

Description of Device Parameters **Cerabar PMP51B**

Process pressure measurement
PROFINET with Ethernet-APL

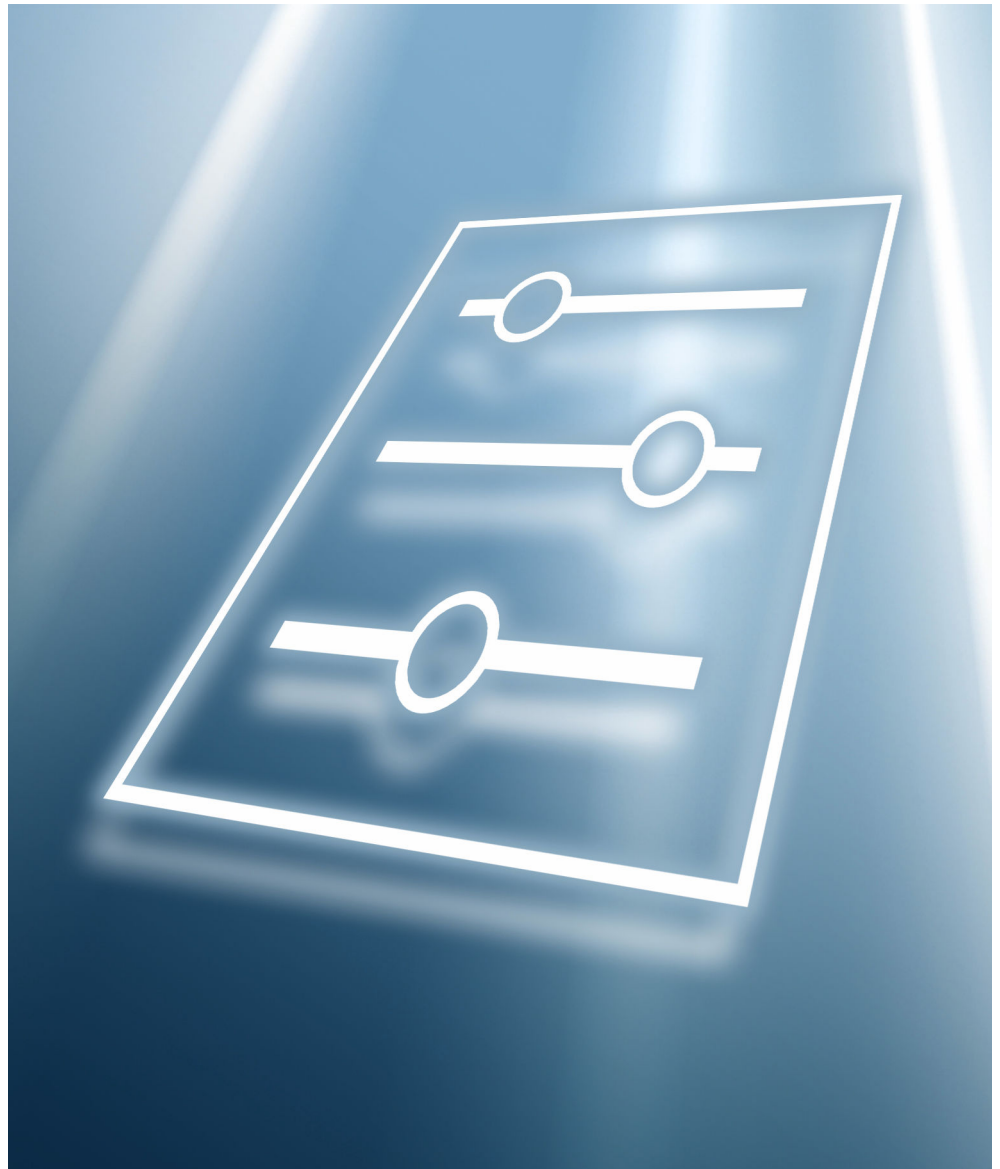


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1 About this document

1.1 Document function

The document is part of the Operating Instructions and serves as a reference for parameters. The document provides a detailed explanation of each individual parameter.

Performance of tasks that require detailed knowledge of the functioning of the device:

- Commissioning measurements under difficult conditions
- Optimal adaptation of the measurement to difficult conditions
- Detailed configuration of the communication interface
- Error diagnostics in difficult cases

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 parameters that are available when the **"Maintenance" option** user role is enabled.



For the operating concept of the operating menus, see the Operating Instructions.

1.3.2 Structure of a parameter description

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

- Navigation: Navigation path to the parameter via the local display
- 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
- User entry: Input range for the parameter
- User interface: Display value/data of the parameter
- Additional information:
 - 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

Additional information: 

Reference to documentation: 

Operation via local display: 

Operation via operating tool: 

Write-protected parameter: 

1.5 Documentation

1.5.1 Standard documentation

Operating Instructions

 The Operating Instructions are available via the Internet: www.endress.com →
Download

1.5.2 Supplementary device-dependent documentation

Special Documentation

 The Special Documentation is available via the Internet: www.endress.com →
Download

2 Overview of the operating menu

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3 Description of device parameters

In the following section, the parameters are listed according to the menu structure of the operating tool.

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

3.1 User navigation

The Guidance main menu contains functions which enable users to perform basic tasks swiftly, e.g. commissioning.

These are primarily guided wizards and cross-subject special functions.

Navigation  Guidance

3.1.1 Overview of the operating menu

User navigation

- Commissioning (→  23)
- Import/Export→  20
- Compare→  21

3.1.2 Commissioning

Run this wizard to put the device into operation. Enter the appropriate value in each parameter or select the appropriate option.

 If the wizard is canceled before all the necessary parameters have been configured, any settings already made are saved. For this reason, the device may then be in an undefined state!

In such situations, it is advisable to reset the device to the factory default settings.

The following parameters are configured in the Commissioning wizard:

■ **Device identification** (→ 23)

This page summarizes the most important data characterizing the device. Some of the parameters can be edited, others are displayed for information only.

- Device tag (→  23)
- Device name (→  23)
- Serial number (→  23)
- Extended order code 1 (→  24)
- Extended order code 2 (→  24)
- Extended order code 3 (→  24)
- Locking status (→  25)
- Time zone (→  26)
- Date/time (→  27)
- PROFINET device name (→  27)
- IP address (→  27)
- Descriptor (→  28)
- MAC address (→  28)
- Device ID (→  28)
- Manufacturer ID (→  28)

■ **Measurement adjustments** (→ 29)

- Damping (→  29)
- Assign scaled variable? (→  29)
- Pressure unit (→  29)
- Temperature unit (→  30)
- Scaled variable unit (→  31)
- Free text (→  31)
- Temperature unit (→  30)
- Temperature unit (→  30)
- Zero adjustment (→  32)
- Pressure (→  22)

■ **Output settings** (→ 33)

- Scaled variable transfer function (→  33)
- Lower Range Limit (→  33)
- Upper Range Limit (→  34)
- Minimum span (→  34)
- Pressure (→  34)
- Scaled variable (→  34)
- Pressure value 1 (→  35)
- Scaled variable value 1 (→  35)
- Pressure value 2 (→  36)
- Scaled variable value 2 (→  36)
- Assign process variable (→  37)

3.1.3 Import / Export

Save / Load

- **Save:** The device settings can be saved in a .deh file.
- **Load:** The device settings saved in a .deh file can be written to the device.

Create documentation

- Device documentation can be saved in PDF format under "Create documentation".
- This documentation contains the following general device information:
 - Information on device parameters
 - Information on linearization
 - Echo curves
 - Event list
 - Diagnostic list

3.1.4 Compare

Compare datasets

This function can be used to compare the following datasets:

- Datasets in the .deh file format from the import/export function
- Datasets with the configuration currently in the device

3.2 "Device information" menu

Navigation  Device info

Status signal

Navigation  Device info → Status signal

User interface

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

Pressure

Navigation  Device info → Pressure

Scaled variable

Navigation  Device info → Scaled variable

User interface Signed floating-point number

Do not show this message again

Navigation  Device info → Don't show again

Selection Yes

3.3 "Guidance" menu

Navigation  Guidance

3.3.1 "Commissioning" wizard

Navigation  Guidance → Commissioning

"Device identification" wizard

Navigation  Guidance → Commissioning → Device ident.

Device tag	
Navigation	 Guidance → Commissioning → Device ident. → Device tag
Description	Enter a name for the measuring point to identify the measuring device in the plant
User entry	Character string comprising numbers, letters and special characters (32)
Device name	
Navigation	 Guidance → Commissioning → Device ident. → Device name
Description	Displays the name of the transmitter. It can also be found on the nameplate of the transmitter.
User interface	Max. 32 characters such as letters or numbers.
Serial number	
Navigation	 Guidance → Commissioning → Device ident. → 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	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

Extended order code 1**Navigation**

Guidance → Commissioning → Device ident. → Ext. order cd. 1

Description

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

User interface

Character string

Factory setting

–

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.

Extended order code 2**Navigation**

Guidance → Commissioning → Device ident. → Ext. order cd. 2

Description

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



The extended order code can also be found on the nameplate of the sensor and transmitter in the "Ext. ord. cd." field.

User interface

Character string

Factory setting

–

Extended order code 3**Navigation**

Guidance → Commissioning → Device ident. → Ext. order cd. 3

Description

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



The extended order code can also be found on the nameplate of the sensor and transmitter in the "Ext. ord. cd." field.

User interface

Character string

Factory setting

–

"Device identification" wizard

Navigation   Guidance → Commissioning → Device ident.

Locking status**Navigation**

 Guidance → Commissioning → Device ident. → Locking status

Description

Displays the active write protection.

User interface

- Hardware locked
- Temporarily locked

Additional information*User interface*

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



Detailed 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.

*Selection**Function scope of the "Locking status" parameter*

Options	Description
None	The access status displayed in the Access status display parameter applies. Only appears on local display.
Hardware locked	The DIP switch for hardware locking is activated on the main electronics module. This prevents write access to the parameters (e.g. via the local display or operating tool).
Temporarily locked	Write access to the parameters is temporarily locked due to device-internal processing (e.g. data upload/download, reset). Once the internal processing has been completed, the parameters can be changed once again.

"Device identification" wizard

Navigation  Guidance → Commissioning → Device ident.

Time zone

Navigation  Guidance → Commissioning → Device ident. → Time zone

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

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

Date/time	
Navigation	 Guidance → Commissioning → Device ident. → Date/time
Description	Displays the date and time entered.
User interface	Character string comprising numbers, letters and special characters
 "Device identification" wizard	
<i>Navigation</i>	  Guidance → Commissioning → Device ident.
PROFINET device name	
Navigation	 Guidance → Commissioning → Device ident. → PROFINET DevName
Description	Up to 240 characters are allowed. The following syntax must be used: - 1 or more identifiers, separated with [.] - Identifier length is 1 to 63 characters - Identifier consists of [a-z 0-9] only lowercase letters and numbers allowed.
User entry	Character string comprising numbers, letters and special characters (240)
PROFINET device name	
Navigation	 Guidance → Commissioning → Device ident. → PROFINET DevName
Description	Shows the short form of the PROFINET device name for the measuring point
User interface	Character string comprising numbers, letters and special characters
IP address	
Navigation	 Guidance → Commissioning → Device ident. → IP address
Description	Enter the IP address of the measuring device
User entry	Character string comprising numbers, letters and special characters (15)

Descriptor

Navigation	 Guidance → Commissioning → Device ident. → Descriptor
Description	Enter a description for the measuring point
User entry	Character string comprising numbers, letters and special characters (54)

MAC address

Navigation	 Guidance → Commissioning → Device ident. → MAC Address
Description	Shows the MAC address of the measuring device
User interface	Character string comprising numbers, letters and special characters

Device ID

Navigation	 Guidance → Commissioning → Device ident. → Device ID
User interface	0 to 65 535

Manufacturer ID

Navigation	 Guidance → Commissioning → Device ident. → Manufacturer ID
User interface	0 to 65 535

"Measurement adjustments" wizard

Navigation   Guidance → Commissioning → Meas. adjust.

Damping**Navigation**

 Guidance → Commissioning → Meas. adjust. → Damping

Description

The damping is effective before the measured value is further processed, i.e., before the following processes:

- Scaling
- Limit value monitoring
- Forwarding to display
- Forwarding to Analog Input Block

Note:

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

User entry

0 to 999.0 s

Assign scaled variable?**Navigation**

 Guidance → Commissioning → Meas. adjust. → Scaled variable?

Selection

- No
- Yes

"Measurement adjustments" wizard

Navigation   Guidance → Commissioning → Meas. adjust.

Pressure unit**Navigation**

 Guidance → Commissioning → Meas. adjust. → Pressure unit

Description

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

Selection	SI units	US units	Other units
	■ MPa ■ kPa ■ Pa ■ bar ■ mbar a ■ torr ■ atm ■ kgf/cm² ■ gf/cm²	psi	■ inH2O ■ inH2O (4°C) ■ mmH2O ■ mmH2O (4°C) ■ mH2O ■ mH2O (4°C) ■ ftH2O ■ inHg ■ mmHg

Temperature unit

Navigation	Guidance → Commissioning → Meas. adjust. → Temperature unit		
Description	Use this function to select the unit for the temperature.		
Selection	SI units	US units	
	■ °C ■ K	°F	
Factory setting	Country-specific:		
	■ °C ■ °F		
Additional information	Selection		

"Measurement adjustments" wizard

Navigation Guidance → Commissioning → Meas. adjust.

Pressure unit

Navigation	Guidance → Commissioning → Meas. adjust. → Pressure unit		
Description	Use this function to select the unit for the pipe pressure.		
Selection	SI units	US units	Other units
	■ MPa ■ kPa ■ Pa ■ bar ■ mbar a ■ torr ■ atm ■ kgf/cm² ■ gf/cm²	psi	■ inH2O ■ inH2O (4°C) ■ mmH2O ■ mmH2O (4°C) ■ mH2O ■ mH2O (4°C) ■ ftH2O ■ inHg ■ mmHg

Scaled variable unit



Navigation



Guidance → Commissioning → Meas. adjust. → SV unit

Description

Use 'Free text', first selection, if the desired unit is not available in the selection list. It is possible to define a customer specific unit with another parameter.

Selection

SI units

- %
- mm
- cm
- m
- l
- hl
- m³
- g
- kg
- t
- g/s
- kg/s
- kg/min
- kg/h
- t/min
- t/h
- t/d
- m³/s
- m³/min
- m³/h
- m³/d
- l/s
- l/min
- l/h
- Nm³/h
- NI/h
- Sm³/s
- Sm³/min
- Sm³/h
- Sm³/d
- Nm³/s
- g/cm³
- kg/m³
- Nm³/min
- Nm³/d

US units

- ft
- in
- ft³
- gal (us)
- bbl (us;oil)
- oz
- lb
- STon
- lb/s
- lb/min
- lb/h
- STon/min
- STon/h
- STon/d
- ft³/s
- ft³/min
- ft³/h
- ft³/d
- gal/s (us)
- gal/min (us)
- gal/h (us)
- gal/d (us)
- bbl/s (us;oil)
- bbl/min (us;oil)
- bbl/h (us;oil)
- bbl/d (us;oil)
- Sft³/min
- Sft³/h
- Sft³/d

Imperial units

- gal (imp)
- gal/s (imp)
- gal/min (imp)
- gal/h (imp)

Custom-specific units

Free text

Free text



Navigation



Guidance → Commissioning → Meas. adjust. → Free text

User entry

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

Temperature unit

Navigation	 Guidance → Commissioning → Meas. adjust. → Temperature unit
Description	Use this function to select the unit for the temperature.
Selection	<i>SI units</i> ☐ °C ☐ K <i>US units</i> ☐ °F
Factory setting	Country-specific: ☐ °C ☐ °F
Additional information	<i>Selection</i>

"Measurement adjustments" wizard

Navigation   Guidance → Commissioning → Meas. adjust.

Zero adjustment

Navigation	 Guidance → Commissioning → Meas. adjust. → Zero adjustment
Description	Due to the mounting position of the measuring instrument, a pressure shift may occur. The pressure shift can be corrected with the zero adjustment.
Selection	☐ No ☐ Confirm

Pressure

Navigation  Guidance → Commissioning → Meas. adjust. → Pressure

"Output settings" wizard

Navigation   Guidance → Commissioning → Output settings

Scaled variable transfer function

Navigation  Guidance → Commissioning → Output settings → Scal. v. trans.

Description

'Linear'
The linear pressure signal is used for the output signal. The flow must be calculated in the evaluation unit. Deviating from the bar graph (output signal), the digital value on the display shows continues to be the eradicated value.

'Square root'
The root flow signal is used for the output signal. The 'Flow (square root)' output signal is indicated on the on-site display with a root symbol.

'Table'
The output is defined according to the scaled variable / pressure table entered.

Selection

- Linear
- Square root *
- Table

"Output settings" wizard

Navigation   Guidance → Commissioning → Output settings

Lower Range Limit

Navigation  Guidance → Commissioning → Output settings → LRL

Description Indicates the lower measuring limit of the sensor.

User interface Signed floating-point number

* Visibility depends on order options or device settings

Upper Range Limit

Navigation	 Guidance → Commissioning → Output settings → URL
Description	Indicates the upper measuring limit of the sensor.
User interface	Signed floating-point number

Minimum span

Navigation	 Guidance → Commissioning → Output settings → Minimum span
Description	Specifies the smallest possible measuring span of the sensor.
User interface	Signed floating-point number

"Output settings" wizard

Navigation   Guidance → Commissioning → Output settings

Pressure



Navigation	 Guidance → Commissioning → Output settings → Pressure
User entry	Signed floating-point number

Scaled variable



Navigation	 Guidance → Commissioning → Output settings → Scaled variable
User entry	Signed floating-point number

"Output settings" wizard*Navigation*

Guidance → Commissioning → Output settings

Scaled variable transfer function**Navigation**

Guidance → Commissioning → Output settings → Scal. v. trans.

Description

'Linear'

The linear pressure signal is used for the output signal. The flow must be calculated in the evaluation unit. Deviating from the bar graph (output signal), the digital value on the display shows continues to be the eradicated value.

'Square root'

The root flow signal is used for the output signal. The 'Flow (square root)' output signal is indicated on the on-site display with a root symbol.

'Table'

The output is defined according to the scaled variable / pressure table entered.

Selection

- Linear
- Square root *
- Table

Pressure value 1**Navigation**

Guidance → Commissioning → Output settings → P. value 1

Description

Enter pressure for the first scaling point. 'Scaled variable value 1' will be allocated to this pressure.

User entry

Signed floating-point number

Scaled variable value 1**Navigation**

Guidance → Commissioning → Output settings → Sc. var.value 1

Description

Enter value for the first scaling point. This value is allocated to 'Pressure value 1'.

User interface

Signed floating-point number

* Visibility depends on order options or device settings

Pressure value 2

Navigation	 Guidance → Commissioning → Output settings → P. value 2
Description	Enter pressure for the second scaling point. 'Scaled variable value 2' will be allocated to this pressure.
User entry	Signed floating-point number

Scaled variable value 2

Navigation	 Guidance → Commissioning → Output settings → Sc. var.value 2
Description	Enter value for the second scaling point. This value is allocated to 'Pressure value 2'.
User entry	Signed floating-point number

Lower Range Limit

Navigation	 Guidance → Commissioning → Output settings → LRL
Description	Indicates the lower measuring limit of the sensor.
User interface	Signed floating-point number

Upper Range Limit

Navigation	 Guidance → Commissioning → Output settings → URL
Description	Indicates the upper measuring limit of the sensor.
User interface	Signed floating-point number

Minimum span

Navigation	 Guidance → Commissioning → Output settings → Minimum span
Description	Specifies the smallest possible measuring span of the sensor.
User interface	Signed floating-point number

"Output settings" wizard

Navigation  Guidance → Commissioning → Output settings

Assign process variable

Navigation	 Guidance → Commissioning → Output settings → Assign variable  Guidance → Commissioning → Output settings → Assign variable  Guidance → Commissioning → Output settings → Assign variable  Guidance → Commissioning → Output settings → Assign variable  Guidance → Commissioning → Output settings → Assign variable  Guidance → Commissioning → Output settings → Assign variable  Guidance → Commissioning → Output settings → Assign variable
Description	Select a process variable
User interface	■ Pressure * ■ Scaled variable * ■ Sensor temperature * ■ Sensor pressure * ■ Electronics temperature * ■ Median of pressure signal * ■ Noise of pressure signal *
Additional information	User interface "Sensor pressure" option Sensor Pressure is the raw signal from sensor before damping and position adjustment.

* Visibility depends on order options or device settings

3.4 "Diagnostics" menu

Navigation  Diagnostics

3.4.1 "Active diagnostics" submenu

Navigation  Diagnostics → Active diagnos.

Active diagnostics

Navigation	  Diagnostics → Active diagnos. → Active diagnos.
Prerequisite	A diagnostic event has occurred.
Description	Displays the current diagnostic message. If two or more messages occur simultaneously, the message with the highest priority is shown on the display.
User interface	Symbol for diagnostic behavior, diagnostic code and short message.
Additional information	<i>User interface</i>  Additional pending diagnostic messages can be viewed in the Diagnostic list submenu. <i>Example</i> For the display format: ⊗F271 Main electronic failure

Timestamp

Navigation	  Diagnostics → Active diagnos. → 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	<i>User interface</i>  The diagnostic message can be viewed via the Actual diagnostics parameter (→  38). <i>Example</i> For the display format: 24d12h13m00s

Previous diagnostics

Navigation	  Diagnostics → Active diagnos. → 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>User interface</i>  Via the local display: the time stamp and corrective measures referring to the cause of the diagnostic message can be accessed via the  key. <i>Example</i> For the display format:  F271 Main electronic failure

Timestamp

Navigation	  Diagnostics → Active diagnos. → Timestamp
Description	Displays the operating time when the last diagnostic message before the current message occurred.
User interface	Days (d), hours (h), minutes (m) and seconds (s)
Additional information	<i>User interface</i>  The diagnostic message can be viewed via the Previous diagnostics parameter (→  39). <i>Example</i> For the display format: 24d12h13m00s

Operating time from restart

Navigation	  Diagnostics → Active diagnos. → Time fr. restart
Description	Indicates how long the device has been in operation since the last time the device was restarted.
User interface	Days (d), hours (h), minutes (m), seconds (s)

Operating time

Navigation	  Diagnostics → Active diagnos. → Operating time
Description	Indicates how long the device has been in operation.
Additional information	Maximum time: 9 999 d (≈ 27 years)

3.4.2 "Event logbook" submenu

Navigation

 Diagnostics → Event logbook

Filter options

Navigation	 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) ■ Not categorized
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

3.4.3 "Minimum/maximum values" submenu

Navigation  Diagnostics → Min/max val.

Pressure min

Navigation   Diagnostics → Min/max val. → Pressure min

Description Minimum or maximum value measured by device.

User interface Signed floating-point number

Counter limit underruns sensor Pmin

Navigation   Diagnostics → Min/max val. → Counter P < Pmin

Description Counts how many times the value underruns the sensor specific minimum values. Sensor specific minimum values are shown in Application/Sensor menu.

User interface 0 to 65 535

Counter underruns of user limit Pmin

Navigation   Diagnostics → Min/max val. → Counter < P user

Description Counts how many times the value underruns the minimum values defined by the user. User defined minimum values are shown in Diagnostic/Diagnostic settings/Properties menu.

User interface 0 to 65 535

Minimum sensor temperature

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

Description Minimum or maximum value measured by device.
Users cannot reset this value.

User interface -273.15 to 9 726.85 °C

Counter limit underruns sensor Tmin

Navigation	  Diagnostics → Min/max val. → Counter T < Tmin
Description	Counts how many times the value underruns/overruns the sensor specific minimum/maximum values. Sensor specific minimum/maximum values are shown in Application/Sensor menu.
User interface	0 to 65 535

Counter underruns of user limit Tmin

Navigation	  Diagnostics → Min/max val. → Counter < T user
User interface	0 to 65 535

Minimum terminal voltage

Navigation	  Diagnostics → Min/max val. → Min.term.volt.
Description	Minimum or maximum measured terminal (supply) voltage.
User interface	0.0 to 50.0 V

Minimum electronics temperature

Navigation	  Diagnostics → Min/max val. → Min.electr.temp.
Description	Minimum or maximum measured main electronics temperature.
User interface	Signed floating-point number

Reset user defined counters P and T



Navigation	  Diagnostics → Min/max val. → Reset count. P T
Selection	■ Cancel ■ Confirm

Pressure max

Navigation	  Diagnostics → Min/max val. → Pressure max
Description	Minimum or maximum value measured by device.
User interface	Signed floating-point number

Counter limit overruns sensor Pmax

Navigation	  Diagnostics → Min/max val. → Counter P > Pmax
Description	Counts how many times the value overruns the sensor specific maximum values. Sensor specific maximum values are shown in Application/Sensor menu.
User interface	0 to 65 535

Counter overruns of user limit Pmax

Navigation	  Diagnostics → Min/max val. → Counter > P user
Description	Counts how many times the value overruns the maximum values defined by the user. User defined maximum values are shown in Diagnostic/Diagnostic settings/Properties menu.
User interface	0 to 65 535

Maximum sensor temperature

Navigation	  Diagnostics → Min/max val. → Max. sensor temp
Description	Minimum or maximum value measured by device. Users cannot reset this value.
User interface	−273.15 to 9 726.85 °C

Counter limit overruns sensor Tmax

Navigation	  Diagnostics → Min/max val. → Counter T > Tmax
Description	Counts how many times the value underruns/overruns the sensor specific minimum/maximum values. Sensor specific minimum/maximum values are shown in Application/Sensor menu.
User interface	0 to 65 535

Counter overruns of user limit Tmax

Navigation	  Diagnostics → Min/max val. → Counter > T user
User interface	0 to 65 535

Maximum terminal voltage

Navigation	  Diagnostics → Min/max val. → Max.term.voltage
Description	Minimum or maximum measured terminal (supply) voltage.
User interface	0.0 to 50.0 V

Maximum electronics temperature

Navigation	  Diagnostics → Min/max val. → Max.electr.temp.
Description	Minimum or maximum measured main electronics temperature.
User interface	Signed floating-point number

3.4.4 "Simulation" submenu

Navigation  Diagnostics → Simulation

Simulation 	
Navigation	  Diagnostics → Simulation → Simulation
Description	Simulates one or more process variables and/or events. Warning: Output will reflect the simulated value or event.
Selection	■ Off ■ Pressure ■ Diagnostic event simulation
Diagnostic event simulation 	
Navigation	  Diagnostics → Simulation → Diag. event sim.
Description	Use this function to select a diagnostic event for the simulation process that is activated.
Selection	■ Off ■ Diagnostic event picklist (depends on the category selected)
Additional information	<i>Description</i>  For the simulation, you can choose from the diagnostic events of the category selected in the Diagnostic event category parameter.
Value pressure simulation 	
Navigation	  Diagnostics → Simulation → Value pressure
User entry	Signed floating-point number

3.4.5 "Diagnostic settings" submenu

Navigation  Diagnostics → Diag. settings

"Properties" submenu

Navigation  Diagnostics → Diag. settings → Properties

SSD Out of range delay time

Navigation  Diagnostics → Diag. settings → Properties → SSD Delay time

User entry 0 to 604 800 s

SSD Monitoring delay time

Navigation  Diagnostics → Diag. settings → Properties → SSD Verz. Zeit

User entry 0 to 86 400 s

500 Process alert pressure

Navigation  Diagnostics → Diag. settings → Properties → 500 Pressure

Description Define whether user-defined pressure limits should be set.
If 'No' is selected, no analysis will take place and no event message will be generated.

Selection

- Off
- On

Low alert value

Navigation  Diagnostics → Diag. settings → Properties → Low alert value

Description Set area.
If this limit value is exceeded or undercut, an event is generated. There is no hysteresis.

User entry Signed floating-point number

High alert value



Navigation	 Diagnostics → Diag. settings → Properties → High alert value
Description	Set area. If this limit value is exceeded or undercut, an event is generated. There is no hysteresis.
User entry	Signed floating-point number

501 Process alert scaled variable



Navigation	 Diagnostics → Diag. settings → Properties → 501 Scaled var.
Description	Define whether user-defined limits should be set. If 'No' is selected, no analysis will take place and no event message will be generated.
Selection	■ Off ■ On

Low alert value



Navigation	 Diagnostics → Diag. settings → Properties → Low alert value
Description	Set area. If this limit value is exceeded or undercut, an event is generated. There is no hysteresis.
User entry	Signed floating-point number

High alert value



Navigation	 Diagnostics → Diag. settings → Properties → High alert value
Description	Set area. If this limit value is exceeded or undercut, an event is generated. There is no hysteresis.
User entry	Signed floating-point number

User temperature process alert

Navigation	 Diagnostics → Diag. settings → Properties → UserTemp alert
Description	Define whether the user-defined sensor temperature limits should be set. If 'No' no analysis and therefore no event message will take place.
Selection	■ Off ■ On

Low alert value

Navigation	 Diagnostics → Diag. settings → Properties → Low alert value
Description	Set area. If this limit value is exceeded or undercut, an event is generated. There is no hysteresis.
User entry	−50 to 150 °C

High alert value

Navigation	 Diagnostics → Diag. settings → Properties → High alert value
Description	Set area. If this limit value is exceeded or undercut, an event is generated. There is no hysteresis.
User entry	−50 to 150 °C

"Configuration" submenu

Navigation Diagnostics → Diag. settings → Configuration → Configuration

436 Diagnostic behavior

Navigation	 Diagnostics → Diag. settings → Configuration → Configuration → 436 Diag. behav.
Selection	■ Warning ■ Logbook entry only

436 Event category

Navigation	 Diagnostics → Diag. settings → Configuration → Configuration → 436 Event category
User interface	■ Failure (F) ■ Function check (C) ■ Out of specification (S) ■ Maintenance required (M) ■ Not categorized

500 Diagnostic behavior



Navigation	  Diagnostics → Diag. settings → Configuration → Configuration → 500 Diag. behav.
Description	Select event behavior 'Logbook entry only': no digital or analog transmission of the message 'Warning': Current output unchanged. Message is output digitally (default). 'Alarm': Current output assumes the set alarm current. Regardless of the setting, the message appears on the display. If the permissible conditions are reached again, the warning is no longer available in the instrument.
Selection	■ Off ■ Alarm ■ Warning ■ Logbook entry only

500 Event category

Navigation	  Diagnostics → Diag. settings → Configuration → Configuration → 500Event category
User interface	■ Failure (F) ■ Function check (C) ■ Out of specification (S) ■ Maintenance required (M) ■ Not categorized

501 Diagnostic behavior

**Navigation**

  Diagnostics → Diag. settings → Configuration → Configuration → 501 Diag. behav.

Description

Select event behavior

'Logbook entry only':

no digital or analog transmission of the message

'Warning': Current output unchanged. Message is output digitally (default).

'Alarm': Current output assumes the set alarm current.

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

Selection

- Off
- Alarm
- Warning
- Logbook entry only

501 Event category

Navigation

  Diagnostics → Diag. settings → Configuration → Configuration → 501Event category

User interface

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

502 Diagnostic behavior

**Navigation**

  Diagnostics → Diag. settings → Configuration → Configuration → 502 Diag. behav.

Description

Select event behavior

'Logbook entry only':

no digital or analog transmission of the message

'Warning': Current output unchanged. Message is output digitally (default).

'Alarm': Current output assumes the set alarm current.

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

Selection

- Off
- Alarm
- Warning
- Logbook entry only

502 Event category

Navigation  Diagnostics → Diag. settings → Configuration → Configuration → 502Event category

User interface

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

"Process" submenu

Navigation  Diagnostics → Diag. settings → Configuration → Process

Sensor pressure range behavior



Navigation  Diagnostics → Diag. settings → Configuration → Process → P-range behavior

Description

Alarm and warning messages appear on the display. If the permissible conditions are reached again, the warning message disappears.

Select event behavior:

'Alarm':
The signal outputs assume the specified alarm condition. A diagnostic message is generated.

'Warning':
The signal outputs assume the specified warning condition. A diagnostic message is generated.

'Logbook entry only':
No digital or analog forwarding of the message. A diagnostic message is written in the logbook.

Selection

- Alarm
- Warning
- Logbook entry only

841 Event category

Navigation  Diagnostics → Diag. settings → Configuration → Process → 841 Event category

User interface

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

900 Event category

Navigation	  Diagnostics → Diag. settings → Configuration → Process → 900Event category
User interface	■ Failure (F) ■ Function check (C) ■ Out of specification (S) ■ Maintenance required (M) ■ Not categorized

900 Diagnostic behavior



Navigation	  Diagnostics → Diag. settings → Configuration → Process → 900 Diag. behav.
Description	Select event behavior 'Logbook entry only': No forwarding of the message via the fieldbus. 'Warning': Warning message is transmitted via the fieldbus (default setting). Regardless of the setting, the message appears on the display. If the permissible conditions are reached again, the warning is no longer available in the instrument.
Selection	■ Warning ■ Logbook entry only

906 Diagnostic behavior



Navigation	  Diagnostics → Diag. settings → Configuration → Process → 906 Diag. behav.
Description	Select event behavior 'Logbook entry only': No forwarding of the message via the fieldbus. 'Warning': Warning message is transmitted via the fieldbus (default setting). Regardless of the setting, the message appears on the display. If the permissible conditions are reached again, the warning is no longer available in the instrument.
Selection	■ Off ■ Warning ■ Logbook entry only

906 Event category

Navigation	 Diagnostics → Diag. settings → Configuration → Process → 906Event category
User interface	■ Failure (F) ■ Function check (C) ■ Out of specification (S) ■ Maintenance required (M) ■ Not categorized

3.5 "Application" menu

Navigation  Application

3.5.1 "Measured values" submenu

Navigation  Application → Measured values

Pressure

Navigation   Application → Measured values → Pressure

Scaled variable

Navigation   Application → Measured values → Scaled variable

User interface Signed floating-point number

Sensor temperature

Navigation   Application → Measured values → Sensor temp.

User interface -273.15 to 9 726.85 °C

Terminal voltage 1

Navigation   Application → Measured values → Terminal volt. 1

Description Shows the current terminal voltage that is applied at the output

User interface 0.0 to 50.0 V

Electronics temperature

Navigation   Application → Measured values → Electronics temp

Description Displays the current temperature of the main electronics.

User interface Signed floating-point number

3.5.2 "Measuring units" submenu

Navigation  Application → Measuring units

Pressure unit 			
Navigation	  Application → Measuring units → Pressure unit		
Description	Use this function to select the unit for the pipe pressure.		
Selection	<i>SI units</i> ■ MPa ■ kPa ■ Pa ■ bar ■ mbar a ■ torr ■ atm ■ kgf/cm² ■ gf/cm²	<i>US units</i> psi	<i>Other units</i> ■ inH2O ■ inH2O (4°C) ■ mmH2O ■ mmH2O (4°C) ■ mH2O ■ mH2O (4°C) ■ ftH2O ■ inHg ■ mmHg
Decimal places pressure 			

Navigation	  Application → Measuring units → Decimal pressure		
Description	This selection does not affect the measurement and calculation accuracy of the device.		
Selection	■ Automatic ■ x ■ x.x ■ x.xx ■ x.xxx ■ x.xxxx		

Temperature unit 			
Navigation	  Application → Measuring units → Temperature unit		
Description	Use this function to select the unit for the temperature.		

Selection	<i>SI units</i>		<i>US units</i>
	■ °C		
	■ K		
Factory setting	Country-specific:		
	■ °C		
	■ °F		
Additional information	<i>Selection</i>		

Scaled variable unit

Navigation	  Application → Measuring units → SV unit
Description	Use 'Free text', first selection, if the desired unit is not available in the selection list. It is possible to define a customer specific unit with another parameter.

Selection	<i>SI units</i>	<i>US units</i>	<i>Imperial units</i>
	■ % ■ mm ■ cm ■ m ■ l ■ hl ■ m³ ■ g ■ kg ■ t ■ g/s ■ kg/s ■ kg/min ■ kg/h ■ t/min ■ t/h ■ t/d ■ m³/s ■ m³/min ■ m³/h ■ m³/d ■ l/s ■ l/min ■ l/h ■ Nm³/h ■ Nm³/h ■ Sm³/s ■ Sm³/min ■ Sm³/h ■ Sm³/d ■ Nm³/s ■ g/cm³ ■ kg/m³ ■ Nm³/min ■ Nm³/d	■ ft ■ in ■ ft³ ■ gal (us) ■ bbl (us;oil) ■ oz ■ lb ■ STon ■ lb/s ■ lb/min ■ lb/h ■ STon/min ■ STon/h ■ STon/d ■ ft³/s ■ ft³/min ■ ft³/h ■ ft³/d ■ gal/s (us) ■ gal/min (us) ■ gal/h (us) ■ gal/d (us) ■ bbl/s (us;oil) ■ bbl/min (us;oil) ■ bbl/h (us;oil) ■ bbl/d (us;oil) ■ Sft³/min ■ Sft³/h ■ Sft³/d	■ gal (imp) ■ gal/s (imp) ■ gal/min (imp) ■ gal/h (imp)
	<i>Custom-specific units</i>		
	Free text		

Free text



Navigation  Application → Measuring units → Free text

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

Decimal places scaled variable



Navigation  Application → Measuring units → Decimal scaled

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

- Selection
- X

■ X.X

■ X.XX

■ X.XXX

■ X.XXXX

3.5.3 "Sensor" submenu

Navigation



Application → Sensor → Sensor cal.

Zero adjustment

Navigation



Application → Sensor → Sensor cal. → Zero adjustment

Description

Due to the mounting position of the measuring instrument, a pressure shift may occur.
The pressure shift can be corrected with the zero adjustment.

- Selection
- No

■ Confirm

Calibration offset

Navigation



Application → Sensor → Sensor cal. → Calibr offset

Prerequisite

Absolute pressure sensor

User entry

Signed floating-point number

Zero adjustment offset

Navigation



Application → Sensor → Sensor cal. → Zero adj. offset

User entry

Signed floating-point number

Sensor Trim Reset

Navigation



Application → Sensor → Sensor cal. → Sen. Trim Reset

- Selection
- No

■ Confirm

Lower sensor trim**Navigation**

 Application → Sensor → Sensor cal. → LowerSensor trim

Description

These two parameters allow a recalibration of the sensor, i.e., if you want to fit the sensor to the measuring range. The highest accuracy is obtained when the value for the 'Lower sensor trim' is as close as possible to 'LRV' (lower range value) and the value for 'Upper sensor trim' as close as possible to 'URV' (upper range value).

There must be a known reference pressure when setting a new lower or upper sensor characteristic curve value. The more accurate the reference pressure is during recalibration, the higher the accuracy of the pressure transmitter later. A new value is assigned to the applied pressure using 'Lower sensor trim' and 'Upper sensor trim' parameters.

Proceed as follows:

- Apply reference pressure for lower range value ('LRV')
- Enter the measured reference pressure at 'Lower sensor trim' and confirm
- Apply reference pressure for upper range value ('URV')
- Enter the measured reference pressure at 'Upper sensor trim' and confirm
- The sensor is now calibrated

User entry

Signed floating-point number

Upper sensor trim**Navigation**

 Application → Sensor → Sensor cal. → UpperSensor trim

User entry

Signed floating-point number

Lower range value**Navigation**

 Application → Sensor → Sensor cal. → Lower range val.

Description

The calibrated span corresponds to the span between the LRV and URV.

Factory setting: 0 to URL.

Other calibrated spans can be ordered as customized span.

User entry

Signed floating-point number

Upper range value**Navigation**

 Application → Sensor → Sensor cal. → Upper range val.

Description

The calibrated span corresponds to the span between the LRV and URV.

Factory setting: 0 to URL.

Other calibrated spans can be ordered as customized span.

User entry Signed floating-point number

"Sensor configuration" submenu

Navigation  Application → Sensor → Sensor conf.

Damping



Navigation   Application → Sensor → Sensor conf. → Damping

Description The damping is effective before the measured value is further processed, i.e., before the following processes:

- Scaling
- Limit value monitoring
- Forwarding to display
- Forwarding to Analog Input Block

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

User entry 0 to 999.0 s

"Sensor limits" submenu

Navigation  Application → Sensor → Sensor limits

Lower Range Limit

Navigation  Application → Sensor → Sensor limits → LRL

Description Indicates the lower measuring limit of the sensor.

User interface Signed floating-point number

Upper Range Limit

Navigation	 Application → Sensor → Sensor limits → URL
Description	Indicates the upper measuring limit of the sensor.
User interface	Signed floating-point number

Minimum span

Navigation	 Application → Sensor → Sensor limits → Minimum span
Description	Specifies the smallest possible measuring span of the sensor.
User interface	Signed floating-point number

Sensor temperature lower range limit

Navigation	 Application → Sensor → Sensor limits → Sens.temp.lo.lim
User interface	-273.15 to 9726.85 °C

Sensor temperature upper range limit

Navigation	 Application → Sensor → Sensor limits → Sens.temp.up.lim
User interface	-273.15 to 9726.85 °C

"Scaled variable" submenu

Navigation  Application → Sensor → Scaled variable

Scaled variable unit

Navigation	  Application → Sensor → Scaled variable → SV unit
Description	Use 'Free text', first selection, if the desired unit is not available in the selection list. It is possible to define a customer specific unit with another parameter.

Selection	SI units	US units	Imperial units
	■ %	■ ft	■ gal (imp)
	■ mm	■ in	■ gal/s (imp)
	■ cm	■ ft ³	■ gal/min (imp)
	■ m	■ gal (us)	■ gal/h (imp)
	■ l	■ bbl (us;oil)	
	■ hl	■ oz	
	■ m ³	■ lb	
	■ g	■ STon	
	■ kg	■ lb/s	
	■ t	■ lb/min	
	■ g/s	■ lb/h	
	■ kg/s	■ STon/min	
	■ kg/min	■ STon/h	
	■ kg/h	■ STon/d	
	■ t/min	■ ft ³ /s	
	■ t/h	■ ft ³ /min	
	■ t/d	■ ft ³ /h	
	■ m ³ /s	■ ft ³ /d	
	■ m ³ /min	■ gal/s (us)	
	■ m ³ /h	■ gal/min (us)	
	■ m ³ /d	■ gal/h (us)	
	■ l/s	■ gal/d (us)	
	■ l/min	■ bbl/s (us;oil)	
	■ l/h	■ bbl/min (us;oil)	
	■ Nm ³ /h	■ bbl/h (us;oil)	
	■ NI/h	■ bbl/d (us;oil)	
	■ Sm ³ /s	■ Sft ³ /min	
	■ Sm ³ /min	■ Sft ³ /h	
	■ Sm ³ /h	■ Sft ³ /d	
	■ Sm ³ /d		
	■ Nm ³ /s		
	■ g/cm ³		
	■ kg/m ³		
	■ Nm ³ /min		
	■ Nm ³ /d		
	<i>Custom-specific units</i>		
	Free text		

Free text



Navigation

Application → Sensor → Scaled variable → Free text

User entry

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

Pressure

Navigation  Application → Sensor → Scaled variable → Pressure

Scaled variable transfer function



Navigation  Application → Sensor → Scaled variable → Scal. v. trans.

Description

'Linear'
The linear pressure signal is used for the output signal. The flow must be calculated in the evaluation unit. Deviating from the bar graph (output signal), the digital value on the display shows continues to be the eradicated value.

'Square root'
The root flow signal is used for the output signal. The 'Flow (square root)' output signal is indicated on the on-site display with a root symbol.

'Table'
The output is defined according to the scaled variable / pressure table entered.

Selection

- Linear
- Square root *
- Table

Pressure value 1



Navigation  Application → Sensor → Scaled variable → P. value 1

Description Enter pressure for the first scaling point. 'Scaled variable value 1' will be allocated to this pressure.

User entry Signed floating-point number

Scaled variable value 1

Navigation  Application → Sensor → Scaled variable → Sc. var.value 1

Description Enter value for the first scaling point. This value is allocated to 'Pressure value 1'.

User interface Signed floating-point number

* Visibility depends on order options or device settings

Pressure value 2

Navigation	 Application → Sensor → Scaled variable → P. value 2
Description	Enter pressure for the second scaling point. 'Scaled variable value 2' will be allocated to this pressure.
User entry	Signed floating-point number

Scaled variable value 2

Navigation	 Application → Sensor → Scaled variable → Sc. var.value 2
Description	Enter value for the second scaling point. This value is allocated to 'Pressure value 2'.
User entry	Signed floating-point number

Activate table

Navigation	 Application → Sensor → Scaled variable → Activate table
Selection	■ Disable ■ Enable

Pressure

Navigation	 Application → Sensor → Scaled variable → Pressure
User entry	Signed floating-point number

Scaled variable

Navigation	 Application → Sensor → Scaled variable → Scaled variable
User entry	Signed floating-point number

3.5.4 "PROFINET" submenu

Navigation  Application → PROFINET

"Configuration" submenu

Navigation  Application → PROFINET → Configuration

PROFINET device name

Navigation	  Application → PROFINET → Configuration → PROFINET DevName
Description	Shows the short form of the PROFINET device name for the measuring point
User interface	Character string comprising numbers, letters and special characters

PROFINET device name

Navigation	  Application → PROFINET → Configuration → PROFINET DevName
Description	Up to 240 characters are allowed. The following syntax must be used: - 1 or more identifiers, separated with [.] - Identifier length is 1 to 63 characters - Identifier consists of [a-z 0-9] only lowercase letters and numbers allowed.
User entry	Character string comprising numbers, letters and special characters (240)

Parameter change acknowledge mode

Navigation	  Application → PROFINET → Configuration → ParaChngAcknMode
Description	Select how to acknowledge the displayed flag when changing the device configuration: - "Auto acknowledge": the flag disappears automatically after 20 seconds. - "Manual acknowledge": the flag must be acknowledged manually.
Selection	■ Auto acknowledge ■ Manual acknowledge

Acknowledge parameter change

Navigation	 Application → PROFINET → Configuration → AcknParaChange
Description	If the Option "Manual acknowledge" is selected as the acknowledgement type, then a parameter change must be acknowledged with the "Reset update event flag" option.
Selection	■ No acknowledge ■ Reset update event flag

Descriptor

Navigation	 Application → PROFINET → Configuration → Descriptor
Description	Enter a description for the measuring point
User entry	Character string comprising numbers, letters and special characters (54)

"Analog input 1 to 7" submenu

Navigation  Application → PROFINET → Analog input → Analog input 1 to 7

Process value

Navigation	 Application → PROFINET → Analog input → Analog input 1 to 7 → Process value
Description	Shows the process value reported to the controller for further processing
User interface	Signed floating-point number

Assign process variable

Navigation	 Application → PROFINET → Analog input → Analog input 1 to 7 → Assign variable
Description	Select a process variable
User interface	■ Pressure * ■ Scaled variable * ■ Sensor temperature *

* Visibility depends on order options or device settings

- Sensor pressure *
- Electronics temperature *
- Median of pressure signal *
- Noise of pressure signal *

Additional information	User interface
	"Sensor pressure" option
	Sensor Pressure is the raw signal from sensor before damping and position adjustment.

Damping

Navigation	 Application → PROFINET → Analog input → Analog input 1 to 7 → Damping
Description	Enter time constant for input damping (PT1 element). Damping reduces the effect of fluctuations in the measured value on the output signal.
User entry	Positive floating-point number

"Binary input 1 to 2" submenu

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

Controller input value

Navigation	 Application → PROFINET → Binary input → Binary input 1 to 2 → ControllInputVal
Description	Shows for each device function the state reported to the controller for further processing
User interface	0 to 255

* Visibility depends on order options or device settings

"Binary output" submenu

Navigation  Application → PROFINET → Binary output

Set point value

Navigation  Application → PROFINET → Binary output → Set point value

User entry 0 to 255

BO block output value

Navigation  Application → PROFINET → Binary output → BOBlockOutValue

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

User entry 0 to 255

Failure behavior

Navigation  Application → PROFINET → Binary output → Failure behavior

Description Select failure behavior in the event of a failure (value with status 'Bad')

Selection

- Fixed value
- Last valid value
- Actual value

Failure behavior delay

Navigation  Application → PROFINET → Binary output → FailBehavDelay

Description Enter a delay until in the event of a failure (value with status 'Bad') the failure behavior specified applies

User entry Positive floating-point number

Fixed value

Navigation	 Application → PROFINET → Binary output → Fixed value
Description	Enter value to report in the event of a failure (value with status 'Bad')
User entry	0 to 255

"Information" submenu

Navigation  Application → PROFINET → Information

Device ID

Navigation	 Application → PROFINET → Information → Device ID
User interface	0 to 65 535

PA profile version

Navigation	 Application → PROFINET → Information → PA profile vers.
User interface	0 to 65 535

"Application relation" submenu

Navigation  Application → PROFINET → Applicat. relat.

AR state

Navigation	 Application → PROFINET → Applicat. relat. → AR state
Description	Shows whether an AR connection and a system redundancy have been established
User interface	■ Active ■ Not active ■ Redundancy 1AR active ■ Redundancy 2AR active

MAC address IO controller

Navigation	 Application → PROFINET → Applicat. relat. → MAC IO contr.
Description	Shows the MAC address of the only or of the primary IO controller
User interface	Character string comprising numbers, letters and special characters

MAC address backup IO controller

Navigation	 Application → PROFINET → Applicat. relat. → MAC backup IO c.
Description	Shows the MAC adress of the backup IO controller
User interface	Character string comprising numbers, letters and special characters

IP address IO controller

Navigation	 Application → PROFINET → Applicat. relat. → IP IO controller
Description	Shows the IP address of the only or of the primary IO controller
User interface	Character string comprising numbers, letters and special characters

IP address backup IO controller

Navigation	 Application → PROFINET → Applicat. relat. → IP backup IO c.
Description	Shows the IP adress of the backup IO controller
User interface	Character string comprising numbers, letters and special characters

3.6 "System" menu

Navigation  System

3.6.1 "Device management" submenu

Navigation  System → Device manag.

Device tag

Navigation	  System → Device manag. → Device tag
Description	Enter a name for the measuring point to identify the measuring device in the plant
User entry	Character string comprising numbers, letters and special characters (32)

Locking status

Navigation	  System → Device manag. → Locking status
Description	Displays the active write protection.
User interface	■ Hardware locked ■ Temporarily locked
Additional information	<i>User interface</i> If two or more types of write protection are active, the write protection with the highest priority is shown on the local display. In the operating tool all active types of write protection are displayed.  Detailed 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.

Selection

Function scope of the "Locking status" parameter

Options	Description
None	The access status displayed in the Access status display parameter applies. Only appears on local display.
Hardware locked	The DIP switch for hardware locking is activated on the main electronics module. This prevents write access to the parameters (e.g. via the local display or operating tool).
Temporarily locked	Write access to the parameters is temporarily locked due to device-internal processing (e.g. data upload/download, reset). Once the internal processing has been completed, the parameters can be changed once again.

Configuration counter

Navigation	 System → Device manag. → Config. counter
Description	Shows the number of changes made to static parameters (e.g. configuration parameters)
User interface	0 to 65 535

Reset device



Navigation	 System → Device manag. → Reset device
Description	Use this function to choose whether to reset the device configuration - either entirely or in part - to a defined state.
Selection	■ Cancel ■ To factory defaults * ■ To delivery settings * ■ Restart device
Additional information	<i>Selection</i>

Options	Description
Cancel	No action is executed and the user exits the parameter.
To factory defaults	Every parameter is reset to its factory setting.
To delivery settings	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	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.

* Visibility depends on order options or device settings

3.6.2 "User management" submenu

Navigation  System → User manag.

User role

Navigation	  System → User manag. → User role
Description	Shows the access authorization to the parameters via the operating tool
User interface	■ Operator ■ Maintenance ■ Expert ■ Production ■ Development

Password

Navigation	 System → User manag. → Password
Description	Enter the password for the 'Maintenance' user role to get access to the functionality of this role.
User entry	Character string comprising numbers, letters and special characters (16)

Enter access code

Navigation	 System → User manag. → Ent. access code
Description	Use this function to enter the user-specific release code to remove parameter write protection in the operating tool.
User entry	0 to 9999

Status password entry

Navigation	  System → User manag. → Status pw entry
Description	Use this function to display the status of the password verification.
User interface	■ ----- ■ Wrong password ■ Password rule violated

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

New password

Navigation	  System → User manag. → New password
Description	Define the new 'Maintenance' password. A new password is valid after it has been confirmed within the 'Confirm new password' parameter. Any valid password consists of 4 to 16 characters and can contain letters and numbers.
User entry	Character string comprising numbers, letters and special characters (16)

Confirm new password

Navigation	  System → User manag. → Conf. new passw.
Description	Enter the new password again to confirm.
User entry	Character string comprising numbers, letters and special characters (16)

Old password

Navigation	  System → User manag. → Old password
Description	Enter the current password, to subsequently change the existing password.
User entry	Character string comprising numbers, letters and special characters (16)

Reset password

Navigation	 System → User manag. → Reset password
Description	Enter a code to reset the current 'Maintenance' password. The code is delivered by your local support.
User entry	Character string comprising numbers, letters and special characters (16)

3.6.3 "Connectivity" submenu

Navigation  System → Connectivity

"Interfaces" submenu

Navigation  System → Connectivity → Interfaces

Display operation

Navigation   System → Connectivity → Interfaces → DisplayOperation

Selection

- Disable
- Enable

Web server functionality

Navigation   System → Connectivity → Interfaces → Webserver funct.

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

Selection

- Disable
- Enable

Bluetooth activation

Navigation   System → Connectivity → Interfaces → Bluetooth active

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

Selection

- Disable
- Enable

Service (UART-CDI)

Navigation   System → Connectivity → Interfaces → Service (CDI)

Selection

- Disable
- Enable

"Ethernet" submenu

Navigation  System → Connectivity → Ethernet

MAC address

Navigation	  System → Connectivity → Ethernet → MAC Address
Description	Shows the MAC address of the measuring device
User interface	Character string comprising numbers, letters and special characters

IP address



Navigation	 System → Connectivity → Ethernet → IP address
Description	Enter the IP address of the measuring device
User entry	Character string comprising numbers, letters and special characters (15)

Subnet mask



Navigation	 System → Connectivity → Ethernet → Subnet mask
Description	Enter subnet mask of the measuring device
User entry	Character string comprising numbers, letters and special characters (15)

Default gateway



Navigation	 System → Connectivity → Ethernet → Default gateway
Description	Enter IP address for the default gateway of the measuring device
User entry	Character string comprising numbers, letters and special characters (15)

Service IP active

Navigation	 System → Connectivity → Ethernet → Service IP act.
User interface	■ No ■ Yes

Interface connection status

Navigation	 System → Connectivity → Ethernet → Interface status
User interface	■ Connected ■ Not connected

Interface speed

Navigation	 System → Connectivity → Ethernet → Interface speed
User interface	Positive integer

Duplex status

Navigation	 System → Connectivity → Ethernet → Duplex status
User interface	■ Full duplex ■ Half duplex ■ Unknown

Auto negotiation status

Navigation	 System → Connectivity → Ethernet → Auto negot.stat.
User interface	■ Idle ■ In progress ■ Completed ■ Failed ■ Speed detection failed

Received packet number

Navigation  System → Connectivity → Ethernet → RX packet no.

User interface Positive integer

Sent packet number

Navigation  System → Connectivity → Ethernet → TX packet number

User interface Positive integer

Number of failed received packets

Navigation  System → Connectivity → Ethernet → FailRcvdPackets

User interface Positive integer

Number of failed sent packets

Navigation  System → Connectivity → Ethernet → FailTXPacketsNo.

User interface Positive integer

Signal to noise ratio

Navigation  System → Connectivity → Ethernet → SNR

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

User interface Signed floating-point number

Number of failed received packets

Navigation  System → Connectivity → Ethernet → FailRXPacketsNo.

Description Shows the number of failed received packets.

User interface	0 to 65 535
-----------------------	-------------

Active TCP connections

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

User interface	0 to 65 535
-----------------------	-------------

Supported TCP connections

Navigation	 System → Connectivity → Ethernet → Supported TCP
-------------------	--

User interface	0 to 65 535
-----------------------	-------------

TCP connection requests

Navigation	 System → Connectivity → Ethernet → TCPConnecRequest
-------------------	---

User interface	0 to 65 535
-----------------------	-------------

TCP connection timeouts

Navigation	 System → Connectivity → Ethernet → TCPConnecTimeout
-------------------	---

User interface	0 to 255
-----------------------	----------

Number of TCP connections closed

Navigation	 System → Connectivity → Ethernet → TCPConnect.close
-------------------	---

User interface	0 to 255
-----------------------	----------

Number of received TCP packets

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

User interface	Positive integer
-----------------------	------------------

TCP sent packet number

Navigation

System → Connectivity → Ethernet → TCP TX PacketNo.

User interface

Positive integer

Number of TCP failed received packets

Navigation

System → Connectivity → Ethernet → TCPFailRXPackets

User interface

Positive integer

Available UDP ports

Navigation

System → Connectivity → Ethernet → Avail. UDP ports

User interface

Positive integer

UDP received packet number

Navigation

System → Connectivity → Ethernet → UDP RX PacketNo.

User interface

Positive integer

UDP sent packet number

Navigation

System → Connectivity → Ethernet → UDP TX PacketNo.

User interface

Positive integer

Number of UDP failed received packets

Navigation

System → Connectivity → Ethernet → UDPFailRXPackets

User interface

Positive integer

3.6.4 "Display" submenu

Navigation  System → Display

Language

Navigation	  System → Display → Language
Prerequisite	A local display is provided.
Description	Use this function to select the configured language on the local display.
Selection	■ English ■ Deutsch ■ Français ■ Español ■ Italiano ■ Nederlands ■ Portuguesa ■ Polski ■ русский язык (Russian) ■ Svenska ■ Türkçe ■ 中文 (Chinese) ■ 日本語 (Japanese) ■ 한국어 (Korean) ■ Bahasa Indonesia ■ tiếng Việt (Vietnamese) ■ čeština (Czech)
Factory setting	English (alternatively, the ordered language is preset in the device)

Format display

Navigation	  System → Display → Format display
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 ■ 2 values

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 (→ 82)...**Value 8 display** parameter **Value 4 display** parameter (→ 83) 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 using the **Display interval** parameter.

Value 1 display



Navigation

System → Display → Value 1 display

Prerequisite

A local display is provided.

Description

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

Selection

- Pressure
- Scaled variable
- Sensor temperature

Additional information

Description

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



The **Format display** parameter (→ 81) is used to specify how many measured values are displayed simultaneously and how.

Dependency



The unit of the displayed measured value is taken from the **System units** submenu.

Value 2 display



Navigation

System → Display → Value 2 display

Prerequisite

A local display is provided.

Description

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

Selection

- None
- Pressure
- Scaled variable
- Sensor temperature

Additional information	<i>Description</i> If several measured values are displayed at once, the measured value selected here will be the second value to be displayed. The value is only displayed during normal operation.  The Format display parameter (→  81) is used to specify how many measured values are displayed simultaneously and how. <i>Dependency</i>  The unit of the displayed measured value is taken from the System units submenu.
-------------------------------	--

Value 3 display

Navigation	  System → Display → Value 3 display
Prerequisite	A local display is provided.
Description	Use this function to select one of the measured values shown on the local display.
Selection	■ None ■ Pressure ■ Scaled variable ■ Sensor temperature
Additional information	<i>Description</i> If several measured values are displayed at once, the measured value selected here will be the third value to be displayed. The value is only displayed during normal operation.  The Format display parameter (→  81) is used to specify how many measured values are displayed simultaneously and how. <i>Selection</i>  The unit of the displayed measured value is taken from the System units submenu.

Value 4 display

Navigation	  System → Display → Value 4 display
Prerequisite	A local display is provided.
Description	Use this function to select one of the measured values shown on the local display.
Selection	■ None ■ Pressure ■ Scaled variable ■ Sensor temperature

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 (→  81) 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.

Contrast display

Navigation   System → Display → Contrast display

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

User entry 20 to 80 %

Factory setting Depends on the display

Additional information  Set the contrast via the push-buttons:

- Weaker: Press the  and  buttons simultaneously
- Stronger: Press the  and  buttons simultaneously

3.6.5 "Date/time" submenu

Navigation  System → Date/time

Date/time

Navigation   System → Date/time → Date/time

Description Displays the date and time entered.

User interface Character string comprising numbers, letters and special characters

Time zone



Navigation   System → Date/time → Time zone

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

Selection

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

Enable NTP



Navigation

 System → Date/time → Enable NTP

Selection

- No
- Yes

NTP server address

Navigation	 System → Date/time → NTP server add.
Description	IP address of the NTP server.
User entry	Character string comprising numbers, letters and special characters (64)

Clock synchronized

Navigation	  System → Date/time → Clock synch.
Description	Timestamp of last synchronization with an NTP server.
User interface	Character string comprising numbers, letters and special characters

3.6.6 "Geolocation" submenu

Navigation  System → Geolocation

Location description

Navigation	  System → Geolocation → Location descr.
Description	Enter a description for the location
User entry	Character string comprising numbers, letters and special characters (32)

Longitude

Navigation	  System → Geolocation → Longitude
Description	Enter the longitude.
User entry	–180 to 180 °

Latitude		
Navigation	  System → Geolocation → Latitude	
Description	Enter latitude	
User entry	–90 to 90 °	

Altitude		
Navigation	  System → Geolocation → Altitude	
Description	Enter altitude	
User entry	Signed floating-point number	

3.6.7 "Information" submenu

Navigation  System → Information

Device name	
Navigation	  System → Information → Device name
Description	Displays the name of the transmitter. It can also be found on the nameplate of the transmitter.
User interface	Max. 32 characters such as letters or numbers.

Manufacturer	
Navigation	  System → Information → Manufacturer
User interface	Character string comprising numbers, letters and special characters

Serial number	
Navigation	 System → Information → 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	Max. 11-digit character string comprising letters and numbers.
Additional information	<i>Description</i>  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
Order code	
Navigation	 System → Information → Order code
Description	Shows the device order code.
User interface	Character string composed of letters, numbers and certain punctuation marks (e.g. /).
Factory setting	–
Additional information	<i>Description</i> 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 features in the product structure. The device features are not directly readable from the order code.  Uses of the order code ▪ To order an identical spare device. ▪ To identify the device quickly and easily, e.g. when contacting Endress+Hauser.
Firmware version	
Navigation	 System → Information → Firmware version
Description	Displays the device firmware version that is installed.
User interface	Character string in the format xx.yy.zz
Additional information	<i>User interface</i>  The Firmware version is also located: ▪ On the title page of the Operating instructions ▪ On the transmitter nameplate

Hardware version

Navigation	 System → Information → Hardware version
User interface	Character string comprising numbers, letters and special characters

Extended order code 1



Navigation	 System → Information → Ext. order cd. 1
Description	The extended order code is an alphanumeric code containing all information to identify the device and its options.
User interface	Character string
Factory setting	–
Additional information	<i>Description</i> The extended order code indicates the version of all the features of the product structure for the measuring device and thus uniquely identifies the measuring device.

Extended order code 2



Navigation	 System → Information → Ext. order cd. 2
Description	The extended order code is an alphanumeric code containing all information to identify the device and its options.  The extended order code can also be found on the nameplate of the sensor and transmitter in the "Ext. ord. cd." field.
User interface	Character string
Factory setting	–

Extended order code 3



Navigation	 System → Information → Ext. order cd. 3
Description	The extended order code is an alphanumeric code containing all information to identify the device and its options.  The extended order code can also be found on the nameplate of the sensor and transmitter in the "Ext. ord. cd." field.
User interface	Character string

Factory setting –

Checksum

Navigation  System → Information → Checksum

Description Checksum for Firmware version.

User interface Positive integer

3.6.8 "Software configuration" submenu

Navigation  System → Softw. config.

Activate SW option

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

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

User entry Max. 10-digit string of numbers.

Factory setting Depends on the software option ordered

Additional information *Description*

If a measuring device was ordered with an additional software option, the activation code is programmed in the device at the factory.

User entry

 To activate a software option subsequently, please contact your Endress+Hauser sales organization.

NOTE!

The activation code is linked to the serial number of the measuring device and varies according to the device and software option.

If an incorrect or invalid code is entered, this results in the loss of software options that have already been activated.

► Before you enter a new activation code, make a note of the current activation code from the parameter protocol.

► Enter the new activation code provided by Endress+Hauser when the new software option was ordered.

► If the code entered is incorrect or invalid, enter the old activation code from the parameter protocol.

- Have the Endress+Hauser sales organization check the new activation code remembering to specify the serial number or ask for the code again.

Example for a software option

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

Software option overview

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

Description Shows all enabled software options

User interface

- Heartbeat Verification
- Heartbeat Monitoring

"Firmware update" wizard

Depending on device and software interface, it is possible to update main software, sensor and display firmware.

Be sure to have a valid firmware package (e.g.:

Device_Name_BusType_Vxx.yy.zz_bbbb_pkgVuu.vv.ww.sfu) already available on your system.

A list of available firmware can be found on "www.endress.com" or asking to local service supplier.

If the firmware is validated, a further confirmation will be prompted before to start the update process.

It is always possible to cancel the firmware update process before final confirmation.

Navigation  System → Softw. config. → Firmware update

"Start update" wizard

Warning: Firmware update is irreversible. It is not always possible to downgrade the firmware after a successfully update to ensure compatibility.

Be sure to save configuration before to start the firmware update process.

After firmware confirmation a device restart can occur; be sure to consider all the related safety measures.

	<i>Navigation</i>	 System → Softw. config. → Firmware update → Start update
I have read the warning texts.		

Navigation	 System → Softw. config. → Firmware update → Start update → warning texts
Selection	Yes

"Device information" wizard

Warning: Firmware update is irreversible. It is not always possible to downgrade the firmware after a successfully update to ensure compatibility.

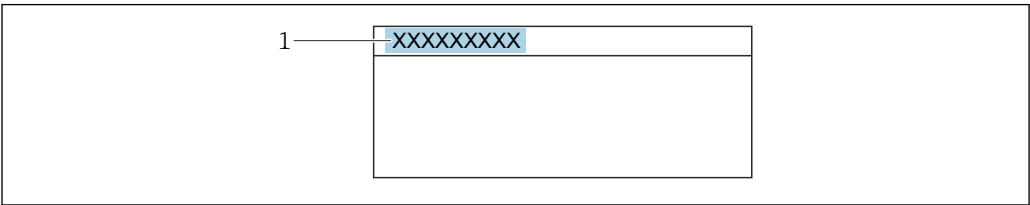
Be sure to save configuration before to start the firmware update process.

After firmware confirmation a device restart can occur; be sure to consider all the related safety measures.

Navigation  System → Softw. config. → Firmware update → Device info

Device tag

Navigation	 System → Softw. config. → Firmware update → Device info → Device tag
Description	Displays a unique name for the measuring point so it can be identified quickly within the plant. The name is displayed in the header.
User interface	Max. 32 characters, such as letters, numbers or special characters (e.g. @, %, /).
Additional information	<i>User interface</i>



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1 *Position of the header text on the display*

The number of characters displayed depends on the characters used.

Device name	
Navigation	 System → Softw. config. → Firmware update → Device info → Device name
Description	Displays the name of the transmitter. It can also be found on the nameplate of the transmitter.
User interface	Max. 32 characters such as letters or numbers.
Package version	
Navigation	 System → Softw. config. → Firmware update → Device info → Package version
Description	Current version of installed firmware package. The package is an '.sfu' extension file containing all needed device software components.
User interface	Positive integer
<i>"Select file" wizard</i> Select firmware update file to be transferred to the device. <i>Navigation</i>  System → Softw. config. → Firmware update → Select file	
File check status	
Navigation	 System → Softw. config. → Firmware update → Select file → File check st.
User interface	■ Active ■ Failed ■ Not done ■ Passed

"Performing verification" wizard

Navigation  System → Softw. config. → Firmware update → Perform.verific.

File validation status

Navigation  System → Softw. config. → Firmware update → Perform.verific. → File val. st.

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

"Finish" wizard

Caution: Firmware updates are irreversible.
Firmware update has been transferred successfully. Continue to start update.

Navigation  System → Softw. config. → Firmware update → Finish

I have read the warning texts. 

Navigation  System → Softw. config. → Firmware update → Finish → warning texts

Selection Yes

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