

Smart "Expandable" range with display XD10 Smart Part number 88974141



- Highly visible blue LCD with 4 lines of 18 characters and configurable backlighting
- Allow the use of the entire library of specific functions blocs of the software workshop
 Extended temperature range (-20 °C →+70 °C)
- Analogue inputs 0-10 VDC, Potentiometer, NTC, LDR (0-20 mA/Pt100 with converters)
- Open to XN network communication extensions, digital I/O, analogue, Pt100 extensions

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Туре	Inputs	Outputs	Supply
88974141 XD10 Smart	6 digital (including 4 analogue)	4 relays 8 A	24 V DC

Specifications

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

General environment characteristics for CB, CD,	
Certifications	CE, UL, CSA, GL
Conformity to standards (with the low voltage directive	IEC/EN 61131-2 (Open equipment)
and EMC directive)	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
	TRAILE REQUERTY IT CONTINUE THOSE 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, EN 55011 (CISPR22, CISPR11) 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 (+40 °C in a non-ventilated enclosure)
	in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-22
Storage temperature	-40 →+80 °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 ² (AWG 24AWG 14)
	2 conductors 0.25 to 0.75 mm ² (AWG 24AWG 18)
	Semi-rigid wire =
	1 conductor : 0.2 to 2.5 mm ² (AWG 25AWG 14)
	Rigid wire =
	1 conductor : 0.2 to 2.5 mm ² (AWG 25AWG 14)
	2 conductors 0.2 to 1.5 mm ² (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)

General characteristics

Operating temperature	-20 →+70 °C			
Operating factor	100 % (6 A relays)			
Operating factor	66 % (8 A relays)			
Storage temperature	-40 →+80 °C			
LCD display	Display with 4 lines of 18 characters, white characters on a blue background			
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Processing characteristics of CB, CD, XD & XB pr	**			
LCD display	CD, XD : Display with 4 lines of 18 characters			
Programming method	Function blocks / SCF (Grafcet) or Ladder	ka mavimum	n nor moore	
Program size	8 Kb : 350 typical blocks, 64 macros maximum, 256 blocks maximum per macro			
	or 120 lines in Ladder			
Program memory	Flash EEPROM			
Removable memory	EEPROM			
Data memory	368 bit/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	No. of the contract of the con	FBD : 6 →90 ms (typically 20 ms)		
D	Ladder: typically 20 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 dr	ift)		
Timer block accuracy	1 % ± 2 cycle times	111)		
Start up time on power up	< 1,2 s			
Characteristics of products with AC power suppl	ied			
Supply				
Nominal voltage	24 V AC	100 →240	O V AC	
Operating limits	-15 % / +20 %	-15 % / +1	10 %	
	or 20.4 V AC→28.8 V AC	or 85 V A	C→264 V AC	
Supply frequency range	50/60 Hz (+4 % / -6 %)	50/60 Hz /	(+ 4 % / - 6 %) or 47 →53 Hz/57 →63 Hz	
	or 47 →53 Hz/57 →63 Hz			
Immunity from micro power cuts	10 ms (repetition 20 times)		petition 20 times)	
Max. absorbed power	CB12-CD12-XD10-XB10 : 4 VA		12-XD10-XB10 : 7 VA	
	CB20-CD20 : 6 VA XD10-XB10 with extension : 7.5 VA	CB20-CD2	20 : 11 VA 10 with extension : 12 VA	
	XD26-XB26 : 7.5 VA	XD26-XB2		
	XD26-XB26 with extension : 10 VA		26 with extension : 17 VA	
Isolation voltage	1780 V AC	1780 V A		
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Inputs Input voltage	24 V AC (-15 % / +20 %)		100 →240 V AC (-15 % / +10 %)	
			100 7210 1710 (10 707 1 10 70)	
Input current	4.4 mA @ 20.4 V AC		0.24 mA @ 85 V AC	
	4.4 mA @ 20.4 V AC 5.2 mA @ 24.0 V AC			
	4.4 mA @ 20.4 V AC		0.24 mA @ 85 V AC	
Input current	4.4 mA @ 20.4 V AC 5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC		0.24 mA @ 85 V AC 0.75 mA @ 264 V AC	
Input current Input impedance	4.4 mA @ 20.4 V AC 5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ		0.24 mA @ 85 V AC 0.75 mA @ 264 V AC 350 kΩ	
Input current Input impedance Logic 1 voltage threshold	4.4 mA @ 20.4 V AC 5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC		0.24 mA @ 85 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	4.4 mA @ 20.4 V AC 5.2 mA @ 24.0 V AC 6.3 mA @ 28.8 V AC 4.6 kΩ ≥ 14 V AC > 2 mA		0.24 mA @ 85 V AC 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	4.4 mA @ 20.4 V AC 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		0.24 mA @ 85 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 Logic 0 voltage threshold Release current at logic state 0	4.4 mA @ 20.4 V AC 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		0.24 mA @ 85 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	
Input current Input impedance Logic 1 voltage threshold Making current at logic state 1 Logic 0 voltage threshold Release current at logic state 0	4.4 mA @ 20.4 V AC 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		0.24 mA @ 85 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 →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	4.4 mA @ 20.4 V AC 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		0.24 mA @ 85 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 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 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 Response time with function blocks programming	4.4 mA @ 20.4 V AC 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)		0.24 mA @ 85 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 →1 (50/60 Hz) Configurable in increments of 10 ms 50 ms min. up to 255 ms State 0 →1 (50/60 Hz)	
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	4.4 mA @ 20.4 V AC 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 to	ime (Tr):	0.24 mA @ 85 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 →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) :	
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	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr)	ime (Tr):	0.24 mA @ 85 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 →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	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP	ime (Tr):	$\begin{array}{l} 0.24 \text{ mA} \textcircled{@} 85 \text{ V AC} \\ 0.75 \text{ mA} \textcircled{@} 264 \text{ V AC} \\ 350 \text{ k}\Omega \\ > 79 \text{ V AC} \\ > 0.17 \text{ mA} \\ \leq 20 \text{ V AC} (\leq 28 \text{ V AC}: \text{XE10}, \text{XR06}, \text{XR10}, \text{XR14}) \\ < 0.5 \text{ mA} \\ 50 \text{ ms} \\ \text{State } 0 \rightarrow 1 \text{ (50/60 Hz)} \\ \text{Configurable in increments of 10 ms} \\ 50 \text{ ms min. up to 255 ms} \\ \text{State } 0 \rightarrow 1 \text{ (50/60 Hz)} \\ \text{In accordance with cycle time (Tc) and input response time (Tr)} : \\ 1/ ((2 \text{ x Tc}) + \text{Tr}) \\ \text{Contact or 3-wire PNP} \\ \end{array}$	
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 Maximum counting frequency Sensor type Input type	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive	ime (Tr):	$\begin{array}{l} 0.24 \text{ mA} \ @ \ 85 \text{ V AC} \\ 0.75 \text{ mA} \ @ \ 264 \text{ V AC} \\ 350 \text{ k}\Omega \\ \geq 79 \text{ V AC} \\ > 0.17 \text{ mA} \\ \leq 20 \text{ V AC} \ (\leq 28 \text{ V AC}: \text{XE10}, \text{XR06}, \text{XR10}, \text{XR14}) \\ < 0.5 \text{ mA} \\ 50 \text{ ms} \\ \text{State } 0 \rightarrow 1 \ (50/60 \text{ Hz}) \\ \text{Configurable in increments of } 10 \text{ ms} \\ 50 \text{ ms min. up to } 255 \text{ ms} \\ \text{State } 0 \rightarrow 1 \ (50/60 \text{ Hz}) \\ \text{In accordance with cycle time (Tc) and input response time (Tr)} : \\ 1/ \ (\ (2 \text{ x Tc}) + \text{Tr}) \\ \text{Contact or } 3\text{-wire PNP} \\ \text{Resistive} \end{array}$	
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 Maximum counting frequency Sensor type Input type Isolation between power supply and inputs	4.4 mA @ 20.4 V AC 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 t 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None	ime (Tr):	0.24 mA @ 85 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 →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 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	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None	ime (Tr):	0.24 mA @ 85 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 →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) : 1/1 ((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	4.4 mA @ 20.4 V AC 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 t 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	ime (Tr) :	0.24 mA @ 85 V AC 0.75 mA @ 264 V AC 0.75 mA 0.75 mB	
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	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	ime (Tr):	0.24 mA @ 85 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 →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) : 1/1 ((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 experiments	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD entire range	ime (Tr) :	0.24 mA @ 85 V AC 0.75 mA @ 264 V AC 0.75 mA 0.75 mB	
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	4.4 mA @ 20.4 V AC 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 t 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD entire range 5 →30 V DC	ime (Tr) :	0.24 mA @ 85 V AC 0.75 mA @ 264 V AC 0.75 mA 0.75 mB	
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 education in the second content of the second	4.4 mA @ 20.4 V AC 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 t 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD entire range 5 →30 V DC 24 →250 V AC	ime (Tr):	0.24 mA @ 85 V AC 0.75 mA @ 264 V AC 0.75 mA 0.75 mB	
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 experiments	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD contire range 5 → 30 V DC 24 → 250 V AC CB-CD-XD10-XB10-XR06-XR10 : 8 A	ime (Tr):	0.24 mA @ 85 V AC 0.75 mA @ 264 V AC 0.75 mA 0.75 mB	
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 education in the second content of the second	4.4 mA @ 20.4 V AC 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 t 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Ves On LCD screen for CD and XD entire 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	ime (Tr):	0.24 mA @ 85 V AC 0.75 mA @ 264 V AC 0.75 mA 0.75 mB	
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 education in the second content of the second	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD contire range 5 → 30 V DC 24 → 250 V AC CB-CD-XD10-XB10-XR06-XR10 : 8 A	ime (Tr):	0.24 mA @ 85 V AC 0.75 mA @ 264 V AC 0.75 mA 0.75 mB	
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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 edition of the edi	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD Partire 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 XE10 : 4 x 5 A relays XE10 : 4 x 5 A relays RBT (Removable Terminal Blocks) versions : verify the relation ocategory 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 10 mA (at minimum voltage of 12 V) 12 V, 10 mA Off load : 10 Hz		0.24 mA @ 85 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 →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	
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 editory of the state o	4.4 mA @ 20.4 V AC 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 to 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None None None Yes On LCD screen for CD and XD entire 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 XE10 : 5 x 6 x 8 A relays XE10 : 6 x 7 x 8 A relays XE10 : 7		0.24 mA @ 85 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 →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	
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2/11/2015 Voltage for withstanding shocks	In accordance with IEC/EN 60947-1 and IEC	/EN 60664-1 : 4 kV		
Off-cycle response time	Make 10 ms			
Built-in protections	Release 5 ms Against short-circuits : None			
	Against overvoltages and overloads : None	· · ·		
Status indicator	On LCD screen for CD and XD	On LCD screen for CD and XD		
haracteristics of product with DC power	r supplied			
upply				
lominal voltage	12 V DC	24 V DC		
Operating limits	-13 % / +20 %	-20 % / +25 %	DO (feederalise or streets)	
mmunity from micro power cuts	or 10.4 V DC→14.4 V DC (including ripple) ≤ 1 ms (repetition 20 times)	or 19.2 V DC→30 V	· · · · · · · · · · · · · · · · · · ·	
Max. absorbed power		≤ 1 ms (repetition 20 times) CR12 CD12 CD20 with solid state outputs. YD10 YR10 with solid state outputs.		
нах. авзопрец рожен	CB12 with solid state outputs: 1.5 W CD12: 1.5 W CD20: 2.5 W XD26-XB26: 3 W XD26-XB26 with extension: 5 W XD26 with solid state outputs: 2.5 W	CB12-CD12-CD20 with solid state outputs - XD10-XB10 with solid state outputs : 3 XD10-XB10 with relay outputs : 4 W XD26-XB26 with solid state outputs : 5 W CB20-CD20 with relay outputs : 6 W XD26 with relay outputs : 6 W XD10-XB10 with extension : 8 W XD26-XB26 with extension : 10 W		
Protection against polarity inversions	Yes	Yes		
igital inputs (I1 to IA and IH to IY)				
nput voltage	12 V DC (-13 % / +20 %)		24 V DC (-20 % / +25 %)	
nput current	3.9 mA @ 10.44 V DC		2.6 mA @ 19.2 V DC	
	4.4 mA @ 12.0 V DC 5.3 mA @ 14.4 VDC		3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC	
nput impedance	2.7 kΩ		7.4 kΩ	
ogic 1 voltage threshold	≥ 7 V DC		≥ 15 V DC	
Making current at logic state 1	≥ 2 mA		≥ 2.2 mA	
ogic 0 voltage threshold	≤3 V DC		≤5 V DC	
Release current at logic state 0	< 0.9 mA		< 0.75 mA	
Response time	1 →2 cycle times + 6 ms		1 →2 cycle times + 6 ms	
Maximum counting frequency	Inputs I1 & I2 : FBD (up to 6 k Hz) & Ladder (Inputs I3 to IA & IH to IY : In accordance with input response time (Tr) : 1/ ((2 x Tc) + Tr)		Inputs I1 & I2 : FBD (up to 6 k Hz) & Ladder (1 k Hz) Inputs I3 to IA & IH to IY : In accordance with cycle time (Tc) and input response time (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	
nput type	Resistive		Resistive	
solation between power supply and inputs	None		None	
solation between inputs	None		None	
Protection against polarity inversions	Yes		Yes	
Status indicator				
	On LCD screen for CD and XD		On LCD screen for CD and XD	
Analogue or digital inputs (IB to IG)				
CB12-CD12-XD10-XB10	4 inputs IB →IE		4 inputs IB →IE	
CB20-CD12-XD10-XB10 CB20-CD20-XB26-XD26	4 inputs IB →IE 6 inputs IB →IG			
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 nputs used as analogue inputsonly in FBI	4 inputs IB →IE 6 inputs IB →IG		4 inputs IB →IE 6 inputs IB →IG	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 nputs used as analogue inputsonly in FBI Measurement range	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG 0 \rightarrow 10 V) or (0 \rightarrow V power supply)		4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply)	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 nputs used as analogue inputsonly in FBI Measurement range nput impedance	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG 0 \rightarrow 10 V) or (0 \rightarrow V power supply) 14 k Ω		4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG (0 \rightarrow 10 V) or (0 \rightarrow V power supply) 12 k Ω	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 nputs used as analogue inputsonly in FBI Measurement range nput impedance nput voltage	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG 0 \rightarrow 10 V) or (0 \rightarrow V power supply) 14 k Ω 14.4 V DC max.		4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG (0 \rightarrow 10 V) or (0 \rightarrow V power supply) 12 k Ω 30 V DC max.	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 nputs used as analogue inputsonly in FBI Measurement range nput impedance nput voltage /alue of LSB	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG 0 $(0 \rightarrow 10 \text{ V})$ or $(0 \rightarrow \text{V})$ power supply) 14 k Ω 14.4 V DC max. 14 mV		4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG (0 \rightarrow 10 V) or (0 \rightarrow V power supply) 12 k Ω 30 V DC max. 29 mV	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 nputs used as analogue inputsonly in FBI Measurement range nput impedance nput voltage Value of LSB nput type	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG 0 \rightarrow 10 V) or (0 \rightarrow V power supply) 14 k Ω 14.4 V DC max. 14 mV Common mode		4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG (0 \rightarrow 10 V) or (0 \rightarrow V power supply) 12 k Ω 30 V DC max. 29 mV Common mode	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG 0 \rightarrow 10 V) or (0 \rightarrow V power supply) 14 k Ω 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage		4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG 0 \rightarrow 10 V) or (0 \rightarrow V power supply) 14 k Ω 14.4 V DC max. 14 mV Common mode		4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG (0 \rightarrow 10 V) or (0 \rightarrow V power supply) 12 k Ω 30 V DC max. 29 mV Common mode	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C	4 inputs $IB \rightarrow IE$ 6 inputs $IB \rightarrow IG$ 0 $\rightarrow 10 \text{ V}$) or $(0 \rightarrow \text{V power supply})$ 14 $k\Omega$ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time		4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Accuracy at 55 °C	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG 0 (0 \rightarrow 10 V) or (0 \rightarrow V power supply) 14 k Ω 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time \pm 5 %		4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 %	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26	4 inputs $IB \rightarrow IE$ 6 inputs $IB \rightarrow IG$ 0 $\rightarrow 10 \text{ V}$) or $(0 \rightarrow \text{V power supply})$ 14 $k\Omega$ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5 \%$ $\pm 6.2 \%$ $\pm 2 \%$		4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 %	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Accuracy at 55 °C Repeat accuracy at 55 °C solation between analogue channel and power	4 inputs $IB \rightarrow IE$ 6 inputs $IB \rightarrow IG$ 0 $\rightarrow 10 \text{ V}$) or $(0 \rightarrow \text{V power supply})$ 14 $k\Omega$ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5 \%$ $\pm 6.2 \%$ $\pm 2 \%$	not isolated)	4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 %	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Accuracy at 55 °C Repeat accuracy at 55 °C solation between analogue channel and power Cable length	4 inputs $IB \rightarrow IE$ 6 inputs $IB \rightarrow IG$ $(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$ 14 $k\Omega$ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5\%$ $\pm 6.2\%$ $\pm 2\%$ Supply None	not isolated)	4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 % None 10 m maximum, with shielded cable (sensor not isolated) Yes	
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CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Accuracy at 55 °C Repeat accuracy at 55 °C solation between analogue channel and power Cable length Protection against polarity inversions Potentiometer control	4 inputs IB →IE 6 inputs IB →IG $(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$ 14 kΩ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5 \%$ $\pm 6.2 \%$ $\pm 2 \%$ None 10 m maximum, with shielded cable (sensor Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max.	not isolated)	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG $(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$ $12 \text{ k}\Omega$ 30 V DC max. 29 mV $Common mode$ $10 \text{ bit at max. input voltage}$ $Controller cycle time$ $\pm 5 \%$ $\pm 6.2 \%$ $\pm 2 \%$ None $10 \text{ m maximum, with shielded cable (sensor not isolated)}$ Yes $2.2 \text{ k}\Omega/0.5 \text{ W (recommended)}$ $10 \text{ k}\Omega \text{ max.}$	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Accuracy at 55 °C Repeat accuracy at 55 °C Solation between analogue channel and power Cable length Protection against polarity inversions Potentiometer control Inputs used as digital inputs Input voltage	4 inputs IB →IE 6 inputs IB →IG $(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$ 14 kΩ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 % Supply None 10 m maximum, with shielded cable (sensor Yes) 2.2 kΩ/0.5 W (recommended) 10 kΩ max.	not isolated)	4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 % None 10 m maximum, with shielded cable (sensor not isolated) Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max.	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Accuracy at 55 °C Repeat accuracy at 55 °C Solation between analogue channel and power Cable length Protection against polarity inversions Potentiometer control Inputs used as digital inputs Input voltage	4 inputs IB →IE 6 inputs IB →IG $(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$ 14 kΩ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5 \%$ $\pm 6.2 \%$ $\pm 2 \%$ None 10 m maximum, with shielded cable (sensor Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max.	not isolated)	4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG $(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$ $12 \text{ k}\Omega$ 30 V DC max. 29 mV $Common mode$ $10 \text{ bit at max. input voltage}$ $Controller cycle time$ $\pm 5 \%$ $\pm 6.2 \%$ $\pm 2 \%$ None $10 \text{ m maximum, with shielded cable (sensor not isolated)}$ Yes $2.2 \text{ k}\Omega/0.5 \text{ W (recommended)}$ $10 \text{ k}\Omega \text{ max.}$	
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CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Repeat accuracy at 55 °C Repeat accuracy at 55 °C Robolation between analogue channel and power Cable length Protection against polarity inversions Potentiometer control Inputs used as digital inputs Input voltage Input current Input impedance Logic 1 voltage threshold Making current at logic state 1	4 inputs IB →IE 6 inputs IB →IG $(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$ 14 kΩ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 % Supply None 10 m maximum, with shielded cable (sensor Yes) 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 12 V DC (-13 % / +20 %) 0.7 mA @ 10.44 VDC 0.9 mA @ 12.0 VDC 1.0 mA @ 14.4VDC 14 kΩ ≥ 7 V DC ≥ 0.5 mA	not isolated)	4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 % None 10 m maximum, with shielded cable (sensor not isolated) Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 24 V DC (-20 % / +25 %) 1.6 mA @ 19.2 VDC 2.0 mA @ 24.0 V DC 2.5 mA @ 30.0 VDC 12 kΩ ≥ 15 VDC ≥ 1.2 mA	
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CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Repeat accuracy at 55 °C Repeat accuracy at 55 °C Solation between analogue channel and power Cable length Protection against polarity inversions Potentiometer control Inputs used as digital inputs Input voltage Input current Input impedance Inpu	4 inputs IB →IE 6 inputs IB →IG 0 (0 →10 V) or (0 →V power supply) 14 kΩ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5\%$ $\pm 6.2\%$ $\pm 2\%$ None 10 m maximum, with shielded cable (sensor Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 12 V DC (-13 % / +20 %) 0.7 mA @ 10.44 VDC 0.9 mA @ 12.0 VDC 1.0 mA @ 14.4VDC 1.1 mA @ 14.4VDC 1.4 kΩ \geq 7 V DC \geq 0.5 mA \leq 3 V DC \leq 0.2 mA	not isolated)	4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 % None 10 m maximum, with shielded cable (sensor not isolated) Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 24 V DC (-20 % / +25 %) 1.6 mA @ 19.2 VDC 2.0 mA @ 24.0 V DC 2.5 mA @ 30.0 VDC 12 kΩ ≥ 15 VDC ≥ 1.2 mA ≤ 5 V DC ≤ 0.5 mA	
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CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Accuracy at 25 °C Repeat accuracy at 55 °C Isolation between analogue channel and power Cable length Protection against polarity inversions Potentiometer control Inputs used as digital inputs Input voltage Input voltage 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 Maximum counting frequency in FBD	4 inputs IB →IE 6 inputs IB →IG $(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$ $14 \text{ k}\Omega$ 14.4 V DC max. 14 mV Common mode $10 \text{ bit at max. input voltage}$ Controller cycle time		4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 % None 10 m maximum, with shielded cable (sensor not isolated) Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 24 V DC (-20 % / +25 %) 1.6 mA @ 19.2 VDC 2.0 mA @ 24.0 V DC 2.5 mA @ 30.0 VDC 12 kΩ ≥ 15 VDC ≥ 1.2 mA ≤ 5 V DC ≤ 0.5 mA 1 →2 cycle times In accordance with cycle time (Tc) and input response time (Tr) 1/ ((2 x Tc) + Tr)	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Repeat accuracy at 55	4 inputs IB →IE 6 inputs IB →IG 0 (0 →10 V) or (0 →V power supply) 14 kΩ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5\%$ $\pm 6.2\%$ $\pm 2\%$ Supply None 10 m maximum, with shielded cable (sensor Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 12 V DC (-13 % / +20 %) 0.7 mA @ 10.44 VDC 0.9 mA @ 12.0 VDC 1.0 mA @ 14.4VDC 14 kΩ ≥ 7 V DC ≥ 0.5 mA ≤ 3 V DC ≤ 0.2 mA 1 →2 cycle times In accordance with cycle time (Tc) and input 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP		4 inputs IB →IE 6 inputs IB →IG (0 →10 V) or (0 →V power supply) 12 kΩ 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time ± 5 % ± 6.2 % ± 2 % None 10 m maximum, with shielded cable (sensor not isolated) Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 24 V DC (-20 % / +25 %) 1.6 mA @ 19.2 VDC 2.0 mA @ 24.0 V DC 2.5 mA @ 30.0 VDC 12 kΩ ≥ 15 VDC ≥ 1.2 mA ≤ 5 V DC ≤ 0.5 mA 1 →2 cycle times In accordance with cycle time (Tc) and input response time (Tr) 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP	
CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Repeat accuracy at 55 °C Repeat accuracy at 55 °C Robation between analogue channel and power Cable length Protection against polarity inversions Potentiometer control Inputs used as digital inputs Input voltage Input current Input impedance Input	4 inputs IB →IE 6 inputs IB →IG 0 (0 →10 V) or (0 →V power supply) 14 kΩ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5\%$ $\pm 6.2\%$ $\pm 2\%$ None 10 m maximum, with shielded cable (sensor Yes 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 12 V DC (-13 % / +20 %) 0.7 mA @ 10.44 VDC 0.9 mA @ 12.0 VDC 1.0 mA @ 14.4VDC 14 kΩ ≥ 7 V DC ≥ 0.5 mA ≤ 3 V DC ≤ 0.2 mA 1 →2 cycle times In accordance with cycle time (Tc) and input 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Type 1		4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG (0 \rightarrow 10 V) or (0 \rightarrow V power supply) 12 k Ω 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time \pm 5 % \pm 6.2 % \pm 2 % None 10 m maximum, with shielded cable (sensor not isolated) Yes 2.2 k Ω /0.5 W (recommended) 10 k Ω max. 24 V DC (-20 % / +25 %) 1.6 mA @ 19.2 VDC 2.0 mA @ 24.0 V DC 2.5 mA @ 30.0 VDC 12 k Ω \geq 15 VDC \geq 1.2 mA \leq 5 V DC \leq 1.2 mA \leq 5 V DC \leq 0.5 mA 1 \rightarrow 2 cycle times In accordance with cycle time (Tc) and input response time (Tr) 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Type 1	
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CB12-CD12-XD10-XB10 CB20-CD20-XB26-XD26 Inputs used as analogue inputsonly in FBI Measurement range Input impedance Input voltage Value of LSB Input type Resolution Conversion time Accuracy at 25 °C Repeat accuracy at 55 °C Repeat accuracy at 55 °C Robation between analogue channel and power Cable length Protection against polarity inversions Potentiometer control Inputs used as digital inputs Input voltage Input current Input impedance Input	4 inputs IB →IE 6 inputs IB →IG 0 (0 →10 V) or (0 →V power supply) 14 kΩ 14.4 V DC max. 14 mV Common mode 10 bit at max. input voltage Controller cycle time $\pm 5\%$ $\pm 6.2\%$ $\pm 2\%$ Supply None 10 m maximum, with shielded cable (sensor Yes) 2.2 kΩ/0.5 W (recommended) 10 kΩ max. 12 V DC (-13 % / +20 %) 0.7 mA @ 10.44 VDC 0.9 mA @ 12.0 VDC 1.0 mA @ 14.4VDC 14 kΩ ≥ 7 V DC ≥ 0.5 mA ≤ 3 V DC ≤ 0.5 mA 1 →2 cycle times In accordance with cycle time (Tc) and input 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Type 1 Resistive		4 inputs IB \rightarrow IE 6 inputs IB \rightarrow IG (0 \rightarrow 10 V) or (0 \rightarrow V power supply) 12 k Ω 30 V DC max. 29 mV Common mode 10 bit at max. input voltage Controller cycle time \pm 5 % \pm 6.2 % \pm 2 % None 10 m maximum, with shielded cable (sensor not isolated) Yes 2.2 k Ω /0.5 W (recommended) 10 k Ω max. 24 V DC (-20 % / +25 %) 1.6 mA @ 19.2 VDC 2.0 mA @ 24.0 V DC 2.5 mA @ 30.0 VDC 12 k Ω \geq 15 VDC \leq 1.2 mA \leq 5 V DC \leq 0.5 mA 1 \rightarrow 2 cycle times In accordance with cycle time (Tc) and input response time (Tr) 1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Type 1 Resistive	

02/11/2015		
Status indicator	On LCD screen for CD and XD	On LCD screen for CD and XD
Characteristics of relay outputs common to the	entire range	
Max. breaking voltage	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	
AA - L - 2 - LHC	At operating current : 0.1 Hz	
Mechanical life	10,000,000 (operations)	
Voltage for withstanding shocks Off-cycle response time	In accordance with IEC/EN 60947-1 and IEC/EN 60664-1 : 4 kV Make 10 ms	
On-cycle response time	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
Operating frequency	1 Maximum on inductive load	1 Maximum on inductive load
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)
Max. Breaking current PWM	50 mA	50 mA
Max. cable length PWM	20 m	20 m
PWM accuracy at 120 Hz	< 5 % (20 % →80 %) load at 10 mA	< 5 % (20 % →80 %) load at 10 mA
DWM accuracy at 500 Hz	∠ 10 0/ /20 0/ .00 0/.) load at 10 mA	210 W (20 W , 90 W) load at 10 m∆

Accessories

Status indicator

PWM accuracy at 500 Hz

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

< 10 % (20 % \rightarrow 80 %) load at 10 mA

On LCD screen for CD and XD

< 10 % (20 % ${\rightarrow}80$ %) load at 10 mA

On LCD screen for XD

Comments

* to be marketed 1st quarter 2006

Dimensions (mm)

XD10 Smart

02/11/2015

