

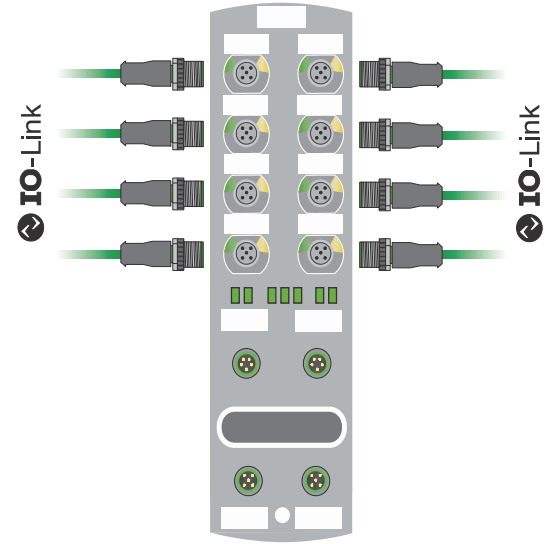
IO-Link Field I/O

IO-Link Overview

IO-Link is a standardized protocol that enables connection of intelligent devices (sensors and actuators) to an automation system.

Communication takes place between an IO-Link master and one or more IO-Link devices. IO-Link is a point-to-point communication system and is not a fieldbus. A master module has one or more ports and one device can be connected to each port.

The IO-Link master module is the interface between the controller and the IO-Link system, using EtherNet/IP or EtherCAT.



Features

- No field wiring is typically required. IO-Link devices plug into M12 ports.
- Rich sensor data can add diagnostics, history, and engineering units automatically, all delivered over one cable.
- Automatic device configuration can speed up and simplify field replacement.
- IO-Link Masters support daisy-chaining for easy installation of many devices.
- Premiere integration with Productivity PLC and BRX via EDS files

IO-Link Masters		
Part Number	Description	Price
<u>SIOL-EI8B</u>	STRIDE Basic EtherNet/IP IO-Link master, (8) IO-Link capable I/O points, up to (16) discrete I/O points, IO-Link v1.1, 8A, 1A/port, plastic housing, IP65 and IP67, -25 to 70 deg C.	\$05a48:
<u>54631</u>	Murrelektronik Premium EtherNet/IP IO-Link master, (8) IO-Link capable I/O points, up to (16) discrete I/O points, IO-Link v1.1, 16A, 2A/port, plastic housing, IP65 and IP67, -25 to 70 deg C.	\$05a49:
<u>54632</u>	Murrelektronik Premium EtherCAT IO-Link master, (8) IO-Link capable I/O points, up to (16) discrete I/O points, IO-Link v1.1, 16A, 2A/port, plastic housing, IP65 and IP67, -25 to 70 deg C.	\$,-06fdl:
<u>BNI008M</u>	Balluff EtherNet/IP IO-Link master, (8) IO-Link capable I/O points, up to (16) discrete I/O points, IO-Link v1.1.3, 9A, 2A/port, plastic housing, IP67, -5 to 70 deg C, multi-line LCD display.	\$,-06j[6:
<u>BNI00HM</u>	Balluff EtherNet/IP IO-Link master, (8) IO-Link capable I/O points, up to (16) discrete I/O points, IO-Link v1.1.3, 9A, 2A/port, die-cast zinc nickel-plated housing, IP67, -25 to 70 deg C.	\$,-06j[5:
<u>BNI006A</u>	Balluff EtherNet/IP IO-Link master, (8) IO-Link capable I/O points, up to (16) discrete I/O points, IO-Link v1.1.3, 9A, 2A/port, die-cast zinc nickel-plated housing, IP67, -5 to 70 deg C, multi-line LCD display.	\$,-06j[4:

IO-Link Hubs		
Part Number	Description	Price
<u>59507</u>	Murrelektronik IO-Link hub, up to (8) discrete I/O points, (8) 3-pin M8 ports, 24 VDC, IO-Link v1.1.2 (compatible with v1.1.3), IO-Link Class A Device, 4A, 0.5A/port, IP68. Requires IO-Link master.	\$05a4a:
<u>59710</u>	Murrelektronik IO-Link hub, up to (16) discrete input points, (8) 5-pin M12 A-coded ports, 24 VDC, IO-Link v1.1.2 (compatible with v1.1.3), IO-Link Class A Device, IP68. Requires IO-Link master.	\$05a4b:
<u>59712</u>	Murrelektronik IO-Link hub, up to (16) discrete I/O points, (8) 5-pin M12 A-coded ports, 24 VDC, IO-Link v1.1.2 (compatible with v1.1.3), IO-Link Class B Device, 4A, 2A/port, IP68. Requires IO-Link master.	\$,06fdn:
<u>59719</u>	Murrelektronik IO-Link hub, up to (16) discrete I/O points, (8) 5-pin M12 A-coded ports, 24 VDC, IO-Link v1.1.2 (compatible with v1.1.3), IO-Link Class A Device, 4A, 0.5A/port, IP68. Requires IO-Link master.	\$05a4c:
<u>59738</u>	Murrelektronik IO-Link hub, up to (16) discrete I/O points, (8) 5-pin M12 A-coded ports, 24 VDC, IO-Link v1.1.2 (compatible with v1.1.3), IO-Link Class A Device, 12A, 4A/port, IP68. Requires IO-Link master.	\$,06fdo:
<u>59840</u>	Murrelektronik IO-Link hub, up to (4) analog input channel(s), (4) 5-pin M12 A-coded port(s), current/voltage, 24-bit, IO-Link v1.1.2 (compatible with v1.1.3), IO-Link Class A Device, IP65, IP67 and IP68. Requires IO-Link master.	\$05zuz:
<u>59841</u>	Murrelektronik IO-Link hub, up to (4) temperature input channel(s), (4) 5-pin M12 A-coded port(s), RTD, 24-bit, IO-Link v1.1.2 (compatible with v1.1.3), IO-Link Class A Device, IP65, IP67 and IP68. Requires IO-Link master.	\$,06fdx:
<u>BNI00F4</u>	Balluff IO-Link hub, up to (16) discrete I/O points, up to (16) discrete input points, (8) 5-pin M12 A-coded ports, 24 VDC, IO-Link v1.1, IO-Link Class A Device, 4A, 0.2A/port, IP67. Requires IO-Link master.	\$,-06j[7:
<u>BNI00CP</u>	Balluff IO-Link hub, up to (16) discrete I/O points, up to (16) discrete input points, (8) 5-pin M12 A-coded ports, 24 VDC, IO-Link v1.1, IO-Link Class A Device, 9A, 2A/port, IP67. Requires IO-Link master.	\$,-06j[8:
<u>BNI00AJ</u>	Balluff temperature/analog IO-Link hub, up to (8) analog input channel(s), current/voltage/RTD/thermocouple, 16-bit, input RTD type(s): Pt100 and Pt1000, input thermocouple type(s): J, K, IO-Link v1.1, IP67. Requires IO-Link master.	\$,-06j[b:

IO-Link Signal Converters		
Part Number	Description	Price
<u>BNI00C6</u>	Balluff temperature/analog combo converter, 1-channel, current/voltage/RTD/thermocouple, 16-bit, input RTD type(s): Pt100 and Pt1000, input thermocouple type(s): J, K, IO-Link v1.1, stainless steel housing, IP65 and IP67. Requires IO-Link master.	\$,-06j[3:

BALLUFF IO-Link Masters

Features

- Secure web server
- Weld resistant casing
- Easy to use web interface
- Models with display for simplified configuration available



BNI008M



BNI00HM



BNI006A

 **IO-Link**
EtherNet/IP™



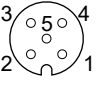
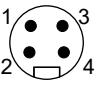
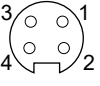
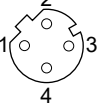
Interface	
Auxiliary interfaces	8x IO-Link
Digital inputs	16x PNP, Type 3
Digital outputs	16x PNP
IO-Link version	1.1.3
Interface	Ethernet/IP
Interface IIoT	REST API, MQTT
Port-class	Type A
Quick Connect	Class A

Electrical Connection	
Ethernet (COM 1)	(1) 4-pin M12 D-coded socket
Ethernet (COM 2)	(1) 4-pin M12 D-coded socket
Supply voltage IN	7/8" plug, 4-pin
Supply voltage OUT	7/8" socket, 4-pin
Connection slots	(8) 5-pin M12 A-coded socket
Contact, surface protection	Nickel-plated 2 µm/gold plated 0.4 µm

Electrical Data	
Address range	IPV4
Configurable inputs/outputs	Yes
Current sum UA, actuator	9A
Current sum US, sensor	9A
IO-Link function	Master
Input current max. at 24 V	130mA
Operating voltage Ub	18–30.2 VDC
Output current max.	2A short-circuit proof and overload-proof
Rated operating voltage Ue	24 VDC
Transfer rate	10/100 Mbit/s

Display & Indicators			
Part Number	BNI008M	BNI00HM	BNI006A
Text Display	Yes	No	Yes
Actuator supply UA indicator	Green LED		
IO-Link communication indicator	Green LED		
Sensor supply US indicator	Green LED		
Switching function display	Yellow LED		

BALLUFF IO-Link Masters

Pin Assignments		
IO-Link	M12 A-coded sockets	
	Pin 1	24 VDC $\overline{\text{US}}$, 2A
	Pin 2	Input/Output (2A)
	Pin 3	0V
	Pin 4	IO-Link/Input/Output 2A
	Pin 5	n.c.
Power IN	7/8" plug	
	Pin 1	24 VDC $\overline{\text{UA}}$ (actuator voltage)
	Pin 2	24 VDC $\overline{\text{US}}$ (sensor voltage)
	Pin 3	0V, GND (common ground)
	Pin 4	0V, GND (common ground)
Power OUT	7/8" socket	
	Pin 1	24 VDC $\overline{\text{UA}}$ (actuator voltage)
	Pin 2	24 VDC $\overline{\text{US}}$ (sensor voltage)
	Pin 3	0V, GND (common ground)
	Pin 4	0V, GND (common ground)
Ethernet	M12 D-coded socket	
	Pin 1	TX +
	Pin 2	RX +
	Pin 3	TX -
	Pin 4	RX -

Agency Approvals			
Part Number	BNI008M	BNI00HM	BNI006A
CE	Yes		
WEEE	Yes		
UKCA	Yes		
KC	Yes	Yes	—
ODVA	Yes		
cULus	Yes		

Materials			
Part Number	<i><u>BNI008M</u></i>	<i><u>BNI00HM</u></i>	<i><u>BNI006A</u></i>
Housing material	Plastic	Die-cast zinc, nickel-plated	
Gasket material	FKM 75		
Housing shield	No	Yes	
Surface protection	NA	Cu 15µm, Ni 15µm	

Environmental Conditions			
Part Number	BNI008M	BNI00HM	BNI006A
Operating temperature	-5°C to +70°C [+23°F to +158°F]		-25°C to +70°C [-13°F to +158°F]
Ambient temperature UL max.	50°C [122°F]	45°C [113°F]	
Storage temperature	-25°C to +70°C [-13°F to +158°F]		
EN 60068-2-6, Vibration	5–61 Hz, constant amplitude 1mm 61–500 Hz, constant acceleration 15 g		
IP rating	IP67, when threaded in		

Functional Safety	
MTTF (40 °C)	49 years

Mechanical Data			
Part Number	<i>BNI008M</i>	<i>BNI00HM</i>	<i>BNI006A</i>
Weight (net)	Approx. 560g [19.8 oz]		Approx. 670g [23.6 oz]
Dimensions (W x D x H)	68 x 42.9 x 226 mm [2.68 x 1.69 x 8.90 in]	68 x 37.9 x 224 mm [2.68 x 1.49 x 8.82 in]	
Mounting ground strap	M4		
Mount type	2-hole screw mount		
Drawing	PDF	PDF	PDF