

## Analog input module; 4 analog inputs; Pt/Ni/KTY/R with 2-wire or 3-wire connection

Part no. **XN-322-4AI-PTNI**  
**178772**

| General specifications   |  |
|--------------------------|--|
| Product name             | Eaton XN-322 Accessory Input module  |
| Part no.                 | XN-322-4AI-PTNI  |
| EAN                      | 7640130098367  |
| Product Length/Depth     | 104.2 millimetre   |
| Product height           | 16.8 millimetre  |
| Product width            | 80.3 millimetre  |
| Product weight           | 0.056 kilogram   |
| Certifications           | UL File No.: E135462<br>IEC/EN 61000-6-2<br>CE<br>IEC/EN 61131-2<br>IEC/EN 61000-6-4<br>CULus  |
| Product Tradename        | XN-322   |
| Product Type             | Accessory  |
| Product Sub Type         | Input module   |
| Catalog Notes            | Measurement current < 0.3<br>The max. heat dissipation is specified as the maximum power produced inside the device's housing.   |
| Features & Functions     |  |
| Electric connection type | Plug-in connection   |
| Features                 | Input, resistance thermometer<br>Fieldbus connection over separate bus coupler possible<br>Analog outputs configurable<br>Input, resistor<br>Analog inputs configurable<br>Input signal, configurable  |
| Fitted with:             | 10 kHz, second-order low-pass input filter<br>Parameterizable Software input filter  |
| Measurement ranges       | 0 - 1000 (Resistance measurement)<br>0 - 2500 (Resistance measurement)<br>-40 - 300 °C (Temperature measurement, KTY84)<br>0 - 500 (Resistance measurement)<br>-50 - 150 °C (Temperature measurement, KTY11)<br>-200 - 850 °C (Temperature measurement, PT100/200/500/1000)<br>-60 - 250 °C (Temperature measurement, NI100/1000)<br>-60 - 150 °C (Temperature measurement, NI100/1000)<br>0 - 250 (Resistance measurement)<br>0 - 5000 (Resistance measurement)<br>-200 - 150 °C (Temperature measurement, PT100/200/500/1000)<br>-55 - 150 °C (Temperature measurement, KTY81) |
| Value representation     | SIGNED16 (0.1 °C), UNSIGNED16 (0.1 Ω), Temperature and resistance measurement  |
| General information      |  |
| Current consumption      | 37 mA (typ.), for +24 V, Power supply - Input<br>0 mA (typ.), for +5 V power supply (internal), Power supply - Input   |
| Degree of protection     | IP20<br>NEMA 1   |
| Mounting method          | Rail mounting possible   |
| Number of channels       | 4, Analog Inputs   |
| Overvoltage category     | III  |
| Pollution degree         | 3  |
| Product category         | XN-322 analog input module   |
| Resolution               | 16 Bit (Analog inputs)   |
| Type                     | Analog input module for four PT100/PT1000/NI100/NI1000KTYxx/R resistance inputs with 2-wire and 3-wire configurations.<br>XN300 I/O slice module   |
| Used with                | XN-312-...<br>XN300  |
| Voltage type             | DC   |

|  |  |   |
|--|--|---|
| <b>Ambient conditions, mechanical</b>    |  |   |
| Height of fall (IEC/EN 60068-2-32) - max |  | 1 m   |
| Mounting position                        |  | Horizontal  |
| Shock resistance                         |  | 15 g, Mechanical, Half-sinusoidal shock 11 ms, 18 Impacts   |
| Vibration resistance                     |  | 5 - 8.4 / 8.4 -150 Hz, 3,5 mm / 1 g   |
| <b>Climatic environmental conditions</b> |  |   |
| Air pressure                             |  | 795 - 1080 hPa (operation)  |
| Ambient operating temperature - min      |  | 0 °C  |
| Ambient operating temperature - max      |  | 60 °C   |
| Ambient storage temperature - min        |  | -20 °C  |
| Ambient storage temperature - max        |  | 85 °C   |
| Climatic proofing                        |  | Dry heat to IEC 60068-2-2<br>Damp heat, constant, to IEC 60068-2-3  |
| Environmental conditions                 |  | Condensation: prevent with appropriate measures   |
| Relative humidity                        |  | 0 - 95 % (non-condensing)   |
| <b>Electro magnetic compatibility</b>    |  |   |
| Air discharge                            |  | 8 kV  |
| Burst impulse                            |  | 1 kV, Signal cable<br>2 kV, Supply cable  |
| Contact discharge                        |  | 4 kV  |
| Electromagnetic fields                   |  | 1 V/m at 2 - 2.7 GHz (according to IEC EN 61000-4-3)<br>10 V/m at 0.08 - 1.0 GHz (according to IEC EN 61000-4-3)<br>3 V/m at 1.4 - 2 GHz (according to IEC EN 61000-4-3)  |
| Emitted interference                     |  | 47 dB (at 230 - 1000 MHz, Class A, radiated, high frequency)<br>40 dB (at 30 - 230 MHz, Class A, radiated, high frequency)  |
| Radiated RFI                             |  | 10 V  |
| Surge rating                             |  | 0.5/0.5 kV, Supply cable, balanced/unbalanced, EMC<br>1 kV, Signal cable, unbalanced, EMC   |
| Voltage dips                             |  | Voltage dips: 10 ms/Voltage fluctuations: Yes   |
| <b>Terminal capacities</b>               |  |   |
| Terminal capacity                        |  | 0.2 - 1.5 mm <sup>2</sup> , flexible without ferrule, H07V-K<br>0.2 - 1.5 mm <sup>2</sup> , solid, H07V-U<br>24 - 16 AWG<br>0.25 - 1.5 mm <sup>2</sup> , with ferrules without plastic collar according to DIN 46228-1 (ferrules crimped gas-tight)<br>0.25 - 1.5 mm <sup>2</sup> , with ferrules with plastic collar according to DIN 46228-1 (ferrules crimped gas-tight) |
| Gauge pin                                |  | A1 (according to IEC/EN 60947-1)  |
| Stripping length (main cable)            |  | 10 mm   |
| Insulating material group                |  | I   |
| <b>Electrical rating</b>                 |  |   |
| Rated operational voltage                |  | 160 V (terminations)  |
| Supply voltage at AC, 50 Hz - min        |  | 0 V AC  |
| Supply voltage at AC, 50 Hz - max        |  | 0 V AC  |
| Supply voltage at DC - min               |  | 18 V DC   |
| Supply voltage at DC - max               |  | 30 V DC   |
| <b>Communication</b>                     |  |   |
| Connection type                          |  | 2-conductor/3-conductor, Temperature and resistance measurement<br>Push-in spring-cage terminal (plug-in connection), Connection design in TOP direction  |
| Protocol                                 |  | Other bus systems   |
| <b>Input/Output</b>                      |  |   |
| Accuracy                                 |  | ± 0.3 % of full scale, Temperature and resistance measurement   |
| Input                                    |  | 4 Analog resistance inputs (Pt/Ni/KTY/R with 2-wire or 3-wire connection)   |
| Load current                             |  | Not specified by plug manufacturer  |
| Measured variables                       |  | Temperature<br>Resistance   |
| Number of inputs (analog)                |  | 4   |
| Number of outputs (analog)               |  | 0   |
| Value refresh time/cycle time            |  | Min. 4 / 4 ms (per channel / all channels), Analog Inputs   |

| Safety   |  |  |
|--|--|--|
| Explosion safety category for dust   |  | None   |
| Explosion safety category for gas  |  | None   |
| Potential isolation  |  | Analog inputs: no  |
| Design verification  |  |  |
| Equipment heat dissipation, current-dependent Pvid                               |  | 0 W  |
| Heat dissipation capacity Pdis   |  | 0 W  |
| Heat dissipation per pole, current-dependent Pvid                                |  | 0.768 W  |
| Rated operational current for specified heat dissipation (In)                    |  | 0 A  |
| Static heat dissipation, non-current-dependent Pvs                               |  | 1.08 W   |
| 10.2.2 Corrosion resistance  |  | Meets the product standard's requirements.   |
| 10.2.3.1 Verification of thermal stability of enclosures                         |  | Meets the product standard's requirements.   |
| 10.2.3.2 Verification of resistance of insulating materials to normal heat       |  | Meets the product standard's requirements.   |
| 10.2.3.3 Resist. of insul. mat. to abnormal heat/fire by internal elect. effects |  | Meets the product standard's requirements.   |
| 10.2.4 Resistance to ultra-violet (UV) radiation                                 |  | Meets the product standard's requirements.   |
| 10.2.5 Lifting   |  | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.2.6 Mechanical impact   |  | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.2.7 Inscriptions  |  | Meets the product standard's requirements.   |
| 10.3 Degree of protection of assemblies  |  | Meets the product standard's requirements.   |
| 10.4 Clearances and creepage distances   |  | Meets the product standard's requirements.   |
| 10.5 Protection against electric shock   |  | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.6 Incorporation of switching devices and components                           |  | Does not apply, since the entire switchgear needs to be evaluated.   |
| 10.7 Internal electrical circuits and connections                                |  | Is the panel builder's responsibility.   |
| 10.8 Connections for external conductors   |  | Is the panel builder's responsibility.   |
| 10.9.2 Power-frequency electric strength   |  | Is the panel builder's responsibility.   |
| 10.9.3 Impulse withstand voltage   |  | Is the panel builder's responsibility.   |
| 10.9.4 Testing of enclosures made of insulating material                         |  | Is the panel builder's responsibility.   |
| 10.10 Temperature rise   |  | The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices. |
| 10.11 Short-circuit rating   |  | Is the panel builder's responsibility.   |
| 10.12 Electromagnetic compatibility  |  | Is the panel builder's responsibility.   |
| 10.13 Mechanical function  |  | The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.                         |

## Technical data ETIM 9.0

| Programmable logic controllers PLC (EG000024) / Fieldbus, decentr. periphery - analogue I/O module (EC001596)  |     |         |
|--|-----|---------|
| Electric engineering, automation, process control engineering / Control, Process Control System (PCS) / Field bus, decentralized peripheral / Field bus, decentralized peripheral - analogue I/O module (ecl@ss13-27-24-26-01 [BAA061019]) |     |         |
| Supply voltage AC 50 Hz  | V   | 0 - 0   |
| Supply voltage AC 60 Hz  | V   | 0 - 0   |
| Supply voltage DC  | V   | 18 - 30 |
| Voltage type (supply voltage)  |     | DC      |
| Power consumption  | W   | 0.3     |
| Input, current   |     | No      |
| Input, voltage   |     | No      |
| Input, resistor  |     | Yes     |
| Input, resistance thermometer  |     | Yes     |
| Input, thermocouple  |     | No      |
| Input signal, configurable   |     | Yes     |
| Resolution of the analogue inputs  | Bit | 16      |
| Output, current  |     | No      |
| Output, voltage  |     | No      |
| Output signal configurable   |     | No      |
| Resolution of the analogue outputs   | Bit | 0       |
| Number of analogue inputs  |     | 4       |
| Number of analogue outputs   |     | 0       |

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|--|--|--------------------|
| Analogue inputs configurable                           |  | Yes                |
| Analogue outputs configurable                          |  | Yes                |
| Number of HW-interfaces industrial Ethernet            |  | 0                  |
| Number of interfaces PROFINET                          |  | 0                  |
| Number of HW-interfaces RS-232                         |  | 0                  |
| Number of HW-interfaces RS-422                         |  | 0                  |
| Number of HW-interfaces RS-485                         |  | 0                  |
| Number of HW-interfaces serial TTY                     |  | 0                  |
| Number of HW-interfaces parallel                       |  | 0                  |
| Number of HW-interfaces wireless                       |  | 0                  |
| Number of HW-interfaces USB                            |  | 0                  |
| Number of HW-interfaces other                          |  | 1                  |
| Supporting protocol for EtherCAT                       |  | No                 |
| Supporting protocol for TCP/IP                         |  | No                 |
| Supporting protocol for PROFIBUS                       |  | No                 |
| Supporting protocol for CAN                            |  | No                 |
| Supporting protocol for INTERBUS                       |  | No                 |
| Supporting protocol for ASI                            |  | No                 |
| Supporting protocol for KNX                            |  | No                 |
| Supporting protocol for Modbus                         |  | No                 |
| Supporting protocol for Data-Highway                   |  | No                 |
| Supporting protocol for DeviceNet                      |  | No                 |
| Supporting protocol for SUCONET                        |  | No                 |
| Supporting protocol for LON                            |  | No                 |
| Supporting protocol for PROFINET IO                    |  | No                 |
| Supporting protocol for PROFINET CBA                   |  | No                 |
| Supporting protocol for SERCOS                         |  | No                 |
| Supporting protocol for Foundation Fieldbus            |  | No                 |
| Supporting protocol for EtherNet/IP                    |  | No                 |
| Supporting protocol for AS-Interface Safety at Work    |  | No                 |
| Supporting protocol for DeviceNet Safety               |  | No                 |
| Supporting protocol for INTERBUS-Safety                |  | No                 |
| Supporting protocol for PROFIsafe                      |  | No                 |
| Supporting protocol for SafetyBUS p                    |  | No                 |
| Supporting protocol for other bus systems              |  | Yes                |
| Radio standard Bluetooth                               |  | No                 |
| Radio standard WLAN 802.11                             |  | No                 |
| Radio standard GPRS                                    |  | No                 |
| Radio standard GSM                                     |  | No                 |
| Radio standard UMTS                                    |  | No                 |
| IO link master   |  | No                 |
| System accessory                                       |  | Yes                |
| Degree of protection (IP)                              |  | IP20               |
| Degree of protection (NEMA)                            |  | 1                  |
| Type of electric connection                            |  | Plug-in connection |
| Fieldbus connection over separate bus coupler possible |  | Yes                |
| Rail mounting possible                                 |  | Yes                |
| Wall mounting/direct mounting                          |  | No                 |
| Front built-in possible                                |  | No                 |
| Rack-assembly possible                                 |  | No                 |
| Suitable for safety functions                          |  | No                 |
| SIL according to IEC 61508                             |  | None               |
| Performance level according to EN ISO 13849-1          |  | None               |
| Appendant operation agent (Ex ia)                      |  | No                 |
| Appendant operation agent (Ex ib)                      |  | No                 |

|  |  |    |       |
|--|--|----|-------|
| Explosion safety category for gas                                  |  |    | None  |
| Explosion safety category for dust                                 |  |    | None  |
| Certified for UL hazardous location class I                        |  |    | No    |
| Certified for UL hazardous location class II                       |  |    | No    |
| Certified for UL hazardous location class III                      |  |    | No    |
| Certified for UL hazardous location division 1                     |  |    | No    |
| Certified for UL hazardous location division 2                     |  |    | No    |
| Certified for UL hazardous location group A (acetylene)            |  |    | No    |
| Certified for UL hazardous location group B (hydrogen)             |  |    | No    |
| Certified for UL hazardous location group C (ethylene)             |  |    | No    |
| Certified for UL hazardous location group D (propane)              |  |    | No    |
| Certified for UL hazardous location group E (metal dusts)          |  |    | No    |
| Certified for UL hazardous location group F (carbonaceous dusts)   |  |    | No    |
| Certified for UL hazardous location group G (non-conductive dusts) |  |    | No    |
| Width  |  | mm | 80.3  |
| Height   |  | mm | 16.8  |
| Depth  |  | mm | 104.2 |