

July 6<sup>th</sup>, 2023

IO-Link Generic Device Process Data Instruction Guide, v4



**IO-Link Generic Device Process Data Instruction Guide  
v4 - July 6<sup>th</sup>, 2023**

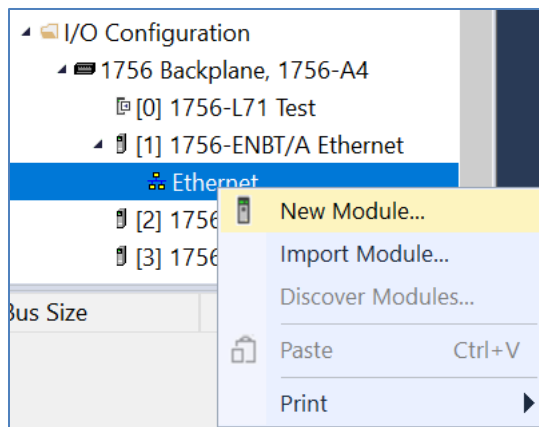
This document covers setting up the Process Data for an IO-Link device with a Banner IO-Link Master.

## Contents

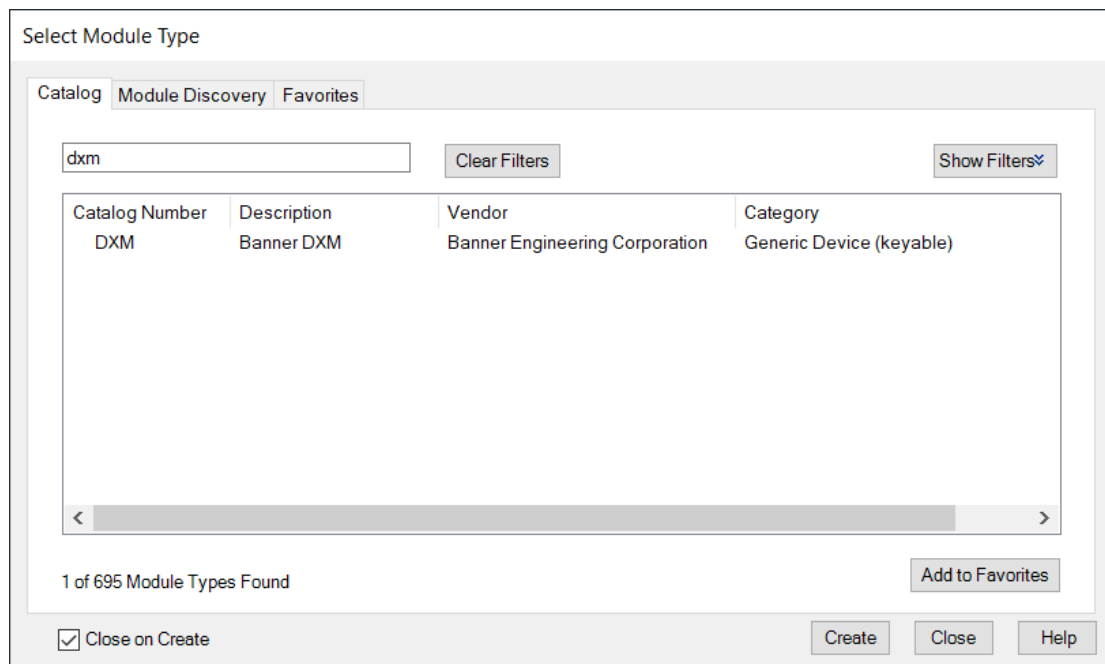
Installing the Banner DXMR90-4K or DXMR100-8K IO-Link Master .....	2
Process Data Setup.....	6

## Installing the Banner DXMR90-4K or DXMR100-8K IO-Link Master

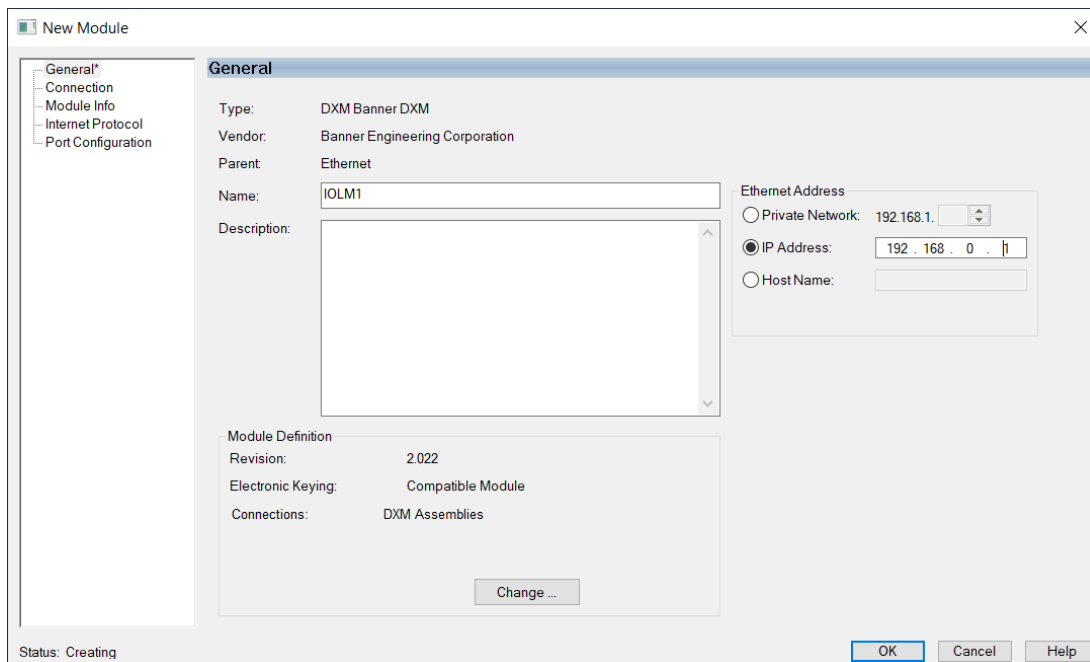
1. There are two ways to create a connection to the DXMR90-4K.
  - a. If an EDS will be used go to Step 2.
  - b. If a generic connection will be used go to Step 3.
2. EDS setup instructions.
  - a. Create an Ethernet communications module for the Banner DXMR90 IO-Link Master device.



- b. The “Select Module Type” window will pop up.
  - i. Search DXM.



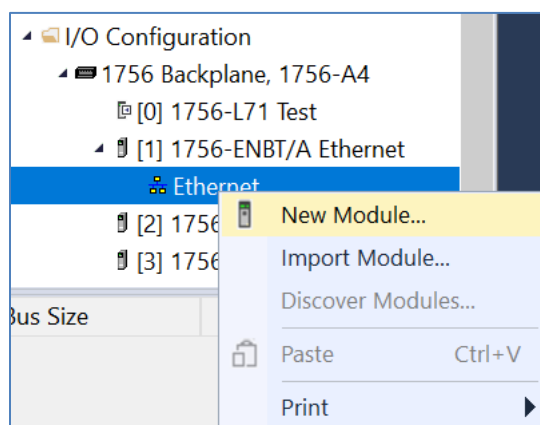
- c. Select “DXM” option.
- d. The “New Module” window will open.



- e. Enter the Name of the unit and an IP Address.
- f. The data is defaulted as SINT. This is the data type that is used for a DXMR90-4K/8K.
- g. EDS setup is complete.

### 3. Generic Ethernet Module Setup.

- a. Create an Ethernet communications module for the Banner DXMR90 IO-Link Master.



- b. The “Select Module Type” window will pop up. Search for Generic Ethernet.

Select Module Type

Catalog Module Discovery Favorites

Generic Ethernet Clear Filters Hide Filters

☒ Module Type Category Filters  
☒ 20 - Comm-ER  
☒ Analog  
☒ CIP Motion Safety Track Section  
☒ Communication

☒ Module Type Vendor Filters  
☒ Advanced Energy Industries, Inc.  
☒ BALLUFF  
☒ Banner Engineering Corporation  
☒ Cognex Corporation

Catalog Number	Description	Vendor	Category
ETHERNET-BRIDGE	Generic EtherNet/IP CIP Bridge	Rockwell Automation/...	Communication
ETHERNET-MODULE	Generic Ethernet Module	Rockwell Automation/...	Communication
ETHERNET-SAFETY-ST...	Generic EtherNet/IP Safety and Sta...	Rockwell Automation/...	Safety,Other

3 of 709 Module Types Found Add to Favorites

☐ Close on Create Create Close Help

- c. Select the “Ethernet-Module” option.
- d. The “New Module” window will open.
- e. Make the following changes.
- Change the Comm type from Data – DINT to Data – SINT.
  - Name the unit. (The example uses IOLM2).
  - Connection Parameters are Input 100 and size 456, Output 112 and size of 456, and Configuration 128 and size 0.
  - Enter the IP Address of the DXMR90-4K (192.168.0.1 was used in this example).
  - Press the OK button to finalize the changes.

New Module

Type: ETHERNET-MODULE Generic Ethernet Module

Vendor: Rockwell Automation/Allen-Bradley

Parent: Ethernet

Name: IOLM2

Description:

Comm: Data - SINT

Address / Host Name

☒ IP Address: 192 . 168 . 0 . 1

☐ Host Name:

Connection Parameters

Assembly Instance: Size:

Input: 100 456 (8-bit)

Output: 112 456 (8-bit)

Configuration: 128 0 (8-bit)

Status Input:

Status Output:

☒ Open Module Properties OK Cancel Help

- f. The “Module Properties Report” window will pop up.
- g. If the Connection tab is not active, press it to activate it.
- h. The RPI (Requested Packet Interval) should be set to 20. This number may need to be increased depending on the unit’s operation in the system.
- i. Press OK to finalize the settings.

The screenshot shows a dialog box titled "Module Properties Report: Ethernet (ETHERNET-MODULE 1.001)". It has three tabs: "General", "Connection" (which is active), and "Module Info". In the "Connection" tab, there is a "Requested Packet Interval (RPI)" field set to "10.0" ms, with a range of "(1.0 - 3200.0 ms)". Below this are three checkboxes: "Inhibit Module" (unchecked), "Major Fault On Controller If Connection Fails While in Run Mode" (unchecked), and "Use Unicast Connection over EtherNet/IP" (checked). There is a "Module Fault" section with a text area. At the bottom left, it says "Status: Offline". At the bottom right, there are four buttons: "OK", "Cancel", "Apply", and "Help".

Module Properties Report: Ethernet (ETHERNET-MODULE 1.001) ×

General Connection Module Info

Requested Packet Interval (RPI): 10.0 ms (1.0 - 3200.0 ms)

☐ Inhibit Module

☐ Major Fault On Controller If Connection Fails While in Run Mode

☒ Use Unicast Connection over EtherNet/IP

Module Fault

Status: Offline

OK Cancel Apply Help

## Process Data Setup

1. The table below shows the location of the process data for the all ports on the Banner IO-Link Master.
  - a. PDI (Process Data In) is found in the IO-Link Master's T->O (PLC "Input") Assembly Instance.
  - b. PDO (Process Data Out) is found in the IO-Link Master's O->T (PLC "Output") Assembly Instance.

**Table 1. First Register of Process Data "SINT0"**

Port	PDI	PDO
1	184	182
2	218	216
3	252	250
4	286	284
5	320	318
6	354	352
7	388	386
8	422	420

2. Reference the IODD file for the IO-Link Device used on the port. Create the necessary Logic and Structures as necessary for the IO-Link Device.
3. Banner IO-Link Masters have a port status register. The register gives the status and information on the port. This is optional information but is useful for troubleshooting. The data comes into the PLC as bytes while the literature shows the value as a word.
  - a. The table below gives the upper and lower byte data location in the PLC.
  - b. The upper byte includes bits 15 through 8, while the lower byte has bits 7 through 0.

IO-Link Master Port	Upper Bits 15 - 8	Lower Bits 7 - 0
1	182	183
2	216	217
3	250	251
4	284	285
5	318	319
6	352	353
7	386	387
8	420	421

### Port Status:

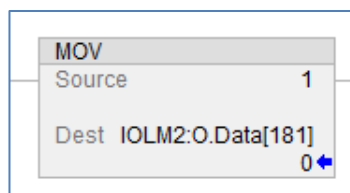
**Bit0** = Connected?  
**Bit1** = Process Data Valid?  
**Bit2** = Event Pending?  
**Bit3** = Ready for ISDU?  
**Bit4** = Pin4 SIO State  
**Bit5** = Pin2 SIO State

**Bit6-7 = Pin4 Mode:**  
 SDCI Mode = 0  
 SIO Input Mode = 1  
 SIO Output Mode = 2

**Bit8-10 = Pin2 Mode:**  
 Disabled = 0  
 Input Normal = 1  
 Output = 2  
 Diagnostic Input = 3  
 Inverted Input = 4

4. If an IO-Link device with output Process Data is used, then an additional setup is required.
  - a. Add a Move block.
  - b. Send a 1 to the Activate Outputs array value (see table for each port's value).
  - c. As an example, if port 1 needs the process data outputs active then send a 1 to 181.

IO-Link Master Port	Activate Outputs
1	181
2	215
3	249
4	283
5	317
6	351
7	385
8	419



5. Process Data setup complete.