
IO-Link Configuration Software Instruction Manual

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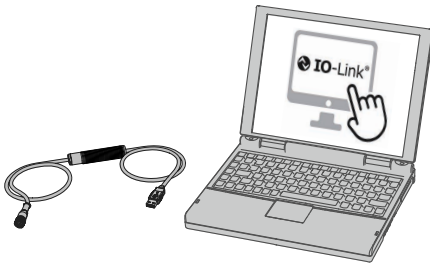


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1. Software Description

Software that Enables the Field Configuration of Banner IO-Link Masters and Banner IO-Link Devices



- Allows the configuration of Banner IO-Link devices
- Free to download and available on the product pages for the DXMR110-8K, DXMR90-4K, R90C-4K-MQ, and R45C-2K-MQ IO-Link masters
- Works on Microsoft® Windows® 7 and 10¹
- BWA-UCT-900 or Ethernet cable required to connect PC-based IO-Link Configuration Software to Banner IO-Link masters and Banner IO-Link devices, depending on which Banner IO-Link master you are using

NOTE: Administrative rights are required to install the IO-Link Configuration Software.

1. Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States and/or other countries.

1.1. Overview

Banner's IO-Link Configuration Software offers an easy way to configure Banner IO-Link masters and Banner IO-Link devices, offering users full control of master and device configuration. The easy-to-use software provides a variety of tools and works with the DXMR110-8K, DXMR90-4K, R90C-4K-MQ, and R45C-2K-MQ IO-Link masters.

Configure Banner IO-Link masters and Banner IO-Link devices using the free IO-Link Configuration Software, available for download at <https://www.bannerengineering.com/us/en/products/software/io-link-software.html>.

2. Specifications and Requirements

2.1. IO-Link Configuration Software PC Requirements

Operating System

Microsoft® Windows® operating system versions 7 or 10¹

Hard Drive Space

120 MB

USB

Available USB port

Screen Resolution

1366 × 768 full-color minimum

Third-Party Software

.NET version 4.6.2 or higher

IMPORTANT: Administrative rights are required to install the IO-Link Configuration Software.

1. Microsoft® and Windows® are registered trademarks of Microsoft® Corporation in the United States and/or other countries.

2.2. Adapter Cable – Required for use with Serial IO-Link Masters

An adapter cable, model BWA-UCT-900, is required for use with the IO-Link Configuration Software, Banner R90C-4K-MQ, and Banner R45C-2K-MQ serial IO-Link masters. Use the adapter cable to connect Banner serial IO-Link devices to read, write, and preview device configurations.



- Connects Banner serial IO-Link masters to the PC-based IO-Link Configuration Software

2.2.1. Model

Model	Adapter	Length	Connections
BWA-UCT-900	RS-485 to USB	1 m (3.28 ft)	USB and 5-pin M12 quick disconnect

2.2.2. BWA-UCT-900 Adapter Cable Specifications

Input Voltage

5 V DC from USB Type A connector

Output Voltage

24 V DC power output for a single device transmitting at 1 Watt

Certifications



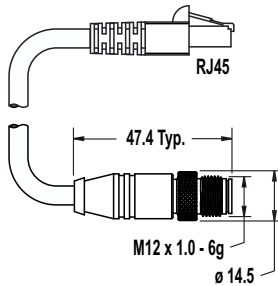
Operating Conditions

–40 °C to +80 °C (–40 °F to +176 °F)
95% maximum relative humidity (non-condensing)

2.3. Ethernet Cordset – Required for use with Ethernet IO-Link Masters

An Ethernet cordset is required for use with the IO-Link Configuration Software, Banner DXMR110-8K, and Banner DXMR90-4K IO-Link masters with an Ethernet IP interface. Use an M12 to RJ45 Ethernet cordset to connect to Banner Ethernet IO-Link masters to read, write, and preview device configurations.

- Connects Banner Ethernet IO-Link masters to the PC-based IO-Link Configuration Software



2.3.1. Models

Model	Adapter	Lengths	Connections
STP-M12D-4xx	M12 D-code to RJ45 Shielded Ethernet	1.83 m (6 ft) 4.57 m (15 ft) 9.14 m (30 ft)	Ethernet and 4-pin M12 quick disconnect

2.4. FCC Part 15 Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

2.5. Industry Canada

This device complies with CAN ICES-3 (B)/NMB-3(B). Operation is subject to the following two conditions: 1) This device may not cause harmful interference; and 2) This device must accept any interference received, including interference that may cause undesired operation.

Cet appareil est conforme à la norme NMB-3(B). Le fonctionnement est soumis aux deux conditions suivantes : (1) ce dispositif ne peut pas occasionner d'interférences, et (2) il doit tolérer toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité du dispositif.

3. Installation Instructions

3.1. Install the Software

IMPORTANT: Administrative rights are required to install the IO-Link Configuration Software.

- 1) Download the latest version of the software from <https://www.bannerengineering.com/us/en/products/software/io-link-software.html>.
- 2) Navigate to the downloaded file *IOLConfigInstaller.exe*.
- 3) Double-click the installer to open *Banner IO-Link Configuration Software Setup*.
- 4) Accept the terms in the License Agreement by selecting the checkbox.
- 5) Click **Install** to install the software.
- 6) Depending on the system settings, a pop-up window may appear prompting to allow the IO-Link Configuration Software to make changes to the computer. Click **Yes**.
- 7) Click **Close** to exit the installer after installation is complete.

3.2. Connect the Cables

For serial IO-Link masters:

- 1) With the BWA-UCT-900 adapter cable, plug the M12 connector into male connector of the IO-Link master.
- 2) Plug the USB connector of the BWA-UCT-900 into the PC.
- 3) Plug the power cable of the BWA-UCT-900 into a wall outlet.

For Ethernet IO-Link masters:

- 1) With an Ethernet cordset, plug the M12 connector into the male connector of the IO-Link Master.
- 2) Plug the USB connector of the Ethernet cordset into the PC.

3.2.1. Connect an IO-Link Device with a Cable

To connect Banner IO-Link devices:

- 1) Connect the Banner IO-Link device or devices to the ports on the IO-Link masters using an M12 cordset.
- 2) Plug the applicable accessory into the IO-Link master:
 - a) For serial IO-Link masters: Use the BWA-UCT-900 adapter cable, and plug the female M12 connector into the male M12 communication port on the serial IO-Link master.
 - b) For Ethernet IO-Link masters: Use an Ethernet cordset, and plug the male M12 connector into the female M12 D-code Ethernet port on the Ethernet IO-Link master.
- 3) Plug the USB connector into the PC.

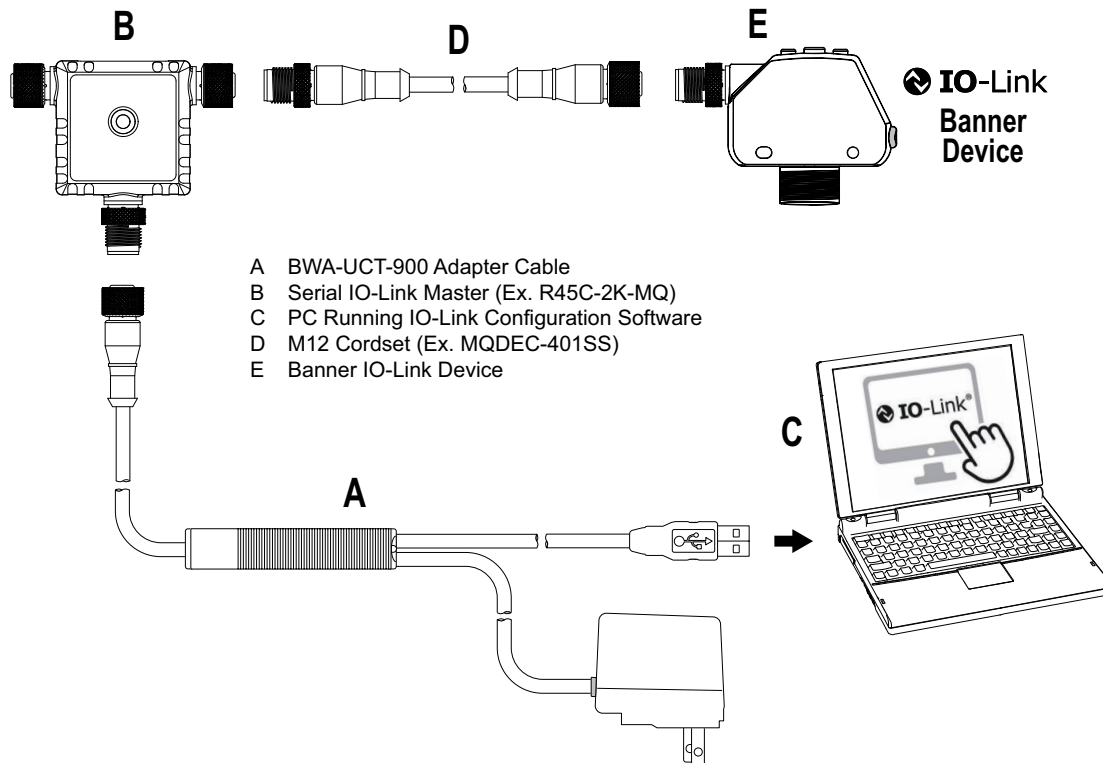


Figure 1: Example - Serial IO-Link Master Device Connection

3.3. Load an IO-Link Device IODD

After connecting a Banner IO-Link master to a PC, follow these steps to connect IO-Link devices to the IO-Link Configuration Software.

1. Download the Banner IO-Link device IODDs.

- a. Go to www.bannerengineering.com.

ADDITIONAL INFORMATION: You can also go to <https://ioddfinder.io-link.com/> to search and download device IODDs.

- b. Search for the desired Banner IO-Link devices.

- c. Click **Product Detail**.

ADDITIONAL INFORMATION:

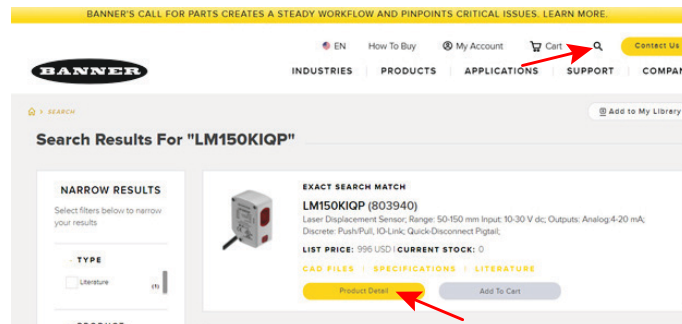


Figure 2: Search for the Product (LM150KIQP shown)

- d. On the product page, under **Downloads**, navigate to the IODD file and click the download button.

ADDITIONAL INFORMATION:

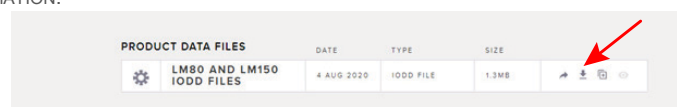


Figure 3: Download the IODD Files

2. Extract the downloaded IODD zip file and save it to a desired location.
Repeat this process for every Banner IO-Link device that is connected to the IO-Link master.
3. Open the IO-Link Configuration Software and click **File > Load IODD** in the upper left corner of the window.

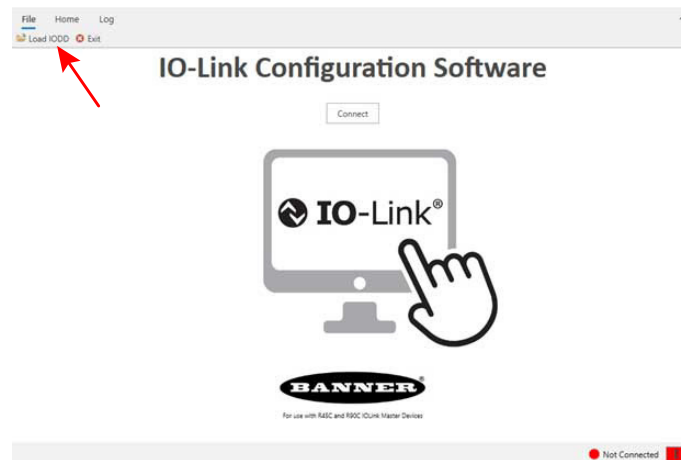


Figure 4: Load IODD

A File Explorer window opens.

4. Navigate to where the IODD file was extracted to in File Explorer and click on it.
5. Click **Open** in File Explorer.

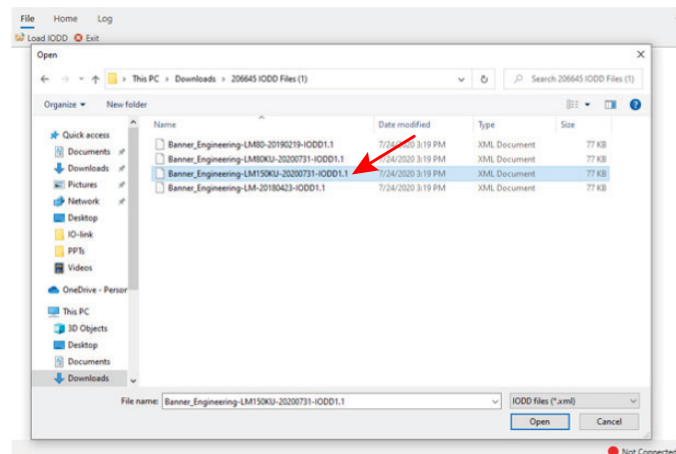


Figure 5: Open the IODD File

RESULT: The file explorer window closes, and the IODD file loads into the IO-Link Configuration Software.

3.4. Connect to the Software

3.4.1. Connect a Serial IO-Link Master

1. Click **Connect** on the IO-Link Configuration Software start page.

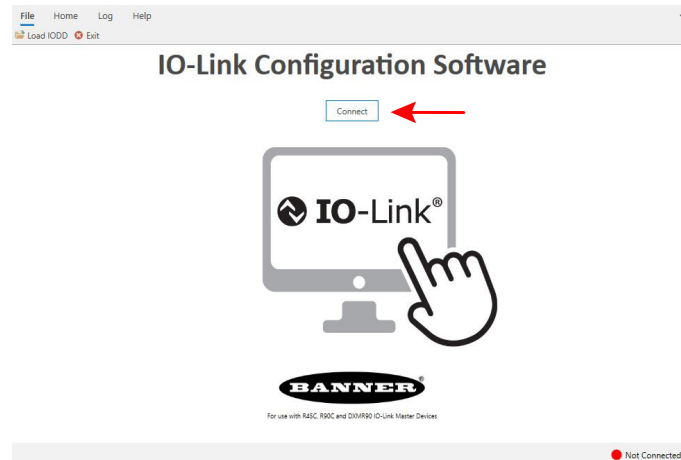


Figure 6: Connect the Device

2. In the pop-up window, select **Serial**, and then click **Connect**.

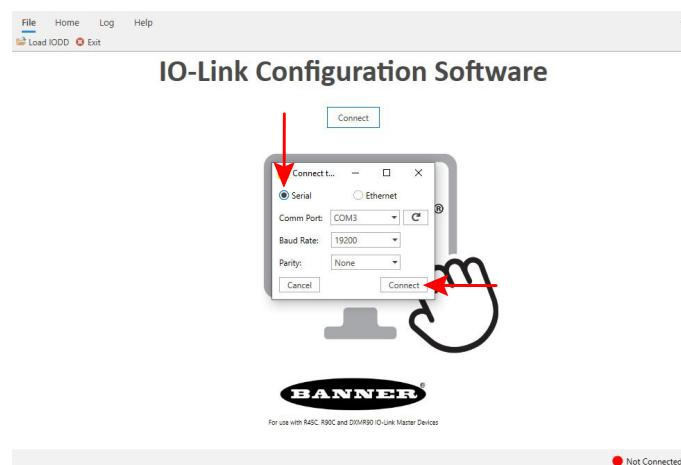


Figure 7: Select Serial

RESULT: The Banner IO-Link master and devices are now connected to the IO-Link Configuration Software. The connected IO-Link devices appear in new tabs within the software window, and the status in the bottom right corner now reads as **Connected**.

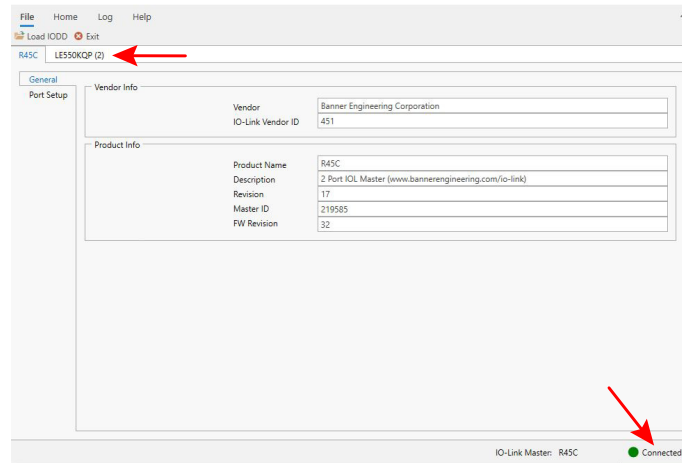


Figure 8: Serial Connected

3.4.2. Connect an Ethernet IO-Link Master

1. Click **Connect** on the IO-Link Configuration Software start page.

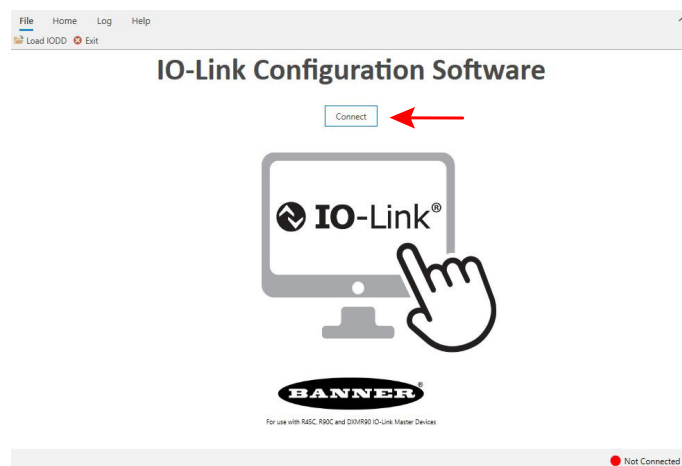


Figure 9: Connect the Device

2. In the Connect window, select **Ethernet**, and click **Scan**.

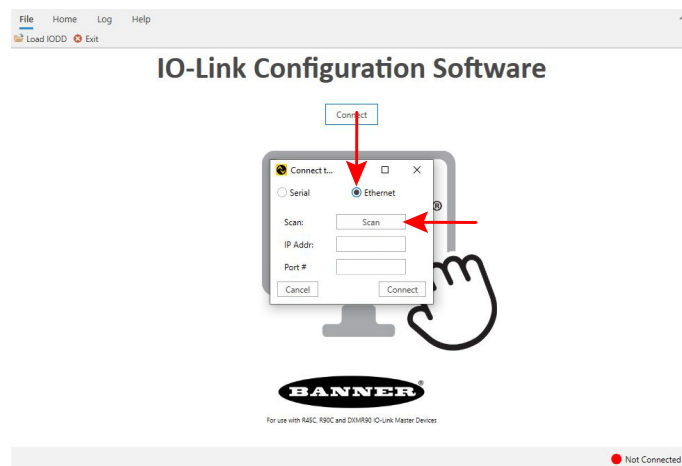


Figure 10: Select Ethernet

STEP RESULT: When the scan is complete, a new pop-up window appears.

3. In the new pop-up window, select the subnet the IO-Link master is connected to from the drop-down menu, and click **Go**.

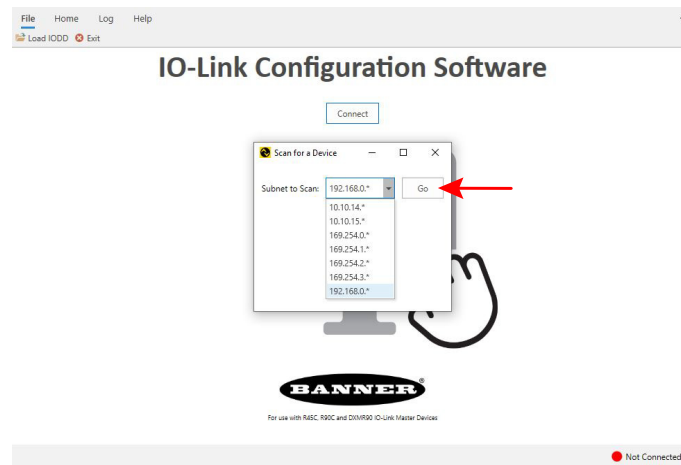


Figure 11: Select Subnet

STEP RESULT: The model number and the IP addresses of the connected Ethernet IO-Link masters are displayed.

4. Select the IP address of the IO-Link master to connect to, and click **Confirm**.

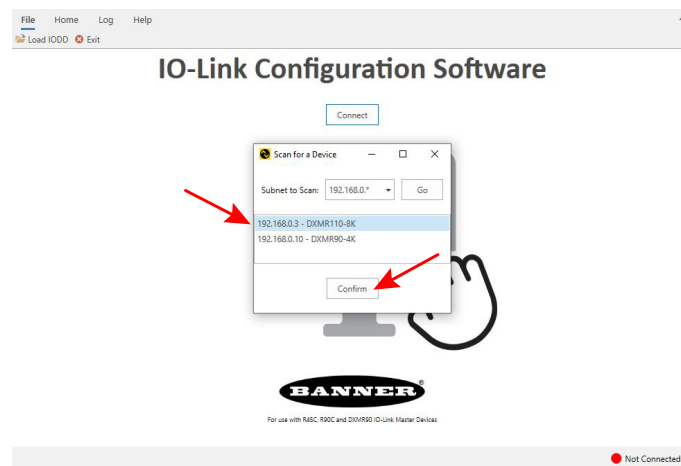


Figure 12: Select IP Address and Model Number

STEP RESULT: The pop-up window closes, and the IP address of the connected IO-Link master auto-fills in the Connect window.

5. Click **Connect** to connect to the IO-Link master.

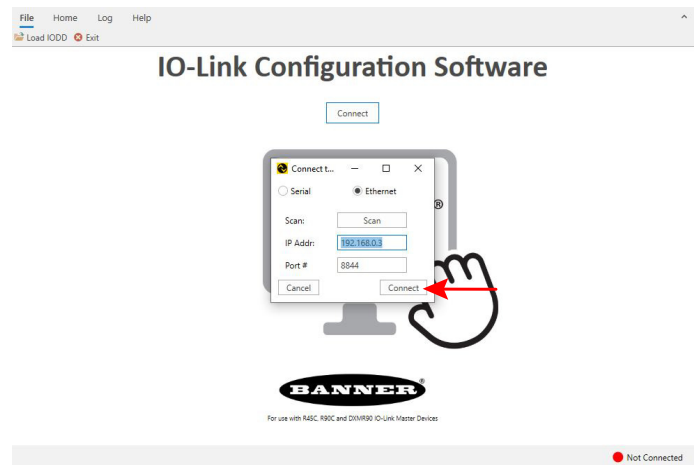


Figure 13: Connect Ethernet

RESULT: The Banner IO-Link master and devices are now connected to the IO-Link Configuration Software. The connected IO-Link devices appear in new tabs within the software window, and the status in the bottom right corner now reads as **Connected**.

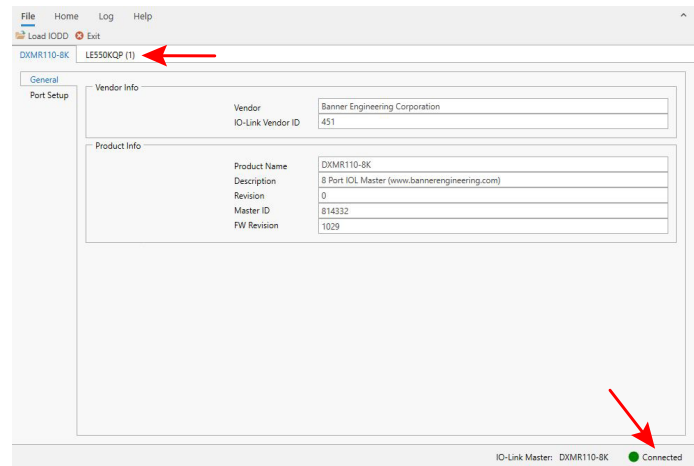


Figure 14: Ethernet Connected

4. Configuration Instructions

4.1. Read and Change the Banner IO-Link Device Configuration

1. Select the device tab in the software window, and click **Parameters** in the left menu.

Parameters is used to read and change the Banner IO-Link device configuration. After clicking on **Parameters**, the Parameters pane opens within the device tab.

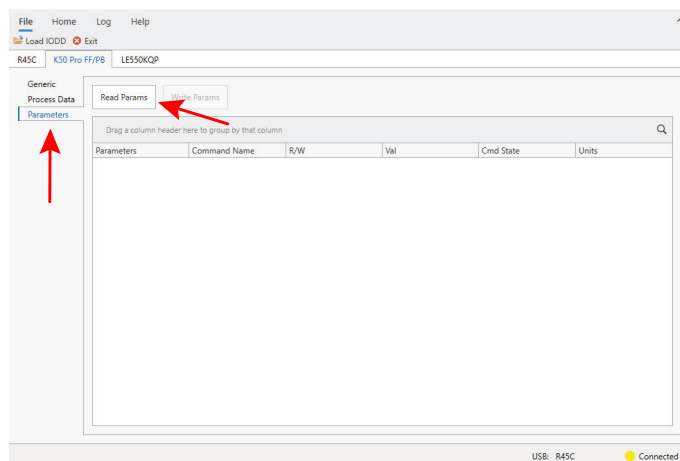


Figure 1: Parameters

2. Click **Read Params** to read the current configuration of the connected Banner IO-Link device.

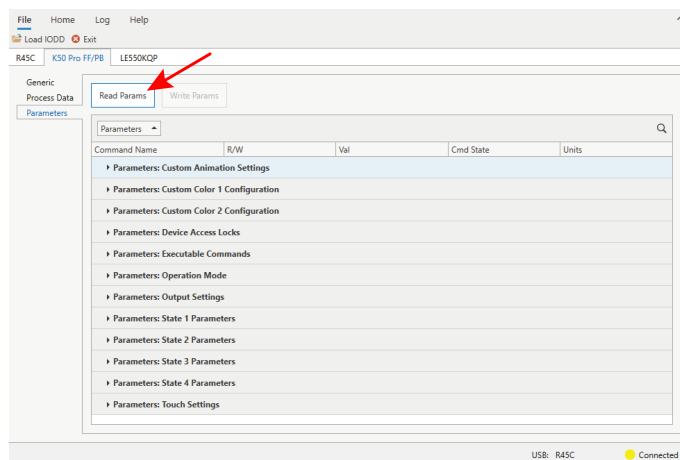


Figure 2: Read Params

This displays the current IO-Link configuration information in the Parameters pane, along with all of the device's available settings.

3. If desired, make any changes to the Banner IO-Link device's configuration in this pane using the available settings.

4. If changes were made to the settings, write the changes to the device by clicking **Write Params**.

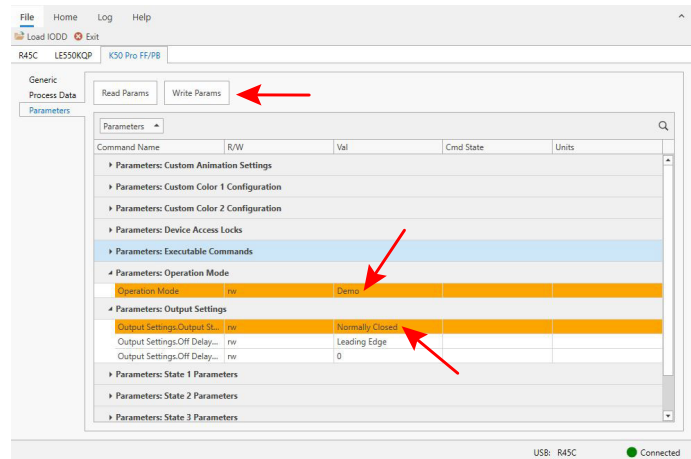


Figure 3: Write Params

4.1.1. Process Data

Process data refers to the information that the device reads and transmits to the master, such as the distance reading on a laser measurement sensor.

Process data can also refer to information that is transmitted to the device from the master, such as messages sent to a tower light indicating which color segments should be illuminated.

Cyclic and acyclic process data can be transferred between an IO-Link master and an IO-Link device. By clicking **Process Data** in the left menu, the user is able to view the live process data of the Banner IO-Link device connected to the IO-Link master.

Process Data IN is data that is sent from the IO-Link device to the IO-Link master.

Process Data OUT is data that is sent from the IO-Link master to the IO-Link device.

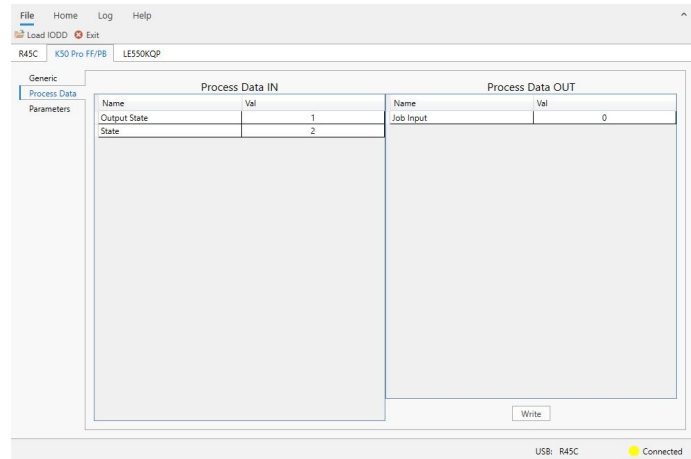


Figure 4: Process Data

4.2. Read and Change the Banner IO-Link Master Port Configuration

The IO-Link Configuration Software has a special tab for configuring the port settings on the IO-Link master. To access, click on the IO-Link master tab and select **PortSetup**.

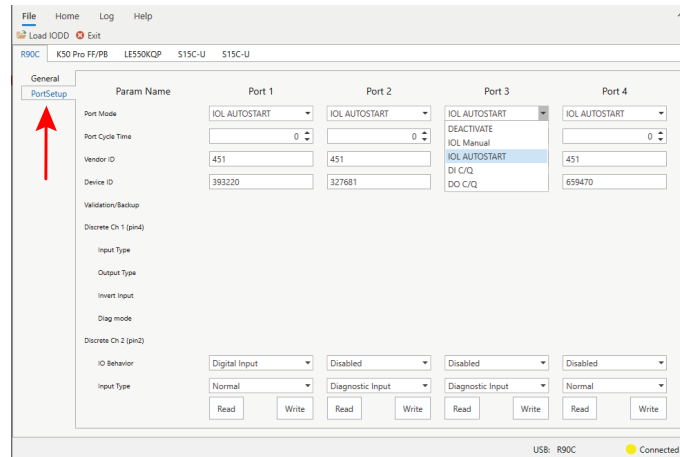


Figure 5: IO-Link Master Port Setup

The operating mode can be configured for any port on the IO-Link master. The following modes can be used:

Deactivated

Use deactivated mode for any unused IO-link master ports if a device is not connected.

IO-Link Manual

The IO-Link master only connects IO-Link devices that have a certain vendor ID and device ID (1: IOL_MANUAL).

IO-Link Autostart

The IO-Link master connects to every connected IO-Link device (2: IOL_AUTOSTART).

Digital Input

The IO-Link port functions as a standard digital input (3: DI_C/Q).

Digital Output

The IO-Link port functions as a standard digital output (4: DO_C/Q).

When the backup function of the IO-Link master is used, the IO-Link master automatically provides the saved parameters to the new device after replacement. This makes IO-Link device replacement seamless in IO-Link applications. Another common industry term for this function is *data storage mode*.

. Backup+Restart Mode

If a port on the IO-Link master is set to Backup+Restart, then the new device added to the IO-Link port takes in the same device configuration as the device that was just replaced, as the IO-Link master had stored the last configuration change by a backup (3: Type compatible Device V1.1, Backup + Restore).

. Restore

If the port on the IO-Link master port is set to Restore, then the new device takes in the configuration according the settings saved in the master at the time of the last backup. Because possible configuration changes were not saved in the master, a different behavior from the previous one before the replacement may occur (4: Type compatible Device V1.1, Restore).

Make changes to the ports' settings by selecting the drop-down menus for each port. To read the current configuration of each port, select the applicable **Read** button. After making the desired changes to the port settings, select the applicable **Write** button.

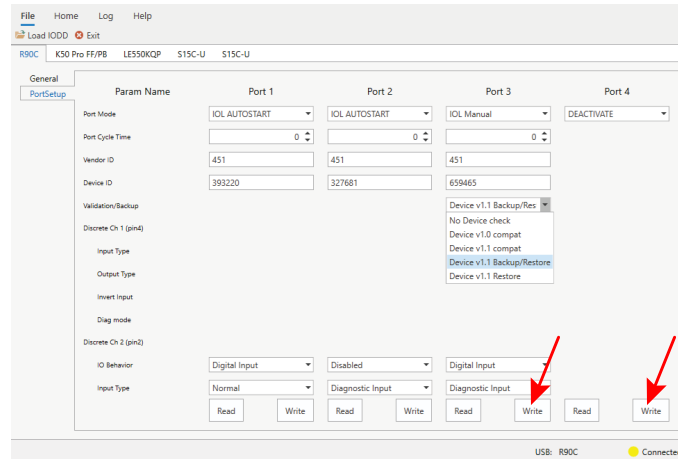


Figure 6: Write Port Settings

4.3. Change the IP Address on the DXMR90-4K and DXMR110-8K IO-Link Masters

1. Click **Device > IP Settings**.

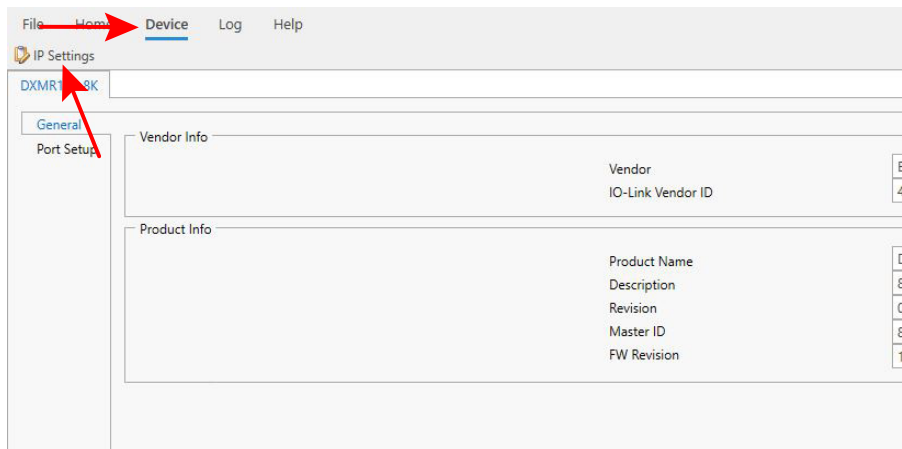


Figure 7: Navigating to Device > IP Settings

2. In the pop-up window, select **Static IP**, **DHCP**, or **Follow DXM XML Settings** from the drop-down menu.
3. Enter the desired IP address settings, and click **Change IP Settings**.

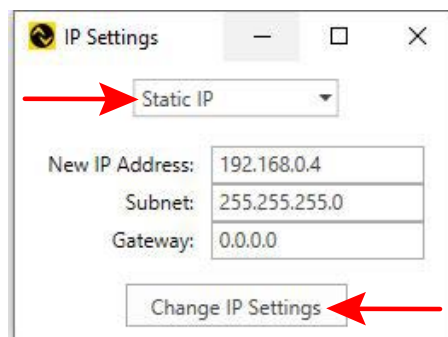

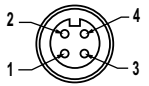


Figure 8: Changing IP Address Settings

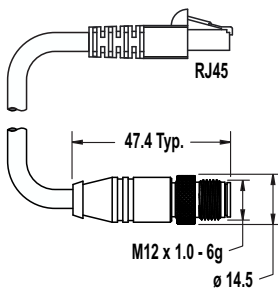

5. Accessories

5.1. IO-Link Hardware

4-Pin Threaded M12 RS-485 to USB Adapter Cordset, with Wall Plug

Model	Length	Style	Dimensions	Pinout (Female)
BWA-UCT-900	1 m (3.28 ft)	Straight		 <ul style="list-style-type: none"> 1 = Brown 2 = White 3 = Blue 4 = Black

4-pin M12 D-code to RJ45 Shielded Ethernet

Model	Length	Style	Dimensions	Pinout (Male)
STP-M12D-406	1.83 m (6 ft)	Straight		 <ul style="list-style-type: none"> 1 = White/Orange 2 = Orange 3 = White/Blue 6 = Blue
STP-M12D-415	4.57 m (15 ft)			
STP-M12D-430	9.14 m (30 ft)			


6. Product Support and Maintenance

6.1. Maintenance

Maintenance tasks include updating the IO-Link Configuration Software as new versions become available.

6.1.1. Update the Software

The current version of the IO-Link Configuration Software is available for download from <https://www.bannerengineering.com/us/en/products/part.811445.html>.

When connected to a network, if an IO-Link Configuration Software update is available, a red icon  displays in the bottom right corner of the IO-Link Configuration Software. Click this icon to update the software to the latest version.

6.2. IO-Link Configuration Release Notes

Version	Devices	General
2.0.29	Added support for DXMR110-8K IO-Link Master, Ethernet connectivity, and IP addressing functionality	DXMR90-4K and DXMR110-8K can connect via Ethernet, and IP addressing functionality added
2.0.7	Added support for DXMR90-4K IO-Link Master	Can now connect multiple devices and configure multiple ports
1.0.16	Supports R45C and R90C IO-Link Master devices	Initial release

6.3. Contact Us

Banner Engineering Corp. headquarters is located at:

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Phone: + 1 888 373 6767

For worldwide locations and local representatives, visit www.bannerengineering.com.

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