

## What is IO-Link?

# THE FUNDAMENTALS OF IO-LINK: OPERATION, COMPONENTS AND TECHNOLOGY

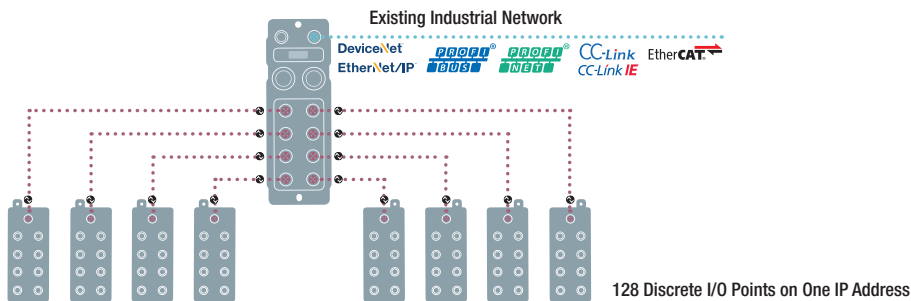
**Technology:** Standardized (IEC 61131-9) Serial Communication Protocol

**Area of Application:** IO-Link is used to bi-directionally communicate from field devices like sensors and actuators to the controller in order to provide configuration, diagnostics and process data from the devices beyond the switching states.

**How it Works:** Utilizing a standard sensor cable, the IO-Link slave device speaks point to point with an IO-Link master. The IO-Link master then combines the data with other IO-Link slave devices and communicates over an industrial network or backplane to the controller.

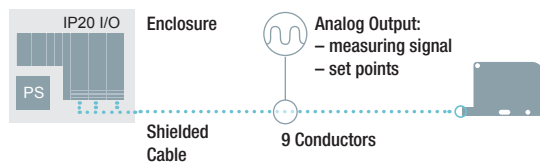
### COMMON APPLICATIONS

#### Standard Sensor Inputs and Discrete I/O

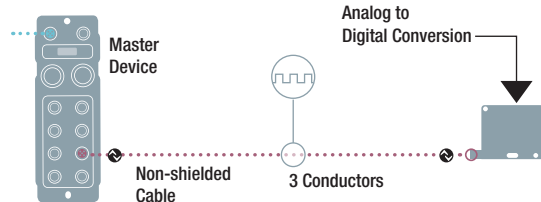


#### Measurement and Analog I/O

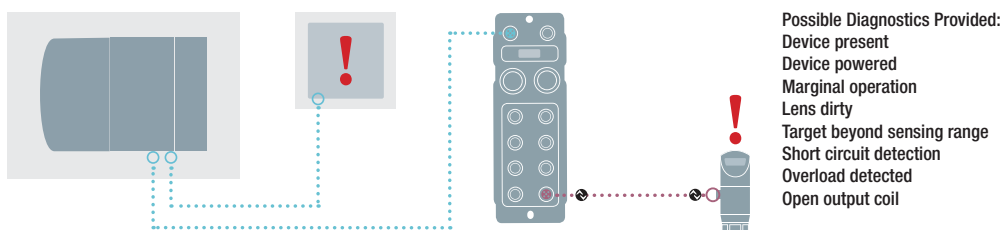
##### Old Way



##### IO-Link Measurement



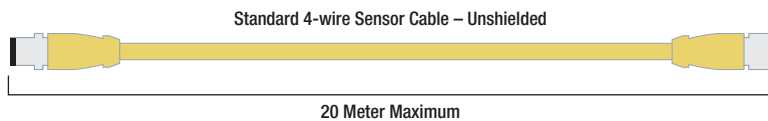
#### Smart Devices with Diagnostics



## THREE GOTCHA'S

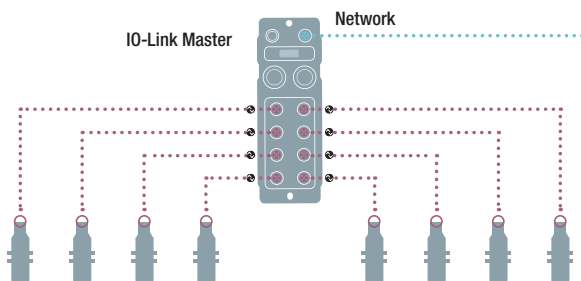
### Cable Type

Cable runs between master and slave can be up to 20 meters in length and typically utilize standard automation cables. Most cables are M12 A-coded, unshielded, 4-conductor DC sensor cables.



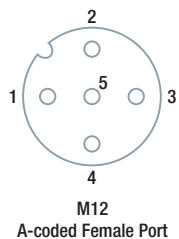
### Star Architecture

Since IO-Link utilizes a point-to-point serial communication, Star Topology is the only device architecture that can be constructed.



### Port Class A vs Port Class B Devices

While most devices utilize IO-Link port Class A, output devices like valves are now being offered as IO-Link port Class B. Be sure to know if the master and/or slaves are Class A or Class B type ports. Most Balluff devices are IO-Link port Class A.



Pin	Port Class A	Port Class B
1	V+	Device V+
2	Vendor Defined	Aux V+
3	Common	Device Com
4	IO-Link or I/O	IO-Link or I/O
5	- - -	Aux Com