lumbergautomation
A BELDEN BRAND

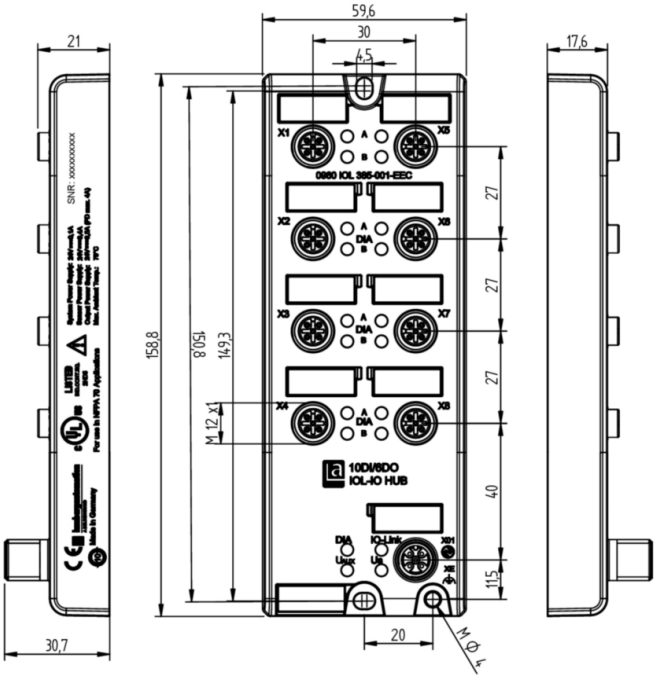
# Product: 0960 IOL 385-001-EEC

LioN-P, IO-Link I/O Hub, 10DI 6DO (8x M12), Class B, Metal, 60 mm, EEC

## Product Description

LioN-P, IO-Link I/O Hub, IO-Link, industrial metal housing, 60 mm, up to IP69K, 10 digital input and 6 digital output channels (0.5 A) with galvanic isolation, 8 x M12 A-coded I/O connection, 5-poles, 1x M12 A-coded IO-Link Class B connection, 5-poles, EEC (Extended Environmental Conditions -40°C)

## Technical Drawing




## Technical Specifications

### Product Description

| | |
|---|---|
| Brand: | Belden |
| Product Family: | I/O Systems: Active - Standalone |
| Product Sub Family: | LioN-P |
| Item Description: | 0960 IOL 385-001-EEC |
| Part Number: | 935001050 |

## Product Life Cycle

| | |
|---|---|
| Device Type: | IO-Link Hub |
| Protocol: | IO-Link |
| I/O Function: | 10DI 6DO |
| Bus Connection: | M12, 5-poles, A-coded |
| Power Connection (System Supply): | M12, 5-poles, A-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 159 mm |
| Weight: | 390 g |
| Ambient Temperature (Operation)*: | -40 °C to 70 °C |
| Ambient Temperature (Storage/Transport): | -40 °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): | 1781 years. acc. to Telcordia SR-332 (2011) 20°C |
| Contact Base Material: | M12, A-coded, CuSn, 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 |

## IO-Links

| | |
|---|---|
| Protocol: | IO-Link |
| Connection: | M12, 5-poles, A-coded |
| Number of Connections: | 1 |
| Specification: | V1.1.2 |
| IO-Link Class: | Class B |
| Transmission Rate / COM Mode: | COM 3 (230.4 kbps) |
| Cycle Time / Update Rate: | min. 1 ms |
| Parameter Storage: | Supported |
| Frame Type: | Type_2_V |
| Process Data Length: | 4 Bytes Input Data, 4 Bytes Output Data |
| Configuration: | IODD, Process Data |

## Power Supply

| | |
|---|---|
| Connection Module Supply Voltage: | M12, 5-poles, A-coded |
| Number of Connections: | 1 |
| Current Carrying Capacity of Connector: | max. 4 A |

| | |
|---|---|
| Module Supply Voltage (Nominal): | 24 V DC (SELV/PELV) |
| Module Supply Voltage (Range): | 18 V DC to 30 V DC |
| Current Consumption (typ.): | 80 mA (at 24 V DC) |
| Reverse Polarity Protection: | Yes |
| Status Indicator (System Supply): | LED green |
| Diagnostic Indicator: | LED red |
| Connection Sensor Supply Voltage: | via Module Supply Connection |
| Current Carrying Capacity of Connector: | max. 4 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. 4 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: | max. 10, fixed |
| Connection: | M12, 5-poles, A-coded |
| Number of Ports: | 5x, X1 to X5 |
| 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. 700 mA per module (Consider 1L+ limitation of connected IO-Link Master) |
| 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: | 0 to 3 ms, configurable |
| 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. 6, fixed |
| Connection: | M12, 5-poles, A-coded |
| Number of Ports: | 3x, X6 to X8 |
| Channel Type: | p-switching |
| Output Wiring: | 2-, 3-wire |
| Nominal Voltage: | 24 V DC via Uaux (supplied by 2L+ of IO-Link Master) |
| Output Current per Channel: | max. 0,5 A |
| Output Current per Module: | Consider 2L+ limitation of connected IO-Link Master |
| Galvanically Isolated: | 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 channel |

## Electrical Isolation

| | |
|---|---|
| US (System Supply Voltage) / FE: | 500 V DC |
| Uaux / FE: | 500 V DC |
| Bus connection / FE: | 500 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 |
| IO-Link: | 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 |
|---|---|
| 935001050 | 0960 IOL 385-001-EEC |

| | |
|---|---|
| Update and Revision: | Revision Number: 0.71 Revision Date: 07-03-2024 |

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