



Instructions for set-up

IO-Link Master with USB interface (Set)

ZZ1060

English

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1 Preliminary note

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Technical data, approvals, accessories and further information at www.ifm.com

1.1 Symbols used

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Important note
Non-compliance can result in malfunction or interference



Information
Supplementary note

▶ ... Request for action

> ... Reaction, result

→ ... "see"

abc Cross-reference

123 Decimal number

0x123 Hexadecimal number

0b010 Binary number

[...] Designation of pushbuttons, buttons or indications

1.2 Further documents

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- Operating instructions IO-Link master
- Operating instructions IO-Link device (sensor / actuator)
- Short instructions USB cable
- Short instructions sensor cable
- Software manual LR DEVICE



The documents can be downloaded at: www.ifm.com

1.3 Modification history

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Version	Topic	Date
00	New creation of document	10 / 2020
01	Corrected: minimim requirements: Windows 10	04 / 2021

2 Safety instructions

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- The devices described can be integrated into a system as components.
 - The system architect is responsible for the safety of the system.
 - The system architect undertakes to perform a risk assessment and to create documentation in accordance with legal and normative requirements to be provided to the operator and user of the system. This documentation must contain all necessary information and safety instructions for the operator, the user and, if applicable, for any service personnel authorised by the architect of the system.
 - The system architect is responsible for the proper functioning of the application programs.
- Read this document before setting up the product and keep it during the entire service life.
- The product must be suitable for the corresponding applications and environmental conditions without any restrictions.
- Only use the product for its intended purpose (→ **Intended use** (→ p. 5)).
- If the operating instructions or the technical data are not adhered to, personal injury and/or damage to property may occur.
- The manufacturer assumes no liability or warranty for any consequences caused by tampering with the device or incorrect use by the operator.
- Installation, electrical connection, set-up, programming, configuration, operation and maintenance of the product must be carried out by personnel qualified and authorised for the respective activity.
- Protect the device and the accessories against damage.



- ▶ Read the instructions of the individual components of the application package before use.

3 Intended use

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The product package is used for connection and parameter setting of IO-Link devices from a computer.

The IO-Link master serves as control unit for the connected IO-Link device.

With the LR DEVICE software, the user can configure the IO-Link master and the connected IO-Link device. In addition, the process data of the IO-Link master and the IO-Link device can be visualised.

4 Items supplied

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Optional accessories	6
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The ZZ1060 contains the following items:

- IO-Link master USB 1 port (AL1060)
- USB cable (E12689)
- Sensor cable (EVC012)
- USB memory stick with LR DEVICE parameter setting software (QA0011)

4.1 Optional accessories

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- Plug-in power supply 24 V DC EU (E80120)
- Plug-in power supply 24 V DC WW (E80121)

5 Function

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5.1 IO-Link master

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The device offers the following functions:

- IO-Link master (IO-Link revision 1.0 and 1.1)
- 1 IO-Link port to connect IO-Link devices
- Supply for one IO-Link device
- Optionally additional digital input or output
- Optical signalling (status of power supply, IO-Link port and signal of digital input/output)

5.2 LR DEVICE software

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The software provides the following functions:

- Parameter setting of the IO-Link master (online, offline)
- Parameter setting of the connected IO-Link device (online, offline)
- Graphic representation of process data

6 Electrical connection

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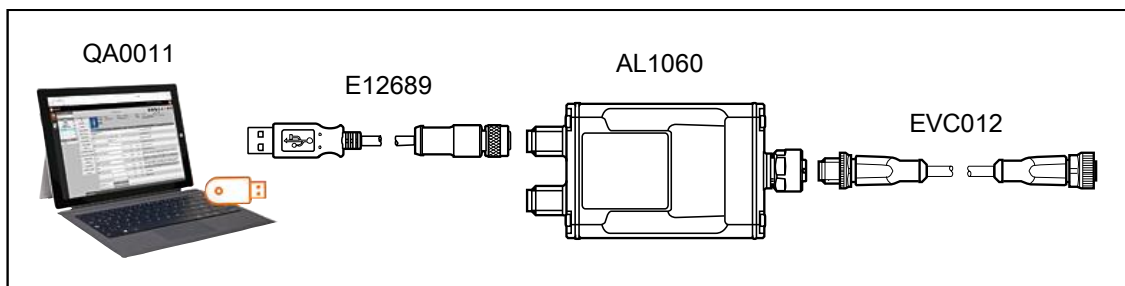


The devices must be connected by a qualified electrician.

- ▶ Observe the national and international regulations for the installation of electrical equipment.
- ▶ Adhere to the instructions supplied with the individual devices.
- ▶ Disconnect power.

6.1 Overview

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6.2 Connect the IO-Link master

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- ▶ Connect the device to the USB interface of the PC via the "USB" port.

If the IO-Link device temporarily or permanently requires more than 160 mA \pm 10%, the power supply via the "USB" port is not sufficient.

- ▶ Optional: Connect the device to the 24 V DC supply voltage (20...30 SELV/PELV) via the "AUX" port.
 - Recommended maximum cable length: 3 m



- ▶ Ensure correct cabling! Do not connect additional supply voltage to "USB" port. If the additional power supply is disconnected from the "AUX" port, the device reboots.

6.3 Connect the IO-Link device

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- ▶ Connect the IO-Link device to the M12 socket of the IO-Link port.
 - Max. cable length: 20 m
- ▶ For the connection, use M12 connectors with protection rating IP 65 or higher.

7 Set-up

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- ▶ Connect the IO-Link master to a computer (→ **Electrical connection** (→ p. 8)).
- ▶ Optional: Connect the IO-Link master to an additional power supply.
- > When connecting the IO-Link master to the USB port of the computer, it will start with factory settings. The display elements signal the current operating states of the devices and interfaces (→ instructions of the individual components).

No special drivers are required to operate the IO-Link master under Microsoft Windows 10. When connecting the device to the USB port, the operating system will recognise it and automatically install the necessary USB drivers.

- ▶ Connect the IO-Link device with the IO-Link master (→ **Electrical connection** (→ p. 8)).
- > The IO-Link master supplies the connected IO-Link device with operating voltage.

7.1 Install LR DEVICE

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LR DEVICE is used for parameter setting of the IO-Link master and the connected IO-Link devices. In addition, LR DEVICE can visualise the process data of the IO-Link device.

- ▶ Start the PC.
- ▶ Log in with administrator rights.
- ▶ Install the LR DEVICE parameter setting software from the USB memory stick to the PC (→ software manual LR DEVICE).

8 Parameter setting

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Requirement:

- LR DEVICE is installed correctly.
- ▶ Start LR DEVICE.
- > The LR DEVICE user interface appears.
- ▶ Optional: Update the IODD library.
- ▶ Click on the symbol [Read from device]
- > LR DEVICE searches for connected devices.
- > LR DEVICE finds the connected IO-Link master.

The screenshot shows the LR DEVICE web interface. The main area displays the configuration for the AL1060 IO-Link master. The device details include:

- Geräteparameter
- Gerätename: AL1060
- Geräte ID: 4100000500 d (310 d)
- Revision: XX / AL1v6x_cn_ub_v3.2.3
- Hersteller: ifm electronic gmbh
- Seriennummer: 000202500005
- Beschreibung: IO-Link Master USB IoT-Core
- Gerätestatus:

The parameter table is as follows:

Parameter	Wert	Einheit	Min	Max	Beschreibung
Port1 Mode Pin4 US	IO-Link				Mode Pin4 (Sensor Supply US)
Port1 Validation / DataStorage	No check and clear				IO-Link Validation / Data Storage
Port1 pin2mode	DI				
Port1 Cycle time actual	5900		0	132800	Actual IO-Link device master cycle time (read-only)
Port1 Cycle time preset	0		0	132800	IO-Link device master cycle time preset
Port1 Btrate	COM2 (38.4 kbaud)				IO-Link device COM speed (read-only)
Port1 Vendor ID	0		0	65535	IO-Link Vendor ID to validate
Port1 Device ID	0		0	16777215	IO-Link Device ID to validate
Product code	AL1060				Product code of IO-Link Master

8.1 Configure the IO-Link master

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By default, the IO-Link master is configured for communication with an IO-Link device.

Requirements: threshold display

- LR DEVICE has been started.
- The IO-Link master has been recognised.
- ▶ In the [ONLINE] area: Click on IO-Link master AL1060.
- > LR DEVICE shows the current parameter values of the IO-Link master.
- ▶ Set the following parameters as requested:
 - Operating mode pin 2 of the IO Link port (DI / DO)
 - Operating mode pin 4 of the IO Link port (DI /DO / IO-Link)
 - Device validation and data storage

8.2 Set the parameters of the IO-Link device

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Requirements:

- The IO-Link device is correctly connected to the IO-Link master.
- LR DEVICE has been started.
- The IO-Link master has been recognised.
- Operating mode pin 4 of the IO-Link port is "IO-Link".
 - ▶ In the [ONLINE] area: Click on [P1].
 - > LR DEVICE shows the current parameter values of the IO-Link device.
 - ▶ Set the parameters of the IO-Link device as requested.
 - ▶ Write the changed values to the device.

9 Operation

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9.1 Monitor the process data

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In online mode, LR DEVICE can graphically display the process data of the IO-Link device.

Requirements:

- LR DEVICE has been started.
- The IO-Link master has been configured.
- The parameters of the IO-Link device have been set.
- ▶ Click on the symbol [Cockpit].
- > The [Cockpit] view appears.
- ▶ In the [ONLINE] area: Select the IO-Link master.
- ▶ The cockpit displays the current state and the chronological curve of the process data of the IO-Link master.
- ▶ In the [ONLINE] area: Click on port [P1].
- > The cockpit displays the current state and the chronological curve of the process data of the IO-Link device.



The parameters that are displayed and their representation are dependent on the connected IO-Link device.