IOL-CONF

IO-Link Configuration

PHŒNIX CONTACT
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Startup of IO-Link masters and IO-Link devices with the IOL-CONF software

Quick start guide

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UM QS EN IOL-CONF, Revision 01   2021-11-10

IOL-CONF is a browser-based parameterization software tool for the easy startup of IO-Link masters and IO-Link devices in the following product groups: Axioline F, Axioline Smart Elements and Axioline E.

Table of contents

1 For your safety

This document describes the startup and use of the IOL-CONF software from Phoenix Contact.

Read this user manual carefully and keep it for future reference.

Make sure that the software is entirely suitable for the relevant application and the connected IO-Link masters and IO-Link devices.

Disregarding application notes or technical data can result in personal injury and/or property damage. Mounting, startup, and maintenance of the item may therefore only be performed by qualified specialist personnel who have been authorized for this by the system operator.

Disregarding the information in this document, using the product for anything other than the intended use specified below, and incorrect installation or handling can compromise the safety of people and systems.

Installation and connection must conform to the applicable national and international standards. The responsibility lies with whoever installs the software.

Any changes to the source code or to individual components of the software, which are not explicitly described in the instructions, will forfeit any right to claim support from Phoenix Contact.

1.1 Identification of warning notes and symbols

This symbol indicates hazards that could lead to personal injury.
There are three signal words indicating the severity of a potential injury.

DANGER
Indicates a hazard with a high risk level. If this hazardous situation is not avoided, it will result in death or serious injury.

WARNING
Indicates a hazard with a medium risk level. If this hazardous situation is not avoided, it could result in death or serious injury.

CAUTION
Indicates a hazard with a low risk level. If this hazardous situation is not avoided, it could result in minor or moderate injury.

This symbol together with the **NOTE** signal word warns the reader of actions that might cause property damage or a malfunction.

Here you will find additional information or detailed sources of information.

1.2   Qualification of users

The use of products described in this user manual is oriented exclusively to:

–   Electrically skilled persons or persons instructed by them. The users must be familiar with the relevant safety concepts of automation technology as well as applicable standards and other regulations.

–   Qualified application programmers and software engineers. The users must be familiar with the relevant safety concepts of automation technology as well as applicable standards and other regulations.

1.3   Product changes

Modifications to the software are not permitted.

Incorrect operation or modifications can endanger your safety.

1.4   Security in the network

NOTE: Risk of unauthorized network access

Connecting devices to a network via Ethernet entails the risk of unauthorized access to the network.

Check whether unused communication channels can be deactivated. Assign passwords so that third parties cannot access the device and make unauthorized changes.

Due to its communication interfaces, the device should not be used in security-critical applications unless additional security appliances are used.
Please take additional precautions in accordance with the IT security requirements and standards applicable to your application (e.g., virtual networks (VPN) for remote maintenance access, firewalls, etc.) to prevent unauthorized network access.

On first request, you shall release Phoenix Contact and the companies associated with Phoenix Contact GmbH & Co. KG, Flachsmarktstraße 8, 32825 Blomberg, Germany in accordance with §§ 15 ff AktG (German Stock Corporation Act), hereinafter collectively referred to as "Phoenix Contact", from all third-party claims made due to improper use.

For the protection of networks for remote maintenance via VPN, Phoenix Contact offers the mGuard product range of security appliances, a description of which is provided in the latest Phoenix Contact catalog (phoenixcontact.net/products).

Additional measures for protection against unauthorized network access are listed in the AH EN INDUSTRIAL SECURITY application note. The application note can be downloaded at **phoenixcontact.net/products**.

The TCP/IP channel, the port to IOL-CONF, can be deactivated or activated on the bus coupler via the higher-level bus system. By managing rights in this way, you can prevent manipulative and unauthorized access to the IO-Link master and IO-Link devices.

2 Basic principles

2.1 The IOL-CONF software

The advantage of IO-Link masters and IO-Link devices is that manufacturers can design them more universally than conventional sensors or actuators. It is only when in use, i.e., during startup, that the IO-Link devices are parameterized for their specific application. To do this, Phoenix Contact provides the IOL-CONF parameterization software. IOL-CONF is a browser-based software tool for easy parameterization of IO-Link masters and IO-Link devices.

The IOL-CONF software supports operation of IO-Link masters from the modular Axioline automation system for the control cabinet (AXL F IOL8 2H and AXL SE IOL4). To use the software, the IO-Link masters must be operated on selected bus couplers of the Axioline F system.

Using the Phoenix Contact AXL F IOL8 2H and AXL SE IOL4 IO-Link masters, the software enables easy and efficient parameterization of IO-Link devices from Phoenix Contact and other manufacturers.

The software is intended to:
– Reduce startup costs
– Increase the availability of systems
– Facilitate the examination and evaluation of measured value trends

This has implications for startup and maintenance work.

2.2 Information about this document

This document describes the function of the IOL-CONF software.

i	For further information on the Axioline F modules and Axioline Smart Elements, please refer to the corresponding data sheets and user manuals.
	Make sure you always use the latest documentation.
	It can be downloaded via the item at phoenixcontact.net/products.

2.3   Scope of functions

Use of the IOL-CONF software offers the following options:

– ONLINE and OFFLINE parameterization of IO-Link masters from Phoenix Contact and any IO-Link devices over the network.
   – Setting parameters
   – Loading parameters from an IO-Link device
   – Writing parameters to IO-Link devices
   – Storing parameter records to a file
   – Loading parameter records from a file
   – Writing or copying parameters to multiple IO-Link devices
– Graphical representation of process values
   – Evaluating measured values
   – Writing process data
   – Exporting displayed measured values

> **NOTE: Unintentional switching of the outputs during parameterization**
> The behavior of the devices can change during parameterization. This applies in particular when process data from actuators is changed by the IOL-CONF software.
> • Make sure that there is no negative impact on active processes and no risk to people or equipment at any time.

> **NOTE: Malfunction of the machine or system**
> In Industrial Ethernet networks that provide startup parameterization on the controller side, note the following:
> Some of the parameters in the IO-Link masters and IO-Link devices that were written with IO-Link-CONF may be overwritten when the PLC is restarted.
> • Make sure that there is no negative impact on active processes and no risk to people or equipment at any time.

> **i** No other client is permitted in an Ethernet network when operating IOL-CONF as a client. The Ethernet connection to the PLC must be disconnected.

> **i** The devices can only be parameterized by one IOL-CONF software tool at a time. Concurrent device parameterization with multiple IOL-CONF instances or other engineering systems is not supported.

2.4   Topology under IOL-CONF

The figure below shows an example topology of an Axioline F station with Axioline Smart Elements using the IOL-CONF software. Multiple Axioline F stations with Axioline Smart Elements can be used.
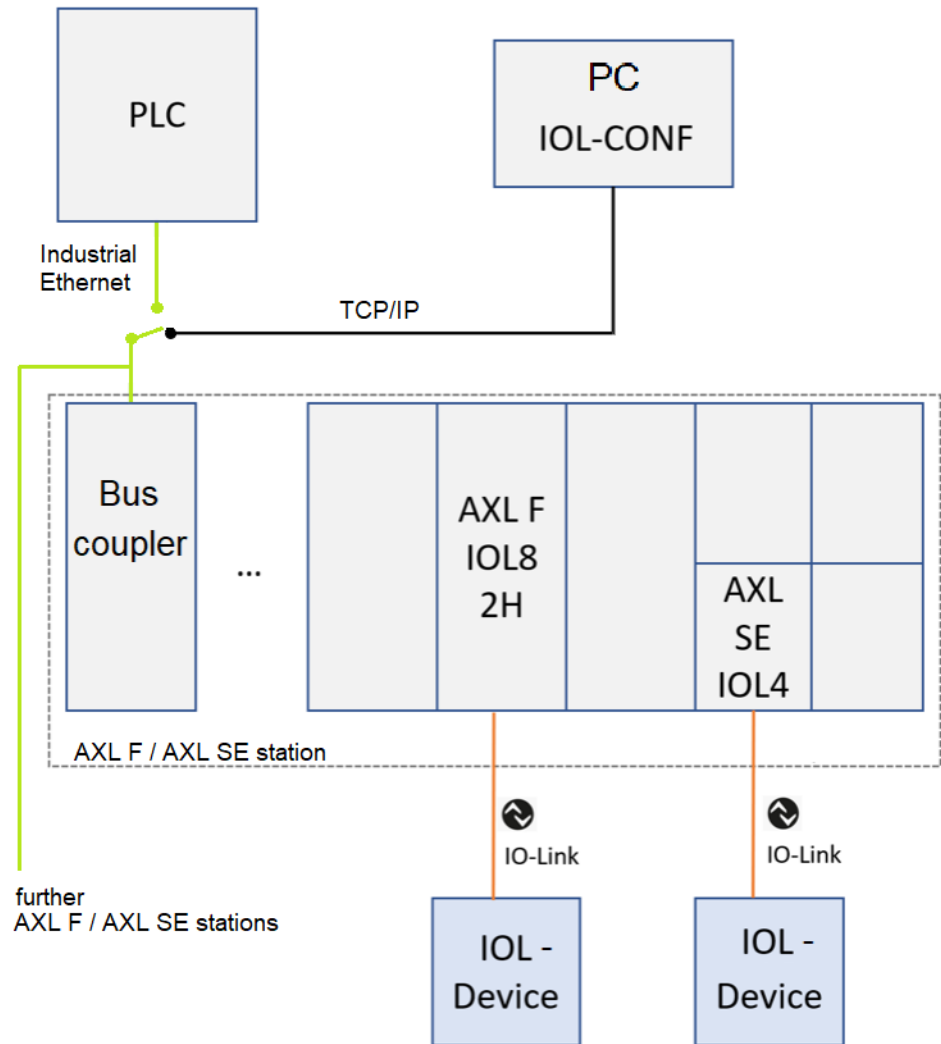

Figure 2-1   Topology example

2.5 Interoperability

The IOL-CONF software can only be used with the following items:

Supported bus couplers:

Designation	Item number	As of hardware	As of firmware	Comment
AXL F BK PN TPS	2403869	02 or later	1.31 or later	
AXL F BK ETH	2688459	05 or later	1.30 or later	
AXL F BK EIP	2688394	05 or later	1.30 or later	
AXL F BK EC	2688899	05 or later	1.30 or later	Available from the start of 2022
AXL F BK S3	2701686	04 or later	1.35 or later	Available from the start of 2022
AXL F BK PN TPS XC	1068857	01 or later	1.31 or later	
AXL F BK ETH XC	2701949	05 or later	1.30 or later	

Supported IO-Link masters
(used downstream of one of the above bus couplers):

Designation	Item number	As of hardware	As of firmware
AXL F IOL8 2H	1027843	02 or later	1.01 or later
AXL SE IOL4	1088132	00 or later	1.00 or later

Supported IO-Link devices:

Any, all IO-Link devices of IO-Link specification V1.1.1 or later

i	Before purchasing the license for the IOL-CONF software, check whether the systems or devices you are using are suitable for parameterization via IOL-CONF.

3 Installation

3.1 System requirements

3.1.1 PC hardware

– Min. 2 GB RAM
– Min. 5 GB available hard disk space
– 1 free Ethernet port
– 1 free USB 2.0 port
  The USB port is only required if the ESL STICK USB A software dongle is used to store the license. The IOL-CONF software itself does not use the USB interface to communicate with the bus couplers.
– CPU Intel Dual Core 2.0 GHz, minimum

3.1.2 PC software

– Operating system:
  – Microsoft Windows 7 SP1
  – Windows 8.1 und Windows 10
  – Windows Server 2008 R2 SP
  – Windows Server 2012
  – Windows Server 2012 R2
  – Windows Server 2016
– Web browser:
  – Google Chrome
  – Mozilla Firefox
  – Microsoft Internet Explorer 11
  – Microsoft Edge

3.1.3 Security mechanisms

Your company's security mechanisms may block the IOL-CONF software's access to https://io-link.com or port 2001.
To enable automatic access to the IODD finder portal, access to https://io-link.com must be allowed.
To enable IOL-CONF to connect to the Axioline F station, access to port 2001 must be allowed.

3.1.4 Hardware accessories

– IT network and necessary accessories for connecting the computer and network

i	The hardware accessories are not supplied as standard.

3.2 Installing the program on the hard drive

File "PHOENIX_IOL_CONF_x.x.x.xxx_INSTALL.exe" is used to install the IOL-CONF software on the PC.

| **i** | x.x.x.xxx represents the version number of the software.
Administrator rights are required to install and operate the software.
Contact your administrator or IT officer. |

- Start file "PHOENIX_IOL_CONF_x.x.x.xxx_INSTALL.exe", e.g., by double-clicking it.

The Setup window opens. The license terms and conditions are displayed.

- Accept the license terms and conditions by clicking "Install".
- Follow the instructions of the installation routine. The program is installed.
- Following successful installation, close the Setup window.

| **i** | Before you start the software for the first time, clear the browser cache. |

3.3 Upgrading the software

- If upgrades are available for the software, they can be downloaded via the item at phoenixcontact.net/products.
- Follow the installation routine as described in Section 3.2.

| **i** | The existing license key will still be valid. |

3.4 Language selection

The language depends on the selected setting in your browser.
- In your browser settings, set the desired language for setting web pages.
- Restart the browser or reload the view.

3.5 Software license

The IOL-CONF software is subject to a license. A license entitles you to operate the IOL-CONF software on **one** PC.

You can download the IOL-CONF software via the Phoenix Contact e-shop. You can try out all the functions of the IOL-CONF software with the free 30-day trial. You will then need to purchase a license.

i | The free 30-day trial for the IOL-CONF software will only work on a physical host system (PC), it will not work on virtual machines.

When you order the IOL-CONF item (Item No. 1083065), you will receive a license ticket (ticket ID) by e-mail within 48 hours.

The "Phoenix Contact Activation Wizard" software tool is installed with the IOL-CONF software. It can also be found under Download in the Phoenix Contact e-shop. The "Phoenix Contact Activation Wizard" is used to activate and deactivate the software license on the PC. First, obtain a license ticket (ticket ID) for this PC. The Wizard stores the license ticket in encrypted format as a license on your PC.

Alternatively, you can store the license on a special license dongle. By inserting/unplugging this dongle, the license for the IOL-CONF software can be used on various PCs.

i | For more detailed information, please refer to the
AH EN PHOENIX CONTACT ACTIVATION WIZARD - CHANGE NOTES application note at phoenixcontact.net/products.

3.5.1 Limited version

You have the option to try out the full scope of functions of the IOL-CONF software on a PC for a 30-day trial period.

To indicate that the software is in this license mode, "LIMITED" appears in the user interface.
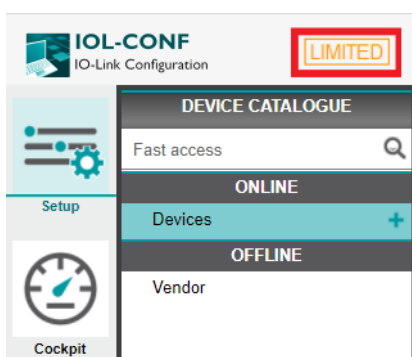

Figure 3-1   "LIMITED" identification in the user interface

When the trial period expires, the warranted scope of functions of the software will no longer be available. You will be unable to use the software until a license has been activated on the same PC.

3.5.2 Software dongle for licenses

A license dongle with USB interface can be purchased as an option.

Software dongle: ESL STICK USB A, Item No. 1080084

You can store software licenses for the IOL-CONF software on the license dongle. Licenses can be used flexibly by moving the license dongle from one computer to another.

Use of a license dongle is recommended when using virtual machines. This means that licenses can still be used after virtual machines are copied or even if settings are changed on the virtual machine.

Using the "Activation Wizard" software tool, activate and deactivate licenses on the license dongle. You can also use the "Activation Wizard" to migrate licenses from a PC hard drive to a license dongle or vice versa.

i	Nevertheless, you still need to purchase a software license for IOL-CONF via the Phoenix Contact e-shop if using a software dongle.

3.6 Wiring the hardware and applying voltage

i	Please refer to the following documents when creating the station: – Packing slips for the items used – UM EN AXL F SYS INST user manual – UM EN AXL SE SYS INST user manual – Data sheets for the items used

- Set up the Axioline F station. It consists of a bus coupler, the I/O modules, and their peripherals, e.g., IO-Link devices.
- Establish an Ethernet connection from the bus coupler to the PC.
- Supply the system with voltage.

4 IOL-CONF software interface and function calls

4.1 Software interface

The interface is divided into the following areas:

1. Tool bar/information area
2. View
3. Device catalog
   – ONLINE
   – FILE (not shown in the screenshot below)
   – OFFLINE
4. Device-specific area

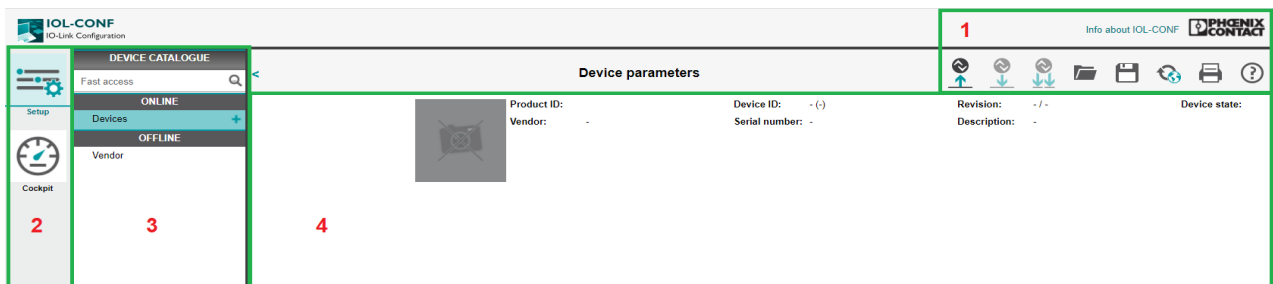The areas are shown in the figure below.

Figure 4-1   IOL-CONF software interface

> **i** Clicking the "Reload page" button in the web browser can interrupt the connection to the bus coupler of the Axioline F station. In this case, restart the web browser and the IOL-CONF software.

4.1.1 Tool bar/information area

The figure below shows the tool bar/information area.
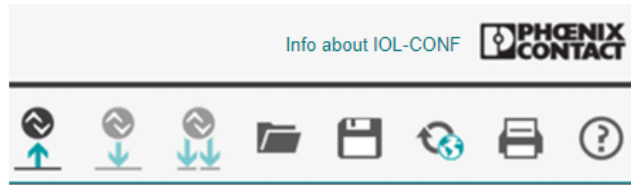
Figure 4-2   Tool bar/information area

Info IOL-Conf	Info about IOL-CONF	Product and contact information, such as the software version, legal information, open-source license terms and conditions
	Read from device	Read IO-Link-specific parameters from IO-Link masters and devices Scan network for available IO-Link masters and IO-Link devices
	Write to device	Write modified IO-Link-specific parameters to **one** IO-Link master or IO-Link device
	Write to multiple selected devices	Write modified IO-Link-specific parameters to **multiple** selected IO-Link devices (from OFFLINE mode)
	Load parameters from a file	Load IO-Link-specific parameters of one IO-Link master and/or one or more IO-Link devices from a project-specific lrp file.
	Save parameters to a file	Save IO-Link-specific parameters of one IO-Link master and/or one or more IO-Link devices to a project-specific lrp file in the "Downloads" folder in Windows.
	IODD Manager Search for updates	Import IODD files from the local storage location or from the ONLINE database (IODDfinder) Delete selected IODD files from the device catalog Search for updates to already installed IODD files
	Print displayed parameters	Print preview of parameters from the "Device-specific view"
	User manual	Open the item page for the IOL-CONF software in the Phoenix Contact e-shop The latest software versions, information, and documentation can be accessed under Download.

4.1.2   View

The IOL-CONF software provides two different key functions.

1. Parameterization function for the IO-Link masters and IO-Link devices. This includes parameter archiving in files and writing to multiple identical IO-Link devices.
2. Monitoring function for process data, including the setting of outputs.

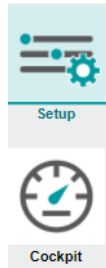Use the following icons to switch between the two views for these functions.

Figure 4-3   "Parameterization" and "Cockpit" software views

Parameteriza- tion	View for the parameterization of IO-Link masters and/or IO-Link de- vices
Cockpit	Display mode for all online, available process data including visualiza- tion and the option to set outputs

4.1.3 Device catalog

In the device catalog, a distinction is made between OFFLINE and ONLINE views.

When there is an active TCP/IP connection between IOL-CONF and Axioline F stations, you can display and parameterize the Axioline F stations along with the connected IO-Link masters and IO-Link devices in the ONLINE area.

In the OFFLINE area of the device catalog, you can virtually create and parameterize IO-Link masters with connected IO-Link devices and save them to files. To do this, the description files (IODDs) of IO-Link masters and IO-Link devices from Phoenix Contact are stored in IOL-CONF (pre-installed).

You can extend the range of pre-installed IO-Link devices with subsequently imported IODDs, see "Importing device description files" on page 35.
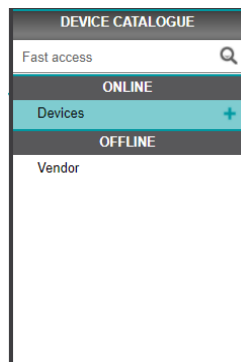

Figure 4-4   "ONLINE" and "OFFLINE" device catalog views

4.1.4　　Device-specific area

The parameters of the selected IO-Link master and IO-Link device are displayed in the device-specific area just as described by the loaded IODD associated with that device type.

Figure 4-5　　　Device-specific area

5 Parameterization of connected devices (ONLINE)

There are two ways to parameterize IO-Link masters and IO-Link devices in IOL-CONF:

– Direct parameterization of a connected IO-Link master and IO-Link device (ONLINE)
– Preparing and saving parameter records for future startup

Direct parameterization of a connected IO-Link master or IO-Link device (ONLINE)

Online operation of the IOL-CONF software is when:
An Axioline F station and at least one IO-Link device are connected to a PC/notebook with IOL-CONF via Ethernet. The Axioline F station consists of at least one bus coupler and one peripheral module with an IO-Link master function.

Contact with a connected IO-Link device is established from IOL-CONF via Ethernet (TCP/IP, port 2001) and the Axioline F station. A connection is established with further IO-Link devices sequentially one after the other.

If the associated device description file (IODD) for a connected IO-Link device is not pre-installed, IOL-CONF obtains it via the Internet from the IODD Finder (https://io-link.com). To enable automatic access to the IODD finder portal, access to https://io-link.com must be al-lowed.

With the help of the IODD, IOL-CONF enables you to conveniently parameterize the IO-Link device. The IO-Link devices retentively store their parameters that were set online.

Preparing and saving parameter records for future startup

You can prepare parameter records for IO-Link devices and save them to files. To do this, create virtual IO-Link devices and parameterize them. The bus configuration can be saved to files together with the set parameters and used during actual startup.

See Section "Preparing parameter records for startup (OFFLINE)" on page 29

5.1 Connecting the PC to the bus coupler

There are two ways to search for the bus couplers in the network.

> **i** Port 2001 must be enabled on the PC so that the IOL-CONF software can connect to the bus coupler. Make sure that this port is not blocked by a firewall.

Manual search directly via the IP address

- In the device catalog, click the "+" under "ONLINE".
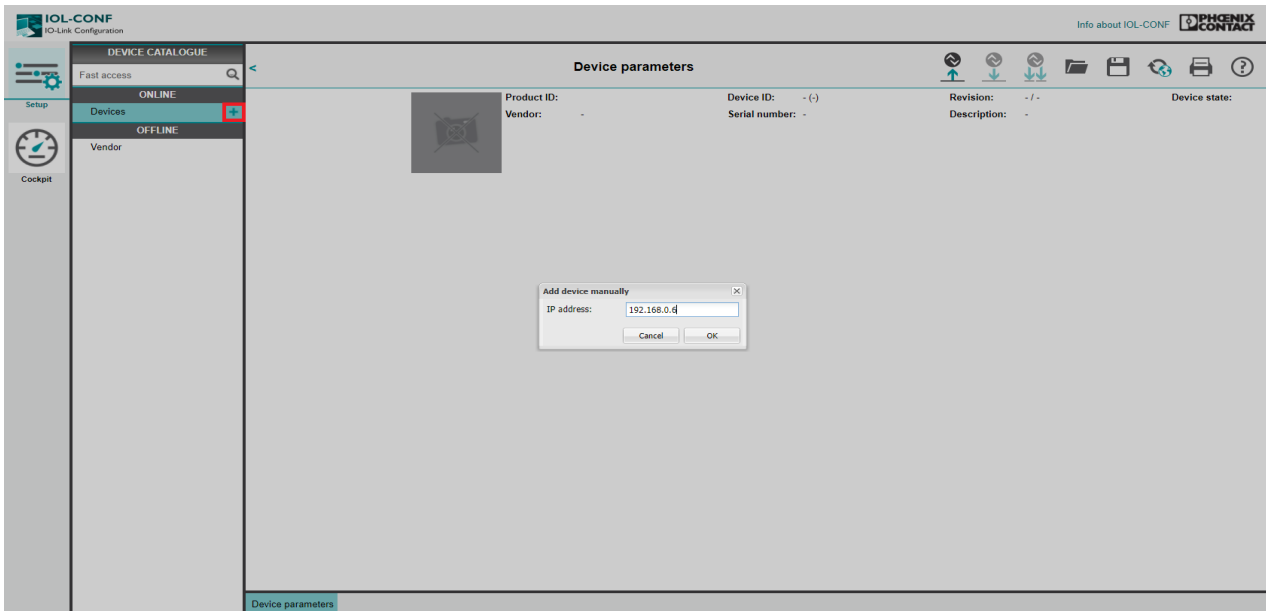- Enter the IP address of the connected bus coupler.

Figure 5-1   Manual network scan

Automatic network scan

• In the device catalog, select "Devices" under "ONLINE".

• Click the "Read from device" icon.

The automatic network scan starts.
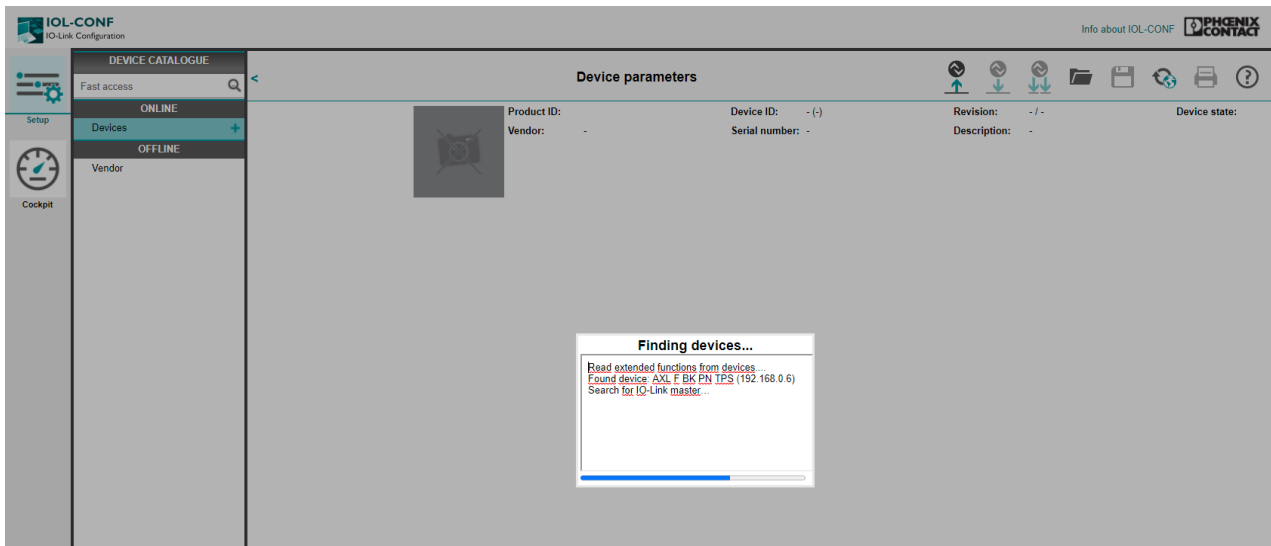
Figure 5-2   Searching for devices in the network

All bus couplers found in the network are listed in the device catalog under "ONLINE".

Figure 5-3   Devices found after a network scan

i	If the connection between the PC with IOL-CONF and a bus coupler has been established, you can manually change the IP address of the bus coupler. The connection between the PC with IOL-CONF and the bus coupler will be lost as a result. The bus coupler only adopts the new IP address once it has been restarted.

The bus coupler is displayed.
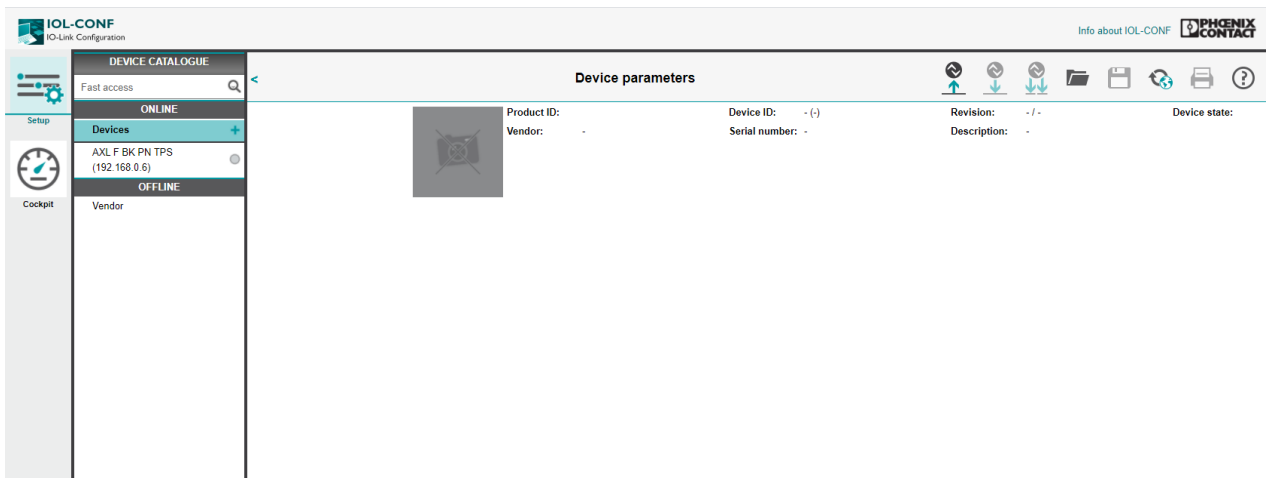
- Click the bus coupler in the device catalog.

All Axioline F devices that are connected to the bus coupler are listed in the device catalog. Each Axioline F device represents an individual device. In addition, information about the bus coupler and its parameters is displayed in the device-specific area.

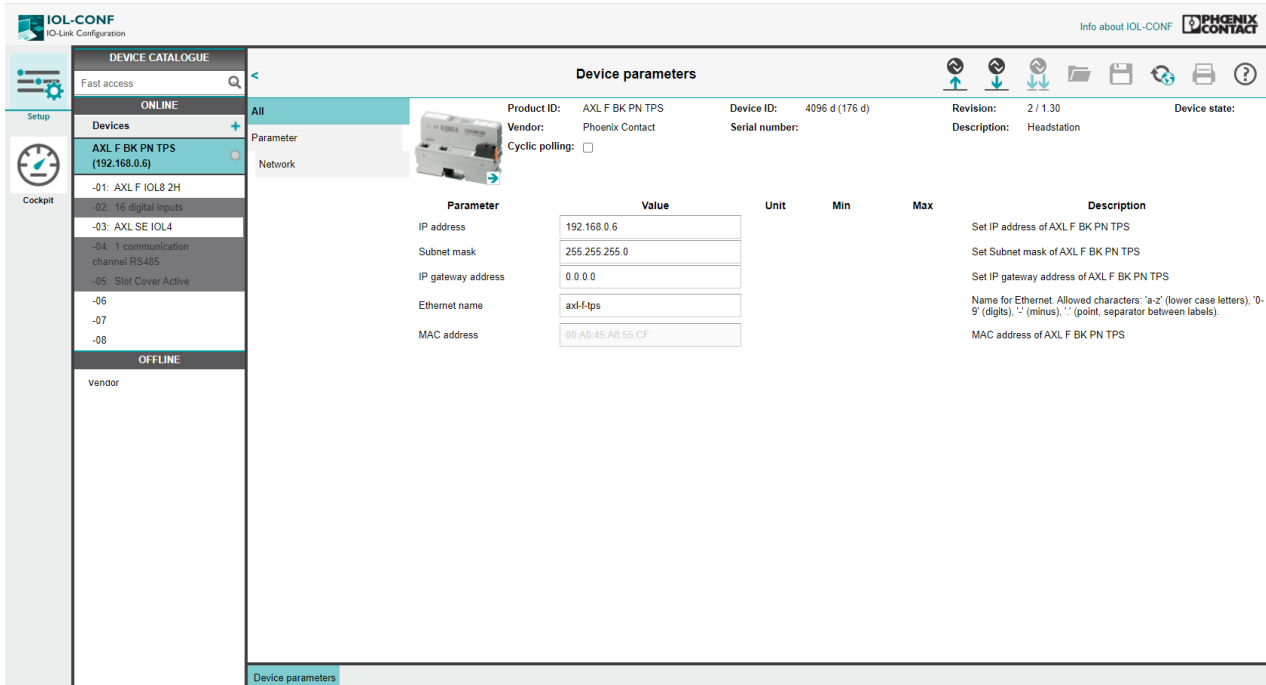Figure 5-4   Axioline F station with bus coupler information and parameters

> ℹ To use Axioline Smart Elements (AXL SE ...), you will need Axioline F backplanes (AXL F BP SE 4 or AXL F BP SE 6). Backplanes represent four or six devices even when unassembled. In the device catalog, from the ninth slot onwards, the empty slots are still included in the numbering but are not represented graphically.

5.2   Starting up the IO-Link master

- In the device catalog, click on the AXL F IOL8 or AXL SE IOL4 IO-Link master installed in the station.

In the device-specific area, you will see the settings with the parameterization options for the IO-Link master. In the delivery state, each port is set to DI mode.

- To operate IO-Link devices, set the corresponding port to "IO-Link".
- Select "IO-Link" from the drop-down menu.
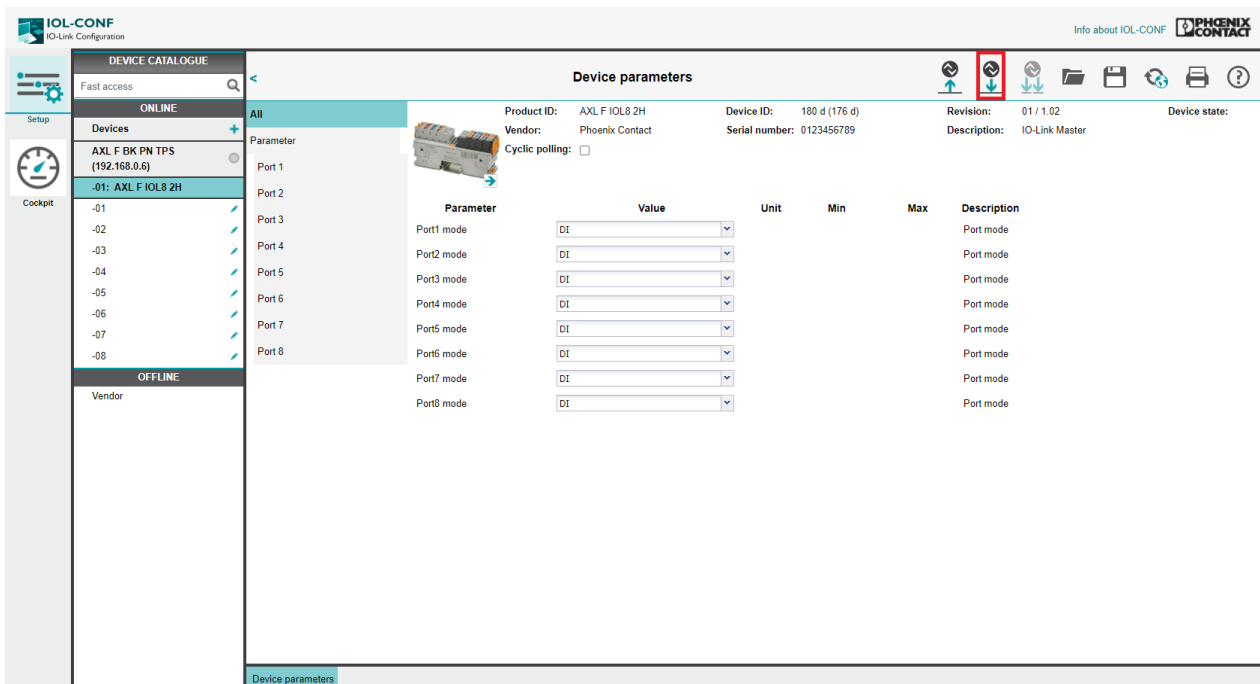- Then click the "Write to device" button.

Figure 5-5   Starting up the IO-Link master

Note the following for controllers that supply the IO-Link master with a startup parameterization (e.g., PLCnext Control or S7):
- If you have changed parameters on the port of the IO-Link master with the IOL-CONF software and then operate the master on a controller, the settings previously made with IOL-CONF will be overwritten.
- Since the controller has priority, make all settings in the engineering of the controller.
- In the following cases, the controller writes the parameter telegram to all connected field devices again:
  - Restarting the controller
  - Re-establishing communication after network interruption to a field device
  - Voltage reset on a field device

As soon as the port is switched to IO-Link, the list is extended to include additional necessary parameters, see figure below.
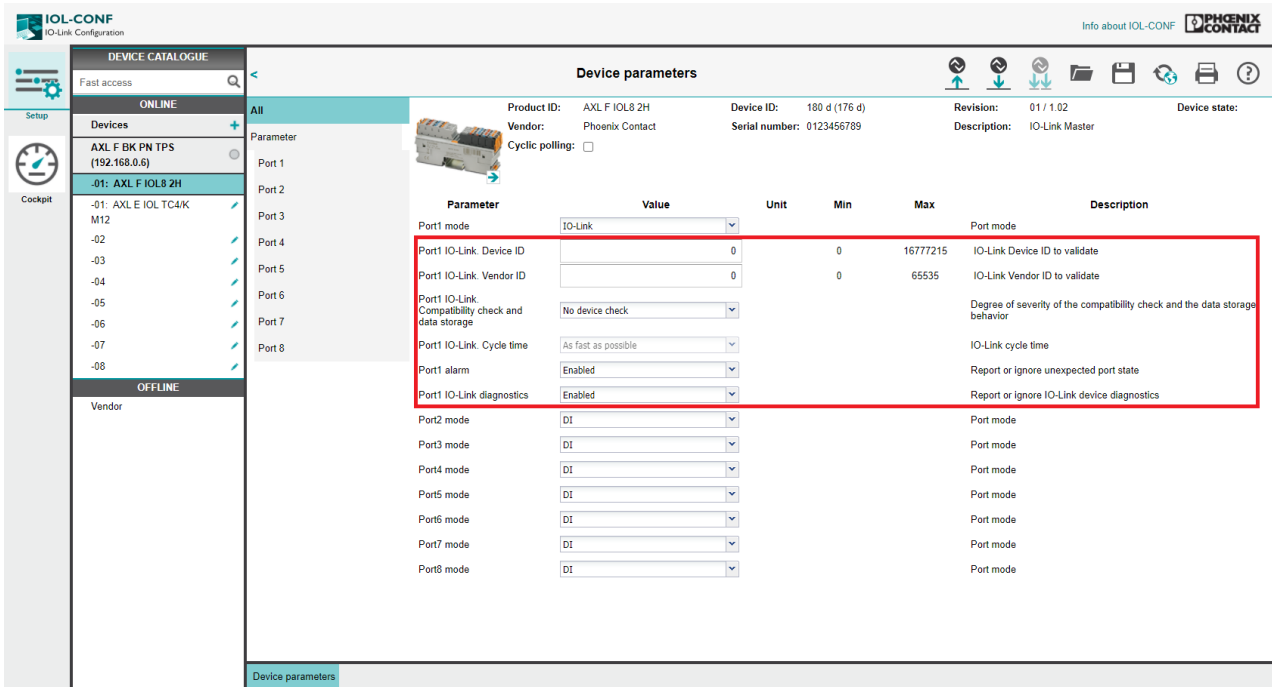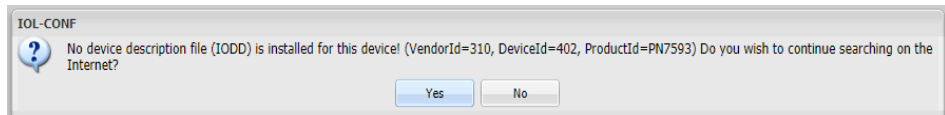

Figure 5-6   Parameters of the IO-Link master

Once the port has been switched, the software scans the station again. All connected IO-Link masters and IO-Link devices are displayed in the ONLINE area of the device catalog.

5.3   Starting up an IO-Link device

- In the device catalog, click an IO-Link device, e.g., AXL E IOL TC4/K M12, see figure below. All the parameters of the IO-Link device are displayed in the device-specific area.
- Set the parameters in accordance with your application.
- Click the "Write to device" icon.

The display in the device-specific area of IOL-CONF is based on device-specific description files (IODDs). The following message appears when an IO-Link master or IO-Link device is connected, but there is no corresponding IODD for it in the IOL-CONF software:

IOL-CONF

No device description file (IODD) is installed for this device! (VendorId=310, DeviceId=402, ProductId=PN7593) Do you wish to continue searching on the Internet?

Yes   No

For further information on loading device description files, please refer to

Figure 5-7   Parameters of the IO-Link device

When you change parameters in the device-specific area, the pencil icon indicates the change.

- To ensure that the change is not lost, save the parameters to an IO-Link device (ONLINE) or a file (OFFLINE).

> **i** Note the following for controllers that supply the IO-Link master with a startup parameterization (e.g., PLCnext Control or S7):
> – If you have changed parameters of the IO-Link device with the IOL-CONF software and then operate the device on a controller, the settings previously made with IOL-CONF will be overwritten.
> – Since the controller has priority, make all settings in the engineering of the controller.
> – In the following cases, the controller writes the parameter telegram to all connected field devices again:
>   – Restarting the controller
>   – Re-establishing communication after network interruption to a field device
>   – Voltage reset on a field device

6 Preparing parameter records for startup (OFFLINE)

You can use the IOL-CONF software to prepare parameter records for IO-Link masters and IO-Link devices and save them to files before creating the actual machine. To do this, create virtual IO-Link devices and parameterize them. Then save the prepared parameter records to a file. During startup, you can use the parameter records to copy them to the IO-Link masters and IO-Link devices. An IO-Link master or IO-Link device does not need to be present on the PC/notebook with IOL-CONF in order to perform this preparatory step. Using the "OFFLINE" category, create virtual IO-Link devices and parameterize them. Or parameterize an IO-Link master together with its IO-Link devices. The parameter records generated in this way are saved to lrp files under "Downloads".

6.1 Preparing and saving parameter records

You have the option of creating a file in OFFLINE mode. There, you can save the parameters of an IO-Link device or the parameters of an IO-Link master together with its devices. If the parameter record of an IO-Link master is written to a file, the parameters of the master and all the parameters of the devices configured for it will be saved. If you select just one device in the OFFLINE catalog, the parameters of this device only will be saved to a file.

- Under "Vendor" in the OFFLINE area of the device catalog, select your IO-Link master or your IO-Link device.

> **i** For a device to be displayed, its device description file (IODD) must be loaded in IOL-CONF. To find out how to load IODDs, please refer to Section "Updating the device description file (IODD) and device catalog" on page 35.
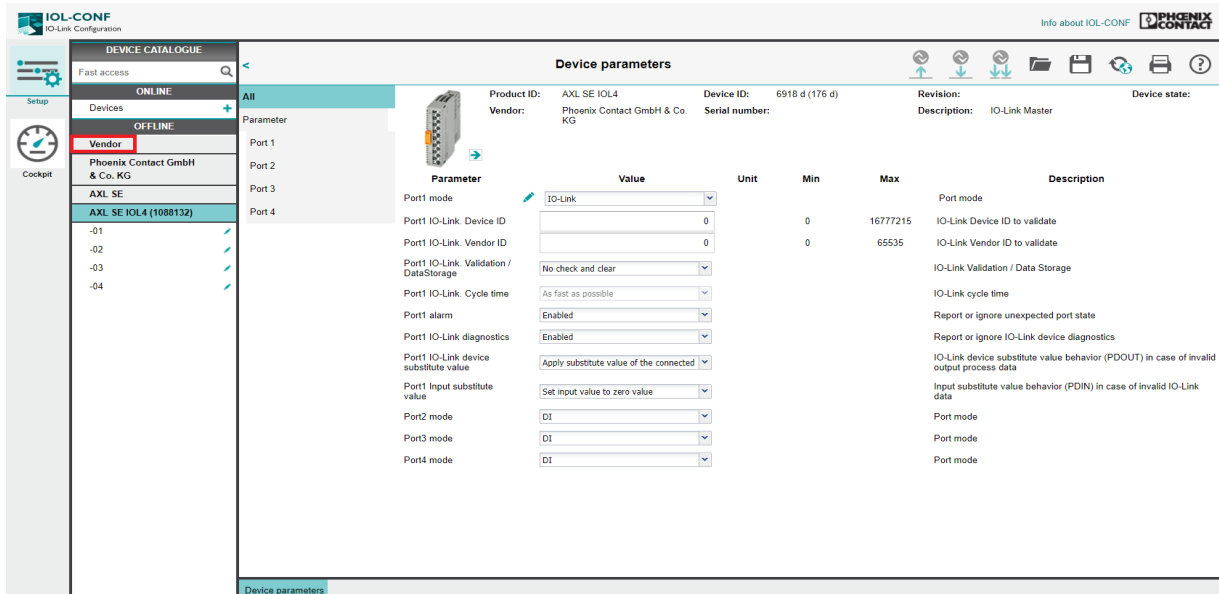
Figure 6-1   Device catalog OFFLINE: selecting the IO-Link master

When you have selected an IO-Link master, you will see its settings with the parameterization options. Each port is set to DI mode by default.

- Set the corresponding port to "IO-Link" by selecting "IO-Link" from the drop-down menu.
- Connect an IO-Link device to the IO-Link port.
- Select an IO-Link device via the pencil icon next to the corresponding port.
- Apply it to the OFFLINE configuration with "OK".
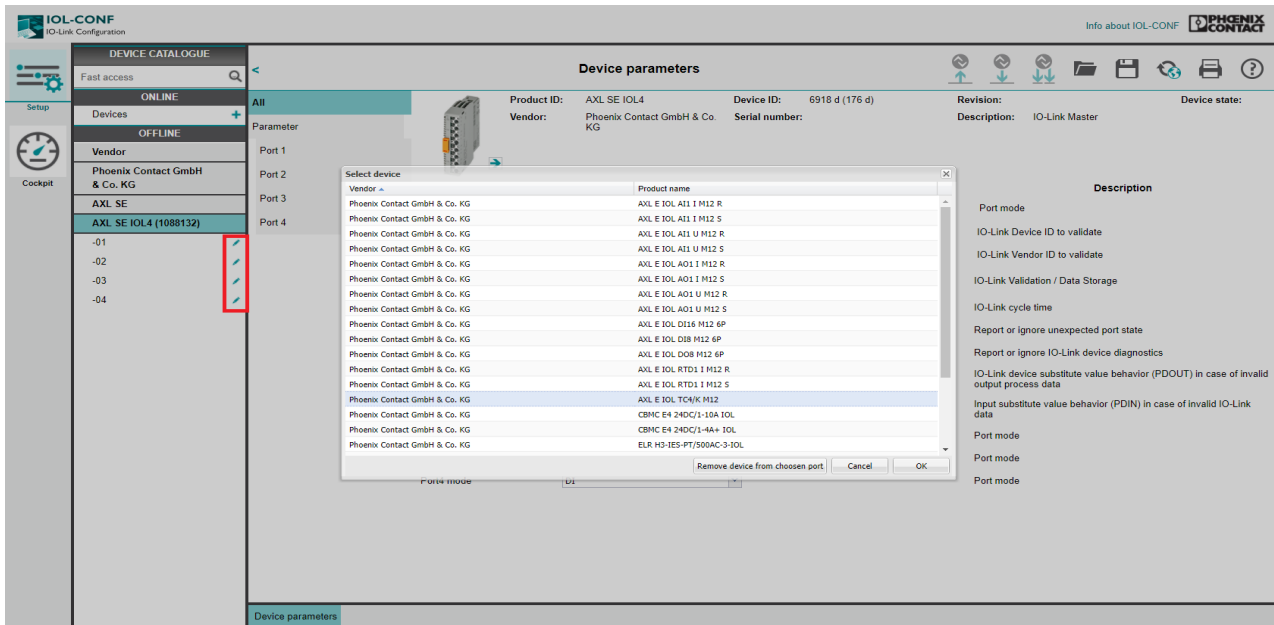
Figure 6-2   Device catalog OFFLINE: selecting an IO-Link device

- Select an IO-Link device in the device catalog.
- Set the parameters of the IO-Link device in the device-specific area.

Figure 6-3   Device catalog OFFLINE: parameterizing an IO-Link device

- Save all the parameters of a device selected in OFFLINE mode to a file.
- To do this, click "Save parameters to a file".

The parameters are stored in the "Downloads" folder in Windows. The item number of the IO-Link device is used as the file name, as per the order number entry in the IODD. For each device type, only one prepared parameter record can be saved as an lrp file.

6.2 Startup with prepared parameter record (loaded from lrp file)

There are two ways to copy the prepared parameter records to the IO-Link master and IO-Link devices in the IOL-CONF software. To do this, the parameter records must be in an lrp file.

1 Distributing the parameter records to multiple IO-Link masters and IO-Link devices

The "FILE" area is opened in the device catalog and the device or the devices is/are displayed there with the parameters from the loaded file. You can save the parameter record to one or more identical devices.

2 Assigning parameters directly to an IO-Link master and IO-Link devices

Before loading a parameter record under "ONLINE", select an IO-Link master or an IO-Link device that matches it. In the IOL-CONF interface, update the displayed parameters of the connected device directly.

> $\boxed{\mathbf{i}}$ When you load a file with an IO-Link master, the preconfigured IO-Link devices for it will also be loaded. When you load a file with just one individual device, only its parameters will also be displayed.

6.2.1 Distributing the parameter records to multiple IO-Link masters or IO-Link devices

- Before loading a file in the device catalog, select a device that does **not** match the contents of the file.
- Click the "Load parameters from a file" icon.
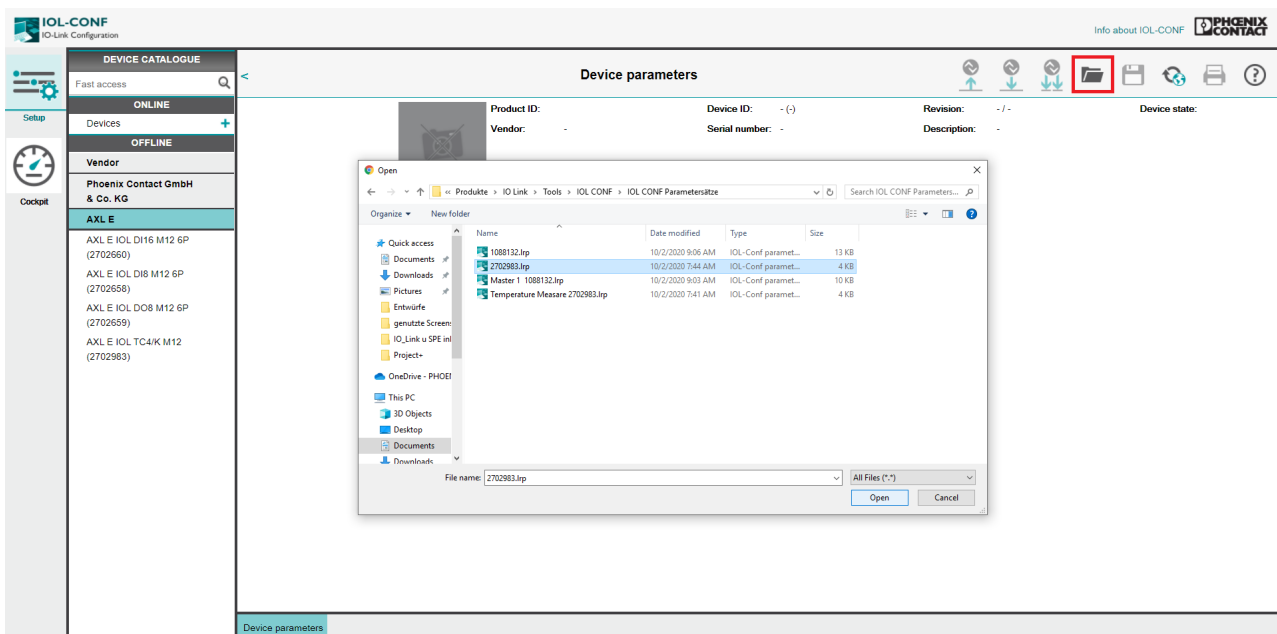
Figure 6-4   Loading an lrp file with prepared parameter record

- Select the file containing the parameter record that belongs to your device.
- Click "Open".

The new "FILE" category opens in the device catalog. The IO-Link masters and/or IO-Link devices are displayed with the parameters from the loaded file.

- With just a click, you can write identical parameter records to one or even multiple identical devices.
- Save the parameter record **to a device**.

Figure 6-5   Parameter record of the IO-Link master including IO-Link devices

- In the device catalog, select a device under "FILE".
- Click "Write to device".

A list of corresponding devices appears.

- Select the device to which the parameters are to be written.

With just a click, you can write identical parameter records **to multiple identical devices**. This function is only available for IO-Link devices.

- In the device catalog, select the desired device under "ONLINE".
- Click the "Write to multiple selected devices" icon.
- Here, select the devices that are to receive identical parameters.
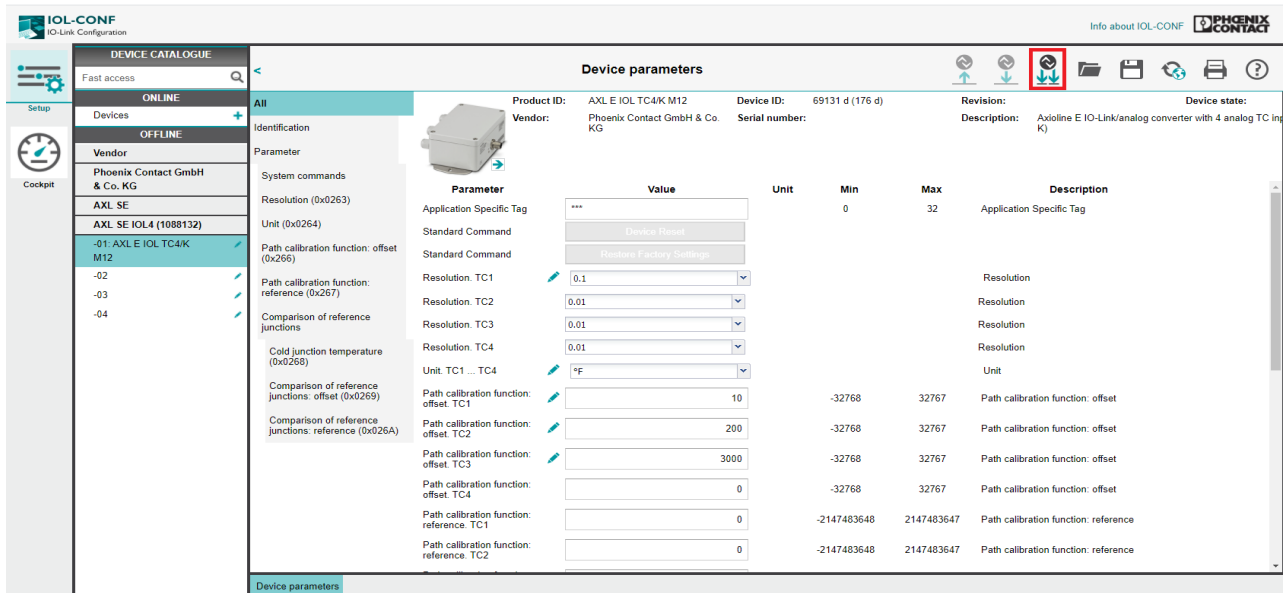
Figure 6-6   Writing to multiple devices

6.2.2   Assigning parameters directly to an IO-Link master or IO-Link device

When a station is connected to IO-Link masters or IO-Link devices that match the file contents and you have selected an IO-Link master or IO-Link device under "ONLINE", the parameters of the connected device displayed in the IOL-CONF interface are updated when the lrp file is loaded.

•   Under "ONLINE", click the IO-Link master or IO-Link device of which the parameters are to be directly overwritten with the parameters from the lrp file.

•   Click the "Load parameters from a file" icon.

•   Select the file containing the parameter record that belongs to your IO-Link master or IO-Link device.

•   Click "Open".

•   Click the "Write to device" icon to update the parameters in the IO-Link master or IO-Link device.

In the case of the parameter file of an IO-Link master, the parameters of the connected IO-Link devices will also be loaded. To write them to the devices, it is not enough to simply write to the IO-Link master.

•   Select the IO-Link devices individually.

•   Click the "Write to device" icon.

7 Updating the device description file (IODD) and device catalog

The following functions in the IOL-CONF software enable you to easily keep the IODDs and device catalog up-to-date.

– Import IODD files from the local storage location or from the online database (IODD finder portal)

– Delete selected IODD files from the device catalog

– Search for updates to already installed IODD files

7.1 Importing device description files

There are two ways to import an IODD:

ONLINE via the IODD finder portal

When your PC is connected to the Internet, the IOL-CONF software establishes contact with the IODD finder portal. There you can search for and download the necessary IODDs. They are automatically installed in the software.

• To do this, click the "Search for updates" button.

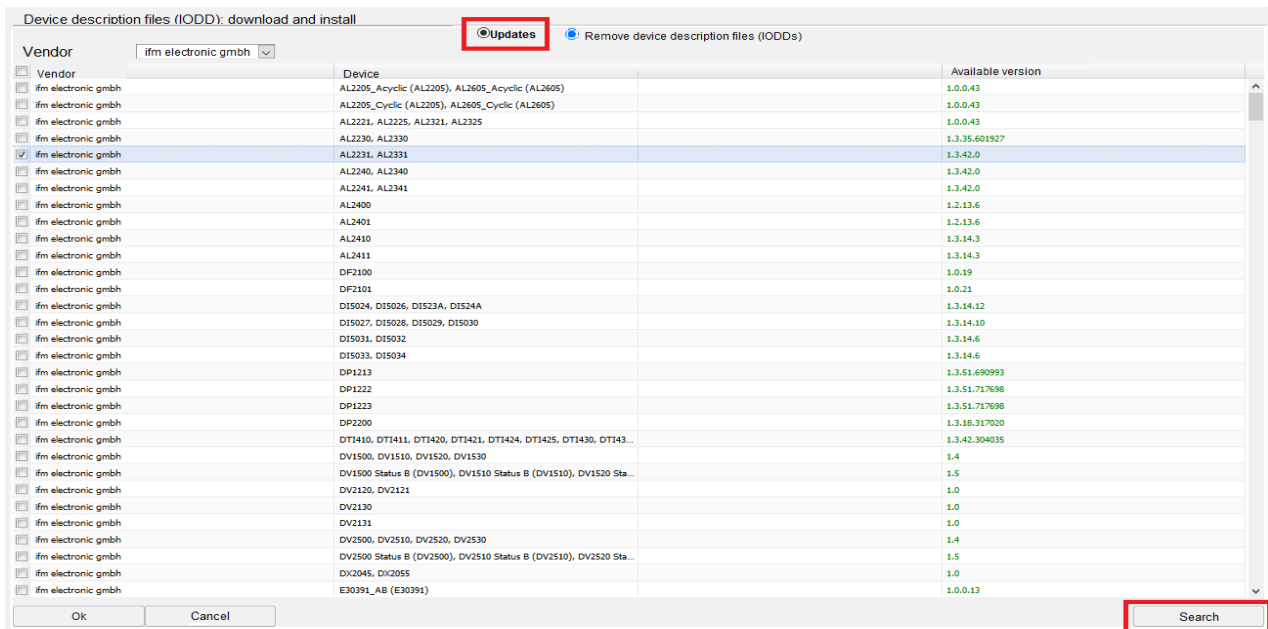| Device description files (IODD): download and install			
⦿ Updates ◉ Remove device description files (IODDs)			
Vendor	ifm electronic gmbh ⌄		
☐ Vendor	Device		Available version
☐ ifm electronic gmbh	AL2205_Acyclic (AL2205), AL2605_Acyclic (AL2605)		1.0.0.43
☐ ifm electronic gmbh	AL2205_Cyclic (AL2205), AL2605_Cyclic (AL2605)		1.0.0.43
☐ ifm electronic gmbh	AL2221, AL2225, AL2321, AL2325		1.0.0.43
☐ ifm electronic gmbh	AL2230, AL2330		1.3.35.601927
☑ ifm electronic gmbh	AL2231, AL2331		1.3.42.0
☐ ifm electronic gmbh	AL2240, AL2340		1.3.42.0
☐ ifm electronic gmbh	AL2241, AL2341		1.3.42.0
☐ ifm electronic gmbh	AL2400		1.2.13.6
☐ ifm electronic gmbh	AL2401		1.2.13.6
☐ ifm electronic gmbh	AL2410		1.3.14.3
☐ ifm electronic gmbh	AL2411		1.3.14.3
☐ ifm electronic gmbh	DF2100		1.0.19
☐ ifm electronic gmbh	DF2101		1.0.21
☐ ifm electronic gmbh	DI5024, DI5026, DI523A, DI524A		1.3.14.12
☐ ifm electronic gmbh	DI5027, DI5028, DI5029, DI5030		1.3.14.10
☐ ifm electronic gmbh	DI5031, DI5032		1.3.14.6
☐ ifm electronic gmbh	DI5033, DI5034		1.3.14.6
☐ ifm electronic gmbh	DP1213		1.3.51.690993
☐ ifm electronic gmbh	DP1222		1.3.51.717698
☐ ifm electronic gmbh	DP1223		1.3.51.717698
☐ ifm electronic gmbh	DP2200		1.3.18.317020
☐ ifm electronic gmbh	DTI410, DTI411, DTI420, DTI421, DTI424, DTI425, DTI430, DTI43...		1.3.42.304035
☐ ifm electronic gmbh	DV1500, DV1510, DV1520, DV1530		1.4
☐ ifm electronic gmbh	DV1500 Status B (DV1500), DV1510 Status B (DV1510), DV1520 Sta...		1.5
☐ ifm electronic gmbh	DV2120, DV2121		1.0
☐ ifm electronic gmbh	DV2130		1.0
☐ ifm electronic gmbh	DV2131		1.0
☐ ifm electronic gmbh	DV2500, DV2510, DV2520, DV2530		1.4
☐ ifm electronic gmbh	DV2500 Status B (DV2500), DV2510 Status B (DV2510), DV2520 Sta...		1.5
☐ ifm electronic gmbh	DX2045, DX2055		1.0
☐ ifm electronic gmbh	E30391_AB (E30391)		1.0.0.13
Ok	Cancel		Search

Figure 7-1   IODD loaded externally using the company "ifm" as an example

• Select the desired IO-Link device under "Vendor".

• For multiple IO-Link devices, select the corresponding check boxes.

• Click "OK" to load the IODD in the IOL-CONF software.

Manually from the local file system of your PC

You can search for the file on your computer and install it in IOL-CONF from there.
- To do this, click the "Search" button in the bottom right corner.
- Click "OK" to load the IODD in the IOL-CONF software.

> ℹ When manually reading an IODD file from the local file system of your PC into the software, the file must be a complete zip file including language file, image, etc.

7.2 Removing IODD files from the device catalog

- Click the "Search for updates" icon.

Figure 7-2   "Search for updates" icon

The following window opens.

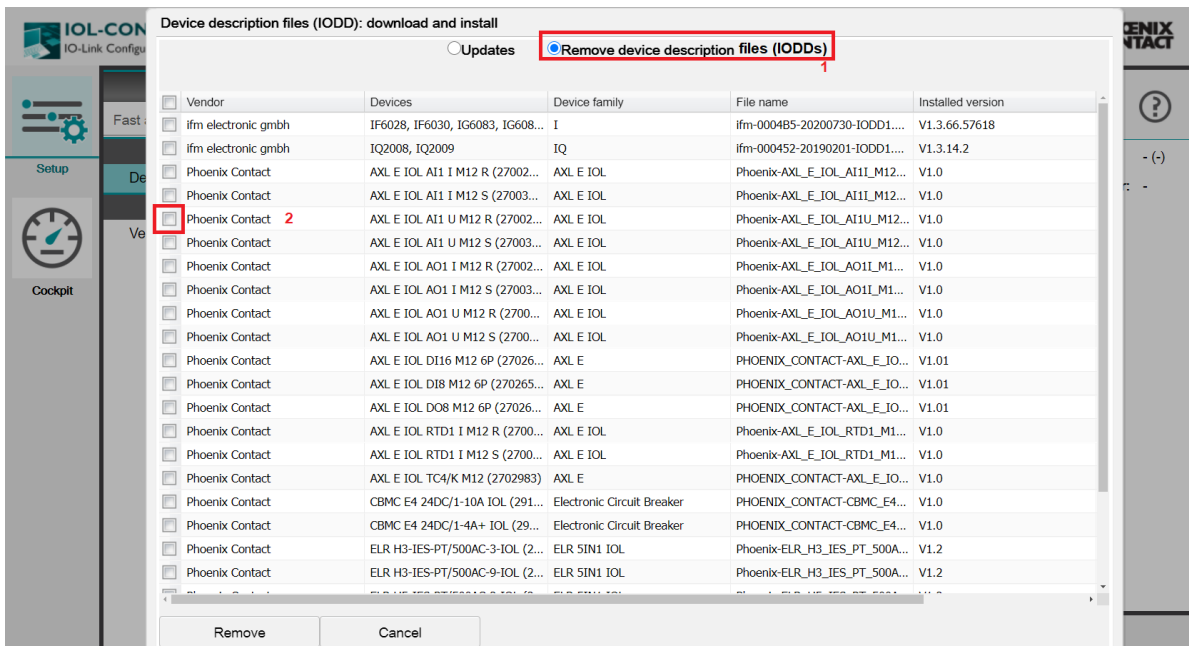Figure 7-3   Removing IODD files

- Select "Remove device description files (IODDs), (1)"
- Select the IODDs that are to be deleted (2).
- Click "Remove".
- Confirm safety prompt that checks whether you really want to delete the selected IODDs.
- The window containing information about updating the device definitions (IODDs) appears.

7.3 Searching for updates for already installed IODD files

On the PC with the IOL-CONF software, the software must have access to the IODD finder portal online via port 443.

• Click the "Search for updates" icon.

The "Download and installation of device definitions (IODD)" window opens. A preliminary check is performed to determine whether new versions exist of already installed IODDs. The "Updates" option is selected.

8 Reading and writing process data using the cockpit

All process data available online in an IO-Link device is visualized in this view.

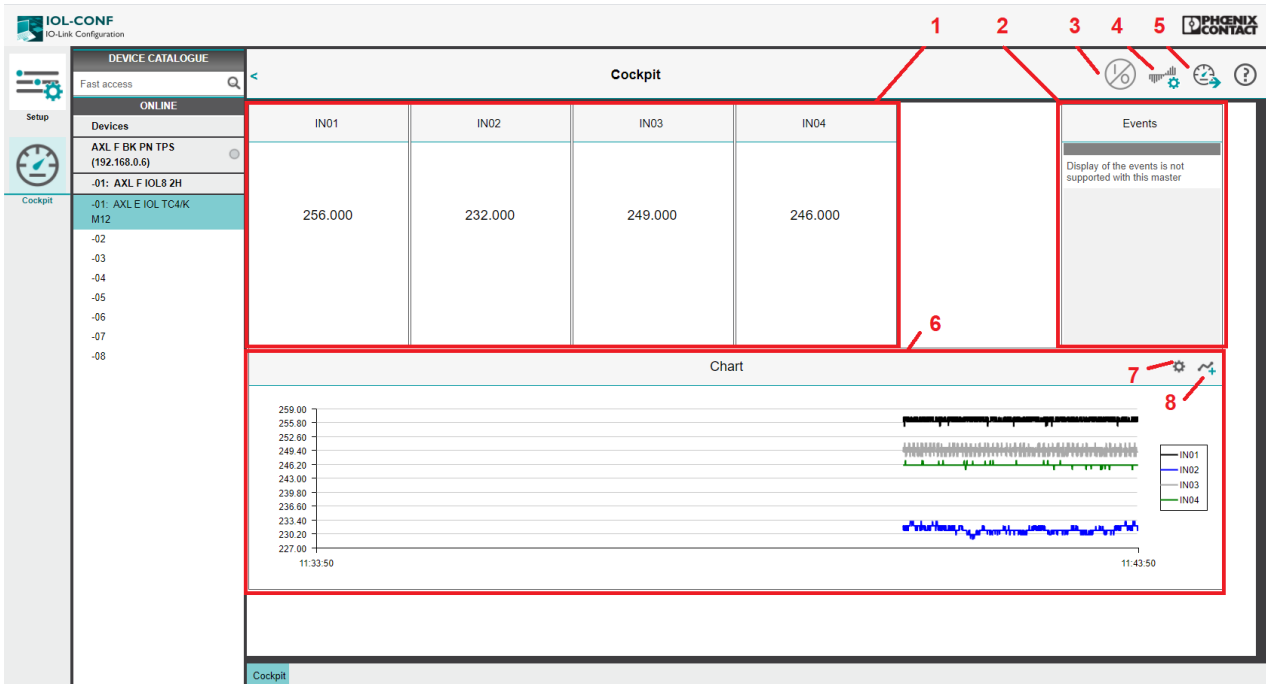- You have the option to set outputs.

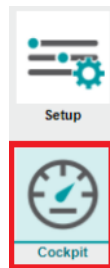Figure 8-1 Cockpit: AXL E IOLTC4/K box

Figure 8-2 "View" area in the IOL-CONF interface

To use the cockpit, proceed as follows:
- Select "Cockpit" in the "View" area.
- Select an IO-Link device in the device catalog.

Reading process data

The software displays the process data as defined in the IODD, i.e., as a binary value, numerical value or tachometer display.

You also have the option of tracking the chronological trend of the data in a chart display.

Writing process data

If an IO-Link device has outputs, you can change them. Process data outputs only become active once you click the I/O button.

Setting process data outputs

The process data outputs are set in the cockpit. You can show or hide the window for the process data outputs via the "Process data" icon in the Cockpit tool bar.

Figure 8-3   Cockpit tool bar: process data

The following operating elements are available to change the outputs:
–   Switch
–   Input field
–   Slider
–   List

The available setting options and the operating elements depend on the connected IO-Link device and the configured operating mode. If the operating mode can be adjusted, it can be changed in the "Parameterization" menu.
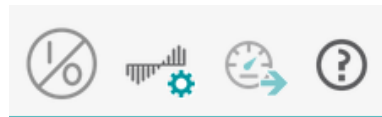
Cockpit tool bar
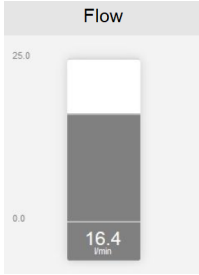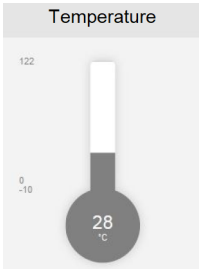

Figure 8-4   Cockpit tool bar

1	Display instruments	Simplified graphical representation of the inputs and outputs
2	Events	This version of the IOL-CONF software does not support the display of events.
3	Process data output	State/values of the process data outputs are displayed. Outputs can be set.
4	Sampling rate setting	Specification of the sampling rate for new measured values (number of measured values per time unit)
5	Export measured values	The measured values of the chart are saved as a csv file.
6	Chart	The measured values and switching states are visualized in a specified time period. The key indicates which measured value the characteristic curve relates to.
7	Edit/settings	Edit the chart markings, specify the time range of the X-axis, show/hide the key.
8	Add/remove data sources	Identified data sources can be selected or deselected for display in the chart.

Note about exporting measured values:

Process data can be recorded via the cockpit for a maximum of 60 min. However, the possible recording duration can vary and depends on the set time range of the X-axis (default value: 10 min). IOL-CONF will only ever record the measured values of the device that is selected in the cockpit. As soon as a device is selected in the cockpit that supplies process values, IOL-CONF starts recording the measured values. Selecting a different device interrupts the recording of measured values for this device. If the device for which the recording was originally started is selected again, recording continues after this gap. This gap also exists in the measured values in the exported CSV file. IOL-CONF only exports the recorded measured values of the device selected at the time of export.

The table below shows the icons used for measuring points/data sources

Display type	Description	Icon
Pointer instrument	Form of display typically used for pressure measurements in bar/psi/MPa, etc. Based on measuring devices with manometer design.	Pressure bar -1.00 1.52 10.50
Bar graph	Form of display for process values that are not typically represented as a manometer or thermometer.	Flow 25.0 0.0 16.4 l/min
Thermometer	Form of display typically used for temperature measurements in °C/°F, etc. Based on measuring devices with thermometer design.	Temperature 122 0 -10 28 °C
Switching state	Form of display for digital I/O signals Only one display format is shown. ●● "ON" display = active/ "high" output or ●● "OFF" display = inactive/ "low" output	Switching status [OUT1] Switching status [OUT2] ON OFF activ inactiv

9 Troubleshooting

The table below lists frequently asked questions and their solutions

Question	Solution
Software does not start.	Reboot the computer
Sensor is not recognized. Error message "No connected device found"	Check network connection Check network settings Check IP address Assign static IP address Check firewall settings Disable firewall
Unable to complete installation routine	A device may not have been detected correctly or an incorrect driver was selected. Terminate installation Start uninstallation Reboot the computer Start the installation process again
Web browser display is not optimal.	Restart web browser and IOL-CONF Use an alternative browser (3.1.2 PC software) Display errors do not affect function.
After starting IOL-CONF, this message appears: "No license for this software found on the computer."	If the 30-day trial license has expired, you need to purchase a license ticket and install it using the "Activation Wizard". Restart web browser and IOL-CONF If you have saved your license on the ESL STICK USB A software dongle, make sure that the dongle can be accessed (plugged into the USB port).
Message: Performing background search for new device definitions (IODDs).	Repeat "Search for updates"

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