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**

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

**THIS IS EASIER**

**THIS IS SAVINGS**

- **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/pdn/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/pdn/P2H_IOL

**IO-Link masters communicate point to point with all connected IO-Link devices and sends the combined data to the PLC.**
IO-Link Solutions
Network Capabilities

IO-Link uses standard 4 or 5 pin M12 cables

Parker IO-Link module is compatible with SAFE power source for valve control

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
Designed to integrate directly with the new H Series ISO valve, 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 valve 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**

<table>
<thead>
<tr>
<th>IO-Link Class / Type</th>
<th>Current</th>
<th>NPT Port</th>
<th>BSPP Port</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2H IO-Link Class B,</td>
<td>3.2A Max</td>
<td>PSHU20N200P</td>
<td>PSHU20N201P</td>
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<tr>
<td>standard version, 24 address</td>
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<td></td>
<td></td>
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<tr>
<td>P2H IO-Link Class B,</td>
<td>2.0A Max</td>
<td>PSHU20S200P</td>
<td>PSHU20S201P</td>
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<td>safe power capable, 24 address</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>P2H IO-Link Class A,</td>
<td>3.2A Max</td>
<td>PSHU20S400P</td>
<td>PSHU20S401P</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>P2H IO-Link Class A,</td>
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<td>PSHU20S500P</td>
<td>PSHU20S501P</td>
</tr>
<tr>
<td>5-pin safe power capable, 24 address</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

www.parker.com/pdn/P2H_IOL
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.

### 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 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.

### Integrated Features

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 B nodes and easy connectivity with a single M12 cable for fast, simple installation.

<table>
<thead>
<tr>
<th>Measuring Range</th>
<th>32mm</th>
<th>64mm</th>
<th>128mm</th>
<th>192mm</th>
<th>256mm</th>
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<tbody>
<tr>
<td>Analog</td>
<td>P8SAGACHA</td>
<td>P8SAGACHB</td>
<td>P8SAGACHD</td>
<td>P8SAGACHF</td>
<td>P8SAGACHH</td>
</tr>
<tr>
<td>IO-Link</td>
<td>P8SAGHMHA</td>
<td>P8SAGHMHB</td>
<td>P8SAGHMHD</td>
<td>P8SAGHMHF</td>
<td>P8SAGHMHH</td>
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<tr>
<td>Overall Length</td>
<td>45mm</td>
<td>77mm</td>
<td>141mm</td>
<td>205mm</td>
<td>269mm</td>
</tr>
</tbody>
</table>

www.parker.com/pdn/P2M_IOL

www.parker.com/pdn/CPS

See offer of sale: www.parker.com/offerofsale