



Analog input card XI/ON, 24 V DC, 2AI (-10/0 to +10V)

Part no. XN-2AI-U(-10/0...+10VDC)
Article no. 140145

Delivery program

| | | | |
|-------------------|--|--|--|
| Function | | | XI/ON I/O modules |
| Function | | | XN Slice module |
| Short Description | | | 2 Analog inputs -10/0 to +10 V DC |
| For use with | | | XN-S3T-SBB XN-S3S-SBB XN-S4T-SBBS XN-S4S-SBBS |




Technical data

General


| | | | |
|---|--|-----|---|
| Standards | | | EN 61000-6-2 EN 61000-6-4 EN 61131-2 |
| Potential isolation | | | Yes, through optocoupler |
| Ambient temperature | | | |
| Ambient temperature, operation | | °C | 0 - +55 |
| Storage, transport | ø | °C | -25 - +85 |
| Relative humidity | | | |
| Relative humidity | | | 5 - 95 % (indoor), Level RH-2, no condensation (for storage at 45°C) |
| Ambient conditions, mechanical | | | |
| Degree of Protection | | | IP20 |
| Harmful gases | | ppm | SO ₂ : 10 (rel. humidity < 75%, no condensation) H ₂ S: 1.0 (rel. humidity < 75 %,no condensation) |
| Vibration resistance, operating conditions | | | according to IEC/EN 60068-2-6 |
| Mechanical shock resistance | | g | according to IEC 60068-2-27 |
| Continuous shock resistance (IEC/EN 60068-2-29) | | | According to IEC 60068-2-29 |
| Drop and topple | | | According to IEC 60068-2-31, free fall according to IEC 60068-2-32 |
| Electromagnetic compatibility (EMC) | | | |
| ESD | Air/contact discharge | kV | EN 61100-4-2 |
| Electromagnetic fields | (0.08...1) / (1,4...2) / (2...2,7) GHz | V/m | EN 61100-4-2 |
| Burst | | | EN 61100-4-4 |
| Surge | | | EN 61100-4-5 |
| Radiated RFI | | V | EN 61100-4-6 |
| Emitted interference (radiated, high frequency) | (30...230 MHz) / (230...1000 MHz) | dB | EN 55016-2-3 |
| Voltage fluctuations/voltage dips | | | EN 61131-2 |
| Type test | | | to EN 61131-2 |
| Approvals | | | CE, cULus |
| Other technical data (sheet catalogue) | | | Technical Data |

Analog input modules


| | | | |
|--------------------|--|--|---------|
| Measured variables | | | Voltage |
|--------------------|--|--|---------|

| | | | |
|--|----------|--------|--|
| Channels | | Number | 2 |
| Rated voltage through supply terminal | U_L | | 24 V DC |
| Rated current consumption from supply terminal | I_L | mA | 12 |
| Rated current consumption from module bus | I_{MB} | mA |  35 |
| Heat dissipation | | W | < 1 |
| Encoder supply | | |  250 mA; Linked to L+ and L- of the supply; not short-circuit protected |
| Input voltage | | | -10/0 to +10 V DC |
| Maximum input voltage | | V DC | 35 V continuous |
| Input impedance | | |  98.5 k Ω |
| Limit frequency (-3 db) | | Hz | > 50 |
| Offset error | | % | 0.1 |
| Basic error limit at 23 °C | | % | 0.2 |
| Repetition accuracy (deviation) | | % | 0.05 |
| Temperature coefficient | | | 150 ppm/°C of full scale |
| Resolution of the A/D converter | | | 16-bit |
| Measuring principle | | | Delta Sigma |
| Measured value representation | | | 16-bit signed integer 12-bit full range left-justified |
| Diagnostics | | | Yes |
| Base modules | | | |
| without C connection | | | 2-/3-wire XN-S3x-SBB |
| without C connection, for sensor feeding | | | 4-wire XN-S4x-SBBS |


Analog output modules

| | | | |
|--|----------|--------|--|
| Measured variables | | | Voltage |
| Channels | | Number | 2 |
| Rated voltage through supply terminal | U_L | | 24 V DC |
| Rated current consumption from supply terminal | I_L | mA | 12 |
| Rated current consumption from module bus | I_{MB} | mA |  35 |
| Heat dissipation | | W | < 1 |
| Offset error | | % | 0.1 |
| Basic error limit at 23 °C | | % | 0.2 |
| Repetition accuracy (deviation) | | % | 0.05 |
| Temperature coefficient | | | 150 ppm/°C of full scale |
| Measured value representation | | | 16-bit signed integer 12-bit full range left-justified |
| Base modules | | | |
| without C connection | | | 2-/3-wire XN-S3x-SBB |

Digital outputs

| | | | |
|---|----------|--------|--|
| Channels | | Number | 2 |
| Rated voltage through supply terminal | U_L | | 24 V DC |
| Rated current consumption from the supply terminal (at load current = 0 mA) | I_L | mA | 12 |
| Rated current consumption from module bus | I_{MB} | mA |  35 |
| Diagnostics | | | Yes |

Digital inputs

| | | | |
|--|----------|--------|--|
| Channels | | Number | 2 |
| Rated voltage through supply terminal | U_L | | 24 V DC |
| Rated current consumption from supply terminal | I_L | mA | 12 |
| Rated current consumption from module bus | I_{MB} | mA |  35 |
| Heat dissipation | | W | < 1 |
| Base modules | | | |
| without C connection | | | 2-/3-wire XN-S3x-SBB |

Relay modules

| | | | |
|--|----------|----|-------------------------|
| Rated voltage through supply terminal | U_L | | 24 V DC |
| Rated current consumption from supply terminal | I_L | mA | 12 |
| Rated current consumption from module bus | I_{MB} | mA | ≤ 35 |
| Base modules | | | |
| without C connection | | | 2-/3-wire XN-S3x-SBB |

Power supply module

| | | | |
|--|----------|----|-----------|
| Rated voltage through supply terminal | U_L | | 24 V DC |
| Rated current consumption from supply terminal | I_L | mA | 12 |
| Rated current consumption from module bus | I_{MB} | mA | ≤ 35 |

Counter module

| | | | |
|--|----------|--------|-----------|
| Channels | | Number | 2 |
| Rated voltage through supply terminal | U_L | | 24 V DC |
| Rated current consumption from supply terminal | I_L | mA | 12 |
| Rated current consumption from module bus | I_{MB} | mA | ≤ 35 |
| Heat dissipation | | W | < 1 |

Measuring modes

| | | | |
|--------------------------|--|--|--------------------------|
| Temperature coefficient | | | 150 ppm/°C of full scale |
| Number of parameter bits | | | 2 byte |

Base modules

| | | | |
|--|--|--|-----------------------|
| without C connection, for sensor feeding | | | 4-wire XN-S4x-SBBS |
|--|--|--|-----------------------|

Interfaces

| | | | |
|--|----------|----|-----------------------|
| Rated voltage through supply terminal | U_L | | 24 V DC |
| Rated current consumption from supply terminal | I_L | mA | 12 |
| Rated current consumption from module bus | I_{MB} | mA | ≤ 35 |
| Number of parameter bytes | | | 2 byte |
| Base modules | | | |
| without C connection, for sensor feeding | | | 4-wire XN-S4x-SBBS |

Design verification as per IEC/EN 61439

| | | | |
|--|------------|----|--|
| Technical data for design verification | | | |
| Rated operational current for specified heat dissipation | I_n | A | 0 |
| Heat dissipation per pole, current-dependent | P_{vid} | W | 0 |
| Equipment heat dissipation, current-dependent | P_{vid} | W | 0 |
| Static heat dissipation, non-current-dependent | P_{vs} | W | 1 |
| Heat dissipation capacity | P_{diss} | W | 0 |
| Operating ambient temperature min. | | °C | 0 |
| Operating ambient temperature max. | | °C | 55 |
| Degree of Protection | | | IP20 |
| IEC/EN 61439 design verification | | | |
| 10.2 Strength of materials and parts | | | |
| 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 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric 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 Insulation properties | | |
| 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 6.0

PLC's (EG000024) / Fieldbus, decentr. periphery - analogue I/O module (EC001596)

Electric engineering, automation, process control engineering / Control / Field bus, decentralized peripheral / Field bus, decentralized peripheral - analogue I/O module (ecl@ss8.1-27-24-26-01 [BAA061011])

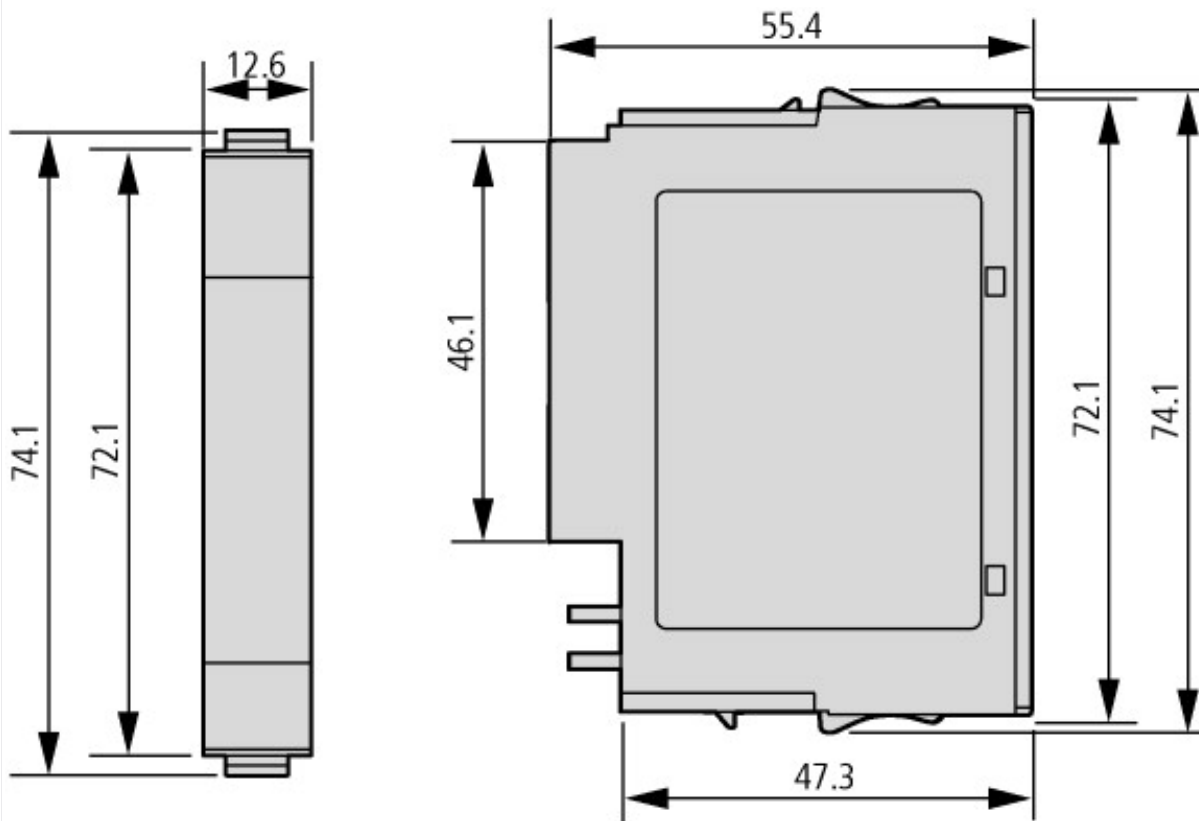
| | | |
|---|-----|-------------|
| Supply voltage AC 50 Hz | V | 0 - 0 |
| Supply voltage AC 60 Hz | V | 0 - 0 |
| Supply voltage DC | V | 20.4 - 28.8 |
| Voltage type of supply voltage | | DC |
| Input, current | | No |
| Input, voltage | | Yes |
| Input, resistor | | No |
| Input, resistance thermometer | | No |
| 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 | | 2 |
| Number of analogue outputs | | 0 |
| Analog inputs configurable | | Yes |
| Analog outputs configurable | | Yes |
| Number of HW-interfaces industrial Ethernet | | 0 |
| Number of HW-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 other | | 1 |
| 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 | | No |
| 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 |
| Type of electric connection | | Screw-/spring clamp connection |
| Fieldbus connection over separate bus coupler possible | | Yes |
| Rail mounting possible | | Yes |
| Wall mounting/direct mounting | | No |
| Front build in possible | | No |
| Rack-assembly possible | | No |
| Suitable for safety functions | | No |
| Category according to EN 954-1 | | |
| SIL according to IEC 61508 | | None |
| Performance level acc. 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 |
| Width | mm | 12.6 |
| Height | mm | 74 |
| Depth | mm | 55.4 |

Approvals

| | | |
|--------------------------------------|--|--|
| Product Standards | | UL 508; CSA-C22.2 No. 142; IEC/EN 6113-2; CE marking |
| UL File No. | | E205091 |
| UL Category Control No. | | NRAQ, NRAQ7 |
| CSA File No. | | UL report applies to both US and Canada |
| CSA Class No. | | 2252-01, 2252-81 |
| North America Certification | | UL recognized, certified by UL for use in Canada |
| Specially designed for North America | | No |
| Current Limiting Circuit-Breaker | | No |
| Degree of Protection | | IEC: IP20, UL/CSA Type: - |

Dimensions



Dimensions

Additional product information (links)

MN05002011Z Manual XI/ON analog I/O modules

MN05002011Z Handbuch XI/ON Analoge I/O-
Module - Deutsch

ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN05002011Z_DE.pdf

MN05002011Z Manual XI/ON analog I/O
modules - English

ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN05002011Z_EN.pdf

Technical Data

<http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=14.111>