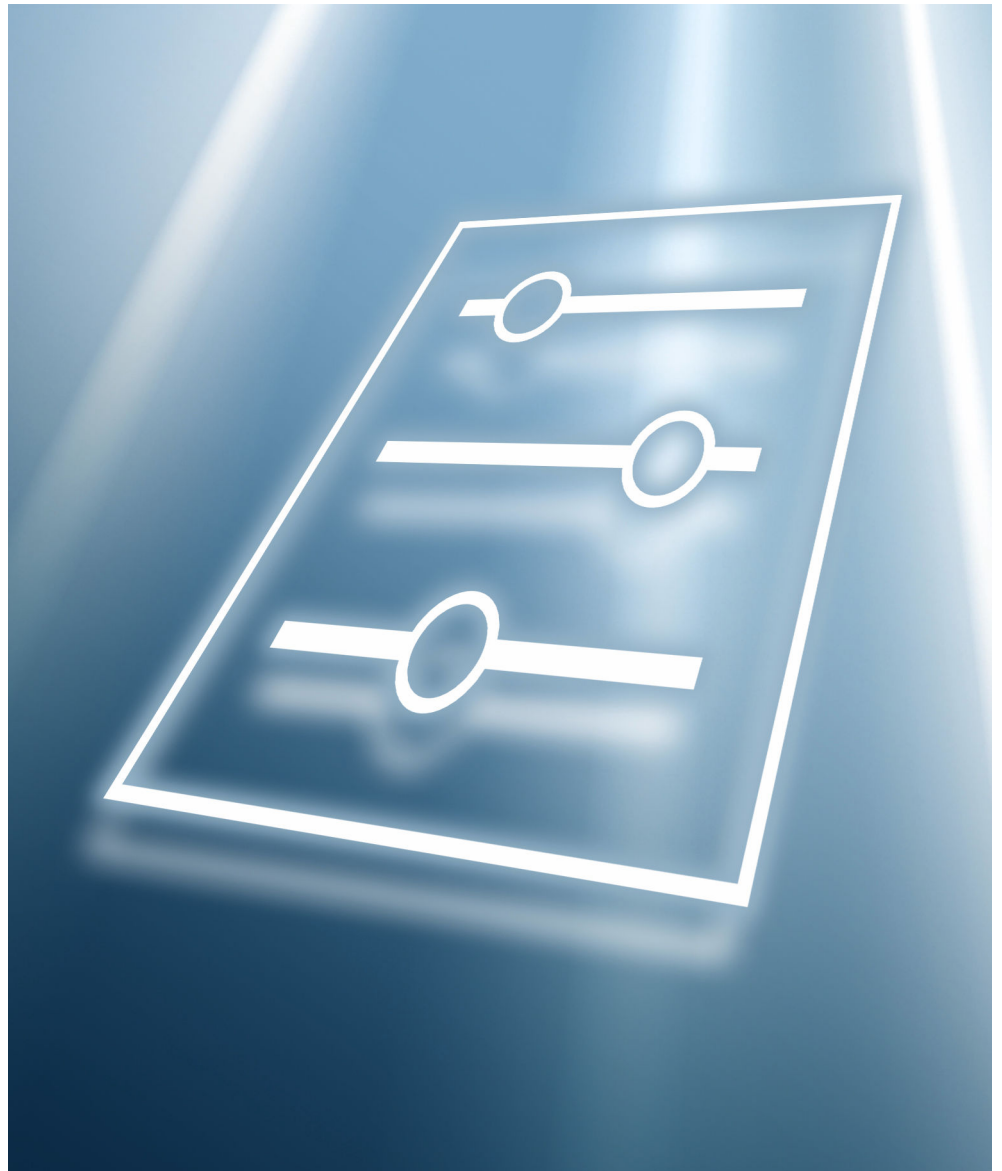


# Description of Device Parameters

## **iTEMP TMT86**

Temperature transmitter  
PROFINET®





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# 1 About this document

## 1.1 Document function

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

It is used to perform tasks that require detailed knowledge of the function of the device:
















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








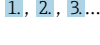


## 1.2 Target group

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

## 1.3 Using this document





### 1.3.1 Symbols for certain types of information

Symbol	Meaning
	<b>Permitted</b> Procedures, processes or actions that are permitted.
	<b>Preferred</b> Procedures, processes or actions that are preferred.
	<b>Forbidden</b> Procedures, processes or actions that are forbidden.
	<b>Tip</b> Indicates additional information.
	Reference to documentation
	Reference to page
	Reference to graphic
	Notice or individual step to be observed
	Series of steps
	Result of a step
	Help in the event of a problem
	Visual inspection
 <small>A0028662</small>	Operation via local display
 <small>A0028663</small>	Operation via operating tool
 <small>A0028665</small>	Write-protected parameter

Symbol	Meaning	Symbol	Meaning
	<b>Permitted</b> Procedures, processes or actions that are permitted.		<b>Preferred</b> Procedures, processes or actions that are preferred.
	<b>Forbidden</b> Procedures, processes or actions that are forbidden.		<b>Tip</b> Indicates additional information.
	Reference to documentation		Reference to page
	Reference to graphic		Series of steps
	Result of a step		Visual inspection




### 1.3.2 Information on the document structure

The parameters of all the operating menus and the commissioning wizard are described in this document.

- **Guidance** menu with the **Commissioning** wizard (→  9), which guides the user automatically through all the device parameters that are needed for commissioning
- **Diagnostics** menu (→  20)
- **Application** menu (→  29)
- **System** menu (→  41)

### 1.3.3 Structure of a parameter description

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

Complete parameter name	Write-protected parameter = 
<b>Navigation</b>	 Navigation path to the parameter via the operating tool  The names of the menus, submenus and parameters are abbreviated to the form in which they appear on the display and in the operating tool.
<b>Prerequisite</b>	The parameter is only available under these specific conditions
<b>Description</b>	Description of the parameter function
<b>Selection</b>	List of the individual options for the parameter <ul style="list-style-type: none"> <li>▪ Option 1</li> <li>▪ Option 2</li> </ul>
<b>User entry</b>	Input range for the parameter
<b>User interface</b>	Display value/data for the parameter
<b>Factory setting</b>	Default setting ex works (if not explicitly selected)
<b>Additional information</b>	Additional explanations (e.g. in examples): <ul style="list-style-type: none"> <li>▪ For individual options</li> <li>▪ For display values/data</li> <li>▪ For the input range</li> <li>▪ For the factory setting</li> <li>▪ For the parameter function</li> </ul>

## 1.4 Documentation

The Description of Device Parameters is part of the following documentation:

 Temperature transmitter iTEMP TMT86: **BA02144T**

## 2 Overview of the operating menu

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

▶ Guidance	
▶ Commissioning	→ 9
▶ Device identification	→ 10
▶ Sensor 1	→ 11
▶ Sensor 2	→ 17
▶ User management	→ 18
▶ Finish	→ 19
▶ Import / Export	→ 19
Create configuration report	→ 19
▶ Diagnostics	→ 20
▶ Active diagnostics	→ 20
▶ Diagnostic list	→ 22
▶ Event logbook	→ 22
▶ Minimum/maximum values	→ 23
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▶ Device temperature	→ 25
▶ Simulation	→ 26
▶ Diagnostic settings	→ 27
▶ Properties	→ 27
▶ Configuration	→ 28
▶ Application	→ 29
▶ Measured values	→ 29
▶ Sensors	→ 30









▶ Sensor 1	→ 30
▶ Sensor 1	→ 30
▶ Linearization	→ 34
▶ Sensor 2	→ 33
▶ Sensor 2	→ 33
▶ Linearization	→ 34
▶ PROFINET	→ 37
▶ Configuration	→ 37
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▶ Analog input 1 to 5	→ 38
▶ Information	→ 39
▶ Application relation	→ 39
▶ System	→ 41
▶ Device management	→ 42
▶ Software configuration	→ 43
▶ User management	→ 44
▶ User management	→ 44
▶ Enter password	→ 45
▶ Define password	→ 47
▶ Change password	→ 48
▶ Delete password	→ 49
▶ Connectivity	→ 50
▶ Interfaces	→ 50
▶ Ethernet	→ 51
▶ Properties	→ 51
▶ Port information	→ 52
▶ APL information	→ 54
▶ TCP information	→ 55
▶ UDP information	→ 56
▶ Display	→ 57
▶ Date/time	→ 58

▶ <b>Geolocation</b>	→ 60
▶ <b>Information</b>	→ 62



## 3 "Guidance" menu

Navigation  Guidance

► Guidance	
► Commissioning	→  9
► Device identification	→  10
► Sensor 1	→  11
► Sensor 2	→  17
► User management	→  18
► Finish	→  19
► Import / Export	→  19
Create configuration report	→  19


### 3.1 "Commissioning" wizard

Navigation  Guidance → Commissioning


---

#### Start


---

**Navigation**  Guidance → Commissioning → Start

**Description** Click the **Start** button to run this wizard. Enter the appropriate value in each parameter or select the appropriate option.

 If the wizard is canceled before all the necessary parameters have been configured, any settings already made are saved. For this reason, the device may then be in an undefined state! In such situations, it is advisable to reset the device to the factory default settings.


### 3.1.1 "Device identification" wizard

*Navigation*  Guidance → Commissioning → Device identification

---

#### Device tag


---

<b>Navigation</b>	 Guidance → Commissioning → Device identification → Device tag
<b>Description</b>	Enter a name for the measuring point to identify the measuring device in the plant
<b>User entry</b>	Character string comprising numbers, letters and special characters (32)

---

#### Descriptor


---

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

---

#### Device name


---

<b>Navigation</b>	 Guidance → Commissioning → Device identification → Device name
<b>Description</b>	Displays the name of the transmitter.  Additional information: The name can also be found on the transmitter's nameplate.
<b>User interface</b>	Character string comprising numbers, letters and special characters
<b>Factory setting</b>	iTEMP TMT86

---

**Serial number**


---


<b>Navigation</b>	 Guidance → Commissioning → Device identification → Serial number
<b>Description</b>	<p>Displays the serial number of the measuring device. The serial number can be used to identify the measuring device and to retrieve further information via the Device Viewer or Operations app, such as the related documentation.</p> <p>Additional information: The serial number can also be found on the nameplate of the sensor and transmitter.</p>
<b>User interface</b>	Character string comprising numbers, letters and special characters

---

**Extended order code 1 to 3**


---



<b>Navigation</b>	 Guidance → Commissioning → Device identification → Extended order code 1
<b>Description</b>	<p>Displays the first, second and/or third part of the extended order code. Due to character length restrictions, the extended order code is split into a maximum of 3 parameters. The extended order code indicates for each feature in the product structure the selected option, thereby uniquely identifying the device model.</p> <p>Additional information: The extended order code can also be found on the nameplate.</p>
<b>User interface</b>	Character string comprising numbers, letters and special characters

### 3.1.2 "Sensor 1" wizard


*Navigation*  Guidance → Commissioning → Sensor 1

---

**Unit**


---



<b>Navigation</b>	 Guidance → Commissioning → Sensor 1 → Unit
<b>Description</b>	Selection of the unit for all measured values.

- Selection**
- SI units*
- °C
  - K
  - Ohm
- Custom-specific units*
- °F
  - °R
  - mV

**Factory setting** °C

---

## Sensor type

---

**Navigation**  Guidance → Commissioning → Sensor 1 → Sensor type

**Description** Use this function to select the sensor type for the sensor input in question.

- Sensor type 1: settings for sensor input 1
- Sensor type 2: settings for sensor input 2

Info:

Please observe the terminal assignment when connecting the individual sensors. In the case of 2-channel operation, the possible connection options also have to be observed.


- Selection**
- Pt100 IEC60751, a=0.00385 (1)
  - Pt200 IEC60751, a=0.00385 (2)
  - Pt500 IEC60751, a=0.00385 (3)
  - Pt1000 IEC60751, a=0.00385 (4)
  - Pt100 JIS C1604, a=0.003916 (5)
  - Type A (W5Re-W20Re) IEC60584 (30)
  - Type B (PtRh30-PtRh6) IEC60584 (31)
  - Type C (W5Re-W26Re) IEC60584 (32)
  - Type D (W3Re-W25Re) ASTM E988-96 (33)
  - Type E (NiCr-CuNi) IEC60584 (34)
  - Type J (Fe-CuNi) IEC60584 (35)
  - Type K (NiCr-Ni) IEC60584 (36)
  - Type N (NiCrSi-NiSi) IEC60584 (37)
  - Type R (PtRh13-Pt) IEC60584 (38)
  - Type S (PtRh10-Pt) IEC60584 (39)
  - Type T (Cu-CuNi) IEC60584 (40)
  - Type L (Fe-CuNi) DIN43710 (41)
  - Type L (NiCr-CuNi) GOST R8.585-01 (43)
  - Type U (Cu-CuNi) DIN43710 (42)
  - Pt50 GOST 6651-94, a=0.00391 (8)
  - Pt100 GOST 6651-94, a=0.00391 (9)
  - Cu100 OIML/GOST 6651-09, a=0.00428 (11)
  - Cu50 OIML R84:2003, a=0.00428 (10)
  - Cu50 OIML/GOST 6651-94, a=0,00426 (14)
  - RTD Platinum (Callendar/van Dusen)
  - RTD Poly Nickel (OIML R84, GOST 6651-94)
  - RTD Polynomial Copper (OIML R84:2003)
  - 10...400 Ohm
  - 10...2850 Ohm
  - -20...100 mV

**Factory setting** Pt100 IEC60751, a=0.00385 (1)

---

## Connection type

---

**Navigation**  Guidance → Commissioning → Sensor 1 → Connection type

**Prerequisite** An RTD sensor or a resistance transmitter must be specified as the sensor type.

**Description** Use this function to select the connection type for the sensor.

**Selection**


- 2- wire
- 3- wire
- 4- wire

**Factory setting** 4-wire

---

## 2-wire compensation

---

**Navigation**  Guidance → Commissioning → Sensor 1 → 2-wire compensation

**Prerequisite** An RTD sensor or a resistance transmitter with a **2-wire** connection type must be specified as the sensor type.

**Description** Use this function to specify the resistance value for two-wire compensation in RTDs.


**User entry** 0.0 to 30.0 Ohm

**Factory setting** 0.0 Ohm

---

## Cold junction

---

**Navigation**  Guidance → Commissioning → Sensor 1 → Cold junction

**Prerequisite** A thermocouple (TC) sensor must be selected as the sensor type.

**Description** Use this function to select cold junction measurement for temperature compensation of thermocouples (TC).

Info:

- If "Fixed value" is selected, the compensation value is specified via the CJ preset value parameter.
- If "Measured value ext. sensor" is selected, an RTD must also be connected in accordance with the specifications in the operating manual.

<b>Selection</b>	<ul style="list-style-type: none"> <li>■ No compensation</li> <li>■ Internal measurement</li> <li>■ Fixed Value</li> <li>■ Measured value ext. sensor</li> </ul>
------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------

<b>Factory setting</b>	Internal measurement
------------------------	----------------------

---

**CJ preset value 1**


<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → CJ preset value 1
-------------------	---------------------------------------------------------

<b>Prerequisite</b>	The <b>CJ preset value</b> parameter must be set if the <b>Cold junction</b> option is selected.
---------------------	--------------------------------------------------------------------------------------------------

<b>Description</b>	The Fixed value parameter must be set if the cold junction option is selected. Recommended value range: -50°C to 87°C (-58°F to 188.6°F)
--------------------	---------------------------------------------------------------------------------------------------------------------------------------------

<b>User entry</b>	-50 000.0 to 50 000.0
-------------------	-----------------------

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

---

**Call./v. Dusen coeff. R0**


<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Call./v. Dusen coeff. R0
-------------------	----------------------------------------------------------------

<b>Prerequisite</b>	The RTD platinum (Callendar/Van Dusen) option is enabled in the <b>Sensor type</b> parameter.
---------------------	-----------------------------------------------------------------------------------------------

<b>Description</b>	Use this function to set the R0 value for sensor linearization with the Callendar/Van Dusen polynomial.
--------------------	---------------------------------------------------------------------------------------------------------

<b>User entry</b>	10.0 to 2 000.0 Ohm
-------------------	---------------------

<b>Factory setting</b>	100.0 Ohm
------------------------	-----------

---

**Call./v. Dusen coeff. A**


<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Call./v. Dusen coeff. A
-------------------	---------------------------------------------------------------

<b>Prerequisite</b>	The RTD platinum (Callendar/Van Dusen) option is enabled in the <b>Sensor type</b> parameter.
---------------------	-----------------------------------------------------------------------------------------------

<b>Description</b>	Use this function to set the coefficients for sensor linearization with the Callendar/Van Dusen polynomial.
--------------------	-------------------------------------------------------------------------------------------------------------

<b>User entry</b>	0.003 to 0.004
-------------------	----------------

<b>Factory setting</b>	0.0039083
------------------------	-----------

---

**Call./v. Dusen coeff. B**

---



<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Call./v. Dusen coeff. B
<b>Prerequisite</b>	The RTD platinum (Callendar/Van Dusen) option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the coefficients for sensor linearization with the Callendar/Van Dusen polynomial.
<b>User entry</b>	$-4.0 \cdot 10^{-06}$ to $4.0 \cdot 10^{-06}$
<b>Factory setting</b>	-5.775E-07

---

**Call./v. Dusen coeff. C**

---



<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Call./v. Dusen coeff. C
<b>Prerequisite</b>	The RTD platinum (Callendar/Van Dusen) option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the coefficients for sensor linearization with the Callendar/Van Dusen polynomial.
<b>User entry</b>	$-1.0 \cdot 10^{-09}$ to $1.0 \cdot 10^{-09}$
<b>Factory setting</b>	-4.183E-12

---

**Polynomial coeff. R0**

---



<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Polynomial coeff. R0
<b>Prerequisite</b>	The RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the R0 value for linearization of nickel/copper sensors.
<b>User entry</b>	10.0 to 2 000.0 Ohm
<b>Factory setting</b>	100.0 Ohm

---

**Polynomial coeff. A**

---



<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Polynomial coeff. A
<b>Prerequisite</b>	The RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.

<b>Description</b>	Use this function to set the coefficients for sensor linearization of copper/nickel resistance thermometers.
<b>User entry</b>	0.004 to 0.006
<b>Factory setting</b>	0.0054963

---

**Polynomial coeff. B**


<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Polynomial coeff. B
<b>Prerequisite</b>	The RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the coefficients for sensor linearization of copper/nickel resistance thermometers.
<b>User entry</b>	$-2.0 \cdot 10^{-05}$ to $2.0 \cdot 10^{-05}$
<b>Factory setting</b>	6.7556E-06

---

**Sensor lower limit**


<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Sensor lower limit
<b>Prerequisite</b>	The RTD platinum, RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the lower calculation limit for special sensor linearization.
<b>User entry</b>	-10 000.0 to 10 000.0
<b>Factory setting</b>	Depends on the <b>sensor type</b> selected.

---


**Sensor upper limit**


<b>Navigation</b>	Guidance → Commissioning → Sensor 1 → Sensor upper limit
<b>Prerequisite</b>	The RTD platinum, RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the upper calculation limit for special sensor linearization.
<b>User entry</b>	-10 000.0 to 10 000.0




**Factory setting** Depends on the **sensor type** selected.

### 3.1.3 "Sensor 2" wizard

 The following parameters are identical for the configuration of sensor input 1 and sensor input 2 and are described in the 'Sensor 1' submenu: **Sensor type, Connection type, 2-wire compensation, Cold junction, CJ preset value, Sensor offset**

Two additional sensor types can be selected for sensor input 2:


- Dual seal (ModuLine)
- No sensor

*Navigation*  Guidance → Commissioning → Sensor 2 → Sensor backup

---

## Sensor backup

---

**Navigation**  Guidance → Commissioning → Sensor 2 → Sensor backup

**Prerequisite** A sensor input must be selected for sensor 2.

**Description** Sensor backup active: If sensor 1 fails, the value of sensor 2 automatically becomes the process value.


Sensor 1 (backup sensor 2).

**Selection**

- Disable
- Enable

**Factory setting** Disable

### 3.1.4 "User management" wizard


*Navigation*  Guidance → Commissioning → User management

---

#### New password

---

**Navigation**

 Guidance → Commissioning → User management → New password

**Description**

If the factory setting is not changed, the device works without write-protection, using user-role 'Maintenance'. The configuration data of the device can always be modified.

Once the password has been defined, write-protected devices can only be set to maintenance mode if a correct password is entered in the parameter 'Password'.

A new password is valid, after it has been confirmed within the parameter 'Confirm new password'.

Any new password must consist of at least 4 and a maximum of 16 characters and can contain letters and numbers.

**User entry**


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

---

#### Confirm new password

---

**Navigation**

 Guidance → Commissioning → User management → Confirm new password

**Description**

Enter the new password again to confirm.

**User entry**

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

---

#### Status password entry

---

**Navigation**

 Guidance → Commissioning → User management → Status password entry

**Description**

Use this function to display the status of the password verification.

**User interface**

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


### 3.1.5 "Finish" wizard

*Navigation*  Guidance → Commissioning → Finish

---

#### Finish

---

<b>Navigation</b>	 Guidance → Commissioning → Finish → Finish
<b>Description</b>	You have run the wizard successfully. All steps have been completed. Click the <b>Finish</b> button to confirm your entries in the Guidance menu.
<b>User entry</b>	Character string comprising numbers, letters and special characters (1)


## 3.2 Import / Export

*Navigation*  Guidance → Import / Export

---

#### Create configuration report












---

<b>Navigation</b>	 Guidance → Import / Export → Create configuration report
<b>Prerequisite</b>	Web server, DTM
<b>Description</b>	Generates the configuration report in the PDF format. This report documents the device configuration.
<b>User entry</b>	Clicking the <b>Create configuration report</b> button enables a configuration report to be generated. This report can be printed out or saved in PDF format.


## 4 "Diagnostics" menu

Settings and information concerning diagnostics as well as help for troubleshooting

Navigation  Diagnostics


<b>Diagnostics</b>		
▶ Active diagnostics		→  20
▶ Diagnostic list		→  22
▶ Event logbook		→  22
▶ Minimum/maximum values		→  23
▶ Sensor 1		→  23
▶ Sensor 2		→  24
▶ Device temperature		→  25
▶ Simulation		→  26
▶ Diagnostic settings		→  27
▶ Properties		→  27
▶ Configuration		→  28

### 4.1 "Active diagnostics" submenu

Navigation  Diagnostics → Active diagnostics

#### Active diagnostics

**Navigation**

 Diagnostics → Active diagnostics → Active diagnostics

**Description**

Displays the currently active diagnostic message.

If there is more than one pending diagnostic event, the message for the diagnostic event with the highest priority is displayed.


**User interface**

Symbol for diagnostic behavior, diagnostic code and short message.

---

**Timestamp**



---

<b>Navigation</b>	 Diagnostics → Active diagnostics → Timestamp
<b>Description</b>	Displays the timestamp for the currently active diagnostic message.
<b>User interface</b>	YYYY-MM-DD hh:mm:ss

---

**Previous diagnostics**



---

<b>Navigation</b>	 Diagnostics → Active diagnostics → Previous diagnostics
<b>Description</b>	Displays the diagnostic message for the last diagnostic event that has ended.
<b>User interface</b>	Symbol for diagnostic behavior, diagnostic code and short message.

---

**Timestamp**



---

<b>Navigation</b>	 Diagnostics → Active diagnostics → Timestamp
<b>Description</b>	Displays the timestamp of the diagnostic message generated for the last diagnostic event that has ended.
<b>User interface</b>	YYYY-MM-DD hh:mm:ss

---

**Operating time from restart**



---

<b>Navigation</b>	 Diagnostics → Active diagnostics → Operating time from restart
<b>Description</b>	Indicates how long the device has been in operation since the last time the device was restarted.
<b>User interface</b>	Days (d), hours (h), minutes (m), seconds (s)

---


**Operating time**


---

<b>Navigation</b>	 Diagnostics → Active diagnostics → Operating time
<b>Description</b>	Indicates how long the device has been in operation.

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

## 4.2 "Diagnostic list" submenu


 All the diagnostic messages that are currently queued can be displayed in the Diagnostic list submenu. Detailed information on the possible diagnostic messages can be found in the Operating Instructions for the device.

*Navigation*  Diagnostics → Diagnostic list

---

### Diagnostic list

---

**Navigation**  Diagnostics → Diagnostic list → Diagnostic list

**User entry** Displays the diagnostic messages in table format.

## 4.3 "Event logbook" submenu

Viewing event messages


Event messages are displayed in chronological order. The event history includes both diagnostic events and information events. The symbol in front of the timestamp indicates whether the event has started or ended.

*Navigation*  Diagnostics → Event logbook

---

### Filter options

---

**Navigation**  Diagnostics → Event logbook → Filter options

**Description** Select the category of event notification to display in the event list.

Additional information:


The status signals F, C, S and M are categorized in accordance with VDI/VDE 2650 and NAMUR Recommendation NE 107.

**Selection**


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

**Factory setting** All

## 4.4 "Minimum/maximum values" submenu

*Navigation*  Diagnostics → Minimum/maximum values

### 4.4.1 "Sensor 1" submenu

*Navigation*  Diagnostics → Minimum/maximum values → Sensor 1

---

#### Sensor 1 min value

---

**Navigation**  Diagnostics → Minimum/maximum values → Sensor 1 → Sensor 1 min value

**Description** Displays the minimum temperature measured in the past at the sensor input 1 (minimum indicator).


**User interface** Signed floating-point number

**Factory setting** Positive floating-point number

---

#### Sensor 1 max value

---

**Navigation**  Diagnostics → Minimum/maximum values → Sensor 1 → Sensor 1 max value

**Description** Displays the maximum temperature measured in the past at the sensor input 1 (maximum indicator).


**User interface** Signed floating-point number

**Factory setting** Negative floating-point number

---

#### Reset sensor min/max values

---

**Navigation**  Diagnostics → Minimum/maximum values → Sensor 1 → Reset sensor min/max values


**Description** Reset the min/max values at sensor input 1 to the default values.

**Selection**

- No
- Yes

**Factory setting** No


#### 4.4.2 "Sensor 2" submenu

*Navigation*  Diagnostics → Minimum/maximum values → Sensor 2

---

#### Sensor 2 max value

---

**Navigation**  Diagnostics → Minimum/maximum values → Sensor 2 → Sensor 2 max value

**Description** Displays the maximum temperature measured in the past at the sensor input 2 (maximum indicator).


**User interface** Signed floating-point number

**Factory setting** Negative floating-point number

---

#### Sensor 2 min value

---

**Navigation**  Diagnostics → Minimum/maximum values → Sensor 2 → Sensor 2 min value

**Description** Displays the minimum temperature measured in the past at the sensor input 2 (minimum indicator).


**User interface** Signed floating-point number

**Factory setting** Positive floating-point number

---

#### Reset sensor min/max values

---

**Navigation**  Diagnostics → Minimum/maximum values → Sensor 2 → Reset sensor min/max values

**Description** Reset the min/max values at sensor input 2 to the default values.


**Selection**

- No
- Yes

**Factory setting** No




### 4.4.3 "Device temperature" submenu

*Navigation*  Diagnostics → Minimum/maximum values → Device temperature

---

#### Device temperature min value


---

<b>Navigation</b>	 Diagnostics → Minimum/maximum values → Device temperature → Device temperature min value
<b>Description</b>	Displays the minimum electronics temperature measured in the past (minimum indicator).
<b>User interface</b>	Signed floating-point number

---

#### Device temperature max value


---

<b>Navigation</b>	 Diagnostics → Minimum/maximum values → Device temperature → Device temperature max value
<b>Description</b>	Use this function to display the maximum electronics temperature measured in the past (maximum indicator).
<b>User interface</b>	Signed floating-point number


---

#### Reset device temp. min/max values

---

<b>Navigation</b>	 Diagnostics → Minimum/maximum values → Device temperature → Reset device temp. min/max values
<b>Description</b>	Resets the maximum indicators for the minimum and maximum electronic temperatures measured.
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ No</li> <li>■ Yes</li> </ul>
<b>Factory setting</b>	No

## 4.5 "Simulation" submenu

Navigation  Diagnostics → Simulation

---

### Sensor 1 to 2 simulation

---

**Navigation**  Diagnostics → Simulation → Sensor 1 to 2 simulation

**Description** Use this function to activate the simulation of the process variable. The simulated value can be set with parameter "Sensor simulation".

**Selection**


- Off
- On

**Factory setting** Off

---

### Sensor 1 to 2 simulation value

---

**Navigation**  Diagnostics → Simulation → Sensor 1 to 2 simulation value

**Description** Use this function to enter a simulation value of the 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** Signed floating-point number

**Factory setting** 0.0

---

### Diagnostic event simulation

---

**Navigation**  Diagnostics → Simulation → Diagnostic event simulation

**Description** Select the diagnostic event to be simulated.

Note:  
To terminate the simulation, select "Off".

**Selection**


- Diagnostic event picklist
- Off

**Factory setting** Off

## 4.6 "Diagnostic settings" submenu

*Navigation*  Diagnostics → Diagnostic settings


### 4.6.1 "Properties" submenu

*Navigation*  Diagnostics → Diagnostic settings → Properties

---

#### Corrosion limit sensor 1 to 2


---

<b>Navigation</b>	 Diagnostics → Diagnostic settings → Properties → Corrosion limit sensor 1 to 2
<b>Prerequisite</b>	A 4-wire RTD or TC must be selected as the sensor type or connection type. Only the high Ohm ranges can be selected at sensor input 2.
<b>Description</b>	Use this function to enter the limit value for corrosion detection. If this value is exceeded, the device behaves as specified in the diagnostic settings.
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ 50 Ohm (RTD)</li> <li>■ 100 Ohm (RTD)</li> <li>■ 5000 Ohm (TC)</li> <li>■ 10000 Ohm (TC)</li> </ul>
<b>Factory setting</b>	<ul style="list-style-type: none"> <li>■ 50.0 Ohm for 4-wire RTD connection type</li> <li>■ 5 000 Ohm for TC connection type</li> </ul>

---

#### Alarm delay


---

<b>Navigation</b>	 Diagnostics → Diagnostic settings → Properties → Alarm delay
<b>Description</b>	Use this function to set the delay time during which a diagnostics signal is suppressed before it is output.
<b>User entry</b>	0.0 to 60.0 s
<b>Factory setting</b>	0.0 s

---

**Drift/difference mode** 



---

<b>Navigation</b>	 Diagnostics → Diagnostic settings → Properties → Drift/difference mode
<b>Description</b>	Use this function to choose whether the device reacts to the value exceeding or dropping below the drift/difference set point.  Info: Can only be selected for 2-channel operation.
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ Off</li> <li>■ Out band (drift)</li> <li>■ In band</li> </ul>


---

**Drift/difference set point** 



---

<b>Navigation</b>	 Diagnostics → Diagnostic settings → Properties → Drift/difference set point
<b>Prerequisite</b>	Drift/difference monitoring must be enabled.
<b>Description</b>	Use this function to configure the maximum permissible measured value deviation between sensor 1 and sensor 2 which results in drift/difference detection.
<b>User entry</b>	0.1 to 999.0


---


**Drift/difference alarm delay** 


---

<b>Navigation</b>	 Diagnostics → Diagnostic settings → Properties → Drift/difference alarm delay
<b>Prerequisite</b>	Drift/difference monitoring must be enabled.
<b>Description</b>	Alarmdelay for Drift/Differenz monitoring. Useful when sensors have different thermal masses.
<b>User entry</b>	5 to 255 s

#### 4.6.2 'Configuration' submenu










 Each diagnostic event is assigned a certain diagnostic behavior. The user can change this assignment for certain diagnostic events. This configuration is described in detail in the Operating Instructions pertaining to the device.

*Navigation*  Diagnostics → Diagnostic settings → Configuration

## 5 "Application" menu

Targeted optimization to the application – comprehensive device settings from sensor technology to system integration for optimum application adaptation.

Navigation  Application

Application	
▶ Measured values	→  29
▶ Sensors	→  30
▶ Sensor 1	→  30
▶ Sensor 2	→  33
▶ PROFINET	→  37
▶ Configuration	→  37
▶ Analog input	→  38
▶ Information	→  39
▶ Application relation	→  39


### 5.1 "Measured values" submenu

Navigation  Application → Measured values

---

#### Sensor 1 to 2 value


---

<b>Navigation</b>	 Application → Measured values → Sensor 1 to 2 value
<b>Description</b>	Use this function to display the current measured value at the sensor input.
<b>User interface</b>	Signed floating-point number

---

#### Device temperature

---


<b>Navigation</b>	 Application → Measured values → Device temperature
<b>Description</b>	Use this function to display the current electronics temperature.

**User interface** Signed floating-point number



## 5.2 "Sensors" submenu

*Navigation*  Application → Sensors



### 5.2.1 "Sensor 1" submenu

*Navigation*  Application → Sensors → Sensor 1 → Sensor 1

---

<b>Unit</b>	
<hr/>	
<b>Navigation</b>	 Application → Sensors → Sensor 1 → Sensor 1 → Unit
<b>Description</b>	Selection of the unit for all measured values.
<b>Selection</b>	<p><i>SI units</i></p> <ul style="list-style-type: none"> <li>■ °C</li> <li>■ K</li> <li>■ Ohm</li> </ul> <p><i>Custom-specific units</i></p> <ul style="list-style-type: none"> <li>■ °F</li> <li>■ °R</li> <li>■ mV</li> </ul>
<b>Factory setting</b>	°C

---

<b>Sensor type 1 to 2</b> 	
<hr/>	
<b>Navigation</b>	 Application → Sensors → Sensor 1 → Sensor 1 → Sensor type 1 to 2
<b>Description</b>	<p>Use this function to select the sensor type for the sensor input in question.</p> <ul style="list-style-type: none"> <li>- Sensor type 1: settings for sensor input 1</li> <li>- Sensor type 2: settings for sensor input 2</li> </ul> <p>Info:</p> <p>Please observe the terminal assignment when connecting the individual sensors. In the case of 2-channel operation, the possible connection options also have to be observed.</p>
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ Pt100 IEC60751, a=0.00385 (1)</li> <li>■ Pt200 IEC60751, a=0.00385 (2)</li> <li>■ Pt500 IEC60751, a=0.00385 (3)</li> <li>■ Pt1000 IEC60751, a=0.00385 (4)</li> </ul>

- Pt100 JIS C1604, a=0.003916 (5)
- Type A (W5Re-W20Re) IEC60584 (30)
- Type B (PtRh30-PtRh6) IEC60584 (31)
- Type C (W5Re-W26Re) IEC60584 (32)
- Type D (W3Re-W25Re) ASTM E988-96 (33)
- Type E (NiCr-CuNi) IEC60584 (34)
- Type J (Fe-CuNi) IEC60584 (35)
- Type K (NiCr-Ni) IEC60584 (36)
- Type N (NiCrSi-NiSi) IEC60584 (37)
- Type R (PtRh13-Pt) IEC60584 (38)
- Type S (PtRh10-Pt) IEC60584 (39)
- Type T (Cu-CuNi) IEC60584 (40)
- Type L (Fe-CuNi) DIN43710 (41)
- Type L (NiCr-CuNi) GOST R8.585-01 (43)
- Type U (Cu-CuNi) DIN43710 (42)
- Pt50 GOST 6651-94, a=0.00391 (8)
- Pt100 GOST 6651-94, a=0.00391 (9)
- Cu100 OIML/GOST 6651-09, a=0.00428 (11)
- Cu50 OIML R84:2003, a=0.00428 (10)
- Cu50 OIML/GOST 6651-94, a=0,00426 (14)
- RTD Platinum (Callendar/van Dusen)
- RTD Poly Nickel (OIML R84, GOST 6651-94)
- RTD Polynomial Copper (OIML R84:2003)
- 10...400 Ohm
- 10...2850 Ohm
- -20...100 mV

**Factory setting** Pt100 IEC60751, a=0.00385 (1)

---

## Connection type 1 to 2

---

**Navigation**  Application → Sensors → Sensor 1 → Sensor 1 → Connection type 1 to 2


**Prerequisite** An RTD sensor or a resistance transmitter must be specified as the sensor type.

**Description** Use this function to select the connection type for the sensor.

**Selection**

- 2- wire
- 3- wire
- 4- wire

**Factory setting** 4-wire

**Additional information**  The 4-wire connection type is not available for sensor input 2.

When a factory reset is performed, the device is reset to the sensor type Pt100, 3-wire in both channels. This is also saved in the offline data record of the drivers (FDI- Package, DTM).

---

**2-wire compensation 1 to 2**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Sensor 1 → 2-wire compensation 1 to 2
<b>Prerequisite</b>	An RTD sensor or a resistance transmitter with a <b>2-wire</b> connection type must be specified as the sensor type.
<b>Description</b>	Use this function to specify the resistance value for two-wire compensation in RTDs.
<b>User entry</b>	0.0 to 30.0 Ohm
<b>Factory setting</b>	0.0 Ohm

---

**Cold junction 1 to 2**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Sensor 1 → Cold junction 1 to 2
<b>Prerequisite</b>	A thermocouple (TC) sensor must be selected as the sensor type.
<b>Description</b>	Use this function to select cold junction measurement for temperature compensation of thermocouples (TC).  Info: - If "Fixed value" is selected, the compensation value is specified via the CJ preset value parameter. - If "Measured value ext. sensor" is selected, an RTD must also be connected in accordance with the specifications in the operating manual.
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ No compensation</li> <li>■ Internal measurement</li> <li>■ Fixed Value</li> <li>■ Measured value ext. sensor</li> </ul>
<b>Factory setting</b>	Internal measurement

---

**CJ preset value 1 to 2**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Sensor 1 → CJ preset value 1 to 2
<b>Prerequisite</b>	The <b>CJ preset value</b> parameter must be set if the <b>Cold junction</b> option is selected.
<b>Description</b>	The Fixed value parameter must be set if the cold junction option is selected. Recommended value range: -50°C to 87°C (-58°F to 188.6°F)
<b>User entry</b>	-50 000.0 to 50 000.0
<b>Factory setting</b>	0.0



---

**Sensor 1 to 2 offset**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Sensor 1 → Sensor 1 to 2 offset
<b>Description</b>	Use this function to set the zero point correction (offset) of the sensor measured value. The value indicated is added to the measured value. Recommended value range: -10°C to 10°C (-18°F to 18°F)
<b>User entry</b>	-50 000.0 to 50 000.0
<b>Factory setting</b>	0.0

**5.2.2 "Sensor 2" submenu**

The following parameters are identical for the configuration of sensor input 1 and sensor input 2 and are described in the 'Sensor 1' submenu: **Sensor type, Connection type, 2-wire compensation, Cold junction, CJ preset value, Sensor offset**

Two additional sensor types can be selected for sensor input 2:

- Dual seal (ModuLine)
- No sensor

*Navigation*      Application → Sensors → Sensor 2 → Sensor 2 → Sensor type 2

---


**Sensor backup**

---



<b>Navigation</b>	Application → Sensors → Sensor 2 → Sensor 2 → Sensor backup
<b>Prerequisite</b>	A sensor type must be selected for sensor input 2.
<b>Description</b>	Sensor backup active: If sensor 1 fails, the value of sensor 2 automatically becomes the process value. Sensor 1 (backup sensor 2).
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ Disable</li> <li>■ Enable</li> </ul>
<b>Factory setting</b>	Disable


### 5.2.3 "Linearization" submenu

Navigation  Application → Sensors → Sensor 1 → Linearization

---

#### Call./v. Dusen coeff. R0


---

<b>Navigation</b>	 Application → Sensors → Sensor 1 → Linearization → Call./v. Dusen coeff. R0
<b>Prerequisite</b>	The RTD platinum (Callendar/Van Dusen) option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the R0 value for sensor linearization with the Callendar/Van Dusen polynomial.
<b>User entry</b>	10.0 to 2 000.0 Ohm
<b>Factory setting</b>	100.0 Ohm

---

#### Call./v. Dusen coeff. A


---

<b>Navigation</b>	 Application → Sensors → Sensor 1 → Linearization → Call./v. Dusen coeff. A
<b>Prerequisite</b>	The RTD platinum (Callendar/Van Dusen) option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the coefficients for sensor linearization with the Callendar/Van Dusen polynomial.
<b>User entry</b>	0.003 to 0.004
<b>Factory setting</b>	0.0039083

---

#### Call./v. Dusen coeff. B

---

<b>Navigation</b>	 Application → Sensors → Sensor 1 → Linearization → Call./v. Dusen coeff. B
<b>Prerequisite</b>	The RTD platinum (Callendar/Van Dusen) option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the coefficients for sensor linearization with the Callendar/Van Dusen polynomial.
<b>User entry</b>	$-4.0 \cdot 10^{-06}$ to $4.0 \cdot 10^{-06}$
<b>Factory setting</b>	-5.775E-07

---

**Call./v. Dusen coeff. C**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Linearization → Call./v. Dusen coeff. C
<b>Prerequisite</b>	The RTD platinum (Callendar/Van Dusen) option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the coefficients for sensor linearization with the Callendar/Van Dusen polynomial.
<b>User entry</b>	$-1.0 \cdot 10^{-09}$ to $1.0 \cdot 10^{-09}$
<b>Factory setting</b>	-4.183E-12

---

**Polynomial coeff. R0**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Linearization → Polynomial coeff. R0
<b>Prerequisite</b>	The RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the R0 value for linearization of nickel/copper sensors.
<b>User entry</b>	10.0 to 2 000.0 Ohm
<b>Factory setting</b>	100.0 Ohm

---

**Polynomial coeff. A**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Linearization → Polynomial coeff. A
<b>Prerequisite</b>	The RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the coefficients for sensor linearization of copper/nickel resistance thermometers.
<b>User entry</b>	0.004 to 0.006
<b>Factory setting</b>	0.0054963

---

**Polynomial coeff. B**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Linearization → Polynomial coeff. B
<b>Prerequisite</b>	The RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the coefficients for sensor linearization of copper/nickel resistance thermometers.
<b>User entry</b>	$-2.0 \cdot 10^{-05}$ to $2.0 \cdot 10^{-05}$
<b>Factory setting</b>	6.7556E-06

---

**Sensor 1 to 2 lower limit**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Linearization → Sensor lower limit
<b>Prerequisite</b>	The RTD platinum, RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the lower calculation limit for special sensor linearization.
<b>User entry</b>	-10 000.0 to 10 000.0
<b>Factory setting</b>	Depends on the <b>sensor type</b> selected.

---

**Sensor 1 to 2 upper limit**

---



<b>Navigation</b>	Application → Sensors → Sensor 1 → Linearization → Sensor upper limit
<b>Prerequisite</b>	The RTD platinum, RTD poly nickel or RTD copper polynomial option is enabled in the <b>Sensor type</b> parameter.
<b>Description</b>	Use this function to set the upper calculation limit for special sensor linearization.
<b>User entry</b>	-10 000.0 to 10 000.0
<b>Factory setting</b>	Depends on the <b>sensor type</b> selected.

## 5.3 "PROFINET" submenu

Navigation  Application → PROFINET


### 5.3.1 "Configuration" submenu

Navigation  Application → PROFINET → Configuration

---

#### PROFINET device name


---

<b>Navigation</b>	 Application → PROFINET → Configuration → PROFINET device name
<b>Description</b>	<p>Enter the PROFINET device name of the measuring point.</p> <p>Up to 240 characters are permitted. The following syntax must be used:</p> <ul style="list-style-type: none"> <li>▪ 1 or more identifiers, separated by [.]</li> <li>▪ The identifier length is 1 to 63 characters</li> <li>▪ The identifier consists of [a-z 0-9]. Only lower case letters and numbers are permitted.</li> </ul>
<b>User entry</b>	Character string comprising numbers, letters and special characters (240)

---

#### Parameter change acknowledge mode


---

<b>Navigation</b>	 Application → PROFINET → Configuration → Parameter change acknowledge mode
<b>Selection</b>	<ul style="list-style-type: none"> <li>▪ Auto acknowledge</li> <li>▪ Manual acknowledge</li> </ul>
<b>Factory setting</b>	Auto acknowledge


---

#### Acknowledge parameter change

---

<b>Navigation</b>	 Application → PROFINET → Configuration → Acknowledge parameter change
<b>Selection</b>	<ul style="list-style-type: none"> <li>▪ No acknowledge</li> <li>▪ Reset update event flag</li> </ul>
<b>Factory setting</b>	No acknowledge


---

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


### 5.3.2 "Analog input 1 to 5" submenu

*Navigation*  Application → PROFINET → Analog input → Analog input 1 to 5


---

<b>Process value</b>	
<b>Navigation</b>	 Application → PROFINET → Analog input → Analog input 1 to 5 → Process value
<b>Description</b>	Shows the process value reported to the controller for further processing
<b>User interface</b>	to

---

<b>Assign process variable</b>	
<b>Navigation</b>	 Application → PROFINET → Analog input → Analog input 1 to 5 → Assign process variable
<b>Description</b>	Assigned process variable
<b>Selection</b>	<ul style="list-style-type: none"> <li>■ Temperature</li> <li>■ Temperature difference</li> <li>■ Temperature average</li> <li>■ Electronics temperature</li> </ul>

---

<b>Damping</b>	
<b>Navigation</b>	 Application → PROFINET → Analog input → Analog input 1 to 5 → Damping
<b>Description</b>	Enter time constant for input damping (PT1 element). Damping reduces the effect of fluctuations in the measured value on the output signal.
<b>User entry</b>	Positive floating-point number

---

**Factory setting**                      0.0 s

### 5.3.3 "Information" submenu

*Navigation*                            Application → PROFINET → Information

---

#### Device ID

---

**Navigation**                            Application → PROFINET → Information → Device ID


**User interface**                      0xA3FF

**Factory setting**                      0xA3FF

---

#### PA profile version


---

**Navigation**                            Application → PROFINET → Information → PA profile version

**User interface**                      0x402

**Factory setting**                      0x402


### 5.3.4 "Application relation" submenu

*Navigation*                            Application → PROFINET → Application relation

---

#### AR state

---

**Navigation**                            Application → PROFINET → Application relation → AR state

**Description**                      Shows whether an AR connection and a system redundancy have been established

**User interface**


- Active
- Not active
- Redundancy 1AR active
- Redundancy 2AR active

**Factory setting**                      Not active

---

**MAC address IO controller**



---

<b>Navigation</b>	 Application → PROFINET → Application relation → MAC address IO controller
<b>Prerequisite</b>	Display is only visible if the AR status is active
<b>Description</b>	Shows the MAC address of the only or of the primary IO controller
<b>User interface</b>	Character string comprising numbers, letters and special characters

---

**MAC address backup IO controller**



---

<b>Navigation</b>	 Application → PROFINET → Application relation → MAC address backup IO controller
<b>Prerequisite</b>	Display is only visible if the redundancy AR status is active
<b>Description</b>	Shows the MAC address of the backup IO controller
<b>User interface</b>	Character string comprising numbers, letters and special characters

---

**IP address IO controller**



---

<b>Navigation</b>	 Application → PROFINET → Application relation → IP address IO controller
<b>Prerequisite</b>	Display is only visible if the AR status is active
<b>Description</b>	Shows the IP address of the only or of the primary IO controller
<b>User interface</b>	Character string comprising numbers, letters and special characters

---

**IP address backup IO controller**


---





















<b>Navigation</b>	 Application → PROFINET → Application relation → IP address backup IO controller
<b>Prerequisite</b>	Display is only visible if the redundancy AR status is active
<b>Description</b>	Shows the IP address of the backup IO controller
<b>User interface</b>	Character string comprising numbers, letters and special characters



## 6 "System" menu

System settings concerning device management, user administration or safety

Navigation  System

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## 6.1 "Device management" submenu

Navigation  System → Device management

---

### Device tag


---

<b>Navigation</b>	 System → Device management → Device tag
<b>Description</b>	Enter a name for the measuring point to identify the measuring device in the plant
<b>User entry</b>	Maximum length: 32 characters; permitted characters: A-Z, 0-9, certain special characters.

---

### Locking status


---

<b>Navigation</b>	 System → Device management → Locking status
<b>Description</b>	Use this function to view the device locking status. The DIP switch for hardware locking is fitted on the display module. When write protection is activated, write access to the parameters is disabled.
<b>User interface</b>	<ul style="list-style-type: none"> <li>■ Write protected by software</li> <li>■ Write protected by hardware</li> </ul>

---

### Configuration counter

---


<b>Navigation</b>	 System → Device management → Configuration counter
<b>Description</b>	Shows the number of changes made to static parameters (e.g. configuration parameters)
<b>User interface</b>	0 to 65 535
<b>Factory setting</b>	0

---

### Device reset

---



<b>Navigation</b>	 System → Device management → Device reset
<b>Description</b>	Use this function to reset the device configuration - either entirely or in part - to a defined state.

<b>Selection</b>	<ul style="list-style-type: none"> <li>■ Restart device</li> <li>■ To delivery settings</li> <li>■ To factory defaults</li> <li>■ Cancel</li> </ul>
------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------

<b>Factory setting</b>	Cancel
------------------------	--------


## 6.2 "Software configuration" submenu

*Navigation*  System → Software configuration

---

### CRC device configuration


---

<b>Navigation</b>	 System → Software configuration → CRC device configuration
<b>Description</b>	CRC device configuration based on current settings of safety relevant parameters. The CRC device configuration is unique and can be used to detect changes in safety relevant parameter settings.
<b>User interface</b>	0 to 65 535
<b>Factory setting</b>	65 535

---

### Activate SW option


---

<b>Navigation</b>	 System → Software configuration → Activate SW option
<b>Description</b>	Enter the application package code or code of another re-ordered functionality to enable it
<b>User entry</b>	Positive integer
<b>Factory setting</b>	0

---

### Software option overview

---

<b>Navigation</b>	 System → Software configuration → Software option overview
<b>Description</b>	Shows all enabled software options

**User interface**

- SIL
- Heartbeat Verification
- Heartbeat Monitoring

### 6.3 "User management" submenu

<b>Logout →</b> Maintenance	Switch to 'Operator' access authorization
<b>Enter password / change user role →</b> Operator	Enter password
	Status password entry
<b>Reset password →</b> Operator	Reset password
	Status password entry
<b>Change password →</b> Maintenance	Old password
	New password
	Confirm new password
	Status password entry
<b>Delete password →</b> Maintenance	Old password
	Status password entry
<b>Define password →</b> Maintenance	New password
	Confirm new password
	Status password entry

Navigation in the submenu is supported by the following operating elements:

- **Back**  
Return to the previous page
- **Cancel**  
If Cancel is selected, the status before the submenu was started is restored

*Navigation*       System → User management → User management

---

**User role**

---

**Navigation**

 System → User management → User management → User role

**Description**


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

**User interface**

- Operator
- Maintenance

**Factory setting** Maintenance

### 6.3.1 "Enter password" submenu

*Navigation*  System → User management → Enter password

---

#### Password

---

**Navigation**  System → User management → Enter password → Password

**Description** Enter the password for the 'Maintenance' user role to get access to the functionality of this role.

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

---

#### Enter access code

---

**Navigation**  System → User management → Enter password → Enter access code

**Description** For users logged on in the Operator role, enter the Maintenance code to change the access status to Maintenance and disable write protection of parameters. For users logged on in the Maintenance role, enter the Service code to change the access status to Service and enable read and write access to Service parameters.

**User entry** 0 to 9999

**Factory setting** 0

---

#### Status password entry

---

**Navigation**  System → User management → Enter password → Status password entry


**Description** Use this function to display the status of the password verification.

**User interface**

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

**Factory setting** -----

### 6.3.2 "Recover password" submenu


 The menu is only visible via DTM operation.

*Navigation*  System → User management → Recover password

---

#### Reset password

---

**Navigation**  System → User management → Recover password → Reset password

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

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

---

#### Status password entry

---

**Navigation**  System → User management → Recover password → Status password entry

**Description** Use this function to display the status of the password verification.

**User interface**

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

**Factory setting** -----


### 6.3.3 "Define password" submenu

*Navigation*  System → User management → Define password

---

#### New password


---

<b>Navigation</b>	 System → User management → Define password → New password
<b>Description</b>	<p>If the factory setting is not changed, the device works without write-protection, using user-role 'Maintenance'. The configuration data of the device can always be modified.</p> <p>Once the password has been defined, write-protected devices can only be set to maintenance mode if a correct password is entered in the parameter 'Password'.</p> <p>A new password is valid, after it has been confirmed within the parameter 'Confirm new password'.</p> <p>Any new password must consist of at least 4 and a maximum of 16 characters and can contain letters and numbers.</p>
<b>User entry</b>	Character string comprising numbers, letters and special characters (16)

---

#### Confirm new password


---

<b>Navigation</b>	 System → User management → Define password → Confirm new password
<b>Description</b>	Enter the new password again to confirm.
<b>User entry</b>	Character string comprising numbers, letters and special characters (16)

---








#### Status password entry

---

<b>Navigation</b>	 System → User management → Define password → Status password entry
<b>Description</b>	Use this function to display the status of the password verification.
<b>User interface</b>	<ul style="list-style-type: none"> <li>■ -----</li> <li>■ Wrong password</li> <li>■ Password rule violated</li> <li>■ Password accepted</li> <li>■ Permission denied</li> <li>■ Confirm PW mismatch</li> <li>■ Reset password accepted</li> <li>■ Invalid user role</li> <li>■ Wrong sequence of entry</li> </ul>
<b>Factory setting</b>	-----

### 6.3.4 "Change password" submenu


*Navigation*  System → User management → Change password

<b>Old password</b> 	
<b>Navigation</b>	 System → User management → Change password → Old password
<b>Description</b>	Enter the current password, to subsequently change the existing password.
<b>User entry</b>	Character string comprising numbers, letters and special characters (16)
<b>New password</b> 	
<b>Navigation</b>	 System → User management → Change password → New password
<b>Description</b>	<p>If the factory setting is not changed, the device works without write-protection, using user-role 'Maintenance'. The configuration data of the device can always be modified.</p> <p>Once the password has been defined, write-protected devices can only be set to maintenance mode if a correct password is entered in the parameter 'Password'.</p> <p>A new password is valid, after it has been confirmed within the parameter 'Confirm new password'.</p> <p>Any new password must consist of at least 4 and a maximum of 16 characters and can contain letters and numbers.</p>
<b>User entry</b>	Character string comprising numbers, letters and special characters (16)
<b>Confirm new password</b> 	
<b>Navigation</b>	 System → User management → Change password → Confirm new password
<b>Description</b>	Enter the new password again to confirm.
<b>User entry</b>	Character string comprising numbers, letters and special characters (16)
<b>Status password entry</b>	
<b>Navigation</b>	 System → User management → Change password → Status password entry
<b>Description</b>	Use this function to display the status of the password verification.





<b>User interface</b>	<ul style="list-style-type: none"> <li>■ -----</li> <li>■ Wrong password</li> <li>■ Password rule violated</li> <li>■ Password accepted</li> <li>■ Permission denied</li> <li>■ Confirm PW mismatch</li> <li>■ Reset password accepted</li> <li>■ Invalid user role</li> <li>■ Wrong sequence of entry</li> </ul>
<b>Factory setting</b>	-----


### 6.3.5 "Delete password" submenu

*Navigation*  System → User management → Delete password

---

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

---

<b>Status password entry</b>	
<b>Navigation</b>	 System → User management → Delete password → Status password entry
<b>Description</b>	Use this function to display the status of the password verification.
<b>User interface</b>	<ul style="list-style-type: none"> <li>■ -----</li> <li>■ Wrong password</li> <li>■ Password rule violated</li> <li>■ Password accepted</li> <li>■ Permission denied</li> <li>■ Confirm PW mismatch</li> <li>■ Reset password accepted</li> <li>■ Invalid user role</li> <li>■ Wrong sequence of entry</li> </ul>
<b>Factory setting</b>	-----

## 6.4 "Connectivity" submenu

*Navigation*  System → Connectivity


### 6.4.1 "Interfaces" submenu

*Navigation*  System → Connectivity → Interfaces

---

#### Web server functionality


---

<b>Navigation</b>	 System → Connectivity → Interfaces → Web server functionality
<b>Description</b>	Switch web server on and off, switch off HTML.
<b>Selection</b>	<ul style="list-style-type: none"> <li>▪ Disable</li> <li>▪ Enable</li> </ul>
<b>Factory setting</b>	Enable

---

#### Service (UART-CDI)


---

<b>Navigation</b>	 System → Connectivity → Interfaces → Service (UART-CDI)
<b>Selection</b>	<ul style="list-style-type: none"> <li>▪ Disable</li> <li>▪ Enable</li> </ul>
<b>Factory setting</b>	Enable

## 6.4.2 "Ethernet" submenu

*Navigation*  System → Connectivity → Ethernet

### "Properties" submenu

*Navigation*  System → Connectivity → Ethernet → Properties

---

#### MAC address

---

**Navigation**  System → Connectivity → Ethernet → Properties → MAC address

**Description** Shows the MAC address of the measuring device

**User interface** Character string comprising numbers, letters and special characters

---

#### IP address

---

**Navigation**  System → Connectivity → Ethernet → Properties → IP address

**Description** Enter the IP address of the measuring device

**User entry** Character string comprising numbers, letters and special characters (15)

**Factory setting** 192.168.1.212

---

#### Subnet mask

---

**Navigation**  System → Connectivity → Ethernet → Properties → Subnet mask

**Description** Enter subnet mask of the measuring device

**User entry** Character string comprising numbers, letters and special characters (15)

**Factory setting** 255.255.255.0

---

#### Default gateway

---

**Navigation**  System → Connectivity → Ethernet → Properties → Default gateway

**Description** Enter IP address for the default gateway of the measuring device


**User entry** Character string comprising numbers, letters and special characters (15)

**Factory setting** 0.0.0.0

---

**Apply** 

---

**Navigation**  System → Connectivity → Ethernet → Properties → Apply

**User entry** The IP addresses indicated above are applied to the device by clicking the button.

---

### Service IP active

---

**Navigation**  System → Connectivity → Ethernet → Properties → Service IP active

**User interface**

- No
- Yes

**Factory setting** No


### "Port information" submenu

*Navigation*  System → Connectivity → Ethernet → Port information

---

### Interface connection status

---

**Navigation**  System → Connectivity → Ethernet → Port information → Interface connection status

**User interface**

- Connected
- Not connected

**Factory setting** Not connected

---

### Interface speed

---

**Navigation**  System → Connectivity → Ethernet → Port information → Interface speed


**User interface** Positive integer

**Factory setting** 0 MBaud

---

**Duplex status**



---

<b>Navigation</b>	 System → Connectivity → Ethernet → Port information → Duplex status
<b>User interface</b>	<ul style="list-style-type: none"> <li>■ Full duplex</li> <li>■ Half duplex</li> <li>■ Unknown</li> </ul>
<b>Factory setting</b>	Unknown

---

**Auto negotiation status**



---

<b>Navigation</b>	 System → Connectivity → Ethernet → Port information → Auto negotiation status
<b>User interface</b>	<ul style="list-style-type: none"> <li>■ Idle</li> <li>■ In progress</li> <li>■ Completed</li> <li>■ Failed</li> <li>■ Speed detection failed</li> </ul>
<b>Factory setting</b>	Idle

---

**Number of received packets**



---

<b>Navigation</b>	 System → Connectivity → Ethernet → Port information → Number of received packets
<b>User interface</b>	Positive integer

---

**Number of sent packets**



---

<b>Navigation</b>	 System → Connectivity → Ethernet → Port information → Number of sent packets
<b>User interface</b>	Positive integer

---

**Number of failed received packets**



---

<b>Navigation</b>	 System → Connectivity → Ethernet → Port information → Number of failed received packets
<b>User interface</b>	Positive integer

---

**Number of failed sent packets**


---

**Navigation**  System → Connectivity → Ethernet → Port information → Number of failed sent packets

**User interface** Positive integer


**"APL information" submenu**

*Navigation*  System → Connectivity → Ethernet → APL information

---

**Signal to noise ratio**


---

**Navigation**  System → Connectivity → Ethernet → APL information → Signal to noise ratio

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


**User interface** Signed floating-point number

**Factory setting** 0.0 dB

---

**Number of failed received packets**


---

**Navigation**  System → Connectivity → Ethernet → APL information → Number of failed received packets

**Description** Shows the number of failed received packets.


**User interface** 0 to 65 535

**Factory setting** 0

**"TCP information" submenu**


*Navigation*  System → Connectivity → Ethernet → TCP information

**Active TCP connections**

**Navigation**  System → Connectivity → Ethernet → TCP information → Active TCP connections


**User interface** 0 to 65 535

**Supported TCP connections**

**Navigation**  System → Connectivity → Ethernet → TCP information → Supported TCP connections


**User interface** 0 to 65 535

**TCP connection requests**

**Navigation**  System → Connectivity → Ethernet → TCP information → TCP connection requests


**User interface** 0 to 65 535

**TCP connection timeouts**

**Navigation**  System → Connectivity → Ethernet → TCP information → TCP connection timeouts

**User interface** 0 to 255

**Number of TCP connections closed**


**Navigation**  System → Connectivity → Ethernet → TCP information → Number of TCP connections closed

**User interface** 0 to 255

---

**Number of received TCP packets**

---


**Navigation**  System → Connectivity → Ethernet → TCP information → Number of received TCP packets

**User interface** Positive integer

---

**Number of sent TCP packets**

---

**Navigation**  System → Connectivity → Ethernet → TCP information → Number of sent TCP packets

**User interface** Positive integer

---

**Number of TCP failed received packets**

---

**Navigation**  System → Connectivity → Ethernet → TCP information → Number of TCP failed received packets

**User interface** Positive integer

**"UDP information" submenu**

*Navigation*  System → Connectivity → Ethernet → UDP information

---

**Available UDP ports**

---


**Navigation**  System → Connectivity → Ethernet → UDP information → Available UDP ports

**User interface** Positive integer

---

**Number of received UDP packets**

---

**Navigation**  System → Connectivity → Ethernet → UDP information → Number of received UDP packets


**User interface** Positive integer



---

**Number of sent UDP packets**

---


**Navigation**  System → Connectivity → Ethernet → UDP information → Number of sent UDP packets

**User interface** Positive integer

---


**Number of UDP failed received packets**

---

**Navigation**  System → Connectivity → Ethernet → UDP information → Number of UDP failed received packets

**User interface** Positive integer

## 6.5 "Display" submenu

 The settings for displaying the measured value on the optional plug-in display are made in the "Display" menu.


These settings do not affect the output values of the transmitter, and are only used to specify the display format on the screen.


*Navigation*  System → Display

---

**Display interval**

---



**Navigation**  System → Display → Display interval

**Description** Set time measured values are shown on display if display alternates between values.


**User entry** 4.0 to 20.0 s


**Factory setting** 4.0 s

---

**Value 1 to 3 display**

---



**Navigation**  System → Display → Value 1 display

**Description** Select the measured value that is shown on the local display

**Selection**

- Sensor 1
- Sensor 2
- Device temperature

**Factory setting**                      Sensor 1...3

---

### Decimal places 1 to 3

---

**Navigation**                                System → Display → Decimal places 1 to 3

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

**Selection**                                ■ Automatic  
                                                  ■ X  
                                                  ■ X.X  
                                                  ■ X.XX  
                                                  ■ X.XXX

**Factory setting**                        x.xx

## 6.6 "Date/time" submenu

*Navigation*                                System → Date/time

---

### Date/time

---

**Navigation**                                System → Date/time → Date/time

**Description**                            Displays the date and time entered.

**User interface**                        Character string comprising numbers, letters and special characters

**Factory setting**                        01.01.1970 00:00:00

---

### Time zone

---

**Navigation**                                System → Date/time → Time zone

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

**Selection***Custom-specific units*

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

**Factory setting**


UTC 00:00


**Set system time****Navigation**

System → Date/time → Set system time

**User entry**

Clicking the 'Set system time' button sets the system time of the operating tool for the transmitter.

**Enable NTP** 

**Navigation**  System → Date/time → Enable NTP

**Selection**

- No
- Yes

**Factory setting** No

**NTP server address** 

**Navigation**  System → Date/time → NTP server address

**Description** IP address of the NTP server.

**User entry** Character string comprising numbers, letters and special characters (64)

**Factory setting** 192.168.1.1

**Clock synchronized**

**Navigation**  System → Date/time → Clock synchronized


**Description** Timestamp of last synchronization with an NTP server.

**User interface** Character string comprising numbers, letters and special characters

**Factory setting** -----

## 6.7 "Geolocation" submenu

*Navigation*  System → Geolocation

**Location description** 

**Navigation**  System → Geolocation → Location description

**Description** Enter a description for the location


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

**Factory setting**                    somewhere

---

### Longitude

---

**Navigation**                        System → Geolocation → Longitude

**Description**                    Enter the longitude.

**User entry**                    -180.0 to 180.0 °

**Factory setting**                0.0 °

---

### Latitude

---

**Navigation**                        System → Geolocation → Latitude

**Description**                    Enter latitude

**User entry**                    -90.0 to 90.0 °

**Factory setting**                0.0 °

---

### Altitude

---

**Navigation**                        System → Geolocation → Altitude

**Description**                    Enter altitude

**User entry**                    Signed floating-point number

**Factory setting**                0.0 m

---

### Location method

---

**Navigation**                        System → Geolocation → Location method

**Description**                    Select the location method.

**Selection**

- No fix
- GPS or Standard Positioning Service fix
- Differential GPS fix
- Precise positioning service (PPS) fix
- Real Time Kinetic (RTK) fixed solution

- Real Time Kinetic (RTK) float solution
- Estimated dead reckoning
- Manual input mode
- Simulation Mode

**Factory setting** No fix

## 6.8 "Information" submenu

*Navigation*  System → Information

---

### Serial number

---

**Navigation**  System → Information → Serial number

**Description** Displays the serial number of the measuring device. The serial number can be used to identify the measuring device and to retrieve further information via the Device Viewer or Operations app, such as the related documentation.

Additional information:

The serial number can also be found on the nameplate of the sensor and transmitter.

**User interface** Character string comprising numbers, letters and special characters

---

### Firmware version

---

**Navigation**  System → Information → Firmware version


**Description** Displays the device firmware version installed.

**User interface** Character string comprising numbers, letters and special characters

---

### Device name

---

**Navigation**  System → Information → Device name

**Description** Displays the name of the transmitter.

Additional information:

The name can also be found on the transmitter's nameplate.

**User interface** Character string comprising numbers, letters and special characters

---

**Factory setting**                    iTEMP TMT86

---

**Hardware revision**

---

**Navigation**                        System → Information → Hardware revision


**Description**                    Use this function to display the hardware revision of the device.

**User interface**                Character string comprising numbers, letters and special characters

---

**Order code**

---

**Navigation**                        System → Information → Order code

**Description**                    Displays the device order code.

Additional information:

The order code can be used for instance to order a replacement or spare device or to verify that the device features specified on the order form match the shipping note.


**User interface**                Character string comprising numbers, letters and special characters

---

**Extended order code 1 to 3**

---



**Navigation**                        System → Information → Extended order code 1 to 3

**Description**                    Displays the first, second and/or third part of the extended order code. Due to character length restrictions, the extended order code is split into a maximum of 3 parameters. The extended order code indicates for each feature in the product structure the selected option, thereby uniquely identifying the device model.

Additional information:

The extended order code can also be found on the nameplate.

**User interface**                Character string comprising numbers, letters and special characters

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