lumbergautomation
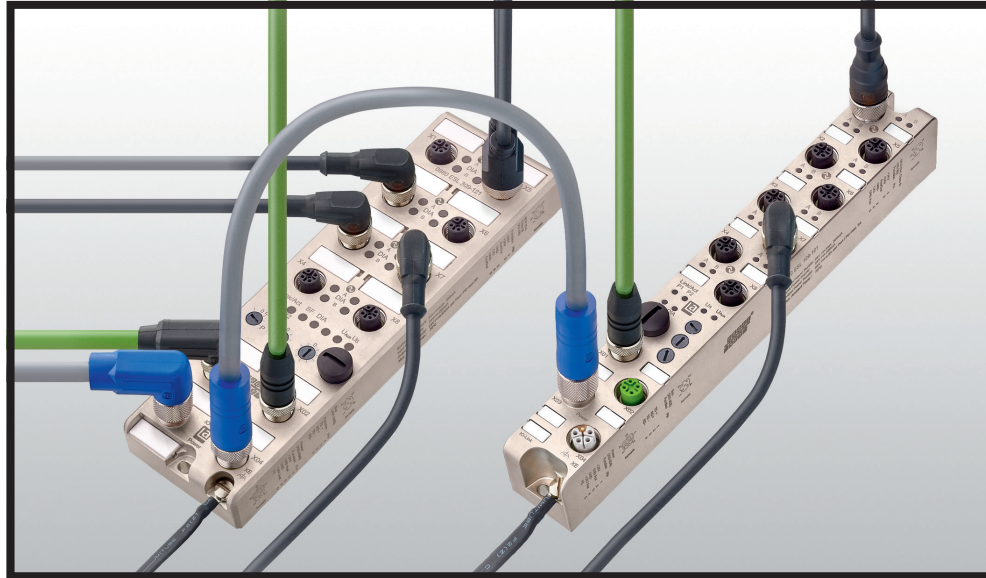
A **BELDEN** BRAND

Product Bulletin

Smart Device Automation: LioN-Power IO-Link Master

Future-proof the connectivity of your intelligent IO-Link sensors and actuators – critical for today's digital factory – with our multiprotocol IO-Link Master modules for both PROFINET and EtherNet/IP protocols.

IO-Link is a standardized (IEC 61131-9) point-to-point technology for communication with smart sensors and actuators, known as IO-Link devices. IO-Link Masters establish communication between the programmable logic controller (PLC) and smart devices.

- **Multipurpose** – gain flexibility in IO-Link smart device connectivity with support for PROFINET and EtherNet/IP, as well as multi-functional I/O ports in one device.
- **Space saving** – install in tight spaces with the smallest and most lightweight configurations for high-performing connectivity in 30 mm housing with M8 I/O connectivity options.
- **Easy to set up** – simplify IO-Link Device configuration through an integrated webserver and standalone IO-Link Device Tool with full IO-Link Device Description (IODD) support.

Lumberg Automation has extended its LioN-Power distributed field I/O portfolio with fieldbus independent IO-Link Master modules in a single multiprotocol solution supporting both PROFINET and EtherNet/IP.

The new LioN-Power IO-Link Master modules fully support IO-Link specification v1.1 and offer you customizable port configurations to ensure consistent, intelligent communication between the enterprise resource planning level and sensor level necessary for Industry 4.0 and Industrial Internet of Things (IIoT) environments.

Applications

Smart device automation with IO-Link offers unique features that enhance the performance of any type of automation.

All the IO-Link Masters feature rugged IP69K housings with eight IO-Link Master ports in both Class A and B. Class B ports provide additional galvanically isolated power supplies for the connection of devices that have increased power needs, such as IO-Link valve terminals.

Multi-PROTOCOL

PROFINET
INDUSTRIAL ETHERNET

EtherNet/IP™

IO-Link

Benefits at a Glance

- Achieve field-level smart device automation with multiprotocol IO-Link Masters

- Easily configure IO-Link devices through the embedded webserver or the IO-Link Device Tool with full IODD support

- Meet multiple needs with a variety of IO-Link port operation modes, including standard digital input, digital output or IO-Link

- Use with smart sensors and smart actuators thanks to Class A and Class B ports

- Be global-ready with UL 61010-1 approval and multiprotocol support for PROFINET and EtherNet/IP

- Various IO-Link Master variants, including M12 power (L-coded) or M12 hybrid (Y-coded*), M12 I/O, A-coded or M8 5-pole, B-coded

- Gain increased diagnostic functionality through live port diagnosis inside the webserver

- Withstand harsh conditions –– IP65, IP67 and IP69K-rated tolerances for mechanical stress

See the Lumberg Automation PB00088 for more information

LioN-Power IO-Link Masters

As the world's first IO-Link Master to provide multiprotocol support with M12 Power and M12 hybrid technology, LioN-Power multiprotocol IO-Link Masters are a major step forward in miniaturization and future-proofing for intelligent industrial connectivity.

We offer the most extensive portfolio with standard 60 mm modules, as well as slim 30 mm devices for both M12 A-coded and M8 B-coded I/O port connection types.

You can configure each of the eight ports (4x Class A and 4x Class B) on these masters to support standard digital input, digital output or IO-Link signals. Our standard 60 mm modules make it possible to use the extra power supply of Class B ports as standard switching digital outputs. This can be helpful for applications that require high power outputs (up to 2 A) next to IO-Link signals.

The modules' IP65, IP67 and IP69K ratings, coupled with welding-spark resistant metal housing, means they are built to withstand the harshest industrial environments.

LioN-Power IO-Link Masters are a part of Lumberg Automation's LioN-Power system, a one-stop solution for all your automation needs, including connectivity, adapters, I/O modules and more.

Multi-PROTOCOL

PROFINET   EtherNet/IP   IO-Link

M12 L-coded
24 V / 16 A
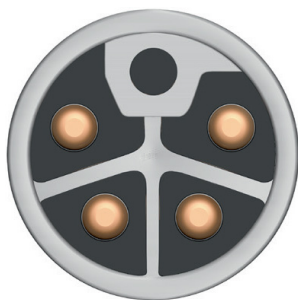
Power
61076-2-111/CD IEC (E)

IO-Link Masters simplify the work of system engineers. Remote device configuration makes it possible to use one smart sensor or actuator for different types of applications. This gives you flexibility, while reducing the variety of devices in your inventory.
This also supports faster machine start up and shorter maintenance cycles because automatic device replacement is possible
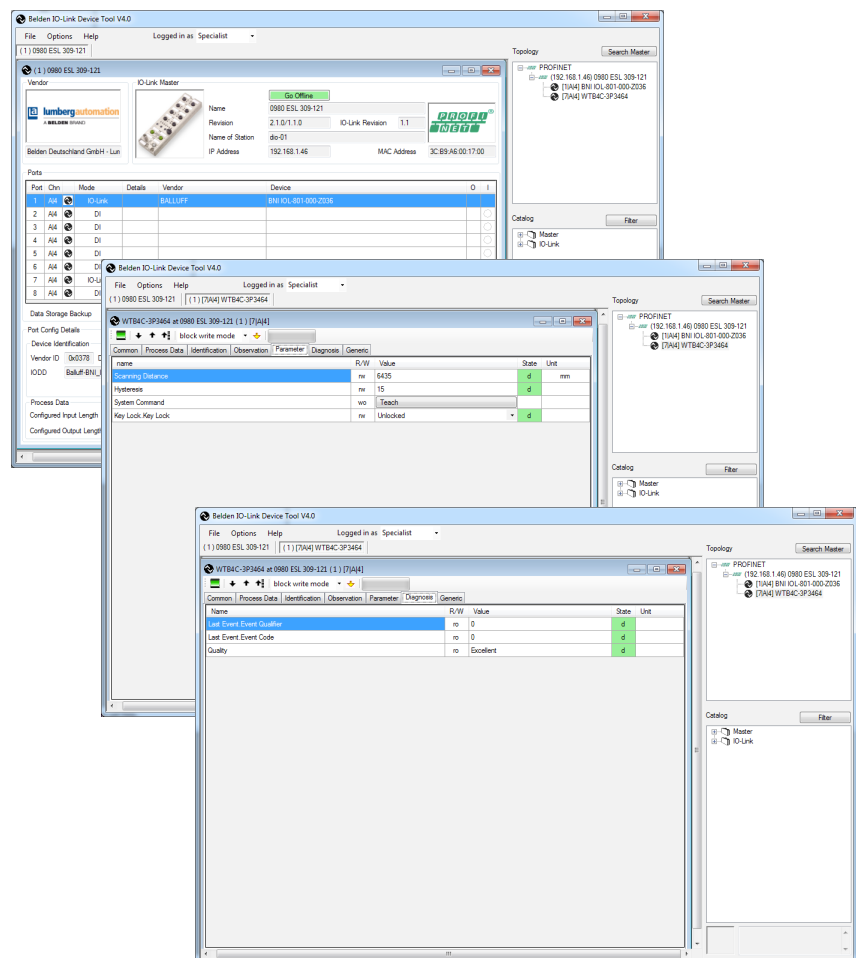
IO-Link Device Tool

LioN-Power offers an easy-to-use IO-Link Device Tool for configuration of IO-Link sensors and actuators. The tool includes a user-friendly graphical interface for IO-Link Master port configuration and IO-Link device parameterization. This enables users to intuitively configure IO-Link devices without any PLC programming involved or having to study the device's datasheet.

You can load and store IODD files for your IO-Link devices in the tool and use it both as a standalone program or integrate it via TCI (Tool Calling Interface) in PLC engineering tools, such as STEP 7 or TIA Portal.

The tool's main features are:

- Operation and configuration of IO-Link devices via IODD
- Support for IO-Link V1.0 (IODDs V1.0.1) and IO-Link V1.1 (IODDs V1.1)
- Port configuration of IO-Link Masters without a connected controller
- Direct access to IO-Link device process data, identification, parameters and diagnostics

IODDs contain information about the identification of the device, communication characteristics, parameters, process data and diagnosis data. Manufacturers provide IODD files for each IO-Link device. Before device parameterization, you need to integrate this file into the engineering tool or the IO-Link Device Tool for easy device configuration.

IO-Link Device Tool Screenshots: Showing IO-Link Master port main view, IO-Link Device parameter and diagnosis tab

LioN-Power Multiprotocol IO-Link Masters

Technical Information

Product Description					
Type	0980 ESL 1x9-332	0980 ESL 1x9-331	0980 ESL 1x9-122	0980 ESL 1x9-121	0980 ESL 3x9-121
Description	M12 8-pole Y-coded power supply M8 5-pole I/O connectors 30 mm housing	M12 8-pole Y-coded power supply M12 5-pole I/O connectors 30 mm housing	M12 5-pole L-coded power supply M8 5-pole I/O connectors 30 mm housing	M12 5-pole L-coded power supply M12 5-pole I/O connectors 30 mm housing	M12 5-pole L-coded power supply M12 5-pole I/O connectors 60 mm housing
Technical Data					
Protection Degree	IP65, IP67, IP69K (only if mounted and locked in combination with Hirschmann/Lumberg connector)				
Ambient Temperature (Operation)	-20 °C to +70 °C				
Dimensions (W x H x D)	30 x 43 x 183 (mm)	30 x 43 x 204 (mm)	30 x 43.1 x 204 (mm)	30 x 43.1 x 225 (mm)	59.6 x 30.7 x 200 (mm)
Weight	413 g	448 g	448 g	480 g	500 g
Housing Material	Metal, Zinc Die-cast				
Bus System					
Protocol	0980 ESL x09-xxx: PROFINET 0980 ESL x99-xxx: PROFINET & EtherNet/IP				
Connection	M12 Hybrid, 8-pole, Y-coded		M12 LAN, 4-pole, D-coded		
Tranmission Rate	Fast Ethernet (100 Mbit/s), Full Duplex				
Rotary Address Switches	0980 ESL x09-xxx: No 0980 ESL x99-xxx: Yes				
Power Supply					
Nominal Voltage	24 V DC (SELV/PELV)				
Nominal Voltage Range	18 to 30 V DC				
Connection	M12 Hybrid, 8-pole, Y-coded		M12 Power, 5-pole, L-coded		
Current Carrying Capacity of Connector	6 A		16 A		
Current Consumption (typ.)	180 mA (+/-20% at 24 V DC)				
IO-Link Master Channels					
Number of Channels	8				
Connection	M8, 5-pole, B-coded	M12, 5-pole, A-coded	M8, 5-pole, B-coded	M12, 5-pole, A-coded	M12, 5-pole, A-coded
Number of A Ports (IOL)	4 (X1 to X4)				
Number of B Ports (IOL)	4 (X5 to X8)				
Nominal Voltage (IOL)	24 V DC via US (system power supply)				
Nominal Current C/Q (Pin 4)	500 mA				
Nominal Current L+/L- (Pin 1 and 3)	500 mA				
Nominal Current Uaux (Pin 2, B Ports)	max. 4 A per module				max. 2 A per port
Input Channels					
Number of Channels	max. 12, 4 x (Pin 2, fixed) + 8 x (Pin 4, configurable)				
Connection	M8, 5-pole, B-coded	M12, 5-pole, A-coded	M8, 5-pole, B-coded	M12, 5-pole, A-coded	M12, 5-pole, A-coded
Channel Type	Type 1 acc. to IEC 61131-2				
Nominal Voltage	24 V DC via US (system power supply)				
Sensor Current Supply	500 mA per Port via L+/L				
Sensor Type	PNP				
Output Channels					
Number of Channels	max. 8 (Pin 4, configurable)				max. 12, 8 x (Pin 4, configurable) + 4 x (Uaux, configurable)
Connection	M8, 5-pole, B-coded	M12, 5-pole, A-coded	M8, 5-pole, B-coded	M12, 5-pole, A-coded	M12, 5-pole, A-coded
Channel Type	p-switching				
Nominal Voltage	24 V DC via Uaux (actuator power supply)				
Output Current per Channel	max. 500 mA (Pin 4)				Pin 4: max. 500 mA/ Uaux: max. 2 A
Output Current per Module	max. 9 A				
Protective Circuit	Electronicaly: Overload protection, short-circuit protection				
Galvanically Isolated	No				Pin 4: No/ Uaux: Yes

Your Benefits

LioN-Power provides the most versatile IO-Link Master solution with fieldbus independent multiprotocol modules, allowing you to easily connect products to different systems and controllers worldwide.

Installation is fast and economical using standard M12 cables or M8 cables (no shielding required). IO-Link Masters also ease your maintenance efforts using condition monitoring to provide automatic cable break detection and predictive maintenance needs.

The modules give you enhanced flexibility with configuration of sensors and actuators in one single connector, as well support for digital inputs, digital outputs, analog inputs and smart devices on the same IO-Link master port.

Experience the most versatile IO-Link Master solution in the market with fieldbus independent multiprotocol modules, allowing you to easily connect products to different systems and controllers worldwide.

Product Type	LioN-Power IO-Link Master – 8 Port (4 x Class A, 4 x Class B)				
Power Supply Type	M12 Hybrid		M12 Power		
I/O Connector Type	M8 5-pole	M12 5-pole	M8 5-pole	M12 5-pole	M12 5-pole
PROFINET	0980 ESL 109-332	0980 ESL 109-331	0980 ESL 109-122	0980 ESL 109-121	0980 ESL 309-121
	934840001	934862001	934857001	934861001	934878004
Multi-PROTOCOL	0980 ESL 199-332	0980 ESL 199-331	0980 ESL 199-122	0980 ESL 199-121	0980 ESL 399-121
	934964002	934964001	934964003	934964004	934879004

Belden Competence Center

As the complexity of communication and connectivity solutions has increased, so have the requirements for design, implementation and maintenance of these solutions. For users, acquiring and verifying the latest expert knowledge plays a decisive role in this. As a reliable partner for end-to-end solutions, Belden offers expert consulting, design, technical support, as well as technology and product training courses, from a single source: Belden Competence Center. In addition, we offer you the right qualification for every area of expertise through the world's first certification program for industrial networks. Up-to-date manufacturer's expertise, an international service network and access to external specialists guarantee you the best possible support for products. Irrespective of the technology you use, you can rely on our full support – from implementation to optimization of every aspect of daily operations.

About Belden

Belden Inc., a global leader in high quality, end-to-end signal transmission solutions, delivers a comprehensive product portfolio designed to meet the mission-critical network infrastructure needs of industrial, enterprise and broadcast markets. With innovative solutions targeted at reliable and secure transmission of rapidly growing amounts of data, audio and video needed for today's applications, Belden is at the center of the global transformation to a connected world. Founded in 1902, the company is headquartered in St. Louis, USA, and has manufacturing capabilities in North and South America, Europe and Asia.

For more information, visit us at www.belden.com and follow us on Twitter @BeldenIND.