

Smart "Compact" range without display CB12 Smart Part number 88974023



- Efficient and economical version, without display or keys setting
- Allow the use of the entire library of specific functions blocs of the software workshop
- Extended temperature range (-30 °C →+70 °C)
 Analogue inputs 0-10 VDC, Potentiometer, NTC, LDR (0-20 mA/Pt100 with converters)

Part numbers

Туре	Input	Output	Supply
88974023 CB12 Smart	8 digital	4 relays 8 A	100 →240 V AC

General environment characteristics for CB, CD, X Certifications	CE, UL, CSA, GL
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 61000-6-3 (*) 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, 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 \rightarrow +70 °C except CB and XB versions in VDC : -30 \rightarrow +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 mm² (AWG 24AWG 18) Semi-rigid wire = 1 conductor : 0.2 to 2.5 mm² (AWG 25AWG 14) Rigid wire = 1 conductor : 0.2 to 2.5 mm² (AWG 25AWG 14) 2 conductors 0.2 to 1.5 mm² (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

29/10/2013			www.crouzet.com	
Operating temperature	-30 →+70 °C (DC) ; -20 →+70 °C (AC)			
Operating factor	100 % (6 A relays)			
	66 % (8 A relays)			
Ctorage temperature	-40 →+80 °C			
Storage temperature	-40 →+80 C			
Processing characteristics of CB, CD, XD & XB p	roduct types			
LCD display	CD, XD : Display with 4 lines of 18 characters			
Programming method	Function blocks / SCF (Grafcet) or Ladder			
Program size	8 Kb: 350 typical blocks, 64 macros maximum, 256 bloc	8 Kb : 350 typical blocks, 64 macros maximum, 256 blocks maximum per macro		
	or			
	120 lines in Ladder			
December of the second				
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			
Back up time in the event of power failure	Program and settings in the plug-in memory : 10 years			
	Data memory : 10 years			
Cycle time	FBD : 6 →90 ms (typically 20 ms)			
	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	rift)		
Timer block accuracy	1 % ± 2 cycle times			
Start up time on power up	<1,2 s			
otal t up timo on power up	· .,= v			
Characteristics of products with AC power suppl	ied			
Supply				
Nominal voltage	24 V AC	100 →24	0 V AC	
Operating limits	-15 % / +20 %	-15 % / +	10 %	
Operating innits				
	or 20.4 V AC→28.8 V AC	UI 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	30/00 FIZ	(1 + 70 / 0 /0) OI TI 700 IIZIOI 700 IIZ	
Immunity from micro power cuts	10 ms (repetition 20 times)	10 ms (re	petition 20 times)	
	CB12-CD12-XD10-XB10 : 4 VA		12-XD10-XB10 : 7 VA	
Max. absorbed power				
	CB20-CD20 : 6 VA		20 : 11 VA	
	XD10-XB10 with extension : 7.5 VA		10 with extension : 12 VA	
	XD26-XB26 : 7.5 VA	XD26-XB	26 : 12 VA	
	XD26-XB26 with extension : 10 VA	XD26-XB	26 with extension: 17 VA	
Isolation voltage	1780 V AC	1780 V A	C.	
iodation voltago	1100 110	1700 770		
Inputs				
Input voltage	24 V AC (-15 % / +20 %)		100 →240 V AC (-15 % / +10 %)	
			100 7210 1710 (10 707 110 70)	
Input current	4.4 mA @ 20.4 V AC		0.24 mA @ 85 V AC	
	5.2 mA @ 24.0 V AC		0.75 mA @ 264 V AC	
	6.3 mA @ 28.8 V AC		0.73 HIA @ 204 V AO	
Input impedance	4.6 kΩ		350 kΩ	
Logic 1 voltage threshold	≥ 14 V AC		≥ 79 V AC	
Making current at logic state 1	> 2 mA		> 0.17 mA	
Logic 0 voltage threshold	≤5 V AC		≤ 20 V AC (≤ 28 V AC : XE10, XR06, XR10, XR14)	
Release current at logic state 0	< 0.5 mA		< 0.5 mA	
Ü				
Response time with LADDER programming	50 ms		50 ms	
	State 0 →1 (50/60 Hz)		State 0 →1 (50/60 Hz)	
Response time with function blocks programming	Configurable in increments of 10 ms		Configurable in increments of 10 ms	
	50 ms min. up to 255 ms		50 ms min. up to 255 ms	
	State 0 →1 (50/60 Hz)		State 0 →1 (50/60 Hz)	
Maximum counting frequency	In accordance with cycle time (Tc) and input response t		,	
Waximum counting nequency		ime (Tr) ·	In accordance with cycle time (Tc) and input response time (Tr) :	
	• • • • • • • • • • • • • • • • • • • •	time (Tr):	In accordance with cycle time (Tc) and input response time (Tr):	
Sensor type	1/ ((2 x Tc) + Tr)	time (Tr):	1/ ((2 x Tc) + Tr)	
	• • • • • • • • • • • • • • • • • • • •	time (Tr) :		
Input type	1/ ((2 x Tc) + Tr)	time (Tr) :	1/ ((2 x Tc) + Tr)	
	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive	time (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive	
Isolation between power supply and inputs	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None	time (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None	
Isolation between power supply and inputs Isolation between inputs	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None	time (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None	
Isolation between power supply and inputs	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None	time (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	time (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	ime (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	ime (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the experiments of the second supplies t	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) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator	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) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the edition with the status indicator in the status indicator is status indicator.	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) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the experiments of the second supplies t	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD Intire range 5 →30 V DC 24 →250 V AC CB-CD-XD10-XB10-XR06-XR10: 8 A	ime (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the edition with the status indicator in the status indicator is status indicator.	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD **Titre 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) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the edition with the status indicator in the status indicator is status indicator.	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD **Intire 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	ime (Tr) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the edition with the status indicator in the status indicator is status indicator.	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD **Titre 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) :	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the edition with the status indicator in the status indicator is status indicator.	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD Interest 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		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the of Max. breaking voltage Breaking current	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD **Tire 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		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the edition with the status indicator in the status indicator is status indicator.	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive 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 XR14:4 x 8 A relays, 2 x 5 A relays RBT (Removable Terminal Blocks) versions: verify the Utilization category DC-12:24 V, 1.5 A		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the of Max. breaking voltage Breaking current	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD Inter 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 Utilization category DC-12: 24 V, 1.5 A Utilization category DC-13: 24 V (L/R = 10 ms), 0.6 A		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the of Max. breaking voltage Breaking current	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD **Titre 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 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		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the of Max. breaking voltage Breaking current	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD Inter 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 Utilization category DC-12: 24 V, 1.5 A Utilization category DC-13: 24 V (L/R = 10 ms), 0.6 A		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the of Max. breaking voltage Breaking current Electrical durability for 500 000 operating cycles	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD **Titre 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 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		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the off Max. breaking voltage Breaking current Electrical durability for 500 000 operating cycles Max. Output Common Current	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD Intire 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 Utilization category DC-12:24 V, 1.5 A Utilization category DC-13:230 V, 1.5 A Utilization category AC-15:230 V, 0.9 A 12 A for O8, O9, OA		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the off Max. breaking voltage Breaking current Electrical durability for 500 000 operating cycles Max. Output Common Current Minimum switching capacity	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD Intire 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 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 10 mA (at minimum voltage of 12 V)		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the off Max. breaking voltage Breaking current Electrical durability for 500 000 operating cycles Max. Output Common Current	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD Intire 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 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 10 mA (at minimum voltage of 12 V) 12 V, 10 mA		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the off Max. breaking voltage Breaking current Electrical durability for 500 000 operating cycles Max. Output Common Current Minimum switching capacity	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD Intire 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 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 10 mA (at minimum voltage of 12 V)		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the off Max. breaking voltage Breaking current Electrical durability for 500 000 operating cycles Max. Output Common Current Minimum switching capacity Minimum load	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD Intire 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 Utilization category DC-12: 24 V, 1.5 A Utilization category DC-13: 224 V (L/R = 10 ms), 0.6 A Utilization category AC-15: 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 Off load: 10 Hz		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the off Max. breaking voltage Breaking current Electrical durability for 500 000 operating cycles Max. Output Common Current Minimum switching capacity Minimum load Maximum rate	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD Inter 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 Utilization category DC-12: 24 V, 1.5 A Utilization category AC-15: 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 Off load: 10 Hz At operating current: 0.1 Hz		1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Status indicator Characteristics of relay outputs common to the off Max. breaking voltage Breaking current Electrical durability for 500 000 operating cycles Max. Output Common Current Minimum switching capacity Minimum load	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None None Yes On LCD screen for CD and XD Intire 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 Utilization category DC-12: 24 V, 1.5 A Utilization category DC-13: 224 V (L/R = 10 ms), 0.6 A Utilization category AC-15: 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 Off load: 10 Hz	maximum c	1/ ((2 x Tc) + Tr) Contact or 3-wire PNP Resistive None None Yes On LCD screen for CD and XD	

Built-in protections Status indicator Characteristics of product with DC power supplied Supply Nominal voltage Operating limits -13 or * Immunity from micro power cuts Max. absorbed power CB CD XD	2 V DC (-13 % / +20 %) 9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 kΩ 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) one one ess	XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes 1 k Hz)	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W y outputs : 6 W iuts : 6 W ension : 8 W
Built-in protections Status indicator Characteristics of product with DC power supplied Supply Nominal voltage Operating limits -13 or 1 Immunity from micro power cuts Max. absorbed power CB CD XD XD Protection against polarity inversions Pigital inputs (I1 to IA and IH to IY) Input voltage Input current 3.9 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 Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Yes Aga Aga Aga Aga Aga Aga Aga Aga Aga Ag	gainst short-circuits: None gainst overvoltages and overloads: None n LCD screen for CD and XD 2 V DC 3 % / +20 % 10.4 V DC →14.4 V DC (including ripple) 1 ms (repetition 20 times) B12 with solid state outputs: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W D26 with solid state outputs: 2.5 W D26 with solid state outputs: 2.5 W D27 with solid state outputs: 2.5 W D28 with solid state outputs: 2.5 W D29 mA @ 10.44 V DC T kQ T	-20 % / +25 % or 19.2 V DC→30 V I ≤ 1 ms (repetition 20 CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W yo outputs : 6 W vuts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Status indicator Characteristics of product with DC power supplied Supply Nominal voltage Operating limits -13 Immunity from micro power cuts Max. absorbed power CB CD CD XD	gainst overvoltages and overloads: None in LCD screen for CD and XD 2 V DC 3 % / +20 % 10.4 V DC →14.4 V DC (including ripple) 1 ms (repetition 20 times) B12 with solid state outputs: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W D26 with solid state outputs: 2.5 W D27 W DC D28 W DC D29 W DC D3 W DC D4 W DC D5 W DC D6 W DC D7 V DC D7 V DC D8 W DC D9 W DC D	-20 % / +25 % or 19.2 V DC→30 V I ≤ 1 ms (repetition 20 CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W yo outputs : 6 W vuts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Characteristics of product with DC power supplied Supply Nominal voltage 12 Operating limits -13 Immunity from micro power cuts ≤1 Max. absorbed power CB CD CD XD	2 V DC 3 % / +20 % 10.4 V DC→14.4 V DC (including ripple) 1 ms (repetition 20 times) B12 with solid state outputs: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W es 2 V DC (-13 % / +20 %) 9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 V DC 2 mA 3 V DC 0.9 mA —2 cycle times + 6 ms puts I1 & I2: FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY: In accordance with put response time (Tr): 1/((2 x Tc) + Tr) ontact or 3-wire PNP //pe 1 esistive one one es	-20 % / +25 % or 19.2 V DC→30 V I ≤ 1 ms (repetition 20 CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W yo outputs : 6 W vuts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Supply Nominal voltage Operating limits -13 or of Immunity from micro power cuts Max. absorbed power CB CD CD XD	3 % / +20 % 10.4 V DC→14.4 V DC (including ripple) 1 ms (repetition 20 times) B12 with solid state outputs: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W es 2 V DC (-13 % / +20 %) 9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2: FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY: In accordance with put response time (Tr): 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //pe 1 esistive one one	-20 % / +25 % or 19.2 V DC→30 V I ≤ 1 ms (repetition 20 CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W yo outputs : 6 W vuts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Nominal voltage 12 Operating limits -13 Immunity from micro power cuts ≤ 1 Max. absorbed power CB CD CD XD XD X	3 % / +20 % 10.4 V DC→14.4 V DC (including ripple) 1 ms (repetition 20 times) B12 with solid state outputs: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W es 2 V DC (-13 % / +20 %) 9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2: FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY: In accordance with put response time (Tr): 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //pe 1 esistive one one	-20 % / +25 % or 19.2 V DC→30 V I ≤ 1 ms (repetition 20 CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W y outputs : 6 W vuts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Operating limits -13 or 1 Immunity from micro power cuts ≤ 1 Max. absorbed power CB CD CD XD	3 % / +20 % 10.4 V DC→14.4 V DC (including ripple) 1 ms (repetition 20 times) B12 with solid state outputs: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W es 2 V DC (-13 % / +20 %) 9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2: FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY: In accordance with put response time (Tr): 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //pe 1 esistive one one	-20 % / +25 % or 19.2 V DC→30 V I ≤ 1 ms (repetition 20 CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W yo outputs : 6 W vuts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Immunity from micro power cuts Max. absorbed power CB CD CD XD XD XD XD XD XD	10.4 V DC→14.4 V DC (including ripple) 1 ms (repetition 20 times) B12 with solid state outputs: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W es 2 V DC (-13 % / +20 %) 9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts 11 & 12: FBD (up to 6 k Hz) & Ladder (puts 13 to IA & IH to IY: In accordance with put response time (Tr): 1/((2 x Tc) + Tr) orbact or 3-wire PNP rpe 1 esistive one	or 19.2 V DC→30 V I ≤ 1 ms (repetition 20 CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W yo outputs : 6 W vuts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Immunity from micro power cuts ≤ 1 Max. absorbed power CB CD CD XD XD Protection against polarity inversions Yes Digital inputs (I1 to IA and IH to IY) Input voltage Input current 3.9 4.4 5.3 Input impedance 2.7 Logic 1 voltage threshold ≥ 7 Making current at logic state 1 ≥ 2 Logic 0 voltage threshold ≤ 3 Release current at logic state 0 < 0	1 ms (repetition 20 times) B12 with solid state outputs: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W B26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W B27-XB26 with P20 w B28-XB26 with extension: 5 W D26-XB26 with extension: 5 W D27-XB26 with extension: 5 W D27-XB26 with extension: 5 W D28-XB26 with extension: 5 W D26-XB26 with ex	≤ 1 ms (repetition 20 CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	times) ith solid state outputs - XD10-XB10 with solid state outputs : 3 W y outputs : 4 W d state outputs : 5 W y outputs : 6 W vuts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Max. absorbed power CB CD CD XD	B12 with solid state outputs: 1.5 W D12: 1.5 W D12: 1.5 W D20: 2.5 W D26-XB26: 3 W D26-XB26 with extension: 5 W D26 with solid state outputs: 2.5 W D26 with solid state outputs: 2.5 W D26 with solid state outputs: 2.5 W D27 w D28 with solid state outputs: 2.5 W D28 with solid state outputs: 2.5 W D29 w D29 w D29 w D20 w D20 w D20 w D30 w D	CB12-CD12-CD20 wi XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes	ith solid state outputs - XD10-XB10 with solid state outputs : 3 W by outputs : 4 W d state outputs : 5 W by outputs : 6 W buts : 6 W ension : 8 W ension : 10 W 24 V DC (-20 % / +25 %) 2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Protection against polarity inversions Yes Digital inputs (I1 to IA and IH to IY) Input voltage Input current 3.9 4.4 5.3 Input impedance 2.7 Logic 1 voltage threshold ≥ 7 Making current at logic state 1 ≥ 2 Logic 0 voltage threshold \$ 33 Release current at logic state 0 Response time 1 - Maximum counting frequency Input yes Sensor type Conforming to IEC/EN 61131-2 Input type Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Yes Status indicator	D12: 1.5 W D20: 2.5 W D26: XB26 : 3 W D26-XB26 with extension : 5 W D26-XB26 with solid state outputs : 2.5 W es 2 V DC (-13 % / +20 %) 9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2: FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY: In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //Pe 1 esistive one one	XD10-XB10 with rela XD26-XB26 with solic CB20-CD20 with rela XD26 with relay outp XD10-XB10 with exte XD26-XB26 with exte Yes 1 k Hz)	y outputs: 4 W d state outputs: 5 W yo outputs: 6 W vots: 6 V vots: 6 V vots: 7 V vot
Digital inputs (I1 to IA and IH to IY) Input voltage 12 Input current 3.9 4.4 5.3 Input impedance 2.7 Logic 1 voltage threshold ≥ 7 Making current at logic state 1 ≥ 2 Logic 0 voltage threshold ≤ 3 Release current at logic state 0 < 0	2 V DC (-13 % / +20 %) 9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 kΩ 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) one one ess	1 k Hz)	2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms Inputs 11 & 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) Contact or 3-wire PNP Type 1 Resistive
Input voltage 12 Input current 3.9 4.4 5.3 Input impedance 2.7 Logic 1 voltage threshold ≥ 7 Making current at logic state 1 ≥ 2 Logic 0 voltage threshold ≤ 3 Release current at logic state 0 < 0	9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 kΩ 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //Pe 1 esistive one one		2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Input current 3.9 4.4 5.3 Input impedance 2.7 Logic 1 voltage threshold 27 Making current at logic state 1 2 Logic 0 voltage threshold 38 Release current at logic state 0 39 Response time 30 Maximum counting frequency 30 Input ye 30 Input type 30 Input type 30 Input type 40 Isolation between power supply and inputs 40 Isolation between inputs 40 Input type 40 Isolation between inputs 50 Isolation against polarity inversions 50 Istatus indicator 50 Input type 60 Input type 70 Input type 70 Input type 80 Isolation between juputs 80 Isolation between juputs 80 Isolation decidence inputs 80 Isolation on on on one inputs 80 Isolation on on one inputs 80 Isolation one inputs 80 Isolation on one inputs 80 Isolation one inputs 8	9 mA @ 10.44 V DC 4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 kΩ 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //Pe 1 esistive one one		2.6 mA @ 19.2 V DC 3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
4.4 5.3	4 mA @ 12.0 V DC 3 mA @ 14.4 VDC 7 kΩ 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) onterproper 1 esistive one one		3.2 mA @ 24 V DC 4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
5.3	3 mA @ 14.4 VDC 7 kΩ 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP ype 1 esistive one one		4.0 mA @ 30.0 VDC 7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Input impedance 2.7 Logic 1 voltage threshold ≥ 7 Making current at logic state 1 ≥ 2 Logic 0 voltage threshold ≤ 3 Release current at logic state 0 < 0	7 kΩ 7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //Pe 1 esistive one one es		7.4 kΩ ≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 → 2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Logic 1 voltage threshold ≥ 7 Making current at logic state 1 ≥ 2 Logic 0 voltage threshold ≤ 3 Release current at logic state 0 < 0	7 V DC 2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //Pe 1 esistive one one es		≥ 15 V DC ≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Making current at logic state 1 ≥ 2 Logic 0 voltage threshold ≤ 3 Release current at logic state 0 < 0	2 mA 3 V DC 0.9 mA →2 cycle times + 6 ms puts 11 & 12 : FBD (up to 6 k Hz) & Ladder (puts 13 to IA & IH to IY : In accordance with put response time (Tr) : 1/((2 x Tc) + Tr) ontact or 3-wire PNP //PE 1 esistive one one		≥ 2.2 mA ≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Logic 0 voltage threshold \$\ 3\) Release current at logic state 0 \$\ < 0\) Response time \$\ 1 - \) Maximum counting frequency \$\ \lnp \\ \lnp	3 V DC 0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/((2 x Tc) + Tr) ontact or 3-wire PNP //Pe 1 esistive one one es		≤ 5 V DC < 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Release current at logic state 0 < 0 Response time 1 - Maximum counting frequency Inp	0.9 mA →2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP //Pe 1 esistive one one		< 0.75 mA 1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Response time 1 - Maximum counting frequency Inp	→2 cycle times + 6 ms puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) on trest or 3-wire PNP //Pe 1 esistive one one es		1 →2 cycle times + 6 ms 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) Contact or 3-wire PNP Type 1 Resistive
Maximum counting frequency Inp	puts I1 & I2 : FBD (up to 6 k Hz) & Ladder (puts I3 to IA & IH to IY : In accordance with put response time (Tr) : 1/ ((2 x Tc) + Tr) ontact or 3-wire PNP /pe 1 esistive one one es		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) Contact or 3-wire PNP Type 1 Resistive
Conforming to IEC/EN 61131-2 Typ Input type Res Isolation between power supply and inputs Nor Isolation between inputs Nor Protection against polarity inversions Yes Status indicator On	rpe 1 esistive one one es		Type 1 Resistive
Input type Rei Isolation between power supply and inputs Nor Isolation between inputs Nor Protection against polarity inversions Yes Status indicator On	esistive one one es		Resistive
Isolation between power supply and inputs Isolation between inputs Protection against polarity inversions Yes Status indicator On	one one es		
Isolation between inputs Nor Protection against polarity inversions Yet Status indicator On	one es		None
Protection against polarity inversions Yes Status indicator On	es		NI
Status indicator On			None Yes
			On LCD screen for CD and XD
Analogue or digital inputs (IB to IG)	n LCD screen for CD and XD		On Lob sciedinor ob and Ab
	inputs IB →IE		4 inputs IB →IE
CB20-CD20-XB26-XD26 6 in	inputs IB →IG		6 inputs IB →IG
Inputs used as analogue inputsonly in FBD			
Measurement range (0 -	\rightarrow 10 V) or (0 \rightarrow V power supply)		$(0 \rightarrow 10 \text{ V}) \text{ or } (0 \rightarrow \text{V power supply})$
	ł kΩ		12 kΩ
	1.4 V DC max.		30 V DC max.
	1 mV		29 mV
	ommon mode		Common mode
) bit at max. input voltage		10 bit at max. input voltage
	ontroller cycle time		Controller cycle time
•	5 %		± 5 %
	6.2 %		± 6.2 %
	2 %		± 2 %
	one One maximum, with shielded cable (sensor	not isolated)	None 10 m maximum, with shielded cable (sensor not isolated)
5	· ·	not isolateu)	Yes
	Yes 2.2 kΩ/0.5 W (recommended)		res 2.2 kΩ/0.5 W (recommended)
	2.2 kΩ/0.5 W (recommended) 10 kΩ max.		10 k Ω max.
Inputs used as digital inputs			
	2 V DC (-13 % / +20 %)		24 V DC (-20 % / +25 %)
	7 mA @ 10.44 VDC		1.6 mA @ 19.2 VDC
	7 mA @ 10.44 VDC 9 mA @ 12.0 VDC		2.0 mA @ 24.0 V DC
	0 mA @ 14.4VDC		2.5 mA @ 30.0 VDC
	14 kΩ		12 kΩ
Logic 1 voltage threshold ≥ 7	≥7 V DC		≥ 15 VDC
Making current at logic state 1 ≥ 0	≥ 0.5 mA		≥ 1.2 mA
	3 V DC		≤ 5 V DC
Ö	0.2 mA		≤ 0.5 mA
	→2 cycle times		1 →2 cycle times
	accordance with cycle time (Tc) and input	response time (Tr) :	In accordance with cycle time (Tc) and input response time (Tr):
	((2 x Tc) + Tr)		1/ ((2 x Tc) + Tr)
71	ontact or 3-wire PNP		Contact or 3-wire PNP
	/pe 1		Type 1 Resistive
1 21	esistive one		None
1 1 1 1	one		None
Protection against polarity inversions Yes			Yes
	n 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	
Floridation 179 for 500 000 constitution 140	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	
Off-cycle 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	CD40 : O4	CD40 VD40 VD40 · O4
PWM solid state output*	CB12 : O4 XD26 : O4 →O7	CD12-XD10-XB10 : O4 CD20-XD26-XB26 : O4 →O7
* Only available with "FBD" programming language	* Only available with "FBD" programming language	0520 NB20 NB20 : 04 ->01
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	Make ≤ 1 ms
	Release ≤ 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 overloads and short-circuits : Yes
	Against overvoltages (*) : Yes	Against overvoltages (*) : Yes
	Against inversions of power supply: Yes	Against inversions of power supply: Yes
	(*) In the absence of a volt-free contact between the logic controller output and the load	(*) 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	
Waxiii iii danaccciii icaa	0,1 A / 24 V DC	0,1 A / 24 V DC
Galvanic isolation	No No	No
PWM frequency	14.11 Hz	14.11 Hz
	56.45 Hz	56.45 Hz
	112.90 Hz	112.90 Hz
	225.80 Hz	225.80 Hz
	451.59 Hz 1806.37 Hz	451.59 Hz 1806.37 Hz
PWM cyclic ratio	0 →100 % (256 steps for CD, XD and 1024 steps for XA)	0 →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
PWM accuracy at 500 Hz	< 10 % (20 % →80 %) load at 10 mA	< 10 % (20 % →80 %) load at 10 mA
Status indicator	On I CD coroon for VD	On LCD screen for CD and VD

Accessories

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

On LCD screen for CD and XD

On LCD screen for XD

Comments

* to be marketed 1st quarter 2006

Dimensions (mm)

CB12 Smart

