Electrical data		
Rated voltage	1000 V	1000 V
Reverse voltage	2200 V	-
Nominal current I_N	5 A	15 A
Conductor cross section	2.5 mm²	2.5 mm²
Ribbon connection capacity	-	Width: ≤ 5 mm; thickness: 0.05 ... 0.2 mm
Temperature data		
Ambient temperature (operation)	-40 °C ... 85 °C	-40 °C ... 85 °C

		Ordering data			Ordering data		
Description	Cable length	Type	Order No.	Pcs. / Pkt.	Type	Order No.	Pcs. / Pkt.
DC string diode							
Free cable end	0.8 m	**PV-DB S20-2,5/0,8-2D**	**1811239**	10			
Pre-assembled with SUNCLIX mini	0.8 m	**PV-DB S20-2,5/0,8-CA**	**1463065**	10			
Module junction box							
Cable outlet right	0.5 m				**PV-JB 2,5/ 1-R 50 PXC**	**1705131**	25
Cable outlet left	0.5 m				**PV-JB 2,5/ 1-L 50 PXC**	**1705132**	25







PCB terminal blocks for PV applications

- PTSPL 6 push-lock spring-cage PCB terminal block without insulating body for conductor cross sections up to 6 mm² and a current carrying capacity of up to 41 A for use in SMT reflow processes
- Connection direction of the conductor horizontal to the PCB
- Low actuation forces
- Delivery form: tape-on-reel packing according to IEC 60286-3 for automated assembly
- PTSPL spring closed for assembly using vacuum pipette
- PTSPLO spring opened for assembly using mechanical gripper
- Standard pin lengths of 2.1 mm and 2.9 mm

Notes:

Pick and place pads for taped THR articles usually protrude beyond the components. The PCB layout must ensure that collisions are avoided when components are assembled. Dimensional drawings of tape reels and place pads can be found online at www.phoenixcontact.net/products.

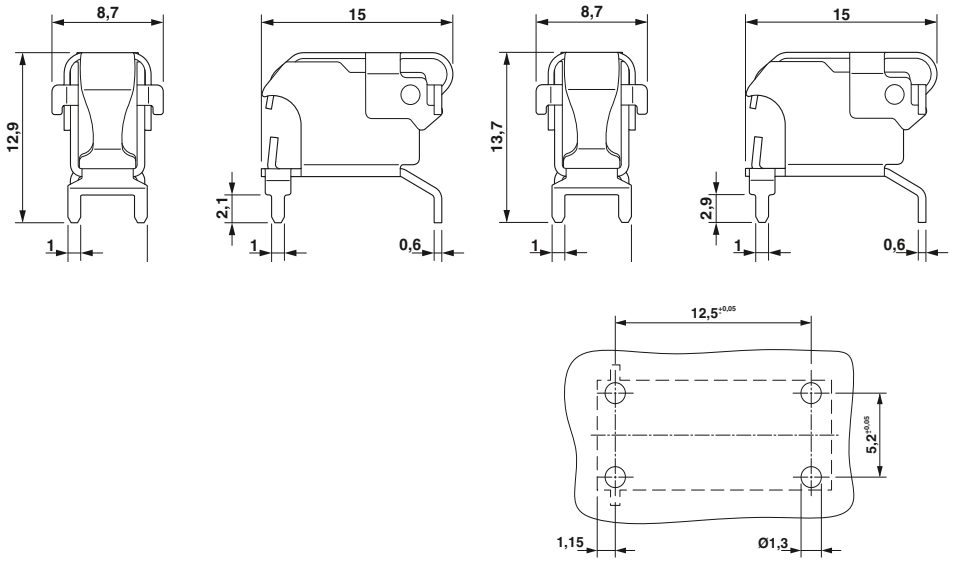


Technical data

Electrical data	
Nominal current I_N	41 A
Connection capacity	2.5 mm² ... 6 mm²

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
PCB terminal block closed			
Solder pin length: 2.1 mm	**PTSPL-6/1-2X2 2,1 R32**	**1704836**	240
Solder pin length: 2.9 mm	**PTSPL-6/1-2X2 2,9 R32**	**1704837**	240
PCB terminal block open			
Solder pin length: 2.1 mm	**PTSPLO-6/1-2X2 2,1 R32**	**1705081**	220
Solder pin length: 2.9 mm	**PTSPLO-6/1-2X2 2,9 R32**	**1705085**	220



Flush-type spring-cage terminal blocks with welded bracket

- Suitable for applications with leadframe
- Push-lock spring-cage terminal block with welded bracket
- Reliable contacting of conductors, thanks to spring technology, proven a million times over
- Available with welded bracket left or right

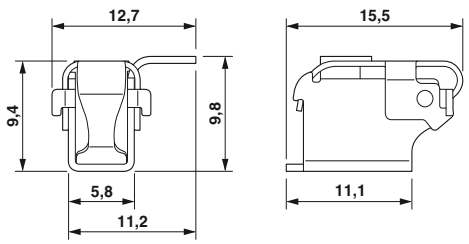


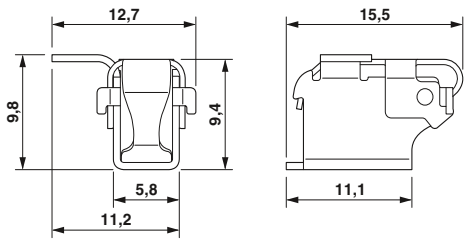
Technical data

Electrical data	
Nominal current I_N	41 A
Connection capacity	2.5 mm² ... 6 mm²

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Spring-cage terminal block			
Welded bracket right	**PV-PTSPL-W/1R**	**1705624**	250
Welded bracket left	**PV-PTSPL-W/1L**	**1705625**	250






PHOENIX CONTACT

Plug-in charging systems for electromobility

PLUSCON power offers a product and technology portfolio that enables the flexible, modular, and efficient implementation of various concepts for your charging infrastructure for different business models. Whether charging on an AC network or fast DC charging – the AC and DC plug-in charging systems from Phoenix Contact are safe, reliable, and user friendly.

Product range overview

Type 2 combined AC/DC charging system (Europe)	**435**
Type 2 AC charging cables (Europe)	**436**
Type 2 (Europe) and GB (China) AC socket outlets	**438**
GB AC charging cables (China)	**440**



The development of a widespread charging infrastructure in conjunction with renewable energy is an important step toward a mobile future. Special charging plugs are used to establish an electrical connection between the electric vehicle and the infrastructure (e.g., a charging station). Internationally standardized charging interfaces ensure uniform connection for charging stations and vehicles.

The PLUSCON power product range from Phoenix Contact offers reliable standard-compliant solutions for a consistent charging interface for all applications.

The matrix below provides an overview of the various plug-in charging systems and standards with the respective pin connector patterns of the vehicle inlet.

Overview of plug-in charging systems

	Type 1/USA	Type 2/Europe	GB/China
Alternating current AC	 SAE J1772/IEC 62196-2	 IEC 62196-2	 GB part 2
Direct current DC	 IEC 62196-3	 IEC 62196-3	 GB part 3/IEC 62196-3
Combined AC/DC charging system	 SAE J1772/IEC 62196-3	 IEC 62196-3	







In addition to the type 2 combined AC/DC charging system, the PLUSCON power product range also features plug-in charging systems for AC charging. This includes AC charging cables and the corresponding type 2 and GB socket outlets. The compact design and ergonomic handle design of the charging plug enable convenient and optimal handling during the charging process.

The following charging infrastructure components can be found in Catalog 7 (interface technology and switching devices):
- EV Charge Control charging controller for charging electric vehicles on the AC power grid according to IEC 61851-1
- Optional EV Charge Lock Release add-on module for plug release in the event of mains failure

In addition to the standardized plug-in charging systems, Phoenix Contact also offers high-performance plug-in connectors for DC charging of large battery units. The DC replacement battery concept is particularly suitable for utility vehicles used in local and municipal authorities as well as for forklift trucks, transport vehicles, and passenger transport vehicles.

Type 2 combined AC/DC charging system (Europe)

DC charging process

AC charging process









The most important requirement for setting up a modern charging infrastructure is a reliable and uniform connection between electric vehicles and charging stations. The electrical energy must be supplied in the form of DC voltage or AC voltage for recharging the batteries.

The type 2 combined AC/DC charging system from Phoenix Contact supports conductive charging of electric vehicles with both DC and AC. It was developed in conjunction with leading automobile manufacturers and represents the ideal charging interface for future electromobility due to its varied charging options. Only one vehicle inlet is required for each charging process in all applications thanks to the universal pin connector pattern.

If AC is used for charging, the energy can be supplied directly from the existing low-voltage network to the integrated AC/DC converter in the vehicle with the type 2 AC connector, see page 436.

In the case of DC charging with the type 2 combined DC connector, the AC/DC converter is located within the charging station and reduces the load on the vehicle. Due to the high current carrying capacity, the battery is charged in a matter of minutes.

Both AC and DC charging processes are supported by control and signal contacts.

The handle's ergonomic design and the low insertion and withdrawal forces mean that the combined DC connector ensures fast, convenient, and easy handling.

Type 2 combined AC/DC charging system (Europe)

N

- Supports fast DC charging
- Safe and secure, thanks to the electromechanical lock between connector and vehicle
- Robust, thanks to the use of high-quality materials

Notes:
Cable length and housing color versions on request.



125 A type 2 combined DC connector

Technical data

Nominal current	125 A
Nominal voltage	850 V DC
Standards	IEC 62196-3 (type 2)
Charging mode	Mode 4
Resistor coding	1500 Ω
Temperature sensor	Pt1000
Ambient temperature (operation)	-30 °C ... 50 °C
Number of power contacts	3
Insertion/withdrawal cycles	> 10000
Insertion/withdrawal force	< 100 N
Type of protection (when plugged in)	IP44
Degree of protection (when not plugged in)	IP20
Cable data	
Cable type	Straight
Cable length	5 m
Cable diameter	28 mm
Cable structure	2 x 50 mm^2 + 1 x 25 mm^2 + 3 x 0.75 mm^2

Ordering data

Description	Type	Order No.	Pcs. / Pkt.
Type 2 combined DC charging cable Outer sheath color: black	**EV-T2M4CC-DC125A-5,0M50ESBK001**	**1409060**	1

Type 2 AC charging cables (Europe)

– Convenient handling, thanks to the ergonomic handle design
– Safe and secure, thanks to the electromechanical lock on the charging station and vehicle
– Robust, thanks to the use of high-quality materials

Notes:
Cable length and housing color versions on request.
All connectors and plugs are provided together with a protective cap.



20 A type 2 AC connector, with open cable end



32 A type 2 ac connector, with open cable end

	Technical data		Technical data	
	1-phase	**3-phase**	**1-phase**	**3-phase**
Nominal current	20 A	20 A	32 A	32 A
Nominal voltage	250 V AC	480 V AC	250 V AC	480 V AC
Standards	IEC 62196-2 (type 2)	IEC 62196-2 (type 2)	IEC 62196-2 (type 2)	IEC 62196-2 (type 2)
Charging mode	Mode 3	Mode 3	Mode 3	Mode 3
Resistor coding	680 Ω	680 Ω	220 Ω	220 Ω
Ambient temperature (operation)	-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C
Number of power contacts	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
Insertion/withdrawal cycles	> 10000	> 10000	> 10000	> 10000
Insertion/withdrawal force	< 100 N	< 100 N	< 100 N	< 100 N
Type of protection (when plugged in)	IP44	IP44	IP44	IP44
Degree of protection (with protective cap)	IP24	IP24	IP24	IP24
Degree of protection (when not plugged in)	IP20	IP20	IP20	IP20
Cable data				
Cable type	Spiraled	Spiraled	Straight	Straight
Cable length	4 m	4 m	4 m	4 m
Cable diameter	10.5 mm ±0.5	13 mm ±0.5	13.9 mm ±0.5	17 mm ±0.5
Cable structure	3 x 2.5 mm^2 + 1 x 0.5 mm^2	5 x 2.5 mm^2 + 1 x 0.5 mm^2	3 x 6 mm^2 + 1 x 0.5 mm^2	5 x 6 mm^2 + 1 x 0.5 mm^2

	Ordering data			Ordering data		
Description	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
	1-phase		**3-phase**		**1-phase**		**3-phase**	
Type 2 AC charging cable								
Outer sheath color: red	**1405194**	1						
Outer sheath color: black	**1405195**	1	**1405197**	1	**1405198**	1	**1405199**	1



20 A type 2 AC connector and plug



20 A type 2 AC connector and plug



32 A type 2 AC connector and plug

Technical data

1-phase	3-phase
20 A	20 A
250 V AC	480 V AC
IEC 62196-2 (type 2)	IEC 62196-2 (type 2)
Mode 3	Mode 3
680 Ω	680 Ω
-30 °C ... 50 °C	-30 °C ... 50 °C
3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
> 10000	> 10000
< 100 N	< 100 N
IP44	IP44
IP24	IP24
IP20	IP20
Straight	Straight
4 m	4 m
10.5 mm ±0.5	13 mm ±0.5
3 x 2.5 mm² + 1 x 0.5 mm²	5 x 2.5 mm² + 1 x 0.5 mm²

Ordering data

Order No.	Pcs. / Pkt.
1-phase	
1404876	1
1405193	1
3-phase	
1404877	1

Technical data

1-phase	3-phase
20 A	20 A
250 V AC	480 V AC
IEC 62196-2 (type 2)	IEC 62196-2 (type 2)
Mode 3	Mode 3
680 Ω	680 Ω
-30 °C ... 50 °C	-30 °C ... 50 °C
3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
> 10000	> 10000
< 100 N	< 100 N
IP44	IP44
IP24	IP24
IP20	IP20
Spiraled	Spiraled
4 m	4 m
10.5 mm ±0.5	13 mm ±0.5
3 x 2.5 mm² + 1 x 0.5 mm²	5 x 2.5 mm² + 1 x 0.5 mm²

Ordering data

Order No.	Pcs. / Pkt.
1-phase	
1404563	1
1405192	1
3-phase	
1404567	1

Technical data

1-phase	3-phase
32 A	32 A
250 V AC	480 V AC
IEC 62196-2 (type 2)	IEC 62196-2 (type 2)
Mode 3	Mode 3
220 Ω	220 Ω
-30 °C ... 50 °C	-30 °C ... 50 °C
3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
> 10000	> 10000
< 100 N	< 100 N
IP44	IP44
IP24	IP24
IP20	IP20
Straight	Straight
4 m	4 m
13.9 mm ±0.5	17 mm ±0.5
3 x 6 mm² + 1 x 0.5 mm²	5 x 6 mm² + 1 x 0.5 mm²

Ordering data

Order No.	Pcs. / Pkt.
1-phase	
1404568	1
3-phase	
1404569	1

Type 2 (Europe) and GB (China) AC socket outlets

- Space-saving design
- Secure, thanks to lock actuator
- Querying function for the locking status
- Robust, thanks to the use of high-quality materials

Notes:

All socket outlet versions can be mounted on the housing panel from both the front and the rear (see below).

As an option, the type 2 AC socket outlet can be secured with a hinged cover or a panel mounting frame for both front or rear panel mounting.

N



Type 2 AC socket outlet with actuator

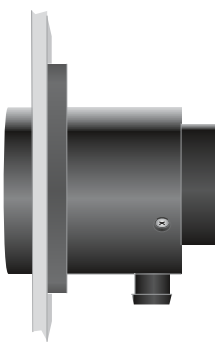
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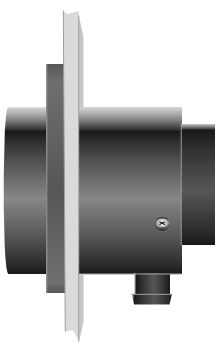
Hinged cover for type 2 AC socket outlet

	Technical data		Technical data	
	3-phase	3-phase		
Nominal current	20 A	32 A	-	-
Nominal voltage	480 V AC	480 V AC	-	-
Standards	IEC 62196-2 (type 2)	IEC 62196-2 (type 2)	-	-
Charging mode	Mode 3	Mode 3	-	-
Ambient temperature (operation)	-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C	-
Number of power contacts	5 (L1, L2, L3, N, PE)	5 (L1, L2, L3, N, PE)	-	-
Insertion/withdrawal cycles	> 10000	> 10000	-	-
Type of protection (when plugged in)	IP44	IP44	IP44	-
Degree of protection (when not plugged in)	IP20	IP20	IP24	-
Cable data				
Cable type	Single wires	Single wires	-	-
Cable length	0.70 m	0.70 m	-	-
Cable structure	5 x 2.5 mm² + 1 x 0.5 mm²	5 x 6.0 mm² + 1 x 0.5 mm²	-	-
Actuator data				
Mechanical emergency release	Available	Available	-	-
Lock recognition	Available	Available	-	-

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	3-phase		3-phase					
AC socket outlet								
With actuator (12 V operating voltage)	**1405213**	1	**1405214**	1				
With actuator (24 V operating voltage)	**1405215**	1	**1405216**	1				
Without actuator								
AC socket outlet accessories								
					1405217	1		



Rear panel mounting



Front mounting

N



Panel mounting frame for type 2 AC socket outlet

Technical data	
-	-
-	-
-	-
-	-
-30 °C ... 50 °C	-
-	-
-	-
IP44	-
IP20	-
-	-
-	-
-	-
-	-
-	-

Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
1405218	1		

N



GB AC socket outlet with actuator

Technical data		
	1-phase	**3-phase**
-	32 A	32 A
-	250 V AC	440 V AC
-	GB/T Part 2	GB/T Part 2
-	Mode 3	Mode 3
-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C
-	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
-	> 10000	> 10000
IP44	IP44	IP44
IP20	IP20	IP20
-	Single wires	Single wires
-	0.70 m	0.70 m
-	3 x 6.0 mm^2 + 1 x 0.5 mm^2	5 x 6.0 mm^2 + 1 x 0.5 mm^2
-	Available	Available
-	Available	Available

Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
1-phase		**3-phase**	
1408171	1	**1408172**	1

N



GB AC socket outlet without actuator

Technical data		
	1-phase	**3-phase**
-	32 A	32 A
-	250 V AC	440 V AC
-	GB/T Part 2	GB/T Part 2
-	Mode 3	Mode 3
-30 °C ... 50 °C	-30 °C ... 50 °C	-30 °C ... 50 °C
-	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
-	> 10000	> 10000
IP44	IP44	IP44
IP20	IP20	IP20
-	Single wires	Single wires
-	0.70 m	0.70 m
-	3 x 6.0 mm^2 + 1 x 0.5 mm^2	5 x 6.0 mm^2 + 1 x 0.5 mm^2
-	Available	Available
-	Available	Available

Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
1-phase		**3-phase**	
1408169	1	**1408170**	1

GB AC charging cables (China)

N

N

– Convenient handling, thanks to the ergonomic handle design
– Safe and secure, thanks to the lever-type lock and electric locking bolt on the charging station and vehicle
– Robust, thanks to the use of high-quality materials

Notes:

Cable length versions on request



16 A GB AC connector, with open cable end



32 A GB AC connector, with open cable end

	Technical data		Technical data	
	1-phase		1-phase	3-phase
Nominal current	16 A	-	32 A	32 A
Nominal voltage	250 V	-	250 V	440 V
Standards	GB/T Part 2	-	GB/T Part 2	GB/T Part 2
Charging mode	Mode 3	-	Mode 3	Mode 3
Resistor coding	680 Ω	-	220 Ω	220 Ω
Ambient temperature (operation)	-30 °C ... 50 °C	-	-30 °C ... 50 °C	-30 °C ... 50 °C
Number of power contacts	3 (L1, N, PE)	-	3 (L1, N, PE)	5 (L1, L2, L3, N, PE)
Insertion/withdrawal cycles	> 10000	-	> 10000	> 10000
Insertion/withdrawal force	< 100 N	-	< 100 N	< 100 N
Type of protection (when plugged in)	IP44	-	IP44	IP44
Degree of protection (when not plugged in)	IP20	-	IP20	IP20
Cable data				
Cable type	Straight	-	Straight	Straight
Cable length	5 m	-	5 m	5 m
Cable diameter	10.5 mm	-	13.9 mm	17.1 mm
Cable structure	3 x 2.5 mm² + 1 x 0.5 mm²	-	3 x 6.0 mm² + 1 x 0.5 mm²	5 x 6.0 mm² + 1 x 0.5 mm²

	Ordering data				Ordering data			
Description	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.	Order No.	Pcs. / Pkt.
	1-phase				1-phase		3-phase	
GB AC charging cable								
Outer sheath color: orange	**1408166**	1			**1408167**	1	**1408168**	1

N



16 A GB AC connector and plug

Technical data	
1-phase	
16 A	-
250 V	-
GB/T Part 2	-
Mode 3	-
680 Ω	-
-30 °C ... 50 °C	-
3 (L1, N, PE)	-
> 10000	-
< 100 N	-
IP44	-
IP20	-
Straight	-
5 m	-
10.5 mm	-
3 x 2.5 mm² + 1 x 0.5 mm²	-

Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
1-phase			
1408161	1		

N



32 A GB AC connector and plug

Technical data		
1-phase	**3-phase**	
32 A	32 A	
250 V	440 V	
GB/T Part 2	GB/T Part 2	
Mode 3	Mode 3	
220 Ω	220 Ω	
-30 °C ... 50 °C	-30 °C ... 50 °C	
3 (L1, N, PE)	5 (L1, L2, L3, N, PE)	
> 10000	> 10000	
< 100 N	< 100 N	
IP44	IP44	
IP20	IP20	
Straight	Straight	
5 m	5 m	
13.9 mm	17.1 mm	
3 x 6.0 mm² + 1 x 0.5 mm²	5 x 6.0 mm² + 1 x 0.5 mm²	

Ordering data			
Order No.	Pcs. / Pkt.	**Order No.**	Pcs. / Pkt.
1-phase		**3-phase**	
1408163	1	**1408165**	1

Quality in quantity



Integrated management system

The aim of the Phoenix Contact integrated management system is to coordinate all the requirements regarding products, processes, and organization.

Statutory and regulatory requirements, as well as those of international standards and our customers, are met and, in some cases, even exceeded in all phases of the product lifecycle.

The Phoenix Contact management system is monitored by internationally recognized independent bodies each year to ensure that quality, environmental protection, and safety at the workplace have been integrated in conformity with the relevant requirements. Certification in accordance with international standards ISO 9001, ISO 14001, and BS OHSAS 18001 is the result of our corporate philosophy of meeting the needs of our customers, staff, and environment as fully as possible. They serve as the basis for innovative products with the familiar high Phoenix quality standard, actively practiced environmental protection, and responsibility in the field of occupational health and safety. Of course, we integrate all further requirements of standards, international approvals or special customer requirements into company processes.

This system provides a building block for the success of the Phoenix Contact Group and its products and services.

CE marking

The CE marking was introduced as an important instrument for the free movement of goods and services within the single European market. By attaching the mark to a product, the manufacturer confirms that it complies with all applicable European Union (EU) directives. EC directives describe the product properties with regard to device safety and avoiding danger. These are legally binding regulations of the European Union (EU). In other words, compliance with the requirements is a **statutory condition for marketing the product within the EU**.

Where applicable, the products that our company currently manufactures fall within the scope of the following directives:

- 2006/95/EC
  Electrical equipment designed for use within certain voltage limits (Low-Voltage Directive)
- 2004/108/EC
  Electromagnetic compatibility (EMC Directive)
- 2006/42/EC
  Safety of machinery (Machinery Directive)
- 94/9/EC
  Equipment and protective systems intended for use in potentially explosive areas (ATEX Directive 100a)
- 1999/5/EC
  Radio and telecommunications terminal equipment (R&TTE)

The standards upon which the specified directives are based, have been part of our standard of development for a long time. This guarantees conformance with European directives. The numbers of the directives indicate their version at the time of publication. In the event of changes to directives and/or standards, our products will undergo conformity assessment again in good time and a new declaration of conformity will be issued promptly. The current declarations for each product can also be found in our Download Center.

The EMC Directive occupies a special place among the European directives listed. It defines electromagnetic compatibility as a fundamental property of devices based on mandatory guidelines. European Law therefore acknowledges the electromagnetic compatibility of devices and systems as an important condition for error-free operation of machinery and systems. Phoenix Contact is one of the leading international companies in surge protection, and therefore possesses broad expertise in EMC. This expertise and the experience gained over years of developing and applying industrial interface and communication technology have resulted in our products having an extremely high standard of quality with regard to electromagnetic compatibility. It was with a view to providing other companies with this expertise that our associate company, Phoenix Testlab, was founded. Phoenix Testlab GmbH is an independent, accredited service provider offering EMC testing that conforms to European standards. At Phoenix Testlab, devices are also tested with regard to their electrical safety, mechanical influences, and their behavior in relation to environmental influences. Furthermore, Phoenix Testlab is a "Notified Body" in accordance with EMC Directive 2004/108/EC and according to R&TTE Directive 1999/5/EC for radio and telecommunications terminal equipment. As a "Telecom Certification Body" (TCB), Phoenix Testlab may also approve these products for markets in the USA, Canada, and Japan.

Standards and regulations

All relevant standards and regulations are used as the basis for the development and maintenance of our products.

International standards are subject to continuous changes as a result of harmonization and new developments. In line with this process, the current version of all standards that are relevant to our products is documented in the product area on our website at **www.phoenixcontact.net/products.**

Online product information service on the web

Phoenix Contact's product range is growing constantly.

Due to our commitment to product monitoring, all products are subject to improvement.

The Internet is an ideal platform to quickly communicate new product developments and improvements to the market.

You can quickly access the relevant Phoenix Contact website for your region via www.phoenixcontact.com. Here, you will always find the latest overview of products, solutions, and services from Phoenix Contact. This includes technical documents, such as data sheets and user manuals, the latest driver and demo software, plus a means of contacting the appropriate contact person directly.

Note:

Subject to changes that serve the purpose of technical progress.

Connection cross section

The rated cross sections of modular terminal blocks must be specified by the manufacturer in accordance with IEC 60947-7-1. This refers to the conductor cross section that can be connected in single, multi or fine-strand versions. Specific thermal, mechanical, and electrical requirements relate to this cross section.

The manufacturer must also specify the **rated connection capacity**, i.e., the area of the conductor that can be connected, as well as the number of conductors that can be connected simultaneously and the necessary preparation of the conductor ends. The conductors can be **solid (single or multi-strand)** or **stranded (fine-strand)**.

These values can be found in the product-specific technical data.

The rated connection capacity of Phoenix Contact modular terminal blocks usually exceeds standard requirements, which specify that it must only be possible to connect one conductor with one of the two next smallest cross sections, excluding the rated cross section, (standardized for the cross-section range from 0.2 to 35 mm²).

In addition, conductors with a rated cross section can usually be wired with ferrules with plastic sleeve.

Phoenix Contact modular terminal blocks are designed to allow copper cables to be connected to them untreated. "Special treatment" or the use of ferrules – both permitted according to IEC 60947-7-1 – is not required. If ferrules are nevertheless used to protect stranded conductors against splicing, the connection capacity of the stranded conductor is generally reduced by one level.

Structure and dimensions of connecting cables

Cross section	Single-strand		Multi-strand		Fine-strand		American Wire Gauge [AWG]						
	Diameter Max. dimension	Number of wires	Diameter Max. dimension	Number of wires (minimum number)	Diameter Max. dimension	Number of wires (guide value)	Gauge No.	Solid wires			Stranded wires		
[mm²]							AWG	[Ø mm]	[circ. mils]	[mm²]	[Ø mm]	[circ. mils]	[mm²]
0.2	0.5	1	-	-	-	-	24	0.51	404	0.21	-	-	-
0.5	0.9	1	1.1	7	1.1	16	20	0.81	1022	0.52	0.97	1111	0.56
0.75	1.0	1	1.2	7	1.3	24	18	1.02	1620	0.82	1.16	1600	0.82
1	1.2	1	1.4	7	1.5	32	(17)	1.15	2050	1.04			
-	-	-	-	-	-	-	16	1.29	2580	1.31	1.50	2580	1.32
1.5	1.5	1	1.7	7	1.8	30	(15)	1.45	3260	1.65			
-	-	-	-	-	-	-	14	1.63	4110	2.08	1.85	4100	2.09
2.5	1.9	1	2.2	7	2.3	50	(13)	1.83	5180	2.63			
-	-	-	-	-	-	-	12	2.05	6530	3.31	2.41	6500	3.32
4	2.4	1	2.7	7	2.9	56	(11)	2.30	8230	4.17			
-	-	-	-	-	-	-	10	2.59	10380	5.26	2.95	10530	5.37
6	2.9	1	3.3	7	3.9	84	(9)	2.91	13100	6.63			
-	-	-	-	-	-	-	8	3.26	16510	8.37	3.73	16625	8.48
10	3.7	1	4.2	7	5.1	80	(7)	3.67	20800	10.56	4.15	20820	10.55
-	-	-	-	-	-	-	6	4.12	26240	13.30	4.67	26250	13.39
16	4.6	1	5.3	7	6.3	126	(5)	4.62	33100	16.77	5.24	33100	16.77
-	-	-	-	-	-	-	4	5.19	41740	21.15	5.90	41650	21.24
25	-	-	6.6	7	7.8	196	3	5.83	52600	26.67	6.61	52630	26.67
35	-	-	7.9	7	9.2	276	2	6.54	66360	33.62	7.42	66150	33.74
-	-	-	-	-	-	-	1	7.35	83690	42.41	8.33	83706	42.69
50	-	-	9.1	19	11	396	0	8.25	105600	53.51	9.35	104640	53.36
70	-	-	11	19	13.1	360	00	9.27	133100	67.44	10.52	132300	67.47

Tightening torque of terminal block screws

IEC 60947-1/EN 60947-1, modified, Table 4 specifies tightening torques for screw connections based on the type and size of screw for electrical and mechanical type tests. Tightening Phoenix Contact terminal blocks to this torque guarantees the reliable connection of the connected conductors. Other than this value, the technical product data in this catalog provides a practical range for the tightening torque, ensuring gas-tight and long-term reliable electrical contacts.

Extract from IEC 60947-1/EN 60947, Table 4

The torque according to IEC/EN and the recommended tightening torque for Phoenix Contact terminal blocks are specified.

Head screw with slot

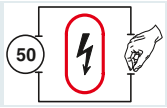
Thread	Torque	Recommended tightening torque	
		CuZn or CuSn screw	Steel screw
	[Nm]	[Nm]	[Nm]
M2.5 (M2.6)	0.4	0.6	0.8
M3	0.5	0.8	1.0
M3.5	0.8	1.2	–
M4	1.2	1.8	2.0
M5	2.0	3	4.5
M6	2.5	4	8

Degrees of protection according to DIN EN 60529

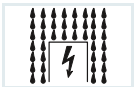
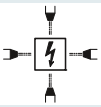
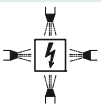
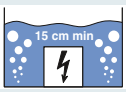
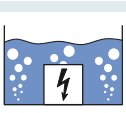
Definition:

IP (Ingress Protection) protection according to DIN EN 60529 is defined by two digits (e.g., IP54), the meaning of which is explained in the following tables.

Degree of protection against access to dangerous parts and against solid foreign objects

First digit	Short description	Example	Definition
0	Not protected		
1	Protected against solid foreign objects		Protected against touching dangerous parts with the back of the hand. Protection against ingress of solid foreign objects with Ø > 50 mm.
2	Protected against solid foreign objects with Ø 12.5 mm or more		Protected against touching dangerous parts with a finger. Protection against ingress of solid foreign objects with Ø > 12.5 mm.
3	Protected against solid foreign objects with Ø 2.5 mm or more		Protected against touching dangerous parts with a tool. Protection against ingress of solid foreign objects with Ø > 2.5 mm.
4	Protected against solid foreign objects with Ø 1 mm or more		Protected against touching dangerous parts with a wire. Protection against ingress of solid foreign objects with Ø > 1 mm.
5	Protected against dust		Protected against touching dangerous parts with a wire. The ingress of dust is not completely prevented, but dust may not enter in such an amount that the satisfactory operation of the device or its safety is impaired.
6	Dust-proof		Protected against touching dangerous parts with a wire. No ingress of dust.

Degree of protection against water

Second digit	Short description	Example	Definition
0	Not protected		
1	Protected against dripping water		Vertically falling drops shall have no effect.
2	Protected against dripping water if the housing is inclined at an angle of up to 15°		Vertically falling drops shall have no effect if the housing is inclined at an angle of up to 15° either side of the perpendicular.
3	Protected against spray water		Water that is sprayed at an angle of up to 60° either side of the perpendicular shall have no harmful effect.
4	Protected against splash water		Water that splashes against the housing from any direction shall have no harmful effect.
5	Protected against jet water		Water that is directed as a jet against the housing from every direction shall have no harmful effect.
6	Protected against powerful jet water		Water that is directed as a strong jet against the housing from every direction shall have no harmful effect.
7	Protected against the effect of temporary submersion in water		Water may not penetrate in a harmful quantity when the housing is temporarily submerged in water under standard pressure and time conditions.
8	Protected against the effect of continuous submersion in water		Water may not penetrate in a harmful quantity when the housing is submerged in water continuously under conditions to be agreed between the manufacturer and user.
9K	Protected against water during high-pressure and jet-stream cleaning		Water that is directed against the housing under extremely high pressure from every direction shall have no harmful effect. (Example: IP69K according to DIN 40050 Part 9)

For safety reasons, electrical equipment must be protected against external influences. This is the job of the housing, which protects electrical equipment against contact, ingress of solid objects, dust, and moisture.

The following table contains possible combinations of degrees of protection according to DIN EN 60529 which can be practically applied to housing.

Shock protection	Foreign object protection	Protection against water	No protection	Protection against vertically falling dripping water	Protection against dripping water if the housing is inclined at an angle of up to 15°	Protection against spray water from all directions, even when inclined at an angle of up to 60°	Protection against splash water from all directions	Protection against jet water from all directions	Protection against powerful jet water from all directions	Protection against temporary submersion	Protection against the effects of continuous submersion in water	Protected against water during high-pressure and jet-stream cleaning (DIN 40050-9)
			IPx0	IPx1	IPx2	IPx3	IPx4	IPx5	IPx6	IPx7	IPx8	IPx9K
No shock protection	No protection against solid foreign objects	IP0x	IP00									
Back of hand safe	Protection against solid foreign objects > 50 mm Ø	IP1x	IP10	IP11	IP12							
Touch proof	Protection against solid foreign objects > 12.5 mm Ø	IP2x	IP20	IP21	IP22	IP23						
Protection against touching with tools, wires, etc. > 2.5 mm Ø	Protection against solid foreign objects > 2.5 mm Ø	IP3x	IP30	IP31	IP32	IP33						
Protection against touching with tools, wires, etc. > 1 mm Ø	Protection against solid foreign objects > 1.5 mm Ø	IP4x	IP40	IP41	IP42	IP43	IP44					
Protection against touching with tools, wires, etc. > 1 mm Ø	Protection against harmful dust accumulations inside the device	IP5x	IP50				IP54	IP55				
Protection against touching with tools, wires, etc. > 1 mm Ø	No ingress of dust	IP6x	IP60					IP65	IP66	IP67	IP68	IP69K

Example: DUPLICON power distribution with IP67 protection according to DIN EN 60529

Dust-proof
(IP6x)

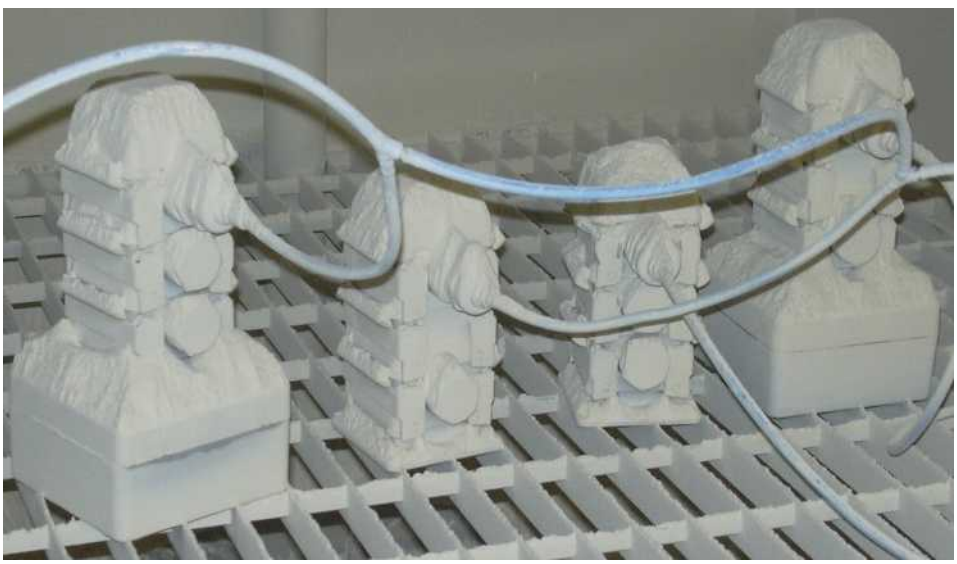


Photo shows DUPLICON test sample during the IP6x dust test

Protected against temporary submersion
(IPx7)



Our insulation housing is made from various thermoplastic materials. Depending on the application, the best-suited material is selected based on its electrical and mechanical properties.

All plastics used by Phoenix Contact are RoHS-compliant.

All plastics used at Phoenix Contact have been listed with UL (Underwriters Laboratories Inc.) in the USA.

Behavior of plastics under the influence of temperature (operating temperatures)

All plastics undergo thermal aging when they are subjected to heat over long periods. This process causes changes in the mechanical and electrical properties of the material. External influences, e.g., radiation, additional mechanical, chemical or electrical stresses, amplify this effect. All characteristic data included in the table has been determined using samples and thus provides a good means of drawing comparisons between different plastics. However, applying these characteristics to an evaluation of molded plastic parts is only possible to a limited extent, and can only give the designer a rough guide when it comes to selecting a plastic material. This catalog uses RTI Elec. according to UL746B as an assessment criterion for temperature resistance.

Insulation materials

Polyamide: PA and PA-GF

Polyamide has excellent electrical, mechanical, and chemical properties even at high operating temperatures. Brief peak temperatures of up to approximately 200°C are permitted as a result of heat aging stabilization. The absorption of water makes the plastic flexible and resistant to breakage, even at low temperatures.

Fiber-reinforced polyamides feature greater rigidity and hardness as well as operating temperatures higher than those of non-reinforced materials.

Polyamide for high-temperature applications: PA HT and PA-GF HT

Special high-temperature-resistant types of polyamide are used in non-reinforced or glass-fiber-reinforced versions for reflow applications. These high-temperature polyamides combine the excellent electrical properties of polyamide and the requirements of the reflow soldering process for temperature resistance.

Liquid crystal polymers: LCP GF

LCP combines high temperature stability with excellent dimensional stability and creeping resistance for products used in reflow processes. LCP has exceptional mechanical properties across a wide temperature range and a very low thermal expansion.

Polyester: PBT and PBT-GF

We use thermoplastic polyester in non-reinforced and glass-fiber-reinforced versions for special applications which require increased dimensional and form stability.

In addition to the high operating temperature, the material is characterized by excellent mechanical stability, hardness, and excellent notched impact strength. PBT does not absorb moisture from its surroundings. PBT is therefore particularly suitable for strips, for example, which are soldered onto PCBs.

Polycarbonate: PC

Polycarbonate combines many advantages such as rigidity, impact strength, transparency, dimensional stability, good insulation properties, and resistance to heat.

The amorphous material only absorbs moisture to a very limited degree, and is used for items such as large, rigid electronic component housing.

In its transparent form, polycarbonate is particularly suitable for use as a material for cover profiles or marking materials.

Acrylonitrile butadiene styrene: ABS

We use ABS for products which must have good impact and notched impact properties in addition to high mechanical stability and rigidity. The products are also characterized by their special surface quality and hardness.

ABS is suitable for coating metal surfaces, e.g., nickel.

Polyvinyl chloride: PVC

While most thermoplastic materials are processed with injection molding using ready-to-use molding and extrusion material, PVC is processed as a powder in the extruder. This is why it is used in our profile products. PVC is also self-extinguishing without flame protection and has high mechanical strength but is notch-sensitive.

Polyoxymethylene: POM

Polyoxymethylene is a technical material that combines high rigidity with mechanical stability, excellent elastic properties, high tenacity, dimensional accuracy, and exceptional sliding friction behavior.

Polyethylene: PE

Polyethylene is characterized by excellent chemical resistance and electrical insulation properties. PE is thermoplastic and can thus be processed using almost all procedures. Furthermore, PE has excellent tenacity even at low temperatures and a good elongation at break.

Polypropylene: PP

PP has higher rigidity, hardness, and stability and is more heat-resistant than PE. PP is not as tough at low temperatures, however.

Thermoplastic polyurethane: TPU and TPU-GF

TPU is characterized by excellent electrical properties, a good surface feel, a high degree of flexibility over a wide temperature range, and high resistance to wear. Thermoplastic polyurethanes are also elastic and low-temperature impact resistant.

In contrast to non-reinforced materials, glass-fiber-reinforced TPU is characterized by high rigidity and hardness.

Cross-linked ethylene-propylene-diene polymer/polypropylene: EPDM-PP

EPDM-PP is a polymer blend of PP and cross-linked EPDM. EPDM-PP is a rubber-like material which can be processed using thermoplastic procedures. EPDM-PP combines high temperature resistance, a low compression set, and excellent resistance to abrasion and chemicals.

Acrylonitrile butadiene styrene rubber: NBR

NBR is a rubber with excellent resistance to aging. It also features excellent resistance to abrasion and low plastic flow. Its elasticity is lower than other rubbers.

Fluorinated rubber: FPM

FPM rubbers are characterized by very high temperature resistance, but behave less favorably at low temperatures than other rubbers.

Chlorine-butadiene rubber: CR

CR rubber stands out against other rubbers with its excellent resistance to weather and ozone.

Properties	Standard	Unit	PA	PA GF	PA HT	PA GF HT	PBT	PBT GF	LCP GF	PC	ABS	PVC	POM	PP	PE
RTI Elec.	UL 746B	°C	≥ 105	≥ 105	≥ 105	≥ 105	≥ 105	≥ 105	≥ 130	≥ 105	≥ 80	≥ 50	≥ 105	65	50
Minimum temperature for use (without mechanical load)		°C	- 40	- 40	- 40	- 40	- 40	- 40	- 40	- 40	- 40	- 15	- 40	- 40	- 40
Dielectric strength	IEC 60243-1/DIN VDE 0303-21	kV/cm	600	400		> 200	400	400		> 300	850		850		
Creep resistance CTI...	IEC 60112/ DIN VDE 0303-1		600	400	≥ 250	225	600	225	175	175	600	600	600		
Creep resistance CTI...M	IEC 60112/ DIN VDE 0303-1		550	250			600	225		175	600	600	600		
Inflammability class	UL 94	HB – V0	V2, V0	HB, V0	V0	V0	V0	V0	V0	V2, V0		V0	HB	HB	HB
Tropical and termite resistance			Good	Good			Good			Good					

Properties	Standard	Unit	TPU	TPU GF	EPDM/ PP
RTI Elec.	UL 746B	°C	50	50	100
Minimum temperature for use (without mechanical load)		°C	- 40	- 40	- 40
Dielectric strength	IEC 60243-1/DIN VDE 0303-21	kV/cm	35	35	
Creep resistance CTI...	IEC 60112/DIN VDE 0303-1		600	600	600
Creep resistance CTI...M	IEC 60112/DIN VDE 0303-1		600		
Inflammability class	UL 94	HB – V0	V2	HB	HB
Chemical resistance	See chemical resistance table				

Properties	Standard	Unit	NBR	FPM	CR
Operating temperature		°C	≤ 100	≤ 200	≤ 100
Minimum temperature for use (without mechanical load)		°C	- 40	- 25	- 40
Dielectric strength	IEC 60243-1/DIN VDE 0303-21	kV/cm	Not relevant as these are sealing materials		
Creep resistance CTI...	IEC 60112/ DIN VDE 0303-1				
Creep resistance CTI...M	IEC 60112/ DIN VDE 0303-1				
Inflammability class	UL 94	HB – V0			

Chemicals	Concentration in %	Temperature in °C	Plastics															
			PA 66/PA 6	PA 66 GF	PA 46 GF	PC GF	POM	NBR	PP	EPDM	PBT	PUR	PUR irradiated*	PVC-P (soft)	PE-LD	TPU	FPM (Viton)	CR (neoprene)
Acetaldehyde			0	0	0	-	0	-	-	0		+	+	+	0	0	-	0
Acetone		20	+				+	-	+	+	0	0	0	-	+	-	-	0
Acetate			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Acetophenone			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Aldehyde			0	0	0	-	0	-	-	0		+	+	+	0	-	0	0
Formic acid			-	-	0	0	+	-	+	+	+	0	0	-	+	0	0	+
Amines			+	+	+	-	0	-	-	0	+	+	+	+	0	-	-	-
Alcohols			0	0	0	0	+	0	+	+	+	+	+	-	+	+	0	+
Ammonia	10	20	+				+	0	+	+	+	+	+	0	+	0	-	+
Benzaldehyde			0	0	0	-	0	-	-	0		+	+	+	0	0	-	0
Gasoline		20	+	+	+	0	+	0	0	-	+	+	+	-	-	-	+	-
Benzol		50	+	+	+	+	0	-	0	-	+	0	0	-	0	-	0	-
Benzophenone		20	+	+	+	0	0	-	+	0	0	+	+	-	-	-	+	-
Boracic acid	100	20	0				0	+		+	+	0	0	0	+	+	+	+
Brake fluid		100	+				+	-		+	+	-	-	0	+	-	-	-
Butyric acid			-	-	0	0	+	0	+	+	+	0	0	+	+	-	0	0
Cyclohexanone			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Diesel oil			+				+	+	+	-	+	+	+	-	+	-	+	-
Diethylamine			+	+	+	-	0	-	-	0	+	+	+	+	-	-	-	-
Dimethylamine			+	+	+	-	0	-	-	0	+	+	+	+	0		-	-
Glacial acetic acid		50		-	-	-	-	-	0	+	-	-	-	-	+	-	-	-
Acetic acid	20		-	-	0	0	+	-	+	+	+	0	0	0	+	-	-	0
Ester			+	+	+	0	-	-	-	0	+			-	+	-	-	-
Ethanol			0	0	0	0	+	0	+	+	+	+	+	-	+	+	+	+
Ether			+	+	+	-	0	-	0	0	+	+	+	-	0	+	-	-
Greases			+	+	+	+	+	+	0	0				0	+	-	+	0
Formaldehyde			0	0	0	-	0	-	-	0		+	+	+	0	0	+	0
Gear oil		100	+				+	+		-	+	+	+	+	+	-	+	-
Halogens (fluorine, chlorine, bromine, iodine)			-	-	-	+	-	-	-	-	-	-	-	-	-	-	+	-
Hydraulic oil		20	+				0	+		-	+	+	+	-	+	-	+	-
Potassium hydroxide solution			+	+	+	-	+	0	+		-	+	+	+	+	0	+	-
Kerosene		20	+				+				+	+	+	-	0	-	+	-
Ketones			+	+	+	0	0	-	+	0	0	+	+	-	-	-	-	-
Hydrocarbons, aliphatic			+	+	+	+	+	+	0	0	+	+	+	-	+	+	+	-
Hydrocarbons, aromatic			+	+	+	-	0	-	0	0	0	+	+	-	-	-	+	-
Hydrocarbons, chlorinated			0	0	0	-	+	-	-	-	0	-	-	-	-	-	+	-
Hydrocarbons, unsaturated chlorinated			0	0	0	-	+	-	-	-	0	0	0	-	-	-	+	-
Fuels			+	+	+	0	+	0	0	-	+	+	+	-	-	-	+	-
Alkalis, weak			+	+	+	-	+	0	+	+	+	+	+	+	+	0	+	0
Alkalis, strong			0	-	-	-	+	-	+		+	-	-	+	0	0	-	-
Inorganic salt solutions			+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	
Machine oil			+				+				+	+	+	0	+	-	+	-
Metal chloride			+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Metal sulfate			+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Metal nitrate			+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	+
Methanol			0	0	0	0	+	0	+	+	+	+	+	-	+	+	-	+
Methylamine			+	+	+	-	0	-	-	0	+	+	+	+	+	0	0	-
Lactic acid	10	20	+				+	+	+	+	+	+	+	-	+	+	+	+
Mineral oil			+	+	+		+	+	+	-	+	+	+	-	+	-	+	-
Motor oil		120	+	+	+	0	+	+	+	-	+	+	+	-	+	-	+	-
Sodium hydroxide solution	50	50	0	0	+	-	+	+	+	+	-	+	+	+	+	0	0	0
Nitrobenzene			0				0	-		0	+	-	-	-	0	+	0	-
Ozone			0	0	0	-	0	-	+	+	+	0	0	+	+	0	+	-
Propyl alcohol			0	0	0	0	+	0	+	+	+	+	+	-	+	+	+	+
Nitric acid	30	20	-	0	-	0	-	-	+	0	0	0	0	-	+	-	+	-
Hydrochloric acid		20	-				-	0	+	0	0	-	-	-	+	0	+	0
Sulfuric acid	50	50	-	0	-	0	-	-	+	+	-	0	0	+	+	0	+	-
Seawater		20	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Turpentine			0	0	0	+	-	+	-	-	+	0	0	-	-	-	+	-
UV resistance			+	+	+	0	0	-	-		+	+	+	0	0	+	+	
Detergent alkalis	2	100	0				+	+		+	+	+	+	-	+	+	+	0
Water (dist.)		20												+				
Water, cold			+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Water, hot			-	-	-	-	+	+	+	+	-	+	+	+	+	0	+	0
Citric acid	10		+				+	+	+	+	+			+	+	+	+	+

- Not resistant
0 Moderately resistant
+ Resistant

* The irradiated PUR type is generally more resistant than the non-irradiated type. This cannot be quantified and must be checked in individual cases.

The information in the table has been gathered from the recommendations of our plastic suppliers.

Since individual operating conditions can also affect the usability of each product, this information should be used as a guide only.

In cases where there has been no previous experience of using the products, we recommend that the user undertakes preliminary tests in order to minimize risks.

Insulation coordination for electrical equipment in low-voltage systems

Dimensioning of air and creepage distances according to DIN EN 60664-1/ VDE 0110-1.

This part of the standard, based on IEC 60664, contains specifications for the insulation coordination of items of equipment in low-voltage systems. This part is applicable for items to be used at a height of up to 2000 m above sea level. This basic safety standard is primarily aimed at technical committees, and if suitable product directives are not available for an item, it can be used at one's own responsibility. International and European product standards cited in this catalog contain specifications for insulation coordination in accordance with DIN EN 60664/VDE 0110-1.

Insulation coordination

Insulation coordination includes the selection of electrical insulation properties for items as regards intended applications and ambient conditions. Separate requirements must be applied for air and creepage distances and for rigid insulation. The surge voltages to be expected, characteristics of surge protective devices, and pollution at the intended site must be considered when dimensioning clearances. Clearances are then dimensioned according to the external or internal surge voltages to be expected. Different surge voltages, grouped into categories, i.e., a value that determines an impulse withstand voltage, determine the required clearance directly. These surge voltage categories (I to IV) are mainly based on a statistical study, and are used for the items that are directly supplied by low-voltage networks. Definitions of the individual categories are provided below as an extract of DIN EN 60664/VDE 0110-1.

The clearances can be calculated according to Table 2 (minimum clearances) depending on the homogeneity level of the field between the electrodes (case A – non-homogeneous field, case B – homogeneous field).

Clearances according to case A are capable of withstanding the assigned surge voltages under all conditions. Items that are dimensioned according to case A can therefore be used without any further testing. Clearance values according to case B are based on ideal conditions. Clearance values which fall between case A and case B must be proven by means of a surge voltage test.

The voltages present, the properties of insulation materials, the pollution to be expected, and safety measures against pollution are considered when dimensioning creepage distances.

The effect of pollution is considered when determining the air and creepage distances according to three intensity levels (pollution degree 1 to 3).

The creepage distance is based on the rated voltage that is derived from the working voltage or nominal mains voltage. The minimum creepage distances are assigned to the rated voltages according to the pollution degree in Table 4.

If the respective product descriptions do not contain any additional specifications, the products presented in this catalog are dimensioned for surge voltage category III and pollution degree 3 according to this regulation (DIN EN 60664-1/VDE 0110-1).

Surge voltage categories I to IV

– Items in **surge voltage category IV** can be used at the terminal point of the installation.
  Note: examples of such items include electricity meters and primary devices for overcurrent protection.
– Items in **surge voltage category III** can be used in fixed installations and are intended for such cases where there are special requirements for the reliability and availability of the items.
  Note: examples of such items include switches in fixed installations and items for industrial use with permanent connection to the fixed installation.
– Items in **surge voltage category II** are power-consuming items that are supplied by the fixed installation.
  Note: examples of such items include household appliances, portable tools, other domestic appliances, and similar devices.
– Items in **surge voltage category I** can be connected to circuits where measures have been taken to limit the surge voltages to a suitable lower value.

Pollution degrees 1 to 4

The following four pollution degrees have been defined for the micro-environment in order to determine air and creepage distances:

– Pollution degree 1
No contamination or only dry, non-conductive contamination is present. The contamination has no influence.
– Pollution degree 2
Only non-conductive contamination is present. Temporary conductivity due to condensation must occasionally be taken into consideration, however.
– Pollution degree 3
Conductive contamination or dry, non-conductive contamination is present which becomes conductive, since condensation is expected.
– Pollution degree 4
Permanent conductivity is present, caused by conductive dust, rain or moisture.

Insulation material

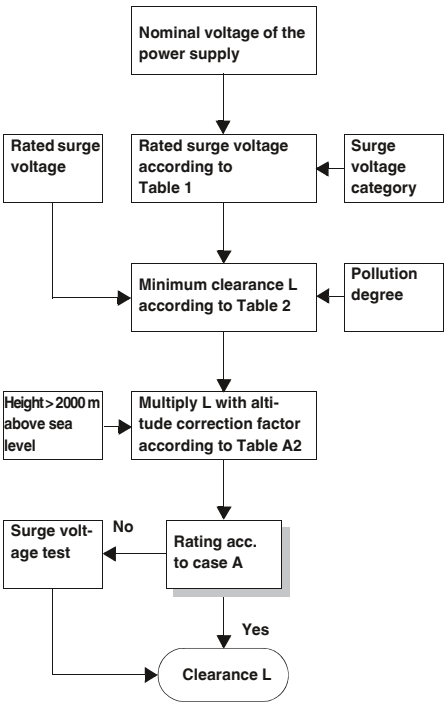
DIN EN 60664/VDE 0110-1 classifies insulation materials into four groups depending on their CTI values that were obtained using solution A in accordance with IEC 60112. These are:
Insulation material group I: 600 ≤ CTI
Insulation material group II: 400 ≤ CTI < 600
Insulation material group IIIa
175 ≤ CTI < 400
Insulation material group IIIb:
100 ≤ CTI < 175

The comparative tracking index of the creepage distance must have been determined based on suitable samples using test solution A as specified in DIN IEC 60112.

The proof tracking index of the creepage distance (PTI) is used as proof of the creepage current properties of insulation materials.

Dimensioning of clearances

Schematic for determining clearances



Altitude correction factors (extract from Table A.2)

Height in m	Normal air pressure in kPa	Multiplication factor for gaps
2000	80.0	1.00
3000	70.0	1.14
4000	62.0	1.29
5000	54.0	1.48
6000	47.0	1.70
7000	41.0	1.95
8000	35.5	2.25
9000	30.5	2.62
10000	26.5	3.02
15000	12.0	6.67
20000	5.5	14.50

Rated surge voltages for items that are directly supplied by the low-voltage network (extract from Table 1)

Nominal voltage of the power supply system [1] (mains) acc. to IEC 60038 [3] [V]		Conductor-neutral conductor voltage derived from the total nominal AC voltage or nominal DC voltage	Rated surge voltage [2] [V] Surge voltage category [4]			
Three-phase	Single-phase	[V]	I	II	III	IV
	120 to 240	50	330	500	800	1500
		100	500	800	1500	2500
		150	800	1500	2500	4000
230/400 277/480		300	1500	2500	4000	6000
400/690		600	2500	4000	6000	8000
1000		1000	4000	6000	8000	12000

[1]) Refer to Appendix B for application in existing deviating low-voltage networks and their nominal voltages.

[2]) Items with this rated surge voltage may be used in systems in accordance with IEC 60364-4-443.

[3]) The slash, i.e., /, indicates a three-phase 4-conductor system. The lower value is the conductor-to-neutral conductor voltage, whereas the higher value is the conductor-to-conductor voltage. When only one value is specified, it refers to a three-phase 3-conductor system, and indicates the conductor-to-conductor voltage.

[4]) Refer to 2.2.2.1.1 for an explanation of surge voltage categories.

Minimum clearances for surge voltages (extract from Table 2)

Required impulse withstand voltage [1] [5]	Condition A Non-homogeneous field (refer to 1.3.15) Pollution degree [6]			Condition B Homogeneous field (refer to 1.3.14) Pollution degree [6]		
	1 [mm]	2 [mm]	3 [mm]	1 [mm]	2 [mm]	3 [mm]
0.33 [2])	0.01			0.01		
0.40	0.02			0.02		
0.5 [2])	0.04	0.2 [3] [4])		0.04		
0.60	0.06			0.06	0.2 [3] [4])	
0.80 [2])	0.10		0.8 [4])	0.10		0.8 [4])
1.0	0.15			0.15		
1.2	0.25	0.25		0.2		
1.5 [2])	0.5	0.5		0.3	0.3	
2.0	1.0	1.0	1.0	0.45	0.45	
2.5 [2])	1.5	1.5	1.5	0.6	0.6	
3.0	2.0	2.0	2.0	0.8	0.8	
4.0 [2])	3	3	3	1.2	1.2	1.2
5.0	4	4	4	1.5	1.5	1.5
6.0 [2])	5.5	5.5	5.5	2	2	2
8.0 [2])	8	8	8	3	3	3
10	11	11	11	3.5	3.5	3.5
12.[2])	14	14	14	4.5	4.5	4.5
15	18	18	18	5.5	5.5	5.5
20	25	25	25	8	8	8
25	33	33	33	10	10	10
30	40	40	40	12.5	12.5	12.5
40	60	60	60	17	17	17
50	75	75	75	22	22	22
60	90	90	90	27	27	27
80	130	130	130	35	35	35
100	170	170	170	45	45	45

[1]) This voltage is:
– For function insulation: the highest surge voltage expected for the clearance
– For basic insulation, if influenced directly or considerably by surge voltages from the low-voltage network: the item's rated surge voltage
– For a different basic insulation: the highest surge voltage possible in the circuit

[2]) Preferred values

[3]) For PCBs, the values of pollution degree 1 are applicable, except that no deviation below the value of 0.04 mm is permitted, as specified in Table 4.

[4]) Minimum clearances for pollution degrees 2 and 3 are based on the corresponding creepage distances. This resistance is reduced due to the effects of humidity.

[5]) Values can be interpolated for parts or circuits within items that are subjected to surge voltages.

[6]) The distances for pollution degree 4 are equal to those for pollution degree 3, except that the minimum clearance is 1.6 mm.

Current carrying capacity

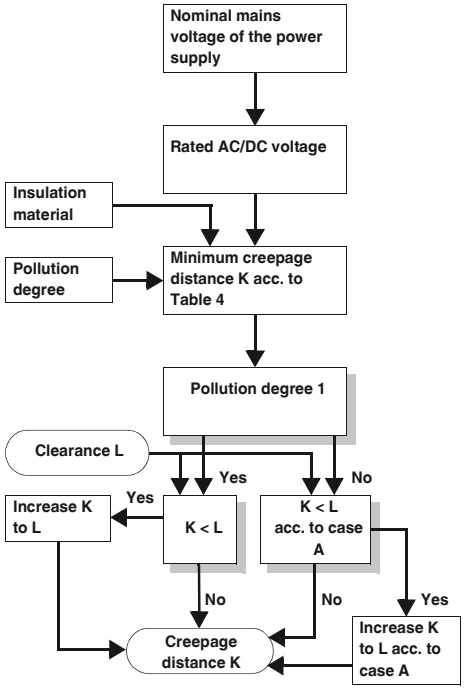
Standard IEC 60947-7-1/ EN 60947-7-1/DIN VDE 0611-1 specifies the test currents for the individual conductor cross sections listed in the adjacent table. The corresponding currents are listed with the connection data for the individual terminal blocks. The type tests for modular terminal blocks are based on this data.

Test currents according to IEC 60947-7-1/EN 60947-7-1, Table 5

Rated cross section	[mm²]	0.2	0.5	0.75	1.0	1.5	2.5	4	6	10	16
Test current	[A]	4	6	9	13.5	17.5	24	32	41	57	76
Rated cross section	[mm²]	25	35	50	70	95	120	150	185	240	300
Test current	[A]	101	125	150	192	232	269	309	353	415	520

Dimensioning of creepage distances

Schematic for determining creepage distances



Single-phase 3 or 2-conductor AC or DC voltage systems (extract from Table 3a)

Nominal voltage of the power supply system (mains) *)	Voltages for Table 4	
	for conductor-conductor insulation [1] All systems	for conductor-ground insulation [1] 3-cond. systems center point grounded
[V]	[V]	[V]
12.5	12.5	–
24 25	25	–
30	32	–
42 48 50 **)	50	–
60	63	–
30 - 60	63	32
100 **)	100	–
110 120	125	–
150 **)	160	–
220	250	–
110 - 220 220 - 240	250	125
300 **)	320	–
220 - 440	500	250
600 **)	630	–
480 - 960	1000	500
1000 **)	1000	–

[1]) Conductor-ground insulation levels for non-grounded systems or those grounded through impedance correspond to conductor-conductor insulation levels as the operating voltage of every conductor to ground can, in practice, reach the conductor-conductor voltage. This is due to the fact that the actual voltage to ground is determined by the insulation resistance and the capacitive reactance of each conductor to ground. A low (but permissible) insulation resistance of one conductor can thereby practically ground it and increase the other two to conductor-conductor voltage to ground.

*) Refer to 2.2.1 for correlation with the rated voltage.

**) These values correspond to the values in Table 1.

Three-phase 4 or 3-conductor AC voltage systems (extract from Table 3b)

Nominal voltage of the power supply system (mains) *)	Voltages for Table 4		
	for conductor-conductor insulation All systems	Insulation for conductor-ground Three-phase 4-cond. systems with grounded neutral conductor [2]	Three-phase 3-cond. systems non-grounded [1] or conductor grounded
[V]	[V]	[V]	[V]
60	63	32	63
110/120/127	125	80	125
150 **)	160	–	160
208	200	125	200
220/230/240	250	160	250
300 **)	320	–	320
380/400/415	400	250	400
440	500	250	400
480/500	500	320	500
575	630	400	630
600 **)	630	–	630
660/690	630	400	630
720/830	800	500	800
960	1000	630	1000
1000 **)	1000	–	1000

[1]) Conductor-ground insulation levels for non-grounded systems or those grounded through impedance correspond to conductor-conductor insulation levels as the operating voltage of every conductor to ground can, in practice, reach the conductor-conductor voltage. This is due to the fact that the actual voltage to ground is determined by the insulation resistance and the capacitive reactance of each conductor to ground. A low (but permissible) insulation resistance of one conductor can thereby practically ground it and increase the other two to conductor-conductor voltage to ground.

[2]) For items designed for use in three-phase 4-conductor and three-phase 3-conductor systems, grounded as well as non-grounded, only the values for 3-conductor systems may be used.

*) Refer to 2.2.1 for correlation with the rated voltage.

**) These values correspond to the values in Table 1.

Creepage distances to prevent failures occurring due to creepage (extract from Table 4)

Voltage [1] r.m.s. value	Minimum creepage distances								
	Printed circuits Pollution degree		Pollution degree						
	1	2	1	2			3		
	All insulation material groups	All insulation material groups except IIIb	All insulation material groups	Insulation material group			Insulation material group		
				I	II	III	I	II	III [2])
[V]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]
10	0.025	0.04	0.08	0.40	0.40	0.40	**1.00**	**1.00**	**1.00**
12.5	0.025	0.04	0.09	0.42	0.42	0.42	**1.05**	**1.05**	**1.05**
16	0.025	0.04	0.10	0.45	0.45	0.45	**1.10**	**1.10**	**1.10**
20	0.025	0.04	0.11	0.48	0.48	0.48	**1.20**	**1.20**	**1.20**
25	0.025	0.04	0.125	0.50	0.50	0.50	**1.25**	**1.25**	**1.25**
32	0.025	0.04	0.14	0.53	0.53	0.53	**1.30**	**1.30**	**1.30**
40	0.025	0.04	0.16	0.56	0.80	1.10	**1.4**	**1.6**	**1.8**
50	0.025	0.04	0.18	0.60	0.85	1.20	**1.5**	**1.7**	**1.9**
63	0.040	0.63	0.20	0.63	0.90	1.25	**1.6**	**1.8**	**2.0**
80	0.063	0.10	0.22	0.67	0.95	1.3	**1.7**	**1.9**	**2.1**
100	0.10	0.16	0.25	0.71	1.00	1.4	**1.8**	**2.0**	**2.2**
125	0.16	0.25	0.28	0.75	1.05	1.5	**1.9**	**2.1**	**2.4**
160	0.25	0.40	0.32	0.80	1.1	1.6	**2.0**	**2.2**	**2.5**
200	0.40	0.63	0.42	1.00	1.4	2.0	**2.5**	**2.8**	**3.2**
250	0.56	1.00	0.56	1.25	1.8	2.5	**3.2**	**3.6**	**4.0**
320	0.75	1.60	0.75	1.60	2.2	3.2	**4.0**	**4.5**	**5.0**
400	1.00	2.00	1.00	2.00	2.8	4.0	**5.0**	**5.6**	**6.3**
500	1.30	2.50	1.30	2.50	3.6	5.0	**6.3**	**7.1**	**8.0**
630	1.80	3.20	1.8	3.2	4.5	6.3	**8.0**	**9**	**10.0**
800	2.40	4.00	2.4	4.0	5.6	8.0	**10.0**	**11**	**12.5**
1000	3.20	5.00	3.2	5.0	7.1	10	**12.5**	**14**	**16.0**
1250			4.2	6.3	9	12.5	**16**	**18**	**20**
1600			5.6	8	11	16	**20**	**22**	**25**
2000			7.5	10	14	20	**25**	**28**	**32**
2500			10	12.5	18	25	**32**	**36**	**40**
3200			12.5	16	22	32	**40**	**45**	**50**
4000			16	20	28	40	**50**	**56**	**63**
5000			20	25	36	50	**63**	**71**	**80**
6300			25	32	45	63	**80**	**90**	**100**
8000			32	40	56	80	**100**	**110**	**125**
10000			40	50	71	100	**125**	**140**	**160**

[1]) This voltage is:
a) For function insulation: the working voltage
b) For basic and additional insulation of a circuit supplied directly by the low-voltage network: either the voltage selected from Table 3a or 3b on the basis of the rated voltage of the equipment or the rated insulation voltage
c) For basic and additional insulation of systems, equipment and internal circuits which are not supplied directly from the mains: the highest r.m.s. value of the voltage that, within the bounds of the rated data, can occur in the system, the equipment or the internal circuit, when supplied with rated voltage and in the case of the most unfavorable combination of operating conditions.

[2]) With pollution degree 3, insulation material group IIIb is not recommended for use if voltages are greater than 630 V.

Overview of approval bodies and safety marks

Certification bodies and approvals		Country code
CB scheme	IECEE CB Scheme (in combination with certifying body)	Interna-tional
CCA	CENELEC Certification Agreement (CCA inspection report) (in combination with certifying body)	EU
CSA	Canadian Standards Association (CSA)	CA
UL	Underwriters Laboratories Inc. (UL)	US
cUL	Underwriters Laboratories Inc. (UL) - UL approval for Canada -	CA
cULus	Underwriters Laboratories Inc. (UL) Com-bined logo - UL approval for the USA and Canada -	US CA
IMQ	INSIEME PER LA QUALITA'E LA SICUREZZA	IT
GOST	Gosudarstvenne Komitet Standartov (GOST)	RU
KEMA KEUR	DEKRA Certification B.V.	NL
ÖVE	Österreichischer Verband für Elektrotechnik	AT
SABS	South African Bureau of Standards	ZA
SEV	electrosuisse SEV Verband für Elektro-, Energie- und Informationstechnik	CH
VDE	Verband Deutscher Elektrotechniker e.V.(VDE) – Approval of drawings – Reports with production monitoring	DE
BG GS	Berufsgenossenschaft (BG) GS - Geprüfte Sicherheit (tested safety)	DE
TÜV	TÜV Rheinland Industrie Service GmbH	DE

Explosion protection		Country code
FM APPROVED	FM Approvals	US
DEKRA	DEKRA Certification B.V.	NL
PTB	Physikalisch-Technische Bundesanstalt	DE
QS International	QS Schaffhausen	CH
VTT	VTT Expert Services Oy	FI
IBExU	IBExU Institut für Sicherheitstechnik GmbH	DE
UC	TÜV Rheinland do Brasil	BR
UL	Underwriters Laboratories Inc. (UL)	US
TÜV NORD	TÜV Nord	DE
DEKRA	DEKRA EXAM GmbH	DE

Ship classification societies		Country code
BV	Bureau Veritas	FR
GL	Germanischer Lloyd AG	DE
Lloyd's Register	Lloyd's Register EMEA	GB
ClassNK	Nippon Kaiji Kyokai	JP
DNV	Det Norske Veritas	NO
PRS	Polski Rejestr Statków	PL
RS	Russian Maritime Register of Shipping	RU
KR	Korean Register of Shipping	KR
ABS	American Bureau of Shipping	US

Color designations

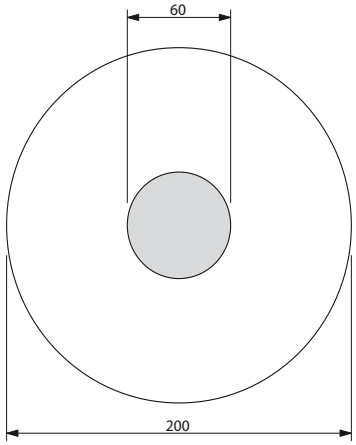
Color	Code
White	WH
Red	RD
Blue	BU
Green	GN
Yellow	YE
Gray	GY
Brown	BN
Orange	OG
Black	BK
Turquoise	TQ
Ivory	IV
Beige	BE
Olive	OL
Violet	VT
Pink	PK
Gold	GD
Silver	SR

Note:

Subject to changes that serve the purpose of technical progress.

Shock protection

Touch proof



Back of hand safety

Example: pressure actuation

The accident prevention regulations BGV A 2 issued by the German employer's liability insurance association for precision mechanics and electrical engineering apply to the operators of electrical systems and are aimed at the prevention of electrical accidents by means of special safety requirements.

These regulations contain specifications regarding the safety distances for work, operation, and occasional handling in the proximity of "live parts" in low-voltage systems up to 1000 V ~ or 1500 V –.

Work with live parts is only permitted once they are in the de-energized state. Operational activities are only permitted in the vicinity of live parts if these parts are de-energized or are protected against direct contact (§ 6). The following safety measures apply when working in the vicinity of live parts:

– Ensure that the system remains de-energized for the duration of the work or
– Ensure shock protection is in place in the form of covers or barriers during the work, or
– Ensure that the minimum permissible clearances are observed (§ 7)

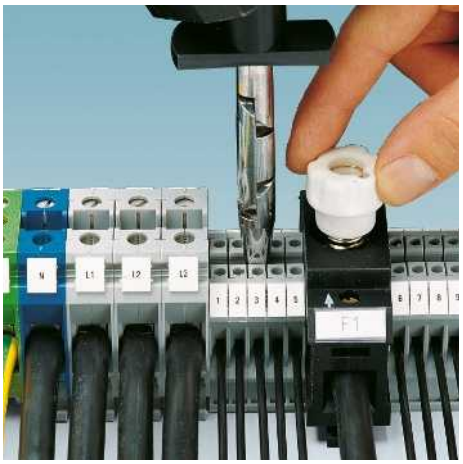
The term "occasional handling" has been introduced for the operation of elements such as pushbuttons, rocker arms or rotary buttons in the proximity of live parts.

In VDE 0105-1, this is called "operation with partial protection against direct contact".

Detailed specifications for "occasional handling" can be found in DIN EN 50274. This specifies to what degree live parts in the proximity of operating elements are to be protected against contact. The basis for this is the definition of a "protection area for occasional handling"; this is the area into which the user must reach in order to handle the machine.

The most important thing is that an area formed by an even envelope curve 30 mm in radius must surround the live parts. This area must be **touch proof**, i.e., the live parts of the electrical device must not be within reach of the VDE test finger in accordance with IEC 60529/DIN VDE 0470-1 (test finger).

Back of hand safety is specified for the "rest of the area" up to 100 mm around the operating element. **Back of hand safety** means that when a force of 50 N is applied



to a ball with a diameter of 50 mm, this does not come into contact with the live parts of the equipment. No special measures for ensuring contact safety are stipulated outside this area.

Note: systems and equipment that are operated with SELV up to 25 V ~ or 60 V – are considered to be protected against direct contact.

According to BGV A 2, the state of the system does not have to be tested prior to initial startup if the company has confirmation from the manufacturer or installer that the electrical systems and items meet BGV A 2 regulations. The confirmation required refers to the installed systems and items which are ready for operation and this can only be issued by the installer or installation company. The manufacturer of the electrical equipment can only issue a confirmation that products have been produced in accordance with the relevant electrotechnical regulations stipulated in BGV A 2. The installer must bear this in mind when selecting the equipment to be used.

In the field of connection technology, Phoenix Contact offers a wide range of products which are touch-proof or can be protected against contact by means of cov-



ers. Depending on the conditions, all of this must be taken into account when selecting the individual types of terminal block and accessories.

Type	Order No.	Page
C		
CA-06P1N122S00	1619992	329
CA-06P1N126Y00	1619876	328
CA-06P1N126Z00	1619902	327
CA-06P1N128006	1619749	325
CA-06P1N128006S	1619578	324
CA-06P1N128007	1619723	325
CA-06P1N128007S	1619533	324
CA-06P1N128008	1619658	325
CA-06P1N128008S	1619507	324
CA-06P1N1280DN	1619775	325
CA-06P1N1280DNS	1619604	324
CA-06P1N129006	1620144	326
CA-06P1N129007	1620118	326
CA-06P1N129008	1620045	326
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CA-06P1N12HZ00	1619850	332
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CA-06P1N8A6Y00	1619874	328
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CA-06P1N8A80DNS	1619602	324
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CA-12P1N128006S	1619548	324
CA-12P1N128007	1619709	325
CA-12P1N128007S	1619521	324
CA-12P1N128008	1619646	325
CA-12P1N128008S	1619495	324
CA-12P1N1280DN	1619763	325
CA-12P1N1280DNS	1619592	324
CA-12P1N129006	1620132	326
CA-12P1N129007	1620074	326
CA-12P1N129008	1620031	326
CA-12P1N1290DN	1620159	326
CA-12P1N12HZ00	1619789	332
CA-12P1N222S00	1619948	330
CA-12P1N8A2S00	1619966	329
CA-12P1N8A6Y00	1619862	328
CA-12P1N8A6Z00	1619888	327
CA-12P1N8A8006	1619735	325
CA-12P1N8A8006S	1619546	324
CA-12P1N8A8007	1619707	325
CA-12P1N8A8007S	1619519	324
CA-12P1N8A8008	1619644	325
CA-12P1N8A8008S	1619488	324
CA-12P1N8A80DN	1619761	325
CA-12P1N8A80DNS	1619590	324
CA-12P1N8A9006	1620130	326
CA-12P1N8A9007	1620072	326
CA-12P1N8A9008	1620029	326
CA-12P1N8A90DN	1620157	326
CA-12P1N8AHZ00	1619787	332
CA-12P1NA22S00	1619924	330
CA-12P1NC22S00	1619909	330
CA-12S1N122S00	1619969	329
CA-12S1N126Y00	1619865	328
CA-12S1N126Z00	1619891	327
CA-12S1N128006	1619738	325
CA-12S1N128006S	1619567	324
CA-12S1N128007	1619710	325
CA-12S1N128007S	1619522	324
CA-12S1N128008	1619647	325
CA-12S1N128008S	1619496	324
CA-12S1N1280DN	1619764	325
CA-12S1N1280DNS	1619593	324
CA-12S1N129006	1620133	326
CA-12S1N129007	1620075	326
CA-12S1N129008	1620032	326
CA-12S1N1290DN	1620160	326
CA-12S1N12HZ00	1619790	332
CA-12S1N222S00	1619949	330
CA-12S1N8A2S00	1619967	329
CA-12S1N8A6Y00	1619863	328
CA-12S1N8A6Z00	1619889	327
CA-12S1N8A8006	1619736	325
CA-12S1N8A8006S	1619547	324
CA-12S1N8A8007	1619708	325

Type	Order No.	Page
CA-12S1N8A8007S	1619520	324
CA-12S1N8A8008	1619645	325
CA-12S1N8A8008S	1619489	324
CA-12S1N8A80DN	1619762	325
CA-12S1N8A80DNS	1619591	324
CA-12S1N8A9006	1620131	326
CA-12S1N8A9007	1620073	326
CA-12S1N8A9008	1620030	326
CA-12S1N8A90DN	1620158	326
CA-12S1N8AHZ00	1619788	332
CA-12S1NA22S00	1619925	330
CA-12S1NC22S00	1619910	330
CA-17F1N8A8502	1619623	341
CA-17F1N8A8502S	1619464	340
CA-17F1N8A8503	1619614	341
CA-17F1N8A8503S	1619458	340
CA-17F1N8A8504	1619608	341
CA-17F1N8A8504S	1619452	340
CA-17F1N8A85DU	1619629	341
CA-17F1N8A85DUS	1619470	340
CA-17F1N8A9502	1620007	342
CA-17F1N8A9503	1620001	342
CA-17F1N8A9504	1619995	342
CA-17F1N8A95DU	1620014	342
CA-17M1N8A8502	1619619	341
CA-17M1N8A8502S	1619463	340
CA-17M1N8A8503	1619613	341
CA-17M1N8A8503S	1619457	340
CA-17M1N8A8504	1619607	341
CA-17M1N8A8504S	1619451	340
CA-17M1N8A85DU	1619628	341
CA-17M1N8A85DUS	1619469	340
CA-17M1N8A9502	1620006	342
CA-17M1N8A9503	1620000	342
CA-17M1N8A9504	1619994	342
CA-17M1N8A95DU	1620013	342
CA-17P1N122S00	1619960	329
CA-17P1N126Y00	1619856	328
CA-17P1N126Z00	1619882	327
CA-17P1N128006	1619729	325
CA-17P1N128006S	1619540	324
CA-17P1N128007	1619701	325
CA-17P1N128007S	1619513	324
CA-17P1N128008	1619638	325
CA-17P1N128008S	1619482	324
CA-17P1N1280DN	1619755	325
CA-17P1N1280DNS	1619584	324
CA-17P1N129006	1620124	326
CA-17P1N129007	1620051	326
CA-17P1N129008	1620023	326
CA-17P1N1290DN	1620150	326
CA-17P1N12HZ00	1619781	332
CA-17P1N222S00	1619932	330
CA-17P1N8A2S00	1619958	329
CA-17P1N8A6Y00	1619854	328
CA-17P1N8A6Z00	1619880	327
CA-17P1N8A8006	1619727	325
CA-17P1N8A8006S	1619538	324
CA-17P1N8A8007	1619699	325
CA-17P1N8A8007S	1619511	324
CA-17P1N8A8008	1619636	325
CA-17P1N8A8008S	1619480	324
CA-17P1N8A80DN	1619753	325
CA-17P1N8A80DNS	1619582	324
CA-17P1N8A9006	1620122	326
CA-17P1N8A9007	1620049	326
CA-17P1N8A9008	1620021	326
CA-17P1N8A90DN	1620148	326
CA-17P1N8AHZ00	1619779	332
CA-17P1NA22S00	1619917	330
CA-17P1NC22S00	1619904	330
CA-17S1N122S00	1619961	329
CA-17S1N126Y00	1619857	328
CA-17S1N126Z00	1619883	327
CA-17S1N128006	1619730	325
CA-17S1N128006S	1619541	324
CA-17S1N128007	1619702	325
CA-17S1N128007S	1619514	324
CA-17S1N128008	1619639	325
CA-17S1N128008S	1619483	324
CA-17S1N1280DN	1619756	325
CA-17S1N1280DNS	1619585	324
CA-17S1N129006	1620125	326
CA-17S1N129007	1620052	326
CA-17S1N129008	1620024	326
CA-17S1N1290DN	1620151	326
CA-17S1N12HZ00	1619782	332
CA-17S1N222S00	1619933	330
CA-17S1N8A2S00	1619959	329
CA-17S1N8A6Y00	1619855	328
CA-17S1N8A6Z00	1619881	327
CA-17S1N8A8006	1619728	325
CA-17S1N8A8006S	1619539	324
CA-17S1N8A8007	1619700	325
CA-17S1N8A8007S	1619512	324
CA-17S1N8A8008	1619637	325
CA-17S1N8A8008S	1619481	324
CA-17S1N8A80DN	1619754	325
CA-17S1N8A80DNS	1619583	324
CA-17S1N8A9006	1620123	326
CA-17S1N8A9007	1620050	326
CA-17S1N8A9008	1620022	326
CA-17S1N8A90DN	1620149	326
CA-17S1N8AHZ00	1619780	332
CA-17S1NA22S00	1619918	330
CA-17S1NC22S00	1619905	330
CA-19P1N122S00	1619956	329
CA-19P1N126Y00	1619852	328
CA-19P1N126Z00	1619878	327
CA-19P1N128006	1619725	325
CA-19P1N128006S	1619536	324
CA-19P1N128007	1619660	325
CA-19P1N128007S	1619509	324
CA-19P1N128008	1619634	325
CA-19P1N128008S	1619478	324
CA-19P1N1280DN	1619751	325
CA-19P1N1280DNS	1619580	324
CA-19P1N129006	1620120	326
CA-19P1N129007	1620047	326
CA-19P1N129008	1620019	326
CA-19P1N1290DN	1620146	326
CA-19P1N12HZ00	1619777	332
CA-19S1N122S00	1619957	329
CA-19S1N126Y00	1619853	328
CA-19S1N126Z00	1619879	327
CA-19S1N128006	1619726	325
CA-19S1N128006S	1619537	324
CA-19S1N128007	1619661	325
CA-19S1N128007S	1619510	324
CA-19S1N128008	1619635	325
CA-19S1N128008S	1619479	324
CA-19S1N1280DN	1619752	325
CA-19S1N1280DNS	1619581	324
CA-19S1N129006	1620121	326
CA-19S1N129007	1620048	326
CA-19S1N129008	1620020	326
CA-19S1N1290DN	1620147	326
CA-19S1N12HZ00	1619778	332
CA-Z0001	1620699	410
CA-Z0110	1620700	412
CA-Z0111	1620701	412
CA-Z0112	1620702	412
CA-Z0120	1620704	412
CA-Z0121	1620705	412
CA-Z0122	1620706	412
CC-0,8-ST-0,34-MS AU	1452372	239
CC-1,0-ST-0,34-MS AU	1452356	239
CK1,0-ED-0,5ST AU	1409121	53
CK1,0-ED-1,0ST AU	1409082	53
CK1,6-BR-0,50BU AG	1884186	40
CK1,6-BR-0,50ST AG	1884157	40
CK1,6-BR-1,50BU AG	1884173	40
CK1,6-BR-1,50ST AG	1884144	40
CK1,6-ED-0,37BU AG	1663394	40
CK1,6-ED-0,37BU AU	1674969	40
CK1,6-ED-0,37ST AG	1663336	40
CK1,6-ED-0,37ST AU	1674901	40
CK1,6-ED-0,50BU AG	1663404	40
CK1,6-ED-0,50BU AU	1674480	40
CK1,6-ED-0,50ST AG	1663349	40
CK1,6-ED-0,50ST AU	1672453	40
CK1,6-ED-0,75BU AG	1663417	40
CK1,6-ED-0,75BU AU	1672440	40
CK1,6-ED-0,75ST AG	1663352	40
CK1,6-ED-0,75ST AU	1674914	40
CK1,6-ED-1,00BU AG	1663420	40
CK1,6-ED-1,00BU AU	1674943	40
CK1,6-ED-1,00ST AG	1663365	40
CK1,6-ED-1,00ST AU	1674888	40
CK1,6-ED-1,50BU AG	1663433	40
CK1,6-ED-1,50BU AU	1674930	40
CK1,6-ED-1,50ST AG	1663378	40
CK1,6-ED-1,50ST AU	1674875	40
CK1,6-ED-2,50BU AG	1663446	40
CK1,6-ED-2,50BU AU	1674985	40
CK1,6-ED-2,50ST AG	1663381	40
CK1,6-ED-2,50ST AU	1674927	40
CK1,6-ED-BU-POF	1885004	41
CK1,6-ED-ST-POF	1884995	41
CK1,6-ER-0,50BU AG	1884128	41
CK1,6-ER-0,50ST AG	1884092	41
CK1,6-ER-1,50BU AG	1884115	41
CK1,6-ER-1,50ST AG	1884089	41
CK2,0-ED-1,0ST AU	1409118	53
CK2,0-ED-2,5ST AU	1409095	53
CP-HCC 4	1600027	50
CP-MSTB	1734634	50
CRIMPFOX PCC 16 CS 10QMM	1743430	29
CRIMPFOX PCC 16 CS 4QMM	1743427	29
CRIMPFOX-DSUB 5	1212111	216
CRIMPFOX-TC MP	1212510	239
CRIMPFOX-TC MP-1	1212620	53
CT-WZ/A	2765505	79
CUC-PP-FRAME-19	1407986	114
CUC-PP-FRAME-SCREWSET	1407989	114
CUC-PP-MODUL-CABLEFIXSET	1407991	114
CUC-PP-MODUL-COVER	1407988	114
CUC-PP-MODUL-RJ45:6-RJ45:6/...	1407995	114
CUC-PP-PATCHBAY	1407994	114
CUC-V04-BU-180	1407409	81
CUC-V04-BU-90	1407408	81
CUC-V04-F-BU/BU-RJ45	1407412	81
CUC-V04-F-POBK-180	1407410	81
CUC-V04-F-POBK-90	1407411	81
CUC-V04-RJ45-POBK-8	1407413	81
CUTFOX-ES	1212621	170
CUTFOX-SCRJ-POF	1405247	170
EV-GBM3C-1AC16A-5,0M2,5ESOG	1408166	440
EV-GBM3C-1AC32A-5,0M6,0ESOG	1408167	440
EV-GBM3C-3AC32A-5,0M6,0ESOG	1408168	440
EV-GBM3PC-1AC16A-5,0M2,5ESOG	1408161	441
EV-GBM3PC-1AC32A-5,0M6,0ESOG	1408163	441
EV-GBM3PC-3AC32A-5,0M6,0ESOG	1408165	441
EV-GBM3S-1AC32A-0,7M6,0E	1408169	439
EV-GBM3S-3AC32A-0,7M6,0E	1408170	439
EV-GBM3SE12-1AC32A-0,7M6,0E	1408171	439
EV-GBM3SE12-3AC32A-0,7M6,0E	1408172	439
EV-T2-C-M3-1AC20A-4,0M2,5HBK	1405195	436
EV-T2-C-M3-1AC20A-4,0M2,5HRD	1405194	436
EV-T2-C-M3-1AC32A-4,0M6,0SBK	1405198	436
EV-T2-C-M3-3AC20A-4,0M2,5HBK	1405197	436
EV-T2-C-M3-3AC32A-4,0M6,0SBK	1405199	436
EV-T2-PC-M3-1AC20A-4,0M2,5HBK	1405192	437
EV-T2-PC-M3-1AC20A-4,0M2,5HRD	1404563	437
EV-T2-PC-M3-1AC20A-4,0M2,5SBK	1405193	437
EV-T2-PC-M3-1AC20A-4,0M2,5SRD	1404876	437
EV-T2-PC-M3-1AC32A-4,0M6,0SBK	1404568	437
EV-T2-PC-M3-3AC20A-4,0M2,5HBK	1404567	437
EV-T2-PC-M3-3AC20A-4,0M2,5SBK	1404877	437
EV-T2-PC-M3-3AC32A-4,0M6,0SBK	1404569	437
EV-T2M3SE12-3AC20A-0,7M2,5E110	1405213	438
EV-T2M3SE12-3AC32A-0,7M6,0E210	1405214	438
EV-T2M3SE24-3AC20A-0,7M2,5E110	1405215	438
EV-T2M3SE24-3AC32A-0,7M6,0E210	1405216	438
EV-T2M4CC-DC125A-5,0M50ESBK001	1409060	435
EV-T2SC	1405217	438
EV-T2SM	1405218	439
FL CAT5 PATCH 0,3	2832250	111
FL CAT5 PATCH 0,5	2832263	111
FL CAT5 PATCH 1,0	2832276	111
FL CAT5 PATCH 1,5	2832221	111
FL CAT5 PATCH 10,0	2832629	111
FL CAT5 PATCH 2,0	2832289	111
FL CAT5 PATCH 3,0	2832292	111
FL CAT5 PATCH 5,0	2832580	111
FL CAT5 PATCH 7,5	2832616	111
FL CAT6 PATCH 0,3	2891181	111
FL CAT6 PATCH 0,5	2891288	111
FL CAT6 PATCH 1,0	2891385	111
FL CAT6 PATCH 1,5	2891482	111
FL CAT6 PATCH 10	2891877	111
FL CAT6 PATCH 12,5	2891369	111
FL CAT6 PATCH 15,0	2891372	111
FL CAT6 PATCH 2,0	2891589	111
FL CAT6 PATCH 20,0	2891576	111
FL CAT6 PATCH 3,0	2891686	111
FL CAT6 PATCH 5,0	2891783	111
FL CAT6 PATCH 7,5	2891880	111
FL COUPLER SC-DUPLEX	2901788	136
FL CRIMPTOOL	2744869	81
FL DUST CVR BK	2891107	112
FL DUST CVR BN	2891301	112
FL DUST CVR BU	2891204	112
FL DUST CVR GN	2891602	112
FL DUST CVR GY	2891505	112
FL DUST CVR RD	2891709	112
FL DUST CVR VT	2891806	112
FL DUST CVR WH	2891903	112
FL DUST CVR YE	2891408	112
FL FOC PN-B-980/1000	2313397	144
FL FOC PN-C-FLEX-980/1000	2313407	146
FL FOC PN-C-HCS-GI-200/230	2313410	150
FL MM PATCH 1,0 LC-LC	2989158	166
FL MM PATCH 1,0 LC-SC	2989161	167
FL MM PATCH 1,0 LC-SCRJ	2901802	167
FL MM PATCH 1,0 LC-ST	2989174	167
FL MM PATCH 1,0 SC-SC	2901805	167
FL MM PATCH 1,0 SC-SCRJ	2901812	167
FL MM PATCH 1,0 SC-ST	2901809	167
FL MM PATCH 1,0 SCRJ-SCRJ	2901823	167
FL MM PATCH 1,0 ST-SCRJ	2901820	167
FL MM PATCH 1,0 ST-ST	2901815	167
FL MM PATCH 2,0 LC-LC	2989255	166
FL MM PATCH 2,0 LC-SC	2989268	167
FL MM PATCH 2,0 LC-SCRJ	2901803	167
FL MM PATCH 2,0 LC-ST	2989271	167
FL MM PATCH 2,0 SC-SC	2901807	167
FL MM PATCH 2,0 SC-SCRJ	2901813	167
FL MM PATCH 2,0 SC-ST	2901810	167
FL MM PATCH 2,0 SCRJ-SCRJ	2901824	167
FL MM PATCH 2,0 ST-SCRJ	2901821	167
FL MM PATCH 2,0 ST-ST	2901816	167
FL MM PATCH 5,0 LC-LC	2901799	166
FL MM PATCH 5,0 LC-SC	2901800	167
FL MM PATCH 5,0 LC-SCRJ	2901804	167
FL MM PATCH 5,0 LC-ST	2901801	167
FL MM PATCH 5,0 SC-SC	2901808	167
FL MM PATCH 5,0 SC-SCRJ	2901814	167
FL MM PATCH 5,0 SC-ST	2901811	167
FL MM PATCH 5,0 SCRJ-SCRJ	2901825	167
FL MM PATCH 5,0 ST-SCRJ	2901822	167
FL MM PATCH 5,0 ST-ST	2901817	167
FL MM PATCH COUPLER LC-LC	2700312	136
FL PATCH CCODE BK	2891194	113
FL PATCH CCODE BN	2891495	113
FL PATCH CCODE BU	2891291	113
FL PATCH CCODE GN	2891796	113
FL PATCH CCODE GY	2891699	113
FL PATCH CCODE RD	2891893	113

Type	Order No.	Page
FL PATCH CCODE VT	2891990	113
FL PATCH CCODE YE	2891592	113
FL PATCH GUARD	2891424	113
FL PATCH GUARD KEY	2891521	113
FL PATCH SAFE CLIP	2891246	113
FL PF 2TX CAT 6	2891068	121
FL PF 2TX CAT5E	2891165	121
FL PF 8TX CAT 6	2891071	121
FL PF 8TX CAT5E	2891178	121
FL PLUG GUARD GN	2891615	112
FL PLUG GUARD KEY	2891327	112
FL PLUG GUARD RD	2891712	112
FL PLUG GUARD WH	2891819	112
FL PORT GUARD	2891220	112
FL SM PATCH 1,0 LC-LC	2989187	166
FL SM PATCH 1,0 LC-SC	2989190	167
FL SM PATCH 1,0 LC-ST	2989242	167
FL SM PATCH 1,0 SC-SC	2901829	167
FL SM PATCH 1,0 SC-ST	2901832	167
FL SM PATCH 1,0 ST-ST	2901836	167
FL SM PATCH 2,0 LC-LC	2989284	166
FL SM PATCH 2,0 LC-SC	2989297	167
FL SM PATCH 2,0 LC-ST	2989349	167
FL SM PATCH 2,0 SC-SC	2901830	167
FL SM PATCH 2,0 SC-ST	2901833	167
FL SM PATCH 2,0 ST-ST	2901837	167
FL SM PATCH 5,0 LC-LC	2901826	166
FL SM PATCH 5,0 LC-SC	2901827	167
FL SM PATCH 5,0 LC-ST	2901828	167
FL SM PATCH 5,0 SC-SC	2901831	167
FL SM PATCH 5,0 SC-ST	2901834	167
FL SM PATCH 5,0 ST-ST	2901838	167
FL SM PATCH COUPLER LC-LC	2700313	136
FL-PP-RJ45-LSA	2901645	120
FL-PP-RJ45-SC	2901643	120
FL-PP-RJ45-SCC	2901642	120
FL-PP-RJ45/RJ45	2901646	120
FOC-FS:A-FS:A-GZ04/...	1406532	165
FOC-FS:A-SC:A-GZ04/...	1406536	165
FOC-FS:A-ST:A-GZ04/...	1406535	165
FOC-GDM-RUGGED-1016/...	1402193	157
FOC-GDM-RUGGED-1016/IP20/...	2901558	156
FOC-GDO-1017/IP20/...	2901559	158
FOC-HCS-1018B/...	1408458	148
FOC-HCS-1018B/100	1408459	148
FOC-HCS-BFOC/1018B/BFOC/...	1408475	149
FOC-HCS-BFOC/1018B/OE/...	1408462	149
FOC-HCS-BFOC/1018B/PPCME/...	1408480	149
FOC-HCS-BFOC/1018B/SCDUP/...	1408472	149
FOC-HCS-BFOC/1018B/SCRJ/...	1408468	149
FOC-HCS-GI-1005/M12-C/M12-C/5	1416693	126
FOC-HCS-GI-1005/M12-C/SCRJ/5	1416651	126
FOC-HCS-PPCME/1018B/OE/...	1408464	149
FOC-HCS-PPCME/1018B/PPCME/...	1408479	149
FOC-HCS-PPCME/1018B/SCDUP/...	1408474	149
FOC-HCS-PPCME/1018B/SCRJ/...	1408470	149
FOC-HCS-PPCPL/1018B/BFOC/...	1408476	149
FOC-HCS-PPCPL/1018B/OE/...	1408463	149
FOC-HCS-PPCPL/1018B/PPCPL/...	1408477	149
FOC-HCS-PPCPL/1018B/SCDUP/...	1408473	149
FOC-HCS-PPCPL/1018B/SCRJ/...	1408469	149
FOC-HCS-RUGGED-1014/...	1402191	153
FOC-HCS-RUGGED-1014/IP20/...	2901555	152
FOC-HCS-SCDUP/1018B/OE/...	1408461	148
FOC-HCS-SCDUP/1018B/SCDUP/...	1408471	148
FOC-HCS-SCDUP/1018B/SCRJ/...	1408467	148
FOC-HCS-SCRJ/1018B/OE/...	1408460	148
FOC-HCS-SCRJ/1018B/SCRJ/...	1408466	148
FOC-HCSO-1015/IP20/...	2901557	154
FOC-KDHEAVY-1011/...	1402188	139
FOC-KDHEAVY-1011/IP20/...	2901553	138
FOC-LC:A-LC:A-GZ01/...	1405688	161
FOC-LC:A-LC:A-GZ01/2	1400604	161
FOC-LC:A-LC:A-GZ02/2	1400621	163
FOC-LC:A-LC:A-GZ03/...	1405690	164
FOC-LC:A-LC:A-GZ03/2	1400622	164
FOC-LC:A-SJ:A-GZ01/...	1405694	161
FOC-LC:A-SJ:A-GZ01/2	1400682	161
FOC-LC:A-SJ:A-GZ02/...	1405695	163
FOC-LC:A-SJ:A-GZ02/2	1400683	163
FOC-LC:A-SJ:A-GZ03/...	1405696	164
FOC-LC:A-SJ:A-GZ03/2	1400684	164
FOC-M12-BU/BU	1416677	126
FOC-M12-MNNA-TC-650	1416716	126
FOC-M12-RS-HCS	1406422	126
FOC-M12-RS-POF	1406421	126
FOC-OE-OE-GB01/...	1406429	137
FOC-OE-OE-GB02/...	1406430	137
FOC-OE-OE-GB03/...	1406431	137
FOC-OE-OE-HB01/...	1406432	137
FOC-PN-B-1000/...	1402172	145
FOC-PN-B-1000/IP20/...	2901551	144
FOC-PN-B-1000/M12-C/M12-C/5	1416680	126
FOC-PN-B-1000/M12-C/SCRJ/5	1416648	126
FOC-PN-C-1003/...	1402175	147
FOC-PN-C-1003/IP20/...	2901552	146
FOC-PN-HCS-GI-1005/...	1402189	151
FOC-PN-HCS-GI-1005/IP20/...	2901554	150
FOC-POLISHINGDISC-1.25	1407024	168
FOC-POLISHINGDISC-2.50	1407021	168
FOC-POLISHINGFILM-AO-01.0	1407037	168
FOC-POLISHINGFILM-AO-03.0	1407039	168
FOC-POLISHINGFILM-D-00.1	1407046	168
FOC-POLISHINGFILM-D-01.0	1407042	168
FOC-POLISHINGFILM-D-09.0	1407044	168
FOC-POLISHINGFILM-SK-15.0	1407034	168
FOC-RUGGED-1012/...	1402185	141
FOC-RUGGED-1012/IP20/...	2901548	140
FOC-RUGGED-FLEX-1013/...	1402187	143
FOC-RUGGED-FLEX-1013/IP20/...	2901549	142
FOC-SC:A-LC:A-GZ01/...	1405691	160
FOC-SC:A-LC:A-GZ01/2	1400639	160
FOC-SC:A-LC:A-GZ02/...	1405692	162
FOC-SC:A-LC:A-GZ02/2	1400673	162
FOC-SC:A-LC:A-GZ03/...	1405693	164
FOC-SC:A-LC:A-GZ03/2	1400681	164
FOC-SC:A-SC:A-GZ01/...	1405697	160
FOC-SC:A-SC:A-GZ01/2	1400685	160
FOC-SC:A-SC:A-GZ02/...	1405698	162
FOC-SC:A-SC:A-GZ02/2	1400688	162
FOC-SC:A-SC:A-GZ03/...	1405699	164
FOC-SC:A-SC:A-GZ03/2	1400689	164
FOC-SC:A-SJ:A-GZ01/...	1405700	160
FOC-SC:A-SJ:A-GZ01/2	1400690	160
FOC-SC:A-SJ:A-GZ02/...	1405701	162
FOC-SC:A-SJ:A-GZ02/2	1400691	162
FOC-SC:A-SJ:A-GZ03/...	1405702	164
FOC-SC:A-SJ:A-GZ03/2	1400695	164
FOC-SJ:A-SJ:A-GZ01/...	1405703	160
FOC-SJ:A-SJ:A-GZ01/2	1400697	160
FOC-SJ:A-SJ:A-GZ02/...	1405704	162
FOC-SJ:A-SJ:A-GZ02/2	1400699	162
FOC-SJ:A-SJ:A-GZ03/...	1405705	164
FOC-SJ:A-SJ:A-GZ03/2	1400700	164
FOC-ST:A-LC:A-GZ01/...	1405706	160
FOC-ST:A-LC:A-GZ01/2	1400701	160
FOC-ST:A-LC:A-GZ02/...	1405707	162
FOC-ST:A-LC:A-GZ02/2	1400702	162
FOC-ST:A-SC:A-GZ01/...	1405708	160
FOC-ST:A-SC:A-GZ01/2	1400703	160
FOC-ST:A-SC:A-GZ02/...	1405709	162
FOC-ST:A-SC:A-GZ02/2	1400705	162
FOC-ST:A-SJ:A-GZ01/...	1405710	160
FOC-ST:A-SJ:A-GZ01/2	1400706	160
FOC-ST:A-SJ:A-GZ02/...	1405711	162
FOC-ST:A-SJ:A-GZ02/2	1400711	162
FOC-ST:A-ST:A-GZ01/...	1405712	160
FOC-ST:A-ST:A-GZ01/2	1404768	160
FOC-TOOL-CERAMIC-BLADE	1407019	168
FOC-TOOL-DISPENSER	1406995	168
FOC-TOOL-FERRULECLEANER-1.25	1407032	169
FOC-TOOL-FERRULECLEANER-2.50	1407029	169
FOC-TOOL-STICKCLEANER-1.25	1407000	169
FOC-TOOL-STICKCLEANER-2.50	1407002	169
FOC-TOOL-STRIPPING-1HOLE-250	1407004	170
FOC-TOOL-STRIPPING-2HOLE-250	1407008	170
FOC-TOOL-STRIPPING-T-1	1407016	170
FOC-TOOL-STRIPPING-T-2	1407014	170

G

Type	Order No.	Page
GPE 22X22 SR/R	0806628	50

H

Type	Order No.	Page
HC-B 16-ADP-VC-1	1885758	49
HC-B 16-ADP-VC-2	1885761	49
HC-B 16-ADP-VC-3	1885774	49
HC-B 16-ADP-VC-C1	1885787	49
HC-B 16-ADP-VC-C2	1885790	49
HC-B 16-ADP-VC-C3	1885800	49
HC-B 24-ADP-VC-1	1885813	49
HC-B 24-ADP-VC-2	1885826	49
HC-B 24-ADP-VC-3	1885839	49
HC-B 24-ADP-VC-4	1885842	49
HC-B 24-ADP-VC-C1	1885855	49
HC-B 24-ADP-VC-C2	1885868	49
HC-B 24-ADP-VC-C3	1885871	49
HC-B 24-ADP-VC-C4	1885884	49
HC-EMV-KV-M20(7-12,5)	1690503	43
HC-EMV-KV-M25(9-16,5)	1690516	43
HC-EMV-KV-M32(11-21)	1690529	43
HC-K-KV-M20(8-13)	1690626	42
HC-K-KV-M25(11-17)	1690639	42
HC-K-KV-M32(15-21)	1690642	42
HC-M-KV-M20(11-16)	1645998	43
HC-M-KV-M20(1ASI)	1584017	43
HC-M-KV-M20(9-13)	1690561	43
HC-M-KV-M25(11-16)	1690574	43
HC-M-KV-M25(14-21)	1646007	43
HC-M-KV-M25(1ASI)	1584020	43
HC-M-KV-M25(1X10/1X11)	1580228	43
HC-M-KV-M32(14-21)	1690587	43
HC-M-KV-M32(19-27)	1646010	43
HC-M4-KOAX-EWZ	1676747	217
HC-MOT-AFL-SET	1409053	53
HC-MOT-SD-FLT-KU-IP54	1409134	53
HC-MOT-SD-L-KU	1409147	53
HC-MOT-ST/DR-BR	1409150	53
HC-MOT-TML-SET	1409066	53
HC-WRV-M25	1644902	51
HC-WRV-M32	1644915	51
HC-WRV-M40	1644850	51
HC-WRV-PG16	1666812	51
HC-WRV-PG21	1666825	51
HC-WRV-PG29	1666838	51

I

Type	Order No.	Page
IPCC 16- 4-MT	1733385	29
IPCC 16- 4-MT BAND	1761467	29
IPCC 16-10-MT	1733372	29
IPCC 16-10-MT BAND	1761470	29
IPCC 16-16-MT	1733367	29

K

Type	Order No.	Page
K-12 - OE/010-E00/M23 F8	1619274	395
K-12 - OE/010-E00/M23 F8-N2	1619249	394
K-12 - OE/010-E00/M23 FK	1619284	395
K-12 - OE/010-E00/M23 FK-N2	1619282	394
K-12 - OE/2,0-E00/M23 F8	1619250	395
K-12 - OE/2,0-E00/M23 F8-N2	1619247	394
K-12 - OE/2,0-E00/M23 FK	1619285	395
K-12 - OE/2,0-E00/M23 FK-N2	1619280	394
K-12 - OE/5,0-E00/M23 F8	1619273	395
K-12 - OE/5,0-E00/M23 F8-N2	1619248	394
K-12 - OE/5,0-E00/M23 FK	1619283	395
K-12 - OE/5,0-E00/M23 FK-N2	1619281	394
K-12-M23 M9/010-E00/M23 F8	1619294	395
K-12-M23 M9/010-E00/M23 F8-N2	1619291	394
K-12-M23 M9/2,0-E00/M23 F8	1619292	395
K-12-M23 M9/2,0-E00/M23 F8-N2	1619289	394
K-12-M23 M9/5,0-E00/M23 F8	1619293	395
K-12-M23 M9/5,0-E00/M23 F8-N2	1619290	394
K-17 - OE/010-E01/M17 F8	1624782	394
K-17 - OE/010-E01/M23 F8	1619279	395
K-17 - OE/010-E01/M23 FK	1619288	395
K-17 - OE/2,0-E01/M17 F8	1624780	394
K-17 - OE/2,0-E01/M23 F8	1619277	395
K-17 - OE/2,0-E01/M23 FK	1619286	395
K-17 - OE/5,0-E01/M17 F8	1624781	394
K-17 - OE/5,0-E01/M23 F8	1619278	395
K-17 - OE/5,0-E01/M23 FK	1619287	395
K-17-M17 M9/010-E01/M17 F8	1624784	394
K-17-M17 M9/2,0-E01/M17 F8	1624778	394
K-17-M17 M9/5,0-E01/M17 F8	1624783	394
K-17-M23 M9/010-E01/M23 F8	1619297	395
K-17-M23 M9/2,0-E01/M23 F8	1619295	395
K-17-M23 M9/5,0-E01/M23 F8	1619296	395
K-3E - OE/010-B00/M17 F8	1619300	396
K-3E - OE/010-B01/M17 F8	1619303	396
K-3E - OE/2,0-B00/M17 F8	1619298	396
K-3E - OE/2,0-B01/M17 F8	1619301	396
K-3E - OE/5,0-B00/M17 F8	1619299	396
K-3E - OE/5,0-B01/M17 F8	1619302	396
K-3E-M17 M9/010-B00/M17 F8	1619306	396
K-3E-M17 M9/010-B01/M17 F8	1619328	396
K-3E-M17 M9/2,0-B00/M17 F8	1619304	396
K-3E-M17 M9/2,0-B01/M17 F8	1619326	396
K-3E-M17 M9/5,0-B00/M17 F8	1619305	396
K-3E-M17 M9/5,0-B01/M17 F8	1619327	396
K-4E - OE/010-A01/M23 F8	1625775	398
K-4E - OE/5,0-A01/M23 F8	1625777	398
K-4E-M23 M9/010-A01/M23 F8	1625780	398
K-4E-M23 M9/2,0-A01/M23 F8	1625779	398
K-4E-M23 M9/5,0-A01/M23 F8	1625781	398
K-5E - OE/010-C00/M17 F8	1619309	396
K-5E - OE/010-C01/M17 F8	1619312	397
K-5E - OE/010-C02/M23 F8	1618959	398
K-5E - OE/010-C02/M23 FK	1620417	399
K-5E - OE/010-C03/M23 F8	1620398	399
K-5E - OE/010-C03/M23 FK	1620420	399
K-5E - OE/010-C03/M40 F8	1620310	402
K-5E - OE/010-C04/M40 F8	1620314	402
K-5E - OE/010-C05/M40 F8	1620318	402
K-5E - OE/010-C06/M40 F8	1620321	403
K-5E - OE/2,0-C00/M17 F8	1619307	396
K-5E - OE/2,0-C01/M17 F8	1619310	397
K-5E - OE/2,0-C02/M23 F8	1618957	398
K-5E - OE/2,0-C02/M23 FK	1620415	399
K-5E - OE/2,0-C03/M23 F8	1620396	399
K-5E - OE/2,0-C03/M23 FK	1620418	399
K-5E - OE/2,0-C03/M40 F8	1619329	402
K-5E - OE/2,0-C04/M40 F8	1620311	402
K-5E - OE/2,0-C05/M40 F8	1620316	402
K-5E - OE/2,0-C06/M40 F8	1620319	403
K-5E - OE/5,0-C00/M17 F8	1619308	396
K-5E - OE/5,0-C01/M17 F8	1619311	397
K-5E - OE/5,0-C02/M23 F8	1618958	398
K-5E - OE/5,0-C02/M23 FK	1620416	399
K-5E - OE/5,0-C03/M23 F8	1620397	399
K-5E - OE/5,0-C03/M23 FK	1620419	399
K-5E - OE/5,0-C03/M40 F8	1620309	402
K-5E - OE/5,0-C04/M40 F8	1620313	402
K-5E - OE/5,0-C05/M40 F8	1620317	402
K-5E - OE/5,0-C06/M40 F8	1620320	403
K-5E-M17 M9/010-C00/M17 F8	1619318	396
K-5E-M17 M9/010-C01/M17 F8	1619322	397
K-5E-M17 M9/2,0-C00/M17 F8	1619316	396
K-5E-M17 M9/2,0-C01/M17 F8	1619319	397
K-5E-M17 M9/5,0-C00/M17 F8	1619317	396
K-5E-M17 M9/5,0-C01/M17 F8	1619321	397
K-5E-M23 M9/010-C02 M23 F8	1618966	398
K-5E-M23 M9/010-C03/M23 F8	1620408	399

Type	Order No.	Page
K-5E-M23 M9/2,0-C02/M23 F8	1618964	398
K-5E-M23 M9/2,0-C03/M23 F8	1620406	399
K-5E-M23 M9/5,0-C02/M23 F8	1618965	398
K-5E-M23 M9/5,0-C03/M23 F8	1620407	399
K-5E-M40 M9/010-C03/M40 F8	1620347	402
K-5E-M40 M9/010-C04/M40 F8	1620375	402
K-5E-M40 M9/010-C05/M40 F8	1620378	402
K-5E-M40 M9/010-C06/M40 F	1620381	403
K-5E-M40 M9/2,0-C03/M40 F8	1620345	402
K-5E-M40 M9/2,0-C04/M40 F8	1620348	402
K-5E-M40 M9/2,0-C05/M40 F8	1620376	402
K-5E-M40 M9/2,0-C06/M40 F8	1620379	403
K-5E-M40 M9/5,0-C03/M40 F8	1620346	402
K-5E-M40 M9/5,0-C04/M40 F8	1620349	402
K-5E-M40 M9/5,0-C05/M40 F8	1620377	402
K-5E-M40 M9/5,0-C06/M40 F8	1620380	403
K-7E - OE/010-D01/M17 F8	1619315	397
K-7E - OE/010-D02/M23 F8	1620401	400
K-7E - OE/010-D02/M23 FK	1620423	400
K-7E - OE/010-D03/M23 F8	1620405	400
K-7E - OE/010-D03/M23 FK	1620426	401
K-7E - OE/010-D03/M40 F8	1620324	403
K-7E - OE/010-D04/M40 F8	1620338	403
K-7E - OE/010-D05/M40 F8	1620341	403
K-7E - OE/010-D06/M40 F8	1620344	403
K-7E - OE/2,0-D01/M17 F8	1619313	397
K-7E - OE/2,0-D02/M23 F8	1620399	400
K-7E - OE/2,0-D02/M23 FK	1620421	400
K-7E - OE/2,0-D03/M23 F8	1620402	400
K-7E - OE/2,0-D03/M23 FK	1620424	401
K-7E - OE/2,0-D03/M40 F8	1620322	403
K-7E - OE/2,0-D04/M40 F8	1620325	403
K-7E - OE/2,0-D05/M40 F8	1620339	403
K-7E - OE/2,0-D06/M40 F8	1620342	403
K-7E - OE/5,0-D01/M17 F8	1619314	397
K-7E - OE/5,0-D02/M23 F8	1620400	400
K-7E - OE/5,0-D02/M23 FK	1620422	400
K-7E - OE/5,0-D03/M23 F8	1620404	400
K-7E - OE/5,0-D03/M23 FK	1620425	401
K-7E - OE/5,0-D03/M40 F8	1620323	403
K-7E - OE/5,0-D04/M40 F8	1620337	403
K-7E - OE/5,0-D05/M40 F8	1620340	403
K-7E - OE/5,0-D06/M40 F8	1620343	403
K-7E-M17 M9/010-D01/M17 F8	1619325	397
K-7E-M17 M9/2,0-D01/M17 F8	1619323	397
K-7E-M17 M9/5,0-D01/M17 F8	1619324	397
K-7E-M23 M9/010-D02/M23 F8	1620411	400
K-7E-M23 M9/010-D03/M23 F8	1620414	400
K-7E-M23 M9/2,0-D02/M23 F8	1620409	400
K-7E-M23 M9/2,0-D03/M23 F8	1620412	400
K-7E-M23 M9/5,0-D02/M23 F8	1620410	400
K-7E-M23 M9/5,0-D03/M23 F8	1620413	400
K-7E-M40 M9/010-D03/M40 F8	1620384	403
K-7E-M40 M9/010-D04/M40 F8	1620387	403
K-7E-M40 M9/010-D05/M40 F8	1620392	403
K-7E-M40 M9/010-D06/M40 F8	1620395	403
K-7E-M40 M9/2,0-D03/M40 F8	1620382	403
K-7E-M40 M9/2,0-D04/M40 F8	1620385	403
K-7E-M40 M9/2,0-D05/M40 F8	1620390	403
K-7E-M40 M9/2,0-D06/M40 F8	1620393	403
K-7E-M40 M9/5,0-D03/M40 F8	1620383	403
K-7E-M40 M9/5,0-D04/M40 F8	1620386	403
K-7E-M40 M9/5,0-D05/M40 F8	1620391	403
K-7E-M40 M9/5,0-D06/M40 F8	1620394	403
KSF3ESE8E07A010	1624772	398
KSF3ESE8E07A2,0	1624771	398
KSF3ESE8E07A5,0	1619622	398
KSF3ESP8905A010	1624774	398
KSF3ESP8905A2,0	1624773	398
KSF3ESP8905A5,0	1619606	398
KSF4ESE8E08A2,0	1625776	398
KST7ESE8E02A010	1624792	397
KST7ESE8E02A2,0	1624785	397
KST7ESE8E02A5,0	1624786	397
KST7ESP8905A010	1624789	397
KST7ESP8905A2,0	1624787	397
KST7ESP8905A5,0	1624788	397

M

Type	Order No.	Page
MICROFOX-SB	1212489	50
MICROFOX-SP-1	1212487	81

N

Type	Order No.	Page
NBC- 1,0-93B/FSD SCO	1407528	107
NBC- 1,0-93E/FSD SCO	1407380	99
NBC- 1,0-94B/FS SCO	1407439	101
NBC- 2,0-93B/FSD SCO	1407529	107
NBC- 2,0-93E/FSD SCO	1407381	99
NBC- 2,0-94B/FS SCO	1407440	101
NBC- 5,0-93B/FSD SCO	1407530	107
NBC- 5,0-93E/FSD SCO	1407382	99
NBC- 5,0-94B/FS SCO	1407441	101
NBC-10,0-93B/FSD SCO	1407531	107
NBC-10,0-93E/FSD SCO	1407383	99
NBC-10,0-94B/FS SCO	1407442	101
NBC-FR SCO-IE/.../...	1408657	101
NBC-FR-R4AC SCO-IE/.../...	1408655	101
NBC-FR-R4MC SCO-IE/.../...	1408653	101
NBC-FR-R4QC SCO-IE/.../...	1408651	101
NBC-FR-R4RC SCO-IE/.../...	1408652	101
NBC-FRD SCO-EC/.../...	1408584	109
NBC-FRD SCO-PN/.../...	1408615	107
NBC-FRD SCO/.../...	1408690	99
NBC-FRD-R4AC SCO-EC/.../...	1408583	109
NBC-FRD-R4AC SCO-PN/.../...	1408613	107
NBC-FRD-R4AC SCO/.../...	1408689	99
NBC-FRD-R4ACR SCO-EC/.../...	1408582	109
NBC-FRD-R4ACR SCO-PN/.../...	1408612	107
NBC-FRD-R4MC SCO/.../...	1408688	99
NBC-FRD-R4QC SCO-PN/.../...	1408609	107
NBC-FRD-R4QC SCO/.../...	1408686	99
NBC-FRD-R4RC SCO-PN/.../...	1408610	107
NBC-FRD-R4RC SCO/.../...	1408687	99
NBC-FS SCO-IE/.../...	1408665	101
NBC-FS-R4AC SCO-IE/.../...	1408664	101
NBC-FS-R4MC SCO-IE/.../...	1408662	101
NBC-FS-R4QC SCO-IE/.../...	1408660	101
NBC-FS-R4RC SCO-IE/.../...	1408661	101
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NBC-FS/ 1,0-94B/R4RC SCO	1407455	101
NBC-FS/ 2,0-94B/R4AC SCO	1407444	101
NBC-FS/ 2,0-94B/R4MC SCO	1407452	101
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NBC-FS/ 5,0-94B/R4QC SCO	1407461	101
NBC-FS/ 5,0-94B/R4RC SCO	1407457	101
NBC-FS/10,0-94B/R4AC SCO	1407446	101
NBC-FS/10,0-94B/R4MC SCO	1407454	101
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NBC-FSD SCO-PN/.../...	1408623	107
NBC-FSD SCO/.../...	1408697	99
NBC-FSD-R4AC SCO-EC/.../...	1408589	109
NBC-FSD-R4AC SCO-PN/.../...	1408622	107
NBC-FSD-R4AC SCO/.../...	1408696	99
NBC-FSD-R4ACR SCO-EC/.../...	1408587	109
NBC-FSD-R4ACR SCO-PN/.../...	1408621	107
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NBC-M 8FS/.../...	1408716	97
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NBC-M 8MS-R4AC/.../...	1408717	97
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NBC-M 8MS/ 2,0-93B/M 8MS	1407349	97
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NBC-M 8MS/ 5,0-93B/M 8MS	1407350	97
NBC-M 8MS/ 5,0-93B/R4AC	1407354	97
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NBC-MR-FR SCO-IE/.../...	1408649	101
NBC-MR-FS SCO-IE/.../...	1408658	101
NBC-MR-MR SCO-IE/.../...	1408666	101
NBC-MR-R4AC SCO-IE/.../...	1408674	101
NBC-MR-R4MC SCO-IE/.../...	1408671	101
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NBC-MRD SCO-PN/.../...	1408633	107
NBC-MRD SCO/.../...	1408705	99
NBC-MRD-FRD SCO-EC/.../...	1408580	109
NBC-MRD-FRD SCO-PN/.../...	1408607	107
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NBC-MRD-FSD SCO/.../...	1408691	99
NBC-MRD-MRD SCO-EC/.../...	1408592	109
NBC-MRD-MRD SCO-PN/.../...	1408624	107
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NBC-MRD-R4RC SCO-PN/.../...	1408628	107
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NBC-MS-FR SCO-IE/.../...	1408650	101
NBC-MS-FS SCO-IE/.../...	1408659	101
NBC-MS-MR SCO-IE/.../...	1408667	101
NBC-MS-MS SCO-IE/.../...	1408676	101
NBC-MS-R4AC SCO-IE/.../...	1408681	101
NBC-MS-R4MC SCO-IE/.../...	1408679	101
NBC-MS-R4QC SCO-IE/.../...	1408677	101
NBC-MS-R4RC SCO-IE/.../...	1408678	101
NBC-MS/ 1,0-94B SCO	1407404	101
NBC-MS/ 1,0-94B/FS SCO	1407463	101
NBC-MS/ 1,0-94B/MS SCO	1407434	101
NBC-MS/ 1,0-94B/R4AC SCO	1407414	101
NBC-MS/ 1,0-94B/R4MC SCO	1407422	101
NBC-MS/ 1,0-94B/R4QC SCO	1407430	101
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NBC-MS/ 2,0-94B/R4QC SCO	1407431	101
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NBC-MS/ 5,0-94B SCO	1407406	101
NBC-MS/ 5,0-94B/FS SCO	1407465	101
NBC-MS/ 5,0-94B/MS SCO	1407436	101
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NBC-MS/10,0-94B SCO	1407407	101
NBC-MS/10,0-94B/FS SCO	1407466	101
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NBC-MS/10,0-94B/R4RC SCO	1407429	101
NBC-MSD SCO-EC/.../...	1408600	108
NBC-MSD SCO-PN/.../...	1408640	107
NBC-MSD SCO/.../...	1408713	99
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NBC-MSD-FRD SCO/.../...	1408684	99
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NBC-MSD-MRD SCO-EC/.../...	1408593	109
NBC-MSD-MRD SCO-PN/.../...	1408625	107
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NBC-MSD-R4ACR SCO-EC/.../...	1408598	108
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NBC-MSD-R4MC SCO/.../...	1408710	99
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NBC-MSD-R4RC SCO-PN/.../...	1408636	107
NBC-MSD-R4RC SCO/.../...	1408709	99
NBC-MSD/ 1,0-93B SCO	1407495	107
NBC-MSD/ 1,0-93B/FSD SCO	1407553	107
NBC-MSD/ 1,0-93B/MSD SCO	1407524	107
NBC-MSD/ 1,0-93B/R4AC SCO	1407499	107
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NBC-MSD/ 1,0-93B/R4QC SCO	1407520	107
NBC-MSD/ 1,0-93B/R4RC SCO	1407516	107
NBC-MSD/ 1,0-93E SCO	1407356	99
NBC-MSD/ 1,0-93E/FSD SCO	1407400	99
NBC-MSD/ 1,0-93E/MSD SCO	1407376	99
NBC-MSD/ 1,0-93E/R4AC SCO	1407360	99
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NBC-MSD/ 1,0-93E/R4QC SCO	1407372	99
NBC-MSD/ 1,0-93E/R4RC SCO	1407368	99
NBC-MSD/ 1,0-93G SCO	1407557	108
NBC-MSD/ 1,0-93G/MSD SCO	1407569	108
NBC-MSD/ 1,0-93G/R4AC SCO	1407561	108
NBC-MSD/ 1,0-93G/R4ACR SCO	1407565	108
NBC-MSD/ 2,0-93B SCO	1407496	107
NBC-MSD/ 2,0-93B/FSD SCO	1407554	107
NBC-MSD/ 2,0-93B/MSD SCO	1407525	107
NBC-MSD/ 2,0-93B/R4AC SCO	1407500	107

Type	Order No.	Page
NBC-MSD/ 2,0-93B/R4ACR SCO	1407509	107
NBC-MSD/ 2,0-93B/R4QC SCO	1407521	107
NBC-MSD/ 2,0-93B/R4RC SCO	1407517	107
NBC-MSD/ 2,0-93E SCO	1407357	99
NBC-MSD/ 2,0-93E/FSD SCO	1407401	99
NBC-MSD/ 2,0-93E/MSD SCO	1407377	99
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NBC-MSD/ 2,0-93G/R4ACR SCO	1407566	108
NBC-MSD/ 5,0-93B SCO	1407497	107
NBC-MSD/ 5,0-93B/FSD SCO	1407555	107
NBC-MSD/ 5,0-93B/MSD SCO	1407526	107
NBC-MSD/ 5,0-93B/R4AC SCO	1407501	107
NBC-MSD/ 5,0-93B/R4ACR SCO	1407510	107
NBC-MSD/ 5,0-93B/R4QC SCO	1407522	107
NBC-MSD/ 5,0-93B/R4RC SCO	1407518	107
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NBC-MSD/ 5,0-93G/MSD SCO	1407571	108
NBC-MSD/ 5,0-93G/R4AC SCO	1407563	108
NBC-MSD/ 5,0-93G/R4ACR SCO	1407567	108
NBC-MSD/10,0-93B SCO	1407498	107
NBC-MSD/10,0-93B/FSD SCO	1407556	107
NBC-MSD/10,0-93B/MSD SCO	1407527	107
NBC-MSD/10,0-93B/R4AC SCO	1407502	107
NBC-MSD/10,0-93B/R4ACR SCO	1407511	107
NBC-MSD/10,0-93B/R4QC SCO	1407523	107
NBC-MSD/10,0-93B/R4RC SCO	1407519	107
NBC-MSD/10,0-93E SCO	1407359	99
NBC-MSD/10,0-93E/FSD SCO	1407403	99
NBC-MSD/10,0-93E/MSD SCO	1407379	99
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NBC-MSD/10,0-93E/R4MC SCO	1407367	99
NBC-MSD/10,0-93E/R4QC SCO	1407375	99
NBC-MSD/10,0-93E/R4RC SCO	1407371	99
NBC-MSD/10,0-93G SCO	1407560	108
NBC-MSD/10,0-93G/MSD SCO	1407572	108
NBC-MSD/10,0-93G/R4AC SCO	1407564	108
NBC-MSD/10,0-93G/R4ACR SCO	1407568	108
NBC-MSX SCO-10G/.../...	1408648	102
NBC-MSX-MSX SCO-10G/.../...	1408644	102
NBC-MSX-R4AC SCO-10G/.../...	1408647	102
NBC-MSX-R4QC SCO-10G/.../...	1408645	102
NBC-MSX-R4RC SCO-10G/.../...	1408646	102
NBC-MSX/ 1,0-94F SCO	1407467	102
NBC-MSX/ 1,0-94F/MSX SCO	1407483	102
NBC-MSX/ 1,0-94F/R4AC SCO	1407471	102
NBC-MSX/ 1,0-94F/R4QC SCO	1407479	102
NBC-MSX/ 1,0-94F/R4RC SCO	1407475	102
NBC-MSX/ 2,0-94F SCO	1407468	102
NBC-MSX/ 2,0-94F/MSX SCO	1407484	102
NBC-MSX/ 2,0-94F/R4AC SCO	1407472	102
NBC-MSX/ 2,0-94F/R4QC SCO	1407480	102
NBC-MSX/ 2,0-94F/R4RC SCO	1407476	102
NBC-MSX/ 5,0-94F SCO	1407469	102
NBC-MSX/ 5,0-94F/MSX SCO	1407485	102
NBC-MSX/ 5,0-94F/R4AC SCO	1407473	102
NBC-MSX/ 5,0-94F/R4QC SCO	1407481	102
NBC-MSX/ 5,0-94F/R4RC SCO	1407477	102
NBC-MSX/10,0-94F SCO	1407470	102
NBC-MSX/10,0-94F/MSX SCO	1407486	102
NBC-MSX/10,0-94F/R4AC SCO	1407474	102
NBC-MSX/10,0-94F/R4QC SCO	1407482	102
NBC-MSX/10,0-94F/R4RC SCO	1407478	102
NBC-MSY SCO-EH/.../...	1408642	104
NBC-MSY-MSY SCO-EH/.../...	1408641	104
NBC-MSY/ 1,0-94H SCO	1407487	104
NBC-MSY/ 1,0-94H/MSY SCO	1407491	104
NBC-MSY/ 2,0-94H SCO	1407488	104
NBC-MSY/ 2,0-94H/MSY SCO	1407492	104
NBC-MSY/ 5,0-94H SCO	1407489	104
NBC-MSY/ 5,0-94H/MSY SCO	1407493	104
NBC-MSY/10,0-94H SCO	1407490	104
NBC-MSY/10,0-94H/MSY SCO	1407494	104
NBC-R4AC/1,0-93B/R4AC	1408968	106
NBC-R4AC/1,0-93E/R4AC	1408933	98
NBC-R4AC/1,0-93G/R4AC	1408981	108
NBC-R4AC/1,0-94B/R4AC	1408950	100
NBC-R4AC/10,0-93B/R4AC	1408971	106
NBC-R4AC/10,0-93E/R4AC	1408936	98
NBC-R4AC/10,0-93G/R4AC	1408984	108
NBC-R4AC/10,0-94B/R4AC	1408953	100
NBC-R4AC/10G-R4AC/10G-94F/10,0	1408367	102
NBC-R4AC/10G-R4AC/10G-94F/2,0	1408360	102
NBC-R4AC/2,0-93B/R4AC	1408969	106
NBC-R4AC/2,0-93E/R4AC	1408934	98
NBC-R4AC/2,0-93G/R4AC	1408982	108
NBC-R4AC/2,0-94B/R4AC	1408951	100
NBC-R4AC/5,0-93B/R4AC	1408970	106
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NBC-R4AC/5,0-94B/R4AC	1408952	100
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NBC-R4ACR/10,0-93G/R4ACR	1409015	108
NBC-R4ACR/2,0-93B/R4ACR	1409003	106
NBC-R4ACR/2,0-93G/R4ACR	1409007	108
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NBC-R4MC/1,0-93E/R4MC	1408937	98
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NBC-R4MC/2,0-93E/R4MC	1408938	98
NBC-R4MC/2,0-94B/R4MC	1408956	100
NBC-R4MC/5,0-93E/R4MC	1408939	98
NBC-R4MC/5,0-94B/R4MC	1408954	100
NBC-R4QC/1,0-93B/R4QC	1408978	107
NBC-R4QC/1,0-93E/R4QC	1408947	99
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NBC-R4QC/2,0-94B/R4QC	1408966	101
NBC-R4QC/5,0-93B/R4QC	1408977	107
NBC-R4QC/5,0-93E/R4QC	1408946	99
NBC-R4QC/5,0-94B/R4QC	1408964	101
NBC-R4RC/1,0-93B/R4RC	1408974	106
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NBC-R4RC/5,0-93B/R4RC	1408972	106
NBC-R4RC/5,0-93E/R4RC	1408943	98
NBC-R4RC/5,0-94B/R4RC	1408959	100

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Type	Order No.	Page
PROT-M 8 FS-PA-CHAIN	1430857	295
PROT-M 8 FS-PA-CHAIN-EYE	1441082	295
PROT-M 8 MS-PA-CHAIN	1430860	295
PROT-M 8 MS-PA-CHAIN-EYE	1441095	295
PROT-M 8 MS-PA-CHAIN-EYE-DM3	1441105	295
PROT-M12	1680539	294
PROT-M12 FB	1555538	294
PROT-M12 FS	1560251	294
PROT-M12 FS-M	1430488	294
PROT-M12 FS-M-CHAIN	1430491	295
PROT-M12 FS-PA-CHAIN	1430873	295
PROT-M12 FS-PA-CHAIN-EYE-DM12	1456187	295
PROT-M12 FS-PA-CHAIN-EYE-DM14	1456190	295
PROT-M12 MS-PA-CHAIN	1430899	295
PROT-M12 MS-PA-CHAIN-EYE-DM14	1456200	295
PROT-M12 SH	1503302	294
PROT-M5	1533288	294
PROT-M8	1682540	294
PROT-MINFS-PA-CHAIN	1430912	295
PROT-MINMS-PA-CHAIN	1430925	295
PROT-MS SCO	1553129	294
PSC 1,5/ 3-F	1841909	215
PSC 1,5/ 5-F	1841912	215
PSM-FO-STRIP	2744199	50
PSM-HCS-KONFTOOL	2799526	171
PSM-HCS-KONFTOOL/B-FOC	2708465	171
PSM-HCS-KONFTOOL/SC-RJ	2708876	171
PSM-LWL-GDM-RUGGED- 50/125	2799322	156
PSM-LWL-GDO- 50/125	2799432	158
PSM-LWL-HCS-RUGGED-200/230	2799885	152
PSM-LWL-HCSO-200/230	2799445	154
PSM-LWL-KDHEAVY-980/1000	2744319	138
PSM-LWL-RUGGED-980/1000	2744322	140
PSM-LWL-RUGGED-FLEX-980/1000	2744335	142
PSM-SET-B-FOC/4-HCS	2708481	130
PSM-SET-B-FOC/4-HCS/PN	2313782	131
PSM-SET-BFOC-LINK/2	2799429	136
PSM-SET-FSMA-LINK/2	2799416	136
PSM-SET-FSMA-POLISH	2799348	50
PSM-SET-FSMA/4-HCS	2799487	130
PSM-SET-FSMA/4-KT	2799720	127
PSM-SET-SC-DUPLEX/2-HCS/PN	2313779	131
PSM-SET-SCRJ-DUP/2-HCS	2313070	130
PSM-SET-SCRJ-DUP/2-HCS/PN	2313546	131
PSM-SET-SCRJ-DUP/2-POF	2708656	127
PTSPL-6/1-2X2 2,1 R32	1704836	428
PTSPL-6/1-2X2 2,9 R32	1704837	428
PTSPLO-6/1-2X2 2,1 R32	1705081	428
PTSPLO-6/1-2X2 2,9 R32	1705085	428
PV-1P-100,0/S01-2,5	1459509	425
PV-1P-100,0/S02-4,0	1459511	425
PV-1P-100,0/S03-6,0	1459524	425
PV-1P-100,0/S04-10,0	1459537	425
PV-1P-1000,0/S01-2,5	1459566	425
PV-1P-1000,0/S02-4,0	1459579	425
PV-1P-1000,0/S03-6,0	1459582	425
PV-1P-1000,0/S04-10,0	1459595	425
PV-1P-500,0/S01-2,5	1459540	425
PV-1P-500,0/S02-4,0	1787700	425
PV-1P-500,0/S03-6,0	1787713	425
PV-1P-500,0/S04-10,0	1459553	425
PV-C PLUG	1775631	422
PV-C PROTECTION CAP	1785430	420
PV-C1F-S 2,5-6 (+)	1789821	422
PV-C1M-S 2,5-6 (-)	1789834	422
PV-CF-P 2,5(+)	1795323	426
PV-CF-S 2,5-6 (+)	1774674	422
PV-CF-S 6-16 (+)	1790784	423
PV-CM-P 2,5(-)	1795336	426
PV-CM-S 2,5-6 (-)	1774687	422
PV-CM-S 6-16 (-)	1790797	423
PV-DB S20-2,5/0,8-2D	1811239	427
PV-DB S20-2,5/0,8-CA	1463065	427
PV-FT-C NUT BK	1775880	420
PV-FT-C2F-HSG	1704926	421
PV-FT-C2M-HSG	1704925	421
PV-FT-CCF-2,5-4-R1000	1704930	421
PV-FT-CCF-6-R1000	1704931	421
PV-FT-CCM-2,5-4-R1000	1704927	421
PV-FT-CCM-6-R1000	1704928	421
PV-FT-CF-C-2,5-130-BU	1805135	420
PV-FT-CF-C-4-130-BU	1805151	420
PV-FT-CF-C-6-130-BU	1805177	420
PV-FT-CM-C-2,5-130-RD	1805148	420
PV-FT-CM-C-4-130-RD	1805164	420
PV-FT-CM-C-6-130-RD	1805180	420
PV-FT-FLAT GASKET	1705561	420
PV-FT-TEST PIN	1705589	421
PV-JB 2,5/ 1-L 50 PXC	1705132	427
PV-JB 2,5/ 1-R 50 PXC	1705131	427
PV-PTSPL-W/1L	1705625	429
PV-PTSPL-W/1R	1705624	429
PV-TC (+) 10-1,5M	1780451	424
PV-TC (-) 10-1,5M	1780464	424
PV-YC 4/ 1-0,12-SO2 (+/--)	1795022	424
PV-YC 4/ 1-0,12-SO2 (-/++)	1795019	424
PV-YC 6/ 1-0,12-SO3 (+/--)	1787739	424
PV-YC 6/ 1-0,12-SO3 (-/++)	1787726	424

Q

Type	Order No.	Page
Q-PROT 9/11	1670235	294

R

Type	Order No.	Page
RC-12P2000	1597862	334
RC-12S2000	1599600	334
RC-13041	1600417	317
RC-22P2000	1603321	334
RC-22S2000	1603327	334
RC-5AP2000	1603505	334
RC-5AS2000	1603509	334
RC-5CP2000	1603513	334
RC-5CS2000	1603517	334
RC-Z2058	1604223	414
RC-Z2059	1604225	414
RC-Z2062	1604228	415
RC-Z2068	1604236	415
RC-Z2104	1604260	415
RC-Z2130	1604267	404
RC-Z2274	1604409	404
RC-Z2468	1611796	414
RC-Z2469	1611797	414
RC-Z2490	1611803	404
RC-Z2494	1614123	404
RC-Z2514	1614590	404
RF-12P1N8AAC00	1607802	345
RF-12P1N8AAD00	1607233	345
RF-12P1N8AWA00	1607236	344
RF-12P1N8AWB00	1607804	344
RF-12P2N8AAC00	1607814	345
RF-12P2N8AAD00	1607257	345
RF-12P2N8AWA00	1607260	344
RF-12P2N8AWB00	1607817	344
RF-12S1N8AAC00	1607827	345
RF-12S1N8AAD00	1607280	345
RF-12S1N8AWA00	1607283	344
RF-12S1N8AWB00	1607830	344
RF-12S2N8AAC00	1607842	345
RF-12S2N8AAD00	1607304	345
RF-12S2N8AWA00	1607307	344
RF-12S2N8AWB00	1607844	344
RF-17P1N8AAC00	1607852	345
RF-17P1N8AAD00	1607328	345
RF-17P1N8AWA00	1607860	344
RF-17P1N8AWB00	1607863	344
RF-17S1N8AAC00	1607887	345
RF-17S1N8AAD00	1607345	345
RF-17S1N8AWA00	1607892	344
RF-17S1N8AWB00	1607893	344
RF-Z0001	1607904	410
RF-Z0003	1607905	410
RF-Z0007	1614347	409
RF-Z0014	1620588	412
RF-Z0015	1620592	412
RF-Z0016	1620593	412
RF-Z0017	1620624	412
RF-Z0018	1620625	412
RF-Z0019	1620626	412

Type	Order No.	Page
S		
SAC BIT M12-W14	1212513	297
SAC BIT MIN-D25	1212512	297
SAC-4P- 1,0-PUR/FRS PE SCO	1408848	290
SAC-4P- 1,0-PUR/FRT SCO	1408827	292
SAC-4P- 1,0-PUR/FSS PE SCO	1408843	290
SAC-4P- 1,0-PUR/FST SCO	1408823	292
SAC-4P- 2,0-PUR/FRS PE SCO	1408852	290
SAC-4P- 2,0-PUR/FRT SCO	1408828	292
SAC-4P- 2,0-PUR/FSS PE SCO	1408844	290
SAC-4P- 2,0-PUR/FST SCO	1408824	292
SAC-4P- 5,0-PUR/FRS PE SCO	1408853	290
SAC-4P- 5,0-PUR/FRT SCO	1408829	292
SAC-4P- 5,0-PUR/FSS PE SCO	1408845	290
SAC-4P- 5,0-PUR/FST SCO	1408825	292
SAC-4P-10,0-PUR/FRS PE SCO	1408854	290
SAC-4P-10,0-PUR/FRT SCO	1408830	292
SAC-4P-10,0-PUR/FSS PE SCO	1408846	290
SAC-4P-10,0-PUR/FST SCO	1408826	292
SAC-4P-FRS/ 1,5-PUR PE SH SCO	1424100	291
SAC-4P-FRS/ 3,0-PUR PE SH SCO	1424101	291
SAC-4P-FRS/ 5,0-PUR PE SH SCO	1424102	291
SAC-4P-FRS/10,0-PUR PE SH SCO	1424103	291
SAC-4P-FRT/ 1,5-PUR SH SCO	1424116	293
SAC-4P-FRT/ 3,0-PUR SH SCO	1424117	293
SAC-4P-FRT/ 5,0-PUR SH SCO	1424118	293
SAC-4P-FRT/10,0-PUR SH SCO	1424128	293
SAC-4P-FSS/ 1,5-PUR PE SH SCO	1424096	291
SAC-4P-FSS/ 3,0-PUR PE SH SCO	1424097	291
SAC-4P-FSS/ 5,0-PUR PE SH SCO	1424098	291
SAC-4P-FSS/10,0-PUR PE SH SCO	1424099	291
SAC-4P-FST/ 1,5-PUR SH SCO	1424112	293
SAC-4P-FST/ 3,0-PUR SH SCO	1424113	293
SAC-4P-FST/ 5,0-PUR SH SCO	1424114	293
SAC-4P-FST/10,0-PUR SH SCO	1424115	293
SAC-4P-MRS/ 1,0-PUR PE SCO	1408839	290
SAC-4P-MRS/ 1,5-PUR PE SH SCO	1424108	291
SAC-4P-MRS/ 2,0-PUR PE SCO	1408840	290
SAC-4P-MRS/ 3,0-PUR PE SH SCO	1424109	291
SAC-4P-MRS/ 5,0-PUR PE SCO	1408841	290
SAC-4P-MRS/ 5,0-PUR PE SH SCO	1424110	291
SAC-4P-MRS/10,0-PUR PE SCO	1408842	290
SAC-4P-MRS/10,0-PUR PE SH SCO	1424111	291
SAC-4P-MRT/ 1,0-PUR SCO	1408816	292
SAC-4P-MRT/ 1,5-PUR SH SCO	1424124	293
SAC-4P-MRT/ 2,0-PUR SCO	1408819	292
SAC-4P-MRT/ 3,0-PUR SH SCO	1424125	293
SAC-4P-MRT/ 5,0-PUR SCO	1408820	292
SAC-4P-MRT/ 5,0-PUR SH SCO	1424126	293
SAC-4P-MRT/10,0-PUR SCO	1408822	292
SAC-4P-MRT/10,0-PUR SH SCO	1424127	293
SAC-4P-MSS/ 1,0-PUR PE SCO	1408835	290
SAC-4P-MSS/ 1,5-PUR PE SH SCO	1424104	291
SAC-4P-MSS/ 2,0-PUR PE SCO	1408836	290
SAC-4P-MSS/ 3,0-PUR PE SH SCO	1424105	291
SAC-4P-MSS/ 5,0-PUR PE SCO	1408837	290
SAC-4P-MSS/ 5,0-PUR PE SH SCO	1424245	291
SAC-4P-MSS/10,0-PUR PE SCO	1408838	290
SAC-4P-MSS/10,0-PUR PE SH SCO	1424107	291
SAC-4P-MST/ 1,0-PUR SCO	1408812	292
SAC-4P-MST/ 1,0-PUR/FST SCO	1408808	292
SAC-4P-MST/ 1,5-PUR SH SCO	1424120	293
SAC-4P-MST/ 2,0-PUR SCO	1408813	292
SAC-4P-MST/ 2,0-PUR/FST SCO	1408809	292
SAC-4P-MST/ 3,0-PUR SH SCO	1424121	293
SAC-4P-MST/ 5,0-PUR SCO	1408814	292
SAC-4P-MST/ 5,0-PUR SH SCO	1424122	293
SAC-4P-MST/ 5,0-PUR/FST SCO	1408810	292
SAC-4P-MST/10,0-PUR SCO	1408815	292
SAC-4P-MST/10,0-PUR SH SCO	1424123	293
SAC-4P-MST/10,0-PUR/FST SCO	1408811	292
SACC-4P-DSI-M12FSD/FSD-M16	1424326	264
SACC-5P-DSI-M12MS/FS-M16	1551671	264
SACC-5P-DSI-M12MSB/FSB-M16	1551684	264
SACC-8P-DSI-M12MS/FS-M16	1551697	264
SACC-CI-FS-5CON-L 90 SH SCO	1432431	252
SACC-CI-M12FS-12CON-L180 THR	1441970	256
SACC-CI-M12FS-12CON-L180 THRSH	1442052	257
SACC-CI-M12FS-12CON-L90	1424195	253
SACC-CI-M12FS-12CON-L90 SH	1424199	253
SACC-CI-M12FS-12CON-SH TOR 32	1457704	257
SACC-CI-M12FS-12CON-TOR 32	1457694	256
SACC-CI-M12FS-17CON-L180 THR	1441998	256
SACC-CI-M12FS-17CON-L180 THRSH	1442078	257
SACC-CI-M12FS-17CON-L90	1424197	253
SACC-CI-M12FS-17CON-L90 SH	1424201	253
SACC-CI-M12FS-17CON-SH TOR 32	1457720	257
SACC-CI-M12FS-17CON-TOR 32	1457717	256
SACC-CI-M12FS-4CON-L 90 SH SCO	1432444	252
SACC-CI-M12FS-4CON-L180 SH THR	1439955	257
SACC-CI-M12FS-4CON-L180 THR	1439942	256
SACC-CI-M12FS-4CON-L90 SCO	1436628	252
SACC-CI-M12FS-4CON-SH TOR 32	1457623	257
SACC-CI-M12FS-4CON-TOR 32	1457610	256
SACC-CI-M12FS-5CON TOR 32	1457649	256
SACC-CI-M12FS-5CON-L180	1551464	254
SACC-CI-M12FS-5CON-L180-THR	1551448	256
SACC-CI-M12FS-5CON-L180-THR SH	1432363	257
SACC-CI-M12FS-5CON-L90 SCO	1436644	252
SACC-CI-M12FS-5CON-SH TOR 32	1457652	257
SACC-CI-M12FS-8CON- TOR 32	1457678	256
SACC-CI-M12FS-8CON-L180-10G	1402457	90
SACC-CI-M12FS-8CON-L180-THR	1557808	256
SACC-CI-M12FS-8CON-L180-THR SH	1551422	257
SACC-CI-M12FS-8CON-L90 SCO	1436990	252
SACC-CI-M12FS-8CON-L90 SH SCO	1437009	252
SACC-CI-M12FS-8CON-SH TOR 32	1457681	257
SACC-CI-M12FSB-5CON-L180	1551477	254
SACC-CI-M12FSB-5CON-L180-THR	1551435	257
SACC-CI-M12FSB-5CON-L90 SH SCO	1432512	252
SACC-CI-M12FSB-5CON-SH TOR 32	1457665	257
SACC-CI-M12FSD-4CON-L180	1551480	254
SACC-CI-M12FSD-4CON-L180-THR	1551451	257
SACC-CI-M12FSD-4CON-L90 SCO	1432457	252
SACC-CI-M12FSD-4CON-SH TOR 32	1457636	257
SACC-CI-M12FSS-4CON-L180 THR PE	1406409	288
SACC-CI-M12FST-4CON-L180 THR	1406411	288
SACC-CI-M12FST-4CON-L180 THR SH	1406412	288
SACC-CI-M12FSX-8CON-L90	1424180	91
SACC-CI-M12FSY-8CON-L90	1424193	91
SACC-CI-M12MS- 12CON-TOR 32	1457571	256
SACC-CI-M12MS- 4CON-SH TOR 32	1457500	257
SACC-CI-M12MS- 4CON-TOR 32	1457490	256
SACC-CI-M12MS- 5CON-SH TOR 32	1457539	257
SACC-CI-M12MS- 5CON-TOR 32	1457526	256
SACC-CI-M12MS- 8CON-SH TOR 32	1457568	257
SACC-CI-M12MS- 8CON-TOR 32	1457555	256
SACC-CI-M12MS-12CON-L180 THR	1441985	256
SACC-CI-M12MS-12CON-L180 THRSH	1442065	257
SACC-CI-M12MS-12CON-L90	1424194	253
SACC-CI-M12MS-12CON-L90 SH	1424198	253
SACC-CI-M12MS-12CON-SH TOR 32	1457584	257
SACC-CI-M12MS-17CON- TOR 32	1457597	256
SACC-CI-M12MS-17CON-L180 THR	1442007	256
SACC-CI-M12MS-17CON-L180 THRSH	1442081	257
SACC-CI-M12MS-17CON-L90	1424196	253
SACC-CI-M12MS-17CON-L90 SH	1424200	253
SACC-CI-M12MS-17CON-SH TOR 32	1457607	257
SACC-CI-M12MS-4CON-L180 THR	1437164	256
SACC-CI-M12MS-4CON-L180 THR SH	1439939	257
SACC-CI-M12MS-4CON-L90 SCO	1436660	252
SACC-CI-M12MS-4CON-L90 SH SCO	1439887	252
SACC-CI-M12MS-5CON-L180 THR	1552227	256
SACC-CI-M12MS-5CON-L180-THR SH	1432350	257
SACC-CI-M12MS-5CON-L90 SCO	1436686	252
SACC-CI-M12MS-5CON-L90 SH SCO	1439890	252
SACC-CI-M12MS-8CON-L180 THR	1552269	256
SACC-CI-M12MS-8CON-L180-THR SH	1557581	257
SACC-CI-M12MS-8CON-L90 SCO	1436987	252
SACC-CI-M12MS-8CON-L90 SH SCO	1437038	252
SACC-CI-M12MSB- 5CON-SH TOR 32	1457542	257
SACC-CI-M12MSB-5CON-L180 THR	1552230	257
SACC-CI-M12MSB-5CON-L90 SH SCO	1436699	252
SACC-CI-M12MSD- 4CON-SH TOR 32	1457513	257
SACC-CI-M12MSD-4CON-L180 THR	1552214	257
SACC-CI-M12MSD-4CON-L90 SH SCO	1436673	252
SACC-CI-M12MSS-4CON-L180 THR PE	1406410	288
SACC-CI-M12MST-4CON-L180 THR	1406396	288
SACC-CI-M12MST-4CON-L180 THR SH	1406397	288
SACC-DSI-FS-12CON-L180 SCO	1559929	246
SACC-DSI-FS-12CON-L180 SCO SH	1436770	247
SACC-DSI-FS-12CON-PG9/0,5 SCO	1430446	242
SACC-DSI-FS-17CON-L180 SCO	1559958	246
SACC-DSI-FS-17CON-L180 SCO SH	1436806	247
SACC-DSI-FS-17CON-PG9/0,5 SCO	1430462	242
SACC-DSI-FS-4CON-L180 SCO	1553462	246
SACC-DSI-FS-4CON-L180/12 SCOSH	1558522	247
SACC-DSI-FS-4CON-L180/SCO SH	1556841	247
SACC-DSI-FS-4CON-PG9/0,5 SCO	1556621	242
SACC-DSI-FS-5CON-L180 SCO	1542761	188
SACC-DSI-FS-5CON-L180/12 SCO	1552285	246
SACC-DSI-FS-5CON-L180/12 SCOSH	1558548	247
SACC-DSI-FS-5CON-L180/SCO SH	1553019	188
SACC-DSI-FS-5CON-PG 9/0,5 SCO	1542729	242
SACC-DSI-FS-8CON-L180 SCO	1542774	246
SACC-DSI-FS-8CON-L180/12 SCO	1408770	246
SACC-DSI-FS-8CON-L180/12 SCOSH	1408771	247
SACC-DSI-FS-8CON-L180/SCO SH	1553860	247
SACC-DSI-FS-8CON-L180/SH TQ	1456543	90
SACC-DSI-FS-8CON-PG 9/0,5 SCO	1542732	242
SACC-DSI-FSB-5CON-L180 SCO	1543650	246
SACC-DSI-FSB-5CON-L180/12 SCO	1552298	246
SACC-DSI-FSB-5CON-L180/12SCOSH	1558564	247
SACC-DSI-FSB-5CON-L180/SCO SH	1553022	188
SACC-DSI-FSB-5CON-PG9/ 0,5 SCO	1543676	242
SACC-DSI-FSD-4CON-L180 SCO	1551503	246
SACC-DSI-FSD-4CON-L180/12 SCO	1552272	246
SACC-DSI-FSD-4CON-L180/12SCOSH	1558506	247
SACC-DSI-FSD-4CON-L180/SCO SH	1553006	247
SACC-DSI-FSD-4CON-L180/SH GN	1456569	90
SACC-DSI-FSD-4CON-L180/SH TQ	1456527	90
SACC-DSI-FSD-4CON-PG9/0,5 SCO	1551529	92
SACC-DSI-FSX-8CON-M16-L180 SCO	1424177	91
SACC-DSI-FSX-8CON-PG9-L180 SCO	1404741	91
SACC-DSI-FSY-8CON-M16-L180 SCO	1407503	91
SACC-DSI-M 8FS-3CON-L180	1694363	226
SACC-DSI-M 8FS-3CON-M12/0,5	1453449	227
SACC-DSI-M 8FS-4CON-L180	1694376	226
SACC-DSI-M 8FS-4CON-M12/0,5	1453452	227
SACC-DSI-M 8FS-6CON-L180	1436534	226
SACC-DSI-M 8FS-6CON-M12/0,5	1453465	227
SACC-DSI-M 8MS-3CON-L180	1694334	226
SACC-DSI-M 8MS-3CON-L180 SH	1455997	229
SACC-DSI-M 8MS-3CON-L90 SH	1456035	228
SACC-DSI-M 8MS-3CON-M 8/0,5	1453478	227
SACC-DSI-M 8MS-4CON-L180	1694347	226
SACC-DSI-M 8MS-4CON-L180 SH	1456019	229
SACC-DSI-M 8MS-4CON-M 8/0,5	1453481	227
SACC-DSI-M 8MS-6CON-L180	1436521	226
SACC-DSI-M 8MS-6CON-L180 SH	1456022	229
SACC-DSI-M 8MS-6CON-M 8/0,5	1453494	227
SACC-DSI-M12FS-12CON-M16	1441833	250
SACC-DSI-M12FS-12CON-M16 SH	1441956	251
SACC-DSI-M12FS-12CON-M16/0,5	1419713	244
SACC-DSI-M12FS-17CON-M16	1441859	250
SACC-DSI-M12FS-17CON-M16 SH	1441972	251
SACC-DSI-M12FS-17CON-M16/0,5	1419739	244
SACC-DSI-M12FS-4CON-L180 VA	1404974	270
SACC-DSI-M12FS-4CON-M16	1419755	250
SACC-DSI-M12FS-4CON-M16 SH	1419771	251
SACC-DSI-M12FS-4CON-M16/0,5	1419632	244
SACC-DSI-M12FS-4CON-PG9/0,5 VA	1405240	270
SACC-DSI-M12FS-5CON-L180 VA	1554733	193
SACC-DSI-M12FS-5CON-L180P	1436330	263
SACC-DSI-M12FS-5CON-L180PSCUP	1436314	263
SACC-DSI-M12FS-5CON-M16	1441778	250
SACC-DSI-M12FS-5CON-M16 SH	1441891	251
SACC-DSI-M12FS-5CON-M16/0,5	1419658	244
SACC-DSI-M12FS-5CON-PG9/0,5 P	1436356	263
SACC-DSI-M12FS-5CON-PG9/0,5 VA	1554717	270
SACC-DSI-M12FS-8CON-L180 VA	1529797	270
SACC-DSI-M12FS-8CON-L180P	1436343	263
SACC-DSI-M12FS-8CON-L180PSCUP	1436327	263
SACC-DSI-M12FS-8CON-M16	1441817	250
SACC-DSI-M12FS-8CON-M16 SH	1441930	251
SACC-DSI-M12FS-8CON-M16/0,5	1419690	244
SACC-DSI-M12FS-8CON-PG9/0,5 P	1436369	263
SACC-DSI-M12FS-8CON-PG9/0,5 VA	1554720	270
SACC-DSI-M12FSB-5CON-M16	1441794	250
SACC-DSI-M12FSB-5CON-M16 SH	1441914	251
SACC-DSI-M12FSB-5CON-M16/0,5	1419674	244
SACC-DSI-M12FSD-4CON-M16	1441752	250
SACC-DSI-M12FSD-4CON-M16 SH	1441875	251
SACC-DSI-M12FSD-4CON-M16/0,5	1419616	244
SACC-DSI-M12FSS-4CON-M16/0,5PE	1424133	286
SACC-DSI-M12FST-4CON-M16/0,5	1424134	286
SACC-DSI-M12MS-12CON-M16	1441820	250
SACC-DSI-M12MS-12CON-M16 SH	1441943	251
SACC-DSI-M12MS-12CON-M16/0,5	1419700	244
SACC-DSI-M12MS-17CON-M16	1441846	250
SACC-DSI-M12MS-17CON-M16 SH	1441969	251
SACC-DSI-M12MS-17CON-M16/0,5	1419726	244
SACC-DSI-M12MS-4CON-L180 VA	1404979	270
SACC-DSI-M12MS-4CON-M16	1419742	250
SACC-DSI-M12MS-4CON-M16 SH	1419768	251
SACC-DSI-M12MS-4CON-M16/0,5	1419629	244
SACC-DSI-M12MS-4CON-PG9/0,5 VA	1405239	270
SACC-DSI-M12MS-5CON-L180 VA	1554746	193
SACC-DSI-M12MS-5CON-M16	1441765	250
SACC-DSI-M12MS-5CON-M16 SH	1441888	251
SACC-DSI-M12MS-5CON-M16/0,5	1419645	244
SACC-DSI-M12MS-5CON-PG9/0,5 VA	1554681	270
SACC-DSI-M12MS-8CON-L180 VA	1529807	270
SACC-DSI-M12MS-8CON-M16	1441804	250
SACC-DSI-M12MS-8CON-M16 SH	1441927	251
SACC-DSI-M12MS-8CON-M16/0,5	1419687	244
SACC-DSI-M12MS-8CON-PG9/0,5 VA	1554694	270
SACC-DSI-M12MSB-5CON-M16	1441781	250
SACC-DSI-M12MSB-5CON-M16 SH	1441901	251
SACC-DSI-M12MSB-5CON-M16/0,5	1419661	244
SACC-DSI-M12MSD-4CON-M16	1441749	250
SACC-DSI-M12MSD-4CON-M16 SH	1441862	251
SACC-DSI-M12MSD-4CON-M16/0,5	1419603	244
SACC-DSI-M12MSS-4CON-M16/0,5PE	1424132	286
SACC-DSI-M12MST-4CON-M16/0,5	1424136	286
SACC-DSI-M5FS-3CON-L180	1530647	224
SACC-DSI-M5FS-4CON-L180	1530650	224
SACC-DSI-M5MS-3CON-L180	1530621	224
SACC-DSI-M5MS-4CON-L180	1530634	224
SACC-DSI-M8FS-3CON-M10-L180 SH	1456116	229
SACC-DSI-M8FS-3CON-M10-L90 SH	1456145	228
SACC-DSI-M8FS-3CON-M10/0,5	1456080	227
SACC-DSI-M8FS-4CON-M10-L180 SH	1456129	229
SACC-DSI-M8FS-4CON-M10-L90 SH	1456158	228
SACC-DSI-M8FS-4CON-M10/0,5	1456093	227
SACC-DSI-M8FS-5CON-M10-L180 DN	1424241	229
SACC-DSI-M8FS-5CON-M10-L90 DN	1424239	228
SACC-DSI-M8FS-6CON-M10-L180 SH	1456132	229
SACC-DSI-M8FS-6CON-M10-L90 SH	1424243	228
SACC-DSI-M8FS-6CON-M10/0,5	1456103	227
SACC-DSI-M8FS-8CON-M10-L180	1424237	226
SACC-DSI-M8FS-8CON-M10-L180 SH	1424235	229
SACC-DSI-M8FS-8CON-M10/0,5	1424229	227
SACC-DSI-M8MS-4CON-L90 SH	1456048	228
SACC-DSI-M8MS-5CON-M8-L180 DN	1424242	229
SACC-DSI-M8MS-5CON-M8-L90 DN	1424240	228
SACC-DSI-M8MS-6CON-M8-L90 SH	1424244	228
SACC-DSI-M8MS-8CON-M8-L180	1424238	226
SACC-DSI-M8MS-8CON-M8-L180 SH	1424236	229
SACC-DSI-M8MS-8CON-M8/0,5	1424230	227
SACC-DSI-MINFS-3CON-M26 PCB	1457830	267
SACC-DSI-MINFS-3CON-M26/1,0	1453782	266
SACC-DSI-MINFS-4CON-M26 PCB	1457843	267
SACC-DSI-MINFS-4CON-M26/1,0	1453795	266
SACC-DSI-MINFS-5CON-M26 PCB	1457775	267
SACC-DSI-MINFS-5CON-M26/1,0	1453805	266
SACC-DSI-MINMS-3CON-UNF PCB	1455007	267
SACC-DSI-MINMS-3CON-UNF/1,0	1453753	266
SACC-DSI-MINMS-4CON-UNF PCB	1455010	267
SACC-DSI-MINMS-4CON-UNF/1,0	1453766	266
SACC-DSI-MINMS-5CON-UNF PCB	1457487	267
SACC-DSI-MINMS-5CON-UNF/1,0	1453799	266
SACC-DSI-MS-12CON-L180 SCO	1559932	246
SACC-DSI-MS-12CON-L180 SCO SH	1436783	247
SACC-DSI-MS-12CON-M12 SCO	1559945	248
SACC-DSI-MS-12CON-M12 SCO SH	1437106	249
SACC-DSI-MS-12CON-M12/0,5 SCO	1437122	243

Type	Order No.	Page
SACC-DSI-MS-12CON-PG9/0,5 SCO	1430459	242
SACC-DSI-MS-17CON-L180 SCO	1559961	246
SACC-DSI-MS-17CON-L180 SCO SH	1436819	247
SACC-DSI-MS-17CON-M12 SCO	1559974	248
SACC-DSI-MS-17CON-M12 SCO SH	1437119	249
SACC-DSI-MS-17CON-M12/0,5 SCO	1437135	243
SACC-DSI-MS-17CON-PG9/0,5 SCO	1430475	242
SACC-DSI-MS-4CON-L180 SCO	1553459	246
SACC-DSI-MS-4CON-L180/12 SCOSH	1558535	247
SACC-DSI-MS-4CON-M12 SCO	1551820	248
SACC-DSI-MS-4CON-M12-SCO SH	1552955	249
SACC-DSI-MS-4CON-M12/0,5 SCO	1551875	243
SACC-DSI-MS-4CON-PG9/0,5 SCO	1556618	242
SACC-DSI-MS-5CON-L180 SCO	1542745	188
SACC-DSI-MS-5CON-L180/12 SCO	1552311	246
SACC-DSI-MS-5CON-L180/12 SCOSH	1558551	247
SACC-DSI-MS-5CON-L180/SCO SH	1553048	188
SACC-DSI-MS-5CON-M12 SCO	1551833	188
SACC-DSI-MS-5CON-M12-SCO SH	1552968	188
SACC-DSI-MS-5CON-M12/0,5 SCO	1551888	243
SACC-DSI-MS-5CON-PG 9/0,5 SCO	1542703	242
SACC-DSI-MS-8CON-L180 SCO	1542758	246
SACC-DSI-MS-8CON-L180/SCO SH	1553873	247
SACC-DSI-MS-8CON-L180/SH TQ	1456530	90
SACC-DSI-MS-8CON-M12 SCO	1551862	248
SACC-DSI-MS-8CON-M12-SCO SH	1552997	249
SACC-DSI-MS-8CON-M12/0,5 SCO	1551914	243
SACC-DSI-MS-8CON-PG 9/0,5 SCO	1542716	242
SACC-DSI-MSB-5CON-L180 SCO	1543647	188
SACC-DSI-MSB-5CON-L180/12 SCO	1552324	246
SACC-DSI-MSB-5CON-L180/12SCOSH	1558577	247
SACC-DSI-MSB-5CON-L180/SCO SH	1553051	188
SACC-DSI-MSB-5CON-M12 SCO	1551846	188
SACC-DSI-MSB-5CON-M12-SCO SH	1552971	188
SACC-DSI-MSB-5CON-M12/0,5 SCO	1551891	243
SACC-DSI-MSB-5CON-PG9/ 0,5 SCO	1543663	242
SACC-DSI-MSD-4CON-L180 SCO	1551516	246
SACC-DSI-MSD-4CON-L180/12 SCO	1552308	246
SACC-DSI-MSD-4CON-L180/12SCOSH	1558519	247
SACC-DSI-MSD-4CON-L180/SCO SH	1553035	247
SACC-DSI-MSD-4CON-L180/SH GN	1456556	90
SACC-DSI-MSD-4CON-L180/SH TQ	1456514	90
SACC-DSI-MSD-4CON-M12 SCO	1551859	248
SACC-DSI-MSD-4CON-M12-SCO SH	1552984	249
SACC-DSI-MSD-4CON-M12/0,5 SCO	1551901	243
SACC-DSI-MSD-4CON-PG9/0,5 SCO	1551532	242
SACC-DSIV-FS-5CON-L180SCOTHRSH	1434879	189
SACC-DSIV-FS-5CON-L90 SH SCO	1438024	189
SACC-DSIV-FS-8CON-L180-10G SCO	1440669	90
SACC-DSIV-FS-8CON-L180-THR SH	1557549	90
SACC-DSIV-FSB-5CON-L180 SCOTHR	1542635	189
SACC-DSIV-FSB-5CON-L90 SCO	1436576	189
SACC-DSIV-FSD-4CON-L180 SCO	1542619	90
SACC-DSIV-FSD-4CON-L180 SCOTHR	1542648	90
SACC-DSIV-FSD-4CON-L90 SCO	1436550	90
SACC-DSIV-M 8FS-3CON-L 90	1524788	230
SACC-DSIV-M 8FS-3CON-L180-06	1524776	230
SACC-DSIV-M 8FS-4CON-L 90	1526169	230
SACC-DSIV-M 8FS-4CON-L180-06	1524789	230
SACC-DSIV-M 8MS-3CON-L 90	1440070	230
SACC-DSIV-M 8MS-4CON-L 90	1440096	230
SACC-DSIV-M12FS-5CON-L180	1694237	189
SACC-DSIV-M12FS-8CON-L180	1556854	262
SACC-DSIV-M12FSB-5CON-L180	1515934	262
SACC-DSIV-M12FSB-5CON-L180 SH	1437180	189
SACC-DSIV-M12FSD-4CON-L180	1534627	262
SACC-DSIV-M12MS-5CON-L180	1694211	189
SACC-DSIV-M12MS-5CON-L180 SH	1437193	262
SACC-DSIV-M12MSB-5CON-L180	1514883	262
SACC-DSIV-M12MSB-5CON-L180 SH	1437203	189
SACC-DSIV-MS-5CON-L180SCOTHRSH	1439968	189
SACC-DSIV-MS-5CON-L90 SH SCO	1438037	189
SACC-DSIV-MSB-5CON-L180 SCO THR	1552188	189
SACC-DSIV-MSB-5CON-L90 SCO	1436615	189
SACC-E-FS-12CON-M16/0,5 SCO	1556252	233
SACC-E-FS-17CON-M16/0,5 SCO	1556294	233
SACC-E-FS-4CON-M16/0,5 SCO	1523434	233
SACC-E-FS-5CON-M16/0,5 SCO	1520039	233
SACC-E-FS-8CON-M16/0,5 SCO	1523476	233
SACC-E-FSB-5CON-M16/0,5 SCO	1520000	233
SACC-E-FSD-4CON-M16/0,5 SCO	1535202	92
SACC-E-M 8FS-3CON-M8/0,5	1500350	225
SACC-E-M 8FS-4CON-M8/0,5	1500363	225
SACC-E-M 8FS-6CON-M 8/0,5	1542677	225
SACC-E-M 8MS-3CON-M8/0,5	1500334	225
SACC-E-M 8MS-4CON-M8/0,5	1500347	225
SACC-E-M 8MS-6CON-M 8/0,5	1542664	225
SACC-E-M12FS-4CON-M16/0,5 VA	1458855	268
SACC-E-M12FS-4CON-M20/0,5	1408436	235
SACC-E-M12FS-4CON-M20/0,5 VA	1408416	269
SACC-E-M12FS-4CON-PG 9/0,5 VA	1555448	268
SACC-E-M12FS-4CON-PG9/0,5	1693788	232
SACC-E-M12FS-4CON-PG9/0,5 FFVA	1431429	193
SACC-E-M12FS-5CON-M16/0,5 VA	1458871	268
SACC-E-M12FS-5CON-M20/0,5	1408454	235
SACC-E-M12FS-5CON-M20/0,5 VA	1452071	269
SACC-E-M12FS-5CON-PG9/0,5	1671098	232
SACC-E-M12FS-5CON-PG9/0,5 V2A	1699863	268
SACC-E-M12FS-8CON-M16/0,5 VA	1458842	268
SACC-E-M12FS-8CON-M20/0,5	1408453	235
SACC-E-M12FS-8CON-M20/0,5 VA	1452110	269
SACC-E-M12FS-8CON-PG 9/0,5 VA	1554607	268
SACC-E-M12FS-8CON-PG9/0,5	1513758	232
SACC-E-M12FSB-5CON-M20/0,5 VA	1452097	269
SACC-E-M12FSS-4CON-M16/0,5 PE	1424137	286
SACC-E-M12FST-4CON-M16/0,5	1424138	286
SACC-E-M12MS-4CON-M16/0,5 VA	1405233	268
SACC-E-M12MS-4CON-M20/0,5	1408451	235
SACC-E-M12MS-4CON-M20/0,5 VA	1408415	269
SACC-E-M12MS-4CON-PG 9/0,5 VA	1554555	268
SACC-E-M12MS-4CON-PG9/0,5	1693762	232
SACC-E-M12MS-4CON-PG9/0,5 FFVA	1431432	193
SACC-E-M12MS-5CON-M12 PSCUP	1436437	241
SACC-E-M12MS-5CON-M16 PSCUP	1436398	241
SACC-E-M12MS-5CON-M16/0,5 P	1436411	241
SACC-E-M12MS-5CON-M16/0,5 VA	1458868	268
SACC-E-M12MS-5CON-M20/0,5	1408446	235
SACC-E-M12MS-5CON-M20/0,5 VA	1452068	269
SACC-E-M12MS-5CON-PG 9/0,5 VA	1554568	268
SACC-E-M12MS-5CON-PG9/0,5	1671111	232
SACC-E-M12MS-8CON-M12 PSCUP	1436440	241
SACC-E-M12MS-8CON-M16 PSCUP	1436408	241
SACC-E-M12MS-8CON-M16/0,5 P	1436424	241
SACC-E-M12MS-8CON-M16/0,5 VA	1405221	268
SACC-E-M12MS-8CON-M20/0,5	1408442	235
SACC-E-M12MS-8CON-M20/0,5 VA	1452107	269
SACC-E-M12MS-8CON-PG 9/0,5 VA	1554571	268
SACC-E-M12MS-8CON-PG9/0,5	1513774	232
SACC-E-M12MSB-5CON-M20/0,5 VA	1452084	269
SACC-E-M12MSS-4CON-M16/0,5 PE	1424139	286
SACC-E-M12MST-4CON-M16/0,5	1424140	286
SACC-E-M5FS-3CON-M5/0,5	1530605	224
SACC-E-M5FS-4CON-M5/0,5	1530618	224
SACC-E-M5MS-3CON-M5/0,5	1530582	224
SACC-E-M5MS-4CON-M5/0,5	1530595	224
SACC-E-M8FS-5CON-M10/0,5 DN	1424233	225
SACC-E-M8FS-8CON-M10/0,5	1424231	225
SACC-E-M8MS-5CON-M10/0,5 DN	1424234	225
SACC-E-M8MS-8CON-M10/0,5	1424232	225
SACC-E-MINFS-3CON-PG13/0,5	1521407	265
SACC-E-MINFS-4CON-PG13/0,5	1521423	265
SACC-E-MINFS-5CON-PG13/0,5	1521449	265
SACC-E-MINMS-3CON-PG13/0,5	1521410	265
SACC-E-MINMS-4CON-PG13/0,5	1521436	265
SACC-E-MINMS-5CON-PG13/0,5	1521452	265
SACC-E-MS-12CON-M16/0,5 SCO	1556265	233
SACC-E-MS-17CON-M16/0,5 SCO	1556304	233
SACC-E-MS-4CON-M16/0,5 SCO	1523450	233
SACC-E-MS-5CON-M16/0,5 SCO	1520055	233
SACC-E-MS-8CON-M16/0,5 SCO	1523492	233
SACC-E-MSB-5CON-M16/0,5 SCO	1520013	233
SACC-E-MSD-4CON-M16/0,5 SCO	1551558	233
SACC-E-MU-M 5	1535901	224
SACC-E-MU-M 8	1504071	225
SACC-E-MU-M16	1504097	233
SACC-E-MU-PG13,5	1539143	265
SACC-E-MU-PG9	1504084	232
SACC-EC-FS-4CON-M16/0,5 SCO	1523447	234
SACC-EC-FS-5CON-M16/0,5 SCO	1520042	234
SACC-EC-FS-8CON-M16/0,5 SCO	1523489	234
SACC-EC-FSB-5CON-M16/0,5 SCO	1519998	234
SACC-EC-FSD-4CON-M16/0,5 SCO	1535215	92
SACC-EC-M12FS-4CON-PG 9/0,5 VA	1554649	268
SACC-EC-M12FS-4CON-PG9/0,5	1693791	232
SACC-EC-M12FS-5CON-PG 9/0,5 VA	1554652	268
SACC-EC-M12FS-5CON-PG9/0,5	1671108	232
SACC-EC-M12FS-8CON-PG 9/0,5 VA	1554665	268
SACC-EC-M12FS-8CON-PG9/0,5	1513761	232
SACC-EC-M12FSB-5CON-PG9/0,5	1515044	232
SACC-EC-M12MS-4CON-PG 9/0,5 VA	1554610	268
SACC-EC-M12MS-4CON-PG9/0,5	1693775	232
SACC-EC-M12MS-5CON-PG 9/0,5 VA	1554623	268
SACC-EC-M12MS-5CON-PG9/0,5	1671124	232
SACC-EC-M12MS-8CON-PG 9/0,5 VA	1554636	268
SACC-EC-M12MS-8CON-PG9/0,5	1513787	232
SACC-EC-M12MSB-5CON-PG9/0,5	1515057	232
SACC-EC-MS-4CON-M16/0,5 SCO	1523463	234
SACC-EC-MS-5CON-M16/0,5 SCO	1520068	234
SACC-EC-MS-8CON-M16/0,5 SCO	1523502	234
SACC-EC-MSB-5CON-M16/0,5 SCO	1520026	234
SACC-EC-MSD-4CON-M16/0,5 SCO	1552256	234
SACC-FR-4CON-PG 7-M SCO	1543058	280
SACC-FR-4SC M SCO	1432622	279
SACC-FR-4SC SH SCO	1432758	279
SACC-FR-5CON-PG 7-M SCO	1543061	280
SACC-FR-5CON-PG 9-M SCO	1543414	280
SACC-FR-5SC M SCO	1432596	279
SACC-FR-5SC SH DN SCO	1432790	187
SACC-FR-5SC SH SCO	1432677	279
SACC-FRB-2SC SH PB SCO	1432871	186
SACC-FRB-5SC SH IB SCO	1432839	186
SACC-FS-12PCON SCO	1559631	275
SACC-FS-17PCON SCO	1559644	275
SACC-FS-4CON-PG 7-M SCO	1543029	280
SACC-FS-4QO-0,34-M SCO	1521588	278
SACC-FS-4QO-0,75-M SCO	1521601	278
SACC-FS-4SC M SCO	1432619	279
SACC-FS-4SC SH SCO	1432745	279
SACC-FS-5CON-PG 7-M SCO	1543032	280
SACC-FS-5CON-PG 9-M SCO	1543045	280
SACC-FS-5SC M SCO	1432583	279
SACC-FS-5SC SH DN SCO	1432787	187
SACC-FS-5SC SH SCO	1432664	279
SACC-FSB-2SC SH PB SCO	1432868	186
SACC-FSB-5SC SH IB SCO	1432826	186
SACC-M 8-SET/2,2-3,5	1436945	273
SACC-M 8FR-3CON-M	1529399	274
SACC-M 8FR-3CON-M-SW	1407582	273
SACC-M 8FR-3CON-SH	1436479	274
SACC-M 8FR-4CON-M	1513444	274
SACC-M 8FR-4CON-M-SW	1407584	273
SACC-M 8FR-4CON-SH	1436482	274
SACC-M 8FS-3CON-M	1681172	274
SACC-M 8FS-3CON-M-0,34-SH	1542907	273
SACC-M 8FS-3CON-M-SH	1506927	274
SACC-M 8FS-3CON-M-SW	1506888	273
SACC-M 8FS-3QO-0,25-M	1441040	272
SACC-M 8FS-3QO-0,5-M	1441066	272
SACC-M 8FS-4CON-M	1681185	274
SACC-M 8FS-4CON-M-0,34-SH	1542910	273
SACC-M 8FS-4CON-M-SH	1506930	274
SACC-M 8FS-4CON-M-SW	1506891	273
SACC-M 8FS-4QO-0,25-M	1441053	272
SACC-M 8FS-4QO-0,5-M	1441079	272
SACC-M 8MR-3CON-M	1699902	274
SACC-M 8MR-3CON-M-SW	1407583	273
SACC-M 8MR-3CON-SH	1436453	274
SACC-M 8MR-4CON-M	1554209	274
SACC-M 8MR-4CON-M-SW	1407585	273
SACC-M 8MR-4CON-SH	1436466	274
SACC-M 8MS-3CON-M	1681156	274
SACC-M 8MS-3CON-M-0,34-SH	1542884	273
SACC-M 8MS-3CON-M-SH	1506901	274
SACC-M 8MS-3CON-M-SW	1501252	273
SACC-M 8MS-3QO-0,25-M	1441008	272
SACC-M 8MS-3QO-0,5-M	1441024	272
SACC-M 8MS-4CON-M	1681169	274
SACC-M 8MS-4CON-M-0,34-SH	1542897	273
SACC-M 8MS-4CON-M-SH	1506914	274
SACC-M 8MS-4CON-M-SW	1501265	273
SACC-M 8MS-4QO-0,25-M	1441011	272
SACC-M 8MS-4QO-0,5-M	1441037	272
SACC-M12 NUT PRESS	1437889	259
SACC-M12 PLUG PRESS	1437892	259
SACC-M12-KD-NUT-SH	1440151	188
SACC-M12-SCO NUT	1552243	258
SACC-M12-SCO NUT L 90	1432460	90
SACC-M12-SCO PLUG	1551493	258
SACC-M12-SCO PLUG L90	1436709	258
SACC-M12-SET/2,5-3,5	1436505	280
SACC-M12FR-12SOL-PG 9-M	1404423	275
SACC-M12FR-12SOL-PG 9-M SH	1404413	275
SACC-M12FR-4CON-PG 7-VA	1553284	281
SACC-M12FR-4CON-PG7	1681130	280
SACC-M12FR-4CON-PG7-M	1681143	281
SACC-M12FR-5CON-PG 7	1662308	280
SACC-M12FR-5CON-PG 7-M	1662984	281
SACC-M12FR-5CON-PG 7-VA	1553297	281
SACC-M12FR-5CON-PG 9-SH	1430433	282
SACC-M12FR-5CON-PG 9-VA	1553307	281
SACC-M12FR-5CON-PG9	1500790	280
SACC-M12FR-5CON-PG9-M	1681499	281
SACC-M12FR-5CON-PG9-M SKIN	1556812	281
SACC-M12FR-6Q SH VARAN	1429169	89
SACC-M12FR-8Q SH	1553666	89
SACC-M12FRD-4Q SH	1553637	89
SACC-M12FRD-4Q SH PN	1554542	89
SACC-M12FS-12SOL-PG 9-M	1404420	275
SACC-M12FS-12SOL-PG 9-M SH	1404411	275
SACC-M12FS-4CON-PG 7-SH	1694295	282
SACC-M12FS-4CON-PG 7-VA	1553242	281
SACC-M12FS-4CON-PG 9-SH	1515170	282
SACC-M12FS-4CON-PG 9-VA	1553268	281
SACC-M12FS-4CON-PG11-M PWR	1404416	281
SACC-M12FS-4CON-PG7	1681114	280
SACC-M12FS-4CON-PG7-M	1681127	281
SACC-M12FS-4CON-PG7-M SKIN	1430381	281
SACC-M12FS-4QO-0,34	1641701	278
SACC-M12FS-4QO-0,34-M	1641688	278
SACC-M12FS-4QO-0,34-VA	1440766	278
SACC-M12FS-4QO-0,75	1641756	278
SACC-M12FS-4QO-0,75-M	1641772	278
SACC-M12FS-4QO-0,75-VA	1440782	278
SACC-M12FS-4SC SH CCL	1559770	187
SACC-M12FS-5CON-DM 3-5 SH VA	1440038	282
SACC-M12FS-5CON-DM 5-8 SH VA	1440041	282
SACC-M12FS-5CON-PG 7	1662298	280
SACC-M12FS-5CON-PG 7-M	1662968	281
SACC-M12FS-5CON-PG 7-SH	1694305	282
SACC-M12FS-5CON-PG 7-VA	1553255	281
SACC-M12FS-5CON-PG 9 SH AU	1508365	187
SACC-M12FS-5CON-PG 9-SH	1694318	282
SACC-M12FS-5CON-PG 9-VA	1553271	281
SACC-M12FS-5CON-PG11-DUO	1694596	284
SACC-M12FS-5CON-PG11-M PWR	1404418	281
SACC-M12FS-5CON-PG7-M SKIN	1559000	281
SACC-M12FS-5CON-PG9	1500787	280
SACC-M12FS-5CON-PG9-M	1681486	281
SACC-M12FS-5CON-PG9-M SKIN	1556838	281
SACC-M12FS-6Q SH VARAN	1429143	89
SACC-M12FS-8CON-PG 9-SH	1511860	282
SACC-M12FS-8CON-PG9-M	1513347	281
SACC-M12FS-8Q SH	1553640	89
SACC-M12FSB-5CON-PG9 SH AU	1507777	186
SACC-M12FSD-4Q SH	1553611	89
SACC-M12FSD-4Q SH PN	1554526	89
SACC-M12FSS-3PECON-PG11-M	1404642	283
SACC-M12FST-3PECON-PG11-M	1404644	283
SACC-M12MR-12SOL-PG 9-M	1404421	275
SACC-M12MR-12SOL-PG 9-M SH	1404412	275
SACC-M12MR-4CON-PG 7-SH	1694279	282
SACC-M12MR-4CON-PG 7-VA	1553200	281
SACC-M12MR-4CON-PG 9-VA	1553226	281
SACC-M12MR-4CON-PG7	1681091	280
SACC-M12MR-4CON-PG7-M	1681101	281
SACC-M12MR-5CON-PG 7	1662269	280
SACC-M12MR-5CON-PG 7-M	1663129	281
SACC-M12MR-5CON-PG 7-SH	1693429	282
SACC-M12MR-5CON-PG 7-VA	1553213	281
SACC-M12MR-5CON-PG 9-SH	1694282	282

Type	Order No.	Page
SACC-M12MR-5CON-PG 9-VA	1553239	281
SACC-M12MR-5CON-PG11-DUO	1531044	284
SACC-M12MR-5CON-PG9	1513431	280
SACC-M12MR-5CON-PG9-M	1681473	281
SACC-M12MR-5CON-PG9-M SKINTOP	1561742	281
SACC-M12MR-6Q SH VARAN	1429156	89
SACC-M12MR-8Q SH	1553653	89
SACC-M12MRD-4Q SH	1553624	89
SACC-M12MRD-4Q SH PN	1554539	89
SACC-M12MS-12SOL-PG 9-M	1404419	275
SACC-M12MS-12SOL-PG 9-M SH	1404410	275
SACC-M12MS-4CON-PG 7	1681088	280
SACC-M12MS-4CON-PG 7-M	1662528	281
SACC-M12MS-4CON-PG 7-M SKIN	1556870	281
SACC-M12MS-4CON-PG 7-SH	1693830	282
SACC-M12MS-4CON-PG 7-VA	1553161	281
SACC-M12MS-4CON-PG 9-SH	1501540	282
SACC-M12MS-4CON-PG 9-VA	1553174	281
SACC-M12MS-4CON-PG11-DUO-M	1507052	284
SACC-M12MS-4CON-PG11-M PWR	1404415	281
SACC-M12MS-4QO-0,34	1641714	278
SACC-M12MS-4QO-0,34-M	1641691	278
SACC-M12MS-4QO-0,34-VA	1440753	278
SACC-M12MS-4QO-0,75	1641769	278
SACC-M12MS-4QO-0,75-M	1641785	278
SACC-M12MS-4QO-0,75-VA	1440779	278
SACC-M12MS-4SC SH CCL	1559767	187
SACC-M12MS-5CON-DM 3-5 SH VA	1440012	282
SACC-M12MS-5CON-DM 5-8 SH VA	1440025	282
SACC-M12MS-5CON-PG 7	1662256	280
SACC-M12MS-5CON-PG 7-M	1663116	281
SACC-M12MS-5CON-PG 7-SH	1693416	282
SACC-M12MS-5CON-PG 7-VA	1553187	281
SACC-M12MS-5CON-PG 9	1500774	280
SACC-M12MS-5CON-PG 9 SH AU	1508352	187
SACC-M12MS-5CON-PG 9-M	1681460	281
SACC-M12MS-5CON-PG 9-SH	1694266	282
SACC-M12MS-5CON-PG 9-VA	1553190	281
SACC-M12MS-5CON-PG11-DUO	1662285	284
SACC-M12MS-5CON-PG11-DUO-M	1662748	284
SACC-M12MS-5CON-PG11-M PWR	1404417	281
SACC-M12MS-5CON-PG7-M SKIN	1456466	281
SACC-M12MS-5CON-PG9-M SKIN	1556825	281
SACC-M12MS-6Q SH VARAN	1429130	89
SACC-M12MS-8CON-PG 9-SH	1511857	282
SACC-M12MS-8CON-PG9-M	1513334	281
SACC-M12MS-8Q SH	1543236	89
SACC-M12MSB-5CON-PG9 SH AU	1507764	186
SACC-M12MSD-4CON-PG 7-SH	1521258	88
SACC-M12MSD-4CON-PG 9-SH	1521261	88
SACC-M12MSD-4Q SH	1543223	89
SACC-M12MSD-4Q SH PN	1554513	89
SACC-M12MSS-3PECON-PG11-M	1404641	283
SACC-M12MST-3PECON-PG11-M	1404643	283
SACC-M16-KD-NUT-SH	1440164	190
SACC-M16-SEAL CLM	1430394	296
SACC-M16-SEALING PLUG SET	1453368	294
SACC-MCI-M12MS-4CON	1440931	239
SACC-MCI-M12MS-4CON/0,5	1440805	238
SACC-MCI-M12MS-5CON	1419988	239
SACC-MCI-M12MS-5CON/0,5	1440818	238
SACC-MCI-M12MS-8CON	1440928	239
SACC-MCI-M12MS-8CON/0,5	1457827	238
SACC-MCI-M12MSB-5CON	1440915	239
SACC-MCI-M12MSB-5CON/0,5	1440759	238
SACC-MCI-M12MSD-4CON	1440944	239
SACC-MCI-M12MSD-4CON/0,5	1440821	238
SACC-MCI-MSS-4CON/0,5 PE SCO	1424129	287
SACC-MCI-MST-4CON/0,5 SCO	1424130	287
SACC-MINFR-3CON-PG 9	1521478	285
SACC-MINFR-4CON-PG 9	1521494	285
SACC-MINFR-5CON-PG 9	1521517	285
SACC-MINFR-5CON-PG11/2,5	1456297	285
SACC-MINFR-5CON-PG13/2,5	1456307	285
SACC-MINFS-3CON-PG 9	1521300	285
SACC-MINFS-3CON-PG13	1521313	285
SACC-MINFS-4CON-PG 9	1521342	285
SACC-MINFS-4CON-PG13	1521355	285
SACC-MINFS-5CON-PG 9	1521384	285
SACC-MINFS-5CON-PG11/2,5	1456271	285
SACC-MINFS-5CON-PG13	1521397	285
SACC-MINFS-5CON-PG13/2,5	1456284	285
SACC-MINFS-5CON-PG16	1559071	285
SACC-MINFS-5CON-PG16/2,5	1456268	285
SACC-MINMR-3CON-PG 9	1521465	285
SACC-MINMR-4CON-PG 9	1521481	285
SACC-MINMR-5CON-PG 9	1521504	285
SACC-MINMR-5CON-PG11/2,5	1456242	285
SACC-MINMR-5CON-PG13/2,5	1456255	285
SACC-MINMS-3CON-PG 9	1521287	285
SACC-MINMS-3CON-PG13	1521290	285
SACC-MINMS-4CON-PG 9	1521326	285
SACC-MINMS-4CON-PG13	1521339	285
SACC-MINMS-5CON-PG 9	1521668	285
SACC-MINMS-5CON-PG11/2,5	1456226	285
SACC-MINMS-5CON-PG13	1521371	285
SACC-MINMS-5CON-PG13/2,5	1456213	285
SACC-MINMS-5CON-PG16	1559039	285
SACC-MINMS-5CON-PG16/2,5	1456239	285
SACC-MR-4CON-PG 7-M SCO	1542981	280
SACC-MR-4SC M SCO	1432606	279
SACC-MR-4SC SH SCO	1432732	279
SACC-MR-5CON-PG 7-M SCO	1542994	280
SACC-MR-5CON-PG 9-M SCO	1543003	280
SACC-MR-5SC M SCO	1432570	279
SACC-MR-5SC SH DN SCO	1432774	187
SACC-MR-5SC SH SCO	1432651	279
SACC-MRB-2SC SH PB SCO	1432855	186
SACC-MRB-5SC SH IB SCO	1432813	186
SACC-MS-12PCON SCO	1559592	275
SACC-MS-17PCON SCO	1559602	275
SACC-MS-4CON-PG 7-M SCO	1542952	280
SACC-MS-4QO-0,34-M SCO	1521575	278
SACC-MS-4QO-0,75-M SCO	1521591	278
SACC-MS-4SC M SCO	1432635	279
SACC-MS-4SC SH SCO	1432729	279
SACC-MS-5CON-PG 7-M SCO	1542965	280
SACC-MS-5CON-PG 9-M SCO	1542978	280
SACC-MS-5CON-PG11-DUO-M SCO	1543016	284
SACC-MS-5SC M SCO	1432567	279
SACC-MS-5SC SH DN SCO	1432761	187
SACC-MS-5SC SH SCO	1432648	279
SACC-MSB-2SC SH PB SCO	1432842	186
SACC-MSB-5SC SH IB SCO	1432800	186
SACC-MSQ-M12MS-25-3,2 SCO	1419959	238
SACC-MSQ-P-M12MS-25-2,7 SCO	1424131	287
SACC-PG9-KD-NUT-SH	1440177	188
SACC-PG9-SEAL CLM	1556320	296
SACC-SQ-M12FS-12CON-20/0,5	1441710	236
SACC-SQ-M12FS-12CON-25F/0,5	1441590	237
SACC-SQ-M12FS-17CON-20/0,5	1441736	236
SACC-SQ-M12FS-17CON-25F/0,5	1441613	237
SACC-SQ-M12FS-4CON-20-L180	1456420	240
SACC-SQ-M12FS-4CON-20/0,5	1419797	236
SACC-SQ-M12FS-4CON-25F/0,5	1420003	237
SACC-SQ-M12FS-5CON-20-L180	1456446	240
SACC-SQ-M12FS-5CON-20/0,5	1441655	236
SACC-SQ-M12FS-5CON-25F/0,5	1440986	237
SACC-SQ-M12FS-8CON-20-L180	1408573	240
SACC-SQ-M12FS-8CON-20/0,5	1441697	236
SACC-SQ-M12FS-8CON-25F/0,5	1441574	237
SACC-SQ-M12FSB-5CON-20-L180	1456462	240
SACC-SQ-M12FSB-5CON-20/0,5	1441671	236
SACC-SQ-M12FSB-5CON-25F/0,5	1441558	237
SACC-SQ-M12FSD-4CON-20-L180	1456404	240
SACC-SQ-M12FSD-4CON-20/0,5	1441639	236
SACC-SQ-M12FSD-4CON-25F/0,5	1440960	237
SACC-SQ-M12MS-12CON-20/0,5	1441707	236
SACC-SQ-M12MS-12CON-25F/0,5	1441587	237
SACC-SQ-M12MS-17CON-20/0,5	1441723	236
SACC-SQ-M12MS-17CON-25F/0,5	1441600	237
SACC-SQ-M12MS-4CON-20-L180	1456417	240
SACC-SQ-M12MS-4CON-20/0,5	1419784	236
SACC-SQ-M12MS-4CON-25F/0,5	1419991	237
SACC-SQ-M12MS-5CON-20-L180	1456433	240
SACC-SQ-M12MS-5CON-20/0,5	1441642	236
SACC-SQ-M12MS-5CON-25F/0,5	1440973	237
SACC-SQ-M12MS-8CON-20-L180	1408574	240
SACC-SQ-M12MS-8CON-20/0,5	1441684	236
SACC-SQ-M12MS-8CON-25F/0,5	1441561	237
SACC-SQ-M12MSB-5CON-20-L180	1456459	240
SACC-SQ-M12MSB-5CON-20/0,5	1441668	236
SACC-SQ-M12MSB-5CON-25F/0,5	1440999	237
SACC-SQ-M12MSD-4CON-20-L180	1456394	240
SACC-SQ-M12MSD-4CON-20/0,5	1441626	236
SACC-SQ-M12MSD-4CON-25F/0,5	1440957	237
SACCBP-FS-12CON-M16/1,0-PVCSCO	1442188	245
SACCBP-FS-12CON-M16/2,0-PVCSCO	1442191	245
SACCBP-FS-17CON-M16/1,0-PVCSCO	1442269	245
SACCBP-FS-17CON-M16/2,0-PVCSCO	1442272	245
SACCBP-FS-4CON-M16/1,0-PUR SCO	1419302	245
SACCBP-FS-4CON-M16/2,0-PUR SCO	1419315	245
SACCBP-FS-5CON-M16/1,0-PUR SCO	1419328	245
SACCBP-FS-5CON-M16/2,0-PUR SCO	1419331	245
SACCBP-FS-5CON-PG9/0,5-920SCO	1437520	192
SACCBP-FS-5CON-PG9/1,0-920SCO	1437533	192
SACCBP-FS-5CON-PG9/2,0-920SCO	1437546	192
SACCBP-FS-5CON-PG9/5,0-920SCO	1437559	192
SACCBP-FS-8CON-M16/1,0-PUR SCO	1419357	245
SACCBP-FS-8CON-M16/2,0-PUR SCO	1419344	245
SACCBP-FSB-2CON-PG9/0,5-910SCO	1437449	191
SACCBP-FSB-2CON-PG9/1,0-910SCO	1437452	191
SACCBP-FSB-2CON-PG9/2,0-910SCO	1437465	191
SACCBP-FSB-2CON-PG9/5,0-910SCO	1437478	191
SACCBP-FSB-5CON-PG9/0,5-900SCO	1437601	190
SACCBP-FSB-5CON-PG9/1,0-900SCO	1437614	190
SACCBP-FSB-5CON-PG9/2,0-900SCO	1437627	190
SACCBP-FSB-5CON-PG9/5,0-900SCO	1437630	190
SACCBP-FSD-4CON-PG9/1,0-933SCO	1437779	107
SACCBP-FSD-4CON-PG9/2,0-933SCO	1437782	107
SACCBP-FSD-4CON-PG9/5,0-933SCO	1437795	107
SACCBP-M12FS-5CON-M16/0,5-920	1534465	192
SACCBP-M12FS-5CON-M16/1,0-920	1534478	192
SACCBP-M12FS-5CON-M16/2,0-920	1534481	192
SACCBP-M12FS-5CON-M16/5,0-920	1534494	192
SACCBP-M12FSB-2CON-M16/0,5-910	1534384	191
SACCBP-M12FSB-2CON-M16/1,0-910	1534397	191
SACCBP-M12FSB-2CON-M16/2,0-910	1534407	191
SACCBP-M12FSB-2CON-M16/5,0-910	1534410	191
SACCBP-M12FSB-5CON-M16/0,5-900	1534546	190
SACCBP-M12FSB-5CON-M16/1,0-900	1534559	190
SACCBP-M12FSB-5CON-M16/2,0-900	1534562	190
SACCBP-M12FSB-5CON-M16/5,0-900	1534575	190
SACCBP-M12MS-5CON-M16/0,5-920	1534423	192
SACCBP-M12MS-5CON-M16/1,0-920	1534436	192
SACCBP-M12MS-5CON-M16/2,0-920	1534449	192
SACCBP-M12MS-5CON-M16/5,0-920	1534452	192
SACCBP-M12MSB-2CON-M16/0,5-910	1534342	191
SACCBP-M12MSB-2CON-M16/1,0-910	1534355	191
SACCBP-M12MSB-2CON-M16/2,0-910	1534368	191
SACCBP-M12MSB-2CON-M16/5,0-910	1534371	191
SACCBP-M12MSB-5CON-M16/0,5-900	1534504	190
SACCBP-M12MSB-5CON-M16/1,0-900	1534517	190
SACCBP-M12MSB-5CON-M16/2,0-900	1534520	190
SACCBP-M12MSB-5CON-M16/5,0-900	1534533	190
SACCBP-MS-12CON-M16/1,0-PVCSCO	1442227	245
SACCBP-MS-12CON-M16/2,0-PVCSCO	1442230	245
SACCBP-MS-17CON-M16/1,0-PVCSCO	1442308	245
SACCBP-MS-17CON-M16/2,0-PVCSCO	1442311	245
SACCBP-MS-4CON-M16/1,0-PUR SCO	1419399	245
SACCBP-MS-4CON-M16/2,0-PUR SCO	1419386	245
SACCBP-MS-5CON-M16/1,0-PUR SCO	1419409	245
SACCBP-MS-5CON-M16/2,0-PUR SCO	1419412	245
SACCBP-MS-5CON-PG9/0,5-920SCO	1437562	192
SACCBP-MS-5CON-PG9/1,0-920SCO	1437575	192
SACCBP-MS-5CON-PG9/2,0-920SCO	1437588	192
SACCBP-MS-5CON-PG9/5,0-920SCO	1437591	192
SACCBP-MS-8CON-M16/1,0-PUR SCO	1419425	245
SACCBP-MS-8CON-M16/2,0-PUR SCO	1419438	245
SACCBP-MSB-2CON-PG9/0,5-910SCO	1437481	191
SACCBP-MSB-2CON-PG9/1,0-910SCO	1437494	191
SACCBP-MSB-2CON-PG9/2,0-910SCO	1437504	191
SACCBP-MSB-2CON-PG9/5,0-910SCO	1437517	191
SACCBP-MSB-5CON-PG9/0,5-900SCO	1437643	190
SACCBP-MSB-5CON-PG9/1,0-900SCO	1437656	190
SACCBP-MSB-5CON-PG9/2,0-900SCO	1437669	190
SACCBP-MSB-5CON-PG9/5,0-900SCO	1437672	190
SACCEC-M12FS-5CON-M16/ 0,5-920	1525678	192
SACCEC-M12FS-5CON-M16/ 1,0-920	1525681	192
SACCEC-M12FS-5CON-M16/ 2,0-920	1525694	192
SACCEC-M12FS-5CON-M16/ 5,0-920	1525704	192
SACCEC-M12FSB-2CON-M16/0,5-910	1525597	191
SACCEC-M12FSB-2CON-M16/1,0-910	1525607	191
SACCEC-M12FSB-2CON-M16/2,0-910	1519574	191
SACCEC-M12FSB-2CON-M16/5,0-910	1525610	191
SACCEC-M12FSB-5CON-M16/0,5-900	1529742	190
SACCEC-M12FSB-5CON-M16/1,0-900	1529755	190
SACCEC-M12FSB-5CON-M16/2,0-900	1529768	190
SACCEC-M12FSB-5CON-M16/5,0-900	1529771	190
SACCEC-M12MS-5CON-M16/ 0,5-920	1525623	192
SACCEC-M12MS-5CON-M16/ 1,0-920	1525636	192
SACCEC-M12MS-5CON-M16/ 2,0-920	1525649	192
SACCEC-M12MS-5CON-M16/ 5,0-920	1525652	192
SACCEC-M12MSB-2CON-M16/0,5-910	1525555	191
SACCEC-M12MSB-2CON-M16/1,0-910	1525568	191
SACCEC-M12MSB-2CON-M16/2,0-910	1519561	191
SACCEC-M12MSB-2CON-M16/5,0-910	1525571	191
SACCEC-M12MSB-5CON-M16/0,5-900	1529629	190
SACCEC-M12MSB-5CON-M16/1,0-900	1530223	190
SACCEC-M12MSB-5CON-M16/2,0-900	1529726	190
SACCEC-M12MSB-5CON-M16/5,0-900	1529739	190
SC-Z2319	1605456	415
SC-Z2320	1605457	415
SC-Z2322	1605459	415
SEALING PLUG 12X22 RD	1400260	44
SEALING PLUG 13X22 RD	1400265	45
SEALING PLUG 3X12 RD	1400238	44
SEALING PLUG 5X12 RD	1400253	44
SEALING PLUG 6X16 RD	1400254	44
SEALING PLUG 7X16 RD	1400255	44
SEALING PLUG 8X16 RD	1400257	44
SF-10KP004	1607355	347
SF-10KP320	1615961	318
SF-10KP330	1615962	318
SF-10KP350	1615963	318
SF-10KP360	1615964	318
SF-10KS004	1607356	347
SF-10KS320	1607031	318
SF-10KS330	1607358	318
SF-10KS350	1607032	318
SF-10KS360	1607361	318
SF-20KP004	1607376	374
SF-5EE1N8AS000	1605492	373
SF-5EP1N8A90A1	1605494	369
SF-5EP1N8A90A2	1605496	369
SF-5EP1N8A90A3	1605498	369
SF-5EP1N8A90DU	1605499	369
SF-5EP1N8A9LB1	1605505	369
SF-5EP1N8A9LB2	1605507	369
SF-5EP1N8A9LB3	1605508	369
SF-5EP1N8A9LB4	1605509	369
SF-5EP1N8A9LDL	1605510	369
SF-5EP1N8AA500	1620657	370
SF-5EP1N8AA600	1620661	370
SF-5EP1N8AC0A1	1605516	372
SF-5EP1N8AC0A2	1607037	372
SF-5EP1N8AC0A3	1607038	372
SF-5EP1N8AC0DU	1605517	372
SF-5EP1N8ACLB1	1607039	372
SF-5EP1N8ACLB2	1607040	372
SF-5EP1N8ACLB3	1607041	372
SF-5EP1N8ACLB4	1607042	372
SF-5EP1N8ACLDL	1605518	372
SF-5EP1N8AWA00	1605520	370
SF-5EP1S8AWA00	1620619	370
SF-5ES1N8A80A1	1605524	368
SF-5ES1N8A80A1S	1618194	368
SF-5ES1N8A80A2	1605526	368
SF-5ES1N8A80A2S	1618195	368
SF-5ES1N8A80A3	1605529	368
SF-5ES1N8A80A3S	1618196	368
SF-5ES1N8A80DU	1605532	368
SF-5ES1N8A80DUS	1618197	368
SF-5ES1N8A8LB1	1605543	368
SF-5ES1N8A8LB1S	1618198	368
SF-5ES1N8A8LB2	1605545	368
SF-5ES1N8A8LB2S	1618199	368
SF-5ES1N8A8LB3	1605546	368
SF-5ES1N8A8LB3S	1618200	368
SF-5ES1N8A8LB4	1605548	368

Type	Order No.	Page
SF-5ES1N8A8LB4S	1618201	368
SF-5ES1N8A8LDL	1605549	368
SF-5ES1N8A8LDLS	1618202	368
SF-5ES1N8AY000	1607082	371
SF-5ES1N8AYW00	1607405	371
SF-6AP2000	1605554	347
SF-6AS2000	1605557	347
SF-6CP2000	1605559	347
SF-6CS2000	1605562	347
SF-7EE1N8AS000	1605567	373
SF-7EP1N8A90A1	1605568	369
SF-7EP1N8A90A2	1605570	369
SF-7EP1N8A90A3	1605571	369
SF-7EP1N8A90DU	1605575	369
SF-7EP1N8A9LB1	1605578	369
SF-7EP1N8A9LB2	1605580	369
SF-7EP1N8A9LB3	1605581	369
SF-7EP1N8A9LB4	1605582	369
SF-7EP1N8A9LDL	1605583	369
SF-7EP1N8AA500	1620660	370
SF-7EP1N8AA600	1620662	370
SF-7EP1N8AC0A1	1607048	372
SF-7EP1N8AC0A2	1607049	372
SF-7EP1N8AC0A3	1607050	372
SF-7EP1N8AC0DU	1607051	372
SF-7EP1N8ACLB1	1607052	372
SF-7EP1N8ACLB2	1607053	372
SF-7EP1N8ACLB3	1607054	372
SF-7EP1N8ACLB4	1607055	372
SF-7EP1N8ACLDL	1607056	372
SF-7EP1N8AWA00	1605589	370
SF-7EP1S8AWA00	1620620	370
SF-7ES1N8A80A1	1605595	368
SF-7ES1N8A80A1S	1618204	368
SF-7ES1N8A80A2	1605596	368
SF-7ES1N8A80A2S	1618205	368
SF-7ES1N8A80A3	1605597	368
SF-7ES1N8A80A3S	1618206	368
SF-7ES1N8A80DU	1605602	368
SF-7ES1N8A80DUS	1618207	368
SF-7ES1N8A8LB1	1605605	368
SF-7ES1N8A8LB1S	1618208	368
SF-7ES1N8A8LB2	1605607	368
SF-7ES1N8A8LB2S	1618209	368
SF-7ES1N8A8LB3	1605610	368
SF-7ES1N8A8LB3S	1618210	368
SF-7ES1N8A8LB4	1605614	368
SF-7ES1N8A8LB4S	1618211	368
SF-7ES1N8A8LDL	1605617	368
SF-7ES1N8A8LDLS	1618212	368
SF-7ES1N8AY000	1605622	371
SF-7ES1N8AYW00	1607429	371
SF-7MP2000	1605626	374
SF-7MS2000	1605628	374
SF-7NS2000	1605631	374
SF-7PP2000	1605634	374
SF-7PS2000	1605636	374
SF-7QP2000	1605639	374
SF-7QS2000	1605643	374
SF-7RP2000	1605646	374
SF-Z0003	1605657	407
SF-Z0011	1605675	407
SF-Z0013	1605681	407
SF-Z0014	1607446	407
SF-Z0019	1607449	414
SF-Z0025	1607452	407
SF-Z0026	1607454	407
SF-Z0027	1607455	409
SF-Z0028	1607456	409
SF-Z0029	1607458	406
SF-Z0030	1607459	406
SF-Z0031	1607461	406
SF-Z0032	1607462	406
SF-Z0033	1607463	406
SF-Z0035	1607465	406
SF-Z0039	1607470	406
SF-Z0040	1607471	406
SF-Z0041	1607472	406
SF-Z0042	1613666	407
SF-Z0047	1614689	406
SF-Z0052	1615413	406
SF-Z0054	1615585	407
SF-Z0064	1620585	412
SF-Z0065	1620586	412
SF-Z0066	1620587	412
SL-16KP010	1607909	392
SL-16KS010	1607956	392
SL-1CKP010	1607911	392
SL-1CKP020	1607912	392
SL-1CKP030	1607913	392
SL-1CKP040	1607914	392
SL-1CKP050	1607915	392
SL-1CKS010	1607916	392
SL-1CKS020	1607917	392
SL-1CKS030	1607918	392
SL-1CKS040	1607919	392
SL-1CKS050	1607920	392
SL-5EP1N8A9001	1607499	390
SL-5EP1N8A9002	1607500	390
SL-5EPWN8AWA00	1615686	391
SL-5ES1N8A8001	1607501	390
SL-5ES1N8A8002	1607503	390
SL-7EP1N8A9001	1607505	390
SL-7EP1N8A9002	1607506	390
SL-7EPWN8AWA00	1615687	391
SL-7ES1N8A8001	1607507	390
SL-7ES1N8A8002	1607508	390
SL-Z0005	1607926	414
SL-Z0007	1613484	408
SL-Z0008	1613485	408
SL-Z0010	1613487	408
SL-Z0011	1613488	408
SL-Z0012	1613489	408
SL-Z0013	1613490	408
SL-Z0014	1613491	408
SL-Z0015	1613492	408
SL-Z0016	1614348	409
SM-20KP005	1605736	385
SM-20KP006	1605738	385
SM-20KP007	1605739	385
SM-20KP008	1605741	385
SM-36KP001	1605743	385
SM-36KP002	1605744	385
SM-36KP003	1605745	385
SM-36KP004	1605747	385
SM-36KP005	1605749	385
SM-36KP006	1605750	385
SM-36KP007	1605752	385
SM-36KP008	1605754	385
SM-36KP009	1607057	385
SM-36KS001	1605756	385
SM-36KS002	1605758	385
SM-36KS003	1605760	385
SM-36KS004	1605762	385
SM-5EP1N8A9L32S	1613425	381
SM-5EP1N8A9L33S	1613426	381
SM-5EP1N8A9L34S	1613427	381
SM-5EPWN8AA700	1620663	384
SM-5EPWN8AWT00	1613517	381
SM-5ES1N8A8L32S	1613428	380
SM-5ES1N8A8L33S	1613429	380
SM-5ES1N8A8L34S	1613430	380
SM-5ES1N8A8S22	1613518	380
SM-5ES1N8A8S23	1613519	380
SM-5ES1N8A8S24	1613520	380
SM-5ES1N8AY000	1605823	382
SM-5ES1N8AY000S	1613524	382
SM-5ES1N8AYW00	1607532	383
SM-5ES1N8AYW00S	1613525	383
SM-7EP1N8A9L32S	1613431	381
SM-7EP1N8A9L33S	1613432	381
SM-7EP1N8A9L34S	1613433	381
SM-7EPWN8AA700	1620664	384
SM-7EPWN8AWT00	1613527	381
SM-7ES1N8A8L32S	1613434	380
SM-7ES1N8A8L33S	1613435	380
SM-7ES1N8A8L34S	1613436	380
SM-7ES1N8A8S22	1613528	380
SM-7ES1N8A8S23	1613529	380
SM-7ES1N8A8S24	1613530	380
SM-7ES1N8AY000	1605865	382
SM-7ES1N8AY000S	1613534	382
SM-7ES1N8AYW00	1607543	383
SM-7ES1N8AYW00S	1613535	383
SM-Z0001	1605866	414
SM-Z0003	1607935	410
SM-Z0004	1607937	410
SM-Z0012	1614349	409
SM-Z0025	1620558	412
SM-Z0026	1620559	412
SM-Z0027	1620560	412
SM-Z0028	1620627	412
SM-Z0029	1620628	412
SM-Z0030	1620629	412
ST-06KP010	1607577	319
ST-06KP020	1607578	319
ST-06KP030	1607579	319
ST-06KS010	1607580	319
ST-06KS020	1607581	319
ST-06KS030	1607582	319
ST-08P1N8A6100S	1618584	317
ST-08P1N8A8003	1618995	313
ST-08P1N8A8003S	1618999	312
ST-08P1N8A8004	1618996	313
ST-08P1N8A8004S	1619000	312
ST-08P1N8A8005	1618997	313
ST-08P1N8A8005S	1619001	312
ST-08P1N8A8K02S	1618641	308
ST-08P1N8A8K03S	1618648	308
ST-08P1N8A8K04S	1618649	308
ST-08P1N8A9003S	1619011	314
ST-08P1N8A9004S	1619012	314
ST-08P1N8A9005S	1619013	314
ST-08P1N8A9K02S	1617799	309
ST-08P1N8A9K03S	1617813	309
ST-08P1N8A9K04S	1617830	309
ST-08P1N8AA400S	1620439	316
ST-08P1N8AA500S	1620456	316
ST-08P1N8ACK02S	1617925	310
ST-08P1N8ACK03S	1617929	310
ST-08P1N8ACK04S	1617932	310
ST-08P1N8AH100S	1619034	317
ST-08P1N8AW400S	1619037	311
ST-08P1N8AW500S	1619219	315
ST-08P1N8AWK00S	1619196	315
ST-08P1N8AWQ00S	1613286	311
ST-08S1N8A6100S	1619036	317
ST-08S1N8A8003	1619003	313
ST-08S1N8A8003S	1619007	312
ST-08S1N8A8004	1619004	313
ST-08S1N8A8004S	1619008	312
ST-08S1N8A8005	1619005	313
ST-08S1N8A8005S	1619009	312
ST-08S1N8A8K02S	1613370	308
ST-08S1N8A8K03S	1613371	308
ST-08S1N8A8K04S	1613372	308
ST-08S1N8A9003S	1619015	314
ST-08S1N8A9004S	1619016	314
ST-08S1N8A9005S	1619017	314
ST-08S1N8A9K02S	1618724	309
ST-08S1N8A9K03S	1618725	309
ST-08S1N8A9K04S	1618726	309
ST-08S1N8AA400S	1620440	316
ST-08S1N8AA500S	1620455	316
ST-08S1N8ACK02S	1618801	310
ST-08S1N8ACK03S	1618802	310
ST-08S1N8ACK04S	1618805	310
ST-08S1N8AH100S	1619035	317
ST-08S1N8AW400S	1619038	311
ST-08S1N8AW500S	1619220	315
ST-08S1N8AWK00S	1619197	315
ST-08S1N8AWQ00S	1619039	311
ST-10KP010	1618255	319
ST-10KP020	1618256	319
ST-10KP030	1618261	319
ST-10KS010	1618239	319
ST-10KS020	1618251	319
ST-10KS030	1618254	319
ST-17P1N8A6100S	1613540	317
ST-17P1N8A8003	1607624	313
ST-17P1N8A8003S	1607625	312
ST-17P1N8A8004	1607626	313
ST-17P1N8A8004S	1607627	312
ST-17P1N8A8005	1624528	313
ST-17P1N8A8005S	1624529	312
ST-17P1N8A8K02S	1618682	308
ST-17P1N8A8K03S	1618683	308
ST-17P1N8A8K04S	1618684	308
ST-17P1N8A9003S	1607630	314
ST-17P1N8A9004S	1607631	314
ST-17P1N8A9005S	1624530	314
ST-17P1N8A9K02S	1613497	309
ST-17P1N8A9K03S	1613896	309
ST-17P1N8A9K04S	1614532	309
ST-17P1N8AA400S	1620441	316
ST-17P1N8AA500S	1620458	316
ST-17P1N8ACK02S	1617863	310
ST-17P1N8ACK03S	1617872	310
ST-17P1N8ACK04S	1617873	310
ST-17P1N8AH100S	1613541	317
ST-17P1N8AW400S	1607634	311
ST-17P1N8AW500S	1619225	315
ST-17P1N8AWK00S	1619202	315
ST-17P1N8AWQ00S	1607636	311
ST-17S1N8A6100S	1613542	317
ST-17S1N8A8003	1607641	313
ST-17S1N8A8003S	1607642	312
ST-17S1N8A8004	1607643	313
ST-17S1N8A8004S	1607644	312
ST-17S1N8A8005	1624531	313
ST-17S1N8A8005S	1624532	312
ST-17S1N8A8K02S	1613288	308
ST-17S1N8A8K03S	1613324	308
ST-17S1N8A8K04S	1613325	308
ST-17S1N8A9003S	1607647	314
ST-17S1N8A9004S	1607649	314
ST-17S1N8A9005S	1624533	314
ST-17S1N8A9K02S	1618756	309
ST-17S1N8A9K03S	1618757	309
ST-17S1N8A9K04S	1618758	309
ST-17S1N8AA400S	1620442	316
ST-17S1N8AA500S	1620457	316
ST-17S1N8ACK02S	1618834	310
ST-17S1N8ACK03S	1618835	310
ST-17S1N8ACK04S	1618836	310
ST-17S1N8AH100S	1613543	317
ST-17S1N8AW400S	1607653	311
ST-17S1N8AW500S	1619226	315
ST-17S1N8AWK00S	1619206	315
ST-17S1N8AWQ00S	1607654	311
ST-20KP010	1607655	363
ST-20KP020	1607656	363
ST-20KS010	1607657	363
ST-20KS020	1607658	363
ST-3EP1N8A6100S	1613544	361
ST-3EP1N8A8003	1607663	357
ST-3EP1N8A8003S	1607665	356
ST-3EP1N8A8004	1607666	357
ST-3EP1N8A8004S	1607667	356
ST-3EP1N8A8005	1624534	357
ST-3EP1N8A8005S	1624535	356
ST-3EP1N8A8K02S	1618602	352
ST-3EP1N8A8K03S	1618574	352
ST-3EP1N8A8K04S	1618575	352
ST-3EP1N8A9003S	1607670	358
ST-3EP1N8A9004S	1607671	358
ST-3EP1N8A9005S	1624536	358
ST-3EP1N8A9K02S	1620614	353
ST-3EP1N8A9K03S	1618406	353
ST-3EP1N8A9K04S	1618690	353
ST-3EP1N8AA400S	1620427	360
ST-3EP1N8AA500S	1620444	360
ST-3EP1N8ACK02S	1618402	354
ST-3EP1N8ACK03S	1618407	354
ST-3EP1N8ACK04S	1618760	354
ST-3EP1N8AH100S	1613545	361
ST-3EP1N8AW400S	1607674	355
ST-3EP1N8AW500S	1619209	359
ST-3EP1N8AWK00S	1619186	359
ST-3EP1N8AWQ00S	1607675	355

Type	Order No.	Page
ST-3ES1N8A6100S	1613546	361
ST-3ES1N8A8003	1607682	357
ST-3ES1N8A8003S	1607683	356
ST-3ES1N8A8004	1607684	357
ST-3ES1N8A8004S	1607685	356
ST-3ES1N8A8005	1624537	357
ST-3ES1N8A8005S	1624538	356
ST-3ES1N8A8K02S	1618312	352
ST-3ES1N8A8K03S	1618408	352
ST-3ES1N8A8K04S	1618603	352
ST-3ES1N8A9003S	1607688	358
ST-3ES1N8A9004S	1607689	358
ST-3ES1N8A9005S	1624539	358
ST-3ES1N8A9K02S	1618695	353
ST-3ES1N8A9K03S	1618694	353
ST-3ES1N8A9K04S	1618693	353
ST-3ES1N8AA400S	1620428	360
ST-3ES1N8AA500S	1620443	360
ST-3ES1N8ACK02S	1618762	354
ST-3ES1N8ACK03S	1618763	354
ST-3ES1N8ACK04S	1618764	354
ST-3ES1N8AH100S	1613547	361
ST-3ES1N8AW400S	1607692	355
ST-3ES1N8AW500S	1619212	359
ST-3ES1N8AWK00S	1619189	359
ST-3ES1N8AWQ00S	1607694	355
ST-5EP1N8A6100S	1613548	361
ST-5EP1N8A8003	1607699	357
ST-5EP1N8A8003S	1607700	356
ST-5EP1N8A8004	1607701	357
ST-5EP1N8A8004S	1607702	356
ST-5EP1N8A8005	1624540	357
ST-5EP1N8A8005S	1624541	356
ST-5EP1N8A8K02S	1618614	352
ST-5EP1N8A8K03S	1618615	352
ST-5EP1N8A8K04S	1618616	352
ST-5EP1N8A9003S	1607706	358
ST-5EP1N8A9004S	1607707	358
ST-5EP1N8A9005S	1624542	358
ST-5EP1N8A9K02S	1618703	353
ST-5EP1N8A9K03S	1618702	353
ST-5EP1N8A9K04S	1618701	353
ST-5EP1N8AA400S	1620431	360
ST-5EP1N8AA500S	1620448	360
ST-5EP1N8ACK02S	1618767	354
ST-5EP1N8ACK03S	1618768	354
ST-5EP1N8ACK04S	1618769	354
ST-5EP1N8AH100S	1613549	361
ST-5EP1N8AW400S	1607710	355
ST-5EP1N8AW500S	1619213	359
ST-5EP1N8AWK00S	1619190	359
ST-5EP1N8AWQ00S	1607711	355
ST-5ES1N8A6100S	1613550	361
ST-5ES1N8A8003	1607717	357
ST-5ES1N8A8003S	1607718	356
ST-5ES1N8A8004	1607719	357
ST-5ES1N8A8004S	1607720	356
ST-5ES1N8A8005S	1624544	356
ST-5ES1N8A8K02S	1618621	352
ST-5ES1N8A8K03S	1618620	352
ST-5ES1N8A8K04S	1618619	352
ST-5ES1N8A9003S	1607723	358
ST-5ES1N8A9004S	1607724	358
ST-5ES1N8A9005S	1624545	358
ST-5ES1N8A9K02S	1618696	353
ST-5ES1N8A9K03S	1618697	353
ST-5ES1N8A9K04S	1618698	353
ST-5ES1N8AA400S	1620432	360
ST-5ES1N8AA500S	1620447	360
ST-5ES1N8ACK02S	1618772	354
ST-5ES1N8ACK03S	1618773	354
ST-5ES1N8ACK04S	1618774	354
ST-5ES1N8AH100S	1613551	361
ST-5ES1N8AW400S	1607727	355
ST-5ES1N8AW500S	1619214	359
ST-5ES1N8AWK00S	1619191	359
ST-5ES1N8AWQ00S	1607728	355
ST-6EP1N8A6100S	1613553	361
ST-6EP1N8A8003	1613558	357
ST-6EP1N8A8003S	1613559	356
ST-6EP1N8A8004	1613560	357
ST-6EP1N8A8004S	1613561	356
ST-6EP1N8A8005	1624546	357
ST-6EP1N8A8005S	1624547	356
ST-6EP1N8A8K02S	1618622	352
ST-6EP1N8A8K03S	1618623	352
ST-6EP1N8A8K04S	1618624	352
ST-6EP1N8A9003S	1613564	358
ST-6EP1N8A9004S	1613565	358
ST-6EP1N8A9005S	1624548	358
ST-6EP1N8A9K02S	1618704	353
ST-6EP1N8A9K03S	1618705	353
ST-6EP1N8A9K04S	1618706	353
ST-6EP1N8AA400S	1620433	360
ST-6EP1N8AA500S	1620450	360
ST-6EP1N8ACK02S	1618776	354
ST-6EP1N8ACK03S	1618777	354
ST-6EP1N8ACK04S	1618778	354
ST-6EP1N8AH100S	1613568	361
ST-6EP1N8AW400S	1613569	355
ST-6EP1N8AW500S	1619215	359
ST-6EP1N8AWK00S	1619192	359
ST-6EP1N8AWQ00S	1613570	355
ST-6ES1N8A6100S	1613572	361
ST-6ES1N8A8003	1613577	357
ST-6ES1N8A8003S	1613578	356
ST-6ES1N8A8004	1613579	357
ST-6ES1N8A8004S	1613580	356
ST-6ES1N8A8005	1624549	357
ST-6ES1N8A8005S	1624550	356
ST-6ES1N8A8K02S	1618632	352
ST-6ES1N8A8K03S	1618631	352
ST-6ES1N8A8K04S	1618630	352
ST-6ES1N8A9003S	1613583	358
ST-6ES1N8A9004S	1613584	358
ST-6ES1N8A9005S	1624551	358
ST-6ES1N8A9K02S	1618708	353
ST-6ES1N8A9K03S	1618709	353
ST-6ES1N8A9K04S	1618710	353
ST-6ES1N8AA400S	1620434	360
ST-6ES1N8AA500S	1620449	360
ST-6ES1N8ACK02S	1618780	354
ST-6ES1N8ACK03S	1618781	354
ST-6ES1N8ACK04S	1618782	354
ST-6ES1N8AH100S	1613587	361
ST-6ES1N8AW400S	1613588	355
ST-6ES1N8AW500S	1619216	359
ST-6ES1N8AWK00S	1619193	359
ST-6ES1N8AWQ00S	1613589	355
ST-7EP1N8A6100S	1613590	361
ST-7EP1N8A8003	1607735	357
ST-7EP1N8A8003S	1607736	356
ST-7EP1N8A8004	1607737	357
ST-7EP1N8A8004S	1607738	356
ST-7EP1N8A8005	1624552	357
ST-7EP1N8A8005S	1624553	356
ST-7EP1N8A8K02S	1618640	352
ST-7EP1N8A8K03S	1618639	352
ST-7EP1N8A8K04S	1618638	352
ST-7EP1N8A9003S	1607741	358
ST-7EP1N8A9004S	1607742	358
ST-7EP1N8A9005S	1624554	358
ST-7EP1N8A9K02S	1618712	353
ST-7EP1N8A9K03S	1618713	353
ST-7EP1N8A9K04S	1618714	353
ST-7EP1N8AA400S	1620435	360
ST-7EP1N8AA500S	1620452	360
ST-7EP1N8ACK02S	1618788	354
ST-7EP1N8ACK03S	1618790	354
ST-7EP1N8ACK04S	1618791	354
ST-7EP1N8AH100S	1613591	361
ST-7EP1N8AW400S	1607746	355
ST-7EP1N8AW500S	1619217	359
ST-7EP1N8AWK00S	1619194	359
ST-7EP1N8AWQ00S	1607747	355
ST-7ES1N8A6100S	1613592	361
ST-7ES1N8A8003	1607755	357
ST-7ES1N8A8003S	1607756	356
ST-7ES1N8A8004	1607758	357
ST-7ES1N8A8004S	1607759	356
ST-7ES1N8A8005	1624555	357
ST-7ES1N8A8005S	1624556	356
ST-7ES1N8A8K02S	1618633	352
ST-7ES1N8A8K03S	1618634	352
ST-7ES1N8A8K04S	1618635	352
ST-7ES1N8A9003S	1607764	358
ST-7ES1N8A9004S	1607765	358
ST-7ES1N8A9005S	1624557	358
ST-7ES1N8A9K02S	1618716	353
ST-7ES1N8A9K03S	1618717	353
ST-7ES1N8A9K04S	1618718	353
ST-7ES1N8AA400S	1620436	360
ST-7ES1N8AA500S	1620451	360
ST-7ES1N8ACK02S	1618787	354
ST-7ES1N8ACK03S	1618786	354
ST-7ES1N8ACK04S	1618785	354
ST-7ES1N8AH100S	1613593	361
ST-7ES1N8AW400S	1607768	355
ST-7ES1N8AW500S	1619218	359
ST-7ES1N8AWK00S	1619195	359
ST-7ES1N8AWQ00S	1607769	355
ST-8EP1N8A6100S	1613595	361
ST-8EP1N8A8003	1613600	357
ST-8EP1N8A8003S	1613601	356
ST-8EP1N8A8004	1613602	357
ST-8EP1N8A8004S	1613603	356
ST-8EP1N8A8005	1624636	357
ST-8EP1N8A8005S	1624637	356
ST-8EP1N8A8K02S	1618681	352
ST-8EP1N8A8K03S	1618680	352
ST-8EP1N8A8K04S	1618679	352
ST-8EP1N8A9003S	1613606	358
ST-8EP1N8A9004S	1613607	358
ST-8EP1N8A9005S	1624653	358
ST-8EP1N8A9K02S	1618740	353
ST-8EP1N8A9K03S	1618741	353
ST-8EP1N8A9K04S	1618742	353
ST-8EP1N8AA400S	1620437	360
ST-8EP1N8AA500S	1620454	360
ST-8EP1N8ACK02S	1618818	354
ST-8EP1N8ACK03S	1618819	354
ST-8EP1N8ACK04S	1618820	354
ST-8EP1N8AH100S	1613610	361
ST-8EP1N8AW400S	1613611	355
ST-8EP1N8AW500S	1620462	359
ST-8EP1N8AWK00S	1620460	359
ST-8EP1N8AWQ00S	1613612	355
ST-8ES1N8A6100S	1613614	361
ST-8ES1N8A8003	1613619	357
ST-8ES1N8A8003S	1613620	356
ST-8ES1N8A8004	1613621	357
ST-8ES1N8A8004S	1613622	356
ST-8ES1N8A8005	1624638	357
ST-8ES1N8A8005S	1624639	356
ST-8ES1N8A8K02S	1618674	352
ST-8ES1N8A8K03S	1618675	352
ST-8ES1N8A8K04S	1618676	352
ST-8ES1N8A9003S	1613625	358
ST-8ES1N8A9004S	1613626	358
ST-8ES1N8A9005S	1624654	358
ST-8ES1N8A9K02S	1618748	353
ST-8ES1N8A9K03S	1618749	353
ST-8ES1N8A9K04S	1618750	353
ST-8ES1N8AA400S	1620438	360
ST-8ES1N8AA500S	1620453	360
ST-8ES1N8ACK02S	1618825	354
ST-8ES1N8ACK03S	1618824	354
ST-8ES1N8ACK04S	1618823	354
ST-8ES1N8AH100S	1613629	361
ST-8ES1N8AW400S	1613630	355
ST-8ES1N8AW500S	1620461	359
ST-8ES1N8AWK00S	1620459	359
ST-8ES1N8AWQ00S	1613631	355
ST-E2015151	1613831	317
ST-Z0001	1607770	410
ST-Z0002	1607771	410
ST-Z0003	1607772	410
ST-Z0004	1607773	410
ST-Z0005	1607775	410
ST-Z0006	1607776	414
ST-Z0007	1607777	414
ST-Z0012	1613667	409
ST-Z0016	1617993	412
ST-Z0017	1618049	412
ST-Z0018	1618050	412
ST-Z0019	1620621	412
ST-Z0020	1620622	412
ST-Z0021	1620623	412
SZF 1-0,6X3,5	1204517	422

T

Type	Order No.	Page
TF-SCRJ-POF KONF SET	1405246	170
TSD 04 SAC	1208429	297
TSD 08 SAC	1212597	297
TSD-M 1,2NM	1212224	297
TSD-M 3NM	1212225	297
TSD-M 6NM	1212226	297
TSD-M SAC-BIT ADAPTER	1212600	297

V

Type	Order No.	Page
VC-A 2-BM	1607815	50
VC-AF	1852862	25
VC-AFOS 2	1885240	37
VC-AL-T1-R-M20-S	1583610	34
VC-AL-T1-R-M25-S	1583623	34
VC-AL-T1-Z-M20-S	1583597	34
VC-AL-T1-Z-M25-S	1583607	34
VC-AL-T2-R-M20-S	1583652	34
VC-AL-T2-R-M25-S	1583665	34
VC-AL-T2-Z-M20-S	1583636	34
VC-AL-T2-Z-M25-S	1583649	34
VC-AL-T3-R-M25-S	1583704	34
VC-AL-T3-R-M25/M20-S	1583717	34
VC-AL-T3-R-M32-S	1583720	34
VC-AL-T3-Z-M25-S	1583678	34
VC-AL-T3-Z-M25/M20-S	1583681	34
VC-AL-T3-Z-M32-S	1583694	34
VC-AL-T4-R-M25-S	1583762	34
VC-AL-T4-R-M25/M20-S	1583775	34
VC-AL-T4-R-M32-S	1583788	34
VC-AL-T4-Z-M25-S	1583733	34
VC-AL-T4-Z-M25/M20-S	1583746	34
VC-AL-T4-Z-M32-S	1583759	34
VC-AMC 4	1583877	28
VC-AMC 5	1583878	28
VC-AML 2	1852859	27
VC-AML 4	1607509	26
VC-AML 4-PEA	1607516	26
VC-AML 5	1607523	26
VC-AML 5-PEA	1607530	26
VC-AML 6	1853531	27
VC-AML 7	1607537	26
VC-AML 7-PEA	1607544	26
VC-AML 8	1852833	27
VC-AMLV 2	1884979	27
VC-AMLV 6	1884872	27
VC-AMLV 8	1884885	27
VC-AMS 2	1853528	25
VC-AMS 2-PE	1583542	25
VC-AMS 4	1607745	25
VC-AMS 5	1607748	25
VC-AMS 6	1854019	25
VC-AMS 6-PE	1583555	25
VC-AMS 7	1607751	25
VC-AMS 8	1854022	25
VC-AMS 8-PE	1583568	25
VC-AR-S	1607829	50
VC-AR1-EMV	1853214	25
VC-AR1/2M	1852972	25
VC-AR1/2M-PEA	1607761	30
VC-AR1/2M-S22-SET	1607298	24
VC-AR1/2M-S66-SET	1607346	24

Type	Order No.	Page
VC-AR1/2M-S88-SET	1607394	24
VC-AR2-EMV	1853227	25
VC-AR2/3M	1852985	25
VC-AR2/3M-PEA	1607774	30
VC-AR2/3M-S222-SET	1607311	24
VC-AR2/3M-S666-SET	1607359	24
VC-AR2/3M-S888-SET	1607407	24
VC-AR3-EMV	1853230	25
VC-AR3/4M	1852998	25
VC-AR3/4M-PEA	1607787	30
VC-AR3/4M-S2222-SET	1607322	24
VC-AR3/4M-S6666-SET	1607370	24
VC-AR3/4M-S8888-SET	1607418	24
VC-AR4-EMV	1853243	25
VC-AR4/5M	1853007	25
VC-AR4/5M-PEA	1607790	30
VC-AR4/5M-S22222-SET	1607335	24
VC-AR4/5M-S66666-SET	1607383	24
VC-AR4/5M-S88888-SET	1607431	24
VC-BZS WH	1852875	50
VC-CB-A	1607888	38
VC-CB-T	1607884	38
VC-D-AF	1855319	38
VC-D1-BU15-PE	1855050	39
VC-D1-BU15-PE-R	1884801	39
VC-D1-ST15-PE	1855018	38
VC-D2-BU30-PE	1855063	39
VC-D2-BU30-PE-R	1884791	39
VC-D2-ST30-PE	1855021	38
VC-D3-BU50-PE	1855076	39
VC-D3-BU50-PE-R	1884788	39
VC-D3-ST50-PE	1855034	38
VC-D4-BU65-PE	1855089	39
VC-D4-BU65-PE-R	1884775	39
VC-D4-ST65-PE	1855047	38
VC-EMV-KV-PG16(6,5- 9,5/ 6,5)	1854132	44
VC-EMV-KV-PG16(7-10,5/ 8,5)	1854161	44
VC-EMV-KV-PG16(9-13/10,5)	1854174	44
VC-EMV-KV-PG21(9-13/ 9,5)	1854200	45
VC-EMV-KV-PG21(9-13/12)	1854213	45
VC-EMV-KV-PG21(11,5-15,5/13,5)	1854242	45
VC-EMV-KV-PG21(14-18/14,5)	1854255	45
VC-FSMA-M-2 SET	1855432	37
VC-FSMA-M-KT-2 SET	1855703	37
VC-K-KV-PG16 1X3/1X8	1885376	46
VC-K-KV-PG16 1X3/1X9	1885389	46
VC-K-KV-PG16 1X3/2X8	1885415	46
VC-K-KV-PG16 1X5/1X9	1885402	46
VC-K-KV-PG16 1X5/2X6	1885428	46
VC-K-KV-PG16 1X6/1X8	1885392	46
VC-K-KV-PG16 2X6/1X7	1885431	46
VC-K-KV-PG16 3X7	1885444	44
VC-K-KV-PG16 7/14	1607664	44
VC-K-KV-PG16(4- 6,5)	1854459	44
VC-K-KV-PG16(5- 8)	1853735	44
VC-K-KV-PG16(6,5- 9,5)	1853748	44
VC-K-KV-PG16(7-10,5)	1853751	44
VC-K-KV-PG16(9-13)	1853764	44
VC-K-KV-PG16(11,5-15,5)	1854844	44
VC-K-KV-PG21 1X6/2X9	1885538	47
VC-K-KV-PG21 2X6/2X8	1885554	47
VC-K-KV-PG21 2X7,2/1X10,5	1885567	47
VC-K-KV-PG21 3X7	1885570	47
VC-K-KV-PG21 3X9	1885583	47
VC-K-KV-PG21 4X6,5	1885596	47
VC-K-KV-PG21 4X8	1885606	47
VC-K-KV-PG21(7-10,5)	1853890	45
VC-K-KV-PG21(9-13)	1853900	45
VC-K-KV-PG21(11,5-15,5)	1853913	45
VC-K-KV-PG21(14-18)	1853926	45
VC-K-KV-PG21(17-20,5)	1853939	45
VC-K-KV-PG21(20X7)	1885198	45
VC-K-KV-PG21-1X8,5/1X12	1885279	47
VC-K-KV-PG21-2X4,5/1X13	1885282	47
VC-K-KV-PG21-O	1885363	45
VC-K-T1-R	1855092	35
VC-K-T1-R-M20	1855097	35
VC-K-T1-Z	1852930	35
VC-K-T1-Z-M20	1852935	35
VC-K-T2-IN (10-25) G	1583880	35
VC-K-T2-R	1855102	35
VC-K-T2-R-M25	1855107	35
VC-K-T2-Z	1852943	35
VC-K-T2-Z-FK-6X20,5	1607703	35
VC-K-T2-Z-FK-6X24	1607677	35
VC-K-T2-Z-FK-7,5X29,5	1607680	35
VC-K-T2-Z-FK-9X35	1607693	35
VC-K-T2-Z-M25	1852948	35
VC-K-T3-IN (10-25)	1424368	35
VC-K-T3-R	1855115	35
VC-K-T3-R-M25	1855120	35
VC-K-T3-Z	1852956	35
VC-K-T3-Z-M25	1852961	35
VC-K-T4-R	1855128	35
VC-K-T4-R-M25	1855133	35
VC-K-T4-Z	1852969	35
VC-K-T4-Z-M25	1852974	35
VC-M-KV-PG16 1X3/1X8	1885457	46
VC-M-KV-PG16 1X3/1X9	1885460	46
VC-M-KV-PG16 1X3/2X8	1885499	46
VC-M-KV-PG16 1X5/1X9	1885486	46
VC-M-KV-PG16 1X5/2X6	1885509	46
VC-M-KV-PG16 1X6/1X8	1885473	46
VC-M-KV-PG16 2X6/1X7	1885512	44
VC-M-KV-PG16 3X7	1885525	44
VC-M-KV-PG16(4- 6,5)	1853942	44
VC-M-KV-PG16(5- 8)	1853955	44
VC-M-KV-PG16(6,5- 9,5)	1853968	44
VC-M-KV-PG16(7-10,5)	1853971	44
VC-M-KV-PG16(9-13)	1853984	44
VC-M-KV-PG16(11,5-15,5)	1854857	44
VC-M-KV-PG16/M25 ST	1644407	44
VC-M-KV-PG21 1X6/2X9	1885619	47
VC-M-KV-PG21 2X6/2X8	1885635	47
VC-M-KV-PG21 2X7,2/1X10,5	1885648	47
VC-M-KV-PG21 3X7	1885651	47
VC-M-KV-PG21 3X9	1885664	47
VC-M-KV-PG21 4X6,5	1885677	47
VC-M-KV-PG21 4X8	1885680	47
VC-M-KV-PG21(7-10,5)	1853997	45
VC-M-KV-PG21(9-13)	1854006	45
VC-M-KV-PG21(11,5-15,5)	1854035	45
VC-M-KV-PG21(14-18)	1854048	45
VC-M-KV-PG21(17-20,5)	1854051	45
VC-M-KV-PG21(20X 7)	1885305	45
VC-M-KV-PG21- 0	1854983	45
VC-M-KV-PG21- 1X8,5/1X12	1854970	47
VC-M-KV-PG21/M32 ST	1644397	45
VC-MP-A1	1884403	31
VC-MP-A2	1884416	31
VC-MP-A3	1884429	31
VC-MP-A4	1884432	31
VC-MP-K1	1884568	31
VC-MP-K2	1884571	31
VC-MP-K3	1884584	31
VC-MP-K4	1884597	31
VC-MP-S1	1884720	31
VC-MP-S2	1884733	31
VC-MP-S3	1884746	31
VC-MP-S4	1884759	31
VC-POLISHER/M FSMA	1884982	50
VC-SD-A1	1886760	48
VC-SD-A2	1886773	48
VC-SD-A3	1886786	48
VC-SD-A4	1886799	48
VC-SD-T1	1886728	48
VC-SD-T2	1886731	48
VC-SD-T3	1886744	48
VC-SD-T4	1886757	48
VC-SD1	1853670	48
VC-SD2	1853683	48
VC-SD3	1853696	48
VC-SD4	1853706	48
VC-T 2-BM	1607813	50
VC-T1-PR-D1	1607832	50
VC-T2-PR-D1	1607835	50
VC-T3-PR-D1	1607838	50
VC-T4-PR-D1	1607841	50
VC-TFOS 2	1855814	36
VC-TFS 2	1852846	33
VC-TFS 2-PE	1583513	33
VC-TFS 4-PEA	1607467	33
VC-TFS 4/1M-PEA	1607488	33
VC-TFS 4/2M-PEA	1607495	33
VC-TFS 5-PEA	1607474	33
VC-TFS 5/1M-PEA	1607502	33
VC-TFS 6	1853476	33
VC-TFS 6-PE	1583526	33
VC-TFS 7-PEA	1607481	33
VC-TFS 8	1852820	33
VC-TFS 8-PE	1583536	33
VC-TR-S	1607826	50
VC-TR1/2M-PEA	1607059	33
VC-TR1/2M-PEA-S22-SET	1607143	32
VC-TR1/2M-PEA-S66-SET	1607191	32
VC-TR1/2M-PEA-S88-SET	1607239	32
VC-TR2/3M-PEA	1607062	33
VC-TR2/3M-PEA-S222-SET	1607154	32
VC-TR2/3M-PEA-S666-SET	1607202	32
VC-TR2/3M-PEA-S888-SET	1607250	32
VC-TR3/4M-PEA	1607075	33
VC-TR3/4M-PEA-S2222-SET	1607167	32
VC-TR3/4M-PEA-S6666-SET	1607215	32
VC-TR3/4M-PEA-S8888-SET	1607263	32
VC-TR4/5M-PEA	1607088	33
VC-TR4/5M-PEA-S22222-SET	1607178	32
VC-TR4/5M-PEA-S66666-SET	1607226	32
VC-TR4/5M-PEA-S88888-SET	1607274	32
VS-04-BUA-BUB-F/IP67	1653838	205
VS-04-BUA-FK-F/IP67	1653854	205
VS-04-BUB-FK-F/IP67	1653867	205
VS-04-C-SDA/PH/0,3	1405552	205
VS-04-C-SDA/SDB/1,8	1405578	205
VS-04-C-SDB/PH/0,3	1405565	205
VS-04-MS-IP20	1402490	205
VS-04-MS-IP67	1402489	205
VS-08-A-RJ45/LP-1-IP67	1689446	85
VS-08-A-RJ45/LP-1-IP67-BK	1658655	85
VS-08-A-RJ45/MOD-1-IP20	1689433	79
VS-08-A-RJ45/MOD-1-IP67	1689080	84
VS-08-A-RJ45/MOD-1-IP67-BK	1658642	84
VS-08-A-RJ45/MOD-1-R-IP67	1689844	84
VS-08-A-RJ45/MOD-1-R-IP67 BK	1658053	84
VS-08-BU-RJ45-10G/LH-1	1420401	85
VS-08-BU-RJ45-5-F/PK	1652936	83
VS-08-BU-RJ45-6-MOD/BU	1653155	84
VS-08-BU-RJ45-6/KA/LSA	1653168	79
VS-08-BU-RJ45-6/LH-1	1653087	85
VS-08-BU-RJ45-6/LV-1	1653090	85
VS-08-BU-RJ45/10G-F	1424009	83
VS-08-BU-RJ45/BU	1689064	79
VS-08-BU-RJ45/LP-1	1688586	85
VS-08-BU/BU-RJ45-F	1405617	83
VS-08-DSIV-L180-HYB SCO	1456666	91
VS-08-KS-H/GN	1654756	78
VS-08-KS-H/GY	1654743	78
VS-08-KU-IP67	1689268	119
VS-08-KU-IP67-BK	1658684	119
VS-08-M12MR-10G-P SCO	1417443	88
VS-08-M12MS-10G-P SCO	1417430	88
VS-08-RJ45-10G/C	1418853	78
VS-08-RJ45-10G/Q	1419001	78
VS-08-RJ45-5-Q/IP67	1656990	82
VS-08-RJ45-5-Q/IP67-BK	1658493	82
VS-08-RJ45-FOLIEN-SET	1417184	78
VS-08-RJ45-Q	1402420	78
VS-08-SD-F	1652606	205
VS-08-SD-F-BK	1658066	83
VS-08-ST-H11-RJ45	1652716	78
VS-08-ST-H21-RJ45	1652729	82
VS-08-ST-H21P-RJ45	1404388	82
VS-08-T-H-RJ45/IP67	1652732	82
VS-08-T-H-RJ45/IP67-BK	1658671	82
VS-09-A	1688366	184
VS-09-A-EMV-S	1688463	184
VS-09-A-GC-BU/BU	1689695	185
VS-09-A-GC-ST/ST	1689705	185
VS-09-BU-DSUB-1P-4S	1689019	215
VS-09-BU-DSUB-1P-4S-LH	1655302	215
VS-09-BU-DSUB-2P	1688421	214
VS-09-BU-DSUB-2P-LH	1655289	214
VS-09-BU-DSUB-CD-B	1688861	212
VS-09-BU-DSUB-CD-G	1688845	212
VS-09-BU-DSUB-EG	1688803	210
VS-09-BU-DSUB-ER	1688405	211
VS-09-BU-DSUB-FK	1688829	213
VS-09-BU-DSUB-HD-CD-B	1655124	212
VS-09-BU-DSUB-HD-EG	1655108	210
VS-09-BU-DSUB-HD-ER	1656136	211
VS-09-BU-DSUB-LH-B	1654798	211
VS-09-BU-DSUB/9-MPT-0,5	1688395	185
VS-09-CAN	1689307	184
VS-09-DSUB-20-LI-1,0	1656233	218
VS-09-DSUB-20-LI-2,0	1656246	218
VS-09-DSUB-20-LI-5,0	1656259	218
VS-09-GC-BU/BU	1688722	213
VS-09-GC-ST/ST	1652651	213
VS-09-IBS-BU	1689284	184
VS-09-IBS-ST	1689271	184
VS-09-KU-BU/BU	1689637	185
VS-09-KU-ST/ST	1689640	185
VS-09-PROFIBUS-SC	1654549	184
VS-09-PROFIBUS-SP	1654345	184
VS-09-SD	1887086	219
VS-09-SET-EMV	1689158	184
VS-09-SET-STD	1689145	220
VS-09-ST-DSUB-1P-4S	1689006	215
VS-09-ST-DSUB-1P-4S-LH	1655315	215
VS-09-ST-DSUB-2P	1688418	214
VS-09-ST-DSUB-2P-LH	1655292	214
VS-09-ST-DSUB-CD-B	1688858	212
VS-09-ST-DSUB-CD-G	1688832	212
VS-09-ST-DSUB-EG	1688793	210
VS-09-ST-DSUB-ER	1688382	211
VS-09-ST-DSUB-FK	1688816	213
VS-09-ST-DSUB-HD-CD-B	1655137	212
VS-09-ST-DSUB-HD-EG	1655111	210
VS-09-ST-DSUB-HD-ER	1655098	211
VS-09-ST-DSUB-LH-B	1654785	211
VS-09-ST-DSUB/10-MPT-0,5	1688379	185
VS-09-T-20-1-S-A	1655661	218
VS-09-T-20-1-S-S	1655658	218
VS-09-T-2M16	1688353	219
VS-09-TI-2EMV	1688476	219
VS-15-A	1688036	220
VS-15-A-EMV-S	1688049	220
VS-15-A-GC-BU/BU	1689718	221
VS-15-A-GC-ST/ST	1689721	221
VS-15-BU-DSUB-2P-5S	1688230	215
VS-15-BU-DSUB-2P-5S-LH	1655344	215
VS-15-BU-DSUB-3P	1688214	214
VS-15-BU-DSUB-3P-LH	1655328	214
VS-15-BU-DSUB-CD-MG	1688926	212
VS-15-BU-DSUB-CD-OG	1688942	212
VS-15-BU-DSUB-EG	1688887	210
VS-15-BU-DSUB-ER	1688120	211
VS-15-BU-DSUB-FK	1688900	213
VS-15-BU-DSUB-HD-CD-B	1655182	212
VS-15-BU-DSUB-HD-EG	1655166	210
VS-15-BU-DSUB-HD-ER	1655140	211
VS-15-BU-DSUB-LH-B	1654811	211
VS-15-BU-DSUB/16-MPT-0,5	1688094	210
VS-15-DSUB-20-LI-1,0	1656262	218
VS-15-DSUB-20-LI-2,0	1656275	218
VS-15-DSUB-20-LI-5,0	1656288	218
VS-15-GC-BU/BU	1652664	213
VS-15-GC-ST/ST	1652677	213
VS-15-KU-BU/BU	1689653	221
VS-15-KU-ST/ST	1689666	221
VS-15-SD	1887099	219
VS-15-SET-EMV	1689132	221
VS-15-SET-STD	1689129	220
VS-15-ST-DSUB-2P-5S	1688227	215
VS-15-ST-DSUB-2P-5S-LH	1655360	215
VS-15-ST-DSUB-3P	1688201	214
VS-15-ST-DSUB-3P-LH	1655331	214
VS-15-ST-DSUB-CD-MG	1688913	212
VS-15-ST-DSUB-CD-OG	1688939	212
VS-15-ST-DSUB-EG	1688874	210
VS-15-ST-DSUB-ER	1688081	211

Type	Order No.	Page
VS-15-ST-DSUB-FK	1688890	213
VS-15-ST-DSUB-HD-CD-B	1655195	212
VS-15-ST-DSUB-HD-EG	1655179	210
VS-15-ST-DSUB-HD-ER	1655153	211
VS-15-ST-DSUB-LH-B	1654808	211
VS-15-ST-DSUB/16-MPT-0,5	1688078	210
VS-15-T-20-1-S-A	1655687	218
VS-15-T-20-1-S-S	1655674	218
VS-15-T-2PG11	1688052	219
VS-15-TI-2EMV	1688065	219
VS-25-A	1689750	220
VS-25-A-EMV-S	1689763	220
VS-25-A-GC-BU/BU	1689734	221
VS-25-A-GC-ST/ST	1689747	221
VS-25-BU-DSUB-3P-10S	1690008	215
VS-25-BU-DSUB-3P-10S-LH	1655412	215
VS-25-BU-DSUB-4P-5S	1655373	215
VS-25-BU-DSUB-4P-5S-LH	1655399	215
VS-25-BU-DSUB-5P	1689983	214
VS-25-BU-DSUB-5P-LH	1655438	214
VS-25-BU-DSUB-CD-B	1689967	212
VS-25-BU-DSUB-CD-G	1689941	212
VS-25-BU-DSUB-EG	1689909	210
VS-25-BU-DSUB-ER	1689886	211
VS-25-BU-DSUB-FK	1689925	213
VS-25-BU-DSUB-HD-CD-B	1655247	212
VS-25-BU-DSUB-HD-EG	1655221	210
VS-25-BU-DSUB-HD-ER	1655205	211
VS-25-BU-DSUB-LH-B	1654837	211
VS-25-BU-DSUB/25-MPT-0,5	1689776	210
VS-25-DSUB-20-LI-1,0	1656291	218
VS-25-DSUB-20-LI-2,0	1656301	218
VS-25-DSUB-20-LI-5,0	1656314	218
VS-25-GC-BU/BU	1652680	213
VS-25-GC-ST/ST	1652693	213
VS-25-KU-BU/BU	1689679	221
VS-25-KU-ST/ST	1689682	221
VS-25-SD	1652211	219
VS-25-SET-EMV	1652208	221
VS-25-SET-STD	1652198	220
VS-25-ST-DSUB-3P-10S	1689996	215
VS-25-ST-DSUB-3P-10S-LH	1655425	215
VS-25-ST-DSUB-4P-5S	1655386	215
VS-25-ST-DSUB-4P-5S-LH	1655409	215
VS-25-ST-DSUB-5P	1689970	214
VS-25-ST-DSUB-5P-LH	1655441	214
VS-25-ST-DSUB-CD-B	1689954	212
VS-25-ST-DSUB-CD-G	1689938	212
VS-25-ST-DSUB-EG	1689899	210
VS-25-ST-DSUB-ER	1689873	211
VS-25-ST-DSUB-FK	1689912	213
VS-25-ST-DSUB-HD-CD-B	1655250	212
VS-25-ST-DSUB-HD-EG	1655234	210
VS-25-ST-DSUB-HD-ER	1655218	211
VS-25-ST-DSUB-LH-B	1654824	211
VS-25-ST-DSUB/25-MPT-0,5	1689789	210
VS-25-T-20-1-S-A	1655700	218
VS-25-T-20-1-S-S	1655690	218
VS-25-T-2M20	1689792	219
VS-25-TI-2 EMV	1689802	219
VS-93A/...	1416486	105
VS-94A/...	1416415	96
VS-94D/...	1416444	96
VS-94E/...	1416460	96
VS-A-F-IP67	1653744	83
VS-A-F-IP67-BK	1658668	83
VS-BH-M12FS-8CON-RJ45/ 90	1405057	94
VS-BH-M12FS-8CON-RJ45/180	1405060	94
VS-BH-M12FSD-RJ45/180	1657494	94
VS-BH-M12FSD-RJ45/90	1657261	94
VS-BH-M12FSX-10G-RJ45/180	1404549	94
VS-BH-M12FSX-10G-RJ45/90	1404548	94
VS-BU-CD-1,0/14,4/0,2	1688997	216
VS-BU-CD-1,0/14,4/0,5	1688984	216
VS-BU-CD-HD-1,0/13,5/0,37	1655263	216
VS-BU-LH-3,6/18/3,8	1655454	217
VS-BU-LK-3,6/22,8/2,6	1688256	217
VS-BU-LK-3,6/22,8/4,6	1688272	217
VS-BU-SC-2,6	1655470	217
VS-CABLE-STRIP-VARIO	1657407	78
VS-CT-RJ45-H	1653265	78
VS-EC-MSDB SH SCO	1440711	205
VS-FSBPXS-OE-94F/0,5	1424135	93
VS-FSBPXS-OE-94F/1,0	1424148	93
VS-FSBPXS-OE-94F/2,0	1424151	93
VS-FSBPXS-OE-94F/5,0	1424164	93
VS-FSBPYS-OE-94I/0,5 SCO	1407504	93
VS-FSBPYS-OE-94I/1,0 SCO	1407505	93
VS-FSBPYS-OE-94I/2,0 SCO	1407506	93
VS-FSBPYS-OE-94I/5,0 SCO	1407507	93
VS-FSDBPS-IP20-93G-LI/2,0	1419146	109
VS-FSDBPS-OE-93G-LI/1,0	1419135	109
VS-FSDBPS-OE-93G-LI/2,0	1419136	109
VS-FSDBPS-OE-93G-LI/5,0	1419137	109
VS-GOF-FA-KONFTOOL-ADHESIVE	1658244	171
VS-GOF-FA-KONFTOOL-EU	1658228	171
VS-GOF-FA-KONFTOOL-US	1658231	171
VS-IET-DSUB-SIGNAL-HD	1658503	216
VS-IET-DSUB-SIGNAL-STD	1658794	216
VS-IP20-FPN-93G-LI/2,0	1419142	108
VS-IP20-OE-93E-LI/1,0	1405633	98
VS-IP20-OE-94B-LI/5,0	1407699	100
VS-IP20/10G-IP20/10G-94F/1	1418866	102
VS-IP20/10G-IP20/10G-94F/5	1418879	102
VS-IP67-IP20-93E-LI/2,0	1405921	98
VS-IP67-IP20-94B-LI/5,0	1407932	100
VS-IP67-OE-93E-LI/2,0	1405675	98
VS-IP67-OE-94B-LI/5,0	1407725	100
VS-M12FSBP-IP20-93E-LI/2,0	1406085	99
VS-M12FSBP-IP20-94B-LI/5,0	1412082	101
VS-M12FSBP-IP67-93E-LI/2,0	1406247	99
VS-M12FSBP-IP67-94B-LI/5,0	1412231	101
VS-M12FSBP-OE-93E-LI/2,0	1405866	99
VS-M12FSBP-OE-94B-LI/5,0	1407877	101
VS-M12FSBP-PPC/ME-93E-LI/2,0	1406519	99
VS-M12FSBP-PPC/ME-94B-LI/5,0	1412503	101
VS-M12FSBP-PPC/PL-93E-LI/2,0	1406603	99
VS-M12FSBP-PPC/PL-94B-LI/5,0	1412590	101
VS-M16 (3-6)	1688450	219
VS-M16 (5-9)	1688447	219
VS-M20 (5-13)	1652127	219
VS-MP-PPC/CG-10G	1403678	117
VS-MP-PPC/CG-FO	1404319	135
VS-MP-PPC/CG-PO	1403681	117
VS-MP-PPC/CG-PO/10G	1403682	117
VS-MP-PPC/CG-PO/FO	1404321	135
VS-MP-PPC/CG-XL-10G	1403686	117
VS-MP-PPC/CG-XL-FO	1404324	135
VS-MP-PPC/CG-XL-PO/10G	1403688	117
VS-MP-PPC/CG-XL-PO/FO	1404325	135
VS-MP-PPC/PPC-1G	1403685	117
VS-MP-PPC/PPC-PO	1403684	117
VS-MSTBAH 2,5/ 5-GB-5,08-BK-A	1657915	124
VS-MSTBAH 2,5/ 5-GB-5,08-RD-B	1609549	124
VS-MSTBVA 2,5/ 5-GB-5,08-BK-A	1609565	124
VS-MSTBVA 2,5/ 5-GB-5,08-RD-B	1609581	124
VS-OE-OE-937/...	1402687	105
VS-OE-OE-93A-100,0	1416392	105
VS-OE-OE-93B-100,0	1416389	105
VS-OE-OE-93B/...	1417362	105
VS-OE-OE-93C-100,0	1416376	105
VS-OE-OE-93C/...	1417491	105
VS-OE-OE-93E-100,0	1416295	96
VS-OE-OE-93E/...	1417320	96
VS-OE-OE-93R-100,0	1416363	105
VS-OE-OE-93R/...	1417388	105
VS-OE-OE-94A-100,0	1416305	96
VS-OE-OE-94B-100,0	1416567	96
VS-OE-OE-94B/...	1417333	96
VS-OE-OE-94C-100,0	1416318	96
VS-OE-OE-94C/...	1417346	96
VS-OE-OE-94D-100,0	1416334	96
VS-OE-OE-94E-100,0	1416350	96
VS-OE-PPC/ME-93B-LI/5,0	1416162	106
VS-OE-PPC/PL-93B-LI/5,0	1416168	107
VS-PG11 (3- 7)	1688117	219
VS-PG11 (5-10)	1688104	219
VS-PN-RJ45-5-Q/IP20	1658435	78
VS-PNRJ45-PNRJ45R-93B-1,0	1418248	106
VS-PNRJ45-PNRJ45R-93B-2,0	1418277	106
VS-PNRJ45-PNRJ45R-93G-1,0	1402505	108
VS-PNRJ45-PNRJ45R-93G-2,0	1402508	108
VS-PP-19-1HE-16-F	1652994	122
VS-PP-F-RJ45-CAT6	1658118	120
VS-PP-F-SCRJ	1658121	134
VS-PPC-C1-MNNA-4Q5-EMC	1403366	80
VS-PPC-C1-MNNA-8Q5-EMC	1403367	80
VS-PPC-C1-PC-ROBK-L	1405293	83
VS-PPC-C1-RJ45-MNNA-8I10G	1422108	80
VS-PPC-C1-RJ45-MNNA-PG9-4Q5	1608100	80
VS-PPC-C1-RJ45-MNNA-PG9-8Q5	1608016	80
VS-PPC-C1-RJ45-POBK-8I10G	1422205	80
VS-PPC-C1-RJ45-POBK-PG9-4Q5	1608126	80
VS-PPC-C1-RJ45-POBK-PG9-8Q5	1657834	80
VS-PPC-C1-SCRJ-MNNA-PG9-A3C-C	1608045	131
VS-PPC-C1-SCRJ-MNNA-PG9-A4D-C	1608032	128
VS-PPC-C1-SCRJ-POBK-PG9-A3C-C	1657863	131
VS-PPC-C1-SCRJ-POBK-PG9-A4D-C	1657850	128
VS-PPC-C2-MSTB-MNNA-P13-A5-SP	1608074	124
VS-PPC-C2-MSTB-POBK-P13-A5-SP	1657892	124
VS-PPC-C2-MSTB-POBK-P13-B5-SP	1608236	124
VS-PPC-C2-PC-ROBK	1405125	124
VS-PPC-C2-PC-ROBK-L	1405303	124
VS-PPC-C2-PC67-MNNA	1404045	124
VS-PPC-F1-PC-POBK	1405316	80
VS-PPC-F1-RJ45-MNNA-1C-F	1405222	83
VS-PPC-F1-RJ45-MNNA-1R-F	1405358	83
VS-PPC-F1-RJ45-MNNA-1R-PHA	1608029	85
VS-PPC-F1-RJ45-P0BK-1R-PHA	1657847	85
VS-PPC-F1-RJ45-POBK-1R-F	1608197	83
VS-PPC-F1-SCRJ-MNNA-1C-F	1405235	128
VS-PPC-F1-SCRJ-MNNA-1RF	1405374	128
VS-PPC-F1-SCRJ-MNNA-1RP	1608061	128
VS-PPC-F1-SCRJ-POBK-1RF	1608210	128
VS-PPC-F1-SCRJ-POBK-1RP	1657889	128
VS-PPC-F2-MSTB-MNNA-1C-SPSA5	1405248	124
VS-PPC-F2-MSTB-MNNA-1C-SPSB5	1405167	124
VS-PPC-F2-MSTB-MNNA-1R-P	1608087	124
VS-PPC-F2-MSTB-MNNA-1R-SPSA5	1608249	124
VS-PPC-F2-MSTB-MNNA-1R-SPSB5	1608252	124
VS-PPC-F2-MSTB-POBK-1R-P	1608281	124
VS-PPC-F2-MSTB-POBK-1R-SPSA5	1608294	124
VS-PPC-F2-MSTB-POBK-1R-SPSB5	1608304	124
VS-PPC-F2-PC-POBK	1405329	124
VS-PPC-J-1-SCRJ-MNBK	1405206	136
VS-PPC-J-1220-1227-1020-...	1405484	125
VS-PPC-J-1220-1227-1020-0,2	1404799	125
VS-PPC-J-1226-1227-1021-...	1405497	125
VS-PPC-J-1226-1227-1021-0,2	1404812	125
VS-PPC-J-4X-1227	1405387	125
VS-PPC-J-M	1405390	125
VS-PPC/ME-IP20-93B-LI/5,0	1416138	106
VS-PPC/ME-IP20-93E-LI/5,0	1405992	98
VS-PPC/ME-IP20-94B-LI/5,0	1407990	100
VS-PPC/ME-OE-93E-LI/5,0	1405743	98
VS-PPC/ME-OE-94B-LI/5,0	1407783	100
VS-PPC/PL-IP20-93B-LI/5,0	1416141	107
VS-PPC/PL-IP20-93E-LI/5,0	1406030	99
VS-PPC/PL-IP20-94B-LI/5,0	1412024	101
VS-PPC/PL-OE-93E-LI/5,0	1405772	99
VS-PPC/PL-OE-94B-LI/5,0	1407819	101
VS-PSC 1,5/3-M	1689310	215
VS-PSC 1,5/3-M PE	1689336	215
VS-PSC 1,5/5-M	1688825	215
VS-PSC 1,5/5-M PE	1689323	215
VS-RJ45-RJ45-94P-0,3	1417993	110
VS-RJ45-RJ45-94P-0,5	1418028	110
VS-RJ45-RJ45-94P-1,0	1418057	110
VS-RJ45-RJ45-94P-2,0	1418109	110
VS-RJ45-RJ45-94P-5,0	1418141	110
VS-RJ45-RJ45R-94P-0,3	1418002	110
VS-RJ45-RJ45R-94P-0,5	1418031	110
VS-RJ45-RJ45R-94P-1,0	1418070	110
VS-RJ45-RJ45R-94P-2,0	1418125	110
VS-RJ45-RJ45R-94P-5,0	1418154	110
VS-RJ45R-RJ45R-94P-0,3	1418015	110
VS-RJ45R-RJ45R-94P-0,5	1418044	110
VS-RJ45R-RJ45R-94P-1,0	1418099	110
VS-RJ45R-RJ45R-94P-2,0	1418138	110
VS-RJ45R-RJ45R-94P-5,0	1418167	110
VS-SCDU-GOF-FA-IP20	1658529	132
VS-SCRJ-A-TC-IP67	1658545	127
VS-SCRJ-GOF-BU/BU	1652978	127
VS-SCRJ-GOF-FA-IP20	1657070	132
VS-SCRJ-GOF-FA-IP67	1657083	132
VS-SCRJ-GOF-KU	1654358	136
VS-SCRJ-HCS-FA-IP20	1654866	130
VS-SCRJ-HCS-FA-IP20-PN	1404087	131
VS-SCRJ-HCS-FA-IP67	1657012	130
VS-SCRJ-PC	1653757	127
VS-SCRJ-POF-FA-IP20	1654879	127
VS-SCRJ-POF-FA-IP67	1657009	127
VS-SCRJ-POF-KONFTOOL-POLISH	1658820	170
VS-SCRJ-POF-POLISH	1656673	170
VS-ST-CD-1,0/14,8/0,2	1688971	216
VS-ST-CD-1,0/14,8/0,5	1688968	216
VS-ST-CD-HD-1,0/13,5/0,37	1655276	216
VS-ST-LH-3,6/18/3,8	1655467	217
VS-ST-LK-3,6/22,4/2,6	1688243	217
VS-ST-LK-3,6/22,4/4,6	1688269	217
VS-ST-SC-2,6	1655483	217
VS-TO-0W-6-F-9010	1653029	134
VS-TO-IW-2-F-9010	1653016	122
VS-TO-OW-2-F-9010	1653003	122
VS-TO-RO-MCBK-F1411/1411	1404281	118
VS-TO-RO-MCBK-F1411/1413	1404333	118
VS-TO-RO-MCBK-F1417/1413	1404346	134
VS-TO-RO-MCBK-F1417/1417	1404320	134
VS-TO-RO-MCBK-F1418/1418	1404278	118
VS-TO-RO-MCBK-F1421/1421	1404294	118
VS-TO-RO-MCBK-F1422/1422	1404304	118
VS-V1-C-LC-MNNA-PG9-A1-G	1419190	133
VS-V1-C-LC-MNNA-PG9-B1-G	1419191	133
VS-V1-C-PC-POBK	1419183	82
VS-V1-C-RJ45-MNNA-PG9-8-I-5-S	1419182	82
VS-V1-C-SCRJ-MNNA-PG9-A1-G	1419187	133
VS-V1-C-SCRJ-MNNA-PG9-A4A-G	1419189	129
VS-V1-C-SCRJ-MNNA-PG9-B1-G	1419188	133
VS-V1-F-LC-MNNA-PG9-C-S-A1	1420210	133
VS-V1-F-LC-MNNA-PG9-C-S-B1	1420223	133
VS-V1-F-PC-POBK	1419186	86
VS-V1-F-RJ45-MNNA-1-C-S-JI-S	1419185	86
VS-V1-F-RJ45-MNNA-1-C-S-JJ-S	1419184	86
VS-V1-F-SCRJ-MNNA-PG9-C-S-A1	1420197	129
VS-V1-F-SCRJ-MNNA-PG9-C-S-B1	1420207	133

W

WIREFOX-D SR 6-1	1212511	422
WIREFOX-PN POF	1405249	170
WR-DA-M32/PG29	1644847	51
WR-DA-M40	1644876	51
WR-DA-PG16	1686685	51
WR-DA-PG21	1686698	51
WR-OEF-M40	1644892	51
WR-OEF-PG16	1853638	51
WR-OEF-PG21	1853612	51
WR-OEF-PG29	1853641	51
WR/M40-25M	1644889	51
WR/PG16-50M	1666841	51
WR/PG21-50M	1666867	51
WR/PG29-25M	1666854	51



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