

→ Level detection

- 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

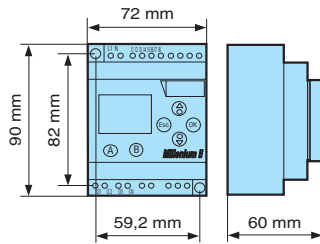


Specifications

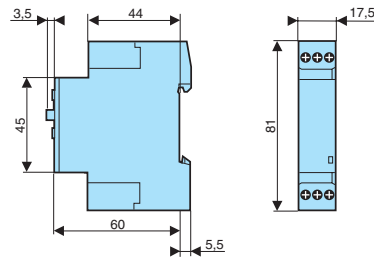
Type	Input	Output	Supply	Code
SA 12 + level sensor adaptor	8	4 relays	24 V AC	88 950 813

Dimensions

SA 12



Level sensor adaptor



Millenium II +: general characteristics

- Starter kit
- Blind
- Temperature sensors
- Special starter kits
- Bare board
- Power supply
- Level detection
- Local extensions
- Accessories
- Standard
- Adjacent extensions
- Expandable
- Communication modules

Insulation	7 M Ω
Safety class	0 industrial / II domestic casing
Earthing	None
Protection	IP20 / Terminal block IP40 IP00 for CN12 and CN20
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)	90 → 95 %
Dimensions (l x h x w)	SA12-EC12 : 72 x 90 x 60 mm SA20-XT20 : 125 x 90 x 60 mm EC20-EX20 CN12 : 72 x 90 x 42 mm CN20 : 125 x 90 x 42 mm

Electrical characteristics	
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 XT20 relay 88 950 065
Operating limits	10.2 V DC → 15.6 V DC 10.68 VDC → 15.6 V DC for XT 20 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 Hz
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	\geq 8 V DC
Drop-out voltage at logic state 0	\leq 3 V DC
Response time	10 ms
Sensor type	Contact or 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 I8
Measurement range	0 \rightarrow 10 V
Resolution	8 bits
Conversion time (ms)	10
Max input voltage	15.6 V DC
Input impedance (k Ω)	> 10 (14 typically)
Precision	\pm 5 %
Temp. dependent derating	\pm 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 to 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	120 Hz to 1920 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