

**Product:** [0960 IOL 3816-001](#) 



LiON-X, IO-Link I/O Hub, 16DIO (8x M12) LC, Class A, Metal, 60 mm

## Product Description

LiON-X, IO-Link I/O Hub, IO-Link, industrial metal housing, 60 mm, up to IP69K, 16 digital in-/output channels, 8 x M12 A-coded I/O connection, 5-poles, 1x M12 A-coded IO-Link Class A connection, 5-poles

## Technical Specifications

### Product Description

Brand:	Belden
Product Family:	I/O Systems: Active - Standalone
Product Sub Family:	LiON-X
Item Description:	0960 IOL 3816-001
Part Number:	935712001

### Product Life Cycle

Device Type:	I/O Hub
Protocol:	IO-Link
I/O Function:	16DIO
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 In-/Output (Universal)

### 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:	380 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)
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
Contact Base Material:	M12, A-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

## IO-Links

Protocol:	IO-Link
Connection:	M12, 5-poles, A-coded
Number of Connections:	1
Specification:	v1.1.3, IEC 61131-9
IO-Link Class:	Class A
Transmission Rate / COM Mode:	COM 3 (230.4 kbps)
Cycle Time / Update Rate:	min. 2 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 (IO-Link)
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):	20 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
Current Carrying Capacity of Connector:	max. 4 A

## Digital Input Channels

Number of Digital Input Channels:	max. 16, universal
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. 5 mA
Sensor Current Supply:	max. 500 mA per module (at 25°C)
Sensor Type:	PNP
Input Voltage Range "0" signal:	-3 V DC ... +5 V DC
Input Voltage Range "1" signal:	15 V DC ... 30 V DC
Input Filter Time:	0 to 3 ms, configurable
Protective Circuit:	Electronically: Overload protection, short-circuit protection
Status Indicator (Inputs):	LED white or yellow per channel
Diagnostic Indicator:	LED red per module

## Digital Output Channels

Number of Digital Output Channels:	max. 16, universal
Connection:	M12, 5-poles, A-coded
Number of Ports:	8x, X1 to X8
Channel Type:	p-switching
Output Wiring:	2-, 3-wire

Output Current per Channel:	max. 350mA
Output Current per Module:	max. 4 A
Galvanically Isolated:	No
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 module

## Electrical Isolation

US (System Supply Voltage) / 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: $\pm 0.5$ 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 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
UL-File:	E230848
CSA:	Yes, via UL
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
935712001	0960 IOL 3816-001

Update and Revision:	Revision Number: 0.22 Revision Date: 04-22-2024
----------------------	---

© 2024 Belden, Inc

All Rights Reserved.

Although Belden makes every reasonable effort to ensure their accuracy at the time of this publication, information and specifications described here in are subject to error or omission and to change without notice, and the listing of such information and specifications does not ensure product availability.

Belden provides the information and specifications herein on an "ASIS" basis, with no representations or warranties, whether express, statutory or implied. In no event will Belden be liable for any damages (including consequential, indirect, incidental, special, punitive, or exemplary damages) whatsoever, even if Belden has been advised of the possibility of such damages, whether in an action under contract, negligence or any other theory, arising out of or in connection with the use, or inability to use, the information or specifications described herein.

All sales of Belden products are subject to Belden's standard terms and conditions of sale.

Belden believes this product to be in compliance with all applicable environmental programs as listed in the data sheet. The information provided is correct to the best of Belden's knowledge, information and belief at the date of its publication. This information is designed only as a general guide for the safe handling, storage, and any other operation of the product itself or the one that it becomes a part of. The Product Disclosure is not to be considered a warranty or quality specification. Regulatory information is for guidance purposes only. Product users are responsible for determining the applicability of legislation and regulations based on their individual usage of the product.