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71711114
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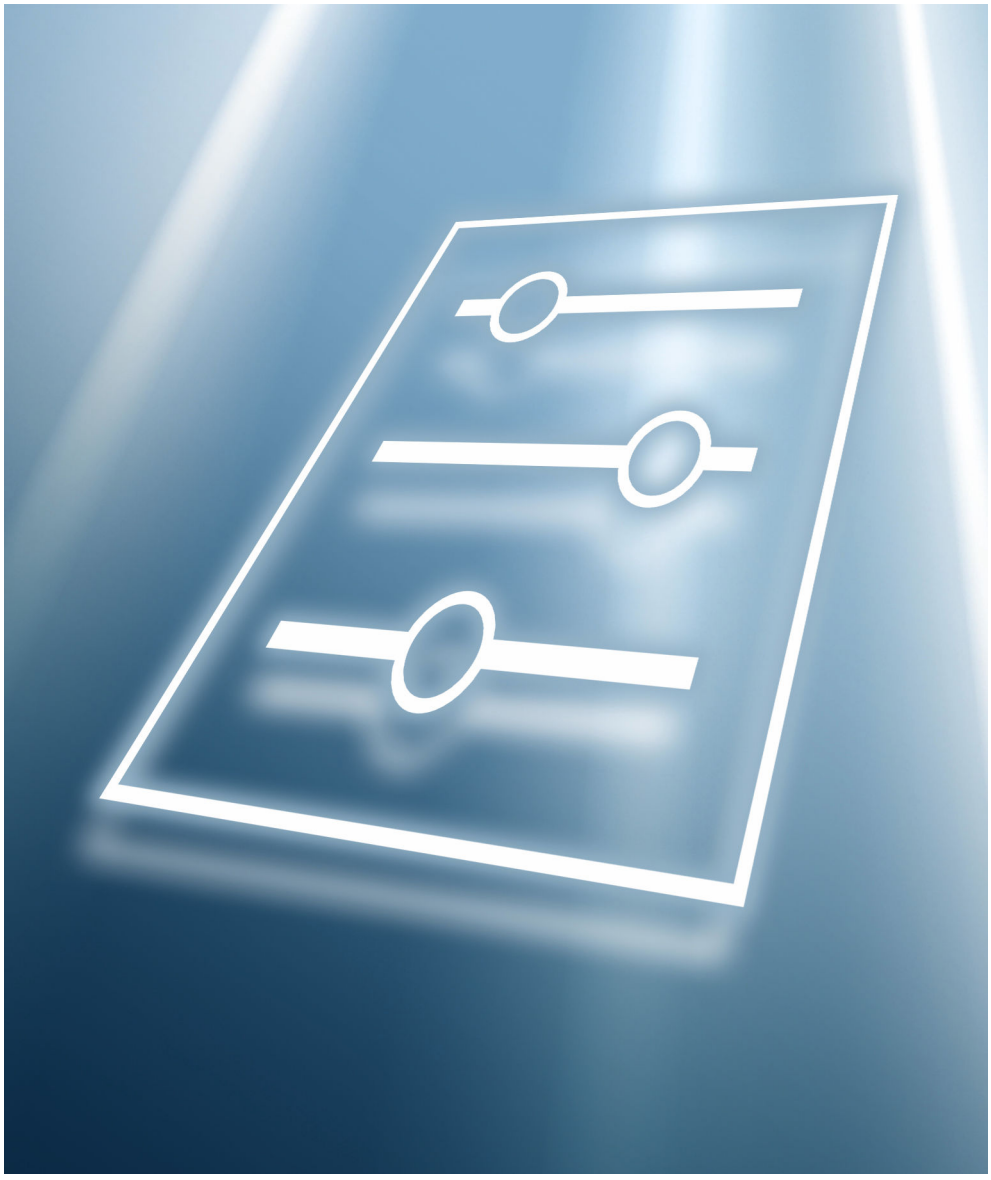
Description of Device Parameters
FlexView FMA90

Control unit with color display and touch control for up to two ultrasonic, radar, hydrostatic or universal 4-20 mA/ HART® level sensors



Endress+Hauser
People for Process Automation

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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 main menus and their submenus.

The main menus:
- Guidance
- Diagnostics
- Application
- System
- Visualization (→ 🖹 255)
- Help (→ 🖹 201)

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 they are logged in with. This document lists the submenus and their parameters that are available to the **Maintenance** user role with the **Advanced maintenance mode** view.

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

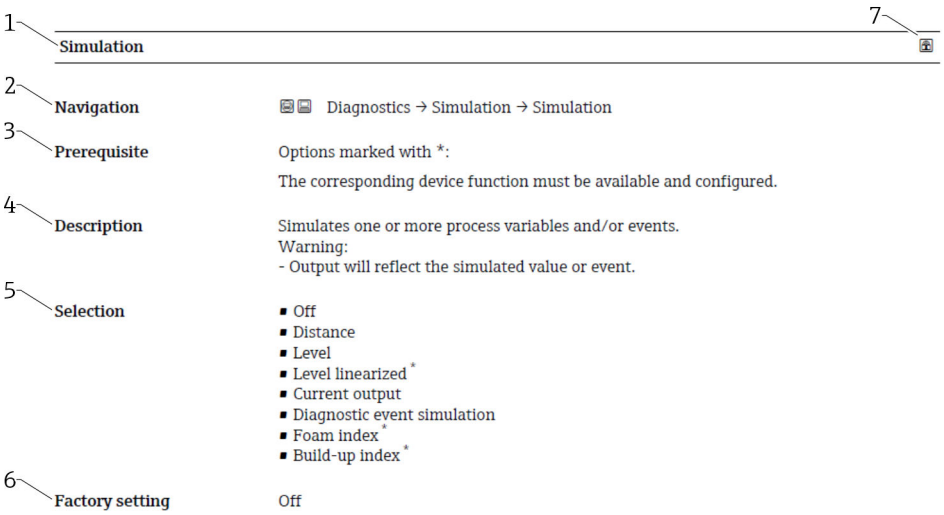
For information on operating options, see the Operating Instructions.

1.3.1 Special instructions

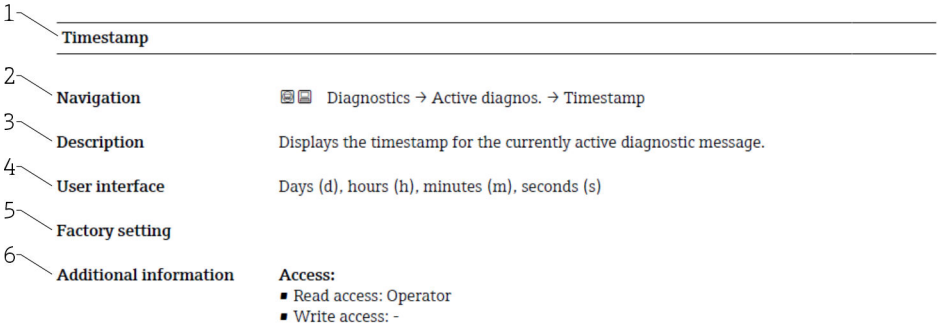
For some HART parameters, question marks "????? " may be displayed as the unit. This is the case if the unit has not yet been read out by the connected sensor (the factory setting of the FlexView FMA90 is shown).

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:



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*



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

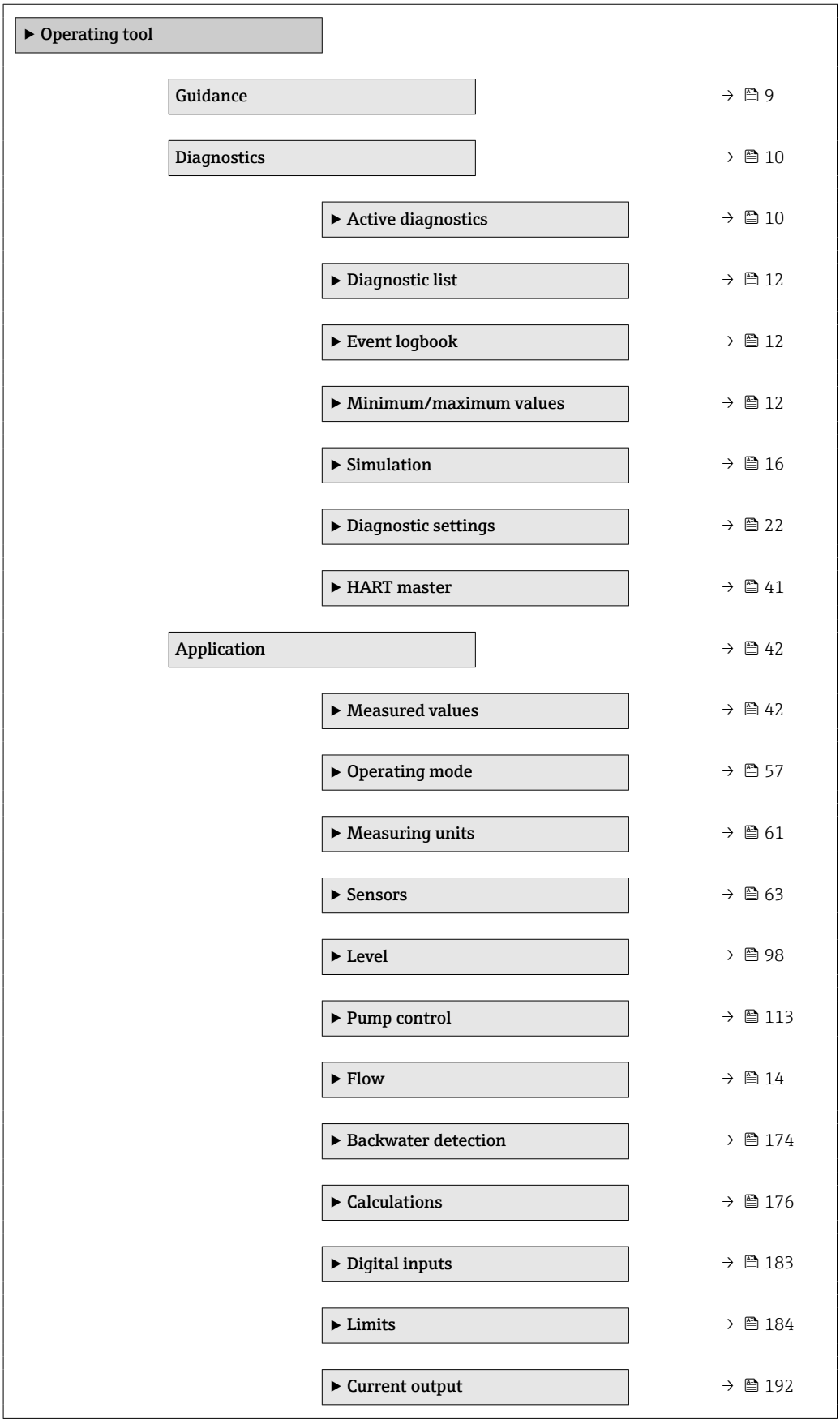
1.6 Documentation

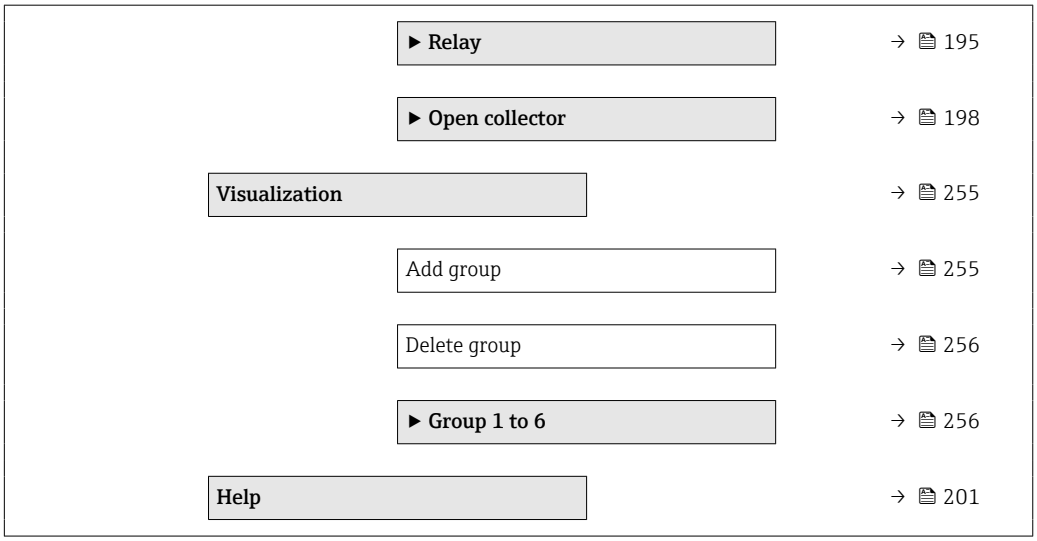
For an overview of the scope of the associated Technical Documentation, refer to the following:
- *Device Viewer* (www.endress.com/deviceviewer): Enter the serial number from the nameplate
- *Endress+Hauser Operations app*: Enter serial number from nameplate or scan matrix code on nameplate.

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

2 Overview of the operating menu

Navigation Operating tool




▶ Relay
→ 195
▶ Open collector
→ 198
Visualization
→ 255
Add group
→ 255
Delete group
→ 256
▶ Group 1 to 6
→ 256
Help
→ 201

3 Description of device parameters

3.1 "Guidance" menu

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
- Certificate management (→ 9)
- Import/Export

3.1.2 "Commissioning" wizard

Run the **Commissioning** wizard wizard in order to commission the device quickly and easily. Enter the appropriate value in each parameter or select the appropriate option in the menu for this purpose. Detailed settings for the applications in question can be configured in the **Application** menu (→ 42).

NOTICE

If the wizard is canceled before all the necessary parameters have been configured, any settings already set are saved.
The device may be in an undefined state!
- ▶ Reset the device to factory settings.

Navigation Guidance → Commissioning

3.1.3 "Certificate management" submenu

A certificate must be created for secure communication using TLS. All of the settings for creating and managing the certificate are carried out in this wizard. In the first step of the wizard, a Certificate signing request (CSR) must be created. The CSR must then be signed by a trusted authority. The resulting certificate must then be uploaded back to the device. Alternatively, a self-signed certificate can also be used, although security is then limited in this case.

A self-signed certificate is automatically installed on the device. Install the downloaded certificate in the browser.

3.1.4 "Import/Export" submenu

This function is only available for device access via the web server.

Guidance → Import/Export

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

License information
The license information can be saved as a text file (*.txt) under **license information**.

3.2 "Diagnostics" menu

Navigation Diagnostics

3.2.1 "Active diagnostics" submenu

Navigation Diagnostics → Active diagnostics

Actual diagnostics

Navigation Diagnostics → Active diagnostics → Actual diagnostics (350074)

Description Shows the current occured diagnostic event along with its diagnostic information.

User interface
- Status signal
- Diagnostic code
- Event text
- Remedial action

Timestamp

Navigation Diagnostics → Active diagnostics → Timestamp (350059)

Description Displays the timestamp for the currently active diagnostic message.

Previous diagnostics

Navigation Diagnostics → Active diagnostics → Previous diagnostics (350075)

Description Shows the diagnostic event that occurred prior to the current diagnostic event along with its diagnostic information.

User interface
- Status signal
- Diagnostic code
- Event text
- Remedial action

Timestamp

Navigation Diagnostics → Active diagnostics → Timestamp (350011)

Description Shows the timestamp of the previous diagnostic message.

Operating time

Navigation Diagnostics → Active diagnostics → Operating time (350018)

Description Indicates how long the device has been in operation.

Operating time from restart

Navigation Diagnostics → Active diagnostics → Operating time from restart (350017)

Description Shows the time the device has been in operation since the last device restart.

Operating hours of the on-site display

Navigation Diagnostics → Active diagnostics → Operating hours of the on-site display (350270)

Counter power on

Navigation Diagnostics → Active diagnostics → Counter power on (350083)

User interface Positive integer

Factory setting 0

Sensor 1 to 2 diagnostic code

Navigation Diagnostics → Active diagnostics → Sensor 1 to 2 diagnostic code (3370115–1 to 2)

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????

3.2.2 "Diagnostic list" submenu

All currently pending diagnostic messages with a maximum of 10 events are displayed in the Diagnostic list submenu, sorted by priority (highest first). Each entry contains: Status signal as symbol, diagnostic code, description, timestamp, remedial action, channel information and service ID. Detailed information on the possible diagnostic messages can be found in the Operating Instructions for the device.

Navigation Diagnostics → Diagnostic list

3.2.3 "Event logbook" submenu

Displays the event messages. Event messages are displayed in chronological order. The event history includes diagnostics and information events. The symbol in front of the timestamp indicates whether the event has started or ended.

A “Direct ID#” is displayed in the event logbook for each configuration change (e.g., "160108-000-000"), clearly identifying the relevant parameters. This ID can be used to run a search in this document so that the parameter can be clearly assigned.

Structure of the "Direct-ID#" (example):
- 1st part **160108**-000-000 = relevant parameter
- 2nd part 160108-**000**-000 = field index (e.g., support point)
- Part 3, e.g. 160108-000-**001** = instance (e.g. channel 1, relay 1)

Important: When searching, it is sufficient to search only for the first part of the ID (e.g. "160108").

Navigation Diagnostics → Event logbook

Filter options

Navigation Diagnostics → Event logbook → Filter options (350020)

Description Define which category of event messages is shown in the Events list submenu.

3.2.4 "Minimum/maximum values" submenu

Navigation Diagnostics → Minimum/maximum values

Minimum electronics temperature

Navigation Diagnostics → Minimum/maximum values → Minimum electronics temperature (350072)

User interface −150.0 to 200.0 °C

Maximum electronics temperature

Navigation Diagnostics → Minimum/maximum values → Maximum electronics temperature (350069)

User interface −150.0 to 200.0 °C

"Level linearized" submenu

Navigation Diagnostics → Minimum/maximum values → Level linearized

Minimum level 1 to 2 linearized

Navigation Diagnostics → Minimum/maximum values → Level linearized → Minimum level 1 to 2 linearized (3520130−1 to 2)

Description Displays the lowest linearized level value measured so far. The value can be reset together with the timestamp.

User interface Signed floating-point number

Timestamp minimum level 1 to 2 linearized

Navigation Diagnostics → Minimum/maximum values → Level linearized → Timestamp minimum level 1 to 2 linearized (3520131−1 to 2)

Description Displays the timestamp of the lowest linearized level value measured so far.

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

Maximum level 1 to 2 linearized

Navigation Diagnostics → Minimum/maximum values → Level linearized → Maximum level 1 to 2 linearized (3520132−1 to 2)

Description Displays the highest linearized level value measured so far.

User interface Signed floating-point number

Timestamp maximum level 1 to 2 linearized

Navigation Diagnostics → Minimum/maximum values → Level linearized → Timestamp maximum level 1 to 2 linearized (3520133–1 to 2)

Description Displays the timestamp of the highest linearized level value measured so far.

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

Reset min./max. 1 … 2

Navigation Diagnostics → Minimum/maximum values → Level linearized → Reset min./max. 1 … 2 (3520134–1 … 2)

Description Resets the minimum or the maximum linearized level values to date (drag indicators) together with the respective timestamps.

Selection
- No
- Yes

Factory setting No

"Flow" submenu

Navigation Diagnostics → Minimum/maximum values → Flow

Minimum flow value 1 to 2

Navigation Diagnostics → Minimum/maximum values → Flow → Minimum flow value 1 to 2 (3880131–1 to 2)

Description Displays the lowest volume flow measured since the last reset.

User interface Signed floating-point number

Factory setting Positive floating-point number

Timestamp minimum flow 1 to 2

Navigation Diagnostics → Minimum/maximum values → Flow → Timestamp minimum flow 1 to 2 (3880133–1 to 2)

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

Maximum flow value 1 to 2

Navigation Diagnostics → Minimum/maximum values → Flow → Maximum flow value 1 to 2 (3880132–1 to 2)

Description Displays the highest volume flow measured since the last reset.

User interface Signed floating-point number

Timestamp maximum flow 1 to 2

Navigation Diagnostics → Minimum/maximum values → Flow → Timestamp maximum flow 1 to 2 (3880134–1 to 2)

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

Reset drag indicator

Navigation Diagnostics → Minimum/maximum values → Flow → Reset drag indicator (3880016)

Selection
- No
- Yes

Factory setting No

3.2.5 "Simulation" submenu

Navigation Diagnostics → Simulation

"Sensor 1 to 2 simulation" submenu

Navigation Diagnostics → Simulation → Sensor 1 to 2 simulation

Simulation

Navigation Diagnostics → Simulation → Sensor 1 to 2 simulation → Simulation (2960080−1 to 2)

Description Select process variable for simulation, which is thereby activated. Selecting 'Off' will deactivate the simulation.

Selection
- Off
- Current
- HART Value
- Level sensor
- Level linearized
- Flow

Factory setting Off

Current

Navigation Diagnostics → Simulation → Sensor 1 to 2 simulation → Current (2960081−1 to 2)

Prerequisite The simulation variable must be current.

Description Enter current value as process variable for simulation.

User entry 0.0 to 22.5 mA

Factory setting 3.59 mA

HART Value

Navigation Diagnostics → Simulation → Sensor 1 to 2 simulation → HART Value (2960082−1 to 2)

Prerequisite The simulation variable must be a HART value.

Description Enter HART value (PV) as process variable for simulation.

User entry −200 000.0 to 200 000.0

Factory setting 0.0

Level sensor

Navigation Diagnostics → Simulation → Sensor 1 to 2 simulation → Level sensor (2960083−1 to 2)

Prerequisite The simulation variable must be level.

Description Enter level value of the sensor as process variable for simulation.

User entry Signed floating-point number

Factory setting 0.0 mm

Level linearized

Navigation Diagnostics → Simulation → Sensor 1 to 2 simulation → Level linearized (2960086−1 to 2)

Prerequisite The simulation variable must be level linearized.

Description Enter linearized level value as process variable for simulation.

User entry −200 000.0 to 200 000.0 %

Factory setting 0.0 %

Flow

Navigation Diagnostics → Simulation → Sensor 1 to 2 simulation → Flow (2960088−1 to 2)

Prerequisite The simulation variable must be flow.

Description Enter flow value as process variable for simulation.

User entry Positive floating-point number

Factory setting 0.0 l/h

"Current output simulation" submenu

Navigation Diagnostics → Simulation → Current output simulation

Current output 1 to 2 simulation

Navigation Diagnostics → Simulation → Current output simulation → Current output 1 to 2 simulation (2570017−1 to 2)

Description Switch the simulation of the current output on and off.

Selection
- Off
- On

Factory setting Off

Value current output 1 to 2

Navigation Diagnostics → Simulation → Current output simulation → Value current output 1 to 2 (2570018−1 to 2)

Prerequisite The current output simulation is active.

Description Enter the current value for simulation.

User entry 0.0 to 22.5 mA

Factory setting 3.59 mA

"Digital output simulation" submenu

Navigation Diagnostics → Simulation → Digital output simulation

Simulation relay 1 to 5

Navigation Diagnostics → Simulation → Digital output simulation → Simulation relay 1 to 5 (2860080−1 to 5)

Prerequisite Relays are activated as outputs.

Description Switch simulation of the relay output on and off.

Selection
- Simulation off
- Switched off
- Switched on

Factory setting Simulation off

Simulation open collector 1 to 3

Navigation Diagnostics → Simulation → Digital output simulation → Simulation open collector 1 to 3 (3320080–1 to 3)

Prerequisite Open collectors are activated as outputs.

Description Switch simulation of the open collector on and off.

Selection
- Simulation off
- Switched off
- Switched on

Factory setting Simulation off

"Digital input simulation" submenu

Navigation Diagnostics → Simulation → Digital input simulation

Digital input simulation 1 to 4

Navigation Diagnostics → Simulation → Digital input simulation → Digital input simulation 1 to 4 (3090050–1 to 4)

Description Switch digital input simulation on and off.

Selection
- Simulation off
- Switched off
- Switched on

Factory setting Simulation off

"Diagnostic event simulation" submenu

Navigation Diagnostics → Simulation → Diagnostic event simulation

Simulation

Navigation Diagnostics → Simulation → Diagnostic event simulation → Simulation (350229)

Description Simulates one or more process variables and/or events.

Warning:

Output will reflect the simulated value or event.

Selection
- Off
- Diagnostics

Factory setting Off

Diagnostic event simulation

Navigation Diagnostics → Simulation → Diagnostic event simulation → Diagnostic event simulation (350143)

Prerequisite Diagnostic simulation is active.

Description Select a diagnostic event to simulate this event.

Selection
- Off
- 041 Sensor breakage detected
- 046 Sensor limit exceeded
- 201 Electronics faulty
- 230 Date/time incorrect
- 252 Module incompatible
- 275 I/O module defective
- 331 Firmware update failed
- 332 Restart modules
- 402 Initialization active
- 411 Up-/download active
- 412 Processing download
- 425 Communication certificate faulty
- 426 Communication certificate expired
- 427 Communication certificate expiring soon
- 440 Device not calibrated
- 441 Current output saturated
- 485 Process variable simulation active
- 486 Current input simulation active
- 491 Current output simulation active
- 494 Switch output simulation active
- 496 Status input simulation active
- 498 Open collector simulation active

- 500 Relay output buffer full
- 501 Open collector output buffer full
- 502 LAN/WLAN - IP address conflict
- 538 Calculation configuration faulty
- 550 Pump control pump direction wrong
- 551 Pump control pump rate not reached
- 552 Pump control same switch-on points
- 553 Pump pump error
- 554 Pump control storm func. on < off
- 555 Pump control pump direction wrong
- 556 Pump max. operating hours reached
- 557 Pump control pump direction wrong
- 560 Sensor write configuration failed
- 561 Sensor read configuration failed
- 570 Rake control switch point configuration
- 577 Sensor configuration faulty
- 578 Pump control configuration faulty
- 579 Level configuration faulty
- 580 Flow configuration faulty
- 701 Sensor PV fixed
- 702 Sensor PV uncertain
- 703 Sensor PV bad
- 710 Sensor device failure
- 711 Sensor check function
- 712 Sensor out of specification
- 713 Sensor maintenance required
- 715 Sensor malfunction
- 716 Sensor process value out of limits
- 721 Sensor echo lost
- 722 Sensor buildup detected
- 723 Sensor foam detected
- 724 Sensor in safety distance
- 725 Sensor mapping failed
- 726 Sensor communication lost
- 727 Sensor multi master collision
- 730 Sensor configuration mismatch
- 732 Sensor wrong sensor type detected
- 740 Sensor SV fixed
- 741 Sensor SV uncertain
- 742 Sensor SV bad
- 743 Sensor TV fixed
- 744 Sensor TV uncertain
- 745 Sensor TV bad
- 746 Sensor QV fixed
- 747 Sensor QV uncertain
- 748 Sensor QV bad
- 816 Hold active
- 879 Sensor input overloaded
- 890 Battery low
- 891 Battery empty
- 950 Backwater detected
- 955 Level downstream > level upstream
- 956 Rake control calculation error
- 968 Sensor level limit reached
- 970 Flow value out of specification
- 971 Flow value above limit
- 972 Level value out of limits

Factory setting Off

Channel

Navigation Diagnostics → Simulation → Diagnostic event simulation → Channel (350323)

Prerequisite The diagnostics are simulated and there are at least two channels for the diagnostics in question.

Description Assign the corresponding channel to the selected diagnostic event.

User entry 1 to 255

Factory setting 1

3.2.6 "Diagnostic settings" submenu

Each diagnostic event is assigned a certain diagnostic behavior. The user can change this assignment for certain diagnostic events. This configuration is described in detail in the Operating Instructions pertaining to the device.

Navigation Diagnostics → Diagnostic settings

"Properties" submenu

Navigation Diagnostics → Diagnostic settings → Properties

Alarm delay

Navigation Diagnostics → Diagnostic settings → Properties → Alarm delay (350071)

Description Sets the length of time in seconds that diagnostic messages are suppressed.

User entry 0.0 to 60.0 s

Factory setting 0.0 s

"Sensor" submenu

Navigation Diagnostics → Diagnostic settings → Sensor

701 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 701 Diagnostic behavior (3867011)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

701 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 701 Status signal (3867010)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

702 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 702 Diagnostic behavior (3867021)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

702 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 702 Status signal (3867020)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

703 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 703 Diagnostic behavior (3867031)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

703 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 703 Status signal (3867030)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Failure (F)

710 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 710 Diagnostic behavior (3867101)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

710 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 710 Status signal (3867100)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Failure (F)

711 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 711 Diagnostic behavior (3867111)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

711 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 711 Status signal (3867110)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Function check (C)

712 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 712 Diagnostic behavior (3867121)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

712 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 712 Status signal (3867120)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Out of specification (S)

713 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 713 Diagnostic behavior (3867131)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

713 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 713 Status signal (3867130)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

715 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 715 Diagnostic behavior (3867151)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

715 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 715 Status signal (3867150)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Failure (F)

716 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 716 Diagnostic behavior (3867161)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

716 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 716 Status signal (3867160)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Out of specification (S)

721 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 721 Diagnostic behavior (3867211)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

721 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 721 Status signal (3867210)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Out of specification (S)

722 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 722 Diagnostic behavior (3867221)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

722 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 722 Status signal (3867220)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

723 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 723 Diagnostic behavior (3867231)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

723 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 723 Status signal (3867230)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

724 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 724 Diagnostic behavior (3867241)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

724 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 724 Status signal (3867240)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Out of specification (S)

740 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 740 Diagnostic behavior (3867401)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

740 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 740 Status signal (3867400)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

741 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 741 Diagnostic behavior (3867411)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

741 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 741 Status signal (3867410)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

742 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 742 Diagnostic behavior (3867421)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

742 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 742 Status signal (3867420)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Failure (F)

743 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 743 Diagnostic behavior (3867431)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

743 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 743 Status signal (3867430)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

744 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 744 Diagnostic behavior (3867441)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

744 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 744 Status signal (3867440)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

745 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 745 Diagnostic behavior (3867451)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

745 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 745 Status signal (3867450)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Failure (F)

746 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 746 Diagnostic behavior (3867461)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

746 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 746 Status signal (3867460)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

747 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 747 Diagnostic behavior (3867471)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

747 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 747 Status signal (3867470)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

748 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor → 748 Diagnostic behavior (3867481)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

748 Status signal

Navigation Diagnostics → Diagnostic settings → Sensor → 748 Status signal (3867480)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Failure (F)

"Electronics" submenu

Navigation Diagnostics → Diagnostic settings → Electronics

230 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Electronics → 230 Diagnostic behavior (3862301)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

230 Status signal

Navigation Diagnostics → Diagnostic settings → Electronics → 230 Status signal (3862300)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Failure (F)

"Configuration" submenu

Navigation Diagnostics → Diagnostic settings → Configuration

426 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Configuration → 426 Diagnostic behavior (3864260)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

426 Status signal

Navigation Diagnostics → Diagnostic settings → Configuration → 426 Status signal (3864261)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

427 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Configuration → 427 Diagnostic behavior (3864270)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

427 Status signal

Navigation Diagnostics → Diagnostic settings → Configuration → 427 Status signal (3864271)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

441 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Configuration → 441 Diagnostic behavior (3864411)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

441 Status signal

Navigation Diagnostics → Diagnostic settings → Configuration → 441 Status signal (3864410)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Out of specification (S)

500 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Configuration → 500 Diagnostic behavior (3865001)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

500 Status signal

Navigation Diagnostics → Diagnostic settings → Configuration → 500 Status signal (3865000)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

501 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Configuration → 501 Diagnostic behavior (3865011)

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

501 Status signal

Navigation Diagnostics → Diagnostic settings → Configuration → 501 Status signal (3865010)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Maintenance required (M)

"Sensor 1 to 2" submenu

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2

"Echo lost" submenu

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → Echo lost

Failure behavior

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → Echo lost → Failure behavior (2830011)

Description Defines the output behavior in case of a lost echo.

Selection
- Last valid value
- Ramp at echo lost
- Value echo lost
- Alarm

Factory setting Last valid value

Diagnostics echo lost

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → Echo lost → Diagnostics echo lost (2830012)

Description Select diagnostic message in case of a lost echo.

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Out of specification (S)

Value echo lost

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → Echo lost → Value echo lost (2830014)

Description Value of the output in case of an echo loss.

User entry Signed floating-point number

Factory setting 0.0 mm

Ramp at echo lost

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → Echo lost → Ramp at echo lost (2830015)

Description Slope of the ramp in the case of an echo loss. Positive slope: output increases to 100 %. Negative slope: output decreases to 0 %.

User entry Signed floating-point number

Factory setting 0.0 %/min

Delay time echo lost

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → Echo lost → Delay time echo lost (2830013)

Description Enter the delay time in case of echo loss. After this time the device reacts as defined in "Failure behavior".

User entry 0.0 to 99 999.9 s

Factory setting 900.0 s

"In safety distance" submenu

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → In safety distance

942 Diagnostic behavior

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → In safety distance → 942 Diagnostic behavior (2830016)

Selection
- Off
- Alarm
- Warning
- Self holding

Factory setting Warning

942 Event category

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → In safety distance → 942 Event category (2830017)

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Not categorized

Factory setting Out of specification (S)

Safety distance

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → In safety distance → Safety distance (2830018)

User entry −200 000.0 to 125 000.0 mm

Factory setting 0.0 mm

Acknowledge alarm

Navigation Diagnostics → Diagnostic settings → Sensor 1 to 2 → In safety distance → Acknowledge alarm (2830019)

Selection
- No
- Yes

Factory setting No

3.2.7 "HART master" submenu

Navigation Diagnostics → HART master

"Channel 1 to 2" submenu

Navigation Diagnostics → HART master → Channel 1 to 2

Number of queries

Navigation Diagnostics → HART master → Channel 1 to 2 → Number of queries (3720007–1 to 2)

User interface Positive integer

Number of retries

Navigation Diagnostics → HART master → Channel 1 to 2 → Number of retries (3720008–1 to 2)

User interface Positive integer

Number of errors

Navigation Diagnostics → HART master → Channel 1 to 2 → Number of errors (3720009–1 to 2)

User interface Positive integer

Rx Signal

Navigation Diagnostics → HART master → Channel 1 to 2 → Rx Signal (3720011–1 to 2)

User interface Signed floating-point number

Tx Signal

Navigation Diagnostics → HART master → Channel 1 to 2 → Tx Signal (3720010–1 to 2)

User interface Signed floating-point number

Noise

Navigation Diagnostics → HART master → Channel 1 to 2 → Noise (3720013–1 to 2)

User interface
- Low
- Medium
- High

Communication resistance

Navigation Diagnostics → HART master → Channel 1 to 2 → Communication resistance (3720012–1 to 2)

User interface 0 to 65 535 Ohm

3.3 "Application" menu

Navigation Application

3.3.1 "Measured values" submenu

Navigation Application → Measured values

Temperature

Navigation Application → Measured values → Temperature (350070)

Description Displays the currently measured device temperature.

User interface −150.0 to 200.0 °C

"Level" submenu

Navigation Application → Measured values → Level

Level 1 to 2 linearized

Navigation Application → Measured values → Level → Level 1 to 2 linearized (3520128–1 to 2)

Description Shows the linearized level of the corresponding sensor.

User interface Signed floating-point number

Level sensor 1 to 2

Navigation Application → Measured values → Level → Level sensor 1 to 2 (2960130–1 to 2)

Description Displays the currently measured level of the connected sensor.

User interface Signed floating-point number

"Pump control" submenu

Navigation Application → Measured values → Pump control

Pump 1 to 8

Navigation Application → Measured values → Pump control → Pump 1 to 8 (3490128–1 to 8)

Description Displays the current switching status of the pump.

User interface
- Off
- On

Factory setting Off

Flush control channel 1 to 2

Navigation Application → Measured values → Pump control → Flush control channel 1 to 2 (3390132–1 to 2)

Description Displays the current switching status of the flush control in this channel.

User interface
- Off
- On

Factory setting Off

Storm function channel 1 to 2

Navigation Application → Measured values → Pump control → Storm function channel 1 to 2 (3390144–1 to 2)

Description Displays the current switching status of the storm function in this channel.

User interface
- Off
- On

Factory setting Off

"Pump operating data" submenu

Navigation Application → Measured values → Pump operating data

"Pump 1 to 8" submenu

Navigation Application → Measured values → Pump operating data → Pump 1 to 8

Operating hours

Navigation Application → Measured values → Pump operating data → Pump 1 to 8 → Operating hours (3490060–1 to 8)

Description Displays the operating hours of the pump since the last device reset.

User interface Positive integer

Total operating hours

Navigation Application → Measured values → Pump operating data → Pump 1 to 8 → Total operating hours (3490061–1 to 8)

Description Displays the operating hours of the pump since the device was delivered.

User interface Positive integer

Starts

Navigation Application → Measured values → Pump operating data → Pump 1 to 8 → Starts (3490062–1 to 8)

Description Displays the number of pump starts since the last device reset.

User interface Positive integer

Starts per hour

Navigation Application → Measured values → Pump operating data → Pump 1 to 8 → Starts per hour (3490063–1 to 8)

Description Displays the average number of pump starts per operating hour.

User interface Positive floating-point number

Run-on starts

Navigation Application → Measured values → Pump operating data → Pump 1 to 8 → Run-on starts (3490064–1 to 8)

Description Displays the number of run-on starts since the last device reset.

User interface Positive integer

Last run time

Navigation Application → Measured values → Pump operating data → Pump 1 to 8 → Last run time (3490065–1 to 8)

Description Displays the operating time of the pump when it was last switched on.

User interface Positive integer

"Flow" submenu

Navigation Application → Measured values → Flow

Flow 1 to 2

Navigation Application → Measured values → Flow → Flow 1 to 2 (3880128–1 to 2)

Description Displays the current volume flow.

User interface Signed floating-point number

"Backwater detection" submenu

Navigation Application → Measured values → Backwater detection

Ratio downstream / upstream

Navigation Application → Measured values → Backwater detection → Ratio downstream / upstream (3930129)

Description Displays the calculated ration between upstream level and downstream level.

User interface Signed floating-point number

Backwater detected

Navigation Application → Measured values → Backwater detection → Backwater detected (3930128)

User interface
- No
- Yes

Factory setting No

Level value for flow calculation

Navigation Application → Measured values → Backwater detection → Level value for flow calculation (3880130)

Description Displays the level value used for the flow calculation.

User interface Signed floating-point number

Level sensor 2

Navigation Application → Measured values → Backwater detection → Level sensor 2 (2960130–2)

Description Displays the currently measured level of the connected sensor.

User interface Signed floating-point number

"Calculations" submenu

Navigation Application → Measured values → Calculations

Level 1 + Level 2

Navigation Application → Measured values → Calculations → Level 1 + Level 2 (3920128)

User interface Signed floating-point number

"Totalizer" submenu

Navigation Application → Measured values → Totalizer

"Flow 1 … 2" submenu

Navigation Application → Measured values → Totalizer → Flow 1 to 2

Totalizer

Navigation Application → Measured values → Totalizer → Flow 1 to 2 → Totalizer (3880135−1 to 2)

User interface Signed floating-point number

Totalizer overflow

Navigation Application → Measured values → Totalizer → Flow 1 to 2 → Totalizer overflow (3880136−1 to 2)

User interface Signed floating-point number

"Flow 1 + Flow 2" submenu

Navigation Application → Measured values → Totalizer → Flow 1 + Flow 2

Totalizer

Navigation Application → Measured values → Totalizer → Flow 1 + Flow 2 → Totalizer (3920130)

User interface Signed floating-point number

Totalizer overflow

Navigation Application → Measured values → Totalizer → Flow 1 + Flow 2 → Totalizer overflow (3920131)

User interface Signed floating-point number

"Average flow" submenu

Navigation Application → Measured values → Totalizer → Average flow

Totalizer

Navigation Application → Measured values → Totalizer → Average flow → Totalizer (3920130)

User interface Signed floating-point number

Totalizer overflow

Navigation Application → Measured values → Totalizer → Average flow → Totalizer overflow (3920131)

User interface Signed floating-point number

"Flow 1 - Flow 2" submenu

Navigation Application → Measured values → Totalizer → Flow 1 - Flow 2

Totalizer

Navigation Application → Measured values → Totalizer → Flow 1 - Flow 2 → Totalizer (3920130)

User interface Signed floating-point number

Totalizer overflow

Navigation Application → Measured values → Totalizer → Flow 1 - Flow 2 → Totalizer overflow (3920131)

User interface Signed floating-point number

"Flow 2 - Flow 1" submenu

Navigation Application → Measured values → Totalizer → Flow 2 - Flow 1

Totalizer

Navigation Application → Measured values → Totalizer → Flow 2 - Flow 1 → Totalizer (3920130)

User interface Signed floating-point number

Totalizer overflow

Navigation Application → Measured values → Totalizer → Flow 2 - Flow 1 → Totalizer overflow (3920131)

User interface Signed floating-point number

"Rake control" submenu

Navigation Application → Measured values → Rake control

Difference upstream - downstream

Navigation Application → Measured values → Rake control → Difference upstream - downstream (3460130)

Description Displays the difference between upstream level and downstream level.

User interface Signed floating-point number

Ratio downstream / upstream

Navigation Application → Measured values → Rake control → Ratio downstream / upstream (3460131)

Description Displays the calculated ration between upstream level and downstream level.

User interface Signed floating-point number

Level upstream

Navigation Application → Measured values → Rake control → Level upstream (3460132)

Description Displays the currently measured level upstream.

User interface Signed floating-point number

Level downstream

Navigation Application → Measured values → Rake control → Level downstream (3460134)

Description Displays the currently measured level downstream.

User interface Signed floating-point number

Rake control status

Navigation Application → Measured values → Rake control → Rake control status (3460128)

Description Displays the current status of the rake control.

User interface
- Off
- On

Factory setting Off

"Outputs" submenu

Navigation Application → Measured values → Outputs

"Output current" submenu

Navigation Application → Measured values → Outputs → Output current

Output current 1 to 2

Navigation Application → Measured values → Outputs → Output current → Output current 1 to 2 (2570007–1 to 2)

Description Displays the value currently calculated for the current output.

User interface Signed floating-point number

"Relay" submenu

Navigation Application → Measured values → Outputs → Relay

Relay output 1 to 5

Navigation Application → Measured values → Outputs → Relay → Relay output 1 to 5 (2860137–1 to 5)

Description Displays the current status of the connected and activated relay output.

User interface
- Off
- On

Factory setting Off

"Open collector" submenu

Navigation Application → Measured values → Outputs → Open collector

Open collector output

Navigation Application → Measured values → Outputs → Open collector → Open collector output (3320137–1 to 3)

Description Displays the current status of the connected and activated open collector output.

User interface
- Off
- On

Factory setting Off

"Sensor 1 to 2" submenu

Navigation Application → Measured values → Sensor 1 to 2

Level sensor #

Navigation Application → Measured values → Sensor 1 to 2 → Level sensor 1 to 2 (2960130–1 to 2)

Description Displays the currently measured level of the connected sensor.

User interface Signed floating-point number

Distance

Navigation Application → Measured values → Sensor 1 to 2 → Distance (2830128–1 to 2)

Description Distance from lower edge of device flange to product surface.

User interface Signed floating-point number

Relative echo amplitude

Navigation Application → Measured values → Sensor 1 to 2 → Relative echo amplitude (2830129–1 to 2)

Description Shows the relative amplitude (i.e. the distance to the evaluation curve) of the evaluated level signal.

Sensor temperature

Navigation Application → Measured values → Sensor 1 to 2 → Sensor temperature (2960127–1 to 2)

Description Displays the current temperature of the sensor electronics.

User interface −200 000.0 to 200 000.0 °C

"Sensor 1 to 2" submenu

Navigation Application → Measured values → Sensor 1 to 2

Level sensor 1 to 2

Navigation Application → Measured values → Sensor 1 to 2 → Level sensor 1 to 2 (2960130–1 to 2)

Description Displays the currently measured level of the connected sensor.

User interface Signed floating-point number

Pressure

Navigation Application → Measured values → Sensor 1 to 2 → Pressure (3300128–1 to 2)

Description Displays the measured pressure.

User interface Signed floating-point number

Corrected Pressure

Navigation Application → Measured values → Sensor 1 to 2 → Corrected Pressure (3300129–1 to 2)

Description Displays the pressure after the position zero adjustment. This parameter will be synchronized with the connected sensor.

User interface Signed floating-point number

Sensor temperature

Navigation Application → Measured values → Sensor 1 to 2 → Sensor temperature (2960127–1 to 2)

Description Displays the current temperature of the sensor electronics.

User interface −200 000.0 to 200 000.0 °C

"Sensor 1 to 2" submenu

Navigation Application → Measured values → Sensor 1 to 2

Level sensor

Navigation Application → Measured values → Sensor 1 to 2 → Level sensor 1 to 2 (2960130–1 to 2)

Description Displays the currently measured level of the connected sensor.

User interface Signed floating-point number

PV Value

Navigation Application → Measured values → Sensor 1 to 2 → PV Value (3370140–1 to 2)

Description Displays the first HART variable (PV).

User interface Signed floating-point number

SV Value

Navigation Application → Measured values → Sensor 1 to 2 → SV Value (3370141–1 to 2)

Description Displays the second HART variable (SV).

User interface Signed floating-point number

TV Value

Navigation Application → Measured values → Sensor 1 to 2 → TV Value (3370142–1 to 2)

Description Displays the third HART variable (TV).

User interface Signed floating-point number

QV Value

Navigation Application → Measured values → Sensor 1 to 2 → QV Value (3370143–1 to 2)

Description Displays the fourth HART variable (QV).

User interface Signed floating-point number

"Current input 1 to 2" submenu

Navigation Application → Measured values → Current input 1 to 2

Level sensor 1 to 2

Navigation Application → Measured values → Current input 1 to 2 → Level sensor 1 to 2 (2960130–1 to 2)

Description Displays the currently measured level of the connected sensor.

User interface Signed floating-point number

Measured current 1 to 2

Navigation Application → Measured values → Current input 1 to 2 → Measured current 1 to 2 (1520015–1 to 2)

Description Displays the currently measured value of the current input.

User interface Signed floating-point number

"Digital inputs" submenu

Navigation Application → Measured values → Digital inputs

External digital input 1 to 4

Navigation Application → Measured values → Digital inputs → External digital input 1 to 4 (3090129–1 to 4)

Description Displays the current status of the connected external digital input.

User interface
- Off
- On

Factory setting Off

3.3.2 "Operating mode" submenu

Navigation Application → Operating mode

Configuration mode

Navigation Application → Operating mode → Configuration mode (3310032)

Description Stop normal operating mode for reconfiguration. If configuration mode is activated, the device issues a corresponding diagnostic message.

Selection
- Off
- On - hold outputs

Factory setting Off

Logging interval

Navigation Application → Operating mode → Logging interval (3310010)

Description Define the time interval for data logging.

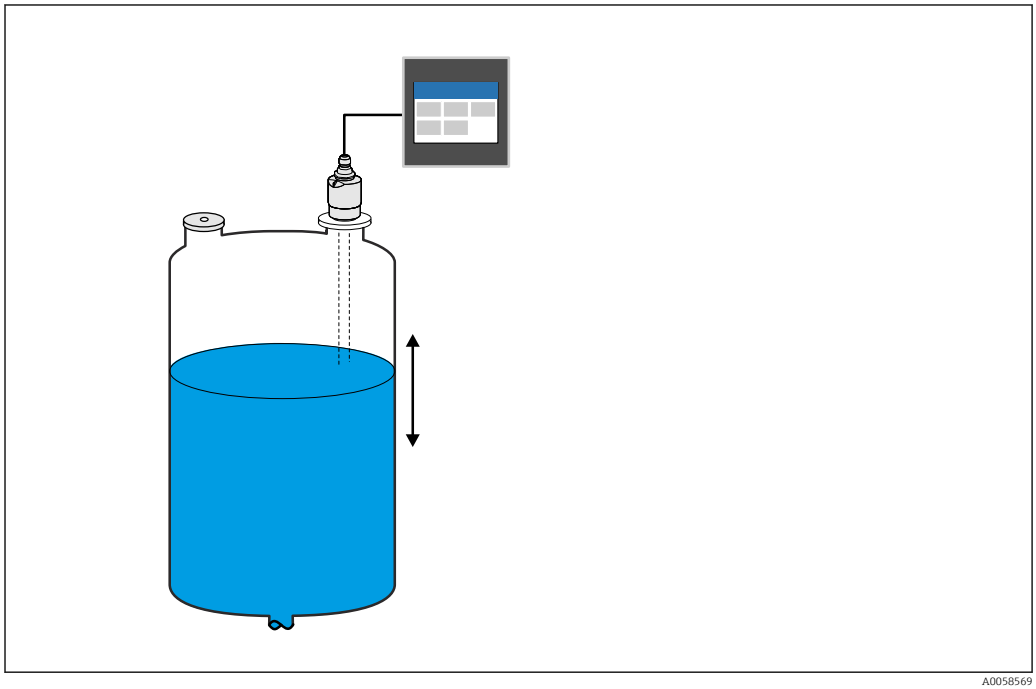
Selection
- 1 s
- 2 s
- 5 s
- 15 s
- 30 s
- 1 min
- 2 min
- 5 min
- 10 min
- 15 min
- 30 min

Factory setting 5 s

Level 1 to 2

Navigation Application → Operating mode → Level 1 to 2 (3520007–1 to 2)

Description



1 Level measurement mode

Selection
- Off
- On

Factory setting Off

Level calculations

Navigation Application → Operating mode → Level calculations (3610007)

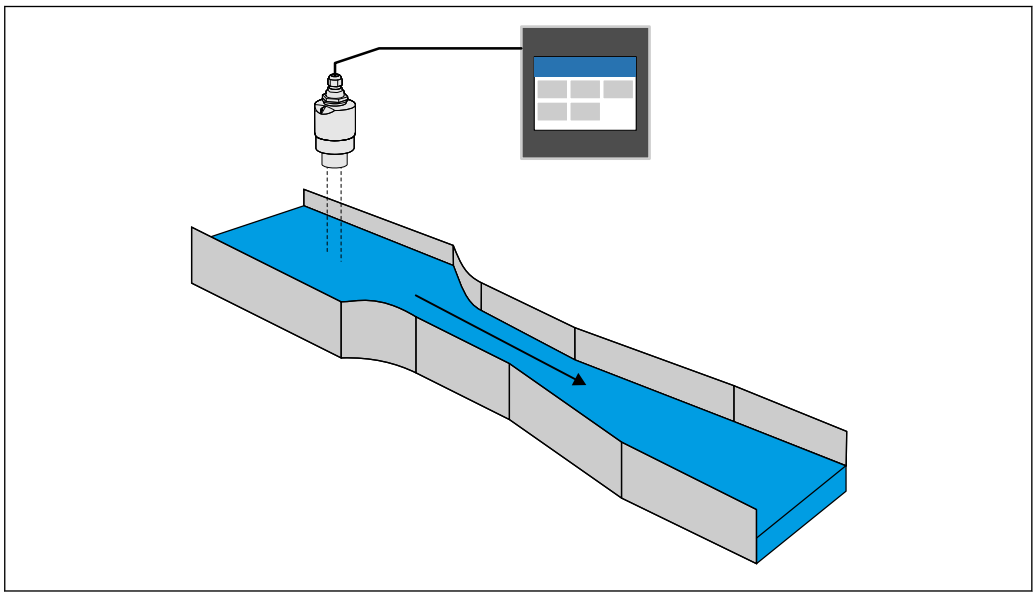
Selection
- Off
- On

Factory setting Off

Flow 1 to 2

Navigation Application → Operating mode → Flow 1 to 2 (3880007–1 to 2)

Description



2 *Flow measurement mode*

Selection
- Off
- On

Factory setting Off

Flow calculations

Navigation Application → Operating mode → Flow calculations (3610008)

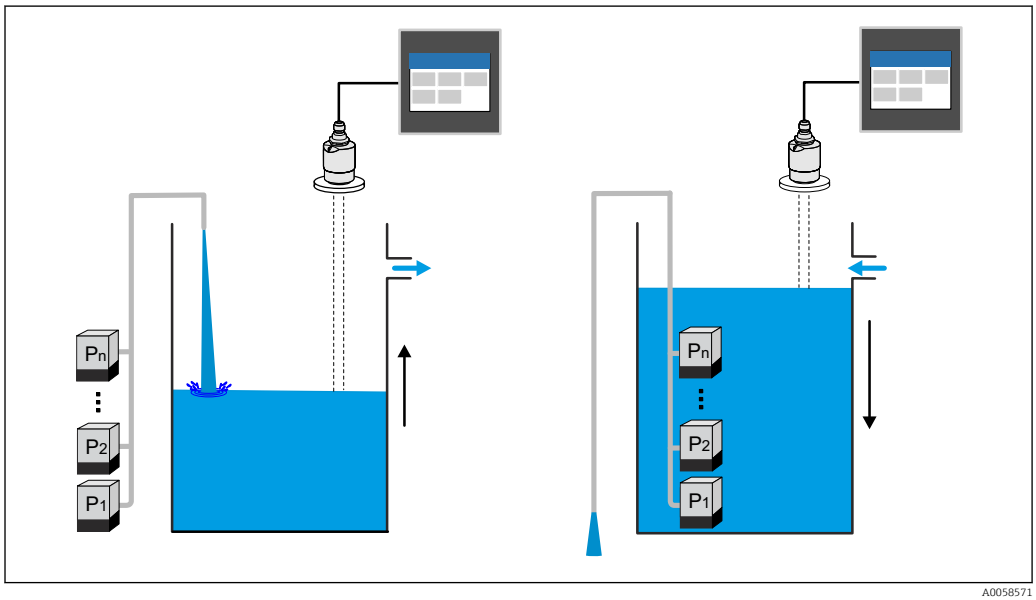
Selection
- Off
- On

Factory setting Off

Pump control 1 to 2

Navigation Application → Operating mode → Pump control 1 to 2 (3390007–1 to 2)

Description



3 *Pump control mode*

Selection

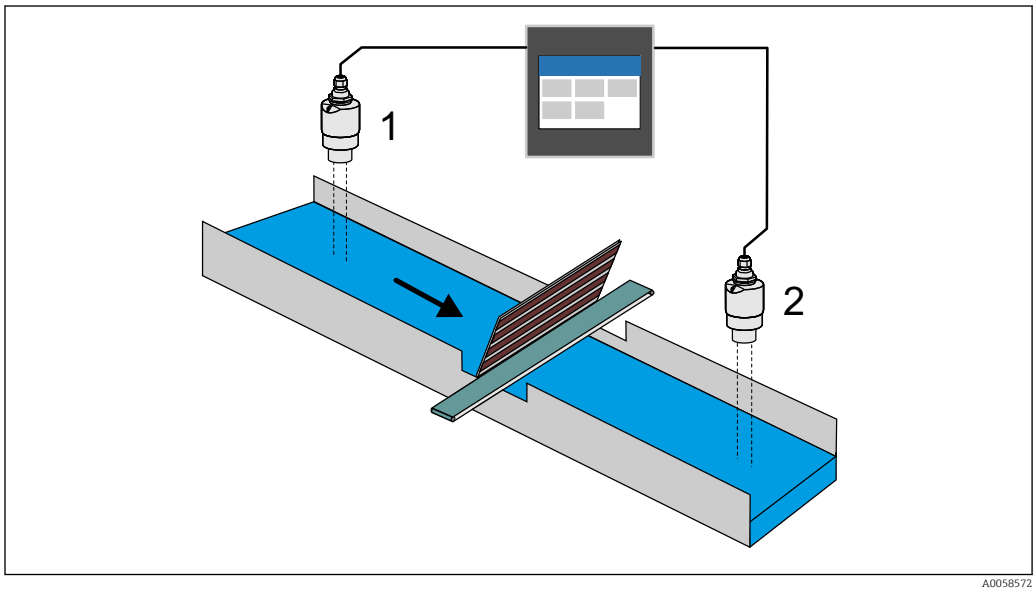
- Off
- On

Factory setting Off

Rake control

Navigation Application → Operating mode → Rake control (3460022)

Description



4 *Rake control mode*

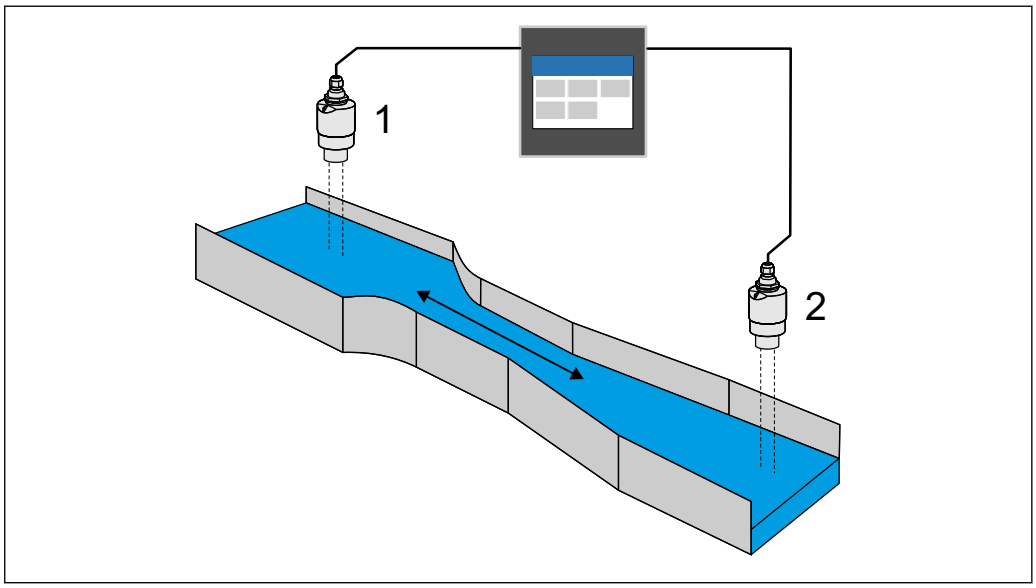
Selection
- Off
- On

Factory setting Off

Backwater detection

Navigation Application → Operating mode → Backwater detection (3930007)

Description



5 *Backwater detection mode*

Selection
- Off
- On

Factory setting Off

3.3.3 "Measuring units" submenu

Navigation Application → Measuring units

Length unit

Navigation Application → Measuring units → Length unit (290009)

Description Select the length unit for distance measurement. It is used, e.g., for the basic calibration ("Empty calibration" or "Full calibration").

Selection

SI units
- m
- mm

Custom-specific units
- ft
- in

Factory setting mm

Decimal places lengths

Navigation Application → Measuring units → Decimal places lengths (290011)

Description Define the number of decimal places for displayed lengths and geometries to be entered, e.g. for tanks or flumes.

Selection
- x
- x.x
- x.xx
- x.xxx
- x.xxxx

Factory setting x

Temperature unit

Navigation Application → Measuring units → Temperature unit (290015)

Description Select temperature unit.

Selection

SI units
- °C
- K

Custom-specific units
°F

Factory setting °C

3.3.4 "Sensors" submenu

Navigation Application → Sensors

"Sensor 1 to 2" submenu

Navigation Application → Sensors → Sensor 1 to 2

Loop power supply

Navigation Application → Sensors → Sensor 1 to 2 → Loop power supply (1520025–1 to 2)

Description Activate the power supply of the connected sensor.

Selection
- Not active
- Active

Factory setting Not active

Identify sensor 1 to 2

Navigation Application → Sensors → Sensor 1 to 2 → Identify sensor 1 to 2

Description Activate the automatic identification of the connected sensor.

Additional information:

The automatic identification is executable for HART sensors and sensors from Endress +Hauser.

Sensor type

Navigation Application → Sensors → Sensor 1 to 2 → Sensor type (2960008–1 to 2)

Description Select sensor type.

Selection
- Off
- Sensor 4 - 20 mA
- Micropilot FMR20B/30B
- Waterpilot FMX21
- Universal HART sensor

Factory setting Off

Device tag

Navigation Application → Sensors → Sensor 1 to 2 → Device tag (2960012–1 to 2)

Description Enter the name for the measuring point.

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

Factory setting ????????????????????????????????

Medium type

Navigation Application → Sensors → Sensor 1 to 2 → Medium type (2830041–1 to 2)

Description Select whether the measured medium is liquid or solid. This parameter will be synchronized with the connected sensor.

Selection
- Liquid
- Solid

Factory setting Liquid

Application

Navigation Application → Sensors → Sensor 1 to 2 → Application (2830042–1 to 2)

Description Select application type. This parameter will be synchronized with the connected sensor.

Selection
- Standard measurement
- Stirred vessel
- Level measurement
- Workbench test
- Buffer vessel

Factory setting Workbench test

Application

Navigation Application → Sensors → Sensor 1 to 2 → Application (2830043–1 to 2)

Description Select application type. This parameter will be synchronized with the connected sensor.

Selection
- Silo
- Bunker (wide area)
- Stockpile/Profile measurement
- Crusher/belt
- Workbench test

Factory setting Workbench test

Pressure engineering unit

Navigation Application → Sensors → Sensor 1 to 2 → Pressure engineering unit (3300007–1 to 2)

Description Select process pressure unit. This parameter will be synchronized with the connected sensor.

Selection

SI units
- mbar a
- bar
- Pa
- kPa
- MPa

Other units
- mmH2O
- mH2O
- ftH2O
- inH2O
- mmHg
- inHg

Custom-specific units
- psi
- kgf/cm²

Factory setting mbar a

Position zero adjust

Navigation Application → Sensors → Sensor 1 to 2 → Position zero adjust (3300010–1 to 2)

Description Correct the measured value. The value 0.0 is assigned to the applied pressure. This parameter will be synchronized with the connected sensor.

Selection
- Cancel
- Confirm

Factory setting Cancel

Corrected Pressure

Navigation Application → Sensors → Sensor 1 to 2 → Corrected Pressure (3300129–1 to 2)

Description Displays the pressure after the position zero adjustment. This parameter will be synchronized with the connected sensor.

User interface Signed floating-point number

Factory setting 0.0 mbar

Current value at empty calibration

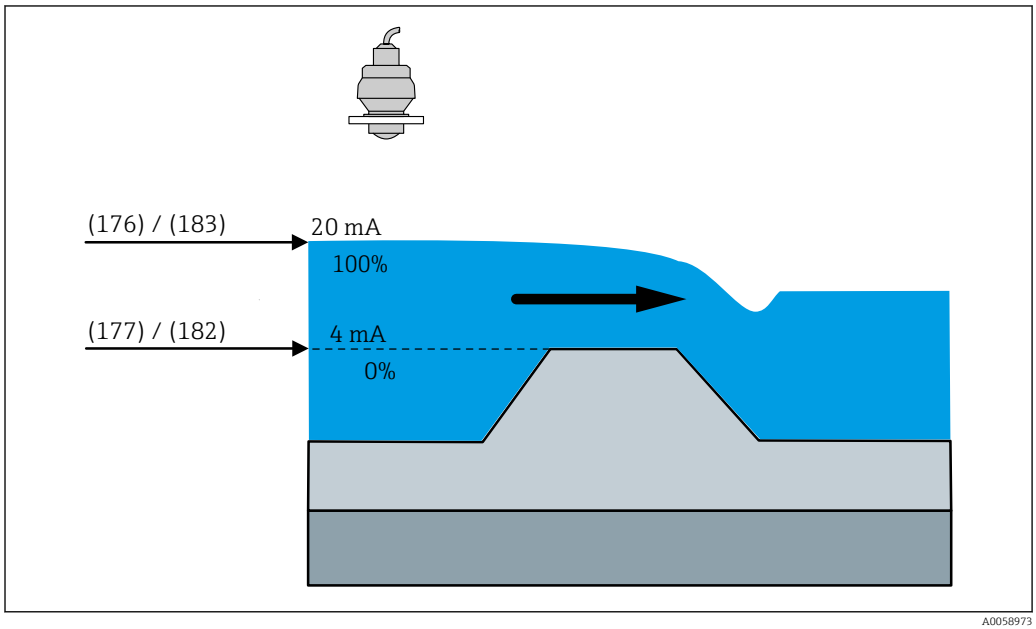
Navigation Application → Sensors → Sensor 1 to 2 → Current value at empty calibration (1520026–1 to 2)

Description Enter the current value at empty calibration.

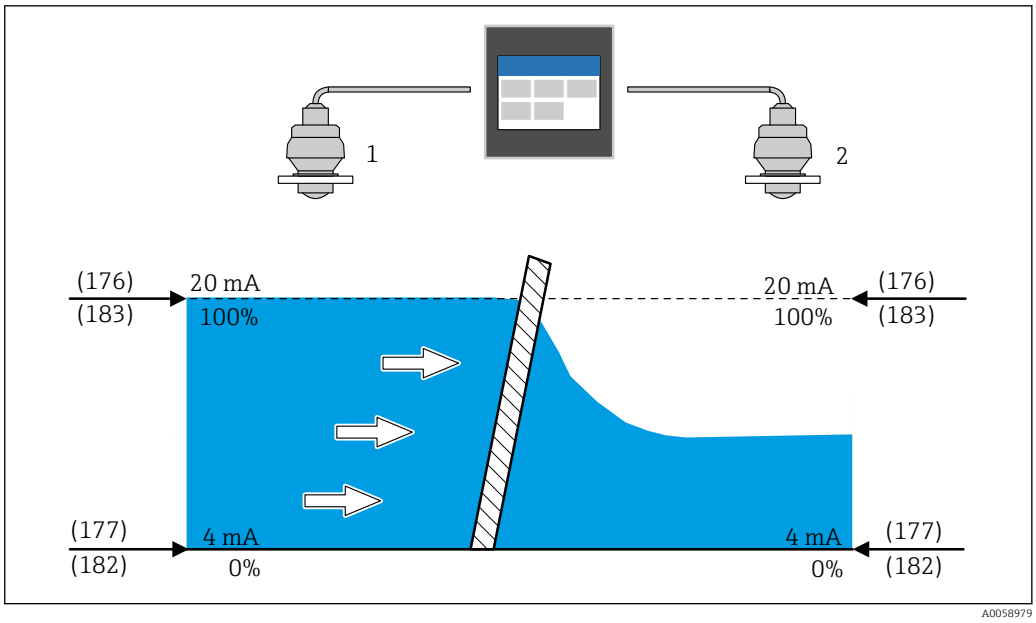
User entry 4.0 to 20.0 mA

Factory setting 4.0 mA

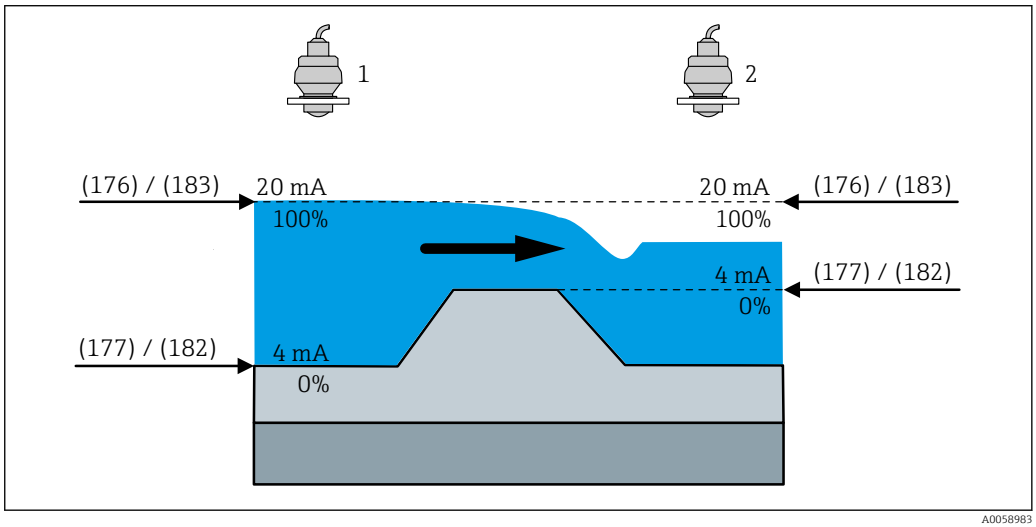
Additional information



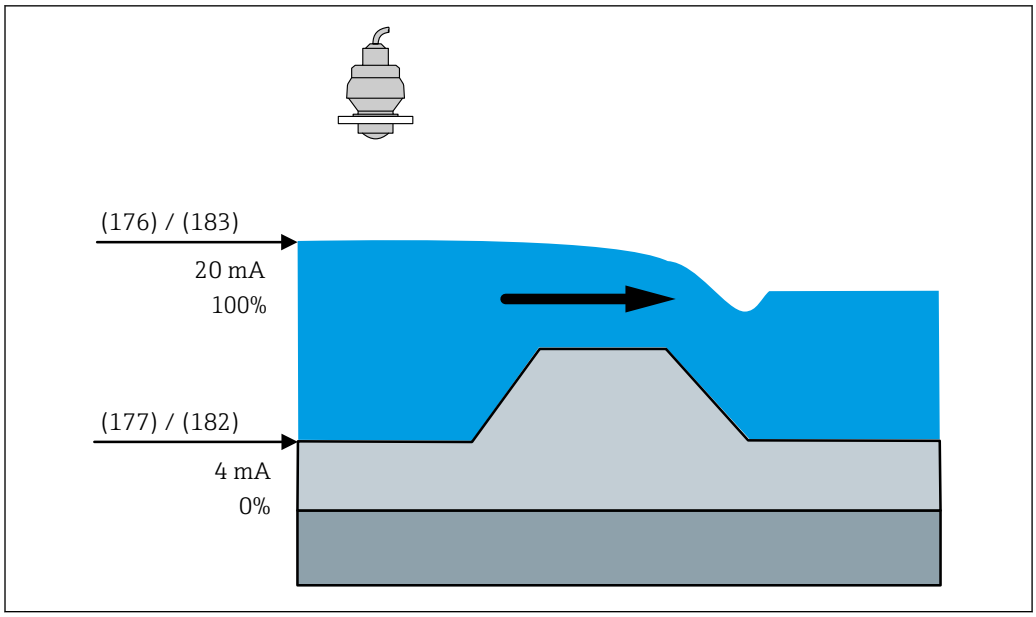
6 *Current value at empty calibration (182) flow application*



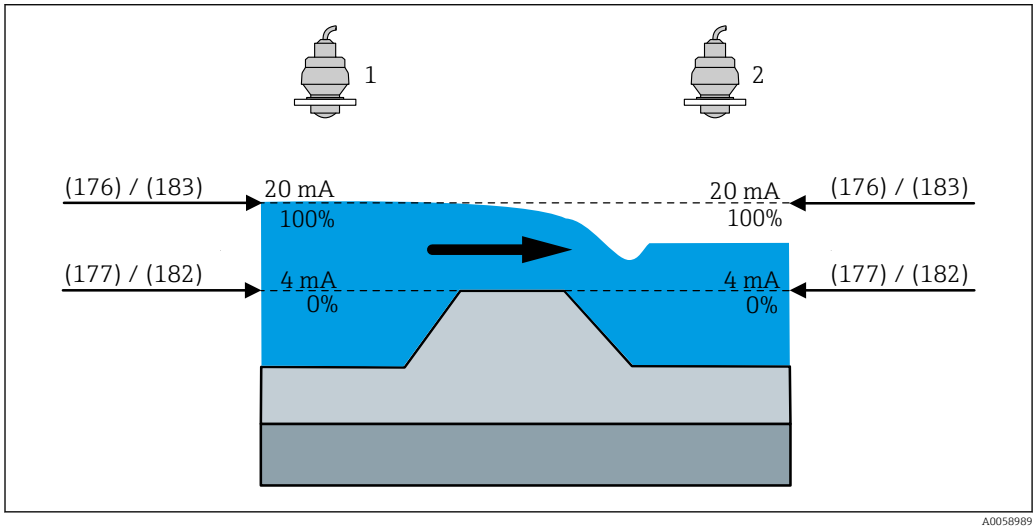
7 *Current value at empty calibration (182) rake control*



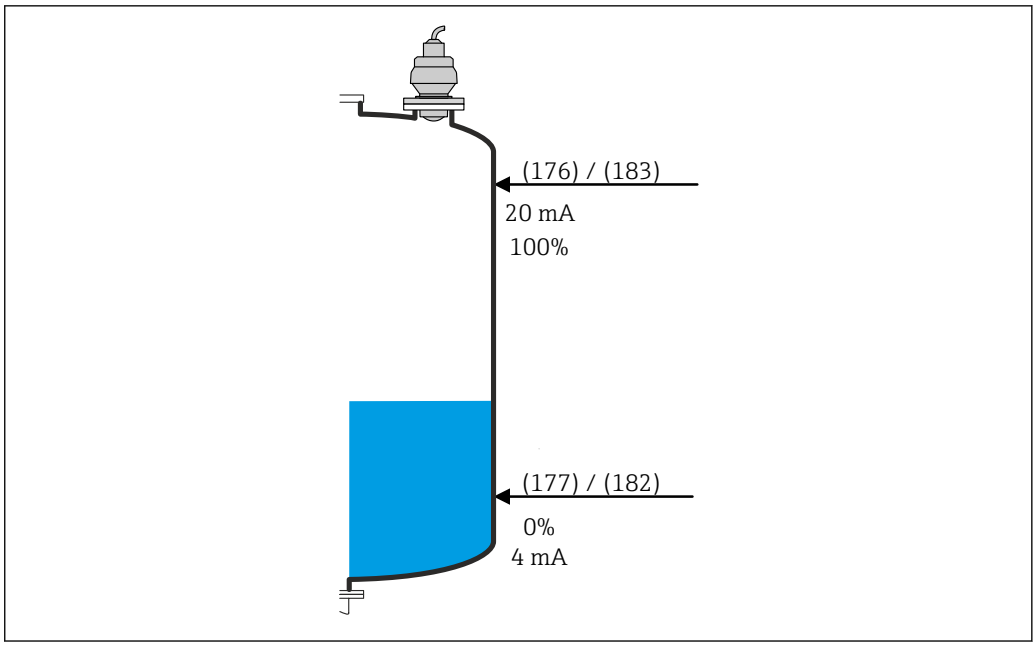
8 *Current value at empty calibration (182) backwater detection*



9 *Current value at empty calibration (182) flow application*



10 *Current value at empty calibration (182) backwater detection*



11 *Current value at empty calibration (182) level application*

HART value (PV) at empty calibration

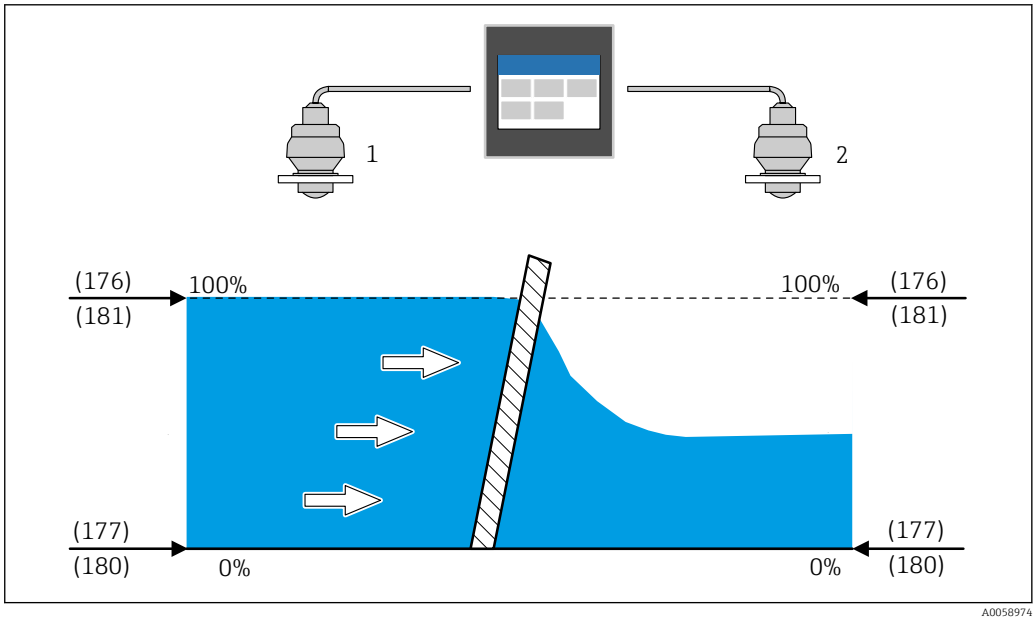
Navigation Application → Sensors → Sensor 1 to 2 → HART value (PV) at empty calibration (3370030–1 to 2)

Description Enter HART value (PV) for empty calibration. The unit is read from the sensor.

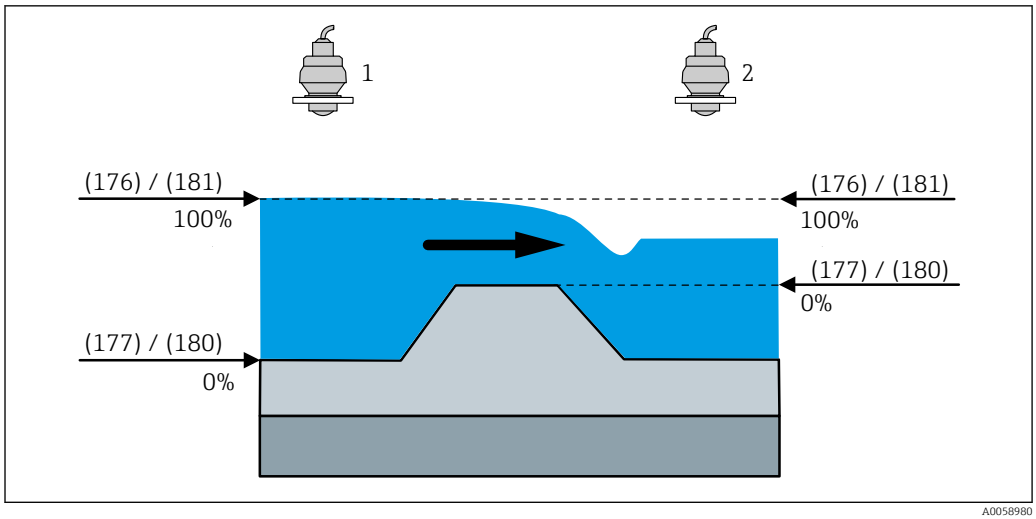
User entry –200 000.0 to 200 000.0 ??????

Factory setting 0.0 ??????

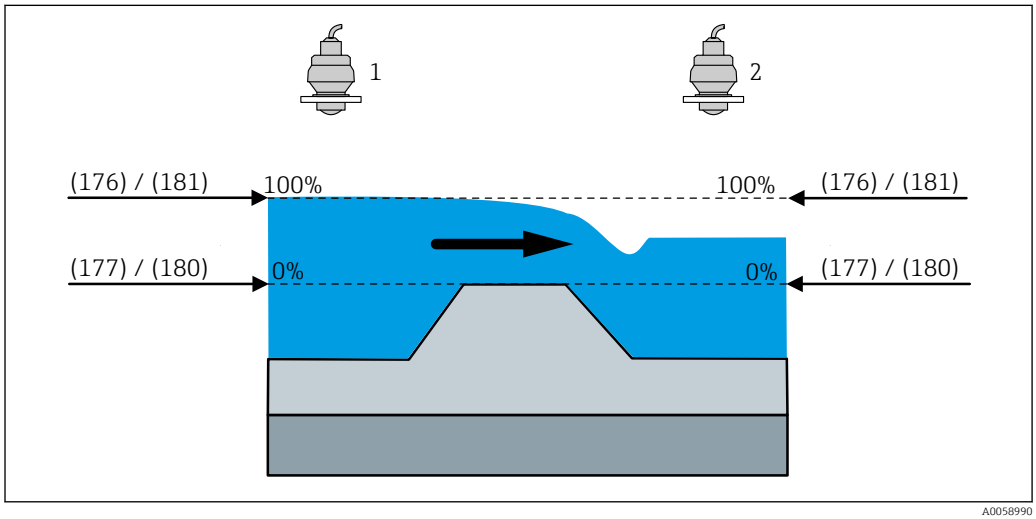
Additional information



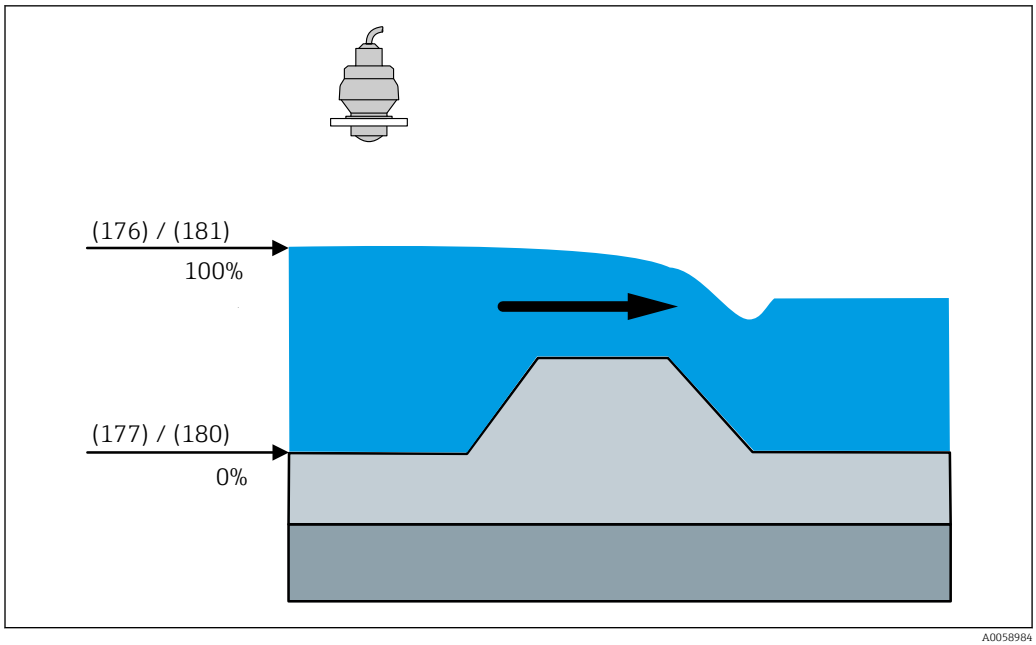
12 *HART value (PV) at empty calibration (180) rake control*



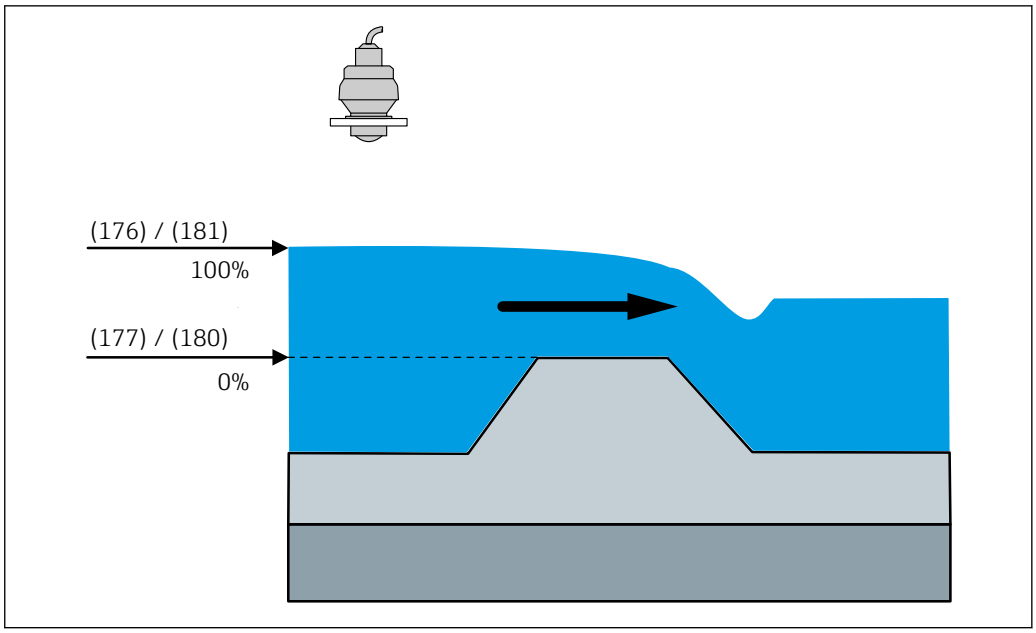
13 *HART value (PV) at empty calibration (180) backwater detection*



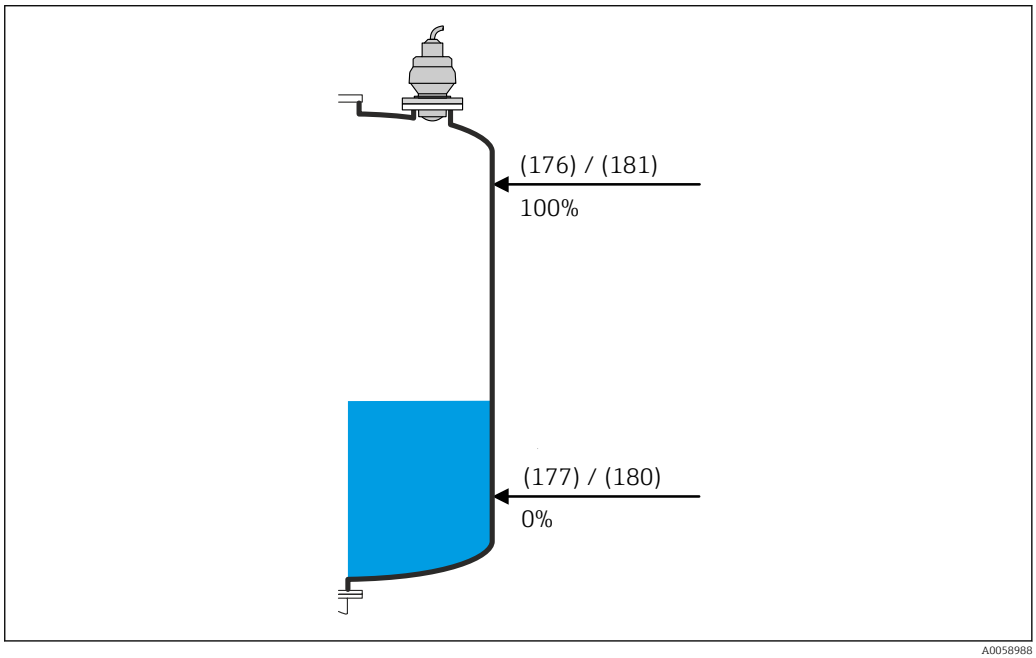
14 *HART value (PV) at empty calibration (180) backwater detection*



15 *HART value (PV) at empty calibration (180) flow application*



16 *HART value (PV) at empty calibration (180) flow application*



17 *HART value (PV) at empty calibration (180) level application*

Pressure value at empty calibration

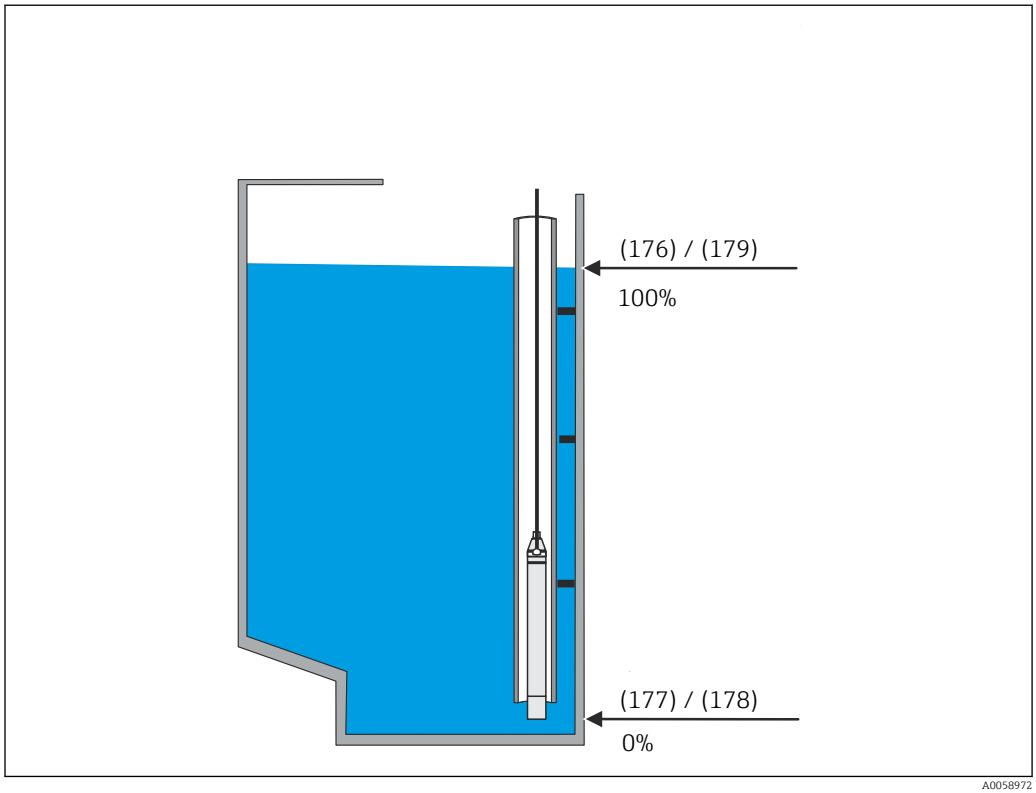
Navigation Application → Sensors → Sensor 1 to 2 → Pressure value at empty calibration (3300008–1 to 2)

Description Enter the pressure value for the lower calibration point (vessel empty). This parameter will be synchronized with the connected sensor.

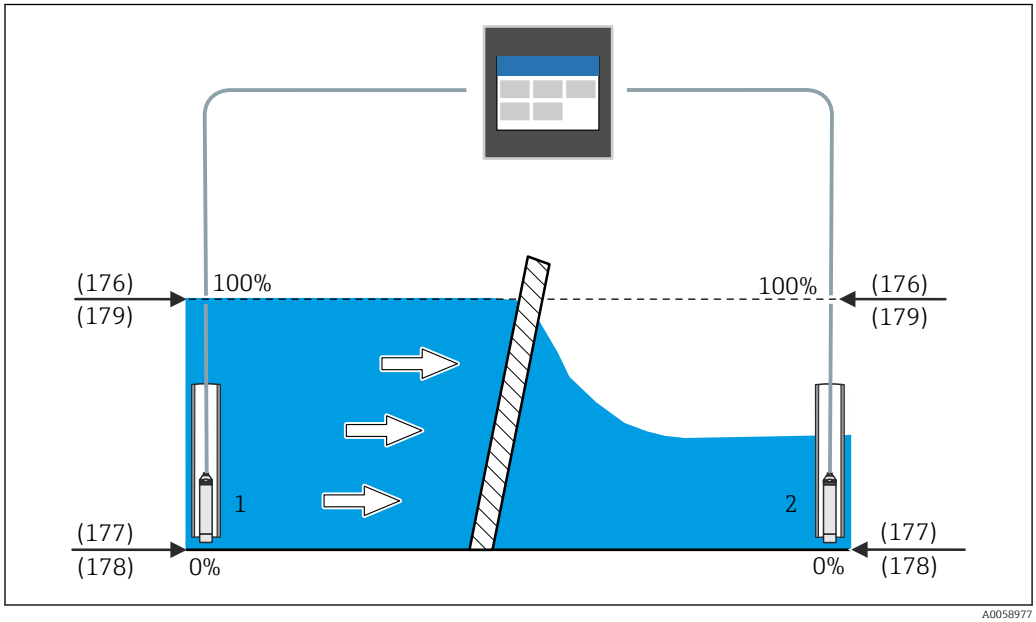
User entry –100 000.0 to 100 000.0 mbar

Factory setting 0.0 mbar

Additional information



18 *Pressure value at empty calibration (178) FMX21 level application*



19 *Pressure value at empty calibration (178) FMX21 rake control*

Empty calibration

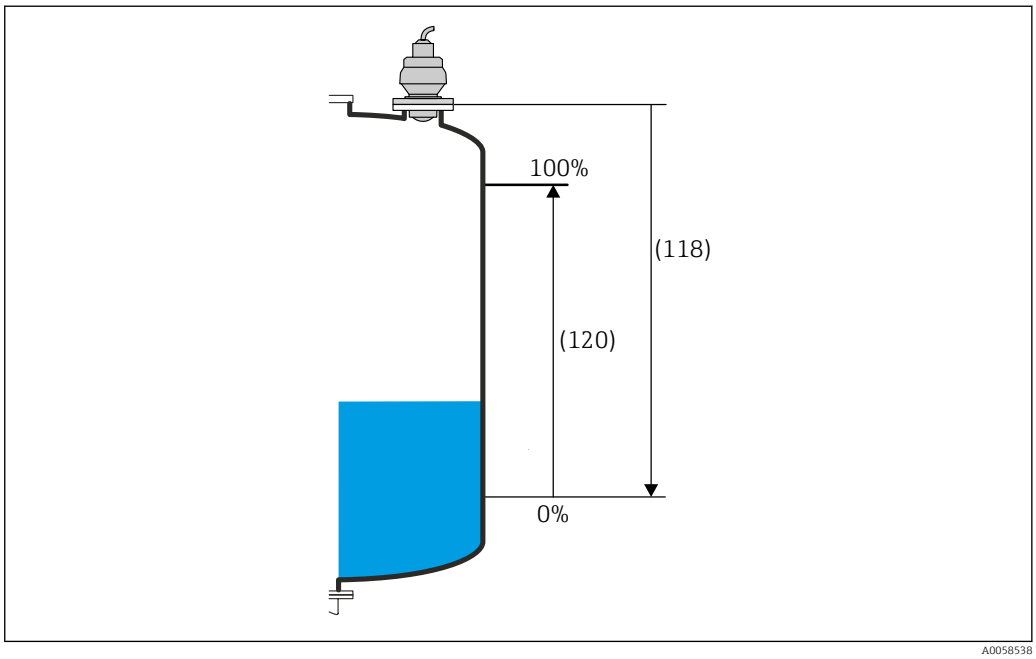
Navigation Application → Sensors → Sensor 1 to 2 → Empty calibration (2830007−1 to 2)

Description Enter distance from the reference point to the minimum level (0). This parameter will be synchronized with the connected sensor.

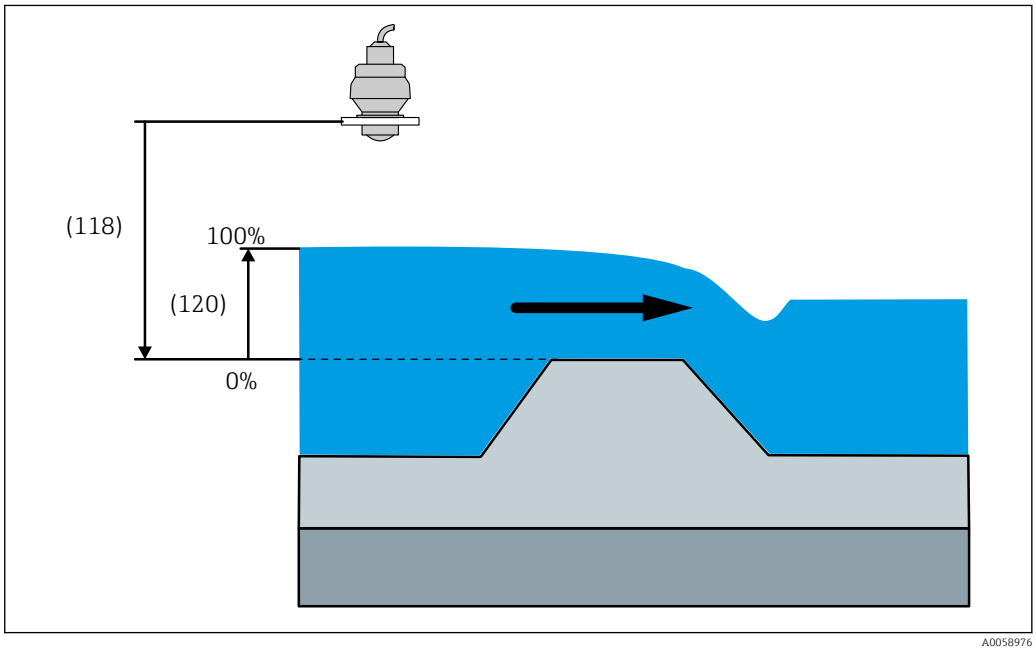
User entry 0.0 to 125 000.0 mm

Factory setting 20 000.0 mm

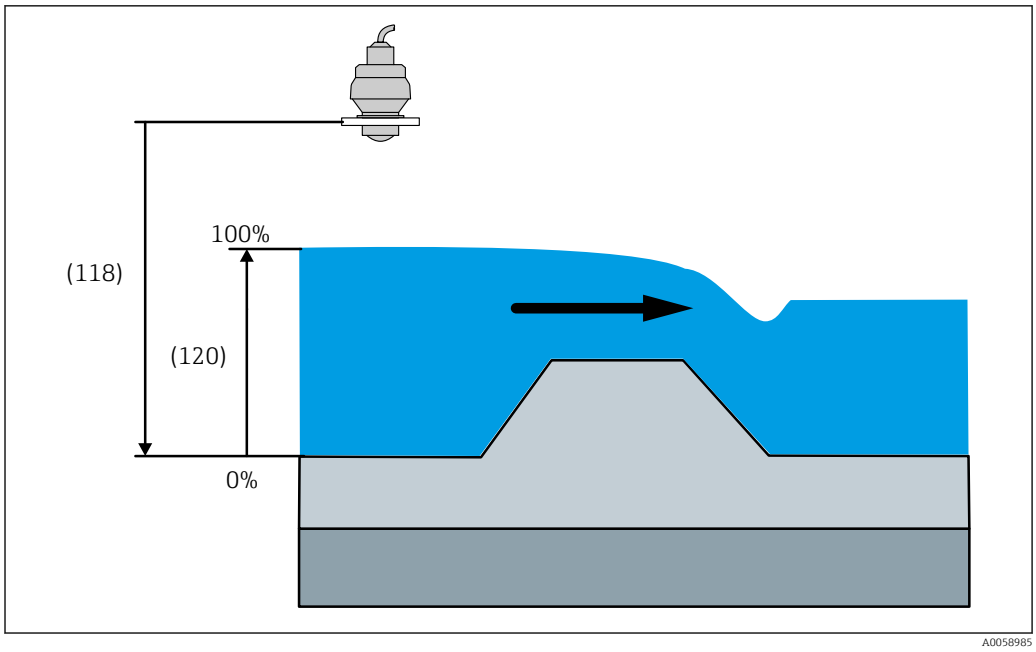
Additional information



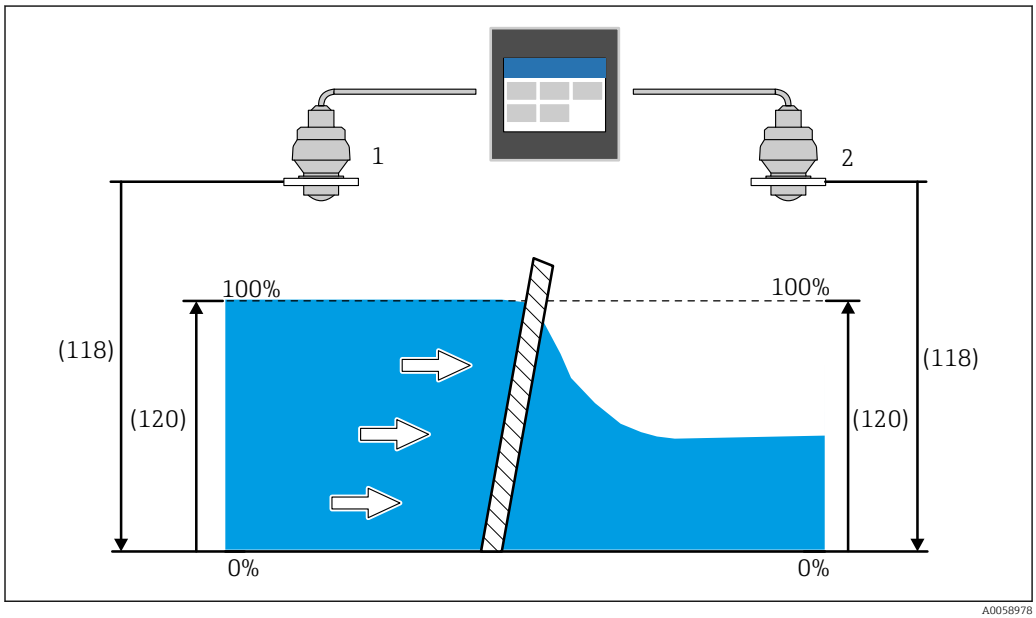
20 *Empty calibration (118) FMR20B/FMR30B level application*



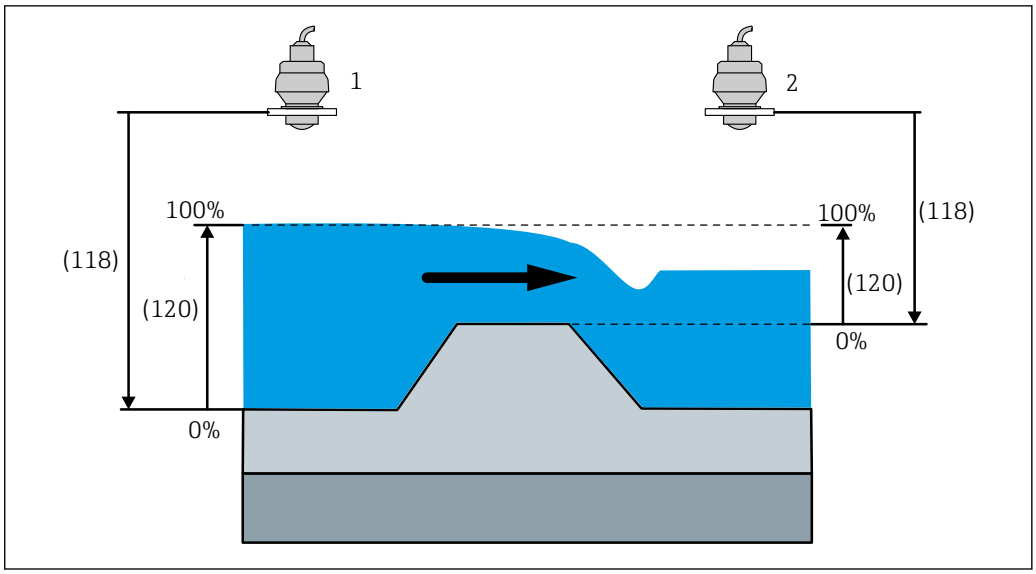
21 *Empty calibration (118) FMR20B/FMR30B flow application*



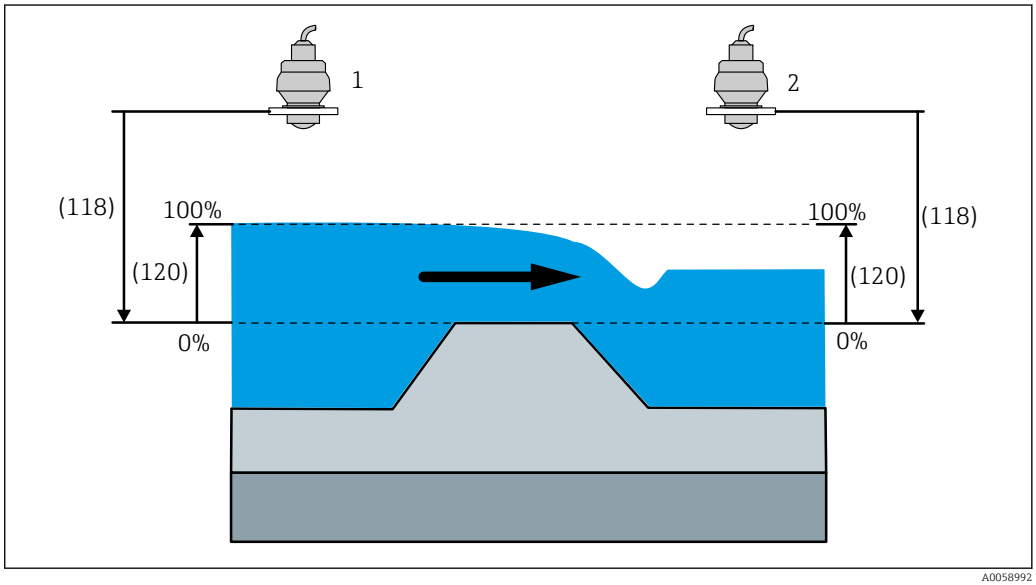
22 *Empty calibration (118) FMR20B/FMR30B flow application*



23 *Empty calibration (118) FMR20B/FMR30B rake control*



24 *Empty calibration (118) FMR20B/FMR30B backwater detection*



25 *Empty calibration (118) FMR20B/FMR30B backwater detection*

Level at empty calibration

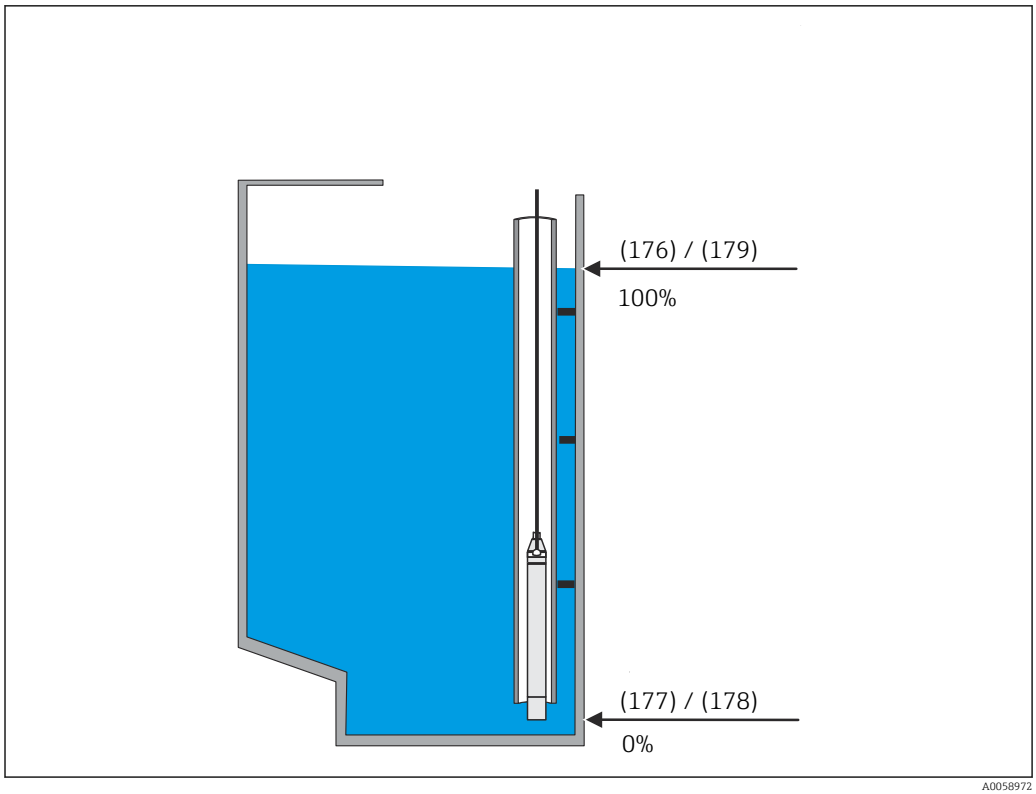
Navigation Application → Sensors → Sensor 1 to 2 → Level at empty calibration (2960010–1 to 2)

Description Enter the absolute level value at empty calibration.

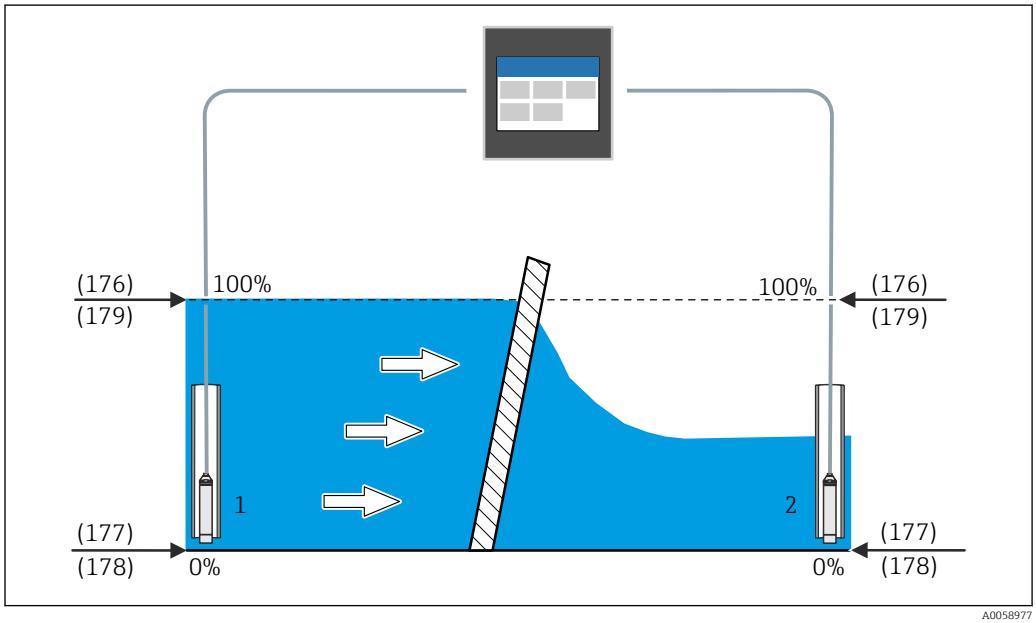
User entry Positive floating-point number

Factory setting 0.0 mm

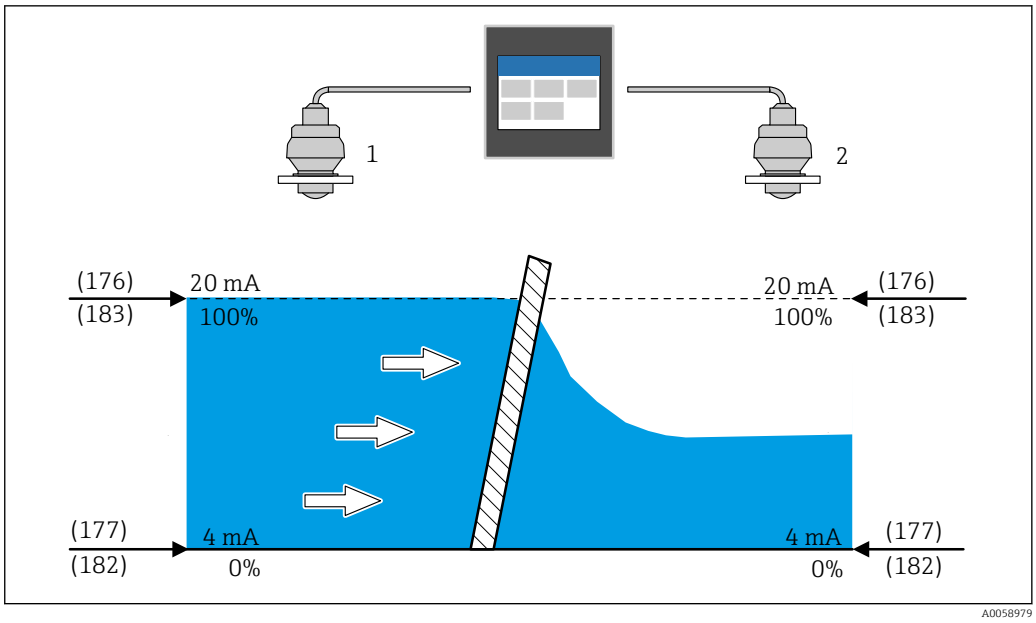
Additional information



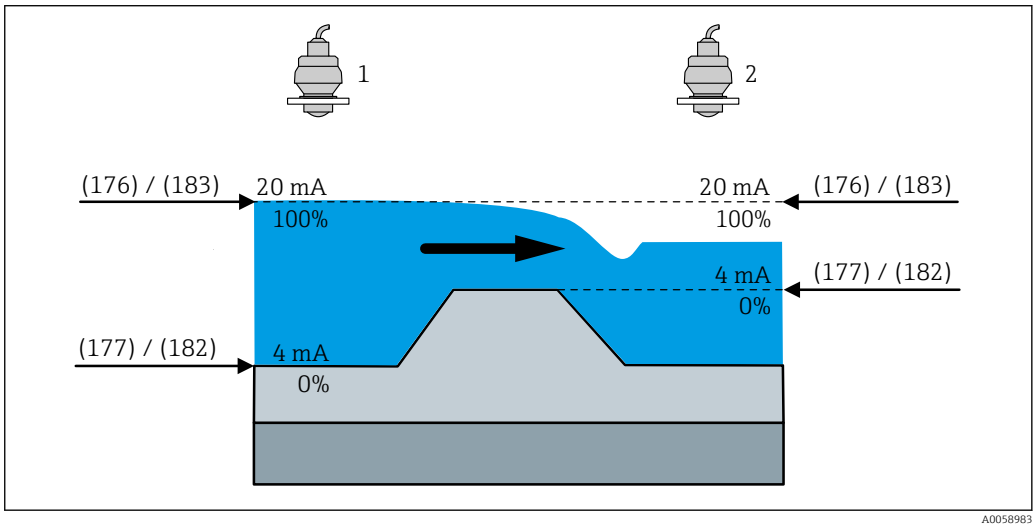
26 *Level at empty calibration (177) FMX21 level application*



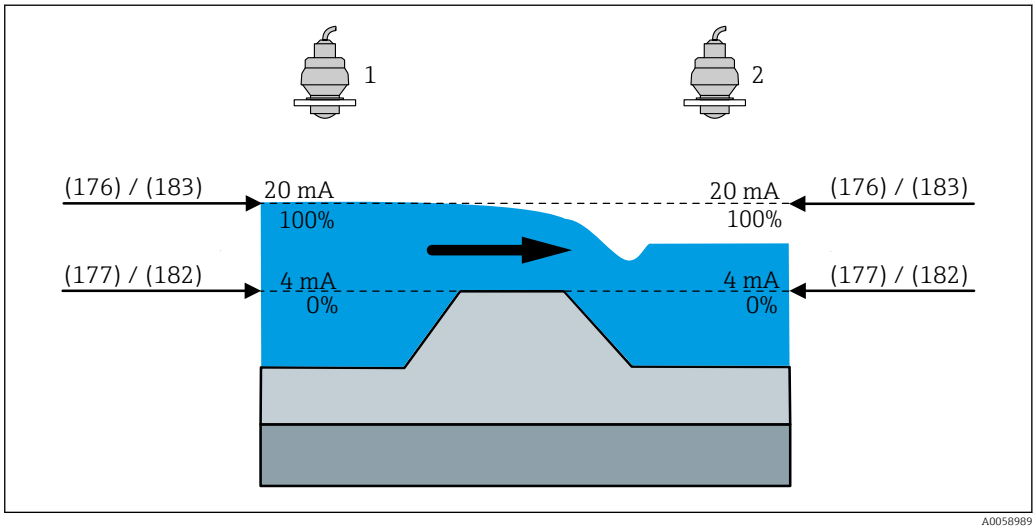
27 *Level at empty calibration (177) FMX21 rake control*



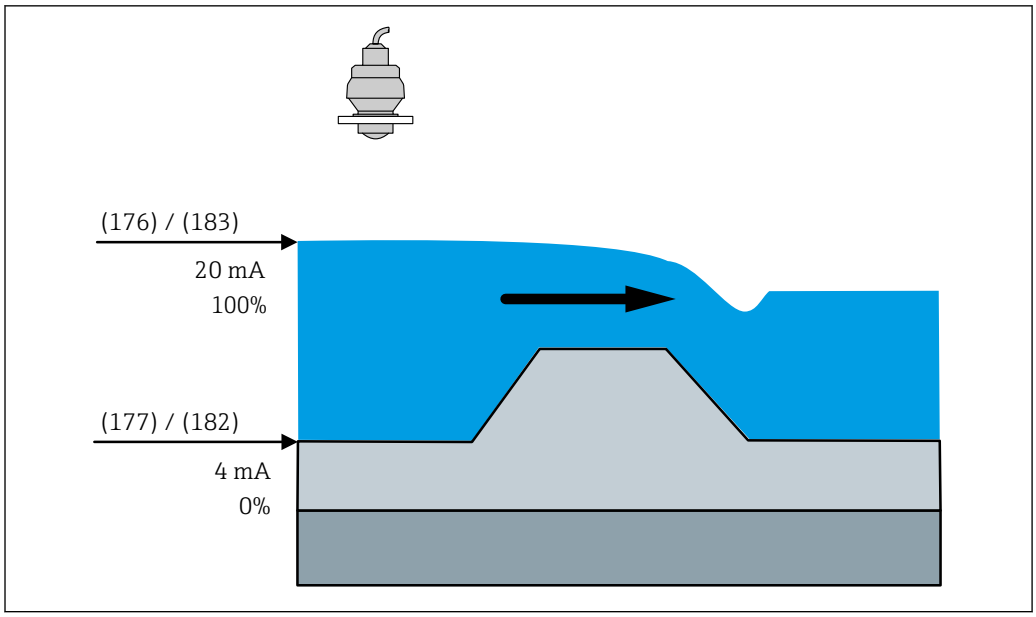
28 *Level at empty calibration (177) rake control*



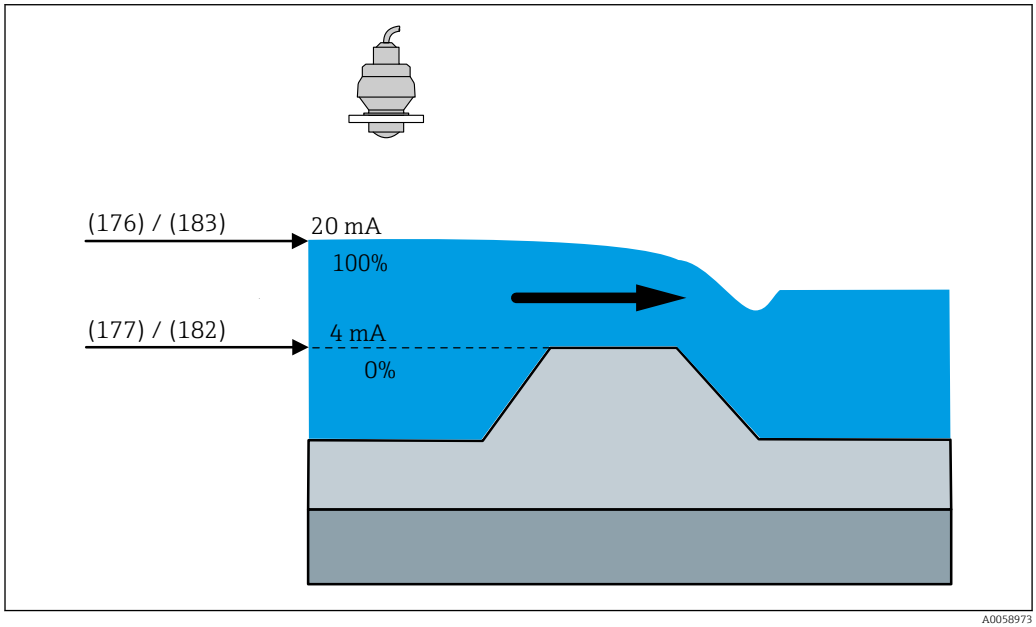
29 *Level at empty calibration (177) backwater detection*



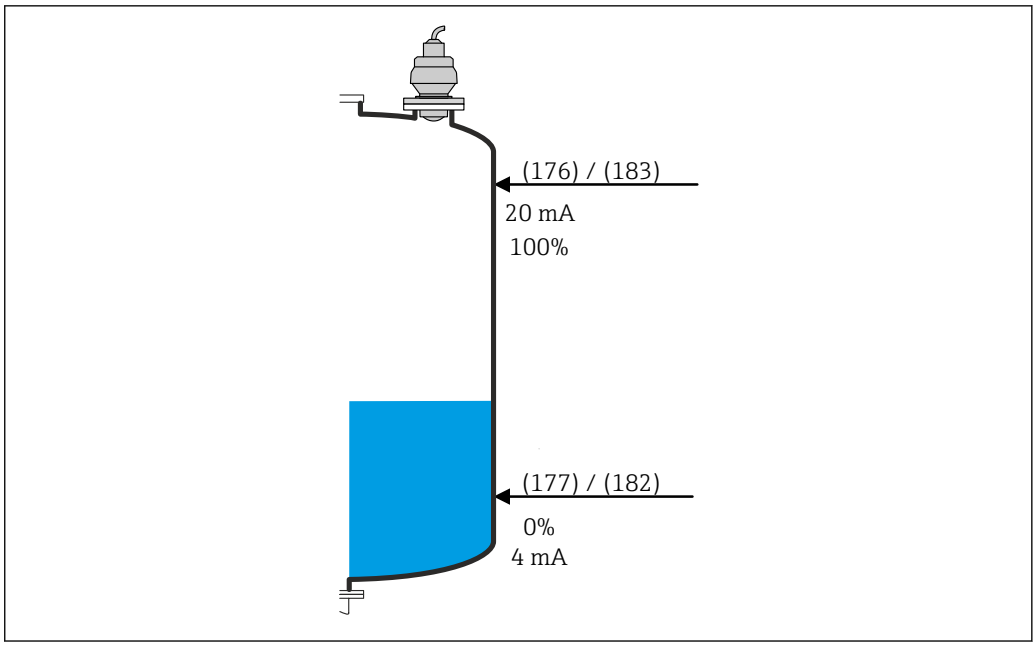
30 *Level at empty calibration (177) backwater detection*



31 *Level at empty calibration (177) flow application*



32 *Level at empty calibration (177) flow application*



33 *Level at empty calibration (177) level application*

Current value at full calibration

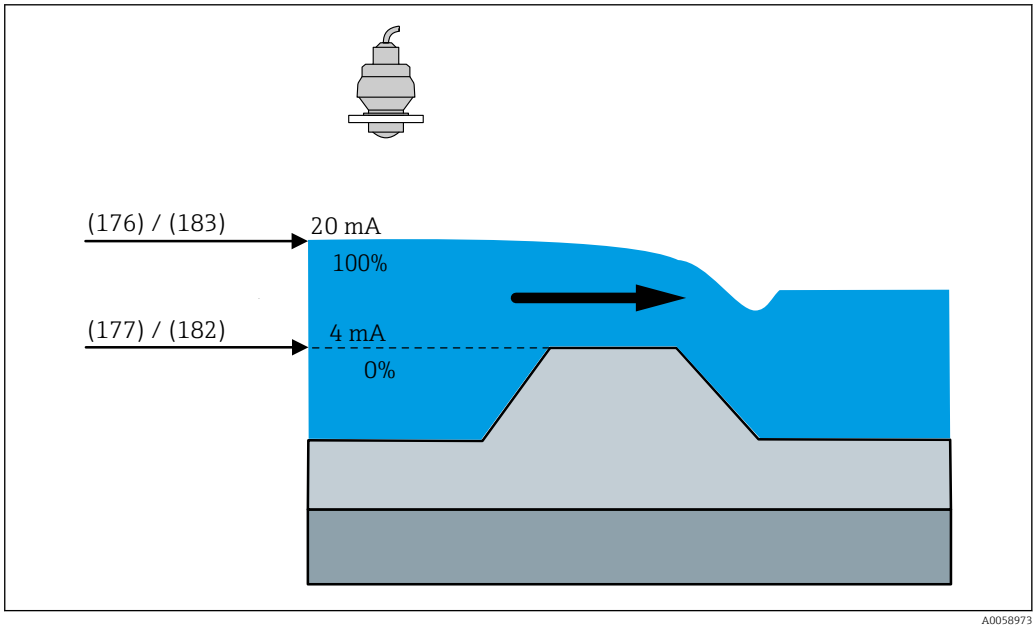
Navigation Application → Sensors → Sensor 1 to 2 → Current value at full calibration (1520027–1 to 2)

Description Enter the current value at full calibration.

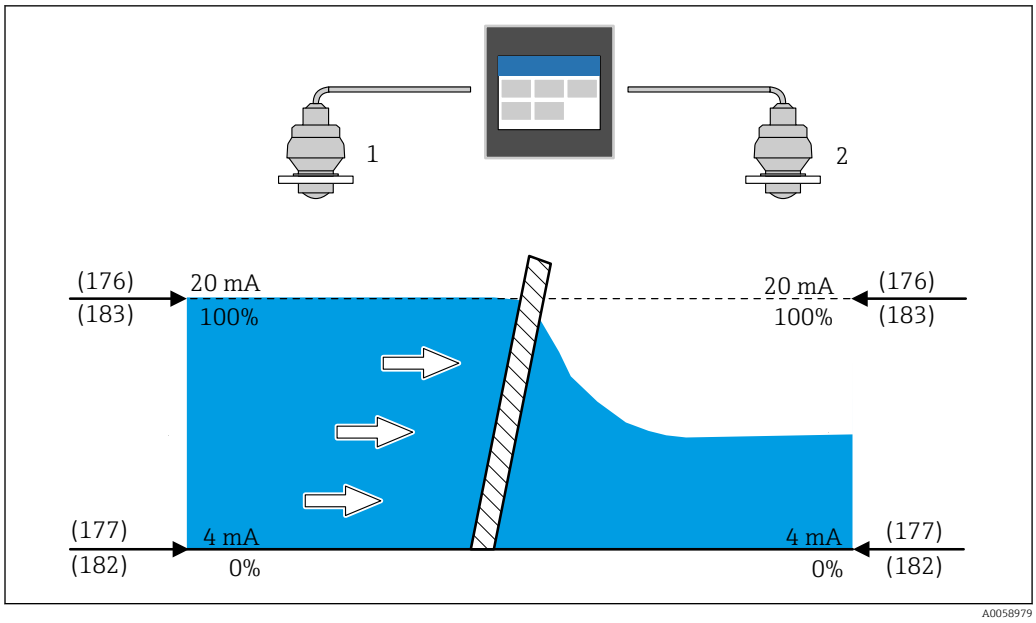
User entry 4.0 to 20.0 mA

Factory setting 20.0 mA

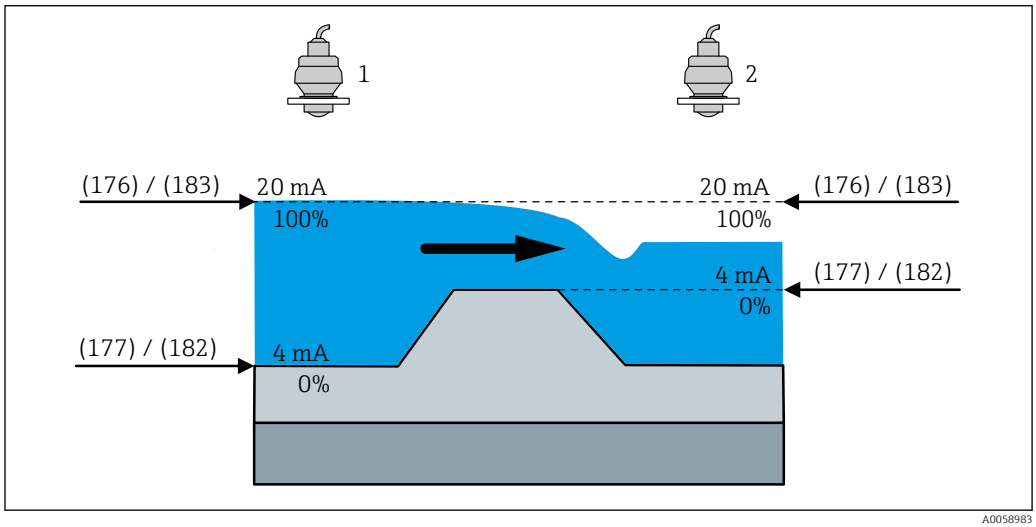
Additional information



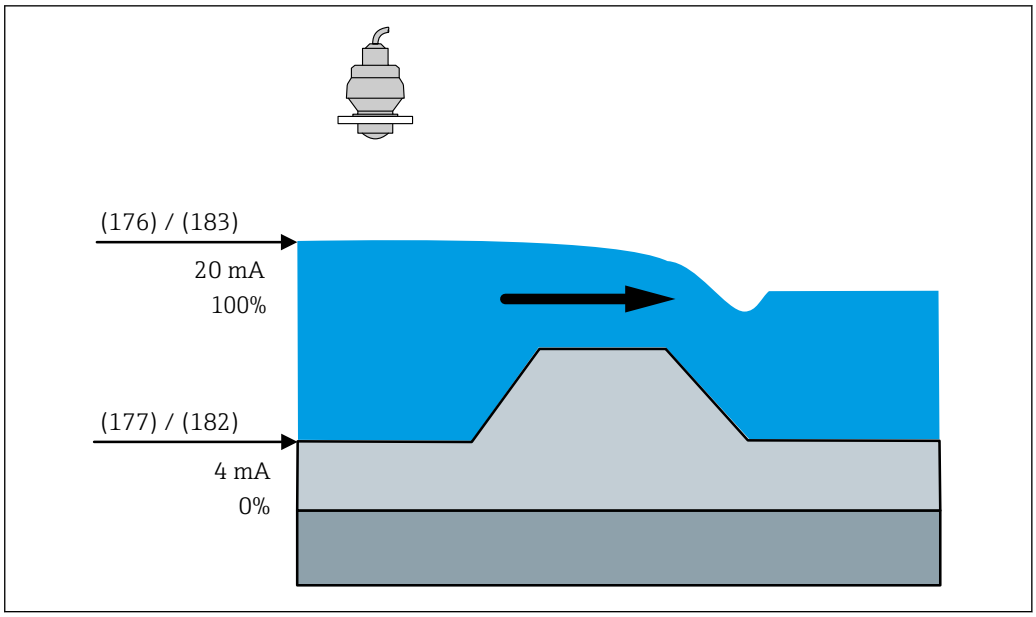
34 *Current value at full calibration (183) flow application*



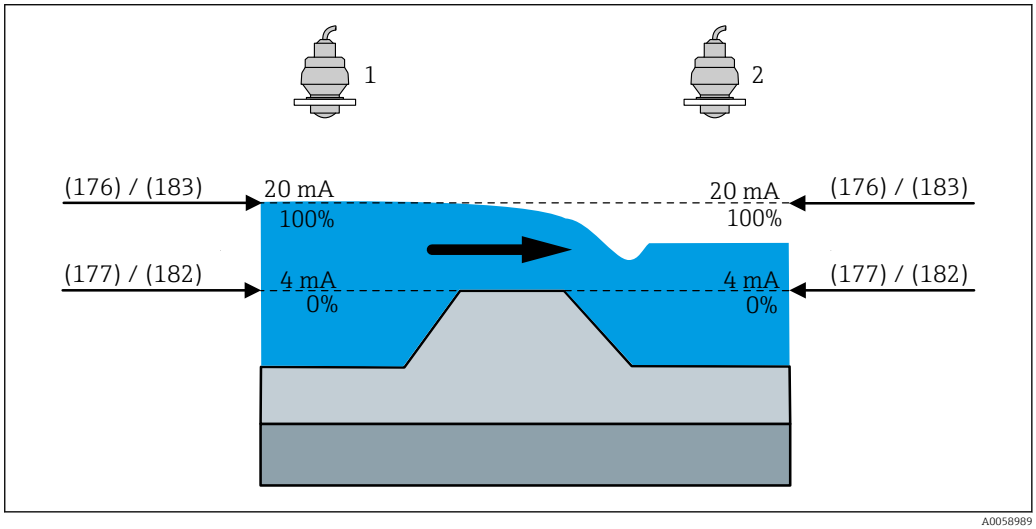
35 *Current value at full calibration (183) rake control*



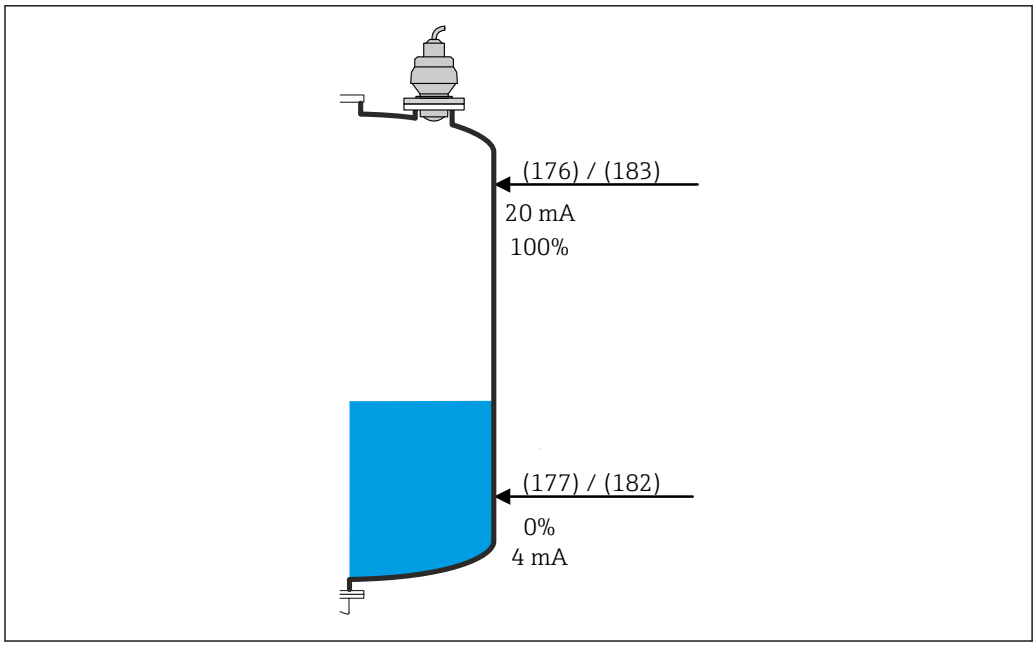
36 *Current value at full calibration (183) backwater detection*



37 *Current value at full calibration (183) flow application*



38 *Current value at full calibration (183) backwater detection*



39 *Current value at full calibration (183) level application*

HART value (PV) at full calibration

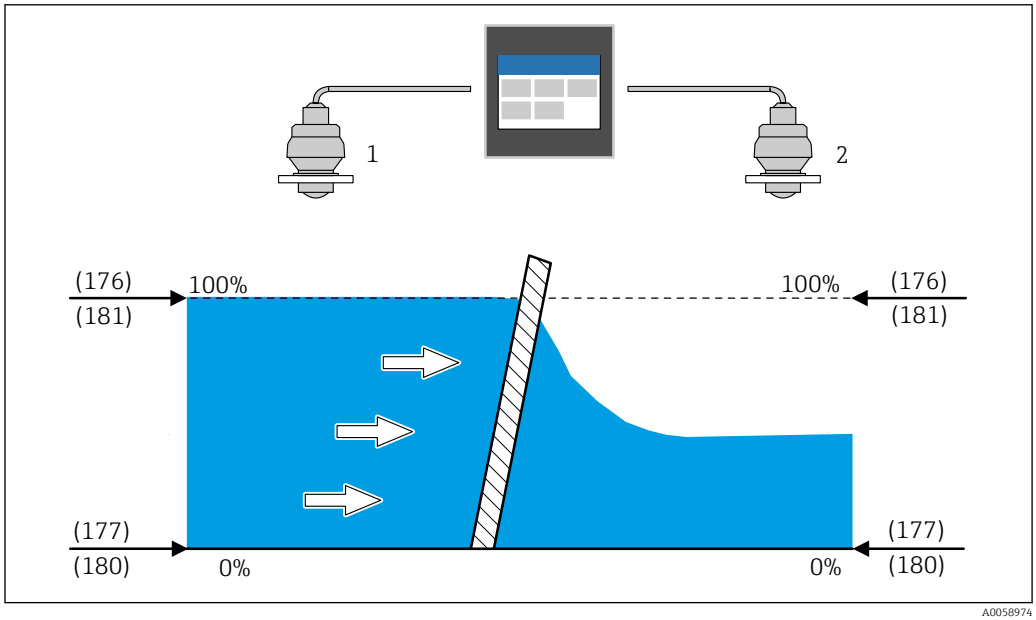
Navigation Application → Sensors → Sensor 1 to 2 → HART value (PV) at full calibration (3370031–1 to 2)

Description Enter HART value (PV) for full calibration. The unit is read from the sensor.

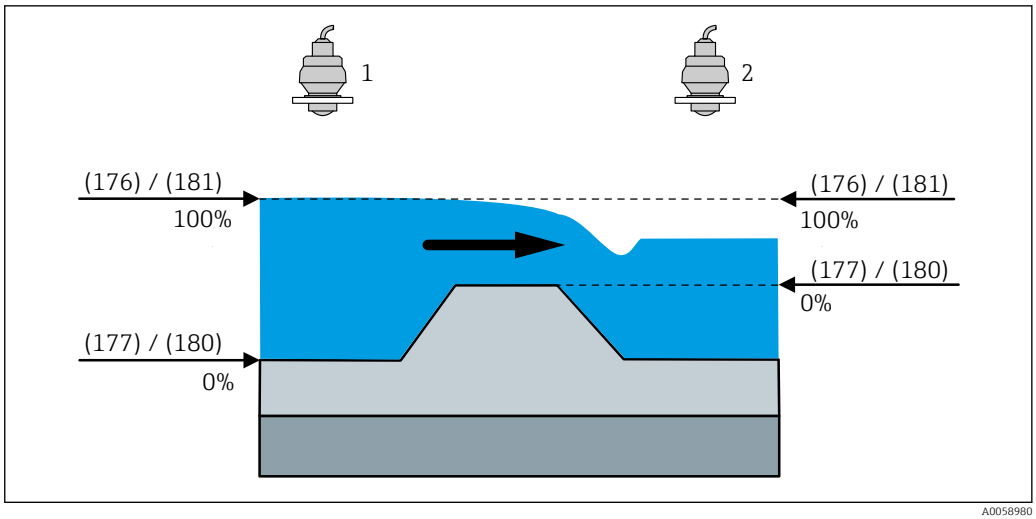
User entry –200 000.0 to 200 000.0 ??????

Factory setting 0.0 ??????

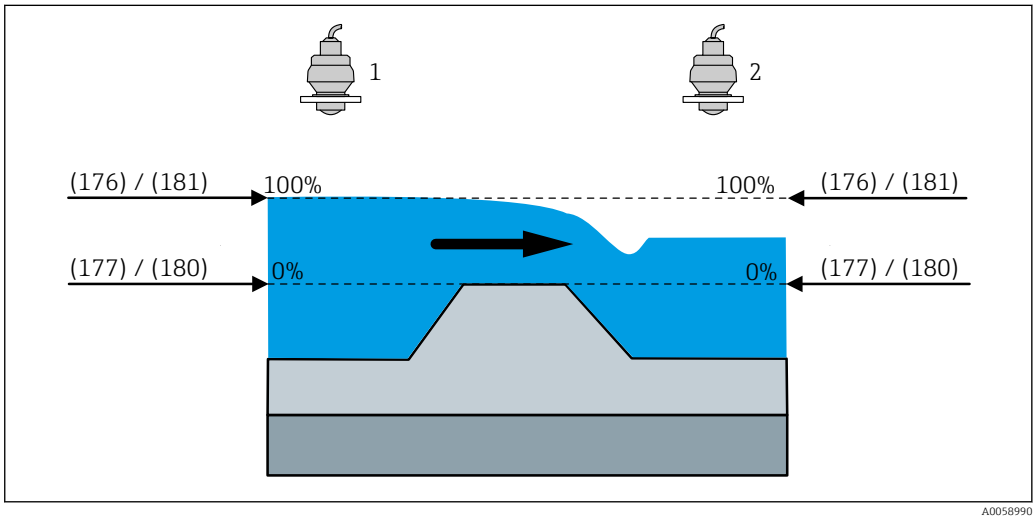
Additional information



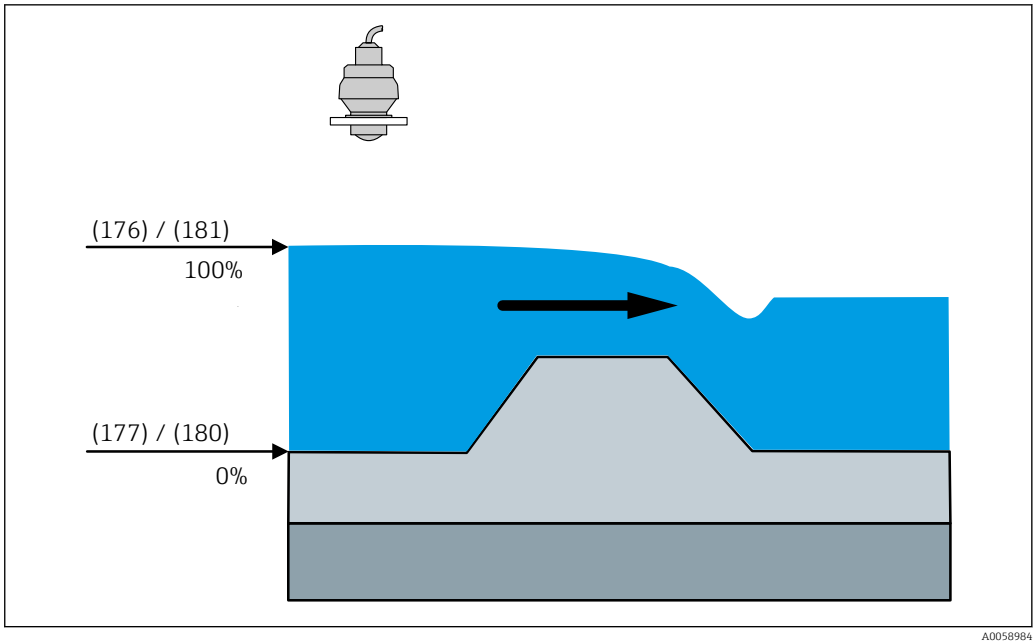
40 *HART value (PV) at full calibration (181) rake control*



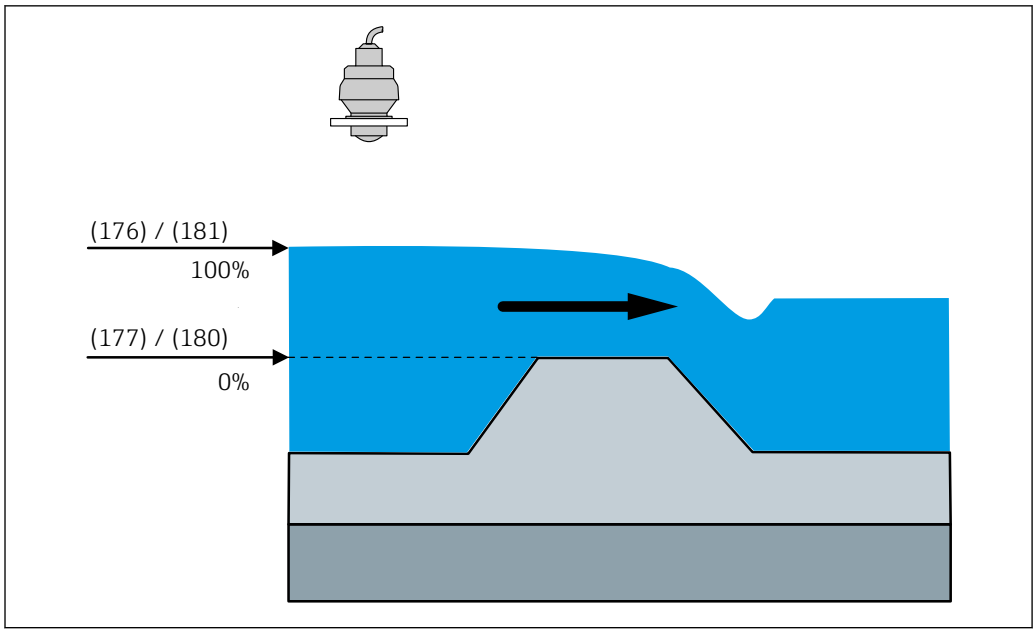
41 *HART value (PV) at full calibration (181) backwater detection*



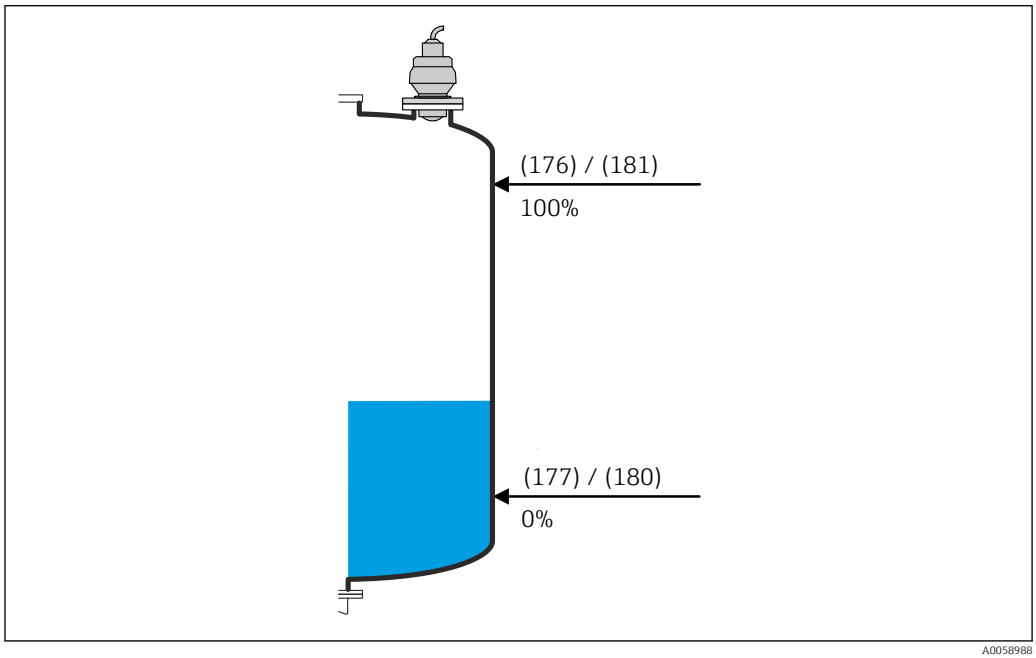
42 *HART value (PV) at full calibration (181) backwater detection*



43 *HART value (PV) at full calibration (181) flow application*



44 *HART value (PV) at full calibration (181) flow application*



45 *HART value (PV) at full calibration (181) level application*

Pressure value at full calibration

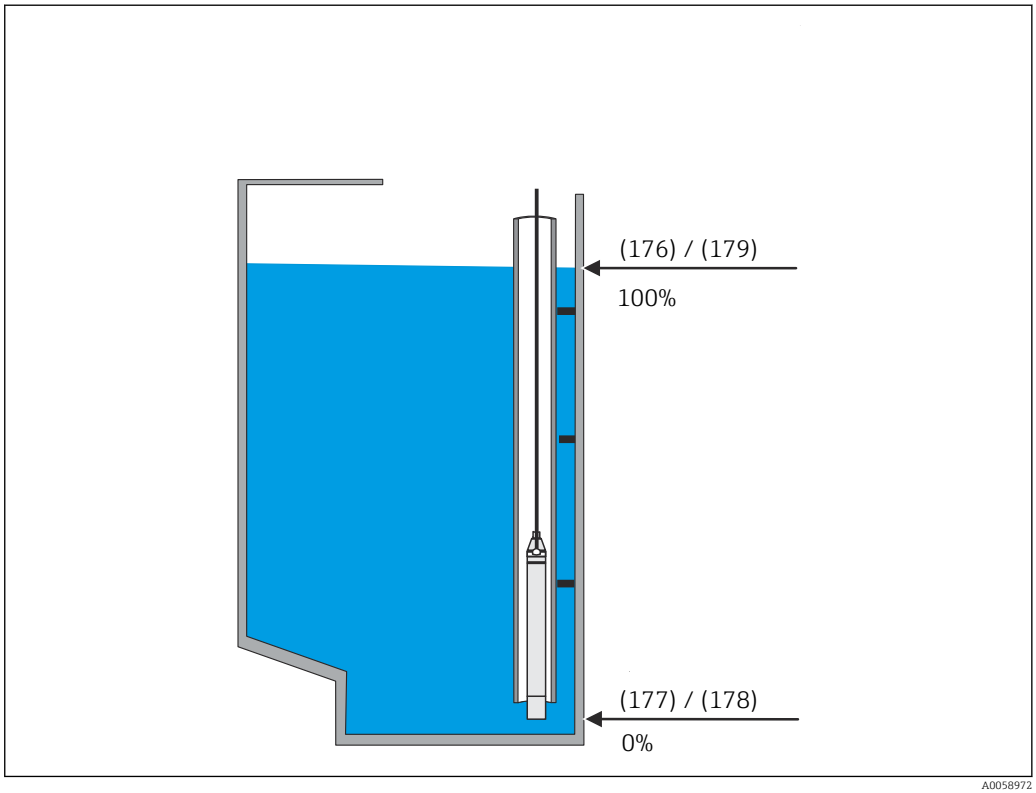
Navigation Application → Sensors → Sensor 1 to 2 → Pressure value at full calibration (3300009–1 to 2)

Description Enter the pressure value for the upper calibration point (vessel full). This parameter will be synchronized with the connected sensor.

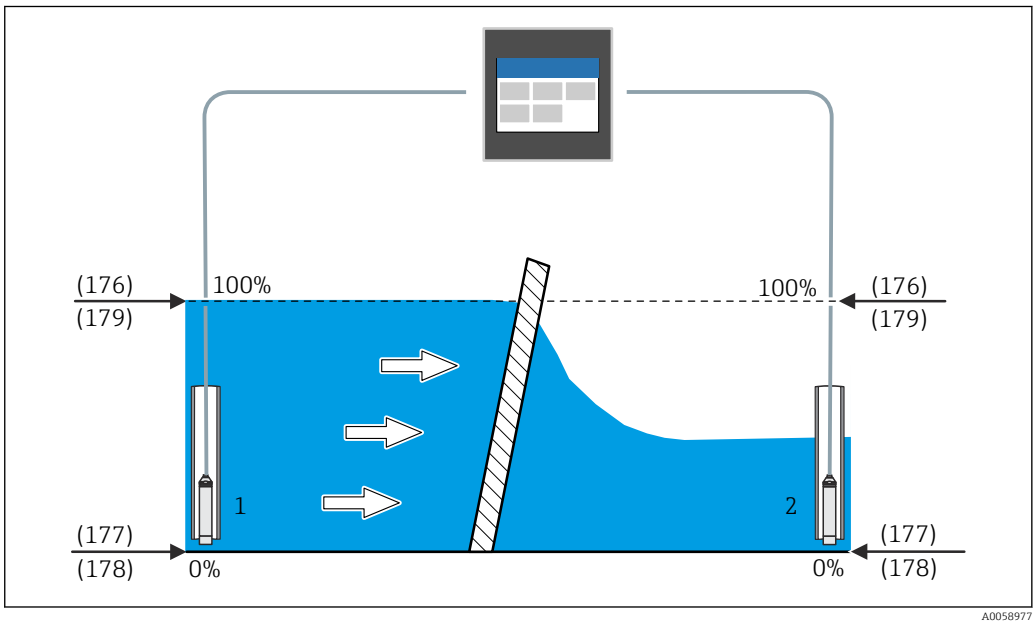
User entry –100 000.0 to 100 000.0 mbar

Factory setting 0.0 mbar

Additional information



46 *Pressure value at full calibration (179) FMX21 level application*



47 *Pressure value at full calibration (179) FMX21 rake control*

Full calibration

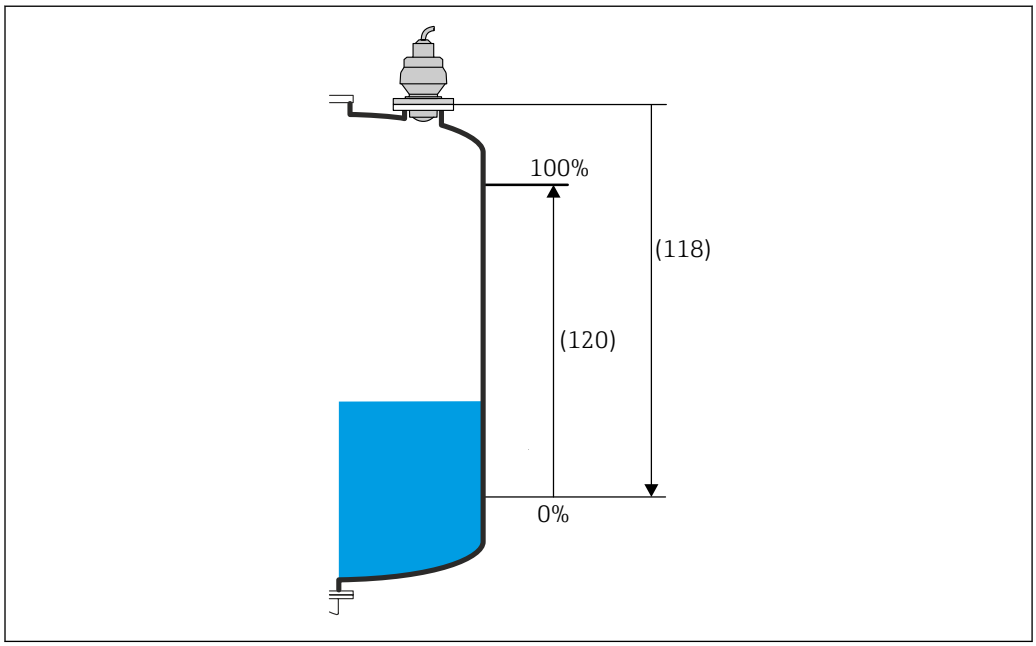
Navigation Application → Sensors → Sensor 1 to 2 → Full calibration (2830008–1 to 2)

Description Enter distance between minimum level and maximum level. This parameter will be synchronized with the connected sensor.

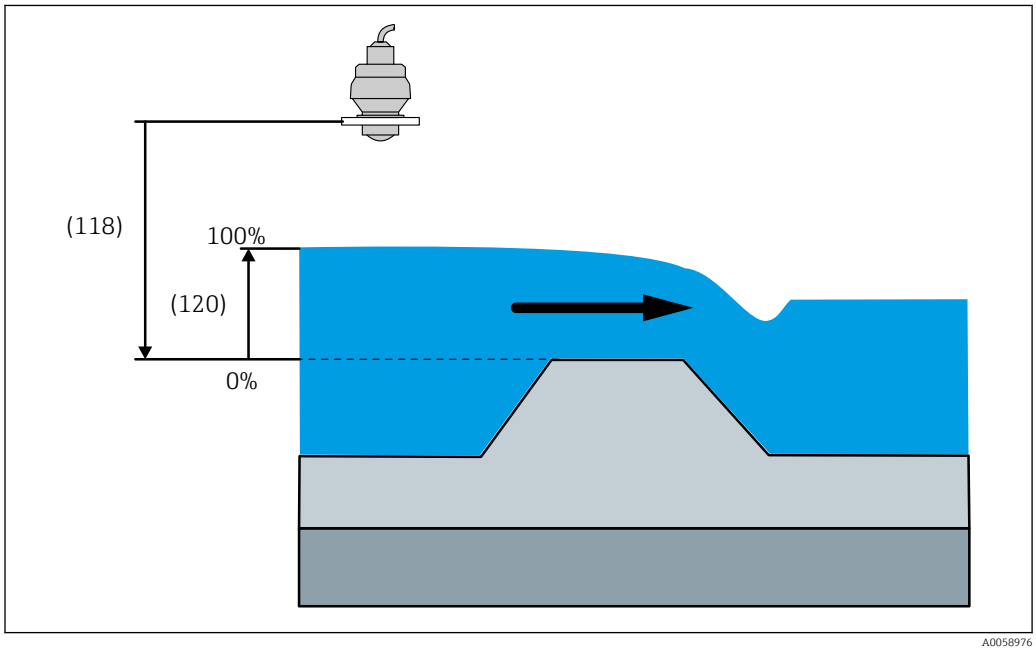
User entry 0.0 to 125 000.0 mm

Factory setting 20 000.0 mm

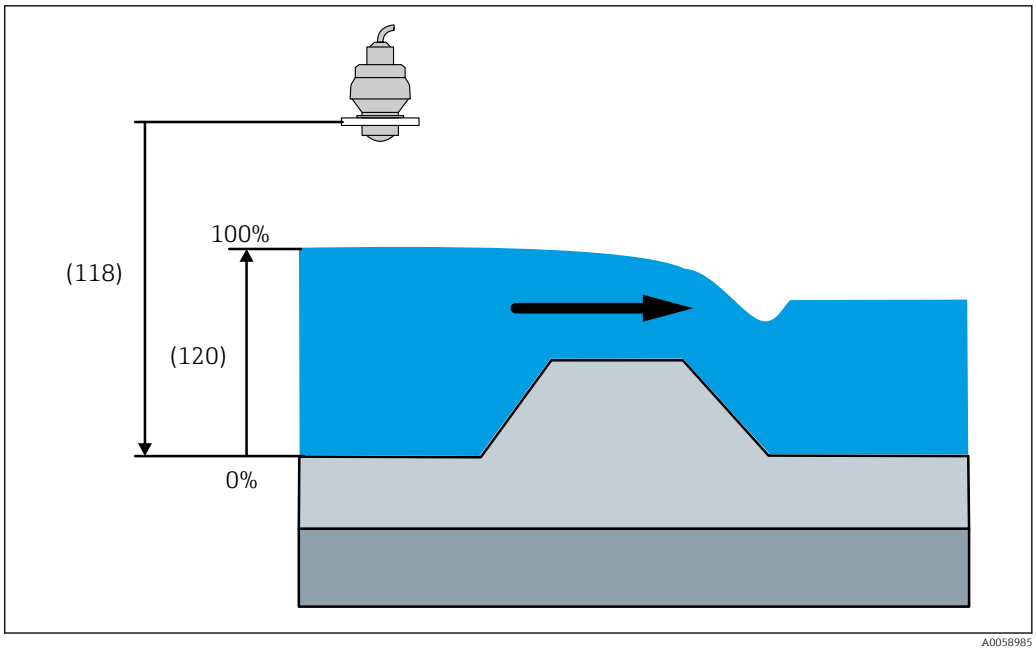
Additional information



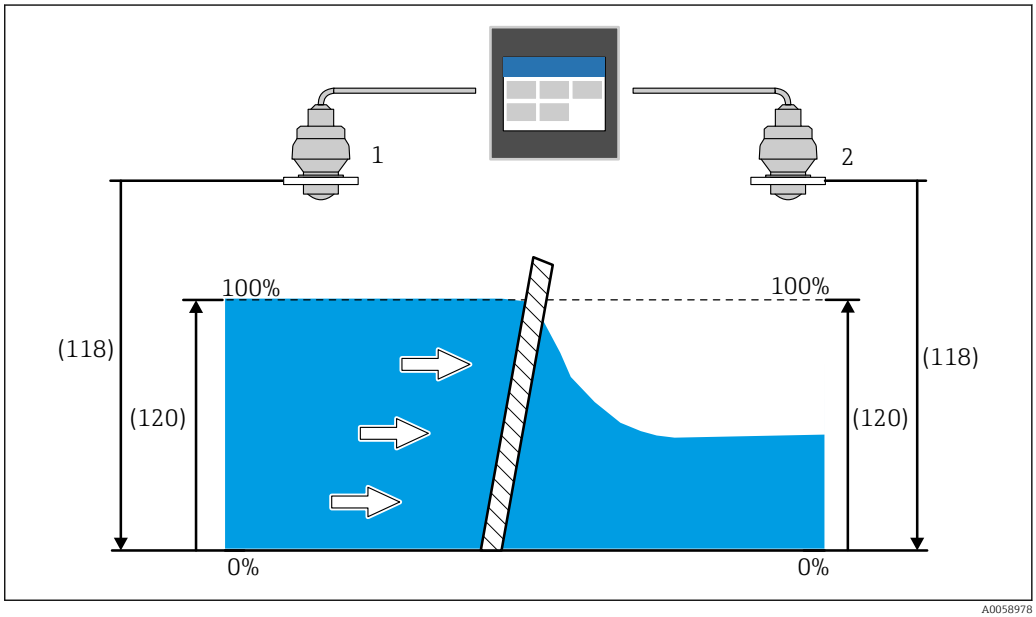
48 *Full calibration (120) FMR20B/FMR30B level application*



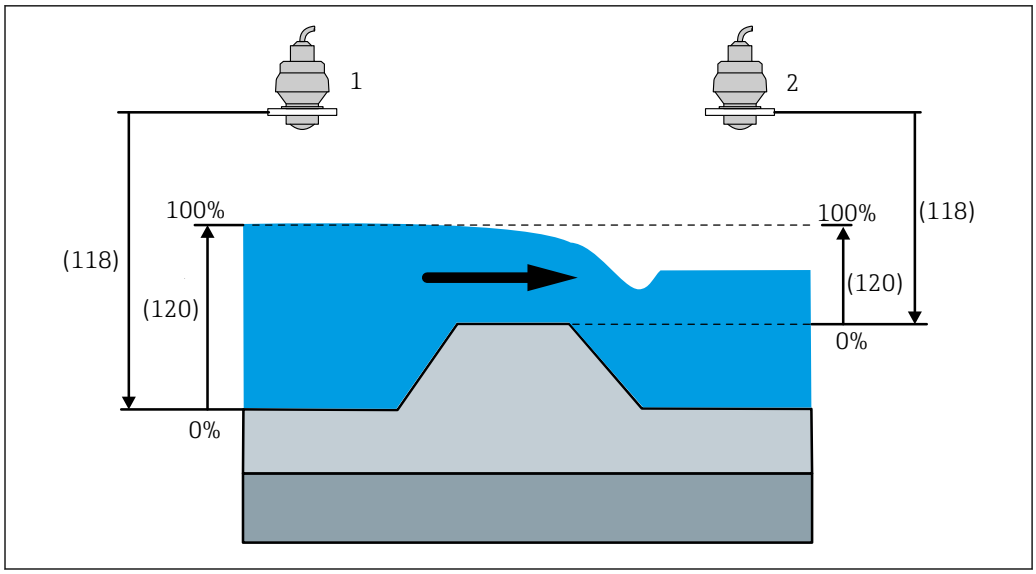
49 *Full calibration (120) FMR20B/FMR30B flow application*



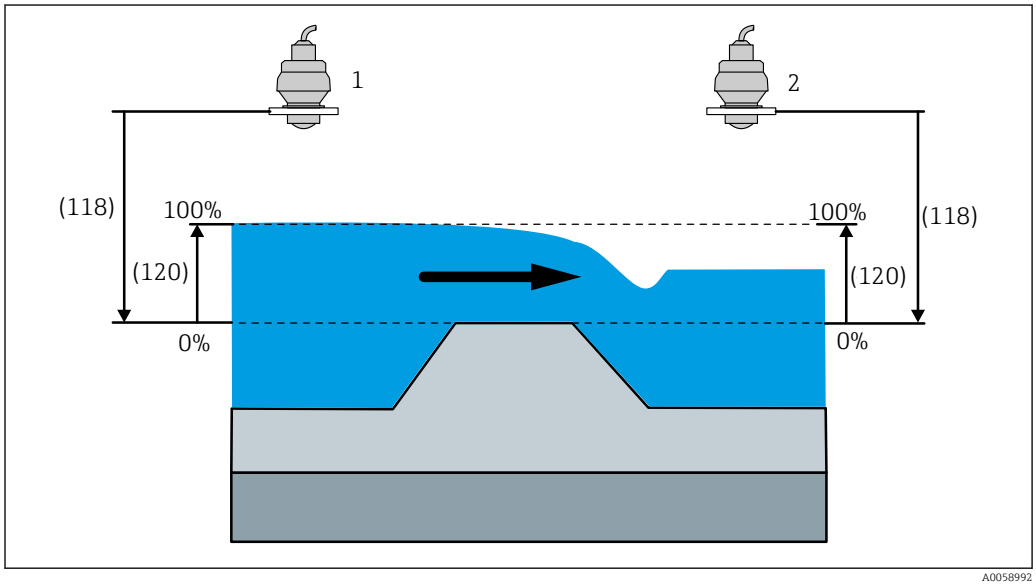
50 *Full calibration (120) FMR20B/FMR30B flow application*



51 *Full calibration (120) FMR20B/FMR30B rake control*



52 *Full calibration (120) FMR20B/FMR30B backwater detection*

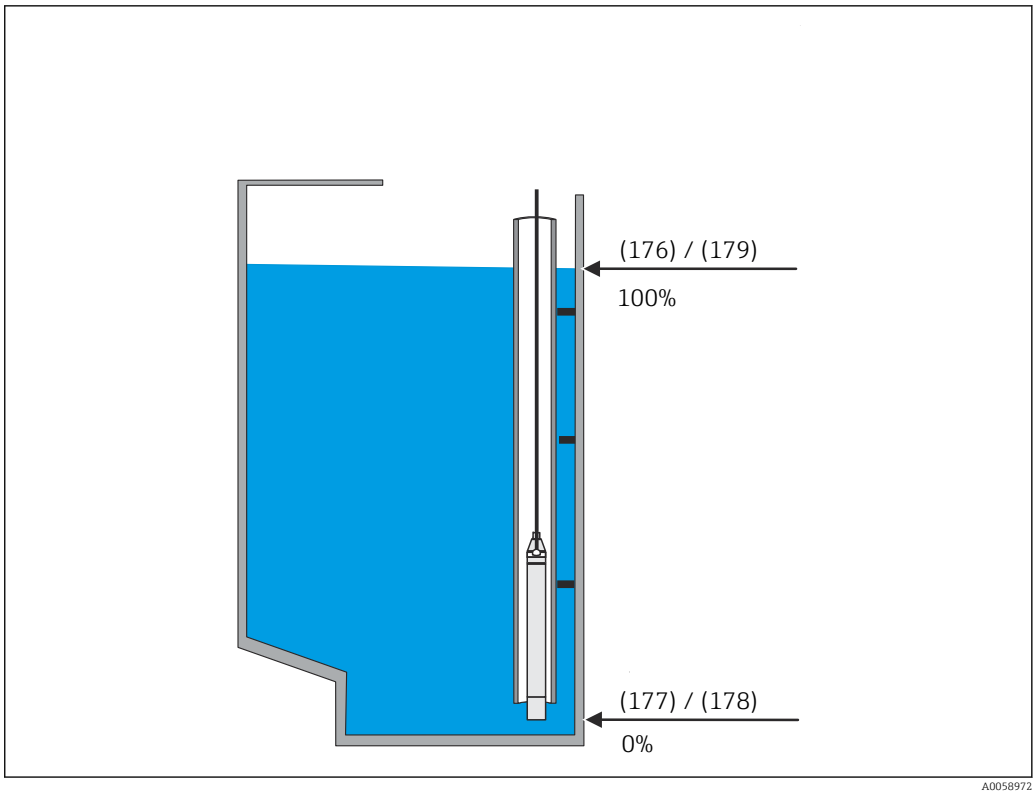


53 *Full calibration (120) FMR20B/FMR30B backwater detection*

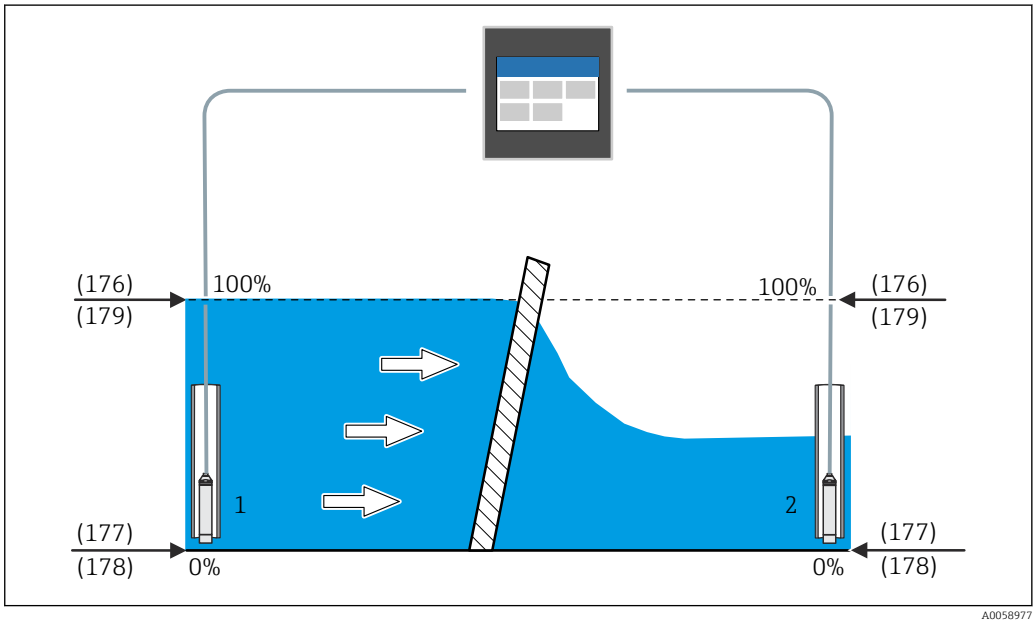
Level at full calibration

Navigation	Application → Sensors → Sensor 1 to 2 → Level at full calibration (2960011–1 to 2)
Description	Enter the absolute level value at full calibration.
User entry	Positive floating-point number
Factory setting	0.0 mm

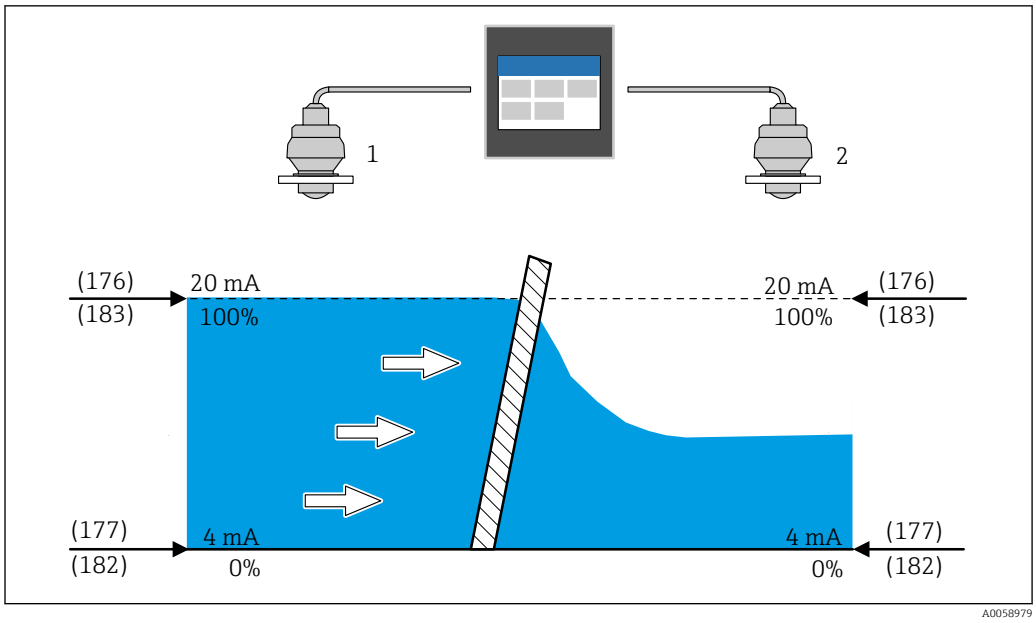
Additional information



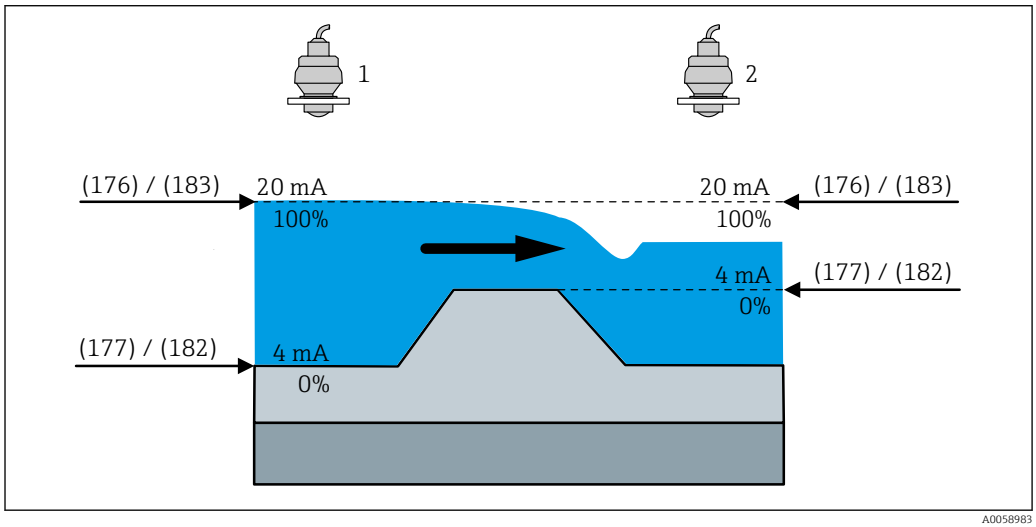
54 *Level at full calibration (176) FMX21 level application*



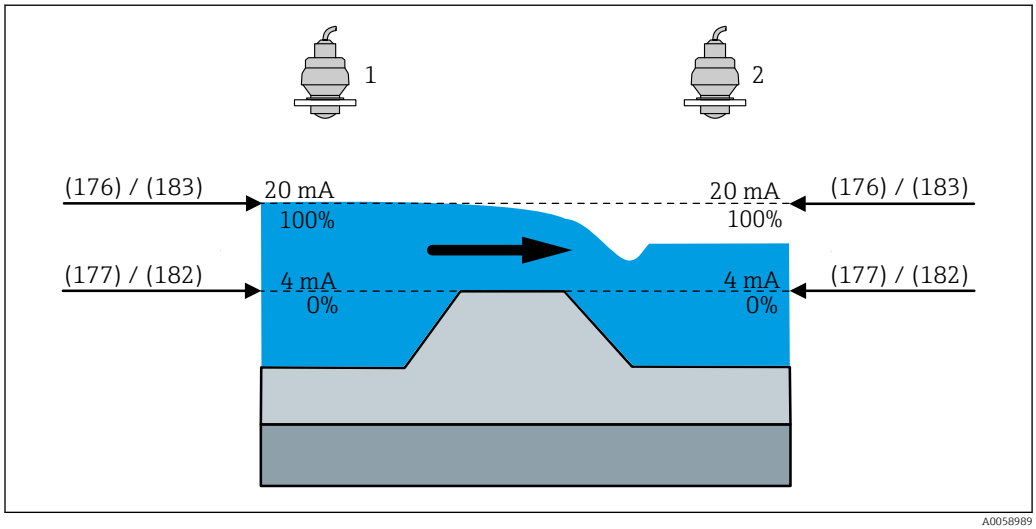
55 *Level at full calibration (176) FMX21 rake control*



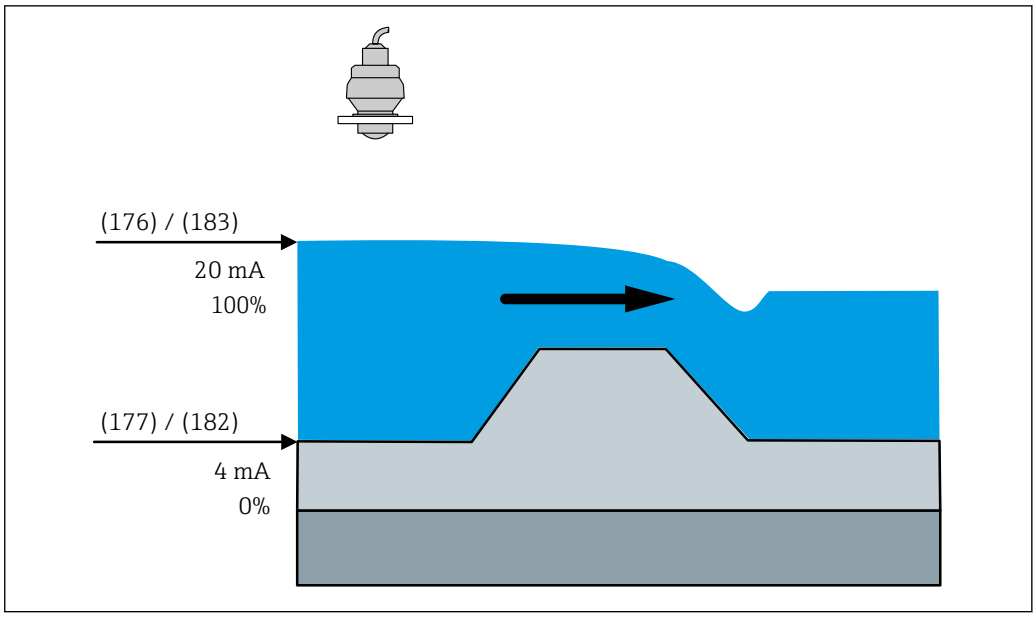
56 *Level at full calibration (176) rake control*



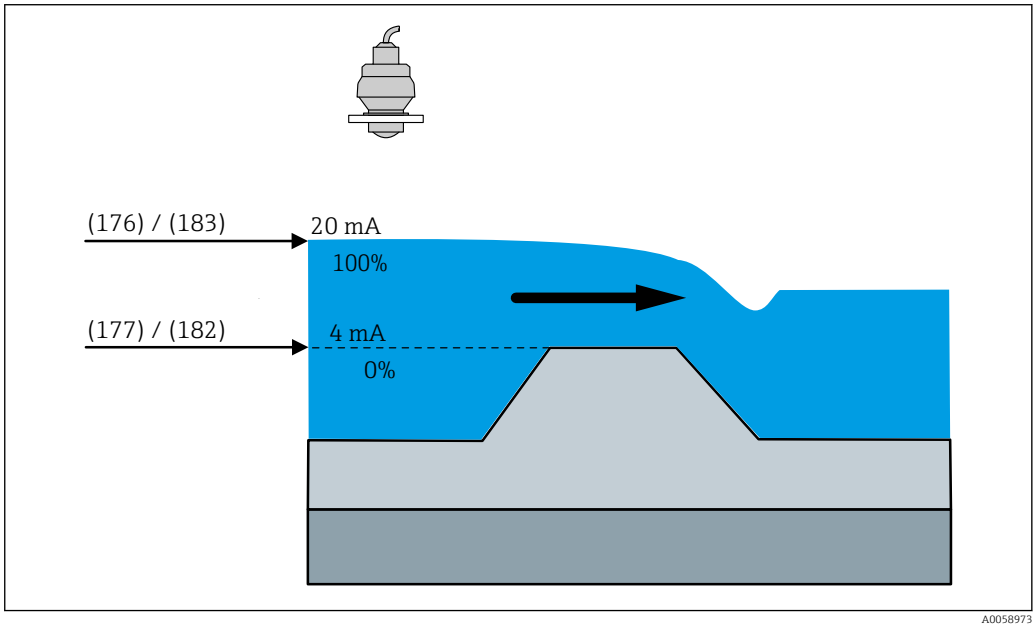
57 *Level at full calibration (176) backwater detection*



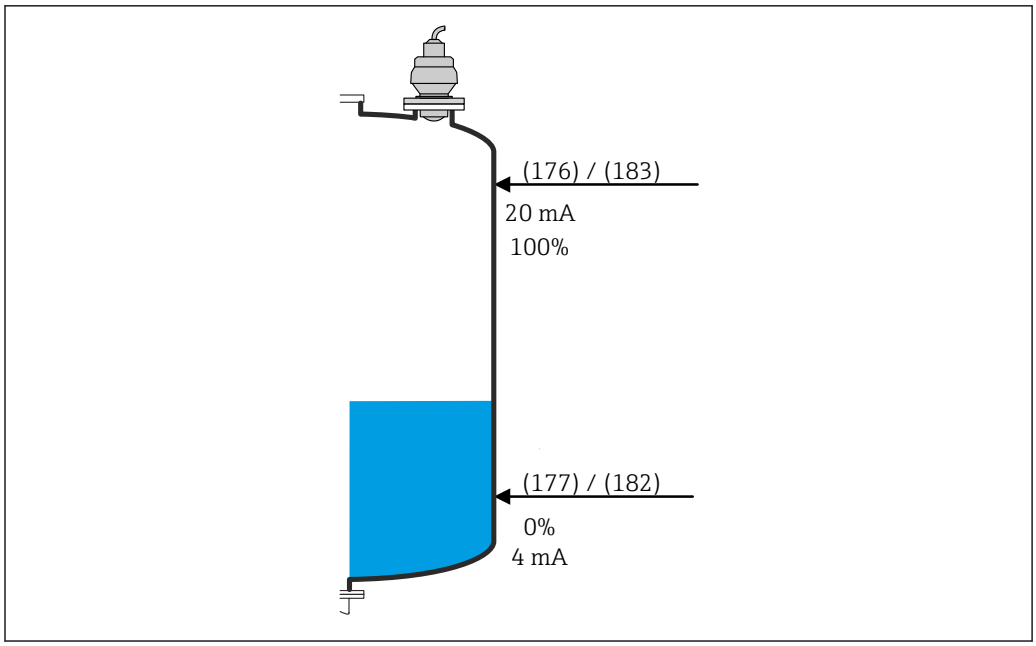
58 *Level at full calibration (176) backwater detection*



59 *Level at full calibration (176) flow application*



60 *Level at full calibration (176) flow application*



61 *Level at full calibration (176) level application*

Level sensor 1 to 2

Navigation Application → Sensors → Sensor 1 to 2 → Level sensor 1 to 2 (2960130–1 to 2)

Description Displays the currently measured level of the connected sensor.

User interface Signed floating-point number

State of communication

Navigation Application → Sensors → Sensor 1 to 2 → State of communication (3370161–1 to 2)

Description Displays the current status of the HART communication with the connected sensor.

User interface
- No HART sensor detected
- Identifying in progress
- Synchronization in progress
- Not synchronized with sensor
- Wrong sensor connected
- Connected
- Parameter is written

Factory setting No HART sensor detected

"Access to sensor" submenu

Navigation Application → Sensors → Sensor 1 to 2 → Access to sensor

Password required

Navigation Application → Sensors → Sensor 1 to 2 → Access to sensor → Password required (2830142)

Description Displays whether the connected sensor requires a password to allow access to the "Maintenance" user role.

User interface
- No
- Yes

Factory setting No

Password

Navigation Application → Sensors → Sensor 1 to 2 → Access to sensor → Password required (2830142)

Description Enter password to gain access to the functions of the user role.

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

Status password entry

Navigation Application → Sensors → Sensor 1 to 2 → Access to sensor → Status password entry (2830141)

Description 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

Factory setting --------

"Additional settings" submenu

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings

Lower limit

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Lower limit (1520024)

Description Enter the lower error limit of the current input.

User entry 2.1 to 4.0 mA

Factory setting 3.7 mA

Upper limit

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Upper limit (1520023)

Description Enter the upper error limit of the current input.

User entry 20.0 to 22.0 mA

Factory setting 20.8 mA

Damping

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Damping (2830009)

Description Setting of the time constant for the damping of the measured value. This parameter will be synchronized with the connected sensor.

User entry 0.0 to 1 200.0 s

Factory setting 0.0 s

Maximum measuring distance

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Maximum measuring distance (2830010)

Description Enter maximum measuring distance measured from the reference point. This parameter will be synchronized with the connected sensor.

User entry 0.0 to 125 000.0 mm

Factory setting 20 000.0 mm

Level at full calibration

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Level at full calibration (2960024)

Description Displays the level at full calibration, depending on the sensor used.

User entry Positive floating-point number

Factory setting 0.0 mm

Level sensor 1 to 2

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Level sensor 1 to 2 (2960130–1 to 2)

Description Displays the currently measured level of the connected sensor.

User interface Signed floating-point number

Distance

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Distance (2830128)

Description Distance from lower edge of device flange to product surface.

User interface Signed floating-point number

HART address

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → HART address (3370009)

Description Enter adress for the data exchange via HART protocol.

User entry 0 to 63

Factory setting 0

"Mapping" submenu

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Mapping

Active map

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Mapping → Active map (2830020)

Description Select the mapping curve that has to be active. This parameter will be synchronized with the connected sensor.

Selection
- Factory map
- Customer map
- No map

Factory setting No map

Confirm distance

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Mapping → Confirm distance (2830040)

Description Select whether the measured distance and the actually distance are the same. This parameter will be synchronized with the connected sensor.

Selection
- Modify map
- Distance ok
- Distance unknown
- Level <=0

Factory setting Distance unknown

Mapping end point

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Mapping → Mapping end point (2830025)

Description Enter up to which distance the new mapping is to be recorded. This parameter will be synchronized with the connected sensor.

User entry 0.1 to 125 000.0 mm

Factory setting 100.0 mm

Record map

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Mapping → Record map (2830026)

Description Select the control of the recording of the map. This parameter will be synchronized with the connected sensor.

Selection
- No
- Overlay map
- Delete map

Factory setting No

"Failure behavior" submenu

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Failure behavior

Failure behavior

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Failure behavior → Failure behavior (2960050)

Description Settings how this channel/input behaves in case of failure.

Selection
- Invalid
- Last good
- Fixed Value

Factory setting Invalid

Failure value

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Failure behavior → Failure value (2960051)

Description Enter a fixed measurement value, that the device outputs in the event of a sensor failure.

User entry Signed floating-point number

Factory setting 0.0 mm

Failure delay time

Navigation Application → Sensors → Sensor 1 to 2 → Additional settings → Failure behavior → Failure delay time (2960052)

Description Enter the delay time until the set failure behavior is activated.

User entry 0 to 999 s

Factory setting 0 s

3.3.5 Level

Navigation Application → Level

"Level 1 to 2 linearized" submenu

Navigation Application → Level → Level 1 to 2 linearized

Description

Navigation Application → Level → Level 1 to 2 linearized → Description (3520029–1 to 2)

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

Factory setting Level 1 (lin.)

Unit after linearization

Navigation Application → Level → Level 1 to 2 linearized → Unit after linearization (3520009–1 to 2)

Description Select unit for linearized value.

Selection

SI units
- Ml
- cm^3
- dm^3
- m^3
- mm
- cm
- m

Custom-specific units
- %
- l
- hl
- ft^3
- in^3
- UsGal
- Mgal (us)
- impGal
- Mgal (imp)
- bbl (us;beer)
- bbl (us;liq.)
- bbl (us;oil)
- kg
- t
- lb
- LTon
- STon
- ft
- in
- Free text

Factory setting %

Free text

Navigation Application → Level → Level 1 to 2 linearized → Free text (3520019–1 to 2)

Description Enter the desired unit designation.

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

Factory setting Free text

Decimal places

Navigation Application → Level → Level 1 to 2 linearized → Decimal places (3520026–1 to 2)

Description Select the number of decimal places for the display value.

Selection
- x
- x.x
- x.xx
- x.xxx
- x.xxxx

Factory setting x

Linearization type

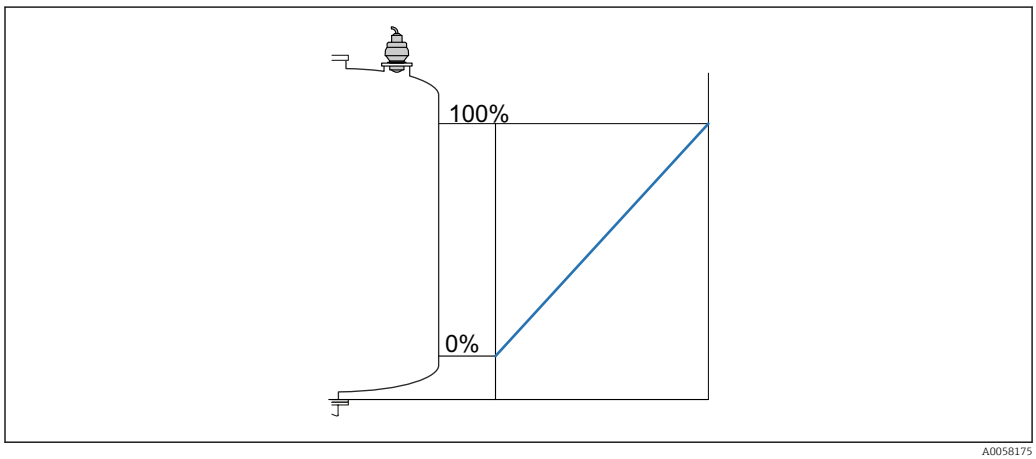
Navigation Application → Level → Level 1 to 2 linearized → Linearization type (3520008–1 to 2)

Description Select type of linearization.

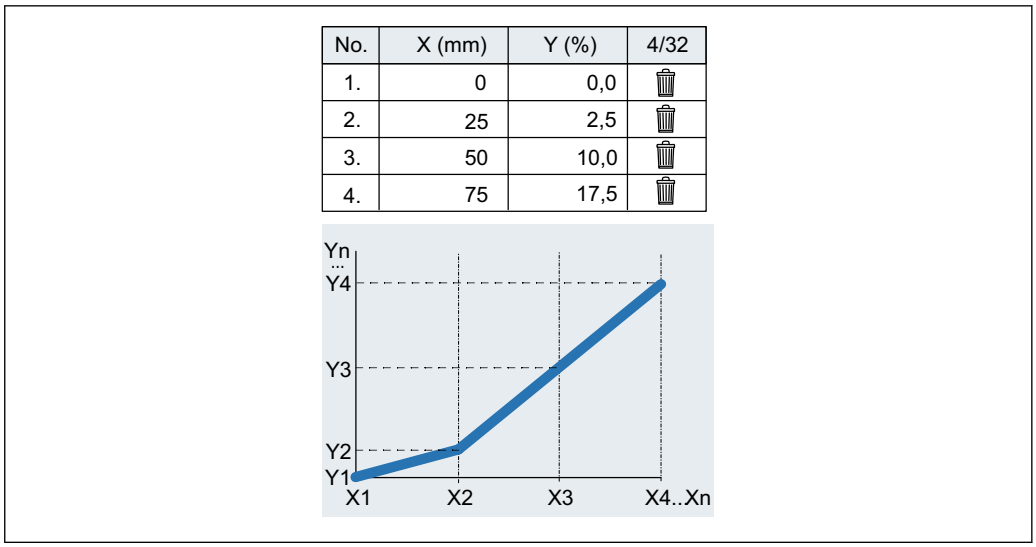
Selection
- None
- Linear
- Table
- Pyramid bottom
- Conical bottom
- Sloped bottom
- Horizontal cylinder
- Sphere

Factory setting Linear

Additional information

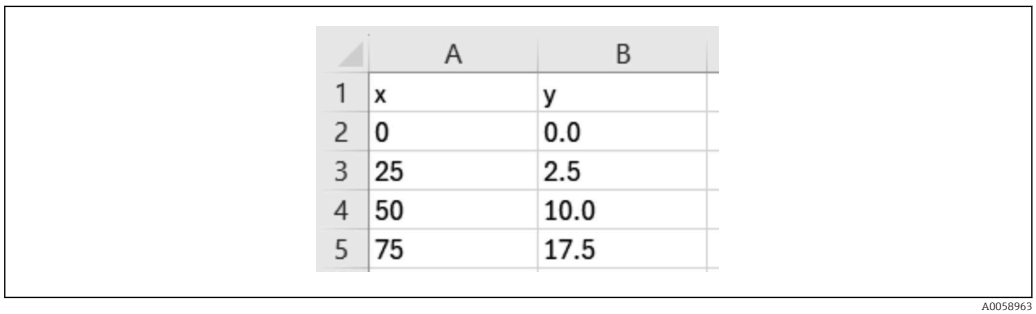


62 *Linearization type: Linear*

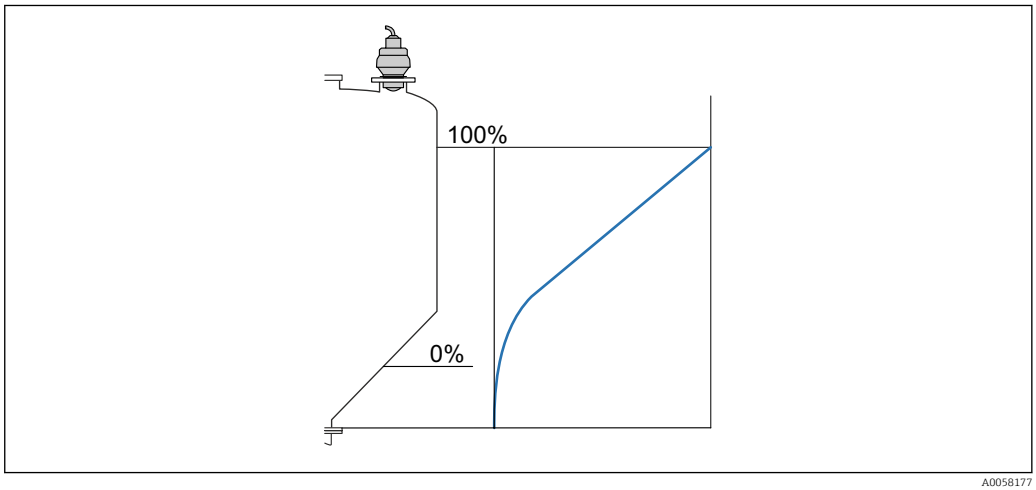


63 *Linearization type: Table with up to 32 support points*

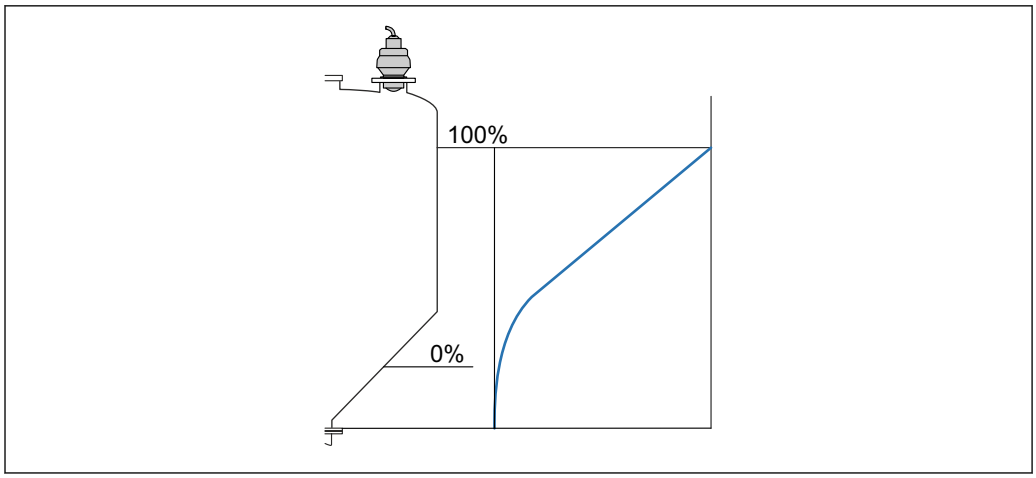
A decimal point must be used as the decimal separator for the import.



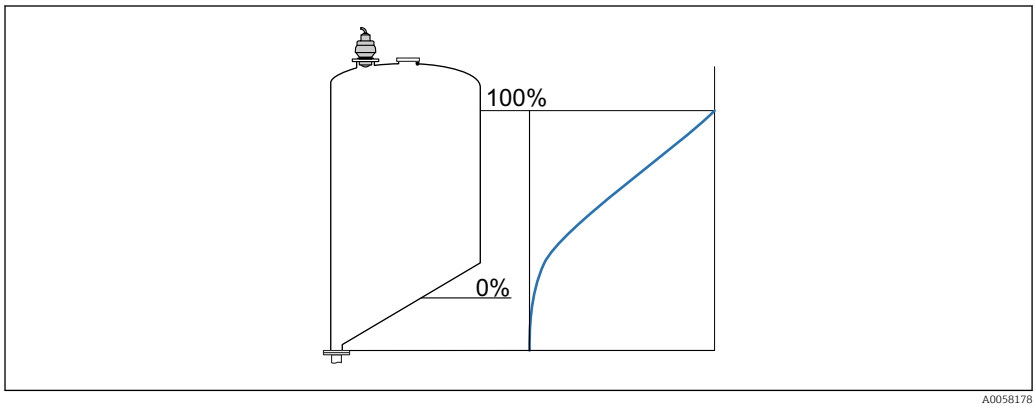
64 *Linearization type: Table (example of table in Excel)*



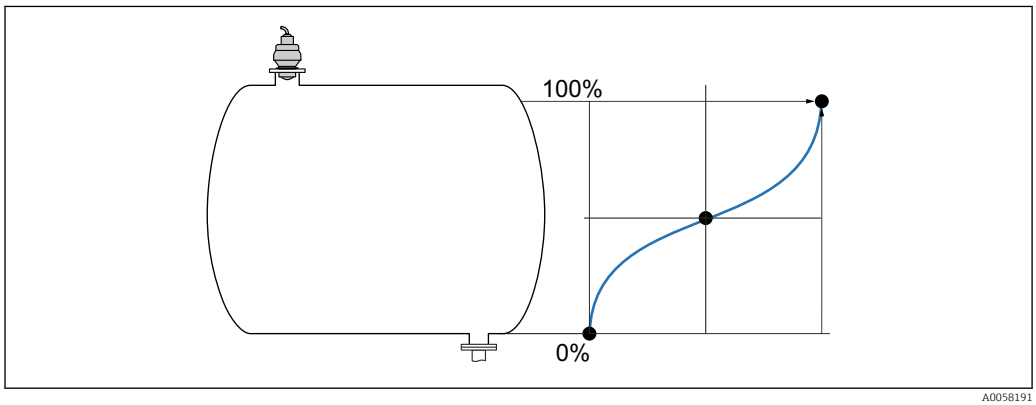
65 *Linearization type: Pyramid bottom*



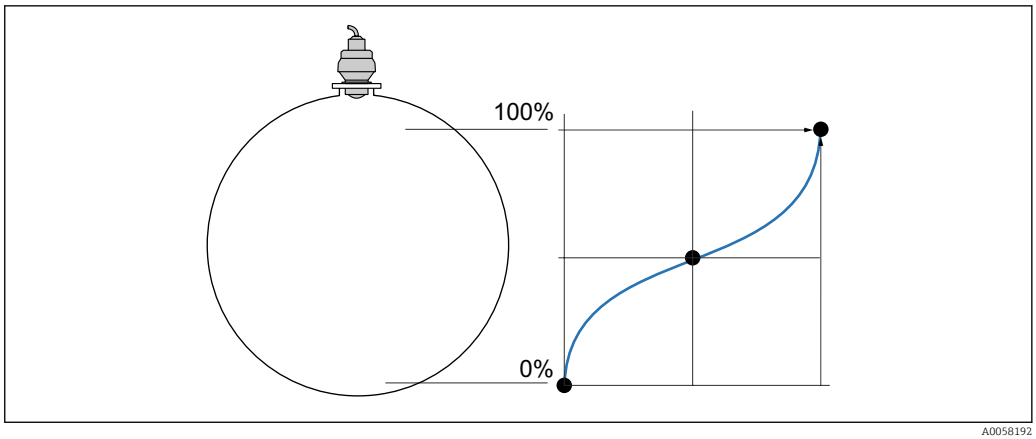
66 *Linearization type: Conical bottom*



67 *Linearization type: Sloped bottom*



68 *Linearization type: Horizontal cylinder*



69 *Linearization type: Sphere*

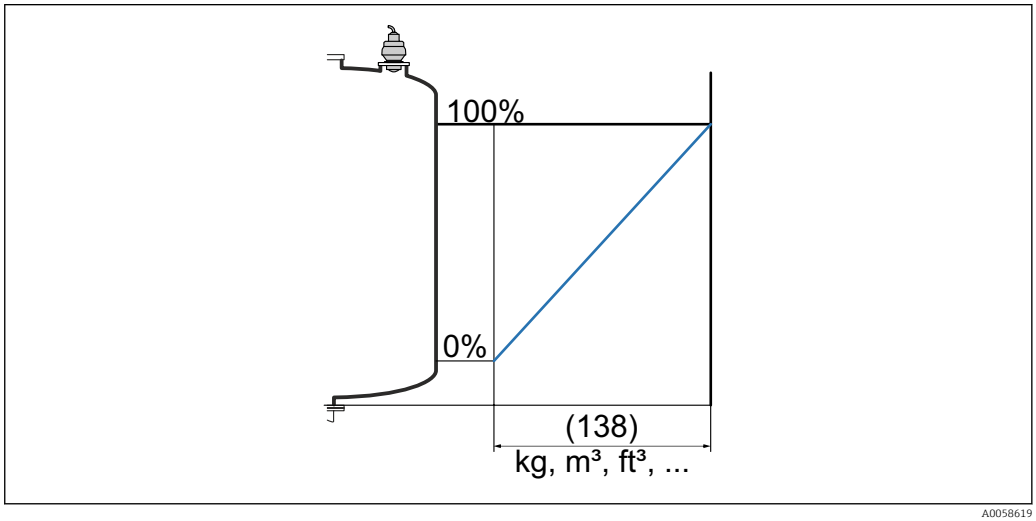
Maximum value

Navigation Application → Level → Level 1 to 2 linearized → Maximum value (3520017–1 to 2)

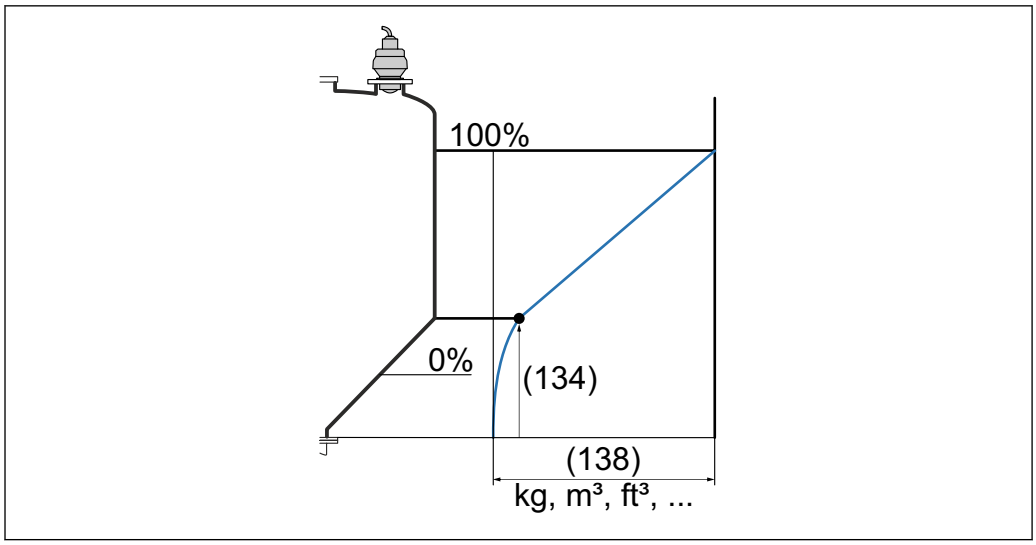
Description Linearized value corresponding to a level of 100 %.

User entry –200 000.0 to 200 000.0 %

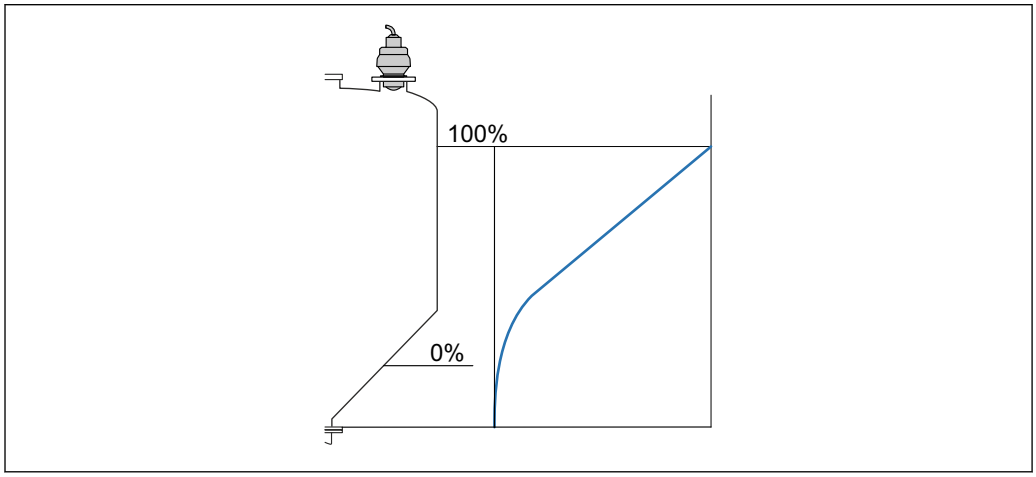
Additional information



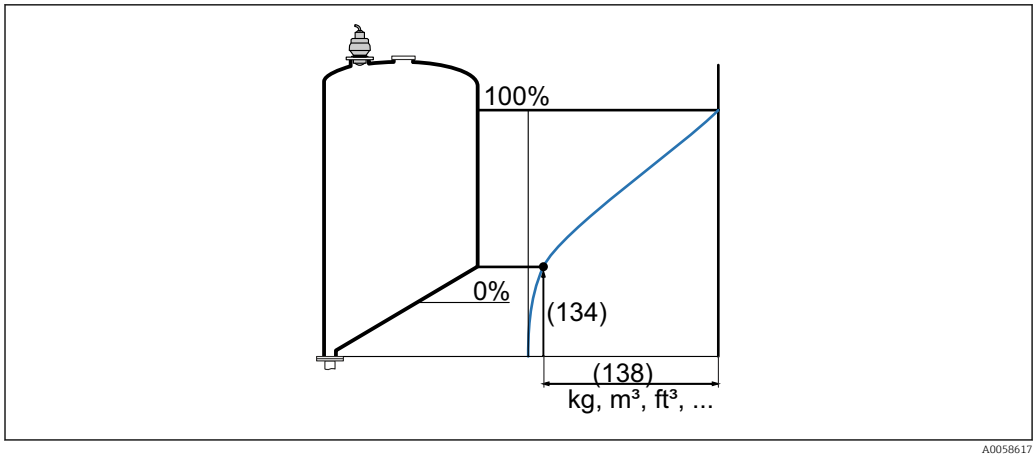
70 *Maximum value linear (138)*



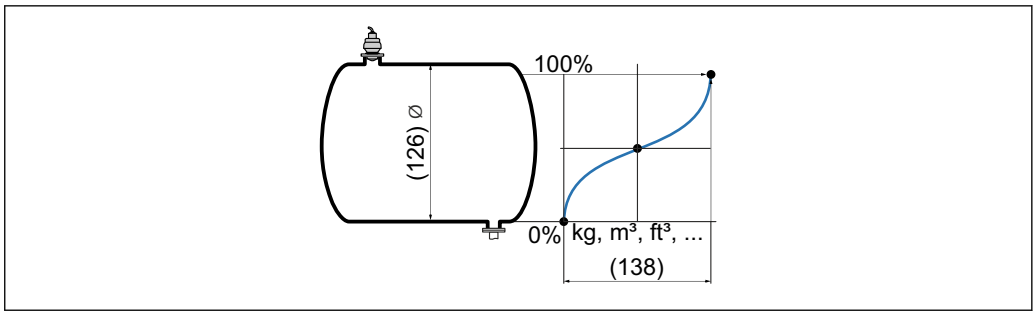
71 *Maximum value pyramid bottom (138)*



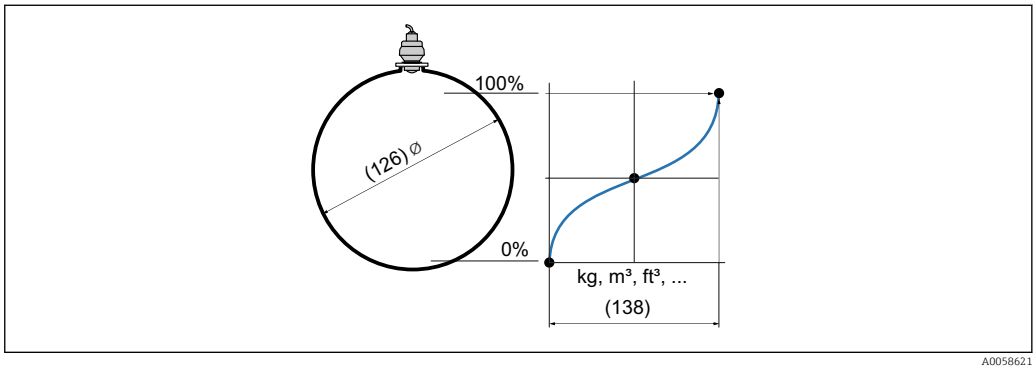
72 *Maximum value conical bottom (138)*



73 *Maximum value sloped bottom (138)*



74 *Maximum value horizontal cylinder (138)*



75 *Maximum value sphere (138)*

Diameter

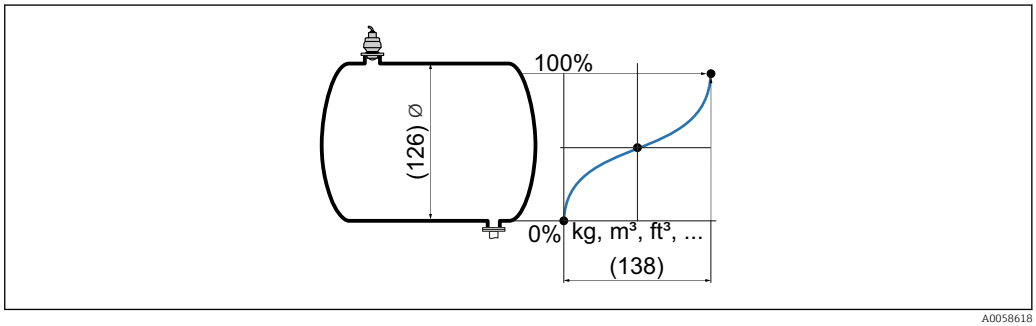
Navigation Application → Level → Level 1 to 2 linearized → Diameter (3520014–1 to 2)

Description Diameter of the cylindrical or spherical tank.

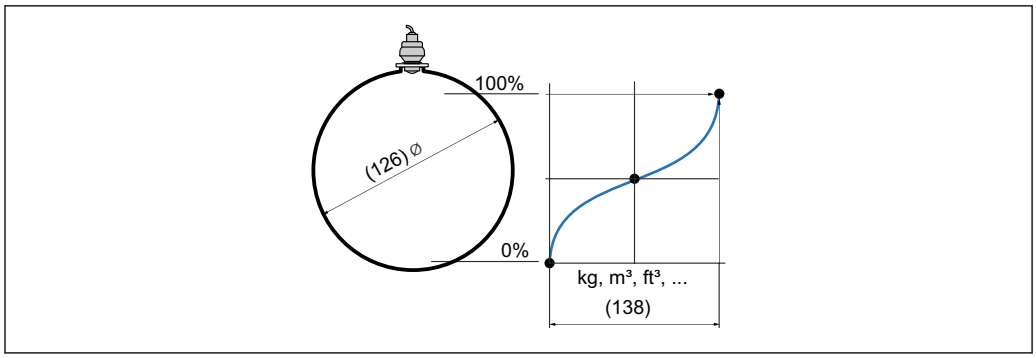
User entry Positive floating-point number

Factory setting 1.0 mm

Additional information



76 *Diameter horizontal cylinder (126)*



77 *Diameter sphere (126)*

Intermediate height

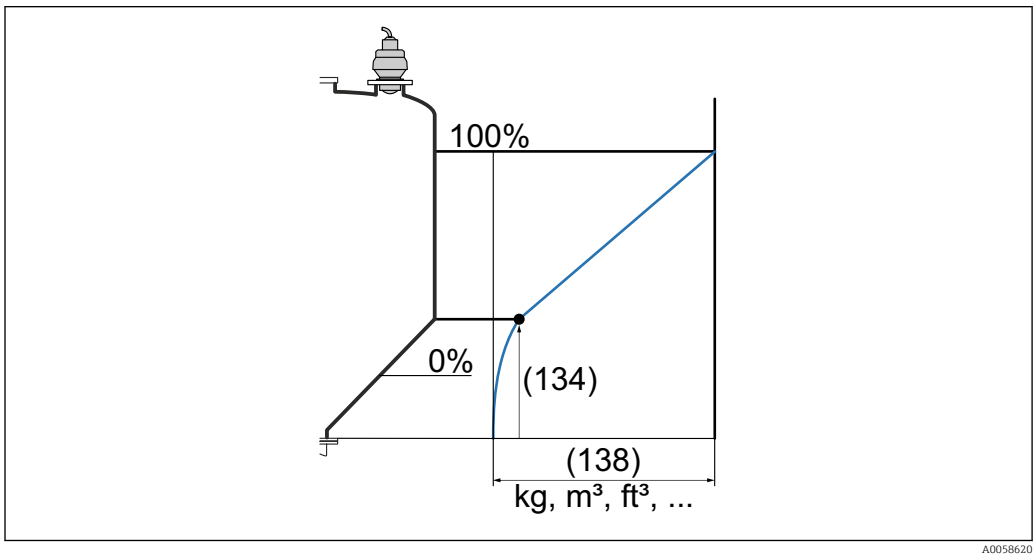
Navigation Application → Level → Level 1 to 2 linearized → Intermediate height (3520015–1 to 2)

Description Height of the pyramid, conical or angled bottom.

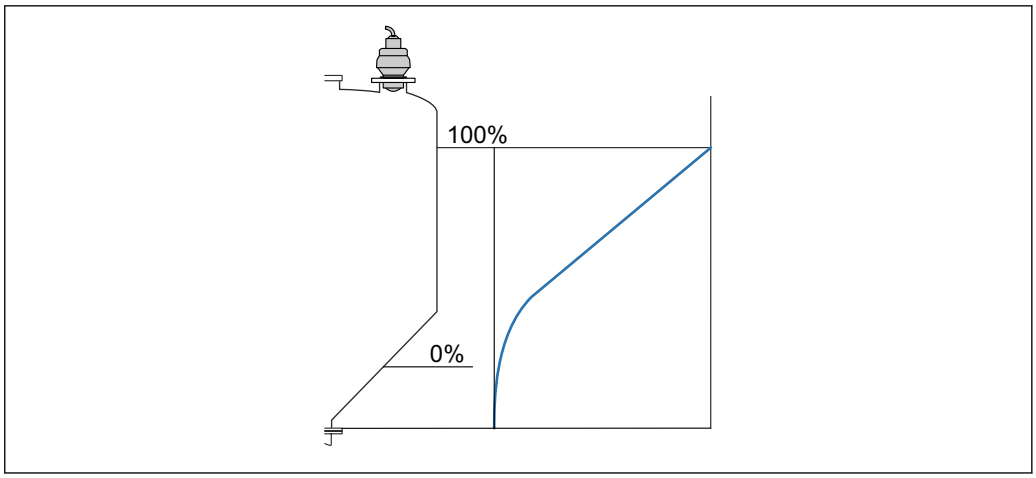
User entry Positive floating-point number

Factory setting 0.0 mm

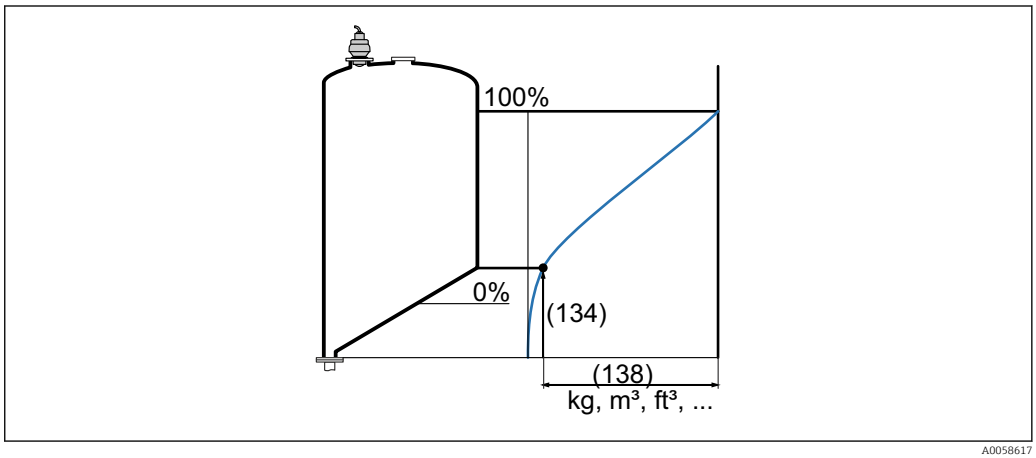
Additional information



78 *Intermediate height pyramid bottom (134)*



79 *Intermediate height conical bottom (134)*



80 *Intermediate height sloped bottom (134)*

Visualization zoom start

Navigation Application → Level → Level 1 to 2 linearized → Visualization zoom start (3520030−1 to 2)

Description Enter the lower value for an enlarged area in the display (chart/bar graph).

User entry −200 000.0 to 200 000.0 %

Factory setting 0.0 %

Visualization zoom end

Navigation Application → Level → Level 1 to 2 linearized → Visualization zoom end (3520031−1 to 2)

Description Enter the upper value for an enlarged area in the display (chart/bar graph).

User entry −200 000.0 to 200 000.0 %

Factory setting 100.0 %

"Additional settings" submenu

Navigation Application → Level → Level 1 to 2 linearized → Additional settings

Output mode

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Output mode (3520018)

Description Select output mode.

Selection
- Level
- Ullage

Factory setting Level

Level correction

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Level correction (3520010)

Description Level correction value (Offset) after calibration.

User entry Signed floating-point number

Factory setting 0.0 mm

"Level limit mode" submenu

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Level limit mode

Level limit mode

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Level limit mode → Level limit mode (3520011)

Description Select the type of level limitation. No limit, upper or lower limit, or both limits.

Selection
- Off
- Low limit
- High limit
- Low and High Limit

Factory setting Off

Low limit

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Level limit mode → Low limit (3520012)

Description Specify lower limit.

User entry Signed floating-point number

Factory setting 0.0 mm

High limit

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Level limit mode → High limit (3520013)

Description Specify upper limit.

User entry Signed floating-point number

Factory setting 0.0 mm

"Override level (ext. input 1)" submenu

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Override level (ext. input 1)

Override level (ext. input 1)

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Override level (ext. input 1) → Override level (ext. input 1) (3520021)

Description Select whether the display of the measured level should be suppressed or not while an external signal is present. Example: Redundant level limit detection.

Selection
- Off
- Hold current level
- User-specific value

Factory setting Off

User-specific value 1

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Override level (ext. input 1) → User-specific value 1 (3520022)

Description Enter the level value to be displayed as long as the signal is present at the external input.

User entry −200 000.0 to 200 000.0 %

Factory setting 100.0 %

External input 1

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Override level (ext. input 1) → External input 1 (3520020)

Description Select the source that provides the external signal. If both external inputs are active, external input 2 has the higher priority.

Selection
- Off
- Digital input 1
- Digital input 2
- Digital input 3
- Digital input 4
- Fieldbus digital output 1
- Fieldbus digital output 2
- Fieldbus digital output 3
- Fieldbus digital output 4

- Fieldbus digital output 5
- Fieldbus digital output 6
- Fieldbus digital output 7
- Fieldbus digital output 8
- Fieldbus digital output 9
- Fieldbus digital output 10

Factory setting Off

"Override level (ext. input 2)" submenu

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Override level (ext. input 2)

Override level (ext. input 2)

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Override level (ext. input 2) → Override level (ext. input 2) (3520024)

Description Select whether the display of the measured level should be suppressed or not while an external signal is present. Example: Redundant level limit detection.

Selection
- Off
- Hold current level
- User-specific value

Factory setting Off

User-specific value 2

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Override level (ext. input 2) → User-specific value 2 (3520025)

Description Enter the level value to be displayed as long as the signal is present at the external input.

User entry −200 000.0 to 200 000.0 %

Factory setting 100.0 %

External input 2

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Override level (ext. input 2) → External input 2 (3520023)

Description Select the source that provides the external signal. If both external inputs are active, external input 2 has the higher priority.

Selection
- Off
- Digital input 1
- Digital input 2
- Digital input 3
- Digital input 4
- Fieldbus digital output 1
- Fieldbus digital output 2
- Fieldbus digital output 3
- Fieldbus digital output 4
- Fieldbus digital output 5
- Fieldbus digital output 6
- Fieldbus digital output 7
- Fieldbus digital output 8
- Fieldbus digital output 9
- Fieldbus digital output 10

Factory setting Off

"Failure behavior" submenu

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Failure behavior

Failure behavior

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Failure behavior → Failure behavior (3520027)

Selection
- Invalid
- Last good
- Fixed Value

Factory setting Invalid

Failure value

Navigation Application → Level → Level 1 to 2 linearized → Additional settings → Failure behavior → Failure value (3520028)

User entry −200 000.0 to 200 000.0 %

Factory setting 0.0 %

3.3.6 "Pump control" submenu

Navigation Application → Pump control

"Pump control 1 to 2" submenu

Navigation Guidance → Commissioning → Application → Pump control 1 to 2

Navigation Application → Pump control → Pump control 1 to 2

Assign pumps

Navigation
- Application → Pump control → Pump control 1 to 2 → Assign pumps (3390008–1 to 2)
- Guidance → Commissioning → Application → Pump control 1 to 2 → Assign pumps (3390008–1 to 2)

Description Assign the pumps to the control channel.

Selection
- Pump 1
- Pump 2
- Pump 3
- Pump 4
- Pump 5
- Pump 6
- Pump 7
- Pump 8

Pump control function

Navigation Application → Pump control → Pump control 1 to 2 → Pump control function (3390011–1 to 2)

Description Select the pump control function.

Selection
- Limit control
- Pump rate control

Factory setting Limit control

Tariff control

Navigation Application → Pump control → Pump control 1 to 2 → Tariff control (3390051–1 to 2)

Description Activate pump control via favorable electricity tariff times.

Selection
- Off
- On

Factory setting Off

Start time

Navigation Application → Pump control → Pump control 1 to 2 → Start time (3390052–1 to 2)

Description Enter the start time of the tariff control with discounted electricity tariff in local time in the format hh:mm.

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

Factory setting 72000

Stop time

Navigation Application → Pump control → Pump control 1 to 2 → Stop time (3390053–1 to 2)

Description Enter the stop time of the tariff control with discounted electricity tariff in local time in the format hh:mm.

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

Factory setting 28800

"Pump rate control settings" submenu

Navigation Guidance → Commissioning → Application → Pump control 1 to 2 settings

Navigation Application → Pump control → Pump control 1 to 2 → Pump rate control settings

Switch-on point

Navigation

Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Switch-on point (3390009)

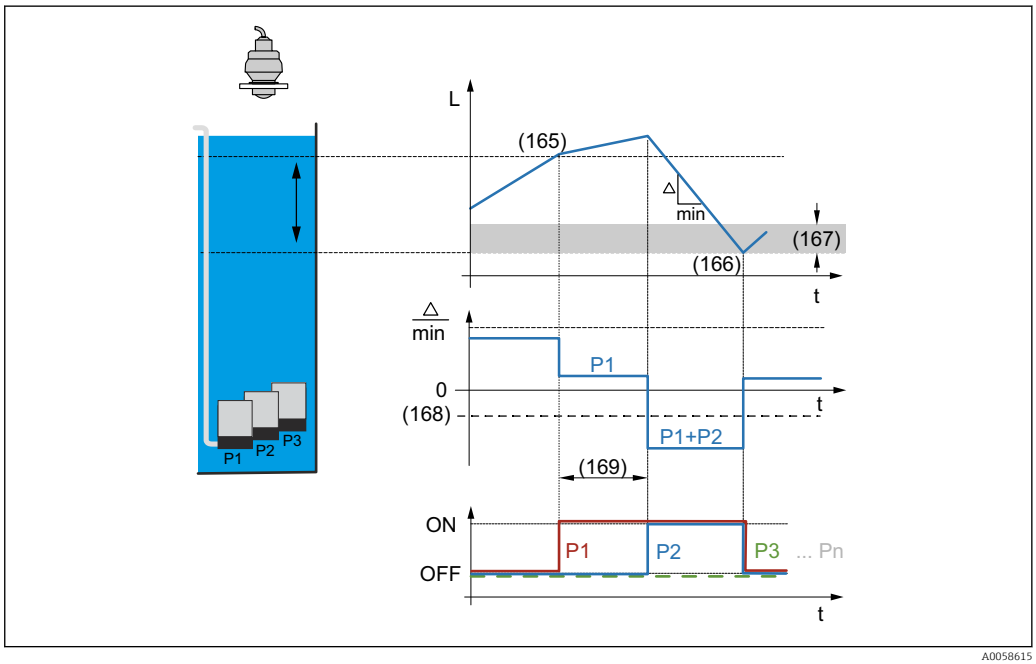
Guidance → Commissioning → Application → Pump control 1 to 2 settings → Switch-on point (3390009–1 to 2)

Description Define the switch-on point for pump rate control.

User entry –200 000.0 to 200 000.0 %

Factory setting 20.0 %

Additional information



81 Switch-on point (165) of pump rate control

Switch-on point (tariff control)

Navigation
Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Switch-on point (tariff control) (3390054)

Description
Define the switch-on point for the pump rate control that applies when the tariff control is activated.

User entry
−200 000.0 to 200 000.0 %

Factory setting
20.0 %

Switch-off point

Navigation
Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Switch-off point (3390010)

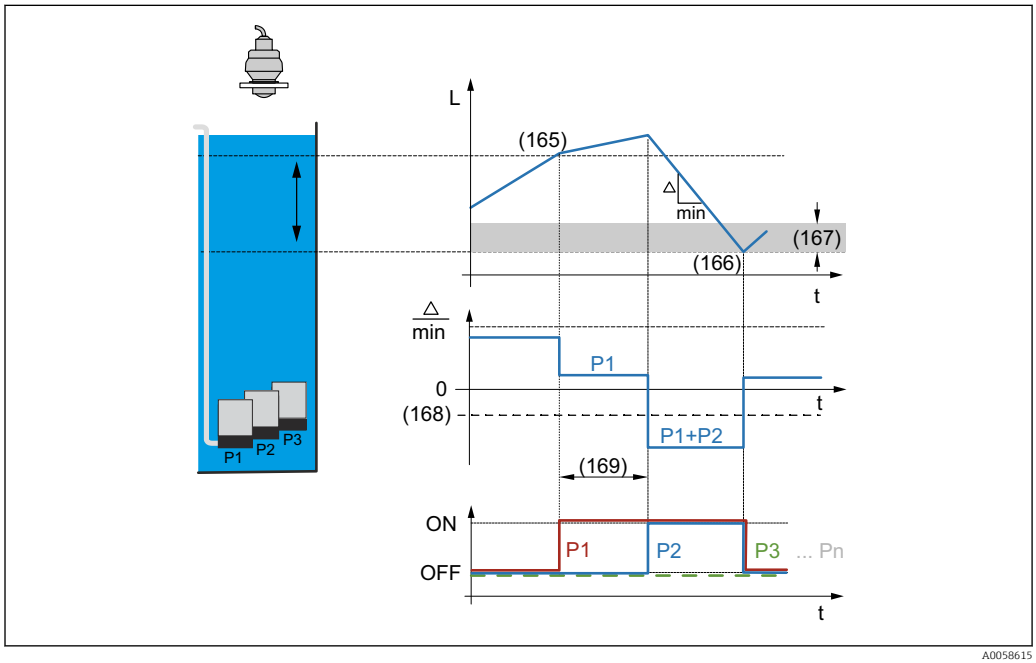
Guidance → Commissioning → Application → Pump control 1 to 2 settings → Switch-off point (3390010−1 to 2)

Description
Define the switch-off point for pump rate control.

User entry
−200 000.0 to 200 000.0 %

Factory setting
10.0 %

Additional information



82 *Switch-off point (166) of pump rate control*

Switch-off point (tariff control)

Navigation Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Switch-off point (tariff control) (3390055)

Description Define the switch-off point for the pump rate control that applies when the tariff control is activated.

User entry −200 000.0 to 200 000.0 %

Factory setting 10.0 %

Minimum pump rate per second

Navigation Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Minimum pump rate per second (3390024)

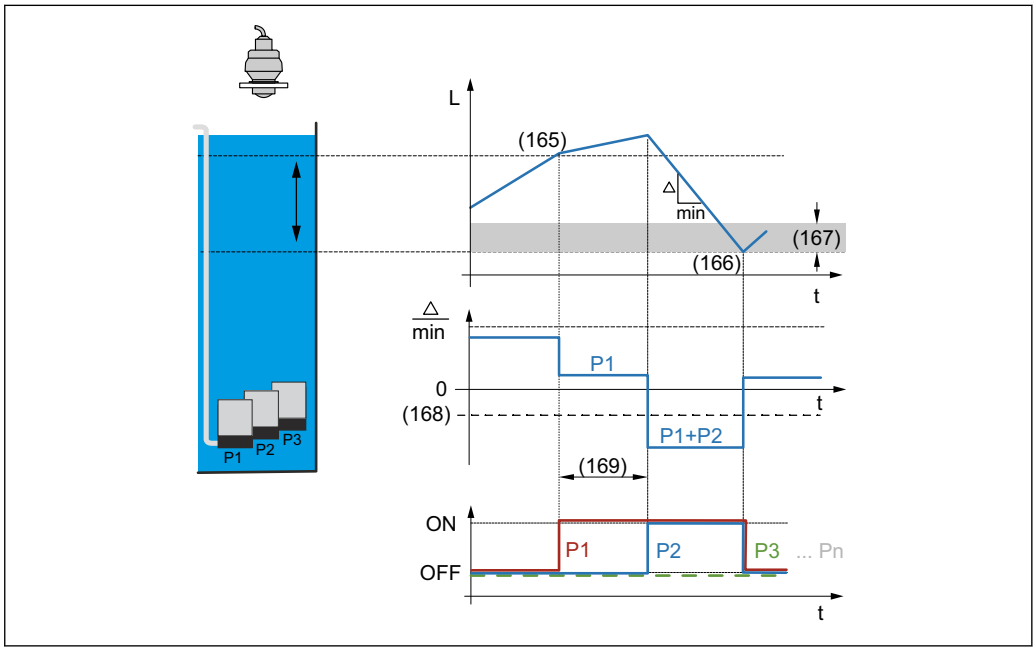
Guidance → Commissioning → Application → Pump control 1 to 2 settings → Minimum pump rate per second (3390024−1 to 2)

Description Define minimum pump rate. Assigned pumps are gradually switched on (switch-on interval) until the set minimum pump rate is reached.

User entry 0.0 to 200 000.0 %

Factory setting 0.0 %

Additional information



83 *Minimum pump rate per second (168) of pump rate control*

Crust reduction

Navigation Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Crust reduction (3390028)

Description Define a percentage uncertainty for the switch-on and switch-off point. The switch points randomly varies within the given uncertainty range.

User entry 0.0 to 200 000.0 %

Factory setting 0.0 %

Switch-on border

Navigation Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Switch-on border (3390025)

Description Define the switch-on border. If the distance (level - switch-off point) is less than the switch-on limit, no further pumps are switched on.

User entry 0.0 to 200 000.0 %

Factory setting 0.0 %

Switch-on interval

Navigation Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Switch-on interval (3390023)

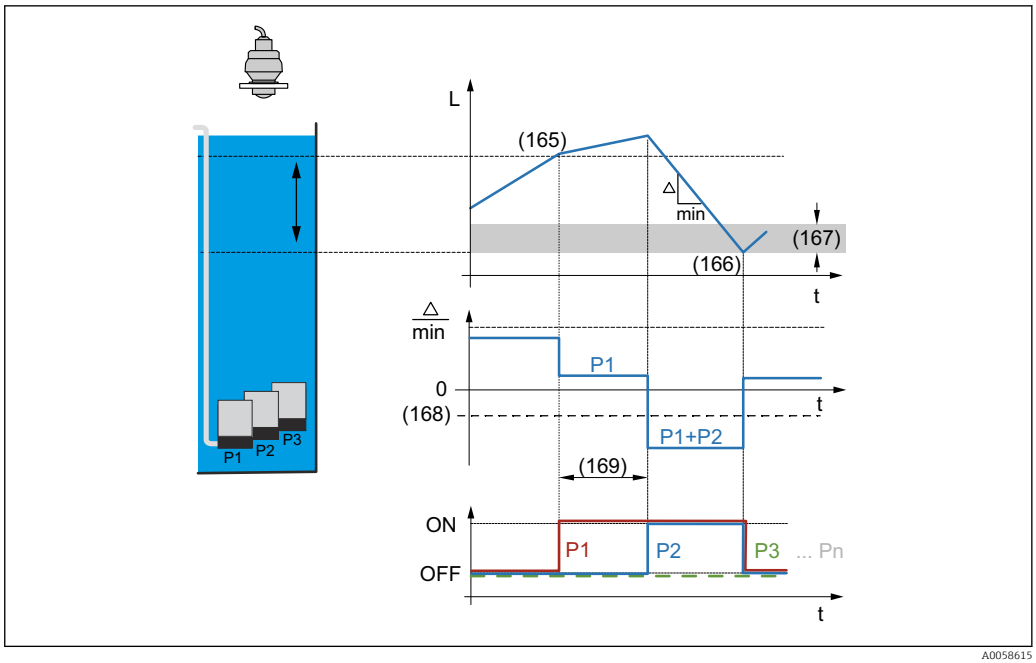
Guidance → Commissioning → Application → Pump control 1 to 2 settings → Switch-on interval (3390023–1 to 2)

Description Define the time interval until the next pump is switched on.

User entry 1 to 65 535 s

Factory setting 30 s

Additional information



84 *Hook up interval (169) of pump rate control*

Load control

Navigation

Application → Pump control → Pump control 1 to 2 → Pump rate control settings → Load control (3390027)

Guidance → Commissioning → Application → Pump control 1 to 2 settings → Load control (3390027–1 to 2)

Description

Select the load control of the grouped pumps. The load type defines the order in which the pumps switch on and off.

Selection

- No
- Fixed sequence
- Time of use
- Starts
- Starts + time

Factory setting

Fixed sequence

"Limit control settings" submenu

Navigation Guidance → Commissioning → Application → Pump control 1 to 2 settings

Navigation Application → Pump control → Pump control 1 to 2 → Limit control settings

Simultaneous operation

Navigation

Application → Pump control → Pump control 1 to 2 → Limit control settings → Simultaneous operation (3390012)

Guidance → Commissioning → Application → Pump control 1 to 2 settings → Simultaneous operation (3390012–1 to 2)

Description

Activate simultaneous operation of several pumps. The pumps operate simultaneously at the defined limit values.

Selection

- No
- Yes

Factory setting

Yes

Group pumps

Navigation

Application → Pump control → Pump control 1 to 2 → Limit control settings → Group pumps (3390026)

Guidance → Commissioning → Application → Pump control 1 to 2 settings → Group pumps (3390026–1 to 2)

Description

Activate a grouping of several pumps or one pump in one channel.

Selection

- No
- Yes

Factory setting

No

Load control

Navigation

Application → Pump control → Pump control 1 to 2 → Limit control settings → Load control (3390027)

Guidance → Commissioning → Application → Pump control 1 to 2 settings → Load control (3390027–1 to 2)

Description

Select the load control of the grouped pumps. The load type defines the order in which the pumps switch on and off.

Selection
- No
- Fixed sequence
- Time of use
- Starts
- Starts + time

Factory setting Fixed sequence

"Run-on settings" submenu

Navigation Application → Pump control → Pump control 1 to 2 → Run-on settings

Activate

Navigation Application → Pump control → Pump control 1 to 2 → Run-on settings → Activate (3390039)

Selection
- No
- Yes

Factory setting No

Run-on interval

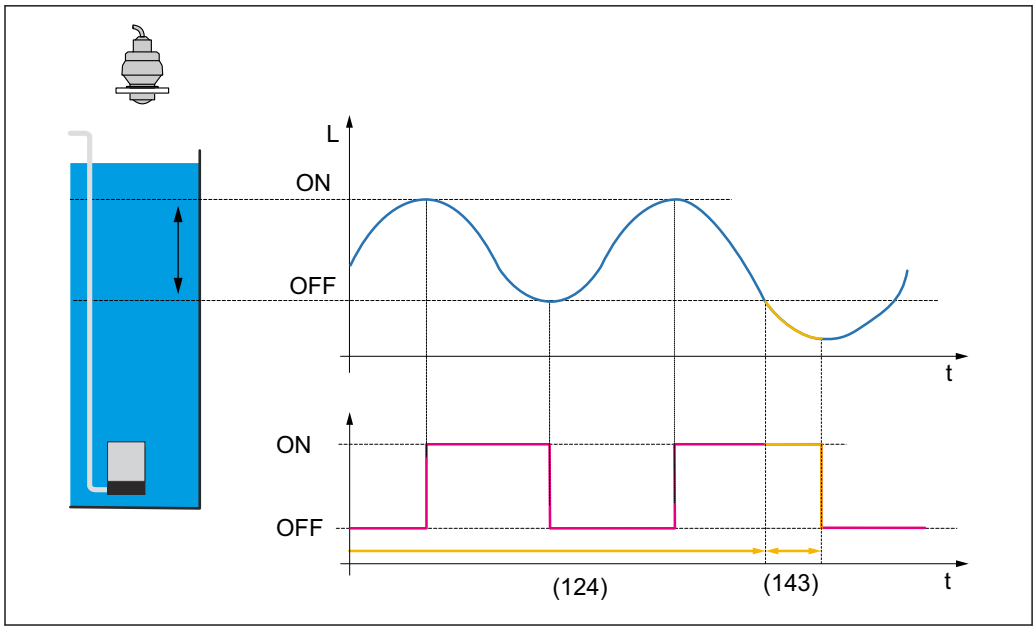
Navigation Application → Pump control → Pump control 1 to 2 → Run-on settings → Run-on interval (3390040)

Description Define a time interval, after which the pump will run on.

User entry 0 to 999 999 h

Factory setting 0 h

Additional information



85 *Backlash interval of pump (124)*

Run-on time

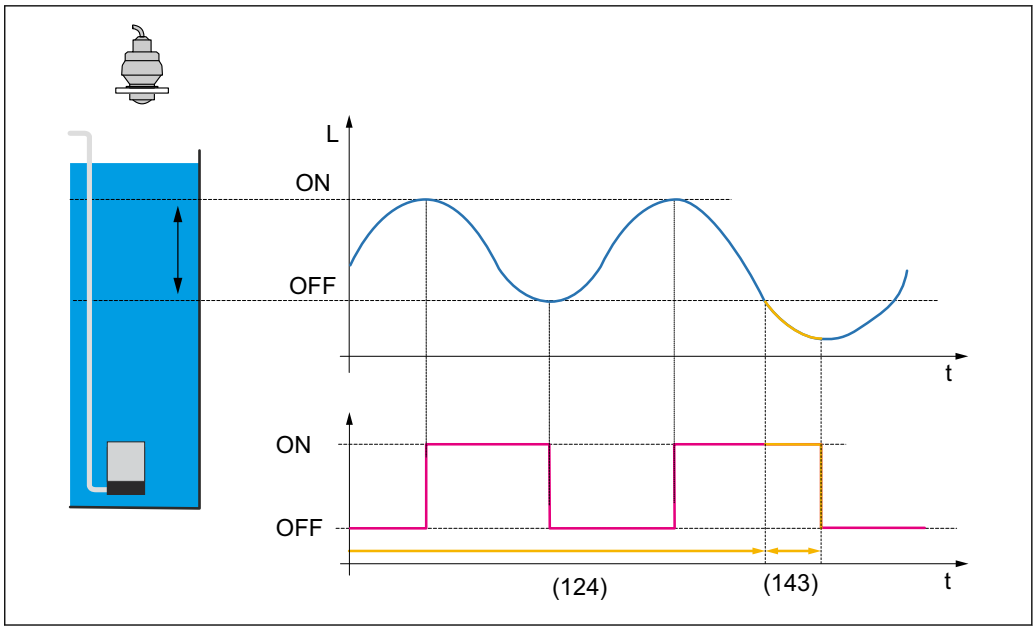
Navigation Application → Pump control → Pump control 1 to 2 → Run-on settings → Run-on time (3390041)

Description Define the duration of the pump run-on.

User entry 0 to 255 s

Factory setting 0 s

Additional information



86 *Backlash time of pump (143)*

"Storm function" submenu

Navigation Application → Pump control → Pump control 1 to 2 → Storm function

Activate

Navigation Application → Pump control → Pump control 1 to 2 → Storm function → Activate (3390067)

Selection
- No
- Yes

Factory setting No

Switch-on point

Navigation Application → Pump control → Pump control 1 to 2 → Storm function → Switch-on point (3390068)

Description Define the switch-on point. If the measured level exceeds this value, all pumps are switched off.

User entry −200 000.0 to 200 000.0 %

Factory setting 20.0 %

Switch-off point

Navigation Application → Pump control → Pump control 1 to 2 → Storm function → Switch-off point (3390069)

Description Define the switch-off point. If the measured level falls below this value, the storm function is deactivated.

User entry −200 000.0 to 200 000.0 %

Factory setting 10.0 %

Storm function duration

Navigation Application → Pump control → Pump control 1 to 2 → Storm function → Storm function duration (3390070)

Description Define the maximum duration of the storm function.

User entry 0 to 999 999 min

Factory setting 60 min

"Automatic function test" submenu

Navigation Application → Pump control → Pump control 1 to 2 → Automatic function test

Activate

Navigation Application → Pump control → Pump control 1 to 2 → Automatic function test → Activate (3390080)

Selection
- No
- Yes

Factory setting No

Switch-on point

Navigation Application → Pump control → Pump control 1 to 2 → Automatic function test → Switch-on point (3390081)

Description Define the switch-on point.

User entry −200 000.0 to 200 000.0 %

Factory setting 20.0 %

Switch-off point

Navigation Application → Pump control → Pump control 1 to 2 → Automatic function test → Switch-off point (3390082)

Description Define the switch-off point.

User entry −200 000.0 to 200 000.0 %

Factory setting 10.0 %

Maximum downtime

Navigation Application → Pump control → Pump control 1 to 2 → Automatic function test → Maximum downtime (3390083)

Description Define the maximum downtime of the pumps. After this time has elapsed, the corresponding pump is switched on for the function test.

User entry 0 to 999 999 h

Factory setting 0 h

Maximum test duration

Navigation Application → Pump control → Pump control 1 to 2 → Automatic function test → Maximum test duration (3390084)

Description Define the maximum function test duration. After this time has elapsed, the pumps are switched off.

User entry 0 to 65 535 s

Factory setting 60 s

"Flush control" submenu

Navigation Application → Pump control → Pump control 1 to 2 → Flush control

Activate

Navigation Application → Pump control → Pump control 1 to 2 → Flush control → Activate (3390094)

Selection
- No
- Yes

Factory setting No

Pump cycles

Navigation Application → Pump control → Pump control 1 to 2 → Flush control → Pump cycles (3390095)

Description Define the number of pump cycles. The flush cycles are started within these pump cycles.

User entry 1 to 65 535

Factory setting 1

Flush cycles

Navigation Application → Pump control → Pump control 1 to 2 → Flush control → Flush cycles (3390096)

Description Define the number of flush cycles within the number of pump cycles.

User entry 1 to 65 535

Factory setting 1

Flush duration

Navigation Application → Pump control → Pump control 1 to 2 → Flush control → Flush duration (3390097)

Description Define the flush duration of a flush cycle.

User entry 1 to 255 s

Factory setting 1 s

Flush delay

Navigation Application → Pump control → Pump control 1 to 2 → Flush control → Flush delay (3390098)

Description Define the delay time between the start of the pump cycle and the activation of the flush relay.

User entry 0 to 255 s

Factory setting 0 s

"Operating hours alarm" submenu

Navigation Application → Pump control → Pump control 1 to 2 → Operating hours alarm

Operating hours alarm

Navigation Application → Pump control → Pump control 1 to 2 → Operating hours alarm → Operating hours alarm (3390108)

Description Activate the operating hours alarm.

Selection
- No
- Yes

Factory setting No

"Pump 1 to 8" submenu

Navigation Application → Pump control → Pump 1 to 8

Switch-on point

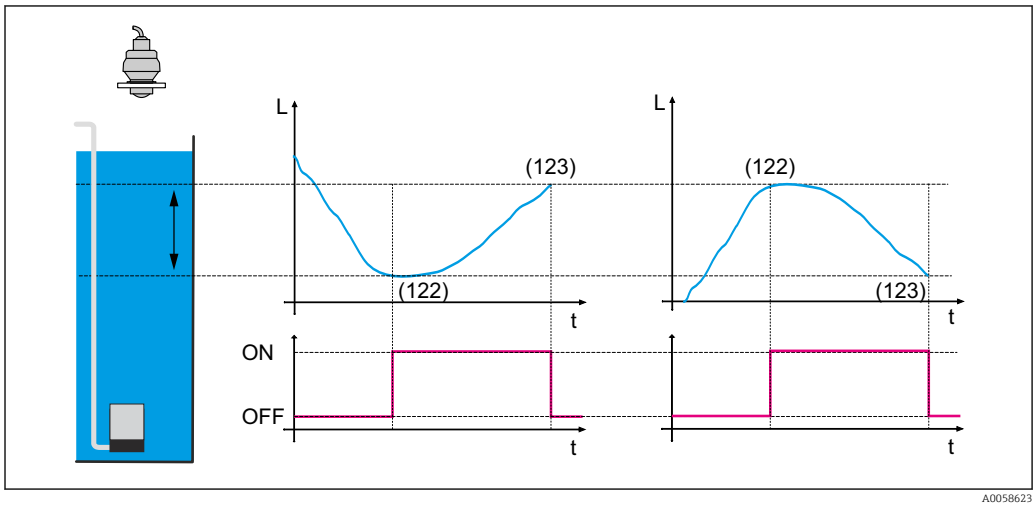
Navigation Application → Pump control → Pump 1 to 8 → Switch-on point (3490007–1 to 8)

Description Define the switch-on point for the pump individually.

User entry –200 000.0 to 200 000.0 %

Factory setting 20.0 %

Additional information



87 *Switch-on point (122) of pump*

Switch-on point (tariff control)

Navigation Application → Pump control → Pump 1 to 8 → Switch-on point (tariff control) (3490055–1 to 8)

Description Define the switch-on point for the pump individually, that applies when the tariff control is activated.

User entry –200 000.0 to 200 000.0 %

Factory setting 20.0 %

Switch-off point

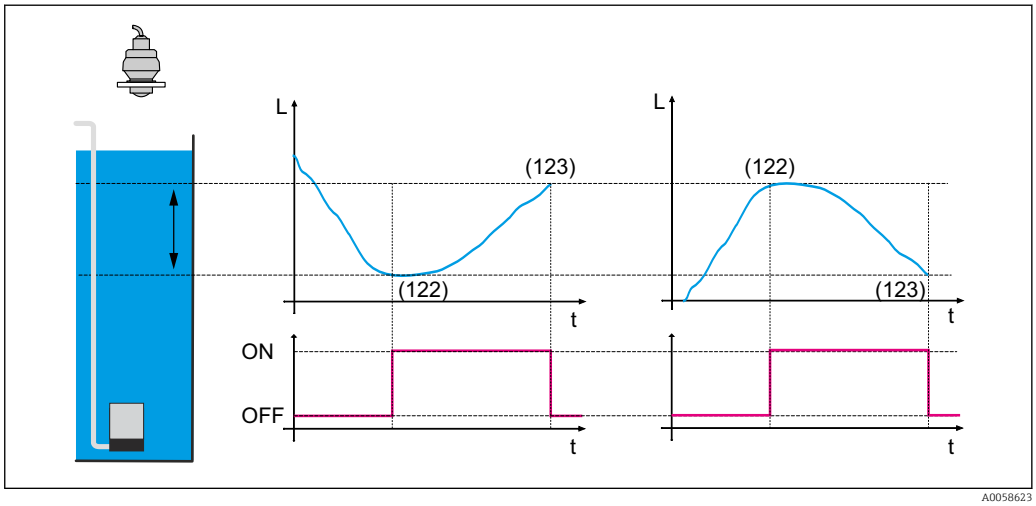
Navigation Application → Pump control → Pump 1 to 8 → Switch-off point (3490008–1 to 8)

Description Define the switch-off point for the pump individually.

User entry –200 000.0 to 200 000.0 %

Factory setting 10.0 %

Additional information



88 *Switch-off point (123) of pump*

Switch-off point (tariff control)

Navigation Application → Pump control → Pump 1 to 8 → Switch-off point (tariff control) (3490056–1 to 8)

Description Define the switch-off point for the pump individually, that applies when the tariff control is activated.

User entry –200 000.0 to 200 000.0 %

Factory setting 10.0 %

Crust reduction

Navigation Application → Pump control → Pump 1 to 8 → Crust reduction (3490013–1 to 8)

Description Individually define a uncertainty for the switch-on and switch-off point of the pump. The switch points randomly varies within the uncertainty.

User entry 0.0 to 200 000.0 %

Factory setting 0.0 %

Switch-on delay

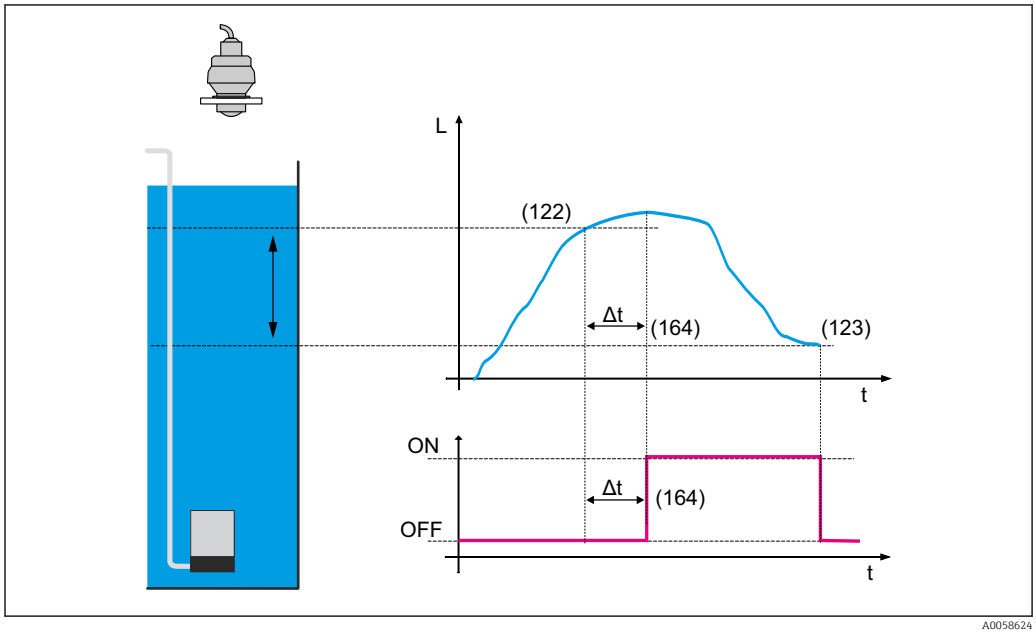
Navigation Application → Pump control → Pump 1 to 8 → Switch-on delay (3490012–1 to 8)

Description Define switch-on delay for the pump individually. Switch-on delay is the time from reaching the switch-on point til the pump is actually switched on.

User entry 0 to 255 s

Factory setting 0 s

Additional information



89 Switch-on delay (164) of pump

Assign to group

Navigation Application → Pump control → Pump 1 to 8 → Assign to group (3490009–1 to 8)

Description Assign pump to a group in the channel. Pump grouping must be activated for this.

Selection
- No
- Yes

Factory setting No

Share of use

Navigation Application → Pump control → Pump 1 to 8 → Share of use (3490010–1 to 8)

Description Set the percentage share of pump usage within a defined group.

User entry 1.0 to 100.0

Factory setting 50.0

Maximum usage time

Navigation Application → Pump control → Pump 1 to 8 → Maximum usage time (3490011–1 to 8)

Description Specify the maximum usage time for the pump.

User entry 1 to 999 999 min

Factory setting 20 min

Failure mode

Navigation Application → Pump control → Pump 1 to 8 → Failure mode (3490080–1 to 8)

Description Select the output behavior in case of failure.

Selection
- Invalid
- Last good
- Off
- On

Factory setting Invalid

Pump feedback

Navigation Application → Pump control → Pump 1 to 8 → Pump feedback (3490048–1 to 8)

Description Define a digital input via which the pump outputs a feedback signal.

Selection
- Off
- Digital input 1
- Digital input 2
- Digital input 3
- Digital input 4

- Fieldbus digital output 1
- Fieldbus digital output 2
- Fieldbus digital output 3
- Fieldbus digital output 4
- Fieldbus digital output 5
- Fieldbus digital output 6
- Fieldbus digital output 7
- Fieldbus digital output 8
- Fieldbus digital output 9
- Fieldbus digital output 10

Factory setting Off

Feedback meaning

Navigation Application → Pump control → Pump 1 to 8 → Feedback meaning (3490049–1 to 8)

Description Define the meaning of the feedback.

Selection
- Pump start
- Pump failure

Factory setting Pump start

Feedback time

Navigation Application → Pump control → Pump 1 to 8 → Feedback time (3490050–1 to 8)

Description Define the time, in which pump feedback is sent.

User entry 0 to 255 s

Factory setting 1 s

Reset pump data

Navigation Application → Pump control → Pump 1 to 8 → Reset pump data (3490067–1 to 8)

Description Activate reset of pump data.

Selection
- No
- Reset operating hours
- Reset pump starts
- Reset run-on intervals
- Reset all pump data

Factory setting No

Max. operating hours

Navigation Application → Pump control → Pump 1 to 8 → Max. operating hours (3490070–1 to 8)

Description Activate the operating hours alarm. If this time is exceeded, an operating hours alarm is generated.

User entry 0 to 277 h

Factory setting 2 h

3.3.7 "Flow" submenu

Navigation Application → Flow → Flow 1 to 2

Description

Navigation Application → Flow → Flow 1 to 2 → Description (3880065–1 to 2)

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

Factory setting Flow 1

Volume flow unit

Navigation Application → Flow → Flow 1 to 2 → Volume flow unit (3880041–1 to 2)

Description Select volume flow unit.

Selection

SI units
- cm^3/s
- cm^3/min
- cm^3/h
- cm^3/d
- dm^3/s
- dm^3/min
- dm^3/h
- dm^3/d
- m^3/s
- m^3/min
- m^3/h
- m^3/d
- l/s
- l/min
- l/h
- l/d
- hl/s
- hl/min
- hl/h
- hl/d
- Ml/h
- Ml/d

Custom-specific units
- ft^3/s
- ft^3/min
- ft^3/h
- ft^3/d
- in^3/s
- in^3/min
- in^3/h
- in^3/d
- gal/s (us)
- gal/min (us)
- gal/h (us)
- gal/d (us)
- Mgal/d (us)
- bbl/s (us;liq.)
- bbl/min (us;liq.)
- bbl/h (us;liq.)
- bbl/d (us;liq.)
- bbl/s (us;beer)
- bbl/min (us;beer)
- bbl/h (us;beer)
- bbl/d (us;beer)
- bbl/s (us;oil)
- bbl/min (us;oil)
- bbl/h (us;oil)
- bbl/d (us;oil)
- bbl/s (us;tank)
- bbl/min (us;tank)
- bbl/h (us;tank)
- bbl/d (us;tank)
- gal/s (imp)
- gal/min (imp)
- gal/h (imp)
- gal/d (imp)
- Mgal/d (imp)

Factory setting l/h

Decimal places

Navigation Application → Flow → Flow 1 to 2 → Decimal places (3880008−1 to 2)

Description Select the number of decimal places for the display value.

Selection
- x
- x.x
- x.xx
- x.xxx
- x.xxxx

Factory setting x.x

Linearization type

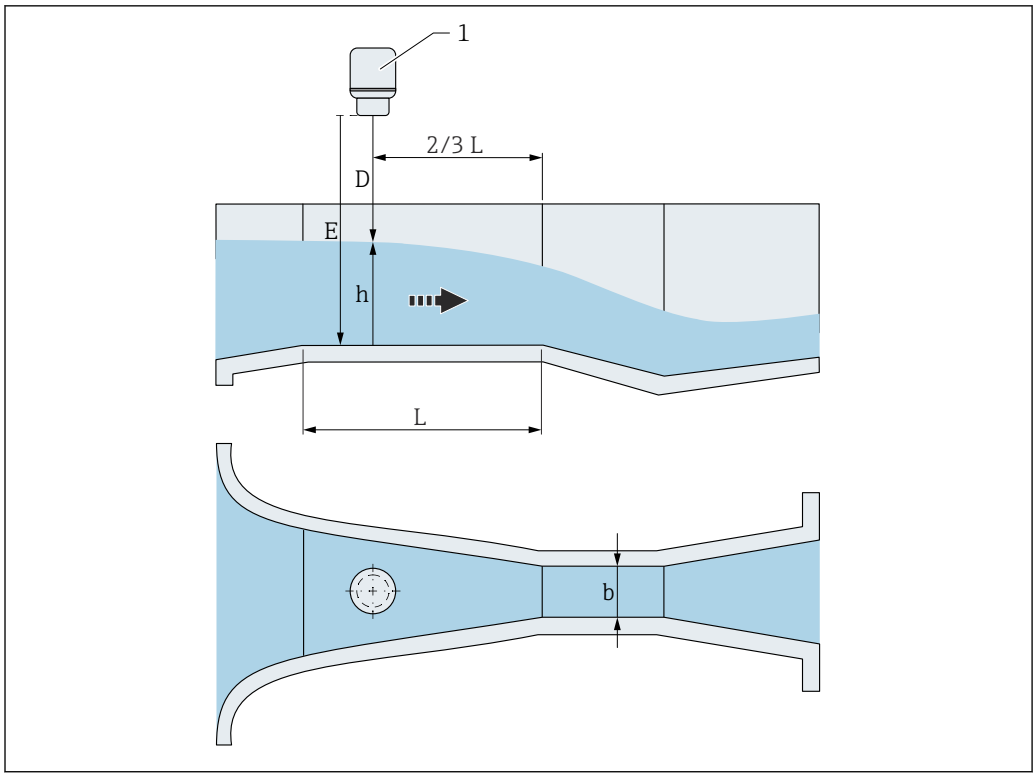
Navigation Application → Flow → Flow 1 to 2 → Linearization type (3880013−1 to 2)

Selection
- Flume
- Weir
- Pipe (Manning formula)
- Standard formula
- Ratiometric formula
- Table

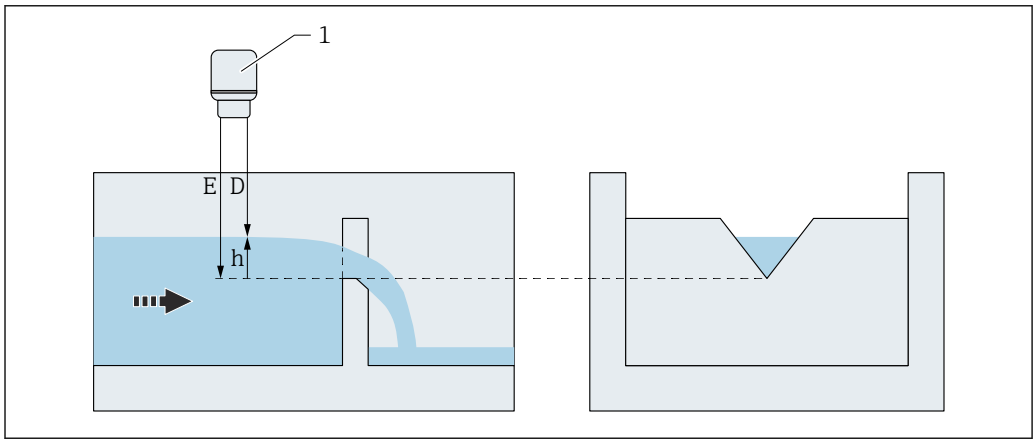
Factory setting Flume

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.

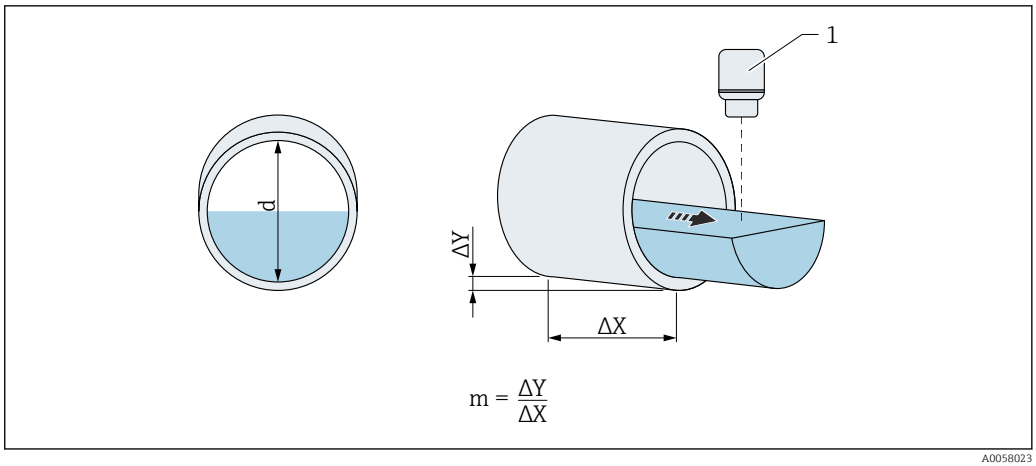
Additional information



90 *Linearization type: Channel (e.g., Parshall flume)*



91 *Linearization type: Weir (e.g., triangular weir)*



92 *Linearization type: Pipe profile (Manning formula)*

$$Q = C \cdot (h^{\alpha} + \gamma h^{\beta})$$

A0058962

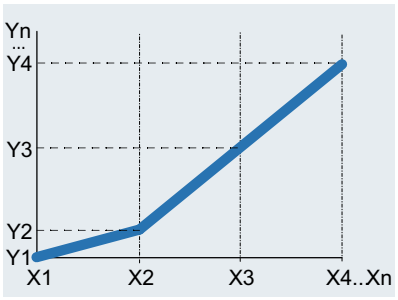
93 *Linearization type: Standard formula*

$$Q = Q_{max} \cdot \left(\frac{h}{h\_max}\right)^{x}$$

A0058024

94 *Linearization type: Ratiometric formula*

No.	X (mm)	Y (%)	4/32
1.	0	0,0	
2.	25	2,5	
3.	50	10,0	
4.	75	17,5	



A0058176

95 *Linearization type: Table*

A decimal point must be used as the decimal separator for the import.

	A	B
1	x	y
2	0	0.0
3	25	2.5
4	50	10.0
5	75	17.5

A0058963

96 *Linearization type: Table (example of table in Excel)*

Flume type

Navigation Application → Flow → Flow 1 to 2 → Flume type (3880014–1 to 2)

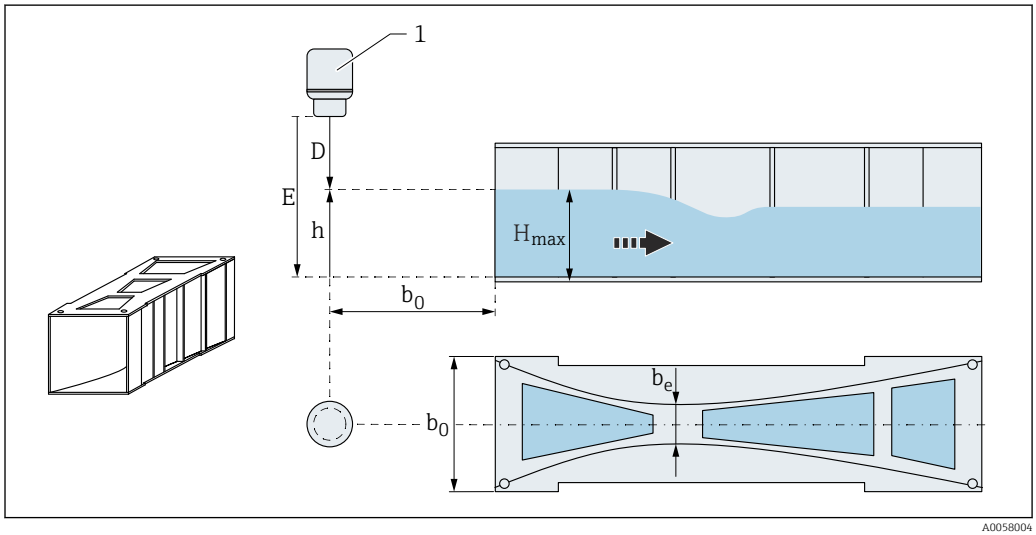
Description Select flume type.

Selection
- Khafagi Venturi flume
- Venturi flume
- Parshall flume
- Palmer Bowlus flume
- Trapezoidal flume (ISO 4359)
- Rectangular flume (ISO 4359)
- Leopold Lagco flume
- Cutthroat flume
- U-shaped flume (ISO 4359)
- H flume

Factory setting Khafagi Venturi flume

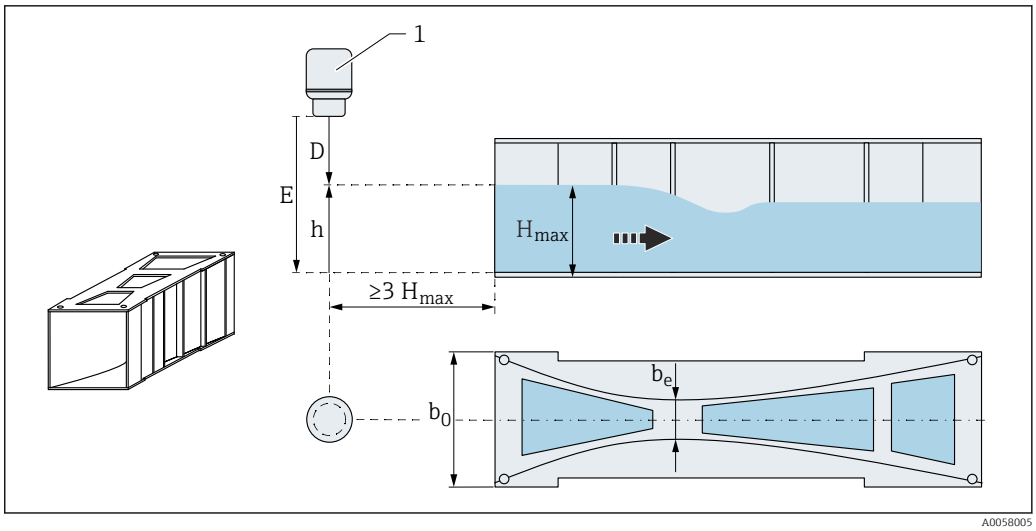
Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.

Additional information

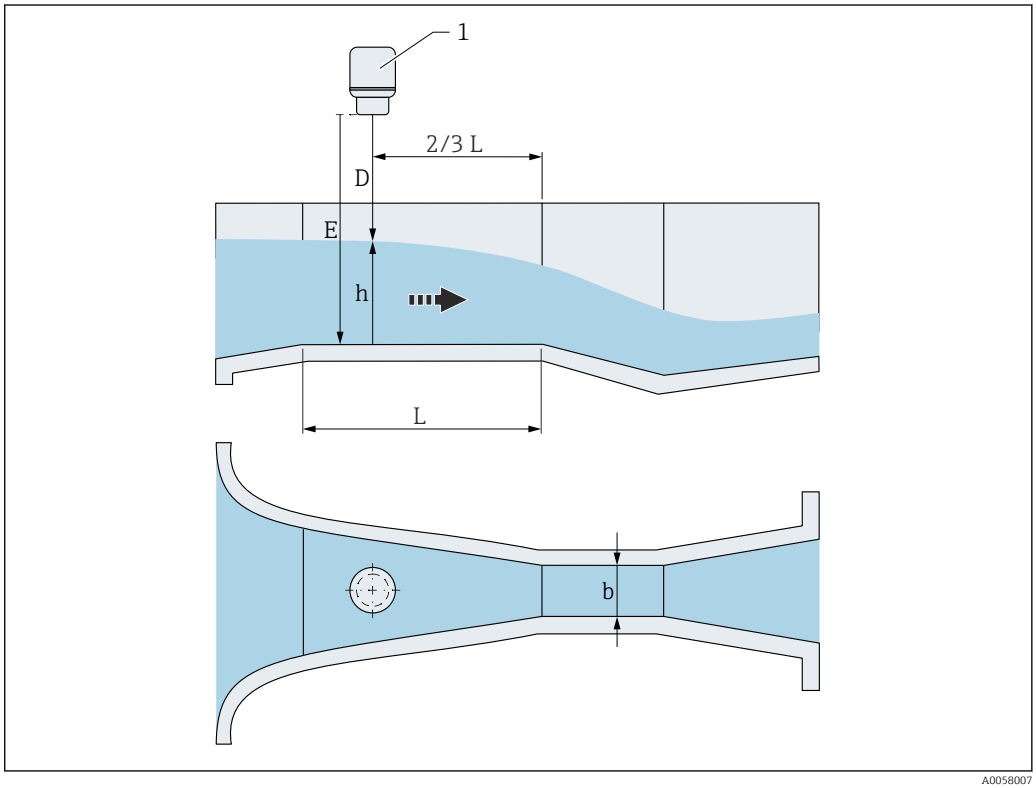


A0058004

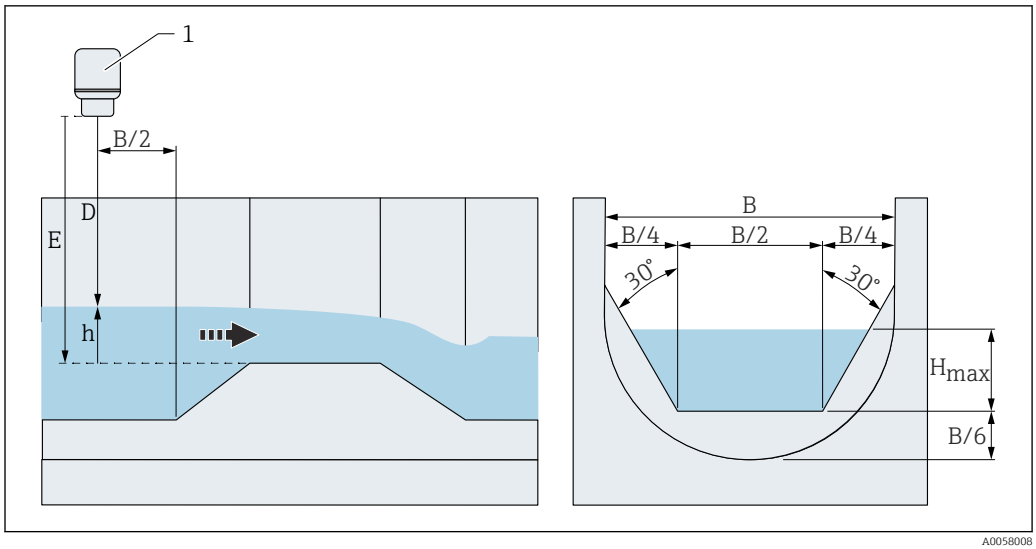
97 *Channel type: Khafagi-Venturi flume*



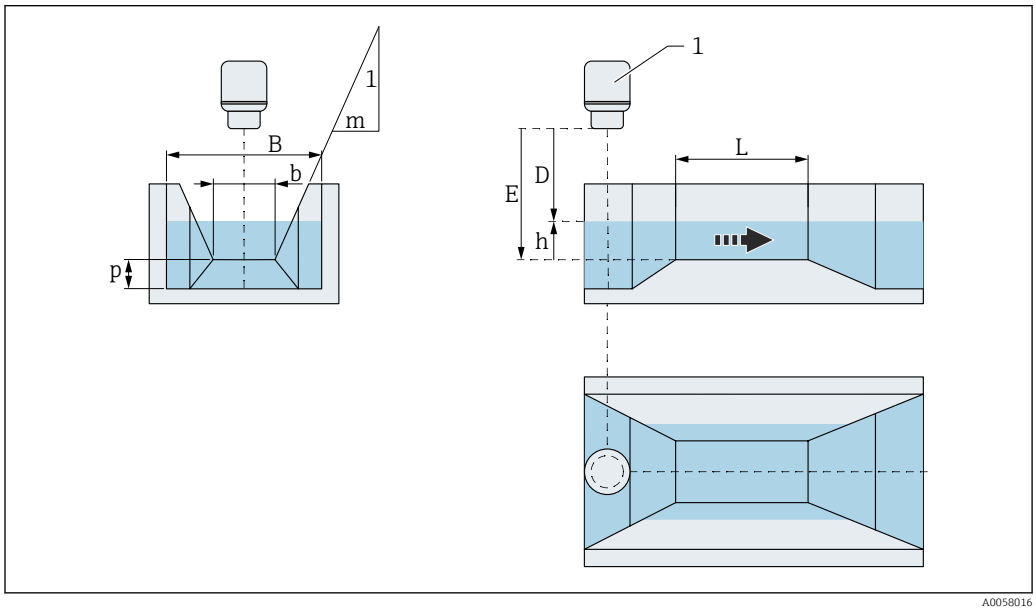
98 *Channel type: Venturi flume*



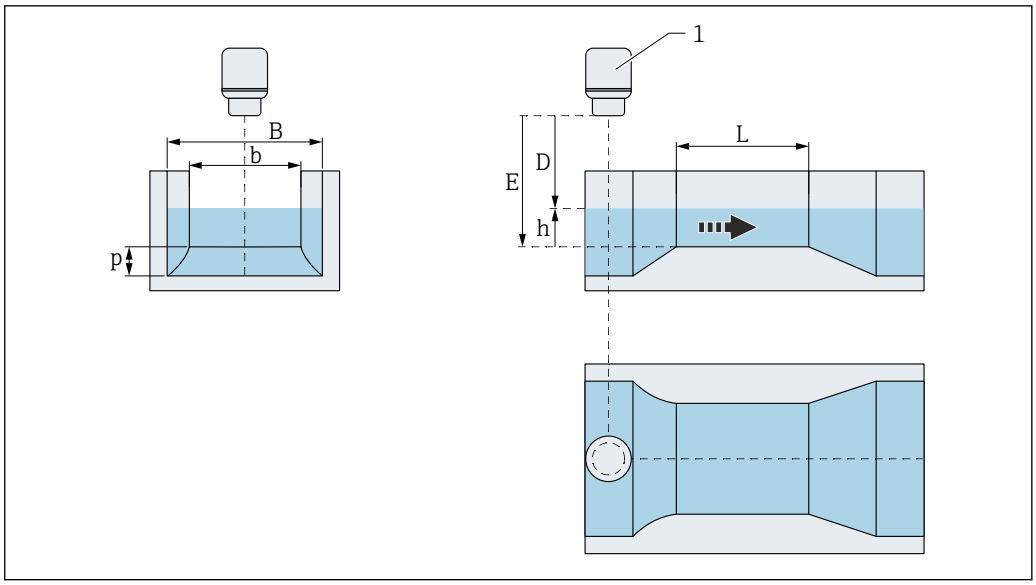
99 *Channel type: Parshall flume*



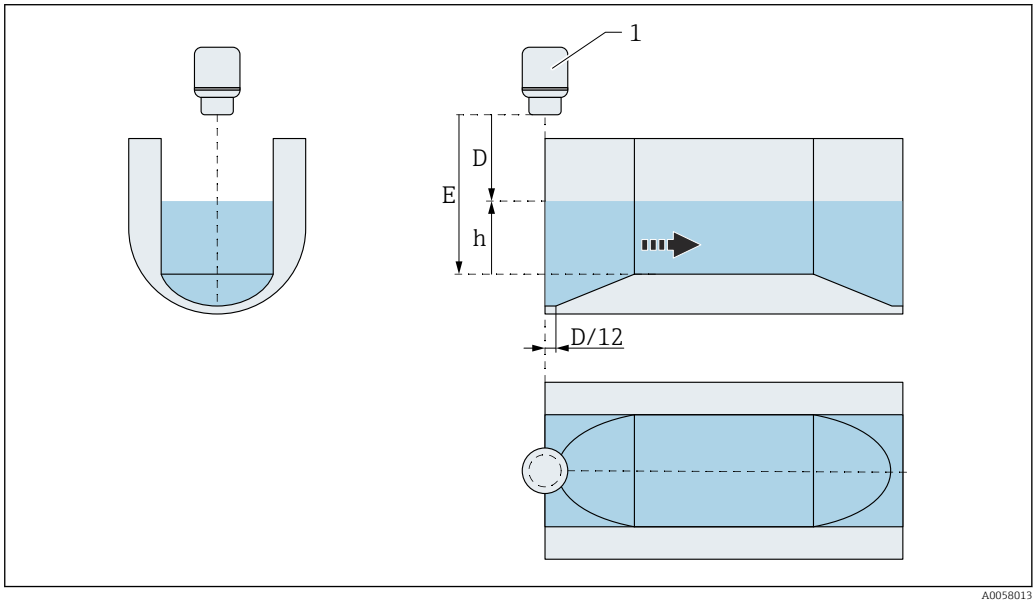
100 *Channel type: Palmer-Bowlus flume*



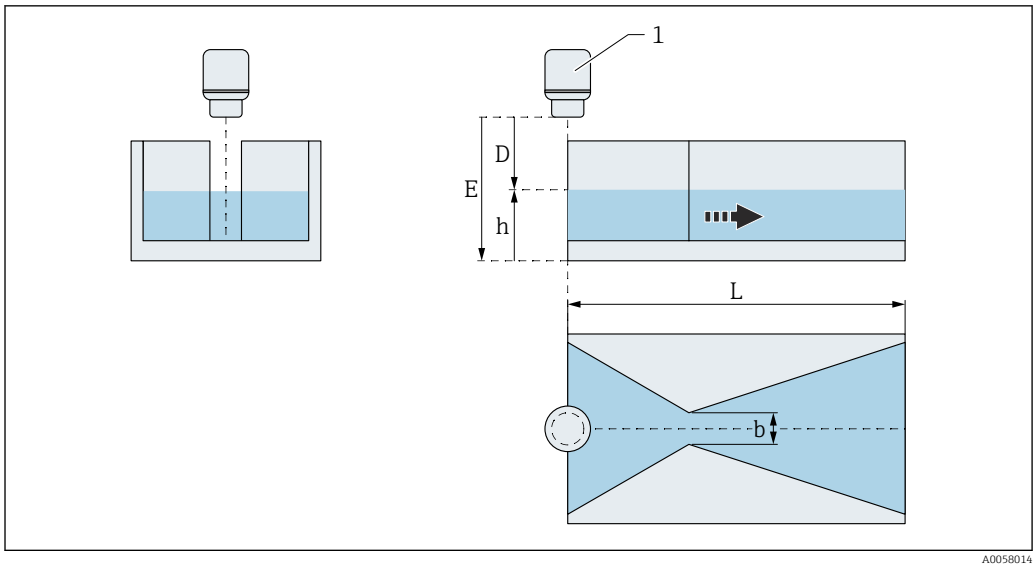
101 *Channel type: Trapezoidal weir (ISO 4359)*



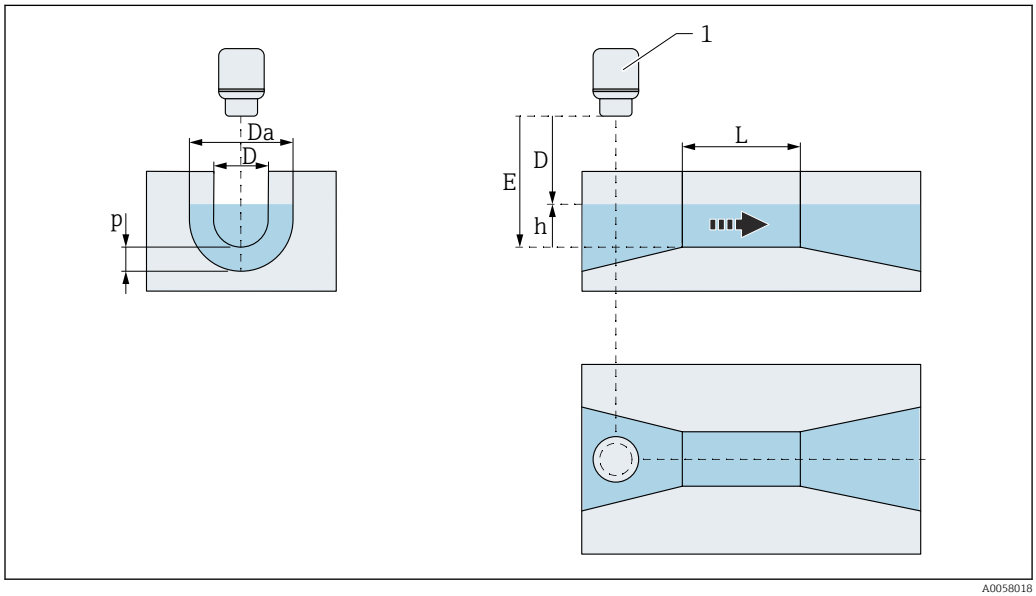
102 *Channel type: Rectangular weir (ISO 4359)*



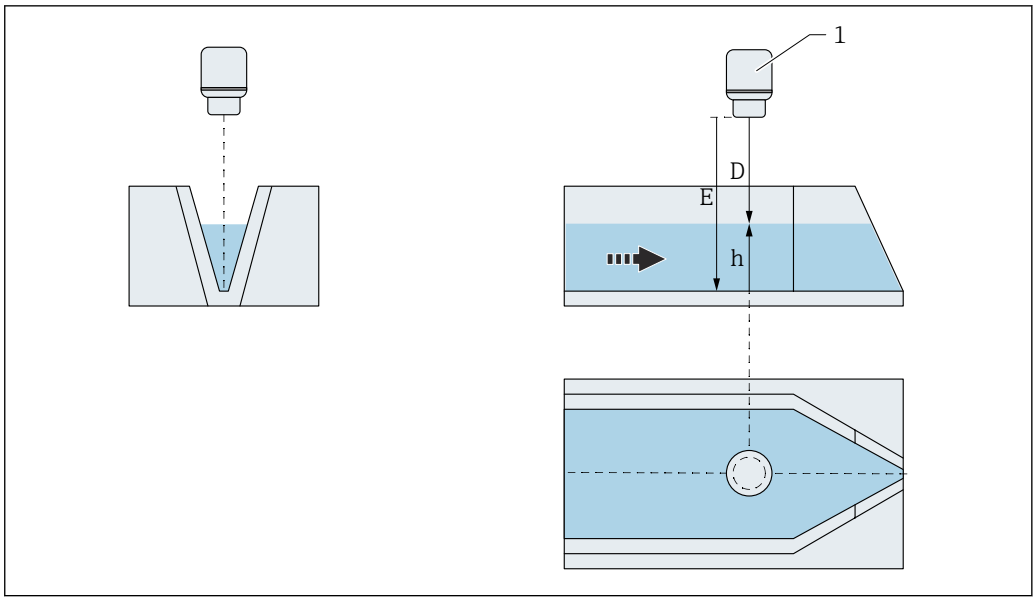
103 *Channel type: Leopold-Lagco flume*



104 *Channel type: Cutthroat flume*



105 *Channel type: U-shaped flume (ISO 4359)*



106 *Channel type: H flume*

Weir type

Navigation Application → Flow → Flow 1 to 2 → Weir type (3880021–1 to 2)

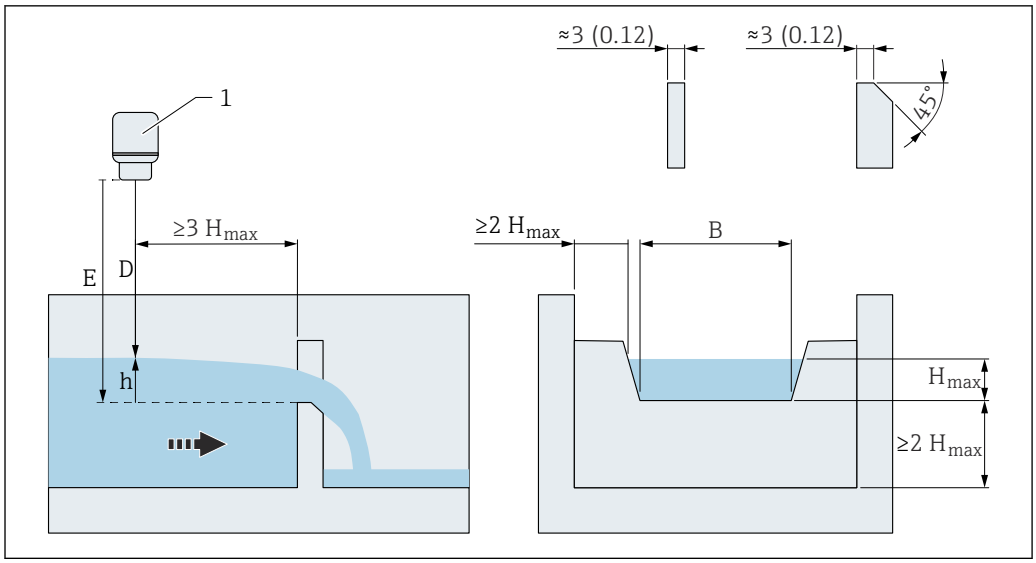
Description Select weir type.

Selection
- Trapezoidal weir
- Round-nose broad-crested weir (ISO 4374)
- Rectang. broad-crested weir (ISO 3846)
- Thin-plate rectangular weir (ISO 1438)
- Thin-plate triangular weir (ISO 1438)

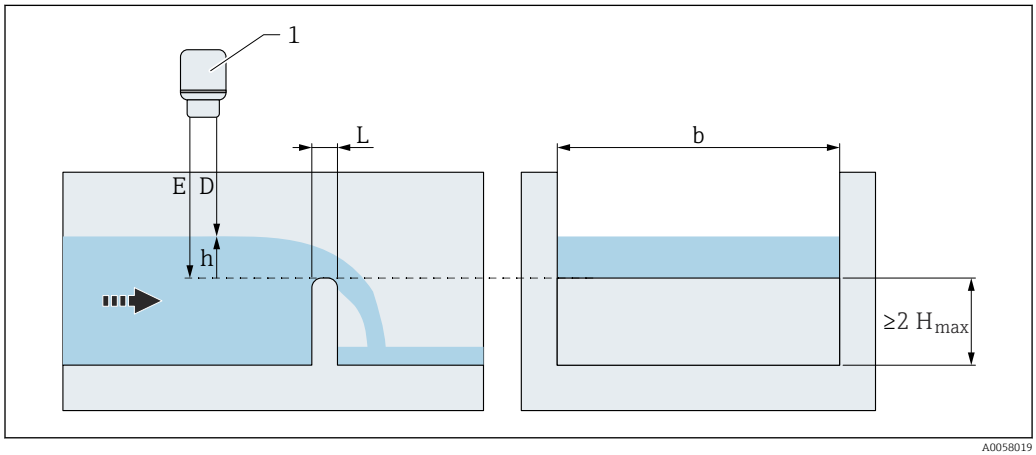
Factory setting Trapezoidal weir

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.

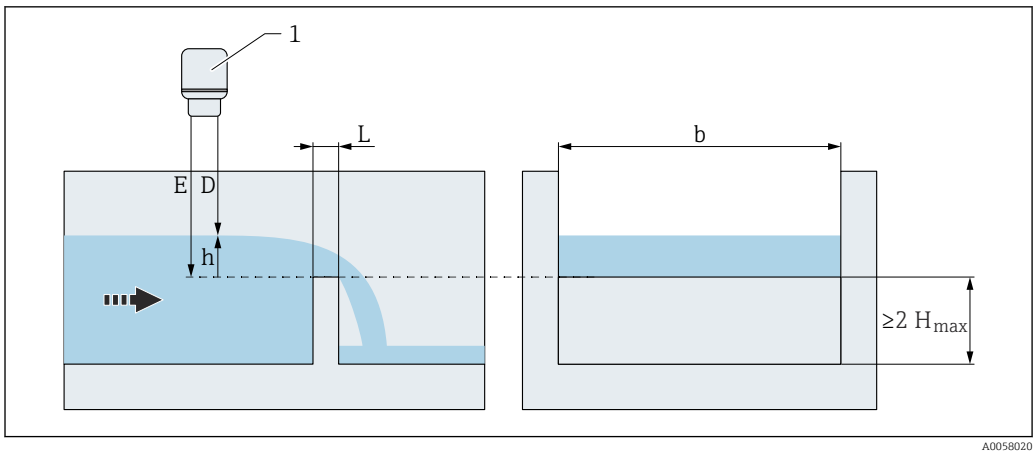
Additional information



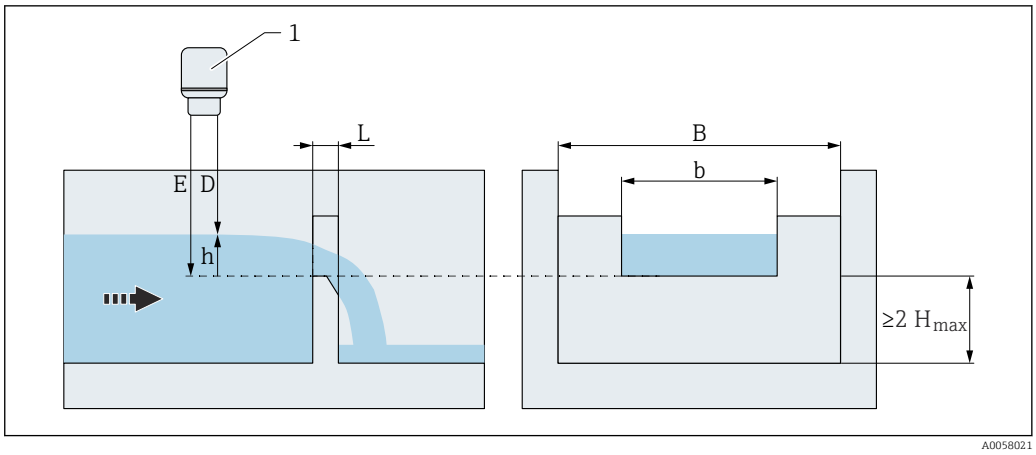
107 *Weir type: Trapezoidal weir*



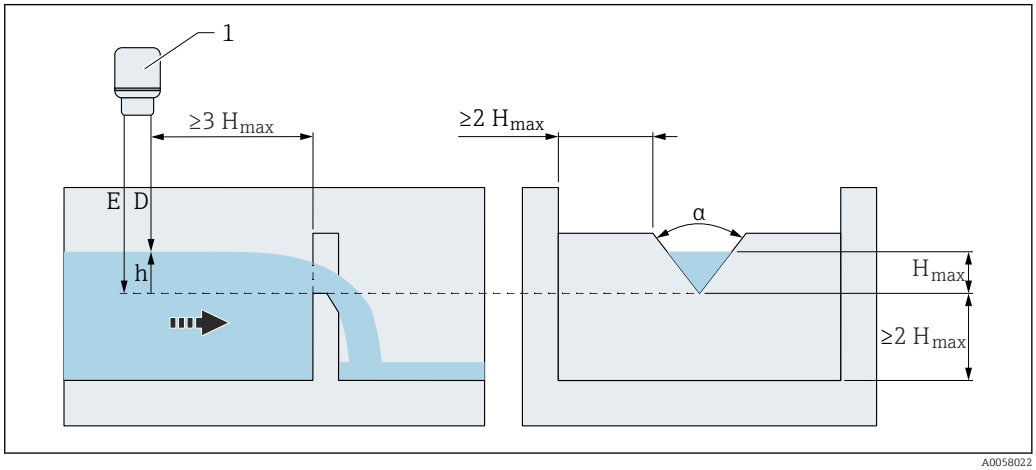
108 *Weir type: Round-nose horizontal broad-crested weir (ISO 4374)*



109 *Weir type: Broad-crested rectangular weir (ISO 3846)*



110 *Weir type: Sharp-crested rectangular weir (ISO 1438)*



111 *Weir type: Sharp-crested triangular weir (ISO 1438)*

Khafagi Venturi flume

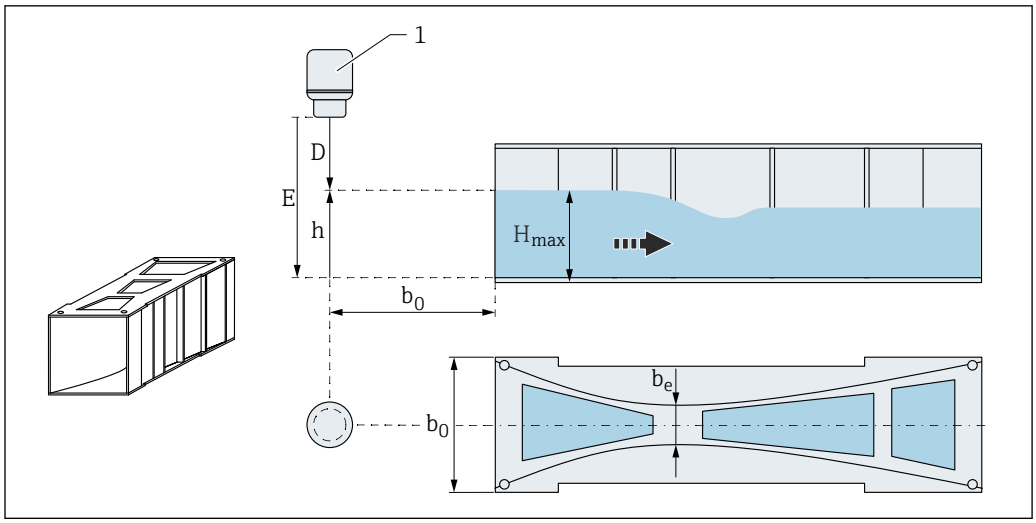
Navigation Application → Flow → Flow 1 to 2 → Khafagi Venturi flume (3880048–1 to 2)

Description Select a Khafagi Venturi flume.

Selection
- HQV302
- HQV303
- HQV304
- HQV305
- HQV306
- HQV308
- HQV310
- HQV313
- HQV316

Factory setting HQV302

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.



112 *Channel type: Khafagi-Venturi flume*

Venturi flume

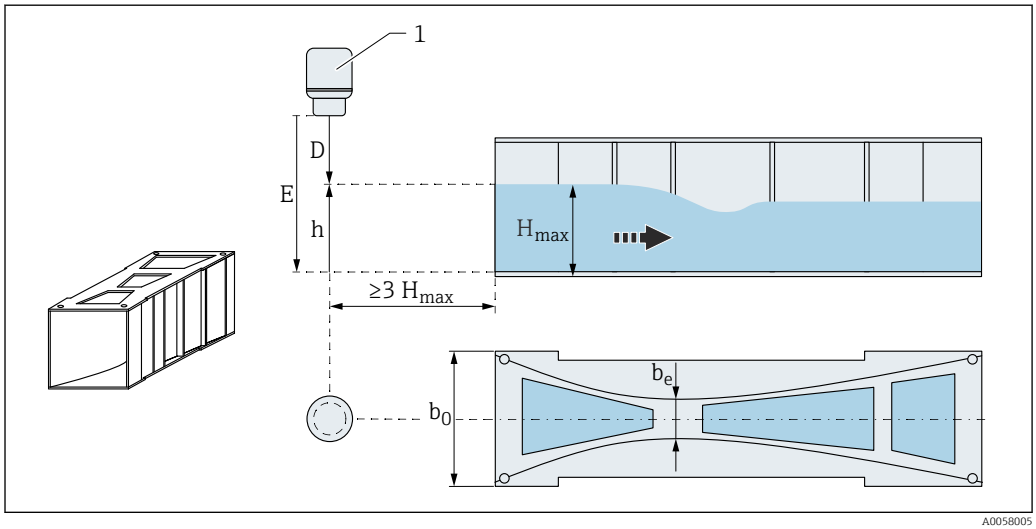
Navigation Application → Flow → Flow 1 to 2 → Venturi flume (3880042–1 to 2)

Description Select a Venturi flume.

Selection
- HQI415
- HQI425
- HQI430
- HQI440
- HQI450
- HQI480
- HQI520

Factory setting HQI415

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.



113 *Channel type: Venturi flume*

Parshall flume

Navigation Application → Flow → Flow 1 to 2 → Parshall flume (3880043–1 to 2)

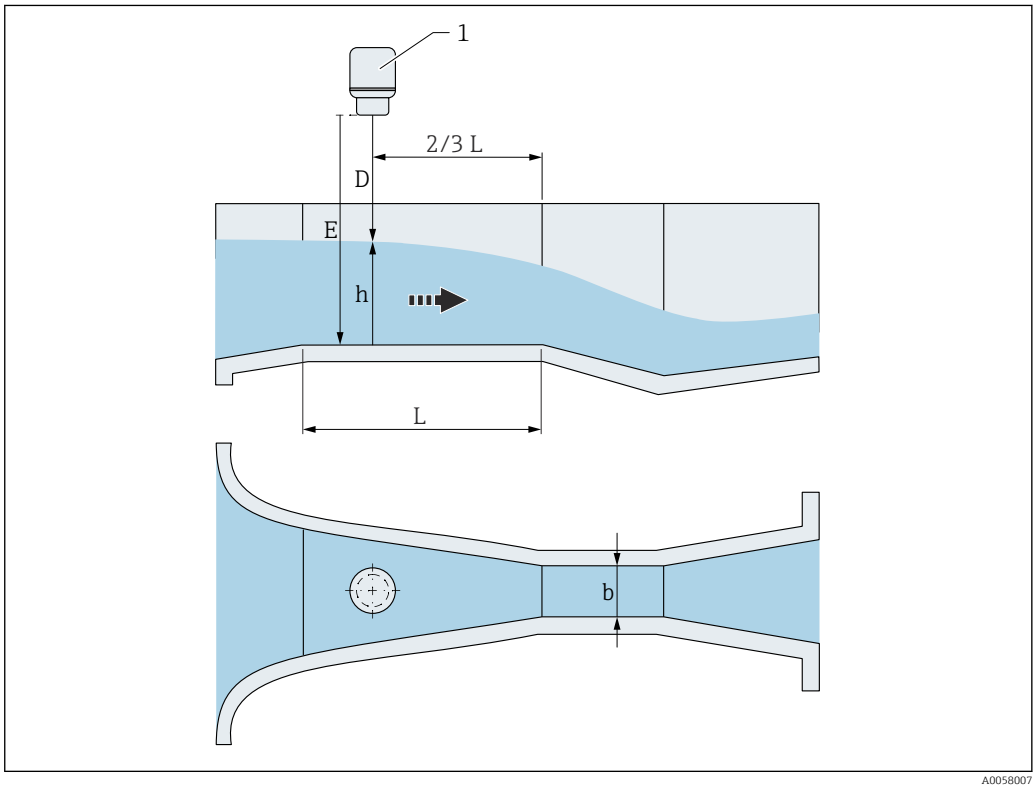
Description Select a Parshall flume.

Selection

- 1 in
- 2 in
- 3 in
- 6 in
- 9 in
- 1 ft
- 1.5 ft
- 2 ft
- 3 ft
- 4 ft
- 5 ft
- 6 ft
- 8 ft
- 10 ft
- 12 ft

Factory setting 9 in

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.



114 Channel type: Parshall flume

Palmer Bowlus flume

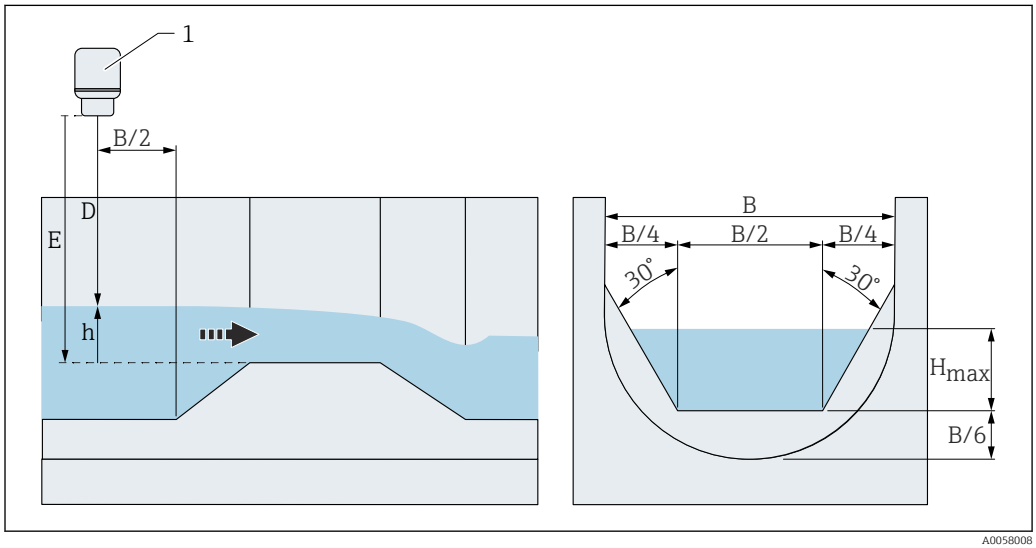
Navigation Application → Flow → Flow 1 to 2 → Palmer Bowlus flume (3880053–1 to 2)

Description Select a Palmer Bowlus flume.

Selection
- 6 in
- 8 in
- 10 in
- 12 in
- 15 in
- 18 in
- 21 in
- 24 in
- 27 in
- 30 in

Factory setting 30 in

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.



115 *Channel type: Palmer-Bowlus flume*

Approach width (B)

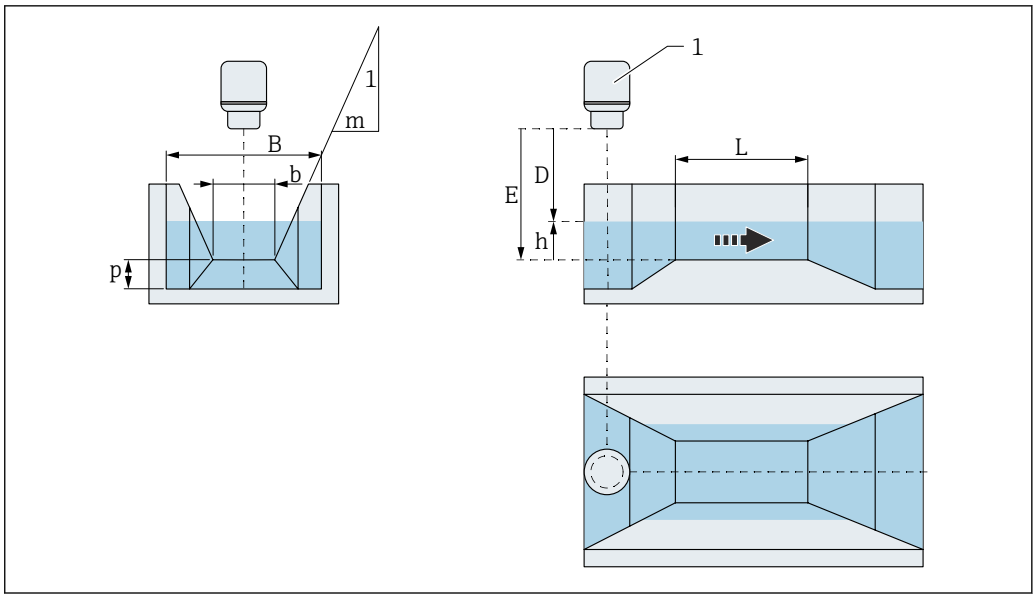
Navigation Application → Flow → Flow 1 to 2 → Approach width (B) (3880032–1 to 2)

Description Enter the approach width (B).

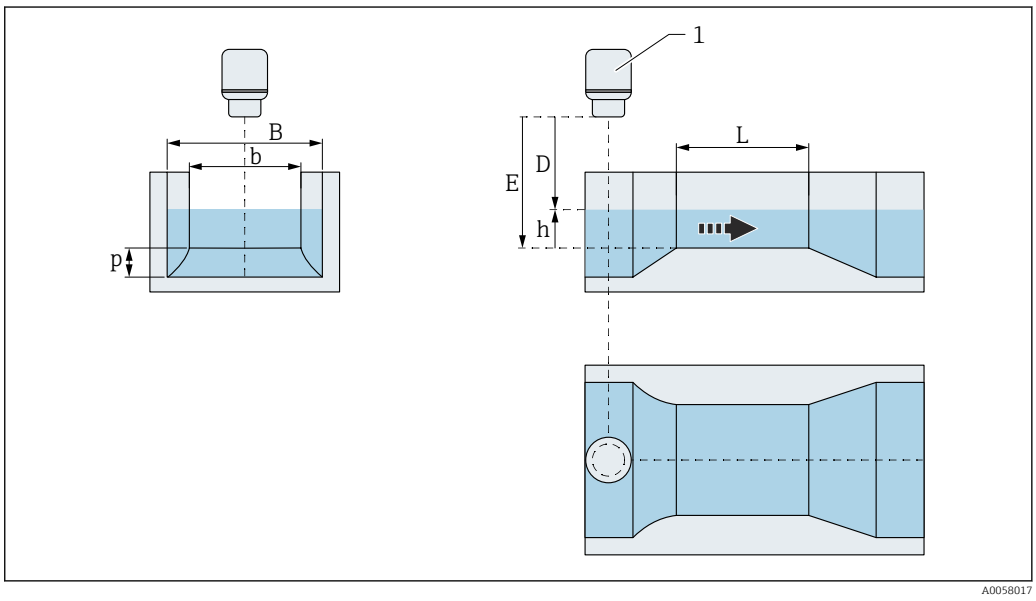
User entry Positive floating-point number

Factory setting 2 000.0 mm

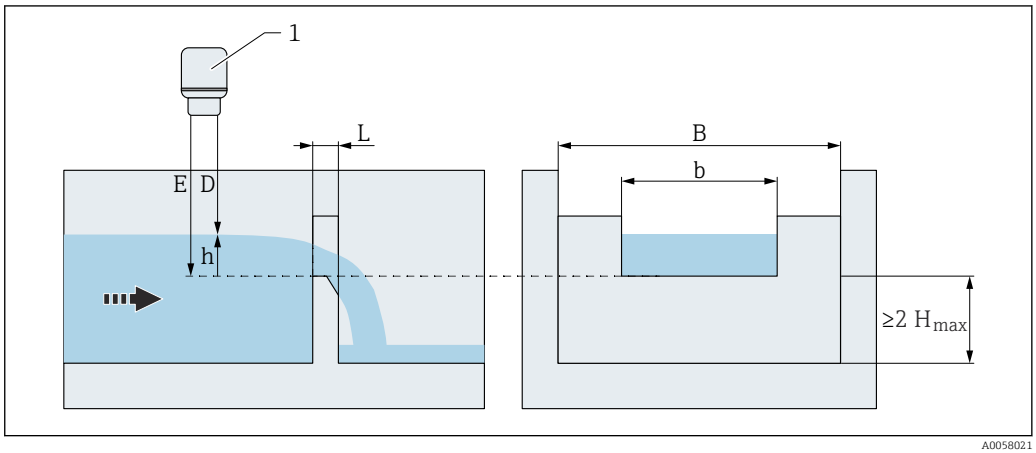
Additional information



116 *Approach width B in trapezoidal flume (ISO 4359)*



117 *Approach width B in rectangular flume (ISO 4359)*



118 *Approach width B in broad-crested rectangular weir (ISO 1438)*

Approach diameter (Da)

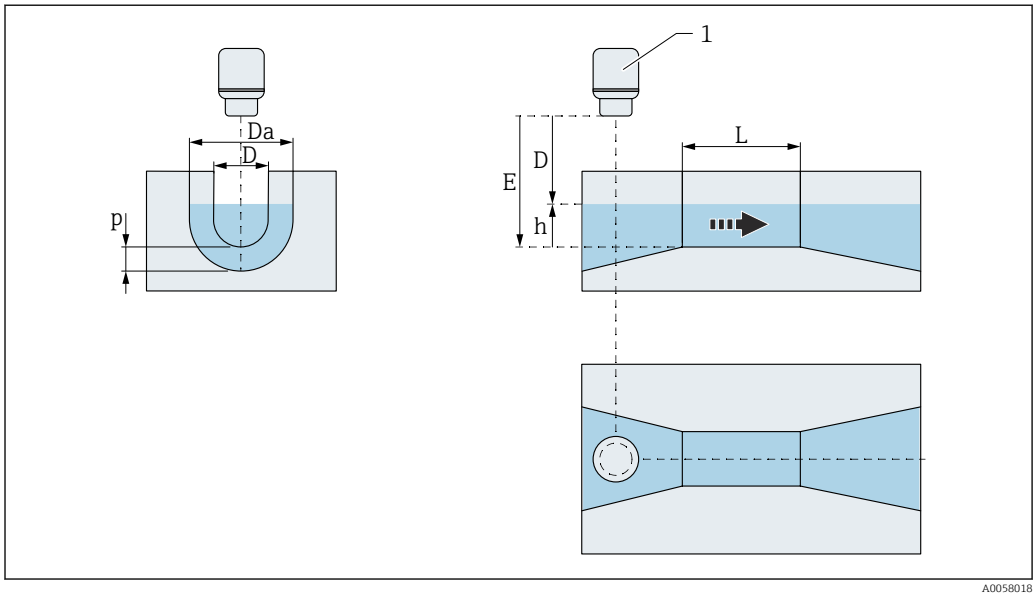
Navigation Application → Flow → Flow 1 to 2 → Approach diameter (Da) (3880024–1 to 2)

Description Enter the approach diameter (Da).

User entry Positive floating-point number

Factory setting 600.0 mm

Additional information



119 Approach diameter (Da) in U-shaped flume (ISO 4359)

Throat diameter (D)

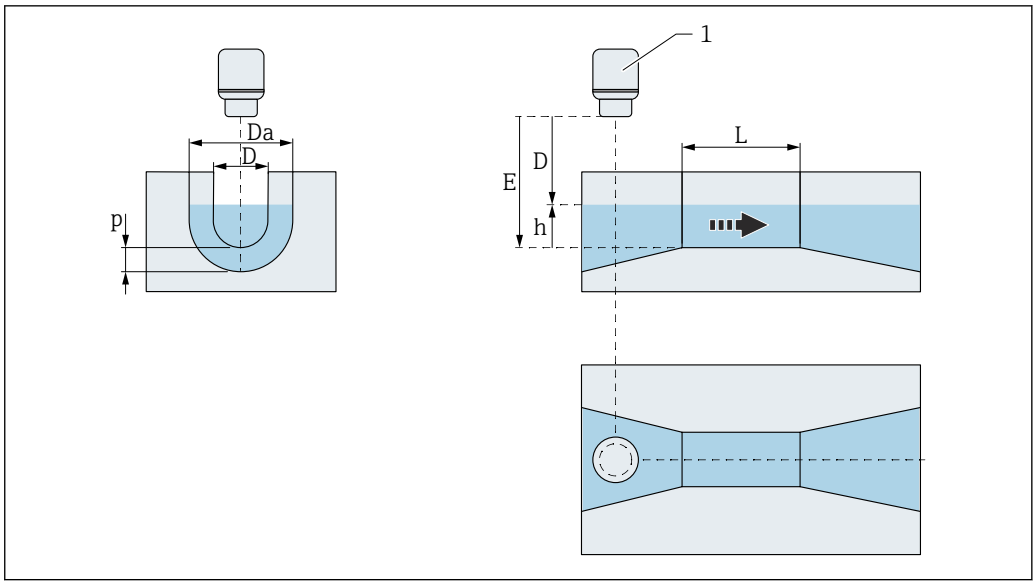
Navigation Application → Flow → Flow 1 to 2 → Throat diameter (D) (3880019–1 to 2)

Description Enter the throat diameter (D).

User entry Positive floating-point number

Factory setting 400.0 mm

Additional information



120 *Throat diameter D in U-shaped flume (ISO 4359)*

Throat length (L)

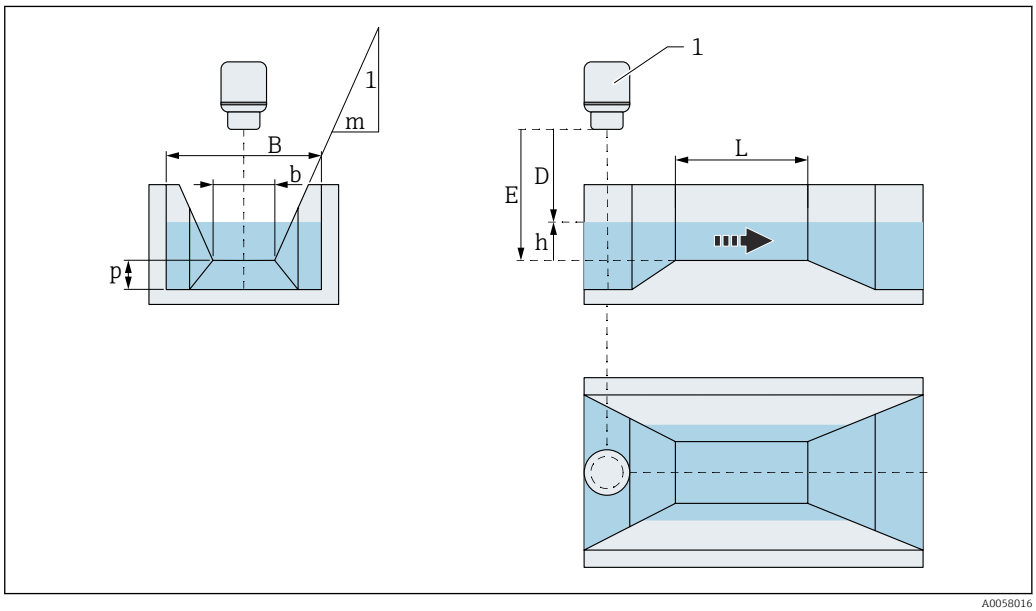
Navigation Application → Flow → Flow 1 to 2 → Throat length (L) (3880040–1 to 2)

Description Enter the throat length (L).

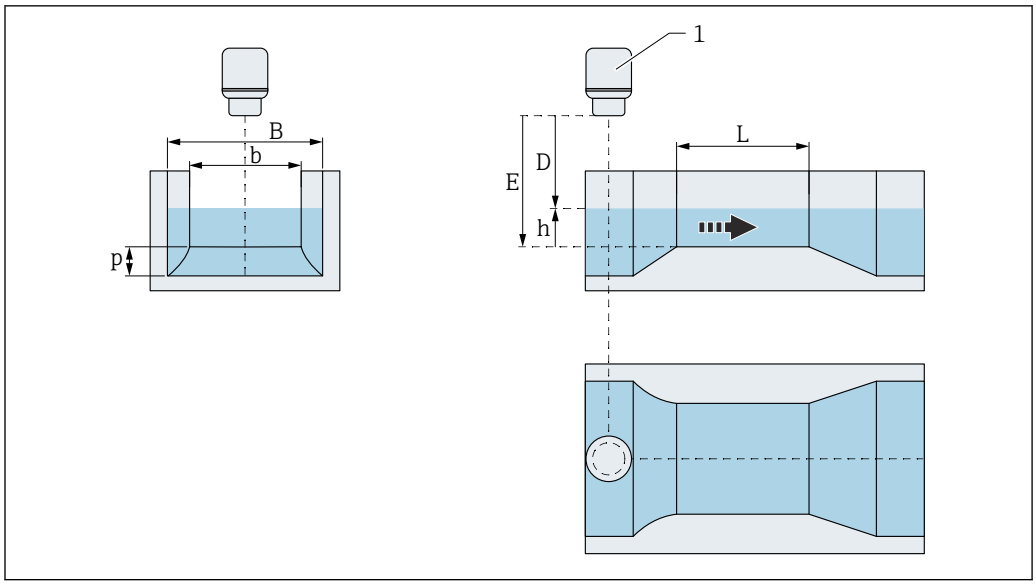
User entry Positive floating-point number

Factory setting 3 000.0 mm

Additional information

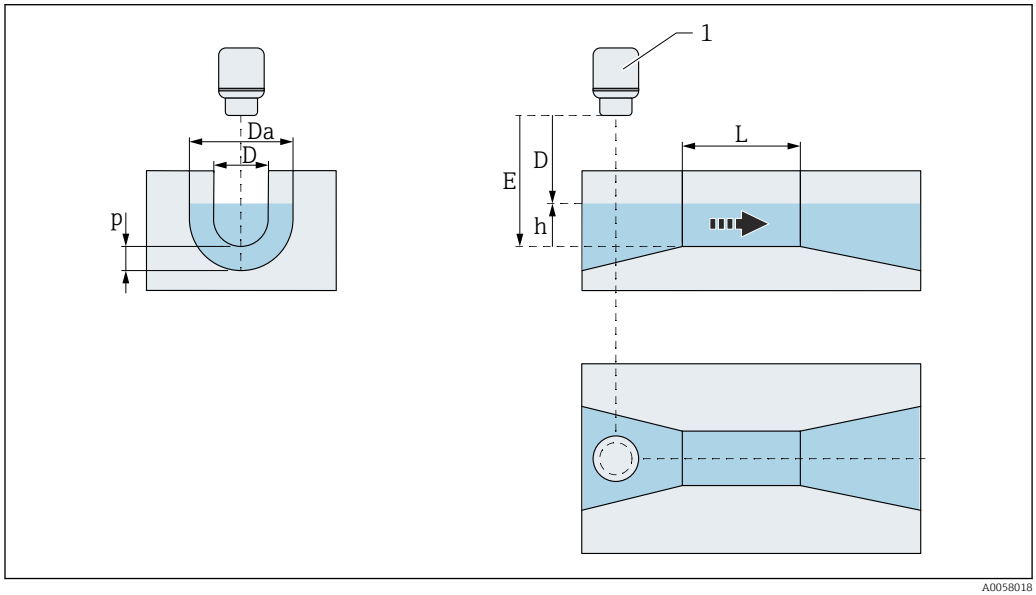


121 *Throat length L in trapezoidal flume (ISO 4359)*



122 *Throat length L in rectangular flume (ISO 4359)*

Additional information



123 *Throat length L in U-shaped flume (ISO 4359)*

Throat width (b)

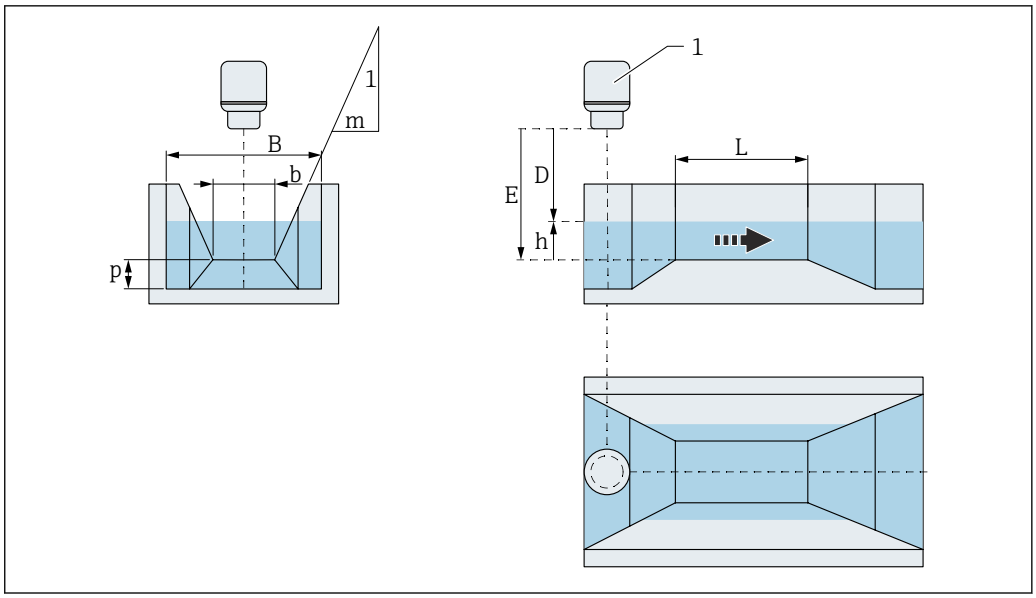
Navigation Application → Flow → Flow 1 to 2 → Throat width (b) (3880038–1 to 2)

Description Enter the throat width (b).

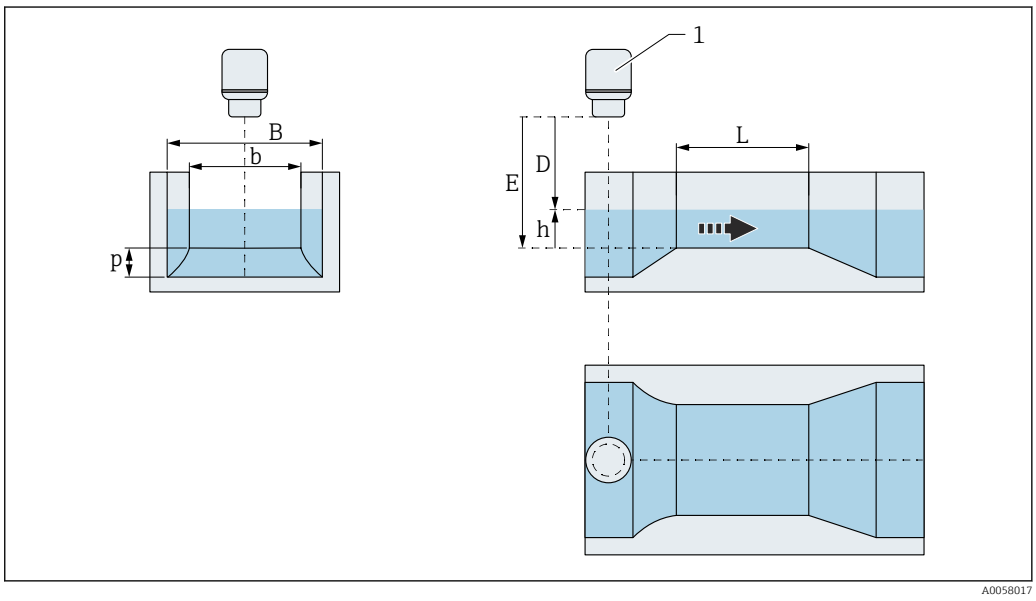
User entry Positive floating-point number

Factory setting 500.0 mm

Additional information



124 *Throat width b in trapezoidal flume (ISO 4359)*

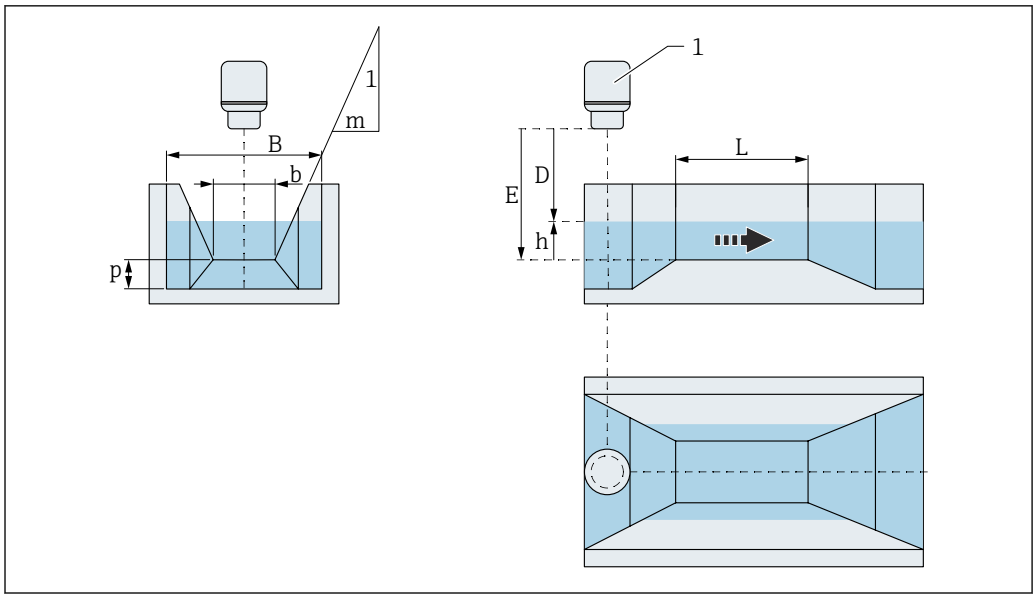


125 *Throat width b in rectangular flume (ISO 4359)*

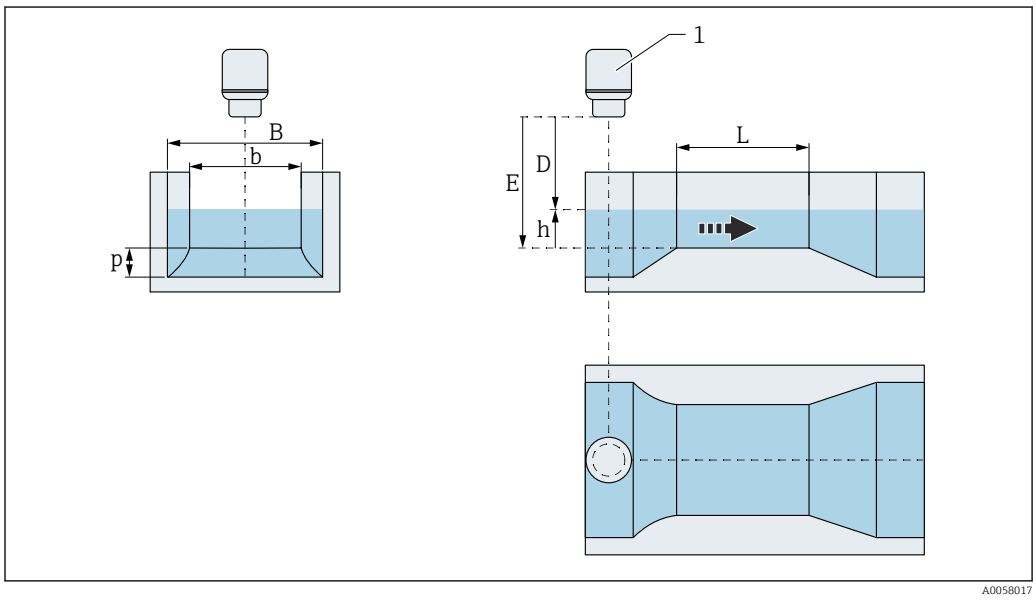
Hump height (p)

Navigation	Application → Flow → Flow 1 to 2 → Hump height (p) (3880039–1 to 2)
Description	Enter hump height (p).
User entry	Positive floating-point number
Factory setting	150.0 mm

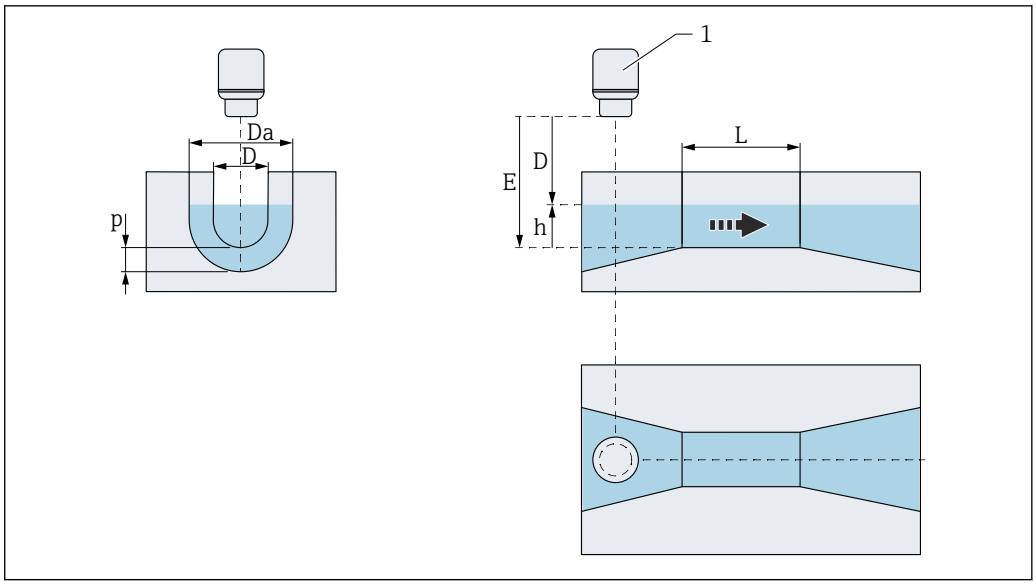
Additional information



126 *Hump height p in trapezoidal flume (ISO 4359)*



127 *Hump height p in rectangular flume (ISO 4359)*



128 *Hump height p in U-shaped flume (ISO 4359)*

Side slope (m)

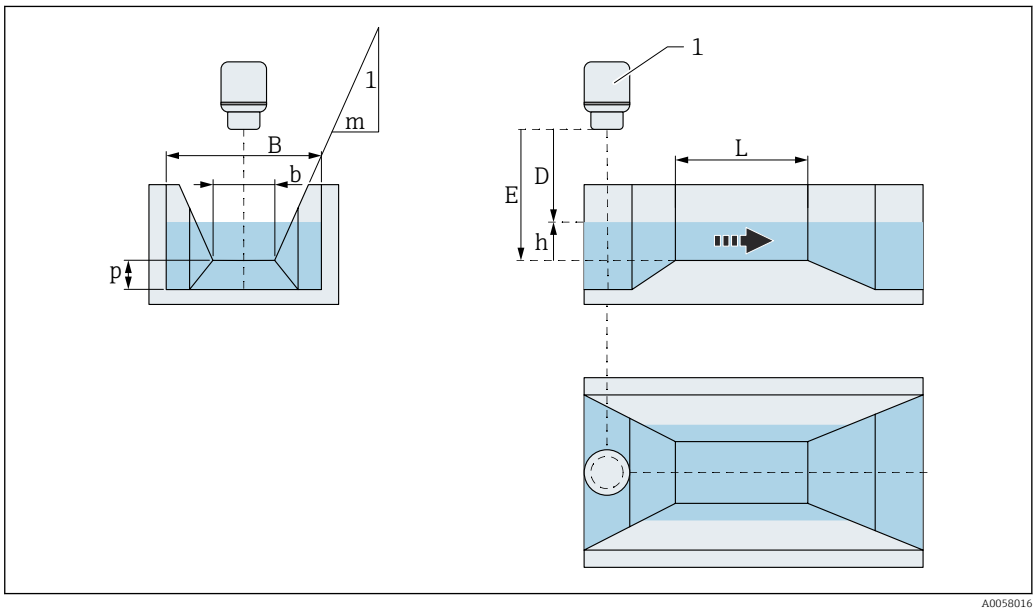
Navigation Application → Flow → Flow 1 to 2 → Side slope (m) (3880012–1 to 2)

Description Enter the side slope (m).

User entry 0.0 to 1 000.0

Factory setting 1.0

Additional information



129 *Slide slope m in trapezoidal flume (ISO 4359)*

Leopold Lagco flume

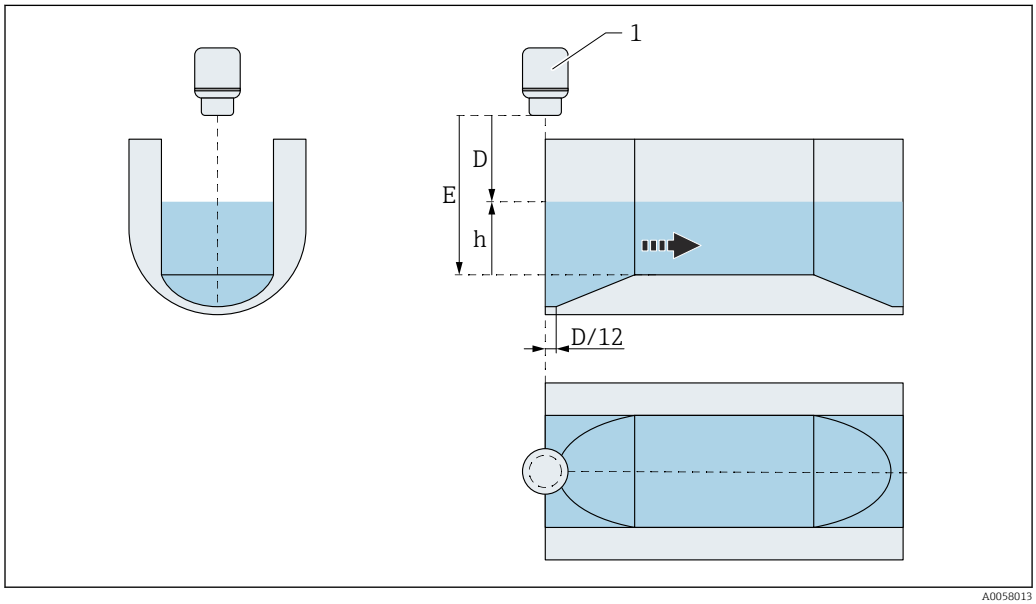
Navigation Application → Flow → Flow 1 to 2 → Leopold Lagco flume (3880047–1 to 2)

Description Select a Leopold Lagco flume.

Selection
- 4 in
- 6 in
- 8 in
- 10 in
- 12 in
- 15 in
- 18 in
- 21 in
- 24 in
- 30 in

Factory setting 30 in

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.



130 *Channel type: Leopold-Lagco flume*

Flume length (L)

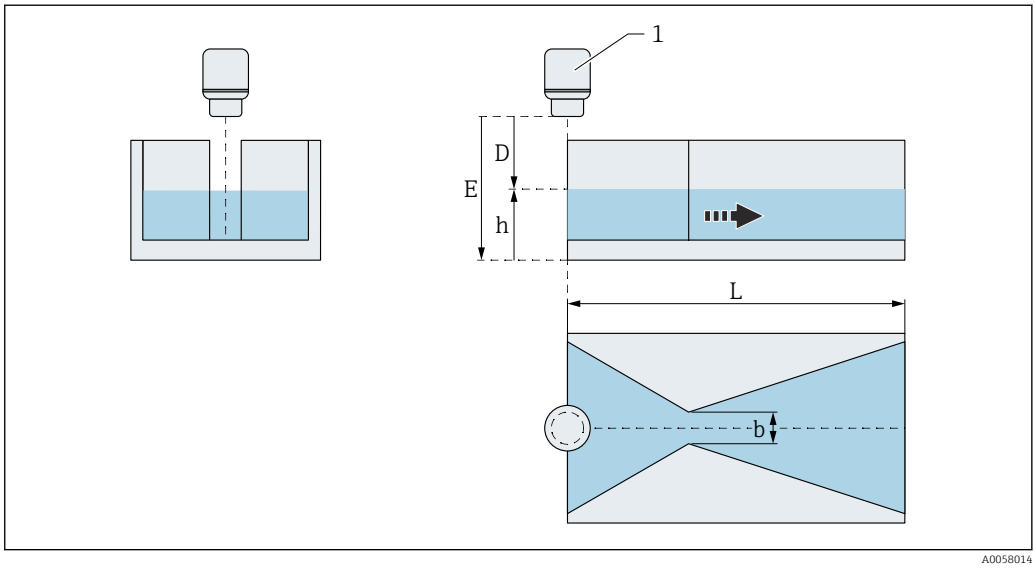
Navigation Application → Flow → Flow 1 to 2 → Flume length (L) (3880025–1 to 2)

Description Select flume length (L).

Selection
- 18 in
- 36 in
- 54 in
- 108 in

Factory setting 108 in

Additional information



131 *Channel length L in cutthroat flume*

Flume width (b)

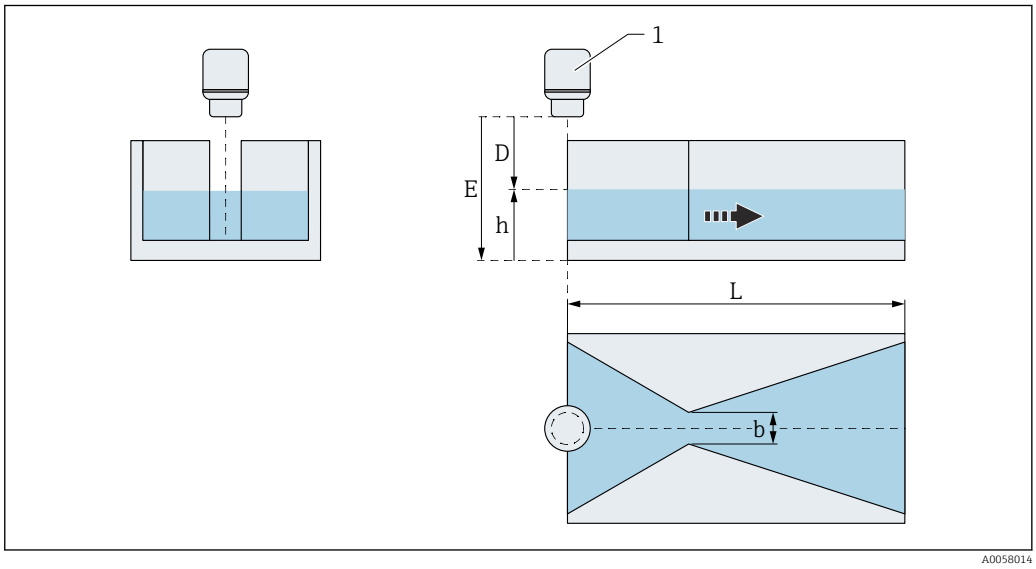
Navigation Application → Flow → Flow 1 to 2 → Flume width (b) (3880029–1 to 2)

Description Select flume width (b).

Selection
- 12 in
- 24 in
- 48 in
- 72 in

Factory setting 72 in

Additional information



132 *Channel width b in cutthroat flume*

Flume width (b)

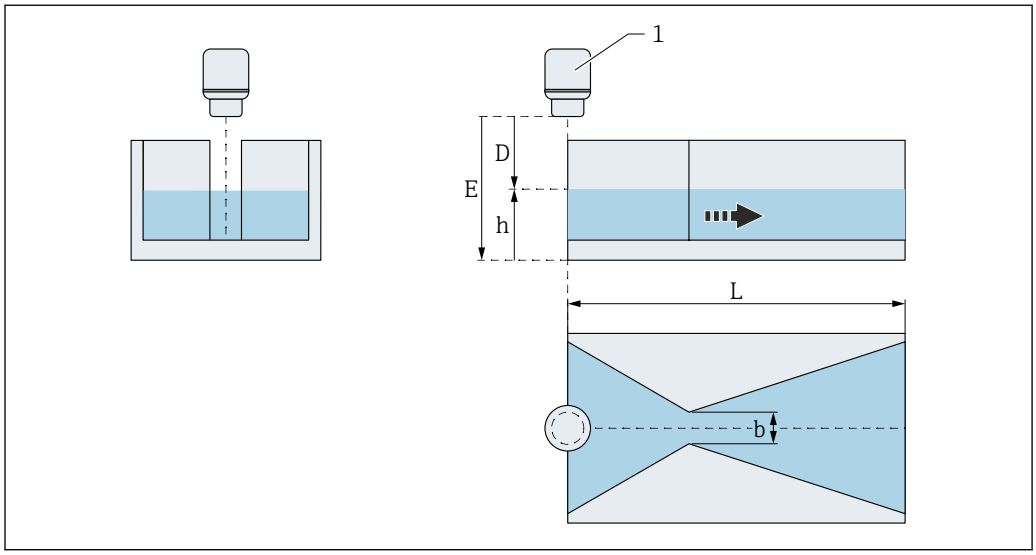
Navigation Application → Flow → Flow 1 to 2 → Flume width (b) (3880026–1 to 2)

Description Select flume width (b).

Selection
- 1 in
- 2 in
- 4 in
- 8 in

Factory setting 8 in

Additional information



133 *Channel width b in cutthroat flume*

Flume width (b)

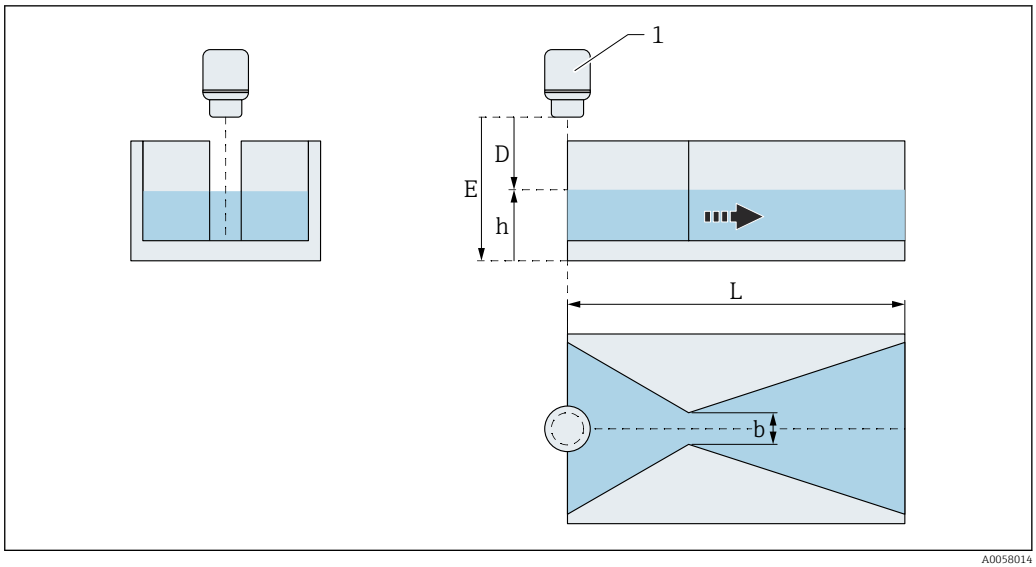
Navigation Application → Flow → Flow 1 to 2 → Flume width (b) (3880027–1 to 2)

Description Select flume width (b).

Selection
- 2 in
- 4 in
- 8 in
- 16 in

Factory setting 16 in

Additional information



134 *Channel width b in cutthroat flume*

Flume width (b)

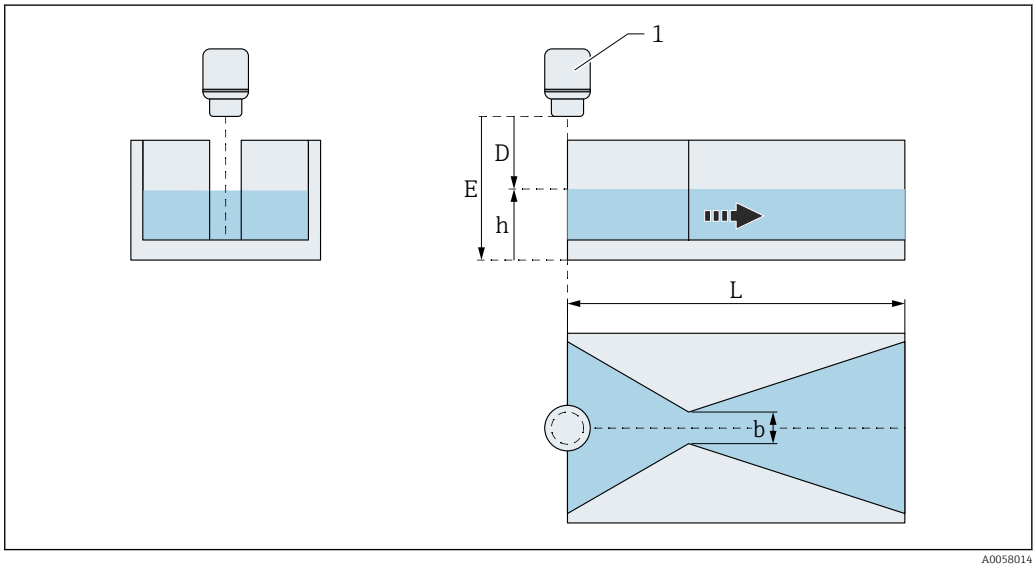
Navigation Application → Flow → Flow 1 to 2 → Flume width (b) (3880028–1 to 2)

Description Select flume width (b).

Selection
- 3 in
- 6 in
- 12 in
- 24 in

Factory setting 24 in

Additional information



135 *Channel width b in cutthroat flume*

H flume

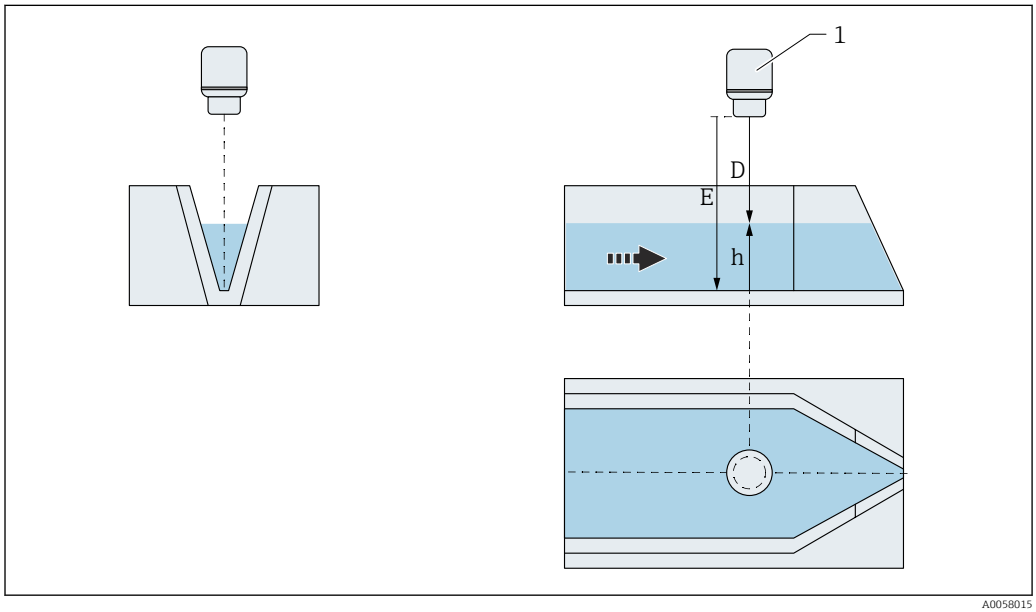
Navigation Application → Flow → Flow 1 to 2 → H flume (3880049–1 to 2)

Description Select an H flume.

Selection
- 0.5 ft
- 0.75 ft
- 1 ft
- 1.5 ft
- 2 ft
- 2.5 ft
- 3 ft
- 4.5 ft

Factory setting 4.5 ft

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.



136 *Channel type: H flume*

Inner diameter (d)

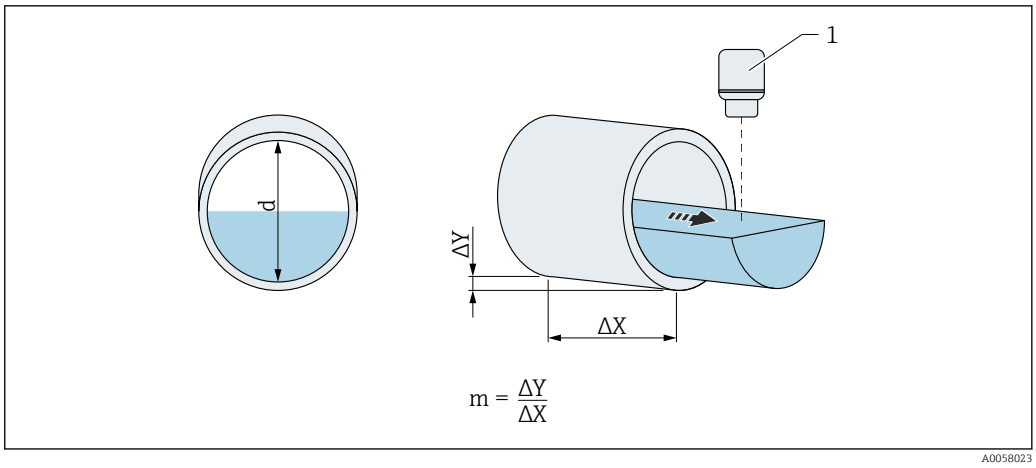
Navigation Application → Flow → Flow 1 to 2 → Inner diameter (d) (3880022–1 to 2)

Description Enter the inner diameter (d).

User entry 100.0 to 100 000.0 mm

Factory setting 1 000.0 mm

Additional information



137 *Internal diameter d in pipe profile (Manning formula)*

Roughness coefficient

Navigation Application → Flow → Flow 1 to 2 → Roughness coefficient (3880018−1 to 2)

Description Enter the roughness coefficient.

User entry 0.0 to 1.0

Factory setting 0.01

Slope (m)

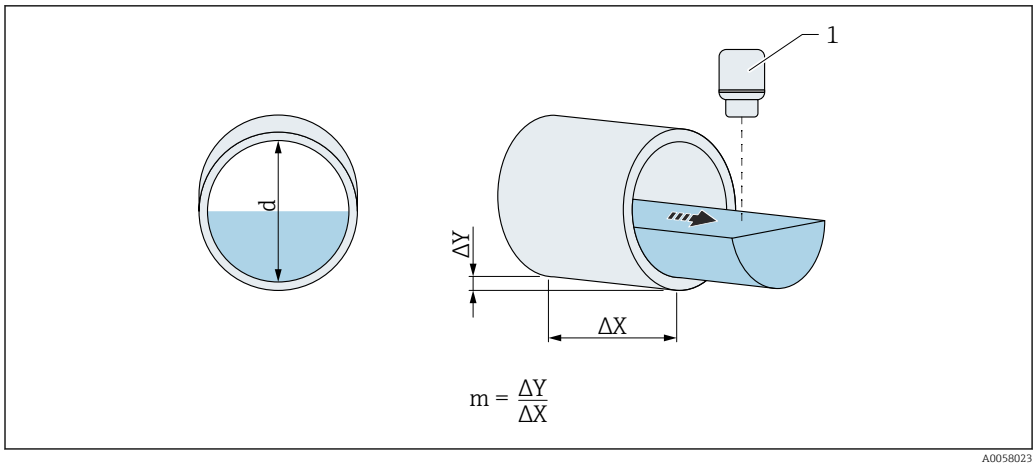
Navigation Application → Flow → Flow 1 to 2 → Slope (m) (3880023−1 to 2)

Description Enter the slope (m).

User entry 0.0 to 1.0

Factory setting 0.1

Additional information



138 Slope m in pipe profile (Manning formula)

Alpha (α)

Navigation Application → Flow → Flow 1 to 2 → Alpha (α) (3880056−1 to 2)

Description Enter Alpha (α).

User entry 0.0 to 200 000.0

Factory setting 1.5

Beta (β)

Navigation Application → Flow → Flow 1 to 2 → Beta (β) (3880057−1 to 2)

Description Enter Beta (β).

User entry 0.0 to 200 000.0

Factory setting 1.0

Gamma (γ)

Navigation Application → Flow → Flow 1 to 2 → Gamma (γ) (3880058−1 to 2)

Description Enter Gamma (γ).

User entry −200 000.0 to 200 000.0

Factory setting 0.0

C

Navigation Application → Flow → Flow 1 to 2 → C (3880052–1 to 2)

Description Enter C.

User entry $1.0 \cdot 10^{-07}$ to 200 000.0

Factory setting 1.0

Maximum level (h_max)

Navigation Application → Flow → Flow 1 to 2 → Maximum level (h_max) (3880034–1 to 2)

Description Enter the maximum level (h_max).

User entry Positive floating-point number

Factory setting 1 000.0 mm

Flow exponent (x)

Navigation Application → Flow → Flow 1 to 2 → Flow exponent (x) (3880059–1 to 2)

Description Enter the flow exponent (x).

User entry 0.0 to 200 000.0

Factory setting 1.0

Trapezoidal weir

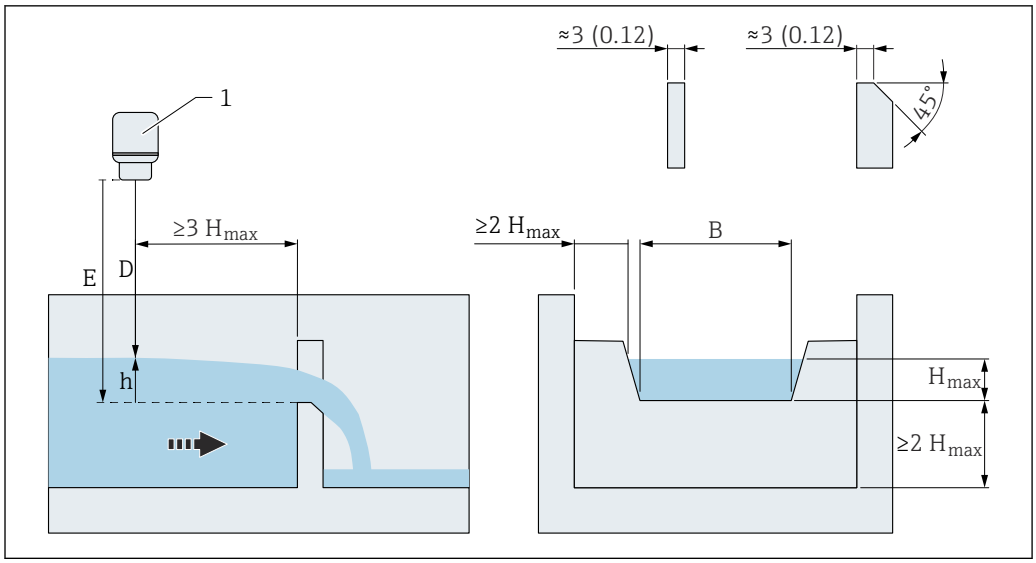
Navigation Application → Flow → Flow 1 to 2 → Trapezoidal weir (3880055–1 to 2)

Description Select weir type.

Selection
- T0/H3
- T0/T5

Factory setting T0/H3

Additional information An overview is provided in the Special Documentation (SD) on flow measurement in channels or weirs.



139 *Weir type: Trapezoidal weir*

Weir width (b)

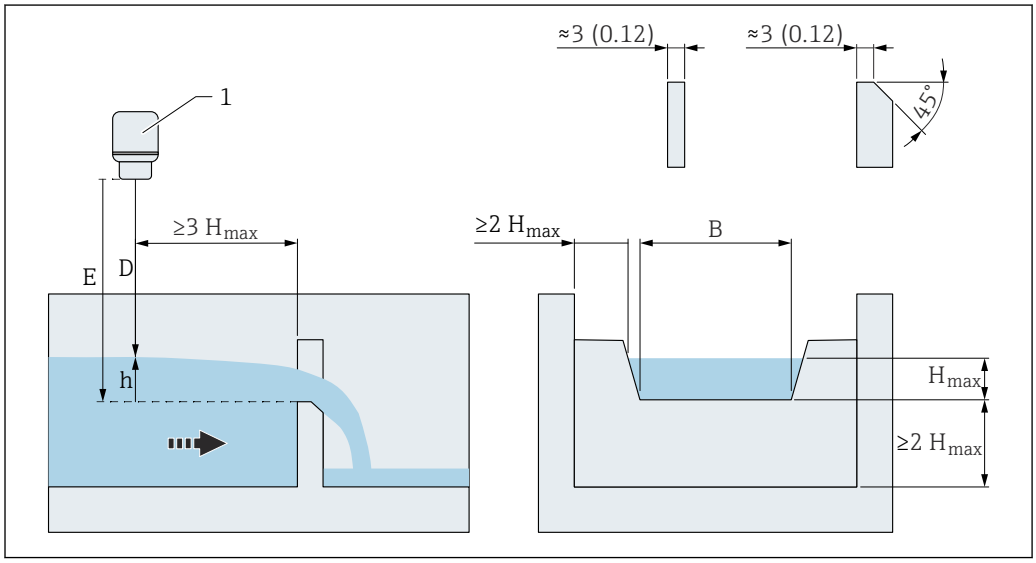
Navigation Application → Flow → Flow 1 to 2 → Weir width (b) (3880054–1 to 2)

Description Enter the weir width (b).

User entry Positive floating-point number

Factory setting 1 000.0 mm

Additional information



140 *Weir width in trapezoidal weir*

Crest width (b)

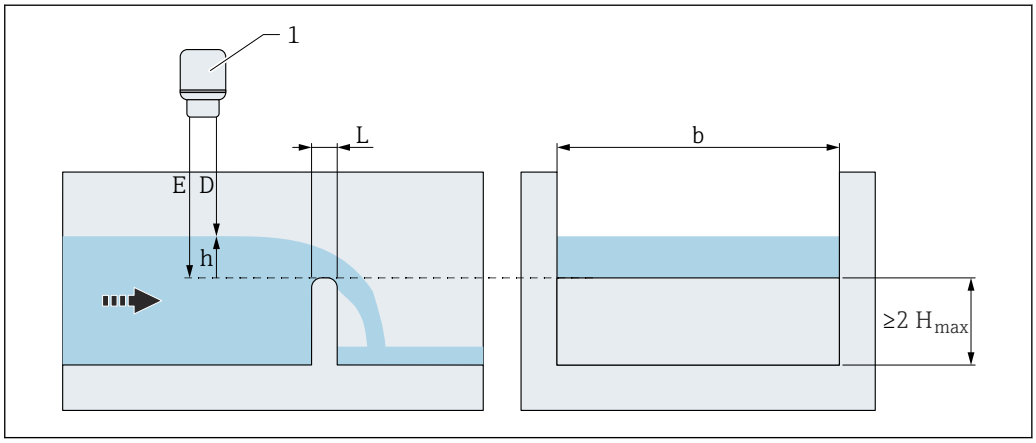
Navigation Application → Flow → Flow 1 to 2 → Crest width (b) (3880044–1 to 2)

Description Enter crest or notch width (b).

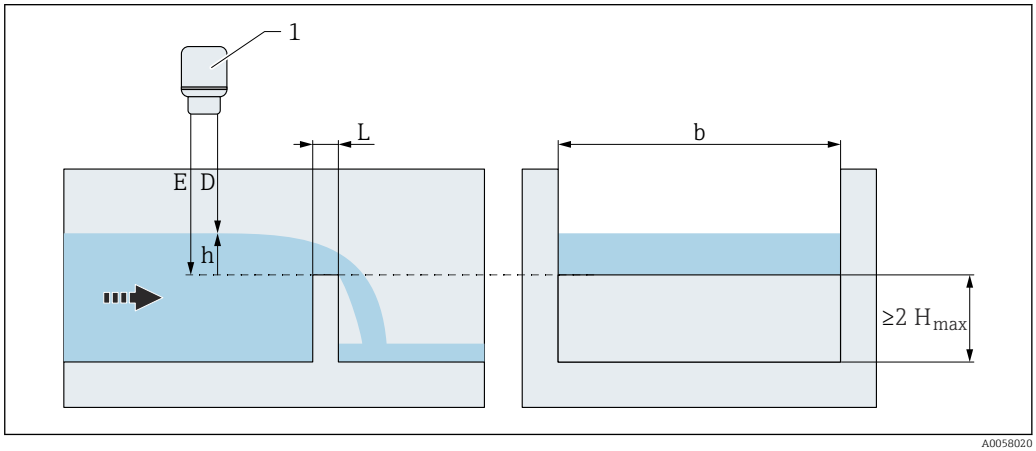
User entry Positive floating-point number

Factory setting 500.0 mm

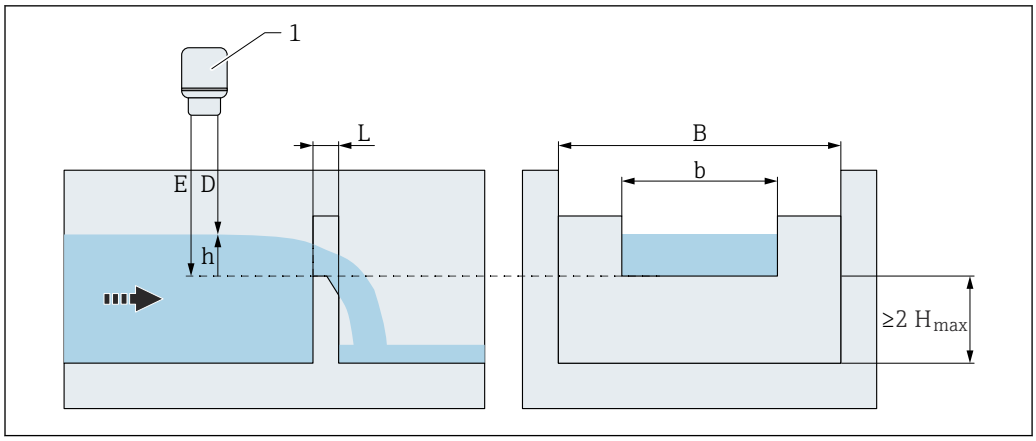
Additional information



141 *Crest width b in round-nose horizontal broad-crested weir (ISO 4374)*



142 *Crest width b in broad-crested rectangular weir (ISO 3846)*



143 *Crest width b in sharp-crested rectangular weir (ISO 1438)*

Crest height (p)

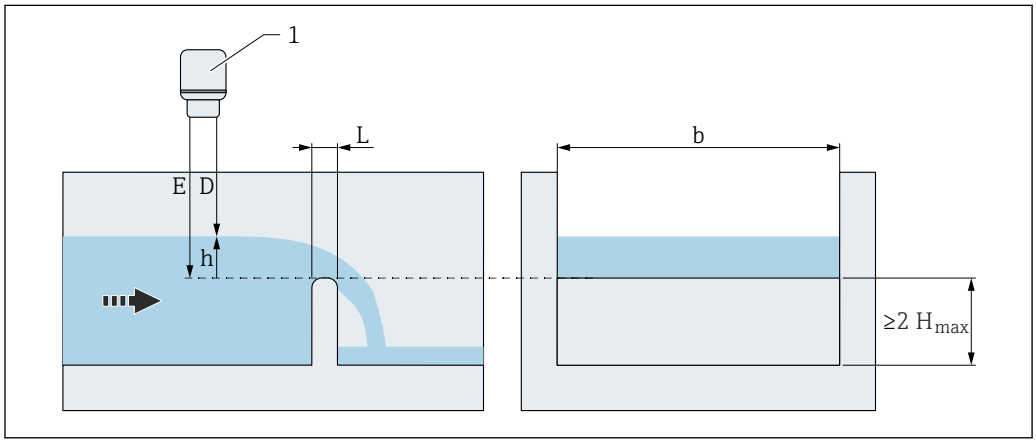
Navigation Application → Flow → Flow 1 to 2 → Crest height (p) (3880045–1 to 2)

Description Enter the crest height (p).

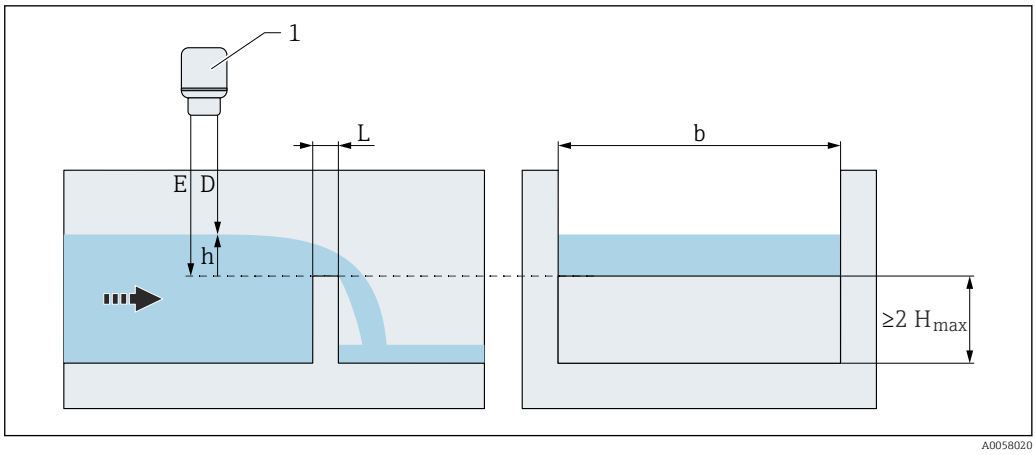
User entry Positive floating-point number

Factory setting 300.0 mm

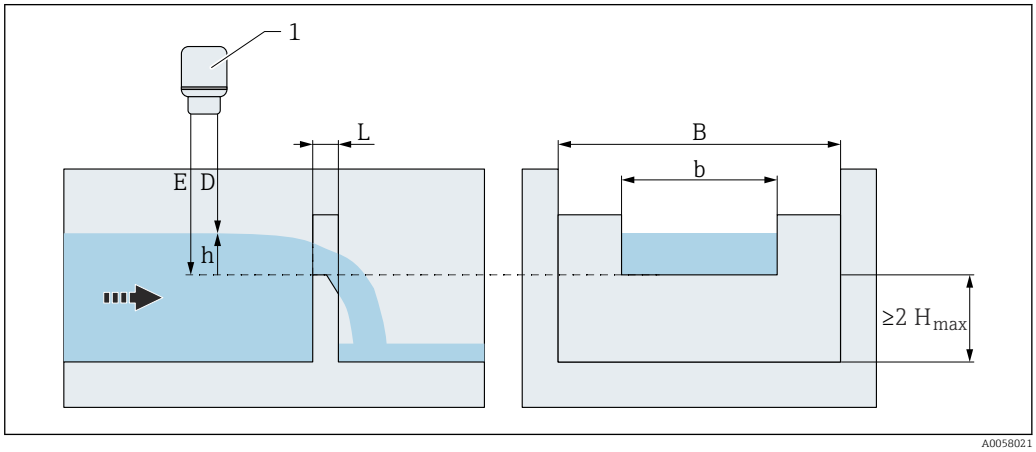
Additional information



144 *Crest height in round-nose horizontal broad-crested weir (ISO 4374)*



145 *Crest height in broad-crested rectangular weir (ISO 3846)*



146 *Crest height in sharp-crested rectangular weir (ISO 1438)*

Crest length (L)

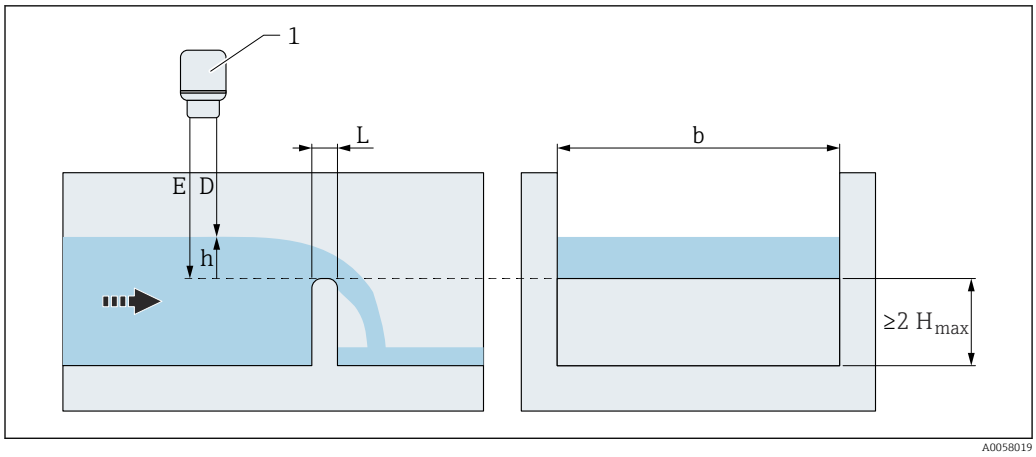
Navigation Application → Flow → Flow 1 to 2 → Crest length (L) (3880046–1 to 2)

Description Enter the crest length (L).

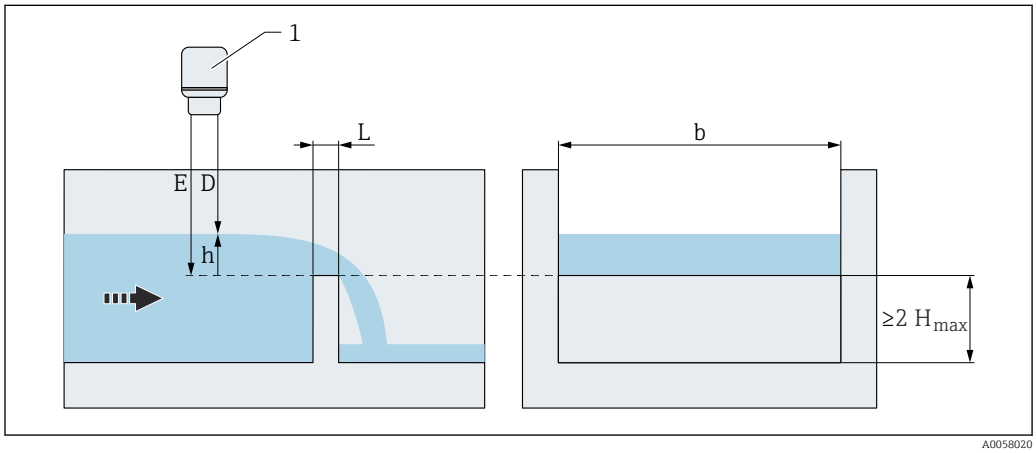
User entry Positive floating-point number

Factory setting 1 000.0 mm

Additional information



147 *Crest length L in round-nose horizontal broad-crested weir (ISO 4374)*



148 *Crest length L in broad-crested rectangular weir (ISO 3846)*

Notch angle (α)

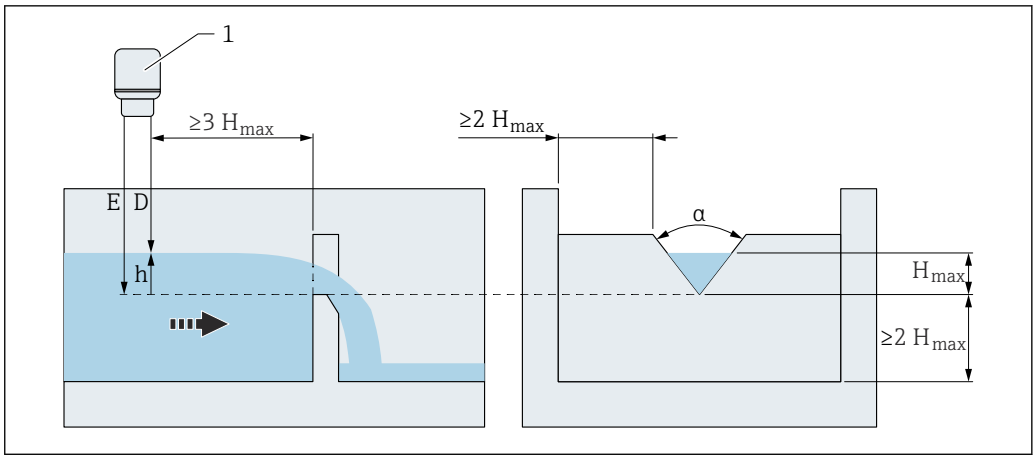
Navigation Application → Flow → Flow 1 to 2 → Notch angle (α) (3880020–1 to 2)

Description Enter the notch angle (α).

User entry 20.0 to 100.0 °

Factory setting 90.0 °

Additional information



149 *Notch angle α in sharp-crested triangular weir (ISO 1438)*

Distance bottom to crest

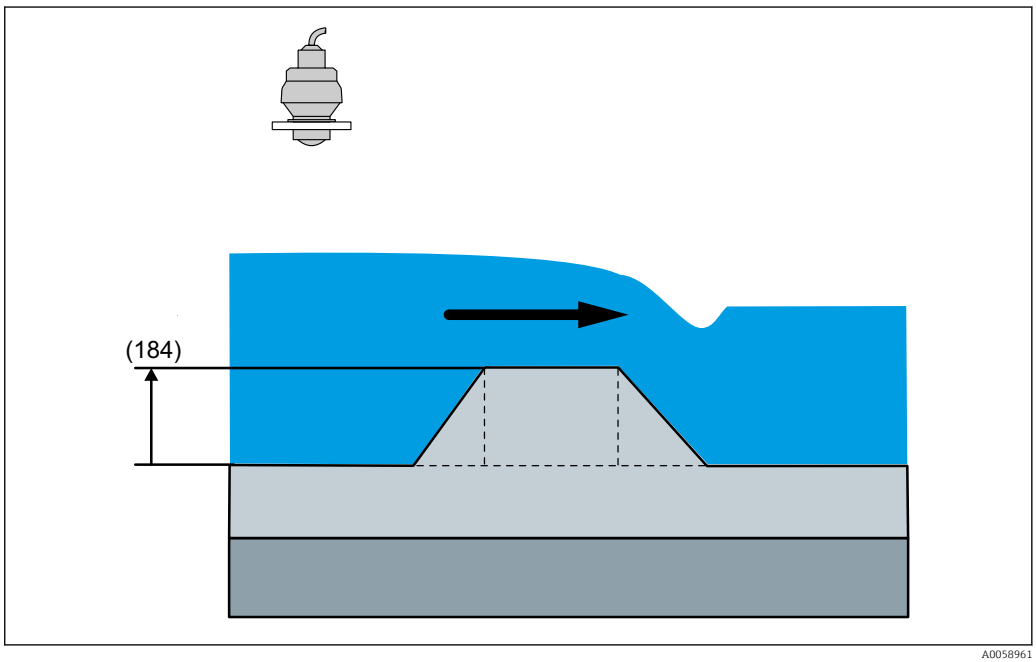
Navigation Application → Flow → Flow 1 to 2 → Distance bottom to crest (3880009−1 to 2)

Description Distance from bottom of the flume or weir to crest. This allows the level to be measured from the bottom of the flume or weir to the crest.

User entry Positive floating-point number

Factory setting 0.0 mm

Additional information



150 *Distance from bottom to crest (184)*

Validation

Navigation Application → Flow → Flow 1 to 2 → Validation (3880017–1 to 2)

Description Result of the validation of the entered parameters (plausibility check).

User interface
- Validation pending
- Validation passed
- Unexpected error
- Invalid angle
- Validation failed
- Full calibration too low
- Throat wider than flume
- Crest width too small
- Invalid length
- Invalid Full calibration
- Invalid Full calibration to height ratio
- Invalid throat to approach ratio
- Throat width too small
- Invalid crest length to height ratio
- Invalid Full calib. to length ratio
- Invalid crest height
- Validation failed

Factory setting Validation pending

Flow 1 to 2

Navigation Application → Flow → Flow 1 to 2 → Flow 1 to 2 (3880128–1 to 2)

Description Displays the current volume flow.

User interface Signed floating-point number

Maximum flow

Navigation Application → Flow → Flow 1 to 2 → Maximum flow (3880015–1 to 2)

Description Maximum flow rate in the selected unit.

User interface Positive floating-point number

Visualization zoom start

Navigation Application → Flow → Flow 1 to 2 → Visualization zoom start (3880030–1 to 2)

Description Enter the lower value for an enlarged area in the display (chart/bar graph).

User entry Signed floating-point number

Visualization zoom end

Navigation Application → Flow → Flow 1 to 2 → Visualization zoom end (3880031–1 to 2)

Description Enter the upper value for an enlarged area in the display (chart/bar graph).

User entry Signed floating-point number

"Additional settings" submenu

Navigation Guidance → Commissioning → Application → Maximum flow 1 to 2

Navigation Application → Flow → Flow 1 to 2 → Additional settings

Default maximum flow

Navigation Application → Flow → Flow 1 to 2 → Additional settings → Default maximum flow (3880036)

Guidance → Commissioning → Application → Maximum flow 1 to 2 → Default maximum flow (3880036–1 to 2)

Description Displays the maximum flow determined by the device software. The value is calculated on the basis of the flow linearization type and the max. level.

User interface Positive floating-point number

Use user-specific maximum flow

Navigation
- Application → Flow → Flow 1 to 2 → Additional settings → Use user-specific maximum flow (3880033)
- Guidance → Commissioning → Application → Maximum flow 1 to 2 → Use user-specific maximum flow (3880033–1 to 2)

Description
Selection of whether the maximum flow entered by the user or the maximum flow specified by the device software is used.

Selection
- No
- Yes

Factory setting
No

User-specific maximum flow

Navigation
- Application → Flow → Flow 1 to 2 → Additional settings → User-specific maximum flow (3880035)
- Guidance → Commissioning → Application → Maximum flow 1 to 2 → User-specific maximum flow (3880035–1 to 2)

Description
Enter the maximum flow value in the selected unit manually. The maximum flow corresponds to an output current of 20 mA (factory settings).

User entry
Positive floating-point number

Factory setting
0.0 l/h

Low flow cutoff

Navigation
- Application → Flow → Flow 1 to 2 → Additional settings → Low flow cutoff (3880010)

Description
Activate or deactivate "Low flow cutoff".

Selection
- Disable
- Enable

Factory setting
Disable

Low flow cutoff value

Navigation Application → Flow → Flow 1 to 2 → Additional settings → Low flow cutoff value (3880011)

Description Enter the low flow cutoff value in percent, based on the maximum flow rate.

User entry 0.0 to 100.0 %

Factory setting 0.0 %

Failure behavior

Navigation Application → Flow → Flow 1 to 2 → Additional settings → Failure behavior (3880060)

Selection
- Invalid
- Last good
- Fixed Value

Factory setting Invalid

Failure value

Navigation Application → Flow → Flow 1 to 2 → Additional settings → Failure value (3880061)

User entry Positive floating-point number

Factory setting 0.0 l/h

"Totalizer" submenu

Navigation Application → Flow → Flow 1 to 2 → Totalizer

Volume unit

Navigation Application → Flow → Flow 1 to 2 → Totalizer → Volume unit (3880063)

Description Select volume unit.

Selection

SI units
- l
- hl
- Ml Mega
- cm^3
- dm^3
- m^3

Custom-specific units
- ft^3
- in^3
- gal (us)
- Mgal (us)
- bbl (us;oil)
- bbl (us;liq.)
- bbl (us;beer)
- bbl (us;tank)
- gal (imp)
- Mgal (imp)

Factory setting l

Decimal places

Navigation Application → Flow → Flow 1 to 2 → Totalizer → Decimal places (3880064)

Description Select the number of decimal places for the display value.

Selection
- x
- x.x
- x.xx
- x.xxx
- x.xxxx

Factory setting x.x

3.3.8 "Backwater detection" submenu

Navigation Application → Backwater detection

Description

Navigation Application → Backwater detection → Description (3930009)

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

Factory setting Backwater ratio

Decimal places

Navigation Application → Backwater detection → Decimal places (3930012)

Description Select the number of decimal places for the display value.

Selection
- x
- x.x
- x.xx
- x.xxx
- x.xxxx

Factory setting x.xx

Default value

Navigation Application → Backwater detection → Default value (3930008)

Description Define the default value for backwater detection.

User entry 0.5 to 1.0

Factory setting 0.8

Visualization zoom start

Navigation Application → Backwater detection → Visualization zoom start (3930010)

Description Enter the lower value for an enlarged area in the display (chart/bar graph).

User entry 0.0 to 1.0

Factory setting 0.0

Visualization zoom end

Navigation Application → Backwater detection → Visualization zoom end (3930011)

Description Enter the upper value for an enlarged area in the display (chart/bar graph).

User entry 0.0 to 1.0

Factory setting 1.0

3.3.9 "Calculations" submenu

Navigation Application → Calculations

"Level 1 + Level 2" submenu

Navigation Application → Calculations → Level 1 + Level 2

Selected calculation mode

Navigation Application → Calculations → Level 1 + Level 2 → Selected calculation mode (3920080)

Description Calculated values for level and flow can be offset against each other. To do this, select the appropriate calculation mode.

User interface
- Level 1 + Level 2
- Average level
- Level 1 - Level 2
- Level 2 - Level 1
- Flow 1 + Flow 2
- Average flow
- Flow 1 - Flow 2
- Flow 2 - Flow 1

Description

Navigation Application → Calculations → Level 1 + Level 2 → Description (3920007)

Description Enter a label text for the calculated output value.

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

Factory setting Level 1 + 2

Minimum value

Navigation Application → Calculations → Level 1 + Level 2 → Minimum value (3920013)

Description Displays the calculated minimum value which corresponds to 0 %.

User entry −400 000.0 to 400 000.0

Maximum value

Navigation Application → Calculations → Level 1 + Level 2 → Maximum value (3920014)

Description Displays the calculated maximum value which corresponds to 100 %.

User entry −400 000.0 to 400 000.0

Visualization zoom start

Navigation Application → Calculations → Level 1 + Level 2 → Visualization zoom start (3920015)

Description Enter the lower value for an enlarged area in the display (chart/bar graph).

User entry −400 000.0 to 400 000.0

Visualization zoom end

Navigation Application → Calculations → Level 1 + Level 2 → Visualization zoom end (3920016)

Description Enter the upper value for an enlarged area in the display (chart/bar graph).

User entry −400 000.0 to 400 000.0

Level 1 + Level 2

Navigation Application → Calculations → Level 1 + Level 2 → Level 1 + Level 2 (3920128)

User interface Signed floating-point number

3.3.10 "Rake control" submenu

Navigation Application → Rake control

"Rake control" submenu

Navigation Application → Rake control → Rake control

Evaluation mode

Navigation Application → Rake control → Rake control → Evaluation mode (3460007)

Selection
- Difference upstream - downstream
- Ratio downstream / upstream

Factory setting Difference upstream - downstream

Description

Navigation Application → Rake control → Rake control → Description (3460030)

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

Factory setting Difference

Description

Navigation Application → Rake control → Rake control → Description (3460029)

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

Factory setting Ratio

Decimal places

Navigation Application → Rake control → Rake control → Decimal places (3460031)

Description Select the number of decimal places for the display value.

Selection
- x
- x.x
- x.xx
- x.xxx
- x.xxxx

Factory setting x.xx

Switch-on point

Navigation Application → Rake control → Rake control → Switch-on point (3460016)

Description The switch-on points are indicated in the level unit. The rake control relay is energized if the difference L1 - L2 exceeds the switch-on point.

User entry Positive floating-point number

Factory setting 0.0 mm

Switch-off point

Navigation Application → Rake control → Rake control → Switch-off point (3460018)

Description The switch-off point is indicated in the level unit. The rake control relay is de-energized if the difference L1 - L2 drops below the switch-off point.

User entry Positive floating-point number

Factory setting 0.0 mm

Switch-on point

Navigation Application → Rake control → Rake control → Switch-on point (3460019)

Description The switch-on points are numbers between 0 and 1. The switch-on point must be below the switch-off point. The rake control relay is energized if the ratio L2/L1 falls below the switch-on point.

User entry 0.0 to 1.0

Factory setting 0.8

Switch-off point

Navigation Application → Rake control → Rake control → Switch-off point (3460017)

Description The switch-off points are numbers between 0 and 1. The rake control relay is de-energized if the ratio L2/L1 exceeds the switch-off point.

User entry 0.0 to 1.0

Factory setting 0.9

Switch delay

Navigation Application → Rake control → Rake control → Switch delay (3460020)

Description Define switch-on delay for rake control.

User entry 0 to 255 s

Factory setting 0 s

Visualization zoom start

Navigation Application → Rake control → Rake control → Visualization zoom start (3460033)

Description Enter the lower value for an enlarged area in the display (chart/bar graph).

User entry 0.0 to 1.0

Factory setting 0.0

Visualization zoom end

Navigation Application → Rake control → Rake control → Visualization zoom end (3460034)

Description Enter the upper value for an enlarged area in the display (chart/bar graph).

User entry 0.0 to 1.0

Factory setting 1.0

Visualization zoom start

Navigation Application → Rake control → Rake control → Visualization zoom start (3460035)

Description Enter the lower value for an enlarged area in the display (chart/bar graph).

User entry Signed floating-point number

Factory setting 0.0 mm

Visualization zoom end

Navigation Application → Rake control → Rake control → Visualization zoom end (3460036)

Description Enter the upper value for an enlarged area in the display (chart/bar graph).

User entry Signed floating-point number

Factory setting Positive floating-point number

Description

Navigation Application → Rake control → Rake control → Description (3460027)

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

Factory setting Level upstream

Description

Navigation Application → Rake control → Rake control → Description (3460028)

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

Factory setting Level downstream

Visualization zoom start

Navigation Application → Rake control → Rake control → Visualization zoom start (3460037)

Description Enter the lower value for an enlarged area in the display (chart/bar graph).

User entry Signed floating-point number

Factory setting 0.0 mm

Visualization zoom end

Navigation Application → Rake control → Rake control → Visualization zoom end (3460038)

Description Enter the lower value for an enlarged area in the display (chart/bar graph).

User entry Signed floating-point number

Factory setting Positive floating-point number

"Additional settings" submenu

Navigation Application → Rake control → Additional settings

Failure behavior

Navigation Application → Rake control → Additional settings → Failure behavior (3460021)

Selection
- Invalid
- Last good
- Fixed Value

Factory setting Invalid

Failure value digital

Navigation Application → Rake control → Additional settings → Failure value digital (3460023)

Description Select the failure value for the digital output channel.

Selection
- Off
- On

Factory setting Off

Failure value analog

Navigation Application → Rake control → Additional settings → Failure value analog (3460025)

Description Enter a specific value for the fixed failure behavior.

User entry Positive floating-point number

Factory setting 0.0 mm

Failure value analog

Navigation Application → Rake control → Additional settings → Failure value analog (3460024)

Description Enter a specific value for the fixed failure behavior.

User entry 0.0 to 1.0

Factory setting 0.0

3.3.11 "Digital inputs" submenu

Navigation Application → Digital inputs

"Digital input 1 to 4" submenu

Navigation Application → Digital inputs → Digital input 1 to 4

Description

Navigation Application → Digital inputs → Digital input 1 to 4 → Description (3090011–1 to 4)

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

Factory setting Digital input 1

Invert external digital input 1 to 4

Navigation Application → Digital inputs → Digital input 1 to 4 → Invert external digital input 1 to 4 (3090012–1 to 4)

Description Activate inverting of the digital input.

Selection
- No
- Yes

Factory setting No

Failure behavior DI 1 to 4

Navigation Application → Digital inputs → Digital input 1 to 4 → Failure behavior DI 1 to 4 (3090014–1 to 4)

Description Settings how this channel/input behaves in case of failure.

Selection
- Invalid
- Last good
- Off
- On

Factory setting Invalid

3.3.12 "Limits" submenu

Navigation Application → Limits

Delete limit

Navigation Application → Limits → Delete limit (3310104)

Selection
- No
- Limit 1
- Limit 2
- Limit 3
- Limit 4
- Limit 5
- Limit 6
- Limit 7
- Limit 8
- Limit 9
- Limit 10

Factory setting No

"Limit 1 to 10" submenu

Navigation Application → Limits → Limit 1 to 10

Signal source

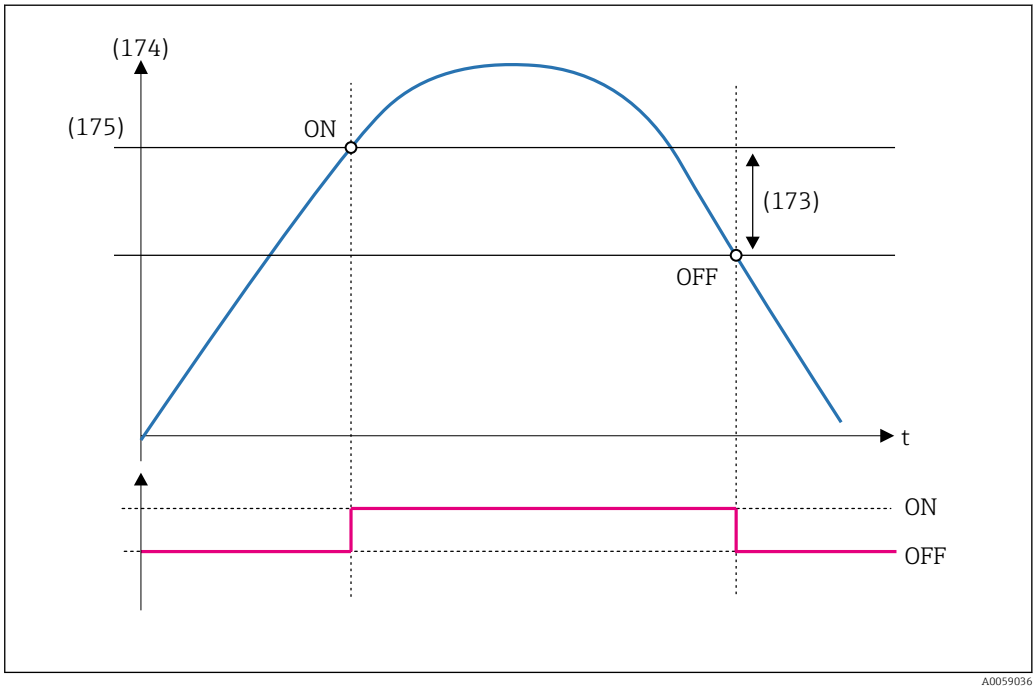
Navigation Application → Limits → Limit 1 to 10 → Signal source (3020010–1 to 10)

Description Select the process value or calculated value to be monitored for limit violation.

Selection
- Off
- Level 1
- Level 2
- Flow 1
- Flow 2
- Level 1 + Level 2
- Average level
- Level 1 - Level 2
- Level 2 - Level 1
- Flow 1 + Flow 2
- Average flow
- Flow 1 - Flow 2
- Flow 2 - Flow 1

Factory setting Off

Additional information



151 *Selection of signal source (174)*

Function

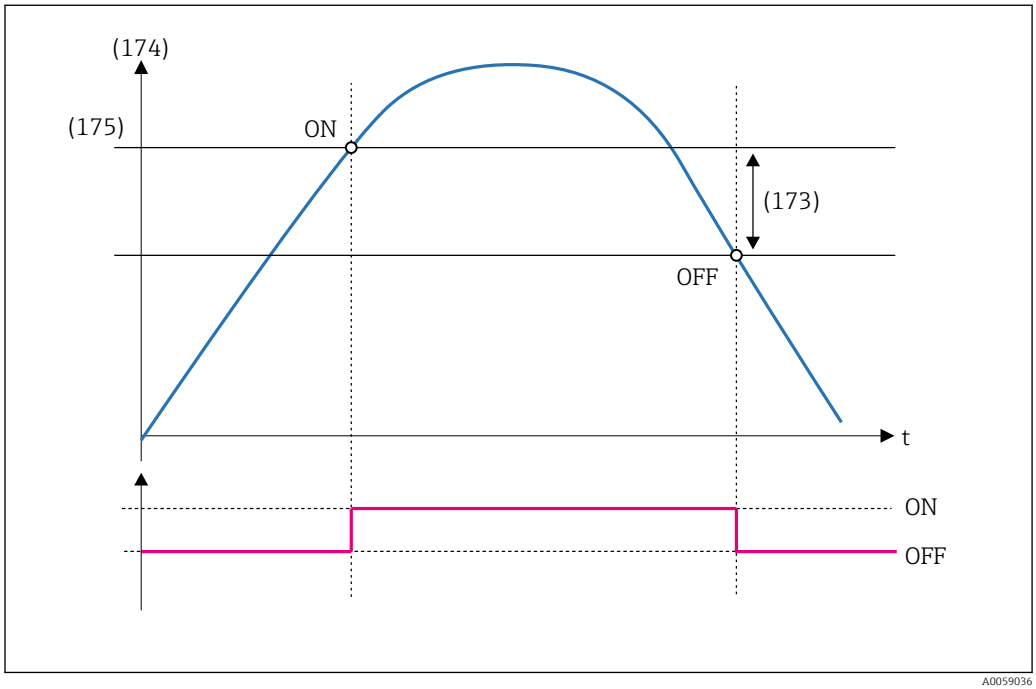
Navigation Application → Limits → Limit 1 to 10 → Function (3020009–1 to 10)

Description Select the limit monitoring function.

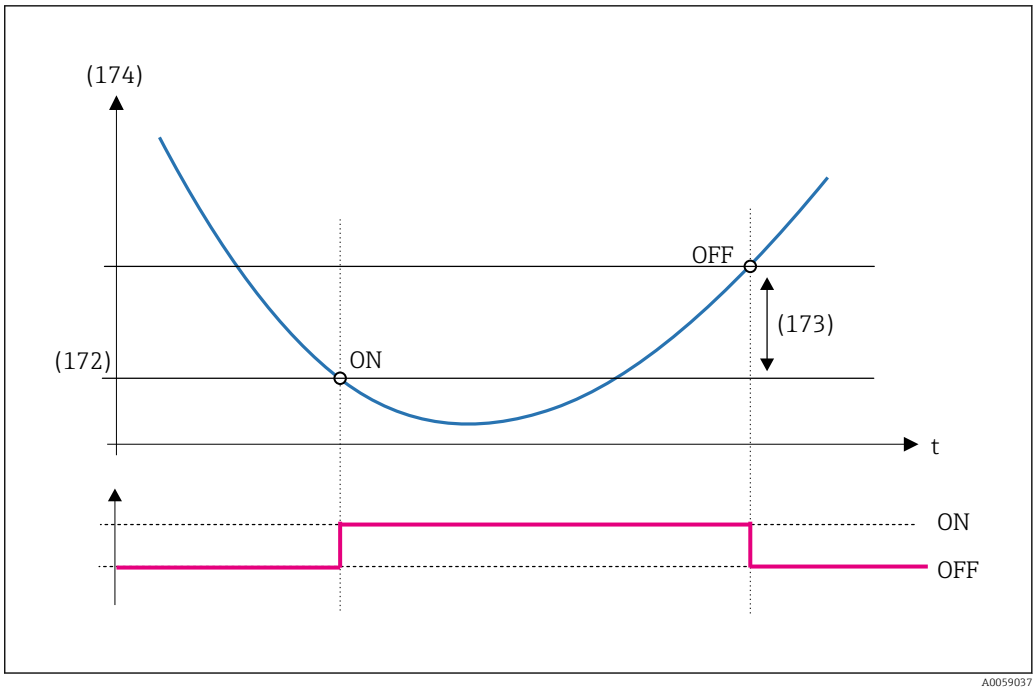
Selection
- Upper limit
- Lower limit
- Inband
- Outband

Factory setting Upper limit

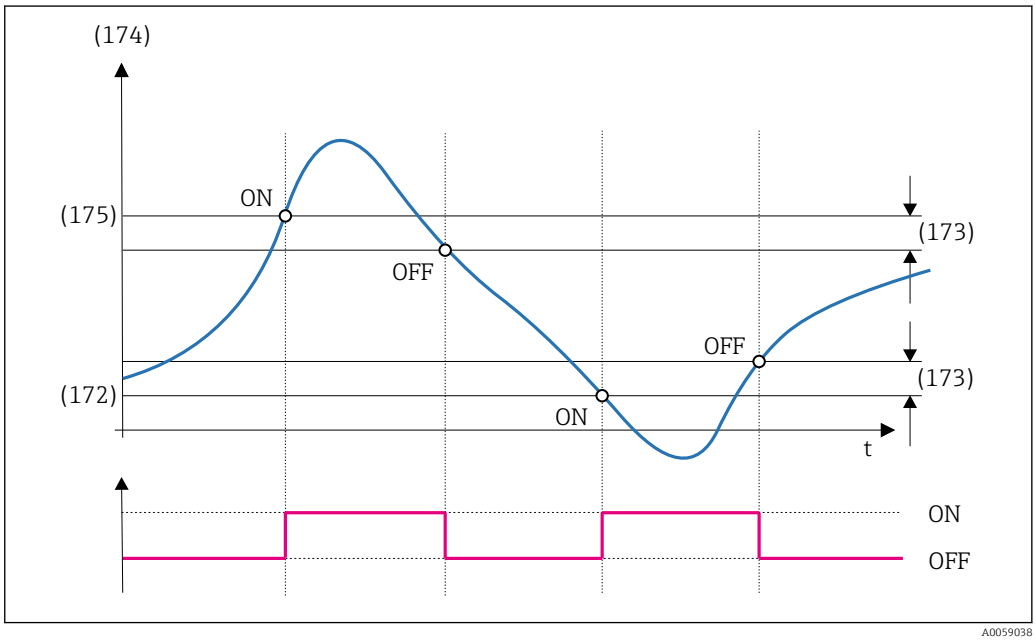
Additional information



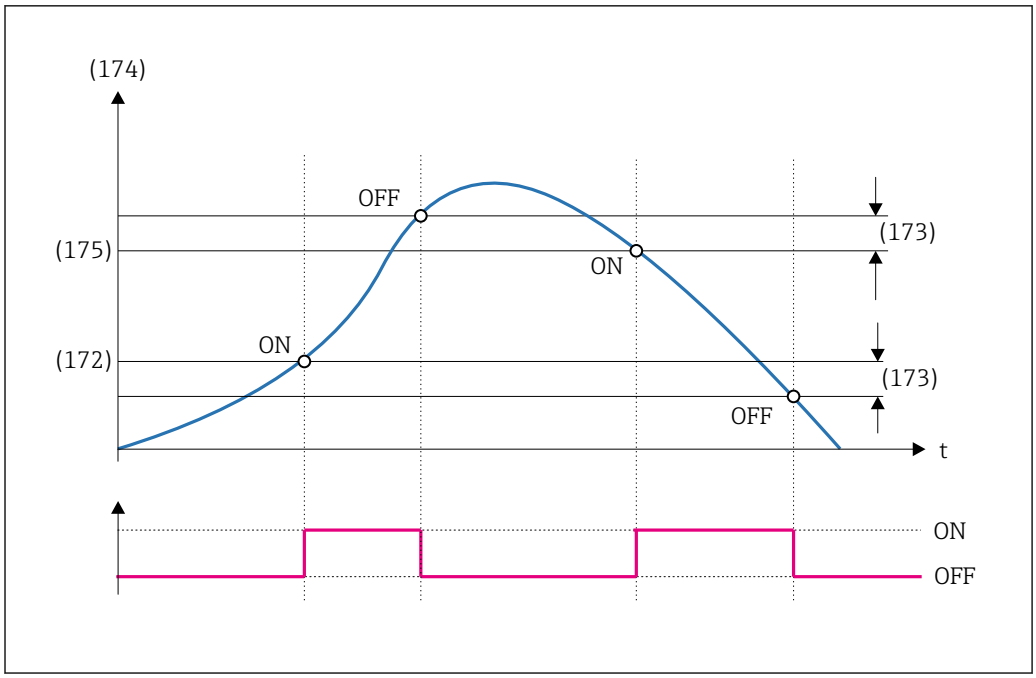
152 *'Upper limit' function*



153 *'Lower limit' function*



154 *'Inband' function*



155 *'Outband' function*

Upper limit

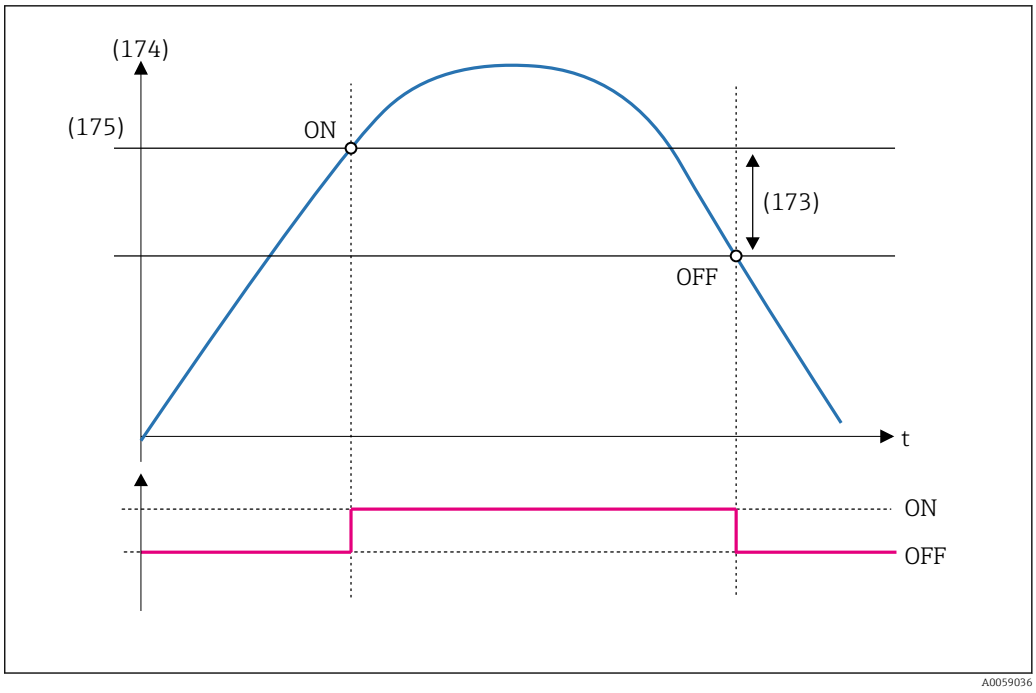
Navigation Application → Limits → Limit 1 to 10 → Upper limit (3020013–1 to 10)

Description Enter the process value that defines the upper limit for the selected function.

User entry Signed floating-point number

Factory setting 0.0

Additional information



156 *Entering upper limit (175)*

Lower limit

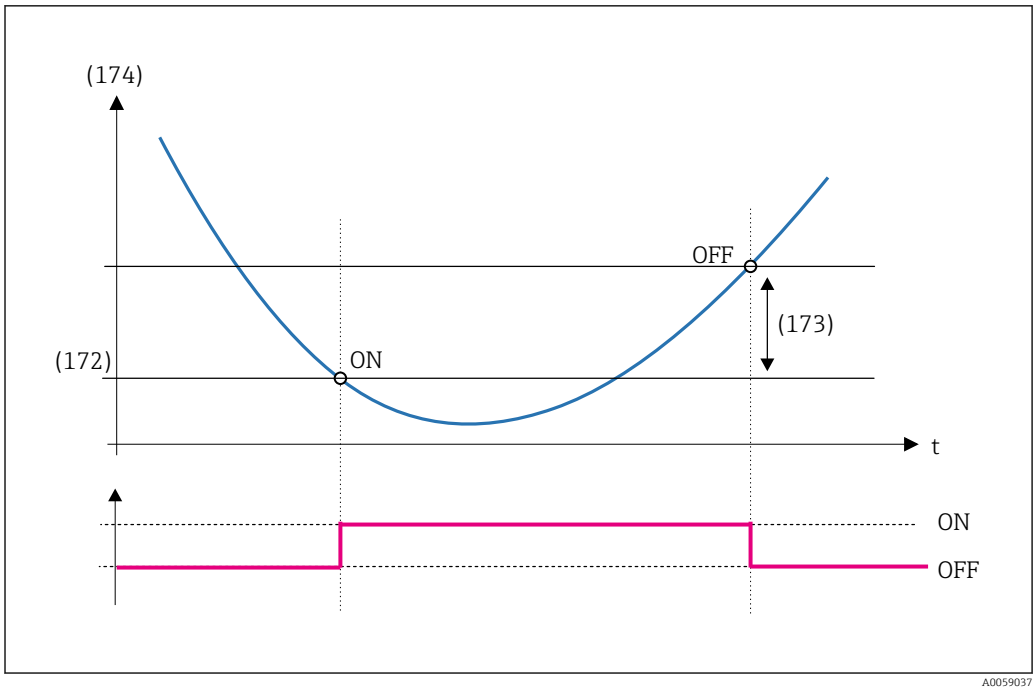
Navigation Application → Limits → Limit 1 to 10 → Lower limit (3020012–1 to 10)

Description Enter the process value that defines the lower limit for the selected function.

User entry Signed floating-point number

Factory setting 0.0

Additional information



157 *Entering lower limit (172)*

Hysteresis

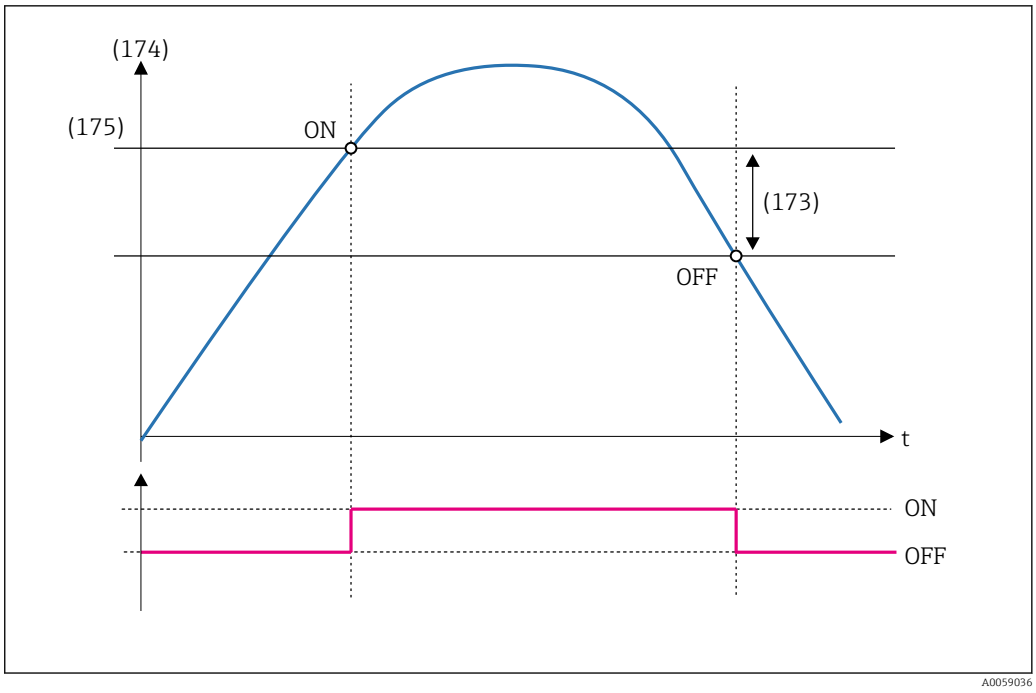
Navigation Application → Limits → Limit 1 to 10 → Hysteresis (3020014–1 to 10)

Description Defines the hysteresis for the entered limit value. The hystersis prevents constant changes of the limit value state if the level is near one of the limit values.

User entry Signed floating-point number

Factory setting 0.0

Additional information



158 *Entering hysteresis (173)*

Delay time

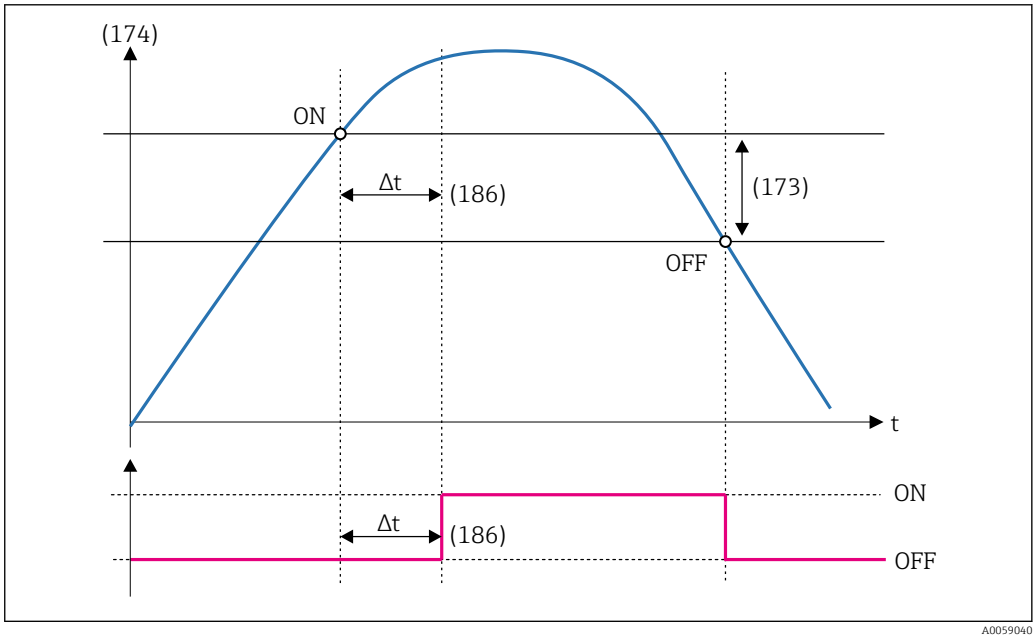
Navigation Application → Limits → Limit 1 to 10 → Delay time (3020015–1 to 10)

Description Enter the time by which the limit value violation is delayed.

User entry 0 to 86 400 s

Factory setting 0 s

Additional information



159 *Entering the time span for the delay time (186).*

Save event

Navigation Application → Limits → Limit 1 to 10 → Save event (3020016–1 to 10)

Description Saving of the limit value violation in the event logbook.

Selection
- No
- Yes
- 'On' message only

Factory setting No

3.3.13 "Current output " submenu

Navigation Application → Current output

"Current output 1 to 2" submenu

Navigation Application → Current output → Current output 1 to 2

Process variable output current

Navigation Application → Current output → Current output 1 to 2 → Process variable output current (2570021–1 to 2)

Description Select the process variable for the current output.

Selection
- Off
- Level 1 linearized
- Level 2 linearized
- Flow 1
- Flow 2
- Level 1 + Level 2
- Average level
- Level 1 - Level 2
- Level 2 - Level 1
- Flow 1 + Flow 2
- Average flow
- Flow 1 - Flow 2
- Flow 2 - Flow 1
- Ratio backwater
- Level upstream
- Level downstream
- Ratio downstream / upstream
- Difference (rake control)

Factory setting Off

Current range output

Navigation Application → Current output → Current output 1 to 2 → Current range output (2570016–1 to 2)

Description Select current range for process value output and upper/lower level for alarm signal.

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)
- 0…20 mA (0…20.5 mA)

Factory setting 4 … 20 mA NE (3.8 … 20.5 mA)

Lower range value output

Navigation Application → Current output → Current output 1 to 2 → Lower range value output (2570028–1 to 2)

Description Enter 4 mA value.

User entry $-3.4 \cdot 10^{+38}$ to 200 000.0

Upper range value output

Navigation Application → Current output → Current output 1 to 2 → Upper range value output (2570029–1 to 2)

Description Enter 20 mA value.

User entry $-3.4 \cdot 10^{+38}$ to 200 000.0

Failure behavior current output

Navigation Application → Current output → Current output 1 to 2 → Failure behavior current output (2570010–1 to 2)

Description Select current output value for alarm condition.

Selection
- Min.
- Max.

Factory setting Min.

Failure current

Navigation Application → Current output → Current output 1 to 2 → Failure current (2570011–1 to 2)

Description Enter current output value in alarm condition.

User entry 21.5 to 22.5 mA

Factory setting 22.5 mA

Output current 1 to 2

Navigation Application → Current output → Current output 1 to 2 → Output current 1 to 2 (2570007–1 to 2)

Description Displays the value currently calculated for the current output.

User interface Signed floating-point number

4 mA trim value

Navigation Application → Current output → Current output 1 to 2 → 4 mA trim value (2570024–1 to 2)

Description Setting of the correction value for the current output at the lower range value 4 mA.

User entry 3.85 to 4.15 mA

Factory setting 4.0 mA

20 mA trim value

Navigation Application → Current output → Current output 1 to 2 → 20 mA trim value (2570025–1 to 2)

Description Setting of the correction value for the current output at the lower range value 4 mA.

User entry 19.85 to 20.15 mA

Factory setting 20.0 mA

3.3.14 "Relay" submenu

Navigation Application → Relay

"Relay 1 to 5" submenu

Navigation Application → Relay → Relay 1 to 5

Description

Navigation Application → Relay → Relay 1 to 5 → Description (2860008–1 to 5)

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

Factory setting Relay 1

Function

Navigation Application → Relay → Relay 1 to 5 → Function (2860009–1 to 5)

Description Setting of relay functions

Selection
- Off
- Alarm
- Switch
- Pulse
- Time pulse

Factory setting Off

Signal source

Navigation Application → Relay → Relay 1 to 5 → Signal source (2860010–1 to 5)

Description Select signal source of the relay when used as a switching output.

Selection
- Off
- Limit 1
- Limit 2
- Limit 3
- Limit 4
- Limit 5
- Limit 6
- Limit 8
- Limit 7

- Limit 9
- Limit 10
- Pump 1
- Pump 2
- Pump 3
- Pump 4
- Pump 5
- Pump 6
- Pump 7
- Pump 8
- Rake control
- Backwater alarm
- Digital input 1
- Digital input 2
- Digital input 3
- Digital input 4
- Flush control channel 1
- Flush control channel 2
- Pump feedback alarm 1
- Pump feedback alarm 2
- Operating hours alarm 1
- Operating hours alarm 2

Factory setting Off

Signal source

Navigation Application → Relay → Relay 1 to 5 → Signal source (2860011–1 to 5)

Selection
- Off
- Flow 1
- Flow 2
- Flow 1 + Flow 2
- Average flow
- Flow 1 - Flow 2
- Flow 2 - Flow 1

Factory setting Off

Invert

Navigation Application → Relay → Relay 1 to 5 → Invert (2860016–1 to 5)

Description Specify the switching direction of the relay.

Selection
- Normally open
- Normally closed

Factory setting Normally open

Value per pulse

Navigation Application → Relay → Relay 1 to 5 → Value per pulse (2860012–1 to 5)

Description Select flow volume after which a pulse is generated.

User entry 0.0001 to 200 000.0

Factory setting 1.0

Pulse time

Navigation Application → Relay → Relay 1 to 5 → Pulse time (2860017–1 to 5)

Description Define the time interval between the individual pulses.

User entry 1 to 65 000 min

Factory setting 1 min

Pulse width

Navigation Application → Relay → Relay 1 to 5 → Pulse width (2860013–1 to 5)

Description Define duration of each individual pulse.

User entry 0.2 to 60.0 s

Factory setting 1.0 s

Reset buffer

Navigation Application → Relay → Relay 1 to 5 → Reset buffer (2860015–1 to 5)

Description Activate reset of the pulse buffer memory.

Selection
- No
- Yes

Factory setting No

3.3.15 "Open collector" submenu

Navigation Application → Open collector

"Open collector 1 to 3" submenu

Navigation Application → Open collector → Open collector 1 to 3

Description

Navigation Application → Open collector → Open collector 1 to 3 → Description (3320008−1 to 3)

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

Factory setting Open collector 1

Function

Navigation Application → Open collector → Open collector 1 to 3 → Function (3320009−1 to 3)

Description Setting of open collector functions

Selection
- Off
- Alarm
- Switch
- Pulse
- Time pulse

Factory setting Off

Signal source

Navigation Application → Open collector → Open collector 1 to 3 → Signal source (3320010−1 to 3)

Description Select signal source of the open collector when used as a switching output.

Selection
- Off
- Limit 1
- Limit 2
- Limit 3
- Limit 4
- Limit 5
- Limit 6

- Limit 8
- Limit 7
- Limit 9
- Limit 10
- Pump 1
- Pump 2
- Pump 3
- Pump 4
- Pump 5
- Pump 6
- Pump 7
- Pump 8
- Rake control
- Backwater alarm
- Digital input 1
- Digital input 2
- Digital input 3
- Digital input 4
- Flush control channel 1
- Flush control channel 2
- Pump feedback alarm 1
- Pump feedback alarm 2
- Operating hours alarm 1
- Operating hours alarm 2

Factory setting Off

Signal source

Navigation Application → Open collector → Open collector 1 to 3 → Signal source (3320011−1 to 3)

Selection
- Off
- Flow 1
- Flow 2
- Flow 1 + Flow 2
- Average flow
- Flow 1 - Flow 2
- Flow 2 - Flow 1

Factory setting Off

Invert

Navigation Application → Open collector → Open collector 1 to 3 → Invert (3320016−1 to 3)

Description Specify the switching direction of the open collector.

Selection
- Normally open
- Normally closed

Factory setting Normally open

Value per pulse

Navigation Application → Open collector → Open collector 1 to 3 → Value per pulse (3320012–1 to 3)

Description Select flow volume after which a pulse is generated.

User entry 0.0001 to 200 000.0

Factory setting 1.0

Pulse time

Navigation Application → Open collector → Open collector 1 to 3 → Pulse time (3320017–1 to 3)

Description Define the time interval between the individual pulses.

User entry 1 to 65 000 min

Factory setting 1 min

Pulse width

Navigation Application → Open collector → Open collector 1 to 3 → Pulse width (3320013–1 to 3)

Description Define duration of each individual pulse.

User entry 0.5 to 60 000.0 ms

Factory setting 200.0 ms

Reset buffer

Navigation Application → Open collector → Open collector 1 to 3 → Reset buffer (3320015–1 to 3)

Selection
- No
- Yes

Factory setting No

3.4 System

Navigation Help

3.4.1 "Device management" submenu

Navigation System → Device management

Device tag

Navigation System → Device management → Device tag (0031)

Description Enter a name for the measuring point to identify the measuring device in the plant.

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

Factory setting - none -

Locking status

Navigation System → Device management → Locking status (0041)

Description Indicates the write protection with the highest priority that is currently active.

User interface
- Hardware locked
- Up-/download active
- Software locked

Device reset

Navigation System → Device management → Device reset (0044)

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

Selection
- --------
- To factory defaults
- To delivery settings

- Restart device
- Reset sensor 1 to factory defaults
- Reset sensor 2 to factory defaults

Factory setting --------

Status

Navigation System → Device management → Status (3310009)

Description Displays the execution progress of the device reset.

User interface
- Idle
- Busy
- Completed

Sensor startup time

Navigation System → Device management → Sensor startup time (3310018)

Description Enter the startup time of the connected sensor. The switch-on process of the device is delayed by the entered time.

User entry 0 to 300 s

Factory setting 30 s

3.4.2 "Security" submenu

Navigation System → Security

"Configuration" submenu

Navigation System → Security → Configuration

Unauthorized access warning

Navigation System → Security → Configuration → Unauthorized access warning (3310011)

User entry Character string comprising numbers, letters and special characters (254)

Factory setting NOTICE: You are accessing a proprietary system that remains the sole property of this organization. Any use of the system may be monitored and audited. Unauthorized access or use of the system is prohibited and may be subject to prosecution.

Service

Navigation System → Security → Configuration → Service (3310015)

Selection
- Off
- On

Factory setting On

Production

Navigation System → Security → Configuration → Production (3310013)

Selection
- Off
- On

Factory setting On

Developer

Navigation System → Security → Configuration → Developer (3310014)

Selection
- Off
- On

Factory setting On

Firmware update

Navigation System → Security → Configuration → Firmware update (3310023)

Selection
- Off
- On

Factory setting Off

RLC button

Navigation System → Security → Configuration → RLC button (3310012)

Description Caution! If the button function is deactivated, it is no longer possible to reset forgotten user accounts or device PINs.

Selection
- Restart
- Reset user accounts + device PINs
- Device reset

"Device PIN" submenu

Navigation System → Security → Device PIN

Current user

Navigation System → Security → Device PIN → Current user (3870128)

Description Displays the currently entered user role.

User interface
- --------
- Operator
- Maintenance
- Expert
- Service
- Production
- Developer

Factory setting --------

"Certificates" submenu

Navigation System → Security → Certificates → Common name 1

Status

Navigation System → Security → Certificates → Common name 1 → Status (3250128)

User interface
- --------
- Not used
- Ok
- Expired
- Revoked

Factory setting --------

Serial number

Navigation System → Security → Certificates → Common name 1 → Serial number (3250007)

User interface Character string comprising numbers, letters and special characters

Certificate signature algorithm

Navigation System → Security → Certificates → Common name 1 → Certificate signature algorithm (3250008)

User interface Character string comprising numbers, letters and special characters

Key usage

Navigation System → Security → Certificates → Common name 1 → Key usage (3250009)

User interface
- Web server authentication
- Web client authentication
- E-mail protection

"Issued for" submenu

Navigation System → Security → Certificates → Common name 1 → Issued for

Subject key identifier

Navigation System → Security → Certificates → Common name 1 → Issued for → Subject key identifier (3250017)

User interface Character string comprising numbers, letters and special characters

Common name

Navigation System → Security → Certificates → Common name 1 → Issued for → Common name (3250010)

User interface Character string comprising numbers, letters and special characters

Factory setting Common name 1

Organization

Navigation System → Security → Certificates → Common name 1 → Issued for → Organization (3250014)

Description Enter the organization to which the certificate applies.

User interface Character string comprising numbers, letters and special characters

Organizational unit

Navigation System → Security → Certificates → Common name 1 → Issued for → Organizational unit (3250015)

Description Enter the organization unit to which the certificate applies.

User interface Character string comprising numbers, letters and special characters

Locality

Navigation System → Security → Certificates → Common name 1 → Issued for → Locality (3250013)

Description Enter the city or locality in which the organization is located.

User interface Character string comprising numbers, letters and special characters

State or province

Navigation System → Security → Certificates → Common name 1 → Issued for → State or province (3250012)

Description Enter the state or region in which the organization operates.

User interface Character string comprising numbers, letters and special characters

Country code

Navigation System → Security → Certificates → Common name 1 → Issued for → Country code (3250011)

Description Select the two-digit country code of the country in which the organization operates.

User interface

- --
- AD : Andorra
- AE : United Arab Emirates
- AF : Afghanistan
- AG : Antigua and Barbuda
- AI : Anguilla
- AL : Albania
- AM : Armenia
- AO : Angola
- AQ : Antarctica
- AR : Argentina
- AS : American Samoa
- AT : Austria
- AU : Australia
- AW : Aruba
- AX : Åland Islands
- AZ : Azerbaijan
- BA : Bosnia and Herzegovina
- BB : Barbados
- BD : Bangladesh
- BE : Belgium
- BF : Burkina Faso
- BG : Bulgaria
- BH : Bahrain
- BI : Burundi

- BJ : Benin
- BL : Saint Barthélemy
- BM : Bermuda
- BN : Brunei Darussalam
- BO : Bolivia, Plurinational State of
- BQ : Bonaire, Sint Eustatius and Saba
- BR : Brazil
- BS : Bahamas
- BT : Bhutan
- BV : Bouvet Island
- BW : Botswana
- BY : Belarus
- BZ : Belize
- CA : Canada
- CC : Cocos (Keeling) Islands
- CD : Congo, the Democratic Republic of the
- CF : Central African Republic
- CG : Congo
- CH : Switzerland
- CI : Côte d'Ivoire
- CK : Cook Islands
- CL : Chile
- CM : Cameroon
- CN : China
- CO : Colombia
- CR : Costa Rica
- CU : Cuba
- CV : Cabo Verde
- CW : Curaçao
- CX : Christmas Island
- CY : Cyprus
- CZ : Czechia
- DE : Germany
- DJ : Djibouti
- DK : Denmark
- DM : Dominica
- DO : Dominican Republic
- DZ : Algeria
- EC : Ecuador
- EE : Estonia
- EG : Egypt
- EH : Western Sahara
- ER : Eritrea
- ES : Spain
- ET : Ethiopia
- FI : Finland
- FJ : Fiji
- FK : Falkland Islands
- FM : Micronesia
- FO : Faroe Islands
- FR : France
- GR : Greece
- GB : United Kingdom of Great Britain and Northern Ireland
- GA : Gabon
- GP : Guadeloupe
- GE : Georgia
- GF : French Guiana
- GN : Guinea
- GM : Gambia

- GD : Grenada
- GG : Guernsey
- GH : Ghana
- GI : GI
- GL : Greenland
- GQ : Equatorial Guinea
- GS : South Georgia and the South Sandwich Islands
- GT : Guatemala
- GU : Guam
- GW : Guinea-Bissau
- GY : Guyana
- HK : Hong Kong
- HM : Heard Island and McDonald Islands
- HN : Honduras
- HR : Croatia
- HT : Haiti
- HU : Hungary
- IL : Israel
- IE : Ireland
- ID : Indonesia
- IM : Isle of Man
- IN : India
- IO : British Indian Ocean Territory
- IQ : Iraq
- IR : Iran
- IS : Iceland
- IT : Italy
- JE : Jersey
- JM : Jamaica
- JO : Jordan
- JP : Japan
- KH : Cambodia
- KG : Kyrgyzstan
- KE : Kenya
- KI : Kiribati
- KM : Comoros
- KN : Saint Kitts and Nevis
- KP : Korea
- KR : Korea
- KW : Kuwait
- KY : Cayman Islands
- KZ : Kazakhstan
- LU : Luxembourg
- LI : Liechtenstein
- LC : Saint Lucia
- LB : Lebanon
- LA : Lao People's Democratic Republic
- LK : Sri Lanka
- LR : Liberia
- LS : Lesotho
- LT : Lithuania
- LV : Latvia
- LY : Libya
- MH : Marshall Islands
- ME : Montenegro
- MD : Moldova
- MC : Monaco
- MA : Morocco
- MF : Saint Martin

- MG : Madagascar
- MK : North Macedonia
- ML : Mali
- MM : Myanmar
- MN : Mongolia
- MO : Macao
- MP : Northern Mariana Islands
- MQ : Martinique
- MR : Mauritania
- MS : Montserrat
- MT : Malta
- MU : Mauritius
- MV : Maldives
- MW : Malawi
- MX : Mexico
- MY : Malaysia
- MZ : Mozambique
- NE : Niger
- NF : Norfolk Island
- NG : Nigeria
- NC : New Caledonia
- NA : Namibia
- NI : Nicaragua
- NL : Netherlands
- NO : Norway
- NP : Nepal
- NR : Nauru
- NU : Niue
- NZ : New Zealand
- OM : Oman
- PA : Panama
- PE : Peru
- PF : French Polynesia
- PG : Papua New Guinea
- PH : Philippines
- PK : Pakistan
- PL : Poland
- PM : Saint Pierre and Miquelon
- PN : Pitcairn
- PR : Puerto Rico
- PS : Palestine
- PT : Portugal
- PW : Palau
- PY : Paraguay
- QA : Qatar
- RE : Réunion
- RO : Romania
- RS : Serbia
- RU : Russian Federation
- RW : Rwanda
- SA : Saudi Arabia
- SB : Solomon Islands
- SC : Seychelles
- SD : Sudan
- SE : Sweden
- SG : Singapore
- SH : Saint Helena, Ascension and Tristan da Cunha
- SI : Slovenia
- SJ : Svalbard and Jan Mayen

- SK : Slovakia
- SL : Sierra Leone
- SM : San Marino
- SN : Senegal
- SO : Somalia
- SR : Suriname
- SS : South Sudan
- ST : Sao Tome and Principe
- SV : El Salvador
- SX : Sint Maarten
- SY : Syrian Arab Republic
- SZ : Eswatini
- TC : Turks and Caicos Islands
- TD : Chad
- TJ : Tajikistan
- TK : Tokelau
- TL : Timor-Leste
- TM : Turkmenistan
- TN : Tunisia
- TR : Turkey
- TT : Trinidad and Tobago
- TF : French Southern Territories
- TG : Togo
- TH : Thailand
- TO : Tonga
- TV : Tuvalu
- TW : Taiwan
- TZ : Tanzania
- UA : Ukraine
- UG : Uganda
- UM : United States Minor Outlying Islands
- US : United States of America
- UY : Uruguay
- UZ : Uzbekistan
- VA : Holy See
- VC : Saint Vincent and the Grenadines
- VE : Venezuela
- VG : Virgin Islands
- VI : Virgin Islands
- VN : Viet Nam
- VU : Vanuatu
- WF : Wallis and Futuna
- WS : Samoa
- YE : Yemen
- YT : Mayotte
- ZA : South Africa
- ZM : Zambia
- ZW : Zimbabwe

Factory setting --

Email

Navigation System → Security → Certificates → Common name 1 → Issued for → Email (3250016)

User interface Character string comprising numbers, letters and special characters

"Issued by" submenu

Navigation System → Security → Certificates → Common name 1 → Issued by

Authority key identifier

Navigation System → Security → Certificates → Common name 1 → Issued by → Authority key identifier (3250025)

User interface Character string comprising numbers, letters and special characters

Common name

Navigation System → Security → Certificates → Common name 1 → Issued by → Common name (3250018)

User interface Character string comprising numbers, letters and special characters

Organizational unit

Navigation System → Security → Certificates → Common name 1 → Issued by → Organizational unit (3250022)

Description Enter the organization unit to which the certificate applies.

User interface Character string comprising numbers, letters and special characters

Organizational unit

Navigation System → Security → Certificates → Common name 1 → Issued by → Organizational unit (3250023)

Description Enter the organization unit to which the certificate applies.

User interface Character string comprising numbers, letters and special characters

State or province

Navigation System → Security → Certificates → Common name 1 → Issued by → State or province (3250020)

Description Enter the state or region in which the organization operates.

User interface Character string comprising numbers, letters and special characters

Locality

Navigation System → Security → Certificates → Common name 1 → Issued by → Locality (3250021)

Description Enter the city or locality in which the organization is located.

User interface Character string comprising numbers, letters and special characters

Country code

Navigation System → Security → Certificates → Common name 1 → Issued by → Country code (3250019)

Description Select the two-digit country code of the country in which the organization operates.

User interface

- --
- AD : Andorra
- AE : United Arab Emirates
- AF : Afghanistan
- AG : Antigua and Barbuda
- AI : Anguilla
- AL : Albania
- AM : Armenia
- AO : Angola
- AQ : Antarctica
- AR : Argentina
- AS : American Samoa

- AT : Austria
- AU : Australia
- AW : Aruba
- AX : Åland Islands
- AZ : Azerbaijan
- BA : Bosnia and Herzegovina
- BB : Barbados
- BD : Bangladesh
- BE : Belgium
- BF : Burkina Faso
- BG : Bulgaria
- BH : Bahrain
- BI : Burundi
- BJ : Benin
- BL : Saint Barthélemy
- BM : Bermuda
- BN : Brunei Darussalam
- BO : Bolivia, Plurinational State of
- BQ : Bonaire, Sint Eustatius and Saba
- BR : Brazil
- BS : Bahamas
- BT : Bhutan
- BV : Bouvet Island
- BW : Botswana
- BY : Belarus
- BZ : Belize
- CA : Canada
- CC : Cocos (Keeling) Islands
- CD : Congo, the Democratic Republic of the
- CF : Central African Republic
- CG : Congo
- CH : Switzerland
- CI : Côte d'Ivoire
- CK : Cook Islands
- CL : Chile
- CM : Cameroon
- CN : China
- CO : Colombia
- CR : Costa Rica
- CU : Cuba
- CV : Cabo Verde
- CW : Curaçao
- CX : Christmas Island
- CY : Cyprus
- CZ : Czechia
- DE : Germany
- DJ : Djibouti
- DK : Denmark
- DM : Dominica
- DO : Dominican Republic
- DZ : Algeria
- EC : Ecuador
- EE : Estonia
- EG : Egypt
- EH : Western Sahara
- ER : Eritrea
- ES : Spain
- ET : Ethiopia
- FI : Finland

- FJ : Fiji
- FK : Falkland Islands
- FM : Micronesia
- FO : Faroe Islands
- FR : France
- GR : Greece
- GB : United Kingdom of Great Britain and Northern Ireland
- GA : Gabon
- GP : Guadeloupe
- GE : Georgia
- GF : French Guiana
- GN : Guinea
- GM : Gambia
- GD : Grenada
- GG : Guernsey
- GH : Ghana
- GI : GI
- GL : Greenland
- GQ : Equatorial Guinea
- GS : South Georgia and the South Sandwich Islands
- GT : Guatemala
- GU : Guam
- GW : Guinea-Bissau
- GY : Guyana
- HK : Hong Kong
- HM : Heard Island and McDonald Islands
- HN : Honduras
- HR : Croatia
- HT : Haiti
- HU : Hungary
- IL : Israel
- IE : Ireland
- ID : Indonesia
- IM : Isle of Man
- IN : India
- IO : British Indian Ocean Territory
- IQ : Iraq
- IR : Iran
- IS : Iceland
- IT : Italy
- JE : Jersey
- JM : Jamaica
- JO : Jordan
- JP : Japan
- KH : Cambodia
- KG : Kyrgyzstan
- KE : Kenya
- KI : Kiribati
- KM : Comoros
- KN : Saint Kitts and Nevis
- KP : Korea
- KR : Korea
- KW : Kuwait
- KY : Cayman Islands
- KZ : Kazakhstan
- LU : Luxembourg
- LI : Liechtenstein
- LC : Saint Lucia
- LB : Lebanon

- LA : Lao People's Democratic Republic
- LK : Sri Lanka
- LR : Liberia
- LS : Lesotho
- LT : Lithuania
- LV : Latvia
- LY : Libya
- MH : Marshall Islands
- ME : Montenegro
- MD : Moldova
- MC : Monaco
- MA : Morocco
- MF : Saint Martin
- MG : Madagascar
- MK : North Macedonia
- ML : Mali
- MM : Myanmar
- MN : Mongolia
- MO : Macao
- MP : Northern Mariana Islands
- MQ : Martinique
- MR : Mauritania
- MS : Montserrat
- MT : Malta
- MU : Mauritius
- MV : Maldives
- MW : Malawi
- MX : Mexico
- MY : Malaysia
- MZ : Mozambique
- NE : Niger
- NF : Norfolk Island
- NG : Nigeria
- NC : New Caledonia
- NA : Namibia
- NI : Nicaragua
- NL : Netherlands
- NO : Norway
- NP : Nepal
- NR : Nauru
- NU : Niue
- NZ : New Zealand
- OM : Oman
- PA : Panama
- PE : Peru
- PF : French Polynesia
- PG : Papua New Guinea
- PH : Philippines
- PK : Pakistan
- PL : Poland
- PM : Saint Pierre and Miquelon
- PN : Pitcairn
- PR : Puerto Rico
- PS : Palestine
- PT : Portugal
- PW : Palau
- PY : Paraguay
- QA : Qatar
- RE : Réunion

- RO : Romania
- RS : Serbia
- RU : Russian Federation
- RW : Rwanda
- SA : Saudi Arabia
- SB : Solomon Islands
- SC : Seychelles
- SD : Sudan
- SE : Sweden
- SG : Singapore
- SH : Saint Helena, Ascension and Tristan da Cunha
- SI : Slovenia
- SJ : Svalbard and Jan Mayen
- SK : Slovakia
- SL : Sierra Leone
- SM : San Marino
- SN : Senegal
- SO : Somalia
- SR : Suriname
- SS : South Sudan
- ST : Sao Tome and Principe
- SV : El Salvador
- SX : Sint Maarten
- SY : Syrian Arab Republic
- SZ : Eswatini
- TC : Turks and Caicos Islands
- TD : Chad
- TJ : Tajikistan
- TK : Tokelau
- TL : Timor-Leste
- TM : Turkmenistan
- TN : Tunisia
- TR : Turkey
- TT : Trinidad and Tobago
- TF : French Southern Territories
- TG : Togo
- TH : Thailand
- TO : Tonga
- TV : Tuvalu
- TW : Taiwan
- TZ : Tanzania
- UA : Ukraine
- UG : Uganda
- UM : United States Minor Outlying Islands
- US : United States of America
- UY : Uruguay
- UZ : Uzbekistan
- VA : Holy See
- VC : Saint Vincent and the Grenadines
- VE : Venezuela
- VG : Virgin Islands
- VI : Virgin Islands
- VN : Viet Nam
- VU : Vanuatu
- WF : Wallis and Futuna
- WS : Samoa
- YE : Yemen
- YT : Mayotte

- ZA : South Africa
- ZM : Zambia
- ZW : Zimbabwe

Factory setting --

Email

Navigation System → Security → Certificates → Common name 1 → Issued by → Email (3250024)

User interface Character string comprising numbers, letters and special characters

"Validity period" submenu

Navigation System → Security → Certificates → Common name 1 → Validity period

Issued on

Navigation System → Security → Certificates → Common name 1 → Validity period → Issued on (3250030)

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

Expires on

Navigation System → Security → Certificates → Common name 1 → Validity period → Expires on (3250031)

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

"SHA-256 fingerprints" submenu

Navigation System → Security → Certificates → Common name 1 → SHA-256 fingerprints

Certificate

Navigation System → Security → Certificates → Common name 1 → SHA-256 fingerprints → Certificate (3250064)

User interface Character string comprising numbers, letters and special characters

"Interfaces" submenu

Navigation System → Security → Interfaces

mDNS

Navigation System → Security → Interfaces → mDNS (3310080)

Description Multicast DNS (mDNS) is designed for small networks. Devices can be easily connected to each other in the LAN. The devices share their IP addresses, so there is no need to set up a server or directory.

Selection
- Off
- On

Factory setting Off

3.4.3 "Connectivity" submenu

Navigation System → Connectivity

"Ethernet" submenu

Navigation System → Connectivity → Ethernet

"Configuration" submenu

Navigation System → Connectivity → Ethernet → Configuration

DHCP client

Navigation System → Connectivity → Ethernet → Configuration → DHCP client (170014)

Description Switch the DHCP client functionality on and off.

Selection
- Off
- On

Factory setting On

IP address

Navigation System → Connectivity → Ethernet → Configuration → IP address (170007)

Description Enter the IP address of the device.

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 192.168.1.212

Subnet mask

Navigation System → Connectivity → Ethernet → Configuration → Subnet mask (170011)

Description Enter subnet mask of the device.

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 255.255.255.0

Default gateway

Navigation System → Connectivity → Ethernet → Configuration → Default gateway (170012)

Description Enter IP address for the default gateway of the device.

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 192.168.1.1

IP address domain name server

Navigation System → Connectivity → Ethernet → Configuration → IP address domain name server (170084)

Description Enter the IP address of a DNS server.

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 192.168.1.1

Port

Navigation System → Connectivity → Ethernet → Configuration → Port (170104)

Description Enter TCP/IP communication port (max. 5 digits). If the network is protected by a firewall, this port may have to be released.

User entry 8000 to 8079

Factory setting 8000

"Information" submenu

Navigation System → Connectivity → Ethernet → Information

MAC address

Navigation System → Connectivity → Ethernet → Information → MAC address (170034)

Description Shows the MAC address of the measuring device.

User interface Character string comprising numbers, letters and special characters

IP address

Navigation System → Connectivity → Ethernet → Information → IP address (170078)

User interface Character string comprising numbers, letters and special characters

Factory setting 192.168.1.212

Subnet mask

Navigation System → Connectivity → Ethernet → Information → Subnet mask (170083)

User interface Character string comprising numbers, letters and special characters

Factory setting 255.255.255.0

Default gateway

Navigation System → Connectivity → Ethernet → Information → Default gateway (170082)

User interface Character string comprising numbers, letters and special characters

Factory setting 192.168.1.1

IP address domain name server

Navigation System → Connectivity → Ethernet → Information → IP address domain name server (170085)

User interface Character string comprising numbers, letters and special characters

Factory setting 192.168.1.1

mDNS hostname

Navigation System → Connectivity → Ethernet → Information → mDNS hostname (3310082)

User interface Character string comprising numbers, letters and special characters

"Port information" submenu

Navigation System → Connectivity → Ethernet → Port information

Interface connection status

Navigation System → Connectivity → Ethernet → Port information → Interface connection status (170048)

User interface
- Connected
- Not connected

Factory setting Not connected

Interface speed

Navigation System → Connectivity → Ethernet → Port information → Interface speed (170045)

User interface Positive integer

Factory setting 0 MBit/s

Duplex status

Navigation System → Connectivity → Ethernet → Port information → Duplex status (170047)

User interface
- Full duplex
- Half duplex
- Unknown

Factory setting Unknown

Auto negotiation status

Navigation System → Connectivity → Ethernet → Port information → Auto negotiation status (170046)

User interface
- Idle
- In progress
- Completed
- Failed
- Speed detection failed

Factory setting Idle

Number of received packets

Navigation System → Connectivity → Ethernet → Port information → Number of received packets (170049)

User interface Positive integer

Factory setting 0

Number of sent packets

Navigation System → Connectivity → Ethernet → Port information → Number of sent packets (170050)

User interface Positive integer

Factory setting 0

Number of failed received packets

Navigation System → Connectivity → Ethernet → Port information → Number of failed received packets (170051)

User interface Positive integer

Factory setting 0

Number of failed sent packets

Navigation System → Connectivity → Ethernet → Port information → Number of failed sent packets (170052)

User interface Positive integer

Factory setting 0

"WLAN" submenu

Navigation System → Connectivity → WLAN

"Configuration" submenu

Navigation System → Connectivity → WLAN → Configuration

WLAN

Navigation System → Connectivity → WLAN → Configuration → WLAN (1860012)

Description Activate or deactivate WLAN.

Selection
- Disable
- Enable

Factory setting Enable

WLAN mode

Navigation System → Connectivity → WLAN → Configuration → WLAN mode (1860025)

Description Select WLAN mode.

Selection WLAN access point

Factory setting WLAN access point

SSID name

Navigation System → Connectivity → WLAN → Configuration → SSID name (1860035)

Description Enter the user-defined SSID name (max. 32 characters).

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

Network security

Navigation System → Connectivity → WLAN → Configuration → Network security (1860036)

Description Select the security type of the WLAN interface.

Selection
- WPA2 Personal
- WPA2/WPA3 Personal

Factory setting WPA2 Personal

WLAN passphrase

Navigation System → Connectivity → WLAN → Configuration → WLAN passphrase (1860037)

Description Enter the network key (8 to 32 characters).

User entry Character string comprising numbers, letters and special characters (63)

2.4 GHz WLAN channel

Navigation System → Connectivity → WLAN → Configuration → 2.4 GHz WLAN channel (1860038)

Description Enter WLAN channel for 2.4 GHz.

User entry 1 to 11

Factory setting 6

WLAN IP address

Navigation System → Connectivity → WLAN → Configuration → WLAN IP address (1860039)

Description Enter IP address of the WLAN interface of the device.

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 192.168.2.212

WLAN subnet mask

Navigation System → Connectivity → WLAN → Configuration → WLAN subnet mask (1860040)

Description Enter subnet mask of the WLAN interface of the device.

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 255.255.255.0

Transmit power level

Navigation System → Connectivity → WLAN → Configuration → Transmit power level (1860042)

Description Set the transmit power level of the WLAN signal.

Selection
- Low
- Medium
- High

Factory setting High

Apply

Navigation System → Connectivity → WLAN → Configuration → Apply

Description Click the "Apply" button. All changed WLAN settings will be accepted and activated in the device.

"Information" submenu

Navigation System → Connectivity → WLAN → Information

WLAN MAC address

Navigation System → Connectivity → WLAN → Information → WLAN MAC address (1860013)

Description Displays the MAC address of the WLAN interface of the device.

User interface Character string comprising numbers, letters and special characters

Factory setting FF-FF-FF-FF-FF-FF

"Bluetooth sensor" submenu

Navigation System → Connectivity → Bluetooth sensor

Bluetooth 1 to 2

Navigation System → Connectivity → Bluetooth sensor → Bluetooth 1 to 2 (2830028–1 to 2)

Description Enable or disable Bluetooth function.

Selection
- Disable
- Enable

Factory setting Enable

"HART master" submenu

Navigation System → Connectivity → HART master

HART master

Navigation System → Connectivity → HART master → HART master (3340007)

Selection
- Primary master
- Secondary master

Factory setting Secondary master

No. of preambles

Navigation System → Connectivity → HART master → No. of preambles (3340008)

User entry 3 to 20

Factory setting 5

3.4.4 "Web server" submenu

Navigation System → Web server

Web server functionality

Navigation System → Web server → Web server functionality (170036)

Description Activate or deactivate webserver function (http or https)

http: unencrypted data transfer, recommended only for internal network.

https: encrypted data transfer between web browser and device, higher data security.

Selection
- Off
- On (http and https)
- On (https only)

Factory setting On (http and https)

Port

Navigation System → Web server → Port (170081)

Description Enter TCP/IP communication port (max. 5 digits). If the network is protected by a firewall, this port may have to be released.

User entry 80 to 4 999

Factory setting 80

Port https

Navigation System → Web server → Port https (170114)

Description Enter TCP/IP communication port (max. 5 digits). If the network is protected by a firewall, this port may have to be released.

User entry 81 to 4 999

Factory setting 443

3.4.5 "Display" submenu

Navigation System → Display

Brightness

Navigation System → Display → Brightness (160107)

Description Adjust brightness.

User entry 10 to 100 %

Factory setting 70 %

Language

Navigation System → Display → Language (160024)

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)
- Bahasa Indonesia
- čeština (Czech)

Factory setting English

Separator

Navigation System → Display → Separator (160031)

Description Select decimal separator for displaying numerical values.

Selection
- .
- ,

Factory setting ,

Switch off display

Navigation System → Display → Switch off display (160108)

Description Without operating the display it is automatically switched off after the set time.

Selection
- Never
- after 10 min.
- after 20 min.
- after 30 min.
- after 1 h.

Factory setting Never

Display on

Navigation System → Display → Display on (160109)

Description Selection of the diagnostic event at which the display switches on automatically.

Selection
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Limit value violation

Operating lock

Navigation System → Display → Operating lock (160127)

Description Without operating the display it is automatically locked after the set time.

To unlock, tap the screen and trace the specified sequence of dots with your finger, starting with the arrow.

Selection
- Never
- after 2 min.
- after 5 min.
- after 10 min.
- after 15 min.

Factory setting Never

Color scheme

Navigation System → Display → Color scheme (160079)

Description Select preferred color scheme.

Selection
- Light
- Dark

Factory setting Dark

3.4.6 "Date/time" submenu

Navigation System → Date/time

"Properties" submenu

Navigation System → Date/time → Properties

Date/time

Navigation System → Date/time → Properties → Date/time (2850008)

Description Shows the entered date and time.

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

Factory setting 0

"Daylight saving time changeover" submenu

Navigation System → Date/time → Daylight saving time changeover

Mode

Navigation System → Date/time → Daylight saving time changeover → Mode (2850020)

Description Function of summer / normal time changeover.

Selection
- Off
- User-defined
- Automatic Europe
- Automatic USA

Factory setting Automatic Europe

"Begin daylight saving time" submenu

Navigation System → Date/time → Daylight saving time changeover → Begin daylight saving time

Occurrence

Navigation System → Date/time → Daylight saving time changeover → Begin daylight saving time → Occurrence (2850022)

Description Day in the selected month, when the changeover from standard time to daylight saving time takes place in spring.

Selection
- 1.
- 2.
- 3.
- 4.
- Last

Factory setting Last

Day

Navigation System → Date/time → Daylight saving time changeover → Begin daylight saving time → Day (2850023)

Description Day of the week when the changeover from standard time to daylight saving time takes place in spring.

Selection
- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

Factory setting Sunday

Month

Navigation System → Date/time → Daylight saving time changeover → Begin daylight saving time → Month (2850024)

Description Month when the changeover from standard time to daylight saving time takes place in spring.

Selection
- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

Factory setting March

Time

Navigation System → Date/time → Daylight saving time changeover → Begin daylight saving time → Time (2850025)

Description Point in time at which on the day of the changeover from standard time to daylight saving time the clock is advanced by 1 hour.

User entry 00:00 to 24:00

Factory setting 02:00

Next changeover

Navigation System → Date/time → Daylight saving time changeover → Begin daylight saving time → Next changeover (2850026)

Description Displays the date when the daylight saving time changeover is performed next spring.

User interface Character string comprising numbers, letters and special characters

"End daylight saving time" submenu

Navigation System → Date/time → Daylight saving time changeover → End daylight saving time → Occurrence (2850031)

Occurrence

Navigation System → Date/time → Daylight saving time changeover → End daylight saving time → Occurrence (2850031)

Description Day of the week when the changeover from daylight saving time to standard time takes place in autumn.

Selection
- 1.
- 2.
- 3.
- 4.
- Last

Factory setting Last

Day

Navigation System → Date/time → Daylight saving time changeover → End daylight saving time → Day (2850032)

Description Day of the week when the changeover from daylight saving time to standard time takes place in autumn.

Selection
- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

Factory setting Sunday

Month

Navigation System → Date/time → Daylight saving time changeover → End daylight saving time → Month (2850033)

Description Month when the changeover from daylight saving time to standard time takes place in autumn.

Selection
- January
- February
- March
- April
- May
- June
- July
- August
- September
- October
- November
- December

Factory setting October

Time

Navigation System → Date/time → Daylight saving time changeover → End daylight saving time → Time (2850034)

Description Point in time at which on the day of the changeover from daylight saving time to standard time the clock is set back by 1 hour.

User entry 00:00 to 24:00

Factory setting 03:00

Next changeover

Navigation System → Date/time → Daylight saving time changeover → End daylight saving time → Next changeover (2850035)

Description Displays the date when the daylight saving time to standard time changeover is performed next autumn.

User interface Character string comprising numbers, letters and special characters

"Set date/time for local display" submenu

Navigation System → Date/time → Set date/time for local display

Time zone

Navigation System → Date/time → Set date/time for local display → Time zone (2850013)

Description Select time zone.

Selection
- (UTC-12:00) Baker Island
- (UTC-11:00) Midway Island, Samoa
- (UTC-10:00) Hawaii
- (UTC-09:30) Marquesas Islands
- (UTC-09:00) Alaska
- (UTC-08:00) Los Angeles, Vancouver
- (UTC-07:00) Denver, Phoenix
- (UTC-06:00) Chicago, Mexico City
- (UTC-05:00) New York, Toronto
- (UTC-04:00) Caracas, La Paz
- (UTC-03:30) Newfoundland
- (UTC-03:00) Buenos Aires, Brasilia
- (UTC-02:00) Mid Atlantic
- (UTC-01:00) Cape Verde
- (UTC+00:00) London, Lisbon
- (UTC+01:00) Berlin, Rome, Paris
- (UTC+02:00) Athens, Cairo, Kyiv
- (UTC+03:00) Kuwait, Moscow
- (UTC+03:30) Tehran
- (UTC+04:00) Abu Dhabi, Tiflis
- (UTC+04:30) Kabul
- (UTC+05:00) Islamabad, Karachi
- (UTC+05:30) New Delhi
- (UTC+05:45) Kathmandu
- (UTC+06:00) Astana, Dhaka
- (UTC+06:30) Pyinmana, Cocos Island
- (UTC+07:00) Bangkok, Jakarta
- (UTC+08:00) Singapore, Beijing
- (UTC+08:45) Australian Central Western
- (UTC+09:00) Seoul, Tokyo

- (UTC+09:30) Adelaide, Darwin
- (UTC+10:00) Brisbane, Canberra
- (UTC+11:00) Magadan, Solomon Islands
- (UTC+12:00) Auckland, Wellington
- (UTC+12:45) Chatham Islands
- (UTC+13:00) Nuku'alofa
- (UTC+14:00) Kiritimati

Factory setting (UTC+00:00) London, Lisbon

Set date

Navigation System → Date/time → Set date/time for local display → Set date (2850010)

Description Set the current date manually if automatic time synchronization is not used.

Factory setting 0

Set time

Navigation System → Date/time → Set date/time for local display → Set time (2850011)

Description Set the current time manually if automatic time synchronization is not used.

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

Factory setting 0

"Time synchronisation" submenu

Navigation System → Date/time → Time synchronisation

NTP

Navigation System → Date/time → Time synchronisation → NTP (2850050)

Description Activate or deactivate automatic date and time sychronization for the device via NTP. If enabled, select the time interval.

Selection
- Off
- Every 15 minutes
- Every 30 minutes
- Once per hour
- Once per day

Factory setting Off

NTP server 1

Navigation System → Date/time → Time synchronisation → NTP server 1 (2850051)

Description Enter the address or IP address of the NTP server. Additional information: The domain name server (DNS) must be configured beforehand.

User entry Character string comprising numbers, letters and special characters (60)

NTP server 2

Navigation System → Date/time → Time synchronisation → NTP server 2 (2850052)

Description Displays the automatically determined IP address of the NTP server. Additional information: DHCP must be enabled for this.

User interface Character string comprising numbers, letters and special characters

3.4.7 "Geolocation" submenu

Navigation System → Geolocation

Process Unit Tag

Navigation System → Geolocation → Process Unit Tag (2160030)

Description Enter the process unit in which the device is installed.

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

Factory setting ????????????????????????????????

Location Description

Navigation System → Geolocation → Location Description (2160031)

Description Enter a description of the location so that the device can be located in.

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

Factory setting ????????????????????????????????

Longitude

Navigation System → Geolocation → Longitude (2160032)

Description Enter the longitude coordinates that describe the device location.

User entry −180.0 to 180.0 °

Factory setting 0.0 °

Latitude

Navigation System → Geolocation → Latitude (2160033)

Description Enter the latitude coordinates that describe the device location.

User entry −90.0 to 90.0 °

Factory setting 0.0 °

Altitude

Navigation System → Geolocation → Altitude (2160034)

Description Enter the altitude data that describe the device location.

User entry Signed floating-point number

Factory setting 0.0 m

Location method

Navigation System → Geolocation → Location method (2160035)

Description Select the data format for specifying the geographic location.

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

Factory setting Manual input mode

3.4.8 "Information" submenu

Navigation System → Information

Device name

Navigation System → Information → Device name (0020)

Description Shows the name of the transmitter.

User interface Character string comprising numbers, letters and special characters

Factory setting FMA90

Manufacturer

Navigation System → Information → Manufacturer (0023)

Description Displays the manufacturer.

User interface Character string comprising numbers, letters and special characters

Factory setting Endress+Hauser

Serial number

Navigation System → Information → Serial number (0027)

Description Shows the serial number of the measuring device.

User interface Character string comprising numbers, letters and special characters

Order code

Navigation System → Information → Order code (0030)

Description Shows the device order code.

User interface Character string comprising numbers, letters and special characters

Firmware version

Navigation System → Information → Firmware version (0024)

Description Shows the device firmware version installed.

User interface Character string comprising numbers, letters and special characters

Extended order code 1

Navigation System → Information → Extended order code 1 (0050)

Description Shows the 1st part of the extended order code.

User interface Character string comprising numbers, letters and special characters

Extended order code 2

Navigation System → Information → Extended order code 2 (0051)

Description Shows the 2nd part of the extended order code.

User interface Character string comprising numbers, letters and special characters

Extended order code 3

Navigation System → Information → Extended order code 3 (0052)

Description Shows the 3rd part of the extended order code.

User interface Character string comprising numbers, letters and special characters

XML build number

Navigation System → Information → XML build number (0066)

User interface Positive integer

Device firmware revision extension

Navigation System → Information → Device firmware revision extension (0026)

Description Displays the optional extension of the device firmware version.

User interface Character string comprising numbers, letters and special characters

Battery voltage

Navigation System → Information → Battery voltage (3310256)

Description Shows the currently applied battery supply voltage.

User interface Signed floating-point number

"Sensor 1 to 2" submenu

Navigation System → Information → Sensor 1 to 2

Manufacturer ID

Navigation System → Information → Sensor 1 to 2 → Manufacturer ID (3370010−1 to 2)

Description Displays the connected sensor's manufacturer ID registered with the HART FieldComm Group.

User interface 0 to 65 535

Factory setting 0

Manufacturer

Navigation System → Information → Sensor 1 to 2 → Manufacturer (3370011−1 to 2)

Description Displays the manufacturer.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????????????????????

Device name

Navigation System → Information → Sensor 1 to 2 → Device name (3370013−1 to 2)

Description Displays the device name of the connected sensor. It can also be found on the nameplate.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????

Serial number

Navigation System → Information → Sensor 1 to 2 → Serial number (3370047−1 to 2)

Description Displays the serial number of the connected sensor. It can be used to identify the device.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????

Firmware version

Navigation System → Information → Sensor 1 to 2 → Firmware version (3370049−1 to 2)

Description Displays the firmware version of the connected sensor.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????

Hardware revision

Navigation System → Information → Sensor 1 to 2 → Hardware revision (3370048−1 to 2)

Description Displays the hardware revision of the device.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????

Order ident

Navigation System → Information → Sensor 1 to 2 → Order ident (3370050−1 to 2)

Description Displays information to the order ident of the connected Endress+Hauser sensor.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????????

Extended order code 1

Navigation System → Information → Sensor 1 to 2 → Extended order code 1 (3370051)

Description Shows the 1st part of the extended order code.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????????

Extended order code 2

Navigation System → Information → Sensor 1 to 2 → Extended order code 2 (3370052)

Description Shows the 2nd part of the extended order code.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????????

Extended order code 3

Navigation System → Information → Sensor 1 to 2 → Extended order code 3 (3370053)

Description Shows the 3rd part of the extended order code.

User interface Character string comprising numbers, letters and special characters

Factory setting ??????????????????

Device ID

Navigation System → Information → Sensor 1 to 2 → Device ID (3370014–1 to 2)

User interface Positive integer

Factory setting 0

Device type

Navigation System → Information → Sensor 1 to 2 → Device type (3370012–1 to 2)

Description Displays the device type of the connected sensor if the manufacturer is not Endress +Hauser.

User interface 0 to 65 535

Factory setting 0

"CPU" submenu

Navigation System → Information → CPU

Operating system

Navigation System → Information → CPU → Operating system (3310200)

User interface Character string comprising numbers, letters and special characters

WLAN

Navigation System → Information → CPU → WLAN (1860057)

User interface Character string comprising numbers, letters and special characters

Application

Navigation System → Information → CPU → Application (3310201)

User interface Character string comprising numbers, letters and special characters

Local-HMI

Navigation System → Information → CPU → Local-HMI (3310202)

User interface Character string comprising numbers, letters and special characters

Web-HMI

Navigation System → Information → CPU → Web-HMI (3310203)

User interface Character string comprising numbers, letters and special characters

Web-HMI server

Navigation System → Information → CPU → Web-HMI server (3310205)

User interface Character string comprising numbers, letters and special characters

D-Bus

Navigation System → Information → CPU → D-Bus (3310204)

User interface Character string comprising numbers, letters and special characters

Hardware version

Navigation System → Information → CPU → Hardware version (3310037)

Description Displays the hardware version of the module.

User interface Character string comprising numbers, letters and special characters

"Power supply" submenu

Navigation System → Information → Power supply

Module name

Navigation System → Information → Power supply → Module name (10023)

Description Shows the name of the module.

User interface Character string comprising numbers, letters and special characters

Serial number

Navigation System → Information → Power supply → Serial number (10024)

Description Shows the serial number of the module.

User interface Character string comprising numbers, letters and special characters

Part number

Navigation System → Information → Power supply → Part number (10021)

User interface Character string comprising numbers, letters and special characters

Hardware version

Navigation System → Information → Power supply → Hardware version (10020)

Description Displays the hardware version of the module.

User interface Character string comprising numbers, letters and special characters

Firmware version

Navigation System → Information → Power supply → Firmware version (10048)

Description Displays the firmware version of the module.

User interface Character string comprising numbers, letters and special characters

Build no. firmware

Navigation System → Information → Power supply → Build no. firmware (10054)

Description Shows the build number of the module firmware.

User interface Character string comprising numbers, letters and special characters

Bootloader revision

Navigation System → Information → Power supply → Bootloader revision (10059)

User interface Character string comprising numbers, letters and special characters

"Slot 1 … 2" submenu

Navigation System → Information → Slot 1 … 2

Module name

Navigation System → Information → Slot 1 … 2 → Module name (10023)

Description Shows the name of the module.

User interface Character string comprising numbers, letters and special characters

Serial number

Navigation System → Information → Slot 1 … 2 → Serial number (10024)

Description Shows the serial number of the module.

User interface Character string comprising numbers, letters and special characters

Part number

Navigation System → Information → Slot 1 … 2 → Part number (10021)

User interface Character string comprising numbers, letters and special characters

Hardware version

Navigation System → Information → Slot 1 … 2 → Hardware version (10020)

Description Displays the hardware version of the module.

User interface Character string comprising numbers, letters and special characters

"Firmware 1 … 2" submenu

Navigation System → Information → Slot 1 … 2 → Firmware 1 … 2

Firmware version

Navigation System → Information → Slot 1 … 2 → Firmware 1 … 2 → Firmware version (10048)

Description Displays the firmware version of the module.

User interface Character string comprising numbers, letters and special characters

Build no. firmware

Navigation System → Information → Slot 1 … 2 → Firmware 1 … 2 → Build no. firmware (10054)

Description Shows the build number of the module firmware.

User interface Character string comprising numbers, letters and special characters

Bootloader revision

Navigation System → Information → Slot 1 … 2 → Firmware 1 … 2 → Bootloader revision (10059)

User interface Character string comprising numbers, letters and special characters

3.4.9 "Hardware configuration" submenu

Navigation System → Hardware configuration

Housing style

Navigation System → Hardware configuration → Housing style (3070007)

Description Hardware or software option.

User interface
- DIN rail
- Panel
- Field housing

Display

Navigation System → Hardware configuration → Display (3070008)

Description Hardware or software option.

User interface
- No
- 3,5" TFT Touch

Sensor connection

Navigation System → Hardware configuration → Sensor connection (3070009)

Description Hardware or software option.

User interface
- 1x 4 ... 20 mA
- 2x 4 ... 20 mA

Current output

Navigation System → Hardware configuration → Current output (3070024)

Description Hardware or software option.

User interface
- 1x 4-20mA
- 2x 4-20mA

Digital input

Navigation System → Hardware configuration → Digital input (3070011)

Description Hardware or software option.

User interface
- No
- 4

Open collectors

Navigation System → Hardware configuration → Open collectors (3070012)

Description Hardware or software option.

User interface
- 1
- 3

Relay outputs

Navigation System → Hardware configuration → Relay outputs (3070010)

Description Hardware or software option.

User interface
- 1
- 5

Power supply

Navigation System → Hardware configuration → Power supply (3070014)

Description Hardware or software option.

User interface
- 100-230V (85-253V) AC (50/60Hz)
- 10,5-32V DC

LAN ports

Navigation System → Hardware configuration → LAN ports (3070020)

Description Hardware or software option.

User interface
- Single port
- Dual port

WLAN

Navigation System → Hardware configuration → WLAN (1860022)

Description Displays whether the WLAN option is available.

User interface
- No
- Yes

3.4.10 "Software configuration" submenu

Navigation System → Software configuration

CRC device configuration

Navigation System → Software configuration → CRC device configuration (3310033)

Description Checksum over the device configuration.

User interface Positive integer

Stored CRC device configuration

Navigation System → Software configuration → Stored CRC device configuration (3310034)

Description Last stored configuration checksum. The delivery state is 0xFFFFFFFF, which means that the checksum was never stored.

User interface Positive integer

Timestamp stored CRC device config.

Navigation System → Software configuration → Timestamp stored CRC device config. (3310035)

Description Timestamp when the CRC was last stored.

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

Update CRC device configuration

Navigation System → Software configuration → Update CRC device configuration (3310036)

Selection
- No
- Yes

Factory setting No

Activate SW option

Navigation System → Software configuration → Activate SW option (3070064)

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

User entry Character string comprising numbers, letters and special characters (30)

Application

Navigation System → Software configuration → Application (3070015)

Description Hardware or software option.

User interface Universal

Communication

Navigation System → Software configuration → Communication (3070013)

Description Hardware or software option.

User interface
- No Fieldbus
- HART
- PROFINET
- EtherNet/IP
- Modbus TCP

3.5 Visualization

Navigation Visualization

Add group

Navigation Visualization → Add group

User entry Add a group by clicking on the button.

Delete group

Navigation Visualization → Delete group (3310132)

Description Created groups can be deleted again using the recycle bin icon.

Selection
- No
- Group 1
- Group 2
- Group 3
- Group 4
- Group 5
- Group 6

Factory setting No

3.5.1 "Group 1 to 6" submenu

Navigation Visualization → Group 1 to 6

Description

Navigation Visualization → Group 1 to 6 → Description (3360008–1 to 6)

Description Enter the label for the corresponding visualization group.

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

Factory setting Group 1

Layout

Navigation Visualization → Group 1 to 6 → Layout (3360009–1 to 6)

Description Selection of different design options for displaying measured values in a group. A maximum of 4 process values can be displayed with/without graphics.

Selection
- 1 value
- 1 value + graphic
- 2 values
- 2 values + graphic
- 3 values
- 3 values + graphic
- 4 values
- 4 values + graphic

- 4 values (2x2)
- 1 value large + 1 value small
- 1 value large + 2 values small
- 1 value large + 3 values small

Factory setting 1 value

Graphic format

Navigation Visualization → Group 1 to 6 → Graphic format (3360010–1 to 6)

Description Selection of the format in which the process value graph is displayed.

The format can be selected as a curve diagram or as a vertical bar graph.

Selection
- Chart
- Bargraph vertical

Factory setting Chart

"Value 1 to 4" submenu

Navigation Visualization → Group 1 to 6 → Group 1 to 6 → Value 1 to 4

Process variable 1 to 4

Navigation Visualization → Group 1 to 6 → Group 1 to 6 → Value 1 to 4 → Process variable 1 to 4 (3360020–1 to 4)

Description Selection of the process value to be displayed in the visualization.

Selection
- Off
- Level 1 linearized
- Level 2 linearized
- Flow 1
- Flow 2
- Level 1 + Level 2
- Average level
- Level 1 - Level 2
- Level 2 - Level 1
- Flow 1 + Flow 2
- Average flow
- Flow 1 - Flow 2
- Flow 2 - Flow 1
- Ratio backwater
- Totalizer flow 1
- Totalizer flow 2
- Totalizer flow 1 + 2

- Totalizer average flow
- Totalizer flow 1 - 2
- Totalizer flow 2 - 1
- Level upstream
- Level downstream
- Ratio downstream / upstream
- Difference upstream - downstream
- Digital input 1
- Digital input 2
- Digital input 3
- Digital input 4
- Relay 1
- Relay 2
- Relay 3
- Relay 4
- Relay 5
- Open collector 1
- Open collector 2
- Open collector 3

Factory setting Off

Value 1 to 4 color

Navigation Visualization → Group 1 to 6 → Group 1 to 6 → Value 1 to 4 → Value 1 to 4 color (3360022–1 to 4)

Description Selection of the color in which the associated process variable is displayed in the visualization.

Selection

- Magenta
- Cyan
- Green
- Yellow
- Orange
- Brown
- Blue
- Gray

Factory setting Cyan

3.6 Help

- Product page of the device: Web page for product specifications, documentation, spare parts and accessories.
- Training videos: Web page for application videos, commissioning videos and 'how-to' videos.

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