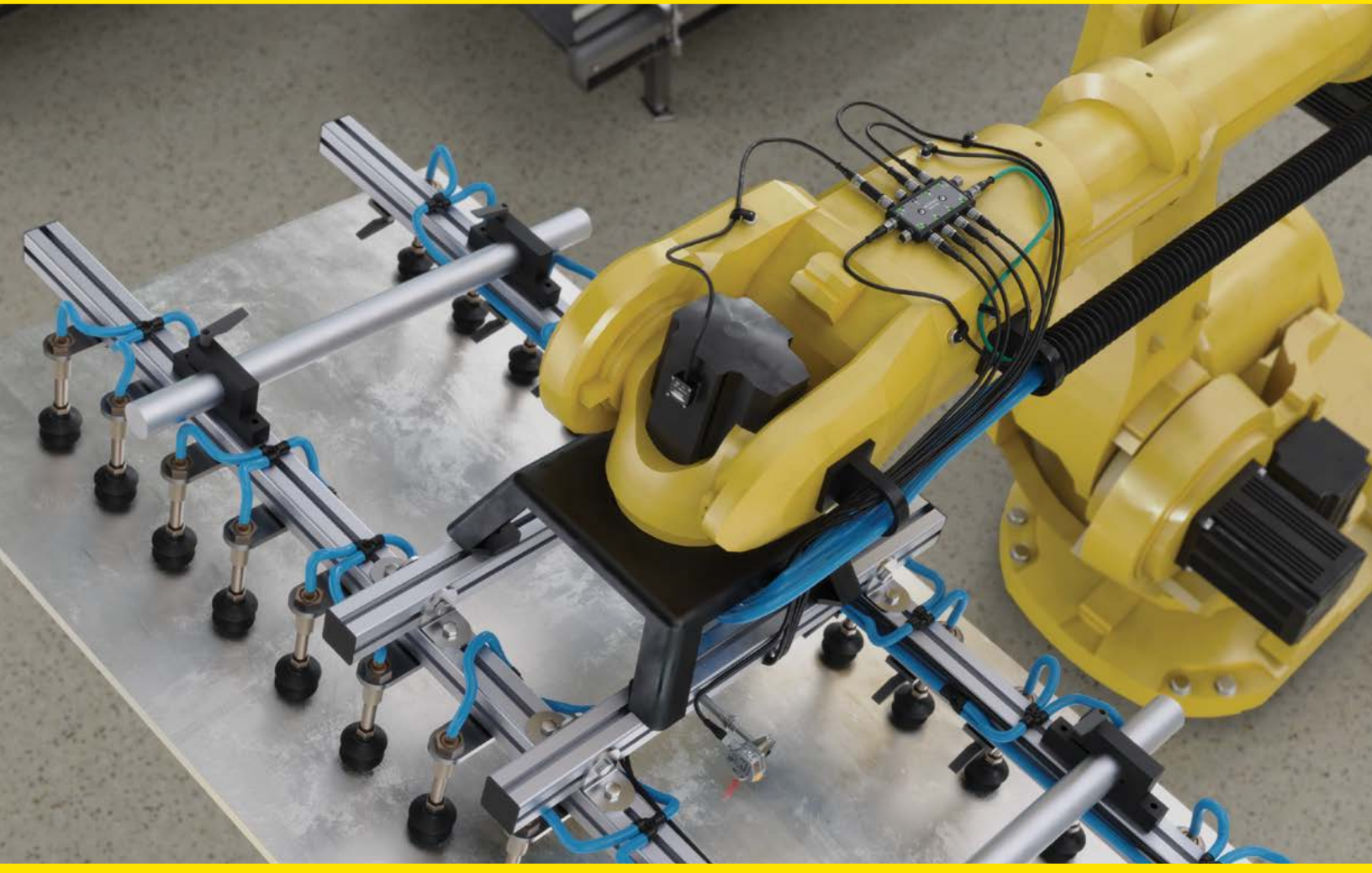
IO-Link® Solutions Guide



Products with IO-Link from Banner Provide:

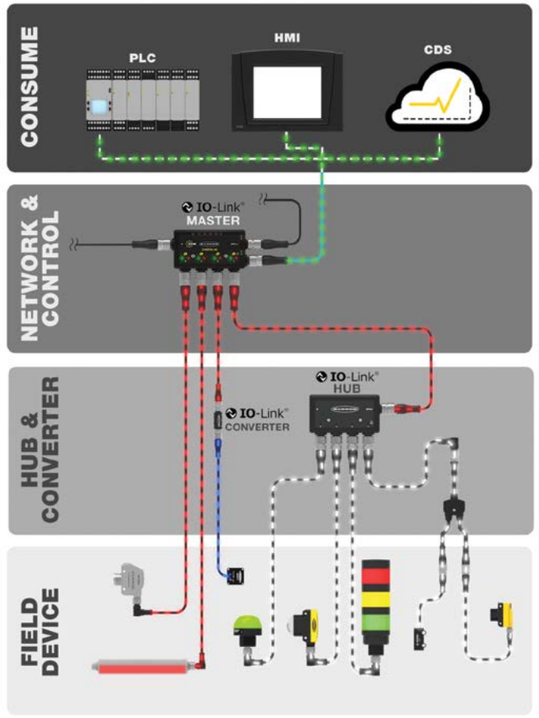
- Reduced Wiring
- Increased Data Availability
- Remote Configuration and Monitoring
- Simplified Device Replacement

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ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

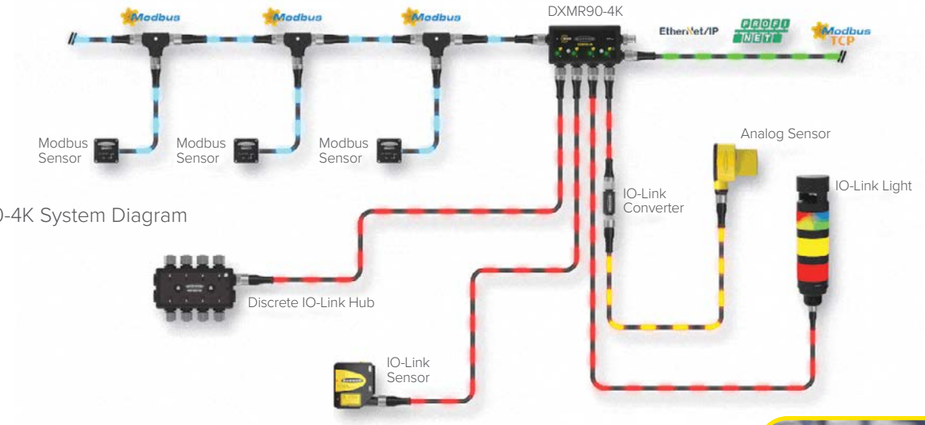
Introduction to IO-Link

In recent years, IO-Link systems have become widespread within industrial automation. IO-Link is an open-standard serial communication protocol that allows for the bi-directional exchange of data from sensors and devices that are connected to a master. The IO-Link master can transmit this data over various networks, fieldbuses, or backplane buses, making the data accessible for immediate action or long-term analysis via an industrial information system (PLC, HMI, etc.). Banner IO-Link products reduce wiring, increase data availability, enable remote configuration and monitoring, simplify device replacement, and provide extended diagnostics. Banner Engineering offers a variety of IO-Link products for industrial applications including sensors, lighting products, converters, hubs, and IO-Link masters.

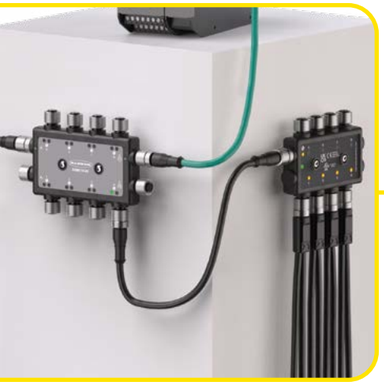


Connect More Devices with Ease

The DXMR90-4K allows for the connection and control of up to four IO-Link devices. The DXMR90-4K can communicate with higher-level control systems via EtherNet/IP, Modbus/TCP, and PROFINET. This IO-Link master also has an additional serial port that allows for the connection of more devices for maximum flexibility.

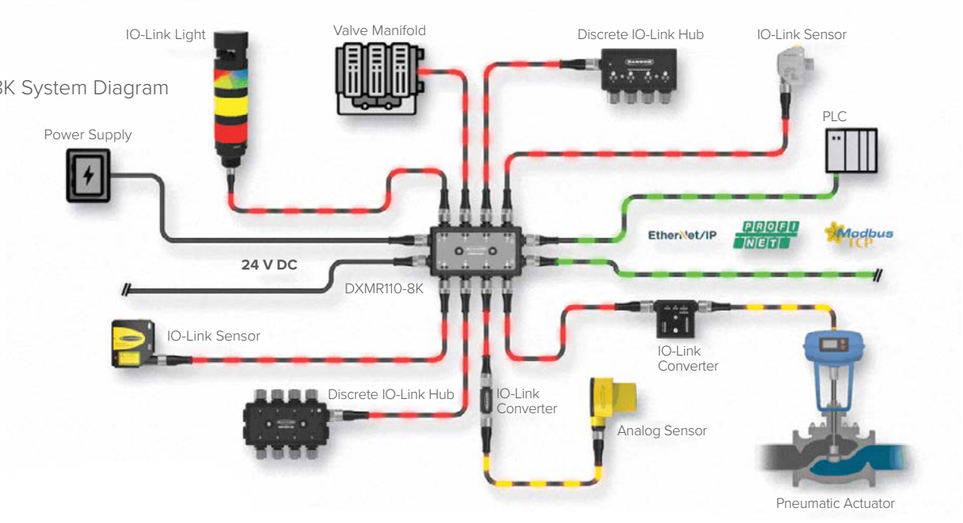


DXMR90-4K System Diagram



Streamline Your IO-Link Network

The compact DXMR110-8K allows for the connection and control of up to eight IO-Link devices such as sensors, indicator lights, IO-Link hubs, and more. The DXMR110-8K can communicate with higher-level control systems via EtherNet/IP, Modbus/TCP, and PROFINET. The DXMR110-8K also has the ability to push IO-Link data to cloud platforms.

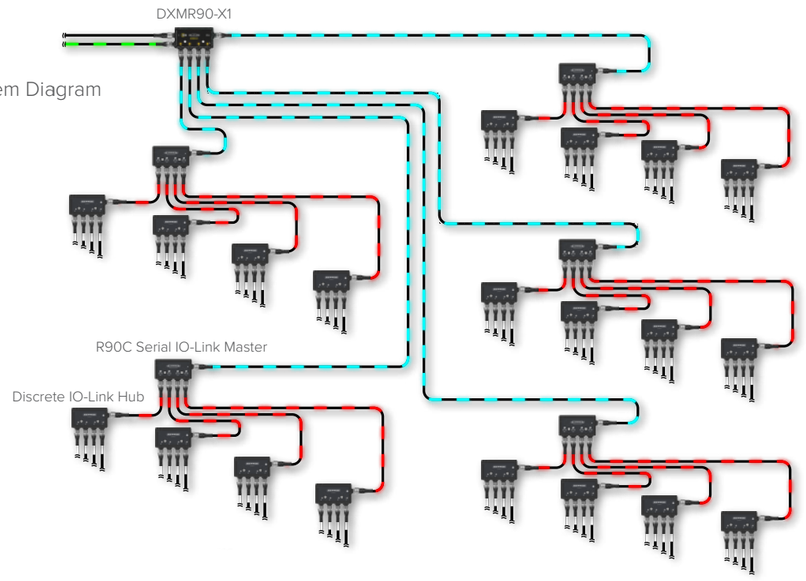


DXMR110-8K System Diagram



Expand Your IO-Link Connection Possibilities

Serial IO-Link masters, such as Banner's R90C-4K-MQ and R45C-2K-MQ, can be combined with a DXMR90-X1 controller with five serial client ports. This can be a cost-effective way to bring back large quantities of IO-Link device data to a control system via one Ethernet connection.



R90C System Diagram

No IO-Link Device? No problem. Our expansive line of converters can adapt most industrial devices to IO-Link quickly, giving you the flexibility to build the system you need.

IO-Link® products



Eight Advantages of IO-Link®

1. Seamless and simple device replacement

With data storage mode (or backup and restore mode), the device configuration is saved on a port of the IO-Link master. The sensor can be replaced easily, and the correct device configuration will load automatically.

2. Standardizes and reduces wiring

All devices use the same unshielded cables (more often than not, these are standard M12 cables). Replacement cables now only vary by length. This prevents wiring and pinout mistakes, provides more cost-effective and readily available cabling, and enables much faster installation times.

3. IO-Link can replace analog

With IO-Link you can avoid costs associated with shielded cables and analog input cards. By using the IO-Link process data on the device as opposed to the analog output, you can avoid digital to analog and analog to digital conversions and provide the highest quality measurement that is robust and immune to noise. By switching to IO-Link, you can reduce analog costs by 15–25%.

4. Connects to non-IO-Link devices

It is possible to connect multiple IO-Link hub blocks to the IO-Link master, and each IO-Link hub can connect up to 16 discrete sensors. In this way, up to 64 discrete sensors can be connected via a single network connection. Banner also has a broad portfolio of converters that can convert legacy signals (such as 0–10V, 4–20ma, NPN, PNP, and others) to IO-Link.

5. Increased data availability

IO-Link incorporates process, service, and diagnostic data for continuous data monitoring and status diagnostics. Process Data In is the information sent from the IO-Link device to the IO-Link master repeatedly, automatically. The specific information sent as the Process Data In varies by device.

6. Device configurations can be read and changed remotely

Dynamically make changes from the control system. Complex IO-Link device programming can be loaded onto a device quickly and easily. You can store configurations on a PLC and upload via IO-Link based on the product being run (recipe control).

7. Advanced diagnostics

You can establish maintenance tasks based on real-time information. Alarms can be set to alert personnel to address a sensor before it stops working. This allows you to make decisions based on real-time data and will notify you if a lens is dirty or if a sensor might be overheating. Predictive error detection is possible because process data are consistently and continuously displayed in the controller.

8. Enables IIoT connectivity

The availability of hugely valuable data combined with vendor independence and interoperability make IO-Link an extremely useful tool for implementing IIoT.

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