

User Manual

IO-LINK STARTER KIT – STEP BY STEP FOR BEGINNERS

This user manual is intended for people who have had little or no previous contact with IO-Link. It explains the basic setup of the IO-Link Starter Kit and guides you step by step through the initial commissioning process. The aim is to connect the IO-Link master to a notebook, open the integrated web server, and detect and test a first IO-Link device, for example the Smart Light.



IO-Link Starter Kit

WHAT IS IO-LINK?

IO-Link is a simple and standardized connection between a control system and intelligent sensors or actuators. You can think of IO-Link as a common language: the IO-Link master communicates with the connected devices and can receive information or transmit settings. This means devices can not only be switched on and off, but also detected, configured, and monitored. No programming knowledge is required to get started. The most important functions can be tested directly via the web server of the IO-Link master.

CONTENTS OF THE STARTER KIT

The Starter Kit contains all components required for an initial test setup. These include the IO-Link master, a sensor/actuator hub, an optical sensor, a Smart Light, and the necessary connection cables for the notebook, power supply, and IO-Link devices.

IMPORTANT TERMS EXPLAINED SIMPLY

Begriff	Erklärung
IO-Link master	The central device in the setup. It connects the notebook or a controller with the connected IO-Link devices.
IO-Link device	A sensor or actuator that communicates with the master via IO-Link, for example a Smart Light or a sensor.
Sensor	A device that detects or measures something, for example distance, light, or the presence of an object.
Actuator	A device that performs an action, for example switching on a light or outputting a signal.
Port	A connection on the IO-Link master. A device is connected to a port.
Pin	A single contact within a connector. Signals or voltage are transmitted via pins.
IP address	The network address of a device. The notebook and IO-Link master must be in the same IP address range so that they can communicate with each other.
Web server	An operating interface in the IO-Link master that is opened via the web browser. Settings can be made there and devices can be displayed.
Dashboard	The start page of the web server. It shows important information and the status of the IO-Link master.
Parameterization	Transferring settings to a device, for example colors or operating modes for the Smart Light.
Process data	Current values or states of a device that are transmitted during operation.
IODD	A description file for an IO-Link device. It helps the master display the device functions and settings correctly.
Digital input	A connection that detects a signal.
Digital output	A connection that outputs a signal, for example 24 volts.
PLC	An industrial controller. It is not required for the first tests in this manual.

1. Preparation

Before you begin, lay out all components clearly. Make sure your notebook has a LAN port or that a suitable network adapter is available. You also need a power supply for the IO-Link master and a web browser, for example Microsoft Edge.

- Place all parts from the Starter Kit on the table. This allows you to see immediately whether all required components are available.
- Check whether a suitable power supply for the IO-Link master is available. The master needs power before it can communicate with the notebook or the devices.
- Prepare the network connection on the notebook. If your notebook does not have a LAN port, use a suitable network adapter.
- Have the IP address of the IO-Link master ready. You will need this address later to open the web server in the browser.

2. Connecting the IO-Link Master

The IO-Link master is the central component of the Starter Kit. It connects the notebook with the connected IO-Link devices. For the initial setup, the master is first supplied with power and then connected to the notebook.

- Plug the power cable into the power supply connection on the IO-Link master.
- Switch on the power supply. Check whether LEDs light up on the master. This indicates that the master is supplied with power.
- Plug the network cable into the network connection of the IO-Link master.
- Plug the other end of the network cable into the LAN port of your notebook or into the connected network adapter.

3. Checking the Network Connection

To allow the notebook to communicate with the IO-Link master, both devices must be in the same IP address range. This means that the network addresses must match. If this is not the case, the master's web server cannot be opened.

- Find the IP address of the IO-Link master. It may be shown on the device, in the documentation, or in the network settings.
- Open the network settings on the notebook. There you can check which IP address your notebook is currently using.
- Compare the notebook's IP address with the IP address of the IO-Link master. Both addresses must be in the same range for a connection to be possible.
- If the web server cannot be reached, adjust the IP address on the notebook and then try again to open the master's address in the browser.

4. Opening the Web Server and Logging In

The IO-Link master has an integrated web server. It can be opened directly via the web browser. This allows you to check basic settings, configure ports, and display connected devices.

- Open a web browser on the notebook, for example Microsoft Edge.
- Enter the IP address of the IO-Link master in the browser address bar and confirm the entry.
- Wait until the start page of the web server is displayed. If no page appears, check the network connection again.
- Enter the user name admin.
- Enter the password. The default password is located on the IO-Link master.
- Check whether the login was successful. This is usually shown in the profile area of the web server.

5. Getting to Know the Dashboard Briefly

After logging in, you will see the dashboard of the IO-Link master. There you will find basic information such as product name and order code. You can also view the activity log, check network settings, open port settings, upload IODD files, or prepare firmware updates.

6. Configuring the IO-Link Port

To allow an IO-Link device to be detected, the corresponding port on the master must be set to IO-Link operation. Port 1 is used for the first test. Once the setting has been saved, the master searches for a connected IO-Link device.

- Open the port settings in the web server. There you define how the master's connections are used.
- Select Port 1. This port is used for the first test so that the manual remains easy to follow.
- Set Pin 4 to IO-Link Mode. This prepares the connection for an IO-Link device.
- Select IO-Link Auto Start. This causes the master to automatically search for a connected IO-Link device.
- Save the setting. The new port setting only becomes active after saving.
- Check whether the LED on the port is flashing. This means that the master is searching for a device.

7. Connecting the Smart Light

The Smart Light is used as the first example device. It clearly shows whether a connection exists and whether parameterization works. Once communication has been established successfully, the port LED lights up continuously.

- Connect the Smart Light to Port 1 of the IO-Link master using the appropriate cable.
- Wait a few seconds until the LED on the port lights up continuously. This indicates that the connection to the device has been established.
- Open the start page or the device overview in the web server again.
- Check whether the Smart Light is displayed on Port 1. If it is displayed, it has been detected by the master.

8. Parameterizing the Device

Parameterization means transferring settings to a device. With the Smart Light, for example, you can define which colors are displayed. For getting started, a simple traffic light function with red, yellow, and green is used.

- Click Port 1 in the web server. There you will see the information for the connected Smart Light.
- Open the area for process data and parameter data. Current states and adjustable values are displayed there.
- Select the desired settings, for example colors or operating modes for the Smart Light.
- Transfer the settings to the Smart Light. This step writes the selected parameters directly to the device.
- Check on the Smart Light whether it reacts as desired. With a traffic light function, for example, red, yellow, and green should be visible.

9. Testing Digital Inputs and Outputs

In addition to IO-Link, individual pins can also be used as digital inputs or outputs. A digital input reads a signal. A digital output outputs a signal, for example 24 volts. This allows simple functions to be tested even without a PLC.

- Open the port settings in the web server again.
- Select Pin 2 or Pin 4. Depending on the setting, these pins can perform different tasks.
- Set the pin either as a digital input or as a digital output.
- If you use a digital output, start the output test. This allows a signal to be output without a PLC being connected.
- Check whether the orange LED on the master lights up. It indicates that the output is active.

10. Completion and Checklist

If the Smart Light has been detected and can be parameterized via the web server, the initial commissioning has been successfully completed. You can now connect additional devices from the Starter Kit and repeat the same steps.

- The IO-Link master is supplied with power.
- The notebook is connected to the master via LAN.
- The notebook and master are in the same IP address range.
- The web server was opened successfully.
- Login with user name and password was successful.
- Port 1 is set to IO-Link Mode.
- The Smart Light is detected and can be parameterized.

Note:

No additional license is required to get started.
Configuration is performed directly via the integrated web server of the IO-Link master.