



**Product:** [0980 SSL 3131-121-007D-202](#) 

**LioN-Safety 8/4-F-DI 4-F-DO 2-IOLM M12 – Ethernet/IP / CIP Safety**

## Product Description

LioN-Safety 8/4-F-DI 4-F-DO 2-IOLM M12 EtherNet/IP / CIP Safety , M12 L-coded Power Supply, Metal 60mm, IoT Protocols (OPC UA, MQTT, CoAP, REST)

## Technical Specifications

### Product Description

Brand:	Belden
Product Family:	I/O Systems: Active - Standalone
Product Sub Family:	LioN-Safety
Item Description:	0980 SSL 3131-121-007D-202
Part Number:	935023001
Device Type:	FS I/O Device
Protocol:	CIP Safety
I/O Function:	8/4 FS DI, 4 FS DO, 2 IOLM
Bus Connection:	M12 LAN, 4-poles, D-coded
Power Connection (System Supply):	M12 Power, 5-poles, L-coded
I/O Connection:	M12, 5-poles, A-coded
I/O Type:	Functional Safety Digital In-/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:	approx. 500 g
Ambient Temperature (Operation)*:	-40 °C to 70 °C ( 2000m ASL 63°C)
Ambient Temperature (Storage/Transport):	-40 °C to 85 °C
Permissible Humidity (Operation):	5 % ... 98 % (For UL applications max. 80 %)
Permissible Humidity (Storage/Transport):	5 % ... 98 % (For UL applications max. 80 %)
Air Pressure (Operation):	70 kPa ... 106 kPa (up to 3000 m above sea level)
Air Pressure (Storage/Transport):	70 kPa ... 106 kPa (up to 3000 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
Mean Time To Failure (MTTF):	84 years. acc. to EN ISO 13849-1
Contact Base Material:	M12, D-coded, CuSn, Gold-plated   M12 Power, L-coded, CuNi, Gold-plated
Contact Bearer Material:	PA
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

## Safety

SIL/ SIL CL (IEC 62061/ IEC 61508):	up to 3
Performance Level IL (ISO 13849):	up to e
Category Cat. (ISO 13849):	up to 4
Probability of failure per hour (PFH):	1,43 E-9
Mission Time:	20 years
Safety Reaction Time:	42ms
Safety Digital Inputs:	8/4
Safety Digital Outputs:	4

## EtherNet/IP

Protocol (EtherNet/IP):	EtherNet/IP
Safety Communication:	CIP Safety
Connection:	M12 LAN, 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

## 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

## IO-Links

Protocol:	IO-Link Master
Connection:	M12 5-poles, A-coded
Number of Connections:	2
Specification:	v1.1.3 ready, IEC 61131-9
IO-Link Class:	Class A
Transmission Rate / COM Mode:	COM1, COM2, COM3
Cycle Time / Update Rate:	400µs
Parameter Storage:	supported

## 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.):	typ. 180mA (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

### IO-Link Master Channels

Number of IO-Link Master Channels:	max. 2, configurable
Connection:	M12, 5-poles, A-coded
IO-Link Class A Ports:	2x, X7 and X8
IO-Link Specification:	V1.1.3
Parameter Storage:	Supported
Supported COM Modes:	4.8 kBaud (COM 1), 38.4 kBaud (COM 2), 230.4 kBaud (COM 3)
Cycle Time / Update Rate:	min. 1 ms for all channels at 32 Byte IN / OUT
Nominal Voltage:	24 V DC via US (system power supply)
Nominal Current C/Q (Pin 4):	500mA
Nominal Current 1L+ (Pin 1):	4A
Perm. Conductor Length to Device:	≤ 20 m
Status Indicator (IOL):	LED green per channel
Diagnostic Indicator:	LED red per port

### Digital Input Channels

Number of Digital Input Channels:	up to 8
Connection:	M12, 5-poles, A-coded
Number of Ports:	4x, 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. 3 mA
Sensor Current Supply:	max. 1500 mA 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
Input Filter Time:	configurable
Protective Circuit:	Electronically: Overload protection, short-circuit protection
Diagnostic Indicator:	LED white or yellow per channel

### Digital Output Channels

Number of Digital Output Channels:	4
Connection:	M12, 5-poles, A-coded
Number of Ports:	4x, X5 and X6
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. 8 A
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 Indicator:	LED red per channel

## Electrical Isolation

US (System Supply Voltage) / FE:	32V DC (clamp voltage)
US / UL (Actuator Supply Voltage):	500 V DC
UL / FE:	32V DC (clamp voltage)
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: $\pm 0.5$ kV/ $\pm 0.5$ kV (symmetrical/asymmetrical); For I/O ports with cables $\leq 30$ m
EN 61000-4-6 Conducted immunity:	Criterion A; Test voltage 10 V
EN 55022 Radio Interference Properties:	Class A
EN 55032 Radio Interference Properties:	Class A

## Safety & Environmental Compliance

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

## Approvals

FS-Certification:	TÜV (Rheinland) IEC 61508, ISO 13849
UL:	cULus Listed, UL 61010-1
CSA:	Yes, via UL
ODVA:	Yes
IO-Link:	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!

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