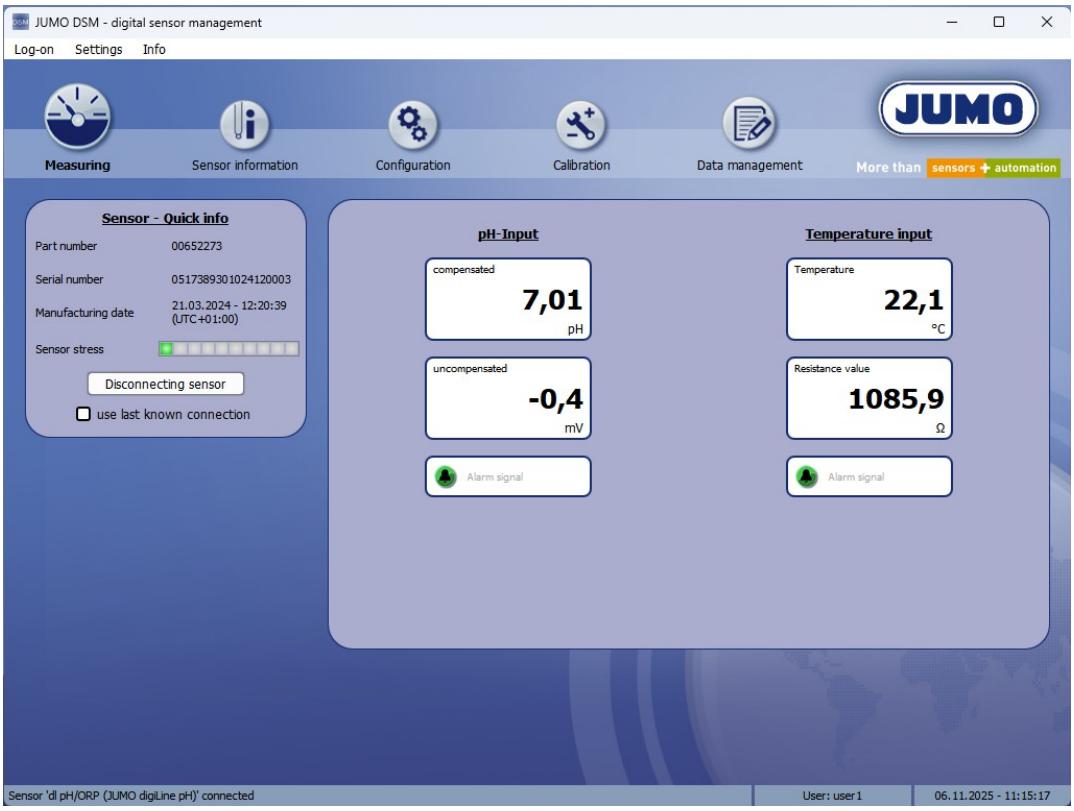
JUMO DSM software

PC software for management, configuration, and maintenance of digital sensors



Operating Manual

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1.1 Brief description

The JUMO DSM software (**D**igital **S**ensor **M**anagement) is PC software for managing, calibrating, testing, and configuring digital sensors from JUMO. A summary of the software functions is presented in the following breakdown.

- **Management:** Saving and archiving of sensor histories, creation of buffer set tables for pH sensors and keeping this information available for calibration with the software under laboratory conditions
- **Calibration:** Sensors can be calibrated in the laboratory using a PC or laptop and the JUMO DSM software. Calibration can therefore be carried out before installing the JUMO digiLine device in the system. Downtime during sensor replacement is thereby minimized.
- **Testing:** Measurement data can be displayed in real time with the software. This permits sensor operation to be checked in the laboratory.
- **Configuration:** The configuration of a digital sensor can be checked and changed if necessary.



NOTE!

When digital sensors are used in the JUMO digiLine mode, the configuration step is carried out only by the JUMO digiLine master device (JUMO AQUIS touch S/P). Changes in the configuration made with the JUMO DSM software are overwritten by the JUMO digiLine master device.



NOTE!

For devices with an IO-Link interface, the configuration normally can be carried out using an IO-Link configuration tool or be written to the device by the PLC. In this case, settings made previously with the JUMO DSM software are also overwritten.

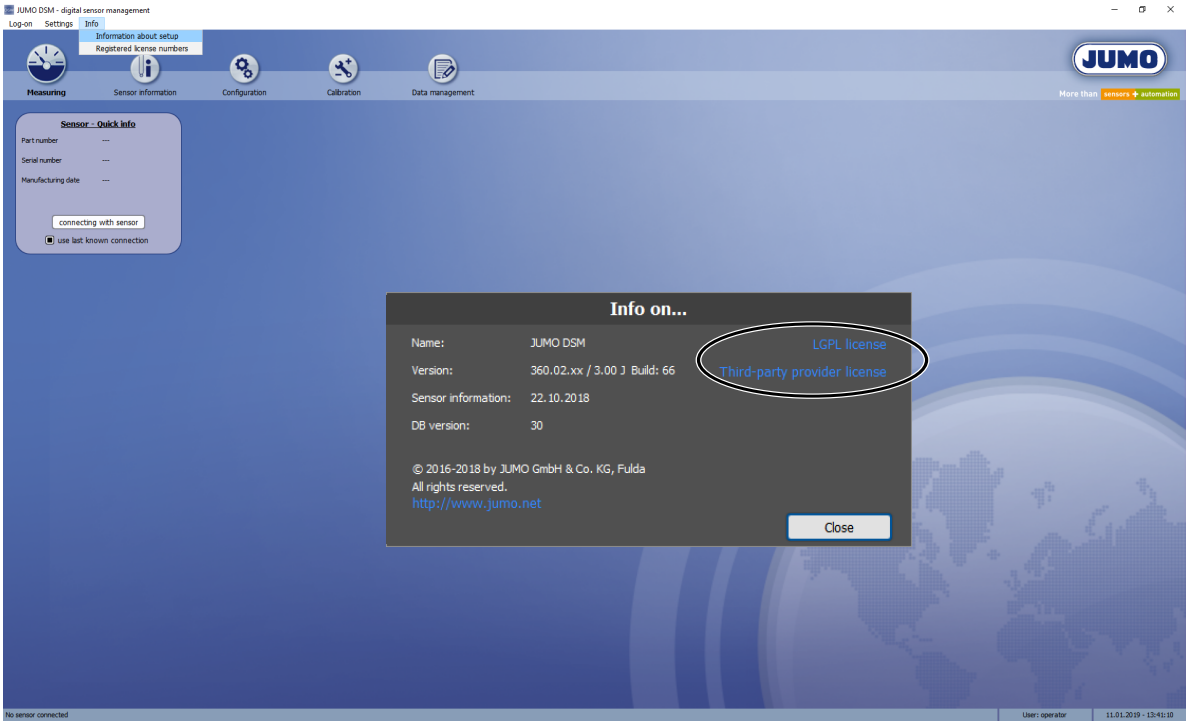
1 Introduction

1.2 Open-source software

The device software and/or device components were developed using open-source software.

1.2.1 Information on open-source software

Information about the open-source software used can be found in the menu bar of the program interface under the menu item ***INFO***:



1.2.2 Offer for purchase of source code for open-source software

The software in this product contains open-source software.

Insofar as the respectively applicable license terms justify a claim on the provision of source code or other information, JUMO GmbH & Co. KG will provide the source code or the information on a conventional data carrier at the cost incurred by creating the data carrier.

Address JUMO GmbH & Co. KG
License Compliance
Moritz-Juchheim-Straße 1
36039 Fulda, Germany

Email licensecompliance@jumo.net

Validity This offer is valid for three years from the purchase of the product by the user.

This offer is additionally valid for as long as JUMO GmbH & Co. KG provides customer service or spare parts for the product which uses this software, and as long as this is included in the respective license terms.

The JUMO DSM software installation program is located on the supplied DVD or can be downloaded as a 30-day trial version from the JUMO website (search term: “DSM”). In this case, download and run the file “360.exe”. The remaining installation steps are identical to those for installation from DVD starting at step 3.

A PC satisfying the following requirements is necessary for installation and operation of the JUMO DSM software:

- Operating system: Microsoft®[1] Windows 10®1 or higher (32-bit or 64-bit version)
- RAM: at least 512 MB
- Free hard disk space: at least 500 MB
- DVD drive (when installing the software from a DVD)
- USB host interface (for connecting digital sensors to a PC)



NOTE!

Close all applications on your PC before starting installation of the JUMO DSM software.

Process

Step	Action
1	With the PC running, insert the DVD into the drive and close it.
2	After inserting the DVD, the installation program automatically starts. If the program does not start, proceed as follows: Start the "Launch.exe" file in the main directory of the DVD.
3	The installation program guides you through the rest of installation accompanied by on-screen messages.
4	Read and confirm the license agreement. Acceptance of the agreement is a basic requirement for installation of the software.
5	Select the program folder to which the links for starting the software art be copied. The directory for the program data is automatically specified.
6	Click the "Install" button and wait until the installation has completed.

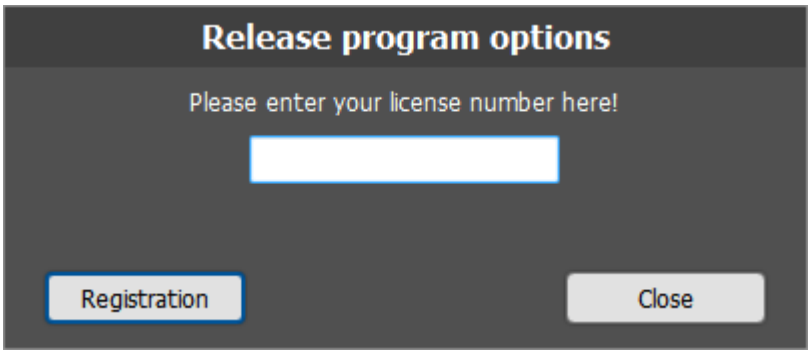
After installation, a 30-day trial license for the “Data management” program function is automatically activated. ðchapter 6.6 "Data management", Page 33. The program function can be permanently activated if required.

The „**Calibration**“ program function can be used at any time without a license.

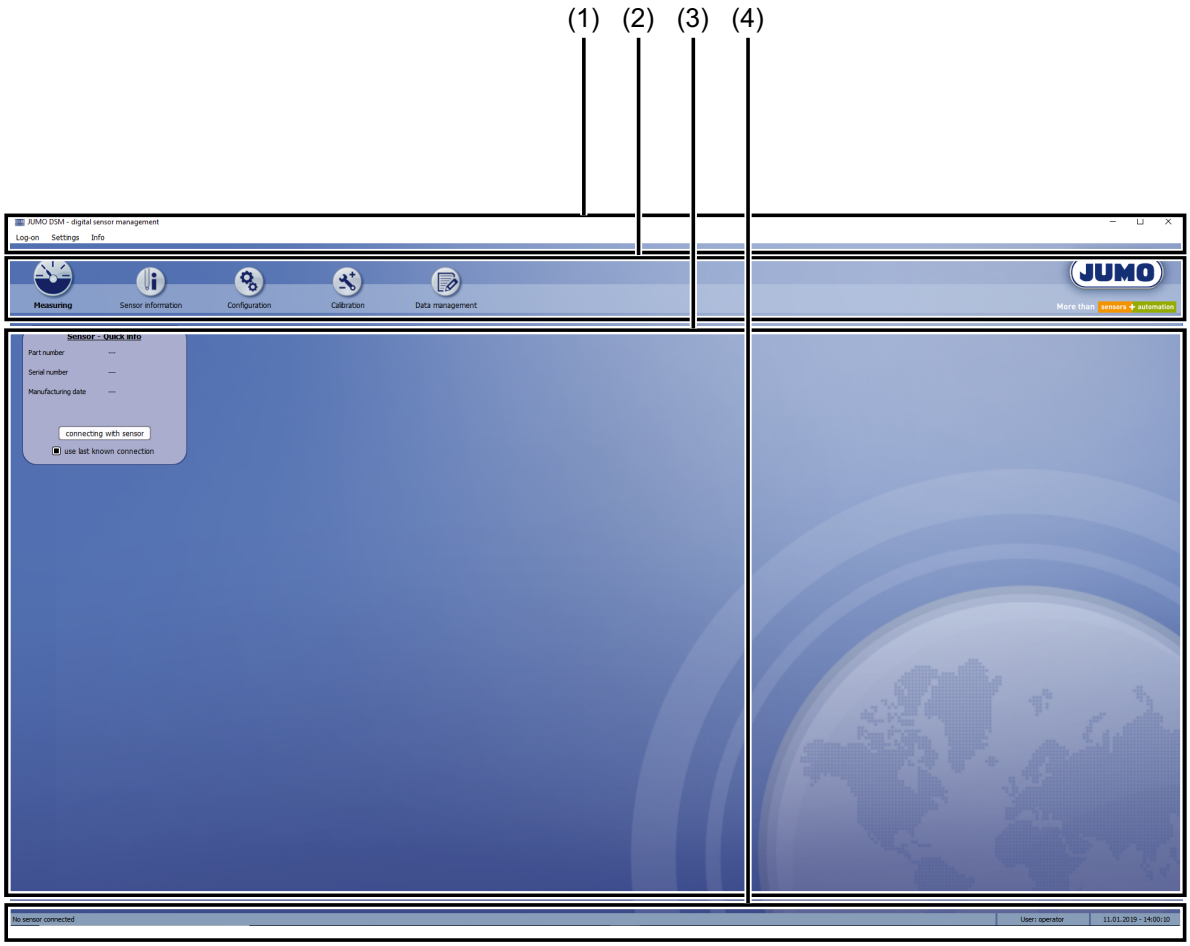
[1] Microsoft and Windows are registered trademarks of the Microsoft Corporation.

Activating the "Data management" program function

To permanently activate the „Data management“ program function (after the 30-day trial period has expired), you must enter a license key. This key can be purchased from JUMO. To activate program functions, proceed as follows:

Step	Action
1	Open the dialog for entry of license numbers. Open via the menu bar: Settings > Activate program functions
2	The dialog for entry of the license number opens. Enter your license number here and click the "Register" button. 
3	Once the correct license number has been entered, a message confirms activation and requests that you restart the JUMO DSM software. Close the program and open it again.
4	The program function is now available.

An overview of the JUMO DSM software user interface is presented in the following.



1 **Menu bar:** Contains general menu commands

2 **Sensor menus:** The data for the currently connected sensor can be accessed here. The functions available in the individual sensor menus are described in detail in a separate chapter.
⇨ chapter 6 "Sensor menus", Page 25

3 **Working range:** The data for the open sensor menu are displayed here. If necessary, configuration data can be edited here.

4 **Status bar:** Displays the current date and time, the username of the logged-in user as well as sensor connection status

NOTE!

When digital sensors are used in the JUMO digiLine mode, the configuration step is carried out only by the JUMO digiLine master device (JUMO AQUIS touch S/P). Changes in the configuration made with the JUMO DSM software are overwritten by the JUMO digiLine master device.

NOTE!

For devices with an IO-Link interface, the configuration normally can be carried out using an IO-Link configuration tool or be written to the device by the PLC. In this case, settings made previously with the JUMO DSM software are also overwritten.

3 User interface

Working range buttons

Various buttons for context-based functions are displayed in the lower area of the working range of sensor menus (see chapter 6 "Sensor menus", Page 25). The functions of the buttons in the lower area of the working range are explained in the following table.

Button	Function	
Connect sensor	"Connect sensor" establishes a connection to a digital sensor connected to a PC (see chapter 5 "Connecting a sensor", Page 17)	
Disconnecting the sensor	"Disconnect sensor" terminates the existing connection to the currently connected digital sensor. In order to prevent loss of the configuration changes, the "Write data" button must be pressed first.	
Print	"Print" prints out a complete report containing the configuration and sensor information.	
Export	"Export" saves the configuration data and sensor information as either an XML or CSV file.	
Import	"Import" imports the configuration data from an XML export file in the JUMO DSM software. A dialog that shows data in the XML file that differs from the existing data appears prior to incorporation of the imported data in the JUMO DSM software. The imported data can be accepted or rejected in this dialog.	
Autoclaving performed	"Autoclaving performed" increments the "Autoclaving counter" for a connected JUMO digiLine pH by 1. Autoclaving cycles are not detected automatically by the JUMO digiLine electronics and must be recorded by the user with the aid of this function.	
Change electrode	"Replace electrode" sets recorded monitoring and calibration data of the sensors back to the as-delivered state in the electronics and increments the "Sensor replacement counter" by 1. This function must be actuated by the user when a worn or defective electrode is changed on the JUMO digiLine electronics. This function must be actuated by the user when a used or defective electrode is changed on the JUMO digiLine electronics.	
Read data	"Read data" reads the data from the digital sensor connected to the PC.	
Write data	"Write data" writes the current configuration data from the JUMO DSM software to the digital sensor connected to the PC.	

Button	Function	
Simulation	**JUMO digiLine CR/Ci:** „Simulation“ activates manual control of the outputs for device versions with analog or binary outputs. Acoustic signals can also be tested on devices with binary outputs (voltage supply via M12 socket required). The button appears in the sensor menu “Configuration” only when a JUMO digiLine CR/Ci with analog or binary outputs is connected via the JUMO DSM software.	
	JUMO flowTRANS US W02 dL: „Simulation“ calls up the manual control of the inputs for flow, temperature, and pressure. The “Pressure” option is only available if a pressure sensor is present. The button appears in the sensor menu “Configuration” only when a JUMO flowTRANS US W02 dL is connected via the JUMO DSM software.	
Reset sensor	“Reset sensor” resets the sensor configuration to the default settings. A **customer configuration** established during production is **not restored** by the reset. This button appears in the sensor menu “Configuration” only when a JUMO flowTRANS US W02 dL is connected via the JUMO DSM software.	

3 User interface

4.1 User log-on

The operating options for the JUMO DSM software depend on the user rights of the currently logged-in user. The username of the currently logged-in user appears in the status bar of the program window (see chapter 3 "User interface", Page 9).

To log in using one of the 6 available user accounts (see chapter 4.2 "User administration", Page 14), click the "Log in" command in the command line of the program window. This opens a login dialog that asks you to enter the relevant login data. As long as no password has been configured for the user account in user management, only the username is requested in the login dialog. Enter the login data for the desired user account here and then click on the "Log in" button. If you have entered the correct login data, the username for the corresponding user account appears in the status bar of the program window. If you wish to log out, click on "Log out" in the menu bar of the program window.



NOTE!

At program start, automatic logon is performed using the “operator” user account, as long as “user 1” is not configured. After “user 1” has been configured, this account is used by default. Configure user rights for “operator” and “user 1” as restrictively as necessary to ensure that only the desired settings can be modified.

4 User rights

4.2 User administration

User management offers 6 user accounts. The user rights are preconfigured in accordance with the following table at the factory.

User name in the JUMO DSM software		User accounts					
		administrator	operator[a]	laboratory	accounts	user 1[b]	user 2
Operation	Log in user[c]	✓	✓	✓	✓	×	×
	Change program settings	✓	✓	✓	✓	×	×
	Manage users	✓	×	×	✓	×	×
	Print	✓	✓	✓	×	×	×
	Export data	✓	✓	✓	×	×	×
	Import data	✓	×	✓	×	×	×
	Manage buffer solutions	✓	×	✓	×	×	×
Displays	Measured values	✓	✓	✓	×	×	×
	Sensor information	✓	✓	✓	×	×	×
	Calibration data	✓	✓	✓	×	×	×
Sensor access	Sensor calibration	✓	×	✓	×	×	×
	Sensor configuration	✓	×	✓	×	×	×
	Sensor management	✓	×	×	×	×	×
	CIP/SIP configuration	✓	×	×	×	×	×

[a] The "operator" account logs in automatically on program start if the "user 1" account has not yet been configured.

[b] If the "user 1" account has been configured , this account logs in automatically on program start.

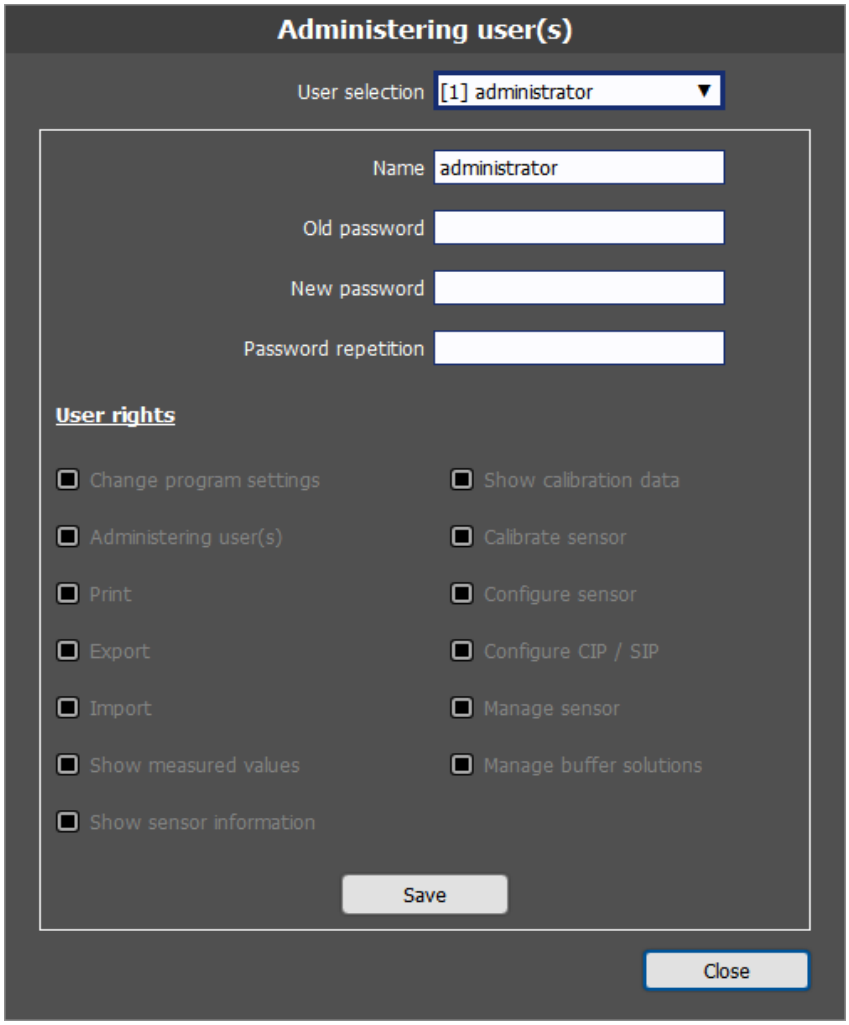
[c] The user rights for "User login" cannot be configured in user management. It is assigned automatically. Only configured user accounts are authorized to log in. The accounts "user 1/2" are not authorized to log in unless they have been configured by the user.

4 User rights

The user accounts can be edited in user management. The user rights for the user account "user 1/2" can be changed there. The user rights for "User login" cannot be changed here. These are assigned automatically as soon as an account is configured with a password by the user. The rights of the other accounts are fixed and cannot be changed. The passwords and user names associated with all accounts can be changed. To change the password for a user account, you must enter the current password for this account in the "Old password" field and enter the new password in the "New password" field. You must also enter the new password in the "Confirm password" field. The password change is accepted only if the entries in the "New password" and "Confirm password" fields match. Clicking the "Save" button confirms the changes, which then apply the next time the program starts.

In order to edit user rights, you must be logged in with a user name that is activated for the "Manage users" user right. The users "administrator" and "accounts" have this setting from the factory.

Open user management: Settings > User management

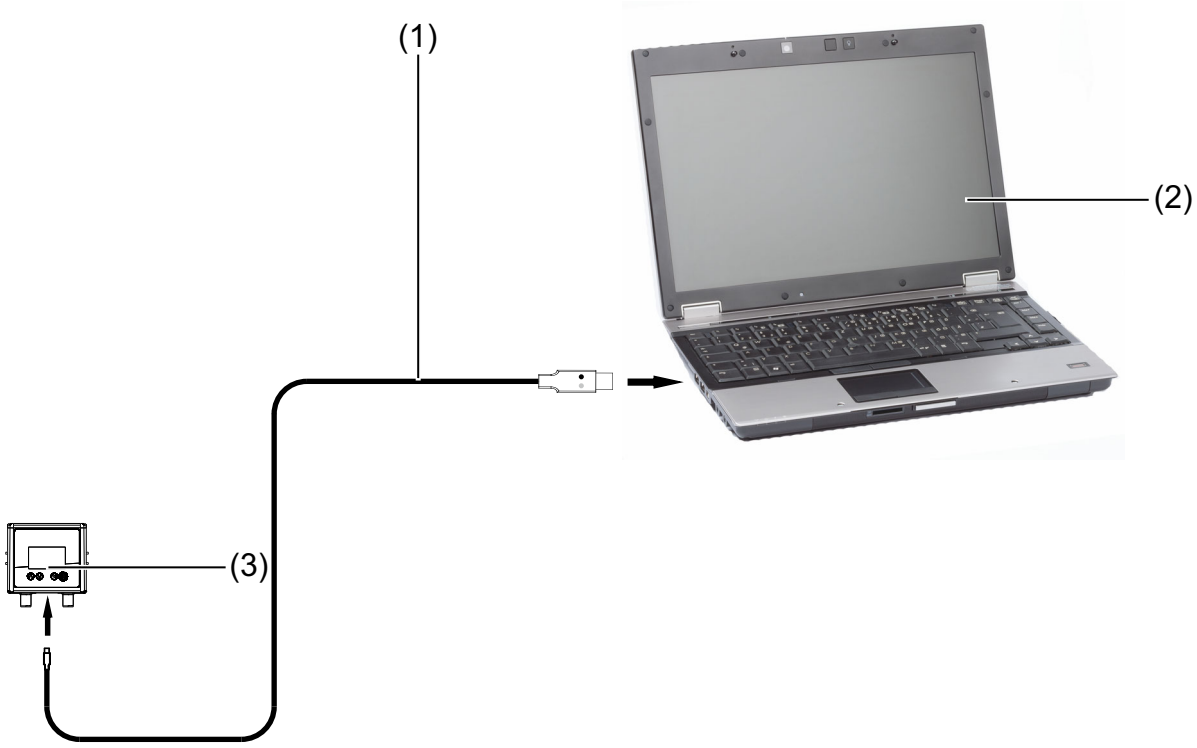


4 User rights

To access data from a digital sensor or flowmeter using the JUMO DSM software, first establish a connection between the sensor or flowmeter and the PC. Then start the JUMO DSM software and activate data communication between the software and the sensor or flowmeter.

Connecting a JUMO digiLine CR/Ci with a USB interface to a PC

The JUMO digiLine CR/Ci has a micro-USB interface that can be used to connect the device to a PC easily and quickly. To connect, simply attach a commercially available USB connecting cable with a USB 2.0 micro-B connector (device end) and a USB 2.0 type-A connector (PC end). When the JUMO digiLine CR/Ci is connected for the first time, the drivers for the USB interface on the device are installed on your PC automatically. The device is then ready for data communication using the JUMO DSM software.



1 USB connecting cable with USB 2.0 Micro-B connector (device end) and USB 2.0 Type-A connector (PC end)
2 PC/laptop with JUMO DSM software
3 Digital sensor with USB interface

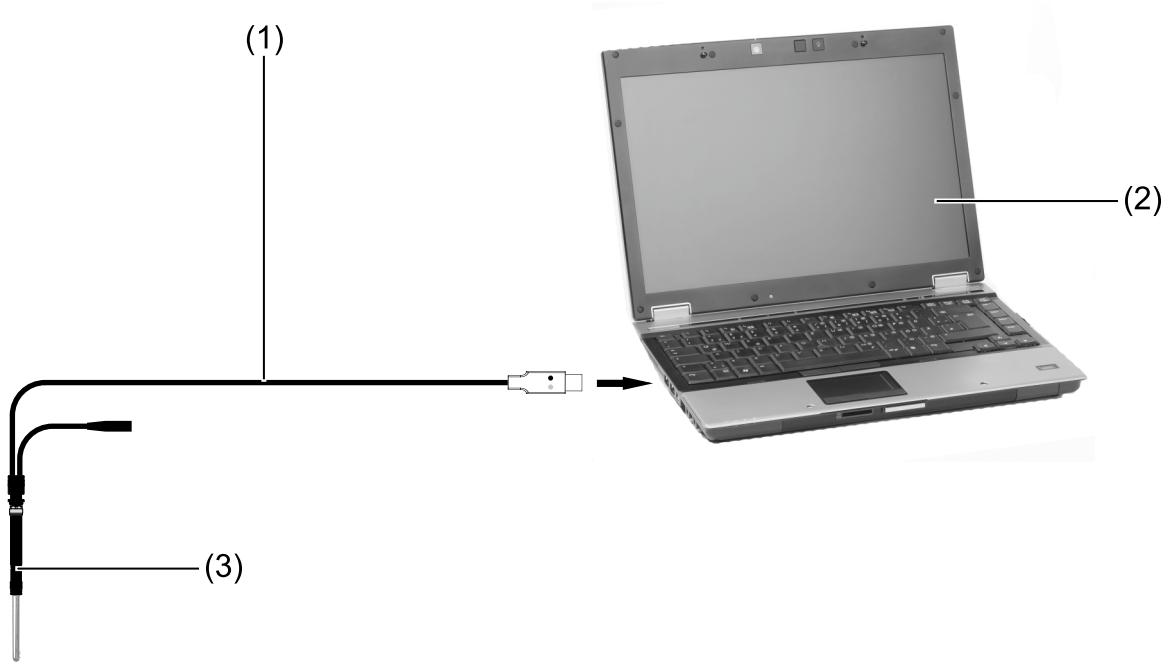
5 Connecting a sensor

Connecting a JUMO digiLine pH/ORP/T with M12 plug connector to a PC

To connect a JUMO digiLine pH/ORP/T to a PC, you need the USB-RS485 converter with DC barrel connector (part no.: 00746250). Insert the converter into a free USB port on your PC and connect the digital sensor to the converter via the M12 cable socket. When you use the USB-RS485 converter on your computer for the first time, the drivers for the converter are installed automatically by your computer's operating system. Data communication with a digital sensor cannot take place until the driver has been installed successfully.

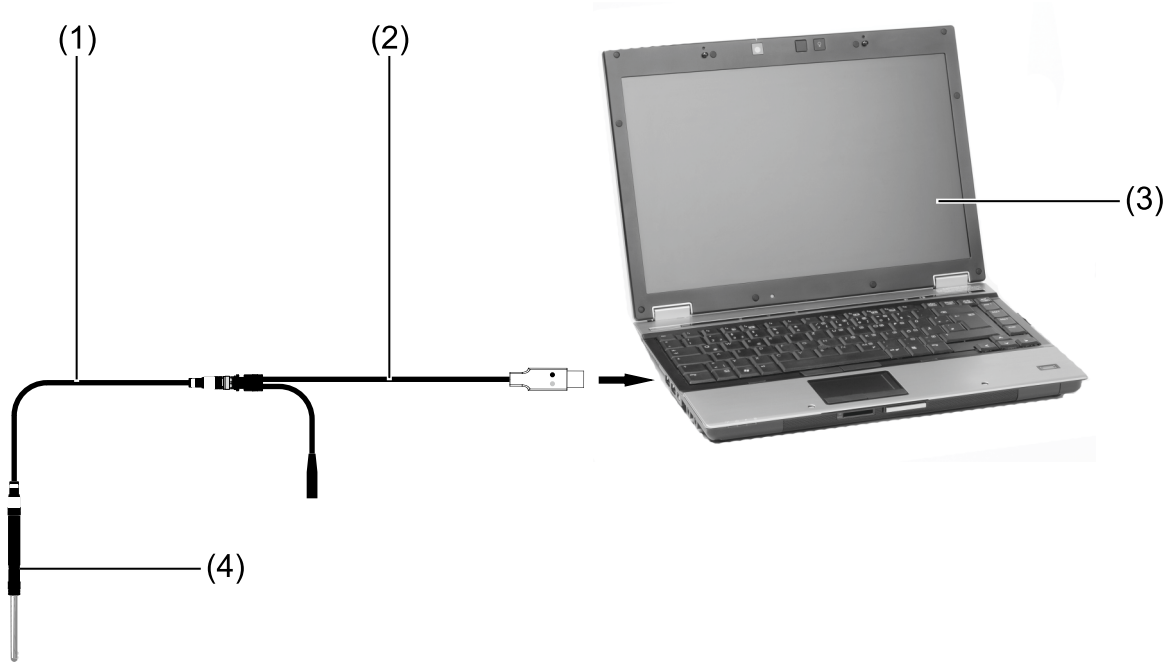
For the 8-pole variant of the JUMO digiLine electronics (with 4 to 20 mA analog output), you additionally need the JUMO M12 adapter cable (part no.: 00638325).

JUMO digiLine pH/ORP/T, 5-pole



1 USB-RS485 converter with DC barrel connector (not used)
2 PC/laptop with JUMO DSM software
3 Digital sensor with 5-pole M12 plug connector

JUMO digiLine pH/ORP/T, 8-pole (with 4 to 20 mA analog output)



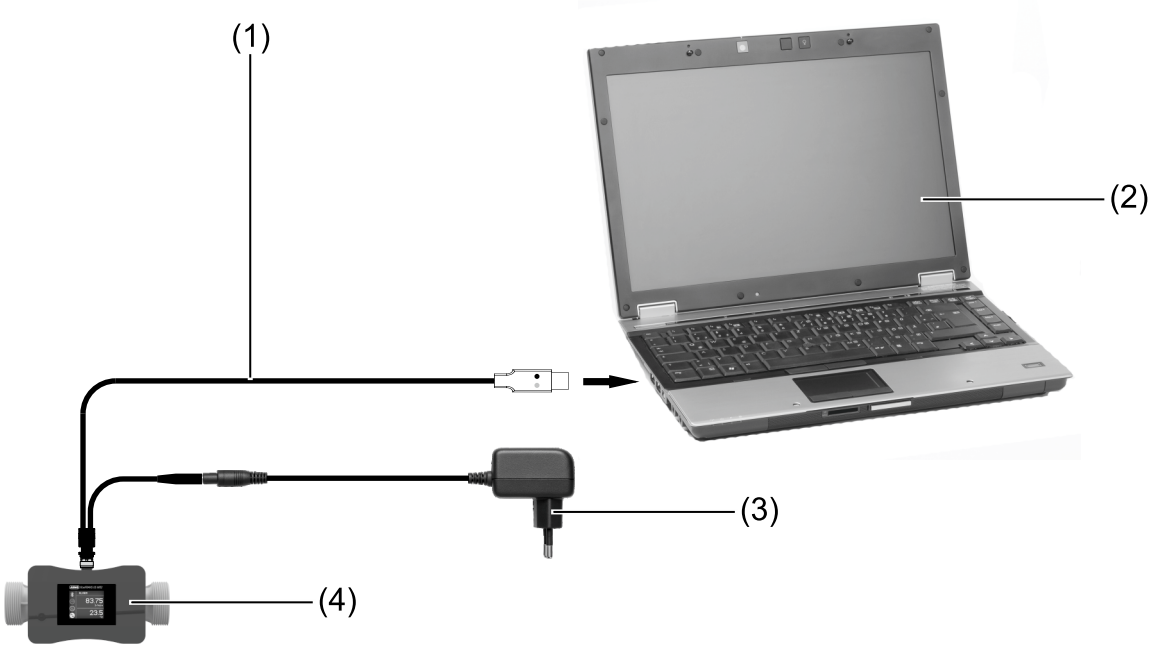
1 JUMO M12 adapter cable, 8-pole to 5-pole (see Accessories)
2 USB-RS485 converter with DC barrel connector (not used)
3 PC/laptop with JUMO DSM software
4 JUMO digiLine pH/ORP/T, 8-pole (analog version with 4 to 20 mA standard signal)

5 Connecting a sensor

Connecting a JUMO flowTRANS US W02 with RS485 interface (digiLine) to a PC

To connect the ultrasonic flowmeter to the PC, use the USB-RS485 converter with DC barrel connector (part no.: 00746250). Insert the USB connector into a free USB port on the PC. Connect the flowmeter to the M12 cable socket and the 24 V / 1 A plug-in power supply unit (Part No.: 00743955) to the DC barrel connector.

After the USB-RS485 converter is connected for the first time, the operating system automatically installs the required drivers. Only then is communication with the flowmeter possible.

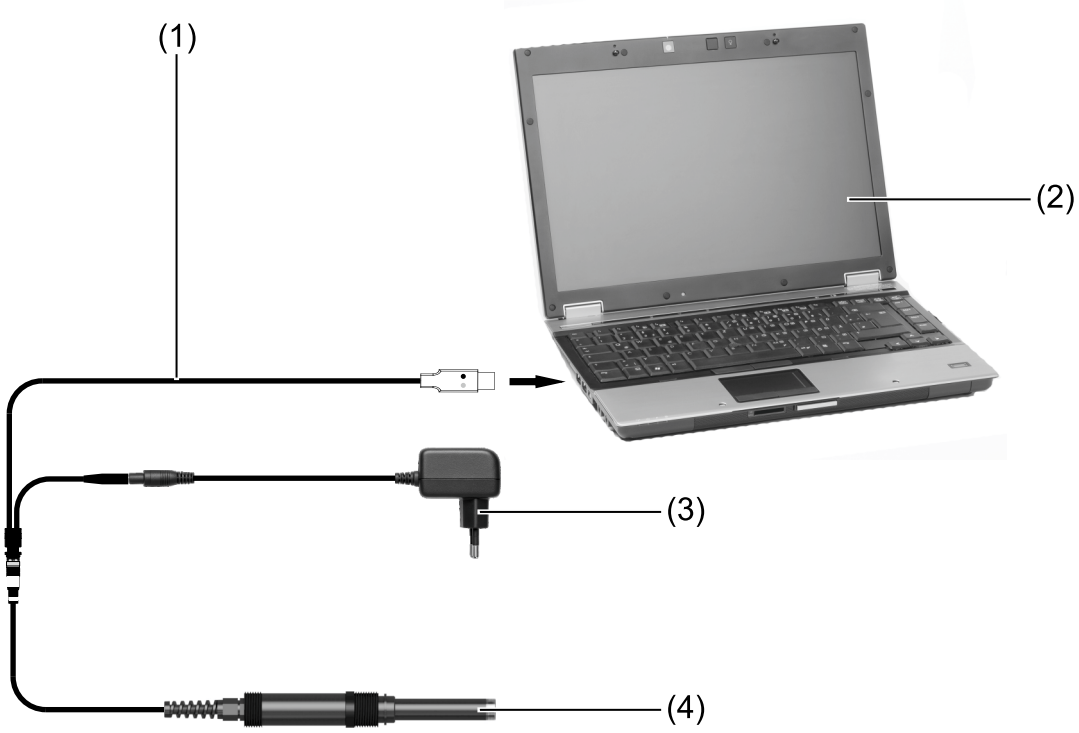


1 USB-RS485 converter with DC barrel connector
2 PC/laptop with JUMO DSM software
3 24 V / 1 A plug-in power supply unit, connected to the DC barrel jack of the USB-RS485 converter
4 Flowmeter with 5-pole M12 plug connector

Connecting a JUMO digiLine O-DO S10 oxygen sensor to a PC

To connect the oxygen sensor to the PC, use the USB-RS485 converter with DC barrel connector (part no.: 00746250). Insert the USB connector into a free USB port on the PC. Connect the sensor's fixed cable with the M12 connector to the M12 cable socket, and connect the 24 V / 1 A plug-in power supply unit (part no.: 00743955) to the DC barrel connector of the converter.

After the USB-RS485 converter is connected for the first time, the operating system automatically installs the required drivers. Only then is communication with the flowmeter possible.



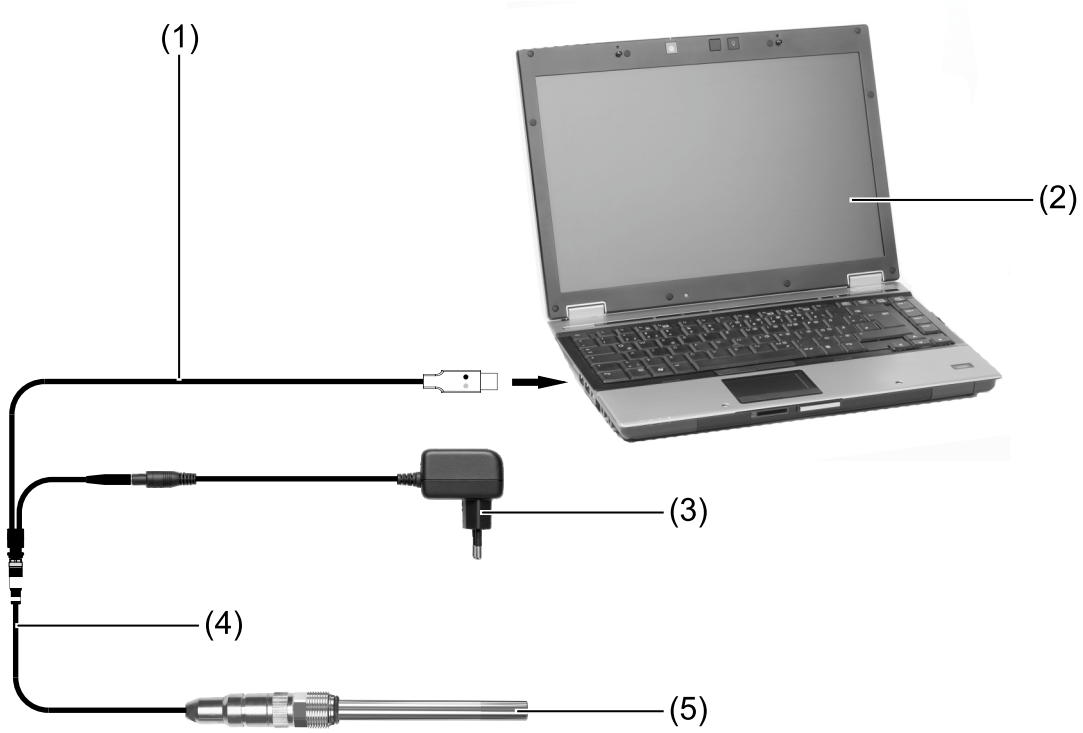
1 USB-RS485 converter with DC barrel connector
2 PC/laptop with JUMO DSM software
3 24 V / 1 A plug-in power supply unit, connected to the DC barrel jack of the USB-RS485 converter
4 Oxygen sensor JUMO digiLine O-DO S10 with fixed cable and 5-pin M12 plug connector

5 Connecting a sensor

Connecting a JUMO digiLine O-DO H10/H20 oxygen sensor to a PC

To connect the oxygen sensor to the PC:
Use a USB-RS485 converter with DC barrel connector (part no. 00746250) and a JUMO M12 digiLine O-DO H adapter cable.
Plug the USB connector of the converter into a free USB port on the PC.
Connect the sensor to the M12 cable socket of the converter using the digiLine O-DO H adapter cable.
Connect a 24 V / 1 A plug-in power supply unit (part no. 00743955) to the DC barrel connector of the converter.

After the USB-RS485 converter is connected for the first time, the operating system automatically installs the required drivers. Only then is communication with the flowmeter possible.



1 USB-RS485 converter with DC barrel connector
2 PC/laptop with JUMO DSM software
3 24 V / 1 A plug-in power supply unit, connected to the DC barrel jack of the USB-RS485 converter
4 JUMO M12 digiLine O-DO H adapter cable
5 Oxygen sensor JUMO digiLine O-DO H10/H20

Connecting JUMO tecLine and JUMO ecoLine sensors with a digital interface

To connect JUMO ecoLine or JUMO tecLine sensors with a digital interface, you need the USB-RS485 converter with DC barrel connector (part no.: 00746250) as well as a JUMO digiLine hub (part no.: 00646871) for power supply.

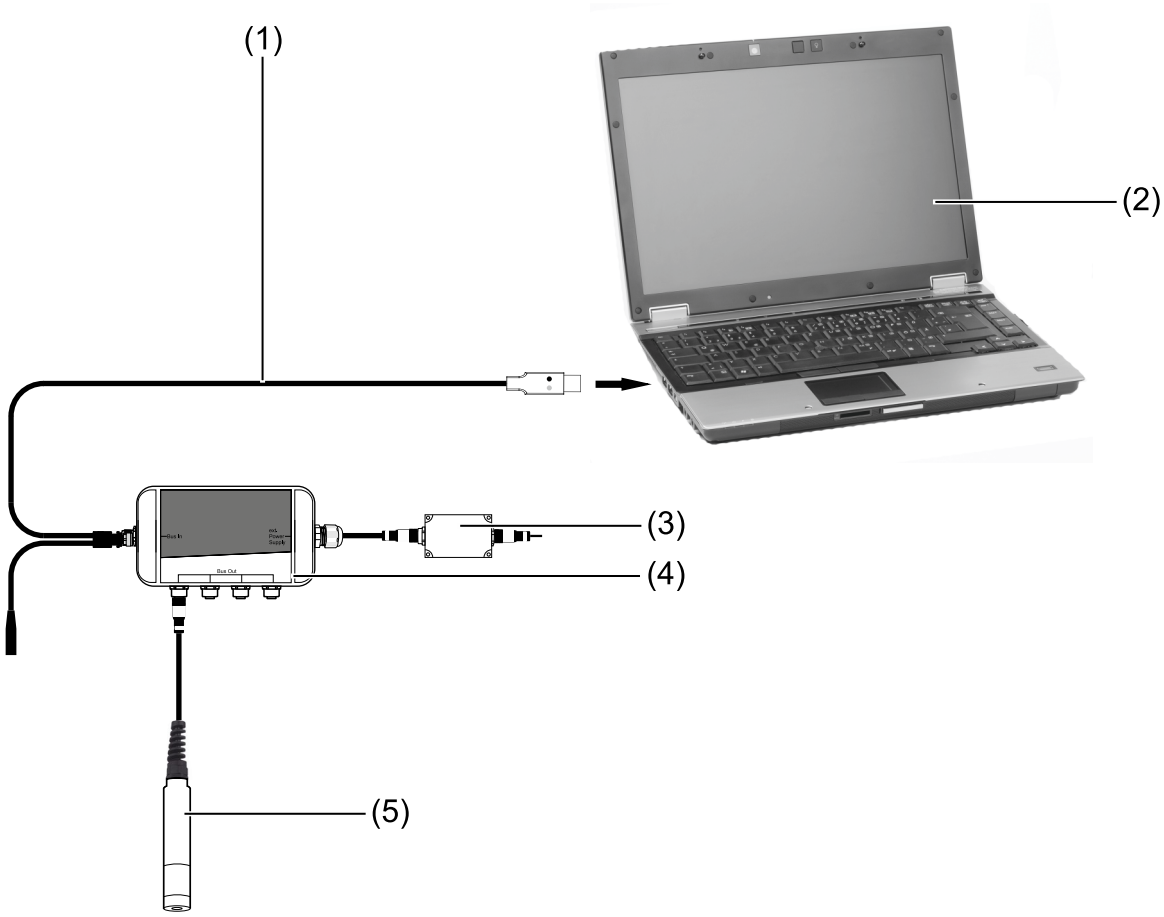
Set the internal switch of the JUMO digiLine hub to position 3 (power supply via separate 24 V DC power supply unit). The digiLine hub supplies +24 V to pin 2 and +5 V via an internal voltage regulator to pin 1 of the M12 output sockets.

Connect the components as shown.

After the USB-RS485 converter is connected for the first time, the operating system automatically installs the required drivers. Only then is communication with the flowmeter possible.

NOTE!

JUMO tecLine sensors of type 20263x can be configured using the JUMO DSM software, but not calibrated.



1 USB-RS485 converter
2 PC/laptop with JUMO DSM software
3 Separate DC 24 V power supply unit for the voltage supply to the JUMO digiLine bus system
4 JUMO digiLine hub
5 JUMO ecoLine O-DO, JUMO ecoLine NTU or JUMO tecLine sensor with digital interface

5 Connecting a sensor

6.1 Navigating through the sensor menus

Opening sensor menus

After you have opened the JUMO DSM software and connected a sensor, you can open the individual sensor menus in the software by clicking on them to display the sensor data and make settings.

The following sensor menus are available:

- **Measurement:** You can view the sensor's measurement data and, possibly, the signal at the binary input in real time here.
- **Sensor information:** Information on the type, properties, and operation of the connected sensor is displayed here.
- **Configuration:** The configuration of the connected digital sensor is displayed here.

NOTE!

When digital sensors are used in the JUMO digiLine mode, the configuration step is carried out only by the JUMO digiLine master device (JUMO AQUIS touch S/P). Changes in the configuration made with the JUMO DSM software are overwritten by the JUMO digiLine master device.

NOTE!

For devices with an IO-Link interface, the configuration normally can be carried out using an IO-Link configuration tool or be written to the device by the PLC. In this case, settings made previously with the JUMO DSM software are also overwritten.

- **Calibration:** Calibration using the JUMO DSM software is carried out in this sensor menu.
- **Data management:** All operating data and the history (e. g. number of sensor replacements on the JUMO digiLine electronics or buffer sets for pH calibration) of sensors with JUMO digiLine electronics are managed and archived here.

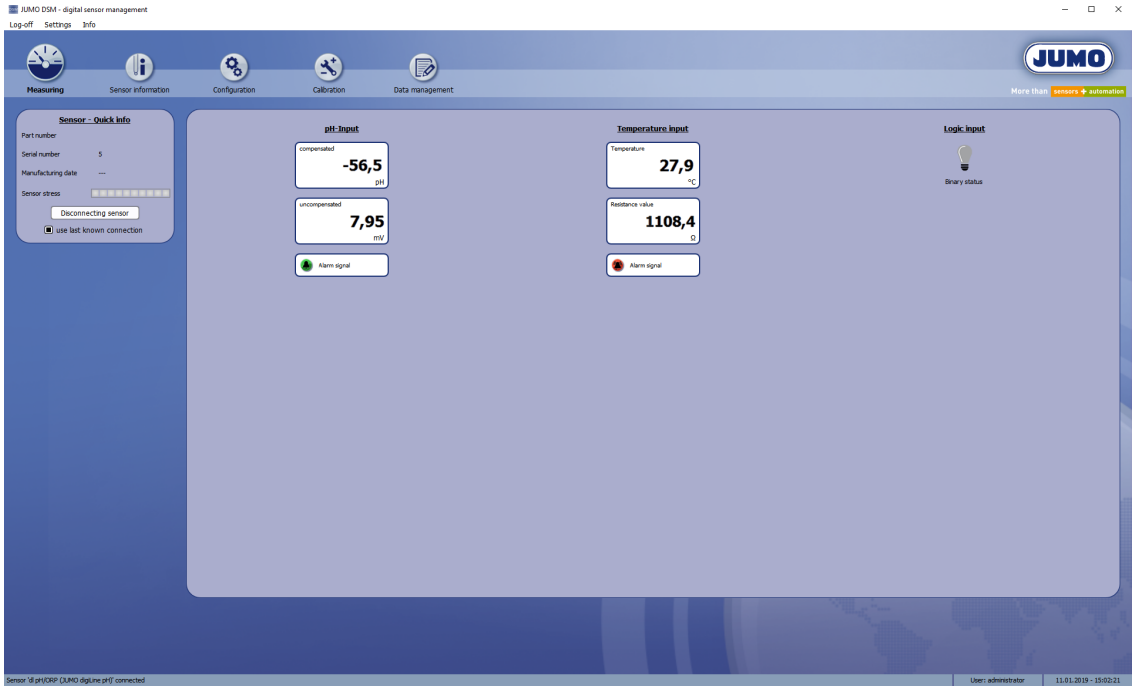


6 Sensor menus

6.2 Measurement

The corresponding measurement data and, possibly, the signal at the binary input are displayed in real time, depending on the type of digital sensor connected. In addition, the current sensor stress level is displayed for a pH sensor with JUMO digiLine electronics.

Example: Display of the real-time measurement of a pH sensor with 8-pole JUMO digiLine electronics



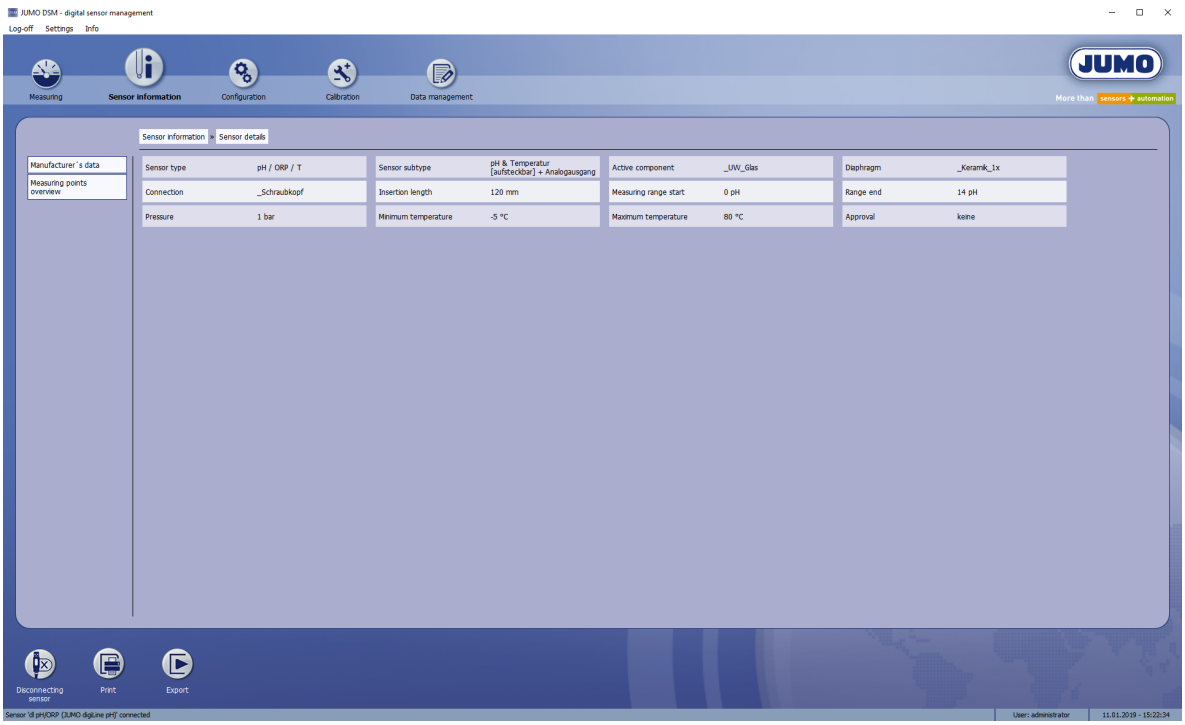
6.3 Sensor information

Information on the type, properties, and operation of the connected sensor is displayed under "Sensor information".

The data are sorted in a menu hierarchy by sensor type. Buttons for further submenus that can be opened from the currently displayed menu level are located along the left edge of the work area. The menu path for the currently displayed menu level appears as a chain of buttons along the top edge of the work area. The last button at the right end of the chain corresponds to the currently displayed menu level. The buttons to the left stand for the menu path above the current menu level. Simply click the desired button in the menu path to jump directly to a higher menu level.

Data for various categories is contained on different tabs:

- **Sensor details:** Manufacturer data, type information and information on the measuring point to which the sensor was assigned by the user
- **Process values:** Real-time data, operating hours and sensor replacement counter, "sensor monitoring" counter, sensor stress level
- **Operating data:** Drag indicator for operating temperature and extreme conditions (logging of exceeding/dropping below allowable limits for process values)
- **Versions:** Hardware and software version information for the digital sensor
- **Calibration data:** Calibration values and calibration alarm information



6 Sensor menus

6.4 Configuration

Configuring with the JUMO DSM software

The settings for the connected digital sensor are displayed in the configuration.

NOTE!

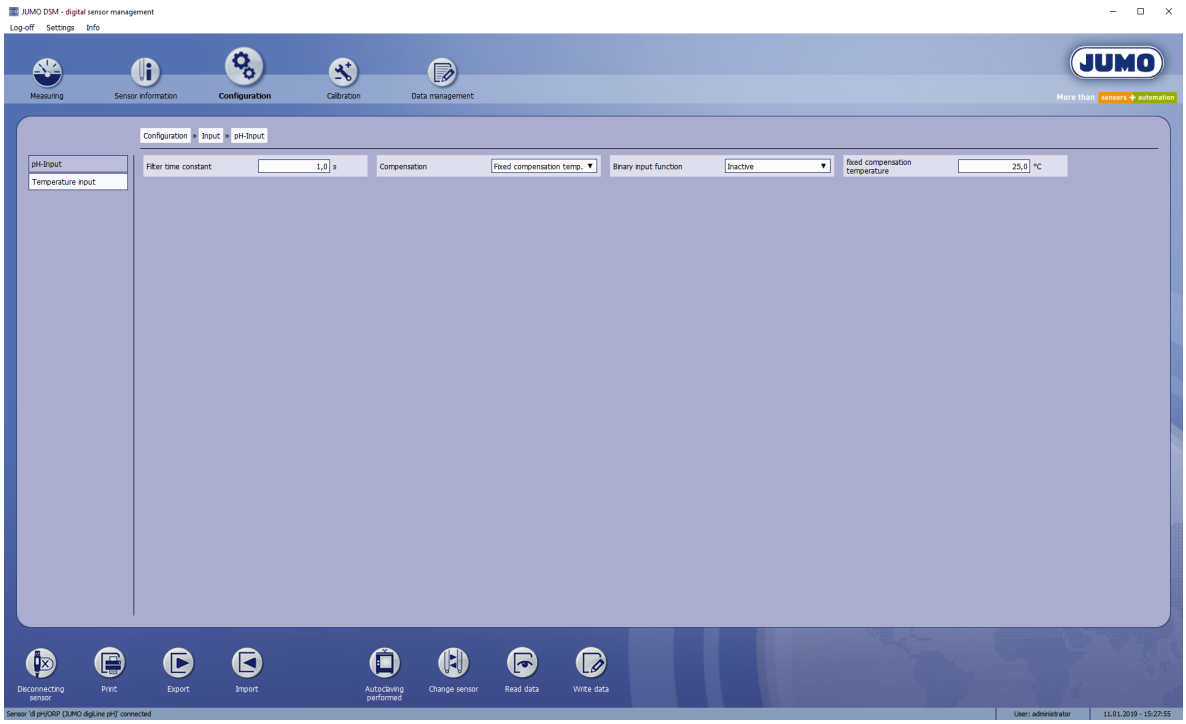
When digital sensors are used in the JUMO digiLine mode, the configuration step is carried out only by the JUMO digiLine master device (JUMO AQUIS touch S/P). Changes in the configuration made with the JUMO DSM software are overwritten by the JUMO digiLine master device.

NOTE!

For devices with an IO-Link interface, the configuration normally can be carried out using an IO-Link configuration tool or be written to the device by the PLC. In this case, settings made previously with the JUMO DSM software are also overwritten.

The settings are sorted in a menu hierarchy by sensor type. Buttons for further submenus that can be opened from the currently displayed menu level are located along the left edge of the work area. The menu path for the currently displayed menu level appears as a chain of buttons along the top edge of the work area. The last button at the right end of the chain corresponds to the currently displayed menu level. The buttons to the left stand for the menu path above the current menu level. Simply click the desired button in the menu path to jump directly to a higher menu level.

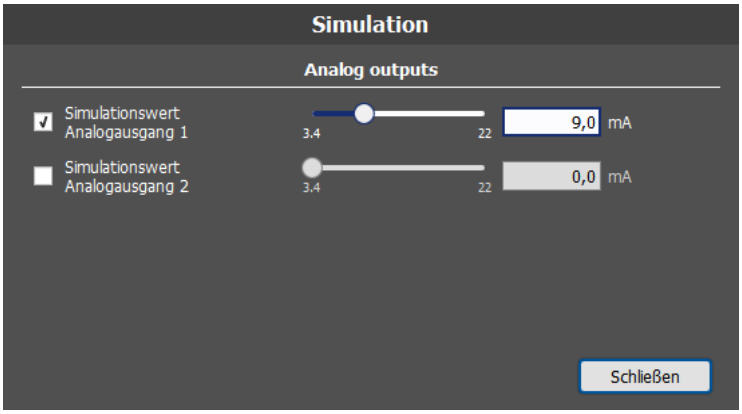
The following figure shows an example of the configuration of a pH sensor with JUMO digiLine electronics in the JUMO DSM software.



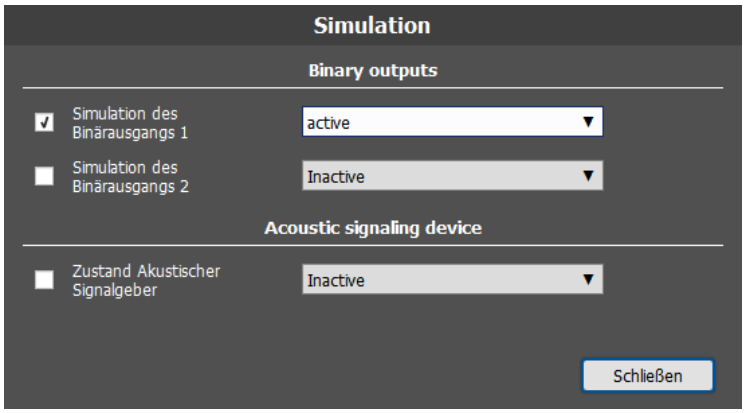
Simulation of the analog and binary outputs on the JUMO digiLine CR/Ci

The outputs and any acoustic signals from device versions from the JUMO digiLine CR/Ci with analog or binary outputs can be manually controlled for test and diagnostic purposes. This requires the device to be supplied with voltage via its output M12 socket. In the JUMO DSM software, the "Simulation" button for this function is shown in the lower area of the "Configuration" sensor menu. Pressing this button opens a dialog window for controlling the analog or binary outputs of the device. To manually control an output, check the box on the left side in this dialog and set the desired output value or output status.

Simulation dialog for analog outputs



Simulation dialog for binary outputs



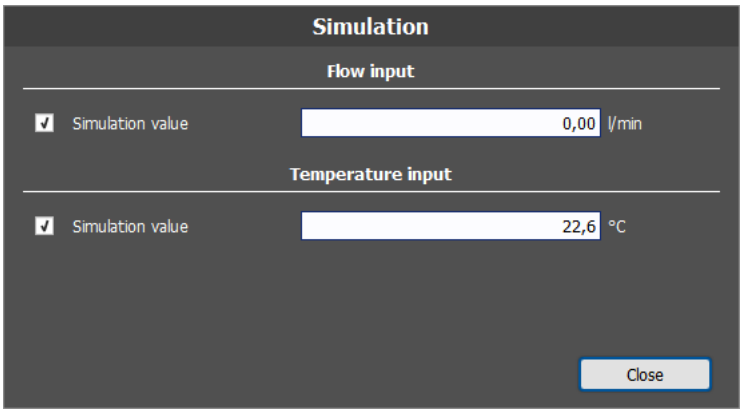
While the output simulation is active, the note SIMULATION ACTIVE appears as a red flashing text. The simulation remains active until it is deactivated for both outputs. Disconnecting from the JUMO DSM software does not end the simulation unless it has been deactivated beforehand. For device versions with a display, the simulation can also be deactivated directly on the device. After disconnecting the voltage supply, the simulation is deactivated the next time the device is started.



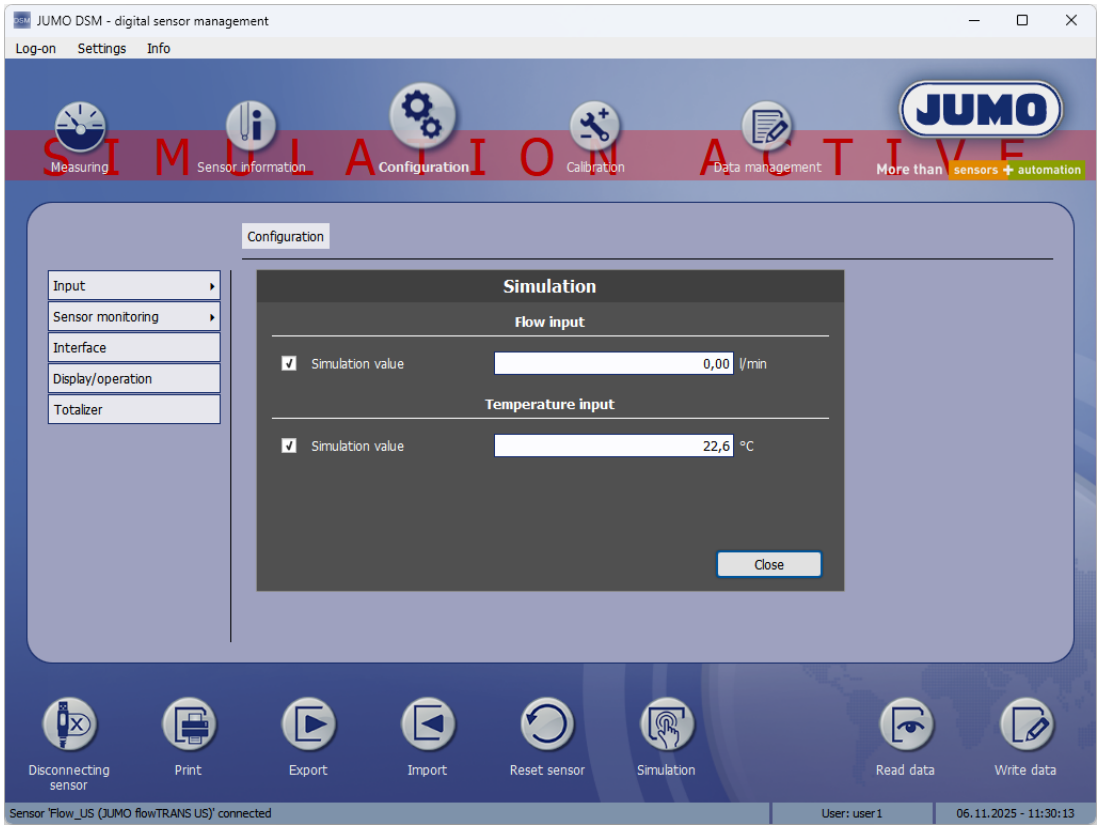
Simulation of the inputs on the JUMO flowTRANS US W02 dL

The inputs for flow, temperature, and optionally pressure of the flowmeter can be manually controlled for testing and diagnostic purposes. In the JUMO DSM software, the “Simulation” button appears in the lower area of the sensor menu “Configuration” for this purpose. Clicking this button opens a dialog window for controlling the device inputs. To manually control an input, activate the corresponding checkbox and enter the desired value.

Simulation dialog for the Flow and Temperature inputs



While the input simulation is active, the note SIMULATION ACTIVE appears as a red flashing text. The simulation remains active until it is deactivated for all inputs. Disconnecting from the JUMO DSM software does not end the simulation unless it has been deactivated beforehand. After disconnecting the voltage supply, the simulation is deactivated the next time the device is started.



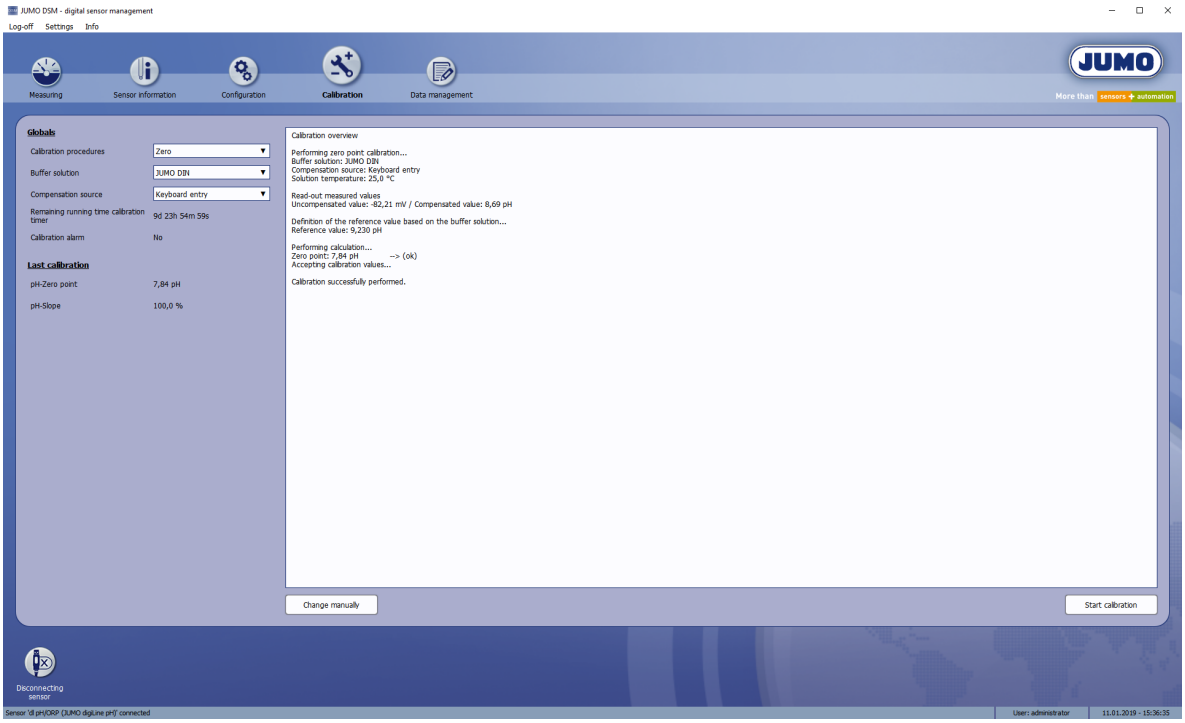
6 Sensor menus

6.5 Calibration

This sensor menu allows digital sensors to be calibrated at the laboratory prior to field deployment. Re-calibration during installation is not required, thereby reducing maintenance and downtimes.

Calibration procedures vary depending on the sensor type. Details of the respective methods are described in the sensor documentation. The corresponding settings for calibration must be made in the “Calibration” menu of the JUMO DSM software. The displayed parameters vary depending on the sensor type.

The figure shows an example of the calibration menu for a pH sensor with JUMO digiLine electronics.



Procedure for calibrating a sensor with the JUMO DSM software

1. Familiarize yourself with the calibration methods for the sensor to be calibrated. Refer to the documentation for the particular digital sensor involved.
2. Prepare the required test/buffer solutions needed for the calibration.
3. Select the calibration settings at the left in the work area in accordance with the desired calibration method.

NOTE!

When calibrating pH sensors, make sure that the buffer set selected under “Buffer Solution” matches the buffer set actually used.

4. To start the calibration, press the "Start calibration" button and then follow the instructions displayed by the JUMO DSM software in the message windows.

At the end of the calibration procedure, a summary of the calibration can be viewed in the text field next to the calibration settings. Here, you can see whether the calibration was successful or whether an error occurred and the calibration was terminated or calibration values could not be accepted.

Pressing the "Cancel calibration" button stops an ongoing calibration procedure without accepting the calibration values.

Manual entry of known calibration values

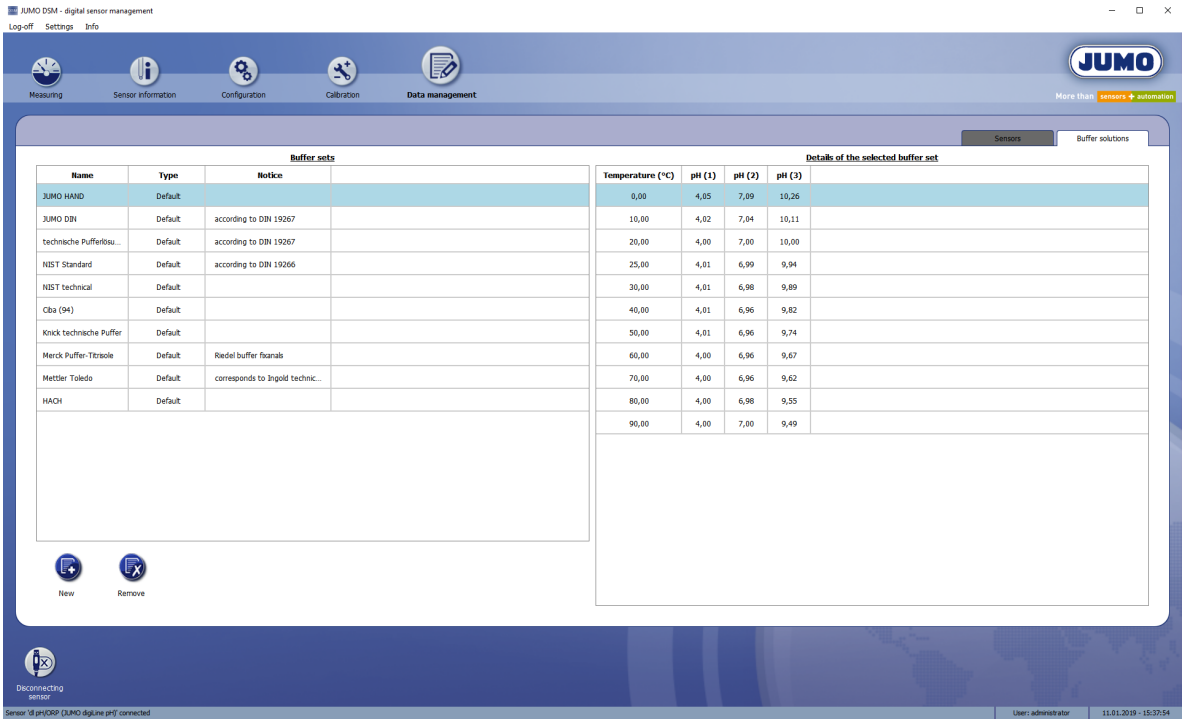
If calibration values are known, you can use the keyboard to enter them. To enter known calibration values, open the "Manual calibration" dialog by pressing the "Change manually" button.

6.6 Data management

The data management function is used to manage buffer set tables and the sensor data for your entire inventory of digital sensors.

The configuration tabs:

- **Buffer solutions:** The pH value tables of buffer sets needed for calibration of pH sensors are listed here. Several common standard buffer sets are placed in the table at the factory. Pressing the "New" button allows you to create user-defined buffer sets. These can also be deleted again by pressing the "Remove" button. Standard buffer sets cannot be deleted.
- **Sensors:** Sensor information, the calibration logbook and an archive with configuration changes can be viewed here.



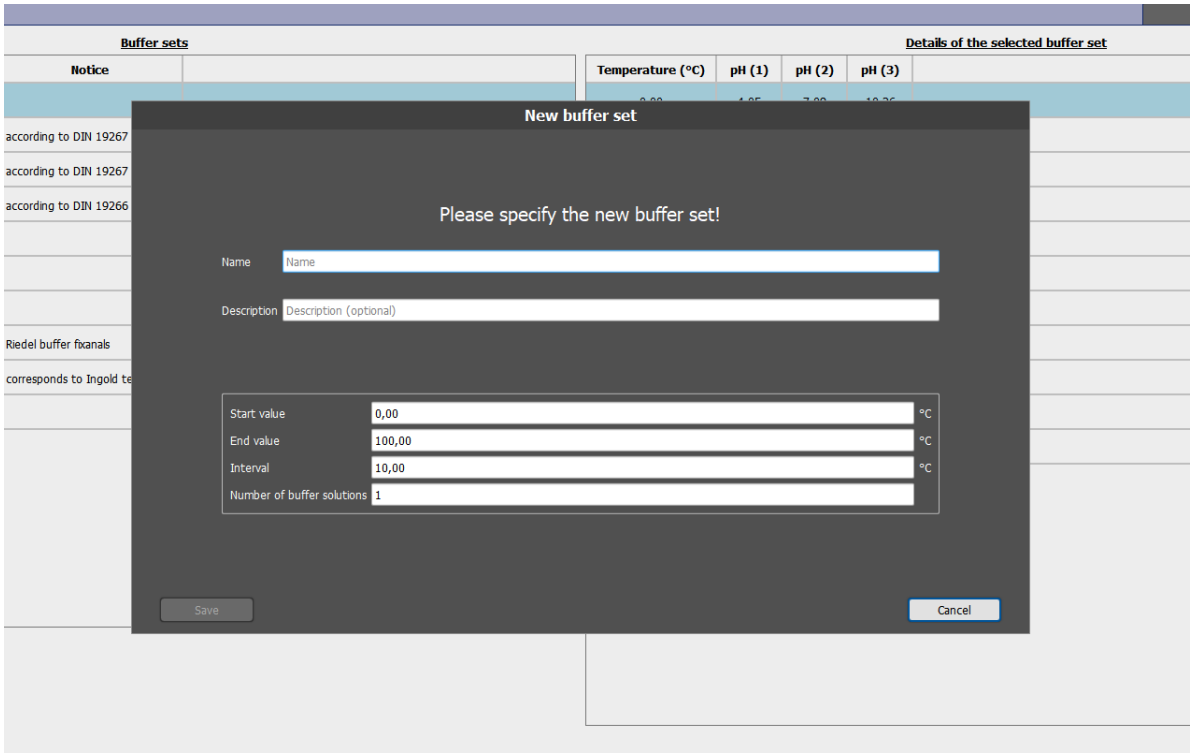
6.6.1 Creating buffer sets

CAUTION!

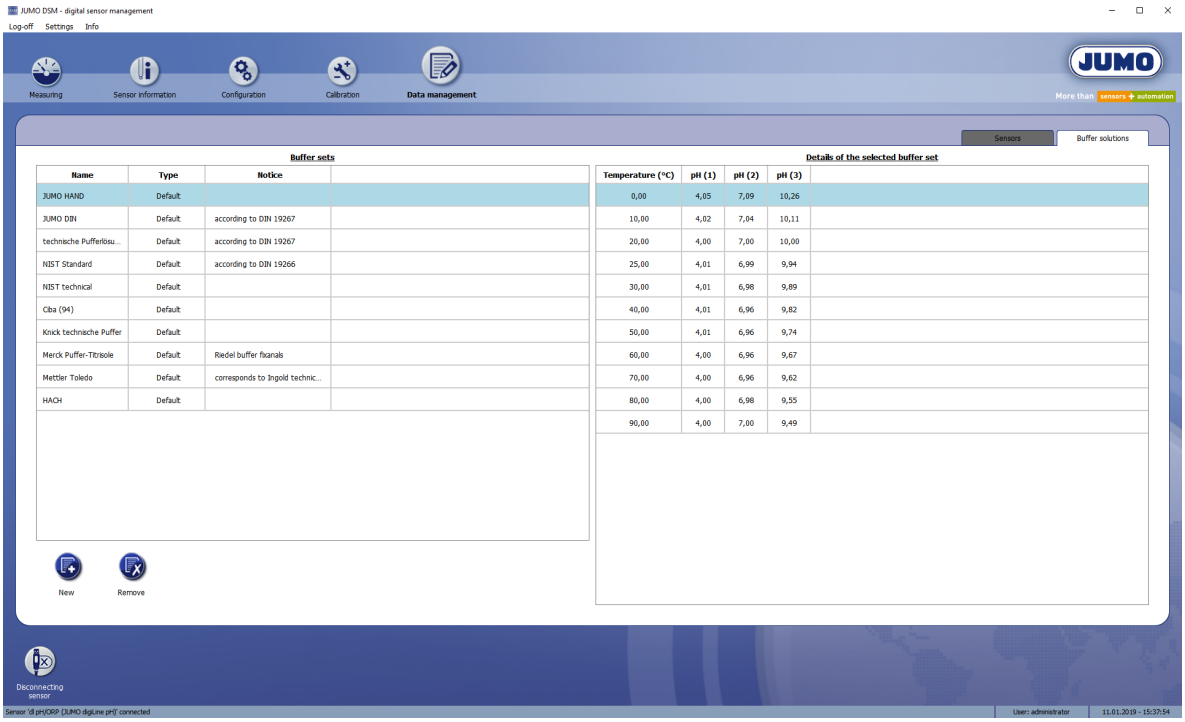
The pH values of buffer solutions in a buffer set must be at least 2 pH apart.

▶ When creating user-defined buffer sets, be sure to maintain a pH value difference of at least 2 pH between the buffer solutions.

Press the "New" button in the "Buffer solutions" tab. The dialog shown below opens. Enter a name for the buffer set. If desired, you can enter additional information in the "Comment" field. You define the buffer set table with the framed fields. The number of temperature values resulting from the "Start value", "End value", and "Interval" determines the number of lines. The "Number of buffer solutions" determines the number of columns. One line is created for each temperature value along with one column for each buffer solution.



If you confirm the entries by pressing "OK", the dialog closes again and the newly created user-defined buffer set appears in the buffer set selection on the left side of the "Buffer solutions" tab. Select the new buffer set and fill out the buffer set table on the right side. You do this by simply clicking on a table line and then entering the correct value. You can also use the Tab key to select the next line or "Shift + Tab" to select the previous line. The data in the temperature column or the buffer set selection list can be edited in the same way. Standard buffer sets cannot be edited.



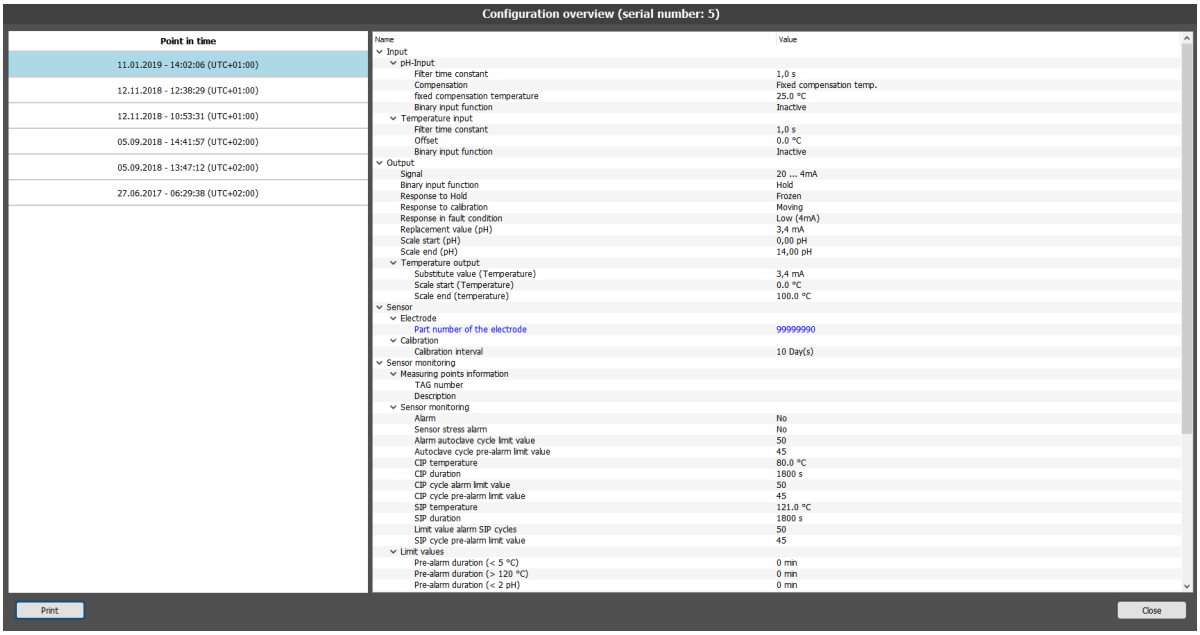
6.6.2 Managing sensors

The calibration logbook as well as a summary of the current sensor information, together with a history of all recorded configuration changes, can be opened on the "Sensors" tab.

Configuration

Pressing the "Configuration" button on this tab opens a report containing the history of all configuration changes that the JUMO DSM software was able to acquire for the digital sensor selected in the sensor list. Configuration changes are recorded either if the settings were changed using the JUMO DSM software or if, when establishing the connection, different settings were found on comparison with the last-recorded configuration. The configuration of a digital sensor could, for example, have been changed on a JUMO AQUIS touch S/P. The software detects this and records the configuration change.

Every new entry is saved with the current date and current time at the moment of recording. Different settings in this entry are displayed in blue.



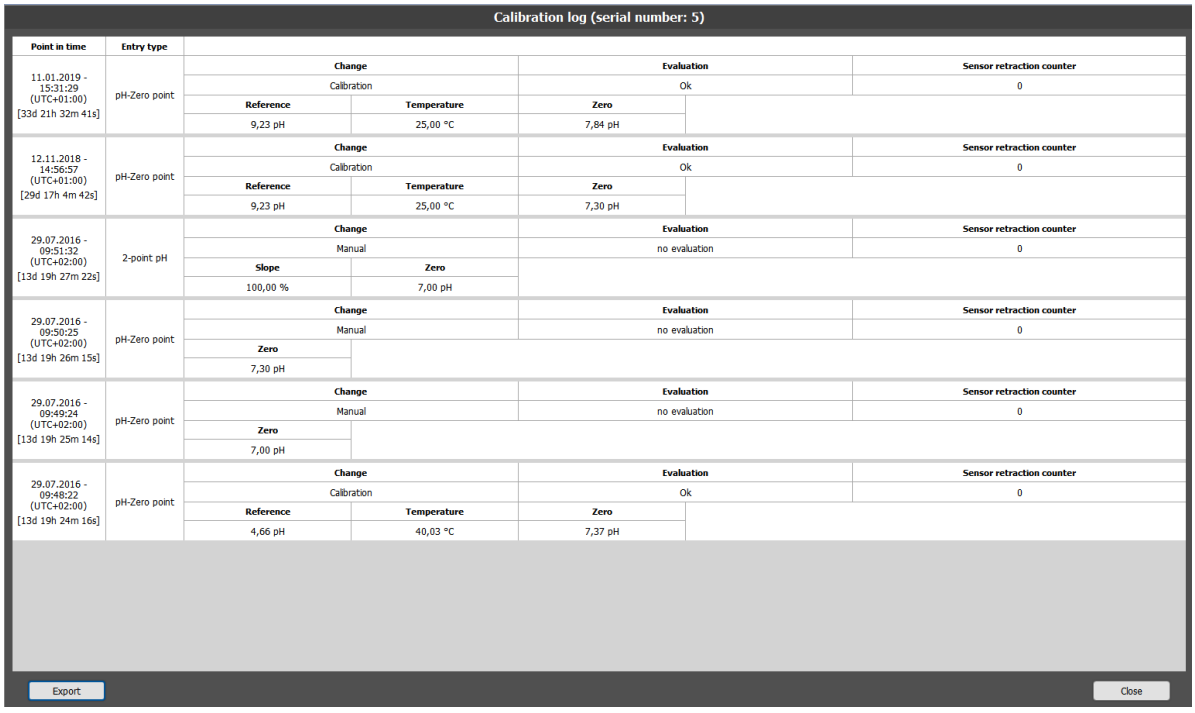
6.6.3 Calibration logbook

The calibration logbook is saved in the JUMO digiLine electronics of the sensor. The last 10 (for JUMO tecLine sensors: 5) successful calibrations are saved in the calibration logbook. After a connection to the digital sensor has been established successfully by the JUMO DSM software, the calibration logbook entries in the digital sensor connected to the PC are read by the JUMO DSM software and saved on the PC. There is no limit to the number of calibration logbook entries that can be saved on the PC. Canceled or failed calibrations (calibrations outside the admissible limits) are not saved in the logbook. Manual changes of calibration values are also documented. The following data are retained in the logbook:

- Date and time
- Calibration values determined or entered
- Reference values used and temperatures of the buffer and test solutions
- Calibration mode (true calibration/manual entry of calibration values)
- Calibration assessment (assessment of the calibration values determined during the true calibration)
- Sensor replacement counter reading (to assign the calibration logbook entries to the individual sensors in the sensor replacement history of the JUMO digiLine electronics)

The calibration logbook can be viewed on the JUMO AQUIS touch S/P or on the PC using the JUMO DSM software.

Pressing the "Calibration logbook" button displays the calibration logbook of the digital sensor selected in the sensor list.



6 Sensor menus

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