HYDROTECHNIK

ENG

HYDROlink6 Professional

Manual

Software version 6.2.4
Manual version 2.0

Manufacturer

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Further information

To learn more about products and services from HYDROTECHNIK, please visit our Internet site **www.hydrotechnik.com** or contact your local distributor.

Your experiences and feedback

We appreciate your suggestions and feedback. It helps us to continually improve our products.

About this manual

Operation

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Software description

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About this manual

This chapter will provide you with basic information about this manual.

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Scope

This manual applies to software packages with the name HYDROlink6 Professional, produced by HYDROTECHNIK GmbH, Limburg, Germany. The instructions apply only to software with the version number indicated on the title page of this manual.

If you do not have the appropriate manual for your software, it is also available on our homepage: **www.hydrotechnik.com**

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Purpose of the manual

This manual helps users do their daily work with the software. It contains information about the windows, dialogs, commands, and buttons of the software and explains specific procedures and operational steps. For information that extends beyond the content of this manual, we will be glad to offer you customer-specific trainings.

Please contact our sales department or your local HYDROTECHNIK partner for additional information.

Required knowledge

This manual assumes that you have previous experience in working with the Windows operating system and its operating elements, e.g. drop-down lists, buttons, etc. Typical Windows dialogs such as **Save as** and their operating elements are not described in this manual.

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Structure of the information

The information used in the manual and its meaning are explained in the following.

Note

This note informs you about possibly dangerous situations that can occur due to an operating error/inappropriate behaviour. If these situations are not avoided, damage to the machine or its surroundings can result.

This note will provide you with tips to make your work easier. This note will also provide you with further details about the working process.

Abbreviations used

The following abbreviations are used in this manual.

approx.	approximately
CAN	Controller Area Network
CPU	Central Processing Unit
ISDS	Intelligent Sensor Detection System
LAN	Local Area Network
max.	maximum
min.	minimum
MB	MultiBox
MC	MultiControl
MH	MultiHandy
MS	MultiSystem
PC	Personal Computer
PGN	Parameter Group Number
SA	Source Address
SPN	Signal Number
tab	Tabulator
USB	Universal Serial Bus
e.g.	for example

Symbols used

The following symbols are used in this manual.

➔	Beginning of an operating sequence
1, 2, ...	Steps within an operating sequence
■	End of an operating sequence
⇨	Cross-reference to a different part of this manual or to a different document.
(A)	Reference to the element indicated by letters in a figure
Button	**Blue boldface** refers to switches, controllers, sliders, buttons, and terms from the software.
Ctrl + c	**Red boldface** refers to keys on the keyboard. If keys should be pressed at the same time, this will be indicated with a plus sign (+).
Path > Dialog	Path specification. This is how you reach the dialog/function described.
BASE	Indicates information that is only valid if one of the following measuring devices is connected or if another measurement device was connected and no higher edition was licensed: • MultiHandy 2020 • MultiHandy 2025 • MultiHandy 3020 • MultiSystem 4010
MultiBox	Indicates information that is only valid if one of the following measuring devices is connected: • MultiBox 3060 • MultiBox 3061 • MultiBox 3065
MultiControl	Indicates information that is only valid if measuring devices in the MultiControl are connected.

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Operation

This chapter explains how to use the software properly.

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Introduction

HYDROlink6 is software from HYDROTECHNIK.

Functional description

HYDROlink6 facilitates the operation of HYDROTECHNIK measurement devices that are connected to the computer.

HYDROlink6 provides you with the following functions:

- Display of current measurement values of selected channels
- Display min./max. measurement values of selected channels
- Display of measurement series stored on the measurement device
- Saving of measurement series
- Recording of measurement series
- Export of measurement series as graphic (PNG, JPG, BMP, GIF)
- Printout of a measurement series log or saving as a PDF file.
- Display of measurement series saved on the computer, exporting or creating a log of these
- Management and configuration of several measurement devices
- Combination of several measurement devices
- Creation and running of test procedures on the PC or measurement device

You can change the display of the measurement values and measurement series. You can adapt the layout of the log.

You can operate the HYDROlink6 using the mouse, your voice, or a touch screen.

Program versions

The application is available in three versions:

- BASE
- ADVANCED
- PROFESSIONAL

These instructions describe the PROFESSIONAL version.

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After installing HYDROlink6, the BASE version is available. To work with the ADVANCED or PROFESSIONAL version, an appropriate license must be purchased and activated.

If you connect other measurement devices, only the functions of the BASE version are available since these measurement devices cannot be operated remotely.

The functions of the ADVANCED and PROFESSIONAL versions are available for measurement devices in the **5060**-, **8050**-, and **xx70** families.

If a **MultiBox**, a **MultiPanel** or a device in the **MultiControl** family is connected, then the ADVANCED version is released automatically.

System requirements

Please observe the following system requirements.

Operating system

Microsoft Windows 7 SP1 or higher.

We recommend the 64-bit version.

.NET Framework

.NET Framework 4.8.

PDF viewer

Adobe Reader or comparable reader program.

Hardware

At least the same system requirements of Microsoft Windows 7.

Recommended hardware:

- Processor: Intel i3 multi-core processor with 2.5 GHz or comparable processor
- Memory: 4 GB
- Printer
- Multi-touchscreen is supported

Supported measurement devices

HYDROlink6 supports all listed measurement devices. If you connect a MH 2020, MH 3020 or MS 4010 measurement device to HYDROlink6, then HYDROlink6 switches automatically to the **BASE** version regardless of which version was licensed. This is because these measurement devices do not support the **ADVANCED** version.

- MH 2020 (only **BASE** functionality)
- MH 2025
- MP 2025
- MH 3020 (only **BASE** functionality)
- MS 4010 (only **BASE** functionality)
- MS 4070
- MC 4070
- MS 5060
- MS 5060 *Plus*
- MS 5070
- MS 8050
- MC 8050
- MB 306x

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Installation

A set-up wizard will assist you during the installation of HYDROlink6.

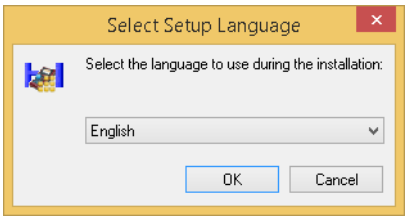
➔ **How to install HYDROlink6**

1 Disconnect all HYDROTECHNIK measurement devices from the computer.

2 Save and close all applications.

3 Execute the installation file and confirm the Windows security queries.

4 Select the set-up language.



5 Follow the instructions in the set-up wizard.

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Setting up HYDROlink6

You can start and set up HYDROlink6 after the installation has been completed.

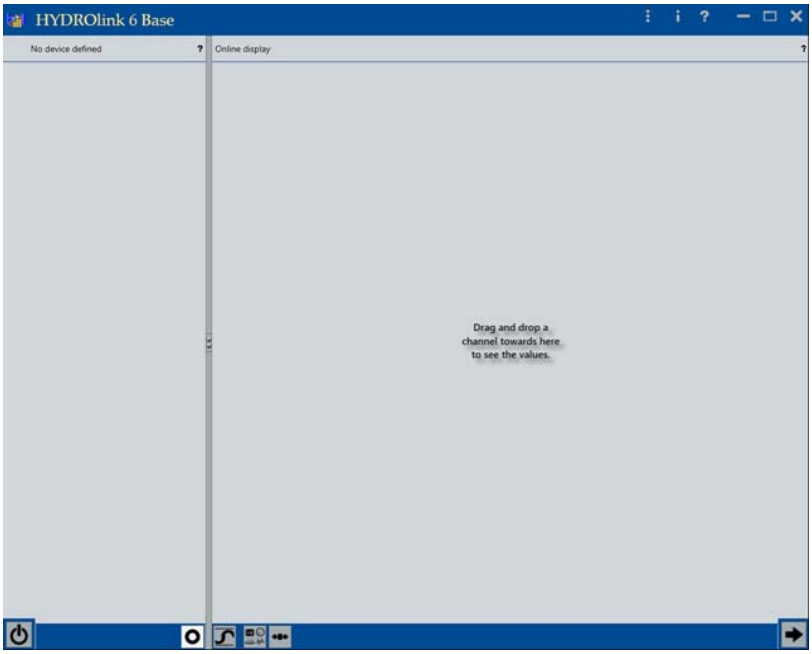


Image: HYDROlink6

You can adapt HYDROlink6 to your needs.

All settings are made on the **Settings** dialog and described in the **Software description** chapter.

⇨ **Voice control** on page 257

You should always specify the following settings:

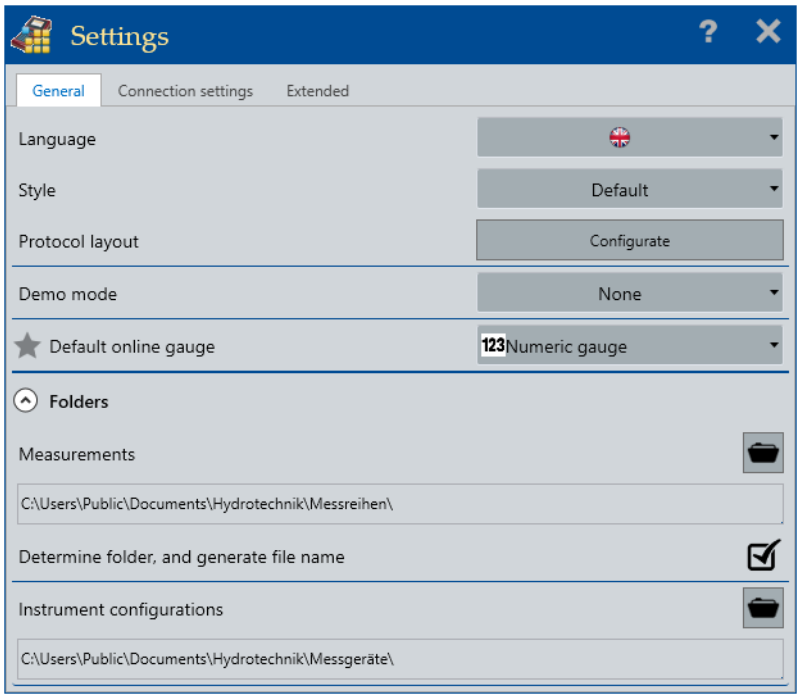
- **User interface language**
- **Default directories for measurement series and measurement device configurations**
- **Log layout**

➔ **How to open and close the Settings dialog**

1 Double-click the HYDROlink6 icon on your desktop to start HYDROlink6.

2 Click the **Open Settings dialog** button .

The settings dialog is displayed.



All changes and input are immediately adopted by HYDROlink6. Saving the settings is not necessary.
A new language will be used the next time the application is started.

3 Click the **Close** button to close the settings dialog.

■

User interface language

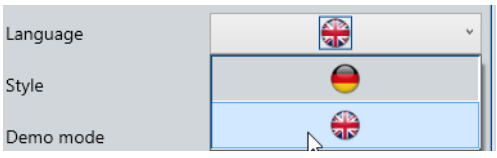
HYDROlink6 uses the language of the operating system as its default setting. If HYDROlink6 does not have this language, HYDROlink6 will be installed with the English user interface.

You can change the user interface language on the **Settings** dialog on the **General** tab.

➔ **How to specify the user interface language**

1 Click the button next to the **Language** entry.

The list of available languages is displayed.



2 Click the desired language symbol.

3 Close the **Settings** dialog .

4 Close HYDROlink6 .

5 Restart HYDROlink6.

HYDROlink6 starts in the new language.

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Default directories for measurement series and measurement device configurations

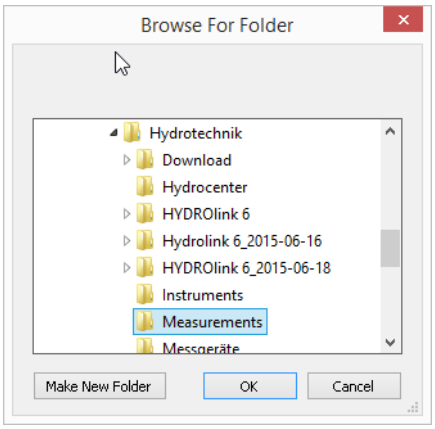
During installation, HYDROlink6 creates a default directory for measurement series and measurement device configurations.

You can change the default directory and specify that HYDROlink6 saves new measurement series in the default directory automatically.

➔ **How to specify the default directory for measurement series**

1 Click the button in the **Directories** area.

The Windows **Browse folder** dialog is displayed.



2 Mark the desired folder or create a new folder.

3 Click **OK**.

4 To have HYDROlink6 save new measurement series automatically, click . The time stamp is used as file name.

■

You specify the default directory for measurement device configurations analogously. This setting is also in the **Directories** area.

Log layout

You can change the layout of the log on the **Log layout** dialog.

On the **Settings** dialog, click the **Configure** button next to the **Log layout** entry to open the **Log layout** dialog.

⇨ **Configuring the log layout** on page 70.

Licensing HYDROlink6

After installation, the **BASE** version is available. The **ADVANCED** and **PROFESSIONAL** versions must be licensed.

Licensing is done in five steps:

1. Purchase desired version
2. Register
3. Request license
4. Receive license file
5. Activate license

When purchasing HYDROlink6, you select the desired version. With the purchase, you receive a serial number for the selected version. After you have installed HYDROlink6, request a license.

➔ **How to register**

1 Click the **Open info dialog** button **i**.

2 Select **Request license**

3 Select **Registration**.

You will be forwarded to the HYDROTECHNIK customer center. Enter the required data.

After registration, you must click the link in the registration e-mail.

A license for a **ADVANCED** or **PROFESSIONAL** version can only be requested with an e-mail address that has already been registered.

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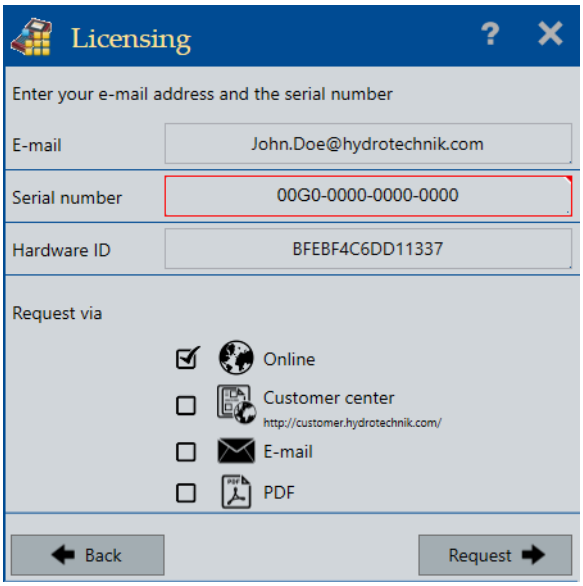
➔ **How to request a license**

1 Click the **Open info dialog** button i.

2 Select **Request license.**

3 Click the **Next** button.

The **Licensing** dialog is displayed.



4 Enter the required data.

E-mail: Enter the e-mail address with which you are registered at HYDROTECHNIK.

Serial number: You receive the serial number in the form of a certificate when you have purchased a **ADVANCED** or **PROFESSIONAL** version. In the serial number, there are no **Os**; any characters that look like this are always the number zero (**0**).

Hardware ID: This is generated automatically by the software and entered in the field.

5 Select one of the methods for requesting the license.

Online: The license request and activation are done automatically in a single step. This option can be blocked by firewall settings. In this case, contact your network administrator.

Customer center: You will be forwarded to the HYDROTECHNIK customer center. After you have logged in, the licensing page opens. The license file and license key will be created automatically and sent to you via e-mail. You use the license file and the license key to activate the license manually in the application.

E-mail: Your license request is sent to the HYDROTECHNIK customer center via e-mail. The license key is generated manually by the customer center employees. The license file and license key will be sent to you via e-mail. You use the license file and the license key to activate the license manually in the application.

PDF: Your license request is generated as PDF. You can send it via e-mail or post to the HYDROTECHNIK customer center. The address is included in the PDF. The license key is generated manually by the customer center employees. The license file and license key will be sent to you via e-mail. You use the license file and the license key to activate the license manually in the application.

In the customer center, you can check how many free licenses are present.

■

➔ **How to activate a license manually**

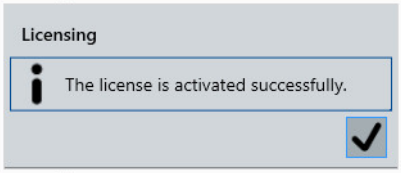
1 Click the **Open info dialog** button .

2 Select **Activate license**.

The Windows **Open** dialog is displayed.

3 Select the license file that you have received via e-mail.

The license is activated.



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Overview

Get an overview of the various application cases and the user interface in order to use HYDROlink6 optimally.

Flow of different application cases

There are the following application cases for HYDROlink6:

- **Using online display and recording online measurement series**
- **Displaying measurement series without connected measurement device**
- **Managing, configuring, and using several configurations for a measurement device**
- **Coupling several measurement devices, performing measurement, and managing, configuring, and using their device settings**

There is a typical sequence of activities for each application case.

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Using online display and recording online measurement series

The online display shows the current measurement values for a connected measurement device.

You can record these measurement value directly in the software as online measurement series.

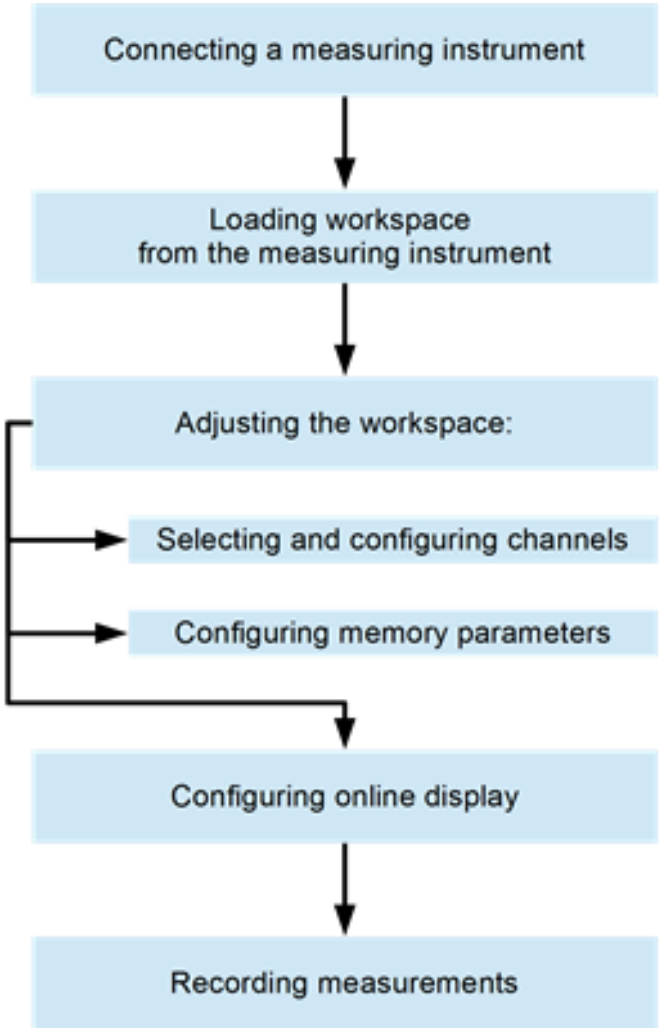

Image: Using online display and recording online measurement series

The recording of online measurement series takes place in 3 stages:

1. Saving of the measurement values on the measurement device (generally in memory 200).
2. Copying of the measurement series to the memory card in the measurement device.
3. Transfer of the measurement series to HYDROlink6.

See also:

⇨ **Using the online display** on page 44
⇨ **Recording a measurement** on page 59

Displaying measurement series without connected measurement device

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If you have saved individual measurement series on your computer, the software can display measurement series without a connected measurement device.

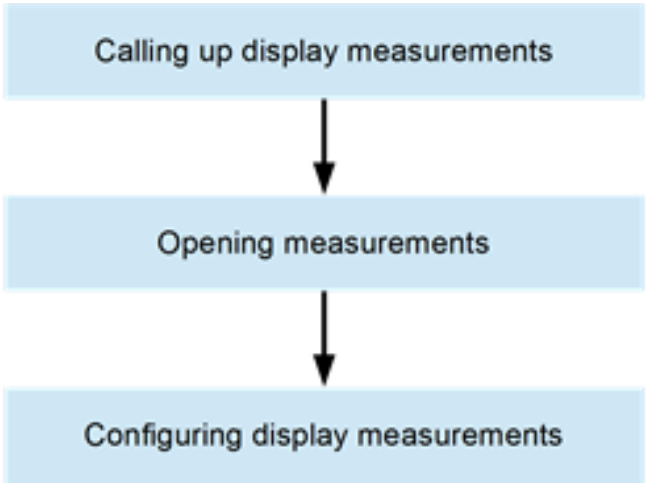

Image: Displaying measurement series without connected measurement device

⇨ **Using the Measurement display** on page 53

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Managing, configuring, and using several configurations for a measurement device

With the software, you can create and edit different configurations for a measurement device, and if necessary, transfer them to the measurement device.

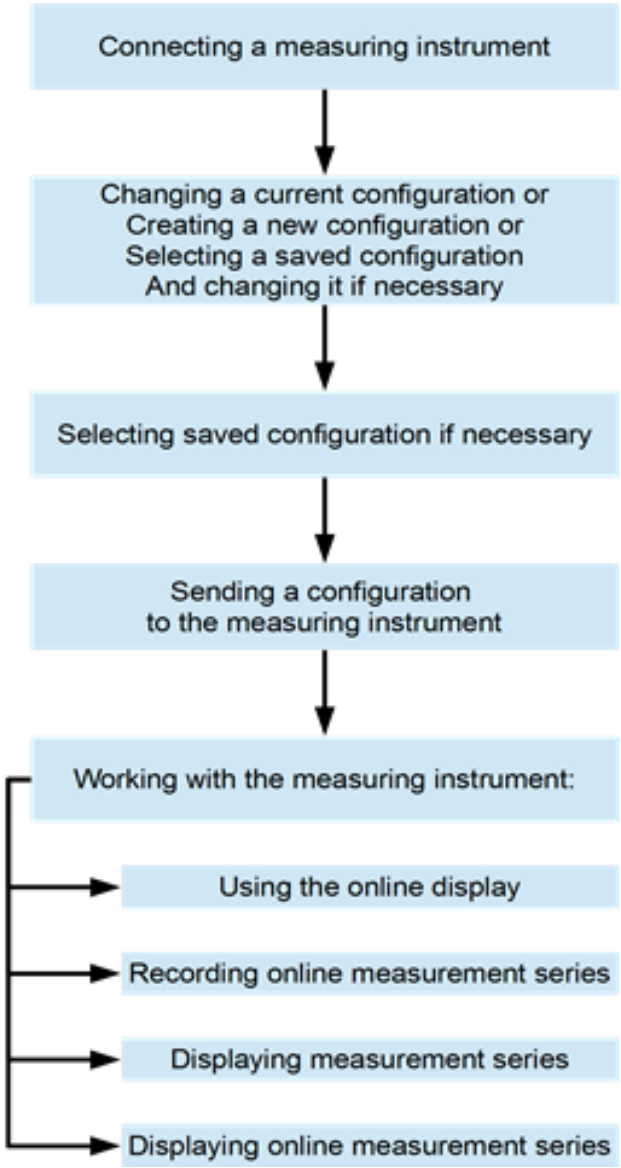

Image: Managing, configuring, and using several configurations for a measurement device

⇨ **About working area and configurations** on page 37
⇨ **Working with configurations** on page 38
⇨ **Managing configurations** on page 40

Coupling several measurement devices, performing measurement, and managing, configuring, and using their device settings

The software enables you to couple several measurement devices easily and therefore to multiply the number of available measurement channels. Coupling measurement devices is also possible without the software. However, the software simplifies the configuration of several measurement devices and enables the recording of measurement data from all measurement devices as a single measurement series without detours.

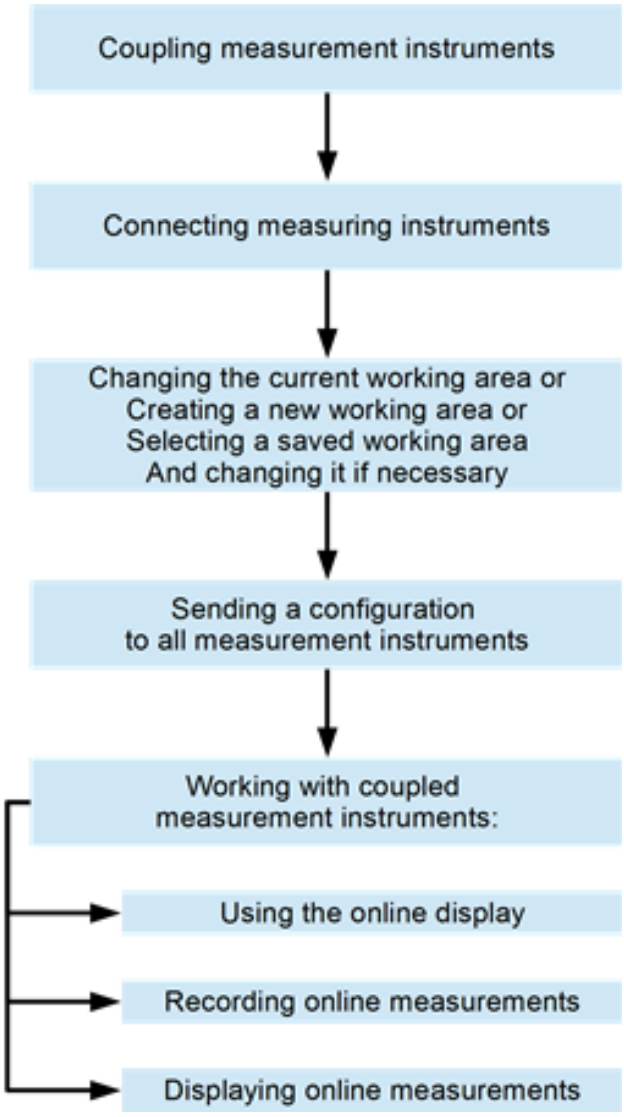

Image: Coupling several measurement devices, performing measurement, and managing, configuring, and using their device settings

⇨ **Coupling several measurement devices** on page 61

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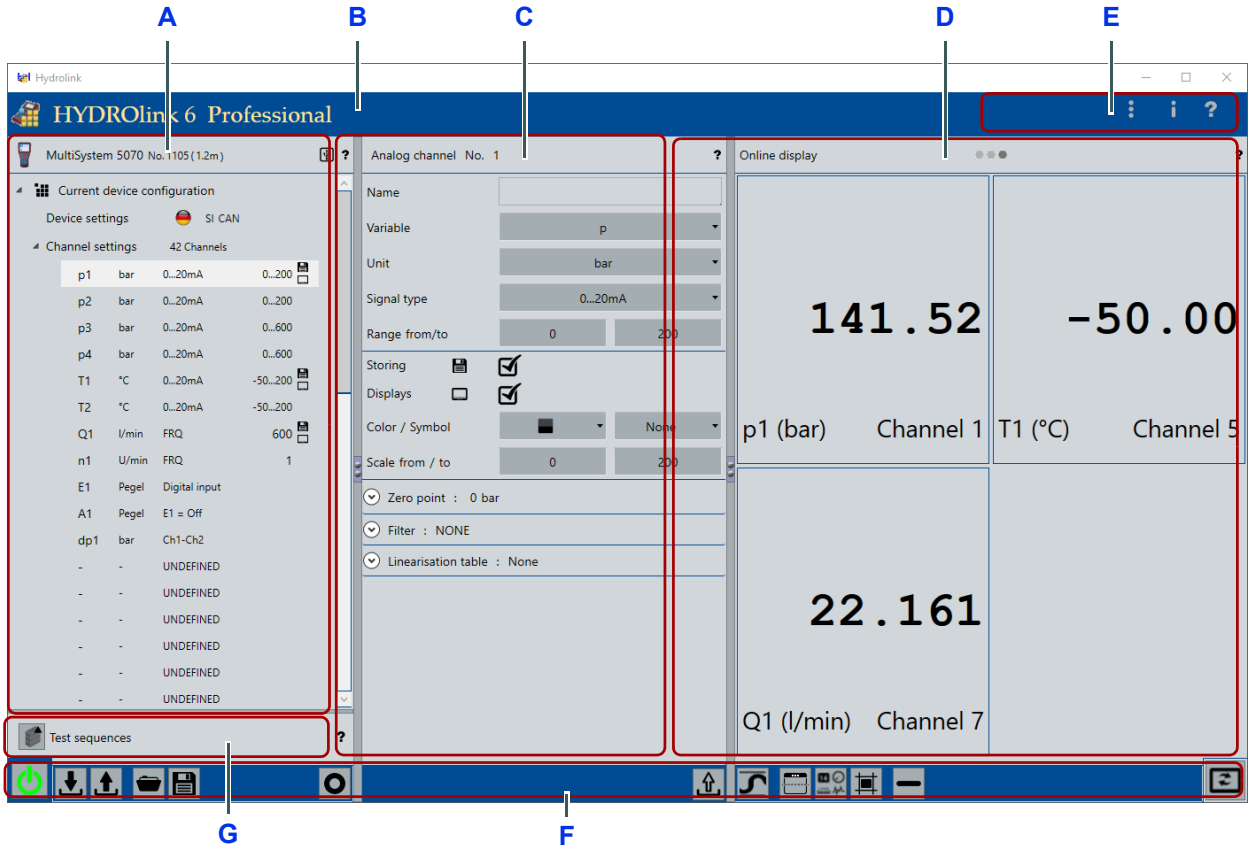
User interface



A Device explorer
B Voice control
C Detail area (appears after selection in the device explorer)
D Viewer
E Information and configuration bar
F Toolbar
G Test procedures

Image: HYDROlink6 Application window with Online display

HYDROlink6 is divided into three main areas:

The left side is the device explorer (**A**)and shows information about connected measurement devices in a hierarchical structure. If no measurement device is connected, the most recently displayed information will be shown.

⇨ **Device explorer** on page 109.

The detail area is in the middle (**C**). This area is shown if you select menu elements in the device explorer for which you can change settings.

⇨ **Detail area** on page 126

The right side (D) is the viewer. The viewer shows the **Online display**, the **Device display** or the **Measurement series display**. The online display shows current measurement values for the connected measurement device. The **Device display** simulates the display on the device display and also shows current measurement values. The **Measurement series display** shows saved measurement series as a line graph. You can open measurement series from the measurement device or the computer.

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Use the **Test procedures** button to show or hide the list with the test procedures. You can create, manage, and run test procedures. If the test procedures are shown, the detail view in the program window changes.

⇨ **Test procedures** on page 74

The three areas, device explorer, detail area, and viewer can be made wider or narrower and separated from another by dragging the bars. Use the handles to adjust the width of the areas.

Use the **Switch** button to change between the **Online display**, the **Device display**, and the **Measurement series display**.

⇨ **Using the online display** on page 44

⇨ **Using device display** on page 51

⇨ **Using the Measurement display** on page 53

You can open the help with the **?** button or with the **F1** key. The help is context-sensitive. This means that the help is opened to the part of the software description that is relevant for the current part of the user interface.

⇨ **Software description** on page 105

The toolbar (F) is located under the device explorer, the online display, and the measurement series display. Different tools are offered for the **Online display**, the **Device display,** and the **Measurement series display**.

The information and configuration bar (E) is in the top right.

In addition to the default Windows button, you can open the **Info menu**:

- **Help**

  ⇨ **Software description** on page 105
- **About...**
- **Request license**

  ⇨ **Licensing HYDROlink6** on page 18

  ⇨ **Licensing dialog** on page 241
- **Activate license**

You can also open the **Settings**.

⇨ **Voice control** on page 257.

You can operate certain functions of HYDROlink6 using voice control. Voice control must be activated in the **Settings**. When activated, the symbol will be displayed in the title bar (B).

⇨ **Voice control** on page 257.

Starting tips

HYDROlink6 will show you information about many of the buttons the first time you use them. The information provides a brief description of the button. This will help you learn how to use HYDROlink6.

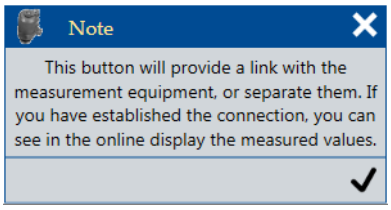

Image: Note about starting tips

Click the checkmark to close the information window. HYDROlink6 will subsequently execute your command. The next time you click the same button HYDROlink6 will no longer show the starting tip; it will execute your command directly.

If you would like HYDROlink6 to show you the starting tip again, activate the starting tips in the **Settings**.

⇨ **Advanced tab** on page 234.

Touch operation

HYDROlink6 supports touch-capable devices, for example, tablets. Use familiar gestures from tablet interfaces. For simplicity's sake, these instructions only describe the operation using a mouse. Touch gestures are only described in certain situations.

Tooltips

HYDROlink6 will show you tooltips in many places, for example, if you hover the mouse pointer over **Channel settings**. When using touch operation, leave your finger on the corresponding point for approx. one second.

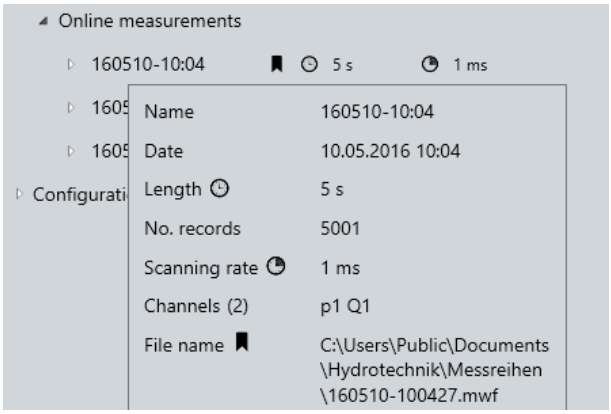

Image: Tooltip

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Connecting a measurement device

You must physically connect a measurement device to the computer and to HYDROlink6 to enable HYDROlink6 to access the measurement device.

➔ **How to connect your measurement device to HYDROlink6**

1 Connect the measurement device to the computer.

The operating instructions for the measurement device will explain how to connect the measurement device to the computer.

2 Switch the measurement device on.

Wait until the measurement device has switched on and Windows detects it as a device.

3 Open HYDROlink6.

4 Click the **Connect** button .

When the measurement device is connected to HYDROlink6 the **Connect** button icon is green.

■

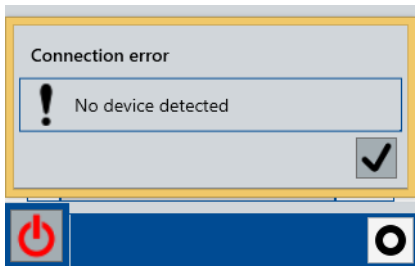
After you have connected the measurement device, next you must load the working are from the measurement device or send a working area to the measurement device.

⇨ **Transfer and change working area** on page 32

Connection error

If HYDROlink6 is unable to detect any measurement device, then no connection can be established.

HYDROlink6 displays the **Connection error** dialog. The **Connecting** button symbol is red.



Check whether the measurement device is correctly connected to the computer and switched on.

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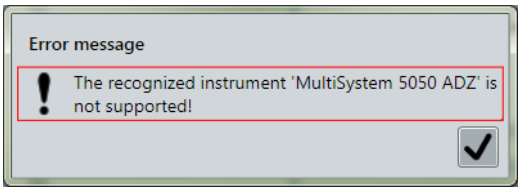
Unsupported measurement device

HYDROlink6 checks the model of the measurement device.

If the model is not supported by HYDROlink6, an error message will be displayed. You can not use the measurement device with HYDROlink6. You may require different software. Contact our customer service or your contact person at HYDROTECHNIK for more information.

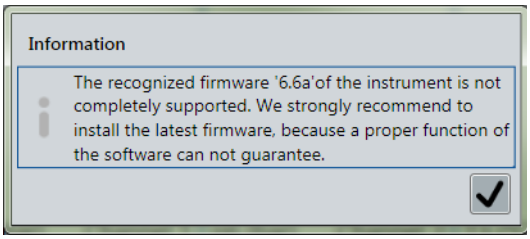
⇨ **Supported measurement devices** on page 13.



Firmware version information

HYDROlink6 checks the firmware version of the measurement device.

Information will be displayed if the firmware version is not compatible with HYDROlink6. Depending on the situation, HYDROlink6 may be able to work with the measurement device, however, in a limited way.

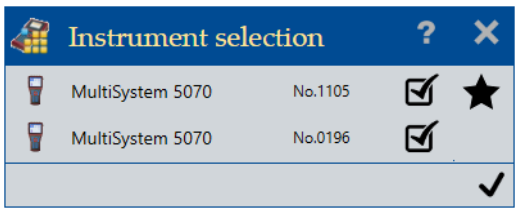


Click the checkmark to close the information. In the device information, the symbol ⚠ indicates that the firmware version is not fully supported by HYDROlink6.

Perform a firmware update on your measurement device.

Multiple measurement devices

If you have connected more than one measurement device to your PC, HYDROlink6 opens the device selection dialog.



If you only want to use one measurement device, deselect the others and click the ✓ button.

You can also combine several measurement devices and thereby increase the number of available channels.

⇨ **Coupling several measurement devices** on page 61

Transfer and change working area

To use the online display, the device display or the measurement series display, you must first transfer the working area from or to the measurement device.

The working area includes the totality of all settings.

You can change all settings for the measurement device in the software and then transfer them to the measurement device.

You have the following options:

- **Load working area from measurement device**
- **Changing the working area**
- **Sending working area to measurement device**
- **Managing settings**

Load working area from measurement device

After you have connected a measurement device, the working area is loaded from the measurement device automatically.

⇨ **Connecting a measurement device** on page 30

So that a changed working area becomes effective, you have to send the working area to the measurement device. If you would like to discard a changed working device, you can simply load the working area again from the measurement device.

Click the **Load working area from measurement device** button.

After you have loaded the working area from the measurement device, you can change the working area again, use the online display or record a measurement series.

⇨ **Changing the working area** on page 33
⇨ **Using the online display** on page 44
⇨ **Using device display** on page 51
⇨ **Recording a measurement** on page 59

Changing the working area

You can change the working area for the connected measurement device that you have loaded from the measurement device or a file in the software.

If you have loaded the working area from the measurement device or you have loaded a working area from a HYDROlink configuration file.

⇨ **Load working area from measurement device** on page 32

⇨ **How to save the working area as file** on page 42

ENG

The following instructions are merely a sample. You can read more about which settings you can change where in the **Software description**. You can also use the context-sensitive help in the software by pressing the **F1** key to learn more about individual dialogs.

➔ **How to configure a channel for the online display, for example.**

1 Connect the measurement device.

⇨ **Connecting a measurement device** on page 30

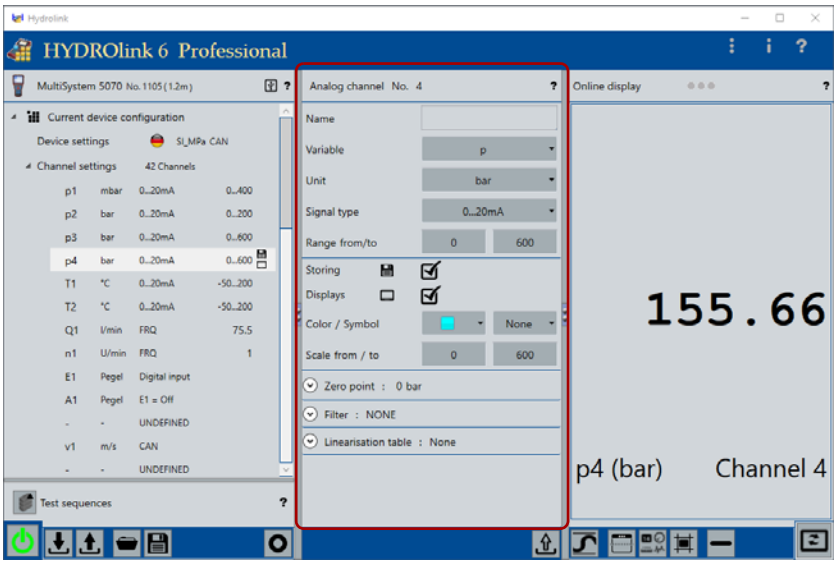
The working area is loaded from the measurement device.

2 Open the **Current device configuration** menu.

3 Open the **Channel parameters** menu.

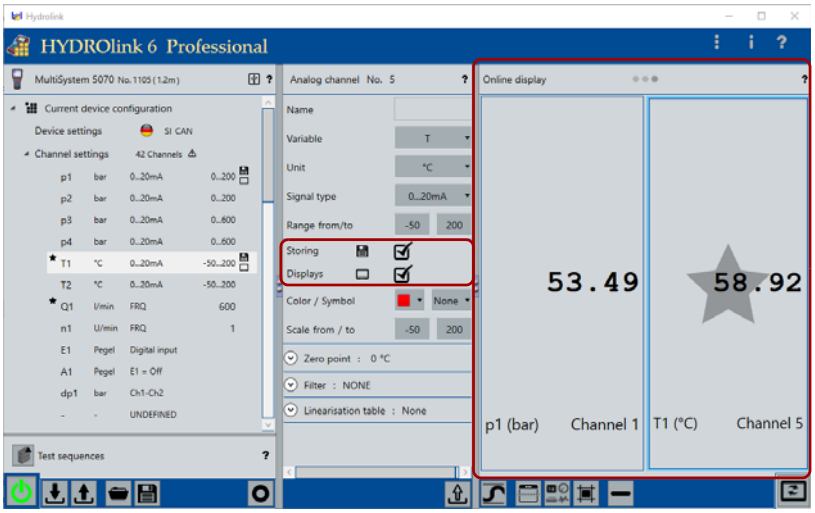
4 Mark the desired channel.

The detail area displays the channel parameters.



5 Click the **Save** and **Show** buttons.

The channel is shown in the online display.

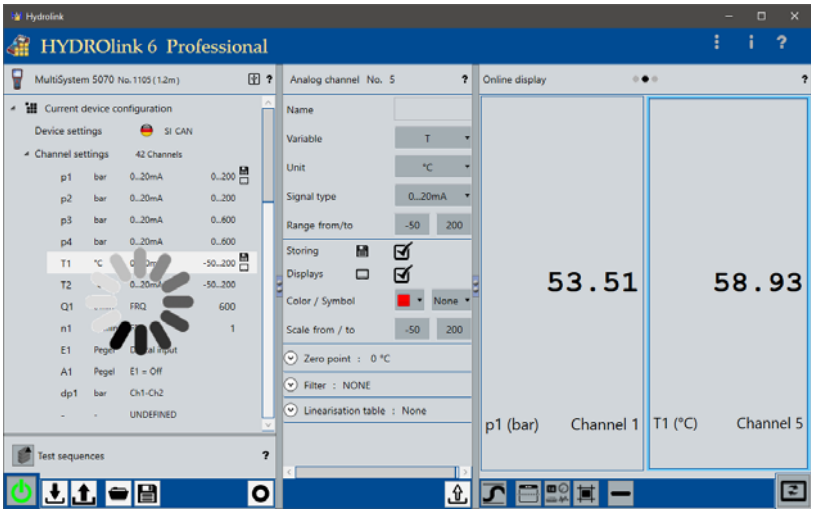


6 If necessary, change additional settings.

7 Parameters that you have changed are marked with an asterisk ★.

8 To transfer the changes to the measurement device, click the **Send working area to measurement device** button .

The changed working area is transferred.



■

⇨ **Software description** on page 105

Sending working area to measurement device

To use a changed working area for the measurement device, send the working area to the measurement device.

You have connected a measurement device.

⇨ **Connecting a measurement device** on page 30

You have changed the working area or you have loaded and changed a working area.

Parameters that you have changed are marked with an asterisk ★.

⇨ **Load working area from measurement device** on page 32

⇨ **How to save the working area as file** on page 42

⇨ **Changing the working area** on page 33

Click the **Send working area to measurement device** button .

Here, all configurations are also sent to the measurement device.

⇨ **About working area and configurations** on page 37

⇨ **Working with configurations** on page 38

⇨ **Managing a working area** on page 42

Send individual parameters to the measurement device

Instead of sending the working area to the measurement device, you can send individual settings to the measurement device, e.g. only the device parameters or only the channel parameters of a channel.

You have connected a measurement device.

⇨ **Connecting a measurement device** on page 30

You have changed the working area or you have loaded and changed a working area.

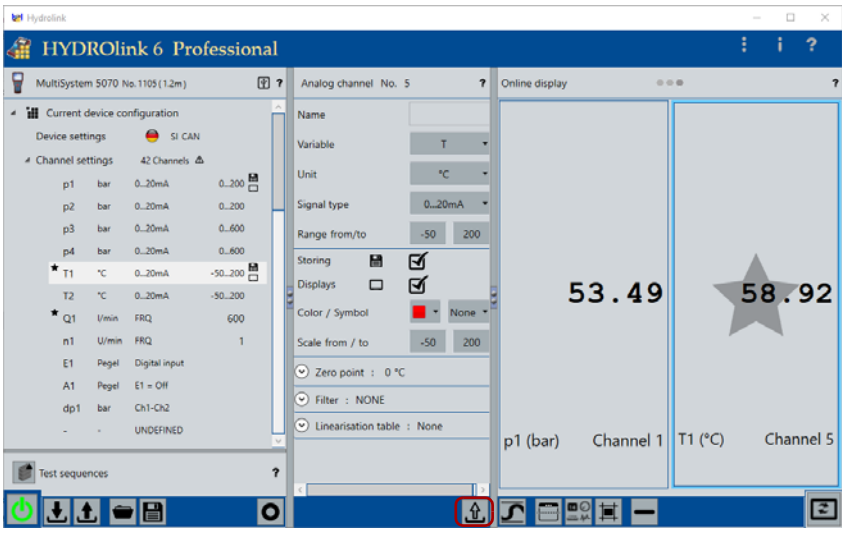
Parameters that you have changed are marked with an asterisk ★.

⇨ **Load working area from measurement device** on page 32

⇨ **How to save the working area as file** on page 42

⇨ **Changing the working area** on page 33

Click the **Send these settings to measurement device** button in the detail area.



The successful sending is confirmed with a checkmark symbol .

ENG

Managing settings

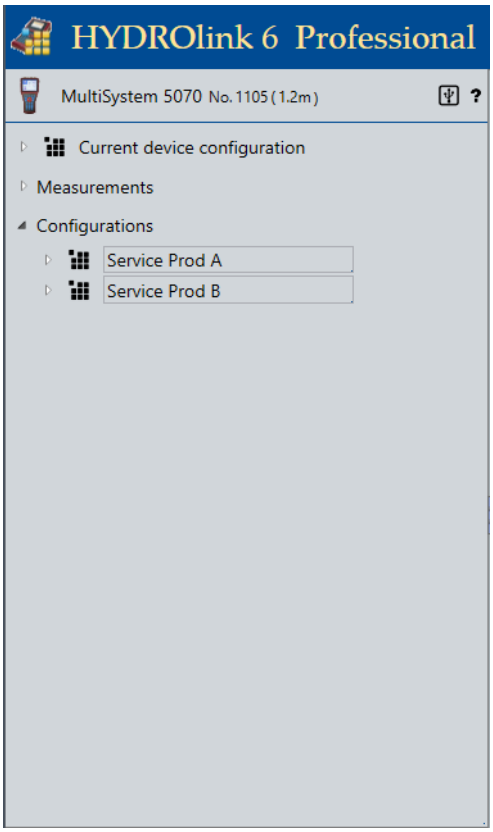
The software allows you to configure several measurement devices of the same and different types flexibly and easily for the same or different purposes.

About working area and configurations

ENG

You can manage two different types of settings:

- **Configurations**
- **Working area**



Configurations

Configurations include everything that is displayed under **Current device configuration**:

- **Device parameters**
- **Channel parameters**
- **Storage parameters**
- **Display parameters**

A configuration in the software is identical to a project on the measurement device.

A configuration on the **Configuration** menu is shown analogously to the **Current device parameters** menu in the explorer. On the **Configuration** menu,

you can edit the parameters just as you can on the **Current device configuration** menu.

Configurations are saved as PRJ files.

Working area

The working area include everything that is displayed in the entire device explorer:

- **Current device parameters**
- **Measurement series**
- **Configurations**

The working area also contains the online measurement series as link to the MWF files.

All configurations that you save individually and can send to the measurement device are part of the working area. If you load the working area from the measurement device, all projects on the measurement device are displayed on the **Configurations** menu.

You can save a maximum of 10 configurations per working area and at the same time on a measurement device. To save 20 or 30 configurations, you can create several working areas.

Working area files are saved in XHTC files.

Working with configurations

With configurations, you can configure measurement devices of the same type for different purposes.

Creating several configurations

You always create a new configuration from an existing device configuration. After that, you can rename the configurations and change parameters in them.

Adjusting configurations

You can create different configurations for different purposes, e.g. one apiece for different departments in R&D and other ones for different products for the customer service.

Transferring configurations to several measurement devices

Insofar as the same measurement device type (e.g. MultiSystem 5070) is used, you can transfer these different configurations to different measurement devices. Of course you can also transfer the same configurations to different measurement devices of the same type.

⇨ **Managing configurations** on page 40

Working with working areas

With working areas, you can manage settings for different types of measurement devices.

For example, you can manage five MultiSystem 5070s and eight MultiControl 8050s for a total of five purposes. Then you would create a working area for

each measurement device type and within each working area, one configuration apiece for each purpose.

⇨ **Managing a working area** on page 42

Managing configurations

With configurations, you can configure measurement devices of the same type for different purposes.

Configurations in the software are called projects on the measurement devices.

⇨ **Working with configurations** on page 38

You have the following options:

- **How to send the selected configuration to the measurement device**
- **How to create a new configuration.**
- **How to delete a configuration**
- **How to overwrite a configuration**
- **How to save the selected configuration as file**

➔ **How to send the selected configuration to the measurement device**

1 Connect the measurement device.

⇨ **Connecting a measurement device** on page 30

The working area is loaded from the measurement device.

2 Open the **Configuration** menu.

The list of existing configurations is displayed.

3 Perform the following steps:

- Change a configuration.
- Create a new configuration.
- Overwrite a configuration.
- Load a configuration from a file.

4 Mark the configuration in question.

5 Click the **Send selected configuration to the measurement device** button  .

The new configuration is available as a project on the measurement device.

■

➔ **How to create a new configuration.**

1 Connect the measurement device.

⇨ **Connecting a measurement device** on page 30

The working area is loaded from the measurement device.

2 Mark **Current device configuration** and drag the icon to the **Configuration** menu. Confirm the dialog.

The new configuration is displayed on the **Configuration** menu.

3 To rename the configuration, mark the name of the configuration.

4 To transfer the changes to the measurement device, click the **Send selected configuration to measurement device** button  .

The new configuration is available as a project on the measurement device.

■

➔ **How to delete a configuration**

1 Mark the desired configuration.

2 Click the **Delete the selected configuration** button  and confirm the dialog.

■

➔ **How to overwrite a configuration**

1 Connect the measurement device.

⇨ **Connecting a measurement device** on page 30

The working area is loaded from the measurement device.

2 Open the **Configuration** menu.

The list of existing configurations is displayed.

3 Mark **Current device configuration** and drag the icon to the icon for the configuration that you want to overwrite. Confirm the dialog.

The new configuration is displayed on the **Configuration** menu.

4 To rename the configuration, mark the name of the configuration.

5 To transfer the changes to the measurement device, click the **Send selected configuration to measurement device** button  .

The new configuration is available as a project on the measurement device.

■

➔ **How to save the selected configuration as file**

Saving configurations as file is possible for all measurement devices that support the ADVANCED version.

1 Connect the measurement device.

⇨ **Connecting a measurement device** on page 30

The working area is loaded from the measurement device.

2 Open the **Configuration** menu.

The list of existing configurations is displayed.

3 Mark the desired configuration.

4 Click the **Select selected configuration as a file** button  .

The Windows **Save as** dialog is displayed.

5 Save the file in the desired folder.

■

➔ **How to load a configuration from a file**

1 Connect the measurement device.

⇨ **Connecting a measurement device** on page 30

The working area is loaded from the measurement device.

2 Mark the **Configuration** menu.

3 Click the **Load a configuration from a file** button  .

The Windows **Open** dialog is displayed.

4 Select the desired file (*.prj).

The new configuration is displayed on the **Configuration** menu.

5 To transfer the changes to the measurement device, click the **Send selected configuration to measurement device** button  .

The new configuration is available as a project on the measurement device.

■

ENG

Managing a working area

With working areas, you can manage settings for different types of measurement devices.

⇨ **Working with working areas** on page 38

You have the following options:

- **How to save the working area as file**
- **How to load the working area from a file**

➔ **How to save the working area as file**

1 Click the **Save work area as a file** button  .

The Windows **Save as** dialog is displayed.

2 Save the file in the desired folder.

Organize the working area files with folders and file names so that you can assign the working area files clearly to the measurement device types.

■

➔ **How to load the working area from a file**

1 Make sure that the desired working area is compatible with the desired measurement device.

Organize the working area files with folders and file names so that you can assign the working area files clearly to the measurement device types.

2 Click the **Load working area from a file** button  .

The Windows **Open** dialog is displayed.

3 Select the desired file (*.xhtc).

4 Click the **Send selected configuration to the measurement device** button  .

The current configuration and saved configurations are transferred to the measurement device.

5 Click the **Send working area to measurement device** button  .

The current working area is transferred to the measurement device.

■

ENG

Using the online display

If you connect a measurement device with HYDROlink6, you can use the online display.

The online display shows the current measured values of the selected channels.

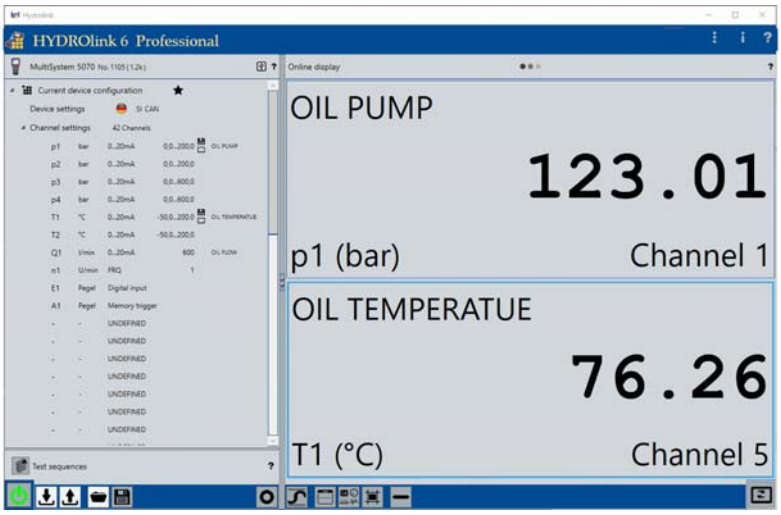


Image: Online display with two channels

In the device explorer under **Channel parameters**, the icon indicates that a channel is selected for the online display.

BASE With measurement devices in the *MultiHandy product family*, all available channels are always displayed. With the *MultiHandy 2020*, *MultiHandy 2025*, and *MultiPanel 2025* devices, special channels are also displayed, if they are available.

Use the **Switch** button to change between the **Online display**, the **Device display**, and the **Measurement series display**. The **Live Monitor** is only available for devices in the*MultiControl/MultiSystem xx70 family.* .

⇨ **Using device display** on page 51

⇨ **Using the Measurement display** on page 53

Selecting, arranging and deleting channels

On measurement devices that have more than 3 channel inputs, you can specify which channels are displayed.

You have connected a measurement device.

⇨ **Connecting a measurement device** on page 30

The online connection is displayed in the title bar of the viewer with an animation .

ENG

Selecting a channel for the online display

Drag a channel from the **Channel parameters** of the device explorer into the **Online display**.

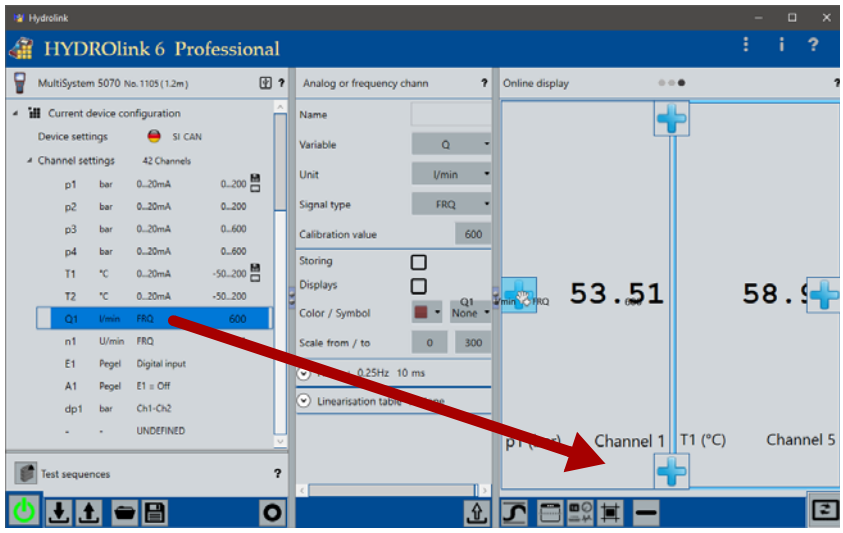


Image: Dragging a channel into the online display

➔ **How to position a channel next to an existing channel display**

1 Drag the channel into the **Online display**.

You can position the channel wherever **+** symbols are displayed.

Drag & drop also works on a touchscreen for this step.

2 Drag & drop the channel onto the **+** symbol.

■

➔ **How to replace an existing channel display**

1 Drag the channel onto a channel in the **Online display**.

The channel display changes colour to dark blue.

2 Let go of the channel to replace the channel display.

■

Arranging channels in the online display

Swap the positions of the displayed channels using drag & drop.

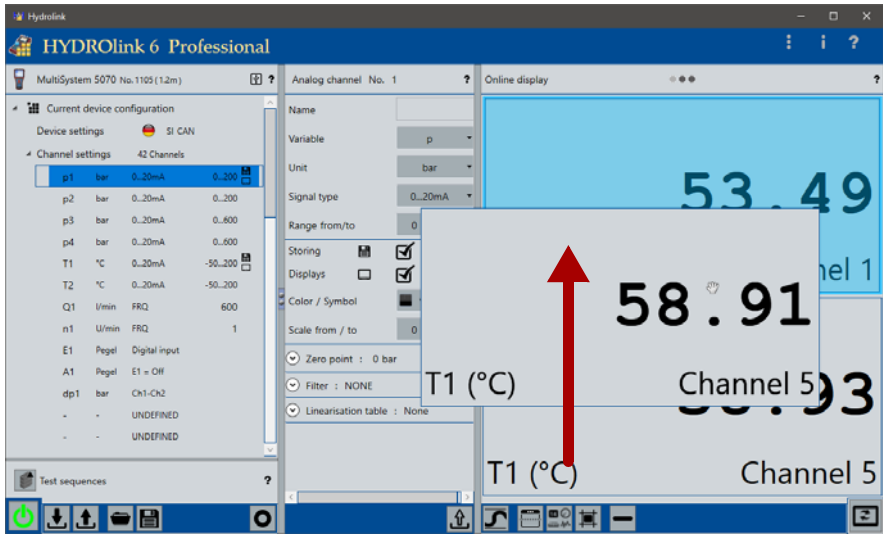


Image: Swapping channels in the Online display

You can swap the position of channels in the **Online display**:

➔ **How to swap the position of channels in the channel display**

1 Mark a channel in the **Online display** using your mouse.

1 Drag the channel onto a different channel in the **Online display**.

The channel display changes colour to dark blue.

2 Let go of the channel.

The positions of the two channels are swapped in the **Online display**.

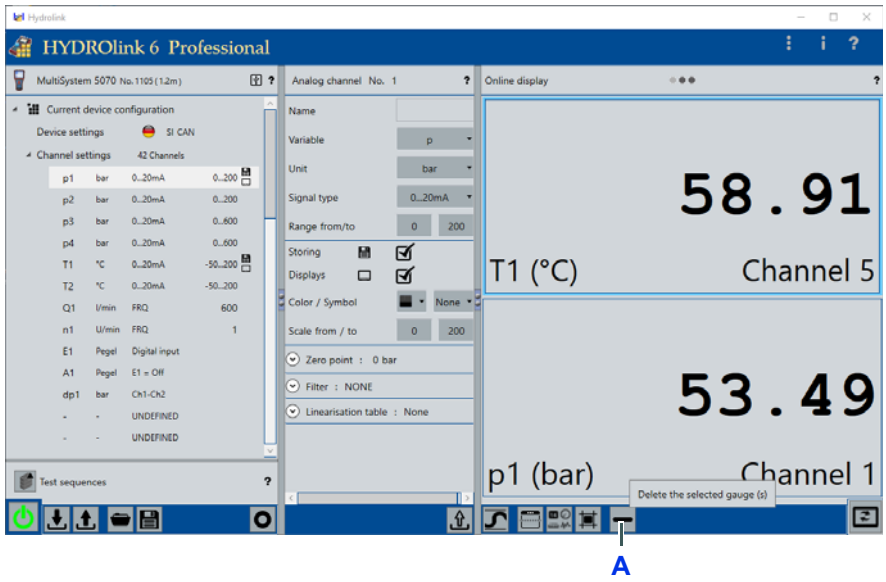
■

ENG

Deleting channels from the online display

Delete the channels from the **Online display** with the **Delete** button.

BASE Not possible with measurement devices in the *MultiHandy* product family.



A **Delete** button

Image: Deleting a channel from the online display

➔ **How to delete a channel from the online display:**

1 Mark the desired channels in the **Online display**.

Marked channels have a blue border.

2 Click the **Delete** button (**A**) to delete all marked channels from the **Online display**.

■

⇨ **Configuring a channel**

⇨ **Min/Max values**

⇨ **Changing and scaling the display style**

⇨ **Transfer and change working area**

Configuring a channel

You configure a channel as shown in exemplary fashion in **Changing the working area**.

⇨ **Changing the working area** on page 33

Exactly which channel parameters you can configure depends on your measurement device.

⇨ **Documentation of your measurement device**

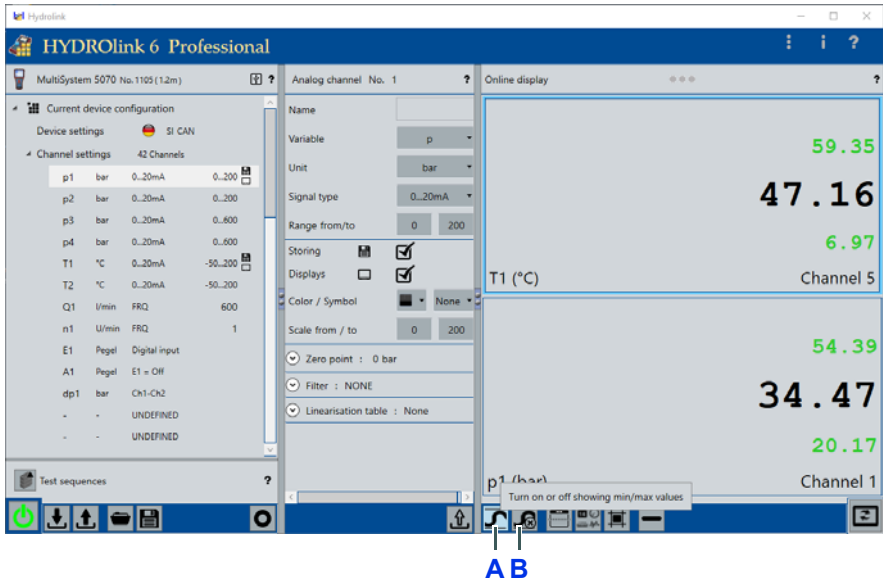
You can also use the context-sensitive help in the software by pressing the F1 key to learn more about individual dialogs.

⇨ **Software description** on page 105

ENG

Min/Max values

You can switch the **online display** of the min/max values on or off.



A **Max/Min** button

B **Delete Min/Max values** button

Image: Min/Max values

➔ **How to switch the max/min values on**

1 Click the **Min/Max** button (A).

The min/max values are displayed.

2 Click the **Min/Max** (**A**) button to switch the min/max values again.

■

➔ **How to delete the current min/max values**

1 Click the **Delete Min/Max Values** button (B).

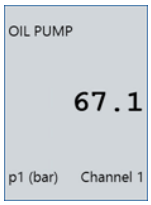
The current min/max values are deleted.

■

Changing and scaling the display style

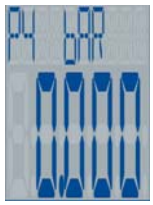
ENG

You can change the display style for every channel display.



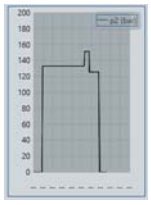
Numeric gauge

Analog gauge



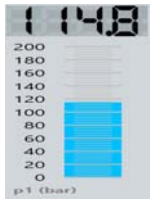
Segment gauge

Linear gauge



Line graph

Measurement device display



Bar graph

Image: Display style of the online display

If a channel is added to the **Online display**, the standard display style will be used for the channel view.

⇨ **Voice control** on page 257

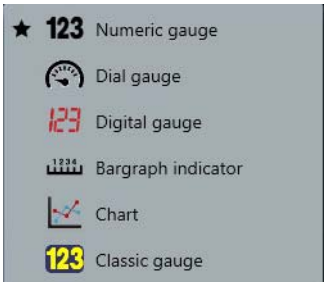
➔ **How to change the display style**

1 Mark the desired channels in the **Online display**.

Marked channels have a blue border.

2 Click the **Display style** button .

The list of display styles is displayed.



■

For the display styles Analog gauge, Linear gauge, and Line graph, you can scale the display .

⇨ **Scaling dialog** on page 245

In addition to the display style listed in the online display, you can also display a line graph.

➔ **How to display a line graph in the online display**

1 Click the **Change appearance of the online display** button .

2 Select from among the following possibilities:

- **Only devices**
- **Split of device display and line graph**
- **Only line graph**

You change the appearance of the line or scaling of the axes in the channel parameters in the detail area.

■

Using device display

Similar to the online display, the channels are displayed in the device display. Here the display of the measurement device is simulated.

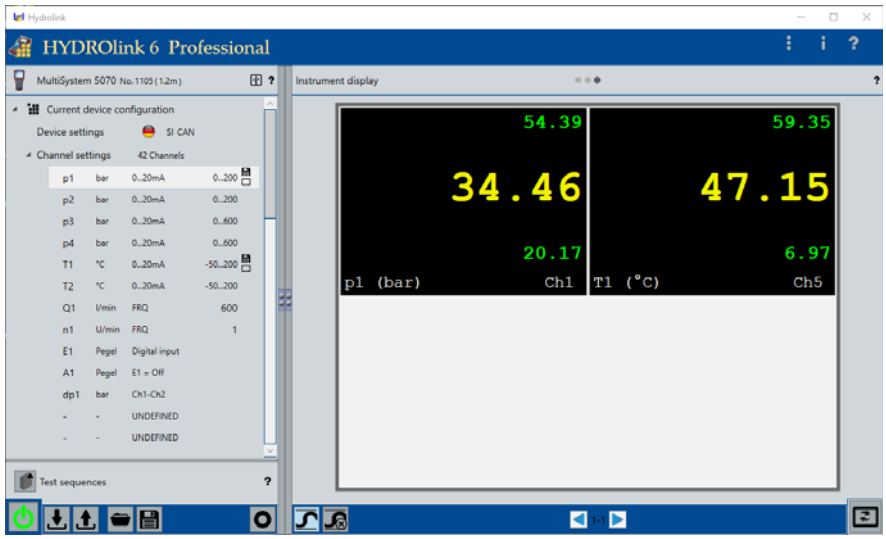


Image: Device display with two channels

The measurement device display is not offered if measurement devices are coupled to one another and if devices in the MultiControl family are connected.

Use the **Switch** button to change between the **Online display**, the **Device display**, and the **Measurement series display**.

⇨ **Using the online display** on page 44

⇨ **Using the Measurement display** on page 53

➔ **How to use the device display**

1 Configure the display of the measurement device on the measurement device itself.

2 Connect the measurement device.

⇨ **Connecting a measurement device**

3 Transfer and change settings.

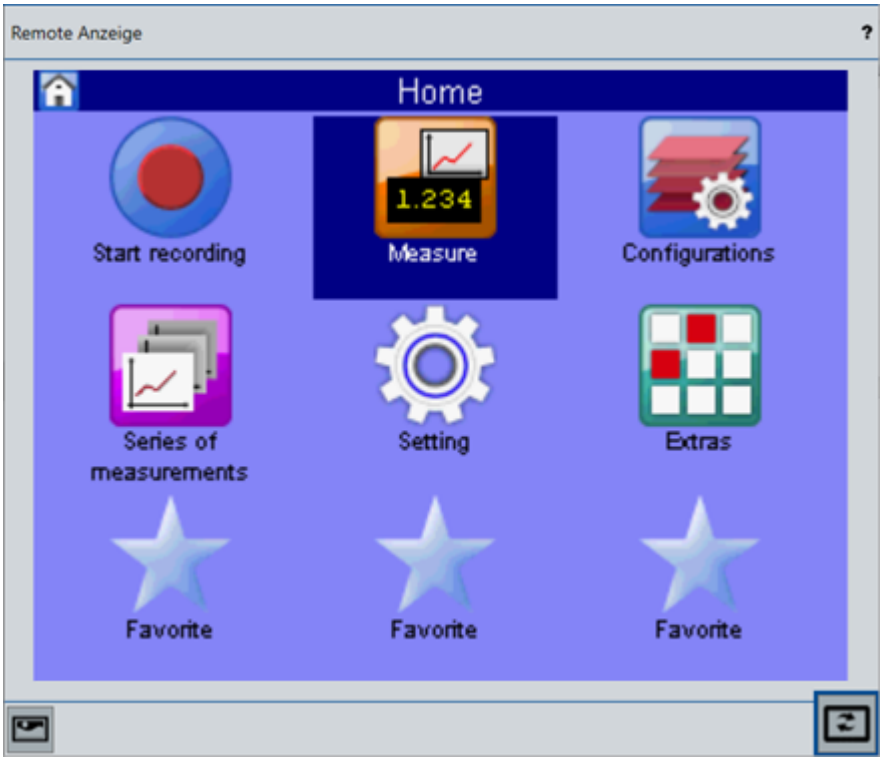
⇨ **Transfer and change working area**

4 Click the **Switch** button until the device display is shown.

5 To display or not display min/max values, click the **Switch display of min/max values on or off** button.

■

Using Live Monitor



The Live Monitor is only available for devices in the MultiControl/MultiSystem xx070 family.

This display shows the current display of the measurement device. It is only suitable for training and support purposes.

The Live Monitor unlocks the device lock on the measurement device. This way, it is possible to demonstrate functions of the measurement device.

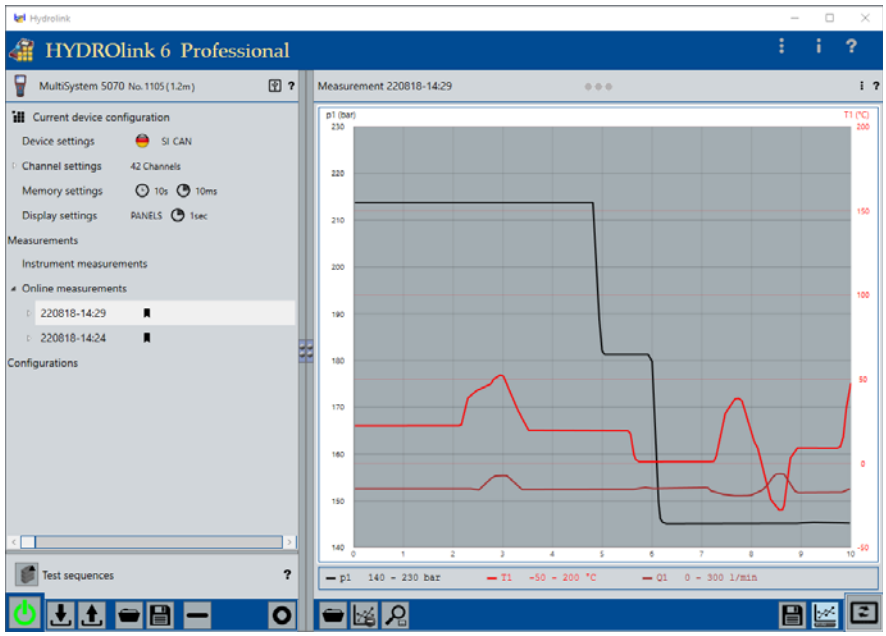
This way it is also possible to change measurement device parameters, which HYDROlink6 only takes over if you reconnect the measurement device or re-load the working area.

With the **Save as image** button  , you can create a screenshot of the Live Monitor and save it as a file.

Using the Measurement display

You can save measurement series from the connected measurement device onto the computer and display them in the **Measurement series display**. You can open measurement series that have been saved on your computer without a measurement device being connected to HYDROlink6.

Measurement series that you have recorded with the online display are listed under **Online measurement series**.



Measurement series are saved as MWF files.

In the device explorer under **Device measurement series** or **Online measurement series**, the symbol indicates that a measurement has already been saved to the computer. You can display this measurement series without having the measurement device connected to HYDROlink6.

Measurement series are displayed as line graphs.

The horizontal axis is the time axis. The two vertical axes represent one channel apiece. Channels with the same unit are summarized on one axis.

Use the **Switch** button to change between the **Online display**, the **Device display**, and the **Measurement series display**.

⇨ **Using the online display** on page 44
⇨ **Using device display** on page 51

Displaying measurement series

You can import measurement series from the measurement device or open saved measurement series.

Saving and displaying measurement series from the measurement device

Drag a measurement from the **Device measurement** of the device explorer into the **Measurement display**.

You can also drag a measurement series (MWF file) from the Windows Explorer into the measurement series display.

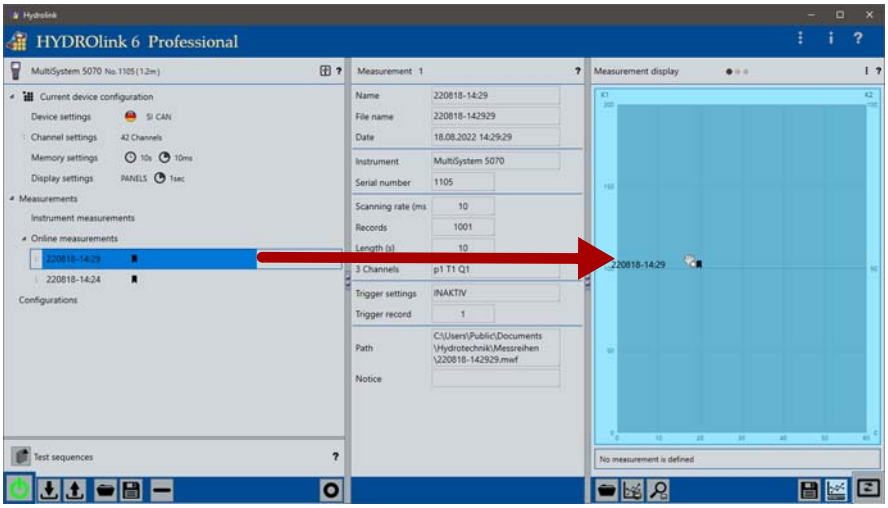


Image: Saving and displaying measurement series from the measurement device

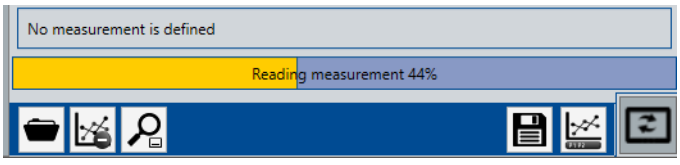
➔ **How to save and display a measurement series**

1 Drag a measurement series into the **Measurement series display**.

2 If automatic saving is not specified in the **Settings**, the Windows **Save as** dialog will be displayed.

⇨ **Directories** on page 232

Select the destination and enter a file name. Click **Save**.



3 The measurement series is saved on the computer and then displayed in the **Measurement series display**.

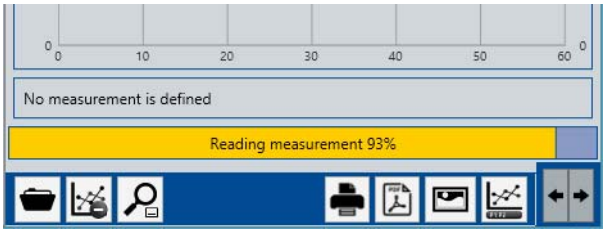
■

➔ **How to open a saved measurement series**

1 Click the **Search** button in the measurement series display.

The Windows **Open** dialog is displayed.

2 Navigate to the desired measurement and open the measurement.



3 The measurement is displayed in the **Measurement series display**.

■

Changing the measurement series display

You can change the position of the legend, zoom the measurement or clear the **Measurement display**.

Changing the presentation

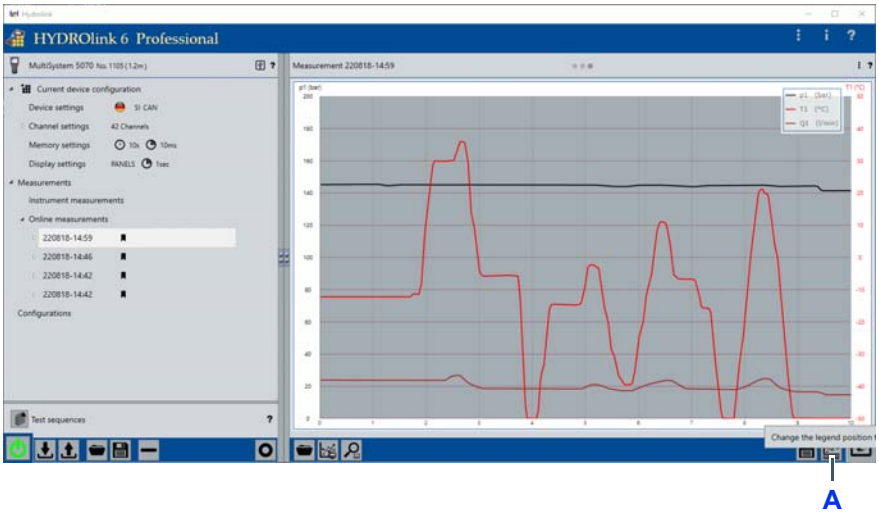
To change the presentation, click the **Open settings dialog** button .

On this **Settings** dialog, you can change the presentation of lines and axes.

⇨ **Settings dialog (presentation of measurement series display)** on page 243

Changing the position of the legend

Change the position of the legend using the **Legend** button.

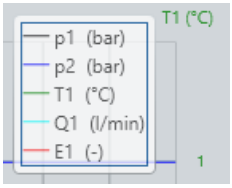


A **Legend** button

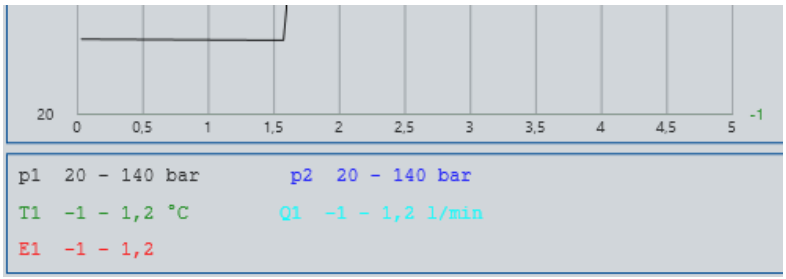
Image: Changing the position of the legend

The legend can be displayed at the following positions:

- Top right

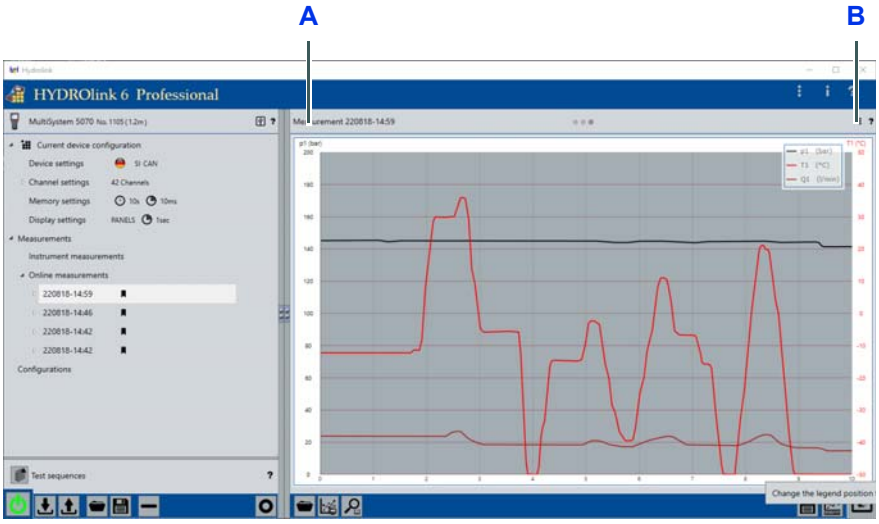


- Below the line graph



Changing the axis labeling

Click the axis labeling to change it.



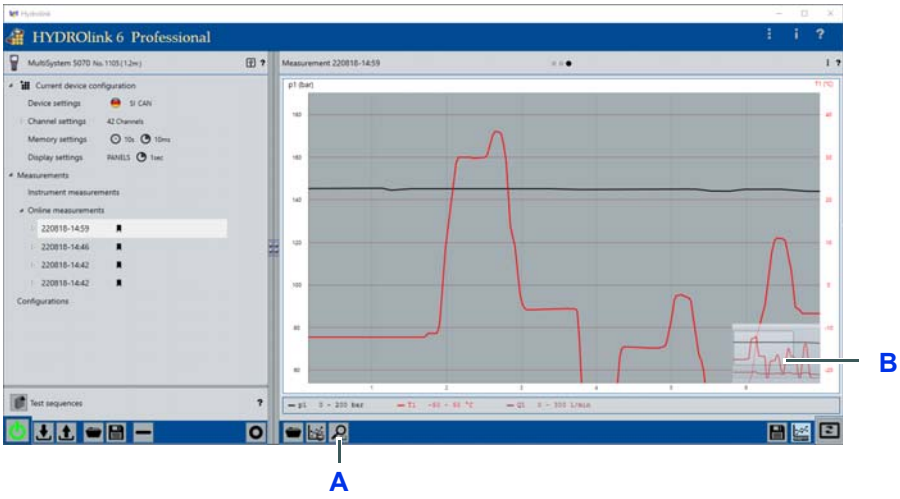
A Left axis labeling **B** Right axis labeling

Image: Changing the axis labeling

ENG

Enlarging the line graph

You can enlarge the line graph of the **Measurement display**.



A **Zoom** button **B** **Zoom menu**

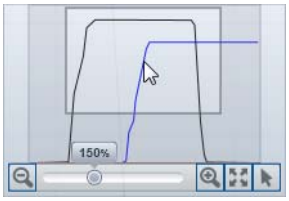
Image: Enlarging the line graph

The line graph can be zoomed in the following ways:

- Point the mouse over the line graph and scroll the mouse wheel.
- Drag a box around the area you want to zoom.
- Use the **Zoom** button to overlay the **Zoom menu**.

  Point the mouse over the **Zoom menu** and click a button.
- For touch operation:

  Use the normal gestures (example: spread your fingers) to zoom in on a line graph.



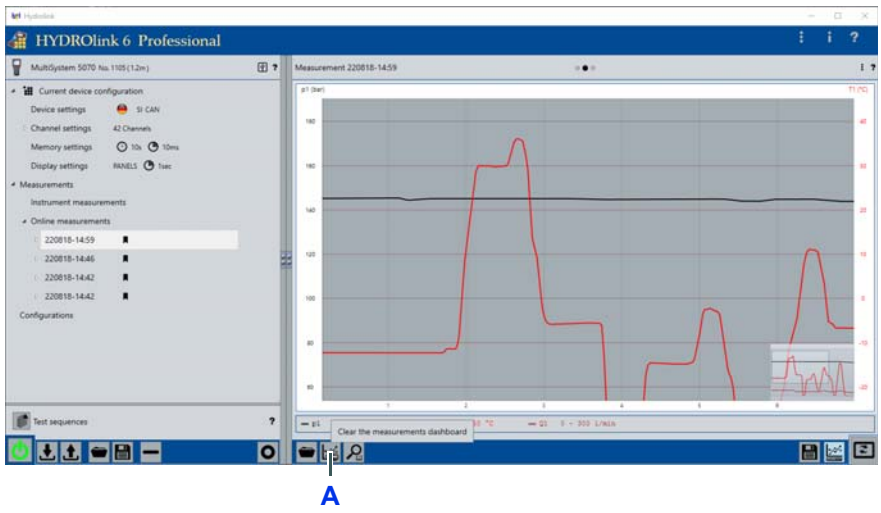
To change the position of the section, grab the section in the **Zoom menu** and move it.

Click **Reset zoom** to display the line graph in the original size.

ENG

Clearing the measurement series display

Clear the **Measurement series display** with the **Clear** button.



A **Clear** button

Image: Clearing the measurement series display

Recording a measurement

You can record measurement series from the connected measurement device with HYDROlink6. The measurement device must be connected to HYDROlink6 for this.

Only the channels are recorded that are marked with the symbol in the channel parameters.

In the ADVANCED and PROFESSIONAL versions, the measurement series is recorded directly by the measurement device and only then transferred to the HYDROlink6. As compared to the BASE version, this procedure offers the advantage that the full sampling rate of the measurement device is available. When recording measurement series in the BASE version, the recording is not done on the measurement device, but rather on the computer. Therefore, the sampling rate for the BASE version is limited by the type of connection to the computer (e.g. USB connection). In the BASE version, the smallest sampling rate is 10 milliseconds.

The measurement series recorded is saved as a MWF file on an available hard drive on the PC. Depending on the setting, HYDROlink6 will automatically save the measurement series or you must specify the file name and destination manually. If HYDROlink6 saves the measurement series automatically, the file name will be created from the current date and time.

⇨ **Default directories for measurement series and measurement device configurations** on page 17

You have configured the storage parameters for recording the measurement series.

⇨ **Storage parameters** on page 115

➔ **How to record a measurement**

1. Connect the measurement device.

   ⇨ **Connecting a measurement device** on page 30

   The working area is loaded from the measurement device.

2. Specify the channels you want to record.

   Select these channels for the **Online display**, and click **Save** in the channel parameters.

   ⇨ **Selecting, arranging and deleting channels** on page 45

3. To transfer the changes to the measurement device, click the **Send all settings to the measurement device** button .

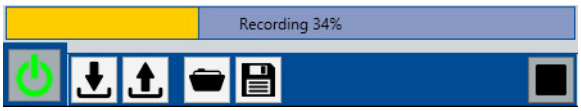
4. Click the **Recording** button .

5 If automatic saving is not specified in the **Settings**, the Windows **Save as** dialog will be displayed.

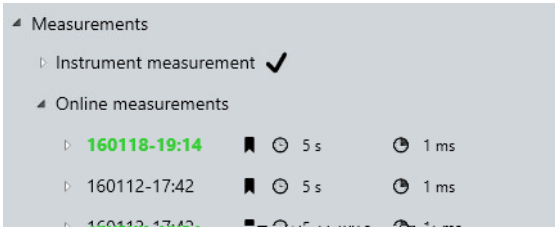
⇨ **Directories** on page 232

Select the destination and enter a file name. Click **Save**.

The measurement series is recorded.



After the measurement series has been recorded, the measurement series is marked in green under **Online measurement series**.



■

⇨ **Displaying measurement series** on page 54

ENG

Coupling several measurement devices

You can combine several measurement devices and thereby increase the number of available channels.

About coupling measurement devices

You can couple measurement devices in the 5060, 8050, and xx70 families.

A trigger cable is required for the coupling in order to synchronize measurements from the various measurement devices. This way, the measurement devices are informed about the occurrence of the trigger event. The synchronization error between the measurement devices is under 1 ms.

If you are working without a trigger cable, the synchronization is done via the software. Here, synchronization errors up to 50 ms can occur. This depends on the number of measurement devices connected, the PC computing power, and the utilization of the CPU.

⇨ **Operating instructions for your measurement devices**

⇨ **Recording a measurement** on page 59

The measurement device with the smallest serial number must be selected and is automatically defined as the master. All other measurement devices are defined as slave.

Master and slave

The master determines the appearance and behavior of all measurement devices. When sending the settings to the measurement devices, the device parameters, storage parameters, and display parameters of the master are transferred to all measurement devices as long as they are compatible with one another.

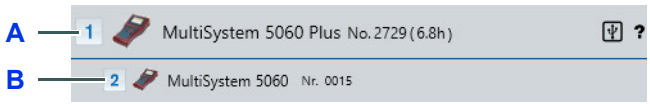
You configure the channel parameters for each measurement device separately.

The dependencies are also reflected in the display in the device explorer. The device parameters, storage parameters, and display parameters of the master and the channel parameters of all measurement devices are displayed.

On the **Measurement series** menu, only online measurement series are displayed, and no device measurement series for the connected measurement devices.

Display of combined measurement devices

Master and slaves are displayed and numbered sequentially in the title bar of the explorer.



A Measurement device no. 1 (master)
B Measurement device no. 2 (slave)

Image: Title bar with two combined measurement devices

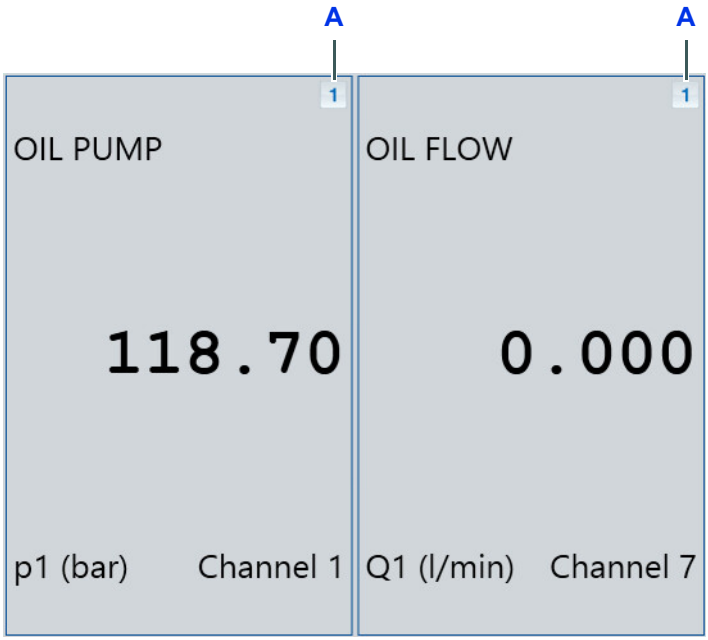
ENG

The channels for the different measurement devices are displayed in different colors so you can distinguish them.

A Channels for measurement device no. 2 in different colors

Image: Channels of different measurement devices in the device explorer

The numbering of the measurement devices from the title bar is also used for the online display.



A Numbering of the measurement devices

Image: Online display with two channels from different measurement devices

ENG

Coupling several measurement devices

You have connected all measurement devices. For coupling, the measurement devices must be connected via USB.

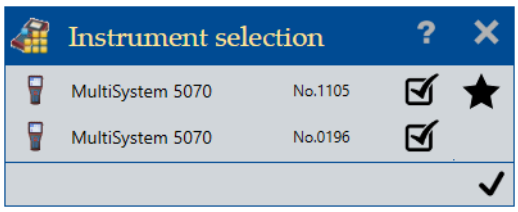
⇨ **Connecting a measurement device** on page 30

➔ **How to couple several measurement devices**

1 Click the **Connect to measurement device** button .

If several measurement devices are detected, the **Device selection** dialog is displayed.

2 From the **Device selection** dialog, select all measurement devices that you would like to use.



The settings are loaded by the measurement devices.

3 Expand the desired menus in the device explorer, e.g. **Current device configuration > Channel parameters**.

4 Change the settings as you wish.

5 To transfer the changes to the measurement device, click the **Send all settings to the measurement device** button .

The device parameters, storage parameters, and display parameters are transferred to all measurement devices. The channel parameters are transferred exclusively to the relevant measurement device.

■

Now you have the following possibilities with the combined measurement devices:

⇨ **Using the online display** on page 44
⇨ **Recording a measurement** on page 59

ENG

Use CAN database

If a special channel of the measurement device should be used for the recording of a CAN message, a quick parameterization of the channel can be done by using a CAN database.

⇨ **Manufacturer** on page 2

You have the following options:

- **How to select a channel from the CAN database**
- **How to search in the CAN database**

➔ **How to select a channel from the CAN database**

1 Click *Device explorer > Channel parameters > Click special channel (with CAN bus connection) > Detail area > Calculation type > CAN database*.

The **CAN database** window opens.

2 Click the **Open a CAN database** button.

The Windows **Open** dialog is displayed.

3 Select the desired CAN database.

The CAN database is loaded.

In the **Message** area, either the CANopen sensors or the parameter group number (PGN) of the standard SAE J1939 are displayed.

4 Select the desired message in the **Message** area.

In the **Signal** area, the channels of CANopen sensors or the signal number (SPN) of the standard SAE J1939 are displayed.

5 Select the desired sensor specification in the **Signal** area.

6 Click the **Adopt the selected signal specifications in the channel parameters** button.

■

➔ **How to search in the CAN database**

1 Click *Device explorer > Channel parameters > Click special channel (with CAN bus connection) > Detail area > Calculation type > CAN database*.

The **CAN database** window opens.

2 Click the**Open a CAN database** button.

The Windows **Open** dialog is displayed.

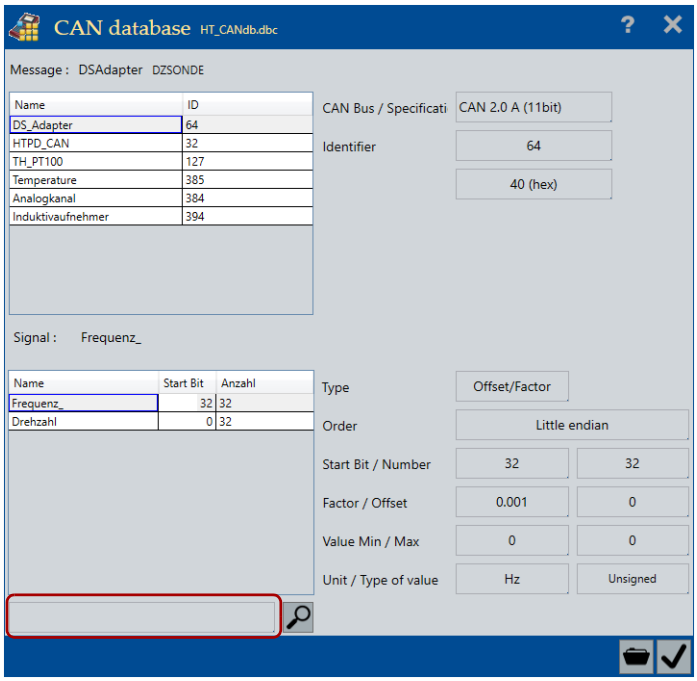
3 Select the desired CAN database.

The CAN database is loaded.

4 Enter a search term in the search field. Capital and lower-case letters are ignored.

The following fields are searched:

- Name of the message
- Comment about the message
- Decimal identifier of the message
- Hexadecimal identifier of the message
- Name of the signal
- Comment about the signal



5 Click the **Search** button .

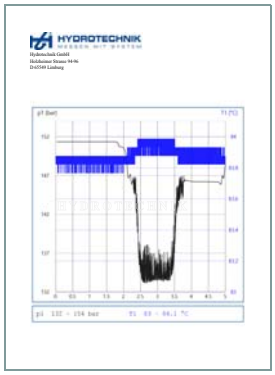
The first message and signal found are marked.

6 Click the **Search** button to find the next instance of the search term.

■

⇨ **CAN database dialog** on page 247

Log



You can print out the log of a measurement series or save it as a PDF file.

Use the log to document your activity or the condition of the inspected system.

The log consists of up to 5 areas:

1. Company logo
2. Company name
3. Line graph
   Corresponds to the diagram display in the Measurement display.
4. Measurement series information
5. Additional text (e.g. name of the inspector, inspection date)

ENG

Generating a log

You can print out a log created directly or save it as a PDF file.

➔ **How to print a log**

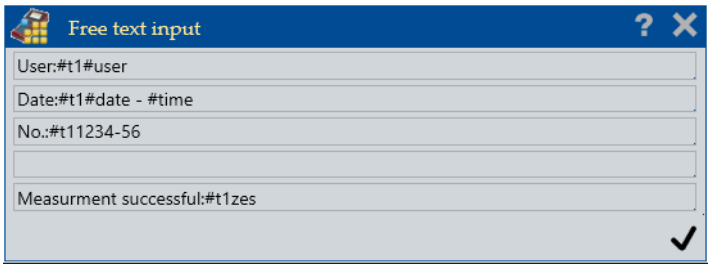
1 Open the measurement series for which you would like to generate a log.

⇨ **Saving and displaying measurement series from the measurement device** on page 54

2 Click the **Print** button .

3 If the free text input is activated in the settings, the **Free text input** dialog will be displayed.

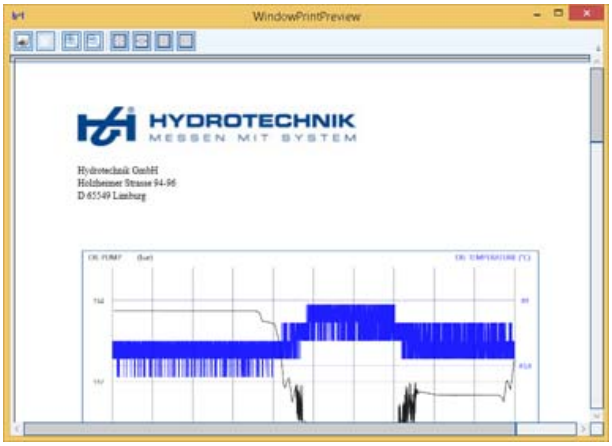
⇨ **Configuring the log layout** on page 70.



Change or add to the text.

4 Click the ✓ button.

The Windows **WindowPrintPreview** dialog is displayed.



5 Click the **Print** button.

The log is printed.

■

➔ **How to save a log as a PDF file**

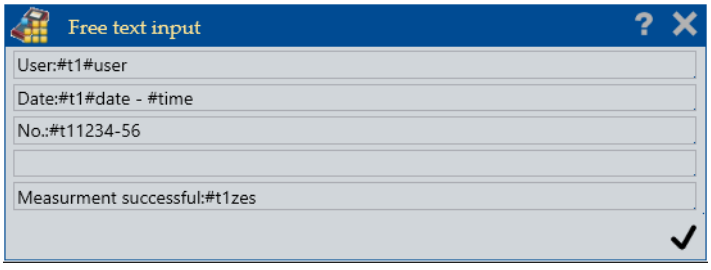
1 Open the measurement series for which you would like to generate a log.

⇨ **Saving and displaying measurement series from the measurement device** on page 54

2 Click the **Save as PDF** button.

3 If the free text input is activated in the settings, the **Free text input** dialog will be displayed.

⇨ **Configuring the log layout** on page 70.



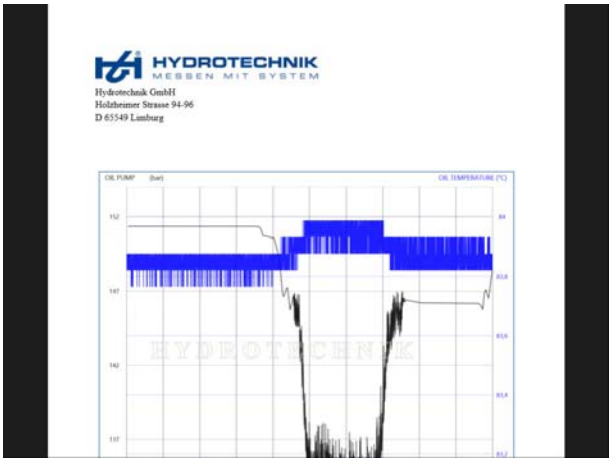
Change or add to the text.

4 Click the ✓ button.

The Windows **Save as** dialog is displayed.

5 Select the destination and enter a file name. Click the **Save** button.

The log is created as a PDF file and then displayed in the PDF viewer.



■

ENG

ENG

Configuring the log layout

You should configure the layout of the log when setting up HYDROlink6.

The **Show example** button shows or hides a preview for the **Line graph** and **Measurement series information** areas.

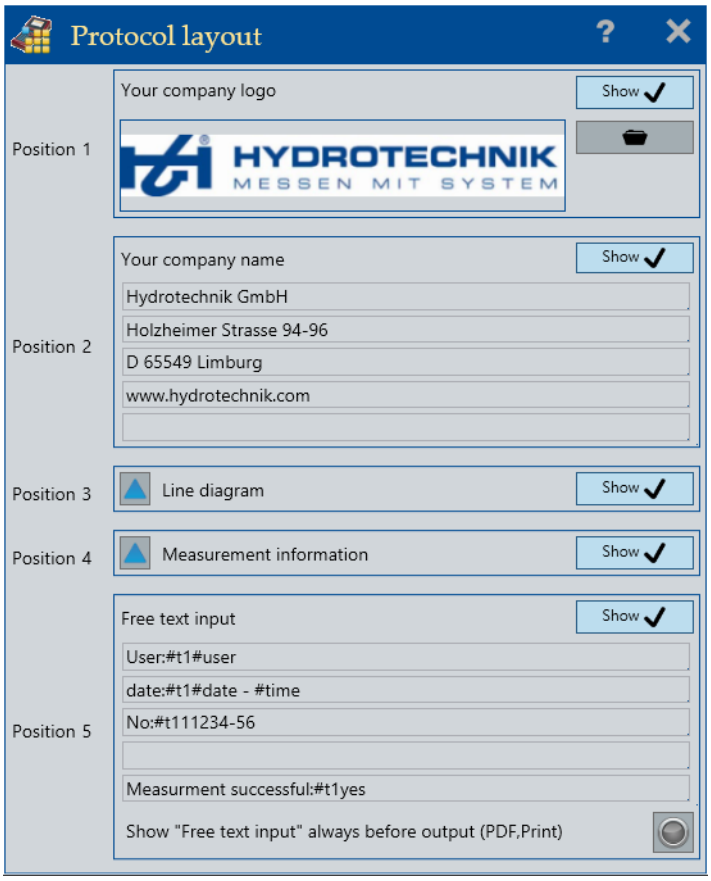
➔ **How to configure the layout of the log**

1 Open the **Settings** dialog .

⇨ **How to open and close the Settings dialog** on page 16

2 On the **General** tab next to the **Log layout** entry, click the **Configure** button.

The **Log layout** dialog is displayed.

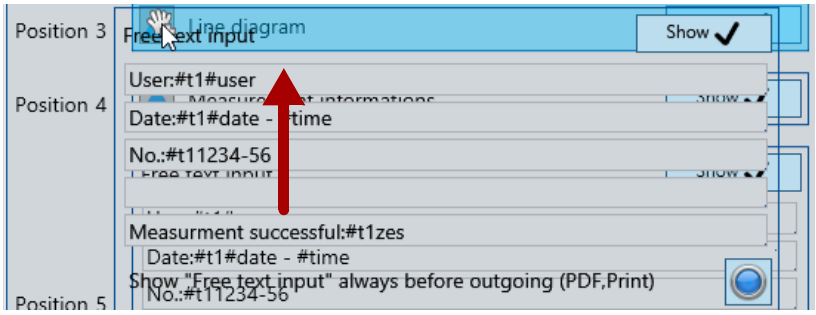


3 Click the **Show** button to show or hide an area in the log.

If an area in the log is displayed, then the button is identified with .

4 If you want to change the sequence of the areas in the log:

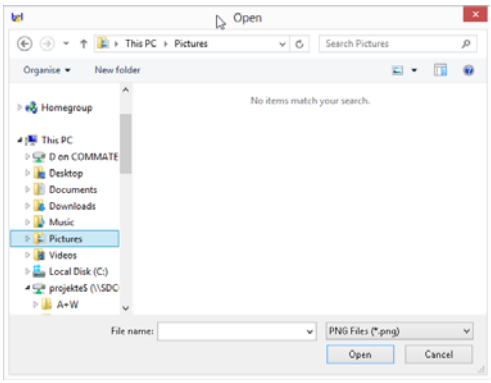
Swap the positions of the areas using drag & drop.



5 If you want to display your company logo in the log:

In the **Your company logo** area, click the **Open** button .

The Windows **Open** dialog is displayed.

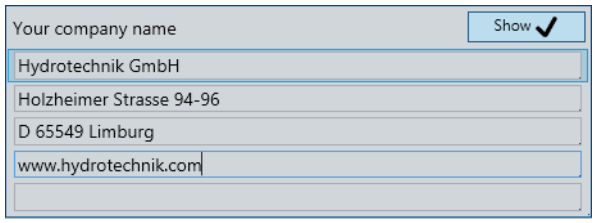


Navigate to the graphics file with your company logo and open the file.

You can use graphics files with the formats PNG or JPG only. The graphic is adapted and centred in the area.

6 If you want to display your company name and address on the log:

In the **Your company name** area, click in the text field and enter the desired text.

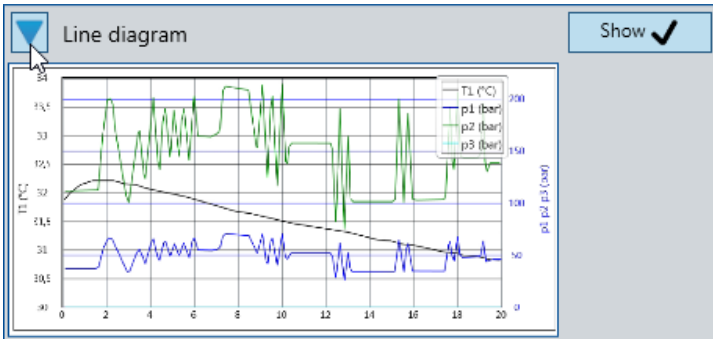


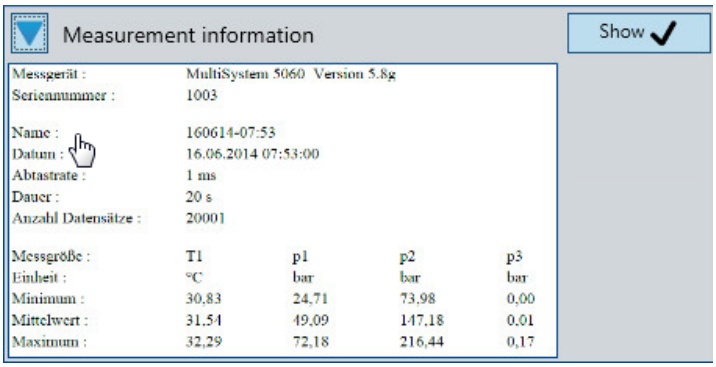
ENG

ENG

7 If you want to display the **line graph** and the **Measurement series information** in the log:

Click the **Show example** button to display an example.

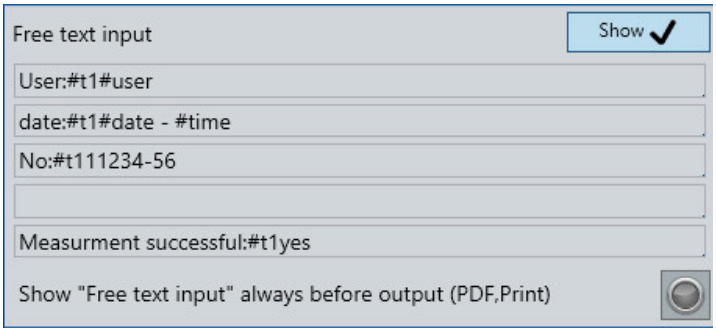




Click the **Show example** button again to hide the example.

8 If you want to display an additional text field in the log:

In the **Free text input** area, click in the text field and enter the desired text.



You can use the following variables:

- **#user** (Windows name of the logged in user)
- **#date** (current date)
- **#time** (current time)
- **#t1** (tab for aligning the texts. Only one tab is supported)

9 If you want the **Free text input** dialog to be displayed before every log generation:

☑ Click the button next to the **Show "Free text input" before each output (PDF, print)** entry.

☐ If the button is deactivated, no dialog for free text input will be shown when the log is generated.

10 Close the **Log layout** dialog ✕.

11 Close the **Settings** dialog ✕.

■

ENG

Test procedures

Use HYDROlink6 Professional to create and run test procedures on the PC or measurement device. You can create the test procedures without any programming knowledge. For this, you select and combine individual modules. If the test procedures are shown, the detail view in the program window changes.

ENG

Test procedures program window view

Use the **Test procedures** button to show or hide the list with the test procedures.

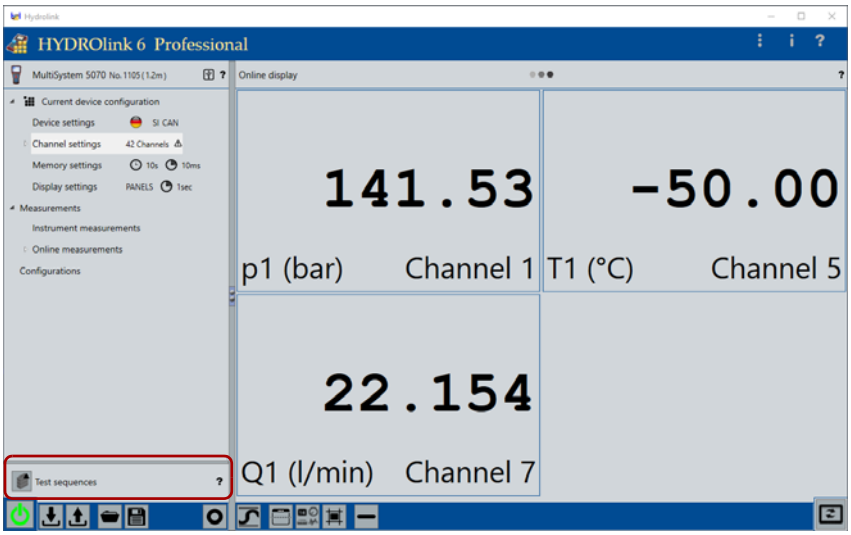
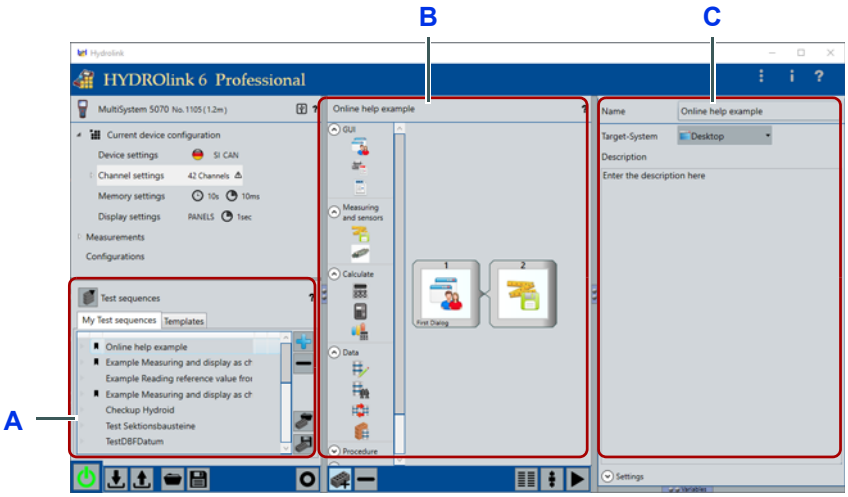


Image: Test procedures in the program window button

If the test procedures are shown, the detail view in the program window changes.



A Overview of test procedures
B Test procedure
C Test procedure settings/module settings/variables

Image: Test procedures in the program window

Overview of test procedures

You can manage your test procedures in the overview of test procedures (**A**).

⇨ **Managing test procedures** on page 76

Test procedure

If you mark a test procedure in the test procedures area (**B**), the structure of the test procedure is displayed in the test procedure area. You can adjust the structure.

⇨ **Creating a test procedure** on page 80

To create a test procedure, select and combine individual modules.

⇨ **Modules for the test procedure** on page 86

In the test procedures area, there is also a button for starting the test procedures.

⇨ **Executing a test procedure** on page 103

Test procedure settings, module settings, variables

Depending on which object is marked, different settings are displayed in this area (**C**).

If you mark a test procedure, the settings for the test procedure are displayed.

⇨ **Test procedure settings** on page 77

If you mark a module in the test procedure, the settings for the module in question are displayed.

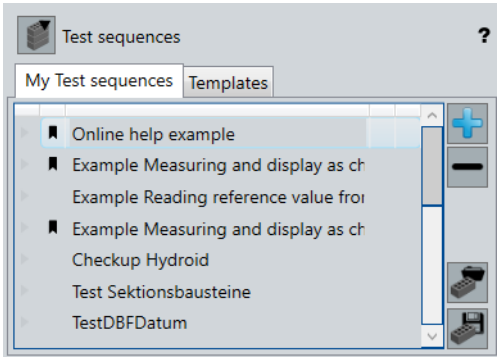
⇨ **Module settings** on page 90

Use the **Variables** button to show or hide the list with the variables.

⇨ **Variables** on page 102

Managing test procedures

If you show the **Overview of test procedures** area, you will see a list of the available test procedures on the **My test procedures** tab.



You can delete test procedures, add new test procedures or import test procedures. You can also save the test procedures individually as files.

Creating a test procedure

To create a new test procedure, click the **Generate** button .

By default, a new test procedure is called **Test procedure**, it is inserted at the top of the list, and does not contain any functions (modules). You can create the test procedure in the **Test procedure** area.

⇨ **Creating a test procedure** on page 80

You can rename the test procedure, add a description, and adjust settings.

⇨ **Test procedure settings** on page 77

Deleting a test procedure

To delete a test procedure, click the **Delete** button .

➔ **How to import a test procedure**

You can load a test procedure file in order to import a test procedure into the application.

1 Click the **Open test procedure** button .

The Windows **Open** dialog is displayed.

2 Select the test procedure file.

The test procedure file is imported and displayed in the list of available test procedures on the **My test procedures** tab.

■

➔ **How to save a test procedure as file**

You can export a test procedure to pass it along, for example.

1 Click the **Save test procedure as file** button  .

The Windows **Open** dialog is displayed.

2 Save the test procedure as file.

Test procedures can be saved as test procedure (.xPAD) or test procedure module (.xPAM).

■

➔ **How to use a template for a test procedure**

1 Change to the **Templates** tab in the **Overview of test procedures**.

2 Select a test procedure template.

3 Click the **Apply test procedure** button  .

A copy of the test procedure template is inserted into the list of available test procedures on the **My test procedures** tab.

■

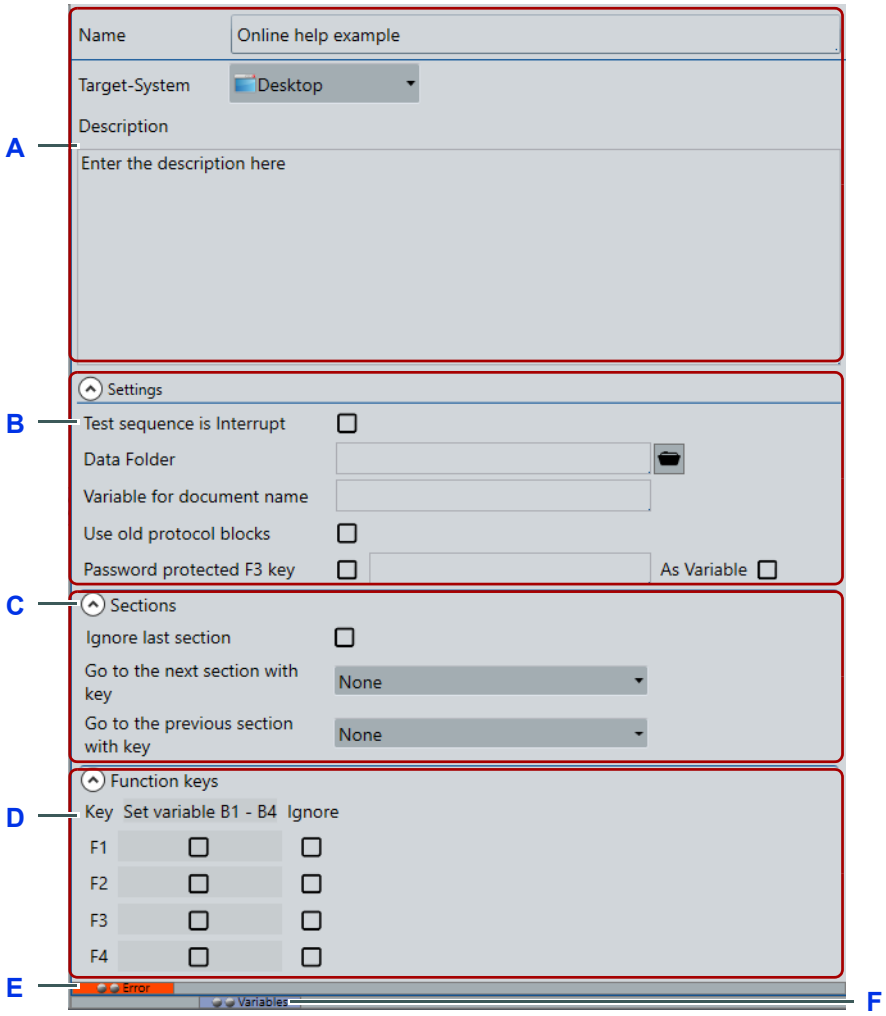
Test procedure settings

In the **Test procedure settings**, the basic settings for a test procedure are displayed. For this, a test procedure must be marked in the **Overview of test procedures**. You can also define variables in the settings. You can show or hide the variables by clicking the **Variables** button.

⇨ **Variables** on page 102

ENG

Click the **Settings** button to show or hide additional settings. Settings for the test sections and function keys are displayed if you click the appropriate buttons. The **Test sections** and **Function keys** buttons are only visible if the settings are displayed.



A General settings
B Settings
C Test sections
D Function keys
E Errors
F Variables

Image: Test procedure settings

Naming a test procedure

Enter the name for the test procedure in the **Name** field. You can only use characters that are also suitable for the file name. The following characters cannot be used (/\: * ? < > |).

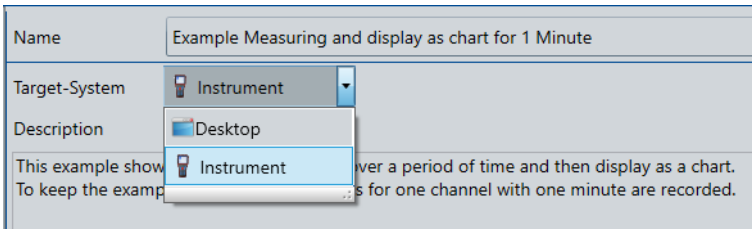
If you select **Desktop as target system**, then the name of the test procedure may contain max. 100 characters.

If you select **Measurement device as target system**, then the name of the test procedure may contain max. 20 characters. More characters are not accepted by measurement devices.

You can show or hide additional settings, including settings for test sections and function keys, with the **Settings** button.

Defining target system for the test procedure

With the selection of the target system, you specify for which system, PC or measurement device, the test procedure is created. If you are creating the test procedure for the PC, select **Desktop**. If you are creating the test procedure for the measurement device, select **Measurement device**. If you select **Measurement device**, then an additional selection field is shown where you can define the measurement device, **MS5060**, **MS5070**, or **MS8050**, the test procedure is being created.



If you select **Measurement device** as target system, then not all modules are available for building the test procedure. Only the modules are available that the measurement device supports.

Storing a description of the test procedure

The text that you enter in the **Description** field is displayed before the start of the test procedure. With the description, you can communicate, for example, what the goal of executing the test procedure is. If you select **Measurement device as target system**, then the length of the description is restricted to max. 100 characters.

Defining test procedure as interrupt

Specifies if the test procedure should be executed as interrupt routine. If you select this option, there are fewer modules available for the configuration. Modules that require interaction are hidden automatically.

⇨ **Interrupt test procedure** on page 104

Select location for data storage

Select the folder in which the data for the test procedure should be saved.

Use variables for document names

You can use variables for document names. Show the list of variables with the **Variables** button.

⇨ **Variables** on page 102

Specifying password protection for key F3

Specifies that the F3 key should be protected with a password. You define the password in the input field. If the **As variable** option is set here, then you enter the variable name in this field. This makes sense if you want to define the password specifically within a test procedure.

Specify use of old log modules

Specification of whether old log modules are used. This option is only active if no log module has been selected. Old log modules are only visible if you have imported a test procedure from the HYDROgen program. HYDROgen is a predecessor version of HYDROlink6.

Select switch between test sections

Specify how the switch between the sections should go. You can choose from:

- Ignore last section.
- Switch to the next section with key.
  Use the selection field to select a key on the keyboard.
- Switch to the previous section with key.
  Use the selection field to select a key on the keyboard.

Keys, set variables B1 - B4, ignore

Specifies through selection of the variables B1-B4 that when pressing a key, F1-F4, a corresponding logic variable is set. If you select **Ignore**, there is no reaction to a key press.

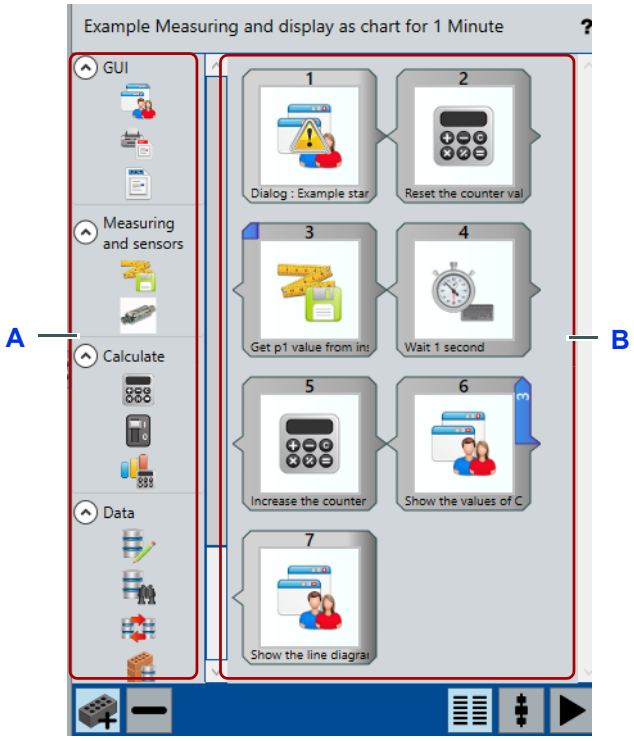
Find error in test procedure

The **Error** button is only displayed if there are errors in the test procedure. You can use the button to show or hide a list of the errors.

⇨ **Errors in the structure of the test procedure** on page 85

ENG

Creating a test procedure



A Selection bar **B** Test procedure area

Image: Test procedure structure

A test procedure consists of a combination of modules. The available modules are displayed in the selection bar. You can use drag & drop to drag modules from the selection bar to the test procedure area.

Combining modules

➔ **How to create a test procedure**

1 Click the **Open selection bar** button  .

2 Select a module from the selection bar.

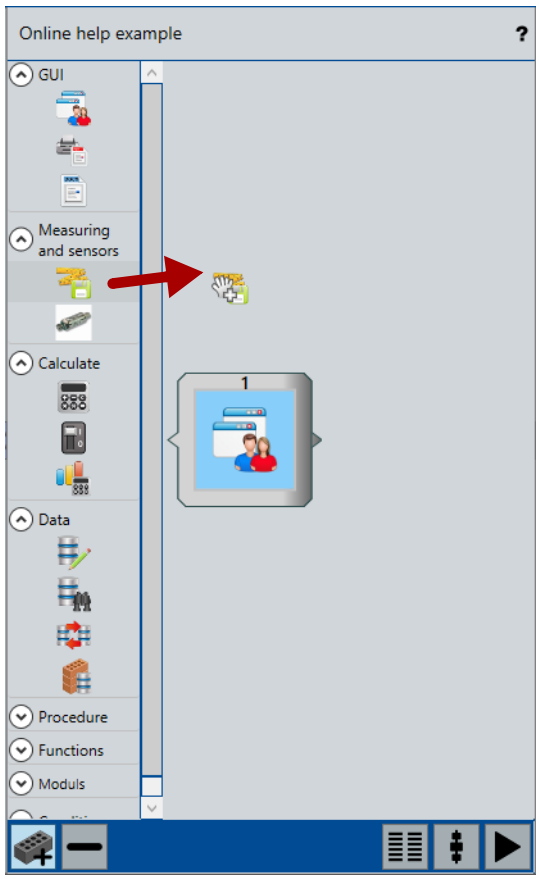
There is a list of all available modules in the software description.

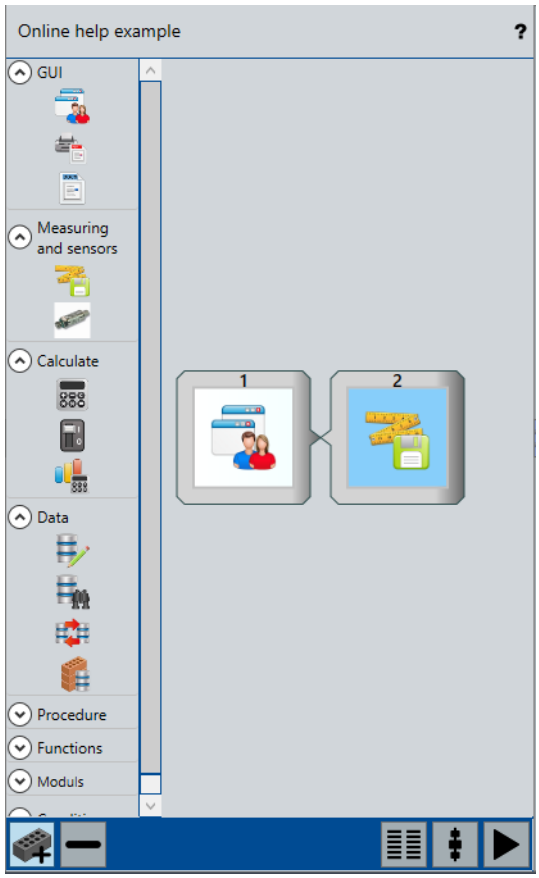
⇨ **Selection list for modules** on page 185

ENG

3 Use drag & drop to drag the module into the test procedure area.

If there is already a module there, the new module is automatically placed after this module. You can use drag & drop on an existing module to insert the new module before the existing one.





■

Selecting/deselecting modules

➔ **How to select a module**

1 Click on a module in the test procedure area.

The module's background turns blue.

The module settings are displayed.

⇨ **Module settings** on page 90

■

➔ **How to deselect a module**

1 Click the module marked in blue.

The module's background turns white.

The test procedure settings are displayed.

⇨ **Test procedure settings** on page 77

■

Copying a module

➔ **How to copy a module**

1 Right-click the mouse on the module.

The **Copy** field appears.

2 Confirm **Copy** with the left mouse button.

The module and the settings made are saved on the clipboard and can be inserted into any test procedure.

■

Deleting a module

➔ **How to delete a module or condition**

1 Mark a module or condition on a module.

2 Click the **Remove** button  .

■

Changing the presentation

➔ **How to change the presentation of the test procedure**

1 Select the test procedure on the **My test procedures** tab.

The structure of the procedure is displayed in the test procedure area.

2 Click the **Multi-column/Single column** button  to arrange the test procedure in multiple or single columns.

3 Click the **Vertical/Horizontal**  button to arrange the test procedure from top to bottom or right to left.

■

Starting a test procedure

➔ **How to start the test procedure**

1 Click the **Start** button  to start the test procedure.

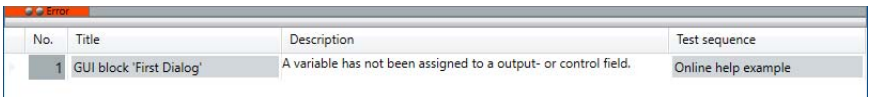
2 The dialog to start the test procedure opens.

⇨ **Executing a test procedure** on page 103

■

Errors in the structure of the test procedure

While you are creating the test procedure, the application automatically checks whether there are errors in the test procedure. If errors are found, the **Error** button appears in the **Test procedure settings**. You can use it to show or hide a list of the errors.



In the **No.** column, you see the number of the module in which the error has occurred. In the **Title** column, the type of module is displayed. In the **Description** column, there is a description of the reason for the error. As soon as all errors have been corrected, the list and the **Errors** button are hidden.

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Modules for the test procedure

You can use the modules to create test procedures without any programming knowledge. A test procedure is a chain of individual modules. By arranging several modules, you can create individual test procedures in order to execute complex test tasks or standardized procedures with Hydrotechnik measurement devices.

The modules represent functions that are executed during the test procedure. The modules are sorted into categories in the selection list: If the target system **Measurement device** is set for the test procedure, there are fewer modules available.

⇨ **Categories** on page 86

⇨ **Defining target system for the test procedure** on page 79

Sequence

The modules are executed in the sequence in which they are arranged. The sequence can be changed by moving modules into the test procedure area.

To execute modules only under particular conditions, input and output conditions can be defined.

Use the input condition to specify under which condition a module is executed. If the condition is not fulfilled, the module is skipped.

Use the output condition to specify under which condition a module included in the test procedure is executed next. If the condition is not fulfilled, the next module in the test procedure is executed.

Categories

Presentation

The presentation category includes the following modules:

User interface module

Is used to create a user interface in which the user's inputs and commands are received and processed.

⇨ **How to design a user interface** on page 90

⇨ **User interface module** on page 196

Log module

Is used to create a log of the test procedure.

⇨ **How to generate a log of the test procedure** on page 91

⇨ **Log module** on page 204

Measurement and sensors

The measurement and sensors category includes the following modules:

Measurement module

Is used to transfer the measurement values from the measurement device.

⇨ **How to activate the data exchange with the measurement device** on page 93
⇨ **Measurement module** on page 208

Sensor module

Is used to check and change channel settings in the measurement device.

⇨ **How to change the channel settings on the measurement device** on page 93
⇨ **Sensor module** on page 209

Calculation

The calculation category includes the following modules:

Calculation module

Is used to make calculations.

⇨ **How to perform calculations** on page 93
⇨ **Calculation module** on page 210

Logic module

Is used to link measurement variables with one another according to logical algebra.

⇨ **How to link variable logically with one another** on page 95
⇨ **Logic module** on page 213

Statistics module

Is used to determine statistical values from a variable.

⇨ **How to evaluate a variable statistically** on page 96
⇨ **Statistics module** on page 216

Data

The calculation category includes the following modules:

Database module (write)

Is used to write values of measurement series into a database.

⇨ **How to save measurement values in a database** on page 96

Settings for the module:

⇨ **Database module (write)** on page 217

Target value module (read)

Is used to link values from a database to a variable.

⇨ **How to read values from a database** on page 97
⇨ **Target value module (read)** on page 218

Database copy module

Is used to write values from one database into another.

⇨ **How to transfer values between databases** on page 98
⇨ **Database copy module** on page 220

Test selection module

Is used to read test results from a database and write them back to the database at the end of the test procedure.

⇨ **How to use a database to read and save variable values** on page 98
⇨ **Test selection module** on page 221

Procedure

The procedure category includes the following modules:

Time module

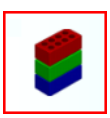
Is used to control the temporal flow of a test procedure.

⇨ **How to control the temporal flow** on page 99
⇨ **Time module** on page 222

Intermediate storage module

Is used to create an intermediate state of the test procedure. The test procedure can be continued at a later time.

⇨ **How to interrupt a test procedure** on page 99
⇨ **Intermediate storage module** on page 222



Section module

Is used to subdivide a test procedure into several sections. These can be processed as often as desired and in any sequence.

⇨ **How to subdivided a test procedure into sections** on page 99
⇨ **Section module** on page 223

Functions

The functions category includes the following modules:

Command module

Is used to incorporate local programs from the computer into the test procedure.

- ⇨ **How to integrate local programs into the test procedure** on page 100
- ⇨ **Command module** on page 224

Modules

The modules category includes the following modules:

Module module

Is used to call up test procedure modules.

- ⇨ **How to integrate test procedure modules into the test procedure** on page 100
- ⇨ **Module module** on page 224

Interrupt module

Is used to execute regular checks.

- ⇨ **How to execute functions regularly** on page 100
- ⇨ **Interrupt module** on page 225

Configuration module

Is used to process device configurations and send them to the measurement device.

- ⇨ **How to integrate a device configuration into the test procedure** on page 101
- ⇨ **Configuration module** on page 226

Conditions

The conditions category includes the following modules:

Input condition

Is used in order to execute modules only under certain conditions.

- ⇨ **How to define an input condition** on page 101
- ⇨ **Input condition** on page 226

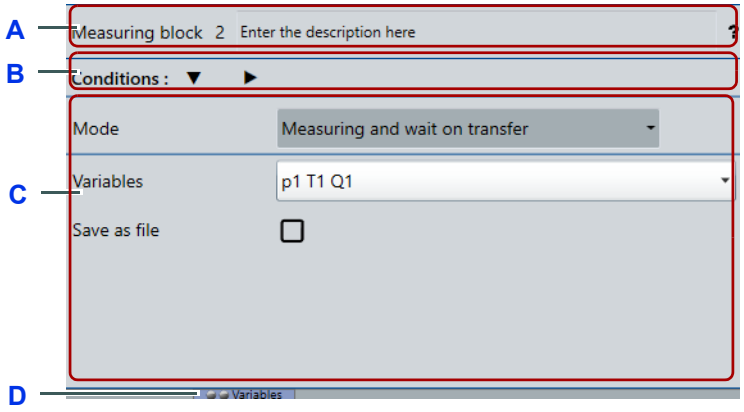
Output condition

Is used to jump to a particular module if the condition is fulfilled.

- ⇨ **How to define an output condition** on page 102
- ⇨ **Output condition** on page 227

Module settings

If you click a module in the test procedure area, it is marked. It turns blue. The settings for the module are displayed in the module settings area.



A Title bar
B Conditions
C Settings
D Variables

Image: Module settings menu

The settings available are different for each module.

A description can be added to each module. The module conditions define input and output conditions for modules.

If you click the module again, it turns white again. The module is no longer marked and the settings for the test procedure are shown.

There is an overview of the settings for the module in question in the software description:

⇨ **Module settings** on page 195

Presentation

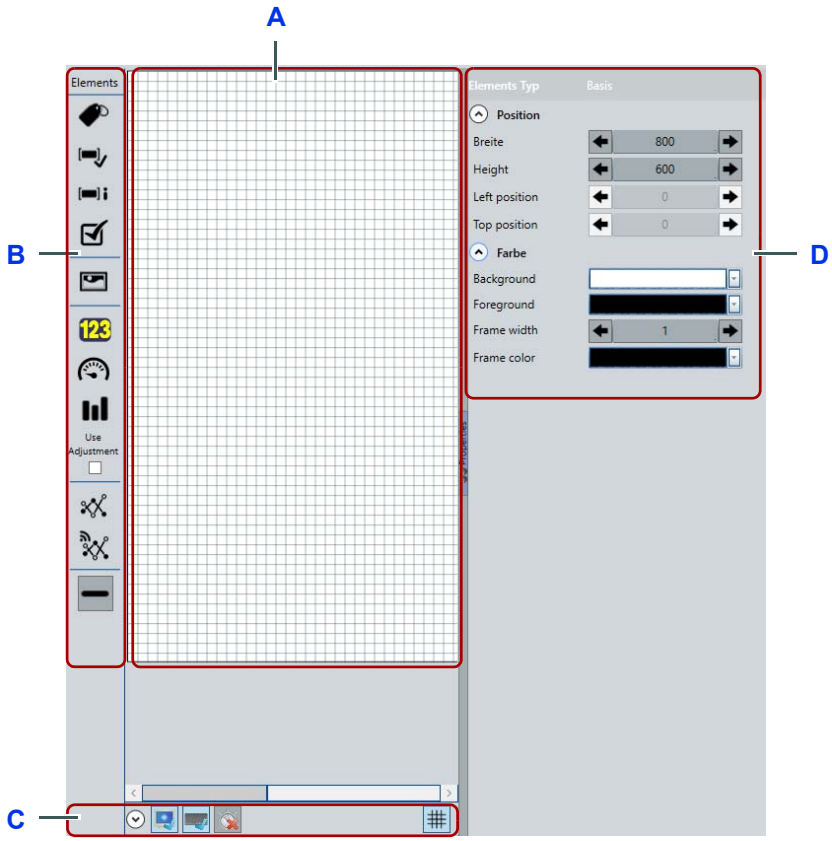
➔ **How to design a user interface**

1 Insert the **User interface module** into your test procedure.

⇨ **User interface module** on page 196
⇨ **Combining modules** on page 81

2 Mark the module.

The module settings are displayed.



A Interface
B Elements
C Module settings
D Element settings

3 Drag the desired elements (**B**) to the interface (**A**) using drag & drop and arrange them.

There is an overview of the elements and their functions here:

⇨ **User interface module elements** on page 198

4 Mark an element on the interface.

5 Open the properties of the element with the **Properties** symbol.

There is an overview of the settings for the properties in question in the software description:

⇨ **Element settings** on page 201

■

➔ **How to generate a log of the test procedure**

A log can be saved either as PDF or printed out directly.

1 Insert the **Log module** into your test procedure.

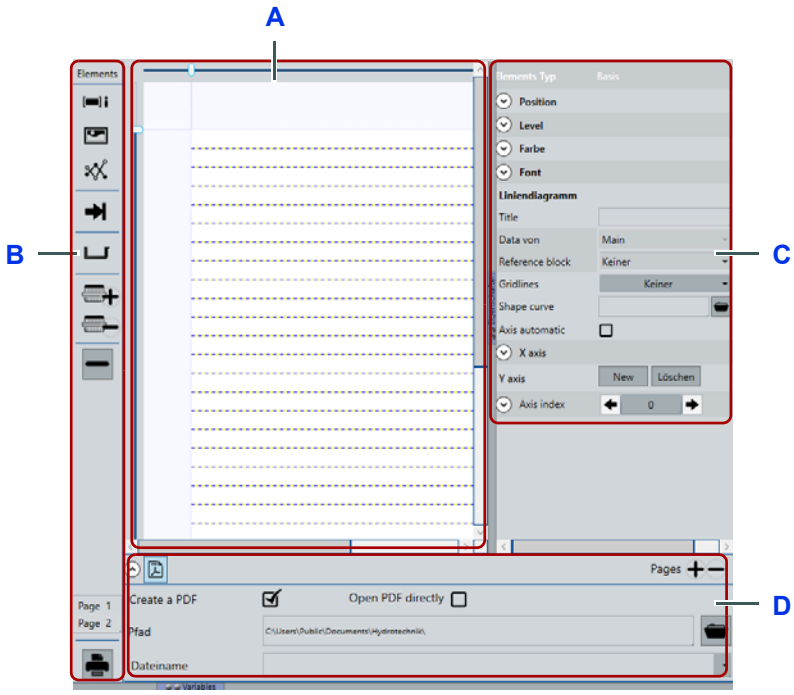
⇨ **Log module** on page 204

⇨ **Combining modules** on page 81

ENG

2 Mark the module.

The module settings are displayed.



A Interface
B Elements
C Element settings
D General settings

3 Drag the desired elements (B) to the interface (A) using drag & drop and arrange them.

There is an overview of the elements and their functions here:

⇨ **Log module elements** on page 205

4 Mark an element on the interface.

5 Open the properties (C) of the element with the **Properties** symbol.

6 Configure the element.

There is an overview of the settings for the properties in question in the software description:

⇨ **Element settings** on page 206

7 Define the output of the log in the area (D).

There is an overview of the settings in the software description.

⇨ **General settings** on page 207

■

Measurement and sensors

➔ **How to activate the data exchange with the measurement device**

1 Insert the **Measurement module** into your test procedure.

⇨ **Measurement module** on page 208

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

3 Select the mode for the data exchange.

⇨ **Measure and wait for transfer mode** on page 208

⇨ **Measure and save mode** on page 208

⇨ **Transfer saved measurement values mode** on page 208

4 Set the available options.

■

➔ **How to change the channel settings on the measurement device**

1 Insert the **Sensor module** into your test procedure.

⇨ **Sensor module** on page 209

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

3 Specify the test options.

⇨ **Test options** on page 209

4 Add a sensor.

5 Define the parameters for the sensor.

⇨ **Sensors** on page 210

■

Calculation

➔ **How to perform calculations**

1 Insert the **Calculation module** into your test procedure.

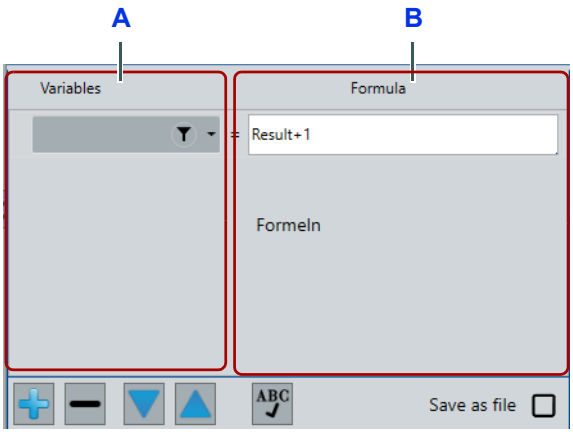
⇨ **Calculation module** on page 210

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open:



A Variables column
B Formulas column

3 Add a new line .

4 Select a variable from the selection field in column (**A**).

If necessary, use the variable filter.

Variable filter

To restrict the selection of the variables, a variable filter can be activated. It filters by variable types. If the filter is active, the variable type is displayed to the left of the button.

5 Define a formula with max. 52 characters in column (B).

There is a list of operators in the software description.

⇨ **Formulas** on page 212

■

ENG

➔ **How to link variable logically with one another**

1 Insert the **Logic module** into your test procedure.

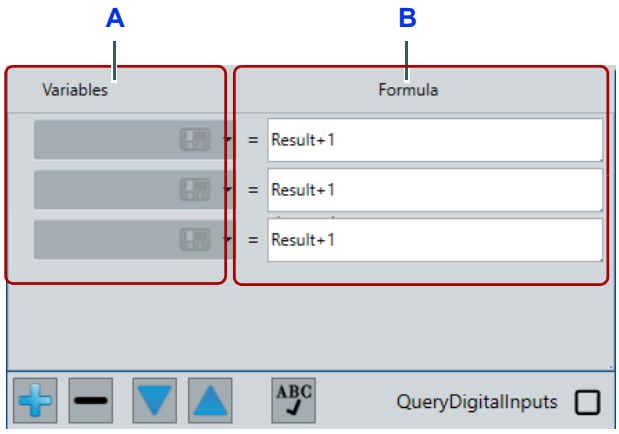
⇨ **Logic module** on page 213

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open:



A Variables column
B Formulas column

3 Add a new line .

4 Select a variable from the selection field in column (**A**).

5 Define a logical formula with max. 52 characters in column (**B**).

There is a list of operators in the software description.

⇨ **Logical formulas** on page 214

6 Check whether the syntax in your formula is correct .

⇨ **Formula check** on page 215

■

ENG

➔ **How to evaluate a variable statistically**

1 Insert the **Statistics module** into your test procedure.

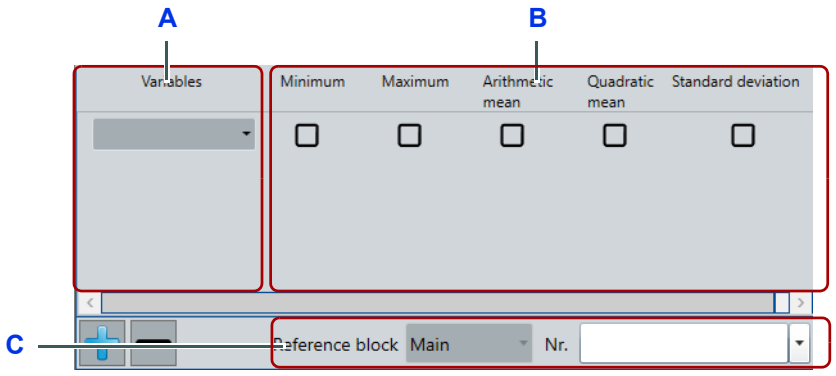
⇨ **Statistics module** on page 216

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open:



A Variables column
B Selection column
C Reference module

3 Add a new line .

4 Select a variable in column (**A**). The selection is restricted to floating point variables.

5 In column (**B**), activate the values for which you want to evaluate the variable.

6 Select the reference module (**C**), which contains the values for the calculation.

■

Data

➔ **How to save measurement values in a database**

1 Insert the **Database module** into your test procedure.

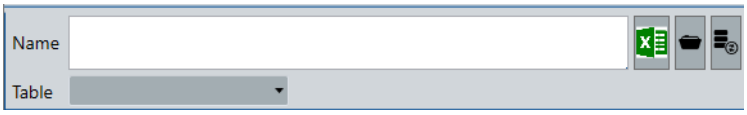
⇨ **Database module (write)** on page 217

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open:



3 Specify the path to the database.

4 Select a table from the selection field.

The tables included in the database are displayed with their permissible data format.

5 If necessary, enter the password for the database.

6 Add a new line .

7 Define the desired properties in the columns.

The possible settings are described in the software description.

⇨ **Specifying the variables for database module** on page 218

■

➔ **How to read values from a database**

1 Insert the **Target value module** into your test procedure.

⇨ **Target value module (read)** on page 218

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open.

3 Specify the path to the database.

4 Select a table from the selection field.

The tables included in the database are displayed with their permissible data format.

5 If necessary, enter the password for the database.

6 Expand the **Options** field.

7 Activate the desired option fields.

⇨ **Options** on page 219

8 Insert a new line into the search and read fields .

9 In the search field column, define according to which field name in the table a data record should be searched for, and the variable whose value should be searched for.

ENG

10 In the read field column, define the fields of the found data record that should be linked to a variable.

■

➔ **How to transfer values between databases**

1 Insert the **Database copy module** into your test procedure.

⇨ **Database copy module** on page 220

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open.

3 Specify the path to the database to which you want to save the data.

4 Select a table from the selection field.

5 If necessary, enter the password for the database.

6 Specify the path to the database from which you want to take the data.

7 Select a table from the selection field.

8 If necessary, enter the password for the database.

9 In the search fields table, define the data fields that should be copied.

10 In the read fields table, define the data fields to which the data should be saved.

Search and read fields must be present in both databases and be of the same type.

■

➔ **How to use a database to read and save variable values**

1 Insert the **Test selection module** into your test procedure.

⇨ **Test selection module** on page 221

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open.

3 Specify the path to the database from which you want to take the data and where you want to save it later.

4 Select a table from the selection field.

5 If necessary, enter the password for the database.

6 Specify how the data in the database should be saved.

⇨ **New data record** on page 222

■

ENG

Procedure

➔ **How to control the temporal flow**

1 Insert the **Time module** into your test procedure.

⇨ **Time module** on page 222

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open.

3 Specify whether you want to wait for the user's input or a particular time span.

⇨ **Time module** on page 222

■

➔ **How to interrupt a test procedure**

1 Insert the **Intermediate storage module** into your test procedure.

⇨ **Intermediate storage module** on page 222

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open.

3 Set a variable.

⇨ **Intermediate storage module** on page 222

■

➔ **How to subdivided a test procedure into sections**

1 Insert the **Section module** into your test procedure.
All modules after this module up to the next module are highlighted in color. The highlighting indicates which modules belong to the section.

⇨ **Section module** on page 223

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open.

3 Set a variable.

⇨ **Section module** on page 223

■

ENG

Functions

➔ **How to integrate local programs into the test procedure**

1 Insert the **Command module** into your test procedure.

⇨ **Command module** on page 224

⇨ **Combining modules** on page 81

2 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open.

3 Define your commands.
You can define a max. of 4 commands.

⇨ **Command module** on page 224

■

Modules

➔ **How to integrate test procedure modules into the test procedure**

1 Insert the **Module module** into your test procedure.

⇨ **Module module** on page 224

⇨ **Combining modules** on page 81

2 Mark the module.

The module settings open.

⇨ **Selecting/deselecting modules** on page 83

3 Open the test procedure module .

Modules within an incorporated module cannot be configured. A module is generally used in several test procedures. A change to the module settings would mean that the change occurs in all test procedures that use the module. This is generally not intentional.

⇨ **How to create a module test procedure** on page 103

■

➔ **How to execute functions regularly**

1 Create an interrupt test procedure.

⇨ **Interrupt test procedure** on page 104

2 Insert the **Interrupt module** into your test procedure.

⇨ **Interrupt module** on page 225

⇨ **Combining modules** on page 81

3 Mark the module.

⇨ **Selecting/deselecting modules** on page 83

The module settings open.

4 Set the state to **On**.

5 Open the interrupt test procedure  .

6 Set the interval at which the interrupt test procedure should be executed.

Heed the conditions for the interval:

⇨ **Interval** on page 226

■

➔ **How to integrate a device configuration into the test procedure**

1 Create a device configuration module. There are two possibilities for this:

a) use the current device configuration: Insert the **Configuration module**  into your test procedure.

⇨ **Configuration module** on page 226

⇨ **Combining modules** on page 81

b) use a created device configuration: Drag & drop a device configuration from the device explorer.

⇨ **Working with configurations** on page 38

2 Select the desired configuration in the field **Selection** .

⇨ **Configuration module** on page 226

■

Conditions

➔ **How to define an input condition**

1 Insert the **Input condition** module  into a module in the test procedure.

⇨ **Input condition** on page 226

⇨ **Combining modules** on page 81

The lower frame of the module turns yellow.

A dialog opens.

2 Define the conditions on the dialog.

⇨ **Condition dialog** on page 253

3 If necessary, change the conditions.

⇨ **Input condition** on page 226

■

➔ **How to define an output condition**

1 Insert the **Output condition** module into a module in the test procedure.

⇨ **Output condition** on page 227

⇨ **Combining modules** on page 81

The frame of the module turns blue in the top right.

A dialog opens.

2 Define the conditions on the dialog.

⇨ **Condition dialog** on page 253

3 If necessary, change the conditions.

⇨ **Output condition** on page 227

■

Variables

In the **Test procedure settings, module settings, variables** area, you can use the **Variables** button to display the variables included in the test procedure in the form of a table. With a double-click on a table entry, the **Variables** dialog opens.

⇨ **Variable dialog** on page 254

In addition, four buttons are shown that you can use to interact with the variable table. You can add, delete, and mark entries. Furthermore, you can search for modules in which a marked variable occurs and open the table in a separate window.

The buttons are described in the software description:

⇨ **Variables** on page 102

ENG

Executing a test procedure

➔ **How to execute a test procedure**

1 On the **Test procedure dialog**  , click the button in the middle.

The test procedure starts.

2 Control the test procedure.

Which elements are available to you are described in the software description:

⇨ **Start test procedure dialog** on page 250

■

Special test procedures

Module test procedure

It is possible to nest test procedures within one another. This makes sense if sequences are repeated. For this, the sequences that should be repeated are created as new test procedure and saved as module test procedure (.xPAM). With the module module, the module test procedures can be integrated at several points in the main test procedure.

➔ **How to create a module test procedure**

1 Create a new test procedure on the **Test procedures** window  .

⇨ **Managing test procedures** on page 76

2 Mark the new test procedure.

3 Open the selection bar in the test procedure area and create the test procedure  .

⇨ **Creating a test procedure** on page 80

4 Save the test procedure on the **Test procedures** window as module test procedure with the extension .xPAM  .

■

Interrupt test procedure

An interrupt test procedure is executed regularly in the background during the main test procedure. For this, the interrupt test procedure must be integrated into the test procedure via the interrupt module.

➔ **How to create an interrupt test procedure**

1 Create a new test procedure on the **Test procedures** window  .

⇨ **Managing test procedures** on page 76

2 Mark the new test procedure.

3 In the settings, activate the **Test procedure as interrupt** option field.

⇨ **Defining test procedure as interrupt** on page 79

4 Open the **Selection bar**  in the test procedure area and configure the test procedure.

⇨ **Creating a test procedure** on page 80

Only the modules are displayed that are permitted in an interrupt test procedure.

⇨ **Functions** on page 89

5 Save the test procedure on the **Test procedures** window as module test procedure with the extension .xPAM  .

■

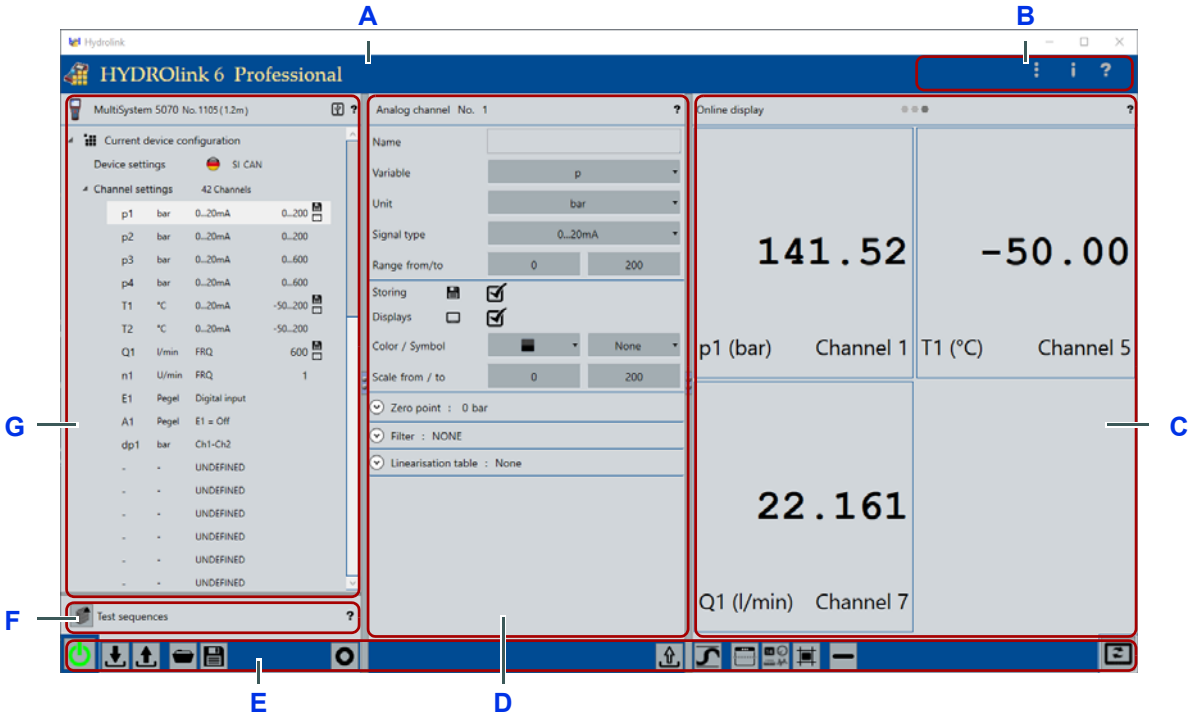
ENG

Software description

This chapter describes the program windows, the dialogs, and the elements of the software.

ENG

Program window



A Voice control
B Information and configuration bar
C Viewer
C Modules
D Detail area
E Toolbar
F Test procedures
G Device explorer

Image: Program window

The program window consists of the following areas:

- **Information and configuration bar**
- **Device explorer**
- **Test procedures**
- **Detail area**
- **Viewer** with **online display**, **device display** or **measurement series display**
- **Modules**
- **Toolbar**

Information and configuration bar

Display and edit application-specific functions/settings.

⇨ **Information and configuration bar** on page 108

Device explorer

Display and navigate device information.

⇨ **Device explorer** on page 109

Test procedures

Create, manage, and run test procedures.

⇨ **Test procedures** on page 180

Detail area

Display and edit selected elements in the device explorer.

⇨ **Detail area** on page 126

Viewer

Display current measurement values of selected channels. Display measurement series as line chart.

Change display type (**online display** - **device display** - **measurement series display**).

⇨ **Viewer** on page 164

Modules

Configure the selected module for the test procedure. In this area, only the menus for the modules are displayed if a module is marked.

Toolbar

Provide buttons, e.g. Connect to measurement device, record measurement values.

Toolbar for device explorer.

⇨ **Toolbar** on page 121

Toolbar for detail area.

⇨ **Toolbar** on page 163

Toolbar for online display.

⇨ **Toolbar** on page 167

Toolbar for device display.

⇨ **Toolbar** on page 173

Toolbar for measurement series display.

⇨ **Toolbar** on page 176

Size ratio of the window sections
You can change the size ratio of the window sections by moving the vertical separation bar.
Use the button to reveal or hide the device explorer.

ENG

Information and configuration bar

Use the buttons on the info and configuration bars to display and edit application-specific functions.

ENG

Open the Settings dialog

Opens the **Settings** dialog:

- **General tab** (e.g. language, log layout)
- **Connection settings tab**
- **Advanced tab**

⇨ **Settings dialog (global)** on page 230

Open the info dialog

Opens a list with submenus:

- **About...** (Product information)
- **Request license**

  ⇨ **Licensing HYDROlink6** on page 18

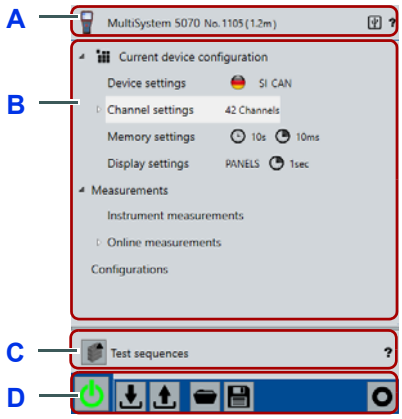
  ⇨ **Licensing dialog** on page 241
- **Activate license**
- **Release special function** (opens a dialog with which customer-specific special functions can be released)

Voice control

Indicates active voice control

⇨ **Voice control** on page 257

Device explorer



A Title bar
B Measurement device
C Test procedures
D Toolbar

Image: Device explorer

The device explorer shows information about the connected measurement device. If no measurement device is connected, the information from the last connected measurement device will be shown.

The device explorer consists of the following areas:

- **Title bar**
- **Measurement device**
- **Toolbar**

The **Test procedures** button is underneath the measurement device area. If you press it, the Test procedures menu opens. The areas for the test procedures are then displayed in the program window.

⇨ **Test procedures** on page 180

In the device explorer, if you click on Parameters or Measurement series, these are displayed in the detail area.

⇨ **Detail area** on page 126

If you change parameters in the detail area, the changed element will be marked with the symbol ★ in the device explorer.

A tooltip indicates the changes.

As soon you have sent the changed configuration to the measurement device, the ★ symbol disappears.

Use the ⋮ button to reveal or hide the device explorer.

Title bar Display information about the measurement device.

⇨ **Title bar** on page 111

Measurement device Display measurement device settings.

The measurement device area consists of the following areas:

- **Current device configuration**
  Display and edit current parameters.
  ⇨ **Current device configuration** on page 113
- **Measurement series**
  Display measurement series recorded.
  ⇨ **Measurement series** on page 116
- **Configurations**
  Display and edit configuration files.
  ⇨ **Configurations** on page 120

BASE The measurement device area consists of the 2 areas **Channel parameters** and **Measurement series**.

MultiBox The **Configuration** area is not available.

Toolbar Provide buttons for the device explorer.

⇨ **Toolbar** on page 121

Title bar

Device explorer > Title bar

The title bar of the device explorer displays the device information.

The following device information is shown for the connected measurement device:

- Measurement device icon
- Measurement device name (for example, MultiSystem 5060 Plus)
- Measurement device serial number (for example, 2729)
- Firmware version number (for example, 6.8h)
- Warning symbol
- Connection type symbol
- Help symbol
- Messages from the measurement device symbol

Symbols The following symbols can be displayed.

Warning

The warning symbol indicates that the measuring device firmware is not fully supported by HYDROlink6.

You can use the measuring device, however, its functionality may only be limited when used with HYDROlink6. You should perform a firmware update.

Connection type

A connection symbol indicates that a measuring device is connected with HYDROlink6.

The following symbols indicate the connection type.

USB

- MH 2020
- MH 2025
- MH 3020
- MP 2025
- MS 4010
- MS 5060
- MS 5060 *Plus*
- MS 5070
- MS 4070
- MS 8050
- MC 4070
- MC 8050
- MB 3060
- MB 3061
- MB 3065

LAN (TCP/IP network)

- MS 5060 (with additional equipment)
- MS 5060 *Plus* (with additional equipment)
- MS 4070 (with additional equipment)
- MS 5070 (with additional equipment)
- MS 8050 (with additional equipment)
- MC 4070
- MC 8050 (with additional equipment)
- MB 3065

Bluetooth

- MS 5060 *Plus* (with additional equipment)
- MS 5070 (with additional equipment)
- MS 8050 (with additional equipment)
- MC 4070 (with additional equipment)

RS232

- MH 2020
- MP 2025
- MS 4010
- MS 5060
- MS 5060 *Plus*
- MS 8050
- MC 8050

Help

You can use the Help symbol to call up help for the device explorer.

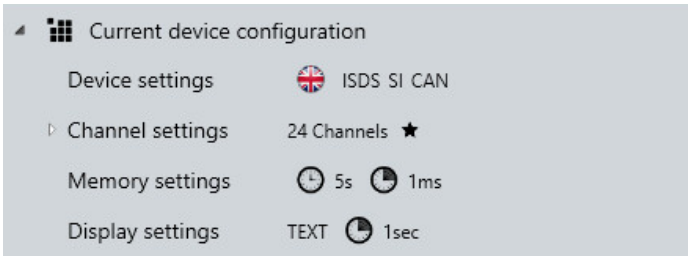
Messages from the measuring device

You can use this symbol to call up the Messages from the measurement device dialog. The number next to the speech bubble indicates the number of messages. This symbol only appear for the measurement devices in the MultiControl xx70 family.

ENG

Current device configuration

Device explorer > Current device configuration



The **Current device configuration** consists of the following elements:

- **Device parameters**
- **Channel parameters**
- **Storage parameters**
- **Display parameters**

Device parameters

Device explorer > Current device configuration > Device parameters

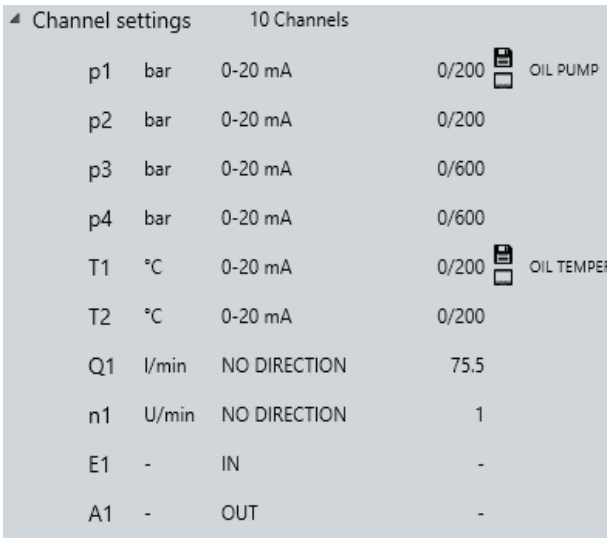
The **Device parameters** element displays the settings for the measurement device.

If you click **Device parameters**, the detail area opens.

⇨ **Device parameters** on page 128

Channel parameters

Device explorer > Current device configuration > Channel parameters

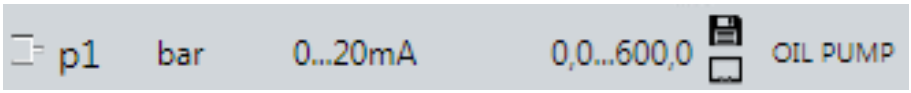


The **Channel parameters** element displays the available channels of the measurement device.

One sensor can be connected to a channel.

This includes CAN channels.

Special channels are displayed if these are supported by the measurement device and set up.



The following channel parameters are shown for the connected sensor:

- Measurement variable (example: p1)
- Unit (example: bar)
- Signal type (example: 0-20 mA)
- Measurement range or calibration value (example: 0.0-200.0)
- Symbols
- Name (example: OIL PUMP)

  The name of the channel is only displayed if it is configured in the measurement device.

The following symbols can be displayed.

Symbol	Meaning
	Channel is active for the recording
	Channel is active for the online display

The channel's settings have been changed.

The settings must be synchronized with the measurement device.

Channel with connected ISDS sensor

You can open and close the **Channel parameters** element with the arrow symbols and .

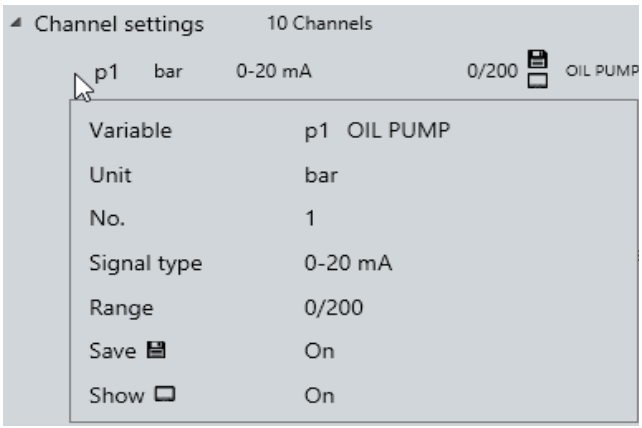
If you click **Channel parameters**, the detail area opens.

⇨ **Channel parameters** on page 132

If you use the mouse to drag a channel onto the **Online display**, the current channel value is displayed in the **Online display**.

BASE No detail area for channel parameters.

Display of a tooltip for each channel with detailed description of the settings.



MH2020 and MH2025 In addition, it is possible to display special channels. See also: Documentation for the measurement device.

Storage parameters

Device explorer > Current device configuration > Storage parameters

The **Storage parameters** element displays the storage time and sampling rate.

If you click **Storage parameters**, the detail area opens.

⇨ **Storage parameters** on page 154

The following symbols can be displayed.

Symbol	Meaning

	Duration of the measurement
	Sampling rate

Display parameters

Device explorer > Current device configuration > Display parameters

The **Display parameters** element displays the type of display and the display device.

If you click **Display parameters**, the detail area opens.

⇨ **Display parameters** on page 158

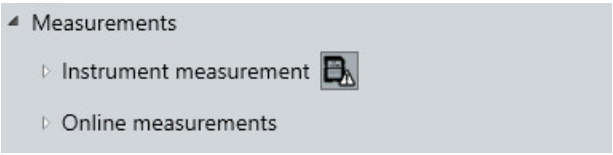
The following symbols can be displayed.

Symbol	Meaning
	Sampling rate

MultiBox The **Display parameters** area is not available.

Measurement series

Device explorer > Measurement series



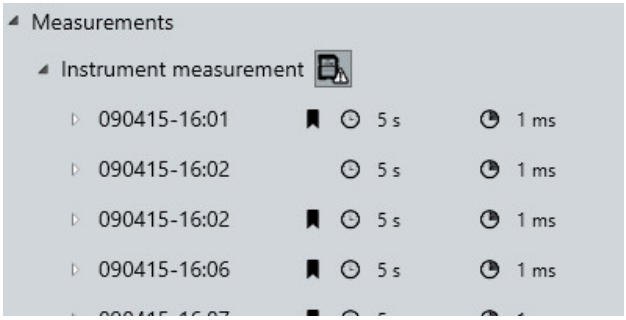
The **Measurement series** element consists of the following elements:

- **Device measurement series**
- **Online measurement series**

ENG

Device measurement series

Device explorer > Measurement series > Device measurement series



The **Device measurement series** element shows all measurement series stored in the device.

You can open and close the **Device measurement series** element with the arrow symbols and .

If you use the mouse to drag a device measurement series into the **Measurement series display**, the measurement series is transferred from the measurement device and saved on the PC and displayed in the measurement series display.

The following information is shown for each device measurement series:

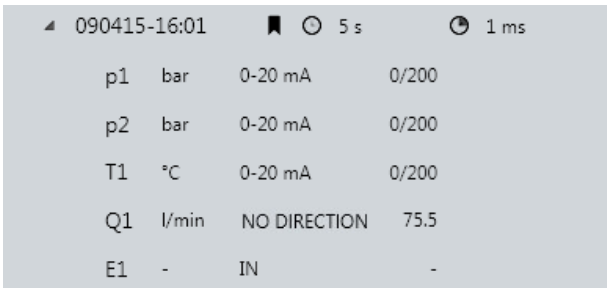
- Name of the device measurement series (example: 290715-15:43)
- shows that one device measurement series is already saved on the computer.

  This measurement series is also available offline and can be displayed without an measurement device connected.
- displays the duration of the device measurement series (example: 5 s)
- displays the sampling rate used (example: 1 ms)

BASE The update is performed automatically when a measurement device is detected.

Channel parameters of a device measurement series

If you click on the arrow symbol , the channel parameters for this device measurement series will be shown. Only the channel parameters of the recorded channel are shown.

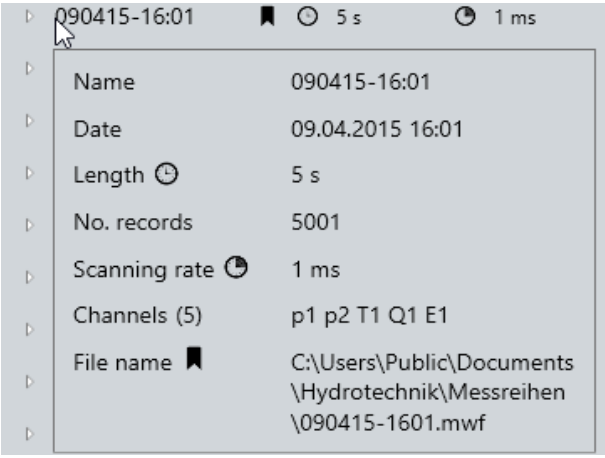


The following channel parameters are shown for the recorded channel:

- Measurement variable (example: p1, p2, T1)
- Unit (example: bar, °C)
- Signal type (example: 0-20 mA)
- Value range or parameter (example: 0/200 bar)

Tooltip

A tooltip will be displayed if you hover the mouse pointer over a device measurement series or with touch operation, if you hold your finger on the device measurement series for a second.



The tooltip displays the following information:

- **Name** (example: 090415-16:01)
- **Date** (example: 09.04.2015 16:01)
- **Duration** (example: 5 s)
- **Number of data records** (example: 5001)
- **Sampling rate** (example: 1 ms)
- **Channels** (number) and channel name (example: (4) p1 p2 T1 Q1)
- **File name** and path are only displayed if the measurement series is saved on the PC.

  This measurement series is also available offline and can be displayed without an measurement device connected.

The following symbols can be displayed.

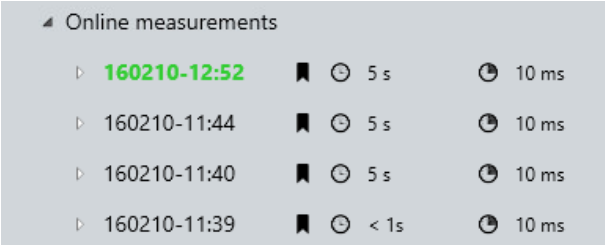
Symbol	Meaning
	Duration of the measurement
	Sampling rate

	Measurement series has been downloaded from measurement device.
	Measurement series is available offline.
⚠	An error occurred when loading the measurement series.
	Details are displayed in the tooltip.
	Measurement series does not contain any data records.

ENG

Online measurement series

Device explorer > Measurement series > Online measurement series



The **Online measurement series** element displays all measurement series that have been recorded online with the current configuration.

Online measurement series are part of a working area. If you load a configuration generated with the online measurement series, only these online measurement series will be displayed.

The newest online measurement series is displayed first in the list. Online measurement series that were generated during the current session are displayed in green.

Up to 200 measurement series are displayed. If there are more measurement series, the oldest measurement series will no longer be displayed. The old measurement series will not be deleted from the system.

The following symbols can be displayed.

Symbol	Meaning
	Duration of the measurement
	Sampling rate
	Is always displayed for online measurement series. If the symbol is not displayed, then an error has occurred with the file.

⚠ An error occurred when loading the measurement series.

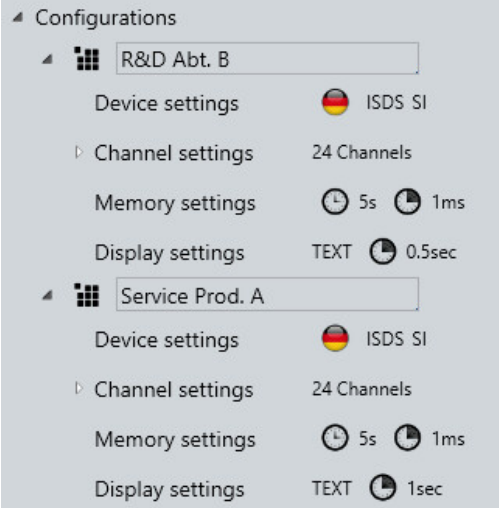
Details are displayed in the tooltip.

Measurement series does not contain any data records or measurement series is missing.

ENG

Configurations

Device explorer > Configurations



The **Configurations** element displays all configurations saved in addition to the current device configuration.

The individual configurations in the **Configurations** element are displayed and edited just like the **Current device configuration** element.

⇨ **Device parameters** on page 128
⇨ **Channel parameters** on page 132
⇨ **Storage parameters** on page 154
⇨ **Display parameters** on page 158

The **Configuration** element can be opened and closed using the arrow symbols ▷ and ◢.

Configuration
A configuration in the software is identical to a project on the measurement device.

MultiBox No **Configurations** element.

Toolbar

Device explorer > Toolbar

Use the toolbar to connect your measurement device with HYDROlink6.

Use the toolbar to start the recording of a measurement series.

Depending on which elements are active in the device explorer, the **Toolbar** includes the following buttons.

Button	Function
	Establish connection to or disconnect from the measurement device.
	Load the work area from the measurement device.
	Send the work area to the measurement device.
	Load a work area. Opens the Windows **Open** dialog. Only possible if no measurement device is connected.
	Save the work area as a file. Opens the Windows **Save as** dialog.
	Send the selected configuration to the measurement device.
	Save the selected configuration. Opens the Windows **Save as** dialog. Only possible for measurement devices in the 5060, 8050, and xx70 family.
	Delete the active element in the device explorer.
	Start storage on the measurement device.
	End storage on the measurement device.
	Trigger online measurement Only with appropriate configuration of the storage parameters.

Connect

Establishes the connection to the measurement device or disconnects it. HYDROlink6 automatically detects the type of connection (USB, RS232 or LAN).

The button or connection can have the following states.

ENG

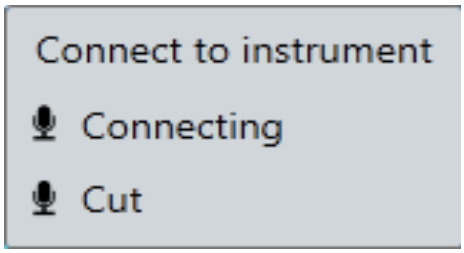
Connect to measurement device

Establishes connection to the measurement device.

There is no connection.

Voice command CONNECT

- Symbol color - black
- Symbol rotates every five seconds
- Tooltip: Connect to measurement device



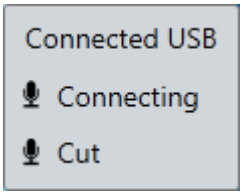
Connected

Disconnects the connection to the measurement device.

There is no connection.

Voice command DISCONNECT

- Symbol color - green
- Symbol does not rotate
- Tooltip: Connected USB



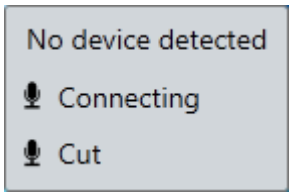
No measurement device detected

Attempts to establish a connection to the measurement device again.

A connection failed.

Voice command CONNECT

- Symbol color - red
- Symbol does not rotate
- Tooltip: Information about the connection error is displayed (example: No measurement device detected)



Click the button again to disconnect

HYDROlink6 attempts to establish a connection to the measurement device.

By clicking the button, the connection attempt is canceled.

Load working area from measurement device

Loads the work area from the measurement device.

The button is only active if a measurement device is connected.

Sending working area to measurement device

Send the work area to the measurement device.

The button is only active if a measurement device is connected.

Load work area from a file

Opens the Windows **Open** dialog.

You can load a saved work area.

The button is **not** active if a measurement device is connected.

Save work area as a file

Saves the current work area as a file.

Delete

The function of this button depends on which element is marked in the device explorer.

The following functions of the button are possible.

Marked element	Function of the Delete button
Configurations	Deletes all configurations from the device explorer. If a measurement device is connected, the projects on the measurement device are also deleted.
Configuration	Deletes the selected configurations from the device explorer. If a measurement device is connected, the project on the measurement device is also deleted.
Device measurement series	Deletes the selected device measurement series from the device explorer and from the measurement device. You can only delete the selected device measurement series if a measurement device is connected and if the device measurement series list was updated in the device explorer. Only the device measurement series is deleted. Downloaded measurement series will not be deleted from the PC.
Online measurement series	Deletes all online measurement series from the device explorer. Moves the files of the online measurement series into the Windows recycling bin.
Online measurement series	Deletes the selected online measurement series from the device explorer. Moves the file of the selected online measurement series into the Windows recycling bin.

Send selected configuration to the measurement device

Sends the current configuration or the selected configuration to the measurement device.

Successful sending is indicated with ☑.

The button is only displayed if a configuration was selected and a measurement device is connected.

Save selected configuration as file

Saves the selected configuration as file on the PC.

The Windows **Save as** dialog opens.

Start recording

Starts the recording of a measurement series.

Voice command RECORD

The button is only active if a measurement device is connected.

If on the **Settings** dialog **Specify folder and file name automatically** is selected, the recording starts immediately.

If automatic saving is not specified in the **Settings**, the Windows **Save as** dialog will be displayed. You must specify a destination and can change the file name.

⇨ **Settings dialog (global)** on page 230
⇨ **Recording a measurement** on page 59

The storage parameters of the measurement device will be used for the recording.

ENG

Recording

Only the channels for which the recording is activated will be recorded. The channels are indicated with the symbol in the channel parameters.

A progress bar indicates the status of the recording and the time of the recoding thus far.

Transfer to measurement device's SD card

When the storage on the measurement device is complete, the data is transferred to the SD card of the measurement device.

A progress bar indicates the status of the transfer to the SD card.

Transfer to the PC

When the transfer of the data to the SD card is complete, the measurement series is transferred to the PC.

A progress bar indicates the status of the transfer to the PC.

When the measurement series has been transferred to the PC, a new entry appears in *Device explorer > Measurement series > Online measurement series*.

Duration of the recording
HYDROlink6 records the measurement values on the measurement device and only then transmits the online measurement series to the PC.
Therefore, the duration of the recording with HYDROlink6 is limited by the measurement device.
- So that the sampling rate is available in full resolution, you must specify the duration of the recording in *Storage parameters > Storage time*.

BASE An online recording of measurement data is started. The measurement data is transferred directly to the PC. A progress bar indicates the status of the recording and the time of the recoding thus far.

Trigger

Triggers the online measurement.

Storage parameters > Trigger type must be **Button**.

The button is only visible if an online recording is active.

Stop recording

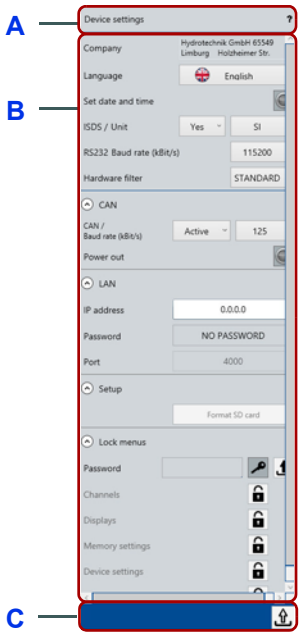
Ends the online recording or the active storage of data.

Voice command STOP

The button is only visible if an online recording is active.

ENG

Detail area



A Title bar
B Details
C Toolbar

Image: Detail area

The detail area is the dialog for editing the fields.

If you click one of the following elements in the device explorer, the detail area opens with the appropriate fields:

- **Device parameters**
- **Channel parameters** > *Select channel*
- **Storage parameters**
- **Display parameters**
- **Device measurement series** > *Select measurement series*
- **Online measurement series** > *Select measurement series*

If no measurement device is connected, the fields from the last connected measurement device will be displayed.

Use the button to reveal or hide the detail area.

If the fields change, the display changes at the same time.

The detail area consists of the following areas:

- **Title bar**
- **Details**
- **Toolbar**

ENG

Title bar Display selected element

⇨ **Title bar** on page 127

Details Display fields

Different fields are displayed, depending on which element is selected in the device explorer:

- Device parameters
  ⇨ **Device parameters** on page 128
- Specific channels
  ⇨ **Channel parameters** on page 132
- Storage parameters
  ⇨ **Storage parameters** on page 154
- Display parameters
  ⇨ **Display parameters** on page 158
- Specific device measurement series
  ⇨ **Device measurement series** on page 161
- Specific online measurement series
  ⇨ **Online measurement series** on page 162

Toolbar Display buttons

⇨ **Toolbar** on page 163

Title bar

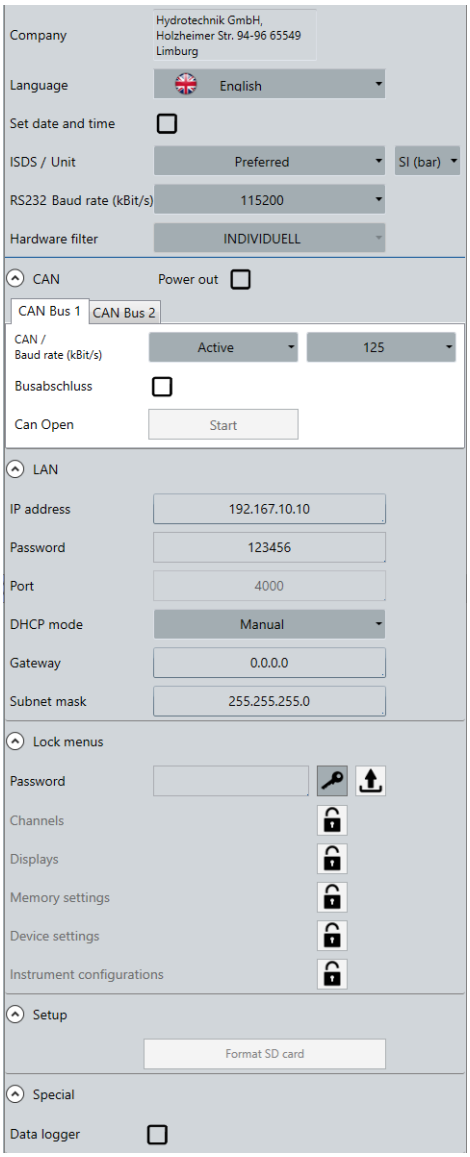
Device explorer > Select element (parameter or channel/measurement series) > Detail area > Title bar

The title bar area displays the selected parameter or the selected measurement series.

ENG

Device parameters

Device explorer > Current device configuration or Configuration > Device parameters > Detail area > Details



ENG

If you click **Device parameters** in the device explorer, the detail area opens with the following parameters:

- **Company name**
- **Language**
- **Set date and time**
- **ISDS/Unit**
- **RS232 Baudrate (kBit/s)**
- **Hardware filter**
- **CAN**
- **LAN**
- **Printer** (only visible if the measurement device supports printers)
- **Lock menus**
- **Setup**

The parameters depend on the measurement device connected and can vary.

MultiBox **Language**, **Set date and time**, **RS232 Baudrate** and **Hardware filters** are not supported.

Company name You can enter an individual text that will be displayed in the stored logs.

Language The selection of the languages is device-specific and can vary depending on the firmware used.

Set date and time If the **Set date and time** option is selected, when sending the device parameters, the time and date of the PC are set in the measurement device.

ISDS/Unit When using ISDS sensors, the sensor parameters will be taken over by the measurement device automatically after connecting the sensors and switching on the measurement device. If you want to use ISDS sensors, you must enable the sensor detection here and set the unit.

Selection of the unit system:

- SI (bar):

  The measurement device uses the units of the SI system. For the pressure, however, deviating from the unit, bar is used.
- US:

  The measurement device uses the units that are customary in the United State of America (e.g., psi, °F).
- SI (MPa):

  The measurement device uses only the units of the SI system. Accordingly, pressure is displayed in Pascal.

RS232 Baudrate (kBit/s) Set transmission speed for COM data.

CAN

The CAN settings are only displayed if the measurement device supports CAN. The MS 5070 supports 2 CAN connections.

- Power outlet:

  Use this function to switch the power supply of connected CAN sensors ON and OFF.
- CAN Bus 1, CAN Bus 2:

  The number of tabs depends on the type of measurement device (Multi-System 5070 supports 2 CAN buses).
- CAN/ Baudrate:

  Set transmission speed for CAN data.
- Bus connection
- CAN open:

  Here you can trigger the start command to the CAN bus that requests that the connected sensors and adaptor boxes send data.

MultiBox CAN is not supported.

LAN

The LAN settings are only displayed if the measurement device supports LAN.

- IP address:

  Enter the IP address that the measurement device should have on the Ethernet network.
- Password:

  Enter the password for the Ethernet network if a password is required.
- Port:

  This is permanently assigned and only displayed for informational purposes.
- DHCP mode:

  Not supported by all measurement devices. Determines how the IP address of the measurement device is assigned by the DHCP server.
- Gateway:

  Not supported by all measurement devices. Enter the gateway.
- Subnet mask:

  Not supported by all measurement devices. Enter the subnet mask.

Locking menus

If you enter the password and confirm with the button, all buttons are activated. Only displayed if the function is supported by the connected measurement device.

You can enter a new password. The tooltip displays the password in plain text.

You can lock or unlock menus.

If you press the button, the settings, including password, are sent to the measurement device.

MultiBox **Lock menus** is not supported.

You can lock or unlock the following menus:

- Password
- Channels
- Display
- Storage parameters
- Measurement device configuration

Setup

- Format SD card:

  Formats the inserted SD card. This will delete all data contained on the card (e.g. measurement data). The formatting cannot be undone.

Advanced options

For MultiBox and measurement devices in the **8050** and **xx70** family, there are also **Advanced options** available.

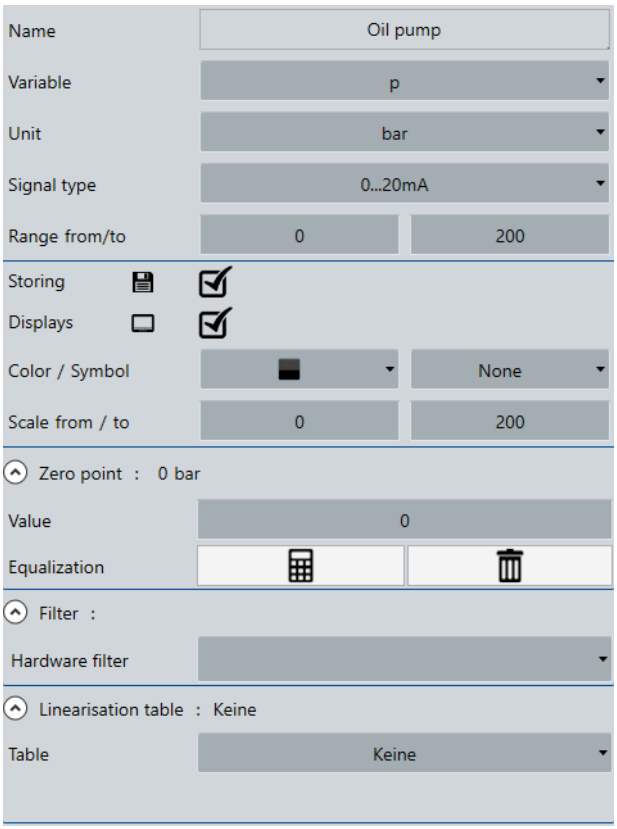
If you select **Data logger**, the measurement device works as a data logger.

When data logger mode is selected, the measurement device starts the recording right after it is switched on.

For example, you can switch the measurement device via the CAN2 socket so that it is started when a machine is switched on and the recording begins.

Channel parameters

Device explorer > Channel parameters > Click channel > Detail area > Details



ENG

If you select a channel under **Channel parameters** in the device explorer, the detail area opens with the parameters. The parameters displayed depend on the channel selected.

- All channels
  ⇨ **All channels** on page 133
- Analog channel
  ⇨ **Analog channel** on page 135
- Frequency channel
  ⇨ **Frequency channel** on page 137
- Digital input
  ⇨ **Digital input** on page 140
- Digital output
  ⇨ **Digital output** on page 141
- Analog output
  ⇨ **Analog output** on page 143
- Special channel
  ⇨ **Special channel for calculations** on page 144
- Special channel with CAN bus connection
  ⇨ **Special channel for CAN messages** on page 150

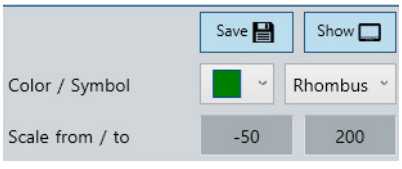
For a description of the parameters, see the documentation for the measurement device.

⇨ Documentation for the measurement device

Only the parameters are described below that differ among the measurement devices.

All channels

Device explorer > Channel parameters > Click channel > Detail area > Details



The detail area displays the following parameters for all channels:

- **Name**
- **Measurement variable**
- **Save** / **Show**
- **Color / Symbol**
- **Scaling from/to**

Name — Assign an individual name. The name will now be shown in the tile display of the measured values display.

Measurement variable/ Unit — Selection of measurement variable and unit; choose from among 18 different measurement variables and up to five units per measurement variable

In contrast to the measurement devices, measurement variable and unit are separate. With the selection of the **Measurement variable**, the selection possibilities of the **Unit** also change.

Save / Show — Specify whether the channel should be saved or displayed.

Color / Symbol — Specify colors and symbol for the channel.

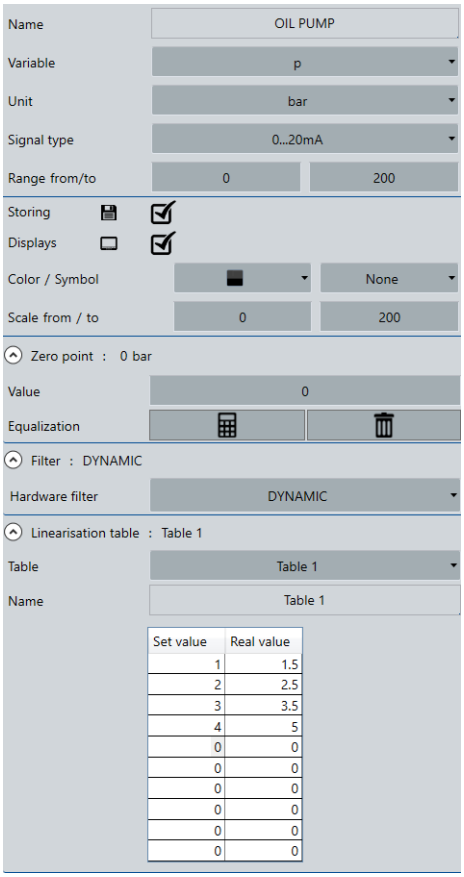
Scaling from/to — Specify the scaling for the channel.

Fields in HYDROlink6 and in the measurement device
Some fields in HYDROlink6 are displayed in another menu in the measurement device.
- **Save** is on the **Save** menu.
- **Show**, **Color**, **Symbol**, **Scaling** are on the **Display** menu.

ENG

Analog channel

Device explorer > Channel parameters > Click analog channel > Detail area > Details



The detail area displays the following parameters for analog channels:

- **Name**
- **Measurement variable**
- **Unit**
- **Signal type**
- **Measurement range from/to**
- **Save** / **Show**
- **Color / Symbol**
- **Scaling from/to**
- **2. Sampling rate**

  Only displayed if *Storage parameters > 2. Sampling rate x* is greater than 0.
- **Zero point**
- **Filter**
- **Linearization table**

Name Assign an individual name. The name will now be shown in the tile display of the measured values display.

Measurement variable/ Unit Selection of measurement variable and unit; choose from among 18 different measurement variables and up to five units per measurement variable

In contrast to the measurement devices, measurement variable and unit are separate. With the selection of the **Measurement variable**, the selection possibilities of the **Unit** also change.

ENG

Signal type Sensor-specific The correct signal type is marked on the type plate of the sensor or in its documentation.

Measurement range Entry of the measurement range of the connected sensor. If **Recalculate measurement range after unit change** is activated in the settings, then the measurement ranges are recalculated.

Save / Show Specify whether the channel should be saved or displayed.

Color / Symbol Specify colors and symbol for the channel.

Scaling from/to Specify the scaling for the channel.

2. Sampling rate Not available for measurement devices in the xx70 family.

Zero point The zero point can be synchronized automatically or changed manually.

The buttons  and  for the automatic synchronization are only active if a measurement device is connected.

Filter You can select the **Software Filter**. Software filters are not supported by the xx70 family.

If in *Device explorer > Device parameters > Detail area* **INDIVIDUAL** has been selected in the **Hardware Filter** drop-down list, you can select the **Hardware Filter** here.

Fields in HYDROlink6 and in the measurement device
Some fields in HYDROlink6 are displayed in another menu in the measurement device.
- **Filter** is on the **Device** menu.

MultiBox and measurement devices in the xx70 family: **Hardware Filter** is not supported.

Linearization table If available, you may enter or select a linearization table for the connected sensor. This may increase measurement accuracy.

The linearization table can be used to compensate for sensor inaccuracies. By calibrating a sensor, you will obtain this table, which can be entered into the measurement device. Five different linearization tables with ten values apiece are available for each measurement channel.

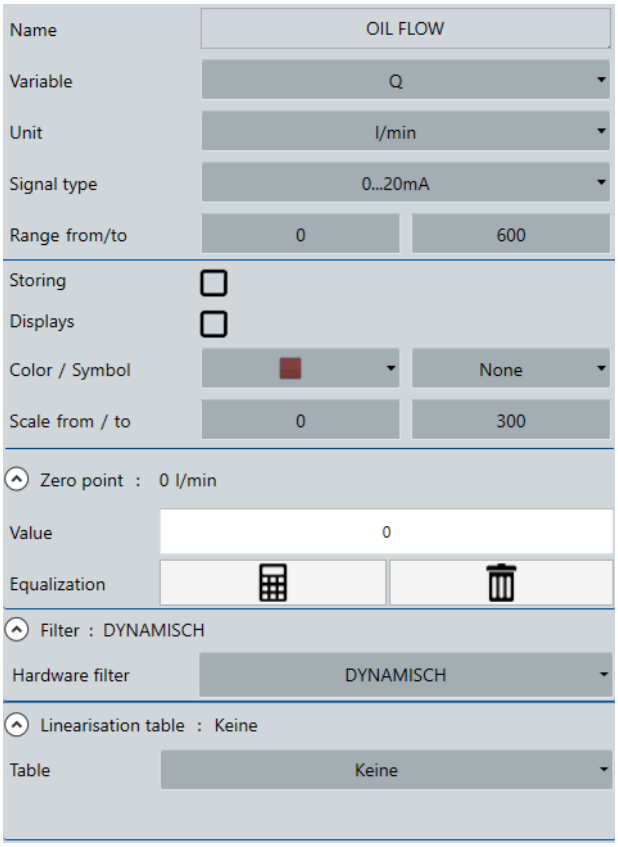
Select the **Linearization table** by selecting a table from the **Table** drop-down list.

If you select a table, you must define at least one **Actual value** greater than 0. You can change the name of the table.

MultiBox **Linearization table** is not supported.

Frequency channel

Device explorer > Channel parameters > Click frequency channel > Detail area > Details



The detail area displays the following parameters for frequency channels:

- **Name**
- **Measurement variable**
- **Unit**
- **Signal type**
- **Calibration value**
- **Save** / **Show**
- **Color / Symbol**
- **Scaling from/to**
- **2. Sampling rate**

  Only displayed if *Storage parameters > 2. Sampling rate x* is greater than 0.
- **Filter**
- **Min. Frequency**
- **Gate time (x 10ms)**
- **Linearization table**
- **Table**

Name Assign an individual name. The name will now be shown in the tile display of the measured values display.

Measurement variable/ Unit Selection of measurement variable and unit; choose from among 18 different measurement variables and up to five units per measurement variable

In contrast to the measurement devices, measurement variable and unit are separate. With the selection of the **Measurement variable**, the selection possibilities of the **Unit** also change.

Signal type Sensor-specific The correct signal type is marked on the type plate of the sensor or in its documentation.

Measurement range Entry of the measurement range of the connected sensor. If **Recalculate measurement range after unit change** is activated in the settings, then the measurement ranges are recalculated.

Save / Show Specify whether the channel should be saved or displayed.

Color / Symbol Specify colors and symbol for the channel.

Scaling from/to Specify the scaling for the channel.

2. Sampling rate Not available for measurement devices in the xx70 family.

Filter Choose from three digital filters:

- NONE

  No filter applied; on channels K1 and K8, peak pressure measurements up to 10 kHz
- STANDARD

  A 5 kHz filter is applied to channels K1 and K8.
- DAMPED

  A 50 Hz filter is applied to channels K1 to K8; peak pressures are suppressed; ideal for static measurements or slow processes

Min. Frequency Frequencies that are less than the value **Min. Frequency** are displayed as zero.

The value **Min. Frequency** can be set to **0.25**, **1**, **10** or **100** Hz.

For a minimum frequency of 1 Hz, the decrease to zero during the recording is shown with a delay of 1 s. For a minimum frequency of 0.25 Hz, the delay is 4 s.

Gate Time Frequency inputs are equalised by the gate time. The longer the gate time, the slower the measuring values will change, since a new value is only recorded after a delay. In the meantime, the measured values remain constant. The result is a signal smoothing.

Linearization table If available, you may enter or select a linearization table for the connected sensor. This may increase measurement accuracy.

The linearization table can be used to compensate for sensor inaccuracies. By calibrating a sensor, you will obtain this table, which can be entered into the measurement device. Five different linearization tables with ten values apiece are available for each measurement channel.

Select the **Linearization table** by selecting a table from the **Table** drop-down list.

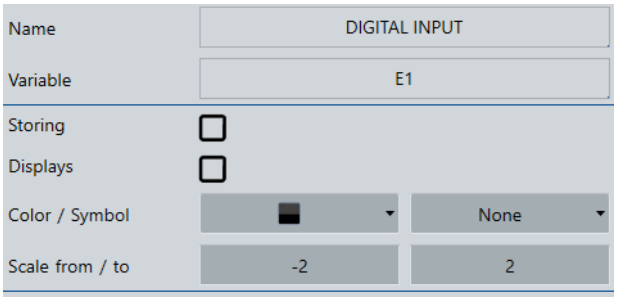
If you select a table, you must define at least one **Actual value** greater than 0. You can change the name of the table.

MultiBox **Linearization table** is not supported.

ENG

Digital input

Device explorer > Channel parameters > Click digital input > Detail area > Details



The detail area displays the following parameters for digital inputs:

- **Name**
- **Measurement variable**
- **Save** / **Show**
- **Color / Symbol**
- **Scaling from/to**
- **2. Sampling rate**

  Only displayed if *Storage parameters > 2. Sampling rate x* is greater than 0.

Name Assign an individual name. The name will now be shown in the tile display of the measured values display.

Measurement variable The **measurement variable** cannot be changed.

Save / Show Specify whether the channel should be saved or displayed.

Color / Symbol Specify colors and symbol for the channel.

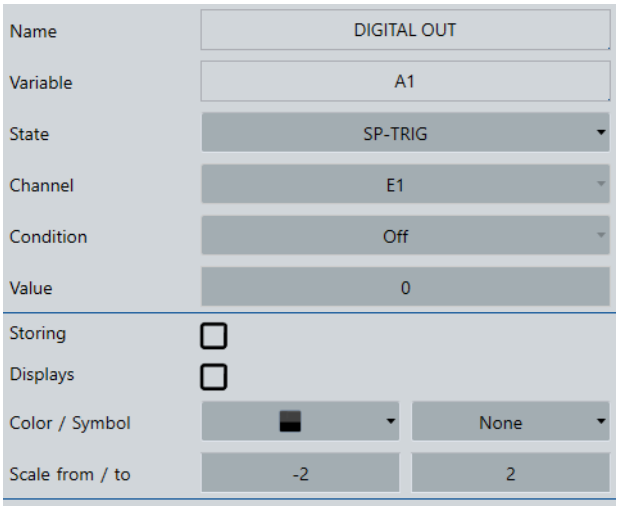
Scaling from/to Specify the scaling for the channel.

2. Sampling rate Not available for measurement devices in the xx70 family.

ENG

Digital output

Device explorer > Channel parameters > Click digital output > Detail area > Details



The detail area displays the following parameters for digital outputs:

- **Name**
- **Measurement variable**
- **State**
- **Channel**
- **Condition**
- **Value**
- **Save** / **Show**
- **Color / Symbol**
- **Scaling from/to**
- **2. Sampling rate**

  Only displayed if *Storage parameters > 2. Sampling rate x* is greater than 0.

Name Assign an individual name. The name will now be shown in the tile display of the measured values display.

Measurement variable The **measurement variable** cannot be changed.

State Source of the triggering event:

- INACTIVE:
  Trigger off
- CHANNEL:
  Channel is monitored for the occurrence of the triggering event,
- SP-TRIG:
  Trigger is set if trigger was detected during saving. This allows several measurement devices to be synchronized:
  – Master: Saving of triggering event X (e.g. p1>200) – trigger output: SP_TRIG;
  – Slaves: Saving of triggering event E1
- MANUAL:
  the trigger output is switched manually by pressing a key

Channel Selection of the channel that should serve as reference channel.

Condition for trigger input **OFF/ON**

for measurement channels **GREATER THAN/LESS THAN**

Value Can only be set under the following conditions:

- **CHANNEL** is selected in the **Status** drop-down list.
- No digital channel is selected for the **Channel** parameter.
- for measurement channels, e.g. 200

Save / Show Specify whether the channel should be saved or displayed.

Color / Symbol Specify colors and symbol for the channel.

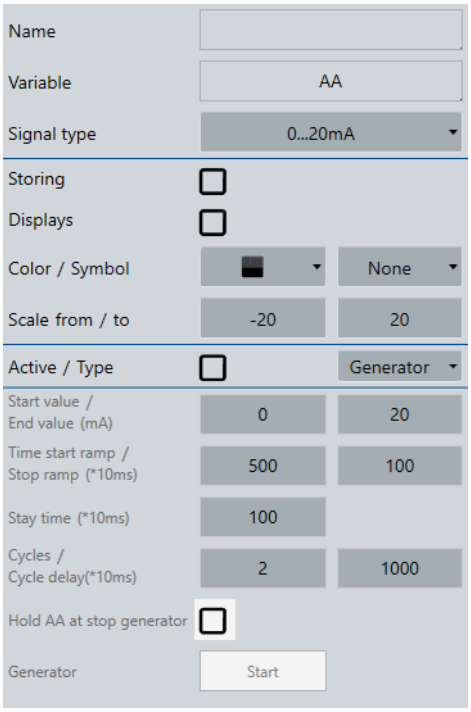
Scaling from/to Specify the scaling for the channel.

2. Sampling rate Not available for measurement devices in the xx70 family.

ENG

Analog output

Device explorer > Channel parameters > Click analog output > Detail area > Details



This channel is only active for measurement devices in the **8050** family and **MultiPanel 2025**.

The detail area displays the following parameters for analog outputs:

- **Name**
- **Measurement variable**
- **Save** / **Show**
- **Color / Symbol**
- **Scaling from/to**
- **Active/Type**
- **Start value/End value (mA)**
- **Time start ramp/end ramp(*10ms)**
- **Dwell time (*10ms)**
- **Cycles/Cycle pause (*10ms)**
- **Stop AA on generator stop**

Name Assign an individual name. The name will now be shown in the tile display of the measured values display.

Measurement variable The **measurement variable** cannot be changed.

Save / Show Specify whether the channel should be saved or displayed.

Color / Symbol Specify colors and symbol for the channel.

Scaling from/to Specify the scaling for the channel.

Active/Type Here you can select one of the available modes:

- INACTIVE:
  Output is switched off
- ACTIVE
  The output is either controlled by a measurement channel or the integrated signal generator.

For an active output, select how the output signal should be generated.

Start value/End value (mA) Value that is output to the selected output immediately after starting the signal generator; min. 0 (K25) or -20 (K26).

Value that is output at the end of the defined ramp (max. 20).

Time start ramp/end ramp (*10ms) Time period in which the output is brought from the start to the end value.

Time period after the dwell time in which the output is brought back to the start value.

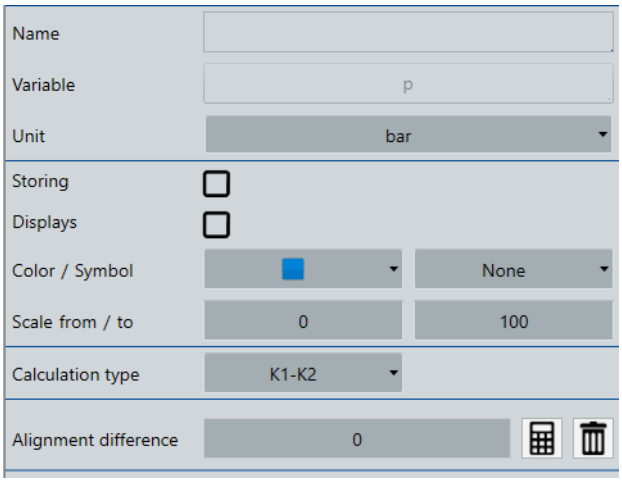
Dwell time (*10ms) Duration of how long the end value is held.

Cycles/Cycle pause (*10ms) Desired number of impulses generated.

If several impulses should be generated, you can define the wait time between two impulses here.

Special channel for calculations

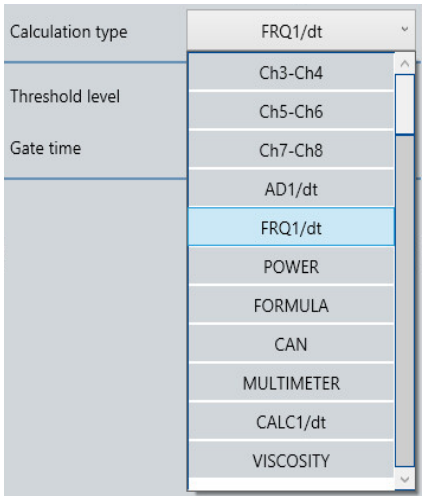
Device explorer > Channel parameters > Click special channel > Detail area > Details



ENG

In the detail area, the following parameters are displayed for special channels if the **Calculation type CAN** has **not** been selected:

- **Name**
- **Measurement variable**
- **Unit**
- **Save** / **Show**
- **Color / Symbol**
- **Scaling from/to**
- **Calculation Type**
- **Threshold Value**
- **Gate Time**



Special channels serve to combine measurement values from several channels mathematically and to line up calculations from this.

Name Assign an individual name. The name will now be shown in the tile display of the measured values display.

Measurement variable It is entered automatically when using pre-programmed formulas and cannot be edited. For individual formulas and assignment with CAN or Multimeter, you can define the variable here that is provided on this channel.

Unit It is entered automatically when using pre-programmed formulas and cannot be edited. Specify the unit for individual formulas and assignment with CAN or Multimeter.

If, for example, 2 channels with the same variable are triggered, then in the selection list for the unit, only units that are appropriate for this variable are displayed. E.g. p1 - p2: Units for the printing.

Save / Show Specify whether the channel should be saved or displayed.

Color / Symbol Specify colors and symbol for the channel.

Scaling from/to Specify the scaling for the channel.

ENG

Calculation Type

In the detail area, you can define the **Calculation type**. You can also select a **Calculation type** or a **Formula**.

Special channels also serve as display for CAN messages or a connected multimeter.

Depending on the measurement device, the following calculation types are possible.

Measurement devices in the 5060, 8050, and xx70 families.

Calculation Type		Description
Subtraction	K1-K2 K3-K4 K5-K6 K7-K8 For Multi-System and Multi-Control 4070: K1-K2 K3-K4 K4-K5	The difference of the measurement values of two channels is depicted. Here, both channels must be assigned the same measurement variable and measurement unit. The resulting variables and measurement unit are determined automatically.  With the button, you can perform a comparison of the channels. With the button, you can delete the calibration. The buttons are only active if a measurement device is connected.
Differentiation	AD1/dt FRQ1/dt CALC1/dt	The 1st derivation of measurement values is displayed.  You can perform a differentiation via the following channels: 1. Analog channel 1. Frequency channel 1. Special channel
Power		The hydraulic power is calculated. Calculated using the formula K1 x first frequency channel / 600 to calculate the hydraulic power. The pressure p in bar is measured on channel 1 and the volume flow rate Q in l/min is measured on the first frequency channel.

Table: Calculation types of the MultiSystem 5060 (Plus)

ENG

Calculation Type		Description
Formula		You can perform arbitrary calculations and use the values from all channels in your formula: Here you can use the following notations: k1*k4 <> p1*Q1 The unit is calculated automatically by the variables. In the example above, W is suggested as the unit for power. In the selection field for the unit, SI units for the power (W, mW, kW, MW, PS, hp) can be selected. Furthermore, for the calculation of the formula, the conversion factor for the selected unit is considered. The unit is recalculated with the button. 
CAN		⇨ **Special channel for CAN messages** on page 150
Multimeter (not for measure-ment devices in the xx70 family)		A multimeter that is connected to the RS232 interface is placed on a channel. 
Viscosity		The viscosity change depending on the temperature is compensated. The oil viscosity depends on its temperature. To account for these changes during the measurement of the volume flow, following channels must be pro-grammed appropriately: • One measurement channel for temperature (if the viscosity of the oil is not known). • One measurement channel for the viscosity-com-pensated volume flow rate measurement. • If the viscosity should be displayed/saved, a virtual channel for calculation of the viscosity.

Table: Calculation types of the MultiSystem 5060 (Plus)

MultiBox 3060
MultiBox 3061
MultiBox 3065

Calculation Type		Description
Subtraction	K1-K2 K1-K3 K1-K4 K2-K3 K3-K4	The difference of the measurement values of two channels is depicted. Here, both channels must be assigned the same measurement variable and measurement unit. The resulting variables and measurement unit are determined automatically.  With the button, you can perform a comparison of the channels. With the button, you can delete the calibration. The buttons are only active if a measurement device is connected.
Power		The hydraulic power is calculated. Calculated using the formula K1 x first frequency channel / 600 to calculate the hydraulic power. The pressure p in bar is measured on channel 1 and the volume flow rate Q in l/min is measured on the first frequency channel.

Table: Calculation types for the MultiBox 3060/3061/3065

MultiSystem 8050
MultiControl 8050

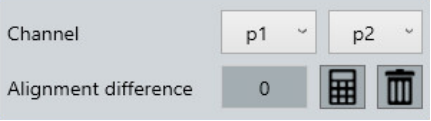
Calculation Type	Description
SUB ADD MUL DIV	The difference, the total, the product, or the quotation of the measurement values of two channels is calculated.  With the button, you can perform a comparison of the channels. With the button, you can delete the calibration. The buttons are only active if a measurement device is connected.
DIFF	The 1st derivation of measurement values is displayed. The channel can be selected at will.  ⇨ Documentation for the measurement device

Table: Calculation types of the MultiSystem 8050

Calculation Type	Description
Formula	You can perform arbitrary calculations and use the values from all channels in your formula: Here you can use the following notations: k1*k4 <> p1*Q1 The unit is calculated automatically by the variables. In the example above, W is suggested as the unit for power. In the selection field for the unit, SI units for the power (W, mW, kW, MW, PS, hp) can be selected. Furthermore, for the calculation of the formula, the conversion factor for the selected unit is considered. The unit is recalculated with the button. 

Table: Calculation types of the MultiSystem 8050

Threshold Value Only for the calculation type differentiation.

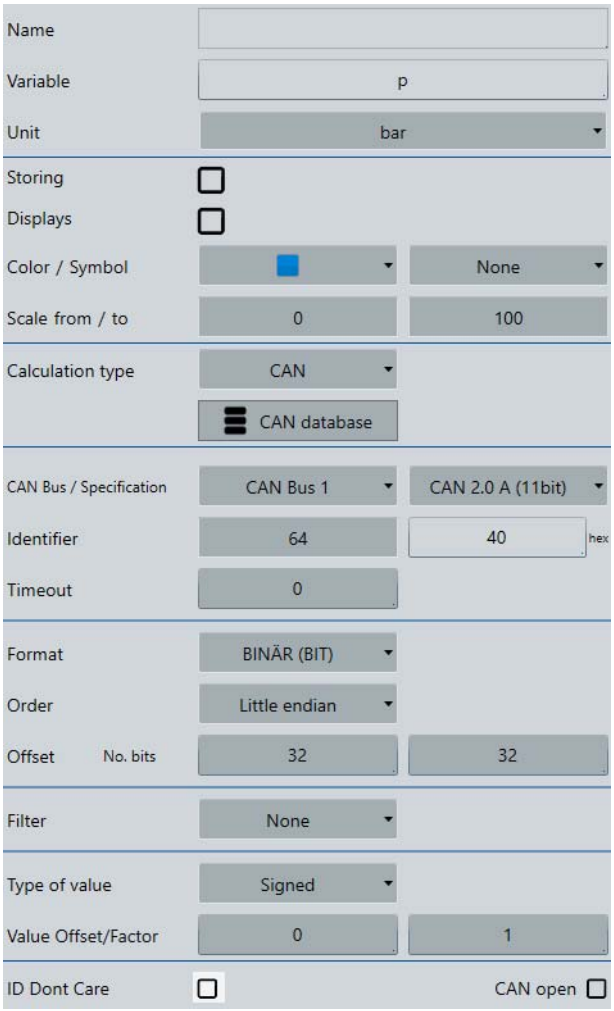
Gate Time Only for the calculation type differentiation.

ENG

ENG

Special channel for CAN messages

Device explorer > Channel parameters > Click special channel (with CAN bus connection) > Detail area > Details



In the detail area, among others, the following parameters are displayed for special channels if the **Calculation Type CAN** has been selected:

- **Name**
- **Measurement variable**
- **Unit**
- **Save** / **Show**
- **Color / Symbol**
- **Scaling from/to**
- **Calculation Type**
- **CAN Specifications**
- **Identifier**
- **Timeout**
- **Format**
- **Sequence**
- **Offset**
- **Filter**
- **Calculation Type**
- **Value Type**
- **Value Offset/Factor**
- **ID Dont Care**
- **CAN open**

Name Assign an individual name. The name will now be shown in the tile display of the measured values display.

Measurement variable Any measurement variable can be entered.

Unit Any unit can be entered.

Save / Show Specify whether the channel should be saved or displayed.

Color / Symbol Specify colors and symbol for the channel.

Scaling from/to Specify the scaling for the channel.

Calculation Type CAN

CAN Specifications CAN parameters. See the information in the documentation for the CAN sensor.

Identifier CAN parameters. See the information in the documentation for the CAN sensor.

Enter the identifier as a decimal or hexadecimal number. After entry, the corresponding value is displayed as a decimal number and the corresponding hexadecimal value is placed in brackets.

Timeout

CAN parameters. See the information in the documentation for the CAN sensor.

If you select the **Calculation Type CAN**, special channels serve as input channels for the CAN messages.

You can enter the parameters or read them from a CAN database.

⇨ **CAN database dialog** on page 247

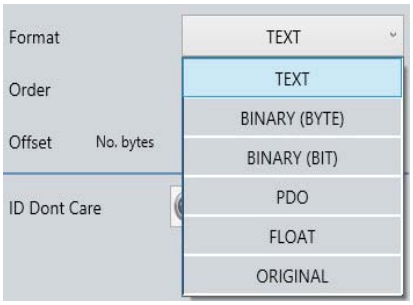
For a description of the parameters, see the documentation for the measurement device.

⇨ Documentation for the measurement device

For the **MultiSystem 5060**/**MultiSystem 5060** *Plus* and **MultiSystem 8050** measurement devices, the **Calculation Type CAN** differs in the selection possibilities for formats.

Depending on the measurement device, the following formats are possible.

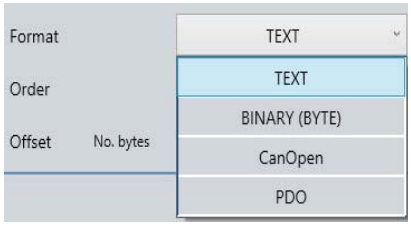
MultiSystem 5060 family, 5070 and 4070



In the **Format** drop-down list, the following formats can be selected:

- **TEXT**
- **BINARY (BYTE)**
- **BINARY (BIT)**
- **PDO**
- **FLOAT**
- **ORIGINAL**

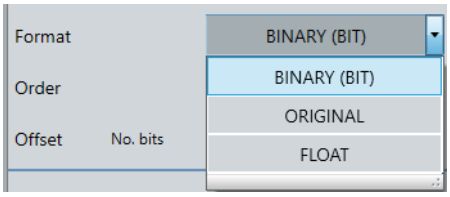
MultiSystem 8050 family



In the **Format** drop-down list, the following formats can be selected:

- **TEXT**
- **BINARY (BYTE)**
- **CanOpen**
- **PDO**

Device in the xx70 family



In the **Format** drop-down list, the following formats can be selected:

- **BINARY (BIT)**
- **FLOAT**
- **ORIGINAL**

ENG

Formats

Depending on which **Format** has been selected, the selection of the following available parameters changes.

When entering the CAN specifications, you can select the ORIGINAL format. Then, the CAN data will not be interpreted by the measurement device, but saved digitally in the measurement file.

This enables the saving of so-called "multichannels", which are channels on which the data from several sources is transmitted together. These can be switch states, e.g. (max. 32 switches on a channel), but also different sensor signals.

Depending on which **Format** is selected, the **Sequence** and **Offset** parameters are displayed.

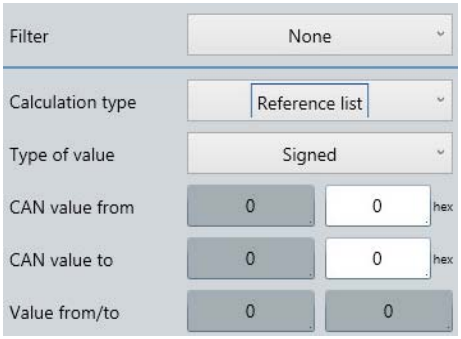
Sequence

Specify the byte sequence.

- Little Endian:
  The smallest possible byte is saved first.
- Big Endian:
  The largest possible byte is saved first.

Offset

Enter bits at the beginning of the CAN message that should be skipped.



If the **BINARY format** has been selected, the following parameters are also displayed:

- **Filter**
- **Calculation Type**
- **Value Type**
- **CAN value from** (**calculation type reference list**)
- **CAN value to** (**calculation type reference list**)
- **Value from/to**

If the **PDO format** has been selected, the following parameters are also displayed:

- **Decimal places**

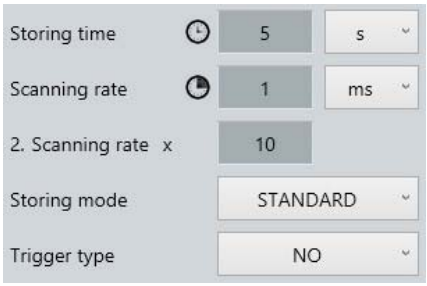
MultiBox CAN channels are not supported.

Calculation Type Not for measurement devices in the xx70 family.

ID Dont Care Not for measurement devices in the xx70 family.

Storage parameters

Device explorer > Storage parameters > Detail area > Details



If you click **Storage parameters** in the device explorer, the detail area opens with the following parameters:

- **Storage time**
- **Sampling rate**
- **2nd sampling rate**

  Only displayed if the function is supported by the connected measurement device.
- **Storage mode**
- **Trigger type**

Storage time Duration of the storage.

Consider the storage capacity of the measurement device. The amount of data will increase if you configure more channels, a longer storage time, and a shorter sampling rate. Large amounts of data can make evaluation and estimation of measurement results more difficult.

Sampling rate Interval between two measurement in a measurement series.

Storage mode Choose from three options:

- **STANDARD**
  The defined recording and parameters will be applied to execute one single recording
- **CYCLIC**
  The defined storage and trigger parameters will be applied repeatedly until the **Z-STOP** key is pressed.
- **SINGLE VAL**.
  The current measurement value of each storage channel will be stored when a key is pressed.

Trigger You can use the trigger function to reduce the amount of stored data by letting the device start storing when the "interesting moments" are coming.

With measurement devices in the **xx70** family, you can define up to four triggers.

With measurement devices in the **5060** and **8050** families, you can define up to two triggers.

With measurement devices in the **Multibox** family, you can define up to three triggers.

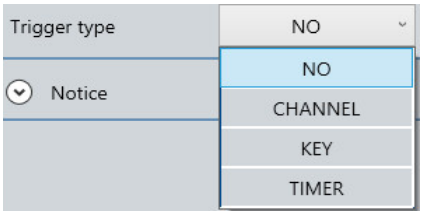
Triggers are defined events that can start or stop storage.

You can define any measurement channel as trigger, e.g. "if measured value on channel 1 is greater than 10", use a timer function, or use a manual key press.

You can link four triggers logically, e.g. "if measured value on channel 1 is greater than 10 OR measurement value on channel 2 is less than 100". The trigger will be started by the first of the two events.

MultiBox Triggers can only be linked with AND.

Trigger type



Depending on which trigger type has been selected, the selection of the following available parameters changes.

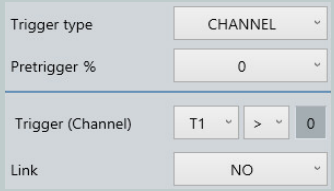
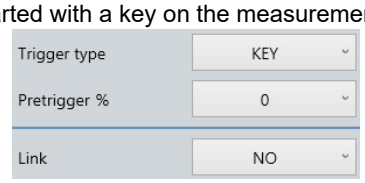
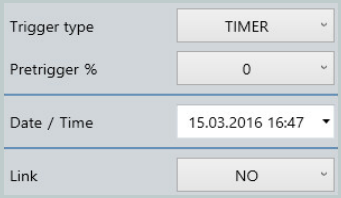
Trigger type	Parameter
NONE	No additional parameters
CHANNEL	You can only use real channels, not special channels.  **MultiBox** 2 additional channels are supported.
KEY	Storage is started with a key on the measurement device.  **MultiBox** The **Trigger type KEY** is not supported.
TIMER	Storage is started at the specified point in time.  **MultiBox**, **MultiSystem 8050** and **MultiControl 8050**: The **Trigger type TIMER** is not supported.

Table: Trigger types

Example of a trigger recording

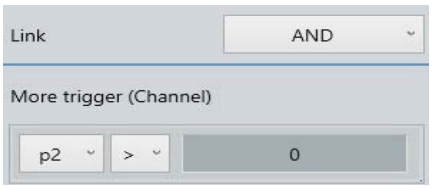
A 2-minute recording is to be started when the measurement value p2 drops below 50 bar and temperature T1 rises above 30 °C. The recording is to start 60 seconds before the trigger incident. Required programming:

Storage time	2 min.
Trigger 1	p2
Trigger condition	FALLING
Trigger value	50.00
Pretrigger	50%
Trigger link	AND
Trigger 2	T1
Trigger condition	RISING
Trigger value	30.00

Table: Example of a trigger calculation

Pretrigger When a pretrigger is defined, the storing starts before the trigger event has happened. The percentage defined as pretrigger is used to store measured values before the trigger event.

Trigger link

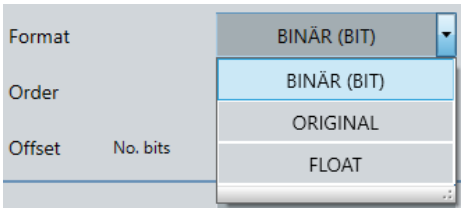


If you have selected a trigger type, you can link it with another channel as 2nd trigger.

Select an option:

- **NONE**: Trigger 2 is not used
- **AND**: Trigger 1 and Trigger 2 must occur
- **OR**: Trigger 1 or Trigger 2 must occur
- **START/STOP**: Trigger 1 starts the recording, Trigger 2 stops it

MultiBox 2 additional channels can be linked as trigger with the 1st trigger. The next channel is only active if the previous channel has been selected.



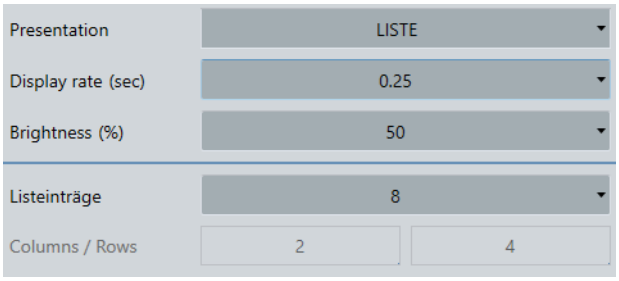
Notes You can enter any text here.

Channels Select the channels that should be stored. All channels that are marked with a ✓ checkmark will be stored

ENG

Display parameters

Device explorer > Display parameters > Detail area > Details



Display parameters are not displayed for measurement devices in the **Multi-Control** and **MultiBox** families.

If you click **Display parameters** in the device explorer, the detail area opens with the following parameters:

- **Presentation**
- **Display rate (sec)**
- **Brightness**
- **Display**
- **Columns/Rows**

  Only for **MultiSystem 5060 Plus** and **MultiSystem 8050** and **MultiSystem xx70**
- **Rotation (°)**

  Only for **MultiSystem 8050**
- **Show symbols**

  Only for the **Graphic** presentation

Presentation

You can choose between the following options here:

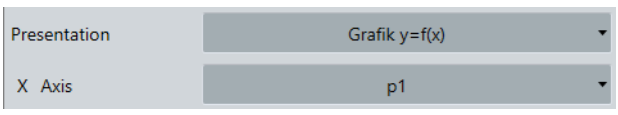
- **LIST or TEXT**
- **DISPLAY**

You have two possibilities for configuring the graphical presentation:

- **GRAPHIC y = f(t)**

  Presentation of the channels as a function of time
- **GRAPHIC y=f(x)**

  Presentation of the channels as a function of an arbitrary channel



If you select **Graphic y=(fx)**, the parameter **X axis** opens. You can specify the channel that is created on the x-axis.

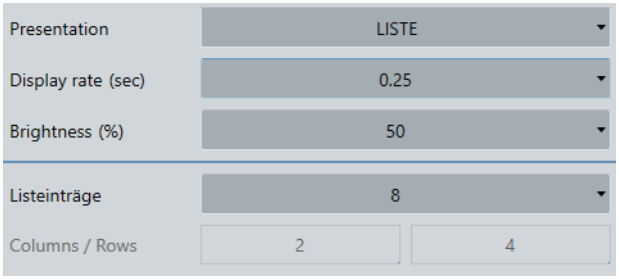
Depending on the measurement device, the following parameters are displayed in the detail area.

MultiSystem 5060

In the **Presentation** drop-down list, the following parameters can be selected:

- **TEXT**
- **GRAPHIC y = f(t)**
- **GRAPHIC y=f(x)**

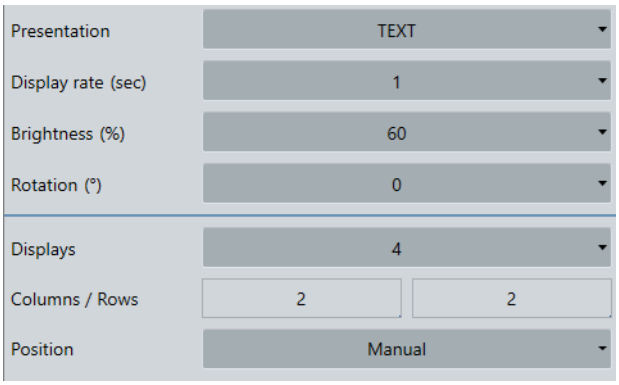
MultiSystem 5060 *Plus*, and xx70 family



In the **Presentation** drop-down list, the following parameters can be selected:

- **LIST (xx70 family) or TEXT (MultiSystem 5060 Plus)**
- **GRAPHIC y = f(t)**
- **GRAPHIC y=f(x)**
- **DISPLAY**

MultiSystem 8050



In the **Presentation** drop-down list, the following parameters can be selected:

- **TEXT**
- **GRAPHIC y = f(t)**
- **GRAPHIC y=f(x)**

The **TEXT mode** on the **MultiSystem 8050** corresponds to the **DISPLAY mode** on the**MultiSystem 5060 *Plus***.

If you select **Manual** from the **Position** drop-down list, you can move the individual elements in the device display using drag & drop.

MultiBox and MultiControl Display parameters are not supported.

Display rate Specifies the refresh rate of the measurement values display. Select one of the five possible values.

Brightness Determines the brightness value of the display. Select either **Min** or **Max**.

Display In the **Display** drop-down list, you can select the number of displays.

Here you have three possibilities for the tile presentation:

- **4 panels**
  Shows 4 tiles in the measurement values display.
- **9 panels**
  Shows 9 tiles in the measurement values display.
- **12 panels**
  Shows 12 tiles in the measurement values display.

Columns Specify the number of columns.

Rows Specify the number of rows.

Show symbols Select whether symbols and colors should be displayed in the channel parameters.

Device measurement series

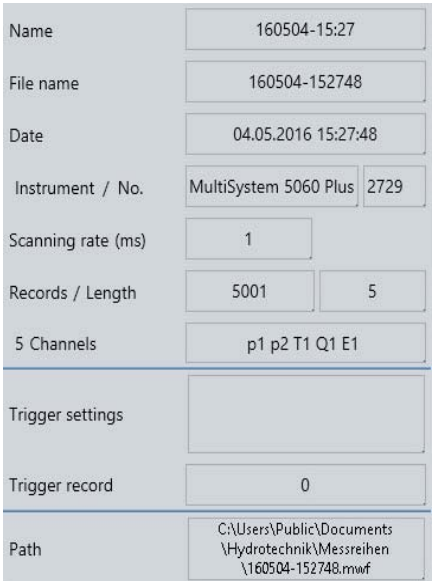
Device explorer > Measurement series > Device measurement series > Select measurement series > Detail area > Details

If you click a device measurement series in the device explorer, the detail area opens with the following parameters:

- **Name**
- **File name**
- **Date**
- **Sampling rate (ms)**
- **Data records/Duration**
- **Channels**
- **Trigger Setting**
- **Trigger Record**
- **Path**

Online measurement series

Device explorer > Measurement series > Online measurement series > Select measurement series > Detail area > Details



If you click an online measurement series in the device explorer, the detail area opens with the following parameters:

- **Name**
- **File name**
- **Date**
- **Measurement Device/No.**
- **Sampling rate (ms)**
- **Data records/Duration**
- **Channels**
- **Trigger Setting**
- **Trigger Record**
- **Path**

Toolbar

Device explorer > Select parameters > Detail area > Toolbar

Use the toolbar of the detail area in order to send the settings for the detail area to the measurement device.

ENG

Send these settings to the measurement device

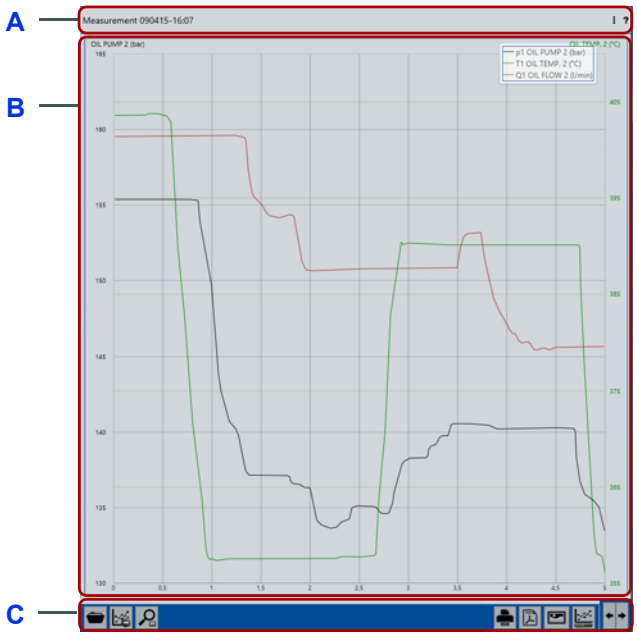
Sends the settings in the current detail area to the measurement device.

The button is only active if a measurement device is connected and the parameters have been read out.

This setting was transferred successfully to the measurement device

The successful sending of the settings to the measurement device is displayed briefly with this symbol.

Viewer



A Title bar
B Display
C Toolbar

Image: Viewer

The viewer shows the measurement values of the selected channel or measurement series recorded.

The viewer can be switched between the following displays:

Online measurement series

Device measurement series

Measurement series display

The viewer consists of the following areas:

- **Title bar**
- **Display**
- **Toolbar**

Title bar Display information about the display type or measurement series.

Display With the button, you can switch between the following display types:

- Online display
  ⇨ **Online display** on page 165
- Measurement device display
  ⇨ **Device display** on page 172
- Measurement series display
  ⇨ **Measurement series display** on page 174

Toolbar Provides buttons for the viewer.

Buttons for the online display
⇨ **Toolbar** on page 167

Buttons for the device display
⇨ **Toolbar** on page 173

Buttons for the measurement series display
⇨ **Toolbar** on page 176

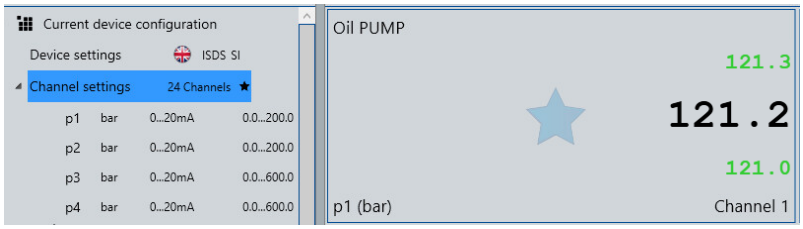
Online display

*Viewer > **Change the display type** button > Online display*

The **Online display** displays the channels of the connected measurement device.

The channels that have been selected are displayed. *Device explorer > Measurement device > Channel parameters > Select channel> Details > Select* **Display on Measurement Device**.

If the setting of a channel has been changed, then this is indicated by an asterisk ★ next to the channel in the device explorer and in the channel display.



The settings must be synchronized with the measurement device.

With the button, you can switch between **Online display**, **Device display**, and **Measurement series display**.

⇨ **Using the online display** on page 44
⇨ **Using device display** on page 51
⇨ **Using Live Monitor** on page 52
⇨ **Using the Measurement display** on page 53.

Title bar

The following symbols can be displayed.

Help

Opens the help.

Online values are received

Indicates that measurement values are being received from the measurement device.

During loading and sending of parameters and measurement series, no measurement values are recorded.

Configure online displays

*Viewer > **Change the display type** button > Online display*

You can configure the online display as follows:

- **Display channels**
- **Add/delete channels**
- **Arrange channels**
- **Change display**

For the **MultiHandy 2020, MultiHandy 2025,** and **MultiHandy 3020** measurement devices, all channels are displayed automatically.

Display channels

The channels are displayed for which the channel parameter **Display on measurement device** is selected.

Add/delete channels

You can add channels to or remove them from the online display.

Channels can be dragged into the online display from the device explorer using drag & drop.

⇨ **Selecting a channel for the online display** on page 45

Drag & drop function
The drag & drop function is not possible for measurement devices in the *MultiHandy* product family.

Channels can be removed from the online display using the button.

⇨ **Deleting channels from the online display** on page 47

Arrange channels

You can arrange the channels as you wish.

You can drag channels anywhere with the mouse.

⇨ **Arranging channels in the online display** on page 46

Change display

With the buttons on the toolbar, you can change the appearance of the display or the display style.

⇨ **Toolbar** on page 167

Toolbar

*Viewer > **Change the display type** button > Online display> Toolbar*

To apply the functions of the toolbar to a specific channel, mark the channel with a mouse-click.

Marked channels
Marked channels have a blue border.

The toolbar contains the following buttons.

Switching display of min/max values on or off

Switches the min/max display on or off.

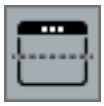
Voice command MINMAX

Deleting the current min/max values

Deletes the current min/max values.

Only visible if the min/max display is switched on.

Changing the appearance of the online display



Changes the appearance of the **Online display**.

You can change the appearance of the **Online display** as follows:

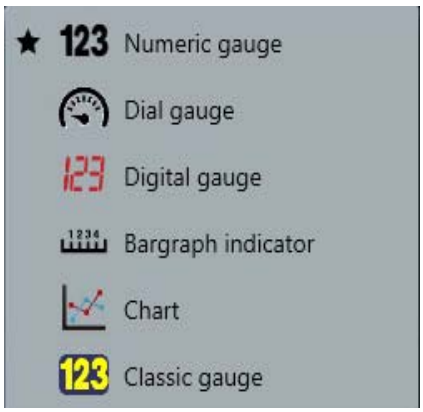
- **Only devices**
- **Split of device display and line graph**

  In addition to the devices, a line graph with all online channels is displayed.
- **Only line graph**

⇨ **Line graph** on page 171

Change the display style of the selected channels

Opens the selection dialog on which you can change the display style of the selected channel.



⇨ **Display style** on page 170

Deleting the marked display devices

Removes the marked channel from the display.

The button is not shown for measuring devices from the product family *MultiHandy*.

Clears the measurement series display

Clears the line graph.

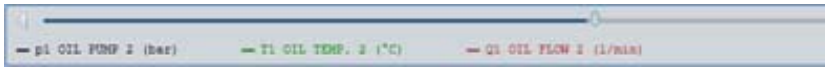
Only visible if a line graph is displayed in the online display.

Zoom tool

Activates the zoom tool.

Interrupting or continuing the refreshing of the display of the line graph

Stops the line graph or lets it continue.



If you stop the line graph, you can display different areas with the slider. You can also display details with the zoom tool.

Only visible if a line graph is displayed in the **online** display.

Changing the display type

Switches between **Online display**, **Device display**, **Live Monitor**, and **Measurement series display**.

Voice command SWITCH

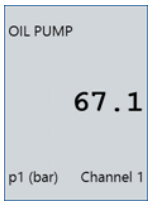
MultiBox No **device display**.

BASE No **device display**.

ENG

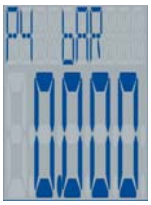
Display style

A variety of display styles are available for the channel display.



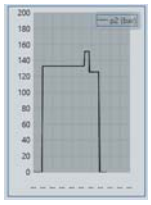
Numeric gauge

Analog gauge



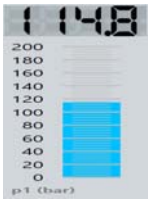
Segment gauge

Linear gauge



Line graph

Measurement device display



Bar graph

If a channel is added to the **Online display**, the default display style will be used for the channel view.

The default display style is marked with an asterisk★.

Use the button to change the display style for marked channel displays.

⇨ **Changing and scaling the display style** on page 49

Analog gauge Scaling possible.

⇨ **Scaling dialog** on page 245

Linear gauge Scaling possible.

⇨ **Scaling dialog** on page 245

Line graph You can change the appearance of the line and scaling of the axes under *Device explorer > Channel parameters > Select channel > Details >* **Color** */* **Symbol**.

The last 60 seconds are always displayed.

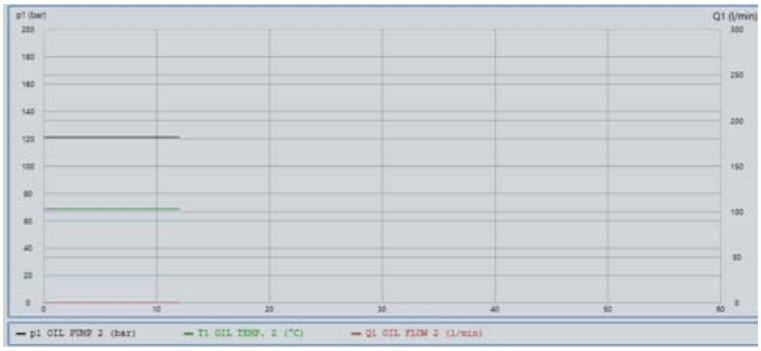
Scaling possible.

⇨ **Scaling dialog** on page 245

ENG

Line graph

*Viewer > **Change the display type** button > Online display> Change the appearance of the online display*



In the **Online display,** you can display a line graph below the channel display or switch the **Online display** entirely to the line graph.

The line graph displays all online channels. You can change the appearance of the line and scaling of the axes under *Device explorer > Channel parameters > Select channel > Details* > **Color / Symbol**.

The last 60 seconds are always displayed. You can stop the line graph or let it continue.

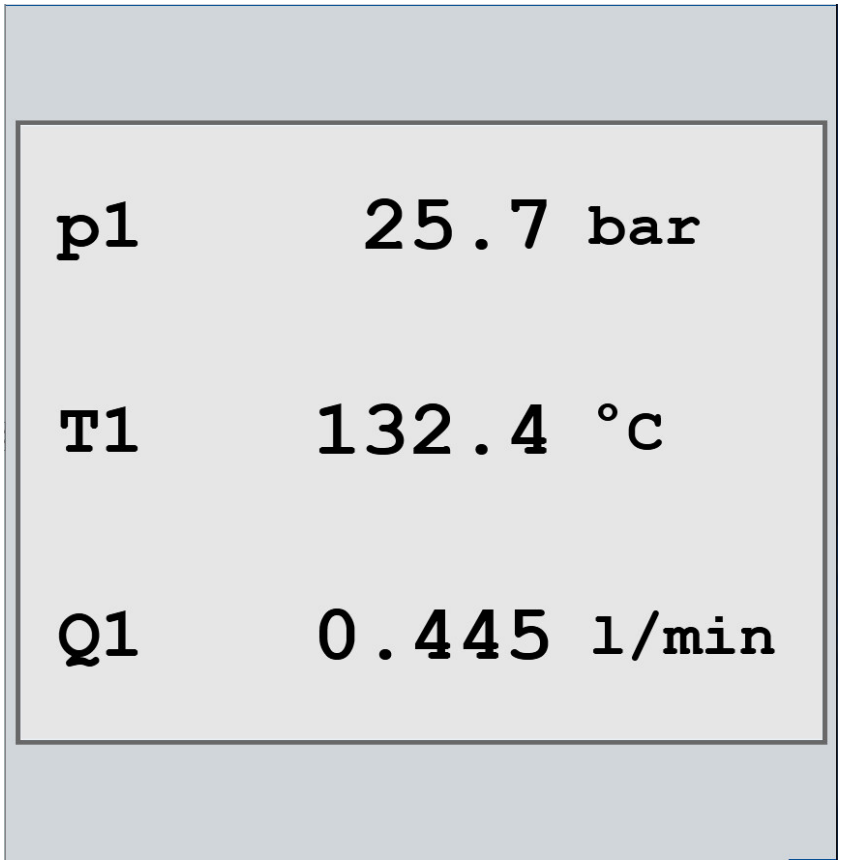
If you stop the line graph, you can display different areas with the slider. You can also display details with the zoom tool.

The observation period is minimum 1200 data records. Therefore, the time period depends on the display rate set. At 1 second, it is 20 minutes; at 0.1 seconds, it is at least 2 minutes.

ENG

Device display

Viewer > ***Change the display type*** *button* > *Device display*



The **Device display** simulates the display of the measurement device.

If a measurement device is connected, the measurement values can be displayed.

The channels that have been selected are displayed. *Device explorer* > *Measurement device* > *Channel parameters* > *Select channel* > *Details* > **Display on Measurement Device**.

With the button, you can switch between **Online display**, **Device display**, and **Measurement series display**.

⇨ **Using the online display** on page 44
⇨ **Using device display** on page 51
⇨ **Using the Measurement display** on page 53.

If measurement devices are coupled with one another, no device display is possible.

MultiBox No device display.

BASE No device display.

ENG

Title bar

The following symbols can be displayed.

Help

Opens the help.

Online values are received

Indicates that measurement values are being received from the measurement device.

During loading and sending of parameters and measurement series, no measurement values are recorded.

Configure device display

You can change the display type of the device display under *Current device configuration > Display parameters* > **Mode**.

The configuration options depends on the connected measurement device.

⇨ Documentation for the measurement device

Toolbar

Viewer > ***Change the display type** button* > *Device display* > *Toolbar*

The toolbar contains the following buttons.

Switching display of min/max values on or off

Switches the Min/Max display on or off.

Voice command MINMAX

Deleting the current min/max values

Deletes the current min/max values.

Only visible if the min/max display is switched on.

Changing the display type

Switches between **Online display**, **Device display,** and **Measurement series display**.

Voice command SWITCH

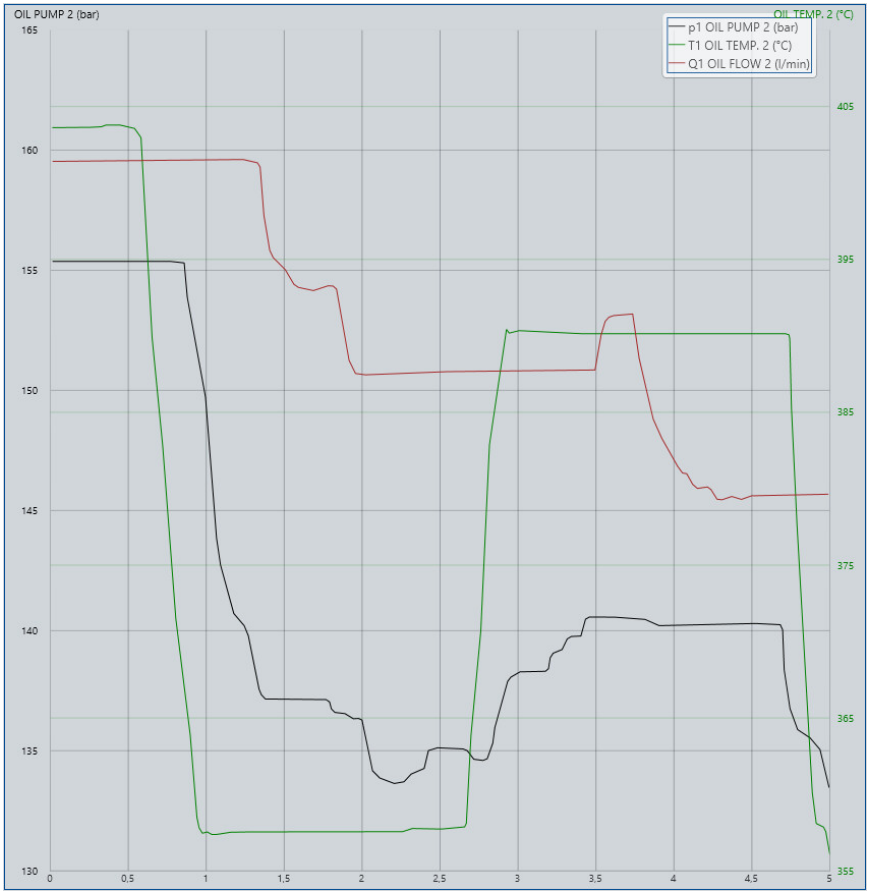
MultiBox No device display.

BASE No device display.

Measurement series display

*Viewer > **Change the display type** button > Measurement series display*

ENG



The **Measurement series display** displays measurement series (MWF files) as line graphs.

Device or online measurement series can be displayed.

Device measurement series can be displayed if a measurement device is connected or if the measurement series is marked with a little flag .

⇨ **Saving and displaying measurement series from the measurement device** on page 54

Any measurement series (MFW files) can be opened for display.

⇨ **How to open a saved measurement series** on page 55

The measurement series name is displayed in the title bar. A tooltip displays the details of the measurement series.

With the button, you can switch between **Online display**, **Device display**, and **Measurement series display**.

⇨ **Using the online display** on page 44
⇨ **Using device display** on page 51
⇨ **Using Live Monitor** on page 52
⇨ **Using the Measurement display** on page 53.

ENG

Title bar

Displays the name of the measurement series.

The following symbols can be displayed.

Help

Opens the help.

Open the Settings dialog

Opens the **Settings** dialog.

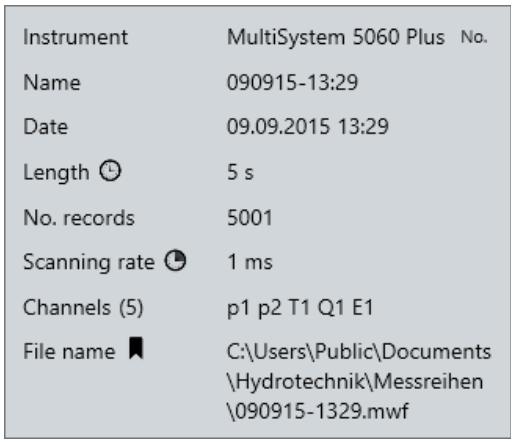
⇨ **Settings dialog (presentation of measurement series display)** on page 243

Online values are received

Indicates that measurement values are being received from the measurement device.

During loading and sending of parameters and measurement series, no measurement values are recorded.

Tooltip A tooltip will be displayed if you hover the mouse pointer over measurement name or with touch operation, if you hold your finger on the measurement name for a second.



The tooltip displays the following parameters:

- **Measurement device**
- **Name**
- **Date**
- **Duration**
- **Number of data records**
- **Sampling rate**
- **Channels**
- **File name**

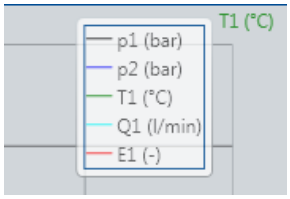
The following symbols can be displayed in the tooltip.

⇨ **Tooltip** on page 118

Configure measurement series display

The measurement series are displayed are as line graphs.

The horizontal axis corresponds to the time. The vertical axis corresponds to the measurement variable. The measured values are shown as lines. The different channels are indicated by different colors.



The legend shows which channel is shown with which color in the diagram. The legend can be in the upper right or below the diagram.

⇨ **Changing the position of the legend** on page 55

The left and right axis show the value scale for the channels. Channels with the same unit are summarised on one axis and thus scaled equally.

You can configure the measurement series display.

⇨ **Changing the presentation** on page 55
⇨ **Changing the position of the legend** on page 55
⇨ **Changing the axis labeling** on page 56
⇨ **Enlarging the line graph** on page 57
⇨ **Clearing the measurement series display** on page 58

Toolbar

*Viewer > **Change the display type** button > Measurement series display > Toolbar*

The toolbar contains the following buttons.

Search for other measurement series data (MWF)

Shows the Windows **Open** dialog.

Opens a measurement from a data medium (hard drive of the PC, USB stick). Measurement series must have the MWF file format.

Clears the measurement series display

Clears the line graph or the measurement series display.

Open or close the zoom tool

Shows or hides the zoom menu.

The zoom menu is shown in the bottom right of the display.

⇨ **Enlarging the line graph** on page 57
⇨ **Zoom menu** on page 178

Print line graph

Prints the log of the current measurement.

If the free text input is activated in the settings, the **Free text input** dialog will be displayed first.

⇨ **Generating a log** on page 67
⇨ **Log layout dialog** on page 237
⇨ **Free text input dialog** on page 240

A preview of the log will be shown in the Windows **WindowPrintPreview** dialog before printing.

Voice command PRINT

Saves the line graph as a PDF file

Saves the log as a PDF file.

If the free text input is activated in the settings, the **Free text input** dialog will be displayed first.

⇨ **Generating a log** on page 67
⇨ **Log layout dialog** on page 237
⇨ **Free text input dialog** on page 240

The Windows **Save as** dialog is displayed. The log is opened after saving.

Voice command SHOW

Saves the line graph as an image file

Saves the line graph as an image file.

The Windows **Save as** dialog is displayed.

The following file formats are possible:

- PNG
- JPG
- BMP
- GIF

Voice command GRAPHIC

ENG

Changing the position of the legend down or to the right

Changes the position of the legend.

Possible positions:

- Top right
- Bottom

Changing the display type

Switches between **Online display**, **Device display**, **Live Monitor**, and **Measurement series display**.

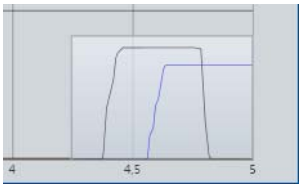
Voice command SWITCH

MultiBox No device display.

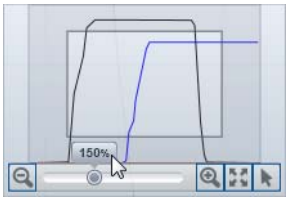
BASE No device display.

Zoom menu

The zoom menu is shown or hidden with the **Open or close the zoom tool** button.



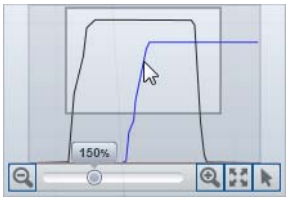
The zoom menu is shown in the bottom right in the measurement diagram as transparent preview.



If you hover the mouse over the preview of the zoom menu, the zoom menu is activated. You can then enlarge the measurement series display with the buttons.

The following functions are available for zooming:

- Zoom in step by step with the button.
- Zoom in or out continuously (slider)
- Zoom out step by step with the button.
- Reset zoom to 100% with the button.

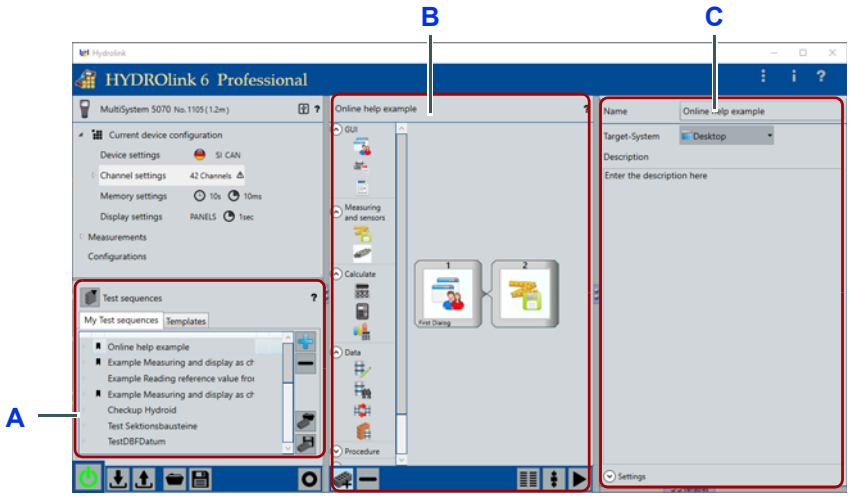


You can move the section of the zoomed area freely with the mouse.

Use the button to change the behavior of the zoom. By default, you select a zoom area with the mouse (touch). You can switch this off here.

ENG

Test procedures



A Overview of test procedures
B Test procedure
C Test procedure settings
C Modules
C Variables

Image: Test procedures in the program window

On the test procedures menu, you can manage test procedures, create them, and let them run for the PC or a device.

The test procedures menu includes the following areas:

- **Overview of test procedures** with the tabs **My test procedures** and **Templates**
- **Test procedure**
- **Test procedure settings**
- **Variables**

If you select a module in the test procedure, then the test procedure settings are hidden and the module settings are displayed in this area instead:

- **Modules**

Use the button to show or hide areas.

The functions in the device explorer are locked as long as the test procedures menu is open. Click **Test procedures** to close the test procedures menu again.

Overview of test procedures

Manage test procedures.

⇨ **Overview of test procedures** on page 181

Test procedure

Create and start test procedures.

⇨ **Test procedure** on page 183

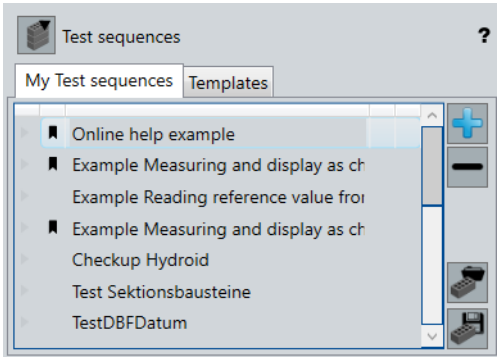
Test procedure settings Specify settings for the selected test procedure.
⇨ **Test procedure settings** on page 190

Modules Specify settings for the marked module.
⇨ **Modules** on page 194

Variables Select variables.
⇨ **Variables** on page 228

ENG

Overview of test procedures



You can manage your test procedures in the overview of test procedures.

The overview of test procedures includes the following tabs:

- **My test procedures**
- **Templates**

My test procedures

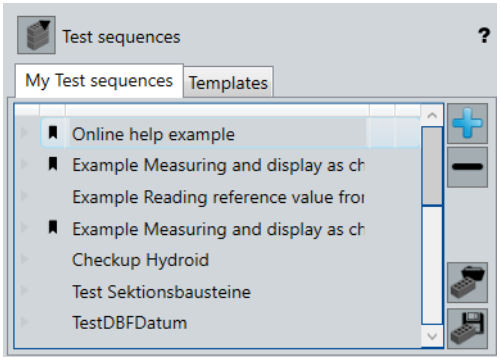
Test procedures > My test procedures

The **My test procedures** tab lists the test procedures you have created thus far. In this area, you can create new test procedures, delete, import, and export them.

ENG

You select a test procedure by clicking on it. If you select a test procedure, you see the structure and settings for the procedure in the test procedures area:

⇨ **Test procedure** on page 183



Test procedure is loaded

Each test procedure that was loaded during the session is marked with this symbol.

Add test procedure

A new test procedure with the name "Test procedure" is created.

Delete test procedure

Opens a dialog with a query about whether the test procedure should really be deleted.

Open test procedure

Opens the standard Windows Open dialog.

You can import a saved test procedure.

Save test procedure

The Windows Save as dialog opens.

You can save the current test procedure on the PC. Test procedures can be saved as test procedure (.xPAD) or test procedure module (.xPAM).

Test procedure module

This symbol appears to the right next to the name of the test procedure if it was saved as a test procedure module (.xPAM).

Templates

Test procedures > Templates

On the **Templates** tab, test procedures created by the manufacturer are listed. These can be taken over into **My test procedures** and adjusted there.

Apply test procedure

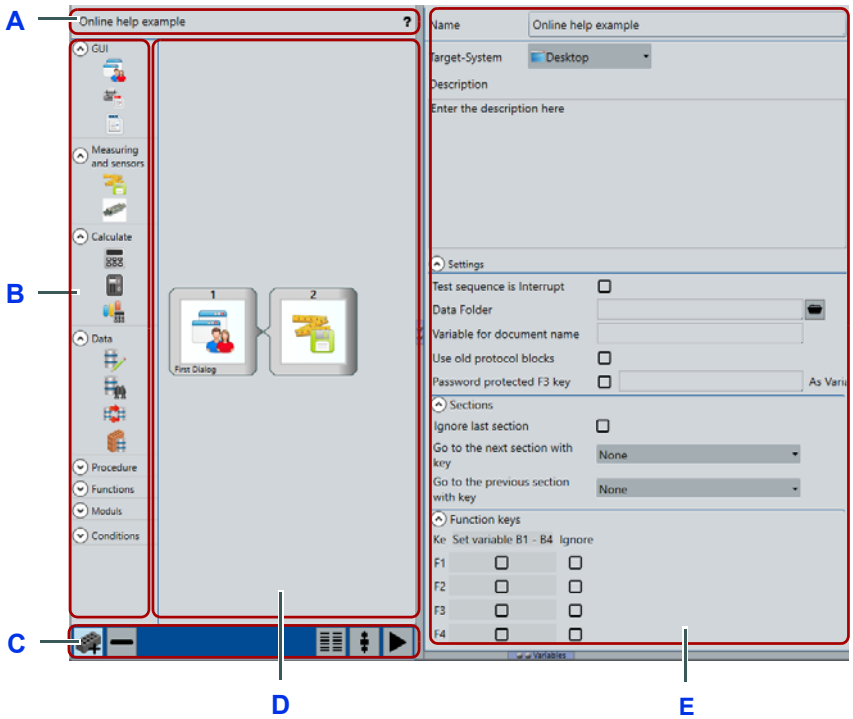
The selected test procedure is copied to **My test procedures**.
The My test procedures tab opens.
The selected test procedure can be configured in the test procedure area.

⇨ **My test procedures** on page 181
⇨ **Test procedure** on page 183

ENG

Test procedure

*Test procedures > **Select test procedure** > Test procedure*



A Title bar
B Selection list for modules
C Toolbar
D Test procedure structure
E Test procedure settings

Image: Test procedure overview

If you select a test procedure in the overview, you see the structure and settings for the procedure in the test procedures area. Furthermore, on the

toolbar, you see the buttons for starting and editing the test procedure and the settings for the procedure.

Use the button to show or hide the area.

The following areas are displayed for the test procedure:

- **Title bar**
- **Selection list for modules**
- **Test procedure structure**
- **Toolbar**
- **Test procedure settings**

To start the test procedure, click on in the toolbar. The dialog to start the test procedure opens.

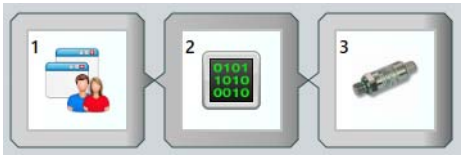
⇨ **Start test procedure dialog**

Title bar Display name of the selected test procedure.

Selection list for modules Display the modules for structure of a test procedure in categories.

⇨ **Selection list for modules** on page 185

Test procedure structure Specify structure of the test procedure.



A test procedure is a chain of individual modules. The modules represent functions that are executed during the test procedure. By arranging several modules, you can create individual test procedures in order to execute complex test tasks or standardized procedures with Hydrotechnik measurement devices.
You can use drag & drop to insert the available modules from the module selection list.

You can mark a module to define settings for it.

⇨ **Modules** on page 194

Toolbar Provides buttons for the test procedure.

⇨ **Toolbar** on page 189

Test procedure settings Specify settings for the test procedure.

⇨ **Test procedure settings** on page 190

Title bar

Test procedures > ***Select test procedure*** > *Test procedure* > *Title bar*

The name of the selected test procedure is displayed in the title bar area.

The following symbol is displayed:

Help

Opens the help.

Selection list for modules

*Test procedures > **Select test procedure** > Test procedure > Module selection list*

The module selection list is shown and hidden with the button on the toolbar.

⇨ **Toolbar** on page 189

The number of modules shown depends on the target system for the test procedure. If a measurement device is selected as target system, then fewer modules are available.

⇨ **Target system** on page 191

The modules are combined into the following categories in the module selection list:

- **Presentation**
- **Measurement and sensors**
- **Calculation**
- **Data**
- **Procedure**
- **Functions**
- **Modules**
- **Conditions**

Use the  buttons to show and hide the modules in the categories.

You can adjust the settings for each module that is inserted into the test procedure. Mark the desired module to open the module menu.

⇨ **Modules** on page 194

Presentation

User interface module

Controls all user interaction by creating menus and input screens. Accepts inputs and commands and processes these.

⇨ **User interface module** on page 196

Log module

Generates a log that is either saved as a PDF file or printed directly.

⇨ **Log module** on page 204

Measurement and sensors

Measurement module

Enables data exchange of the measurement values with the measurement device.

⇨ **Measurement module** on page 208

Sensor module

Controls and monitors the channel settings in the measurement device.

⇨ **Sensor module** on page 209

Calculation

Calculation module

Links measurement variables with one another, performs mathematical calculations, and assigns the results to variables.

⇨ **Calculation module** on page 210

Logic module

Links measurement variables to one another according to logical algebra.

⇨ **Logic module** on page 213

Statistics module

Determines various statistical values from a variable is there are several variables for it. This is the case of reference is made to a module with storage option, which was executed several times in the test procedure.

⇨ **Statistics module** on page 216

Data

With the modules in this category, you have access to existing databases. Absolutely mandatory here are the database drivers that are installed by Microsoft Office. Here it must be noted that there are two different versions of the drivers, one 32-bit and one 64-bit. So that HYDROlink can communicate with the database drivers, HYDROlink must be installed in the same version.

HYDROlink automatically installs itself in the variant of the operating system (32- or 64-bit). If HYDROlink is not compatible with the database, you must uninstall HYDROlink and call up the other installation file.

The database driver Microsoft.ACE.OLEDB.12.0 is a component starting with Office 10.0. You can also install it manually via the "Microsoft Access Database Engine 2010 Redistributable".

Database module (write)

Saves data in a database. A database is created automatically in the measurement device. A database must be created for the target system desktop.

⇨ **Database module (write)** on page 217

Target value module (read)

Reads one or several database(s) out and links them to variables.

⇨ **Target value module (read)** on page 218

Database copy module

Copies the values from one database to another.

⇨ **Database copy module** on page 220

Test selection module

Reads the values out of a database and inserts them at the end of the test procedure.

⇨ **Test selection module** on page 221

Procedure

Time module

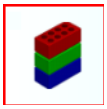
Influences the temporal flow of the test procedure. Pauses of specified or manual interruptions can be defined. .

⇨ **Time module** on page 222

Intermediate storage module

Interrupts the test procedure at the specified point and continues it at a later time.

⇨ **Intermediate storage module** on page 222



Section module

Interrupts the test procedure in several sections, which can be run through in any sequence.

⇨ **Section module** on page 223

Functions

Command module

Establishes a connection to the operating system in order to perform tasks that cannot be performed by modules.

⇨ **Command module** on page 224

ENG

Modules

Module module

Activates the processing of a module.

⇨ **Module module** on page 224

Interrupt module

Executes specified functions at defined time intervals.

⇨ **Interrupt module** on page 225

Configuration module

Loads the selected configuration into the test procedure as a module and executes it. The test procedure can be saved and displayed as line graph.

⇨ **Configuration module** on page 226

Conditions

Input condition

Specifies under which conditions a module is executed and when it is skipped.

⇨ **Input condition** on page 226

Output condition

Specifies under which conditions which module is executed next.

⇨ **Output condition** on page 227

Toolbar

Test procedures > ***Select test procedure*** > *Test procedure* > *Toolbar*

The test procedure can be edited and started with the toolbar.

ENG

Show or hide selection bar for the modules

Shows or hides the selection list for modules.

⇨ **Selection list for modules** on page 185

Remove

Removes the selected module or the selected condition.

Switch between multi-column/simple display of the modules

If this function is activated, the modules are arranged in several columns. Otherwise, the modules are listed from left to right.

Switch between vertical/horizontal display of the modules

If this function is activated, the modules are listed from top to bottom. Otherwise, the modules are listed from right to left.

Execute test procedure

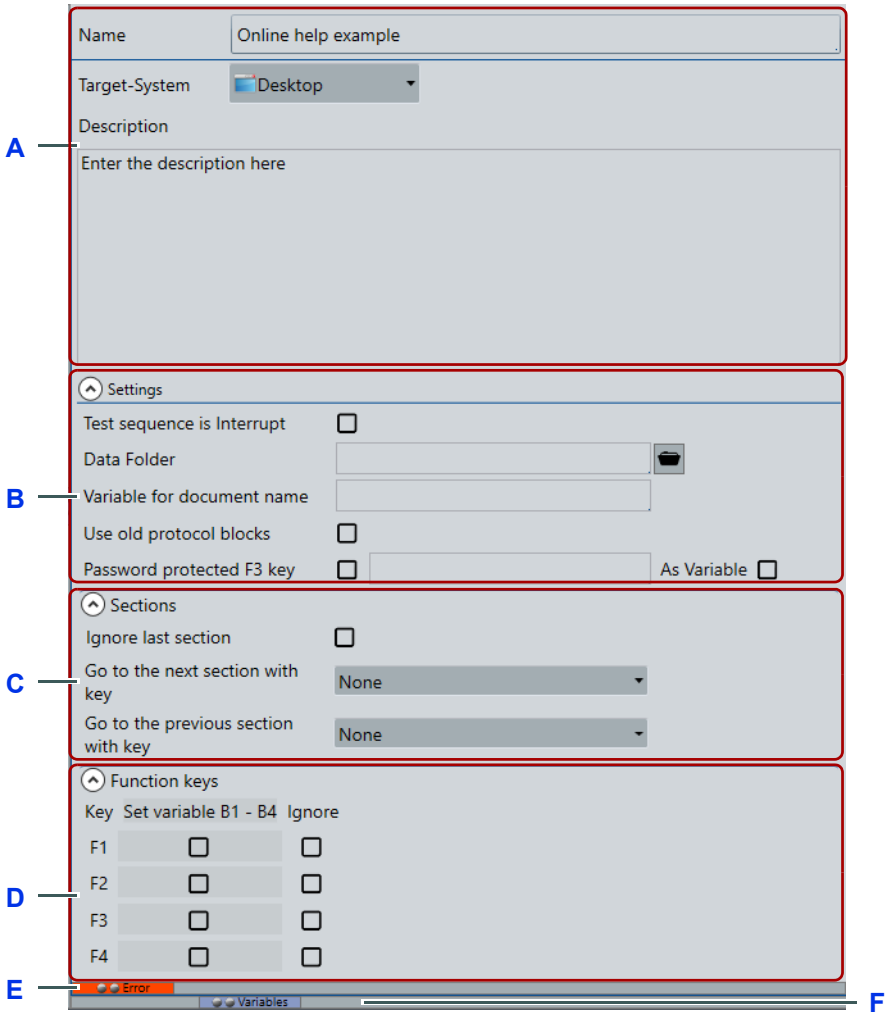
Opens the dialog to execute the test procedure.

⇨ **Start test procedure dialog** on page 250

ENG

Test procedure settings

Test procedures > ***Select test procedure*** > *Test procedure settings*



A General settings
B Settings
C Test sections
D Function keys
E Errors
F Variables

Image: *Test procedure settings*

This area displays the settings for the test procedure, which you select in the test procedures overview.

⇨ **Overview of test procedures** on page 181

Use the **Settings** button to show or hide additional settings. Settings for the test sections and function keys are displayed if you click the **Test sections** or **Function keys** button. The buttons are only visible if the settings are shown.

The test procedure settings consist of the following areas:

- **General settings**
- **Settings**
- **Test sections**
- **Function keys**
- **Errors**
- **Variables**

ENG

General settings

Name

Input field: Input of an unambiguous test procedure name. No special characters can be inserted. The permissible length of the name depends on the target system.

- **Desktop**: 100 characters
- **Measurement device**: 20 characters

Target system

Specifies the target system for which the test procedure is created. Available for selection are the target systems **Desktop** and **Measurement device**.

If **Measurement device** is selected as target system, a selection field opens in which the measurement device can be defined. The following selections are possible:

- MS5060
- MS5070
- MS8050

Description

Input a description of the test procedure. This description is displayed before a test procedure is started.
If **Measurement device** is selected as target system, a max. of 100 characters can be entered.

Settings

Use the **Settings** button to show or hide additional settings. Settings for the test sections and function keys are displayed if you click the **Test sections** or **Function keys** button. The buttons are only visible if the settings are shown.

Test procedure is interrupt

Specifies if the test procedure should be executed as interrupt routine. If this option is selected, then there are fewer modules available for the creation of the test procedure.

⇨ **Interrupt test procedure** on page 104

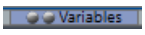
An interrupt routine can be integrated into the test procedure via the interrupt module.

⇨ **Interrupt module** on page 225

Data directory

Selection of the folder in which the data for the test procedure should be saved.

Variable for document name

Input of a variable for the document name.
You can show and hide the list with the variables with the 

button.

⇨ **Variables** on page 228

Use old log modules

Specification of whether old log modules are used. This option is only active if no log module has been selected. Old log modules are only visible if you have imported a test procedure from the HYDROgen program. HYDROgen is a predecessor version of HYDROlink6.

Password-protected F3 key, as variable

Specifies that the F3 key should be protected with a password. The password is defined in the input field. If the **As variable** option is set here, then you enter the variable name in this field. This makes sense if you want to define the password specifically within a test procedure.

Test sections

Ignore last section

Specifies that the last section of the test procedure is ignored.

Switch to the next section with key

Specifies that by pressing the key selected in the selection field, there is a switch to the next section.

Switch to the previous section with key

Specifies that by pressing the key selected in the selection field, there is a switch to the previous section.

Function keys

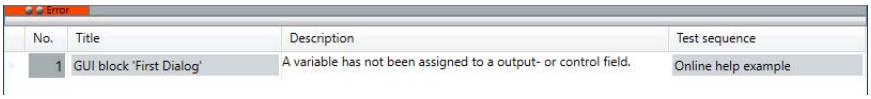
Keys F1 - F4, set variables B1 - B4

Specifies through selection of the variables B1-B4 that when pressing a key, F1-F4, a corresponding logic variable is set.

Ignore

Specifies that there is no reaction to the corresponding key press.

Errors Shows or hides errors in the test procedure. The Error button is only displayed if an error occurs.



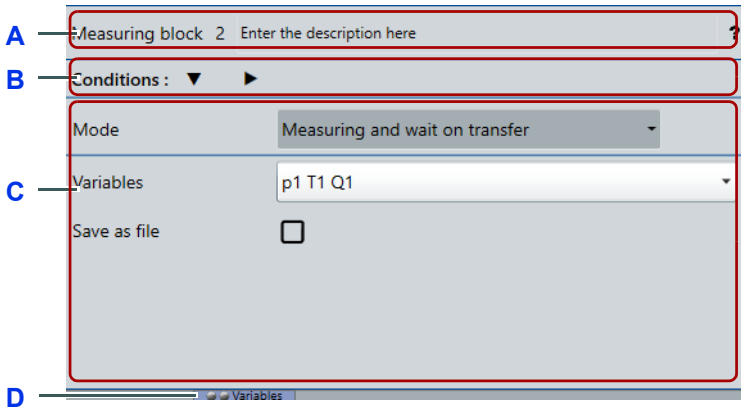
Variables Shows or hides variables.

⇨ **Variables** on page 228

ENG

Modules

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select module*** > *Module*



A Title bar
B Conditions
C Module settings
D Variables

Image: Modules in general

In order to be able to configure a module individually, the module must be selected in the test procedure.

⇨ **Test procedure** on page 183

If no module is selected, then the settings for the test procedure are displayed in this area.

⇨ **Test procedure settings** on page 190

The module settings consist of the following areas:

- **Title bar**
- **Conditions**
- **Module settings**
- **Variables**

Title bar Display information about the module.

⇨ **Title bar** on page 195

Conditions Modules can define input and/or output conditions. The conditions are assigned to each module individually.

Module settings The structure of the area for the settings depends on which module is selected. The menu for the module in question is displayed here.

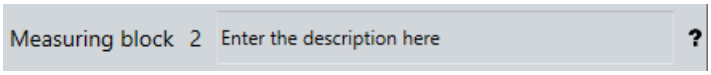
⇨ **User interface module** on page 196
⇨ **Log module** on page 204
⇨ **Measurement module** on page 208
⇨ **Sensor module** on page 209
⇨ **Calculation module** on page 210
⇨ **Logic module** on page 213
⇨ **Statistics module** on page 216
⇨ **Database module (write)** on page 217
⇨ **Target value module (read)** on page 218
⇨ **Database copy module** on page 220
⇨ **Test selection module** on page 221
⇨ **Time module** on page 222
⇨ **Intermediate storage module** on page 222
⇨ **Section module** on page 223
⇨ **Command module** on page 224
⇨ **Module module** on page 224
⇨ **Interrupt module** on page 225
⇨ **Configuration module** on page 226
⇨ **Input condition** on page 226
⇨ **Output condition** on page 227

Variables Show or hide the variables.

⇨ **Variables** on page 228

Title bar

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select module*** > *Module* > *Title bar*



The module's title bar displays information about the module.

The following information is displayed for the selected module:

- Name of the module (example: measurement block)
- Position in the test procedure (example 2)
- Description

Description

You can add a description for each module in the test procedure. The description may be a maximum of 50 characters long.

Symbols

The following symbol is displayed.

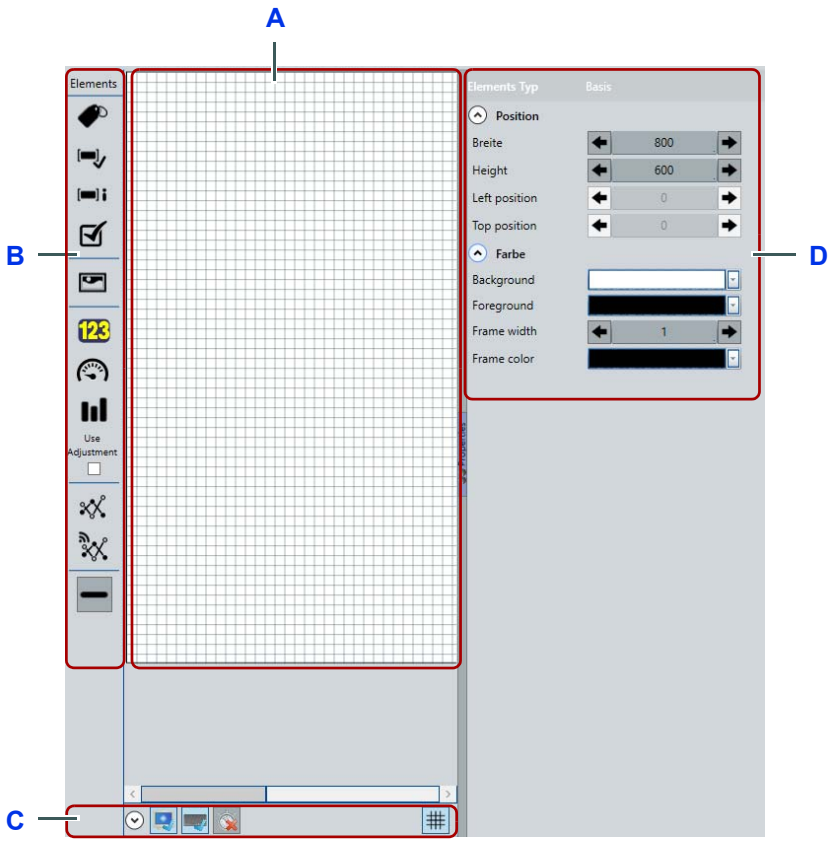
Help

Opens the help for the selected module.

ENG

User interface module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select user interface module*** > *User interface module*



A Interface
B Elements
C Module settings
D Element settings

Image: User interface module

This module controls all user interaction. Menus and input screens are created in the module settings.

The module settings consist of the following areas:

- **Interface**
- **Elements**
- **Module settings**
- **Element settings**

Interface Includes the selected elements.

⇨ **Interface user interface module** on page 197

Elements The interface is designed with the various elements. The elements are dragged to the interface via drag & drop.

⇨ **User interface module elements** on page 198

Module settings Basic settings for the user interface can be configured here.

⇨ **User interface module settings** on page 200

Element settings Includes the setting possibilities for the marked element.

⇨ **Element settings** on page 201

Interface user interface module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select user interface module*** > *User interface module* > *Interface user interface module*

The elements are arranged on the interface. The arrangement possibilities for the elements depend on the target system set for the test procedure. Selected elements can be configured in the element settings.

⇨ **Target system** on page 191
⇨ **Modules** on page 194
⇨ **Element settings** on page 201

A right-click on the interface opens a selection menu with the options:

- Copy all
- Copy
- Insert

The **Copy all** option copies all elements inserted into the interface and their configurations to the clipboard. This way, several user interface modules can be created with the same settings.

Desktop The interface is displayed as a grid. The elements can be placed as you wish.

Measurement device The interface is displayed as a stylized measurement device. The elements are arranged in rows and can only be placed in free areas.

User interface module elements

*Test procedures > **Select test procedure** > Test procedure > **Select user interface module** > User interface module > User interface module elements*

The number of possible elements depends on the target system for the test procedure. With the target system measurement device, there are fewer elements available than in the desktop target system since the measurement devices do not support all elements.
The elements are dragged to the **interface** via drag & drop.
In the settings element, you can configure the element marked on the interface.

⇨ **Target system** on page 191
⇨ **User interface module** on page 196
⇨ **Interface user interface module** on page 197
⇨ **Element settings** on page 201

With a right-click on a module, the copy menu opens. The module and its settings are copied to the clipboard.

Label field

Enables the creation of labels.

Correction field

Enables the input of the user.
The correction field must be assigned a **variable** in the element settings.

⇨ **Variable** on page 202

Output field

Enables the output of variables.
The output field must be assigned a **variable** in the element settings.

⇨ **Variable** on page 202

Option field

Assigns a value to a logical variable.
The option field must be assigned a **Variable** in the element settings.

⇨ **Variable** on page 202

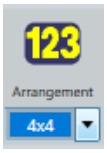
Image

Via the selection dialog, an image can be selected and displayed.

⇨ **Selection dialog** on page 202

For special settings for the image element, see:

⇨ **Image properties** on page 202



Measurement device display

Displays current values of a variable in the tile view of a measurement device. The additional field arrangement appears for the test procedure target system measurement device. The grid of the display and thus the display size of the element can be set here.
A **variable** must be assigned to the measurement device display.

⇨ **Target system** on page 191
⇨ **Measurement device** on page 197
⇨ **Variable** on page 202

Analog gauge

Displays current values of a variable of a measurement device.

A **variable** must be assigned to the analog gauge.

⇨ **Variable** on page 202

Bar display

Displays current values of a variable of a measurement device.

The "number" field appears for the **Measurement device** target system. The grid of the display and thus the display size of the element can be set here.

⇨ **Target system** on page 191
⇨ **Measurement device** on page 197

The "Show comparison" selection field is displayed regardless of the target system and determines whether a target value can be entered in addition to **minimum and maximum**. This changes the scaling of the bar display.

⇨ **Minimum and maximum values** on page 202

Line graph

Displays values in an x/y coordinate system. The axes can be assigned as you wish. Several envelope and reference curves can be displayed.

The following properties can only be configured on the line graph:

⇨ **Line graph properties** on page 202

Online line graph

Displays values in an x/y coordinate system. The axes can be assigned as you wish. Several envelope and reference curves can be displayed.

ENG

The properties for the online line graph are identical to those in the **Line graph**. Additional configuration possibilities are found under **Settings online line graph**.

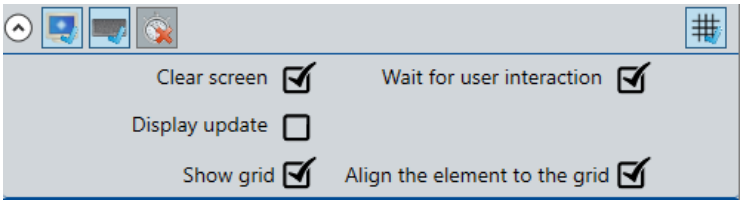
⇨ **Line graph properties** on page 202
⇨ **Online line graph properties** on page 203

Delete

Deletes the selected element from the interface.

User interface module settings

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select user interface module*** > *User interface module* > *User interface module settings*



The settings affect the selected module.

The buttons are identical to the option fields. If you open a field, the corresponding description is displayed. Multiple selection is possible.

Open the menu

Opens the menu and enables the settings via option fields.

Delete screen

After the module is exited, the interface is deleted. If this option is deactivated, the interface is drawn over the previous interface. This way, two interfaces can show one over another.

Wait for user interaction

If this option is activated, the test procedure stops at the module until the user presses NEXT.

Refresh display

If values should be updated at a particular interval, a repetition rate in seconds can be set via an input field.

Display refresh time

Input field for the repeat rate of the value refreshing.

Display grid

Displays a grid on the interface. The grid makes it easier to position the elements.

Align element on grid Option field: Aligns an element moved with the mouse on the grid shown. This option can only be selected when the menu is open.

ENG

Element settings

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select user interface module*** > *User interface module* > ***Select element*** > *Element settings*

Use the 

symbol to show or hide the properties area. The properties of the selected element of the interface are displayed. There are several **Control elements** for changing the values of the element.

⇨ **Control elements** on page 201
⇨ **General properties** on page 201
⇨ **Display device properties** on page 202
⇨ **Image properties** on page 202
⇨ **Line graph properties** on page 202
⇨ **Online line graph properties** on page 203

Control elements

The settings can be edited with various types of control elements.

- Text input field
- Selection field
- Option field
- Numeric selection field

Numeric selection field You can enter the desired value using the arrow keys or by typing it in manually. Only whole-number values are accepted. The permissible value range is displayed in the tooltip (if you hover the mouse over the field).

General properties

Not each element includes every property.

Position Specifies the position and size of the element. The element's grid is eliminated.

Color Specifies the background color, foreground color (text), frame width, and frame color.

Level Enables the placement of elements one over another. The higher the number, the further forward the element.

Selection dialog Use the  button to search for and import files in the explorer.

Text Specifies the text that is displayed in the element. The text can be as long as you wish.

Font Determines the font type, size, and whether the font is displayed in boldface.

Variable The variable field assigns the element a defined variable.

Variable filter

To restrict the selection of the variables, a variable filter can be activated. It filters by variable types. If the filter is active, the variable type is displayed to the left of the button.

Display device properties

Minimum and maximum values By defining these values, the displays can be scaled. The values can be filled with variables. If no variable is defined, an absolute value can be specified.

Show comparison Specifies whether a target value can be entered for the "analog gauge" and "bar display".

Digital display Specifies whether the current value is displayed digitally for the "bar display".

Sections Specifies the color display of the display element depending on particular values. The values can be filled with variables. If no variable is defined, an absolute value can be specified.

Image properties

Filled out This option field specifies whether the selected image fills out the entire area of the element.

Line graph properties

Title Title line for the graph.

Data from Specifies whether for the "line graph" the data from the main test procedure or an interrupt module is used. By default, the main test procedure is selected.

Reference module For the "line graph", defines a module that collects data (**Measurement module**, **Calculation module**).

Grid lines Specifies the number of grid lines.

Envelope curve Selection of an envelope curve via the selection dialog.

Automatic axes Specifies whether the axes are scaled automatically or defined by the limit values.

X- axis Offers the following properties:

⇨ **Variable** on page 202

Description: Specifies the axis labeling.

⇨ **Minimum and maximum values** on page 202

Y-axis You must specify at least one and you can specify max. four Y-axes.

The 

button adds a new Y-axis.

The 

button deletes a Y-axis.

Axis index: Navigates between the axes.

⇨ **Variable** on page 202

Description: Specifies the axis labeling.

⇨ **Minimum and maximum values** on page 202

Online line graph properties

Mode Selection field with the options only for the "online line graph":

Only display select if the values come from a cyclical program run. Values from a calculation module are possible.

Measure and save cyclically select if the online values should be read and displayed independently. Only channel variables possible.

Save online values select if the values should be saved in a file. The file is saved under: <Public Documents\ HYDROlink\ Tests\"Test Procedure name"\"nnn".MWF> (nnn=module number)

Reset: Select if all parameters and the data range of the last online line graph should be deleted.

Value display Option field only for the "online line graph". If the option field is activated, the values are displayed numerically.

Number of data records Only displayed in the **Only display** and **Measure cyclically** modes.

Numeric selection field in which the max. number of the data records to be displayed is specified.

Sampling rate Only displayed for the "Online line graph" and in the **Measure cyclically** mode.
Input field in which the sampling rate for reading the online values is specified.

Interrupt condition Only displayed for the "Online line graph" and in the **Measure cyclically** mode.
Input field with which an interrupt condition, for example for the value of a variable, can be defined.

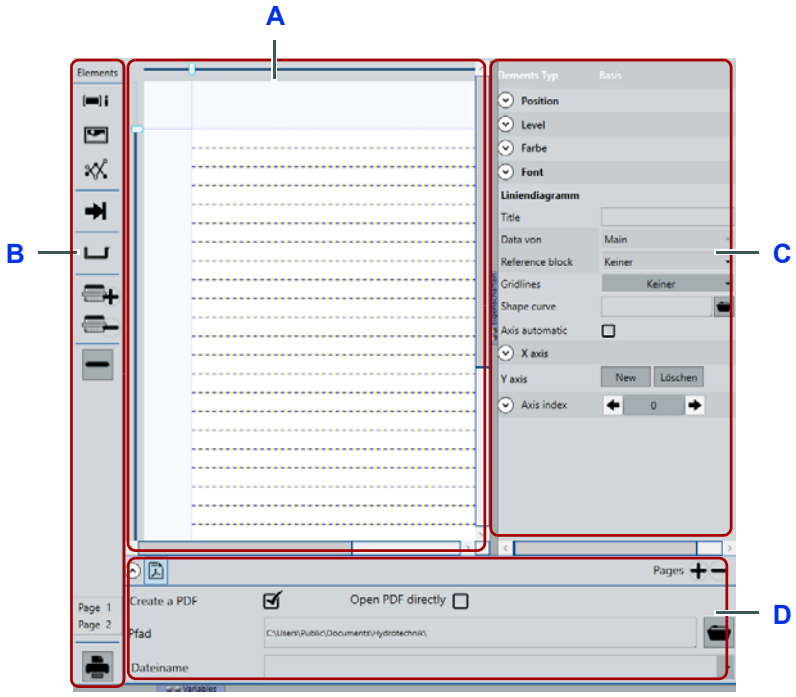
Reference module Only displayed for the "Online line graph" and in the **Save online values** mode.
Selection field with which the interface module is selected with online graph whose values should be saved.

ENG

Log module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select log module*** > *Log module*

The module generates a log that is either saved as a PDF file or printed directly. You can enter text line by line.



A Interface
B Elements
C Element settings
D General settings

Image: Log module

The log module menu includes the following areas:

- Interface
- Elements
- Element settings
- General settings

Interface Includes the selected elements. You can use the two sliders to define the side edges.

⇨ **Interface log module** on page 205

Elements The interface is designed with the various elements. The elements are dragged to the interface via drag & drop.

⇨ **Log module elements** on page 205

Module settings The structure of the area for the settings depends on which module is selected.

⇨ **Element settings** on page 206

Element settings Show or hide the setting possibilities for each element.

⇨ **General settings** on page 207

ENG

Interface log module

*Test procedures > **Select test procedure** > Test procedure > **Select log module** > Log module > Interface log module*

The elements are arranged on the interface. Marked elements can be configured in the **element settings**.

⇨ **Element settings** on page 206

A right-click on the interface opens a selection menu with the options:

- Cut
- Copy
- Insert

Log module elements

*Test procedures > **Select test procedure** > Test procedure > **Select log module** > Log module > Log module elements*

The elements are dragged to the **interface** via drag & drop.
In the element settings, you can configure the element that is marked on the interface. Texts will be overwritten by elements. Text and element can be arranged using tab stops.

⇨ **Interface log module** on page 205
⇨ **Element settings** on page 206

Right-click on an element to open the copy menu. The element is copied to the clipboard.

Output field

Output field enables the output of variables.
The output field must be assigned a variable in the element settings. In the line on which it is placed, the element occupies the space up to the next tab stop or to the end of the line.

⇨ **Variable** on page 202

Image

Via the selection dialog, an image can be selected and displayed.

⇨ **Selection dialog** on page 202

For special settings for the image element, see:

⇨ **Image properties** on page 202

Line graph

Displays values in an x/y coordinate system. The axes can be assigned as you wish. Several envelope and reference curves can be displayed.

The following properties can only be configured on the line graph:

⇨ **Line graph properties** on page 202

Tab stop

Organizes the document in columns.

Input condition of a line.

Defines a conditional line output. Only if the condition is fulfilled is the line output. Otherwise, it is skipped. If you drag the element to the interface, a dialog opens. See also:

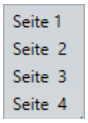
⇨ **Settings for the entry condition of a line** on page 206

Insert a line

Inserts a new line in front of the line to which it is dragged.

Delete current line

Deletes a line and the elements it contains.



Display page

Changes to another page if there are several pages.

Delete

Deletes the elements output field, image, and tab stop from the interface.

Element settings

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select log module*** > *Log module* > *Element settings*

The settings are identical to those of the user interface module.

⇨ **User interface module** on page 196

Settings for the entry condition of a line

Variable Selection field: Selection of the variable for which a comparison should be created.

Operator Selection field: Selection of the comparison operator.

Value Selection field/input field: Selection field if a variable should be determined or input field if a fixed value is defined.

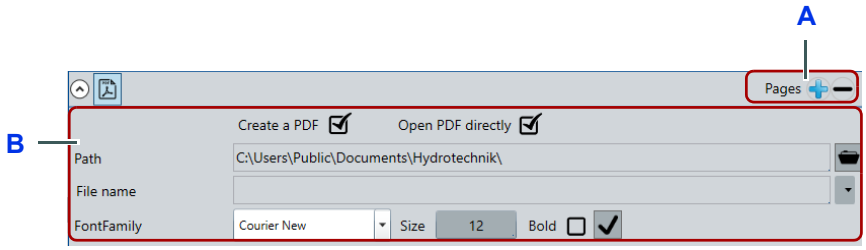
Line (from-to) Defines the conditions across several lines.

Collapse lines Specifies that the line is not printed if the condition is fulfilled. If this option is not selected, then a blank line will be printed.

Remove input condition Removes the selected input condition.

General settings

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select log module*** > *Log module* > *General settings*



A Generate pages **B** PDF settings

Image: General settings menu

In the general settings area, you can add and delete pages. Each page generated is an empty interface.

In the settings, you can specify with the **Create a PDF** selection field whether a PDF should be generated. Where and under which name the PDF should be saved can be specified in the **Path** and **File name** fields. As file name, it is also possible, via the selection field, to select a variable. If the **Open PDF directly** option box is activated, then the PDF is opened directly after writing.

Measurement module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select measurement module*** > *Measurement module*

In the module settings, you can select various modes for the measurement module. Depending on the mode, various functions are available. The following modes can be selected:

- **Measure and wait for transfer mode**
- **Measure and save mode**
- **Transfer saved measurement values mode**

ENG

Measure and wait for transfer mode

In this mode, the defined measurement variables from the measurement device are transferred to the storage module.

Variables Selection field: Specifies the channels that are queried.

Save as file Option field: If it is activated, the data is written to a file continuously. It is recommended that you activate this for modules that are processed cyclically and whose values are relevant for the log output or calculations.

Measure and save mode

The measurement device records a measurement series and saves it. The test procedure is executed further.

Variables Selection field: Specifies the channels that are queried.

Sampling rate Input field: Determines how often the measurement device should record.

Number of data records Input field: Specifies how many measurement series are saved.
Values between 1 and 999999 are possible.

Trigger Option field: Specifies whether a trigger is used for the start of the saving. If the field is activated, another menu appears in which the trigger conditions are entered.

- **Pretrigger**: Number of data records that are recorded before the trigger event.
- **Trigger condition**: Specified via channel, condition, and value.
- **Link**: Selection field: Enables the definition of another condition and the type of link.

Transfer saved measurement values mode

Transfer the data that another measurement module has collected in **Measure and save mode** about this module. During the transfer, the test procedure is executed further.

Interrupt ongoing storage Option field: If the option is activated, the transfer of the measurement series is interrupted as soon as the test procedure has been executed, even if the data is not completely saved in the measurement device.

Sensor module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select sensor module*** > *Sensor module*

The module checks and controls the channel settings in the measurement device. Here, the current channel settings are compared to the settings that are defined in a module.

The module settings area is subdivided into:

- **Test options**
- **Sensors**

Test options

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select sensor module*** > *Sensor module* > *Test options*

Channel no. If the option field is activated, the channel no. parameter on the measurement device is checked.

Signal type If the option field is activated, the signal type parameter on the measurement device is checked.

Unit If the option field is activated, the unit parameter on the measurement device is checked.

Calibration value If the option field is activated, the calibration value parameter on the measurement device is checked.

⇨ **Calibration value** on page 210

Send these settings to the measurement device If the option field is activated, the parameters selected under test options are sent to the measurement device.

Error variable Selection field via which a logical variable is set if a check of a channel parameter is not successful and if the **Send these settings to the measurement device** option is set.

Sensors

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select sensor module*** > *Sensor module* > *Sensors*

This area defines the list of channels that should be checked.

Add

Adds a channel to the list.

Delete

Deletes the marked channel from the list.

The individual values in the columns can only be set if the corresponding test option is activated.

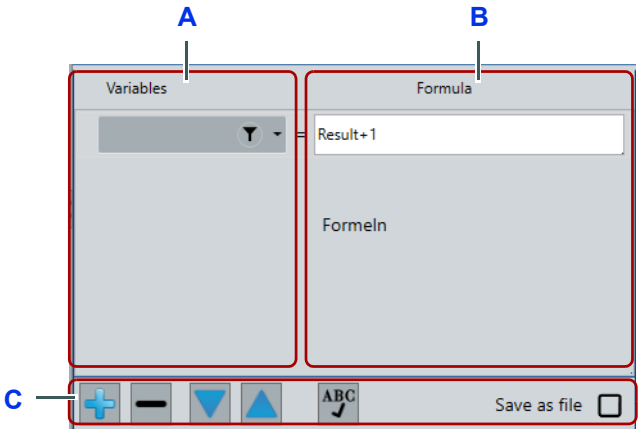
Calibration value

You have the following possibilities for the calibration value columns:

- **Value**: enter absolute value.
- **Measurement variable**: assign a variable via the selection field. Only variables of the type floating point are possible.

Calculation module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select calculation module*** > *Calculation module*



A Variables column
B Formulas column
C Toolbar

Image: Module settings calculation module

This module performs calculations. The results can be assigned to variables. The calculations are performed using formulas. These are arranged in a table.

The calculation module consists of the following areas:

- **Variables column**
- **Formulas column**
- **Toolbar**

Variables column

In the variables column, you can assign the result to a variable via a selection field.

Variable filter

To restrict the selection of the variables, a variable filter can be activated. It filters by variable types. If the filter is active, the variable type is displayed to the left of the button.

Formulas column

In the formulas column, you can define a formula in the input field. A formula may be max. 52 characters long.

⇨ **Formulas** on page 212

Toolbar

Controls the created table of calculations.

⇨ **Toolbar** on page 211

Toolbar

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select calculation module*** > *Calculation module*> *Toolbar*

Add

Generates a new formula line.

Delete

Deletes the marked formula line from the list.

Move up

Moves the marked formula one position up.

Move down

Moves the marked formula one position down.

Formula check

Checks whether the formula input is syntactically correct.

⇨ **Formula check** on page 213

Formulas

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select calculation module*** > *Calculation module* > *Formulas*

A formula consists of at least one variable or numeric value. Generally, formulas include a link between several variables and/or constants and mathematical operators. Levels in parentheses can be used.

The following operators are possible:

Operator	Meaning	Example
+	Addition	p1+5
-	Subtraction	p1-p2
*	Multiplication	p1*v2
/	Division	p1/p2
lg(..)	Base 10 logarithm	lg(p1)
ln(..)	Natural logarithm for base e	ln(p1)
sqrt(..)	Square root	sqrt(p1)
^	Power (only for target system desktop)	p1^3

Table: Available mathematical operators

The following are frequently used formulas:

Formula	Name	Remarks
p1*Q1/600	Power	p1 = pressure (bar) Q1 = volumetric flow (l/min) P = power (kW)
p1*A	Power of a cylinder	p1 = pressure (bar) A = piston area in (cm²)
(p1*A1)-(p2*A2)	Power of a double-acting cylinder	p1 = pressure (bar) of the piston A1 = piston area (cm²) p2 = pressure (bar) of the piston A2 = piston area (cm²)
2*3.14159*n1*M1	Engine power	n1 = speed (rpm) M1 = torque
Q1/A	Piston speed in cm/min	Q1 = volumetric flow (cm³/min) A= piston area of the cylinder (cm²)
Q1/A/60	Piston speed in cm/s	

Table: Frequently used formulas

Formula check

The formula check checks whether the variable entered has been created. For a comparison of two variables, it is checked whether they are comparable in type.

In case of an error, the symbol appears in the formula column. Hover the mouse over the symbol to get more detailed information about the error.

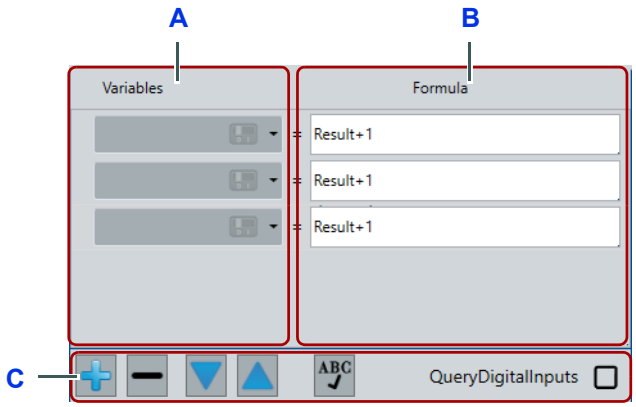
If there is a syntax error, the test procedure is not executed.

This symbol appears if two variables of different types are compared with one another or used for calculation.

ENG

Logic module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select logic module*** > *Logic module*



A Variables column
B Formulas column
C Toolbar

Image: Logic module

This modules links measurement variables with one another according to the logical algebra. The results can be assigned to logical variables. The calculations are performed using formulas. These are arranged in a table.

The calculation module consists of the following areas:

- **Variables column**
- **Formulas column**
- **Toolbar**

Variables column In the variables column, you can select a logical variable via the selection field for which a formula should be defined.

Formulas column The formula can consist of several comparisons that are linked to one another logically. Any variables can be compared to one another or to constants. The

simplest comparison consists of a logical variable. In this case, the query is only for TRUE or FALSE. Conjunction (&) and disjunction (|) can be used to link several comparisons.

⇨ **Logical formulas** on page 214

Toolbar Controls the table of formulas.

⇨ **Toolbar** on page 214

ENG

Toolbar

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select logic module*** > *Logic module* > *Toolbar*

Add

Generates a new formula line.

Delete

Deletes the marked formula line from the list.

Move up

Moves the marked formula one position up.

Move down

Moves the marked formula one position down.

Formula check

Checks whether the formula input is syntactically correct.

⇨ **Formula check** on page 215

Query of digital inputs If the option field is activated, the values of the digital inputs of the measurement device are queried before calculation.

Logical formulas

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select logic module*** > *Logic module*> *Logical formulas*

The formula can consist of several comparisons that are linked to one another logically. Conjunction (&) and disjunction (|) are available to link several comparisons.

The formulas are checked to be sure their syntax is correct.

Any variables can be compared to one another or to constants.

Comparison	Meaning	Numeric variable	Alphanumeric	Logical	Example
<	Less than	·	•		p1<100
>	Greater than	•			p1> 1.2
<=	Less than or equal to	•			Q1<=120
>=	Great than or equal to	•			Q1>=120
=	Equal to	•	•		p1=p2 P1=100-50
!=	Not equal to	•	•		text !="no"
	Query			•	E1
!	Negative query			•	!E1
&	Conjunction AND			•	p1>100 & Q1> 100
|	Conjunction OR			•	p1>100| Q1>100
( )	Parentheses	•	•	•	E1&(E1|E3)

Table: Logical formulas

Formula check

The formula check checks whether the variable entered has been created. For a comparison of two variables, it is checked whether they are comparable in type.

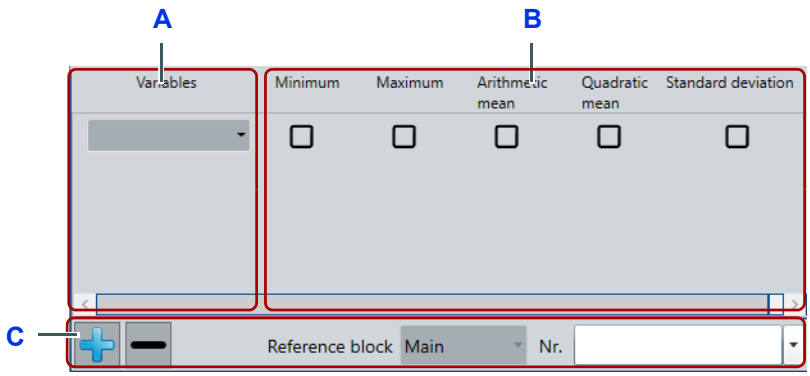
In case of an error, the symbol  appears in the formula column. Hover the mouse over the symbol to get more detailed information about the error.

If there is a syntax error, the test procedure is not executed.

This symbol  appears if two variables of different types are compared with one another.

Statistics module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select statistics module*** > *Statistics module*



A Variables column
B Selection column
C Toolbar

Image: Statistics module

This module is used to evaluate variable statistically.

The statistics module consists of the following areas:

- **Variables column**
- **Selection column**
- **Toolbar**

Variables column Selection field: The variables that can be recorded statistically are displayed in the variables column.

Selection column In the selection column, you can determine with option fields for which characteristic the variable should be evaluated statistically. Depending on which option was selected, the associated variables are created or removed automatically.

Toolbar Controls the created table of variables.

⇨ **Toolbar** on page 216

Toolbar

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select statistics module*** > *Statistics module* > *Toolbar*

Add

Generates a new variables line.

Delete

Deletes the marked variables line from the table.

Reference module Via the selection field, you can specify whether the measurement module is in an interrupt routine (main = no interrupt routine).

No. The selection field determines number and type of the reference module. Only the modules are displayed that are available. Generally a measurement module is selected in which the save as option is activated.

⇨ **Interrupt module** on page 225

ENG

Database module (write)

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select database module*** > *Database module*

Heed the environmental conditions for database modules!

⇨ **Data** on page 186

If the database module is executed, variable values are written to a database. For this, a database must be stored and a table created there named. Furthermore, the variable must be assigned to the table columns. The values of the variables are written to the database as new data records.

Several database types can be used:

- Text files (line 1 contains the field names separated by tabs, lines 2-n contain data records separated by tabs)
- Access (MDB and ACCDB files)
- Excel (XLS and XLSX files)
- Dbase III (DBF files)
- CSV files

Adding a database

Open selection dialog

The default dialog for file selection opens with a click of the button. Select the database.

Path Input field: Enter path to database manually.

Password Input field: If necessary, enter the database password.

Table Selection field: Load required table from the database. This field is only visible if an Access database or Excel table was selected.

Specifying the variables for database module

Variable Selection field: Selection of the variable that should be linked to a database field.

Variable filter

To restrict the selection of the variables, a variable filter can be activated. It filters by variable types. If the filter is active, the variable type is displayed to the left of the button.

Field name Selection field: Specifies the database field.

Length and type Information fields: Type and length of the field must correspond to the selected variable. The length is only important for alphanumeric variables.

Add

Adds a new field element to the table.

Delete

Removes the marked element from the table.

Target value module (read)

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select target value module*** > *Target value module*

Heed the environmental conditions for database modules!

⇨ **Data** on page 186

This module reads the values from a database and links them to variables. Several database types can be used:

- Text files (line 1 contains the field names separated by tabs, lines 2-n contain data records separated by tabs)
- Access (MDB and ACCDB files)
- Excel (XLS and XLSX files)
- Dbase III (DBF files)
- CSV files

You can find the right data set for the target values using search fields. Several search fields are combined with an AND link. The corresponding target values are read out of the data record found and assigned to variables.

The target value module consists of the following areas:

- **Add database**
- **Options**
- **Tables**

Add database

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select target value module*** > *Target value module* > *Add database*

Open selection dialog

The default dialog for file selection opens with a click of the button. Select the database.

Path Input field: Enter path to database manually.

Password Input field: If necessary, enter the database password.

Table Selection field: Load required table from the database.
This field is only visible if you have selected an Access database or Excel file.

Options Expandable field: Opens a menu with additional settings.
⇨ **Options** on page 219

Options

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select target value module*** > *Target value module* > *Options*

Show dialog Option field: If the option field is activated, the user can select the data record manually. A dialog opens for selection of the data record opens during execution of the module.

Title Input field: Specifies the title of the dialog for selection of the data record.

Use last data record found Option field: If the option field is activated and several data records are found, then the last data record is used that corresponds to the search criteria.

Only test whether target value present Option field: If the option field is activated, it is only tested whether the target value is present.

Error variable Selection menu: If the option field **Only test whether target value present** is activated, a logical variable should be selected in the selection menu in which the result of the test can be saved. The result can then be evaluated in the course of the test procedure.

Tables

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select target value module*** > *Target value module* > *Tables*

Field name Selection field: Specifies the field from the selected database.

Variables Selection field: Selection of the variable to which the specified field is linked.

Variable filter

To restrict the selection of the variables, a variable filter can be activated. It filters by variable types. If the filter is active, the variable type is displayed to the left of the button.

Search fields table Searches for the variable value.

Add

Adds a new field element to the table.

Delete

Removes the marked element from the table.

Read fields table Writes the value sought into the variable.

Add

Adds a new field element to the table.

Delete

Removes the marked element from the table.

Database copy module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select database copy module*** > *Database copy module*

This module reads the values from a database and copies them to another database. This enables the conducting of partial checks on one or several measurement devices or PCs and the combination of the test results into a central database.

Values can be copied from an Access or DBF database to an Access database.

Adding databases

You must specify a database from which the data should be copied and one to which the data should be saved.

Open selection dialog

The default dialog for file selection opens with a click of the button. Select the database.

Path Input field: Enter path to database manually.

Password Input field: If necessary, enter the database password.

Table Selection field: Load required table from the database.
The field is not visible if a dBase database is selected.

Tables

Search fields and read fields must be identical in both databases.

ENG

Search fields table Defines which data fields should be copied. It is checked whether among the fields in the tables, the same values exist. Several search fields are combined with the AND link.

Read fields table Defines which of the data fields that are defined in the **Table search fields** are copied to the database.

Field name Selection field: Specifies the name of the field from the selected table.

Data type and length Serve informational purposes.

Test selection module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select test selection module*** > *Test selection module*

With this module, test results are read from a database and written back to the database at the end of the test procedure.

Here, the fields that also exist as variable with the same name in the test procedure are read from the selected table (or written to the table).

Open selection dialog

The default dialog for file selection opens with a click of the button. Select the database.

Path Input field: Enter path to database manually.

Password Input field: If necessary, enter the database password.

Table Selection field: Select required table from the database.
The field is not visible if a dBase database is selected.

New data record Selection field: Specifies how new data is written to the database.

⇨ **New data record** on page 222

New data record

The following possibilities are available for writing new data to a database:

- **Overwrite** overwrites the data record that was found using the search criteria. If no data record is found, a new one is created.
- **Attach** always creates a new data record.
- **Query** after running through the module, queries whether the data record should be overwritten or attached.

ENG

Time module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select time module*** > *Time module*

This modules controls the temporal flow of a test procedure. The following options are available:

Key press The test procedure is interrupted until the user presses a particular key.

Time If the **Time** option field is activated, the module waits for the time set under **Duration** before the test procedure is executed further.
A duration value between 0.01 and 600 can be entered in the duration input field.

Intermediate storage module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select intermediate storage module*** > *Intermediate storage module*

This module can be used to interrupt the test procedure and continue it at a later point in time.

If an interrupted test procedure is started again, HYDROlink6 asks whether the test procedure should be continued at the last intermediate storage module executed.

Name Input field: Name of the module.

Variable Selection field: Assigns the module a logical variable. The variable is set if the test procedure has been executed. It can be queried in the course of the test procedure. If in the selection field for the variable the blank element is selected, then the variable is deleted.

Reference variable Selection field: Assigns the module an alphanumeric variable.

Delete

The button removes the set variable.

Section module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select section module*** > *Section module*

This module subdivides the test procedure into sections. These can be run through in any sequence.

If an interrupted test procedure is restarted, HYDROlink6 starts a dialog for selection of the section from which the test procedure should be continued.

⇨ **Continue test procedure dialog** on page 252

Name Input field: Name of the module.

There is a colored marking to the right of the name. All modules after the section module up to the next section module are marked with this color. This helps distinguish the various sections from one another visually.

Variable Selection field: Assigns the module a logical variable. The variable is set if the test procedure has been executed. It can be queried in the course of the test procedure. If in the selection field for the variable the blank element is selected, then the variable is deleted.

Reference variable Selection field: Assigns the module an alphanumeric variable. Identifies the test procedure in the dialog for selection of the section. The reference variable field is only displayed in the first section module.

Command module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select command module*** > *Command module*

This module establishes a connection to the operating system. This way, commands and program calls can be transmitted to the operating system. Local programs can therefore be integrated into the test procedure. Then the next module is executed.

Note that the correctness of the commands entered is not checked.

Individual command line window Option field: If the option field is activated, the command line runs in a visible window. Otherwise, it runs in the background.

Command line Input field: The commands are displayed as a table. You can define a max. of four commands. Commands can be entered manually. Alternatively, a path to a file can be specified.

Open selection dialog

The default dialog for file selection opens with a click of the button. If the file type is recognized by the operating system, the associated program opens. (for example, docx files are opened with WORD).

Parameter Input field: Defines additional parameters.

Module module

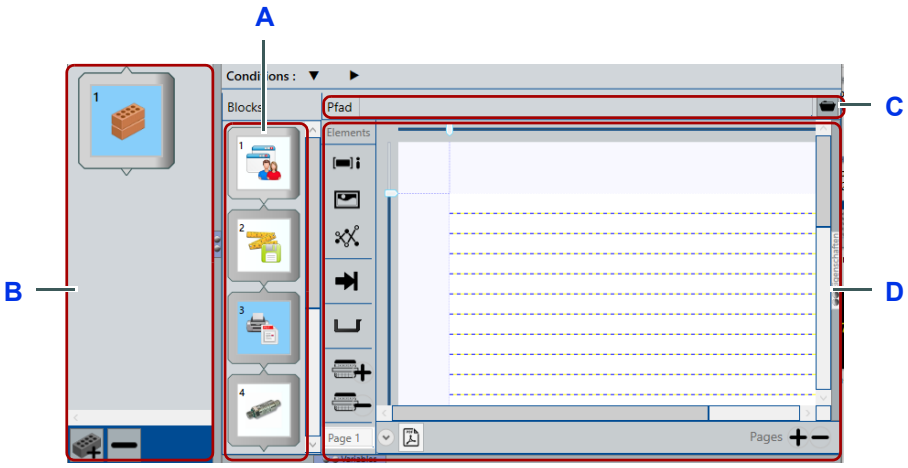
Test procedures > ***Select test procedure*** > *Test procedure* > ***Select module module*** > *Module module*

This module can be used to call test procedure modules. This module enables the combination of several test procedure modules to create an extensive test procedure. A maximum of 32 modules can be combined. After the module module has been executed the main test procedure continues.

Open selection dialog

The default dialog for file selection opens with a click of the button. Test procedures that were saved as test procedure modules can be loaded.

⇨ **My test procedures** on page 181



A Modules of the module
B Module module
C Path to test procedure module
D Configuration of test procedure module module

Image: Module module

If a test procedure module is linked to a module module, the test procedure and path it contains are displayed. The individual test procedure module modules can be selected to see the module settings. You cannot change the module settings for modules in the module.

Interrupt module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select interrupt module*** > *Interrupt module*

This module can be used to execute interrupt test procedures. This module enables the regular execution of these test procedures, regardless of any interruptions that can occur due to the time module, for example.

Interrupt test procedures cannot be executed in parallel.

You can incorporate max. four interrupt test procedures into a test procedure.

⇨ **Interrupt test procedure** on page 104

State Selection field: You can choose between **On** and **Off**.

- Select **Off** if you want to switch off the interrupt test procedure within the test. Otherwise it will always be executed even when it is no longer needed.
- Select **On** if you would like to activate the module.
  Additional fields appear:

Path

Open selection dialog

The default dialog for file selection opens with a click of the button. Saved test procedures can be loaded.

⇨ **My test procedures** on page 181

If an interrupt test procedure module is linked to the interrupt module, the test procedure and path it contains are displayed. The modules included in the interrupt test procedure can be selected and configured.

ENG

Interval Input field: Specifies how often the interrupt test procedure is executed. You must note that the interval is longer than the interrupt test procedure requires to be executed.

The interval must be between 50ms and 5000ms or 6sec. The defined interval will not be underrun. However, complex interrupt test procedures can mean that the execution is delayed.

If the function module is used in the interrupt test procedure, the interval can be set to 1ms.

Time unit Selection field: Specifies in which time unit the interval is specified.

Configuration module

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select configuration module*** > *Configuration module*

With this module, device configurations can be executed and sent to the measurement device.

The device configuration is saved and can be displayed as a line graph.

Selection Selection field: Selection of the configuration. Which configurations are offered depends on the configurations that are available in the device explorer.

⇨ **Working with configurations** on page 38

Input condition

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select input condition*** > *Input condition*

Use the input condition to specify under which condition a module in the test procedure is executed. If the condition is not fulfilled, the module is skipped.

Adding an input condition

The input condition is dragged to a module via drag & drop. A dialog opens on which the condition is defined.

The frame of the module turns yellow around the bottom.

⇨ **Condition dialog** on page 253

Changing an input condition

The input condition can be changed via the Condition dialog. There are three ways to open it for a condition already created:

- Mark the module: click the  button in the Conditions area.
  ⇨ **Modules** on page 194
- Double-click on the module's yellow frame.
- Single click on the yellow frame. The  button appears. Click it.
  ⇨ **Condition dialog** on page 253

Output condition

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select output condition*** > *Output condition*

Use the output condition to specify under which condition a module in the test procedure is executed next. If the condition is not fulfilled, the next module in the test procedure is executed.

Adding an output condition

The output condition is dragged to a module via drag & drop. A dialog opens on which the condition and the target module (the next module if the condition is fulfilled) are defined.

The lower right quarter of the module's frame turns blue.
You can recognize the target module by the blue corner at the top left of its frame.

⇨ **Condition dialog** on page 253

Changing an output condition

The output condition can be changed via the **Condition dialog**. There are three ways to open it for a condition already created:

- Mark the module: click the  button in the Conditions area.
  ⇨ **Modules** on page 194
- Double-click on the module's blue frame.
- Single click on the blue frame. The  button appears. Click it.
  ⇨ **Condition dialog** on page 253

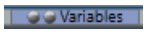
Variables

Test procedures > ***Select test procedure*** > *Test procedure* > *Variables*

Values are stored with variables. Depending on should be stored, there are different types of variables, for example:

- Alphanumeric
- Floating point
- Whole numbers
- Logic
- Date
- Time

⇨ Variables **Type and format** on page 255

Use the 

button to display the variables included in the test procedure in the form of a table. Variables are created automatically. You can configure the variables with the buttons.

⇨ **Generated variables** on page 229

With a double-click on a table entry, the Variables dialog opens.

⇨ **Variable dialog** on page 254

Here, there are also four buttons.

Add

Adds a new variable to the table. The Variable dialog opens.

⇨ **Variable dialog** on page 254

Delete

Removes the marked variable from the table.

Search

Searches the test procedure to see whether a module uses the marked variable.
Modules in which the variable is found are marked. If you call up the function again, the marker is deleted again.

Display in a separate window

Displays the variables in a separate window.

Generated variables

*Test procedures > **Select test procedure** > Test procedure > Variables> Generated variables*

Generated variables are created automatically when a test procedure is created.

Name	Type	Function
CONTINUE	Logic	Is fulfilled if the **Next** key is pressed.
NEXT	Logic	Is fulfilled if the **Next** key is pressed.
INFO	Logic	Is fulfilled if the **Info** key is pressed.
MEMORY	Logic	Is set if storage is active.
DT	Date	Contains the current date.
TM	Date	Contains the current time.
t	Floating point	If used as x-axis in a line graph, as time in seconds.

Table: Generated variables

Dialogs

Some settings are made on dialogs.

Settings dialog (global)

Info and configuration bar > Open settings dialog

The **Settings** dialog is opened using the **Open Settings dialog** button.

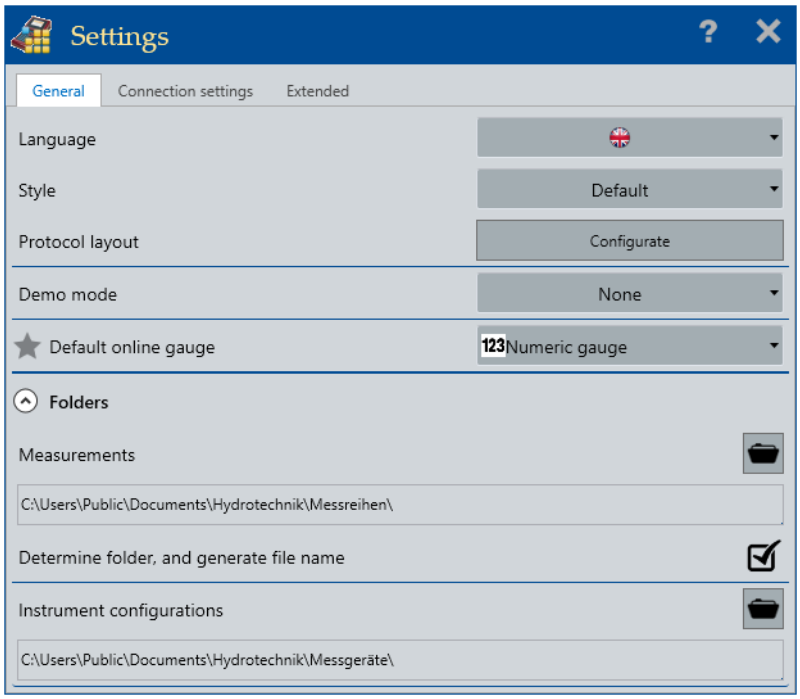
⇨ **Open the Settings dialog** on page 108

The **Settings** dialog has three tabs:

- **General tab**
- **Connection settings tab**
- **Advanced tab**

General tab

Info and configuration bar > Open settings dialog > General



The **General** tab offers the following settings.

Language Changes the user interface language.

The new language will be applied the next time the application is started.

Color style Changes the user interface colors.

Demo mode Activates the demo mode.

The demo mode can be activated for different measuring devices and application editions. It shows the functions of other program editions (for example ADVANCED) and simulates a measurement device (example: MultiSystem 5060).

The button is only active when no measurement device is connected.

If you select the **User-defined** demo mode, then you can activate the **Simulator** option.

Simulator

Shows the **Simulator** button on the info and configuration bar.

Shows the **Simulator** button on the info and configuration bar.

Simulator

The **Simulator** button opens the **Simulator** dialog. If you establish a connection using this button, you can set the measurement values for the channel in question using the pointer on the Simulator dialog.

⇨ **Simulator dialog** on page 236

Log layout Opens the **Log layout** dialog.

⇨ **Log layout dialog** on page 237

Default online gauge Defines which display style is standard. This display style will be used when a channel is dragged into the online display.

The display style can be changed in the online display.

⇨ **Display style** on page 170

ENG

Directories

The directories area can be expanded and collapsed.

Measurement series

Shows the current standard folder for saving measurement series.

If the **Specify folder and assign file name automatically** function is activated, measurement series will be saved to this folder. If the function is not activated, this folder is suggested as a storage destination.

The **Search** button opens the Windows **Search folder** dialog and specifies a new default folder.

⇨ See **Measurement series display** on page 174

Specify folder and assign file name automatically

Specifies the saving of measurement series without querying the user.

- The default folder is used as destination.
- The file name is generated automatically from the time stamp of the measurement series.

If the function is deactivated, the Windows **Save as** dialog is displayed and the user can select the destination and file name at will.

Measurement device configurations

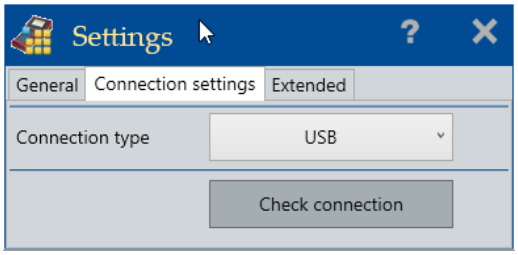
Shows the current default folder for saving measurement device configurations.

This folder is suggested as the storage location for measurement device configurations.

The **Search** button opens the Windows **Search folder** dialog and specifies a new default folder.

Connection settings tab

Info and configuration bar > Open settings dialog > Connection settings

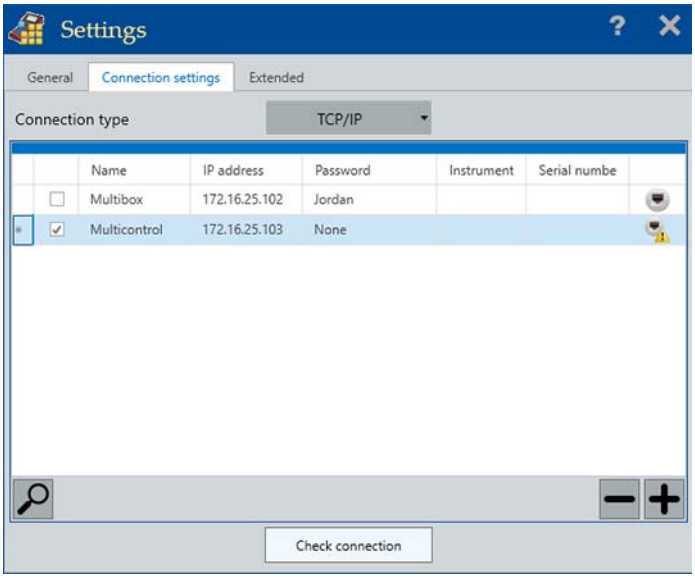


The **Connection settings** tab shows the current connection type.

USB and R323 are established automatically and do not have to be configured.

The **Check connection** button is inactive if there is a connection to the measurement device.

TCP/IP connection



TCP/IP connections to measuring devices must be configured. Multiple TCP/IP connections can be created.

- **Name** Name for the TCP/IP connection. Used for differentiating between individual TCP/IP connections.
- **TCP/IP address** TCP/IP address of the measurement device. Only Ipv4 addresses can be used.
- **Password** the connection password.

The TCP/IP address and the password must be configured on the measurement device.

Adding a LAN connection

Adds a new TCP/IP connection.

Deleting this LAN connection from the list

Deletes the selected TCP/IP connection from the list and from the PC.

Search for a measurement device

Searches for a measurement device within a network. If a new measurement device is found, it appears as new entry in the list.

The measurement device must be within the same network as the HYDROlink6. Restrictions within a network can distort the search result.

ENG

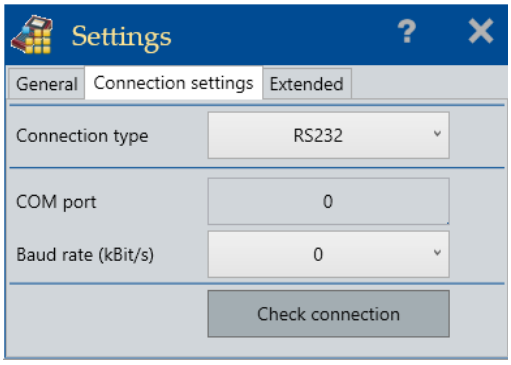
Testing the connection

With the **Test connection** button, an attempt is made to establish a connection with the marked entry in the list. The status of the connection establishment is indicated in the list with a symbol:

A connection was established.

No connection could be established.

Connection type RS232

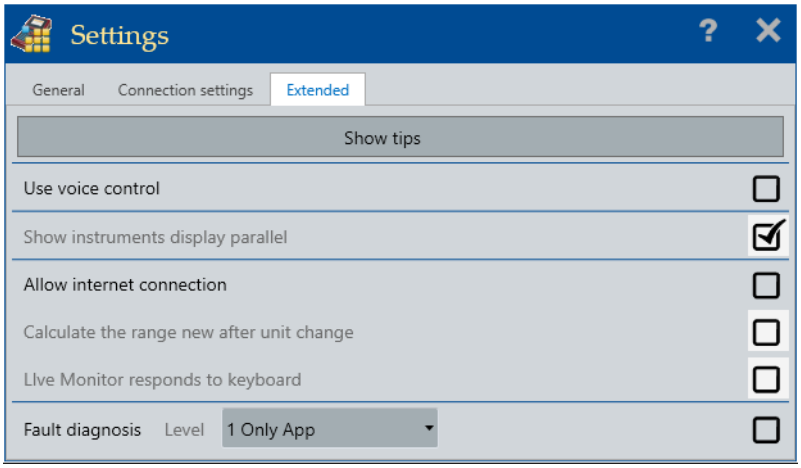


RS232 connections to the measurement devices can be configured.

- **COM port** the number of the COM connection on the PC.
- **Baudrate (kbit/s)** Baud rate of the connection.

Advanced tab

Info and configuration bar > Open settings dialog > Advanced



The **Advanced** tab offers the following settings:

Show tips All tips of the user interface are shown again.

Using voice commands

Allows operation via voice commands.

The symbol is displayed on the title bar.

To use voice commands, the computer must have a microphone and loudspeaker. If HYDROlink6 finds no microphone or speaker, the ⚠ symbol and a corresponding tool tip are displayed.

Voice commands are not used.

Parallel measurement value display on the device

The display of the measurement device is not locked during connection to HYDROlink6 and cannot be operated.

This option degrades the power of HYDROlink6. Only select this option if you have a specific reason for so doing.

The display of the measurement device is locked during connection to HYDROlink6 and it may not be possible to read it out.

Allow Internet connection

Allows a connection to the Internet.

Searches on the HYDROTECHNIK server for updates for HYDROlink6 and the connected measurement device.

The computer must have an Internet connection and the firewall must allow the connection to HYDROTECHNIK.

Does not allow a connection to the Internet.

Recalculate measurement range after unit change

This option is only available if a measurement device of the **xx70** family is connected.

In the channel parameters, the values for the measurement range are adjusted with change of the unit.

Example: If the unit is changed from bar to mbar, 200 becomes 200000 (200 bar to 200000 mbar).

In the channel parameters, the values for the measurement range are not adjusted with change of the unit.

ENG

Live monitor reacts to key press

This option is only available if a measurement device of the **xx70** family is connected.

This option serves diagnostic purposes and should be switched on only on the advice of HYDROTECHNIK.

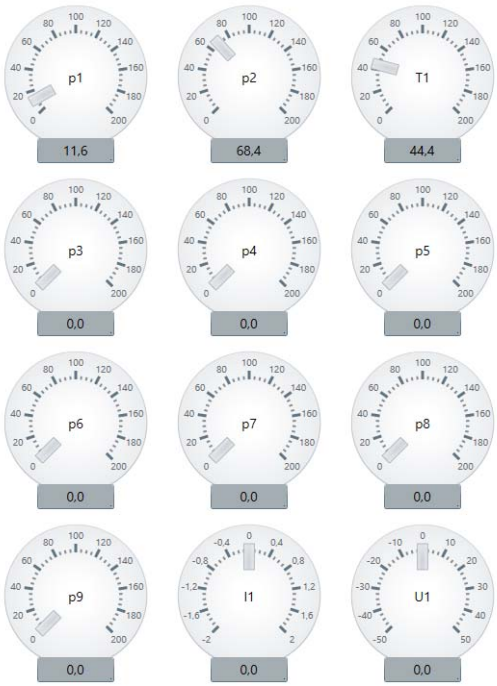
The following keys are supported:

- Function keys F1-F5
- Arrow keys
- Enter key
- Esc key

Error diagnosis Only activate if requested by HYDROTECHNIK.

Simulator dialog

Information and configuration bar > Simulator

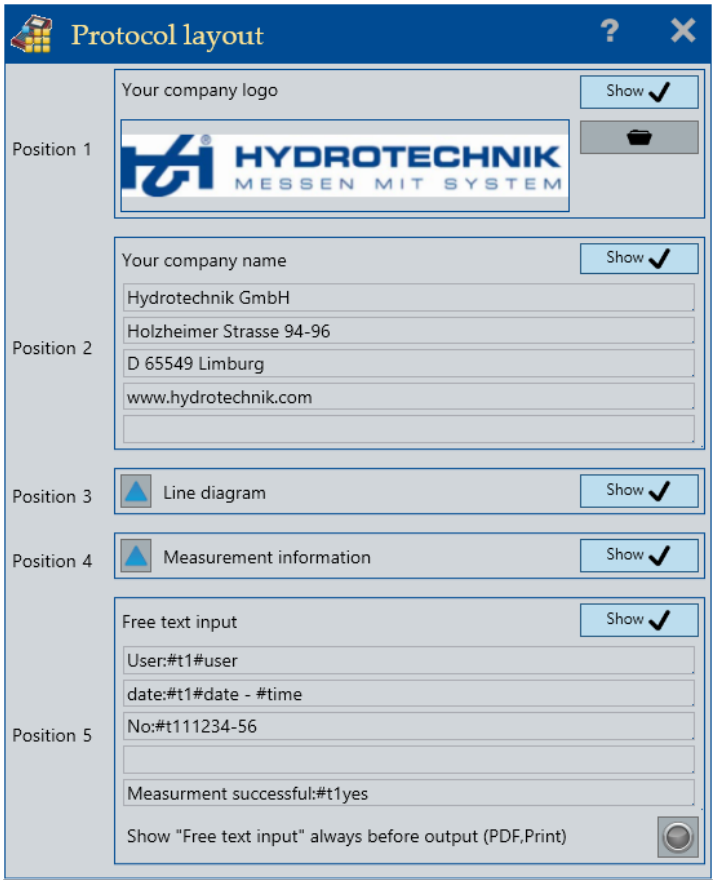


On the **Simulator** dialog, you can set the measurement values for the channels. The dialog is displayed if the **User-defined** demo mode is used and the **Simulator** option is activated. Then the dialog can be called up with the **Simulator** button on the information and configuration bar.

ENG

Log layout dialog

Information and configuration bar > Open settings dialog > General > Log layout > Configure



The **Log layout** dialog displays settings for the layout of the log. These settings are used when a log is printed or saved as a PDF file.

⇨ **Generating a log** on page 67

The log is divided into five areas, position 1 to position 5. You can change the sequence of the areas using drag & drop.

⇨ **Configuring the log layout** on page 70

The **Show** button shows or hides an area in the log. If an area is shown, the button has a green checkmark.

The **Show example** button shows or hides a preview for the **Line graph** and **Measurement series information** areas.

Your company logo

You can add a company logo to the log. The logo must be a graphics file with the PNG or JPG file format.

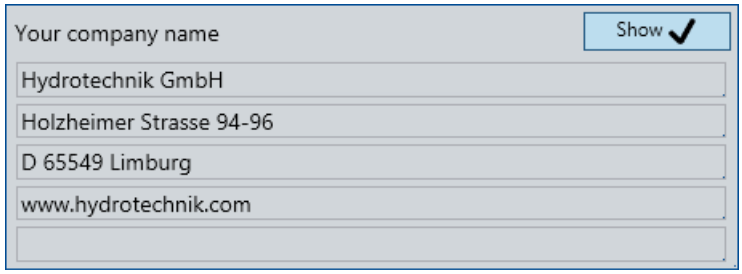
The button [ ] displays the Windows dialog **Open** for opening a graphics file.

ENG

Your company name

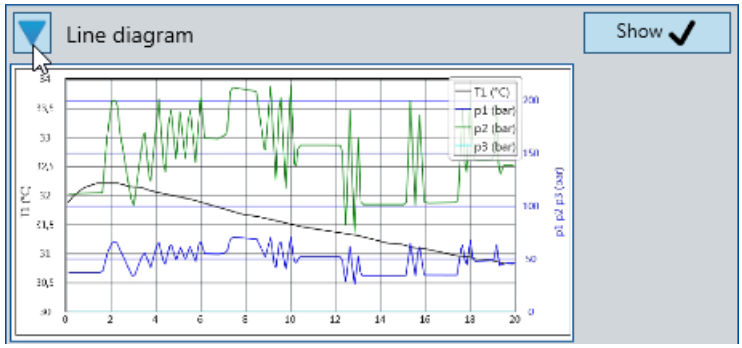
The company name and additional text (addresses, for example) can be inserted into the log.

A maximum of 5 lines with 80 characters apiece is possible.



Line graph

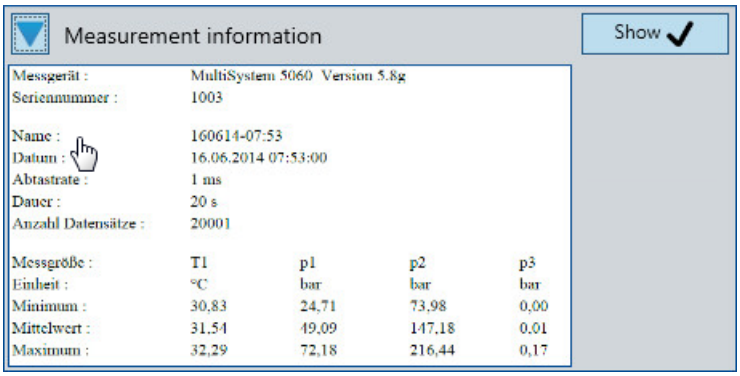
The line graph of the measurement series can be added to the log.



ENG

Measurement series information

The measurement series information can be added to the log.

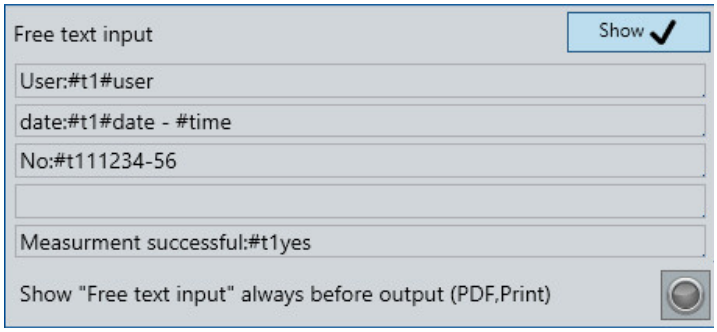


The following information is shown in the log:

- Measurement device (model and firmware version)
- Serial number of the measurement device
- Measurement series name
- Date and time of the measurement series
- Sampling rate
- Duration
- Number of data records
- For each channel
  - Measurement variable
  - Unit
  - Minimum
  - Average
  - Maximum

Free text input

You can add any text to the log.



The following variables can be used:

- **#user** (Windows name of the logged-in user)
- **#date** (current date)
- **#time** (current time)
- **#t1** (tab for aligning the texts. Only one tab is supported)

A maximum of 5 lines with 80 characters apiece is possible.

The button specifies whether the **Free text input** can be edited before generating a log. If the button is active, the **Free text input** dialog is opened and the text can be edited during the generation of the log.

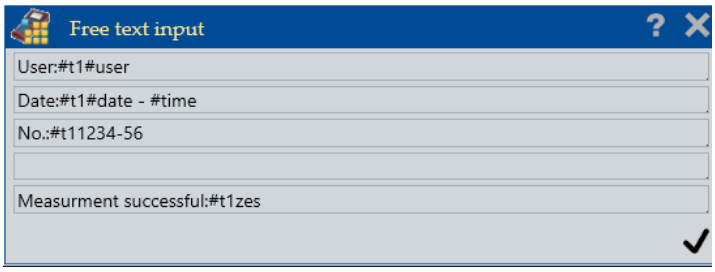
⇨ **Free text input dialog** on page 240

ENG

Free text input dialog

Measurement series display > Print line graph

Measurement series display > Saves the line graph as a PDF file



The **Free text input** dialog is shown when a log is generated and the free text input option is activated in the settings.

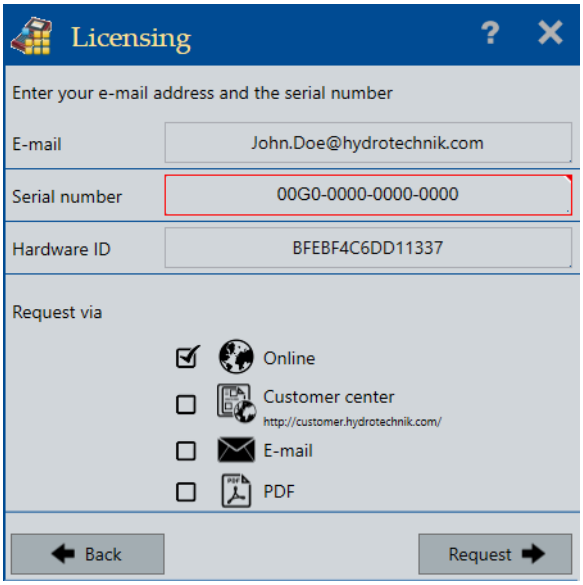
⇨ **Generating a log** on page 67
⇨ **Print line graph** on page 177
⇨ **Saves the line graph as a PDF file** on page 177
⇨ **Free text input** on page 239

The entered text is shown in the log.

A maximum of 5 lines with 80 characters apiece is possible.

Licensing dialog

Information and configuration bar > Request license



On the **Licensing** dialog, you enter the data required for requesting a license.

After installation, the **BASE** version is available. The **ADVANCED** and **PROFESSIONAL** versions must be licensed.

Licensing is done in five steps:

1. Purchase desired version
2. Register
3. Request license
4. Receive license file
5. Activate license

When purchasing HYDROlink6, you select the desired version. With the purchase, you receive a serial number for the selected version. After you have installed HYDROlink6, request a license.

⇨ **Licensing HYDROlink6** on page 18

ENG

E-mail area

Enter the e-mail address with which you are registered in the HYDROTECHNIK customer center.

Serial number area

You receive the serial number in the form of a certificate when you have purchased a ADVANCED or PROFESSIONAL version. In the serial number, there are no **Os**; any characters that look like this are always the number zero (**0**).

Enter this serial number in the **Serial number** area.

The serial number alone cannot activate the license. You must first request a license.

The serial number is used together with the hardware ID to generate a unique license for your installation.

Hardware ID area

The **Hardware ID** area displays an automatically generated, unique identification number for your system.

The hardware ID number is used together with the serial number to generate a unique license for your installation.

You can enter a **License key**.

License request method area

In the **License request method** area, there are various ways you can sent the license request to HYDROTECHNIK.

- **Online**

  This is the simplest method since the license request and activation are performed automatically in one step. This option can be blocked by firewall settings. In this case, contact your network administrator.

- **Customer center**

  You will be forwarded to the HYDROTECHNIK customer center. After you have logged in, the licensing page opens. The license file and license key will be created automatically and sent to you via e-mail. You use the license file and the license key to activate the license manually in the application.

- **E-mail**

  Your license request is sent to the HYDROTECHNIK customer center via e-mail. The license key is generated manually by the customer center employees. The license file and license key will be sent to you via e-mail. You use the license file and the license key to activate the license manually in the application.

- **PDF**

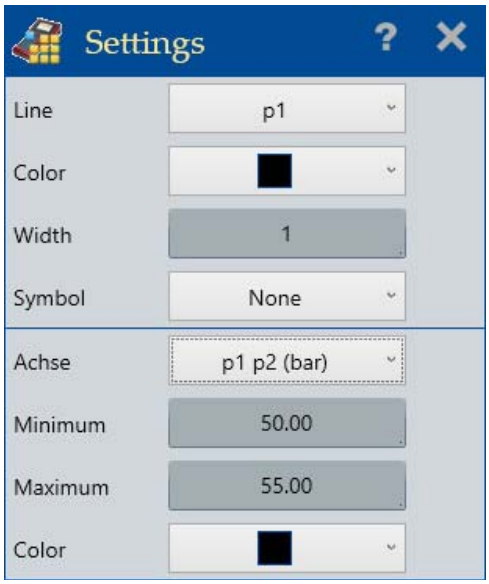
  Your license request is generated as PDF. You can send it via e-mail or post to the HYDROTECHNIK customer center. The address is included in the PDF. The license key is generated manually by the customer center employees. The license file and license key will be sent to you via e-mail. You use the license file and the license key to activate the license manually in the application.

In the customer center, you can check how many free licenses are present.

ENG

Settings dialog (presentation of measurement series display)

Measurement series display > Open settings dialog



This **Settings** dialog is different than the one that you call up via the information and configuration bar at the top right of the program window. You can call up this **Settings** dialog in the **Measurement series display** with the ⋮ button.

On this **Settings** dialog, you can change the presentation of lines and axes in the **Measurement series display**.

Settings for lines

In the top area of the dialog, you can change the display of the lines.

Line Shows or changes the channel whose display you are editing below.

Color Shows or changes the color of the line for the selected channel.

Width Shows or changes the width of the line for the selected channel.

A zero width means that no line will be displayed for this channel.

Symbol Shows or changes the line symbol for the selected channel.

Settings for axes

At the bottom of the dialog, you change the scaling and color of the axes.

Axis Shows or changes the axis whose display you are editing below.

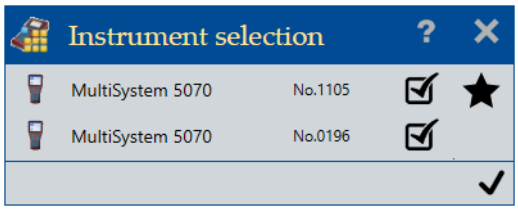
Minimum Shows or changes the lower limit value of the area of the selected axis displayed.

Maximum Shows or changes the upper limit value of the area of the selected axis displayed.

Color Shows or changes the color of the selected axis.

Device selection dialog

Connect to measurement device



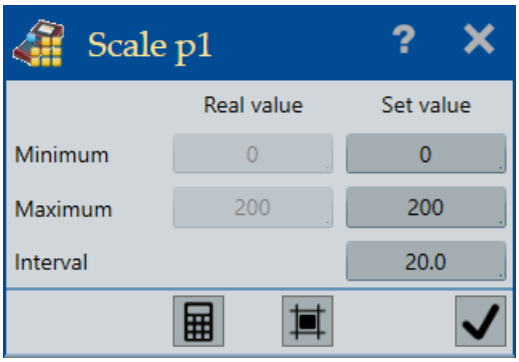
The **Device selection** dialog is displayed after you have connected several measurement devices and pressed the button.

You can select those measurement devices that you want to use in combination. If you combine measurement devices, you have more measurement channels available simultaneously.

⇨ **Coupling several measurement devices** on page 61

Scaling dialog

Online display > Analog gauge > Open settings dialog
Online display > Linear gauge > Open settings dialog
Online display > Line graph > Open settings dialog
Online display > Bar graph > Open settings dialog



The following display styles can be scaled:

- Analog gauge
- Linear gauge
- Line graph
- Bar graph

If the display style of a marked channel display can be scaled, the button for scaling will be shown in the top right of the channel display. The button opens the **Scaling** dialog.

The dialog shows the current actual values (**Minimum**, **Maximum**).

Set values configure the scale of the channel display. Enter the desired starting value of the scale in the **Minimum** field. Specify the desired end value of the scale in the **Maximum** field.

Enter the desired value for the scale intervals in the **Interval** field.

Use the **Calculate** button to automatically generate the fields Minimum, Maximum, and Interval based on the actual values.

No calculation takes place if no measured values are sent from the measuring device.

Use the **Refresh display** button to take over the scaling values for the channel display temporarily.

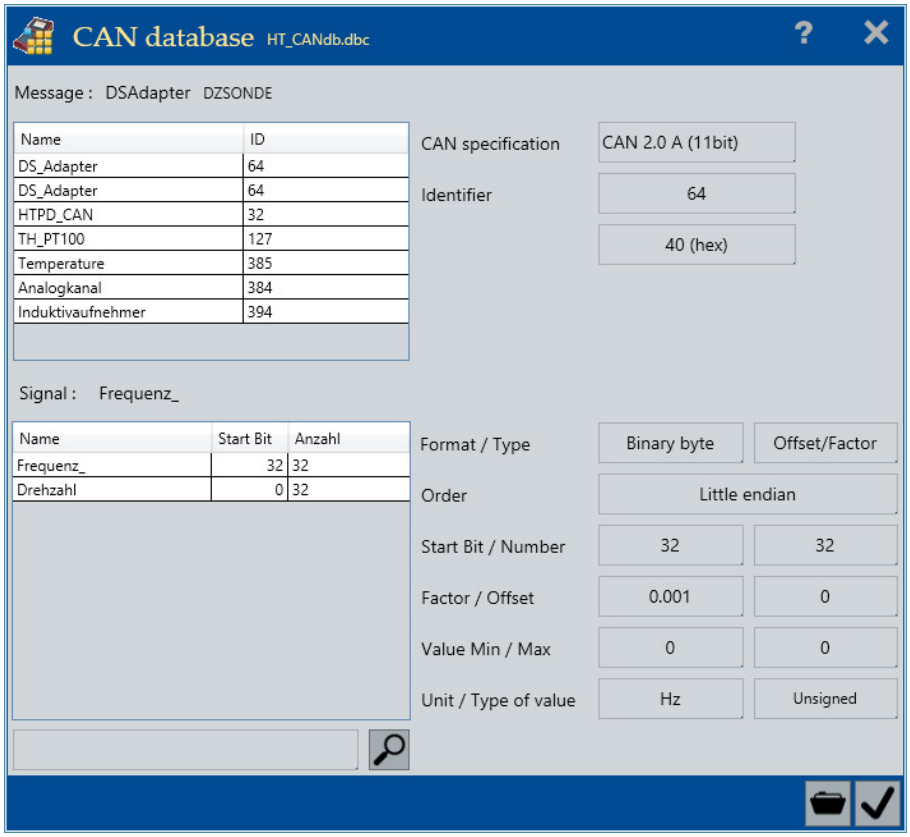
Use the button to take over the scaling values for the channel display permanently.

ENG

CAN database dialog

Device explorer > Channel parameters > Click special channel (with CAN bus connection) > Detail area > Calculation type > CAN database

Channels that are defined as CAN channels can be configured with the help of a CAN database. The CAN database contains the CAN messages and their specifications for the CAN bus.



Message area

The **Message** area displays the CAN messages. The specifications for the **Message** in question are displayed to the right of these.

Name Displays the name of the **Message** in the CAN database.

ID Displays the identification number of the **Message** in the CAN database.

CAN specification Indicates the specification on which the selected **Message** is based.

Identifier Displays the identifier of the **Message** in the CAN bus.

Priority Shows the priority of the CAN message.

PGN Shows the Parameter Group Number of the CAN message.

SA Shows the source address of the CAN message.

Signal area

The **Signal** area displays the sensor signals. The specifications for the **Signal** in question are displayed to the right of these.

Name Displays the name of the **Signal** in the CAN database.

Format Displays the format of the selected **Signal**:

- **Binary bit**
- **Binary byte**

Type Shows the type of the selected **Signal**, e.g. **Offset/Factor**.

Sequence Shows the coding of the selected **Signal**, e.g. **Little endian**.

Start Bit/Start Byte Indicates the point in the signal stream from which the selected **Signal** begins.

Number Shows the length of the CAN message as number of bits/bytes.

Factor Shows the factor by which the binary measurement value is multiplied.

Offset Shows the offset that is added to the binary measurement value.

Min value Shows the lower limit value of the selected **Signal**. Arises from **Number**, **Factor,** and **Offset**.

Max value Shows the upper limit value of the selected signal. Arises from **Number**, **Factor,** and **Offset**.

Unit Shows the physical unit of the selected **Signal**.

Value type Shows whether or not the measurement value has a leading sign.

Toolbar The **Toolbar** contains the following buttons.

Button	Function
	Search in the database. You can search by name, comment or identifier (hex or decimal) of the messages or by name, comment or signals within the database.
	Opens Windows **Open** dialog. In the Windows **Open** dialog, you can open a CAN database (dbc file).
	Selected message and selected signal are taken over into the channel parameters.

⇨ **Use CAN database** on page 65

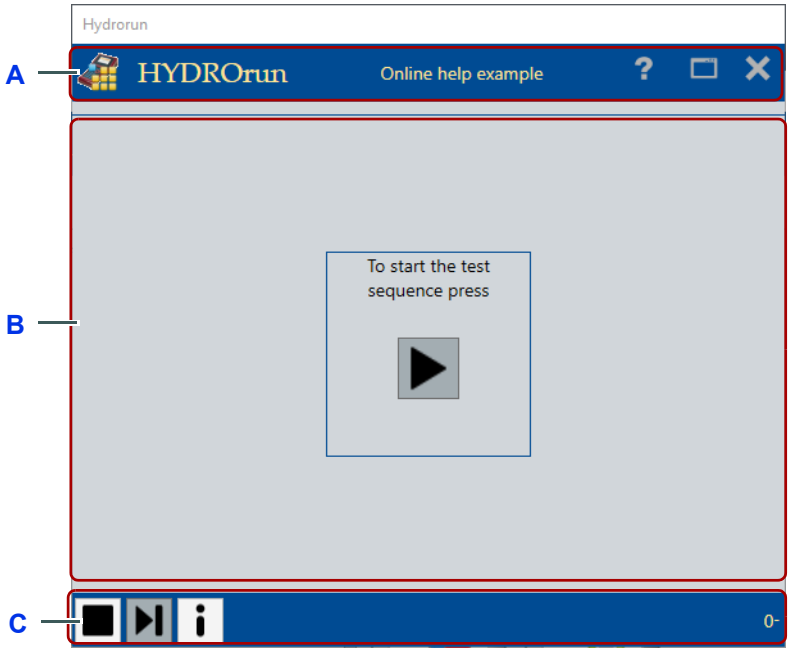
ENG

Start test procedure dialog

Test procedures > ***Select test procedure*** > *Test procedure* > *Toolbar* > *Start test procedure dialog*

Use the toolbar in the test procedure to open the dialog to start the test procedure.

⇨ **Toolbar** on page 189



A Title bar
B Test procedure work area
C Toolbar

Image: Start test procedure dialog

The test procedures settings window includes the following areas:

- **Title bar**
- **Test procedure work area**
- **Toolbar**

Title bar Controls the dialog.

⇨ **Title bar** on page 251

Test procedure work area Displays the elements of the user interface module.

⇨ **User interface module** on page 196

If the Start test procedure dialog has been initiated, the test procedure is started with the button.

Toolbar Controls the dialog.

⇨ **Toolbar** on page 251

Title bar

*Test procedures > **Select test procedure** > Test procedure > Toolbar > Start test procedure dialog > Title bar*

ENG

Opens the online help.

Switches to full screen mode and back again.

Closes the dialog and ends the test procedure.

Toolbar

Test procedures > Select test procedure > Test procedure > Toolbar > Start test procedure dialog > Title bar

Stops the test procedure immediately.

Sets the logical variable CONTINUE. Is used, for example, to continue in the user interface module.

Sets the logical variable INFO.
Is used, for example, to continue via an output condition in the user interface module.
If INFO is pressed, displays an info dialog; otherwise continues the normal test procedure.

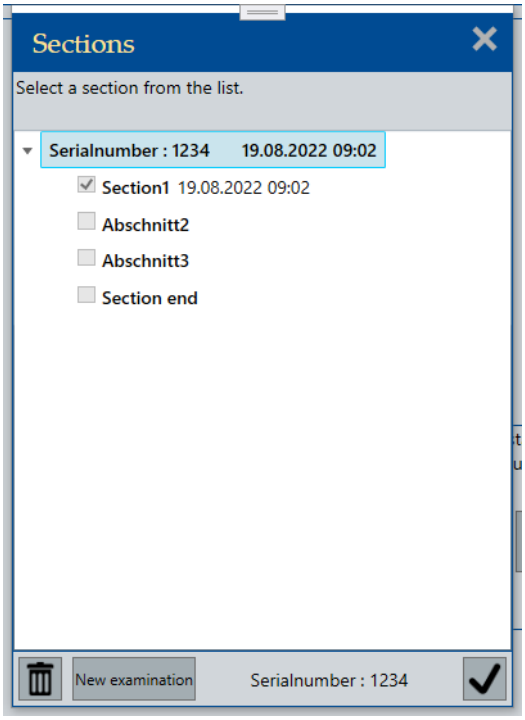
Only visible if the first section that was defined by a section module has been executed. The button opens the continue test procedure dialog.

⇨ **Section module** on page 223
⇨ **Continue test procedure dialog** on page 252

Displays the number of modules of the test procedure and the module number that is currently being processed.

Continue test procedure dialog

*Test procedures > **Select test procedure** > Test procedure > Toolbar > Start test procedure dialog > Toolbar > Select section module > Continue test procedure dialog*



On this dialog, you can select a test section starting with which the interrupted test procedure should be restarted.

Button	Function
?	Opens the online help.
	Close window. The inputs are not taken over.
	Delete sections. Deletes all sections created.
	Takes over the selected section. Takes over the selected section and starts the test procedure at this point.
Neue Prüfung	Starts a new test procedure from the beginning.

Condition dialog

Test procedures > ***Select test procedure*** > *Test procedure* > ***Select condition*** > *Condition dialog*

On this dialog, the input and output conditions for the modules are defined.

Variable Selection field: Selection of the variable for which a comparison should be created.

Operator Selection field: Selection of the comparison operator.

Value Selection field/input field: Selection field if a variable should be determined or input field if a fixed value is defined.

Description Text field: Displays the entire comparison.

Destination Selection field: Only visible for output condition. Selection of the destination module. This module is executed if the condition is fulfilled.

Button	Function
	Call up help.
	Close window. The inputs are not taken over.
	Take over inputs. Takes over the inputs permanently.

Examples for description

Text	Meaning
p1> 100	Condition fulfilled if the value of the channel variable p1 is greater than 100.
p1>p2	Condition fulfilled if the value of the channel variable p1 is greater than channel variable p2.
Name="Miller"	Condition fulfilled if the value of the alphanumeric variable is the name "Miller".
CONTINUE	Condition is fulfilled if the NEXT key is pressed.
!CONTINUE	Condition is fulfilled if the NEXT key is not pressed.

Table: Description of conditions

Variable dialog

Use this dialog to edit all parameters for a variable. The symbol next to the variable indicates whether a new variable is created or an existing one is edited.

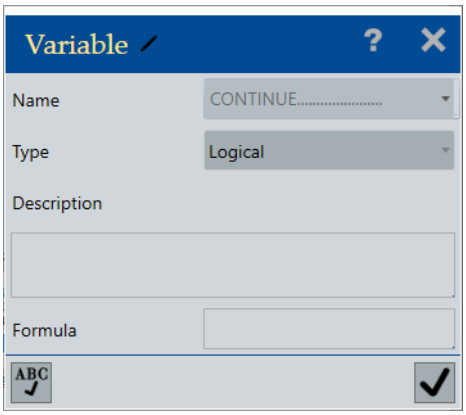


Image: Variable dialog

Symbol	Meaning
	A new variable is generated.
	An existing variable is edited.

The dialog contains the following buttons:

Button	Function
	Call up help.

Close window.

The inputs are not taken over.

Take over inputs.

Takes over the inputs permanently.

ENG

Name Select a unique name for the variable. Variable names may only be assigned once.

Channel variable

Selection field: In the selection field, channel variables made available by the measurement device are displayed. These can be added to the variable list.

Type and format Selection field: Determines the type of the variable. Under format, the associated format of the type can be defined. The following types and associated formats can be specified:

Type	Format
Alphanumeric	Maximum number of characters.
Floating point	Number of places before and after the decimal point. Ex.: 3,2 = 3 places before the decimal point, 2 places after the decimal point
Whole numbers	Max. length of the number.
Logic	0 (false) 1 (true)
Date	The following formats are possible: • Day.Month.Year (dd.mm.yyyy) • Day.Month (dd.mm) • Year (yyyy) • Month (mm) • Day (dd)
Time	The following formats are possible: • hh:mm:ss • hh:mm • hh: • hh:mm:ss,nnn (nnn = milliseconds)

Table: Formats depending on the type

Description Input field: You can add a description of the variable.

Formula The input field is only visible if the target system desktop is set and the variable is of the type floating point, whole number or logic. Variables can be defined using formulas. Other variables can be used in these formulas.

⇨ **Target system** on page 191

Formula check

Checks whether the formula input is syntactically correct.

⇨ **Formula check** on page 213

ENG

Voice control

A Voice control

Image: Voice control

HYDROlink6 can be partially controlled using voice commands. For voice control, no dialogs are shown that require input using the mouse or keyboard.

The voice commands are described in this manual and are shown as follows:

VOICE COMMAND

The language depends on the operating system and is independent of the language set in HYDROlink6. Thus, e.g. only German is understood as language with a German operating system.

Only German and English are supported.

The voice control must be activated in the settings. If voice control is activated, the symbol is displayed in the title bar.

⇨ **Using voice commands** on page 235

So that voice recognition works, you have to perform the Windows voice recognition exercises: *Windows help > Voice recognition, Windows help > Language-learning program.*

ENG

Voice command German	Voice command English	Symbol	Button/function
CONNECT	CONNECTING		Establishes connection to the measurement device
DISCONNECT	CUT		Disconnects the connection to the measurement device
RECORDING	RECORDING		Starts the recording of a measurement series The file name is assigned automatically.
STOP	STOP		Ends the recording of a measurement series The measurement series is displayed automatically.
SWITCH	CHANGING		Switches between the display types online display/device display/measurement series display
CLOSE	ENDING		Closes the application
PRINT	PRINTING		Prints the current measurement series display It is printed directly. The **Display this dialog before each output** option is ignored.
SHOW	SHOWING		Creates a PDF file The file name is generated automatically. The **Display this dialog before each output** option is ignored.
GRAPH	PICTURE		Creates a PNG file The file name is generated automatically.
MINMAX	MINMAX		Switches the min/max display on or off

Table: Voice commands

HYDROTECHNIK