

# RAFIX 22 FS<sup>+</sup>

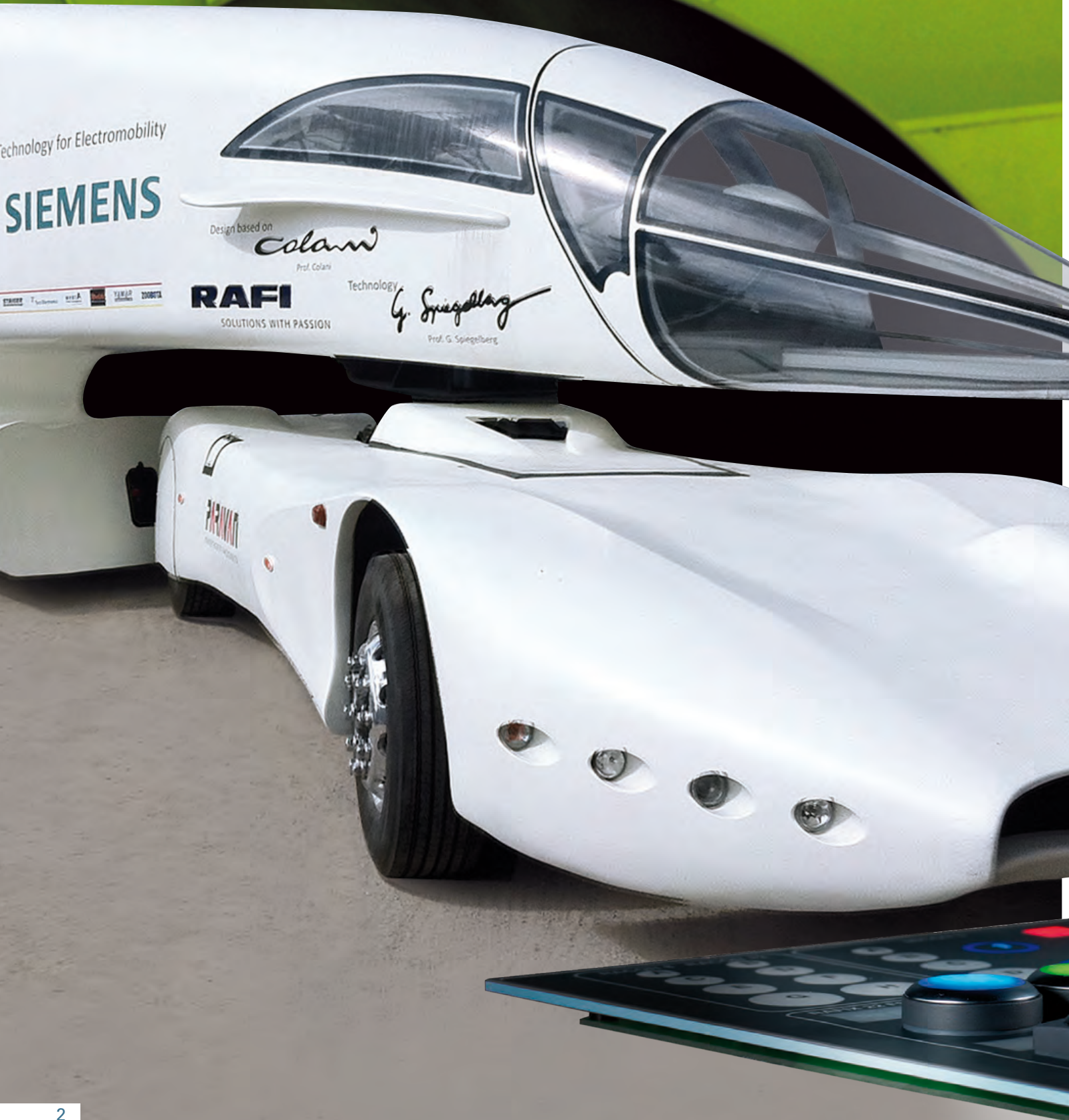
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FAST & SLIM

Everything else is outdated.



**RAFIX 22 FS<sup>+</sup>**  
FAST & SLIM



# RAFIX 22 FS<sup>+</sup> FAST & SLIM EVERYTHING ELSE IS OUTDATED.

**Design is the key! New technologies and new materials make new design worlds possible. That not only goes for Colani and his motor truck vision of the future but also for the control unit in your machine.**

**The RAFIX 22 FS+ control component generation provides your designers a basis for new designs, plus fast and cost-efficient installation options requiring a minimum amount of space, and is now optimized to the latest generation of super bright SMT LEDs.**

## Fast

The fastest connection type for every application: with a printed circuit board or right with quick-connect terminals.

- A printed circuit board is the best and fastest solution already for medium-size production volumes. In addition, PCB contact blocks can ideally be combined with displays, short-travel key switches and electronic assemblies on one common printed circuit board.
- Alternatively, QC (= Quick Connect) contact blocks can easily be snapped into the actuators without tools. Blade terminals are used directly for wiring in a conventional manner. The fast and cost-effective variant - where no PCB is profitable.

## Slim

Now it's a snap to slim the design of your control systems thanks to the low mounting depth.

- Designs with PCB contact blocks feature a distance between the front panel and printed circuit board of only 9.2 mm; the same goes for contact blocks with silver contacts for mains voltage.

That's as slim as it gets.

- Also when fitted with QC contact blocks, RAFIX 22 FS+ panels are extremely flat. With a small footprint of only 27 mm behind the front panel, they provide tremendous design scope for inspiring control panels.

+

RAFIX 22 FS<sup>+</sup> offer additional benefits for you:

- Diverse actuators and contact block options – a complete series
- Variable thanks to round or square operating components
- Variable thanks to gold contacts from 5V silver contacts up to 250 V
- Variable design thanks to diverse front ring colors
- Variable illumination, compatible with 3 mm THT or newly with SMT LEDs



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# DESIGN IS THE KEY

Enjoy the look of your operating panel just like your customer will. The front elements feature a classically elegant design and guarantee reliable data input.



## Design

The RAFIX 22 FS<sup>+</sup> series sets new standards in the control component field. Extremely flat construction and functional esthetic design are absolutely essential in an increasingly design-oriented industrial environment. The wide variety and variability of actuators give your designer complete de-

sign freedom: round or square collar types, radiant colors and homogenous illumination of the large actuating areas are basic features. Combined with the various front rings, this makes it possible to create your panel with a distinctive design. For example, a defined color can always be assigned to a specific

command. What's more, the large number of color options for the front ring makes it a snap to customize it to the corporate colors of the various OEMs.



## Safe and reliable

The actuators featured in the RAFIX 22 FS<sup>+</sup> series are water-jet proof and consistently ensure a degree of protection to at least IP 65, which makes them suitable for many diverse applications. For increased environmental requirements, the series also features actuators with a degree of protection to IP 65/ IP 69K.

## Durable

The mechanical lifetime of all actuators is optimally suited for the long-lasting operation of even much-used panels.

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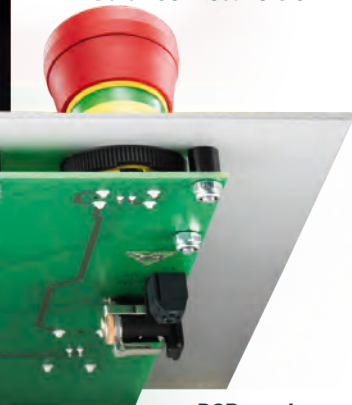


# PCB & QC – TWO SYSTEMS, ONE TARGET: EFFICIENCY

In front of the front panel control components are functionally identical. Behind it you'll find the differences which make life easier for your production engineer and number work simpler for your accountant.



Quick Connect version



PCB version

## Quick Connect

### QC contact blocks for maximum variability

When the investment for the layout and production of a printed circuit board does not pay off, your best choice is our QC contact blocks with quick connect terminals. The contact blocks are plugged into the actuators from behind and lock firmly into place.

Blade terminals enable simple wiring, without any additional devices or special tools. The enclosed space in the RAFIX 22 FS<sup>+</sup> control components is also used efficiently for the QC contact blocks whose mounting depth including the LED clip and cable lugs is only 27 mm.

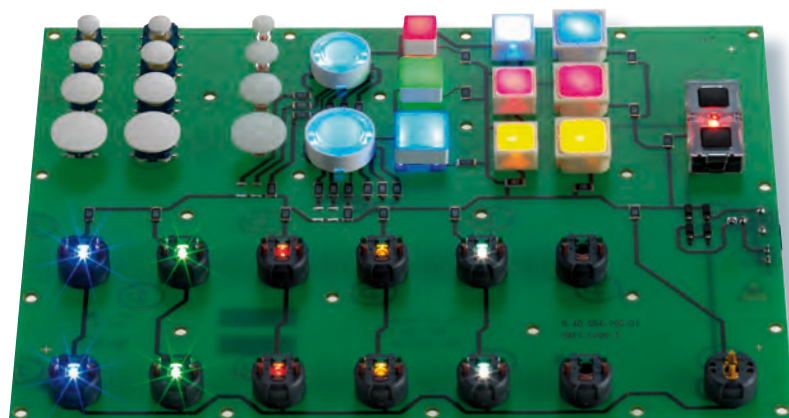
## Easy to assemble on the printed circuit board

### PCB contact blocks for high production volumes

- If you produce your input systems in large volumes, or
- if you use a printed circuit board for the electronics, displays and other components anyway, or
- if you are planning combination with short-travel keyswitches, RAFIX 22 FS<sup>+</sup> with PCB contact blocks is the only real choice.

Simply include the PCB contacts and LEDs in the layout of the printed circuit board and solder them during production – just as simply as the other components on a common printed board.

Your benefits: cost savings and reduction of assembly errors. And don't worry about using up space: the contact blocks require only 9.2 mm of space between the printed circuit board and the front panel.



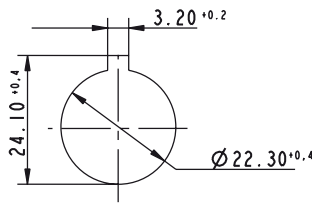
PCB version

# COMMON SYSTEM DATA

## Front panel

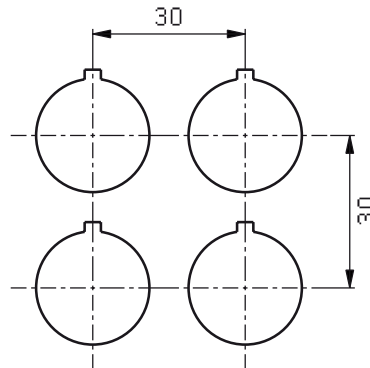
### Panel cut-out

The actuators featured in the RAFIX 22 FS<sup>+</sup> series are suitable for 22.3 mm panel cut-outs according to IEC 60947-5-1. All actuators are equipped with a locating pip. This locating pip ensures the perfect fit of actuators and contact blocks for PCB-mounted components and is therefore essential for a design built with these contact blocks.



### Grid spacing

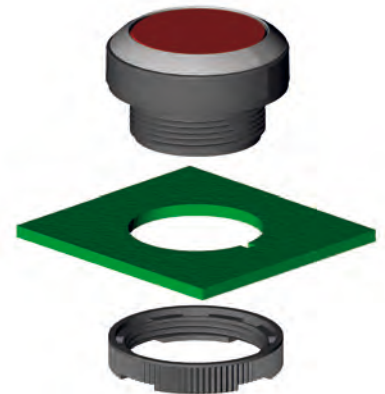
The design principle makes it possible to use a minimum grid spacing of 30 mm x 30 mm. In such an arrangement, actuators with square collars can be aligned directly without any gaps. When designing the grid spacing, it is recommended to consider any external legending required (for example, using labels strips inserted into the front panel).



## Assembly of the front actuators

### Single-handed assembly method

For assembly, insert the actuator into the mounting hole from the front side. It is clamped in the panel cutout. Subsequently you can screw on the actuator from the rear using the ring nut. You can perform these steps one after the other with one hand! Even better: you can start by inserting all actuators from the front side first and subsequently fasten the threaded rings from the rear in one go. We recommend using the RAFIX fixing spanner to ensure proper tightening.





# SYSTEM STRUCTURE WITH PCB CONTACT BLOCKS

## PCB mounting

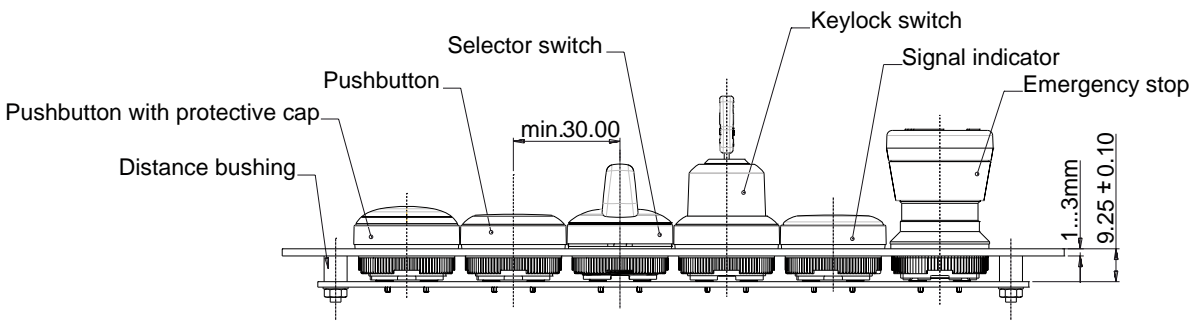
The PCB contact blocks are soldered on the printed circuit board. Two options for actuator illumination are available:

1.) A 3 mm LED which is inserted into the base of the contact block and soldered together with the contact block on the printed circuit board.

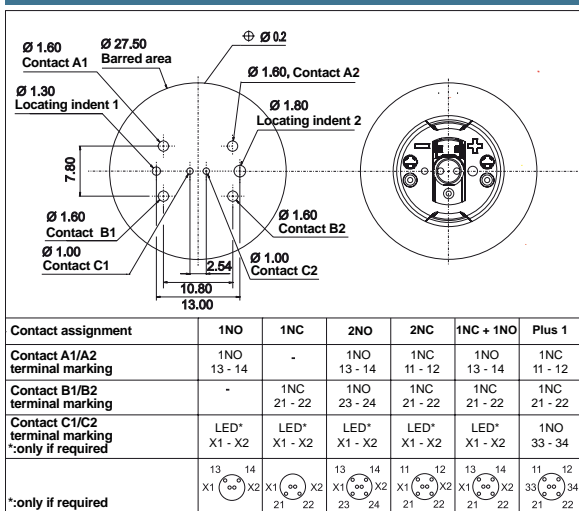
2.) A separately placed SMT LED whose light is transported by the light conductor and distributed over the entire surface of the lenses.

The printed circuit board is fastened to the front panel with bolts, while the contact blocks are almost fully submerged

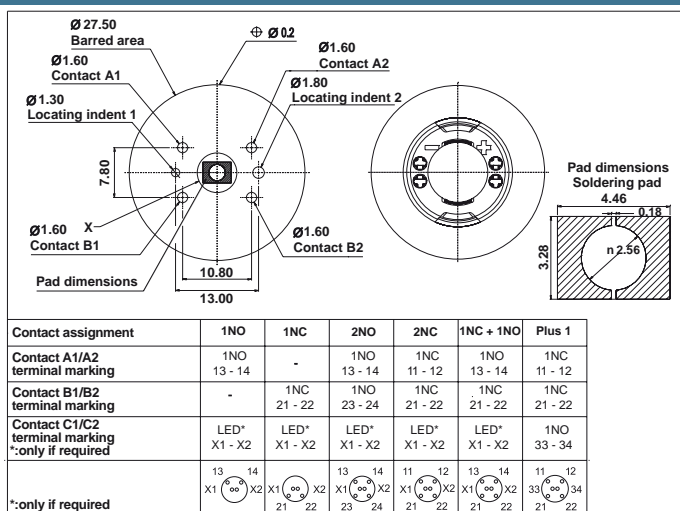
in the actuators, so the entire system is very low. Further benefits: individual wiring is not required, and it is no longer necessary to cut out the printed circuit board around the control components.



**PCB hole pattern with THT LED  
(view of component side)**



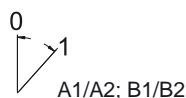
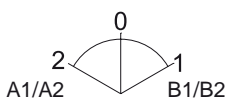
**PCB hole pattern with SMT LED  
(view of component side)**



## Contact diagram for selector and keylock switches

All actuators with 3 switch positions

All actuators with 2 switch positions



# SYSTEM STRUCTURE WITH QC CONTACT BLOCKS

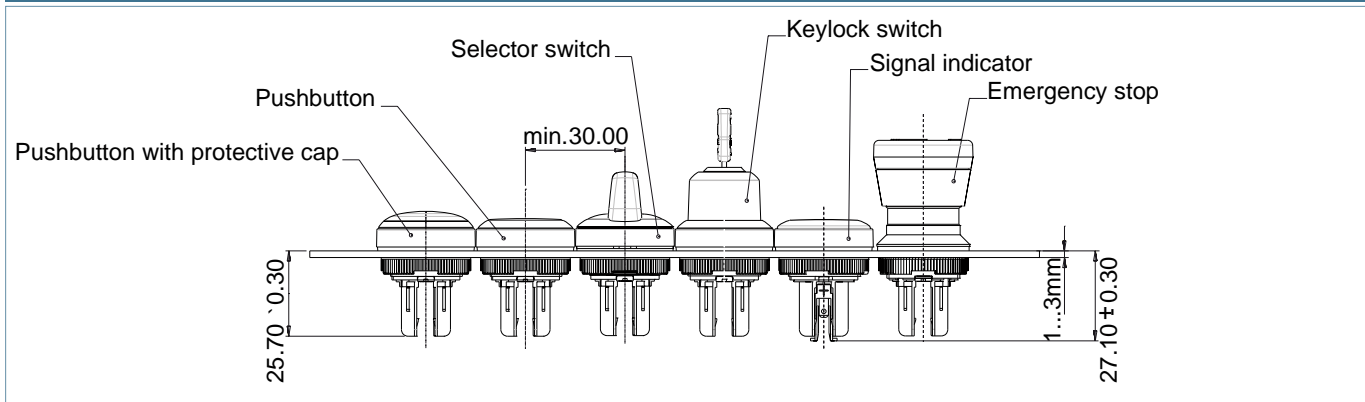
## Essential features

- Mounting depth only 27 mm including LED clip and cable lugs
- Quick-connect/solder terminals 2.8 x 0.8 mm
- The contact block engages permanently with the actuator only at the time of final assembly
- Compatible with all RAFIX 22 FS<sup>+</sup> actuators: pushbuttons, selector switches, keylock switches, emergency stop buttons and signal indicators, with all benefits this series offers
  - Large actuating and indicating areas
  - Round or square collar shapes
  - Panel cut-out to IEC 60947: 22.3 mm with locating indent
- Degree of protection IP 65 (water-jet proof)
- Protection against contact for quick-connect terminals and cable lugs: short-circuit proof even when the connection wires are under tensile strain
- Gold contacts for totally reliable switching of low voltages (5V/1 mA min.) or
- Silver contacts (250V/4A max.) for mains voltage
- Contact assignments: 1NC, 1NO, 2NC, 2NO, 1NC + 1NO
- Illumination with replaceable super bright LED clips in various LED colors, with quick-connect terminals 2.8 x 0.8 mm
- Actuators/contact blocks, signal indicators/lamp sockets and LED clips can be stocked separately and are not assembled until final assembly. This ensures maximum flexibility and economical stock-keeping for this range

## Safe assembly process



### Dimensional drawing with QC contact blocks



### Terminal diagram (view from below)

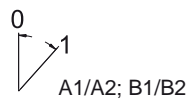
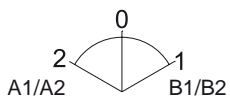
Contact block with LED clip  
(view from below)

Contact block "Plus 1"  
(view from below)

| Contact assignment  | 1NO             | 1NC             | 2NO             | 2NC             | 1NC + 1NO       | Plus 1         |
|---|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|
| <b>Contact A1/A2 terminal marking</b>                       | 1NO<br>13 - 14  | -               | 1NO<br>13 - 14  | 1NC<br>11 - 12  | 1NO<br>13 - 14  | 1NC<br>11 - 12 |
| <b>Contact B1/B2 terminal marking</b>                       | -               | 1NC<br>21 - 22  | 1NO<br>23 - 24  | 1NC<br>21 - 22  | 1NC<br>21 - 22  | 1NC<br>21 - 22 |
| <b>Contact C1/C2 terminal marking</b><br>*:only if required | LED*<br>X1 - X2 | LED*<br>X1 - X2 | LED*<br>X1 - X2 | LED*<br>X1 - X2 | LED*<br>X1 - X2 | 1NO<br>33 - 34 |

### Contact diagram for selector and keylock switches

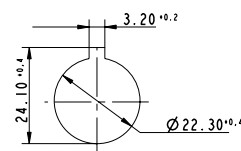
All actuators with 3 switch positions      All actuators with 2 switch positions



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| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, E-Stop, with light conductor              | 59        |
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| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal, with light conductor         | 63        |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal                               | 63        |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, E-Stop, with light conductor            | 64        |
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## RAFIX 22 FS<sup>+</sup> - Pushbuttons



Panel cut-out to IEC 60947-5-1

### Technical Data

#### General information

|                      |                 |
|----------------------|-----------------|
| Form of lens         | see order block |
| Colour of lens       | see order block |
| Colour of front ring | see order block |
| Form of collar       | see order block |

#### Dimensions

|                      |                 |
|----------------------|-----------------|
| Dimensions of collar | see order block |
| Overall height       | see order block |
| Mounting depth       | see order block |
| Mounting hole        | 22.3 mm         |
| Key grid             | 30 x 30 mm      |

#### Mechanical design

|                     |                 |
|---------------------|-----------------|
| Mounting            | ring nut        |
| Contact function    | see order block |
| Illuminability      | see order block |
| Torque for nut ring | 1.2 Nm          |

#### Mechanical characteristics

|                  |       |
|------------------|-------|
| Operating travel | 4 mm  |
| Robustness min.  | 100 N |

#### Other specifications

|                                      |   |
|--------------------------------------|---|
| Ambient temp. operating min.         | -25 °C                                      |
| Ambient temp. operating max.         | +70 °C                                      |
| Storage temperature min.             | -40 °C                                      |
| Storage temperature max.             | +80 °C                                      |
| Operating life                       | 1,000,000 momentary /<br>500,000 latching   |
| B10                                  | 1,300,000 momentary /<br>650,000 latching   |
| Degree of protection from front side | IP65  |
| Environmental resistance             | acc. to IEC 60068-2-14,<br>-30, -33 and -78 |
| Salt spray                           | IEC 600 68-2-11                             |

#### Approvals



IEC 60947-5-x,  
60904, 60073



UL 508, C22.2 No.  
14-M91

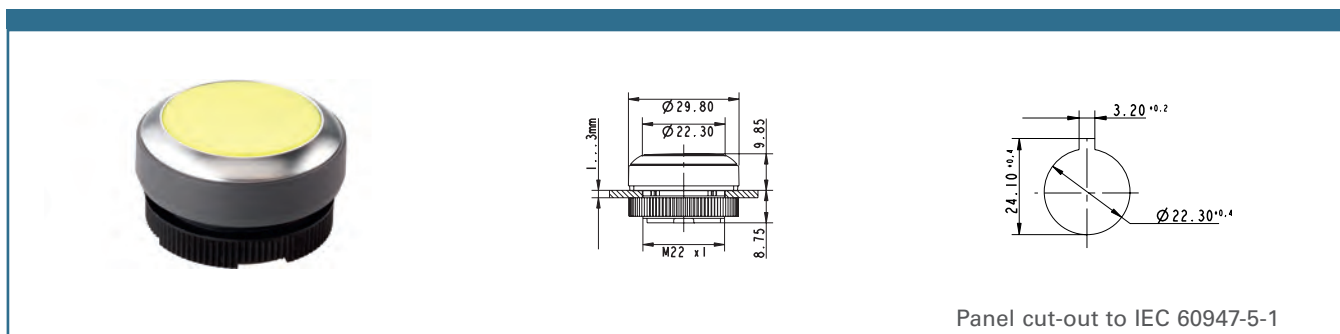


CCC in preparation

Accessories RAFIX 22 FS<sup>+</sup> - Pushbuttons

| Description  | Photo  | Order no.         | Additional accessories see page |
|--|--|-------------------|---------------------------------|
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, Universal                         |   | -                 | 59                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, Universal, with light conductor   |   | -                 | 58                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal                       |   | -                 | 63                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal, with light conductor |   | -                 | 63                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC gold, Universal, with light conductor    |   | -                 | 52                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC silver, Universal, with light conductor  |  | -                 | 55                              |
| Fixing spanner for ring nut and front ring   |  | 5.05.800.062/0000 | 65                              |

RAFIX 22 FS<sup>+</sup> - Pushbutton, flush lens, round collar



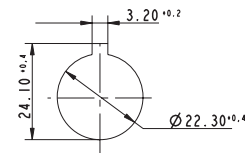
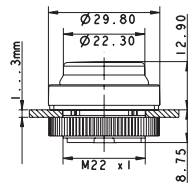
| Illuminability | Colour of lens     | Order no. momentary |                       | Order no. latching |                       |
|----------------|--------------------|---------------------|-----------------------|--------------------|-----------------------|
|                |                    | Plastic front ring  | Metallized front ring | Plastic front ring | Metallized front ring |
| yes            | translucent white  | 1.30.270.001/22xx   | 1.30.270.021/2200     | 1.30.270.011/22xx  | 1.30.270.031/2200     |
| yes            | translucent red    | 1.30.270.001/23xx   | 1.30.270.021/2300     | 1.30.270.011/23xx  | 1.30.270.031/2300     |
| yes            | translucent yellow | 1.30.270.001/24xx   | 1.30.270.021/2400     | 1.30.270.011/24xx  | 1.30.270.031/2400     |
| yes            | translucent green  | 1.30.270.001/25xx   | 1.30.270.021/2500     | 1.30.270.011/25xx  | 1.30.270.031/2500     |
| yes            | translucent blue   | 1.30.270.001/26xx   | 1.30.270.021/2600     | 1.30.270.011/26xx  | 1.30.270.031/2600     |
| no             | opaque black       | 1.30.270.001/01xx   | 1.30.270.021/0100     | 1.30.270.011/01xx  | 1.30.270.031/0100     |
| no             | opaque slate-grey  | 1.30.270.001/07xx   | 1.30.270.021/0700     | 1.30.270.011/07xx  | 1.30.270.031/0700     |

Technical data see page 13

xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

RAFIX 22 FS<sup>+</sup> - Pushbutton, protruding lens, round collar



Panel cut-out to IEC 60947-5-1

| Illuminability | Colour of lens     | Order no. momentary |                       | Order no. latching |                       |
|----------------|--------------------|---------------------|-----------------------|--------------------|-----------------------|
|                |                    | Plastic front ring  | Metallized front ring | Plastic front ring | Metallized front ring |
| yes            | translucent white  | 1.30.270.201/22xx   | 1.30.270.221/2200     | 1.30.270.211/22xx  | 1.30.270.231/2200     |
| yes            | translucent red    | 1.30.270.201/23xx   | 1.30.270.221/2300     | 1.30.270.211/23xx  | 1.30.270.231/2300     |
| yes            | translucent yellow | 1.30.270.201/24xx   | 1.30.270.221/2400     | 1.30.270.211/24xx  | 1.30.270.231/2400     |
| yes            | translucent green  | 1.30.270.201/25xx   | 1.30.270.221/2500     | 1.30.270.211/25xx  | 1.30.270.231/2500     |
| yes            | translucent blue   | 1.30.270.201/26xx   | 1.30.270.221/2600     | 1.30.270.211/26xx  | 1.30.270.231/2600     |
| no             | opaque black       | 1.30.270.201/01xx   | 1.30.270.221/0100     | 1.30.270.211/01xx  | 1.30.270.231/0100     |
| no             | opaque slate-grey  | 1.30.270.201/07xx   | 1.30.270.221/0700     | 1.30.270.211/07xx  | 1.30.270.231/0700     |

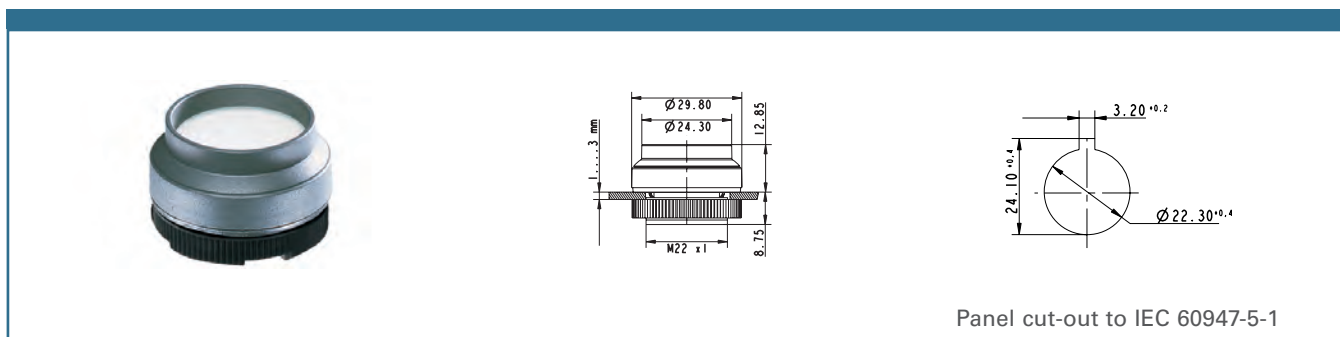
Technical data see page 13

xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.



RAFIX 22 FS<sup>+</sup> - Pushbutton, protruding front ring, round collar



Panel cut-out to IEC 60947-5-1

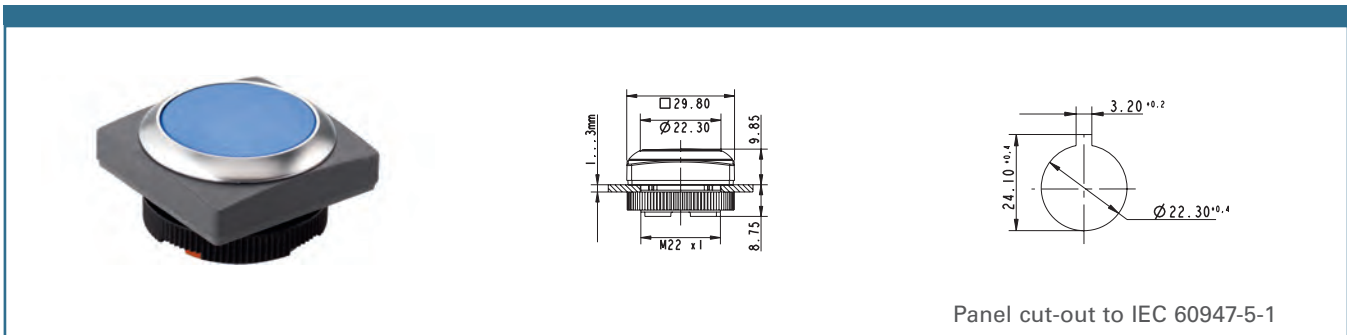
| Illuminability | Colour of lens     | Order no. momentary |                       | Order no. latching |                       |
|----------------|--------------------|---------------------|-----------------------|--------------------|-----------------------|
|                |                    | Plastic front ring  | Metallized front ring | Plastic front ring | Metallized front ring |
| yes            | translucent white  | 1.30.270.401/22xx   | 1.30.270.421/2200     | -                  | -                     |
| yes            | translucent red    | 1.30.270.401/23xx   | 1.30.270.421/2300     | -                  | -                     |
| yes            | translucent yellow | 1.30.270.401/24xx   | 1.30.270.421/2400     | -                  | -                     |
| yes            | translucent green  | 1.30.270.401/25xx   | 1.30.270.421/2500     | -                  | -                     |
| yes            | translucent blue   | 1.30.270.401/26xx   | 1.30.270.421/2600     | -                  | -                     |
| no             | opaque black       | 1.30.270.401/01xx   | 1.30.270.421/0100     | -                  | -                     |
| no             | opaque slate-grey  | 1.30.270.401/07xx   | 1.30.270.421/0700     | -                  | -                     |

Technical data see page 13

xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

RAFIX 22 FS<sup>+</sup> - Pushbutton, flush lens, square collar



Panel cut-out to IEC 60947-5-1

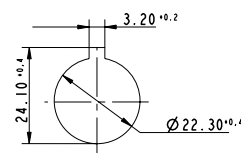
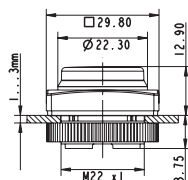
| Illuminability | Colour of lens     | Order no. momentary |                       | Order no. latching |                       |
|----------------|--------------------|---------------------|-----------------------|--------------------|-----------------------|
|                |                    | Plastic front ring  | Metallized front ring | Plastic front ring | Metallized front ring |
| yes            | translucent white  | 1.30.270.051/22xx   | 1.30.270.071/2200     | 1.30.270.061/22xx  | 1.30.270.081/2200     |
| yes            | translucent red    | 1.30.270.051/23xx   | 1.30.270.071/2300     | 1.30.270.061/23xx  | 1.30.270.081/2300     |
| yes            | translucent yellow | 1.30.270.051/24xx   | 1.30.270.071/2400     | 1.30.270.061/24xx  | 1.30.270.081/2400     |
| yes            | translucent green  | 1.30.270.051/25xx   | 1.30.270.071/2500     | 1.30.270.061/25xx  | 1.30.270.081/2500     |
| yes            | translucent blue   | 1.30.270.051/26xx   | 1.30.270.071/2600     | 1.30.270.061/26xx  | 1.30.270.081/2600     |
| no             | opaque black       | 1.30.270.051/01xx   | 1.30.270.071/0100     | 1.30.270.061/01xx  | 1.30.270.081/0100     |
| no             | opaque slate-grey  | 1.30.270.051/07xx   | 1.30.270.071/0700     | 1.30.270.061/07xx  | 1.30.270.081/0700     |

Technical data see page 13

xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

## RAFIX 22 FS<sup>+</sup> - Pushbutton, protruding lens, square collar



Panel cut-out to IEC 60947-5-1

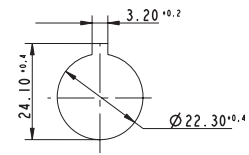
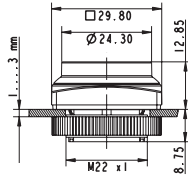
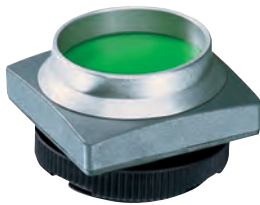
| Illuminability | Colour of lens     | Order no. momentary |                       | Order no. latching |                       |
|----------------|--------------------|---------------------|-----------------------|--------------------|-----------------------|
|                |                    | Plastic front ring  | Metallized front ring | Plastic front ring | Metallized front ring |
| yes            | translucent white  | 1.30.270.251/22xx   | 1.30.270.271/2200     | 1.30.270.261/22xx  | 1.30.270.281/2200     |
| yes            | translucent red    | 1.30.270.251/23xx   | 1.30.270.271/2300     | 1.30.270.261/23xx  | 1.30.270.281/2300     |
| yes            | translucent yellow | 1.30.270.251/24xx   | 1.30.270.271/2400     | 1.30.270.261/24xx  | 1.30.270.281/2400     |
| yes            | translucent green  | 1.30.270.251/25xx   | 1.30.270.271/2500     | 1.30.270.261/25xx  | 1.30.270.281/2500     |
| yes            | translucent blue   | 1.30.270.251/26xx   | 1.30.270.271/2600     | 1.30.270.261/26xx  | 1.30.270.281/2600     |
| no             | opaque black       | 1.30.270.251/01xx   | 1.30.270.271/0100     | 1.30.270.261/01xx  | 1.30.270.281/0100     |
| no             | opaque slate-grey  | 1.30.270.251/07xx   | 1.30.270.271/0700     | 1.30.270.261/07xx  | 1.30.270.281/0700     |

Technical data see page 13

xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

RAFIX 22 FS<sup>+</sup> - Pushbutton, protruding front ring, square collar



Panel cut-out to IEC 60947-5-1

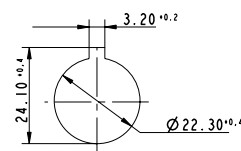
| Illuminability | Colour of lens     | Order no. momentary |                       | Order no. latching |                       |
|----------------|--------------------|---------------------|-----------------------|--------------------|-----------------------|
|                |                    | Plastic front ring  | Metallized front ring | Plastic front ring | Metallized front ring |
| yes            | translucent white  | 1.30.270.451/22xx   | 1.30.270.471/2200     | -                  | -                     |
| yes            | translucent red    | 1.30.270.451/23xx   | 1.30.270.471/2300     | -                  | -                     |
| yes            | translucent yellow | 1.30.270.451/24xx   | 1.30.270.471/2400     | -                  | -                     |
| yes            | translucent green  | 1.30.270.451/25xx   | 1.30.270.471/2500     | -                  | -                     |
| yes            | translucent blue   | 1.30.270.451/26xx   | 1.30.270.471/2600     | -                  | -                     |
| no             | opaque black       | 1.30.270.451/01xx   | 1.30.270.471/0100     | -                  | -                     |
| no             | opaque slate-grey  | 1.30.270.451/07xx   | 1.30.270.471/0700     | -                  | -                     |

Technical data see page 13

xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Legending on request.

## RAFIX 22 FS<sup>+</sup> - Pushbuttons with protective cap



Panel cut-out to IEC 60947-5-1

### Technical Data

#### General information

|                      |                 |
|----------------------|-----------------|
| Form of lens         | see order block |
| Colour of lens       | see order block |
| Colour of front ring | see order block |
| Form of collar       | see order block |

#### Dimensions

|                      |                 |
|----------------------|-----------------|
| Dimensions of collar | see order block |
| Overall height       | see order block |
| Mounting depth       | see order block |
| Mounting hole        | 22.3 mm         |
| Key grid             | 30 x 30 mm      |

#### Mechanical design

|                     |                 |
|---------------------|-----------------|
| Mounting            | ring nut        |
| Contact function    | see order block |
| Illuminability      | see order block |
| Torque for nut ring | 1.2 Nm          |

#### Mechanical characteristics

|                  |       |
|------------------|-------|
| Operating travel | 4 mm  |
| Robustness min.  | 100 N |

#### Other specifications

|                                      |   |
|--------------------------------------|---|
| Ambient temp. operating min.         | -25 °C                                      |
| Ambient temp. operating max.         | +70 °C                                      |
| Storage temperature min.             | -40 °C                                      |
| Storage temperature max.             | +80 °C                                      |
| Operating life                       | 1,000,000 momentary /<br>500,000 latching   |
| B10                                  | 1,300,000 momentary /<br>650,000 latching   |
| Degree of protection from front side | IP65, IP69K                                 |
| Environmental resistance             | acc. to IEC 60068-2-14,<br>-30, -33 and -78 |
| Salt spray                           | IEC 600 68-2-11                             |

#### Approvals



IEC 60947-5-x,  
60904, 60073



UL 508, C22.2 No.  
14-M91

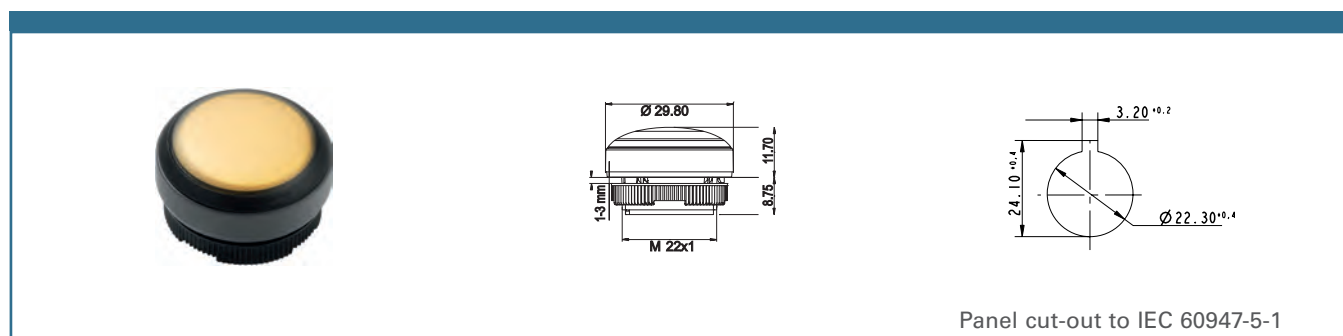


CCC in preparation

Accessories RAFIX 22 FS<sup>+</sup> - Pushbuttons with protective cap

| Description  | Photo  | Order no.         | Additional accessories see page |
|--|--|-------------------|---------------------------------|
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, Universal                         |   | -                 | 59                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, Universal, with light conductor   |   | -                 | 58                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal                       |   | -                 | 63                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal, with light conductor |   | -                 | 63                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC gold, Universal, with light conductor    |   | -                 | 52                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC silver, Universal, with light conductor  |  | -                 | 55                              |
| Fixing spanner for ring nut and front ring   |  | 5.05.800.062/0000 | 65                              |

## RAFIX 22 FS<sup>+</sup> - Pushbutton, with protective cap, flush lens, round collar



| Illuminability | Colour of lens     | Order no. momentary |                       | Order no. latching |                       |
|----------------|--------------------|---------------------|-----------------------|--------------------|-----------------------|
|                |                    | Plastic front ring  | Metallized front ring | Plastic front ring | Metallized front ring |
| yes            | translucent white  | 1.30.270.005/22xx   | -                     | -                  | -                     |
| yes            | translucent red    | 1.30.270.005/23xx   | -                     | -                  | -                     |
| yes            | translucent yellow | 1.30.270.005/24xx   | -                     | -                  | -                     |
| yes            | translucent green  | 1.30.270.005/25xx   | -                     | -                  | -                     |
| yes            | translucent blue   | 1.30.270.005/26xx   | -                     | -                  | -                     |
| no             | opaque black       | 1.30.270.005/01xx   | -                     | -                  | -                     |
| no             | opaque slate-grey  | 1.30.270.005/07xx   | -                     | -                  | -                     |

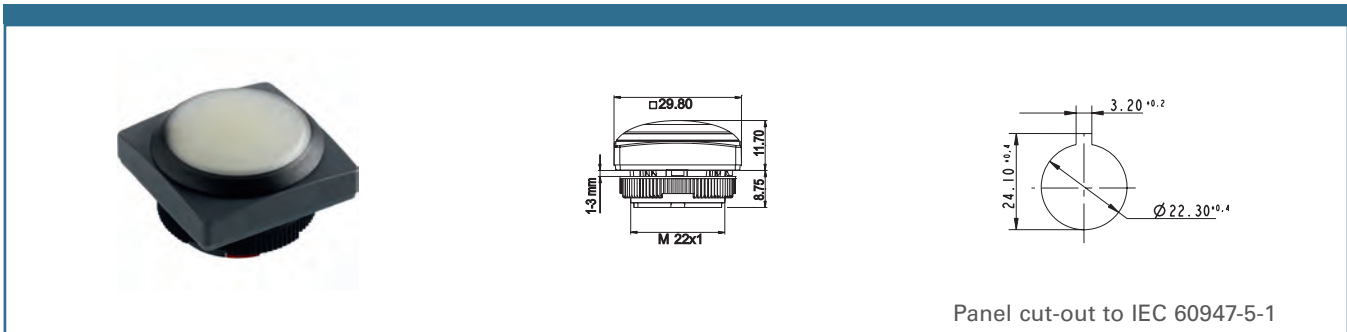
Technical data see page 21

Pushbutton with protective cap for use under rugged conditions.

xx = colour of front ring: black = 01, silver grey = 08

Legending on request.

RAFIX 22 FS<sup>+</sup> - Pushbutton, with protective cap, flush lens, square collar



Panel cut-out to IEC 60947-5-1

| Illuminability | Colour of lens     | Order no. momentary |                       | Order no. latching |                       |
|----------------|--------------------|---------------------|-----------------------|--------------------|-----------------------|
|                |                    | Plastic front ring  | Metallized front ring | Plastic front ring | Metallized front ring |
| yes            | translucent white  | 1.30.270.055/22xx   | -                     | -                  | -                     |
| yes            | translucent red    | 1.30.270.055/23xx   | -                     | -                  | -                     |
| yes            | translucent yellow | 1.30.270.055/24xx   | -                     | -                  | -                     |
| yes            | translucent green  | 1.30.270.055/25xx   | -                     | -                  | -                     |
| yes            | translucent blue   | 1.30.270.055/26xx   | -                     | -                  | -                     |
| no             | opaque black       | 1.30.270.055/01xx   | -                     | -                  | -                     |
| no             | opaque slate-grey  | 1.30.270.055/07xx   | -                     | -                  | -                     |

Technical data see page 21

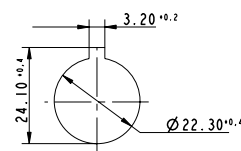
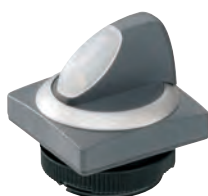
Pushbutton with protective cap for use under rugged conditions.

xx = Front ring colour: black = 01, silver grey = 08

Legending on request.



## RAFIX 22 FS<sup>+</sup> - Selector switches



Panel cut-out to IEC 60947-5-1

### General Data

The illuminated selector switches are provided with translucent handle markings. These are opaque on the non-illuminated versions.

### Technical Data

#### General information

|                      |                 |
|----------------------|-----------------|
| Actuator             | handle          |
| Marking of handle    | see order block |
| Colour of front ring | see order block |
| Form of collar       | see order block |

#### Dimensions

|                      |                 |
|----------------------|-----------------|
| Dimensions of collar | see order block |
| Overall height       | 22.24 mm        |
| Mounting depth       | see order block |
| Mounting hole        | 22.3 mm         |
| Key grid             | 30 x 30 mm      |

#### Mechanical design

|                     |                 |
|---------------------|-----------------|
| Mounting            | ring nut        |
| Contact function    | see order block |
| Illuminability      | see order block |
| Rotating angle      | see order block |
| Torque for nut ring | 1.2 Nm          |

#### Mechanical characteristics

|             |        |
|-------------|--------|
| Torque max. | 1.5 Nm |
|-------------|--------|

#### Other specifications

|                                      |   |
|--------------------------------------|---|
| Operating life (operations)          | 500,000 momentary /<br>300,000 latching     |
| Operating life (operations)          | 650,000 momentary /<br>400,000 latching     |
| Degree of protection from front side | IP65  |
| Ambient temp. operating min.         | -25 °C                                      |
| Ambient temp. operating max.         | +70 °C                                      |
| Storage temperature min.             | -40 °C                                      |
| Storage temperature max.             | +80 °C                                      |
| Environmental resistance             | acc. to IEC 60068-2-14,<br>-30, -33 and -78 |
| Salt spray                           | IEC 600 68-2-11                             |

#### Approvals



IEC 60947-5-x,  
60904, 60073




UL 508, C22.2 No.  
14-M91

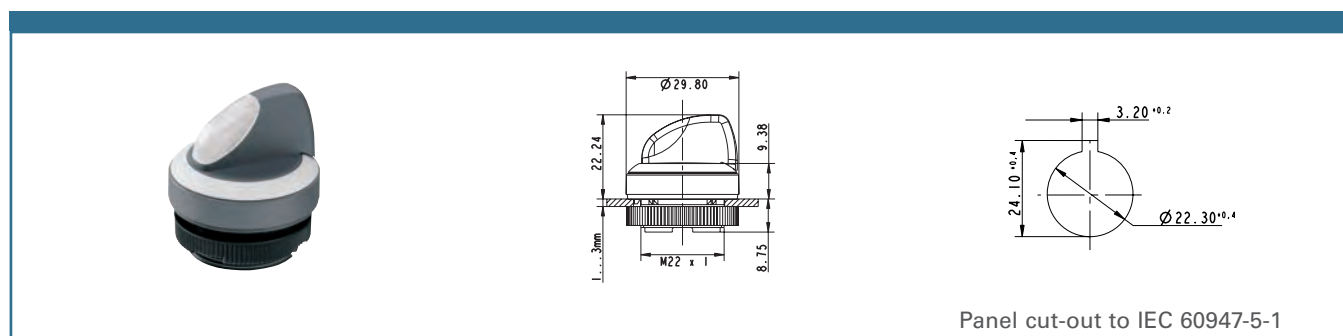


CCC in preparation

Accessories RAFIX 22 FS<sup>+</sup> - Selector switches

| Description  | Photo   | Order no.         | Additional accessories see page |
|--|---|-------------------|---------------------------------|
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, Universal                         |    | -                 | 59                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, Universal, with light conductor   |    | -                 | 58                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal                       |    | -                 | 63                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal, with light conductor |    | -                 | 63                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC gold, Universal, with light conductor    |    | -                 | 52                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC silver, Universal, with light conductor  |    | -                 | 55                              |
| Fixing spanner for ring nut and front ring   |  | 5.05.800.062/0000 | 65                              |

## RAFIX 22 FS<sup>+</sup> - Selector switch, round collar



| Illuminability | Contact function                       | Rotating angle      |  | Order no.          |                       |
|----------------|--|---------------------|--|--------------------|-----------------------|
|                |  |                     |  | Plastic front ring | Metallized front ring |
| yes            | momentary                              | 1 x 40°             |  | 1.30.272.001/22xx  | 1.30.272.002/2200     |
| yes            | momentary                              | 2 x 40°             |  | 1.30.272.026/22xx  | 1.30.272.027/2200     |
| yes            | latching                               | 1 x 90°, form L     |  | 1.30.272.101/22xx  | 1.30.272.102/2200     |
| yes            | latching                               | 1 x 90°, form V     |  | 1.30.272.201/22xx  | 1.30.272.202/2200     |
| yes            | latching                               | 2 x 60°             |  | 1.30.272.301/22xx  | 1.30.272.302/2200     |
| yes            | latching 1 x 90° and momentary 1 x 40° | 1 x 90° and 1 x 40° |  | 1.30.272.426/22xx  | 1.30.272.427/2200     |

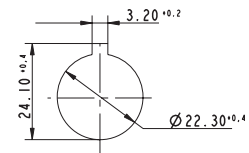
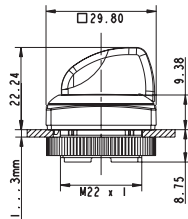
Technical data see page 25

xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Other contact functions and handle marking colours available on request.

For coloured illumination of the handle marking please use coloured LED.

RAFIX 22 FS<sup>+</sup> - Selector switch, square collar



Panel cut-out to IEC 60947-5-1

| Illuminability | Contact function                       | Rotating angle      |  | Order no.          |                       |
|----------------|--|---------------------|--|--------------------|-----------------------|
|                |  |                     |  | Plastic front ring | Metallized front ring |
| yes            | momentary                              | 1 x 40°             |  | 1.30.272.051/22xx  | 1.30.272.052/2200     |
| yes            | momentary                              | 2 x 40°             |  | 1.30.272.076/22xx  | 1.30.272.077/2200     |
| yes            | latching                               | 1 x 90°, form L     |  | 1.30.272.151/22xx  | 1.30.272.152/2200     |
| yes            | latching                               | 1 x 90°, form V     |  | 1.30.272.251/22xx  | 1.30.272.252/2200     |
| yes            | latching                               | 2 x 60°             |  | 1.30.272.351/22xx  | 1.30.272.352/2200     |
| yes            | latching 1 x 90° and momentary 1 x 40° | 1 x 90° and 1 x 40° |  | 1.30.272.476/22xx  | 1.30.272.477/2200     |

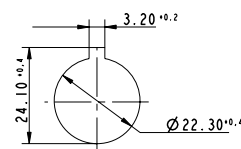
Technical data see page 25

xx = Front ring colour: black = 01, red = 03, yellow = 04, green = 05, blue = 06, slate grey = 07, silver grey = 08

Other contact functions and handle marking colours available on request.

For coloured illumination of the handle marking please use coloured LED.

## RAFIX 22 FS<sup>+</sup> - Keylock switch



Panel cut-out to IEC 60947-5-1

### Technical Data

#### General information

|                      |                 |
|----------------------|-----------------|
| Colour of front ring | see order block |
| Form of collar       | see order block |

#### Dimensions

|                      |                 |
|----------------------|-----------------|
| Dimensions of collar | see order block |
| Overall height       | 44.1 mm         |
| Mounting depth       | see order block |
| Mounting hole        | 22.3 mm         |
| Key grid             | 30 x 30 mm      |

#### Mechanical design

|                             |                 |
|-----------------------------|-----------------|
| Mounting                    | ring nut        |
| Contact function            | see order block |
| Lock                        | Micromec        |
| Illuminability              | see order block |
| Wafers                      | 5               |
| Lock type                   | 001             |
| Number of locking positions | 500             |
| Main key                    | on request      |
| Rotating angle              | see order block |
| Key removal position        | see order block |
| Torque for nut ring         | 1.2 Nm          |

#### Mechanical characteristics

|             |        |
|-------------|--------|
| Torque max. | 1.3 Nm |
|-------------|--------|

#### Other specifications

|                                      |   |
|--------------------------------------|---|
| Operating life                       | 300,000 momentary /<br>50,000 latching /<br>30,000 with key removal |
| B10                                  | 400,000 momentary /<br>65,000 latching /<br>40,000 with key removal |
| Degree of protection from front side | IP65  |
| Ambient temp. operating min.         | -25 °C  |
| Ambient temp. operating max.         | +70 °C  |
| Storage temperature min.             | -40 °C  |
| Storage temperature max.             | +80 °C  |
| Environmental resistance             | acc. to IEC 60068-2-14,<br>-30, -33 and -78                         |
| ESD-strength lock / contact          | 15 kV   |
| ESD-strength key / front panel       | 15 kV   |
| Salt spray                           | IEC 600 68-2-11   |

#### Approvals



IEC 60947-5-x,  
60904, 60073










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14-M91

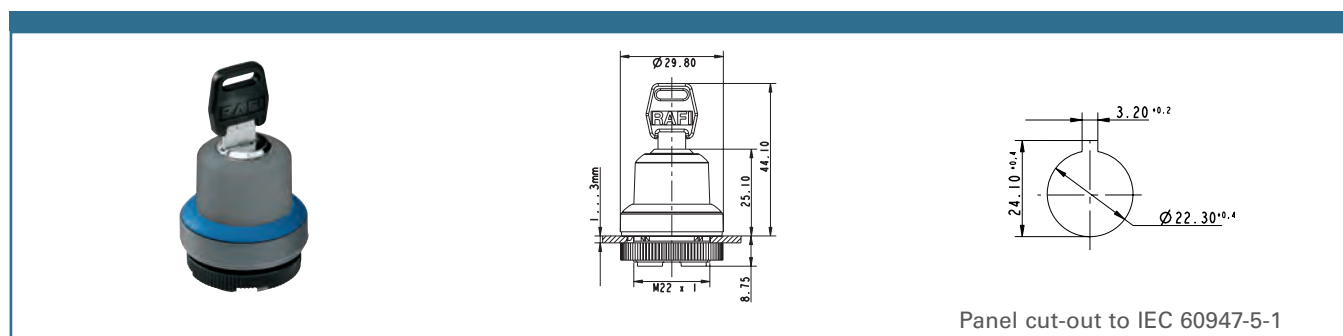


CCC in preparation

Accessories RAFIX 22 FS<sup>+</sup> - Keylock switch

| Description   | Photo  | Order no.         | Additional accessories see page |
|---|--|-------------------|---------------------------------|
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, Universal                        |   | -                 | 59                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, Universal                      |   | -                 | 63                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC gold, Universal, with light conductor   |   | -                 | 52                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC silver, Universal, with light conductor |   | -                 | 55                              |
| Fixing spanner for ring nut and front ring  |   | 5.05.800.062/0000 | 65                              |
| Spare key, for single action, e.g. 1 x 90° (delivery content 1 key)                 |   | 5.58.007.001/0000 | -                               |
| Spare key, for double action, e.g. 2 x 90° (delivery content 1 key)                 |  | 5.58.008.001/0000 | -                               |

## RAFIX 22 FS<sup>+</sup> - Keylock switch, round collar



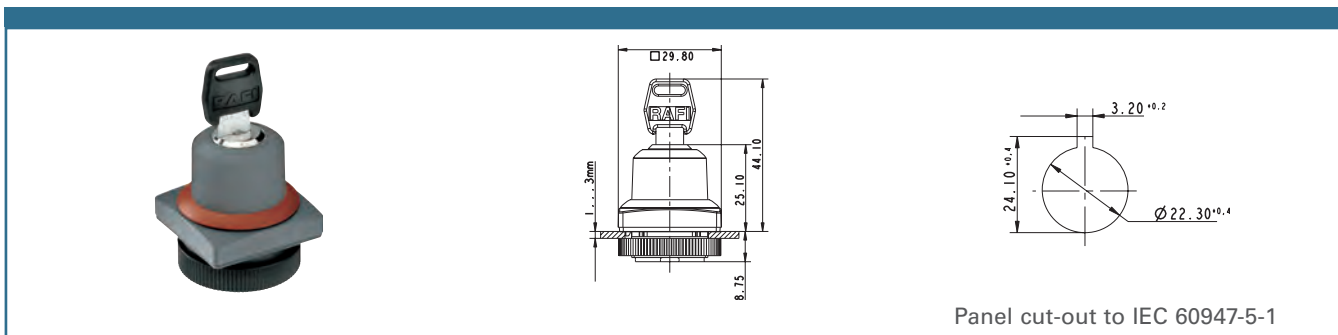
| Contact function                       | Rotating angle      | Key removal position | Rotating angle | Order no.          |                       |
|--|---------------------|----------------------|----------------|--------------------|-----------------------|
|  |                     |                      |                | Plastic front ring | Metallized front ring |
| momentary                              | 1 x 40°             | 0                    |                | 1.30.255.001/xxxx  | 1.30.255.002/0000     |
| momentary                              | 2 x 40°             | 0                    |                | 1.30.255.101/xxxx  | 1.30.255.102/0000     |
| latching                               | 1 x 90°, form L     | 0+1                  |                | 1.30.255.221/xxxx  | 1.30.255.222/0000     |
| latching                               | 1 x 90°, form L     | 0                    |                | 1.30.255.201/xxxx  | 1.30.255.202/0000     |
| latching                               | 1 x 90°, form V     | 0+1                  |                | 1.30.255.321/xxxx  | 1.30.255.322/0000     |
| latching                               | 1 x 90°, form V     | 0                    |                | 1.30.255.301/xxxx  | 1.30.255.302/0000     |
| latching 1 x 90° and momentary 1 x 40° | 1 x 90° and 1 x 40° | 0                    |                | 1.30.255.501/xxxx  | 1.30.255.502/0000     |

Technical data see page 29

xxxx = Front ring colour: black = 0100, red = 0300, yellow = 0400, green = 0500, blue = 0600, slate grey = 0700, silver grey = 0800

Other lock variants available on request.  
Included: 2 keys.

RAFIX 22 FS<sup>+</sup> - Keylock switch, square collar



| Contact function                       | Rotating angle      | Key removal position | Rotating angle | Order no.          |                       |
|--|---------------------|----------------------|----------------|--------------------|-----------------------|
|  |                     |                      |                | Plastic front ring | Metallized front ring |
| momentary                              | 1 x 40°             | 0                    |                | 1.30.255.051/xxxx  | 1.30.255.052/0000     |
| momentary                              | 2 x 40°             | 0                    |                | 1.30.255.151/xxxx  | 1.30.255.152/0000     |
| latching                               | 1 x 90°, form L     | 0+1                  |                | 1.30.255.271/xxxx  | 1.30.255.272/0000     |
| latching                               | 1 x 90°, form L     | 0                    |                | 1.30.255.251/xxxx  | 1.30.255.252/0000     |
| latching                               | 1 x 90°, form V     | 0+1                  |                | 1.30.255.371/xxxx  | 1.30.255.372/0000     |
| latching                               | 1 x 90°, form V     | 0                    |                | 1.30.255.351/xxxx  | 1.30.255.352/0000     |
| latching 1 x 90° and momentary 1 x 40° | 1 x 90° and 1 x 40° | 0                    |                | 1.30.255.551/xxxx  | 1.30.255.552/0000     |

Technical data see page 29

xxxx = Front ring colour: black = 0100, red = 0300, yellow = 0400, green = 0500, blue = 0600, slate grey = 0700, silver grey = 0800

Other lock variants available on request.  
Included: 2 keys.



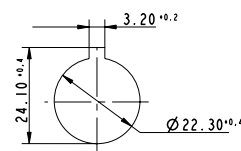
## RAFIX 22 FS<sup>+</sup> - Mushroom-headed pushbutton



Reset by pulling



Reset by rotation, illuminated



Panel cut-out to IEC 60947-5-1

### Technical Data

#### General information

|                |                       |
|----------------|-----------------------|
| Form of lens   | conical mushroom form |
| Colour of lens | black                 |
| Form of collar | round                 |

#### Dimensions

|                    |                 |
|--------------------|-----------------|
| Mushroom Diameter  | 30 mm           |
| Overall height     | see order block |
| Mounting depth     | see order block |
| Mounting hole      | 22.3 mm         |
| Key grid           | 33.2 mm         |
| Diameter of collar | 29.8 mm         |

#### Mechanical design

|                     |                 |
|---------------------|-----------------|
| Mounting            | ring nut        |
| Contact function    | latching        |
| Illuminability      | see order block |
| Reset               | see order block |
| Torque for nut ring | 1.2 Nm          |

#### Mechanical characteristics

|                 |       |
|-----------------|-------|
| Robustness min. | 100 N |
|-----------------|-------|

#### Other specifications

|                                      |  |
|--------------------------------------|--|
| Ambient temp. operating min.         | -25 °C                                   |
| Ambient temp. operating max.         | +70 °C                                   |
| Robustness                           | acc. to IEC 600 68-2-3 und 2-30          |
| Operating life                       | 50,000                                   |
| B10                                  | 65,000                                   |
| Degree of protection from front side | see order block                          |
| Storage temperature min.             | -40 °C                                   |
| Storage temperature max.             | +80 °C                                   |
| Environmental resistance             | acc. to IEC 60068-2-14, -30, -33 and -78 |
| Salt spray                           | IEC 600 68-2-11                          |

#### Approvals



IEC 60947-5-x,  
60904, 60073



UL 508, C22.2 No.  
14-M91




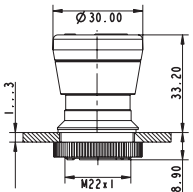
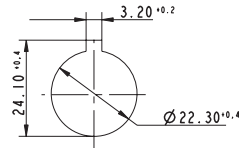
CCC in preparation

Accessories RAFIX 22 FS<sup>+</sup> - Mushroom-headed pushbutton

| Description   | Photo  | Order no.         | Additional accessories see page |
|---|--|-------------------|---------------------------------|
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, E-Stop                         |   | -                 | 60                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, E-Stop, with light conductor   |   | -                 | 59                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, E-Stop                       |   | -                 | 64                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, E-Stop, with light conductor |   | -                 | 64                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC gold, E-Stop, with light conductor    |   | -                 | 53                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC silver, E-Stop, with light conductor  |   | -                 | 56                              |
| Fixing spanner for ring nut and front ring  |  | 5.05.800.062/0000 | 65                              |

RAFIX 22 FS<sup>+</sup> - Mushroom-headed pushbutton



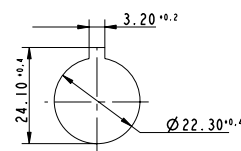
Panel cut-out to IEC 60947-5-1

| Contact function | Reset                 | Illuminability              | Degree of protection from front side | Order no.         |
|------------------|-----------------------|-----------------------------|--------------------------------------|-------------------|
| latching         | by clockwise rotation | yes, lens transparent white | IP65                                 | 1.30.276.001/2200 |
| latching         | by clockwise rotation | no                          | IP65                                 | 1.30.276.501/0000 |
| latching         | by pulling            | yes, lens transparent white | IP65, IP69K                          | 1.30.276.101/2200 |
| latching         | by pulling            | no                          | IP65, IP69K                          | 1.30.276.601/0000 |
| momentary        | -                     | yes                         | IP65                                 | 1.30.276.201/2200 |
| momentary        | -                     | no                          | IP65                                 | 1.30.276.701/0000 |

Technical data see page 33

Only use with contact blocks type E-Stop.

## RAFIX 22 FS<sup>+</sup> - Emergency stop pushbutton



Panel cut-out to IEC 60947-5-1

### General Data

The emergency stop pushbuttons comply with IEC 60 204, IEC 60 073, IEC 60 947 and VDE 0113 Part 1. They are designed dupe-proof according to EN 418 with a positive mechanical movement sequence. A certain operating force must be exerted at the action point in order to prevent inadvertent operation. The pushbutton latches when pressed.

The special shape of the actuator prevents the emergency stop pushbutton from being blocked. This means that the emergency stop process - once initiated - cannot be impeded by any jamming objects. Please only combine „emergency stop“ contact block.

### Technical Data

#### General information

|                |                       |
|----------------|-----------------------|
| Form of lens   | conical mushroom form |
| Colour of lens | red                   |
| Form of collar | round                 |

#### Dimensions

|                    |                 |
|--------------------|-----------------|
| Mushroom Diameter  | 30 mm           |
| Overall height     | see order block |
| Mounting depth     | see order block |
| Mounting hole      | 22.3 mm         |
| Key grid           | 33.2 mm         |
| Diameter of collar | see order block |

#### Mechanical design

|                     |                 |
|---------------------|-----------------|
| Mounting            | ring nut        |
| Contact function    | latching        |
| Illuminability      | see order block |
| Reset               | see order block |
| Torque for nut ring | 1.2 Nm          |

#### Mechanical characteristics

|                 |       |
|-----------------|-------|
| Robustness min. | 100 N |
|-----------------|-------|

#### Other specifications

|                                      |  |
|--------------------------------------|--|
| Ambient temp. operating min.         | -25 °C                                   |
| Ambient temp. operating max.         | +70 °C                                   |
| Robustness                           | acc. to IEC 600 68-2-3 und 2-30          |
| Operating life (operations)          | 50,000                                   |
| B10                                  | 65,000                                   |
| Degree of protection from front side | see order block                          |
| Storage temperature min.             | -40 °C                                   |
| Storage temperature max.             | +80 °C                                   |
| Environmental resistance             | acc. to IEC 60068-2-14, -30, -33 and -78 |
| Salt spray                           | IEC 600 68-2-11                          |

**Approvals**



IEC 60947-5-x,  
60904, 60073



UL 508,C22.2 No.  
14-M91

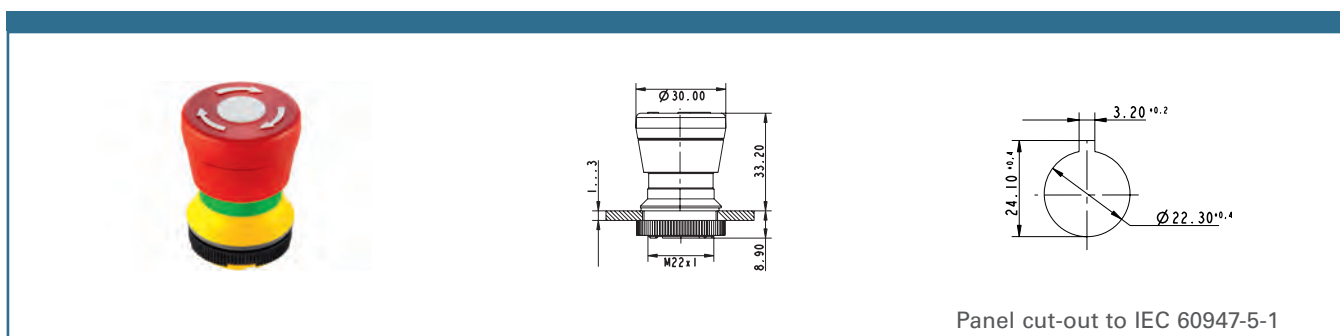


CCC in preparation

**Accessories RAFIX 22 FS<sup>+</sup> - Emergency stop pushbutton**

| Description   | Photo   | Order no.         | Additional accessories see page |
|---|---|-------------------|---------------------------------|
| Emergency stop label, Ø 22.3 mm   |    | -                 | 68                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, E-Stop                         |    | -                 | 60                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, E-Stop, with light conductor   |  | -                 | 59                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, E-Stop                       |  | -                 | 64                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB silver, E-Stop, with light conductor |  | -                 | 64                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC gold, E-Stop, with light conductor    |  | -                 | 53                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC silver, E-Stop, with light conductor  |  | -                 | 56                              |
| Fixing spanner for ring nut and front ring  |  | 5.05.800.062/0000 | 65                              |

## RAFIX 22 FS<sup>+</sup> - Emergency stop pushbutton, reset by rotation

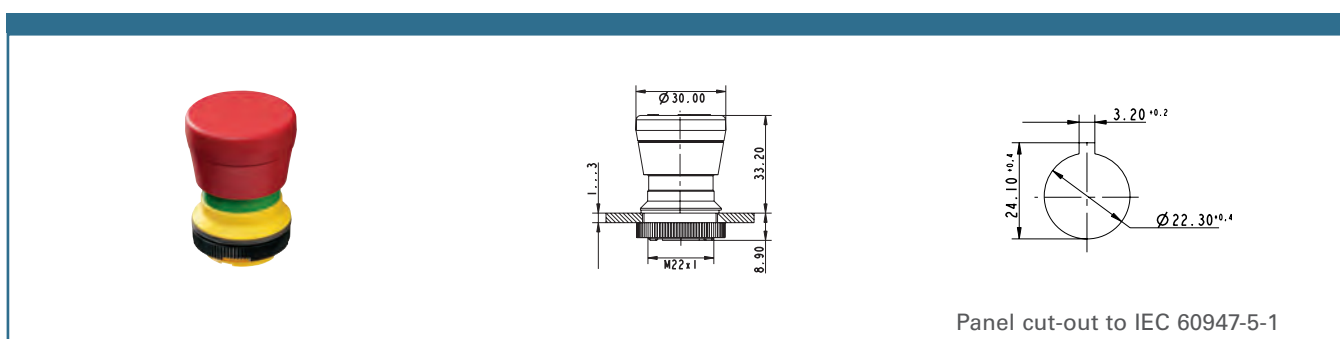


Panel cut-out to IEC 60947-5-1

| Reset                 | Illuminability              | Degree of protection from front side | Order no.         |
|-----------------------|-----------------------------|--------------------------------------|-------------------|
| by clockwise rotation | yes, lens transparent red   | IP65                                 | 1.30.273.001/2300 |
| by clockwise rotation | yes, lens transparent white | IP65                                 | 1.30.273.001/2200 |
| by clockwise rotation | no                          | IP65                                 | 1.30.273.501/0300 |

Technical data see page 35

## RAFIX 22 FS<sup>+</sup> - Emergency stop pushbutton, reset by pulling (IP65, IP69K)



Panel cut-out to IEC 60947-5-1

| Reset      | Illuminability              | Degree of protection from front side | Order no.         |
|------------|-----------------------------|--------------------------------------|-------------------|
| by pulling | yes, lens transparent red   | IP65, IP69K                          | 1.30.273.101/2300 |
| by pulling | yes, lens transparent white | IP65, IP69K                          | 1.30.273.101/2200 |
| by pulling | no                          | IP65, IP69K                          | 1.30.273.601/0300 |

Technical data see page 35

**RAFIX 22 FS<sup>+</sup> - Emergency stop pushbutton „Plus 1“**



Panel cut-out to IEC 60947-5-1

**General Data**

**RAFIX 22 FS „Plus 1“**

Emergency stop pushbutton with 2 NC and 1 NO contacts  
This special emergency stop pushbutton offers two redundant normally-closed contacts for the emergency off / emergency stop function and an additional signal contact. Unique design: 3 contacts accommodated in very compact dimensions (mounting depth 9.2 or 27 mm).

**2 normally-closed (NC) contacts**

Redundancy is more and more often a requirement for safety applications in mechanical engineering and control system development and helps to minimise the probability of failure of a system.

**1 normally-open (NO) contact**

The third contact – a normally-open contact – may be used, for example, for sending an information signal to a monitoring unit or master safety controller. The safety

controller may then initiate a controlled shutdown, depending on the location and type of the hazard indicated.

The emergency stop pushbutton complies with the current standards. The positively guided mechanical movement of the pushbutton makes it dupe-proof according to DIN EN ISO 13850.

A RAFX 22 FS „Plus 1“ emergency stop pushbutton unit consists of a special emergency stop pushbutton and a suitable emergency stop contact block which can either be mounted directly (quick-connect terminals) or placed on a printed circuit board (THT version).

Approbations: IEC 60947-5-5 and UL 508 in preparation.

Only use with emergency stop „Plus 1“ contact blocks.

**Technical Data**

**General information**

|                |                       |
|----------------|-----------------------|
| Form of lens   | conical mushroom form |
| Colour of lens | red                   |
| Form of collar | round                 |

**Dimensions**

|                    |                 |
|--------------------|-----------------|
| Mushroom Diameter  | 30              |
| Overall height     | 33.2            |
| Mounting depth     | see order block |
| Mounting hole      | 22.3            |
| Key grid           | 33.2            |
| Diameter of collar | 29.8            |

**Mechanical design**

|                     |                 |
|---------------------|-----------------|
| Mounting            | ring nut        |
| Contact function    | latching        |
| Illuminability      | no              |
| Reset               | see order block |
| Torque for nut ring | 1.2 Nm          |

**Mechanical characteristics**

|                 |       |
|-----------------|-------|
| Robustness min. | 100 N |
|-----------------|-------|

**Other specifications**

|                                      |  |
|--------------------------------------|--|
| Ambient temp. operating min.         | -25                                      |
| Ambient temp. operating max.         | +70                                      |
| Robustness                           | acc. to IEC 600 68-2-3 und 2-30          |
| Operating life                       | 50,000                                   |
| B10                                  | 65,000                                   |
| Degree of protection from front side | see order block                          |
| Storage temperature min.             | -40                                      |
| Storage temperature max.             | +80                                      |
| Environmental resistance             | acc. to IEC 60068-2-14, -30, -33 and -78 |
| Salt spray                           | IEC 600 68-2-11                          |

## Approvals




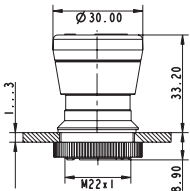
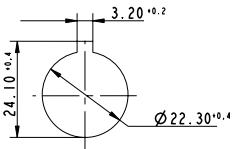
CCC in preparation

## Accessories RAFIX 22 FS<sup>+</sup> - Emergency stop pushbutton „Plus 1“

| Description  | Photo | Order no.         | Additional accessories see page |
|--|-------|-------------------|---------------------------------|
| Emergency stop label, Ø 22.3 mm                                    |       | -                 | 68                              |
| RAFIX 22 FS <sup>+</sup> - Contact block PCB gold, E-Stop „Plus 1“ |       | 1.20.126.414/0000 | 60                              |
| RAFIX 22 FS <sup>+</sup> - Contact block QC gold, E-Stop „Plus 1“  |       | 1.20.126.514/0000 | 53                              |
| Fixing spanner for ring nut and front ring                         |       | 5.05.800.062/0000 | 65                              |

## RAFIX 22 FS<sup>+</sup> - Emergency stop pushbutton „Plus 1“; reset by rotation



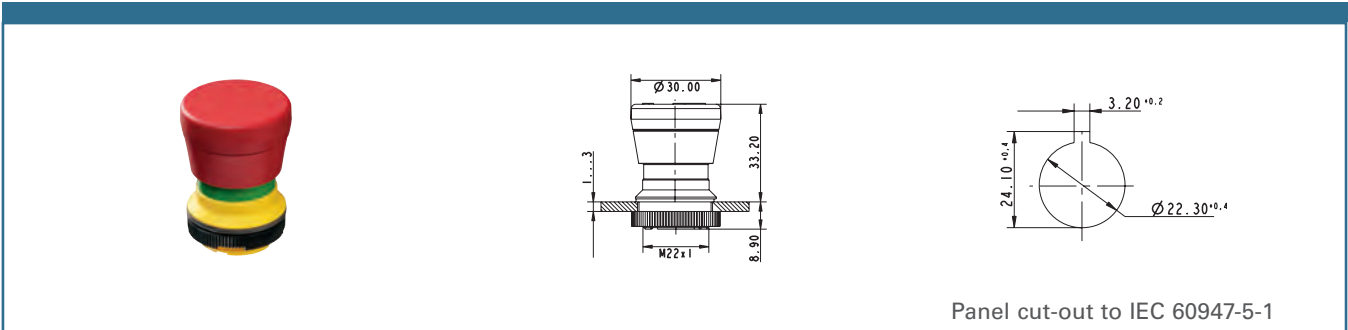



Panel cut-out to IEC 60947-5-1

| Reset                 | Illuminability | Degree of protection from front side | Order no.         |
|-----------------------|----------------|--------------------------------------|-------------------|
| by clockwise rotation | no             | IP65                                 | 1.30.273.502/0300 |

Technical data see page 38

RAFIX 22 FS<sup>+</sup> - Emergency stop pushbutton „Plus 1“, reset by pulling (IP65,IP69K)



Panel cut-out to IEC 60947-5-1

| Reset      | Illuminability | Degree of protection from front side | Order no.         |
|------------|----------------|--------------------------------------|-------------------|
| by pulling | no             | IP65, IP69K                          | 1.30.273.602/0300 |

Technical data see page 38



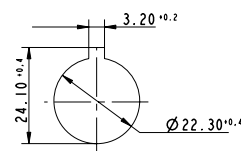
## RAFIX 22 FS<sup>+</sup> - Potentiometer drive



Pict: assembled



Pict: delivery content



Panel cut-out to IEC 60947-5-1

## Technical Data

### General information

|                |                 |
|----------------|-----------------|
| Actuator       | knob            |
| Colour of knob | see order block |
| Front ring     | see order block |
| Form of collar | see order block |

### Dimensions

|                      |                            |
|----------------------|----------------------------|
| Dimensions of collar | see order block            |
| Overall height       | 26 mm                      |
| Mounting depth       | according to potentiometer |
| Mounting hole        | 22.3 mm                    |
| Key grid             | according to potentiometer |

### Mechanical design

|                     |          |
|---------------------|----------|
| Mounting            | ring nut |
| Torque for nut ring | 1.2 Nm   |

### Mechanical characteristics

|                 |       |
|-----------------|-------|
| Robustness min. | 100 N |
|-----------------|-------|

### Other specifications

|                                      |  |
|--------------------------------------|--|
| Degree of protection from front side | IP65                                     |
| Storage temperature min.             | -40 °C                                   |
| Storage temperature max.             | +80 °C                                   |
| Environmental resistance             | acc. to IEC 60068-2-14, -30, -33 and -78 |
| Salt spray                           | IEC 600 68-2-11                          |

### Approvals



IEC 60947-5-x,  
60904, 60073



CCC in preparation

Accessories RAFIX 22 FS<sup>+</sup> - Potentiometer drive

| Description                                | Photo   | Order no.         | Additional accessories see page |
|--|---|-------------------|---------------------------------|
| Fixing spanner for ring nut and front ring |  | 5.05.800.062/0000 | 65                              |

RAFIX 22 FS<sup>+</sup> - Potentiometer drive, round collar

|  |                   |                   |  |
|---|-------------------|-------------------|---|
| Pict: assembled   |                   |                   | Panel cut-out to IEC 60947-5-1  |
| Front ring  | Colour of knob    | Order no.         |   |
| plastic slate-grey  | opaque slate-grey | 1.30.258.001/0700 |   |

Technical data see page 41

For potentiometers with 6 mm shaft diameter and 50 mm shaft length. Potentiometer not included.

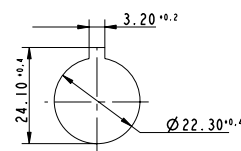
RAFIX 22 FS<sup>+</sup> - Potentiometer drive, square collar

|  |                   |                   |  |
|---|-------------------|-------------------|---|
| Pict: delivery content  |                   |                   | Panel cut-out to IEC 60947-5-1  |
| Front ring  | Colour of knob    | Order no.         |   |
| plastic slate-grey  | opaque slate-grey | 1.30.258.021/0700 |   |

Technical data see page 41

For potentiometers with 6 mm shaft diameter and 50 mm shaft length. Potentiometer not included.

## RAFIX 22 FS<sup>+</sup> - Signal indicator



Panel cut-out to IEC 60947-5-1

### Technical Data

#### General information

|                |                 |
|----------------|-----------------|
| Form of lens   | see order block |
| Colour of lens | see order block |
| Form of collar | see order block |

#### Dimensions

|                  |                 |
|------------------|-----------------|
| Length of collar | see order block |
| Overall height   | see order block |
| Mounting depth   | see order block |
| Mounting hole    | 22.3 mm         |
| Key grid         | 30 x 30 mm      |

#### Mechanical design

|                     |          |
|---------------------|----------|
| Mounting            | ring nut |
| Illuminability      | yes      |
| Torque for nut ring | 1.2 Nm   |

#### Mechanical characteristics

|                 |       |
|-----------------|-------|
| Robustness min. | 100 N |
|-----------------|-------|

#### Other specifications

|                                      |  |
|--------------------------------------|--|
| Degree of protection from front side | IP65                                     |
| Ambient temp. operating min.         | -25 °C                                   |
| Ambient temp. operating max.         | +70 °C                                   |
| Storage temperature min.             | -40 °C                                   |
| Storage temperature max.             | +80 °C                                   |
| Environmental resistance             | acc. to IEC 60068-2-14, -30, -33 and -78 |
| Salt spray                           | IEC 600 68-2-11                          |

#### Approvals



IEC 60947-5-x,  
60904, 60073



UL 508, C22.2 No.  
14-M91



CCC in preparation


### Accessories RAFX 22 FS<sup>+</sup> - Signal indicator

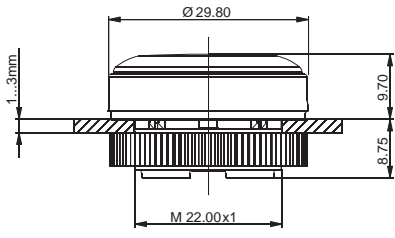
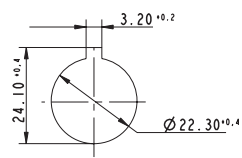
| Description | Photo | Order no. | Additional accessories see page |
|-------------|-------|-----------|---------------------------------|
| LED 3 mm    |       | -         | 67                              |

Accessories RAFIX 22 FS<sup>+</sup> - Signal indicator

| Description   | Photo   | Order no.         | Additional accessories see page |
|---|---|-------------------|---------------------------------|
| LED base for 3 mm THT LEDs, used in signal indicators, for RAFIX 22 FS <sup>+</sup> PCB |  | -                 | 67                              |
| QC LED base for signal indicators   |  | -                 | 65                              |
| Fixing spanner for ring nut and front ring  |  | 5.05.800.062/0000 | 65                              |

RAFIX 22 FS<sup>+</sup> - Signal indicator, round collar, flat version



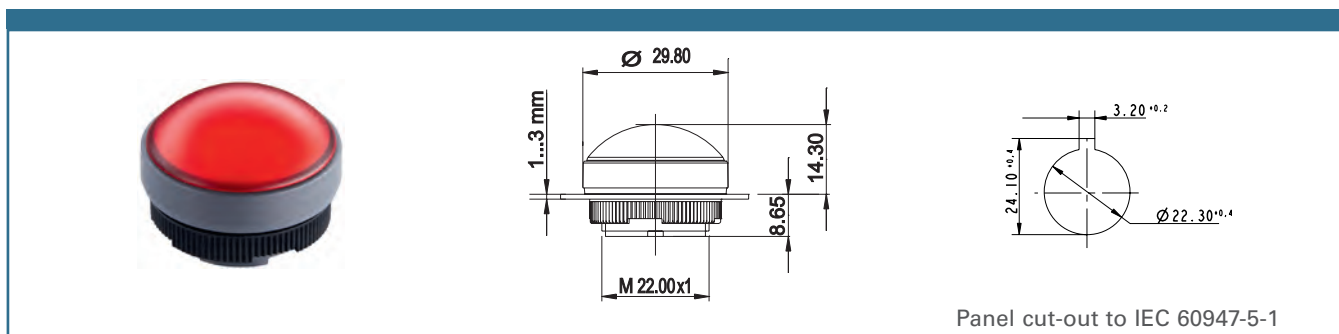
Panel cut-out to IEC 60947-5-1

| Form of collar | Colour of lens     | Order no.         |
|----------------|--------------------|-------------------|
| round          | translucent white  | 1.74.508.001/2200 |
| round          | translucent red    | 1.74.508.001/2300 |
| round          | translucent yellow | 1.74.508.001/2400 |
| round          | translucent green  | 1.74.508.001/2500 |
| round          | translucent blue   | 1.74.508.001/2600 |

Technical data see page 43

Legending on request.

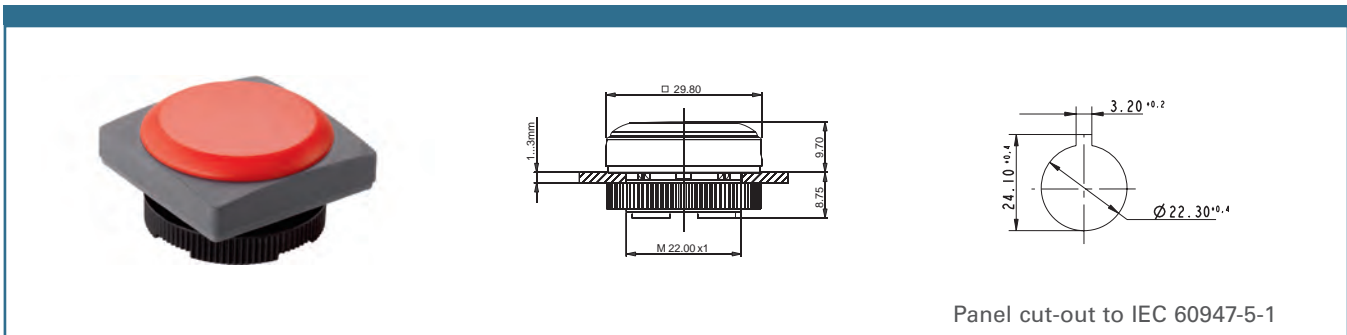
## RAFIX 22 FS<sup>+</sup> - Signal indicator, round collar, high version



| Form of collar | Colour of lens     | Order no.         |
|----------------|--------------------|-------------------|
| round          | translucent white  | 1.74.508.011/2200 |
| round          | translucent red    | 1.74.508.011/2300 |
| round          | translucent yellow | 1.74.508.011/2400 |
| round          | translucent green  | 1.74.508.011/2500 |
| round          | translucent blue   | 1.74.508.011/2600 |

Technical data see page 43

RAFIX 22 FS<sup>+</sup> - Signal indicator, square collar, flat version



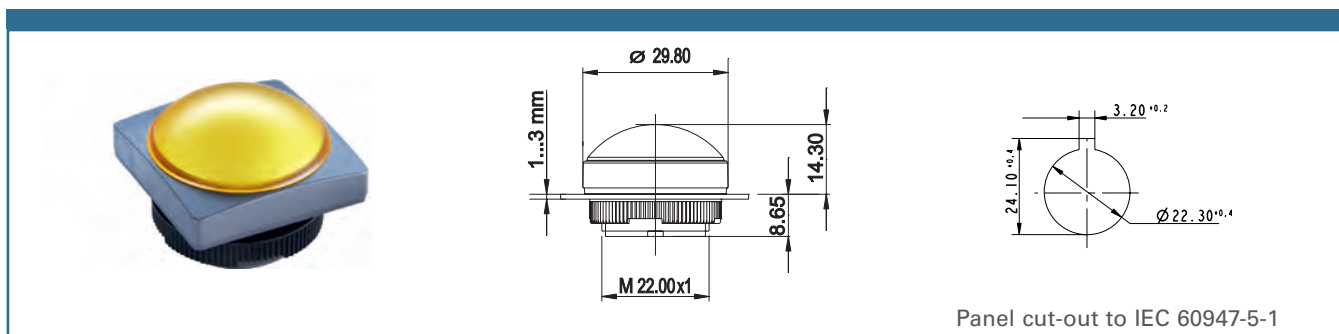
Panel cut-out to IEC 60947-5-1

| Form of collar | Colour of lens     | Order no.         |
|----------------|--------------------|-------------------|
| square         | translucent white  | 1.74.508.051/2200 |
| square         | translucent red    | 1.74.508.051/2300 |
| square         | translucent yellow | 1.74.508.051/2400 |
| square         | translucent green  | 1.74.508.051/2500 |
| square         | translucent blue   | 1.74.508.051/2600 |

Technical data see page 43

Legending on request.

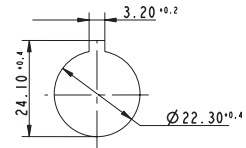
## RAFIX 22 FS<sup>+</sup> - Signal indicator, square collar, high version



| Form of collar | Colour of lens     | Order no.         |
|----------------|--------------------|-------------------|
| square         | translucent white  | 1.74.508.061/2200 |
| square         | translucent red    | 1.74.508.061/2300 |
| square         | translucent yellow | 1.74.508.061/2400 |
| square         | translucent green  | 1.74.508.061/2500 |
| square         | translucent blue   | 1.74.508.061/2600 |

Technical data see page 43

## RAFIX 22 FS<sup>+</sup> - USB feedthrough



Panel cut-out to IEC 60947-5-1

### General Data

Rugged USB feedthroughs for 22.3 mm mounting hole diameter matching the RAFX 22 FS and RAFX 22 QR actuator series. The USB feedthrough provides sturdy installation of an easily accessible USB slot in front panels of controllers and IPCs and can be used, for example, to connect a keyboard for maintenance purposes or a USB stick for a software update. The port on the rear accommodates commercially available USB cables of

varying lengths with B-type connector. A sealing cap protects the slot and ensures a degree of protection to IP 65. For assembly, simply insert the feedthrough from the front side into the mounting hole and fasten it by means of a ring nut from the rear. The depth behind panel is 27.7 mm. The colour of the front ring can be freely selected so that the USB feedthrough can be matched in appearance to the customer-specific design.

### Technical Data

#### General information

|                      |                 |
|----------------------|-----------------|
| Form of lens         | see order block |
| Colour of lens       | see order block |
| Colour of front ring | see order block |
| Form of collar       | see order block |

#### Dimensions

|                      |                 |
|----------------------|-----------------|
| Dimensions of collar | see order block |
| Overall height       | 11.3 mm         |
| Mounting depth       | 27.7 mm         |
| Mounting hole        | 22.3 mm         |
| Key grid             | 30 x 30 mm      |

#### Mechanical design

|                     |            |
|---------------------|------------|
| Mounting            | ring nut   |
| Front connection    | USB Type A |
| Rear connection     | USB Type B |
| Torque for nut ring | 1.2 Nm     |

#### Other specifications

|   |                                   |
|---|-----------------------------------|
| Ambient temp. operating min.                                  | -25 °C                            |
| Ambient temp. operating max.                                  | +70 °C                            |
| Storage temperature min.                                      | -40 °C                            |
| Storage temperature max.                                      | +80 °C                            |
| Operating life  | 1500 operations                   |
| Degree of protection from front side                          | IP65 (closed sealing cap)         |
| Relative humidity   | 5 bis 95% (non condensed)         |
| Shock resistance to IEC 60068-2-27 (EN 61131-2)               | 50 g at 11 ms half sine amplitude |
| Vibration resistance according to IEC 600 68-2-6 (EN 61131-2) | 5 g at 10...500 Hz                |



Approvals



IEC 60947-5-x,  
60904, 60073




UL 508, C22.2 No.  
14-M91




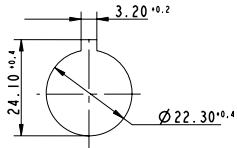
CCC in preparation

Accessories RAFIX 22 FS<sup>+</sup> - USB feedthrough

| Description                                | Photo   | Order no.         | Additional accessories see page |
|--|---|-------------------|---------------------------------|
| Fixing spanner for ring nut and front ring |  | 5.05.800.062/0000 | 65                              |

RAFIX 22 FS<sup>+</sup> - USB feedthrough, round collar



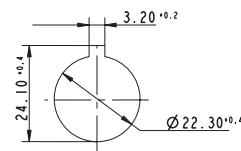


Panel cut-out to IEC 60947-5-1

| Colour of front ring | Front connection | Rear connection | Order no.         |
|----------------------|------------------|-----------------|-------------------|
| slate-grey           | USB Type A       | USB Type B      | 1.30.279.001/0700 |
| metallized           | USB Type A       | USB Type B      | 1.30.279.021/0700 |

Technical data see page 48

RAFIX 22 FS<sup>+</sup> - USB feedthrough, square collar



Panel cut-out to IEC 60947-5-1

| Colour of front ring | Front connection | Rear connection | Order no.         |
|----------------------|------------------|-----------------|-------------------|
| slate-grey           | USB Type A       | USB Type B      | 1.30.279.051/0707 |
| metallized           | USB Type A       | USB Type B      | 1.30.279.071/0707 |

Technical data see page 48

## RAFIX 22 FS<sup>+</sup> - Contact block QC gold



Universal with light conductor



E-Stop



### General Data

The contact blocks are inserted into the actuators and latch there permanently. Emergency stop pushbuttons require special contact blocks which can be recognised by the plungers situated closer to the middle. In addition, the emergency stop contact blocks and actuators feature two assembly guides which prevent rotation during assembly.

We recommend to choose the LED colour in the same colour as the lens of the actuator in order to ensure satisfactory illumination.

### Technical Data

#### General information

|               |                 |
|---------------|-----------------|
| Lamp optional | see order block |
|---------------|-----------------|

#### Dimensions

|                      |         |
|----------------------|---------|
| Diameter             | 17.3 mm |
| Recommended key grid | 30 mm   |
| Mounting depth       | 27 mm   |

#### Mechanical design

|  |  |
|--|--|
| Mounting   | snap on actuator                           |
| Contact system                                     | bridge-contact self cleaning               |
| Contact materials                                  | Au   |
| Contact arrangement                                | see order block                            |
| NC contact forcibly actuated acc. to IEC 60947-5-1 | yes  |
| Terminals  | quick connect terminals<br>2.8 x 0.5 mm mm |
| Robustness   | 100 N                                      |

#### Electrical characteristics

|                        |        |
|------------------------|--------|
| Operating voltage min. | 5 V    |
| Operating voltage max. | 35 V   |
| Operating current min. | 1 mA   |
| Operating current max. | 100 mA |
| Rated power max.       | 250 mW |

#### Other specifications

|  |  |
|--|--|
| Operating life at 10 mA / 24V DC               | see order block                          |
| B10  | see order block                          |
| Switching reliability at 5mA / 24V DC          | $10 \times 10^{-6}$                      |
| Ambient temp. operating min.                   | -25 °C                                   |
| Storage temperature max.                       | +70 °C                                   |
| Storage temperature min.                       | -40 °C                                   |
| Storage temperature max.                       | +80 °C                                   |
| Colour of plunger                              | see order block                          |
| Robustness                                     | acc. to IEC 60947-5-5 (TÜV)              |
| Shock resistance acc. to IEC 60068-2-27        | 15 g at 11 ms, amplitude half sinusoidal |
| Resistance to vibrations acc. to IEC 60068-2-6 | 5 g at 10 ... 500 Hz                     |
| Environmental resistance                       | acc. to IEC 60068-2-14, -30, -33 and -78 |
| Colour of housing                              | grey                                     |

**Approvals**



IEC 60947-5-x,  
60904, 60073

UL 508, C22.2 No.  
14-M91

CCC in preparation

**Accessories RAFX 22 FS<sup>+</sup> - Contact block QC gold**

| Description                    | Photo   | Order no. | Additional accessories see page |
|--------------------------------|---|-----------|---------------------------------|
| LED base for contact blocks QC |  | -         | 66                              |

**RAFIX 22 FS<sup>+</sup> - Contact block QC gold, Universal, with light conductor**



Universal with light conductor

| Contact arrangement | Lamp optional | Operating life at 10 mA / 24V DC | B10       | Colour of plunger | Order no.         |
|---------------------|---------------|----------------------------------|-----------|-------------------|-------------------|
| 1 NC + 1 NO         | LED-Clip      | 1,000,000                        | 1,300,000 | red and green     | 1.20.126.103/9000 |
| 2 NC                | LED-Clip      | 1,000,000                        | 1,300,000 | red               | 1.20.126.104/9000 |
| 2 NO                | LED-Clip      | 1,000,000                        | 1,300,000 | green             | 1.20.126.105/9000 |

Technical data see page 51

## RAFIX 22 FS<sup>+</sup> - Contact block QC gold, E-Stop, with light conductor



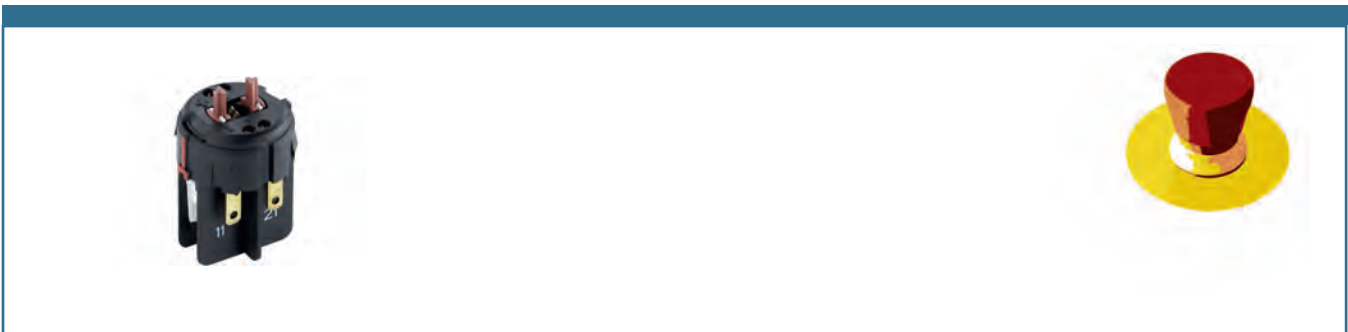
E-Stop

| Contact arrangement | Lamp optional | Operating life at 10 mA / 24V DC | B10       | Colour of plunger | Order no.         |
|---------------------|---------------|----------------------------------|-----------|-------------------|-------------------|
| 2 NC                | LED-Clip      | 1,000,000                        | 1,300,000 | red               | 1.20.126.504/9000 |
| 1 NC + 1 NO         | LED-Clip      | 1,000,000                        | 1,300,000 | yellow            | 1.20.126.503/9000 |

Technical data see page 51

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

## RAFIX 22 FS<sup>+</sup> - Contact block QC gold, E-Stop, „Plus 1“



| Contact arrangement | Lamp optional | Operating life at 10 mA / 24 V DC | B10    | Colour of plunger | Order no.         |
|---------------------|---------------|-----------------------------------|--------|-------------------|-------------------|
| 2 NC + 1 NO         | -             | 50,000                            | 65,000 | red               | 1.20.126.514/0000 |

Technical data see page 51

Caution: Emergency stop contact blocks „Plus 1“ can only be used with emergency stop pushbuttons „Plus 1“

**RAFIX 22 FS<sup>+</sup> - Contact block QC silver**



**General Data**

The contact blocks are inserted into the actuators and latch there permanently. Emergency stop pushbuttons require special contact blocks which can be recognised by the plungers situated closer to the middle. In addition, the emergency stop contact blocks and actuators feature two

assembly guides which prevent rotation during assembly. We recommend to choose the LED colour in the same colour as the lens of the actuator in order to ensure satisfactory illumination.

**Technical Data**

**General information**

|               |          |
|---------------|----------|
| Lamp optional | LED-Clip |
|---------------|----------|

**Dimensions**

|                      |         |
|----------------------|---------|
| Diameter             | 17.3 mm |
| Recommended key grid | 30 mm   |
| Mounting depth       | 27 mm   |

**Mechanical design**

|  |                                      |
|--|--------------------------------------|
| Mounting   | snap on actuator                     |
| Contact system                                     | bridge-contact self cleaning         |
| Contact materials                                  | Ag                                   |
| Contact arrangement                                | see order block                      |
| NC contact forcibly actuated acc. to IEC 60947-5-1 | yes                                  |
| Terminals  | quick connect terminals 2.8 x 0.5 mm |
| Robustness   | 100 N                                |

**Electrical characteristics acc. to IEC 60947, AC-15, DC-13**

|  |  |
|--|--|
| Rated insulation voltage AC / DC                   | 250 V  |
| Rated peak voltage                                 | 2500 V   |
| Rated operating current I <sub>E</sub> , AC15 B300 | 3 A / 120 V; 1.5 A / 240 V; I <sub>the</sub> : 5 A       |
| Rated operating current I <sub>E</sub> , DC13 Q300 | 550 mA / 120 V; 270 mA / 240 V; I <sub>the</sub> : 2.5 A |

**Other specifications**

|  |  |
|--|--|
| Operating life at 250V / 1A                    | 1,000,000                                |
| B10 at 250V / 1A                               | 1,300,000                                |
| Operating life at 250V / 2A                    | 100,000                                  |
| B10 at 250V / 2A                               | 130,000                                  |
| Operating life at 250V / 4A                    | 30,000                                   |
| B10 at 250V / 4A                               | 40,000                                   |
| Switching reliability at 24V / 5mA DC          | 10 x 10 <sup>-6</sup>                    |
| Ambient temp. operating max.                   | +70                                      |
| Ambient temp. operating min.                   | -25                                      |
| Storage temperature min.                       | -40                                      |
| Storage temperature max.                       | +80                                      |
| Colour of plunger                              | see order block                          |
| Robustness                                     | acc. to IEC 60947-5-5 (TÜV)              |
| Shock resistance acc. to IEC 60068-2-27        | 15 g at 11 ms, amplitude half sinusoidal |
| Resistance to vibrations acc. to IEC 60068-2-6 | 5 g at 10 ... 500 Hz                     |
| Environmental resistance                       | acc. to IEC 60068-2-14, -30, -33 and -78 |
| Flame class acc. to UL 94                      | V 0                                      |
| Hot wire ignition acc. to IEC 60695-2-1        | yes                                      |
| Colour of housing                              | black                                    |

## Approvals





IEC 60947-5-x,  
60904, 60073

UL 508, C22.2 No.  
14-M91

CCC in preparation

## Accessories RAFIX 22 FS<sup>+</sup> - Contact block QC silver

| Description  | Photo   | Order no. | Additional accessories see page |
|--|---|-----------|---------------------------------|
| Female quick-connect terminal DIN 46340-B 2.8-1-MS |  | -         | 65                              |
| LED base for contact blocks QC                     |  | -         | 66                              |

## RAFIX 22 FS<sup>+</sup> - Contact block QC silver, Universal, with light conductor



| Contact arrangement | Lamp optional | Colour of plunger | Order no.         |
|---------------------|---------------|-------------------|-------------------|
| 1 NC + 1 NO         | LED-Clip      | red and green     | 1.20.126.303/9000 |
| 2 NC                | LED-Clip      | red               | 1.20.126.304/9000 |
| 2 NO                | LED-Clip      | green             | 1.20.126.305/9000 |

Technical data see page 54

Please note: E-stop contact blocks can only be combined with E-stop actuators.

RAFIX 22 FS<sup>+</sup> - Contact block QC silver, E-Stop, with light conductor



| Contact arrangement | Lamp optional | Colour of plunger | Order no.         |
|---------------------|---------------|-------------------|-------------------|
| 2 NC                | LED-Clip      | red               | 1.20.126.704/9000 |
| 1 NC + 1 NO         | LED-Clip      | yellow            | 1.20.126.703/9000 |

Technical data see page 54

Please note: E-stop contact blocks can only be combined with E-stop actuators.



## RAFIX 22 FS<sup>+</sup> - Contact block PCB gold



Universal, 1 NC + 1 NO



E-Stop, 2 NC



## General Data

### Illumination information

The PCB contact blocks are included into the PCB layout and arranged next to other components. They are located directly behind the actuators at a distance of only 9.2 mm behind the front panel.

When actuators shall be illuminated there are 2 alternative LED technologies.

**THT LEDs:** Can be assembled and soldered together with the PCB contact blocks.

**SMT LEDs:** Can be pre-assembled and soldered with other SMT components. Then they are covered by the PCB contact blocks with light conductor.

## Technical Data

### General information

|               |                 |
|---------------|-----------------|
| Lamp optional | see order block |
|---------------|-----------------|

### Dimensions

|                      |         |
|----------------------|---------|
| Diameter             | 17.3 mm |
| Recommended key grid | 30 mm   |
| Mounting depth       | 9.2 mm  |

### Mechanical design

|  |  |
|--|--|
| Mounting   | soldering in PCB                       |
| Contact system                                     | bridge-contact self cleaning           |
| Contact materials                                  | Au                                     |
| Contact arrangement                                | see order block                        |
| NC contact forcibly actuated acc. to IEC 60947-5-1 | yes                                    |
| Terminals  | THT solder terminals with locating lug |
| Robustness   | 100 N                                  |

### Electrical characteristics

|                                |        |
|--------------------------------|--------|
| Operating voltage AC / DC min. | 5 V    |
| Operating voltage AC / DC max. | 35 V   |
| Operating current AC / DC min. | 1 mA   |
| Operating current AC / DC max. | 100 mA |
| Rated power max.               | 250 mW |

### Other specifications

|  |  |
|--|--|
| Operating life at 10 mA / 24 V DC              | see order block                          |
| B10  | see order block                          |
| Switching reliability at 24V / 5mA DC          | $10 \times 10^{-6}$                      |
| Ambient temp. operating max.                   | +70 °C                                   |
| Ambient temp. operating min.                   | -25 °C                                   |
| Storage temperature min.                       | -40 °C                                   |
| Storage temperature max.                       | +80                                      |
| Colour of plunger                              | see order block                          |
| Robustness                                     | acc. to IEC 60947-5-5 (TÜV)              |
| Shock resistance acc. to IEC 60068-2-27        | 15 g at 11 ms, amplitude half sinusoidal |
| Resistance to vibrations acc. to IEC 60068-2-6 | 5 g at 10 ... 500 Hz                     |
| Environmental resistance                       | acc. to IEC 60068-2-14, -30, -33 and -78 |
| Solderability / solder heat resistance         | IEC 600 68-2-20                          |
| Solder techniques                              | wave solder bath / manual soldering      |
| Colour of housing                              | grey                                     |

**Approvals**



IEC 60947-5-x,  
60904, 60073

UL 508, C22.2 No.  
14-M91

CCC in preparation

**Accessories RAFIX 22 FS<sup>+</sup> - Contact block PCB gold**

| Description   | Photo | Order no. | Additional accessories see page |
|---|-------|-----------|---------------------------------|
| LED 3 mm  |       | -         | 67                              |
| LED base for 3 mm THT LEDs, used in signal indicators, for RAFIX 22 FS <sup>+</sup> PCB |       | -         | 67                              |
| SMT LED   |       | -         | 66                              |
| Spacers, round  |       | -         | 69                              |
| Spacers, triangular   |       | -         | 70                              |

**RAFIX 22 FS<sup>+</sup> - Contact block PCB gold, Universal, with light conductor**



| Contact arrangement | Lamp optional | Operating life at 10 mA / 24 V DC | B10       | Colour of plunger | Order no.         |
|---------------------|---------------|-----------------------------------|-----------|-------------------|-------------------|
| 1 NC + 1 NO         | SMT LED       | 1,000,000                         | 1,300,000 | red and green     | 1.20.126.003/9000 |
| 2 NC                | SMT LED       | 1,000,000                         | 1,300,000 | red               | 1.20.126.004/9000 |
| 2 NO                | SMT LED       | 1,000,000                         | 1,300,000 | green             | 1.20.126.005/9000 |

Technical data see page 57

RAFIX 22 FS<sup>+</sup> - Contact block PCB gold, Universal



| Contact arrangement | Lamp optional | Operating life at 10 mA / 24 V DC | B10       | Colour of plunger | Order no.         |
|---------------------|---------------|-----------------------------------|-----------|-------------------|-------------------|
| 1 NC + 1 NO         | THT LED       | 1,000,000                         | 1,300,000 | red and green     | 1.20.126.003/0000 |
| 2 NC                | THT LED       | 1,000,000                         | 1,300,000 | red               | 1.20.126.004/0000 |
| 2 NO                | THT LED       | 1,000,000                         | 1,300,000 | green             | 1.20.126.005/0000 |

Technical data see page 57

RAFIX 22 FS<sup>+</sup> - Contact block PCB gold, E-Stop, with light conductor



| Contact arrangement | Lamp optional | Operating life at 10 mA / 24 V DC | B10       | Colour of plunger | Order no.         |
|---------------------|---------------|-----------------------------------|-----------|-------------------|-------------------|
| 2 NC                | SMT LED       | 1,000,000                         | 1,300,000 | red               | 1.20.126.404/9000 |
| 1 NC + 1 NO         | SMT LED       | 1,000,000                         | 1,300,000 | yellow            | 1.20.126.403/9000 |

Technical data see page 57

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

RAFIX 22 FS<sup>+</sup> - Contact block PCB gold, E-Stop

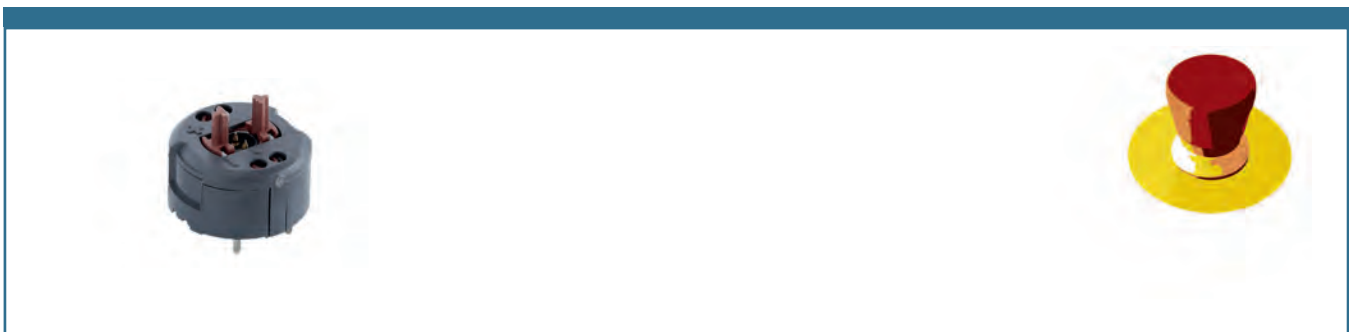


| Contact arrangement | Lamp optional | Operating life at 10 mA / 24 V DC | B10       | Colour of plunger | Order no.         |
|---------------------|---------------|-----------------------------------|-----------|-------------------|-------------------|
| 2 NC                | THT LED       | 1,000,000                         | 1,300,000 | red               | 1.20.126.404/0000 |
| 1 NC + 1 NO         | THT LED       | 1,000,000                         | 1,300,000 | yellow            | 1.20.126.403/0000 |

Technical data see page 57

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

RAFIX 22 FS<sup>+</sup> - Contact block PCB gold, E-Stop, „Plus 1“



| Contact arrangement | Lamp optional | Operating life at 10 mA / 24 V DC | B10    | Colour of plunger | Order no.         |
|---------------------|---------------|-----------------------------------|--------|-------------------|-------------------|
| 2 NC + 1 NO         | -             | 50,000                            | 65,000 | red               | 1.20.126.414/0000 |

Technical data see page 57

Caution: E-Stop „Plus 1“ contact blocks can only be combined with E-stop „Plus 1“ actuators.

## RAFIX 22 FS<sup>+</sup> - Contact block PCB silver



Universal, 1 NC + 1 NO



E-Stop with light conductor



### General Data

#### Illumination information

The PCB contact blocks are included into the PCB layout and arranged next to other components. They are located directly behind the actuators at a distance of only 9.2 mm behind the front panel.

When actuators shall be illuminated there are 2 alternative LED technologies.

**THT LEDs:** Can be assembled and soldered together with the PCB contact blocks.

**SMT LEDs:** Can be pre-assembled and soldered with other SMT components. Then they are covered by the PCB contact blocks with light conductor.

### Technical Data

#### General information

|               |                 |
|---------------|-----------------|
| Lamp optional | see order block |
|---------------|-----------------|

#### Dimensions

|                      |         |
|----------------------|---------|
| Diameter             | 17.3 mm |
| Recommended key grid | 30 mm   |
| Mounting depth       | 9.2 mm  |

#### Mechanical design

|  |  |
|--|--|
| Mounting   | soldering in PCB                       |
| Contact system                                     | bridge-contact self cleaning           |
| Contact materials                                  | Ag                                     |
| Contact arrangement                                | see order block                        |
| NC contact forcibly actuated acc. to IEC 60947-5-1 | yes                                    |
| Terminals  | THT solder terminals with locating lug |
| Robustness   | 100 N                                  |

#### Electrical characteristics acc. to IEC 60947, AC-15, DC-13

|  |  |
|--|--|
| Rated insulation voltage AC / DC                   | 250 V  |
| Rated peak voltage                                 | 2500 V   |
| Rated operating current I <sub>e</sub> , AC15 B300 | 3 A / 120 V; 1.5 A / 240 V; I <sub>the</sub> : 5 A       |
| Rated operating current I <sub>e</sub> , DC13 Q300 | 550 mA / 120 V; 270 mA / 240 V; I <sub>the</sub> : 2.5 A |

#### Other specifications

|  | Operating life                           | B10       |
|--|--|-----------|
| at 250V / 1A                                   | 1,000,000                                | 1,300,000 |
| at 250V / 2A                                   | 100,000                                  | 130,000   |
| at 250V / 4A                                   | 30,000                                   | 40,000    |
| Switching reliability at 24V / 5mA DC          | 10 x 10 <sup>-6</sup>                    |           |
| Ambient temp. operating max.                   | +70 °C                                   |           |
| Ambient temp. operating min.                   | -25 °C                                   |           |
| Storage temperature min.                       | -40 °C                                   |           |
| Storage temperature max.                       | +80 °C                                   |           |
| Colour of plunger                              | see order block                          |           |
| Classifications for ships                      | on request                               |           |
| Robustness                                     | acc. to IEC 60947-5-5 (TÜV)              |           |
| Shock resistance acc. to IEC 60068-2-27        | 50 g at 11 ms, amplitude half sinusoidal |           |
| Resistance to vibrations acc. to IEC 60068-2-6 | 5 g at 10 ... 500 Hz                     |           |
| Environmental resistance                       | acc. to IEC 60068-2-14, -30, -33 and -78 |           |
| Solderability / solder heat resistance         | IEC 600 68-2-20                          |           |
| Solder techniques                              | wave solder bath / manual soldering      |           |
| Flame class acc. to UL 94                      | V 0                                      |           |
| Hot wire ignition acc. to IEC 60695-2-1        | yes                                      |           |
| Colour of housing                              | black                                    |           |

**Approvals**



IEC 60947-5-x,  
60904, 60073



UL 508, C22.2 No.  
14-M91



CCC in preparation

Accessories RAFIX 22 FS<sup>+</sup> - Contact block PCB silver

| Description   | Photo | Order no. | Additional accessories see page |
|---|-------|-----------|---------------------------------|
| LED 3 mm  |       | -         | 67                              |
| LED base for 3 mm THT LEDs, used in signal indicators, for RAFIX 22 FS <sup>+</sup> PCB |       | -         | 67                              |
| SMT LED   |       | -         | 66                              |
| Spacers, round  |       | -         | 69                              |
| Spacers, triangular   |       | -         | 70                              |

RAFIX 22 FS<sup>+</sup> - Contact block PCB silver, Universal, with light conductor



| Contact arrangement | Lamp optional | Colour of plunger | Order no.         |
|---------------------|---------------|-------------------|-------------------|
| 1 NC + 1 NO         | SMT LED       | red and green     | 1.20.126.203/9000 |
| 2 NC                | SMT LED       | red               | 1.20.126.204/9000 |
| 2 NO                | SMT LED       | green             | 1.20.126.205/9000 |

Technical data see page 61

RAFIX 22 FS<sup>+</sup> - Contact block PCB silver, Universal



| Contact arrangement | Lamp optional | Colour of plunger | Order no.         |
|---------------------|---------------|-------------------|-------------------|
| 1 NC + 1 NO         | THT LED       | red and green     | 1.20.126.203/0000 |
| 2 NC                | THT LED       | red               | 1.20.126.204/0000 |
| 2 NO                | THT LED       | green             | 1.20.126.205/0000 |

Technical data see page 61

RAFIX 22 FS<sup>+</sup> - Contact block PCB silver, E-Stop, with light conductor



| Contact arrangement | Lamp optional | Colour of plunger | Order no.         |
|---------------------|---------------|-------------------|-------------------|
| 2 NC                | SMT LED       | red               | 1.20.126.604/9000 |
| 1 NC + 1 NO         | SMT LED       | yellow            | 1.20.126.603/9000 |

Technical data see page 61

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.

RAFIX 22 FS<sup>+</sup> - Contact block PCB silver, E-Stop



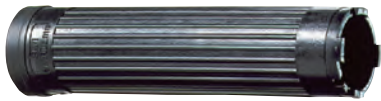
| Contact arrangement | Lamp optional | Colour of plunger | Order no.         |
|---------------------|---------------|-------------------|-------------------|
| 2 NC                | THT LED       | red               | 1.20.126.604/0000 |
| 1 NC + 1 NO         | THT LED       | yellow            | 1.20.126.603/0000 |

Technical data see page 61

Caution: Emergency stop contact blocks can only be used with emergency stop pushbuttons.



## Fixing spanner for ring nut and front ring



| Description                                | Fitting for    | Order no.         |
|--|----------------|-------------------|
| Fixing spanner for ring nut and front ring | RAFIX 22 QR/FS | 5.05.800.062/0000 |

## QC LED base for signal indicators



| Description  | Order no.         |
|--|-------------------|
| RAFIX 22 FS - Socket for LED-Clip, quick-connect terminals | 5.05.511.855/9000 |

## Female quick-connect terminal DIN 46340-B 2.8-1-MS



| Description  | Order no.         |
|--|-------------------|
| Female quick-connect terminal DIN 46340-B 2.8-1-MS | 5.37.540.024/8622 |

With latching detent for mating with a multipole connector.

LED base for contact blocks QC



| Description                   | Order no.         |
|-------------------------------|-------------------|
| LED-Clip, LED red, 24 V DC    | 5.05.511.747/1300 |
| LED-Clip, LED yellow, 24 V DC | 5.05.511.747/1400 |
| LED-Clip, LED green, 24 V DC  | 5.05.511.747/1500 |
| LED-Clip, LED blue, 24 V DC   | 5.05.511.747/1600 |
| LED-Clip, LED white, 24 V DC  | 5.05.511.747/1200 |
| LED-Clip, LED red, 12 V DC    | 5.05.511.747/0300 |
| LED-Clip, LED yellow, 12 V DC | 5.05.511.747/0400 |
| LED-Clip, LED green, 12 V DC  | 5.05.511.747/0500 |
| LED-Clip, LED white, 12 V DC  | 5.05.511.747/0200 |
| LED-Clip, LED blue, 12 V DC   | 5.05.511.747/0600 |

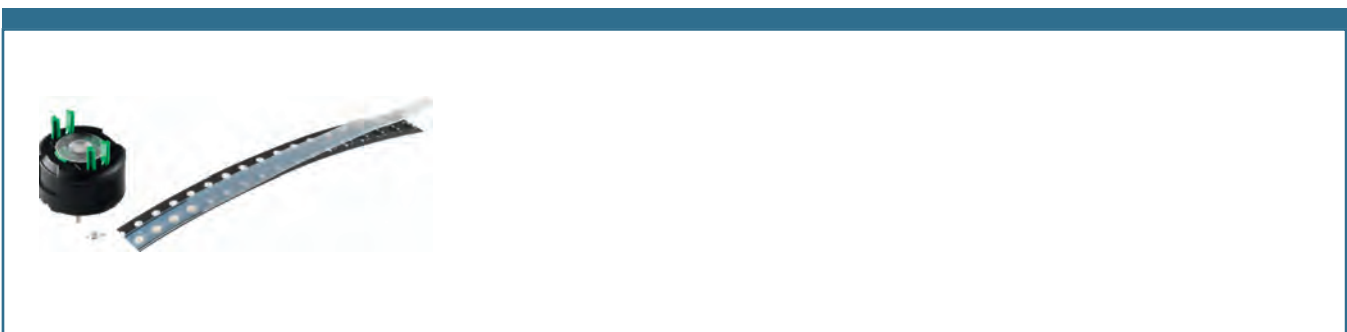
**Accessoires**

LED base for signal indicators

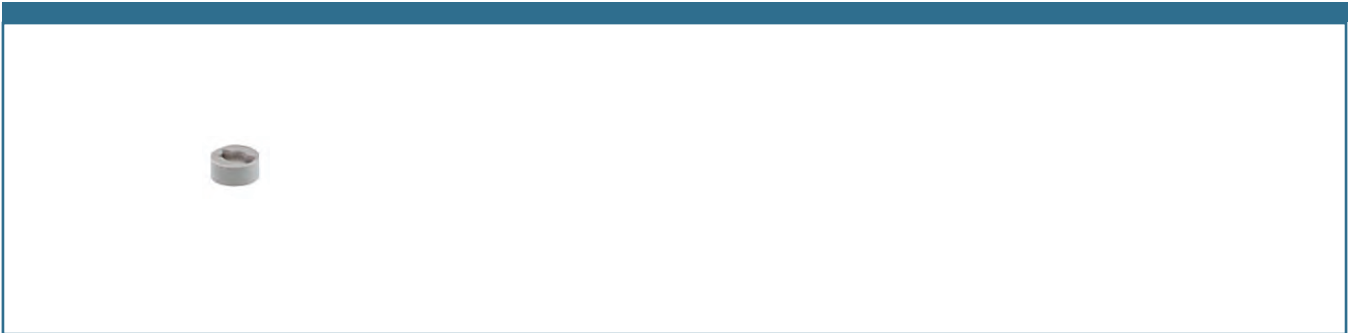
**SMT LED**

For the best illumination of actuators and signal indicators we suggest to use the following SMT LED type:

**OSRAM LT P4SG**

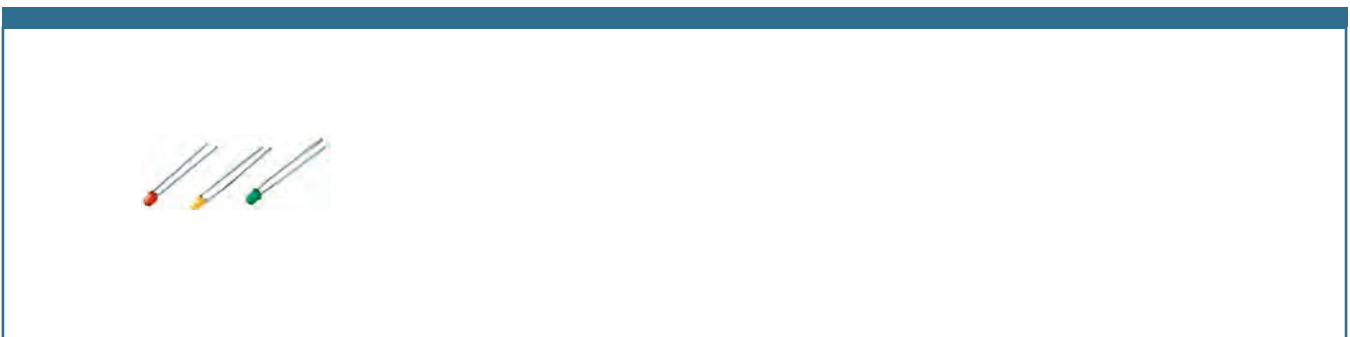


LED base for 3 mm THT LEDs, used in signal indicators,  
for RAFIX 22 FS<sup>+</sup> PCB



| Description                                 | Order no.         |
|---|-------------------|
| LED base for signal indicators, height 5 mm | 5.30.109.020/0756 |

THT LED 3 mm, without base



| Socket         | Colour | Forward voltage typ. $U_F$ at $I_F$ | Max. current, $I_F$ | Light intensity | Order no.         |
|----------------|--------|-------------------------------------|---------------------|-----------------|-------------------|
| without socket | white  | 3,6 V / 20 mA                       | 30 mA               | -               | 1.90.690.295/0000 |
| without socket | red    | 1,6 V / 1 mA                        | 30 mA               | -               | 1.90.690.228/0000 |
| without socket | red    | 1.9 V / 20 mA                       | 50 mA               | -               | 1.90.690.269/0000 |
| without socket | yellow | 1.9 V / 20 mA                       | 50 mA               | -               | 1.90.690.267/0000 |
| without socket | green  | 3.5 V / 20 mA                       | 30 mA               | -               | 1.90.690.285/0000 |
| without socket | blue   | 3,6 V / 20 mA                       | 30 mA               | -               | 1.90.690.282/0000 |

Processing information for 1.90.690.267/0000 and 1.90.690.269/0000

The qualifications for the higher soldering temperatures on lead free soldering processes are as follows:

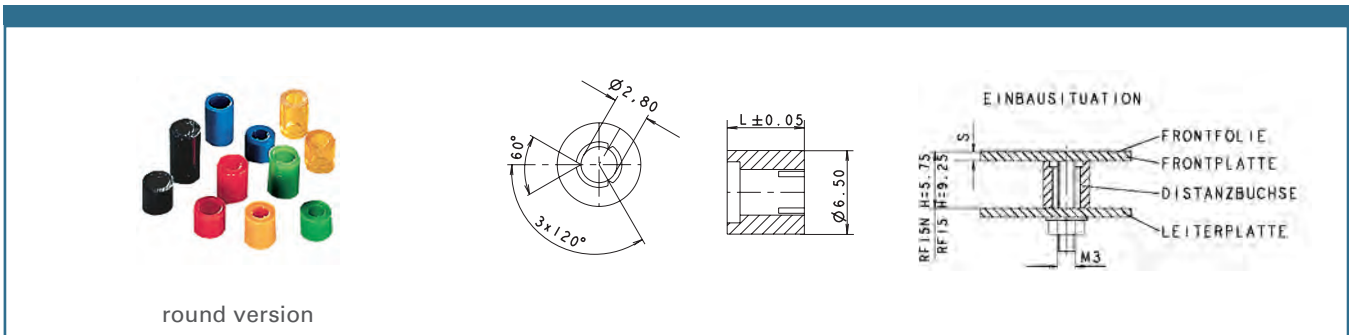
Temperature stability according J-STD 020 C for reflow soldering 245°C and for wave soldering 245°C / 10s.

Emergency stop label, Ø 22.3 mm



| Dimensions | inside Ø | Label  | Order no.         |
|------------|----------|--|-------------------|
| 36 x 64 mm | 22.3 mm  | -  | 5.76.205.011/0400 |
| Ø 40 mm    | 22.3 mm  | „NOT-HALT, EMERGENCY STOP, ARRET D'URGENCE, EMERGENZA“ | 5.76.204.115/0400 |
| Ø 40 mm    | 22.3 mm  | 4 x „NOT-AUS“  | 5.76.204.119/0400 |
| Ø 40 mm    | 22.3 mm  | 4 x „NOT-HALT“   | 5.76.204.117/0400 |
| Ø 40 mm    | 22.3 mm  | 4 x „EMERGENCY STOP“                                   | 5.76.204.121/0400 |
| Ø 60 mm    | 22.3 mm  | 1 x „NOT-AUS“  | 5.76.204.101/0400 |
| Ø 60 mm    | 22.3 mm  | 1 x „ARRET D'URGENCE“                                  | 5.76.204.102/0400 |
| Ø 60 mm    | 22.3 mm  | 1 x „EMERGENCY STOP“                                   | 5.76.204.103/0400 |
| Ø 60 mm    | 22.3 mm  | „EMERGENCY-STOP / ARRET D'URGENCE“                     | 5.76.207.002/0400 |
| Ø 60 mm    | 22.3 mm  | „NOT-HALT, EMERGENCY STOP, ARRET D'URGENCE, EMERGENZA“ | 5.76.204.107/0400 |
| Ø 60 mm    | 22.3 mm  | 4 x „NOT-HALT“   | 5.76.204.109/0400 |
| Ø 60 mm    | 22.3 mm  | 4 x „NOT-AUS“  | 5.76.204.111/0400 |
| Ø 60 mm    | 22.3 mm  | 4 x „EMERGENCY STOP“                                   | 5.76.204.113/0400 |

Spacers, round



round version

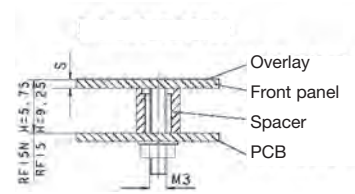
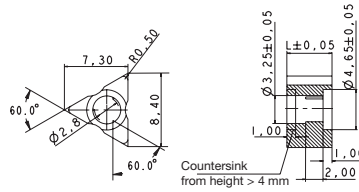
| Height  | Order no.         |
|---------|-------------------|
| 6.25 mm | 5.30.759.034/0000 |
| 6.50 mm | 5.30.759.035/0000 |
| 6.75 mm | 5.30.759.036/0000 |
| 7 mm    | 5.30.759.037/0000 |
| 7.25 mm | 5.30.759.038/0000 |
| 7.50 mm | 5.30.759.039/0000 |
| 7.75 mm | 5.30.759.040/0000 |
| 8 mm    | 5.30.759.041/0000 |
| 8.25 mm | 5.30.759.042/0000 |

Required spacer length = Overall height of key - front panel thickness - 0.5 mm (area embossing).

Spacers, triangular



triangular version



| Height  | Order no.         |
|---------|-------------------|
| 6.25 mm | 5.30.759.109/0000 |
| 6.50 mm | 5.30.759.110/0000 |
| 6.75 mm | 5.30.759.111/0000 |
| 7 mm    | 5.30.759.112/0000 |
| 7.25 mm | 5.30.759.113/0000 |
| 7.50 mm | 5.30.759.114/0000 |
| 7.75 mm | 5.30.759.115/0000 |
| 8 mm    | 5.30.759.116/0000 |
| 8.25 mm | 5.30.759.117/0000 |

Required spacer length = Overall height of key - front panel thickness - 0.5 mm (area embossing).



# RAFIX 22 FS<sup>+</sup>

FAST & SLIM

Everything else is outdated.



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