

Description of Device Parameters

Proline Promass 200

FOUNDATION Fieldbus

Coriolis flowmeter

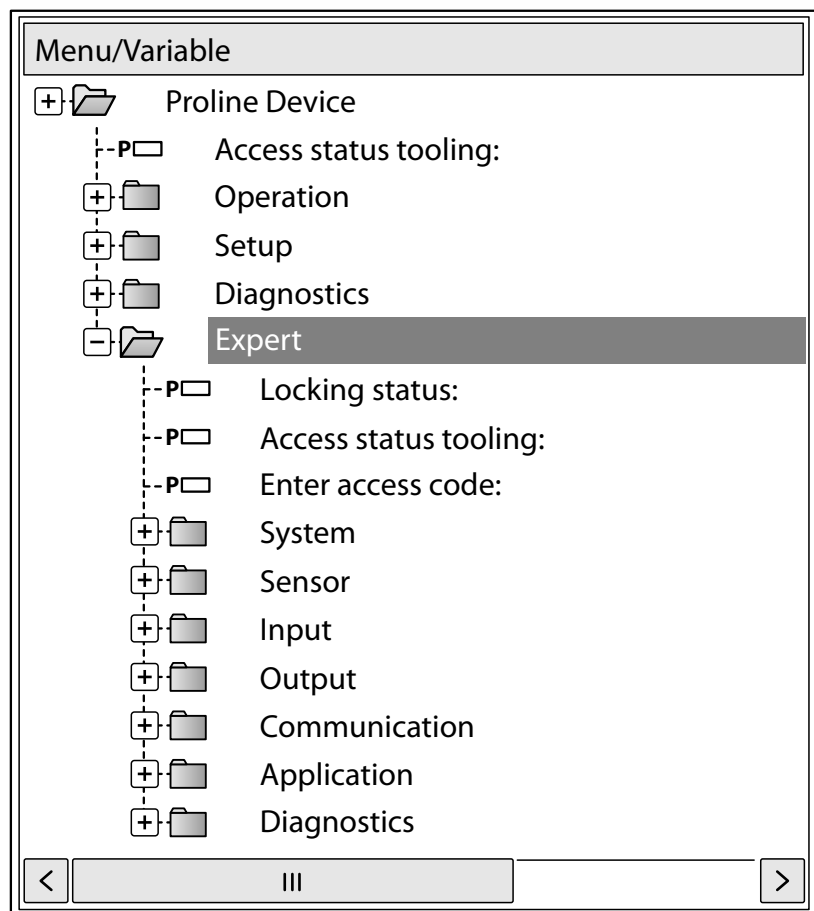


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1 Document information

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.

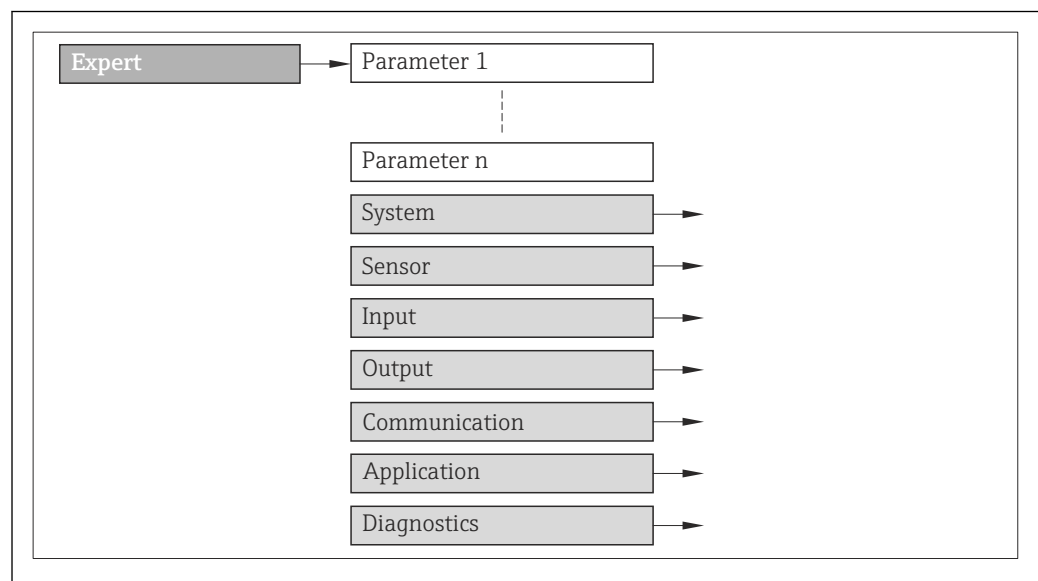
1.2 Target group

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

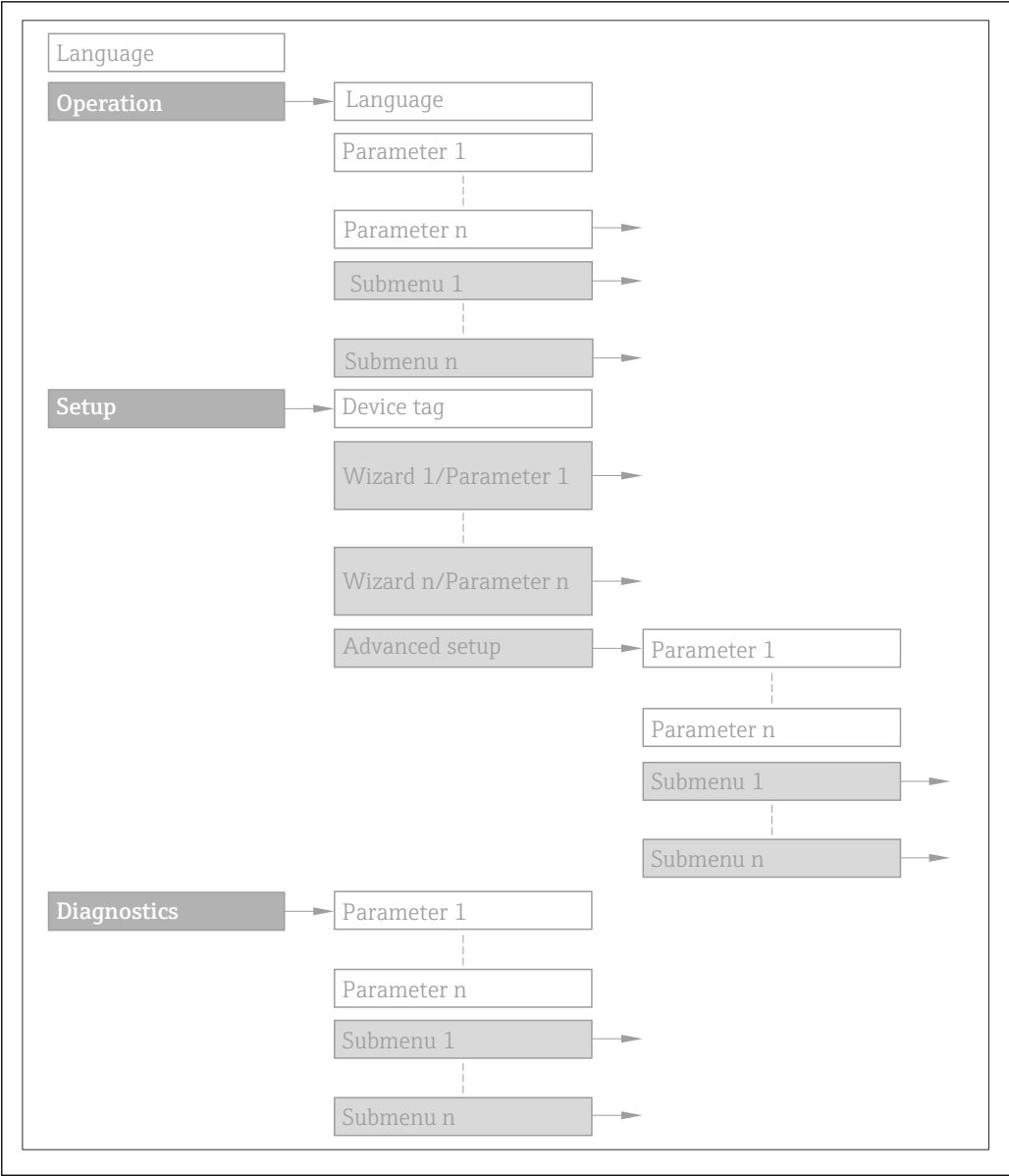
The document lists the submenus and their parameters according to the structure from the **Expert** menu (→ 8).



A0022576-EN

1 Sample graphic

For information on the arrangement of the parameters according to the structure of the **Operation** menu, **Setup** menu, **Diagnostics** menu (→ 228), 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.

 Expert		
Direct access (0106)	→ 	11
Locking status (0004)	→ 	12
Access status display (0091)	→ 	12
Enter access code (0092)	→ 	14
▶ System	→ 	14
▶ Display	→ 	14
▶ Configuration backup display	→ 	27
▶ Diagnostic handling	→ 	31
▶ Administration	→ 	44
▶ Sensor	→ 	49
▶ Measured values	→ 	49
▶ System units	→ 	56
▶ Process parameters	→ 	64
▶ Measurement mode	→ 	72
▶ Calculated values	→ 	74
▶ Sensor adjustment	→ 	76
▶ Calibration	→ 	82
▶ Output	→ 	85
▶ Pulse/frequency/switch output	→ 	85

► Communication	→ 108
Device address (11061)	→ 108
► Resource block	→ 108
► Analog inputs	→ 129
► Analog input 1 to 6	→ 130
► Discrete inputs	→ 177
► Discrete input 1 to 2	→ 178
► Analog outputs	→ 206
► Multiple analog output	→ 206
► Discrete outputs	→ 214
► Multiple discrete output	→ 215
► Application	→ 223
Reset all totalizers (2806)	→ 224
► Totalizer 1 to 3	→ 224
► Diagnostics	→ 228
Actual diagnostics (0691)	→ 229
Previous diagnostics (0690)	→ 230
Operating time from restart (0653)	→ 231
Operating time (0652)	→ 231
► Diagnostic list	→ 231
► Event logbook	→ 235
► Device information	→ 237
► Data logging	→ 242
► Min/max values	→ 248

▶ Heartbeat	→  256
▶ Simulation	→  257

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.

Expert		
Direct access (0106)	→	11
Locking status (0004)	→	12
Access status display (0091)	→	12
Enter access code (0092)	→	14
► System	→	14
► Sensor	→	49
► Output	→	85
► Communication	→	108
► Analog inputs	→	129
► Discrete inputs	→	177
► Analog outputs	→	206
► Discrete outputs	→	214
► Application	→	223
► Diagnostics	→	228

Direct access

Navigation	Expert → Direct access (0106)
Description	Input of the access code to enable direct access to the desired parameter via the local display. For this reason, each parameter is assigned a parameter number that appears on the right in the header of the selected parameter in the navigation view.
User entry	0 to 65 535

Additional information	<i>User entry</i> The direct access code consists of a 4-digit number and the channel number, which identifies the channel of a process variable: e.g. 0914-1  ■ The leading zeros in the direct access code do not have to be entered. Example: Input of "914" instead of "0914" ■ If no channel number is entered, channel 1 is jumped to automatically. Example: Input of 0914 → Assign process variable parameter ■ If a different channel is jumped to: Enter the direct access code with the corresponding channel number. Example: Input of 0914-3 → Assign process variable parameter
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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	<i>User interface</i> 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). <i>"Hardware locked" option (priority 1)</i> 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. <i>"Temporarily locked" option (priority 3)</i> 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	<i>Description</i> 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). <i>User interface</i>  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	<i>Description</i>  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). <i>Display</i>  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

► System	
► Display	→  14
► Configuration backup display	→  27
► Diagnostic handling	→  31
► Administration	→  44

3.1.1 "Display" submenu

Navigation

  Expert → System → Display

► Display	
Language (0104)	→  15
Format display (0098)	→  16
Value 1 display (0107)	→  18

0% bargraph value 1 (0123)	→  18
100% bargraph value 1 (0125)	→  19
Decimal places 1 (0095)	→  19
Value 2 display (0108)	→  20
Decimal places 2 (0117)	→  20
Value 3 display (0110)	→  21
0% bargraph value 3 (0124)	→  21
100% bargraph value 3 (0126)	→  22
Decimal places 3 (0118)	→  22
Value 4 display (0109)	→  22
Decimal places 4 (0119)	→  23
Display interval (0096)	→  23
Display damping (0094)	→  24
Header (0097)	→  24
Header text (0112)	→  25
Separator (0101)	→  25
Contrast display (0105)	→  26
Backlight (0111)	→  26
Access status display (0091)	→  26

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.

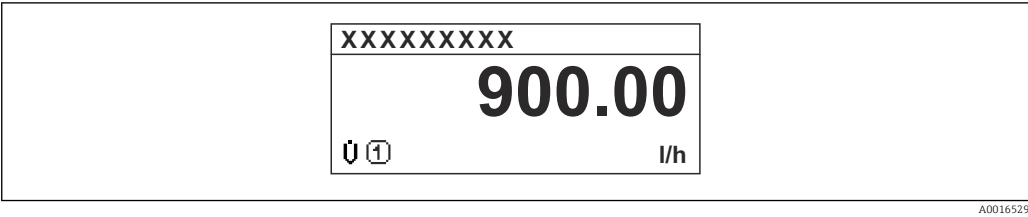


- The **Value 1 display** parameter (→  18)...**Value 4 display** parameter (→  22) parameters are used to specify which measured values are shown on the display and in which order.
- If more measured values are specified than the display mode selected permits, then the values alternate on the device display. The display time until the next change is configured using the **Display interval** parameter (→  23) parameter.

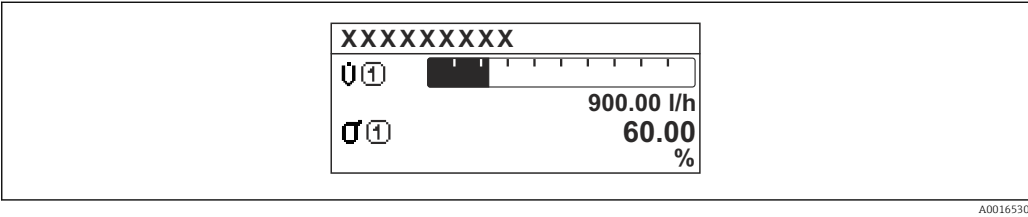
Possible measured values shown on the local display:

* Visibility depends on order options or device settings

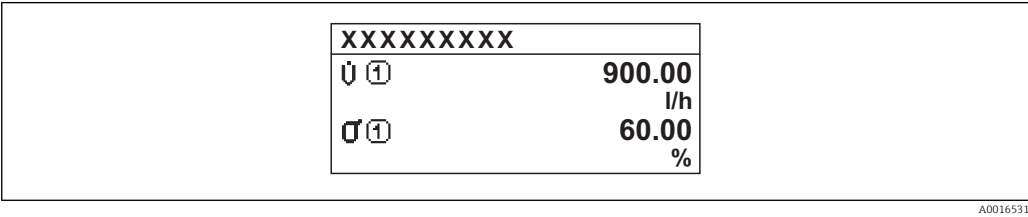
"1 value, max. size" option



"1 bargraph + 1 value" option

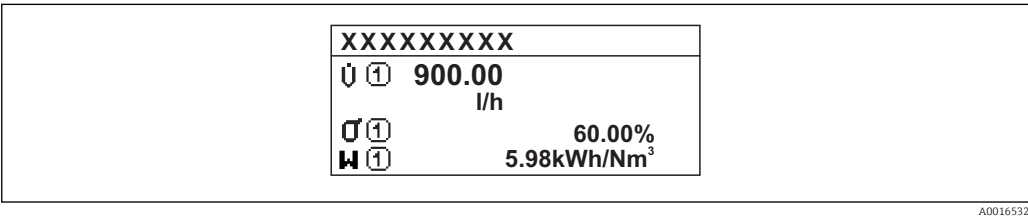


"2 values" option

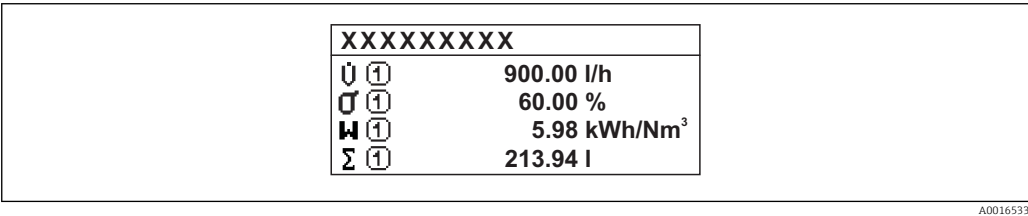


3

"1 value large + 2 values" option



"4 values" option



Value 1 display 	
Navigation	 Expert → System → Display → Value 1 display (0107)
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	■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Totalizer 1 ■ Totalizer 2 ■ Totalizer 3
Factory setting	Mass flow
Additional information	<i>Description</i> 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. <i>Selection</i>  The unit of the displayed measured value is taken from the System units submenu (→  56).
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
Factory setting	Country-specific: ■ 0 kg/h ■ 0 lb/min
Additional information	<i>Description</i>  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 (→  56).

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 →  263

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 (→  56).

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	<i>Description</i> 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. <i>Selection</i>  The unit of the displayed measured value is taken from the System units submenu (→  56).

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	<i>Description</i>  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	<i>Description</i> 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. <i>Selection</i> The unit of the displayed measured value is taken from the System units submenu (→ 56).

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 kg/h ■ 0 lb/min
Additional information	<i>Description</i> The Format display parameter (→ 16) is used to specify that the measured value is to be displayed as a bar graph. <i>User entry</i> The unit of the displayed measured value is taken from the System units submenu (→ 56).

100% bargraph value 3

Navigation	 Expert → System → Display → 100% bargraph 3 (0126)
Prerequisite	An option has been selected 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	<i>Description</i>  The Format display parameter (→  16) is used to specify that the measured value is to be displayed as a bar graph. <i>User entry</i>  The unit of the displayed measured value is taken from the System units submenu (→  56).

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	<i>Description</i>  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	<i>Description</i> 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. <i>Selection</i>  The unit of the displayed measured value is taken from the System units submenu (→  56).

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	<i>Description</i>  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 0.0 s

Additional information *User entry*

A time constant is entered:

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

Header

Navigation Expert → System → Display → Header (0097)

Prerequisite A local display is provided.

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

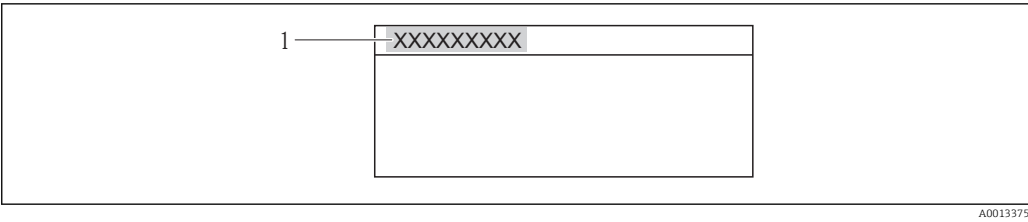
Selection

- Device tag
- Free text

Factory setting Device tag

Additional information *Description*

The header text only appears during normal operation.



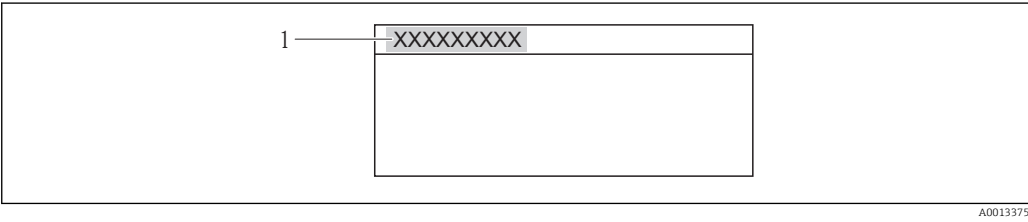
1 Position of the header text on the display

Selection

- Device tag
Is defined in the **Device tag** parameter (→ 238).
- 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	<i>Description</i> 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   keys simultaneously.
- Darker: Press and hold down the   keys simultaneously.

Backlight

Navigation   Expert → System → Display → Backlight (0111)

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

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

Selection

- Disable
- Enable

Factory setting Disable

Access status display

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

Prerequisite A local display is provided.

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

User interface	▪ Operator ▪ Maintenance
Factory setting	Operator
Additional information	Description If the -symbol appears in front of a parameter, it cannot be modified via the local display with the current access authorization. The access authorization can be modified via the Enter access code parameter (→ 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

► Configuration backup display

Operating time (0652)

→ 27

Last backup (0102)

→ 28

Configuration management (0100)

→ 28

Comparison result (0103)

→ 29

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	<i>Description</i> 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) <i>Selection</i> ■ 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	<i>Description</i>  The comparison is started via the Compare option in the Configuration management parameter (→  28). <i>Selection</i> ■ 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. <i>HistoROM</i> 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

► Diagnostic behavior →  32

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 ■ 140 Sensor signal ■ 830 Sensor temperature too high ■ 831 Sensor temperature too low ■ 832 Electronic temperature too high ■ 833 Electronic temperature too low ■ 834 Process temperature too high ■ 835 Process temperature too low ■ 910 Tubes not oscillating ■ 912 Medium inhomogeneous ■ 913 Medium unsuitable

"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 device continues to measure. 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 specified 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 (→  235) (**Event list** submenu (→  236)) 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. 046 (0655)	→  34
Assign behavior of diagnostic no. 140 (0723)	→  34
Assign behavior of diagnostic no. 274 (0725)	→  35
Assign behavior of diagnostic no. 442 (0658)	→  35
Assign behavior of diagnostic no. 443 (0659)	→  35
Assign behavior of diagnostic no. 801 (0660)	→  36
Assign behavior of diagnostic no. 830 (0715)	→  36

Assign behavior of diagnostic no. 831 (0716)	→  36
Assign behavior of diagnostic no. 832 (0675)	→  37
Assign behavior of diagnostic no. 833 (0676)	→  37
Assign behavior of diagnostic no. 834 (0677)	→  38
Assign behavior of diagnostic no. 835 (0678)	→  38
Assign behavior of diagnostic no. 862 (0679)	→  38
Assign behavior of diagnostic no. 912 (0720)	→  39
Assign behavior of diagnostic no. 913 (0717)	→  39
Assign status of diagnostic number 044 (11041)	→  39
Assign status of diagnostic number 046 (11042)	→  40
Assign status of diagnostic number 274 (11000)	→  40
Assign status of diagnostic number 801 (11001)	→  40
Assign status of diagnostic number 830 (11006)	→  41
Assign status of diagnostic number 831 (11007)	→  41
Assign status of diagnostic number 832 (11002)	→  41
Assign status of diagnostic number 833 (11003)	→  42
Assign status of diagnostic number 834 (11004)	→  42
Assign status of diagnostic number 835 (11005)	→  42

Assign status of diagnostic number 862 (11008)	→ 43
Assign status of diagnostic number 912 (11009)	→ 43
Assign status of diagnostic number 913 (11010)	→ 43

Assign behavior of diagnostic no. 046 (Sensor limit exceeded)

Navigation	Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 046 (0655)
Description	Use this function to change the diagnostic behavior of the diagnostic message 046 Sensor limit 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. 140 (Sensor signal)

Navigation	Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 140 (0723)
Description	Use this function to change the diagnostic behavior of the diagnostic message 140 Sensor signal .
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. 274 (Main electronic failure)



Navigation	Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 274 (0725)
Description	Use this function to change the diagnostic behavior of the diagnostic message 274 Main electronic failure .
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. 801 (Supply voltage too low)**Navigation**

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

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

- Off
- Alarm
- Warning
- Logbook entry only

Factory setting

Warning

Additional information

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

Assign behavior of diagnostic no. 830 (Sensor temperature too high)**Navigation**

Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 830 (0715)

Prerequisite

If the carrier tube temperature is available (applies only to Promass F).

DescriptionUse this function to change the diagnostic behavior of the diagnostic message **830 Sensor 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. 831 (Sensor temperature too low)**Navigation**

Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 831 (0716)

Prerequisite

If the carrier tube temperature is available (applies only to Promass F).

Description	Use this function to change the diagnostic behavior of the diagnostic message 831 Sensor 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. 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. 862 (Empty pipe)



Navigation	  Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 862 (0679)
Description	Use this function to change the diagnostic behavior of the diagnostic message 862 Empty pipe .
Selection	■ Off ■ Alarm ■ Warning ■ Logbook entry only
Factory setting	Warning
Additional information	 For a detailed description of the options available for selection: →  32

Assign behavior of diagnostic no. 912 (Medium inhomogeneous)



Navigation	Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 912 (0720)
Description	Use this function to change the diagnostic behavior of the diagnostic message 912 Medium inhomogeneous .
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. 913 (Medium unsuitable)



Navigation	Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 913 (0717)
Description	Use this function to change the diagnostic behavior of the diagnostic message 913 Medium unsuitable .
Selection	■ Off ■ Alarm ■ Warning ■ Logbook entry only
Factory setting	Warning
Additional information	For a detailed description of the options available for selection: → 32

Assign status of diagnostic number 044 (Sensor signal)

Navigation	Expert → System → Diagn. handling → Diagn. behavior → Status diag. 044 (11041)
Description	Use this function to change the status of diagnostic message 044 Sensor signal .
Selection	■ Bad ■ Uncertain ■ Good
Factory setting	Bad
Additional information	Detailed description of the options available for selection: → 32

Assign status of diagnostic number 046 (Sensor limit exceeded)

Navigation	 Expert → System → Diagn. handling → Diagn. behavior → Status diag. 046 (11042)
Description	Use this function to change the status of diagnostic message 046 Sensor limit exceeded .
Selection	■ Bad ■ Uncertain ■ Good
Factory setting	Uncertain
Additional information	 Detailed description of the options available for selection: →  32

Assign status of diagnostic number 274 (Main electronic failure)

Navigation	 Expert → System → Diagn. handling → Diagn. behavior → Status diag. 274 (11000)
Description	Use this function to change the status of diagnostic message 274 Main electronic failure .
Selection	■ Bad ■ Uncertain ■ Good
Factory setting	Uncertain
Additional information	 Detailed description of the options available for selection: →  32

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

Navigation	 Expert → System → Diagn. handling → Diagn. behavior → Status diag. 801 (11001)
Description	Option for changing the status of the diagnostic message 801 Supply voltage too low .
Selection	■ Bad ■ Uncertain ■ Good
Factory setting	Uncertain
Additional information	 Detailed description of the options available for selection: →  32

Assign status of diagnostic number 830 (Sensor temperature too high)

Navigation	 Expert → System → Diagn. handling → Diagn. behavior → Status diag. 830 (11006)
Description	Use this function to change the status of diagnostic message 830 Sensor 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 831 (Sensor temperature too low)

Navigation	 Expert → System → Diagn. handling → Diagn. behavior → Status diag. 831 (11007)
Description	Use this function to change the status of diagnostic message 831 Sensor 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 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	Use this function to change the status of 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	Use this function to change the status of 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 862 (Partly filled pipe)

Navigation	 Expert → System → Diagn. handling → Diagn. behavior → Status diag. 862 (11008)
Description	Use this function to change the status of diagnostic message 862 Partly filled pipe .
Selection	■ Bad ■ Uncertain ■ Good
Factory setting	Uncertain
Additional information	 Detailed description of the options available for selection: →  32

Assign status of diagnostic number 912 (Medium inhomogeneous)

Navigation	 Expert → System → Diagn. handling → Diagn. behavior → Status diag. 912 (11009)
Description	Use this function to change the status of diagnostic message 912 Medium inhomogeneous .
Selection	■ Bad ■ Uncertain ■ Good
Factory setting	Uncertain
Additional information	 Detailed description of the options available for selection: →  32

Assign status of diagnostic number 913 (Medium unsuitable)

Navigation	 Expert → System → Diagn. handling → Diagn. behavior → Status diag. 913 (11010)
Description	Use this function to change the status of diagnostic message 913 Medium unsuitable .
Selection	■ Bad ■ Uncertain ■ Good
Factory setting	Uncertain
Additional information	 Detailed description of the options available for selection: →  32

3.1.4 "Administration" submenu

Navigation  Expert → System → Administration

► Administration

► Define access code

Restart (10800)

Activate SW option (0029)

Software option overview (0015)

Activate sensor emergency mode (2566)

→  44

→  46

→  47

→  48

→  48

"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 (→  45) 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

Define access code

Confirm access code

→  44

→  45

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	<i>Description</i> 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. <i>User entry</i> A message is displayed if the access code is not in the input range. <i>Factory setting</i> 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	<i>"Uninitialized" option</i> The selection does not affect configuration. <i>"Run" option</i> The selection does not affect configuration. <i>"Resource" option</i> The selection does not affect configuration. <i>"Defaults" option</i> All fieldbus function blocks are reset to their factory setting (e.g. Analog input channel to the Uninitialized option). <i>"Processor" option</i> 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 ■ Heartbeat Monitoring ■ Heartbeat Verification
Additional information	<i>Description</i> Displays all the options that are available if ordered by the customer. <i>"Extended HistoROM" option</i> Order code for "Application package", option EA "Extended HistoROM" <i>"Heartbeat Verification" option and "Heartbeat Monitoring" option</i> Order code for "Application package", option EB "Heartbeat Verification + Monitoring"

Activate sensor emergency mode



Navigation	 Expert → System → Administration → Sens. emerg.mode (2566)
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	<i>Description</i>  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 -button.
 -  Information on status signals and diagnostic behavior: Operating Instructions about the device, "Diagnostic message" chapter

3.2 "Sensor" submenu

Navigation  Expert → Sensor

► Sensor		
► Measured values	→ 	49
► System units	→ 	56
► Process parameters	→ 	64
► Measurement mode	→ 	72
► Calculated values	→ 	74
► Sensor adjustment	→ 	76
► Calibration	→ 	82

3.2.1 "Measured values" submenu

Navigation  Expert → Sensor → Measured val.

► Measured values		
► Process variables	→ 	50
► Totalizer	→ 	52
► Output values	→ 	54

"Process variables" submenu

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

► Process variables		
Mass flow (1840)	→	 50
Volume flow (1813)	→	 50
Corrected volume flow (1842)	→	 51
Density (1843)	→	 51
Reference density (1844)	→	 51
Temperature (1845)	→	 52

Mass flow

Navigation	 Expert → Sensor → Measured val. → Process variab. → Mass flow (1840)
Description	Use this function to view the mass flow currently calculated.
User interface	Signed floating-point number
Additional information	<i>Dependency</i>  The unit is taken from the Mass flow unit parameter (→  56)

Volume flow

Navigation	 Expert → Sensor → Measured val. → Process variab. → Volume flow (1813)
Description	Use this function to view the volume flow currently measured.
User interface	Signed floating-point number
Additional information	<i>Description</i> The volume flow is calculated from the measured mass flow and the measured density. <i>Dependency</i>  The unit is taken from the Volume flow unit parameter (→  58)

Corrected volume flow

Navigation	 Expert → Sensor → Measured val. → Process variab. → Correct.vol.flow (1842)
Description	Use this function to view the corrected volume flow currently calculated.
User interface	Signed floating-point number
Additional information	<i>Description</i> The corrected volume flow is derived from the measured mass flow and the reference density of the fluid (density at reference temperature, measured or fixed entry). <i>Dependency</i>  The unit is taken from the Corrected volume flow unit parameter (→  59)

Density

Navigation	 Expert → Sensor → Measured val. → Process variab. → Density (1843)
Description	Use this function to view the currently measured density or its specific gravity.
User interface	Positive floating-point number
Additional information	<i>Dependency</i>  The unit is taken from the Density unit parameter (→  61)

Reference density

Navigation	 Expert → Sensor → Measured val. → Process variab. → Ref.density (1844)
Description	Displays the density at the reference temperature.
User interface	Positive floating-point number
Additional information	<i>Description</i> The reference density displayed is calculated using the measured density. <i>Dependency</i>  The unit is taken from the Reference density unit parameter (→  61)

Temperature

Navigation	 Expert → Sensor → Measured val. → Process variab. → Temperature (1845)
Description	Use this function to view the temperature currently measured.
User interface	Positive floating-point number
Additional information	<i>Dependency</i>  The unit is taken from the Temperature unit parameter (→  62)

Totalizer

Navigation  Expert → Sensor → Measured val. → Totalizer

► Totalizer

Totalizer value 1 to 3 (0911-1 to 3)

→  52

Totalizer overflow 1 to 3 (0910-1 to 3)

→  53

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 (→  224) of the Totalizer 1 to 3 submenu: ■ Volume flow ■ Mass flow ■ Corrected volume flow
Description	Displays the current totalizer reading.
User interface	Signed floating-point number
Additional information	<i>Description</i> 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 (→  228).

User interface

The value of the process variable totalized since measuring began can be positive or negative. This depends on the settings in the **Totalizer operation mode** parameter (→  226).

 The unit of the selected process variable is specified for the totalizer in the **Unit totalizer** parameter (→  225).

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 m³
- Value in the **Totalizer overflow 1** parameter: $1 \cdot 10^6$ (1 overflow) = 1 000 000 [m³]
- Current totalizer reading: 1 196 845.7 m³

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 (→  224) of the Totalizer 1 to 3 submenu: ■ Volume flow ■ Mass flow ■ Corrected volume flow
Description	Displays the current totalizer overflow.
User interface	Integer with sign
Additional information	<i>Description</i> 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. <i>User interface</i>  The unit of the selected process variable is specified for the totalizer in the Unit totalizer parameter (→  225). <i>Example</i> 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 m³ ■ Value in the Totalizer overflow 1 parameter: $2 \cdot 10^6$ (2 overflows) = 2 000 000 [m³] ■ Current totalizer reading: 2 196 845.7 m³

"Output values" submenu

Navigation  Expert → Sensor → Measured val. → Output values

► Output values

Terminal voltage 1 (0662)

→  54

Pulse output (0456)

→  54

Output frequency (0471)

→  55

Switch status (0461)

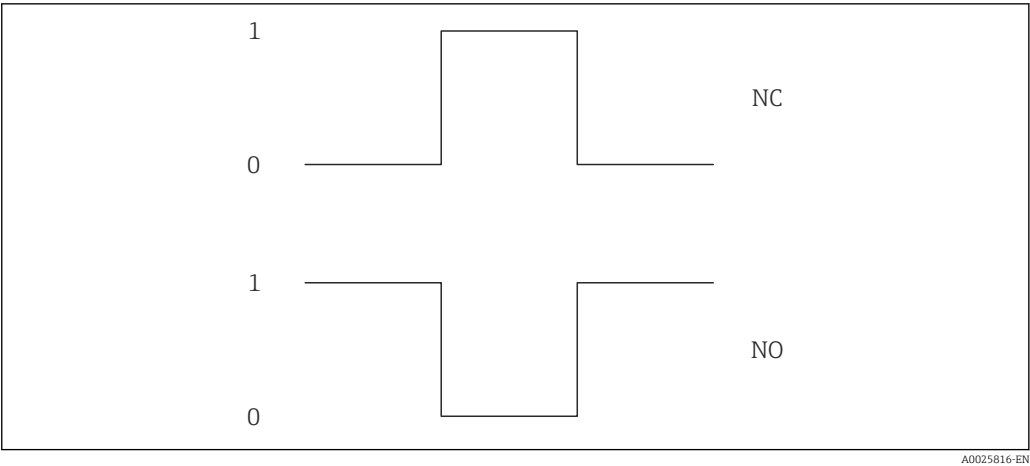
→  55

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 (→  87).
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 (→  89) and the Pulse width parameter (→  89) 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 (→  107), 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 (→  91)) can be configured.

Output frequency

Navigation	 Expert → Sensor → Measured val. → Output values → Output freq. (0471)
Prerequisite	In the Operating mode parameter (→  87), 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	In the Operating mode parameter (→  87), the Switch option is selected.
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

► System units

Mass flow unit (0554)

→  56

Mass unit (0574)

→  57

Volume flow unit (0553)

→  58

Volume unit (0563)

→  59

Corrected volume flow unit (0558)

→  59

Corrected volume unit (0575)

→  60

Density unit (0555)

→  61

Reference density unit (0556)

→  61

Temperature unit (0557)

→  62

Length unit (0551)

→  62

Pressure unit (0564)

→  63

Date/time format (2812)

→  63

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	US units
	■ g/s	■ oz/s
	■ g/min	■ oz/min
	■ g/h	■ oz/h
	■ g/d	■ oz/d
	■ kg/s	■ lb/s
	■ kg/min	■ lb/min
	■ kg/h	■ lb/h
	■ kg/d	■ lb/d
	■ t/s	■ STon/s
	■ t/min	■ STon/min
	■ t/h	■ STon/h
	■ t/d	■ STon/d

Factory setting	Country-specific:
	■ kg/h ■ lb/min

Additional information	<i>Effect</i>
	The selected unit applies for: Mass flow parameter (→ ⓘ 50)
	<i>Selection</i>
	 For an explanation of the abbreviated units: → ⓘ 266

Mass unit

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

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

Selection	<i>SI units</i>	<i>US units</i>
	■ g ■ kg ■ t	■ oz ■ lb ■ STon

Factory setting	Country-specific:
	■ kg ■ lb

Additional information	<i>Selection</i>
	 For an explanation of the abbreviated units: → ⓘ 266

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

- cm³/s
- cm³/min
- cm³/h
- cm³/d
- dm³/s
- dm³/min
- dm³/h
- dm³/d
- m³/s
- m³/min
- m³/h
- m³/d
- ml/s
- ml/min
- ml/h
- ml/d
- l/s
- l/min
- l/h
- l/d

US units

- af/s
- af/min
- af/h
- af/d
- ft³/s
- ft³/min
- ft³/h
- ft³/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;oil)
- bbl/min (imp;oil)
- bbl/h (imp;oil)
- bbl/d (imp;oil)

Other units

- bbl/s (imp;beer)
- bbl/min (imp;beer)
- bbl/h (imp;beer)
- bbl/d (imp;beer)

Factory setting

Country-specific:

- l/h
- gal/min (us)

Additional information	Effect
	The selected unit applies for: Volume flow parameter (→ ⓘ 50)
	Selection
	ⓘ For an explanation of the abbreviated units: → ⓘ 266

Volume unit				
Navigation	  Expert → Sensor → System units → Volume unit (0563)			
Description	Use this function to select the unit for the volume.			
Selection	<i>SI units</i>	<i>US units</i>	<i>Imperial units</i>	
	■ cm ³	■ af	■ gal (imp)	
	■ dm ³	■ ft ³	■ Mgal (imp)	
	■ m ³	■ fl oz (us)	■ bbl (imp;oil)	
	■ ml	■ gal (us)		
	■ l	■ kgal (us)		
		■ Mgal (us)		
		■ bbl (us;oil)		
		■ bbl (us;liq.)		
		■ bbl (us;beer)		
		■ bbl (us;tank)		
	<i>Other units</i>			
	bbl (imp;beer)			
Factory setting	Country-specific:			
	■ l			
	■ gal (us)			
Additional information	<i>Selection</i>			
	 For an explanation of the abbreviated units: →  266			

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	<i>SI units</i>	<i>US units</i>
	■ NI/s	■ Sft ³ /s
	■ NI/min	■ Sft ³ /min
	■ NI/h	■ Sft ³ /h
	■ NI/d	■ Sft ³ /d
	■ Nm ³ /s	■ Sgal/s (us)
	■ Nm ³ /min	■ Sgal/min (us)
	■ Nm ³ /h	■ Sgal/h (us)
	■ Nm ³ /d	■ Sgal/d (us)
	■ Sm ³ /s	■ Sbbl/s (us;liq.)
	■ Sm ³ /min	■ Sbbl/min (us;liq.)
	■ Sm ³ /h	■ Sbbl/h (us;liq.)
	■ Sm ³ /d	■ Sbbl/d (us;liq.)
		■ Sgal/s (imp)

■

 Sft³/s

■

 Sft³/min

■

 Sft³/h

■

 Sft³/d

■

 Sgal/s (us)

■

 Sgal/min (us)

■

 Sgal/h (us)

■

 Sgal/d (us)

■

 Sbbl/s (us;liq.)

■

 Sbbl/min (us;liq.)

■

 Sbbl/h (us;liq.)

■

 Sbbl/d (us;liq.)

■

 Sgal/s (imp)

■

 Sgal/min (imp)

■

 Sgal/h (imp)

■

 Sgal/d (imp)

Factory setting	Country-specific:
	■ NI/h ■ Sft³/min

Additional information	<i>Effect</i>
	The selected unit applies for: Corrected volume flow parameter (→ ⓘ 51) <i>Selection</i> ⓘ For an explanation of the abbreviated units: → ⓘ 266

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	US units	Imperial units
	■ NI	■ Sft³	Sgal (imp)
	■ Nm³	■ Sgal (us)	
	■ Sm³	■ Sbbl (us;liq.)	

■

 Sft³

■

 Sgal (us)

■

 Sbbl (us;liq.)

Sgal (imp)

Factory setting	Country-specific:
	■ NI ■ Sft³

Additional information	<i>Selection</i>
	ⓘ For an explanation of the abbreviated units: → ⓘ 266

**Density unit**

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

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

Selection

<i>SI units</i>	<i>US units</i>	<i>Imperial units</i>
■ g/cm ³	■ lb/ft ³	■ lb/gal (imp)
■ g/m ³	■ lb/gal (us)	■ lb/bbl (imp;beer)
■ kg/dm ³	■ lb/bbl (us;liq.)	■ lb/bbl (imp;oil)
■ kg/l	■ lb/bbl (us;beer)	
■ kg/m ³	■ lb/bbl (us;oil)	
■ SD4°C	■ lb/bbl (us;tank)	
■ SD15°C		
■ SD20°C		
■ SG4°C		
■ SG15°C		
■ SG20°C		

Factory setting Country-specific:
 ■ kg/l
 ■ lb/ft³

Additional information *Effect*
 The selected unit applies for:
Density parameter (→  51)

Selection

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

 For an explanation of the abbreviated units: →  266

**Reference density unit**

Navigation  Expert → Sensor → System units → Ref. dens. unit (0556)

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

Selection

<i>SI units</i>	<i>US units</i>
■ kg/Nm ³	■ lb/Sft ³
■ kg/Nl	
■ g/Scm ³	
■ kg/Sm ³	

Factory setting	Country-dependent ■ kg/Nl ■ lb/Sft³
Additional information	<i>Effect</i> The selected unit applies for: ■ Fixed reference density parameter (→ ⓘ 75) ■ Reference density parameter (→ ⓘ 51) <i>Selection</i>  For an explanation of the abbreviated units: → ⓘ 266

Temperature unit

Navigation	 Expert → Sensor → System units → Temperature unit (0557)						
Description	Use this function to select the unit for the temperature.						
Selection	<table><tr><td><i>SI units</i></td><td><i>US units</i></td></tr><tr><td>■ °C</td><td>■ °F</td></tr><tr><td>■ K</td><td>■ °R</td></tr></table>	<i>SI units</i>	<i>US units</i>	■ °C	■ °F	■ K	■ °R
<i>SI units</i>	<i>US units</i>						
■ °C	■ °F						
■ K	■ °R						

Factory setting	Country-specific: ■ °C ■ °F
Additional information	<i>Effect</i> The selected unit applies for: ■ Minimum value parameter (→ ⓘ 250) ■ Maximum value parameter (→ ⓘ 250) ■ Maximum value parameter (→ ⓘ 251) ■ Minimum value parameter (→ ⓘ 251) ■ Average value parameter (→ ⓘ 252) ■ Minimum value parameter (→ ⓘ 252) ■ Maximum value parameter (→ ⓘ 252) ■ Minimum value parameter (→ ⓘ 253) ■ Maximum value parameter (→ ⓘ 253) ■ Reference temperature parameter (→ ⓘ 75) <i>Selection</i>  For an explanation of the abbreviated units: → ⓘ 266

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	<i>SI units</i> ■ m ■ mm ■ µm	<i>US units</i> ■ ft ■ in
Factory setting	Country-specific: ■ mm ■ in	
Additional information	<i>Selection</i>  For an explanation of the abbreviated units: →  266	

Pressure unit

Navigation	 Expert → Sensor → System units → Pressure unit (0564)	
Description	Use this function to select the unit for the pipe pressure.	
Selection	<i>SI units</i> ■ Pa a ■ kPa a ■ MPa a ■ bar ■ Pa g ■ kPa g ■ MPa g ■ bar g	<i>US units</i> ■ psi a ■ psi g
Factory setting	Country-specific: ■ bar a ■ psi a	
Additional information	<i>Selection</i>  For an explanation of the abbreviated units: →  266	

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: →  266

3.2.3 "Process parameters" submenu

Navigation

 Expert → Sensor → Process param.

► Process parameters

Flow damping (1801)

Density damping (1808)

Flow override (1839)

Temperature damping (1807)

► Low flow cut off

► Partially filled pipe detection

→  64

→  65

→  65

→  66

→  66

→  69

Flow damping



Navigation

 Expert → Sensor → Process param. → Flow damping (1801)

Description

Use this function to enter a value for 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

0 s

Additional information

Effect

-  The damping affects the following variables of the device:
- Outputs →  85
 - Low flow cut off →  66
 - Totalizer →  224

User entry

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

Density damping		
Navigation	  Expert → Sensor → Process param. → Density damping (1808)	
Description	Use this function to enter a value for density damping. Use this parameter to reduce the sensitivity of the measuring signal to fluctuations in the density of the medium. For this purpose, the depth of the density filter is adjusted. The damping is suitable for non-homogeneous liquids, for example.	
User entry	0 to 999.9 s	
Factory setting	0 s	
Additional information	<i>Result</i>  The damping has an effect on the following process variables: ■ Density (→  51) ■ Reference density (→  51) ■ Volume flow (→  50) ■ Corrected volume flow (→  51)	
Flow override		
Navigation	  Expert → Sensor → Process param. → Flow override (1839)	
Description	Use this function to select whether to interrupt the evaluation of measured values. This is useful for the cleaning processes of a pipeline, for example.	
Selection	■ Off ■ On	
Factory setting	Off	
Additional information	<i>Effect</i>  This setting affects all the functions and outputs of the measuring device. <i>Description</i> 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	

Temperature damping

Navigation	  Expert → Sensor → Process param. → Temp. damping (1807)
Description	Use this function to enter a value for temperature damping. Use this parameter to reduce the sensitivity of the temperature measuring signal to interference peaks. For this purpose, the temperature filter is adjusted.
User entry	0 to 999.9 s
Factory setting	0 s
Additional information	Result  In addition to the temperature, the damping has an effect on the following temperature-dependent process variables: ▪ Reference density (→  51) ▪ Corrected volume flow (→  51)

"Low flow cut off" submenu

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

► Low flow cut off

Assign process variable (1837)

→  66

On value low flow cutoff (1805)

→  67

Off value low flow cutoff (1804)

→  67

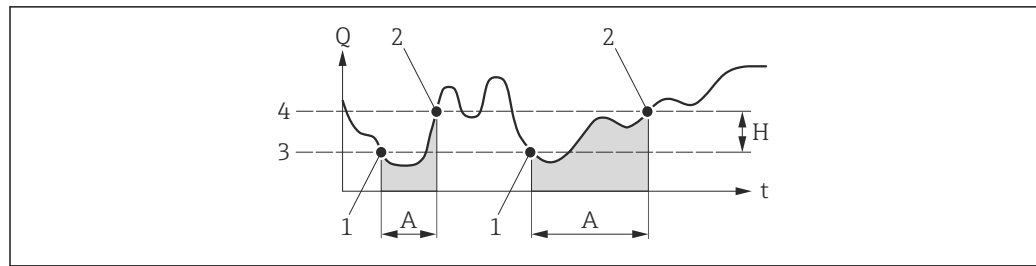
Pressure shock suppression (1806)

→  68

Assign process variable

Navigation	  Expert → Sensor → Process param. → Low flow cut off → Assign variable (1837)
Description	Use this function to select the process variable for low flow cutoff detection.
Selection	▪ Off ▪ Mass flow ▪ Volume flow ▪ Corrected volume flow
Factory setting	Mass flow

On value low flow cutoff 	
Navigation	  Expert → Sensor → Process param. → Low flow cut off → On value (1805)
Prerequisite	One of the following options is selected in the Assign process variable parameter (→  66): ■ Mass flow ■ Volume flow ■ Corrected volume flow
Description	Use this function to enter a switch-on value for low flow cut off. Low flow cut off is activated if the value entered is not equal to 0 or pressure shock suppression is active →  67.
User entry	Positive floating-point number
Factory setting	Depends on country and nominal diameter →  264
Additional information	<i>Dependency</i>  The unit depends on the process variable selected in the Assign process variable parameter (→  66).
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 (→  66): ■ Mass flow ■ Volume flow ■ Corrected volume flow
Description	Use this function to enter a switch-off value for low flow cut off. The off value is entered as a positive hysteresis from the on value →  67.
User entry	0 to 100.0 %
Factory setting	50 %

Additional information*Example*

A0012887

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

Pressure shock suppression**Navigation**

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

Prerequisite

One of the following options is selected in the **Assign process variable** parameter (→ 66):

- Mass flow
- Volume flow
- Corrected volume flow

Description

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

User entry

0 to 100 s

Factory setting

0 s

Additional information*Description***Pressure shock suppression is enabled**

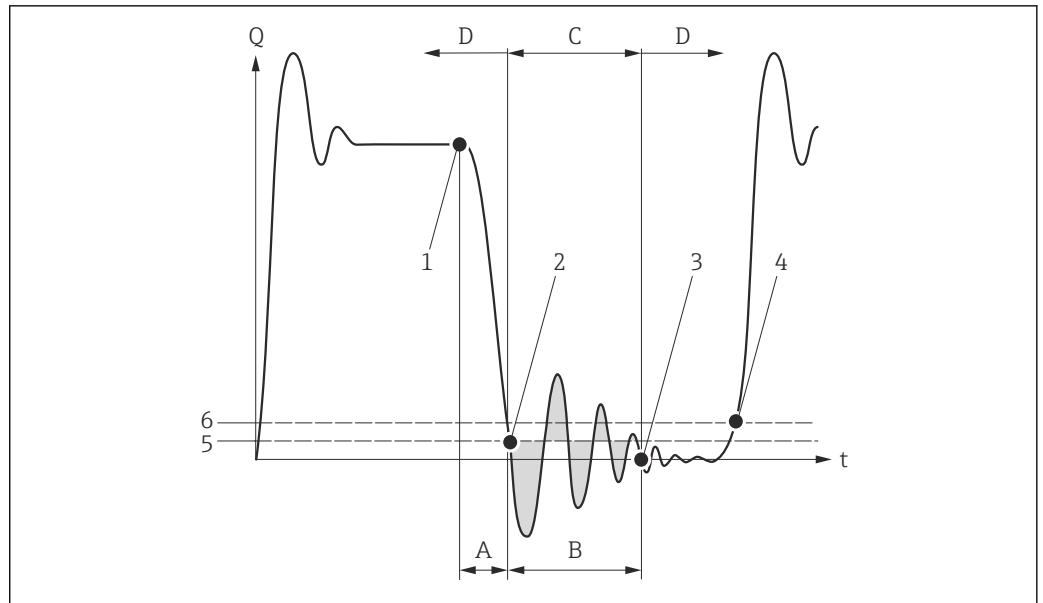
- Prerequisite:
 - Flow rate < on-value of low flow cut off
 - or
 - Changing the flow direction
- Output values
 - Flow displayed: 0
 - Totalizer: the totalizers are pegged at the last correct value

Pressure shock suppression is disabled

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

Example

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



A0012888

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

"Partially filled pipe detection" submenu

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

► Partially filled pipe detection	
Assign process variable (1833)	→  70
Low value partial filled pipe detection (1834)	→  70
High value partial filled pipe detection (1835)	→  70
Response time part. filled pipe detect. (1836)	→  71
Maximum damping partial filled pipe det. (2492)	→  71

Assign process variable



Navigation	 Expert → Sensor → Process param. → Partial pipe det → Assign variable (1833)
Description	Use this function to select a process variable to detect empty or partially filled measuring tubes. For gas measurement: Deactivate monitoring due to low gas density.
Selection	■ Off ■ Density ■ Reference density
Factory setting	Off

Low value partial filled pipe detection



Navigation	 Expert → Sensor → Process param. → Partial pipe det → Low value (1834)
Prerequisite	One of the following options is selected in the Assign process variable parameter (→  70): ■ Density ■ Reference density
Description	Use this function to enter a lower limit value to enable detection of empty or partially filled measuring tubes. If the measured density falls below this value, monitoring is enabled.
User entry	Positive floating-point number
Factory setting	200
Additional information	<i>User entry</i> The lower limit value must be less than the upper limit value that is specified in the High value partial filled pipe detection parameter (→  70).  The unit depends on the process variable selected in the Assign process variable parameter (→  70).

High value partial filled pipe detection



Navigation	 Expert → Sensor → Process param. → Partial pipe det → High value (1835)
Prerequisite	One of the following options is selected in the Assign process variable parameter (→  70): ■ Density ■ Reference density
Description	Use this function to enter an upper limit value to enable detection of empty or partially filled measuring tubes. If the measured density exceeds this value, detection is enabled.
User entry	Signed floating-point number

Factory setting	6 000
Additional information	<i>User entry</i> The upper limit value must be greater than the lower limit value, that is specified in the Low value partial filled pipe detection parameter (→  70).  The unit depends on the process variable selected in the Assign process variable parameter (→  70).

Response time part. filled pipe detect.



Navigation	 Expert → Sensor → Process param. → Partial pipe det → Response time (1836)
Prerequisite	One of the following options is selected in the Assign process variable parameter (→  70): ■ Density ■ Reference density
Description	Use this parameter to enter the time period until the diagnostic message △S862 Partly filled pipe appears in the case of a partially filled or empty measuring tube.
User entry	0 to 100 s
Factory setting	1 s

Maximum damping partial filled pipe det.



Navigation	 Expert → Sensor → Process param. → Partial pipe det → Max. damping (2492)
Prerequisite	One of the following options is selected in the Assign process variable parameter (→  70): ■ Density ■ Reference density
Description	Use this function to enter a damping value to enable detection of empty or partially filled measuring tubes.
User entry	Positive floating-point number
Factory setting	0
Additional information	<i>Description</i> In the case of non-homogeneous media or air pockets, the damping of the measuring tubes increases. If the set value is exceeded, the diagnostic message △S862 Partly filled pipe is displayed. <i>User entry</i> The parameter is enabled only if the input value is greater than 0.

3.2.4 "Measurement mode" submenu

Navigation   Expert → Sensor → Measurement mode

► Measurement mode

Select medium (2513)

→  72

Select gas type (2488)

→  72

Reference sound velocity (2489)

→  73

Temperature coefficient sound velocity (2490)

→  73

Select medium

Navigation	  Expert → Sensor → Measurement mode → Select medium (2513)
Description	Use this function to select the type of medium.
Selection	■ Liquid ■ Gas
Factory setting	Liquid

Select gas type

Navigation	  Expert → Sensor → Measurement mode → Select gas type (2488)
Prerequisite	In the Select medium parameter (→  72) the Gas option is selected.
Description	Use this function to select the type of gas for the measuring application.
Selection	■ Air ■ Ammonia NH3 ■ Neon Ne ■ Argon Ar ■ Sulfur hexafluoride SF6 ■ Oxygen O2 ■ Ozone O3 ■ Nitrogen oxide NOx ■ Nitrogen N2 ■ Nitrous oxide N2O ■ Methane CH4 ■ Hydrogen H2 ■ Helium He ■ Hydrogen chloride HCl

- Hydrogen sulfide H₂S
- Ethylene C₂H₄
- Carbon dioxide CO₂
- Carbon monoxide CO
- Chlorine Cl₂
- Butane C₄H₁₀
- Propane C₃H₈
- Propylene C₃H₆
- Ethane C₂H₆
- Others
- Krypton Kr
- Xenon Xe
- Vinyl Chloride C₂H₃Cl
- Sulfur dioxide SO₂

Factory setting Air

Reference sound velocity



Navigation Expert → Sensor → Measurement mode → Sound velocity (2489)

Prerequisite In the **Select gas type** parameter (→ 72) the **Others** option is selected.

Description Use this function to enter the sound velocity of the desired gas at 0 °C (+32 °F).

User entry 1 to 99 999.9999 m/s

Factory setting 331.5 m/s

Additional information *User entry*
For conversion: 1 m/s= 3.281 ft/s

Temperature coefficient sound velocity



Navigation Expert → Sensor → Measurement mode → Temp. coeff. SV (2490)

Prerequisite In the **Select gas type** parameter (→ 72) the **Others** option is selected.

Description Use this function to enter the temperature coefficient of the sound velocity of the desired gas.

User entry Positive floating-point number

Factory setting 0.61 (m/s)/K

Additional information *User entry*
For conversion: $T [K] = 0.555 \times T [^{\circ}F]$

3.2.5 "Calculated values" submenu

Navigation  Expert → Sensor → Calculated value

► Calculated values

► Corrected volume flow calculation

→  74

► Reference values

→  74

"Corrected volume flow calculation" submenu

Navigation  Expert → Sensor → Calculated value → Corr. vol.flow.

► Corrected volume flow calculation

Corrected volume flow calculation (1812)

→  74

Corrected volume flow calculation

Navigation	 Expert → Sensor → Calculated value → Corr. vol.flow. → Corr. vol.flow. (1812)
Description	Use this function to select the reference density for calculating the corrected volume flow.
Selection	■ Fixed reference density ■ Calculated reference density
Factory setting	Calculated reference density

"Reference values" submenu

Navigation  Expert → Sensor → Calculated value → Reference values

► Reference values

Fixed reference density (1814)

→  75

Reference temperature (1816)

→  75

Linear expansion coefficient (1817)

→  76

Square expansion coefficient (1818)

→  76

Fixed reference density



Navigation	Expert → Sensor → Calculated value → Reference values → Fix ref.density (1814)
Prerequisite	In the Corrected volume flow calculation parameter (→ 74) the Fixed reference density option is selected.
Description	Use this function to enter a fixed value for the reference density.
User entry	Positive floating-point number
Factory setting	1 kg/Nl
Additional information	<i>Dependency</i> The unit is taken from the Reference density unit parameter (→ 61)

Reference temperature



Navigation	Expert → Sensor → Calculated value → Reference values → Ref. temperature (1816)
Prerequisite	In the Corrected volume flow calculation parameter (→ 74) the Calculated reference density option is selected.
Description	Use this function to enter a reference temperature for calculating the reference density.
User entry	–273.15 to 99 999 °C
Factory setting	Country-specific: ■ +20 °C ■ +68 °F
Additional information	<i>Dependency</i> The unit is taken from the Temperature unit parameter (→ 62)

Reference density calculation

$$\rho_n = \rho \cdot (1 + \alpha \cdot \Delta t + \beta \cdot \Delta t^2)$$

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- ρ_N : reference density
- ρ : fluid density currently measured
- t : fluid temperature currently measured
- t_N : reference temperature at which the reference density is calculated (e.g. 20 °C)
- Δt : $t - t_N$
- α : linear expansion coefficient of the fluid, unit = [1/K]; K = Kelvin
- β : square expansion coefficient of the fluid, unit = [1/K²]

Linear expansion coefficient

Navigation	  Expert → Sensor → Calculated value → Reference values → Linear exp coeff (1817)
Prerequisite	In the Corrected volume flow calculation parameter (→  74) the Calculated reference density option is selected.
Description	Use this function to enter a linear, fluid-specific expansion coefficient for calculating the reference density.
User entry	Signed floating-point number
Factory setting	0.0

Square expansion coefficient

Navigation	  Expert → Sensor → Calculated value → Reference values → Square exp coeff (1818)
Description	For fluid with a non-linear expansion pattern: use this function to enter a quadratic, fluid-specific expansion coefficient for calculating the reference density.
User entry	Signed floating-point number
Factory setting	0.0

3.2.6 "Sensor adjustment" submenu

Navigation   Expert → Sensor → Sensor adjustm.

► Sensor adjustment

Installation direction (1809)

→  76

► Zero point adjustment

→  77

► Process variable adjustment

→  78

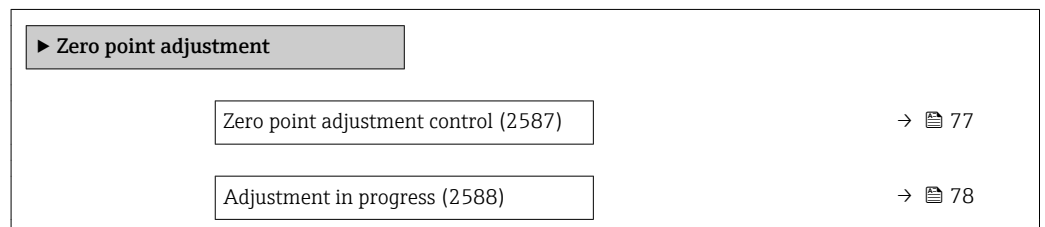
Installation direction

Navigation	  Expert → Sensor → Sensor adjustm. → Install. direct. (1809)
Description	Use this function to change the sign of the medium flow direction.

Selection	▪ Flow in arrow direction ▪ Flow against arrow direction
Factory setting	Flow in arrow direction
Additional information	<i>Description</i>  Before changing the sign: ascertain the actual direction of fluid flow with reference to the direction indicated by the arrow on the sensor nameplate.

"Zero point adjustment" submenu

Navigation  Expert → Sensor → Sensor adjustm. → Zero point adj.



Zero point adjustment control

Navigation	 Expert → Sensor → Sensor adjustm. → Zero point adj. → Zero point adj. (2587)
Description	Use this parameter to start automatic zero point adjustment.
Selection	▪ Cancel ▪ Busy ▪ Zero point adjust failure ▪ Start
Factory setting	Cancel
Additional information	<i>Description</i> During calibration, the Busy option and the Adjustment in progress parameter (→  78) appear beneath the parameter. If the sensor is defective or flow is present, the Zero point adjust failure option appears on the display. At the same time, this event is entered in the event logbook (event list) →  237.  The new zero point value determined by the measuring device is displayed in the Zero point parameter (→  83).  Information on the procedure for performing zero point adjustment is provided in the Operating Instructions for the device.

Description

- Cancel
If zero point adjustment has failed, select this option to cancel zero point adjustment.
- Busy
Is displayed during zero point adjustment.
- Zero point adjust failure
Is displayed if zero point adjustment has failed.
- Start
Select this option to start zero point adjustment.

Adjustment in progress

Navigation	 Expert → Sensor → Sensor adjustm. → Zero point adj. → Adj. in progress (2588)
Prerequisite	The Start option is selected in the Zero point adjustment control parameter (→  77).
Description	Displays the current status of the zero point adjustment via a progress bar.
User interface	0 to 100 %

"Process variable adjustment" submenu

Navigation  Expert → Sensor → Sensor adjustm. → Variable adjust

► Process variable adjustment		
Mass flow offset (1820)		→  79
Mass flow factor (1819)		→  79
Volume flow offset (1815)		→  79
Volume flow factor (1821)		→  80
Corrected volume flow offset (1824)		→  80
Corrected volume flow factor (1823)		→  80
Density offset (1826)		→  80
Density factor (1825)		→  81
Reference density offset (1828)		→  81
Reference density factor (1827)		→  81

Temperature offset (1830)	→ 82
Temperature factor (1829)	→ 82

Mass flow offset

Navigation	Expert → Sensor → Sensor adjustm. → Variable adjust → Mass flow offset (1820)
Description	Use this function to enter the zero point shift for the mass flow trim. The mass flow unit on which the shift is based is 1 kg/s.
User entry	Signed floating-point number
Factory setting	0 kg/s
Additional information	<i>Description</i> Corrected value = (factor × value) + offset

Mass flow factor

Navigation	Expert → Sensor → Sensor adjustm. → Variable adjust → Mass flow factor (1819)
Description	Use this function to enter a quantity factor (without time) for the mass flow. This factor refers in each case to the mass flow of 1 kg/s.
User entry	Positive floating-point number
Factory setting	1

Volume flow offset

Navigation	Expert → Sensor → Sensor adjustm. → Variable adjust → Vol. flow offset (1815)
Description	Use this function to enter the zero point shift for the volume flow trim. The volume flow unit on which the shift is based is 1 m³/s.
User entry	Signed floating-point number
Factory setting	0 m³/s
Additional information	<i>Description</i> Corrected value = (factor × value) + offset

Volume flow factor

Navigation	 Expert → Sensor → Sensor adjustm. → Variable adjust → Vol. flow factor (1821)
Description	Use this function to enter a quantity factor (without time) for the volume flow. This factor refers in each case to the volume of 1 m ³ /s.
User entry	Positive floating-point number
Factory setting	1

Corrected volume flow offset

Navigation	 Expert → Sensor → Sensor adjustm. → Variable adjust → Corr. vol offset (1824)
Description	Use this function to enter the zero point shift for the corrected volume flow trim. The corrected volume flow unit on which the shift is based is 1 Nm ³ /s.
User entry	Signed floating-point number
Factory setting	0 Nm ³ /s
Additional information	<i>Description</i>  Corrected value = (factor × value) + offset

Corrected volume flow factor

Navigation	 Expert → Sensor → Sensor adjustm. → Variable adjust → Corr. vol factor (1823)
Description	Use this function to enter a quantity factor (without time) for the corrected volume flow. This factor refers in each case to the standard volume of 1 Nm ³ /s.
User entry	Positive floating-point number
Factory setting	1

Density offset

Navigation	 Expert → Sensor → Sensor adjustm. → Variable adjust → Density offset (1826)
Description	Use this parameter to enter the zero point shift for the density trim. The density unit on which the shift is based is 1 kg/m ³ .
User entry	Signed floating-point number

Factory setting 0 kg/m³

Additional information *Description*



Corrected value = (factor × value) + offset

Density factor



Navigation Expert → Sensor → Sensor adjustm. → Variable adjust → Density factor (1825)

Description Use this function to enter a quantity factor for the density. This factor refers in each case to the density of 1 kg/m³.

User entry Positive floating-point number

Factory setting 1

Reference density offset



Navigation Expert → Sensor → Sensor adjustm. → Variable adjust → Ref.dens. offset (1828)

Description Use this parameter to enter the zero point shift for the reference density trim. The standard density unit on which the shift is based is 1 kg/Nm³.

User entry Signed floating-point number

Factory setting 0 kg/Nm³

Additional information *Description*



Corrected value = (factor × value) + offset

Reference density factor



Navigation Expert → Sensor → Sensor adjustm. → Variable adjust → Ref.dens. factor (1827)

Description Use this function to enter a quantity factor for the reference density. This factor refers in each case to the reference density of 1 kg/Nm³.

User entry Positive floating-point number

Factory setting 1

Temperature offset	
Navigation	Expert → Sensor → Sensor adjustm. → Variable adjust → Temp. offset (1830)
Description	Use this function to enter the zero point shift for the temperature trim. The temperature on which the shift is based is entered in Kelvin.
User entry	Signed floating-point number
Factory setting	0 K
Additional information	<i>Description</i> $\text{Corrected value} = (\text{factor} \times \text{value}) + \text{offset}$

Temperature factor	
Navigation	Expert → Sensor → Sensor adjustm. → Variable adjust → Temp. factor (1829)
Description	Use this parameter to enter a factor by which the temperature in Kelvin is multiplied.
User entry	Positive floating-point number
Factory setting	1

3.2.7 "Calibration" submenu

Navigation Expert → Sensor → Calibration

► Calibration	
Calibration factor (2431)	→ 83
Zero point (2437)	→ 83
Nominal diameter (2807)	→ 83
C 0 (2469)	→ 84
C 1 (2574)	→ 84
C 2 (2575)	→ 84
C 3 (2576)	→ 84

C 4 (2577)	→ 85
C 5 (2578)	→ 85

Calibration factor

Navigation	 Expert → Sensor → Calibration → Cal. factor (2431)
Description	Displays the current calibration factor for the sensor.
User interface	Signed floating-point number
Factory setting	Depends on nominal diameter and calibration
Additional information	<i>Description</i>  The value is also specified on the sensor nameplate.

Zero point

Navigation	 Expert → Sensor → Calibration → Zero point (2437)
Description	Use this function to enter a zero point correction value for the sensor.
User entry	Signed floating-point number
Factory setting	0
Additional information	<i>Description</i>  The value is also specified on the sensor nameplate.

Nominal diameter

Navigation	 Expert → Sensor → Calibration → Nominal diameter (2807)
Description	Displays the nominal diameter of the sensor.
User interface	DNxx / x"
Factory setting	Depends on the size of the sensor

Additional information *Description*

The value is also specified on the sensor nameplate.

C 0

Navigation Expert → Sensor → Calibration → C 0 (2469)**Description** Displays the current density coefficient C0 of the sensor.**Additional information** *Description*

A density trim can alter the calibration value of the density coefficient.

C 1

Navigation Expert → Sensor → Calibration → C 1 (2574)**Description** Displays the current density coefficient C1 of the sensor.**Additional information** *Description*

A density trim can alter the calibration value of the density coefficient.

C 2

Navigation Expert → Sensor → Calibration → C 2 (2575)**Description** Displays the current density coefficient C2 of the sensor.**Additional information** *Description*

A density trim can alter the calibration value of the density coefficient.

C 3

Navigation Expert → Sensor → Calibration → C 3 (2576)**Description** Displays the current density coefficient C3 of the sensor.**Additional information** *Description*

A density trim can alter the calibration value of the density coefficient.

C 4

Navigation	  Expert → Sensor → Calibration → C 4 (2577)
Description	Displays the current density coefficient C4 of the sensor.
Additional information	<i>Description</i>  A density trim can alter the calibration value of the density coefficient.

C 5

Navigation	  Expert → Sensor → Calibration → C 5 (2578)
Description	Displays the current density coefficient C5 of the sensor.
Additional information	<i>Description</i>  A density trim can alter the calibration value of the density coefficient.

3.3 "Output" submenu

Navigation  Expert → Output

► Output

► Pulse/frequency/switch output →  85

3.3.1 "Pulse/frequency/switch output" submenu

Navigation  Expert → Output → PFS output

► Pulse/frequency/switch output

Operating mode (0469) →  87

Assign pulse output (0460) →  88

Value per pulse (0455) →  89

Pulse width (0452) →  89

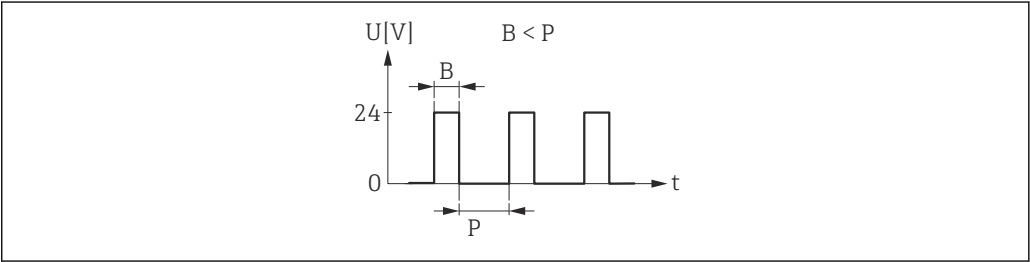
Measuring mode (0457) →  90

Failure mode (0480)	→  91
Pulse output (0456)	→  91
Assign frequency output (0478)	→  92
Minimum frequency value (0453)	→  93
Maximum frequency value (0454)	→  94
Measuring value at minimum frequency (0476)	→  94
Measuring value at maximum frequency (0475)	→  95
Measuring mode (0479)	→  96
Damping output (0477)	→  98
Response time (0491)	→  98
Failure mode (0451)	→  99
Failure frequency (0474)	→  100
Output frequency (0471)	→  101
Switch output function (0481)	→  101
Assign diagnostic behavior (0482)	→  102
Assign limit (0483)	→  102
Switch-on value (0466)	→  104
Switch-off value (0464)	→  104
Assign flow direction check (0484)	→  105
Assign status (0485)	→  105
Switch-on delay (0467)	→  106
Switch-off delay (0465)	→  106
Failure mode (0486)	→  106

Switch status (0461)	→ 107
Invert output signal (0470)	→ 107

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	<i>"Pulse" option</i> Quantity-dependent pulse with configurable pulse width ■ Whenever a specific mass, volume or corrected volume is reached (pulse value), a pulse is output, the duration of which was set previously (pulse width). ■ The pulses are never shorter than the set duration. Example ■ Total flow approx. 100 g/s ■ Pulse value 0.1 g ■ Pulse width 0.05 ms ■ Pulse rate 1 000 Impuls/s



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

B Pulse width entered

P Pauses between the individual pulses

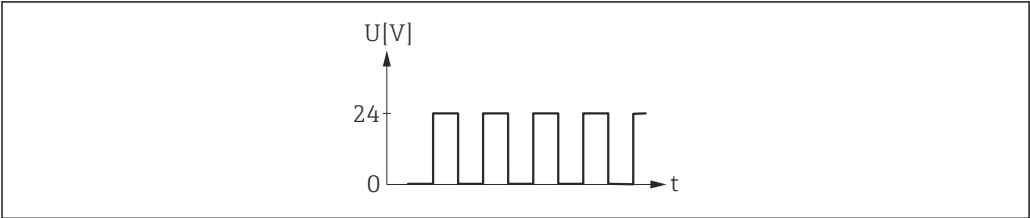
"Frequency" option

Flow-proportional frequency output with 1:1 on/off ratio

An output frequency is output that is proportional to the value of a process variable, such as mass flow, volume flow, corrected volume flow, density, reference density, temperature, carrier tube temperature, electronic temperature, vibration frequency, vibration amplitude, oscillation damping or signal asymmetry.

Example

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



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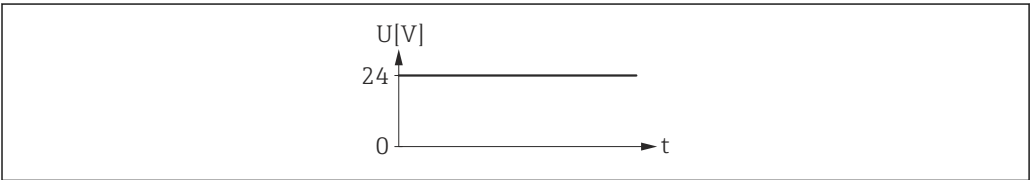
5 Flow-proportional frequency output

"Switch" option

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

Example

Alarm response without alarm

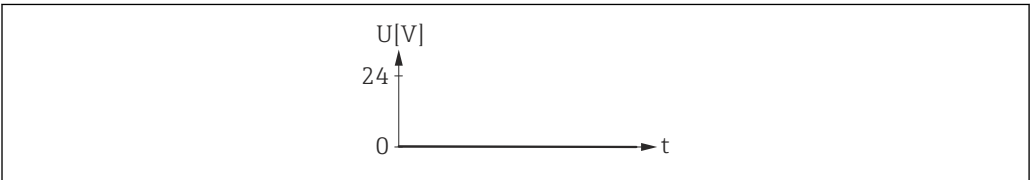


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6 No alarm, high level

Example

Alarm response in case of alarm



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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 (→ 87).

Description

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

Selection

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

Factory setting Off

Value per pulse

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

Prerequisite The **Pulse** option is selected in the **Operating mode** parameter (→  87), and one of the following options is selected in the **Assign pulse output** parameter (→  88):

- Mass flow
- Volume flow
- Corrected volume flow

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

User entry Signed floating-point number

Factory setting Depends on country and nominal diameter →  263

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 (→  87), the **Pulse** option is selected and one of the following options is selected in the **Assign pulse output** parameter (→  88):

- Mass flow
- Volume flow
- Corrected volume flow

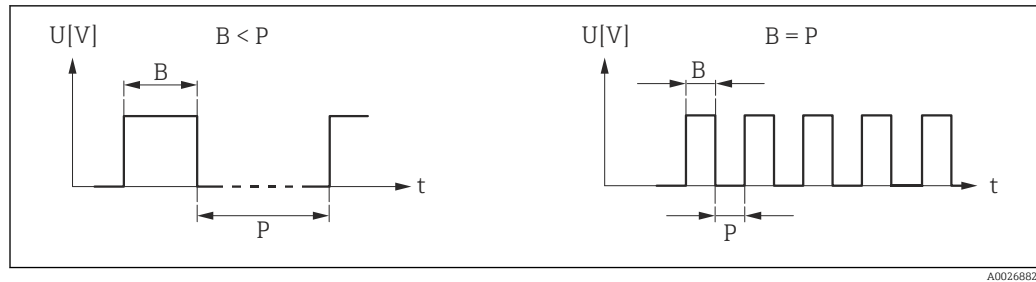
Description Use this function to enter the duration of the output pulse.

User entry 5 to 2 000 ms

Factory setting 100 ms

Additional information *Description*

- Define how long a pulse is (duration).
- The maximum pulse rate is defined by $f_{\max} = 1 / (2 \times \text{pulse width})$.
- The interval between two pulses lasts at least as long as the set pulse width.
- The maximum flow is defined by $Q_{\max} = f_{\max} \times \text{pulse value}$.
- 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
- $f_{\max}: 1 / (2 \times 0.1 \text{ ms}) = 5 \text{ kHz}$
- $Q_{\max}: 5 \text{ kHz} \times 0.1 \text{ g} = 0.5 \text{ kg/s}$



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

Measuring mode



Navigation

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

Prerequisite

The **Pulse** option is selected in the **Operating mode** parameter (→ 87), and one of the following options is selected in the **Assign pulse output** parameter (→ 88):

- Mass flow
- Volume flow
- Corrected volume flow

Description

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

Selection

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

Factory setting

Forward flow

Additional information

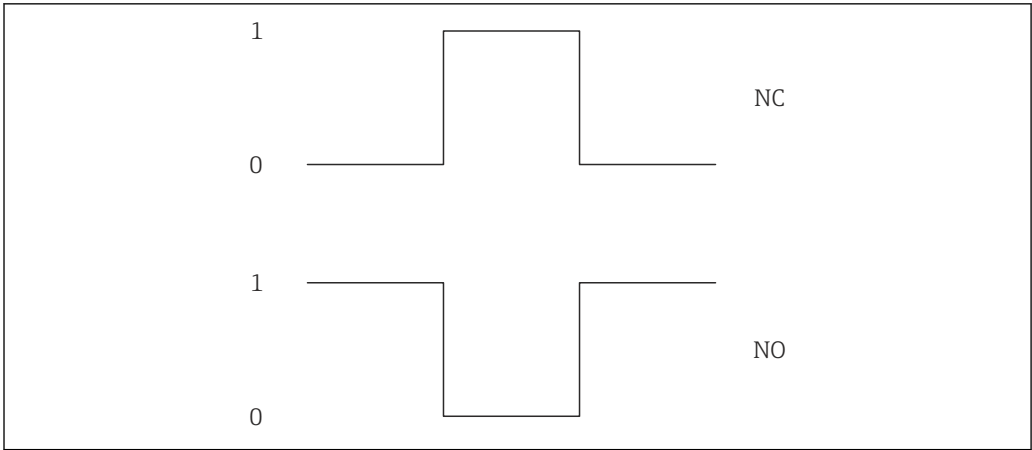
Selection

- Forward flow
Positive flow is output, negative flow is not output.
- Forward/Reverse flow
Positive and negative flow are output (absolute value), but a distinction is not made between positive and negative flow.
- Reverse flow
Negative flow is output, positive flow is not output.
- Reverse flow compensation
The flow components outside the span are buffered, balanced and output after a maximum delay of 60 s.



For a detailed description of the options available, see the **Measuring mode** parameter (→ 96)

Failure mode	
Navigation	Expert → Output → PFS output → Failure mode (0480)
Prerequisite	In the Operating mode parameter (→ 87), the Pulse option is selected and one of the following options is selected in the Assign pulse output parameter (→ 88): ■ Mass flow ■ Volume flow ■ Corrected volume flow
Description	Use this function to select the failure mode of the pulse output in the event of a device alarm.
Selection	■ Actual value ■ No pulses
Factory setting	No pulses
Additional information	<i>Description</i> The dictates of safety render it advisable to ensure that the pulse output shows a predefined behavior in the event of a fault. <i>Options</i> ■ 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 (→ 87).
Description	Displays the pulse frequency currently output.
User interface	Positive floating-point number
Additional information	<i>Description</i> ■ 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 (→ 89) and the Pulse width parameter (→ 89) 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 (→  107), 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 (→  91)) 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 (→  87).
Description	Use this function to select the process variable for the frequency output.
Selection	■ Off ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Carrier pipe temperature * ■ Electronic temperature ■ Oscillation frequency ■ Oscillation amplitude ■ Oscillation damping ■ Signal asymmetry
Factory setting	Off

* Visibility depends on order options or device settings

Additional information	<i>Selection</i> ■ Oscillation frequency Displays the current oscillation frequency of the measuring tubes. This frequency depends on the density of the medium. ■ Oscillation amplitude Displays the relative oscillation amplitude of the measuring tubes in relation to the preset value. This value is 100 % under optimum conditions. The value can decrease in the event of low 4 to 20 mA loop currents and/or difficult media (two-phase, high viscosity or high gas velocity). ■ Oscillation damping Displays the current oscillation damping. Oscillation damping is an indicator of the sensor's current need for excitation power. ■ Signal asymmetry Displays the relative difference between the oscillation amplitude at the inlet and outlet of the sensor. The measured value is the result of production tolerances of the sensor coils and should remain constant over the life time of a sensor.
Minimum frequency value	
Navigation	 Expert → Output → PFS output → Min. freq. value (0453)
Prerequisite	The Frequency option is selected in the Operating mode parameter (→  87), and one of the following options is selected in the Assign frequency output parameter (→  92): ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Carrier pipe temperature * ■ Electronic temperature ■ Oscillation frequency ■ Oscillation amplitude ■ Oscillation damping ■ Signal asymmetry  Detailed description of the options Oscillation frequency, Oscillation amplitude, Oscillation damping and Signal asymmetry: Assign frequency output parameter (→  92)
Description	Use this function to enter the start value frequency.
User entry	0 to 1 000 Hz
Factory setting	0 Hz

* Visibility depends on order options or device settings

Maximum frequency value		
Navigation	 Expert → Output → PFS output → Max. freq. value (0454)	
Prerequisite	The Frequency option is selected in the Operating mode parameter (→  87), and one of the following options is selected in the Assign frequency output parameter (→  92): ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Carrier pipe temperature * ■ Electronic temperature ■ Oscillation frequency ■ Oscillation amplitude ■ Oscillation damping ■ Signal asymmetry  Detailed description of the options Oscillation frequency, Oscillation amplitude, Oscillation damping and Signal asymmetry: Assign frequency output parameter (→  92)	
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 (→  87), and one of the following options is selected in the Assign frequency output parameter (→  92): ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Carrier pipe temperature * ■ Electronic temperature ■ Oscillation frequency ■ Oscillation amplitude ■ Oscillation damping ■ Signal asymmetry  Detailed description of the options Oscillation frequency, Oscillation amplitude, Oscillation damping and Signal asymmetry: Assign frequency output parameter (→  92)	

* Visibility depends on order options or device settings

Description	Use this function to enter the measured value for the start value frequency.
User entry	Signed floating-point number
Factory setting	Depends on country and nominal diameter
Additional information	<i>Dependency</i>  The entry depends on the process variable selected in the Assign frequency output parameter (→  92).

Measuring value at maximum frequency

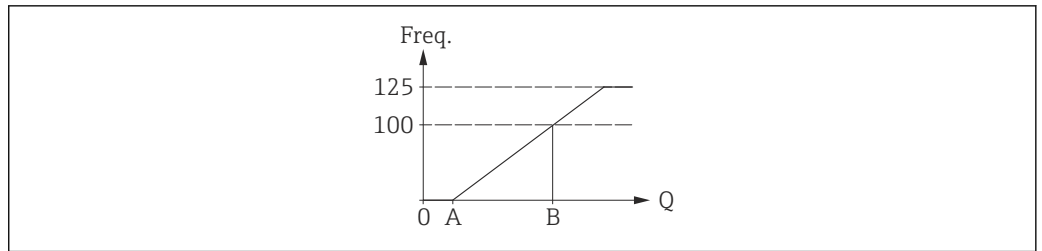

Navigation	  Expert → Output → PFS output → Val. at max.freq (0475)
Prerequisite	The Frequency option is selected in the Operating mode parameter (→  87), and one of the following options is selected in the Assign frequency output parameter (→  92): ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Carrier pipe temperature * ■ Electronic temperature ■ Oscillation frequency ■ Oscillation amplitude ■ Oscillation damping ■ Signal asymmetry  Detailed description of the options Oscillation frequency, Oscillation amplitude, Oscillation damping and Signal asymmetry: Assign frequency output parameter (→  92)

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	<i>Description</i> Use this function to enter the maximum measured value at the maximum frequency. The selected process variable is output as a proportional frequency. <i>Dependency</i>  The entry depends on the process variable selected in the Assign frequency output parameter (→  92).

* Visibility depends on order options or device settings

Measuring mode	
Navigation	  Expert → Output → PFS output → Measuring mode (0479)
Prerequisite	The Frequency option is selected in the Operating mode parameter (→  87), and one of the following options is selected in the Assign frequency output parameter (→  92): ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Carrier pipe temperature * ■ Electronic temperature ■ Oscillation frequency ■ Oscillation amplitude ■ Oscillation damping ■ Signal asymmetry  Detailed description of the options Oscillation frequency, Oscillation amplitude, Oscillation damping and Signal asymmetry: Assign frequency output parameter (→  92)
Description	Use this function to select the measuring mode for the frequency output.
Selection	■ Forward flow ■ Forward/Reverse flow ■ Reverse flow compensation
Factory setting	Forward flow
Additional information	<i>"Forward flow" option</i> The frequency output signal is proportional to the measured variable assigned. The measuring range is defined by the values that are assigned to the Measuring value at minimum frequency (A) and the Measuring value at maximum frequency (B). The flow components outside the scaled measuring range are taken into account for signal output as follows: One of the values is defined as equal to zero flow e.g.: ■ Measuring value at minimum frequency = 0 kg/h ■ Measuring value at maximum frequency = 10kg/h – If the effective flow exceeds or falls below this measured value, no diagnostic message is output and the frequency output retains its value (0 Hz in the example). – If the effective flow exceeds or falls below the other measured value, the diagnostic message  S442 Frequency output is displayed and the frequency output behaves according to the setting in the Failure mode parameter (→  99). Both values are defined such that they are not equal to zero flow e.g.: ■ Measuring value at minimum frequency = –5 kg/h ■ Measuring value at maximum frequency = 10kg/h If the effective flow exceeds or falls below this measuring range, the diagnostic message  S442 Frequency output 1 to 2 is displayed and the frequency output behaves according to the setting in the Failure mode parameter (→  99).

* Visibility depends on order options or device settings

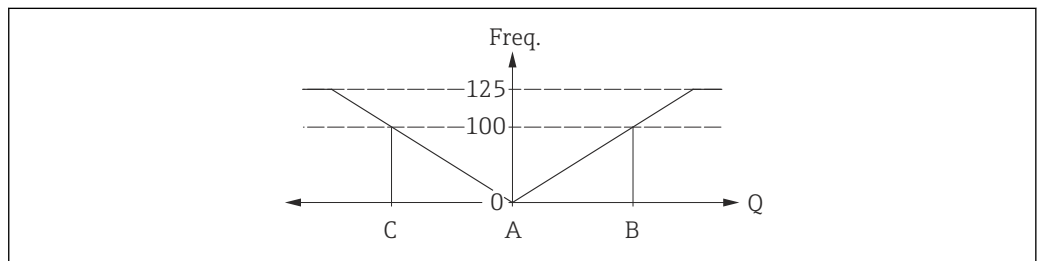


A0026641

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

"Forward/Reverse flow" option

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



A0026642

- The flow direction can be output via the configurable relay or status outputs.
- The **Forward/Reverse flow** option can only be selected if the values in the **Measuring value at minimum frequency** parameter (→ 94) and **Measuring value at maximum frequency** parameter (→ 95) have the same sign or one of the values is zero.
- If the values have different signs, the **Forward/Reverse flow** option cannot be selected.

"Reverse flow compensation" option

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

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

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

Damping output



Navigation

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

Prerequisite

The **Frequency** option is selected in the **Operating mode** parameter (→ 87), and one of the following options is selected in the **Assign frequency output** parameter (→ 92):

- Mass flow
- Volume flow
- Corrected volume flow
- Density
- Reference density
- Temperature
- Carrier pipe temperature *
- Electronic temperature
- Oscillation frequency
- Oscillation amplitude
- Oscillation damping
- Signal asymmetry



Detailed description of the options **Oscillation frequency**, **Oscillation amplitude**, **Oscillation damping** and **Signal asymmetry**: **Assign frequency output** parameter (→ 92)

Description

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

User entry

0 to 999.9 s

Factory setting

0.0 s

Additional information

Description

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

Response time

Navigation

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

Prerequisite

The **Frequency** option is selected in the **Operating mode** parameter (→ 87), and one of the following options is selected in the **Assign frequency output** parameter (→ 92):

- Mass flow
- Volume flow
- Corrected volume flow
- Density
- Reference density
- Temperature
- Carrier pipe temperature *
- Electronic temperature
- Oscillation frequency

* Visibility depends on order options or device settings

- Oscillation amplitude
- Oscillation damping
- Signal asymmetry



Detailed description of the options **Oscillation frequency**, **Oscillation amplitude**, **Oscillation damping** and **Signal asymmetry**: **Assign frequency output** parameter (→ 92)

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.

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
 - or
 - Density damping
 - or
 - Temperature damping

Failure mode



Navigation

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

Prerequisite

The **Frequency** option is selected in the **Operating mode** parameter (→ 87), and one of the following options is selected in the **Assign frequency output** parameter (→ 92):

- Mass flow
- Volume flow
- Corrected volume flow
- Density
- Reference density
- Temperature
- Carrier pipe temperature *
- Electronic temperature
- Oscillation frequency
- Oscillation amplitude
- Oscillation damping
- Signal asymmetry



Detailed description of the options **Oscillation frequency**, **Oscillation amplitude**, **Oscillation damping** and **Signal asymmetry**: **Assign frequency output** parameter (→ 92)

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

* Visibility depends on order options or device settings

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 (→  100) 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.

Failure frequency

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

Prerequisite The **Frequency** option is selected in the **Operating mode** parameter (→  87), and one of the following options is selected in the **Assign frequency output** parameter (→  92):

- Mass flow
- Volume flow
- Corrected volume flow
- Density
- Reference density
- Temperature
- Carrier pipe temperature *
- Electronic temperature
- Oscillation frequency
- Oscillation amplitude
- Oscillation damping
- Signal asymmetry

 Detailed description of the options **Oscillation frequency**, **Oscillation amplitude**, **Oscillation damping** and **Signal asymmetry**: **Assign frequency output** parameter (→  92)

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

* Visibility depends on order options or device settings

Output frequency

Navigation	 Expert → Output → PFS output → Output freq. (0471)
Prerequisite	In the Operating mode parameter (→  87), 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 output function



Navigation	 Expert → Output → PFS output → Switch out funct (0481)
Prerequisite	The Switch option is selected in the Operating mode parameter (→  87).
Description	Use this function to select a function for the switch output.
Selection	■ Off ■ On ■ Diagnostic behavior ■ Limit ■ Flow direction check ■ Status
Factory setting	Off
Additional information	<i>Options</i> ■ Off The switch output is permanently switched off (open, non-conductive). ■ On The switch output is permanently switched on (closed, conductive). ■ Diagnostic behavior Indicates if the diagnostic event is present or not. Is used to output diagnostic information and to react to it appropriately at the system level. ■ Limit Indicates if a specified limit value has been reached for the process variable. Is used to output diagnostic information relating to the process and to react to it appropriately at the system level. ■ Flow direction check Indicates the flow direction (forward or reverse flow). ■ Status Indicates the device status depending on whether empty pipe detection or low flow cut off is selected.

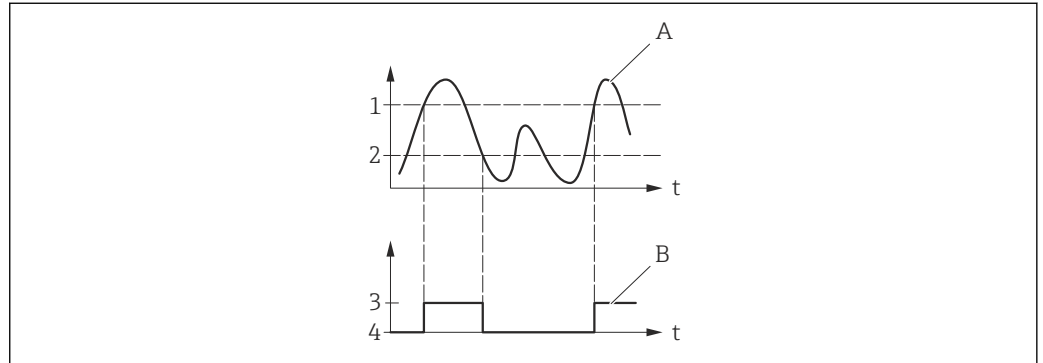
Assign diagnostic behavior 	
Navigation	  Expert → Output → PFS output → Assign diag. beh (0482)
Prerequisite	■ The Switch option is selected in the Operating mode parameter (→  87). ■ The Diagnostic behavior option is selected in the Switch output function parameter (→  101).
Description	Use this function to select the diagnostic event category that is displayed for the switch output.
Selection	■ Alarm ■ Alarm or warning ■ Warning
Factory setting	Alarm
Additional information	<i>Description</i>  If no diagnostic event is pending, the switch output is closed and conductive. <i>Options</i> ■ 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 (→  87). ■ The Limit option is selected in the Switch output function parameter (→  101).
Description	Use this function to select a process variable for the limit function.
Selection	■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Totalizer 1 ■ Totalizer 2 ■ Totalizer 3
Factory setting	Mass flow

Additional information*Description*

Behavior of status output when Switch-on value > Switch-off value:

- Process variable > Switch-on value: transistor is conductive
- Process variable < Switch-off value: transistor is non-conductive

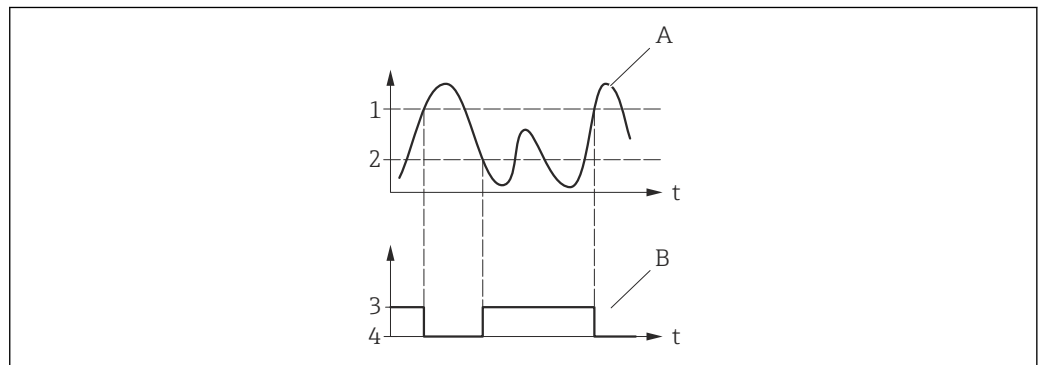


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- 1 Switch-on value
- 2 Switch-off value
- 3 Conductive
- 4 Non-conductive
- A Process variable
- B Status output

Behavior of status output when Switch-on value < Switch-off value:

- Process variable < Switch-on value: transistor is conductive
- Process variable > Switch-off value: transistor is non-conductive

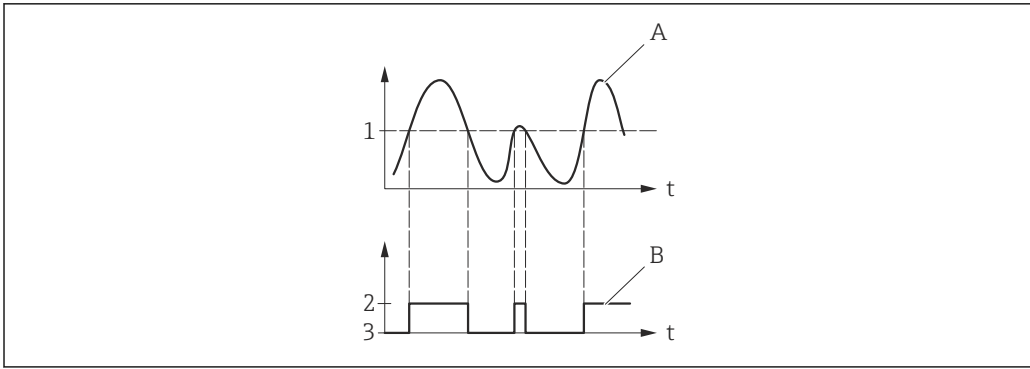


A0026892

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

Behavior of status output when Switch-on value = Switch-off value:

- Process variable > Switch-on value: transistor is conductive
- Process variable < Switch-off value: transistor is non-conductive



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 (→ 87). ■ The Limit option is selected in the Switch output function parameter (→ 101).
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 m³/h ■ 0 ft³/h
Additional information	<i>Description</i> 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. <i>Dependency</i> The unit depends on the process variable selected in the Assign limit parameter (→ 102).

Switch-off value

Navigation	Expert → Output → PFS output → Switch-off value (0464)
Prerequisite	■ The Switch option is selected in the Operating mode parameter (→ 87). ■ The Limit option is selected in the Switch output function parameter (→ 101).

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 m³/h ■ 0 ft³/h
Additional information	<i>Description</i> 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. <i>Dependency</i>  The unit depends on the process variable selected in the Assign limit parameter (→  102).

Assign flow direction check

Navigation	  Expert → Output → PFS output → Assign dir.check (0484)
Prerequisite	■ The Switch option is selected in the Operating mode parameter (→  87). ■ The Flow direction check option is selected in the Switch output function parameter (→  101).
Description	Use this function to select a process variable for monitoring the flow direction.
Selection	■ Mass flow ■ Volume flow ■ Corrected volume flow
Factory setting	Mass flow

Assign status

Navigation	  Expert → Output → PFS output → Assign status (0485)
Prerequisite	■ The Switch option is selected in the Operating mode parameter (→  87). ■ The Status option is selected in the Switch output function parameter (→  101).
Description	Use this function to select a device status for the switch output.
Selection	■ Partially filled pipe detection ■ Low flow cut off ■ Digital output 6
Factory setting	Partially filled pipe detection

Additional information*Options*

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

Switch-on delay**Navigation**

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

Prerequisite

- The **Switch** option is selected in the **Operating mode** parameter (→ 87).
- The **Limit** option is selected in the **Switch output function** parameter (→ 101).

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 (→ 87).
- The **Limit** option is selected in the **Switch output function** parameter (→ 101).

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 .

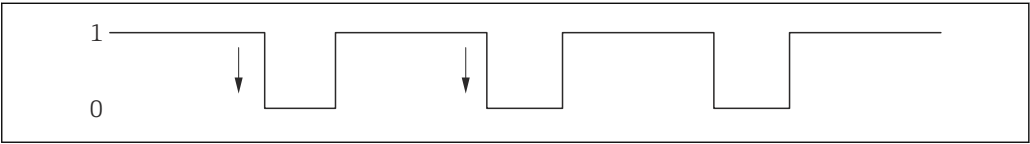
Switch status

Navigation	 Expert → Output → PFS output → Switch status (0461)
Prerequisite	In the Operating mode parameter (→  87), the Switch option is selected.
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

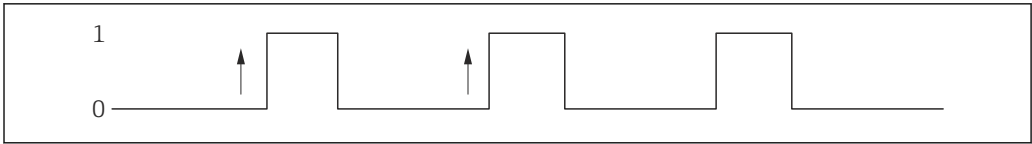


Navigation	 Expert → Output → PFS output → Invert outp.sig. (0470)
Description	Use this function to select whether to invert the output signal.
Selection	■ No ■ Yes
Factory setting	No
Additional information	Selection
	No option (passive - negative)



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Yes option (passive - positive)



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3.4 "Communication" submenu

Navigation  Expert → Communication

► Communication

Device address (11061)

→  108

► Resource block

→  108

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

► Resource block

Block tag (10702)

→  109

Target mode (10728)

→  110

Actual mode (10725)

→  112

Manufacturer Id (10721)

→  115

Device Type (10711)

→  115

Device Revision (10710)

→  115

DD Revision (10709)	→ ⓘ 115
Restart (10800)	→ ⓘ 116
Write Lock (10747)	→ ⓘ 123
ITK Version (10794)	→ ⓘ 129

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	<i>Description</i> ⓘ 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 (→  110).

User interface

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

Additional information

User interface

 Detailed description of the options displayed: **Target mode** parameter (→  110)

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 (→  110) 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 (→  110)

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	<i>Options</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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

Promass 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 | <ul style="list-style-type: none"> ■ Uninitialized ■ Run ■ Resource ■ Defaults ■ Processor ■ To factory defaults ■ To delivery settings ■ ENP restart ■ To transducer defaults ■ Factory Default Blocks |
|------------------|---|

Factory setting	Uninitialized
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Features

Navigation	 Expert → Communication → Resource block → Features (10713)
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Description	Displays the additional options that are supported by the measuring device.
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- | | |
|-----------------------|--|
| User interface | <ul style="list-style-type: none"> ■ 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 | <ul style="list-style-type: none"> ■ 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 (→  214) block.
Selection	■ Uninitialized ■ Off ■ Clear
Factory setting	Uninitialized
Additional information	<i>Options</i>  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 (→  214) block.
User interface	■ Uninitialized ■ Clear ■ Active
Additional information	<i>User interface</i> ■ 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 (→  214) function block.
Selection	■ OFF ■ SET
Factory setting	OFF
Additional information	<i>Options</i> ■ 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	<i>Description</i> 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. <i>Options</i> ■ 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	<i>Description</i>  ■ 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	<i>Description</i> 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 (→  124). Current parameter (→  125) indicates the current status of all process alarms.
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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	<i>Description</i> 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	<i>Description</i>  ■ 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

► Analog inputs

► Analog input 1 to 6

→  130

3.5.1 "Analog input 1 to 6" submenu

Navigation  Expert → Analog inputs → Analog input 1 to 6

► Analog input 1 to 6

Block tag (6901–1 to 6)

→  130

Status (6906–1 to 6)

→  136

Value (6907–1 to 6)

→  138

Channel (6902–1 to 6)

→  157

Linearization Type (6905–1 to 6)

→  158

Process Value Filter Time
(6909–1 to 6)

→  163

Block tag

Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Block tag (6901–1 to 6)
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 6 → Static Revision (6973–1 to 6)
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 6 → Tag Description (6974–1 to 6)
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 6 → Strategy (6972–1 to 6)
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 6 → Alert Key (6916–1 to 6)
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 6 → Target mode (6960–1 to 6)
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 (→ 110)

Actual mode

Navigation Expert → Analog inputs → Analog input 1 to 6 → Actual mode (6957–1 to 6)

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 (→ 131).

User interface

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

Additional information *User interface*



Detailed description of the options displayed: **Target mode** parameter (→ 110)

Permitted mode

Navigation Expert → Analog inputs → Analog input 1 to 6 → Permitted mode (6959–1 to 6)

Description Use this function to select the Permitted mode: The selection defines which operating modes are available in Target mode (→ 131) 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
(→ 110)

Normal mode**Navigation**

Expert → Analog inputs → Analog input 1 to 6 → Normal mode (6958–1 to 6)

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
(→ 110)

Block Error**Navigation**

Expert → Analog inputs → Analog input 1 to 6 → Block Error (6922–1 to 6)

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 6 → Status (6964-1 to 6)
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 6 → Value (6965-1 to 6)
Description	Displays the input value (PV).
User interface	Signed floating-point number
Additional information	<i>Dependency</i>  The unit is taken from the: Units index parameter (→  148)

Status

Navigation	  Expert → Analog inputs → Analog input 1 to 6 → Status (6906-1 to 6)
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 6 → Value (6907–1 to 6)
Description	Input for the output value (OUT).
User entry	Signed floating-point number

Factory setting 0 K

Additional information *Dependency*



The unit is taken from the: **Units index** parameter (→ 148)

Simulate Status

Navigation Expert → Analog inputs → Analog input 1 to 6 → Simulate Status (6967-1 to 6)

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 SensConvNotAccurate HighLimit
- Uncertain SensConvNotAccurate Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLimit
- 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 ActiveAdvisoryAlarm HighLimit
- Good NonCAS ActiveAdvisoryAlarm 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 6 → Simulate Value (6968–1 to 6)
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	<i>Dependency</i>  The unit is taken from the: Units index parameter (→  145)

Transducer Status

Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Transducer Stat (6969–1 to 6)
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 ActiveAdvisoryAlarm HighLimit
- Good NonCAS ActiveAdvisoryAlarm 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 6 → Transducer Value (6970–1 to 6)
Description	Displays the current value of the transducer block.
User interface	Signed floating-point number
Factory setting	0 %
Additional information	<i>Dependency</i>  The unit is taken from the: Units index parameter (→  145)

Simulate En/Disable

Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Sim. En/Disable (6966–1 to 6)
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 6 → EU at 100% (6982–1 to 6)
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	<i>Dependency</i>  The unit is taken from the: Units index parameter (→  145)

EU at 0%

Navigation	 Expert → Analog inputs → Analog input 1 to 6 → EU at 0% (6981–1 to 6)
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	<i>Dependency</i>  The unit is taken from the: Units index parameter (→  145)

Units index

Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Units index (6983–1 to 6)
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
- m³/s
- m³/min
- m³/h
- m³/d
- cm³/s
- cm³/min
- cm³/h
- cm³/d
- dm³/s
- dm³/min
- dm³/h
- dm³/d
- ml/s
- ml/min
- ml/h
- ml/d
- NI/s
- NI/d
- NI/h
- NI/min
- Nm³/s
- Nm³/min
- Nm³/h
- Nm³/d
- Sm³/s
- Sm³/min
- Sm³/h
- Sm³/d
- MSft³/d
- kg/l
- kg/m³
- kg/dm³
- g/cm³
- g/m³
- SD4°C
- SD15°C
- SD20°C
- SG4°C
- SG20°C
- SG15°C
- kg/NI
- g/Scm³

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
- ft³/s
- ft³/min
- ft³/h
- ft³/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)
- Sft³/s
- Sft³/min
- Sft³/h
- Sft³/d
- Sgal/s (us)
- Sgal/min (us)

Imperial units

- gal/s (imp)
- gal/min (imp)
- gal/h (imp)
- gal/d (imp)
- Mgal/s (imp)
- Mgal/min (imp)
- Mgal/h (imp)
- Mgal/d (imp)
- bbl/d (imp;oil)
- bbl/h (imp;oil)
- bbl/min (imp;oil)
- bbl/s (imp;oil)
- lb/gal (imp)
- lb/bbl (imp;oil)
- Mgal (imp)
- Sgal (imp)
- bbl (imp;oil)
- gal (imp)

- kg/Sm³
- kg/Nm³
- K
- °C
- %
- g
- Nl
- Nm³
- Sl
- Sm³
- ml
- kg
- l
- t
- m³
- dm³
- cm³
- Sgal/d (us)
- Sgal/h (us)
- Sbbbl/s (us;liq.)
- Sbbbl/min (us;liq.)
- Sbbbl/h (us;liq.)
- Sbbbl/d (us;liq.)
- Sgal/s (imp)
- Sgal/min (imp)
- Sgal/h (imp)
- Sgal/d (imp)
- MSft³/D
- lb/ft³
- lb/gal (us)
- lb/bbl (us;tank)
- lb/bbl (us;liq.)
- lb/bbl (us;beer)
- lb/bbl (us;oil)
- lb/Sft³
- °F
- °R
- oz
- af
- fl oz (us)
- Mgal (us)
- bbl (us;oil)
- bbl (us;liq.)
- bbl (us;tank)
- Sgal (us)
- Sbbbl (us;liq.)
- Sft³
- kgal (us)
- lb
- ft³
- gal (us)
- bbl (us;beer)
- STon

Other units
bbl (imp;beer)

Factory setting %

Additional information *Result*

The selected unit applies for:

- Simulate Value (→  141)
- Transducer Value (→  144)
- EU at 0% (→  144)
- EU at 100% (→  144)

Decimal

Navigation  Expert → Analog inputs → Analog input 1 to 6 → Decimal (6980–1 to 6)

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 6 → EU at 100% (6963-1 to 6)

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

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

 The unit is taken from the: **Units index** parameter (→  148)

EU at 0%

Navigation  Expert → Analog inputs → Analog input 1 to 6 → EU at 0% (6962-1 to 6)

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

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

 The unit is taken from the: **Units index** parameter (→  148)

Units index

Navigation  Expert → Analog inputs → Analog input 1 to 6 → Units index (6908-1 to 6)

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

Selection	<i>SI units</i>	<i>US units</i>	<i>Imperial units</i>
	■ K	■ mils	■ gal (imp)
	■ m	■ °F	■ Btu
	■ m ³	■ °R	■ LTon
	■ Pa s	■ ft	■ datherm
	■ m ² /s	■ in	■ Btu/h
	■ P	■ bbl (us;liq.)	■ Btu/day
	■ cP	■ Sft ³	■ Btu/min
	■ St	■ in/min	■ Btu/s
	■ cSt	■ oz	■ LTon/d
	■ Wbm	■ STon	■ LTon/h
	■ Ns/m	■ lb/d	■ LTon/min
	■ 1/Jm ³	■ lb/h	■ LTon/s
	■ e/Vm ³	■ lb/min	■ gal/d (imp)
	■ m ³ /C	■ lb/s	■ gal/h (imp)
	■ (1/32 millisec)/min	■ STon/d	■ gal/min (imp)
	■ °C	■ STon/h	■ gal/s (imp)
	■ '	■ STon/min	■ lb/gal (imp)
	■ "	■ STon/s	■ Mgal/min (imp)
	■ rad	■ mile	■ Mgal/h (imp)
	■ °	■ yd	■ Mgal/d (imp)
	■ μm	■ ft ²	■ kgal/d (imp)
	■ mm	■ in ²	■ kgal/h (imp)
	■ cm ³	■ mile ²	■ kgal/min (imp)
	■ dm ³	■ yd ²	■ kgal/s (imp)
	■ hl	■ ft ³	■ μgal/d (imp)
	■ l	■ gal (us)	■ μgal/h (imp)
	■ ml	■ quart	■ μgal/min (imp)
	■ s	■ pint	■ μgal/s (imp)
	■ min	■ yd ³	■ mgal/d (imp)
	■ ks	■ mile ³	■ mgal/h (imp)
	■ μs	■ in ³	■ mgal/min (imp)
	■ ms	■ bushel	■ mgal/s (imp)
	■ m/h	■ bbl (us;oil)	■ Mgal/s (imp)
	■ m/s	■ ft/s	■ kImpGal
	■ mm/s	■ ft/h	■ Btu/lb
	■ Hz	■ lb	
	■ g	■ ft/min	
	■ kg	■ in/h	
	■ GWh	■ in/s	
	■ J	■ yd/h	
	■ kWh	■ yd/min	
	■ MWh	■ yd/s	
	■ kcal	■ lb/in ³	
	■ Mcal	■ lb/gal (us)	
	■ kW	■ STon/yd ³	
	■ MW	■ psi	
	■ W	■ psi a	
	■ MJ/h	■ psi g	
	■ mV	■ ftlbf	
	■ Ohm	■ lb/ft ³	
	■ pF	■ MPH	
	■ V	■ ft ³ /d	
	■ Ml Mega	■ ft ³ /h	
	■ mbar a	■ ft ³ /min	
	■ bar	■ ft ³ /s	
	■ dB	■ Sft ³ /h	
	■ kPa a	■ Sft ³ /min	
	■ kPa g	■ gal/d (us)	

■ MPa a	■ gal/h (us)
■ MPa g	■ gal/min (us)
■ Pa a	■ gal/s (us)
■ Pa g	■ Mgal/d (us)
■ g/d	■ bbl/d (us;oil)
■ g/h	■ bbl/h (us;oil)
■ g/min	■ bbl/min (us;oil)
■ g/s	■ bbl/s (us;oil)
■ kg/d	■ Mgal/h (us)
■ kg/h	■ Mgal/min (us)
■ kg/min	■ Mgal/s (us)
■ kg/s	■ Mgal (us)
■ cm	■ af
■ km	■ af/d
■ nm	■ af/h
■ pm	■ af/min
■ cm ²	■ af/s
■ dm ²	■ bbl/d (us;beer)
■ km ²	■ bbl/h (us;beer)
■ m ²	■ bbl/min (us;beer)
■ mm ²	■ bbl/s (us;beer)
■ mm ³	■ kgal/d (us)
■ cl	■ kgal/h (us)
■ t	■ kgal/min (us)
■ kg/m ³	■ kgal/s (us)
■ kg/dm ³	■ µgal/d (us)
■ g/cm ³	■ µgal/h (us)
■ g/m ³	■ µgal/min (us)
■ kg/l	■ µgal/s (us)
■ kgf/cm ²	■ mgal/d (us)
■ GJ	■ mgal/h (us)
■ kJ	■ mgal/min (us)
■ MJ	■ mgal/s (us)
■ km/h	■ kft ³ /d
■ kt	■ kft ³ /h
■ m/s ²	■ kft ³ /min
■ GHz	■ kft ³ /s
■ kHz	■ mft ³ /d
■ MHz	■ mft ³ /h
■ 1/min	■ mft ³ /min
■ 1/s	■ mft ³ /s
■ THz	■ ubbl(US Beer)/min
■ rad/s	■ ubbl(US Beer)/s
■ 1/s ²	■ mbbl(US Beer)/d
■ Mg	■ mbbl(US Beer)/h
■ mg	■ mbbl(US Beer)/min
■ g/l	■ mbbl(US Beer)/s
■ g/ml	■ kgal (us)
■ Mg/m ³	■ ac-in/d
■ t/m ³	■ ac-in/h
■ kgm/s	■ ac-in/m
■ kgm ²	■ ac-in/s
■ kgm ² /s	■ Mft ³ /d
■ kNm	■ ac-in
■ MNm	■ Mft ³
■ mNm	■ inH2Oa
■ Nm	■ inH2Og
■ kN	■ inH2O a(4°C)
■ MN	■ inH2Og(4°C)

■ μN	■ inH2O a(68°F)
■ mN	■ inH2Og(68°F)
■ N	■ ftH2Oa
■ mN/m	■ ftH2Og
■ N/m	■ ftH2O a(4°C)
■ atm	■ ftH2Og(4°C)
■ GPa	■ ftH2O a(68°F)
■ hPa	■ ftH2Og(68°F)
■ kPa	■ inHga
■ MPa	■ inHgg
■ μPa	■ inHg a(0°C)
■ mPa	■ inHgg(0°C)
■ Pa	■ klb(US)/d
■ torr	■ klb(US)/h
■ gf/cm^2	■ klb(US)/min
■ cal	■ klb(US)/s
■ EJ	■ MSft^3/D
■ mJ	■ mils/yr
■ PJ	■ ft/s^2
■ TJ	■ MLB/H
■ TWh	■ lbf-in/deg
■ 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	
■ pC	
■ Ah	
■ W/mK	
■ $\text{m}^2\text{K}/\text{W}$	
■ $\text{W}/\text{m}^2\text{K}$	
■ J/K	
■ kJ/K	
■ J/(kgK)	

- kJ/(kgK)
- J/kg
- kJ/kg
- MJ/kg
- C/cm³
- C/m³
- C/mm³
- kC/m³
- μC/m³
- mC/m³
- C/cm²
- C/m²
- C/mm²
- kC/m²
- μC/m²
- mC/m²
- kV/m
- MV/m
- μV/m
- mV/m
- V/cm
- V/m
- kV
- MV
- μV
- F
- μF
- mF
- nF
- F/m
- A/cm²
- kA/m²
- MA/m²
- A/cm
- A/m
- kA/m
- μT
- mT
- nT
- T
- mWb
- Wb
- H
- μH
- mH
- nH
- pH
- H/m
- μH/m
- nH/m
- Am²
- GOhm
- kOhm
- MOhm
- μOhm
- mOhm
- kS
- μS
- μS/cm

- mS
- S
- t/d
- t/h
- t/min
- t/s
- %
- m³/d
- m³/h
- m³/min
- m³/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/m²
- W/(sr·m²)
- cd
- cd/m²
- lm
- lm/m²
- lm/W
- lx
- μW/m²
- mW/m²
- pW/m²
- Pas/m³
- Pas/m
- ppm
- MJ/d
- MJ/min
- MJ/s
- cm³/d
- cm³/h
- cm³/min
- cm³/s
- Nm³
- Nm³/d
- Nm³/h
- Nm³/min
- Nm³/s
- Sm³
- Sm³/d
- Sm³/h

- Sm^3/min
- Sm^3/s
- Nl
- Nl/d
- Nl/h
- Nl/min
- Nl/s
- Sl
- ml/min
- B
- ppb
- ppth
- $^{\circ}\text{Balling}$
- km^3/d
- km^3/h
- km^3/min
- km^3/s
- Mm^3/d
- Mm^3/h
- Mm^3/min
- Mm^3/s
- $\mu\text{m}^3/\text{d}$
- $\mu\text{m}^3/\text{h}$
- $\mu\text{m}^3/\text{min}$
- $\mu\text{m}^3/\text{s}$
- 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
- hPa a
- hPa g
- $\text{gf}/\text{cm}^2 \text{ a}$
- $\text{gf}/\text{cm}^2 \text{ g}$
- $\text{kgf}/\text{cm}^2 \text{ a}$
- $\text{kgf}/\text{cm}^2 \text{ g}$
- mBarg
- μbar
- Gy
- mGy
- mSv
- 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
- m³/mol
- g/mol
- kg/mol
- l/mol
- mg/l
- µS/m
- mS/m
- nS/cm
- S/cm
- kOhmcm
- MOhmcm
- l/m³
- µL/L
- ml/m³
- ml/l
- J/mol
- kJ/mol
- J/(molK)
- Bq/kg
- kBq/kg
- MBq/kg
- J/g
- %/s
- %/V
- nA/ppm
- 1/32 ms
- 1/H
- /cm
- 1/K
- 1/m
- 1/mm
- Nm²/A
- Pa/A
- pA/hPa
- C/kg
- mC/kg
- dyne-cm/deg
- newton-m/deg
- bar a
- bar g

	<i>Custom-specific units</i> PV/Sec
Factory setting	K
Additional information	<i>Result</i> The selected unit applies for: ■ Value (→ ⓘ 136) ■ Value (→ ⓘ 138) ■ EU at 100% (→ ⓘ 144) ■ EU at 0% (→ ⓘ 144) ■ Low Cutoff (→ ⓘ 160) ■ High High Limit (→ ⓘ 168) ■ Float Value (→ ⓘ 172) ■ High Limit (→ ⓘ 169) ■ Float Value (→ ⓘ 174) ■ Low Limit (→ ⓘ 170) ■ Float Value (→ ⓘ 175) ■ Low Low Limit (→ ⓘ 170) ■ Float Value (→ ⓘ 177)

Decimal

Navigation	📄 Expert → Analog inputs → Analog input 1 to 6 → Decimal (6961-1 to 6)
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 6 → Grant (6926-1 to 6)
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 6 → Deny (6925-1 to 6)
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 6 → I/O Options (6941-1 to 6)
Description	Option for activating the low flow cut off.
Selection	Low Cutoff
Additional information	<i>Description</i>  The limit value for the low flow cut off is defined in Low Cutoff parameter (→  160).

Channel

Navigation	  Expert → Analog inputs → Analog input 1 to 6 → Channel (6902-1 to 6)
Description	Use this function to select the input value that should be processed in the analog input function block.
Selection	■ Uninitialized ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Totalizer 1 ■ Totalizer 2 ■ Totalizer 3
Factory setting	Uninitialized

Status Options	
Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Status Options (6971-1 to 6)
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.
Additional information	<i>Options</i> ■ 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 6 → Lin Type (6905-1 to 6)
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	<i>"Uninitialized" option</i> The function block does not switch to Auto operating mode. <i>"Direct" option</i> 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 (→  145) (Xd_Scale) and Units index (→  148) (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 (→  133).

"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 (→  163) (Field_Val)
 Y EU at 100% (→  148) (Out_Scale)
 Z EU at 0% (→  148) (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 (→  163) (Field_Val)
 Y EU at 100% (→  148) (Out_Scale)
 Z EU at 0% (→  148) (Out_Scale)

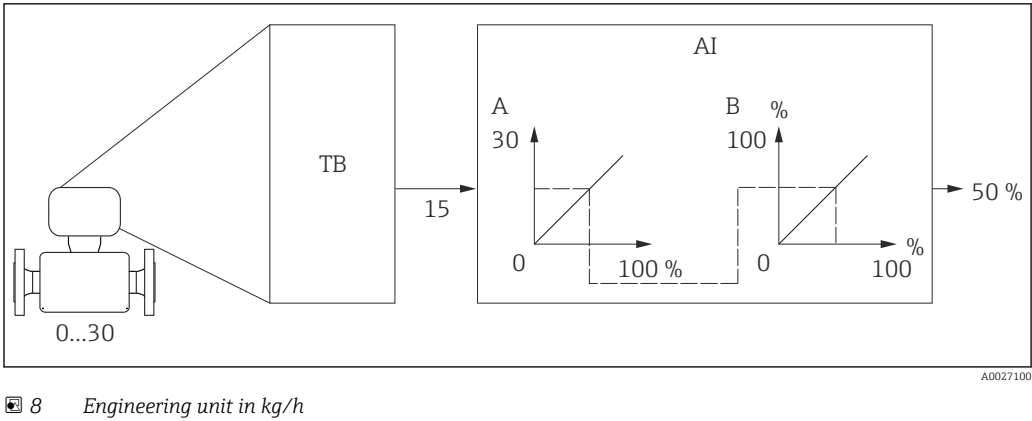
Example

- 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 (→  157), select **Mass flow** option.
2. In **Linearization Type** parameter (→  158), 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 (→  144), enter the value 0.
 - In **EU at 100%** parameter (→  144), enter the value 30.
 - In **Units index** parameter (→  145), select **kg/h** option.
4. In the Out_Scale parameter group:
 - ↳ **EU at 0%** parameter (→  148), enter the value 0.
 - In **EU at 100%** parameter (→  148), enter the value 100.
 - In **Units index** parameter (→  148), select **%** option.

The result is that an input value of 15 kg/h, for example, outputs a value of 50 % via the **Value** parameter (→  138).



Low Cutoff

Navigation Expert → Analog inputs → Analog input 1 to 6 → Low Cutoff (6956-1 to 6)

Description Use this function to enter a limit value for low flow cut off.

User entry Positive floating-point number

Factory setting 0 K

Additional information *Description*
If the converted input value (PV) falls below this limit value, then it is set to zero.
i The low flow cut off is enabled via **I/O Options** parameter (→ 157).

Dependency
i The unit is taken from the: **Units index** parameter (→ 148)

Status

Navigation Expert → Analog inputs → Analog input 1 to 6 → Status (6923-1 to 6)

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 6 → Value (6924–1 to 6)
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 6 → PV Filter Time (6909–1 to 6)
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	<i>Factory setting</i>  If the value 0 s is entered, filtering will not be performed.
Unacknowledged	
Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Unacknowledged (6978–1 to 6)
Description	Option for manually acknowledging an update of the static block parameter.
Selection	■ Uninitialized ■ Acknowledged ■ Unacknowledged
Factory setting	Uninitialized
Additional information	<i>Description</i>  ■ 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 6 → Update State (6979–1 to 6)
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 6 → Time Stamp (6977–1 to 6)
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 6 → Static revision (6976–1 to 6)
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 6 → Relative Index (6975–1 to 6)
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 6 → Unacknowledged (6920–1 to 6)
Description	Option for manually acknowledging a block alarm.
Selection	■ Uninitialized ■ Acknowledged ■ Unacknowledged
Factory setting	Uninitialized
Additional information	<i>Description</i> If Blk Alm Auto Ack option is not enabled in Acknowledge Option parameter (→  167), 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 6 → Alarm State (6917–1 to 6)
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 6 → Time Stamp (6919–1 to 6)
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 6 → Subcode (6918–1 to 6)

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 6 → Value (6921–1 to 6)

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 6 → Current (6912–1 to 6)

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 6 → Unacknowledged (6914-1 to 6)
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 6 → Unreported (6915-1 to 6)
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 6 → Disabled (6913-1 to 6)
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 6 → Ack. Option (6910-1 to 6)
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 (→  167).
Current parameter (→  166) indicates the current status of all process alarms.

Alarm Hysteresis

Navigation

 Expert → Analog inputs → Analog input 1 to 6 → Alarm Hysteresis (6911–1 to 6)

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 6 → Hi Hi Priority (6938–1 to 6)

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 6 → High High Limit (6937–1 to 6)

Description

Use this function to enter the value for the upper alarm limit.

User entry

Signed floating-point number

Factory setting

0 K

Additional information*Dependency*The unit is taken from the: **Units index** parameter (→ 148)

High Priority

Navigation

Expert → Analog inputs → Analog input 1 to 6 → High Priority (6940–1 to 6)

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 6 → High Limit (6939–1 to 6)

Description

Use this function to enter the value for the upper early warning limit.

User entry

Signed floating-point number

Factory setting

0 K

Additional information*Dependency*The unit is taken from the: **Units index** parameter (→ 148)

Low Priority

Navigation

Expert → Analog inputs → Analog input 1 to 6 → Low Priority (6955–1 to 6)

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 6 → Low Limit (6947–1 to 6)

Description Use this function to enter the value for the lower early warning limit.

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

 The unit is taken from the: **Units index** parameter (→  148)

Low Low Priority

Navigation  Expert → Analog inputs → Analog input 1 to 6 → Low Low Priority (6954–1 to 6)

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 6 → Low Low Limit (6953–1 to 6)

Description Use this function to enter the value for the lower alarm limit.

User entry Signed floating-point number

Factory setting 0 K

Additional information *Dependency*

 The unit is taken from the: **Units index** parameter (→  148)

Unacknowledged

Navigation  Expert → Analog inputs → Analog input 1 to 6 → Unacknowledged (6935–1 to 6)

Description Option for manually acknowledging a process alarm that has exceeded the upper alarm limit (High High Limit (→  168)).

- Selection**
- Uninitialized
 - Acknowledged
 - Unacknowledged

Factory setting Uninitialized

Additional information *Description*

If **HiHi Alm Auto Ack** option is not enabled in **Acknowledge Option** parameter (→  167), 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 6 → Alarm State (6932-1 to 6)

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 6 → Time Stamp (6934-1 to 6)

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 6 → Subcode (6933-1 to 6)

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 6 → Float Value (6936–1 to 6)
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	<i>Dependency</i>  The unit is taken from the: Units index parameter (→  148)

Unacknowledged

Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Unacknowledged (6930–1 to 6)
Description	Option for manually acknowledging a process alarm that has exceeded the upper early warning limit (High Limit (→  169)).
Selection	■ Uninitialized ■ Acknowledged ■ Unacknowledged
Factory setting	Uninitialized
Additional information	<i>Description</i> If Hi Alm Auto Ack option is not enabled in Acknowledge Option parameter (→  167), 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 6 → Alarm State (6927-1 to 6)
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 6 → Time Stamp (6929-1 to 6)
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 6 → Subcode (6928-1 to 6)
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 6 → Float Value (6931–1 to 6)
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	<i>Dependency</i>  The unit is taken from the: Units index parameter (→  148)

Unacknowledged

Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Unacknowledged (6945–1 to 6)
Description	Option for manually acknowledging a process alarm that has exceeded the lower early warning limit (Low Limit (→  170)).
Selection	■ Uninitialized ■ Acknowledged ■ Unacknowledged
Factory setting	Uninitialized
Additional information	<i>Description</i> If Lo Alm Auto Ack option is not enabled in Acknowledge Option parameter (→  167), 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 6 → Alarm State (6942–1 to 6)
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 6 → Time Stamp (6944-1 to 6)
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 6 → Subcode (6943-1 to 6)
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 6 → Float Value (6946-1 to 6)
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	<i>Dependency</i>  The unit is taken from the: Units index parameter (→  148)

Unacknowledged

Navigation	 Expert → Analog inputs → Analog input 1 to 6 → Unacknowledged (6951–1 to 6)
Description	Option for manually acknowledging a process alarm that has exceeded the lower alarm limit (Low Low Limit (→  170)).
Selection	■ Uninitialized ■ Acknowledged ■ Unacknowledged
Factory setting	Uninitialized
Additional information	<i>Description</i> If LoLo Alm Auto Ack option is not enabled in Acknowledge Option parameter (→  167), 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 6 → Alarm State (6948–1 to 6)
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 6 → Time Stamp (6950–1 to 6)
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 6 → Subcode (6949–1 to 6)
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 6 → Float Value (6952–1 to 6)
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 (→  148)

3.6 "Discrete inputs" submenu

Navigation   Expert → Discrete inputs

► Discrete inputs

► Discrete input 1 to 2

→  178

3.6.1 "Discrete input 1 to 2" submenu

Navigation  Expert → Discrete inputs → Discrete input 1 to 2

► Discrete input 1 to 2

Block tag (6851–1 to 2)

→  178

Status (6853–1 to 2)

→  184

Value (6854–1 to 2)

→  187

Channel (6852–1 to 2)

→  195

Process Value Filter Time
(6855–1 to 2)

→  195

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
(→ 110)

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 (→ 179).

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
(→ 110)

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 (→ 179) 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
(→ 110)

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
(→ 110)

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
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Transducer Status

Navigation	 Expert → Discrete inputs → Discrete input 1 to 2 → Transducer Stat (6880-1 to 2)
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Description	Displays the current status of the transducer block.
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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 SensConvNotAccurate HighLimit
- Uncertain SensConvNotAccurate Const
- Uncertain EngUnitRangeViolation NotLimit
- Uncertain EngUnitRangeViolation LowLimit
- Uncertain EngUnitRangeViolation HighLimit
- 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 ActiveAdvisoryAlarm HighLimit
- Good NonCAS ActiveAdvisoryAlarm 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 (→  196), **Value** parameter (→  198)) 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	<i>Description</i> 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	<i>Options</i> ■ Propagate Fault Fwd If the measuring device indicates the status Bad DeviceFailure or Bad SensorFailure, the device continues to measure and no alarm is triggered. The use of this substatus in the output value (OUT) is defined by Propagate Fault Fwd option. With the aid of this option, the user/operator can specify whether the alarm generation (sending an alarm) is triggered by the block or is forwarded downstream. ■ Uncertain if Man. If the Actual mode of the function block is in the Man option operating mode, Uncertain if Man. option is used as the output status.

Channel

Navigation	 Expert → Discrete inputs → Discrete input 1 to 2 → Channel (6852-1 to 2)
Description	Use this function to select the input value that should be processed in the discrete input function block.
Selection	■ Uninitialized ■ Empty pipe detection ■ Low flow cut off ■ Switch output status ■ Verification status
Factory setting	Empty pipe detection

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	<i>Description</i>  ■ 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	<i>Description</i> 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 (→  167). Current parameter (→  166) 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)
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Description	Option for disabling a process alarm category.
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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.
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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	<i>Description</i> 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.

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	<i>Description</i> If Disc 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.

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

► Analog outputs

► Multiple analog output →  206

3.7.1 "Multiple analog output" submenu

Navigation  Expert → Analog outputs → Multiple AO

► Multiple analog output

Block tag (11351) →  206

Status Options (11363) →  210

Fault State Time (11354) →  211

Fault State Val 1 (11355) →  211

Fault State Val 2 (11356) →  212

Fault State Val 3 (11357) →  212

Fault State Val 4 (11358) →  212

Fault State Val 5 (11359) →  213

Fault State Val 6 (11360) →  213

Fault State Val 7 (11361) →  213

Fault State Val 8 (11362) →  214

Fault State Status (11353) →  214

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	<i>Description</i>  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	<i>Selection</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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 (→  208) could be reached.
User interface	■ ROut ■ RCas ■ Cas ■ Auto ■ Man ■ LO ■ IMan ■ OOS
Additional information	<i>Selection</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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 (→  208). 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	<i>Selection</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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	<i>Selection</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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 (→  211) or if the **Set Fault State** parameter (→  121) is activated in the Resource block.

The fault state is defined via the following parameters:

- Fault State Time (→  211)
- 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 (→ 210).

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 (→ 210).

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 (→ 210).

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 (→ 210).

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 (→ 210).

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 (→ 210).

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 (→  210).
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 (→  210).
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

► Discrete outputs

► Multiple discrete output

→  215

3.8.1 "Multiple discrete output" submenu

Navigation  Expert → Discrete outputs → Multiple DO

► Multiple discrete output

Block tag (11252)

Status Options (11268)

Fault State Time (11255)

Fault State Value Discrete 1 (11256)

Fault State Value Discrete 2 (11257)

Fault State Value Discrete 3 (11258)

Fault State Value Discrete 4 (11259)

Fault State Value Discrete 5 (11260)

Fault State Value Discrete 6 (11261)

Fault State Value Discrete 7 (11262)

Fault State Value Discrete 8 (11263)

Fault State Status (11254)

→  215

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→  222

→  223

→  223

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	<i>Description</i>  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	<i>Options</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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 (→  217).
User interface	■ ROut ■ RCas ■ Cas ■ Auto ■ Man ■ LO ■ IMan ■ OOS
Additional information	<i>User interface</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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 (→  217) 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	<i>Options</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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	<i>Options</i>  Detailed description of the options available for selection: Target mode parameter (→  110)

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_DO
Factory setting	Channel_DO

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 (→ ⓘ 220) or if **Set Fault State** parameter (→ ⓘ 121) is enabled in Resource block.

The fault state is defined via the following parameters:

- Fault State Time (→ ⓘ 220)
- 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 (→ 219), 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 (→ 219), 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 (→ 219), 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 (→ 219), 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 (→ 219), 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 (→ 219), 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

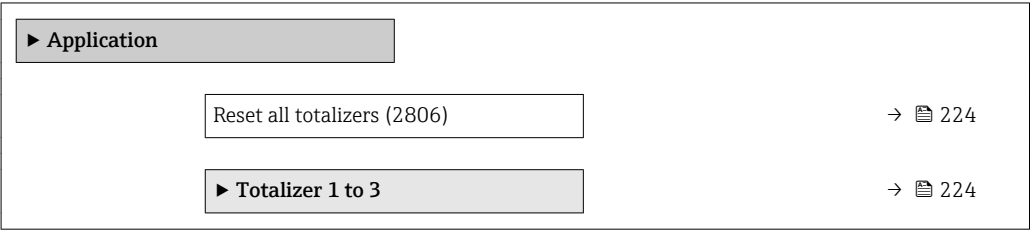
0

Additional information	<i>Description</i>  If Faultstate to value 7 option is not selected in Status Options parameter (→  219), 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	<i>Description</i>  If Faultstate to value 8 option is not selected in Status Options parameter (→  219), 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

	
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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	<i>Selection</i> ■ 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

► Totalizer 1 to 3

Assign process variable (0914-1 to 3)

→  224

Unit totalizer (0915-1 to 3)

→  225

Totalizer operation mode (0908-1 to 3)

→  226

Control Totalizer 1 to 3 (0912-1 to 3)

→  227

Preset value 1 to 3 (0913-1 to 3)

→  227

Failure mode (0901-1 to 3)

→  228

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
 - Mass flow
 - Corrected volume flow

Factory setting Mass 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 (→ 224) 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 (→ 224) of the **Totalizer 1 to 3** submenu:

- Volume flow
- Mass flow
- Corrected volume flow

Description Use this function to select the unit for the process variable of totalizer 1-3.

Selection

SI units

- g
- kg
- t

US units

- oz
- lb
- STon

or

SI units

- cm³
- dm³
- m³
- ml
- l
- hl
- Ml Mega

US units

- af
- ft³
- 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;oil)

or

SI units

- l
- Nm³
- Sl
- Sm³

US units

- Sft³
- Sgal (us)
- Sbbl (us;liq.)

Imperial units

Sgal (imp)

Factory setting

Country-specific:

- l
- gal (us)

Additional information*Description*

The unit is selected separately for each totalizer. The unit is independent of the option selected in the **System units** submenu (→ 56).

Selection

The selection depends on the process variable selected in the **Assign process variable** parameter (→ 224).

Totalizer operation mode**Navigation**

Expert → Application → Totalizer 1 to 3 → Operation mode (0908-1 to 3)

Prerequisite

One of the following options is selected in the **Assign process variable** parameter (→ 224) of the **Totalizer 1 to 3** submenu:

- Volume flow
- Mass flow
- Corrected volume flow

Description

Use this function to select how the totalizer summates the flow.

Selection

- Net flow total
- Forward flow total
- Reverse flow total

Factory setting

Net flow total

Additional information*Selection*

- Net flow total
Positive and negative flow values are totalized and balanced against one another. Net flow is registered in the flow direction.
- Forward flow total
Only the flow in the forward flow direction is totalized.
- Reverse flow total
Only the flow against the forward flow direction is totalized (= reverse flow total).

Control Totalizer 1 to 3

Navigation	 Expert → Application → Totalizer 1 to 3 → Control Tot. 1 to 3 (0912-1 to 3)
Prerequisite	One of the following options is selected in the Assign process variable parameter (→  224) of the Totalizer 1 to 3 submenu: ■ Volume flow ■ Mass flow ■ Corrected volume flow
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	<i>Selection</i> ■ 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 (→  227). ■ 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 (→  227) 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 (→  224) of the Totalizer 1 to 3 submenu: ■ Volume flow ■ Mass flow ■ Corrected volume flow
Description	Use this function to enter a start value for totalizer 1-3.
User entry	Signed floating-point number
Factory setting	Country-specific: ■ 0 l ■ 0 gal (us)

Additional information	User entry  The unit of the selected process variable is specified for the totalizer in the Unit totalizer parameter (→  225). 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 (→  224) of the Totalizer 1 to 3 submenu: ■ Volume flow ■ Mass flow ■ Corrected volume flow
Description	Use this function to select how a totalizer behaves in an alarm condition.
Selection	■ Stop ■ Actual value ■ Last valid value
Factory setting	Stop
Additional information	Description  This setting does not affect the error response mode of other totalizers and the outputs. This is specified in separate parameters. 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

► Diagnostics

Actual diagnostics (0691)

→  229

Previous diagnostics (0690)	→ ⓘ 230
Operating time from restart (0653)	→ ⓘ 231
Operating time (0652)	→ ⓘ 231
▶ Diagnostic list	→ ⓘ 231
▶ Event logbook	→ ⓘ 235
▶ Device information	→ ⓘ 237
▶ Data logging	→ ⓘ 242
▶ Min/max values	→ ⓘ 248
▶ Heartbeat	→ ⓘ 256
▶ Simulation	→ ⓘ 257

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	<i>User interface</i> ⓘ Additional pending diagnostic messages can be displayed in the Diagnostic list submenu (→ ⓘ 231). ⓘ Information on what is causing the diagnostic message, and remedy measures, can be viewed by pressing the ⓘ-button. <i>Example</i> 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	<i>User interface</i>  The diagnostic message can be displayed via the Actual diagnostics parameter (→  229). <i>Example</i> 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	<i>User interface</i>  Information on what is causing the diagnostic message, and remedy measures, can be viewed by pressing the -button. <i>Example</i> 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	<i>User interface</i>  The diagnostic message can be displayed via the Previous diagnostics parameter (→  230).

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	<i>User interface</i> The maximum number of days is 9999, which is equivalent to 27 years.

3.10.1 "Diagnostic list" submenu

Navigation  Expert → Diagnostics → Diagnostic list

► Diagnostic list		
Diagnostics 1 (0692)	→	 232
Diagnostics 2 (0693)	→	 232
Diagnostics 3 (0694)	→	 233
Diagnostics 4 (0695)	→	 234
Diagnostics 5 (0696)	→	 234

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	<i>Examples</i> 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	<i>User interface</i>  The diagnostic message can be displayed via the Diagnostics 1 parameter (→  232). <i>Example</i> 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	<i>Examples</i> 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	<i>User interface</i>  The diagnostic message can be displayed via the Diagnostics 2 parameter (→  232). <i>Example</i> 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	<i>Examples</i> 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	<i>User interface</i>  The diagnostic message can be displayed via the Diagnostics 3 parameter (→  233). <i>Example</i> 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	<i>Examples</i> 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	<i>User interface</i>  The diagnostic message can be displayed via the Diagnostics 4 parameter (→  234). <i>Example</i> 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	<i>Examples</i> 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	<i>User interface</i>  The diagnostic message can be displayed via the Diagnostics 5 parameter (→  234). <i>Example</i> For the display format: 24d12h13m00s

3.10.2 "Event logbook" submenu

Navigation  Expert → Diagnostics → Event logbook

► Event logbook

Filter options (0705) →  235

► Event list →  236

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 (→  235).
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	<i>Description</i> 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 <i>Examples</i> For the display format: ■ I1091 Configuration modified  24d12h13m00s ■ ΔS442 Frequency output  01d04h12min30s  Additional information, such as remedial measures, can be retrieved via the  key. <i>HistoROM</i> 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 information		
Device tag (10799)	→	 238
Serial number (10798)	→	 239
Device Type (10711)	→	 239
Device Revision (10710)	→	 239

DD Revision (10709)	→ ⓘ 239
Firmware version (10792)	→ ⓘ 240
Hardware revision (10793)	→ ⓘ 240
ITK Version (10794)	→ ⓘ 240
Order code (10795)	→ ⓘ 240
Extended order code 1 (10796)	→ ⓘ 241
Extended order code 2 (10797)	→ ⓘ 241
ENP version (10791)	→ ⓘ 242

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:

1

XXXXXXXXXX

9

Header text

A0013375

User entry

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

Factory setting

Promass 200

Additional information

Display

The number of characters displayed depends on the characters used.

Serial number

Navigation	 Expert → Diagnostics → Device info → Serial number (10798)
Description	Displays the serial number of the measuring device. It can also be found on the nameplate of the sensor and transmitter.  Uses of the serial number ■ To identify the measuring device quickly, e.g. when contacting Endress+Hauser. ■ To obtain specific information on the measuring device using the Device Viewer: www.endress.com/deviceviewer
User interface	Max. 11-digit character string comprising letters and numbers.
Additional information	<i>Factory setting</i>  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	Promass 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

Order code**Navigation**

Expert → Diagnostics → Device info → Order code (10795)

Description

Use this function to enter the device order code.



The order code can be found on the nameplate of the sensor and transmitter in the "Order code" field.

User entry

Character string composed of letters, numbers and certain punctuation marks

Additional information	<i>Description</i> 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	<i>Description</i> 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 "Data logging" submenu

Navigation  Expert → Diagnostics → Data logging

► Data logging

Assign channel 1 (0851)

→  242

Assign channel 2 (0852)

→  243

Assign channel 3 (0853)

→  244

Assign channel 4 (0854)

→  244

Logging interval (0856)

→  244

Clear logging data (0855)

→  245

► Display channel 1

→  245

► Display channel 2

→  247

► Display channel 3

→  247

► Display channel 4

→  247

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 (→  48).

Description	Use this function to select a process variable for the data logging channel.
Selection	■ Off ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Carrier pipe temperature * ■ Electronic temperature ■ Oscillation frequency ■ Oscillation amplitude ■ Oscillation damping ■ Signal asymmetry
Factory setting	Off
Additional information	<i>Description</i> 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. <i>Selection</i>  Detailed description of the options Oscillation frequency, Oscillation amplitude, Oscillation damping and Signal asymmetry: Assign frequency output parameter (→  92)

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 (→  48).
Description	Options for the assignment of a process variable to the data logging channel.
Selection	Picklist, see Assign channel 1 parameter (→  242)
Factory setting	Off

* Visibility depends on order options or device settings

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 (→  48).	
Description	Options for the assignment of a process variable to the data logging channel.	
Selection	Picklist, see Assign channel 1 parameter (→  242)	
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 (→  48).	
Description	Options for the assignment of a process variable to the data logging channel.	
Selection	Picklist, see Assign channel 1 parameter (→  242)	
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 (→  48).	
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 $T_{\log}$ 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:

- $T_{\log} = 1000 \times 1 \text{ s} = 1\,000 \text{ s} \approx 15 \text{ min}$
- $T_{\log} = 1000 \times 10 \text{ s} = 10\,000 \text{ s} \approx 3 \text{ h}$
- $T_{\log} = 1000 \times 80 \text{ s} = 80\,000 \text{ s} \approx 1 \text{ d}$
- $T_{\log} = 1000 \times 3\,600 \text{ s} = 3\,600\,000 \text{ s} \approx 41 \text{ d}$

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 (→  48).

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

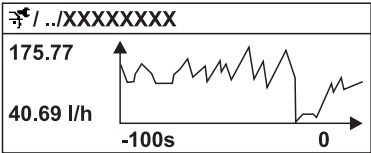
Navigation  Expert → Diagnostics → Data logging → Displ.channel 1

► Display channel 1

Display channel 1

→  246

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 (→  48). One of the following options is selected in the Assign channel 1 parameter (→  242): ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature ■ Carrier pipe temperature * ■ Electronic temperature ■ Oscillation frequency ■ Oscillation amplitude ■ Oscillation damping ■ Signal asymmetry
Description	Displays the measured value trend for the logging channel in the form of a chart.
Additional information	<i>Prerequisite</i>  Detailed description of the options Oscillation frequency, Oscillation amplitude, Oscillation damping and Signal asymmetry: Assign frequency output parameter (→  92) <i>Description</i>  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.

* Visibility depends on order options or device settings

"Display channel 2" submenu

Navigation  Expert → Diagnostics → Data logging → Displ.channel 2

► Display channel 2

Display channel 2 →  247

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 →  246

"Display channel 3" submenu

Navigation  Expert → Diagnostics → Data logging → Displ.channel 3

► Display channel 3

Display channel 3 →  247

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 →  246

"Display channel 4" submenu

Navigation  Expert → Diagnostics → Data logging → Displ.channel 4

► Display channel 4

Display channel 4 →  248

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 → 246

3.10.5 "Min/max values" submenu

Navigation Expert → Diagnostics → Min/max val.

► Min/max values

Reset min/max values (2504)

→ 248

► Terminal voltage

→ 249

► Main electronic temperature

→ 250

► IO module temperature

→ 251

► Medium temperature

→ 252

► Carrier pipe temperature

→ 253

► Oscillation frequency

→ 254

► Oscillation amplitude

→ 254

► Oscillation damping

→ 255

► Signal asymmetry

→ 256

Reset min/max values

Navigation	Expert → Diagnostics → Min/max val. → Reset min/max (2504)
Description	Use this function to select measured variables whose minimum, maximum and average measured values are to be reset.
Selection	■ Cancel ■ Terminal voltage 1 ■ IO module temperature ■ Oscillation amplitude

- Oscillation damping
- Oscillation frequency
- Signal asymmetry

Factory setting Cancel

Additional information *Options*
 Detailed description of the options **Oscillation frequency**, **Oscillation amplitude**, **Oscillation damping** and **Signal asymmetry: Assign frequency output** parameter (→  92)

"Terminal voltage" submenu

Navigation   Expert → Diagnostics → Min/max val. → Terminal volt.

► Terminal voltage

Minimum value (0689)

Maximum value (0663)

Average value (0698)

→  249

→  249

→  250

Minimum value

Navigation   Expert → Diagnostics → Min/max val. → Terminal volt. → Minimum value (0689)

Description Use this function to display the smallest previously measured terminal voltage value in Volts.

User interface 0.0 to 50.0 V

Maximum value

Navigation   Expert → Diagnostics → Min/max val. → Terminal volt. → Maximum value (0663)

Description Use this function to view the largest previously measured terminal voltage value in Volts.

User interface 0.0 to 50.0 V

Average value

Navigation	 Expert → Diagnostics → Min/max val. → Terminal volt. → Average value (0698)
Description	Use this function to view the average of all previously measured terminal voltage values in Volts.
User interface	Signed floating-point number

"Main electronic temperature" submenu

Navigation  Expert → Diagnostics → Min/max val. → Main elect.temp.

► Main electronic temperature

Minimum value (2457)

→  250

Maximum value (2456)

→  250

Minimum value

Navigation	 Expert → Diagnostics → Min/max val. → Main elect.temp. → Minimum value (2457)
Description	Displays the lowest previously measured temperature value of the main electronics module.
User interface	Signed floating-point number
Additional information	<i>Dependency</i>  The unit is taken from the Temperature unit parameter (→  62)

Maximum value

Navigation	 Expert → Diagnostics → Min/max val. → Main elect.temp. → Maximum value (2456)
Description	Displays the highest previously measured temperature value of the main electronics module.
User interface	Signed floating-point number

Additional information

Dependency

 The unit is taken from the **Temperature unit** parameter (→  62)

"IO module temperature" submenu

Navigation   Expert → Diagnostics → Min/max val. → IO module temp.

▶ IO module temperature

Minimum value (0688)

Maximum value (0665)

Average value (0697)

→  251

→  251

→  252

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 (→  62)

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 (→  62)

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	<i>Dependency</i>  The unit is taken from the Temperature unit parameter (→  62)

"Medium temperature" submenu

Navigation  Expert → Diagnostics → Min/max val. → Medium temp.

► Medium temperature

Minimum value (2502)

→  252

Maximum value (2501)

→  252

Minimum value

Navigation	 Expert → Diagnostics → Min/max val. → Medium temp. → Minimum value (2502)
Description	Displays the lowest previously measured medium temperature value.
User interface	Signed floating-point number
Additional information	<i>Dependency</i>  The unit is taken from the Temperature unit parameter (→  62)

Maximum value

Navigation	 Expert → Diagnostics → Min/max val. → Medium temp. → Maximum value (2501)
Description	Displays the highest previously measured medium temperature value.
User interface	Signed floating-point number

Additional information

Dependency

 The unit is taken from the **Temperature unit** parameter (→  62)

"Carrier pipe temperature" submenu

Navigation  Expert → Diagnostics → Min/max val. → Carr. pipe temp.

► Carrier pipe temperature

Minimum value (2461)

→  253

Maximum value (2460)

→  253

Minimum value

Navigation	 Expert → Diagnostics → Min/max val. → Carr. pipe temp. → Minimum value (2461)
Prerequisite	If the carrier tube temperature is available (applies only to Promass F).
Description	Displays the lowest previously measured temperature value of the carrier pipe.
User interface	Signed floating-point number
Additional information	Dependency  The unit is taken from the Temperature unit parameter (→  62)

Maximum value

Navigation	 Expert → Diagnostics → Min/max val. → Carr. pipe temp. → Maximum value (2460)
Prerequisite	If the carrier tube temperature is available (applies only to Promass F).
Description	Displays the highest previously measured temperature value of the carrier pipe.
User interface	Signed floating-point number
Additional information	Dependency  The unit is taken from the Temperature unit parameter (→  62)

"Oscillation frequency" submenu

Navigation  Expert → Diagnostics → Min/max val. → Oscil. frequency

► Oscillation frequency

Minimum value (2583)

→  254

Maximum value (2582)

→  254

Minimum value

Navigation	 Expert → Diagnostics → Min/max val. → Oscil. frequency → Minimum value (2583)
Description	Displays the lowest previously measured oscillation frequency.
User interface	Signed floating-point number

Maximum value

Navigation	 Expert → Diagnostics → Min/max val. → Oscil. frequency → Maximum value (2582)
Description	Displays the highest previously measured oscillation frequency.
User interface	Signed floating-point number

"Oscillation amplitude" submenu

Navigation  Expert → Diagnostics → Min/max val. → Oscil. amplitude

► Oscillation amplitude

Minimum value (2472)

→  255

Maximum value (2471)

→  255

Minimum value	
Navigation	  Expert → Diagnostics → Min/max val. → Oscil. amplitude → Minimum value (2472)
Description	Displays the lowest previously measured oscillation amplitude.
User interface	Signed floating-point number

Maximum value	
Navigation	  Expert → Diagnostics → Min/max val. → Oscil. amplitude → Maximum value (2471)
Description	Displays the highest previously measured oscillation amplitude.
User interface	Signed floating-point number

"Oscillation damping" submenu

Navigation

  Expert → Diagnostics → Min/max val. → Oscil. damping

► Oscillation damping

Minimum value (2586)

→  255

Maximum value (2585)

→  255

Minimum value	
Navigation	  Expert → Diagnostics → Min/max val. → Oscil. damping → Minimum value (2586)
Description	Displays the lowest previously measured oscillation damping.
User interface	Signed floating-point number

Maximum value	
Navigation	  Expert → Diagnostics → Min/max val. → Oscil. damping → Maximum value (2585)
Description	Displays the highest previously measured oscillation damping.

User interface

Signed floating-point number

"Signal asymmetry" submenu

Navigation  Expert → Diagnostics → Min/max val. → Signal asymmetry

► Signal asymmetry

Minimum value (2551)

→  256

Maximum value (2476)

→  256

Minimum value

Navigation  Expert → Diagnostics → Min/max val. → Signal asymmetry → Minimum value (2551)

Description Displays the lowest previously measured signal asymmetry.

User interface Signed floating-point number

Maximum value

Navigation  Expert → Diagnostics → Min/max val. → Signal asymmetry → Maximum value (2476)

Description Displays the highest previously measured signal asymmetry.

User interface Signed floating-point number

3.10.6 "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

▶ Heartbeat

▶ Performing verification

▶ Verification results

3.10.7 "Simulation" submenu

Navigation  Expert → Diagnostics → Simulation

▶ Simulation

Assign simulation process variable (1810)

Value process variable (1811)

Frequency simulation (0472)

Frequency value (0473)

Pulse simulation (0458)

Pulse value (0459)

Switch output simulation (0462)

Switch status (0463)

Simulation device alarm (0654)

Diagnostic event category (0738)

Simulation diagnostic event (0737)

→  257

→  258

→  258

→  259

→  259

→  260

→  260

→  261

→  261

→  261

→  262

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 ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature
Factory setting	Off
Additional information	<i>Description</i>  The simulation value of the selected process variable is specified in the Value process variable parameter (→  258).

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 (→  257): ■ Mass flow ■ Volume flow ■ Corrected volume flow ■ Density ■ Reference density ■ Temperature
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	<i>User entry</i>  The unit of the displayed measured value is taken from the System units submenu (→  56).
Frequency simulation	

Navigation	  Expert → Diagnostics → Simulation → Frequency sim. (0472)
Prerequisite	The Frequency option is selected in the Operating mode parameter (→  87).
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	<i>Description</i>  The desired simulation value is defined in the Frequency value parameter (→  259). <i>Selection</i> ■ 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 (→  258).
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 1 250.0 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 (→  87).
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	<i>Description</i>  The desired simulation value is specified in the Pulse value parameter (→  260).

	<i>Selection</i> ■ 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 (→ ⓘ 89) are output continuously. ■ Down-counting value The pulses specified in the Pulse value parameter (→ ⓘ 260) are output.
Pulse value ⓘ	
Navigation	🔍📄 Expert → Diagnostics → Simulation → Pulse value (0459)
Prerequisite	In the Pulse simulation parameter (→ ⓘ 259), 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 (→ ⓘ 87).
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	<i>Description</i> ⓘ The desired simulation value is specified in the Switch status parameter (→ ⓘ 261). <i>Selection</i> ■ 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 (→  260).
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	<i>Options</i> ■ 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	<i>Description</i> 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 (→  262).

- Selection**
- Sensor
 - Electronics
 - Configuration
 - Process

Factory setting Process

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 (→  261).

4 Country-specific factory settings

4.1 SI units



Not valid for USA and Canada.

4.1.1 System units

Mass	kg
Mass flow	kg/h
Volume	l
Volume flow	l/h
Corrected volume	Nl
Corrected volume flow	Nl/h
Density	kg/l
Reference density	kg/Nl
Temperature	°C
Length	mm
Pressure	bar a

4.1.2 Full scale values



The factory settings apply to the following parameters:
100% bar graph value 1

Nominal diameter [mm]	[kg/h]
8	400
15	1 300
25	3 600
40	9 000
50	14 000
80	36 000

4.1.3 Pulse value

Nominal diameter [mm]	(~ 2 pulses/s at 2 m/s) [kg/p]
8	0.1
15	0.1
25	1
40	1
50	10
80	10

4.1.4 On value low flow cut off



The switch-on point depends on the type of medium and the nominal diameter.

Nominal diameter [mm]	On-value for liquid [kg/h]
8	8
15	26
25	72
40	180
50	300
80	720

Nominal diameter [mm]	On-value for gas [kg/h]
8	2
15	6.5
25	18
40	45
50	75
80	180

4.2 US units



Only valid for USA and Canada.

4.2.1 System units

Mass	lb
Mass flow	lb/min
Volume	gal (us)
Volume flow	gal/min (us)
Corrected volume	Sft ³
Corrected volume flow	Sft ³ /min
Density	lb/ft ³
Reference density	lb/Sft ³
Temperature	lb/ft ³
Length	in
Pressure	psi a

4.2.2 Full scale values



The factory settings apply to the following parameters:
100% bar graph value 1

Nominal diameter [in]	[lb/min]
$\frac{3}{8}$	15
$\frac{1}{2}$	50
1	130
$1\frac{1}{2}$	330
2	515
3	1320

4.2.3 Pulse value

Nominal diameter [in]	(~ 2 pulses/s at 2.0 m/s) [lb/p]
$\frac{3}{8}$	0.2
$\frac{1}{2}$	0.2
1	2
$1\frac{1}{2}$	2
2	20
3	20

4.2.4 On value low flow cut off



The switch-on point depends on the type of medium and the nominal diameter.

Nominal diameter [in]	On-value for liquid [lb/min]
$\frac{3}{8}$	0.3
$\frac{1}{2}$	1
1	2.6
$1\frac{1}{2}$	6.6
2	11
3	26

Nominal diameter [in]	On-value for gas [lb/min]
$\frac{3}{8}$	0.075
$\frac{1}{2}$	0.25
1	0.65
$1\frac{1}{2}$	1.65
2	2.75
3	6.5

5 Explanation of abbreviated units

5.1 SI units

Process variable	Units	Explanation
Density	g/cm ³ , g/m ³	Gram/volume unit
	kg/dm ³ , kg/l, kg/m ³	Kilogram/volume unit
	SD4°C, SD15°C, SD20°C	Specific density: The specific density is the ratio of the density of the fluid to the density of water at a water temperature of 4 °C (39 °F), 15 °C (59 °F), 20 °C (68 °F).
	SG4°C, SG15°C, SG20°C	Specific gravity: The specific gravity is the ratio of the density of the fluid to the density of water at a water temperature of 4 °C (39 °F), 15 °C (59 °F), 20 °C (68 °F).
Pressure	Pa a, kPa a, MPa a	Pascal, kilopascal, megapascal (absolute)
	bar	Bar
	Pa g, kPa g, MPa g	Pascal, kilopascal, megapascal (relative/gauge)
	bar g	Bar (relative/gauge)
Length	µm, mm, m	Micrometer, 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
Reference density	kg/Nm ³ , kg/Nl, g/Scm ³ , kg/Sm ³	Kilogram, gram/standard volume unit
Corrected volume	Nl, Nm ³ , Sm ³	Normal liter, normal cubic meter, standard cubic meter
Corrected volume flow	Nl/s, Nl/min, Nl/h, Nl/d	Normal liter/time unit
	Nm ³ /s, Nm ³ /min, Nm ³ /h, Nm ³ /d	Normal cubic meter/time unit
	Sm ³ /s, Sm ³ /min, Sm ³ /h, Sm ³ /d	Standard cubic meter/time unit
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	s, m, h, d, y	Second, minute, hour, day, year

5.2 US units

Process variable	Units	Explanation
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	Pounds per square inch (absolute)

Process variable	Units	Explanation
	psi g	Pounds per square inch (gauge)
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
Reference density	lb/Sft ³	Weight unit/standard volume unit
Corrected volume	Sft ³ , Sgal (us), Sbbl (us;liq.)	Standard cubic foot, standard gallon, standard barrel
Corrected volume flow	Sft ³ /s, Sft ³ /min, Sft ³ /h, Sft ³ /d	Standard cubic foot/time unit
	Sgal/s (us), Sgal/min (us), Sgal/h (us), Sgal/d (us)	Standard gallon/time unit
	Sbbl/s (us;liq.), Sbbl/min (us;liq.), Sbbl/h (us;liq.), Sbbl/d (us;liq.)	Barrel/time unit (normal liquids)
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
	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	s, m, h, d, y	Second, minute, hour, day, year
	am, pm	Ante meridiem (before midday), post meridiem (after midday)

5.3 Imperial units

Process variable	Units	Explanation
Density	lb/gal (imp), lb/bbl (imp;beer), lb/bbl (imp;oil)	Pound/volume unit
Corrected volume	Sgal (imp)	Standard gallon
Corrected volume flow	Sgal/s (imp), Sgal/min (imp), Sgal/h (imp), Sgal/d (imp)	Standard gallon/time unit
Volume	gal (imp), Mgal (imp)	Gallon, mega gallon
	bbl (imp;beer), bbl (imp;oil)	Barrel (beer), barrel (petrochemicals)
Volume flow	gal/s (imp), gal/min (imp), gal/h (imp), gal/d (imp)	Gallon/time unit
	Mgal/s (imp), Mgal/min (imp), Mgal/h (imp), Mgal/d (imp)	Mega gallon/time unit
	bbl/s (imp;beer), bbl/min (imp;beer), bbl/h (imp;beer), bbl/d (imp;beer)	Barrel /time unit (beer) Beer: 36.0 gal/bbl
	bbl/s (imp;oil), bbl/min (imp;oil), bbl/h (imp;oil), bbl/d (imp;oil)	Barrel/time unit (petrochemicals) Petrochemicals: 34.97 gal/bbl
Time	s, m, h, d, y	Second, minute, hour, day, year
	am, pm	Ante meridiem (before midday), post meridiem (after midday)

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