Services

Description of Device Parameters **Proline Promag 100 PROFIBUS DP**

Electromagnetic 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

This document lists the submenus and their parameters according to the structure of the **Expert** menu ($\rightarrow \textcircled{B}$ 8) menu that are available once the **"Operator" user role** or the **"Maintenance" user role** is enabled.



I Sample graphic

For information on the arrangement of the parameters according to the structure of the **Operation** menu, **Setup** menu, **Diagnostics** menu (→ 🖺 140), 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) or Web browser 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
Selection	List of the individual options for the parameter • Option 1 • Option 2
User entry	Input range for the parameter
User interface	Display value/data for the 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
i	Tip Indicates additional information.
ĺì	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	→ 🗎 10
Locking status	→ 🗎 11
Access status display	→ 🗎 11
Access status tooling	→ 🗎 12
Enter access code	→ 🗎 13
► System	→ 🗎 13
► Display	→ 🗎 13
► Diagnostic handling	→ 🗎 26
► Administration	→ 🗎 30
► Sensor	→ 🗎 34
► Measured values	→ 🗎 35
► System units	→ 🗎 38
► Process parameters	→ 🗎 46
► External compensation	→ 🗎 58
► Sensor adjustment	→ 🗎 60
► Calibration	→ 🗎 65
► Communication	→ 🗎 67
► PROFIBUS DP configuration	→ 🗎 67
► PROFIBUS DP info	→ 🗎 69
► Physical block	→ 🗎 71
► Web server	→ 🗎 80

► Analog inputs		→ 🗎 83
	► Analog input 1 to 4	→ 🗎 83
► Discrete inputs		→ 🖺 97
	► Discrete input 1 to 2	→ 🖺 97
► Analog outputs		→ 🖺 104
	► Analog output 1 to 2	→ 🗎 104
► Discrete output:	5	→ 🗎 116
	► Discrete output 1 to 2	→ 🗎 116
► Application		→ 🗎 126
	► Totalizer 1 to 3	→ 🗎 126
► Diagnostics		→ 🗎 140
	Actual diagnostics	→ 🗎 141
	Previous diagnostics	→ 🖺 141
	Operating time from restart	→ 🗎 142
	Operating time	→ 🗎 142
	► Diagnostic list	→ 🗎 143
	► Event logbook	→ 🗎 147
	► Device information	→ 🗎 149
	► Min/max values	→ 🗎 152
	► Heartbeat	→ 🗎 154
	► Simulation	→ 🗎 155

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.

र् f Expert	
Direct access	→ 🗎 10
Locking status	→ 🖺 11
Access status display) → 🗎 11
Access status tooling	→ 🗎 12
Enter access code	→ 🗎 13
► System	→ 🗎 13
► Sensor	→ 🗎 34
► Communication	→ 🗎 67
Analog inputs	→ 🗎 83
► Discrete inputs	→ 🗎 97
Analog outputs	→ 🗎 104
► Discrete outputs	→ 🖺 116
► Application	→ 🗎 126
► Diagnostics) → 🗎 140

Direct access		A
Navigation		
Prerequisite	There is a local display with operating elements.	
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 the navigation view on the right in the header of the selected parameter.	in
User entry	0 to 65 535	

Additional information

User entry

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

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

Example: Enter **0914-3** \rightarrow **Assign process variable** parameter

Locking status	
Navigation	Image: Barbon Status
Description	Displays the active write protection.
User interface	Hardware lockedTemporarily locked
Additional information	Display
	If two or more types of write protection are active, the write protection with the highest priority is shown on the local display. In the operating tool all active types of write protection are displayed.
	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 ($\rightarrow \cong 11$).
	"Hardware locked" option (priority 1)
	The DIP switch for hardware locking is activated on the main electronics module. This locks write access to the parameters (e.g. via local display or operating tool).
	Information on access authorization is provided in the "User roles and associated access authorization" and "Operating concept" sections of the Operations Instructions for the device.
	"Temporarily locked" option (priority 2)
	Write access to the parameters is temporarily locked on account of internal processes running in the device (e.g. data upload/download, reset etc.). Once the internal processing has been completed, the parameters can be changed once again.
Access status display	
Navigation	Image: Barbon State
Prerequisite	A local display is provided.

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.
	Access authorization can be modified via the Enter access code parameter $(\rightarrow \cong 13)$.
	For information on the Enter access code parameter, 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 ($\rightarrow \square 11$).
	Display
	Information on access authorization is provided in the "User roles and associated access authorization" and "Operating concept" sections of the Operations Instructions for the device.

Access status tooling

Navigation	Image: Barbon State
Description	Displays the access authorization to the parameters via the operating tool or Web browser.
User interface	OperatorMaintenance
Factory setting	Maintenance
Additional information	Description
	Access authorization can be modified via the Enter access code parameter $(\rightarrow \cong 13)$.
	If additional write protection is active, this restricts the current access authorization even further. The write protection status can be viewed via the Locking status parameter ($\rightarrow \cong 11$).
	Display
	Information on access authorization is provided in the "User roles and associated

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	
Description	Use this function to enter the user-specific release code to remove parameter write protection.
User entry	0 to 9 999

3.1 "System" submenu

Navigation $\textcircled{B} \boxminus$ Expert \rightarrow System

► System	
► Display	→ 🗎 13
► Diagnostic handling	→ 🗎 26
► Administration	→ 🗎 30

3.1.1 "Display" submenu

Navigation $\textcircled{B} \boxminus$ Expert \rightarrow System \rightarrow Display

► Display	
Display language] → 🗎 14
Format display) → 🗎 15
Value 1 display) → 🗎 17
0% bargraph value 1] → 🗎 17
100% bargraph value 1] → 🗎 18
Decimal places 1) → 🗎 18
Value 2 display) → 🗎 19
Decimal places 2) → 🗎 19
Value 3 display] → 🗎 20

0% bargraph value 3) → 🗎 20	
100% bargraph value 3) → 🖺 21	
Decimal places 3	→ 🗎 21	
Value 4 display) → 🗎 21	
Decimal places 4	→ 🗎 22	
Display interval) → 🗎 22	
Display damping	→ 🗎 23	
Header	→ 🗎 23	
Header text	→ 🗎 24	
Separator) → 🗎 24	
Contrast display) → 🗎 25	
Backlight) → 🗎 25	
Access status display) → 🗎 25	

Display language

Navigation

Prerequisite

Description

Selection

- English

 - Deutsch *
 Français *
 - Español *
 - Italiano^{*}
 - Nederlands^{*}
 - Portuguesa ⁷
 - Polski
 - русский язык (Russian) *

A local display is provided.

□ Expert → System → Display → Display language

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

- Svenska
- Türkçe [']
- 中文 (Chinese)*
- 日本語 (Japanese)*

Visibility depends on order options or device settings

	• 한국어 (Korean) ^ • 친국어 (Korean) ^ • Bahasa Indonesia * • ภาษาไทย (Thai) * • tiếng Việt (Vietnamese) * • čeština (Czech) * English (alternatively, the ordered language is preset in the device)			
Factory setting				
Format display				
Navigation	Image: Boost and Boos			
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 (→ 17) to Value 4 display parameter (→ 21) are used to specify which measured values are shown on the local display and in what 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 via the Display interval parameter (→ 22). 			

^{*} Visibility depends on order options or device settings

Possible measured values shown on the local display:

"1 value, max. size" option



"1 bargraph + 1 value" option

XXXXXXXXX	
Ů① 900.00 l/h ਗ਼ ਗ਼ 0 *	
	A0016530

"2 values" option

XXXXXXXXX	{	
U O	900.00 l/h	
đđ	60.00 %	

🛃 3

"1 value large + 2 values" option

XXXXXXXX	
Ú ① 900.00 I/h Ũ ① 60.00% ₩ ① 5.98kWh/Nm ³	
	A001653

"4 values" option

XXXXXX	XXXX	
Ü (1) U (1) Μ (1) Σ (1)	900.00 l/h 60.00 % 5.98 kWh/Nm ³ 213.94 l	

Value 1 display		ß
Navigation	\blacksquare \blacksquare Expert \rightarrow System \rightarrow Display \rightarrow Value 1 display	
Prerequisite	A local display is provided.	
Description	Use this function to select one of the measured values to be shown on the local display.	
Selection	 Volume flow Mass flow Corrected volume flow Flow velocity Conductivity Corrected conductivity None Totalizer 1 Totalizer 2 Totalizer 3 Temperature Electronic temperature 	
Factory setting	Volume flow	
Additional information	Description	
	If several measured values are displayed at once, the measured value selected here will the first value to be displayed. The value is only displayed during normal operation.	be
	The Format display parameter ($\rightarrow \triangleq 15$) is used to specify how many measured values are displayed simultaneously and how.	
	Selection	

-	The unit o			
	(→		38)	

The unit of the displayed measured value is taken from the **System units** submenu $\rightarrow \textcircled{B}$ 38).

0% bargraph value 1		
Navigation	Image: Boost and Boos	
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 l/h • 0 gal/min (us)	

^{*} Visibility depends on order options or device settings

Additional information



Description

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

User entry

The unit of the displayed measured value is taken from the **System units** submenu $(\Rightarrow \cong 38)$.

100% bargraph v	alue 1
-----------------	--------

£

Navigation	
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 $\rightarrow \square 158$
Additional information	Description
	The Format display parameter ($\rightarrow \triangleq 15$) is used to specify that the measured value is to be displayed as a bar graph.
	User entry
	The unit of the displayed measured value is taken from the System units submenu $(\rightarrow \cong 38)$.

Decimal places 1		A
Navigation	Image: Boost and Boos	
Prerequisite	A measured value is specified in the Value 1 display parameter ($\rightarrow \square$ 17).	
Description	Use this function to select the number of decimal places for measured value 1.	
Selection	 X X.X X.XX X.XXX X.XXXX 	
Factory setting	X.XX	

Additional information

Description

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

Value 2 display	l	1
Navigation	Image: Barbon System → Display → Value 2 display	
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	For the picklist, see the Value 1 display parameter ($\rightarrow \cong$ 17)	
Factory setting	None	
Additional information	Description If several measured values are displayed at once, the measured value selected here will be the second value to be displayed. The value is only displayed during normal operation. The Format display parameter ($\rightarrow \cong 15$) is used to specify how many measured values are displayed simultaneously and how.	ĩ
	Selection The unit of the displayed measured value is taken from the System units submenu $(\rightarrow \cong 38)$.	

Decimal places 2		
Navigation	Image: Barbon System → Display → Decimal places 2	
Prerequisite	A measured value is specified in the Value 2 display parameter ($\Rightarrow \square 19$).	
Description	Use this function to select the number of decimal places for measured value 2.	
Selection	 X X.X X.XX X.XXX X.XXXX 	
Factory setting	X.XX	
Additional information	Description It is setting does not affect the measuring or computational accuracy of the dev The arrow displayed between the measured value and the unit indicates that the	ice. e

device computes with more digits than are shown on the local display.

ß

Value 3 display

Navigation	Image: Image: Barbon Amage: Barbon Amag
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 ($\rightarrow \cong 17$)
Factory setting	None
Additional information	Description
	If several measured values are displayed at once, the measured value selected here will be the third value to be displayed. The value is only displayed during normal operation.
	The Format display parameter ($\rightarrow \square 15$) is used to specify how many measured values are displayed simultaneously and how.
	Selection
	The unit of the displayed measured value is taken from the System units submenu $(\Rightarrow \cong 38)$.

0% bargraph value 3		
Navigation	Image: Boost and Boos	
Prerequisite	A selection has been made in the Value 3 display parameter ($\rightarrow \cong 20$).	
Description	Use this function to enter the 0% bar graph value to be shown on the display for the measured value 3.	
User entry	Signed floating-point number	
Factory setting	Country-specific: • 0 l/h • 0 gal/min (us)	
Additional information	Description The Format display parameter ($\rightarrow \square 15$) is used to specify that the measured values is to be displayed as a bar graph.	alue
	User entry	
	The sector of the distribution of a location is the form the Content of the sector of	

The unit of the displayed measured value is taken from the **System units** submenu $(\rightarrow \cong 38)$.

100% bargraph value 3		ß
Navigation	■ Expert → System → Display → 100% bargraph 3	
Prerequisite	A selection was made in the Value 3 display parameter ($\rightarrow \square$ 20).	
Description	Use this function to enter the 100% bar graph value to be shown on the display for the measured value 3.	
User entry	Signed floating-point number	
Factory setting	0	
Additional information	Description The Format display parameter ($\rightarrow \square 15$) is used to specify that the measured values is to be displayed as a bar graph.	ue
	User entry The unit of the displayed measured value is taken from the System units subment $(\rightarrow \square 38)$	1

Decimal places 3		Â
Navigation	Image: Boost and Boos	
Prerequisite	A measured value is specified in the Value 3 display parameter ($\rightarrow \cong 20$).	
Description	Use this function to select the number of decimal places for measured value 3.	
Selection	 X X.X X.XX X.XXX X.XXXX 	
Factory setting	x.xx	
Additional information	Description This setting does not affect the measuring or computational accuracy of the devi 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.	.ce.

Value 4 display		ß
Navigation	Image: Barbon System → Display → Value 4 display	
Prerequisite	A local display is provided.	

Description	Use this function to select one of the measured values to be shown on the local display.
Selection	Picklist, see Value 1 display parameter (→ 🖺 17)
Factory setting	None
Additional information	Description
	If several measured values are displayed at once, the measured value selected here will be the fourth value to be displayed. The value is only displayed during normal operation.
	The Format display parameter ($\rightarrow \cong 15$) is used to specify how many measured values are displayed simultaneously and how.
	Selection
	The unit of the displayed measured value is taken from the System units submenu $(\Rightarrow \cong 38)$.

Decimal places 4	
Navigation	Image: Barbon System → Display → Decimal places 4
Prerequisite	A measured value is specified in the Value 4 display parameter ($\Rightarrow \square 21$).
Description	Use this function to select the number of decimal places for measured value 4.
Selection	 X X.X X.XX X.XXX X.XXX
Factory setting	X.XX
Additional information	 Description This setting does not affect the measuring or computational accuracy of the device. The arrow displayed between the measured value and the unit indicates that the device computes with more digits than are shown on the local display.

Display interval	
Navigation	$ \blacksquare \Box \text{Expert} \rightarrow \text{System} \rightarrow \text{Display} \rightarrow \text{Display interval} $
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	<i>Description</i> This type of alternating display only occurs automatically if the number of measured values defined exceeds the number of values the selected display format can display simultaneously.
	 The Value 1 display parameter (→ ≅ 17) to Value 4 display parameter (→ ≅ 21) are used to specify which measured values are shown on the local display. The display format of the displayed measured values is specified using the Format display parameter (→ ≅ 15).

Display damping		Â
Navigation	Image: Boost and Boos	
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		Ê
Navigation	Image: Boost and Boos	
Prerequisite	A local display is provided.	
Description	Use this function to select the contents of the header of the local display.	
Selection	Device tagFree text	
Factory setting	Device tag	
Additional information	<i>Description</i> The header text only appears during normal operation.	



1 Position of the header text on the display

Selection Free text Is defined in the **Header text** parameter ($\rightarrow \square 24$).

Header text		A
Navigation	Image: Boost and Boos	
Prerequisite	The Free text option is selected in the Header parameter ($\rightarrow \cong 23$).	
Description	Use this function to enter a customer-specific text for the header of the local display.	
User entry	Max. 12 characters such as letters, numbers or special characters (e.g. @, %, /)	
Factory setting		
Additional information	<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		Â
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{System} \rightarrow \text{Display} \rightarrow \text{Separator} $	
Prerequisite	A local display is provided.	
Description	Use this function to select the decimal separator.	

Selection • . (point) • , (comma) Factory setting . (point)

Contrast display	
Navigation	Image: Boost and Boos
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

Backlight	
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{System} \rightarrow \text{Display} \rightarrow \text{Backlight} $
Prerequisite	Order code for "Display; operation", option E "SD03 4-line, illum.; touch control + data backup function"
Description	Use this function to switch the backlight of the local display on and off.
Selection	DisableEnable
Factory setting	Enable

Access status display	
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{System} \rightarrow \text{Display} \rightarrow \text{Access stat.disp} $
Prerequisite	A local display is provided.
Description	Displays the access authorization to the parameters via the local display.
User interface	OperatorMaintenance
Factory setting	Operator

Additional information

If the \mathbb{B} -symbol appears in front of a parameter, it cannot be modified via the local display with the current access authorization.

Access authorization can be modified via the **Enter access code** parameter ($\rightarrow \square$ 13).

- For information on the **Enter access code** parameter, 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 ($\rightarrow \cong 11$).

Display

Description

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 "Diagnostic handling" submenu

Navigation	8 8	Expert →	System	\rightarrow Diagn.	handling
5		1	5	5	J

► Diagnostic handling	
Alarm delay] → 🗎 26
► Diagnostic behavior) → 🗎 27

Alarm delay		
Navigation	Image: Boost and the second state of the	
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	<i>Effect</i> This setting affects the following diagnostic messages: • 190 Special event 1 • 191 Special event 5 • 832 Electronic temperature too high	
	 833 Electronic temperature too low 834 Process temperature too high 	

- 835 Process temperature too low
- 862 Partly filled pipe
- 990 Special event 4
- 991 Special event 8

"Diagnostic behavior" submenu

Each item of diagnostic information is assigned a specific diagnostic behavior at the factory. The user can change this assignment for specific diagnostic information in the **Diagnostic behavior** submenu ($\Rightarrow \cong 27$).

The following options are available in the **Assign behavior of diagnostic no. xxx** parameters:

Diagnostic behavior	Description
Alarm	The device stops measurement. The totalizers assume the defined alarm condition. A diagnostic message is generated.
Warning	The device continues to measure. The measured value output via PROFIBUS and the totalizers are not affected. A diagnostic message is generated.
Logbook entry only	The device continues to measure. The diagnostic message is displayed only in the Event logbook submenu ($\rightarrow \bowtie 147$) (Event list submenu ($\rightarrow \bowtie 148$)) and not in alternation with the operational display.
Off	The diagnostic event is ignored, and no diagnostic message is generated or entered.

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

Navigation

□ Expert → System → Diagn. handling → Diagn. behavior

► Diagnostic behavior		
Assign behavior of diagnostic no. 531	→ 🗎 28	
Assign behavior of diagnostic no. 832	→ 🗎 28	
Assign behavior of diagnostic no. 833	→ 🗎 28	
Assign behavior of diagnostic no. 834	→ 🗎 29	
Assign behavior of diagnostic no. 835	→ 🗎 29	
Assign behavior of diagnostic no. 862	→ 🗎 29	
Assign behavior of diagnostic no. 937	→ 🗎 30	
Assign behavior of diagnostic no. 302	→ 🗎 30	

Assign behavior of diagn	ostic no. 531 (Empty pipe detection)	
Navigation	Image: Barbon System → Diagn. handling → Diagn. behavior → Diagnostic no. 531	
Description	Use this function to change the diagnostic behavior of the diagnostic message 531 Empty pipe detection .	
Selection	 Off Alarm Warning Logbook entry only 	
Factory setting	Warning	
Additional information	For a detailed description of the options available, see $\rightarrow \cong 27$	
Assign behavior of diagn	ostic no. 832 (Electronic temperature too high)	æ
Navigation	Image: Barbon System → Diagn. handling → Diagn. behavior → Diagnostic no. 832	
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, see $\rightarrow \cong 27$	
Assign behavior of diagn	ostic no. 833 (Electronic temperature too low)	
Navigation	Image: Barbon System → Diagn. handling → Diagn. behavior → Diagnostic no. 833	
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, see $\rightarrow \cong 27$	

Assign behavior of diagnostic no. 834 (Process temperature too high)		æ
Navigation	Image: Barbon System → Diagn. handling → Diagn. behavior → Diagnostic no. 834	
Description	Use this function to change the diagnostic behavior of the diagnostic message 834 Pr temperature too high .	ocess
Selection	 Off Alarm Warning Logbook entry only 	
Factory setting	Warning	
Additional information	For a detailed description of the options available, see $\rightarrow \cong 27$	

Assign behavior of diagnostic no. 835 (Process temperature too low)		£
Navigation	Image: Barbon System → Diagn. handling → Diagn. behavior → Diagnostic no. 835	
Description	Use this function to change the diagnostic behavior of the diagnostic message 835 Pr temperature too low .	ocess
Selection	 Off Alarm Warning Logbook entry only 	
Factory setting	Warning	
Additional information	For a detailed description of the options available, see $\rightarrow \cong 27$	

Assign behavior of diagnostic no. 862 (Empty pipe)		æ
Navigation	Image: Barbon System → Diagn. handling → Diagn. behavior → Diagnostic no. 862	
Description	Use this function to change the diagnostic behavior of the diagnostic message 862 E pipe .	impty
Selection	 Off Alarm Warning Logbook entry only 	
Factory setting	Warning	
Additional information	For a detailed description of the options available, see $\rightarrow \cong 27$	

Assign behavior of diagno	ostic no. 937 (EMC interference)	Ê
Navigation	Image: Barbon System → Diagn. handling → Diagn. behavior → Diagnostic no. 937	
Description	Use this function to change the diagnostic behavior of the diagnostic message 937 EM interference.	С
Selection	 Off Alarm Warning Logbook entry only 	
Factory setting	Warning	
Additional information	For a detailed description of the options available, see $\rightarrow \cong 27$	
Assign behavior of diagno	ostic no. 302 (Device verification active)	
Navigation	■ Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 302	
Description	Use this function to change the diagnostic behavior of the diagnostic message 302 Dev	vice

Description	verification active.
Selection	AlarmWarning
Factory setting	Warning
Additional information	For a detailed description of the options available, see $\rightarrow \cong 27$

3.1.3 "Administration" submenu

Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{System} \rightarrow \text{Administration} $	
► Administration	n	
	► Define access code	→ 🗎 31
	Device reset	→ 🗎 33
	Activate SW option	→ 🗎 33
	Software option overview	→ 🗎 34

"Define access code" wizard



The **Define access code** wizard ($\Rightarrow \square 31$) is only available when operating via the local display or Web browser.

If operating via the operating tool, the **Define access code** parameter ($\rightarrow \implies$ 32) can be found directly in the Administration submenu. There is no Confirm access code parameter if the device is operated via the operating tool.

Navigation $\mathsf{Expert} \to \mathsf{System} \to \mathsf{Administration} \to \mathsf{Def.} \ \mathsf{access} \ \mathsf{code}$

► Define access code	
Define access code	→ 🗎 31
Confirm access code	→ 🗎 32

Define access code	۵
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 or Web browser.
User entry	0 to 9999
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.
	The parameters that cannot be write-accessed are grayed out in the Web browser.
	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 ($\rightarrow \square 13$).
	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		Â
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 9999	
Factory setting	0	

Additional parameters in the "Administration" submenu

Define access code		3
Navigation	□ Expert → System → Administration → 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 operating tool.	3
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.	
	In 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 ($\rightarrow \cong 13$)	
	1 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	

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.

Device reset	8
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{System} \rightarrow \text{Administration} \rightarrow \text{Device reset} $
Description	Use this function to choose whether to reset the device configuration - either entirely or in part - to a defined state.
Selection	CancelTo delivery settingsRestart device
Factory setting	Cancel
Additional information	<i>"Cancel" option</i> No action is executed and the user exits the parameter.
	"To delivery settings" option
	Every parameter for which a customer-specific default setting was ordered is reset to this customer-specific value. All other parameters are reset to the factory setting.
	This option is not visible if no customer-specific settings have been ordered.
	"Restart device" option

The restart resets every parameter whose data are in the volatile memory (RAM) to the factory setting (e.g. measured value data). The device configuration remains unchanged.

Activate SW option		Ê
Navigation		
Description	Use this function to enter an activation code to enable an additional, ordered software option.	õ
User entry	Max. 10-digit string consisting of numbers.	
Factory setting	0	
Additional information	<i>User entry</i> Endress+Hauser provides the corresponding activation code for the software opti with the order.	on
	NOTICE! This activation code varies depending on the measuring device and the softw 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 parameter only enter activation codes which Endress+Hauser has provided (e.g. when new software option was ordered). If an incorrect or invalid activation code is entered	vare 1 this 1 a ,

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 EB "Heartbeat Verification + Monitoring"

Web browser

Once a software option has been activated, the page must be loaded again in the Web browser.

Software option overview

Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{System} \rightarrow \text{Administration} \rightarrow \text{SW option overv.} $
Description	Displays all the software options that are enabled in the device.
User interface	 Electrode cleaning circuit Heartbeat Verification Heartbeat Monitoring
Additional information	<i>Description</i> Displays all the options that are available if ordered by the customer. <i>"Electrode cleaning circuit" option</i> Order code for "Application package", option EC "ECC electrode cleaning"
	"Heartbeat Verification" option and "Heartbeat Monitoring" option Order code for "Application package", option EB "Heartbeat Verification + Monitoring"

3.2 "Sensor" submenu

Navigation

 $\blacksquare \blacksquare \quad \text{Expert} \rightarrow \text{Sensor}$

► Sensor	
► Measured values	→ 🗎 35
► System units	→ 🗎 38
► Process parameters	→ 🗎 46
► External compensation	→ 🗎 58

► Sensor adjustment] → 🗎 60
► Calibration] → 🗎 65

3.2.1 "Measured values" submenu

Navigation \square Expert \rightarrow Sensor \rightarrow Measured val.

► Measured values	
► Process variables	→ 🗎 35
► Totalizer	→ 🗎 37

"Process variables" submenu

Navigation $\blacksquare \Box$ Expert \rightarrow Sensor \rightarrow Measured val. \rightarrow Process variab.

► Process variables		
Volume flow	→ 🗎 35	
Mass flow	→ 🗎 36	
Conductivity	→ 🗎 36	
Corrected volume flow	→ 🗎 36	
Temperature) → 🗎 36	
Corrected conductivity	→ 🗎 37	

Volume flow	
Navigation	Image: Barbon Amplitude Sensor → Measured val. → Process variab. → Volume flow
Description	Displays the volume flow currently measured.
User interface	Signed floating-point number
Additional information	Dependency 1 The unit is taken from the Volume flow unit parameter ($\rightarrow \cong$ 39)

Corrected volume flow

Mass flow	
Navigation	Image: Barbon And Antipactic
Description	Displays the mass flow currently calculated.
User interface	Signed floating-point number
Additional information	Dependency 1 The unit is taken from the Mass flow unit parameter ($\rightarrow \cong 42$)

Conductivity	
Navigation	
Prerequisite	In the Conductivity measurement parameter ($\rightarrow \square$ 49), the On option is selected.
Description	Displays the conductivity currently measured.
User interface	Signed floating-point number
Additional information	Dependency
	The unit is taken from the Conductivity unit parameter ($\Rightarrow \square 41$)

Navigation	Image: Barbon Amplitude Sensor → Measured val. → Process variab. → Correct.vol.flow
Description	Displays the corrected volume flow currently measured.
User interface	Signed floating-point number
Additional information	Dependency
	The unit is taken from the Corrected volume flow unit parameter ($\rightarrow \square 44$)

Temperature	
Navigation	Image: Barbon Ample
Prerequisite	For the following order code: "Sensor Option", option CI "Fluid temperature probe"
DescriptionDisplays the temperature currently calculated.User interfacePositive floating-point numberAdditional informationDependencyImage: The unit is taken from the Temperature unit parameter (→ 12 42)

Corrected conductivity	
Navigation	□ Expert → Sensor → Measured val. → Process variab. → CorrConductivity
Prerequisite	 One of the following conditions is satisfied: Order code for "Sensor Option", option CI "Fluid temperature probe" or The temperature is read into the flowmeter from an external device.
Description	Displays the conductivity currently corrected.
User interface	Positive floating-point number
Additional information	Dependency The unit is taken from the Conductivity unit parameter ($\rightarrow \cong 41$)

"Totalizer" submenu

Navigation

□ Expert → Sensor → Measured val. → Totalizer

► Totalizer	
Totalizer value 1 to 3	→ 🗎 37
Totalizer status (Hex) 1 to 3	→ 🗎 38
Totalizer status 1 to 3	→ 🗎 38

Totalizer value 1 to	3
Navigation	■ Expert → Sensor → Measured val. → Totalizer → Totalizer val. 1 to 3
Prerequisite	In the Target mode parameter ($\rightarrow \square$ 133), the Auto option is selected.
Description	Displays the current reading for totalizer 1-3.

User interface

Signed floating-point number

Additional information

Description

In the event of an error, the totalizer adopts the mode defined in the **Failure mode** parameter ($\rightarrow \cong 130$).

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 ($\rightarrow \cong 130$).

Dependency

The unit of the selected process variable is specified for the totalizer in the **Unit** totalizer parameter ($\rightarrow \triangleq 127$).

Totalizer status (Hex) 1 to 3

Navigation	■ Expert → Sensor → Measured val. → Totalizer → Status (Hex) 1 to 3
Prerequisite	In Target mode parameter ($\rightarrow \cong 133$), the Auto option is selected.
Description	Displays the status value (hex) of the particular totalizer.
User interface	0 to 0xFF

Totalizer status 1 to 3

Navigation	■ Expert → Sensor → Measured val. → Totalizer → Tot. status 1 to 3		
Description	Displays the status of the particular totalizer.		
User interface	GoodUncertain		

Bad

3.2.2 "System units" submenu

Navigation

□ □ Expert \rightarrow Sensor \rightarrow System units

► System units]	
Volume flow unit		→ 🗎 39
Volume unit		→ 🗎 41

Conductivity unit]	→ 🖺 41
Temperature unit]	→ 🗎 42
Mass flow unit]	→ 🗎 42
Mass unit]	→ 🖺 43
Density unit]	→ 🗎 44
Corrected volume flow unit]	→ 🗎 44
Corrected volume unit		→ 🖺 45
Date/time format]	→ 🖺 46
	Conductivity unit Temperature unit Mass flow unit Mass unit Density unit Corrected volume flow unit Corrected volume unit Date/time format	Conductivity unit Temperature unit Mass flow unit Mass unit Density unit Corrected volume flow unit Corrected volume unit Date/time format

blume flow unit		

Navigation $\begin{tabular}{ll} $$ \blacksquare $$ \blacksquare $$ Expert $$ $$ > Sensor $$ > System units $$ > Volume flow unit $$ $$ \end{tabular}$ Use this function to select the unit for the volume flow.

Description

Vo

ß

Imperial units

gal/s (imp)

gal/h (imp)

qal/d (imp)

Mgal/s (imp)

Mgal/h (imp)

Mgal/d (imp)

Mgal/min (imp)

bbl/s (imp;beer)

bbl/h (imp;beer)

bbl/d (imp;beer)

bbl/s (imp;oil) bbl/min (imp:oil)

bbl/h (imp;oil)

bbl/d (imp;oil)

bbl/min (imp;beer)

gal/min (imp)

Selection

SI units • cm^3/s

- cm³/min
- cm^3/h
- \bullet cm³/d
- dm^3/s
- dm³/min • dm^3/h
- dm^3/d
- m^3/s
- m³/min
- \bullet m³/h
- m^3/d
- ml/s
- ml/min
- ml/h
- ml/d
- 1/s
- I/min
- 1/h
- l/d
- hl/s
- hl/min
- hl/h
- hl/d
- Ml/s
- Ml/min
- Ml/h
- Ml/d

- US units af/s
- af/min
- af/h
- af/d
- ft^3/s
- ft³/min
- ft^3/h
- ft^3/d
- fl oz/s (us)
- fl oz/min (us)
- fl oz/h (us)
- fl oz/d (us)
- gal/s (us)
- gal/min (us)
- gal/h (us)
- gal/d (us)
- kgal/s (us)
- kgal/min (us)
- kgal/h (us)
- kgal/d (us)
- Mgal/s (us)
- Mgal/min (us)
- Mgal/h (us)
- Mgal/d (us)
- bbl/s (us;liq.)
- bbl/min (us;liq.)
- bbl/h (us;liq.)
- bbl/d (us;liq.)
- bbl/s (us;beer)
- bbl/min (us;beer)
- bbl/h (us;beer)
- bbl/d (us;beer)
- bbl/s (us:oil)
- bbl/min (us;oil)
- bbl/h (us;oil)
- bbl/d (us:oil)
- bbl/s (us:tank)
- bbl/min (us;tank)
- bbl/h (us;tank)
- bbl/d (us;tank)

- Factory setting
- Country-specific: ■ l/h
- gal/min (us)
- Additional information

Result

The selected unit applies for: **Volume flow** parameter ($\rightarrow \square$ 35)

Selection

For an explanation of the abbreviated units: $\rightarrow \square 162$ H

A

Volume unit ■ Expert → Sensor → System units → Volume unit Navigation Description Use this function to select the unit for the volume. Selection SI units US units Imperial units ■ cm³ ∎ af gal (imp) ■ ft³ ■ dm³ Mgal (imp) ■ m³ fl oz (us) bbl (imp;beer) • ml ■ gal (us) bbl (imp;oil) **1** kgal (us) ∎ hl Mgal (us) bbl (us;oil) Ml Mega bbl (us;liq.) bbl (us;beer) bbl (us;tank) **Factory setting** Country-specific: ■ m³ gal (us) Selection Additional information For an explanation of the abbreviated units: $\rightarrow \cong 162$

Conductivity unit		
Navigation	■ Expert → Sensor → System units → Conductiv. unit	
Prerequisite	In the Conductivity measurement parameter ($\rightarrow \triangleq$ 49), the On option is selected.	
Description	Use this function to select the unit for the conductivity.	
Selection	SI units • nS/cm • μS/cm • μS/mm • mS/m • mS/cm • S/cm • S/m • kS/m • MS/m	
Factory setting	μS/cm	

Additional information

Result

- The selected unit applies for:
- Conductivity parameter ($\rightarrow \square 36$)
- Corrected conductivity parameter (→ 🗎 37)

Selection

For an explanation of the abbreviated units: $\rightarrow \square 162$

Temperature unit			Â
Navigation	🗟 🖴 Expert →	Sensor \rightarrow System units \rightarrow Temperature unit	
Description	Use this function	n to select the unit for the temperature.	
Selection	SI units ■ ℃ ■ K	US units ■ °F ■ °R	
Factory setting	Country-specific ● ℃ ● ℉	:	
Additional information	on Result The selected unit applies for: • Temperature parameter ($\rightarrow \supseteq 36$) • Maximum value parameter ($\rightarrow \supseteq 153$) • Minimum value parameter ($\rightarrow \supseteq 153$) • External temperature parameter ($\rightarrow \supseteq 59$) • Maximum value parameter ($\rightarrow \supseteq 154$) • Minimum value parameter ($\rightarrow \supseteq 154$) • Minimum value parameter ($\rightarrow \supseteq 154$) Selection For an explanation of the abbreviated units: $\rightarrow \supseteq 162$		

Mass flow unit		æ
Navigation	Image: Barbon System units → Mass flow unit	
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	Ib/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	Result		
	The selected unit applies for:		
	Mass flow parameter ($\rightarrow \square 36$)		
	Selection		
	[2] For an explanation of the abbreviated units: $\rightarrow \triangleq 162$		

Mass unit			Â
Navigation	Image: Barbon Barbo	nsor \rightarrow System units \rightarrow Mass unit	
Description	Use this function to	select the unit for the mass.	
Selection	SI units • g • kg • t	US units • oz • lb • STon	
Factory setting	Country-specific: • kg • lb		
Additional information	Selection f For an explana	tion of the abbreviated units: $\rightarrow \ \ 162$	

Density unit			٦
Navigation	🗟 😑 Expert → Sei	nsor \rightarrow System units \rightarrow Density unit	:
Description	Use this function to	o select the unit for the density.	
Selection	<i>SI units</i> = g/cm ³ = g/m ³ = kg/dm ³ = kg/l = kg/m ³ = SD4°C = SD15°C = SD20°C = SG4°C = SG15°C = SG20°C	US units = lb/ft ³ = lb/gal (us) = lb/bbl (us;liq.) = lb/bbl (us;cil) = lb/bbl (us;tank)	Imperial units = lb/gal (imp) = lb/bbl (imp;beer) = lb/bbl (imp;oil)
Factory setting	Country-specific: • kg/l • lb/ft ³		
Additional information	 <i>Result</i> The selected unit a External density Fixed density particle SD = specific densing SD = specific densing water temperatu SG = specific grave The specific grave water temperatu 	pplies for: y parameter ($\rightarrow \square 59$) rameter ($\rightarrow \square 59$) sity ity is the ratio of the density of the re of +4 °C (+39 °F), +15 °C (+59 °F) vity ity is the ratio of the density of the re of +4 °C (+39 °F), +15 °C (+59 °F)	fluid to the density of water at a), +20 °C (+68 °F). fluid to the density of water at a), +20 °C (+68 °F).
	For an explana	ation of the abbreviated units: $ ightarrow$ 🖺	162

Corrected volume flow unit		
Navigation	Image: Barbon And Section 2 System units → Cor.volflow unit	
Description	Use this function to select the unit for the corrected volume flow.	

Selection	SI units NI/s NI/min NI/h NI/d Nm ³ /s Nm ³ /min Nm ³ /h Nm ³ /d Sm ³ /s Sm ³ /min Sm ³ /h Sm ³ /h Sm ³ /d	US units Sft ³ /s Sft ³ /h Sft ³ /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/h (us;liq.) Sbbl/d (us;liq.) Sgal/s (imp) Sgal/min (imp) Sgal/h (imp) Sgal/d (imp)			
Factory setting	Country-specific: • Nl/h • Sft ³ /h				
Additional information	Result				
	The selected unit applies for: Corrected volume flow parameter ($\rightarrow \square 36$)				
	Selection				
	1 For an explanation of the abbreviated units: $\rightarrow \triangleq 162$				

Corrected volume unit				ß
Navigation		or \rightarrow System units \rightarrow Corr. vol. (ınit	
Description	Use this function to s	Use this function to select the unit for the corrected volume.		
Selection	SI units • Nl • Nm ³ • Sm ³	US units • Sft ³ • Sgal (us) • Sbbl (us;liq.)	<i>Imperial units</i> Sgal (imp)	
Factory setting	Country-specific: • Nm ³ • Sft ³			
Additional information	Selection	on of the abbreviated units: $ imes$	₿ 162	

Date/time format		
Navigation	□ Expert → Sensor → System units → Date/time format	
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: $\rightarrow \cong 162$	

3.2.3 "Process parameters" submenu

Navigation

 $\label{eq:expert} \ensuremath{\textcircled{\sc line \ensuremath{\textcircled{\sc line \sc line$

► Process parameters	
Filter options] → 🗎 47
Flow damping] → 🗎 48
Flow override] → 🗎 48
Conductivity damping] → 🗎 49
Temperature damping] → 🗎 49
Conductivity measurement] → 🖺 49
► Low flow cut off	→ 🗎 50
► Empty pipe detection	→ 🗎 53
► Electrode cleaning circuit] → 🗎 56

Navigation Expert → Sensor → Process param. → Filter options Description Use this function to select a filter option. Selection Standard CIP off > Standard CIP on Dynamic CIP off > Dynamic CIP on Binomial filter Factory setting Standard CIP off Additional information Description The user can choose from a range of filter combinations which can optimize t measurement result depending on the application. Each change in the filters increases as the filter depth increases. Selection Standard • Strong flow damping with a short output signal response time. • Some time is needed before a stable output signal response time. • Not suitable for pulsating flow as the average flow can be different here. • Not suitable for pulsating flow as the average flow can be different here. • Not suitable for pulsating flow as the average flow can be different here. • Not suitable for pulsating flow as the average flow can be different here. • Not suitable for pulsating flow as the average flow can be different here. • Not suitable for pulsating flow as the average flow can be different here. • Not suitable for pulsating flow as the average flow can be different here. • Neak flow damping with a short output signal response time. • The average flow is d	ie tting affects nal				
Description Use this function to select a filter option. Selection • Standard CIP off • Standard CIP on • Dynamic CIP off • Dynamic CIP on • Binomial filter Factory setting Standard CIP off Additional information Description The user can choose from a range of filter combinations which can optimize t measurement result depending on the application. Each change in the filters increases as the filter depth increases. Selection • Standard • Standard • Strong flow damping with a short output signal response time. • Not suitable for pulsating flow as the average flow can be different here. • Dynamic • Average flow damping with a delayed output signal response time. • The average flow is displayed correctly over a measuring interval determi long period. • Binominal • Weak flow damping with a short output signal response time. • The average flow is displayed correctly over a measuring interval determi long period. • Binominal • Weak flow damping with a short output signal response time. • The average flow is displayed correctly over a measuring interval determi long period.	ie tting affects nal				
Selection • Standard CIP off • Dynamic CIP off • Dynamic CIP on • Dynamic CIP on • Binomial filter Factory setting Standard CIP off Additional information Description The user can choose from a range of filter combinations which can optimize t measurement result depending on the application. Each change in the filter s the output signal of the measuring device. The response time of the output si increases as the filter depth increases. Selection • Standard • Strong flow damping with a short output signal response time. • Some time is needed before a stable output signal can be generated. • Not suitable for pulsating flow as the average flow can be different here. • Dynamic • Average flow damping with a delayed output signal response time. • The average flow is displayed correctly over a measuring interval determi long period. • Weak flow damping with a short output signal response time. • The average flow is displayed correctly over a measuring interval determi long period.	ie stting affects nal				
Factory setting Standard CIP off Additional information Description The user can choose from a range of filter combinations which can optimize to measurement result depending on the application. Each change in the filters is the output signal of the measuring device. The response time of the output si increases as the filter depth increases. Selection Standard • Standard Strong flow damping with a short output signal response time. • Not suitable for pulsating flow as the average flow can be different here. Dynamic • Average flow damping with a delayed output signal response time. The average flow is displayed correctly over a measuring interval determitiong period. Binominal • Weak flow damping with a short output signal response time. • The average flow is displayed correctly over a measuring interval determitiong period. Binominal	ie tting affects nal				
Additional information Description The user can choose from a range of filter combinations which can optimize to measurement result depending on the application. Each change in the filter so the output signal of the measuring device. The response time of the output si increases as the filter depth increases. Selection • • Standard • • Strong flow damping with a short output signal response time. • • Some time is needed before a stable output signal can be generated. • • Not suitable for pulsating flow as the average flow can be different here. • • Dynamic • • Average flow damping with a delayed output signal response time. • • The average flow is displayed correctly over a measuring interval determing long period. • • Binominal • • • Weak flow damping with a short output signal response time. • • The average flow is displayed correctly over a measuring interval determing long period. • • Binominal • • • Weak flow damping with a short output signal response time. • • The average flow is displayed correctly over a measuring interval determing long period. •	ne etting affects nal				
 The user can choose from a range of filter combinations which can optimize t measurement result depending on the application. Each change in the filter s the output signal of the measuring device. The response time of the output si increases as the filter depth increases. Selection Standard Strong flow damping with a short output signal response time. Some time is needed before a stable output signal can be generated. Not suitable for pulsating flow as the average flow can be different here. Dynamic Average flow damping with a delayed output signal response time. The average flow is displayed correctly over a measuring interval determi long period. Binominal Weak flow damping with a short output signal response time. The average flow is displayed correctly over a measuring interval determi long period. 	ne etting affects nal				
 Selection Standard Strong flow damping with a short output signal response time. Some time is needed before a stable output signal can be generated. Not suitable for pulsating flow as the average flow can be different here. Dynamic Average flow damping with a delayed output signal response time. The average flow is displayed correctly over a measuring interval determi long period. Binominal Weak flow damping with a short output signal response time. The average flow is displayed correctly over a measuring interval determi long period. 					
 Standard Strong flow damping with a short output signal response time. Some time is needed before a stable output signal can be generated. Not suitable for pulsating flow as the average flow can be different here. Dynamic Average flow damping with a delayed output signal response time. The average flow is displayed correctly over a measuring interval determi long period. Binominal Weak flow damping with a short output signal response time. The average flow is displayed correctly over a measuring interval determi long period. 					
 CIP This filter is also available for the Standard and Dynamic filter options. If the CIP filter has detected a change in the medium (abrupt increase in t level, e.g. quickly changing medium conductivity values during CIP cleanin damping is greatly increased and the raw value (before flow damping) is mean value (delimiter). This eliminates extremely high measured errors (100 m/s). If the CIP filter is enabled, the response time of the entire measuring syst and the output signal is delayed accordingly. 	 Standard Strong flow damping with a short output signal response time. Some time is needed before a stable output signal can be generated. Not suitable for pulsating flow as the average flow can be different here. Dynamic Average flow damping with a delayed output signal response time. The average flow is displayed correctly over a measuring interval determined over a long period. Binominal Weak flow damping with a short output signal response time. The average flow is displayed correctly over a measuring interval determined over a long period. Binominal Weak flow damping with a short output signal response time. The average flow is displayed correctly over a measuring interval determined over a long period. CIP This filter is also available for the Standard and Dynamic filter options. If the CIP filter has detected a change in the medium (abrupt increase in the noise level, e.g. quickly changing medium conductivity values during CIP cleaning), flow damping is greatly increased and the raw value (before flow damping) is limited by the mean value (delimiter). This eliminates extremely high measured errors (up to several 100 m/s). If the CIP filter is enabled, the response time of the entire measuring system increases and the raw provide entire determined errors is provided. 				
Examples	Examples				
Possible applications for the filters					
Application Standard Dynamic Dynamic CIP Dynamic CIP	Binomial				

		CIP		CIP	
Pulsating flow (flow is negative intermittently)			++		++
Flow changes frequently (flow is dynamic)	_		++	-	++
Clear signal, quick control loop (< 1 s)			+ 1)		++
Poor signal, slow control loop (response time of a few seconds)	++	-			
Permanently bad signal	++		-		-

Application	Standard	Standard CIP	Dynamic	Dynamic CIP	Binomial
Short and severe signal distortion after a while		++		++	
Promag 50/53 replacement: Promag 100 system damping = 0.5 * Promag 50/53					+++
Promag 10 replacement: Promag 100 system damping = Promag 10 + 2			+++		
For a stable flow signal (no other requirements)	+++				

1) Flow damping value < 6

Flow damping	۵
Navigation	Image: Boost → Sensor → Process param. → Flow damping
Description	Use this function to enter flow damping. Reduction of the variability of the flow measured value (in relation to interference). For this purpose, the depth of the flow filter is adjusted: when the filter setting increases, the reaction time of the device also increases.
User entry	0 to 15
Factory setting	7
Additional information	User entry
	 Value = 0: no damping Value > 0: damping is increased
	 0 is a weak damping and 15 a strong one. A damping of 0 is not recommended, as the measuring signal is then so noisy that it is almost impossible to carry out a measurement. The damping depends on the measuring period and the filter type selected. An increase or decrease in the damping depends on the application.
	Effect
	 The damping affects the following variables of the device: Outputs Low flow cut off → ≅ 50 Totalizers → ≅ 126
Flow override	
Navigation	■ Expert → Sensor → Process param. → Flow override
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	OffOn

Factory setting	Off
Additional information	<i>Result</i> This setting affects all the functions and outputs of the measuring device.
	Description
	 Flow override is active The diagnostic message diagnostic message △C453 Flow override is displayed. Output values Output: Value at zero flow Temperature: proceeding output

- Totalizers 1-3: Stop being totalized

Conductivity damping		ß
Navigation	Image: Boundary Sensor → Process param. → Conduct. damping	
Prerequisite	In the Conductivity measurement parameter ($\Rightarrow extsf{B} extsf{49}$), the On option is selected.	
Description	Use this function to enter the time constant for conductivity damping.	
User entry	0 to 999.9 s	
Factory setting	0 s	

Temperature damping		
Navigation	Image: Barbon → Sensor → Process param. → Temp. damping	
Prerequisite	For the following order code: "Sensor Option", option CI "Fluid temperature probe"	
Description	Use this function to enter the time constant for temperature damping.	
User entry	0 to 999.9 s	
Factory setting	0 s	

Conductivity measurement

Navigation	8 8	Expert \rightarrow Sensor \rightarrow Process param. \rightarrow Conduct. measur.
Description	Use th	is function to enable and disable conductivity measurement.

ß

Selection	OffOn
Factory setting	Off
Additional information	Description

Description For conductivity measurement to work, the medium must have a minimum conductivity of 5 μ S/cm.

"Low flow cut off" submenu



Assign process variable		Â
Navigation	Image: Barbon And Antipactic Sector → Process param. → Low flow cut off → Assign variable	
Description	Use this function to select the process variable for low flow cutoff detection.	
Selection	 Off Volume flow Mass flow Corrected volume flow 	
Factory setting	Volume flow	

ß

On value low flow cutoff	
Navigation	\bigcirc □ Expert → Sensor → Process param. → Low flow cut off → On value
Prerequisite	 One of the following options is selected in the Assign process variable parameter (→
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 $0 \rightarrow \bigoplus 51$.
User entry	Signed floating-point number
Factory setting	Depends on country and nominal diameter $\rightarrow \ \ 159$
Additional information	Dependency The unit depends on the process variable selected in the Assign process variable parameter ($\rightarrow \cong 50$).

Off value low flow cutoff		Ê
Navigation	Image: Barbon Sensor → Process param. → Low flow cut off → Off value	
Prerequisite	 One of the following options is selected in the Assign process variable parameter (→	
Description	Use this function to enter a switch-off value for low flow cut off. The off value is entere a positive hysteresis from the on value $\rightarrow \cong 51$.	ed as
User entry	0 to 100.0 %	
Factory setting	50 %	

Additional information

Example



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

Pressure shock suppressi	on
Navigation	Image: Barbon → Sensor → Process param. → Low flow cut off → Pres. shock sup.
Prerequisite	 One of the following options is selected in the Assign process variable parameter (→
Description	Use this function to enter the time interval for signal suppression (= active pressure shock suppression).
User entry	0 to 100 s
Factory setting	0 s
Additional information	Description
	 Pressure shock suppression is enabled Prerequisite: Flow rate < on-value of low flow cut off Output values Flow displayed: 0 Totalizer: the totalizers are pegged at the last correct value
	 Pressure shock suppression is disabled Prerequisite: the time interval set in this function has elapsed. If the flow also exceeds the switch-off value for low flow cut off, the device starts processing the current flow value again and displays it.
	Example
	When closing a valve, momentarily strong fluid movements may occur in the pipeline,

which are registered by the measuring system. These totalized flow values lead to a false totalizer status, particularly during batching processes.



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

"Empty pipe detection" submenu

Navigation

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

► Empty pipe detection	
Empty pipe detection	→ 🗎 54
Switch point empty pipe detection	→ 🖺 54
Response time empty pipe detection	→ 🖺 54
Empty pipe adjust value	→ 🗎 55
Full pipe adjust value	→ 🗎 55
Measured value EPD	→ 🗎 56
► Empty pipe adjust	

A

Empty pipe detection		A
Navigation	Image: Boundary Sensor → Process param. → Empty pipe det. → Empty pipe det.	
Description	Use this function to switch empty pipe detection on and off.	
Selection	OffOn	
Factory setting	Off	

Switch point empty pipe detection

Navigation	■ Expert → Sensor → Process param. → Empty pipe det. → Switch point EPD
Prerequisite	The On option is selected in the Empty pipe detection parameter ($\Rightarrow \square 54$).
Description	Use this function to enter the percentage threshold value of the resistance in relation to the adjustment values.
User entry	0 to 100 %
Factory setting	10 %

Response time empty pipe detection		1
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Sensor} \rightarrow \text{Process param.} \rightarrow \text{Empty pipe det.} \rightarrow \text{Response time} $	
Prerequisite	In the Empty pipe detection parameter ($\Rightarrow \bigoplus 54$), the On option is selected.	
Description	Enter the minimum length of time (debouncing time) the signal must be present for the diagnostic message \triangle S862 Empty pipe to be triggered if the measuring pipe is empty opartially full.	e or
User entry	0 to 100 s	
Factory setting	1 s	

New adjustment			
Navigation		Expert \rightarrow Sensor \rightarrow Process param. \rightarrow Empty pipe det. \rightarrow New adjustment	
Prerequisite	The	On option is selected in the Empty pipe detection parameter ($\rightarrow \implies 54$).	
Description	For s	electing whether to perform an empty pipe or full pipe adjustment.	

Selection• Cancel• Empty pipe adjust• Full pipe adjustFactory settingCancel

Progress	
Navigation	□ Expert → Sensor → Process param. → Empty pipe det. → Progress
Prerequisite	The On option is selected in the Empty pipe detection parameter ($\Rightarrow \triangleq 54$).
Description	Use this function to view the progress.
User interface	OkBusyNot ok

Empty pipe adjust value		æ
Navigation	Image: Boost and Boos	
Prerequisite	 In the Empty pipe detection parameter (→	
Description	Displays the adjustment value when the measuring pipe is empty.	
User interface	Positive floating-point number	

Full pipe adjust value		Â
Navigation	Image: Barbon And Antiperiod Sector And Antiperiod Sector Antiperiod Antiperiod Antiperiod Sector Antiperiod	
Prerequisite	 In the Empty pipe detection parameter (→	
Description	Displays the adjustment value when the measuring pipe is full.	
User interface	Positive floating-point number	

Measured value EPD

Navigation	■ Expert → Sensor → Process param. → Empty pipe det. → Meas. value EPD
Prerequisite	In the Empty pipe detection parameter ($\Rightarrow \square 54$), the On option is selected.
Description	Displays the current measured value.
User interface	Positive floating-point number

"Electrode cleaning circuit" submenu

Navigation \square Expert \rightarrow Sensor \rightarrow Process param. \rightarrow ECC

► Electrode cleaning circuit	
Electrode cleaning circuit	→ 🗎 56
ECC duration	→ 🗎 57
ECC recovery time	→ 🗎 57
ECC cleaning cycle	→ 🗎 57
ECC Polarity	→ 🗎 58

Electrode cleaning circuit

â

Navigation	■ Expert → Sensor → Process param. → ECC → ECC
Prerequisite	For the following order code: "Application package", option EC "ECC electrode cleaning"
Description	Use this function to enable and disable cyclic electrode cleaning.
Selection	OffOn
Factory setting	Off

ECC duration

A

Navigation	Image: Barbon Amplitude Sensor → Process param. → ECC → ECC duration
Prerequisite	For the following order code: "Application package", option EC "ECC electrode cleaning"
Description	Use this function to enter the duration of electrode cleaning in seconds.
User entry	0.01 to 30 s
Factory setting	2 s

ECC recovery time		
Navigation	■ Expert → Sensor → Process param. → ECC → ECC recov. time	
Prerequisite	For the following order code: "Application package", option EC "ECC electrode cleaning"	
Description	Use this function to enter the recovery time after electrode cleaning to prevent signal output interference. The current output values are frozen in the meanwhile.	
User entry	Positive floating-point number	
Factory setting	60 s	

ECC	cleaning	cycle
-----	----------	-------

Navigation	Image: Barbon → Sensor → Process param. → ECC → ECC clean. cycle
Prerequisite	For the following order code: "Application package", option EC "ECC electrode cleaning"
Description	Use this function to enter the pause duration until the next electrode cleaning.
User entry	0.5 to 168 h
Factory setting	0.5 h

Â

ECC Polarity	
Navigation	Image: Barbon And Sensor → Process param. → ECC → ECC Polarity
Prerequisite	For the following order code: "Application package", option EC "ECC electrode cleaning"
Description	Displays the polarity of the electrode cleaning circuit.
User interface	 Positive Negative
Factory setting	Depends on the electrode material: Platinum: Negative option Tantalum, Alloy C22, stainless steel: Positive option

3.2.4 "External compensation" submenu

Navigation \square Expert \rightarrow Sensor \rightarrow External comp.

► External compensation			
Temperature source	→ 🗎 58		
External temperature	→ 🗎 59		
Density source	→ 🗎 59		
External density	→ 🗎 59		
Fixed density	→ 🗎 59		
Reference density) → 🗎 60		

Temperature source	Â

Navigation	$\textcircled{B} \boxminus \text{Expert} \rightarrow \text{Sensor} \rightarrow \text{External comp.} \rightarrow \text{Temp. source}$
Description	Use this function to select the temperature source.
Selection	Internal temperature sensorExternal value
Factory setting	External value

External temperature	
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Sensor} \rightarrow \text{External comp.} \rightarrow \text{External temp.} $
Prerequisite	The External value option is selected in the Temperature source parameter ($\rightarrow \cong 58$).
Description	Displays the temperature read in by the external device.
User interface	Floating point number with sign
Additional information	Dependency
	1 The unit is taken from the Temperature unit parameter ($\rightarrow \square 42$)

Density source		Ê
Navigation	■ Expert \rightarrow Sensor \rightarrow External comp. \rightarrow Density source	
Description	Use this function to select the density source.	
Selection	Fixed densityExternal density	
Factory setting	Fixed density	
External density		
Navigation	■ Expert \rightarrow Sensor \rightarrow External comp. \rightarrow External density	
Prerequisite	In the Density source parameter ($\rightarrow \cong$ 59), the External density option is selected.	
Description	Displays the density read in from the external device.	
User interface	Positive floating-point number	

Additional information Dependency

The unit is taken from the **Density unit** parameter ($\rightarrow \cong 44$)

Fixed density		ß
Navigation	Image: Barbon Sensor → External comp. → Fixed density	
Description	Use this function to enter a fixed value for the density.	

User entry	Positive floating-point number
Factory setting	Country-specific: • 1000 kg/l • 1000 lb/ft ³
Additional information	Dependency 1 The unit is taken from the Density unit parameter ($\Rightarrow extbf{ } 44$)

Reference density		A
Navigation	Image: Barbon Ample	
Description	Use this function to enter a fixed value for the reference density.	
User entry	Positive floating-point number	
Factory setting	Country-specific: • 1 kg/l • 1 lb/ft ³	
Additional information	Dependency 1 The unit is taken from the Density unit parameter ($\rightarrow \cong 44$)	

3.2.5 "Sensor adjustment" submenu

Navigation

► Sensor adjustment		
Installation direction	→ 🗎 61	
Integration time	→ 🗎 61	
Measuring period	→ 🗎 61	
► Process variable adjustment	→ 🗎 61	

Installation direction		Ê
Navigation	■ Expert → Sensor → Sensor adjustm. → Install. direct.	
Description	Use this function to change the sign of the medium flow direction.	
Selection	Flow in arrow directionFlow against arrow direction	
Factory setting	Flow in arrow direction	
Additional information	Description	
	Before changing the sign: ascertain the actual direction of fluid flow with reference the direction indicated by the arrow on the sensor nameplate.	nce to

Integration time		ß
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Sensor} \rightarrow \text{Sensor adjustm.} \rightarrow \text{Integration time} $	
Description	Display the duration of an integration cycle.	
User interface	1 to 65 ms	

Measuring period		
Navigation	Image: Barbon And Sensor → Sensor adjustm. → Measuring period	
Description	Display the time of a full measuring period.	
User interface	50 to 1 000 ms	

"Process variable adjustment" submenu

Navigation $\blacksquare \Box$ Expert \rightarrow Sensor \rightarrow Sensor adjustm. \rightarrow Variable adjust

► Process variable adjustment	
Volume flow offset	→ 🗎 62
Volume flow factor	→ 🗎 62
Mass flow offset	→ 🗎 63

Mass flow factor	→ 🗎 63	
Conductivity offset	→ 🗎 63	
Conductivity factor	→ 🗎 64	
Corrected volume flow offset	→ 🗎 64	
Corrected volume flow factor	→ 🗎 64	
Temperature offset	→ 🗎 65	
Temperature factor	→ 🗎 65	

Volume flow offset	۵
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Sensor} \rightarrow \text{Sensor} \text{ adjust} m \rightarrow \text{Variable adjust} \rightarrow \text{Vol} \text{ flow offset} $
Description	Use this function to enter the zero point shift for the volume flow trim. The volume flow
-	unit on which the shift is based is m ³ /s.
User entry	Signed floating-point number
Factory setting	0 m³/s
Additional information	Description
	Corrected value = (factor × value) + offset

Volume flow factor		Ê
Navigation	Image: Barbon And Sensor → Sensor adjust: → Variable adjust → Vol. flow factor	
Description	Use this function to enter a quantity factor (without time) for the volume flow. This multiplication factor is applied over the volume flow range.	
User entry	Positive floating-point number	
Factory setting	1	
Additional information	Description	
	Corrected value = (factor × value) + offset	

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

Mass flow factor		£
Navigation	Image: Barbon And Sensor → Sensor adjustm. → Variable adjust → Mass flow factor	
Description	Use this function to enter a quantity factor (without time) for the mass flow. This multiplication factor is applied over the mass flow range.	
User entry	Positive floating-point number	
Factory setting	1	
Additional information	<i>Description</i> Corrected value = (factor × value) + offset	

Conductivity offset		
Navigation		
Prerequisite	In the Conductivity measurement parameter ($\Rightarrow extsf{B}$ 49), the On option is selected.	
Description	Use this function to enter the zero point shift for the conductivity trim. The conductivit unit on which the shift is based is S/m	.y
User entry	Signed floating-point number	
Factory setting	0 S/m	
Additional information	Description Corrected value = (factor × value) + offset	

Conductivity factor A Navigation \blacksquare Expert → Sensor → Sensor adjustm. → Variable adjust → Conduct. factor Prerequisite In the **Conductivity measurement** parameter ($\rightarrow \triangleq 49$), the **On** option is selected. Use this function to enter a quantity factor for the conductivity. This multiplication factor Description is applied over the conductivity range. User entry Positive floating-point number Factory setting 1 Additional information Description Corrected value = (factor × value) + offset -

Corrected volume flow offset	

Navigation	$\textcircled{B} \square \text{Expert} \rightarrow \text{Sensor} \rightarrow \text{Sensor} \text{ adjustm.} \rightarrow \text{Variable adjust} \rightarrow \text{Corr. vol offset}$
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	Description
	Corrected value = (factor × value) + offset

Corrected volume flow fa	ctor	
Navigation	Image: Barbon And Sensor → Sensor adjustm. → Variable adjust → Corr. vol factor	
Description	Use this function to enter a quantity factor (without time) for the corrected volum This multiplication factor is applied over the corrected volume flow range.	e flow.
User entry	Positive floating-point number	
Factory setting	1	
Additional information	Description	
	Corrected value = (factor × value) + offset	

Temperature offset A Navigation 8 2 Expert \rightarrow Sensor \rightarrow Sensor adjustm. \rightarrow Variable adjust \rightarrow Temp. offset For the following order code: Prerequisite "Sensor Option", option CI "Fluid temperature probe" Description Use this function to enter the zero point shift for the temperature trim. The temperature unit on which the shift is based is 1 K. User entry Signed floating-point number Factory setting 0 K Additional information Description Corrected value = (factor × value) + offset **H**

Image: Barbon And Sensor → Sensor adjustm. → Variable adjust → Temp. factor
For the following order code: "Sensor Option", option CI "Fluid temperature probe"
Use this function to enter a quantity factor (without time) for the temperature. This multiplication factor is applied over the temperature range.
Positive floating-point number
1
Description Corrected value = (factor × value) + offset

3.2.6 "Calibration" submenu

 Navigation
 Expert \rightarrow Sensor \rightarrow Calibration

 Calibration
 Calibration factor
 $\rightarrow \bowtie 66$

Â

	Zero point]	→ 🗎 66
	Conductivity calibration factor]	→ 🗎 67

Nominal diameter	
Navigation	Image: Barbon → Sensor → Calibration → Nominal diameter
Description	Displays the nominal diameter of the sensor.
User interface	DNxx / x"
Factory setting	Depends on the size of the sensor
Additional information	Description
	The value is also specified on the sensor nameplate.

Calibration factor		
Navigation	■ Expert → Sensor → Calibration → Cal. factor	
Description	Displays the current calibration factor for the sensor.	
User interface	Positive floating-point number	
Factory setting	Depends on nominal diameter and calibration.	

Zero point		Â
Navigation	Image: Barbon → Sensor → Calibration → Zero point	
Description	This function shows the zero point correction value for the sensor.	
User interface	Signed floating-point number	
Factory setting	Depends on nominal diameter and calibration	

Conductivity calibration factor		
Navigation	Image: Barbon → Sensor → Calibration → Cond. cal. fact.	
Prerequisite	In the Conductivity measurement parameter ($\rightarrow \cong$ 49), the On option is selected.	
Description	Displays the calibration factor for the conductivity measurement.	

User interface 0 to 10000

3.3 "Communication" submenu

Navigation

Navigation

 $\blacksquare \blacksquare \quad \text{Expert} \rightarrow \text{Communication}$

► Communication	
► PROFIBUS DP configuration	→ 🗎 67
► PROFIBUS DP info	→ 🗎 69
► Physical block	→ 🗎 71
► Web server	→ 🗎 80

3.3.1 "PROFIBUS DP configuration" submenu

Image: Barbon State State

► PROFIBUS DP configuration		
Address mode) → 🗎 67	
Device address) → 🗎 68	
Ident number selector] → 🗎 68	

 Address mode

 Navigation
 Image: Expert → Communication → PROFIBUS DP conf → Address mode

 Description
 Displays the configured address mode.

User interface	HardwareSoftware
Factory setting	Software
Additional information	Description For detailed information, see the "Setting the device address" section of the Operating Instructions.

Device address		æ
Navigation	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	
Description	Use this function to enter the device address.	
User entry	0 to 126	
Factory setting	126	
Additional information	<i>Description</i> The address must always be configured for a PROFIBUS device. The valid address rang between 1 and 126. In a PROFIBUS network, each address can only be assigned once. I address is not configured correctly, the device is not recognized by the master. All measuring devices are delivered from the factory with the device address 126 and with software addressing method.	e is lf an 1 the
	Displays the configured address mode: Address mode parameter ($\rightarrow \cong 67$)	

Ident number selector		Ê
Navigation	Image: Bar and the second state of the se	
Description	Use this function to select the device master file (GSD).	
Selection	 Automatic mode Manufacturer Profile 2 AI, 1 Totalizer (0x9741) 3 AI, 1 Totalizer (0x9742) 	
Factory setting	Automatic mode	
Additional information	<i>Description</i> In order to integrate the field devices into the bus system, the PROFIBUS system need description of the device parameters, such as output data, input data, data format, da volume and supported transmission rate. These data are available in the device master	ls a ta er file

(GSD) which is provided to the PROFIBUS Master when the communication system is commissioned.

3.3.2 "PROFIBUS DP info" submenu

Navigation B Expert \rightarrow Communication \rightarrow PROFIBUS DP info

► PROFIBUS DP info		
Status PROFIBUS Master Config] → 🗎 69	
PROFIBUS ident number] → 🗎 69	
Profile version] → 🗎 70	
Base current] → 🗎 70	
Baudrate] → 🗎 70	
Master availability] → 🗎 70	

Status PROFIBUS Master Config	
Navigation	■ Expert → Communication → PROFIBUS DP info → Stat Master Conf
Description	For displaying the status of the PROFIBUS Master configuration.
User interface	ActiveNot active
Factory setting	Not active

PROFIBUS ident number		
Navigation		
Description	For displaying the PROFIBUS identification number.	
User interface	0 to FFFF	

Factory setting 0x1560

Description of device parameters

Profile version			
Navigation	Image: Barbon Amplitude State Amplitude S		
Description	Displays the profile version.		
User interface	Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).		
Factory setting	3.02		
Base current			
Navigation	Image: Base current Image: Base curr		
Description	Displays the basic current: Every PA measuring device taps a constant basic current from the MBP cable. This base current must be at least 10 mA. The base current enables power to be supplied to the measuring device.		
User interface	16 mA		
Baudrate			
Navigation	Image: Barbon Amplitude State Image:		
Description	Displays the transmission rate.		
User interface	 Not available 9.6 kBaud 19.2 kBaud 31.25 kBaud 45.45 kBaud 93.75 kBaud 187.5 kBaud 500 kBaud 1.5 MBaud 3 MBaud 6 MBaud 12 MBaud 		
Factory setting	9.6 kBaud		
Master availability			
Navigation	Image: Barbon Amplitude Amplitu		

Description Displays whether or not a PROFIBUS master is present in the network.

User interface	■ No ■ Yes
Factory setting	No

3.3.3 "Physical block" submenu

Navigation \square Expert \rightarrow Communication \rightarrow Physical block

► Physical block			
	Device tag		→ 🗎 72
	Static revision]	→ 🗎 72
	Strategy]	→ 🖺 73
	Alert key]	→ 🖺 73
	Target mode		→ 🗎 73
	Mode block actual]	→ 🗎 73
	Mode block permitted]	→ 🗎 74
	Mode block normal]	→ 🗎 74
	Alarm summary]	→ 🗎 74
	Software revision]	→ 🗎 75
	Hardware revision]	→ 🗎 75
	Manufacturer ID]	→ 🗎 75
	Device ID]	→ 🗎 76
	Serial number]	→ 🗎 76
	Diagnostics]	→ 🗎 76
	Diagnostics mask		→ 🗎 77
	Device certification		→ 🗎 77
	Factory reset]	→ 🗎 78

Des	criptor	-	→ 🗎 78
Dev	ice message		→ 🖺 78
Dev	ice install date		→ 🗎 78
Iden	nt number selector		→ 🖺 79
Har	dware lock		→ 🖺 79
Fea	ture supported	-	→ 🖺 79
Fea	ture enabled		→ 🖺 80
Con	densed status diagnostic		→ 🖺 80

Device tag		Ê
Navigation	Image: Barbon Barbon And State	
Description	Use this function to enter the name for the measuring point.	
User entry	Max. 32 characters, such as letters, numbers or special characters (e.g. @, %, /).	
Factory setting	Promag 100 DP	
Static revision		
Navigation	Image: Barbon And Communication → Physical block → Static revision	
Description	Displays the event counter: every write access to a static block parameter is counted.	
User interface	0 to FFFF	
Additional information	Description	
	1 Static parameters are parameters that are not changed by the process.	

Endress+Hauser
Strategy		
Navigation	Image: Barbon And Antipactic	
Description	Use this function to enter the strategy: makes it possible to group blocks by entering identical numbers.	I
User entry	0 to FFFF	
Factory setting	0	
Alert key		Â
Navigation	Image: Barbon Alpha	
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	0	
Target mode		
Navigation	Image: Barbon Amplitude Amplitu	
Description	Displays the Target mode: The target mode indicates which mode of operation is use this function block. This mode is generally set by a control application.	ed for
User interface	AutoOut of service	
Mode block actual		
Navigation	$ \blacksquare \square \text{Expert} \rightarrow \text{Communication} \rightarrow \text{Physical block} \rightarrow \text{Mode block act} $	
Description	Displays the Mode block actual: Under certain conditions, it is possible that a function block will not operate in the required mode. In this case, the Mode block actual show actual mode in which the function block is currently operating. A comparison of the block actual with the Target mode indicates whether it was possible to reach the Tarmode ($\rightarrow \square 73$).	on vs the Mode rget
User interface	AutoOut of service	



Description

A comparison of the current mode with the target mode (**Target mode** parameter $(\rightarrow \square 73)$) indicates whether it was possible to reach the target mode.

Mode block permitted	l
Navigation	Image: Boost and the second state of the
Description	Displays the Mode block permitted: This defines which modes of operation in the Target mode ($\rightarrow \square 73$) are available for the function block. The operating modes that are supported vary depending on the type and function of the block.
User interface	0 to 255
Mode block normal	
Navigation	Image: Barbon And Antipactic
Description	Displays the Mode block normal: This is available to allow the operator to select the Mode block normal from the available modes of operation. This can be set using an operating tool in order to help the user configure the operating mode of a function block.
User interface	AutoOut of service
Alarm summary	
Navigation	Image: Boost and Communication → Physical block → Alarm summary
Description	Displays the alarm summary: the current status of the block alarms is displayed. A summary of up to 16 statuses can be displayed.
User interface	 Discrete alarm Alarm state HiHi limit Alarm state Hi limit Alarm state LoLo limit Alarm state Lo limit Update Event

Description

Currently, the system only displays a change in a static parameter for 10 seconds, and violations of the early warning and alarm limits in the Physical Block function block.

User interface

- Discrete alarm Alarm or warning message with a discrete value.
- Alarm state HiHi limit
 Upper alarm limit
- Alarm state Hi limit
- Upper warning limit
- Alarm state LoLo limit Lower alarm limit
- Alarm state Lo limit Lower warning limit
- Update Event

This option constitutes a special alarm that is triggered if a static parameter is changed. If such a parameter is modified, the associated bit is set in the **Alarm summary** parameter ($\rightarrow \square 74$), the output of the block switches to "GOOD (NC) Active Update Event" (if the current status has a lower priority than this), and the block remains in this state for a duration of 10 s. The block then reverts to the normal state (the output has the last status and the **Update Event** option bit in the **Alarm summary** parameter ($\rightarrow \square 74$) is deleted again).

Software revision	
Navigation	Software rev.
Description	Displays the firmware version of the measuring device.
User interface	Max. 16 characters such as letters, numbers or special characters (e.g. @, %, /).

Hardware revision	
Navigation	Image: Barbon And Antipactic
Description	Displays the hardware revision of the measuring device.
User interface	Max. 16 characters such as letters, numbers or special characters (e.g. @, %, /).

Manufacturer ID	
Navigation	□ Expert → Communication → Physical block → Manufacturer ID
Description	Displays the manufacturer ID with which the measuring device has been registered with the PNO (PROFIBUS User Organization).

User interface	0 to FFFF
Factory setting	0x11
Device ID	
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Communication} \rightarrow \text{Physical block} \rightarrow \text{Device ID} $
Description	Displays the device ID for identifying the measuring device in a PROFIBUS network.
User interface	Max. 16 characters such as letters, numbers or special characters (e.g. @, %, /).
Factory setting	Promag 100 DP
Serial number	
Navigation	■ Expert → Communication → Physical block → Serial number
Description	Displays the serial number of the measuring device. It can also be found on the nameplate of the sensor and transmitter.
User interface	Max. 11-digit character string comprising letters and numbers.
Additional information	Description
	 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

Diagnostics	
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Communication} \rightarrow \text{Physical block} \rightarrow \text{Diagnostics} $
Description	Displays the diagnostic messages.
User interface	 Hardware failure electronics Hardware failure mechanics Temperature motor Electronic temperature Memory checksum error Measurement error Device not initialized Initialization error Zero point error Power supply Configuration invalid On warmstart

- On coldstart
- Maintenance requiredCharacterization invalid
- Ident number violation
- More information available
- Maintenance alarm
- Maintenance demanded
- Function check or simulation
- Invalid process condition

Diagnostics mask	
Navigation	□ Export → Communication → Physical block → Diagnostics mask
ivavigation	Se Expert / communication / Hysical block / Diagnostics mask
Description	Displays the diagnostic messages supported by the measuring device.
User interface	 Hardware failure electronics Hardware failure mechanics Temperature motor Electronic temperature Memory checksum error Measurement error Device not initialized Initialization error Zero point error Power supply Configuration invalid On warmstart On coldstart Maintenance required Characterization invalid Ident number violation More information available Maintenance demanded Function check or simulation Invalid process condition

□ Expert → Communication → Physical block → Dev certificate
Displays certificates of the measuring device, e.g. Ex certificate.
Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).

Factory reset		
Navigation	Image: Barbon Antipart → Communication → Physical block → Factory reset	
Description	Use this function to reset a certain set of parameters in a block.	
Selection	 to defaults warmstart device reset bus address Cancel 	
Factory setting	Cancel	
Descriptor		
Navigation	■ Expert → Communication → Physical block → Descriptor	
Description	Use this function to enter a user-specific string to describe the device within the application.	
User entry	Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).	
Device message		Ê
Navigation	Image: Barbon Antipart → Communication → Physical block → Device message	
Description	Use this funtion to enter a user-definable message (a string) to describe the device the application or in the plant.	within
User entry	Max. 32 Zeichen wie Buchstaben, Zahlen oder Sonderzeichen (z.B. @, %, /).	
Device install date		Â
Navigation	■ Expert → Communication → Physical block → Device inst.date	
Description	Use this function to enter the date of installation of the device.	
User entry	Max. 16 Zeichen wie Buchstaben, Zahlen oder Sonderzeichen (z.B. @, %, /).	

Ident number selector		Â
Navigation		
Description	Use this function to select the device master file (GSD).	
Selection	 Automatic mode Manufacturer Profile 2 AI, 1 Totalizer (0x9741) 3 AI, 1 Totalizer (0x9742) 	
Factory setting	Automatic mode	
Additional information	<i>Description</i> In order to integrate the field devices into the bus system, the PROFIBUS system needs description of the device parameters, such as output data, input data, data format, data volume and supported transmission rate. These data are available in the device master (GSD) which is provided to the PROFIBUS Master when the communication system is commissioned.	a file

■ Expert → Communication → Physical block → Hardware lock
Displays the hardware write protection.
UnprotectedProtected
Description
Indicates whether it is possible to write-access the measuring device via PROFIBUS (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.
User interface
 Unprotected Write access via PROFIBUS is possible (acyclic data transmission). Protected
_

Feature supported	
Navigation	Sector Sect
—	
Description	Displays the PROFIBUS features that are supported by the measuring device.

User interface

- Condensed status
- Classic status diagnosis
- Data exchange broadcast
 MS1 application relationship
 PROFIsafe communication

Feature enabled	
Navigation	
Description	Displays the PROFIBUS features that are enabled in the measuring device.
User interface	 Condensed status Classic status diagnosis Data exchange broadcast MS1 application relationship

PROFIsafe communication

Condensed status diagnostic	

Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Communication} \rightarrow \text{Physical block} \rightarrow \text{Condensed status} $		
Description	Use this function to switch the condensed status diagnostic on and off.		
Selection	OffOn		
Factory setting	On		

"Web server" submenu 3.3.4

► Web server	
Web server language] → 🗎 81
MAC address] → 🖹 81
IP address] → 🗎 82
Subnet mask] → 🖹 82

Default gateway	→ 🗎 82
Web server functionality	→ 🗎 82

Web server language	
Navigation	\blacksquare = Expert → Communication → Web server → Webserv.language
Description	Use this function to select the web server language setting.
Selection	 English Deutsch* Français* Español* Italiano* Nederlands* Portuguesa* Polski* pyccкий язык (Russian)* Svenska* Türkçe* 中文 (Chinese)* 日本語 (Japanese)* 한국어 (Korean)* 基atasa Indonesia* ภาษาไพย (Thai)* tiếng Việt (Vietnamese)* čeština (Czech)*
Factory setting	English

MAC address	
Navigation	■ Expert → Communication → Web server → MAC Address
Description	Displays the MAC $^{1)}$ address of the measuring device.
User interface	Unique 12-digit character string comprising letters and numbers
Factory setting	Each measuring device is given an individual address.
Additional information	Example

For the display format 00:07:05:10:01:5F

Visibility depends on order options or device settings Media Access Control *

¹⁾

Description of device parameters

IP address		
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Communication} \rightarrow \text{Web server} \rightarrow \text{IP address} $	
Description	Displays the IP address of the device's web server.	
User interface	4 octet: 0 to 255 (in the particular octet)	
Factory setting	192.168.1.212	
Subnet mask		
Navigation	Image: Bar and the server and t	
Description	Displays the subnet mask.	
User interface	4 octet: 0 to 255 (in the particular octet)	
Factory setting 255.255.255.0		
Default gateway		
Navigation	Image: Boost and Boos	
Description	Displays the default gateway.	
User interface	4 octet: 0 to 255 (in the particular octet)	
Factory setting	0.0.0.0	

Web server functionality		
Navigation	Image: Barbon Amplitude Server → Webserver funct. Image: Server → Webserver funct.	
Description	Use this function to switch the Web server on and off.	
Selection	OffOn	
Factory setting	On	

Description

Once disabled, the Web server functionality can be re-enabled only via the local display or the FieldCare operating tool.

Selection

- Off
 - The web server is completely disabled.
 - Port 80 is locked.
- On
 - The complete functionality of the web server is available.
 - JavaScript is used.
- The password is transferred in an encrypted state.
- Any change to the password is also transferred in an encrypted state.

3.4 "Analog inputs" submenu

Navigation

 \blacksquare ■ Expert → Analog inputs

► Analog inputs			
	► Analog input 1 to	94	→ 🗎 83

3.4.1 "Analog input 1 to 4" submenu

Navigation $\blacksquare \blacksquare$ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4

► Analog input 1 to 4			
Channel	→ 🗎 84		
PV filter time	→ 🗎 84		
Fail safe type	→ 🗎 84		
Fail safe value	→ 🖺 85		
Out value	→ 🗎 85		
Out status	→ 🗎 85		
Out status	→ 🗎 86		

Channel			
Navigation	■ Expert → Analog inputs → Analog input 1 to 4 → Channel		
Description	For selecting the process variable.		
Selection	 Volume flow Mass flow Corrected volume flow Flow velocity Conductivity* Corrected conductivity* Temperature* Electronic temperature 		
Factory setting	Volume flow		
PV filter time			
Navigation	Image: Barbon Barbon Analog inputs → Analog input 1 to 4 → PV filter time		
Description	Use this function to enter a time to suppress signal peaks. During the specified time the Analog input does not respond to an erratic increase in the process variable.		
User entry	Positive floating-point number		
Factory setting	0		

Fail safe type		Ê
Navigation	■ Expert → Analog inputs → Analog input 1 to 4 → Fail safe type	
Description	Use this function to select the failure mode.	
Selection	Fail safe valueFallback valueOff	
Factory setting	Off	

^{*} Visibility depends on order options or device settings

Additional information	Selection
	 If an input or simulation value has the status BAD, the function block uses this predefined failure value: Fail safe value A substitute value is used. This is specified in the Fail safe value parameter (→ ■ 85). Fallback value If the value was good at one point, then this last valid value is used.
	 Off The system continues to use the bad value.

Fail safe value	
Navigation	Image: Barbon Barb
Prerequisite	In Fail safe type parameter ($\rightarrow \cong$ 84), the Fail safe value option is selected.
Description	Use this function to enter a failure value. The value entered is displayed as the output value (Out value parameter ($\rightarrow \cong 85$)) in the event of an error.
User entry	Signed floating-point number
Factory setting	0
Out value	
Navigation	Image: Boost and the second state of the
Prerequisite	In Target mode parameter ($\rightarrow \cong 87$), the Auto option is selected.
Description	Displays the analog value which is calculated when the function is executed.
User interface	Signed floating-point number
Out status	
Navigation	Image: Barbon Status
Description	Displays the current output status (Good, Bad, Uncertain).
User interface	GoodUncertainBad

Out status		
Navigation	■ Expert → Analog inputs → Analog input 1 to 4 → Out status	
Prerequisite	In Target mode parameter ($\rightarrow \blacksquare$ 87), the Auto option is selected.	
Description	Displays the current output status (hex value).	
User interface	0 to 0xFF	
Tag description		
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Tag description	
Description	Use this function to enter a string to identify the block.	
User entry	Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).	
Static revision		
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Static revision	
Description	Displays the event counter: every write access to a static block parameter is counted.	
User interface	0 to FFFF	
Additional information	<i>Description</i> Static parameters are parameters that are not changed by the process.	
Strategy		Â

Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Strategy
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		æ		
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Alert key			
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	0			
Target mode				
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Target mode			
Description	Displays the Target mode: The target mode indicates which mode of operation is used for this function block. This mode is generally set by a control application.			
User interface	AutoManOut of service			
Mode block actual				
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Mode block act			
Description	Displays the Mode block actual: Under certain conditions, it is possible that a function block will not operate in the required mode. In this case, the Mode block actual shows the actual mode in which the function block is currently operating. A comparison of the Mode block actual with the Target mode indicates whether it was possible to reach the Target mode ($\rightarrow \cong 87$).			
User interface	AutoManOut of service			

Description



Mode block permitted			
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Mode block perm		
Description	Displays the Mode block permitted: This defines which modes of operation in the Target mode ($\rightarrow \square 87$) are available for the function block. The operating modes that are supported vary depending on the type and function of the block.		
User interface	0 to 255		
Mode block normal			
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Mode blk norm		
Description	Displays the Mode block normal: This is available to allow the operator to select the Mode block normal from the available modes of operation. This can be set using an operating tool in order to help the user configure the operating mode of a function block.		
User interface	AutoManOut of service		
Alarm summary			
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Alarm summary		
Description	Displays the alarm summary: the current status of the block alarms is displayed. A summary of up to 16 statuses can be displayed.		
User interface	 Discrete alarm Alarm state HiHi limit Alarm state Hi limit Alarm state LoLo limit Alarm state Lo limit Update Event 		
Additional information	Description Currently, the system only displays a change in a static parameter for 10 seconds, and		

Batch ID	
Navigation	■ Expert → Analog inputs → Analog input 1 to 4 → Batch ID
Description	Use this function to enter the batch ID: identification of a specific batch to make it possible to assign device-specific information (e.g. errors, alarm conditions etc.) to the batching process.
User entry	Positive integer
Batch operation	

Navigation		Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Batch operation
Description	Use thi the act	is function to enter the batch operation: control recipe operation number to identify ive control recipe operation.
User entry	0 to 65	535
Factory setting	0	

Batch phase	ß
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Batch phase
Description	Use this function to enter the batch phase: control recipe phase number to identify the active control recipe operation.
User entry	0 to 65 535
Factory setting	0

Batch Recipe Unit Procedure	
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Batch Recipe
Description	Use this function to enter the batch recipe unit procedure (RUP): identification of the active control recipe unit procedure or the associated unit (e.g. inductor, centrifuge, drying agent).
User entry	0 to 65 535
Factory setting	0

i

Description

The unit is defined in IEC61512 Part1/ISA S88 but its meaning is different to that of the parameter unit, such as system units.

PV scale lower range			
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow PVscale lo range		
Description	Use this function to enter the lower value range for the input value (Process Value Scale) in system units. The process value scale normalizes the input value to a user-specific range.		
User entry	Signed floating-point number		
Factory setting	0		
PV scale upper range			
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow PVscale up range		
Description	Use this function to enter the upper value range for the input value (Process Value Scale) in system units. The process value scale normalizes the input value to a user-specific range.		
User entry	Signed floating-point number		
Factory setting	100.0		
Out scale lower range	6		
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Out scale low		
Description	Use this function to enter the lower value range for the output value in system units.		
User entry	Signed floating-point number		
Factory setting	0		
Out scale upper range	Ê		
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Out scale up		
Description	Use this function to enter the upper value range for the output value in system units.		

User entry	Signed floating-point number		
Factory setting	100.0		
Lin type			
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Lin type		
Description	Use this function to switch off the linearization type for the input value.		
Selection	Off		
Factory setting	Off		
Out unit			
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Out unit		
Description	Use this function to enter a numerical code (hex) for the system unit.		
User entry	0 to 65 535		
Factory setting	1997		
Out decimal point			
Navigation	□ Expert → Analog inputs → Analog input 1 to 4 → Out dec_ point		
Description	Use this function to enter the maximum number of decimal places that are displayed for the output value.		
User entry	0 to 7		
Factory setting	0		
Alarm hysteresis		Â	
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Alarm hysteresis		
Description	Use this function to enter the hysteresis value for the upper and lower warning or al	arm	

User entry Signed floating-point number

limit values.

Factory setting 0 A Hi Hi Lim Navigation Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Hi Hi Lim Description Use this function to enter the value for the upper alarm limit (Hi Hi alarm value parameter ($\rightarrow \square 93$)). User entry Signed floating-point number Positive floating-point number Factory setting Additional information Description If the output value Out value ($\rightarrow \square$ 85) exceeds this limit value, the **Hi Hi alarm state** parameter ($\rightarrow \square 94$) is output. User entry

The value is entered in the defined units (**Out unit** parameter ($\rightarrow \square 91$)) and must be in the range defined in the **Out scale lower range** parameter ($\rightarrow \square 90$) and **Out scale upper range** parameter ($\rightarrow \square 90$).

Hi Lim	ß
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Hi Lim
Description	Use this function to enter the value for the upper warning limit (Hi alarm value parameter $(\rightarrow \bowtie 94)$).
User entry	Signed floating-point number
Factory setting	Positive floating-point number
Additional information	Description If the output value Out value ($\rightarrow \cong 85$) exceeds this limit value, the Hi alarm state parameter ($\rightarrow \cong 94$) is output.
	User entry

The value is entered in the defined units (**Out unit** parameter ($\rightarrow \square 91$)) and must be in the range defined in the **Out scale lower range** parameter ($\rightarrow \square 90$) and **Out scale upper range** parameter ($\rightarrow \square 90$).

Lo Lim	ඕ
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Lo Lim
Description	Use this function to enter the value for the lower warning limit (Lo alarm value parameter $(\rightarrow \textcircled{94})$).
User entry	Signed floating-point number
Factory setting	Negative floating-point number
Additional information	Description If the output value Out value ($\rightarrow \square$ 85) exceeds this limit value, the Lo alarm state parameter ($\rightarrow \square$ 95) is output.
	User entry
	The value is entered in the defined units (Out unit parameter ($\rightarrow \square 91$)) and must be in the range defined in the Out scale lower range parameter ($\rightarrow \square 90$) and Out scale upper range parameter ($\rightarrow \square 90$).

Lo Lo Lim		Â
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Lo Lo Lim	
Description	Use this function to enter the value for the lower alarm limit (Lo Lo alarm value parameter ($\rightarrow \square 95$)).	
User entry	Signed floating-point number	
Factory setting	Negative floating-point number	
Additional information	Description If the output value Out value ($\rightarrow \square$ 85) exceeds this limit value, the Lo Lo alarm state parameter ($\rightarrow \square$ 95) is output.	1
	User entry	
	The value is entered in the defined units (Out unit parameter ($\rightarrow \square 91$)) and m in the range defined in the Out scale lower range parameter ($\rightarrow \square 90$) and Ou scale upper range parameter ($\rightarrow \square 90$).	ust be t

Hi Hi alarm value		
Navigation		Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow HiHi alarm value
Description	Displa	ys the alarm value for the upper alarm limit value (Hi Hi Lim parameter ($ ightarrow$ 🗎 92)).
User interface	Signeo	l floating-point number

Hi Hi alarm state	
Navigation	□ Expert → Analog inputs → Analog input 1 to 4 → HiHi alarm state
Description	Displays the status for the upper alarm limit value (Hi Hi Lim parameter ($\rightarrow \square$ 92)).
User interface	No alarmAlarm state HiHi limit
Additional information	User interface
	The display contains information such as the time of the alarm (date and time) and the value that triggered the alarm.

Hi alarm value		
Navigation		Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Hi alarm value
Description	Displa	ys the alarm value for the upper warning limit value (Hi Lim parameter ($ ightarrow$ 🗎 92)).
User interface	Signeo	d floating-point number

Hi alarm state			
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Hi alarm state		
Description	Displays the status for the upper warning limit value (Hi Lim parameter ($ ightarrow$ [$ ightarrow$ 92)).		
User interface	No warningAlarm state Hi limit		
Additional information	User interface		
	The display contains information such as the time of the warning (date and time) and the value that triggered the alarm.		

Lo alarm value	
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Lo alarm value
Description	Displays the alarm value for the lower warning limit value (Lo Lim parameter ($\rightarrow \square$ 93)).
User interface	Signed floating-point number

Lo alarm state		
Navigation	Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Lo alarm state	
Description	Displays the status for the lower warning limit value (Lo Lim parameter ($\rightarrow \square$ 93)).	
User interface	No warningAlarm state Lo limit	
Additional information	User interface	
	The display contains information such as the time of the warning (date and time) and the value that triggered the alarm.	

Lo Lo alarm value	
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow LoLo alarm value
Description	Displays the alarm value for the lower alarm limit value (Lo Lo Lim parameter ($\rightarrow \square$ 93)).
User interface	Signed floating-point number

Lo Lo alarm state		
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow LoLo alarm state	
Description	Displays the status for the lower alarm limit value (Lo Lo Lim parameter ($\rightarrow \square 93$)).	
User interface	No alarmAlarm state LoLo limit	
Additional information	User interface	
	The display contains information such as the time of the alarm (date and time) and the value that triggered the alarm.	

Simulate enabled		
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Simulate enabled	
Description	Use this function to enable or disable block simulation.	
Selection	DisableEnable	
Factory setting	Disable	

Description

The simulation is used to bypass the physical I/O channel. In this way, the block remains in the normal mode and uses the simulated discrete I/O channel during operation.

Simulate value		
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Simulate value	
Description	Use this function to enter a simulation value for the block.	
User entry	Signed floating-point number	
Factory setting	0	
Additional information	Description	
	The simulation is used to bypass the physical I/O channel. In this way, the block rema the normal mode and uses the simulated value during operation.	ains in

Simulate status		
Navigation	□ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Simulate status	
Description	Use this function to enter a simulation status for the block.	
User entry	0 to 255	
Factory setting	0	
Additional information	Description	
	The simulation is used to bypass the physical I/O channel. In this way, the block rem the normal mode and uses the simulated status during operation.	ains in

Out unit text		Ê
Navigation	■ Expert \rightarrow Analog inputs \rightarrow Analog input 1 to 4 \rightarrow Out unit text	
Description	Use this function to enter the out unit text: if a specific out unit does not appear in th code list, the user can enter the specific text. The unit code is then equivalent to the definition provided here.	e
User entry	Max. 16 characters such as letters, numbers or special characters (e.g. @, %, /).	
Factory setting	NoUnit	

3.5 "Discrete inputs" submenu

Navigation	8 2	Expert \rightarrow Discrete inputs	
► Discrete inputs			
	► Discre	ete input 1 to 2	→ 🗎 97

3.5.1 "Discrete input 1 to 2" submenu

Navigation \blacksquare Expert \rightarrow Discrete inputs \rightarrow Discrete input 1 to 2

► Discrete input 1 to 2		
Channel) → 🗎 97	
Invert) → 🗎 98	
Fail safe type) → 🗎 98	
Fail safe value) → 🗎 98	
Out value) → 🗎 99	
Out status) → 🗎 99	
Out status) → 🗎 99	

Channel Image: Channel Navigation Image: Expert → Discrete inputs → Discrete input 1 to 2 → Channel Description Use this function to assign a measured variable to the particular function block. Selection Image: Empty pipe detection Image: Low flow cut off Verification status* Factory setting Empty pipe detection

^{*} Visibility depends on order options or device settings

Description of device parameters

Invert		A
Navigation	Image: Barbon Barb	
Description	Use this function to invert the input signal.	
Selection	OffOn	
Factory setting	Off	

Fail safe type	8
Navigation	Image: Boost and the second state of the
Description	Use this function to select the failure mode.
Selection	Fail safe valueFallback valueOff
Factory setting	Off
Additional information	 Selection If an input or simulation value has the status BAD, the function block uses this predefined failure value: Fail safe value A substitute value is used. This is specified in the Fail safe value parameter (→ ● 98). Fallback value If the value was good at one point, then this last valid value is used. Off The system continues to use the bad value.

Fail safe value		æ
Navigation	■ Expert → Discrete inputs → Discrete input 1 to 2 → Fail safe value	
Prerequisite	In Fail safe type parameter ($\rightarrow \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	
Description	Use this function to enter a failure value. The value entered is displayed as the output value (Out value parameter ($\rightarrow \cong 99$)) in the event of an error.	
User entry	0 to 255	
Factory setting	0	

Out value	
Nariation	P. Emart) Diamoto innuto) Diamoto innut 1 to 2) Out value
Navigation	Expert > Discrete inputs > Discrete input 1 to 2 > Out value
Prerequisite	In Target mode parameter ($\rightarrow \square$ 100), the Auto option is selected.
Description	Displays the analog value which is calculated when the function is executed.
User interface	0 to 255

Out status		
Navigation	■ Expert → Discrete inputs → Discrete input 1 to 2 → Out status	
Description	Displays the current output status (Good, Bad, Uncertain).	
User interface	GoodUncertainBad	

Out status	
Navigation	■ Expert → Discrete inputs → Discrete input 1 to 2 → Out status
Prerequisite	In Target mode parameter ($\rightarrow \triangleq 100$), the Auto option is selected.
Description	Displays the current output status (hex value).
User interface	0 to 0xFF

Tag description			Â
Navigation		Expert \rightarrow Discrete inputs \rightarrow Discrete input 1 to 2 \rightarrow Tag description	
Description	Use t	his function to enter a string to identify the 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
Description	Displays the event counter: every write access to a static block parameter is counted.
User interface	O to FFFF
Additional information	Description
	1 Static parameters are parameters that are not changed by the process.

Strategy		Ê
Navigation	Expert \rightarrow Discrete inputs \rightarrow Discrete input 1 to 2 \rightarrow Strategy	
Description	Use this function to enter the strategy: makes it possible to group blocks by entering identical numbers.	J
User entry	0 to FFFF	
Factory setting	0	
Alert key		Ê
Navigation	■ Expert → Discrete inputs → Discrete input 1 to 2 → Alert key	
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	0	
Target mode		Ê
Navigation	■ Expert → Discrete inputs → Discrete input 1 to 2 → Target mode	
Description	Displays the Target mode: The target mode indicates which mode of operation is use this function block. This mode is generally set by a control application.	ed for
User interface	AutoMan	

Out of service

Endress+Hauser

Mode block actual	
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Mode block act
Description	Displays the Mode block actual: Under certain conditions, it is possible that a function block will not operate in the required mode. In this case, the Mode block actual shows the actual mode in which the function block is currently operating. A comparison of the Mode block actual with the Target mode indicates whether it was possible to reach the Target mode ($\rightarrow \cong 100$).
User interface	AutoManOut of service
Additional information	Description A comparison of the current mode with the target mode (Target mode parameter $(\rightarrow \cong 100)$) indicates whether it was possible to reach the target mode.

Mode block permitted	
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Mode block perm
Description	Displays the Mode block permitted: This defines which modes of operation in the Target mode ($\rightarrow \cong 100$) are available for the function block. The operating modes that are supported vary depending on the type and function of the block.
User interface	0 to 255
Mode block normal	
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Mode blk norm
Description	Displays the Mode block normal: This is available to allow the operator to select the Mode block normal from the available modes of operation. This can be set using an operating tool in order to help the user configure the operating mode of a function block.
User interface	AutoManOut of service

Alarm summary	
Navigation	■ Expert → Discrete inputs → Discrete input 1 to 2 → Alarm summary
Description	Displays the alarm summary: the current status of the block alarms is displayed. A summary of up to 16 statuses can be displayed.

User interface

- Discrete alarm
- Alarm state HiHi limit
- Alarm state Hi limit
- Alarm state LoLo limit
- Alarm state Lo limit
- Update Event

Additional information

Description

Currently, the system only displays a change in a static parameter for 10 seconds, and violations of the early warning and alarm limits in the Discrete Inputs function block.

Batch ID	
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Batch ID
Description	Use this function to enter the batch ID: identification of a specific batch to make it possible to assign device-specific information (e.g. errors, alarm conditions etc.) to the batching process.
User entry	Positive integer
Batch operation	۵
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Batch operation
Description	Use this function to enter the batch operation: control recipe operation number to identify the active control recipe operation.
User entry	0 to 65 535
Factory setting	0
Batch phase	
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Batch phase
Description	Use this function to enter the batch phase: control recipe phase number to identify the active control recipe operation.
User entry	0 to 65 535
Factory setting	0

Batch Recipe Unit Proced	ure
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Batch Recipe
Description	Use this function to enter the batch recipe unit procedure (RUP): identification of the active control recipe unit procedure or the associated unit (e.g. inductor, centrifuge, drying agent).
User entry	0 to 65 535
Factory setting	0
Additional information	Description In the unit is defined in IEC61512 Part1/ISA S88 but its meaning is different to that of the parameter unit, such as system units.

Simulate enabled		
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Simulate enabled	
Description	Use this function to enable or disable block simulation.	
Selection	DisableEnable	
Factory setting	Disable	
Additional information	Description The simulation is used to bypass the physical I/O channel. In this way, the block rem	ains in

Simulate status		
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Simulate status	
Description	Use this function to enter a simulation status for the block.	
User entry	0 to 255	
Factory setting	0	
Additional information	Description	
	The simulation is used to bypass the physical I/O channel. In this way, the block remained normal mode and uses the simulated status during operation.	ains in

Simulate value		
Navigation	□ Expert → Discrete inputs → Discrete input 1 to 2 → Simulate value	
Description	Use this function to enter a simulation value for the block.	
User entry	0 to 255	
Factory setting	0	
Additional information	Description	
	The simulation is used to bypass the physical I/O channel. In this way, the block rema the normal mode and uses the simulated value during operation.	ains in

3.6 "Analog outputs" submenu

Navigation \square Expert \rightarrow Analog outputs

► Analog outputs			
	► Analog output 1 to 2]	→ 🗎 104

3.6.1 "Analog output 1 to 2" submenu

Navigation

 $\textcircled{B} \ \ \texttt{Expert} \rightarrow \texttt{Analog} \ \texttt{outputs} \rightarrow \texttt{Analog} \ \texttt{output1} \ \texttt{to 2}$

► Analog output 1 to 2		
Set point value] → 🗎 105	
Set point status] → 🗎 105	
Fail safe time] → 🗎 105	
Fail safe type] → 🗎 106	
Fail safe value] → 🗎 106	
Out value] → 🗎 106	
Out status] → 🗎 107	
Out status] → 🗎 107	

Set point value		ß
Navigation	Expert → Analog outputs → Analog output 1 to 2 → Set point val	
Description	Use this function to enter an analog set point.	
User entry	Signed floating-point number	
Factory setting	0	

Set point status		£
Navigation	Image: Barbon Status	
Description	Use this function to enter a status for the analog set point.	
User entry	0 to 255	
Factory setting	0	

Fail safe time		A
Navigation	Image: Boost and the second state of the	
Description	Use this function to enter a time span within which the criteria for an error must be m continuously before an error message or notice message is generated.	ıet
User entry	0 to 999.0	
Factory setting	0	
Additional information	User entry	
	NOTE!	
	If this parameter is used, error messages and notice messages are delayed by the time before being relayed to the higher-level controller (DCS, etc.).	set
	 Check in advance to ensure that the safety-specific requirements of the process wou permit this. 	ld
	 If the error and notice messages may not be suppressed, a value of 0 seconds must b configured here.)e

Fail safe type	
Navigation	Image: Barbon Barb
Description	Use this function to select the failure mode.
Selection	 Fail safe value Fallback value Off
Factory setting	Fallback value
Additional information	 Selection If an input or simulation value has the status BAD, the function block uses this predefined failure value: Fail safe value A substitute value is used. This is specified in the Fail safe value parameter (→ ■ 106). Fallback value If the value was good at one point, then this last valid value is used. Off The system continues to use the bad value.

Fail safe value		Â
Navigation	■ Expert → Analog outputs → Analog output 1 to 2 → Fail safe value	
Prerequisite	In Fail safe type parameter ($\rightarrow \square 106$), the Fallback value option is selected.	
Description	Use this function to enter a failure value. The value entered is displayed as the output value (Out value parameter ($\rightarrow \triangleq 106$)) in the event of an error.	
User entry	Signed floating-point number	
Factory setting	0	
Out value		

Navigation	■ Expert → Analog outputs → Analog output 1 to 2 → Out value
Prerequisite	In Target mode parameter ($\rightarrow \square$ 108), the Auto option is selected.
Description	Displays the analog value which is calculated when the function is executed.
User interface	Signed floating-point number

Out status	
Navigation	■ Expert → Analog outputs → Analog output 1 to 2 → Out status
Description	Displays the current output status (Good, Bad, Uncertain).
User interface	GoodUncertainBad
Out status	
Navigation	Image: Barbon Status
Prerequisite	In Target mode parameter ($\rightarrow \triangleq 108$), the Auto option is selected.
Description	Displays the current output status (hex value).
User interface	0 to 0xFF

Tag description			A
Navigation		Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Tag description	
Description	Use	this function to enter a string to identify the block.	
User entry	Max	. 32 characters such as letters, numbers or special characters (e.g. @, %, /).	

Static revision	
Navigation	□ Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Static revision
Description	Displays the event counter: every write access to a static block parameter is counted.
User interface	0 to FFFF
Additional information	Description
	1 Static parameters are parameters that are not changed by the process.

Strategy		Ê	
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Strategy		
Description	Use this function to enter the strategy: makes it possible to group blocks by entering identical numbers.		
User entry	O to FFFF		
Factory setting	0		
Alert key			
Navigation	■ Expert → Analog outputs → Analog output 1 to 2 → Alert key		
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	0		
Target mode			
Navigation	□ Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Target mode		
Description	Displays the Target mode: The target mode indicates which mode of operation is used for this function block. This mode is generally set by a control application.		
User interface	 Auto Local override Man Out of service Remote Cascaded 		
Mode block actual			

Navigation		Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Mode block act
Description	Displa block actual block mode	hys the Mode block actual: Under certain conditions, it is possible that a function will not operate in the required mode. In this case, the Mode block actual shows the mode in which the function block is currently operating. A comparison of the Mode actual with the Target mode indicates whether it was possible to reach the Target ($\rightarrow \cong 108$).
User interface

- Auto
- Local override Man
- Out of service
- Remote Cascaded

Additional information

Description

A comparison of the current mode with the target mode (**Target mode** parameter $(\rightarrow \cong 108)$) indicates whether it was possible to reach the target mode.

Mode block permitted	
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Mode block perm
Description	Displays the Mode block permitted: This defines which modes of operation in the Target mode ($\rightarrow \cong 108$) are available for the function block. The operating modes that are supported vary depending on the type and function of the block.
User interface	0 to 255
Mode block normal	
Navigation	$ \blacksquare \text{Expert} \rightarrow \text{Analog outputs} \rightarrow \text{Analog output 1 to 2} \rightarrow \text{Mode blk norm} $
Description	Displays the Mode block normal: This is available to allow the operator to select the Mode block normal from the available modes of operation. This can be set using an operating tool in order to help the user configure the operating mode of a function block.
User interface	 Auto Local override Man Out of service Remote Cascaded

Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Alarm summary
Description	Displays the alarm summary: the current status of the block alarms is displayed. A summary of up to 16 statuses can be displayed.
User interface	 Discrete alarm Alarm state HiHi limit Alarm state Hi limit Alarm state LoLo limit Alarm state Lo limit Update Event

Description

Currently, the system only displays a change in a static parameter for 10 seconds, and violations of the early warning and alarm limits in the Analog Outputs function block.

Batch ID	
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Batch ID
Description	Use this function to enter the batch ID: identification of a specific batch to make it possible to assign device-specific information (e.g. errors, alarm conditions etc.) to the batching process.
User entry	Positive integer
Batch operation	۵
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Batch operation
Description	Use this function to enter the batch operation: control recipe operation number to identify the active control recipe operation.
User entry	0 to 65 535
Factory setting	0
Batch phase	8
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Batch phase
Description	Use this function to enter the batch phase: control recipe phase number to identify the active control recipe operation.
User entry	0 to 65 5 3 5
Factory setting	0
Batch Recipe Unit Pro	bcedure
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Batch Recipe
Description	Use this function to enter the batch recipe unit procedure (RUP): identification of the active control recipe unit procedure or the associated unit (e.g. inductor, centrifuge, drying agent).

User entry	0 to 65 535
Factory setting	0
Additional information	Description
	The unit is defined in IEC61512 Part1/ISA S88 but its meaning is different to that of the parameter unit, such as system units.

PV scale lower range		Â
Navigation	■ Expert → Analog outputs → Analog output 1 to 2 → PVscale lo range	
Description	Use this function to enter the lower value range for the input value (Process Value Sc in system units. The process value scale normalizes the input value to a user-specific range.	ale)
User entry	Signed floating-point number	
Factory setting	0	

PV scale upper range		A
Navigation	■ Expert → Analog outputs → Analog output 1 to 2 → PVscale up range	
Description	Use this function to enter the upper value range for the input value (Process Value Sca in system units. The process value scale normalizes the input value to a user-specific range.	le)
User entry	Signed floating-point number	
Factory setting	100.0	
Readback value		
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Readback value	
Description	Displays the readback value. The readback value indicates the current position of the control element within the travel range (between the open and close position) in PV so units.	ale
User interface	Signed floating-point number	

Readback status	
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Readback status
Description	Displays the readback status. The readback status contains the status information of the slave.
User interface	0 to 255
RCAS in value	
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow RCAS in value
Description	Use this function to enter the RCAS (Remote Cascade) in value. The block set point is set by a control application via the remote cascade RCAS in value parameter ($\rightarrow \square 112$). The normal algorithm calculates the output value of the block on the basis of this set point.
User entry	Signed floating-point number
Factory setting	0
RCAS in status	
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow RCAS in status
Description	Use this function to enter the RCAS (Remote Cascade) in status. Defines the status for the RCAS in value ($\rightarrow \cong 112$).
User entry	0 to 255
Factory setting	0
Input channel	۵

Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Input channel
Description	Use this function to select the input channel. The number of logical hardware channels from the converter that is connected to this I/O block.
Selection	None
Factory setting	None

Output channel	Â
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Output channel
Description	Use this function to select the output channel. The number of logical hardware channels to the converter that is connected to this I/O block.
Selection	External temperatureExternal density
Factory setting	External temperature
RCAS out value	
Navigation	□ Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow RCAS out value
Description	Displays the RCAS out value. Displays the set point of the block which is made available to the higher-level host for monitoring/back calculation and which makes it possible to take action under certain conditions or in a different mode.
User interface	Signed floating-point number
RCAS out status	
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → RCAS out status
Description	Displays the RCAS out status. Displays the status of the set point.
User interface	0 to 0xFF
Position value	
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Pos value
Description	Displays the current value of the positioner.
User interface	0 to 255

Description of device parameters

Position status	
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Position status
Description	Displays the current status of the positioner.
User interface	0 to 255
Setpoint deviation	
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Setp. deviation
Description	Displays the deviation between the set point (Set point value parameter ($\rightarrow \square 105$)) and the actual value (Readback value parameter ($\rightarrow \square 111$)).
User interface	Signed floating-point number
Simulate enabled	ß
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Simulate enabled
Description	Use this function to enable or disable block simulation.
Selection	DisableEnable
Factory setting	Disable
Additional information	Description
	The simulation is used to bypass the physical I/O channel. In this way, the block remains in the normal mode and uses the simulated discrete I/O channel during operation.
Simulato valuo	 [ه]
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Simulate value
Description	Use this function to enter a simulation value.
User entry	Signed floating-point number
Factory setting	0

Description

Additional information

The simulation is used to bypass the physical I/O channel. In this way, the block remains in the normal mode and uses the simulated value during operation.

Simulate status		
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Simulate status	
Description	Use this function to enter a simulation status for the block.	
User entry	0 to 255	
Factory setting	0	
Additional information	Description	
	The simulation is used to bypass the physical I/O channel. In this way, the block rem the normal mode and uses the simulated status during operation.	ains in

Increase close		ß
Navigation	□ Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Increase close	
Description	Use this function to enter the effective direction of the positioner in automatic mode	
User entry	0 to 255	
Factory setting	0	

Out scale upper range		
Navigation	□ Expert → Analog outputs → Analog output 1 to 2 → Out scale up	
Description	Use this function to enter the upper value range for the output value in system units.	
User entry	Signed floating-point number	
Factory setting	100.0	

Out scale lower range		æ
Navigation	Expert \rightarrow Analog outputs \rightarrow Analog output 1 to 2 \rightarrow Out scale low	
Description	Use this function to enter the lower value range for the output value in system units.	
User entry	Signed floating-point number	
Factory setting	0	

3.7 "Discrete outputs" submenu

Navigation	₿₿ Exp	ert \rightarrow Discrete outputs	
► Discrete outputs			
	 Discrete out 	tput 1 to 2	→ 🖺 116

3.7.1 "Discrete output 1 to 2" submenu

Navigation

Image: Second state outputs → Discr. out. 1 to 2
Image: Second state outputs → Discr. out. 1 to 2

► Discrete output 1 to 2	
Set point value] → 🗎 117
Set point status) → 🗎 117
Invert) → 🗎 117
Fail safe time	→ 🗎 117
Fail safe type) → 🗎 118
Fail safe value) → 🗎 118
Out value) → 🗎 119
Out status) → 🗎 119
Out status) → 🗎 119

Set point value		ß
Navigation	Image: Boundary Section 2 → Set point val Image: Boundary Section 2 → Set point val Image: Boundary Section 2 → Set point val	
Description	Use this function to enter an analog set point.	
User entry	0 to 255	
Factory setting	0	
Set point status		æ
Navigation	Image: Boundary Section 2 → Set Point Status Image: Boundary Section 2 → Set Point Status	
Description	Use this function to enter a status for the analog set point.	
User entry	0 to 255	
Factory setting	0	
Invert		A
Navigation	■ Expert → Discrete outputs → Discr. out. 1 to 2 → Invert	
Description	Use this function to switch inversion on and off. Specifies whether the set point should inverted before the value is set as the output value or the RCAS value (in the automatic mode).	be
Selection	OffOn	
Factory setting	Off	
Fail safe time		
Navigation	■ Expert → Discrete outputs → Discr. out. 1 to 2 → Fail safe time	
Description	Use this function to enter a time span within which the criteria for an error must be me continuously before an error message or notice message is generated.	t
User entry	Signed floating-point number	
Factory setting	0	

Additional information	User entry
	NOTE!
	If this parameter is used, error messages and notice messages are delayed by the set time before being relayed to the higher-level controller (DCS, etc.).
	 Check in advance to ensure that the safety-specific requirements of the process would permit this.
	 If the error and notice messages may not be suppressed, a value of 0 seconds must be configured here.

Fail safe type	Â
Navigation	Image: Barbon Structure
Description	Use this function to select the failure mode.
Selection	Fail safe valueFallback valueOff
Factory setting	Fallback value
Additional information	 Selection If an input or simulation value has the status BAD, the function block uses this predefined failure value: Fail safe value A substitute value is used. This is specified in the Fail safe value parameter (→ ■ 118). Fallback value If the value was good at one point, then this last valid value is used. Off The system continues to use the bad value.

Fail safe value		Â
Navigation	■ Expert → Discrete outputs → Discr. out. 1 to 2 → Fail safe value	
Prerequisite	In Fail safe type parameter ($\rightarrow extsf{B}$ 118), the Fail safe value option is selected.	
Description	Use this function to enter a failure value. The value entered is displayed as the outpuvalue (Out value parameter ($\rightarrow \cong 119$)) in the event of an error.	t
User entry	0 to 255	
Factory setting	0	

Out value	
Navigation	\square Expert \rightarrow Discrete outputs \rightarrow Discr. out 1 to 2 \rightarrow Out value
Prereguisite	In Target mode parameter ($\rightarrow \cong 120$) the Auto option is selected
Description	Displays the analog value which is calculated when the function is executed.
User interface	0 to 255

Out status		
Navigation	■ Expert → Discrete outputs → Discr. out. 1 to 2 → Out status	
Description	Displays the current output status (Good, Bad, Uncertain).	
User interface	GoodUncertainBad	

Out status		
Navigation	Image: Boundary	
Prerequisite	In Target mode parameter ($\rightarrow \square$ 120), the Auto option is selected.	
Description	Displays the current output status (hex value).	
User interface	0 to 0xFF	

Tag description			Â
Navigation		Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Tag description	
Description	Use	his function to enter a string to identify the block.	
User entry	Max	. 32 characters such as letters, numbers or special characters (e.g. @, %, /).	

Static revision		
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Static revision	
Description	Displays the event counter: every write access to a static block parameter is counted.	
User interface	0 to FFFF	
Additional information	Description	
	1 Static parameters are parameters that are not changed by the process.	

Strategy		
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Strategy	
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		A
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Alert key	
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	0	
Target mode		A
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Target mode	
Description	Displays the Target mode: The target mode specifies which mode of operation is used for this function block. This mode is generally set by a control application.	

User interface

- Local override
- Remote Cascaded
- Man
- Out of service
- Auto

Mode block actual	
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Mode block act
Description	Displays the Mode block actual: Under certain conditions, it is possible that a function block will not operate in the required mode. In this case, the Mode block actual shows the actual mode in which the function block is currently operating. A comparison of the Mode block actual with the Target mode indicates whether it was possible to reach the Target mode ($\rightarrow \square$ 120).
User interface	 Local override Remote Cascaded Man Out of service Auto
Additional information	Description A comparison of the current mode with the target mode (Target mode parameter ($\rightarrow \cong 120$)) indicates whether it was possible to reach the target mode.

Mode block permitted		
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Mode block perm	
Description	Displays the Mode block permitted: This defines which modes of operation in the Target mode ($\rightarrow \square 120$) are available for the function block. The operating modes that are supported vary depending on the type and function of the block.	
User interface	0 to 255	

Mode block normal		
Navigation		Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Mode blk norm
Description	Disp block tool	lays the Mode block normal: This is available to allow the operator to select the Mode k normal from the available modes of operation. This can be set using an operating in order to help the user configure the operating mode of a function block.

User interface

- Local override
- Remote Cascaded
- Man
- Out of service
- Auto

Alarm summary			
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Alarm summary		
Description	Displays the alarm summary: the current status of the block alarms is displayed. A summary of up to 16 statuses can be displayed.		
User interface	 Discrete alarm Alarm state HiHi limit Alarm state Hi limit Alarm state LoLo limit Alarm state Lo limit Update Event 		
Additional information	 Description Currently, the system only displays a change in a static parameter for 10 seconds, and violations of the early warning and alarm limits in the Discrete Outputs function block. 		
Batch ID	 		
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Batch ID		
Description	Use this function to enter the batch ID: identification of a specific batch to make it possible to assign device-specific information (e.g. errors, alarm conditions etc.) to the batching process.		
User entry	Positive integer		
Batch operation	<u> </u>		
Navigation	■ Expert → Discrete outputs → Discr. out. 1 to 2 → Batch operation		
Description	Use this function to enter the batch operation: control recipe operation number to identify		

0

Factory setting

Batch phase		£
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Batch phase	
Description	Use this function to enter the batch phase: control recipe phase number to identify the active control recipe operation.	
User entry	0 to 65 535	
Factory setting	0	

Batch Recipe Unit Proced	ure	
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Batch Recipe	
Description	Use this function to enter the batch recipe unit procedure (RUP): identification of the active control recipe unit procedure or the associated unit (e.g. inductor, centrifuge, drying agent).	
User entry	0 to 65 535	
Factory setting	0	
Additional information	Description	
	The unit is defined in IEC61512 Part1/ISA S88 but its meaning is different to that of the parameter unit, such as system units.	

Readback value	
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Readback value
Description	Displays the readback value. The readback value indicates the current position of the control element and the element's sensors.
User interface	0 to 255
Readback status	

Navigation		Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Readback status
Description	Displa	ys the readback status. Displays the status of the readback value.
User interface	0 to 25	55

RCAS in value	۵
Navigation	□ Expert → Discrete outputs → Discr. out. 1 to 2 → RCAS in value
Description	Use this function to enter the RCAS (Remote Cascade) in value. The block set point is set by a control application via the remote cascade RCAS in value parameter ($\rightarrow \boxminus 124$). The normal algorithm calculates the output value of the block on the basis of this set point.
User entry	0 to 255
Factory setting	0
RCAS in status	
Navigation	□ Expert → Discrete outputs → Discr. out. 1 to 2 → RCAS in status
Description	Use this function to enter the RCAS (Remote Cascade) in status. Defines the status for the RCAS in value ($\rightarrow \cong 124$).
User entry	0 to 255
Factory setting	0
Input channel	
Navigation	□ Expert → Discrete outputs → Discr. out. 1 to 2 → Input channel
Description	Use this function to select the input channel. The number of logical hardware channels from the converter that is connected to this I/O block.
Selection	None
Factory setting	None
Output channel	8
Navigation	□ Expert → Discrete outputs → Discr. out. 1 to 2 → Output channel
Description	Use this function to select the output channel. The number of logical hardware channels to the converter that is connected to this I/O block.
Selection	 Flow override Start verification *

^{*} Visibility depends on order options or device settings

Flow override **Factory setting RCAS** out value Navigation Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow RCAS out value Description Displays the RCAS out value. Displays the set point of the block which is made available to the higher-level host for monitoring/back calculation and which makes it possible to take action under certain conditions or in a different mode. User interface 0 to 255 **RCAS** out status Navigation Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow RCAS out status Description Displays the RCAS out status. Displays the status of the set point. User interface 0 to 255 A Simulate enabled Navigation Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Simulate enabled Description Use this function to enable or disable block simulation. Selection Disable Enable Disable **Factory setting** Additional information Description The simulation is used to bypass the physical I/O channel. In this way, the block remains in the normal mode and uses the simulated discrete I/O channel during operation.

Simulate value		
Navigation	Expert \rightarrow Discrete outputs \rightarrow Discr. out. 1 to 2 \rightarrow Simulate value	
Description	Use this function to enter a simulation value.	
User entry	0 to 255	

Factory setting	0
Additional information	<i>Description</i> The simulation is used to bypass the physical I/O channel. In this way, the block remains in the normal mode and uses the simulated value during operation.

Simulate status		
Navigation	□ Expert → Discrete outputs → Discr. out. 1 to 2 → Simulate status	
Description	Use this function to enter a simulation status for the block.	
User entry	0 to 255	
Factory setting	0	
Additional information	Description	
	The simulation is used to bypass the physical I/O channel. In this way, the block rem the normal mode and uses the simulated status during operation.	iains in

3.8 "Application" submenu

Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow \text{Application} $	
► Application		
	► Totalizer 1 to 3	→ 🗎 126

3.8.1 "Totalizer 1 to 3" submenu

► Totalizer 1 to 3	
Assign process variable	→ 🗎 127
Unit totalizer	→ 🗎 127
Control Totalizer 1 to 3	→ 🗎 128
Preset value 1 to 3	→ 🗎 129
Totalizer operation mode	→ 🗎 130

Failure mode) → 🗎 130
Totalizer value 1 to 3	→ 🗎 131
Totalizer status 1 to 3) → 🗎 131
Totalizer status (Hex) 1 to 3	→ 🗎 132

Assign process variable		Â
Navigation	□ Expert → Application → Totalizer 1 to 3 → Assign variable	
Description	Use this function to select a process variable for the Totalizer 1 to 3.	
Selection	Volume flowMass flowCorrected volume flow	
Factory setting	Volume flow	
Additional information	Description	
	If the option selected is changed, the device resets the totalizer to 0.	

Unit totalizer			
Navigation	$ \blacksquare \blacksquare \text{Expert} \rightarrow A_{I} $	oplication \rightarrow Totalizer 1 to 3 \rightarrow Unit totalizer	
Prerequisite	One of the followin (→ 🗎 127): • Volume flow • Mass flow • Corrected volum	ng options is selected in the Assign process variable parameter e flow	
Description	Use this function to select the process variable of a totalizer.		
	The unit is sel made in the S	ected separately for each totalizer. It is independent of the selection ystem units submenu ($\rightarrow \square$ 38).	
Selection	SI units • g • kg • t	US units • oz • lb • STon	
	or		

	SI units • cm ³ • dm ³ • m ³ • ml • l • hl • Ml Mega	US units af ft ³ fl oz (us) gal (us) kgal (us) Mgal (us) bbl (us;liq.) bbl (us;beer) bbl (us;oil) bbl (us;tank)	Imperial units = gal (imp) = Mgal (imp) = bbl (imp;beer) = bbl (imp;oil)
	or		
	SI units NI Nm ³ Sl Sm ³	US units • Sft ³ • Sgal (us) • Sbbl (us;liq.)	Imperial units Sgal (imp)
Factory setting	Country-specific: • m ³ • ft ³		
Additional information	<i>Selection</i> The selection is inder variable parameter (pendent of the process variable $\rightarrow \square 127$).	selected in the Assign process
	Dependency		
	The following parame • Alarm hysteresis p • Hi Hi Lim parameter • Hi Lim parameter • Lo Lim parameter • Lo Lo Lim parameter • Totalizer value parameter • Preset value parameter	eters depend on the option sele parameter ($\rightarrow \square 136$) er ($\rightarrow \square 136$) ($\rightarrow \square 137$) ($\rightarrow \square 137$) eer ($\rightarrow \square 138$) rameter ($\rightarrow \square 37$) neter ($\rightarrow \square 129$)	ected:

Control Totalizer 1 to	3
Navigation	■ Expert → Application → Totalizer 1 to 3 → Control Tot. 1 to 3
Prerequisite	 In the Assign process variable parameter (→ ^(⇒) 127), one of the following options is selected: 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
Factory setting	Totalize
Additional information	Selection
	 Totalize The totalizer is started or continues totalizing with the current counter reading. Reset + hold The totaling process is stopped and the totalizer is reset to 0. Preset + hold The totaling process is stopped and the totalizer is set to its defined start value from the Preset value parameter.

Preset value 1 to 3	
Navigation	■ Expert → Application → Totalizer 1 to 3 → Preset value 1 to 3
Prerequisite	 One of the following options is selected in the Assign process variable parameter (→ 127): Volume flow Mass flow Corrected volume flow
Description	Use this function to enter an initial value for the specific totalizer.
User entry	Signed floating-point number
Factory setting	Country-specific: • m ³ • ft ³
Additional information	User entry The unit of the selected process variable is specified for the totalizer in the Unit totalizer parameter ($\rightarrow \cong 127$).
	Example
	This configuration is suitable for applications such as iterative filling processes with a fixed

batch quantity.

Totalizer operation mode		æ
Navigation	Image: Boost and the second state of the	
Prerequisite	 In the Assign process variable parameter (→ ^B 127), one of the following options is selected: 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 Last valid value 	
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). Last valid value The value is frozen. Totaling is stopped. 	t

Failure mode		ß
Navigation	■ Expert → Application → Totalizer 1 to 3 → Failure mode	
Prerequisite	 One of the following options is selected in the Assign process variable parameter (→ 127): Volume flow Mass flow Corrected volume flow 	
Description	Use this function to select how a totalizer behaves in the event of a device alarm.	
Selection	 Stop Actual value Last valid value 	
Factory setting	Actual value	

Description



This setting does not affect the failsafe mode of other totalizers and the outputs. This is specified in separate parameters.

Selection

Stop

Totalizing is stopped when a device alarm occurs.

Actual value

The totalizer continues to count based on the current measured value; the device alarm is ignored.

 Last valid value The totalizer continues to count based on the last valid measured value before the device alarm occurred.

Totalizer value 1 to 3	
Navigation	■ Expert → Application → Totalizer 1 to 3 → Totalizer val. 1 to 3
Prerequisite	In the Target mode parameter ($\rightarrow \cong 133$), the Auto option is selected.
Description	Displays the current reading for totalizer 1-3.
User interface	Signed floating-point number
Additional information	Description
	In the event of an error, the totalizer adopts the mode defined in the Failure mode parameter ($\rightarrow \cong 130$).
	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 ($\rightarrow \square 130$).
	Dependency
	The unit of the selected process variable is specified for the totalizer in the Unit totalizer parameter ($\rightarrow \cong 127$).

Totalizer status 1 to 3		
Navigation	$ \blacksquare \blacksquare Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Tot. status 1 to 3 $	
Description	Displays the status of the particular totalizer.	
User interface	GoodUncertain	

Totalizer status (Hex) 1 to 3			
Navigation	Image: Barbon → Application → Totalizer 1 to 3 → Status (Hex) 1 to 3		
Prerequisite	In Target mode parameter ($\rightarrow \square$ 133), the Auto option is selected.		
Description	Displays the status value (hex) of the particular totalizer.		
User interface	0 to 0xFF		
Tag description			
Navigation	□ Expert → Application → Totalizer 1 to 3 → Tag description		
Description	Use this function to enter a string to identify the block.		
User entry	Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /).		
Static revision			
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Static revision		
Description	Displays the event counter: every write access to a static block parameter is counted.		
User interface	0 to FFFF		
Additional information	<i>Description</i> Static parameters are parameters that are not changed by the process.		

Strategy			Â
Navigation		Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Strategy	
Description	Use this function to enter the strategy: makes it possible to group blocks by entering identical numbers.		
User entry	0 to 1	FFFF	
Factory setting	0		

Alert key		
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Alert key	
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	0	
Target mode		
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Target mode	
Description	Displays the Target mode: The target mode indicates which mode of operation is used for this function block. This mode is generally set by a control application.	
User interface	AutoManOut of service	
Mode block actual		
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Mode block act	
Description	Displays the Mode block actual: Under certain conditions, it is possible that a function block will not operate in the required mode. In this case, the Mode block actual shows th actual mode in which the function block is currently operating. A comparison of the Mo block actual with the Target mode indicates whether it was possible to reach the Target mode ($\Rightarrow \square 133$).	ie de
User interface	AutoManOut of service	

Description



Mode block permitted		
Navigation	□ Expert → Application → Totalizer 1 to 3 → Mode block perm	
Description	Displays the Mode block permitted: This defines which modes of operation in the Target mode ($\rightarrow \square$ 133) are available for the function block. The operating modes that are supported vary depending on the type and function of the block.	
User interface	0 to 255	
Mode block normal		
Navigation	□ Expert → Application → Totalizer 1 to 3 → Mode blk norm	
Description	Displays the Mode block normal: This is available to allow the operator to select the Mode block normal from the available modes of operation. This can be set using an operating tool in order to help the user configure the operating mode of a function block.	
User interface	 Auto Man Out of service 	
Alarm summary		
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Alarm summary	
Description	Displays the alarm summary: the current status of the block alarms is displayed. A summary of up to 16 statuses can be displayed.	
User interface	 Discrete alarm Alarm state HiHi limit Alarm state Hi limit Alarm state LoLo limit Alarm state Lo limit Update Event 	
Additional information	Description	
	Currently, the system only displays a change in a static parameter for 10 seconds, and violations of the early warning and alarm limits in the Totalizer function block.	

Batch ID	
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Batch ID
Description	Use this function to enter the batch ID: identification of a specific batch to make it possible to assign device-specific information (e.g. errors, alarm conditions etc.) to the batching process.
User entry	Positive integer
Factory setting	0
Batch operation	8
Navigation	□ Expert → Application → Totalizer 1 to 3 → Batch operation
Description	Use this function to enter the batch operation: control recipe operation number to identify the active control recipe operation.
User entry	0 to 65 535
Factory setting	0
Batch phase	8
Navigation	□ Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Batch phase
Description	Use this function to enter the batch phase: control recipe phase number to identify the active control recipe operation.
User entry	0 to 65 535
Factory setting	0
Batch Recipe Unit Proc	edure 🕅
Navigation	□ Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Batch Recipe
Description	Use this function to enter the batch recipe unit procedure (RUP): identification of the active control recipe unit procedure or the associated unit (e.g. inductor, centrifuge, drying agent).
User entry	0 to 65 535
Factory setting	0



Description

The unit is defined in IEC61512 Part1/ISA S88 but its meaning is different to that of the parameter unit, such as system units.

Alarm hystoresis		A
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Alarm hysteresis	
Description	Use this function to enter the hysteresis value for the upper and lower warning or alarm limit values.	
User entry	Signed floating-point number	
Factory setting	0 m ³	
Additional information	User entry	
	The unit of the selected process variable is specified for the totalizer in the Unit totalizer parameter ($\rightarrow \cong 127$).	

Hi Hi Lim	â

Navigation	$ \qquad \qquad$	
Description	Use this function to enter the value for the upper alarm limit of the totalizer (Hi Hi alarm value parameter ($\rightarrow 138$).	
User entry	Signed floating-point number	
Factory setting	Positive floating-point number	
Additional information	Description	

If the output value Out value ($\rightarrow \square$ 85) exceeds this limit value, the **Hi Hi alarm state** parameter ($\rightarrow \square 138$) is output.

User entry

The value is entered in the defined units (**Out unit** parameter ($\rightarrow \implies$ 91)) and must be i in the range defined in the **Out scale lower range** parameter ($\Rightarrow \square 90$) and **Out** scale upper range parameter ($\rightarrow \square 90$).

The unit of the selected process variable is specified for the totalizer in the **Unit** totalizer parameter ($\rightarrow \textcircled{1}{27}$).

Hi Lim	Â	
Navigation	□ Expert → Application → Totalizer 1 to 3 → Hi Lim	
Description	Use this function to enter the value for the upper warning limit of the totalizer (Hi alarm value parameter ($\rightarrow \implies 139$)).	
User entry	Signed floating-point number	
Factory setting	Positive floating-point number	
Additional information	Description	
	If the output value Out value ($\rightarrow \cong 85$) exceeds this limit value, the Hi alarm state parameter ($\rightarrow \cong 139$) is output.	
	User entry	
	The value is entered in the defined units (Out unit parameter ($\rightarrow \triangleq 91$)) and must be in the range defined in the Out scale lower range parameter ($\rightarrow \triangleq 90$) and Out scale upper range parameter ($\rightarrow \triangleq 90$).	
	The unit of the selected process variable is specified for the totalizer in the Unit totalizer parameter ($\rightarrow \cong 127$).	

Lo Lim	
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Lo Lim
Description	Use this function to enter the value for the lower warning limit of the totalizer (Lo alarm value parameter ($\rightarrow \square 139$)).
User entry	Signed floating-point number
Factory setting	Negative floating-point number
Additional information	Description If the output value Out value ($\rightarrow \cong 85$) exceeds this limit value, the Lo alarm state parameter ($\rightarrow \cong 139$) is output.
	User entry
	The value is entered in the defined units (Out unit parameter ($\rightarrow \cong 91$)) and must be in the range defined in the Out scale lower range parameter ($\rightarrow \cong 90$) and Out scale upper range parameter ($\rightarrow \cong 90$).



The unit of the selected process variable is specified for the totalizer in the **Unit** totalizer parameter ($\rightarrow \triangleq 127$).

Lo Lo Lim	Â	
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Lo Lo Lim	
Description	Use this function to enter the value for the lower alarm limit of the totalizer (Lo Lo alarm value parameter ($\rightarrow \cong 140$)).	
User entry	Signed floating-point number	
Factory setting	Negative floating-point number	
Additional information	Description If the output value Out value ($\rightarrow \cong 85$) exceeds this limit value, the Lo Lo alarm state parameter ($\rightarrow \cong 140$) is output.	
	User entry	
	The value is entered in the defined units (Out unit parameter ($\rightarrow \triangleq 91$)) and must be in the range defined in the Out scale lower range parameter ($\rightarrow \triangleq 90$) and Out scale upper range parameter ($\rightarrow \triangleq 90$).	
	The unit of the selected process variable is specified for the totalizer in the Unit totalizer parameter ($\rightarrow \cong 127$).	

Hi Hi alarm value	
Navigation	□ Expert → Application → Totalizer 1 to 3 → HiHi alarm value
Description	Displays the alarm value for the upper alarm limit value (Hi Hi Lim parameter $(\rightarrow \square 136)$).
User interface	Signed floating-point number
Hi Hi alarm state	

Navigation	Expert > Application > Totalizer 1 to 5 > Filmi alarmi state	
Description	Displays the status for the upper alarm limit value (Hi Hi Lim parameter ($ ightarrow extsf{B}$ 136)).	
User interface	No alarmAlarm state HiHi limit	
Additional information	User interface	
	The display contains information such as the time of the alarm (date and time) and the value that triggered the alarm.	

Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Hi alarm value
lays the warning value for the upper warning limit value (Hi Lim parameter 🗎 137)).
ed floating-point number
]

Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Hi alarm state	
Description	Displays the status for the upper warning limit value (Hi Lim parameter ($\Rightarrow \square 137$)).	
User interface	No warningAlarm state Hi limit	
Additional information	User interface	
	The display contains information such as the time of the warning (date and time) and the value that triggered the alarm.	

Lo alarm value		
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Lo alarm value	
Description	Displays the warning value for the lower warning limit value (Lo Lim parameter $(\rightarrow \square 137)$).	
User interface	Signed floating-point number	
Lo alarm state		
Navigation	Expert \rightarrow Application \rightarrow Totalizer 1 to 3 \rightarrow Lo alarm state	
Description	Displays the status for the lower warning limit value (Lo Lim parameter ($ ightarrow$ [$ ightarrow$ 137)).	
User interface	No warningAlarm state Lo limit	
Additional information	User interface	
	The display contains information such as the time of the warning (date and time) and the value that triggered the alarm.	

Lo Lo alarm value		
Navigation	□ Expert → Application → Totalizer 1 to 3 → LoLo alarm value	
Description	Displays the alarm value for the lower alarm limit value (Lo Lo Lim parameter $(\rightarrow \square 138)$).	
User interface	Signed floating-point number	
Lo Lo alarm state		
Navigation	□ Expert → Application → Totalizer 1 to 3 → LoLo alarm state	
Description	Displays the status for the lower alarm limit value (Lo Lo Lim parameter ($ ightarrow extsf{B}$ 138)).	
User interface	No alarmAlarm state LoLo limit	
Additional information	User interface	
	The display contains information such as the time of the alarm (date and time) and the value that triggered the alarm.	

3.9 "Diagnostics" submenu

Navigation	Image: Barbon Structure <th></th>	
► Diagnostics		
	Actual diagnostics	→ 🗎 141
	Previous diagnostics	→ 🗎 141
	Operating time from restart	→ 🗎 142
	Operating time	→ 🗎 142
	► Diagnostic list	→ 🗎 143
	► Event logbook	→ 🗎 147
	► Device information	→ 🗎 149
	► Min/max values	→ 🗎 152

► Heartbeat) → 🗎 154
► Simulation	→ 🗎 155

Actual diagnostics	
Navigation	
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	Display Additional pending diagnostic messages can be viewed in the Diagnostic list submenu $(\rightarrow \square 1/3)$
	Example For the display format: • F271 Main electronic failure

Timestamp	
Navigation	$\Box \text{Expert} \rightarrow \text{Diagnostics} \rightarrow \text{Timestamp}$
Description	Displays the operating time when the current diagnostic message occurred.
User interface	Days (d), hours (h), minutes (m) and seconds (s)
Additional information	Display The diagnostic message can be viewed via the Actual diagnostics parameter $(\rightarrow \cong 141)$.
	Example For the display format: 24d12h13m00s
Previous diagnostics	

Navigation	$\blacksquare \blacksquare \text{Expert} \rightarrow \text{Diagnostics} \rightarrow \text{Prev.diagnostics}$
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>Example</i> For the display format: ⊗F271 Main electronic failure
Timestamp	
Navigation	$ \qquad \qquad$
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	Display
	The diagnostic message can be viewed via the Previous diagnostics parameter $(\rightarrow \cong 141)$.
	Example
	Denotes develop formation

For the display format: 24d12h13m00s

Operating time from restart	
Navigation	□ Expert → Diagnostics → Time fr. restart
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	
operating time	

Navigation	Image: Bar State St
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)

User interface

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

3.9.1 "Diagnostic list" submenu

Navigation $\textcircled{B} \boxminus$ Expert \rightarrow Diagnostics \rightarrow Diagnostic list

► Diagnostic list	
Diagnostics 1	→ 🗎 143
Diagnostics 2	→ 🗎 144
Diagnostics 3	→ 🗎 144
Diagnostics 4) → ⊜ 145
Diagnostics 5	→ 🗎 146

Diagnostics 1	
Navigation	■ Expert → Diagnostics → Diagnostic list → Diagnostics 1
Description	Displays the current diagnostics message with the highest priority.
User interface	Symbol for diagnostic behavior, diagnostic code and short message.
Additional information	 Examples For the display format: SF271 Main electronic failure SF276 I/O module failure

Timestamp	
Navigation	$ \qquad \qquad$
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)

Display

The diagnostic message can be viewed via the **Diagnostics 1** parameter ($\rightarrow \square 143$).

Example For the display format: 24d12h13m00s

Diagnostics 2

Navigation	Image: Boostics → Diagnostic list → Diagnostics 2
Description	Displays the current diagnostics message with the second-highest priority.
User interface	Symbol for diagnostic behavior, diagnostic code and short message.
Additional information	Examples
	For the display format: ■ ③F271 Main electronic failure

■ SF276 I/O module failure

Timestamp	
Navigation	□ Expert \rightarrow Diagnostics \rightarrow Diagnostic list \rightarrow Timestamp
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	Display The diagnostic message can be viewed via the Diagnostics 2 parameter ($\rightarrow \square 144$).
	Example

 Diagnostics 3

 Navigation

 Image: Bar and the second secon

For the display format: 24d12h13m00s

Description Displays the current diagnostics message with the third-highest priority.

User interface Symbol for diagnostic behavior, diagnostic code and short message.
Additional information

Examples

- For the display format: �F271 Main electronic failure
- �F276 I/O module failure

Timestamp		
Navigation	$ \qquad \qquad$	
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	Display	
	The diagnostic message can be viewed via the Diagnostics 3 parameter ($\Rightarrow \square 144$).	
	Example	
	For the display format:	
	24d12h13m00s	

Diagnostics 4		
Navigation	Image: Barbon Structure And Amplitude Amp	
Description	Displays the current diagnostics message with the fourth-highest priority.	
User interface	Symbol for diagnostic behavior, diagnostic code and short message.	
Additional information	Examples	
	For the display format: ■ ⊗F271 Main electronic failure ■ ⊗F276 I/O module failure	

Timestamp		
Navigation	Expert \rightarrow Diagnostics \rightarrow Diagnostic list \rightarrow Timestamp	
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

Display

The diagnostic message can be viewed via the **Diagnostics 4** parameter ($\rightarrow \square 145$).

Example For the display format: 24d12h13m00s

For the display format: 24d12h13m00s

Diagnostics 5

Navigation	Image: Barbon Structure Structu	
Description	Displays the current diagnostics message with the fifth-highest priority.	
User interface	Symbol for diagnostic behavior, diagnostic code and short message.	
Additional information	Examples	
	For the display format:	
	 SF271 Main electronic failure 	
	SF276 I/O module failure	

Timestamp	
Navigation	$ \blacksquare \text{Expert} \rightarrow \text{Diagnostics} \rightarrow \text{Diagnostic list} \rightarrow \text{Timestamp} $
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	Display The diagnostic message can be viewed via the Diagnostics 5 parameter ($\Rightarrow \square 146$).
	Example

3.9.2 "Event logbook" submenu

Navigation $ext{ Barrel}$ Expert o Diagnostics o Event logbook

► Event logbook	
Filter options	→ 🗎 147
► Event list	→ 🗎 148

Filter options	8
Navigation	■ Expert → Diagnostics → Event logbook → Filter options
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	Â
Navigation	□ Expert → Diagnostics → Event logbook → Filter options
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

Additional information

Description

All

H

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

The **Event list** submenu is only displayed if operating via the local display.

If operating via the FieldCare operating tool, the event list can be read out with a separate FieldCare module.

If operating via the Web browser, the event messages can be found directly in the **Event logbook** submenu.

Navigation \square Expert \rightarrow Diagnostics \rightarrow Event logbook \rightarrow Event list

► Event list		
	Event list) → 🖺 148

Event list		
Navigation	■ Expert → Diagnostics → Event logbook → Event list	
Description	Displays the history of event messages of the category selected in the Filter options parameter ($\rightarrow \triangleq 147$).	
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:

- ①: Occurrence of the event
- \bigcirc : End of the event

Examples

For the display format:

- SF271 Main electronic failure
 O1d04h12min30s

HistoROM

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

3.9.3 "Device information" submenu

Navigation $\blacksquare \blacksquare$ Expert \rightarrow Diagnostics \rightarrow Device info

► Device information		
Device tag) → 🗎 149	
Serial number) → 🗎 150	
Firmware version) → 🗎 150	
Device name) → 🗎 150	
Order code) → 🗎 151	
Extended order code 1	→ 🗎 151	
Extended order code 2	→ 🗎 151	
Extended order code 3	→ 🗎 152	
ENP version) → 🗎 152	

Device tag Navigation Image: Expert → Diagnostics → Device info → Device tag Description Displays a unique name for the measuring point so it can be identified quickly within the plant. User interface Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /) Endress+Hauser 149

Factory settingPromag 100 DP

Serial number	
Navigation	Image: Barbon Serial Number Image: Barbon Serial Serial Number Image: Barbon Serial Number
Description	Displays the serial number of the measuring device.
	The number can be found on the nameplate of the sensor and transmitter.
User interface	A maximum of 11-digit character string comprising letters and numbers.
Additional information	Description
	 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

Firmware version	
Navigation	Image: Barbon State And
Description	Displays the device firmware version installed.
User interface	Character string in the format xx.yy.zz
Additional information	 Display The Firmware version is also located: On the title page of the Operating instructions On the transmitter nameplate

Device name	
Navigation	$ \blacksquare \blacksquare Expert \rightarrow Diagnostics \rightarrow Device info \rightarrow Device name $
Description	Displays the name of the transmitter. It can also be found on the nameplate of the transmitter.
User interface	Promag 100

Order code	6)
Navigation	Image: Barbon State	
Description	Displays the device order code.	
User interface	Character string composed of letters, numbers and certain punctuation marks (e.g. /).	
Additional information	Description	
	The order code can be found on the nameplate of the sensor and transmitter in the "Order code" field.	
	The order code is generated from the extended order code through a process of reversible transformation. The extended order code indicates the attributes for all the device feature in the product structure. The device features are not directly readable from the order code	2S 2.
	 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 \rightarrow Diagnostics \rightarrow Device info \rightarrow Ext. order cd. 1
Description	Displays the first part of the extended order code.
	On account of length restrictions, the extended order code is split into a maximum of 3 parameters.
User interface	Character string
Additional information	Description
	The extended order code indicates the version of all the features of the product structure for the measuring device and thus uniquely identifies the measuring device.
	The extended order code can also be found on the nameplate of the sensor and transmitter in the "Ext. ord. cd." field.

Extended order code 2		ß
Navigation	□ Expert → Diagnostics → Device info → Ext. order cd. 2	
Description	For displaying the second part of the extended order code.	
User interface	Character string	
Additional information	For additional information, see Extended order code 1 parameter ($\rightarrow \implies 151$)	

Extended order code 3		
Navigation	ⓐ	
Description	For displaying the third part of the extended order code.	
User interface	Character string	
Additional information	For additional information, see Extended order code 1 parameter ($\Rightarrow \implies 151$)	

ENP version	
Navigation	$ \blacksquare \blacksquare Expert \rightarrow Diagnostics \rightarrow Device info \rightarrow ENP version $
Description	Displays the version of the electronic nameplate.
User interface	Character string
Factory setting	2.02.00
Additional information	Description
	This electronic nameplate stores a data record for device identification that includes more data than the nameplates attached to the outside of the device.

3.9.4 "Min/max values" submenu

Navigation

 $\blacksquare \blacksquare \quad \text{Expert} \rightarrow \text{Diagnostics} \rightarrow \text{Min/max val.}$



Reset min/max values		æ
Navigation	Image: Boostics → Min/max val. → Reset min/max	
Description	Use this function to select measured variables whose minimum, maximum and average measured values are to be reset.	Ĵ

Selection Cancel

"Main electronic temperature" submenu

Navigation $\blacksquare \Box$ Expert \rightarrow Diagnostics \rightarrow Min/max val. \rightarrow Main elect.temp.

► Main electronic temperature		
Minimum value	→ 🗎 153	
Maximum value	→ 🗎 153	

Minimum value Navigation Image: Expert → Diagnostics → Min/max val. → Main elect.temp. → Minimum value Description Displays the lowest previously measured temperature value of the main electronics module. User interface Signed floating-point number Additional information Dependency Image: The unit is taken from the Temperature unit parameter (→ Image 42)

Maximum value	
Navigation	Image: Barbon Structure And Antiperiod
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 ($\rightarrow \cong 42$)

"Temperature" submenu

Navigation	Image: Barbon Structure <th>erature</th>	erature
► Temperature		
	Minimum value	→ 🗎 154
	Maximum value	→ 🖺 154

Minimum value

Navigation	Image: Barbon Structure → Diagnostics → Min/max val. → Temperature → Minimum value
Prerequisite	For the following order code: "Sensor Option", option CI "Fluid temperature probe"
Description	Displays the lowest previously measured medium temperature value.
User interface	Signed floating-point number
Additional information	Dependency 1 The unit is taken from the Temperature unit parameter ($\Rightarrow \square 42$)

Maximum value	
Navigation	Image: Barbon Structure → Diagnostics → Min/max val. → Temperature → Maximum value
Prerequisite	For the following order code: "Sensor Option", option CI "Fluid temperature probe"
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 ($\rightarrow \implies$ 42)

3.9.5 "Heartbeat" submenu

For detailed information on the parameter descriptions of the **Heartbeat Verification** application package, see the Special Documentation for the device

Navigation \square Expert \rightarrow Diagnostics \rightarrow Heartbeat

► Heartbeat	
	► Heartbeat base settings
	► Performing verification
	► Verification results
	► Monitoring results

3.9.6 "Simulation" submenu

Navigation \square Expert \rightarrow Diagnostics \rightarrow Simulation

► Simulation	
Assign simulation process variable	→ 🗎 155
Value process variable	→ 🗎 156
Simulation device alarm	→ 🗎 156
Diagnostic event category	→ 🗎 157
Simulation diagnostic event	→ 🗎 157

Assign simulation pro	Assign simulation process variable	
Navigation	Image: Barbon Simulation → Assign proc.var.	
Description	Use this function to select a process variable for the simulation process that is activa The display alternates between the measured value and a diagnostic message of the "Function check" category (C) while simulation is in progress.	ted.
Selection	 Off Volume flow Mass flow Corrected volume flow Conductivity* Corrected conductivity* Temperature* 	
Factory setting	Off	

^{*} Visibility depends on order options or device settings

Additional information



Description

The simulation value of the process variable selected is defined in the Value process variable parameter ($\rightarrow \cong 156$).

Value process variable		Â
Navigation	Image: Barbon Simulation → Value proc. var.	
Prerequisite	 One of the following options is selected in the Assign simulation process variable parameter (→ 155): Volume flow Mass flow Corrected volume flow Conductivity* Corrected conductivity* Temperature* 	
Description	Use this function to enter a simulation value for the selected process variable. Subseque 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.	ient 7,
User entry	Depends on the process variable selected	
Factory setting	0	
Additional information	User entry The unit of the displayed measured value is taken from the System units subment $(\rightarrow \cong 38)$.	ıu

Simulation device alarm		A
Navigation	■ Expert → Diagnostics → Simulation → Sim. alarm	
Description	Use this function to switch the device alarm on and off.	
Selection	OffOn	
Factory setting	Off	
Additional information	<i>Description</i> The display alternates between the measured value and a diagnostic message of the "Function check" category (C) while simulation is in progress.	

^{*} Visibility depends on order options or device settings

Diagnostic event categor	y
Navigation	■ Expert → Diagnostics → Simulation → Event category
Description	Use this function to select the category of the diagnostic events that are displayed for the simulation in the Simulation diagnostic event parameter ($\rightarrow \square 157$).
Selection	 Sensor Electronics Configuration Process
Factory setting	Process
Simulation diagnostic eve	ent
Navigation	
Description	Use this function to select a diagnostic event for the simulation process that is activated.
Selection	OffDiagnostic 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 ($\rightarrow \cong 157$).

4 Country-specific factory settings

4.1 SI units

1 Not valid for USA and Canada.

4.1.1 System units

Volume flow	l/h
Volume	m ³
Conductivity	µS/cm
Temperature	°C
Mass flow	kg/h
Mass	kg
Density	kg/l
Corrected volume flow	Nl/h
Corrected volume	Nm ³

4.1.2 Full scale values

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

Nominal diameter [mm]	(v ~ 2.5 m/s) [dm³/min]
2	0.5
4	2
8	8
15	25
25	75
32	125
40	200
50	300
65	500
80	750
100	1200
125	1850
150	150 m ³ /h
200	300 m ³ /h
250	500 m ³ /h
300	750 m ³ /h
350	1000 m ³ /h
400	1200 m ³ /h
450	1500 m ³ /h

Nominal diameter [mm]	(v ~ 2.5 m/s) [dm³/min]
500	2 000 m ³ /h
600	2 500 m ³ /h

4.1.3 On value low flow cut off

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

Nominal diameter [mm]	(v ~ 0.04 m/s) [m³/h]
2	0.01
4	0.05
8	0.1
15	0.5
25	1
32	2
40	3
50	5
65	8
80	12
100	20
125	30
150	2.5
200	5
250	7.5
300	10
350	15
400	20
450	25
500	30
600	40

4.2 US units

Only valid for USA and Canada.

4.2.1 System units

Volume flow	gal/min (us)
Volume	gal (us)
Temperature	°F
Mass flow	lb/min
Mass	lb
Density	lb/ft ³

Corrected volume flow	Sft ³ /h
Corrected volume	Sft ³

4.2.2 Full scale values

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

Nominal diameter [in]	(v ~ 2.5 m/s) [gal/min]
¹ / ₁₂	0.1
1/8	0.5
³ / ₈	2
1/2	6
1	18
1½	50
2	75
3	200
4	300
5	450
6	600
8	1200
10	1500
12	2 400
14	3600
16	4800
18	6000
20	7 500
24	10500

4.2.3 On value low flow cut off

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

Nominal diameter [in]	(v ~ 0.04 m/s) [gal/min]
¹ / ₁₂	0.002
¹ / ₈	0.008
³ / ₈	0.025
1⁄2	0.15
1	0.25
11/2	0.75
2	1.25
3	2.5
4	4
5	7

Nominal diameter [in]	(v ~ 0.04 m/s) [gal/min]
6	12
8	15
10	30
12	45
14	60
16	60
18	90
20	120
24	180

5 Explanation of abbreviated units

5.1 SI units

Process variable	Units	Explanation	
Density	g/cm³, g/m³	Gram/volume unit	
	kg/dm³, kg/l, kg/m³	Kilogram/volume unit	
	SD4°C, SD15°C, SD20°C	Specific density: The specific density is the ratio of the density of the fluid to the density of water at a water temperature of 4 $^{\circ}$ C (39 $^{\circ}$ F), 15 $^{\circ}$ C (59 $^{\circ}$ F), 20 $^{\circ}$ C (68 $^{\circ}$ 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).	
Conductivity	µS/mm	Microsiemens/length unit	
	nS/cm, µS/cm, mS/cm, S/cm	Nano- Micro- , Milli- , Siemens/length unit	
	µS/m, mS/m, S/m, kS/m, MS/m	Micro- , Milli- , Siemens, Kilo-, Megasiemens/length unit	
Mass	g, kg, t	Gram, kilogram, metric ton	
Mass flow	g/s, g/min, g/h, g/d	Gram/time unit	
	kg/s, kg/min, kg/h, kg/d	Kilogram/time unit	
	t/s, t/min, t/h, t/d	Metric ton/time unit	
Corrected volume	Nl, Nm³, Sm³	Normal liter, normal cubic meter, standard cubic meter	
Corrected	Nl/s, Nl/min, Nl/h, Nl/d	Normal liter/time unit	
volume flow	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, hl, Ml Mega	Milliliter, liter, hectoliter, megaliter	
Volume flow	cm³/s, cm³/min, cm³/h, cm³/d	Cubic centimeter/time unit	
	dm³/s, dm³/min, dm³/h, dm³/d	Cubic decimeter/time unit	
	m³/s, m³/min, m³/h, m³/d	Cubic meter/time unit	
	ml/s, ml/min, ml/h, ml/d	Milliliter/time unit	
	l/s, l/min, l/h, l/d	Liter/time unit	
	hl/s, hl/min, hl/h, hl/d	Hectoliter/time unit	
	Ml/s, Ml/min, Ml/h, Ml/d	Megaliter/time unit	
Time	s, m, h, d, y	Second, minute, hour, day, year	

5.2 US units

Process variable	Units	Explanation
Density	lb/ft³, lb/gal (us)	Pound/cubic foot, pound/gallon
	lb/bbl (us;liq.), lb/bbl (us;beer), lb/bbl (us;oil), lb/bbl (us;tank)	Pound/volume unit
Mass	oz, lb, STon	Ounce, pound, standard ton
Mass flow	oz/s, oz/min, oz/h, oz/d	Ounce/time unit

Process variable	Units	Explanation
	lb/s, lb/min, lb/h, lb/d	Pound/time unit
	STon/s, STon/min, STon/h, STon/d	Standard ton/time unit
Corrected volume	Sft ³ , 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)

Process variable	Units	Explanation
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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