

Description of Device Parameters

Cerabar PMP51B

Process pressure measurement
HART

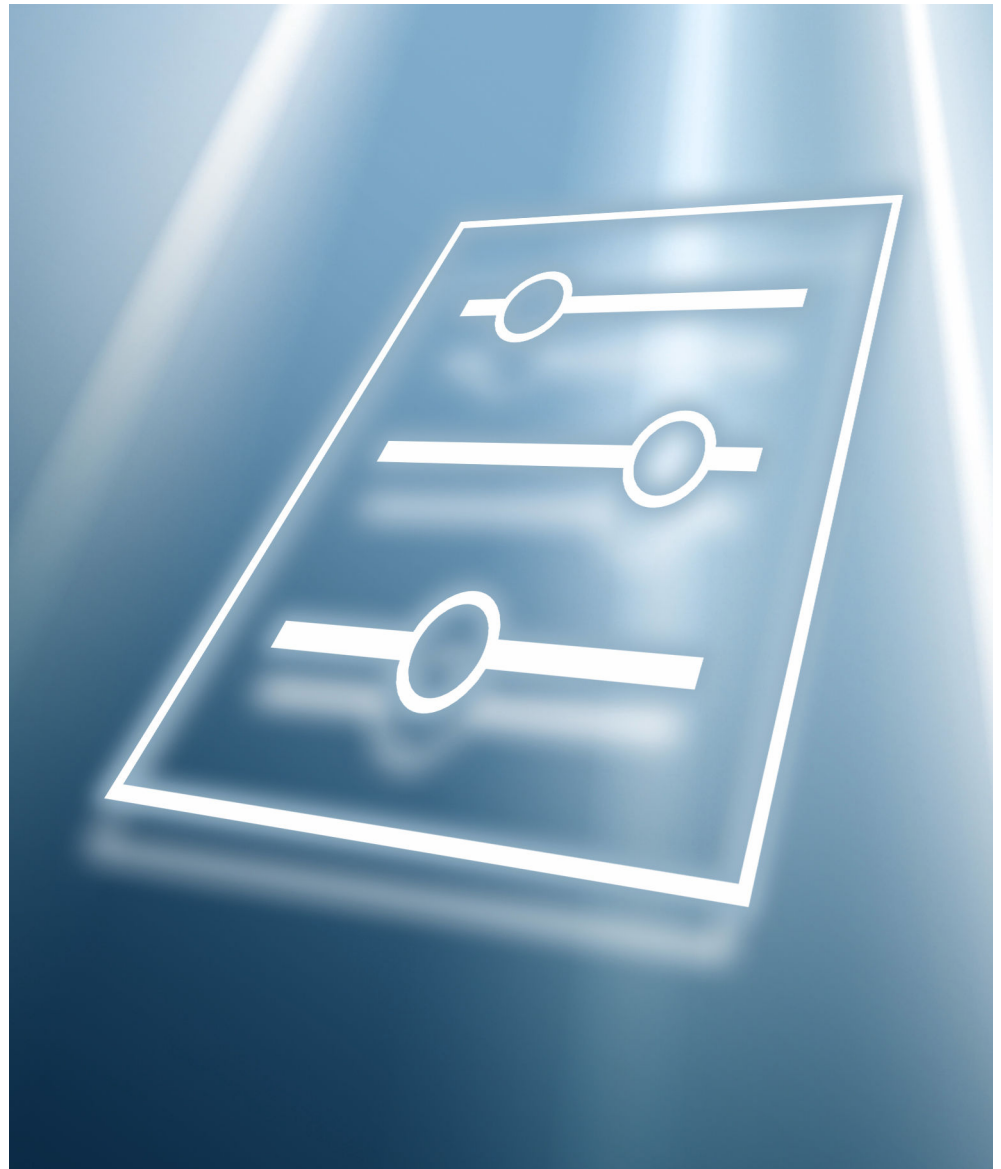


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1 About this document

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 audience

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



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
- Factory setting: Default setting on leaving the factory
- 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 on the Internet at: www.endress.com →
Download

1.5.2 Supplementary device-dependent documentation

Special Documentation

 The Special Documentation is available on the Internet at: 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 local display.

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


 The parameter description of the operating tool is contained in the operating tool.

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	<ul style="list-style-type: none"> ■ 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)


Access status display


Navigation	 System → Display → Access stat.disp
Prerequisite	A local display is provided.
Description	Displays the access authorization to the parameters via the local display.
User interface	<ul style="list-style-type: none"> ■ Operator ■ Maintenance

Additional information*Description*


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

 Access authorization can be modified via the **Enter access code** parameter.

 For the **Enter access code** parameter: See the "Disabling write protection via the access code" section of the Operating Instructions for the device.

 If additional write protection is active, this restricts the current access authorization even further.

User interface










 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.

3.1 "Guidance" menu

Navigation   Guidance

3.1.1 "Commissioning" wizard

Navigation   Guidance → Commissioning

Device tag		
Navigation	  Guidance → Commissioning → Device tag	
Description	Enter a unique name for the measuring point to identify the device quickly within the plant.	
User entry	Character string comprising numbers, letters and special characters (#32)	
Assign PV		
Navigation	  Guidance → Commissioning → Assign PV	
Description	Use this function to select a measured variable (HART device variable) for the primary dynamic variable (PV).	
Selection	<ul style="list-style-type: none"> ■ Pressure ■ Scaled variable 	
Assign SV		
Navigation	  Guidance → Commissioning → Assign SV	
Description	Use this function to select a measured variable (HART device variable) for the secondary dynamic variable (SV).	
Selection	<ul style="list-style-type: none"> ■ Pressure ■ Scaled variable ■ Sensor temperature ■ Sensor pressure ■ Electronics temperature ■ Terminal current * ■ Terminal voltage 1 * ■ Median of pressure signal * 	

* Visibility depends on order options or device settings

- Noise of pressure signal *
- Percent of range
- Loop current
- Not used

Additional information*Selection*

- **Sensor pressure** option
Sensor Pressure is the raw signal from sensor before damping and position adjustment.
- **Terminal current** option
The terminal current is the read-back current on terminal block.
- **Loop current** option
The loop current is the output current set by the applied pressure.

Damping**Navigation**

Guidance → Commissioning → Damping

Description

Enter damping constant.
The damping constant affects the speed at which the measured value reacts to pressure changes.

User entry

0 to 999.0 s

Pressure unit**Navigation**

Guidance → Commissioning → Pressure unit

Description

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

Selection*SI units*

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

US units

psi

Other units

- inH₂O
- inH₂O (4°C)
- mmH₂O
- mmH₂O (4°C)
- mH₂O
- mH₂O (4°C)
- ftH₂O
- inHg
- mmHg

Temperature unit**Navigation**

Guidance → Commissioning → Temperature unit



Description

Use this function to select the unit for the temperature.

* Visibility depends on order options or device settings

Selection	<i>SI units</i> <ul style="list-style-type: none"> ■ °C ■ K 	<i>US units</i> <ul style="list-style-type: none"> °F
Factory setting	Country-specific: <ul style="list-style-type: none"> ■ °C ■ °F 	
Additional information	<i>Selection</i>	



Zero adjustment

Navigation	  Guidance → Commissioning → 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	<ul style="list-style-type: none"> ■ No ■ Confirm


Pressure


Navigation	  Guidance → Commissioning → Pressure
-------------------	---

Output current transfer function

Navigation	  Guidance → Commissioning → Curr. trans.func
Description	<p>'Linear' The linear pressure signal is used for the current output. The flow must be calculated in the evaluation unit.</p> <p>'Square root - differential pressure only' The root flow signal is used for the current output. The 'Flow (square root)' current signal is indicated on the on-site display with a root symbol.</p>
Selection	<ul style="list-style-type: none"> ■ Linear ■ Square root *
Additional information	<i>Selection</i> <p>"Square root" option Is used when a linear output proportional to the flow is required. The flow calculation is done internally in the transmitter.</p>

* Visibility depends on order options or device settings

Scaled variable unit 


Navigation   Guidance → Commissioning → 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>
■ %	■ 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		

Custom-specific units
Free text

Free text 

Navigation   Guidance → Commissioning → Free text

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

Scaled variable transfer function
**Navigation**

Guidance → Commissioning → Scal. v. trans.

Description

'Linear'

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

'Square root'

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

'Table'

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

Selection

- Linear
- Square root *
- Table

Additional information*Selection***"Square root" option**

Is used when a linear output porportional to the flow is required. The flow calcaultion is done internally in the transmitter.

Table not available
Navigation

Guidance → Commissioning → Table not avail.

User interface

Character string comprising numbers, letters and special characters (#2)

Pressure value 1
**Navigation**

Guidance → Commissioning → 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

* Visibility depends on order options or device settings

Scaled variable value 1		
Navigation	  Guidance → Commissioning → Sc. var.value 1	
Description	Enter value for the first scaling point. This value is allocated to 'Pressure value 1'.	
User entry	Signed floating-point number	

Pressure value 2		
Navigation	  Guidance → Commissioning → 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 → 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 value output		
Navigation	  Guidance → Commissioning → Low.range outp	
Description	Depending of which variable has been selected as PV, define the related lower and upper range values. Assignment PV value to 4 mA and 20 mA.	
User entry	Signed floating-point number	

Pressure

Navigation   Guidance → Commissioning → Pressure



Upper range value output 

Navigation   Guidance → Commissioning → Upp.range outp


Description Depending of which variable has been selected as PV, define the related lower and upper range values.
Assignment PV value to 4 mA and 20 mA.



User entry Signed floating-point number

Scaled variable

Navigation   Guidance → Commissioning → Scaled variable

User interface Signed floating-point number

Current range output 

Navigation   Guidance → Commissioning → Cur.range outp


Description Define the current range used to transmit the measured or calculated value.
In brackets are indicated the “low saturation value” and the “high saturation value”.
If Measured value ≤ “low saturation”, the output current is set to “low saturation”.
If Measured value ≥ “high saturation”, the output current is set to “high saturation”.



Note:

Currents below 3.6 mA or above 21.5 mA can be used to signal an alarm.

Selection

- 4...20 mA (4... 20.5 mA)
- 4...20 mA NE (3.8...20.5 mA)
- 4...20 mA US (3.9...20.8 mA)

Failure behavior current output 

Navigation   Guidance → Commissioning → Fail.behav.out

Description Defines which current the output assumes in the case of an error.
Min: < 3.6 mA
Max: >21.5 mA

Selection

- Min.
- Max.





3.2 "Diagnostics" menu

Navigation  Diagnostics





3.2.1 "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	<p><i>User interface</i></p> <p> Additional pending diagnostic messages can be viewed in the Diagnostic list submenu.</p> <p><i>Example</i></p> <p>For the display format:  F271 Main electronic failure</p>





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	<p><i>User interface</i></p> <p> The diagnostic message can be viewed via the Actual diagnostics parameter (→  23).</p> <p><i>Example</i></p> <p>For the display format: 24d12h13m00s</p>



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


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	<p><i>User interface</i></p> <p> The diagnostic message can be viewed via the Previous diagnostics parameter (→  24).</p> <p><i>Example</i></p> <p>For the display format: 24d12h13m00s</p>

Operating time from restart

Navigation	  Diagnostics → Active diagnos. → Time fr. restart
Description	Shows the time the device has been in operation since the last device restart.
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 (\approx 27 years)


3.2.2 "Minimum/maximum values" submenu

Navigation  Diagnostics → Min/max val.


Pressure min

Navigation	 Diagnostics → Min/max val. → Pressure min
User interface	Signed floating-point number


Pressure max

Navigation	 Diagnostics → Min/max val. → Pressure max
User interface	Signed floating-point number


Counter limit underruns sensor Pmin

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

Counter limit overruns sensor Pmax


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

Counter underruns of user limit Pmin

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

User interface 0 to 65 535

Counter overruns of user limit Pmax

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

User interface 0 to 65 535


Reset user defined counters P and T

Navigation  Diagnostics → Min/max val. → Reset count. P T

Selection

- Cancel
- Confirm

Minimum sensor temperature

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


User interface -273.15 to 9 726.85 °C

Maximum sensor temperature

Navigation  Diagnostics → Min/max val. → Max. Sensor temp


User interface -273.15 to 9 726.85 °C

Counter limit overruns sensor Tmax

Navigation  Diagnostics → Min/max val. → Counter T > Tmax

User interface 0 to 65 535

Counter limit underruns sensor Tmin

Navigation  Diagnostics → Min/max val. → Counter T < Tmin

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

Counter overruns of user limit Tmax

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.


User interface 0.0 to 50.0 V

Maximum terminal voltage

Navigation  Diagnostics → Min/max val. → Max.term.voltage



User interface 0.0 to 50.0 V

Minimum electronics temperature

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

User interface Signed floating-point number


Maximum electronics temperature



Navigation	  Diagnostics → Min/max val. → Max.electr.temp.
User interface	Signed floating-point number

3.2.3 "Simulation" submenu


Navigation  Diagnostics → Simulation



Simulation



Navigation	  Diagnostics → Simulation → Simulation
Selection	<ul style="list-style-type: none"> ▪ Off ▪ Pressure ▪ Current output ▪ Diagnostic event simulation



Value pressure simulation




Navigation	  Diagnostics → Simulation → Value pressure
User entry	Signed floating-point number



Value current output



Navigation	  Diagnostics → Simulation → Val. curr.outp
Description	Defines the value of the simulated output current.
User entry	3.59 to 23 mA



Diagnostic event category



Navigation	 Diagnostics → Simulation → Event category
Description	Use this function to select the category of the diagnostic events that are displayed for the simulation in the Diagnostic event simulation parameter (→  29).

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



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 *Description*

 For the simulation, you can choose from the diagnostic events of the category selected in the **Diagnostic event category** parameter (→  28).



3.3 "Application" menu

Navigation  Application



3.3.1 "Measured values" submenu

Navigation  Application → Measured values



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

Terminal current

Navigation	  Application → Measured values → Terminal curr.
Description	Shows the current value of the current output which is currently measured.
User interface	0 to 30 mA

Electronics temperature

Navigation	  Application → Measured values → Electronics temp
User interface	Signed floating-point number

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 9726.85 °C

3.3.2 "Sensor" submenu

Navigation  Application → Sensor

"Sensor calibration" 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	<ul style="list-style-type: none">▪ No▪ Confirm	



Lower sensor trim		
Navigation	 Application → Sensor → Sensor cal. → LowerSensor trim	
User entry	Signed floating-point number	

Upper sensor trim		
Navigation	 Application → Sensor → Sensor cal. → UpperSensor trim	
User entry	Signed floating-point number	



"Sensor configuration" submenu

Navigation  Application → Sensor → Sensor conf.

Output current transfer function

Navigation	  Application → Sensor → Sensor conf. → Curr. trans.func
Description	<p>'Linear' The linear pressure signal is used for the current output. The flow must be calculated in the evaluation unit.</p> <p>'Square root - differential pressure only' The root flow signal is used for the current output. The 'Flow (square root)' current signal is indicated on the on-site display with a root symbol.</p>
Selection	<ul style="list-style-type: none"> ■ Linear ■ Square root *
Additional information	<p><i>Selection</i></p> <p>"Square root" option Is used when a linear output proportional to the flow is required. The flow calculation is done internally in the transmitter.</p>

Damping


Navigation	  Application → Sensor → Sensor conf. → Damping
Description	<p>Enter damping constant. The damping constant affects the speed at which the measured value reacts to pressure changes.</p>
User entry	0 to 999.0 s

* Visibility depends on order options or device settings

"Wet calibration" submenu

Navigation  Application → Sensor → Wet calibration

"Zero" wizard

Navigation  Application → Sensor → Wet calibration → Zero


Zero 


Navigation  Application → Sensor → Wet calibration → Zero → Zero


Selection

- No
- Confirm

Pressure

Navigation  Application → Sensor → Wet calibration → Zero → Pressure


Pressure value 1 

Navigation  Application → Sensor → Wet calibration → Zero → 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


Lower range value output 

Navigation  Application → Sensor → Wet calibration → Zero → Low.range outp

Description Depending of which variable has been selected as PV, define the related lower and upper range values.
Assignment PV value to 4 mA and 20 mA.

User entry Signed floating-point number

"Span" wizard

Navigation  Application → Sensor → Wet calibration → Span


Span 


Navigation  Application → Sensor → Wet calibration → Span → Span


Selection

- No
- Confirm

Pressure

Navigation  Application → Sensor → Wet calibration → Span → Pressure


Pressure value 2 

Navigation  Application → Sensor → Wet calibration → Span → 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

Upper range value output 

Navigation  Application → Sensor → Wet calibration → Span → Upp.range outp

Description Depending of which variable has been selected as PV, define the related lower and upper range values.
Assignment PV value to 4 mA and 20 mA.

User entry Signed floating-point number



3.3.3 "HART output" submenu

Navigation  Application → HART output

"Configuration" submenu

Navigation  Application → HART output → Configuration

HART address

Navigation   Application → HART output → Configuration → HART address



Description Define the HART address of the device.

User entry 0 to 63

Additional information

- The measured value can only be transmitted via the current value if the address is set to "0". The current is fixed at 4.0 mA for all other addresses (Multidrop mode).
- Only addresses in the range 0 to 15 are permitted for a system according to HART 5.0.
- All addresses in the range 0 to 63 are permitted for a system with HART 6.0 and higher.

HART short tag

Navigation   Application → HART output → Configuration → HART short tag

Description Defines the short tag for the measuring point.

Maximum length: 8 characters

Allowed characters: A-Z, 0-9, certain special characters

User entry Max. 8 characters: A to Z, 0 to 9 and certain special characters (e.g. punctuation marks, @, %).

Device tag

Navigation   Application → HART output → Configuration → Device tag

Description Enter a unique name for the measuring point to identify the device quickly within the plant.

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

No. of preambles

**Navigation**

Application → HART output → Configuration → No. of preambles

Description

Defines the number of preambles in the HART telegram.

User entry

5 to 20

Loop current mode

**Navigation**

Application → HART output → Configuration → Loop curr mode

Description

If Loop current mode is disabled, Multi-drop communication mode is activated. Multi-drop is a HART digital communication mode where multiple devices may share the same pair of wires for power and communications.
In this mode the output current is fixed.


Selection

- Disable
- Enable

3.4 "System" menu

Navigation  System

3.4.1 "Device management" submenu

Navigation  System → Device manag.



Device tag

Navigation   System → Device manag. → Device tag

Description Enter a unique name for the measuring point to identify the device quickly within 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
- SIL 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 (→  13) 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

Displays the counter for changes to the device parameters.

Additional information:

- If the value for a static parameter is changed when optimizing or configuring the parameter, the counter is incremented by 1. This is to enable tracking different parameter versions.
- When multiple parameters are changed simultaneously, e.g. when loading parameters into the device from an external source such as FieldCare, the counter may display a higher value. The counter cannot be reset, nor is it reset to a default value on performing a device reset.
- Once the counter has reached the value 65535, it restarts at 0.

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

Selection

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

3.4.2 "User management" submenu

Navigation  System → User manag.

User role

Navigation   System → User manag. → User role


Description Displays the access authorization to the parameters via the operating tool.

User interface


- Operator
- Maintenance
- Expert

Additional information *Description*


 Access authorization can be modified via the **Enter access code** parameter.

 If additional write protection is active, this restricts the current access authorization even further.

User interface

 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.

"Change user role" wizard

Navigation  System → User manag. → Change user role


Enter access code

Navigation  System → User manag. → Change user role → 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

"Change user role" wizard


Navigation  System → User manag. → Change user role

Start

Navigation  System → User manag. → Change user role → Start

User interface Character string comprising numbers, letters and special characters (#14)

Password

Navigation  System → User manag. → Change user role → 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)

Status password entry


Navigation  System → User manag. → Change user role → 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

"Define password" wizard

Navigation  System → User manag. → Define password

Start

Navigation  System → User manag. → Define password → Start

User interface Character string comprising numbers, letters and special characters (#14)

New password

Navigation  System → User manag. → Define password → New password

Description If the factory setting is not changed, the device works without write-protection, using userrole 'Maintenance'. The configuration data of the device can always be modified. Once the password has been defined, write-protected devices can only be set to maintenance mode if a correct password is entered in the parameter 'Password'. A new password is valid, after it has been confirmed within the parameter 'Confirm new password'. Any new password must consist of at least 4 and a maximum of 16 characters and can contain letters and numbers.

User entry Character string comprising numbers, letters and special characters (#16)

Status password entry

Navigation   System → User manag. → Define password → 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

Confirm new password

**Navigation**

System → User manag. → Define password → Conf. new passw.

Description

Enter the new password again to confirm.

User entry

Character string comprising numbers, letters and special characters (#16)

"Change password" wizard*Navigation* System → User manag. → Change password

Start

Navigation

System → User manag. → Change password → Start

User interface

Character string comprising numbers, letters and special characters (#14)

Old password

**Navigation**

System → User manag. → Change password → Old password

Description

Enter the current password, to subsequently change the existing password.

User entry

Character string comprising numbers, letters and special characters (#16)

Status password entry

Navigation

System → User manag. → Change password → 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. → Change password → New password

Description If the factory setting is not changed, the device works without write-protection, using userrole 'Maintenance'. The configuration data of the device can always be modified. Once the password has been defined, write-protected devices can only be set to maintenance mode if a correct password is entered in the parameter 'Password'. A new password is valid, after it has been confirmed within the parameter 'Confirm new password'. Any new password must consist of at least 4 and a maximum of 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. → Change password → Conf. new passw.

Description Enter the new password again to confirm.

User entry Character string comprising numbers, letters and special characters (#16)

"Delete password" wizard


Navigation  System → User manag. → Delete password

Start

Navigation  System → User manag. → Delete password → Start

User interface Character string comprising numbers, letters and special characters (#14)

Old password 

Navigation  System → User manag. → Delete password → Old password

Description Enter the current password, to subsequently change the existing password.

User entry Character string comprising numbers, letters and special characters (#16)

Status password entry


Navigation  System → User manag. → Delete password → 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

"Reset password" wizard

Navigation  System → User manag. → Reset password

Start

Navigation  System → User manag. → Reset password → Start

User interface Character string comprising numbers, letters and special characters (#14)

Reset password

Navigation  System → User manag. → Reset password → Reset password

Description Enter a code to reset the current password.
 CAUTION: Use this function only if the current password is lost. Contact your Endress+Hauser Sales Center.

User entry Character string comprising numbers, letters and special characters (#16)

Status password entry

Navigation  System → User manag. → Reset password → 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

"Logout" wizard

Navigation  System → User manag. → Logout

Start

Navigation

 System → User manag. → Logout → Start

User interface

Character string comprising numbers, letters and special characters (#14)

User role

Navigation

 System → User manag. → Logout → User role

Description

Displays the access authorization to the parameters via the operating tool.


User interface

- Operator
- Maintenance
- Expert


Additional information

Description

 Access authorization can be modified via the **Enter access code** parameter.

 If additional write protection is active, this restricts the current access authorization even further.



User interface

 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.



3.4.3 "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	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ 1 value, max. size ■ 1 bargraph + 1 value ■ 2 values

Additional information	<p><i>Description</i></p> <p>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.</p> <ul style="list-style-type: none">  The Value 1 display parameter (→  48) to Value 4 display parameter (→  49) 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.
-------------------------------	---

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	<ul style="list-style-type: none"> ▪ Pressure ▪ Scaled variable ▪ Current output ▪ Sensor temperature ▪ Percent of range
Additional information	<p><i>Description</i></p> <p>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.</p> <p> The Format display parameter (→  47) is used to specify how many measured values are displayed simultaneously and how.</p> <p><i>Dependency</i></p> <p> The unit of the displayed measured value is taken from the System units submenu.</p>

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	<ul style="list-style-type: none"> ▪ None ▪ Pressure ▪ Scaled variable ▪ Current output ▪ Sensor temperature ▪ Percent of range

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 (→  47) 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 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
- Current output
- Sensor temperature
- Percent of range

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 (→  47) 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.

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
- Current output
- Sensor temperature
- Percent of range




Additional information	<p><i>Description</i></p> <p>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.</p> <p> The Format display parameter (→  47) is used to specify how many measured values are displayed simultaneously and how.</p> <p><i>Selection</i></p> <p> The unit of the displayed measured value is taken from the System units submenu.</p>
-------------------------------	---

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	<p> Set the contrast via the push-buttons:</p> <ul style="list-style-type: none"> ▪ Weaker: Press the  and  buttons simultaneously ▪ Stronger: Press the  and  buttons simultaneously

3.4.4 "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"

3.4.5 "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 (#32)

Serial number	
Navigation	 System → Information → Serial number
Description	<p>Displays the serial number of the measuring device.</p> <p> The number can be found on the nameplate of the sensor and transmitter.</p>
User interface	Max. 11-digit character string comprising letters and numbers.
Additional information	<p><i>Description</i></p> <p> Uses of the serial number</p> <ul style="list-style-type: none"> ▪ 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	<p><i>Description</i></p> <p>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.</p> <p> Uses of the order code</p> <ul style="list-style-type: none"> ▪ 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	<p><i>User interface</i></p> <p> The Firmware version is also located:</p> <ul style="list-style-type: none"> ▪ On the title page of the Operating instructions ▪ On the transmitter nameplate


Hardware version

Navigation	 System → Information → Hardware version
Description	Displays the hardware revision of the module.
User interface	Max. 16 characters, such as letters, numbers or special characters (e.g. @, %, /)

XML build number

Navigation	 System → Information → XML build no.
User interface	Positive integer

Checksum

Navigation	 System → Information → Checksum
User interface	Positive integer

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