



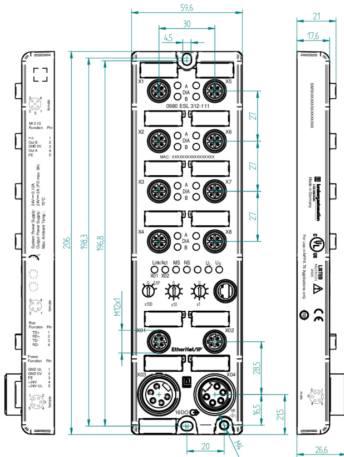
**Product:** [0980 ESL 312-111](#)

LioN-P, EtherNet/IP I/O Device, 16DO (8x M12), 7/8" Power Supply, Metal, 60 mm

### Product Description

LioN-P, I/O Standalone, EtherNet/IP, industrial metal housing, 60 mm, up to IP67, 16 digital output channels (2 A) with galvanic isolation, 8 x M12 A-coded I/O connection, 5-poles, 2 x M12 D-coded bus connection, 4-poles, 2 x 7/8" 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 312-111                 |
| Part Number:                      | 934880002                        |
| Device Type:                      | I/O Module                       |
| Protocol:                         | EtherNet/IP                      |
| I/O Function:                     | 16DO                             |
| Bus Connection:                   | M12, 4-poles, D-coded            |
| Power Connection (System Supply): | 7/8" Power, 5-poles              |
| I/O Connection:                   | M12, 5-poles, A-coded            |
| I/O Type:                         | Digital Output                   |

#### General Data

|                                  |                      |
|----------------------------------|----------------------|
| Housing Material:                | Metal, Zinc Die-cast |
| Housing Plating:                 | Nickel, matt         |
| Housing Color:                   | Grey Metallic        |
| Protection Degree / IP Rating**: | IP65, IP67           |
| Potted:                          | Yes                  |

|  |  |
|--|--|
| Dimensions (W x H x D):                    | 60 mm x 26 mm x 206 mm   |
| Weight:                                    | 520 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)  |
| 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):               | 714 years. acc. to Telcordia SR-332 (2011) 20°C  |
| Contact Base Material:                     | M12, D-coded, CuSn, Gold-plated   7/8" CuZn, 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):       | 7/8": 1.5 Nm   |
| Fastening Torque (I/O Connection):         | M12: 0.5 Nm  |
| Included in Delivery:                      | Attachable Labels: 15x, Sealing Caps: 5x M12   |

## EtherNet/IP

|   |  |
|---|--|
| Protocol (EtherNet/IP):                       | EtherNet/IP  |
| Connection:                                   | M12 LAN, 4-poles, D-coded                            |
| Number of Connections:                        | 2  |
| Specification:                                | CIP V3.1x, EIP Adaption of CIP V1.1x                 |
| 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      |

## Power Supply

|   |                              |
|---|------------------------------|
| Connection Module Supply Voltage:       | 7/8" Power, 5-poles          |
| Number of Connections:                  | 2                            |
| Current Carrying Capacity of Connector: | max. 9 A                     |
| Module Supply Voltage (Nominal):        | 24 V DC (SELV/PELV)          |
| Module Supply Voltage (Range):          | 18 V DC to 30 V DC           |
| Current Consumption (typ.):             | 120 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  |
| Connection Actuator Supply Voltage:     | via Module Supply Connection |
| Current Carrying Capacity of Connector: | max. 9 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 Output Channels

|                                    |   |
|------------------------------------|---|
| Number of Digital Output Channels: | max. 16, fixed  |
| Connection:                        | M12, 5-poles, A-coded   |
| Number of Ports:                   | 8x, X1 to X8  |
| Channel Type:                      | p-switching   |
| Output Wiring:                     | 2-, 3-wire  |
| Nominal Voltage:                   | 24 V DC via UL (actuator power supply)                        |
| Output Current per Channel:        | max. 2 A  |
| Output Current per Module:         | max. 9 A  |
| Galvanically Isolated:             | Yes   |
| Protective Circuit:                | Electronically: Overload protection, short-circuit protection |
| Overload Behavior:                 | Manual restart  |
| Status Indicator (Outputs):        | LED white or yellow per channel                               |
| Diagnostic Indicator:              | 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: $\pm 0.5$ 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  |

## 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              |
| ODVA:    | 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!  |
| Update and Revision:                 | Revision Number: 0.85 Revision Date: 05-24-2023  |

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