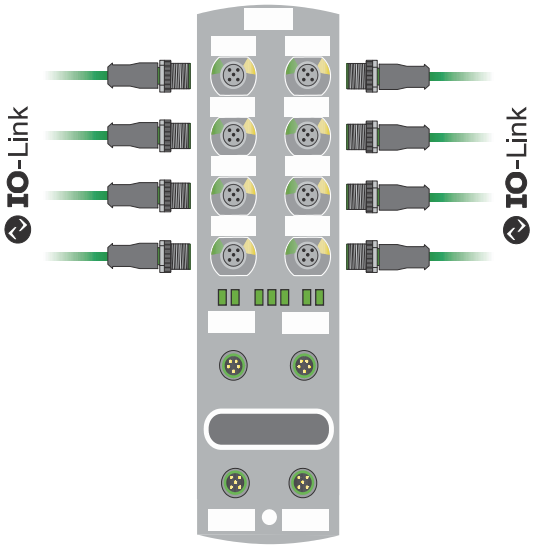
IO-Link Field I/O

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
SIOL-EI8B	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.	$290.00
54631	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.	$385.00
54632	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.	$399.00
BNI008M	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.	$629.00
BNI00HM	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.	$549.00
BNI006A	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.	$669.00

IO-Link Hubs

Part Number	Description	Price
59507	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.	$195.00
59710	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.	$180.00
59712	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.	$215.00
59719	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.	$215.00
59738	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.	$301.00
59840	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.	$229.00
59841	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.	$219.00
BNI00F4	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.	$291.00
BNI00CP	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.	$349.00
BNI00AJ	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.	$439.00

IO-Link Signal Converters

Part Number	Description	Price
BNI00C6	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.	$249.00

BALLUFF IO-Link Analog Converter

Features

- Stainless steel designed for field mounting
- Support universal analog in or out

BNI00C6

Display & Indicators	
Sensor/actuator supply US/UA	Green LED
IO-Link communication indicator	Green LED

Environmental Conditions	
Operating temperature	-5°C to +70°C [+23°F to +158°F]
Storage temperature	-25°C to +70°C [-13°F to +158°F]
IP rating	IP67, when threaded in

Materials	
Housing material	316L stainless steel, PTFE
Gasket material	FKM 75
Housing shield	Yes

Mechanical Data	
Weight (net)	Approx. 105g [3.70 oz]
Dimensions (Dia x L)	18mm dia. x 135.5 mm
Mounting part	18mm diameter mounting clamps
Drawing	PDF

Functional Safety	
MTTF (40 °C)	67 years

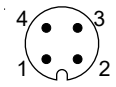
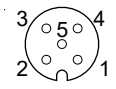
Agency Approvals	
CE	Yes
WEEE	Yes
UKCA	Yes
Ecolab	Yes

Interface	
Analog inputs	Analog, voltage/analog, current/analog, temperature (0–10V/ −10–10V/0–5V/−5–5V/5–10V/4–20mA/0–20mA/Pt100/ Pt1000/Thermocouple Type J/Thermocouple Type K)
Analog outputs	Analog, voltage/analog, current/analog (0–10V/−10–10V/ 0–5V/−5–5V/5–10V/4–20mA/0–20mA)
Resolution	≤ 16 bit adjustable
Cycle time min.	10 ms
IO-Link version	1.1
Interface	IO-Link 1.1
Process data IN	3 bytes
Process data OUT	2 bytes
Process data cycle min.	10 ms
Transfer rate	COM2 (38.4 kBaud)

Electrical Connection	
IO-Link (COM 1)	(1) 4-pin M12 A-coded plug
Connection slots	(1) 5-pin M12 A-coded socket
Contact, surface protection	Nickel-plated 2 µm/gold plated 0.4 µm

Electrical Data	
Configurable inputs/outputs	Yes
Current consumption without load, max.	60mA
Current sum UA, actuator	4A
Current sum US, sensor	4A
IO-Link function	Device
IO-Link ports, number	1
Operating voltage Ub	18–30.2 VDC
Rated operating voltage Ue	24 VDC

Pin Assignments

IO-Link	***M12 A-coded plug***				
	Pin 1	24 VDC US (controller), 260mA			
	Pin 2	24 VDC UA (outputs), 1.4 A			
	Pin 3	GND, reference potential			
	Pin 4	C/Q, IO-Link data transmission channel			
Analog Input	***M12 A-coded sockets***				
		V, mA Input	***V, mA Output***	***TC***	***RTD***
	Pin 1	24 VDC, 150mA	24 VDC, 1.4 A	n.c.	Pt-
	Pin 2	Input	Output	TC+	Pt-
	Pin 3	GND	GND	TC-	Pt+
	Pin 4	Input	Output	n.c.	Pt+
	Pin 5	n.c.			