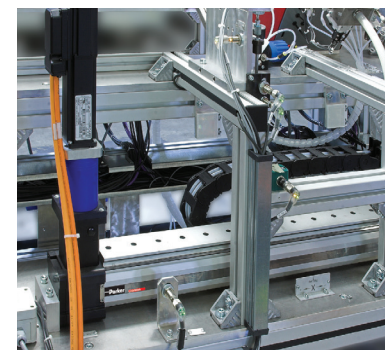


IO-Link Solutions



ENGINEERING YOUR SUCCESS.

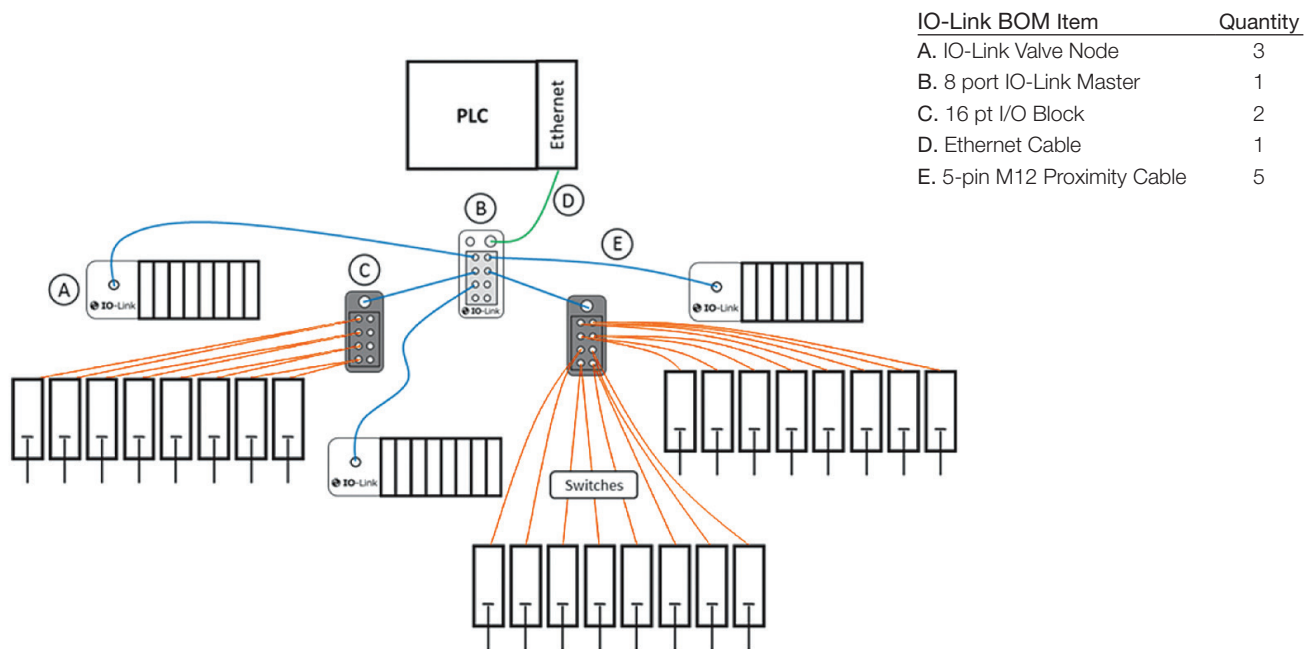
IO-Link Solutions

What is IO-Link?

About IO-Link

IO-Link (IEC61131-9) is an open standard communication protocol that allows for the bi-directional exchange of data from sensors and devices that support **IO-Link** and are connected to a master. The IO-Link communication standard is quickly expanding within the Factory Automation market space as a low cost method of connecting I/O “on the network”.

The sample application illustrates the layout and bill of material for an IO-Link solution consisting of three valve banks with eight double solenoid valves each, 24 switches and 24 actuators.



Choose IO-Link over Collective Wiring because:

- Lower total installed cost
- Labor cost is reduced
- Network diagnostics reduces machine downtime
- Flexibility to de-centralize I/O

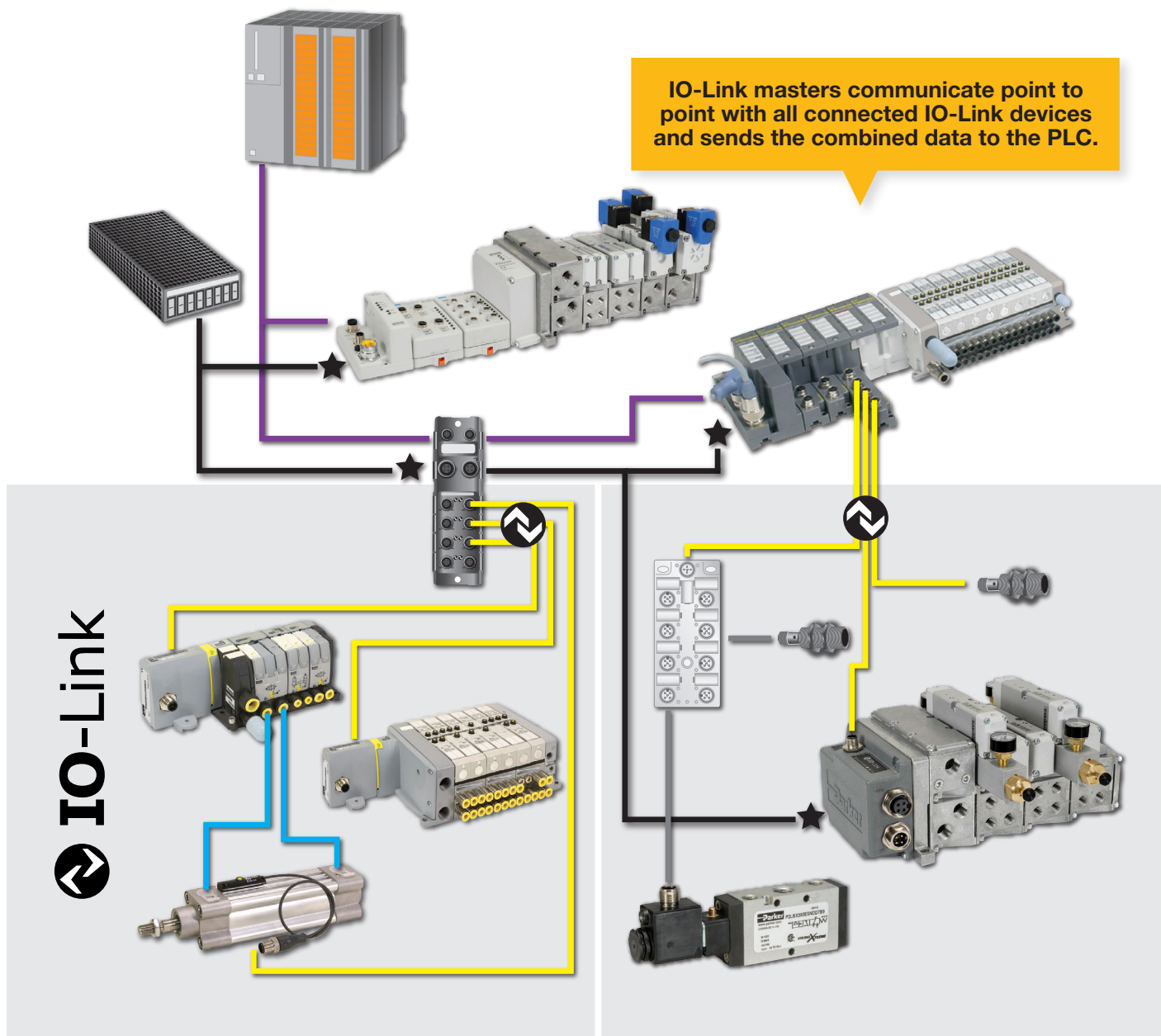
Choose IO-Link over Industrial Ethernet because:

- Cost of I/O is reduced
- Reduced cabling cost (with standard proximity cables to IO-Link)
- Open protocol supported by all PLC platforms
- Lower cost communication nodes

Overall IO-Link is the most cost efficient way to connect valve manifolds and obtain diagnostic and prognostic data. Compatible with all major Ethernet protocols, IO-Link offers easy installation, troubleshooting and maintenance.

IO-Link Solutions

Network Capabilities



Network to Remote IO-Link Master

Reduce cabinet size by using a De-centralized "on-machine" IO-Link Master

- * Control all local I/O with IO-Link Masters
 - Discrete I/O
 - "Smart" I/O
 - P2M IO-Link Class B & CPS pictured see www.parker.com/pde/CPS

Node Expansion Using IO-Link

Reduce node count by adding IO-Link Master module onto BL67 manifold

- * 20m max length for I/O-Link cables
- * Control all "smart I/O" on 1 node
- * Reduce cost of secondary valve manifold
 - P2H IO-Link Class A pictured see www.parker.com/pde/P2H_IOL

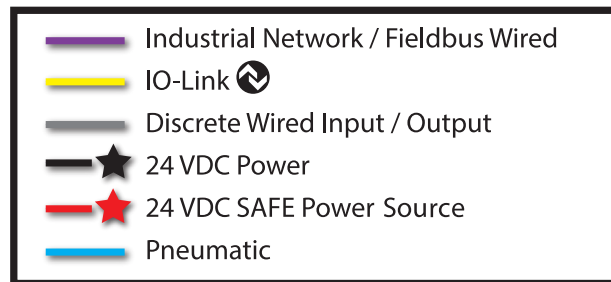
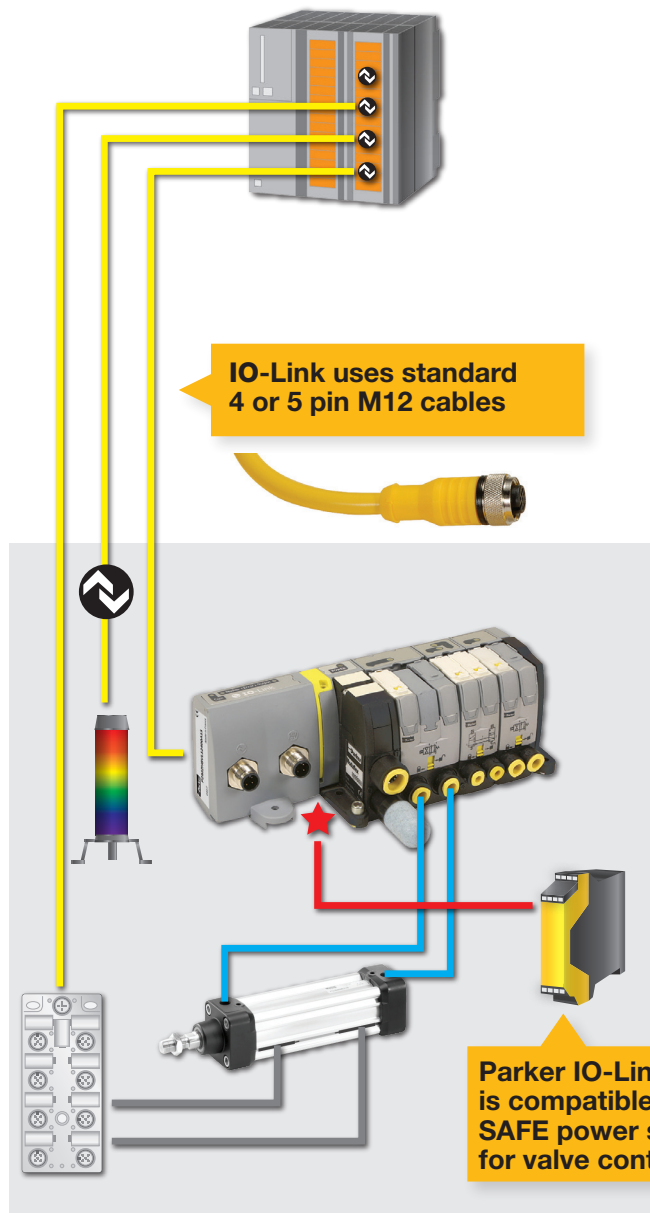
THIS IS **EASIER**

Faster Install than Discrete Wire
Power and Communication on
One Cable (Class B)

THIS IS **SAVINGS**

IO-Link Solutions

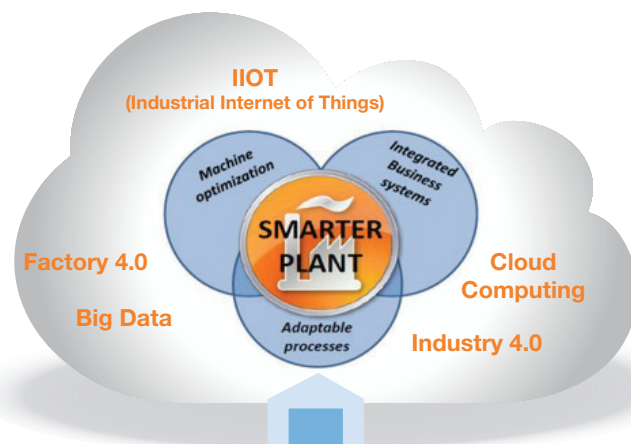
Network Capabilities



Non-Network I/O Control Using IO-Link

Use PLC with integrated IO-Link Master for machines with smaller I/O counts

- * 20m max length for I/O-Link cables
- * Control all local I/O with IO Link
 - Discrete I/O
 - "Smart" I/O
 - P2M IO-Link Class A pictured



IO-Link is another step towards the Smarter Plant by lowering the cost for gathering component level prognostics and diagnostics.

Out of Tolerance Warnings

- * Voltage
- * Temperature

Error Descriptors

- * Solenoid Short Circuit
- * IO-Link Communication Error

Cycle Count for each valve

Fewer Network Nodes
Easy Expandability

THIS IS VALUE

Easy Access Diagnostics
Prognostics to Prevent Downtime

IO-Link Solutions

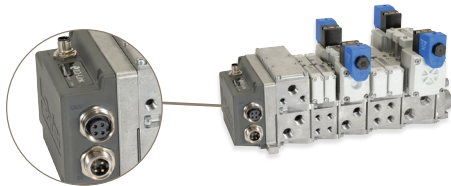
P2H IO-Link Nodes

*Weld Splatter Resistant
Power In and Out
Robust 7/8" Power Connectors*

Designed to integrate directly with the new H Series ISO Valve Universal Manifold, the P2H IO-Link network node provides a compact, robust and cost efficient solution for IO-Link capability. The P2H IO-Link network node is offered as an end plate kit on the H Series ISO Valve Universal Manifold for four sizes (HB, HA, H1 and H2). The P2H node is suitable for use on a valve manifold with up to 24 solenoid outputs.

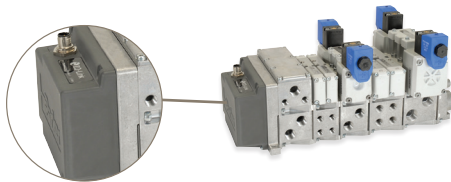
Connection Types and Power:

Class A Node



The Class A node has (1) 3 pin M12 connector for communication and logic power from any Class A IO-Link master, and (2) 7/8" connectors for auxiliary valve power IN and OUT.

Class B Node



The Class B node has (1) 5 pin M12 connector to connect IO-Link for communication to a Class B IO-Link master, logic power and auxiliary power for the valve solenoids (up to the limit of the Class B node output*).

*It is recommended to use the Class A node with auxiliary power if the Class B master cannot provide enough power.

Power out is available on a Class A node and is an industrial standard 7/8" connector. This is currently the only IO-Link valve manifold on the market offering a power out option.

Safe power capability means the node is designed for test pulse (OSSD) power which can be supplied as auxiliary power from a safe output device following machine directives. The safe power capability feature is available on both Class A and Class B nodes. Class A nodes allow the capability of daisy chaining safe power via the 7/8" power OUT connector.

Diagnostics on network provide easy access monitor input data such as voltage or temperature warnings, and communication errors. This data is available through the network for easy predictive maintenance for both Class A and Class B nodes.



A simple user interface means visual indicators are intuitive with four LED's on the node for IO-Link com status, module error, output error and auxiliary power so you always know the condition of the P2H node.

Left and right hand end plate part numbers



Class B



Class A

IO-Link Class / Type	Current	BSPP Port	NPT Port
P2H IO-Link Class B, standard version, 24 address	3.2A Max	PSHU20N201P	PSHU20N200P
P2H IO-Link Class B, safe power capable, 24 address	2.0A Max	PSHU20S201P	PSHU20S200P
P2H IO-Link Class A, 4-pin safe power capable, 24 address	3.2A Max	PSHU20S401P	PSHU20S400P
P2H IO-Link Class A, 5-pin safe power capable, 24 address	3.2A Max	PSHU20S501P	PSHU20S500P

www.parker.com/pde/P2H_IOL

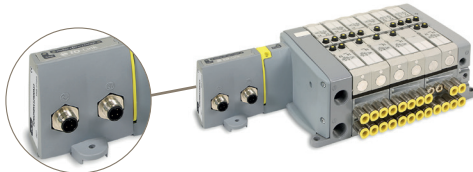
IO-Link Solutions

P2M IO-Link Nodes

The P2M IO-Link network node provides a compact, cost effective solution for customers wanting to integrate IO-Link technology to any of our three valve products, the H Micro, the Moduflex valve, and all 5 sizes of the H Series ISO valve. The P2M is suitable for use on a valve manifold with up to 24 solenoid outputs on H ISO or H Micro manifolds and up to 19 solenoid outputs on the Moduflex valve manifold.

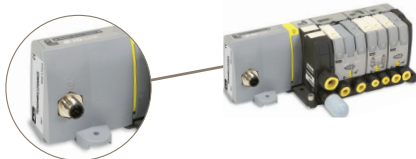
Connecting to any IO-Link master, the P2M IO-Link network node provides a host of benefits for either a Class A or Class B application.

Class A Node



The Class A node has (2) M12 connectors; (1) M12 for connection to the IO-Link master (1) M12 for auxiliary power for valve solenoids (up to 3.2A valve power). The Class A node is shown here connected to the H Micro valve manifold.

Class B Node



The Class B node has (1) M12 connector to IO-Link for communication and valve power up to the limit of the Class B node output*. The Class B node is shown here connected to the Moduflex valve manifold.

*It is recommended to use the Class A node with auxiliary power if the Class B master cannot provide enough power.

Integrated features of the P2M include the availability of prognostic and diagnostics over IO-Link, an intuitive LED interface for communication and output status of the network node, (OSSD) "Output Signal Switching Device" safe power on both Class A and Class B nodes and easy connectivity with a single M12 cable for fast, simple installation.



IO-Link	Aux Power	Aux. Power Pinout	Standard	Safe Power Capable
3 Pins, Class A	3 Pins	1 & 3	P2M2HBVL12400A13	P2M2HBVL12400A13-SPC
3 Pins, Class A	3 Pins	4 & 3	P2M2HBVL12400A43	P2M2HBVL12400A43-SPC
3 Pins, Class A	5 Pins	4 & 2	P2M2HBVL12400A42	P2M2HBVL12400A42-SPC
5 Pins, Class B		2 & 5	P2M2HBVL12400B25	P2M2HBVL12400B25-SPC

www.parker.com/pde/P2M_IOL

CPS (Continuous Position Sensing) Sensor

The factory floor just got smarter thanks to CPS sensors. The CPS sensor mounts on an actuator and connects via an analog or IO-Link master (Class A or Class B) with 5 different measuring ranges from 32 to 256mm. CPS is offered with 0.3M of cable and an M12 connector for easy interface with the IO-Link master or an M8 connector for the analog sensor.



Measuring Range	32mm	64mm	128mm	192mm	256mm
Analog	P8SAGACHA	P8SAGACHB	P8SAGACHD	P8SAGACHF	P8SAGACHH
IO-Link	P8SAGHMHA	P8SAGHMHB	P8SAGHMHD	P8SAGMHMF	P8SAGMHMH
Overall Length	45mm	77mm	141mm	205mm	269mm

www.parker.com/pde/CPS