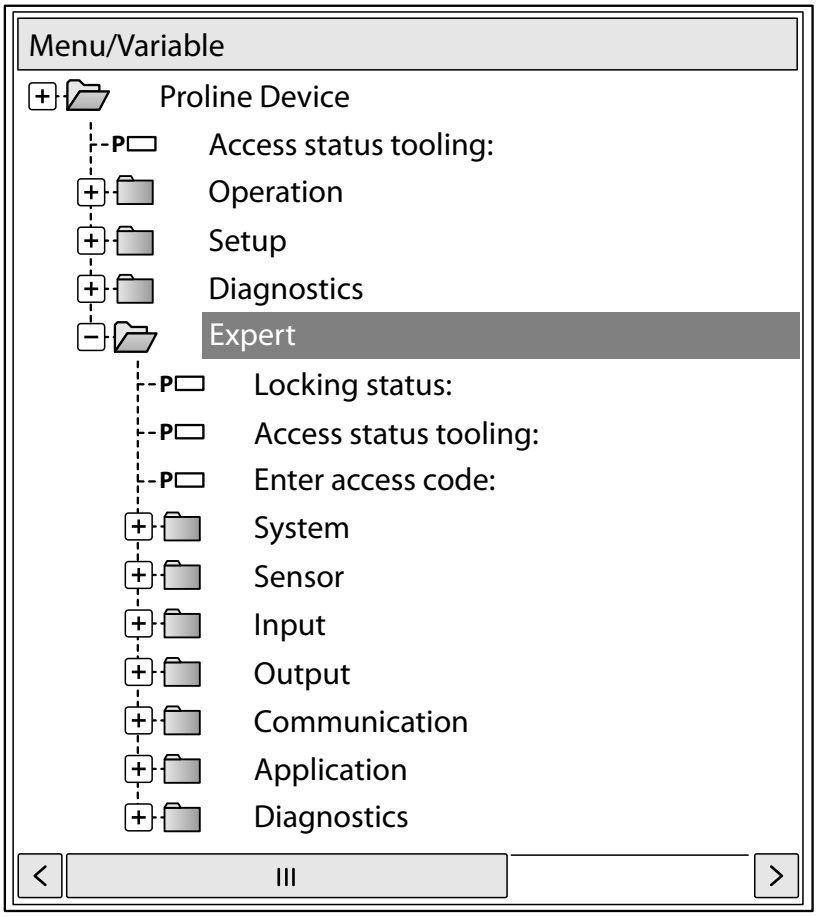
GP01028D/06/EN/01.15
71280348

Valid as of version
01.00.zz (Device firmware)

Description of Device Parameters
Proline Promag 200
FOUNDATION Fieldbus

Electromagnetic flowmeter



Endress+Hauser
People for Process Automation

Table of contents

1 Document information

1.1 Document function

The document is part of the Operating Instructions and serves as a reference for parameters, providing a detailed explanation of each individual parameter of the Expert operating menu.

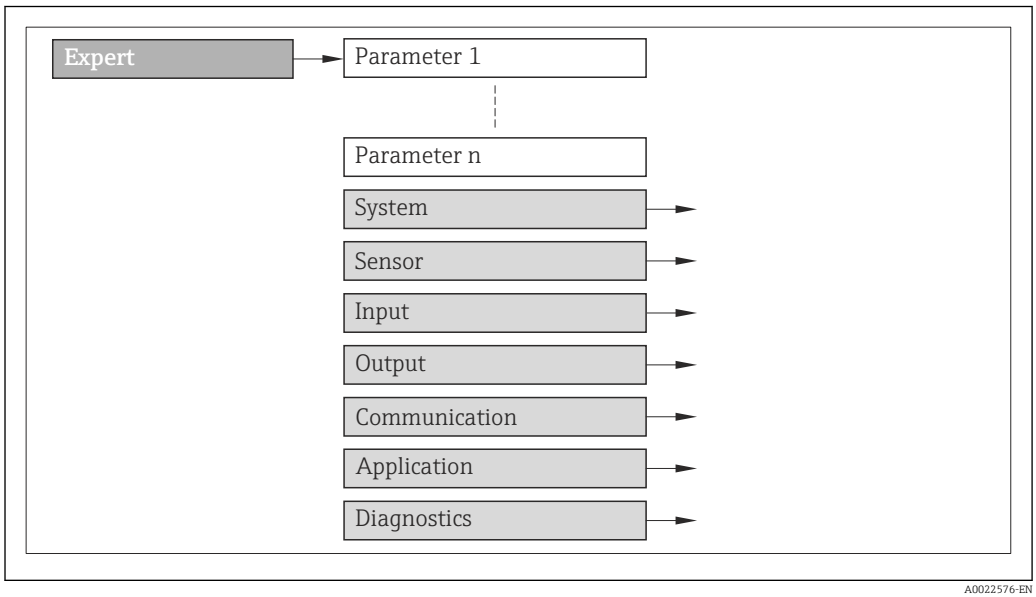
1.2 Target group

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

1.3 Using this document

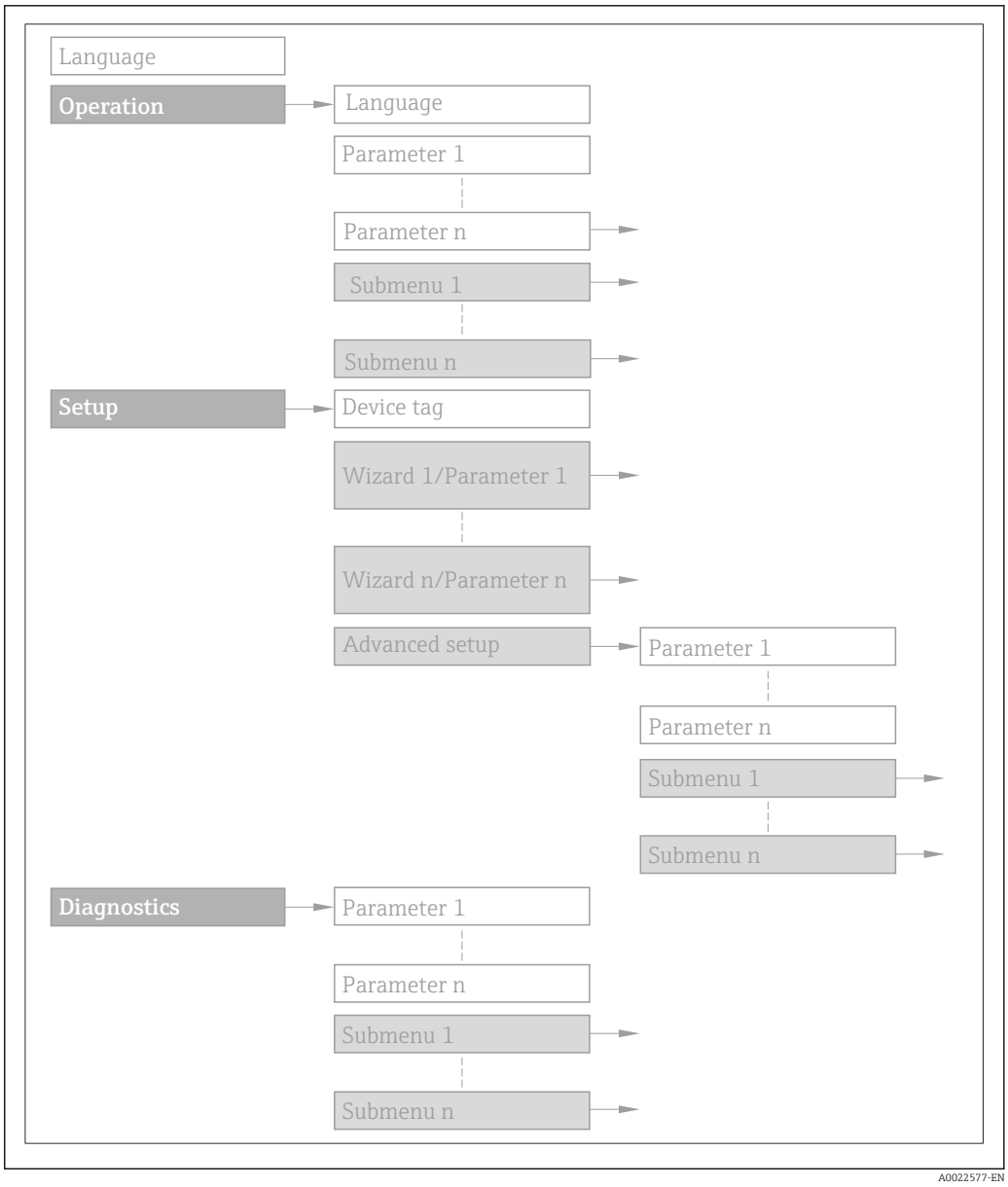
1.3.1 Information on the document structure

The document lists the submenus and their parameters according to the structure from the **Expert** menu (→ 8).



1 Sample graphic

For information on the arrangement of the parameters according to the structure of the **Operation** menu, **Setup** menu, **Diagnostics** menu (→ 199), along with a brief description, see the Operating Instructions for the device.



2 Sample graphic

For information about the operating philosophy, see the "Operating philosophy" chapter in the device's Operating Instructions

1.3.2 Structure of a parameter description

The individual parts of a parameter description are described in the following section:

Complete parameter name	Write-protected parameter =

Navigation
Navigation path to the parameter via the local display (direct access code)
Navigation path to the parameter via the operating tool
The names of the menus, submenus and parameters are abbreviated to the form in which they appear on the display and in the operating tool.

Prerequisite
The parameter is only available under these specific conditions

Description
Description of the parameter function

Options
List of the individual options for the parameter
- Option 1
- Option 2

User entry
Input range for the parameter

User interface
User interface value/data for parameter

Factory setting
Default setting ex works

Additional information
Additional explanations (e.g. in examples):
- On individual options
- On display values/data
- On the input range
- On the factory setting
- On the parameter function

1.4 Symbols used

1.4.1 Symbols for certain types of information

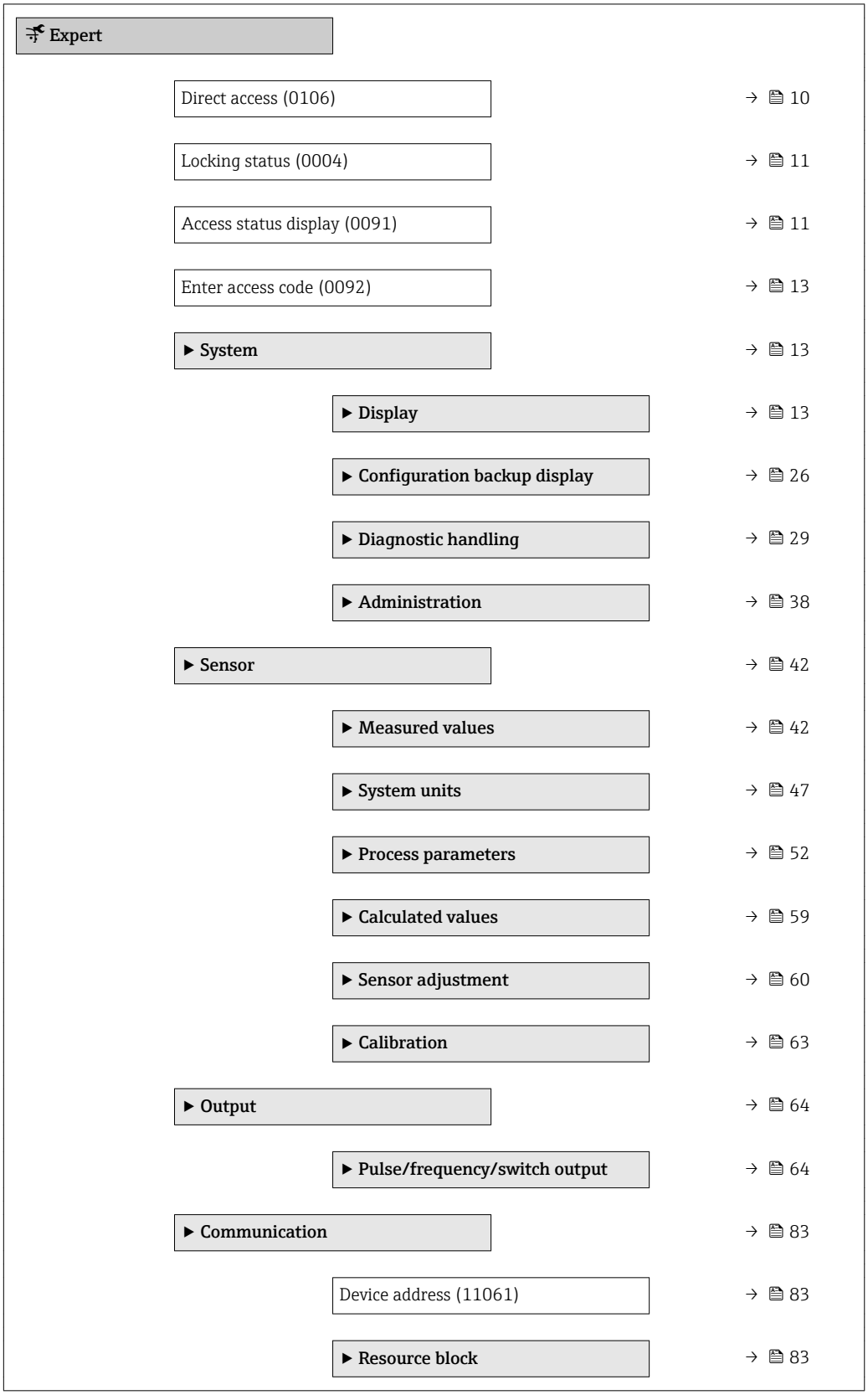
Symbol	Meaning
	Tip Indicates additional information.
	Reference to documentation
	Reference to page
	Reference to graphic
	Operation via local display
	Operation via operating tool
	Write-protected parameter

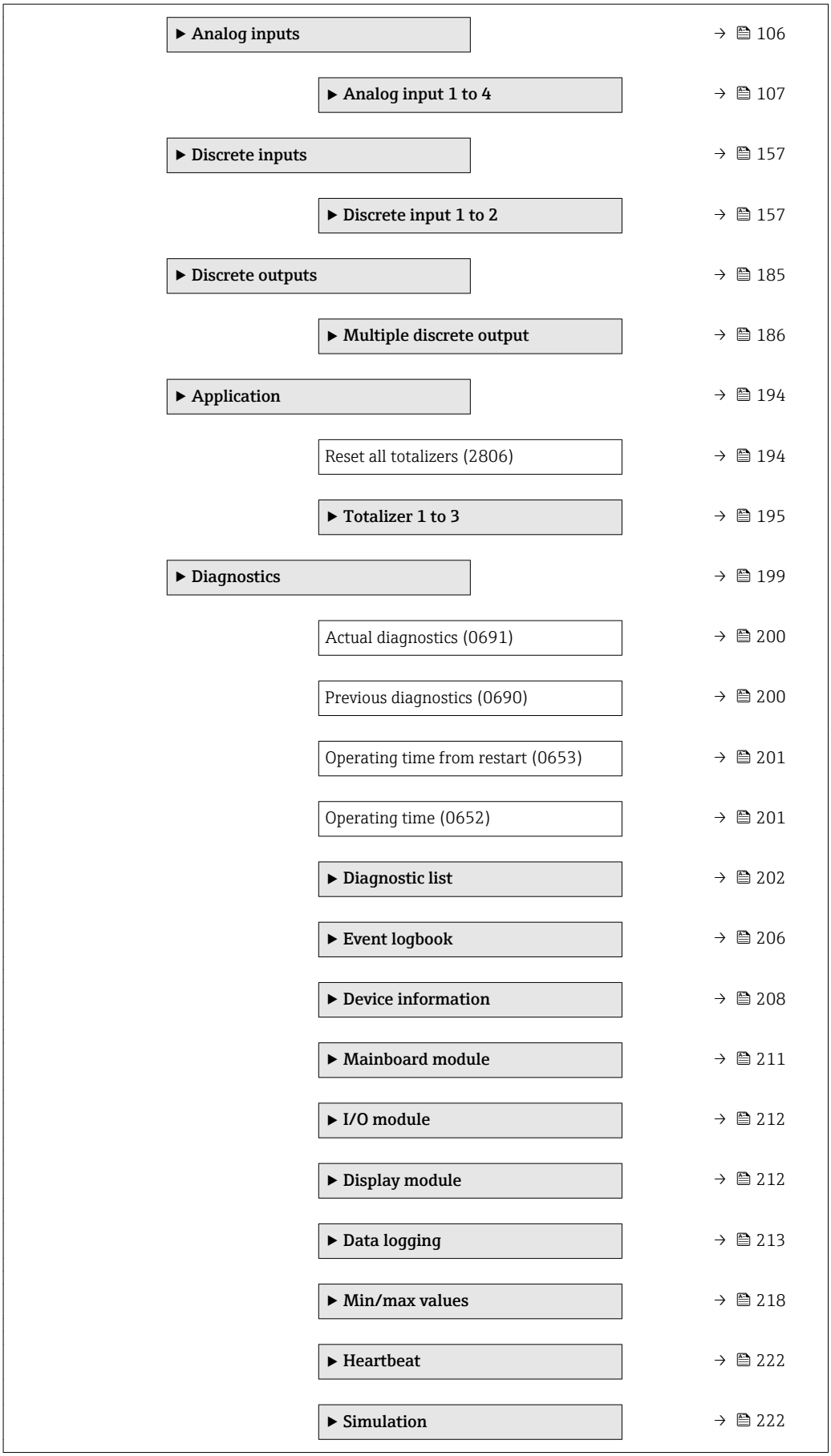
1.4.2 Symbols in graphics

Symbol	Meaning	Symbol	Meaning
1, 2, 3 ...	Item numbers	A, B, C, ...	Views
A-A, B-B, C-C, ...	Sections		

2 Overview of the Expert operating menu

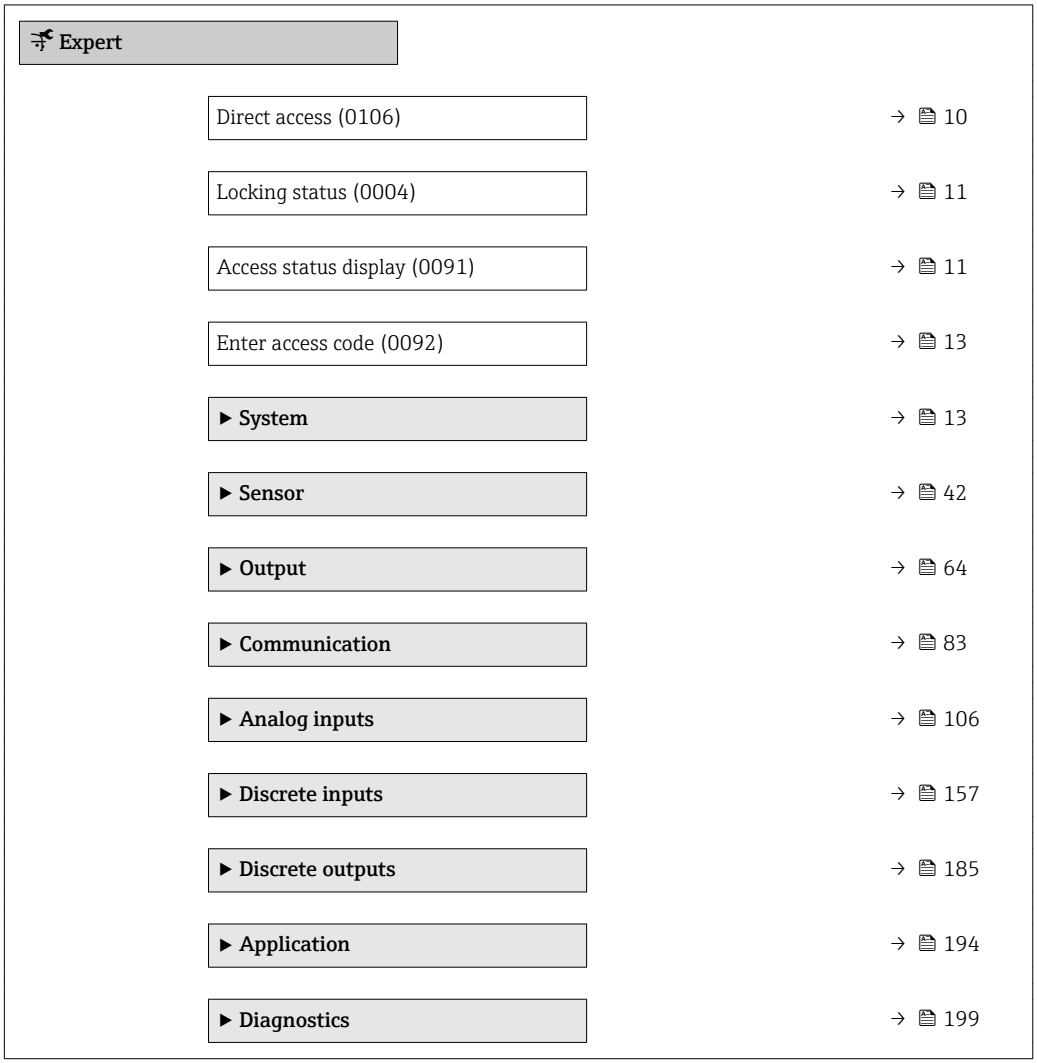
The following table provides an overview of the menu structure of the expert operating menu and its parameters. The page reference indicates where the associated description of the submenu or parameter can be found.




▶ Analog inputs → 106
▶ Analog input 1 to 4 → 107
▶ Discrete inputs → 157
▶ Discrete input 1 to 2 → 157
▶ Discrete outputs → 185
▶ Multiple discrete output → 186
▶ Application → 194
Reset all totalizers (2806) → 194
▶ Totalizer 1 to 3 → 195
▶ Diagnostics → 199
Actual diagnostics (0691) → 200
Previous diagnostics (0690) → 200
Operating time from restart (0653) → 201
Operating time (0652) → 201
▶ Diagnostic list → 202
▶ Event logbook → 206
▶ Device information → 208
▶ Mainboard module → 211
▶ I/O module → 212
▶ Display module → 212
▶ Data logging → 213
▶ Min/max values → 218
▶ Heartbeat → 222
▶ Simulation → 222

3 Description of Device Parameters

In the following section, the parameters are listed according to the menu structure of the local display. Specific parameters for the operating tools are included at the appropriate points in the menu structure.



Direct access

Navigation Expert → Direct access (0106)

Description Input of the access code to enable direct access to the desired parameter via the local display. For this reason, each parameter is assigned a parameter number that appears on the right in the header of the selected parameter in the navigation view.

User entry 0 to 65 535

Additional information *User entry*

The direct access code consists of a 4-digit number and the channel number, which identifies the channel of a process variable: e.g. 0914-1

- The leading zeros in the direct access code do not have to be entered.
  Example: Input of **"914"** instead of **"0914"**
- If no channel number is entered, channel 1 is jumped to automatically.
  Example: Input of **0914** → **Assign process variable** parameter
- If a different channel is jumped to: Enter the direct access code with the corresponding channel number.
  Example: Input of **0914-3** → **Assign process variable** parameter

Locking status

Navigation Expert → Locking status (0004)

Description Use this function to view the active write protection.

User interface

- Hardware locked
- Temporarily locked

Additional information *Display*

If two or more types of write protection are active, the write protection with the highest priority is shown on the local display.

In the operating tool all active types of write protection are selected.

If additional write protection is active, this restricts the current access authorization even further. The write protection status can be viewed via the **Locking status** parameter (→ 11).

"Hardware locked" option (priority 1)

The DIP switch for hardware locking is activated on the main electronics module. This locks write access to the parameters (e.g. via local display or operating tool).

Information on access authorization is provided in the "User roles and associated access authorization" and "Operating concept" sections of the Operations Instructions for the device.

"Temporarily locked" option (priority 3)

Write access to the parameters is temporarily lock due to device-internal processing (e.g. data upload/download, reset). Once the internal processing has been completed, the parameters can be changed once again.

Access status display

Navigation Expert → Access stat.disp (0091)

Prerequsite A local display is provided.

Description Use this function to view the access authorization to the parameters via the local display.

User interface
- Operator
- Maintenance

Factory setting
Operator

Additional information

Description

If the 🔒-symbol appears in front of a parameter, it cannot be modified via the local display with the current access authorization.

The access authorization can be modified via the **Enter access code** parameter (→ 🖹 13).

For information on the **Enter access code** parameter (→ 🖹 13), see the "Disabling write protection via access code" section of the Operating Instructions for the device

If additional write protection is active, this restricts the current access authorization even further. The write protection status can be viewed via the **Locking status** parameter (→ 🖹 11).

User interface

Information on access authorization is provided in the "User roles and associated access authorization" and "Operating concept" sections of the Operations Instructions for the device.

Access status tooling

Navigation
Expert → Access stat.tool (0005)

Description
Use this function to view the access authorization to the parameters via the operating tool.

User interface
- Operator
- Maintenance

Factory setting
Maintenance

Additional information

Description

The access authorization can be modified via the **Enter access code** parameter (→ 🖹 13).

If additional write protection is active, this restricts the current access authorization even further. The write protection status can be viewed via the **Locking status** parameter (→ 🖹 11).

Display

Information on access authorization is provided in the "User roles and associated access authorization" and "Operating concept" sections of the Operations Instructions for the device.

Enter access code

Navigation Expert → Ent. access code (0092)

Description Use this function to enter the user-specific release code to remove parameter write protection on the local display.

User entry 0 to 9 999

Enter access code

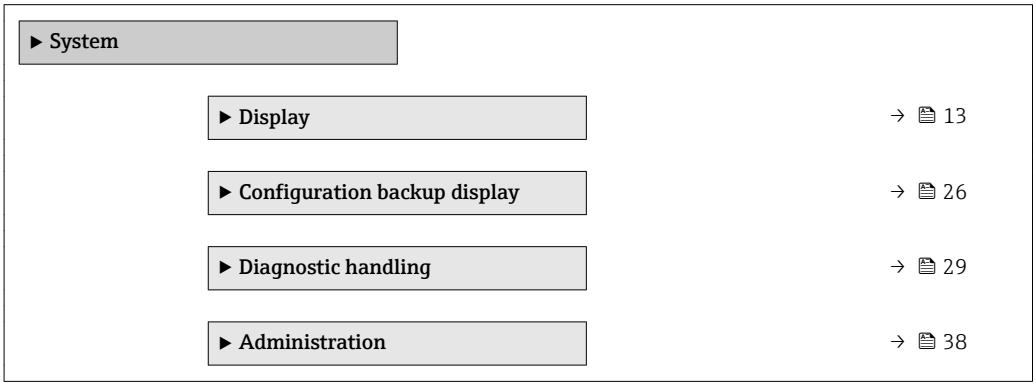
Navigation Expert → Ent. access code (0003)

Description Use this function to enter the user-specific release code to remove parameter write protection in the operating tool.

User entry 0 to 9 999

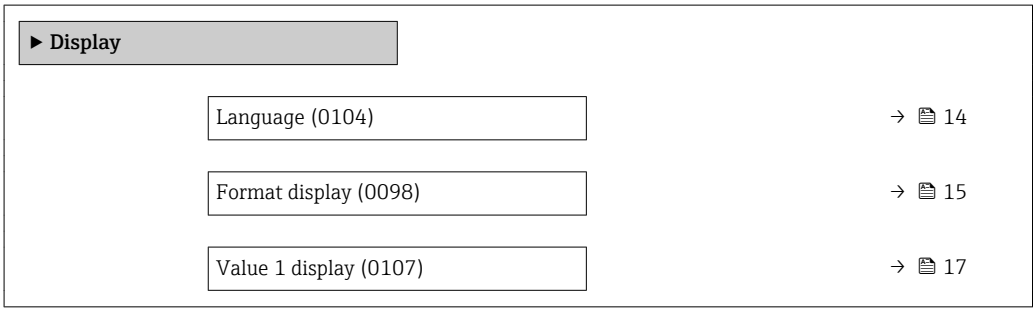
3.1 "System" submenu

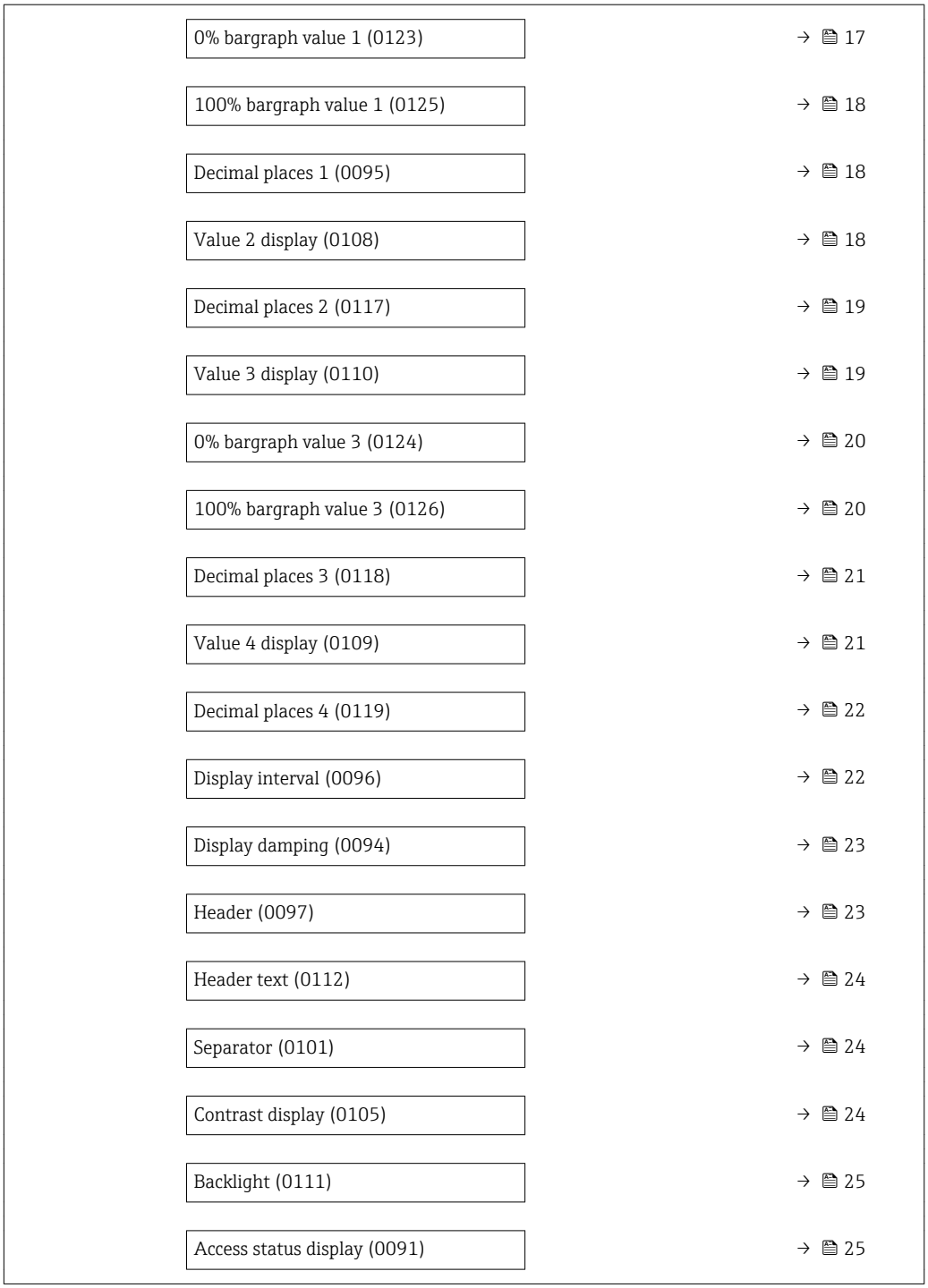
Navigation Expert → System



3.1.1 "Display" submenu

Navigation Expert → System → Display





Language

Navigation Expert → System → Display → Language (0104)

Prerequsite A local display is provided.

Description Use this function to select the configured language on the local display.

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 (alternatively, the ordered language is preset in the device)

Format display

Navigation

Expert → System → Display → Format display (0098)

Prerequsite

A local display is provided.

Description

Use this function to select how the measured value is shown on the local display.

Selection

- 1 value, max. size
- 1 bargraph + 1 value
- 2 values
- 1 value large + 2 values
- 4 values

Factory setting

1 value, max. size

Additional information

Description

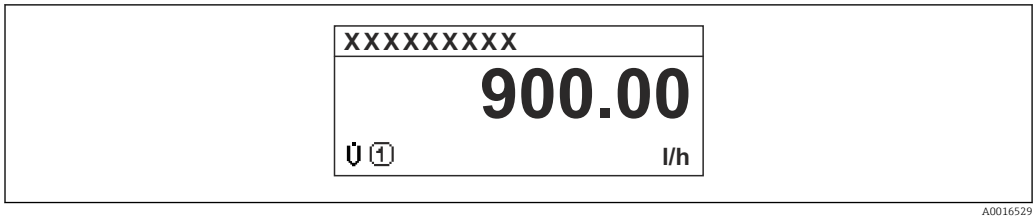
The display format (size, bar graph etc.) and number of measured values displayed simultaneously (1 to 4) can be configured. This setting only applies to normal operation.

- The **Value 1 display** parameter (→ 17)...**Value 4 display** parameter (→ 21) parameters are used to specify which measured values are shown on the display and in which order.
- If more measured values are specified than the display mode selected permits, then the values alternate on the device display. The display time until the next change is configured using the **Display interval** parameter (→ 22) parameter.

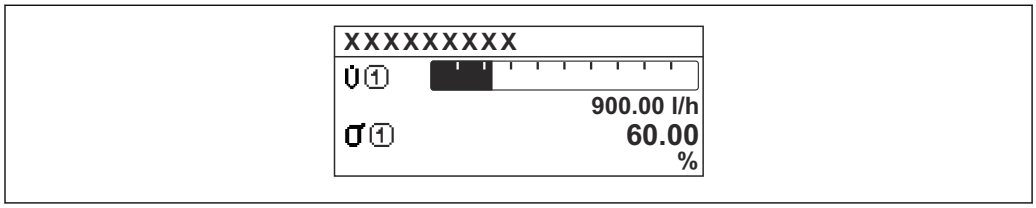
Possible measured values shown on the local display:

* Visibility depends on order options or device settings

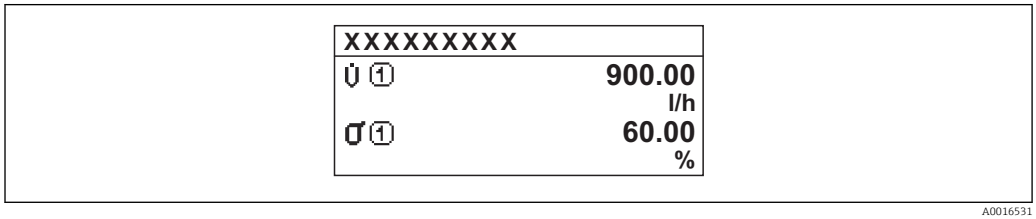
"1 value, max. size" option



"1 bargraph + 1 value" option

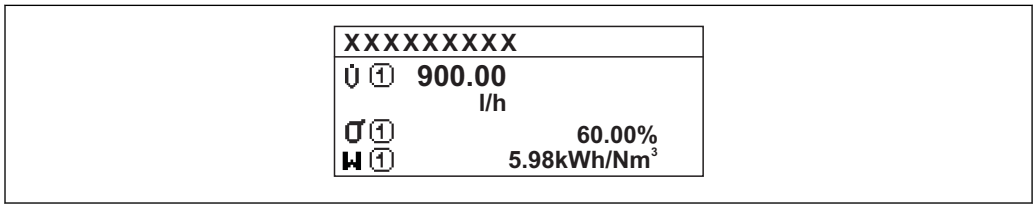


"2 values" option

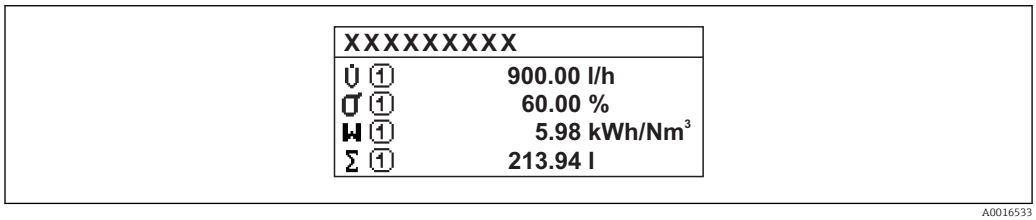


3

"1 value large + 2 values" option



"4 values" option



Value 1 display

Navigation Expert → System → Display → Value 1 display (0107)

Prerequsite A local display is provided.

Description Use this function to select one of the measured values to be shown on the local display.

Selection
- Volume flow
- Mass flow
- Totalizer 1
- Totalizer 2
- Totalizer 3

Factory setting Volume flow

Additional information

Description

If several measured values are displayed at once, the measured value selected here will be the first value to be displayed. The value is only displayed during normal operation.

The **Format display** parameter (→ 15) is used to specify how many measured values are displayed simultaneously and how.

Selection

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

0% bargraph value 1

Navigation Expert → System → Display → 0% bargraph 1 (0123)

Prerequsite A local display is provided.

Description Use this function to enter the 0% bar graph value to be shown on the display for the measured value 1.

User entry Signed floating-point number

Factory setting Country-specific:
- 0 l/h
- 0 gal/min (us)

Additional information

Description

The **Format display** parameter (→ 15) is used to specify that the measured value is to be displayed as a bar graph.

User entry

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

100% bargraph value 1

Navigation Expert → System → Display → 100% bargraph 1 (0125)

Prerequisite A local display is provided.

Description Use this function to enter the 100% bar graph value to be shown on the display for the measured value 1.

User entry Signed floating-point number

Factory setting Depends on country and nominal diameter → 228

Additional information

Description

The **Format display** parameter (→ 15) is used to specify that the measured value is to be displayed as a bar graph.

Selection

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

Decimal places 1

Navigation Expert → System → Display → Decimal places 1 (0095)

Prerequisite A measured value is specified in the **Value 1 display** parameter (→ 17).

Description Use this function to select the number of decimal places for measured value 1.

Selection

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

Factory setting x.xx

Additional information

Description

This setting does not affect the measuring or computational accuracy of the device. The arrow displayed between the measured value and the unit indicates that the device computes with more digits than are shown on the local display.

Value 2 display

Navigation Expert → System → Display → Value 2 display (0108)

Prerequisite A local display is provided.

Description Use this function to select one of the measured values to be shown on the local display.

Selection Picklist see **Value 1 display** parameter (→ 17)

Factory setting None

Additional information *Description*

If several measured values are displayed at once, the measured value selected here will be the second value to be displayed. The value is only displayed during normal operation.

The **Format display** parameter (→ 15) is used to specify how many measured values are displayed simultaneously and how.

Selection

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

Decimal places 2

Navigation Expert → System → Display → Decimal places 2 (0117)

Prerequsite A measured value is specified in the **Value 2 display** parameter (→ 18).

Description Use this function to select the number of decimal places for measured value 2.

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

Factory setting x.xx

Additional information *Description*

This setting does not affect the measuring or computational accuracy of the device. The arrow displayed between the measured value and the unit indicates that the device computes with more digits than are shown on the local display.

Value 3 display

Navigation Expert → System → Display → Value 3 display (0110)

Prerequsite A local display is provided.

Description Use this function to select one of the measured values to be shown on the local display.

Selection Picklist see **Value 1 display** parameter (→ 17)

Factory setting None

Additional information

Description

If several measured values are displayed at once, the measured value selected here will be the third value to be displayed. The value is only displayed during normal operation.

The **Format display** parameter (→ 15) is used to specify how many measured values are displayed simultaneously and how.

Selection

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

0% bargraph value 3

Navigation Expert → System → Display → 0% bargraph 3 (0124)

Prerequisite A selection has been made in the **Value 3 display** parameter (→ 19).

Description Use this function to enter the 0% bar graph value to be shown on the display for the measured value 3.

User entry Signed floating-point number

Factory setting Country-specific:
- 0 l/h
- 0 gal/min (us)

Additional information

Description

The **Format display** parameter (→ 15) is used to specify that the measured value is to be displayed as a bar graph.

User entry

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

100% bargraph value 3

Navigation Expert → System → Display → 100% bargraph 3 (0126)

Prerequisite An option has been selected in the **Value 3 display** parameter (→ 19).

Description Use this function to enter the 100% bar graph value to be shown on the display for the measured value 3.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

The **Format display** parameter (→ 15) is used to specify that the measured value is to be displayed as a bar graph.

Selection

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

Decimal places 3

Navigation Expert → System → Display → Decimal places 3 (0118)

Prerequsite A measured value is specified in the **Value 3 display** parameter (→ 19).

Description Use this function to select the number of decimal places for measured value 3.

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

Factory setting x.xx

Additional information *Description*

This setting does not affect the measuring or computational accuracy of the device. The arrow displayed between the measured value and the unit indicates that the device computes with more digits than are shown on the local display.

Value 4 display

Navigation Expert → System → Display → Value 4 display (0109)

Prerequsite A local display is provided.

Description Use this function to select one of the measured values to be shown on the local display.

Selection Picklist see **Value 1 display** parameter (→ 17)

Factory setting None

Additional information *Description*

If several measured values are displayed at once, the measured value selected here will be the fourth value to be displayed. The value is only displayed during normal operation.

The **Format display** parameter (→ 15) is used to specify how many measured values are displayed simultaneously and how.

Selection

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

Decimal places 4

Navigation Expert → System → Display → Decimal places 4 (0119)

Prerequisite A measured value is specified in the **Value 4 display** parameter (→ 21).

Description Use this function to select the number of decimal places for measured value 4.

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

Factory setting x.xx

Additional information *Description*

This setting does not affect the measuring or computational accuracy of the device. The arrow displayed between the measured value and the unit indicates that the device computes with more digits than are shown on the local display.

Display interval

Navigation Expert → System → Display → Display interval (0096)

Prerequisite A local display is provided.

Description Use this function to enter the length of time the measured values are displayed if the values alternate on the display.

User entry 1 to 10 s

Factory setting 5 s

Additional information *Description*

This type of alternating display only occurs automatically if the number of measured values defined exceeds the number of values the selected display format can display simultaneously.

- The **Value 1 display** parameter (→ 17)...**Value 4 display** parameter (→ 21) are used to specify which measured values are shown on the display.
- The display format of the displayed measured values is specified using the **Format display** parameter (→ 15).

Display damping

Navigation Expert → System → Display → Display damping (0094)

Prerequsite A local display is provided.

Description Use this function to enter the reaction time of the local display to fluctuations in the measured value caused by process conditions.

User entry 0.0 to 999.9 s

Factory setting 0.0 s

Additional information *User entry*

A time constant is entered:
- If a low time constant is entered, the display reacts particularly quickly to fluctuating measured variables.
- On the other hand, the display reacts more slowly if a high time constant is entered.

Header

Navigation Expert → System → Display → Header (0097)

Prerequsite A local display is provided.

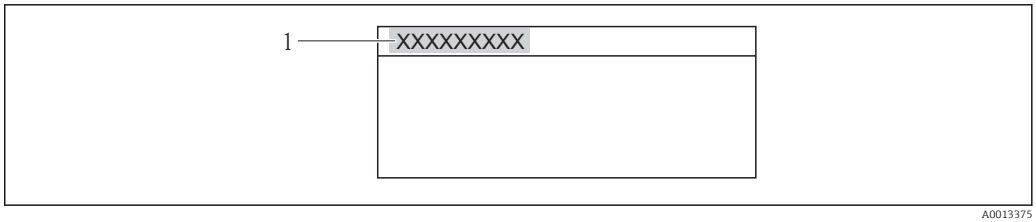
Description Use this function to select the contents of the header of the local display.

Selection
- Device tag
- Free text

Factory setting Device tag

Additional information *Description*

The header text only appears during normal operation.



1 Position of the header text on the display

Selection

- Device tag
  Is defined in the **Device tag** parameter (→ 208).
- Free text
  Is defined in the **Header text** parameter (→ 24).

Header text

Navigation Expert → System → Display → Header text (0112)

Prerequsite The **Free text** option is selected in the **Header** parameter (→ 23).

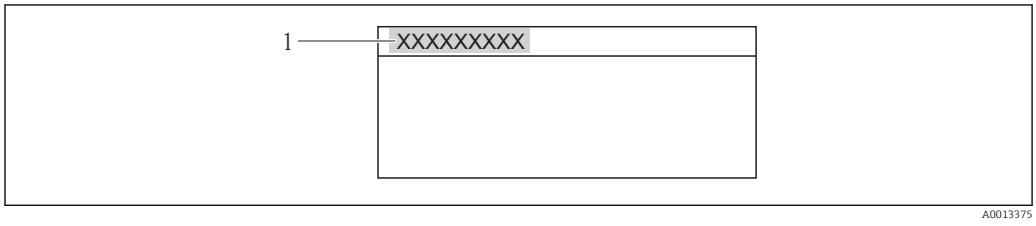
Description Use this function to enter a customer-specific text for the header of the local display.

User entry Max. 12 characters such as letters, numbers or special characters (e.g. @, %, /)

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

Additional information *Description*

The header text only appears during normal operation.



1 Position of the header text on the display

User entry

The number of characters displayed depends on the characters used.

Separator

Navigation Expert → System → Display → Separator (0101)

Prerequsite A local display is provided.

Description Use this function to select the decimal separator.

Selection
- . (point)
- , (comma)

Factory setting . (point)

Contrast display

Navigation Expert → System → Display → Contrast display (0105)

Prerequsite A local display is provided.

Description Use this function to enter a value to adapt the display contrast to the ambient conditions (e.g. the lighting or viewing angle).

User entry 20 to 80 %

Factory setting Depends on the display

Additional information *Set the contrast via the push-buttons:*

- Brighter: Press and hold down the ⊟ Ⓔ keys simultaneously.
- Darker: Press and hold down the ⊞ Ⓔ keys simultaneously.

Backlight

Navigation Expert → System → Display → Backlight (0111)

Prerequisite Order code for "Display; operation", option E "SD03 4-line, illum.; touch control + data backup function"

Description Option for switching the backlight of the local display on and off.

Selection

- Disable
- Enable

Factory setting Disable

Access status display

Navigation Expert → System → Display → Access stat.disp (0091)

Prerequisite A local display is provided.

Description Use this function to view the access authorization to the parameters via the local display.

User interface

- Operator
- Maintenance

Factory setting Operator

Additional information *Description*

If the 🔒-symbol appears in front of a parameter, it cannot be modified via the local display with the current access authorization.

The access authorization can be modified via the **Enter access code** parameter (→ 🖹 13).

For information on the **Enter access code** parameter (→ 🖹 13), see the "Disabling write protection via access code" section of the Operating Instructions for the device

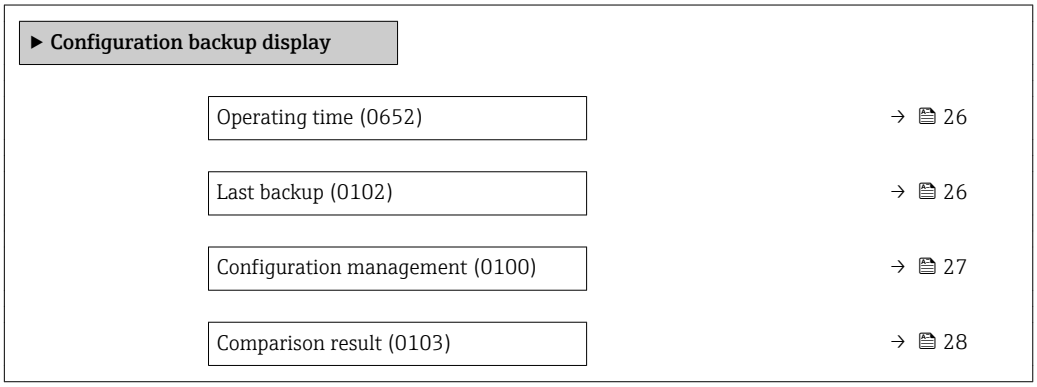
If additional write protection is active, this restricts the current access authorization even further. The write protection status can be viewed via the **Locking status** parameter (→ 🖹 11).

User interface

Information on access authorization is provided in the "User roles and associated access authorization" and "Operating concept" sections of the Operations Instructions for the device.

3.1.2 "Configuration backup display" submenu

Navigation Expert → System → Conf.backup disp



Operating time

Navigation Expert → System → Conf.backup disp → Operating time (0652)

Description Use this function to display the length of time the device has been in operation.

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

Additional information *User interface*

The maximum number of days is 9999, which is equivalent to 27 years.

Last backup

Navigation Expert → System → Conf.backup disp → Last backup (0102)

Prerequsite A local display is provided.

Description Use this function to display the time since a backup copy of the data was last saved to the display module.

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

Configuration management

Navigation Expert → System → Conf.backup disp → Config. managem. (0100)

Prerequsite A local display is provided.

Description Use this function to select an action to save the data to the display module.

Selection
- Cancel
- Execute backup
- Restore
- Duplicate
- Compare
- Clear backup data
- Display incompatible

Factory setting Cancel

Additional information

Description

Configuration via the local display is disabled while the action is performed.

For information on the status message in the operating tool, see the **Backup state** parameter (→ 28)

Selection

- Cancel
  No action is executed and the user exits the parameter.
- Execute backup
  - A backup copy of the current device configuration in the HistoROM is saved to the display module of the device. The backup copy includes the transmitter data of the device.
  - The following message appears on local display: Backup active, please wait!
- Restore
  - The last backup copy of the device configuration is copied from the display module to the HistoROM of the device. The backup copy comprises the transmitter data of the device.
  - The following message appears on local display: Restore active! Do not interrupt power supply!
- Duplicate
  - The transmitter configuration from another device is duplicated to the device using the display module.
  - The following message appears on local display: Copy active! Do not interrupt power supply!
- Compare
  - The device configuration saved in the display module is compared to the current device configuration of the HistoROM.
  - The following message appears on local display: Comparing files
  - The result can be viewed in the **Comparison result** parameter (→ 28).
- Clear backup data
  - The backup copy of the device configuration is deleted from the display module of the device.
  - The following message appears on local display: Deleting file

HistoROM

A HistoROM is a "non-volatile" device memory in the form of an EEPROM.

Backup state

Navigation Expert → System → Conf.backup disp → Backup state (0121)

Prerequisite A local display is provided.

Description Use this function to view the status of the data backup process.

User interface
- None
- Store in progress
- Restore in progress
- Import in progress
- Delete in progress
- Compare in progress

Factory setting None

Comparison result

Navigation Expert → System → Conf.backup disp → Compar. result (0103)

Prerequisite A local display is provided.

Description Use this function to view the last result of comparing the current device configuration to the backup copy in the display module.

User interface
- Settings identical
- Settings not identical
- No backup available
- Backup settings corrupt
- Check not done
- Dataset incompatible

Factory setting Check not done

Additional information *Description*

The comparison is started via the **Compare** option in the **Configuration management** parameter (→ 27).

Selection

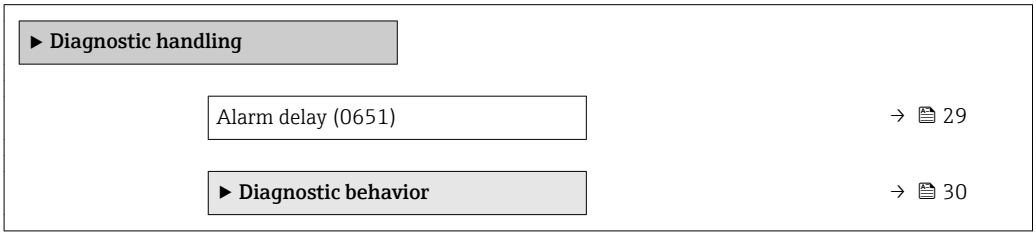
- Settings identical
  - The current device configuration of the HistoROM is identical to the backup copy in the display module.
  - If the transmitter configuration of another device has been copied to the device via the display module and the **Duplicate** option in the **Configuration management** parameter (→ 27), the current device configuration of the HistoROM only partly matches the backup copy in the display module: The settings for the transmitter are not identical.
- Settings not identical
  The current device configuration of the HistoROM is not identical to the backup copy in the display module.
- No backup available
  There is no backup copy of the device configuration of the HistoROM in the display module.
- Backup settings corrupt
  The current device configuration of the HistoROM is corrupt or not compatible with the backup copy in the display module.
- Check not done
  The device configuration of the HistoROM has not yet been compared to the backup copy in the display module.
- Dataset incompatible
  The backup copy in the display module is not compatible with the device.

HistoROM

A HistoROM is a "non-volatile" device memory in the form of an EEPROM.

3.1.3 "Diagnostic handling" submenu

Navigation Expert → System → Diagn. handling



Alarm delay

Navigation Expert → System → Diagn. handling → Alarm delay (0651)

Description Use this function to enter the time interval until the device generates a diagnostic message.

The diagnostic message is reset without a time delay.

User entry 0 to 60 s

Factory setting 0 s

Additional information *Description*

This setting affects the following diagnostic messages:
- 832 Electronic temperature too high
- 833 Electronic temperature too low

"Diagnostic behavior" submenu

For a list of all the diagnostic events, see the Operating Instructions for the device.

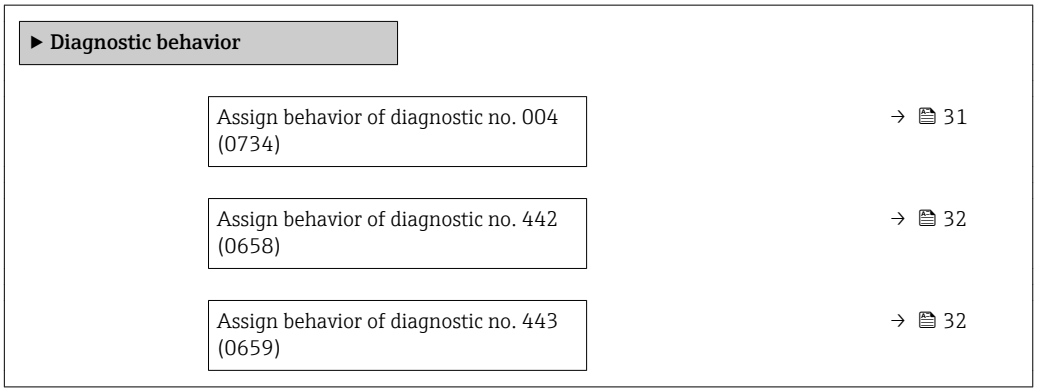
Modifying the diagnostic behavior of a diagnostic event. Each diagnostic event is assigned a certain diagnostic behavior at the factory. The user can change this assignment for certain diagnostics events.

The following options are available in the **Assign behavior of diagnostic no. xxx** parameters:
- **Off** option
  The diagnostic event is ignored; it is neither entered into the Event logbook, nor is a diagnostic message generated.
- **Alarm** option
  The device continues to measure. The signal outputs assume the defined alarm condition. A diagnostic message is generated.
- **Warning** option
  The device continues to measure. A diagnostic message is generated.
- **Logbook entry only** option
  The device continues to measure. The diagnostic message is entered in the **Event logbook** submenu (→ 206) (**Event list** submenu (→ 207)) only and is not displayed in alternation with the measured value display.

Assignment of the status of a diagnostic event.

The following options are available in the **Assign status of diagnostic no. xxx** parameters:
- Bad
  The status of the input value (PV) is Bad.
- Uncertain
  The status of the input value (PV) is Uncertain.
- Good
  The status of the input value (PV) is Good.

Navigation Expert → System → Diagn. handling → Diagn. behavior



Assign behavior of diagnostic no. 004 (Sensor)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 004 (0734)

Description Use this function to change the diagnostic behavior of the diagnostic message **004 Sensor**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 442 (Frequency output)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 442 (0658)

Prerequisite The measuring device has a pulse/frequency/switch output.

Description Use this function to change the diagnostic behavior of the diagnostic message **442 Frequency output**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 443 (Pulse output)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 443 (0659)

Prerequisite The measuring device has a pulse/frequency/switch output.

Description Use this function to change the diagnostic behavior of the diagnostic message **443 Pulse output**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 531 (Empty pipe detection)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 531 (0733)

Description Use this function to change the diagnostic behavior of the diagnostic message **531 Empty pipe detection**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 801 (Supply voltage too low)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 801 (0660)

Description Use this function to change the diagnostic behavior of the diagnostic message **801 Supply voltage too low**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 832 (Electronic temperature too high)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 832 (0675)

Description Use this function to change the diagnostic behavior of the diagnostic message **832 Electronic temperature too high**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 833 (Electronic temperature too low)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 833 (0676)

Description Use this function to change the diagnostic behavior of the diagnostic message **833 Electronic temperature too low**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 861 (Process fluid)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 861 (0736)

Description Use this function to change the diagnostic behavior of the diagnostic message **861 Process fluid**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 862 (Empty pipe)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 862 (0679)

Description Use this function to change the diagnostic behavior of the diagnostic message **862 Empty pipe**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign behavior of diagnostic no. 937 (EMC interference)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 937 (0735)

Description Use this function to change the diagnostic behavior of the diagnostic message **937 EMC interference**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 30

Assign status of diagnostic number 4 (Sensor)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 4 (11041)

Description Option for changing the status of the diagnostic message **004 Sensor**.

Selection
- Bad
- Uncertain
- Good

Factory setting Bad

Additional information Detailed description of the options available for selection: → 30

Assign status of diagnostic number 937 (EMC interference)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 937 (11042)

Description Option for changing the status of the diagnostic message **937 EMC interference**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 30

Assign status of diagnostic number 862 (Empty pipe)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 862 (11000)

Description Option for changing the status of the diagnostic message **862 Empty pipe**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 30

Assign status of diagnostic number 531 (Empty pipe detection)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 531 (11016)

Description Option for changing the status of the diagnostic message **531 Empty pipe detection**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 30

Assign status of diagnostic number 861 (Process fluid)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 861 (11017)

Description Option for changing the status of the diagnostic message **861 Process fluid**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 30

Assign status of diagnostic number 801 (Supply voltage too low)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 801 (11001)

Description Option for changing the status of the diagnostic message **801 Supply voltage too low**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 30

Assign status of diagnostic number 832 (Electronic temperature too high)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 832 (11002)

Description Option for changing the status of the diagnostic message **832 Electronic temperature too high**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 30

Assign status of diagnostic number 833 (Electronic temperature too low)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 833 (11003)

Description Option for changing the status of the diagnostic message **833 Electronic temperature too low**.

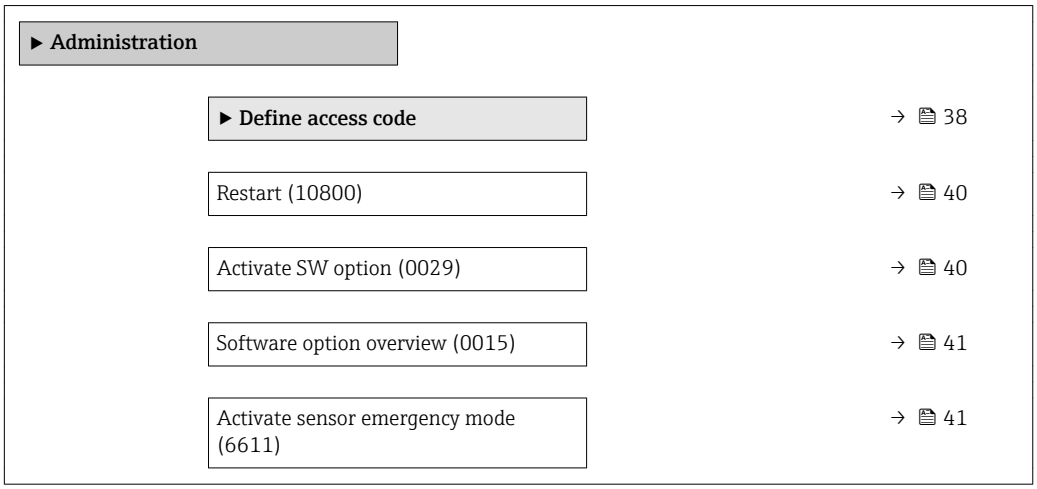
Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 30

3.1.4 "Administration" submenu

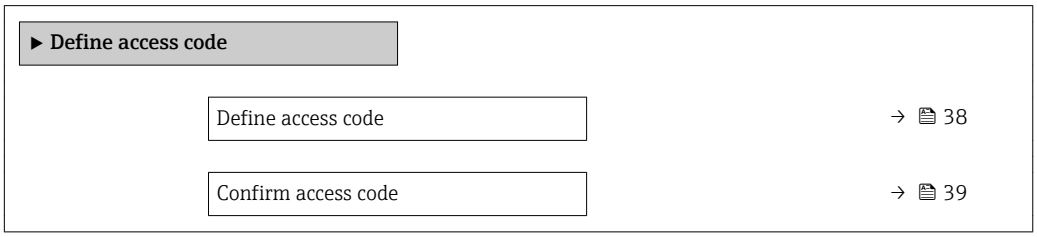
Navigation Expert → System → Administration



"Define access code" wizard

The **Define access code** wizard is only available if operating using the local display. If you are operating using the operating tool, the **Define access code** parameter (→ 39) is directly in the **Administration** submenu. The **Confirm access code** parameter is not available if you are operating using the operating tool.

Navigation Expert → System → Administration → Def. access code



Define access code

Navigation Expert → System → Administration → Def. access code → Def. access code

Description Use this function to enter a user-specific release code to restrict write-access to the parameters. This protects the configuration of the device against any inadvertent changes via the local display.

User entry 0 to 9 999

Factory setting 0

Additional information

Description

The write protection affects all parameters in the document marked with the symbol. On the local display, the symbol in front of a parameter indicates that the parameter is write-protected.

Once the access code has been defined, write-protected parameters can only be modified if the access code is entered in the **Enter access code** parameter (→ 13).

Please contact your Endress+Hauser Sales Center if you lose your access code.

User entry

A message is displayed if the access code is not in the input range.

Factory setting

If the factory setting is not changed or **0** is defined as the access code, the parameters are not write-protected and the device configuration data can be modified. The user is logged on in the **"Maintenance"** role.

Confirm access code

Navigation Expert → System → Administration → Def. access code → Confirm code

Description Enter the defined release code a second time to confirm the release code.

User entry 0 to 9 999

Factory setting 0

Additional parameters in the "Administration" submenu

Define access code

Navigation Expert → System → Administration → Def. access code (0093)

Description Use this function to enter a user-specific release code to restrict write-access to the parameters. This protects the configuration of the device against any inadvertent changes via the operating tool.

User entry 0 to 9 999

Factory setting 0

Additional information

Description

The write protection affects all parameters in the document marked with the 🔒 symbol.

Once the access code has been defined, write-protected parameters can only be modified if the access code is entered in the **Enter access code** parameter (→ 13).

Please contact your Endress+Hauser Sales Center if you lose your access code.

User entry

A message is displayed if the access code is not in the input range.

Factory setting

If the factory setting is not changed or **0** is defined as the access code, the parameters are not write-protected and the device configuration data can be modified. The user is logged on in the **"Maintenance"** role.

Restart

Navigation Expert → System → Administration → Restart (10800)

Description Use this function to select a manual restart or a manual device reset.

Selection
- Uninitialized
- Run
- Resource
- Defaults
- Processor
- To factory defaults
- To delivery settings
- ENP restart
- To transducer defaults
- Factory Default Blocks

Factory setting Uninitialized

Activate SW option 🔒

Navigation Expert → System → Administration → Activate SW opt. (0029)

Description Use this function to enter an activation code to enable an additional, ordered software option.

User entry Max. 10-digit string consisting of numbers.

Factory setting 0

Additional information

User entry

Endress+Hauser provides the corresponding activation code for the software option with the order.

NOTICE! This activation code varies depending on the measuring device and the software option. If an incorrect or invalid code is entered, this can result in the loss of software options that are already been activated. After commissioning the measuring device: in this parameter only enter activation codes which Endress+Hauser has provided (e.g. when a new software option was ordered). If an incorrect or invalid activation code is entered, enter the activation code from the parameter protocol again and contact your Endress+Hauser sales organization, quoting the serial number of your device.

Example for a software option

Order code for "Application package", option EA "Extended HistoROM"

Software option overview

Navigation Expert → System → Administration → SW option overv. (0015)

Description Displays all the software options that are enabled in the device.

User interface
- Extended HistoROM
- Heartbeat Verification

Additional information *Description*

Displays all the options that are available if ordered by the customer.

"Extended HistoROM" option

Order code for "Application package", option EA "Extended HistoROM"

"Heartbeat Verification" option

Order code for "Application package", option EB "Heartbeat Verification"

Activate sensor emergency mode

Navigation Expert → System → Administration → Sens. emerg.mode (6611)

Prerequsite The device has identified an error during verification of the characteristics in the sensor data storage or electronics module. A diagnostic message of status type ⊗**F** is output.

Description Use this function to switch on the emergency mode of the sensor to use the backup of the sensor characteristics or main electronics characteristics stored in the HistoROM.

Selection
- Cancel
- Ok

Factory setting Cancel

Additional information *Description*

The status signal of the output diagnostic message changes from **F** (failure) to **M** (maintenance required), the diagnostic behavior changes from Alarm to Warning: ⚠**M**.

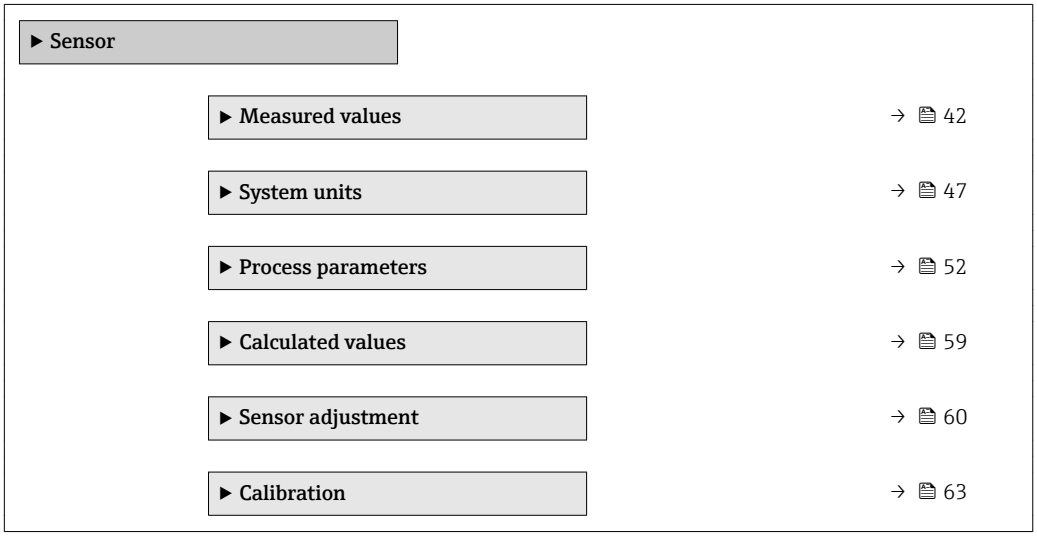
The diagnostic message is output until the characteristics in the sensor data storage are again correct.

Information on what is causing the diagnostic message, and remedy measures, can be viewed by pressing the E-button.

Information on status signals and diagnostic behavior: Operating Instructions about the device, "Diagnostic message" chapter

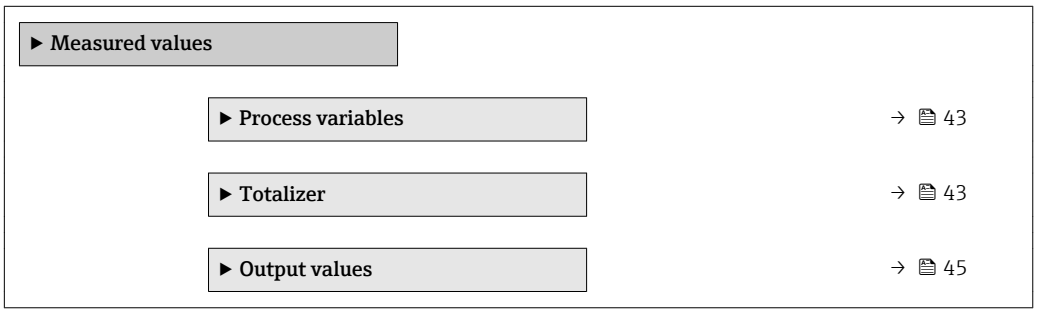
3.2 "Sensor" submenu

Navigation Expert → Sensor



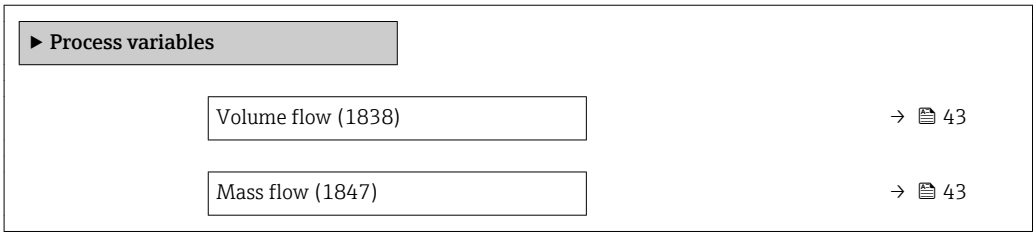
3.2.1 "Measured values" submenu

Navigation Expert → Sensor → Measured val.



"Process variables" submenu

Navigation Expert → Sensor → Measured val. → Process variab.



Volume flow

Navigation Expert → Sensor → Measured val. → Process variab. → Volume flow (1838)

Description Use this function to view the volume flow currently measured.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Volume flow unit** parameter (→ 47)

Mass flow

Navigation Expert → Sensor → Measured val. → Process variab. → Mass flow (1847)

Description Displays the mass flow currently calculated.

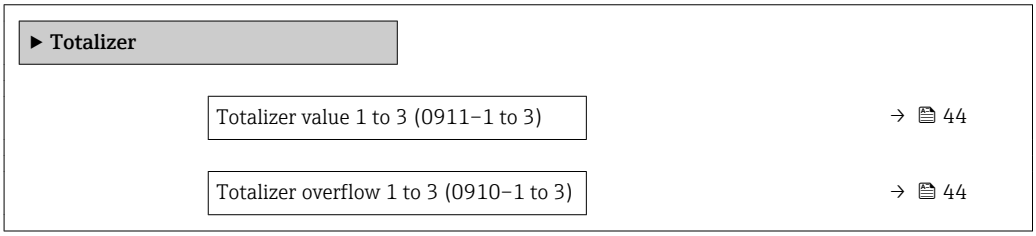
User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Mass flow unit** parameter (→ 49)

Totalizer

Navigation Expert → Sensor → Measured val. → Totalizer



Totalizer value 1 to 3

Navigation Expert → Sensor → Measured val. → Totalizer → Totalizer val. 1 to 3 (0911–1 to 3)

Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 195) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Mass flow

Description Displays the current totalizer reading.

User interface Signed floating-point number

Additional information

Description

As it is only possible to display a maximum of 7 digits, the current counter value is the sum of the totalizer value and the overflow value from the **Totalizer overflow 1 to 3** parameter if the display range is exceeded.

In the event of an error, the totalizer adopts the mode defined in the **Failure mode** parameter (→ 198).

User interface

The value of the process variable totalized since measuring began can be positive or negative. This depends on the settings in the **Totalizer operation mode** parameter (→ 196).

The unit of the selected process variable is specified for the totalizer in the **Unit totalizer** parameter (→ 196).

Example

Calculation of the current totalizer reading when the value exceeds the 7-digit display range:
- Value in the **Totalizer value 1** parameter: 196 845.7 m^3
- Value in the **Totalizer overflow 1** parameter: $1 \cdot 10^7$ (1 overflow) = 10 000 000 [m^3]
- Current totalizer reading: 10 196 845.7 m^3

Totalizer overflow 1 to 3

Navigation Expert → Sensor → Measured val. → Totalizer → Tot. overflow 1 to 3 (0910–1 to 3)

Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 195) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Mass flow

Description Displays the current totalizer overflow.

User interface Integer with sign

Additional information

Description

If the current reading has more than 7 digits, which is the maximum value range that can be displayed, the value above this range is given as an overflow. The current totalizer value

is therefore the sum of the overflow value and the totalizer value from the **Totalizer value 1 to 3** parameter.

User interface

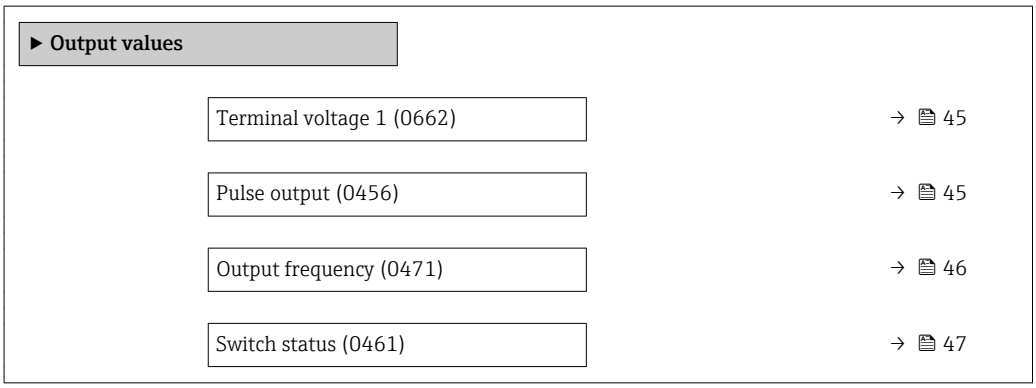
The unit of the selected process variable is specified for the totalizer in the **Unit totalizer** parameter (→ 196).

Example

Calculation of the current totalizer reading when the value exceeds the 7-digit display range:
- Value in the **Totalizer value 1** parameter: 196 845.7 m^3
- Value in the **Totalizer overflow 1** parameter: $2 \cdot 10^7$ (2 overflows) = 20 000 000 [m^3]
- Current totalizer reading: 20 196 845.7 m^3

"Output values" submenu

Navigation Expert → Sensor → Measured val. → Output values



Terminal voltage 1

Navigation Expert → Sensor → Measured val. → Output values → Terminal volt. 1 (0662)

Description Use this function to view the actual terminal voltage that is present at the current output.

User interface 0.0 to 50.0 V

Pulse output

Navigation Expert → Sensor → Measured val. → Output values → Pulse output (0456)

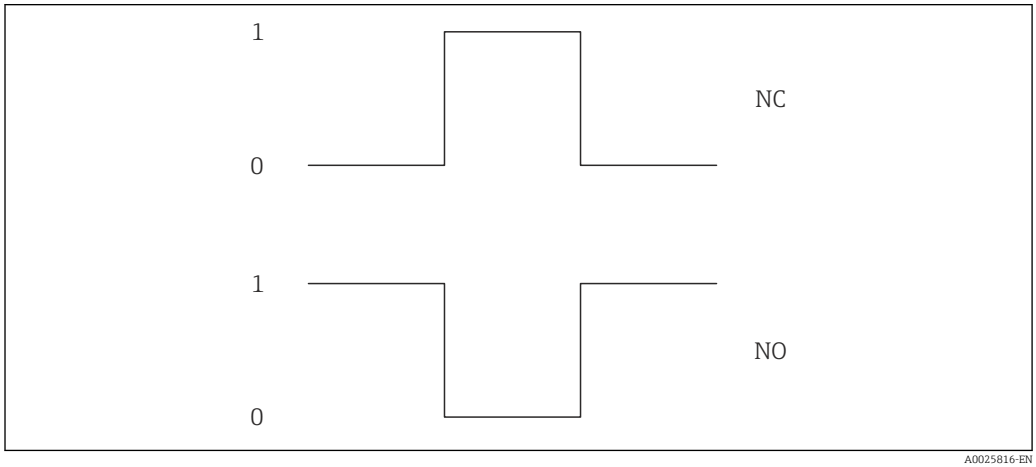
Prerequsite The **Pulse** option is selected in the **Operating mode** parameter (→ 65).

Description Displays the pulse frequency currently output.

User interface Positive floating-point number

Additional information *Description*

- The pulse output is an open collector output.
- This is configured at the factory in such a way that the transistor is conductive for the duration of the pulse (NO contact) and is safety-oriented.
- The **Value per pulse** parameter (→ 67) and the **Pulse width** parameter (→ 68) can be used to define the value (i.e. the amount of the measured value that corresponds to a pulse) and the duration of the pulse.



0 Non-conductive
1 Conductive
NC NC contact (normally closed)
NO NO contact (normally open)

The output behavior can be reversed via the **Invert output signal** parameter (→ 82), i.e. the transistor does not conduct for the duration of the pulse.

In addition, the behavior of the output in the event of an error (**Failure mode** parameter (→ 69)) can be configured.

Output frequency

Navigation Expert → Sensor → Measured val. → Output values → Output freq. (0471)

Prerequsite The **Frequency** option is selected in the **Operating mode** parameter (→ 65).

Description Use this function to view the actual value of the output frequency which is currently measured.

User interface 0 to 1 250 Hz

Switch status

Navigation Expert → Sensor → Measured val. → Output values → Switch status (0461)

Prerequsite In the **Operating mode** parameter (→ 65), the **Switch** option is selected.

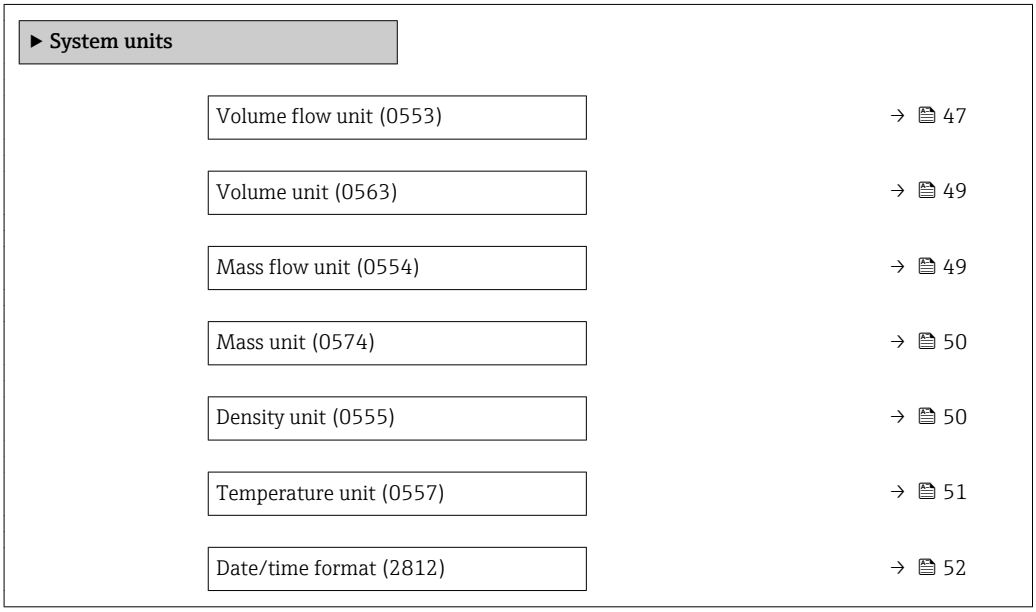
Description Displays the current switch status of the status output.

User interface
- Open
- Closed

Additional information *Selection*
- Open
  The switch output is not conductive.
- Closed
  The switch output is conductive.

3.2.2 "System units" submenu

Navigation Expert → Sensor → System units



Volume flow unit

Navigation Expert → Sensor → System units → Volume flow unit (0553)

Description Use this function to select the unit for the volume flow.

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
- ml/s
- ml/min
- ml/h
- ml/d
- l/s
- l/min
- l/h
- l/d
- hl/s
- hl/min
- hl/h
- hl/d
- Ml/s
- Ml/min
- Ml/h
- Ml/d

US units
- af/s
- af/min
- af/h
- af/d
- ft^3/s
- ft^3/min
- ft^3/h
- ft^3/d
- fl oz/s (us)
- fl oz/min (us)
- fl oz/h (us)
- fl oz/d (us)
- gal/s (us)
- gal/min (us)
- gal/h (us)
- gal/d (us)
- kgal/s (us)
- kgal/min (us)
- kgal/h (us)
- kgal/d (us)
- Mgal/s (us)
- Mgal/min (us)
- Mgal/h (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)

Imperial units
- gal/s (imp)
- gal/min (imp)
- gal/h (imp)
- gal/d (imp)
- Mgal/s (imp)
- Mgal/min (imp)
- Mgal/h (imp)
- Mgal/d (imp)
- bbl/s (imp;beer)
- bbl/min (imp;beer)
- bbl/h (imp;beer)
- bbl/d (imp;beer)
- bbl/s (imp;oil)
- bbl/min (imp;oil)
- bbl/h (imp;oil)
- bbl/d (imp;oil)

Factory setting

Country-specific:
- l/h
- gal/min (us)

Additional information

Result

The selected unit applies for:
Volume flow parameter (→ 43)

Options

For an explanation of the abbreviated units: → 231

Customer-specific units

The unit for the customer-specific volume is specified in the **User volume text** parameter.

Volume unit

Navigation Expert → Sensor → System units → Volume unit (0563)

Description Use this function to select the unit for the volume.

Selection

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

US units
- af
- ft^3
- fl oz (us)
- gal (us)
- kgal (us)
- Mgal (us)
- bbl (us;oil)
- bbl (us;liq.)
- bbl (us;beer)
- bbl (us;tank)

Imperial units
- gal (imp)
- Mgal (imp)
- bbl (imp;beer)
- bbl (imp;oil)

Factory setting Country-specific:
- m^3
- gal (us)

Additional information *Options*

For an explanation of the abbreviated units: → 231

Customer-specific units

The unit for the customer-specific volume is specified in the **User volume text** parameter.

Mass flow unit

Navigation Expert → Sensor → System units → Mass flow unit (0554)

Description Use this function to select the unit for the mass flow.

Selection

SI units
- g/s
- g/min
- g/h
- g/d
- kg/s
- kg/min
- kg/h
- kg/d
- t/s
- t/min
- t/h
- t/d

US units
- oz/s
- oz/min
- oz/h
- oz/d
- lb/s
- lb/min
- lb/h
- lb/d
- STon/s
- STon/min
- STon/h
- STon/d

Factory setting

Country-specific:
- kg/h
- lb/min

Additional information

Result

The selected unit applies for:
Mass flow parameter (→ 43)

Options

For an explanation of the abbreviated units: → 231

Customer-specific units

The unit for the customer-specific mass is specified in the **User mass text** parameter.

Mass unit

Navigation

Expert → Sensor → System units → Mass unit (0574)

Description

Use this function to select the unit for the mass.

Selection

SI units
- g
- kg
- t

US units
- oz
- lb
- STon

Factory setting

Country-specific:
- kg
- lb

Additional information

Options

For an explanation of the abbreviated units: → 231

Customer-specific units

The unit for the customer-specific mass is specified in the **User mass text** parameter.

Density unit

Navigation

Expert → Sensor → System units → Density unit (0555)

Description

Use this function to select the unit for the density.

Selection

SI units
- g/cm³
- g/m³
- kg/dm³
- kg/l
- kg/m³
- SD4°C
- SD15°C
- SD20°C
- SG4°C
- SG15°C
- SG20°C

US units
- lb/ft³
- lb/gal (us)
- lb/bbl (us;liq.)
- lb/bbl (us;beer)
- lb/bbl (us;oil)
- lb/bbl (us;tank)

Imperial units
- lb/gal (imp)
- lb/bbl (imp;beer)
- lb/bbl (imp;oil)

Factory setting

Country-specific:
- kg/l
- lb/ft³

Additional information

Result

The selected unit applies for:
Fixed density parameter (→ 60)

Options

- SD = specific density
  The specific density is the ratio of the density of the fluid to the density of water at a water temperature of +4 °C (+39 °F), +15 °C (+59 °F), +20 °C (+68 °F).
- SG = specific gravity
  The specific gravity is the ratio of the density of the fluid to the density of water at a water temperature of +4 °C (+39 °F), +15 °C (+59 °F), +20 °C (+68 °F).

For an explanation of the abbreviated units: → 231

Temperature unit

Navigation

Expert → Sensor → System units → Temperature unit (0557)

Description

Use this function to select the unit for the temperature.

Selection

SI units
- °C
- K

US units
- °F
- °R

Factory setting

Country-specific:
- °C
- °F

Additional information

Result

The selected unit applies for:
- **Maximum value** parameter (→ 220)
- **Minimum value** parameter (→ 220)
- **Maximum value** parameter (→ 221)
- **Minimum value** parameter (→ 221)
- **Average value** parameter (→ 222)

Options

For an explanation of the abbreviated units: → 231

Date/time format

Navigation Expert → Sensor → System units → Date/time format (2812)

Description Use this function to select the desired time format for calibration history.

Selection
- dd.mm.yy hh:mm
- dd.mm.yy hh:mm am/pm
- mm/dd/yy hh:mm
- mm/dd/yy hh:mm am/pm

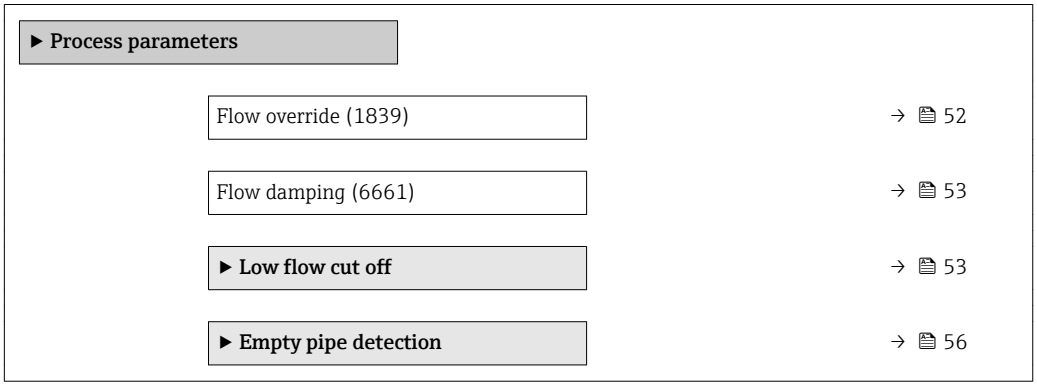
Factory setting dd.mm.yy hh:mm

Additional information *Selection*

For an explanation of the abbreviated units: → 231

3.2.3 "Process parameters" submenu

Navigation Expert → Sensor → Process param.



Flow override

Navigation Expert → Sensor → Process param. → Flow override (1839)

Description Use this function to select whether to interrupt the evaluation of measured values. This is useful for the cleaning processes of a pipeline, for example.

Selection
- Off
- On

Factory setting Off

Additional information *Effect*

This setting affects all the functions and outputs of the measuring device.

Description

Flow override is active
- The diagnostic message diagnostic message ⚠**C453 Flow override** is displayed.
- Output values
  - Output: Value at zero flow
  - Temperature: proceeding output
  - Totalizers 1-3: Stop being totalized

Flow damping

Navigation Expert → Sensor → Process param. → Flow damping (6661)

Description Use this function to enter flow damping. Reduction of the variability of the flow measured value (in relation to interference). For this purpose, the depth of the flow filter is adjusted: when the filter setting increases, the reaction time of the device also increases.

User entry 0 to 15

Factory setting 7

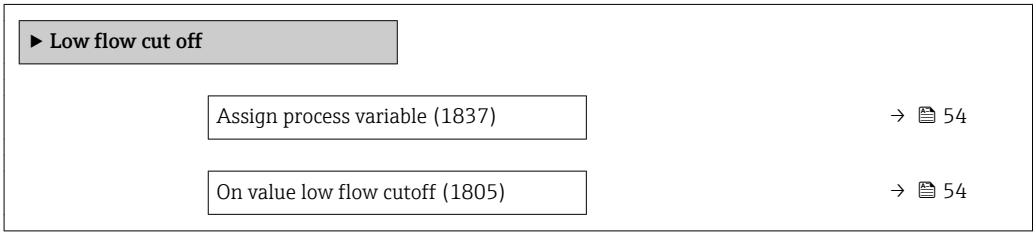
Additional information *Effect*

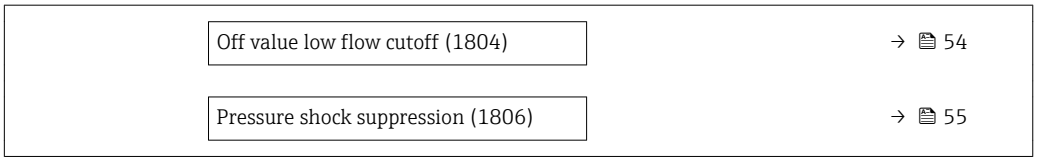
The damping affects the following variables of the device:
- Outputs → 64
- Low flow cut off → 53
- Totalizer

User entry
- Value = 0: no damping
- Value > 0: damping is increased

"Low flow cut off" submenu

Navigation Expert → Sensor → Process param. → Low flow cut off





Assign process variable

Navigation Expert → Sensor → Process param. → Low flow cut off → Assign variable (1837)

Description Use this function to select the process variable for low flow cutoff detection.

Selection
- Off
- Volume flow
- Mass flow

Factory setting Volume flow

On value low flow cutoff

Navigation Expert → Sensor → Process param. → Low flow cut off → On value (1805)

Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 54):
- Volume flow
- Mass flow

Description Use this function to enter a switch-on value for low flow cut off. Low flow cut off is activated if the value entered is not equal to 0 → 54.

User entry Signed floating-point number

Factory setting Depends on country and nominal diameter → 228

Additional information *Dependency*

The unit depends on the process variable selected in the **Assign process variable** parameter (→ 54).

Off value low flow cutoff

Navigation Expert → Sensor → Process param. → Low flow cut off → Off value (1804)

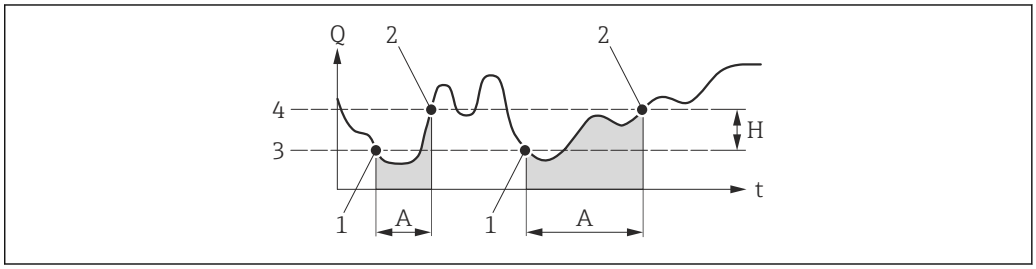
Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 54):
- Volume flow
- Mass flow

Description Use this function to enter a switch-off value for low flow cut off. The off value is entered as a positive hysteresis from the on value→ 54.

User entry 0 to 100.0 %

Factory setting 50 %

Additional information *Example*



A0012887

Q Flow
t Time
H Hysteresis
A Low flow cut off active
1 Low flow cut off is activated
2 Low flow cut off is deactivated
3 On value entered
4 Off value entered

Pressure shock suppression

Navigation Expert → Sensor → Process param. → Low flow cut off → Pres. shock sup. (1806)

Prerequsite One of the following options is selected in the **Assign process variable** parameter (→ 54):
- Volume flow
- Mass flow

Description Use this function to enter the time interval for signal suppression (= active pressure shock suppression).

User entry 0 to 100 s

Factory setting 0 s

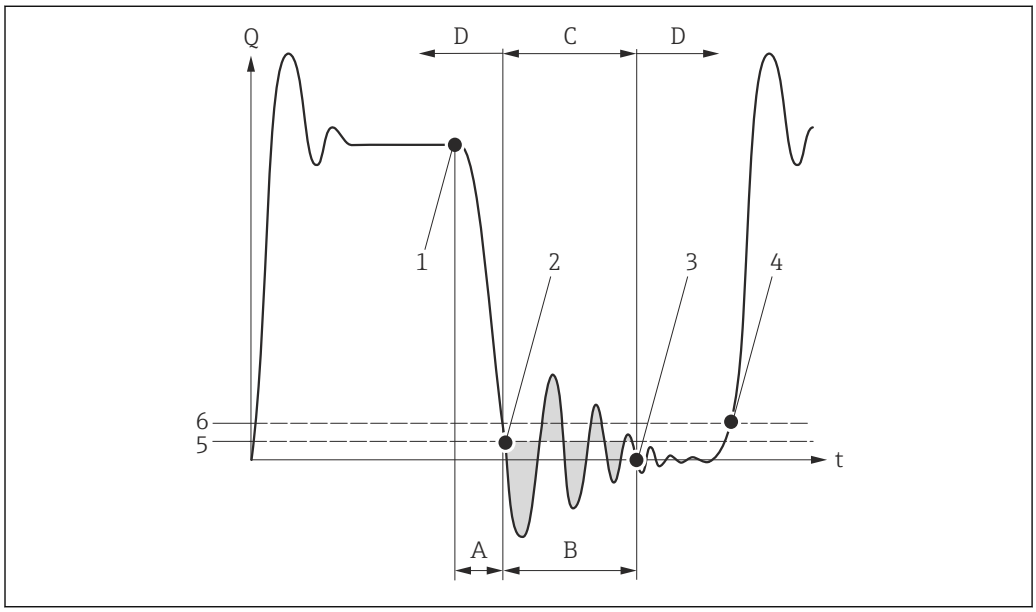
Additional information *Description*

Pressure shock suppression is enabled
- Prerequisite:
  Flow rate < on-value of low flow cut off
- Output values
  - Flow displayed: 0
  - Totalizer: the totalizers are pegged at the last correct value

Pressure shock suppression is disabled
- Prerequisite: the time interval set in this function has elapsed.
- If the flow also exceeds the switch-off value for low flow cut off, the device starts processing the current flow value again and displays it.

Example

When closing a valve, momentarily strong fluid movements may occur in the pipeline, which are registered by the measuring system. These totalized flow values lead to a false totalizer status, particularly during batching processes.

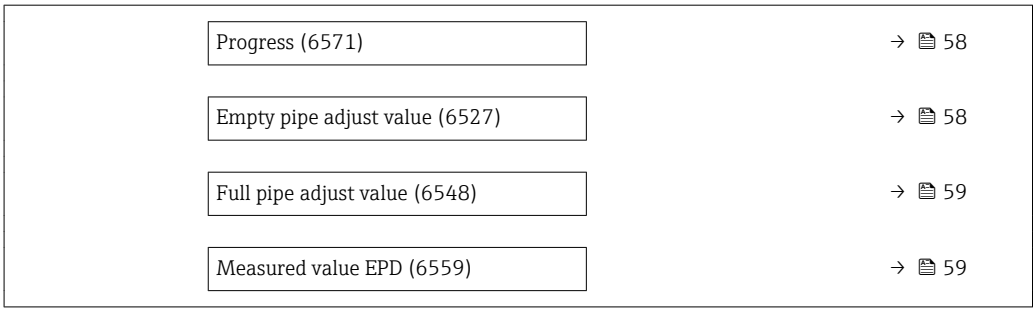


Q Flow
t Time
A Drip
B Pressure shock
C Pressure shock suppression active as specified by the time entered
D Pressure shock suppression inactive
1 Valve closes
2 Flow falls below the on-value of the low flow cut off: pressure shock suppression is activated
3 The time entered has elapsed: pressure shock suppression is deactivated
4 The actual flow value is now displayed and output
5 On value for low flow cut off
6 Off value for low flow cut off

"Empty pipe detection" submenu

Navigation Expert → Sensor → Process param. → Empty pipe det.

▶ **Empty pipe detection**	
Empty pipe detection (1860)	→ 57
Switch point empty pipe detection (6562)	→ 57
Response time empty pipe detection (1859)	→ 57
New adjustment (6560)	→ 58



Empty pipe detection

Navigation Expert → Sensor → Process param. → Empty pipe det. → Empty pipe det. (1860)

Description Use this function to switch empty pipe detection on and off.

Selection
- Off
- On

Factory setting Off

Switch point empty pipe detection

Navigation Expert → Sensor → Process param. → Empty pipe det. → Switch point EPD (6562)

Prerequsite The **On** option is selected in the **Empty pipe detection** parameter (→ 57).

Description Use this function to enter the percentage threshold value of the resistance in relation to the adjustment values.

User entry 1 to 99 %

Factory setting 10 %

Response time empty pipe detection

Navigation Expert → Sensor → Process param. → Empty pipe det. → Response time (1859)

Prerequsite In the **Empty pipe detection** parameter (→ 57), the **On** option is selected.

Description Enter the minimum length of time (debouncing time) the signal must be present for the diagnostic message ⚠**S862 Empty pipe** to be triggered if the measuring pipe is empty or partially full.

User entry 0 to 100 s

Factory setting 1 s

New adjustment

Navigation Expert → Sensor → Process param. → Empty pipe det. → New adjustment (6560)

Prerequsite The **On** option is selected in the **Empty pipe detection** parameter (→ 57).

Description For selecting whether to perform an empty pipe or full pipe adjustment.

Selection
- Cancel
- Empty pipe adjust
- Full pipe adjust

Factory setting Cancel

Progress

Navigation Expert → Sensor → Process param. → Empty pipe det. → Progress (6571)

Prerequsite The **On** option is selected in the **Empty pipe detection** parameter (→ 57).

Description Use this function to view the progress.

User interface
- Ok
- Busy
- Not ok

Empty pipe adjust value

Navigation Expert → Sensor → Process param. → Empty pipe det. → Empty pipe value (6527)

Prerequsite
- In the **Empty pipe detection** parameter (→ 57), the **On** option is selected.
- Adjustment value > full pipe value.

Description Displays the adjustment value when the measuring pipe is empty.

User interface Positive floating-point number

Full pipe adjust value

Navigation Expert → Sensor → Process param. → Empty pipe det. → Full pipe value (6548)

Prerequsite
- In the **Empty pipe detection** parameter (→ 57), the **On** option is selected.
- Adjustment value < empty pipe value.

Description Displays the adjustment value when the measuring pipe is full.

User interface Positive floating-point number

Measured value EPD

Navigation Expert → Sensor → Process param. → Empty pipe det. → Meas. value EPD (6559)

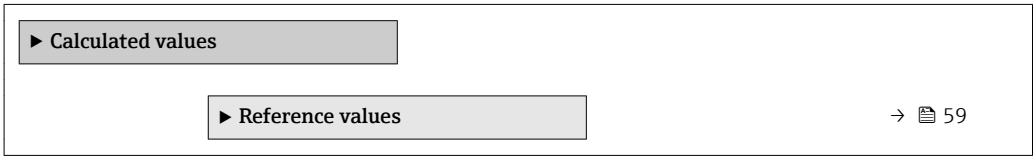
Prerequsite In the **Empty pipe detection** parameter (→ 57), the **On** option is selected.

Description Displays the current measured value.

User interface Positive floating-point number

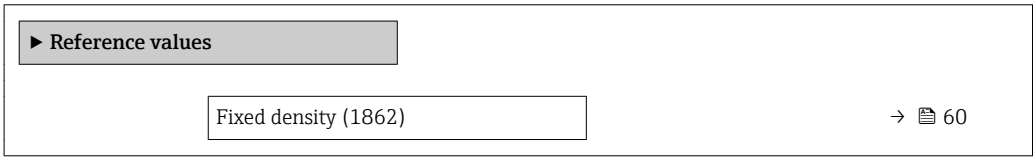
3.2.4 "Calculated values" submenu

Navigation Expert → Sensor → Calculated value



"Reference values" submenu

Navigation Expert → Sensor → Calculated value → Reference values



Fixed density

Navigation Expert → Sensor → Calculated value → Reference values → Fixed density (1862)

Description Use this function to enter a fixed value for the density. The density is used to calculate the mass flow.

User entry Positive floating-point number

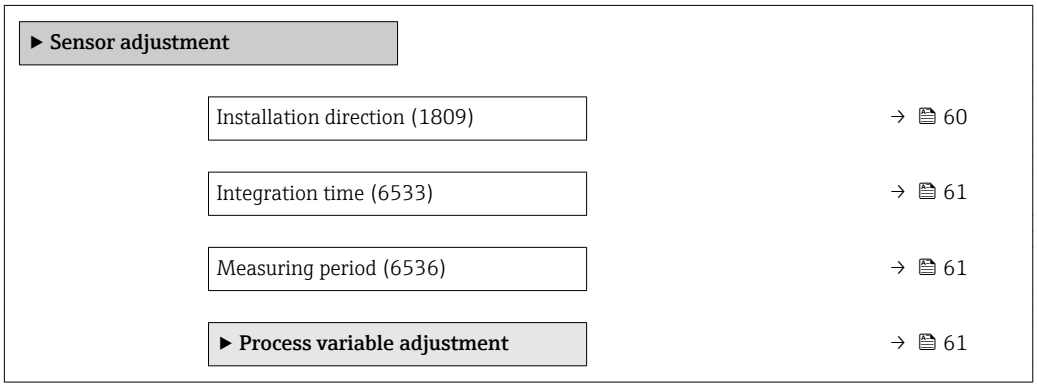
Factory setting 1 000 kg/l

Additional information *User entry*

The unit is taken from the **Density unit** parameter (→ 50).

3.2.5 "Sensor adjustment" submenu

Navigation Expert → Sensor → Sensor adjustm.



Installation direction

Navigation Expert → Sensor → Sensor adjustm. → Install. direct. (1809)

Description Use this function to change the sign of the medium flow direction.

Selection
- Flow in arrow direction
- Flow against arrow direction

Factory setting Flow in arrow direction

Additional information *Description*

Before changing the sign: ascertain the actual direction of fluid flow with reference to the direction indicated by the arrow on the sensor nameplate.

Integration time

Navigation Expert → Sensor → Sensor adjustm. → Integration time (6533)

Description Display the duration of an integration cycle.

User interface 5 to 100 ms

Measuring period

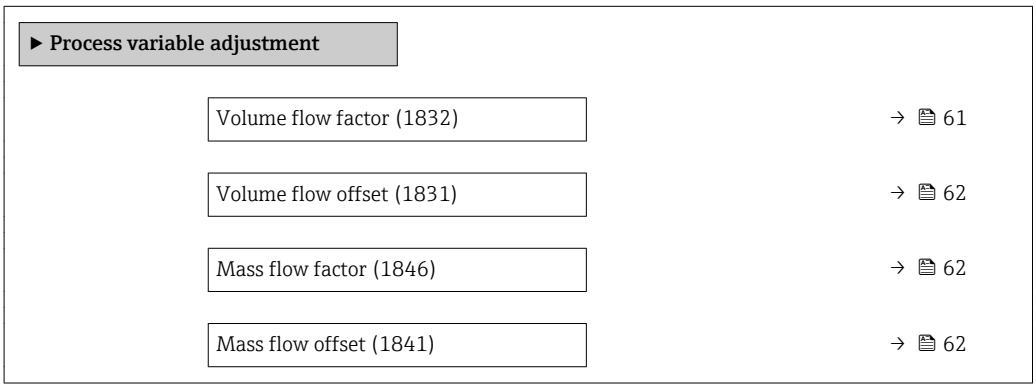
Navigation Expert → Sensor → Sensor adjustm. → Measuring period (6536)

Description Display the time of a full measuring period.

User interface 40 to 1 000 ms

"Process variable adjustment" submenu

Navigation Expert → Sensor → Sensor adjustm. → Variable adjust



Volume flow factor

Navigation Expert → Sensor → Sensor adjustm. → Variable adjust → Vol. flow factor (1832)

Description Use this function to enter a quantity factor (without time) for the volume flow. This multiplication factor is applied over the volume flow range.

User entry Positive floating-point number

Factory setting 1

Additional information *Description*

Corrected value = (factor × value) + offset

Volume flow offset

Navigation Expert → Sensor → Sensor adjustm. → Variable adjust → Vol. flow offset (1831)

Description Use this function to enter the zero point shift for the volume flow trim. The volume flow unit on which the shift is based is m^3/s.

User entry Signed floating-point number

Factory setting 0 m^3/s

Additional information *Description*

Corrected value = (factor × value) + offset

Mass flow factor

Navigation Expert → Sensor → Sensor adjustm. → Variable adjust → Mass flow factor (1846)

Description Use this function to enter a quantity factor (without time) for the mass flow. This multiplication factor is applied over the mass flow range.

User entry Positive floating-point number

Factory setting 1

Additional information *Description*

Corrected value = (factor × value) + offset

Mass flow offset

Navigation Expert → Sensor → Sensor adjustm. → Variable adjust → Mass flow offset (1841)

Description Use this function to enter the zero point shift for the mass flow trim. The mass flow unit on which the shift is based is kg/s.

User entry Signed floating-point number

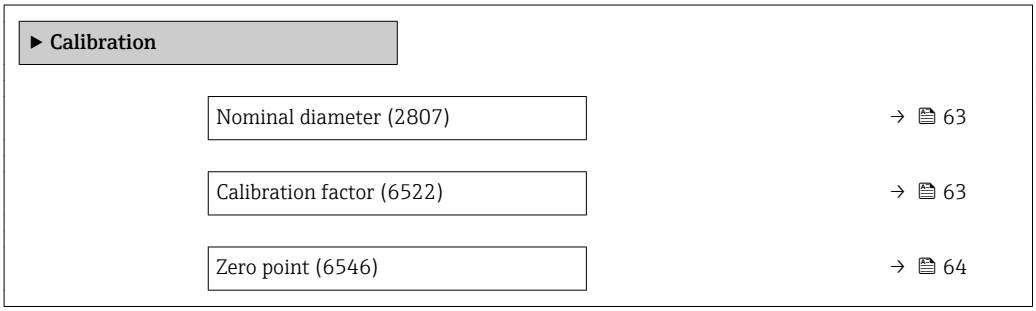
Factory setting 0 kg/s

Additional information *Description*

Corrected value = (factor × value) + offset

3.2.6 "Calibration" submenu

Navigation Expert → Sensor → Calibration



Nominal diameter

Navigation Expert → Sensor → Calibration → Nominal diameter (2807)

Description Displays the nominal diameter of the sensor.

User interface DNxx / x"

Factory setting Depends on the size of the sensor

Additional information *Description*

The value is also specified on the sensor nameplate.

Calibration factor

Navigation Expert → Sensor → Calibration → Cal. factor (6522)

Description Displays the current calibration factor for the sensor.

User interface Signed floating-point number

Factory setting Depends on nominal diameter and calibration.

Zero point

Navigation Expert → Sensor → Calibration → Zero point (6546)

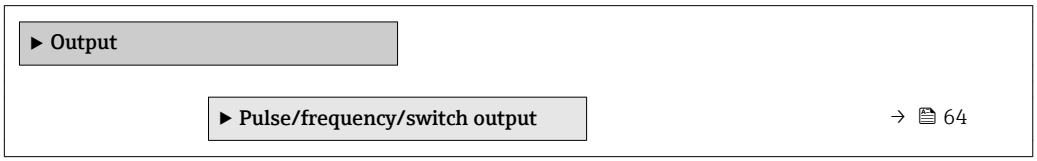
Description This function shows the zero point correction value for the sensor.

User interface Signed floating-point number

Factory setting Depends on nominal diameter and calibration

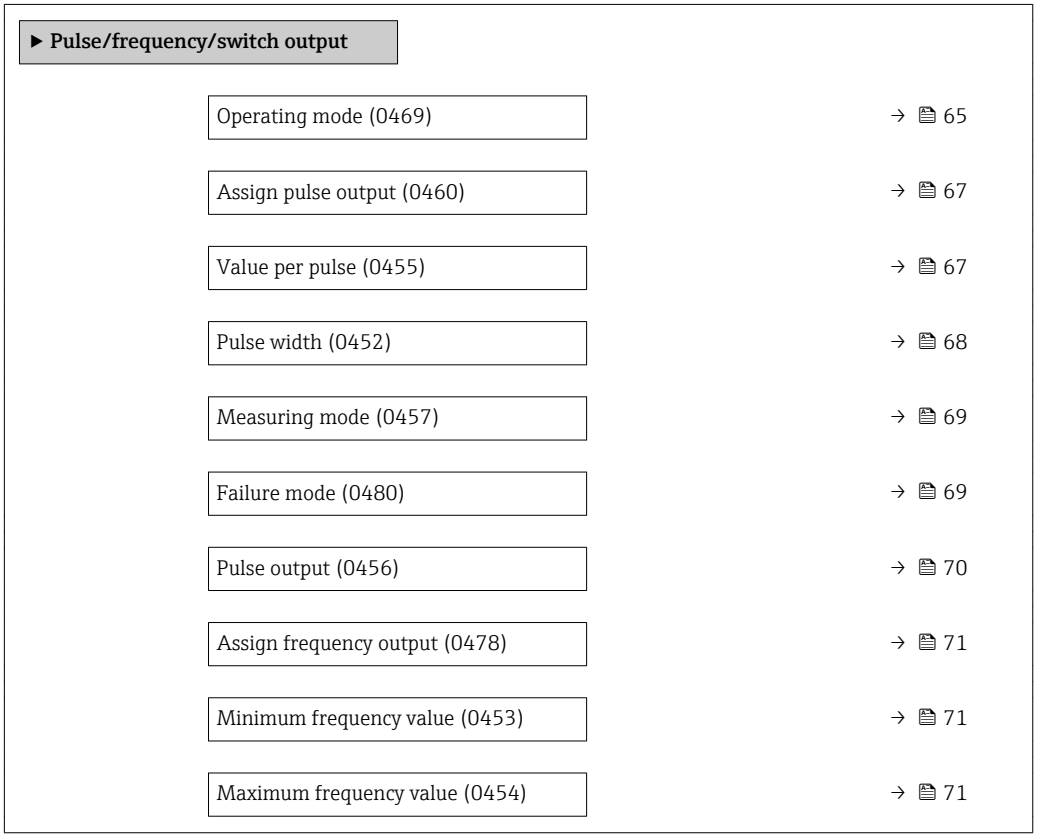
3.3 "Output" submenu

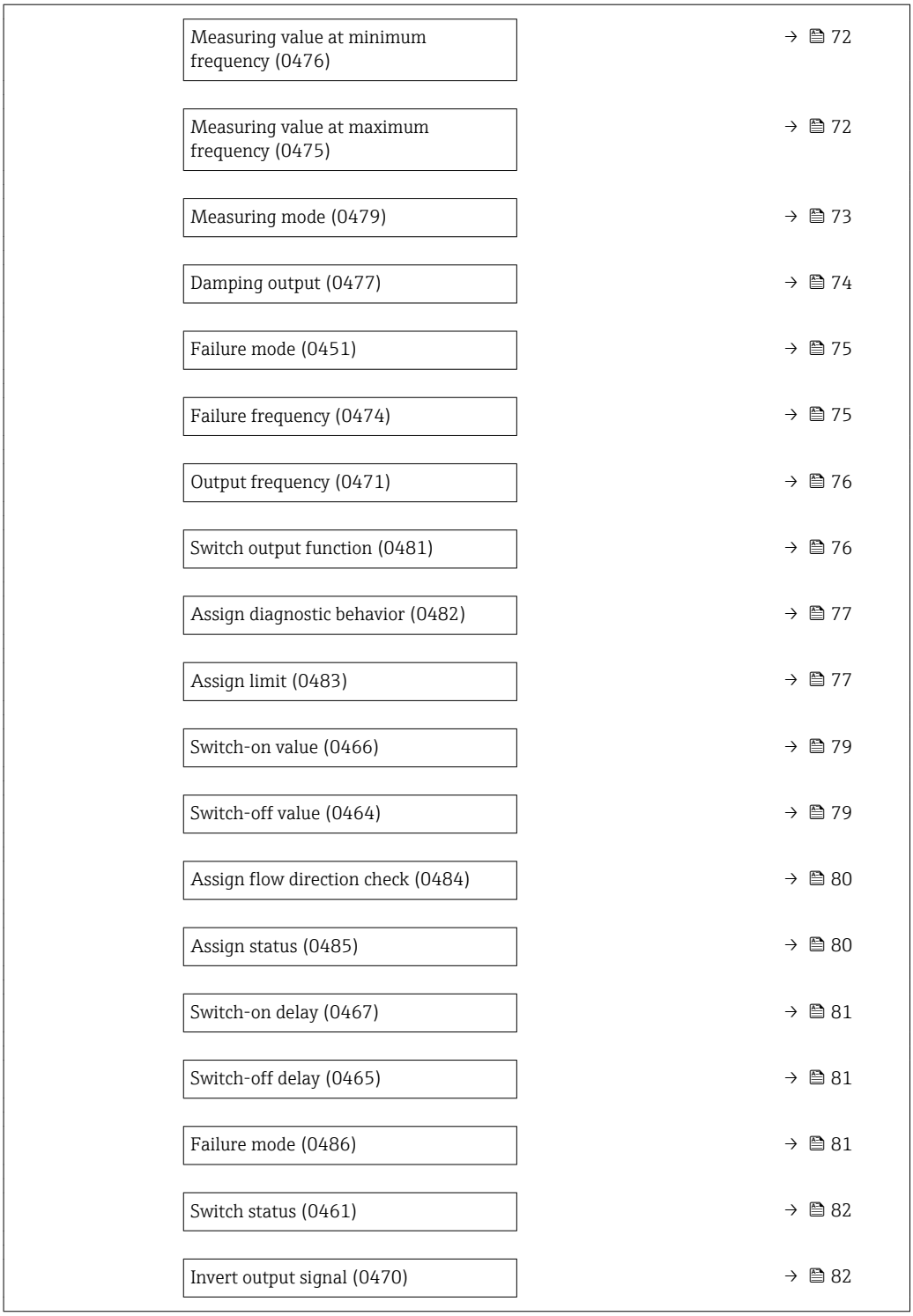
Navigation Expert → Output



3.3.1 "Pulse/frequency/switch output" submenu

Navigation Expert → Output → PFS output





Operating mode

Navigation Expert → Output → PFS output → Operating mode (0469)

Description Use this function to select the operating mode of the output as a pulse, frequency or switch output.

Selection

- Pulse
- Frequency
- Switch

Factory setting

Pulse

Additional information

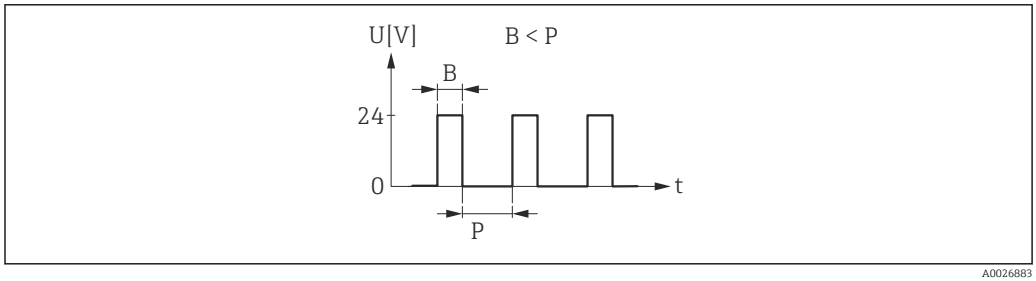
"Off" option

The pulse/frequency/switch output is not used.

"Pulse" option

Quantity-dependent pulse with configurable pulse width
- Whenever a specific mass or volume is reached (pulse value), a pulse is output, the duration of which was set previously (pulse width).
- The pulses are never shorter than the set duration.

Example
- Flow rate approx. 100 g/s
- Pulse value 0.1 g
- Pulse width 0.05 ms
- Pulse rate 1 000 Impuls/s



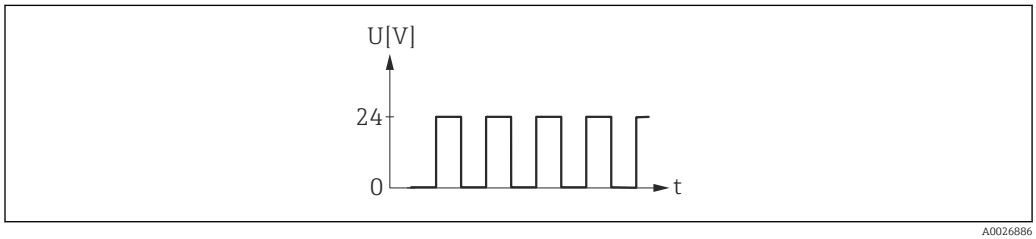
4 Quantity-proportional pulse (pulse value) with pulse width to be configured

B Pulse width entered
P Pauses between the individual pulses

"Frequency" option

Flow-proportional frequency output with 1:1 on/off ratio
An output frequency is output that is proportional to the value of a process variable, such as mass flow or volume flow.

Example
- Flow rate approx. 100 g/s
- Max. frequency 10 kHz
- Flow rate at max. frequency 1 000 g/s
- Output frequency approx. 1 000 Hz

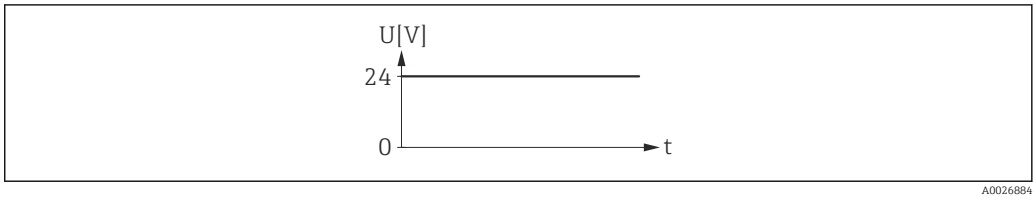


5 Flow-proportional frequency output

"Switch" option

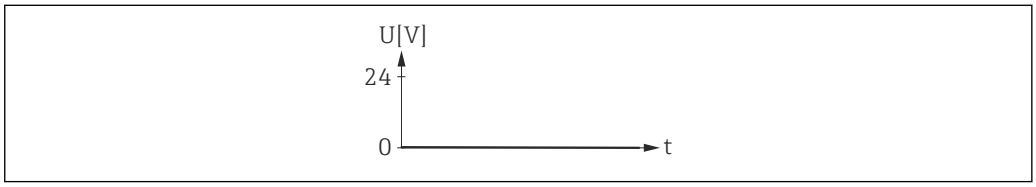
Switch to indicate a state (e.g. alarm or warning if a limit value is reached)

Example
Alarm response without alarm



6 *No alarm, high level*

Example
Alarm response in case of alarm



7 *Alarm, low level*

Assign pulse output

Navigation Expert → Output → PFS output → Assign pulse (0460)

Prerequsite The **Pulse** option is selected in the **Operating mode** parameter (→ 65).

Description Use this function to select the process variable for the pulse output.

Selection
- Off
- Mass flow
- Volume flow

Factory setting Off

Value per pulse

Navigation Expert → Output → PFS output → Value per pulse (0455)

Prerequsite In the **Operating mode** parameter (→ 65), the **Pulse** option is selected and one of the following options is selected in the **Assign pulse output** parameter (→ 67):
- Mass flow
- Volume flow

Description Use this function to enter the value for the measured value that a pulse is equivalent to.

User entry Signed floating-point number

Factory setting 0

Additional information *User entry*

Weighting of the pulse output with a quantity.

The lower the pulse value:
- the better the resolution.
- the higher the frequency of the pulse response.

Pulse width

Navigation Expert → Output → PFS output → Pulse width (0452)

Prerequisite In the **Operating mode** parameter (→ 65), the **Pulse** option is selected and one of the following options is selected in the **Assign pulse output** parameter (→ 67):
- Mass flow
- Volume flow

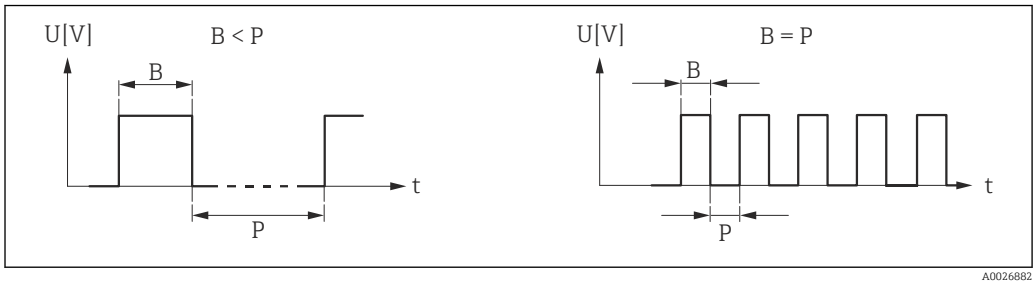
Description Use this function to enter the duration of the output pulse.

User entry 5 to 2 000 ms

Factory setting 100 ms

Additional information *Description*

- Define how long a pulse is (duration).
- The maximum pulse rate is defined by f_{max} = 1 / (2 × pulse width).
- The interval between two pulses lasts at least as long as the set pulse width.
- The maximum flow is defined by Q_{max} = f_{max} × pulse value.
- If the flow exceeds these limit values, the measuring device displays the diagnostic message ⚠**S443 Pulse output 1 to 2**.



B *Pulse width entered*
P *Intervals between the individual pulses*

Example

- Pulse value: 0.1 g
- Pulse width: 0.1 ms
- f_{max}: 1 / (2 × 0.1 ms) = 5 kHz
- Q_{max}: 5 kHz × 0.1 g = 0.5 kg/s

The pulse width is not relevant for **Automatic pulse** option.

Measuring mode

Navigation Expert → Output → PFS output → Measuring mode (0457)

Prerequisite In the **Operating mode** parameter (→ 65), the **Pulse** option is selected and one of the following options is selected in the **Assign pulse output** parameter (→ 67):
- Mass flow
- Volume flow

Description Use this function to select the measuring mode for the pulse output.

Selection
- Forward flow
- Forward/Reverse flow
- Reverse flow
- Reverse flow compensation

Factory setting Forward flow

Additional information *Selection*
- Forward flow
  Positive flow is output, negative flow is not output.
- Forward/Reverse flow
  Positive and negative flow are output (absolute value), but a distinction is not made between positive and negative flow.
- Reverse flow
  Negative flow is output, positive flow is not output.
- Reverse flow compensation

For a detailed description of the options available, see the **Measuring mode** parameter (→ 73)

Failure mode

Navigation Expert → Output → PFS output → Failure mode (0480)

Prerequisite In the **Operating mode** parameter (→ 65), the **Pulse** option is selected and one of the following options is selected in the **Assign pulse output** parameter (→ 67):
- Mass flow
- Volume flow

Description Use this function to select the failure mode of the pulse output in the event of a device alarm.

Selection
- Actual value
- No pulses

Factory setting No pulses

Additional information *Description*

The dictates of safety render it advisable to ensure that the pulse output shows a predefined behavior in the event of a fault.

Options

- Actual value
  In the event of a device alarm, the pulse output continues on the basis of the current flow measurement. The fault is ignored.
- No pulses
  In the event of a device alarm, the pulse output is "switched off".

NOTICE! A device alarm is a measuring device error that must be taken seriously. It can affect the measurement quality such that the quality can no longer be guaranteed. The **Actual value** option is only recommended if it can be guaranteed that all possible alarm conditions will not affect the measurement quality.

Pulse output

Navigation Expert → Output → PFS output → Pulse output (0456)

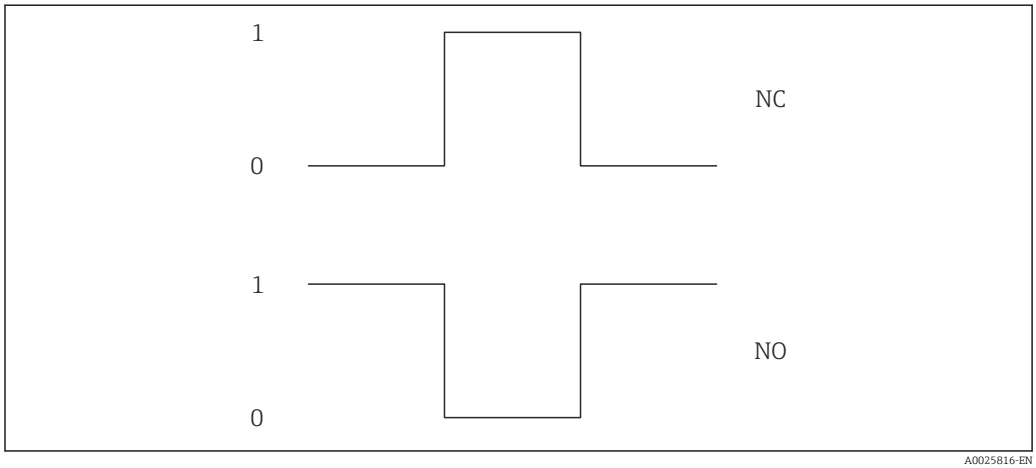
Prerequsite The **Pulse** option is selected in the **Operating mode** parameter (→ 65).

Description Displays the pulse frequency currently output.

User interface Positive floating-point number

Additional information *Description*

- The pulse output is an open collector output.
- This is configured at the factory in such a way that the transistor is conductive for the duration of the pulse (NO contact) and is safety-oriented.
- The **Value per pulse** parameter (→ 67) and the **Pulse width** parameter (→ 68) can be used to define the value (i.e. the amount of the measured value that corresponds to a pulse) and the duration of the pulse.



0 Non-conductive
1 Conductive
NC NC contact (normally closed)
NO NO contact (normally open)

The output behavior can be reversed via the **Invert output signal** parameter (→ 82), i.e. the transistor does not conduct for the duration of the pulse.

In addition, the behavior of the output in the event of an error (**Failure mode** parameter (→ 69)) can be configured.

Assign frequency output

Navigation Expert → Output → PFS output → Assign freq. (0478)

Prerequsite The **Frequency** option is selected in the **Operating mode** parameter (→ 65).

Description Use this function to select the process variable for the frequency output.

Selection
- Off
- Volume flow
- Mass flow

Factory setting Off

Minimum frequency value

Navigation Expert → Output → PFS output → Min. freq. value (0453)

Prerequsite In the **Operating mode** parameter (→ 65), the **Frequency** option is selected and one of the following options is selected in the **Assign frequency output** parameter (→ 71):
- Volume flow
- Mass flow

Description Use this function to enter the start value frequency.

User entry 0 to 1 000 Hz

Factory setting 0 Hz

Maximum frequency value

Navigation Expert → Output → PFS output → Max. freq. value (0454)

Prerequsite In the **Operating mode** parameter (→ 65), the **Frequency** option is selected and one of the following options is selected in the **Assign frequency output** parameter (→ 71):
- Volume flow
- Mass flow

Description Use this function to enter the end value frequency.

User entry 0 to 1 000 Hz

Factory setting 1 000 Hz

Measuring value at minimum frequency

Navigation Expert → Output → PFS output → Val. at min.freq (0476)

Prerequisite In the **Operating mode** parameter (→ 65), the **Frequency** option is selected and one of the following options is selected in the **Assign frequency output** parameter (→ 71):
- Volume flow
- Mass flow

Description Use this function to enter the measured value for the start value frequency.

User entry Signed floating-point number

Factory setting Depends on country and nominal diameter

Additional information *Dependency*

The entry depends on the process variable selected in the **Assign frequency output** parameter (→ 71).

Measuring value at maximum frequency

Navigation Expert → Output → PFS output → Val. at max.freq (0475)

Prerequisite In the **Operating mode** parameter (→ 65), the **Frequency** option is selected and one of the following options is selected in the **Assign frequency output** parameter (→ 71):
- Volume flow
- Mass flow

Description Use this function to enter the measured value for the end value frequency.

User entry Signed floating-point number

Factory setting Depends on country and nominal diameter

Additional information *Description*

Use this function to enter the maximum measured value at the maximum frequency. The selected process variable is output as a proportional frequency.

Dependency

The entry depends on the process variable selected in the **Assign frequency output** parameter (→ 71).

Measuring mode

Navigation Expert → Output → PFS output → Measuring mode (0479)

Prerequsite In the **Operating mode** parameter (→ 65), the **Frequency** option is selected and one of the following options is selected in the **Assign frequency output** parameter (→ 71):
- Volume flow
- Mass flow

Description Use this function to select the measuring mode for the frequency output.

Selection
- Forward flow
- Forward/Reverse flow
- Reverse flow compensation

Factory setting Forward flow

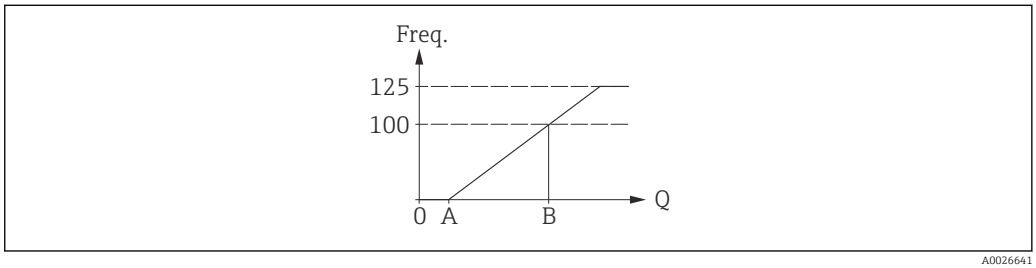
Additional information *"Forward flow" option*

The frequency output signal is proportional to the measured variable assigned. The measuring range is defined by the values that are assigned to the Measuring value at minimum frequency (A) and the Measuring value at maximum frequency (B).

The flow components outside the scaled measuring range are taken into account for signal output as follows:

One of the values is defined as equal to zero flow e.g.:
- Measuring value at minimum frequency = 0 kg/h
- Measuring value at maximum frequency = 10kg/h
  - If the effective flow exceeds or falls below this measured value, no diagnostic message is output and the frequency output retains its value (0 Hz in the example).
  - If the effective flow exceeds or drops below the other value, the diagnostic message ⚠**S442 Frequency output** is displayed and the frequency output behaves as configured in the **Failure mode** parameter (→ 75).

Both values are defined such that they are not equal to zero flow e.g.:
- Measuring value at minimum frequency = −5 kg/h
- Measuring value at maximum frequency = 10kg/h
  If the effective flow exceeds or drops below this measuring range, the diagnostic message ⚠**S442 Frequency output 1 to 2** is displayed and the frequency output behaves as configured in the **Failure mode** parameter (→ 75).

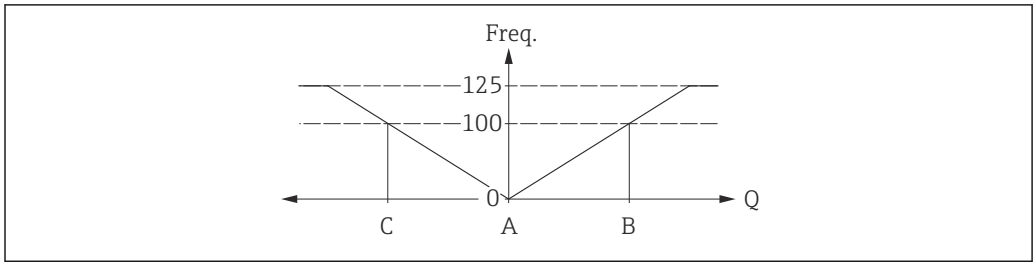


A Measuring value at minimum frequency
B Measuring value at maximum frequency

"Forward/Reverse flow" option

The frequency output signal is independent of the direction of flow (absolute amount of the measured variable). The Measuring value at minimum frequency (A) and the Measuring value at maximum frequency (B) must have the same sign (+ or -). The

Measuring value at maximum frequency (C) (e.g. reverse flow) is equivalent to the mirrored value Measuring value at minimum frequency (e.g. forward flow).



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- The flow direction can be output via the configurable relay or status outputs.
- The **Forward/Reverse flow** option can only be selected if the values in the **Measuring value at minimum frequency** parameter (→ 72) and **Measuring value at maximum frequency** parameter (→ 72) have the same sign or if one of the values is zero.
- If the values have different signs, the **Forward/Reverse flow** option cannot be selected.

"Reverse flow compensation" option

If flow is characterized by severe fluctuations (e.g. when using reciprocating pumps), flow components outside of the measuring range are buffered, balanced and output after a maximum delay of 60 s.

If buffering cannot be processed within approx. 60 s, the diagnostic message ⚠**S442 Frequency output** is displayed.

Under certain plant conditions, flow values can aggregate in the buffer, for example in the case of prolonged and unwanted fluid reverse flow. However, this buffer is reset in all relevant programming adjustments which affect the frequency output.

Damping output

Navigation Expert → Output → PFS output → Damping out. (0477)

Prerequsite In the **Operating mode** parameter (→ 65), the **Frequency** option is selected and one of the following options is selected in the **Assign frequency output** parameter (→ 71):
- Volume flow
- Mass flow

Description Use this function to enter the reaction time of the output signal to fluctuations in the measured value.

User entry 0 to 999.9 s

Factory setting 0.0 s

Additional information *Description*

Use this function to enter a time constant (PT1 element) for frequency output damping. The frequency output is subject to separate damping that is independent of all preceding time constants.

Failure mode

Navigation Expert → Output → PFS output → Failure mode (0451)

Prerequsite In the **Operating mode** parameter (→ 65), the **Frequency** option is selected and one of the following options is selected in the **Assign frequency output** parameter (→ 71):
- Volume flow
- Mass flow

Description Use this function to select the failure mode of the frequency output in the event of a device alarm.

Selection
- Actual value
- Defined value
- 0 Hz

Factory setting 0 Hz

Additional information *Options*
- Actual value
  In the event of a device alarm, the frequency output continues on the basis of the current flow measurement. The fault is ignored.
- Defined value
  In the event of a device alarm, the frequency output continues on the basis of a predefined value. This Failure frequency (→ 75) replaces the current measured value and the alarm can be bypassed as a result. The actual measurement is switched off for the duration of the alarm.
- 0 Hz
  In the event of a device alarm, the frequency output is "switched off".

NOTICE! A device alarm is a measuring device error that must be taken seriously. It can affect the measurement quality such that the quality can no longer be guaranteed. The **Actual value** option is only recommended if it can be guaranteed that all possible alarm conditions will not affect the measurement quality.

Failure frequency

Navigation Expert → Output → PFS output → Failure freq. (0474)

Prerequsite In the **Operating mode** parameter (→ 65), the **Frequency** option is selected and one of the following options is selected in the **Assign frequency output** parameter (→ 71):
- Volume flow
- Mass flow

Description Use this function to enter the value for the frequency output in the event of a device alarm in order to bypass the alarm.

User entry 0.0 to 1250.0 Hz

Factory setting 0.0 Hz

Output frequency

Navigation Expert → Output → PFS output → Output freq. (0471)

Prerequsite The **Frequency** option is selected in the **Operating mode** parameter (→ 65).

Description Use this function to view the actual value of the output frequency which is currently measured.

User interface 0 to 1 250 Hz

Switch output function

Navigation Expert → Output → PFS output → Switch out funct (0481)

Prerequsite The **Switch** option is selected in the **Operating mode** parameter (→ 65).

Description Use this function to select a function for the switch output.

Selection
- Off
- On
- Diagnostic behavior
- Limit
- Flow direction check
- Status

Factory setting Off

Additional information *Options*
- Off
  The switch output is permanently switched off (open, non-conductive).
- On
  The switch output is permanently switched on (closed, conductive).
- Diagnostic behavior
  Indicates if the diagnostic event is present or not. Is used to output diagnostic information and to react to it appropriately at the system level.
- Limit
  Indicates if a specified limit value has been reached for the process variable. Is used to output diagnostic information relating to the process and to react to it appropriately at the system level.
- Flow direction check
  Indicates the flow direction (forward or reverse flow).
- Status
  Indicates the device status depending on whether empty pipe detection or low flow cut off is selected.

Assign diagnostic behavior

Navigation Expert → Output → PFS output → Assign diag. beh (0482)

Prerequisite
- The **Switch** option is selected in the **Operating mode** parameter (→ 65).
- The **Diagnostic behavior** option is selected in the **Switch output function** parameter (→ 76).

Description Use this function to select the diagnostic event category that is displayed for the switch output.

Selection
- Alarm
- Alarm or warning
- Warning

Factory setting Alarm

Additional information *Description*

If no diagnostic event is pending, the switch output is closed and conductive.

Options
- Alarm
  The switch output signals only diagnostic events in the alarm category.
- Alarm or warning
  The switch output signals diagnostic events in the alarm and warning category.
- Warning
  The switch output signals only diagnostic events in the warning category.

Assign limit

Navigation Expert → Output → PFS output → Assign limit (0483)

Prerequisite
- The **Switch** option is selected in the **Operating mode** parameter (→ 65).
- The **Limit** option is selected in the **Switch output function** parameter (→ 76).

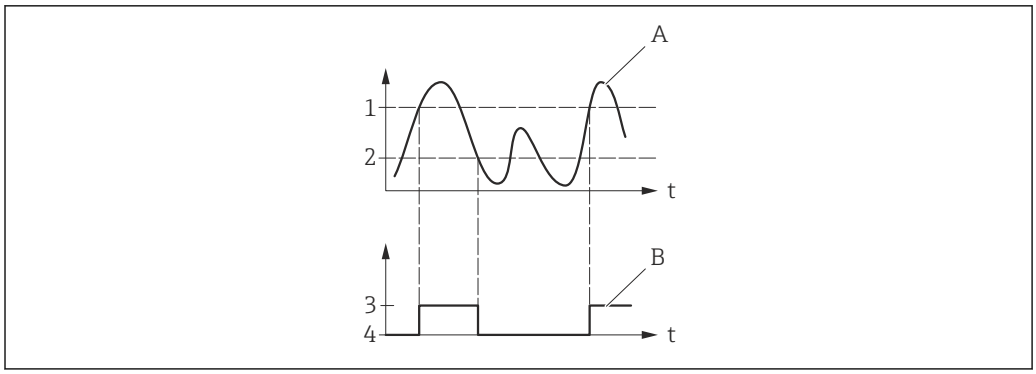
Description Use this function to select a process variable for the limit function.

Selection
- Volume flow
- Mass flow
- Totalizer 1
- Totalizer 2
- Totalizer 3

Factory setting Volume flow

Additional information *Description*

Behavior of status output when Switch-on value > Switch-off value:
- Process variable > Switch-on value: transistor is conductive
- Process variable < Switch-off value: transistor is non-conductive



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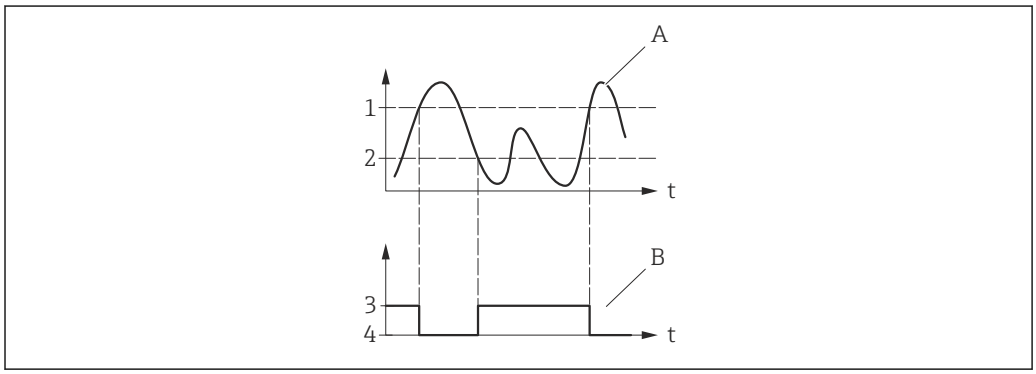
1 Switch-on value
2 Switch-off value
3 Conductive
4 Non-conductive
A Process variable
B Status output

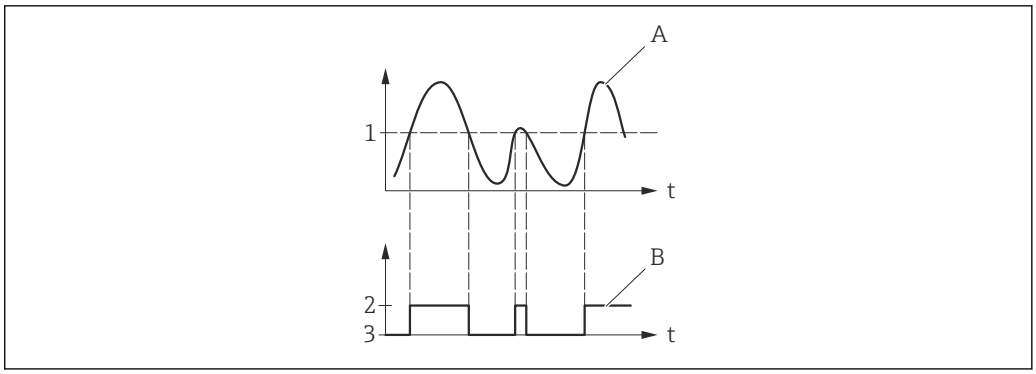
Behavior of status output when Switch-on value < Switch-off value:
- Process variable < Switch-on value: transistor is conductive
- Process variable > Switch-off value: transistor is non-conductive



A0026892

1 Switch-off value
2 Switch-on value
3 Conductive
4 Non-conductive
A Process variable
B Status output

Behavior of status output when Switch-on value = Switch-off value:
- Process variable > Switch-on value: transistor is conductive
- Process variable < Switch-off value: transistor is non-conductive



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1 Switch-on value = Switch-off value
2 Conductive
3 Non-conductive
A Process variable
B Status output

Switch-on value

Navigation Expert → Output → PFS output → Switch-on value (0466)

Prerequsite
- The **Switch** option is selected in the **Operating mode** parameter (→ 65).
- The **Limit** option is selected in the **Switch output function** parameter (→ 76).

Description Use this function to enter the measured value for the switch-on point.

User entry Signed floating-point number

Factory setting Country-specific:
- 0 l/h
- 0 gal/min (us)

Additional information

Description

Use this function to enter the limit value for the switch-on value (process variable > switch-on value = closed, conductive).

When using a hysteresis: Switch-on value > Switch-off value.

Dependency

The unit depends on the process variable selected in the **Assign limit** parameter (→ 77).

Switch-off value

Navigation Expert → Output → PFS output → Switch-off value (0464)

Prerequsite
- The **Switch** option is selected in the **Operating mode** parameter (→ 65).
- The **Limit** option is selected in the **Switch output function** parameter (→ 76).

Description Use this function to enter the measured value for the switch-off point.

User entry Signed floating-point number

Factory setting Country-specific:
- 0 l/h
- 0 gal/min (us)

Additional information *Description*

Use this function to enter the limit value for the switch-off value (process variable < switch-off value = open, non-conductive).

When using a hysteresis: Switch-on value > Switch-off value.

Dependency

The unit depends on the process variable selected in the **Assign limit** parameter (→ 77).

Assign flow direction check

Navigation Expert → Output → PFS output → Assign dir.check (0484)

Prerequsite
- The **Switch** option is selected in the **Operating mode** parameter (→ 65).
- The **Flow direction check** option is selected in the **Switch output function** parameter (→ 76).

Description Use this function to select a process variable for monitoring the flow direction.

Selection
- Volume flow
- Mass flow

Factory setting Volume flow

Assign status

Navigation Expert → Output → PFS output → Assign status (0485)

Prerequsite
- The **Switch** option is selected in the **Operating mode** parameter (→ 65).
- The **Status** option is selected in the **Switch output function** parameter (→ 76).

Description Use this function to select a device status for the switch output.

Selection
- Empty pipe detection
- Low flow cut off
- Digital output 6

Factory setting Empty pipe detection

Additional information *Options*

If empty pipe detection or low flow cut off are enabled, the output is conductive. Otherwise, the switch output is non-conductive.

Switch-on delay

Navigation Expert → Output → PFS output → Switch-on delay (0467)

Prerequsite
- The **Switch** option is selected in the **Operating mode** parameter (→ 65).
- The **Limit** option is selected in the **Switch output function** parameter (→ 76).

Description Use this function to enter a delay time for switching on the switch output.

User entry 0.0 to 100.0 s

Factory setting 0.0 s

Switch-off delay

Navigation Expert → Output → PFS output → Switch-off delay (0465)

Prerequsite
- The **Switch** option is selected in the **Operating mode** parameter (→ 65).
- The **Limit** option is selected in the **Switch output function** parameter (→ 76).

Description Use this function to enter a delay time for switching off the switch output.

User entry 0.0 to 100.0 s

Factory setting 0.0 s

Failure mode

Navigation Expert → Output → PFS output → Failure mode (0486)

Description Use this function to select a failsafe mode for the switch output in the event of a device alarm.

Selection
- Actual status
- Open
- Closed

Factory setting Open

Additional information *Options*

- Actual status
  In the event of a device alarm, faults are ignored and the current behavior of the input value is output by the switch output. The **Actual status** option behaves in the same way as the current input value.
- Open
  In the event of a device alarm, the switch output's transistor is set to **non-conductive**.
- Closed
  In the event of a device alarm, the switch output's transistor is set to **conductive**.

Switch status

Navigation Expert → Output → PFS output → Switch status (0461)

Prerequsite In the **Operating mode** parameter (→ 65), the **Switch** option is selected.

Description Displays the current switch status of the status output.

User interface

- Open
- Closed

Additional information *Selection*

- Open
  The switch output is not conductive.
- Closed
  The switch output is conductive.

Invert output signal

Navigation Expert → Output → PFS output → Invert outp.sig. (0470)

Description Use this function to select whether to invert the output signal.

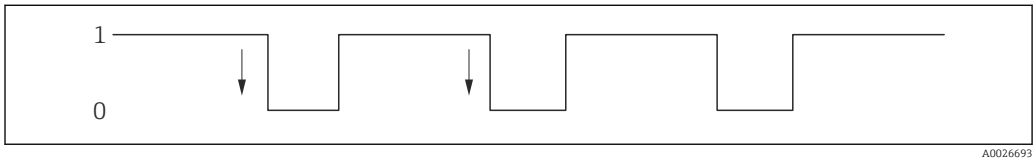
Selection

- No
- Yes

Factory setting No

Additional information *Selection*

No option (passive - negative)



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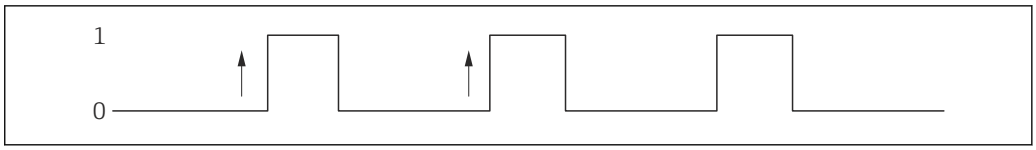
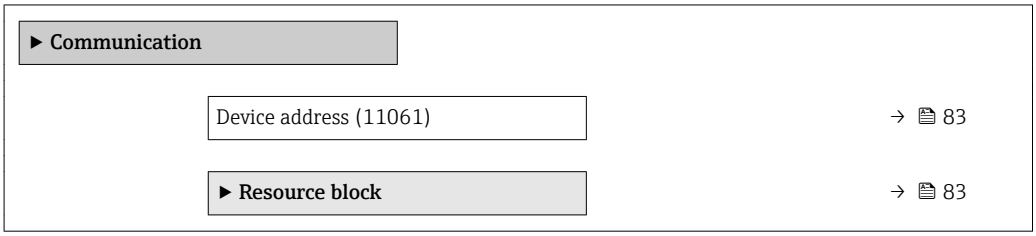
Yes option (passive - positive)



3.4 "Communication" submenu

Navigation Expert → Communication



Device address

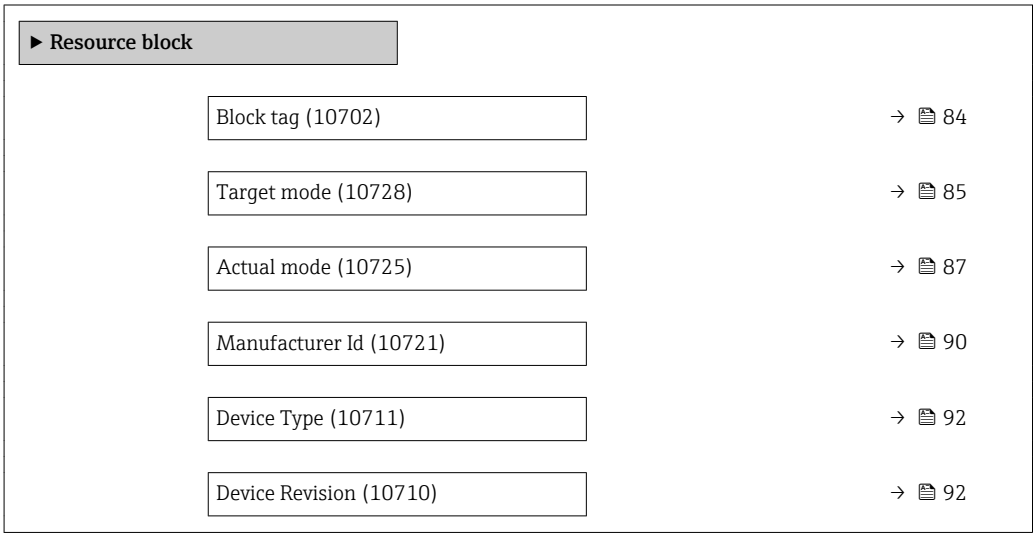
Navigation Expert → Communication → Device address (11061)

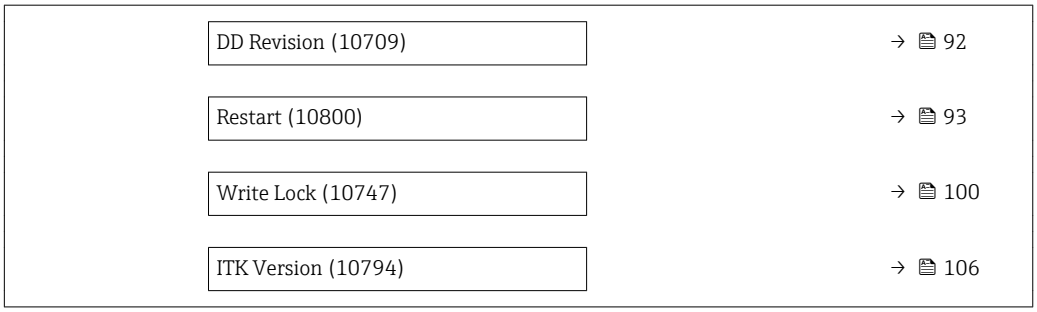
Description Displays the device address.

User interface 0 to 255

3.4.1 "Resource block" submenu

Navigation Expert → Communication → Resource block





Block tag

Navigation Expert → Communication → Resource block → Block tag (10702)

Description Use this function to enter the Block tag: Used for specifying a "label" for identifying the function block.

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Static Revision

Navigation Expert → Communication → Resource block → Static Revision (10735)

Description Displays the Static Revision: Each instance of a static block parameter being accessed with write access is counted (event counter).

User interface 0 to FFFF

Additional information *Description*

Static parameters are parameters that are not changed by the process.

Tag Description

Navigation Expert → Communication → Resource block → Tag Description (10736)

Description Use this function to enter the Tag Description: Used for defining a user-specific text for detailed description of the function block.

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Strategy

Navigation Expert → Communication → Resource block → Strategy (10734)

Description Use this function to enter the Strategy: Enables blocks to be grouped by entering identical numbers.

User entry 0 to FFFF

Factory setting 0

Alert Key

Navigation Expert → Communication → Resource block → Alert Key (10696)

Description Use this function to enter the Alert Key: Identifies the plant unit where the transmitter is located. This helps in pinpointing events.

User entry 0 to 0xFF

Factory setting 1

Target mode

Navigation Expert → Communication → Resource block → Target mode (10728)

Description Use this function to select the Target mode: The selection indicates which operating mode is used for this function block. This mode is generally set by a control application.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting OOS

Additional information *Options*

- ROut
  In the **ROut** operating mode, the set point (SP) for the function block is controlled by the field bus host system, which runs over an interface, via the RIn parameter. The set point (SP) is used as an output signal after internal calculations. The output value and the status of the function block is communicated to the field bus host system as feedback via the ROut parameter. The set point can be initiated or retained for the value of the process variables.
- RCas
  In the **RCas** operating mode (external cascade mode), the set point (SP) for the function block is controlled by the field bus host system, which runs over an interface, via the RCas-In parameter. The set point (SP) is used as an output signal after internal calculations. The output value and status of the function block is communicated to the field bus host system as feedback via the RCas-Out parameter.
- Cas
  In the **Cas** (cascade mode) operating mode, the function block receives a discrete signal via the function block input, which is provided by the Cas-In parameter of an upstream function block. This signal controls the set point (SP) of the function block and is used as an output signal after internal calculations. The output is used to communicate the output value and status to the upstream function block.
- Auto
  The **Auto** operating mode is the normal operating mode of the function block. The set point (SP) is specified locally in the function block and is used as an output signal after internal calculations. This set point can be specified by the user via an interface.
- Man
  In the **Man** operating mode, the output value can be specified directly in the function block. This is specified by the user via an interface. There is no internal calculation. The algorithm is initiated in such a way that there is no interruption when the operating mode is changed. The set point can be retained or initiated for the value of the process variables or for the set point of the previous operating mode if the system is switched back to it.
- LO
  The **LO** operating mode is used in control and output blocks that support a track input parameter. The manufacturer can also provide a local lock switch on the device to enable the **LO** operating mode. Tracking must be supported in the group of control parameters and is initiated by a discrete track-in parameter.
  In local bridge mode, the output value of the function block is set in order to track the value of the track-input parameter. The algorithm is initiated in such a way that there is no interruption when the operating mode switches from **LO** back to the previous operating mode. The set point can be initiated or retained for the value of the process variables.
- IMan
  In the **IMan** operating mode, the output value of the function block is performed as a reaction to the status of the back-calculation-input parameter. When this status indicates that there is no signal for the final output element, the control blocks ensure that there is a smooth transition. The back-calculation-input parameter is supported by all control and output blocks. The set point can be initiated or retained for the value of the process variables.
- OOS
  In the **OOS** operating mode, implementation of the function block is blocked. Either the last valid value or, in the case of an output block, the last valid set point is retained as the output value. This operating mode is used during configuration of the device.

Actual mode

Navigation Expert → Communication → Resource block → Actual mode (10725)

Description Displays the Actual mode: Under certain conditions, a function block may not work in the operating mode to be used. In this case, the Actual mode shows the actual operating mode that the function block is currently operating in. By comparing the Actual mode with the Target mode, users can see whether it was possible to reach the Target mode (→ 85).

User interface
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Additional information *User interface*

Detailed description of the options displayed: **Target mode** parameter (→ 85)

Permitted mode

Navigation Expert → Communication → Resource block → Permitted mode (10727)

Description Use this function to select the Permitted mode: The selection defines which operating modes are available in Target mode (→ 85) for the function block. The operating modes that are supported vary depending on the type and function of the block.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting
- Auto
- OOS

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Normal mode

Navigation Expert → Communication → Resource block → Normal mode (10726)

Description Use this function to select the Normal mode: This is available to enable the user to select the Normal mode from the available operating modes. This can be set using an operating tool in order to help the user configure the operating mode of a function block.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Block Error

Navigation Expert → Communication → Resource block → Block Error (10703)

Description Displays the short text for the Block Error that has occurred in the function block.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Resource State

Navigation Expert → Communication → Resource block → Resource State (10730)

Description Displays the Resource State: Displays the current operating mode of the resource block.

User interface

- Uninitialized
- StartRestart
- Initialization
- Online Linking
- Online
- Standby
- Failure

Additional information

User interface

- Uninitialized
  The resource block is in an invalid operating mode.
- StartRestart
  The resource block is in the start-up or restore phase. The necessary memory and hardware tests are carried out for the current operation. If these tests are successful, the resource block switches to the Initialization operating mode. If these tests are not successful, the resource block switches to the Failure operating mode.
- Initialization
  The resource block is in this operating mode if the block successfully passes the hardware tests from the StartRestart or Failure status. In this operating mode, all alarms of the function block that are not displayed are automatically confirmed and acknowledged. When system management is operational, the implementation of the block can be planned and the resource block switches to the Online Linking operating mode.
- Online Linking
  The resource block is in this operating mode when the block switches from the Initialization or Online operating mode. The configured connections between the function blocks are not yet established. When all configured connections have been established, the resource block switches to the Online operating mode.
- Online
  Normal operating mode, the resource block is in the Auto operating mode. The configured connections between the function blocks have been established. If one of the connections could not be established, the resource block switches back to the Online Linking operating mode.
- Standby
  The Resource Block is in the **OOS** option operating mode. It is not possible to implement the remaining blocks. The operating mode of the transducer block is not necessarily affected by this. Switching the resource block to the Auto mode causes the resource block to switch back to the StartRestart operating mode.
- Failure
  The resource block is in the fault state. It switches to this operating mode if a memory or hardware fault that would hinder current operation has been detected in the block. The fault can affect the block or the entire device. When this operating mode is active, blocks with an output function are also in the fault state. The hardware test is carried out again. If the error does not reoccur, the resource block switches back to the Initialization operating mode.

DD Resource

Navigation Expert → Communication → Resource block → DD Resource (10708)

Description Displays the DD Resource: Indicates the reference source for the device description (DD).

User interface Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Additional information *User interface*

Zero: No device description is stored on the device.

Manufacturer Id

Navigation Expert → Communication → Resource block → Manufacturer Id (10721)

Description Displays the Manufacturer Id: This is used by the interface device to assign the correct DD file for the resource.

User interface

- MOBREY
- KROHNE
- Rockwell Automation
- Valmet Automation
- R. STAHL SCHALTGERAETE
- SMAR
- Fuji Electric Co., Ltd.
- SHIP STAR
- Rosemount Inc.
- HuaKong Technology
- Fieldbus Inc.
- Fisher Controls
- VALTEK INTERNATIONAL
- MTL Instruments
- Azbil Corporation
- Softing AG
- The Foxboro Company
- Honeywell
- Moore Products Co.
- National Instruments
- Yokogawa Electric
- K-TEK
- Magnetrol International
- Micro Motion, Inc.
- ABB
- OVAL Corporation
- Ohmart/Vega Corp
- Fisher Rosemount Per Tc
- NOHKEN INC.
- Metso Automation
- EIM CONTROLS
- Buerkert
- StoneL
- SAMSON AG
- ROTORK
- M-System
- Limitorque Co.
- ELOMATIC INTERNATIONAL
- Limitorque Corporation
- Dresser Valve Division
- Endress+Hauser
- Flowserve
- Fisher Rosemount Systems
- Fraunhofer IITB

- Dresser Italia S.p.A.
- Pepperl+Fuchs
- Rosemount Analytical Inc
- TopWorx Inc.
- VEGA
- SIEMENS AG
- Bettis
- Bettis Canada
- Valve Automation Div.
- Shafer
- Dantorque
- WTVC
- Microcyber Inc
- KNICK
- ISE-MAGTECH
- TURCK
- Moore Industries
- PR Electronics
- Anderson Instrument Co.
- HMS Industrial Networks
- BEKA Associates
- EnVision Instruments
- Fieldbus International
- SPIRAX SARCO ITALY
- Unused
- Ronan Engineering
- ASCO Conrols, LP
- CSI
- Dynisco
- Flowserve/Automax
- METTLER-TOLEDO
- General Electric
- WIKA
- BERNARD
- BERTHOLD TECHNOLOGIES
- Duon System Co., Ltd.
- Enraf
- Tyco Valves & Controls
- Biffi
- CEAG/COOPER Crouse-Hinds
- Welltech
- Fieldbus Foundation
- Beck, Harold & Sons
- Dynamic Flow Computers
- Beamex Oy Ab
- Brooks Instrument
- Rexa, Koso America
- Numatics Inc
- Hach Company
- Cidra Corporation
- Dandong Top Instrument
- Chemtrac Systems, Inc.
- Biffi Italia
- ENOTEC GmbH
- Orange Instruments Ltd.
- AUMA
- Detcon
- Fluenta
- Waseda University

- FESTO BRASIL LTDA
- Draeger
- TOKYO KEISO CO., LTD.
- SAIT
- DREHMO GmbH
- Leyden Engineering
- optek-Danulat
- Flexim
- AMFLOW

Factory setting Endress+Hauser

Device Type

Navigation Expert → Communication → Resource block → Device Type (10711)

Description Use this function to view the device type with which the measuring device is registered with FOUNDATION Fieldbus.

User interface Promag 200

Factory setting Promag 200

Device Revision

Navigation Expert → Communication → Resource block → Device Revision (10710)

Description Use this function to view the device revision with which the measuring device is registered with FOUNDATION Fieldbus.

User interface 0 to 255

DD Revision

Navigation Expert → Communication → Resource block → DD Revision (10709)

Description Displays the revision number of the device description (DD).

User interface 0 to 255

Additional information *Description*

This display can be used to ensure that the right system files (DD = device description) are used for integration into the host system. The system files can be downloaded free of charge online at: www.endress.com.

Grant

Navigation Expert → Communication → Resource block → Grant (10718)

Description Option for releasing certain access authorizations of the field bus host system on the device.

Selection
- Program
- Tune
- Alarm
- Local
- Operate
- Service
- Diagnostic

Deny

Navigation Expert → Communication → Resource block → Deny (10717)

Description Option for restricting certain access authorizations of the field bus host system on the device.

Selection
- Program Denied
- Tune Denied
- Alarm Denied
- Local
- Operate Denied

Hard Types

Navigation Expert → Communication → Resource block → Hard Types (10719)

Description Displays the input signal type for the Analog input block.

User interface
- Scalar Input
- Scalar Output
- Discrete Input
- Discrete Output

Restart

Navigation Expert → Communication → Resource block → Restart (10800)

Description Use this function to select a manual restart or a manual device reset.

Selection
- Uninitialized
- Run
- Resource
- Defaults
- Processor
- To factory defaults
- To delivery settings
- ENP restart
- To transducer defaults
- Factory Default Blocks

Factory setting Uninitialized

Features

Navigation Expert → Communication → Resource block → Features (10713)

Description Displays the additional options that are supported by the measuring device.

User interface
- Reports
- Faultstate
- Soft W Lock
- Hard W Lock
- Change Bypass in Auto
- MVC Report Distribution supported
- Multi-bit Alarm (Bit-Alarm) Support
- Defer Inter-Parameter Write Checks

Feature Selection

Navigation Expert → Communication → Resource block → Feature Select (10714)

Description Use this function to select additional options that are supported by the measuring device.

Selection
- Reports
- Faultstate
- Soft W Lock
- Hard W Lock
- Change Bypass in Auto
- MVC Report Distribution supported
- Multi-bit Alarm (Bit-Alarm) Support
- Defer Inter-Parameter Write Checks

Cycle Type

Navigation Expert → Communication → Resource block → Cycle Type (10707)

Description Displays the implementation methods for the block that are supported by the measuring device.

User interface
- Scheduled
- Block Execution

Cycle Selection

Navigation Expert → Communication → Resource block → Cycle Selection (10706)

Description Use this function to select the implementation method for the block that is used by the field bus host system. This implementation method is selected by the field bus host system.

Selection
- Scheduled
- Block Execution

Minumum Cycle Time

Navigation Expert → Communication → Resource block → Minumum Cyc.Time (10724)

Description Displays the implementation time of all function blocks that are available in the measuring device.

User interface Positive integer

Memory Size

Navigation Expert → Communication → Resource block → Memory Size (10723)

Description Displays the available configuration memory in kilobytes.

User interface 0 to 65 535 Kbytes

Nonvolatile Cycle Time

Navigation Expert → Communication → Resource block → Nonvolat CycTime (10729)

Description Displays the time interval during which the dynamic device parameters are stored in the non-volatile memory.

User interface Positive integer

Free Space

Navigation Expert → Communication → Resource block → Free Space (10715)

Description Displays the free system memory volume available for implementing further function blocks as a percentage.

User interface 0.000000 to 100.000 %

Free Time

Navigation Expert → Communication → Resource block → Free Time (10716)

Description Displays the free system time available for implementing further function blocks as a percentage.

User interface 0.000000 to 100.000 %

Clear Fault State

Navigation Expert → Communication → Resource block → Clear Fault Stat (10704)

Description Use this function to select the fault state for the Discrete outputs (→ 185) block.

Selection
- Uninitialized
- Off
- Clear

Factory setting Uninitialized

Additional information *Options*

The fault state can be disabled with **Clear** option.

Confirm Time

Navigation Expert → Communication → Resource block → Confirm Time (10705)

Description Use this function to enter a time interval for confirming the event report. If the measuring device does not receive a confirmation within this interval, the event report is sent to the field bus host system again.

User entry Positive integer

Factory setting 0 1/32 ms

Fault State

Navigation Expert → Communication → Resource block → Fault State (10712)

Description Displays the current status of the fault state for the Discrete outputs (→ 185) block.

User interface
- Uninitialized
- Clear
- Active

Additional information *User interface*
- Uninitialized
- Clear
  The fault state is disabled.
- Active
  The fault state is enabled.

Limit Notify

Navigation Expert → Communication → Resource block → Limit Notify (10720)

Description Use this function to enter the maximum number of event reports that may be pending at the same time without confirmation.

User entry 0 to 255

Factory setting 0

Max Notify

Navigation Expert → Communication → Resource block → Max Notify (10722)

Description Displays the maximum number of event reports that are supported by the measuring device and may be pending at the same time without confirmation.

User interface 0 to 255

Set Fault State

Navigation Expert → Communication → Resource block → Set Fault State (10731)

Description Option for manually enabling or disabling the fault state for the Discrete outputs (→ 185) function block.

Selection
- OFF
- SET

Factory setting OFF

Additional information *Options*
- OFF
  The fault state is disabled.
- SET
  The fault state is enabled.

Shed Remote Cascade

Navigation Expert → Communication → Resource block → Shed Remote Casc (10732)

Description Use this function to enter the time interval after which the computer stops writing to function blocks with RCas points.

User entry Positive integer

Factory setting 0 1/32 ms

Shed Remote Out

Navigation Expert → Communication → Resource block → Shed Remote Out (10733)

Description Use this function to enter the time interval after which the computer stops writing to function blocks with ROut points.

User entry Positive integer

Factory setting 0 1/32 ms

Unacknowledged

Navigation Expert → Communication → Resource block → Unacknowledged (10740)

Description Option for manually acknowledging an update of the static block parameter.

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

- If a new diagnostic event occurs, the measuring device sets **Unacknowledged** option.
- If the diagnostic event has been acknowledged, the user can set **Acknowledged** option.

Update State

Navigation Expert → Communication → Resource block → Update State (10741)

Description Displays the status of an update of the static block parameter. The status indicates whether the update was communicated or not.

User interface
- Uninitialized
- Reported
- Not Reported

Time Stamp

Navigation Expert → Communication → Resource block → Time Stamp (10739)

Description Displays the time stamp indicating when the analysis of the block was started and when a status change of an update to the static block parameter that has not yet been communicated was identified. The time stamp is retained until the update confirmation is received.

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

Static revision

Navigation Expert → Communication → Resource block → Static revision (10738)

Description Displays the Static revision: Each instance of a static block parameter being accessed with write and report access due to an update is counted (event counter).

User interface 0 to 65 535

Relative Index

Navigation Expert → Communication → Resource block → Relative Index (10737)

Description Displays the relative index of the static block parameter that triggered the alarm (OD index minus field bus start index).

User interface 0 to 65 535

Write Lock

Navigation Expert → Communication → Resource block → Write Lock (10747)

Description Option for enabling and disabling the hardware write protection.

Selection
- Not Locked
- Locked

Factory setting Not Locked

Additional information

Description

Option for enabling and disabling write access to the measuring device via the FOUNDATION Fieldbus (acyclic data transmission, e.g. via the "FieldCare" operating program).

For detailed information on hardware write protection, see the "Write protection via write protection switch" section of the Operating Instructions.

Options

- Not Locked
  Device data can be changed via the FOUNDATION Fieldbus interface.
- Locked
  Device data cannot be changed via the FOUNDATION Fieldbus interface.

Unacknowledged

Navigation Expert → Communication → Resource block → Unacknowledged (10700)

Description Option for manually acknowledging a block alarm.

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Alarm State

Navigation Expert → Communication → Resource block → Alarm State (10697)

Description Displays the status of the block alarm. The status indicates whether the block alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Time Stamp

Navigation Expert → Communication → Resource block → Time Stamp (10699)

Description Displays the time stamp indicating when the analysis of the block was started and when a status change of the block alarm that has not yet been communicated to the field bus host system was detected. The time stamp is retained until the alarm confirmation is received.

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

Subcode

Navigation Expert → Communication → Resource block → Subcode (10698)

Description Displays the specific cause of the block alarm.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Value

Navigation Expert → Communication → Resource block → Value (10701)

Description Displays the value of the affected parameter at the time at which the block alarm was detected.

User interface 0 to 255

Current

Navigation Expert → Communication → Resource block → Current (10692)

Description Use this function to view the current status of the process alarms.

User interface
- Discrete Alarm
- Block Alarm
- Fail Alarm
- Off Spec Alarm
- Maintenance Alarm
- Check Alarm

Unacknowledged

Navigation Expert → Communication → Resource block → Unacknowledged (10694)

Description Displays an unacknowledged process alarm.

User interface
- Disc Alm Unack
- Block Alm Unack
- Fail Alm Unack
- Off Spec Alm Unack
- Maint Alm Unack
- Check Alm Unack

Unreported

Navigation Expert → Communication → Resource block → Unreported (10695)

Description Displays a process alarm that has not been communicated.

User interface
- Disc Alm Unrep
- Block Alm Unrep
- Fail Alm Unrep
- Off Spec Alm Unrep
- Maint Alm Unrep
- Check Alm Unrep

Disabled

Navigation Expert → Communication → Resource block → Disabled (10693)

Description Option for disabling a process alarm category.

Selection
- Disc Alm Disabled
- Block Alm Disabled
- Fail Alm Disabled
- Off Spec Alm Disabled
- Maint Alm Disabled
- Check Alm Disabled

Acknowledge Option

Navigation Expert → Communication → Resource block → Ack. Option (10691)

Description Option for automatic acknowledgment of process alarms in a specific category.

Selection
- Disc Alm Auto Ack
- Blk Alm Auto Ack
- Fail Alm Auto Ack
- Off Spec Alm Auto Ack
- Maint Alm Auto Ack
- Check Alm Auto Ack

Additional information *Description*

Use this function to determine whether an alarm must be acknowledged via the field bus host system.

If the process alarm option has not been enabled in this parameter, this process alarm must only be acknowledged in **Unacknowledged** parameter (→ 101).
Current parameter (→ 102) indicates the current status of all process alarms.

Write Priority

Navigation Expert → Communication → Resource block → Write Priority (10748)

Description Use this function to enter the priority for the write protection alarm.

User entry 0 to 15

Factory setting 0

Additional information *Description*

If write protection is disabled on the FOUNDATION Fieldbus I/O board, the alarm priority entered here is checked before the status change is transferred to the field bus host system. The alarm priority determines the behavior in the event of an active write protection alarm.

The alarm is triggered when the write protection is disabled.

Unacknowledged

Navigation Expert → Communication → Resource block → Unacknowledged (10745)

Description Option for manually acknowledging a write protection alarm.

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Alarm State

Navigation Expert → Communication → Resource block → Alarm State (10742)

Description Displays the status of the write protection alarm. The status indicates whether the write protection alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Time Stamp

Navigation Expert → Communication → Resource block → Time Stamp (10744)

Description Displays the time stamp indicating when the analysis of the block was started and when the status change of a write protection alarm that has not yet been communicated was identified. The time stamp is retained until the alarm confirmation is received.

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

Subcode

Navigation Expert → Communication → Resource block → Subcode (10743)

Description Displays the specific cause of the write protection alarm, which is to be communicated to the field bus host system.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Discrete Value

Navigation Expert → Communication → Resource block → Discrete Value (10746)

Description Displays the discrete value of the affected parameter at the time at which the write protection alarm was detected.

User interface
- State 0
- State 1
- State 2
- State 3
- State 4
- State 5
- State 6
- State 7
- State 8
- State 9
- State 10
- State 11
- State 12
- State 13
- State 14
- State 15
- State 16

ITK Version

Navigation Expert → Communication → Resource block → ITK Version (10794)

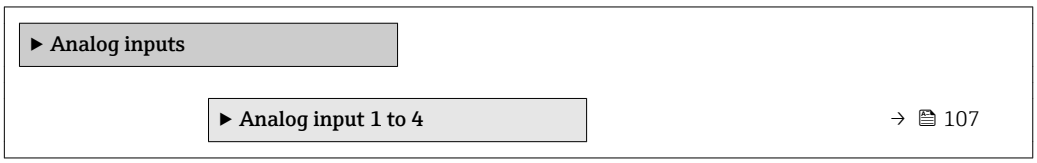
Description Displays the revision status of the Interoperability Test Kits (ITK).

User interface 0 to 65 535

3.5 "Analog inputs" submenu

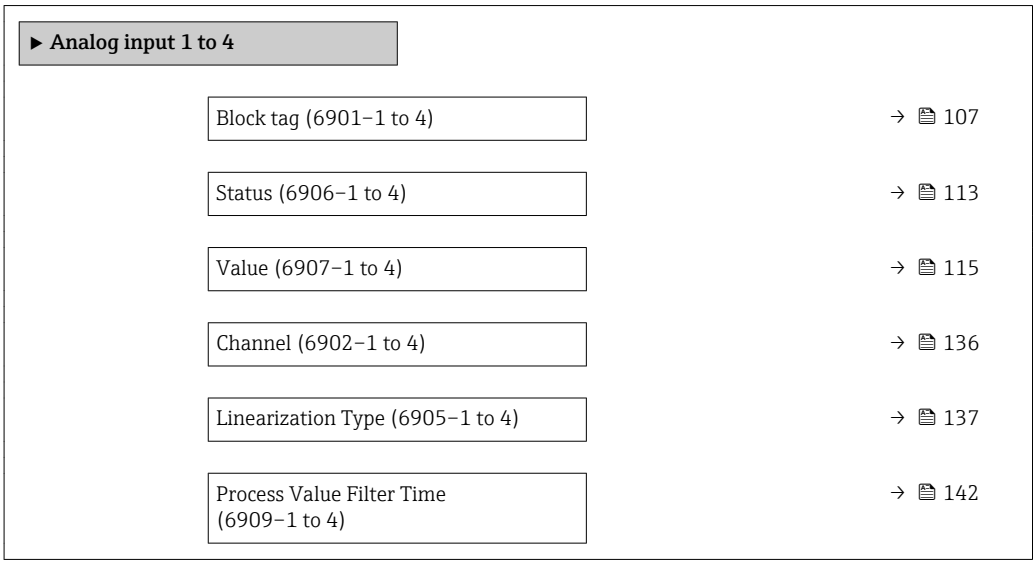
In the analog input function block (AI function block), the process variables from the transducer block are prepared in terms of control for the subsequent automation functions (e.g. scaling, limit value processing). The automation function is defined by interconnecting the outputs.

Navigation Expert → Analog inputs



3.5.1 "Analog input 1 to 4" submenu

Navigation Expert → Analog inputs → Analog input 1 to 4



Block tag

Navigation Expert → Analog inputs → Analog input 1 to 4 → Block tag (6901–1 to 4)

Description Use this function to enter the Block tag: Used for specifying a "label" for identifying the function block.

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Static Revision

Navigation Expert → Analog inputs → Analog input 1 to 4 → Static Revision (6973–1 to 4)

Description Displays the Static Revision: Each instance of a static block parameter being accessed with write access is counted (event counter).

User interface 0 to FFFF

Additional information *Description*

Static parameters are parameters that are not changed by the process.

Tag Description

Navigation Expert → Analog inputs → Analog input 1 to 4 → Tag Description (6974–1 to 4)

Description Use this function to enter the Tag Description: Used for defining a user-specific text for detailed description of the function block.

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Strategy

Navigation Expert → Analog inputs → Analog input 1 to 4 → Strategy (6972–1 to 4)

Description Use this function to enter the Strategy: Enables blocks to be grouped by entering identical numbers.

User entry 0 to FFFF

Factory setting 0

Alert Key

Navigation Expert → Analog inputs → Analog input 1 to 4 → Alert Key (6916–1 to 4)

Description Use this function to enter the Alert Key: Identifies the plant unit where the transmitter is located. This helps in pinpointing events.

User entry 0 to 0xFF

Factory setting 1

Target mode

Navigation Expert → Analog inputs → Analog input 1 to 4 → Target mode (6960–1 to 4)

Description Use this function to select the Target mode: The selection indicates which operating mode is used for this function block. This mode is generally set by a control application.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting OOS

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Actual mode

Navigation Expert → Analog inputs → Analog input 1 to 4 → Actual mode (6957–1 to 4)

Description Displays the Actual mode: Under certain conditions, a function block may not work in the operating mode to be used. In this case, the Actual mode shows the actual operating mode in which the function block is currently operating. By comparing the Actual mode with the Target mode, users can see whether it was possible to reach the Target mode (→ 108).

User interface
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Additional information *User interface*

Detailed description of the options displayed: **Target mode** parameter (→ 85)

Permitted mode

Navigation Expert → Analog inputs → Analog input 1 to 4 → Permitted mode (6959–1 to 4)

Description Use this function to select the Permitted mode: The selection defines which operating modes are available in Target mode (→ 108) for the function block. The operating modes that are supported vary depending on the type and function of the block.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting
- Auto
- OOS

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Normal mode

Navigation Expert → Analog inputs → Analog input 1 to 4 → Normal mode (6958–1 to 4)

Description Use this function to select the Normal mode: This is available to enable the user to select the Normal mode from the available operating modes. This can be set using an operating tool in order to help the user configure the operating mode of a function block.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting Auto

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Block Error

Navigation Expert → Analog inputs → Analog input 1 to 4 → Block Error (6922–1 to 4)

Description Displays the short text for the Block Error that has occurred in the function block.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Status

Navigation Expert → Analog inputs → Analog input 1 to 4 → Status (6964–1 to 4)

Description Displays the status of the input value (PV).

User interface

- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const

- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited

- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Value (6965–1 to 4)

Description Displays the input value (PV).

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Status

Navigation Expert → Analog inputs → Analog input 1 to 4 → Status (6906–1 to 4)

Description Displays the status of the output value (OUT).

User interface

- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited

- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit

- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited
- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Value (6907–1 to 4)

Description Input for the output value (OUT).

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Simulate Status

Navigation Expert → Analog inputs → Analog input 1 to 4 → Simulate Status (6967–1 to 4)

Description Use this function to select the status that is used for the transducer block simulation.

Selection

- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited

- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited

- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited
- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Factory setting Bad NonSpecific NotLimited

Simulate Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Simulate Value (6968–1 to 4)

Description Use this function to enter the value that is used for the transducer block simulation.

User entry Signed floating-point number

Factory setting 0 %

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 122)

Transducer Status

Navigation Expert → Analog inputs → Analog input 1 to 4 → Transducer Stat (6969–1 to 4)

Description Displays the current status of the transducer block.

User interface

- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited

- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit

- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited
- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Transducer Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Transducer Value (6970–1 to 4)

Description Displays the current value of the transducer block.

User interface Signed floating-point number

Factory setting 0 %

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 122)

Simulate En/Disable

Navigation Expert → Analog inputs → Analog input 1 to 4 → Sim. En/Disable (6966–1 to 4)

Description Use this function to enable or disable the function block simulation.

Selection
- Uninitialized
- Disabled
- Active

Factory setting Uninitialized

EU at 100%

Navigation Expert → Analog inputs → Analog input 1 to 4 → EU at 100% (6982–1 to 4)

Description Use this function to enter the upper limit value of the output value measuring range.

User entry Signed floating-point number

Factory setting 0 %

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 122)

EU at 0%

Navigation Expert → Analog inputs → Analog input 1 to 4 → EU at 0% (6981–1 to 4)

Description Use this function to enter the lower limit value of the output value measuring range.

User entry Signed floating-point number

Factory setting 0 %

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 122)

Units index

Navigation Expert → Analog inputs → Analog input 1 to 4 → Units index (6983–1 to 4)

Description Use this function to select the unit for the output value.

Selection

SI units
- g/s
- g/min
- g/h
- g/d
- kg/s
- kg/min
- kg/h
- kg/d
- t/s
- t/min
- t/h
- t/d
- l/s
- l/min
- l/d
- l/h
- hl/s
- hl/min
- hl/h
- hl/d
- Ml/s
- Ml/min
- Ml/h
- Ml/d
- m^3/s
- m^3/min
- m^3/h
- m^3/d
- cm^3/s
- cm^3/min
- cm^3/h
- cm^3/d
- dm^3/s
- dm^3/min
- dm^3/h
- dm^3/d
- ml/s
- ml/min
- ml/h
- ml/d
- Nl/s
- Nl/d
- Nl/h
- Nl/min
- Nm^3/s
- Nm^3/min
- Nm^3/h
- Nm^3/d
- Sm^3/s
- Sm^3/min
- Sm^3/h
- Sm^3/d
- $MSft^3/d$
- kg/l
- kg/m^3
- kg/dm^3
- g/cm^3
- g/m^3

US units
- oz/s
- oz/min
- oz/h
- oz/d
- lb/s
- lb/min
- lb/h
- lb/d
- STon/s
- STon/min
- STon/h
- STon/d
- af/s
- af/min
- af/h
- af/d
- ft^3/s
- ft^3/min
- ft^3/h
- ft^3/d
- fl oz/s (us)
- fl oz/min (us)
- fl oz/h (us)
- fl oz/d (us)
- gal/s (us)
- gal/min (us)
- gal/h (us)
- gal/d (us)
- Mgal/s (us)
- Mgal/min (us)
- Mgal/h (us)
- Mgal/d (us)
- bbl/s (us;oil)
- bbl/min (us;oil)
- bbl/h (us;oil)
- bbl/d (us;oil)
- 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;tank)
- bbl/min (us;tank)
- bbl/h (us;tank)
- bbl/d (us;tank)
- kgal/s (us)
- kgal/min (us)
- kgal/h (us)
- kgal/d (us)
- Sft^3/s
- Sft^3/min
- Sft^3/h
- Sft^3/d
- Sgal/s (us)
- Sgal/min (us)

Imperial units
- gal/s (imp)
- gal/min (imp)
- gal/h (imp)
- gal/d (imp)
- Mgal/s (imp)
- Mgal/min (imp)
- Mgal/h (imp)
- Mgal/d (imp)
- bbl/s (imp;oil)
- bbl/min (imp;oil)
- bbl/h (imp;oil)
- bbl/d (imp;oil)
- bbl/s (imp;beer)
- bbl/min (imp;beer)
- bbl/h (imp;beer)
- bbl/d (imp;beer)
- Sgal/s (imp)
- Sgal/min (imp)
- Sgal/h (imp)
- Sgal/d (imp)
- lb/gal (imp)
- lb/bbl (imp;oil)
- MMBtu/min
- MMBtu/h
- MMBtu/d
- MBtu/s
- MBtu/min
- MBtu/h
- MBtu/d
- MMBtu/s
- Btu/s
- Btu/min
- Btu/h
- Btu/day
- Mgal (imp)
- bbl (imp;beer)
- Sgal (imp)
- bbl (imp;oil)
- gal (imp)

- SD4°C
- SD15°C
- SD20°C
- SG4°C
- SG20°C
- SG15°C
- kg/Nl
- g/Scm³
- kg/Sm³
- kg/Nm³
- K
- °C
- m/s
- bar
- mbar a
- Pa
- MPa
- kPa
- torr
- atm
- %
- kW
- MW
- MJ/h
- GJ/d
- Gcal/h
- MJ/s
- MJ/min
- MJ/d
- kJ/s
- kJ/min
- kJ/h
- kJ/d
- GJ/s
- GJ/min
- GJ/h
- kcal/s
- kcal/min
- kcal/h
- kcal/d
- Mcal/s
- Mcal/min
- Mcal/h
- Mcal/d
- Gcal/s
- Gcal/min
- Gcal/d
- W
- TW
- GW
- mW
- µW
- nW
- pW
- g
- Nl
- Nm³
- Sl
- Sm³
- Sgal/d (us)
- Sgal/h (us)
- Sbbl/s (us;liq.)
- Sbbl/min (us;liq.)
- Sbbl/h (us;liq.)
- Sbbl/d (us;liq.)
- MSft³/D
- lb/ft³
- lb/gal (us)
- lb/bbl (us;tank)
- lb/bbl (us;liq.)
- lb/bbl (us;beer)
- lb/bbl (us;oil)
- lb/Sft³
- °F
- °R
- ft/s
- psi
- inH2Og(4°C)
- inH2Og(68°F)
- ftH2Og(68°F)
- hp
- oz
- af
- fl oz (us)
- Mgal (us)
- bbl (us;oil)
- bbl (us;liq.)
- bbl (us;tank)
- Sgal (us)
- Sbbl (us;liq.)
- Sft³
- kgal (us)
- lb
- ft³
- gal (us)
- bbl (us;beer)
- STon

- ml
- Ml Mega
- kg
- l
- t
- m^3
- dm^3
- cm^3
- hl
- kgf/cm^2
- gf/cm^2

Other units
- mmH2O (4°C)
- mmH2O (68°F)
- inHg (0°C)
- mmHg (0°C)
- mmH2Oa(4°C)
- mmH2Oa(68°F)
- inH2O (4°C)
- inH2O (68°F)
- ftH2O (4°C)
- ftH2O (68°F)

Factory setting %

Additional information *Result*

The selected unit applies for:
- Simulate Value (→ 🖹 118)
- Transducer Value (→ 🖹 121)
- EU at 0% (→ 🖹 121)
- EU at 100% (→ 🖹 121)

Decimal

Navigation Expert → Analog inputs → Analog input 1 to 4 → Decimal (6980–1 to 4)

Description Use this function to enter the number of decimal places for the output value.

User entry –128 to 127

Factory setting 0

EU at 100%

Navigation Expert → Analog inputs → Analog input 1 to 4 → EU at 100% (6963–1 to 4)

Description Use this function to enter the upper limit value of the input value measuring range from the transducer block (input value).

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

EU at 0%

Navigation Expert → Analog inputs → Analog input 1 to 4 → EU at 0% (6962–1 to 4)

Description Function for entering the lower limit value of the input value measuring range from the transducer block (input value).

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Units index

Navigation Expert → Analog inputs → Analog input 1 to 4 → Units index (6908–1 to 4)

Description Use this function to select the unit for the input value from the transducer block (input value).

Selection

SI units
- K
- m
- m^3
- Pa s
- m^2/s
- P
- cP
- St
- cSt
- Wbm
- Ns/m
- $1/Jm^3$
- e/Vm^3
- m^3/C
- (1/32 millisec)/min
- ℃
- '
- "
- rad
- °
- gon
- µm
- mm
- cm^3
- dm^3
- hl
- l
- ml
- s
- min
- d
- h
- ks
- µs
- ms
- m/h
- m/s
- mm/s
- Hz
- g
- kg
- GWh
- J
- kWh
- MWh
- kcal
- Mcal
- kW
- MW
- W
- MJ/h
- mV
- Ohm
- pF
- V
- Ml Mega
- mbar a
- bar

US units
- mils
- ℉
- °R
- ft
- in
- bbl (us;liq.)
- Sft^3
- in/min
- oz
- STon
- lb/d
- lb/h
- lb/min
- lb/s
- STon/d
- STon/h
- STon/min
- STon/s
- mile
- yd
- ft^2
- in^2
- $mile^2$
- yd^2
- ft^3
- gal (us)
- quart
- pint
- yd^3
- $mile^3$
- in^3
- bushel
- bbl (us;oil)
- ft/s
- ft/h
- lb
- ft/min
- in/h
- in/s
- yd/h
- yd/min
- yd/s
- lb/in^3
- lb/gal (us)
- $STon/yd^3$
- psi
- psi a
- psi g
- ftlbf
- hp
- lb/ft^3
- MPH
- ft^3/d
- ft^3/h
- ft^3/min
- ft^3/s
- Sft^3/h
- Sft^3/min

Imperial units
- lbf/in
- gal (imp)
- Btu
- LTon
- datherm
- Btu/h
- Btu/day
- Btu/min
- Btu/s
- LTon/d
- LTon/h
- LTon/min
- LTon/s
- gal/d (imp)
- gal/h (imp)
- gal/min (imp)
- gal/s (imp)
- lb/gal (imp)
- Mgal/min (imp)
- Mgal/h (imp)
- Mgal/d (imp)
- kgal/d (imp)
- kgal/h (imp)
- kgal/min (imp)
- kgal/s (imp)
- µgal/d (imp)
- µgal/h (imp)
- µgal/min (imp)
- µgal/s (imp)
- mgal/d (imp)
- mgal/h (imp)
- mgal/min (imp)
- mgal/s (imp)
- Mgal/s (imp)
- µbbl/d (us;oil)
- µbbl/h (us;oil)
- µbbl/min (us;oil)
- µbbl/s (us;oil)
- kImpGal
- Btu/lb
- oz/ft

- dB
- kPa a
- kPa g
- MPa a
- MPa g
- Pa a
- Pa g
- g/d
- g/h
- g/min
- g/s
- kg/d
- kg/h
- kg/min
- kg/s
- cm
- km
- nm
- pm
- a
- ha
- cm^2
- dm^2
- km^2
- m^2
- mm^2
- mm^3
- cl
- t
- kg/m^3
- kg/dm^3
- g/cm^3
- g/m^3
- kg/l
- kgf/cm^2
- GJ
- kJ
- MJ
- km/h
- kt
- m/s^2
- GHz
- kHz
- MHz
- 1/min
- 1/s
- THz
- rad/s
- $1/s^2$
- Mg
- mg
- g/l
- g/ml
- Mg/m^3
- t/m^3
- mg/m
- tex
- kg/m
- kgm/s
- gal/d (us)
- gal/h (us)
- gal/min (us)
- gal/s (us)
- Mgal/d (us)
- bbl/d (us;oil)
- bbl/h (us;oil)
- bbl/min (us;oil)
- bbl/s (us;oil)
- Mgal/h (us)
- Mgal/min (us)
- Mgal/s (us)
- Mgal (us)
- af
- af/d
- af/h
- af/min
- af/s
- bbl/d (us;beer)
- bbl/h (us;beer)
- bbl/min (us;beer)
- bbl/s (us;beer)
- kgal/d (us)
- kgal/h (us)
- kgal/min (us)
- kgal/s (us)
- µgal/d (us)
- µgal/h (us)
- µgal/min (us)
- µgal/s (us)
- mgal/d (us)
- mgal/h (us)
- mgal/min (us)
- mgal/s (us)
- Mbbl/d (us;oil)
- Mbbl/h (us;oil)
- Mbbl/min (us;oil)
- Mbbl/s (us;oil)
- mbbl/d (us;oil)
- mbbl/h (us;oil)
- mbbl/min (us;oil)
- mbbl/s (us;oil)
- kft^3/d
- kft^3/h
- kft^3/min
- kft^3/s
- mft^3/d
- mft^3/h
- mft^3/min
- mft^3/s
- kbbl(US Beer)/d
- kbbl(US Beer)/h
- kbbl(US Beer)/min
- ubbl(US Beer)/min
- ubbl(US Beer)/s
- mbbl(US Beer)/d
- mbbl(US Beer)/h
- mbbl(US Beer)/min
- mbbl(US Beer)/s

- kgm²
- kgm²/s
- kNm
- MNm
- mNm
- Nm
- kN
- MN
- µN
- mN
- N
- mN/m
- N/m
- atm
- GPa
- hPa
- kPa
- MPa
- µPa
- mPa
- Pa
- torr
- gf/cm²
- cal
- EJ
- mJ
- PJ
- TJ
- TWh
- Wh
- GW
- µW
- mW
- nW
- pW
- TW
- Mcal/h
- kcal/d
- kcal/h
- kcal/min
- kcal/s
- Mcal/d
- Mcal/min
- Mcal/s
- kJ/d
- kJ/h
- kJ/min
- kJ/s
- A
- mA
- kA
- µA
- nA
- pA
- C
- kC
- MC
- µC
- nC
- kgal (us)
- ac-in/d
- ac-in/h
- ac-in/m
- ac-in/s
- Mft³/d
- ac-in
- Mft³
- inH2Oa
- inH2Og
- inH2O a(4°C)
- inH2Og(4°C)
- inH2O a(68°F)
- inH2Og(68°F)
- ftH2Oa
- ftH2Og
- ftH2O a(4°C)
- ftH2Og(4°C)
- ftH2O a(68°F)
- ftH2Og(68°F)
- inHga
- inHgg
- inHg a(0°C)
- inHgg(0°C)
- klb(US)/d
- klb(US)/h
- klb(US)/min
- klb(US)/s
- MSft³/D
- mils/yr
- ft/s²
- MLB/H
- lbf-in/deg

- pC
- Ah
- W/mK
- m2K/W
- W/m^2K
- J/K
- kJ/K
- J/(kgK)
- kJ/(kgK)
- J/kg
- kJ/kg
- MJ/kg
- C/cm^3
- C/m^3
- C/mm^3
- kC/m^3
- $\mu C/m^3$
- mC/m^3
- C/cm^2
- C/m^2
- C/mm^2
- kC/m^2
- $\mu C/m^2$
- mC/m^2
- kV/m
- MV/m
- µV/m
- mV/m
- V/cm
- V/m
- kV
- MV
- µV
- F
- µF
- mF
- nF
- F/m
- A/cm^2
- kA/m^2
- MA/m^2
- A/cm
- A/m
- kA/m
- µT
- mT
- nT
- T
- mWb
- Wb
- kWb/m
- Wb/m
- H
- µH
- mH
- nH
- pH
- H/m
- µH/m

- nH/m
- Am^2
- GOhm
- kOhm
- MOhm
- µOhm
- mOhm
- kS
- µS
- µS/cm
- mS
- S
- t/d
- t/h
- t/min
- t/s
- %
- m^3/d
- m^3/h
- m^3/min
- m^3/s
- GOhmm
- kOhmm
- MOhmm
- µOhmm
- mOhmm
- nOhmm
- Ohmcm
- Ohmm
- kS/m
- MS/m
- µS/mm
- mS/cm
- S/m
- sr
- l/d
- l/h
- l/min
- l/s
- Ml/d
- kW/m^2
- $W/(sr\text{-}m^2)$
- cd
- cd/m^2
- lm
- lm/m^2
- lm/W
- lmh
- lms
- lx
- lxs
- $µW/m^2$
- mW/m^2
- pW/m^2
- Pas/m^3
- Pas/m
- ppm
- MJ/d
- MJ/min

- MJ/s
- cm^3/d
- cm^3/h
- cm^3/min
- cm^3/s
- Nm^3
- Nm^3/d
- Nm^3/h
- Nm^3/min
- Nm^3/s
- Sm^3
- Sm^3/d
- Sm^3/h
- Sm^3/min
- Sm^3/s
- Nl
- Nl/d
- Nl/h
- Nl/min
- Nl/s
- Sl
- ml/min
- B
- ppb
- ppth
- °Balling
- km^3/d
- km^3/h
- km^3/min
- km^3/s
- Mm^3/d
- Mm^3/h
- Mm^3/min
- Mm^3/s
- $\mu m^3/d$
- $\mu m^3/h$
- $\mu m^3/min$
- $\mu m^3/s$
- mm^3/d
- mm^3/h
- mm^3/min
- mm^3/s
- kl/d
- kl/h
- kl/min
- kl
- Sl/d
- Sl/h
- Sl/min
- Sl/s
- kL/s
- Ml/h
- Ml/min
- Mm^3/d
- Mm^3
- GPa a
- GPa g
- mPa a
- mPa g

- µPa a
- µPa g
- hPa a
- hPa g
- gf/cm² a
- gf/cm² g
- kgf/cm² a
- kgf/cm² g
- mBarg
- µbar
- Gy
- kcal/kg
- mGy
- mSv
- rad
- rem
- Sv
- Bq
- kBq
- MBq
- cnt/s
- MSft³/d
- SCCM
- dm
- mm/yr
- g/m
- µg/m³
- µg/l
- mg/m³
- kmol
- µmol
- mmol
- mol
- mol/dm³
- mol/m³
- mol/l
- cm³/mol
- dm³/mol
- m³/mol
- g/mol
- kg/mol
- l/mol
- mmol/kg
- mol/kg
- mg/l
- µS/m
- mS/m
- nS/cm
- S/cm
- kOhmcm
- MOhmcm
- l/m³
- L/m
- µL/L
- ml/m³
- ml/l
- %Sat
- % sol/vol
- % sol/mass

- %vol
- WT-%
- J/mol
- kJ/mol
- J/(molK)
- Bq/kg
- kBq/kg
- MBq/kg
- mV/K
- V/K
- J/g
- mV/pH
- pH
- pH/°C
- mV/%
- %/s
- %/V
- nA/ppm
- 1/32 ms
- 1/H
- /cm
- 1/K
- 1/m
- 1/mm
- A/hPa
- A/Pa
- Nm^2/A
- Pa/A
- pA/hPa
- C/kg
- mC/kg
- dyne-cm/deg
- newton-m/deg
- bar a
- bar g

Custom-specific units
PV/Sec

Factory setting

K

Additional information

Result

The selected unit applies for:
- Value (→ 113)
- Value (→ 115)
- EU at 100% (→ 121)
- EU at 0% (→ 121)
- Low Cutoff (→ 139)
- High High Limit (→ 147)
- Float Value (→ 151)
- High Limit (→ 148)
- Float Value (→ 153)
- Low Limit (→ 149)
- Float Value (→ 154)
- Low Low Limit (→ 149)
- Float Value (→ 156)

Decimal

Navigation Expert → Analog inputs → Analog input 1 to 4 → Decimal (6961–1 to 4)

Description Use this function to select the number of decimal places for the input value from the transducer block (input value).

User entry –128 to 127

Factory setting 0

Grant

Navigation Expert → Analog inputs → Analog input 1 to 4 → Grant (6926–1 to 4)

Description Option for releasing certain access authorizations of the field bus host system on the device.

Selection
- Program
- Tune
- Alarm
- Local
- Operate
- Service
- Diagnostic

Deny

Navigation Expert → Analog inputs → Analog input 1 to 4 → Deny (6925–1 to 4)

Description Option for restricting certain access authorizations of the field bus host system on the device.

Selection
- Program Denied
- Tune Denied
- Alarm Denied
- Local
- Operate Denied

I/O Options

Navigation Expert → Analog inputs → Analog input 1 to 4 → I/O Options (6941–1 to 4)

Description Option for activating the low flow cut off.

Selection Low Cutoff

Additional information *Description*

The limit value for the low flow cut off is defined in **Low Cutoff** parameter (→ 139).

Channel

Navigation Expert → Analog inputs → Analog input 1 to 4 → Channel (6902–1 to 4)

Description Use this function to select the input value that should be processed in the analog input function block.

Selection
- Uninitialized
- Volume flow
- Mass flow
- Totalizer 1
- Totalizer 2
- Totalizer 3

Factory setting Uninitialized

Status Options

Navigation Expert → Analog inputs → Analog input 1 to 4 → Status Options (6971–1 to 4)

Prerequsite The measuring device must be in the OOS operating mode so that the parameter can be edited.

Description Use this function to select an option for the status of the output value that is supported by the analog input block.

Selection
- Propagate Fault Fwd
- Uncertain if Limited
- Bad if Limited
- Uncertain if Man.

Additional information *Options*

- Propagate Fault Fwd
  If the measuring device has the status **Bad DeviceFailure** or **Bad SensorFailure**, the device continues to measure and no alarm is triggered. The use of this substatus in the output value (OUT) is defined by **Propagate Fault Fwd** option. With the aid of this option, the user/operator can specify whether the alarm generation (sending an alarm) is triggered by the block or is forwarded downstream.
- Uncertain if Limited
  If the measured or calculated value reaches a limit value, **Uncertain if Limited** option is used for the output status.
- Bad if Limited
  If the measured value exceeds or falls below an upper or lower limit value, **Bad if Limited** option is used as the output status.
- Uncertain if Man.
  If the Actual mode of the function block is in the **Man** option operating mode, **Uncertain if Man.** option is used as the output status.

Linearization Type

Navigation Expert → Analog inputs → Analog input 1 to 4 → Lin Type (6905–1 to 4)

Description Use this function to select the type of linearization of the input or simulation value.

Selection
- Uninitialized
- Direct
- Indirect
- Indirect Sq Root

Factory setting Uninitialized

Additional information *"Uninitialized" option*

The function block does not switch to Auto operating mode.

"Direct" option

The measured value from the transducer block (input value) bypasses the linearization function and is routed unchanged through the analog input function block (Xd_Scale = Out_Scale). This is selected if the input value already has the required physical units.

PV = Input value

The units in Units index (→ 122) (Xd_Scale) and Units index (→ 126) (Out_Scale) must be the same. Otherwise, the function block will remain in the OOS operating mode and the BlockConfiguration block error is displayed in Block Error (→ 110).

"Indirect" option

The measured value from the transducer block (input value) is linearly rescaled via the Xd_Scale input scaling to the required Out_Scale output range.

$$PV = \frac{X}{100} \cdot (Y - Z) - Z$$

A0024820

PV Primary value
X Value (→ 142) (Field_Val)
Y EU at 100% (→ 125) (Out_Scale)
Z EU at 0% (→ 126) (Out_Scale)

"Indirect Sq Root" option

The measured value from the transducer block (input value) is rescaled via the Xd_Scale parameter group and recalculated using a root function. It is then rescaled again to the required output range via the Out_Scale parameter group.

$$PV = \sqrt{\frac{X}{100}} \cdot (Y - Z) - Z$$

A0024847

PV Primary value
X Value (→ 142) (Field_Val)
Y EU at 100% (→ 125) (Out_Scale)
Z EU at 0% (→ 126) (Out_Scale)

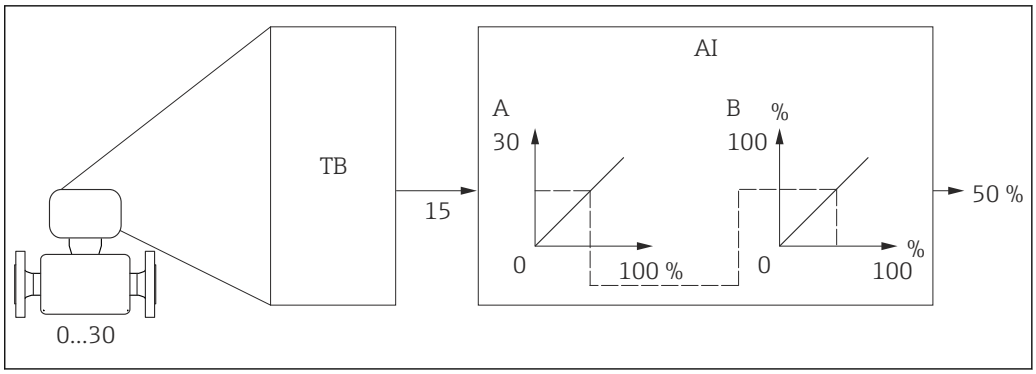
Example

- System unit in transducer block: kg/h
- Sensor measuring range: 0 to 30 kg/h
- Output range for the automation system: 0 to 100 %

The analog input function block must be configured as follows:

1. In **Channel** parameter (→ 136), select **Mass flow** option.
2. In **Linearization Type** parameter (→ 137), select **Indirect** option.
   ↳ The "Volume Flow" process variable of the transducer block "Flow" is linearly rescaled in the AI block to the required Out_Scale output range via the Xd_Scale input scaling.
3. In the Xd_Scale parameter group:
   ↳ **EU at 0%** parameter (→ 121), enter the value 0.
   In **EU at 100%** parameter (→ 121), enter the value 30.
   In **Units index** parameter (→ 122), select **kg/h** option.
4. In the Out_Scale parameter group:
   ↳ **EU at 0%** parameter (→ 126), enter the value 0.
   In **EU at 100%** parameter (→ 125), enter the value 100.
   In **Units index** parameter (→ 126), select **%** option.

The result is that an input value of 15 kg/h, for example, outputs a value of 50 % via the **Value** parameter (→ 115).



8 *Engineering unit in kg/h*

Low Cutoff

Navigation Expert → Analog inputs → Analog input 1 to 4 → Low Cutoff (6956–1 to 4)

Description Use this function to enter a limit value for low flow cut off.

User entry Positive floating-point number

Factory setting 0 K

Additional information

Description

If the converted input value (PV) falls below this limit value, then it is set to zero.

The low flow cut off is enabled via **I/O Options** parameter (→ 135).

Dependency

The unit is taken from the: **Units index** parameter (→ 126)

Status

Navigation Expert → Analog inputs → Analog input 1 to 4 → Status (6923–1 to 4)

Description Displays the status of the unprocessed measured value from the device, which reflects the status of the transducer before signal transmission.

User interface

- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited

- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit

- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited
- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Value (6924–1 to 4)

Description Displays the unprocessed measured value from the device as a % of the primary value (PV).

User interface Signed floating-point number

Process Value Filter Time

Navigation Expert → Analog inputs → Analog input 1 to 4 → PV Filter Time (6909–1 to 4)

Description Use this function to enter the filter time specification for the filtering of the unconverted input value (PV).

User entry Positive floating-point number

Factory setting 0 s

Additional information *Factory setting*

If the value 0 s is entered, filtering will not be performed.

Unacknowledged

Navigation Expert → Analog inputs → Analog input 1 to 4 → Unacknowledged (6978–1 to 4)

Description Option for manually acknowledging an update of the static block parameter.

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

- If a new diagnostic event occurs, the measuring device sets **Unacknowledged** option.
- If the diagnostic event has been acknowledged, the user can set **Acknowledged** option.

Update State

Navigation Expert → Analog inputs → Analog input 1 to 4 → Update State (6979–1 to 4)

Description Displays the status of an update of the static block parameter. The status indicates whether the update was communicated or not.

User interface
- Uninitialized
- Reported
- Not Reported

Time Stamp

Navigation Expert → Analog inputs → Analog input 1 to 4 → Time Stamp (6977–1 to 4)

Description Displays the time stamp indicating when the analysis of the block was started and when a status change of an update to the static block parameter that has not yet been communicated was identified. The time stamp is retained until the update confirmation is received.

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

Static revision

Navigation Expert → Analog inputs → Analog input 1 to 4 → Static revision (6976–1 to 4)

Description Displays the Static revision: Each instance of a static block parameter being accessed with write and communicate access due to an update is counted (event counter).

User interface 0 to 65 535

Relative Index

Navigation Expert → Analog inputs → Analog input 1 to 4 → Relative Index (6975–1 to 4)

Description Displays the relative index of the static block parameter that triggered the alarm (OD index minus field bus start index).

User interface 0 to 65 535

Unacknowledged

Navigation Expert → Analog inputs → Analog input 1 to 4 → Unacknowledged (6920–1 to 4)

Description Option for manually acknowledging a block alarm.

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **Blk Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 146), the process alarm must be manually acknowledged in this parameter.

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Alarm State

Navigation Expert → Analog inputs → Analog input 1 to 4 → Alarm State (6917–1 to 4)

Description Displays the status of the block alarm. The status indicates whether the block alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Time Stamp

Navigation Expert → Analog inputs → Analog input 1 to 4 → Time Stamp (6919–1 to 4)

Description Displays the time stamp indicating when the analysis of the block was started and when a status change of the block alarm that has not yet been communicated to the field bus host system was detected. The time stamp is retained until the alarm confirmation is received.

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

Subcode

Navigation Expert → Analog inputs → Analog input 1 to 4 → Subcode (6918–1 to 4)

Description Displays the specific cause of the block alarm.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Value (6921–1 to 4)

Description Displays the value of the affected parameter at the time at which the block alarm was detected.

User interface 0 to 255

Current

Navigation Expert → Analog inputs → Analog input 1 to 4 → Current (6912–1 to 4)

Description Use this function to view the current status of the process alarms.

User interface
- HiHi Alarm
- Hi Alarm
- LoLo Alarm
- Lo Alarm
- Block Alarm

Unacknowledged

Navigation Expert → Analog inputs → Analog input 1 to 4 → Unacknowledged (6914–1 to 4)

Description Displays an unacknowledged process alarm.

User interface
- HiHi Alarm Unack
- Hi Alm Unack
- LoLo Alm Unack
- Lo Alm Unack
- Block Alm Unack

Unreported

Navigation Expert → Analog inputs → Analog input 1 to 4 → Unreported (6915–1 to 4)

Description Displays a process alarm that has not been communicated.

User interface
- HiHi Alm Unrep
- Hi Alm Unrep
- LoLo Alm Unrep
- Lo Alm Unrep
- Block Alm Unrep

Disabled

Navigation Expert → Analog inputs → Analog input 1 to 4 → Disabled (6913–1 to 4)

Description Option for disabling a process alarm category.

Selection
- HiHi Alm Disabled
- Hi Alm Disabled
- LoLo Alm Disabled
- Lo Alm Disabled
- Block Alm Disabled

Acknowledge Option

Navigation Expert → Analog inputs → Analog input 1 to 4 → Ack. Option (6910–1 to 4)

Description Option for automatic acknowledgment of process alarms in a specific category.

Selection
- HiHi Alm Auto Ack
- Hi Alm Auto Ack
- LoLo Alm Auto Ack
- Lo Alm Auto Ack

- Blk Alm Auto Ack
- Fail Alm Auto Ack
- Off Spec Alm Auto Ack
- Maint Alm Auto Ack
- Check Alm Auto Ack

Additional information *Description*

Use this function to determine whether an alarm must be acknowledged via the field bus host system.

If the process alarm option has not been enabled in this parameter, this process alarm must only be acknowledged in **Unacknowledged** parameter (→ 146). **Current** parameter (→ 145) indicates the current status of all process alarms.

Alarm Hysteresis

Navigation Expert → Analog inputs → Analog input 1 to 4 → Alarm Hysteresis (6911–1 to 4)

Description Use this function to enter the hysteresis value for the upper and lower warning or alarm limit values.

User entry 0.000000 to 50.0000 %

Factory setting 0 %

High High Priority

Navigation Expert → Analog inputs → Analog input 1 to 4 → Hi Hi Priority (6938–1 to 4)

Description Use this function to enter the priority for the upper alarm limit, which determines the behavior in the event of an active limit value violation.

User entry 0 to 15

Factory setting 0

High High Limit

Navigation Expert → Analog inputs → Analog input 1 to 4 → High High Limit (6937–1 to 4)

Description Use this function to enter the value for the upper alarm limit.

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

High Priority

Navigation Expert → Analog inputs → Analog input 1 to 4 → High Priority (6940–1 to 4)

Description Use this function to enter the priority for the upper early warning limit, which determines the behavior in the event of an active limit value violation.

User entry 0 to 15

Factory setting 0

High Limit

Navigation Expert → Analog inputs → Analog input 1 to 4 → High Limit (6939–1 to 4)

Description Use this function to enter the value for the upper early warning limit.

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Low Priority

Navigation Expert → Analog inputs → Analog input 1 to 4 → Low Priority (6955–1 to 4)

Description Use this function to enter the priority for the lower early warning limit, which determines the behavior in the event of an active limit value violation.

User entry 0 to 15

Factory setting 0

Low Limit

Navigation Expert → Analog inputs → Analog input 1 to 4 → Low Limit (6947–1 to 4)

Description Use this function to enter the value for the lower early warning limit.

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Low Low Priority

Navigation Expert → Analog inputs → Analog input 1 to 4 → Low Low Priority (6954–1 to 4)

Description Use this function to enter the priority for the lower alarm limit, which determines the behavior in the event of an active limit value violation.

User entry 0 to 15

Factory setting 0

Low Low Limit

Navigation Expert → Analog inputs → Analog input 1 to 4 → Low Low Limit (6953–1 to 4)

Description Use this function to enter the value for the lower alarm limit.

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Unacknowledged

Navigation Expert → Analog inputs → Analog input 1 to 4 → Unacknowledged (6935–1 to 4)

Description Option for manually acknowledging a process alarm that has exceeded the upper alarm limit (High High Limit (→ 147)).

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting
Uninitialized

Additional information
Description

If **HiHi Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 146), the process alarm must be manually acknowledged in this parameter.

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Alarm State

Navigation
Expert → Analog inputs → Analog input 1 to 4 → Alarm State (6932–1 to 4)

Description
Displays the status of the process alarm for the upper alarm limit. The status indicates whether the process alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Time Stamp

Navigation
Expert → Analog inputs → Analog input 1 to 4 → Time Stamp (6934–1 to 4)

Description
Displays the time stamp of the process alarm for the upper alarm limit. This records the time at which analysis of the block was started and at which a status change of the process alarm that has not yet been communicated to the field bus host system was detected. The time stamp is retained until the alarm confirmation is received.

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

Subcode

Navigation
Expert → Analog inputs → Analog input 1 to 4 → Subcode (6933–1 to 4)

Description
Displays the specific cause of the process alarm for the upper alarm limit.

User interface
- Other
- BlockConfiguration
- LinkConfiguration

- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Float Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Float Value (6936–1 to 4)

Description Displays the value of the affected parameter at the time at which the process alarm for the upper alarm limit was triggered.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Unacknowledged

Navigation Expert → Analog inputs → Analog input 1 to 4 → Unacknowledged (6930–1 to 4)

Description Option for manually acknowledging a process alarm that has exceeded the upper early warning limit (High Limit (→ 148)).

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **Hi Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 146), the process alarm must be manually acknowledged in this parameter.

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Alarm State

Navigation Expert → Analog inputs → Analog input 1 to 4 → Alarm State (6927–1 to 4)

Description Displays the status of the process alarm for the upper early warning limit. The status indicates whether the process alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Time Stamp

Navigation Expert → Analog inputs → Analog input 1 to 4 → Time Stamp (6929–1 to 4)

Description Displays the time stamp of the process alarm for the upper early warning limit. This records the time at which analysis of the block was started and at which a status change of the process alarm that has not yet been communicated to the field bus host system was detected. The time stamp is retained until the alarm confirmation is received.

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

Subcode

Navigation Expert → Analog inputs → Analog input 1 to 4 → Subcode (6928–1 to 4)

Description Displays the specific cause of the process alarm for the upper early warning limit.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Float Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Float Value (6931–1 to 4)

Description Displays the value of the affected parameter at the time at which the process alarm for the upper early warning limit was triggered.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Unacknowledged

Navigation Expert → Analog inputs → Analog input 1 to 4 → Unacknowledged (6945–1 to 4)

Description Option for manually acknowledging a process alarm that has exceeded the lower early warning limit (Low Limit (→ 149)).

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **Lo Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 146), the process alarm must be manually acknowledged in this parameter.

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Alarm State

Navigation Expert → Analog inputs → Analog input 1 to 4 → Alarm State (6942–1 to 4)

Description Displays the status of the process alarm for the lower early warning limit. The status indicates whether the process alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Time Stamp

Navigation Expert → Analog inputs → Analog input 1 to 4 → Time Stamp (6944–1 to 4)

Description Displays the time stamp of the process alarm for the lower early warning limit. This records the time at which analysis of the block was started and at which a status change of the process alarm that has not yet been communicated to the field bus host system was detected. The time stamp is retained until the alarm confirmation is received.

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

Subcode

Navigation Expert → Analog inputs → Analog input 1 to 4 → Subcode (6943–1 to 4)

Description Displays the specific cause of the process alarm for the lower early warning limit.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Float Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Float Value (6946–1 to 4)

Description Displays the value of the affected parameter at the time at which the process alarm for the lower early warning limit was triggered.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Unacknowledged

Navigation Expert → Analog inputs → Analog input 1 to 4 → Unacknowledged (6951–1 to 4)

Description Option for manually acknowledging a process alarm that has exceeded the lower alarm limit (Low Low Limit (→ 149)).

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **LoLo Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 146), the process alarm must be manually acknowledged in this parameter.

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Alarm State

Navigation Expert → Analog inputs → Analog input 1 to 4 → Alarm State (6948–1 to 4)

Description Displays the status of the process alarm for the lower alarm limit. The status indicates whether the process alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Time Stamp

Navigation Expert → Analog inputs → Analog input 1 to 4 → Time Stamp (6950–1 to 4)

Description Displays the time stamp of the process alarm for the lower alarm limit. This records the time at which analysis of the block was started and at which a status change of the process alarm that has not yet been communicated to the field bus host system was detected. The time stamp is retained until the alarm confirmation is received.

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

Subcode

Navigation Expert → Analog inputs → Analog input 1 to 4 → Subcode (6949–1 to 4)

Description Displays the specific cause of the process alarm for the lower alarm limit.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Float Value

Navigation Expert → Analog inputs → Analog input 1 to 4 → Float Value (6952–1 to 4)

Description Displays the value of the affected parameter at the time at which the process alarm for the lower alarm limit was triggered.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 126)

Block error description

Navigation Expert → Analog inputs → Analog input 1 to 4 → Block err.desc. (6984–1 to 4)

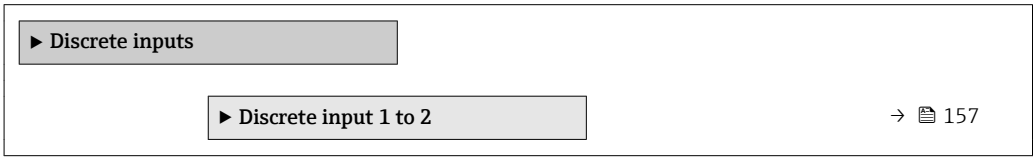
Description Displays the Block error description: Specifies a more detailed reason or cause for the Block Error (→ 110).

User interface
- Resource block out of service
- Channel undefined
- Function block not in schedule

- Linarisation Type undefined
- Unit Inconsistent
- Sensor failure

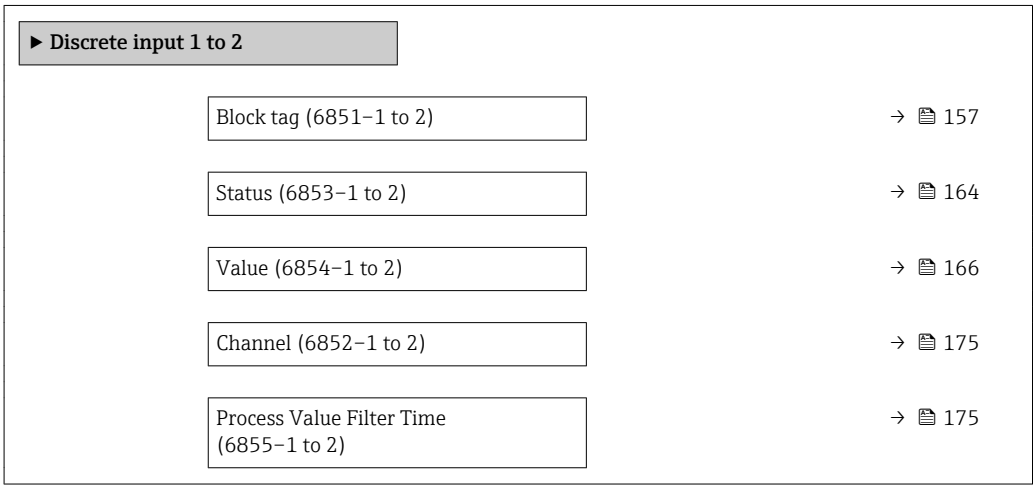
3.6 "Discrete inputs" submenu

Navigation Expert → Discrete inputs



3.6.1 "Discrete input 1 to 2" submenu

Navigation Expert → Discrete inputs → Discrete input 1 to 2



Block tag

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Block tag (6851–1 to 2)

Description Use this function to enter the Block tag: Used for specifying a "label" for identifying the function block.

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Static Revision

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Static Revision (6884–1 to 2)

Description Displays the Static Revision: Each instance of a static block parameter being accessed with write access is counted (event counter).

User interface 0 to FFFF

Additional information *Description*

Static parameters are parameters that are not changed by the process.

Tag Description

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Tag Description (6885–1 to 2)

Description Use this function to enter the Tag Description: Used for defining a user-specific text for detailed description of the function block.

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Strategy

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Strategy (6883–1 to 2)

Description Use this function to enter the Strategy: Enables blocks to be grouped by entering identical numbers.

User entry 0 to FFFF

Factory setting 0

Alert Key

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Alert Key (6846–1 to 2)

Description Use this function to enter the Alert Key: Identifies the plant unit where the transmitter is located. This helps in pinpointing events.

User entry 0 to 0xFF

Factory setting 1

Target mode

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Target mode (6873–1 to 2)

Description Use this function to select the Target mode: The selection indicates which operating mode is used for this function block. This mode is generally set by a control application.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting OOS

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Actual mode

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Actual mode (6870–1 to 2)

Description Displays the Actual mode: Under certain conditions, a function block may not work in the operating mode to be used. In this case, the Actual mode shows the actual operating mode in which the function block is currently operating. By comparing the Actual mode with the Target mode, users can see whether it was possible to reach the Target mode (→ 159).

User interface
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Additional information *User interface*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Permitted mode

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Permitted mode (6872–1 to 2)

Description Use this function to select the Permitted mode: The selection defines which operating modes are available in Target mode (→ 159) for the function block. The operating modes that are supported vary depending on the type and function of the block.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting
- Auto
- OOS

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Normal mode

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Normal mode (6871–1 to 2)

Description Use this function to select the Normal mode: This is available to enable the user to select the Normal mode from the available operating modes. This can be set using an operating tool in order to help the user configure the operating mode of a function block.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Block Error

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Block Error (6857–1 to 2)

Description Displays the short text for the Block Error that has occurred in the function block.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Status

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Status (6875–1 to 2)

Description Displays the status of the discrete input value (PV).

User interface
- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit

- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const

- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited
- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Value

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Value (6876–1 to 2)

Description Displays the discrete process variable that is used for the block implementation.

User interface

- State 0
- State 1
- State 2
- State 3
- State 4
- State 5
- State 6
- State 7

- State 8
- State 9
- State 10
- State 11
- State 12
- State 13
- State 14
- State 15
- State 16

Status

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Status (6853–1 to 2)

Description Displays the status of the discrete output value.

User interface

- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited

- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit

- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited
- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Value

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Value (6854–1 to 2)

Description Use this function to select the discrete output value.

Selection

- State 0
- State 1
- State 2
- State 3
- State 4
- State 5
- State 6
- State 7
- State 8
- State 9
- State 10
- State 11
- State 12
- State 13
- State 14
- State 15
- State 16

Factory setting State 0

Simulate Status

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Simulate Status (6878–1 to 2)

Description Use this function to select the status that is used for the transducer block simulation.

Selection
- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const

- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited

- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Factory setting Bad NonSpecific NotLimited

Simulate Value

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Simulate Value (6879–1 to 2)

Description Use this function to select the simulation value that is used for the transducer block simulation.

Selection

- State 0
- State 1
- State 2
- State 3
- State 4
- State 5
- State 6
- State 7
- State 8
- State 9
- State 10
- State 11
- State 12
- State 13
- State 14
- State 15
- State 16

Factory setting State 0

Transducer Status

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Transducer Stat (6880–1 to 2)

Description Displays the current status of the transducer block.

User interface

- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited
- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited

- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit
- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited
- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit

- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Transducer Value

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Transducer Value (6881–1 to 2)

Description Displays the current value of the transducer block.

User interface
- State 0
- State 1
- State 2
- State 3
- State 4
- State 5
- State 6
- State 7
- State 8
- State 9
- State 10
- State 11
- State 12
- State 13
- State 14
- State 15
- State 16

Factory setting State 0

Simulate En/Disable

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Sim. En/Disable (6877–1 to 2)

Description Use this function to enable or disable the function block simulation.

Selection
- Uninitialized
- Disabled
- Active

Factory setting Uninitialized

Transducer State

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Transducer State (6891–1 to 2)

Description Use this function to enter the transducer state: this is required by FieldValD (**Status** parameter (→ 175), **Value** parameter (→ 178)) to display the actual on/off status of the hardware.

User entry 0 to 65 535

Factory setting 0

Output State

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Output State (6874–1 to 2)

Description Use this function to enter the output state: This is required for scaling the discrete input value (PV).

User entry 0 to 65 535

Factory setting 0

Deny

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Deny (6867–1 to 2)

Description Option for restricting certain access authorizations of the field bus host system on the device.

Selection
- Program Denied
- Tune Denied
- Alarm Denied
- Local
- Operate Denied

Grant

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Grant (6868–1 to 2)

Description Option for releasing certain access authorizations of the field bus host system on the device.

Selection
- Program
- Tune
- Alarm

- Local
- Operate
- Service
- Diagnostic

I/O Options

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → I/O Options (6869–1 to 2)

Description Option for activating the inversion of the signal.

Selection Invert

Additional information *Description*

This selection determines whether the discrete input is inverted before it is stored as a process variable. Normally a discrete value of 0 is regarded as a logical value of 0 and a discrete value that is not equal to 0 is regarded as a logical value of 1. If inversion is enabled, this correlation is reversed. A field device input value that is not equal to 0 results in a discrete output value of 0 and an input value of 0 results in a discrete output value of 1.

Status Options

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Status Options (6882–1 to 2)

Prerequsite The measuring device must be in the OOS operating mode so that the parameter can be edited.

Description For selecting an option for the status of the output value that is supported by the Discrete input block.

Selection

- Propagate Fault Fwd
- Uncertain if Man.

Additional information *Options*

- Propagate Fault Fwd
  If the measuring device indicates the status **Bad DeviceFailure** or **Bad SensorFailure**, the device continues to measure and no alarm is triggered. The use of this substatus in the output value (OUT) is defined by **Propagate Fault Fwd** option. With the aid of this option, the user/operator can specify whether the alarm generation (sending an alarm) is triggered by the block or is forwarded downstream.
- Uncertain if Man.
  If the Actual mode of the function block is in the **Man** option operating mode, **Uncertain if Man.** option is used as the output status.

Channel

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Channel (6852–1 to 2)

Description Use this function to select the input value that should be processed in the discrete input function block.

Selection
- Uninitialized
- Empty pipe detection
- Low flow cut off
- Switch output status
- Verification status *

Factory setting Uninitialized

Process Value Filter Time

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → PV Filter Time (6855–1 to 2)

Description Use this function to enter the filter time specification for the filtering of the unconverted input value (PV).

User entry Positive floating-point number

Factory setting 0 s

Additional information *Factory setting*

If the value 0 s is entered, filtering will not be performed.

Status

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Status (6865–1 to 2)

Description Displays the status of the discrete input value from a measuring device in the field.

User interface
- Bad NonSpecific NotLimited
- Bad NonSpecific LowLimited
- Bad NonSpecific HighLimited
- Bad NonSpecific Constant
- Bad ConfigurationError NotLimited
- Bad ConfigurationError LowLimited
- Bad ConfigurationError HighLimited
- Bad ConfigurationError Constant
- Bad NotConnected NotLimited
- Bad NotConnected LowLimited
- Bad NotConnected HighLimited

* Visibility depends on order options or device settings

- Bad NotConnected Constant
- Bad DeviceFailure NotLimited
- Bad DeviceFailure LowLimited
- Bad DeviceFailure HighLimited
- Bad DeviceFailure Constant
- Bad SensorFailure NotLimited
- Bad SensorFailure LowLimited
- Bad SensorFailure HighLimited
- Bad SensorFailure Constant
- Bad NoComm WithLastUsableValue NotLimit
- Bad No Com WithLastUsableValue LowLim
- Bad No Com WithLastUsableValue HighLim
- Bad No Com WithLastUsableValue Const
- Bad NoComm WithNoUsableValue NotLimit
- Bad NoComm WithNoUsableValue LowLimit
- BadNoComm WithNoUsableValue HighLimit
- Bad NoComm WithNoUsableValue Constant
- Bad OutOfService NotLimited
- Bad OutOfService LowLimited
- Bad OutOfService HighLimited
- Bad OutOfService Constant
- Uncertain NonSpecific NotLimited
- Uncertain NonSpecific LowLimited
- Uncertain NonSpecific HighLimited
- Uncertain NonSpecific Constant
- Uncertain LastUsableValue NotLimited
- Uncertain LastUsableValue LowLimited
- Uncertain LastUsableValue HighLimited
- Uncertain LastUsableValue Constant
- Uncertain SubstituteValue NotLimited
- Uncertain SubstituteValue LowLimited
- Uncertain SubstituteValue HighLimited
- Uncertain SubstituteValue Constant
- Uncertain InitialValue NotLimited
- Uncertain InitialValue LowLimited
- Uncertain InitialValue HighLimited
- Uncertain InitialValue Constant
- Uncertain SensConvNotAccurate NoLimit
- Uncertain SensConvNotAccurate LowLimit
- Uncertain SensConvNotAccurat HighLimit
- Uncertain SensConvNotAccurat Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLim
- Uncertain EngUnitRangeViolation Const
- Uncertain Subnormal NotLimited
- Uncertain Subnormal LowLimited
- Uncertain Subnormal HighLimited
- Uncertain Subnormal Constant
- Good NonCAS NonSpecific NotLimited
- Good NonCAS NonSpecific LowLimited
- Good NonCAS NonSpecific HighLimited
- Good NonCAS NonSpecific Constant
- Good NonCAS ActiveBlockAlarm NotLimit
- Good NonCAS ActiveBlockAlarm LowLimit
- Good NonCAS ActiveBlockAlarm HighLimit
- Good NonCAS ActiveBlockAlarm Const
- Good NonCAS ActiveAdvisoryAlarm NotLimit
- Good NonCAS ActiveAdvisoryAlarm LowLimit

- Good NonCAS ActAdvisoryAlarm HighLimit
- Good NonCAS ActAdvisoryAlarm Const
- Good NonCAS ActiveCriticalAlarm NotLimit
- Good NonCAS ActiveCriticalAlarm LowLimit
- Good NonCAS ActiveCriticalAlarm HL
- Good NonCAS ActiveCriticalAlarm Con.
- Good NonCAS UnackBlockAlarm NotLimit
- Good NonCAS UnackBlockAlarm LowLimit
- Good NonCAS UnackBlockAlarm HighLimit
- Good NonCAS UnackBlockAlarm Const
- Good NonCAS UnackAdvisoryAlarm NotLimit
- Good NonCAS UnackAdvisoryAlarm LowLimit
- Good NonCAS UnackAdvisoryAlarm HighLimit
- Good NonCAS UnackAdvisoryAlarm Const
- Good NonCAS UnackCriticalAlarm NotLimit
- Good NonCAS UnackCriticalAlarm LowLimit
- Good NonCAS UnackCriticalAlarm HighLimit
- Good NonCAS UnackCriticalAlarm Const
- Good Cascade NonSpecific NotLimited
- Good Cascade NonSpecific LowLimited
- Good Cascade NonSpecific HighLimited
- Good Cascade NonSpecific Constant
- Good Cascade InitAcknowledge NotLimit
- Good Cascade InitAcknowledge LowLimit
- Good Cascade InitAcknowledge HighLimit
- Good Cascade InitAcknowledge Const
- Good Cascade InitRequest NotLimit
- Good Cascade InitRequest LowLimit
- Good Cascade InitRequest HighLimit
- Good Cascade InitRequest Const
- Good Cascade NotInvited NotLimited
- Good Cascade NotInvited LowLimited
- Good Cascade NotInvited HighLimited
- Good Cascade NotInvited Constant
- Good Cascade NotSelected NotLimited
- Good Cascade NotSelected LowLimited
- Good Cascade NotSelected HighLimited
- Good Cascade NotSelected Constant
- Good Cascade DoNotSelect NotLimited
- Good Cascade DoNotSelect LowLimited
- Good Cascade DoNotSelect HighLimited
- Good Cascade DoNotSelect Constant
- Good Cascade LocalOverride NotLimited
- Good Cascade LocalOverride LowLimited
- Good Cascade LocalOverride HighLimited
- Good Cascade LocalOverride Constant
- Good Cascade FaultStateActive NotLimit
- Good Cascade FaultStateActive LowLimit
- Good Cascade FaultStateActive HighLimit
- Good Cascade FaultStateActive Constant
- Good Cascade InitFaultState NotLimited
- Good Cascade InitFaultState LowLimited
- Good Cascade InitFaultState HighLimited
- Good Cascade InitiateFaultState Constant

Factory setting Bad NonSpecific NotLimited

Additional information *Description*

An output parameter can be linked to an input parameter from another function block. Both the input parameter and the output parameter have a field value and status. The status of the input parameter is taken from the linked output parameter.

Value

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Value (6866–1 to 2)

Description Displays the discrete input value from a measuring device in the field.

User interface
- State 0
- State 1
- State 2
- State 3
- State 4
- State 5
- State 6
- State 7
- State 8
- State 9
- State 10
- State 11
- State 12
- State 13
- State 14
- State 15
- State 16

Factory setting State 0

Unacknowledged

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Unacknowledged (6889–1 to 2)

Description Option for manually acknowledging an update of the static block parameter.

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

- If a new diagnostic event occurs, the measuring device sets **Unacknowledged** option.
- If the diagnostic event has been acknowledged, the user can set **Acknowledged** option.

Update State

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Update State (6890–1 to 2)

Description Displays the status of an update of the static block parameter. The status indicates whether the update was communicated or not.

User interface
- Uninitialized
- Reported
- Not Reported

Time Stamp

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Time Stamp (6888–1 to 2)

Description Displays the time stamp indicating when the analysis of the block was started and when a status change of an update to the static block parameter that has not yet been communicated was identified. The time stamp is retained until the update confirmation is received.

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

Static revision

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Static revision (6887–1 to 2)

Description Displays the Static revision: Each instance of a static block parameter being accessed with write and communicate access due to an update is counted (event counter).

User interface 0 to 65 535

Relative Index

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Relative Index (6886–1 to 2)

Description Displays the relative index of the static block parameter that triggered the alarm (OD index minus field bus start index).

User interface 0 to 65 535

Acknowledge Option

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Ack. Option (6841–1 to 2)

Description Option for automatic acknowledgment of process alarms in a specific category.

Selection
- Disc Alm Auto Ack
- Blk Alm Auto Ack
- Fail Alm Auto Ack
- Off Spec Alm Auto Ack
- Maint Alm Auto Ack
- Check Alm Auto Ack

Additional information *Description*

Use this function to determine whether an alarm must be acknowledged via the field bus host system.

If the process alarm option has not been enabled in this parameter, this process alarm must only be acknowledged in **Unacknowledged** parameter (→ 146). **Current** parameter (→ 145) indicates the current status of all process alarms.

Current

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Current (6842–1 to 2)

Description Use this function to view the current status of the process alarms.

User interface
- Discrete Alarm
- Block Alarm
- Fail Alarm
- Off Spec Alarm
- Maintenance Alarm
- Check Alarm

Disabled

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Disabled (6843–1 to 2)

Description Option for disabling a process alarm category.

Selection
- Disc Alm Disabled
- Block Alm Disabled
- Fail Alm Disabled
- Off Spec Alm Disabled
- Maint Alm Disabled
- Check Alm Disabled

Unacknowledged

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Unacknowledged (6844–1 to 2)

Description Displays an unacknowledged process alarm.

User interface
- Disc Alm Unack
- Block Alm Unack
- Fail Alm Unack
- Off Spec Alm Unack
- Maint Alm Unack
- Check Alm Unack

Unreported

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Unreported (6845–1 to 2)

Description Displays a process alarm that has not been communicated.

User interface
- Disc Alm Unrep
- Block Alm Unrep
- Fail Alm Unrep
- Off Spec Alm Unrep
- Maint Alm Unrep
- Check Alm Unrep

Alarm State

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Alarm State (6847–1 to 2)

Description Displays the status of the block alarm. The status indicates whether the block alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Subcode

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Subcode (6848–1 to 2)

Description Displays the specific cause of the block alarm.

User interface

- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Time Stamp

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Time Stamp (6849–1 to 2)

Description Displays the time stamp indicating when the analysis of the block was started and when a status change of the block alarm that has not yet been communicated to the field bus host system was detected. The time stamp is retained until the alarm confirmation is received.

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

Unacknowledged

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Unacknowledged (6850–1 to 2)

Description Option for manually acknowledging a block alarm.

Selection

- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **Blk Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 180), the process alarm must be manually acknowledged in this parameter.

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Value

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Value (6856–1 to 2)

Description Displays the value of the affected parameter at the time at which the block alarm was detected.

User interface 0 to 255

Alarm State

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Alarm State (6858–1 to 2)

Description Displays the status of the block alarm. The status indicates whether the block alarm is active and whether it has already been communicated to the field bus host system.

User interface
- Uninitialized
- Clear-Reported
- Clear-Not Reported
- Active-Reported
- Active-Not Reported

Subcode

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Subcode (6859–1 to 2)

Description Displays the specific cause of the discrete alarm.

User interface
- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure
- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Time Stamp

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Time Stamp (6860–1 to 2)

Description Displays the time stamp indicating when the analysis of the function block was started and when a status change of the discrete alarm that has not yet been communicated to the field bus host system was detected. The time stamp is retained until the alarm confirmation is received.

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

Unacknowledged

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Unacknowledged (6861–1 to 2)

Description Option for manually acknowledging a discrete alarm.

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **Disc Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 180), the process alarm must be manually acknowledged in this parameter.

- If a new alarm occurs, the measuring device sets **Unacknowledged** option.
- If the alarm has been acknowledged, the user can set **Acknowledged** option.

Discrete Value

Navigation Expert → Discrete inputs → Discrete input 1 to 2 → Discrete Value (6862–1 to 2)

Description Displays the value of the associated parameter at the time at which the alarm was detected.

User interface
- State 0
- State 1
- State 2
- State 3
- State 4
- State 5
- State 6
- State 7
- State 8
- State 9
- State 10
- State 11
- State 12

- State 13
- State 14
- State 15
- State 16

Discrete Limit

Navigation	Expert → Discrete inputs → Discrete input 1 to 2 → Discrete Limit (6863–1 to 2)
Description	Use this to enter the status of the discrete input value that triggers an alarm.
User entry	0 to 255
Factory setting	0

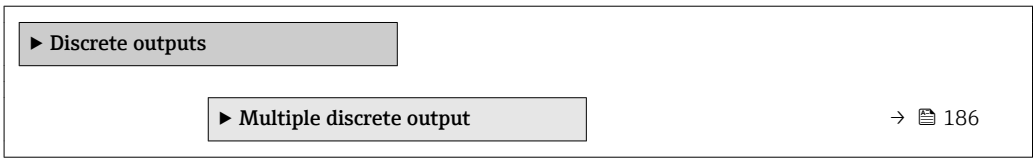
Discrete Priority

Navigation	Expert → Discrete inputs → Discrete input 1 to 2 → Discrete Prio (6864–1 to 2)
Description	Use this to enter the priority of a discrete alarm.
User entry	0 to 15
Factory setting	0

3.7 "Discrete outputs" submenu

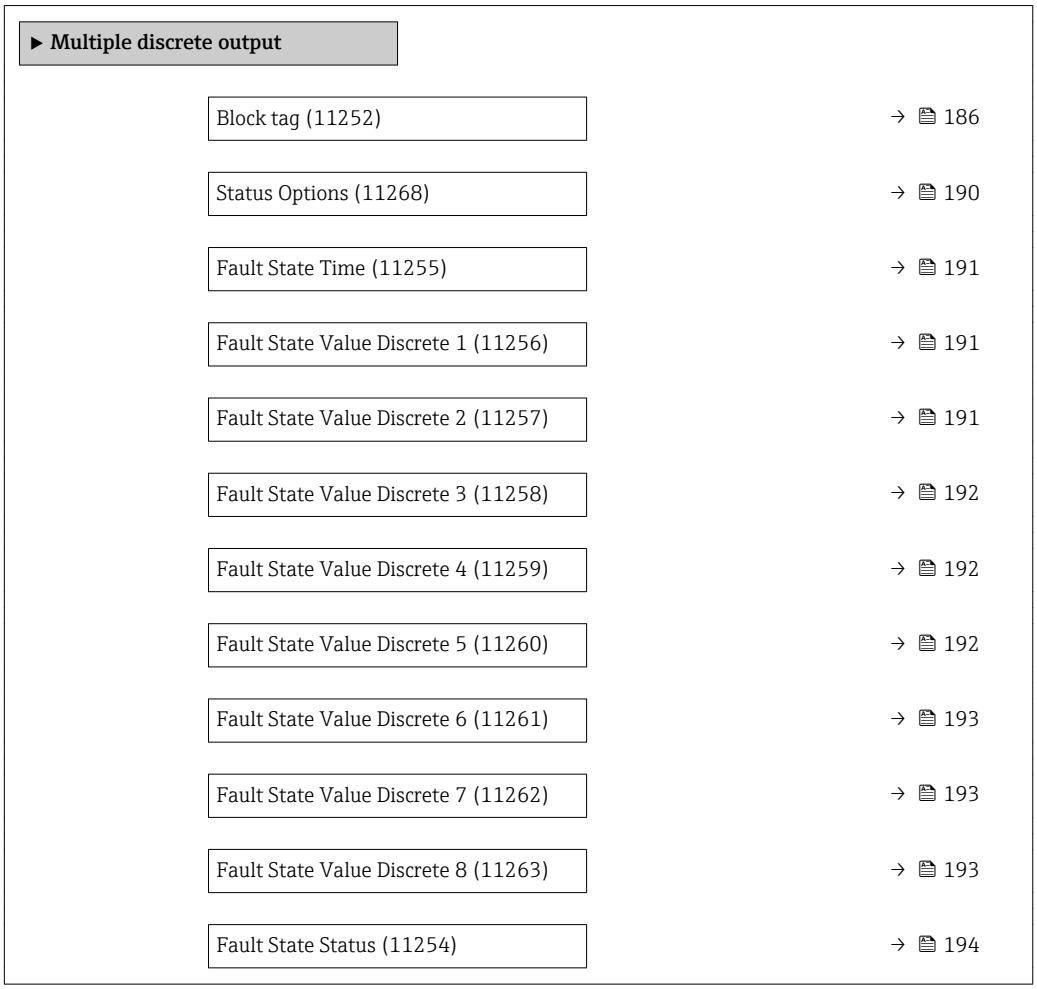
The Discrete outputs function block (DO, discrete output) processes a discrete set point received from an upstream function block or a higher-level process control system that enables various device functions (e.g. zero point adjustment or reset of the totalizer) to be triggered in the downstream transducer block.

Navigation Expert → Discrete outputs



3.7.1 "Multiple discrete output" submenu

Navigation Expert → Discrete outputs → Multiple DO



Block tag

Navigation Expert → Discrete outputs → Multiple DO → Block tag (11252)

Description Use this function to enter the Block tag: Used for specifying a "label" for identifying the function block.

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Static Revision

Navigation Expert → Discrete outputs → Multiple DO → Static Revision (11270)

Description Displays the Static Revision: Each instance of a static block parameter being accessed with write access is counted (event counter).

User interface 0 to FFFF

Additional information *Description*

Static parameters are parameters that are not changed by the process.

Tag Description

Navigation Expert → Discrete outputs → Multiple DO → Tag Description (11271)

Description Use this function to enter the Tag Description: Used for defining a user-specific text for detailed description of the function block.

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Strategy

Navigation Expert → Discrete outputs → Multiple DO → Strategy (11269)

Description Use this function to enter the Strategy: Enables blocks to be grouped by entering identical numbers.

User entry 0 to FFFF

Factory setting 0

Alert Key

Navigation Expert → Discrete outputs → Multiple DO → Alert Key (11251)

Description Use this function to enter the Alert Key: Identifies the plant unit where the transmitter is located. This helps in pinpointing events.

User entry 0 to 0xFF

Factory setting 1

Target mode

Navigation Expert → Discrete outputs → Multiple DO → Target mode (11267)

Description Use this function to select the Target mode: The selection indicates which operating mode is used for this function block. This mode is generally set by a control application.

Selection
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting OOS

Additional information *Options*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Actual mode

Navigation Expert → Discrete outputs → Multiple DO → Actual mode (11264)

Description Displays the Actual mode: Under certain conditions, a function block may not work in the operating mode to be used. In this case, the Actual mode shows the actual operating mode that the function block is currently operating in. By comparing the Actual mode with the Target mode, users can see whether it was possible to reach the Target mode (→ 187).

User interface
- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Additional information *User interface*

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Permitted mode

Navigation Expert → Discrete outputs → Multiple DO → Permitted mode (11266)

Description Use this function to select the Permitted mode: The selection defines which operating modes are available in Target mode (→ 187) for the function block. The operating modes that are supported vary depending on the type and function of the block.

Selection
- ROut
- RCas
- Cas
- Auto
- Man

- LO
- IMan
- OOS

Factory setting

- Auto
- OOS

Additional information

Options

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Normal mode

Navigation

Expert → Discrete outputs → Multiple DO → Normal mode (11265)

Description

Use this function to select the Normal mode: This is available to enable the user to select the Normal mode from the available operating modes. This can be set using an operating tool in order to help the user configure the operating mode of a function block.

Selection

- ROut
- RCas
- Cas
- Auto
- Man
- LO
- IMan
- OOS

Factory setting

Auto

Additional information

Options

Detailed description of the options available for selection: **Target mode** parameter (→ 85)

Block Error

Navigation

Expert → Discrete outputs → Multiple DO → Block Error (11272)

Description

Displays the short text for the Block Error that has occurred in the function block.

User interface

- Other
- BlockConfiguration
- LinkConfiguration
- SimulationActive
- LocalOverride
- DeviceFaultState
- DeviceMaintenance
- SensorFailure
- OutputFailure
- MemoryFailure

- LostStaticData
- LostNVData
- ReadbackCheck
- MaintenanceNeeded
- PowerUp
- OutOfService

Channel

Navigation Expert → Discrete outputs → Multiple DO → Channel (11253)

Description Option for the assignment or connection between the discrete output function block and the transducer block.

Selection
- Uninitialized
- Channel_D0

Factory setting Channel_D0

Status Options

Navigation Expert → Discrete outputs → Multiple DO → Status Options (11268)

Description Option for determining the fault state of the function block.

Selection
- Faultstate to value 1
- Faultstate to value 2
- Faultstate to value 3
- Faultstate to value 4
- Faultstate to value 5
- Faultstate to value 6
- Faultstate to value 7
- Faultstate to value 8
- Use faultstate value on restart 1
- Use faultstate value on restart 2
- Use faultstate value on restart 3
- Use faultstate value on restart 4
- Use faultstate value on restart 5
- Use faultstate value on restart 6
- Use faultstate value on restart 7
- Use faultstate value on restart 8

Additional information *Description*

This behavior is enabled if an error condition of the valid set point persists for longer than the time specified in **Fault State Time** parameter (→ 191) or if **Set Fault State** parameter (→ 98) is enabled in Resource block.

The fault state is defined via the following parameters:
- Fault State Time (→ 191)
- Fault State Value Discrete 1 to 8

Options

- Faultstate to value 1...8
  The value predefined in **Fault State Value Discrete 1 to 8** parameter is used in place of the discrete set point. The fault state is enabled if there is an error condition.
- Use faultstate value on restart 1...8
  The value predefined in **Fault State Value Discrete 1 to 8** parameter is used if the device is restarted. The non-volatile value is used otherwise. The fault state is not enabled and only the predefined value is used.

Fault State Time

Navigation Expert → Discrete outputs → Multiple DO → Fault State Time (11255)

Description Use this function to enter a time range during which an error condition (of the currently valid set point) must be met without interruption before an error message is generated.

User entry Positive floating-point number

Factory setting 0 s

Fault State Value Discrete 1

Navigation Expert → Discrete outputs → Multiple DO → FStateValue DO 1 (11256)

Description Use this function to enter a predefined discrete value to be used if an error condition of the discrete set point 1 is present.

User entry 0 to 255

Factory setting 0

Additional information *Description*

If **Faultstate to value 1** option is not selected in **Status Options** parameter (→ 190), this value is ignored.

Fault State Value Discrete 2

Navigation Expert → Discrete outputs → Multiple DO → FStateValue DO 2 (11257)

Description Use this function to enter a predefined discrete value to be used if an error condition of the discrete set point 2 is present.

User entry 0 to 255

Factory setting 0

Additional information *Description*

If **Faultstate to value 2** option is not selected in **Status Options** parameter (→ 190), this value is ignored.

Fault State Value Discrete 3

Navigation Expert → Discrete outputs → Multiple DO → FStateValue DO 3 (11258)

Description Use this function to enter a predefined discrete value to be used if an error condition of the discrete set point 3 is present.

User entry 0 to 255

Factory setting 0

Additional information *Description*

If **Faultstate to value 3** option is not selected in **Status Options** parameter (→ 190), this value is ignored.

Fault State Value Discrete 4

Navigation Expert → Discrete outputs → Multiple DO → FStateValue DO 4 (11259)

Description Use this function to enter a predefined discrete value to be used if an error condition of the discrete set point 4 is present.

User entry 0 to 255

Factory setting 0

Additional information *Description*

If **Faultstate to value 4** option is not selected in **Status Options** parameter (→ 190), this value is ignored.

Fault State Value Discrete 5

Navigation Expert → Discrete outputs → Multiple DO → FStateValue DO 5 (11260)

Description Use this function to enter a predefined discrete value to be used if an error condition of the discrete set point 5 is present.

User entry 0 to 255

Factory setting 0

Additional information *Description*

If **Faultstate to value 5** option is not selected in **Status Options** parameter (→ 190), this value is ignored.

Fault State Value Discrete 6

Navigation Expert → Discrete outputs → Multiple DO → FStateValue DO 6 (11261)

Description Use this function to enter a predefined discrete value to be used if an error condition of the discrete set point 6 is present.

User entry 0 to 255

Factory setting 0

Additional information *Description*

If **Faultstate to value 6** option is not selected in **Status Options** parameter (→ 190), this value is ignored.

Fault State Value Discrete 7

Navigation Expert → Discrete outputs → Multiple DO → FStateValue DO 7 (11262)

Description Use this function to enter a predefined discrete value to be used if an error condition of the discrete set point 7 is present.

User entry 0 to 255

Factory setting 0

Additional information *Description*

If **Faultstate to value 7** option is not selected in **Status Options** parameter (→ 190), this value is ignored.

Fault State Value Discrete 8

Navigation Expert → Discrete outputs → Multiple DO → FStateValue DO 8 (11263)

Description Use this function to enter a predefined discrete value to be used if an error condition of the discrete set point 8 is present.

User entry 0 to 255

Factory setting 0

Additional information *Description*

If **Faultstate to value 8** option is not selected in **Status Options** parameter (→ 190), this value is ignored.

Fault State Status

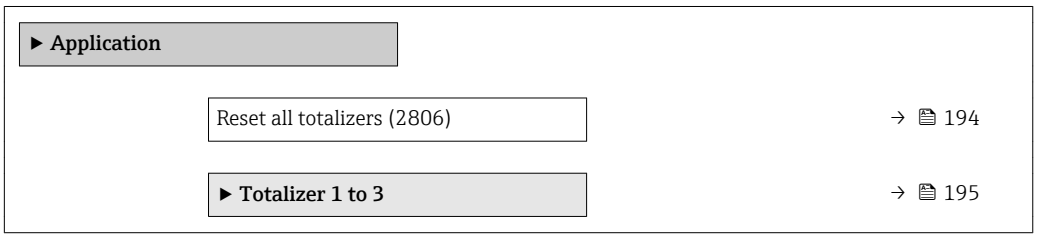
Navigation Expert → Discrete outputs → Multiple DO → FaultStateStatus (11254)

Description Displays the values for which the fault state is enabled.

User interface
- Value 1 is in Fault State
- Value 2 is in Fault State
- Value 3 is in Fault State
- Value 4 is in Fault State
- Value 5 is in Fault State
- Value 6 is in Fault State
- Value 7 is in Fault State
- Value 8 is in Fault State

3.8 "Application" submenu

Navigation Expert → Application



Reset all totalizers

Navigation Expert → Application → Reset all tot. (2806)

Description Use this function to reset all totalizers to the value **0** and restart the totaling process. This deletes all the flow values previously totalized.

Selection
- Cancel
- Reset + totalize

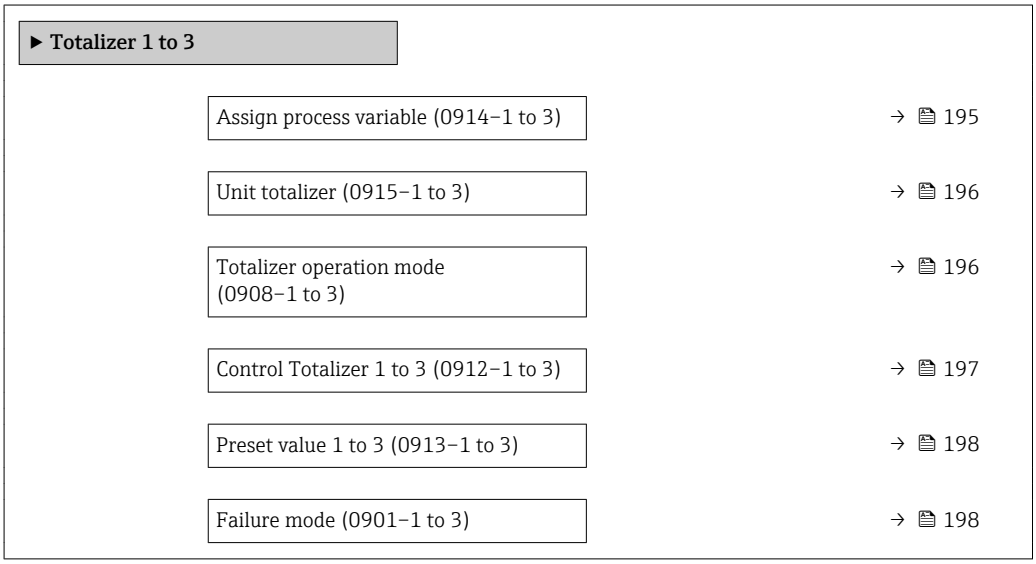
Factory setting Cancel

Additional information *Selection*

- Cancel
  No action is executed and the user exits the parameter.
- Reset + totalize
  All totalizers are reset to 0 and the totaling process is restarted.

3.8.1 "Totalizer 1 to 3" submenu

Navigation Expert → Application → Totalizer 1 to 3



Assign process variable

Navigation Expert → Application → Totalizer 1 to 3 → Assign variable (0914–1 to 3)

Description Use this function to select a process variable for totalizer 1-3.

Selection
- Off
- Volume flow
- Mass flow

Factory setting Volume flow

Additional information *Description*

If the option selected is changed, the device resets the totalizer to 0.

Options

If the **Off** option is selected, only **Assign process variable** parameter (→ 195) is displayed in the **Totalizer 1 to 3** submenu. All other parameters in the submenu are hidden.

Unit totalizer

Navigation Expert → Application → Totalizer 1 to 3 → Unit totalizer (0915–1 to 3)

Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 195) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Mass flow

Description Use this function to select the unit for the process variable of totalizer 1-3.

Selection

SI units
- g
- kg
- t

US units
- oz
- lb
- STon

or

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

US units
- af
- ft^3
- fl oz (us)
- gal (us)
- kgal (us)
- Mgal (us)
- bbl (us;liq.)
- bbl (us;beer)
- bbl (us;oil)
- bbl (us;tank)

Imperial units
- gal (imp)
- Mgal (imp)
- bbl (imp;beer)
- bbl (imp;oil)

Factory setting Country-specific:
- l
- gal (us)

Additional information

Description

The unit is selected separately for each totalizer. It is independent of the option selected in the **System units** submenu (→ 47).

Options

The selection depends on the process variable selected in the **Assign process variable** parameter (→ 195).

Totalizer operation mode

Navigation Expert → Application → Totalizer 1 to 3 → Operation mode (0908–1 to 3)

Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 195) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Mass flow

Description Use this function to select how the totalizer summates the flow.

Selection
- Net flow total
- Forward flow total
- Reverse flow total

Factory setting Net flow total

Additional information *Options*
- Net flow total
  Positive and negative flow values are totalized and balanced against one another. Net flow is registered in the flow direction.
- Forward flow total
  Only the flow in the forward flow direction is totalized.
- Reverse flow total
  Only the flow against the forward flow direction is totalized (= reverse flow total).

Control Totalizer 1 to 3

Navigation Expert → Application → Totalizer 1 to 3 → Control Tot. 1 to 3 (0912–1 to 3)

Prerequsite One of the following options is selected in the **Assign process variable** parameter (→ 195) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Mass flow

Description Use this function to select the control of totalizer value 1-3.

Selection
- Totalize
- Reset + hold
- Preset + hold
- Reset + totalize
- Preset + totalize
- Hold

Factory setting Totalize

Additional information *Options*
- Totalize
  The totalizer is started or continues totalizing with the current counter reading.
- Reset + hold
  The totaling process is stopped and the totalizer is reset to 0.
- Preset + hold
  The totaling process is stopped and the totalizer is set to its defined start value from the **Preset value** parameter (→ 198).
- Reset + totalize
  The totalizer is reset to 0 and the totaling process is restarted.
- Preset + totalize
  The totalizer is set to the defined start value in the **Preset value** parameter (→ 198) and the totaling process is restarted.
- Hold
  Totalizing is stopped.

Preset value 1 to 3

Navigation Expert → Application → Totalizer 1 to 3 → Preset value 1 to 3 (0913–1 to 3)

Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 195) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Mass flow

Description Use this function to enter a start value for totalizer 1-3.

User entry Signed floating-point number

Factory setting Country-specific:
- 0 l
- 0 gal (us)

Additional information *User entry*

The unit of the selected process variable is specified for the totalizer in the **Unit totalizer** parameter (→ 196).

Example

This configuration is suitable for applications such as iterative filling processes with a fixed batch quantity.

Failure mode

Navigation Expert → Application → Totalizer 1 to 3 → Failure mode (0901–1 to 3)

Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 195) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Mass flow

Description Use this function to select how a totalizer behaves in an alarm condition.

Selection
- Stop
- Actual value
- Last valid value

Factory setting Stop

Additional information *Description*

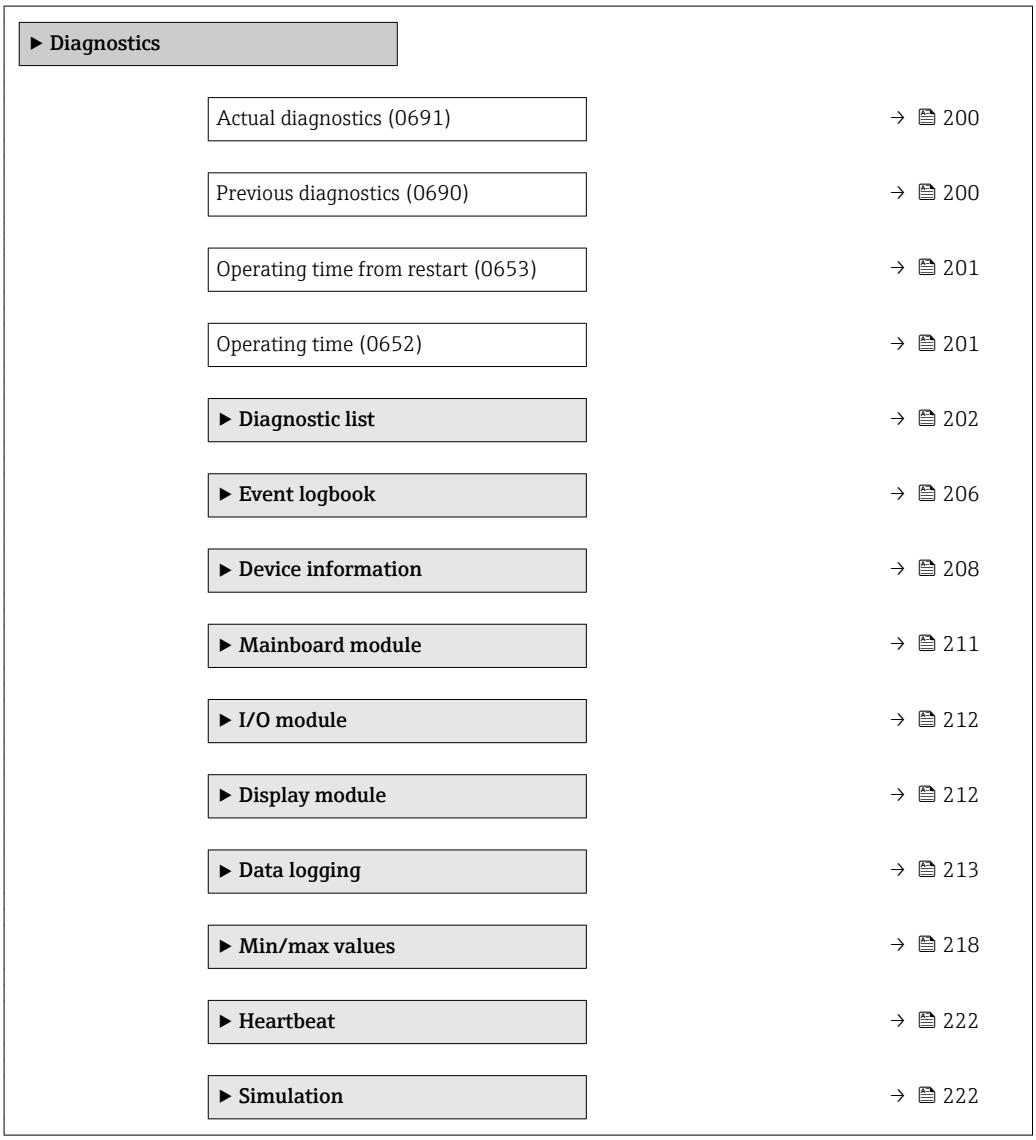
This setting does not affect the error response mode of other totalizers and the outputs. This is specified in separate parameters.

Options

- Stop
  Totalizing is stopped in an alarm condition.
- Actual value
  The totalizer continues to count based on the actual measured value; the error is ignored.
- Last valid value
  The totalizer continues to count based on the last valid measured value before the error occurred.

3.9 "Diagnostics" submenu

Navigation Expert → Diagnostics



Actual diagnostics

Navigation Expert → Diagnostics → Actual diagnos. (0691)

Prerequisite A diagnostic event has occurred.

Description Displays the current diagnostic message. If two or more messages occur simultaneously, the message with the highest priority is shown on the display.

User interface Symbol for diagnostic behavior, diagnostic code and short message.

Additional information *User interface*

Additional pending diagnostic messages can be shown in the **Diagnostic list** submenu (→ 202).

Information on what is causing the diagnostic message, and remedy measures, can be viewed by pressing the E-button.

Example

For the display format:
⚠S442 Frequency output

Timestamp

Navigation Expert → Diagnostics → Timestamp (0667)

Description Displays the operating time when the current diagnostic message occurred.

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

Additional information *User interface*

The diagnostic message can be displayed via the **Actual diagnostics** parameter (→ 200).

Example

For the display format:
24d12h13m00s

Previous diagnostics

Navigation Expert → Diagnostics → Prev.diagnostics (0690)

Prerequisite Two diagnostic events have already occurred.

Description Displays the diagnostic message that occurred before the current message.

User interface Symbol for diagnostic behavior, diagnostic code and short message.

Additional information *User interface*

Information on what is causing the diagnostic message, and remedy measures, can be viewed by pressing the E-button.

Example

For the display format:
⚠S442 Frequency output

Timestamp

Navigation Expert → Diagnostics → Timestamp (0672)

Description Displays the operating time when the last diagnostic message before the current message occurred.

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

Additional information *User interface*

The diagnostic message can be displayed via the **Previous diagnostics** parameter (→ 200).

Example

For the display format:
24d12h13m00s

Operating time from restart

Navigation Expert → Diagnostics → Time fr. restart (0653)

Description Use this function to display the time the device has been in operation since the last device restart.

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

Operating time

Navigation Expert → Diagnostics → Operating time (0652)

Description Use this function to display the length of time the device has been in operation.

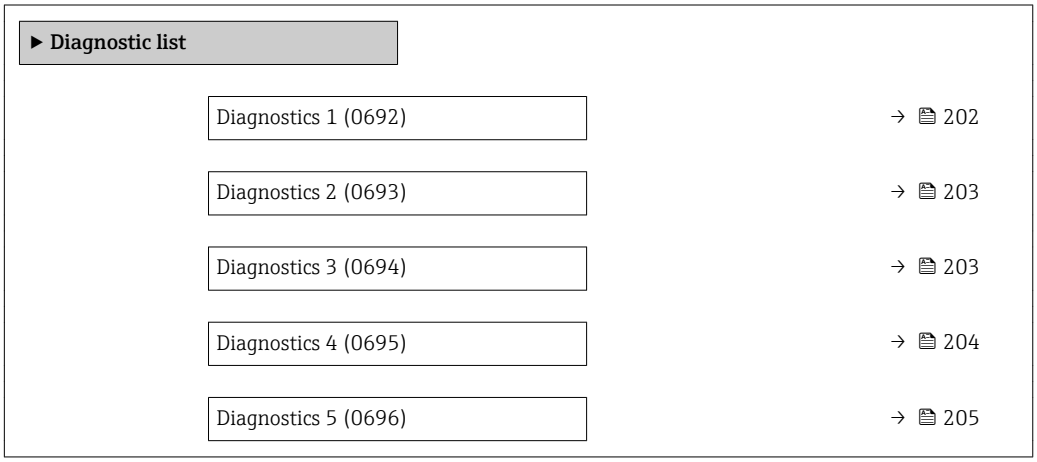
User interface Days (d), hours (h), minutes (m) and seconds (s)

Additional information *User interface*

The maximum number of days is 9999, which is equivalent to 27 years.

3.9.1 "Diagnostic list" submenu

Navigation Expert → Diagnostics → Diagnostic list



Diagnostics 1

Navigation Expert → Diagnostics → Diagnostic list → Diagnostics 1 (0692)

Description Use this function to display the current diagnostics message with the highest priority.

User interface Symbol for diagnostic behavior, diagnostic code and short message.

Additional information *Examples*

For the display format:
- ⚠S442 Frequency output
- ⊗F276 I/O module failure

Timestamp

Navigation Expert → Diagnostics → Diagnostic list → Timestamp (0683)

Description Displays the operating time when the diagnostic message with the highest priority occurred.

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

Additional information *User interface*

The diagnostic message can be displayed via the **Diagnostics 1** parameter (→ 202).

Example

For the display format:
24d12h13m00s

Diagnostics 2

Navigation Expert → Diagnostics → Diagnostic list → Diagnostics 2 (0693)

Description Use this function to display the current diagnostics message with the second-highest priority.

User interface Symbol for diagnostic behavior, diagnostic code and short message.

Additional information *Examples*

For the display format:
- ⚠S442 Frequency output
- ⊗F276 I/O module failure

Timestamp

Navigation Expert → Diagnostics → Diagnostic list → Timestamp (0684)

Description Displays the operating time when the diagnostic message with the second-highest priority occurred.

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

Additional information *User interface*

The diagnostic message can be displayed via the **Diagnostics 2** parameter (→ 203).

Example

For the display format:
24d12h13m00s

Diagnostics 3

Navigation Expert → Diagnostics → Diagnostic list → Diagnostics 3 (0694)

Description Use this function to display the current diagnostics message with the third-highest priority.

User interface Symbol for diagnostic behavior, diagnostic code and short message.

Additional information *Examples*

For the display format:
- ⚠S442 Frequency output
- ⊗F276 I/O module failure

Timestamp

Navigation Expert → Diagnostics → Diagnostic list → Timestamp (0685)

Description Displays the operating time when the diagnostic message with the third-highest priority occurred.

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

Additional information *User interface*

The diagnostic message can be displayed via the **Diagnostics 3** parameter (→ 203).

Example

For the display format:
24d12h13m00s

Diagnostics 4

Navigation Expert → Diagnostics → Diagnostic list → Diagnostics 4 (0695)

Description Use this function to display the current diagnostics message with the fourth-highest priority.

User interface Symbol for diagnostic behavior, diagnostic code and short message.

Additional information *Examples*

For the display format:
- ⚠S442 Frequency output
- ⊗F276 I/O module failure

Timestamp

Navigation Expert → Diagnostics → Diagnostic list → Timestamp (0686)

Description Displays the operating time when the diagnostic message with the fourth-highest priority occurred.

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

Additional information *User interface*

The diagnostic message can be displayed via the **Diagnostics 4** parameter (→ 204).

Example

For the display format:
24d12h13m00s

Diagnostics 5

Navigation Expert → Diagnostics → Diagnostic list → Diagnostics 5 (0696)

Description Use this function to display the current diagnostics message with the fifth-highest priority.

User interface Symbol for diagnostic behavior, diagnostic code and short message.

Additional information *Examples*

For the display format:
- ⚠S442 Frequency output
- ⊗F276 I/O module failure

Timestamp

Navigation Expert → Diagnostics → Diagnostic list → Timestamp (0687)

Description Displays the operating time when the diagnostic message with the fifth-highest priority occurred.

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

Additional information *User interface*

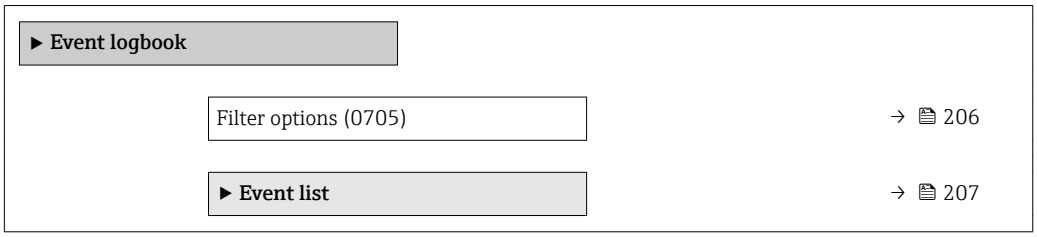
The diagnostic message can be displayed via the **Diagnostics 5** parameter (→ 205).

Example

For the display format:
24d12h13m00s

3.9.2 "Event logbook" submenu

Navigation Expert → Diagnostics → Event logbook



Filter options

Navigation Expert → Diagnostics → Event logbook → Filter options (0705)

Description Use this function to select the category whose event messages are displayed in the events list.

Selection
- All
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Information (I)

Factory setting All

Additional information *Description*

The status signals are categorized in accordance with VDI/VDE 2650 and NAMUR Recommendation NE 107:
- F = Failure
- C = Function Check
- S = Out of Specification
- M = Maintenance Required

Filter options

Navigation Expert → Diagnostics → Event logbook → Filter options (0656)

Description Use this function to select the category whose event messages are displayed in the events list.

Selection
- All
- Failure (F)
- Function check (C)
- Out of specification (S)
- Maintenance required (M)
- Information (I)

Factory setting All

Additional information *Description*

The status signals are categorized in accordance with VDI/VDE 2650 and NAMUR Recommendation NE 107:
- F = Failure
- C = Function Check
- S = Out of Specification
- M = Maintenance Required

"Event list" submenu

Navigation Expert → Diagnostics → Event logbook → Event list

Event list

Navigation Expert → Diagnostics → Event logbook → Event list

Description Use this function to display the history of event messages that have occurred in the category selected in the **Filter options** parameter (→ 206).

User interface
- For a "Category I" event message
  Information event, short message, symbol for event recording and operating time when error occurred
- For a "Category F, C, S, M" event message (status signal)
  Diagnostics code, short message, symbol for event recording and operating time when error occurred

Additional information *Description*

A maximum of 20 event messages are displayed in chronological order. If the advanced HistoROM function is enabled in the device, the event list can contain up to 100 entries.

The following symbols indicate whether an event has occurred or has ended:
- ⊕: Occurrence of the event
- ⊖: End of the event

Examples

For the display format:
- I1091 Configuration modified
  ⊕ 24d12h13m00s
- ⚠S442 Frequency output
  ⊕ 01d04h12min30s

Additional information, such as remedial measures, can be called up via the E key.

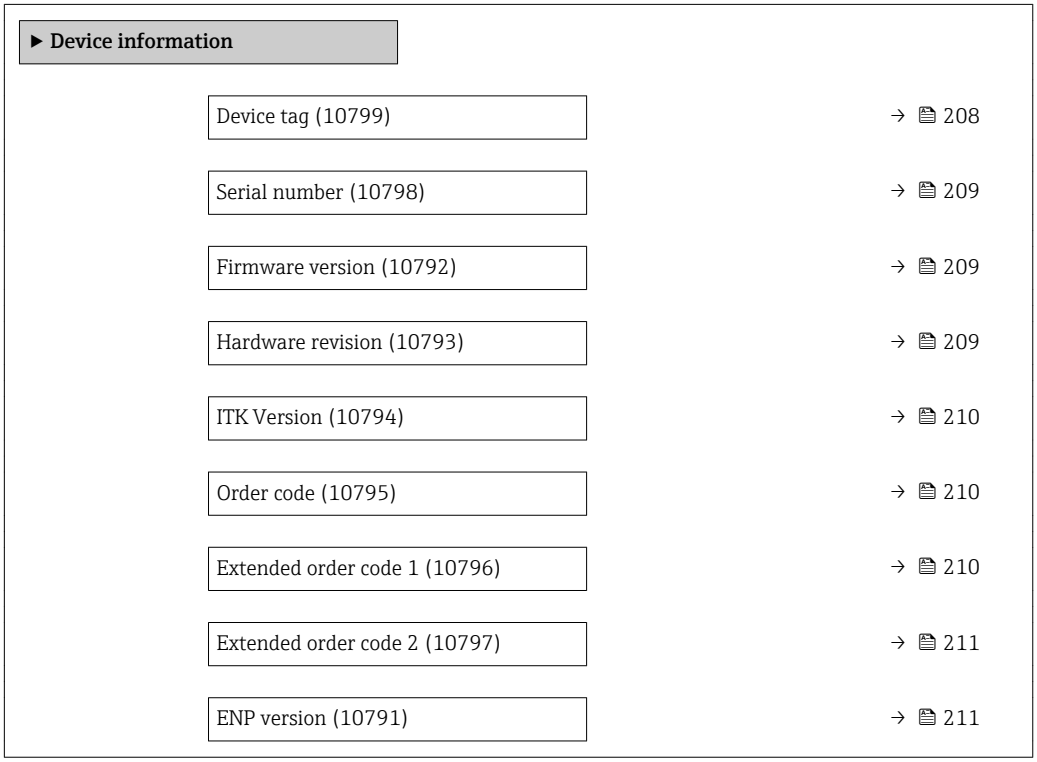
HistoROM

A HistoROM is a "non-volatile" device memory in the form of an EEPROM.

To order the **HistoROM advanced capabilities** application package, see the "Accessories" section of the "Technical Information" document.

3.9.3 "Device information" submenu

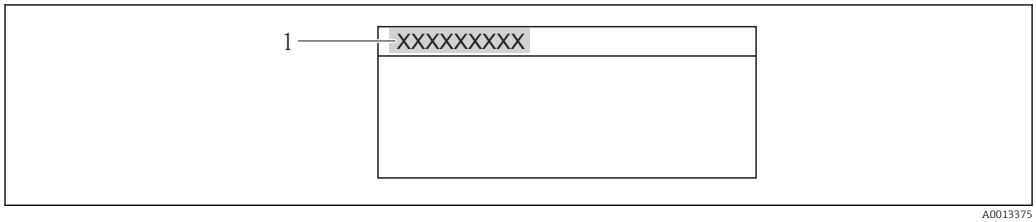
Navigation Expert → Diagnostics → Device info



Device tag

Navigation Expert → Diagnostics → Device info → Device tag (10799)

Description Use this function to enter a unique name for the measuring point so it can be identified quickly within the plant. The name is displayed in the header:



9 Header text

User entry Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /)

Factory setting Promag 200

Additional information *Display*

The number of characters displayed depends on the characters used.

Serial number

Navigation Expert → Diagnostics → Device info → Serial number (10798)

Description Displays the serial number of the measuring device. It can also be found on the nameplate of the sensor and transmitter.

Uses of the serial number
- To identify the measuring device quickly, e.g. when contacting Endress+Hauser.
- To obtain specific information on the measuring device using the Device Viewer: www.endress.com/deviceviewer

User interface Max. 11-digit character string comprising letters and numbers.

Additional information *Factory setting*

This information varies depending on the device. Only an example is given here.

Firmware version

Navigation Expert → Diagnostics → Device info → Firmware version (10792)

Description Displays the device firmware version installed.

User interface Character string with the following format:
xx.yy.zz

Hardware revision

Navigation Expert → Diagnostics → Device info → Hardware rev. (10793)

Description Displays the Hardware revision.

User interface Character string in the format xx.yy.zz

ITK Version

Navigation Expert → Diagnostics → Device info → ITK Version (10794)

Description Displays the revision status of the Interoperability Test Kits (ITK).

User interface 0 to 65 535

Order code

Navigation Expert → Diagnostics → Device info → Order code (10795)

Description Use this function to enter the device order code.

The order code can be found on the nameplate of the sensor and transmitter in the "Order code" field.

User entry Character string composed of letters, numbers and certain punctuation marks

Additional information *Description*

The order code is generated from the extended order code, which defines all the device features of the product structure. In contrast, the device features cannot be read directly from the order code.

Uses of the order code
- To order an identical spare device.
- To identify the device quickly and easily, e.g. when contacting Endress+Hauser.

Extended order code 1

Navigation Expert → Diagnostics → Device info → Ext. order cd. 1 (10796)

Description Use this function to enter the first part of the extended order code.

On account of length restrictions, the extended order code is split into a maximum of 2 parameters.

The extended order code can also be found on the nameplate of the sensor and transmitter in the "Ext. ord. cd." field.

User entry Character string

Additional information *Description*

The extended order code indicates the version of all the features of the product structure for the measuring device and thus uniquely identifies the measuring device.

The extended order code can also be found on the nameplate of the sensor and transmitter in the "Ext. ord. cd." field.

Extended order code 2

Navigation Expert → Diagnostics → Device info → Ext. order cd. 2 (10797)

Description Use this function to enter the second part of the extended order code.

Deletion of the ordered customer-specific parameter set that was preconfigured before delivery. This parameter set cannot be reset. It can only be restored to the factory setting.

User entry Character string

Additional information For additional information, see **Extended order code 1** parameter

ENP version

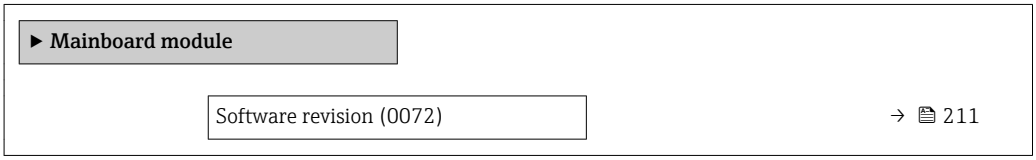
Navigation Expert → Diagnostics → Device info → ENP version (10791)

Description Displays the version of the electronic nameplate. This electronic nameplate stores a data record for device identification that includes more data than the nameplates attached to the outside of the device.

User interface Character string in the format xx.yy.zz

3.9.4 "Mainboard module" submenu

Navigation Expert → Diagnostics → Mainboard module



Software revision

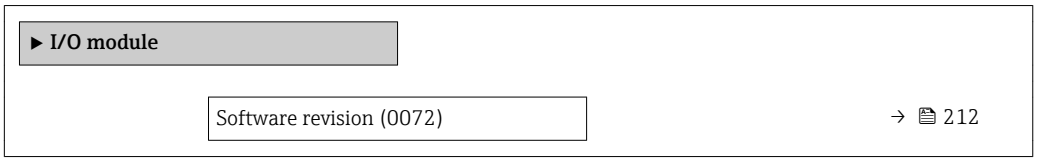
Navigation Expert → Diagnostics → Mainboard module → Software rev. (0072)

Description Use this function to display the software revision of the module.

User interface Positive integer

3.9.5 "I/O module" submenu

Navigation Expert → Diagnostics → I/O module



Software revision

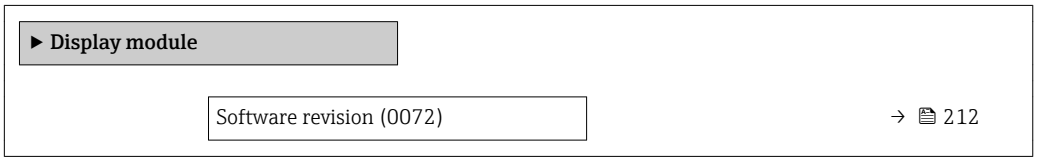
Navigation Expert → Diagnostics → I/O module → Software rev. (0072)

Description Use this function to display the software revision of the module.

User interface Positive integer

3.9.6 "Display module" submenu

Navigation Expert → Diagnostics → Display module



Software revision

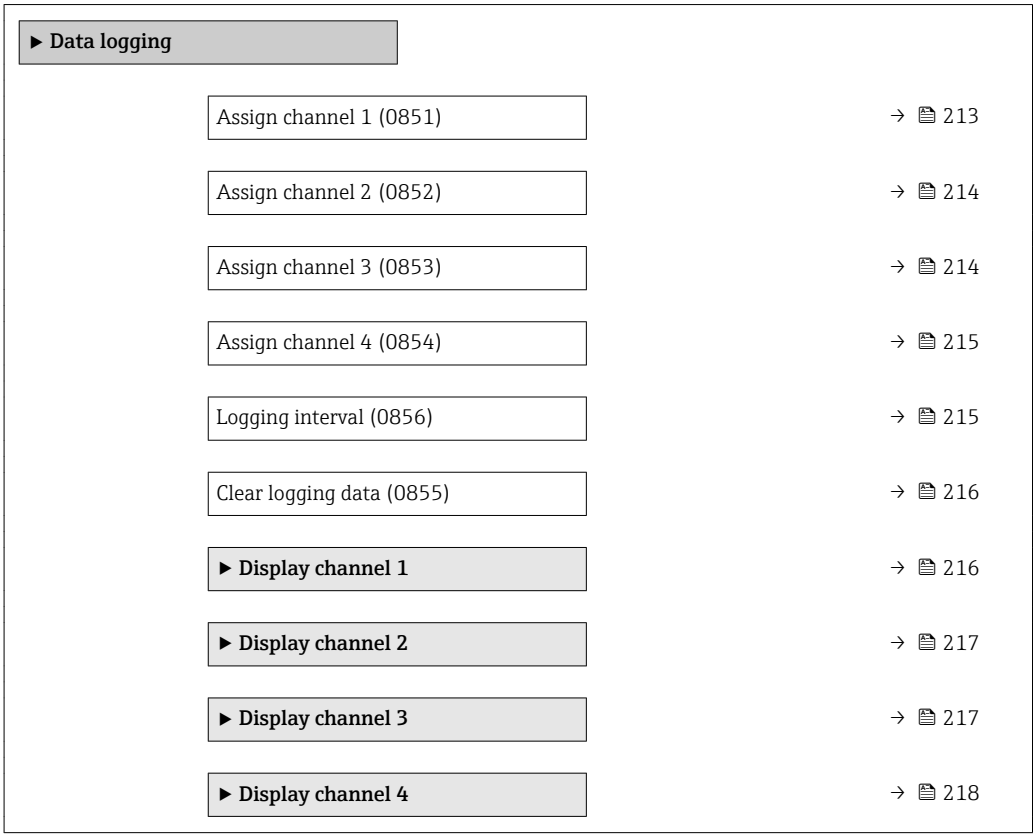
Navigation Expert → Diagnostics → Display module → Software rev. (0072)

Description Use this function to display the software revision of the module.

User interface Positive integer

3.9.7 "Data logging" submenu

Navigation Expert → Diagnostics → Data logging



Assign channel 1

Navigation Expert → Diagnostics → Data logging → Assign chan. 1 (0851)

Prerequisite The **Extended HistoROM** application package is available.

The software options currently enabled are displayed in the **Software option overview** parameter (→ 41).

Description Use this function to select a process variable for the data logging channel.

Selection
- Off
- Volume flow
- Mass flow
- Electronic temperature
- Current difference potential

Factory setting Off

Additional information *Description*

A total of 1000 measured values can be logged. This means:
- 1000 data points if 1 logging channel is used
- 500 data points if 2 logging channels are used
- 333 data points if 3 logging channels are used
- 250 data points if 4 logging channels are used

Once the maximum number of data points is reached, the oldest data points in the data log are cyclically overwritten in such a way that the last 1000, 500, 333 or 250 measured values are always in the log (ring memory principle).

The log contents are cleared if the option selected is changed.

Assign channel 2

Navigation Expert → Diagnostics → Data logging → Assign chan. 2 (0852)

Prerequisite The **Extended HistoROM** application package is available.

The software options currently enabled are displayed in the **Software option overview** parameter (→ 41).

Description Options for the assignment of a process variable to the data logging channel.

Selection Picklist, see **Assign channel 1** parameter (→ 213)

Factory setting Off

Assign channel 3

Navigation Expert → Diagnostics → Data logging → Assign chan. 3 (0853)

Prerequisite The **Extended HistoROM** application package is available.

The software options currently enabled are displayed in the **Software option overview** parameter (→ 41).

Description Options for the assignment of a process variable to the data logging channel.

Selection Picklist, see **Assign channel 1** parameter (→ 213)

Factory setting Off

Assign channel 4

Navigation Expert → Diagnostics → Data logging → Assign chan. 4 (0854)

Prerequisite The **Extended HistoROM** application package is available.

The software options currently enabled are displayed in the **Software option overview** parameter (→ 41).

Description Options for the assignment of a process variable to the data logging channel.

Selection Picklist, see **Assign channel 1** parameter (→ 213)

Factory setting Off

Logging interval

Navigation Expert → Diagnostics → Data logging → Logging interval (0856)

Expert → Diagnostics → Data logging → Logging interval (0856)

Prerequisite The **Extended HistoROM** application package is available.

The software options currently enabled are displayed in the **Software option overview** parameter (→ 41).

Description Use this function to enter the logging interval t_{log} for data logging.

User entry 1.0 to 3 600.0 s

Factory setting 10.0 s

Additional information *Description*

This defines the interval between the individual data points in the data log, and thus the maximum loggable process time T_{log}:
- If 1 logging channel is used: $T_{log} = 1000 \times t_{log}$
- If 2 logging channels are used: $T_{log} = 500 \times t_{log}$
- If 3 logging channels are used: $T_{log} = 333 \times t_{log}$
- If 4 logging channels are used: $T_{log} = 250 \times t_{log}$

Once this time elapses, the oldest data points in the data log are cyclically overwritten such that a time of Tlog always remains in the memory (ring memory principle).

The log contents are cleared if the length of the logging interval is changed.

Example

If 1 logging channel is used:
- $T_{log} = 1000 \times 1$ s = 1 000 s ≈15 min
- $T_{log} = 1000 \times 10$ s = 10 000 s ≈ 3 h
- $T_{log} = 1000 \times 80$ s = 80 000 s ≈ 1 d
- $T_{log} = 1000 \times 3\,600$ s = 3 600 000 s ≈ 41 d

Clear logging data

Navigation
Expert → Diagnostics → Data logging → Clear logging (0855)
Expert → Diagnostics → Data logging → Clear logging (0855)

Prerequisite
The **Extended HistoROM** application package is available.
The software options currently enabled are displayed in the **Software option overview** parameter (→ 41).

Description
Option to clear the entire logging data.

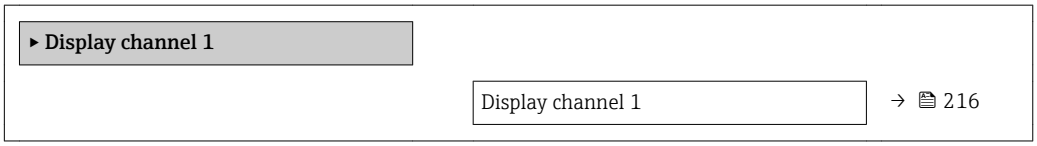
Selection
- Cancel
- Clear data

Factory setting
Cancel

Additional information
Selection
- Cancel
  The data is not cleared. All the data is retained.
- Clear data
  The logging data is cleared. The logging process starts from the beginning.

"Display channel 1" submenu

Navigation Expert → Diagnostics → Data logging → Displ.channel 1



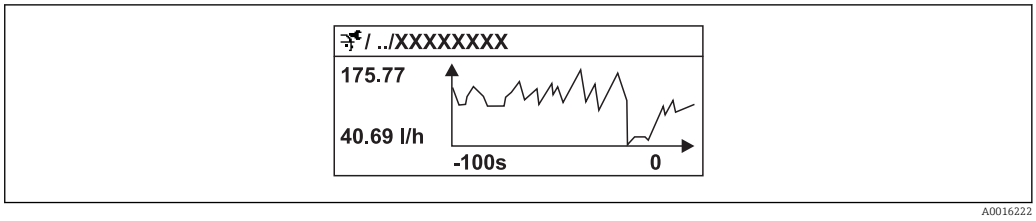
Display channel 1

Navigation
Expert → Diagnostics → Data logging → Displ.channel 1

Prerequisite
The **Extended HistoROM** application package is available.
The software options currently enabled are displayed in the **Software option overview** parameter (→ 41).
One of the following options is selected in the **Assign channel 1** parameter (→ 213):
- Volume flow
- Mass flow
- Electronic temperature
- Current difference potential

Description
Displays the measured value trend for the logging channel in the form of a chart.

Additional information *Description*

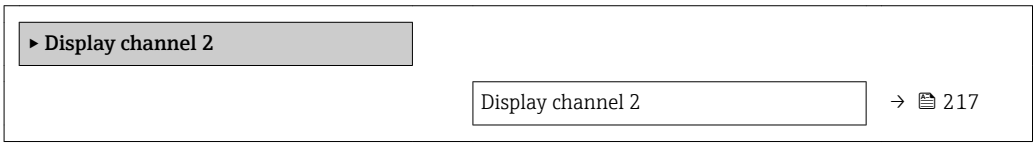


A0016222

- x-axis: depending on the number of channels selected displays 250 to 1000 measured values of a process variable.
- y-axis: displays the approximate measured value span and constantly adapts this to the ongoing measurement.

"Display channel 2" submenu

Navigation Expert → Diagnostics → Data logging → Displ.channel 2



Display channel 2

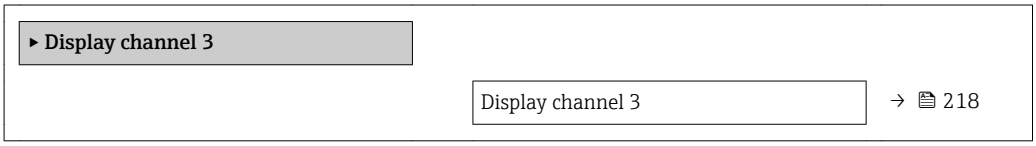
Navigation Expert → Diagnostics → Data logging → Displ.channel 2

Prerequsite A process variable is defined in the **Assign channel 2** parameter.

Description See the **Display channel 1** parameter → 216

"Display channel 3" submenu

Navigation Expert → Diagnostics → Data logging → Displ.channel 3



Display channel 3

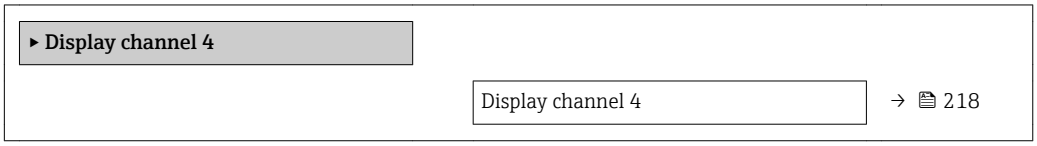
Navigation Expert → Diagnostics → Data logging → Displ.channel 3

Prerequsite A process variable is defined in the **Assign channel 3** parameter.

Description See the **Display channel 1** parameter → 216

"Display channel 4" submenu

Navigation Expert → Diagnostics → Data logging → Displ.channel 4



Display channel 4

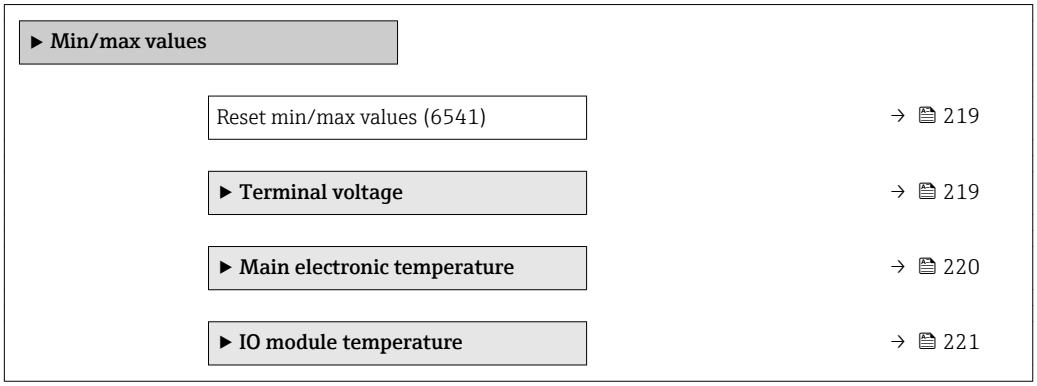
Navigation Expert → Diagnostics → Data logging → Displ.channel 4

Prerequsite A process variable is defined in the **Assign channel 4** parameter.

Description See the **Display channel 1** parameter → 216

3.9.8 "Min/max values" submenu

Navigation Expert → Diagnostics → Min/max val.



Reset min/max values

Navigation Expert → Diagnostics → Min/max val. → Reset min/max (6541)

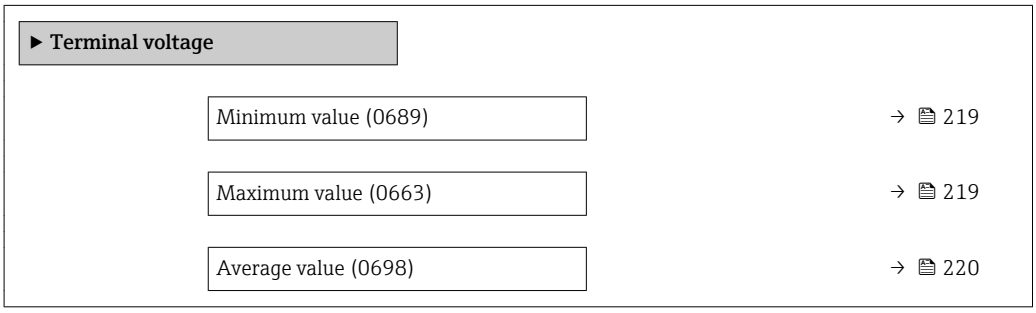
Description Use this function to select measured variables whose minimum, maximum and average measured values are to be reset.

Selection
- Cancel
- Terminal voltage
- IO module temperature

Factory setting Cancel

"Terminal voltage" submenu

Navigation Expert → Diagnostics → Min/max val. → Terminal volt.



Minimum value

Navigation Expert → Diagnostics → Min/max val. → Terminal volt. → Minimum value (0689)

Description Use this function to display the smallest previously measured terminal voltage value in Volts.

User interface 0.0 to 50.0 V

Maximum value

Navigation Expert → Diagnostics → Min/max val. → Terminal volt. → Maximum value (0663)

Description Use this function to view the largest previously measured terminal voltage value in Volts.

User interface 0.0 to 50.0 V

Average value

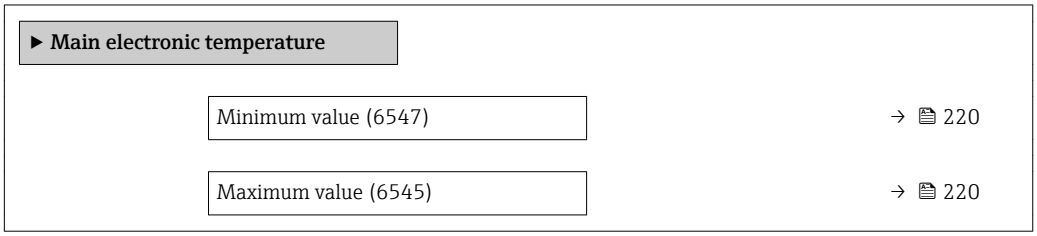
Navigation Expert → Diagnostics → Min/max val. → Terminal volt. → Average value (0698)

Description Use this function to view the average of all previously measured terminal voltage values in Volts.

User interface Signed floating-point number

"Main electronic temperature" submenu

Navigation Expert → Diagnostics → Min/max val. → Main elect.temp.



Minimum value

Navigation Expert → Diagnostics → Min/max val. → Main elect.temp. → Minimum value (6547)

Description Displays the lowest previously measured temperature value of the main electronics module.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 51)

Maximum value

Navigation Expert → Diagnostics → Min/max val. → Main elect.temp. → Maximum value (6545)

Description Displays the highest previously measured temperature value of the main electronics module.

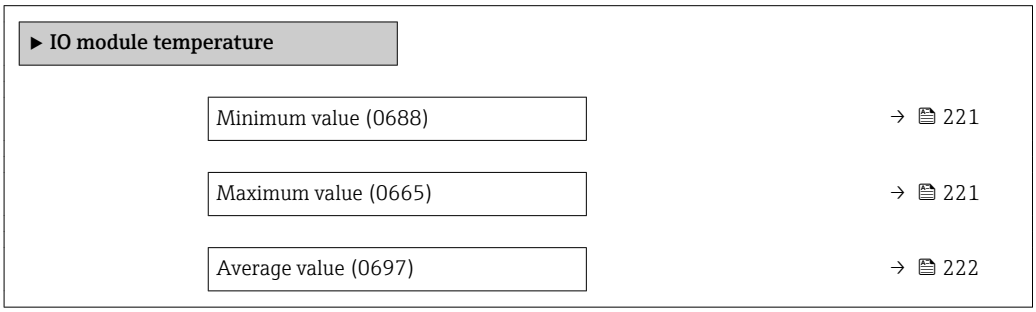
User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 51)

"IO module temperature" submenu

Navigation Expert → Diagnostics → Min/max val. → IO module temp.



Minimum value

Navigation Expert → Diagnostics → Min/max val. → IO module temp. → Minimum value (0688)

Description Displays the lowest previously measured temperature value of the I/O electronics module.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 51)

Maximum value

Navigation Expert → Diagnostics → Min/max val. → IO module temp. → Maximum value (0665)

Description Displays the highest previously measured temperature value of the I/O electronics module.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 51)

Average value

Navigation Expert → Diagnostics → Min/max val. → IO module temp. → Average value (0697)

Description Displays the average value of all previously measured temperature values of the I/O electronics module.

User interface **Country-dependent**
- −1 273.15 to +726.85 °C
- −2 259.67 to +1 340.33 °F

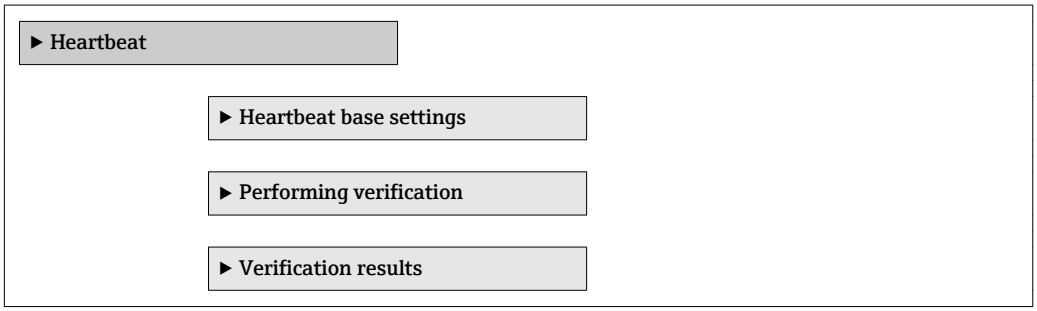
Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 51)

3.9.9 "Heartbeat" submenu

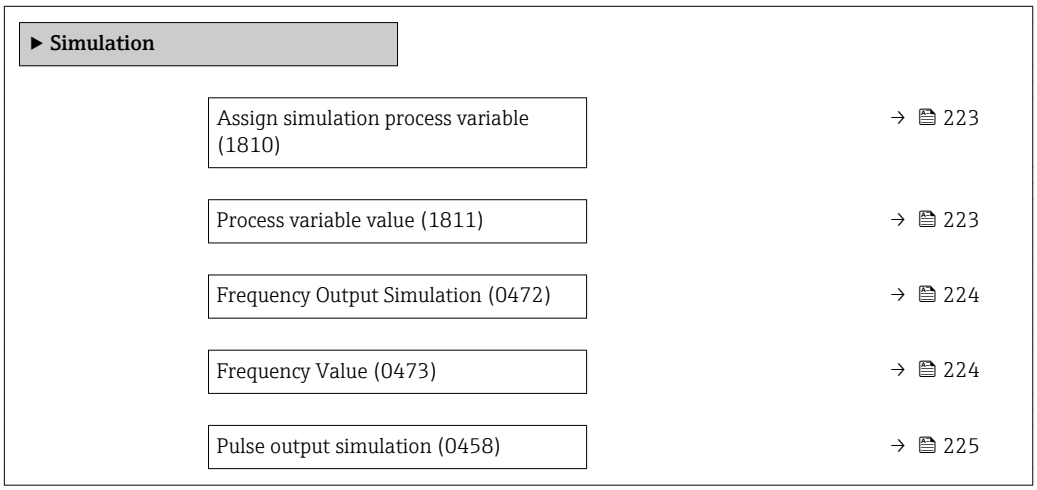
For detailed information on the parameter descriptions of the **Heartbeat Verification** application package, see the Special Documentation for the device

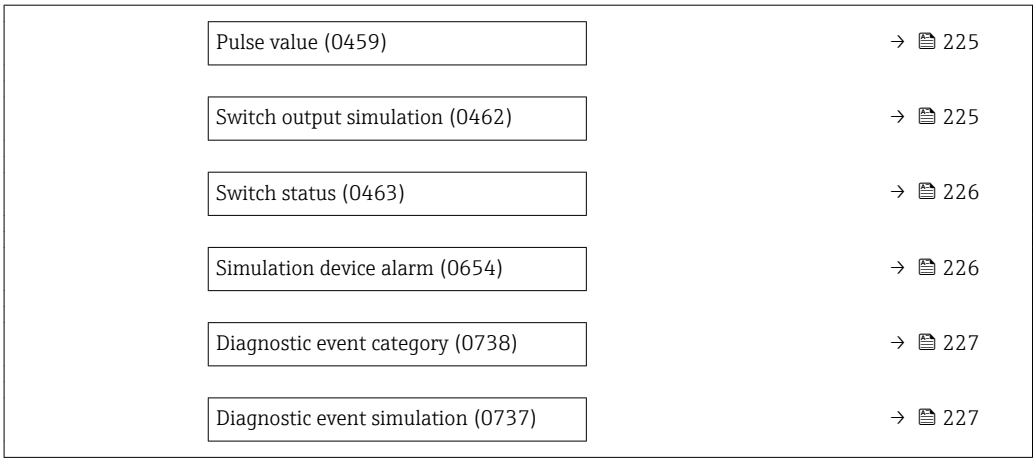
Navigation Expert → Diagnostics → Heartbeat



3.9.10 "Simulation" submenu

Navigation Expert → Diagnostics → Simulation





Assign simulation process variable

Navigation Expert → Diagnostics → Simulation → Assign proc.var. (1810)

Description Use this function to select a process variable for the simulation process that is activated. The display alternates between the measured value and a diagnostic message of the "Function check" category (C) while simulation is in progress.

Selection
- Off
- Volume flow
- Mass flow

Factory setting Off

Additional information *Description*

The simulation value of the selected process variable is specified in the **Process variable value** parameter (→ 223).

Process variable value

Navigation Expert → Diagnostics → Simulation → Proc. var. value (1811)

Prerequsite One of the following options is selected in the **Assign simulation process variable** parameter (→ 223):
- Volume flow
- Mass flow

Description Use this function to enter a simulation value for the selected process variable. Subsequent measured value processing and the signal output use this simulation value. In this way, users can verify whether the measuring device has been configured correctly.

User entry Depends on the process variable selected

Factory setting 0

Additional information *User entry*

The unit of the displayed measured value is taken from the **System units** submenu (→ 47).

Frequency Output Simulation

Navigation Expert → Diagnostics → Simulation → FreqOutputSim (0472)

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 65).

Description Use this function to switch simulation of the frequency output on and off. The display alternates between the measured value and a diagnostic message of the "Function check" category (C) while simulation is in progress.

Selection
- Off
- On

Factory setting Off

Additional information *Description*

The desired simulation value is specified in the **Frequency Value** parameter (→ 224).

Selection
- Off
  Current simulation is switched off. The device is in normal measuring mode or another process variable is being simulated.
- On
  Current simulation is active.

Frequency Value

Navigation Expert → Diagnostics → Simulation → Freq Value (0473)

Prerequisite The **On** option is selected in the **Frequency Output Simulation** parameter (→ 224).

Description Use this function to enter a frequency value for the simulation. In this way, users can verify the correct adjustment of the frequency output and the correct function of downstream switching units.

User entry 0.0 to 1250.0 Hz

Factory setting 0.0 Hz

Pulse output simulation

Navigation Expert → Diagnostics → Simulation → Puls.outp.sim. (0458)

Prerequisite The **Pulse** option is selected in the **Operating mode** parameter (→ 65).

Description Use this function to switch simulation of the pulse output on and off. The display alternates between the measured value and a diagnostic message of the "Function check" category (C) while simulation is in progress.

Selection
- Off
- Fixed value
- Down-counting value

Factory setting Off

Additional information

Description

The desired simulation value is specified in the **Pulse value** parameter (→ 225).

Selection
- Off
  Pulse simulation is switched off. The device is in normal measuring mode or another process variable is being simulated.
- Fixed value
  Pulses with the pulse width specified in the **Pulse width** parameter (→ 68) are output continuously.
- Down-counting value
  The pulses specified in the **Pulse value** parameter (→ 225) are output.

Pulse value

Navigation Expert → Diagnostics → Simulation → Pulse value (0459)

Prerequisite In the **Pulse output simulation** parameter (→ 225), the **Down-counting value** option is selected.

Description Use this function to enter a pulse value for the simulation. In this way, users can verify the correct adjustment of the pulse output and the correct function of downstream switching units.

User entry 0 to 65 535

Switch output simulation

Navigation Expert → Diagnostics → Simulation → Switch sim. (0462)

Prerequisite The **Switch** option is selected in the **Operating mode** parameter (→ 65).

Description Use this function to switch simulation of the switch output on and off. The display alternates between the measured value and a diagnostic message of the "Function check" category (C) while simulation is in progress.

Selection
- Off
- On

Factory setting Off

Additional information *Description*

The desired simulation value is specified in the **Switch status** parameter (→ 226).

Selection
- Off
  Switch simulation is switched off. The device is in normal measuring mode or another process variable is being simulated.
- On
  Switch simulation is active.

Switch status

Navigation Expert → Diagnostics → Simulation → Switch status (0463)

Prerequsite The **On** option is selected in the **Switch output simulation** parameter (→ 225).

Description Use this function to select a switch value for the simulation. In this way, users can verify the correct adjustment of the switch output and the correct function of downstream switching units.

Selection
- Open
- Closed

Factory setting Open

Additional information *Options*
- Open
  Switch simulation is switched off. The device is in normal measuring mode or another process variable is being simulated.
- Closed
  Switch simulation is active.

Simulation device alarm

Navigation Expert → Diagnostics → Simulation → Sim. alarm (0654)

Description Use this function to switch the device alarm on and off.

Selection
- Off
- On

Factory setting Off

Additional information *Description*

In this way, users can verify the correct function of downstream switching units.

The display alternates between the measured value and a diagnostic message of the "Function check" category (C) while simulation is in progress.

Diagnostic event category

Navigation Expert → Diagnostics → Simulation → Event category (0738)

Description Use this function to select the category of the diagnostic events that are displayed for the simulation in the **Diagnostic event simulation** parameter (→ 227).

Selection
- Sensor
- Electronics
- Configuration
- Process

Factory setting Process

Diagnostic event simulation

Navigation Expert → Diagnostics → Simulation → Diag. event sim. (0737)

Description Use this function to select a diagnostic event for the simulation process that is activated.

Selection
- Off
- Diagnostic event picklist (depends on the category selected)

Factory setting Off

Additional information *Description*

For the simulation, you can choose from the diagnostic events of the category selected in the **Diagnostic event category** parameter (→ 227).

4 Country-specific factory settings

4.1 SI units

Not valid for USA and Canada.

4.1.1 System units

Mass	kg
Mass flow	kg/h
Volume	m^3
Volume flow	l/h
Density	kg/l
Temperature	°C

4.1.2 Full scale values

The factory settings applie to the following parameters:
100% bar graph value 1

Nominal diameter [mm]	(v ~ 2.5 m/s) [dm^3/min]
2	0.5
4	2
8	8
15	25
25	75
32	125
40	200
50	300
65	500
80	750
100	1200
125	1850
150	150 m^3/h
200	300 m^3/h

4.1.3 On value low flow cut off

The switch-on point depends on the type of medium and the nominal diameter.

Nominal diameter [mm]	On value low flow cut off (v ~ 0.04 m/s) [dm^3/h]
2	0.01
4	0.05
8	0.1

Nominal diameter [mm]	On value low flow cut off (v ~ 0.04 m/s) [dm³/h]
15	0.5
25	1
32	2
40	3
50	5
65	8
80	12
100	20
125	30
150	2.5 m³/h
200	5 m³/h

4.2 US units

Only valid for USA and Canada.

4.2.1 System units

Mass	lb
Mass flow	lb/min
Volume	gal (us)
Volume flow	gal/min (us)
Density	lb/ft³
Temperature	°F

4.2.2 Full scale values

The factory settings applie to the following parameters:
100% bar graph value 1

Nominal diameter [in]	(v ~ 2.5 m/s) [gal/min]
1/12	0.1
1/8	0.5
3/8	2
½	6
1	18
1½	50
2	75
3	200
4	300
6	600
8	1200

4.2.3 On value low flow cut off

The switch-on point depends on the type of medium and the nominal diameter.

Nominal diameter [in]	On value low flow cut off (v ~ 0.04 m/s) [gal/min]
1/12	0.002
1/8	0.008
3/8	0.025
½	0.1
1	0.25
1½	0.75
2	1.25
3	2.5
4	4
6	12
8	15

5 Explanation of abbreviated units

5.1 SI units

Process variable	Units	Explanation
Density	g/cm³, g/m³	Gram/volume unit
	kg/dm³, kg/l, kg/m³	Kilogram/volume unit
	SD4°C, SD15°C, SD20°C	Specific density: The specific density is the ratio of the density of the fluid to the density of water at a water temperature of 4 °C (39 °F), 15 °C (59 °F), 20 °C (68 °F).
	SG4°C, SG15°C, SG20°C	Specific gravity: The specific gravity is the ratio of the density of the fluid to the density of water at a water temperature of 4 °C (39 °F), 15 °C (59 °F), 20 °C (68 °F).
Mass	g, kg, t	Gram, kilogram, metric ton
Mass flow	g/s, g/min, g/h, g/d	Gram/time unit
	kg/s, kg/min, kg/h, kg/d	Kilogram/time unit
	t/s, t/min, t/h, t/d	Metric ton/time unit
Temperature	°C , K	Celsius, Kelvin
Volume	cm³, dm³, m³	Cubic centimeter, cubic decimeter, cubic meter
	ml, l, hl, Ml	Milliliter, liter, hectoliter, megaliter
Volume flow	cm³/s , cm³/min, cm³/h, cm³/d	Cubic centimeter/time unit
	dm³/s, dm³/min, dm³/h, dm³/d	Cubic decimeter/time unit
	m³/s, m³/min, m³/h, m³/d	Cubic meter/time unit
	ml/s, ml/min, ml/h, ml/d	Milliliter/time unit
	l/s, l/min, l/h, l/d	Liter/time unit
Time	m, h, d, y	Minute, hour, day, year

5.2 US units

Process variable	**Units**	**Explanation**
Density	lb/ft³, lb/gal (us)	Pound/cubic foot, pound/gallon
	lb/bbl (us;liq.), lb/bbl (us;beer), lb/bbl (us;oil), lb/bbl (us;tank)	Pound/volume unit
Mass	oz, lb, STon	Ounce, pound, standard ton
Mass flow	oz/s, oz/min, oz/h, oz/d	Ounce/time unit
	lb/s, lb/min, lb/h, lb/d	Pound/time unit
	STon/s, STon/min, STon/h, STon/d	Standard ton/time unit
Temperature	°F, °R	Fahrenheit, Rankine
Volume	af	Acre foot
	ft³	Cubic foot
	fl oz (us), gal (us), kgal (us), Mgal (us)	Fluid ounce, gallon, kilogallon, million gallon
	bbl (us;liq.), bbl (us;beer), bbl (us;oil), bbl (us;tank)	Barrel (normal liquids), barrel (beer), barrel (petrochemicals), barrel (filling tanks)
Volume flow	af/s, af/min, af/h, af/d	Acre foot/time unit
	ft³/s, ft³/min, ft³/h, ft³/d	Cubic foot/time unit

Process variable	Units	Explanation
	fl oz/s (us), fl oz/min (us), fl oz/h (us), fl oz/d (us)	Fluid ounce/time unit
	gal/s (us), gal/min (us), gal/h (us,) gal/d (us)	Gallon/time unit
	kgal/s (us), kgal/min (us), kgal/h (us,) kgal/d (us)	Kilogallon/time unit
	Mgal/s (us), Mgal/min (us), Mgal/h (us), Mgal/d (us)	Million gallon/time unit
	bbl/s (us;liq.), bbl/min (us;liq.), bbl/h (us;liq.), bbl/d (us;liq.)	Barrel/time unit (normal liquids) Normal liquids: 31.5 gal/bbl
	bbl/s (us;beer), bbl/min (us;beer), bbl/h (us;beer), bbl/d (us;beer)	Barrel /time unit (beer) Beer: 31.0 gal/bbl
	bbl/s (us;oil), bbl/min (us;oil), bbl/h (us;oil), bbl/d (us;oil)	Barrel/time unit (petrochemicals) Petrochemicals: 42.0 gal/bbl
	bbl/s (us;tank), bbl/min (us;tank), bbl/h (us;tank), bbl/d (us;tank)	Barrel/time unit (filling tank) Filling tanks: 55.0 gal/bbl
Time	m, h, d, y	Minute, hour, day, year
	am, pm	Ante meridiem (before midday), post meridiem (after midday)

5.3 Imperial units

Process variable	Units	Explanation
Density	lb/gal (imp), lb/bbl (imp;beer), lb/bbl (imp;oil)	Pound/volume unit
Volume	gal (imp), Mgal (imp)	Gallon, mega gallon
	bbl (imp;beer), bbl (imp;oil)	Barrel (beer), barrel (petrochemicals)
Volume flow	gal/s (imp), gal/min (imp), gal/h (imp), gal/d (imp)	Gallon/time unit
	Mgal/s (imp), Mgal/min (imp), Mgal/h (imp), Mgal/d (imp)	Mega gallon/time unit
	bbl/s (imp;beer), bbl/min (imp;beer), bbl/h (imp;beer), bbl/d (imp;beer)	Barrel /time unit (beer) Beer: 36.0 gal/bbl
	bbl/s (imp;oil), bbl/min (imp;oil), bbl/h (imp;oil), bbl/d (imp;oil)	Barrel/time unit (petrochemicals) Petrochemicals: 34.97 gal/bbl
Time	m, h, d, y	Minute, hour, day, year
	am, pm	Ante meridiem (before midday), post meridiem (after midday)

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