



## Modem communication plug and play solutions STN Part number 88970118



- For remote control of your application
- Automatic notification of alarms via SMS (GSM Modem) / email or on a PC with M3 ALARM software.
- Millenium 3 program can be downloaded, modified and sent
- Input and output states, as well as all program values, can be polled and controlled remotely
- 2 types of pre-configured ready-to-use modem :
  - STN modem for wired transmission networks
  - GSM modem for wireless communication

### Part numbers

|          | Type | Description | Supply     |
|----------|------|-------------|------------|
| 88970118 | STN  | STN modem*  | 12-24 V DC |

### Specifications

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

|                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Certifications                                                             | CE, UL, CSA                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Conformity to standards (with the low voltage directive and EMC directive) | IEC/EN 61131-2 (Open equipment)<br>IEC/EN 61131-2 (Zone B)<br>IEC/EN 61000-6-2,<br>IEC/EN 61000-6-3 (*)<br>IEC/EN 61000-6-4<br>(*) 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                                                                   | 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                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Max operating 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 (AC)<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, EN 55011 (CISPR22, CISPR11) group 1<br>(*) 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 mm <sup>2</sup> (AWG 24...AWG 14)<br>2 conductors 0.25 to 0.75 mm <sup>2</sup> (AWG 24...AWG 18)<br>Semi-rigid wire =<br>1 conductor : 0.2 to 2.5 mm <sup>2</sup> (AWG 25...AWG 14)<br>Rigid wire =<br>1 conductor : 0.2 to 2.5 mm <sup>2</sup> (AWG 25...AWG 14)<br>2 conductors 0.2 to 1.5 mm <sup>2</sup> (AWG 25...AWG 16)<br>Tightening torque =<br>0.5 N.m (4.5 lb-in) (tighten using screwdriver diam. 3.5 mm) |

#### Characteristics of the communication Modem system

|                         |              |              |                             |
|-------------------------|--------------|--------------|-----------------------------|
| General characteristics | 88970117     | 88970118     | 88970119                    |
| Certifications          | CE, UL, CSA  | CE, UL, CSA  | CE, R&TTE, UL, CSA, FCC, IC |
| Supply                  |              |              |                             |
| Nominal voltage (V)     | 12 → 24 V DC | 12 → 24 V DC | 12 → 24 V DC                |

|                                        |                                    |                                 |                                   |
|----------------------------------------|------------------------------------|---------------------------------|-----------------------------------|
| Operating limits                       | -13 % / + 20 %<br>or 10 →28,8 V DC | -13 % / + 5 %<br>or 10 →30 V DC | -54 % / + 33 %<br>or 5,5 →32 V DC |
| Ripple                                 | 5 % max.                           | -                               | -                                 |
| Nominal current under 12 V DC          | 30 mA                              | 140 mA                          | 165 mA                            |
| Nominal current under 24 V DC          | 30 mA                              | 70 mA                           | 87 mA                             |
| Peak current on energisation           | 550 mA                             | 9600 mA                         | 2100 mA at 5.5 V                  |
| Max. absorbed power                    | 1,1 W                              | 1,7 W                           | 2,1 W                             |
| Immunity from micro power cuts         | 1 ms, repetition 20 times          | -                               | -                                 |
| Protection against polarity inversions | Yes                                | No                              | No                                |
| Fuse protection                        | 1 A fuse                           | -                               | With fuse 2.5 A                   |
| Temperature Use (°C)                   | -                                  | -30 + 70 °C                     | -20 + 55 °C                       |
| Storage temperature (°C)               | -                                  | -40 +85 °C                      | -25 + 70 °C                       |

|                                                             |                                                                                                                                                                                                                                                              |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Characteristics of the "COM-M3" link with the controller    |                                                                                                                                                                                                                                                              |
| Type of connector                                           | Specific Millenium                                                                                                                                                                                                                                           |
| Type of link                                                | Specific Millenium communication protocol                                                                                                                                                                                                                    |
| Compatibility                                               | Only with Millenium controllers version ≥ V2.1                                                                                                                                                                                                               |
| Isolation of "Com-M3" connector from the "Com-M" connector  | Via optocoupler AC 1780 V                                                                                                                                                                                                                                    |
| Isolation of "Com-M3" connector from the ± supply terminals | Via optocoupler AC 1780 V                                                                                                                                                                                                                                    |
| Characteristics of "Com-M" link with the Modem              |                                                                                                                                                                                                                                                              |
| Type of connector                                           | Specific Millenium                                                                                                                                                                                                                                           |
| Type of link with Modem connector cable                     | RS 232 serial (supplied with the communication interface)                                                                                                                                                                                                    |
| Compatibility                                               | Only with Millenium controllers version ≥ V2.1                                                                                                                                                                                                               |
| Analogue RTC modem compatibility                            | AT commands                                                                                                                                                                                                                                                  |
| GSM modem compatibility                                     | AT commands                                                                                                                                                                                                                                                  |
| Isolation of "Com-M" connector from the Modem               | Via link cable to Modem (supplied)                                                                                                                                                                                                                           |
| Isolation of "Com-M" connector from the ± supply terminals  | Via link cable to Modem (supplied)                                                                                                                                                                                                                           |
| Data characteristics                                        |                                                                                                                                                                                                                                                              |
| Data saved by the interface                                 | Up to 28 messages<br>1 to 10 recipients (telephone numbers and/or e-mail addresses) per message<br>Time-stamping of messages to be sent (date and time)<br>Saving of values on triggering of the message activation condition (digital and numerical values) |
| Backup of data to be sent                                   | Flash memory                                                                                                                                                                                                                                                 |
| Comments                                                    |                                                                                                                                                                                                                                                              |

88970117 : supplied with connecting cable between M3MOD and Modem (Millenium 3 connector to sub DB9)  
88970118 : supplied with configuration CD-ROM and telephone cable  
88970119 : supplied with an antenna, a power cable, and DIN Rail mounting kit

|                                                             |                                                                                                                                      |
|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 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                                                | 128 macros maximum<br>256 blocks maximum per macro<br>180 typical blocks for CB, CD                                                  |
| 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 AC<br>(88970..4)                                                                                                          | 100 →240 V AC<br>(88970..3)                                                                                                       |
| Nominal voltage                | 24 V AC                                                                                                                        | 100 →240 V AC                                                                                                                     |
| Operating limits               | -15 % / +20 %<br>or 20.4 VAC→28.8 VAC                                                                                          | -15 % / +10 %<br>or 85 VAC→264 VAC                                                                                                |
| 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 AC                                                                                                                      | 1780 V AC                                                                                                                         |
| Inputs                         | 24 V AC<br>(88970..4)                                                                                                          | 100 →240 V AC<br>(88970..3)                                                                                                       |
| Input voltage                  | 24 V AC (-15 % / +20 %)                                                                                                        | 100 →240 V AC (-15 % / +10 %)                                                                                                     |

|                                                |                                                                                          |                                                                                          |
|------------------------------------------------|------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Input current                                  | 4,4 mA @ 20,4 V AC<br>5,2 mA @ 24,0 V AC<br>6,3 mA @ 28,8 V AC                           | 0,24 mA @ 85 V AC<br>0,75 mA @ 264 V AC                                                  |
| 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                                                                                  |
| Response time with LADDER programming          | 50 ms<br>State 0 →1 (50/60 Hz)                                                           | 50 ms<br>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 x Tc) + Tr) | 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                                                                    |
| 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 DC<br>24 →250 V AC                                                                                                                                           |
| 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                      |
| 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 |
| Max. Output Common Current                         | 12A for O8,O9,OA                                                                                                                                                     |
| Minimum switching capacity                         | 10 mA (at minimum voltage of 12 V)                                                                                                                                   |
| Minimum load                                       | 12 V, 10 mA                                                                                                                                                          |
| Maximum rate                                       | Off load : 10 Hz<br>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<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 DC<br>(88970..5 & 8970814 & 88970840)                                                                                                                          | 24 V DC<br>(88970..1 et 88970..2)                                                                                                                                                                                                                                                                       |
| Nominal voltage                           | 12 V DC                                                                                                                                                             | 24 V DC                                                                                                                                                                                                                                                                                                 |
| Operating limits                          | -13 % / +20 %<br>or 10.4 V DC < 14.4 V DC (including ripple)                                                                                                        | -20 % / +25 %<br>or 19.2 V DC < 30 V DC (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 - 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 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 DC<br>(88970..5 & 88970814 & 88970840)                                                                                                                         | 24 V DC<br>(88970..1 and 88970..2)                                                                                                                                                                                                                                                                      |
| Input voltage                             | 12 V DC (-13 % / +20 %)                                                                                                                                             | 24 V DC (-20 % / +25 %)                                                                                                                                                                                                                                                                                 |
| Input current                             | 3,9 mA @ 10,44 V DC<br>4,4 mA @ 12,0 V DC<br>5,3 mA @ 14,4 VDC                                                                                                      | 2,6 mA @ 19,2 V DC<br>3,2 mA @ 24 V DC<br>4,0 mA @ 30,0 VDC                                                                                                                                                                                                                                             |
| Input impedance                           | 2.7 kΩ                                                                                                                                                              | 7.4 kΩ                                                                                                                                                                                                                                                                                                  |
| Logic 1 voltage threshold                 | ≥ 7 V DC                                                                                                                                                            | ≥ 15 V DC                                                                                                                                                                                                                                                                                               |
| Making current at logic state 1           | ≥2 mA                                                                                                                                                               | ≥2.2 mA                                                                                                                                                                                                                                                                                                 |
| Logic 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                | I1 & I2 : Ladder (1 k Hz) & FBD (Up to 6 k Hz)<br>I3 to IA & IH to IY : in accordance with cycle time (Tc) and input response time (Tr) : 1/ ( (2 x Tc) + Tr)       | I1 & I2 : Ladder (1 k Hz) & FBD (Up to 6 k Hz)<br>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                                                                                                                                                                                                                                                                                                  |
| 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 DC<br>(88970..5 & 88970814 & 88970840)                                                                                                                                                     | 24 V DC<br>(88970..1 and 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 DC max                                                                                                                                                                                   | 30 V DC max                                                                                                                                                                                     |
| Value of LSB                                                | 14 mV                                                                                                                                                                                           | 29 mV                                                                                                                                                                                           |
| 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                                                                                                                                                                                             |
| Potentiometer control                                       | 2.2 kΩ/0.5 W (recommended)<br>10 kΩ max.                                                                                                                                                        | 2.2 kΩ/0.5 W (recommended)<br>10 kΩ max.                                                                                                                                                        |
| Inputs used as digital inputs                               |                                                                                                                                                                                                 |                                                                                                                                                                                                 |
| Input voltage                                               | 12 V DC (-13 % / +20 %)                                                                                                                                                                         | 24 V DC (-20 % / +25 %)                                                                                                                                                                         |
| Input current                                               | 0,7 mA @ 10,44 VDC<br>0,9 mA @ 12,0 VDC<br>1,0 mA @ 14,4VDC                                                                                                                                     | 1,6 mA @ 19,2 VDC<br>2,0 mA @ 24,0 V DC<br>2,5 mA @ 30,0 VDC                                                                                                                                    |
| Input impedance                                             | 14 kΩ                                                                                                                                                                                           | 12 kΩ                                                                                                                                                                                           |
| Logic 1 voltage threshold                                   | ≥ 7 V DC                                                                                                                                                                                        | ≥ 15 VDC                                                                                                                                                                                        |
| Making current at logic state 1                             | ≥0.5 mA                                                                                                                                                                                         | ≥1.2 mA                                                                                                                                                                                         |
| Logic 0 voltage threshold                                   | ≤ 3 V DC                                                                                                                                                                                        | ≤ 5 V DC                                                                                                                                                                                        |
| Release current at logic state 0                            | ≤0.2 mA                                                                                                                                                                                         | ≤0.5 mA                                                                                                                                                                                         |
| Response time                                               | 1 →2 cycle times                                                                                                                                                                                | 1 →2 cycle times                                                                                                                                                                                |
| Maximum counting frequency                                  | In accordance with cycle time (Tc) and input response time (Tr) :<br>1/ ( (2 x Tc) + Tr)                                                                                                        | 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                                                                                                                                                                     |
| Characteristics of relay outputs common to the entire range |                                                                                                                                                                                                 |                                                                                                                                                                                                 |
| Max. breaking voltage                                       | 5 →30 V DC<br>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<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                                                 |                                                                                                                                                                                                 |
| 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<br>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<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                                                                                                                                                                     |                                                                                                                                                                                                 |
| Digital / PWM solid state output                            | 12-24 V DC<br>(88970814 & 88970840)                                                                                                                                                             | 24 V DC<br>(88970..2)                                                                                                                                                                           |
| PWM solid state output*                                     | CB12 : O4<br>XD26 : O4 →O7                                                                                                                                                                      | CD12-XD10-XB10 : O4<br>CD20-XD26-XB26 : O4 →O7                                                                                                                                                  |
| * Only available with "FBD" programming language            | * Only available with "FBD" programming language                                                                                                                                                |                                                                                                                                                                                                 |
| Breaking voltage                                            | 10.4 →30 VDC                                                                                                                                                                                    | 19.2 →30 VDC                                                                                                                                                                                    |
| Nominal voltage                                             | 12-24 V DC                                                                                                                                                                                      | 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<br>Release ≤ 1 ms                                                                                                                                                                   | Make ≤ 1 ms<br>Release ≤ 1 ms                                                                                                                                                                   |
| Frequency (Hz)                                              |                                                                                                                                                                                                 |                                                                                                                                                                                                 |
| Built-in protections                                        | Against overloads and short-circuits : Yes<br>Against overvoltages (*) : Yes<br>Against inversions of power supply : Yes<br>(*) In the absence of a volt-free contact between the output of the | Against overloads and short-circuits : Yes<br>Against overvoltages (*) : Yes<br>Against inversions of power supply : Yes<br>(*) In the absence of a volt-free contact between the output of the |

|                           |                                                                           |                                                                           |
|---------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------|
|                           | logic controller and the load                                             | logic controller and the load                                             |
| Min. load                 | 1 mA                                                                      | 1 mA                                                                      |
| Maximum incandescent load | 0,2 A / 12 V DC<br>0,1 A / 24 V DC                                        | 0,1 A / 24 V DC                                                           |
| Galvanic isolation        | No                                                                        | No                                                                        |
| PWM frequency             | 14.11 Hz<br>56.45 Hz<br>112.90 Hz<br>225.80 Hz<br>451.59 Hz<br>1806.37 Hz | 14.11 Hz<br>56.45 Hz<br>112.90 Hz<br>225.80 Hz<br>451.59 Hz<br>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                                         |
| Max. Breaking current PWM | 50 mA                                                                     | 50 mA                                                                     |
| Max. cable length PWM (m) | 20                                                                        | 20                                                                        |
| 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 CD and XD                                               | On LCD screen for CD and XD                                               |

Accessories

| Type     | Description                              | Code     |
|----------|------------------------------------------|----------|
| PA       | 1,80 m serial link cable : DB9 M / DB9 F | 88970123 |
| M3 ALARM | Alarm management software (CD-ROM)       | 88970116 |

Principles



Dimensions (mm)

