## © Crouzet



■ Industrial machines
www.millenium3.crouzet.com


## Millenium? Standard \& Custom

## The right solution - whatever the application!



Millenium 3 Standard
"Compact range"


Millenium 3 Standard
"Expandable range"


Millenium 3 Standard
"Communication range"


New features
"Millenium 3 Standard"


New features
"Millenium 3 Custom"

## Our company at a glance



Always one step ahead of market trends and customer requirements, Crouzet is continually developing its range of both standard and customised automation components and solutions to cover all the latest commercial and industrial applications and meet the needs expressed by manufacturers of automated equipment and machinery.

Headquartered in Moorpark, California-USA, Custom Sensors \& Technologies (CST) is made up of the leading brands of Crouzet, Kavlico and Crydom, as well as the former divisions of BEI Technologies, including Newall and Systron Donner. CST provides sensors, controls, and actuation products to the transportation, industrial, and aerospace \& defense markets. This new organization means even better service and technical solutions for our customers.

With Micro-control, Crouzet is a specialist provider of complete solutions tailored to meet your needs in terms of:

- Time management

■ Management of physical and electrical values
■ Counting
The entire range is marketed through a global distribution network working hand in hand with local sales forces dedicated to Micro-control applications.

## 3rd generation of logic controllers at the core of your industry.

With the new Millenium 3, you can take advantage of all the most recent developments in the latest generation of logic controllers. An innovative product, developed, industrialised and marketed by Crouzet, Millenium 3 is the successful synthesis of our expertise in automation systems acquired over a period of more than 40 years.
With the aim of matching your applications even more closely, Crouzet is expanding its Millenium 3 Standard logic controller offer which was originally launched in 2006:
■ New software functions (sunrise/sunset, etc.)
■ New accessories (pressure control solution, levels, flow, broader range of power supplies, remote display/keypad, improved communication extension performance, etc.)
In addition to its Millenium 3 Standard logic controllers for today's automation needs, Crouzet is also able to offer its Millenium 3 Custom logic controllers for specific applications (water treatment, geothermal systems, etc.), or for use in severe environments.
Whatever the application, Crouzet is able to offer you bespoke products that work in complete harmony with your equipment.

## Contents

## What is a logic controller used for?

## Millenium 3 Standard

| Presentation of the offer |  |
| :---: | :---: |
| - Overview of product offer | p. 8-13 |
| - Introduction to programming software | p. 14-19 |
| ■ Examples of application areas with focus on compressor management | p. 20-21 |
| Catalogue pages |  |
| - General characteristics | p. 22-25 |
| - "Compact" range selection guide | p. 26-27 |
| - "Compact" range CD12-CD20 with display | p. 28 |
| - "Compact" range CB12-CB20 without display | p. 29 |
| ■ "Expandable" range selection guide | p. 30-31 |
| - "Expandable" range XD10-XD26 with display | p. 32 |
| - "Expandable" range XB10-XB26 without display | p. 33 |
| - "Expandable" range/communication "Sandwich" extensions XN03-XN05-XN06 | p. 34 |
| - "Expandable" range/digital "Sandwich" extensions XE10 | p. 35 |
| - "Expandable" range/digital termination extensions XR06-XR10-XR14 | p. 36 |
| - "Expandable" range/analogue termination extensions XA04 | p. 37 |
| - Plug \& Play solutions for STN and GSM modem communication | p. 38-39 |
| - I/O wiring and installation diagrams | p. 40-43 |
| Accessories by function |  |
| - Programming | p. 44 |
| - Installing | p. 45 |
| - Displaying | p. 46-49 |
| ■ Converting | p. 50-51 |
| - Sensing | p. 52-56 |
| - Power supplies | p. 57-61 |

Presentation of the offer
■ Overview of product offer p. 8-13
■ Introduction to programming software
p. 14-19

Examples of application areas with focus on compressor management
p. 22-25

- General characteristics
p. 26-27
- "Compact" range CD12-CD20 with display
p. 29
p. 30-31
- "Expandable" range XD10-XD26 with display
p. 33
- "Expandable" range/communication "Sandwich" extensions XN03 - XN05 - XN06
p. 34
- "Expandable" range/digital "Sandwich" extensions XE10
p. 36
- "Expandable" range/analogue termination extensions XA04
p. 37

■ Plug \& Play solutions for STN and GSM modem communication
p. 38-39

Accessories by function

- Programming
p. 45
- Displaying
p. 50-51
- Sensing
p. 57-61


## Millenium 3 Custom

## Presentation of the offer and adaptation capability

■ Introduction to the Customer Adaptation Technical Service
p. 62-63

- Hardware adaptation capability
p. 64-65
- Software adaptation capability
p. 66-67
- Examples of application solutions
p. 68-69


## Catalogue pages

- Kitting
p. 70
- "Bare board" versions NB12 - NB20
p. 71

■"Modular" versions CD12 - CB12 - CB20 - XD10 - XB10 - XD26 - XB26
p. 72-73

■"Resin board" versions NBR12 - NBR26 - NBR32 - NBR40
p. 74-75

■ "Application" specific analogue extensions XA03 - XA04W
p. 76-77

- pH and ORP probes
p. 78

■ NTC probe
p. 79

- I/O wiring and installation diagrams
p. 80-81


## General information Millenium 3

```
■ Introduction to the website
p. 82-83- Customer project sheetp. 84-85- How to orderp. 86- Part numbers indexp. 87-91
```


## MHllenium?



## What is a logic controller used for?

The Millenium 3 logic controller can be used to automate small devices requiring between 10 and 50 I/O. Millenium 3's logic functions can be used in numerous applications, including packing, access control, vending, irrigation, pump management and HVAC control.
Millenium 3 is available in a "Compact" version for simple automation systems or an "Expandable" version for enhanced performance. There are also "Resin" or "Bare board" versions available for special applications.


■ Public lighting
Control of public lighting to coincide with sunrise/sunset in order to save energy whilst ensuring optimum security levels.

## More

possibilities


Sensing


Operator dialogue


Communicating


Actuating timer PID, etc.

The inputs (digital, potentiometer or 10-bit analogue) of the Millenium 3 logic controller are compatible with most sensors on the market: temperature sensors, pressure transmitters, level detectors, flow sensors, etc.

## PROCESSING

Millenium 3 functions
■ Timing: 5 types of

■ Counting: 3 types of counter
■ Regulating:
Hysteresis cycle,

## ■ Archiving/saving:

 10-year data backup function, even after a power failure■ Calculating: Maths functions

- Logic operations: AND, OR, NAND, NOR, XOR, NOT, etc.
■ Creating sequential programs: Grafcet, cam timer, etc.
■ Triggering events:
Year, month, day, hour, minute, etc.


To make it easier for the operator during parameter setting or operation, Millenium 3 has a built-in, backlit screen (4 lines of 18 characters, drop-down screen, bar chart).
It is equally possible to use the remote LED screen (via Modbus extension XN06) or the LCD screen.
NEW Backlit LCD screen/keypad with 4 lines of 18 characters and featuring 6 keys or 10 keys with 4 LEDs (direct communication with the Millenium 3 via the programming port).

## What is a logic controller used for?



The benefits of the new range


Networked offer

■ Communication extensions for 24 V DC expandable controller


## Product offer ovenview


"Compact range" starter kits with display

■ Digital<br>"Sandwich"<br>extension



XE10


XR06

Digital extensions
x


XR10


XR14

- Analogue extension


XA04

"Expandable range" starter kits with display

See page 76 for other analogue "application" extensions.
If you have specific needs, see page 62.

1 Millenium 3 is a very rational range, offering a high degree of consistency and true continuity over time. It's particularly useful when you have equipment life cycles lasting several years.
Mickaël, Technical Director


More
configuration options

(5) Crouzet

## Product offer overview

## all thanks to the modularity of Millenium 3.

NB: For voltage selection, see pages 26-27 and 30-31.

- : Extension not compatible
* : Not used

Compatible with M3MOD +

GSM/STN modem


XE10 XN03 XN05 XN06 XE10 XN03 XN05 XN06

| 20 | 10 | 10 | 10 | 36 | 26 | 26 | 26 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| XD10/XB10 with |  |  |  | XD26/XB26 with |  |  |  |
| XR06 | XR10 | XR14 | XA04 | XR06 | XR10 | XR14 | XA04 |
| 16 | 20 | 24 | 14 | 32 | 36 | 40 | 30 |
| XD10/XB10 with |  |  |  | XD26/XB26 with |  |  |  |
| XN, XE, XR or XA |  |  |  | XN, XE, XR or XA |  |  |  |
| 20 to 34 |  |  |  | 36 to 50 |  |  |  |

6With Millenium 3, I buy what I actually need! No matter what specification the technical team draws up in terms of I/O or supply voltage for example, I can find the right product in the Millenium 3 range.
As a result, thanks to this modularity, I always get the best cost-effectiveness ratio.

Catherine, Automation Component Purchasing Manager

55


Sprinklers


Drink vending machines


Telemaintenance for a pumping station


## Plug \& Play solutions for modem communication

## With the networked logic controller, you can control your installations remotely.

Using the M3MOD communication interface, you can monitor and control your installations remotely while reducing your maintenance costs:
■ Perform pre-diagnostics.
$■$ Avoid pointless visits.

- Define priorities before responding.

The M3MOD interface can be used with two 2 modems - the STN modem for wired networks or the GSM modem for wireless communication.

## On site with a mobile phone:

■ Receive SMS alerts containing up to 160 characters and able to include a digital and/or analogue value:
if one mobile phone is unavailable, the alarm is automatically redirected to another mobile phone.

■ Send commands to a remote Millenium 3 logic controller (you control Millenium 3 outputs remotely).

- Interrogate the status of application components and remotely modify the digital and/or analogue value of a program component.


## In the office with the M3 ALARM software:

■ Take advantage of the same functions as on your mobile phone with all the comfort of a PC environment.

■ Manage the composition of your maintenance teams.
■ Organise your alarms easily so that you can file, archive, sort or export them.


■ GSM modem communication solution

## Product offer overview



Communication extensions


Programming accessories

## Overview of other Millenium 3 communication solutions

## Easy-to-use, high-performance tools able to communicate with new forms of technology

## Millenium Web Server, the Embedded Web SCADA solution:

(Part no.: 88950124)
■ Remote supervision and monitoring from any system with an Internet browser (PC, mobile telephone, PDA, etc.)

■ Intuitive programming of supervision pages without the need for prior knowledge of programming languages
■ Automatic generation of supervision web pages (up to 20 pages)
■ Automatic alerts by e-mail/SMS/fax regarding any change in monitored status

■ Fieldbus management (Modbus master)
■ Analogue (temperatures, etc.) or digital (alarms, etc.) data archiving, with text-based data evaluation using spreadsheets

For more information on this Embedded Web supervision solution, please visit the dedicated website: www.webserver.crouzet.com

## Other communication options:

■ Ethernet (Modbus TCP protocol) and Modbus slave extensions with up to:

- 8 input data words (read/write)
- 8 output data words (read)
- Programming via serial cable, USB, Bluetooth interface, memory card or modem

14 In the case of extremely remote equipment, the fact that we can access the Millenium 3 controller remotely means we can optimise our response times.
And the wireless link is a real bonus when it comes to controlling the automatic gates we have installed!

Roberto, Operations Maintenance Manager

## 6 steps to greater simplicity

Example of programming in FBD/Grafcet SFC


Creating


Simulating


Supervising

## Two programming languages

## With Millenium 3, programming mirrors how you work.

Whether you are an electrical engineer or a control systems engineer, you can select the programming language you prefer. With Ladder or FBD/Grafcet language, everything is intuitive, quick and safe.
Millenium 3 is capable of reading and converting programs created on the Millenium 2 logic controller.
For quick, simple programming, the Millenium 3 software prioritises dedicated application-specific functions such as pump switching, PID control, movement, pressure, level and flow.
All the basic functions, such as counting, timing, comparison and display, are also available.
The M3 SOFT programming software incorporates error checking, so that when the slightest data entry error is made, it flags the incorrect item in red.
The M3 SOFT software is multilingual, offering English, French, Italian, German and Spanish.

## ■ Programming

You can choose between two different languages: Ladder and FBD/Grafcet.
■ Creation
You can select the physical or internal I/O and the preprogrammed functions you need for your application.
■ Simulation
You can test the result of your programming in real time.

## ■ Downloading

You can transfer your programs directly to the controllers using local wired or wireless (Bluetooth) equipment or transfer them remotely using modem solutions.
■ Supervision
You can view the status of your application, locally or remotely, thanks to the communication solutions.

## ■ Development

You can develop your program to keep pace with modifications to your installation.

## Introduction to programming software



Macro function


Division of screen


Moveable links


Time simulator

Visual customisation


Software innovations for easier programming

## ■ Macro function

Integrating your repetitive functions into dedicated macro functions saves time and makes your life easier, as it enables you to reuse your expertise directly within your programs. You can access and modify the content of your macro functions, or choose to protect them with a password.

Division of the wiring sheet into several edit windows This kind of division makes it possible to display two different sections of the wiring sheet on the same screen. This makes it easier to carry out debugging and wiring for your program.

## ■ Easy moving of links

The fact that you can move the links means you can develop your program by replacing function blocks but without losing your existing links.

## ■ Simulating program timing

The "Next event" key enables the user to set the time of the time simulator to the start of next timed event that has been programmed.

■ Customising your program with your own images
The software enables you to import images into your program so you can customise your wiring sheet, your input/output icons and your macro functions.
www.millenium3.crouzet.com

## Programming that is even more natural



## - 27 preprogrammed FBD functions

## ■ Timing/clock

## TIMERS

A/C function: Delay on and off
BW function: Pulse on a rising or falling edge
B/H function: Adjustable pulsed signal
Li/L function: Pulse generator (ON/OFF setting)
Totalizer function
When these functions have preset parameters, they can be adjusted in real time from an external setpoint.

## FBD/Grafcet SFC language

With the M3 SOFT CD-ROM, you can take advantage of unrivalled programming flexibility and a huge processing capacity (up to 700 function blocks).

## Counting

| 1234 | UP/DOWN COUNT |
| :--- | :--- |
| OPDOWNT | External preset up/down <br> Counter. |


| 1234 |  |
| :--- | :--- |
| PRESEI |  |
| ROUNT | PRESET COUNT <br> Preset up/down counter. |

## $\square$ Logic processing

## BISTABLE

Impulse relay function.
SET - RESET
Bistable memory - Priority assigned
to either SET or RESET.

## Digital processing



## ADD-SUB

Simple operations on integers: Addition and/or Subtraction.

## MUL-DIV

Simple operations on integers: Multiplication and/or Division.

## GAIN

Used to convert an analogue value
by changing the scale and offset.

## - Detection

## cUalk COMPARE IN ZONE

Used to compare a value between two setpoints (the MIN and MAX values determine the zone).

## COMPARE

Used to compare two analogue values using the $=,>,<, \geq, \leq, \neq$ operators.

## Display

## DISPLAY ON THE LCD SCREEN

Display of digital and analogue data, date, time, messages for human-machine interface (Bar chart function available).

## SCHMITT TRIGGER

Used to monitor an analogue value in relation to two thresholds.

## MIN MAX

Used to save the minimum and
maximum values of a variable signal.
 (current value, preset value, etc.) on the LCD display.

## PRESET H-METER

Preset hour counter (preselection of hour, minute).

TIME PROG
Daily, weekly, monthly and yearly time programmer.

## BOOLEAN

Creation of logic equations between
connected inputs.

## CAM TIMER

Controls a group of 8 integral cam wheels.


## DEC/BIN

Breaks down an integer type input (16 bits) into 16 bit type outputs.

## BIN/DEC

Makes up an integer type output (16 bits) from 16 bit type inputs.

## ARCHIVE

Used to save two values simultaneously with the information relating to their time-stamping.


MUX
Multiplexing function on 2 analogue values.

## STANDARD MACRO

Used to obtain examples of preprogrammed macros for scrolling 4 or 15 "DISPLAYS". These examples can be modified and configured with different parameters.

## STATUS

Allows the user to access the controller states and modify the behaviour of its FBD and/or SFC program depending on these states.

## Introduction to programming software

## Communication

SLIN (SERIAL LINK INPUT)
Writing via serial link of data stored in the controller's fixed addresses.

351
SLOUT (SERIAL LINK OUTPUT)
Reading via programming port of data stored in the controller's fixed addresses

## MESSAGE

When activated, the Message function block can be used to:

- send alarm messages to mobile phones, to the Millenium 3 Alarm tool or to e-mail addresses via the M3MOD communication interface.
- provide remote access to a digital variable and/or a numerical variable, in order to read or modify them.


## 20 specific preprogrammed FBDC functions

In addition to the basic function blocks, Crouzet's M3 SOFT CD-ROM (Part no. 88970111) also contains a library with specific functions adapted to your requirements and your application (water management, HVAC, etc.).

- Timing/clock

NEW HOUR/MINUTE
Provides the time from the
controller (hour and minutes).
 LEVER
COUCHER

NEW TIMER SET RESET SWITCHING
Triggers operation of a particular device at a fixed time for a period set by the user.

NEW SUNRISE/SUNSET TIME
Calculates the sunrise and sunset time in relation to the latitude and longitude read on the function block inputs. It is used to generate high levels on these "Morning Pulse" and "Evening Pulse" outputs according to the user parameters.

## Counting



## FAST COUNT

Counts the pulses arriving at
the input at rates in excess of one pulse every 10 ms .
$\square$ Digital processing

## ARCHIVE

Saves a value between - 32768 and 32767.

## STORE

Storage of data values with an average value.

■ Logic processing
BOOLEAN
(SIX INPUTS/TWO OUTPUTS)
Management of two Boolean equations.

## DEM (DEMULTIPLEXER)

Demultiplexing of integers. Used to direct the value of the input to one of the 4 OUTPUTS.

## HIGH SPEED COUNT

Counts the pulses arriving at the inputs of a controller powered by a DC supply at rates in excess of one pulse every 6 ms .

MUX (MULTIPLEXER)
Multiplexing WORD inputs. Used to direct the value of one of the selected inputs to a predefined output.

We constantly need to update the various automation configurations according to the environment in which our equipment is used.
With more than 50 function blocks available, Millenium 3 gives us this flexibility. What's more, I can connect up to 700 function blocks in the same program. This enables me to devise highly complex applications.
Steve, Moulding Press Manufacturer

## - 20 specific preprogrammed FBDC functions (continued)

## - SFC

WAIT SFC STEP
Sets up a wait phase or step for a PLC or a device.


MOVE SFC STEP
Sets up a move step for a motor controlled by the PLC to a position specified on the TARGET input.

## MOTOR MULTIPLEXER

Combines the motor control signals produced by two linked MOVE SFC steps.

Sensor

## ${ }^{-1} \mathbf{P}_{1}$

NEW GAIN
Acts as the interface between the Crouzet pressure transmitters and the Millenium 3 logic controller.

NEW 5 THRESHOLDS
This function compares a value against 5 thresholds.


## NEW LEVEL

Calculates the level of liquid in an open or closed tank, with or without constant density, using pressure sensors.

## NEW FLOW

Calculates the flow of a liquid in a pipe using a differential pressure element or by measuring the dynamic pressure.

Regulation

## ANALOGUE PID

Temperature control (pressure or other) with analogue output.

## PID PWM

Temperature control (pressure or other) with digital output.

## - Application

For details of any other specific function, see pages 66-67.

## 7 Grafcet SFC functions

For sequential automation systems (Sequential Function Chart).


- 6 logic functions

AND, OR, NAND, NOR, XOR, NOT.


## - 5 output functions

Physical outputs (relay, solid state or PWM) and internal outputs (backlighting).


## 17 input functions

Physical inputs (digital, potentiometer or 10-bit analogue) and internal inputs (buttons, constants).


## Introduction to programming software

## Ladder language



Electrical symbols


The M3 SOFT CD-ROM contains all the symbols used in Ladder language. You can choose between two types of graphic representation: Ladder or electrical symbols.

## - 13 Ladder functions

■ Inputs

DIGITAL INPUTS
This contact represents the state of the controller input connected to a sensor (pushbutton, switch, detector, etc).

## A/B BUTTONS

The A and B buttons behave exactly like physical inputs. They correspond to the grey $A$ and $B$ buttons on the front of the controller.

## SUMMER WINTER

This function output is in the OFF state for the whole of wintertime and changes to the ON state for the whole of summertime.

## AUXILIARY RELAYS

The auxiliary relays, marked M , behave exactly like digital outputs, but do not have an output electrical contact. They can be used as internal variables.

## Timer/clock

TIMERS
The TIMERS function block provides access to the following functions: delaying or prolonging actions for a predefined time management of flashing cycles, creating pulses, etc.

## ■ Counter

| 1234 | COUNTERS <br> PRESEI <br> COUNI |
| :--- | :--- |
| Upcounts or downcounts |  |
| pulses. |  |



HIGH-SPEED COUNTER
Counts pulses up to a frequency of 1 kHz .

## CLOCKS

The Clocks or Time Prog function is used to enable time slots during which it will be possible to execute actions.

COUNTER COMPARATORS Compares the current counter value of two counters or of one counter and a constant value.

Display

## LCD BACKLIGHTING

The screen Backlighting output is used to control the LCD display lighting via the program.

## ■ Communication

## MESSAGE

When activated, the Message function block can be used to:

- send alarm messages to mobile phones, to the M3 Alarm tool or to e-mail addresses via the M3MOD communication interface.
- provide remote access to a digital variable and/or a numerical variable, in order to read or modify them.


I wasn't really into programming at first. Here at least, I can choose the language that suits me best. As I am an electrical engineer by training, with Ladder language, it's what I understand! Olivier, Electrical Installer

## 雨雨

IEXIE

## TEXT BLOCKS

The Text automation function is used to display text and/or numerical values (current value, preset value, etc.) on the LCD display rather than on the INPUTS-OUTPUTS screen.

## Whatever

 your activity

■ Building Management Systems


- Advertising hoardings


Water treatment


■ Renewable energies

## Millenium 3 offers the most suitable solution for your application.

## Building Management Systems

■ Lighting control systems

- Air conditioning and heating systems

■ Lifts, hoists and escalators

- Automatic doors and barriers


## Industry

- Packing machines
- Woodworking machines
- Conveyors

■ Moulding machines

## Commercial equipment

■ Automatic washing equipment

- Vending machines
- Advertising hoardings

■ Toll barriers

## Water treatment/Agriculture

- Farm machinery
- Irrigation/sprinkler systems

■ Pump management
Renewable energies

■ Solar panels<br>$\square$ Wind turbines<br>■ Heat pumps



Pressure transmitter:
Easily avoid breakdowns!

- The pressure transmitter measures the compressor's supply and outlet pressures to control the motor according to the required displayed pressure, thereby ensuring maximum efficiency.
■ Ready-to-use, the pressure transmitter's reference and specifications are preset in the Millenium 3 logic controller, allowing safe, speedy and effective installation, using dedicated function blocks.


Millenium 3: The logic controller at the heart of your equipment!
■ The Millenium 3 logic controller has everything you need to control your compressors effectively: easy to operate, preset applications, adapted function blocks.

- The Millenium 3 gathers and processes data such as relative humidity, temperature and pressure to co-ordinate operation of one or more compressors.
A dedicated function ensures simultaneous management of 4 or more compressors, in order to extend their working life.

6By opting for a Millenium 3 automation solution, I get the benefit of perfect synchronisation between logic controller, probes, sensors, control relays, timers and, defrost relays.
This is a real plus for us! We are able to derive significant benefits in terms of design, integration and installation.
Edith, Quality Manager for compressor manufacture 5


## Millenium 3 Standard

## General characteristics

## - Millenium 3 Compact Range

- Millenium 3 Expandable Range
- Millenium 3 Communication Options


| General environment characteristics for CB, CD, XD, XB, XR and XE product types |  |
| :---: | :---: |
| Certifications | UL, CSA |
|  | GL: except for $8897032 x$ (pending) |
| Conformity with the low | In accordance with 73/23/EEC: |
| voltage directive | EN (IEC) 61131-2 (Open equipment) |
| Conformity with the EMC directive 0 | In accordance with 89/336/EEC: |
|  | EN (IEC) 61131-2 (Zone B) |
|  | EN (IEC) 61000-6-2, |
|  | EN (IEC) 61000-6-3 (*) |
|  | EN (IEC) 61000-6-4 |
| (*) Except configuration (88970 1.1 or 889701.2 ) + (88970 250 or 88970270$)+88970241$ class A (class B: using in metallic cabinet) |  |
| Earthing | None |
| Protection rating ${ }^{\text {a }}$ | In accordance with IEC/EN 60529: |
|  | IP40 on front panel IP20 on terminal block |
| Overvoltage category | 3 in accordance with IEC/EN 60664-1 |
| Pollution | Degree: 2 in accordance with IEC/EN 61131-2 |
| Maximum utilisation altitude | Operation: 2000 m |
|  | Transport: 3.048 m |
| Mechanical resistance * | Immunity to vibrations IEC/EN 60068-2-6, Fc test Immunity to shock IEC/EN 60068-2-27, Fa test |
| Resistance to electrostatic discharge | Immunity to ESD IEC/EN 61000-4-2, level 3 |
| Resistance to HF interference | Immunity to radiated electrostatic fields |
|  | IEC/EN 61000-4-3, |
|  | Immunity to fast transients (burst immunity) |
|  | IEC/EN 61000-4-4, level 3 |
|  | Immunity to shock waves |
|  | Radio frequency in common mode |
|  | Radio frequency in common mode |
|  | Voltage dips and breaks ( $\sim$ ) |
|  | IEC/EN 61000-4-11 |
|  | Immunity to damped oscillatory waves |
|  | IEC/EN 61000-4-12 |
| Class B ( ${ }^{*}$ ) in accordance with EN 55022/11 group 1$\begin{aligned} & \text { Conducted and radiated emissions } \\ & \left.\left({ }^{*}\right) \text { Except configuration (88970 } 1.1 \text { or } 889701.2\right)+(88970250 \text { or } 88970270)+88970241 \text { class A (class B in metallic cabinet) }\end{aligned}$ |  |
|  |  |
| Operating temperature | $-20 \rightarrow+55^{\circ} \mathrm{C}\left(+40^{\circ} \mathrm{C}\right.$ in a non-ventilated enclosure) in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-2-2 |
| Storage temperature | $-40 \rightarrow+70^{\circ} \mathrm{C}$ in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-2-2 |
| Relative humidity | 95\% max. (no condensation or dripping water) in accordance with IEC/EN 60068-2-30 |
| Mounting | On symmetrical DIN profile, $35 \times 7.5 \mathrm{~mm}$ and $35 \mathrm{~mm} \times 15$ or panel ( $2 \times 4 \mathrm{~mm}$ ) |
| Screw terminals connection capacity | Flexible wire with ferrule $=$ |
|  | 1 conductor: 0.25 to $2.5 \mathrm{~mm}^{2}$ (AWG 24...AWG 14) |
|  | 2 conductors 0.25 to $0.75 \mathrm{~mm}^{2}$ (AWG 24...AWG 18) |
|  | Semi-rigid wire $=$ |
|  | 1 conductor: 0.2 to $2.5 \mathrm{~mm}^{2}$ (AWG 25...AWG 14) |
|  | Rigid wire $=$ |
|  | 1 conductor: 0.2 to $2.5 \mathrm{~mm}^{2}$ (AWG 25...AWG 14) |
|  | 2 conductors 0.2 to $1.5 \mathrm{~mm}^{2}$ (AWG 25...AWG 16) |
|  | Tightening torque $=$, |
|  | 0.5 N.m (4.5 lb-in) (tighten using screwdriver diam. 3.5 mm ) |


| Processing characteristics of CB, CD, XD \& XB product types |  |
| :---: | :---: |
| LCD display | CD, XD: Display with 4 lines of 18 characters |
| Programming method | Ladder or function blocks/SFC (Grafcet) |
| Program size | Ladder: 120 lines Function blocks: CB, CD: typically 350 blocks XB, XD: typically 700 blocks |
| Program memory | Flash EEPROM |
| Removable memory | EEPROM |
| Data memory | 368 bits/200 words |
| Back-up time in the event of power failure | Program and settings in the controller: 10 years Program and settings in the plug-in memory: 10 years Data memory: 10 years |
| Cycle time | Ladder: typically 20 ms Function blocks: $6 \rightarrow 90 \mathrm{~ms}$ |
| Response time | Input acquisition time +1 to 2 cycle times |
| Clock data retention | 10 years (lithium battery) at $25^{\circ} \mathrm{C}$ |
| Clock drift | Drift < $12 \mathrm{~min} /$ year (at $25^{\circ} \mathrm{C}$ ) <br> $6 \mathrm{~s} /$ month (at $25^{\circ} \mathrm{C}$ with user-definable correction of drift) |
| Timer block accuracy | $1 \% \pm 2$ cycle times |
| Start up time on power up | $<1.2$ s |

## Characteristics of products with AC power supplied

| Supply | $\begin{aligned} & 24 \text { V ~ } \\ & (88970 . .4) \end{aligned}$ | $\begin{aligned} & 100 \rightarrow 240 \mathrm{~V} \sim \\ & (88970 . .3) \end{aligned}$ |
| :---: | :---: | :---: |
| Nominal voltage ${ }^{\circ}$ | 24 V ~ | $100 \rightarrow 240 \mathrm{~V}$ ~ |
| Operating limits ${ }^{\text {- }}$ | -15\% / +20\% | -15\% / +10\% |
|  | or 20.4 V ~ $\rightarrow 28.8 \mathrm{~V}$ ~ | or 85 V ~ $\rightarrow 264 \mathrm{~V}$ ~ |
| Supply frequency range | $\begin{aligned} & 50 / 60 \mathrm{~Hz}(+4 \% /-6 \%) \\ & \text { or } 47 \rightarrow 53 \mathrm{~Hz} / 57 \rightarrow 63 \mathrm{~Hz} \end{aligned}$ | $\begin{aligned} & 50 / 60 \mathrm{~Hz}(+4 \% /-6 \%) \text { or } 47 \rightarrow 53 \mathrm{~Hz} / 57 \rightarrow 63 \\ & \mathrm{~Hz} \end{aligned}$ |
| Immunity from micro power cuts | 10 ms (repetition 20 times) | 10 ms (repetition 20 times) |
| Max. absorbed power | CB12-CD12-XD10-XB10: 4 VA | CB12-CD12-XD10-XB10: 7 VA |
|  | CB20-CD20: 6 VA | CB20-CD20: 11 VA |
|  | XD10 with extension - XD26-XB26: 7.5 VA | XD10-XB10 with extension-XD26-XB26: 12 VA |
|  | XD26-XB26 with extension: 10 VA | XD26-XB26 with extension: 17 VA |
| Isolation voltage | 1780 V ~ | 1780 V ~ |
| Inputs | $\begin{aligned} & 24 \mathrm{~V} \text { ~ } \\ & (88970 . .4) \end{aligned}$ | $\begin{aligned} & 100 \rightarrow 240 \mathrm{~V} \sim \\ & (88970 . .3) \end{aligned}$ |
| Input voltage | 24 V ~ (-15\% / +20\%) | $100 \rightarrow 240$ V $\sim(-15 \% /+10 \%)$ |
| Input current ${ }^{\circ}$ | 4.4 mA @ 20.4 V ~ | 0.24 mA @ 85 V ~ |
|  | 5.2 mA @ 24.0 V ~ | 0.75 mA @ 264 V ~ |
|  | 6.3 mA @ 28.8 V ~ |  |
| Input impedance ${ }^{\circ}$ | $4.6 \mathrm{k} \Omega$ | $350 \mathrm{k} \Omega$ |
| Logic 1 voltage threshold ${ }^{\circ}$ | $\geq 14 \mathrm{~V}$ ~ | $\geq 79 \mathrm{~V}$ |
| Making current at logic state $1^{\circ}$ | $>2 \mathrm{~mA}$ | $>0.17 \mathrm{~mA}$ |
| Logic 0 voltage threshold ${ }^{\circ}$ | $\leq 5 \mathrm{~V}$ ~ | $\begin{aligned} & \leq 20 \vee \sim(\leq 28 \vee \sim: X E 10, X R 06, X R 10, \\ & \text { XR14) } \end{aligned}$ |
| Release current at logic state 00 | $<0.5 \mathrm{~mA}$ | $<0.5 \mathrm{~mA}$ |
| Response time with LADDER programming | 50 ms - State $0 \rightarrow 1(50 / 60 \mathrm{~Hz})$ | 50 ms - State $0<1(50 / 60 \mathrm{~Hz})$ |
| Response time with function blocks programming | Configurable in increments of 10 ms | Configurable in increments of 10 ms |
|  | 50 ms min. up to 255 ms <br> State $0 \rightarrow 1(50 / 60 \mathrm{~Hz})$ | 50 ms min. up to 255 ms State $0 \rightarrow 1(50 / 60 \mathrm{~Hz})$ |
| Maximum counting frequency | In accordance with cycle time (Tc) and input response time (Tr) : $1 /((2 \times T c)+\mathrm{Tr})$ | In accordance with cycle time (Tc) and input response time ( Tr ) : $1 /((2 \times \mathrm{Tc})+\mathrm{Tr})$ |
| Sensor type | Contact or 3-wire PNP | Contact or 3-wire PNP |
| Input type | Resistive | Resistive |
| Isolation between power supply and inputs | None | None |
| Isolation between inputs | None | None |
| Protection against polarity inversions | Yes | Yes |
| Status indicator | On LCD screen for CD and XD | On LCD screen for CD and XD |
| Characteristics of relay outputs common to the entire range |  |  |
| Max. breaking voltage | $\begin{aligned} & 5 \rightarrow 30 \vee=-- \\ & 24 \rightarrow 250 \vee \end{aligned}$ |  |
| Breaking current ${ }^{\text {a }}$ | CB-CD-XB10-XD10-XR06-XR10: 8 A <br> XD26-XB26: $8 \times 8$ A relays, $2 \times 5$ A relays <br> XE10: $4 \times 5$ A relays <br> XR14: $4 \times 8$ A relays, $2 \times 5$ A relays |  |
| Max. Output Common Current | 12A for 08,09,OA |  |


| Electrical durability for $\mathbf{5 0 0 0 0 0} \mathbf{0 0 0}$ operating cycles | Usage category DC-12: $24 \mathrm{~V}, 1.5 \mathrm{~A}$ |
| :--- | :--- |
|  | Usage category DC-13: $24 \mathrm{~V}(\mathrm{~L} / \mathrm{R}=10 \mathrm{~ms}), 0.6 \mathrm{~A}$ |
|  | Usage category AC-12: $230 \mathrm{~V}, 1.5 \mathrm{~A}$ |
|  | Usage category AC-15: $230 \mathrm{~V}, 0.9 \mathrm{~A}$ |
| Minimum switching capacity | $10 \mathrm{~mA}($ at minimum voltage of 12 V$)$ |
| Minimum load | $12 \mathrm{~V}, 10 \mathrm{~mA}$ |
| Maximum rate | Off load: 10 Hz |
| Mechanical life | 10.000 .000 operations (cycles) |
| Voltage for withstanding shocks | In accordance with IEC/EN 60947-1 and IEC/EN 60664-1:4 kV |
| Response time | Make 10 ms |
|  | Release 5 ms |
| Built-in protections | Against short-circuits: None |
|  | Against overvoltages and overloads: None |
| Status indicator | On LCD screen for CD and XD |

## Characteristics of product with DC power supplied

| Supply | $12 \mathrm{~V}=$ <br> (88970..5 \& 88970814 \& 88970840) | $\begin{aligned} & 24 \mathrm{~V}=- \\ & (88970 . .1 \& 88970 . .2) \end{aligned}$ |
| :---: | :---: | :---: |
| Nominal voltage ${ }^{\circ}$ | $12 \mathrm{~V}=-$ | $24 \mathrm{~V}=-$ |
| Operating limits | $\begin{aligned} & -13 \% /+20 \% \\ & \text { or } 10.4 \mathrm{~V}=--14.4 \mathrm{~V}=- \text { (including ripple) } \end{aligned}$ | $-20 \% /+25 \%$ <br> or $19.2 \mathrm{~V}=-$ < $30 \mathrm{~V}=$ (including ripple) |
| Immunity from micro power cuts | $\leq 1 \mathrm{~ms}$ (repetition 20 times) | $\leq 1 \mathrm{~ms}$ (repetition 20 times) |
| Max. absorbed power | CB12 with solid state outputs: 1.5 W CD12: 1.5 W <br> CD20: 2.5 W <br> XD26-XB26: 3 W <br> XD26-XB26 with extension: 5 W <br> XD26 with solid state outputs: 2.5 W | CB12-CD12-CD20 with solid state outputs - XD10-XB10 with solid state outputs: 3 W XD10-XB10 with relay outputs: 4 W <br> XD26-XB26 with solid state outputs: 5 W CB20-CD20 with relay outputs-XD26 with relay outputs: 6 W <br> XD10-XB10 with extension: 8 W <br> XD26-XB26 with extension: 10 W |
| Protection against polarity inversions | Yes | Yes |
| Digital inputs (11 to IA and IH to IY) | $12 \mathrm{~V}=-$ <br> (88970..5 \& 88970814 \& 88970840) | $\begin{aligned} & 24 V=- \\ & (88970 . .1 \& 88970 . .2) \end{aligned}$ |
| Input voltage | $12 \mathrm{~V}=-\mathrm{( }-13 \% /+20 \%)$ | $24 \mathrm{~V}=-\mathrm{( }-20 \% /+25 \%)$ |
| Input current | 3.9 mA @ $10.44 \mathrm{~V}=-$ | 2.6 mA @ $19.2 \mathrm{~V}=-$ |
|  | 4.4 mA @ $12.0 \mathrm{~V}=$ | 3.2 mA @ $24 \mathrm{~V}=$ |
|  | 5.3 mA @ $14.4 \mathrm{~V}=-$ | 4.0 mA @ $30.0 \mathrm{~V}=-$ |
| Input impedance | $2.7 \mathrm{k} \Omega$ | $7.4 \mathrm{k} \Omega$ |
| Logic 1 voltage threshold | $\geq 7 \mathrm{~V}=$ | $\geq 15 \mathrm{~V}=-$ |
| Making current at logic state 1 - | $\geq 2 \mathrm{~mA}$ | $\geq 2.2 \mathrm{~mA}$ |
| Logic 0 voltage threshold | $\leq 3 \mathrm{~V}=$ | $\leq 5 \mathrm{~V}=-$ |
| Release current at logic state $0^{\circ}$ | $<0.9 \mathrm{~mA}$ | $<0.75 \mathrm{~mA}$ |
| Response time | $1 \rightarrow 2$ cycle times | $1 \rightarrow 2$ cycle times |
| Maximum counting frequency | I1 \& I2: Ladder ( 1 kHz ) \& FBD (Up to 6 kHz ) <br> I3 to IA \& IH to IY: in accordance with cycle time ( Tc ) and input response time ( Tr ) : $1 /((2 \times T c)+\mathrm{Tr})$ | I1 \& I2: Ladder ( 1 kHz ) \& FBD (Up to 6 kHz ) <br> I3 to IA \& IH to IY: in accordance with cycle time (Tc) and input response time (Tr) : $1 /((2 \times T c)+\mathrm{Tr})$ |
| Sensor type | Contact or 3-wire PNP | Contact or 3-wire PNP |
| Conforming to IEC/EN 61131-2 | Type 1 | Type 1 |
| Input type | Resistive | Resistive |
| Isolation between power supply and inputs | None | None |
| Isolation between inputs | None | None |
| Protection against polarity inversions | Yes | Yes |
| Status indicator | On LCD screen for CD and XD | On LCD screen for CD and XD |
| Analogue or digital inputs (IB to IG) | $12 \mathrm{~V}=$ <br> (88970..5 \& 88970814 \& 88970840) | $\begin{aligned} & 24 \mathrm{~V}=- \\ & (88970 . .1 \& 88970 . .2) \end{aligned}$ |
| CB12-CD12-XD10-XB10 | 4 inputs IB $\rightarrow$ IE | 4 inputs IB $\rightarrow$ IE |
| CB20-CD20-XB26-XD26 | 6 inputs IB $\rightarrow$ IG | 6 inputs IB $\rightarrow$ IG |
| Inputs used as analogue inputs |  |  |
| Measurement range ${ }^{\text {a }}$ | ( $0 \rightarrow 10 \mathrm{~V}$ ) or ( $0 \rightarrow \mathrm{~V}$ power supply) | ( $0 \rightarrow 10 \mathrm{~V}$ ) or ( $0 \rightarrow \mathrm{~V}$ power supply) |
| Input impedance ${ }^{\text {P }}$ | $14 \mathrm{k} \Omega$ | $12 \mathrm{k} \Omega$ |
| Input voltage | $14.4 \mathrm{~V}=-\mathrm{max}$ | $30 \mathrm{~V}=-\mathrm{max}$ |
| Value of LSB - | $14 \mathrm{mV}, 4 \mathrm{~mA}$ | $29 \mathrm{mV}, 4 \mathrm{~mA}$ |
| Input type | Common mode | Common mode |
| Resolution | 10 bit at maximum input voltage | 10 bit at maximum input voltage |
| Conversion time | Controller cycle time | Controller cycle time |
| Accuracy at $25^{\circ} \mathrm{C}$ | $\pm 5 \%$ | $\pm 5 \%$ |
| Accuracy at $55^{\circ} \mathrm{C}$ | $\pm 6.2 \%$ | $\pm 6.2 \%$ |
| Repeat accuracy at $55^{\circ} \mathrm{C}$ | $\pm 2 \%$ | $\pm 2 \%$ |
| Isolation between analogue channel and power supply | None | None |
| Cable length | 10 m maximum, with shielded cable (sensor not isolated) | 10 m maximum, with shielded cable (sensor not isolated) |
| Protection against polarity inversions | Yes | Yes |
| - :For adapted products, see page page 64-65 | Crouzet |  |
|  |  | www.millenium3.crouzet.com |


| Potentiometer control | $2.2 \mathrm{k} \Omega / 0.5 \mathrm{~W}$ (recommended) $10 \mathrm{k} \Omega$ max. | $2.2 \mathrm{k} \Omega / 0.5 \mathrm{~W}$ (recommended) $10 \mathrm{k} \Omega$ max. |
| :---: | :---: | :---: |
| Inputs used as digital inputs |  |  |
| Input voltage ${ }^{\text {a }}$ | $12 \mathrm{~V}=-\mathrm{(-13} \mathrm{\%} /+20 \%)$ | $24 \mathrm{~V}=-\mathrm{(-20} \mathrm{\%} /+25 \%)$ |
| Input current ${ }^{\text {- }}$ | $\begin{aligned} & 0.7 \mathrm{~mA} @ 10.44 \mathrm{~V}=-\mathrm{-} \\ & 0.9 \mathrm{~mA} @ 12.0 \mathrm{~V}=-- \\ & 1.0 \mathrm{~mA} @ 14.4 \mathrm{~V}=- \end{aligned}$ | $\begin{aligned} & 1.6 \mathrm{~mA} @ 19.2 \mathrm{~V}=-\mathrm{-} \\ & 2.0 \mathrm{~mA} @ 24.0 \mathrm{~V}=- \\ & 2.5 \mathrm{~mA} @ 30.0 \mathrm{~V}=- \end{aligned}$ |
| Input impedance ${ }^{\text {a }}$ | $14 \mathrm{k} \Omega$ | $12 \mathrm{k} \Omega$ |
| Logic 1 voltage threshold 0 | $\geq 7 \mathrm{~V}=-$ | $\geq 15 \mathrm{~V}-\mathrm{-}$ |
| Making current at logic state 1 - | $\geq 0.5 \mathrm{~mA}$ | $\geq 1.2 \mathrm{~mA}$ |
| Logic 0 voltage threshold 0 | $\leq 3 \mathrm{~V}=-$ | $\leq 5 \mathrm{~V}=-$ |
| Release current at logic state 00 | $\leq 0.2 \mathrm{~mA}$ | $\leq 0.5 \mathrm{~mA}$ |
| Response time | $1 \rightarrow 2$ cycle times | $1 \rightarrow 2$ cycle times |
| Maximum counting frequency | In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( $(2 \times \mathrm{Tc})+\mathrm{Tr})$ | In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( ( $2 \times \mathrm{Tc}$ ) + Tr) |
| Sensor type | Contact or 3-wire PNP | Contact or 3-wire PNP |
| Conforming to IEC/EN 61131-2 | Type 1 | Type 1 |
| Input type | Resistive | Resistive |
| Isolation between power supply and inputs | None | None |
| Isolation between inputs | None | None |
| Protection against polarity inversions | Yes | Yes |
| Status indicator | On LCD screen for CD and XD | On LCD screen for CD and XD |
| Characteristics of relay outputs common to the entire range |  |  |
| Max. breaking voltage | $\begin{aligned} & 5 \rightarrow 30 \vee=- \\ & 24 \rightarrow 250 \vee \sim \end{aligned}$ |  |
| Breaking current ${ }^{\text {a }}$ | CB-CD-XD10-XB10-XR06-XR10: 8 A <br> XD26-XB26: $8 \times 8$ A relays, $2 \times 5$ A relays <br> XE10: $4 \times 5$ A relays <br> XR14: $4 \times 8$ A relays, $2 \times 5$ A relays |  |
| Max. Output Common Current | 12A for 08,09,0A |  |
| Electrical durability for 500000 operating cycles | Usage category DC-12: $24 \mathrm{~V}, 1.5 \mathrm{~A}$ Usage category DC-13: 24 V (L/R = 10 ms ) Usage category AC-12: $230 \mathrm{~V}, 1.5 \mathrm{~A}$ Usage category AC-15: $230 \mathrm{~V}, 0.9 \mathrm{~A}$ |  |
| Minimum switching capacity | 10 mA (at minimum voltage of 12 V ) |  |
| Minimum load | $12 \mathrm{~V}, 10 \mathrm{~mA}$ |  |
| Maximum rate | Off load: 10 Hz <br> At operating current: 0.1 Hz |  |
| Mechanical life | 10.000.000 operations (cycles) |  |
| Voltage for withstanding shocks | In accordance with IEC/EN 60947-1 and IEC | EN 60664-1: 4 kV |
| Response time | Make 10 ms Release 5 ms |  |
| Built-in protections | Against short-circuits: None Against overvoltages and overloads: None |  |
| Status indicator | On LCD screen for CD and XD |  |
| Digital / PWM solid state output | $\begin{aligned} & 12-24 \mathrm{~V}=- \\ & (88970814 \& 88970840) \end{aligned}$ | $\begin{aligned} & 24 \mathrm{~V}=- \\ & (88970 . .2) \end{aligned}$ |
| PWM solid state output* <br> * Only available with "FBD" programming language | $\begin{aligned} & \text { CB12: O4 } \\ & \text { XD26: O4 } \rightarrow \text { O7 } \end{aligned}$ | $\begin{aligned} & \text { CD12-XD10-XB10: O4 } \\ & \text { CD20-XD26-XB26: O4 } \rightarrow \text { O7 } \end{aligned}$ |
| Breaking voltage | $10.4 \rightarrow 30 \mathrm{~V}=-$ | $19.2 \rightarrow 30 \mathrm{~V}=-$ |
| Nominal voltage ${ }^{\text {- }}$ | $12-24 \mathrm{~V}=-$ | 24 V --- |
| Nominal current ${ }^{\circ}$ | 0.5 A | 0.5 A |
| Max. breaking current ${ }^{\text {- }}$ | 0.625 A | 0.625 A |
| Voltage drop | $\leq 2 \mathrm{~V}$ for I $=0.5 \mathrm{~A}$ (at state 1 ) | $\leq 2 \mathrm{~V}$ for I $=0.5 \mathrm{~A}$ (at state 1 ) |
| Response time | $\begin{aligned} & \text { Make } \leq 1 \mathrm{~ms} \\ & \text { Release } \leq 1 \mathrm{~ms} \end{aligned}$ | $\begin{aligned} & \text { Make } \leq 1 \mathrm{~ms} \\ & \text { Release } \leq 1 \mathrm{~ms} \end{aligned}$ |
| Built-in protections | Against overloads and short-circuits: Yes <br> Against overvoltages (*) : Yes <br> Against inversions of power supply: Yes | Against overloads and short-circuits: Yes Against overvoltages (*) : Yes Against inversions of power supply: Yes |
| (*) In the absence of a volt-free contact between the output of the logic controller and the load |  |  |
| Min. Ioad | 1 mA | 1 mA |
| Maximum incandescent load | $\begin{aligned} & 0.2 \mathrm{~A} / 12 \mathrm{~V}=- \\ & 0.1 \mathrm{~A} / 24 \mathrm{~V}=- \end{aligned}$ | $0.1 \mathrm{~A} / 24 \mathrm{~V}=-$ |
| Galvanic isolation | No | No |
| PWM frequency | $\begin{aligned} & 14.11 \mathrm{~Hz}-56.45 \mathrm{~Hz}-112.90 \mathrm{~Hz}-225.80 \\ & \mathrm{~Hz}-451.59 \mathrm{~Hz}-1806.37 \mathrm{~Hz} \end{aligned}$ | $\begin{aligned} & 14.11 \mathrm{~Hz}-56.45 \mathrm{~Hz}-112.90 \mathrm{~Hz}-225.80 \\ & \mathrm{~Hz}-451.59 \mathrm{~Hz}-1806.37 \mathrm{~Hz} \end{aligned}$ |
| PWM cyclic ratio | $\begin{aligned} & 0 \rightarrow 100 \% \text { ( } 256 \text { steps for CD, XD and } 1024 \\ & \text { for XA) } \end{aligned}$ | $\begin{aligned} & 0 \rightarrow 100 \% \text { ( } 256 \text { steps for CD, XD and } 1024 \\ & \text { for XA) } \end{aligned}$ |
| PWM accuracy at 120 Hz | $<5 \%(20 \% \rightarrow 80 \%)$ load at 10 mA | $<5 \%(20 \% \rightarrow 80 \%)$ load at 10 mA |
| PWM accuracy at 500 Hz | < 10\% (20\% $\rightarrow 80 \%$ ) load at 10 mA | < $10 \%(20 \% \rightarrow 80 \%)$ load at 10 mA |
| Status indicator | On LCD screen for XD | On LCD screen for CD and XD |

Millenium 3 logic controllers


| Type |  | Part number | Power supply | Inputs | Outputs |
| :---: | :---: | :---: | :---: | :---: | :---: |
| With display |  |  |  |  |  |
|  | CD12 | 88970041 | $24 \mathrm{~V}=-$ | 8 digital（of which 4 are analogue） | $4 \times 8$ A relays |
|  |  | 88970042 | $24 \mathrm{~V}=-$ | 8 digital（of which 4 are analogue） | 4 solid state 0．5 A（of which 1 is PWM） |
|  |  | 88970043 | $100 \rightarrow 240 \mathrm{~V}$～ | 8 digital | $4 \times 8$ A relays |
|  |  | 88970044 | 24 V ～ | 8 digital | $4 \times 8$ A relays |
|  |  | 88970045 | $12 \mathrm{~V}=-$ | 8 digital（of which 4 are analogue） | $4 \times 8$ A relays |
|  | CD20 | 88970051 | $24 \mathrm{~V}=-$ | 12 digital（of which 6 are analogue） | $8 \times 8$ A relays |
|  |  | 88970052 | $24 \mathrm{~V}=-$ | 12 digital（of which 6 are analogue） | 8 solid state 0．5 A（of which 4 are PWM） |
|  |  | 88970053 | $100 \rightarrow 240 \mathrm{~V}$～ | 12 digital | $8 \times 8$ A relays |
|  |  | 88970054 | 24 V ～ | 12 digital | $8 \times 8$ A relays |
|  |  | 88970055 | $12 \mathrm{~V}=-$ | 12 digital（of which 6 are analogue） | $8 \times 8$ A relays |
| Without display |  |  |  |  |  |
|  | CB12 | 88970021 | $24 \mathrm{~V}=-$ | 8 digital（of which 4 are analogue） | $4 \times 8$ A relays |
|  |  | 88970023 | $100 \rightarrow 240 \mathrm{~V}$～ | 8 digital | $4 \times 8$ A relays |
|  |  | 88970024 | 24 V ～ | 8 digital | $4 \times 8$ A relays |
|  |  | 88970840 NEW | $12 \mathrm{~V}=-$ | 8 digital（of which 4 are analogue） | 4 solid state 0.5 A （of which 1 is PWM） |
| $\underline{\square}$ | CB20 | 88970031 | $24 \mathrm{~V}=-$ | 12 digital（of which 6 are analogue） | $8 \times 8$ A relays |
|  |  | 88970033 | $100 \rightarrow 240 \mathrm{~V}$～ | 12 digital | $8 \times 8$ A relays |
|  |  | 88970034 | 24 V ～ | 12 digital | $8 \times 8$ A relays |



Optimum memory capacity

Millenium 3 logic controllers operate with the following software：


■ M3 SOFT
Multilingual programming software
（CD－ROM）including a library of
specific functions．
Part no．： 88970111
■ M3 ALARM
Alarm management software（CD－ROM）
Part no．： 88970116
This software is used alongside the M3MOD communication interface （part no．：88970117）．

For all details of hardware adaptation，see pages 64－65．

## "Compact" range selection guide

| Modem communication solutions |  |  | Modular power supplies ${ }^{(1)}$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| M3MOD | STN |  | $\begin{aligned} & 12 \mathrm{~V} \text { DC }-24 \mathrm{~W} \\ & \begin{array}{l} \mathrm{H}=\mathrm{m} \end{array} \\ & \rightarrow \text { NEW } \end{aligned}$ |  | $\begin{gathered} 24 \mathrm{VDC}-15 \mathrm{~W} \\ =\text { NEW } \\ =\text { N } \end{gathered}$ |  | $\begin{gathered} 24 \mathrm{~V} \text { DC }-60 \mathrm{~W} \\ \ldots \quad \ldots \\ \ldots \end{gathered}$ |
| 88970117 | 88970118 | 88970119 | 88950306 | 88950303 | 88950304 | 88950307 | 88950302 |
| $\square$ | $\square$ | $\square$ |  | $\square$ | $\square$ | $\square$ | $\square$ |
| $\square$ | $\square$ | $\square$ |  | $\square$ | $\square$ | $\square$ | $\square$ |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ | $\square$ |  |  |  |  |
| $\square$ | $\square$ | $\square$ |  | $\square$ | $\square$ | $\square$ | $\square$ |
| $\square$ | $\square$ | $\square$ |  | $\square$ | ■ | $\square$ | $\square$ |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ | ■ |  |  |  |  |
|  |  |  |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ |  | $\square$ | ■ | $\square$ | $\square$ |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ | $\square$ |  |  |  |  |
| $\square$ | $\square$ | $\square$ |  | $\square$ | $\square$ | $\square$ | $\square$ |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |
| - | $\square$ | $\square$ |  |  |  |  |  |


| Starter kits |
| :--- |
| and demo |
| case |
| Standard |
| 88970080 |
| 88970106 (case) |
| 88970081 |
|  |
| 88970082 |
| 889 |

Compatible
Mounted with the M3MOD:
STN modem,
or GSM modem
${ }^{(1)}$ Find the whole "Power Supplies" offer on pages 58-59


The 4 starter kits each contain:

- 1 CD12 or CD20 logic controller + 1 USB link cable + 1 M3 SOFT programming software application (CD-ROM) including a library of specific functions.
Part no.: 88970080 / 88970081 / 88970082 / 88970083



## The demonstration case contains:

■ 1 CD12 logic controller + 1 USB link cable + 1 M3 SOFT programming software application (CD-ROM) including the library of specific functions +1 voltage adaptor + 1 I/O simulation card.
Part no.: 88970106

## Millenium 3 Standard

## $\rightarrow$ "Compact" range with display

■ Budget solution with display

- Memory: 120 lines in LADDER language and up to 350 "typical" blocks in FBD language
- LCD with 4 lines of 18 characters and configurable backlighting
- Selective parameter setting: You can choose the parameters that can be adjusted on the front panel
- Analogue inputs $0-10 \mathrm{~V}=-=$ or $0-20 \mathrm{~mA} / \mathrm{Pt} 100$ with converters (see page 50)




## Part numbers

| Type | Input | Output | Supply | Code |
| :---: | :---: | :---: | :---: | :---: |
| CD12 | 8 digital (including 4 analogue) | 4 relays 8 A | $24 \mathrm{~V}=-$ | 88970041 |
|  | 8 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM) | $24 \mathrm{~V}=-$ | 88970042 |
|  | 8 digital | 4 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88970043 |
|  | 8 digital | 4 relays 8 A | 24 V ~ | 88970044 |
|  | 8 digital (including 4 analogue) | 4 relays 8 A | $12 \mathrm{~V}=-$ | 88970045 |
| CD20 | 12 digital (including 6 analogue) | 8 relays 8 A | $24 \mathrm{~V}=-$ | 88970051 |
|  | 12 digital (including 6 analogue) | 8 solid state 0.5 A (including 4 PWM) | $24 \mathrm{~V}=-$ | 88970052 |
|  | 12 digital | 8 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88970053 |
|  | 12 digital | 8 relays 8 A | 24 V ~ | 88970054 |
|  | 12 digital (including 6 analogue) | 8 relays 8 A | $12 \mathrm{~V}=-$ | 88970055 |

Accessories

| Type | Description |  |  | Code |
| :---: | :---: | :---: | :---: | :---: |
| M3 SOFT | Multilingual programming software containing specific library functions (CD-ROM) |  |  | 88970111 |
| PA | EEPROM memory cartridge |  |  | 88970108 |
|  | 3 m serial link cable: $\mathrm{PC} \rightarrow$ Millenium 3 |  |  | 88970102 |
|  | 3 m USB link cable: PC $\rightarrow$ Millenium 3 |  |  | 88970109 |
|  | Millenium 3 $\rightarrow$ Bluetooth interface (class A 10 m ) |  |  | 88970104 |
| Starter kits (see page 27 for details) |  |  |  |  |
| Type | Input | Output | Supply | Code |
| Kit 12 | 8 digital (including 4 analogue) | 4 relays | $24 \mathrm{~V}=-$ | 88970080 |
|  | 8 digital | 4 relays | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88970081 |
| Kit 20 | 12 digital (including 6 analogue) | 8 relays | $24 \mathrm{~V}=-$ | 88970082 |
|  | 12 digital | 8 relays | $100 \rightarrow 240$ V | 88970083 |

Dimensions (mm)

CD12


CD20


## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## $\rightarrow$ "Compact" range without display

- Simply a control system solution inside a modular casing
- Memory: 120 lines in LADDER language and up to 350 "typical" blocks in FBD language
- No display or parameter-setting buttons to avoid tampering by unauthorised users
- Analogue inputs $0-10 \mathrm{~V}=-$ or $0-20 \mathrm{~mA} / \mathrm{Pt} 100$ with converters (see page 50 )




## Part numbers

| Type | Input | Output | Supply | Code |
| :---: | :---: | :---: | :---: | :---: |
| CB12 | 8 digital (including 4 analogue) | 4 relays 8 A | $24 \mathrm{~V}=-$ | 88970021 |
|  | 8 digital | 4 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88970023 |
|  | 8 digital | 4 relays 8 A | 24 V ~ | 88970024 |
|  | 8 digital (including 4 analogue) | 4 solid state 0 | $12 \mathrm{~V}=$ | 88970840 |
| CB20 | 12 digital (including 6 analogue) | 8 relays 8 A | $24 \mathrm{~V}=-$ | 88970031 |
|  | 12 digital | 8 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88970033 |
|  | 12 digital | 8 relays 8 A | 24 V ~ | 88970034 |
| Accessories |  |  |  |  |
| Type |  |  |  | Code |
| M3 SOFT | Multilingual programming software containing specific library functions (CD-ROM) |  |  | 88970111 |
| PA | EEPROM memory cartridge |  |  | 88970108 |
|  | 3 m serial link cable: $\mathrm{PC} \rightarrow$ Millenium 3 |  |  | 88970102 |
|  | 3 m USB link cable: PC $\rightarrow$ Millenium 3 |  |  | 88970109 |
|  | Millenium 3 $\rightarrow$ Bluetooth interface (class A 10 m ) |  |  | 88970104 |

## Dimensions (mm)

CB12


CB20


## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

Millenium 3 logic controllers


| Type | Part number |  | Power supply | Inputs | Outputs |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | With XD10／ XD26 display | Without display XB10／XB26 |  |  |  |
|  | 88970141 | 88970131 NEW | $24 \mathrm{~V}=-$ | 6 digital（of which 4 are analogue） | $4 \times 8$ A relays |
|  | 88970142 | 88970132 NEW | $24 \mathrm{~V}=-$ | 6 digital（of which 4 are analogue） | 4 solid state 0．5 A（of which 1 is PWM） |
|  | 88970143 | 88970133 NEW | $100 \rightarrow 240 \mathrm{~V} \sim$ | 6 digital | $4 \times 8$ A relays |
|  | 88970144 | 88970134 NEW | 24 V ～ | 6 digital | $4 \times 8$ A relays |
|  | 88970161 | 88970151 NEW | $24 \mathrm{~V}=-$ | 16 digital（of which 6 are analogue） | 10 relays，of which 8 are 8 A and 2 are 5 A |
|  | 88970162 | 88970152 NEW | $24 \mathrm{~V}=$ | 16 digital（of which 6 are analogue） | 10 solid state 0．5 A（of which 4 are PWM） |
|  | 88970163 | 88970153 NEW | $100 \rightarrow 240 \mathrm{~V}$～ | 16 digital | 10 relays，of which 8 are 8 A and 2 are 5 A |
|  | 88970164 | 88970154 NEW | 24 V ～ | 16 digital | 10 relays，of which 8 are 8 A and 2 are 5 A |
|  | 88970165 | 88970155 NEW | $12 \mathrm{~V}=-$ | 16 digital（of which 6 are analogue） | 10 relays，of which 8 are 8 A and 2 are 5 A |
|  | 88970814 NEW | － | $12 \mathrm{~V}=-$ | 16 digital（of which 6 are analogue） | 10 solid state 0．5 A（of which 4 are PWM） |



## Millenium 3 logic controllers operate with the following software： －M3 SOFT

Multilingual programming software（CD－ROM）including
the library of specific functions．
Part no．： 88970111
M3 ALARM
Alarm management software（CD－ROM）
Part no．： 88970116
This software is used alongside the M3MOD communication interface（part no．：88970117）．

For all details of hardware adaptation，see pages 64－65．

## "Expandable" range selection guide

| Modem communication solutions |  |  | Modular power supplies ${ }^{(1)}$ |  |  |  |  | Starter kits |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| M3MOD | STN |  |  |  |  |  |  |  |
| 88970117 | 88970118 | 88970119 | 88950306 | 88950303 8 | 88950304 | 88950307 | 88950302 | Expandable |
| $\square$ | $\square$ | $\square$ |  | $\square$ | ■ | $\square$ | $\square$ |  |
| $\square$ | $\square$ | $\square$ |  | $\square$ | $\square$ | $\square$ | $\square$ |  |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ |  | - | $\square$ | $\square$ | $\square$ | 88970084 |
| $\square$ | $\square$ | $\square$ |  | $\square$ | ■ | $\square$ | $\square$ |  |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  | 88970085 |
| $\square$ | $\square$ | $\square$ |  |  |  |  |  |  |
| $\square$ | $\square$ | $\square$ | $\square$ |  |  |  |  |  |
| $\square$ | $\square$ | ㅁ | $\square$ |  |  |  |  |  |
| - Compatible <br> $\square$ Mounted with the M3MOD: <br> - STN modem, <br> - or GSM modem |  |  | ${ }^{(1)}$ Find the whole "Power Supplies" offer on pages 58-59. |  |  |  |  |  |
| Termination extensions |  |  |  |  |  |  |  |  |
| Type |  | Part number | Power supp |  | Inputs |  | Outputs |  |
| Digital |  |  |  |  |  |  |  |  |
| $\underline{\square}$ | XR06 | 88970211 | Via the $24 \mathrm{~V}=$-- controller |  | 4 digital |  | $2 \times 8$ A relays |  |
|  |  | 88970213 | Via the $100 \rightarrow 240 \mathrm{~V} \sim$ controller |  | 4 digital |  | $2 \times 8$ A relays |  |
|  |  | 88970214 | Via the $24 \mathrm{~V} \sim$ controller |  | 4 digital |  | $2 \times 8$ A relays |  |
|  |  | 88970215 | Via the $12 \mathrm{~V}=$-- controller |  | 4 digital |  | $2 \times 8$ A relays |  |
|  | XR10 | 88970221 | Via the $24 \mathrm{~V}=-$ controller |  | 6 digital |  | $4 \times 8$ A relays |  |
|  |  | 88970223 | Via the $100 \rightarrow 240 \mathrm{~V} \sim$ controller |  | 6 digital |  | $4 \times 8$ A relays |  |
|  |  | 88970224 | Via the 24 V ~ controller |  | 6 digital |  | $4 \times 8$ A relays |  |
|  |  | 88970225 | Via the $12 \mathrm{~V}=$-- controller |  | 6 digital |  | $4 \times 8$ A relays |  |
|  | XR14 | 88970231 | Via the $24 \mathrm{~V}=$-- controller |  | 8 digital |  | 6 relays, of which 4 are 8 A and 2 are 5 A |  |
|  |  | 88970233 | Via the $100 \rightarrow 240 \mathrm{~V} \sim$ controller |  | 8 digital |  | 6 relays, of which 4 are $8 A$ and 2 are $5 A$ |  |
|  |  | 88970234 | Via the $24 \mathrm{~V} \sim$ controller |  | 8 digital |  | 6 relays, of which 4 are 8 A and 2 are 5 A |  |
|  |  | 88970235 | Via the $12 \mathrm{~V}=$-- controller |  | 8 digital |  | 6 relays, of which 4 are 8 A and 2 are $5 A$ |  |
| Analogue |  |  |  |  |  |  |  |  |
|  | XA04 | 88970241 | Via the $24 \mathrm{~V}=$-- controller |  | 1 analogue ( $0-10 \mathrm{~V} / 0-20 \mathrm{~mA}$ ), 1 analogue ( $0-10 \mathrm{~V} / 0-20 \mathrm{~mA} / \mathrm{Pt} 100$ ) |  | 2 analogue (0-10 V/PWM |  |



## The 2 starter kits each contain:

$\square 1$ XD26 logic controller + 1 USB link cable +
1 M3 SOFT programming software application (CD-ROM) including a library of specific functions.
Part no.: 88970084 / 88970085

## Millenium 3 Standard

## "Expandable" range with display

■ "High-performance" expandable solution with display - Extended memory: 120 lines in LADDER language and up to 700 "typical" blocks in FBD language

- LCD with 4 lines of 18 characters and configurable backlighting
- Selective parameter setting: You can choose the parameters that can be adjusted on the front panel
- Analogue inputs $0-10 \mathrm{~V}=$-= or $0-20 \mathrm{~mA} / \mathrm{Pt} 100$ with converters (see page 50)
- Open to XN network communication extensions and digital I/O or analogue extensions



## Part numbers

| Type | Input | Output | Supply | Code |
| :---: | :---: | :---: | :---: | :---: |
| XD10 | 6 digital (including 4 analogue) | 4 relays 8 A | $24 \mathrm{~V}=-$ | 88970141 |
|  | 6 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM) | $24 \mathrm{~V}=-$ | 88970142 |
|  | 6 digital | 4 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88970143 |
|  | 6 digital | 4 relays 8 A | 24 V ~ | 88970144 |
| XD26 | 16 digital (including 6 analogue) | 10 relays ( $8 \times 8$ A relay and $2 \times 5$ A relay) | $24 \mathrm{~V}=-$ | 88970161 |
|  | 16 digital (including 6 analogue) | 10 solid state 0.5 A (including 4 PWM) | $24 \mathrm{~V}=-$ | 88970162 |
|  | 16 digital | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88970163 |
|  | 16 digital | 10 relays ( $8 \times 8$ A relay and $2 \times 5$ A relay) | 24 V ~ | 88970164 |
|  | 16 digital (including 6 analogue) | 10 relays (8x8 A relay and $2 \times 5$ A relay) | $12 \mathrm{~V}=-$ | 88970165 |
|  | 16 digital (including 6 analogue) | 10 solid state 0.5 A (including 4 PWM) | $12 \mathrm{~V}=-$ | 88970814 |

Accessories

| Type | Description |  |  | Code |
| :---: | :---: | :---: | :---: | :---: |
| M3 SOFT | Multilingual programming software containing specific library functions (CD-ROM) |  |  | 88970111 |
| PA | EEPROM memory cartridge |  |  | 88970108 |
|  | 3 m serial link cable: $\mathrm{PC} \rightarrow$ Millenium 3 |  |  | 88970102 |
|  | 3 m USB link cable: PC $\rightarrow$ Millenium 3 |  |  | 88970109 |
|  | Millenium 3 $\rightarrow$ Bluetooth interface (class A 10 m ) |  |  | 88970104 |
| Starter kits (see page 31 for details) |  |  |  |  |
| Type | Input | Output | Supply | Code |
| Kit 26 | 16 digital (including 6 analogue) | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | $24 \mathrm{~V}=-$ | 88970084 |
|  | 16 digital | 10 relays ( $8 \times 8$ A relay and $2 \times 5$ A relay) | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88970085 |

## Dimensions (mm)

XD10



XD26


## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## Millenium 3 Standard

## "Expandable" range without display

- "High-performance" expandable solution without display
- Extended memory: 120 lines in LADDER language and up to 700 "typical" blocks in FBD language
- No display or parameter-setting buttons to avoid tampering by unauthorised users
- Analogue inputs $0-10 \mathrm{~V}=$ or $0-20 \mathrm{~mA} / \mathrm{Pt} 100$ with converters (see page 50 )
- Open to XN network communication extensions and digital I/O or analogue extensions


| Part numbers |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Type | Input | Output | Supply | Code |
| XB10 | 6 digital (including 4 analogue) | 4 relays 8 A | 24 V - | 88970131* |
|  | 6 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM ) | 24 V - | 88970132 |
|  | 6 digital | 4 relays 8 A | $100 \rightarrow 240 \mathrm{~V} \sim$ | 88970133* |
|  | 6 digital | 4 relays 8 A | 24 V ~ | 88970134 |
| XB26 | 16 digital (including 6 analogue) | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | 24 V = | 88970151 |
|  | 16 digital (including 6 analogue) | 10 solid state 0.5 A (including 4 PWM ) | $24 \mathrm{~V}=-$ | 88970152 |
|  | 16 digital | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | $100 \rightarrow 240 \mathrm{~V} \sim$ | 88970153 |
|  | 16 digital | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | $24 \mathrm{~V} \sim$ | 88970154 |
|  | 16 digital (including 6 analogue) | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | $12 \mathrm{~V}==$ | 88970155 |

*Available $2^{\text {nd }}$ quarter of 2008

## General characteristics

See page 22, except:
Certifications

## Accessories

| Type | Description | Code |
| :--- | :--- | :--- |
| M3 SOFT | Multilingual programming software containing specific library functions (CD-ROM) | 88970111 |
| PA | EEPROM memory cartridge | 88970108 |
| PA | 3 m serial link cable: PC $\rightarrow$ Millenium 3 | $\mathbf{8 8 9 7 0 1 0 2}$ |
| PA | 3 m USB link cable: PC $\rightarrow$ Millenium 3 | 88970109 |
| PA | Millenium 3 $\rightarrow$ Bluetooth interface (class A 10 m) | 88970104 |

## Dimensions (mm)

XB10 XB26


## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## Millenium 3 Standard

## Sandwich communication extensions for XD10/XB10 \& XD26/XB26

## ■ Exchange of input/output state or of internal values via communication networks <br> $\square$ Power supply via the controller



| Characteristics of communication extensions |  |  |
| :--- | ---: | :--- |
| General characteristics | $\mathbf{8 8 9 7 0 2 5 0} \& 88972250$ | $\mathbf{8 8 9 7 0 2 7 0}$ |


| Certifications | UL, CSA, GL (UL, CSA: 88972250) | UL, CSA GL pending |
| :---: | :---: | :---: |
| Earthing | Yes, refer to the quick reference guide supplied with the product | Yes, refer to the quick reference guide supplied with the product |
| Operating temperature | $-20 \rightarrow+55^{\circ} \mathrm{C}\left(+40^{\circ} \mathrm{C}\right.$ in a non-ventilated enclosure) in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-2-2 | $0 \rightarrow+55^{\circ} \mathrm{C}\left(+40^{\circ} \mathrm{C}\right.$ in a non-ventilated enclosure) in accordance with IEC 60068-2-1 and IEC 60068-2-2 |
| Cable length | Maximum length of the network: 1000 m (9600 Baud max, AWG26) | Maximum length between 2 controllers: 100 m |
| Communication parameters | 88970250 \& 88972250 | 88970270 |
| Type of link | 2 or 4-wire; RTU or ASCII | - |
| Transmission rate (Bauds) | $\begin{aligned} & 1200,2400,4800,9600,19200,28800,38400, \\ & 57600 \end{aligned}$ | - |
| Parity | None; even; odd | - |
| Addressing | $1 \rightarrow 247$ | Static or dynamic |
| Characteristics of exchanges | 8897025088972250 | 88970270 |
| Programming with Ladder language |  |  |
| Image of smart relay I/O | 4 4 4 | - |
| Status | 1 1 | - |
| Programming with FBD language |  |  |
| Read | 4 - 8 | 8 |
| Read/Write | 4 8 | 8 |
| Clock words | 4 12 | 4 |
| Status words | 1 1 | 1 |

## Dimensions (mm)

XNO3 - XNO5 - XNO6


## Digital sandwich extension for XD10/XB10 and XD26/XB26

## - Can be used to reach up to 50 inputs/outputs in conjunction with XR14 termination extensions <br> - Relay outputs one of which is a changeover relay



Part numbers

| Type | Input | Output | Supply | Code |
| :--- | :--- | :--- | :--- | :--- |
| XE10 | 6 digital | 4 relays 5 A (1 of which is a changeover relay) | Via the 24 V =-- controller | $\mathbf{8 8 9 7 0 3 2 1}$ |
|  | 6 digital | 4 relays 5 A (1 of which is a changeover relay) | $100 \rightarrow 240 \mathrm{~V} \sim$ | $\mathbf{8 8 9 7 0 3 2 3}$ |
|  | 6 digital | 4 relays 5 A (1 of which is a changeover relay) | $24 \mathrm{~V} \sim$ | $\mathbf{8 8 9 7 0 3 2 4}$ |

## Dimensions (mm)

XE10


## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## Millenium 3 Standard

## Digital extension for XD10/XB10 and XD26/XB26

$\square$ Power supply via the controller at the same voltage as the inputs

- Number of inputs/outputs can be configured in accordance with your requirements


Part numbers

| Type | Input | Output | Supply | Code |
| :---: | :---: | :---: | :---: | :---: |
| XR06 | 4 digital | 2 relays 8 A | Via the $24 \mathrm{~V}=-\mathrm{c}$ controller | 88970211 |
|  | 4 digital | 2 relays 8 A | Via the $100 \rightarrow 240 \mathrm{~V} \sim$ controller | 88970213 |
|  | 4 digital | 2 relays 8 A | Via the $24 \mathrm{~V} \sim$ controller | 88970214 |
|  | 4 digital | 2 relays 8 A | Via the $12 \mathrm{~V}=-$ controller | 88970215 |
| XR10 | 6 digital | 4 relays 8 A | Via the $24 \mathrm{~V}=-\mathrm{controller}$ | 88970221 |
|  | 6 digital | 4 relays 8 A | Via the $100 \rightarrow 240 \mathrm{~V} \sim$ controller | 88970223 |
|  | 6 digital | 4 relays 8 A | Via the $24 \mathrm{~V} \sim$ controller | 88970224 |
|  | 6 digital | 4 relays 8 A | Via the $12 \mathrm{~V}=-$ controller | 88970225 |
| XR14 | 8 digital | 6 relays ( $4 \times 8$ A relay and $2 \times 5$ A relay) | Via the $24 \mathrm{~V}=-\mathrm{controller}$ | 88970231 |
|  | 8 digital | 6 relays ( $4 \times 8$ A relay and $2 \times 5$ A relay) | Via the $100 \rightarrow 240 \mathrm{~V} \sim$ controller | 88970233 |
|  | 8 digital | 6 relays ( $4 \times 8$ A relay and $2 \times 5$ A relay) | Via the $24 \mathrm{~V} \sim$ controller | 88970234 |
|  | 8 digital | 6 relays ( $4 \times 8$ A relay and $2 \times 5$ A relay) | Via the $12 \mathrm{~V}=-$ controller | 88970235 |

Dimensions (mm)

XR06


XR10 - XR14


## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## Analogue extension for XD10/XB10 and XD26/XB26

- Direct connection of analogue $0-10 \mathrm{~V}$ or $\mathbf{0 - 2 0} \mathrm{mA}$ or Pt 100 inputs ( 10 bits) can be configured using the M3 SOFT
- 2 analogue $0-10 \mathrm{~V}$ or PWM outputs ( 10 bits) can be configured using the M3 SOFT software
- Ramp can be parameterised for outputs used as 0-10 V outputs
- Power supply via the controller



## Part numbers

| Type | Input | Output | Supply | Code |
| :--- | :--- | :--- | :--- | :--- |
| XA04 | 1 analogue $(0-10 \mathrm{~V} / 0-20 \mathrm{~mA})$, | 2 analogue $(0-10 \mathrm{~V}) / \mathrm{PWM}$ | Via the $24 \mathrm{~V} \mathrm{=--} \mathrm{controller}$ | 88970241 |

## Characteristics of analogue extension 88970241

## General characteristics of analogue extension 88970241

| See page 22, except: |  |  |  |
| :---: | :---: | :---: | :---: |
| Certifications | UL, CSA <br> GL (pending) |  |  |
| Earthing | Yes, refer to the quick reference guide supplied with the product |  |  |
| Analogue inputs |  |  |  |
| Inputs used as analogue inputs | 0-10 V | 0-20 mA | Pt 100 |
| Input | IP and IQ | IP and IQ | IQ |
| Input range | $0 \rightarrow 10 \mathrm{~V}=-$ | $0 \rightarrow 20 \mathrm{~mA}$ | $-25 \rightarrow 125^{\circ} \mathrm{C}$ |
| Input impedance | $\geq 18 \mathrm{k} \Omega$ | $246 \Omega$ | - |
| Maximum non destructive current/voltage | 30 V | 30 mA | - |
| Value of LSB | 9.8 mV | $20 \mu \mathrm{~A}$ | $0.15{ }^{\circ} \mathrm{C}$ |
| Input type | Common mode | Common mode | Pt 100 probe - IEC 751-3-wire |
| Resolution | 10 bits | 10 bits | 10 bits |
| Conversion time | Module cycle time | Module cycle time | Module cycle time |
| Accuracy at $25^{\circ} \mathrm{C}$ | $\pm 1 \%$ | $\pm 1 \%$ | $\pm 1.5^{\circ} \mathrm{C}$ |
| Accuracy at $55^{\circ} \mathrm{C}$ | $\pm 1 \%$ | $\pm 1 \%$ | $\pm 1.5^{\circ} \mathrm{C}$ |
| Isolation between analogue channel and power supply | None | None | None |
| Longueur câble | 10 m maximum, with shielded cable (sensor not isolated) | 10 m maximum, with shielded cable (sensor not isolated) | 10 m maximum, with shielded cable (sensor not isolated) |
| Protection against polarity inversions | Command ignored | Command ignored | Command ignored |
| Analogue outputs |  |  |  |
| Range output | $0 \rightarrow 10 \mathrm{~V}$ |  |  |
| Input type | Resistive |  |  |
| Max. load | 10 mA |  |  |
| Value of LSB | 10 mV |  |  |
| Resolution | 10 bits |  |  |
| Conversion time | Controller cycle time |  |  |
| Accuracy at $25^{\circ} \mathrm{C}$ | $\pm 1 \%$ of full scale |  |  |
| Accuracy at $55^{\circ} \mathrm{C}$ | $\pm 1 \%$ of full scale |  |  |
| Repeat accuracy at $55^{\circ} \mathrm{C}$ | $\pm 1 \%$ |  |  |
| Isolation between analogue channel and power supply | None |  |  |
| Cable length | 10 metres maximum, with shielded cable (sensor not isolated) |  |  |
| Protection against polarity inversions | Yes |  |  |

Range output
Max. load
PWM cyclic ratio
Frequency
Accuracy
Built-in protections
$\checkmark$ power supply
$\geq 1.2 \mathrm{k} \Omega(\mathrm{I} \leq 20 \mathrm{~mA})$
1024 steps
$78 \mathrm{~Hz}, 312.5 \mathrm{~Hz}, 666.6 \mathrm{~Hz}, 1000 \mathrm{~Hz}, 1250 \mathrm{~Hz}, 1428 \mathrm{~Hz}, 1666 \mathrm{~Hz}, 2000 \mathrm{~Hz}$
$1 \%$ across the entire temperature range for PWM ratios from $5 \%$ to $95 \%$
Against overvoltages: Yes

## Dimensions (mm)

XA04


## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## Millenium 3 Standard

## Modem communication plug and play solutions

- For remote control of your application
$\square$ Automatic notification of alarms via SMS (GSM Modem) / email or on a PC with M3 ALARM software.
- Millenium 3 program can be downloaded, modified and sent
- Input and output states, as well as all program values, can be polled and controlled remotely
- 2 types of pre-configured ready-to-use modem: - STN modem for wired transmission networks - GSM modem for wireless communication


M3MOD


STN


GSM

## Part numbers



## Characteristics of the "COM-M3" Ink with the controller

| Type of connector | Specific Millenium |
| :--- | :--- |
| Type of link | Specific Millenium communication protocol |
| Compatibility | Only with Millenium controllers version $\geq \mathrm{V} 2.1$ |
| Isolation of "Com-M3" connector from the "Com-M" connector | Via optocoupler $\sim 1780 \mathrm{~V}$ |
| Isolation of "Com-M3" connector from the $\pm$ supply terminals | Via optocoupler $\sim 1780 \mathrm{~V}$ |
| Characteristics of the "COM-M3" Ink with the modem |  |
| Type of connector | Specific Millenium |
| Type of link with Modem connector cable | RS 232 serial (supplied with the communication interface) |
| Compatibility | Only with Millenium controllers version $\geq \mathrm{V} 2.1$ |
| Analogue RTC modem compatibility | AT commands |
| GSM modem compatibility | AT commands |
| Isolation of "Com-M" connector from the Modem | Via link cable to Modem (supplied) |
| Isolation of "Com-M" connector from the $\pm$ supply terminals | Via link cable to Modem (supplied) |

## Data characteristics

Up to 28 messages
1 to 10 recipients (telephone numbers and/or e-mail addresses) per message Time-stamping of messages to be sent (date and time)
Saving of values on triggering of the message activation condition (digital and numerical values)

| Backup of data to be sent Flash memory |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Functions available depending on the hardware architecture and/or type of SIM card |  |  |  |  |  |
| Functions | Remote station device |  |  |  |  |
|  | Analogue PSTN modem | GSM modem |  |  |  |
|  |  | Type of SIM card |  |  |  |
|  |  | Data | Data voice |  | Voice |
|  |  |  | Data $\mathrm{n}^{\circ}$ | Voice $\mathrm{n}^{\circ}$ |  |
| Send alarm/receive instructions with GSM telephone |  |  |  |  |  |
| Send alarm/receive instructions with PC running "M3 Alarm" software |  |  |  |  |  |
| Transfer program Update firmware Monitoring ${ }^{(1)}$ |  |  |  |  |  |
| Send alarm to e-mail address |  |  |  |  |  |

$\square$ Functions available $\quad \square$ Functions not available

Nota: Instructions can not be transmitted by e-mail
${ }^{(1)}$ When using a GSM Modem on the PC side, the SIM card must have a DATA number.

## Comments

88970117 : supplied with connecting cable between M3MOD and Modem (Millenium 3 connector to sub DB9) 88970118 : supplied with configuaration CD-ROM and telephone cable
88970119 : supplied with an antenna, a power cable, and DIN Rail mounting kit


To find instruction sheets please visit: www.millenium3.crouzet.com in "Download"

## I/O wiring

## Inputs $12 \mathrm{~V}=-\mathrm{e}, 24 \mathrm{~V}=-$

Bases: CD12, CD20, CB12, CB20, XD10, XD26, |Bases : CD12, CD20, CB12, CB20, XD10, XD26, Bases : CD12, CD20, CB12, CB20, XD10, XD26,

XB10, XB26
Extensions: XE10, XR06, XR10, XR14

(1) 3-wire PNP sensor
(2) Contact

Digital input

(1) $0-10 \mathrm{~V}$ (input set to $0-10 \mathrm{~V}$ )
(2) Potentiometer type mounting (input set to 0-10 V)
3 Potentiometer (input set as a potentiometer)
(4) Analogue input

XB10, XB26


## Inputs 100-240 V ~, 24 V ~

Bases: CD12, CD20, CB12, CB20, XD10, XD26
XB10, XB26
Extensions: XE10, XR06, XR10, XR14


## Analogue inputs

Extension : XA04


Extension : XA04


## Relay outputs

Bases: CD12, CD20, CB12, CB20, XD10, XD26, XB10, XB26 Extensions : XE10, XR06, XR10, XR14


## Solid state outputs

Bases: CD12, CD20, CB12, CB20, XD10, XD26, XB10, XB26
Extensions: XA04

(1) MOS transistor
(2) Digital/PWM output

Analogue outputs

Extension : XA04

(1) PWM output

Extension : XA04


## Millenium 3 Standard

## $\rightarrow$ Input/output installations: Bases

## "Compact" range : CD12, CD20, CB12, CB20

| Inputs |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| CD12, CB12 |  |  | CD20, CB20 |  |  |
| $\mathrm{V}=$ | ○○○ |  | $\mathrm{V}=$ | $\begin{array}{\|l\|l} \hline+0 \\ \hline 10 \end{array}$ |  |
| v~ | $\begin{array}{\|l\|} \hline L \\ \hline \end{array}$ | $\bigcirc)^{11} \bigcirc^{12} \bigcirc^{13} \bigcirc^{14} \bigcirc^{15} \bigcirc^{16} \bigcirc^{17} \bigcirc^{18}$ | v |  |  |

## Relay outputs

CD12, CB12

Solid state outputs

CD12, CB12


CD20

| $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| +01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 |

"Expandable" range : XD10, XD26, XB10, XB26

## Inputs

XD10, XB10
$\mathrm{V}=$

$\mathrm{v} \sim$


XD26, XB26


V~


Relay outputs
XD10, XB10


XD26, XB26


XD10


## XD26

| $\bigcirc \bigcirc$ | $\bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc$ | $\bigcirc \bigcirc \bigcirc \bigcirc$ |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| +01 | 02 | 03 | 04 | 05 | 06 | 07 | 080904 |

## $\rightarrow$ Input/output installations: Extensions

## "Sandwich" communication extensions : XNO3, XNO5, XNO6

XN03, XN06


MB485-V1

XN05

LK/ACT 10/100


STS

Digital "Sandwich" extensions : XE10
Inpuis

$v=-\quad$| nu nu |  |
| :--- | :--- | :--- | :--- |
| $\bigcirc$ | IH |
|  |  |

V~


Relay outputs


Digital termination extensions : XR06, XR10, XR14

| Inputs |  |  |
| :---: | :---: | :---: |
| XR06 | XR10 | XR14 |
|  |  |  |

Relay outputs
XR06


XR10
XR14


## Analogue termination extension : XA04

## Inputs



## Outputs

## Millenium 3 accessories

## Programming tools and software

- Millenium 3 software: multilingual software, intuitive operation
- Memory card for loading the application and updating the on-board software (firmware)


Part numbers

| Type | Description | Code |
| :---: | :---: | :---: |
| M3 SOFT | Multilingual programming software containing specific library functions (CD-ROM) | 88970111* |
| M3 ALARM | Alarm management software (CD-ROM) | 88970116** |
| PA | EEPROM memory cartridge | 88970108 |



Part numbers

| Type | Description | Code |
| :--- | :--- | :--- |
| PA | 3 m serial link cable: PC $\rightarrow$ Millenium 3 | 88970102 |
|  | 3 m USB link cable: PC $\rightarrow$ Millenium 3 | 88970109 |
|  | Millenium 3 $\rightarrow$ Bluetooth interface (class A 10 m) | 88970104 |
|  | Bluetooth $\rightarrow$ USB adaptor (class A 10 m) | $\mathbf{8 8 9 7 0 1 1 0}$ |
| 1.80 m serial link cable: DB9/DB9 | $\mathbf{8 8 9 7 0 1 2 3}$ |  |

## Removable connectors

$\square$ Millenium 3 can be removed for speedy replacement of the controller

- Cable connection memory to exclude the risk of errors on reconnection

Removable connector kit

| Part numbers |  |  |
| :---: | :---: | :---: |
| Type Description |  | Code |
| MA Removable kit for CD12 or CB12 |  | 88970310 |
| Removable kit for CD20 or CB20 |  | 88970311 |
| Removable kit for XD26 or XB26 |  | 88970312 |
| General characteristics |  |  |
| Screw terminals connection capacity | Cable diameter $0.14 \rightarrow 2.5 \mathrm{~mm}^{2}$ AWG 22-12 |  |

## Millenium 3 accessories

## Faceplates

■ IP67: sealing on front panel, Panel-mounting of the Millenium 3.
■ IP40: Direct access to the front of the controller, Possibility of Labelling (marking laser)


Part numbers

| Type | Description | Code |
| :---: | :---: | :---: |
| MA | IP67 sealed faceplate for the following products: <br> - XD10 or CD12 | 89750160 |
|  | IP67 sealed faceplate for the following products: <br> - XD10 + XR06 or XN03 or XN05 or XA04 <br> - CD20 or XD26 <br> - XD10 + XN03 or XN05 + XR06 or XA04 <br> - XD10 + XR10 or 14 | 89750161 |
|  | IP67 sealed faceplate for the following products: <br> - XD26 + XR06 or XN03 or XN05 or XA04 <br> - XD10 + XN03 or XA04 + XR10 or 14 <br> - XD10 + XE10 + XR06 or XA04 <br> - XD26 + XN03 or XN05 + XR06 or XA04 <br> - XD26 + XR10 or 14 <br> - XD10 + XE10 + XR10 or 14 <br> - XD26 + XE10 + XR06 or XA04 <br> - XD26 + XN03 or XN05 + XR10 or 14 | 89750162 |
|  | IP40 faceplate: CD12 or XD10 | 88970809 |
|  | IP40 faceplate: CD20 or XD26 | 88970810 |

## Dimensions (mm)

## IP67


(1) $88750160=91$
$88750161=162$
$88750162=257.4$
(2) $88750160=76.5$
$88750161=147.5$
$88750162=248.5$

(1) $88750160=91$
$88750161=162$
$88750162=257.4$
(2) $88750160=76.5$
$88750161=147.5$
$88750162=248.5$


## Millenium 3 accessories

## Remote LCD alphanumeric displays (Modbus communication)

- Set and parameterise your application data in advance

■ Backlit LCD screen ( $\mathbf{7 2} \times 20 \mathrm{~mm}$ ) with 4 lines of 20 characters and keypad with 8 keys, 4 of which can be renamed

- Three-colour screen: 3 colours green/orange/red
- Monochrome screen: Monochrome green

■ Size of characters can be configured to optimise readability
■ Communicates with the Millenium 3 via Modbus extension XN06 or XNO3

- The Runtime kit includes:
- 1 three-colour or monochrome LCD screen
- 1 Modbus extension XN06
- 1 RS485 cable
- The Programming kit includes:
- 1 three-colour or monochrome LCD screen
- 1 Modbus extension XN06
- 1 RS485 cable
- 1 programming software package for the display with a compatible RS232 cable (88950105)
- Display is used as a Master (or can be configured as a Slave)


## Part numbers

| Type | Designation | Code |
| :--- | :--- | :--- |
| RD | Runtime kit with three-colour screen | $\mathbf{8 8 9 7 0 4 2 1}$ |
|  | Runtime kit with monochrome screen | $\mathbf{8 8 9 7 0 4 2 2}$ |
|  | Programming kit with monochrome screen | $\mathbf{8 8 9 7 0 8 4 4}$ |
|  | Programming kit with three-colour screen | $\mathbf{8 8 9 7 0 8 4 9}$ |


| General characteristics |  |
| :---: | :---: |
| Environmental characteristics |  |
| Certifications | UL, CSA |
| Conformity to standards | IEC 61131-2, IEC 60068-2-6, IEC 60068-2-27, CSA n ${ }^{\circ} 14$ |
| Operating temperature | $0 \rightarrow+55^{\circ} \mathrm{C}$ |
| Storage temperature | $-20 \rightarrow+60^{\circ} \mathrm{C}$ |
| Relative humidity no condensation acc. to IEC 60068-2-3 | 95\% max. |
| Protection rating | In accordance with IEC/EN60529 IP65 on front panel (UL type 4, 4X) IP20 on rear panel |
| Dimensions ( $\mathrm{x} \mathrm{h} \times \mathrm{p}$ ) | $132 \times 74 \times 31 \mathrm{~mm}$ |
| Panel cut-out | $119.4 \times 63 \mathrm{~mm}$ |
| Electrical characteristics |  |
| Supply voltage | $24 \mathrm{~V}=-$ |
| Voltage limits | $18 \rightarrow 30 \mathrm{~V}=-$ |
| Ripple | 5\% max. |
| Consumption | 200 mA max. |
| Mechanical characteristics |  |
| Mounting | Flush-mounted, fixed with 2 spring clips supplied pressure-mounted for panel thicknesses from 1.5 to 6 mm |
| Display protection | Polyester |
| Keyboard material | Polyester autotex UV |
| Connection | Removable 3-pin screw terminal |
| Connection capacity | $1.5 \mathrm{~mm}^{2}$ |
| Connection | Serial via 25-pin female SUB D connector |
| Display characteristics |  |
| Description | Backlit LCD <br> 4 lines of 20 characters to 1 line of 5 characters (configurable) Communication status indicated by LED (three-colour screen) Alarm indicators and function keys (three-colour screen) Master mode display or Slave mode |

## Comments

These kits are used in conjunction with expandable Millenium 3 products (XD10 and XD26) $24 \mathrm{~V}=-\mathrm{e}$. To be ordered separately.
The XN06 exchanges more words (8) than the XN03 (4) but with different addresses

## Dimensions (mm)


(1) Dimensions (mm) including spring clips

## Millenium 3 accessories

## Remote LCD displays/keypads

- Direct link with Millenium 3 via cable
- Set and parameterise your application data in advance
- Backlit LCD screen with 4 lines of 18 characters and keypad with 6 keys or 10 keys and 4 LEDs
- Direct communication with the Millenium 3 via the programming port
- Plug and play: No additional software (the function keys and LEDs are controlled by the Millenium 3 SOFT Slin/Slout FBD functions)
$\square$ Check bit for controlling communication
- Universal screen compatible with any Millenium 3 logic controller (standard, budget, expandable, bare board, resin board)


Remote LCD screen / keypad


Remote LCD screen / keypad + 4 function buttons + 4 LEDs


## Dimensions (mm)



1
Seal


## Millenium 3 accessories

## Remote LED display - Input 0-10 V

```
Set your application data in advance
\square Display (36 x 72) with 4 x 14 mm red digits
Configurable display range
0-10 V input
\square IP65 degree of protection on front panel
```



## Part numbers

| Type Description | Supply | Code |
| :---: | :---: | :---: |
| RD Display with $4 \times 14 \mathrm{~mm}$ red digits | $24 \mathrm{~V}=-$ | 88950400 |
| General characteristics |  |  |
| Environmental characteristics |  |  |
| Certifications | UL |  |
| Conformity with the EMC directive | EN 61000-6-4, EN 61010-1 |  |
| Protection rating | In accordance with IEC/EN 60529: IP65 on front panel IP20 on rear |  |
| Operating temperature | $-10 \rightarrow+55^{\circ} \mathrm{C}$ |  |
| Dimensions ( x h x p ) | $36 \times 72 \times 61 \mathrm{~mm}$ |  |
| Panel cut-out | $71 \times 29 \mathrm{~mm}$ |  |
| Electrical characteristics |  |  |
| Supply | $24 \mathrm{~V}=-$ |  |
| Tolerance | $\pm 10 \%$ |  |
| Consumption | <1 W |  |
| Input voltage | $0 \rightarrow 10 \mathrm{~V}=-\mathrm{c}$ |  |
| Mechanical characteristics |  |  |
| Mounting | Flush-mounted |  |
| Connection | Terminal block |  |
| Display characteristics |  |  |
| Height of digits | 14 mm |  |
| Number of digits | 4 |  |
| Colour | Red |  |
| Range | -1999... 5999 with selectable decimal point |  |
| Device accuracy (full scale) | $\leq \pm 0.3 \%$ of interval |  |
| Comments |  |  |
| * Can be connected directly to an analogue output | verter |  |

## Dimensions (mm)



## Potentiometer Ø 22 mm

[^0]

Potentiometer

Part numbers

| Type $\quad$ Description | Alimentation |
| :--- | :--- |
| EP | $30 \mathrm{~V} \mathrm{=--} \mathrm{max}$ |
|  |  |
| Genernal potentiometer for value adjustment | 88950109 |
| Environmental characteristics | In accordance with IEC/EN 60529: |
| Protection rating | IP65 on front panel |
|  | $\mathrm{IP10}$ on terminal block |
| Operating temperature | $-20 \rightarrow+60^{\circ} \mathrm{C}$ |
| Storage temperature | $-20 \rightarrow+70^{\circ} \mathrm{C}$ |
| Electrical characteristics | $4700 \Omega$ |
| Ohmic value | $\pm 20 \%$ |
| Tolerance | 150 mW |
| Power |  |
| Mechanical characteristics | $1 \times 4 \mathrm{~mm}^{2}$ rigid |
| Screw terminals connection capacity | $1 \times 2.5 \mathrm{~mm}^{2}$ flexible |

## Dimensions (mm)


(1) Panel
2) Nut
(3) Seal

## Connections

1) Analogue input

## Millenium 3 accessories

## Signal converters

## - Current/voltage conversion of Millenium 3 input signals - PWM/voltage conversion of Millenium 3 output signals



Current/voltage converter


## Dimensions (mm)



## Connections

0-20 mA/0-10 V input converter


PWM/0-10 V output converter


## Temperature converters

## - Compatible with Millenium 3 analogue inputs <br> - Can be used to diversify the type of sensors for analogue inputs (See page 54-55)

Temperature converter

## Part numbers

| Type | Description | Input | Input range | Output | Code |
| :---: | :---: | :---: | :---: | :---: | :---: |
| AC | Converter | Pt 1000 3-wire | $-20 \rightarrow+150^{\circ} \mathrm{C}$ | 0-10 V | 88950150 |
|  | Converter | Pt 100 3-wire | $-40 \rightarrow+40^{\circ} \mathrm{C}$ | 0-10 V | 88950151 |
|  | Converter | Pt 100 3-wire | $0 \rightarrow+100^{\circ} \mathrm{C}$ | 0-10 V | 88950152 |
|  | Converter | Pt 100 3-wire | $0 \rightarrow+250^{\circ} \mathrm{C}$ | $0-10 \mathrm{~V}$ | 88950153 |
|  | Converter | Thermocouple J | $0 \rightarrow+300^{\circ} \mathrm{C}$ | 0-10 V | 88950154 |
|  | Converter | Thermocouple K | $0 \rightarrow+600^{\circ} \mathrm{C}$ | 0-10 V | 88950155 |
| General characteristics |  |  |  |  |  |
| Environmental characteristics |  |  |  |  |  |
| Certifications |  |  | UL |  |  |
| Protection rating |  |  | In accordance with IEC/EN 60529: <br> IP40 on front panel <br> IP20 on terminal block |  |  |
| Operating temperature |  |  | $-10 \rightarrow+55^{\circ} \mathrm{C}$ |  |  |
| Electrical characteristics |  |  |  |  |  |
| Supply |  |  | $24 \mathrm{~V}=-$ |  |  |
| Operating limits |  |  | $\pm 10 \%$ or $21.6=--26.4 \mathrm{~V}=-$ |  |  |
| Max. Output power |  |  | < 1 W |  |  |
| Output voltage |  |  | $0 \rightarrow 10 \mathrm{~V}=-$ |  |  |
| Device accuracy (full scale) |  |  | $\pm 1 \%$ |  |  |

## Dimensions (mm)

## Temperature converter



## Connections

## Temperature converter


(1) Temperature converter: Pt100/Pt1000 TC J/K
(2) Pt100 3-wire
(3) Thermocouple

## Millenium 3 accessories

## Analogue pressure transmitters 4-20 mA

■ Dry, robust pressure transmitter

- Ceramic variable capacitance sensing element
- Withstands high static and dynamic overload pressures
- Standard Ranges between 0.25 bar and 100 bar (Abs / Rel)
- Fully Factory Calibrated \& Temperature Compensated
- Viton Media Ring most suitable for all generic process media
$\square$ Wide Temperature Range $\left(-40^{\circ} \mathrm{C} / 125^{\circ} \mathrm{C}\right)$
- 4 dedicated function blocks (Pressure gain, Flow, Level, HL Switch) included in the M3 SOFT


Pressure tramsmitter

| Part numbers |  |  |
| :--- | :--- | :--- |
| Measurement range | Gauge $^{*}$ | Absolute |
| $0 \rightarrow 0.25$ bar | 89210001 |  |
| $0 \rightarrow 1$ bar | 89210002 | 89210007 |
| $0 \rightarrow 2.5$ bar | 89210003 | 89210008 |
| $0 \rightarrow 10$ bar | 89210004 | 89210009 |
| $0 \rightarrow 25$ bar | 89210005 | $\mathbf{8 9 2 1 0 0 1 0}$ |
| $0 \rightarrow 60$ bar | 89210006 | $\mathbf{8 9 2 1 0 0 1 1}$ |
| $0 \rightarrow 100$ bar |  |  |
| ${ }^{*}$ in relation to atmospheric pressure |  |  |
| ${ }_{* * i n}$ relation to the vacuum |  |  |



Dimensions (mm)


Nb : To envisage a disc in agreement with the type of connection of pressure


Product adaptations


## - Internal Primary Media Seal Ring Material - Other Pressure Range

## Dedicated function blocks



Pressure gain:
This function provides for interfacing between the sensors and the M3


## Level:

This function provides for calculating the level of the liquid in a tank,whether open or closed, and whether the liquid's density is constant or not,using pressure sensors.


## Flow:

This function makes it possible to calculate the flow of a fluid in a conduit using a pressure reducing orifice or or for measuring a dynamic pressure

HL Switch:
This function compares the value measured against 5 thresholds

## Millenium 3 accessories

## Temperature sensors: Pt 100 \& Thermocouple

- Thermocouple J:
- Nickel-plated brass eyelet
- Stainless steel casing
- Stainless steel sheath
- Thermocouple K
- Pt 100 Class B:
- Stainless steel sheath
- Aluminium vee
- Connection / Sub-base / Flange
- Pt100 for use with XA04 extension (See pages 40-41)
- Thermocouple for use with temperature converter (see

page 51)

| Part numbers |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Type | Description | Temperature | Characteristics | Code |
| $\begin{aligned} & \text { Thermocouple } \\ & \text { Pt100 } \end{aligned}$ | Thermocouple probe J | max: $400{ }^{\circ} \mathrm{C}$ | Thermocouple probe $J$ with nickel-plated brass eyelet $-\varnothing 6.5 \mathrm{~mm}$, connection sleeve - $\varnothing 5 \times 30 \mathrm{~mm}$ in stainless steel 316 L . - Glass filament cable with stainless steel braid: 2 m long - Hot junction isolated from earth | 79696030 |
|  | Thermocouple probe J | $\max : 600^{\circ} \mathrm{C}$ | Thermocouple probe J with casing - St. steel $304 \mathrm{~L} \varnothing 3 \mathrm{~mm}: 500 \mathrm{~mm}$ long PVC cable: 2 m long - Junction cannot be removed - Junction isolated from earth | 79696031 |
|  | Thermocouple probe J | $\max : 400{ }^{\circ} \mathrm{C}$ | Thermocouple probe J with sheath - ST steel $316 \mathrm{~L} \varnothing 5 \mathrm{~mm}: 30 \mathrm{~mm}$ long Glass filament cable with stainless steel braid: 2 m long - Junction isolated from earth | 79696033 |
|  | Thermocouple probe J | $\max : 400{ }^{\circ} \mathrm{C}$ | Thermocouple probe J with sheath - St. steel $16 \mathrm{~L} \varnothing 6 \mathrm{~mm}: 200 \mathrm{~mm}$ long Glass filament cable with stailess steel braid: 2 m long - Junction isolated from earth | 79696032 |
|  | Thermocouple probe K | max: $1100{ }^{\circ} \mathrm{C}$ | Thermocouple probe K with casing - St. steel $304 \mathrm{~L} \varnothing 3 \mathrm{~mm}: 500 \mathrm{~mm}$ long PVC cable: 2 m long - Junction isolated from earth | 79696034 |
|  | Pt100 probe Class B | max: $200{ }^{\circ} \mathrm{C}$ | Pt100 probe Class B with sheath - St. steel 316 L $\varnothing 6$ mm: 200 mm long Silicon teflon cable: 2 m long - 3 -wire assembly | 79696035 |
|  | Pt100 probe Class B | max: $200{ }^{\circ} \mathrm{C}$ | Pt100 probe Class B - Aluminium vee: 50 mm long - Silicom teflon cable: 2 m long - 3 -wire assembly - Supplied with fixing clamp | 79696037 |
|  | Pt100 probe Class B | max: $400{ }^{\circ} \mathrm{C}$ | Pt100 probe Class B with sheath - St. steel $316 \mathrm{~L} \varnothing 6 \mathrm{~mm}: 30 \mathrm{~mm}$ long Glass filament cable with stainless steel braid: 2 m long - 2 -wire assembly | 79696036 |


| Accessories |  |  |
| :---: | :---: | :---: |
| Accessories | Characteristics | Code |
| Connection | Sliding connection 1/4 " BSP CYL. St. steel 316 L Ø 3 mm | 79696038 |
|  | Sliding connection 1/4 " BSP CYL. St. steel 316 L Ø 6 mm | 79696039 |
|  | Sliding connection 1/2 "BSP CYL. St. steel 316 L Ø 6 mm | 79696040 |
| Sub-base | Sliding connection $1 / 4$ " BSP CYL Ø 12 mm Nickel-plated steel | 79696041 |
| Flange | Inox flange Ø 6 mm | 79696042 |

## Dimensions (mm)

Connection: 79696038


Connection: 79696039


Connection: 79696040



## Millenium 3 accessories

## Temperature sensors

Integrated converter: 0-10 $\mathrm{V}=-$ output for direct connection to the Millenium 3 analogue inputs


Part numbers

| Type Description | Range | Accuracy | Supply | Protection casing | Protection probe | Code |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AS Zone/space | $-10 \rightarrow+40^{\circ} \mathrm{C}$ | $-0.2{ }^{\circ} \mathrm{C}+1.2^{\circ} \mathrm{C}$ | 24 V --- | IP30 |  | 89750150 |
| Ventilation duct | $-10 \rightarrow+60^{\circ} \mathrm{C}$ | $-0.2{ }^{\circ} \mathrm{C}+1.9^{\circ} \mathrm{C}$ | $24 \mathrm{~V}=-$ | IP65 | IP30 | 89750151 |
| External | $-10 \rightarrow+40^{\circ} \mathrm{C}$ | $-0.2{ }^{\circ} \mathrm{C}+1.2^{\circ} \mathrm{C}$ | $24 \mathrm{~V}=-$ | IP65 |  | 89750152 |
| Remote/submersible probe | $-10 \rightarrow+150^{\circ} \mathrm{C}$ | $-0.2{ }^{\circ} \mathrm{C}+1.2^{\circ} \mathrm{C}$ | $24 \mathrm{~V}=-$ | IP65 | IP67 | 89750153 |
| Remote/submersible probe | $-40 \rightarrow+20^{\circ} \mathrm{C}$ | $-0.2{ }^{\circ} \mathrm{C}+1.9^{\circ} \mathrm{C}$ | $24 \mathrm{~V}=-$ | IP65 | IP67 | 89750155 |
| Accessories |  |  |  |  |  |  |
| Accessories | Operating temperature |  | Operating pressure |  |  | Code |
| Copper protective sleeve | $-20 \rightarrow+100^{\circ} \mathrm{C}$ |  | 10 bar |  |  | 89750146 |
| 316 stainless steel protective sleeve | $-20 \rightarrow+400^{\circ} \mathrm{C}$ |  | 16 bar |  |  | 89750147 |
| Heat transfer compound | - |  | - |  |  | 18373112 |


| General characteristics |  |
| :--- | :--- |
| Environmental characteristics | $-10 \rightarrow+60^{\circ} \mathrm{C}$ |
| Ambient temperature | $5 \rightarrow 95 \% \mathrm{RH}$ |
| Ambient humidity | Self-extinguishing |
| Housing material | $24 \mathrm{~V}=-\mathrm{( } \pm 10 \%)$ |
| Electrical characteristics | $0 \rightarrow 10 \mathrm{~V} \mathrm{=--}$ |
| Supply voltage | $0.01 \% /{ }^{\circ} \mathrm{C}$ of full scale |
| Output | $1.5 \mathrm{mV} /{ }^{\circ} \mathrm{C}$ |
| Temperature coefficients Derating |  |
| Temperature coefficients Offset |  |

## Dimensions (mm)

89750153 and 89750155


Accessory for 89750153 and 89750155

(1) M4 screw

89750151


89750150

(1) $\varnothing 3 \mathrm{~mm}$ for M3x8 screw
(2) Cut-outs made prior to delivery
(3) Fixing holes
(4) Indentation for M3 square nut
(5) Total depth 26 mm

## 89750152



## DC/DC converters

## - Power supplies for extended power ranges <br> - Provide your devices with a constant supply voltage - Primary/secondary isolation



Output convertor $12 \mathrm{~V}=-$


Output convertor $24 \mathrm{~V}=-$


## Curves



## Dimensions (mm)



## Millenium 3 accessories

## Millenium power supply

- With a switch mode power supply, regulated and protected against overloads and short-circuits, these new power supply units are easily integrated in switchboards and enclosures.
$\square$ The potentiometer can be used to set the output voltage between 100 and 120\% (24 V--- versions) to compensate for any voltage drops on the line.
$\square$ The LED continuously signals the presence of voltage at the output and, when flashing, triggering of the selfprotection.
- Broad range of supply voltage

| Part numbers |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Type | Nominal output voltage | Nominal power | Nominal output current | Code |
| PS | $5 \mathrm{~V}=-\mathrm{( } 4.75 \mathrm{~V} \rightarrow 6.25 \mathrm{~V})$ | 20 W | 4 A | 88950305 |
|  | $12 \mathrm{~V}=-\mathrm{(11.4} \mathrm{~V} \rightarrow 15 \mathrm{~V})$ | 25 W | 2.1 A | 88950306 |
|  | $24 \mathrm{~V}=-\mathrm{(22.8} \mathrm{~V} \rightarrow 28.8 \mathrm{~V})$ | 7.5 W | 0.3 A | 88950303 |
|  | $24 \mathrm{~V}=-\mathrm{( } 22.8 \mathrm{~V} \rightarrow 28.8 \mathrm{~V})$ | 15 W | 0.6 A | 88950304 |
|  | $24 \mathrm{~V}=-\mathrm{( } 22.8 \mathrm{~V} \rightarrow 28.8 \mathrm{~V})$ | 30 W | 1.2 A | 88950307 |
|  | $24 \mathrm{~V}=-\mathrm{( } 22.8 \mathrm{~V} \rightarrow 28.8 \mathrm{~V})$ | 60 W | 2.5 A | 88950302 |


| General characteristics |  |
| :--- | :--- |
| Environmental characteristics | IEC/EN 60950-1 |
| Conformity to standards | IEC/EN 61000-6-2 |
|  | IEC/EN 61000-6-3 |
|  | IEC/EN 61204-3 |
|  | IEC/EN 55022 class B |
| IEC/EN 60364-4-41 |  |

Dimensions (mm)


|  | (1) | (2) |
| :---: | :---: | :---: |
| 88950305 | 42 | 54 |
| 88950306 | 42 | 54 |
| 88950303 | 24 | 36 |
| 88950304 | 24 | 36 |
| 88950307 | 42 | 54 |
| 88950302 | 60 | 72 |

## Curves

## Derating

The ambient operating temperature of the Millennium power supplies is $55^{\circ} \mathrm{C}$. Above this, a derating is needed upto a maximum operating temperature of $70^{\circ} \mathrm{C}$.
The chart below shows the power (compared to the nominal power) that can be permanently supplied by the Millenium power supplies, depending on the operating temperature.


## Regulated power supplies

## "Millenium Supply" switch mode power supply

## - Electronic and regulated - 85 to 264 VAC input - Conforms to global standards - Incorporated thermal protection - PFC filter option



| Part numbers |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Type | Input voltage (V) | Output voltage (V) | Nominal power | Nominal current | Reset on protection | Conforms to EN 61000-3-2 | Weight (kg) | Code |
| 89450 without PFC | $100 \rightarrow 240 \mathrm{~V}$ ~ | $12 \mathrm{~V}=$ | 60 W | 5 A | Automatic | No | 0.44 | 89450110 |
|  | $100 \rightarrow 240 \mathrm{~V}$ ~ | 24 V =- | 60 W | 2.5 A | Automatic | No | 0.44 | 89450210 |
|  | $100 \rightarrow 240 \mathrm{~V}$ ~ | $24 \mathrm{~V}=$ | 100 W | 4.2 A | Automatic | No | 0.64 | 89450221 |
|  | $115 / 230 \mathrm{~V} \sim$ | $24 \mathrm{~V}=-$ | 150 W | 6.2 A | Automatic | No | 0.73 | 89450231 |
|  | $115 / 230 \mathrm{~V}$ ~ | $24 \mathrm{~V}=-$ | 240 W | 10 A | Automatic | No | 1.23 | 89450241 |
| $\begin{aligned} & 89450 \text { with } \\ & \text { PFC } \end{aligned}$ | $100 \rightarrow 240 \mathrm{~V}$ ~ | $12 \mathrm{~V}=$ | 100 W | 8.3 A | Automatic | Yes | 0.64 | 89450122 |
|  | $100 \rightarrow 240 \mathrm{~V}$ ~ | $24 \mathrm{~V}=-$ | 100 W | 4.2 A | Automatic | Yes | 0.64 | 89450222 |
|  | $115 / 230 \mathrm{~V} \sim$ | $24 \mathrm{~V}=$ | 150 W | 6.2 A | Automatic | Yes | 0.97 | 89450232 |
|  | $115 / 230 \mathrm{~V} \sim$ | $24 \mathrm{~V}=$ | 240 W | 10 A | Automatic | Yes | 1.23 | 89450242 |
| Accessories |  |  |  |  |  |  |  |  |
| Description |  |  | Weight (kg) |  |  |  |  | Code |
| Mounting bracket |  |  | 0.085 |  |  |  |  | 26450100 |
| Snap-on plate for 35 mm DIN rail |  |  | 0.035 |  |  |  |  | 26450101 |
| General characteristics |  |  |  |  |  |  |  |  |
| Cerrifications |  |  | UL, cCSAus |  |  |  |  |  |
| Conformity to standards |  |  | Generic: UL 508, CSA 22.2 no. 60950 Safety: IEC/EN 60950-1 <br> EMC: EN 61000-6-3, EN 61000-6-2 <br> LF harmonic currents: EN 61000-3-2 |  |  |  |  |  |
| Output circuit |  |  |  |  |  |  |  |  |
| Status indication |  |  | Green LED |  |  |  |  |  |
| Operating voltage |  |  | $12 \mathrm{~V}=-\mathrm{-} 24 \mathrm{~V}=$ |  |  |  |  |  |
| Nominal output current |  |  | $5-8.3 \mathrm{~A}$ at 12 V and $2.5-4.2-6.2-10 \mathrm{~A}$ at 24 V |  |  |  |  |  |
| Output voltage accuracy |  |  | $\pm 10 \%$ |  |  |  |  |  |
| Line and load regulation |  |  |  |  |  |  |  |  |
| Residual ripple |  |  | <200 mV |  |  |  |  |  |
| Protection against short circuits |  |  | Continuous, automatic restart |  |  |  |  |  |
| Protection against voltage surges |  |  | $U>1,2 U$ out |  |  |  |  |  |
| Thermal protection |  |  | Yes |  |  |  |  |  |
| Input circuit |  |  |  |  |  |  |  |  |
| Nominal voltage |  |  | $100 \rightarrow 240 \mathrm{~V} \sim(60$ and 100 W ), $115 / 230 \mathrm{~V} \sim$ ( 150 and 240 W ) |  |  |  |  |  |
| Current consumption |  |  | $\begin{aligned} & \mathrm{Ue}=2402 \mathrm{~A}(60 \mathrm{~W})-0.7 \mathrm{~A}(100 \mathrm{~W})-2.5 \mathrm{~A}(150 \mathrm{~W})-3 \mathrm{~A}(240 \mathrm{~W}) \\ & \mathrm{Ue}=100 \mathrm{~A}(60 \mathrm{~W})-1.4 \mathrm{~A}(100 \mathrm{~W})-5 \mathrm{~A}(150 \mathrm{~W})-6 \mathrm{~A}(240 \mathrm{~W}) \end{aligned}$ |  |  |  |  |  |
| Operating characteristics |  |  |  |  |  |  |  |  |
| Connection capacity |  |  | Input: $2 \times 4 \mathrm{~mm}^{2}+$ earth <br> Output: $2 \times 4 \mathrm{~mm}^{2}$ (60W) ; doubled for 100, 150 and 240W |  |  |  |  |  |
| Ambient storage temperature |  |  | $-25 \rightarrow+85$ |  |  |  |  |  |
| Relative humidity |  |  | $20 \rightarrow 90 \% \mathrm{RH}$ |  |  |  |  |  |
| Vibrations |  |  | Conforming to EN 61131-2 |  |  |  |  |  |
| Temperature Use |  |  | See graph$>100.000 \mathrm{hr}$ at 100\% load (at $40^{\circ}$ ) |  |  |  |  |  |
| MTBF |  |  |  |  |  |  |  |  |
|  |  |  | Conforming to IEC 61000-4-2 level 3 ( 4 kV contact/8 kV air) |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |
| Immunity to electromagnetic discharges |  |  | Conforming to IEC 61000-4-3 level $3(10 \mathrm{~V} / \mathrm{m}$ ) |  |  |  |  |  |
| Immunity to conducted disturbances |  |  | Conforming to IEC 61000-4-4 level 3 ( 2 kV ), EN 61000-4-5, EN 61000-4-6 level 3, EN 61000-4-8 level 4, IEC/EN 61000-4-12 level 3 |  |  |  |  |  |
| Immunity to mains supply disturbances |  |  | Conforming to IEC/EN 61000-4-11 (voltage dips and interruptions) |  |  |  |  |  |
| Incorporated input fuse |  |  | Yes |  |  |  |  |  |
| Emission |  |  | Generic: conforming to EN 61000-6-3 |  |  |  |  |  |
| Connections Dielectric strength |  |  | Conducted/radiated: conforming to EN 55011, EN 55022 c1B |  |  |  |  |  |
|  |  |  | Input/output: 3000~50/60 Hz 1 min Input/earth: $1500 \sim 50 / 60 \mathrm{~Hz} 1 \mathrm{~min}$ Output/earth: $500 \sim 50 / 60 \mathrm{~Hz} 1 \mathrm{~min}$ |  |  |  |  |  |

Dimensions (mm)

89450 power supplies


1) $89450110-210: 144 \mathrm{~mm}$ 89450221-231-241: 194 mm 89450122-222-232-242 : 194 mm
2. 89450110-210: 150 mm 89450221-231-241: 200 mm 89450122-222-232-242 : 200 mm
(3) $89450110-122-210-221: 38 \mathrm{~mm}$ 89450231-232 : 50 mm 89450241-242 : 65 mm
Snap-on plate


Mounting bracket


Curves
Derating
Vertical mounting



## For even greater customisation



- Application-based marketing


Hardware adaptations


Enhanced EMC tests


Optimised prototype tests

## A catalogue offer: adapted products

In addition to its Millenium 3 Standard logic controllers for today's automation needs, Crouzet can also offer Millenium 3 Custom logic controllers for specific applications such as renewable energies, water treatment, on-board products and severe environments.
This means that Crouzet can offer a Millenium 3 Custom
"Catalogue" range of "hardened or specific" products:
"Modular" versions designed for Custom application-specific functions, "Bare boards", "Resin boards" and "applicationspecific" extensions.
This expandable offer is subject to ongoing research in order to keep pace with the demands associated with new applications (renewable energies, networked products, etc.).

## A customisation policy:

 specific productsCrouzet can also provide Millenium 3 Custom solutions adapted as required to meet any specification, offering, for example, a greater number of I/O, specific extensions, dedicated connections, product groups (e.g. Millenium $3+$ temperature probes), customised laser marking and "Customer" software functions.

To this end, Crouzet has set up a Customer Adaptation Technical Service (STAC) with expertise in the various skills required to respond to all your equipment's automation needs:

- Application-based marketing

■ Electronics and software design
■ Manufacture of customised products

- Prototyping
- Mechanics \& connections

■ EMC tests \& approvals

- Sales \& logistics follow-up

Whether for software adaptations, custom functions, adaptations of Millenium 3's operating or physical characteristics, Crouzet has developed extensive expertise in making specific adaptations for each project. Just take a look at the adaptation wheel to discover the different levels of customisation offered by Crouzet's Customer Adaptation Technical Service.

## Adaptation, the practical solution!

## Specific products

All our design and industrialisation expertise in control and automation systems at your service, to design and create specific products dedicated to your application.

## Standard components

A complete range of logic controllers available immediately to create your automation application.


## For more adaptations


"Modular" versions


Bare board" versions

"Resin board" versions


Application-specific extensions

## Adapted products

Crouzet offers a Millenium 3 Custom "Catalogue" range based on the Millenium 3 Standard range whereby characteristics have been expanded or reinforced for use with "specific" applications:

■ NEW "Modular" versions designed for Custom applicationspecific functions and "application-specific" extensions.
(Part no.: 88974xxx)

- Possible to use dedicated software functions in an industrial environment.
"Bare board" versions with 12 or 20 I/O on pedestals (Part no.: 8897000x \& 8897001x)
- Ease of integration into an existing casing or system (mother/ daughter boards).
- Optimised cost for integration by OEMs.
$\square$ "Resin board" versions for severe environments (vibration/ shock/bump resistance and extended temperature range) with an optional removable connectors kit including a foolproofing system. (Part no.: 88973xxx)
- Resistance to damp or confined conditions (non-ventilated equipment).
- Vibration/shock/bump resistance.

■ NEW "Application-specific" analogue extensions
(XA03 \& XA04W).
(Part no.: 889728xx)

- XA03: direct control of 3 Pt 100 probes without the need for an external converter.
- XA04W: builds on the core expertise of the Millenium 3 (physical control of pumps and filtration) by using an extension which measures the parameters required for good water quality: pH , ORP, conductivity.


## - Applications

- XA03: temperature regulation (3 Pt100)
- XA04W: water quality control for swimming pools, ponds and fountains.

For details of the characteristics and part numbers of the Millenium 3 Custom range, see pages 70-81.

## B sesent DISPLAY Hardware adaptation capability



Specific EMC tests


Electronics adaptation


Changing the number of I/O

## Specific products

Crouzet can also provide Millenium 3 Custom solutions adapted as required to meet any specification:

## Toughening

■ Resistance to mechanical stresses: making the Millenium impervious to mechanical demands (shocks/vibrations/bumps and falls).
For example: other military standards.
$\square$ Resistance to climatic conditions and severe environments: making the Millenium impervious to damp and dripping water, climatic conditions and severe environments (liquids and gases). For example: adapting resin type to make it resistant to acidic atmospheres (HCl, H2SO4).
$\square$ Compliance with electrical and standard-related constraints: voltage, EMC, etc.
For example: increasing radiated electromagnetic immunity (conducted) in the onboard equipment (standard $=10 \mathrm{~V} / \mathrm{m}$, adaptation $=20 \mathrm{~V} / \mathrm{m})$.

## Customisation

- Dedicated connections and fixings to provide you with a complete electrical function that can easily be installed in your environment.
For example: connecting inputs and outputs on the same terminal block (industrial and agricultural vehicles, professional grass-cutting equipment).
■ Direct lead outputs on resin versions by terminal.
$\square$ Combine dedicated sensors with the configured extension.
For example: pH/ORP probes.
$\square$ Customised laser marking.
For example: integration of customer logo and name on the product.

Specific configuration
■ Changing the number of I/O.
$■$ Updating the I/O characteristics (input voltage, PNP/NPN polarity type).

- Updating power supply.
$\square$ Developing specific extensions.
$\square$ Ability to measure and control other physical values.
$\square$ Fixed parameters.
■ "Modular" versions (88974xx) with removable integrated connectors enabling prewiring work to be performed and improved parts replacement for maintenance purposes.

For any special applications, please contact our Micro-control sales and technical experts.

## For more

 adaptations

Example of program using Custom functions


Example of a $y=f(x)$ transfer function from a spreadsheet


- Morning Pulse:

Start: 1 h 10 m before sunrise
End: 09.00
■ Evening Pulse:
Start: 16:00
End: 2 h 30 m after sunset

## Custom functions

Crouzet has developed a number of application-specific functions to supplement the the library of specific functions:

## Custom functions.

These functions can only be used with products from the Millenium 3 Custom range (Resin, Bare board versions and application specific analogue extensions).

Enhancement of standard automation functions

- ALARM (coded alarm for modem):
- Controls 10 alarm levels on one modem digital input.


## -SHIFT REGISTER:

- Shifts information by saving it to the memory
(shifting of bits in a 16 -bit word on each rising edge of the clock).
SPLIT BY 4 (input $1 \times 16$-bit word, output $4 \times 4$-bit words):
- Splits a 16 -bit word into $4 \times 16$-bit words (in groups of 4 bits).
- SPLIT BY 2 (input $1 \times 16$ bit word, output $2 \times 8$ bit words):
- Splits a 16 -bit word into $2 \times 16$-bit words (in groups of 8 bits).
- SLIN S (serial link protected input):
- Transmits data via a programming port to memory space in the controller's fixed addresses.
Data is protected in the event of disconnection of the controller power supply.

Function for a specific temperature control application in HVAC

- NTC1 - Function for use in conjunction with the NTC probe accessory (see page 79):
- The application-specific function converts the resistive values measured by the probe into temperature values in degrees Celsius (preliminary entry as part of the application-specific function of all measurements taken by a given NTC probe).


■ Developing dedicated functions


Function for compressor


Function for solar panels

## Functions on request

Crouzet is also able to adapt existing functions in both Standard and Custom ranges.
$\square$ Adaptation of high-speed counting function.
$\square$ Adaptation of the NTC1 function on other types of NTC probe

On request, Crouzet can also develop advanced applicationspecific functions, dedicated to your process.
$\square$ Motor wear calculation: controls the service life of pumps for more effective pump equipment maintenance.

■ Special functions for compressor/booster compressor: Anti-short cycle (reduces pump wear during start-up and switches pump starting sequences for greater efficiency):
function controlling compressor switching in accordance with changes at the analogue input for pressure, expressed in bars.
$■$ Zero speed: system which makes it possible to detect conveyor belt interruptions on packaging machines.

## $\square$ Special software protection functions.

These custom functions simplify your application, protect your expertise and therefore guarantee you total protection.

■ Mathematical function for mobile solar panels: Crouzet has developed a program which determines the exact position of the sun, 365 days a year, 24 hours a day. Having first recorded the latitude and longitude of the installation, Millenium 3 analyses and returns information for the exact position of the panels in relation to the sun.
solar panels, Crouzet were able to offer me an application-specific function. Millenium 3 turns the panels towards the sun and checks its actual position by means of encoders. If the difference is more than a few degrees, motors move them horizontally and vertically.
In addition, a wind sensor measures its speed and the panel adopts a "park" position in the event of a storm.

Juan Alberto, Solar Panel Manufacturer

## For more adaptations

## Application: Controlling water quality in a swimming pool.

- Control systems located in machine rooms.
■ Manufacturers of swimming pools, OEM wholesalers of swimming pools.


## Description of customer needs:

- Control physical filtration of water (using a filter).
- Set filtering time in relation to the temperature of the bathing water.
- Control the neutrality of the water (pH).
- Control the level of water disinfection (Redox: chlorine-based disinfectant).


Private swimming pool

## Application Water treatment

## How the application works:

Water needs to be filtered regularly to remove solid particles (sand, plant matter, insects, suntan oil, hair, etc.) and keep it clear. The higher the temperature, the longer it takes to filter.
Water quality is essential for swimming pool applications. Regular checks should be carried out in respect of:

- Neutrality of the water (should be $7.2<\mathrm{pH}<7.5$ )
- Level of water disinfection (optimum level of chlorine in water for destroying bacteria)

Both pH and Redox are measured using probes submerged in pipes, a buffer container, or an analysis chamber. These probes analyse the presence of hydrogen $(\mathrm{H}+)$ and chlorine $(\mathrm{Cl})$ ions capable of oxidising an electrochemical couple within the probe. This oxidation generates an electrical voltage, expressed in mV , which is forwarded to the PLC. After a calibration process, the PLC converts this into values for the pH and Redox.

## Crouzet solution:

■ Millenium 3 XD10 24 V DC logic controller.
■ 100-240 V AC/24 V DC power supply.
■ XA04W "application-specific" analogue extension: Measuring extension card in modular casing.
$\square$ pH probe, ORP (Redox) probe and Pt100 probe.
$\square$ As an option: Modem communication solution with GSM for sending alarms.

## The benefits of the Crouzet solution:

■ "All-in-one": the same PLC controls the physical filtration and chemical treatment functions.
■ Simple, straight-forward programming.
■ Additional Millenium 3 functions available to control other application requirements (lighting control, vacuum pumps for pool cleaning brushes).
$\square$ The most compact extension on the market ( 72 mm ).
■ Optional SMS alerts via integrated Millenium 3 modem solution.
$■$ Crouzet also has expertise in the area of position sensors and micromotors, and is able to offer motorisation solutions (swimming-pool covers using winders or curtains).

## Dedicated product application

## Application: Heat pump control.

## Description of customer needs:

■ Make the best use of nature's energy (air, water, earth) to heat or cool (reversible system) a heating circuit or a hot water system in either an industrial, domestic or commercial setting.

- The choice of solution may be determined by financial considerations (energy costs).


## Application Heat pumps

## How the application works:

The heat from the warm fluid (air blown by a fan, or water provided by a heat-exchanging source or coolant) is captured by a refrigerating liquid which is compressed to give it a pressure of 40 bar and a temperature $140^{\circ} \mathrm{C}$. In a heat exchanger, this refrigerating liquid then transfers its heat to water (cold source) for a hot water system (underfloor heating) or a hot water tank (water for a hot water system or swimming pool).
Once this thermal exchange has taken place, the fluid which has lost both temperature and pressure has its pressure further reduced by a solenoid valve which drastically reduces its temperature even more.
This fluid is then able to receive the heat from the hot source, and the cycle is ready to begin again.

## Crouzet solution:

$\square$ Millenium 3 logic controller.
$\square$ Millenium 3 accessories:

- NTC: temperature $\left({ }^{\circ} \mathrm{C}\right)$ probe - probe providing resistance as a function of the temperature. Connects directly to the analogue inputs $(0-10 \mathrm{~V})$. A dedicated function block enables resistance to be converted into temperature.
- Pt100: temperature probe with a converter on the analogue inputs or directly linked to extensions XA03, XA04W.
■ Compressor start-up control/anti-short cycle.

The benefits of the Crouzet solution:
$■$ User-friendly software and ease of programming.
$\square$ Front-panel parameter setting for temperature instructions.
$\square$ Functions include clock, vacations, frost protection.
$\square$ Full/half-load function.
■ Analogue inputs: NTC probes.
■ Adaptations possible (development of "water law" or "heating curve" functions).
$\rightarrow$ "Application-specific" and grouping adapted kits

Discover just what Millenium 3 can do for you - its complete kits provide everything you need for your application

- Product groups: in order to facilitate logistics, we can supply groups of products



## Part numbers

| Type | Description | Code |
| :---: | :---: | :---: |
| Kit 16 | XD10-24 V =-- (Ref. 88970141) + XN05 (Ref. 88970270) + 1 Power supply PS24-30 W (Ref. 88950307) | 88970825 |
| Kit 20 | CD20-24 V =-- (Ref. 88970051) + 1 Power supply PS24-60 W (Ref. 88950302) | 88970808 |
| Kit 26 | XD26 Custom - $24 \mathrm{~V}=$ (Ref. 88974161) + M3 SOFT (Ref. 88970111) + Power supply PS24-30W (Ref. 88950307) + USB link cable (Ref. 88970109) | 88970094 |
| Kit 32 | XD26-24 V =-- (Ref. 88970161) + XR06 (Ref. 88970211) + 1 Power supply PS24-60 W (Ref. 88950302) | 88970813 |

## Bare board version

For easy and discreet integration into your applications

- For mass-production applications

Memory: 120 lines in LADDER language and up to 350 "typical" blocks in FBD language

- Compact Dimensions
- Range of controllers for use with application specific functions


NB 12


NB 20

| Part numbers |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Type | Input | Output | Supply | Code |
| NB12 | 8 digital (of which 4 are analogue) | 4 relays | $24 \mathrm{~V}=-$ | 88970001 |
|  | 8 digital | 4 relays | $100 \rightarrow 240 \mathrm{~V}$ へ | 88970003 |
|  | 8 digital (of which 4 are analogue) | 4 relays | $12 \mathrm{~V}=-$ | 88970005 |
| NB20 | 12 digital (of which 6 are analogue) | 8 relays | $24 \mathrm{~V}=-$ | 88970011 |
|  | 12 digital | 8 relays | $100 \rightarrow 240 \mathrm{~V}$ へ | 88970013 |
| NBxx | In accordance with your requirements | In accord | In accordance w | - |

## Accessories

| Type | Description | Code |
| :--- | :--- | :--- |
| M3 SOFT | Multilingual programming software containing specific library functions (CD- <br> ROM) | $\mathbf{8 8 9 7 0 1 1 1}$ |
| PA | EEPROM memory cartridge | 88970108 |
|  | 3 m serial link cable: PC $\rightarrow$ Millenium 3 | 88970102 |
|  | 3 m USB link cable: PC $\rightarrow$ Millenium 3 | 88970109 |
|  | Millenium 3 $\rightarrow$ Bluetooth interface (class A 10 m) | 88970104 |

## General characteristics

See page 22, except:

| See page 22, except: |  |
| :--- | :--- |
| Protection rating | IP00 |
| Certifications | UL, CSA |

## Dimensions (mm)

NB12



NB2O


## Input / Output Connections

See Page 80-81 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## Product adaptations



Spring connectors or removable connectors

- Changing the number of I/O
- Updating power supply

Modular version

- "Modular" versions designed for Custom application specific functions and "application-specific" extensions (XA03, XA04W) for expandable range.
$\square$ Open to "standard" extensions (XN,XR,XE,XA)
$\square$ LCD with 4 lines of 18 characters and configurable backlighting or no display or parameter-setting buttons to avoid tampering by unauthorised users


CB12 Custom


XD10 Custom

Part numbers

| Custom Compact Range |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Type | Input | Output | Supply | Code |
| CD12 | 8 digital (including 4 analogue) | 4 relays 8 A | $24 \mathrm{~V}=-$ | 88974041 |
|  | 8 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM) | $24 \mathrm{~V}=-$ | 88974042 |
|  | 8 digital | 4 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88974043 |
|  | 8 digital | 4 relays 8 A | 24 V ~ | 88974044 |
|  | 8 digital (including 4 analogue) | 4 relays 8 A | $12 \mathrm{~V}=-$ | 88974045 |
| CD20 | 12 digital (including 6 analogue) | 8 relays 8 A | $24 \mathrm{~V}=-$ | 88974051 |
|  | 12 digital (including 6 analogue) | 8 solid state 0.5 A (including 4 PWM) | $24 \mathrm{~V}=-$ | 88974052 |
|  | 12 digital | 8 relays 8 A | $100 \rightarrow 240$ V | 88974053 |
|  | 12 digital | 8 relays 8 A | 24 V ~ | 88974054 |
|  | 12 digital (including 6 analogue) | 8 relays 8 A | $12 \mathrm{~V}=-$ | 88974055 |
| CB12 | 8 digital (including 4 analogue) | 4 relays 8 A | $24 \mathrm{~V}=-$ | 88974021 |
|  | 8 digital | 4 relays 8 A | $100 \rightarrow 240$ V | 88974023 |
|  | 8 digital | 4 relays 8 A | 24 V ~ | 88974024 |
| CB20 | 12 digital (including 6 analogue) | 8 relays 8 A | $24 \mathrm{~V}=-$ | 88974031 |
|  | 12 digital | 8 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88974033 |
|  | 12 digital | 8 relays 8 A | 24 V ~ | 88974034 |

## Part numbers

| Custom Expandable Range |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Type | Input | Output | Supply | Code |
| XD10 | 6 digital (including 4 analogue) | 4 relays 8 A | $24 \mathrm{~V}=-$ | 88974141 |
|  | 6 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM) | $24 \mathrm{~V}=-$ | 88974142 |
|  | 6 digital | 4 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88974143 |
|  | 6 digital | 4 relays 8 A | 24 V ~ | 88974144 |
| XD26 | 16 digital (including 6 analogue) | 10 relays (8×8 A relay and $2 \times 5$ A relay) | $24 \mathrm{~V}=-$ | 88974161 |
|  | 16 digital (including 6 analogue) | 10 solid state 0.5 A (including 4 PWM) | $24 \mathrm{~V}=-$ | 88974162 |
|  | 16 digital | 10 relays (8x8 A relay and $2 \times 5 \mathrm{~A}$ relay) | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88974163 |
|  | 16 digital | 10 relays (8×8 A relay and $2 \times 5 \mathrm{~A}$ relay) | 24 V ~ | 88974164 |
|  | 16 digital (including 6 analogue) | 10 relays (8×8 A relay and $2 \times 5 \mathrm{~A}$ relay) | $12 \mathrm{~V}=-$ | 88974165 |
| XB10 | 6 digital (including 4 analogue) | 4 relays 8 A | 24 V --- | 88974131 |
|  | 6 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM) | $24 \mathrm{~V}=-$ | 88974132 |
|  | 6 digital | 4 relays 8 A | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88974133 |
|  | 6 digital | 4 relays 8 A | 24 V ~ | 88974134 |
| XB26 | 16 digital (including 6 analogue) | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | $24 \mathrm{~V}=-$ | 88974151 |
|  | 16 digital (including 6 analogue) | 10 solid state 0.5 A (including 4 PWM ) | $24 \mathrm{~V}=-$ | 88974152 |
|  | 16 digital | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88974153 |
|  | 16 digital | 10 relays ( $8 \times 8 \mathrm{~A}$ relay and $2 \times 5 \mathrm{~A}$ relay) | 24 V ~ | 88974154 |
|  | 16 digital (including 6 analogue) | 10 relays (8×8 A relay and $2 \times 5 \mathrm{~A}$ relay) | $12 \mathrm{~V}=-$ | 88974155 |

General characteristics

| Certifications | UL, CSA |
| :---: | :---: |
| Operating temperature* | $-30 \rightarrow+70^{\circ} \mathrm{C}\left(=--20 \rightarrow+70^{\circ} \mathrm{C}(\sim)\right.$ <br> Operating temperature @ 100\% (Relays 6A) <br> Operating temperature @ 66\% (Relays 8A) |
| Storage temperature* | $-30 \rightarrow+80^{\circ} \mathrm{C}$ |
| LCD display | Display with 4 lines of 18 characters, white characters on a blue background |

## Accessories

| Type | Designation | Code |
| :--- | :--- | :--- |
| M3 SOFT | Multilingual programming software containing specific library functions (CD-ROM) | $\mathbf{8 8 9 7 0 1 1 1}$ |
| PA | EEPROM memory cartridge | $\mathbf{8 8 9 7 0 1 0 8}$ |
|  | 3 m serial link cable: PC $\rightarrow$ Millenium 3 | $\mathbf{8 8 9 7 0 1 0 2}$ |
|  | 3 m USB link cable: PC $\rightarrow$ Millenium 3 | $\mathbf{8 8 9 7 0 1 0 9}$ |
|  | Millenium 3 $\rightarrow$ Bluetooth interface (class A 10 m) | $\mathbf{8 8 9 7 0 1 0 4}$ |

## Dimensions (mm)

CB12/XB10 Custom


CD12/XD10 Custom


CB20/XB26 Custom


CD20/XD26 Custom


## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## Resin board version

- Vibration resistance

E Extended temperature range

- Outputs via removable connectors
- IP50 seal (connectors)
- DB 9-pin programming port via standard RS 232 cable
- Designed for Custom application-specific functions

■ Supplied without connectors. Connectors available (Ref. 88970313, 88970314, 88970315, 88970316)



NBR26


Part numbers

| Type | Designation | Input | Output | Supply | Code |
| :---: | :---: | :---: | :---: | :---: | :---: |
| NBR12 | Relay outputs with connectors | 8 digital (including 4 analogue) | 4 relays | $24 \mathrm{~V}=-$ | 88973001 |
|  | Relay outputs with connectors | 8 digital (including 4 analogue) | 4 solid state (including 1 PWM) | $24 \mathrm{~V}=-$ | 88973002 |
| NBR26 | Relay outputs with connectors | 16 digital (including 6 analogue) | 10 relays | $24 \mathrm{~V}=-$ | 88973061 |
|  | Relay outputs with connectors | 16 digital (including 6 analogue) | 10 solid state 0.5 A (including 4 PWM) | $24 \mathrm{~V}=-$ | 88973062 |
|  | Relay outputs with connectors | 16 digital | 10 relays | $100 \rightarrow 240 \mathrm{~V}$ ~ | 88973063 |
| NBR32 | Relay outputs with connectors | 20 digital (including 6 analogue) | 12 relays | $24 \mathrm{~V}=-$ | 88973211 |
| NBR40 | Relay outputs with connectors | 24 digital (including 6 analogue) | 16 relays | $24 \mathrm{~V}=-$ | 88973231 |
| NBRxx | Relay or solid state outputs, connectors or wires | In accordance with your requirements | In accordance with your requirements | In accordance with your requirements | - |
| Accessories |  |  |  |  |  |
| Type |  | Description |  |  | Code |
| M3 SOFT |  | Multilingual programming software containing specific library functions (CD-ROM) |  |  | 88970111 |
| PA |  | 1.80 m serial link cable: DB9/DB9 |  |  | 88970123 |
|  |  | Programming cable USB |  |  | 88950105 |
| MA |  | Removable connector kit for NBR12 |  |  | 88970313 |
|  |  | Removable connector kit for NBR26 |  |  | 88970314 |
|  |  | Removable connector kit for NBR32 |  |  | 88970315 |
|  |  | Removable connector kit for NBR40 |  |  | 88970316 |

General characteristics

## See page 22, except:

| Certifications | CE |
| :---: | :---: |
| Protection index | IP50 connectors |
| Mechanical resistance IEC 61373 | Railway applications - Rolling stock |
|  | Category 1 class B stock mounted on car |
|  | Vibration resistance: $5-150 \mathrm{~Hz}$ |
|  | Random sampling: 10 minutes in each direction (X, Y, Z) |
|  | Sinusoidal sampling: 5 hours in each direction (X, Y, Z) |
|  | Shock resistance: 3 shocks $3 \mathrm{~g} / 30 \mathrm{~ms}$ per direction |
|  | Dropping: Total of 26 drops on all sides from a height of 1 metre |
| Mechanical resistance GAM EG 13 | Terrestrial military vehicles |
|  | Vibration resistance $5-500 \mathrm{~Hz} 50 \mathrm{~m} / \mathrm{s}^{2}$ |
|  | Sinusoidal sampling 5 hours in each direction (X, Y, Z) |
|  | Shock resistance: |
|  | Acceleration: $150 \mathrm{~m} / \mathrm{s}^{2}$, duration: $11 \mathrm{~ms}, 3$ shocks per shaft |
|  | Acceleration: $300 \mathrm{~m} / \mathrm{s}^{2}$, duration: $11 \mathrm{~ms}, 3$ shocks per shaft |
|  | Bumps: 1000 half wave sine mechanical bumps $25 \mathrm{~g} / 6 \mathrm{~ms}$ per shaft |
| Operating temperature | $-30 \rightarrow+70^{\circ} \mathrm{C}(=-),-20 \rightarrow+70^{\circ} \mathrm{C}(\sim)$ |
| Storage temperature | $-40 \rightarrow+80^{\circ} \mathrm{C}$ |
| Housing | Self-extinguishing UL94V2 |
| Resin | UL approved |
|  | Self-extinguishing UL94V0 |
|  | Semi-rigid polyurethane resin |
|  | Solid black appearance |
|  | Breakdown voltage: $25 \mathrm{kV} / \mathrm{mm}$ |
|  | Water absorption: $0.2 \%$ (24 hours at $23^{\circ} \mathrm{C}$ ) |
|  | Shore D hardness: $50 \pm 5$ |
|  | Smoke category: F0 |
| Outputs | Removable connectors |
| Breaking current | 6 A relay output |

## ⿷匚⿳丨コ丨⿱⿰㇒一丶⿵⿰丿⿺⿻⿻一㇂㇒丶𠃌灬丶

Dimensions（mm）

NBR12


## NBR26



NBR32


NBR40


## Input／Output Connections

See Page 80－81 for details or to find instruction sheets visit：www．millenium3．crouzet．com in＂Download＂

## Product adaptations

"Application-specific" analogue extensions for XD10/XB10 and XD26/ XB26

■ XA04W: Mix of inputs in the same casing: Pt 100, pH, ORP (Redox), Current (4-20 mA)
$\square$ XA03: 3 Pt 100 temperature inputs in the same casing

- "Application-specific" examples:
- Regulation and measurement of (XA03)
- pH and Redox sensors for treating water in
swimming pools and fountains (XA04W)
- Extensions compatible with any Millenium 3 Custom expandable logic controller
■ For Pt100 probes, see page 54.
- For pH and ORP probes, see page 78. The probes are directly connected to the XA04W extension


XA03


XA04W

## Part numbers

| Type | Input | Supply | Code |
| :---: | :---: | :---: | :---: |
| XA03 | $3 \mathrm{Pt} 100\left(-25 \rightarrow+125^{\circ} \mathrm{C}\right)$ | Via the $24 \mathrm{~V}=-$ controller | 88970800 |
| XA04W | $\begin{aligned} & 1 \mathrm{Pt} 100\left(0-50^{\circ} \mathrm{C}\right), 1 \mathrm{pH}(0-14), 1 \mathrm{ORP} \\ & (0-1000 \mathrm{mV}), 1 \text { current }(4-20 \mathrm{~mA}) \end{aligned}$ | ```Via the 24 V =-- controller (1 dedicated output \(24 \mathrm{~V}= \pm 5 \% 0.6 \mathrm{~W}\) to supply the \(4-20 \mathrm{~mA}\) sensor)``` | 88972805 |

## Accessories

| Type | Description | Code |
| :--- | :--- | :--- |
| M3 SOFT | Multilingual programming software containing specific library functions (CD-ROM) | $\mathbf{8 8 9 7 0 1 1 1}$ |

## General characteristics $88970800 \quad 88972805$

See General characteristics for the XA04 analogue extension on page 36, except for the adapted characteristics below:

| Certifications | UL, CSA, | UL \& CSA |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Conformity with the EMC directive | In accordance with 89/336/EEC: <br> EN (IEC) 61131-2 <br> (Zone B) <br> EN (IEC) 61000-6-2, <br> EN (IEC) 61000-6-3, <br> EN (IEC) 61000-6-4 | $\begin{aligned} & \text { In accordance with } \\ & \text { 89/336/EEC: } \\ & \text { EN (IEC) 61000-6-1 } \\ & \text { EN (IEC) 61000-6-3 } \end{aligned}$ |  |  |  |
| Inputs | Pt 100 (IP, IQ, IR) | Pt 100 (IP) | pH (IQ) | ORP (IR) | 4-20 mA (IS) |
| Operating range | $-25^{\circ} \mathrm{C},+125^{\circ} \mathrm{C}$ | $0-50^{\circ} \mathrm{C}$ | 0-14 | 0-1000 mV | $0-20 \mathrm{~mA}$ |
| Input impedance | - | - | $>10^{12} \Omega$ | $>10^{12} \Omega$ | $10 \Omega$ |
| Maximum non destructive current/voltage | - | - | - | - | 30 mA |
| Resolution | 10 bits | 12 bits | 12 bits | 12 bits | 12 bits |
| Value of LSB | $0.15{ }^{\circ} \mathrm{C}$ | $0.012^{\circ} \mathrm{C}$ | 0.0034 pH | 0.24 mV | $4.9 \mu \mathrm{~A}$ |
| Input type | Pt 100 probe IEC 751 <br> 3-wire | Pt 100 probe IEC 751 3-wire | pH probe | ORP probe | Common mode |
| Conversion time | Module cycle time | Module cycle time | Module cycle time | Module cycle time | Module cycle time |
| Sampling time | $<1$ s | 4s | 4 s | 4s | 4 s |
| Accuracy at $25^{\circ} \mathrm{C}$ ambient temperature | $\pm 1^{\circ} \mathrm{C}$ | $\pm 0.8^{\circ} \mathrm{C}$ | $\pm 0.05 \mathrm{pH}$ | $\pm 5 \mathrm{mV}$ | $\pm 0.1 \mathrm{~mA}$ |
| Accuracy at $55^{\circ} \mathrm{C}$ ambient temperature | $\pm 1^{\circ} \mathrm{C}$ | $\pm 0.8^{\circ} \mathrm{C}$ | $\pm 0.05 \mathrm{pH}$ | $\pm 5 \mathrm{mV}$ | $\pm 0.1 \mathrm{~mA}$ |
| Temperature compensation | - | - | No Drift of 0.03 pH from15 to $25^{\circ} \mathrm{C}$ Drift of 0.15 pH from 0 to $50^{\circ} \mathrm{C}$ | - | - |
| Isolation between analogue channel and power supply | None | None | Isolated | Isolated | Isolated |
| Dedicated isolated 24 V DC output for 4-20 mA sensor | - | - | - | - | $24 \mathrm{~V}=-$ |
| Cable length | 10 m max. with shielded cable | 3 m max. with shielded cable | 3 m max. with shielded cable | 3 m max. with shielded cable | 3 m max. with shielded cable |
| Protection against polarity inversions | - | - | - | - | Yes |

## Dimensions (mm)

XA03


XA04W


## Input / Output Connections

See Page 80-81 for details or to find instruction sheets visit: www.millenium3.crouzet.com in "Download"

## Product adaptations

[^1]
## pH \& ORP probes for XA04W

$\square$ High quality measurement electrode

- 2 types of ferrule
- Fields of application:
- Swimming pools
- Monitoring and treatment of drinking water
- Freshwater or seawater aquariums
- Waste water, process water and low-pollution domestic water, rainwater, pond water and surface


Sensor pH


Sensor ORP

## water

- Greenhouses


## Part numbers

| Type | Description | Code |
| :--- | :--- | :--- |
| pH | pH probe with BNC connector 3 m | 89750170 |
|  | pH probe with ferrules 3 m | 89750171 |
| ORP | ORP probe with BNC connector 3 m | 89750172 |
|  | ORP probe with ferrules 3 m | 89750173 |


| General characteristics |  |  |
| :---: | :---: | :---: |
| Type | pH | ORP (Redox) |
| Operating range | 2-12 | $\pm 2000 \mathrm{mV}$ |
| Pressure | 0-6 bar | 0-6 bar |
| Electrode | Combination electrode with protected glass bulb | Combination electrode |
| Length | 120 mm | 120 mm |
| Diaphragm | None | None |
| Operating temperature | $0 \rightarrow+60^{\circ} \mathrm{C}$ | $0 \rightarrow+60^{\circ} \mathrm{C}$ |
| Electrolyte | 3.5 mol saturated KCl gel | 3.5 mol saturated KCl gel |
| Concentration | < $50 \mathrm{gr} / \mathrm{l}$ | < $50 \mathrm{gr} / \mathrm{l}$ |
| Chlorinated water | < 5 ppm (max. non repetitive 15/20 ppm) | < 5 ppm (max. non repetitive 15/20 ppm) |
| Installation angle | $360^{\circ}$, recommended $\pm 45^{\circ}$ from vertical | $360^{\circ}$, recommended $\pm 45^{\circ}$ from vertical |
| Cable length | Shielded cable, 3 m | Shielded cable, 3 m |
| Protection against polarity inversions | Incorrect reading | Incorrect reading |

## Comments

The probes are delivered with a cap containing a preservative. Ensure this cap is removed just before inserting the probe. Minimise the storage time and always check that this preservative is present ( KCl refill). The probe must be stored horizontally.

## Dimensions (mm)

## $\mathrm{pH}-$ ORP probes


(1) BNC
(2) Ferrule
(3) Coaxial cable, black, $\varnothing 3 \mathrm{~mm}$
(4) Connecting head

Head with Pg 13.5 thread and fixed cable
(5) Plunger made of black PPO

## NTC probe

- Direct connection with no converter on analogue input
- Low-cost temperature control solution
- Fields of application:
- HVAC
- Compressors
- Geothermal systems


Sensor NTC


Analogue input configured as potentiometer via the Custom function (NTC1, in M3 SOFT software part no.: 88970111).
Probes only available on the Custom range (88974XXX, NB, NBR)

## Dimensions (mm)

89750180



## I/O wiring

## Inputs/Outputs: NB \& NBR

See pages 40 to 41 (same as CD, CB, XD, XB)

## Analogue inputs: XA03 \& XA04W

Extension : XA04W

(1) pH
(2) ORP/Redox
(3) Analogue input
(4) Screening

Extension : XA04W

(1) $0-20 \mathrm{~mA} 3$-wire
(2) 0-20 mA 2-wire
(3) Analogue input

Extensions: XA03, XA04W

$\rightarrow$ Input/output installations
Extensions XA04W \& XA03

## Inputs

XA04W


XA03


## Input/output installations

## Bare boards (NB12, NB20) \& resin boards (NBR12, NBR26, NBR32, NBR40)



## Sorties relais

NB12


NBR12


NB20


NBR26


NBR32


NBR40


## Solid state outputs

NBR12


NBR26


C Crouzet

## More information is available on our site:

www.millenium3.crouzet.com

■ What is a logic controller used for?
■ Advantages of Millenium 3

- Product overview
- Introduction to the software
- Millenium 3 pressure solution

- Adaptation wheel
- Adapted products
- Hardware adaptations
- Custom functions
- Software adaptations

- HVAC
- Water treatment
- Renewable energies
- Industrial machines



## Web pages

- Compact range selection guide
- Expandable range selection guide
- Starter kits

■ Communication solutions

- Accessories
- Download PDF documents:
$\square$ Technical documents
$\square$ Promotional materialInstallation manualsDemo softwareMedia gallery


■ Search by part number facility

- Technical data

■ Diagrams:
$\square$ Wiring
$\square$ Dimensions

- Catalogue pages PDF




## DETAILS OF YOUR POWER SUPPLY

Direct current
12 V DC

- 24 V DC

Alternating current

- 24 V AC
- 100-240 V AC
- Frequency

Maximum power supply limits:
$\square$

## YOUR SENSORS TO BE CONNEGTED

$\square$ Digital

- Analogue
-0-10 V
- 0-20 mA
- Potentiometer
$\square \mathrm{pH}$
- ORP
- Temperature
- NTC
- Thermocouple
- Pt100
- Pt1000
- Encoder
$\square$ Other



## YOUR ENVIRONMENT

Vibrations:
Operating temperature:
Damp:
Degree of protection:
$\square$

## YOUR STANDARD-RELATED CONSTRAINTS



## YOUR WIRING CONSTRAINTS

## Cable length:

- 3 m
- 10 m

Connection using connector:

- Yes
$\square$ No
Connect using wires:
$\square$ Yes
- No
$\square$


## YOUR COMMUNICATION NEADS

## - Network

- Modbus
- Ethernet - TCP/IP
$\square$ Modem
- GSM
$\square$ STN


## YOUR DISPLAY NEEDS

## $\square$ Remote display

$\square$ Local display (on the product)

## Specific request

$\square$ Customised marking
$\square$ Other.


How to order


- Millenium 3 products made to specifications (contact us)

(c) Crouzet


## Part numbers index

## List of part numbers

| Part numbers | Name | Range name | Type | Pages |
| :---: | :---: | :---: | :---: | :---: |
| 18373112 | Heat transfer compound for temperature probe | Millenium 3 | AS | 56 |
| 26450100 | Snap-on plate for 35 mm DIN rail | Millenium 3 | Accessory | 60 |
| 26450101 | Mounting bracket | Millenium 3 | Accessory | 60 |
| 79696030 | Thermocouple probe $\mathrm{J}-400^{\circ} \mathrm{C}$ | Millenium 3 | Accessory | 54 |
| 79696031 | Thermocouple probe $\mathrm{J}-600^{\circ} \mathrm{C}$ | Millenium 3 | Accessory | 54 |
| 79696032 | Thermocouple probe $\mathrm{J}-400^{\circ} \mathrm{C}$ | Millenium 3 | Accessory | 54 |
| 79696033 | Thermocouple probe $\mathrm{J}-400^{\circ} \mathrm{C}$ | Millenium 3 | Accessory | 54 |
| 79696034 | Thermocouple probe K $-1100^{\circ} \mathrm{C}$ | Millenium 3 | Accessory | 54 |
| 79696035 | Pt100 probe Class B with stainless steel sheath | Millenium 3 | Accessory | 54 |
| 79696036 | Pt100 probe Class B with stainless steel sheath | Millenium 3 | Accessory | 54 |
| 79696037 | Pt100 probe Class B with aluminium V6 sheath | Millenium 3 | Accessory | 54 |
| 79696038 | Sliding connection $1 / 4$ Ø 3 mm | Millenium 3 | Accessory | 54 |
| 79696039 | Sliding connection $1 / 4 \varnothing 6 \mathrm{~mm}$ | Millenium 3 | Accessory | 54 |
| 79696040 | Sliding connection $1 / 2 \varnothing 3 \mathrm{~mm}$ | Millenium 3 | Accessory | 54 |
| 79696041 | Sub-base 1/4 $\varnothing 12 \mathrm{~mm}$ | Millenium 3 | Accessory | 54 |
| 79696042 | Flange $\varnothing 6 \mathrm{~mm}$ | Millenium 3 | Accessory | 54 |
| 88950105 | PC link cable: USB / DB9 | Millenium 3 Custom | TP | 74 |
| 88950108 | 0-20 mA/0-10 V input signal converter | Millenium 3 | AC | 50 |
| 88950109 | External potentiometer for value adjustment (4700 ohm) | Millenium 3 | EP | 49 |
| 88950112 | PWM/0-10 V output signal converter | Millenium 3 | AC | 50 |
| 88950150 | Temperature converter - Input -20 $\rightarrow+150^{\circ} \mathrm{C}$ | Millenium 3 | AC | 51 |
| 88950151 | Temperature converter - Input -40 $\rightarrow+40^{\circ} \mathrm{C}$ | Millenium 3 | AC | 51 |
| 88950152 | Temperature converter - Input $0 \rightarrow+100^{\circ} \mathrm{C}$ | Millenium 3 | AC | 51 |
| 88950153 | Temperature converter - Input $0 \rightarrow+250^{\circ} \mathrm{C}$ | Millenium 3 | AC | 51 |
| 88950154 | Temperature converter - Input $0 \rightarrow+300^{\circ} \mathrm{C}$ | Millenium 3 | AC | 51 |
| 88950155 | Temperature converter - Input 0 $\rightarrow+600^{\circ} \mathrm{C}$ | Millenium 3 | AC | 51 |
| 88950302 | Regulated switch mode modular power supply | Millenium 3 | PS 24-60 W | 58-59 |
| 88950303 | Regulated switch mode modular power supply | Millenium 3 | PS 24-7.5 W | 58-59 |
| 88950304 | Regulated switch mode modular power supply | Millenium 3 | PS 24-15 W | 58-59 |
| 88950305 | Regulated switch mode modular power supply | Millenium 3 | PS 5-20 W | 58-59 |
| 88950306 | Regulated switch mode modular power supply | Millenium 3 | PS 12-24 W | 58-59 |
| 88950307 | Regulated switch mode modular power supply | Millenium 3 | PS 24-30 W | 58-59 |
| 88950320 | DC/DC converter | Millenium 3 | PS 12-10 W | 57 |
| 88950321 | DC/DC converter | Millenium 3 | PS 24-10 W | 57 |
| 88950400 | Remote LED display | Millenium 3 | RD | 48 |
| 88970001 | Bare board version logic controller | Millenium 3 Custom | NB12 | 71 |
| 88970003 | Bare board version logic controller | Millenium 3 Custom | NB12 | 71 |
| 88970005 | Bare board version logic controller | Millenium 3 Custom | NB12 | 71 |
| 88970011 | Bare board version logic controller | Millenium 3 Custom | NB20 | 71 |
| 88970013 | Bare board version logic controller | Millenium 3 Custom | NB20 | 71 |
| 88970021 | Compact version logic controller without display | Millenium 3 | CB12 | 29 |
| 88970023 | Compact version logic controller without display | Millenium 3 | CB12 | 29 |
| 88970024 | Compact version logic controller without display | Millenium 3 | CB12 | 29 |
| 88970031 | Compact version logic controller without display | Millenium 3 | CB20 | 29 |


| Part numbers | Name | Range name | Type | Pages |
| :---: | :---: | :---: | :---: | :---: |
| 88970033 | Compact version logic controller without display | Millenium 3 | CB20 | 29 |
| 88970034 | Compact version logic controller without display | Millenium 3 | CB20 | 29 |
| 88970041 | Compact version logic controller with display | Millenium 3 | CD12 | 28 |
| 88970042 | Compact version logic controller with display | Millenium 3 | CD12 | 28 |
| 88970043 | Compact version logic controller with display | Millenium 3 | CD12 | 28 |
| 88970044 | Compact version logic controller with display | Millenium 3 | CD12 | 28 |
| 88970045 | Compact version logic controller with display | Millenium 3 | CD12 | 28 |
| 88970051 | Compact version logic controller with display | Millenium 3 | CD20 | 28 |
| 88970052 | Compact version logic controller with display | Millenium 3 | CD20 | 28 |
| 88970053 | Compact version logic controller with display | Millenium 3 | CD20 | 28 |
| 88970054 | Compact version logic controller with display | Millenium 3 | CD20 | 28 |
| 88970055 | Compact version logic controller with display | Millenium 3 | CD20 | 28 |
| 88970080 | Compact starter kit | Millenium 3 | Kit12 | 28 |
| 88970081 | Compact starter kit | Millenium 3 | Kit12 | 28 |
| 88970082 | Compact starter kit | Millenium 3 | Kit20 | 28 |
| 88970083 | Compact starter kit | Millenium 3 | Kit20 | 28 |
| 88970084 | Expandable starter kit | Millenium 3 | Kit26 | 32 |
| 88970085 | Expandable starter kit | Millenium 3 | Kit26 | 32 |
| 88970094 | Expandable starter kit | Millenium 3 Custom | Kit26 | 70 |
| 88970102 | 3 m serial link cable: $\mathrm{PC}=>$ Millenium 3 | Millenium 3 | TP | 44 |
| 88970104 | Millenium 3 => Bluetooth interface (class A 10 m ) | Millenium 3 | TP | 44 |
| 88970106 | Demo case | Millenium 3 | VA | 27 |
| 88970108 | EEPROM memory cartridge | Millenium 3 | TP | 44 |
| 88970109 | 3 m USB link cable: $P C=>$ Millenium 3 | Millenium 3 | TP | 44 |
| 88970110 | Bluetooth => USB adaptor (class A 10 m ) | Millenium 3 | TP | 44 |
| 88970111 | Multilingual programming software (CD-ROM) | Millenium 3 | M3 SOFT | 44 |
| 88970116 | Alarm management software (CD-ROM) | Millenium 3 | M3 ALARM | 44 |
| 88970117 | Modem communication interface | Millenium 3 | M3MOD | 38-39 |
| 88970118 | STN modem | Millenium 3 | STN | 38-39 |
| 88970119 | GSM modem | Millenium 3 | GSM | 38-39 |
| 88970123 | 1.80 m serial link cable: DB9/DB9 | Millenium 3 | TP | 44 |
| 88970131 | Expandable version logic controller without display | Millenium 3 | XB10 | 33 |
| 88970132 | Expandable version logic controller without display | Millenium 3 | XB10 | 33 |
| 88970133 | Expandable version logic controller without display | Millenium 3 | XB10 | 33 |
| 88970134 | Expandable version logic controller without display | Millenium 3 | XB10 | 33 |
| 88970141 | Expandable version logic controller with display | Millenium 3 | XD10 | 32 |
| 88970142 | Expandable version logic controller with display | Millenium 3 | XD10 | 32 |
| 88970143 | Expandable version logic controller with display | Millenium 3 | XD10 | 32 |
| 88970144 | Expandable version logic controller with display | Millenium 3 | XD10 | 32 |
| 88970151 | Expandable version logic controller without display | Millenium 3 | XB26 | 33 |
| 88970152 | Expandable version logic controller without display | Millenium 3 | XB26 | 33 |
| 88970153 | Expandable version logic controller without display | Millenium 3 | XB26 | 33 |
| 88970154 | Expandable version logic controller without display | Millenium 3 | XB26 | 33 |
| 88970155 | Expandable version logic controller without display | Millenium 3 | XB26 | 33 |
| 88970161 | Expandable version logic controller with display | Millenium 3 | XD26 | 32 |
| 88970162 | Expandable version logic controller with display | Millenium 3 | XD26 | 32 |

## Part numbers index

| Part numbers | Name | Range name | Tуре | Pages |
| :---: | :---: | :---: | :---: | :---: |
| 88970163 | Expandable version logic controller with display | Millenium 3 | XD26 | 32 |
| 88970164 | Expandable version logic controller with display | Millenium 3 | XD26 | 32 |
| 88970165 | Expandable version logic controller with display | Millenium 3 | XD26 | 32 |
| 88970211 | Digital termination extension | Millenium 3 | XR06 | 36 |
| 88970213 | Digital termination extension | Millenium 3 | XR06 | 36 |
| 88970214 | Digital termination extension | Millenium 3 | XR06 | 36 |
| 88970215 | Digital termination extension | Millenium 3 | XR06 | 36 |
| 88970221 | Digital termination extension | Millenium 3 | XR10 | 36 |
| 88970223 | Digital termination extension | Millenium 3 | XR10 | 36 |
| 88970224 | Digital termination extension | Millenium 3 | XR10 | 36 |
| 88970225 | Digital termination extension | Millenium 3 | XR10 | 36 |
| 88970231 | Digital termination extension | Millenium 3 | XR14 | 36 |
| 88970233 | Digital termination extension | Millenium 3 | XR14 | 36 |
| 88970234 | Digital termination extension | Millenium 3 | XR14 | 36 |
| 88970235 | Digital termination extension | Millenium 3 | XR14 | 36 |
| 88970241 | Analogue termination extension | Millenium 3 | XA04 | 36 |
| 88970250 | "Sandwich" communication extension | Millenium 3 | XN03 | 34 |
| 88970270 | "Sandwich" communication extension | Millenium 3 | XN05 | 34 |
| 88970310 | 12 I/O removable kit for CD12 or CB12 | Millenium 3 | MA | 44 |
| 88970311 | 20 I/O removable kit for CD20 or CB20 | Millenium 3 | MA | 44 |
| 88970312 | 26 I/O removable kit for XD26 or XB26 | Millenium 3 | MA | 44 |
| 88970313 | Removable connectors (spring terminals) for NBR12 | Millenium 3 Custom | MA | 74 |
| 88970314 | Removable connectors (spring terminals) for NBR26 | Millenium 3 Custom | MA | 74 |
| 88970315 | Removable connectors (spring terminals) for NBR32 | Millenium 3 Custom | MA | 74 |
| 88970316 | Removable connectors (spring terminals) for NBR40 | Millenium 3 Custom | MA | 74 |
| 88970321 | Digital "Sandwich" extension | Millenium 3 | XE10 | 35 |
| 88970323 | Digital "Sandwich" extension | Millenium 3 | XE10 | 35 |
| 88970324 | Digital "Sandwich" extension | Millenium 3 | XE10 | 35 |
| 88970410 | Remote LCD screen/keypad | Millenium 3 | RD | 47 |
| 88970411 | Remote LCD screen/keypad + 4 function keys | Millenium 3 | RD | 47 |
| 88970412 | Kit with Remote LCD screen/keypad + Cable | Millenium 3 | RD | 47 |
| 88970413 | Kit with Remote LCD screen/keypad + 4 function keys + Cable | Millenium 3 | RD | 47 |
| 88970421 | Runtime kit with three-colour alphanumeric screen | Millenium 3 | RD | 46 |
| 88970422 | Runtime kit with monochrome alphanumeric screen | Millenium 3 | RD | 46 |
| 88970800 | 3 Pt 100 "application-specific" analogue extension | Millenium 3 Custom | XA03 | 76-77 |
| 88970808 | Kit 20 (CD20-24V DC + 24 VDC + 60W power supply) | Millenium 3 Custom | Kit 20 | 70 |
| 88970809 | IP40 front panel adaptor for CD12 or CB12 | Millenium 3 | MA | 45 |
| 88970810 | IP40 front panel adaptor for CD20 or CB20 | Millenium 3 | MA | 45 |
| 88970813 | Kit 32 (XD26-24V DC + XR06 + 24V DC 60W power supply) | Millenium 3 Custom | Kit 32 | 70 |
| 88970814 | Expandable version logic controller with display | Millenium 3 | XD26 | 32 |
| 88970825 | Kit 16 (XD10-24V DC + XN05 + 24V DC 30W power supply) | Millenium 3 Custom | Kit 16 | 70 |
| 88970840 | Compact version logic controller without display | Millenium 3 | CB12 | 29 |
| 88970844 | Programming kit with monochrome alphanumeric screen | Millenium 3 | RD | 46 |
| 88970849 | Programming kit with three-colour alphanumeric screen | Millenium 3 | RD | 46 |
| 88972250 | "Sandwich" communication extension | Millenium 3 | XN06 | 34 |
| 88972805 | pH/ORP "application-specific" analogue extension | Millenium 3 Custom | XA04W | 76-77 |


| Part numbers | Name | Range name | Type | Pages |
| :---: | :---: | :---: | :---: | :---: |
| 88973001 | Resin version logic controller | Millenium 3 Custom | NBR12 | 74-75 |
| 88973002 | Resin version logic controller | Millenium 3 Custom | NBR12 | 74-75 |
| 88973061 | Resin version logic controller | Millenium 3 Custom | NBR26 | 74-75 |
| 88973062 | Resin version logic controller | Millenium 3 Custom | NBR26 | 74-75 |
| 88973063 | Resin version logic controller | Millenium 3 Custom | NBR26 | 74-75 |
| 88973211 | Resin version logic controller | Millenium 3 Custom | NBR32 | 74-75 |
| 88973231 | Resin version logic controller | Millenium 3 Custom | NBR40 | 74-75 |
| 88974021 | Compact version logic controller without display | Millenium 3 Custom | CB12 | 72-73 |
| 88974023 | Compact version logic controller without display | Millenium 3 Custom | CB12 | 72-73 |
| 88974024 | Compact version logic controller without display | Millenium 3 Custom | CB12 | 72-73 |
| 88974031 | Compact version logic controller without display | Millenium 3 Custom | CB20 | 72-73 |
| 88974033 | Compact version logic controller without display | Millenium 3 Custom | CB20 | 72-73 |
| 88974034 | Compact version logic controller without display | Millenium 3 Custom | CB20 | 72-73 |
| 88974041 | Compact version logic controller with display | Millenium 3 Custom | CD12 | 72-73 |
| 88974042 | Compact version logic controller with display | Millenium 3 Custom | CD12 | 72-73 |
| 88974043 | Compact version logic controller with display | Millenium 3 Custom | CD12 | 72-73 |
| 88974044 | Compact version logic controller with display | Millenium 3 Custom | CD12 | 72-73 |
| 88974045 | Compact version logic controller with display | Millenium 3 Custom | CD12 | 72-73 |
| 88974051 | Compact version logic controller with display | Millenium 3 Custom | CD20 | 72-73 |
| 88974052 | Compact version logic controller with display | Millenium 3 Custom | CD20 | 72-73 |
| 88974053 | Compact version logic controller with display | Millenium 3 Custom | CD20 | 72-73 |
| 88974054 | Compact version logic controller with display | Millenium 3 Custom | CD20 | 72-73 |
| 88974055 | Compact version logic controller with display | Millenium 3 Custom | CD20 | 72-73 |
| 88974131 | Expandable version logic controller without display | Millenium 3 Custom | XB10 | 72-73 |
| 88974132 | Expandable version logic controller without display | Millenium 3 Custom | XB10 | 72-73 |
| 88974133 | Expandable version logic controller without display | Millenium 3 Custom | XB10 | 72-73 |
| 88974134 | Expandable version logic controller without display | Millenium 3 Custom | XB10 | 72-73 |
| 88974141 | Expandable version logic controller with display | Millenium 3 Custom | XD10 | 72-73 |
| 88974142 | Expandable version logic controller with display | Millenium 3 Custom | XD10 | 72-73 |
| 88974143 | Expandable version logic controller with display | Millenium 3 Custom | XD10 | 72-73 |
| 88974144 | Expandable version logic controller with display | Millenium 3 Custom | XD10 | 72-73 |
| 88974151 | Expandable version logic controller without display | Millenium 3 Custom | XB26 | 72-73 |
| 88974152 | Expandable version logic controller without display | Millenium 3 Custom | XB26 | 72-73 |
| 88974153 | Expandable version logic controller without display | Millenium 3 Custom | XB26 | 72-73 |
| 88974154 | Expandable version logic controller without display | Millenium 3 Custom | XB26 | 72-73 |
| 88974155 | Expandable version logic controller without display | Millenium 3 Custom | XB26 | 72-73 |
| 88974161 | Expandable version logic controller with display | Millenium 3 Custom | XD26 | 72-73 |
| 88974162 | Expandable version logic controller with display | Millenium 3 Custom | XD26 | 72-73 |
| 88974163 | Expandable version logic controller with display | Millenium 3 Custom | XD26 | 72-73 |
| 88974164 | Expandable version logic controller with display | Millenium 3 Custom | XD26 | 72-73 |
| 88974165 | Expandable version logic controller with display | Millenium 3 Custom | XD26 | 72-73 |
| 89210001 | Capacitive pressure transmitter: Relative 0 to 0.25b | Millenium 3 | AS | 52-53 |
| 89210002 | Capacitive pressure transmitter: Relative 0 to 1b | Millenium 3 | AS | 52-53 |
| 89210003 | Capacitive pressure transmitter: Relative 0 to 2.5b | Millenium 3 | AS | 52-53 |
| 89210004 | Capacitive pressure transmitter: Relative 0 to 10b | Millenium 3 | AS | 52-53 |
| 89210005 | Capacitive pressure transmitter: Relative 0 to 25b | Millenium 3 | AS | 52-53 |

## Part numbers index

| Part numbers | Name | Range name | Type | Pages |
| :---: | :---: | :---: | :---: | :---: |
| 89210006 | Capacitive pressure transmitter: Relative 0 to 60b | Millenium 3 | AS | 52-53 |
| 89210007 | Capacitive pressure transmitter: Absolute 0 to 1b | Millenium 3 | AS | 52-53 |
| 89210008 | Capacitive pressure transmitter: Absolute 0 to 2.5b | Millenium 3 | AS | 52-53 |
| 89210009 | Capacitive pressure transmitter: Absolute 0 to 10b | Millenium 3 | AS | 52-53 |
| 89210010 | Capacitive pressure transmitter: Absolute 0 to 25b | Millenium 3 | AS | 52-53 |
| 89210011 | Capacitive pressure transmitter: Absolute 0 to 100b | Millenium 3 | AS | 52-53 |
| 89450110 | Regulated switch mode equipment power supply | Millenium 3 | 89450 without PFC | 60-61 |
| 89450122 | Regulated switch mode equipment power supply | Millenium 3 | 89450 with PFC | 60-61 |
| 89450210 | Regulated switch mode equipment power supply | Millenium 3 | 89450 without PFC | 60-61 |
| 89450221 | Regulated switch mode equipment power supply | Millenium 3 | 89450 without PFC | 60-61 |
| 89450222 | Regulated switch mode equipment power supply | Millenium 3 | 89450 with PFC | 60-61 |
| 89450231 | Regulated switch mode equipment power supply | Millenium 3 | 89450 without PFC | 60-61 |
| 89450232 | Regulated switch mode equipment power supply | Millenium 3 | 89450 with PFC | 60-61 |
| 89450241 | Regulated switch mode equipment power supply | Millenium 3 | 89450 without PFC | 60-61 |
| 89450242 | Regulated switch mode equipment power supply | Millenium 3 | 89450 with PFC | 60-61 |
| 89750146 | Copper protective sleeve for temperature probe | Millenium 3 | AS | 56 |
| 89750147 | Stainless steel 316 protective sleeve for temperature probe | Millenium 3 | AS | 56 |
| 89750150 | Room temperature transmitter | Millenium 3 | AS | 56 |
| 89750151 | Ventilation duct temperature transmitter | Millenium 3 | AS | 56 |
| 89750152 | Outdoor temperature transmitter | Millenium 3 | AS | 56 |
| 89750153 | Remote/submersible temperature transmitter | Millenium 3 | AS | 56 |
| 89750155 | Remote/submersible temperature transmitter | Millenium 3 | AS | 56 |
| 89750160 | IP67 sealed faceplate adaptor (76.5 mm) | Millenium 3 | MA | 45 |
| 89750161 | IP67 sealed faceplate adaptor ( 147.5 mm ) | Millenium 3 | MA | 45 |
| 89750162 | IP67 sealed faceplate adaptor ( 248.5 mm ) | Millenium 3 | MA | 45 |
| 89750170 | pH BNC probe | Millenium 3 Custom | AS | 78 |
| 89750171 | pH ferrules probe | Millenium 3 Custom | AS | 78 |
| 89750172 | ORP BNC probe | Millenium 3 Custom | AS | 78 |
| 89750173 | ORP ferrules probe | Millenium 3 Custom | AS | 78 |
| 89750180 | 24 V DC NTC probe for Millenium 3 (pack of 10) | Millenium 3 | AS | 79 |
| 89750181 | 24 V DC NTC probe for Millenium 3 (pack of 100) | Millenium 3 | AS | 79 |

## $\sim$ <br> Crouzet



Headquartered in Moorpark, California-USA, Custom Sensors \& Technologies (CST) is made up of the leading brands of Crouzet, Kavlico and Crydom, as well as the former divisions of BEI Technologies, including Newal and Systron Donner. CST provides sensors, controls, and actuation products to the transportation, industrial, and aerospace \& defense markets.
www.cstsensors.com

Distributed by: $\square$

Crouzet Automatismes SAS
2 rue du Docteur Abel - BP 59
6902 Valence CEDEX 9
FRANCE
www.crouzet.com

AMERICA

## Cl brazil

CST Latinoameric
Alameda Rio Negro,
1.084 - Cj.A31

Centro Empresarial de Alphaville CEP: 06454-000 Barueri - SP BRASIL
Tel. : +55 (11) 41919797
Fax : 55 (11) 41919136
E-mail : infoccst-latinoamerica.com www.crouzet.com.br

## -II mexico

Automatismo Crouzet S.A.
de C.V
Calzada Zavaleta 2505 - C
ol Sta Cruz Buenavista
C.P. 72150 - Puebla

MEXICO
Tel. : +52 (222) 4097000 Fax : +52 (222) 4097810
018000876333
E-mal: info-crouzet.mexicana@us.crouzet.com ww.crouzet.com

## [ \| USA/CANADA

Crouzet North America
204 Airline Drive, suite 300
75019 Coppell Texas
USA
Tel. : +1 (800) 6775311
Fax : +1 (972) 4712560 E-mail :customersenice@us.rouzet.com www.crouzet-usa.com

## OTHER COUNTRIES

## Crouzet do Brasil Ltda

Rua Gal. Furtado Nascimento,
740 - sala 77
Alto de Pinheiros / 05465-070
São Paulo - SP
BRASIL
Tel. : +55 (11) 30269008 Fax: +55 (11) 30269009 E-mail : crz-infobrasi@crouzet.com www.crouzet.com.b

## EUROPE <br> MIDDLE EAST AFRICA

## AUSTRIA

Crouzet GmbH
Zweigniederlassung Österreich
Spengergasse 1/3
1050 Wien
ÖSTERREICH
Tel. : +43 (0) 13685471 Fax : +43 (0) 13685472 E-mail : info-direkt@crouzet.com E-mair: info-direkt

## -Il belgium

Crouzet NVISA
Dieweg 3 B
B - 1180 Uccle
BELGIUM
BELGIUM
Tel. : +32
Tel. : +32 (0) 24620730
Fax : +32 (0) 24610023
E-mail : com-be@crouzet.com www.crouzet.be

## IIfrance

Crouzet Automatismes SAS
2 rue du Docteur Abel - BP 59
26902 Valence CEDEX 9
FRANCE
Tel. : +33 (0) 475448844
Fax : +33 (0) 475559803
E-mail : com-fr@crouzet.com www.crouzet.fr

## Customer service

©N"Indigo 0825333350
(1) NoAzur Fax) 0810610102

## GERMANY

## Crouzet GmbH

Otto-Hahn-Str 3,40721 Hilden Postfach 203, 40702 Hilden Postach 203, 40
E-mail : info-direkt@
E-mail : info-direkt@crouzet.com www.crouzet.de

## Customer service

Tel. : +49 (0) 21039 80-108/176 Fax : +49 (0) 21039 80-250 E-mail : info-direkt@crouzet.com

## II Italy

Crouzet Componenti s.r.I.
Via Viganò De Vizzi, 93/95 20092 Cinisello Balsamo (Mi) ITALIA
Tel. : +39 (02) 66599220
Fax : +39 (02) 66599228
E-mail : Crz-it-microcontro@@crouzet.com www.crouzet.it

## [ 5

SPAIN/PORTUGAL

## Crouzet Iberica

C/ Aragón 224, $2^{\circ} 2^{\text {a }}$
08011 Barcelona
ESPAÑA
Tel. : +34 (93) 4843970
Fax : +34 (93) 4843973
E-mail : es-consultas@crouzet.es www.crouzet.es

## n THE NETHERLANDS

## Crouzet BV

Industrieweg 17
2382 NR Zoeterwoude
NEDERLAND
Tel. : +31 (0) 71-581 2030
Fax : +31 (0) 71-541 3574
E-mail : com-n@@crouzet.com www.crouzet.nl

## N UNITED KINGDOM

## Crouzet Ltd

Intec 3 Wade Road
Basingstoke Hampshire
RG24 8NE
UNITED KINGDOM
Tel. : +44 (0)1256 318900
Fax : +44 (0)1256 318901
E-mail : info@crouzet.co.uk
www.crouzet.co.uk

## SWITZERLAND

## Crouzet AG

Gewerbepark - Postfach 56
5506 Mägenwi
SCHWEIZ
Tel. : +41(0) 628873030
Fax : +41(0) 628873040
E-mail : info-direkt@crouzet.com www.crouzet.ch
(*) OTHER COUNTRIES
Crouzet Automatismes SAS
2 rue du Docteur Abel - BP 59 26902 Valence CEDEX 9 FRANCE
Tel. : +33 (0) 475802102
Fax : +33 (0) 475448126
E-mail : com-ex@crouzet.com
www.crouzet.com

## ASIA <br> PACIFIC

CHINA \& HONG-KONG
Custom Sensors \&
Technologies Asia
(Shanghai) Limited
2 Floor, Innovation Building
No. 1009, Yi Shan Road
Shanghai 200233
CHINA
Tel. : +86 (21) 24017766
Fax : +86 (21) 62490701
E-mail : com-cn@cn.crouzet.com
www.crouzet.cn

## INDIA

Crouzet India
Prestige Meridian 1
No. 30, 13th Floor,
Unit No: 1301 \& 1302
Mahatma Gandhi Road
Bangalore 560001
INDIA
Tel.: +91 (0) 80 41132204/05
Fax : +91 (80) 41132206 E-mail: crz bangalore@crouret.com www.crouzet.co.in

## TAIWAN

Custom Sensors \&
Technologies
3F, No. 39, Ji-Hu Road
Nei-Hu Dist. - Taipei 114 TAIWAN
Tel. : +886 287516388
Fax : +886 226578725 E-mail : com-tw@tw.crouzet.com www.crouzet.tw

## SOUTH KOREA

Custom Sensors \&

## Technologies

5F, Jeil Bldg
94-46 Youngdeungpo-dong
7 - ga Youngdeungpo-gu
Seoul, 150-037
SOUTH KOREA
Tel. : +82 226298312
Fax : +82 226298310
E-mail : com-tw@tw.crouzet.com
www.crouzet.com

## OTHER ASIAN \&

PACIFIC COUNTRIES
Custom Sensors \&
Technologies
3F, No. 39, Ji-Hu Road
Nei-Hu Dist. - Taipei 114
TAIWAN
Tel. : +886 287516388
Fax : +886 226578725
E-mail : com-tw@tw.crouzet.com
www.crouzet.com

Warning
The product information contained in this catalogue is given purely as information and does not constitute a representation, warrantly or any form of contractual commitment. CROUZET Automatismes and its subsidiaries reserve the right to modify ther products without notice. It is imperative tha we should be consuted over any particula the responsability of the buyer to establish, particularly through all the appropriate tests, that the product is suitable for the use or application. Under no circumstances wi
our warranty apply nor shall we be held our warranty apply, nor shall we be held
responsible for any application (such as any modification, addition, deletion, use in conjunction with other electrical or electronic components, circuits or assemblies, or any other unsuitable matenial or substance) which
has not been expressly agreed by us prior to
the sale of our products.

Creation-Design: Communication Crouze
Editing-Publishing: Link to Business, 3C Evolution, Axess Photos-Graphics: Daniel Lattard, Schneider Electric, Ginko Printing: Imprimerie des Deux Ponts

## Стандарт Злектрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию.

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России, а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научноисследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:
Телефон: +7 8126271435
Электронная почта: sales@st-electron.ru
Адрес: 198099, Санкт-Петербург, Промышленная ул, дом № 19, литера H, помещение 100-Н Офис 331


[^0]:    ■ Direct-read potentiometer (controlled externally) Ø 22 mm

    - IP65 degree of protection on front panel
    - Directly compatible with the "Potentiometer" parameter of an analogue input on the Millenium 3

[^1]:    - 2 or 3-wire Pt 1000 inputs
    - Adjustable temperature range
    - Option to select/limit the number of temperature, Pt100 and Pt1000 inputs (up to 3)
    $\square$ Option to mix and/or choose inputs (Pt100, pH, ORP, 4-20 mA, 0-10 V)
    - Modified resolution (10 bits, 12 bits)

    Bare board version

    - Resin casing version
    - Customer labelling

