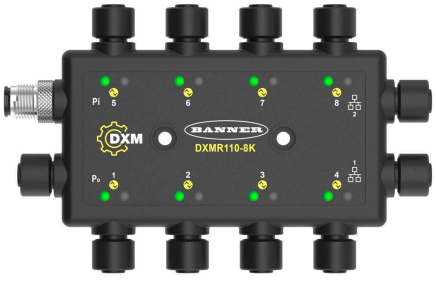
Overview

Banner's DXMR110-8K IO-Link Controller consolidates data from multiple sources to provide local data processing as well as accessibility for host systems as a platform for the Industrial Internet of Things (IIoT).

The DXMR110-8K IO-Link Controller 8-port IO-link device serves as the gateway for the connection of up to eight IO-link devices including sensors, lighting products, IO-link hubs, and more.



The DXMR110-8K contains eight IO-link ports, allowing for concurrent communication to up to eight IO-Link devices. Data is collected into the internal logic controller to facilitate edge processing, protocol conversion to Industrial Ethernet, Modbus/TCP, and PROFINET, and pushing information to web servers. In addition to IO-Link devices, the IO-Link master can be used to transmit up to 16 discrete signals using pin 2 or pin 4 of the IO-link master ports.

The configurable IO-link master device works with IO-link devices and allows for quick deployment of IO-link data to Ethernet, Modbus/TCP, and PROFINET networks[1].

- Compatible with Internet protocols including RESTful API, MQTT with web services from AWS, and Sparkplug B
- Multiprotocol support allows users to stock one part that can be used with a variety of industrial control systems
- Compact form factor weighs less than half of most competing designs, enabling better performance in weight- and size-critical applications such as robotic end-of-arm tooling, where excess weight can affect speed
- M12 connections exit from the side rather than the top, providing new options to improve cable bend radius and avoid cable damage
- Two discrete inputs and one discrete output on each port give flexibility to system designers and simplify system architecture
- By locating IO-Link Masters near devices on the machine, users can eliminate I/O cards on the PLC, along with excess wiring to/from the control panel
- Expanded internal logic controller with action rules and ScriptBasic programming to process and control data from multiple devices
- IP67 housing simplifies installation in any location by eliminating the need for a control cabinet

Models

Model	Ethernet Connection	IO-Link Master Connections	Other Connections
DXMR110-8K	Two female M12 D-Code Ethernet Connectors for daisy chaining and communication to a higher-level control system	Eight female M12 connections for IO-Link master connections	One male M12 for incoming power, one female M12 for daisy chaining power

Controller Connections

To connect IO-Link devices on machines in industrial environments, an M12 quick-disconnect connection is typically used. The pin assignment according to IEC 60974-5 is the following:

- Pin 1: 24 V DC
- Pin 2: Switching Digital I/O (PNP only)
- Pin 3: 0 V
- Pin 4: Switching Digital I/O (NPN, PNP, or Push-Pull) and IO-link Communication Line

[1] EtherNet/IP™ is a trademark of ODVA, Inc. Modbus® is a registered trademark of Schneider Electric USA, Inc. PROFINET® is a registered trademark of PROFIBUS Nutzerorganisation e.V. By default, the DXMR110-8K IO-Link Controller is set to a static IP address of 192.168.0.1.

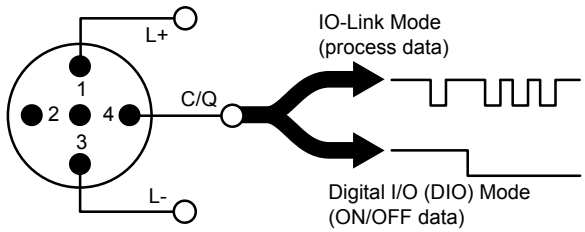
Original Instructions
19-Jan-26

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233120
p/n: 233120 Rev. C

ПРОМЭЛЕКТРОНИКА/ sales@prom-elec.com

IO-Link pin assignments



One male M12 connection provides common power and ground to all M12 IO-Link ports. Two 100 Mbps Ethernet ports (female) use an M12 D-coded Ethernet connection.

- Modbus/TCP
- EtherNet/IP
- PROFINET

Eight IO-Link controller connections using female M12 connectors.

- Separate IO-Link control and programmability for each connection point
- Configurable SIO mode on Input 1 and Input 2 of each IO-Link port

The DXMR110-8K IO-Link Controller has eight Class A ports. Pin 2 on these is an additional discrete IO channel. For specific pinout connections, see Wiring.

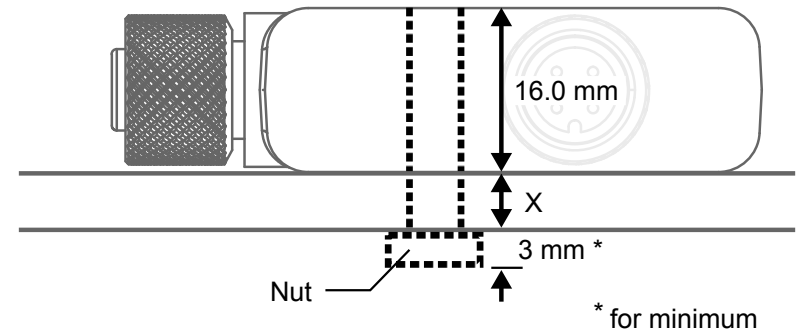
For more information on the device registers and port settings of the DXMR110-8K IO-Link Controller, refer to the DXMR110-8K IO-Link Controller IO-Link Master Device Register Map (p/n 233478).

Installation Instructions

Installing the DXMR110-8K

Install the DXMR110-8K to allow access for functional checks, maintenance, and service or replacement.

Fasteners must be of sufficient strength to guard against breakage. The use of permanent fasteners or locking hardware is recommended to prevent the loosening or displacement of the device. The mounting hole (4.5 mm) in the DXMR110-8K accepts M4 (#8) hardware. See the figure below to help in determining the minimum screw length.



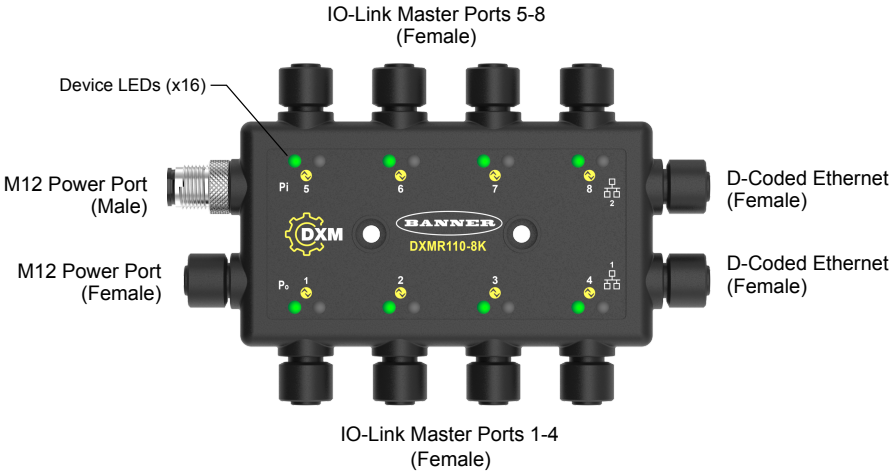
Screw Length = 16.0 mm + “X” mm + 3 mm

CAUTION: Do not overtighten the DXMR110-8K's mounting screw during installation. Overtightening can affect the performance of the DXMR110-8K.

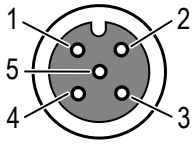
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Wiring

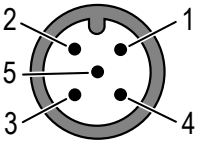
DXMR110-8K IO-Link Controller ports



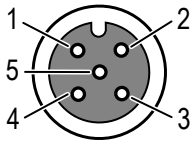
Ports 1-8 5-pin M12 female connector

Port 1–8 5-pin M12 Connector (female)	Pin	Wire Color	Description
	1	Brown (bn)	18 V DC to 30 V DC
	2	White (wh)	I/Q (digital in-out)
	3	Blue (bu)	DC common (GND)
	4	Black (bk)	C/Q (communications/digital in-out)
	5	Gray (gy)	No connection/not used

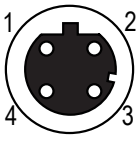
5-pin M12 male connector

5-pin M12 Male Power Connector	Pin	Wire Color	Description
	1	Brown (bn)	18 V DC to 30 V DC
	2	White (wh)	18 V DC to 30 V DC
	3	Blue (bu)	DC common (GND)
	4	Black (bk)	DC common (GND)
	5		No connection/not used

5-pin M2 female connector

5-pin M12 Female Power Connector	Pin	Wire Color	Description
	1	Brown (bn)	18 V DC to 30 V DC
	2	White (wh)	18 V DC to 30 V DC
	3	Blue (bu)	DC common (GND)
	4	Black (bk)	DC common (GND)
	5		No connection/not used

D-code industrial Ethernet connectors

4-pin D-Code Female Industrial Ethernet Connector	Pin	Wire Color	Description
	1	Black (bk)	+Tx
	2	Red (rd)	+Rx
	3	Green (gn)	–Tx
	4	White (wh)	–Rx

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Specifications

Supply Voltage
18 V DC to 30 V DC

Supply Protection Circuitry
Protected against reverse polarity and transient voltages

Power Consumption
150 mA at 24 V DC

Application Note
When connecting external devices to the DXMR110-8K, it is important that the power consumption of the IO-Link master and connected devices combined does not exceed 8 Amps

Pins 1 and 3 are used for when up to 4 A of total power is needed. Pins 2 and 4 are used in addition to pins 1 and 3 for when up to 8 A of total power is needed.

Construction
Connector Body: PVC translucent black

Indicators
Green/amber/red: Program status indicators

Green: Ethernet communications

Red/green/blue on port 1: IO-Link Port 1 Status

Red/green/blue on port 2: IO-Link Port 2 Status

Red/green/blue on port 3: IO-Link Port 3 Status

Red/green/blue on port 4: IO-Link Port 4 Status

Red/green/blue on port 5: IO-Link Port 5 Status

Red/green/blue on port 6: IO-Link Port 6 Status

Red/green/blue on port 7: IO-Link Port 7 Status

Red/green/blue on port 8: IO-Link Port 8 Status

Connections
Nine 5-pin fixed nylon M12 female quick disconnects connector

One 5-pin nickel-plated brass M12 male quick disconnect connector

Two 4-pin D-Code fixed nylon M12 female quick disconnect connectors

Communication Protocols
PROFINET®, Modbus/TCP, EtherNet/IP™

EtherNet/IP™ is a trademark of ODVA, Inc. Modbus® is a registered trademark of Schneider Electric USA, Inc. PROFINET® is a registered trademark of PROFIBUS Nutzerorganisation e.V.

Security Protocols
TLS, SSL, HTTPS

Digital Inputs (SIO [DI] Mode)
Input Current: 5 mA typical

ON Voltage/Current: 15 V DC minimum/5 mA minimum

OFF Voltage: 5 V DC maximum

Digital Outputs (SIO [DO] Mode)
When in SIO mode, Pin 4 can supply up to 700 mA and Pin 2 can supply up to 1 A

On-Resistance: 120 mΩ typical, 250 mΩ maximum

Off Leakage Current: -10 µA minimum, 10 µA maximum

IO-Link Master Port Connections
Each IO-Link master port can supply up to 700 mA for the IO-Link device

IO-Link Baud Rates
COM1: 4.8 kbps

COM2: 38.4 kbps

COM3: 230.4 kbps

Operating Conditions
–40 °C to +70 °C (–40 °F to +158 °F)

90% at +70 °C maximum relative humidity (non-condensing)

Storage Temperature
–40 °C to +80 °C (–40 °F to +176 °F)

Environmental Ratings
For Indoor Use Only

IP65, IP67, NEMA 1, UL Type 1

Vibration and Mechanical Shock
Meets IEC 60068-2-6 requirements (Vibration: 10 Hz to 55 Hz, 1.0 mm amplitude, 5 minutes sweep, 30 minutes dwell)

Meets IEC 60068-2-27 requirements (Shock: 30G 11 ms duration, half sine wave)

Certifications

Banner Engineering BV
Park Lane, Culliganlaan 2F bus 3
1831 Diegem, BELGIUM

Turck Banner LTD Blenheim House
Blenheim Court
Wickford, Essex SS11 8YT
GREAT BRITAIN

Required Overcurrent Protection

WARNING: Electrical connections must be made by qualified personnel in accordance with local and national electrical codes and regulations.

Overcurrent protection is required to be provided by end product application per the supplied table.

Overcurrent protection may be provided with external fusing or via Current Limiting, Class 2 Power Supply.

Supply wiring leads < 24 AWG shall not be spliced.

For additional product support, go to www.bannerengineering.com.

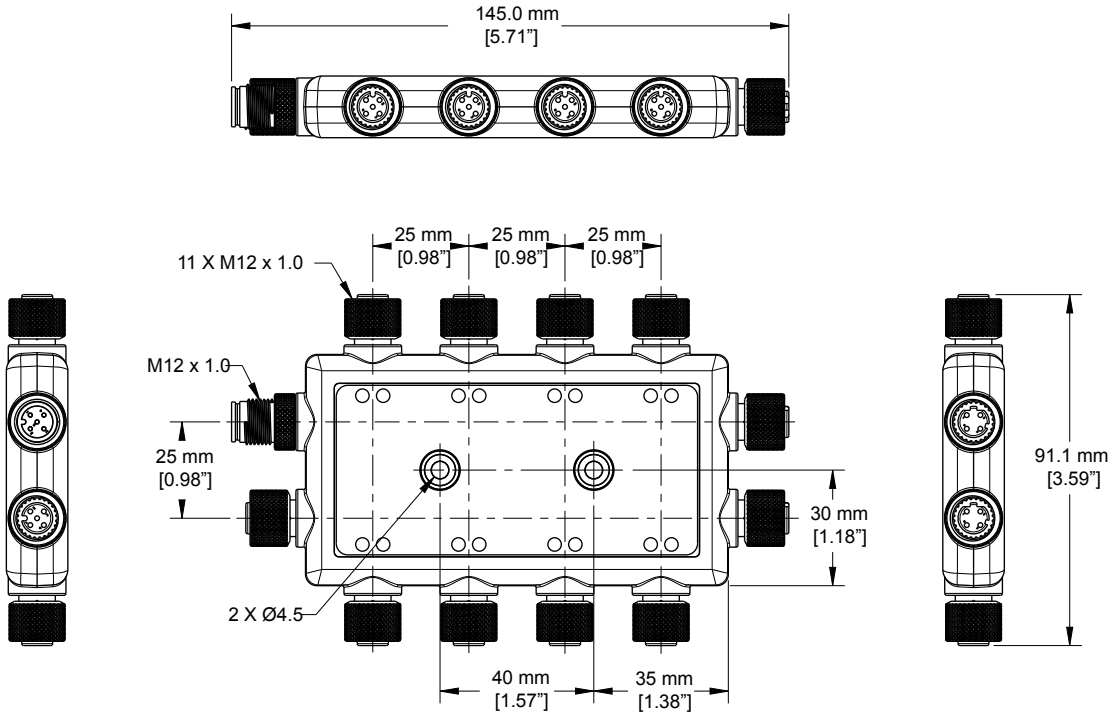
Supply Wiring (AWG)	Required Overcurrent Protection (A)	Supply Wiring (AWG)	Required Overcurrent Protection (A)
20	5.0	26	1.0
22	3.0	28	0.8
24	2.0	30	0.5

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Dimensions

All measurements are listed in millimeters, unless noted otherwise. The measurements provided are subject to change.

DXMR110-8K Dimensions



Accessories

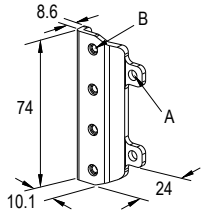
Power Supplies

PSD-24-4—DC Power Supply, Desktop style, 3.9 A, 24 V DC, Class 2, 4-pin M12 quick disconnect (QD)
PSDINP-24-06—DC power supply, 0.63 Amps, 24 V DC, with DIN Rail Mount, Class I Division 2 (Groups A, B, C, D) Rated
PSDINP-24-13 —DC power supply, 1.3 Amps, 24 V DC, with DIN Rail Mount, Class I Division 2 (Groups A, B, C, D) Rated
PSDINP-24-25 — DC power supply, 2.5 Amps, 24 V DC, with DIN Rail Mount, Class I Division 2 (Groups A, B, C, D) Rated
PSW-24-1—DC power supply with multi-blade wall plug, 100–240 V AC 50/60 Hz input, 24 V DC 1 A output, UL Listed Class 2, 4-pin female M12 connector
PSWB-24-1—DC power supply with multi-blade wall plug,100–240 V AC 50/60 Hz input, 24 V DC 1 A output, UL Listed Class 2, barrel jack connector

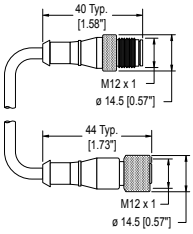
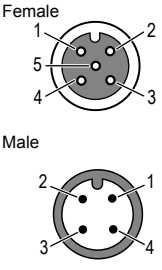
SMBR90S

- Stainless steel bracket
- 4x M4-07 pemnuts (B)
- Includes 2x M4 stainless steel hex head screws and flat washers
- CAD Files: DXF, PDF, IGS, STP

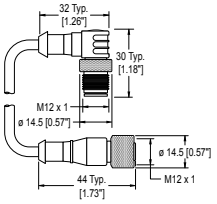
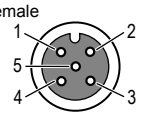
Hole center spacing: A = 40, B = 20
Hole size: A = ø 5

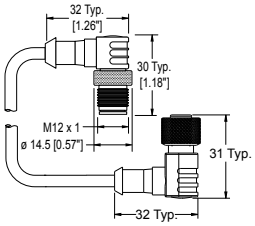
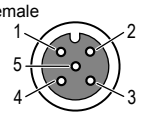


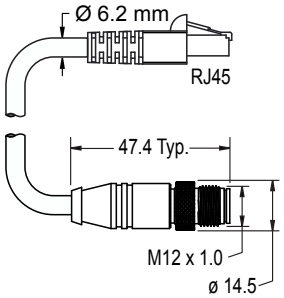
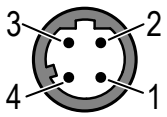
4-pin A-Code Double-Ended M12 Female to M12 Male Cordsets (datasheet p/n 236186)

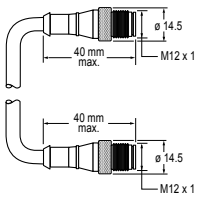
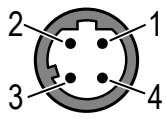
Model	Length	Dimensions (mm)	Pinouts	
BC-M12F4-M12M4-22-1	1 m (3.28 ft)			1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused
BC-M12F4-M12M4-22-2	2 m (6.56 ft)			
BC-M12F4-M12M4-22-3	3 m (9.84 ft)			
BC-M12F4-M12M4-22-4	4 m (13.12 ft)			
BC-M12F4-M12M4-22-5	5 m (16.4 ft)			
BC-M12F4-M12M4-22-10	10 m (30.81 ft)			
BC-M12F4-M12M4-22-15	15 m (49.2 ft)			

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4-pin A-Code Double-Ended M12 Female to M12 Male Right-Angle Cordsets (datasheet p/n 236186)				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F4-M12M4A-22-1	1 m (3.28 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused c UL us LISTED
BC-M12F4-M12M4A-22-2	2 m (6.56 ft)			
BC-M12F4-M12M4A-22-5	5 m (16.4 ft)			
BC-M12F4-M12M4A-22-8	8 m (26.25 ft)			
BC-M12F4-M12M4A-22-10	10 m (30.81 ft)			
BC-M12F4-M12M4A-22-15	15 m (49.2 ft)			

4-pin A-Code Double-Ended M12 Female Right-Angle to M12 Male Right-Angle Cordsets (datasheet p/n 236186)				
Model	**Length**	**Dimensions (mm)**	**Pinouts**	
BC-M12F4A-M12M4A-22-0.3	0.3 m (1 ft)		Female  Male 	1 = Brown 2 = White 3 = Blue 4 = Black 5 = Unused c UL us LISTED
BC-M12F4A-M12M4A-22-1	1 m (3.28 ft)			
BC-M12F4A-M12M4A-22-2	2 m (6.56 ft)			
BC-M12F4A-M12M4A-22-5	5 m (16.4 ft)			
BC-M12F4A-M12M4A-22-8	8 m (26.25 ft)			
BC-M12F4A-M12M4A-22-10	10 m (30.81 ft)			
BC-M12F4A-M12M4A-22-15	15 m (49.2 ft)			

4-pin M12 D-code to RJ45 Shielded Ethernet				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Male)**
STP-M12D-406	1.83 m (6 ft)	Straight		 1 = White/Orange 2 = Orange 3 = White/Blue 6 = Blue  1 = White/Orange 2 = White/Blue 3 = Orange 4 = Blue
STP-M12D-415	4.57 m (15 ft)			
STP-M12D-430	9.14 m (30 ft)			

4-Pin D-Code Double-Ended M12 Male Ethernet Cordsets				
Model	**Length**	**Style**	**Dimensions**	**Pinout (Male)**
BCD-M12DM-M12DM-0.3M	0.3 m (13 in)	Straight		 1 = White/Orange 2 = White/Green 3 = Orange 4 = Green
BCD-M12DM-M12DM-1M	1 m (39 in)			

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