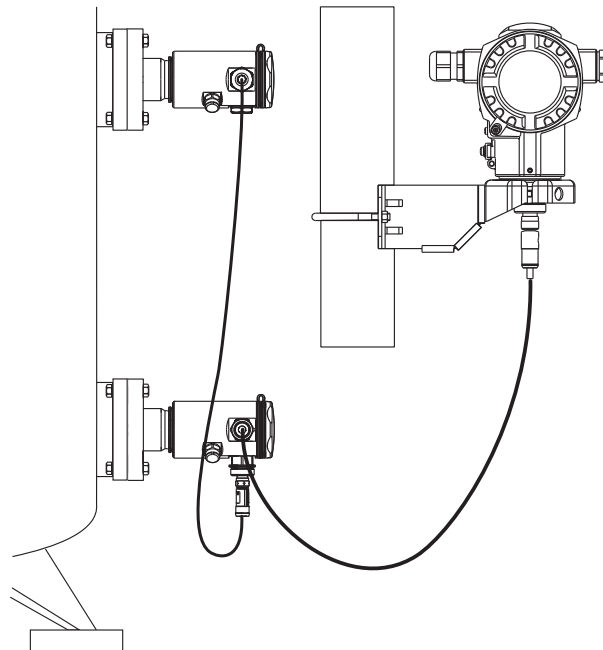
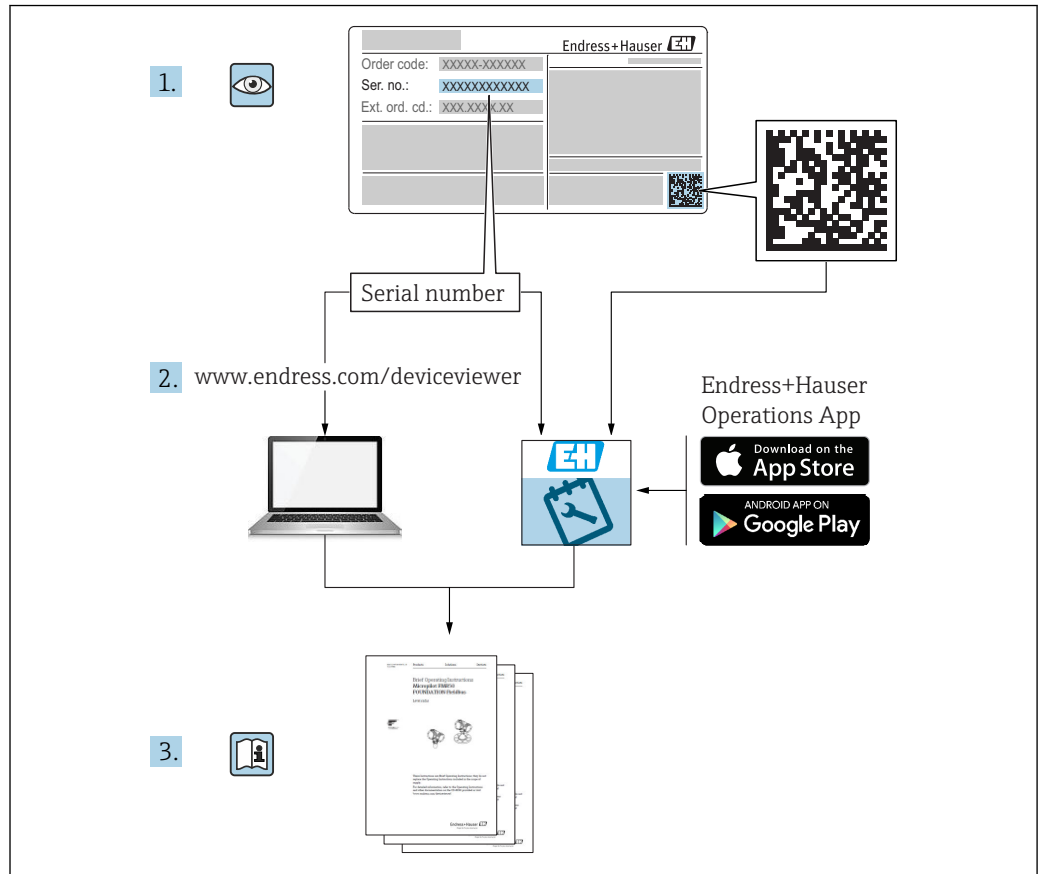


# Description of Device Parameters

## Deltabar FMD71, FMD72

Level measurement with electronic differential pressure  
Electronic differential pressure transmitter with ceramic  
and metal sensors





A0023555

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# 1 Document information

## 1.1 Document function






The document provides a detailed explanation of each individual parameter in the operating menu. The description is aimed at those who work with the device over the entire life cycle and perform specific configurations.

## 1.2 Symbols used




### 1.2.1 Safety symbols






Symbol	Meaning
	<b>DANGER!</b> This symbol alerts you to a dangerous situation. Failure to avoid this situation will result in serious or fatal injury.
	<b>WARNING!</b> This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in serious or fatal injury.
	<b>CAUTION!</b> This symbol alerts you to a dangerous situation. Failure to avoid this situation can result in minor or medium injury.
	<b>NOTE!</b> This symbol contains information on procedures and other facts which do not result in personal injury.

### 1.2.2 Electrical symbols

Symbol	Meaning
	Direct current
	Alternating current
	Direct current and alternating current
	<b>Ground connection</b> A grounded terminal which, as far as the operator is concerned, is grounded via a grounding system.
	<b>Protective Earth (PE)</b> A terminal which must be connected to ground prior to establishing any other connections.  The ground terminals are situated inside and outside the device: <ul style="list-style-type: none"> <li>▪ Inner ground terminal: Connects the protective earth to the mains supply.</li> <li>▪ Outer ground terminal: Connects the device to the plant grounding system.</li> </ul>

### 1.2.3 Symbols for certain types of information


Symbol	Meaning
	<b>Permitted</b> Procedures, processes or actions that are permitted.
	<b>Preferred</b> Procedures, processes or actions that are preferred.
	<b>Forbidden</b> Procedures, processes or actions that are forbidden.

Symbol	Meaning
	<b>Tip</b> Indicates additional information.
	Reference to documentation
	Reference to page
	Reference to graphic
	Visual inspection

### 1.2.4 Symbols in graphics

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

## 1.3 Documentation

 The document types listed are available:  
In the Download Area of the Endress+Hauser Internet site: [www.endress.com](http://www.endress.com) →  
Download

### 1.3.1 Technical Information (TI): planning aid for your device

TI01033P:

The document contains all the technical data on the device and provides an overview of the accessories and other products that can be ordered for the device.

### 1.3.2 Brief Operating Instructions (KA): getting the 1st measured value quickly

KA01105P:

The Brief Operating Instructions contain all the essential information from incoming acceptance to initial commissioning.

### 1.3.3 Operating Instructions (BA): your comprehensive reference

BA01044P:

These Operating Instructions contain all the information that is required in various phases of the life cycle of the device: from product identification, incoming acceptance and storage, to mounting, connection, operation and commissioning through to troubleshooting, maintenance and disposal.

### 1.3.4 Description of Device Parameters (GP): reference for your parameters

GP01013P:


The document provides a detailed explanation of each individual parameter in the operating menu. The description is aimed at those who work with the device over the entire life cycle and perform specific configurations.

### 1.3.5 Safety Instructions (XA)

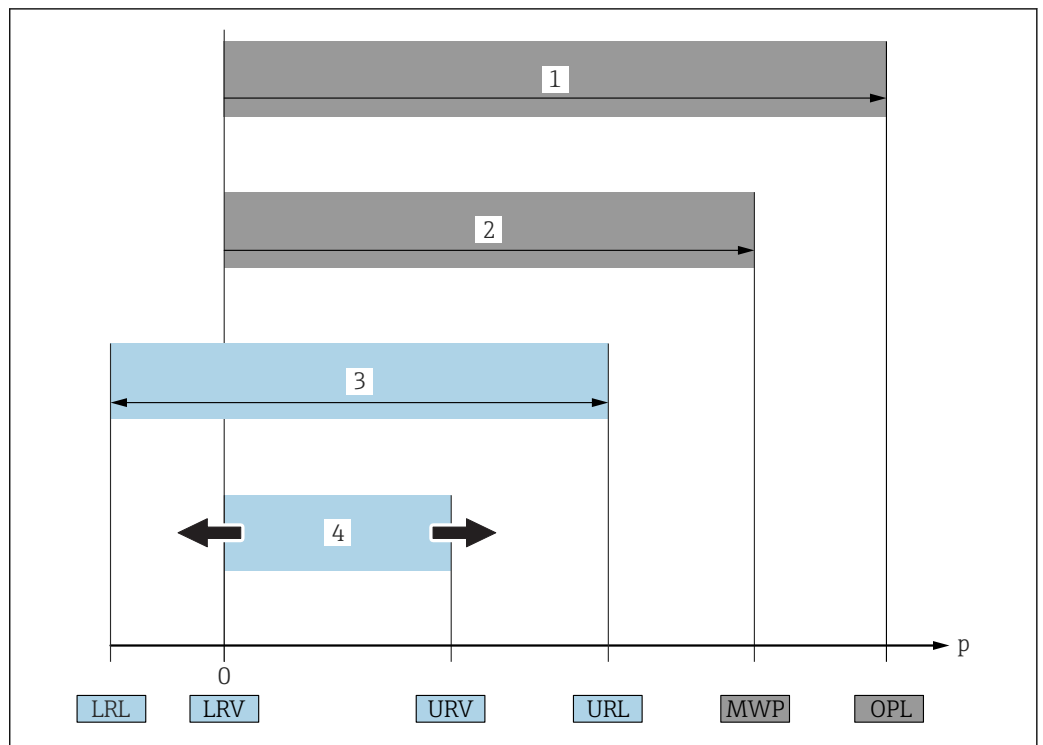
Safety Instructions (XA) are supplied with the device depending on the approval. These instructions are an integral part of the Operating Instructions.

Device	Directive	Documentation	Option <sup>1)</sup>
FMD71, FMD72	ATEX II 1/2G Ex ia IIC T6 Ga/Gb	XA00619P	BA
FMD71, FMD72	ATEX II 1/2G Ex d [ia] IIC T6 Ga/Gb	XA00620P	BC
FMD71, FMD72	ATEX II 3G Ex nA IIC T6 GC	XA00621P	BD
FMD71, FMD72	IEC Ex ia IIC T6 Ga/Gb	XA00622P	IA
FMD71, FMD72	IEC Ex d [ia] IIC T6 Ga/Gb	XA00623P	IB
FMD71, FMD72	CSA General Purpose	-	CD
FMD71, FMD72	NEPSI Ex ia IIC T4/T6 Ga/Gb	XA01352P	NA
FMD71, FMD72	NEPSI Ex d [ia] IIC T4/T6 Ga/Gb	XA01353P	NB
FMD71, FMD72	INMETRO Ex ia IIC T6...T4 Ga/Gb	XA01378P	MA
FMD71, FMD72	INMETRO Ex d [ia] IIC T6...T4 Ga/Gb	XA01379P	MC
FMD71, FMD72	EAC Ga/Gb Ex ia IIC T6...T4	XA01594P	GA
FMD71, FMD72	EAC Ga/Gb Ex d [ia] IIC T6...T4 X	XA01595P	GB
FMD71	FM C/US IS Cl.I Div.1 Gr.A-D, AEx ia, Zone 0,1,2	XA00628P	FA
FMD71	FM C/US XP AIS Cl.I Div.1 Gr.A-D, Exd [ia] Zone 0,1,2	XA00629P	FB
FMD71	CSA C/US XP Cl.I Div.1 Gr.A-D, Ex d [ia], Zone 0,1,2	XA00631P	CB
FMD71	FM C/US NI Cl.I Div.2 Gr.A-D, Zone 2	XA00668P	FD
FMD71	CSA C/US NI, Cl.I Div. 2, Gr.A-D Cl.I, Zone 2, IIC	XA00670P	CC
FMD71	CSA C/US IS Cl.I Div.1 Gr.A-D, Ex ia Zone 0,1,2	XA00630P	CA
FMD72	CSA C/US IS Cl.I Div.1 Gr.A-D, Ex ia Zone 0,1,2	XA00626P	CA
FMD72	CSA C/US XP Cl.I Div.1 Gr.A-D, Ex d [ia], Zone 0,1,2	XA00627P	CB
FMD72	CSA C/US NI, Cl.I Div.2 Gr.A-D, Zone 2	XA00671P	CC
FMD72	FM C/US IS Cl.I Div.1 Gr.A-D, AEx ia, Zone 0,1,2	XA00624P	FA
FMD72	FM C/US XP AIS Cl.I Div.1 Gr.A-D, Exd [ia] Zone 0,1,2	XA00625P	FB
FMD72	FM C/US NI Cl.I Div.2 Gr.A-D, Zone 2	XA00669P	FD

1) Product Configurator order code for "Approval"

 The nameplate provides information on the Safety Instructions (XA) that are relevant for the device.

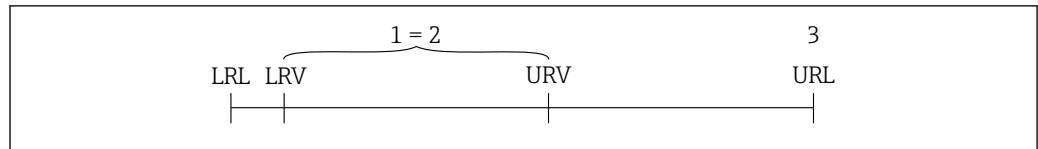
### 1.4 Terms and abbreviations



A0029505

Position	Term/ abbreviation	Explanation
1	OPL	The OPL (over pressure limit = sensor overload limit) for the measuring device depends on the lowest-rated element, with regard to pressure, of the selected components, i.e. the process connection has to be taken into consideration in addition to the measuring cell. Also observe pressure-temperature dependency. For the relevant standards and additional notes, see the "Pressure specifications" section . The OPL may only be applied for a limited period of time.
2	MWP	The MWP (maximum working pressure) for the sensors depends on the lowest-rated element, with regard to pressure, of the selected components, i.e. the process connection has to be taken into consideration in addition to the measuring cell. Also observe pressure-temperature dependency. For the relevant standards and additional notes, see the "Pressure specifications" section . The MWP may be applied at the device for an unlimited period. The MWP can also be found on the nameplate.
3	Maximum sensor measuring range	Span between LRL and URL This sensor measuring range is equivalent to the maximum calibratable/ adjustable span.
4	Calibrated/ adjusted span	Span between LRV and URV Factory setting: 0 to URL Other calibrated spans can be ordered as customized spans.
p	-	Pressure
-	LRL	Lower range limit
-	URL	Upper range limit
-	LRV	Lower range value
-	URV	Upper range value
-	TD (Turn down)	Turn down Example - see the following section.

## 1.5 Turn down calculation



A0029545

- 1 Calibrated/adjusted span
- 2 Zero point-based span
- 3 URL sensor

### Example

- Sensor: 10 bar (150 psi)
- Upper range value (URL) = 10 bar (150 psi)
- Calibrated/adjusted span: 0 to 5 bar (0 to 75 psi)
- Lower range value (LRV) = 0 bar (0 psi)
- Upper range value (URV) = 5 bar (75 psi)

Turn down (TD):

$$TD = \frac{URL}{|URV - LRV|}$$

$$TD = \frac{10 \text{ bar (150 psi)}}{|5 \text{ bar (75 psi)} - 0 \text{ bar (0 psi)}|} = 2$$

In this example, the TD is 2:1.  
This span is based on the zero point.

## 1.6 Registered trademarks

### 1.6.1 HART®

Registered trademark of the FieldComm Group, Austin, USA



## 2 Operation options

### 2.1 Operation with an operating menu

#### 2.1.1 Operation concept

Operation with an operating menu is based on an operation concept with "user roles" .

User role	Meaning
Operator	Operators are responsible for the devices during normal "operation". This is usually limited to reading process values either directly at the device or in a control room. If the work with the devices extends beyond value read-off tasks, the tasks involve simple, applicationspecific functions that are used in operation. Should an error occur, these users simply forward the information on the errors but do not intervene themselves.
Maintenance	Service engineers usually work with the devices in the phases following device commissioning. They are primarily involved in maintenance and troubleshooting activities for which simple settings have to be made at the device. Technicians work with the devices over the entire life cycle of the product. Thus, commissioning and advanced settings and configurations are some of the tasks they have to carry out.
Expert	Experts work with the devices over the entire life cycle of the device, but, at times, have high device requirements. Individual parameters/functions from the overall functionality of the devices are required for this purpose time and again. In addition to technical, process-oriented tasks, experts can also perform administrative tasks (e.g. user administration). "Experts" can access the entire parameter set.

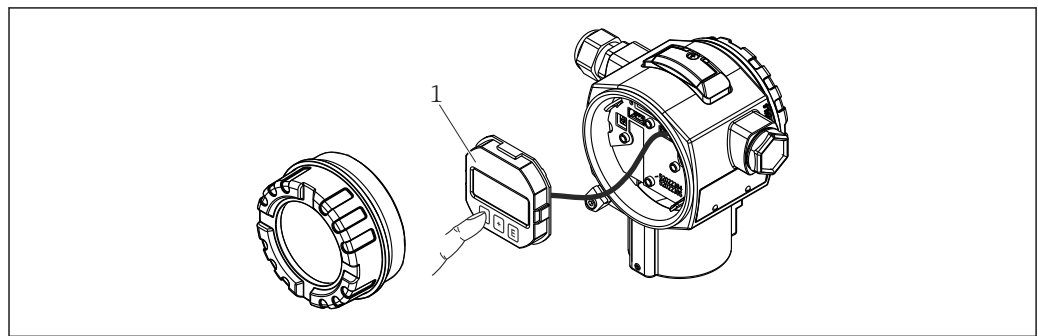
### 2.2 Structure of the operating menu

User role	Submenu	Meaning/use
Operator	Language	Only consists of the "Language" parameter (000) where the operating language for the device is specified. The language can always be changed even if the device is locked.
Operator	Display/ operat.	Contains parameters that are needed to configure the measured value display (selecting the values displayed, display format, display contrast, etc.). With this submenu, users can change the measured value display without affecting the actual measurement.
Maintenance	Setup	Contains all the parameters that are needed to commission measuring operations. This submenu has the following structure: <ul style="list-style-type: none"> <li>▪ <b>Standard setup parameters</b> A wide range of parameters, which can be used to configure a typical application, is available at the start. The measuring mode selected determines which parameters are available. After making settings for all these parameters, the measuring operation should be completely configured in the majority of cases.</li> <li>▪ <b>"Extended setup" submenu</b> The "Extended setup" submenu contains additional parameters for more indepth configuration of the measurement operation to convert the measured value and to scale the output signal. This menu is split into additional submenus depending on the measuring mode selected.</li> </ul>

User role	Submenu	Meaning/use
Maintenance	Diagnosis	<p>Contains all the parameters that are needed to detect and analyze operating errors. This submenu has the following structure:</p> <ul style="list-style-type: none"> <li>▪ <b>Diagnostic list</b> Contains up to 10 error messages currently pending.</li> <li>▪ <b>Event logbook</b> Contains the last 10 error messages (no longer pending).</li> <li>▪ <b>Instrument info</b> Contains information on the device identification.</li> <li>▪ <b>Measured values</b> Contains all the current measured values</li> <li>▪ <b>Simulation</b> Is used to simulate pressure, level, current and alarm/warning.</li> <li>▪ <b>Reset</b></li> <li>▪ <b>Sensor LP</b></li> <li>▪ <b>Sensor HP</b></li> </ul>
Expert	Expert	<p>Contains all the parameters of the device (including those in one of the submenus). The "Expert" submenu is structured by the function blocks of the device. It thus contains the following submenus:</p> <ul style="list-style-type: none"> <li>▪ <b>System</b> Contains all the device parameters that neither affect measurement nor integration into a distributed control system.</li> <li>▪ <b>Measurement</b> Contains all the parameters for configuring the measurement.</li> <li>▪ <b>Output</b> Contains all the parameters for configuring the current output.</li> <li>▪ <b>Communication</b> contains all parameters for configuring the HART interface.</li> <li>▪ <b>Diagnosis</b> Contains all the parameters that are needed to detect and analyze operating errors.</li> </ul>

## 2.3 Operating options

### 2.3.1 Local operation



1 Display and operating module with push buttons. Cover must be opened for operation.

## 2.4 Operating the device using onsite display (optional)

A 4-line liquid crystal display (LCD) is used for display and operation. The onsite display shows measured values, dialog text as well as fault and notice messages in plain text, thereby supporting the user in every stage of operation.

The display can be removed for easy operation.

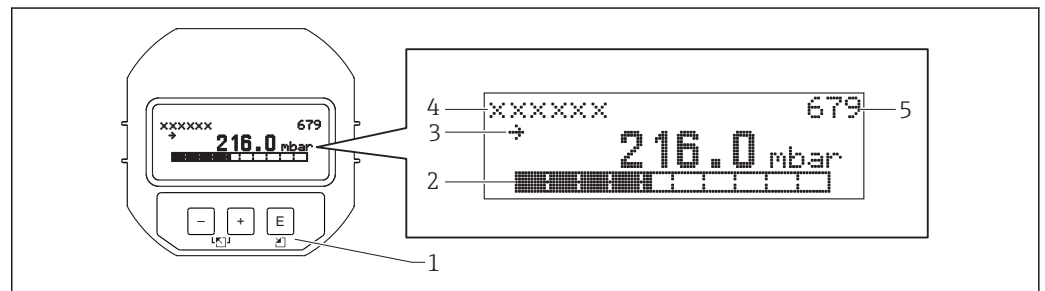
The device display can be turned in 90° steps.

Depending on the installation position of the device, this makes it easy to operate the device and read the measured value.

Functions:

- 8-digit measured value display including sign and decimal point, bargraph for 4 to 20 mA HART as current display.
- Simple and complete menu guidance due to breakdown of parameters into several levels and groups.
- Each parameter is given a 3-digit ID number for easy navigation.
- Option for configuring the display according to individual requirements and preferences, such as language, alternating display, display of other measured values such as sensor temperature, contrast setting.
- Comprehensive diagnostic functions (fault and warning message, peak-hold indicators, etc.).
- Quick and safe commissioning

### 2.4.1 Overview



A0016498

- 1 Operating keys
- 2 Bargraph
- 3 Symbol
- 4 Header
- 5 Parameter ID number

### 2.4.2 Setting the contrast on the display module

- $\oplus$  and  $\boxminus$  (press simultaneously): increases the contrast.
- $\ominus$  and  $\boxplus$  (press simultaneously): decreases the contrast.


### 2.4.3 Symbols on the onsite display

The following tables show the icons that can be used on the local display. Four symbols may appear at the same time.


#### Error symbols

Symbol	Meaning
<b>S</b> <small>A0012088</small>	<b>Error message "Out of specification"</b> The device is being operated outside its technical specifications (e.g. during startup or cleaning).
<b>C</b> <small>A0012100</small>	<b>Error message "Service mode"</b> The device is in service mode (e.g. during a simulation).
<b>M</b> <small>A0012101</small>	<b>Error message "Maintenance required"</b> Maintenance is required. The measured value remains valid.
<b>F</b> <small>A0012086</small>	<b>Error message "Failure detected"</b> An operating error has occurred. The measured value is no longer valid.

### Display symbols for locking status









Symbol	Meaning
	<b>Lock symbol</b> The operation of the device is locked. To unlock device, see "Unlocking/locking configuration" section.

### Display symbols for communication

Symbol	Meaning
	<b>Communication symbol</b> Data transfer via communication





## 2.4.4 Navigation and selection from list

The operating keys are used to navigate through the operating menu and to select an option from a picklist.

Operating key(s)	Meaning
 A0017879	<ul style="list-style-type: none"> <li>Navigate downwards in the picklist</li> <li>Edit the numerical values and characters within a function</li> </ul>
 A0017880	<ul style="list-style-type: none"> <li>Navigate upwards in the picklist</li> <li>Edit the numerical values and characters within a function</li> </ul>
 A0017881	<ul style="list-style-type: none"> <li>Confirm entry</li> <li>Jump to the next item</li> <li>Selection of a menu item and activation of edit mode</li> </ul>
 and  A0017879      A0017881	Contrast setting of onsite display: darker
 A0017880	Contrast setting of onsite display: brighter
 and  A0017879      A0017880	<b>ESC functions:</b> <ul style="list-style-type: none"> <li>Exit edit mode for a parameter without saving the changed value.</li> <li>You are in a menu at a selection level. Each time you press the keys simultaneously, you go up a level in the menu.</li> </ul>

## 2.4.5 Navigation examples

### Parameters with a picklist

	Language	000	Software operation
1	✓ German Spanish		"English" is set as the menu language (default value). A ✓ in front of the menu text indicates the option that is currently active.
2	German ✓ Spanish		Select the menu language "Spanish" using  or  .
3	✓ Spanish German		Confirm your selection with  . A ✓ in front of the menu text indicates the option that is currently active ("Spanish" is the language selected). Use  to exit edit mode for the parameter.

### Accepting the pressure present

Example: setting position adjustment.

Menu path: Main menu → Setup → Pos. zero adjust

	Pos. zero adjust 007	Software operation
1	<input checked="" type="checkbox"/> Cancel <input type="checkbox"/> Confirm	The pressure for position adjustment is present at the device.
2	<input type="checkbox"/> Cancel <input checked="" type="checkbox"/> Confirm	Use <input type="checkbox"/> or <input type="checkbox"/> to switch to the "Confirm" option. The active option is highlighted in black.
3	Adjustment has been accepted!	Use the <input type="checkbox"/> key to accept the applied pressure as a position adjustment. The device confirms the adjustment and goes back to the "Pos. zero adjust" parameter.
4	<input checked="" type="checkbox"/> Cancel <input type="checkbox"/> Confirm	Use <input type="checkbox"/> to exit edit mode for the parameter.

### User-definable parameters

Example: setting parameter "Set URV (014)" from 100 mbar (1.5 psi) to 50 mbar (0.75 psi).

Menu path: Setup → Extended setup → Current output → Set URV

	Set URV 014	Software operation
1	<div style="border: 1px solid black; display: inline-block; padding: 2px;">1 0 0 . 0 0 0</div> mbar	The onsite display shows the parameter to be changed. The "mbar" unit is defined in another parameter and cannot be changed here.
2	<div style="border: 1px solid black; display: inline-block; padding: 2px;">1 0 0 . 0 0 0</div> mbar	Press <input type="checkbox"/> or <input type="checkbox"/> to get to edit mode. The first digit is highlighted in black.
3	<div style="border: 1px solid black; display: inline-block; padding: 2px;">5 0 0 . 0 0 0</div> mbar	Use the <input type="checkbox"/> key to change "1" to "5". Press the <input type="checkbox"/> key to confirm "5". Cursor jumps to the next position. Use the <input type="checkbox"/> key to confirm (second position).
4	<div style="border: 1px solid black; display: inline-block; padding: 2px;">5 0 0 . 0 0 0</div> mbar	The third digit is highlighted in black and can now be edited.
5	<div style="border: 1px solid black; display: inline-block; padding: 2px;">5 0 ↵ . 0 0 0</div> mbar	Use the <input type="checkbox"/> key to change to the "↵" symbol. Use <input type="checkbox"/> to save the new value and exit edit mode. See next graphic.
6	<div style="border: 1px solid black; display: inline-block; padding: 2px;">5 0 . 0 0 0</div> mbar	The new value for the full scale value is 50.0 mbar (0.75 psi). Use <input type="checkbox"/> to exit edit mode for the parameter. Use <input type="checkbox"/> or <input type="checkbox"/> to return to edit mode.

## 2.5 Operation using Endress+Hauser operating program

The FieldCare operating program is an Endress+Hauser asset management tool based on FDT technology. With FieldCare, you can configure all Endress+Hauser devices as well as devices from other manufacturers that support the FDT standard.

Hardware and software requirements can be found on the Internet:

[www.de.endress.com](http://www.de.endress.com) → Search: FieldCare → FieldCare → Technical data.

**FieldCare supports the following functions:**

- Configuration of transmitters in online/offline mode
- Loading and saving device data (upload/download)
- Documentation of the measuring point



## 2.6 Direct access to parameters

The parameters can only be accessed directly via the "Expert" user role.

---

### Direct access (119)

---


<b>Navigation</b>	  Expert → Direct access
<b>Read permission</b>	Operator/Service engineers/Expert
<b>Write permission</b>	Expert
<b>Description</b>	Enter the direct access code to go directly to a parameter.
<b>User entry</b>	Enter the desired parameter code.
<b>Factory setting</b>	0
<b>Note</b>	For direct access, it is not necessary to enter leading zeros.


## 2.7 Locking/unlocking operation

Once you have entered all the parameters, you can lock your entries against unauthorized and undesired access.

**You have the following options for locking/unlocking operation:**

- Via the DIP switch on the electronic insert, locally at the device.
- Via the local display (optional)
- Via communication e.g. FieldCare and HART handheld device.

The  symbol on the onsite display indicates that operation is locked. Parameters which refer to how the display appears, e.g. "Language" and "Display contrast", can still be altered.

 If operation is locked by means of the DIP switch, you can only unlock operation again by means of the DIP switch. If operation is locked by means of the onsite display or remote operation e.g. FieldCare, you can unlock operation either using the onsite display or remote operation.



The "Operator code" parameter is used to lock/unlock the device.

The parameters can only be accessed directly via the "Expert" user role.

---

### Operator code (021)

---


<b>Navigation</b>	  Setup → Extended setup → Operator code
<b>Read permission</b>	Operator/Service engineers/Expert
<b>Write permission</b>	Operator/Service engineers/Expert

<b>Description</b>	Use this function to enter a code to lock or unlock operation.
<b>User entry</b>	<ul style="list-style-type: none"> <li>■ To lock: Enter a number ≠ the release code (value range: 1 to 9999).</li> <li>■ To unlock: Enter the release code.</li> </ul>
<b>Factory setting</b>	0
<b>Note</b>	<p>The release code is "0" in the order configuration. Another release code can be defined in the "Code definition" parameter. If the user has forgotten the release code, the release code can be made visible by entering the number "5864".</p> <p>The release code is defined in the "Code definition" parameter.</p>


---


### Code definition (023)

---

<b>Navigation</b>	 Setup → Extended setup → Code definition
<b>Read permission</b>	Operator/Service engineers/Expert
<b>Write permission</b>	Operator/Service engineers/Expert
<b>Description</b>	Use this function to enter a release code with which the device can be unlocked.
<b>User entry</b>	A number from 0 to 9999
<b>Factory setting</b>	0

## 2.8 Resetting to factory settings (reset)

 By entering a certain code, you can completely or partially reset the entries for the parameters to the factory settings <sup>1)</sup>. Enter the code via the "Reset" parameter (menu path: "Diagnosis" → "Reset").

There are various reset codes for the device. The following table illustrates which parameters are reset by the particular reset codes. To perform a reset, operation must be unlocked (see "Locking/unlocking operation" section ). →  14


Any customer-specific configuration carried out at the factory is not affected by a reset (customer-specific configuration remains). If you want to change the customer-specific configuration carried out at the factory, please contact Endress+Hauser Service.

---

1) . The factory setting for the individual parameters is specified in the parameter description

Reset code <sup>1)</sup>	Description and effect
62	<b>PowerUp reset (warm start)</b> <ul style="list-style-type: none"> <li>▪ The device is restarted.</li> <li>▪ Data is read back anew from the EEPROM (process is reinitialized).</li> <li>▪ Any simulation which may be running is ended.</li> </ul>
333	<b>User reset</b> <ul style="list-style-type: none"> <li>▪ This code resets all the parameters apart from: <ul style="list-style-type: none"> <li>- Device tag (022)</li> <li>- Linearization table</li> <li>- Operating hours (162)</li> <li>- Event logbook</li> <li>- Curr. trim 4 mA (135)</li> <li>- Curr. trim 20 mA (136)</li> <li>- Lo trim sensor (131)</li> <li>- Hi trim sensor (132)</li> <li>- Lo trim sensor (277)</li> <li>- Hi trim sensor (278)</li> </ul> </li> <li>▪ Any simulation which may be running is ended.</li> <li>▪ The device is restarted.</li> </ul>
7864	<b>Total reset</b> <ul style="list-style-type: none"> <li>▪ This code resets all the parameters apart from: <ul style="list-style-type: none"> <li>- Operating hours (162)</li> <li>- Event logbook</li> <li>- Lo trim sensor (131)</li> <li>- Hi trim sensor (132)</li> <li>- Lo trim sensor (277)</li> <li>- Hi trim sensor (278)</li> </ul> </li> <li>▪ Any simulation which may be running is ended.</li> <li>▪ The device is restarted.</li> </ul>

1) To be entered in "System" → "Management" → "Reset" (124)

 After a "Total reset" in FieldCare you have to press the "refresh" button in order to ensure that the measuring units are also reset.

### 3 Backing up or duplicating the device data

The following options are available to you with an operating tool that is based on FDT technology (e.g. FieldCare):

- Storage/recovery of configuration data.
- Duplication of device parameters.
- Transfer of all relevant parameters when replacing electronic inserts.

Use the following parameter for this:

---

#### Download select. (visible only in FieldCare)

---

#### Navigation

 Expert → System → Management → Download select.

#### Write permission

Operators/Service engineers/Expert

#### Description

Selection of data packages for up/download function in Fieldcare and PDM.

#### Prerequisite

DIP switch set to "SW" and "Damping" set to "on". If you download using the factory setting "Configuration copy", all parameters required for a measurement will be downloaded. The functionality of the "Electronics replace" setting is reserved for Endress+Hauser Service and can be accessed only if the correct device access code is entered.




**Options**

- Configuration copy: This option overwrites general configuration parameters with the exception of the serial number, order number, calibration, pos. zero adjust, application and day information.
- Device replacement: This option overwrites general configuration parameters with the exception of the serial number, order number, calibration and position adjustment.
- Electronics replace: This option overwrites general configuration parameters.





































**Factory setting**



































Copy configuration

## 4 Overview of the operating menu












































 The following table lists all of the parameters that can be included in the "Expert" menu. The page reference indicates where a description of the parameter can be found in the manual.

Depending on the device version and the parameter configuration, not all submenus and parameters are available in every device. Information on this can be found in the parameter description under "Prerequisite".

		Direct access	Description
<b>Expert</b>	Direct access	119	→  23
	<b>System</b>		
	Code Definition	023	→  23
	Lock Switch (read only)	120	→  23
	Operator Code	021	→  24
	<b>Instrument info</b>		
	Measuring Point	254	→  24
	Device tag	022	→  24
	Serial Number (read only)	096	→  25
	Firmware Version (read only)	095	→  25
	Ext. Order Code (read only)	097	→  25
	Order Code (read only)	098	→  25
	ENP Version (read only)	099	→  25
	Electr. serial no. (read only)	121	→  26
	Sens. Ser. No HP (read only)	122	→  26
	Sens. Ser. No LP (read only)	274	→  26
	<b>Display</b>		
	Language	000	→  26
	Display mode	001	→  27
	Value 2 display	002	→  27
	Value 3 display	288	→  27
	Format 1st Value	004	→  28
	HART Input Form.	157	→  28
	<b>Management</b>		
	Reset	124	→  29
	Connect Transm.	286	→  29
	<b>Measurement</b>		
	Operating mode	005/182	→  29
	<b>Basic setup</b>		
	Pos. Zero Adjust	007	→  30
	Calib. Offset	008	→  30
	Damping switch (read only)	164	→  31
	Damping	017	→  31
Damping (read only)	184		
Press. Eng. Unit	125	→  31	
Temp. Eng. Unit	126	→  32	
Sensor Temp. HP (read only)	110	→  32	
Sensor Temp. LP (read only)	283	→  32	
Electronics temp. (read only)	128	→  33	
<b>Pressure</b>			
High Press. Side	183	→  33	
Set LRV	013	→  33	
Set URV	014	→  33	
Meas.Diff.Press. (read only)	020	→  34	

		Direct access	Description
	Sensor Press. HP (read only)	109	→  34
	Sensor Press. LP (read only)	280	→  34
	Meas. Press. HP (read only)	281	→  35
	Meas. Press. LP (read only)	282	→  35
	Corrected Press. (read only)	172	→  35
<b>Level</b>	Level Selection	024	→  35
	Unit before lin.	025	→  36
	Height Unit	026	→  36
	Calibration Mode	027	→  37
	Empty Calib.	028	→  37
	Empty Calib. (read only)	011	
	Empty Pressure	029	→  37
	Empty Pressure (read only)	185	
	EMPTY HEIGHT	030	→  38
	Empty height (read only)	186	
	Full Calib.	031	→  38
	Full Calib. (read only)	012	
	FULL PRESSURE	032	→  38
	Full Pressure (read only)	187	
	FULL HEIGHT	033	→  39
	Full height (read only)	188	
	Density unit	127	→  39
	Adjust Density	034	→  39
	Adjust Density (read only)	189	
	Process Density	035	→  40
	Process Density (read only)	181	
	Level Before Lin. (read only)	019	→  40
<b>Linearization</b>	Lin. mode	037	→  40
	Unit after lin.	038	→  41
	Line-numb:	039	→  41
	X-value.: (edit mode)	040	→  42
	X-value: (semi-automatic)	193	
	X-value: (read only)	123	
	Y-val: (edit mode)	041	→  42
	Y-value: (semi-automatic)	041	
	Y-value: (read only)	194	
	Edit table	042	→  42
	TANK DESCRIPTION	173	→  43
	Tank Content (read only)	043	→  43
<b>Sens. limit HP</b>	LRL sensor	101	→  43
	URL sensor	102	→  43
<b>Sens. limit LP</b>	LRL sensor	272	→  44
	URL sensor	273	→  44
<b>Sensor trim HP</b>	Lo trim measured	129	→  44
	Hi trim measured	130	→  44
	Lo Trim Sensor	131	→  44
	Hi Trim Sensor	132	→  45

			Direct access	Description
	<b>Sensor trim LP</b>	Lo trim measured	275	→ 45
		Hi trim measured	276	→ 45
		Lo Trim Sensor	277	→ 45
		Hi Trim Sensor	278	→ 46
	<b>Current output</b>	Output current (read only)	054	→ 46
		Alarm Behav. P	050	→ 46
		Alarm cur.switch (read only)	165	→ 47
		Output fail mode	190	→ 47
		Output fail mode (read only)	051	
		High alarm curr.	052	→ 47
		Set Min. Current	053	→ 47
		Get LRV (only "Pressure")	015	→ 48
		Set LRV	056 013 166 168	→ 33
		Get URV (only "Pressure")	016	→ 48
		Set URV	057 014 067 169	→ 33
		Start-up current	134	→ 49
		Curr. Trim 4 mA	135	→ 49
		Curr. Trim 20 mA	136	→ 50
		Offset Trim 4 mA	137	→ 50
		Offset Trim 20 mA	138	→ 50
<b>Communication</b>	<b>HART config</b>	Burst Mode	142	→ 51
		Burst Option	143	→ 51
		Current Mode	144	→ 51
		Bus Address	145	→ 52
		Preamble Number	146	→ 52
	<b>HART Info</b>	Device ID (read only)	279	→ 52
		Device Revision (read only)	108	→ 53
		Manufacturer ID (read only)	103	→ 53
		Hart Version (read only)	180	→ 53
		Description	139	→ 53
		HART Message	140	→ 53
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	<b>HART output</b>	Primary value is (read only)	147	→ 54
		Primary value is (read only)	148	→ 54
		Secondary value is (read only)	149	→ 54
		Secondary value is (read only)	150	→ 55
Third value is (read only)		151	→ 55	
Third value is (read only)		152	→ 56	
Fourth value is (read only)		153	→ 56	

		Direct access	Description
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	HART Input Stat. (read only)	179	→  57
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	Last Diag. Code (read only)	072	→  58
	Reset Logbook	159	→  59
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	Operating Hours (read only)	162	→  60
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	Sensor Changes (read only)	287	→  60
<b>Sensor HP</b>	Min. Meas.Press. (read only)	073	→  60
	Counter P < Pmin (read only)	262	→  61
	Max. Meas.Press. (read only)	074	→  61
	Counter P > Pmax (read only)	263	→  61
	Min. Meas.Temp. (read only)	264	→  61
	Max. Meas.Temp. (read only)	265	→  62
<b>Sensor LP</b>	Min. Meas.Press. (read only)	266	→  62
	Counter P < Pmin (read only)	267	→  62
	Max. Meas.Press. (read only)	268	→  62
	Counter P > Pmax (read only)	269	→  63
	Min. Meas.Temp. (read only)	270	→  63
	Max. Meas.Temp. (read only)	271	→  63
<b>Diagnostic list</b>	Diagnostic 1 (read only)	075	→  63
	Diagnostic 2 (read only)	076	→  63
	Diagnostic 3 (read only)	077	→  63
	Diagnostic 4 (read only)	078	→  63
	Diagnostic 5 (read only)	079	→  63
	Diagnostic 6 (read only)	080	→  63
	Diagnostic 7 (read only)	081	→  63
	Diagnostic 8 (read only)	082	→  63
	Diagnostic 9 (read only)	083	→  63
	Diagnostic 10 (read only)	084	→  63
<b>Event logbook</b>	Last Diag. 1 (read only)	085	→  64
	Last Diag. 2 (read only)	086	→  64
	Last Diag. 3 (read only)	087	→  64
	Last Diag. 4 (read only)	088	→  64
	Last Diag. 5 (read only)	089	→  64
	Last Diag. 6 (read only)	090	→  64
	Last Diag. 7 (read only)	091	→  64
	Last Diag. 8 (read only)	092	→  64

		Direct access	Description
	Last Diag. 9 (read only)	093	→ 64
	Last Diag. 10 (read only)	094	→ 64
<b>Simulation</b>	Simulation mode	112	→ 64
	Sim. diff.press.	113	→ 66
	Sim. Press. HP	284	→ 66
	Sim. Press. LP	285	→ 66
	Sim. level	115	→ 66
	Sim. tank cont.	116	→ 67
	Sim. Current	117	→ 67
	Sim. error no.	118	→ 67


## 5 Description of Device Parameters

### 5.1 Expert

---

#### Direct access (119)

---


<b>Navigation</b>	 Expert → Direct access (119)
<b>Write permission</b>	Expert
<b>Description</b>	Enter the direct access code to go directly to a parameter.
<b>Options</b>	Enter the desired parameter code.
<b>Note</b>	For direct access, it is not necessary to enter leading zeros.
<b>Factory setting</b>	0

### 5.2 Expert → System

---

#### Code definition (023)


---

<b>Navigation</b>	 Expert → System → Code definition (023)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Use this function to enter a release code with which the device can be unlocked.
<b>Options</b>	A number from 0 to 9999
<b>Factory setting</b>	0

---

#### Lock switch (120)

---


<b>Navigation</b>	 Expert → System → Lock switch (120)
<b>Write permission</b>	Expert
<b>Description</b>	Displays the status of DIP switch 1 on the electronic insert. You can lock or unlock parameters relevant to the measured value with DIP switch 1. If operation is locked by means of the "Operator Code" (021) parameter, you can only unlock operation again by means of this parameter.

<b>Display</b>	<ul style="list-style-type: none"> <li>■ On (locking switched on)</li> <li>■ Off (locking switched off)</li> </ul>
<b>Factory setting</b>	Off (locking switched off)

---

### Operator code (021)

---


<b>Navigation</b>	 Expert → System → Operator code (021)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Use this function to enter a code to lock or unlock operation.
<b>User entry</b>	<ul style="list-style-type: none"> <li>■ To lock: Enter a number ≠ the release code (value range: 1 to 9999).</li> <li>■ To unlock: Enter the release code.</li> </ul>
<b>Note</b>	The release code is "0" in the order configuration. Another release code can be defined in the "Code definition" parameter. If the user has forgotten the release code, the release code can be visible by entering the number "5864".
<b>Factory setting</b>	0

## 5.3 Expert → System → Instrument info

---

### Cust. tag number (254)


---

<b>Navigation</b>	 Expert → System → Instrument info → Cust. tag number (254)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the device tag e.g. TAG number (max. 8 alphanumeric characters).
<b>Factory setting</b>	No entry or according to order specifications

---

### Device tag (022)

---



<b>Navigation</b>	 Expert → System → Instrument info → Device tag (022)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the device tag e.g. TAG number (max. 32 alphanumeric characters).
<b>Factory setting</b>	No entry or according to order specifications



---

**Serial number (096)**



---

<b>Navigation</b>	  Expert → System → Instrument info → Serial number (096)
<b>Write permission</b>	Parameter is read only. Only Endress+Hauser Service has write permission.
<b>Description</b>	Displays the serial number of the device (11 alphanumeric characters).

---

**Firmware version (095)**



---

<b>Navigation</b>	  Expert → System → Instrument info → Firmware version (095)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the firmware version.

---

**Ext. order code (097)**



---

<b>Navigation</b>	  Expert → System → Instrument info → Ext. order code (097)
<b>Write permission</b>	Parameter is read only. Only Endress+Hauser Service has write permission.
<b>Description</b>	Displays extended order number.
<b>Factory setting</b>	According to order specifications

---

**Order code (098)**



---

<b>Navigation</b>	  Expert → System → Instrument info → Order code (098)
<b>Write permission</b>	Parameter is read only. Only Endress+Hauser Service has write permission.
<b>Description</b>	Displays the order identifier.
<b>Factory setting</b>	According to order specifications

---

**ENP version (099)**

---

<b>Navigation</b>	  Expert → System → Instrument info → ENP version (099)
-------------------	---

**Write permission** Operators/Service engineers/Expert

**Description** Displays the ENP version  
(ENP = electronic nameplate)

---

#### Electr.serial no (121)

---

**Navigation**  Expert → System → Instrument info → Electr.serial no. (121)

**Write permission** No write permissions. Parameter is read only.

**Description** Displays the serial number of the main electronics (11 alphanumeric characters).

---

#### Ser.no. sensor HP (122)

---

**Navigation**  Expert → System → Instrument Info → Ser.no. sensor HP (122)

**Write permission** No write permissions. Parameter is read only.

**Description** Displays the serial number of the sensor module HP (11 alphanumeric characters).

---

#### Ser.no. sensor LP (274)

---

**Navigation**  Expert → System → Instrument Info → Ser.no. sensor LP (274)

**Write permission** No write permissions. Parameter is read only.

**Description** Displays the serial number of the sensor module LP (11 alphanumeric characters).

## 5.4 Expert → System → Display

---

#### Language (000)

---

**Navigation**  Expert → System → Display → Language

**Write permission** Operators/Service engineers/Expert

**Description** Select the menu language for the local display.

**Options**



- English
- Another language (as selected when ordering the device)
- Possibly a third language (language of the manufacturing plant)

**Factory setting** English

---

### Display mode (001)

---

**Navigation**   Expert → System → Display → Display mode (001)

**Write permission** Operators/Service engineers/Expert

**Description** Specify the contents for the first line of the local display in measuring mode.

**Options**



- Primary value
- External value
- All alternating

**Factory setting** Primary value

---

### 2nd disp. value (002)

---

**Navigation**   Expert → System → Display → 2nd disp. value (002)

**Write permission** Operators/Service engineers/Expert

**Description** Specify the contents for the second value in the alternating display mode in measuring mode.

**Options**

- No value
- Differential pressure
- Pressure HP
- Pressure LP
- Sensor temp. HP
- Sensor temp. LP
- Level before linearization
- Current
- Main measured value (%)



The options depend on the measuring mode chosen.

**Factory setting** No value

---

### 3rd disp. value (288)

---

**Navigation**   Expert → System → Display → 3rd disp. value (288)

**Write permission** Operators/Service engineers/Expert


**Description** Specify the contents for the third value in the alternating display mode in measuring mode.

<b>Options</b>	<ul style="list-style-type: none"> <li>▪ No value</li> <li>▪ Differential pressure</li> <li>▪ Pressure HP</li> <li>▪ Pressure LP</li> <li>▪ Sensor temp. HP</li> <li>▪ Sensor temp. LP</li> <li>▪ Level before linearization</li> <li>▪ Current</li> <li>▪ Main measured value (%)</li> </ul> <p>The options depend on the measuring mode chosen.</p>
<b>Factory setting</b>	No value

---

### Format 1st value (004)


---

<b>Navigation</b>	 Expert → System → Display → Format 1st value (004)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Specify the number of places after the decimal point for the value displayed in the main line.
<b>Options</b>	<ul style="list-style-type: none"> <li>▪ Auto</li> <li>▪ x</li> <li>▪ x.x</li> <li>▪ x.xx</li> <li>▪ x.xxx</li> <li>▪ x.xxxx</li> <li>▪ x.xxxxx</li> </ul>
<b>Factory setting</b>	Auto

---

### HART input form. (157)

---



<b>Navigation</b>	 Expert → System → Display → HART input form. (157)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Number of decimal places of the displayed input value.
<b>Options</b>	<ul style="list-style-type: none"> <li>▪ x.x</li> <li>▪ x.xx</li> <li>▪ x.xxx</li> <li>▪ x.xxxx</li> <li>▪ x.xxxxx</li> </ul>
<b>Factory setting</b>	x.x

## 5.5 Expert → System → Management

---

### Enter reset code (124)


---

<b>Navigation</b>	 Expert → System → Management → Reset (124)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Reset parameters completely or partially to the factory values or order configuration by entering a reset code, see "Resetting to factory settings (reset)" section →  15.
<b>Factory setting</b>	0

---

### Transm. connect. (286)

---

<b>Navigation</b>	 Expert → System → Management → Transm. connect.(286)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Determine the transmitter connection. After both sensor modules are replaced or if the main electronics fail, the configuration has to be redefined using this parameter.
<b>Options</b>	<ul style="list-style-type: none"> <li>▪ At sensor HP</li> <li>▪ At sensor LP</li> </ul>
<b>Factory setting</b>	At sensor HP

## 5.6 Expert → Measurement

---

### Measuring mode (005/182)


---

 **WARNING**

**Changing the measuring mode affects the span (URV)**

This situation can result in product overflow.

- ▶ If the measuring mode is changed, the setting for the span (URV) must be checked in the "Setup" operating menu and readjusted if necessary.

<b>Navigation</b>	 Expert → Measurement → Measuring mode (005/182)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Select the measuring mode. The operating menu is structured differently depending on the measuring mode selected.


<b>Options</b>	<ul style="list-style-type: none"> <li>▪ Pressure</li> <li>▪ Level</li> </ul>
<b>Factory setting</b>	Level or according to order specifications

## 5.7 Expert → Measurement → Basic setup

---

### Pos. zero adjust (007)


---

<b>Navigation</b>	 Expert → Measurement → Basic setup → Pos. zero adjust (007)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Position adjustment – the pressure difference between zero (set point) and the measured pressure need not be known.
<b>Example</b>	<ul style="list-style-type: none"> <li>▪ Measured value = 2.2 mbar (0.033 psi)</li> <li>▪ You correct the measured value via the "Pos. zero adjust" parameter with the "Confirm" option. This means that you are assigning the value 0.0 to the pressure present.</li> <li>▪ Measured value (after position adjustment) = 0.0 mbar</li> <li>▪ The current value is also corrected.</li> </ul>
<b>Options</b>	<ul style="list-style-type: none"> <li>▪ Confirm</li> <li>▪ Cancel</li> </ul>
<b>Factory setting</b>	Cancel

---

### Calib. offset (008)



---

<b>Navigation</b>	 Expert → Measurement → Basic setup → Calib. offset (008)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Position adjustment – the pressure difference between the set point and the measured pressure must be known.
<b>Example</b>	<ul style="list-style-type: none"> <li>▪ Measured value = 982.2 mbar (14.73 psi)</li> <li>▪ You use the "Calib. offset" parameter to correct the measured value with the value entered, e.g. 2.2 mbar (0.033 psi). D.h. This means that you are assigning the value 980.0 (14.7 psi) to the pressure present.</li> <li>▪ Measured value (after pos. zero adjust) = 980.0 mbar (14.7 psi)</li> <li>▪ The current value is also corrected.</li> </ul>
<b>Factory setting</b>	0.0

---

**Damping switch (164)**




---

<b>Navigation</b>	  Expert → Measurement → Basic setup → Damping switch (164)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the switch position of DIP switch 2 which is used to switch the damping of the output signal on and off.
<b>Display</b>	<ul style="list-style-type: none"> <li>▪ Off The output signal is not damped.</li> <li>▪ On The output signal is damped. The attenuation constant is specified in the "Damping" (017) (184) parameter</li> </ul>
<b>Factory setting</b>	On

---

**Damping (017)/(184)**




---

<b>Navigation</b>	  Expert → Measurement → Basic setup → Damping (017)/(184)
<b>Write permission</b>	Operators/Service engineers/Expert (if the "Damping" DIP switch is set to "on")
<b>Description</b>	Enter damping time (time constant $\tau$ ) ("Damping" DIP switch set to "on") Display damping time (time constant $\tau$ ) ("Damping" DIP switch set to "off"). The damping affects the speed at which the measured value reacts to changes in pressure.
<b>Input range</b>	0.0 to 999.0 s
<b>Factory setting</b>	2.0 sec. or according to order specifications

---

**Press. eng. unit (125)**


---



<b>Navigation</b>	  Expert → Measurement → Basic setup → Press. eng. unit (125)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Select the pressure engineering unit. If a new pressure engineering unit is selected, all pressure-specific parameters are converted and displayed with the new unit.

<b>Options</b>	<ul style="list-style-type: none"> <li>■ mbar, bar</li> <li>■ mmH2O, mH2O</li> <li>■ in, H2O, ftH2O</li> <li>■ Pa, kPa, MPa</li> <li>■ psi</li> <li>■ mmHg, inHg</li> <li>■ kgf/cm<sup>2</sup></li> </ul>
<b>Factory setting</b>	mbar, bar or psi depending on the sensor module nominal measuring range, or as per order specifications

---

### Temp. eng. unit (126)



---

<b>Navigation</b>	  Expert → Measurement → Basic setup → Temp. eng. unit (126)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Select the unit for the temperature measured values.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ °C</li> <li>■ °F</li> <li>■ K</li> </ul>
<b>Note</b>	The setting affects the unit for the "Sensor temp." parameter.
<b>Factory setting</b>	°F

---

### Sensor temp. HP (110)



---

<b>Navigation</b>	  Expert → Measurement → Basic setup → Sensor temp. HP (110)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the temperature currently measured in the sensor module. This can deviate from the process temperature.

---

### Sensor temp. LP (283)

---



<b>Navigation</b>	  Expert → Measurement → Basic setup → Sensor temp. LP (283)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the temperature currently measured in the sensor module. This can deviate from the process temperature.



---

**Electronics temp (128)**

---



<b>Navigation</b>	  Expert → Measurement → Basic setup → Electronics temp (128)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the serial number of the sensor module HP (11 alphanumeric characters).

## 5.8 Expert → Measurement → Pressure

---

**High press. side (183)**



---

<b>Navigation</b>	  Expert → Measurement → Pressure → High press. side (183)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Define which sensor module corresponds to the high-pressure side.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ Sensor HP</li> <li>■ Sensor LP</li> </ul>
<b>Factory setting</b>	Sensor HP

---

**Set LRV (013, 056, 166, 168)**



---

<b>Navigation</b>	  Expert → Output → Current output → Set LRV (013, 056, 166, 168)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Set the pressure value, level or content for the lower current value (4 mA).
<b>Factory setting</b>	<ul style="list-style-type: none"> <li>■ 0.0 % in Level measuring mode</li> <li>■ 0.0 mbar/bar or in accordance with ordering information in Pressure measuring mode</li> </ul>

---

**Set URV (014, 057, 167, 169)**



---

<b>Navigation</b>	  Expert → Output → Current output → Set URV (014, 057, 167, 169)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Set the pressure value, level or content for the upper current value (20 mA).

**Factory setting**

- 100.0 % in Level measuring mode
- URL Sensor or according to ordering information in Pressure measuring mode

**Meas.Diff.Press. (020)****Navigation**

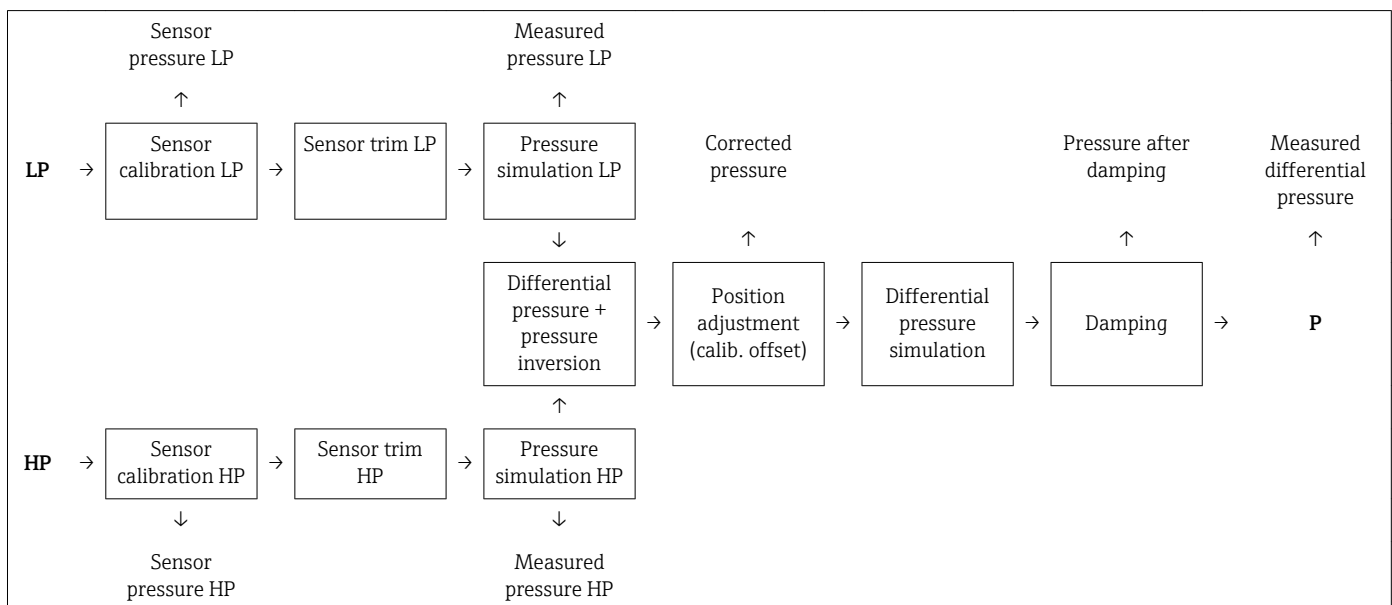
  Expert → Measurement → Pressure → Meas.Diff.Press. (020)



**Write permission**

No write permissions. Parameter is read only.

**Description**

Displays the measured differential pressure after sensor trim, position adjustment and damping.

**Sensor pressure HP (109)****Navigation**

  Expert → Measurement → Pressure → Sensor press. HP (109)



**Write permission**

No write permissions. Parameter is read only.

**Description**

Displays the measured pressure before the sensor trim.

**Sensor press. LP (280)****Navigation**

  Expert → Measurement → Pressure → Sensor press. LP (280)

**Write permission**

No write permissions. Parameter is read only.

**Description** Displays the measured pressure before the sensor trim.

---

#### Meas. press. HP (281)

---

**Navigation**   Expert → Measurement → Pressure → Meas. press. HP (281)

**Write permission** No write permissions. Parameter is read only.

**Description** Displays the measured HP pressure after sensor trim and simulation.

---

#### Meas. press. LP (282)

---

**Navigation**   Expert → Measurement → Pressure → Meas. press. LP (282)

**Write permission** No write permissions. Parameter is read only.

**Description** Displays the measured LP pressure after sensor trim and simulation.

---

#### Corrected press. (172)

---

**Navigation**   Expert → Measurement → Pressure → Corrected press. (172)

**Write permission** No write permissions. Parameter is read only.



**Description** Displays the measured differential pressure after position adjustment.

## 5.9 Expert → Measurement → Level

---

#### Level selection (024)

---

**Navigation**   Expert → Measurement → Level → Level selection (024)

**Write permission** Operators/Service engineers/Expert


**Description** Select the method for calculating the level

<b>Options</b>	<ul style="list-style-type: none"> <li>▪ In pressure If this option is selected, specify two pressure/level value pairs. The level value is displayed directly in the unit that you select via the "Unit before lin." parameter.</li> <li>▪ In height If this option is selected, specify two height/level value pairs. From the measured pressure, the device first calculates the height using the density. This information is then used to calculate the level in the "Unit before lin." selected using the two value pairs specified.</li> </ul>
<b>Factory setting</b>	In pressure

---

### Unit before lin. (025)


---

<b>Navigation</b>	 Expert → Measurement → Level → Level before lin. (025)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Select the unit for the measured value display for the level before linearization.
<b>Example</b>	<ul style="list-style-type: none"> <li>▪ Current measured value: 0.3 ft</li> <li>▪ New output unit: m</li> <li>▪ New measured value: 0.3 m</li> </ul>
<b>Options</b>	<ul style="list-style-type: none"> <li>▪ %</li> <li>▪ mm, cm, dm, m</li> <li>▪ ft, in</li> <li>▪ m<sup>3</sup>, in<sup>3</sup></li> <li>▪ l, hl</li> <li>▪ ft<sup>3</sup></li> <li>▪ gal, lgal</li> <li>▪ kg, t</li> <li>▪ lb</li> </ul>
<b>Note</b>	The unit selected is only used to describe the measured value. This means that when selecting a new output unit, the measured value is not converted.
<b>Factory setting</b>	%

---

### Height unit (026)

---

<b>Navigation</b>	 Expert → Measurement → Level → Height unit (026)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Select the height unit. The measured pressure is converted to the selected height unit using the "Adjust Density" parameter.
<b>Prerequisite</b>	"Level selection" = "In height"

<b>Options</b>	<ul style="list-style-type: none"> <li>▪ mm</li> <li>▪ m</li> <li>▪ in</li> <li>▪ ft</li> </ul>
----------------	---

<b>Factory setting</b>	m
------------------------	---

---

### Calibration mode (027)

---

<b>Navigation</b>	  Expert → Measurement → Level → Calibration mode (027)
-------------------	---

<b>Write permission</b>	Operators/Service engineers/Expert
-------------------------	------------------------------------

<b>Description</b>	Select the calibration mode.
--------------------	------------------------------



<b>Options</b>	<ul style="list-style-type: none"> <li>▪ <b>Wet</b> Wet calibration takes place by filling and emptying the vessel. In the case of two different levels, the level, volume, mass or percentage value entered is assigned to the pressure measured at this point in time ("Empty calib." and "Full calib." parameters).</li> <li>▪ <b>Dry</b> Dry calibration is a theoretical calibration. For this calibration, you specify two pressure-level value pairs or height-level value pairs via the following parameters: "Empty calib.", "Empty pressure", "Empty height", "Full calib.", "Full pressure", "Full height".</li> </ul>
----------------	---

<b>Factory setting</b>	Wet
------------------------	-----

---

### Empty calib. (011/028)

---

<b>Navigation</b>	  Expert → Measurement → Level → Empty calib. (011/028)
-------------------	---

<b>Write permission</b>	Operators/Service engineers/Expert
-------------------------	------------------------------------

<b>Description</b>	Enter the output value for the lower calibration point (vessel empty). The unit defined in "Unit before lin." must be used.
--------------------	---



<b>Note</b>	<ul style="list-style-type: none"> <li>▪ In the case of wet calibration, the level (vessel empty) must actually be available. The associated pressure is then automatically recorded by the device.</li> <li>▪ In the case of dry calibration, the level (vessel empty) does not have to be available. For the "In pressure" level selection, the associated pressure must be entered in the "Empty pressure (029)" parameter. The associated height has to be entered in the "Empty height" (030) parameter for the "In height" level selection.</li> </ul>
-------------	--

<b>Factory setting</b>	0.0
------------------------	-----

---

### Empty pressure (029)/(185)



---

<b>Navigation</b>	  Expert → Measurement → Level → Empty pressure (029)/(185)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the pressure value for the lower calibration point (vessel empty). See also "Empty calib. (028)".
<b>Prerequisite</b>	<ul style="list-style-type: none"> <li>■ "Level selection" = In pressure</li> <li>■ "Calibration mode" = Dry -&gt; entry</li> <li>■ "Calibration mode" = Wet -&gt; display</li> </ul>
<b>Factory setting</b>	0.0

---

### Empty height (030)/(186)



---

<b>Navigation</b>	  Expert → Measurement → Level → Empty height (030)/(186)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the height value for the lower calibration point (vessel empty). The unit is selected via the "Height unit (026)" parameter.
<b>Prerequisite</b>	<ul style="list-style-type: none"> <li>■ "Level selection" = "In height"</li> <li>■ "Calibration mode" = Dry -&gt; entry</li> <li>■ "Calibration mode" = Wet -&gt; display</li> </ul>
<b>Factory setting</b>	0.0

---

### Full calib. (012/031)



---

<b>Navigation</b>	  Expert → Measurement → Level → Full calib. (012/031)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the output value for the upper calibration point (vessel full). The unit defined in "Unit before lin." must be used.
<b>Note</b>	<ul style="list-style-type: none"> <li>■ In the case of wet calibration, the level (vessel full) must actually be available. The associated pressure is then automatically recorded by the device.</li> <li>■ In the case of dry calibration, the level (vessel full) does not have to be available. For the "In pressure" level selection, the associated pressure must be entered in the "Full pressure" parameter. The associated height has to be entered in the "Full height" parameter for the "In height" level selection.</li> </ul>
<b>Factory setting</b>	100.0

---

### Full pressure (032)/(187)



---

<b>Navigation</b>	  Expert → Measurement → Level → Full pressure (032)/(187)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the pressure value for the upper calibration point (vessel full). See also "Full calib."
<b>Prerequisite</b>	<ul style="list-style-type: none"> <li>■ "Level selection" = In pressure</li> <li>■ "Calibration mode" = Dry -&gt; entry</li> <li>■ "Calibration mode" = Wet -&gt; display</li> </ul>
<b>Factory setting</b>	URL of the sensor module

---

### Full height (033)/(188)



---

<b>Navigation</b>	  Expert → Measurement → Level → Full height (033)/(188)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the height value for the upper calibration point (vessel full). The unit is selected via the "Height unit" parameter.
<b>Prerequisite</b>	<ul style="list-style-type: none"> <li>■ "Level selection" = "In height"</li> <li>■ "Calibration mode" = Dry -&gt; entry</li> <li>■ "Calibration mode" = Wet -&gt; display</li> </ul>
<b>Factory setting</b>	URL is converted to a level unit

---

### Density unit (127)



---

<b>Navigation</b>	  Expert → Measurement → Level → Density unit (127)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Displays the density unit. The measured pressure is converted to a height using the "Height unit", "Adjust density" and "Process density" parameters.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ g/cm<sup>3</sup></li> <li>■ kg/m<sup>3</sup></li> <li>■ kg/dm<sup>3</sup></li> <li>■ lb/in<sup>3</sup></li> <li>■ lb/ft<sup>3</sup></li> </ul>
<b>Factory setting</b>	g/cm <sup>3</sup>

---

### Adjust density (034)



---

<b>Navigation</b>	  Expert → Measurement → Level → Adjust density (034)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the density of the medium used to perform the calibration. The measured pressure is converted to a height using the "Height unit" and "Adjust density" parameters.
<b>Factory setting</b>	1.0

---

### Process density (035)



---

<b>Navigation</b>	  Expert → Measurement → Level → Process density (035)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter a new density value for density correction. The calibration was carried out with the medium water, for example. Now the vessel is to be used for another medium with another density. The calibration is corrected appropriately by entering the new density value in the "Process Density" parameter.
<b>Note</b>	If you change to dry calibration after completing a wet calibration using the "Calibration mode" parameter, the density for the "Adjust density" and "Process density" parameters must be entered correctly before changing the calibration mode.
<b>Factory setting</b>	1.0

---

### Level before lin. (019)

---



<b>Navigation</b>	  Expert → Measurement → Level → Level before lin. (019)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the level value prior to linearization.

## 5.10 Expert → Measurement → Linearization

---

### Lin. mode (037)

---

<b>Navigation</b>	  Expert → Measurement → Linearization → Lin. mode (037)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Select the linearization mode.



<b>Options</b>	<ul style="list-style-type: none"> <li>■ Linear The level is output without being converted beforehand. "Level before lin" is output.</li> <li>■ Erase table The existing linearization table is deleted.</li> <li>■ Manual entry (sets the table to edit mode, an alarm is output): The value pairs of the table (X-value (193/040) and Y-value (041)) are entered manually.</li> <li>■ Semi-automatic entry (sets the table to edit mode, an alarm is output): The vessel is emptied or filled in stages in this entry mode. The device automatically records the level value (X-value (193/040)). The associated volume, mass or % value is entered manually (Y-value (041)).</li> <li>■ Activate table The table entered is activated and checked with this option. The device shows the level after linearization.</li> </ul>
----------------	--

**Factory setting**                      Linear

---

### Unit after lin. (038)

---

**Navigation**                                Expert → Measurement → Linearization → Unit after lin. (038)

**Write permission**                      Operators/Service engineers/Expert

**Description**                              Select volume unit, mass, height or % (unit of the Y-value).

**Options**

- %
- cm, dm, m, mm
- hl
- in<sup>3</sup>, ft<sup>3</sup>, m<sup>3</sup>,
- l
- in, ft
- kg, t
- lb
- gal
- lgal

**Factory setting**                              %

---

### Line number (039)

---

**Navigation**                                Expert → Measurement → Linearization → Line number (039)

**Write permission**                      Operators/Service engineers/Expert



**Description**                              Enter the number of the current point in the table. The subsequent entries in "X-value" and "Y-value" refer to this point.

**Input range**                                1 to 32

---

**X-value (040)/(123)/(193)**




---

<b>Navigation</b>	  Expert → Measurement → Linearization → X-value (040)/(123)/(193)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the X-value (level before linearization) for the specific point in the table and confirm.
<b>Note</b>	<ul style="list-style-type: none"> <li>▪ If "Lin. mode" = "Manual", the level value must be entered.</li> <li>▪ If "Lin. mode" = "Semiautomatic", the level value is displayed and has to be confirmed by entering the paired Y-value.</li> </ul>

---

**Y-value (041)/(194)**




---

<b>Navigation</b>	  Expert → Measurement → Linearization → Y-value (041)/(194)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the Y-value (value after linearization) for the specific point in the table. The unit is determined by "Unit after lin.".
<b>Note</b>	The linearization table must be monotonic (increasing or decreasing).

---

**Edit table (042)**


---



<b>Navigation</b>	  Expert → Measurement → Linearization → Edit table (042)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Select the function for entering the table.
<b>Options</b>	<ul style="list-style-type: none"> <li>▪ Next point: Enter the next point.</li> <li>▪ Current point: Stay on the current point to correct a mistake, for example.</li> <li>▪ Last point: Skip back to the previous point to correct a mistake, for example.</li> <li>▪ Insert point: Insert an additional point (see example below).</li> <li>▪ Delete point: Delete the current point (see example below).</li> </ul>
<b>Example</b>	<p><b>Add point, in this case between the 4th and 5th point for example</b></p> <ul style="list-style-type: none"> <li>▪ Select point 5 via the "Line number" parameter.</li> <li>▪ Select the "Insert point" option via the "Edit table" parameter.</li> <li>▪ Point 5 is displayed for the "Line number" parameter. Enter new values for the "X-value" and "Y-value" parameters.</li> </ul> <p><b>Delete point, in this case the 5th point for example</b></p> <ul style="list-style-type: none"> <li>▪ Select point 5 via the "Line number" parameter.</li> <li>▪ Select the "Delete point" option via the "Edit table" parameter.</li> <li>▪ The 5th point is deleted. All of the following points are pushed up one number i.e. following deletion, the 6th point becomes Point 5.</li> </ul>

**Factory setting**                      Current point

---

### Tank description (173)

---

**Navigation**                                Expert → Measurement → Linearization → Tank description (173)

**Write permission**                      Operators/Service engineers/Expert

**Description**                              Enter tank description (max. 32 alphanumeric characters).

---

### Tank content (043)

---

**Navigation**                                Expert → Measurement → Linearization → Tank content (043)

**Write permission**                      Operators/Service engineers/Expert

**Description**                              Displays the level value after linearization.

## 5.11 Expert → Measurement → Sens. limit HP

---

### LRL sensor (101)

---

**Navigation**                                Expert → Measurement → Sens. limit HP → LRL sensor (101)

**Write permission**                      No write permissions. Parameter is read only.

**Description**                              Displays the lower-range limit of the sensor module.

---

### URL sensor (102)

---

**Navigation**                                Expert → Measurement → Sens. limit HP → LRL sensor (101)

**Write permission**                      No write permissions. Parameter is read only.


**Description**                              Displays the upper-range limit of the sensor module.

## 5.12 Expert → Measurement → Sens. limit LP

---

### LRL sensor (272)


---

<b>Navigation</b>	 Expert → Measurement → Sens. limit LP → LRL sensor (272)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the lower-range limit of the sensor module.

---

### URL sensor (273)

---


<b>Navigation</b>	 Expert → Measurement → Sens. limit LP → URL sensor (273)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the upper-range limit of the sensor module.

## 5.13 Expert → Measurement → Sensor trim HP

---

### Lo trim measured (129)


---

<b>Navigation</b>	 Expert → Measurement → Sensor trim HP → Lo trim measured (129)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the reference pressure present to be accepted for the lower calibration point.

---

### Hi trim measured (130)

---



<b>Navigation</b>	 Expert → Measurement → Sensor trim HP → Hi trim measured (130)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the serial number of the sensor module HP (11 alphanumeric characters).

---

### Lo trim sensor (131)

---



---

<b>Navigation</b>	  Expert → Measurement → Sensor trim HP → Lo trim sensor (131)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Sensor module recalibration by entering a target pressure while simultaneously and automatically accepting a reference pressure present for the lower calibration point.

---

#### Hi trim sensor (132)

---



<b>Navigation</b>	  Expert → Measurement → Sensor trim HP → Hi trim sensor (132)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Sensor module recalibration by entering a target pressure while simultaneously and automatically accepting a reference pressure present for the upper calibration point.

## 5.14 Expert → Measurement → Sensor trim LP

---

#### Lo trim measured (275)



---

<b>Navigation</b>	  Expert → Measurement → Sensor trim LP → Lo trim measured (275)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the reference pressure present to be accepted for the lower calibration point.

---

#### Hi trim measured (276)



---

<b>Navigation</b>	  Expert → Measurement → Sensor trim LP → Hi trim measured (276)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the reference pressure present to be accepted for the upper calibration point.

---

#### Lo trim sensor (277)

---



<b>Navigation</b>	  Expert → Measurement → Sensor trim LP → Lo trim sensor (277)
<b>Write permission</b>	No write permissions. Parameter is read only.

**Description** Sensor module recalibration by entering a target pressure while simultaneously and automatically accepting a reference pressure present for the lower calibration point.

---

### Hi trim sensor (278)

---

**Navigation**   Expert → Measurement → Sensor trim LP → Hi trim sensor (278)

**Write permission** No write permissions. Parameter is read only.



**Description** Sensor module recalibration by entering a target pressure while simultaneously and automatically accepting a reference pressure present for the upper calibration point.

## 5.15 Expert → Measurement → Current output

---

### Output current (054)

---

**Navigation**   Expert → Output → Current output → Output current (054)



**Write permission** Operators/Service engineers/Expert

**Description** Displays the current current value.

---

### Alarm behav. P (050)

---

**Navigation**   Expert → Output → Current output → Alarm behav. P (050)

**Write permission** Operators/Service engineers/Expert

**Description** Set current output if sensor module limits are exceeded or not reached.

**Options**



- Warning  
The device continues to measure. An error message is displayed.
- Alarm  
The output signal assumes a value that can be defined by the "Output fail mode (190)/ (051)" function.
- Special
  - The lower sensor module limit is undershot (sensor module LP or HP or complete system):  
Current output = 3.6 mA
  - The upper sensor module limit is overshoot (sensor module LP or HP or complete system):  
Current output assumes a value of 21 - 23 mA, depending on the setting of the "High alarm curr." (052) parameter.

**Factory setting** Warning

---

**Alarm cur. switch (165)**




---

<b>Navigation</b>	  Expert → Measurement → Basic setup → Alarm cur.switch (165)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the switching state of DIP switch 3 "SW/Alarm min."
<b>Display</b>	<ul style="list-style-type: none"> <li>■ SW setting The alarm current has the value defined in "Output fail mode" (051).</li> <li>■ Alarm min. The alarm current is 3.6 mA, regardless of the software setting.</li> </ul>

---

**Output fail mode (051)/(190)**




---

<b>Navigation</b>	  Expert → Output → Current output → Output fail mode (051)/(190)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Select Output fail mode. In case of an alarm, the current and the bargraph assume the current value specified with this parameter.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ Max: can be set from 21 to 23 mA</li> <li>■ Hold: last measured value is held.</li> <li>■ Min: 3.6 mA</li> </ul>
<b>Factory setting</b>	Max (22 mA)

---

**High. alarm curr. (052)**




---

<b>Navigation</b>	  Expert → Output → Current output → High alarm curr. (052)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the current value for maximum alarm current. See also "Output fail mode".
<b>Input range</b>	21 to 23 mA
<b>Factory setting</b>	22 mA

---

**Set min. current (053)**




---

<b>Navigation</b>	  Expert → Output → Current output → Set min. current (053)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter lower current limit. Some switching units accept no current smaller than 4.0 mA.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ 3.8 mA</li> <li>■ 4.0 mA</li> </ul>
<b>Factory setting</b>	3.8 mA

---

### Get LRV (015)



---

<b>Navigation</b>	  Expert → Output → Current output → Get LRV (015)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Setting lower range value. The pressure for the lower current value (4 mA) is present at the device. Use the "Confirm" option to assign the lower current value to the applied pressure value.
<b>Prerequisite</b>	Pressure measuring mode
<b>Options</b>	<ul style="list-style-type: none"> <li>■ Cancel</li> <li>■ Confirm</li> </ul>
<b>Factory setting</b>	Cancel

---

### Set LRV (013, 056, 166, 168)



---

<b>Navigation</b>	  Expert → Output → Current output → Set LRV (013, 056, 166, 168)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Set the pressure value, level or content for the lower current value (4 mA).
<b>Factory setting</b>	<ul style="list-style-type: none"> <li>■ 0.0 % in Level measuring mode</li> <li>■ 0.0 mbar/bar or in accordance with ordering information in Pressure measuring mode</li> </ul>

---

### Get URV (016)

---

<b>Navigation</b>	  Expert → Output → Current output → Get URV (016)
<b>Write permission</b>	Operators/Service engineers/Expert





<b>Description</b>	Setting upper range value. The pressure for the upper current value (20 mA) is present at the device. Use the "Confirm" option to assign the applied pressure value to the upper current value.
<b>Prerequisite</b>	Pressure measuring mode
<b>Options</b>	<ul style="list-style-type: none"> <li>■ Cancel</li> <li>■ Confirm</li> </ul>
<b>Factory setting</b>	Cancel

---

### Set URV (014, 057, 167, 169)



---

<b>Navigation</b>	  Expert → Output → Current output → Set URV (014, 057, 167, 169)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Set the pressure value, level or content for the upper current value (20 mA).
<b>Factory setting</b>	<ul style="list-style-type: none"> <li>■ 100.0 % in Level measuring mode</li> <li>■ URL Sensor or according to ordering information in Pressure measuring mode</li> </ul>

---

### Startcurrent (134)



---

<b>Navigation</b>	  Expert → Output → Current output → Startcurrent (134)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Entry of the start current. This setting also applies in HART multidrop mode.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ 12 mA</li> <li>■ Max alarm (22 mA, cannot be adjusted)</li> </ul>
<b>Factory setting</b>	12 mA

---

### Curr. trim 4mA (135)

---

<b>Navigation</b>	  Expert → Output → Current output → Curr. trim 4mA (135)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Enter the pressure value for the lower point (4 mA) of the current partial regression lines. Using this parameter and "Curr. trim 20 mA", you can adapt the current output to the transmission conditions.

<b>Options</b>	Carry out the current trim for the lower point as follows: <ul style="list-style-type: none"> <li>▪ Select the "Current" option in the "Simulation mode" parameter.</li> <li>▪ In the "Sim current" parameter, configure the "4 mA value".</li> <li>▪ Enter the current value measured using the switching unit in the "Curr. trim 4mA" parameter.</li> </ul>
----------------	---

**Input range** Measured current (3.8 mA to 4.2 mA)

**Factory setting** 4 mA

---

### Curr. trim 20mA (136)

---

**Navigation**   Expert → Output → Current output → Curr. trim 20mA (136)

**Write permission** Service engineers/Expert

**Description** Enter the current value for the upper point (20 mA) of the current linear regression line. You can adapt the current output to the transmission conditions with this parameter and "Curr. trim 4mA".

**Options** Perform the current trim for the upper point as follows:

- Select the "Current" option in the "Simulation mode" parameter.
- Enter the "20 mA" value in the "Sim. current" parameter.
- Enter the current value measured with the switching unit in the "Curr. trim 20mA" parameter.

**Input range** Measured current (19 mA to 21 mA)

**Factory setting** 20 mA

---

### Offset trim 4mA (137)

---

**Navigation**   Expert → Output → Current output → Offset trim 4mA (137)

**Write permission** Service engineers/Expert

**Description** Display/enter the difference between 4 mA and the value entered for the parameter "Curr. trim 4mA".

**Factory setting** 0

---

### Offset trim 20mA (138)

---

**Navigation**   Expert → Output → Current output → Offset trim 20mA (138)

**Write permission** Service engineers/Expert


<b>Description</b>	Display/enter the difference between 20 mA and the value entered for the parameter "Curr. trim 20mA".
<b>Factory setting</b>	0

## 5.16 Expert → Communication → HART config

---

### Burst mode (142)


---

<b>Navigation</b>	 Expert → Communication → HART config → Burst mode (142)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Switching burst mode on and off.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ On</li> <li>■ Off</li> </ul>
<b>Factory setting</b>	Off

---

### Burst option (143)


---

<b>Navigation</b>	 Expert → Communication → HART config → Burst option (143)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	You can use this parameter to define which command is sent to the master.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ 1 (HART command 1)</li> <li>■ 2 (HART command 2)</li> <li>■ 3 (HART command 3)</li> <li>■ 9 (HART command 9)</li> </ul> <p>Default output: Meas.Diff.Press. (020), Meas. press.HP (281), Sensor press. HP (109) and Sensor temp. HP (110)</p> <ul style="list-style-type: none"> <li>■ 33 (HART command 33)</li> </ul> <p>Default output: Meas.Diff.Press. (020), Meas. press.HP (281), Sensor press. HP (109) and Sensor temp. HP (110)</p>
<b>Factory setting</b>	1 (HART command 1)

---

### Current mode (144)

---



<b>Navigation</b>	 Expert → Communication → HART config → Current mode (144)
<b>Write permission</b>	Service engineers/Expert

<b>Description</b>	Configure current mode for HART communication.
<b>Options</b>	<ul style="list-style-type: none"> <li>▪ Signaling Measured value transmission by the current value</li> <li>▪ Fixed Fixed current 4.0 mA (multidrop mode) (Measured value transmission via HART digital communication only)</li> </ul>
<b>Factory setting</b>	Signaling

---

**Bus address (145)**




---

<b>Navigation</b>	  Expert → Communication → HART config → Bus address (145)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Use this function to enter the address via which a data exchange is to take place via HART protocol. (HART 5.0 master: Range 0 to 15, where address = 0 calls up the "Signaling" setting; HART 6.0 master: Range 0 to 63)
<b>Factory setting</b>	0

---

**Preamble number (146)**


---



<b>Navigation</b>	  Expert → Communication → HART config → Preamble number (146)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Use this function to enter the number of preambles in the HART protocol. (Synchronization of the modem components along a transmission path, each modem component could "swallow" one byte, at least 2 bytes must be the preamble.)
<b>Input range</b>	2 to 20
<b>Factory setting</b>	5

## 5.17 Expert → Communication → HART info

---

**Device type code (279)**


---

<b>Navigation</b>	  Expert → Communication → HART info → Device type code (279)
<b>Write permission</b>	No write permissions. Parameter is read only.


---

**Description**                      Display of the numerical ID of the device  
39

---

#### Device revision (108)

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**Navigation**                        Expert → Communication → HART info → Device revision (108)

**Write permission**              No write permissions. Parameter is read only.

**Description**                      Display of device revision (e.g. 1)

---

#### Manufacturer ID (103)

---

**Navigation**                        Expert → Communication → HART Info → Manufacturer ID (103)

**Write permission**              No write permissions. Parameter is read only.

**Description**                      Displays the HART manufacturer ID in a decimal digit format.  
Here: 17

---

#### HART version (180)

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**Navigation**                        Expert → Communication → HART info → HART version (180)



**Write permission**              No write permissions. Parameter is read only.

**Description**                      Displays HART version 6.

---

#### Description (139)

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**Navigation**                        Expert → Communication → HART info → Descriptor (139)

**Write permission**              Service engineers/Expert

**Description**                      Enter measuring point description (max. 16 alphanumeric characters).

---

#### HART message (140)

---


**Navigation**                        Expert → Communication → HART info → HART message (140)

<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Enter message (max. 32 alphanumeric characters). Upon request from the master, this message is sent via the HART protocol.

---

#### HART date (141)

---


<b>Navigation</b>	 Expert → Communication → HART info → HART date (141)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Enter the date of the last configuration change.
<b>Factory setting</b>	DD/MM/YY (date of the final test)

## 5.18 Expert → Communication → HART output

---

#### Primary value is (147)


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<b>Navigation</b>	 Expert → Communication → HART output → Primary value is (147)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Indicates which measured value is transmitted via the HART protocol as the primary process value.
<b>Factory setting</b>	Depending on the selected measuring mode, the following measured values can be displayed: <ul style="list-style-type: none"> <li>■ "Pressure" measuring mode: "Differential pressure"</li> <li>■ "Level" measuring mode, Lin. mode "Linear": "Level before Lin"</li> <li>■ "Level" measuring mode, Lin. mode "Activate table": "Tank content"</li> </ul>

---

#### Primary value (148)



---

<b>Navigation</b>	 Expert → Communication → HART output → Primary value (148)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	The primary value is displayed.

---

#### Secondary value is (149)

---



<b>Navigation</b>	  Expert → Communication → HART output → Secondary value is (149)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Indicates which measured value is transmitted via the HART protocol as the secondary process value. The process value is configured via HART command 51.
<b>Factory setting</b>	<ul style="list-style-type: none"> <li>■ "Pressure" measuring mode: "Measured pressure HP"</li> <li>■ "Level" measuring mode, Lin. mode "Linear": "Measured differential pressure"</li> <li>■ "Level" measuring mode, Lin. mode "Activate table": "Level before linearization"</li> </ul>
<b>Display</b>	Depending on the selected measuring mode, the following measured values can be displayed:

Measured value	Mode
Measured differential pressure	Level, pressure
Corrected pressure	Level, pressure
Measured pressure HP	Level, pressure
Sensor pressure HP	Level, pressure
Sensor temperature HP	Level, pressure
Measured pressure LP	Level, pressure
Sensor pressure LP	Level, pressure
Sensor temperature LP	Level, pressure
Level before linearization	Level
Tank content	Level
Process density	Level
Electronics temperature	Level, pressure

---

### Secondary value (150)



---

<b>Navigation</b>	  Expert → Communication → HART output → Secondary value (150)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	The secondary value is displayed.

---

### Third value is (151)

---

<b>Navigation</b>	  Expert → Communication → HART output → Third value is (151)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Indicates which measured value is transmitted via the HART protocol as the third process value. The process value is configured via HART command 51.

**Factory setting**



- "Pressure" measuring mode: "Measured pressure LP"
- "Level" measuring mode, Lin. mode "Linear": "Measured pressure HP"
- "Level" measuring mode, Lin. mode "Activate table": "Measured pressure HP"

**Display**

Depending on the selected measuring mode, the following measured values can be displayed:

Measured value	Mode
Measured differential pressure	Level, pressure
Corrected pressure	Level, pressure
Measured pressure HP	Level, pressure
Sensor pressure HP	Level, pressure
Sensor temperature HP	Level, pressure
Measured pressure LP	Level, pressure
Sensor pressure LP	Level, pressure
Sensor temperature LP	Level, pressure
Level before linearization	Level
Tank content	Level
Process density	Level
Electronics temperature	Level, pressure

**Third value (152)****Navigation**

  Expert → Communication → HART output → Third value (152)



**Write permission**

No write permissions. Parameter is read only.

**Description**

The third value is displayed.

**4th value is (153)****Navigation**

  Expert → Communication → HART output → 4th value is (153)

**Write permission**

No write permissions. Parameter is read only.

**Description**

Indicates which measured value is transmitted via the HART protocol as the fourth process value. The process value is configured via HART command 51.

**Factory setting**

- "Pressure" measuring mode: "Sensor temperature HP"
- "Level" measuring mode, Lin. mode "Linear": "Measured pressure LP"
- "Level" measuring mode, Lin. mode "Activate table": "Measured pressure LP"

**Display**

Depending on the selected measuring mode, the following measured values can be displayed:





Measured value	Mode
Measured differential pressure	Level, pressure
Corrected pressure	Level, pressure
Measured pressure HP	Level, pressure
Sensor pressure HP	Level, pressure
Sensor temperature HP	Level, pressure
Measured pressure LP	Level, pressure
Sensor pressure LP	Level, pressure
Sensor temperature LP	Level, pressure
Level before linearization	Level
Tank content	Level
Process density	Level
Electronics temperature	Level, pressure

---

#### 4th value (154)

---



<b>Navigation</b>	  Expert → Communication → HART output → 4th value (154)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	The fourth value is displayed.

## 5.19 Expert → Communication → HART input

---

#### HART input value (155)



---

<b>Navigation</b>	  Expert → Communication → HART input → HART input value (155)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Display of the HART input value

---

#### HART input stat. (179)


---

<b>Navigation</b>	  Expert → Communication → HART input → HART input stat. (179)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Display of the HART input status Bad / Uncertain / Good

---

**HART input unit (156)**


---


<b>Navigation</b>	 Expert → Communication → HART input → HART input unit (156)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Display of the unit for the HART input value.
<b>Display</b>	<ul style="list-style-type: none"> <li>■ Unknown</li> <li>■ mbar, bar</li> <li>■ mmH2O, ftH2O, inH2O</li> <li>■ Pa, hPa, kPa, MPa</li> <li>■ psi</li> <li>■ mmHg, inHg</li> <li>■ Torr</li> <li>■ g/cm<sup>2</sup>, kg/cm<sup>2</sup></li> <li>■ lb/ft<sup>2</sup></li> <li>■ atm</li> <li>■ °C, °F, K, R</li> </ul>
<b>Factory setting</b>	Unknown

## 5.20 Expert → Diagnosis

---

**Diagnostic code (071)**



---

<b>Navigation</b>	 Expert → Diagnosis → Diagnostic code (071)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the diagnostic message with the highest priority currently present.

---

**Last diag. code (072)**




---

<b>Navigation</b>	 Expert → Diagnosis → Last diag. code (072)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the last diagnostic message that occurred and was rectified.
<b>Note</b>	<ul style="list-style-type: none"> <li>■ Digital communication: the last message is displayed.</li> <li>■ Use the "Reset logbook" parameter to clear the messages listed in the parameter "Last diag. code".</li> </ul>

---

**Reset logbook (159)**




---

<b>Navigation</b>	  Expert → Diagnosis → Reset logbook (159)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	Use this parameter to reset all messages of the parameter "Last diag. code" and the event logbook "Last diag. 1" to "Last diag. 10".
<b>Options</b>	<ul style="list-style-type: none"> <li>■ Cancel</li> <li>■ Confirm</li> </ul>
<b>Factory setting</b>	Cancel

---

**Reset peakhold (161)**




---

<b>Navigation</b>	  Expert → Diagnosis → Reset peakhold (161)
<b>Write permission</b>	Service engineers/Expert
<b>Description</b>	You can reset the peak indicators with this parameter.
<b>Options</b>	<ul style="list-style-type: none"> <li>■ Cancel</li> <li>■ Pressure HP</li> <li>■ Pressure LP</li> <li>■ Sensor temp. HP</li> <li>■ Sensor temp. LP</li> <li>■ All</li> </ul>
<b>Factory setting</b>	Cancel

---

**Pmax process LP (289)**


---



<b>Navigation</b>	  Expert → Diagnosis → Pmax process LP (289)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Customer-specific process detection limit (upper) for sensor module LP.
<b>Factory setting</b>	Upper nominal operating range value LP

---

**Pmin process LP (290)**


---



---

<b>Navigation</b>	  Expert → Diagnosis → Pmin process LP (290)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Customer-specific process detection limit (lower) for sensor module LP.
<b>Factory setting</b>	Lower nominal operating range value LP

---

### Operating hours (162)



---

<b>Navigation</b>	  Expert → Diagnosis → Operating hours (162)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the hours of operation. This parameter cannot be reset.

---

### Config. counter (100)



---

<b>Navigation</b>	  Expert → Diagnosis → Config. counter (100)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Displays the configuration counter. This counter is increased by one every time a parameter or group is changed. The counter counts up to 65535 and then starts again at zero.

---

### Sensor changes (287)



---

<b>Navigation</b>	  Expert → Diagnosis → Sensor changes (287)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the number of sensor module changes.

## 5.21 Expert → Diagnosis → Sensor HP

### Min. meas. press. (073)

---

<b>Navigation</b>	  Expert → Diagnosis → Sensor HP → Min. meas. press. (073)
<b>Write permission</b>	No write permissions. Parameter is read only.

**Description** Displays the lowest pressure value measured (peakhold indicator). You can reset this indicator by means of the "Reset peakhold" parameter.

---

#### COUNTER P < Pmin (262)

---

**Navigation**   Expert → Diagnosis → Sensor HP → Counter P < Pmin (262)

**Write permission** No write permissions. Parameter is read only.

**Description** Displays the negative pressure counter for the respective sensor module. The counter is incremented each time error 841 occurs. You can reset this value using the "Reset peakhold (161)" parameter.

---

#### Max. meas. press. (074)

---

**Navigation**   Expert → Diagnosis → Sensor HP → Max. meas. press. (074)

**Write permission** No write permissions. Parameter is read only.

**Description** Displays the highest pressure value measured (peakhold indicator). You can reset this indicator by means of the "Reset peakhold" parameter.

---

#### Counter P > Pmax (263)

---

**Navigation**   Expert → Diagnosis → Sensor HP → Counter P > Pmax (263)



**Write permission** No write permissions. Parameter is read only.

**Description** Displays the overpressure counter for the respective sensor module. The limit value is: upper sensor module nominal value + 10% of upper sensor module nominal value. You can reset this value using the "Reset peakhold (161)" parameter.

---

#### Min. meas.temp. (264)

---

**Navigation**   Expert → Diagnosis → Sensor HP → Min. meas.temp. (264)



**Write permission** No write permissions. Parameter is read only.

**Description** Displays the smallest temperature measured in the sensor module. You can reset this value using the "Reset peakhold (161)" parameter.

---

**Max. meas. temp. (265)**

---



<b>Navigation</b>	  Expert → Diagnosis → Sensor HP → Max. meas. temp. (265)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the largest temperature measured in the sensor module. You can reset this value using the "Reset peakhold (161)" parameter.

## 5.22 Expert → Diagnosis → Sensor LP

---

**Min. meas. press. (266)**



---

<b>Navigation</b>	  Expert → Diagnosis → Sensor LP → Min. meas. press. (266)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the lowest pressure value measured (peakhold indicator). You can reset this indicator by means of the "Reset peakhold" parameter.

---

**Counter P < Pmin (267)**



---

<b>Navigation</b>	  Expert → Diagnosis → Sensor LP → Counter P < Pmin (267)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the negative pressure counter for the respective sensor module. The counter is incremented each time error 841 occurs. You can reset this value using the "Reset peakhold (161)" parameter.

---

**Max. meas. press. (268)**



---

<b>Navigation</b>	  Expert → Diagnosis → Sensor LP → Max. meas. press.(268)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the highest pressure value measured (peakhold indicator). You can reset this peak indicator via the "Reset peakhold (161)" parameter.

---

**Counter P > Pmax (269)**



---

<b>Navigation</b>	  Expert → Diagnosis → Sensor LP → Counter P > Pmax (269)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the overpressure counter for the respective sensor module. The limit value is: upper sensor module nominal value + 10% of upper sensor module nominal value. You can reset this value using the "Reset peakhold (161)" parameter.

---

**Min. meas.temp. (270)**



---

<b>Navigation</b>	  Expert → Diagnosis → Sensor LP → Min. meas.Temp. (270)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the smallest temperature measured in the sensor module. You can reset this value using the "Reset peakhold (161)" parameter.

---

**Max. meas. temp. (271)**



---

<b>Navigation</b>	  Expert → Diagnosis → Sensor LP → Max. meas. temp. (271)
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	Displays the largest temperature measured in the sensor module. You can reset this value using the "Reset peakhold (161)" parameter.

## 5.23 Expert → Diagnosis → Diagnostic list

### Diagnostic list

- 
- Diagnostic 1 (075)
  - Diagnostic 2 (076)
  - Diagnostic 3 (077)
  - Diagnostic 4 (078)
  - Diagnostic 5 (079)
  - Diagnostic 6 (080)
  - Diagnostic 7 (081)
  - Diagnostic 8 (082)
  - Diagnostic 9 (083)
  - Diagnostic 10 (084)
-

<b>Navigation</b>	  Expert → Diagnosis → Diagnostic list
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	This parameter contains up to ten diagnosis messages that are currently pending, arranged in order of priority.



## 5.24 Expert → Diagnosis → Event logbook

### Event logbook

---

Last diag. 1 (085)  
 Last diag. 2 (086)  
 Last diag. 3 (087)  
 Last diag. 4 (088)  
 Last diag. 5 (089)  
 Last diag. 6 (090)  
 Last diag. 7 (091)  
 Last diag. 8 (092)  
 Last diag. 9 (093)  
 Last diag. 10 (094)



---

<b>Navigation</b>	  Expert → Diagnosis → Event logbook
<b>Write permission</b>	No write permissions. Parameter is read only.
<b>Description</b>	<p>This parameter contains the last 10 diagnosis messages to occur and be rectified. They can be reset using the "Reset logbook" parameter. Errors which have occurred multiple times are displayed once only.</p> <p>Errors may also appear multiple times if another error has occurred in the meantime. The messages are displayed in chronological order.</p>

## 5.25 Expert → Diagnosis → Simulation

### Simulation mode (112)

---

<b>Navigation</b>	  Expert → Diagnosis → Simulation → Simulation mode (112)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Switch on simulation and select the simulation mode. When changing the measuring mode or the level type (Lin. mode (037)) or when the device is restarted, any simulation running is switched off.

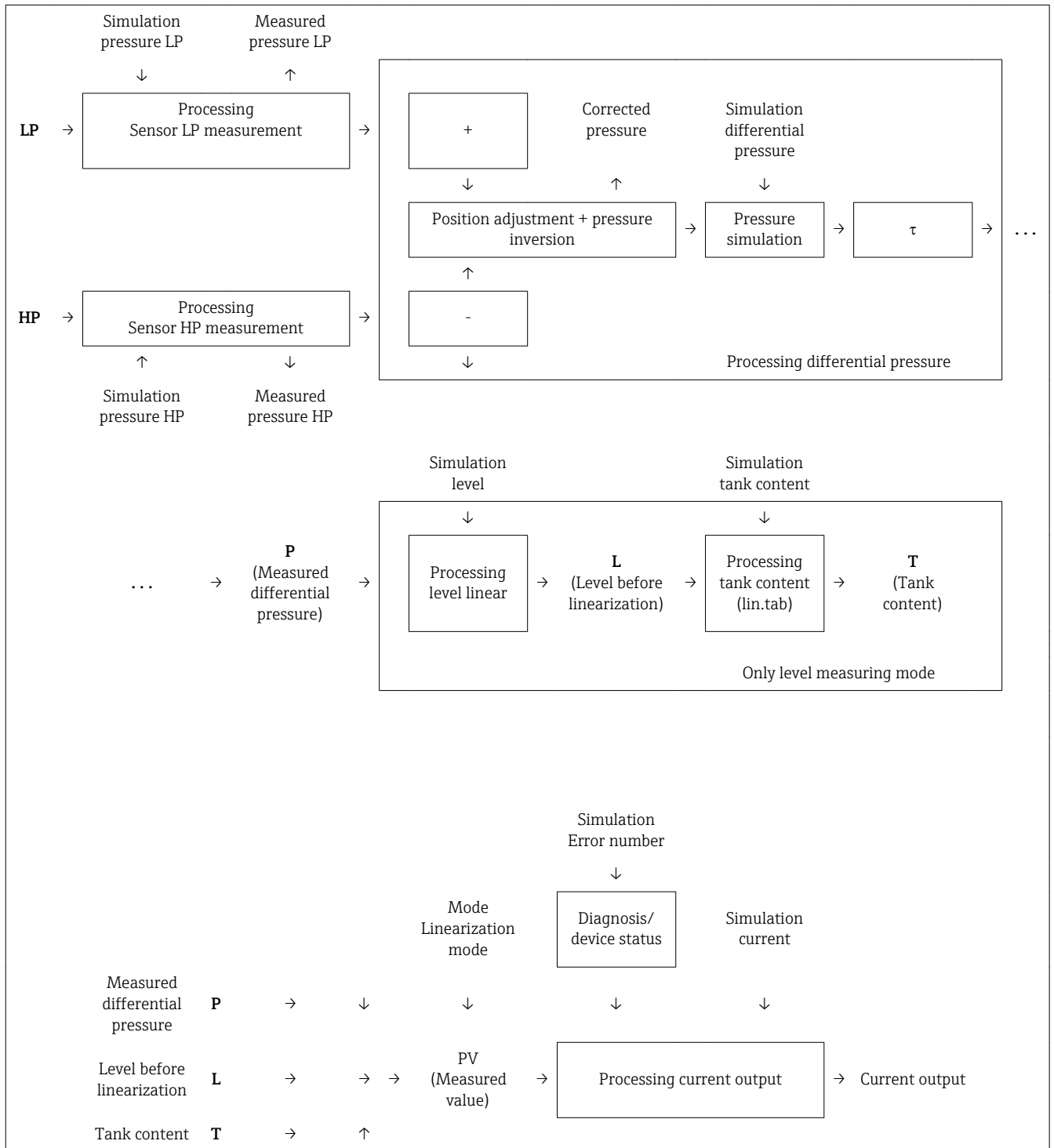


**Options**

- None
- Differential pressure, → see this table, "Sim. press." parameter
- Level, → see this table, "Sim. level" parameter
- Press. HP, → see this table, "Sim. press. HP" parameter
- Press. LP, → see this table, "Sim. press. LP" parameter
- Tank content, →see this table, "Sim. tank cont." parameter
- Current, → see this table, "Sim. current" parameter
- Alarm/warning, → see this table, "Sim. error no."

**Factory setting**



None



---

**Sim. diff.press. (113)**



---

<b>Navigation</b>	  Expert → Diagnosis → Simulation → Sim. diff.press. (113)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the simulation value. See also "Simulation mode".
<b>Prerequisite</b>	"Simulation mode" = Differential pressure
<b>Value at switch-on</b>	Current differential pressure measured value

---

**Sim. press. HP (284)**



---

<b>Navigation</b>	  Expert → Diagnosis → Simulation → Sim. press. HP (284)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the simulation value. See also "Simulation mode".
<b>Prerequisite</b>	"Simulation mode" = Pressure HP
<b>Value at switch-on</b>	Current pressure measured value

---

**Sim. press. LP (285)**



---

<b>Navigation</b>	  Expert → Diagnosis → Simulation → Sim. press. LP (285)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the simulation value. See also "Simulation mode".
<b>Prerequisite</b>	"Simulation mode" = Pressure LP
<b>Value at switch-on</b>	Current pressure measured value

---

**Sim. level (115)**

---

<b>Navigation</b>	  Expert → Diagnosis → Simulation → Sim. level (115)
<b>Write permission</b>	Operators/Service engineers/Expert
<b>Description</b>	Enter the simulation value. See also "Simulation mode".



**Prerequisite** "Measuring mode" = Level and "Simulation mode" = Level

**Value at switch-on** Current level measured value

---

### Sim. tank cont. (116)

---

**Navigation**   Expert → Diagnosis → Simulation → Sim. tank cont. (116)

**Write permission** Operators/Service engineers/Expert

**Description** Enter the simulation value. See also "Simulation mode".



**Prerequisite** "Measuring Mode" = level, Lin mode "Activate table" and "Simulation Mode" = Tank content

**Value at switch-on** Current tank content

---

### Sim. current (117)

---

**Navigation**   Expert → Diagnosis → Simulation → Sim. current (117)

**Write permission** Operators/Service engineers/Expert

**Description** Enter the simulation value. See also "Simulation mode".



**Prerequisite** "Simulation mode"= Current value

**Value at switch-on** Current value of the current

---

### Sim. error no. (118)

---

**Navigation**   Expert → Diagnosis → Simulation → Sim. error no. (118)

**Write permission** Operators/Service engineers/Expert

**Description** Enter the diagnostic message number. See also "Simulation mode".

**Prerequisite** "Simulation Mode" = Alarm/Warning

**Value at switch-on** 484 (Simulation active)

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Sensor changes (287) . . . . .	60		
Sensor press. LP (280) . . . . .	34		
Sensor pressure HP (109) . . . . .	34		
Sensor temp. HP (110) . . . . .	32		
Sensor temp. LP (283) . . . . .	32		
Ser.no. sensor HP (122) . . . . .	26		
Ser.no. sensor LP (274) . . . . .	26		
Serial number (096) . . . . .	25		







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