# Millenium 3 Custom

## ➜ Modular version

- ■ "Modular" versions designed for Custom application specific functions and "application-specific" extensions (XA03, XA04W) for expandable range.
- ■ Open to "standard" extensions (XN,XR,XE,XA)
- ■ LCD with 4 lines of 18 characters and configurable backlighting or no display or parameter-setting buttons to avoid tampering by unauthorised users



**CB12 Custom**



**XD10 Custom**

## Part numbers

### Custom Compact Range

| Type | Input | Output | Supply | Code |
|------|-------|--------|--------|------|
| CD12 | 8 digital (including 4 analogue) | 4 relays 8 A | 24 V ⎓ | **88974041** |
| | 8 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM) | 24 V ⎓ | **88974042** |
| | 8 digital | 4 relays 8 A | 100 → 240 V ∼ | **88974043** |
| | 8 digital | 4 relays 8 A | 24 V ∼ | **88974044** |
| | 8 digital (including 4 analogue) | 4 relays 8 A | 12 V ⎓ | **88974045** |
| CD20 | 12 digital (including 6 analogue) | 8 relays 8 A | 24 V ⎓ | **88974051** |
| | 12 digital (including 6 analogue) | 8 solid state 0.5 A (including 4 PWM) | 24 V ⎓ | **88974052** |
| | 12 digital | 8 relays 8 A | 100 → 240 V ∼ | **88974053** |
| | 12 digital | 8 relays 8 A | 24 V ∼ | **88974054** |
| | 12 digital (including 6 analogue) | 8 relays 8 A | 12 V ⎓ | **88974055** |
| CB12 | 8 digital (including 4 analogue) | 4 relays 8 A | 24 V ⎓ | **88974021** |
| | 8 digital | 4 relays 8 A | 100 → 240 V ∼ | **88974023** |
| | 8 digital | 4 relays 8 A | 24 V ∼ | **88974024** |
| CB20 | 12 digital (including 6 analogue) | 8 relays 8 A | 24 V ⎓ | **88974031** |
| | 12 digital | 8 relays 8 A | 100 → 240 V ∼ | **88974033** |
| | 12 digital | 8 relays 8 A | 24 V ∼ | **88974034** |

## Part numbers

### Custom Expandable Range

| Type | Input | Output | Supply | Code |
|------|-------|--------|--------|------|
| XD10 | 6 digital (including 4 analogue) | 4 relays 8 A | 24 V ⎓ | **88974141** |
| | 6 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM) | 24 V ⎓ | **88974142** |
| | 6 digital | 4 relays 8 A | 100 → 240 V ∼ | **88974143** |
| | 6 digital | 4 relays 8 A | 24 V ∼ | **88974144** |
| XD26 | 16 digital (including 6 analogue) | 10 relays (8 x 8 A relay and 2 x 5 A relay) | 24 V ⎓ | **88974161** |
| | 16 digital (including 6 analogue) | 10 solid state 0.5 A (including 4 PWM) | 24 V ⎓ | **88974162** |
| | 16 digital | 10 relays (8 x 8 A relay and 2 x 5 A relay) | 100 → 240 V ∼ | **88974163** |
| | 16 digital | 10 relays (8 x 8 A relay and 2 x 5 A relay) | 24 V ∼ | **88974164** |
| | 16 digital (including 6 analogue) | 10 relays (8 x 8 A relay and 2 x 5 A relay) | 12 V ⎓ | **88974165** |
| XB10 | 6 digital (including 4 analogue) | 4 relays 8 A | 24 V ⎓ | **88974131** |
| | 6 digital (including 4 analogue) | 4 solid state 0.5 A (including 1 PWM) | 24 V ⎓ | **88974132** |
| | 6 digital | 4 relays 8 A | 100 → 240 V ∼ | **88974133** |
| | 6 digital | 4 relays 8 A | 24 V ∼ | **88974134** |
| XB26 | 16 digital (including 6 analogue) | 10 relays (8 x 8 A relay and 2 x 5 A relay) | 24 V ⎓ | **88974151** |
| | 16 digital (including 6 analogue) | 10 solid state 0.5 A (including 4 PWM) | 24 V ⎓ | **88974152** |
| | 16 digital | 10 relays (8 x 8 A relay and 2 x 5 A relay) | 100 → 240 V ∼ | **88974153** |
| | 16 digital | 10 relays (8 x 8 A relay and 2 x 5 A relay) | 24 V ∼ | **88974154** |
| | 16 digital (including 6 analogue) | 10 relays (8 x 8 A relay and 2 x 5 A relay) | 12 V ⎓ | **88974155** |

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## General characteristics

| | |
|---|---|
| **See page 22, except:** | |
| Certifications | UL, CSA |
| Operating temperature* | -30 → +70°C (⎓) ; -20 → +70° C (∿) ;<br>Operating temperature @ 100% (Relays 6A)<br>Operating temperature @  66% (Relays 8A) |
| Storage temperature* | -30 → +80°C |
| LCD display | Display with 4 lines of 18 characters, white characters on a blue background |

\* : Available last quarter of 2008

## Accessories

| Type | Designation | Code |
|---|---|---|
| M3 SOFT | Multilingual programming software containing specific library functions (CD-ROM) | 88970111 |
| PA | EEPROM memory cartridge | 88970108 |
| | 3 m serial link cable: PC → Millenium 3 | 88970102 |
| | 3 m USB link cable: PC → Millenium 3 | 88970109 |
| | Millenium 3 → Bluetooth interface (class A 10 m) | 88970104 |

## Dimensions (mm)
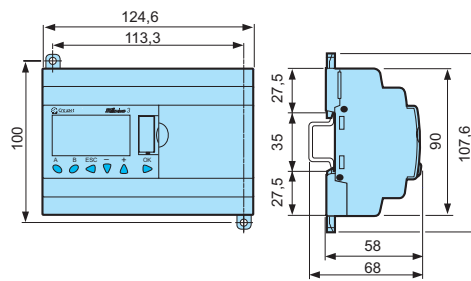
**CB12/XB10 Custom**
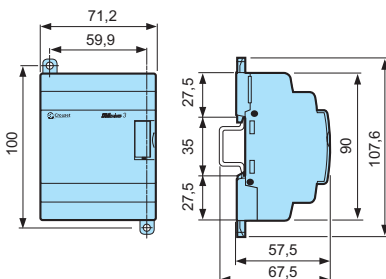


**CB20/XB26 Custom**
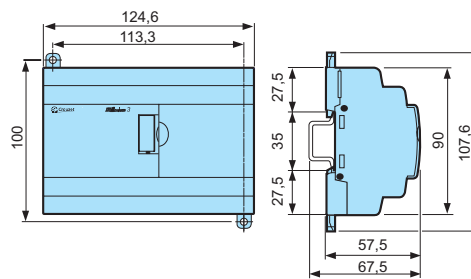


**CD12/XD10 Custom**
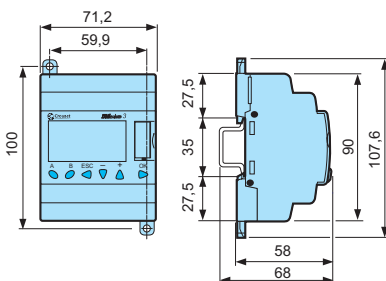


**CD20/XD26 Custom**



## Input / Output Connections

See Page 40-43 for details or to find instruction sheets visit: www.millenium3.crouzet.com  in "Download"

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## ➜ General characteristics

- **Millenium 3 Compact Range**
- **Millenium 3 Expandable Range**
- **Millenium 3 Communication Options**

**Millenium 3 range**

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

| | |
|---|---|
| **Certifications** ● | UL, CSA<br>GL: except for 88 970 32x (pending) |
| **Conformity with the low voltage directive** | In accordance with 73/23/EEC:<br>EN (IEC) 61131-2 (Open equipment) |
| **Conformity with the EMC directive** ● | In accordance with 89/336/EEC:<br>EN (IEC) 61131-2 (Zone B)<br>EN (IEC) 61000-6-2,<br>EN (IEC) 61000-6-3 (*)<br>EN (IEC) 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: using in metallic cabinet) | |
| **Earthing** | None |
| **Protection rating** ● | In accordance with IEC/EN 60529:<br>IP40 on front panel<br>IP20 on terminal block |
| **Overvoltage category** | 3 in accordance with IEC/EN 60664-1 |
| **Pollution** | Degree: 2 in accordance with IEC/EN 61131-2 |
| **Maximum utilisation altitude** | Operation: 2000 m<br>Transport: 3.048 m |
| **Mechanical resistance** ● | Immunity to vibrations IEC/EN 60068-2-6, Fc test<br>Immunity to shock IEC/EN 60068-2-27, Fa test |
| **Resistance to electrostatic discharge** | Immunity to ESD IEC/EN 61000-4-2, level 3 |
| **Resistance to HF interference** | Immunity to radiated electrostatic fields<br>IEC/EN 61000-4-3,<br>Immunity to fast transients (burst immunity)<br>IEC/EN 61000-4-4, level 3<br>Immunity to shock waves<br>IEC/EN 61000-4-5<br>Radio frequency in common mode<br>IEC/EN 61000-4-6, level 3<br>Voltage dips and breaks ($\sim$)<br>IEC/EN 61000-4-11<br>Immunity to damped oscillatory waves<br>IEC/EN 61000-4-12 |
| **Conducted and radiated emissions** | Class B (*) in accordance with EN 55022/11 group 1 |
| (*) Except configuration (88 970 1.1 or 88 970 1.2) + (88 970 250 or 88 970 270) + 88 970 241 class A (class B in metallic cabinet) | |
| **Operating temperature** | -20 → +55°C (+40°C in a non-ventilated enclosure) in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-2-2 |
| **Storage temperature** | -40 → +70°C in accordance with IEC/EN 60068-2-1 and IEC/EN 60068-2-2 |
| **Relative humidity** | 95% max. (no condensation or dripping water) in accordance with IEC/EN 60068-2-30 |
| **Mounting** | On symmetrical DIN profile, 35 x 7.5 mm and 35 mm x 15 or panel (2 x 4 mm Ø) |
| **Screw terminals connection capacity** | **Flexible wire with ferrule =**<br>1 conductor: 0.25 to 2.5 mm² (AWG 24...AWG 14)<br>2 conductors 0.25 to 0.75 mm² (AWG 24...AWG 18)<br>**Semi-rigid wire =**<br>1 conductor: 0.2 to 2.5 mm² (AWG 25...AWG 14)<br>**Rigid wire =**<br>1 conductor: 0.2 to 2.5 mm² (AWG 25...AWG 14)<br>2 conductors 0.2 to 1.5 mm² (AWG 25...AWG 16)<br>**Tightening torque =**<br>0.5 N.m (4.5 lb-in) (tighten using screwdriver diam. 3.5 mm) |

● : For adapted products, see page page 64-65

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## Processing characteristics of CB, CD, XD & XB product types

| | |
|---|---|
| **LCD display** | CD, XD: Display with 4 lines of 18 characters |
| **Programming method** | Ladder or function blocks/SFC (Grafcet) |
| **Program size** | Ladder: 120 lines<br>Function blocks:<br>CB, CD: typically 350 blocks<br>XB, XD: typically 700 blocks |
| **Program memory** | Flash EEPROM |
| **Removable memory** | EEPROM |
| **Data memory** | 368 bits/200 words |
| **Back-up time in the event of power failure** | Program and settings in the controller: 10 years<br>Program and settings in the plug-in memory: 10 years<br>Data memory: 10 years |
| **Cycle time** | Ladder: typically 20 ms<br>Function blocks: 6 → 90 ms |
| **Response time** | Input acquisition time + 1 to 2 cycle times |
| **Clock data retention** | 10 years (lithium battery) at 25°C |
| **Clock drift** | Drift < 12 min/year (at 25°C)<br>6 s/month (at 25°C with user-definable correction of drift) |
| **Timer block accuracy** | 1% ± 2 cycle times |
| **Start up time on power up** | < 1.2 s |

## Characteristics of products with AC power supplied

| **Supply** | **24 V ∿**<br>**(88970..4)** | **100 → 240 V ∿**<br>**(88970..3)** |
|---|---|---|
| **Nominal voltage ●** | 24 V ∿ | 100 → 240 V ∿ |
| **Operating limits ●** | -15% / +20%<br>or 20.4 V∿ → 28.8 V∿ | -15% / +10%<br>or 85 V∿ → 264 V∿ |
| **Supply frequency range** | 50/60 Hz (+4% / -6%)<br>or 47 → 53 Hz/57 → 63 Hz | 50/60 Hz (+4% / -6%) or 47 → 53 Hz/57 → 63 Hz |
| **Immunity from micro power cuts** | 10 ms (repetition 20 times) | 10 ms (repetition 20 times) |
| **Max. absorbed power** | CB12-CD12-XD10-XB10: 4 VA<br>CB20-CD20: 6 VA<br>XD10 with extension - XD26-XB26: 7.5 VA<br>XD26-XB26 with extension: 10 VA | CB12-CD12-XD10-XB10: 7 VA<br>CB20-CD20: 11 VA<br>XD10-XB10 with extension-XD26-XB26: 12 VA<br>XD26-XB26 with extension: 17 VA |
| **Isolation voltage** | 1780 V ∿ | 1780 V ∿ |

| **Inputs** | **24 V ∿**<br>**(88970..4)** | **100 → 240 V ∿**<br>**(88970..3)** |
|---|---|---|
| **Input voltage ●** | 24 V ∿ (-15% / +20%) | 100 → 240 V ∿ (-15% / +10%) |
| **Input current ●** | 4.4 mA @ 20.4 V ∿<br>5.2 mA @ 24.0 V ∿<br>6.3 mA @ 28.8 V ∿ | 0.24 mA @ 85 V ∿<br>0.75 mA @ 264 V ∿ |
| **Input impedance ●** | 4.6 kΩ | 350 kΩ |
| **Logic 1 voltage threshold ●** | ≥ 14 V ∿ | ≥ 79 V ∿ |
| **Making current at logic state 1 ●** | >2 mA | > 0.17 mA |
| **Logic 0 voltage threshold ●** | ≤ 5 V ∿ | ≤ 20 V ∿ (≤ 28 V ∿ : XE10, XR06, XR10, XR14) |
| **Release current at logic state 0 ●** | <0.5 mA | <0.5 mA |
| **Response time with LADDER programming** | 50 ms - State 0 → 1 (50/60 Hz) | 50 ms - State 0 < 1 (50/60 Hz) |
| **Response time with function blocks programming** | Configurable in increments of 10 ms<br>50 ms min. up to 255 ms<br>State 0 → 1 (50/60 Hz) | Configurable in increments of 10 ms<br>50 ms min. up to 255 ms<br>State 0 → 1 (50/60 Hz) |
| **Maximum counting frequency** | In accordance with cycle time (Tc) and input response time (Tr) :<br>$1/((2 \times Tc) + Tr)$ | In accordance with cycle time (Tc) and input response time (Tr) :<br>$1/((2 \times Tc) + Tr)$ |
| **Sensor type** | Contact or 3-wire PNP | Contact or 3-wire PNP |
| **Input type** | Resistive | Resistive |
| **Isolation between power supply and inputs** | None | None |
| **Isolation 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 |

| **Characteristics of relay outputs common to the entire range** | | |
|---|---|---|
| **Max. breaking voltage ●** | 5 → 30 V ⎓<br>24 → 250 V ∿ | |
| **Breaking current ●** | CB-CD-XB10-XD10-XR06-XR10: 8 A<br>XD26-XB26: 8 x 8 A relays, 2 x 5 A relays<br>XE10: 4 x 5 A relays<br>XR14: 4 x 8 A relays, 2 x 5 A relays | |
| **Max. Output Common Current** | 12A for O8,O9,OA | |

● : For adapted products, see page page 64-65

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| Electrical durability for 500 000 operating cycles | Usage category DC-12: 24 V, 1.5 A<br>Usage category DC-13: 24 V (L/R = 10 ms), 0.6 A<br>Usage category AC-12: 230 V, 1.5 A<br>Usage 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 |
| Mechanical life | 10.000.000 operations (cycles) |
| Voltage for withstanding shocks | In accordance with IEC/EN 60947-1 and IEC/EN 60664-1: 4 kV |
| Response time | Make 10 ms<br>Release 5 ms |
| Built-in protections | Against short-circuits: None<br>Against overvoltages and overloads: None |
| Status indicator | On LCD screen for CD and XD |

## Characteristics of product with DC power supplied

| Supply | 12 V ⎓<br>(88970..5 & 88970814 & 88970840) | 24 V ⎓<br>(88970..1 & 88970..2) |
|---|---|---|
| Nominal voltage ● | 12 V ⎓ | 24 V ⎓ |
| Operating limits ● | -13% / +20%<br>or 10.4 V ⎓ < 14.4 V ⎓ (including ripple) | -20% / +25%<br>or 19.2 V ⎓ < 30 V ⎓ (including ripple) |
| Immunity from micro power cuts | ≤ 1 ms (repetition 20 times) | ≤ 1 ms (repetition 20 times) |
| Max. absorbed power | CB12 with solid state outputs: 1.5 W<br>CD12: 1.5 W<br>CD20: 2.5 W<br>XD26-XB26: 3 W<br>XD26-XB26 with extension: 5 W<br>XD26 with solid state outputs: 2.5 W | CB12-CD12-CD20 with solid state outputs<br>- XD10-XB10 with solid state outputs: 3 W<br>XD10-XB10 with relay outputs: 4 W<br>XD26-XB26 with solid state outputs: 5 W<br>CB20-CD20 with relay outputs-XD26 with<br>relay outputs: 6 W<br>XD10-XB10 with extension: 8 W<br>XD26-XB26 with extension: 10 W |
| Protection against polarity inversions | Yes | Yes |
| **Digital inputs (I1 to IA and IH to IY)** | **12 V ⎓**<br>(88970..5 & 88970814 & 88970840) | **24 V ⎓**<br>(88970..1 & 88970..2) |
| Input voltage ● | 12 V ⎓ (-13% / +20%) | 24 V ⎓ (-20% / +25%) |
| Input current ● | 3.9 mA @ 10.44 V ⎓<br>4.4 mA @ 12.0 V ⎓<br>5.3 mA @ 14.4 V ⎓ | 2.6 mA @ 19.2 V ⎓<br>3.2 mA @ 24 V ⎓<br>4.0 mA @ 30.0 V ⎓ |
| Input impedance ● | 2.7 kΩ | 7.4 kΩ |
| Logic 1 voltage threshold ● | ≥ 7 V ⎓ | ≥ 15 V ⎓ |
| Making current at logic state 1 ● | ≥ 2 mA | ≥ 2.2 mA |
| Logic 0 voltage threshold ● | ≤ 3 V ⎓ | ≤ 5 V ⎓ |
| Release current at logic state 0 ● | <0.9 mA | <0.75 mA |
| Response time | 1 → 2 cycle times | 1 → 2 cycle times |
| Maximum counting frequency | I1 & I2: Ladder (1 kHz) & FBD (Up to 6 kHz)<br>I3 to IA & IH to IY: in accordance with cycle time (Tc) and input response time (Tr):<br>1/ ( (2 x Tc) + Tr) | I1 & I2: Ladder (1 kHz) & FBD (Up to 6 kHz)<br>I3 to IA & IH to IY: in accordance with cycle time (Tc) and input response time (Tr):<br>1/ ( (2 x Tc) + Tr) |
| Sensor type | Contact or 3-wire PNP | Contact or 3-wire PNP |
| Conforming to IEC/EN 61131-2 | Type 1 | Type 1 |
| Input type | Resistive | Resistive |
| Isolation between power supply and inputs | None | None |
| Isolation 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)** | **12 V ⎓**<br>(88970..5 & 88970814 & 88970840) | **24 V ⎓**<br>(88970..1 & 88970..2) |
| CB12-CD12-XD10-XB10 | 4 inputs IB → IE | 4 inputs IB → IE |
| CB20-CD20-XB26-XD26 | 6 inputs IB → IG | 6 inputs IB → IG |
| **Inputs used as analogue inputs** | | |
| Measurement range ● | (0 → 10 V) or (0 → V power supply) | (0 → 10 V) or (0 → V power supply) |
| Input impedance ● | 14 kΩ | 12 kΩ |
| Input voltage ● | 14.4 V ⎓ max | 30 V ⎓ max |
| Value of LSB ● | 14 mV, 4 mA | 29 mV, 4 mA |
| Input type | Common mode | Common mode |
| Resolution | 10 bit at maximum input voltage | 10 bit at maximum input voltage |
| Conversion time | Controller cycle time | Controller cycle time |
| Accuracy at 25°C | ±5% | ±5% |
| Accuracy at 55°C | ± 6.2% | ± 6.2% |
| Repeat accuracy at 55 °C | ± 2% | ± 2% |
| Isolation between analogue channel and power supply | None | None |
| Cable length | 10 m maximum, with shielded cable (sensor not isolated) | 10 m maximum, with shielded cable (sensor not isolated) |
| Protection against polarity inversions | Yes | Yes |

● :For adapted products, see page page 64-65

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| | | |
|---|---|---|
| Potentiometer control | 2.2 kΩ/0.5 W (recommended) 10 kΩ max. | 2.2 kΩ/0.5 W (recommended) 10 kΩ max. |

**Inputs used as digital inputs**

| | | |
|---|---|---|
| Input voltage ● | 12 V ⎓ (-13% / +20%) | 24 V ⎓ (-20% / +25%) |
| Input current ● | 0.7 mA @ 10.44 V⎓ 0.9 mA @ 12.0 V⎓ 1.0 mA @ 14.4V⎓ | 1.6 mA @ 19.2 V⎓ 2.0 mA @ 24.0 V⎓ 2.5 mA @ 30.0 V⎓ |
| Input impedance ● | 14 kΩ | 12 kΩ |
| Logic 1 voltage threshold ● | ≥ 7 V ⎓ | ≥ 15 V⎓ |
| Making current at logic state 1 ● | ≥ 0.5 mA | ≥ 1.2 mA |
| Logic 0 voltage threshold ● | ≤ 3 V ⎓ | ≤ 5 V ⎓ |
| Release current at logic state 0 ● | ≤ 0.2 mA | ≤ 0.5 mA |
| Response time | 1 → 2 cycle times | 1 → 2 cycle times |
| Maximum counting frequency | In accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr) | 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 |
| Input type | Resistive | Resistive |
| Isolation between power supply and inputs | None | None |
| Isolation 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 |

**Characteristics of relay outputs common to the entire range**

| | |
|---|---|
| Max. breaking voltage ● | 5 → 30 V ⎓ 24 → 250 V ∿ |
| 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 |
| Max. Output Common Current | 12A for O8,O9,OA |
| Electrical durability for 500 000 operating cycles | Usage category DC-12: 24 V, 1.5 A Usage category DC-13: 24 V (L/R = 10 ms), 0.6 A Usage category AC-12: 230 V, 1.5 A Usage 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 (cycles) |
| Voltage for withstanding shocks | In accordance with IEC/EN 60947-1 and IEC/EN 60664-1: 4 kV |
| Response time | Make 10 ms Release 5 ms |
| Built-in protections | Against short-circuits: None Against overvoltages and overloads: None |
| Status indicator | On LCD screen for CD and XD |

| Digital / PWM solid state output | 12-24 V ⎓ (88970814 & 88970840) | 24 V ⎓ (88970..2) |
|---|---|---|
| PWM solid state output* * Only available with "FBD" programming language | CB12: O4 XD26: O4 → O7 | CD12-XD10-XB10: O4 CD20-XD26-XB26: O4 → O7 |
| Breaking voltage ● | 10.4 → 30 V⎓ | 19.2 → 30 V⎓ |
| Nominal voltage ● | 12-24 V ⎓ | 24 V ⎓ |
| Nominal current ● | 0.5 A | 0.5 A |
| Max. breaking current ● | 0.625 A | 0.625 A |
| Voltage drop | ≤ 2 V for I = 0.5 A (at state 1) | ≤ 2 V for I = 0.5 A (at state 1) |
| Response time | Make ≤ 1 ms Release ≤ 1 ms | Make ≤ 1 ms Release ≤ 1 ms |
| Built-in protections | Against overloads and short-circuits: Yes Against overvoltages (*) : Yes Against inversions of power supply: Yes | 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 output of the logic controller and the load | | |
| Min. load | 1 mA | 1 mA |
| Maximum incandescent load | 0.2 A / 12 V ⎓ 0.1 A / 24 V ⎓ | 0.1 A / 24 V ⎓ |
| 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 for XA) | 0 → 100% (256 steps for CD, XD and 1024 for XA) |
| PWM accuracy at 120 Hz | < 5% (20% → 80%) load at 10 mA | < 5% (20% → 80%) load at 10 mA |
| PWM accuracy at 500 Hz | < 10% (20% → 80%) load at 10 mA | < 10% (20% → 80%) load at 10 mA |
| Status indicator | On LCD screen for XD | On LCD screen for CD and XD |

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● :For adapted products, see page page 64-65

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