



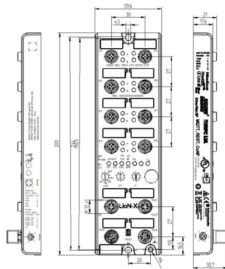
Product: [0980 XSL 3901-121-007D-01F](#) 

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

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|--|------------------------|
| 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

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|--------------------------------------|--|
| 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

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|---|--|
| 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

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|--------------------------------------|--|
| 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

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|------------------------------|--|
| 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

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|------------------------------|---------------------------------------|
| 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

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|-----------|--|
| 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

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|---|-----------------------------|
| 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

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|-----------------------------------|---|
| 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

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

EMC Conformance

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| 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

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

Approvals

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

Notes

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| 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 |

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