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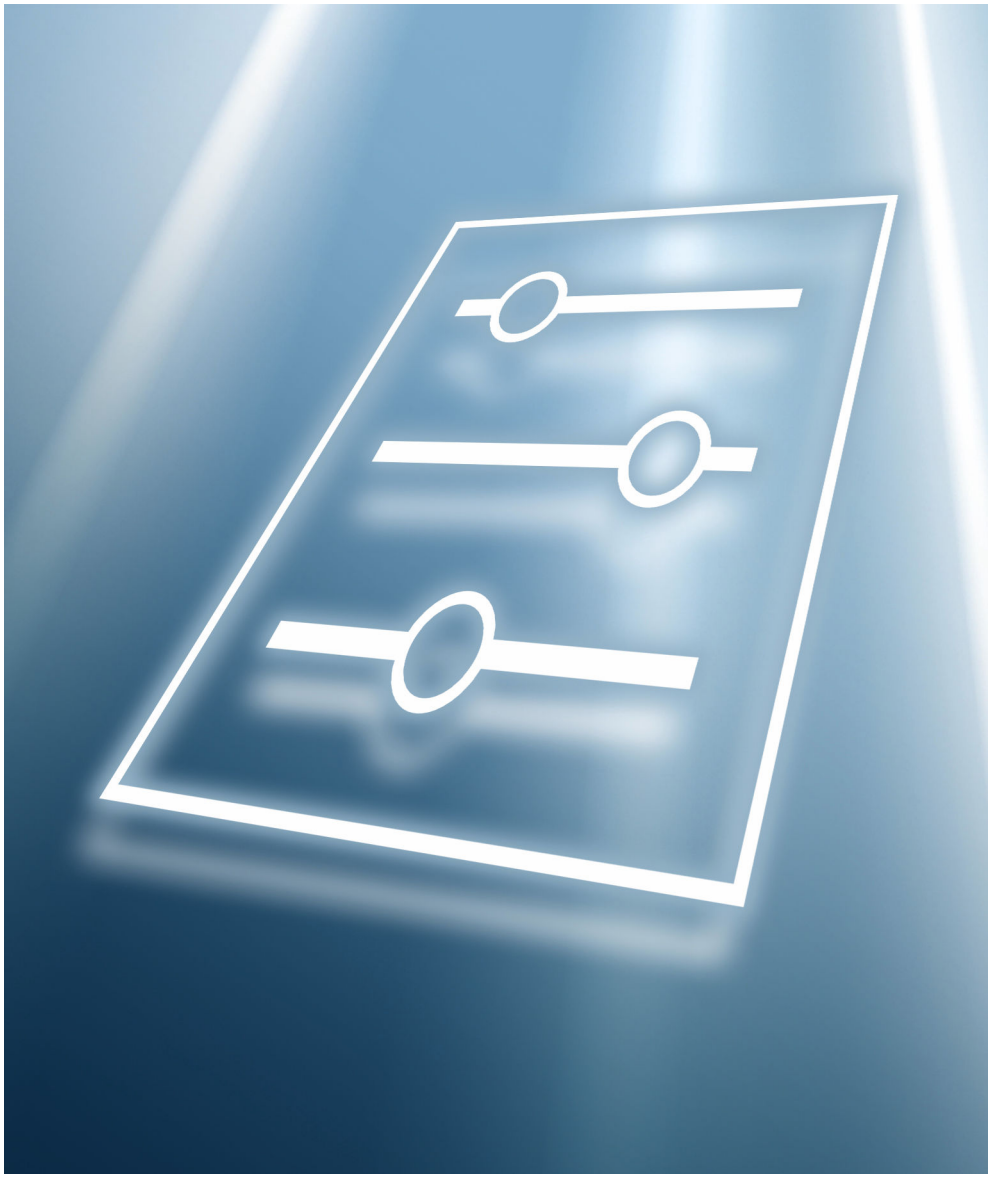
01.00.zz (Device firmware)

Description of Device Parameters
Micropilot FMR60B - FMR67B

Free-space radar
PROFINET over Ethernet-APL

ethernet-apl™
advanced physical layer



Endress+Hauser
People for Process Automation

1 About this document

1.1 Document function

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

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

1.2 Target group

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

1.3 Document structure

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

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

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

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

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

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

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

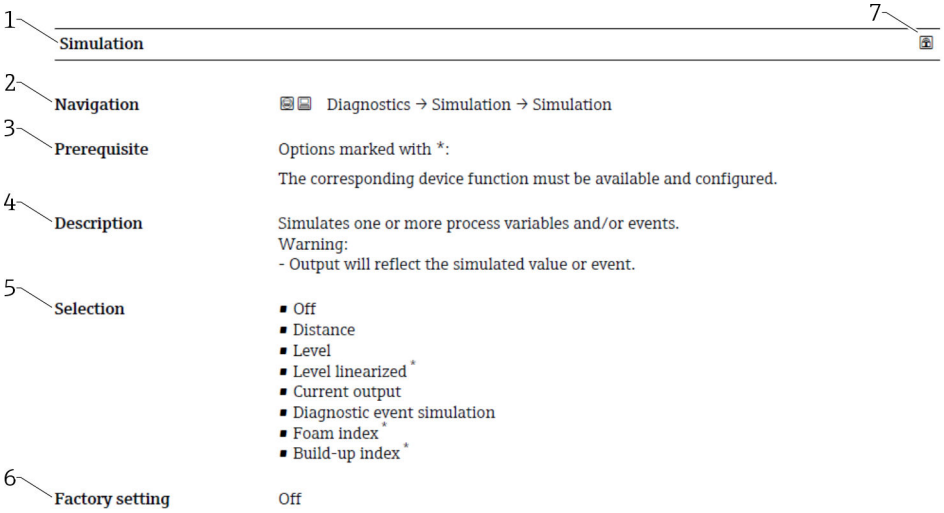
The submenus visible to a user depend on the **User role (→ 79)** they are logged in with. This document lists the submenus and their parameters that are available to the User role **Maintenance**.

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

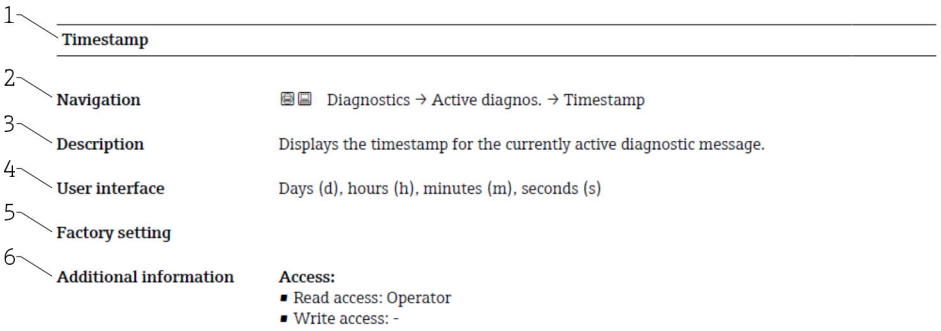
For information on operating options, see the Operating Instructions.

1.4 Elements of parameter descriptions

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



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

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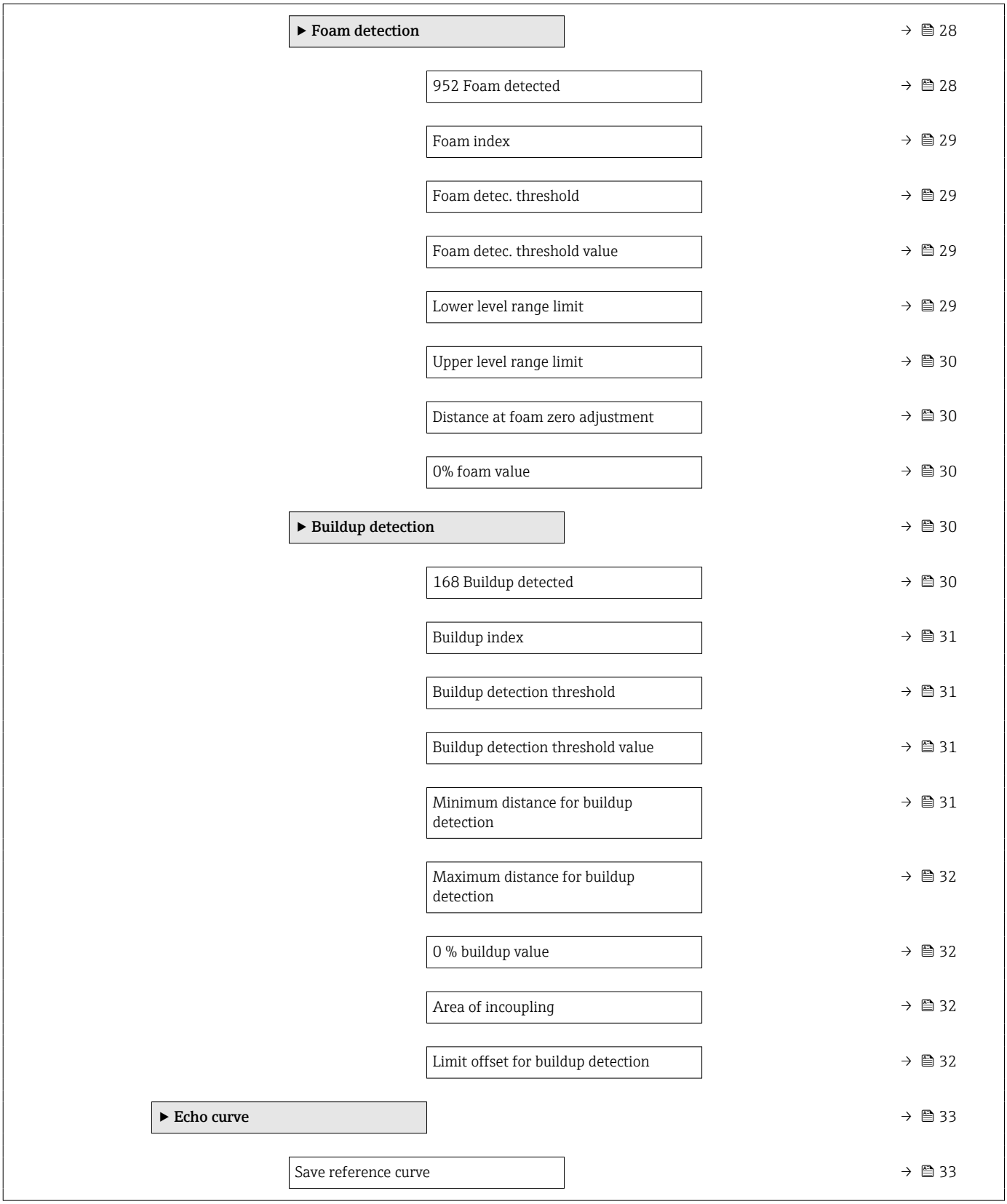
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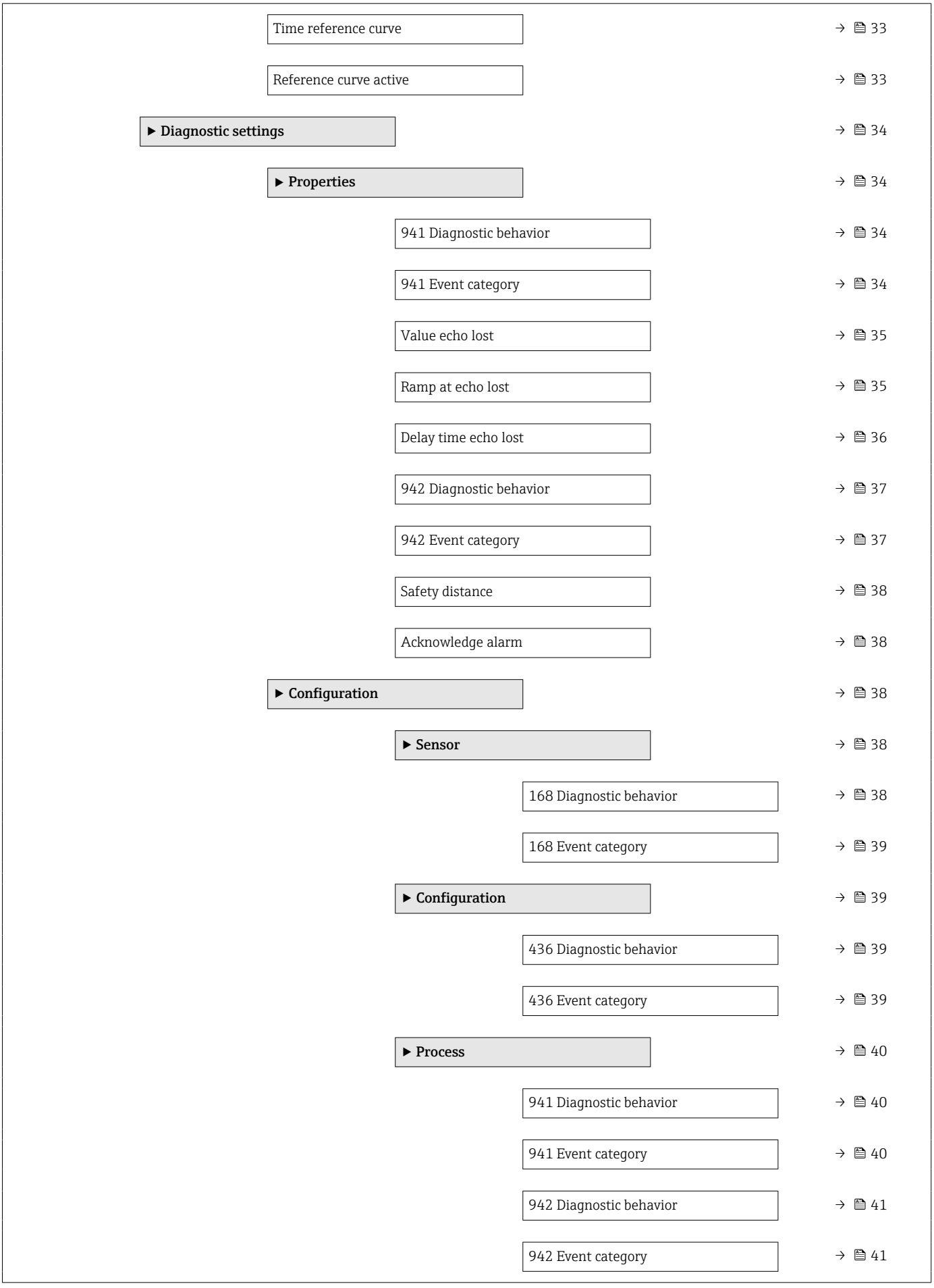
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3 Description of device parameters

3.1 Guidance

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

Navigation Guidance

3.1.1 Overview

The **Guidance** menu contains the following submenus and wizards:
- Commissioning
- Heartbeat Technology
  - Heartbeat Verification
  - Foam detection
  - Buildup detection
- Import / Export
- Compare

3.1.2 Commissioning

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

WARNING

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

Navigation Guidance → Commissioning

Parameters for "Commissioning" wizard

The following parameters are configured in this wizard:
- **Device identification**
  - Device tag
  - Device name
  - Serial number
  - Extended order code 1 ... 3
  - Locking status
  - Time zone
  - Date/time
  - PROFINET device name
  - IP address
  - Descriptor
  - MAC address
  - Device ID
  - Manufacturer ID
- **Measurement adjustments**
  - Level unit
  - Distance unit
  - Temperature unit
  - Bin type
  - Tank type
  - Medium group
  - Empty calibration
  - Full calibration
  - Level
  - Displayed level/distance correct?
  - Show possible signals in?
  - Distance
  - Level
  - Is a linearization required?
  - Linearization type
  - Unit after linearization
  - Maximum value
  - Diameter
  - Intermediate height
  - Level linearized
  - Table mode
  - Table number
  - Level
  - Customer value
  - Activate table
- **Output settings**
  Assign process variable

3.1.3 Heartbeat Technology

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

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

Navigation Guidance → Heartbeat Techn.

Heartbeat Verification

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

Navigation Guidance → Heartbeat Techn. → Heartbeat Verif.

Foam detection

This wizard configures the automatic foam detection.

Foam detection can be linked to an output variable or status information e.g. to control a sprinkler used to dissolve the foam. It is also possible to monitor the foam increase in a so called foam index. The foam index can also be linked to an output variable and can be shown on the display.

Preparation:
The Foam monitoring initialization should only be done without or less foam.

Navigation Guidance → Heartbeat Techn. → Foam detection

Buildup detection

This wizard configures the build-up detection.

Basic idea:
The build-up detection can, for example, be linked to a compressed-air system to clean the antenna.
With the build-up monitoring the maintenance cycles can be optimized.

Preparation:
The build-up monitoring initialization should only be done without or less build-up.

Navigation Guidance → Heartbeat Techn. → Buildup detect.

3.1.4 Import / Export

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

Create configuration report
Device documentation can be saved in PDF format under Create configuration report. This device documentation contains the following general device information:
- Information on device parameters
- Information on Linearization
- Echo curve
- Event list
- Diagnostic list

Navigation Guidance → Import / Export

3.1.5 Compare

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

Navigation Guidance → Compare

3.2 Diagnostics

Navigation Diagnostics

3.2.1 Active diagnostics

Navigation Diagnostics → Active diagnos.

Active diagnostics

Navigation Diagnostics → Active diagnos. → Active diagnos.

Description Displays the currently active diagnostic message.

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

User interface
- Operating time of the device until the event occurs
- Symbol for diagnostic behavior
- Code for diagnostic behavior
- Event text
- Corrective measure

Timestamp

Navigation Diagnostics → Active diagnos. → Timestamp

Description Displays the timestamp for the currently active diagnostic message.

User interface Date, time

Previous diagnostics

Navigation Diagnostics → Active diagnos. → Prev.diagnostics

Description Displays the diagnostic message for the last diagnostic event that has ended.

User interface
- Operating time of the device until the event occurs
- Symbol for diagnostic behavior
- Code for diagnostic behavior
- Event text
- Corrective measure

Timestamp

Navigation Diagnostics → Active diagnos. → Timestamp

Description Displays the timestamp of the diagnostic message generated for the last diagnostic event that has ended.

User interface Date, time

Operating time from restart

Navigation Diagnostics → Active diagnos. → Time fr. restart

Description Indicates how long the device has been in operation since the last time the device was restarted.

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

Operating time

Navigation Diagnostics → Active diagnos. → Operating time

Description Indicates how long the device has been in operation.

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

3.2.2 Diagnostic list

Navigation Diagnostics → Diagnostic list

3.2.3 Event logbook

Navigation Diagnostics → Event logbook

Clear event list

Navigation Diagnostics → Event logbook → Clear event list

Description Delete all entries of the event list.

Selection
- Cancel
- Clear data

Factory setting Cancel

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

3.2.4 Minimum/maximum values

Navigation Diagnostics → Min/max val.

Min. level value

Navigation Diagnostics → Min/max val. → Min. level value

Description Minimum or maximum value measured by device.

User interface Signed floating-point number

Time min. level

Navigation Diagnostics → Min/max val. → Time min. level

User interface Character string comprising numbers, letters and special characters

Max. level value

Navigation Diagnostics → Min/max val. → Max. level value

Description Minimum or maximum value measured by device.

User interface Signed floating-point number

Time max. level

Navigation Diagnostics → Min/max val. → Time max. level

User interface Character string comprising numbers, letters and special characters

Max. draining speed

Navigation Diagnostics → Min/max val. → Max.drain.speed

User interface Positive floating-point number

Factory setting 0.0 %/min

Max. filling speed

Navigation Diagnostics → Min/max val. → Max. fill. speed

User interface Positive floating-point number

Factory setting 0.0 %/min

Counter underfilling

Navigation Diagnostics → Min/max val. → Count underfill.

User interface 0 to 65 535

Factory setting 0

Counter overfilling

Navigation Diagnostics → Min/max val. → Count overfill.

User interface 0 to 65 535

Factory setting 0

Minimum sensor temperature

Navigation Diagnostics → Min/max val. → Min. sensor temp

User interface −150 to 200 °C

Time min. sensor temperature

Navigation Diagnostics → Min/max val. → Time min s. temp

User interface Character string comprising numbers, letters and special characters

Maximum sensor temperature

Navigation Diagnostics → Min/max val. → Max. sensor temp

User interface −150 to 200 °C

Time max. sensor temperature

Navigation Diagnostics → Min/max val. → Time max s. temp

User interface Character string comprising numbers, letters and special characters

Minimum electronics temperature

Navigation Diagnostics → Min/max val. → Min.electr.temp.

Description Minimum or maximum measured main electronics temperature.

User interface Signed floating-point number

Maximum electronics temperature

Navigation Diagnostics → Min/max val. → Max.electr.temp.

Description Minimum or maximum measured main electronics temperature.

User interface Signed floating-point number

Reset min./max.

Navigation Diagnostics → Min/max val. → Reset min/max

Description Resets the drag indicator of the selected process variable.

Selection
- None
- Drain/fill speed
- Level
- Reset all

Factory setting None

3.2.5 Simulation

Navigation Diagnostics → Simulation

Simulation

Navigation Diagnostics → Simulation → Simulation

Prerequisite Selection options marked with *:

The corresponding device function must be available and configured.

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

Warning:
Output will reflect the simulated value or event.

Selection
- Off
- Distance
- Level
- Level linearized *

* Visibility depends on order options or device settings

- Diagnostic event simulation
- Foam index *
- Buildup index *

Factory setting Off

Simulation distance

Navigation Diagnostics → Simulation → Sim distance

Prerequisite Simulation = Distance (→ 44)

User entry –999.9 to 999.9 m

Factory setting 0 m

Buildup index

Navigation Diagnostics → Simulation → Buildup index

Prerequisite Simulation = Buildup index

User entry 0 to 100.0 %

Factory setting 0 %

Foam index

Navigation Diagnostics → Simulation → Foam index

Prerequisite Simulation = Foam index (→ 29)

User entry 0 to 100.0 %

Factory setting 0 %

Process variable value

Navigation Diagnostics → Simulation → Proc. var. value

Prerequisite Simulation = Level linearized (→ 43)

* Visibility depends on order options or device settings

Description Defines the value of the selected variable.
The outputs assume values or states according to this value.

User entry Signed floating-point number

Factory setting 0

Diagnostic event simulation

Navigation Diagnostics → Simulation → Diagnostic event

Prerequisite Simulation = Diagnostic event simulation

Description Select the diagnostic event to be simulated.

Note:
To terminate the simulation, select "Off".

Selection

- Buildup detected
- Foam detected
- Record map
- Dataset different
- Data storage inconsistent
- Data transfer failed
- Date/time incorrect
- Processing download
- Echo lost
- Real time clock defective
- Electronics and HistoROM defective
- Electronics temperature
- Firmware incompatible
- Firmware update failed
- Level limited
- Main electronics defective
- Main electronics faulty
- In safety distance
- Configuration incompatible
- Configuration Sensor Unit invalid
- Linearization faulty
- Module incompatible
- Trim required
- Sensor electronic failure
- Sensor temperature out of range
- Sensor connection faulty

Diagnostic event simulation active
Simulation distance
Failure mode simulation active
Process variable simulation active
Memory content inconsistent
Supply voltage too high
Supply voltage too low

Factory setting Off

3.2.6 Heartbeat Technology

Navigation Diagnostics → Heartbeat Techn.

Heartbeat Verification

Navigation Diagnostics → Heartbeat Techn. → Heartbeat Verif.

Date/time Heartbeat Verification

Navigation Diagnostics → Heartbeat Techn. → Heartbeat Verif. → Date/time Heartbeat Verification

Description Date and time of last Heartbeat Verification.

This value is updated with every Heartbeat verification.

Note:
If time information is not available, e.g. Heartbeat verification is started from display, '--------' is shown.

User interface Character string comprising numbers, letters and special characters

Factory setting 01.01.1970 00:00:00

Operating time (Verification)

Navigation Diagnostics → Heartbeat Techn. → Heartbeat Verif. → Operating time

Description Value of the operating hours counter at the time of verification.

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

Verification result

Navigation Diagnostics → Heartbeat Techn. → Heartbeat Verif. → Verific. result

Description Result of Heartbeat Verification.

User interface
- Not done
- Passed
- Not done
- Failed

Factory setting Not done

Status

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

Description Shows the actual status.

User interface
- Done
- Busy
- Failed
- Not done

Factory setting Not done

Foam detection

Navigation Diagnostics → Heartbeat Techn. → Foam detection

952 Foam detected

Navigation Diagnostics → Heartbeat Techn. → Foam detection → 952 Foam detected

Selection
- Off
- On

Factory setting Off

Foam index

Navigation Diagnostics → Heartbeat Techn. → Foam detection → Foam index

Description Foam index 0% means: no foam.
Foam index 100% means: maximum detectable foam.

User interface 0 to 100 %

Factory setting 0 %

Foam detec. threshold

Navigation Diagnostics → Heartbeat Techn. → Foam detection → Foam threshold

Description Enter the threshold for the foam detection. As soon as the foam index has reached the preset switching point, an event is triggered.

Selection
- Sensitive (20%)
- Middle (40%)
- Insensitive (80%)
- User defined (xx%)

Factory setting Middle (40%)

Foam detec. threshold value

Navigation Diagnostics → Heartbeat Techn. → Foam detection → Foam detect val.

Description User-defined threshold value for the foam detection.

User entry 0 to 100.0 %

Factory setting 40 %

Lower level range limit

Navigation Diagnostics → Heartbeat Techn. → Foam detection → LLR limit

Description Assign lower limit of foam monitoring area.

Factory setting 0 %

Upper level range limit

Navigation Diagnostics → Heartbeat Techn. → Foam detection → ULR limit

Description Assign upper limit of foam monitoring area.

Factory setting 100.0 %

Distance at foam zero adjustment

Navigation Diagnostics → Heartbeat Techn. → Foam detection → Dist. @zero foam

User entry Signed floating-point number

Factory setting 0 m

0% foam value

Navigation Diagnostics → Heartbeat Techn. → Foam detection → 0% foam value

User entry –999 999.9 to 999 999.9 dB

Factory setting 0 dB

Buildup detection

Navigation Diagnostics → Heartbeat Techn. → Buildup detect.

168 Buildup detected

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → 168 Buildup det.

Description Activate or deactivate build-up detection.

Selection
- Off
- On

Factory setting Off

Buildup index

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → Buildup index

Description Build-up index 0% means: no build-up.
Build-up index 100% means: maximum detectable build-up.

User interface 0 to 100 %

Factory setting 0 %

Buildup detection threshold

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → Buildup detec.

Description Enter the threshold for the build-up detection. As soon as the build-up index has reached the preset switching point, an event is triggered.

Selection
- Sensitive (20%)
- Middle (40%)
- Insensitive (80%)
- User defined (xx%)

Factory setting Middle (40%)

Buildup detection threshold value

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → Buildup value

Description User-defined threshold value for the build-up detection.

User entry 0 to 100.0 %

Factory setting 40 %

Minimum distance for buildup detection

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → Min dist buildup

User entry −999.9 to 999.9 m

Factory setting 0 m

Maximum distance for buildup detection

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → Max dist buildup

User entry –999.9 to 999.9 m

Factory setting 1 m

0 % buildup value

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → 0 % buildup val

User entry Positive floating-point number

Factory setting 0

Area of incoupling

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → Area incoupling

Description Ringing integral within the detection area.

User interface Positive floating-point number

Factory setting 0.0

Limit offset for buildup detection

Navigation Diagnostics → Heartbeat Techn. → Buildup detect. → Offset buildup

User entry –999 999.9 to 999 999.9 dB

Factory setting 10 dB

3.2.7 Echo curve

Navigation Diagnostics → Echo curve

Save reference curve

Navigation Diagnostics → Echo curve → Save ref. curve

Selection
- Customer reference curve
- Not active

Factory setting Not active

Additional information

Access:
- Read access: Maintenance
- Write access: Maintenance

Time reference curve

Navigation Diagnostics → Echo curve → Time ref. curve

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

Additional information Timestamp of the recording of the reference curve.

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

Reference curve active

Navigation Diagnostics → Echo curve → Ref.curve active

User interface
- Delivery reference curve available
- Customer reference curve available

Factory setting Customer reference curve available

Additional information The delivery reference curve is recorded at the factory before delivery.

A customer reference curve is recorded as standard at the end of the Guidance → Commissioning . These reference curves can be used for diagnosing problems when troubleshooting.

Access:
- Read access: Maintenance
- Write access: -

3.2.8 Diagnostic settings

Navigation Diagnostics → Diag. settings

Properties

Navigation Diagnostics → Diag. settings → Properties

941 Diagnostic behavior

Navigation Diagnostics → Diag. settings → Properties → 941 Diag. behav.

Description Defines the behavior of the output in case of an echo loss.

"Last valid value'
Last valid value is kept.

"Ramp at echo lost'
Output value is continuously shifted towards 0% or 100%.

"Value echo lost'
Output assumes a defined value.

"Alarm'
Device generates an alarm.

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

Factory setting Last valid value

941 Event category

Navigation Diagnostics → Diag. settings → Properties → 941Event category

User interface
- 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 → Diag. settings → Properties → Value echo lost

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

User entry Signed floating-point number

Factory setting 0 m

Ramp at echo lost

Navigation Diagnostics → Diag. settings → Properties → Ramp echo lost

Description Slope of the ramp in the case of an echo loss.

Note:
If the slope is positive (+), the output increases until it reaches 100%.

If the slope is negative (-), the output decreases until it reaches 0%.

User entry Signed floating-point number

Factory setting 0.0 %/min

Delay echo lost

Navigation Diagnostics → Diag. settings → Properties → Delay echo lost

Description Activate or deactivate the delay time in case of echo loss.
After an echo loss, the device allows the delay time to pass before the reaction defined in parameter "941 Diagnostic behavior" occurs. This way it can be avoided that temporary disturbances interrupt the measurement unnecessarily.

Selection
- Off
- On

Factory setting On

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

Delay time echo lost

Navigation Diagnostics → Diag. settings → Properties → Delay echo lost

Description Time between the echo loss and the reaction defined for the output.

User entry 0 to 99 999.9 s

Factory setting 900 s

Echo jump delay

Navigation Diagnostics → Diag. settings → Properties → Echo jump delay

User entry 0 to 99 999.9 s

Factory setting 60.0 s

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

Echo lost window right

Navigation Diagnostics → Diag. settings → Properties → Echo l.win.right

User entry 0.0 to 99.9 m

Factory setting 4 m

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

Echo lost window left

Navigation Diagnostics → Diag. settings → Properties → Echo l.win.left

User entry 0.0 to 99.0 m

Factory setting 4 m

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

Draining speed

Navigation Diagnostics → Diag. settings → Properties → Draining speed

User entry Signed floating-point number

Factory setting 100 cm/min

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

Filling speed

Navigation Diagnostics → Diag. settings → Properties → Filling speed

User entry Signed floating-point number

Factory setting 100 cm/min

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

942 Diagnostic behavior

Navigation Diagnostics → Diag. settings → Properties → 942 Diag. behav.

Selection
- Off
- Alarm
- Warning
- Self holding

Factory setting Warning

942 Event category

Navigation Diagnostics → Diag. settings → Properties → 942Event category

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

Factory setting Out of specification (S)

Safety distance

Navigation Diagnostics → Diag. settings → Properties → Safety distance

User entry −200.0 to 125 m

Factory setting 0.0 m

Acknowledge alarm

Navigation Diagnostics → Diag. settings → Properties → Acknowl. alarm

Selection
- No
- Yes

Factory setting No

Configuration

Navigation Diagnostics → Diag. settings → Configuration

Sensor

Navigation Diagnostics → Diag. settings → Configuration → Sensor

168 Diagnostic behavior

Navigation Diagnostics → Diag. settings → Configuration → Sensor → 168 Diag. behav.

Description Select event behavior

"Logbook entry only":
No forwarding of the message via the fieldbus.

"Warning": Warning message is transmitted via the fieldbus (default setting).

Regardless of the setting, the message appears on the display. If the permissible conditions are reached again, the warning is no longer available in the instrument.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

168 Event category

Navigation Diagnostics → Diag. settings → Configuration → Sensor → 168Event category

Description

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

Factory setting Maintenance required (M)

Configuration

Navigation Diagnostics → Diag. settings → Configuration → Configuration

436 Diagnostic behavior

Navigation Diagnostics → Diag. settings → Configuration → Configuration → 436 Diag. behav.

Description Select event behavior

"Logbook entry only":
No forwarding of the message via the fieldbus.

"Warning": Warning message is transmitted via the fieldbus (default setting).

Regardless of the setting, the message appears on the display. If the permissible conditions are reached again, the warning is no longer available in the instrument.

Selection
- Warning
- Logbook entry only

Factory setting Warning

436 Event category

Navigation Diagnostics → Diag. settings → Configuration → Configuration → 436 Event category

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

Factory setting Maintenance required (M)

Process

Navigation Diagnostics → Diag. settings → Configuration → Process

941 Diagnostic behavior

Navigation Diagnostics → Diag. settings → Configuration → Process → 941 Diag. behav.

Description Defines the behavior of the output in case of an echo loss.

"Last valid value'
Last valid value is kept.

"Ramp at echo lost'
Output value is continuously shifted towards 0% or 100%.

"Value echo lost'
Output assumes a defined value.

"Alarm'
Device generates an alarm.

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

Factory setting Last valid value

941 Event category

Navigation Diagnostics → Diag. settings → Configuration → Process → 941Event category

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

Factory setting Out of specification (S)

942 Diagnostic behavior

Navigation Diagnostics → Diag. settings → Configuration → Process → 942 Diag. behav.

Selection
- Off
- Alarm
- Warning
- Self holding

Factory setting Warning

942 Event category

Navigation Diagnostics → Diag. settings → Configuration → Process → 942Event category

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

Factory setting Out of specification (S)

952 Diagnostic behavior

Navigation Diagnostics → Diag. settings → Configuration → Process → 952 Diag. behav.

Description Select event behavior

"Logbook entry only":
No forwarding of the message via the fieldbus.

"Warning": Warning message is transmitted via the fieldbus (default setting).

Regardless of the setting, the message appears on the display. If the permissible conditions are reached again, the warning is no longer available in the instrument.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

952 Event category

Navigation Diagnostics → Diag. settings → Configuration → Process → 952Event category

Description Display diagnostic message category.

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

Factory setting Out of specification (S)

3.3 Application

Navigation Application

3.3.1 Measuring units

Navigation Application → Measuring units

Level unit

Navigation Application → Measuring units → Level unit

Description Used to display the level.

User interface

SI units	*US units*
▪ m	▪ ft
▪ mm	▪ in

Factory setting m

Distance unit

Navigation Application → Measuring units → Distance unit

Description Used for the basic calibration (Empty / Full).

Selection

SI units	*US units*
▪ mm	▪ ft
▪ m	▪ in

Factory setting m

Temperature unit

Navigation Application → Measuring units → Temperature unit

Description Select the temperature unit.

Selection

SI units	*US units*
▪ ℃	℉
▪ K	

Factory setting ℃

3.3.2 Measured values

Navigation Application → Measured values

Level linearized

Navigation Application → Measured values → Level linearized

Description Displays the linearized level.

User interface Signed floating-point number

Factory setting 0 %

Level

Navigation Application → Measured values → Level

Description Currently measured level

User interface −99 999.9 to 200 000.0 m

Factory setting 0.0 m

Distance

Navigation Application → Measured values → Distance

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

User interface Signed floating-point number

Factory setting 0 m

Unfiltered distance

Navigation Application → Measured values → Unfiltered dist.

User interface −999 999.9 to 999 999.9 m

Factory setting 0.0 m

Sensor temperature

Navigation Application → Measured values → Sensor temp.

Description Displays the current temperature of the sensor electronics.

User interface −150 to 200 °C

Factory setting −150 °C

Electronics temperature

Navigation Application → Measured values → Electronics temp

Description Displays the current temperature of the main electronics.

User interface Signed floating-point number

Factory setting 0 °C

3.3.3 Sensor

Navigation Application → Sensor

Basic settings

Navigation Application → Sensor → Basic settings

Tank type

Navigation Application → Sensor → Basic settings → Tank type

Description Optimizes the signal filters for the respective tank type.

Note:
"Workbench test" deactivates all filters. This option should exclusively be used for tests.

Selection
- Process vessel standard
- Process vessel with agitator
- Storage vessel
- Sphere
- Open channel
- Stilling well
- Workbench test *

Factory setting Process vessel standard

Bin type

Navigation Application → Sensor → Basic settings → Bin type

Description Optimizes the signal filters for the respective bin type.

Note:
"Workbench test" deactivates all filters. This option should exclusively be used for tests.

Selection
- Silo
- Buffer silo (fast) *
- Bin/Pile *
- Crusher/belt
- Workbench test

Factory setting Silo

* Visibility depends on order options or device settings

Additional information

- Silo: Silo for bulk material (tall and narrow)
- Bunker (wide area): Storage bunker for solids (wide area). Visibility depends on order options or device settings
- Stockpile/Profile measurement: Open stockpile or profile measurement of the stockpile. Visibility depends on order options or device settings
- Crusher/belt: Crusher or conveyor belt. Visibility depends on order options or device settings
- Workbench test: All signal filters are deactivated. This mode should only be used for test purposes.

Empty calibration

Navigation Application → Sensor → Basic settings → Empty calibr.

Description Distance between process connection and minimum level (0 %).

User entry 0.0 to 125.0 m

Factory setting 20 m

Full calibration

Navigation Application → Sensor → Basic settings → Full calibr.

Description Distance between minimum level (0 %) and maximum level (100 %).

User entry 0.001 to 125.0 m

Factory setting 20 m

Maximum draining speed solid

Navigation Application → Sensor → Basic settings → Max.drain solid

Description By selecting the maximum expected filling and draining speed the signal evaluation is automatically optimized for the process.

Note:
The filling and draining speeds can be set separately as the filling and draining procedures may be different.

Note:
With the 'No filter / test' option all signal evaluation filters are deactivated. This option should exclusively be used for tests.

Selection

- Very slow < 0.5m (1.6ft) /h
- Slow < 1 m (3.3 ft)/h
- Standard < 2m (6,5ft) /h

- Medium < 4m (13ft) /h
- Fast < 8m (26ft) /h
- Very fast > 8m (26ft) /h
- No filter / test

Factory setting No filter / test

Maximum filling speed solid

Navigation Application → Sensor → Basic settings → Max. fill. solid

Description By selecting the maximum expected filling and draining speed the signal evaluation is automatically optimized for the process.

Note:
The filling and draining speeds can be set separately as the filling and draining procedures may be different.

Note:
With the 'No filter / test' option all signal evaluation filters are deactivated. This option should exclusively be used for tests.

Selection
- Very slow < 0.5m (1.6ft) /h
- Slow < 1 m (3.3 ft)/h
- Standard < 2m (6,5ft) /h
- Medium < 4m (13ft) /h
- Fast < 8m (26ft) /h
- Very fast > 8m (26ft) /h
- No filter / test

Factory setting No filter / test

Maximum draining speed liquid

Navigation Application → Sensor → Basic settings → Max drain liquid

Description By selecting the maximum expected filling and draining speed the signal evaluation is automatically optimized for the process.

Note:
The filling and draining speeds can be set separately as the filling and draining procedures may be different.

Note:
With the 'No filter / test' option all signal evaluation filters are deactivated. This option should exclusively be used for tests.

Selection
- Slow < 1cm (0.4in) /min
- Medium < 10cm (4in) /min
- Standard < 1m (40in) /min
- Fast < 2m (80in) /min
- Very fast > 2m (80in) /min
- No filter / test

Factory setting Standard < 1m (40in) /min

Maximum filling speed liquid

Navigation Application → Sensor → Basic settings → Max. fill liquid

Description By selecting the maximum expected filling and draining speed the signal evaluation is automatically optimized for the process.

Note:
The filling and draining speeds can be set separately as the filling and draining procedures may be different.

Note:
With the 'No filter / test' option all signal evaluation filters are deactivated. This option should exclusively be used for tests.

Selection
- Slow < 1cm (0.4in) /min
- Medium < 10cm (4in) /min
- Standard < 1m (40in) /min
- Fast < 2m (80in) /min
- Very fast > 2m (80in) /min
- No filter / test

Factory setting Standard < 1m (40in) /min

Tank/silo height

Navigation Application → Sensor → Basic settings → Tank/silo height

Description If the parametrized measuring range (Empty calibration) differs significantly from the tank or silo height, it is recommended to enter the tank or silo height in this parameter.

Example:
Continuous level monitoring in the upper third of a tank or silo.

Note:
For tanks with conical outlet, this parameter should not be changed as in this type of applications "Empty calibration" is usually not << the tank or silo height.

User entry 0 to 125 m

Factory setting 20 m

Damping output

Navigation Application → Sensor → Basic settings → Damping out.

Description The damping is effective before the measured value is further processed, i.e., before the following processes:
- Scaling
- Limit value monitoring
- Forwarding to display
- Forwarding to Analog Input Block

Note:
The Analog Input Block has its own “Damping” parameter. In the measurement chain, only one of the two attenuation parameters shall have a value other than 0.
Otherwise, the signal will be attenuated several times.

User entry 0.0 to 1 200.0 s

Factory setting 0.0 s

Distance

Navigation Application → Sensor → Basic settings → Distance

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

User interface Signed floating-point number

Factory setting 0 m

Confirm distance

Navigation Application → Sensor → Basic settings → Confirm distance

Selection
- Modify map
- Distance ok
- Distance unknown
- Tank empty

Factory setting Distance unknown

Record map

Navigation Application → Sensor → Basic settings → Record map

Selection
- No
- Overlay map
- Delete cust map

Factory setting No

Mapping start point

Navigation Application → Sensor → Basic settings → Map. start point

User entry –999.9 to 999.9 m

Factory setting –0.25 m

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

Mapping end point

Navigation Application → Sensor → Basic settings → Map. end point

Description Defines up to which distance the new mapping has to be recorded.
Remark: Make sure the level signal is not covered by the mapping.

User entry 0.0001 to 125 m

Factory setting 0.1 m

Mapping overlay time

Navigation Application → Sensor → Basic settings → Map overlay time

User entry 0 to 1200 s

Factory setting 5 s

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

Map gap

Navigation Application → Sensor → Basic settings → Map gap

User entry 0 to 100 m

Factory setting 0.235 m

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

End of mapping

Navigation Application → Sensor → Basic settings → End of mapping

Description Defines the behavior of the mapping curve in the tank bottom area.

Selection
- Adjustable
- Last map value

Factory setting Adjustable

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

End map. ampl.

Navigation Application → Sensor → Basic settings → End map. ampl.

Description Amplitude of the mapping curve in the tank bottom area.

User entry −99 999.0 to 99 999.0 dB

Factory setting −100 dB

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

Active map

Navigation Application → Sensor → Basic settings → Active map

Description Select the mapping curve that is to be active. Alternatively, the option "No map" can be selected.

Selection
- Factory map
- Customer map
- No map

Factory setting Factory map

Additional information
- Factory map: The device activates the mapping curve recorded in the factory. This curve cannot be edited or deleted.
- Customer map: If a customer map has been recorded, this can be activated in order to minimize distortions in the application. This curve can be edited.
- No map

Additional settings

Navigation Application → Sensor → Add. settings

Medium type

Navigation Application → Sensor → Add. settings → Medium type

Description Select whether the measured medium is liquid or solid.

Selection
- Liquid
- Solid

Factory setting Liquid

Medium group

Navigation Application → Sensor → Add. settings → Medium group

Description Rough specification of the dielectric constant (DC).

This parameter presets the "Medium property" parameter as follows:

"Others'
->'Medium property" = "Unknown'

"Water based (DC >= 4)'
-> "Medium property" = "DC 4 … 7'

Note:
If "Medium property" is changed afterwards, "Medium group" retains its value. Only "Medium property" is relevant for the signal evaluation.

Note:
The measuring range may be reduced for small dielectric constants. For details refer to the Technical Information (TI) of the respective device.

Selection
- Others
- Water based (DC >= 4)

Factory setting Others

Medium property

Navigation Application → Sensor → Add. settings → Medium property

Description Specify the dielectric costant (DC) of the medium.

Note:
For multiple-phase systems this value refers to the upper medium.

Selection
- Unknown
- DC 1.2 … 1.6
- DC 1.6 … 1.9
- DC 1.9 … 2.5
- DC 2.5 … 4
- DC 4 … 7
- DC 7 … 15
- DC > 15

Factory setting DC 1.9 … 2.5

Upper blank out

Navigation Application → Sensor → Add. settings → Upper blank out

Description This parameter describes a line segment between reference point and close to maximum level (100%). The value is calculated by the device to blanket potentially disturbing signals coming from this space. The value can be adapted manually.

User entry 0.0 to 125 m

Factory setting 0.05 m

Output mode

Navigation Application → Sensor → Add. settings → Output mode

Description Select output mode between:

Ullage =
The remaining space in the tank or silo is indicated.

or

Level linearized =
The level is indicated (more precisely: the linearized value if a linearization has been activated).

Selection
- Ullage
- Level linearized

Factory setting Level linearized

L max. drain speed

Navigation Application → Sensor → Add. settings → L max draining

User entry 0.0 to 50 000.0 %/min

Factory setting 0.0 %/min

Additional information

Access:
- Read access: Expert
- Write access: Expert

L max. fill speed

Navigation Application → Sensor → Add. settings → L max.fill speed

User entry 0.0 to 50 000.0 %/min

Factory setting 0.0 %/min

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

Level limit mode

Navigation Application → Sensor → Add. settings → Level limit mode

Description Determines whether the output value is limited by an upper or lower limit (or by both).

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

Factory setting Low limit

High limit

Navigation Application → Sensor → Add. settings → High limit

Description Defines the upper limit of the output value.

User entry Signed floating-point number

Factory setting 0 m

Low limit

Navigation Application → Sensor → Add. settings → Low limit

Description Defines the lower limit of the output value.

User entry −200 000.0 to 200 000.0 m

Factory setting 0.0 m

Level correction

Navigation Application → Sensor → Add. settings → Level correction

Description The measured level is corrected by this value to compensate for a constant level error.

Level correction > 0:
The level is increased by this value.

Level correction < 0:
The level is decreased by this value.

User entry −200 000.0 to 200 000.0 m

Factory setting 0.0 m

Echo evaluation

Navigation Application → Sensor → Add. settings → Echo evaluation

Echo curve statistic

Navigation Application → Sensor → Add. settings → Echo evaluation → Ec. curve stat.

Description Activate or deactivate the weighted echo curve statistics.

Selection
- Off
- On

Factory setting On

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

Echo curve statistics up

Navigation Application → Sensor → Add. settings → Echo evaluation → EC. stat. up

Description Enter the number of measuring cycles to define the weighting of the last echo curve for ascending signals.

User entry 0 to 30

Factory setting 3

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

Echo curve statistic down

Navigation Application → Sensor → Add. settings → Echo evaluation → ECS in down

Description Enter the number of measuring cycles to define the weighting of the last echo curve for descending signals.

User entry 0 to 30

Factory setting 5

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

Echo curve smoothing mode

Navigation Application → Sensor → Add. settings → Echo evaluation → EC. smooth.mode

Selection
- Off
- SG smoothing
- Symmetric smoothing
- Asymmetric smoothing

Factory setting Symmetric smoothing

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

Echo curve smoothing

Navigation Application → Sensor → Add. settings → Echo evaluation → EC. smoothing

User entry 0.0 to 9.9 m

Factory setting 0 m

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

FAC offset

Navigation Application → Sensor → Add. settings → Echo evaluation → FAC offset

Description Enter offset of the weighting curve.

User entry −9 999.0 to 9 999.0 dB

Factory setting 12 dB

Additional information

Access:
- Read access: Expert
- Write access: Expert

FAC window size

Navigation Application → Sensor → Add. settings → Echo evaluation → FAC window size

Description Enter width of the weighting curve window.

User entry 0.0 to 9.9 m

Factory setting 1.6 m

Additional information

Access:
- Read access: Expert
- Write access: Expert

Max Value EWC

Navigation Application → Sensor → Add. settings → Echo evaluation → Max Value EWC

Description Enter maximum amplitude of the weighting curve.

User entry −9 999.0 to 9 999.0 dB

Factory setting 100 dB

Additional information

Access:
- Read access: Expert
- Write access: Expert

First echo factor

Navigation Application → Sensor → Add. settings → Echo evaluation → First echo fact.

Description Enter width of the first echo band.

User entry 0.0 to 100.0 dB

Factory setting 10 dB

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

Parabolic fit window size

Navigation Application → Sensor → Add. settings → Echo evaluation → Parab fit window

User entry 0.0 to 9.9 m

Factory setting 0.12 m

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

Tank bottom range

Navigation Application → Sensor → Add. settings → Echo evaluation → TB range

Description Defines the range in which the tank bottom echo is searched for.
The Tank bottom range extends downward and starts at level 0% (Empty calibration). It ends at the entered value.

Note: If the level 0% (Empty calibration) is far above the tank or silo bottom, the Tank bottom range starts at the entered Tank/silo height.

User entry 0.0 to 312.5 m

Factory setting 15 m

Min. amplitude TBD

Navigation Application → Sensor → Add. settings → Echo evaluation → Min. ampl. TBD

Description Enter the minimum amplitude for tank bottom detection.

User entry 0 to 9 999.0 dB

Factory setting 3 dB

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

Lower level area

Navigation Application → Sensor → Add. settings → Echo evaluation → Lower level area

Description Enter lower level area.

In this defined range, the first echo band is lowered to the weighting curve.

User entry 0 to 125 m

Factory setting 1 m

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

Evaluation mode

Navigation Application → Sensor → Add. settings → Echo evaluation → Evaluation mode

Description Defines the evaluation mode for the echo tracking.

Selection
- FlexTracking
- FlexTracking - Weak signals
- FixTracking
- FixTracking - Weak signals

Factory setting FlexTracking

Reset evaluation

Navigation Application → Sensor → Add. settings → Echo evaluation → Reset evaluation

Description Restarts level determination.

Selection
- Reset done
- Yes

Factory setting Reset done

Window size tracking

Navigation Application → Sensor → Add. settings → Echo evaluation → Wind.size track.

User entry 0.0 to 20.5 m

Factory setting 0.500 m

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

Maximal track counter

Navigation Application → Sensor → Add. settings → Echo evaluation → Max track count

User entry 0 to 100

Factory setting 2

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

Debug parameter index

Navigation Application → Sensor → Add. settings → Echo evaluation → Debug parm. idx

User entry 0 to 65 535

Factory setting 2

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

Debug array index

Navigation Application → Sensor → Add. settings → Echo evaluation → Debug array indx

User entry 0 to 255

Factory setting 0

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

Status

Navigation Application → Sensor → Add. settings → Echo evaluation → Status

User entry 0 to 255

Factory setting 0

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

Debug value

Navigation Application → Sensor → Add. settings → Echo evaluation → Debug value

User interface Signed floating-point number

Factory setting 4.0

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

Debug value integer32

Navigation Application → Sensor → Add. settings → Echo evaluation → Debug val. int32

User interface Positive integer

Factory setting 0

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

Linearization

Navigation Application → Sensor → Linearization

Linearization type

Navigation Application → Sensor → Linearization → Lineariz. type

Description Select type of linearization.

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

Factory setting Linear

Unit after linearization

Navigation Application → Sensor → Linearization → Unit lineariz.

Description Defines the unit of the linearized value.

Note:
The selected unit is only used to be indicated on the display. The measured value is not transformed according to the selected unit.

Note:
If "Free text" is selected, an additional parameter "Free text" appears in which the designation of the unit can be defined.

Selection

SI units
- STon
- t
- kg
- cm^3
- dm^3
- m^3
- hl
- l
- m
- mm
- %

US units
- lb
- UsGal
- ft^3
- ft
- in

Imperial units
impGal

Custom-specific units
Free text

Factory setting %

Free text

Navigation Application → Sensor → Linearization → Free text

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

Factory setting Free text

Level linearized

Navigation Application → Sensor → Linearization → Level linearized

Description Displays the linearized level.

User interface Signed floating-point number

Factory setting 0 %

Maximum value

Navigation Application → Sensor → Linearization → Maximum value

Description Linearized value corresponding to a level of 100 %.

User entry −200 000 to 200 000.0 %

Factory setting 100.0 %

Diameter

Navigation Application → Sensor → Linearization → Diameter

Description Diameter of the spherical tank or horizontal cylinder tank.

User entry 0.001 to 125 m

Factory setting 20 m

Intermediate height

Navigation Application → Sensor → Linearization → Intermed. height

Description Height of the pyramid, conical or angled bottom

User entry 0.0 to 125 m

Factory setting 0.0 m

Table mode

Navigation Application → Sensor → Linearization → Table mode

Description Defines the editing mode of the linearization table.

"Manual'
The level and the associated linearized value are entered manually for each linearization point.

"Semiautomatic'
The level is measured by the device for each linearization point. The associated linearized value is entered manually.

"Clear table'
Deletes the existing linearization table.

"Sort table'
Rearranges the linerization points into an ascending order.

Note:
DeviceCare and FieldCare contain a graphical tool for the easy creation of a linearization table.
Device Care: "Additional functions" -> "Linearization table'
FieldCare: "Device Operation" -> "Device Functions" -> "Additional functions" -> "Linearization table"

Selection
- Manual
- Semiautomatic *
- Clear table
- Sort table *

Factory setting Manual

Table number

Navigation Application → Sensor → Linearization → Table number

Description Enter or change the table point.

* Visibility depends on order options or device settings

User entry 1 to 32

Factory setting 1

Level

Navigation Application → Sensor → Linearization → Level

Description Enter level value of the table point (value before linearization).

User entry Signed floating-point number

Factory setting 0 m

Level

Navigation Application → Sensor → Linearization → Level

Description Displays measured level (value before linearization). This value is transmitted to the table.

User interface Signed floating-point number

Factory setting 0.0 m

Customer value

Navigation Application → Sensor → Linearization → Customer value

Description Enter linearized value for the table point.

User entry Signed floating-point number

Factory setting 0 %

Activate table

Navigation Application → Sensor → Linearization → Activate table

Description Activate or deactivate table.
The table can only be activated if the table values:
- are present in at least 2 value pairs
- do not exceed the sensor limits
- represent a function which is monotonically ascending or descending

Selection
- Disable
- Enable

Factory setting Disable

Signal information

Navigation Application → Sensor → Signal inform.

Signal quality

Navigation Application → Sensor → Signal inform. → Signal quality

Description Shows the quality of the evaluated level signal.

User interface
- Strong
- Medium
- Weak
- No signal

Factory setting Strong

Absolute echo amplitude

Navigation Application → Sensor → Signal inform. → Abs. echo ampl.

Description Shows the absolute amplitude of the evaluated level signal.

User interface −150.0 to 32.0 dB

Factory setting 0.0 dB

Relative echo amplitude

Navigation Application → Sensor → Signal inform. → Relat.echo ampl.

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

User interface 0.0 to 150.0 dB

Factory setting 0.0 dB

Sensor cycle time

Navigation Application → Sensor → Signal inform. → Sens. cycle time

User interface 0 to 65 535 ms

Factory setting 0 ms

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

Actual IF gain

Navigation Application → Sensor → Signal inform. → Actual IF gain

User interface 0 to 1 000

Factory setting 0

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

3.3.4 PROFINET

Navigation Application → PROFINET

Configuration

Navigation Application → PROFINET → Configuration

PROFINET device name

Navigation Application → PROFINET → Configuration → PROFINET DevName

Description Up to 240 characters are allowed.
The following syntax must be used:
- 1 or more identifiers, separated with [.]
- Identifier length is 1 to 63 characters
- Identifier consists of [a-z 0-9] only lowercase letters and numbers allowed.

Parameter change acknowledge mode

Navigation Application → PROFINET → Configuration → ParaChngAcknMode

Description Select how to acknowledge the displayed flag when changing the device configuration:
- "Auto acknowledge": the flag disappears automatically after 20 seconds.
- "Manual acknowledge": the flag must be acknowledged manually.

Selection
- Auto acknowledge
- Manual acknowledge

Factory setting Auto acknowledge

Acknowledge parameter change

Navigation Application → PROFINET → Configuration → AcknParaChange

Description If the Option "Manual acknowledge" is selected as the acknowledgement type, then a parameter change must be acknowledged with the "Reset update event flag" option.

Selection
- No acknowledge
- Reset update event flag

Factory setting No acknowledge

Descriptor

Navigation Application → PROFINET → Configuration → Descriptor

Description Enter a description for the measuring point

User entry Character string comprising numbers, letters and special characters (54)

Analog input

Navigation Application → PROFINET → Analog input

Analog input 1 to 11

Navigation Application → PROFINET → Analog input → Analog input 1 to 11

Process value

Navigation Application → PROFINET → Analog input → Analog input 1 to 11 → Process value

Description Shows the process value reported to the controller for further processing

User interface Signed floating-point number

Factory setting 0 m

Assign process variable

Navigation Application → PROFINET → Analog input → Analog input 1 to 11 → Assign variable

Description

User interface
- Sensor temperature *
- Electronics temperature *
- Level *
- Distance *
- Volume *
- Relative echo amplitude *
- Percent of range *
- Area of incoupling *

* Visibility depends on order options or device settings

- Absolute echo amplitude *
- Buildup index *
- Foam index *

Factory setting Level

Damping

Navigation Application → PROFINET → Analog input → Analog input 1 to 11 → Damping

Description Enter time constant for input damping (PT1 element). Damping reduces the effect of fluctuations in the measured value on the output signal.

User entry Positive floating-point number

Factory setting 0 s

Simulation value

Navigation Application → PROFINET → Analog input → Analog input 1 to 11 → Simulation value

Description Enter the simulation value for the selected process variable.

User entry Signed floating-point number

Factory setting 0 m

Additional information **Access:**
- Read access: Expert
- Write access: Maintenance

Simulated status

Navigation Application → PROFINET → Analog input → Analog input 1 to 11 → Simulated status

Description To simulate a process status for this block. Possible input values can be taken from the PA profile used, see there under the chapter "Process variable status and diagnosis".

Examples for status values are:

0x80 (decimal 128) for status "GOOD"
0x24 (decimal 36) for status "BAD

* Visibility depends on order options or device settings

User entry 0 to 255

Factory setting 60

Additional information **Access:**
- Read access: Expert
- Write access: Maintenance

Simulation

Navigation Application → PROFINET → Analog input → Analog input 1 to 11 → Simulation

Description Switch simulation of the analog input on or off (Off = 0, On <> 0)

User entry 0 to 255

Factory setting 0

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

Binary input

Navigation Application → PROFINET → Binary input

Binary input 1 to 2

Navigation Application → PROFINET → Binary input → Binary input 1 to 2

Controller input value

Navigation Application → PROFINET → Binary input → Binary input 1 to 2 → ControllInputVal

Description Shows for each device function the state reported to the controller for further processing

User interface 0 to 255

Factory setting 0

Simulation value

Navigation Application → PROFINET → Binary input → Binary input 1 to 2 → Simulation value

Description Enter the simulated state for each device function

User entry 0 to 255

Factory setting 0

Additional information **Access:**
- Read access: Expert
- Write access: Maintenance

Simulated status

Navigation Application → PROFINET → Binary input → Binary input 1 to 2 → Simulated status

Description Specify the status of the simulated state for each device function (Hex)

User entry 0 to 255

Factory setting 60

Additional information **Access:**
- Read access: Expert
- Write access: Maintenance

Simulation

Navigation Application → PROFINET → Binary input → Binary input 1 to 2 → Simulation

Description Switch simulation of the binary input on or off (Off = 0; On <> 0)

User entry 0 to 255

Factory setting 0

Additional information **Access:**
- Read access: Expert
- Write access: Maintenance

Binary output

Navigation Application → PROFINET → Binary output

Set point value	
Navigation	Application → PROFINET → Binary output → Set point value
User entry	0 to 255
Factory setting	0

BO block output value	
Navigation	Application → PROFINET → Binary output → BOBlockOutValue
Description	Shows for each device function the state reported to the measuring device for further processing
User entry	0 to 255
Factory setting	0

Failure behavior	
Navigation	Application → PROFINET → Binary output → Failure behavior
Description	Select failure behavior in the event of a failure (value with status 'Bad')
Selection	▪ Fixed value ▪ Last valid value ▪ Actual value
Factory setting	Fixed value

Failure behavior delay	
Navigation	Application → PROFINET → Binary output → FailBehavDelay
Description	Enter a delay until in the event of a failure (value with status 'Bad') the failure behavior specified applies
User entry	Positive floating-point number

Factory setting 0 s

Fixed value

Navigation Application → PROFINET → Binary output → Fixed value

Description Enter value to report in the event of a failure (value with status 'Bad')

User entry 0 to 255

Factory setting 0

Information

Navigation Application → PROFINET → Information

Device ID

Navigation Application → PROFINET → Information → Device ID

User interface 0 to 65 535

Factory setting 41 409

PA profile version

Navigation Application → PROFINET → Information → PA profile vers.

User interface 0 to 65 535

Factory setting 1 026

Application relation

Navigation Application → PROFINET → Applicat. relat.

AR state

Navigation Application → PROFINET → Applicat. relat. → AR state

Description Shows whether an AR connection and a system redundancy have been established

User interface
- Active
- Not active
- Redundancy 1AR active
- Redundancy 2AR active

Factory setting Not active

MAC address IO controller

Navigation Application → PROFINET → Applicat. relat. → MAC IO contr.

Description Shows the MAC address of the only or of the primary IO controller

User interface Character string comprising numbers, letters and special characters

Factory setting 0x00

MAC address backup IO controller

Navigation Application → PROFINET → Applicat. relat. → MAC backup IO c.

Description Shows the MAC adress of the backup IO controller

User interface Character string comprising numbers, letters and special characters

Factory setting 0x00

IP address IO controller

Navigation Application → PROFINET → Applicat. relat. → IP IO controller

Description Shows the IP address of the only or of the primary IO controller

User interface Character string comprising numbers, letters and special characters

Factory setting 0x00

IP address backup IO controller

Navigation Application → PROFINET → Applicat. relat. → IP backup IO c.

Description Shows the IP adress of the backup IO controller

User interface Character string comprising numbers, letters and special characters

Factory setting 0x00

3.4 System

Navigation System

3.4.1 Device management

Navigation System → Device manag.

Device tag

Navigation System → Device manag. → Device tag

Description Enter a name for the measuring point to identify the measuring device in the plant

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

Locking status

Navigation System → Device manag. → Locking status

Description Indicates the type of locking.

"Hardware locked" (HW)
The device is locked by the "WP" switch on the main electronics module. To unlock, set the switch into the OFF position.

"Temporarily locked" (SW)
The device is temporarily locked by processes in the device (e.g. data upload/download, reset). The device will automatically be unlocked after completion of these processes.

User interface
- Hardware locked
- Temporarily locked

Configuration counter

Navigation System → Device manag. → Config. counter

Description Shows the number of changes made to static parameters (e.g. configuration parameters)

User interface 0 to 65 535

Factory setting 0

Reset device

Navigation System → Device manag. → Reset device

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

Selection
- Cancel
- To factory defaults *
- To delivery settings *
- Restart device

Factory setting Cancel

* Visibility depends on order options or device settings

3.4.2 User management

Navigation System → User manag.

User role

Navigation System → User manag. → User role

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

User interface
- Operator
- Maintenance
- Expert
- Production
- Development

Factory setting Maintenance

Password

Navigation System → User manag. → Password

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

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

Enter access code

Navigation System → User manag. → Ent. access code

Description For authorized service personnel only.

User entry 0 to 9 999

Factory setting 0

Status password entry

Navigation System → User manag. → Status pw entry

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

User interface
- --------
- Wrong password
- Password rule violated
- Password accepted
- Permission denied
- Confirm PW mismatch
- Reset password accepted
- Invalid user role
- Wrong sequence of entry

Factory setting --------

New password

Navigation System → User manag. → New password

Description Define the new "Maintenance" password.
A new password is valid after it has been confirmed within the "Confirm new password" parameter.
Any valid password consists of 4 to 16 characters and can contain letters and numbers.

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

Confirm new password

Navigation System → User manag. → Confirm password

Description Enter the new password again to confirm.

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

Old password

Navigation System → User manag. → Old password

Description Enter the current password, to subsequently change the existing password.

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

Reset password

Navigation System → User manag. → Reset password

Description Enter a code to reset the current "Maintenance" password.
The code is delivered by your local support.

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

3.4.3 Connectivity

Navigation System → Connectivity

Interfaces

Navigation System → Connectivity → Interfaces

Display operation

Navigation System → Connectivity → Interfaces → DisplayOperation

Selection
- Disable
- Enable

Factory setting Enable

Web server functionality

Navigation System → Connectivity → Interfaces → Webserver funct.

Description Switch web server on and off, switch off HTML.

Selection
- Disable
- Enable

Factory setting Enable

Bluetooth activation

Navigation System → Connectivity → Interfaces → Bluetooth active

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

Selection
- Disable
- Enable

Factory setting Enable

Service (UART-CDI)

Navigation System → Connectivity → Interfaces → Service (CDI)

Selection
- Disable
- Enable

Factory setting Enable

Ethernet

Navigation System → Connectivity → Ethernet

MAC address

Navigation System → Connectivity → Ethernet → MAC Address

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 → IP address

Description Enter the IP address of the device. Then accept the change with "Apply ".

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 192.168.1.212

Subnet mask

Navigation System → Connectivity → Ethernet → Subnet mask

Description Enter subnet mask of the device. Then accept the change with "Apply ".

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 255.255.255.0

Default gateway

Navigation System → Connectivity → Ethernet → Default gateway

Description Enter IP address for the default gateway of the device.. Then accept the change with "Apply ".

User entry Character string comprising numbers, letters and special characters (15)

Factory setting 0.0.0.0

Service IP active

Navigation System → Connectivity → Ethernet → Service IP act.

User interface
- No
- Yes

Factory setting No

Interface connection status

Navigation System → Connectivity → Ethernet → Interface status

User interface
- Connected
- Not connected

Factory setting Not connected

Interface speed

Navigation System → Connectivity → Ethernet → Interface speed

User interface Positive integer

Factory setting 0 MBaud

Duplex status

Navigation System → Connectivity → Ethernet → Duplex status

User interface
- Full duplex
- Half duplex
- Unknown

Factory setting Unknown

Auto negotiation status

Navigation System → Connectivity → Ethernet → Auto negot.stat.

User interface
- Idle
- In progress
- Completed
- Failed
- Speed detection failed

Factory setting Idle

Number of received packets

Navigation System → Connectivity → Ethernet → RX packet no.

User interface Positive integer

Factory setting 0

Number of sent packets

Navigation System → Connectivity → Ethernet → TX packet number

User interface Positive integer

Factory setting 0

Number of failed received packets

Navigation System → Connectivity → Ethernet → FailRcvdPackets

User interface Positive integer

Factory setting 0

Number of failed sent packets

Navigation System → Connectivity → Ethernet → No.FailTXPackets

User interface Positive integer

Factory setting 0

Reset Ethernet diagnostics

Navigation System → Connectivity → Ethernet → ResetEthernDiag.

Selection
- Cancel
- Reset

Factory setting Cancel

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

Signal to noise ratio

Navigation System → Connectivity → Ethernet → SNR

Description Shows the signal to noise ratio of the Ethernet-APL connection. A value >21dB is good and >23dB is excellent.

User interface Signed floating-point number

Factory setting 0 dB

Number of failed received packets

Navigation System → Connectivity → Ethernet → FailRXPacketsNo.

Description Shows the number of failed received packets.

User interface 0 to 65 535

Factory setting 0

Active TCP connections

Navigation System → Connectivity → Ethernet → Act. TCP connec.

User interface 0 to 65 535

Factory setting 0

Supported TCP connections

Navigation System → Connectivity → Ethernet → Supported TCP

User interface 0 to 65 535

Factory setting 0

TCP connection requests

Navigation System → Connectivity → Ethernet → TCPConnecRequest

User interface 0 to 65 535

Factory setting 0

TCP connection timeouts

Navigation System → Connectivity → Ethernet → TCPConnecTimeout

User interface 0 to 255

Factory setting 0

Number of TCP connections closed

Navigation System → Connectivity → Ethernet → TCPConnect.close

User interface 0 to 255

Factory setting 0

Number of received TCP packets

Navigation System → Connectivity → Ethernet → No.RX TCP Packet

User interface Positive integer

Factory setting 0

Number of sent TCP packets

Navigation System → Connectivity → Ethernet → No.TX TCP packet

User interface Positive integer

Factory setting 0

Number of TCP failed received packets

Navigation System → Connectivity → Ethernet → TCPFailRXPackets

User interface Positive integer

Factory setting 0

Available UDP ports

Navigation System → Connectivity → Ethernet → Avail. UDP ports

User interface Positive integer

Factory setting 0

Number of received UDP packets

Navigation System → Connectivity → Ethernet → No.RX UDP Packet

User interface Positive integer

Factory setting 0

Number of sent UDP packets

Navigation System → Connectivity → Ethernet → No.TX UDP packet

User interface Positive integer

Factory setting 0

Number of UDP failed received packets

Navigation System → Connectivity → Ethernet → UDPFailRXPackets

User interface Positive integer

Factory setting 0

3.4.4 Display

Navigation System → Display

Language

Navigation System → Display → Language

Description Set display language

Selection
- English
- Deutsch *
- Français *
- Español *
- Italiano *
- Nederlands *
- Portuguesa *
- Polski *
- русский язык (Russian) *
- Svenska *
- Türkçe *
- 中文 (Chinese) *
- 日本語 (Japanese) *
- 한국어 (Korean) *
- العَرَبيّة (Arabic) *
- Bahasa Indonesia *
- ภาษาไทย (Thai) *
- tiếng Việt (Vietnamese) *
- čeština (Czech) *

Factory setting English

Format display

Navigation System → Display → Format display

Description Select how measured values are shown on the display

Selection
- 1 value, max. size
- 1 bargraph + 1 value
- 2 values

Factory setting 1 value, max. size

* Visibility depends on order options or device settings

Value 1 display

Navigation System → Display → Value 1 display

Description Select the measured value that is shown on the local display

Selection
- Distance
- Level
- Level linearized
- Absolute echo amplitude
- Relative echo amplitude
- Area of incoupling
- Buildup index*
- Foam index*
- Alignment quality
- Electronics temperature
- Sensor temperature
- Unfiltered distance

Factory setting Level

Value 2 ... 4 display

Navigation System → Display → Value 2 display

Description Select the measured value that is shown on the local display

Selection
- None
- Level
- Level linearized
- Distance
- Absolute echo amplitude
- Relative echo amplitude
- Area of incoupling
- Buildup index*
- Foam index*
- Alignment quality
- Electronics temperature
- Sensor temperature
- Unfiltered distance

Factory setting None

* Visibility depends on order options or device settings

Decimal places 1 ... 4

Navigation System → Display → Decimal places 1

Description This selection does not affect the measurement and calculation accuracy of the device.

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

Factory setting x.xx

Contrast display

Navigation System → Display → Contrast display

Description Adjust local display contrast setting to ambient conditions (e.g. lighting or reading angle)

User entry 20 to 80 %

Factory setting 30 %

3.4.5 Date/time

Navigation System → Date/time

Date/time

Navigation System → Date/time → Date/time

Description Displays the date and time entered.

User interface Character string comprising numbers, letters and special characters

Factory setting 01.01.1970 00:00:00

Time zone

Navigation System → Date/time → Time zone

Description Select the time zone. Every time the time zone is changed, a logbook entry is created.

Selection

Other units
- UTC-12:00
- UTC-11:00
- UTC-10:00
- UTC-09:30
- UTC-09:00
- UTC-08:00
- UTC-07:00
- UTC-06:00
- UTC-05:00
- UTC-04:00
- UTC-03:30
- UTC-03:00
- UTC-02:30
- UTC-02:00
- UTC-01:00
- UTC 00:00
- UTC+01:00
- UTC+02:00
- UTC+03:00
- UTC+03:30
- UTC+04:00
- UTC+04:30
- UTC+05:00
- UTC+05:30
- UTC+05:45
- UTC+06:00
- UTC+06:30
- UTC+07:00
- UTC+08:00
- UTC+08:45
- UTC+09:00
- UTC+09:30
- UTC+10:00
- UTC+10:30
- UTC+11:00
- UTC+12:00
- UTC+12:45
- UTC+13:00
- UTC+13:45
- UTC+14:00

Factory setting UTC 00:00

Enable NTP

Navigation System → Date/time → Enable NTP

Selection
- No
- Yes

Factory setting No

NTP server address

Navigation System → Date/time → NTP server add.

Description IP address of the NTP server.

User entry Character string comprising numbers, letters and special characters (64)

Factory setting 192.168.1.1

Clock synchronized

Navigation System → Date/time → Clock synch.

Description Timestamp of last synchronization with an NTP server.

User interface Character string comprising numbers, letters and special characters

Factory setting ----------

3.4.6 Geolocation

Navigation System → Geolocation

Location description

Navigation System → Geolocation → Location descr.

Description Enter a description for the location

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

Factory setting somewhere

Longitude

Navigation System → Geolocation → Longitude

Description Enter the longitude.

User entry −180 to 180 °

Factory setting 0 °

Latitude

Navigation System → Geolocation → Latitude

Description Enter latitude

User entry −90 to 90 °

Factory setting 0 °

Altitude

Navigation System → Geolocation → Altitude

Description Enter altitude

User entry Signed floating-point number

Factory setting 0 m

3.4.7 Information

Navigation System → Information

Device name

Navigation System → Information → Device name

Description Use this function to display the device name. It can also be found on the nameplate.

User interface Character string comprising numbers, letters and special characters

Factory setting Micropilot

Manufacturer

Navigation System → Information → Manufacturer

User interface Character string comprising numbers, letters and special characters

Factory setting Endress+Hauser

Serial number

Navigation System → Information → Serial number

Description The serial number is a unique alphanumerical code identifying the device.
It is printed on the nameplate.
In combination with the Operations app it allows to access all device related documentation.

User interface Character string comprising numbers, letters and special characters

Order code

Navigation System → Information → Order code

Description Shows the device order code.

User interface Character string comprising numbers, letters and special characters

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

Firmware version

Navigation System → Information → Firmware version

Description Displays the device firmware version installed.

User interface Character string comprising numbers, letters and special characters

Hardware version

Navigation System → Information → Hardware version

User interface Character string comprising numbers, letters and special characters

Factory setting 01.00.00

Extended order code 1 ... 3

Navigation System → Information → Ext. order cd. 1

Description The extended order code is an alphanumeric code containing all information to identify the device and its options.

User interface Character string comprising numbers, letters and special characters

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

XML build number

Navigation System → Information → XML build no.

User interface Positive integer

Factory setting 480

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

Checksum

Navigation System → Information → Checksum

Description Checksum for Firmware version.

User interface Positive integer

Factory setting 0

3.4.8 Additional information

Navigation System → Additional info

Sensor

Navigation System → Additional info → Sensor

Serial number

Navigation System → Additional info → Sensor → Serial number

Description Shows the serial number of the module

User interface Character string comprising numbers, letters and special characters

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

Firmware version

Navigation System → Additional info → Sensor → Firmware version

Description Displays the firmware version of the module.

User interface Positive integer

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

Build no. software

Navigation System → Additional info → Sensor → Build no. softw.

Description Shows the build number of the module firmware

User interface 0 to 65 535

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

Hardware version

Navigation System → Additional info → Sensor → Hardware version

Description Displays the hardware version of the module.

User interface Character string comprising numbers, letters and special characters

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

Checksum

Navigation System → Additional info → Sensor → Checksum

Description Checksum for Firmware version.

User interface Positive integer

Factory setting 0

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

Electronics

Navigation System → Additional info → Electronics

Serial number

Navigation System → Additional info → Electronics → Serial number

Description Shows the serial number of the module

User interface Character string comprising numbers, letters and special characters

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

Firmware version

Navigation System → Additional info → Electronics → Firmware version

Description Displays the firmware version of the module.

User interface Positive integer

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

Build no. software

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

Description Shows the build number of the module firmware

User interface 0 to 65 535

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

Hardware version

Navigation System → Additional info → Electronics → Hardware version

Description Displays the hardware version of the module.

User interface Character string comprising numbers, letters and special characters

Additional information

Access:
- Read access: Expert
- Write access: -

Display/Bluetooth

Navigation System → Additional info → Displ./Bluetooth

Serial number

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

Description Shows the serial number of the module

User interface Character string comprising numbers, letters and special characters

Additional information

Access:
- Read access: Expert
- Write access: -

Firmware version

Navigation System → Additional info → Displ./Bluetooth → Firmware version

Description Displays the firmware version of the module.

User interface Positive integer

Additional information

Access:
- Read access: Expert
- Write access: -

Build no. software

Navigation System → Additional info → Displ./Bluetooth → Build no. softw.

Description Shows the build number of the module firmware

User interface 0 to 65 535

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

Hardware version

Navigation System → Additional info → Displ./Bluetooth → Hardware version

Description Displays the hardware version of the module.

User interface Character string comprising numbers, letters and special characters

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

3.4.9 Software configuration

Navigation System → Softw. config.

CRC device configuration

Navigation System → Softw. config. → CRC device conf.

Description CRC device configuration based on current settings of safety relevant parameters. The CRC device configuration is unique and can be used to detect changes in safety relevant parameter settings.

User interface 0 to 65 535

Activate SW option

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

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

User entry Positive integer

Software option overview

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

Description Shows all enabled software options

User interface
- Heartbeat Verification
- Heartbeat Monitoring

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