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A BELDEN BRAND

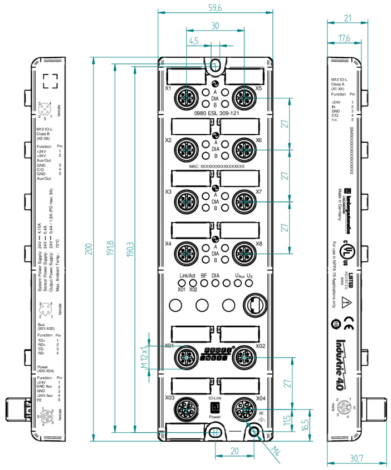
Product: 0980 ESL 309-121

LioN-P, PROFINET IO-Link Master, 4DI 4DO 8IOL (8x M12), M12 L-coded Power Supply, Metal, 60 mm

Product Description

LioN-P, IO-Link Master, PROFINET, industrial metal housing, 60 mm, up to IP69K, 4 digital input and 4 digital output channels (2 A) with galvanic isolation and 8 IO-Link Master, 8 x M12 A-coded I/O connection, 5-poles, 2 x M12 D-coded bus connection, 4-poles, 2 x M12 L-coded power supply connection, 5-poles

Technical Drawing



Technical Specifications

Product Description

Brand:	Belden
Product Family:	I/O Systems: Active - Standalone
Product Sub Family:	LioN-P
Item Description:	0980 ESL 309-121
Part Number:	934878004

Product Life Cycle

Device Type:	IO-Link Master
Protocol:	PROFINET
I/O Function:	4DI 4DO 8IOL
Bus Connection:	M12, 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:	Digital Input/ Digital Output/IO-Link

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:	500 g
Ambient Temperature (Operation)*:	-20 °C to 70 °C
Ambient Temperature (Storage/Transport):	-25 °C to 85 °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
Mean Time To Failure (MTTF):	582 years. acc. to Telcordia SR-332 (2011) 20°C
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

PROFINET

Protocol:	PROFINET
Connection:	M12 LAN, 4-poles, D-coded
Number of Connections:	2
Specification:	V2.3X
Conformance Class:	C
Performance Class:	RT (switch supports IRT)
Netload Class:	II
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
Fast Startup (FSU):	Supported, ≤ 2000 ms
Media Redundancy Protocol (MRP):	Supported, MRP client
Shared Device:	Supported
Topology Detection:	LLDP, SNMP V1
Easy Device Replacement:	Supported, based on LLDP
Supported Network Protocols (Other):	ARP, HTTP, Ping, SNMP V1, TCP/IP

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.):	180 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
Connection Actuator Supply Voltage:	via Module Supply Connection
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. 8, configurable
Connection:	M12, 5-poles, A-coded
IO-Link Class A Ports:	4x, X1 to X4
IO-Link Class B Ports:	4x, X5 to X8
IO-Link Specification:	V1.1.2
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. 8 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):	max. 500 mA (via US)
Nominal Current 1L+ (Pin 1):	max. 500 mA (via US)
Nominal Current 2L+/Uaux (Pin 2, B Ports):	max. 2 A per port (via Uaux)
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:	max. 12, configurable
Connection:	M12, 5-poles, A-coded
Number of Ports:	8x, X1 to X8
Channel Type:	Type 1 acc. to IEC 61131-2
Input Wiring:	2-, 3-wire
Nominal Voltage:	24 V DC via US (module power supply)
Nominal Current:	typ. 3 mA
Sensor Current Supply:	max. 500 mA per port via 1L+
Sensor Type:	PNP
Input Voltage Range "0" signal:	-0,3V DC ... 5 V DC
Input Voltage Range "1" signal:	15 V DC ... 30 V DC
Protective Circuit:	Electronicaly: 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:	max. 12, configurable
Connection:	M12, 5-poles, A-coded
Number of Ports:	8x, X1 to X8
Channel Type:	p-switching
Output Wiring:	2-wire
Nominal Voltage:	Pin 4: 24 V DC via US (system power supply) / Pin 2: 24 V DC via Uaux (auxiliary power supply)
Output Current per Channel:	max. 2 A (Pin 2) / max. 0.5 A (Pin 4)
Output Current per Module:	max. 9 A
Galvanically Isolated:	Pin 4: No / Pin 2: Yes

Protective Circuit:	Electronicaly: 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 port

Electrical Isolation

US (System Supply Voltage) / FE:	500 V DC
Uaux / 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 55022 Radio Interference Properties:	Class A

Safety & Environmental Compliance

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

Approvals

UL:	cULus Listed, UL 61010-1
UL-File:	E230848
CSA:	Yes, via UL
PNO:	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!

Variants

Item #	Item Description
934878004	0980 ESL 309-121

Update and Revision:	Revision Number: 0.87 Revision Date: 03-04-2023

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