Millenium 3

➜ Smart range starter kits

■ **Each standard kit includes:**
- 1 Millenium 3 Smart (CD12, CD20 or XD26)
- 1 USB link cable: PC → Millenium 3
- 1 interactive CD ROM including the software workshop, application library and technical brochures, the library of specific functions

Part numbers

Type	Input	Output	Supply	Code
Kit 12	8 digital (including 4 analog)	4 relays 8 A	24 V ⎓	88974080
	8 digital	4 relays 8 A	100 → 240 V ∿	88974081
Kit 20	12 digital (including 6 analog)	8 relays 8 A	24 V ⎓	88974082
	12 digital	8 relays 8 A	100 → 240 V ∿	88974083
Kit 26	16 digital (including 6 analog)	10 relays (8 x 8 A relay and 2 x 5 A relay)	24 V ⎓	88974084
	16 digital	10 relays (8 x 8 A relay and 2 x 5 A relay)	100 → 240 V ∿	88974085

➜ Standard Smart and Essential product kits

Part numbers

Type	Description	Code
Kit 16	XD10 Essential - 24 V ⎓ (Ref. 88970141) + XN05 (Ref. 88970270) + 1 Power supply PS24-30 W (Ref. 88950307)	88970825
Kit 20	CD20 Essential - 24 V ⎓ (Ref. 88970051) + 1 Power supply PS24-60 W (Ref. 88950302)	88970808
Kit 26	XD26 Smart - 24 V ⎓ (Ref. 88974161) + M3 Soft (Ref. 88970111) + Power supply PS24-30W (Ref. 88950307) + USB link cable (Ref. 88970109)	88970094
Kit 32	XD26 Essential - 24 V ⎓ (Ref. 88970161) + XR06 (Ref. 88970211) + 1 Power supply PS24-60 W (Ref. 88950302)	88970813

➜ Democase Millenium 3 Smart

■ **Quickly demonstrates the strengths of Millenium 3 Smart**
■ **Rapid Start Up of the Millenium 3**
■ **Useful for training and demonstrations**
■ **Shipped with a demonstration program installed**

Part numbers

Type	Description	Code
DEMO	Democase Millenium 3 Smart	88974106

Comments

The democase consists of:
- 88974042: CD12 Smart: 8xDI (incl. 4xAI) 4xDO 0.5A 24 V ⎓ (incl. 1 PWM)
- 89750180 NTC1 probe: 10 KOhm @ 25°C, -25 → +85 °C (FB: CTN1)
- 89750183: LDR1 probe: 10 → 3000 Lux
- 88970109: USB 3 m cable
- 88970111: M3 Soft (CD-ROM)
- Input Output Simulator (Switches, Potentiometer, LED)
- Power supply 110V -230 V ∿ with Europe & US adaptor
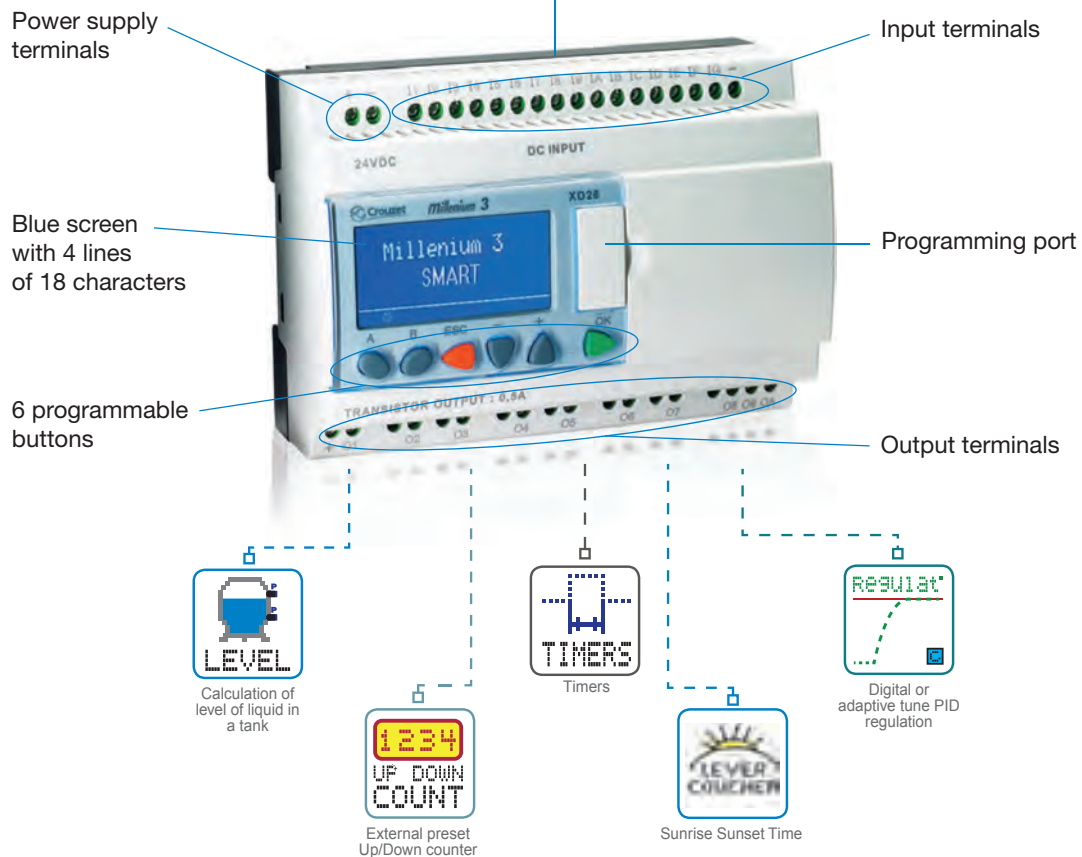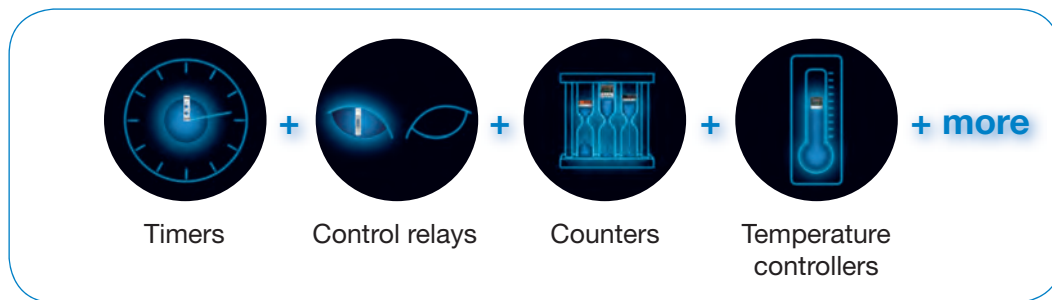- Demonstration program factory installed
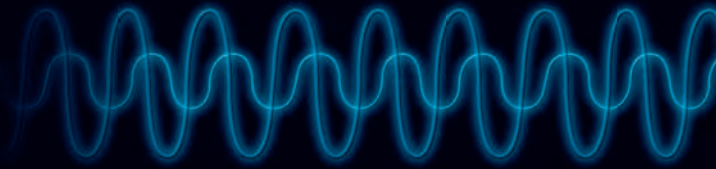
Crouzet Automation Logic Controllers

Millenium 3, concentrated performance

The **Millenium 3 Smart** logic controller is a programmable logic controller which enables the control and monitoring of machines or automation installations with up to 50 I/O.

Timers   +   Control relays   +   Counters   +   Temperature controllers   + more

Power supply terminals

Input terminals

Blue screen with 4 lines of 18 characters

Programming port

6 programmable buttons

Output terminals

LEVEL — Calculation of level of liquid in a tank

UP DOWN COUNT 1234 — External preset Up/Down counter

TIMERS — Timers

LEVER COUCHER — Sunrise Sunset Time

Regulat — Digital or adaptive tune PID regulation

To tackle simpler applications that still require a powerful logic controller, Crouzet Automation offers the Millenium 3 **"Essential"** range. The 12 VDC or 24 VDC Millenium 3 Essential range includes a variety of versions and is compatible with a large range of accessories. It is the right solution for simple needs.

Crouzet Automation Logic Controllers

The Millenium 3 Smart range

- **Multiple configuration options** derived from an extensive product range with numerous accessories

- **Simplified connectivity** making integration of communication systems easy

- **Easy implementation** supported by free, user-friendly programming software (M3 Soft)

- **Application-specific solutions** thanks to dedicated and easy to use specific function blocks

- **Enhanced visibility** on the display with high contrast, blue back lit LCD screen

Expandable versions

XD26	XB26	XD10	XB10	Expandable kit

Compact versions

CD20	CB20	CD12	CB12	Compact kit

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Crouzet Automation Logic Controllers
Extensive Connectivity Options

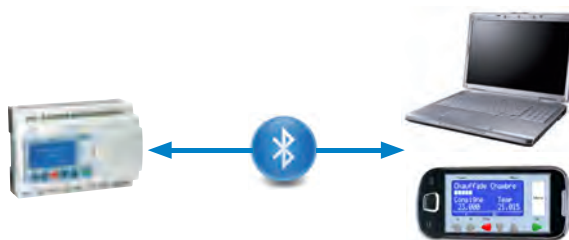### Solutions with close proximity to your installation

Millenium 3 Virtual Display - Bluetooth® or USB

Your requirements

- **Viewing** setpoints on a panel less than 10 m away
- **Changing and modifying** setpoints
- **Locating the** Millenium 3 **display unit** remotely
- **Reading** counters in the vicinity

See also page 48

Our solution

Main functions

- **Remote viewing** of the Millenium 3 **display unit**
  - on an Android smartphone via Bluetooth®
  - on a PC via Bluetooth® or USB
- **Display/modification** of program setpoints
- Access to a **virtual panel** (Millenium 3 without display unit)

In summary

- **Bluetooth® interface** (10 m): Millenium 3 accessory
- Two versions: **Lite** (ESC/ENTER buttons disabled) & **Standard**

MTP programmable touch panels - RS232 cable

Your requirements

- **Displaying** data on a graphic panel
- **Modifying setpoints** from the touch panel
- **Taking control of the** remote panel from a distance

See also page 49

Our solution

VNC link (1)

Option

(1) VNC: Virtual Network Computing. Allows a device to be controlled remotely.

Main functions

- **Supervision** of your installation
- **Use** of Millenium 3 internal data, processing alarms and recipes
- **Display** of text, data, graphics, animations
- **Archiving** of data
- **Customization** of interfaces (picture library)
- **Remote control** of panel

In summary

- **Storage**: 128 MB flash memory, SD card and USB key
- **Direct communication** using the Millenium 3 programming port
- **Programmable** with EB software (compatible with Windows 2000/XP/Vista/7)
- **Extensive connectivity**

Local Area Network (LAN) solutions

Programmable touch panels and communication extensions – Modbus networks

Your requirements

- **Managing a group of machines** or an installation on a local area network
- **Centralizing** data
- **Displaying** data on a graphic panel
- **Modifying setpoints** from the panel
- Accessing the system locally **in real time**

See also page 23 and 49

Our solution
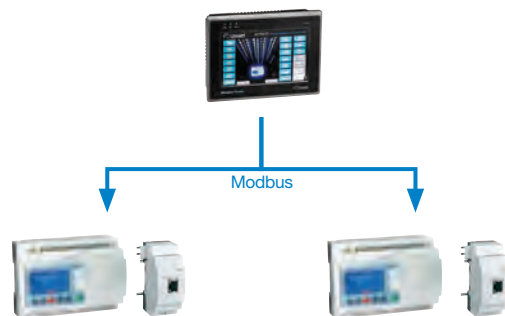
Modbus

Main functions

- See MTP programmable touch panels solution
- **Management** and **centralizing** of data in a single place
- **Display** of Millenium 3 program values
- **Remote** setpoint **modification**

In summary

- MTP panel **Modbus master**
- XN05 extension: **Modbus Ethernet TCP/IP**
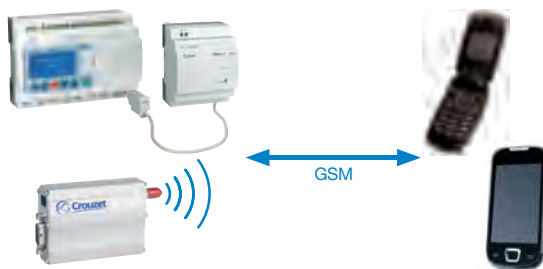- XN06 extension: **Modbus RS485 RTU**

Wide Area Network (WAN) solutions

M3MOD - GSM modem communication interface

Your requirements

- Receiving **remote early warning** of an event
- **Consulting a value** or an internal state
- **Occasionally modifying** setpoints

See also page 55

Our solution

GSM

Main functions

- **Automatic notification** of alarms via SMS
- Input and output states, as well as all program values, **can be polled and controlled remotely**
- **Reports** can be produced using the available variables
- Management of **telephone contacts**

In summary

- Reliable **plug & play** solution that is simple to install
- Solution managed using **M3 Soft** software
- Option **to send SMS messages** via a telecom operator service

Remote management solutions with HMS(2) - Cloud

Your requirements

- **Supervising and monitoring** installations with up to 50 remote I/O
- Managing **an installed base of machines**
- Accessing your data remotely, **24/7**
- Optimizing your **maintenance operations**

Our solution

Millenium 3
Netbiter EC220

Millenium 3
Netbiter EC150

Modbus

GPRS

Internet (via router or ADSL box)
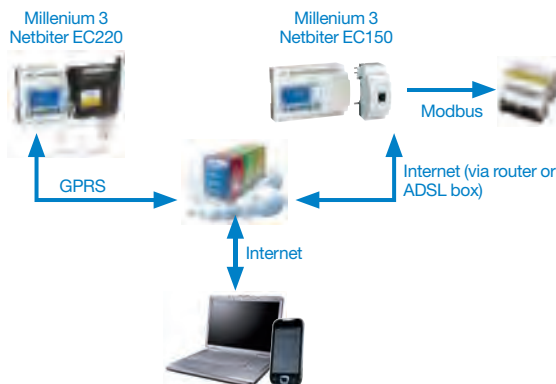
Internet

Main functions

- **Remote control** of an automated application
- **Display** of Millenium 3 program parameters and values **via the internet**
- **Remote** setpoint **modification**
- **Data logging**
- Management of **events** sent **via emails or SMS**

In summary

- **Direct communication** between Netbiter and Millenium 3 via the SLin/SLout protocol or via Modbus
- **GPRS**: SIM card procured via HMS
- **Cloud solution**: secure remote server
- **Easy** to set up and use
- **Several Millenium 3** can be connected via Modbus

(2) Partnership solutions with the HMS company, validated by Crouzet Automation and HMS. Information relating to the products has been provided by the supplier of each product respectively, and they are wholly responsible for its accuracy in addition to supplying and providing backup for their products.

Communication extensions - Modbus RS485 or Modbus Ethernet TCP/IP

Your requirements

- **Managing a group of machines** or an installation on a local area network
- **Centralizing** data
- Accessing the system locally **in real time**

See also page 23

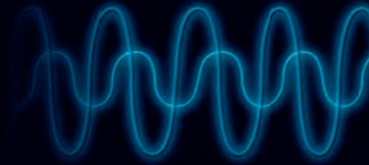**Our solution**
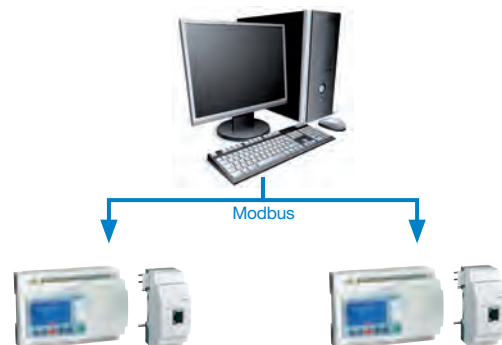
Modbus

Main functions

- Can be **combined with distributed automation**
- Management and **centralizing of data** in a single place
- **Display** of Millenium 3 program values
- **Remote** setpoint **modification**

In summary

- Uses **Modbus protocol**
- XN05 extension: **Modbus Ethernet TCP/IP**
- XN06 extension: **Modbus RS485 RTU**
- **Compatible** with standard supervisors

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M3 Soft software

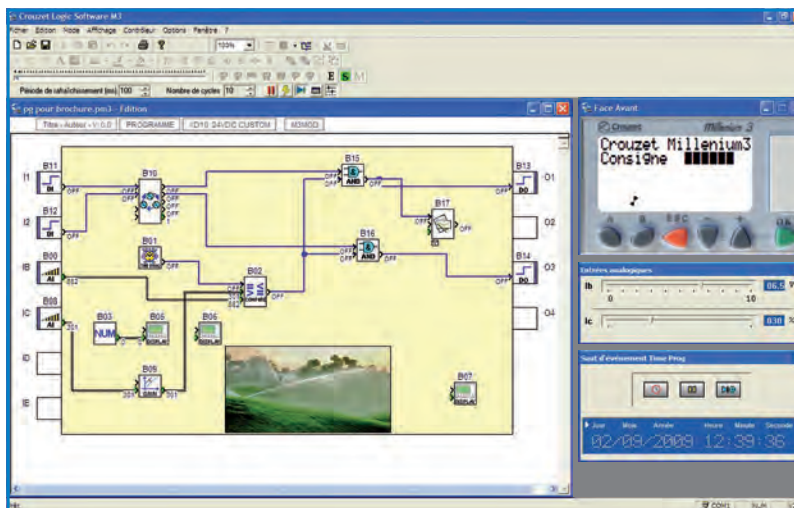## Crouzet Automation Logic Controllers

Millenium 3 and M3 Soft

The M3 Soft is a **high-performance** software platform used to program the Millenium 3 logic controller and **optimize** design times.

Free

The Millenium 3 programming software (M3 Soft) can be **downloaded free of charge** from the Crouzet website

- Blocks can be wired in wiring mode or text mode
- Move one or more blocks without disconnecting the wires
- Choice of programming language
- Clear work area
- Customized password protection

Simple

- **Quick, simple and intuitive programming** requires no specialist knowledge
- Self-teaching made easier thanks to a **user-friendly online help guide** and programming examples
- A **simulation mode** that **consistently represents** controller operation

Powerful

- A complete range of **basic functions**: counting, timing, comparison, display, logic, gain, sin/cos, etc are also available
- A wide range of **dedicated functions:** pump rotation, PID regulation, movement, pressure, level, water ratio, solar tracking, and flow

User-friendly and ergonomic

- Software available in **5 languages:** English, French, Italian, German and Spanish
- Function block **programming** is **fun** and **very visual**
- **Blocks simply organized** by function for quick access
- **Help** associated with each function block accessible **at the click of a button**
- Programming langages: **FBD** (Function Bloc Diagram) and **SFC** (Sequential Function Chart/Grafcet) or **LD** (Ladder Diagram)

User-definable and effective

- Possibility of creating and saving **custom macros** in the macro tab allowing the user to simplify programs and utilize their expertise
- Possibility of protecting macros by locking them with a password for **greater security**
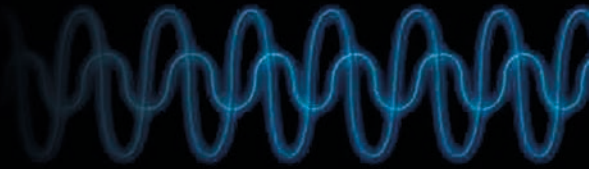
Accessories

Crouzet Automation Logic Controllers

Accessories

Sensors, power supplies, converters, remote screens and communication accessories offer solutions to control your automation systems with the greatest ease of use.

Sensors

NTC temperature probes

Light sensor

Ventilation duct temperature sensor

Potentiometer

Accessories

Ambient temperature sensor

Memory cartridge

Power supplies

Power supplies from 7.5 to 240 W 5, 12 or 24 V

Bluetooth® interface

Communication solutions

Temperature and current/voltage converters

STN and GSM modems

Converters

Programmable touchpanels

Remote screens

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Applications

Crouzet Automation Logic Controllers

Where are they found?

Building Equipment

Access Control

Opening control for doors

Control opening and closing of doors and other associated security devices for restricting access; synchronization between the various doors

BOOLEAN

BOOLEAN OR LOGIC
Create logic equations between the connected inputs

Automatic barriers

Control barriers with automatic detection of vehicles. Function for selecting opening times / days.

1234 PRESET COUNT | **TIME PROG**

UP/DOWN COUNTER
Up/Down counter with external preset

HVAC

Heat pump

Management of various parameters such as heating, cooling, fluid temperatures, operation, calendar-based function, frost protection mode, alarm management, etc

TIME PROG

WATER RATIO
Water temperature control

CLOCK
Weekly and yearly time programmer

Air treatment plant

Maintaining forced air at the correct temperature

CTN1 °C | **Regulat°** | **GAIN**

NTC1
Temperature measurement

REGULATION
Analog PID regulation

GAIN
Conversion of an analog value by changing the scale and datum point

Building Automation

Solar water heating

Automation of operation and heating regulation, remote management of the installation

Regulat°
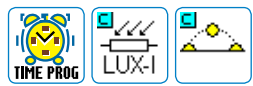
TEMPERATURE CONTROL
(pressure or other)

Illuminated signs

Managing flashing on illuminated signs

TIME PROG | **LUX-I** |

WEEKLY TIME PROGRAMMER
Programming of time slots during which it will be possible to execute actions

LUX-I
Measurement of the light level

TWILIGHT
Calculation of the sunrise and sunset times

Infrastructure and Energy

Fluid management

Swimming pools, fountains, spas

Managing circulation pumps, monitoring levels, temperature and conductivity of the water

FILTRATION
Filtration duration settings depending on the water temperature

Irrigation/Sprinklers

Irrigation control based on temperature, humidity, and day/night cycle

PUMP MANAGEMENT
Pump rotation function

Water treatment

Reverse osmosis

Circulation pumps management, supervision of flow pressure and temperature of osmosis processed water

FLOW
Calculation of the flow of a liquid in a pipe

CTN
Temperature measurement (-35 to +120 °C)

Pump management

Circulation pumps management, supervision of levels and pressure

GAIN
Conversion of an analog value by changing the scale and datum point

LEVEL
Calculation of the level of liquid in a tank

Industrial OEMs

Packing machines

Stretch wrapping machines

Controlling the motor that unrolls the packing film. Controls cutting of the film after heat sealing and monitors the duration of the motor cycles

GRAFCET SFC FUNCTIONS
For sequential automation systems (Sequential Function Chart)

TIMERS (TEMPORISATEURS)
A/C function - BW function - B/H function - Li/L function

Packaging

Controlling heat sealing times on blister packs, packaging bags, etc

HIGH SPEED COUNT
Counting of pulses

AND
Logical AND with 2 inputs

Other typical applications:
Medical, Solar, Agricultural Equipment, Transportation, Hoisting, Handling…

Millenium 3 range

Type		Part number	Supply	Inputs	Outputs	Available in 12 V ⎓	Available in 24 V ∼	Available with Solid State Output 0.5 A/PWM	Available in / compatible with the Essential version **	Page
M3 Smart kits	Kit 12 Smart*	88 974 080	24 V ⎓	8 (4 configurable as analog)	4 relays 8 A					14
	Kit 12 Smart*	88 974 081	100 ⇨ 240 V ∼	8	4 relays 8 A					14
	Kit 20 Smart*	88 974 082	24 V ⎓	12 (6 configurable as analog)	8 relays 8 A					14
	Kit 20 Smart*	88 974 083	100 ⇨ 240 V ∼	12	8 relays 8 A					14
	Kit 26 Smart*	88 974 084	24 V ⎓	16 (6 configurable as analog)	8 relays 8 A and 2 relays 5 A					14
	Kit 26 Smart*	88 974 085	100 ⇨ 240 V ∼	16	8 relays 8 A and 2 relays 5 A					14
Compact versions With display	CD12 Smart*	88 974 041	24 V ⎓	8 (4 configurable as analog)	4 relays 8 A	•		•	•	15
	CD12 Smart*	88 974 043	100 ⇨ 240 V ∼	8	4 relays 8 A		•			15
	CD20 Smart*	88 974 051	24 V ⎓	12 (6 configurable as analog)	8 relays 8 A	•		•	•	15
	CD20 Smart*	88 974 053	100 ⇨ 240 V ∼	12	8 relays 8 A		•			15
Without display	CB12 Smart*	88 974 021	24 V ⎓	8 (4 configurable as analog)	4 relays 8 A	•			•	16
	CB12 Smart*	88 974 023	100 ⇨ 240 V ∼	8	4 relays 8 A		•			16
	CB20 Smart*	88 974 031	24 V ⎓	12 (6 configurable as analog)	8 relays 8 A	•			•	16
	CB20 Smart*	88 974 033	100 ⇨ 240 V ∼	12	8 relays 8 A		•			16
Expandable versions With display	XD10 Smart*	88 974 141	24 V ⎓	6 (4 configurable as analog)	4 relays 8 A	•		•	•	17
	XD10 Smart*	88 974 143	100 ⇨ 240 V ∼	6	4 relays 8 A		•			17
	XD26 Smart*	88 974 161	24 V ⎓	16 (6 configurable as analog)	8 relays 8 A and 2 relays 5 A	•		•	•	17
	XD26 Smart*	88 974 163	100 ⇨ 240 V ∼	16	8 relays 8 A and 2 relays 5 A		•			17
Without display	XB10 Smart*	88 974 131	24 V ⎓	6 (4 configurable as analog)	4 relays 8 A	•		•	•	18
	XB10 Smart*	88 974 133	100 ⇨ 240 V ∼	6	4 relays 8 A		•			18
	XB26 Smart*	88 974 151	24 V ⎓	16 (6 configurable as analog)	8 relays 8 A and 2 relays 5 A	•		•	•	18
	XB26 Smart*	88 974 153	100 ⇨ 240 V ∼	16	8 relays 8 A and 2 relays 5 A		•			18
With Removable Terminal Blocks	CD12 RBT Smart*	88 974 441	24 V ⎓	8 (4 configurable as analog)	4 relays 8 A					19
	XD26 RBT Smart*	88 974 561	24 V ⎓	16 (6 configurable as analog)	8 relays 8 A and 2 relays 5 A					19
Sandwich extensions Communication	XN05 Modbus TCP/IP	88 970 270	24 V ⎓						•	23
	XN06 Modbus RS485	88 972 250	24 V ⎓						•	23
	XN07 Master RS485	88 974 250	24 V ⎓							24
Digital	XE10	88 970 321	24 V ⎓	6	4 relays 5 A				•	26
	XE10	88 970 323	100 ⇨ 240 V ∼	6	4 relays 5 A		•		•	26
Termination Extensions Digital	XR06	88 970 211	24 V ⎓	4	2 relays 8 A	•			•	26
	XR06	88 970 213	100 ⇨ 240 V ∼	4	2 relays 8 A		•		•	26
	XR10	88 970 221	24 V ⎓	6	4 relays 8 A	•			•	26
	XR10	88 970 223	100 ⇨ 240 V ∼	6	4 relays 8 A		•		•	26
	XR14	88 970 231	24 V ⎓	8	4 relays 8 A and 2 relays 5 A	•			•	26
	XR14	88 970 233	100 ⇨ 240 V ∼	8	4 relays 8 A and 2 relays 5 A		•		•	26
Analog	XA03 3xPt100	88 970 800	24 V ⎓	3 analog (Pt100)						27
	XA04 2AI/2AO	88 970 241	24 V ⎓	2 analog 0-10V/0-20mA (1 Pt100)	2 analog 0-10V/PWM				•	28
Bare board and resin board versions Bare board	NB12	88 970 001	24 V ⎓	8 (4 configurable as analog)	4 relays 8 A	•				35
	NB12	88 970 003	100 ⇨ 240 V ∼	8	4 relays 8 A					35
	NB20	88 970 011	24 V ⎓	12 (6 configurable as analog)	8 relays 8 A					35
	NB20	88 970 013	100 ⇨ 240 V ∼	12	8 relays 8 A					35
Resin board	NBR12	88 973 001	24 V ⎓	8 (4 configurable as analog)	4 relays 8 A	•		•		36
	NBR26	88 973 061	24 V ⎓	16 (6 configurable as analog)	10 relays 8 A	•		•		36
	NBR32	88 973 211	24 V ⎓	20 (6 configurable as analog)	12 relays 8 A	•				36
	NBR40	88 973 231	24 V ⎓	24 (6 configurable as analog)	16 relays 8 A	•				36

* Millenium 3 Smart: backlit blue LCD display. Extended operating temperature range and function block library
**Millenium 3 Essential (p. 21): Logic Controller with green screen and industrial temperature range

Millenium 3 accessories

Power supplies and DC/DC converters in modular casings

Part number	Input Voltage	Output voltage	Nominal power	Output current	Page
88 950 303	100 ⇨ 240 V ∼	24 V ⎓	7.5 W	0.3 A	44
88 950 304	100 ⇨ 240 V ∼	24 V ⎓	15 W	0.6 A	
88 950 307	100 ⇨ 240 V ∼	24 V ⎓	30 W	1.2 A	
88 950 302	100 ⇨ 240 V ∼	24 V ⎓	60 W	2.5 A	
88 950 305	100 ⇨ 240 V ∼	5 V ⎓	20 W	4 A	
88 950 306	100 ⇨ 240 V ∼	12 V ⎓	24 W	2 A	
88 950 320	9.2 ⇨ 18 V ⎓	12 V ⎓	10 W	0.8 A	46
88 950 321	9.2 ⇨ 36 V ⎓	24 V ⎓	6 ⇨10 W	0.4 A	

Connection accessories, tools and programming software

Part number	Name	Page
88 970 111	M3 Soft: Millenium 3 programming software (CD-ROM)	47
88 970 108	Memory cartridge for transfer and saving of programms	
88 970 102	3 m serial link cable: PC DB9 F ⇨ Millenium 3	
88 974 104	Millenium 3 ⇨ Bluetooth® interface (class A 10 m)	
88 970 109	3 m USB link cable: PC ⇨ Millenium 3	
88 970 110	Bluetooth® adaptor ⇨ USB (class A 10 m)	
88 970 123	1.80 m serial link cable: DB9 M/DB9 F	
88 970 510	0.5 m serial link cable: Millenium 3 ⇨ DB9 M	
88 974 106	Ready to use Millenium 3 Smart democase including: - a CD12 Smart, a CTN probe, a LDR probe, an I/O simulator - a 3 m USB link cable: PC ⇨ Millenium 3, a M3 Soft CD - a power supply 110 V-230 V∼	14

Name	Page
Millenium 3 Virtual Display	
Android smartphone and tablet as well as Windows XP/7 PC application	48
Man/Machine interface	
TFT-LCD compact 4.3" and 7" resistive touch panels - MTP6/50, MTP8/50 & MTP8/70	49
Plug & Play remote LCD displays/keypads	52
Remote LED display - Input 0-10 V	54
Remote control communication solutions	
Modem communication solutions M3MOD, GSM Modem and STN Modem	55
Temperature probes and light sensors	
NTC Temperature probes	57
LDR Light sensors	59
0-10 V Temperature sensors	60
Temperature probes Pt100 & Thermocouple	62
Temperature and signal converters	
Thermocouple Pt100/Pt1000 ⇨ 0-10 V	64
PWM to 0-10 V/4-20 mA to 0-10 V	65
Other accessories and kits	
Standard Smart and Essential product kits	14
Removable connectors	47
Potentiometer ø 22 mm	66
Faceplates	67

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