

Millenium II+: general characteristics

Insulation	7 M Ω
Safety class	0 industrial/II domestic casing
Earthing	None
Protection	IP20/Terminal blocks IP40 IP00 for CN12 and CN20 versions
Certifications	CE, UL, cUL
Conformity to standards	EN 60947-1 EN 60730-1 EN 60601-1
Programming method	Function blocks/SFC
Program size	128 blocks
Program memory	Flash EEPROM
Removable memory	EEPROM
Data memory	256 bits/64 words backed up for 10 years
LCD display	Display with 4 lines of 12 characters
Real-time clock	Drift < 1 min/month at 25°C with user-definable correction of drift Data retention : 10 years (lithium battery)
Storage temperature (°C)	-40 → +70
Operating temperature (°C)	-5 → +55
Relative humidity no condensation acc. to IEC 68-2-3	95 % max.
Dimensions (l x h x p)	SA12-EC12 : 72 x 90 x 60 mm SA20-XT20-EC20-EX20 : 125 x 90 x 60 mm CN12 : 72 x 90 x 42 mm CN20 : 125 x 90 x 42 mm

Power supply 100 ... 240 V AC	
Operating voltage	100 V AC → 240 V AC +10 % -15 % 50/60 Hz
Operating limits	85 V AC → 264 V AC
Immunity from micro power cuts	10 ms
Maximum inrush current	5 A
Max. absorbed power	SA12-EC12-CN12 : 6 VA SA20-EC20-CN20 : 6.5 VA XT20-EX20 : 8 VA

Power supply 24 V AC	
Operating voltage	24 V AC +10 % -15 % 50/60 Hz
Operating limits	20.4 V AC → 28.8 V AC
Immunity from micro power cuts	10 ms
Maximum inrush current	2.5 A
Max. absorbed power	SA12-EC12-CN12 : 6 VA SA20-EC20-CN20 : 6.5 VA XT20-EX20 : 8 VA

Power supply 24 V DC	
Operating voltage	24 V DC +20 % -15 %
Operating limits	20.4 V DC → 28.8 V DC
Immunity from micro power cuts	1 ms
Maximum inrush current	6 A
Max. absorbed power	SA12-EC12-CN12 : 3.5 W SA20-EC20-CN20 : 4 W XT20-EX20 : 5 W

Power supply 12 V DC	
Operating voltage	12 V DC +30 % -15 % (+30 % -11 % for XT 20 relay 88 950 065)
Operating limits	10.2 V DC → 15.6 V DC (10.68 V DC → 15.6 V DC for XT20 relay 88 950 065)
Immunity from micro power cuts	1 ms
Maximum Inrush current	6 A
Max. absorbed power	SA12-EC12-CN12 : 2.2 W SA20-EC20-CN20 : 4.5 W XT20-EX20 : 5.5 W

100 - 240 V AC input	
Input voltage (V AC)	100 - 240 (+10 % / -15 %)
Supply frequency range (Hz)	50/60
Input impedance (k Ω)	700
Pull-in voltage at logic state 1 (V AC)	≥ 80
Drop-out voltage at logic state 0 (V AC)	≤ 40
Response time	50
Status indicator	On LCD screen for SA12, SA20 and XT20

24 V AC input	
Input voltage (V AC)	24 (+10 % / -15 %)
Supply frequency range	50/60 Hz
Input impedance (k Ω)	4
Pull-in voltage at logic state 1 (V AC)	≥ 15
Drop-out voltage at logic state 0 (V AC)	≤ 5
Response time	50 ms
Status indicator	On LCD screen for SA12, SA20 and XT20

Analogue input (24 V DC model only)	
CN12-SA12-EC12	4 inputs from I5 to I8
CN20-SA20-EC20-XT20	8 inputs from I5 to I12
Measurement range	(0 → 10 V) or (0 → V power supply)
Resolution	8 bits
Conversion time	10 ms
Max input voltage	28.8 V DC
Input impedance (k Ω)	> 22
Accuracy	+/- 5 %
Drift Temperature	+/- 3 LSB
Potentiometer control	2.2 k Ω / 0.5 W

24 V DC input	
Current drain	24 (+20 % -15 %) V DC
Input current	3.2 mA / 5.5 mA max.
Input impedance	6.8 k Ω
Pull-in voltage at logic state 1	≥ 15 V DC
Drop-out voltage at logic state 0	≤ 5 V DC
Response time	10 ms
Galvanic isolation	No
Sensor type	Contact or 3-wire PNP or 3-wire NPN
Status indicator	On LCD screen for SA12, SA20 and XT20

12 V DC input	
Input voltage	12 (+30 % -15 %) V DC (except XT20R +30 % -11 %)
Input current	1.9 mA / 2.3 mA max.
Input impedance	6.45 k Ω
Pull-in voltage at logic state 1	≥ 8 V DC
Drop-out voltage at logic state 0	≤ 3 V DC
Response time	10 ms
Sensor type	Contact or 3-wire PNP or 3-wire NPN
Galvanic isolation	No
Status indicator	On LCD screen for SA12, SA20 and XT20

Analogue input (12 V DC model only)	
CN12 - SA12 - EC12	4 inputs I5 to I8
CN20-SA20-EC20-XT20	8 inputs I5 to I12
Measurement range	0 → 10 V
Resolution	8 bits
Conversion time (ms)	10
Max input voltage	15.6 V DC
Input impedance (k Ω)	> 10 (14 typical)
Precision	± 5 %
Temp. dependent derating	± 3 LSB
Potentiometer control	2.2 k Ω / 0.5 W

Relay output	
Max. breaking voltage	250 V AC / 30 V DC
Breaking current	8 A
Service life	8 A / 250 V AC resistive (100,000 operations)
Minimum load	10 mA → 5 V DC
Response time	10 ms
Status indicator	On LCD screen for SA12, SA20 and XT20

TOR / PWM solid state output	
PWM solid state output	SA12-EC12-CN12 : O1 to O4 SA20-XT20-EC20-CN20 : O1 to O6
Breaking current	5-28.8 V DC
Breaking voltage	0.7 A / 5-28.8 V DC
Min. load	1 mA
Maximum inductive load	0.7 A
Maximum incandescent load	0.1 A
Leakage	0.1 mA / 24 V DC
Response time	1 ms
Insulation	No
PWM frequency	113 Hz to 1807 Hz (user-definable)
PWM cyclic ratio	0 to 100 % (256 steps)
PWM precision at 120 Hz	< 5 % (from 15 % to 85 %) load at 10 mA
PWM precision at 500 Hz	< 10 % (from 20 % to 80 %) load at 10 mA
Status indicator	On LCD screen for SA12, SA20 and XT20

Starter kit

- Discover the benefits of Millenium II+
- Each kit includes :
 - a standard (SA) or expandable (XT) Millenium II+
 - a PC/Millenium II connection interface
 - an interactive CD-ROM including the software workshop, tutorial, application library and technical brochures
 - plus for the STN or GSM kits
 - an STN or GSM modem
 - a PS24 power supply



Specifications

Type	Input	Output	Supply	Code
SA 12 kit	8 PNP	4 relays	24 V DC	88 950 070
	8	4 relays	100 - 240 V AC	88 950 071
Kit SA 20	12 PNP	8 relays	24 V DC	88 950 072
	12	8 relays	100 - 240 V AC	88 950 073
Kit XT 20	12 PNP	8 relays	24 V DC	88 950 074
	12	8 relays	100 - 240 V AC	88 950 075
STN modem kit	8 PNP	4 relays	24 V DC	88 950 818
GSM modem kit	8 PNP	4 relays	24 V DC	88 950 819

Special starter kits

- Discover the benefits of Millenium II+ with all the extras needed for your application
- Each kit includes :
 - a Millenium II+
 - a programming software CD-ROM
 - a programming cable
 - plus for the Level Control kit
 - a level sensor adaptor
 - 4 S7 level sensors
 - plus for the Temperature Control kit
 - a PS24 power supply
 - a -10→ +150°C remote temperature sensor
 - a 25A solid state relay with heatsink



Specifications

Type	Designation	Supply	Code
Level control kit	Level control	24 V AC	88 950 076
Temperature Control kit	Heating, cooling and air conditioning	24 V DC	88 950 077

Standard

- Intuitive programming via function block (FBD) or grafset (SFC)
- Function : timing, counting, etc
- Application-specific functions : rotation, cam timers, calculation, etc
- Discrete, analogue or potentiometer inputs
- Relay, solid state or PWM outputs
- Backlit LCD display
- Program password protection
- Integral calendar and clock
- User-definable from the front panel
- Non-expandable

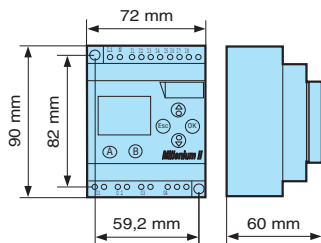


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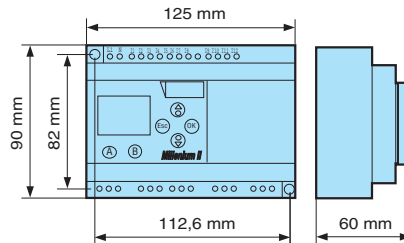
Type	Input	Output	Supply	Code
SA 12	8 PNP	4 relays	24 VDC	88 950 041
	8	4 relays	100 - 240 VAC	88 950 043
	8	4 relays	24 VAC	88 950 044
	8 PNP	4 solid state	24 VDC	88 950 042
	8 PNP	4 relays	12 V DC	88 950 045
	8 PNP	4 solid state	12 V DC	88 950 046
	8 NPN	4 relays	24 VDC	88 950 049
	SA 20	12 PNP	8 relays	24 VDC
12		8 relays	100 - 240 VAC	88 950 053
12		8 relays	24 VAC	88 950 054
12 PNP		8 solid state	24 VDC	88 950 052
12 PNP		8 relays	12 V DC	88 950 055
12 PNP		8 solid state	12 V DC	88 950 056
12 NPN		8 relays	24 VDC	88 950 059

Dimensions

SA 12



SA 20



General characteristics

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Blind

- No display or parameter-setting buttons
- Intuitive programming via function block (FBD) or grafcet (SFC)
- Function : timing, counting, etc
- Application-specific functions : rotation, cam timers, calculation, etc
- Discrete, analogue or potentiometer inputs
- Relay, solid state or PWM outputs
- Program protected by a password
- Integral calendar and clock

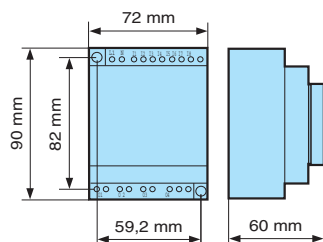


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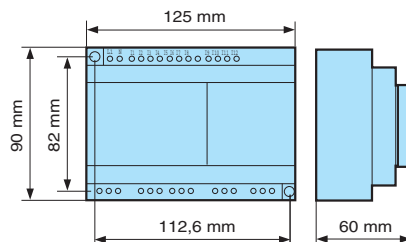
Type	Input	Output	Supply	Code
EC12	8 PNP	4 relays	24 VDC	88 950 021
	8	4 relays	100 - 240 VAC	88 950 023
	8	4 relays	24 VAC	88 950 024
	8 PNP	4 solid state	24 VDC	88 950 022
	8 PNP	4 relays	12 V DC	88 950 025
	8 PNP	4 solid state	12 V DC	88 950 026
	8 NPN	4 relays	24 VDC	88 950 029
	EC 20	12 PNP	8 relays	24 VDC
12		8 relays	100 - 240 VAC	88 950 033
12		8 relays	24 VAC	88 950 034
12 PNP		8 solid state	24 VDC	88 950 032
12 PNP		8 relays	12 V DC	88 950 035
12 PNP		8 solid state	12 V DC	88 950 036
12 NPN		8 relays	24 VDC	88 950 039

Dimensions

EC 12



EC 20



General characteristics

see page 13

Expandable

- Expandable : communication, I/O, etc
- Can take an XC adjacent extension and an XL local extension
- Intuitive programming via function block (FBD) or grafcet (SFC)
- Function : timing, counting, etc
- Application-specific functions : rotation, cam timers, calculation, etc
- Discrete, analogue or potentiometer inputs
- Relay, solid state or PWM outputs
- Backlit LCD display (XT 20 only)
- Program password protection
- Integral calendar and clock
- User-definable from the front panel (XT 20 only)

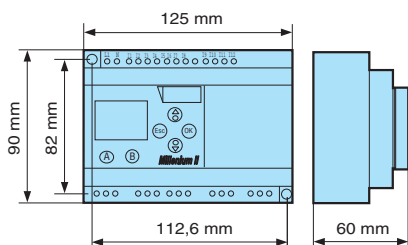


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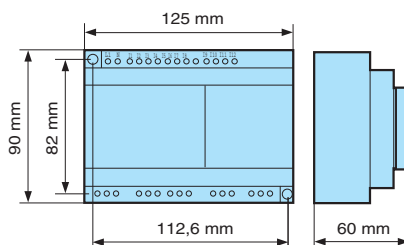
Type	Input	Output	Supply	Code	
XT 20	12 PNP	8 relays	24 V DC	88 950 061	
	12	8 relays	100 - 240 V AC	88 950 063	
	12	8 relays	24 V AC	88 950 064	
	12 PNP	8 solid state	24 V DC	88 950 062	
	12 PNP	8 relays	12 V DC	88 950 065	
	12 PNP	8 solid state	12 V DC	88 950 066	
	12 NPN	8 relays	24 V DC	88 950 069	
	EX 20	12 PNP	8 relays	24 V DC	88 950 831
		12	8 relays	100 - 240 V AC	88 950 833
12		8 relays	24 V AC	88 950 834	
12 PNP		8 solid state	24 V DC	88 950 832	
12 PNP		8 relays	12 V DC	88 950 836	
12 PNP		8 solid state	12 V DC	88 950 837	
12 NPN		8 relays	24 V DC	88 950 839	

Dimensions

XT 20



EX 20



General characteristics

see page 13

Bare board

- For mass-production applications
- Intuitive programming via function block (FBD) or grafcet (SFC)
- Function : timing, counting, etc
- Application-specific functions : rotation, cam timers, calculation, etc
- Discrete, analogue or potentiometer inputs
- Relay, solid state or PWM outputs
- Program protected by password
- Integral calendar and clock

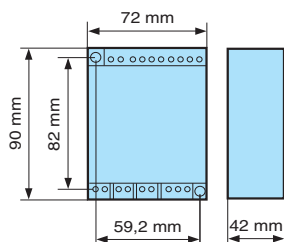


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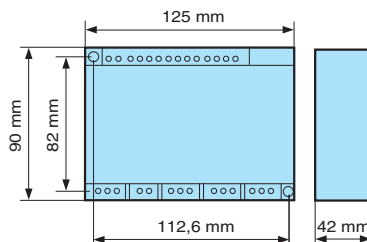
Type	Input	Output	Supply	Code
CN 12	8 PNP	4 relays	24 V DC	88 950 001
	8	4 relays	100 - 240 V AC	88 950 003
	8	4 relays	24 V AC	88 950 004
	8 PNP	4 solid state	24 V DC	88 950 002
	8 PNP	4 relays	12 V DC	88 950 005
	8 PNP	4 solid state	12 V DC	88 950 006
	8 NPN	4 relays	24 V DC	88 950 009
	CN 20	12 PNP	8 relays	24 V DC
12		8 relays	100 - 240 V AC	88 950 013
12		8 relays	24 V AC	88 950 014
12 PNP		8 solid state	24 V DC	88 950 012
12 PNP		8 relays	12 V DC	88 950 015
12 PNP		8 solid state	12 V DC	88 950 016
12 NPN		8 relays	24 V DC	88 950 019

Dimensions

CN 12



CN 20



General characteristics

see page 13

Motor control

- All Millenium II+ functions with, in addition :
 - control and braking of one or two DC motors
 - mixed relay and solid state outputs
 - 15A relay outputs



Specifications

Type	Designation	Input	Output	Supply	Code
SA 4R	1 DC motor control	8 PNP	4 relay outputs (2 mounted in H layout)	24 VDC	88 950 880
SA 4R2T	2 DC motors control	12 PNP	4 relay outputs (2x2 mounted in H layout) & 2 PWM outputs	24 VDC	88 950 881

General characteristics

Electrical characteristics

Operating voltage	24 VDC +20 % / -15 %
Maximum inrush current	7 A
Immunity from micro power cuts (ms)	1
Absorbed power (W)	88 950 880 : 3.5 88 950 881 : 4

Relay output

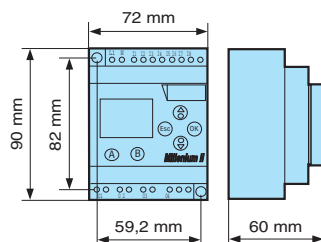
Relay outputs	88 950 880 : 2 x 8A NO, 2 x 15A NO/NC 88 950 881 : 4 x 15A NO/NC
Min. load	10 mA / 5 VDC (for 8 A relay) 100 mA / 10 VDC (for 15 A relay)
Maximum breaking voltage	250 VAC
Max. current (A)	88 950 880 : 8 A / 15 A 88 950 881 : 15 A
Mechanical life (operations)	30 x 10 ⁶
Electrical life	53.000 operations 16 A / 250 VAC resistive NC contact 6000 operations 20 A / 250 VAC N/O contact 30.000 operations 20 A / 24 VDC resistive
Insulation	Yes
Type of contacts	90/10 AgNi
Response time (ms)	10

Logic outputs / PWM

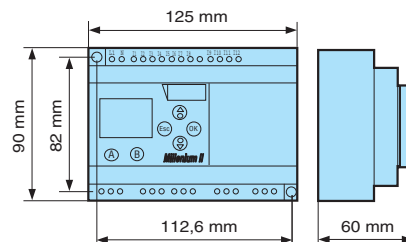
PWM solid state output	O5, O6
Minimum load	1 mA
Breaking voltage	5 - 28.8 VDC
Breaking current	0.7 A / 5 - 28.8 VDC
Maximum inductive load	0.7 A
Leakage current	0.1 mA / 24 VDC
Response time (ms)	1
Insulation	No
PWM frequency	113 Hz → 1807 Hz
PWM cyclic ratio	0 → 100 %
PWM precision at 120 Hz	<5 % (from 15 % to 85 %) load at 10 mA
PWM precision at 500 Hz	<10 % (from 20 % to 80 %) load at 10 mA
Indicator	LCD screen

Dimensions

SA 4R

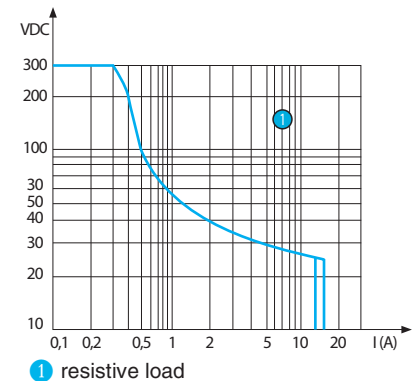


SA 4R2T



Curves

Current/voltage



Clima +

- Operating temperature -30 to +70°C
- 4 relay outputs and 2 PWM outputs
- Standard (EC) and bare board (CN) versions
- Monobloc, non-expandable



Specifications

Type	Designation	Input	Output	Supply	Code
CN 4R2T	Clima +	12 PNP	4 relays 2 PWM solid state	24 VDC	88 950 411
EC 4R2T	Clima +	12 PNP	4 relays 2 PWM solid state	24 VDC	88 950 431

General characteristics

Electrical characteristics

Operating voltage	24 VDC +20 %/-15 %
Maximum inrush current	7 A
Immunity from micro power cuts (ms)	1
Absorbed power (W)	4

Relay output

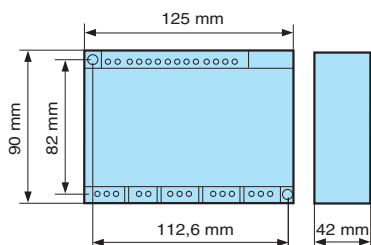
Relay outputs	4 x 8A NO/NC
Min. load	100 mA / 10 VDC
Maximum breaking voltage	250 VAC
Max. current (A)	8
Mechanical life (operations)	30 x 10 ⁶
Electrical life	53.000 operations 16A/250VAC resistive NC contact 6000 operations 20A/250VACN/O contact 30.000 operations 20A/24VDC resistive
Insulation	Yes
Type of contacts	90/10 AgNi
Response time (ms)	10

Logic outputs / PWM

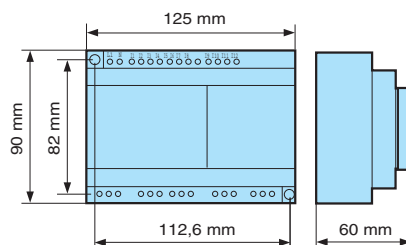
PWM solid state output	O5, O6
Minimum load	1mA
Breaking voltage	5-28.8 VDC
Breaking current	0.7A/5-28.8 VDC
Maximum inductive load	0.7 A
Leakage current	0.1 mA / 24 VDC
Response time (ms)	1
Insulation	No
PWM frequency	113 Hz to 1807 Hz
PWM cyclic ratio	0 to 100 %
PWM precision at 120 Hz	<5 % (from 15 % to 85 %) load at 10 mA
PWM precision at 500 Hz	<10 % (from 20 % to 80 %) load at 10 mA

Dimensions

CN 4R2T



EC 4R2T



Level detection

- A unit dedicated to level detection
- This unit includes :
 - a Millennium II+ SA 12 L (4 level detection inputs)
 - a level sensor adaptor

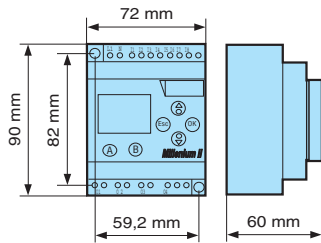


Specifications

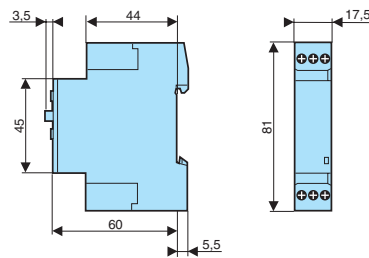
Type	Input	Output	Supply	Code
Level detection	8	4 relays	24 V AC	88 950 813

Dimensions

SA 12 L



Level sensor adaptor



Local extensions

- For XT 20 and EX 20 expandable versions only (1 local extension per module)
- Millenium - Millenium local link
- Doubles the hardware and software capacities
- Transparent communication between two XT 20 units
- Max. distance between two XT 20 units : 10 metres
- Cable type : screened twisted pair



Specifications

Type	Designation	Supply	Code
XL 01	M2 - M2 local link (2 modules)	universal	88 950 200
XL 05	4 solid state outputs (0.5A max total current)	universal	88 950 204
XL 06	2 relay outputs (250mA max current each)	100 → 240 V AC / 24 V AC	88 950 810

Adjacent extensions

- For XT 20 and EX 20 expandable versions only (one adjacent extension per module)
- 6 additional inputs/outputs



Specifications

Type	Designation	Supply	Code
XC 01	4 inputs PNP 2 relay outputs	24 V DC	88 950 210
	4 inputs 2 relay outputs	24 V AC	88 950 211
	4 inputs 2 relay outputs	100 - 240 V AC	88 950 212
	4 inputs 2 relay outputs	12 V DC	88 950 215
	4 inputs NPN 2 relay outputs	24 V DC	88 950 219

Communication modules

- Data communication via STN or GSM modem
- Fieldbus communication using MODBUS or ASI protocol (slave module) for XT 20 and EX 20 expandable version only (one adjacent extension per module)

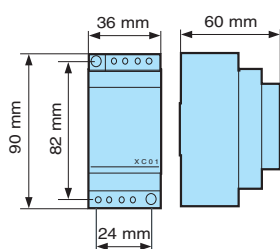


Specifications

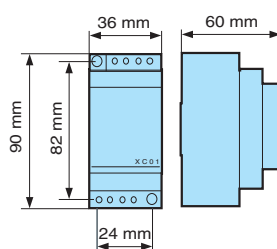
Type	Designation	Supply	Code
XC 02	AS-i communication module 24 V DC	24 V DC	88 950 213
XC 04	MODBUS communication module	24 V DC	88 950 823

Dimensions

XC 01



XC 02 - XC 04



Modems

- Downloading, modification and sending of the Millenium II program
- Remote access to all Millenium II functionalities
- Automatic warning in the event of an alarm
- Simple configuration via the programming software
- DIN casing suitable for industry



Specifications

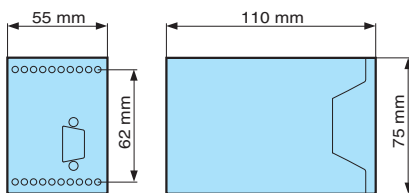
Type	Input	Output	Supply	Code
Modem Kit STN (56K)	2	2	10 → 80 V DC	88 950 106
Modem kit GSM	2	2	10 → 80 V DC	88 950 107

General characteristics

Input alarm	
Pulse length (s)	0.3 → 2
Alarms	20 messages max. send to 40 recipients max.
Destination	GSM, Fax, e-mail, fixed line
General messages (characters)	120
Individual messages (characters)	80
Outputs alarm	
Max. voltage	30 V DC 42 V DC
Max. current	1 A DC 0.5 A AC
Mechanical characteristics	
Protection	Casing : IP40 / Terminal blocks : IP20
Weight (g)	250 (RTC) 270 (GSM)
Display by LED	4 for STN modem (Power, Off hook, DCD, RX/TX) 5 for GSM modem (Power, Status, Connect, RX/TX, Signal)
Climatic environment	
Operating temperature (°C)	0 → 55
Relative humidity no condensation acc. to IEC 68-2-3	95 % max.
Electrical characteristics	
Absorbed power (W)	2.5 (RTC) 3 (GSM)

Dimensions

Modems



Alphanumeric displays

- **Backlit LCD screen with 4 lines of 20 characters with 8-key keypad including 4 keys with changeable captions**
 - Three-colour screen : green/orange/red
 - Monochrome screen : green
- **Communicates with the Millenium II+ using the Modbus module**
- **2 kits available : Programming and Runtime**
- **Each kit includes**
 - a three-colour or monochrome LCD screen
 - a Modbus communication module
 - an RS485 cable plus, for the programming kit :
 - a 24 V 20 I/O Millenium II
 - 2 sets of programming software
 - a power supply (according to model)
 - an RS232 cable



Specifications

Type	Designation	Code
Programming kits	Kit eco monochrome LCD display Display + Millenium II EX 20 + MODBUS module + programming software + programming cable + leaflet	88 950 840
	Kit eco three-colour LCD display Display + Millenium II EX 20 + MODBUS module + programming software + programming cable + leaflet	88 950 841
	Kit eco power supply monochrome LCD display Display + Millenium II EX 20 + MODBUS module + programming software + programming cable + power supply + leaflet	88 950 842
	Kit eco power supply three-colour LCD display Display + Millenium II EX 20 + MODBUS module + programming software + programming cable + power supply + leaflet	88 950 843
	Kit monochrome LCD display Display + MODBUS module + programming software + programming cable	88 950 844
	Kit standard monochrome LCD display Display + Millenium II EX 20 + MODBUS module + programming software + programming cable + leaflet	88 950 845
	Kit standard three-colour LCD display Display + Millenium II EX 20 + MODBUS module + programming software + programming cable + leaflet	88 950 846
	Kit standard power supply monochrome LCD display Display + Millenium II EX 20 + MODBUS module + programming software + programming cable + power supply + leaflet	88 950 847
	Kit standard power supply three-colour LCD display Display + Millenium II EX 20 + MODBUS module + programming software + programming cable + power supply + leaflet	88 950 848
	Kit three-colour LCD display Display + MODBUS module + programming software + programming cable	88 950 849
	Runtime kits	Kit three-colour LCD display Display + MODBUS module + programming cable + leaflet
Kit monochrome LCD display Display + MODBUS module + programming cable + leaflet		88 950 422

General characteristics

Electrical characteristics

Supply voltage	24 VDC
Voltage limits	18 → 30 VDC
Ripple	5 % max
Consumption	200 mA max

Display characteristics

Description	Backlit LCD screen with 4 lines of 20 characters to 1 line of 5 characters each (settable) transmission indicated by LED (3-colour display) alarm indicator and function keys (3-colour display)
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Mechanical characteristics

Mounting	flush-mounted, fixing by means of 2 pressure-mounted supplied spring clips for panel 1.5 to 6 mm thick
Display protection	polyester
Keyboard material	polyester autotex UV
Connection	removable 3-point screw terminal block
Connection capacity	1.5 mm ²
Connection	serial connector by SUB D 25 female contacts

Environmental characteristics

Certifications	UL-CSA
Conformity to standards	IEC 1131-2, IEC 60068-2-6, IEC 60068-2-27, EN 61131-2, UL 508, CSA C22-2 No.14
Operating temperature (°C)	0 → +55
Storage temperature (°C)	-20 → +60
Relative humidity no condensation acc. to IEC 68-2-3	95 % max.
Degree of protection IEC 60529	IP 65 front panel (UL type 4, 4X) IP 20 rear panel
Dimensions (l x h x p)	132x74x31 mm
Panel cut-out	119,4 x 63 mm

36x72 LED remote display

- Display with 4 red 14 mm digits
- Configurable display range
- 0-10V input
- Degree of protection, front panel : IP 65



Specifications

Type	Designation	Supply	Code
Display	Display 4 digits 14 mm red	24 VDC	88 950 400

General characteristics

Electrical characteristics

Supply	24 VDC
Tolerance	±10 %
Consumption	20 mA
Input voltage	0 → 10 VDC

General characteristics

Number of digits	4
Colour	red
Height of digits	14 mm
Device accuracy (full scale)	0.3 %
Degree of protection front face	IP 65
Degree of terminal protection	IP 20
Operating temperature (°C)	-10 → +55
Dimensions (l x h x p)	36x72x61 mm
Panel cut-out	71 x 20 mm

Potentiometer

- External control potentiometer 22 mm hole
- Degree of protection, front panel : IP65



Specifications

Type	Designation	Code
M2Pe	External setpoint potentiometer	88 950 109

General characteristics

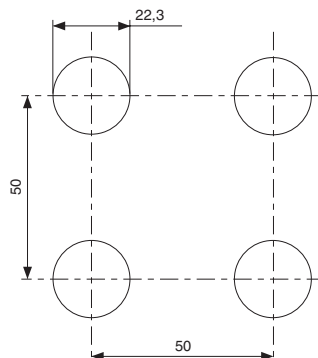
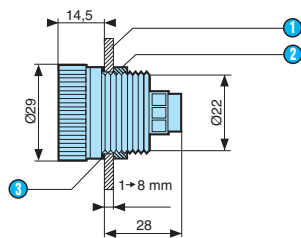
Electrical characteristics

Ohmic value (Ω)	4700
Tolerance	$\pm 20\%$
Power	150 mW

General characteristics

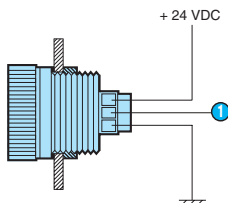
Degree of protection front face	IP 65
Degree of terminal protection	IP 10
Operating temperature ($^{\circ}\text{C}$)	-20 \rightarrow +60
Storage temperature ($^{\circ}\text{C}$)	-20 \rightarrow +70
Connection capacity	1 x 4 mm ² single-strand 1 x 2.5 mm ² multi-strand

Dimensions



- 1 Panel
- 2 Nut
- 3 Seal

Connections



- 1 MII+ analogue input

Convertors

- current-voltage convertor for Millenium II+ input signals
- PWM-voltage convertor for Millenium II+ output signals



Specifications

Type	Designation	Input	Output	Code
Convertor 0-20 mA / 0-10 V	Input module (17.5 mm)	4	4	88 950 108
Convertor PWM / 0-10V	Output module (17.5 mm)	1	1	88 950 112

Temperature convertors

- PT1000 / PT100 / J and K type thermocouple input
- 3-wire input
- 17.5 mm modular casing
- 0 → 10 VDC output



Specifications

Type	Input	Temperature (°C)	Code
Temperature convertor	PT 1000	-20 → +150	88 950 150
	PT100	-40 → +40	88 950 151
	PT 100	0 → +100	88 950 152
	PT 100	0 → +250	88 950 153
	J thermocouple	0 → +300	88 950 154
	K thermocouple	0 → +600	88 950 155

General characteristics

Electrical characteristics

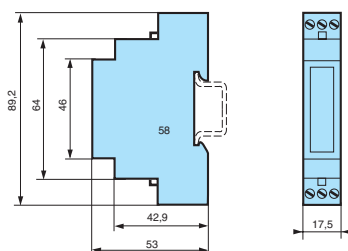
Supply	24 VDC
Tolerance	±10 %
Consumption	2 mA
Output voltage	0 → 10 VDC
Device accuracy (full scale)	±1 %

General characteristics

Protection (sealing)	IP 40
Class of protection - Terminals	IP 20
Operating temperature (°C)	-10 → +55

Dimensions

Temperature convertor



Temperature sensors

- Built-in converter : 0-10 V DC output
- Applications : Industrial and domestic



Specifications

Type	Range	Accuracy	Protection casing	Protection probe	Code
Zone	-10 → +40 °C	-0.2 °C +1.2 °C	IP30		89 750 150
Ventilation duct	-10 → +40 °C	-0.2 °C +1.9 °C	IP65	IP30	89 750 151
Outdoor	-10 → +40 °C	-0.2 °C +1.2 °C	IP65		89 750 152
Remote/submersible probe	-10 → +150 °C	-0.2 °C +1.2 °C	IP65	IP67	89 750 153
	-40 → +20 °C	-0.2 °C +1.9 °C	IP65	IP67	89 750 155

Accessories

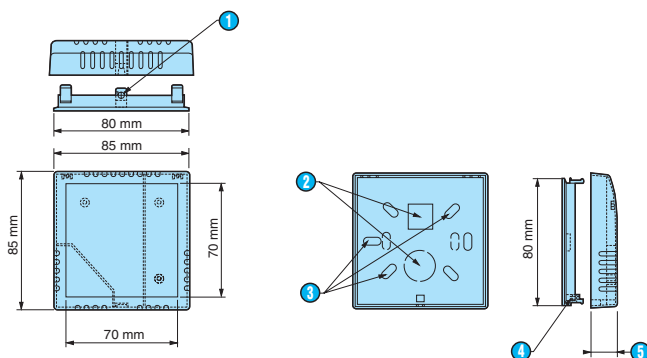
Accessories	Operating temperature (°C)	Operating pressure (bar)	Code
Copper protective sleeve	-20 → +100	10	89 750 146
Stainless steel (316) protective sleeve	-20 → +400	16	89 750 147
Heat transfer compound	-	-	18 373 112

General characteristics

Supply voltage	24 V DC (±10 %)
Output	0 → 10 VDC
Temperature coefficients Derating	0.01 % / °C of full scale
Temperature coefficients Offset	1.5 mV / °C
Ambient temperature (°C)	-10 → +60
Ambient humidity	5 → 95 % RH
Material housing	Self-extinguishing

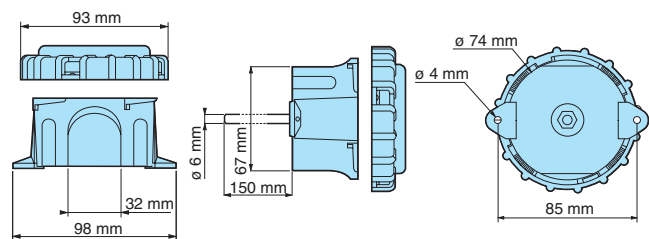
Dimensions

89 750 150

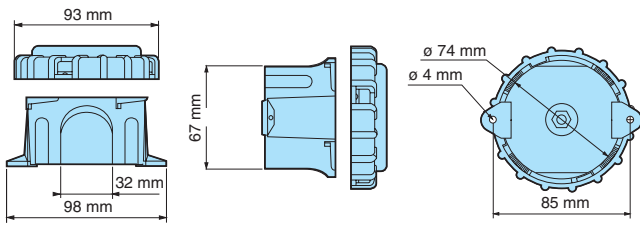


- 1 Ø3 mm for screw M3 x 8
- 2 Cut-outs
- 3 Fixing holes
- 4 Bolt hole M3
- 5 Maximum thickness 26 mm

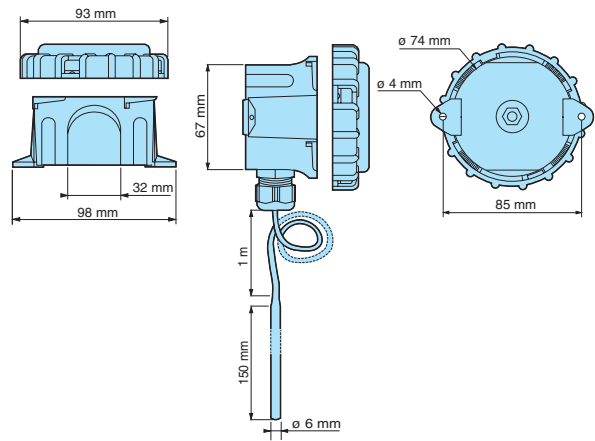
89 750 151



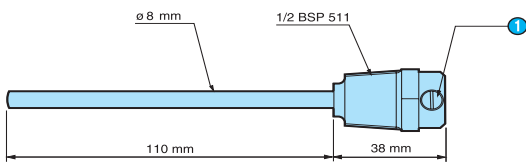
89 750 152



89 750 153 and 89 750 155



Accessories for 89 750 153 and 89 750 155



1 Screw M4

Power supply

- Output voltage existence is indicated by a continuously lit LED. A flashing LED indicates autoprotection mode.
- The output voltage can be adjusted from 100 to 120 % with a potentiometer in order to compensate for possible voltage drops.
- Regulated, power surge and short circuit safe, the new switching power supplies easily fit into control panels.



Specifications

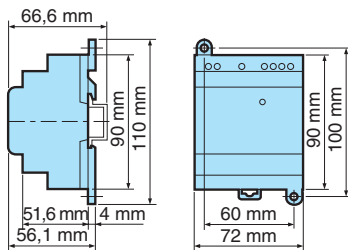
Type	Voltage	Nominal power	Code
PS	12 V DC	22 W	88 950 300
	24 V DC	30 W	88 950 301

General characteristics

Input voltage	100 → 240 V AC single phase
Output voltage	Adjustable between 100 à 120 %
Technology	Electronic with primary decoupling
Short-circuit protection	✓
Overload protection	✓
Reset after overload	automatic
Status indication	Output LED
Mounting	DIN rail EN 50022
Conformity to standards	EN 50081-1 EN 50082-1 CEI 61000-8-2 CEI 950
Certifications	CE, UL-CSA, TÜV, CTick

Dimensions

PS



Accessories

→ Removable connectors

- Enclosed version of Millenium II can be removed
- Positive wiring connection
- SET for SA 12 and SA 20
- Removable screw terminal blocks



Specifications

Type	Designation	Code
KD 12	Plug-in connector kit for SA12	88 950 310
KD 20	Plug-in connector kit for SA20	88 950 311

General characteristics

Connection	Removable screw terminal block
Connection capacity	Cable diameter from 0.14 to 2.5 mm ² AWG22 - 12
Max. current (A)	12

→ Front panel adaptors

- Millenium II+ panel mounting adaptor
- IP 67 waterproof panel adaptor



Specifications

Type	Designation	Code
Front panel adaptor	Front panel adaptor for EC12-SA12	89 750 103
	Front panel adaptor for EC20-SA20-XT20-EX20	89 750 109
Front panel adaptor	Waterproof panel adaptor for SA12-EC12	89 750 160
	Waterproof panel adaptor for SA20-XT20-EC20-EX20	89 750 161
	Waterproof panel adaptor for SA20-XT20-EC20-EX20 + 1 extension	89 750 162

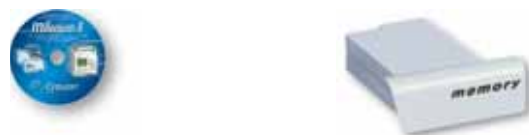
→ Interconnection cables



Specifications

Type	Designation	Code
Programming cables	Programming cable 9-pin D connector	88 950 102
	USB adapter for programming cable	88 950 105
Modem - Millenium II+ link		88 950 111

→ Programming tools



Specifications

Type	Designation	Code
Software	Programming software on CD ROM	88 950 100
	Modem installation software	88 950 113
Module	EEPROM memory module	88 950 101



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