



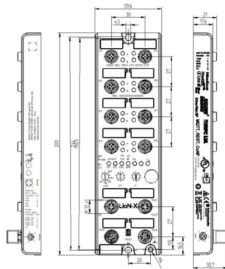
Product: [0980 XSL 3901-121-007D-01F](#) 

LioN-X 16DI Digital with Multiprotocol

Product Description

LioN-X IO-Device, Multiprotocol (PROFINET, EtherNet/IP, EtherCAT, Modbus TCP, CC-Link), IoT Protocols (OPC UA, MQTT, CoAP, REST), 16 digital input channels, metal housing IP65, IP67, IP69K, 60mm, 8 x M12 A-coded I/O connection 5-poles, 2 x M12 D-coded Ethernet connection 4-poles, 2 x M12 L-coded power supply

Technical Drawing



Technical Specifications

Product Description

| | |
|---------------------|----------------------------------|
| Brand: | Belden |
| Product Family: | I/O Systems: Active - Standalone |
| Product Sub Family: | LioN-X |
| Item Description: | 0980 XSL 3901-121-007D-01F |
| Part Number: | 935706001 |

Product Life Cycle

| | |
|-----------------------------------|-----------------------------|
| Device Type: | I/O Device |
| Protocol: | Multiprotocol |
| I/O Function: | 16DI |
| Power Connection (System Supply): | M12 Power, 5-poles, L-coded |
| I/O Connection: | M12, 5-poles, A-coded |
| I/O Type: | Digital Input |

General Data

| | |
|--|------------------------|
| Housing Material: | Metal, zinc die-cast |
| Housing Plating: | Nickel, matt |
| Housing Color: | Grey Metallic |
| Protection Degree / IP Rating**: | IP65, IP67, IP69K |
| Potted: | Yes |
| Dimensions (W x H x D): | 60 mm x 31 mm x 200 mm |
| Weight: | 480 g |
| Ambient Temperature (Operation)*: | -40 °C to 70 °C |
| Ambient Temperature (Storage/Transport): | -40 °C to 70 °C |

| | |
|--|--|
| Permissible Humidity (Operation): | 5 % ... 95 % (For UL applications max. 80 %) |
| Permissible Humidity (Storage/Transport): | 5 % ... 95 % (For UL applications max. 80 %) |
| Air Pressure (Operation): | 80 kPa ... 106 kPa (up to 2000 m above sea level) |
| Air Pressure (Storage/Transport): | 80 kPa ... 106 kPa (up to 2000 m above sea level) |
| Flammability Class: | UL 94 (IEC 61010) |
| Protection Class: | III, IEC 61140, EN 61140, VDE 0140-1 |
| Pollution Degree: | 3 acc. to EN 60664-1, VDE 0110-1 |
| Vibration Resistance: | 15 g / 5 -500 Hz |
| Shock Resistance: | 50 g / 11ms |
| Contact Base Material: | M12, D-coded, CuSn, Gold-plated M12 Power, L-coded, CuNi, Gold-plated |
| Contact Bearer Material: | PA / TPU |
| O-Ring Material: | FKM |
| Mounting: | 2 hole screw mounting. Use standard M4 x 25 / 30 screws with toothed lock washer (as per DIN 125) and self-locking nuts. |
| Fastening Torque (Fixing Screw): | M4: 1 Nm |
| Fastening Torque (Ground Connection (FE)): | M4: 1 Nm |
| Fastening Torque (Bus Connection): | M12: 0.5 Nm |
| Fastening Torque (Power Connection): | M12: 0.5 Nm |
| Fastening Torque (I/O Connection): | M12: 0.5 Nm |
| Included in Delivery: | Attachable Labels: 15x, Sealing Caps: 5x M12 |
| Accessories to Order Separately: | Ethernet cable, mounting adapter, sensor/actuator cable, power cable |

PROFINET

| | |
|--------------------------------------|--|
| Protocol: | PROFINET |
| Connection: | M12 4-poles, D-coded |
| Number of Connections: | 2 |
| Specification: | V2.3 |
| Conformance Class: | C (CC-C) |
| Performance Class: | RT (switch supports IRT) |
| Netload Class: | III |
| Transmission Rate: | Fast Ethernet (10/100 Mbit/s), Full Duplex |
| Transmission Method: | 100 BASE-TX, with auto negotiation and auto crossing |
| Cycle Time / Update Rate: | min. 1 ms |
| Addressing: | DCP |
| Media Redundancy Protocol (MRP): | Supported, MRP client |
| Shared Device: | Supported |
| Shared Input: | not supported |
| Topology Detection: | LLDP, SNMP V3 |
| Easy Device Replacement: | Supported, based on LLDP |
| Supported Network Protocols (Other): | ARP, HTTP, Ping, SNMP V1, TCP/IP |

EtherNet/IP

| | |
|---|--|
| Protocol (EtherNet/IP): | EtherNet/IP |
| Connection: | M12, 4-poles, D-coded |
| Number of Connections: | 2 |
| Specification: | CIP V3.2x, EIP Adaption of CIP V1.2x |
| Transmission Rate: | Fast Ethernet (10/100 Mbit/s), Full Duplex |
| Transmission Method: | 100 BASE-TX, with auto negotiation and auto crossing |
| Cycle Time / Requested Packet Interval (RPI): | min. 1 ms |
| Addressing: | BootP, DHCP, Rotary Address Switches |
| Address Switches Range: | 0 to 255 dec |
| Connection Types: | Exclusive Owner, Input Only, Listen Only |
| CIP Msg Connection Limit: | 6 |
| CIP I/O Connection Limit: | 3 |
| Device Level Ring (DLR): | Supported, beacon based |
| Quick Connect (QC): | Supported, ≤ 500 ms |
| Supported Network Protocols (Other): | ACD, ARP, BootP, DHCP, HTTP, IGMP, Ping, TCP/IP |

EtherCAT

| | |
|--------------------------------------|--|
| Protocol: | EtherCAT |
| Connection: | M12 4-poles, D-coded |
| Number of Connections: | 2 |
| Specification: | ETG.1000 V1.2 |
| Transmission Rate: | Fast Ethernet (10/100 Mbit/s), Full Duplex |
| Transmission Method: | 100 BASE-TX, with auto negotiation and auto crossing |
| Cycle Time / Update Rate: | min. 250 µs |
| Addressing: | Auto-increment addressing, fixed position addressing |
| Mailbox Protocols: | CANopen over EtherCAT (CoE), File access over EtherCAT (FoE), Ethernet over EtherCAT (EoE) |
| Supported Network Protocols (Other): | Over EoE: HTTP, Ping, TCP/IP |

CC-Link IE Field Basic

| | |
|------------------------------|--|
| Protocol: | CC-Link IE Field Basic |
| Connection: | M12 LAN, 4-poles. D-coded |
| Number of Connections: | 2 |
| Specification: | v2 |
| Transmission Rate: | Fast Ethernet (100 Mbit/s), Full Duplex |
| Transmission Method: | 100 BASE-TX, with auto negotiation and auto crossing |
| Cycle Time / Update Rate: | min 1ms |
| Address Switches Range: | 0 to 99 dec |
| Number of stations: | 4 |
| Supported Network Protocols: | SNMP, ACD, ARP, HTTP, IGMP, Ping, TCP/IP |
| Supported IIoT Protocols: | OPC UA, MQTT, CoAP, Syslog, Node Red |

Modbus TCP

| | |
|------------------------------|---------------------------------------|
| Protocol: | Modbus TCP |
| Connection: | M12, 4-poles, D-coded |
| Number of Connections: | 2 |
| Device Type: | Modbus Slave |
| Specification: | Modbus application protocol V1.1b |
| Supported Network Protocols: | SNMP V1, HTTP, TFTP, FTP, BootP, DHCP |

IIoT Protocols

| | |
|-----------|--|
| OPC UA: | Cyclic data read/write, Diagnosis data, Event data |
| MQTT: | Cyclic data read/write, Diagnosis data, Event data |
| REST API: | Cyclic data read/write, Diagnosis data, Event data |
| CoAP: | Cyclic data read/write, Diagnosis data, Event data |

Power Supply

| | |
|---|-----------------------------|
| Connection Module Supply Voltage: | M12 Power, 5-poles, L-coded |
| Number of Connections: | 2 |
| Current Carrying Capacity of Connector: | max. 16 A |
| Module Supply Voltage (Nominal): | 24 V DC (SELV/PELV) |
| Module Supply Voltage (Range): | 18 V DC to 30 V DC |
| Current Consumption (typ.): | 160 mA (at 24 V DC) |
| Reverse Polarity Protection: | Yes |
| Status Indicator (System Supply): | LED green |
| Diagnostic Indicator: | LED red |
| Connection Sensor Supply Voltage: | M12 Power, 5-poles, L-coded |
| Current Carrying Capacity of Connector: | max. 16 A |
| Sensor Supply Voltage (Nominal): | 24 V DC (SELV/PELV) |
| Sensor Supply Voltage (Range): | 18 V DC to 30 V DC |
| Reverse Polarity Protection: | Yes |
| Status Indicator (Sensor Supply): | LED green |
| Diagnostic Indicator: | LED red |

Digital Input Channels

| | |
|-----------------------------------|---|
| Number of Digital Input Channels: | up to 16 |
| Connection: | M12, 5-poles, A-coded |
| Number of Ports: | 8x, X1 to X8 |
| Channel Type: | Type 3 acc. to IEC 61131-2 |
| Input Wiring: | 2-, 3-, 4-wire |
| Nominal Voltage: | 24 V DC via US (module power supply) |
| Nominal Current: | typ. 5 mA |
| Sensor Current Supply: | max. 4A per port |
| Sensor Type: | PNP |
| Input Voltage Range "0" signal: | -3 V DC ...+5 V DC |
| Input Voltage Range "1" signal: | 11 V DC ... 30 V DC |
| Protective Circuit: | Electronically: Overload protection, short-circuit protection |
| Status Indicator (Inputs): | LED white or yellow per channel |
| Diagnostic Indicator: | LED red per port |

Electrical Isolation

| | |
|----------------------------------|-----------|
| US (System Supply Voltage) / FE: | 500 V DC |
| Bus connection / FE: | 2000 V DC |

EMC Conformance

| | |
|---|---|
| EMC Directive: | 2014/30/EU |
| EN 61000-4-2 Electrostatic Discharge (ESD): | Criterion B; 4 kV contact discharge, 8 kV air discharge |
| EN 61000-4-3 Electromagnetic Field: | Criterion A; Field intensity: 10 V/m |
| EN 61000-4-4 Fast Transients (Burst): | Criterion B, 2 kV |
| EN 61000-4-5 Surge Voltage: | Criterion B; DC supply lines: ±0.5 kV/±0.5 kV (symmetrical/asymmetrical); For I/O ports with cables ≤ 30m |
| EN 61000-4-6 Conducted immunity: | Criterion A; Test voltage 10 V |
| EN 55032 Radio Interference Properties: | Class A |

Safety & Environmental Compliance

| | |
|-----------------------|-----|
| CE: | Yes |
| RoHS Compliant: | Yes |
| China RoHS-Compliant: | Yes |

Approvals

| | |
|-------|--------------------------|
| UL: | cULus Listed, UL 61010-1 |
| CSA: | Yes, via UL |
| PNO: | Yes |
| ODVA: | Yes |
| ETG: | Yes |

Notes

| | |
|--------------------------------------|--|
| Protection Degree / IP Rating Note: | *only if mounted and locked in combination with Hirschmann / Lumberg Automation connector. |
| System Power Supply Connection Note: | *do not connect / disconnect under voltage! |

Variants

| Item # | Item Description |
|-----------|----------------------------|
| 935706001 | 0980 XSL 3901-121-007D-01F |

| | |
|----------------------|---|
| Update and Revision: | Revision Number: 0.25 Revision Date: 07-20-2023 |
|----------------------|---|

© 2024 Belden, Inc

All Rights Reserved.

Although Belden makes every reasonable effort to ensure their accuracy at the time of this publication, information and specifications described here in are subject to error or omission and to change without notice, and the listing of such information and specifications does not ensure product availability.

Belden provides the information and specifications herein on an "ASIS" basis, with no representations or warranties, whether express, statutory or implied. In no event will Belden be liable for any damages (including consequential, indirect, incidental, special, punitive, or exemplary damages) whatsoever, even if Belden has been advised of the possibility of such damages, whether in an action under contract, negligence or any other theory, arising out of or in connection with the use, or inability to use, the information or specifications described herein.

All sales of Belden products are subject to Belden's standard terms and conditions of sale.

Belden believes this product to be in compliance with all applicable environmental programs as listed in the data sheet. The information provided is correct to the best of Belden's knowledge, information and belief at the date of its publication. This information is designed only as a general guide for the safe handling, storage, and any other operation of the product itself or the one that it becomes a part of. The Product Disclosure is not to be considered a warranty or quality specification. Regulatory information is for guidance purposes only. Product users are responsible for determining the applicability of legislation and regulations based on their individual usage of the product.

