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A BELDEN BRAND

Product: 0980 XSL 3903-121-007D-01F

LioN-X 8DI/8DO Digital galvanic isolated with Multiprotocol

Product Description

LioN-X IO-Device, Multiprotocol (PROFINET, EtherNet/IP, EtherCAT, Modbus TCP, CC-Link), IoT Protocols (OPC UA, MQTT, CoAP, REST), 8 digital input and 8 digital output channels (2 A) with galvanic isolation, 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 Specifications

Product Description

Brand:	Belden
Product Family:	I/O Systems: Active - Standalone
Side 1 Product Sub Family:	LioN-X
Item Description:	0980 XSL 3903-121-007D-01F
Part Number:	935707001

Product Life Cycle

Device Type:	I/O Device
Protocol Compatibility:	Multiprotocol
I/O Function:	8DI 8DO
Power Supply Connection:	M12 Power, 5-poles, L-coded
I/O Connection:	M12, 5-poles, A-coded
I/O Type:	Digital Input and Digital Output

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)
Flammabilty 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
Mount Type:	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
Current Carrying Capacity of Connector:	max. 16 A
Actuator Supply Voltage (Nominal):	24 V DC (SELV/PELV)
Actuator Supply Voltage (Range):	18 V DC to 30 V DC
Reverse Polarity Protection:	Yes
Status Indicator (Actuator Supply):	LED green
Diagnostic Indicator:	LED red

Digital Input Channels

Number of Digital Input Channels:	up to 8
Connection:	M12, 5-poles, A-coded
Number of Ports:	8x, X1 to X4
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

Digital Output Channels

Number of Digital Output Channels:	up to 8
Connection:	M12, 5-poles, A-coded
Number of Ports:	8x, X5 to X8
Channel Type:	p-switching
Output Wiring:	2-wire
Nominal Voltage:	24 V DC via UL
Output Current per Channel:	max. 2 A
Output Current per Module:	max. 16 A (for UL compliance: max 9A)
Galvanically Isolated:	YES
Protective Circuit:	Electronically: Overload protection, short-circuit protection
Overload Behavior:	Auto off and on switching / Manual restart
Status Indicator (Outputs):	LED white or yellow per channel
Diagnostic Idicator:	LED red per channel

Electrical Isolation

US (System Supply Voltage) / FE:	500 V DC
US / UL (Actuator Supply Voltage):	500 V DC
UL / 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:	*IP Rating test performed by Belden with Belden Connectors only
System Power Supply Connection Note:	*do not connect / disconnect under voltage!
Update and Revision:	Revision Number: 0.31 Revision Date: 08-13-2024

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