Description of Device Parameters
Liquiphant FTL63
HART

Vibronic

HART
COMMUNICATION PROTOCOL

Endress+Hauser
People for Process Automation
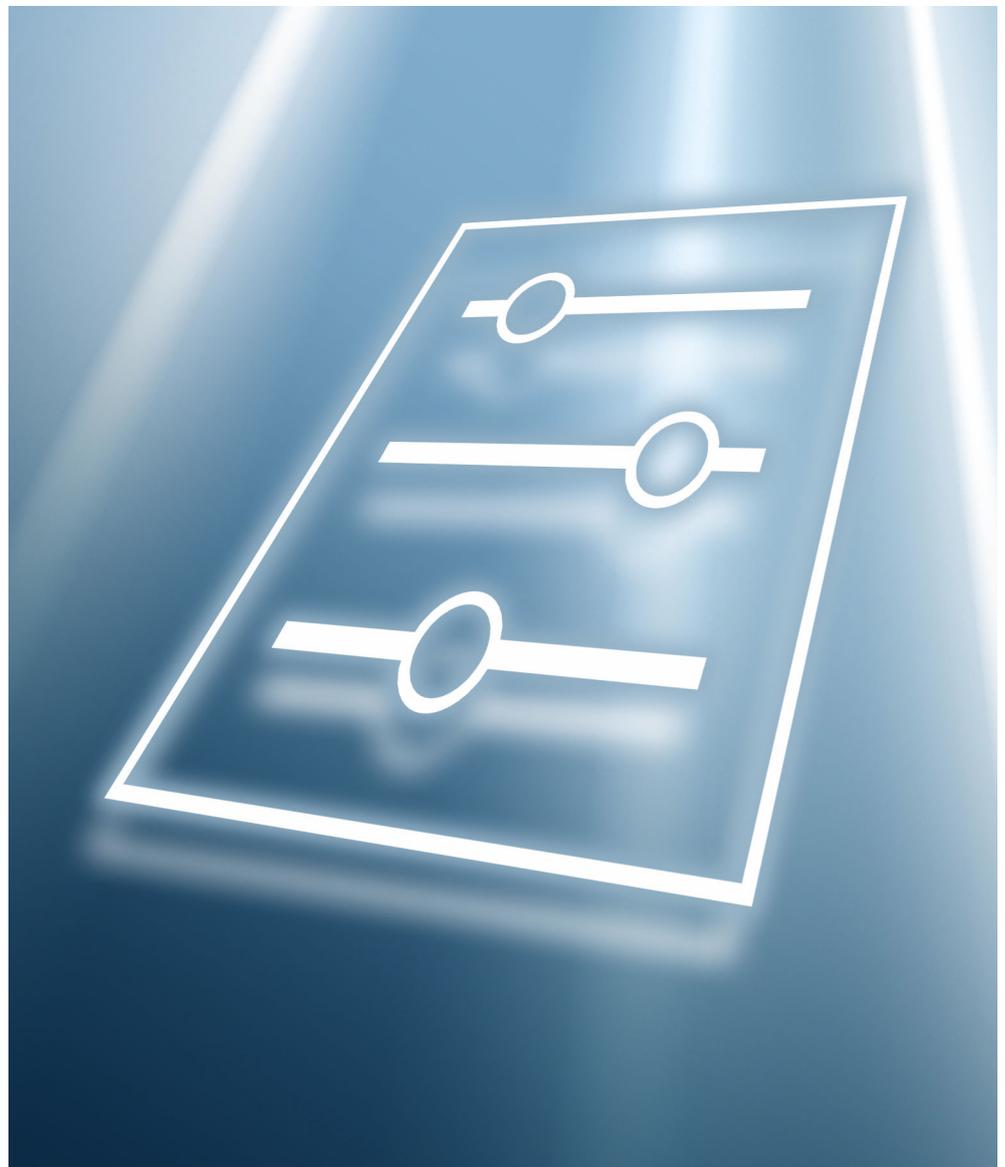
1   About this document

1.1   Document function

The document is part of the Operating Instructions and serves as a reference for parameters.

Tasks that require detailed knowledge of the function of the device:
• Starting up measurements under difficult conditions
• Optimal adjustment of measurements to difficult conditions
• Detailed configuration of communication interface
• Fault diagnosis in difficult cases

1.2   Target group

This document is aimed at specialists who work with the device over the entire life cycle and perform specific configurations.

1.3   Document structure

The document consists of a general part and a specific part.

The structure of the document and its components are explained in the general part (section 1).

The specific part starts with an overview of the device operating menu, which is the focus of this manual.

The description of the device parameters follows the overview of the operating menu. The description is divided into 4 main menus and their submenus.

The 4 main menus:
• Guidance
• Diagnostics
• Application
• System

In the "Description of device parameters" section, the menus, submenus and parameters are displayed in the same way as they are laid out in the menu structure for the **operating tool**.

An operating tool is software, such as FieldCare, which can be used to display and edit the data and parameters stored in the device on a PC or laptop. Compared to operation via the local display, an operating tool offers more options. It provides additional information, such as graphics and help texts, which explain the properties of the parameters.

The submenus visible to a user depend on the **User role (→ 🗎 54)** they are logged in with. This document lists the submenus and their parameters that are available to the User role **Maintenance**.

The operating menu is dynamic and adapts the choice of parameters to the selected options.

📖 For information on operating options, see the Operating Instructions.

1.4   Elements of parameter descriptions

Parameter descriptions are structured and made up of a number of elements. Depending on the parameter, more or fewer elements may be available. Below are 2 examples of different parameters:

Simulation		7
Navigation	▣▢ Diagnostics → Simulation → Simulation	
Prerequisite	Options marked with *: The corresponding device function must be available and configured.	
Description	Simulates one or more process variables and/or events. Warning: - Output will reflect the simulated value or event.	
Selection	▪ Off ▪ Distance ▪ Level ▪ Level linearized * ▪ Current output ▪ Diagnostic event simulation ▪ Foam index * ▪ Build-up index *	
Factory setting	Off	

1 Name: Parameter designation (Label)
2 Navigation: Navigation path to the parameter. The graphics indicate whether the path applies to the onsite display, the operating tool or both.
3 Prerequisite: The marked options can only be selected under the condition specified in each case
4 Description: Description of the parameter function
5 Selection: List of the individual options for the parameter
6 Factory setting: Default setting on leaving the factory
7 The lock symbol indicates that the parameter is write-protected

Timestamp	
Navigation	▣▢ Diagnostics → Active diagnos. → Timestamp
Description	Displays the timestamp for the currently active diagnostic message.
User interface	Days (d), hours (h), minutes (m), seconds (s)
Factory setting	
Additional information	Access: ▪ Read access: Operator ▪ Write access: -

1 Name: Parameter designation (Label)
2 Navigation: Navigation path to the parameter. The graphics indicate whether the path applies to the onsite display, the operating tool or both.
3 Description: Description of the parameter function
4 User interface: Display value/data of the parameter
5 Factory setting: Default setting on leaving the factory
6 Additional information:
*   Read and write access: Information on access rights that users with certain roles have to the parameter*

Additional information at the end of the parameter description can refer to all elements of the parameter description and expand them.

1.5   Symbols

1.5.1   Safety symbols

⚠ DANGER

This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.

⚠ WARNING

This symbol alerts you to a potentially dangerous situation. Failure to avoid this situation can result in serious or fatal injury.

⚠ CAUTION

This symbol alerts you to a potentially dangerous situation. Failure to avoid this situation can result in minor or medium injury.

NOTICE

This symbol alerts you to a potentially harmful situation. Failure to avoid this situation can result in damage to the product or something in its vicinity.

1.5.2   Symbols for certain types of Information

Indicates additional information

Reference to documentation

Operation via local display

Operation via operating tool

Write-protected parameter

1.6   Documentation

For an overview of the scope of the associated Technical Documentation, refer to the following:
- *Device Viewer* (www.endress.com/deviceviewer): Enter the serial number from the nameplate
- *Endress+Hauser Operations app*: Enter serial number from nameplate or scan matrix code on nameplate.

The documentation is available via the Internet: → www.endress.com Download

2 Overview of the operating menu

Navigation   ◨▦   Operating tool

	Density setting	→ 🖺 38
	Damping	→ 🖺 39
	Switching delay uncovered to covered	→ 🖺 39
	Customer delay to covered	→ 🖺 39
	Switching delay covered to uncovered	→ 🖺 40
	Customer delay to uncovered	→ 🖺 40
► Stored frequency		→ 🖺 40
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► Sensor calibration		→ 🖺 41
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	Upper alarm frequency	→ 🖺 42
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3 Description of device parameters

3.1 Guidance

In the **Guidance** menu, the user can quickly perform basic tasks, such as commissioning. These primarily consist of guided wizards and cross-thematic special functions.

Navigation   ⊠⊟   Guidance

3.1.1 Overview

The **Guidance** menu contains the following submenus and wizards:
- Commissioning
- Heartbeat Technology
  - Heartbeat Verification
  - Loop diagnostics
  - Process window
- Safety mode
- Proof test
- Import / Export
- Compare

3.1.2 "Commissioning" wizard

Run the **Commissioning** wizard to commission the device. Enter the appropriate value in each parameter or select the appropriate option.

⚠ WARNING

If the wizard is canceled before all the necessary parameters have been configured, any settings already made are saved.
The device may be in an undefined state!
▸ Use these functions to reset the device to factory settings.

Navigation   ▱   Guidance → Commissioning

Parameters for "Commissioning" wizard

The following parameters are configured in this wizard:
- **Device identification**
  - Device tag
  - Device name
  - Serial number
  - Extended order code 1 … 3
  - Locking status
  - HART short tag
  - HART date code
  - HART descriptor
  - HART message
  - HART address
- **Measurement adjustments**
  - Temperature unit
  - Operating mode
  - Safety function
  - Density setting
  - Switching delay covered to uncovered
  - Customer delay to uncovered
  - Switching delay uncovered to covered
  - Customer delay to covered
  - 49 Corrosion warning
  - Damping
  - Sensor frequency
  - Stored covered frequency
  - Frequency at delivery status
  - Stored uncovered frequency
- **Output settings**
  - Lower range value output
  - Upper range value output
  - Current range output
  - Failure behavior current output
  - Failure current
  - Loop current mode
  - Assign HART variables?
    This function comprises several parameters, including the **Assign PV** parameter.

3.1.3   Heartbeat Technology

Heartbeat Technology offers the following functions:
- Diagnostics through continuous self-monitoring
- Additional measured variables output to an external condition monitoring system
- In situ verification of measuring instruments in the application

📖 Special Documentation on Heartbeat Technology is available via the Internet:
www.endress.com → Download

Navigation   🖳   Guidance → Heartbeat Techn.

Heartbeat Verification

This wizard is used to start an automatic verification of the device functionality.
The results can be documented as a verification report.

Navigation   🖳   Guidance → Heartbeat Techn. → Heartbeat Verif.

Loop diagnostics

Using this wizard, changes in the current-voltage loop characteristics (baseline) can be used to detect unwanted installation anomalies such as creep currents caused by terminal corrosion or a deteriorating power supply that can lead to an incorrect 4-20 mA measured value.

Navigation   🖳   Guidance → Heartbeat Techn. → Loop diagn.

Process window

This wizard can be used to monitor the sensor frequency for frequencies that are too low or too high. This can be used for early detection of buildup or corrosion.

Navigation   🖳   Guidance → Heartbeat Techn. → Process window

3.1.4   Safety mode

The write protection guards the device settings against overwriting. In addition, it is recommended for safety applications to confirm the safety relevant device settings. This ensures that the correct values have been entered and downloaded to device.

This input can be used as the confirmation sequence instead of manual checklists.
After the safety relevant device settings have been confirmed, the device is marked with the property Safety-locked. This indicates that the safety relevant parameter settings have been checked and evaluated as correct.

To unlock the safety locking the sequence needs to be restarted. The safety locking is deactivated when the safety unlocking code (= safety locking code) is entered.

Navigation   🖳   Guidance → Safety mode

3.1.5   Proof test

The proof test will simulate the current output.
The safety function is not guaranteed during proof test. Alternative process control in manual must be taken to ensure process safety.

Note: It is only possible to perform a proof test when the device has no alarm and the hardware write protection switch is off.

Navigation   ⊞⊟   Guidance → Proof test

3.1.6   Import / Export

Save/Load
- The device settings can be saved in a .deh file.
- The device settings saved in a .deh file can be written to the device.

Creating documentation
Device documentation can be saved in PDF format under **Create documentation**. This device documentation contains the following general device information:
- Information on device parameters
- Diagnostic list

Navigation   ⊟   Guidance → Import / Export

3.1.7   Compare

Compare datasets
This function can be used to compare the following datasets:
- Data records in the .deh file format from the function Import / Export
- Datasets with the configuration currently in the device

Navigation   ⊟   Guidance → Compare

3.2   Diagnostics

Navigation   ⊚⊟   Diagnostics

3.2.1   Active diagnostics

Navigation   ⊚⊟   Diagnostics → Active diagnos.

Active diagnostics

Navigation   ⊚⊟   Diagnostics → Active diagnos. → Active diagnos.

Description   Displays the currently active diagnostic message.

                            If there is more than one pending diagnostic event, the message for the diagnostic event
                            with the highest priority is displayed.

                            The display consists of:
                            • Symbol for event behavior
                            • Code for diagnostic behavior
                            • Operation time of occurrence
                            • Event text

User interface   Positive integer

Additional information Information on what is causing the message, and remedy measures, can be viewed via the
                            I-symbol on the display.

                            Access:
                            • Read access: Operator
                            • Write access: -

Timestamp

Navigation   ⊚⊟   Diagnostics → Active diagnos. → Timestamp

Description   Displays the timestamp for the currently active diagnostic message.

User interface   Days (d), hours (h), minutes (m), seconds (s)

Additional information **Access:**
                            • Read access: Operator
                            • Write access: -

Previous diagnostics

Navigation	◉▣ Diagnostics → Active diagnos. → Prev.diagnostics
Description	Displays the diagnostic message for the last diagnostic event that has ended.
User interface	Positive integer
Additional information	The display consists of: • Symbol for event behavior • Code for diagnostic behavior • Operation time of occurrence • Event text Access: • Read access: Operator • Write access: -

Timestamp

Navigation	◉▣ Diagnostics → Active diagnos. → Timestamp
Description	Displays the timestamp of the diagnostic message generated for the last diagnostic event that has ended.
User interface	Days (d), hours (h), minutes (m), seconds (s)
Additional information	Access: • Read access: Operator • Write access: -

Operating time from restart

Navigation	◉▣ Diagnostics → Active diagnos. → Time fr. restart
Description	Indicates how long the device has been in operation since the last time the device was restarted.
User interface	Days (d), hours (h), minutes (m), seconds (s)
Additional information	Access: • Read access: Operator • Write access: -

---

Operating time

Navigation	⌨️🔲 Diagnostics → Active diagnos. → Operating time
Description	Indicates how long the device has been in operation.
User interface	Days (d), hours (h), minutes (m), seconds (s)
Additional information	**Access:**
	• Read access: Operator
	• Write access: -

3.2.2   Diagnostic list

Navigation   ⌨️🔲 Diagnostics → Diagnostic list

3.2.3   Event logbook

Navigation   ⌨️🔲 Diagnostics → Event logbook

Filter options

Navigation	⌨️ Diagnostics → Event logbook → Filter options
Description	Use this function to select the category whose event messages are displayed in the event list of the operating tool.
Selection	• All
	• Failure (F)
	• Function check (C)
	• Out of specification (S)
	• Maintenance required (M)
	• Information (I)
	• Not categorized
Additional information	*Description*
	The status signals are categorized in accordance with VDI/VDE 2650 and NAMUR Recommendation NE 107:
	• F = Failure
	• C = Function Check
	• S = Out of Specification
	• M = Maintenance Required

Clear event list	🔒

Navigation	🔲 Diagnostics → Event logbook → Clear event list

Description	Delete all entries of the event list.

Selection	• Cancel
	• Clear data

Additional information	Access:
	• Read access: Expert
	• Write access: Expert

3.2.4   Minimum/maximum values

Navigation   🔲🔲   Diagnostics → Min/max val.

Frequency min	

Navigation	🔲🔲 Diagnostics → Min/max val. → Frequency min

Description	Minimum or maximum measured sensor frequency.

User interface	Signed floating-point number

Frequency max	

Navigation	🔲🔲 Diagnostics → Min/max val. → Frequency max

Description	Minimum or maximum measured sensor frequency.

User interface	Signed floating-point number

Minimum terminal voltage	

Navigation	🔲🔲 Diagnostics → Min/max val. → Min.term.volt.

Description	Minimum or maximum measured terminal (supply) voltage.

User interface	0.0 to 50.0 V

Additional information   Access:
   • Read access: Operator
   • Write access: -

Maximum terminal voltage

Navigation	🖲🖳 Diagnostics → Min/max val. → Max.term.voltage
Description	Minimum or maximum measured terminal (supply) voltage.
User interface	0.0 to 50.0 V

Minimum electronics temperature

Navigation	🖲🖳 Diagnostics → Min/max val. → Min.electr.temp.
Description	Minimum or maximum measured main electronics temperature.
User interface	Signed floating-point number

Additional information   Access:
   • Read access: Operator
   • Write access: -

Maximum electronics temperature

Navigation	🖲🖳 Diagnostics → Min/max val. → Max.electr.temp.
Description	Minimum or maximum measured main electronics temperature.
User interface	Signed floating-point number

Minimum sensor temperature

Navigation	🖲🖳 Diagnostics → Min/max val. → Min. sensor temp
Description	Minimum or maximum measured sensor (sensor electronics) temperature.
User interface	Signed floating-point number

Maximum sensor temperature

Navigation	🔘🔲 Diagnostics → Min/max val. → Max. sensor temp
Description	Minimum or maximum measured sensor (sensor electronics) temperature.
User interface	Signed floating-point number

3.2.5   Simulation

Navigation   🔘🔲 Diagnostics → Simulation

Simulation   🔒

Navigation	🔘🔲 Diagnostics → Simulation → Simulation
Prerequisite	The corresponding device function must be available and configured.
Description	By activating the simulation, the following can be simulated: - Fork state - Sensor frequency - Current output - Diagnostic event simulation The simulation can affect the output current.
Selection	• Off • Fork state • Sensor frequency • Current output • Diagnostic event simulation

---

Fork state simulation value   🔒

Navigation	🔘🔲 Diagnostics → Simulation → Fork. simul.val.
Description	In sensor frequency mode, output current is independent of fork state simulation value. In level limit detection mode, sensor frequency is independent of fork state simulation value.
Selection	• Fork covered • Fork uncovered

Frequency simulation value   🔒

Navigation	😑🔲 Diagnostics → Simulation → Freq. simulation
Description	In level limit detection mode, output current and fork state are independent of frequency simulation value.
User entry	0 to 10 000 Hz

Value current output   🔒

Navigation	😑🔲 Diagnostics → Simulation → Val. curr.outp
Prerequisite	Simulation = Current output (→ 📄 42)
Description	Defines the value of the simulated output current.
User entry	3.59 to 23 mA

Diagnostic event simulation   🔒

Navigation	😑🔲 Diagnostics → Simulation → Diag. event sim.
Description	Select the diagnostic event to be simulated. Note: To terminate the simulation, select "Off".
Selection	Off

3.2.6   Heartbeat Technology

Navigation   ▨▯   Diagnostics → Heartbeat Techn.

Heartbeat Verification

Navigation   ▯   Diagnostics → Heartbeat Techn. → Heartbeat Verif.

Date/time Heartbeat Verification	
Navigation	▨▯ Diagnostics → Heartbeat Techn. → Heartbeat Verif. → Date/time Heartbeat Verification
Description	Date and time of last Hearbeat Verification.
	This value is updated with every Heartbeat verification.
	Note: If time information is not available, e.g. Heartbeat verification is started from display, '--------' is shown.
User interface	Character string comprising numbers, letters and special characters

---

Operating time (Verification)	
Navigation	▨▯ Diagnostics → Heartbeat Techn. → Heartbeat Verif. → Operating time
Description	Value of the operating hours counter at the time of verification.
User interface	Days (d), hours (h), minutes (m), seconds (s)

Overall result	
Navigation	▨▯ Diagnostics → Heartbeat Techn. → Heartbeat Verif. → Overall result
Description	Result of Heartbeat Verification.
User interface	• Not done • Passed • Not done • Failed

Status

Navigation   @国   Diagnostics → Heartbeat Techn. → Heartbeat Verif. → Status

Description   Shows the actual status.

User interface   • Done
                              • Busy
                              • Failed
                              • Not done

Frequency history

Navigation   @国   Diagnostics → Heartbeat Techn. → Freq. history

Sensor frequency 1 ... 16

Navigation   @国   Diagnostics → Heartbeat Techn. → Freq. history → Frequency 1

User interface   Signed floating-point number

Date 1 ... 16

Navigation   @国   Diagnostics → Heartbeat Techn. → Freq. history → Date 1

User interface   Character string comprising numbers, letters and special characters

Loop diagnostics

Navigation   🔲🔳 Diagnostics → Heartbeat Techn. → Loop diagn.

Rebuild baseline

Navigation   🔲🔳 Diagnostics → Heartbeat Techn. → Loop diagn. → Reb. baseline

Description   Notice
                                The current output is simulated.
                                Bridge the PLC or take other appropriate measures to prevent an erroneous triggering of
                                alarm messages or changes in the control loop behavior.

                                The baseline should be rebuilt if planned changes have been made in the loop.

Selection   ▪ No
                                ▪ Yes

Tolerated deviation +/-

Navigation   🔲🔳 Diagnostics → Heartbeat Techn. → Loop diagn. → Toler. deviation

Description   A value should be chosen to ensure that normal voltage deviations do not lead to
                                unwanted messages.

                                Default
                                1.5 V DC

User entry   0.5 to 3.0 V

Baseline status

Navigation   🔲🔳 Diagnostics → Heartbeat Techn. → Loop diagn. → Baseline status

Description   'Failed'
                                Means, baseline is not available or creation not possible.

                                'Success'
                                Baseline is available.

User interface   ▪ Failed
                                ▪ Success

Loop diagnostics   🔓

Navigation   🞕🗏   Diagnostics → Heartbeat Techn. → Loop diagn. → Loop diagn.

Selection   • Disable
                                  • Enable

Terminal voltage 1

Navigation   🞕🗏   Diagnostics → Heartbeat Techn. → Loop diagn. → Terminal volt. 1

Description   Shows the current terminal voltage that is applied at the output

User interface   0.0 to 50.0 V

Clamping voltage lower threshold

Navigation   🞕🗏   Diagnostics → Heartbeat Techn. → Loop diagn. → Lower threshold

User interface   0.0 to 50.0 V

Clamping voltage upper threshold

Navigation   🞕🗏   Diagnostics → Heartbeat Techn. → Loop diagn. → Upper threshold

User interface   0.0 to 50.0 V

806 Alarm delay   🔓

Navigation   🞕🗏   Diagnostics → Heartbeat Techn. → Loop diagn. → 806 Event delay

User entry   0 to 60 s

Process window

Navigation   ▣▤   Diagnostics → Heartbeat Techn. → Process window

---

Sensor frequency

Navigation   ▣▤   Diagnostics → Heartbeat Techn. → Process window → Frequency

Description   Actual fork frequency.

User interface   0 to 10 000 Hz

---

900 Process alert frequency too low   ▣

Navigation   ▣▤   Diagnostics → Heartbeat Techn. → Process window → 900 Freq. too low

Description   Note: With the MAX safety function, no event for 'Process alert frequency too low' is
                      triggered if the fork is covered.

Selection   • Disable
                      • Enable

---

900 Alarm delay   ▣

Navigation   ▣▤   Diagnostics → Heartbeat Techn. → Process window → 900 Alarm delay

User entry   0 to 300 s

Low alert value   ▣

Navigation   ▣▤   Diagnostics → Heartbeat Techn. → Process window → Low alert value

Description   If this limit value is undercut, an event is generated. There is no hysteresis. A typical value
                      is 1% below the actual frequency.

User entry   0 to 2 000 Hz

---

901 Process alert frequency too high   🔒

Navigation   🔿🖩 Diagnostics → Heartbeat Techn. → Process window → 901 Freq. high

Description   Note: With the MIN safety function, no event for 'Process alert frequency too high' is
                                        triggered if the fork is uncovered.

Selection   • Disable
                                        • Enable

---

901 Alarm delay   🔒

Navigation   🔿🖩 Diagnostics → Heartbeat Techn. → Process window → 901 Alarm delay

User entry   0 to 300 s

High alert value   🔒

Navigation   🔿🖩 Diagnostics → Heartbeat Techn. → Process window → High alert value

Description   If this limit value is exceeded an event is generated. There is no hysteresis. With stable
                                        environmental conditions a typical value is 1% above the actual frequency.

User entry   0 to 2 000 Hz

3.2.7   Proof test

Navigation   🔿🖩 Diagnostics → Proof test

Date/time proof test

Navigation   🔿🖩 Diagnostics → Proof test → Date/time

Description   This value is updated with every proof test and with inspector decision „Passed".

User interface   Character string comprising numbers, letters and special characters

Time stamp of last proof test

Navigation	◱▣ Diagnostics → Proof test → Last proof test
Description	As soon as key is pressed, actual operating hours counter is saved.
User interface	Character string comprising numbers, letters and special characters

3.2.8 Diagnostic settings

Navigation   ▣   Diagnostics → Diag. settings

Properties

Navigation   ▣   Diagnostics → Diag. settings → Properties

49 Corrosion warning

Navigation	◱▣ Diagnostics → Diag. settings → Properties → 49 Corr. warning
Description	Enables or disable the corrosion warning. The corrosion warning is set if sensor frequency exceeds frequency at delivery status by 5%. If turned on event category can be set in menu -> Diagnostics -> Diagnostic settings -> Configuration Diagnostic behaviour can be changed to 'Logbook entry only' in the same menu.
Selection	▪ Off ▪ On

Upper warning frequency

Navigation	◱▣ Diagnostics → Diag. settings → Properties → U. warning freq.
Description	If the sensor frequency is currently greater than the upper warning frequency, then a warning is generated. The switching output remains in the current state. It is recommended to remove the sensor and check it for corrosion.
User interface	0 to 10 000 Hz

825 Electronics temperature

Navigation	🎛️🖥️ Diagnostics → Diag. settings → Properties → 825 Electr. temp
Description	Activates the monitoring of the electronics temperature. The limit values are fixed and depend on the order code of the device (+85°C and -40/-50/-60°C or 185°F and -40/-58/-76°F).
Selection	• Off
	• On

826 Temperature of sensor electronics

Navigation	🎛️🖥️ Diagnostics → Diag. settings → Properties → 826TSensElectr.
Description	Activates the monitoring of the sensor (electronics) temperature. The limit values are fixed and depend on the order code of the device (+85°C and -40/-50/-60°C or 185°F and -40/-58/-76°F).
Selection	• Off
	• On

Configuration

Navigation	🎛️🖥️ Diagnostics → Diag. settings → Configuration

49 Diagnostic behavior

Navigation	🎛️🖥️ Diagnostics → Diag. settings → Configuration → 49 Diag. behav.
Description	Sensor corroded
Selection	• Warning
	• Logbook entry only

49 Event category

Navigation	🎛️🖥️ Diagnostics → Diag. settings → Configuration → 49Event category
Description	Sensor corroded

Selection	• Failure (F)
	• Function check (C)
	• Out of specification (S)
	• Maintenance required (M)
	• No effect (N)

806 Diagnostic behavior

Navigation	🖲🖳 Diagnostics → Diag. settings → Configuration → 806 Diag. behav.
Description	Loop diagnostics
Selection	• Warning
	• Logbook entry only

806 Event category

Navigation	🖲🖳 Diagnostics → Diag. settings → Configuration → 806Event category
Description	Loop diagnostics
Selection	• Failure (F)
	• Function check (C)
	• Out of specification (S)
	• Maintenance required (M)
	• No effect (N)

825 Diagnostic behavior

Navigation	🖲🖳 Diagnostics → Diag. settings → Configuration → 825 Diag. behav.
Description	Electronics temperature
Selection	• Warning
	• Logbook entry only

825 Event category

Navigation	🖲🖳 Diagnostics → Diag. settings → Configuration → 825Event category
Description	Electronics temperature

Selection   • Failure (F)
                   • Function check (C)
                   • Out of specification (S)
                   • Maintenance required (M)
                   • No effect (N)

---

826 Diagnostic behavior   🔒

Navigation   🖼🖵 Diagnostics → Diag. settings → Configuration → 826 Diag. behav.

Description   Sensor temperature out of range

Selection   • Warning
                          • Logbook entry only

---

826 Event category   🔒

Navigation   🖼🖵 Diagnostics → Diag. settings → Configuration → 826Event category

Description   Sensor temperature out of range

Selection   • Failure (F)
                          • Function check (C)
                          • Out of specification (S)
                          • Maintenance required (M)
                          • No effect (N)

---

900 Diagnostic behavior   🔒

Navigation   🖼🖵 Diagnostics → Diag. settings → Configuration → 900 Diag. behav.

Prerequisite   **900 Process alert frequency too low** parameter (→ 🖺 29) in the menu Diagnostics →
                          Heartbeat Technology → Process window must be enabled.

Description   Process alert frequency too low

Selection   • Warning
                          • Logbook entry only

900 Event category	🔒

Navigation	🖩🖵 Diagnostics → Diag. settings → Configuration → 900Event category
Prerequisite	**900 Process alert frequency too low** parameter (→ 🕮 29) in the menu Diagnostics → Heartbeat Technology → Process window must be enabled.
Description	Process alert frequency too low
Selection	• Failure (F) • Function check (C) • Out of specification (S) • Maintenance required (M) • No effect (N)

901 Diagnostic behavior	🔒

Navigation	🖩🖵 Diagnostics → Diag. settings → Configuration → 901 Diag. behav.
Prerequisite	**901 Process alert frequency too high** parameter (→ 🕮 30) in the menu Diagnostics → Heartbeat Technology → Process window must be enabled.
Description	Process alert frequency too high
Selection	• Warning • Logbook entry only

901 Event category	🔒

Navigation	🖩🖵 Diagnostics → Diag. settings → Configuration → 901Event category
Prerequisite	**901 Process alert frequency too high** parameter (→ 🕮 30) in the menu Diagnostics → Heartbeat Technology → Process window must be enabled.
Description	Process alert frequency too high
Selection	• Failure (F) • Function check (C) • Out of specification (S) • Maintenance required (M) • No effect (N)

3.3 Application

Navigation   ⊠⊟ Application

3.3.1 Measured values

Navigation   ⊠⊟ Application → Measured values

Sensor frequency

Navigation   ⊠⊟ Application → Measured values → Frequency

Description   Actual fork frequency.

User interface   0 to 10 000 Hz

Fork state

Navigation   ⊠⊟ Application → Measured values → Fork state

Description   The condition of the fork is displayed.

User interface   • Fork covered
                      • Fork uncovered

Terminal voltage 1

Navigation   ⊠⊟ Application → Measured values → Terminal volt. 1

Description   Shows the current terminal voltage that is applied at the output

User interface   0.0 to 50.0 V

Terminal current

Navigation   ⊠⊟ Application → Measured values → Terminal curr.

Description   Shows the current value of the current output which is currently measured

User interface   0 to 30 mA

Sensor temperature

Navigation   ◨◳ Application → Measured values → Sensor temp.

User interface   Signed floating-point number

Electronics temperature

Navigation   ◨◳ Application → Measured values → Electronics temp

Description   Displays the current temperature of the main electronics.

User interface   Signed floating-point number

3.3.2   Measuring units

Navigation   ◨◳ Application → Measuring units

Temperature unit   ☖

Navigation   ◨◳ Application → Measuring units → Temperature unit

Description   Select temperature unit.

Selection   *SI units*   *US units*
                              ▪ ℃   ℉
                              ▪ K

3.3.3 Sensor

Navigation   ⊞⊟   Application → Sensor

Sensor configuration

Navigation   ⊞⊟   Application → Sensor → Sensor conf.

Mode of operation   ⊞

Navigation	⊞⊟ Application → Sensor → Sensor conf. → Mode of operat.
Description	Level limit detection: Switching mode, output is either 8 mA (demand) or 16 mA (good).
	Sensor frequency : Continuous mode, output between 4 mA and 20 mA proportional to sensor frequency.
Selection	• Level limit detection
	• Sensor frequency

Safety function   ⊞

Navigation	⊞⊟ Application → Sensor → Sensor conf. → Safety function
Description	MIN: Use for dry run protection.
	MAX: Use for overfill protection.
Selection	• MIN
	• MAX

Density setting   ⊞

Navigation	⊞⊟ Application → Sensor → Sensor conf. → Density setting
Selection	• > 0.4 g/cm³ *
	• > 0.4 g/cm³ *
	• > 0.5 g/cm³
	• > 0.7 g/cm³

---

*   Visibility depends on order options or device settings

Additional information   *Selection*

- **> 0.4 g/cm³** option
  For liquids with a density of 0.4…0.6 g/cm³
- **> 0.4 g/cm³** option
  For liquids with a density of 0.4…0.6 g/cm³
- **> 0.5 g/cm³** option
  For liquids with a density 0.5…0.8 g/cm³
- **> 0.7 g/cm³** option
  Standard setting for liquids with a density > 0.7 g/cm³

Damping	🔒

Navigation	🎛️🖥️ Application → Sensor → Sensor conf. → Damping

Description	Damping, used for Sensor frequency only. Does not affect Level limit detection and Fork state.

User entry	0 to 999 s

Switching delay uncovered to covered	🔒

Navigation	🎛️🖥️ Application → Sensor → Sensor conf. → Delay to covered

Description	Choose between predefined values or select 'Customer specific' to enter a value between 1.00 s and 60.00 s.

Selection   • 0.25 s
• 0.50 s
• 1.00 s
• 1.50 s
• 5.00 s
• Customer specific

Customer delay to covered	🔒

Navigation	🎛️🖥️ Application → Sensor → Sensor conf. → Cust. delay cov.

User entry	1 to 60 s

Switching delay covered to uncovered

Navigation	𝗮𝗯 Application → Sensor → Sensor conf. → Delay to uncov.
Description	Choose between predefined values or select 'Customer specific' to enter a value between 1.00 s and 60.00 s.
Selection	• 0.25 s • 0.50 s • 1.00 s • 1.50 s • 5.00 s • Customer specific

---

Customer delay to uncovered

Navigation	𝗮𝗯 Application → Sensor → Sensor conf. → Cust. delay unc.
User entry	1 to 60 s

Stored frequency

Navigation	𝗮𝗯 Application → Sensor → Stored frequency

Stored uncovered frequency

Navigation	𝗮𝗯 Application → Sensor → Stored frequency → St. uncov. freq
Description	In this parameter the actual sensor frequency can be stored, which is only possible if the fork is uncovered. The value is displayed on the Heartbeat Technology verification report and can be used as a reference for further/future analyses.
User interface	0 to 10 000 Hz

Stored covered frequency

Navigation	𝗮𝗯 Application → Sensor → Stored frequency → Stor. cov. freq
Description	In this parameter the actual sensor frequency can be stored, which is only possible if the fork is covered. The value is displayed on the Heartbeat Technology verification report and can be used as a reference for further/future analyses.

User interface   0 to 10 000 Hz

Sensor calibration

Navigation   ▣▤   Application → Sensor → Sensor cal.

Lower switching point at density

Navigation   ▣▤   Application → Sensor → Sensor cal. → Lower sw. point

Description   This is the sensor frequency at which the fork status changes to covered (depending on the density selected).

User interface   0 to 2 000 Hz

Upper switching point at density

Navigation   ▣▤   Application → Sensor → Sensor cal. → Upper sw. point

Description   This is the sensor frequency at which the fork status changes to uncovered (depending on the density selected).

User interface   0 to 2 000 Hz

Frequency at delivery status

Navigation   ▣▤   Application → Sensor → Sensor cal. → Freq. delivery

Description   Sensor frequency at delivery status.

User interface   0 to 10 000 Hz

Upper warning frequency

Navigation   ▣▤   Application → Sensor → Sensor cal. → U. warning freq.

Description   If the sensor frequency is currently greater than the upper warning frequency, then a warning is generated. The switching output remains in the current state. It is recommended to remove the sensor and check it for corrosion.

User interface	0 to 10000 Hz

Upper alarm frequency

Navigation	🔽🔲 Application → Sensor → Sensor cal. → Upper alarm f.

Description	If the sensor frequency is currently greater than the upper alarm frequency, then an alarm is generated and the switching output switches to the safety related state.

User interface	0 to 10000 Hz

3.3.4   Current output

	Navigation 🔽🔲 Application → Curr.output

Assign PV

Navigation	🔽🔲 Application → Curr.output → Assign PV

Description	Assign a measured variable to the primary dynamic variable (PV).
	Additional information: The assigned measured variable is also used by the current output.

User interface	• Level limit detection
	• Sensor frequency

Current range output   🔒

Navigation	🔽🔲 Application → Curr.output → Cur.range outp

Description	Defines the current range used to transmit the measured or calculated value. In brackets are indicated the "low saturation value" and the "high saturation value". If Measured value ≤ "low saturation", the output current is set to "low saturation". If Measured value ≥ "high saturation", the output current is set to "high saturation".
	Note: Currents below 3.6 mA or above 21.5 mA can be used to signal an alarm.

Selection	• 4...20 mA (4...20.5 mA)
	• 4...20 mA NE (3.8...20.5 mA)
	• 4...20 mA US (3.9...20.8 mA)

Lower range value output	🔒

Navigation	🖫🖳 Application → Curr.output → Low.range outp
Description	Depending of which variable has been selected as PV, define the related lower and upper range values. Assignment PV value to 4 mA and 20 mA.
User entry	4 to 23 mA

Upper range value output	🔒

Navigation	🖫🖳 Application → Curr.output → Upp.range outp
Description	Depending of which variable has been selected as PV, define the related lower and upper range values. Assignment PV value to 4 mA and 20 mA.
User entry	4 to 23 mA

Failure behavior current output	🔒

Navigation	🖫🖳 Application → Curr.output → Fail.behav.out
Description	Defines which current the output assumes in the case of an error. Min: < 3.6 mA Max: >21.5 mA
Selection	▪ Min. ▪ Max.

Failure current	🔒

Navigation	🖫🖳 Application → Curr.output → Failure current
Description	Enter current output value in alarm condition
User entry	21.5 to 23 mA

Output current

Navigation	🗗🖩 Application → Curr.output → Output curr.
Description	Shows the value currently calculated for the current output
User interface	3.59 to 23 mA

Terminal current

Navigation	🗗🖩 Application → Curr.output → Terminal curr.
Description	Shows the current value of the current output which is currently measured
User interface	0 to 30 mA

3.3.5   HART output

> *Navigation*   🗗🖩 Application → Curr.output

Configuration

> *Navigation*   🗗🖩 Application → HART output → Configuration

HART address	🔒

Navigation	🗗🖩 Application → HART output → Configuration → HART address
Description	Enter the address to exchange data via the HART protocol.
User entry	0 to 63

HART short tag	🔒

Navigation	🗗🖩 Application → HART output → Configuration → HART short tag
Description	Defines the short tag for the measuring point.
	Maximum length: 8 characters Allowed characters: A-Z, 0-9, certain special characters

User entry	Character string comprising numbers, letters and special characters (8)

Device tag   🔒

Navigation	🖩🗔 Application → HART output → Configuration → Device tag
Description	Enter a unique name for the measuring point to identify the device quickly within the plant.
User entry	Character string comprising numbers, letters and special characters (32)

No. of preambles   🔒

Navigation	🖩🗔 Application → HART output → Configuration → No. of preambles
Description	Defines the number of preambles in the HART telegram
User entry	5 to 20

Loop current mode   🔒

Navigation	🖩🗔 Application → HART output → Configuration → Loop curr mode
Description	If Loop current mode is disabled, Multi-drop communication mode is activated. Multi-drop is a HART digital communication mode where multiple devices may share the same pair of wires for power and communications. In this mode the output current is fixed.
Selection	• Disable • Enable

HART output

Navigation   ▣▣   Application → HART output → HART output

Assign PV

Navigation	▣▣ Application → HART output → HART output → Assign PV
Description	Assign a measured variable to the primary dynamic variable (PV).
	Additional information: The assigned measured variable is also used by the current output.
User interface	• Level limit detection • Sensor frequency

Primary variable (PV)

Navigation	▣▣ Application → HART output → HART output → Primary var (PV)
Description	Shows the current measured value of the primary dynamic variable (PV)
User interface	4 to 23 mA

Assign SV   🔒

Navigation	▣▣ Application → HART output → HART output → Assign SV
Description	Assign a measured variable to the second dynamic variable (SV).
Selection	• Level limit detection • Sensor frequency • Fork state • Sensor temperature • Electronics temperature • Measured current [*] • Terminal voltage [*] • Not used
Additional information	*Selection* • **Fork state** option Indicates fork state 'Fork covered ' (1) or 'Fork uncovered ' (0). • **Sensor temperature** option Temperature of sensor electronics in the housing.

---

* Visibility depends on order options or device settings

Secondary variable (SV)

Navigation	🎛️🖥️ Application → HART output → HART output → Second.var(SV)
Description	Shows the current measured value of the secondary dynamic variable (SV)
User interface	0 to 10 000 Hertz

Assign TV   🔒

Navigation	🎛️🖥️ Application → HART output → HART output → Assign TV
Description	Assign a measured variable to the tertiary dynamic variable (TV).
Selection	• Level limit detection • Sensor frequency • Fork state • Sensor temperature • Electronics temperature • Measured current * • Terminal voltage * • Not used
Additional information	*Selection* • **Fork state** option Indicates fork state 'Fork covered ' (1) or 'Fork uncovered ' (0). • **Sensor temperature** option Temperature of sensor electronics in the housing.

Tertiary variable (TV)

Navigation	🎛️🖥️ Application → HART output → HART output → Tertiary var(TV)
Description	Shows the current measured value of the tertiary (third) dynamic variable (TV)
User interface	0 to 1.0 ManufacturerNoUnit

Assign QV   🔒

Navigation	🎛️🖥️ Application → HART output → HART output → Assign QV
Description	Assign a measured variable to the quaternary dynamic variable (QV).

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* Visibility depends on order options or device settings

Selection	• Level limit detection
	• Sensor frequency
	• Fork state
	• Sensor temperature
	• Electronics temperature
	• Measured current *
	• Terminal voltage *
	• Not used

Additional information   *Selection*

• **Fork state** option
  Indicates fork state 'Fork covered ' (1) or 'Fork uncovered ' (0).
• **Sensor temperature** option
  Temperature of sensor electronics in the housing.

Quaternary variable (QV)

Navigation   🔘🖳 Application → HART output → HART output → Quaterna.var(QV)

Description   Shows the current measured value of the quaternary (fourth) dynamic variable (QV)

User interface   Signed floating-point number

Burst configuration 1

Navigation   🔘🖳 Application → HART output → Burst config. 1

Burst mode 1   🔒

Navigation   🔘🖳 Application → HART output → Burst config. 1 → Burst mode 1

Description   Switch HART burst mode for burst message on

Selection   • Off
                      • On

Burst command 1   🔒

Navigation   🔘🖳 Application → HART output → Burst config. 1 → Burst command 1

Description   Select the HART command that is sent to the HART master

---

* Visibility depends on order options or device settings

Selection	• Primary variable (PV)
	• Loop Current and Percent of Range
	• Dynamic Variables
	• Device variables with status
	• Device variables
	• Additional device status

Burst variable 0 … 3	🔒

Navigation	🖩🖳 Application → HART output → Burst config. 1 → Burst variable 0

Description	For HART command 9 and 33, assign a HART device variable or process variable to burst variable

Selection	• Level limit detection
	• Sensor frequency
	• Fork state
	• Sensor temperature
	• Electronics temperature
	• Measured current *
	• Terminal voltage 1 *
	• Percent of range
	• Measured current
	• Primary variable (PV)
	• Secondary variable (SV)
	• Tertiary variable (TV)
	• Quaternary variable (QV)
	• Not used

Burst variable 4 … 7	🔒

Navigation	🖩🖳 Application → HART output → Burst config. 1 → Burst variable 4

Description	For HART command 33, assign a HART device variable or process variable to burst variable

Selection	• Level limit detection
	• Sensor frequency
	• Fork state
	• Sensor temperature
	• Electronics temperature
	• Measured current *
	• Terminal voltage 1 *
	• Percent of range
	• Measured current
	• Primary variable (PV)
	• Secondary variable (SV)
	• Tertiary variable (TV)
	• Quaternary variable (QV)
	• Not used

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* Visibility depends on order options or device settings

Burst trigger mode	🔒

Navigation	🔘🔲 Application → HART output → Burst config. 1 → Trigger mode

Description	Select the event that triggers the burst message

Selection
- Continuous
- Window *
- Rising *
- Falling *
- On change

Burst trigger level	🔒

Navigation	🔘🔲 Application → HART output → Burst config. 1 → Trigger level

Description	Enter the burst trigger value that determines together with the option selected in 'Burst trigger mode' parameter the time of burst message

User entry	Signed floating-point number

Min. update period	🔒

Navigation	🔘🔲 Application → HART output → Burst config. 1 → Min. upd. per.

Description	Enter the minimum time span between two burst responses of one burst message

User entry	Positive integer

Max. update period	🔒

Navigation	🔘🔲 Application → HART output → Burst config. 1 → Max. upd. per.

Description	Enter the maximum time span between two burst responses of one burst message

User entry	Positive integer

---

* Visibility depends on order options or device settings

Information

Navigation   ◨◩ Application → HART output → Information

Device ID

Navigation	◨◩ Application → HART output → Information → Device ID
Description	Shows the device ID for identifying the device in a HART network
User interface	Positive integer

Device type

Navigation	◨◩ Application → HART output → Information → Device type
Description	Shows the device type with which the measuring device is registered with the HART Communication Foundation
User interface	0 to 65 535

Device revision

Navigation	◨◩ Application → HART output → Information → Device revision
Description	Shows the device revision with which the device is registered with the HART Communication Foundation
User interface	0 to 255

HART short tag   🔒

Navigation	◨◩ Application → HART output → Information → HART short tag
Description	Defines the short tag for the measuring point.
	Maximum length: 8 characters Allowed characters: A-Z, 0-9, certain special characters
User entry	Character string comprising numbers, letters and special characters (8)

HART revision

Navigation   ◎▤   Application → HART output → Information → HART revision

User interface   5 to 7

HART descriptor   ▣

Navigation   ◎▤   Application → HART output → Information → HART descriptor

Description   Use this function to define a description for the measuring point.

                                        Maximum length: 16 characters
                                        Allowed characters: A-Z, 0-9, certain special characters

User entry   Character string comprising numbers, letters and special characters (16)

HART message   ▣

Navigation   ◎▤   Application → HART output → Information → HART message

Description   Use this function to define a HART message which is sent via the HART protocol when
                                        requested by the master.

                                        Maximum length: 32 characters
                                        Allowed characters: A-Z, 0-9, certain special characters

User entry   Character string comprising numbers, letters and special characters (32)

HART date code   ▣

Navigation   ◎▤   Application → HART output → Information → HART date code

Description   Enter date of the last configuration change. Use this format yyyy-mm-dd

User entry   Character string comprising numbers, letters and special characters (10)

3.4   System

Navigation   ⊞⊟   System

3.4.1   Device management

Navigation   ⊞⊟   System → Device manag.

Device tag	🔒

Navigation	⊞⊟ System → Device manag. → Device tag
Description	Enter a unique name for the measuring point to identify the device quickly within the plant.
User entry	Character string comprising numbers, letters and special characters (32)

Locking status	

Navigation	⊞⊟ System → Device manag. → Locking status
Description	Indicates the type of locking.
	'Hardware locked' (HW) The device is locked by the 'WP' switch on the main electronics module. To unlock, set the switch into the OFF position.
	'Safety locked' (SW) Unlock the device by entering the appropriate access code in 'Enter safety unlocking code'.
	'Temporarily locked' (SW) The device is temporarily locked by processes in the device (e.g. data upload/download, reset). The device will automatically be unlocked after completion of these processes.
User interface	• Hardware locked • Safety locked • Temporarily locked

Configuration counter

Navigation	�🔲 System → Device manag. → Config. counter

Description	Displays the counter for changes to the device parameters.
	Additional information: - If the value for a static parameter is changed when optimizing or configuring the parameter, the counter is incremented by 1. This is to enable tracking different parameter versions. - When multiple parameters are changed simultaneously, e.g. when loading parameters into the device from an external source such as FieldCare, the counter may display a higher value. The counter cannot be reset, nor is it reset to a default value on performing a device reset. - Once the counter has reached the value 65535, it restarts at 0.

User interface	0 to 65 535

Reset device   🔒

Navigation	�🔲 System → Device manag. → Reset device

Description	Reset the device configuration - either entirely or in part - to a defined state

Selection	• Cancel • To fieldbus defaults ** • To factory defaults * • To delivery settings * • Restart device

3.4.2 User management

Navigation   🔲   System → User manag.

User role

Navigation	�🔲 System → User manag. → User role

Description	Shows the access authorization to the parameters via the operating tool

---

** Visibility depends on communication
* Visibility depends on order options or device settings

User interface	• Operator
	• Maintenance
	• Expert
	• Production
	• Development

Change user role

Navigation	▣	System → User manag. → Change user role

Description   It is possible to change the user role.

If the actual role is 'Maintenance', the 'Enter access code' will be prompted.

If the actual role is 'Operator', a 'Maintenance' password will be required.

User entry   Character string comprising numbers, letters and special characters (1)

Password

Navigation	▣	System → User manag. → Password

Description   Enter the password for the 'Maintenance' user role to get access to the functionality of this role.

User entry   Character string comprising numbers, letters and special characters (16)

Enter access code   🔒

Navigation	▣	System → User manag. → Ent. access code

Description   For authorized service personnel only.

User entry   0 to 9 999

Status password entry

Navigation	▣▣	System → User manag. → Status pw entry

Description   Use this function to display the status of the password verification.

User interface	• --------
	• Wrong password
	• Password rule violated
	• Password accepted

- Permission denied
- Confirm PW mismatch
- Reset password accepted
- Invalid user role
- Wrong sequence of entry

Define password

Navigation	▣ System → User manag. → Define password
User entry	Character string comprising numbers, letters and special characters (1)

New password   ⌐⌐

Navigation	▣▣ System → User manag. → New password
Description	Define the new 'Maintenance' password. A new password is valid after it has been confirmed within the 'Confirm new password' parameter. Any valid password consists of 4 to 16 characters and can contain letters and numbers.
User entry	Character string comprising numbers, letters and special characters (16)

Confirm new password   ⌐⌐

Navigation	▣▣ System → User manag. → Conf. new passw.
Description	Enter the new password again to confirm.
User entry	Character string comprising numbers, letters and special characters (16)

Change password   ⌐⌐

Navigation	▣ System → User manag. → Change password
Description	Changes the 'Maintenance' password.
User entry	Character string comprising numbers, letters and special characters (1)

Old password   🔒

Navigation	🖥🖵	System → User manag. → Old password
Description		Enter the current password, to subsequently change the existing password.
User entry		Character string comprising numbers, letters and special characters (16)

Delete password   🔒

Navigation	🖵	System → User manag. → Delete password
Description		Deletes the 'Maintenance' password.
		After deleting, the 'Operator' role will be no more available.
		All users have read/write access rights.
User entry		Character string comprising numbers, letters and special characters (1)

Forgot password?

Navigation	🖵	System → User manag. → Forgot password?
User entry		Character string comprising numbers, letters and special characters (1)

Reset password

Navigation	🖵	System → User manag. → Reset password
Description		Enter a code to reset the current 'Maintenance' password.
		The code is deliverd by your local support.
User entry		Character string comprising numbers, letters and special characters (16)

3.4.3   Bluetooth configuration

Navigation   ⧆⊟ System → Bluetooth conf.

Bluetooth activation

Navigation   ⧆⊟ System → Bluetooth conf. → Bluetooth active

Description   If Bluetooth is deactivated, it can only be reactivated via the display or the operating tool.
Reactivating via the SmartBlue app is not possible.

Selection   • Disable
• Enable

3.4.4   Display

Navigation   ⧆⊟ System → Display

Language

Navigation   ⧆⊟ System → Display → Language

Description   Set display language

Selection   • English
• Deutsch [*]
• Français [*]
• Español [*]
• Italiano [*]
• Nederlands [*]
• Portuguesa [*]
• Polski [*]
• русский язык (Russian) [*]
• Svenska [*]
• Türkçe [*]
• 中文 (Chinese) [*]
• 日本語 (Japanese) [*]
• 한국어 (Korean) [*]
• tiếng Việt (Vietnamese) [*]
• čeština (Czech) [*]

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*   Visibility depends on order options or device settings

Format display

Navigation	🔘🔲 System → Display → Format display
Description	Select how measured values are shown on the display
Selection	• 1 value, max. size • 1 bargraph + 1 value • 2 values

Value 1 display   🔒

Navigation	🔘🔲 System → Display → Value 1 display
Description	Select the measured value that is shown on the local display
Selection	• Level limit detection • Sensor frequency • Fork state • Sensor temperature • Current output • Terminal voltage

Value 2 display   🔒

Navigation	🔘🔲 System → Display → Value 2 display
Description	Select the measured value that is shown on the local display
Selection	• None • Level limit detection • Sensor frequency • Fork state • Sensor temperature • Current output • Terminal voltage

Value 3 display   🔒

Navigation	🔘🔲 System → Display → Value 3 display
Description	Select the measured value that is shown on the local display
Selection	• None • Level limit detection • Sensor frequency

- Fork state
- Sensor temperature
- Current output
- Terminal voltage

Value 4 display   ⌂

Navigation	⫿⫾ System → Display → Value 4 display
Description	Select the measured value that is shown on the local display
Selection	• None • Level limit detection • Sensor frequency • Fork state • Sensor temperature • Current output • Terminal voltage

---

Decimal places 1 … 4   ⌂

Navigation	⫿⫾ System → Display → Decimal places 1
Description	This selection does not affect the measurement and calculation accuracy of the device.
Selection	• x • x.x • x.xx • x.xxx • x.xxxx

Contrast display

Navigation	⫿⫾ System → Display → Contrast display
Description	Adjust local display contrast setting to ambient conditions (e.g. lighting or reading angle)
User entry	20 to 80 %

3.4.5   Geolocation

Navigation   ▣   System → Geolocation

Process Unit Tag   🔒

Navigation	▣▣ System → Geolocation → Process Unit Tag
Description	Enter the process unit in which the device is installed.
User entry	Character string comprising numbers, letters and special characters (32)

Location Description   🔒

Navigation	▣▣ System → Geolocation → Location Descr.
Description	Use this function to enter a description of the location so that the device can be located in the plant.
User entry	Character string comprising numbers, letters and special characters (32)

Longitude   🔒

Navigation	▣▣ System → Geolocation → Longitude
Description	Use this function to enter the longitude coordinates that describe the device location.
User entry	−180 to 180 °

Latitude   🔒

Navigation	▣▣ System → Geolocation → Latitude
Description	Use this function to enter the latitude coordinates that describe the device location.
User entry	−90 to 90 °

Altitude	🔒

Navigation	🔘🔲 System → Geolocation → Altitude
Description	Use this function to enter the altitude data that describe the device location.
User entry	Signed floating-point number

Location method	🔒

Navigation	🔘🔲 System → Geolocation → Location method
Description	Use this function to select the data format for specifying the geographic location. The codes for specifying the location are based on the US National Marine Electronics Association (NMEA) Standard NMEA 0183.
Selection	• No fix • GPS or Standard Positioning Service fix • Differential GPS fix • Precise positioning service (PPS) fix • Real Time Kinetic (RTK) fixed solution • Real Time Kinetic (RTK) float solution • Estimated dead reckoning • Manual input mode • Simulation Mode

3.4.6   Information

Navigation   🔘🔲   System → Information

Device name	

Navigation	🔘🔲 System → Information → Device name
Description	Use this function to display the device name. It can also be found on the nameplate.
User interface	Character string comprising numbers, letters and special characters

Manufacturer

Navigation	▣▤ System → Information → Manufacturer
User interface	Character string comprising numbers, letters and special characters

Serial number

Navigation	▣▤ System → Information → Serial number
Description	The serial number is a unique alphanumerical code identifying the device. It is printed on the nameplate. In combination with the Operations app it allows to access all device related documentation.
User interface	Character string comprising numbers, letters and special characters

Order code   🔒

Navigation	▣▤ System → Information → Order code
Description	Shows the device order code.
User interface	Character string comprising numbers, letters and special characters
Additional information	**Access:** • Read access: Operator • Write access: Expert

Firmware version

Navigation	▣▤ System → Information → Firmware version
Description	Displays the device firmware version installed.
User interface	Character string comprising numbers, letters and special characters

Hardware version

Navigation	▣▤ System → Information → Hardware version
User interface	Character string comprising numbers, letters and special characters

---

Extended order code 1 … 3   🔒

Navigation	🖥 System → Information → Ext. order cd. 1
Description	The extended order code is an alphanumeric code containing all information to identify the device and its options.
User interface	Character string comprising numbers, letters and special characters
Additional information	**Access:** • Read access: Operator • Write access: Expert

---

XML build number

Navigation	🖥🖥 System → Information → XML build no.
User interface	Positive integer
Additional information	**Access:** • Read access: Expert • Write access: Expert

---

Checksum

Navigation	🖥🖥 System → Information → Checksum
Description	Checksum for Firmware version.
User interface	Positive integer

3.4.7   Software configuration

Navigation   🖥🖥   System → Softw. config.

CRC device configuration

Navigation	🖥🖥 System → Softw. config. → CRC device conf.
Description	CRC device configuration based on current settings of safety relevant parameters. The CRC device configuration is unique and can be used to detect changes in safety relevant parameter settings.

User interface   0 to 65 535

Stored CRC device configuration

Navigation   ⧉⧉ System → Softw. config. → Stored CRC conf.

Description   Stored CRC after the last safety lock. Factory delivery is 65535 means that the device has
                           not yet been safety locked.

User interface   0 to 65 535

Timestamp stored CRC device config.

Navigation   ⧉⧉ System → Softw. config. → TS stored CRC

Description   Gives the time stamp when the CRC was last stored following completion of the safety lock
                           wizard.

User interface   Character string comprising numbers, letters and special characters

---

Activate SW option   🔒

Navigation   ⧉⧉ System → Softw. config. → Activate SW opt.

Description   Enter the application package code or code of another re-ordered functionality to enable it

User entry   Positive integer

Software option overview

Navigation   ⧉⧉ System → Softw. config. → SW option overv.

Description   Shows all enabled software options

User interface   • SIL
                            • WHG
                            • Heartbeat Verification
                            • Heartbeat Monitoring

3.4.8   Additional information

Navigation   System → Additional info

Sensor

Navigation   System → Additional info → Sensor

Serial number

Navigation	System → Additional info → Sensor → Serial number
Description	Shows the serial number of the module.
User interface	Character string comprising numbers, letters and special characters
Additional information	Access: • Read access: Expert • Write access: Expert

---

Firmware version

Navigation	System → Additional info → Sensor → Firmware version
Description	Displays the firmware version of the module.
User interface	Positive integer
Additional information	Access: • Read access: Expert • Write access: Expert

---

Build no. software

Navigation	System → Additional info → Sensor → Build no. softw.
Description	Shows the build number of the module firmware.
User interface	0 to 65 535
Additional information	Access: • Read access: Expert • Write access: Expert

Hardware version

Navigation	🖩🖵 System → Additional info → Sensor → Hardware version
Description	Displays the hardware version of the module.
User interface	Character string comprising numbers, letters and special characters
Additional information	Access: • Read access: Expert • Write access: Expert

Checksum

Navigation	🖩🖵 System → Additional info → Sensor → Checksum
Description	Checksum for Firmware version.
User interface	Positive integer

Electronics

Navigation	🖩🖵 System → Additional info → Electronics

Serial number

Navigation	🖩🖵 System → Additional info → Electronics → Serial number
Description	Shows the serial number of the module.
User interface	Character string comprising numbers, letters and special characters
Additional information	Access: • Read access: Expert • Write access: Expert

Firmware version

Navigation	🖩🖵 System → Additional info → Electronics → Firmware version
Description	Displays the firmware version of the module.

User interface	Positive integer

Additional information	**Access:** • Read access: Expert • Write access: Expert

Build no. software

Navigation	⧉▣ System → Additional info → Electronics → Build no. softw.

Description	Shows the build number of the module firmware.

User interface	0 to 65 535

Additional information	**Access:** • Read access: Expert • Write access: Expert

Hardware version

Navigation	⧉▣ System → Additional info → Electronics → Hardware version

Description	Displays the hardware version of the module.

User interface	Character string comprising numbers, letters and special characters

Additional information	**Access:** • Read access: Expert • Write access: Expert

Display/Bluetooth

Navigation	⧉▣ System → Additional info → Displ./Bluetooth

Serial number

Navigation	⧉▣ System → Additional info → Displ./Bluetooth → Serial number

Description	Shows the serial number of the module.

User interface	Character string comprising numbers, letters and special characters

Additional information	Access:
	• Read access: Expert
	• Write access: Expert

Firmware version

Navigation	🔘🖳 System → Additional info → Displ./Bluetooth → Firmware version
Description	Displays the firmware version of the module.
User interface	Positive integer
Additional information	Access: • Read access: Expert • Write access: Expert

Build no. software

Navigation	🔘🖳 System → Additional info → Displ./Bluetooth → Build no. softw.
Description	Shows the build number of the module firmware.
User interface	0 to 65 535
Additional information	Access: • Read access: Expert • Write access: Expert

Hardware version

Navigation	🔘🖳 System → Additional info → Displ./Bluetooth → Hardware version
Description	Displays the hardware version of the module.
User interface	Character string comprising numbers, letters and special characters
Additional information	Access: • Read access: Expert • Write access: Expert

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