

## Smart "Compact" range without display CB12 Smart Part number 88974021



- "Modular" versions designed for application-specific functions
- No display or parameter-setting buttons to avoid tampering by unauthorised users

	Туре	Input	Output	Supply
88974021	CB12 Smart	8 digital (including 4 analogue)	4 relays 8 A	24 V DC
88974023	CB12 Smart	8 digital	4 relays 8 A	100 →240 V AC
88974024	CB12 Smart	8 digital	4 relays 8 A	24 V AC
88974031	CB20 Smart	12 digital (including 6 analogue)	8 relays 8 A	24 V DC
88974033	CB20 Smart	12 digital	8 relays 8 A	100 →240 V AC
88974034	CB20 Smart	12 digital	8 relays 8 A	24 V AC

## General environment characteristics for CB, CD, XD, XB, XR and XE product types

	CE, UL, CSA except for 88 974 441 and 88 974 561 (Removable Block Terminal versions)
Conformity to standards (with the low voltage directive and EMC directive)	IEC/EN 61131-2 (Open equipment) IEC/EN 61131-2 (Zone B) IEC/EN 61000-6-2, IEC/EN 61000-6-3 (*) IEC/EN 61000-6-4
	(*) Except configuration (88 970 1.1 or 88 970 1.2) + (88 970 250 or 88 970 270) + 88 970 241 class A (class B in a metal enclosure)
Earthing	Not included
Protection rating	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
Max operating Altitude	Operation : 2000 m Transport : 3048 m
Mechanical resistance	Immunity to vibrations IEC/EN 60068-2-6, test Fc Immunity to shock IEC/EN 60068-2-27, test Ea
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 IEC/EN 61000-4-5
	Radio frequency in common mode IEC/EN 61000-4-6, level 3 Voltage dips and breaks (AC) IEC/EN 61000-4-11 Immunity to damped oscillatory waves IEC/EN 61000-4-12
Conducted and radiated emissions	Class B (*) in accordance with EN 55022, EN55011 (CISPR22, CISPR 11) group 1 (*) Except configuration (88 970 1.1 or 88 970 1.2) + (88 970 250 or 88 970 270) + 88 970 241 class A (class B in a metal enclosure)
Operating temperature	-20 →+70 °C except CB and XB versions in VDC : -30 →+70 °C in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-2-2
Storage temperature	-40 →+70 °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 rail, 35 x 7.5 mm and 35 x 15 mm, or on panel (2 x Ø 4 mm)
Screw terminals connection capacity	Flexible wire with ferrule =
	1 conductor : 0.25 to 2.5 mm <sup>2</sup> (AWG 24AWG 14)
	2 conductors 0.25 to 0.75 mm <sup>2</sup> (AWG 24AWG 18) Semi-rigid wire =
	1 conductor : 0.2 to 2.5 mm <sup>2</sup> (AWG 25AWG 14) Rigid wire =
	1 conductor : 0.2 to 2.5 mm <sup>2</sup> (AWG 25AWG 14)
	2 conductors 0.2 to 1.5 mm <sup>2</sup> (AWG 25AWG 16)
	Tightening torque =
	0.5 N.m (4.5 lb-in) (tighten using screwdriver diam. 3.5 mm) Also valid for spring cage connectors (ref 88 970 313 and 88 970 317 for the RBT range)
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See page 22, except :	004	
Certifications	UL, CSA	
Operating temperature	$-30 \rightarrow +70$ °C (DC); $-20 \rightarrow +70$ ° C (AC);	
	Operating temperature @ 100 % (Relays 6A) Operating temperature @ 66 % (Relays 8A)	
Storage temperature	-40 →+80 °C	
Processing characteristics of CB, CD, XD & XB pr	oduct types	
LCD display	CD, XD : Display with 4 lines of 18 characters	
Programming method	Ladder or FBD/SFC (Grafcet)	
Program size	Ladder: 120 lines	
	FBD:	
	CB, CD: 350 typical blocks	
	XB, XD : 700 typical 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	
	FBD : 6 →90 ms	
Response time	Input acquisition time + 1 to 2 cycle times	
Clock data retention	10 years (lithium battery) at 25 °C	
Clock drift	Drift < 12 min/year (at 25 °C)	
	6 s/month (at 25 °C with user-definable correction of drift)	
Timer block accuracy	1 % ± 2 cycle times	
Start up time on power up	< 1,2 s	
Characteristics of products with AC power suppli		
Supply		
Nominal voltage	24 V AC	100 →240 V AC
Operating limits	-15 % / +20 %	-15 % / +10 %
	or 20.4 V AC→28.8 V AC	or 85 V AC→264 V AC
Supply frequency range	50/60 Hz (+4 % / -6 %)	TO (00 11 / 40/ / 00/) 47 FO 11 /57 00 11
	or 47 →53 Hz/57 →63 Hz	50/60 Hz (+ 4 % / - 6 %) or 47 →53 Hz/57 →63 Hz
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-XB10 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 AC	1780 V AC
Inputs		
-	04)/40/450/4:000/	400 040 \ \ 40 \ \ 45 \ \ \ \ \ 40 \ \ \ \
Input voltage	24 V AC (-15 % / +20 %)	100 →240 V AC (-15 % / +10 %)
Input current	4.4 mA @ 20.4 V AC	0.24 mA @ 85 V AC
	5.2 mA @ 24.0 V AC	0.24 mA @ 85 V AC 0.75 mA @ 264 V AC
Input current	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC	0.75 mA @ 264 V AC
Input current Input impedance	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ	0.75 mA @ 264 V AC 350 kΩ
Input current Input impedance Logic 1 voltage threshold	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC	0.75 mA @ 264 V AC 350 kΩ ≥ 79 V AC
Input current  Input impedance  Logic 1 voltage threshold  Making current at logic state 1	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA	0.75 mA @ 264 V AC 350 kΩ ≥ 79 V AC > 0.17 mA
Input current  Input impedance  Logic 1 voltage threshold  Making current at logic state 1  Logic 0 voltage threshold	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC	0.75 mA @ 264 V AC  350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14)
Input current  Input impedance  Logic 1 voltage threshold  Making current at logic state 1	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA	0.75 mA @ 264 V AC 350 kΩ ≥ 79 V AC > 0.17 mA
Input current  Input impedance  Logic 1 voltage threshold  Making current at logic state 1  Logic 0 voltage threshold	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms	0.75 mA @ 264 V AC  350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14)
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA	0.75 mA @ 264 V AC 350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14) < 0.5 mA
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms	0.75 mA @ 264 V AC  350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14) < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms	$\begin{array}{l} 0.75 \text{ mA} @ 264 \text{ V AC} \\ 350 \text{ k}\Omega \\ \geq 79 \text{ V AC} \\ > 0.17 \text{ mA} \\ \leq 20 \text{ V AC} (\leq 28 \text{ V AC}: \text{XE10, XR06, XR10, XR14}) \\ < 0.5 \text{ mA} \\ 50 \text{ ms} \\ \text{State } 0 \rightarrow 1 \text{ (50/60 Hz)} \\ \text{Configurable in increments of 10 ms} \\ 50 \text{ ms} \text{ min. up to 255 ms} \end{array}$
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz)	$\begin{array}{l} 0.75 \text{ mA} @ 264 \text{ V AC} \\ 350 \text{ k}\Omega \\ \geq 79 \text{ V AC} \\ > 0.17 \text{ mA} \\ \leq 20 \text{ V AC} (\leq 28 \text{ V AC}: \text{XE10, XR06, XR10, XR14}) \\ < 0.5 \text{ mA} \\ 50 \text{ ms} \\ \text{State } 0 \rightarrow 1 \text{ (50/60 Hz)} \\ \text{Configurable in increments of 10 ms} \\ 50 \text{ ms min. up to 255 ms} \\ \text{State } 0 \rightarrow 1 \text{ (50/60 Hz)} \\ \end{array}$
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) :	$0.75 \text{ mA} @ 264 \text{ V AC}$ $350 \text{ k}\Omega$ $\geq 79 \text{ V AC}$ $> 0.17 \text{ mA}$ $\leq 20 \text{ V AC} (\leq 28 \text{ V AC}: \text{XE10}, \text{XR06}, \text{XR10}, \text{XR14})$ $< 0.5 \text{ mA}$ $50 \text{ ms}$ $\text{State } 0 \rightarrow 1 \text{ (50/60 Hz)}$ $\text{Configurable in increments of 10 ms}$ $50 \text{ ms min. up to 255 ms}$ $\text{State } 0 \rightarrow 1 \text{ (50/60 Hz)}$ $\text{In accordance with cycle time (Tc) and input response time (Tr)}:$
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr)	0.75 mA @ 264 V AC 350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14) < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr)
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency Sensor type	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP	0.75 mA @ 264 V AC  350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14) < 0.5 mA  50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr)	0.75 mA @ 264 V AC 350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14) < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr)
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency Sensor type	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP	0.75 mA @ 264 V AC  350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14) < 0.5 mA  50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency Sensor type Input type	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP Resistive	0.75 mA @ 264 V AC 350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14) < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP Resistive
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming  Maximum counting frequency Sensor type Input type Isolation between power supply and inputs	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None	0.75 mA @ 264 V AC 350 kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14) < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP Resistive None
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming  Maximum counting frequency Sensor type Input type Isolation between power supply and inputs Isolation between inputs	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None	0.75 mA @ $264$ V AC $350$ kΩ $≥ 79$ V AC $> 0.17$ mA $≤ 20$ V AC $(≤ 28$ V AC : XE10, XR06, XR10, XR14) $< 0.5$ mA $≤ 20$ V AC $(≤ 28$ V AC : XE10, XR06, XR10, XR14) $< 0.5$ mA $≤ 20$ Configurable in increments of 10 ms $≤ 20$ ms min. up to $≤ 20$ ms $≤ 20$ ms min. up to $≤ 20$ ms $≤ 20$ ms min. up to $≤ 20$ ms $≤ 20$
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming  Response time with function blocks programming  Maximum counting frequency  Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions  Status indicator	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ $=$ 14 V AC $=$ 2 mA $=$ 5 V AC $=$ 5.2 mA $=$ 5.5 mA $=$ 50 ms State 0 $=$ 1 (50/60 Hz) Configurable in increments of 10 ms $=$ 50 ms min. up to 255 ms State 0 $=$ 1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/( (2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < 0.5 mA $50$ ms State $0 \rightarrow 1$ (50/60 Hz) Configurable in increments of 10 ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2$ x Tc) + Tr) Contact or 3-wire PNP Resistive None None
Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the e	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD intire range	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < 0.5 mA $50$ ms State $0 \rightarrow 1$ (50/60 Hz) Configurable in increments of 10 ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2$ x Tc) + Tr) Contact or 3-wire PNP Resistive None None
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming  Response time with function blocks programming  Maximum counting frequency  Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions  Status indicator	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD ntire range 5 →30 V DC	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < 0.5 mA $50$ ms State $0 \rightarrow 1$ (50/60 Hz) Configurable in increments of 10 ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2$ x Tc) + Tr) Contact or 3-wire PNP Resistive None None
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming  Response time with function blocks programming  Maximum counting frequency  Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator  Characteristics of relay outputs common to the elemant of the service of the	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD ntire range 5 →30 V DC 24 →250 V AC	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < 0.5 mA $50$ ms State $0 \rightarrow 1$ (50/60 Hz) Configurable in increments of 10 ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2$ x Tc) + Tr) Contact or 3-wire PNP Resistive None None
Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the e	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD ntire range 5 →30 V DC 24 →250 V AC CB-CD-XD10-XB10-XR06-XR10: 8 A	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < 0.5 mA $50$ ms State $0 \rightarrow 1$ (50/60 Hz) Configurable in increments of 10 ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2$ x Tc) + Tr) Contact or 3-wire PNP Resistive None None
Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming  Response time with function blocks programming  Maximum counting frequency  Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator  Characteristics of relay outputs common to the elemant of the service of the	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD  ntire range 5 → 30 V DC 24 → 250 V AC CB-CD-XD10-XB10-XR06-XR10: 8 A XD26-XB26: 8 x 8 A relays, 2 x 5 A relays	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > 0.17 mA ≤ 20 V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < 0.5 mA $50$ ms State $0 \rightarrow 1$ (50/60 Hz) Configurable in increments of 10 ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2$ x Tc) + Tr) Contact or 3-wire PNP Resistive None None
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Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming  Response time with function blocks programming  Maximum counting frequency  Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator  Characteristics of relay outputs common to the elemant of the service of the	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD ntire range 5 →30 V DC 24 →250 V AC CB-CD-XD10-XB10-XR06-XR10:8 A XD26-XB26:8 x 8 A relays, 2 x 5 A relays XR14:4 x 8 A relays, 2 x 5 A relays	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > $0.17$ mA ≤ $20$ V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < $0.5$ mA $50$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) Configurable in increments of $10$ ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2 \times Tc$ ) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD
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Input current  Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming  Response time with function blocks programming  Maximum counting frequency  Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator  Characteristics of relay outputs common to the elemant of the service of the	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/ ( (2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD ntire range 5 →30 V DC 24 →250 V AC CB-CD-XD10-XB10-XR06-XR10:8 A XD26-XB26:8 x 8 A relays, 2 x 5 A relays XE10:4 x 5 A relays XR14:4 x 8 A relays, 2 x 5 A relays RBT (Removable Terminal Blocks) versions: verify the maximum of	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > $0.17$ mA ≤ $20$ V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < $0.5$ mA $50$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) Configurable in increments of $10$ ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2 \times Tc$ ) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD
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Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming  Maximum counting frequency Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the e Max. breaking voltage  Breaking current  Electrical durability for 500 000 operating cycles	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD ntire range 5 → 30 V DC 24 → 250 V AC CB-CD-XD10-XB10-XR06-XR10:8 A XD26-XB26:8 x 8 A relays, 2 x 5 A relays XR14:4 x 8 A relays, 2 x 5 A relays RBT (Removable Terminal Blocks) versions: verify the maximum of Utilization category DC-12:24 V, 1.5 A Utilization category DC-12:230 V, 0.9 A 12 A for O8, O9, OA	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > $0.17$ mA ≤ $20$ V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < $0.5$ mA $50$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) Configurable in increments of $10$ ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2 \times Tc$ ) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD
Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the e Max. breaking voltage Breaking current  Electrical durability for 500 000 operating cycles  Max. Output Common Current Minimum switching capacity	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD ntire range 5 →30 V DC 24 →250 V AC CB-CD-XD10-XB10-XR06-XR10:8 A XD26-XB26:8 x 8 A relays, 2 x 5 A relays XE10:4 x 5 A relays XR14:4 x 8 A relays, 2 x 5 A relays RBT (Removable Terminal Blocks) versions: verify the maximum of Utilization category DC-12:24 V, 1.5 A Utilization category DC-13:24 V (L/R = 10 ms), 0.6 A Utilization category AC-15:230 V, 0.9 A 12 A for O8, O9, OA	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > $0.17$ mA ≤ $20$ V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < $0.5$ mA $50$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) Configurable in increments of $10$ ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2 \times Tc$ ) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD
Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0 Response time with LADDER programming Response time with function blocks programming Maximum counting frequency Sensor type Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the e Max. breaking voltage Breaking current  Electrical durability for 500 000 operating cycles  Max. Output Common Current Minimum switching capacity Minimum load	5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA ≤ 5 V AC < 0.5 mA 50 ms State 0 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz) In accordance with cycle time (Tc) and input response time (Tr): 1/((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD ntire range 5 →30 V DC 24 →250 V AC CB-CD-XD10-XB10-XR06-XR10: 8 A XD26-XB26: 8 x 8 A relays, 2 x 5 A relays XR14: 4 x 8 A relays, 2 x 5 A relays RBT (Removable Terminal Blocks) versions: verify the maximum of Utilization category DC-12: 24 V, 1.5 A Utilization category DC-12: 230 V, 1.5 A Utilization category AC-15: 230 V, 0.9 A 12 A for O8, O9, OA 10 mA (at minimum voltage of 12 V) 12 V, 10 mA	$0.75$ mA @ $264$ V AC $350$ kΩ ≥ 79 V AC > $0.17$ mA ≤ $20$ V AC (≤ $28$ V AC : XE10, XR06, XR10, XR14) < $0.5$ mA $50$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) Configurable in increments of $10$ ms $50$ ms min. up to $255$ ms State $0 \rightarrow 1$ ( $50/60$ Hz) In accordance with cycle time (Tc) and input response time (Tr) : $1/$ (( $2 \times Tc$ ) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD
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Commence of a part of the commence of the co	/09/2012			www.crouzet.co
Maile from Service   Maile f		10,000,000 (operations)		
November   Productions	oltage for withstanding shocks	In accordance with IEC/EN 60947-1 and IEC/	EN 60664-1 : 4 kV	
Against short-corosis   Against short-corosis   None   Against correctages and orestudies   None	esponse time			
Against coverolates and coverolates : None				
Contractoristics of product with DC power supplied	uilt-in protections			
Characteristics of product with DC power supplies	tatus indicator			
Marcon   M				
Name and adulations	naracteristics of product with DC power supplied			
Community from more power code   1-13 st / -20 ms	apply			
Immanity North Micro power cold.	ominal voltage	12 V DC	24 V DC	
Immunity from micro power costs	perating limits			
C812 with solid state cuprus: 1.5 W   C812-CD22-CD22 with solid state cuprus: 5.5 W   CR20: 1.5 W				
C012 : 1.5 W   XD10 XR10 with relay outputs : 4 W   XD10 XR10 with relay outputs : 4 W   XD10 XR10 with relay outputs : 5 W   XD20 XR20 with sectors : 6 W   XD20 XR20 W  XD20 XR20 with sectors : 6 W   XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 W  XD20 XR20 XR20 W  XD20 XR20 XR20 XR20 XR20 XR20 XR20 XR20 XR				
C020 : 2.5 W   XD26 XP826 with social static outputs : 5 W   XD26 XP826 with settination : 5 W   XD26 XP826 with extension : 5 W   XD10 XP810 with settination : 6 W   XD10	CD12 : 1.5 W XD10-XB10 with relay outputs : 4 W		·	
ADZ8-XB28 with selesy outputs - XD26 with relay outputs : 8 W   XD26-XB28 with seles weersion : 10 W				
NOSE WINS sold state outputs: 2.5 W   XD2EX-XB2R with extension: 10 W   Yes				
Protection against polariey (inventions)   Ves   Ves   Ves		XD26-XB26 with extension : 5 W	XD10-XB10 with exte	ension: 8 W
Digital Injust (1 to IA and IH to IY)		XD26 with solid state outputs : 2.5 W	XD26-XB26 with exte	ension: 10 W
Part Current   3.9 m A ® (10.4 M DC   2.2 % / 4.26 %   1.2 m M C   2.5 m M R   2.2 M DC   2.5 m M R   2.4 M DC   2.5 m M R   2.0 M DC   2.5 m M R   2.5 M DC   2.5 M DC   2.5 m M R	rotection against polarity inversions	Yes	Yes	
Input   Sure	gital inputs (I1 to IA and IH to IY)			
Input impediance	put voltage	12 V DC (-13 % / +20 %)		24 V DC (-20 % / +25 %)
44 m A @ 12.0 V DC   53 m & @ 14 V DC   40 m A @ 30.0 V DC     Input impedinos		,		,
Final Imputations				
Legis 1 voltage threshold   2 / V DC   2 / 15 V DC   2 / 2 mA				
Making current of locic states				
Logic Overlage Investoold   \$3 \ V DC   \$5 \ V DC     Response time   12 cycle times   12 cycle ti				
Reference current at logic state 0   0.9 m				
Response time				
Maximum counting frequency	S			
Inputs 13 to 1 A 8 IH to 17 : In accordance with cycle time (Tc) and input response time (Tr) : 17 (2 x Tc) + Tr)		•	2 l. U=\	•
input response time (Tr) : 1/ (2 x Tc) + Tr)	aximum counting frequency			
Sensor type		•	by old time (10) and	
Conforming to EC/EN 61131-2         Type 1         Type 1           I you type         Resistive         Resistive           Isolation between power supply and inputs         None         None           Protection against polarity inversions         Yes         Yes           Protection against polarity inversions         Yes         Yes           Analogue or digital inputs (IB to IG)         Inputs IB →IE         4 inputs IB →IE           CB20-CD20-XB26-XD26         6 inputs IB →IG         6 inputs IB →IG           Inputs used as analogue inputs         (0 →10 V) or (0 →V power supply)         (0 →10 V) or (0 →V power supply)           Input voltage         (1 4 kQ         12 kQ           Input voltage         (1 4 kQ V) C max         30 V DC max           Value of LSB         14 mV, 4 mA         28 mV, 4 mA           Input type         Common mode         Common mode           Resolution         10 bits at max. input voltage         10 bits at max. input voltage           Conversion time         Controller cycle time         Controller cycle time           Accuracy at 25°C         ± 5 %         ± 5 %           Accuracy at 55°C         ± 2 %         ± 2 %           Isolation between analogue channel and power supply         None         10 m maximum, with shielded cable (sensor	ensor type			
Resistive   Rone				
Seolation between power supply and inputs   None   Non				
Recolation between inputs   None   Yes		None		None
Status indicator   On LCD screen for CD and XD   On LCD screen for CD and XD		None		None
Analogue or digital inputs (IB to IG)         4 inputs IB →IE         4 inputs IB →IE           CB20-CD20-XB26-XD26         6 inputs IB →IG         6 inputs IB →IG           Inputs used as analogue inputs         Input used as analogue inputs           Measurement range         (0 →10 V) or (0 →V power supply)         (0 →10 V) or (0 →V power supply)           Input impedance         14 kΩ         12 kΩ           Input voltage         14 4 V DC max.         30 V DC max.           Value of LSB         14 mV, 4 mA         29 mV, 4 mA           Input type         Common mode         Common mode           Resolution         10 bits at max. input voltage         10 bits at max. input voltage           Conversion time         Controller cycle time         Controller cycle time           Accuracy at 25 °C         ± 5 %         ± 5 %           Repeat accuracy at 25 °C         ± 6.2 %         ± 6.2 %           Repeat accuracy at 55 °C         ± 2 %         ± 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           Potection against polarity inversion	rotection against polarity inversions	Yes		Yes
CB12-CD12-XD10-XB10         4 inputs IB →IE         4 inputs IB →IE           CB20-CD20-XB26-XD26         6 inputs IB →IG         6 inputs IB →IG           Input used as analogue inputs           Measurement range         (0 →10 V) or (0 →V power supply)         (0 →10 V) or (0 →V power supply)           Input voltage         14 kΩ         12 kΩ           Input voltage         14 k V DC max.         30 V DC max.           Value of LSB         14 mV, 4 mA         29 mV, 4 mA           Input type         Common mode         Common mode           Resolution         10 bits at max. input voltage         Controller cycle time           Conversion time         Controller cycle time         Controller cycle time           Accuracy at 25 °C         ± 5 %         ± 5 %           Accuracy at 55 °C         ± 2 %         ± 2 %           Repeat accuracy at 55 °C         ± 2 %         ± 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)           Potentiometer control         2 2 kΩ/0.5 W (recommended)         10 kΩ max.           Input voltage         12 V DC (-13 % / +20 %)         24 V DC (-20 % / +25 %) <td>tatus indicator</td> <td>On LCD screen for CD and XD</td> <td></td> <td>On LCD screen for CD and XD</td>	tatus indicator	On LCD screen for CD and XD		On LCD screen for CD and XD
CB12-CD12-XD10-XB10         4 inputs IB →IE         4 inputs IB →IE           CB20-CD20-XB26-XD26         6 inputs IB →IG         6 inputs IB →IG           Input used as analogue inputs           Measurement range         (0 →10 V) or (0 →V power supply)         (0 →10 V) or (0 →V power supply)           Input voltage         14 kΩ         12 kΩ           Input voltage         14 k V DC max.         30 V DC max.           Value of LSB         14 mV, 4 mA         29 mV, 4 mA           Input type         Common mode         Common mode           Resolution         10 bits at max. input voltage         Controller cycle time           Conversion time         Controller cycle time         Controller cycle time           Accuracy at 25 °C         ± 5 %         ± 5 %           Accuracy at 55 °C         ± 2 %         ± 2 %           Repeat accuracy at 55 °C         ± 2 %         ± 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)           Potentiometer control         2 2 kΩ/0.5 W (recommended)         10 kΩ max.           Input voltage         12 V DC (-13 % / +20 %)         24 V DC (-20 % / +25 %) <td>nalogue or digital inputs (IB to IG)</td> <td></td> <td></td> <td></td>	nalogue or digital inputs (IB to IG)			
Inputs used as analogue inputs   B → IG		4 inputs IB →IF		4 inputs IB →IF
Inputs used as analogue inputs		·		·
Measurement range $(0 \rightarrow 10 \text{ V})$ or $(0 \rightarrow \text{V})$ power supply) $(0 \rightarrow 10 \text{ V})$ or $(0 \rightarrow \text{V})$ power supply)         Input impedance       14 kΩ       12 kΩ         Input voltage       14 4 V DC max.       30 V DC max.         Value of LSB       14 mV, 4 mA       29 mV, 4 mA         Input type       Common mode       Common mode         Resolution       10 bits at max. input voltage       Controller cycle time         Accuracy at 25 °C       ±5 %       ±5 %         Accuracy at 55 °C       ±6.2 %       ±6.2 %         Repeat accuracy at 55 °C       ±6.2 %       ± 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         Potentiometer control       22 kΩ/0.5 W (recommended)       10 kΩ max.         Input sused as digital inputs       12 V DC (-13 % / +20 %)       24 V DC (-20 % / +25 %)         Input current       0.7 mA @ 10.44 VDC       1.6 mA @ 19.2 VDC         0.9 mA @ 12.0 VDC       2.0 mA @ 24.0 VDC         1.0 mA @ 14.4VDC       2.5 mA @ 3.00 VDC         Input impedance       14 kΩ				
Input impedance   14 kΩ   12 kΩ   12 kΩ   12 kΩ   14.4 V DC max.   30 V DC ma		(0 10 1/) == (0 1/ ===================================		(0 40 \\) == (0 \\ \) == (0 \\
Input voltage	Š			
Value of LSB         14 mV, 4 mA         29 mV, 4 mA           Input type         Common mode         Common mode           Resolution         10 bits at max. input voltage         10 bits at max. input voltage           Conversion time         Controller cycle time         Controller cycle time           Accuracy at 25 °C         ± 5 %         ± 5 %           Accuracy at 55 °C         ± 6.2 %         ± 6.2 %           Repeat accuracy at 55 °C         ± 2 %         ± 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           Potentiometer control         2.2 kΩ/0.5 W (recommended)         10 kΩ max.           Inputs used as digital inputs         Input voltage         12 V DC (-13 % / +20 %)         24 V DC (-20 % / +25 %)           Input current         0.7 mA @ 10.44 VDC         2.6 mA @ 30.0 VDC           1.0 mA @ 12.0 VDC         2.0 mA @ 24.0 V DC           2.0 mA @ 30.0 VDC         2.5 mA @ 30.0 VDC           Input impedance         14 kΩ         21 kΩ         21.2 mA           Logic 1 voltage threshold         ≤ 0.5 mA				
Input type				
Resolution				
Conversion time  Controller cycle time  Accuracy at 25 °C $\pm 5\%$ $\pm 5\%$ Accuracy at 55 °C $\pm 6.2\%$ Repeat accuracy at 55 °C $\pm 2\%$ Repeat accuracy at 55 °C $\pm 2\%$ Repeat accuracy at 55 °C $\pm 2\%$ None  None  Cable length  10 m maximum, with shielded cable (sensor not isolated)  Protection against polarity inversions  Yes  Potentiometer control  2.2 k $\Omega$ /0.5 W (recommended) 10 k $\Omega$ max.  Inputs used as digital inputs  Input voltage  12 V DC (-13 % / +20 %)  1.6 mA @ 19.2 VDC  0.9 mA @ 10.44 VDC  0.9 mA @ 12.0 VDC  1.0 mA @ 14.4VDC  1.0 mA @ 24.0 V DC  1.0 mA @ 24.0 V DC  1.0 mA @ 30.0 VDC  Input impedance  14 k $\Omega$ 27 V DC  Aking current at logic state 1  20.5 mA  21.2 mA  25 V DC  86 V DC  87 V DC  87 V DC  88 V S  26 V DC  87 V DC  88 V S  46.2 %  40.4 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)  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)  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)  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)				
Accuracy at 25 °C				·
Accuracy at 55 °C		•		
Repeat accuracy at 55 °C				
Isolation between analogue channel and power supplyNoneNoneCable length10 m maximum, with shielded cable (sensor not isolated)10 m maximum, with shielded cable (sensor not isolated)Protection against polarity inversionsYesYesPotentiometer control $2.2  k\Omega/0.5  W$ (recommended) $2.2  k\Omega/0.5  W$ (recommended) $10  k\Omega$ max. $10  k\Omega$ max.Input sused as digital inputsInput current $12  V  DC  (-13  \% / +20  \%)$ $24  V  DC  (-20  \% / +25  \%)$ Input current $0.7  mA  @  10.44  V  DC$ $1.6  mA  @  19.2  V  DC$ $0.9  mA  @  12.0  V  DC$ $2.0  mA  @  24.0  V  DC$ $0.9  mA  @  12.0  V  DC$ $2.5  mA  @  30.0  V  DC$ Input impedance $14  k\Omega$ $12  k\Omega$ Logic 1 voltage threshold $2.7  V  DC$ $2.5  mA  @  30.0  V  DC$ Making current at logic state 1 $2.5  mA  @  2.0  V  DC$ $2.15  V  DC$ Logic 0 voltage threshold $3.7  V  DC  @  2.0  mA  @  2.0  V  DC$ $2.5  mA  @  2.0  V  DC$ Release current at logic state 0 $2.0.0  mA  @  2.0.0  m$	-			
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         Potentiometer control       2.2 kΩ/0.5 W (recommended)       2.2 kΩ/0.5 W (recommended)         10 kΩ max.       10 kΩ max.         Input sused as digital inputs       12 V DC (-13 % / +20 %)       24 V DC (-20 % / +25 %)         Input current       0.7 m @ 10.44 VDC       1.6 m @ 19.2 VDC         0.9 m @ 21.0 VDC       2.0 m @ 24.0 V DC         0.9 m @ 24.0 V DC       2.5 m @ 30.0 VDC         Input impedance       14 kΩ       12 kΩ         Logic 1 voltage threshold       ≥ 7 V DC       ≥ 15 VDC         Making current at logic state 1       ≥ 0.5 mA       ≥ 1.2 mA         Logic 0 voltage threshold       ≤ 3 V DC       ≤ 5 V DC         Release current at logic state 0       ≤ 0.2 mA       ≤ 0.5 mA				
Protection against polarity inversions       Yes       Yes         Potentiometer control $2.2 \text{ k}\Omega/0.5 \text{ W}$ (recommended) $2.2 \text{ k}\Omega/0.5 \text{ W}$ (recommended) $10 \text{ k}\Omega$ max. $10 \text{ k}\Omega$ max.         Inputs used as digital inputs       Input voltage         Input current $0.7 \text{ mA} @ 10.44 \text{ VDC}$ $24 \text{ V DC} (-20 \% / +25 \%)$ $0.9 \text{ mA} @ 12.0 \text{ VDC}$ $2.0 \text{ mA} @ 19.2 \text{ VDC}$ $0.9 \text{ mA} @ 12.0 \text{ VDC}$ $2.0 \text{ mA} @ 24.0 \text{ V DC}$ $0.9 \text{ mA} @ 12.0 \text{ VDC}$ $2.5 \text{ mA} @ 30.0 \text{ VDC}$ Input impedance $14 \text{ k}\Omega$ $12 \text{ k}\Omega$ Logic 1 voltage threshold $2.7 \text{ V DC}$ $2.15 \text{ VDC}$ Making current at logic state 1 $2.0.5 \text{ mA}$ $2.1.2 \text{ mA}$ Logic 0 voltage threshold $3.0 \text{ VDC}$ $5.0.5 \text{ VDC}$ Release current at logic state 0 $5.0.5 \text{ mA}$ $5.0.5 \text{ mA}$			not isolated)	10 m maximum, with shielded cable (sensor not isolated)
Potentiometer control       2.2 kΩ/0.5 W (recommended)       2.2 kΩ/0.5 W (recommended)         10 kΩ max.       10 kΩ max.         Input sused as digital inputs         Input voltage       12 V DC (-13 % / +20 %)       24 V DC (-20 % / +25 %)         Input current       0.7 mA @ 10.44 VDC       1.6 mA @ 19.2 VDC         0.9 mA @ 12.0 VDC       2.0 mA @ 24.0 V DC         1.0 mA @ 14.4VDC       2.5 mA @ 30.0 VDC         Input impedance       14 kΩ       12 kΩ         Logic 1 voltage threshold       ≥ 7 V DC       ≥ 15 VDC         Making current at logic state 1       ≥ 0.5 mA       ≥ 1.2 mA         Logic 0 voltage threshold       ≤ 3 V DC       ≤ 5 V DC         Release current at logic state 0       ≤ 0.2 mA       ≤ 0.5 mA	Ü	•	,	
Inputs used as digital inputs       10 kΩ max.       10 kΩ max.         Input voltage       12 V DC (-13 % / +20 %)       24 V DC (-20 % / +25 %)         Input current       0.7 mA @ 10.44 VDC       1.6 mA @ 19.2 VDC         0.9 mA @ 12.0 VDC       2.0 mA @ 24.0 V DC         1.0 mA @ 14.4VDC       2.5 mA @ 30.0 VDC         Input impedance       14 kΩ       12 kΩ         Logic 1 voltage threshold       ≥ 7 V DC       ≥ 15 VDC         Making current at logic state 1       ≥ 0.5 mA       ≥ 1.2 mA         Logic 0 voltage threshold       ≤ 3 V DC       ≤ 5 V DC         Release current at logic state 0       ≤ 0.2 mA       ≤ 0.5 mA				
$\begin{array}{ l l l l l l l l l l l l l l l l l l l$		· ·		,
$\begin{array}{ l l l l l l l l l l l l l l l l l l l$	puts used as digital inputs			
		12 V DC (-13 % / +20 %)		24 V DC (-20 % / +25 %)
0.9 mA @ 12.0 VDC       2.0 mA @ 24.0 V DC         1.0 mA @ 14.4VDC       2.5 mA @ 30.0 VDC         Input impedance       14 kΩ       12 kΩ         Logic 1 voltage threshold       ≥ 7 V DC       ≥ 15 VDC         Making current at logic state 1       ≥ 0.5 mA       ≥ 1.2 mA         Logic 0 voltage threshold       ≤ 3 V DC       ≤ 5 V DC         Release current at logic state 0       ≤ 0.2 mA       ≤ 0.5 mA		,		
1.0 mA @ 14.4VDC       2.5 mA @ 30.0 VDC         Input impedance       14 kΩ       12 kΩ         Logic 1 voltage threshold       ≥ 7 V DC       ≥ 15 VDC         Making current at logic state 1       ≥ 0.5 mA       ≥ 1.2 mA         Logic 0 voltage threshold       ≤ 3 V DC       ≤ 5 V DC         Release current at logic state 0       ≤ 0.2 mA       ≤ 0.5 mA				
Logic 1 voltage threshold         ≥ 7 V DC         ≥ 15 VDC           Making current at logic state 1         ≥ 0.5 mA         ≥ 1.2 mA           Logic 0 voltage threshold         ≤ 3 V DC         ≤ 5 V DC           Release current at logic state 0         ≤ 0.2 mA         ≤ 0.5 mA				
Making current at logic state 1       ≥ 0.5 mA       ≥ 1.2 mA         Logic 0 voltage threshold       ≤ 3 V DC       ≤ 5 V DC         Release current at logic state 0       ≤ 0.2 mA       ≤ 0.5 mA	put impedance	14 kΩ		12 kΩ
Logic 0 voltage threshold         ≤ 3 V DC         ≤ 5 V DC           Release current at logic state 0         ≤ 0.2 mA         ≤ 0.5 mA	ogic 1 voltage threshold	≥7 V DC		≥ 15 VDC
Release current at logic state 0 ≤ 0.2 mA ≤ 0.5 mA	aking current at logic state 1	≥ 0.5 mA		≥ 1.2 mA
				≤5 V DC
	elease current at logic state 0	≤ 0.2 mA		≤ 0.5 mA
Response time $1 \rightarrow 2$ cycle times $1 \rightarrow 2$ cycle times		•		•
	aximum counting frequency	, , , , , , , , , , , , , , , , , , , ,	response time (Tr):	In accordance with cycle time (Tc) and input response time (Tr):
1/((2 x Tc) + Tr) 1/((2 x 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  None  None  None				

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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 t	he entire range	
Max. breaking voltage	5 →30 V DC	
	24 →250 V AC	
Max. Output Common Current	12A (10A UL) for O8, O9, OA	
Breaking current	CB-CD-XD10-XB10-XR06-XR10: 8 A XD26-XB26: 8 x 8 A relays, 2 x 5 A relays XE10: 4 x 5 A relays XR14: 4 x 8 A relays, 2 x 5 A relays	
Electrical durability for 500 000 operating cycles	Utilization category DC-12 : 24 V, 1.5 A Utilization category DC-13 : 24 V (L/R = 10 ms), 0.6 A Utilization category AC-12 : 230 V, 1.5 A Utilization category AC-15 : 230 V, 0.9 A	
Minimum switching capacity	10 mA (at minimum voltage of 12 V)	
Minimum load	12 V, 10 mA	
Maximum rate	Off load : 10 Hz At operating current : 0.1 Hz	
Mechanical life	10,000,000 (operations)	
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		
PWM solid state output*	CB12: O4	CD12-XD10-XB10 : O4
	XD26 : O4 →O7	CD20-XD26-XB26 : O4 →O7
* Only available with "FBD" programming language	* Only available with "FBD" programming language	
Breaking voltage	10.4 →30 V DC	19.2 →30 V DC
Nominal voltage	12-24 VDC	24 V DC
Nominal current	0.5 A	0.5 A
Max. breaking current	0,625 A	0,625 A
Voltage drop	≤ 2 V for I = 0.5 A (at state 1)	≤ 2 V for I = 0.5 A (at state 1)
Response time	Make ≤ 1 ms Release ≤ 1 ms	Make ≤ 1 ms Release ≤ 1 ms
Built-in protections	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 logic controller output and the load	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 logic controller output and the load
Min. load	1 mA	1 mA
Maximum incandescent load	0,2 A / 12 V DC 0,1 A / 24 V DC	0,1 A / 24 V DC
Galvanic isolation	No	No
PWM frequency	14.11 Hz 56.45 Hz 112.90 Hz 225.80 Hz 451.59 Hz 1806.37 Hz	14.11 Hz 56.45 Hz 112.90 Hz 225.80 Hz 451.59 Hz 1806.37 Hz
PWM cyclic ratio	0 →100 % (256 steps for CD, XD and 1024 steps for XA)	$0 \rightarrow 100$ % (256 steps for CD, XD and 1024 steps for XA)
PWM accuracy at 120 Hz	< 5 % (20 % →80 %) load at 10 mA	< 5 % (20 % →80 %) load at 10 mA
PWM accuracy at 500 Hz	< 10 % (20 % →80 %) load at 10 mA	< 10 % (20 % →80 %) load at 10 mA
Status indicator	On LCD screen for XD	On LCD screen for CD and XD

Туре	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 →Millenium 3	88970102
PA	USB cable 3 m : PC →Millenium 3	88970109
PA	Millenium 3 interface →Bluetooth (class A 10 m)	88970104

## Comments

\* to be marketed 1st quarter 2006

Dimension Diagram : CB12 Smart

