GP01048D/06/EN/01.15
71289149
Valid as of version
03.00.zz (Device firmware)

Products   Solutions   Services

Description of Device Parameters
Dosimag
Modbus RS485

Electromagnetic flowmeter

Menu/Variable
⊞ 📂 Proline Device
‑P▭ Access status tooling:
⊞ 🗀 Operation
⊞ 🗀 Setup
⊞ 🗀 Diagnostics
⊟ 📂 **Expert**
‑P▭ Locking status:
‑P▭ Access status tooling:
‑P▭ Enter access code:
⊞ 🗀 System
⊞ 🗀 Sensor
⊞ 🗀 Input
⊞ 🗀 Output
⊞ 🗀 Communication
⊞ 🗀 Application
⊞ 🗀 Diagnostics
‹   III   ›

Endress+Hauser

People for Process Automation
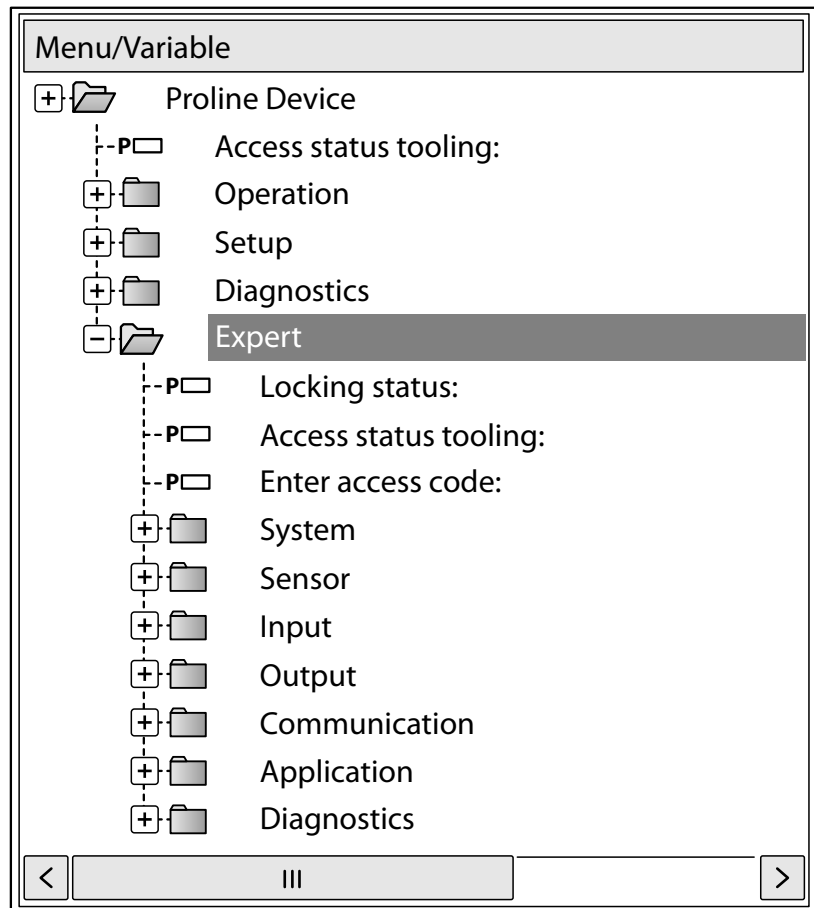
Table of contents

1   Document information

1.1   Document function

The document is part of the Operating Instructions and serves as a reference for parameters, providing a detailed explanation of each individual parameter of the Expert operating menu.

1.2   Target group

The document is aimed at specialists who work with the device over the entire life cycle and perform specific configurations.

1.3   Using this document

1.3.1   Information on the document structure

The document lists the submenus and their parameters according to the structure from the **Expert** menu (→ 🖺 7).
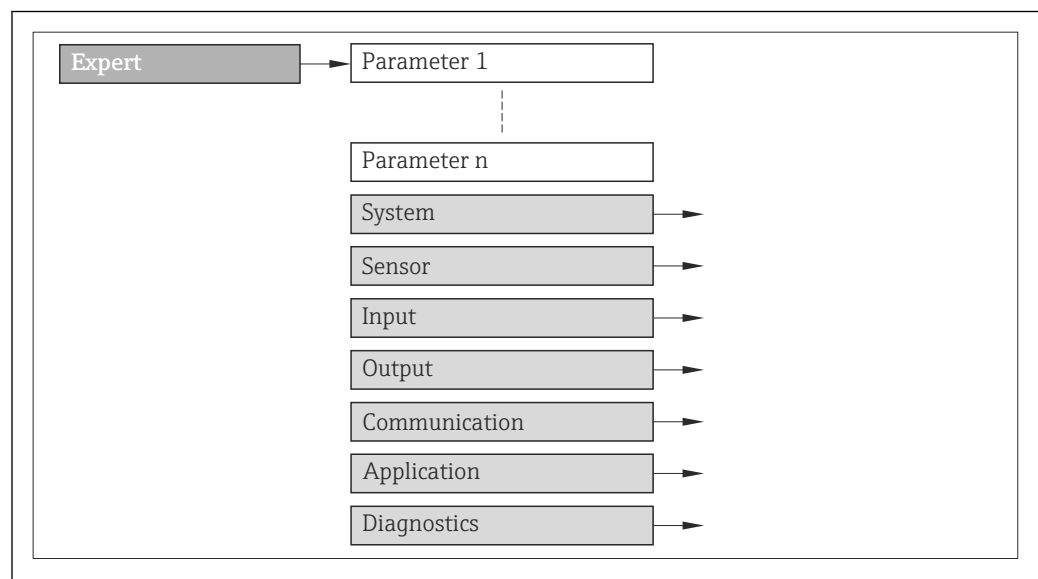
🖾 1   Sample graphic

For information on the arrangement of the parameters according to the structure of the **Operation** menu (→ 🖺 42), **Setup** menu, **Diagnostics** menu (→ 🖺 58), along with a brief description, see the Operating Instructions for the device.
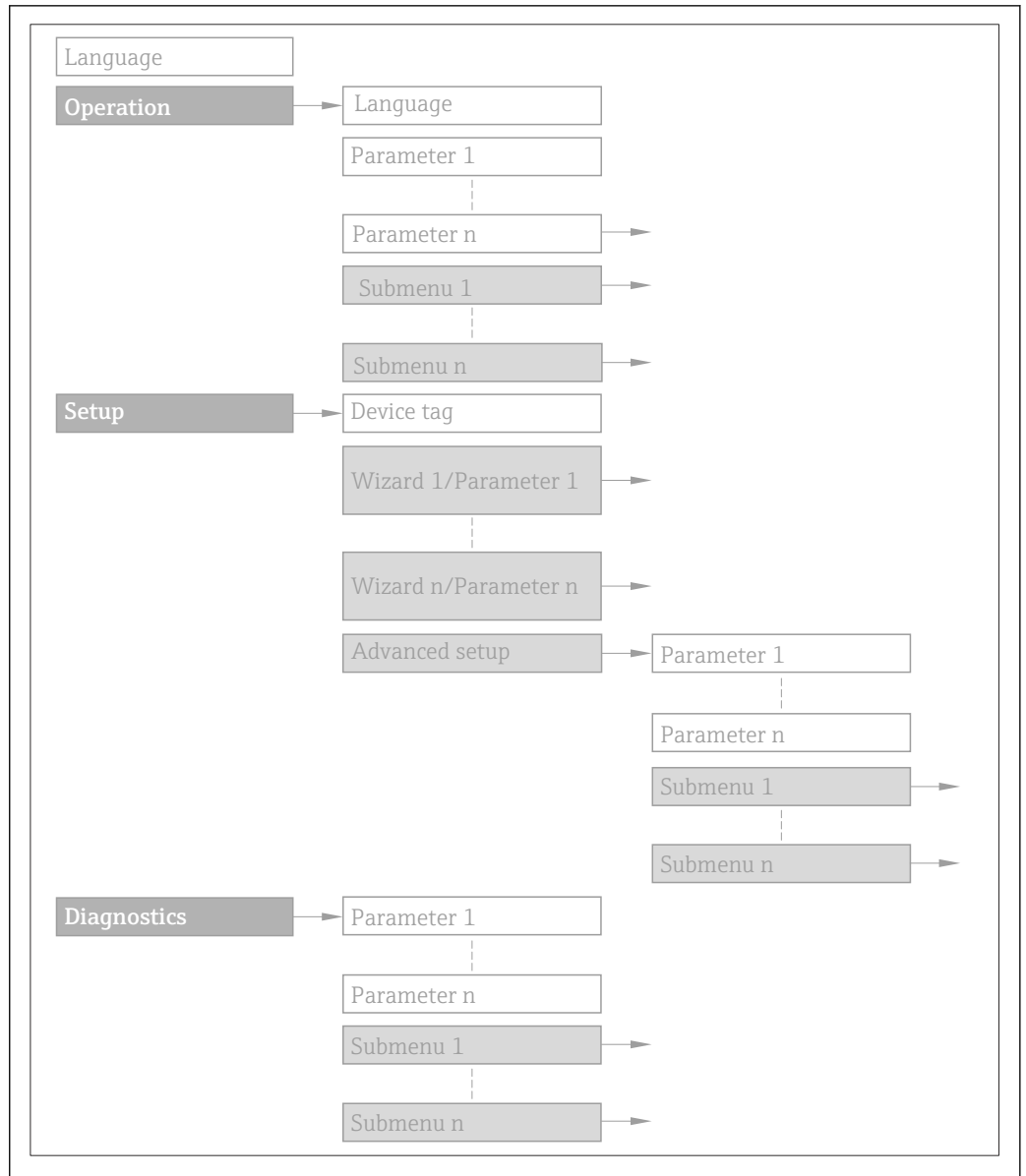
⊡ *2   Sample graphic*

For information about the operating philosophy, see the "Operating philosophy" chapter in the device's Operating Instructions

1.3.2   Structure of a parameter description

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

Complete parameter name	Write-protected parameter = 🔒

Navigation	🖥	Navigation path to the parameter via the operating tool The names of the menus, submenus and parameters are displayed in abbreviated format.
Prerequisite		The parameter is only available under these specific conditions
Description		Description of the parameter function
Options		List of the individual options for the parameter • Option 1 • Option 2
User entry		Input range for the parameter
User interface		Display value/data for the parameter
Factory setting		Default setting ex works
Additional information		Additional explanations (e.g. in examples): • On individual options • On display values/data • On the input range • On the factory setting • On the parameter function

1.4   Symbols used

1.4.1   Symbols for certain types of information

Symbol	Meaning
🛈	**Tip** Indicates additional information.
📖	Reference to documentation
📄	Reference to page
🖼	Reference to graphic
🖥	Operation via operating tool
🔒	Write-protected parameter

1.4.2   Symbols in graphics

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

2 Overview of the Expert operating menu

The following table provides an overview of the menu structure of the expert operating menu and its parameters. The page reference indicates where the associated description of the submenu or parameter can be found.

3 Description of device parameters

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

〆 Expert		
Locking status	→ 🗎 9	
Access status tooling	→ 🗎 10	
Enter access code	→ 🗎 10	
▶ System	→ 🗎 10	
▶ Sensor	→ 🗎 15	
▶ Input	→ 🗎 29	
▶ Communication	→ 🗎 31	
▶ Application	→ 🗎 37	
▶ Diagnostics	→ 🗎 58	

Locking status

Navigation	🖳	Expert → Locking status

Description Use this function to view the active write protection.

User interface Temporarily locked

Additional information *Display*

In the operating tool all active types of write protection are selected.

🛈 If additional write protection is active, this restricts the current access authorization even further. The write protection status can be viewed via the **Locking status** parameter (→ 🗎 9).

"Temporarily locked" option (priority 3)

Write access to the parameters is temporarily lock due to device-internal processing (e.g. data upload/download, reset). Once the internal processing has been completed, the parameters can be changed once again.

Access status tooling

Navigation	⊞ Expert → Access stat.tool
Description	Use this function to view the access authorization to the parameters via the operating tool.
User interface	• Operator • Maintenance
Factory setting	Maintenance
Additional information	*Description*

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

If additional write protection is active, this restricts the current access authorization even further. The write protection status can be viewed via the **Locking status** parameter (→ 🖹 9).

Display

Information on access authorization is provided in the "User roles and associated access authorization" and "Operating concept" sections of the Operations Instructions for the device.

Enter access code

Navigation	⊞ Expert → Ent. access code
Description	Use this function to enter the user-specific release code to remove parameter write protection.
User entry	0 to 9999

3.1 "System" submenu

Navigation   ⊞   Expert → System

► System		
	► Diagnostic handling	→ 🖹 11
	► Administration	→ 🖹 13

3.1.1 "Diagnostic handling" submenu

Navigation   🖵   Expert → System → Diagn. handling

▶ Diagnostic handling		
	Alarm delay	→ 🗎 11
	▶ Diagnostic behavior	→ 🗎 12

Alarm delay   🔒

Navigation   🖵   Expert → System → Diagn. handling → Alarm delay

Description   Use this function to enter the time interval until the device generates a diagnostic message.

📇 The diagnostic message is reset without a time delay.

User entry   0 to 60 s

Factory setting   0 s

Additional information   *Description*

This setting affects the following diagnostic messages:
- 004 Sensor
- 062 Sensor connection
- 082 Data storage
- 083 Memory content
- 242 Software incompatible
- 270 Main electronic failure
- 272 Main electronic failure
- 273 Main electronic failure
- 281 Electronic initialization
- 311 Electronic failure
- 322 Electronic drift
- 453 Flow override
- 500 Electrode difference voltage too high
- 832 Electronic temperature too high
- 833 Electronic temperature too low
- 834 Process temperature too high
- 835 Process temperature too low
- 937 EMC interference
- 938 EMC interference
- 991 Batch time exceeded

"Diagnostic behavior" submenu

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

ℹ️ Modifying the diagnostic behavior of a diagnostic event. Each diagnostic event is assigned a certain diagnostic behavior at the factory. The user can change this assignment for certain diagnostics events.

The following options are available in the **Assign behavior of diagnostic no. xxx** parameters:
- **Off** option
  The device continues to measure. The diagnostic event is ignored; it is neither entered into the Event logbook, nor is a diagnostic message generated.
- **Alarm** option
  The device continues to measure. The signal outputs assume the specified alarm condition. A diagnostic message is generated.
- **Warning** option
  The device continues to measure. A diagnostic message is generated.
- **Logbook entry only** option
  The device continues to measure. The diagnostic message is only entered in the **Event logbook** submenu (→ 🖹 67).

Navigation   🔲   Expert → System → Diagn. handling → Diagn. behavior

▶ Diagnostic behavior		
	Assign behavior of diagnostic no. 991	→ 🖹 12
	Assign behavior of diagnostic no. 937	→ 🖹 13
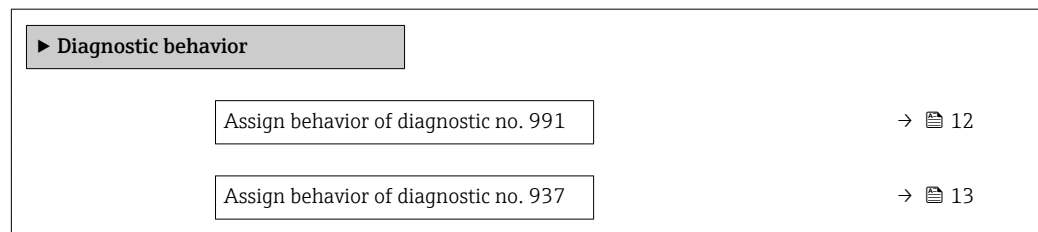
Assign behavior of diagnostic no. 991 (Batch time exceeded)   🔒

Navigation   🔲   Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 991

Description   Use this function to change the diagnostic behavior of the diagnostic message **991 Batch time exceeded**.

Selection   • Off
                            • Alarm
                            • Warning
                            • Logbook entry only

Factory setting   Warning

Additional information ℹ️ For a detailed description of the options available, see → 🖹 12

Assign behavior of diagnostic no. 937 (EMC interference)   🔒

Navigation	⊟ Expert → System → Diagn. handling → Diagn. behavior → Diagnostic no. 937
Description	Use this function to change the diagnostic behavior of the diagnostic message **937 EMC interference**.
Selection	• Off • Alarm • Warning • Logbook entry only
Factory setting	Warning
Additional information	🛈 For a detailed description of the options available for selection: → 🖺 12

3.1.2 "Administration" submenu

Navigation   ⊟   Expert → System → Administration

▸ Administration	
Device reset	→ 🖺 13
Permanent storage	→ 🖺 14
Device tag	→ 🖺 14
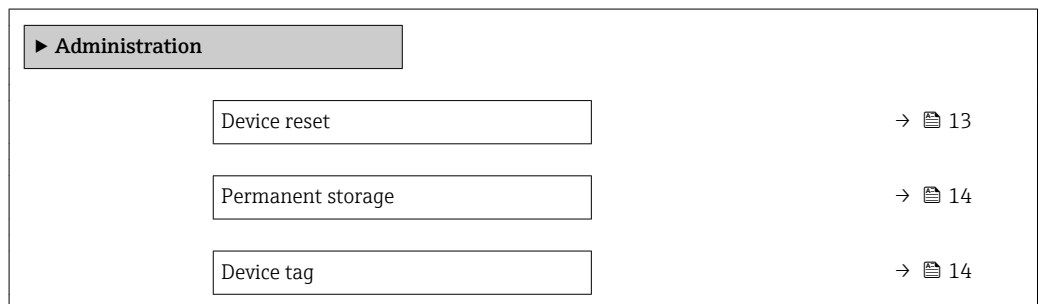
Device reset   🔒

Navigation	⊟ Expert → System → Administration → Device reset
Description	Use this function to choose whether to reset the device configuration - either entirely or in part - to a defined state.
Selection	• Cancel • To delivery settings • Restart device
Factory setting	Cancel
Additional information	*"Cancel" option* No action is executed and the user exits the parameter.

"To delivery settings" option

All the parameters are reset to their factory settings.

"Restart device" option

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

Permanent storage

Navigation	☐ Expert → System → Administration → Perm. storage
Description	Use this function to switch permanent storage on and off.
Selection	▪ Off ▪ On
Factory setting	On
Additional information	*Description*

NOTE!

If non-volatile device parameters are modified via the MODBUS RS485 function codes 06, 16 or 23, the change is saved in the EEPROM of the measuring device.

The number of writes to the EEPROM is technically restricted to a maximum of 1 million.

▸ Make sure to comply with this limit since, if it is exceeded, data loss and measuring device failure will result.

▸ Avoid constantly writing non-volatile device parameters via the MODBUS RS485.

Device tag

Navigation	☐ Expert → System → Administration → Device tag
Description	Use this function to enter the name for the measuring point.
User entry	Max. 16 characters such as letters, numbers or special characters (e.g. @, %, /).
Factory setting	Dosimag

3.2 "Sensor" submenu

Navigation   ▤   Expert → Sensor

‣ Sensor	
‣ Measured values	→ 🗎 15
‣ System units	→ 🗎 18
‣ Process parameters	→ 🗎 22
‣ Sensor adjustment	→ 🗎 26
‣ Calibration	→ 🗎 28

3.2.1 "Measured values" submenu

Navigation   ▤   Expert → Sensor → Measured val.

‣ Measured values	
‣ Process variables	→ 🗎 15
‣ Totalizer	→ 🗎 16
‣ Input values	→ 🗎 17

"Process variables" submenu

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

‣ Process variables	
Volume flow	→ 🗎 15

Volume flow

Navigation   ▤   Expert → Sensor → Measured val. → Process variab. → Volume flow

Description   Use this function to view the volume flow currently measured.

User interface   Signed floating-point number

Additional information   *Dependency*

The unit is taken from the **Volume flow unit** parameter (→ 🖹 18)

Totalizer

Navigation   🖳   Expert → Sensor → Measured val. → Totalizer

▶ Totalizer		
	Totalizer value 1 to 3	→ 🖹 16
	Totalizer overflow 1 to 3	→ 🖹 17
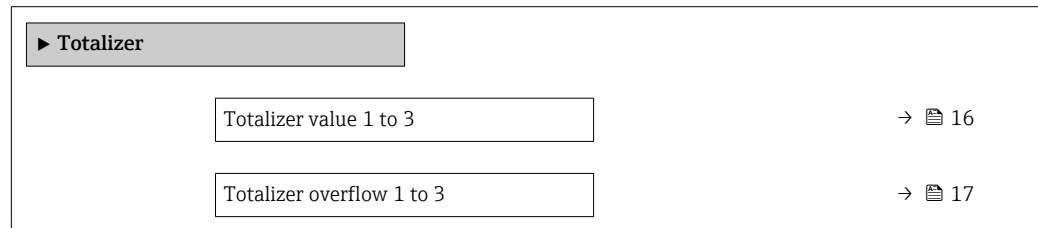
Totalizer value 1 to 3

Navigation   🖳   Expert → Sensor → Measured val. → Totalizer → Totalizer val. 1 to 3

Prerequsite   In the **Assign process variable** parameter (→ 🖹 38) of the **Totalizer 1 to 3** submenu, the **Volume flow** option is selected.

Description   Displays the current totalizer reading.

User interface   Signed floating-point number

Additional information   *Description*

As it is only possible to display a maximum of 7 digits, the current counter value is the sum of the totalizer value and the overflow value from the **Totalizer overflow 1 to 3** parameter if the display range is exceeded.

In the event of an error, the totalizer adopts the mode defined in the **Failure mode** parameter (→ 🖹 41).

User interface

The value of the process variable totalized since measuring began can be positive or negative. This depends on the settings in the **Totalizer operation mode** parameter (→ 🖹 39).

The unit of the selected process variable is specified for the totalizer in the **Assign process variable** parameter. If the following is selected in the **Assign process variable** parameter:
Volume flow option: **Volume flow unit** parameter (→ 🖹 18)

Example

Calculation of the current totalizer reading when the value exceeds the 7-digit display range:
- Value in the **Totalizer value 1** parameter: $196\,845.7$ m^3
- Value in the **Totalizer overflow 1** parameter: $1 \cdot 10^7$ (1 overflow) = $10\,000\,000$ [m^3]
- Current totalizer reading: $10\,196\,845.7$ m^3

Totalizer overflow 1 to 3	
Navigation	⊞ Expert → Sensor → Measured val. → Totalizer → Tot. overflow 1 to 3
Prerequsite	In the **Assign process variable** parameter (→ 🖺 38) of the **Totalizer 1 to 3** submenu, the **Volume flow** option is selected.
Description	Displays the current totalizer overflow.
User interface	Integer with sign
Additional information	*Description*

Description

If the current reading has more than 7 digits, which is the maximum value range that can be displayed, the value above this range is given as an overflow. The current totalizer value is therefore the sum of the overflow value and the totalizer value from the **Totalizer value 1 to 3** parameter.

User interface

ℹ The unit of the selected process variable is specified for the totalizer in the **Assign process variable** parameter. If the following is selected in the **Assign process variable** parameter:
Volume flow option: **Volume flow unit** parameter (→ 🖺 18)

Example

Calculation of the current totalizer reading when the value exceeds the 7-digit display range:
- Value in the **Totalizer value 1** parameter: $196\,845.7$ m^3
- Value in the **Totalizer overflow 1** parameter: $2 \cdot 10^7$ (2 overflows) = $20\,000\,000$ [m^3]
- Current totalizer reading: $20\,196\,845.7$ m^3

"Input values" submenu

Navigation   ⊞   Expert → Sensor → Measured val. → Input values

▶ Input values	
Value status input	→ 🖺 17
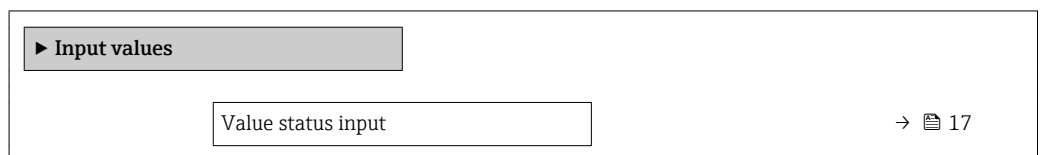
Value status input	
Navigation	⊞ Expert → Sensor → Measured val. → Input values → Val. status inp.
Description	Displays the current input signal level.

User interface
- High
- Low

3.2.2 "System units" submenu

Navigation   ▣   Expert → Sensor → System units

► System units		
Volume flow unit	→ 🕮 18
Volume unit	→ 🕮 20
Date/time format	→ 🕮 20
► User-specific units	→ 🕮 21
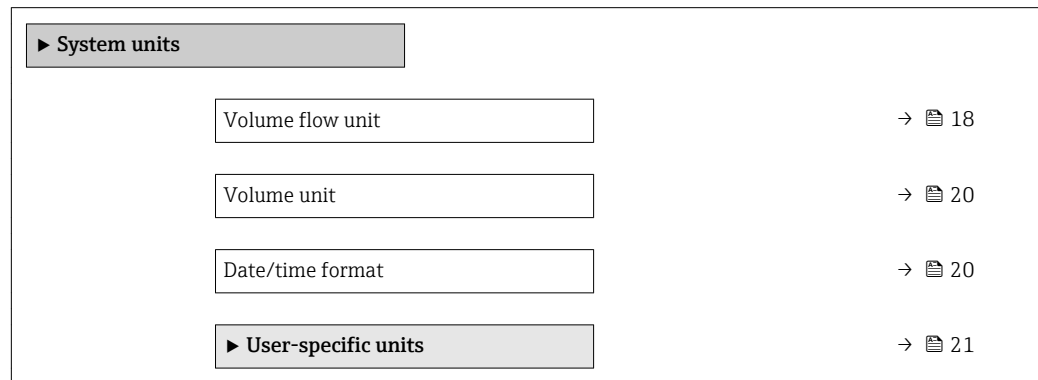
Volume flow unit   🔒

Navigation   ▣   Expert → Sensor → System units → Volume flow unit

Description   Use this function to select the unit for the volume flow.

Selection	*SI units*	*US units*	*Imperial units*
	• cm³/s	• af/s	• gal/s (imp)
	• cm³/min	• af/min	• gal/min (imp)
	• cm³/h	• af/h	• gal/h (imp)
	• cm³/d	• af/d	• gal/d (imp)
	• dm³/s	• ft³/s	• Mgal/s (imp)
	• dm³/min	• ft³/min	• Mgal/min (imp)
	• dm³/h	• ft³/h	• Mgal/h (imp)
	• dm³/d	• ft³/d	• Mgal/d (imp)
	• m³/s	• fl oz/s (us)	• bbl/s (imp;beer)
	• m³/min	• fl oz/min (us)	• bbl/min (imp;beer)
	• m³/h	• fl oz/h (us)	• bbl/h (imp;beer)
	• m³/d	• fl oz/d (us)	• bbl/d (imp;beer)
	• ml/s	• gal/s (us)	• bbl/s (imp;oil)
	• ml/min	• gal/min (us)	• bbl/min (imp;oil)
	• ml/h	• gal/h (us)	• bbl/h (imp;oil)
	• ml/d	• gal/d (us)	• bbl/d (imp;oil)
	• l/s	• kgal/s (us)	
	• l/min	• kgal/min (us)	
	• l/h	• kgal/h (us)	
	• l/d	• kgal/d (us)	
	• hl/s	• Mgal/s (us)	
	• hl/min	• Mgal/min (us)	
	• hl/h	• Mgal/h (us)	
	• hl/d	• Mgal/d (us)	
	• Ml/s	• bbl/s (us;liq.)	
	• Ml/min	• bbl/min (us;liq.)	
	• Ml/h	• bbl/h (us;liq.)	
	• Ml/d	• bbl/d (us;liq.)	
		• bbl/s (us;beer)	
		• bbl/min (us;beer)	
		• bbl/h (us;beer)	
		• bbl/d (us;beer)	
		• bbl/s (us;oil)	
		• bbl/min (us;oil)	
		• bbl/h (us;oil)	
		• bbl/d (us;oil)	
		• bbl/s (us;tank)	
		• bbl/min (us;tank)	
		• bbl/h (us;tank)	
		• bbl/d (us;tank)	

Custom-specific units
• User vol./s
• User vol./min
• User vol./h
• User vol./d

Factory setting   Country-specific:
• ml/s
• fl oz/s (us)

Additional information   *Result*

The selected unit applies for:
Volume flow parameter (→ 🖺 15)

Options

ℹ️ For an explanation of the abbreviated units: → 🖺 75

Customer-specific units

ℹ️ The unit for the customer-specific volume is specified in the **User volume text** parameter (→ 🖹 21).

Volume unit	🔒

Navigation   ▤   Expert → Sensor → System units → Volume unit

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

Selection
SI units
- cm³
- dm³
- m³
- ml
- l
- hl
- Ml Mega

US units
- af
- ft³
- fl oz (us)
- gal (us)
- kgal (us)
- Mgal (us)
- bbl (us;oil)
- bbl (us;liq.)
- bbl (us;beer)
- bbl (us;tank)

Imperial units
- gal (imp)
- Mgal (imp)
- bbl (imp;beer)
- bbl (imp;oil)

Custom-specific units
User vol.

Factory setting   Country-specific:
- ml
- fl oz (us)

Additional information   *Options*

ℹ️ For an explanation of the abbreviated units: → 🖹 75

Customer-specific units

ℹ️ The unit for the customer-specific volume is specified in the **User volume text** parameter (→ 🖹 21).

Date/time format	🔒

Navigation   ▤   Expert → Sensor → System units → Date/time format

Description   Use this function to select the desired time format for calibration history.

Selection
- dd.mm.yy hh:mm
- dd.mm.yy hh:mm am/pm
- mm/dd/yy hh:mm
- mm/dd/yy hh:mm am/pm

Factory setting   dd.mm.yy hh:mm

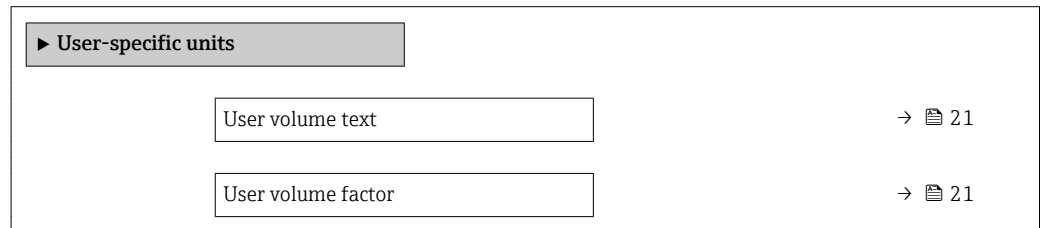| Additional information	*Selection*

ℹ️ For an explanation of the abbreviated units: → 🖹 75

"User-specific units" submenu

Navigation	🖳	Expert → Sensor → System units → User-spec. units

```
▶ User-specific units

                    User volume text                          →  🖺 21

                    User volume factor                        →  🖺 21
```

User volume text   🔒

Navigation	🖳	Expert → Sensor → System units → User-spec. units → Volume text

Description	Use this function to enter a text for the user-specific unit of volume and volume flow. The corresponding time units (s, min, h, d) for volume flow are generated automatically.

User entry	Max. 10 characters such as letters, numbers or special characters (@, %, /)

Factory setting	User vol.

Additional information	*Result*

ℹ️ The defined unit is shown as an option in the choose list of the following parameters:
- **Volume flow unit** parameter (→ 🖹 18)
- **Volume unit** parameter (→ 🖹 20)

Example

If the text GLAS is entered, the choose list of the **Volume flow unit** parameter (→ 🖹 18) shows the following options:
- GLAS/s
- GLAS/min
- GLAS/h
- GLAS/d

User volume factor   🔒

Navigation	🖳	Expert → Sensor → System units → User-spec. units → Volume factor

Description	Use this function to enter a quantity factor for the user-specific volume and volume flow unit.

| User entry | Signed floating-point number |

| Factory setting | 1.0 |

3.2.3 "Process parameters" submenu

Navigation   🖳   Expert → Sensor → Process param.

▶ Process parameters	
Flow override	→ 🖺 22
▶ Low flow cut off	→ 🖺 23

Flow override   🔒

| Navigation | 🖳 | Expert → Sensor → Process param. → Flow override |

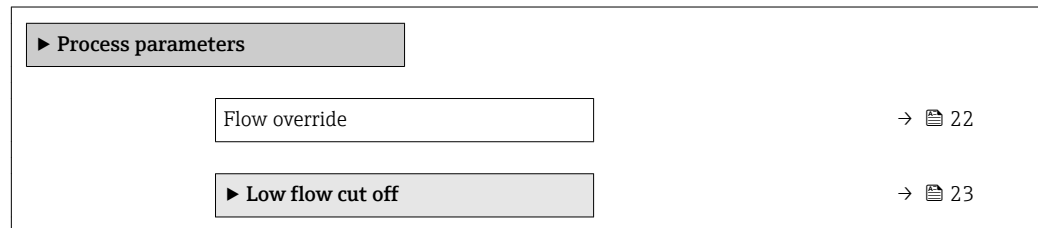| Description | Use this function to select whether to interrupt the evaluation of measured values. This is useful for the cleaning processes of a pipeline, for example. |

| Selection | • Off
• On |

| Factory setting | Off |

| Additional information | *Effect* |

ℹ️ This setting affects all the functions of the measuring device.

ℹ️ Positive zero return is not relevant for most applications.

Description

ℹ️ The volume flow is set to **0**.

Flow override is active
- The diagnostic message diagnostic message ⚠️**C453 Flow override** is displayed.
- Output values
  - Output: 0
  - Temperature: proceeding output
  - Totalizers 1-3: Stop being totalized

"Low flow cut off" submenu

ℹ️ Low flow cut off is an important function for many applications to shut out inherent noise from the measuring device and the application in the lower measuring range. If the flow drops below a certain minimum value, the value is set to **0** so that the flow signal can be kept at the zero point between two batches.

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

▸ Low flow cut off	
Assign process variable	→ 🗎 23
On value low flow cutoff	→ 🗎 23
Off value low flow cutoff	→ 🗎 24
Pressure shock suppression	→ 🗎 24

Assign process variable   🔒

Navigation　　　　🖥️　Expert → Sensor → Process param. → Low flow cut off → Assign variable

Description　　　　Use this function to select the process variable for low flow cutoff detection.

Selection　　　　　• Off
　　　　　　　　　　• Volume flow

Factory setting　　　Volume flow

On value low flow cutoff   🔒

Navigation　　　　🖥️　Expert → Sensor → Process param. → Low flow cut off → On value

Prerequisite　　　　In the **Assign process variable** parameter (→ 🗎 23), the **Volume flow** option is selected.

Description　　　　Use this function to enter a switch-on value for low flow cut off. Low flow cut off is activated if the value entered is not equal to 0 → 🗎 24.

User entry　　　　Signed floating-point number

Factory setting　　　Depends on country and nominal diameter → 🗎 73

Additional information　*Dependency*

ℹ️ The unit depends on the process variable selected in the **Assign process variable** parameter (→ 🗎 23).

Off value low flow cutoff	⌂

Navigation	☰ Expert → Sensor → Process param. → Low flow cut off → Off value
Prerequsite	In the **Assign process variable** parameter (→ 🖺 23), the **Volume flow** option is selected.
Description	Use this function to enter a switch-off value for low flow cut off. The off value is entered as a positive hysteresis from the on value→ 🖺 23.
User entry	0 to 100.0 %
Factory setting	50 %
Additional information	*Example*

- **On value low flow cutoff** parameter (→ 🖺 23): 2 g/s
- **Off value low flow cutoff** parameter (→ 🖺 24): 50 %
- Switch-off value: 3 g/s

A0012887

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

Pressure shock suppression	⌂

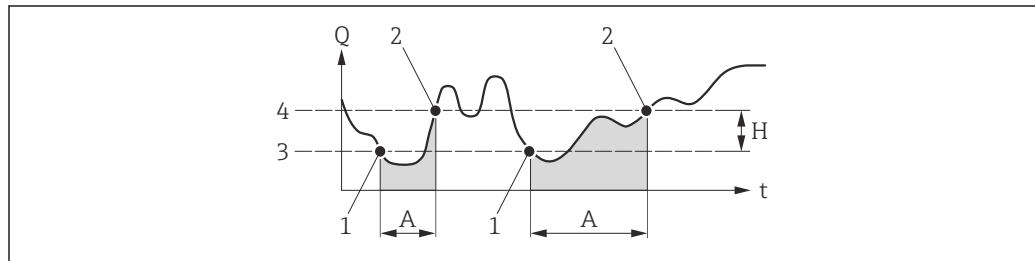| Navigation	☰ Expert → Sensor → Process param. → Low flow cut off → Pres. shock sup.
Prerequsite	In the **Assign process variable** parameter (→ 🖺 23), the **Volume flow** option is selected.
Description	Use this function to enter the time interval for signal suppression (= active pressure shock suppression).
User entry	0 to 100 s
Factory setting	0 s

Additional information   *Description*

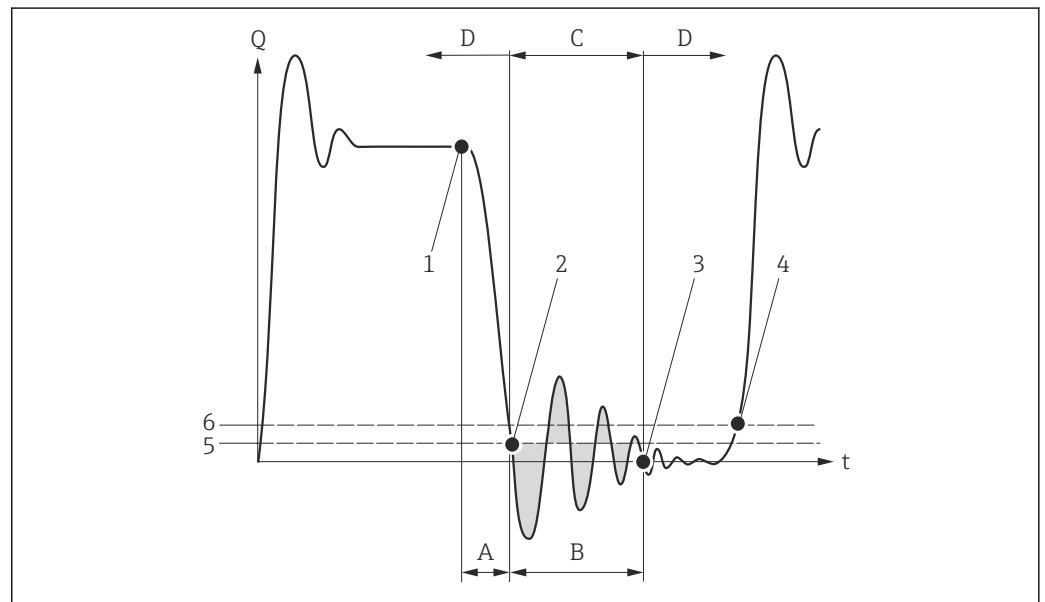**Pressure shock suppression is enabled**
- Prerequisite:
  Flow rate < on-value of low flow cut off
- Output values
  – Flow displayed: 0
  – Totalizer: the totalizers are pegged at the last correct value

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

Example

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

A0012888

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

3.2.4   "Sensor adjustment" submenu

Navigation   ▣   Expert → Sensor → Sensor adjustm.

▶ **Sensor adjustment**		
	Installation direction	→ 🖺 26
	Integration time	→ 🖺 26
	Measuring period	→ 🖺 26
	▶ **Process variable adjustment**	→ 🖺 27

Installation direction   🔓

Navigation   ▣   Expert → Sensor → Sensor adjustm. → Install. direct.

Description   Use this function to change the sign of the medium flow direction.

Selection   • Flow in arrow direction
                             • Flow against arrow direction

Factory setting   Flow in arrow direction

Additional information   *Description*

                             ℹ️ Before changing the sign: ascertain the actual direction of fluid flow with reference to
                                 the direction indicated by the arrow on the sensor nameplate.

Integration time

Navigation   ▣   Expert → Sensor → Sensor adjustm. → Integration time

Description   Display the duration of an integration cycle.

User interface   1 to 65 ms

Factory setting   5 ms

Measuring period

Navigation   ▣   Expert → Sensor → Sensor adjustm. → Measuring period

Description   Display the time of a full measuring period.

User interface	6 to 80 ms
Factory setting	12.5 ms

"Process variable adjustment" submenu

Navigation   Expert → Sensor → Sensor adjustm. → Variable adjust

```
▶ Process variable adjustment

    Volume flow offset                          →  🖺 27

    Volume flow factor                          →  🖺 27
```

Volume flow offset

Navigation	Expert → Sensor → Sensor adjustm. → Variable adjust → Vol. flow offset
Description	Use this function to enter the zero point shift for the volume flow trim. The volume flow unit on which the shift is based is m³/s.
User entry	Signed floating-point number
Factory setting	0 m³/s
Additional information	*Description*

ℹ Corrected value = (factor × value) + offset

Volume flow factor

Navigation	Expert → Sensor → Sensor adjustm. → Variable adjust → Vol. flow factor
Description	Use this function to enter a quantity factor for the volume flow. This multiplication factor is applied over the volume flow range.
User entry	Positive floating-point number
Factory setting	1
Additional information	*Description*

ℹ Corrected value = (factor × value) + offset

3.2.5 "Calibration" submenu

Navigation   ▣   Expert → Sensor → Calibration

► Calibration		
Nominal diameter	→ 🖺 28	
Calibration factor	→ 🖺 28	
Zero point	→ 🖺 28	

Nominal diameter

Navigation   ▣   Expert → Sensor → Calibration → Nominal diameter

Description   Displays the nominal diameter of the sensor.

User interface   DNxx / x"

Factory setting   Depends on the size of the sensor

Additional information   *Description*

🛈 The value is also specified on the sensor nameplate.

Calibration factor

Navigation   ▣   Expert → Sensor → Calibration → Cal. factor

Description   Displays the current calibration factor for the sensor.

User interface   Positive floating-point number

Factory setting   Depends on nominal diameter and calibration.

Zero point

Navigation   ▣   Expert → Sensor → Calibration → Zero point

Description   This function shows the zero point correction value for the sensor.

User interface   Signed floating-point number

Factory setting   Depends on nominal diameter and calibration

3.3   "Input" submenu

Navigation   Expert → Input

▸ Input	
▸ Status input	→ 🗎 29
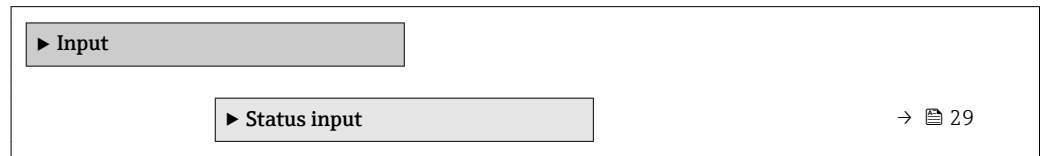
3.3.1   "Status input" submenu

Navigation   Expert → Input → Status input

▸ Status input	
Assign status input	→ 🗎 29
Value status input	→ 🗎 30
Active level	→ 🗎 30
Response time status input	→ 🗎 31
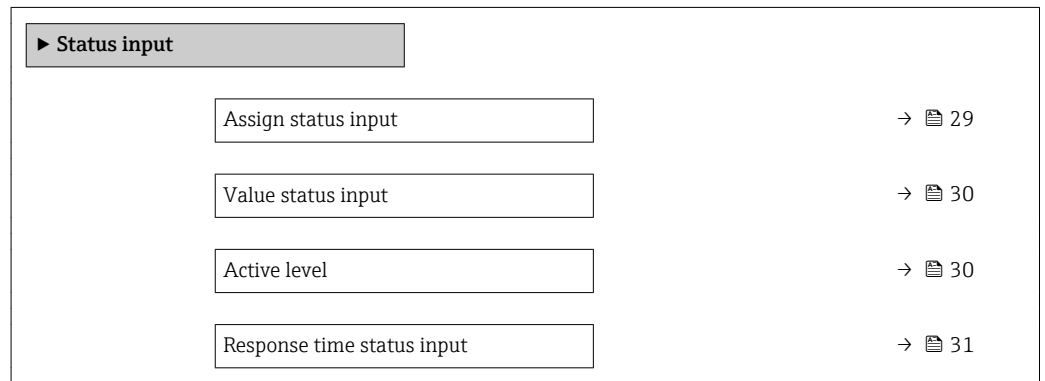
Assign status input   🔒

Navigation   Expert → Input → Status input → Assign stat.inp.

Prerequsite   Start condition for a batching process:
• There is no diagnostic message from the **Alarm** category.
• The batch quantity must be > **0**.
• The **Batching** option is selected in the **Switch output function** parameter (→ 🗎 47).

Description   Use this function to select the function for the status input.

Selection   • Off
• Start batch
• Start & stop batch
• Reset totalizer 1
• Reset totalizer 2
• Reset totalizer 3
• Reset all totalizers
• Flow override

Factory setting   Off

Additional information   *Options*

- Off
  The status input is switched off.
- Start batch
  A pulse initiates a batching process if there is none running and if the other start
  conditions have also been met.
- Start & stop batch
  A pulse either initiates a batching process if none is running and if the other start
  conditions have also been met, or it stops an ongoing batching process. A new drip
  quantity and a new drip correction quantity are not calculated in this case (averaging
  and single outliers).
- Reset totalizer 1...3
  The individual totalizers are reset.
- Reset all totalizers
  All totalizers are reset.
- Flow override
  The Flow override (→ 🖺 22) is activated.

🛈 Note on the Flow override (→ 🖺 22):
  - The Flow override (→ 🖺 22) is enabled as long as the level is at the status input
    (continuous signal).
  - All other assignments react to a change in level (pulse) at the status input.

Value status input

Navigation   🖳   Expert → Input → Status input → Val. status inp.

Description   Displays the current input signal level.

User interface   • High
                          • Low

Active level   🔒

Navigation   🖳   Expert → Input → Status input → Active level

Description   Use this function to determine the input signal level at which the assigned function is
                        activated.

Selection   • High
                      • Low

Factory setting   High

Response time status input	🔒

Navigation	⌨ Expert → Input → Status input → Response time
Description	Use this function to enter the minimum time period for which the input signal level must be present before the selected function is activated.
User entry	10 to 200 ms
Factory setting	50 ms

3.4   "Communication" submenu

Navigation   ⌨   Expert → Communication

‣ Communication	
‣ Modbus configuration	→ 🖻 31
‣ Modbus information	→ 🖻 35
‣ Modbus data map	→ 🖻 36

3.4.1   "Modbus configuration" submenu

Navigation   ⌨   Expert → Communication → Modbus config.

‣ Modbus configuration	
Bus address	→ 🖻 32
Baudrate	→ 🖻 32
Data transfer mode	→ 🖻 32
Parity	→ 🖻 33
Byte order	→ 🖻 33
Telegram delay	→ 🖻 34
Assign diagnostic behavior	→ 🖻 34

Failure mode	→ 🗎 34
Interpreter mode	→ 🗎 35

Bus address   🔒

Navigation	☐ Expert → Communication → Modbus config. → Bus address

Description   For entering the device address.

User entry   1 to 247

Factory setting   247

Baudrate   🔒

Navigation	☐ Expert → Communication → Modbus config. → Baudrate

Description   Use this function to select a transmission rate.

Selection   • 1200 BAUD
                    • 2400 BAUD
                    • 4800 BAUD
                    • 9600 BAUD
                    • 19200 BAUD
                    • 38400 BAUD
                    • 57600 BAUD
                    • 115200 BAUD

Factory setting   19200 BAUD

Data transfer mode   🔒

Navigation	☐ Expert → Communication → Modbus config. → Data trans. mode

Description   Use this function to select the data transmission mode.

Selection   • ASCII
                    • RTU

Factory setting   RTU

Additional information   *Options*

- ASCII
  Transmission of data in the form of readable ASCII characters. Error protection via LRC.
- RTU
  Transmission of data in binary form. Error protection via CRC16.

Parity	🔒

Navigation	🖳 Expert → Communication → Modbus config. → Parity

Description	Use this function to select the parity bit.

Selection	• Odd • Even • None / 1 stop bit • None / 2 stop bits

Factory setting	Even

Additional information   *Options*

Picklist **ASCII** option:
- 0 = **Even** option
- 1 = **Odd** option

Picklist **RTU** option:
- 0 = **Even** option
- 1 = **Odd** option
- 2 = **None / 1 stop bit** option
- 3 = **None / 2 stop bits** option

Byte order	🔒

Navigation	🖳 Expert → Communication → Modbus config. → Byte order

Description	Use this function to select the sequence in which the bytes are transmitted. The transmission sequence must be coordinated with the Modbus master.

Selection	• 0-1-2-3 • 3-2-1-0 • 1-0-3-2 • 2-3-0-1

Factory setting	1-0-3-2

Telegram delay	🔒

Navigation	⊟	Expert → Communication → Modbus config. → Telegram delay

Description	Use this function to enter a delay time after which the measuring device replies to the request telegram of the Modbus master. This allows communication to be adapted to slow Modbus RS485 masters.

User entry	0 to 100 ms

Factory setting	6 ms

Assign diagnostic behavior	🔒

Navigation	⊟	Expert → Communication → Modbus config. → Assign diag. beh

Description	Use this function to select the diagnostic behavior for Modbus communication.

| Selection | • Off
• Alarm or warning
• Warning
• Alarm |
| --- | --- |

Factory setting	Alarm

| Additional information | *Description*

Defines the category of messages to which data transmission responds:
• Off
  The device continues to measure. The diagnostic event is ignored, and no diagnostic message is generated.
• Alarm or warning
  The device continues to measure. A diagnostic message is generated. In the event of an alarm, the signal outputs assume the specified alarm condition.
• Warning
  The device continues to measure. A diagnostic message is generated.
• Alarm
  The device continues to measure. The signal outputs assume the specified alarm condition. A diagnostic message is generated. |
| --- | --- |

Failure mode	🔒

Navigation	⊟	Expert → Communication → Modbus config. → Failure mode

Description	Use this function to select the measured value output in the event of a diagnostic message via Modbus communication.

| Selection | • NaN value
• Last valid value |
| --- | --- |

Factory setting	NaN value

Additional information　　*Options*

- NaN value
  The device outputs the NaN value [1].
- Last valid value
  The device outputs the last valid measured value before the fault occurred.

ⓘ This effect of this parameter depends on the option selected in the **Assign diagnostic behavior** parameter (→ 🖺 34).

Interpreter mode	🔒

Navigation	🖳	Expert → Communication → Modbus config. → Interpreter mode

Description　　Use this function to select the interpreter mode. This mode defines the behavior of the telegram reception interpreter.

Selection
- Standard
- Ignore surplus bytes

Factory setting　　Standard

Additional information　　*"Standard" option*

Behaves according to the Modbus standard, i.e. the last two bytes received are the checksum CRC16.

NOTE!

The selection is only relevant in the RTU mode. In the ASCII mode, the device always behaves according to the Modbus standard.

"Ignore surplus bytes" option

If supported by the function code, the two bytes for the checksum CRC16 are determined from the anticipated telegram length. Surplus bytes at the end of the actual telegram are ignored. This is not the standard Modbus behavior.

3.4.2　　"Modbus information" submenu

Navigation　　🖳　　Expert → Communication → Modbus info

▸ Modbus information

Device ID	→ 🖺 36
Device revision	→ 🖺 36

---

1)　　Not a Number

Device ID

Navigation   ⊟   Expert → Communication → Modbus info → Device ID

Description   Displays the device ID for identifying the measuring device.
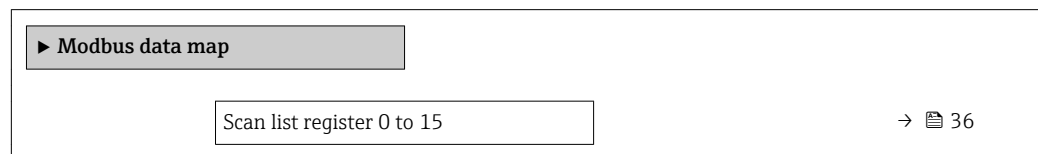
User interface   4-digit hexadecimal number

Device revision

Navigation   ⊟   Expert → Communication → Modbus info → Device revision

Description   Displays the device revision.

User interface   4-digit hexadecimal number

3.4.3   "Modbus data map" submenu

Navigation   ⊟   Expert → Communication → Modbus data map

```
▶ Modbus data map

         Scan list register 0 to 15                                    →  🗎 36
```

Scan list register 0 to 15   🔒

Navigation   ⊟   Expert → Communication → Modbus data map → Scan list reg.0 to 15

Description   Use this function to enter the scan list register. By entering the register address (1-based),
                              up to 16 device parameters can be grouped in the auto-scan buffer by assigning them to
                              the scan list registers 0 to 15. The data of the device parameters assigned here are read
                              out via the register addresses 5051 to 5081.

User entry   1 to 65 535
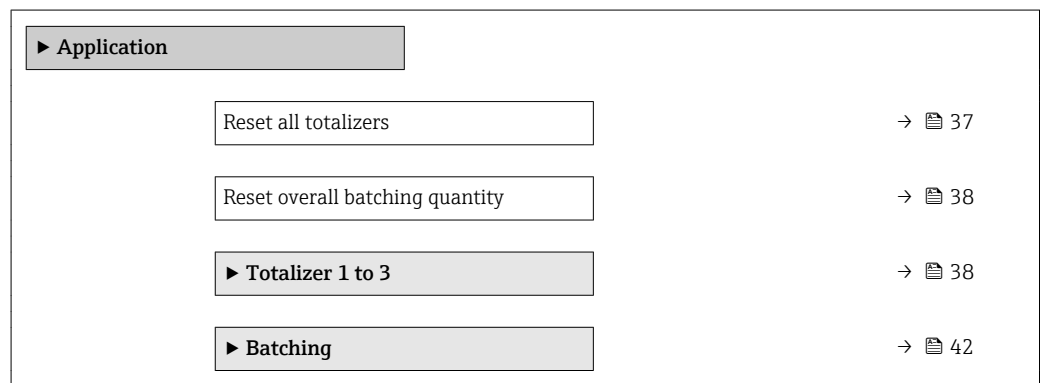
Factory setting   1

Additional information   *Description*

- Scan list: Configuration area
  The device parameters to be grouped are defined in a list in that their Modbus RS485
  register addresses are entered in the list.
- Data area
  The measuring device reads out the register addresses entered in the scan list cyclically
  and writes the associated device data (values) to the data area.

3.5   "Application" submenu

Navigation   ▤   Expert → Application

```
► Application

                Reset all totalizers                        → 🖹 37

                Reset overall batching quantity             → 🖹 38

          ► Totalizer 1 to 3                                → 🖹 38

          ► Batching                                        → 🖹 42
```

Reset all totalizers

Navigation   ▤   Expert → Application → Reset all tot.

Description   Use this function to reset all totalizers to the value **0** and restart the totaling process. This
                             deletes all the flow values previously totalized.

Selection   • Cancel
                            • Reset + totalize

Factory setting   Cancel

Additional information   *Selection*

- Cancel
  No action is executed and the user exits the parameter.
- Reset + totalize
  All totalizers are reset to 0 and the totaling process is restarted.

Reset overall batching quantity	🔓

Navigation	⊟ Expert → Application → Reset batch qty
Description	Use this function to reset the Overall batching quantity (→ 🖺 46) and the **Batch counter** parameter (→ 🖺 43) to **0**.
Selection	• Reset • Cancel
Factory setting	Cancel

Additional information	*Options*
	
	• Reset
	  The Overall batching quantity (→ 🖺 46) and the **Batch counter** parameter (→ 🖺 43) are reset to **0** and restarted.
	• Cancel
	  No action is executed and the user exits the parameter.

3.5.1   "Totalizer 1 to 3" submenu

Navigation   ⊟ Expert → Application → Totalizer 1 to 3

▶ Totalizer 1 to 3	
Assign process variable	→ 🖺 38
Volume unit	→ 🖺 39
Totalizer operation mode	→ 🖺 39
Control Totalizer 1 to 3	→ 🖺 40
Preset value 1 to 3	→ 🖺 41
Failure mode	→ 🖺 41

Assign process variable	🔓

Navigation	⊟ Expert → Application → Totalizer 1 to 3 → Assign variable
Description	Use this function to select a process variable for totalizer 1-3.
Selection	• Off • Volume flow

Factory setting	Volume flow

Additional information	*Description*
	ℹ If the option selected is changed, the device resets the totalizer to 0.
	Options
	If the **Off** option is selected, only **Assign process variable** parameter (→ 🖹 38) is displayed in the **Totalizer 1 to 3** submenu. All other parameters in the submenu are hidden.

Volume unit ⓚ

Navigation	⊟ Expert → Application → Totalizer 1 to 3 → Volume unit

Prerequiste	The **Volume flow** option is selected in the **Assign process variable** parameter (→ 🖹 38) of the **Totalizer 1 to 3** submenu.

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

Selection	*SI units*	*US units*	*Imperial units*
	• cm³	• af	• gal (imp)
	• dm³	• ft³	• Mgal (imp)
	• m³	• fl oz (us)	• bbl (imp;beer)
	• ml	• gal (us)	• bbl (imp;oil)
	• l	• kgal (us)	
	• hl	• Mgal (us)	
	• Ml Mega	• bbl (us;oil)	
		• bbl (us;liq.)	
		• bbl (us;beer)	
		• bbl (us;tank)	
	Custom-specific units		
	User vol.		

Factory setting	Depending on country:
	• ml
	• fl oz (us)

Totalizer operation mode ⓚ

Navigation	⊟ Expert → Application → Totalizer 1 to 3 → Operation mode

| Prerequiste	In the **Assign process variable** parameter (→ 🖹 38) of the **Totalizer 1 to 3** submenu, the **Volume flow** option is selected.

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

Selection	• Net flow total
	• Forward flow total
	• Reverse flow total

Factory setting	Net flow total

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

Control Totalizer 1 to 3

Navigation	☐☐ Expert → Application → Totalizer 1 to 3 → Control Tot. 1 to 3

Prerequsite	In the **Assign process variable** parameter (→ 🖺 38) of the **Totalizer 1 to 3** submenu, the **Volume flow** option is selected.

Description	Use this function to select the control of totalizer value 1-3.

Selection	• Totalize
	• Reset + hold
	• Preset + hold
	• Reset + totalize
	• Preset + totalize

Factory setting	Totalize

| Additional information	*Options*
	• Totalize
	The totalizer is started or continues totalizing with the current counter reading.
	• Reset + hold
	The totaling process is stopped and the totalizer is reset to 0.
	• Preset + hold
	The totaling process is stopped and the totalizer is set to its defined start value from the **Preset value** parameter (→ 🖺 41).
	• Reset + totalize
	The totalizer is reset to 0 and the totaling process is restarted.
	• Preset + totalize
	The totalizer is set to the defined start value in the **Preset value** parameter (→ 🖺 41) and the totaling process is restarted.

Preset value 1 to 3	

Navigation	⊟ Expert → Application → Totalizer 1 to 3 → Preset value 1 to 3
Prerequsite	In the **Assign process variable** parameter (→ 🖺 38) of the **Totalizer 1 to 3** submenu, the **Volume flow** option is selected.
Description	Use this function to enter a start value for totalizer 1-3.
User entry	Signed floating-point number
Factory setting	Country-specific: • 0 m³ • 0 ft³
Additional information	*User entry*

> 🛈 The unit of the selected process variable is specified for the totalizer in the **Assign process variable** parameter. If the following is selected in the **Assign process variable** parameter:
 Volume flow option: **Volume flow unit** parameter (→ 🖺 18)

Example

This configuration is suitable for applications such as iterative filling processes with a fixed batch quantity.

Failure mode	🔒

Navigation	⊟ Expert → Application → Totalizer 1 to 3 → Failure mode
Prerequsite	In the **Assign process variable** parameter (→ 🖺 38) of the **Totalizer 1 to 3** submenu, the **Volume flow** option is selected.
Description	Use this function to select how a totalizer behaves in an alarm condition.
Selection	• Stop • Actual value • Last valid value
Factory setting	Stop
Additional information	*Description*

> 🛈 This setting does not affect the error response mode of other totalizers and the outputs. This is specified in separate parameters.

Options

- Stop
  Totalizing is stopped in an alarm condition.
- Actual value
  The totalizer continues to count based on the actual measured value; the error is
  ignored.
- Last valid value
  The totalizer continues to count based on the last valid measured value before the error
  occurred.

### 3.5.2   "Batching" submenu

- Any change to the configuration only becomes effective for the next batching
  process, i.e. a batching process that is running is finished with the configuration it
  was started with.
- Parameters that are not relevant in relation to other parameters retain their value
  nevertheless. As soon as such parameters become relevant, they are processed
  further with this value.

Navigation   Expert → Application → Batching

► Batching	
► Operation	→ 🖹 42
► Configuration	→ 🖹 48

"Operation" submenu

Navigation   Expert → Application → Batching → Operation

► Operation	
Batch control	→ 🖹 43
Batch counter	→ 🖹 43
Quantity last batch	→ 🖹 44
Quantity last drip	→ 🖹 44
Time last batch	→ 🖹 45
Close time last batch	→ 🖹 45
Current drip correction quantity	→ 🖹 45
Overall batching quantity	→ 🖹 46

Overflow number overall batch. quantity	→ 🖺 46
Batch unit	→ 🖺 47
Switch output function 1	→ 🖺 47
Switch status 1	→ 🖺 48
Switch output function 2	→ 🖺 47
Switch status 2	→ 🖺 48

Batch control   🔒

Navigation	▨ Expert → Application → Batching → Operation → Batch control
Description	Use this function to control the batching process.
Selection	• Start • Stop
Factory setting	Stop
Additional information	*"Start" option*

• The display of the amount currently measured is reset to 0.
• If a diagnostic message (alarm) occurs during an ongoing batching process, the batching process is canceled as an emergency measure.
• If a batching process is in progress, the **Start** option does not have any effect.
• The batching process is started when the necessary conditions have been met:
  – There is no diagnostic event pending (with the exception of the maximum batch time and maximum flow rate being exceeded)
  – Target quantity is greater than 0.
  – The last batching process has been completed (including possible blow out).

"Stop" option

• The batching process is canceled as an emergency measure.
• A new drip quantity and a new drip correction quantity are not calculated (averaging and single outliers).
• The number of batching processes is increased by 1.
• If no batching process is in progress, the **Stop** option does not have any effect.

Batch counter

Navigation	▨ Expert → Application → Batching → Operation → Batch counter
Description	Use this function to display the number of batching processes.

User interface	Positive integer

Additional information	*Description*
	This number is updated each time a batching process is completed. The Batch counter (→ 🖺 43) is reset to **0** if a new batch profile is selected or if the assignment of the measured variable changes.

Quantity last batch

Navigation	▣	Expert → Application → Batching → Operation → Last batch qty

Description	Use this function to display the total amount measured including the drip quantity from the last batching process.

User interface	Signed floating-point number

Additional information	*Description*
	This total is updated each time a batching process is completed and is automatically reset when a new batching process starts.

Dependency

ℹ️ The unit is taken from: **Batch unit** parameter (→ 🖺 47)

Quantity last drip

Navigation	▣	Expert → Application → Batching → Operation → Last drip qty

Description	Use this function to display the drip quantity of the last batching process in the configured batch unit.

User interface	Signed floating-point number

Additional information	*Description*
	This amount is updated each time a batching process is completed and is automatically reset when a new batching process starts. The parameter is saved and, following a restart, is used for drip quantity correction.

Dependency

ℹ️ The unit is taken from: **Batch unit** parameter (→ 🖺 47)

Time last batch

Navigation	⊟　Expert → Application → Batching → Operation → Last batch time
Description	Displays the duration (in seconds) of the last batch up to the end of drip quantity measurement.
User interface	Positive floating-point number
Additional information	*Description*
	This time is updated after the end of a batch and automatically reset each time a new batching process is started.

Close time last batch

Navigation	⊟　Expert → Application → Batching → Operation → Last close time
Description	Displays the closing duration (in ms) for the last batch from the switch-off time up to the end of drip quantity measurement.
User interface	Positive floating-point number
Additional information	*Description*
	This time is updated after the end of a batch and automatically reset each time a new batching process is started.

Current drip correction quantity

Navigation	⊟　Expert → Application → Batching → Operation → Curr. drip corr.
Description	Use this function to display the drip correction quantity for the next batching process.
User interface	Signed floating-point number
Additional information	*Description*
	Following a restart, the value corresponds to the value of the last drip quantity that was saved.
	Dependency
	ℹ　The unit is taken from: **Batch unit** parameter (→ 🖹 47)

Overall batching quantity

Navigation	☐ Expert → Application → Batching → Operation → Overall quantity
Description	Use this function to display the total quantity measured for all batching processes.
User interface	Signed floating-point number

Additional information   *Description*

As only a maximum of 7 digits can be displayed, the current totalizer reading in the event of the display range being exceeded is the sum of theOverall batching quantity and the Overflow number overall batch. quantity.

This number is updated each time a batching process is completed. The Overall batching quantity (→ 🖺 46) is reset to **0** if a new batch profile is selected or if the assignment of the measured variable changes.

Example

Calculation of the current totalizer reading when the 7-digit display range is exceeded:
- Value in the **Overall batching quantity** parameter: 196 845.7 ml
- Value in the **Overflow number overall batch. quantity** parameter: $2 \cdot 10^7$ (2 overflows) = 20 000 000 [ml]
- Current totalizer reading: 20 196 845.7 ml

Dependency

The unit is taken from: **Batch unit** parameter (→ 🖺 47)

Overflow number overall batch. quantity

Navigation	☐ Expert → Application → Batching → Operation → Overfl.num.batch
Description	Use this function to display the number of overflows for the overall batching quantity.
User interface	−32 000.0 to 32 000.0

Additional information   *Description*

If the current totalizer reading has more than 7 digits, which is the maximum value range that can be displayed, the value above this range is output as an overflow. The current totalizer reading is thus the sum of the Overflow number overall batch. quantity and the Overall batching quantity.

Example

Calculation of the current totalizer reading when the 7-digit display range is exceeded:
- Value in the **Overall batching quantity** parameter: 196 845.7 ml
- Value in the **Overflow number overall batch. quantity** parameter: $2 \cdot 10^7$ (2 overflows) = 20 000 000 [ml]
- Current totalizer reading: 20 196 845.7 ml

Batch unit	

Navigation	⊠ Expert → Application → Batching → Operation → Batch unit
Description	Displays the selected unit from the batch profile.
User interface	*SI units* *US units* • l • ft³ • dm³ • fl oz (us) • cm³ • gal (us) • ml *Custom-specific units* User vol.
Additional information	*Effect* The selected unit applies for: • Overall batching quantity (→ 🗎 46) • Current drip correction quantity (→ 🗎 45) • Quantity last batch (→ 🗎 44) • Quantity last drip (→ 🗎 44)

Switch output function 1 to 2	🔒

Navigation	⊠ Expert → Application → Batching → Operation → SwitchOutFunct 1 to 2
Description	Use this function to select a function for the switch output.
Selection	• Close • Open • Batching
Factory setting	• Batching (Switch output function 1) • Open (Switch output function 2)

Additional information	*Options*
	
	 • Close
	   The switch output is permanently switched on.
	 • Open
	   The switch output is permanently switched off.
	 • Batching
	   The switch output is used for batching purposes.
	   – Switch output 1 is permanently assigned to the first batch level.
	   – The second switch output is assigned to either the second batch level or the blow out.
	   – If a batching process is ongoing, the **Open** option and the **Close** option do not have any effect.

Switch status 1 to 2

Navigation		Expert → Application → Batching → Operation → Switch status 1 to 2

Description	Use this function to display the current status of the switch output.

User interface	• Closed • Open

"Configuration" submenu

Navigation   Expert → Application → Batching → Configuration

▶ **Configuration**	
Batch profile	→ 🖺 48
▶ **Settings batch profile 1 to 6**	→ 🖺 49

Batch profile	🔒

Navigation		Expert → Application → Batching → Configuration → Batch profile

Description	Use this function to select the right profile for the medium that was configured by the customer.

Selection	• Profile 1 • Profile 2 • Profile 3 • Profile 4 • Profile 5 • Profile 6

Factory setting	Profile 1

"Settings batch profile 1 to 6" submenu

Navigation   ▣   Expert → Application → Batching → Configuration → Batch
                             profile 1 to 6

Input selector   🔒

Navigation   ▣   Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Input
                             selector

Description   Use this function to assign a measured variable for the batch profile.

Selection	• Off
	• Volume flow

Factory setting	Volume flow

Additional information	*Options*
	• Off
	The profile is not active.
	• Volume flow
	Volume flow is assigned as a measured variable.

Batch unit   🔒

Navigation	☐	Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Batch unit

Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🖺 49):
	Volume flow

Description	Use this function to select the unit for the process variable in the batch profile.

Selection	*SI units*	*US units*
	• l	• ft³
	• dm³	• fl oz (us)
	• cm³	• gal (us)
	• ml	
	Custom-specific units	
	User vol.	

Factory setting	Depending on country:
	• ml
	• fl oz (us)

Additional information	*Result*
	🛈 The selected unit applies for:
	• Batch quantity (→ 🖺 50)
	• Fixed compensation quantity (→ 🖺 51)
	• Batch unit (→ 🖺 47)

Batch quantity   🔒

Navigation	☐	Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Batch quantity

Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🖺 49):
	Volume flow

Description	Use this function to enter the batch quantity in the specified batch unit of the selected
	measured variable.

User entry	Positive floating-point number

Factory setting	Depending on country: • 0 ml • 0 fl oz (us)

Additional information	*Dependency*
	🛈 The unit is taken from: **Batch unit** parameter (→ 🗎 50)

Measuring time drip quantity 🔒

Navigation	🔲 Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Meas. time drip

Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🗎 49): Volume flow

Description	Use this function to enter the time used for drip quantity measurement.

User entry	0.01 to 100 s

Factory setting	1 s

Fixed compensation quantity 🔒

Navigation	🔲 Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Fixed comp. qty

Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🗎 49): Volume flow

Description	Use this function to enter a fixed correction quantity in the set batch unit for the selected measured variable.

User entry	Signed floating-point number

Factory setting	Country-specific: • 0 ml • 0 fl oz (us)

Additional information	*Dependency*
	How this parameter functions depends on the option selected in the **Drip correction mode** parameter (→ 🗎 52).

If the following option is selected in the **Drip correction mode** parameter (→ 🖺 52):
- Off
  – The Fixed compensation quantity (→ 🖺 51) is subtracted from the Batch quantity
    (→ 🖺 50). The result is the target batch quantity.
  – The target quantity must be greater than 0.
  – If the target quantity is 0, batching cannot be started.
- **Fixed time** option or **Fixed time or low flow cut off** option
  – The Fixed compensation quantity (→ 🖺 51) does not directly affect the target batch
    quantity. Instead it is used for the value of the drip correction quantity for the next
    batch.
  – However, this is only the case if the **Current drip correction quantity** parameter
    (→ 🖺 45) was 0 before batching and therefore the drip quantity has not yet been
    recorded.
  – If the Fixed compensation quantity (→ 🖺 51) is set to a value not equal to 0, this
    value is used as the drip correction quantity for the first batch.
  – If the Fixed compensation quantity (→ 🖺 51) is set to 0, a drip correction quantity of
    10 % of the Batch quantity (→ 🖺 50) is adopted for the first batch.

ℹ️ The unit is taken from: **Batch unit** parameter (→ 🖺 50)

Drip correction mode	🔒

|	
Navigation	▤ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Drip correction
Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🖺 49): Volume flow
Description	Use this function to select the mode for implementing a drip correction.
Selection	• Off • Fixed time • Fixed time or low flow cut off
Factory setting	Off
Additional information	*Options* • Off No drip correction is performed. • Fixed time The Fixed time corresponds to the value that was entered in the **Measuring time drip quantity** parameter (→ 🖺 51). The drip quantity is the quantity that is measured from the time of switch-off until a fixed time has expired. When measurement of the drip quantity is complete, this is the end of the batching process without the possibility of blowing out the valve. • Fixed time or low flow cut off The drip quantity is the quantity that is measured from the time of switch-off until the low flow cut off is activated or until a specified time has expired.

Filter depth drip median	🔒

Navigation	🖳 Expert → Application → Batching → Configuration → Batch profile 1 to 6 → FilterDripMedian
Prerequsite	The following conditions are met: • In the **Input selector** parameter (→ 🖺 49), the **Volume flow** option is selected. • In the **Drip correction mode** parameter (→ 🖺 52), the **Fixed time** option or the **Fixed time or low flow cut off** option is selected.
Description	Use this function to select the filter depth of the drip median for the batch profile.
Selection	• Off • Median 3 • Median 5 • Median 7
Factory setting	Median 5

Average drip correction quantity	🔒

Navigation	🖳 Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Avg drip correc
Prerequsite	The following conditions are met: • In the **Input selector** parameter (→ 🖺 49), the **Volume flow** option is selected. • In the **Drip correction mode** parameter (→ 🖺 52), the **Fixed time** option or the **Fixed time or low flow cut off** option is selected.
Description	Use this function to enter the number of batches used to obtain the median drip quantity.
User entry	1 to 100
Factory setting	5
Additional information	*Description* The individual drip quantities are averaged in a stepless manner over the number entered. The result is the drip correction quantity. This is subtracted from the target quantity for the next batch, resulting in the switch-off quantity. The averaging is performed with a PT1 element [2]. The first drip correction quantity determined initializes the filter. The switch-off time is reached when the quantity measured since the start is equal to the switch-off quantity.

---

2) Proportional behavior with first-order lag

Batch levels	🔒

| Navigation	▤ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Batch levels
Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🖺 49): Volume flow
Description	Use this function to select the number of levels for the batch.
Selection	• One-level • Two-level • One-level and blow out
Factory setting	One-level

Additional information	*Selection*
	
	• One-level
	  Only switch output 1 is active.
	• Two-level
	  Switch output 2 is also active (second level).
	• One-level and blow out
	  Switch output 2 is also active (blow out valve after batching). The starting point of the first level is implicitly 0 % of the target value. The finishing point of the first level is implicitly 100 % of the target value.
	
	Example
	
	The example explains the parameterization of various batching functions with the input format in % for the valve switch points.
	
	The following batch is to be implemented:
	• Two-level batch with a total batching quantity of 15 kg
	• Rough batching quantity of 3 to 12 kg, valve opens once 20 % (3 kg) of the batching quantity is reached and closes once 80 % (12 kg) is reached.
	• Valve 1 opens at the start of batching and closes (automatically) once the batching quantity (15 kg) is reached.
	• The values should be input as percentages (%).
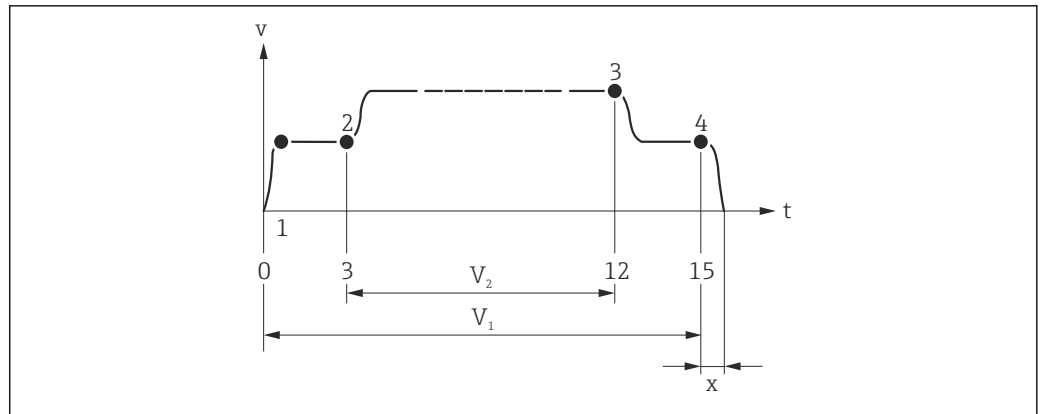
A0027120

v *Flow velocity [m/s]*
t *Time*
V₁ *Valve 1 open*
V₂ *Valve 2 open*
1 *Valve 1 opens: start batching*
2 *Valve 2 opens: start rough batching*
3 *Valve 2 closes: rough batching quantity reached*
4 *Valve 1 closes: end of batching*
x *Drip quantity*

Start level 2	🔒

Navigation	⊟ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Start level 2
Prerequsite	The following conditions are met: ▪ In the **Input selector** parameter (→ 🕮 49), the **Volume flow** option is selected. ▪ In the **Batch levels** parameter (→ 🕮 54), the **Two-level** option is selected.
Description	Use this function to enter the starting point of the second level in % of the target value. The starting point must always be smaller than the finishing point.
User entry	0 to 100 %
Factory setting	0 %

Stop level 2	🔒

Navigation	⊟ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Stop level 2
Prerequsite	The following conditions are met: ▪ In the **Input selector** parameter (→ 🕮 49), the **Volume flow** option is selected. ▪ In the **Batch levels** parameter (→ 🕮 54), the **Two-level** option is selected.
Description	Use this function to enter the finishing point of the second level in % of the target value. The finishing point must always be greater than the starting point.

User entry	0 to 100 %

Factory setting	100 %

**Blow out delay**   🔒

Navigation	⊟ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Blow out delay

Prerequsite	The following conditions are met: • In the **Input selector** parameter (→ 🗎 49), the **Volume flow** option is selected. • In the **Batch levels** parameter (→ 🗎 54), the **One-level and blow out** option is selected.

Description	Use this function to enter the delay for blow-out at the end of batching.

User entry	0 to 100 s

Factory setting	0 s

**Blow out duration**   🔒

Navigation	⊟ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Blow out durat.

Prerequsite	The following conditions are met: • In the **Input selector** parameter (→ 🗎 49), the **Volume flow** option is selected. • In the **Batch levels** parameter (→ 🗎 54), the **One-level and blow out** option is selected.

Description	Use this function to enter the duration for blow-out at the end of batching.

User entry	0 to 100 s

Factory setting	1 s

**Maximum batch time**   🔒

Navigation	⊟ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Max. batch time

Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🗎 49): Volume flow

Description	Use this function to enter the maximum batch time.

User entry	0 to 10^6 s

Factory setting	0 s

Additional information	*Description*

If the maximum batch time expires before the switch-off amount is reached, the batching process is canceled as an emergency measure. A value of 0 means that the maximum batch time is not monitored.

ℹ️ If batching is canceled in this way, the measuring device displays the diagnostic message △**F991 Batch time exceeded**. The diagnostic message is canceled when the next batch starts. Neither a new drip quantity nor a new drip correction quantity are calculated (averaging and single outliers).

Maximum flow rate exceeded	🔒

Navigation	⊞ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Max. flow rate

Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🖺 49): Volume flow

Description	Use this function to enter the maximum flow during batching.

User entry	Positive floating-point number

Factory setting	0

Additional information	*Description*

If the maximum flow is exceeded during batching, the batching process is canceled as an emergency measure. A value of 0 means that the maximum flow is not monitored.

ℹ️ If batching is canceled in this way, the measuring device displays the diagnostic message △**F991 Batch time exceeded**. The diagnostic message is canceled when the next batch starts. Neither a new drip quantity nor a new drip correction quantity are calculated (averaging and single outliers).

Dependency

ℹ️ The unit depends on the process variable selected in the **Input selector** parameter (→ 🖺 49).
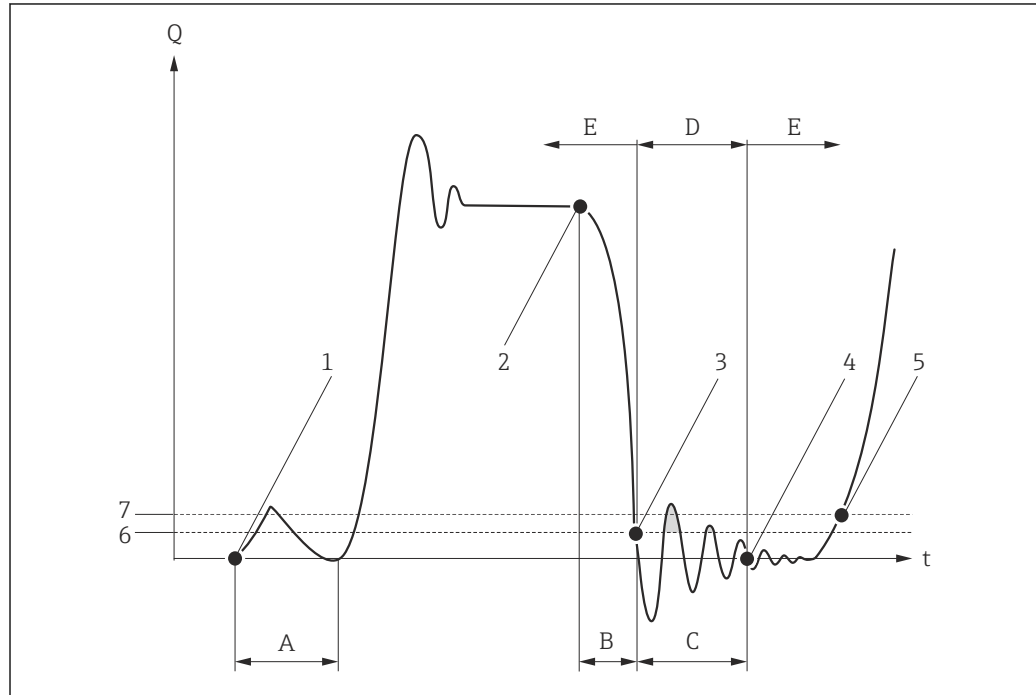

Disable time pressure shock suppression	🔒

Navigation	⊞ Expert → Application → Batching → Configuration → Batch profile 1 to 6 → Disab.PressShock

Prerequsite	One of the following options is selected in the **Input selector** parameter (→ 🖺 49): Volume flow

| Description	Use this function to enter a time (in seconds) in which pressure shock suppression is not active after starting a batching process.
User entry	0 to 100 s
Factory setting	0 s
Additional information	*Description*

A0026869

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

3.6 "Diagnostics" submenu

Navigation   🖳   Expert → Diagnostics

▸ Diagnostics	
Actual diagnostics	→ 🕮 59
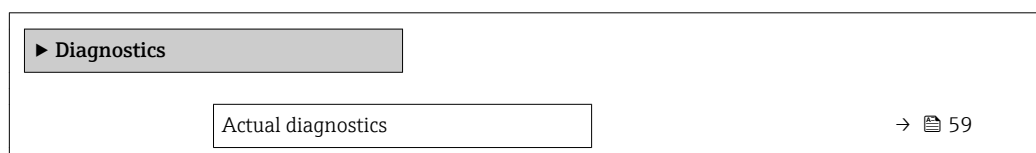
Timestamp	→ 🖹	60
Actual diagnostics	→ 🖹	60
Previous diagnostics	→ 🖹	60
Timestamp	→ 🖹	61
Previous diagnostics	→ 🖹	61
Operating time from restart	→ 🖹	61
Operating time	→ 🖹	61
▸ Diagnostic list	→ 🖹	62
▸ Event logbook	→ 🖹	67
▸ Device information	→ 🖹	68
▸ Simulation	→ 🖹	71

Actual diagnostics

Navigation   🔲   Expert → Diagnostics → Actual diagnos.

Prerequsite   A diagnostic event has occurred.

Description   Displays the current diagnostic message. If two or more messages occur simultaneously, the message with the highest priority is shown on the display.

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

Additional information   *User interface*

ℹ️ Additional pending diagnostic messages can be shown in the **Diagnostic list** submenu (→ 🖹 62).

Example

For the display format:
⚠S442 Frequency output

Timestamp

Navigation	☒ Expert → Diagnostics → Timestamp
Description	Displays the operating time when the current diagnostic message occurred.
User interface	Days (d), hours (h), minutes (m) and seconds (s)
Additional information	*User interface*

       ⓘ The diagnostic message can be displayed via the **Actual diagnostics** parameter (→ 🖺 59).

       Example

       For the display format:
       24d12h13m00s

Actual diagnostics

Navigation	☒ Expert → Diagnostics → Actual diagnos.
Prerequsite	A diagnostic event has occurred.
Description	Displays the service ID of the current diagnostic message.
User interface	0 to 65 535

Previous diagnostics

Navigation	☒ Expert → Diagnostics → Prev.diagnostics
Prerequsite	Two diagnostic events have already occurred.
Description	Displays the diagnostic message that occurred before the current message.
User interface	Symbol for diagnostic behavior, diagnostic code and short message.
Additional information	*Example*

       For the display format:
       ⚠S442 Frequency output

Timestamp

Navigation	⊟ Expert → Diagnostics → Timestamp
Description	Displays the operating time when the last diagnostic message before the current message occurred.
User interface	Days (d), hours (h), minutes (m) and seconds (s)
Additional information	*User interface*

ℹ️ The diagnostic message can be displayed via the **Previous diagnostics** parameter (→ 🗎 60).

Example

For the display format:
24d12h13m00s

Previous diagnostics

Navigation	⊟ Expert → Diagnostics → Prev.diagnostics
Prerequsite	Two diagnostic events have already occurred.
Description	Displays the service ID of the diagnostic message that occurred before the current diagnostic message.
User interface	0 to 65 535

Operating time from restart

Navigation	⊟ Expert → Diagnostics → Time fr. restart
Description	Use this function to display the time the device has been in operation since the last device restart.
User interface	Days (d), hours (h), minutes (m) and seconds (s)

Operating time

Navigation	⊟ Expert → Diagnostics → Operating time
Description	Use this function to display the length of time the device has been in operation.
User interface	Days (d), hours (h), minutes (m) and seconds (s)

Additional information   *User interface*

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

3.6.1   "Diagnostic list" submenu

Navigation   ▣   Expert → Diagnostics → Diagnostic list

▸ Diagnostic list		
Diagnostics 1	→ 🖺 62	
Diagnostics 1	→ 🖺 63	
Timestamp	→ 🖺 63	
Diagnostics 2	→ 🖺 63	
Diagnostics 2	→ 🖺 64	
Timestamp	→ 🖺 64	
Diagnostics 3	→ 🖺 64	
Diagnostics 3	→ 🖺 64	
Timestamp	→ 🖺 65	
Diagnostics 4	→ 🖺 65	
Diagnostics 4	→ 🖺 65	
Timestamp	→ 🖺 66	
Diagnostics 5	→ 🖺 66	
Diagnostics 5	→ 🖺 66	
Timestamp	→ 🖺 66	

Diagnostics 1

Navigation   ▣   Expert → Diagnostics → Diagnostic list → Diagnostics 1

Description   Use this function to display the current diagnostics message with the highest priority.

User interface	Symbol for diagnostic behavior, diagnostic code and short message.
Additional information	*Examples* For the display format: • ⚠S442 Frequency output • ⊗F276 I/O module failure

Diagnostics 1

Navigation	▣ Expert → Diagnostics → Diagnostic list → Diagnostics 1
Description	Displays the service ID of the current diagnostic message with the highest priority.
User interface	0 to 65 535

Timestamp

Navigation	▣ Expert → Diagnostics → Diagnostic list → Timestamp
Description	Displays the operating time when the diagnostic message with the highest priority occurred.
User interface	Days (d), hours (h), minutes (m) and seconds (s)
Additional information	*User interface* 🛈 The diagnostic message can be displayed via the **Diagnostics 1** parameter (→ 🗎 62). *Example* For the display format: 24d12h13m00s

Diagnostics 2

Navigation	▣ Expert → Diagnostics → Diagnostic list → Diagnostics 2
Description	Use this function to display the current diagnostics message with the second-highest priority.
User interface	Symbol for diagnostic behavior, diagnostic code and short message.
Additional information	*Examples* For the display format: • ⚠S442 Frequency output • ⊗F276 I/O module failure

Diagnostics 2

Navigation		Expert → Diagnostics → Diagnostic list → Diagnostics 2
Description		Displays the service ID of the current diagnostic message with the second-highest priority.
User interface		0 to 65 535

Timestamp

Navigation		Expert → Diagnostics → Diagnostic list → Timestamp
Description		Displays the operating time when the diagnostic message with the second-highest priority occurred.
User interface		Days (d), hours (h), minutes (m) and seconds (s)
Additional information		*User interface*

*The diagnostic message can be displayed via the **Diagnostics 2** parameter (→ 🖹 63).*

Example

For the display format:
24d12h13m00s

Diagnostics 3

Navigation		Expert → Diagnostics → Diagnostic list → Diagnostics 3
Description		Use this function to display the current diagnostics message with the third-highest priority.
User interface		Symbol for diagnostic behavior, diagnostic code and short message.
Additional information		*Examples*

For the display format:
• ⚠S442 Frequency output
• ⊗F276 I/O module failure

Diagnostics 3

Navigation		Expert → Diagnostics → Diagnostic list → Diagnostics 3
Description		Displays the service ID of the current diagnostic message with the third-highest priority.

User interface   0 to 65 535

Timestamp

Navigation	🖥️ Expert → Diagnostics → Diagnostic list → Timestamp
Description	Displays the operating time when the diagnostic message with the third-highest priority occurred.
User interface	Days (d), hours (h), minutes (m) and seconds (s)
Additional information	*User interface*

ℹ️ The diagnostic message can be displayed via the **Diagnostics 3** parameter (→ 📖 64).

Example

For the display format:
24d12h13m00s

Diagnostics 4

Navigation	🖥️ Expert → Diagnostics → Diagnostic list → Diagnostics 4
Description	Use this function to display the current diagnostics message with the fourth-highest priority.
User interface	Symbol for diagnostic behavior, diagnostic code and short message.
Additional information	*Examples*

For the display format:
- ⚠️S442 Frequency output
- ⊗F276 I/O module failure

Diagnostics 4

Navigation	🖥️ Expert → Diagnostics → Diagnostic list → Diagnostics 4
Description	Displays the service ID of the current diagnostic message with the fourth-highest priority.
User interface	0 to 65 535

Timestamp

Navigation	🖳 Expert → Diagnostics → Diagnostic list → Timestamp
Description	Displays the operating time when the diagnostic message with the fourth-highest priority occurred.
User interface	Days (d), hours (h), minutes (m) and seconds (s)
Additional information	*User interface*

ℹ️ The diagnostic message can be displayed via the **Diagnostics 4** parameter (→ 🗎 65).

Example

For the display format:
24d12h13m00s

Diagnostics 5

Navigation	🖳 Expert → Diagnostics → Diagnostic list → Diagnostics 5
Description	Use this function to display the current diagnostics message with the fifth-highest priority.
User interface	Symbol for diagnostic behavior, diagnostic code and short message.
Additional information	*Examples*

For the display format:
- ⚠S442 Frequency output
- ⊗F276 I/O module failure

Diagnostics 5

Navigation	🖳 Expert → Diagnostics → Diagnostic list → Diagnostics 5
Description	Displays the service ID of the current diagnostic message with the fifth-highest priority.
User interface	0 to 65 535

Timestamp

Navigation	🖳 Expert → Diagnostics → Diagnostic list → Timestamp
Description	Displays the operating time when the diagnostic message with the fifth-highest priority occurred.

User interface   Days (d), hours (h), minutes (m) and seconds (s)

Additional information   *User interface*

   The diagnostic message can be displayed via the **Diagnostics 5** parameter (→ 🕮 66).

Example

For the display format:
24d12h13m00s

3.6.2   "Event logbook" submenu

Navigation   ⊟   Expert → Diagnostics → Event logbook

▶ Event logbook	
Filter options	→ 🕮 67
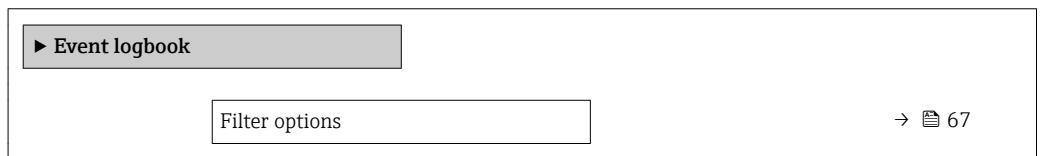
Filter options	🔒

Navigation   ⊟   Expert → Diagnostics → Event logbook → Filter options

Description   Use this function to select the category whose event messages are displayed in the events
                        list.

Selection   • All
                        • Failure (F)
                        • Function check (C)
                        • Out of specification (S)
                        • Maintenance required (M)
                        • Information (I)

Factory setting   All

Additional information   *Description*

   The status signals are categorized in accordance with VDI/VDE 2650 and NAMUR
Recommendation NE 107:
- F = Failure
- C = Function Check
- S = Out of Specification
- M = Maintenance Required

3.6.3 "Device information" submenu

Navigation   ☐   Expert → Diagnostics → Device info

▶ Device information	
Device tag	→ 🖺 68
Serial number	→ 🖺 69
Firmware version	→ 🖺 69
Device name	→ 🖺 69
Order code	→ 🖺 69
Extended order code 1	→ 🖺 70
Extended order code 2	→ 🖺 70
Extended order code 3	→ 🖺 70
ENP version	→ 🖺 71
Configuration counter	→ 🖺 71

Device tag   🔒

Navigation   ☐   Expert → Diagnostics → Device info → Device tag

Description   Displays a unique name for the measuring point so it can be identified quickly within the plant. The name is displayed in the header.

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

Factory setting   Dosimag

Additional information   *User interface*

1   XXXXXXXXX
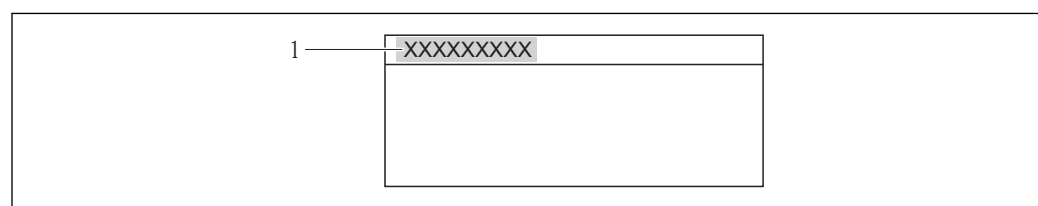
A0013375

🖾 *3   Header text*

The number of characters displayed depends on the characters used.

Serial number

Navigation	▤ Expert → Diagnostics → Device info → Serial number
Description	Displays the serial number of the measuring device.

ℹ️ It can also be found on the nameplate.

User interface	A maximum of 11-digit character string comprising letters and numbers.
Additional information	*Description*

ℹ️ **Uses of the serial number**
- To identify the measuring device quickly, e.g. when contacting Endress+Hauser.
- To obtain specific information on the measuring device using the Device Viewer: www.endress.com/deviceviewer

Firmware version

Navigation	▤ Expert → Diagnostics → Device info → Firmware version
Description	Displays the device firmware version installed.
User interface	Character string in the format xx.yy.zz
Factory setting	03.00

Device name

Navigation	▤ Expert → Diagnostics → Device info → Device name
Description	Displays the device name. It can also be found on the nameplate.
User interface	Dosimag

Order code

Navigation	▤ Expert → Diagnostics → Device info → Order code
Description	Displays the device order code.
User interface	Character string composed of letters, numbers and certain punctuation marks (e.g. /).
Additional information	*Description*

ℹ️ It can be found in the "Order code" field on the nameplate.

The order code is generated from the extended order code through a process of reversible transformation. The extended order code indicates the attributes for all the device features in the product structure. The device features are not directly readable from the order code.

Uses of the order code
- To order an identical spare device.
- To identify the device quickly and easily, e.g. when contacting Endress+Hauser.

Extended order code 1

Navigation	Expert → Diagnostics → Device info → Ext. order cd. 1
Description	Displays the first part of the extended order code.
	On account of length restrictions, the extended order code is split into a maximum of 3 parameters.
User interface	Character string
Additional information	*Description*
	The extended order code indicates the version of all the features of the product structure for the measuring device and thus uniquely identifies the measuring device.
	It can be found in the "Ext. ord. cd." field on the nameplate.

Extended order code 2

Navigation	Expert → Diagnostics → Device info → Ext. order cd. 2
Description	For displaying the second part of the extended order code.
User interface	Character string
Additional information	For additional information, see **Extended order code 1** parameter (→ 🖺 70)

Extended order code 3

Navigation	Expert → Diagnostics → Device info → Ext. order cd. 3
Description	For displaying the third part of the extended order code.
User interface	Character string
Additional information	For additional information, see **Extended order code 1** parameter (→ 🖺 70)

ENP version

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

Configuration counter

Navigation	▦ Expert → Diagnostics → Device info → Config. counter
Description	Displays the number of parameter modifications for the device. When the user changes a parameter setting, this counter is incremented.
User interface	0 to 65 535

3.6.4   "Simulation" submenu

Navigation   ▦   Expert → Diagnostics → Simulation

▸ Simulation	
Assign simulation process variable	→ 🖺 71
Value process variable	→ 🖺 72
Simulation device alarm	→ 🖺 72

Assign simulation process variable   🔒

Navigation	▦ Expert → Diagnostics → Simulation → Assign proc.var.
Description	Use this function to select a process variable for the simulation process that is activated.

Selection	• Off
	• Volume flow

Factory setting	Off

Additional information	*Description*

ℹ️ The simulation value of the selected process variable is specified in the **Value process variable** parameter (→ 🕮 72).

Value process variable   🔒

Navigation	⊟	Expert → Diagnostics → Simulation → Value proc. var.

Prerequisite	In the **Assign simulation process variable** parameter (→ 🕮 71), the **Volume flow** option is selected.

Description	Use this function to enter a simulation value for the selected process variable. Subsequent measured value processing and the signal output use this simulation value. In this way, users can verify whether the measuring device has been configured correctly.

User entry	Depends on the process variable selected

Factory setting	0

Additional information	*User entry*

ℹ️ The unit of the displayed measured value is taken from the **System units** submenu (→ 🕮 18).

Simulation device alarm   🔒

Navigation	⊟	Expert → Diagnostics → Simulation → Sim. alarm

Description	Use this function to switch the device alarm on and off.

Selection	• Off
	• On

Factory setting	Off

Additional information	*Description*

In this way, users can verify the correct function of downstream switching units.

4   Country-specific factory settings

4.1   SI units

ℹ Not valid for USA and Canada.

4.1.1   System units

Volume	ml
Volume flow	ml/s

4.1.2   On value low flow cut off

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

Nominal diameter [mm]	On value low flow cut off (v ~ 0.04 m/s) [ml/s]
4	0.5
8	2
15K [1]	7
15	7
25	16

1)   Conical version (corresponds to DN 12)

4.2   US units

ℹ Only valid for USA and Canada.

4.2.1   System units

Volume	fl oz (us)
Volume flow	fl oz/s (us)

4.2.2   On value low flow cut off

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

Nominal diameter [in]	On value low flow cut off (v ~ 0.13 ft/s) [oz fl/s]
$^5/_{32}$	0.02
$^5/_{16}$	0.08
½K [1]	0.25

Nominal diameter [in]	On value low flow cut off (v ~ 0.13 ft/s) [oz fl/s]
½	0.25
1	0.53

1)   Conical version (corresponds to DN 12)

5 Explanation of abbreviated units

5.1 SI units

Process variable	Units	Explanation
Volume	cm³, dm³, m³	Cubic centimeter, cubic decimeter, cubic meter
	ml, l, hl, Ml	Milliliter, liter, hectoliter, megaliter
Volume flow	cm³/s, cm³/min, cm³/h, cm³/d	Cubic centimeter/time unit
	dm³/s, dm³/min, dm³/h, dm³/d	Cubic decimeter/time unit
	m³/s, m³/min, m³/h, m³/d	Cubic meter/time unit
	ml/s, ml/min, ml/h, ml/d	Milliliter/time unit
	l/s, l/min, l/h, l/d	Liter/time unit
	hl/s, hl/min, hl/h, hl/d	Hectoliter/time unit
	Ml/s, Ml/min, Ml/h, Ml/d	Megaliter/time unit
Time	m, h, d, y	Minute, hour, day, year

5.2 US units

Process variable	Units	Explanation
Volume	af	Acre foot
	ft³	Cubic foot
	fl oz (us), gal (us), kgal (us), Mgal (us)	Fluid ounce, gallon, kilogallon, million gallon
	bbl (us;liq.), bbl (us;beer), bbl (us;oil), bbl (us;tank)	Barrel (normal liquids), barrel (beer), barrel (petrochemicals), barrel (filling tanks)
Volume flow	af/s, af/min, af/h, af/d	Acre foot/time unit
	ft³/s, ft³/min, ft³/h, ft³/d	Cubic foot/time unit
	fl oz/s (us), fl oz/min (us), fl oz/h (us), fl oz/d (us)	Fluid ounce/time unit
	gal/s (us), gal/min (us), gal/h (us,) gal/d (us)	Gallon/time unit
	kgal/s (us), kgal/min (us), kgal/h (us,) kgal/d (us)	Kilogallon/time unit
	Mgal/s (us), Mgal/min (us), Mgal/h (us), Mgal/d (us)	Million gallon/time unit
	bbl/s (us;liq.), bbl/min (us;liq.), bbl/h (us;liq.), bbl/d (us;liq.)	Barrel/time unit (normal liquids) Normal liquids: 31.5 gal/bbl
	bbl/s (us;beer), bbl/min (us;beer), bbl/h (us;beer), bbl/d (us;beer)	Barrel /time unit (beer) Beer: 31.0 gal/bbl
	bbl/s (us;oil), bbl/min (us;oil), bbl/h (us;oil), bbl/d (us;oil)	Barrel/time unit (petrochemicals) Petrochemicals: 42.0 gal/bbl
	bbl/s (us;tank), bbl/min (us;tank), bbl/h (us;tank), bbl/d (us;tank)	Barrel/time unit (filling tank) Filling tanks: 55.0 gal/bbl
Time	m, h, d, y	Minute, hour, day, year
	am, pm	Ante meridiem (before midday), post meridiem (after midday)

5.3   Imperial units

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

6 Modbus RS485 Register Information

6.1 Notes

6.1.1 Structure of the register information

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

Navigation: navigation path to the parameter					
Parameter	Register	Data type	Access type	Selection/input	→ 📄
Name of parameter	Indicated in decimal numerical format	• Float length = 4 byte • Integer length = 2 byte • String length, depending on parameter	Possible type of access to parameter: • Read access via function codes 03, 04 or 23 • Write access via function codes 06, 16 or 23	**Selection** List of the individual options for the parameter • Option 1 • **Option 2** • Option 3 (+) ℹ️ • Factory setting highlighted in bold • (+) = Factory setting depends on country, order options or device settings **User entry** Input range for the parameter	Specified number of pages and cross-reference to standard parameter description

> **NOTICE**
>
> **If non-volatile device parameters are modified via the MODBUS RS485 function codes 06, 16 or 23, the change is saved in the EEPROM of the measuring device.**
> The number of writes to the EEPROM is technically restricted to a maximum of 1 million.
> ▶ Make sure to comply with this limit since, if it is exceeded, data loss and measuring device failure will result.
> ▶ Avoid constantly writing non-volatile device parameters via the MODBUS RS485.

6.1.2 Address model

The Modbus RS485 register addresses of the measuring device are implemented in accordance with the "Modbus Applications Protocol Specification V1.1".

In addition, systems are used that work with the register address model "Modicon Modbus Protocol Reference Guide (PI-MBUS-300 Rev. J)".

Depending on the function code used, a number is added at the start of the register address with this specification:
• "3" → "Read" access
• "4" → "Write" access

Function code	Access type	Register in accordance with "Modbus Applications Protocol Specification"	Register in accordance with "Modicon Modbus Protocol Reference Guide"
03 04 23	Read	XXXX Example: mass flow = 2007	3XXXX Example: mass flow = 32007
06 16 23	Write	XXXX Example: reset totalizer = 6401	4XXXX Example: reset totalizer = 46401

6.2   Overview of the Expert operating menu

The following table provides an overview of the menu structure of the expert operating menu and its parameters. The page reference indicates where the associated description of the submenu or parameter can be found.

🏃 Expert			
Locking status			→ 📄 83
Access status tooling			→ 📄 83
Enter access code			→ 📄 83
▶ System			→ 📄 83
	▶ Diagnostic handling		→ 📄 83
		Alarm delay	→ 📄 83
		▶ Diagnostic behavior	→ 📄 83
	▶ Administration		→ 📄 83
		Device reset	→ 📄 83
		Permanent storage	→ 📄 83
		Device tag	→ 📄 83
▶ Sensor			→ 📄 84
	▶ Measured values		→ 📄 84
		▶ Process variables	→ 📄 84
		▶ Totalizer	→ 📄 84
		▶ Input values	→ 📄 84

‣ Communication	→ 🕮 89

‣ Modbus configuration	→ 🕮 89

Bus address	→ 🕮 89
Baudrate	→ 🕮 89
Data transfer mode	→ 🕮 89
Parity	→ 🕮 89
Byte order	→ 🕮 89
Telegram delay	→ 🕮 89
Assign diagnostic behavior	→ 🕮 89
Failure mode	→ 🕮 89
Interpreter mode	→ 🕮 89

‣ Modbus information	→ 🕮 90

Device ID	→ 🕮 90
Device revision	→ 🕮 90

‣ Modbus data map	→ 🕮 90

Scan list register 0 to 15	→ 🕮 90

‣ Application	→ 🕮 90

Reset all totalizers	→ 🕮 90
Reset overall batching quantity	→ 🕮 90

‣ Totalizer 1 to 3	→ 🕮 91

Assign process variable	→ 🕮 91
Volume unit	→ 🕮 91
Totalizer operation mode	→ 🕮 91
Control Totalizer 1 to 3	→ 🕮 91

		Preset value 1 to 3	→ 🖺 91
		Failure mode	→ 🖺 91
	‣ Batching		→ 🖺 91
		‣ Operation	→ 🖺 91
		‣ Configuration	→ 🖺 92
‣ Diagnostics			→ 🖺 94
	Actual diagnostics		→ 🖺 94
	Timestamp		→ 🖺 94
	Actual diagnostics		→ 🖺 94
	Previous diagnostics		→ 🖺 94
	Timestamp		→ 🖺 94
	Previous diagnostics		→ 🖺 94
	Operating time from restart		→ 🖺 94
	Operating time		→ 🖺 94
	‣ Diagnostic list		→ 🖺 94
		Diagnostics 1	→ 🖺 94
		Diagnostics 1	→ 🖺 94
		Timestamp	→ 🖺 94
		Diagnostics 2	→ 🖺 95
		Diagnostics 2	→ 🖺 95
		Timestamp	→ 🖺 95
		Diagnostics 3	→ 🖺 95
		Diagnostics 3	→ 🖺 95
		Timestamp	→ 🖺 95
		Diagnostics 4	→ 🖺 95

6.3 Register information

Navigation: Expert					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖹
Locking status	4918	Integer	Read	512 = Temporarily locked	9
Access status tooling	2178	Integer	Read	0 = Operator **1 = Maintenance**	10
Enter access code	2177	Integer	Read / Write	0 to 9999	10

6.3.1 "System" submenu

"Diagnostic handling" submenu

Navigation: Expert → System → Diagnostic handling					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖹
Alarm delay	6808	Float	Read / Write	0 to 60 s	11

"Diagnostic behavior" submenu

Navigation: Expert → System → Diagnostic handling → Diagnostic behavior					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖹
Assign behavior of diagnostic no. 937	2396	Integer	Read / Write	0 = Off 1 = Logbook entry only **2 = Warning** 3 = Alarm	13
Assign behavior of diagnostic no. 991	2809	Integer	Read / Write	0 = Off 1 = Logbook entry only **2 = Warning** 3 = Alarm	12

"Administration" submenu

Navigation: Expert → System → Administration					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖹
Device reset	6817	Integer	Read / Write	**0 = Cancel** 1 = Restart device 2 = To delivery settings	13
Permanent storage	6907	Integer	Read / Write	0 = Off **1 = On**	14
Device tag	4901	String	Read / Write	Max. 16 characters such as letters, numbers or special characters (e.g. @, %, /).	14

6.3.2   "Sensor" submenu

"Measured values" submenu

"Process variables" submenu

Navigation: Expert → Sensor → Measured values → Process variables					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📄
Volume flow	2007	Float	Read	Signed floating-point number	15

"Totalizer" submenu

Navigation: Expert → Sensor → Measured values → Totalizer					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📄
Totalizer value 1 to 3	1: 2610 2: 2810 3: 3010	Float	Read	Signed floating-point number	16
Totalizer overflow 1 to 3	1: 2612 2: 2812 3: 3012	Float	Read	Integer with sign	17

"Input values" submenu

Navigation: Expert → Sensor → Measured values → Input values					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📄
Value status input	2746	Integer	Read	9 = Low 10 = High	17

"System units" submenu

Navigation: Expert → Sensor → System units					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖹
Volume flow unit	2103	Integer	Read / Write	0 = cm³/s 1 = cm³/min 2 = cm³/h 3 = cm³/d 4 = dm³/s 5 = dm³/min 6 = dm³/h 7 = dm³/d 8 = m³/s 9 = m³/min 10 = m³/h 11 = m³/d **12 = ml/s** [+] 13 = ml/min 14 = ml/h 15 = ml/d 16 = l/s 17 = l/min 18 = l/h 19 = l/d 20 = hl/s 21 = hl/min 22 = hl/h 23 = hl/d 24 = Ml/s 25 = Ml/min 26 = Ml/h 27 = Ml/d 32 = af/s 33 = af/min 34 = af/h 35 = af/d 36 = ft³/s 37 = ft³/min 38 = ft³/h 39 = ft³/d 40 = fl oz/s (us) 41 = fl oz/min (us) 42 = fl oz/h (us) 43 = fl oz/d (us) 44 = gal/s (us) 45 = gal/min (us) 46 = gal/h (us) 47 = gal/d (us) 48 = Mgal/s (us) 49 = Mgal/min (us) 50 = Mgal/h (us) 51 = Mgal/d (us) 52 = bbl/s (us;liq.) 53 = bbl/min (us;liq.) 54 = bbl/h (us;liq.) 55 = bbl/d (us;liq.) 56 = bbl/s (us;beer) 57 = bbl/min (us;beer) 58 = bbl/h (us;beer) 59 = bbl/d (us;beer) 60 = bbl/s (us;oil) 61 = bbl/min (us;oil) 62 = bbl/h (us;oil) 63 = bbl/d (us;oil) 64 = bbl/s (us;tank) 65 = bbl/min (us;tank) 66 = bbl/h (us;tank) 67 = bbl/d (us;tank) 68 = gal/s (imp) 69 = gal/min (imp) 70 = gal/h (imp)	18

Navigation: Expert → Sensor → System units					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🗎
				71 = gal/d (imp) 72 = Mgal/s (imp) 73 = Mgal/min (imp) 74 = Mgal/h (imp) 75 = Mgal/d (imp) 76 = bbl/s (imp;beer) 77 = bbl/min (imp;beer) 78 = bbl/h (imp;beer) 79 = bbl/d (imp;beer) 80 = bbl/s (imp;oil) 81 = bbl/min (imp;oil) 82 = bbl/h (imp;oil) 83 = bbl/d (imp;oil) 84 = User vol./s 85 = User vol./min 86 = User vol./h 87 = User vol./d 88 = kgal/s (us) 89 = kgal/min (us) 90 = kgal/h (us) 91 = kgal/d (us)	
Volume unit	2104	Integer	Read / Write	0 = cm³ 1 = dm³ 2 = m³ **3 = ml** [(+)] 4 = l 5 = hl 6 = Ml Mega 8 = af 9 = ft³ 10 = fl oz (us) 11 = gal (us) 12 = Mgal (us) 13 = bbl (us;liq.) 14 = bbl (us;beer) 15 = bbl (us;oil) 16 = bbl (us;tank) 17 = gal (imp) 18 = Mgal (imp) 19 = bbl (imp;beer) 20 = bbl (imp;oil) 21 = User vol. 22 = kgal (us)	20
Date/time format	2150	Integer	Read / Write	**0 = dd.mm.yy hh:mm** 1 = mm/dd/yy hh:mm am/pm 2 = dd.mm.yy hh:mm am/pm 3 = mm/dd/yy hh:mm	20

"User-specific units" submenu

Navigation: Expert → Sensor → System units → User-specific units					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🗎
User volume text	2542	String	Read / Write	Max. 10 characters such as letters, numbers or special characters (@, %, /)	21
User volume factor	2119	Float	Read / Write	Signed floating-point number	21

"Process parameters" submenu

Navigation: Expert → Sensor → Process parameters					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📖
Flow override	5503	Integer	Read / Write	**0 = Off** 1 = On	22

"Low flow cut off" submenu

Navigation: Expert → Sensor → Process parameters → Low flow cut off					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📖
Assign process variable	5101	Integer	Read / Write	0 = Off **1 = Volume flow**	23
On value low flow cutoff	5138	Float	Read / Write	Signed floating-point number	23
Off value low flow cutoff	5104	Float	Read / Write	0 to 100.0 %	24
Pressure shock suppression	5140	Float	Read / Write	0 to 100 s	24

"Sensor adjustment" submenu

Navigation: Expert → Sensor → Sensor adjustment					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📖
Installation direction	5501	Integer	Read / Write	**0 = Flow in arrow direction** 1 = Flow against arrow direction	26
Integration time	2260	Float	Read	1 to 65 ms	26
Measuring period	2852	Float	Read	6 to 80 ms	26

"Process variable adjustment" submenu

| Navigation: Expert → Sensor → Sensor adjustment → Process variable adjustment					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📖
Volume flow offset	5521	Float	Read / Write	Signed floating-point number	27
Volume flow factor	5519	Float	Read / Write	Positive floating-point number	27

"Calibration" submenu

Navigation: Expert → Sensor → Calibration					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📖
Nominal diameter	2048	String	Read	DNxx / x"	28
Calibration factor	2313	Float	Read	Positive floating-point number	28
Zero point	2870	Float	Read	Signed floating-point number	28

6.3.3 "Input" submenu

"Status input" submenu

Navigation: Expert → Input → Status input					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🗎
Assign status input	2506	Integer	Read / Write	**0 = Off** 1 = Flow override 2 = Reset all totalizers 3 = Reset totalizer 1 4 = Reset totalizer 2 5 = Reset totalizer 3 6 = Start batch 7 = Start & stop batch	29
Value status input	2746	Integer	Read	9 = Low 10 = High	30
Active level	2530	Integer	Read / Write	9 = Low **10 = High**	30
Response time status input	3404	Float	Read / Write	10 to 200 ms	31

6.3.4 "Communication" submenu

"Modbus configuration" submenu

Navigation: Expert → Communication → Modbus configuration					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🗎
Bus address	4910	Integer	Read / Write	1 to 247	32
Baudrate	4912	Integer	Read / Write	0 = 1200 BAUD 1 = 2400 BAUD 2 = 4800 BAUD 3 = 9600 BAUD **4 = 19200 BAUD** 5 = 38400 BAUD 6 = 57600 BAUD 7 = 115200 BAUD	32
Data transfer mode	4913	Integer	Read / Write	**0 = RTU** 1 = ASCII	32
Parity	4914	Integer	Read / Write	**0 = Even** 1 = Odd 2 = None / 2 stop bits 3 = None / 1 stop bit	33
Byte order	4915	Integer	Read / Write	0 = 0-1-2-3 1 = 3-2-1-0 2 = 2-3-0-1 **3 = 1-0-3-2**	33
Telegram delay	4916	Float	Read / Write	0 to 100 ms	34
Assign diagnostic behavior	4921	Integer	Read / Write	0 = Off 1 = Warning **2 = Alarm** 3 = Alarm or warning	34
Failure mode	4920	Integer	Read / Write	**0 = NaN value** 1 = Last valid value	34
Interpreter mode	4925	Integer	Read / Write	**0 = Standard** 1 = Ignore surplus bytes	35

"Modbus information" submenu

Navigation: Expert → Communication → Modbus information					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🗎
Device ID	2547	Integer	Read	4-digit hexadecimal number	36
Device revision	4481	Integer	Read	4-digit hexadecimal number	36

"Modbus data map" submenu

| Navigation: Expert → Communication → Modbus data map					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🗎
Scan list register 0 to 15	0: 5001 1: 5002 2: 5003 3: 5004 4: 5005 5: 5006 6: 5007 7: 5008 8: 5009 9: 5010 10: 5011 11: 5012 12: 5013 13: 5014 14: 5015 15: 5016	Integer	Read / Write	1 to 65 535	36

6.3.5   "Application" submenu

Navigation: Expert → Application					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🗎
Reset all totalizers	2609	Integer	Read / Write	**0 = Cancel** 1 = Reset + totalize	37
Reset overall batching quantity	2913	Integer	Read / Write	**0 = Cancel** 3 = Reset	38

"Totalizer 1 to 3" submenu

Navigation: Expert → Application → Totalizer 1 to 3					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖺
Assign process variable	1: 2601 2: 2801 3: 3001	Integer	Read / Write	0 = Off **1 = Volume flow**	38
Volume unit	1: 2603 2: 2803 3: 3003	Integer	Read / Write	0 = cm³ 1 = dm³ 2 = m³ **3 = ml** (+) 4 = l 5 = hl 6 = Ml Mega 8 = af 9 = ft³ 10 = fl oz (us) 11 = gal (us) 12 = Mgal (us) 13 = bbl (us;liq.) 14 = bbl (us;beer) 15 = bbl (us;oil) 16 = bbl (us;tank) 17 = gal (imp) 18 = Mgal (imp) 19 = bbl (imp;beer) 20 = bbl (imp;oil) 21 = User vol. 22 = kgal (us)	39
Totalizer operation mode	1: 2605 2: 2805 3: 3005	Integer	Read / Write	**0 = Net flow total** 1 = Forward flow total 2 = Reverse flow total	39
Control Totalizer 1 to 3	1: 2608 2: 2808 3: 3008	Integer	Read / Write	**0 = Totalize** 1 = Reset + totalize 2 = Preset + hold 3 = Reset + hold 4 = Preset + totalize	40
Preset value 1 to 3	1: 2590 2: 2592 3: 2594	Float	Read / Write	Signed floating-point number	41
Failure mode	1: 2606 2: 2806 3: 3006	Integer	Read / Write	**0 = Stop** 1 = Actual value 2 = Last valid value	41

"Batching" submenu

"Operation" submenu

Navigation: Expert → Application → Batching → Operation					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖺
Batch control	2829	Integer	Read / Write	**0 = Stop** 6 = Start	43
Batch counter	3520	Integer	Read	Positive integer	43
Quantity last batch	2844	Float	Read	Signed floating-point number	44
Quantity last drip	3238	Float	Read	Signed floating-point number	44
Time last batch	2992	Float	Read	Positive floating-point number	45
Close time last batch	2994	Float	Read	Positive floating-point number	45
Current drip correction quantity	3240	Float	Read	Signed floating-point number	45

Navigation: Expert → Application → Batching → Operation					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🕮
Overall batching quantity	3262	Float	Read	Signed floating-point number	46
Overflow number overall batch. quantity	3552	Float	Read	–32 000.0 to 32 000.0	46
Batch unit	21295	Integer	Read	0 = cm³ 1 = dm³ 3 = ml 4 = l 9 = ft³ 10 = fl oz (us) 11 = gal (us) 21 = User vol.	47
Switch output function 1	2488	Integer	Read / Write	**0 = Batching** [(+)] 1 = Open 2 = Close	47
Switch status 1	3518	Integer	Read	1 = Open 2 = Closed	48
Switch output function 2	2489	Integer	Read / Write	**0 = Batching** [(+)] 1 = Open 2 = Close	47
Switch status 2	3519	Integer	Read	1 = Open 2 = Closed	48

"Configuration" submenu

Navigation: Expert → Application → Batching → Configuration					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🕮
Batch profile	3000	Integer	Read / Write	**0 = Profile 1** 1 = Profile 2 2 = Profile 3 3 = Profile 4 4 = Profile 5 5 = Profile 6	48

"Settings batch profile 1 to 6" submenu

Navigation: Expert → Application → Batching → Configuration → Settings batch profile 1 to 6					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🕮
Input selector	1: 3580 2: 3581 3: 3582 4: 3583 5: 3584 6: 3585	Integer	Read / Write	0 = Off **1 = Volume flow**	49
Batch unit	1: 3530 2: 3531 3: 3532 4: 3533 5: 3534 6: 3535	Integer	Read / Write	0 = cm³ 1 = dm³ **3 = ml** [(+)] 4 = l 9 = ft³ 10 = fl oz (us) 11 = gal (us) 21 = User vol.	50

Navigation: Expert → Application → Batching → Configuration → Settings batch profile 1 to 6					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📖
Batch quantity	1: 3586 2: 3588 3: 3590 4: 3592 5: 3594 6: 3596	Float	Read / Write	Positive floating-point number	50
Measuring time drip quantity	1: 3646 2: 3648 3: 3650 4: 3652 5: 3654 6: 3656	Float	Read / Write	0.01 to 100 s	51
Fixed compensation quantity	1: 3634 2: 3636 3: 3638 4: 3640 5: 3642 6: 3644	Float	Read / Write	Signed floating-point number	51
Drip correction mode	1: 3880 2: 3881 3: 3882 4: 3883 5: 3884 6: 3885	Integer	Read / Write	**0 = Off** 1 = Fixed time 2 = Fixed time or low flow cut off	52
Filter depth drip median	1: 3598 2: 3599 3: 3600 4: 3601 5: 3602 6: 3603	Integer	Read / Write	0 = Off 1 = Median 3 **2 = Median 5** 3 = Median 7	53
Average drip correction quantity	1: 3658 2: 3659 3: 3660 4: 3661 5: 3662 6: 3663	Integer	Read / Write	1 to 100	53
Batch levels	1: 3664 2: 3665 3: 3666 4: 3667 5: 3668 6: 3669	Integer	Read / Write	**0 = One-level** 1 = Two-level 2 = One-level and blow out	54
Start level 2	1: 3820 2: 3822 3: 3824 4: 3826 5: 3828 6: 3830	Float	Read / Write	0 to 100 %	55
Stop level 2	1: 3832 2: 3834 3: 3836 4: 3838 5: 3840 6: 3842	Float	Read / Write	0 to 100 %	55
Blow out delay	1: 3886 2: 3888 3: 3890 4: 3892 5: 3894 6: 3896	Float	Read / Write	0 to 100 s	56

Navigation: Expert → Application → Batching → Configuration → Settings batch profile 1 to 6					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📄
Blow out duration	1: 3922 2: 3924 3: 3926 4: 3928 5: 3930 6: 3932	Float	Read / Write	0 to 100 s	56
Maximum batch time	1: 3850 2: 3852 3: 3854 4: 3856 5: 3858 6: 3860	Float	Read / Write	0 to 10^6 s	56
Maximum flow rate exceeded	1: 3862 2: 3864 3: 3866 4: 3868 5: 3870 6: 3872	Float	Read / Write	Positive floating-point number	57
Disable time pressure shock suppression	1: 3934 2: 3936 3: 3938 4: 3940 5: 3942 6: 3944	Float	Read / Write	0 to 100 s	57

6.3.6 "Diagnostics" submenu

Navigation: Expert → Diagnostics					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📄
Actual diagnostics	2732	Integer	Read	Symbol for diagnostic behavior, diagnostic code and short message.	59
Timestamp	2719	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	60
Actual diagnostics	20190	Integer	Read	0 to 65 535	60
Previous diagnostics	2734	Integer	Read	Symbol for diagnostic behavior, diagnostic code and short message.	60
Timestamp	2068	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	61
Previous diagnostics	20184	Integer	Read	0 to 65 535	61
Operating time from restart	2624	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	61
Operating time	2631	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	61

"Diagnostic list" submenu

Navigation: Expert → Diagnostics → Diagnostic list					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 📄
Diagnostics 1	2736	Integer	Read	Symbol for diagnostic behavior, diagnostic code and short message.	62
Diagnostics 1	20189	Integer	Read	0 to 65 535	63
Timestamp	2710	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	63

Navigation: Expert → Diagnostics → Diagnostic list					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖺
Diagnostics 2	2738	Integer	Read	Symbol for diagnostic behavior, diagnostic code and short message.	63
Diagnostics 2	20188	Integer	Read	0 to 65 535	64
Timestamp	2701	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	64
Diagnostics 3	2740	Integer	Read	Symbol for diagnostic behavior, diagnostic code and short message.	64
Diagnostics 3	20187	Integer	Read	0 to 65 535	64
Timestamp	2692	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	65
Diagnostics 4	2742	Integer	Read	Symbol for diagnostic behavior, diagnostic code and short message.	65
Diagnostics 4	20186	Integer	Read	0 to 65 535	65
Timestamp	2683	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	66
Diagnostics 5	2744	Integer	Read	Symbol for diagnostic behavior, diagnostic code and short message.	66
Diagnostics 5	20185	Integer	Read	0 to 65 535	66
Timestamp	2675	Integer	Read	Days (d), hours (h), minutes (m) and seconds (s)	66

"Event logbook" submenu

Navigation: Expert → Diagnostics → Event logbook					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖺
Filter options	2639	Integer	Read / Write	0 = Failure (F) 4 = Maintenance required (M) 8 = Function check (C) 12 = Out of specification (S) 16 = Information (I) **255 = All**	67

"Device information" submenu

Navigation: Expert → Diagnostics → Device information					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖺
Device tag	2026	String	Read / Write	Max. 32 characters such as letters, numbers or special characters (e.g. @, %, /)	68
Serial number	7003	String	Read	A maximum of 11-digit character string comprising letters and numbers.	69
Firmware version	7277	String	Read	Character string in the format xx.yy.zz	69
Device name	7263	String	Read	Dosimag	69
Order code	2058	String	Read	Character string composed of letters, numbers and certain punctuation marks (e.g. /).	69
Extended order code 1	2212	String	Read	Character string	70
Extended order code 2	2222	String	Read	Character string	70
Extended order code 3	2232	String	Read	Character string	70

Navigation: Expert → Diagnostics → Device information					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖹
ENP version	4003	String	Read	Character string	71
Configuration counter	3100	Integer	Read	0 to 65 535	71

"Simulation" submenu

Navigation: Expert → Diagnostics → Simulation					
Parameter	Register	Data type	Access	Selection / User entry / User interface	→ 🖹
Assign simulation process variable	6813	Integer	Read / Write	**0 = Off** 1 = Volume flow	71
Value process variable	6814	Float	Read / Write	Depends on the process variable selected	72
Simulation device alarm	6812	Integer	Read / Write	**0 = Off** 1 = On	72

Index

Endress+Hauser

People for Process Automation

www.addresses.endress.com