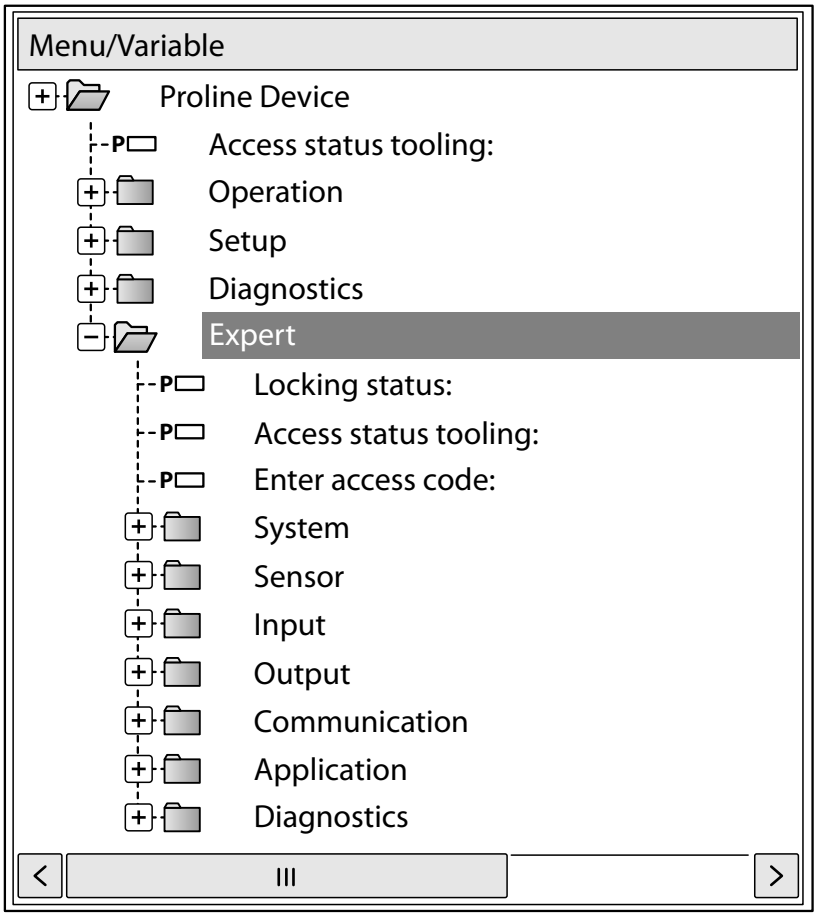
GP01024D/06/EN/01.15
71280340

Valid as of version
01.00.zz (Device firmware)

Description of Device Parameters
Proline Prowirl 200
FOUNDATION Fieldbus

Vortex 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.

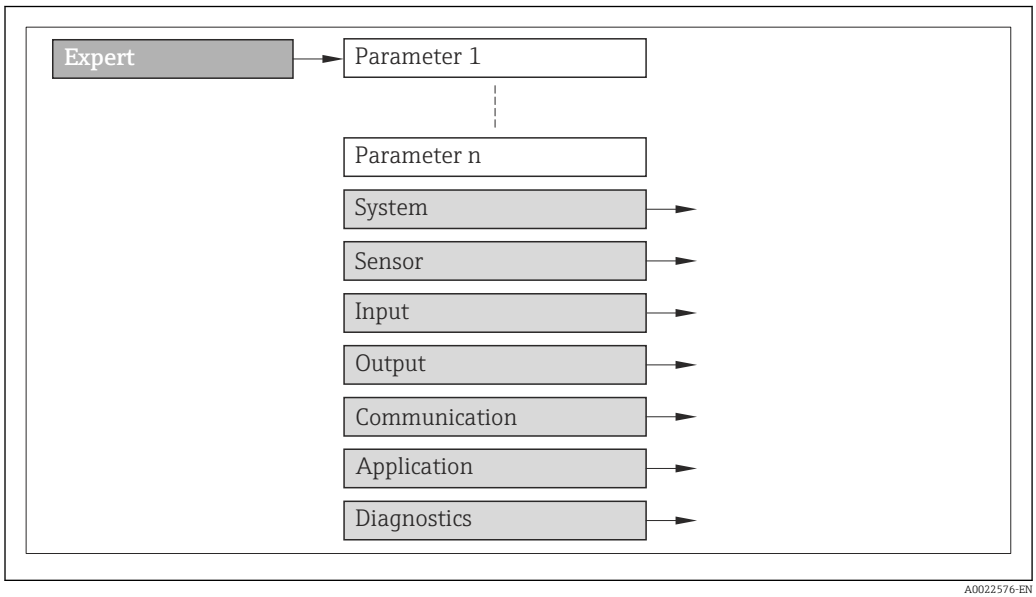
1.2 Target group

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

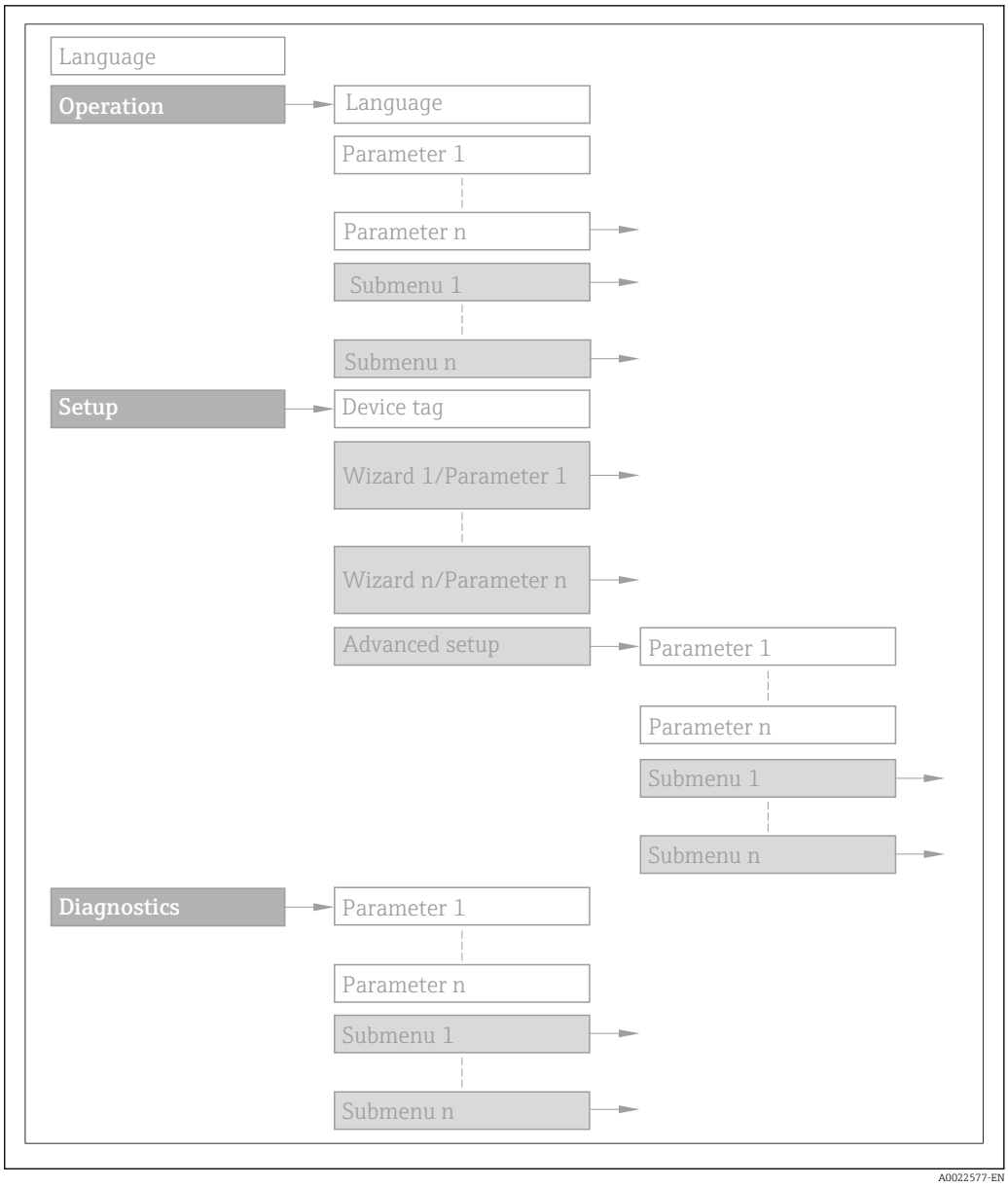
1.3.1 Information on the document structure

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 (→ 262), 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

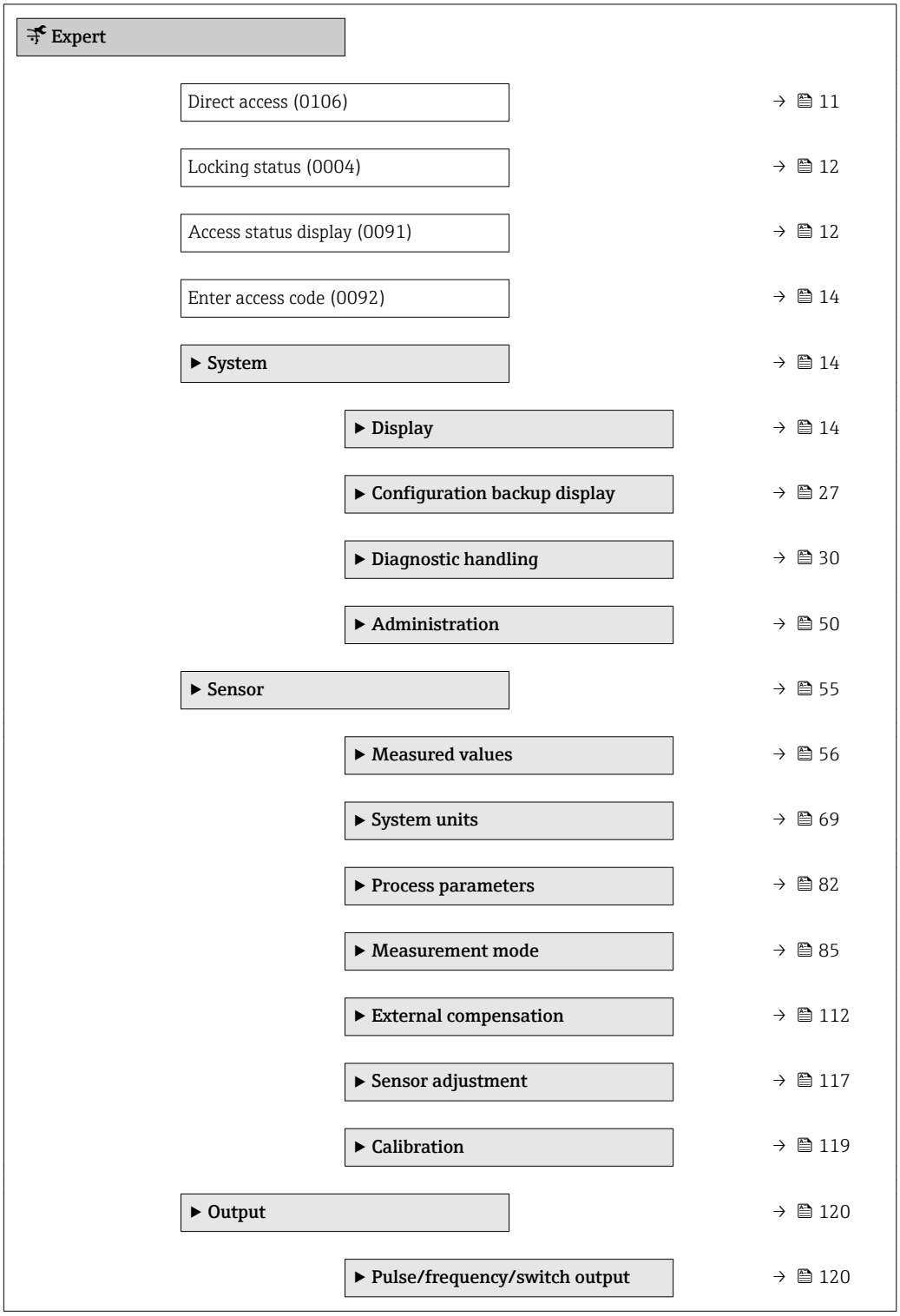
Symbol	Meaning
	Tip Indicates additional information.
	Reference to documentation
	Reference to page
	Reference to graphic
	Operation via local display
	Operation via operating tool
	Write-protected parameter

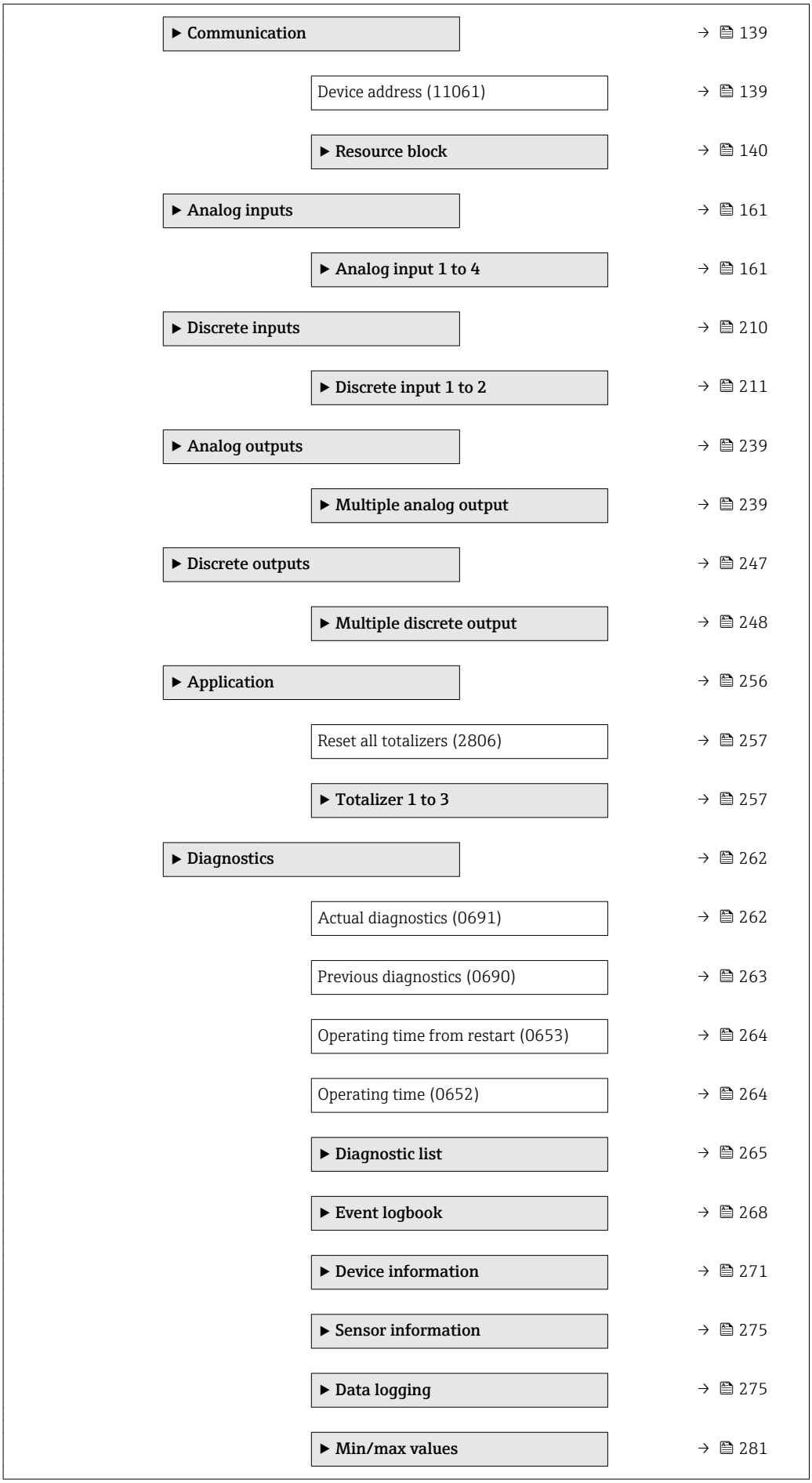
1.4.2 Symbols in graphics

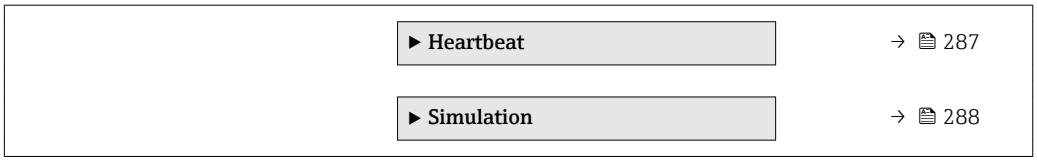
Symbol	Meaning	Symbol	Meaning
1, 2, 3 ...	Item numbers	A, B, C, ...	Views
A-A, B-B, C-C, ...	Sections		

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.

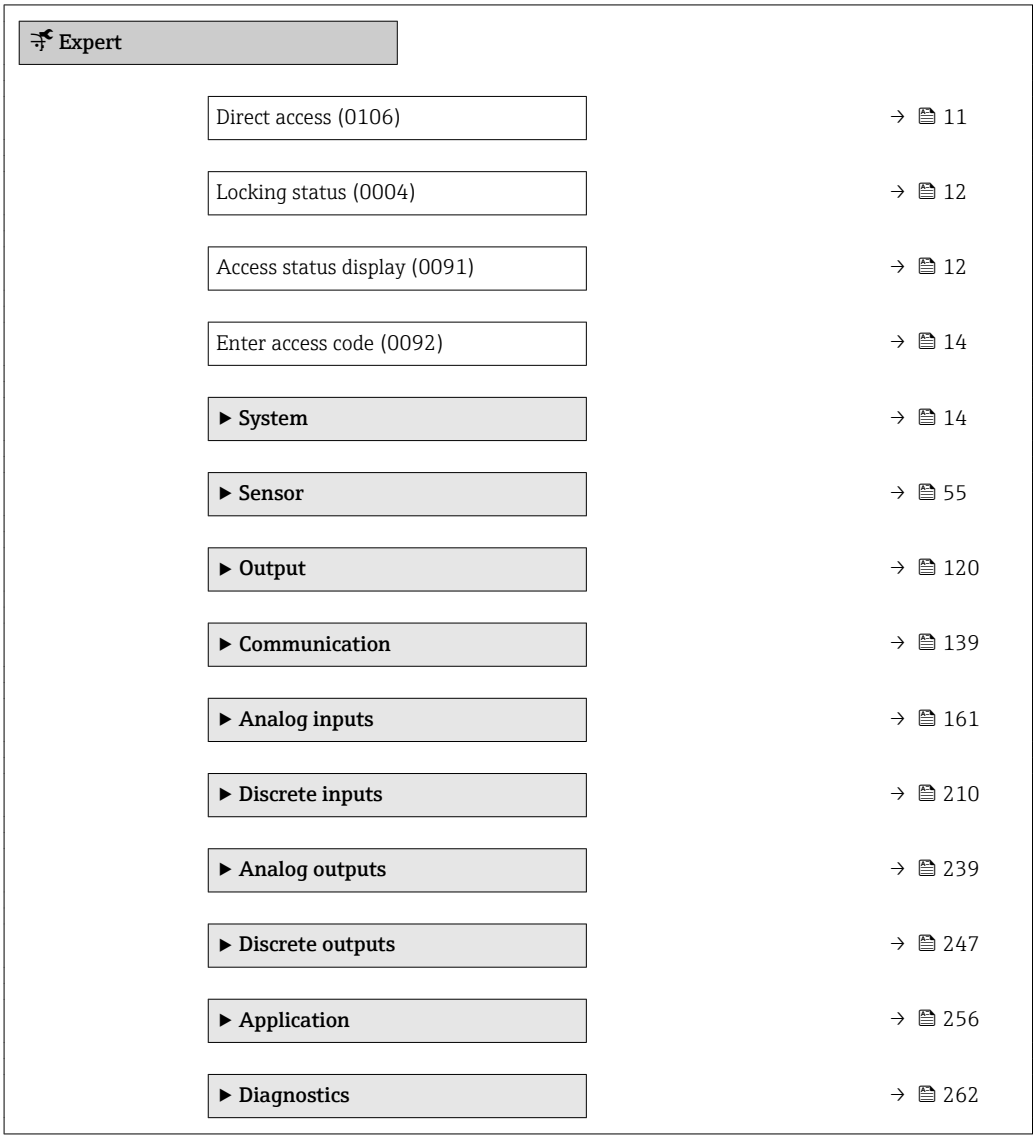



▶ Communication → 139
Device address (11061) → 139
▶ Resource block → 140
▶ Analog inputs → 161
▶ Analog input 1 to 4 → 161
▶ Discrete inputs → 210
▶ Discrete input 1 to 2 → 211
▶ Analog outputs → 239
▶ Multiple analog output → 239
▶ Discrete outputs → 247
▶ Multiple discrete output → 248
▶ Application → 256
Reset all totalizers (2806) → 257
▶ Totalizer 1 to 3 → 257
▶ Diagnostics → 262
Actual diagnostics (0691) → 262
Previous diagnostics (0690) → 263
Operating time from restart (0653) → 264
Operating time (0652) → 264
▶ Diagnostic list → 265
▶ Event logbook → 268
▶ Device information → 271
▶ Sensor information → 275
▶ Data logging → 275
▶ Min/max values → 281


▶ Heartbeat
→ 287
▶ Simulation
→ 288

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 in the navigation view on the right in the header of the selected parameter.

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: Enter **0914** → **Assign process variable** parameter
- If a different channel is jumped to: Enter the direct access code with the corresponding channel number.
  Example: Enter **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 *User interface*

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 (→ 12).

"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 2)

Write access to the parameters is temporarily locked on account of internal processes running in the device (e.g. data upload/download, reset etc.). Once the internal processing has been completed, the parameters can be changed once again.

Access status display

Navigation Expert → 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 (→ 14).

For information on the **Enter access code** parameter (→ 14), 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 (→ 12).

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 (→ 14).

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 (→ 12).

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

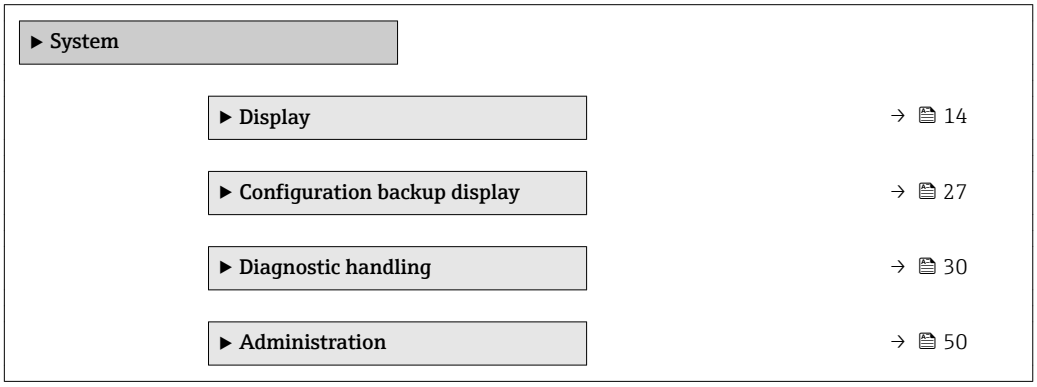
Navigation Expert → Ent. access code (0003)

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

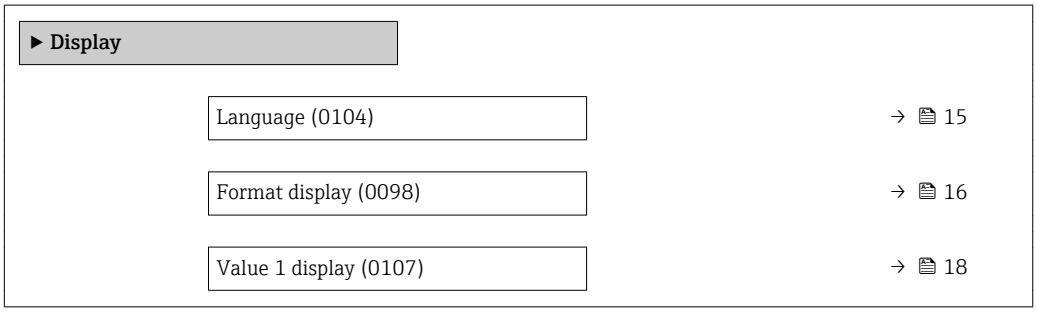
3.1 "System" submenu

Navigation Expert → System



3.1.1 "Display" submenu

Navigation Expert → System → Display



Language

Navigation Expert → System → Display → Language (0104)

Prerequisite 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) *
- Bahasa Indonesia *
- 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)

Prerequisite

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

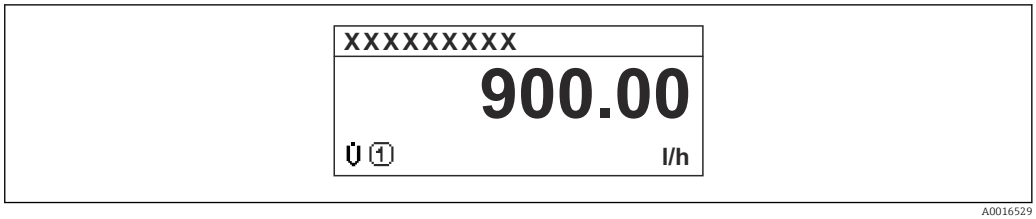
The display format (size, bar graph etc.) and number of measured values displayed simultaneously (1 to 4) can be configured. This setting only applies to normal operation.

- The **Value 1 display** parameter (→ 18)...**Value 4 display** parameter (→ 22) 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 (→ 23) parameter.

Possible measured values shown on the local display:

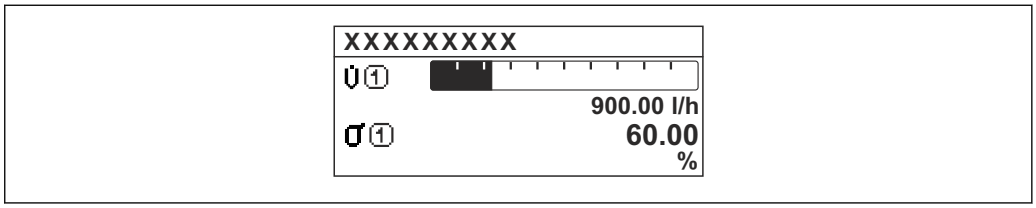
* Visibility depends on order options or device settings

"1 value, max. size" option



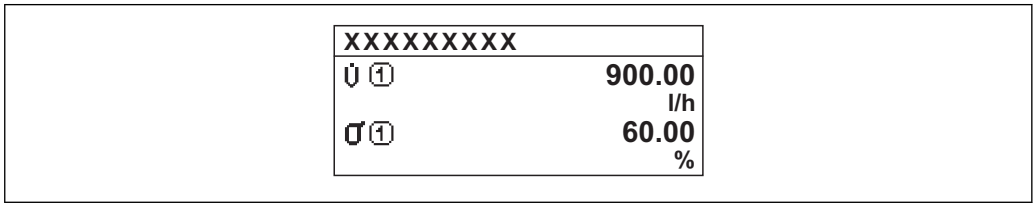
A0016529

"1 bargraph + 1 value" option



A0016530

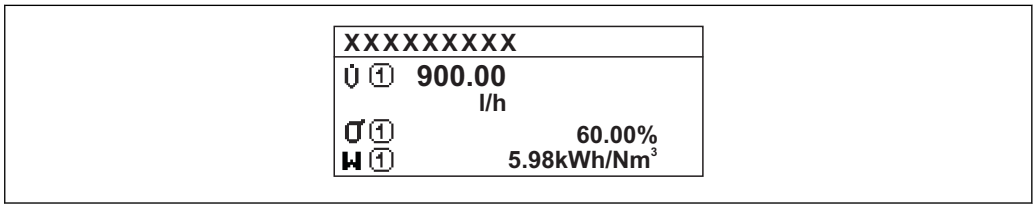
"2 values" option



A0016531

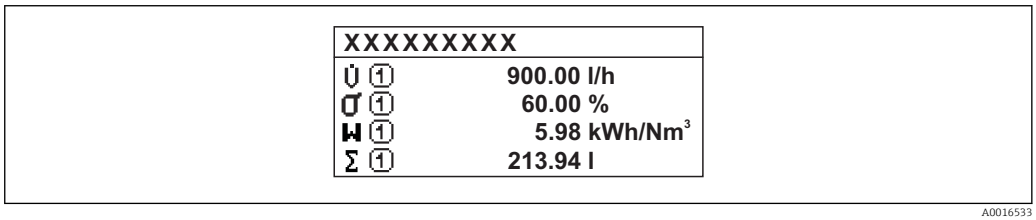
3

"1 value large + 2 values" option



A0016532

"4 values" option



A0016533

Value 1 display

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

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
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *
- Reynolds number *
- Density *
- 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 (→ 16) 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 (→ 69).

0% bargraph value 1

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

Prerequisite 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

* Visibility depends on order options or device settings

Factory setting

Country-specific:
- 0 m^3/h
- 0 ft^3/h

Additional information

Description

The **Format display** parameter (→ 16) 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 (→ 69).

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 → 294

Additional information

Description

The **Format display** parameter (→ 16) 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 (→ 69).

Decimal places 1

Navigation

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

Prerequisite

A measured value is specified in the **Value 1 display** parameter (→ 18).

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 (→ 18)

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 (→ 16) 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 (→ 69).

Decimal places 2

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

Prerequisite A measured value is specified in the **Value 2 display** parameter (→ 20).

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)

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 (→ 18)

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 (→ 16) 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 (→ 69).

0% bargraph value 3

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

Prerequisite A selection has been made in the **Value 3 display** parameter (→ 21).

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 m^3/h
- 0 ft^3/h

Additional information

Description

The **Format display** parameter (→ 16) 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 (→ 69).

100% bargraph value 3

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

Prerequisite A selection was made in the **Value 3 display** parameter (→ 21).

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 (→ 16) 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 (→ 69).

Decimal places 3

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

Prerequisite A measured value is specified in the **Value 3 display** parameter (→ 21).

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)

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 (→ 18)

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 (→ 16) 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 (→ 69).

Decimal places 4

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

Prerequisite A measured value is specified in the **Value 4 display** parameter (→ 22).

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 (→ 18)...**Value 4 display** parameter (→ 22) 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 (→ 16).

Display damping

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

Prerequisite 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 5.0 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)

Prerequisite A local display is provided.

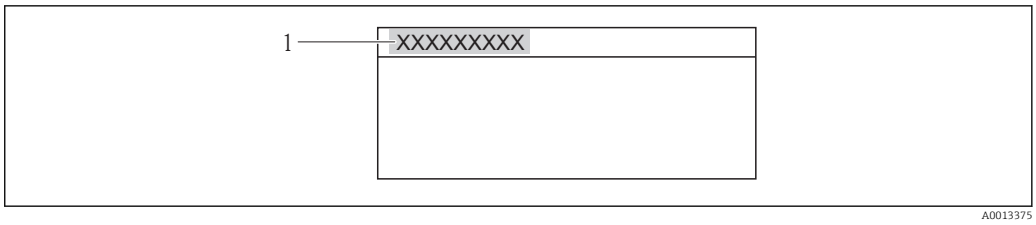
Description Use this function to select the contents of the header of the local display.

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 (→ 271).
- Free text
  Is defined in the **Header text** parameter (→ 25).

Header text

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

Prerequisite The **Free text** option is selected in the **Header** parameter (→ 24).

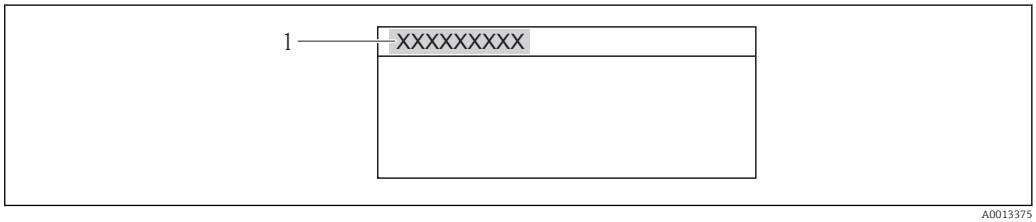
Description Use this function to enter a customer-specific text for the header of the local display.

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)

Prerequisite 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)

Prerequisite 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 ⊟ E keys simultaneously.
- Darker: Press and hold down the ⊞ E 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 (→ 14).

For information on the **Enter access code** parameter (→ 14), see the "Disabling write protection via access code" section of the Operating Instructions for the device

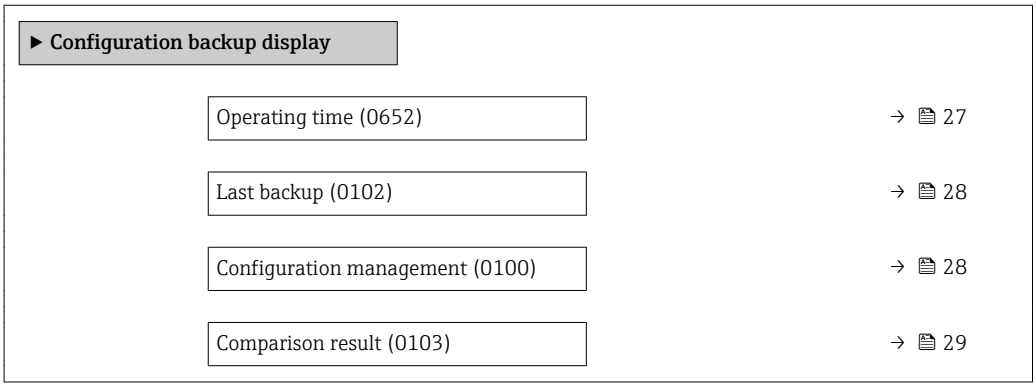
If additional write protection is active, this restricts the current access authorization even further. The write protection status can be viewed via the **Locking status** parameter (→ 12).

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)

Prerequisite 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)

Prerequisite 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: **Backup state** parameter (→ 29)

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 **Comparison result** parameter (→ 29).
- 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
- Display incompatible
  - This option is displayed if the display module is incompatible. All of the other options are not available. Selection is therefore not possible.
  - This option is displayed if it is not possible to save the device and fieldbus data.
  - The display module should be updated to the latest software version so that the data can be saved.

For information on updating the display module to the latest software version, please contact your Endress+Hauser service organization.

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 (→ 28).

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 (→ 28), 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.

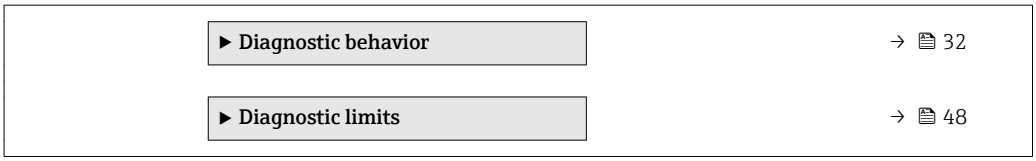
HistoROM

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

▶ Diagnostic handling		
	Alarm delay (0651)	→ 31



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:
- 046 Sensor limit exceeded
- 828 Ambient temperature too low
- 829 Ambient temperature too high
- 832 Electronic temperature too high
- 833 Electronic temperature too low
- 834 Process temperature too high
- 835 Process temperature too low
- 841 Flow velocity too high
- 841 Sensor range
- 844 Sensor range exceeded
- 870 Measuring inaccuracy increased
- 871 Near steam saturation limit
- 872 Wet steam detected
- 873 No steam detected
- 874 Wet steam detection uncertain
- 945 Sensor range exceeded
- 946 Vibration detected
- 947 Vibration exceeded

"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 (→ 268) (**Event list** submenu (→ 270)) 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

▶ **Diagnostic behavior**	
Assign behavior of diagnostic no. 022 (0751)	→ 34
Assign behavior of diagnostic no. 122 (0752)	→ 35
Assign behavior of diagnostic no. 350 (0756)	→ 35
Assign behavior of diagnostic no. 371 (0757)	→ 36
Assign behavior of diagnostic no. 442 (0658)	→ 36
Assign behavior of diagnostic no. 443 (0659)	→ 36
Assign behavior of diagnostic no. 828 (0755)	→ 37

Assign behavior of diagnostic no. 829 (0754)	→ 37
Assign behavior of diagnostic no. 832 (0675)	→ 37
Assign behavior of diagnostic no. 833 (0676)	→ 38
Assign behavior of diagnostic no. 834 (0677)	→ 38
Assign behavior of diagnostic no. 835 (0678)	→ 39
Assign behavior of diagnostic no. 841 (0729)	→ 39
Assign behavior of diagnostic no. 844 (0747)	→ 39
Assign behavior of diagnostic no. 870 (0726)	→ 40
Assign behavior of diagnostic no. 871 (0748)	→ 40
Assign behavior of diagnostic no. 872 (0746)	→ 40
Assign behavior of diagnostic no. 873 (0749)	→ 41
Assign behavior of diagnostic no. 945 (0750)	→ 41
Assign behavior of diagnostic no. 947 (0753)	→ 42
Assign status of diagnostic number 022 (11041)	→ 42
Assign status of diagnostic number 122 (11042)	→ 42
Assign status of diagnostic number 350 (11000)	→ 43
Assign status of diagnostic number 371 (11014)	→ 43
Assign status of diagnostic number 828 (11015)	→ 43

Assign behavior of diagnostic no. 022 (Temperature sensor defective)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 022 (0751)

Prerequisite For the following order code:
"Sensor version", option "Mass flow"

Description Use this function to change the diagnostic behavior of the diagnostic message **022 Temperature sensor defective**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 122 (Temperature sensor defective)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 122 (0752)

Prerequisite For the following order code:
"Sensor version", option "Mass flow"

Description Use this function to change the diagnostic behavior of the diagnostic message **122 Temperature sensor defective**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 350 (Pre-amplifier defective)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 350 (0756)

Description Use this function to change the diagnostic behavior of the diagnostic message **350 Pre-amplifier defective**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 371 (Temperature sensor defective)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 371 (0757)

Description Use this function to change the diagnostic behavior of the diagnostic message **371 Temperature sensor defective**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 32

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: → 32

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: → 32

Assign behavior of diagnostic no. 828 (Ambient temperature too low)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 828 (0755)

Description Use this function to change the diagnostic behavior of the diagnostic message **828 Ambient 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: → 32

Assign behavior of diagnostic no. 829 (Ambient temperature too high)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 829 (0754)

Description Use this function to change the diagnostic behavior of the diagnostic message **829 Ambient 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: → 32

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: → 32

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: → 32

Assign behavior of diagnostic no. 834 (Process temperature too high)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 834 (0677)

Description Use this function to change the diagnostic behavior of the diagnostic message **834 Process 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: → 32

Assign behavior of diagnostic no. 835 (Process temperature too low)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 835 (0678)

Description Use this function to change the diagnostic behavior of the diagnostic message **835 Process 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: → 32

Assign behavior of diagnostic no. 841 (Flow velocity too high)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 841 (0729)

Description Use this function to change the diagnostic behavior of the diagnostic message **841 Flow velocity too high**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 844 (Sensor range exceeded)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 844 (0747)

Description Use this function to change the diagnostic behavior of the diagnostic message **844 Sensor range exceeded**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 870 (Measuring inaccuracy increased)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 870 (0726)

Description Use this function to change the diagnostic behavior of the diagnostic message **870 Measuring inaccuracy increased**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 871 (Near steam saturation limit)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 871 (0748)

Prerequisite In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description Use this function to change the diagnostic behavior of the diagnostic message **871 Near steam saturation limit**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 872 (Wet steam detected)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 872 (0746)

Prerequisite The **Wet steam detection** application package has been enabled.

The software options currently enabled are displayed in the **Software option overview** parameter (→ 54).

Description Use this function to change the diagnostic behavior of the diagnostic message **872 Wet steam detected**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 873 (Water detected)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 873 (0749)

Prerequisite In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description Use this function to change the diagnostic behavior of the diagnostic message **873 Water detected**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Off

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 945 (Sensor range exceeded)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 945 (0750)

Prerequisite For the following order code:
"Sensor version", option "Mass flow"

Description Use this function to change the diagnostic behavior of the diagnostic message **945 Sensor range exceeded**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Warning

Additional information For a detailed description of the options available for selection: → 32

Assign behavior of diagnostic no. 947 (Vibration exceeded)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 947 (0753)

Description Use this function to change the diagnostic behavior of the diagnostic message **947 Vibration exceeded**.

Selection
- Off
- Alarm
- Warning
- Logbook entry only

Factory setting Alarm

Additional information For a detailed description of the options available for selection: → 32

Assign status of diagnostic number 022 (Temperature sensor defective)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 022 (11041)

Description Option for changing the status of the diagnostic message **022 Temperature sensor defective**.

Selection
- Bad
- Uncertain
- Good

Factory setting Bad

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 122 (Temperature sensor defective)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 122 (11042)

Description Option for changing the status of the diagnostic message **122 Temperature sensor defective**.

Selection
- Bad
- Uncertain
- Good

Factory setting Good

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 350 (Pre-amplifier defective)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 350 (11000)

Description Option for changing the status of the diagnostic message **350 Pre-amplifier defective**.

Selection
- Bad
- Uncertain
- Good

Factory setting Bad

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 371 (Temperature sensor defective)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 371 (11014)

Description Option for changing the status of the diagnostic message **371 Temperature sensor defective**.

Selection
- Bad
- Uncertain
- Good

Factory setting Bad

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 828 (Ambient temperature too low)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 828 (11015)

Description Option for changing the status of the diagnostic message **828 Ambient temperature too low**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 829 (Ambient temperature too high)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 829 (11001)

Description Option for changing the status of the diagnostic message **829 Ambient temperature too high**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

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: → 32

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: → 32

Assign status of diagnostic number 834 (Process temperature too high)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 834 (11004)

Description Option for changing the status of the diagnostic message **834 Process temperature too high**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 835 (Process temperature too low)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 835 (11005)

Description Option for changing the status of the diagnostic message **835 Process temperature too low**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 841 (Flow velocity too high)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 841 (11006)

Description Option for changing the status of the diagnostic message **841 Flow velocity too high**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 844 (Sensor range exceeded)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 844 (11007)

Description Option for changing the status of the diagnostic message **844 Sensor range exceeded**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 870 (Measuring inaccuracy increased)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 870 (11008)

Description Option for changing the status of the diagnostic message **870 Measuring inaccuracy increased**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 871 (Near steam saturation limit)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 871 (11009)

Description Option for changing the status of the diagnostic message **871 Near steam saturation limit**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 872 (Wet steam detected)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 872 (11010)

Description Option for changing the status of the diagnostic message **872 Wet steam detected**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 873 (No steam detected)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 873 (11011)

Description Option for changing the status of the diagnostic message **873 No steam detected**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 945 (Sensor range exceeded)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 945 (11012)

Description Option for changing the status of the diagnostic message **945 Sensor range exceeded**.

Selection
- Bad
- Uncertain
- Good

Factory setting Uncertain

Additional information Detailed description of the options available for selection: → 32

Assign status of diagnostic number 947 (Vibration exceeded)

Navigation Expert → System → Diagn. handling → Diagn. behavior → Status diag. 947 (11013)

Description Option for changing the status of the diagnostic message **947 Vibration exceeded**.

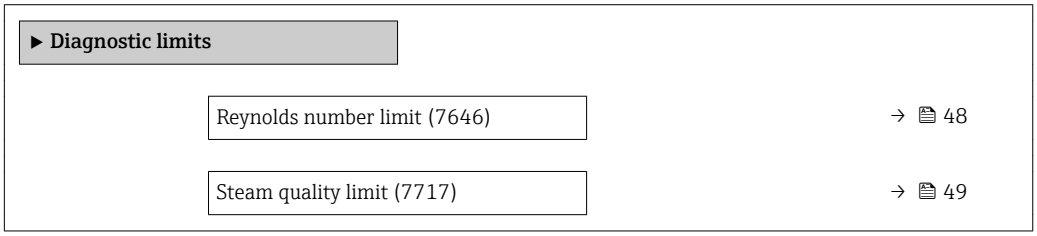
Selection
- Bad
- Uncertain
- Good

Factory setting Bad

Additional information Detailed description of the options available for selection: → 32

"Diagnostic limits" submenu

Navigation Expert → System → Diagn. handling → Diagn. limits



Reynolds number limit

Navigation Expert → System → Diagn. handling → Diagn. limits → Re number limit (7646)

Prerequisite For the following order code:
"Sensor version", option "Mass flow (integrated temperature measurement)"

Description Use this function to enter the lower limit value for the Reynolds number. If the Reynolds number falls short of this limit value, the diagnostic message **870 Measuring inaccuracy increased** is triggered.

User entry 4 000 to 100 000

Factory setting 5 000

Additional information *Limit value*

If the Reynolds number falls short of the limit value configured here, the diagnostic behavior selected in the **Assign behavior of diagnostic no. 870** parameter (→ 40) is triggered.

Steam quality limit

Navigation Expert → System → Diagn. handling → Diagn. limits → SteamQualLimit (7717)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Steam** option is selected.
- In the **Steam quality** parameter (→ 116), the **Calculated value** option is selected.

Description
Use this function to enter the threshold value for the steam quality which, if undershot, triggers the diagnostic message ⚠**S872 Wet steam detected**.

User entry
80 to 100 %

Factory setting
80 %

Additional information
Limit value

This limit value has a hysteresis of 5 %, i.e. the diagnostic message is reset at a threshold value of +5 % or if 100 % is reached (for factory setting of 80 % at 85 %).

If the steam quality has dropped below the limit value configured here, the diagnostic behavior selected in the **Assign behavior of diagnostic no. 872** parameter (0746) (→ 40) is triggered.

Degrees of superheat limit

Navigation Expert → System → Diagn. handling → Diagn. limits → Degr.superh.lim. (7737)

Prerequisite
In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description
Use this function to enter the threshold value for the degree of superheat which, if exceeded, triggers the diagnostic message **972 Degrees of superheat limit excceeded**.

User entry
0 to 500 K

Factory setting
5 K

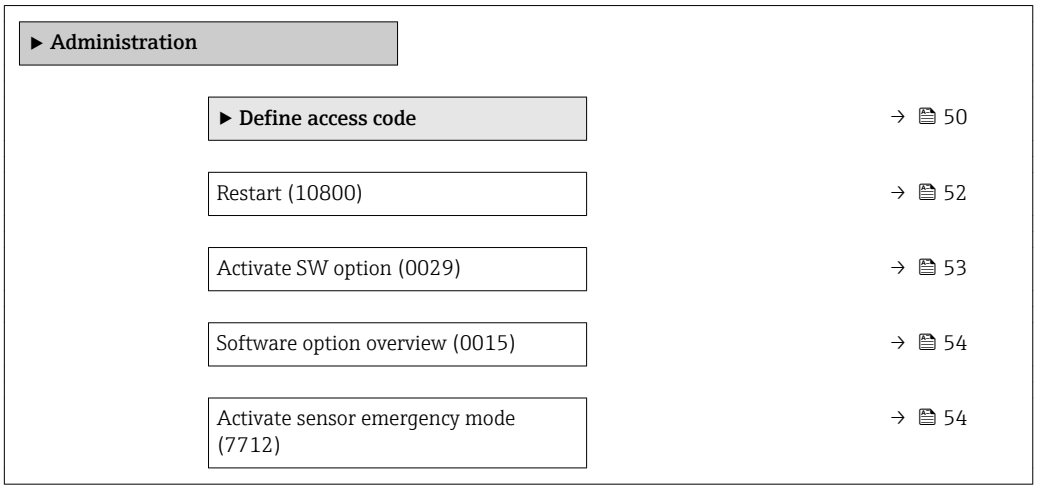
Additional information
Limit value

This limit value has a hysteresis of 1 K, i.e. the diagnostic message is triggered if the threshold value +1 K is reached and is reset again when the value drops below the threshold value.

If the degree of superheat has exceeded the limit value configured here, the diagnostic behavior selected in the **Assign behavior of diagnostic no. 972** parameter is triggered.

3.1.4 "Administration" submenu

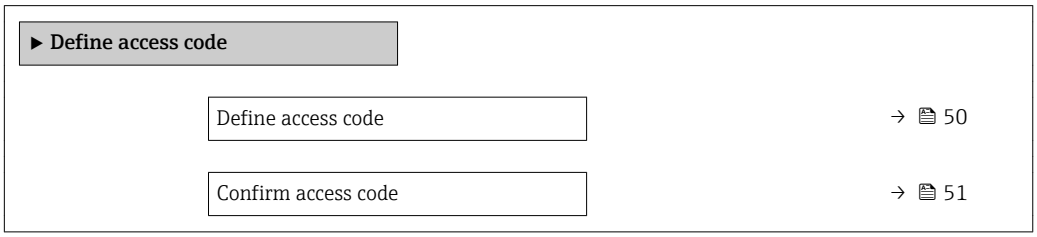
Navigation Expert → System → Administration



"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 (→ 51) 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 (→ 14).

If you lose the access code, please contact your Endress+Hauser Sales Center.

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

Further 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 (→ 14).

If you lose the access code, please contact your Endress+Hauser Sales Center.

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

Additional information

"Uninitialized" option

The selection does not affect configuration.

"Run" option

The selection does not affect configuration.

"Resource" option

The selection does not affect configuration.

"Defaults" option

All fieldbus function blocks are reset to their factory setting (e.g. Analog input channel to the **Uninitialized** option).

"Processor" option

The device is restarted.

"To factory defaults" option

Advanced fieldbus parameters (fieldbus function blocks, schedule information) and device parameters are reset to their factory setting.

"To delivery settings" option

Advanced fieldbus parameters (fieldbus function blocks, schedule information) and device parameters for which a customer-specific default setting was ordered are reset to this customer-specific value.

"ENP restart" option

The parameters of the electronic name plate (ENP = Electronic Name Plate) to be entered are adopted. The device is restarted.

"To transducer defaults" option

Certain (measured-value specific) device parameters are reset. The parameters of the fieldbus function blocks remain unchanged.

"Factory Default Blocks" option

Advanced fieldbus parameters (fieldbus function blocks, schedule information) are reset to their factory setting.

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
- Mass flow
- Natural gas
- Air + industrial gas
- Wet steam detection
- 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"

"Mass flow" option

Order code for "Sensor version"
- For Prowirl D, F, R: option 3 "Mass flow (integrated temperature measurement)"
- For Prowirl C, O: option 6 "Mass flow Alloy 718"

"Natural gas" option

Order code for "Application package", option EN "Natural gas"

"Air + industrial gas" option

Order code for "Application package", option ET "Air+industrial gases (single gas+gas mixtures)"

"Wet steam detection" option

Only available for Prowirl F.

Order code for "Application package", option ES "Wet steam detection"

"Heartbeat Verification" option

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

Activate sensor emergency mode

Navigation Expert → System → Administration → Sens. emerg.mode (7712)

Prerequisite 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

This parameter becomes visible if the data in the S-DAT or on-board memory cannot be read on account of a defect or error. There is a copy of the data on the HistoROM (FT10). If the emergency mode is activated, this copy is used and the device measure correctly again at least up until the next device switch-off/switch-on. After switch-on/switch-off, the emergency mode would have to be reactivated again. This ensures that the client can operate the device until a new spare part arrives.

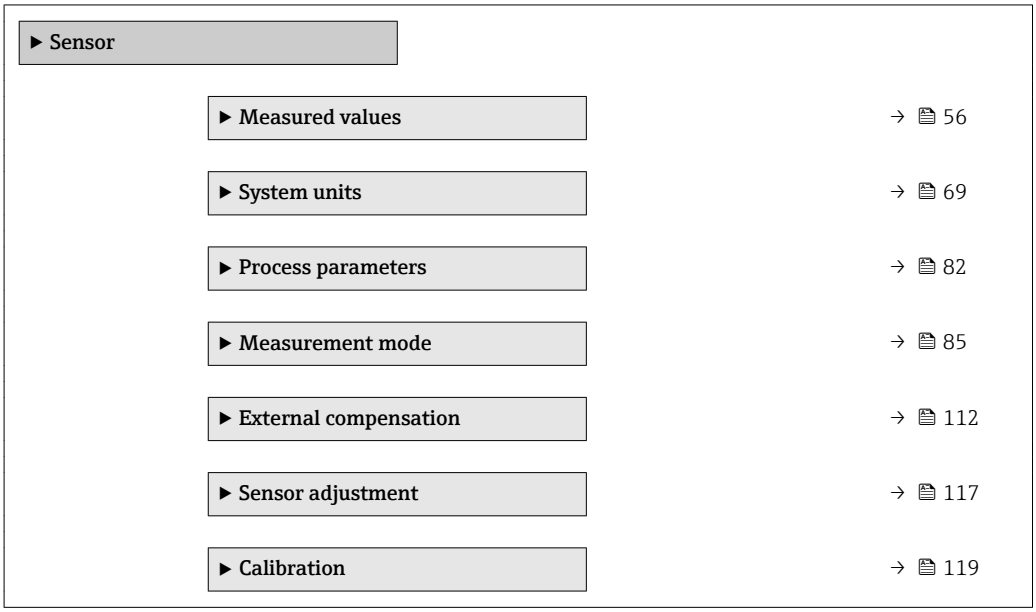
The status signal of the output diagnostic message changes from **F** (failure) to **M** (maintenance required), the diagnostic behavior changes from Alarm to Warning: ⚠**M**. The diagnostic message is output until the characteristics in the sensor data storage are again correct.

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.

▶ **Measured values**	
▶ **Process variables**	→ 56
▶ **Totalizer**	→ 66
▶ **Output values**	→ 67

"Process variables" submenu

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

▶ **Process variables**	
Volume flow (1838)	→ 57
Corrected volume flow (1850)	→ 57
Mass flow (1847)	→ 58
Flow velocity (1865)	→ 59
Temperature (1851)	→ 59
Calculated saturated steam pressure (1852)	→ 60
Steam quality (1853)	→ 60
Total mass flow (1854)	→ 60
Condensate mass flow (1857)	→ 61
Energy flow (1872)	→ 61
Heat flow difference (1863)	→ 61
Reynolds number (1864)	→ 62
Density (7607)	→ 62
Pressure (7696)	→ 63
Saturation temperature (7709)	→ 63

Compressibility factor (7729)	→ 64
Vortex frequency (7722)	→ 64

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 (→ 70)

Corrected volume flow

Navigation Expert → Sensor → Measured val. → Process variab. → Correct.vol.flow (1850)

Description Displays the corrected volume flow currently calculated.

User interface Signed floating-point number

Additional information *Description*

To calculate the corrected volume flow, the measured volume flow is multiplied by the ratio of the density (**Density** parameter (→ 62)) to the reference density. The density and reference density here depend on the sensor version and the selected medium (see table). Outputting the corrected volume flow cannot be used for gases that condense (e.g. steam).

Sensor version	Medium	Medium type	Density	Reference density
Volume flow	All [1]	–	ρ	ρ_{Ref}
Mass flow	Steam	–	f(p, T)	–
	Gas	All except [2]	f(p, T)	$f(p_{Ref}, T_{Ref})$
	Liquid	All except [2]	f(T)	$f(T_{Ref})$
	Gas	[2]	$f(p, T, z, p_{Ref}, T_{Ref}, z_{Ref}, \rho_{Ref})$	ρ_{Ref}

Sensor version	Medium	Medium type	Density	Reference density
	Liquid	2)	f(T, a_{lin}, T_{Ref}, ρ_{Ref})	ρ_{Ref}
ρ	Fixed density (→ 🖹 114)			
ρ_{Ref}	Reference density (→ 🖹 94)			
p	Pressure (→ 🖹 63)			
p_{Ref}	Reference pressure (→ 🖹 95)			
T	Temperature (→ 🖹 59)			
T_{Ref}	Reference temperature (→ 🖹 96)			
z	Z-factor (→ 🖹 94)			
z_{Ref}	Reference Z-factor (→ 🖹 96)			
a_{lin}	Linear expansion coefficient (→ 🖹 91)			
f(...)	Calculation method as function of ...			

1) Outputting the corrected volume flow cannot be used for gases that condense.
2) User-specific gas or liquid

Dependency

The unit is taken from the **Corrected volume flow unit** parameter (→ 🖹 73)

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 *Description*

To calculate the mass flow, the measured volume flow is multiplied by the density (**Density** parameter (→ 🖹 62)). The density depends on the sensor version and the selected medium (see table).

Sensor version	Medium	Medium type	Density
Volume flow	All	–	ρ
Mass flow	Steam	–	f(p, T)
	Gas	All except 1)	f(p, T)
	Liquid	All except 1)	f(T)
	Gas	1)	f(p, T, z, p_{Ref}, T_{Ref}, z_{Ref}, ρ_{Ref})
	Liquid	1)	f(T, a_{lin}, T_{Ref}, ρ_{Ref})
ρ	Fixed density (→ 🖹 114)		
ρ_{Ref}	Reference density (→ 🖹 94)		
p	Pressure (→ 🖹 63)		
p_{Ref}	Reference pressure (→ 🖹 95)		
T	Temperature (→ 🖹 59)		
T_{Ref}	Reference temperature (→ 🖹 96)		
z	Z-factor (→ 🖹 94)		
z_{Ref}	Reference Z-factor (→ 🖹 96)		
a_{lin}	Linear expansion coefficient (→ 🖹 91)		
f(...)	Calculation method as function of ...		

1) User-specific gas or liquid

Dependency

The unit is taken from the **Mass flow unit** parameter (→ 72)

Flow velocity

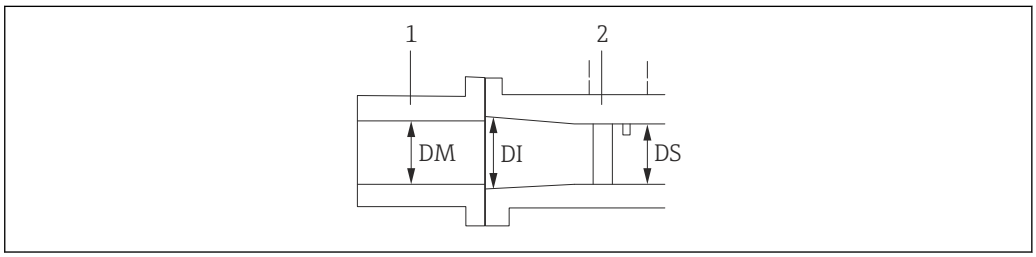
Navigation Expert → Sensor → Measured val. → Process variab. → Flow velocity (1865)

Description Displays the flow velocity currently calculated.

User interface Signed floating-point number

Additional information *Description*

The flow velocity is calculated based on the aspect ratio of the vortex measuring tube (DS) to the process connection of the sensor (DI), or to the **Mating pipe diameter** parameter (→ 118) (DM) if this has been entered by the customer; the DS and DI are production data that are defined by the shape and size of the meter body.



1 Process connection
2 Vortex measuring tube
DM Mating pipe diameter (→ 118)
DI Process connection of the sensor
DS Vortex measuring tube

Dependency

The unit is taken from the **Velocity unit** parameter (→ 79)

Temperature

Navigation Expert → Sensor → Measured val. → Process variab. → Temperature (1851)

Description Displays the temperature currently measured.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75).

Calculated saturated steam pressure

Navigation Expert → Sensor → Measured val. → Process variab. → CalcSatSteamPres (1852)

Prerequisite
The following conditions are met:
- Order code for "Sensor version", option "Mass flow"
- In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description Displays the saturated steam pressure currently calculated.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Pressure unit** parameter (→ 74)

Steam quality

Navigation Expert → Sensor → Measured val. → Process variab. → Steam quality (1853)

Prerequisite
The following conditions are met:
- Order code for "Sensor version", option "Mass flow"
- In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description Displays the current steam quality. Depends on the compensation mode of the steam quality (**Steam quality** parameter (→ 116)).

User interface Signed floating-point number

Total mass flow

Navigation Expert → Sensor → Measured val. → Process variab. → Total mass flow (1854)

Prerequisite
The following conditions are met:
- Order code for "Application package", option EU "Wet steam measurement"
- In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description Displays the total mass flow (steam and condensate) currently calculated.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Mass flow unit** parameter (→ 72)

Condensate mass flow

Navigation Expert → Sensor → Measured val. → Process variab. → CondensMassFlow (1857)

Prerequisite
The following conditions are met:
- Order code for "Application package", option EU "Wet steam measurement"
- In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description Displays the condensate mass flow currently calculated.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Mass flow unit** parameter (→ 72)

Energy flow

Navigation Expert → Sensor → Measured val. → Process variab. → Energy flow (1872)

Prerequisite
For the following order code:
"Sensor version", option "Mass flow"

Description Displays the energy flow currently calculated.

User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the **Energy flow unit** parameter (→ 76)

Heat flow difference

Navigation Expert → Sensor → Measured val. → Process variab. → Heat flow diff. (1863)

Prerequisite
The following conditions are met:
Order code for "Sensor version", option "Mass flow"

One of the following options is selected in the **Select gas type** parameter (→ 86):
- Single gas
- Gas mixture
- Natural gas
- User-specific gas

Description Displays the heat flow difference currently calculated.

User interface Signed floating-point number

Additional information

Description

The measuring device requires the following to calculate the heat flow difference correctly:

1. Select the type of calculation in the **Delta heat calculation** parameter (→ 114).
2. Enter the value in the **2nd temperature delta heat** parameter (→ 115).

Dependency

The unit is taken from the **Energy flow unit** parameter (→ 76)

Reynolds number

Navigation Expert → Sensor → Measured val. → Process variab. → Reynolds number (1864)

Prerequisite For the following order code:
"Sensor version", option "Mass flow"

Description Displays the Reynolds number currently calculated.

User interface Signed floating-point number

Additional information

Description

$$Re = \frac{\rho \cdot v \cdot d}{\eta}$$

Where:
- ρ is the density of the medium (**Density** parameter (→ 62))
- v is the flow velocity of the fluid in relation to the body (**Flow velocity** parameter (→ 59))
- d is the characteristic length of the body
- η is the viscosity of the medium
  - For gases: **Dynamic viscosity** parameter (→ 93)
  - For liquids: **Dynamic viscosity** parameter (→ 92)
- The mating pipe diameter is taken as the characteristic length (**Mating pipe diameter** parameter (→ 118))

Density

Navigation Expert → Sensor → Measured val. → Process variab. → Density (7607)

Prerequisite For the following order code:
"Sensor version", option "Mass flow"

Description Displays the density currently calculated.

User interface Positive floating-point number

Additional information

Description

Depending on the selected medium the density is calculated with pressure and temperature and the corresponding method (e.g. IAPWS, NEL40...).

Dependency

The unit is taken from the **Density unit** parameter (→ 79)

Pressure

Navigation

Expert → Sensor → Measured val. → Process variab. → Pressure (7696)

Prerequisite

For the following order code:
- "Sensor version", option "Mass flow"
- In the **External value** parameter (→ 113), the **Pressure** option is selected.

Description

Displays the current process pressure.

User interface

0 to 250 bar

Additional information

Description

The value of the pressure which is read in (e.g. via the current input module) is displayed..

If the **Pressure** option is not selected as the external value in the **External value** parameter (→ 113), the input value for the fixed process pressure (**Fixed process pressure** parameter (→ 115)) is displayed.

Dependency

The unit is taken from the **Pressure unit** parameter (→ 74)

Saturation temperature

Navigation

Expert → Sensor → Measured val. → Process variab. → Saturation temp. (7709)

Prerequisite

In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description

Displays the saturation temperature currently calculated.

User interface

Country-specific:
- °C
- °F

Additional information

The saturation temperature describes the temperature limit at which steam begins to condense. This value is calculated using the current process pressure (**Pressure** parameter (→ 63)) according to IAPWS-IF97.

Dependency

The unit is taken from the **Temperature unit** parameter (→ 75).

Compressibility factor

Navigation Expert → Sensor → Measured val. → Process variab. → CompressFactor (7729)

Prerequisite The following conditions are met:
Order code for "Sensor version", option "Mass flow"

In the **Select medium** parameter (→ 85), the **Gas** option or **Steam** option is selected.

Description Displays the compressibility factor currently calculated.

User interface 0 to 2

Additional information *Description*

The compressibility factor describes the deviation of the medium from the ideal behavior under the current process conditions. If the medium is a user-specific gas/liquid, the compressibility factor is entered as the Z-factor (**Z-factor** parameter (→ 94)).

Vortex frequency

Navigation Expert → Sensor → Measured val. → Process variab. → Vortex frequency (7722)

Description Displays the measured variable for the flow in the measuring tube which is recorded directly with the DSC sensor.

User interface **Measuring range depending on the nominal diameter:**
0.1 to 3 100 Hz

Additional information *Description*

The filter settings specify the measuring range of the vortex frequency depending on the nominal diameter.

Filter settings for liquids

Nominal diameter	Minimum vortex frequency	Maximum vortex frequency
	f_{vmin} [Hz]	f_{vmax} [Hz]
DN 15 (½") DN 25 (1") > DN 15 (½") DN 40 (1½") >> DN 15 (½")	11.5	666.5
DN 25 (1") DN 40 (1½") > DN 25 (1") DN 50 (2") >> DN 25 (1")	6.7	388.8
DN 40 (1½") DN 50 (2") > DN 40 (1½") DN 80 (3") >> DN 40 (1½")	3.9	224.3
DN 50 (2") DN 80 (3") > DN 50 (2") DN 100 (4") >> DN 50 (2")	3.0	172.8
DN 80 (3") DN 100 (4") > DN 80 (3") DN150 (6") >> DN 80 (3")	2.1	122.8

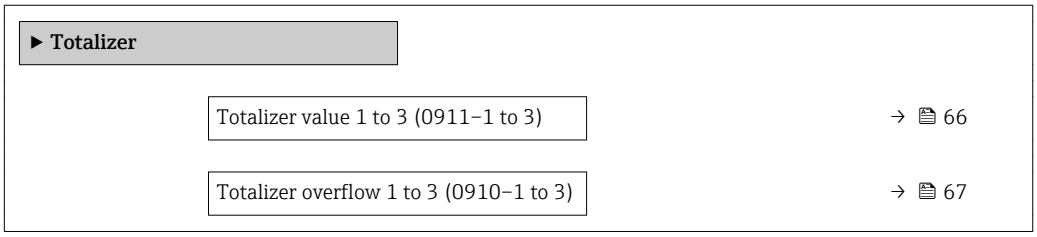
Nominal diameter	Minimum vortex frequency	Maximum vortex frequency
	f_{vmin} [Hz]	f_{vmax} [Hz]
DN 100 (4") DN150 (6") > DN 100 (4") DN 200 (8") >> DN 100 (4")	1.7	101.4
DN150 (6") DN 200 (8") > DN150 (6") DN 250 (10") >> DN150 (6")	1.1	66.6
DN 200 (8")	0.7	41.7
DN 250 (10")	0.6	34.3
DN 300 (12")	0.5	28.9

Filter settings for gases/steam

DN [mm (in)]	Minimum vortex frequency	Maximum vortex frequency
	f_{vmin} [Hz]	f_{vmax} [Hz]
DN 15 (½") DN 25 (1") > DN 15 (½") DN 40 (1½") >> DN 15 (½")	209.9	3 100
DN 25 (1") DN 40 (1½") > DN 25 (1") DN 50 (2") >> DN 25 (1")	67.1	3 100
DN 40 (1½") DN 50 (2") > DN 40 (1½") DN 80 (3") >> DN 40 (1½")	13.7	1 869.1
DN 50 (2") DN 80 (3") > DN 50 (2") DN 100 (4") >> DN 50 (2")	10.5	2 303.8
DN 80 (3") DN 100 (4") > DN 80 (3") DN150 (6") >> DN 80 (3")	7.5	1 636.9
DN 100 (4") DN150 (6") > DN 100 (4") DN 200 (8") >> DN 100 (4")	6.2	1 352.3
DN150 (6") DN 200 (8") > DN150 (6") DN 250 (10") >> DN150 (6")	4.1	888.6
DN 200 (8")	2.5	555.4
DN 250 (10")	2.1	457.3
DN 300 (12")	1.8	385.3

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 (→ 257) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *

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 (→ 261).

User interface

The unit of the selected process variable is specified for the totalizer in the **Unit totalizer** parameter (→ 258).

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: $1 \cdot 10^6$ (1 overflow) = 1 000 000 [m^3]
- Current totalizer reading: 1 196 845.7 m^3

* Visibility depends on order options or device settings

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 (→ 257) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *

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

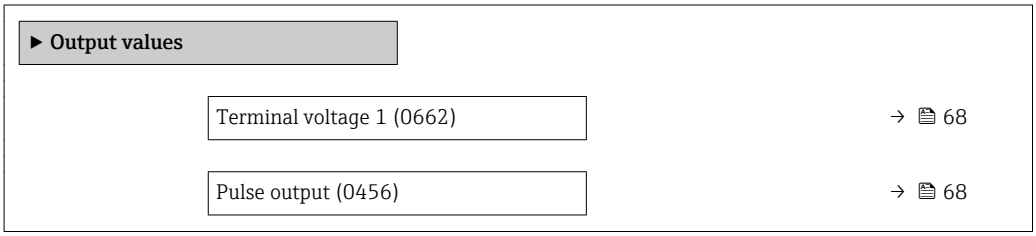
The unit of the selected process variable is specified for the totalizer in the **Unit totalizer** parameter (→ 258).

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: $2 \cdot 10^6$ (2 overflows) = 2 000 000 [m^3]
- Current totalizer reading: 2 196 845.7 m^3

"Output values" submenu

Navigation Expert → Sensor → Measured val. → Output values



* Visibility depends on order options or device settings

Output frequency (0471)	→ 69
Switch status (0461)	→ 69

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)

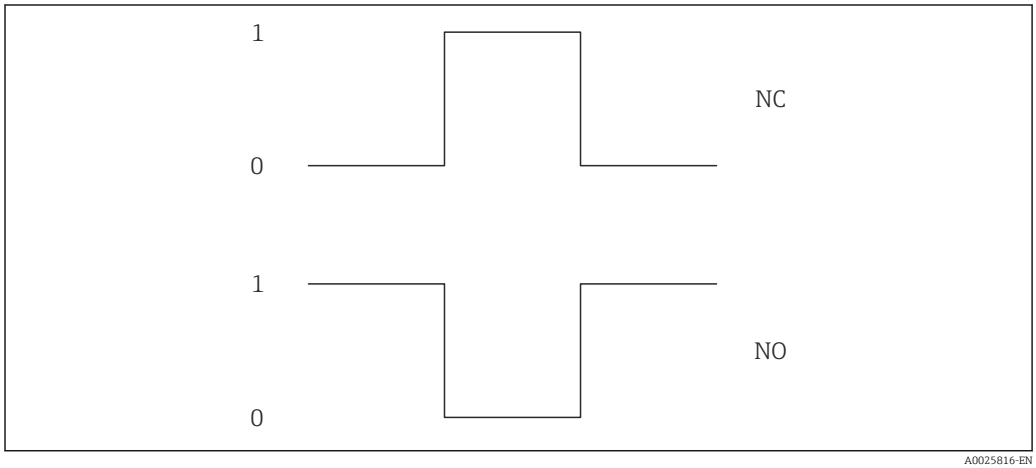
Prerequisite The **Pulse** option is selected in the **Operating mode** parameter (→ 121).

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 (→ 124) and the **Pulse width** parameter (→ 124) 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 (→ 138), 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 (→ 125)) can be configured.

Output frequency

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

Prerequisite In the **Operating mode** parameter (→ 121), the **Frequency** option is selected.

Description Displays 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)

Prerequisite The **Switch** option is selected in the **Operating mode** parameter (→ 121).

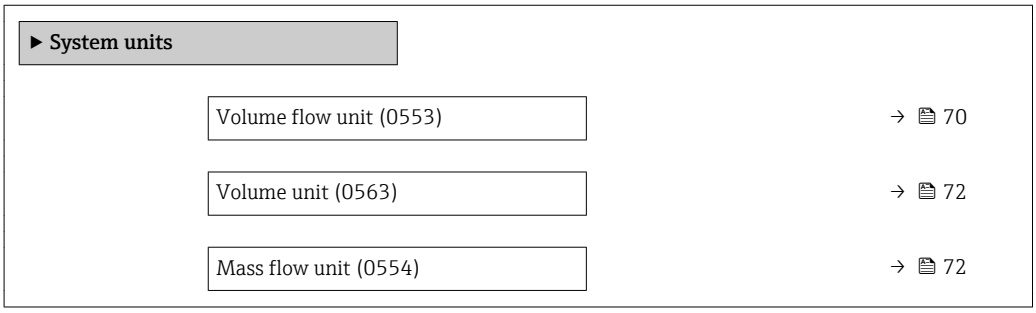
Description Displays the current switch status of the status output.

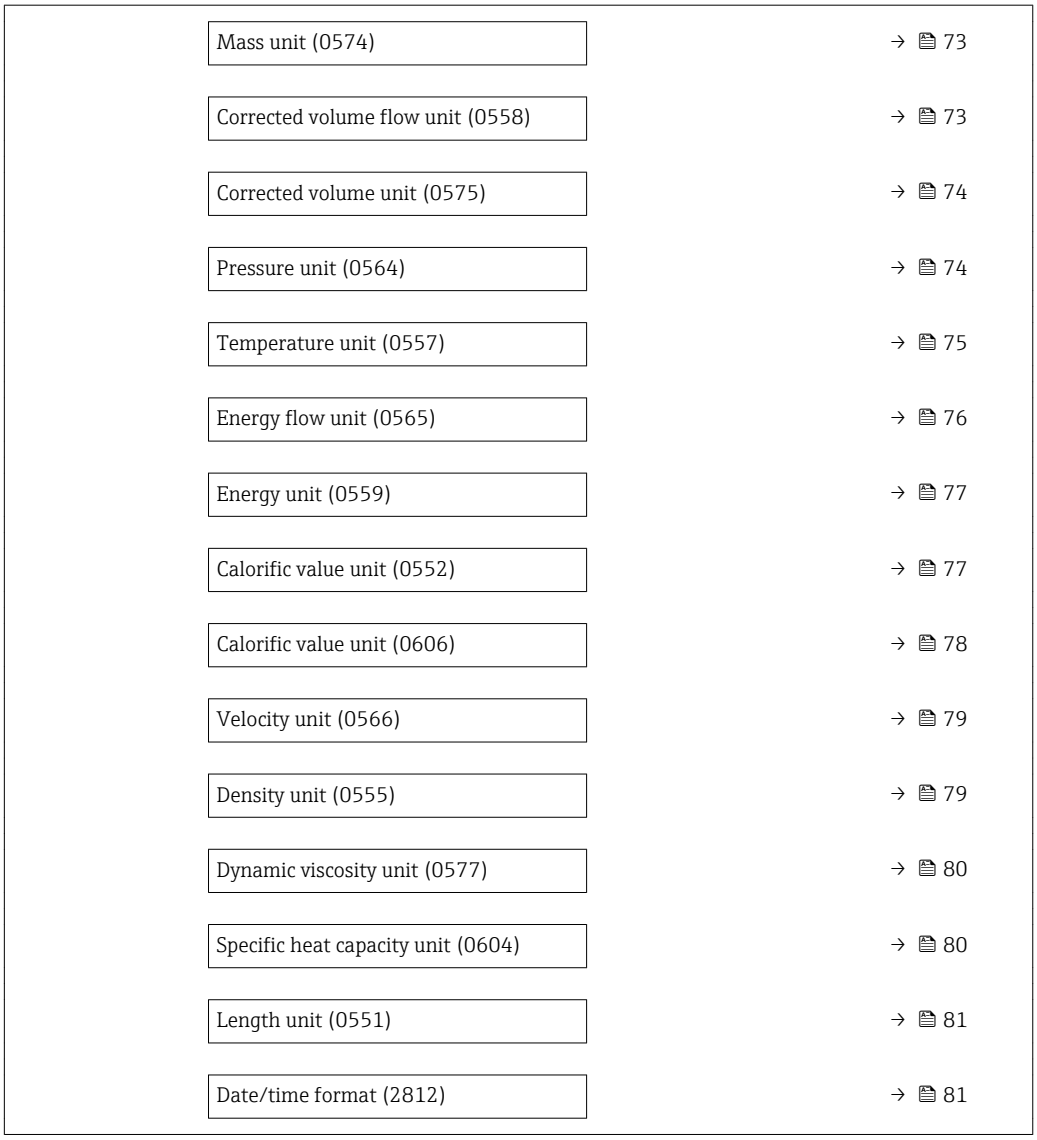
User interface
- Open
- Closed

Additional information *User interface*
- 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:
- m^3/h
- ft^3/min

Additional information

Result

The selected unit applies for:
Volume flow parameter (→ 57)

Selection

For an explanation of the abbreviated units: → 298

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
- ft^3

Additional information *Selection*

For an explanation of the abbreviated units: → 298

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 (→ 58)
- **Total mass flow** parameter (→ 60)
- **Condensate mass flow** parameter (→ 61)

Selection

For an explanation of the abbreviated units: → 298

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

Selection

For an explanation of the abbreviated units: → 298

Corrected volume flow unit

Navigation Expert → Sensor → System units → Cor.volflow unit (0558)

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

Selection

SI units
- Nl/s
- Nl/min
- Nl/h
- Nl/d
- Nm^3/s
- Nm^3/min
- Nm^3/h
- Nm^3/d
- Sm^3/s
- Sm^3/min
- Sm^3/h
- Sm^3/d

US units
- Sft^3/s
- Sft^3/min
- Sft^3/h
- Sft^3/d

Factory setting

Country-specific:
- Nm^3/h
- Sft^3/h

Additional information

Result

The selected unit applies for:
Corrected volume flow parameter (→ 57)

Selection

For an explanation of the abbreviated units: → 298

Corrected volume unit

Navigation

Expert → Sensor → System units → Corr. vol. unit (0575)

Description

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

Selection

SI units
- Nl
- Nm^3
- Sm^3

US units
- Sft^3

Factory setting

Country-specific:
- Nm^3
- Sft^3

Additional information

Selection

For an explanation of the abbreviated units: → 298

Pressure unit

Navigation

Expert → Sensor → System units → Pressure unit (0564)

Prerequisite

For the following order code:
"Sensor version", option "Mass flow"

Description

Use this function to select the unit for the pipe pressure.

Selection

SI units
- Pa
- kPa
- MPa
- mbar a
- bar
- torr
- atm
- gf/cm²
- kgf/cm²

US units
psi

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

Factory setting

Country-specific:
- bar
- psi

Additional information

Result

The unit is taken from:
- **Calculated saturated steam pressure** parameter (→ 60)
- **Atmospheric pressure** parameter (→ 113)
- **Maximum value** parameter (→ 287)
- **Fixed process pressure** parameter (→ 115)
- **Pressure** parameter (→ 63)
- **Reference pressure** parameter (→ 95)

Selection

For an explanation of the abbreviated units: → 298

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:
- **Temperature** parameter (→ 59)
- **Maximum value** parameter (→ 284)
- **Minimum value** parameter (→ 284)
- **Average value** parameter (→ 284)
- **Maximum value** parameter (→ 285)
- **Minimum value** parameter (→ 285)
- **Maximum value** parameter (→ 286)
- **Minimum value** parameter (→ 286)

- **2nd temperature delta heat** parameter (→ 115)
- **Fixed temperature** parameter (→ 114)
- **Reference combustion temperature** parameter (→ 94)
- **Reference temperature** parameter (→ 96)
- **Saturation temperature** parameter (→ 63)

Selection

For an explanation of the abbreviated units: → 298

Energy flow unit

Navigation Expert → Sensor → System units → Energy flow unit (0565)

Prerequisite For the following order code:
"Sensor version", option "Mass flow"

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

Selection

SI units
- kW
- MW
- GW
- kJ/s
- kJ/min
- kJ/h
- kJ/d
- MJ/s
- MJ/h
- MJ/min
- MJ/d
- GJ/s
- GJ/min
- GJ/h
- GJ/d
- kcal/s
- kcal/min
- kcal/h
- kcal/d
- Mcal/s
- Mcal/min
- Mcal/h
- Mcal/d
- Gcal/s
- Gcal/min
- Gcal/h
- Gcal/d

Imperial units
- Btu/s
- Btu/min
- Btu/h
- Btu/day
- MBtu/s
- MBtu/min
- MBtu/h
- MBtu/d
- MMBtu/s
- MMBtu/min
- MMBtu/h
- MMBtu/d

Factory setting Country-specific:
- kW
- Btu/h

Additional information *Result*

The selected unit applies for:
- **Heat flow difference** parameter (→ 61)
- **Energy flow** parameter (→ 61)

Selection

For an explanation of the abbreviated units: → 298

Energy unit

Navigation Expert → Sensor → System units → Energy unit (0559)

Prerequisite For the following order code:
"Sensor version", option "Mass flow"

Description Use this function to select the unit for energy.

Selection

SI units
- kWh
- MWh
- GWh
- kJ
- MJ
- GJ
- kcal
- Mcal
- Gcal

Imperial units
- Btu
- MBtu
- MMBtu

Factory setting Country-specific:
- kWh
- Btu

Additional information *Selection*

For an explanation of the abbreviated units: → 298

Calorific value unit

Navigation Expert → Sensor → System units → Cal. value unit (0552)

Prerequisite The following conditions are met:
- Order code for "Sensor version", option "Mass flow"
- The **Gross calorific value volume** option or the **Net calorific value volume** option is selected in the **Calorific value type** parameter (→ 90).

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

Selection

SI units
- kJ/Nm³
- MJ/Nm³
- kWh/Nm³
- MWh/Sm³
- kJ/Sm³
- MJ/Sm³
- kWh/Sm³
- MWh/Nm³

Imperial units
- Btu/Sm³
- MBtu/Sm³
- Btu/Sft³
- MBtu/Sft³

Factory setting

Country-specific:
- kJ/Nm³
- Btu/Sft³

Additional information

Result

The selected unit applies for:
Reference gross calorific value parameter (→ 95)

Selection

For an explanation of the abbreviated units: → 298

Calorific value unit (Mass)

Navigation

Expert → Sensor → System units → Cal. value unit (0606)

Prerequisite

The following conditions are met:
- Order code for "Sensor version", option "Mass flow"
- The **Gross calorific value mass** option or the **Net calorific value mass** option is selected in the **Calorific value type** parameter (→ 90).

Description

Use this function to select the unit for the calorific value (mass).

Selection

SI units
- kJ/kg
- MJ/kg
- kWh/kg
- MWh/kg

US units
- kJ/lb
- MJ/lb
- kWh/lb
- MWh/lb

Imperial units
- Btu/lb
- MBtu/lb

Factory setting

Country-specific:
- kJ/kg
- Btu/lb

Additional information

Selection

For an explanation of the abbreviated units: → 298

Velocity unit

Navigation Expert → Sensor → System units → Velocity unit (0566)

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

Selection

SI units	*US units*
m/s	ft/s

Factory setting Country-specific:
- m/s
- ft/s

Additional information *Result*

The selected unit applies for:
- **Flow velocity** parameter (→ 59)
- **Maximum value** parameter (→ 287)

Selection

For an explanation of the abbreviated units: → 298

Density unit

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

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

Selection

SI units	*US units*	*Imperial units*
▪ g/cm³	▪ lb/ft³	▪ lb/gal (imp)
▪ kg/dm³	▪ lb/gal (us)	▪ lb/bbl (imp;beer)
▪ kg/l	▪ lb/bbl (us;liq.)	▪ lb/bbl (imp;oil)
▪ kg/m³	▪ lb/bbl (us;beer)	
▪ SD4°C	▪ lb/bbl (us;oil)	
▪ SD15°C	▪ lb/bbl (us;tank)	
▪ SD20°C		
▪ SG4°C		
▪ SG15°C		
▪ SG20°C		

Factory setting Country-specific:
- kg/m³
- lb/ft³

Additional information *Result*

The selected unit applies for:
- **Density** parameter (→ 62)
- **Fixed density** parameter (→ 114)
- **Reference density** parameter (→ 94)

Selection

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

For an explanation of the abbreviated units: → 298

Dynamic viscosity unit

Navigation Expert → Sensor → System units → Dyn. visc. unit (0577)

Description Use this function to select the unit for dynamic viscosity.

Selection

SI units
- Pa s
- cP
- P

Factory setting Pa s

Additional information

Result

The selected unit applies for:
- **Dynamic viscosity** parameter (→ 93) (gases)
- **Dynamic viscosity** parameter (→ 92) (liquids)

Additional information

Selection

For an explanation of the abbreviated units: → 298

Specific heat capacity unit

Navigation Expert → Sensor → System units → SpecHeatCapaUnit (0604)

Prerequisite

The following conditions are met:
- Selected medium:
  - The **User-specific gas** option is selected in the **Select gas type** parameter (→ 86).
    Or
  - The **User-specific liquid** option is selected in the **Select liquid type** parameter (→ 87).
- The **Heat** option is selected in the **Enthalpy type** parameter (→ 90).

Description Use this function to select the unit for the specific heat capacity.

Selection

SI units
- kJ/(kgK)
- MJ/(kgK)
- kWh/(kgK)
- kcal/(kgK)

Imperial units
Btu/(lb˚R)

Factory setting

kJ/(kgK)

Additional information

Result

The selected unit applies for:
Specific heat capacity parameter (→ 97)

Additional information

Selection

For an explanation of the abbreviated units: → 298

Length unit

Navigation

Expert → Sensor → System units → Length unit (0551)

Description

Use this function to select the unit of length for the nominal diameter.

Selection

SI units
- mm
- m

US units
- in
- ft

Factory setting

Country-specific:
- mm
- in

Additional information

Result

The selected unit applies for:
- **Inlet run** parameter (→ 117)
- **Mating pipe diameter** parameter (→ 118)

Selection

For an explanation of the abbreviated units: → 298

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

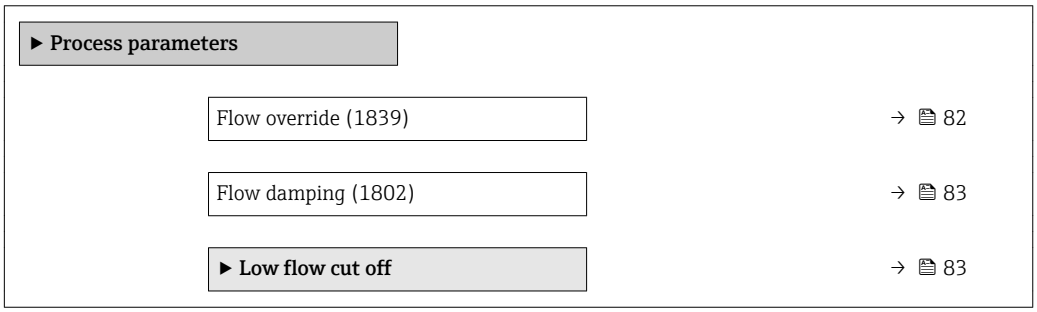
Factory setting dd.mm.yy hh:mm

Additional information *Selection*

For an explanation of the abbreviated units: → 298

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 process of a pipeline, for example.

Selection
- Off
- On

Factory setting Off

Additional information *Result*

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 (1802)

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 999.9 s

Factory setting 5 s

Additional information *Result*

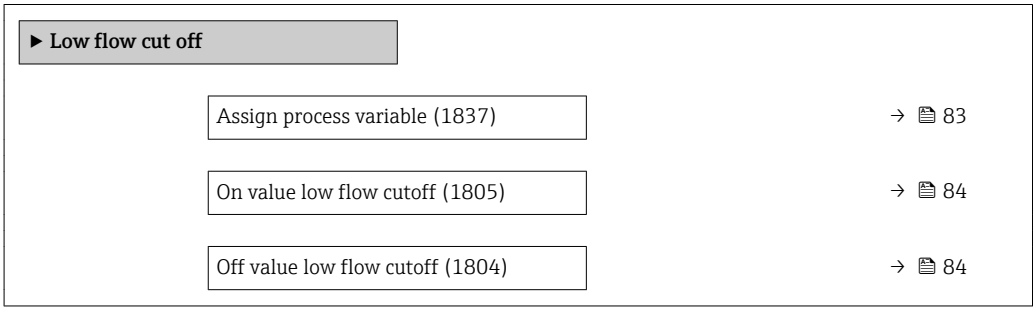
The damping has an effect on the following variables of the device:
- Outputs
- Low flow cut off → 🖹 83
- Totalizer → 🖹 256

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 a process variable for low flow cut off.

Selection
- Off
- Volume flow
- Corrected volume flow
- Mass flow
- Reynolds number *

Factory setting Off

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 (→ 83):
- Volume flow
- Corrected volume flow
- Mass flow
- Reynolds number *

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 → 84.

User entry Positive floating-point number

Factory setting 0

Additional information *Dependency*

The unit depends on the process variable selected in the **Assign process variable** parameter (→ 83).

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 (→ 83):
- Volume flow
- Corrected volume flow
- Mass flow
- Reynolds number *

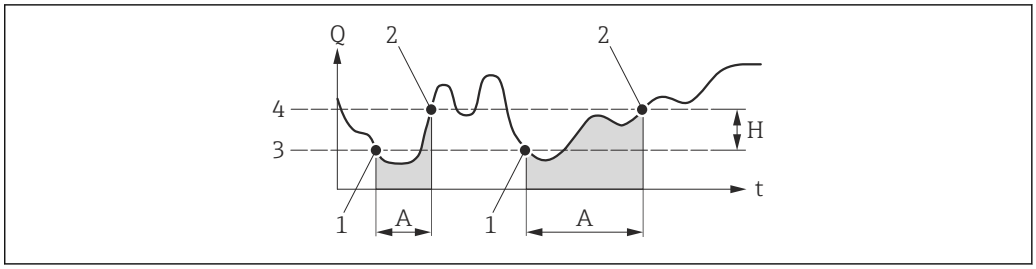
Description Use this function to enter a switch-off value for low flow cut off. The off value is entered as a positive hysteresis from the on value → 84.

User entry 0 to 100.0 %

Factory setting 50 %

* Visibility depends on order options or device settings

Additional information *Example*



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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

3.2.4 "Measurement mode" submenu

Navigation Expert → Sensor → Measurement mode

▶ **Measurement mode**	
Select medium (7653)	→ 85
Select gas type (7635)	→ 86
Select liquid type (7636)	→ 87
Select steam type (7637)	→ 87
Density calculation (7608)	→ 88
Enthalpy calculation (7619)	→ 88
Saturated steam calculation mode (7708)	→ 89
▶ **Medium properties**	→ 89

Select medium

Navigation Expert → Sensor → Measurement mode → Select medium (7653)

Description Use this function to select the type of medium for the measuring application.

Selection
- Gas
- Liquid
- Steam

Factory setting Steam

Select gas type

Navigation Expert → Sensor → Measurement mode → Select gas type (7635)

Prerequisite
The following conditions are met:
- Order code
  - "Sensor version", option "Mass flow"
  - "Application package", option "Air + Industrial gases" or option "Natural gas"
- The **Gas** option is selected in the **Select medium** parameter (→ 85).

Description Use this function to select the type of gas for the measuring application.

Selection
- Single gas
- Gas mixture
- Air
- Natural gas
- User-specific gas

Factory setting User-specific gas

Additional information *"User-specific gas" option*

Applications: calculation of the mass flow of a user-specific gas

Calculated variables: the mass flow, the density, the corrected volume flow and the heat quantity are calculated from the measured volume flow and the measured temperature. Either the specific thermal capacity or the calorific value must be entered for calculating the heat quantity.

Formulae for calculation:
- Mass flow: $m = q \cdot \rho\ (T)$
- Density: $\rho = \rho_1\ (T_1) / (1 + \beta_p \cdot [T - T_1])$
- Corrected volume flow: $v_n = q \cdot (\rho\ (T) / \rho_{ref})$
- Heat quantity in the case of delta heat: $E = q \cdot \rho\ (T) \cdot c_p \cdot \Delta T$
- Heat quantity in the case of combustion: $E = q \cdot \rho\ (T) \cdot h$

m = Mass flow

q = Volume flow (measured)

v_n = Corrected volume flow

T = Process temperature (measured)

T_1 = Temperature (→ 59) at which the value for ρ_1 applies.

ρ = Density

ρ_{ref} = Reference density

= Density (→ 62) at which the value for T_1 applies.

β_p = Linear expansion coefficient (→ 91) of the liquid at T_1

Possible combinations of these values: **Linear expansion coefficient** parameter (→ 91)

Select liquid type

Navigation Expert → Sensor → Measurement mode → Sel. liquid type (7636)

Prerequisite
The following conditions are met:
- Order code for "Sensor version", option "Mass flow"
- The **Liquid** option is selected in the **Select medium** parameter (→ 85) parameter.

Description
Use this function to select the type of liquid for the measuring application.

Selection
- Water
- LPG (Liquefied Petroleum Gas)
- User-specific liquid

Factory setting
Water

Additional information
"User-specific liquid" option

Applications: calculation of the mass flow of a user-specific liquid, such as thermal oil.

Calculated variables: the mass flow, the density, the corrected volume flow and the heat quantity are calculated from the measured volume flow and the measured temperature. Either the specific thermal capacity or the calorific value must be entered for calculating the heat quantity.

Formulae for calculation:
- Mass flow: $m = q \cdot \rho\ (T)$
- Density: $\rho = \rho_1\ (T_1) / (1 + \beta_p \cdot [T - T_1])$
- Corrected volume flow: $v_n = q \cdot (\rho\ (T) / \rho_{ref})$
- Heat quantity in the case of delta heat: $E = q \cdot \rho\ (T) \cdot c_p \cdot \Delta T$
- Heat quantity in the case of combustion: $E = q \cdot \rho\ (T) \cdot h$

m = Mass flow

q = Volume flow (measured)

v_n = Corrected volume flow

T = Process temperature (measured)

T_1 = Temperature (→ 59) at which the value for ρ_1 applies.

ρ = Density

ρ_{ref} = Reference density

= Density (→ 62) at which the value for T_1 applies.

β_p = Linear expansion coefficient (→ 91) of the liquid at T_1

Possible combinations of these values: **Linear expansion coefficient** parameter (→ 91)

Select steam type

Navigation Expert → Sensor → Measurement mode → Sel. steam type (7637)

Prerequisite
The following conditions are met:
- Order code for "Sensor version", option "Mass flow (integrated temperature measurement)"
- In the **Select medium** parameter (→ 85), the **Steam** option is selected.

Description Use this function to select the type of steam for the measuring application.

Selection
- Wet steam
- Superheated steam
- Saturated steam

Factory setting Saturated steam

Density calculation

Navigation Expert → Sensor → Measurement mode → Density calc. (7608)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.

Description Use this function to select the standard on the basis of which the density is calculated.

Selection
- AGA Nx19
- ISO 12213- 2
- ISO 12213- 3

Factory setting AGA Nx19

Enthalpy calculation

Navigation Expert → Sensor → Measurement mode → Enthalpy calc. (7619)

Prerequisite The following conditions are met:
- Order code
  - "Sensor version", option "Mass flow (integrated temperature measurement)"
  - "Application package", option "Natural gas"
- In the **Select medium** parameter (→ 85), the **Gas** option is selected and in the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.

Description Use this function to select the standard on the basis of which the enthalpy is calculated.

Selection
- AGA5
- ISO 6976

Factory setting AGA5

Saturated steam calculation mode

Navigation Expert → Sensor → Measurement mode → SatSteamCalcMode (7708)

Prerequisite In the **Select steam type** parameter (→ 87), the **Wet steam** option or **Saturated steam** option is selected.

Description Use this function to select the calculation method for the saturated steam application.

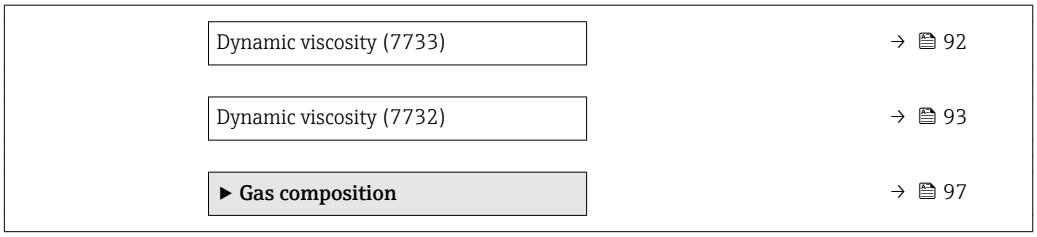
Selection
- Temperature
- Pressure

Factory setting Temperature

"Medium properties" submenu

Navigation Expert → Sensor → Measurement mode → Medium property

▶ **Medium properties**	
Enthalpy type (7620)	→ 90
Calorific value type (7698)	→ 90
Reference combustion temperature (7699)	→ 94
Reference density (7700)	→ 94
Reference gross calorific value (7701)	→ 95
Reference pressure (7702)	→ 95
Reference temperature (7703)	→ 96
Reference Z-factor (7704)	→ 96
Linear expansion coefficient (7621)	→ 91
Relative density (7705)	→ 96
Specific heat capacity (7716)	→ 97
Calorific value (7626)	→ 92
Z-factor (7631)	→ 94



Calorific value type

Navigation Expert → Sensor → Measurement mode → Medium property → Cal. value type (7698)

Prerequisite The **Calorific value type** parameter (→ 90) is visible.

Description Use this function to select whether the net calorific value or the gross calorific value is used as the basis for calculation.

Selection
- Gross calorific value volume
- Net calorific value volume
- Gross calorific value mass
- Net calorific value mass

Factory setting Gross calorific value mass

Enthalpy type

Navigation Expert → Sensor → Measurement mode → Medium property → Enthalpy type (7620)

Prerequisite The following conditions are met:
- In the **Select gas type** parameter (→ 86), the **User-specific gas** option is selected. Or
- In the **Select liquid type** parameter (→ 87), the **User-specific liquid** option is selected.

Description Use this function to select the type of enthalpy.

Selection
- Heat
- Calorific value

Factory setting Heat

Linear expansion coefficient

Navigation Expert → Sensor → Measurement mode → Medium property → Linear exp coeff (7621)

Prerequisite
The following conditions are met:
- The **Liquid** option is selected in the **Select medium** parameter (→ 85).
- The **User-specific liquid** option is selected in the **Select liquid type** parameter (→ 87).

Description Use this function to enter the linear, medium-specific expansion coefficient for calculating the reference density for user-specific liquids.

User entry 1.0^{-6} to 2.0^{-3}

Factory setting 2.06^{-4}

Additional information

User entry

- If the value in this parameter is changed, it is advisable to reset the totalizer.
- The expansion coefficient can be determined using the Applicator.
- If two density and temperature value pairs are known (density ρ_1 at temperature T_1 and density ρ_2 at temperature T_2), the expansion coefficient can be calculated according to the following formula:
  $\beta_p = ((\rho_1/\rho_2) - 1)/(T_1 - +T_2)$

Sample values

The closer the process temperature is to the specific temperature value, the better the calculation of the density for application-specific liquids. If the process temperature deviates greatly from the value indicated, the expansion coefficient should be calculated according to the formula (see above).

Medium (liquid)	Temperature value [K]	Density value [kg/m³]	Expansion coefficient [10^{-4} 1/K]
Air	123.15	594	18.76
Ammonia	298.15	602	25
Argon	133.15	1028	111.3
n-butane	298.15	573	20.7
Carbon dioxide	298.15	713	106.6
Chlorine	298.15	1398	21.9
Cyclohexane	298.15	773	11.6
n-decane	298.15	728	10.2
Ethane	298.15	315	175.3
Ethylene	298.15	386	87.7
n-heptane	298.15	351	12.4
n-hexane	298.15	656	13.8
Hydrogen chloride	298.15	796	70.9
i-butane	298.15	552	22.5
Methane	163.15	331	73.5
Nitrogen	93.15	729	75.3
n-octane	298.15	699	11.1

Medium (liquid)	Temperature value [K]	Density value [kg/m³]	Expansion coefficient [10⁻⁴ 1/K]
Oxygen	133.15	876	95.4
n-pentane	298.15	621	16.2
Propane	298.15	493	32.1
Vinyl chloride	298.15	903	19.3
Table values according to Carl L. Yaws (2001): Matheson Gas Data Book, 7th edition			

Calorific value

Navigation Expert → Sensor → Measurement mode → Medium property → Calorific value (7626)

Prerequisite
The following conditions are met:
- Selected medium:
  - In the **Select gas type** parameter (→ 86), the **User-specific gas** option is selected. Or
  - In the **Select liquid type** parameter (→ 87), the **User-specific liquid** option is selected.
- In the **Enthalpy type** parameter (→ 90), the **Calorific value** option is selected.
- In the **Calorific value type** parameter (→ 90), the **Gross calorific value volume** option or **Gross calorific value mass** option is selected.

Description Use this function to enter the calorific value for calculating the energy flow.

User entry Positive floating-point number

Factory setting 50 000 kJ/kg

Dynamic viscosity (Liquids)

Navigation Expert → Sensor → Measurement mode → Medium property → Dynam. viscosity (7733)

Prerequisite
The following conditions are met:
- Order code for "Sensor version", option "Volume flow"
- The **Liquid** option is selected in the **Select medium** parameter (→ 85) parameter. Or
- The **User-specific liquid** option is selected in the **Select liquid type** parameter (→ 87).

Description Use this function to enter a fixed value for the dynamic viscosity for a liquid.

User entry Positive floating-point number

Factory setting 1 cP

Additional information

Description

The viscosity entered is used to linearize the measured error in the lower Reynolds number range if the calculated viscosity is not available e.g. "Volume flow" sensor version or the fluid is a user-specific liquid (see table).

Dependencies

Sensor version	Medium	Dyn. viscosity
Volume flow	All	x
Mass flow	All except [1]	–
	[1]	x
x	Dynamic viscosity as the input value	

1) User-specific liquid

Dependency

The unit is taken from the **Dynamic viscosity unit** parameter (→ 80)

Dynamic viscosity (Gases)

Navigation

Expert → Sensor → Measurement mode → Medium property → Dynam. viscosity (7732)

Prerequisite

The following conditions are met:
- Order code for "Sensor version", option "Volume flow"
- The **Gas** option or the **Steam** option is selected in the **Select medium** parameter (→ 85).
  Or
- The **User-specific gas** option is selected in the **Select gas type** parameter (→ 86).

Description

Use this function to enter a fixed value for the dynamic viscosity for a gas or steam.

User entry

Positive floating-point number

Factory setting

0.015 cP

Additional information

Description

The viscosity entered is used to linearize the measured error in the lower Reynolds number range if the calculated viscosity is not available e.g. "Volume flow" sensor version or the fluid is a user-specific gas (see table).

Dependencies

Sensor version	Medium	Dyn. viscosity
Volume flow	All	x
Mass flow	All except [1]	–
	[1]	x
x	Dynamic viscosity as the input value	

1) User-specific gas

Dependency

The unit is taken from the **Dynamic viscosity unit** parameter (→ 80)

Z-factor

Navigation Expert → Sensor → Measurement mode → Medium property → Z-factor (7631)

Prerequisite In the **Select gas type** parameter (→ 86), the **User-specific gas** option is selected.

Description Use this function to enter the real gas constant Z for gas under operating conditions.

User entry 0.1 to 2.0

Factory setting 1

Reference combustion temperature

Navigation Expert → Sensor → Measurement mode → Medium property → Ref. comb. temp. (7699)

Prerequisite The **Reference combustion temperature** parameter (→ 94) is visible.

Description Use this function to enter the reference combustion temperature for calculating the natural gas energy value.

User entry −200 to 450 °C

Factory setting 20 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75)

Reference density

Navigation Expert → Sensor → Measurement mode → Medium property → Ref.density (7700)

Prerequisite The following conditions are met:
- In the **Select gas type** parameter (→ 86), the **User-specific gas** option is selected.
  Or
- In the **Select liquid type** parameter (→ 87), the **Water** option or **User-specific liquid** option is selected.

Description Use this function to enter a fixed value for the reference density.

User entry 0.01 to 15 000 kg/m³

Factory setting 1 000 kg/m³

Additional information *Dependency*

The unit is taken from the **Density unit** parameter (→ 79)

Reference gross calorific value

Navigation Expert → Sensor → Measurement mode → Medium property → Ref. GrossCalVal (7701)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 3** option is selected.

Description Use this function to enter the reference gross calorific value of the natural gas.

User entry Positive floating-point number

Factory setting 50 000 kJ/Nm³

Additional information *Dependency*

The unit is taken from the **Calorific value unit** parameter (→ 77)

Reference pressure

Navigation Expert → Sensor → Measurement mode → Medium property → Ref. pressure (7702)

Prerequisite The following conditions are met:
- Order code for "Sensor version", option "Mass flow (integrated temperature measurement)"
- The **Gas** option is selected in the **Select medium** parameter (→ 85).

Description Use this function to enter the reference pressure for calculating the reference density.

User entry 0 to 250 bar

Factory setting 1.01325 bar

Additional information *Dependency*

The unit is taken from the **Pressure unit** parameter (→ 74)

Reference temperature

Navigation Expert → Sensor → Measurement mode → Medium property → Ref. temperature (7703)

Prerequisite
The following conditions are met:
- The **Gas** option is selected in the **Select medium** parameter (→ 85).
  Or
- The **Liquid** option is selected in the **Select medium** parameter (→ 85).

Description Use this function to enter the reference temperature for calculating the reference density.

User entry −200 to 450 °C

Factory setting 20 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75)

Reference Z-factor

Navigation Expert → Sensor → Measurement mode → Medium property → Ref. Z-factor (7704)

Prerequisite In the **Select gas type** parameter (→ 86), the **User-specific gas** option is selected.

Description Use this function to enter the real gas constant Z for gas under reference conditions.

User entry 0.1 to 2

Factory setting 1

Relative density

Navigation Expert → Sensor → Measurement mode → Medium property → Relative density (7705)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 3** option is selected.

Description Use this function to enter the relative density of the natural gas.

User entry 0.55 to 0.9

Factory setting 0.664

Specific heat capacity

Navigation Expert → Sensor → Measurement mode → Medium property → Spec. heat cap. (7716)

Prerequisite
The following conditions are met:
- Selected medium:
  - In the **Select gas type** parameter (→ 86), the **User-specific gas** option is selected. Or
  - In the **Select liquid type** parameter (→ 87), the **User-specific liquid** option is selected.
- In the **Enthalpy type** parameter (→ 90), the **Heat** option is selected.

Description Use this function to enter the specific heat capacity of the medium.

User entry 0 to 50 kJ/(kgK)

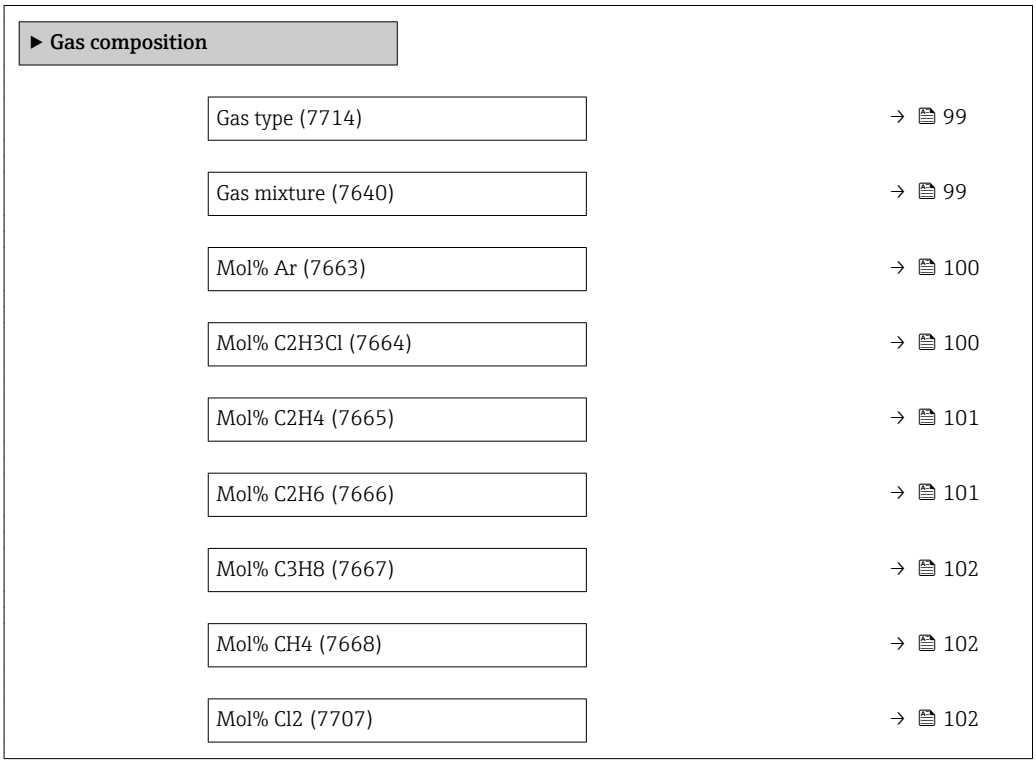
Factory setting 4.187 kJ/(kgK)

Additional information *Dependency*

The unit is taken from the **Specific heat capacity unit** parameter (→ 80)

"Gas composition" submenu

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition



Mol% CO (7669)	→ 103
Mol% CO2 (7670)	→ 103
Mol% H2 (7671)	→ 104
Mol% H2O (7672)	→ 104
Mol% H2S (7673)	→ 104
Mol% HCl (7674)	→ 105
Mol% He (7675)	→ 105
Mol% i-C4H10 (7676)	→ 106
Mol% i-C5H12 (7677)	→ 106
Mol% Kr (7678)	→ 106
Mol% N2 (7679)	→ 107
Mol% n-C10H22 (7680)	→ 107
Mol% n-C4H10 (7681)	→ 108
Mol% n-C5H12 (7682)	→ 108
Mol% n-C6H14 (7683)	→ 108
Mol% n-C7H16 (7684)	→ 109
Mol% n-C8H18 (7685)	→ 109
Mol% n-C9H20 (7686)	→ 109
Mol% Ne (7687)	→ 110
Mol% NH3 (7688)	→ 110
Mol% O2 (7689)	→ 111
Mol% SO2 (7691)	→ 111
Mol% Xe (7692)	→ 111
Mol% other gas (7690)	→ 112
Relative humidity (7731)	→ 112

Gas type

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Gas type (7714)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Single gas** option is selected.

Description Use this function to select the type of gas for the measuring application.

Selection
- Hydrogen H2
- Helium He
- Neon Ne
- Argon Ar
- Krypton Kr
- Xenon Xe
- Nitrogen N2
- Oxygen O2
- Chlorine Cl2
- Ammonia NH3
- Carbon monoxide CO
- Carbon dioxide CO2
- Sulfur dioxide SO2
- Hydrogen sulfide H2S
- Hydrogen chloride HCl
- Methane CH4
- Ethane C2H6
- Propane C3H8
- Butane C4H10
- Ethylene C2H4
- Vinyl Chloride C2H3Cl

Factory setting Methane CH4

Gas mixture

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Gas mixture (7640)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.

Description Use this function to select the gas mixture for the measuring application.

Selection
- Hydrogen H2
- Helium He
- Neon Ne
- Argon Ar
- Krypton Kr
- Xenon Xe
- Nitrogen N2

- Oxygen O2
- Chlorine Cl2
- Ammonia NH3
- Carbon monoxide CO
- Carbon dioxide CO2
- Sulfur dioxide SO2
- Hydrogen sulfide H2S
- Hydrogen chloride HCl
- Methane CH4
- Ethane C2H6
- Propane C3H8
- Butane C4H10
- Ethylene C2H4
- Vinyl Chloride C2H3Cl
- Others

Factory setting Methane CH4

Mol% Ar

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% Ar (7663)

Prerequisite The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
– In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Argon Ar** option is selected.
Or
– In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% C2H3Cl

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% C2H3Cl (7664)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Vinyl Chloride C2H3Cl** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% C2H4

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% C2H4 (7665)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Ethylene C2H4** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% C2H6

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% C2H6 (7666)

Prerequisite The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Ethane C2H6** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% C3H8

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% C3H8 (7667)

Prerequisite The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Propane C3H8** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% CH4

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% CH4 (7668)

Prerequisite The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Methane CH4** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 100 %

Mol% Cl2

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% Cl2 (7707)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Chlorine Cl2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% CO

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% CO (7669)

Prerequisite The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Carbon monoxide CO** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% CO2

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% CO2 (7670)

Prerequisite The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Carbon dioxide CO2** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% H2

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% H2 (7671)

Prerequisite
The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Hydrogen H2** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **AGA Nx19** option is **not** selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% H2O

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% H2O (7672)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% H2S

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% H2S (7673)

Prerequisite
The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Hydrogen sulfide H2S** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% HCl

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% HCl (7674)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Hydrogen chloride HCl** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% He

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% He (7675)

Prerequisite The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Helium He** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% i-C4H10

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% i-C4H10 (7676)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% i-C5H12

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% i-C5H12 (7677)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% Kr

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% Kr (7678)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Krypton Kr** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% N2

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% N2 (7679)

Prerequisite
The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Nitrogen N2** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **AGA Nx19** option or the **ISO 12213-2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% n-C10H22

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% n-C10H22 (7680)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% n-C4H10

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% n-C4H10 (7681)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
  - In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Butane C4H10** option is selected.
    Or
  - In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.
- Or
  In the **Select medium** parameter (→ 85), the **Liquid** option is selected and in the **Select liquid type** parameter (→ 87), the **LPG** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% n-C5H12

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% n-C5H12 (7682)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% n-C6H14

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% n-C6H14 (7683)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% n-C7H16

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% n-C7H16 (7684)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% n-C8H18

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% n-C8H18 (7685)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% n-C9H20

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% n-C9H20 (7686)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected.
- In the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% Ne

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% Ne (7687)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Neon Ne** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% NH3

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% NH3 (7688)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Ammonia NH3** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% O2

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% O2 (7689)

Prerequisite The following conditions are met:
In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected and in the **Gas mixture** parameter (→ 99), the **Oxygen O2** option is selected.
  Or
- In the **Select gas type** parameter (→ 86), the **Natural gas** option is selected and in the **Density calculation** parameter (→ 88), the **ISO 12213- 2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% SO2

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% SO2 (7691)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Sulfur dioxide SO2** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% Xe

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% Xe (7692)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Xenon Xe** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Mol% other gas

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Mol% other gas (7690)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Gas mixture** option is selected.
- In the **Gas mixture** parameter (→ 99), the **Others** option is selected.

Description Use this function to enter the amount of the gas constituent in the gas mixture.

User entry 0 to 100 %

Factory setting 0 %

Relative humidity

Navigation Expert → Sensor → Measurement mode → Medium property → Gas composition → Rel. humidity (7731)

Prerequisite The following conditions are met:
- In the **Select medium** parameter (→ 85), the **Gas** option is selected.
- In the **Select gas type** parameter (→ 86), the **Air** option is selected.

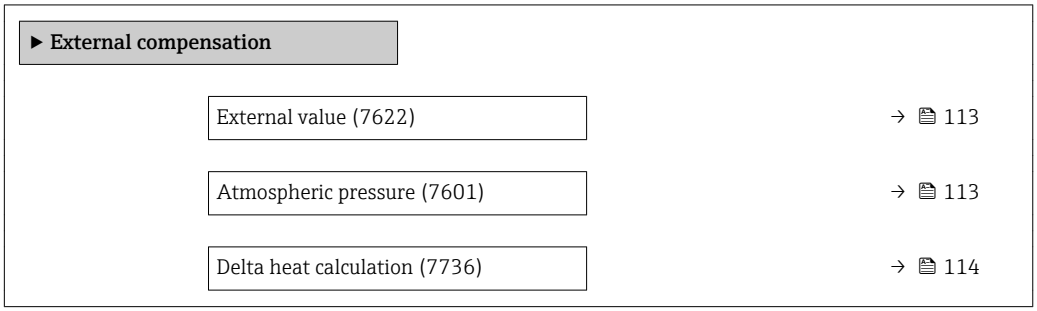
Description Use this function to enter the humidity content of the air in %.

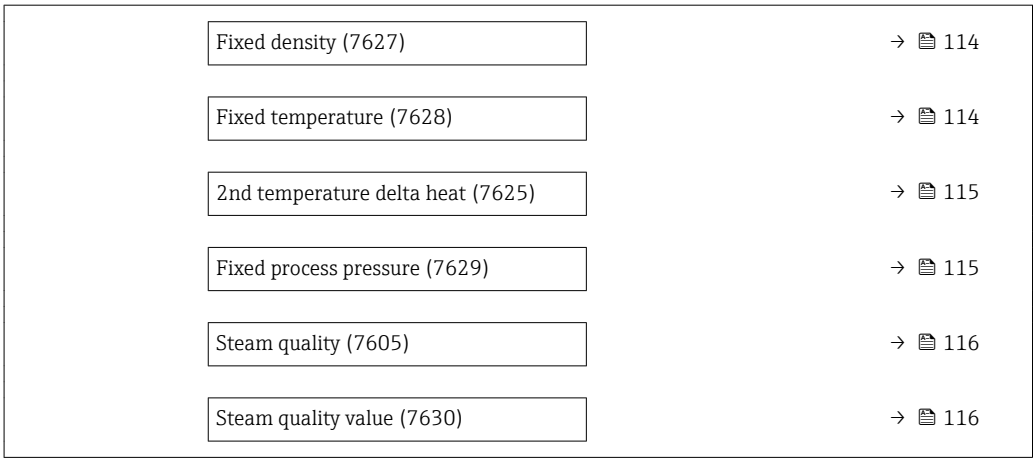
User entry 0 to 100 %

Factory setting 0 %

3.2.5 "External compensation" submenu

Navigation Expert → Sensor → External comp.





External value

Navigation Expert → Sensor → External comp. → External value (7622)

Prerequisite For the following order code:
"Sensor version", option "Mass flow"

Description Use this function to select the process variable which is taken from an external device.

For detailed information on setting the parameter in steam applications, see the Special Documentation for the **Wet Steam Detection** application package.

Selection
- Off
- Pressure
- Relative pressure
- Density
- Temperature
- 2nd temperature delta heat

Factory setting Off

Atmospheric pressure

Navigation Expert → Sensor → External comp. → Atmosph. press. (7601)

Prerequisite In the **External value** parameter (→ 113), the **Relative pressure** option is selected.

Description Use this function to enter the value for the ambient pressure to be used for pressure correction.

User entry 0 to 250 bar

Factory setting 1.01325 bar

Additional information *Dependency*

The unit is taken from the **Pressure unit** parameter (→ 74)

Delta heat calculation

Navigation Expert → Sensor → External comp. → Delta heat calc. (7736)

Prerequisite The **Delta heat calculation** parameter (→ 114) is visible.

Description Use this function to select the option for calculating the heat transferred via a heat exchanger (=delta heat).

Selection
- Off
- Device on cold side
- Device on warm side

Factory setting Device on warm side

Fixed density

Navigation Expert → Sensor → External comp. → Fixed density (7627)

Prerequisite For the following order code:
"Sensor version", option "Volume flow"

Description Use this function to enter a fixed value for the density.

User entry 0.01 to 15 000 kg/m³

Factory setting 1 000 kg/m³

Additional information *Description*

The density entered is used to linearize the measured error in the lower Reynolds number range if the calculated density is not available e.g. "Volume flow" sensor version or the fluid is a user-specific gas (see table).

Dependency

The unit is taken from the **Density unit** parameter (→ 79)

Fixed temperature

Navigation Expert → Sensor → External comp. → Fixed temp. (7628)

Description Use this function to enter a fixed value for the process temperature.

User entry −200 to 450 °C

Factory setting 20 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75)

2nd temperature delta heat

Navigation Expert → Sensor → External comp. → 2ndTempDeltaHeat (7625)

Prerequisite The **2nd temperature delta heat** parameter (→ 115) is visible.

Description Use this function to enter the second temperature value for calculating the delta heat.

User entry −200 to 450 °C

Factory setting 20 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75)

Fixed process pressure

Navigation Expert → Sensor → External comp. → Fix. proc.press. (7629)

Prerequisite The following conditions are met:
- Order code for "Sensor version", option "Mass flow (integrated temperature measurement)"
- In the **External value** parameter (→ 113) the **Pressure** option is not selected.

Description Use this function to enter a fixed value for the process pressure.

User entry 0 to 250 bar abs.

Factory setting 0 bar abs.

Additional information *User entry*

For detailed information on setting the parameter in steam applications, see the Special Documentation for the **Wet Steam Detection** application package.

Dependency

The unit is taken from the **Pressure unit** parameter (→ 74)

Steam quality

Navigation Expert → Sensor → External comp. → Steam quality (7605)

Prerequisite
The following conditions are met:
- Order code for "Application package":
  - Option ES "Wet steam detection"
  - Option EU "Wet steam measurement"
- In the **Select medium** parameter (→ 85) the **Steam** option is selected.

The software options currently enabled are displayed in the **Software option overview** parameter (→ 54).

Description Use this function to select the compensation mode for the steam quality.

Selection
- Fixed value
- Calculated value

Factory setting Fixed value

Additional information *Selection*

For detailed information on setting the parameter in steam applications, see the Special Documentation for the **Wet Steam Detection** application package.

Steam quality value

Navigation Expert → Sensor → External comp. → Steam qual. val. (7630)

Prerequisite
The following conditions are met:
- In the **Select medium** parameter (→ 85) the **Steam** option is selected.
- In the **Steam quality** parameter (→ 116) the **Fixed value** option is selected.

Description Use this function to enter a fixed value for the steam quality.

User entry 0 to 100 %

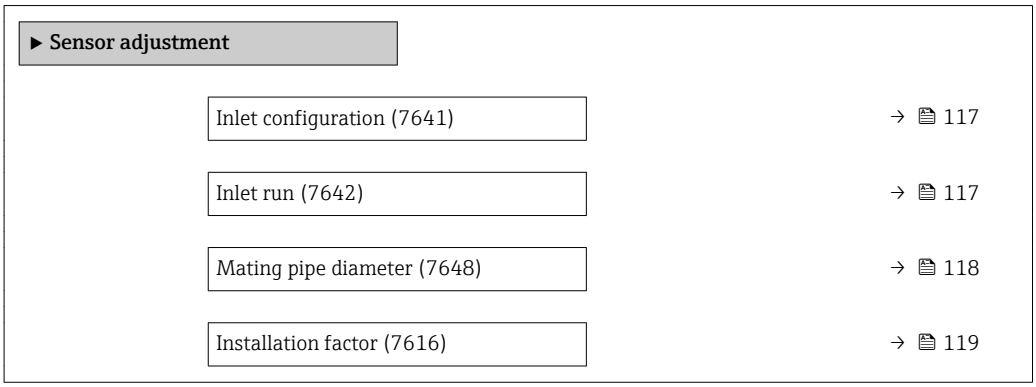
Factory setting 100 %

Additional information *User entry*

For detailed information on setting the parameter in steam applications, see the Special Documentation for the **Wet Steam Detection** application package.

3.2.6 "Sensor adjustment" submenu

Navigation Expert → Sensor → Sensor adjustm.



Inlet configuration

Navigation Expert → Sensor → Sensor adjustm. → Inlet config. (7641)

Prerequisite The **inlet run correction** feature:
- Is a standard feature and can only be used in Prowirl F 200.
- Can be used for the following pressure ratings and nominal diameters:
  DN 15 to 150 (1 to 6")
  – EN (DIN)
  – ASME B16.5, Sch. 40/80

Description Use this function to select the inlet configuration.

Selection
- Off
- Single elbow
- Double elbow
- Double elbow 3D
- Reduction

Factory setting Off

Inlet run

Navigation Expert → Sensor → Sensor adjustm. → Inlet run (7642)

Prerequisite The **inlet run correction** feature:
- Is a standard feature and can only be used in Prowirl F 200.
- Can be used for the following pressure ratings and nominal diameters:
  DN 15 to 150 (1 to 6")
  – EN (DIN)
  – ASME B16.5, Sch. 40/80

Description Use this function to enter the length of the straight inlet run.

User entry 0 to 20 m

Factory setting 0 m

Additional information *Dependency*

The unit is taken from the **Length unit** parameter (→ 81)

Mating pipe diameter

Navigation Expert → Sensor → Sensor adjustm. → D mating pipe (7648)

Description Use this function to enter the diameter of the mating pipe to enable diameter mismatch correction.

User entry 0 to 1 m (0 to 3 ft)

Factory setting Country-specific:
- 0 m
- 0 ft

Additional information *Description*

The device has diameter mismatch correction. This can be enabled by entering the actual internal diameter of the mating pipe in the **Mating pipe diameter** parameter.

User entry

If the value entered is **0**, diameter mismatch correction is disabled. If the standard internal diameter of the ordered process connection differs from the internal diameter of the mating pipe, an additional measuring uncertainty of up to 2 % must be expected if diameter mismatch correction is disabled.

Limit values

Diameter mismatch correction should be enabled only within the following limit values:

Flange connection:
- DN 15 (½"): ±20 % of the internal diameter
- DN 25 (1"): ±15 % of the internal diameter
- DN 40 (1½"): ±12 % of the internal diameter
- DN ≥ 50 (2"): ±10 % of the internal diameter

Disc (wafer version):
- DN 15 (½"): ±15 % of the internal diameter
- DN 25 (1"): ±12 % of the internal diameter
- DN 40 (1½"): ±9 % of the internal diameter
- DN ≥ 50 (2"): ±8 % of the internal diameter

Dependency

The unit is taken from the **Length unit** parameter (→ 81)

Installation factor

Navigation Expert → Sensor → Sensor adjustm. → Install. factor (7616)

Description Use this function to enter the factor to adjust installation conditions.

User entry Positive floating-point number

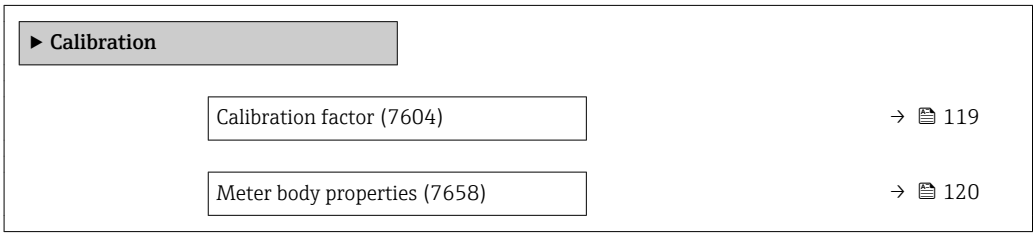
Factory setting 1.0

Additional information *Description*

The calculated volume flow and all measured variables derived from this are multiplied by the installation factor.

3.2.7 "Calibration" submenu

Navigation Expert → Sensor → Calibration



Calibration factor

Navigation Expert → Sensor → Calibration → Cal. factor (7604)

Description Displays the calibration factor. The calibration factor is determined during device calibration.

User interface Positive floating-point number

Factory setting This value is always > **0** when the device is delivered from the factory.

Additional information *Description*

Factor by which the measured vortex frequency must be divided in order to calculate the volume flow.

Unit

In $1/m^3$, or vortex pulses per cubic meter

Meter body properties

Navigation Expert → Sensor → Calibration → Meter body prop. (7658)

Description Displays informative text about the measuring tube.

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

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

Additional information *Description*

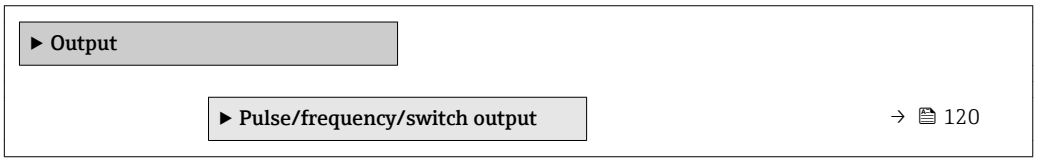
Summarized information about the meter body.

Example

DN25F-PN40: nominal diameter DN25, flange type, pressure rating 40 bar

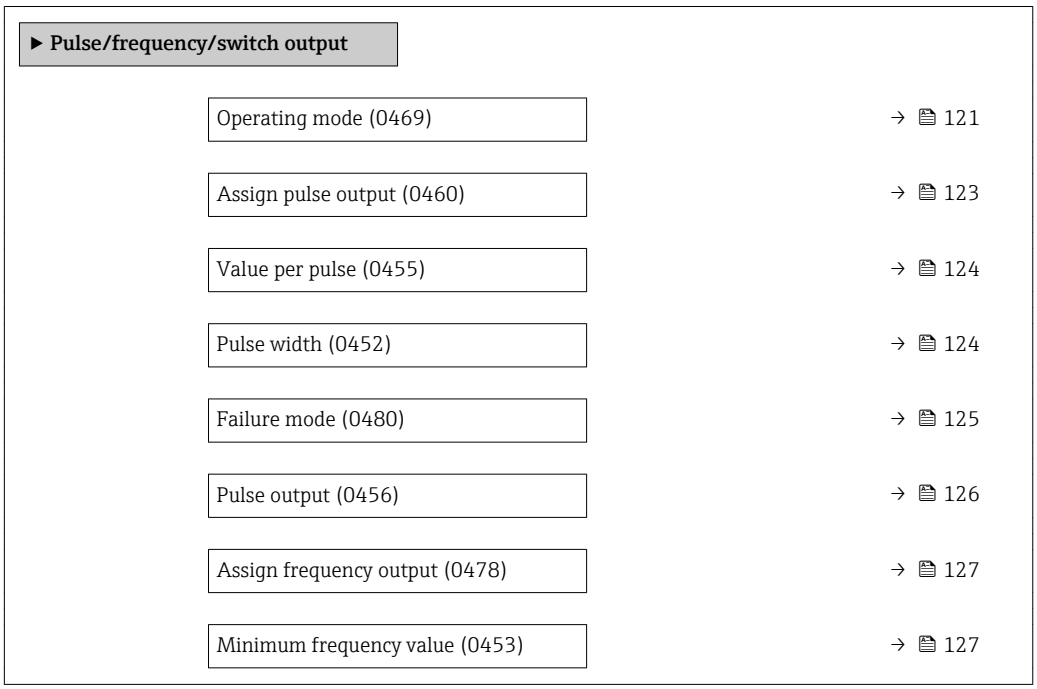
3.3 "Output" submenu

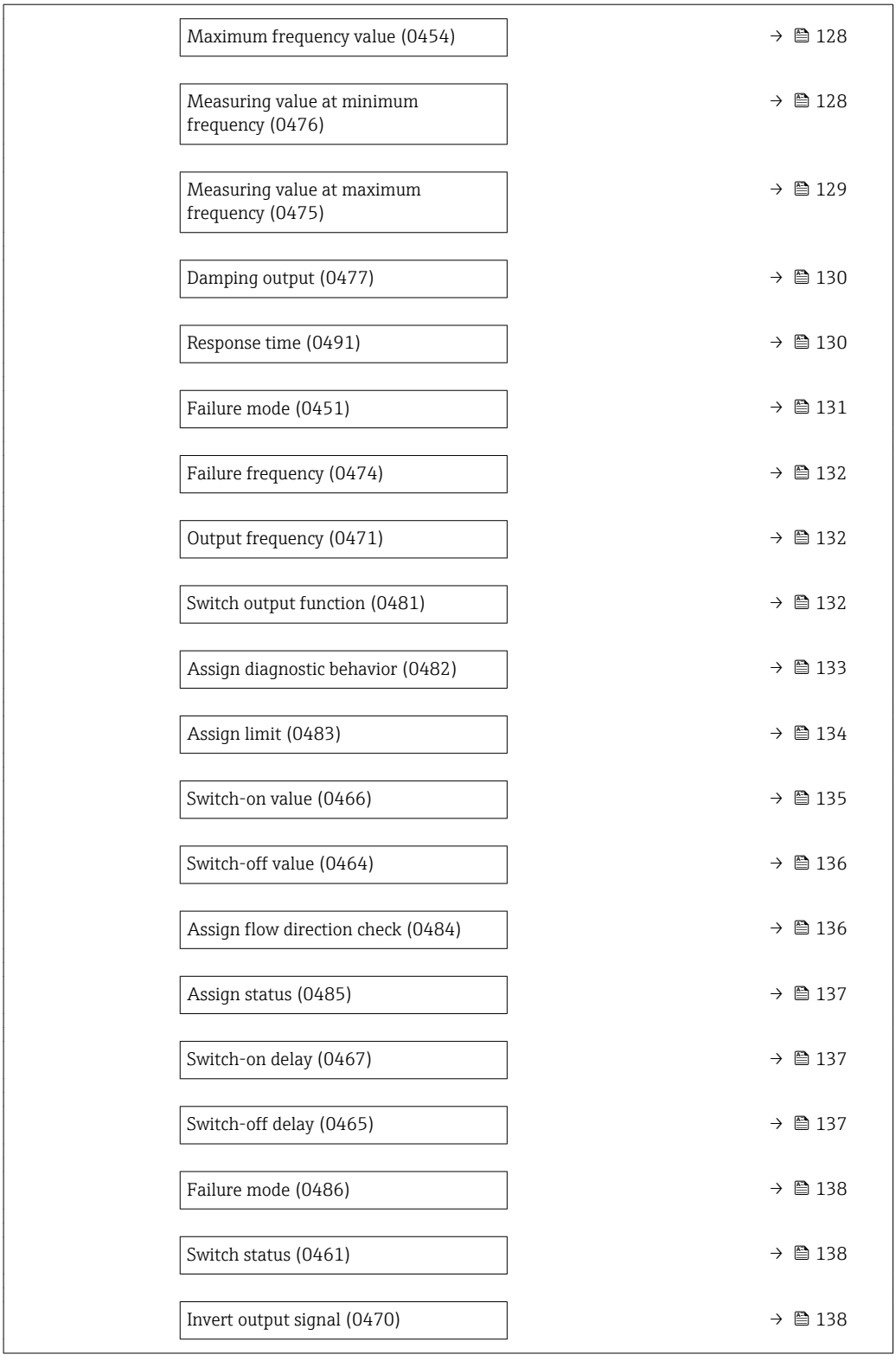
Navigation Expert → Output



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

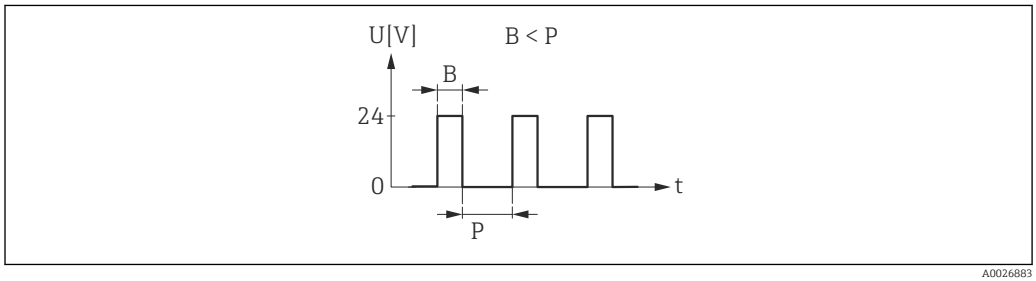
Pulse

Additional information

"Pulse" option

Quantity-dependent pulse with configurable pulse width
- Whenever a specific volume, corrected volume, mass, total mass, energy or heat 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
- Total flow approx. 100 g/s
- Pulse value 0.1 g
- Pulse width 0.05 ms
- Pulse rate 1 000 Impuls/s



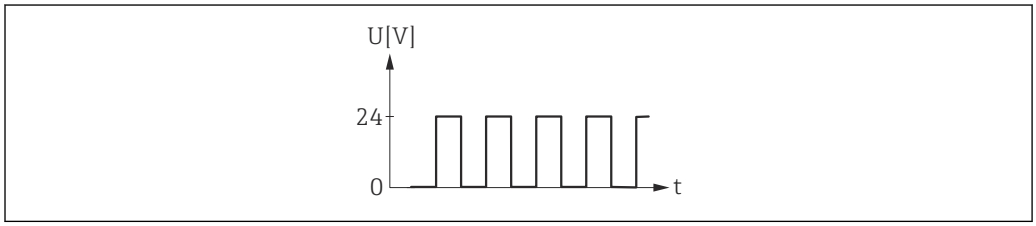
4 Quantity-proportional pulse (pulse value) with pulse width to be configured

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 volume flow, corrected volume flow, mass flow, flow velocity, temperature, calculated saturated steam pressure, steam quality, total mass flow, energy flow or heat flow difference.

Example
- Total flow approx. 100 g/s
- Max. frequency 10 kHz
- Flow rate at max. frequency1 000 g/s
- Output frequency approx. 1 000 Hz

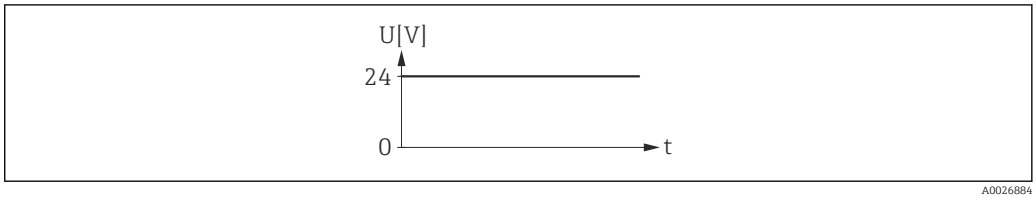


5 Flow-proportional frequency output

"Switch" option

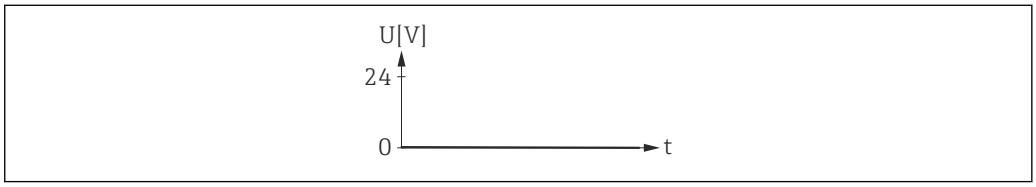
Contact for displaying a condition (e.g. alarm or warning if a limit value is reached)

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)

Prerequisite The **Pulse** option is selected in the **Operating mode** parameter (→ 121).

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

Selection
- Off
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Energy flow *
- Heat flow difference *

Factory setting Volume flow

* Visibility depends on order options or device settings

Value per pulse

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

Prerequisite The **Pulse** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign pulse output** parameter (→ 123):
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Energy flow *
- Heat flow difference *

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

User entry Positive floating-point number

Factory setting Depends on country and nominal diameter → 295

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 (→ 121), the **Pulse** option is selected and one of the following options is selected in the **Assign pulse output** parameter (→ 123):
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Energy flow *
- Heat flow difference *

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

User entry 5 to 2 000 ms

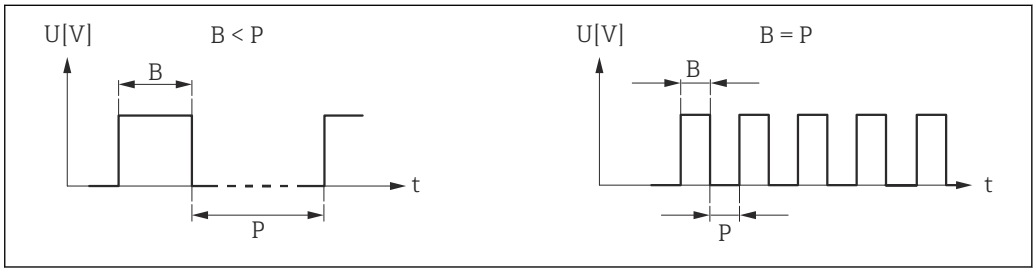
Factory setting 100 ms

* Visibility depends on order options or device settings

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.

Failure mode

Navigation

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

Prerequisite

In the **Operating mode** parameter (→ 121), the **Pulse** option is selected and one of the following options is selected in the **Assign pulse output** parameter (→ 123):

- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Energy flow *
- Heat flow difference *

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

* Visibility depends on order options or device settings

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)

Prerequisite The **Pulse** option is selected in the **Operating mode** parameter (→ 121).

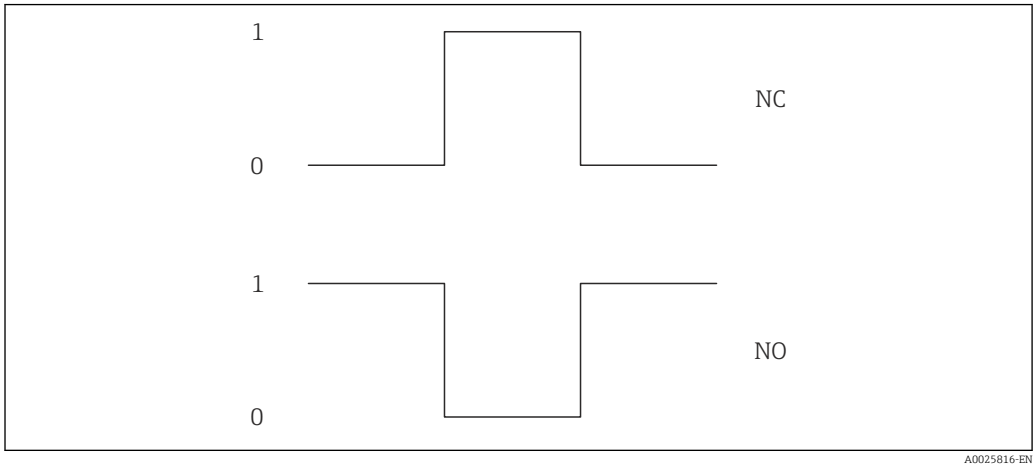
Description Displays the pulse frequency currently output.

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 (→ 124) and the **Pulse width** parameter (→ 124) 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 (→ 138), 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 (→ 125)) can be configured.

Assign frequency output

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

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121).

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

Selection
- Off
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

Factory setting Off

Minimum frequency value

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

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign frequency output** parameter (→ 127):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

Description Use this function to enter the start value frequency.

User entry 0 to 1 000 Hz

* Visibility depends on order options or device settings

Factory setting 0 Hz

Maximum frequency value

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

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign frequency output** parameter (→ 127):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

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 The **Frequency** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign frequency output** parameter (→ 127):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

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

User entry Signed floating-point number

* Visibility depends on order options or device settings

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 (→ 127).

Measuring value at maximum frequency

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

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign frequency output** parameter (→ 127):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

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 (→ 127).

* Visibility depends on order options or device settings

Damping output

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

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign frequency output** parameter (→ 127):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

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 5.0 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.

Response time

Navigation Expert → Output → PFS output → Response time (0491)

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign frequency output** parameter (→ 127):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

Description Displays the response time. This specifies how quickly the pulse/frequency/switch output reaches the measured value change of 63 % of 100 % of the measured value change.

* Visibility depends on order options or device settings

User interface Positive floating-point number

Additional information *Description*

The response time is made up of the time specified for the following dampings:
- Damping of pulse/frequency/switch output
  and
- Depending on the measured variable assigned to the output.
  Flow damping

Failure mode

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

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign frequency output** parameter (→ 127):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

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 *Selection*
- 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 (→ 132) replaces the current measured value and the alarm can be bypassed in this way. 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.

* Visibility depends on order options or device settings

Failure frequency

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

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121), and one of the following options is selected in the **Assign frequency output** parameter (→ 127):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *

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)

Prerequisite In the **Operating mode** parameter (→ 121), the **Frequency** option is selected.

Description Displays the actual value of the output frequency which is currently measured.

User interface 0 to 1250 Hz

Switch output function

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

Prerequisite In the **Operating mode** parameter (→ 121) the **Switch** option is selected.

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

* Visibility depends on order options or device settings

Selection
- Off
- On
- Diagnostic behavior
- Limit
- Status

Factory setting
Off

Additional information
Selection
- 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.
- 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 (→ 121).
- The **Diagnostic behavior** option is selected in the **Switch output function** parameter (→ 132).

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 (→ 121).
- The **Limit** option is selected in the **Switch output function** parameter (→ 132).

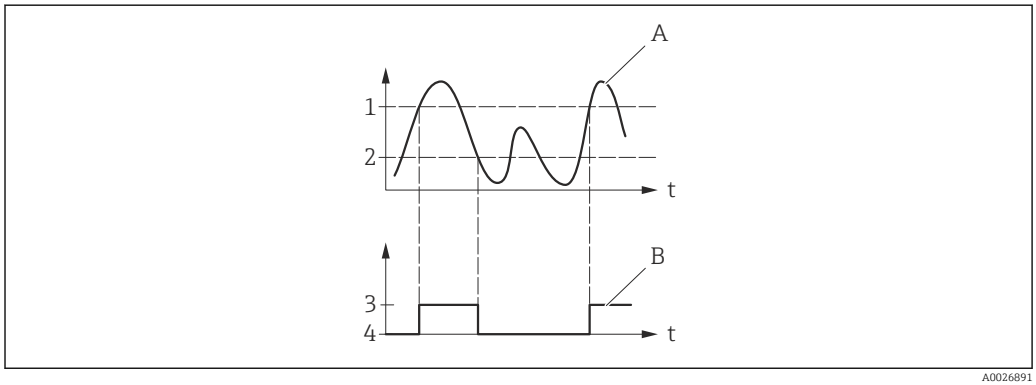
Description Use this function to select a process variable for the limit function.

Selection
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Energy flow *
- Heat flow difference *
- Reynolds number *
- 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

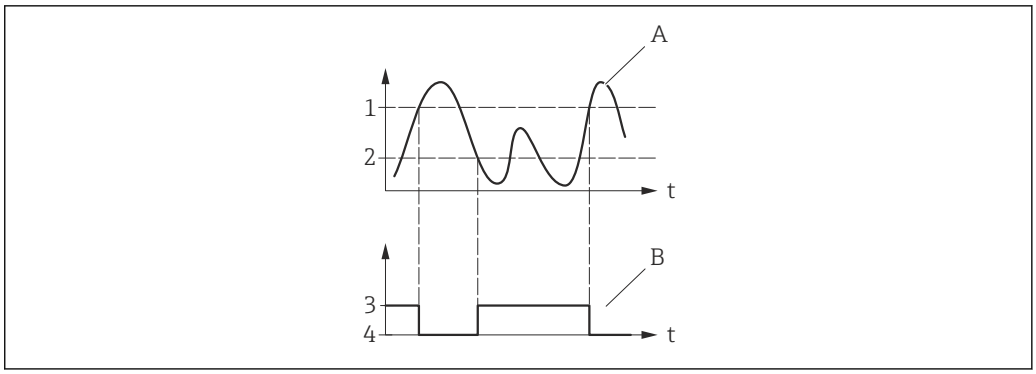


A0026891

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

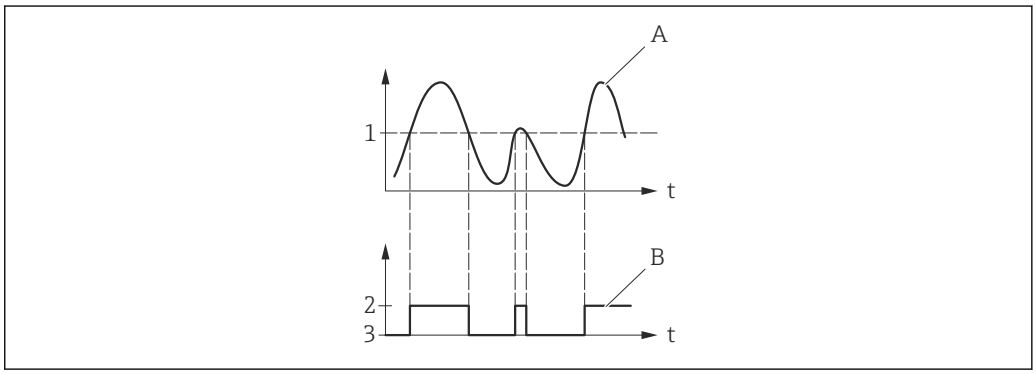
* Visibility depends on order options or device settings



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



A0026893

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)

Prerequisite
- The **Switch** option is selected in the **Operating mode** parameter (→ 121).
- The **Limit** option is selected in the **Switch output function** parameter (→ 132).

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 m^3/h
- 0 ft^3/h

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 (→ 134).

Switch-off value

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

Prerequisite

- The **Switch** option is selected in the **Operating mode** parameter (→ 121).
- The **Limit** option is selected in the **Switch output function** parameter (→ 132).

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 m^3/h
- 0 ft^3/h

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 (→ 134).

Assign flow direction check

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

Prerequisite

- The **Switch** option is selected in the **Operating mode** parameter (→ 121).
- The **Flow direction check** option is selected in the **Switch output function** parameter (→ 132).

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

Selection

- Off
- Volume flow
- Mass flow
- Corrected volume flow

Factory setting Volume flow

Assign status

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

Prerequisite
- The **Switch** option is selected in the **Operating mode** parameter (→ 121).
- The **Status** option is selected in the **Switch output function** parameter (→ 132).

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

Selection
- Low flow cut off
- Digital output 6

Factory setting Low flow cut off

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)

Prerequisite
- The **Switch** option is selected in the **Operating mode** parameter (→ 121).
- The **Limit** option is selected in the **Switch output function** parameter (→ 132).

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)

Prerequisite
- The **Switch** option is selected in the **Operating mode** parameter (→ 121).
- The **Limit** option is selected in the **Switch output function** parameter (→ 132).

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)

Prerequisite The **Switch** option is selected in the **Operating mode** parameter (→ 121).

Description Displays the current switch status of the status output.

User interface
- Open
- Closed

Additional information *User interface*
- 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)

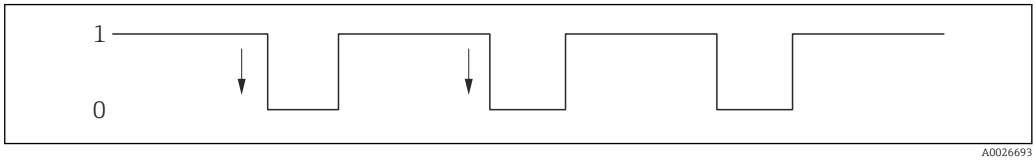
Description Use this function to select whether to invert the output signal.

Selection
- No
- Yes

Factory setting No

Additional information *Selection*

No option (passive - negative)



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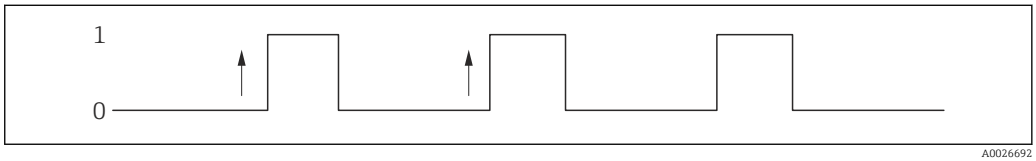
Yes option (passive - positive)



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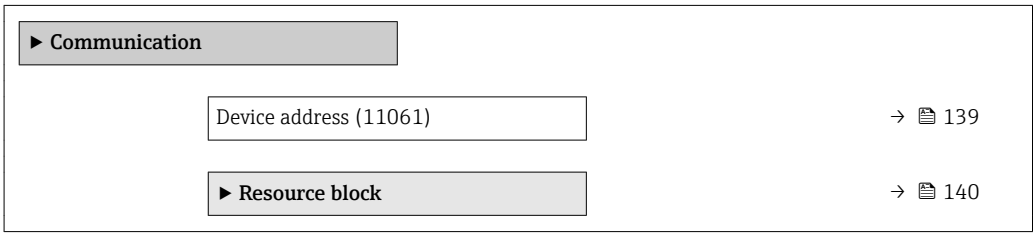
3.4 "Communication" submenu

Navigation Expert → Communication



Device address

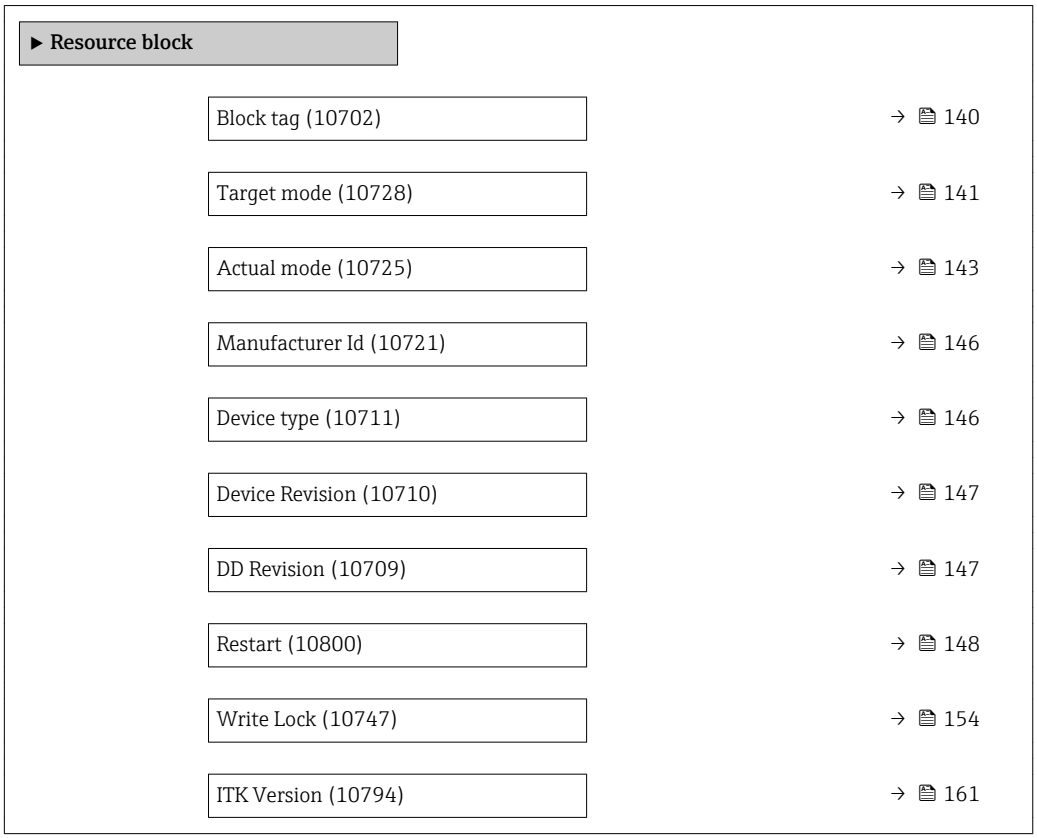
Navigation Expert → Communication → Device address (11061)

Description Displays the device address.

User interface 1 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 (→ 141).

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

Additional information *User interface*

Detailed description of the options displayed: **Target mode** parameter (→ 141)

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 (→ 141) 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 (→ 141)

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 (→ 141)

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 Manufacturer Id display: is used by the interface to assign the right DD file for the resource.

User interface 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 Prowirl 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 1

DD Revision

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

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

User interface 1

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 (→ 247) 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 (→ 247) 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 (→ 247) 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 (→ 155). **Current** parameter (→ 157) 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)

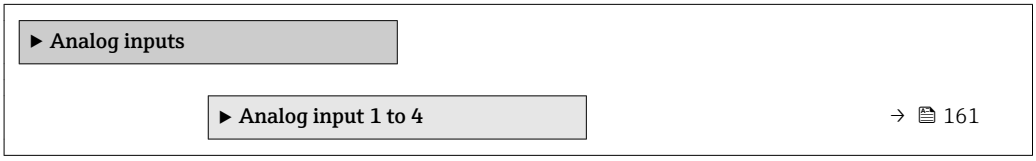
Description Displays the revision status of the Interoperability Test Kits (ITK).

User interface 6

3.5 "Analog inputs" submenu

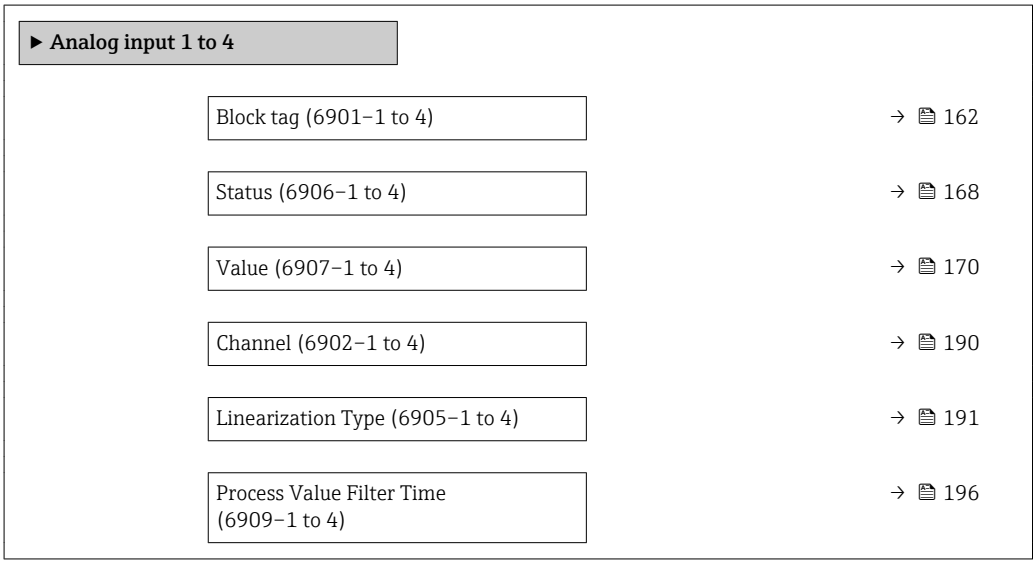
In the analog input function block (AI function block), the process variables from the transducer block are prepared in terms of control for the subsequent automation functions (e.g. scaling, limit value processing). The automation function is defined by interconnecting the outputs.

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 (→ 141)

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 (→ 163).

User interface
- ROut
- RCas
- Cas
- Auto
- Man

- LO
- IMan
- OOS

Additional information *User interface*

Detailed description of the options displayed: **Target mode** parameter (→ 141)

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 (→ 163) 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 (→ 141)

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 (→ 141)

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 (→ 180)

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

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 180)

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 (→ 176)

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 (→ 176)

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 (→ 176)

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 (→ 176)

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
- $MSft^3/D$
- lb/ft^3

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/d (imp;oil)
- bbl/h (imp;oil)
- bbl/min (imp;oil)
- bbl/s (imp;oil)
- 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)
- Sgal (imp)
- bbl (imp;oil)
- gal (imp)
- MBtu
- Btu
- MMBtu

- SD4°C
- SD15°C
- SD20°C
- SG4°C
- SG20°C
- SG15°C
- 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
- Nm^3
- Sl
- Sm^3
- ml
- Ml Mega
- kg
- l
- lb/gal (us)
- lb/bbl (us;tank)
- lb/bbl (us;liq.)
- lb/bbl (us;beer)
- lb/bbl (us;oil)
- °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.)
- Sft^3
- kgal (us)
- lb
- ft^3
- gal (us)
- bbl (us;beer)
- STon

- t
- m^3
- dm^3
- cm^3
- hl
- kWh
- MWh
- MJ
- GJ
- kgf/cm^2
- GWh
- kcal
- Mcal
- gf/cm^2
- kJ
- Gcal

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** parameter (→ 173)
- **Transducer Value** parameter (→ 175)
- **EU at 0%** parameter (→ 176)
- **EU at 100%** parameter (→ 176)

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

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 180)

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

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 180)

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** parameter (→ 167)
- **Value** parameter (→ 170)
- **EU at 100%** parameter (→ 176)
- **EU at 0%** parameter (→ 176)
- **Low Cutoff** parameter (→ 193)
- **High High Limit** parameter (→ 201)
- **Float Value** parameter (→ 205)
- **High Limit** parameter (→ 202)
- **Float Value** parameter (→ 207)
- **Low Limit** parameter (→ 203)
- **Float Value** parameter (→ 208)
- **Low Low Limit** parameter (→ 203)
- **Float Value** parameter (→ 210)

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 (→ 193).

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
- Mass flow
- Flow velocity
- Volume flow
- Corrected volume flow
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *
- Reynolds number *
- 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)

Prerequisite 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.

* Visibility depends on order options or device settings

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 (→ 176) (Xd_Scale) and Units index (→ 180) (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 (→ 165).

"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 (→ 196) (Field_Val)
Y EU at 100% (→ 180) (Out_Scale)
Z EU at 0% (→ 180) (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 (→ 196) (Field_Val)
Y EU at 100% (→ 180) (Out_Scale)
Z EU at 0% (→ 180) (Out_Scale)

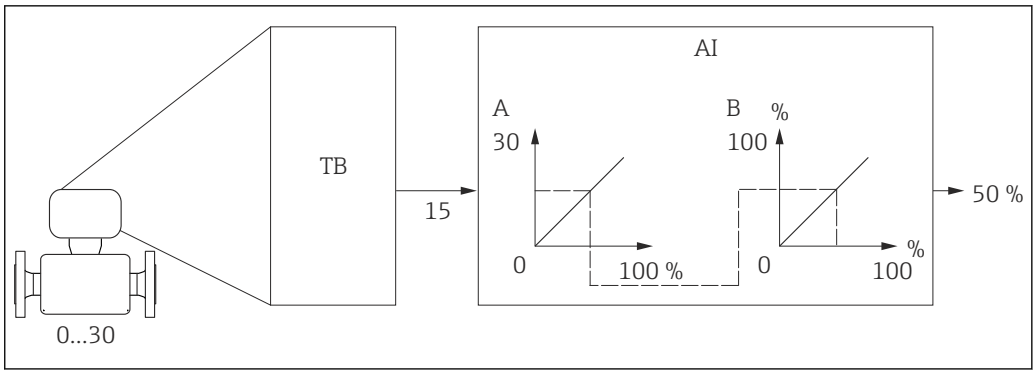
Example

- 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 (→ 190), select **Mass flow** option.
2. In **Linearization Type** parameter (→ 191), 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 (→ 176), enter the value 0.
   In **EU at 100%** parameter (→ 176), enter the value 30.
   In **Units index** parameter (→ 176), select **kg/h** option.
4. In the Out_Scale parameter group:
   ↳ **EU at 0%** parameter (→ 180), enter the value 0.
   In **EU at 100%** parameter (→ 180), enter the value 100.
   In **Units index** parameter (→ 180), select **%** option.

The result is that an input value of 15 kg/h, for example, outputs a value of 50 % via the **Value** parameter (→ 170).



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

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 (→ 189).

Dependency

The unit is taken from the: **Units index** parameter (→ 180)

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 (→ 200), 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 (→ 200). **Current** parameter (→ 199) 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

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 180)

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

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 180)

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

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 180)

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

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 180)

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 (→ 201)).

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting
Uninitialized

Additional information
Description

If **HiHi Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 200), 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 (→ 180)

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 (→ 202)).

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **Hi Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 200), 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 (→ 180)

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 (→ 203)).

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **Lo Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 200), 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 (→ 180)

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 (→ 203)).

Selection
- Uninitialized
- Acknowledged
- Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **LoLo Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→ 200), 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.

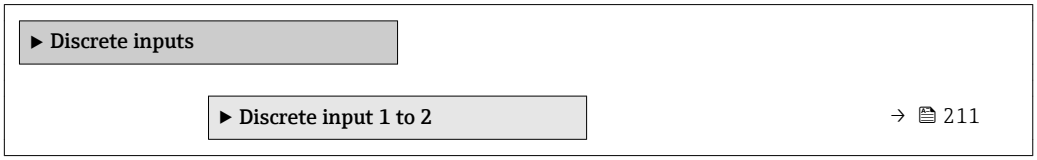
User interface Signed floating-point number

Additional information *Dependency*

The unit is taken from the: **Units index** parameter (→ 180)

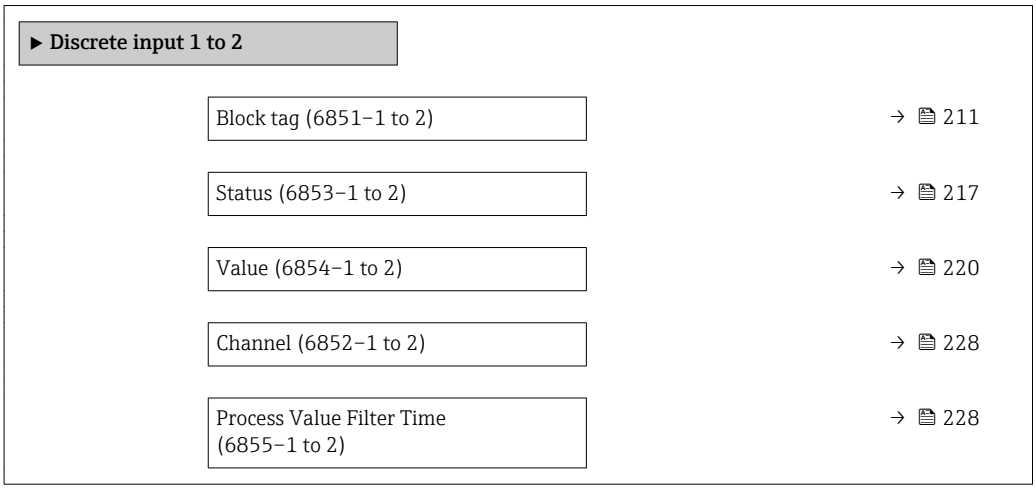
3.6 "Discrete inputs" submenu

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 (→ 141)

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 (→ 212).

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 (→ 141)

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 (→ 212) 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 (→ 141)

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 (→ 141)

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 (→ 229), **Value** parameter (→ 231)) 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)

Prerequisite 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
- Low flow cut off
- Switch output status
- Verification status

Factory setting Switch output status

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
- 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 (→ 200). **Current** parameter (→ 199) 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 (→ 233), 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 (→ 233), 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)

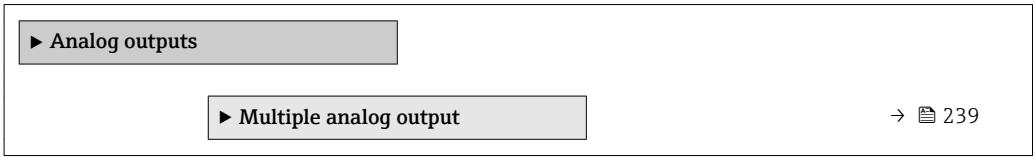
Description Use this to enter the priority of a discrete alarm.

User entry 0 to 15

Factory setting 0

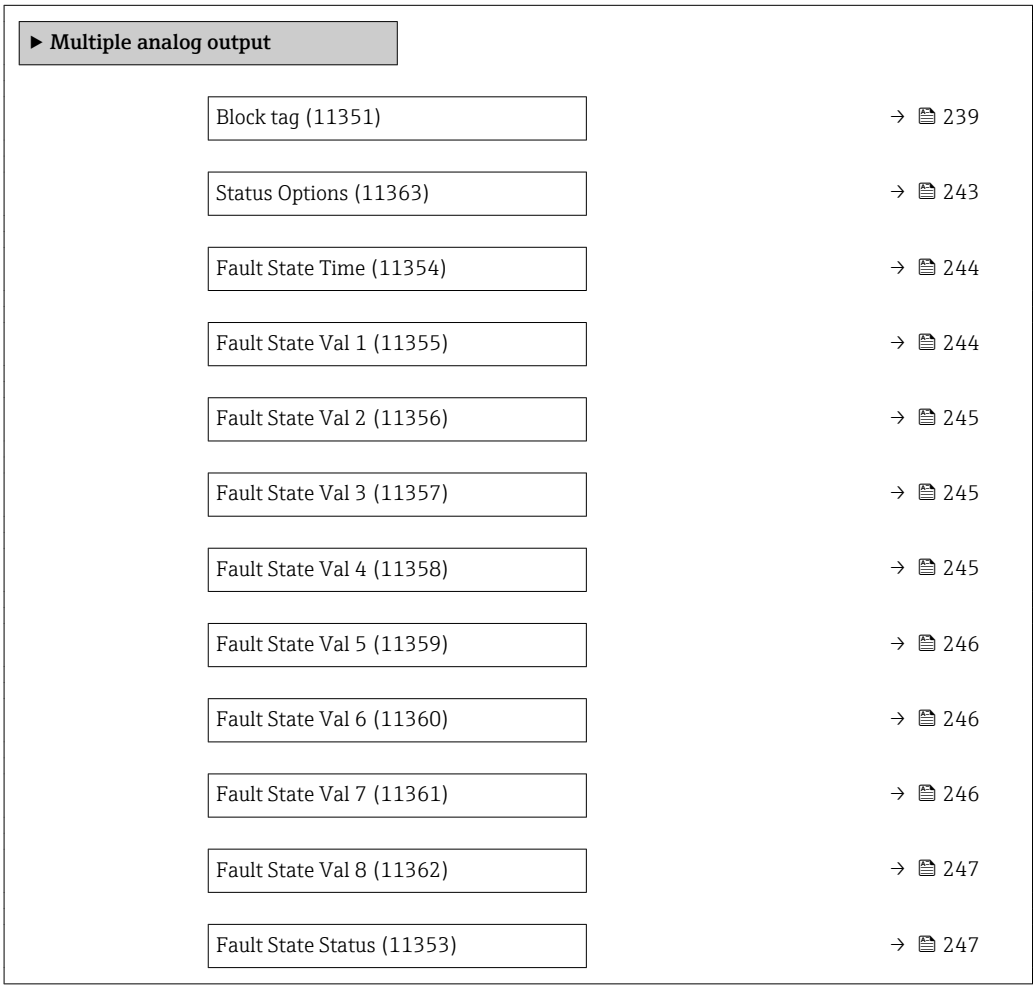
3.7 "Analog outputs" submenu

Navigation Expert → Analog outputs



3.7.1 "Multiple analog output" submenu

Navigation Expert → Analog outputs → Multiple AO



Block tag

Navigation Expert → Analog outputs → Multiple AO → Block tag (11351)

Description Use this function to enter the Block tag: specify 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 outputs → Multiple AO → Static Revision (11371)

Description Displays the Static Revision: every write access to a static block parameter 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 outputs → Multiple AO → Tag Description (11372)

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

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

Strategy

Navigation Expert → Analog outputs → Multiple AO → Strategy (11370)

Description Use this function to enter the Strategy: makes it possible to group blocks by entering identical numbers.

User entry 0 to FFFF

Factory setting 0

Alert Key

Navigation Expert → Analog outputs → Multiple AO → Alert Key (11365)

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

User entry 0 to 0xFF

Factory setting 1

Target mode

Navigation Expert → Analog outputs → Multiple AO → Target mode (11369)

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

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

Factory setting OOS

Additional information *Selection*

Detailed description of the options available for selection: **Target mode** parameter (→ 141)

Actual mode

Navigation Expert → Analog outputs → Multiple AO → Actual mode (11366)

Description Displays the Actual mode: under certain conditions a block may not work in the operating mode to be used. In this case, the Actual mode represents the valid mode in which the block is currently operating. A comparison of the Actual mode with the Target mode indicates whether the Target mode (→ 241) could be reached.

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

Additional information *Selection*

Detailed description of the options available for selection: **Target mode** parameter (→ 141)

Permitted mode

Navigation Expert → Analog outputs → Multiple AO → Permitted mode (11368)

Description Use this function to select the Permitted mode: the selection defines which operating modes are available for the function block in the Target mode (→ 241). 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 *Selection*

Detailed description of the options available for selection: **Target mode** parameter (→ 141)

Normal mode

Navigation Expert → Analog outputs → Multiple AO → Normal mode (11367)

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

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

Factory setting Auto

Additional information *Selection*

Detailed description of the options available for selection: **Target mode** parameter (→ 141)

Block Error

Navigation Expert → Analog outputs → Multiple AO → Block Error (11364)

Description Displays the short text for the Block Error that 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 → Analog outputs → Multiple AO → Channel (11352)

Description Use this function to select the assignment or connection between the Analog Output function block and the Transducer Block.

Selection
- Uninitialized
- Channel_0

Factory setting Channel_0

Status Options

Navigation Expert → Analog outputs → Multiple AO → Status Options (11363)

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 activated if an error condition of the set point that applies is present for longer than defined in the **Fault State Time** parameter (→ 244) or if the **Set Fault State** parameter (→ 152) is activated in the Resource block.

The fault state is defined via the following parameters:
- Fault State Time (→ 244)
- Fault State Val 1 to 8

Selection

- Faultstate to value 1…8
  The value predefined in the **Fault State Val 1 to 8** parameter is used instead of the analog set point. The fault state is enabled if there is an error condition.
- Use faultstate value on restart 1…8
  The value predefined in the **Fault State Val 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 → Analog outputs → Multiple AO → Fault State Time (11354)

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 Val 1

Navigation Expert → Analog outputs → Multiple AO → FaultState Val 1 (11355)

Description Use this function to enter a predefined analog value to be used if an error condition of the analog set point 1 is present.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

This value is ignored if the **Faultstate to value 1** option is not selected in the **Status Options** parameter (→ 243).

Fault State Val 2

Navigation Expert → Analog outputs → Multiple AO → FaultState Val 2 (11356)

Description Use this function to enter a predefined analog value to be used if an error condition of the analog set point 2 is present.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

This value is ignored if the **Faultstate to value 2** option is not selected in the **Status Options** parameter (→ 243).

Fault State Val 3

Navigation Expert → Analog outputs → Multiple AO → FaultState Val 3 (11357)

Description Use this function to enter a predefined analog value to be used if an error condition of the analog set point 3 is present.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

This value is ignored if the **Faultstate to value 3** option is not selected in the **Status Options** parameter (→ 243).

Fault State Val 4

Navigation Expert → Analog outputs → Multiple AO → FaultState Val 4 (11358)

Description Use this function to enter a predefined analog value to be used if an error condition of the analog set point 4 is present.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

This value is ignored if the **Faultstate to value 4** option is not selected in the **Status Options** parameter (→ 243).

Fault State Val 5

Navigation Expert → Analog outputs → Multiple AO → FaultState Val 5 (11359)

Description Use this function to enter a predefined analog value to be used if an error condition of the analog set point 5 is present.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

This value is ignored if the **Faultstate to value 5** option is not selected in the **Status Options** parameter (→ 243).

Fault State Val 6

Navigation Expert → Analog outputs → Multiple AO → FaultState Val 6 (11360)

Description Use this function to enter a predefined analog value to be used if an error condition of the analog set point 6 is present.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

This value is ignored if the **Faultstate to value 6** option is not selected in the **Status Options** parameter (→ 243).

Fault State Val 7

Navigation Expert → Analog outputs → Multiple AO → FaultState Val 7 (11361)

Description Use this function to enter a predefined analog value to be used if an error condition of the analog set point 7 is present.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

This value is ignored if the **Faultstate to value 7** option is not selected in the **Status Options** parameter (→ 243).

Fault State Val 8

Navigation Expert → Analog outputs → Multiple AO → FaultState Val 8 (11362)

Description Use this function to enter a predefined analog value to be used if an error condition of the analog set point 8 is present.

User entry Signed floating-point number

Factory setting 0

Additional information *Description*

This value is ignored if the **Faultstate to value 8** option is not selected in the **Status Options** parameter (→ 243).

Fault State Status

Navigation Expert → Analog outputs → Multiple AO → FaultStateStatus (11353)

Description Displays the values for which the fault state is enabled.

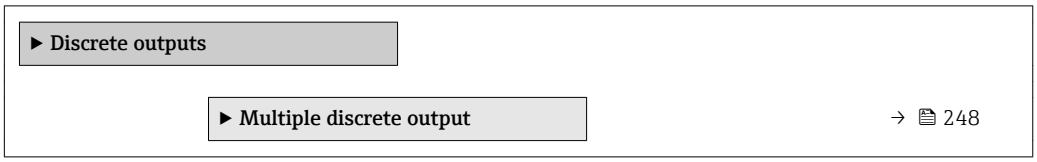
User interface

- 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 "Discrete outputs" submenu

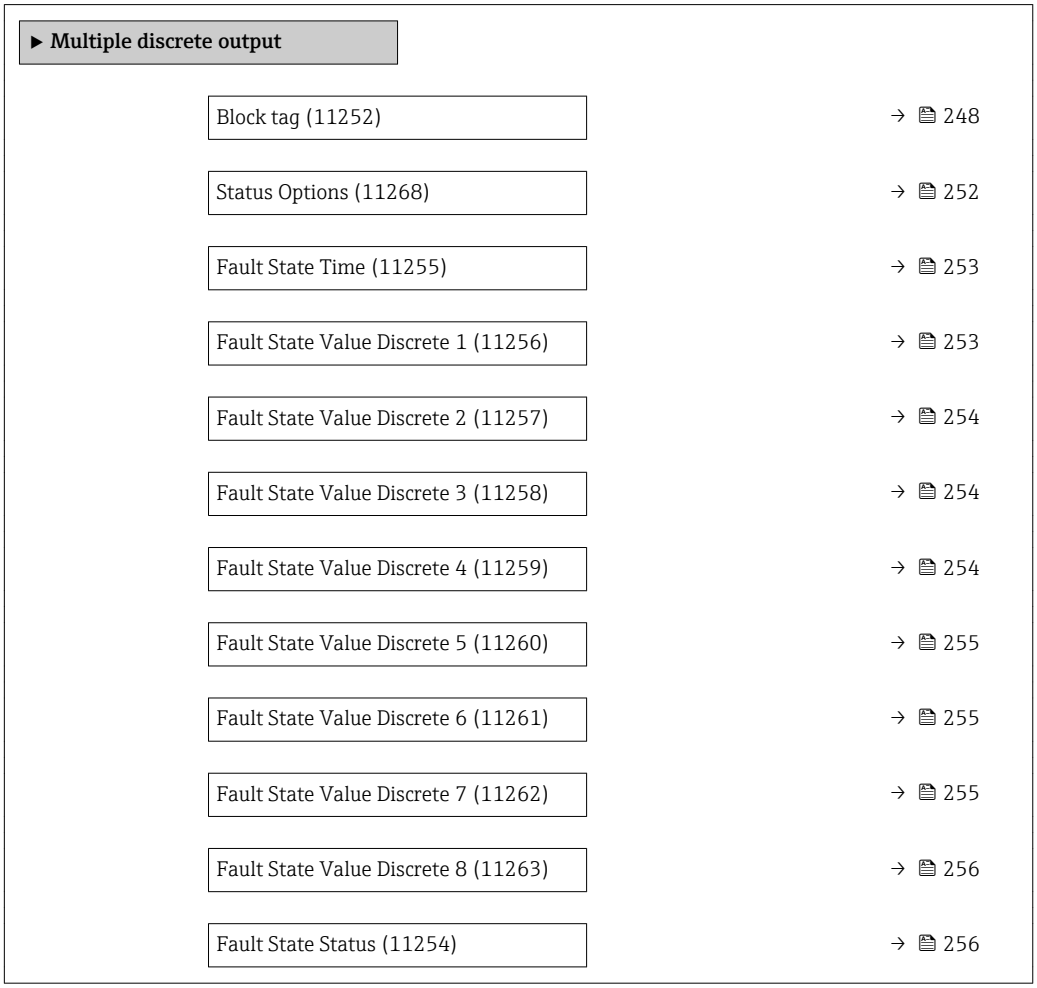
The Discrete outputs function block (DO, discrete output) processes a discrete set point received from an upstream function block or a higher-level process control system that enables various device functions (e.g. zero point adjustment or reset of the totalizer) to be triggered in the downstream transducer block.

Navigation Expert → Discrete outputs



3.8.1 "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 (→ 141)

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 (→ 250).

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 (→ 141)

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 (→ 250) 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 (→ 141)

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 (→ 141)

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 (→ 253) or if **Set Fault State** parameter (→ 152) is enabled in Resource block.

The fault state is defined via the following parameters:
- Fault State Time (→ 253)
- 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 (→ 252), 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 (→ 252), 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 (→ 252), 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 (→ 252), 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 (→ 252), 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 (→ 252), 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 (→ 252), 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 (→ 252), this value is ignored.

Fault State Status

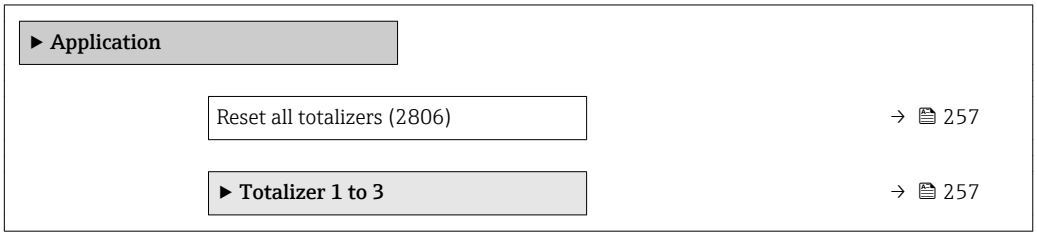
Navigation Expert → Discrete outputs → Multiple DO → FaultStateStatus (11254)

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

3.9 "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.

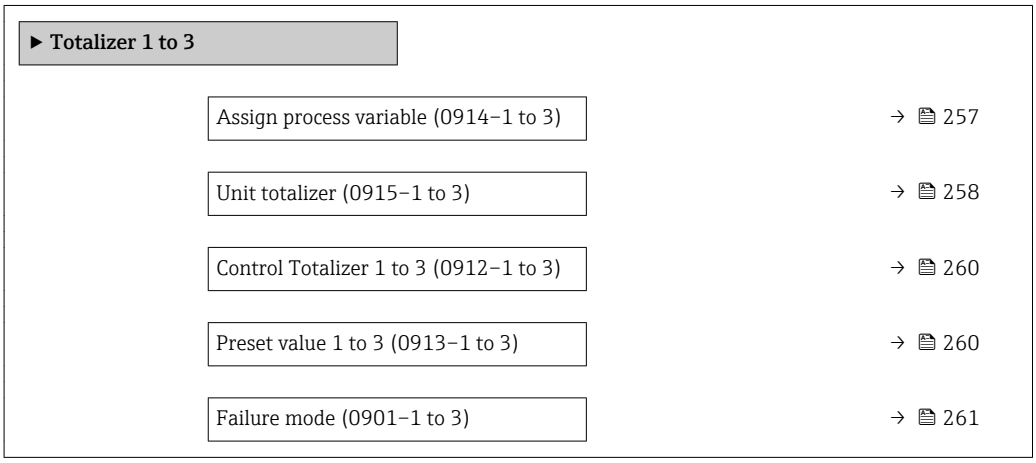
Selection
- Cancel
- Reset + totalize

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.

3.9.1 "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 the Totalizer 1 to 3.

Selection
- Off
- Volume flow
- Corrected volume flow
- Mass flow

- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *

Factory setting

- Totalizer 1: Volume flow
- Totalizer 2: Mass flow
- Totalizer 3: Corrected volume flow

Additional information

Description

If the option selected is changed, the device resets the totalizer to 0.

Selection

If the **Off** option is selected, only **Assign process variable** parameter (→ 257) is still 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 (→ 257) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *

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

* Visibility depends on order options or device settings

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)

or

SI units
- Nl
- Nm^3
- Sl
- Sm^3

US units
- Sft^3
- Sgal (us)
- Sbbl (us;liq.)

Imperial units
Sgal (imp)

or

SI units
- kWh
- MWh
- GWh
- kJ
- MJ
- GJ
- kcal
- Mcal
- Gcal

Imperial units
- Btu
- MBtu
- MMBtu

Factory setting

Country-specific:
- m^3
- ft^3

Additional information

Description

The unit is selected separately for each totalizer. The unit is independent of the option selected in the **System units** submenu (→ 69).

Selection

The selection depends on the process variable selected in the **Assign process variable** parameter (→ 257).

Control Totalizer 1 to 3

Navigation Expert → Application → Totalizer 1 to 3 → Control Tot. 1 to 3 (0912–1 to 3)

Prerequisite One of the following options is selected in the **Assign process variable** parameter (→ 257) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *

Description Use this function to select the control of totalizer value 1-3.

Selection
- Totalize
- Reset + hold
- Preset + hold
- Reset + totalize
- Preset + totalize

Factory setting Totalize

Additional information *Selection*
- 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 (→ 260).
- 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 **Preset value** parameter (→ 260) and the totaling process is restarted.

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 (→ 257) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *

* Visibility depends on order options or device settings

- Condensate mass flow *
- Energy flow *
- Heat flow difference *

Description Use this function to enter a start value for totalizer 1-3.

User entry Signed floating-point number

Factory setting Country-specific:
- 0 m^3
- 0 ft^3

Additional information *User entry*

The unit of the selected process variable is specified for the totalizer in the **Unit totalizer** parameter (→ 258).

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 (→ 257) of the **Totalizer 1 to 3** submenu:
- Volume flow
- Corrected volume flow
- Mass flow
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *

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.

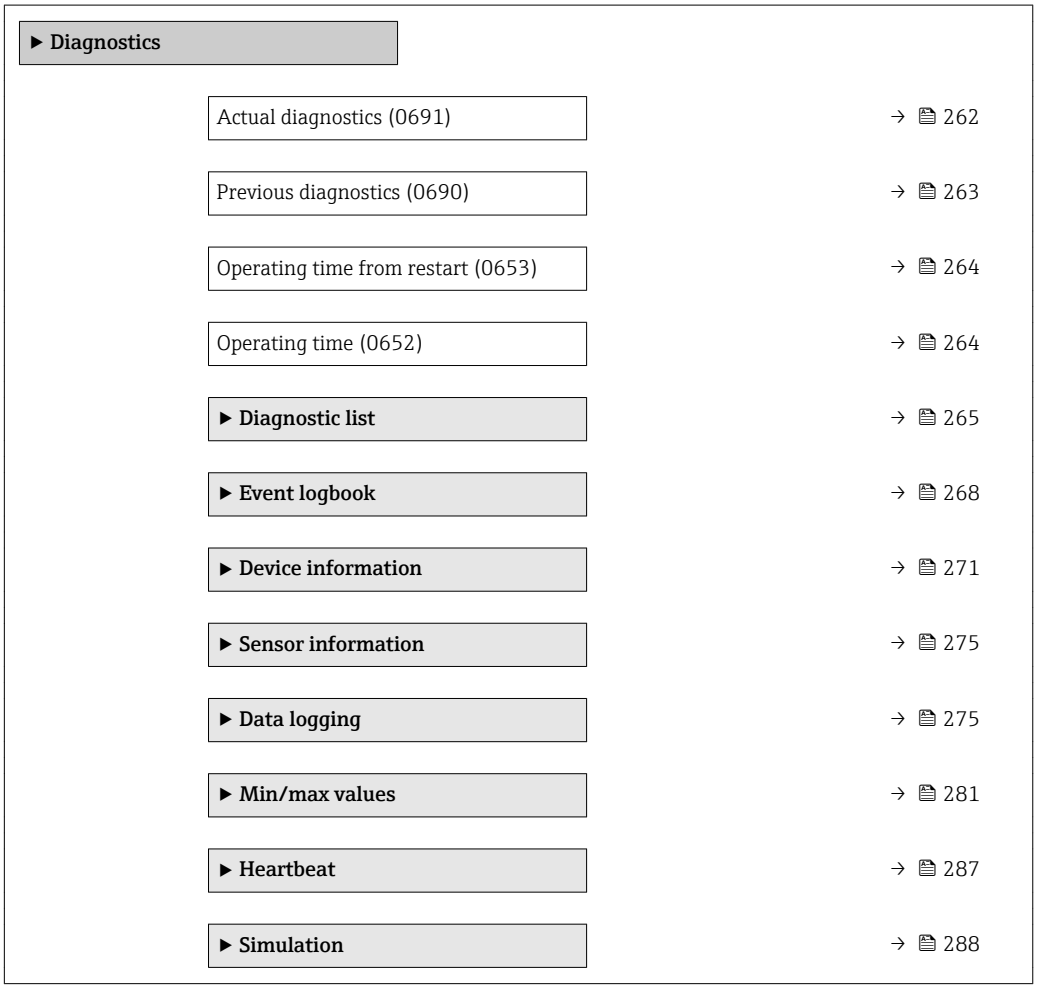
* Visibility depends on order options or device settings

Selection

- 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.

3.10 "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 displayed in the **Diagnostic list** submenu (→ 265).

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

Example

For the display format:
⊗F271 Main electronic failure

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 (→ 262).

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:
⊗F271 Main electronic failure

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 (→ 263).

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.

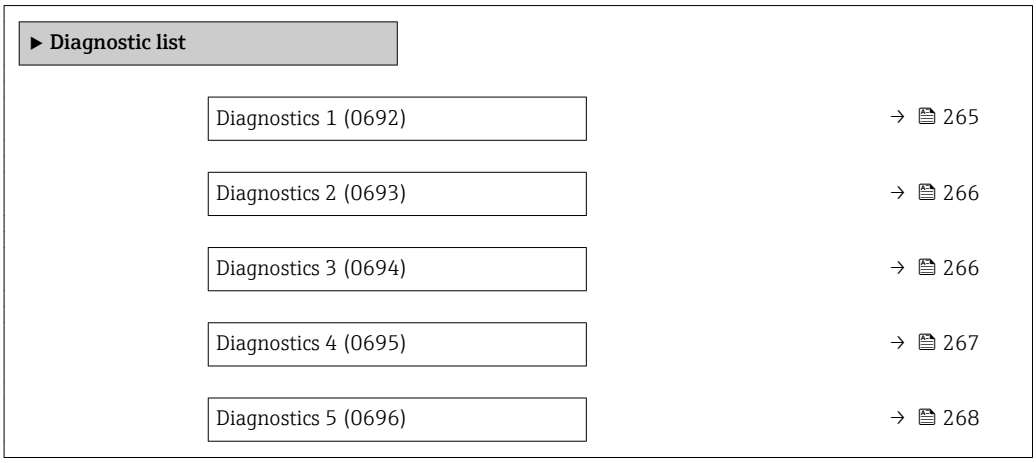
User interface Days (d), hours (h), minutes (m) and seconds (s)

Additional information *User interface*

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

3.10.1 "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 (→ 265).

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 (→ 266).

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 (→ 266).

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 (→ 267).

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*

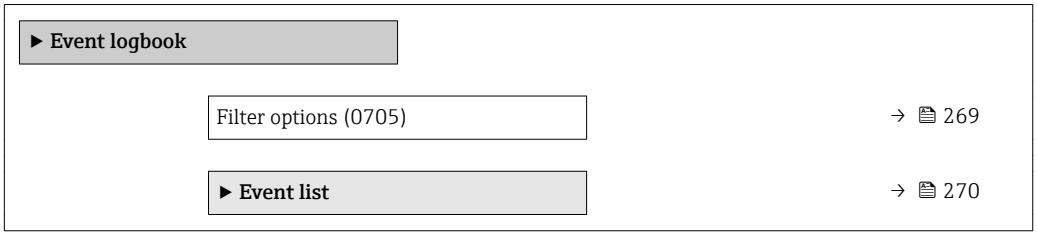
The diagnostic message can be displayed via the **Diagnostics 5** parameter (→ 268).

Example

For the display format:
24d12h13m00s

3.10.2 "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 event list of the local display.

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 event list of the operating tool.

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 of the category selected in the **Filter options** parameter (→ 269).

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 retrieved via the E key.

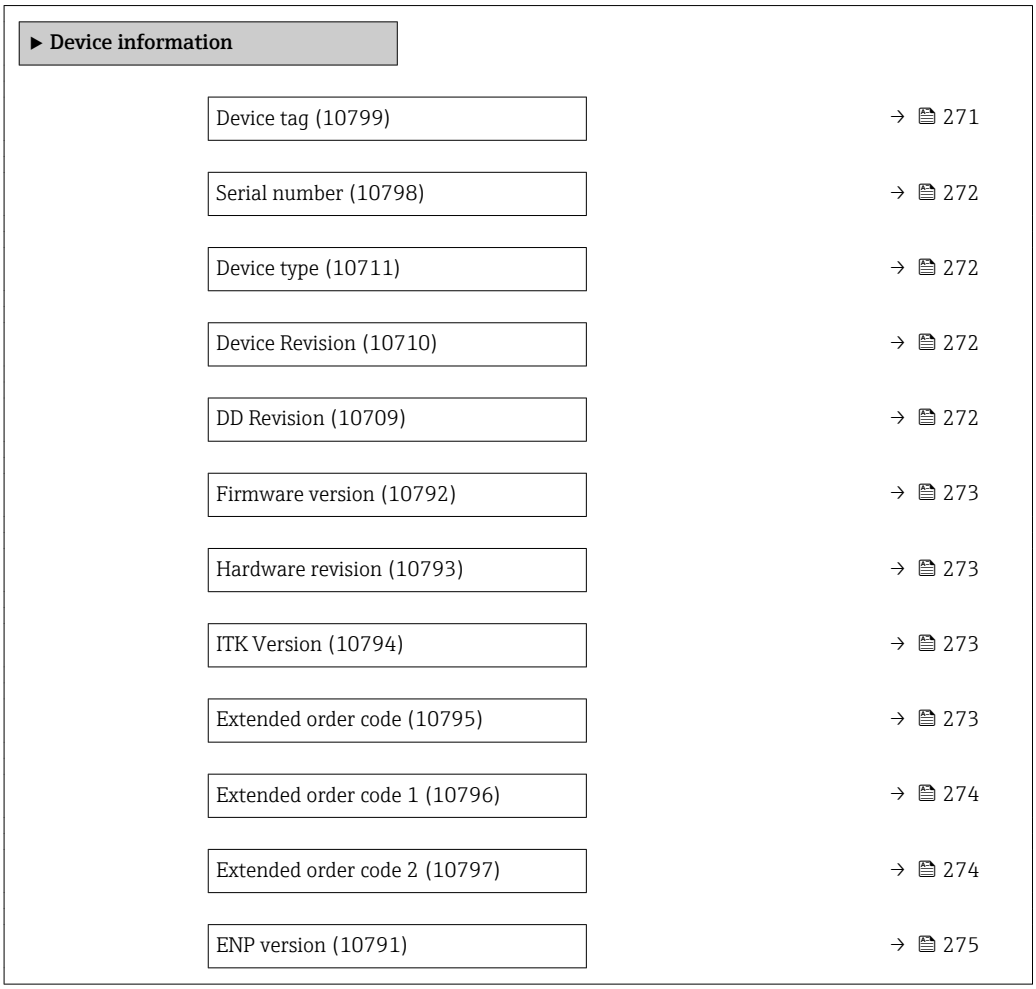
HistoROM

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.

3.10.3 "Device information" submenu

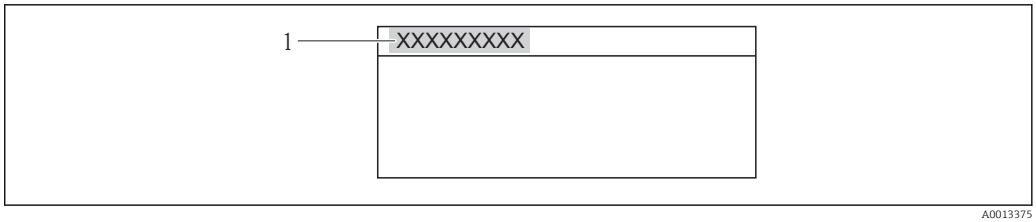
Navigation Expert → Diagnostics → Device info



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 Prowirl 200

Additional information *User entry*

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.

Device type

Navigation Expert → Diagnostics → Device info → Device type (10711)

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

User interface Prowirl 200

Device Revision

Navigation Expert → Diagnostics → Device info → Device Revision (10710)

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

User interface 1

DD Revision

Navigation Expert → Diagnostics → Device info → DD Revision (10709)

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

User interface 1

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.

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 6

Extended order code

Navigation Expert → Diagnostics → Device info → Ext. order cd. (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

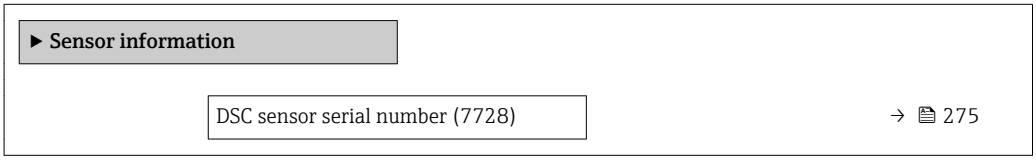
Navigation Expert → Diagnostics → Device info → ENP version (10791)

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

3.10.4 "Sensor information" submenu

Navigation Expert → Diagnostics → Sensor info



DSC sensor serial number

Navigation Expert → Diagnostics → Sensor info → DSC serial no. (7728)

Description Displays the serial number of the DSC sensor that is used in the measuring tube.

User interface Character string

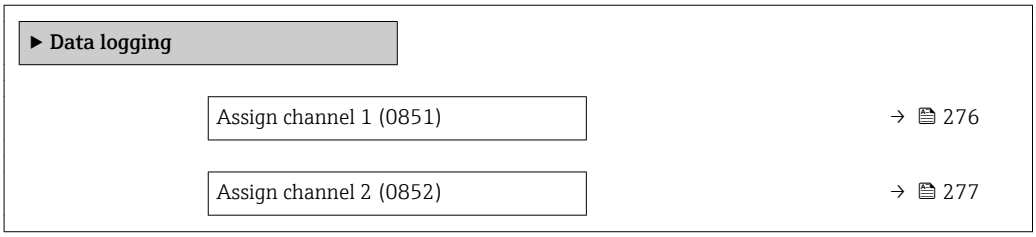
Additional information *Description*

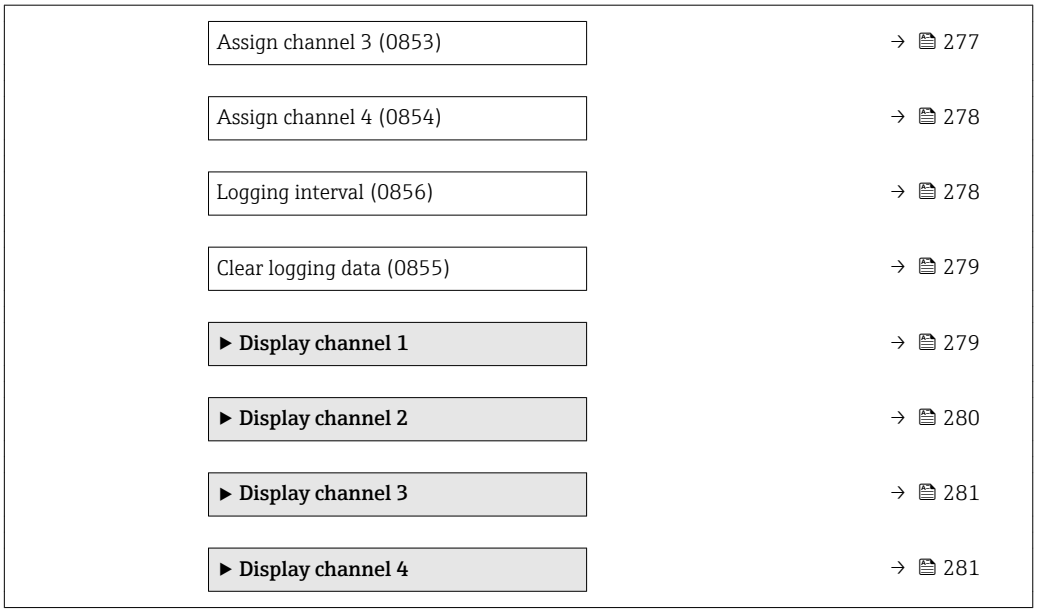
The serial number and other individual values of the DSC sensor, such as temperature range and reference values, are stored on the S-DAT.

If the DSC sensor is replaced, the S-DAT must also always be replaced.

3.10.5 "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 (→ 54).

Description Use this function to select a process variable for the data logging channel.

Selection
- Off
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *
- Reynolds number *
- Density *
- Vortex frequency
- Electronic temperature

Factory setting Off

* Visibility depends on order options or device settings

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 (→ 54).

Description Options for the assignment of a process variable to the data logging channel.

Selection Picklist, see **Assign channel 1** parameter (→ 276)

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 (→ 54).

Description Options for the assignment of a process variable to the data logging channel.

Selection Picklist, see **Assign channel 1** parameter (→ 276)

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 (→ 54).

Description Options for the assignment of a process variable to the data logging channel.

Selection Picklist, see **Assign channel 1** parameter (→ 276)

Factory setting Off

Logging interval

Navigation 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 (→ 54).

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)

Prerequisite The **Extended HistoROM** application package is available.

The software options currently enabled are displayed in the **Software option overview** parameter (→ 54).

Description Option to clear the entire logging data.

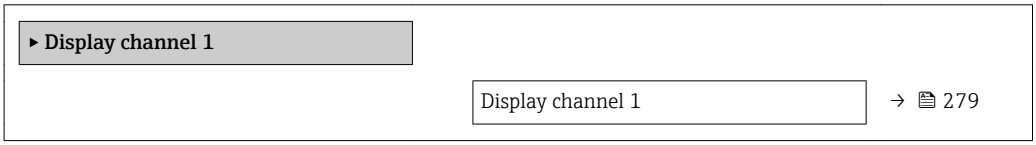
Selection
- Cancel
- Clear data

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 (→ 54).

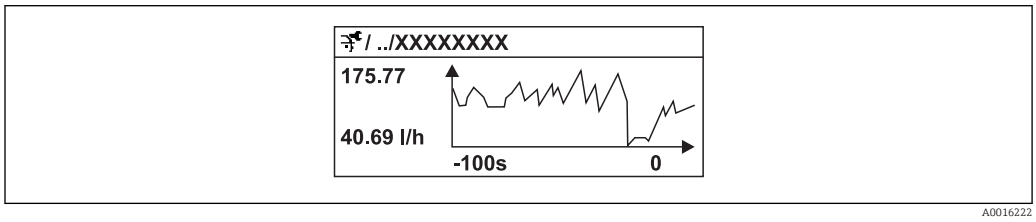
One of the following options is selected in the **Assign channel 1** parameter (→ 276):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature
- Calculated saturated steam pressure *
- Steam quality *

* Visibility depends on order options or device settings

- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *
- Reynolds number *
- Density *
- Pressure *
- Vortex frequency
- Electronic temperature

Description Displays the measured value trend for the logging channel in the form of a chart.

Additional information *Description*

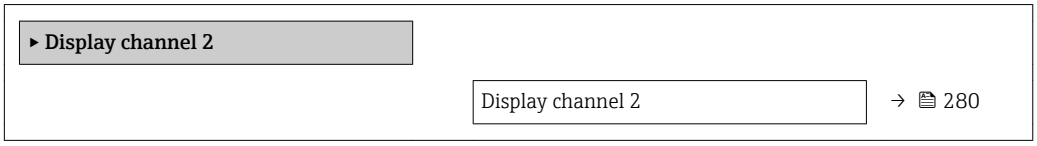


A0016222

- 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

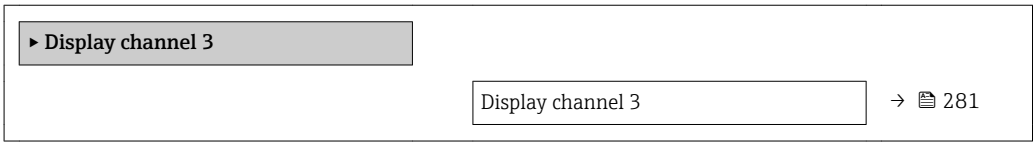
Prerequisite A process variable is defined in the **Assign channel 2** parameter.

Description See the **Display channel 1** parameter → 279

* Visibility depends on order options or device settings

"Display channel 3" submenu

Navigation Expert → Diagnostics → Data logging → Displ.channel 3



Display channel 3

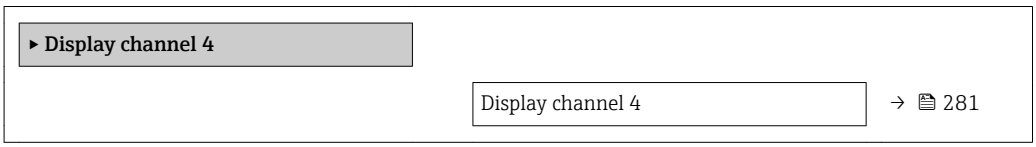
Navigation Expert → Diagnostics → Data logging → Displ.channel 3

Prerequisite A process variable is defined in the **Assign channel 3** parameter.

Description See the **Display channel 1** parameter → 279

"Display channel 4" submenu

Navigation Expert → Diagnostics → Data logging → Displ.channel 4



Display channel 4

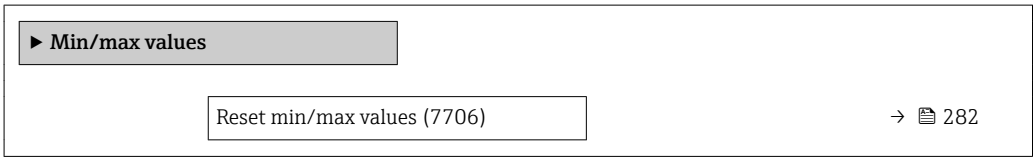
Navigation Expert → Diagnostics → Data logging → Displ.channel 4

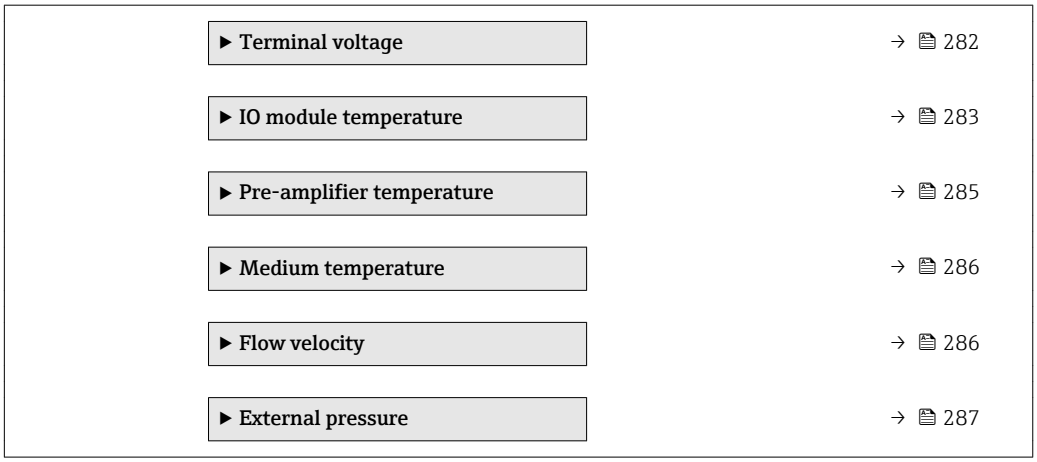
Prerequisite A process variable is defined in the **Assign channel 4** parameter.

Description See the **Display channel 1** parameter → 279

3.10.6 "Min/max values" submenu

Navigation Expert → Diagnostics → Min/max val.





Reset min/max values

Navigation Expert → Diagnostics → Min/max val. → Reset min/max (7706)

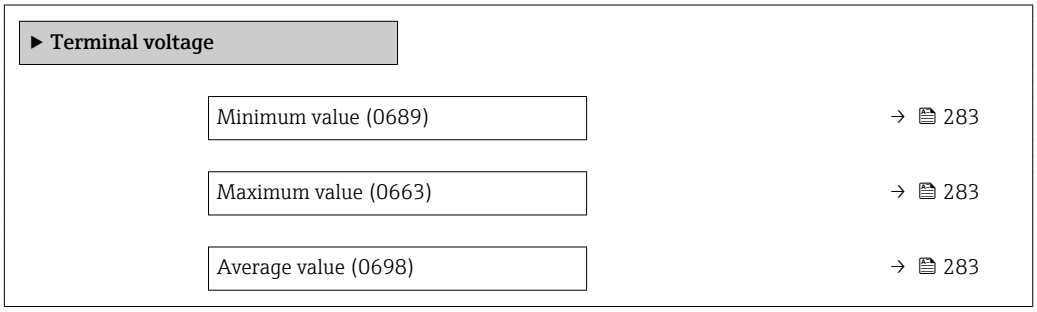
Description Use this function to select measured variables whose minimum, maximum and average measured values are to be reset.

Selection
- Cancel
- Terminal voltage 1
- Temperature
- Flow velocity
- Pressure

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

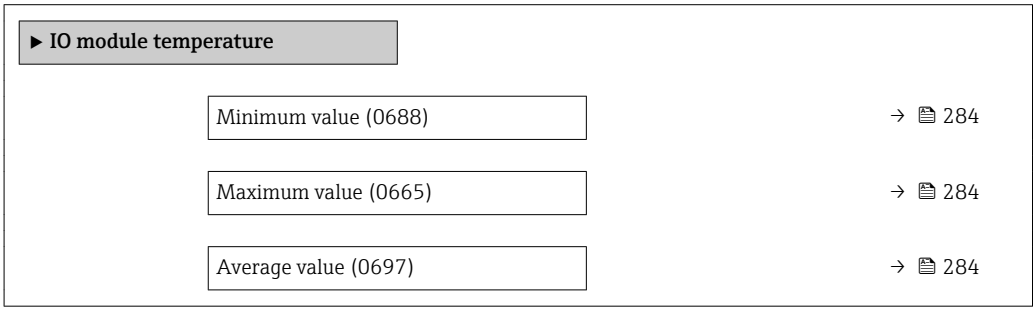
Navigation Expert → Diagnostics → Min/max val. → Terminal volt. → Average value (0698)

Description Use this function to view the average of all previously measured terminal voltage values in Volts.

User interface Signed floating-point number

"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 (→ 75)

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 (→ 75)

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.

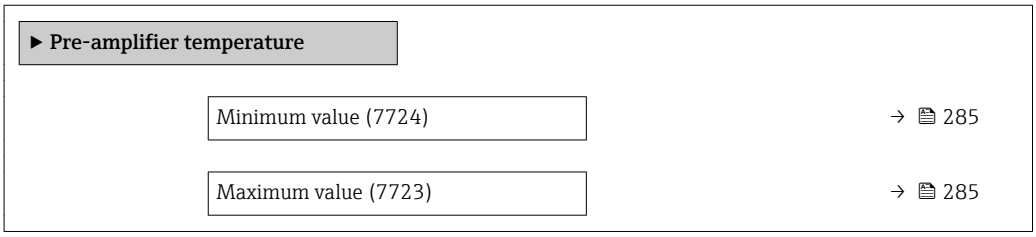
User interface −1 273.15 to 726.85 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75)

"Pre-amplifier temperature" submenu

Navigation Expert → Diagnostics → Min/max val. → Pre-amplif. temp



Minimum value

Navigation Expert → Diagnostics → Min/max val. → Pre-amplif. temp → Minimum value (7724)

Description Displays the lowest previously measured temperature value of the pre-amplifier module.

User interface 0 to 1 000 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75).

Maximum value

Navigation Expert → Diagnostics → Min/max val. → Pre-amplif. temp → Maximum value (7723)

Description Displays the highest previously measured temperature value of the pre-amplifier module.

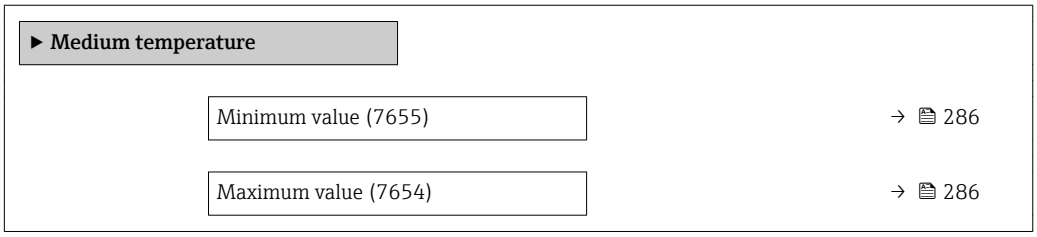
User interface 0 to 1 000 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75).

"Medium temperature" submenu

Navigation Expert → Diagnostics → Min/max val. → Medium temp.



Minimum value

Navigation Expert → Diagnostics → Min/max val. → Medium temp. → Minimum value (7655)

Description Displays the lowest previously medium temperature.

User interface 0 to 1 000 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75).

Maximum value

Navigation Expert → Diagnostics → Min/max val. → Medium temp. → Maximum value (7654)

Description Displays the highest previously medium temperature.

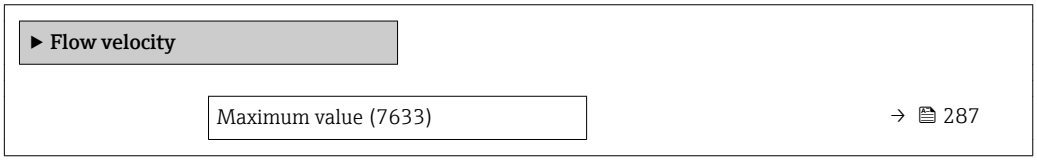
User interface 0 to 1 000 °C

Additional information *Dependency*

The unit is taken from the **Temperature unit** parameter (→ 75).

"Flow velocity" submenu

Navigation Expert → Diagnostics → Min/max val. → Flow velocity



Maximum value

Navigation Expert → Diagnostics → Min/max val. → Flow velocity → Maximum value (7633)

Description Displays the highest previously measured flow velocity.

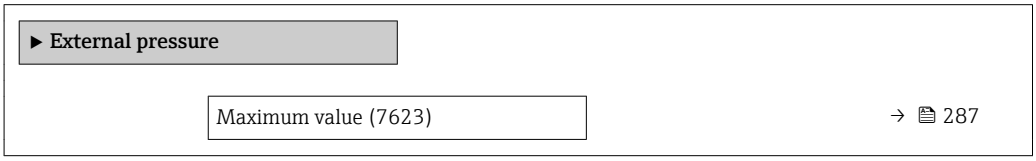
User interface Positive floating-point number

Additional information *Dependency*

The unit is taken from the **Velocity unit** parameter (→ 79)

"External pressure" submenu

Navigation Expert → Diagnostics → Min/max val. → External press.



Maximum value

Navigation Expert → Diagnostics → Min/max val. → External press. → Maximum value (7623)

Description Displays the highest previously measured external pressure.

User interface Positive floating-point number

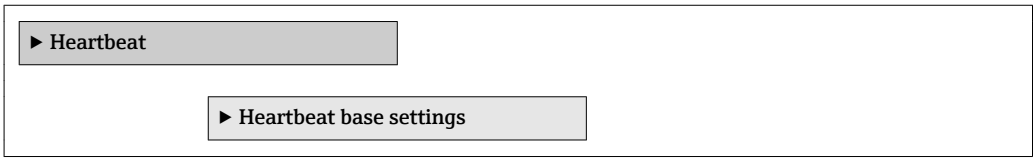
Additional information *Dependency*

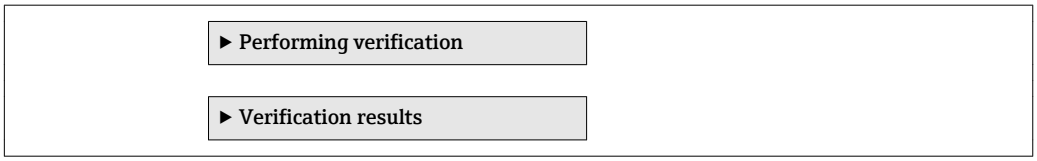
The unit is taken from the **Pressure unit** parameter (→ 74)

3.10.7 "Heartbeat" submenu

For detailed information on the parameter descriptions of the **Heartbeat Verification** application package, see the Special Documentation for the device

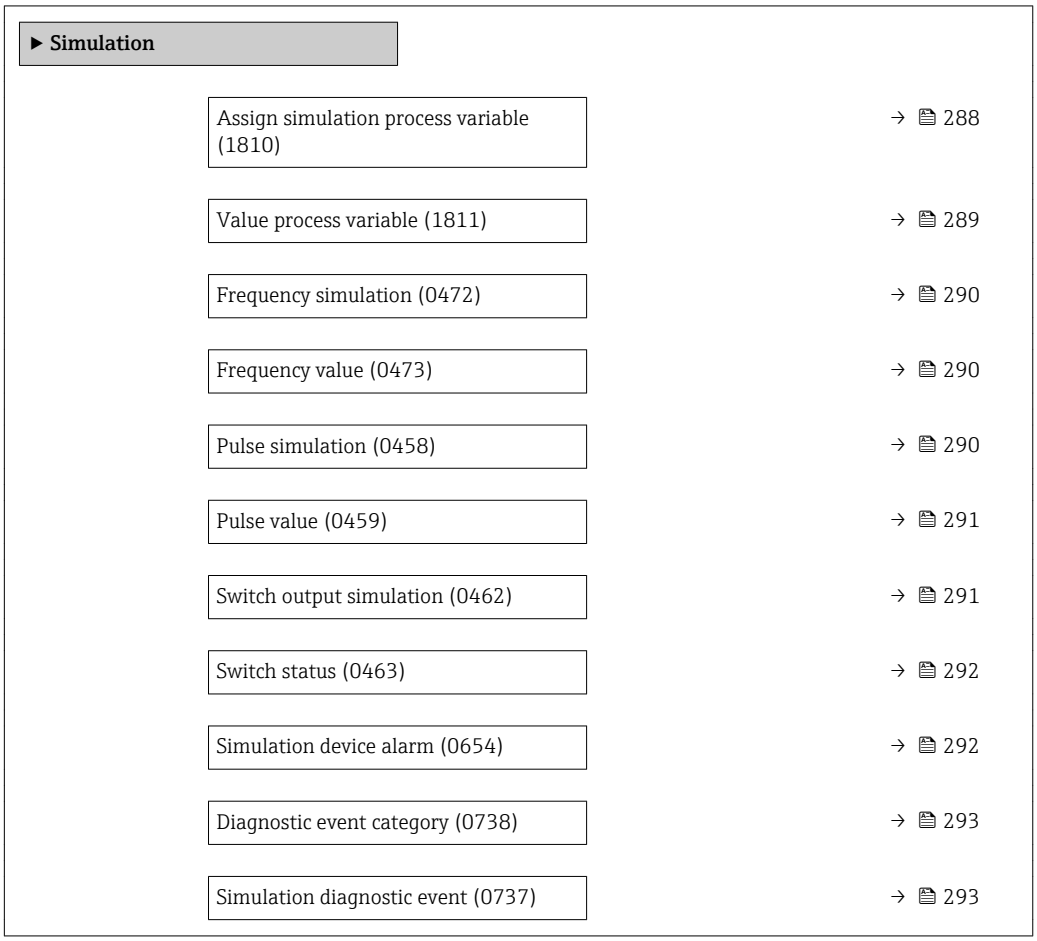
Navigation Expert → Diagnostics → Heartbeat





3.10.8 "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
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature

- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Condensate mass flow *
- Energy flow
- Heat flow difference *
- Reynolds number

Factory setting Off

Additional information *Description*

The simulation value of the selected process variable is specified in the **Value process variable** parameter (→ 289).

Value process variable

Navigation Expert → Diagnostics → Simulation → Value proc. var. (1811)

Prerequisite One of the following options is selected in the **Assign simulation process variable** parameter (→ 288):
- Volume flow
- Corrected volume flow
- Mass flow
- Flow velocity
- Temperature *
- Calculated saturated steam pressure *
- Steam quality *
- Total mass flow *
- Condensate mass flow *
- Energy flow *
- Heat flow difference *
- Reynolds number *

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 (→ 69).

* Visibility depends on order options or device settings

Frequency simulation

Navigation Expert → Diagnostics → Simulation → Frequency sim. (0472)

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→ 121).

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 defined in the **Frequency value** parameter (→ 290).

Selection
- Off
  Frequency simulation is switched off. The device is in normal measuring mode or another process variable is being simulated.
- On
  Frequency simulation is active.

Frequency value

Navigation Expert → Diagnostics → Simulation → Freq. value (0473)

Prerequisite The **On** option is selected in the **Frequency simulation** parameter (→ 290).

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 simulation

Navigation Expert → Diagnostics → Simulation → Pulse sim. (0458)

Prerequisite The **Pulse** option is selected in the **Operating mode** parameter (→ 121).

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 (→ 291).

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 (→ 124) are output continuously.
- Down-counting value
  The pulses specified in the **Pulse value** parameter (→ 291) are output.

Pulse value

Navigation Expert → Diagnostics → Simulation → Pulse value (0459)

Prerequisite In the **Pulse simulation** parameter (→ 290), 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 (→ 121).

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 (→ 292).

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)

Prerequisite The **On** option is selected in the **Switch output simulation** parameter (→ 291).

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 **Simulation diagnostic event** parameter (→ 293).

Selection
- Sensor
- Electronics
- Configuration
- Process

Factory setting Sensor

Simulation diagnostic event

Navigation Expert → Diagnostics → Simulation → Sim. diag. event (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 (→ 293).

4 Country-specific factory settings

4.1 SI units

Not valid for USA and Canada.

4.1.1 System units

Volume flow	m^3/h
Volume	m^3
Mass flow	kg/h
Mass	kg
Corrected volume flow	Nm^3/h
Corrected volume	Nm^3
Pressure	bar
Temperature	°C
Energy flow	kW
Energy	kWh
Calorific value (volume)	kJ/Nm^3
Calorific value (mass)	kJ/kg
Velocity	m/s
Density	kg/m^3
Dynamic viscosity	Pa s
Specific heat capacity	kJ/(kgK)
Length	mm

4.1.2 Full scale values

The factory settings applie to the following parameters:
100% bar graph value 1

Nominal diameter [mm]	**[m^3/h]**
15 25 > 15 40 >> 15	25
25 40 > 25 50 >> 25	125
40 50 > 40 80 >> 40	308
50 80 > 50 100 >> 50	513
80 100 > 80 150 >> 80	1 152

Nominal diameter [mm]	[m³/h]
100 150 > 100 200 >> 100	1995
150 200 > 150 250 >> 150	4539
200 250 > 200 300 >> 200	8713
250 300 > 250 350 >> 250	13735
300 350 > 300 400 >> 300	19701

4.1.3 Pulse value

Nominal diameter	Volume flow	Mass flow
[mm]	(~ 2 pulse/s) [m³/pulse]	(~ 2 pulse/s) [kg/pulse]
15 25 > 15 40 >> 15	0.00067	0.0034
25 40 > 25 50 >> 25	0.0035	0.018
40 50 > 40 80 >> 40	0.0085	0.044
50 80 > 50 100 >> 50	0.023	0.12
80 100 > 80 150 >> 80	0.051	0.26
100 150 > 100 200 >> 100	0.089	0.46
150 200 > 150 250 >> 150	0.20	1.04
200 250 > 200 300 >> 200	0.39	1.99
250 300 > 250 350 >> 250	0.61	3.14
300 350 > 300 400 >> 300	0.88	4.51

4.2 US units

Only valid for USA and Canada.

4.2.1 System units

Volume flow	ft^3/min
Volume	ft^3
Mass flow	lb/min
Mass	lb
Corrected volume flow	Sft^3/min
Corrected volume	Sft^3
Pressure	psi
Temperature	°F
Energy flow	Btu/h
Energy	Btu
Calorific value (volume)	Btu/Sft^3
Calorific value (mass)	Btu/lb
Velocity	ft/s
Density	lb/ft^3
Length	in

4.2.2 Full scale values

The factory settings applie to the following parameters:
100% bar graph value 1

Nominal diameter [in]	**[ft^3/h]**
½ 1 > ½ 1½ >> ½	882
1 1½ > 1 2 >> 1	4414
1½ 2 > 1½ 3 >> 1½	10876
2 3 > 2 4 >> 2	18116
3 4 > 3 6 >> 3	40682
4 6 > 4 8 >> 4	70452
6 8 > 6 10 >> 6	160293

Nominal diameter [in]	[ft³/h]
8 10 > 8 12 >> 8	307 696
10 12 > 10 14 >> 10	485 046
12 14 > 12 16 >> 12	695 734

4.2.3 Pulse value

Nominal diameter	Volume flow	Volume flow
[in]	~ 2 pulse/s [gal/pulse]	~ 2 pulse/s [lb/pulse]
½ 1 > ½ 1½ >> ½	0.18	0.0076
1 1½ > 1 2 >> 1	0.92	0.039
1½ 2 > 1½ 3 >> 1½	2.25	0.097
2 3 > 2 4 >> 2	6.02	0.26
3 4 > 3 6 >> 3	13.50	0.58
4 6 > 4 8 >> 4	23.42	1.01
6 8 > 6 10 >> 6	53.29	2.29
8 10 > 8 12 >> 8	102.29	4.40
10 12 > 10 14 >> 10	161.26	6.93
12 14 > 12 16 >> 12	231.30	9.94

5 Explanation of abbreviated units

5.1 SI units

Process variable	Units	Explanation
Calorific value (volume)	kWh/Nm³, MWh/Nm³, kJ/Nm³, MJ/Nm³	Kilowatt hour, megawatt hour, kilojoule, megajoule/ standard cubic meter
	kWh/Sm³, MWh/Sm³, kJ/Sm³, MJ/Sm³	Kilowatt hour, megawatt hour, kilojoule, megajoule/ standard cubic meter
Calorific value (mass)	kWh/kg, MWh/kg, kJ/kg, MJ/kg	Kilowatt hour, megawatt hour, kilojoule, megajoule/ kilogram
Density	g/cm³	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 fluid density to the water density 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 fluid density to the water density at a water temperature of 4 °C (39 °F), 15 °C (59 °F), 20 °C (68 °F).
Pressure	Pa, kPa, MPa	Pascal, kilopascal, megapascal
	mbar a	Millibar (absolute)
	bar, torr, atm	Bar, torr, physical atmosphere
	gf/cm², kgf/cm²	Gram force, kilogram force/square centimeter
Dynamic viscosity	Pa s	Pascal second
	cP, P	Centipoise, poise
Energy	kWh, MWh, GWh	Kilowatt hour, megawatt hour, gigawatt hour
	kJ, MJ, GJ	Kilojoule, megajoule, gigajoule
	kcal, Mcal, Gcal	Kilocalories, megacalories, gigacalories
Energy flow	kW, MW, GW	Kilowatt, megawatt
	kJ/s, kJ/min, kJ/h, kJ/d	Kilojoule/time unit
	MJ/s, MJ/min, MJ/h, MJ/d	Megajoule/time unit
	GJ/s, GJ/min, GJ/h, GJ/d	Gigajoule/time unit
	kcal/s, kcal/min, kcal/h, kcal/d	Kilocalories/time unit
	Mcal/s, Mcal/min, Mcal/h, Mcal/d	Megacalories/time unit
	Gcal/s, Gcal/min, Gcal/h, Gcal/d	Gigacalories/time unit
Velocity	m/s	Meter/time unit
Length	mm, m	Millimeter, meter
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
Corrected volume	Nl, Nm³, Sm³	Normal liter, normal cubic meter, standard cubic meter
Corrected volume flow	Nl/s, Nl/min, Nl/h, Nl/d	Normal liter/time unit
	Nm³/s, Nm³/min, Nm³/h, Nm³/d	Normal cubic meter/time unit
	Sm³/s, Sm³/min, Sm³/h, Sm³/d	Standard cubic meter/time unit

Process variable	Units	Explanation
Specific heat capacity	kJ/(kgK), MJ/(kgK)	Kilojoule, megajoule/kilogram Kelvin
	kWh/(kgK)	Kilowatt hour/kilogram Kelvin
	kcal/(kgK)	Kilocalories/kilogram Kelvin
Temperature	°C , K	Celsius, Kelvin
Volume	cm^3, dm^3, m^3	Cubic centimeter, cubic decimeter, cubic meter
	ml, l	Milliliter, liter
Volume flow	cm^3/s , cm^3/min, cm^3/h, cm^3/d	Cubic centimeter/time unit
	dm^3/s, dm^3/min, dm^3/h, dm^3/d	Cubic decimeter/time unit
	m^3/s, m^3/min, m^3/h, m^3/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
Calorific value (mass)	kWh/lb, MWh/lb, kJ/lb, MJ/lb	Kilowatt hour, kilojoule, British thermal unit, thousand British thermal units/pound
Density	lb/ft^3, 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
Pressure	psi a	Psi absolute
Velocity	ft/s	Foot/time unit
Length	in, ft	Inch, foot
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
Corrected volume	Sft^3	Standard cubic foot
Corrected volume flow	Sft^3/s, Sft^3/min, Sft^3/h, Sft^3/d	Standard cubic foot/time unit
Temperature	°F, °R	Fahrenheit, Rankine
Volume	af	Acre foot
	ft^3	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
	ft^3/s, ft^3/min, ft^3/h, ft^3/d	Cubic foot/time unit
	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

Process variable	Units	Explanation
	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
Calorific value (volume)	Btu/Sm^3, MBtu/Sm^3	British thermal unit, thousand British thermal units/ standard cubic meter
	Btu/Sft^3, MBtu/Sft^3	British thermal unit, thousand British thermal units/ standard cubic foot
Calorific value (mass)	Btu/lb, MBtu/lb	British thermal unit, thousand British thermal units/ pound
Density	lb/gal (imp), lb/bbl (imp;beer), lb/bbl (imp;oil)	Pound/volume unit
Energy	Btu, MBtu, MMBtu	British thermal unit, thousand British thermal units, million British thermal units
Energy flow	Btu/s, Btu/min, Btu/h, Btu/day	British thermal unit/time unit
	MBtu/s, MBtu/min, MBtu/h, MBtu/d	Thousand British thermal units/time unit
	MMBtu/s, MMBtu/min, MMBtu/h, MMBtu/d	Million British thermal units/time unit
Specific heat capacity	Btu/(lb °R)	British thermal unit/pound degree Rankine
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)

5.4 Other units

Process variable	Units	Explanation
Pressure	mmH2O (4°C)	Millimeter of water column (4 °C)
	mmH2O (68°F)	Millimeter of water column (68 °F)
	mmHg (0°C)	Millimeter of mercury column (0 °C)
	inH2O (4°C)	Inch of water column (4 °C)
	inH2O (68°F)	Inch of water column (68 °F)
	ftH2O (68°F)	Foot of water column (68 °F)
	inHg (0°C)	Inch of mercury (0 °C)
Specific volume	m^3/kg	Cubic meter/kilogram
	ft^3/lb	Cubic foot/pound

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