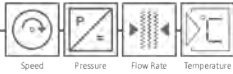


# INSTRUCTION MANUAL IM 337 E

Device: Flow Computer/ Volume Corrector GDR 1560

Contents: Device operation, connection diagram

Rev. no: IM 337 E V0.7-2025-02-12, from FW G13.xx



## User information

- Read the operating instructions in full before installing the appliance or using it for the first time.
- Pay attention to all important notes and warnings in this document.
- The serial number of the appliance, which you will need to order spare parts, and the correct power supply can be found on the rating plate. You will find it on the outside of the appliance.
- Installation, commissioning, operation and maintenance may only be carried out by a qualified electrician. The guidelines applicable at the installation site must be observed.
- For personal safety reasons, maintenance work may only be carried out when the device is de-energized.
- To ensure operational safety, only original spare parts from the manufacturer may be installed.
- Warranty and product liability claims are void if the appliance is not used as intended. Improper use is deemed to have occurred in particular if the information in the operating instructions has not been observed during installation, commissioning, operation and maintenance.
- The device must be integrated into the system operator's lightning protection concept.



**Please note that the appliance must always be used in accordance with the operating instructions. Any deviations will invalidate the operational safety.**

Technical developments may result in deviations from this document. If you require further information or if special problems arise that are not covered in detail in these instructions for use, please contact the following address:

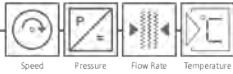
## Imprint

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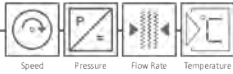
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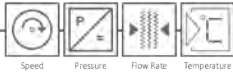


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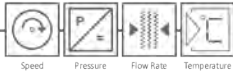


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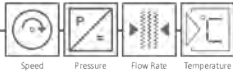


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### List of abbreviations

AP	Enumeration parameters
NP	Numerical parameter
FS	Factory setting



## 1 General information

The GDR 1560 volume corrector is used to determine the current gas volume. The current gas quantity can be displayed in cubic meters or liters on an hourly or minute basis. The total volume totalizer can be output in either cubic meters or liters. The totalizer can display up to 999 million cubic meters with 9 digits. The resolution is 0.1 liters.

Based on the operating volume determined by the connected gas flow meter and the measured values for pressure and temperature, the volume corrector calculates the standardized volume. The standardization can be calculated according to the standards DIN 1343, DIN 6358, DIN ISO 2533 or DIN 102/ ISO 1-1975.

### Inputs: Gas volume

- Connection of third-party products to the pulse input via open collector and reed relay
- Connection of third-party products with mA output
- Connection of third-party products with Namur output
- Connection of the platinum wire sensor (GD 300/ GD 500, NON-ATEX)
- Connection of the HB 300 Ex to the pulse input (GD 300 Ex/ GD 500 Ex, ATEX area)

### Inputs: pressure and temperature

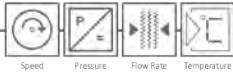
In addition to a pt100 input, the devices also have mA inputs for pressure and temperature sensors (2-/3-wire) as well as an integrated barometric sensor for recording atmospheric pressure.

### Outputs and bus systems:

The 0(4) - 20 mA current output provides the current flow rate in the form of operating or standard cubic meters. Flow rates, device status, error messages or limit values can be forwarded to higher-level systems for further processing via 2 solid state relays.

### Additional functions:

- Start-stop input
- Integrated WLAN hotspot with full access to the device via web browser
- LAN interface for integration into the system-side network (optional)
- Modbus RTU and Modbus TCP for data transmission (optional)



## 2 Technical data

### 2.1 Measurement inputs

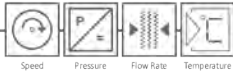
The devices can process an input signal relating to the flow rate. The following alternatives are available for the input signal:

<p>FLOW RATE THIRD-PARTY PRODUCTS</p>	<ul style="list-style-type: none"> <li>– Gas flow meter with open collector (GDR 1560 input frequency: 0 Hz ... 500 Hz) or</li> <li>– Gas flow meter with reed relay (GDR 1560 input frequency: 0 Hz ... 2 Hz) or</li> <li>– Gas flow meter with Namur output (max. frequency 5kHz, supply voltage 8.2 V, switching points approx. 1.2/2.1 mA) or</li> <li>– Gas flow meter with 1 x mA output or</li> </ul> <p>Minimum threshold can be defined to differentiate between gas flow and standstill (creeping flow suppression).</p>
<p>FLOW RATE FLUIDISTOR GAS FLOW METER</p>	<ul style="list-style-type: none"> <li>– Input for platinum wire sensor (GD 300/GD 500) (NON-ATEX only) or</li> <li>– ulse input for HB 300 (Ex)-R000000 (GD 300 (Ex)/GD 500 (Ex))</li> </ul> <p>Minimum threshold can be defined to differentiate between gas flow and standstill (creeping flow suppression).</p>
<p>TEMPERATURE</p>	<ul style="list-style-type: none"> <li>– (0) 4 - 20 mA, 2-/3-wire = -100 - +800 °C (17 bit) or</li> <li>– Pt100, 3-/4-wire (12 bit)</li> </ul>
<p>PRESSURE</p>	<p>(0) 4 - 20 mA, 2-/3-wire = -500 mbar - 1000 bar (17 bit) Fixed value (absolute): -500mbar...+1000bar Resolution 1 mbar</p>
<p>HYDROSTATIC SENSOR</p>	<p>Integrated barometric sensor for recording atmospheric pressure (ambient pressure)</p>
<p>START-STOP INPUT</p>	<p>1 x start-stop input for control via PLC using 2 potential-free contacts</p>

### 2.2 Outputs

<p>CURRENT OUTPUT</p>	<p>0 (4) - 20 mA = 0 - (x) Bm<sup>3</sup>/h, l/h, Bm<sup>3</sup>/min, l/min Nm<sup>3</sup>/h, NL/h, Nm<sup>3</sup>/min, NL/min Flow rate (freely programmable) input resistance 500 Ohm, resolution 14 bit</p>
<p>RELAY K1:</p>	<p>Semiconductor relay (NO contact) freely programmable</p> <ul style="list-style-type: none"> <li>– Pulse output (0.1, 1 or 10 or 100 m<sup>3</sup> per pulse, freely programmable), quantity count output or</li> <li>– Limit value output or</li> <li>– Device monitoring</li> </ul>
<p>RELAY K2:</p>	<p>Semiconductor relay (NO contact) freely programmable</p> <ul style="list-style-type: none"> <li>– Pulse output (0.1, 1 or 10 or 100 m<sup>3</sup> per pulse, freely programmable), quantity count output or</li> <li>– Limit value output or</li> <li>– Device monitoring</li> </ul>





### 2.3 Electrical values

ACCURACY	$\pm 0.05 \% \text{ EW} \pm 1 \text{ digit at } 23^{\circ}\text{C}$
POWER SUPPLY	<ul style="list-style-type: none"> <li>– 24 V, DC <math>\pm 3 \text{ V}</math>, max. 200 mA (standard)</li> <li>– 100 - 240 V, AC, 0.33 - 0.14 A, max. 47 - 63 Hz (optional, retrofit kit)</li> </ul>

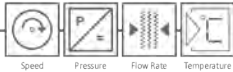
### 2.4 Environmental influences

AMBIENT TEMPERATURE	-10 to +55°C
STORAGE TEMPERATURE	-20 to +85°C
TEST VOLTAGE	3 kV
MOISTURE CLASS	E-DIN 40040
ELECTROMAGNETIC COMPATIBILITY	according to EN 50082-2

### 2.5 Display and value ranges

LCD DISPLAY	4 lines of 20 characters each Size: 66 x 40mm, font size 4.8 mm Display color: black on white
DATE DISPLAY	according to ISO8601/EN28601
PULSE COUNTER	Maximum 999,999,999,999,999 pulses ( $1 \cdot 10^{18} - 1$ pulse), resolution 1 pulse (In the event of counter overflow, the counter starts at zero)
PULSE OUTPUT	0.001 - 1,000,000 m <sup>3</sup> /pulse, resolution 1l/pulse Maximum 10 pulses/s at Bm <sup>3</sup> or Nm <sup>3</sup>
FLOW RATE "OPERATION"	Maximum 100 Bm <sup>3</sup> /s, 360,000 Bm /h <sup>3</sup>
STANDARDIZED" FLOW RATE	Maximum 1,000 Nm <sup>3</sup> /s, 3,600,000 Nm /h <sup>3</sup>
COUNTER OPERATING QUANTITY STANDARDIZED QUANTITY	Maximum 99,999,999,999,999,999 m <sup>3</sup> ( $<1 \cdot 10^{15}$ ) Resolution 0.1cm <sup>3</sup> Indication on the display: 99,999,999,999,999.9 m <sup>3</sup> or Nm <sup>3</sup> (In the event of counter overflow, the counter starts at zero)

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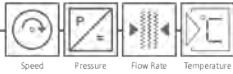
## 2.6 Interfaces and additional functions

WLAN	Integrated WLAN hotspot for direct connection to the device. The device can be operated using a web browser.
LAN (OPTIONAL)	LAN connection for integration into the local network
MODBUS RTU (OPTIONAL)	Data transmission via Modbus RTU interface
MODBUS TCP (OPTIONAL)	Data transmission via Modbus TCP interface (The LAN connection option is required for the Modbus TCP interface).

## 2.7 Housing & fastening elements

STANDARD HOUSING	Polycarbonate housing Material: Polycarbonate UL 94 V0 Color: Graphite grey (similar to RAL 7024), red (similar to RAL 3000) Dimensions: 151 mm (W) x 125 mm (H) x 91 mm (D) Protection class: IP 65 Net weight: approx. 650 g
MOUNTING TOP HAT RAILS (OPTIONAL)	Mounting element for top-hat rail
MOUNTING GAS FLOW METER (OPTIONAL) NON-ATEX APPLICATIONS ONLY	<ul style="list-style-type: none"> <li>– Fastening element for direct mounting on the GD 300 / GD 500 gas flow meter with flange connection</li> <li>– Fastening element for direct mounting on the GD 300 / GD 500 gas flow meter with wafer connection</li> </ul>

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### 3 Device codes and optional functions

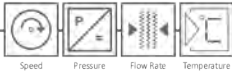
	GDR 1560
<b>INPUTS</b>	
1: Flow rate A: Gas flow meter with open-collector NPN or	•
1: Flow rate A: Gas flow meter with reed relay output or	•
1: Flow rate A: Gas flow meter with mA output or	•
1: Flow rate A: Gas flow meter with Namur output or	•
1 Flow rate A: Input for platinum wire sensor (Gas flow meter GD 300/GD 500) <sup>1)</sup> or	•
1: Flow rate A: Pulse input for HB 300 (Ex)-R000000 (Gas flow meter GD 300 (Ex)/GD 500 (Ex))	•
2: Temperature <sup>2)</sup> : (0)4 - 20 mA, 2-/3-wire = -100 - 800 °C (17 bit) or	•
2: Temperature (Pt100) <sup>2)</sup> : 3-/4-wire (17 bit)	•
3: Pressure <sup>2)</sup> : (0)4 - 20 mA, 2-/3-wire = -500mbar - 1000 bar (17 bit)	•
<b>OUTPUT</b>	
1: 4 - 20 mA = 0 - (x) Bm <sup>3</sup> /h, l/h, Bm <sup>3</sup> /min, l/min (only Pro: Nm <sup>3</sup> /h, NL/h, Nm <sup>3</sup> /min, NL/min) Flow rate (freely programmable), input resistance 500 Ohm, resolution 14 bit	•
K1 (NO contact) freely programmable	•
K2 (NO contact) freely programmable	•
<b>FURTHER FUNCTIONS</b>	
Limit value monitoring (2 limit values)	•
Integrated barometric sensor	•
Remote control via web browser using integrated WLAN hotspot	•
<b>OPTIONAL FUNCTIONS</b>	
LAN	•
Modbus RTU	•
Modbus RTU & Modbus TCP	•

1) NON-ATEX applications only

2) Fixed values can be defined without connected sensors.

**Table 1: Device codes**

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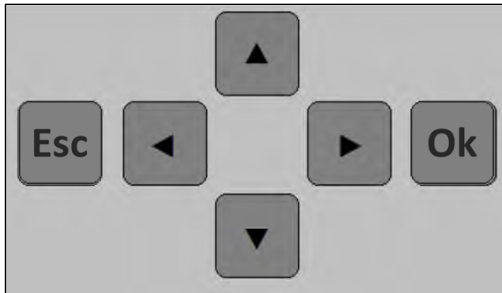


## 4 Operating overview

### Keyboard

Programming the GDR 1560 is programmed directly on the device using the keypad below the display.

Menu navigation is via the buttons:

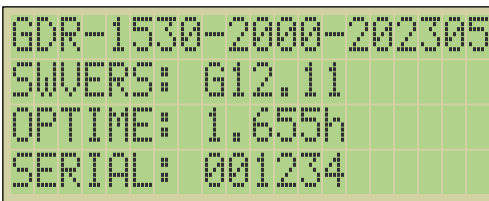


**Illustration 1: Keyboard**

	Left
	Right
	upwards
	downwards
	Abort, Cancel, Escape
	Confirm, Enter

### 4.1 Display

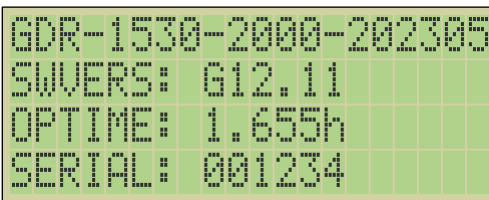
The GDR 1560 has a 4-line device display.



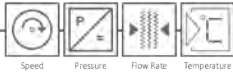
Line 1  
Line 2  
Line 3  
Line 4

**Illustration 2: 4-line display**

When the device is started, the switch-on screen appears with the device information. After approx. 10 seconds, the device automatically switches to the first LIVE screen.



**Illustration 3: Display device start**



## 5 Screen - Modes and navigation

The GDR 1560 distinguishes between two screen modes, the so-called LIVE Screens including error messages and the Parameter Screens. The LIVE Screens contain an overview of the current measured values and parameterization of the device. The parameter screens are used to parameterize and configure the device.

### 5.1 Live screen and navigation

In the LIVE Screens, the current measured values and settings relating to the connected sensors are displayed in the individual Live screen in accordance with the device parameterization.

Displays (screens) that are not relevant to the operating mode of the device are hidden accordingly.

It is possible to switch automatically between the individual LIVE Screens. The display interval can be set by the user with parameter #1207 - Display time (menu item: System). A setting of zero prevents automatic switching.

The prerequisite for this is that parameter #1227 - Switch display is set to the value "Time-controlled".





In addition to a title, a live screen has an assigned number (e.g. flow rate A [1.1]) which is shown in line 1 of the display.

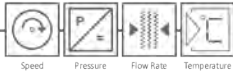
The type numbering indicates whether a Live screen has a subordinate screen.

The corresponding system settings can be found in the subordinate screens.

X.0	Live Screen has no subordinate screens (exception: error status)
X.1	Live Screen has subordinate screens

#### Navigation on the LIVE screen

	Switch between the LIVE Screens
	Scroll to the subordinate screen within a LIVE Screen
	Back to the first LIVE Screen
	1 x PRESS Display on device startup  LONG HOLD / PRESS (approx. 3 seconds) Open the PARAMETER Screen or settings menu



### 5.1.1 LIVE Screen: Flow rate A [1.x]

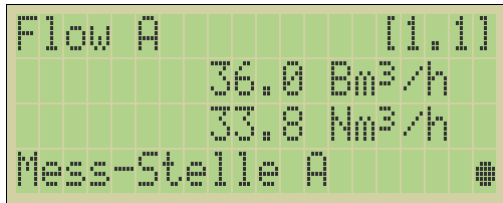


Illustration 5: Measured value flow rate A [1.1]

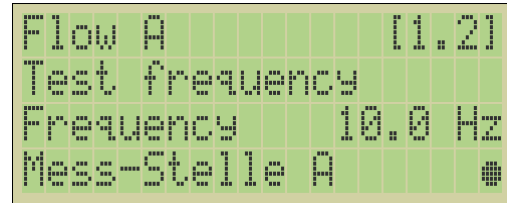


Illustration 4: Settings flow rate A [1.2]

#### Legend



Measuring point A is connected and supplies measured values



Measuring point does not provide any measured values, check and see LIVE Screen Error state [16.0]

### 5.1.2 LIVE Screen: Gas quantity A [3.0]

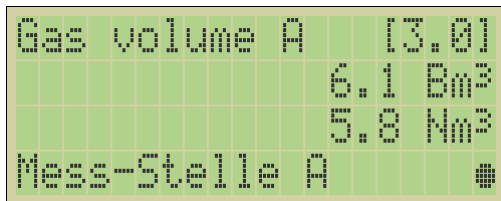


Illustration 6: Gas quantity A [3.0] Counter reading

#### Legend



Measuring point A is connected and supplies measured values



Measuring point does not provide any measured values, check and see LIVE Screen Error state [16.0]

### 5.1.3 LIVE Screen: Temperature [5.x]

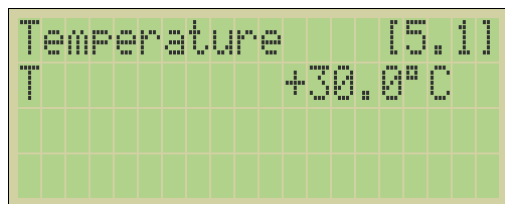


Illustration 7: Measured value temperature [5.1]

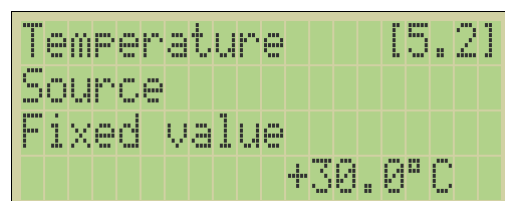
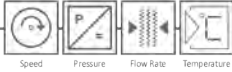


Illustration 8: Temperature settings [5.2]



5.1.4 LIVE Screen: Print [6.x]

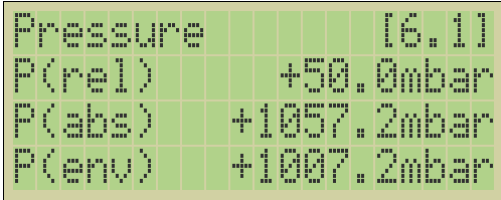


Illustration 10: Pressure sensor measured values [6.1]

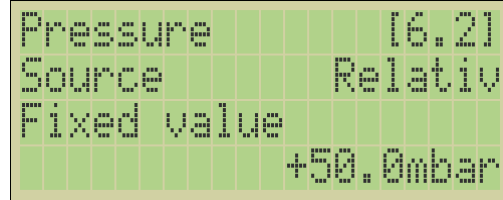


Illustration 9: Pressure sensor settings [6.2]

5.1.5 LIVE Screen: Barometric pressure [7.x]

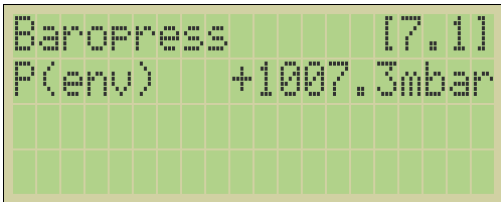


Illustration 11: Measured barometric pressure [7.1]

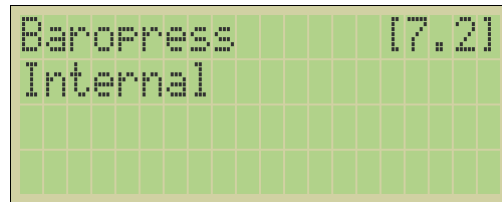


Illustration 12: barometric pressure settings [7.2]

5.1.6 LIVE Screen: Current output [8.x]

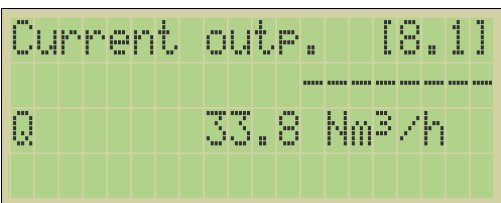


Illustration 14: Current output [8.1]

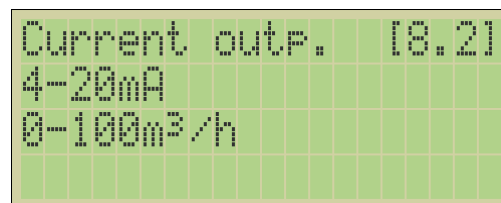
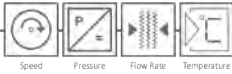


Illustration 13: Current output settings [8.2]

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### 5.1.7 LIVE Screen: Relay<sup>1</sup> [9.0]

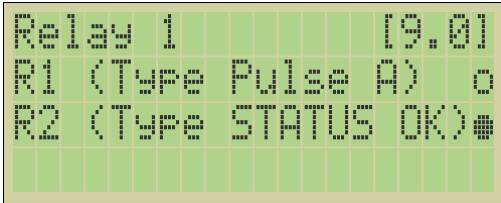


Illustration 15: Relay [9.0]

#### Legend



Relay 1 (R1) Example pulse A:

Relay 2 (R2) Example device status:  
There is no error, status ok

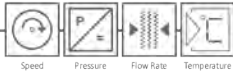


Relay 1 (R1) Example pulse A

Relay 2 (R2) Example device status:  
There is an error, see also Live Screen Error state [16.0]

<sup>1</sup> The relays are so-called NO contacts (NO).





5.1.8 LIVE Screen: Limit value A [10.x]

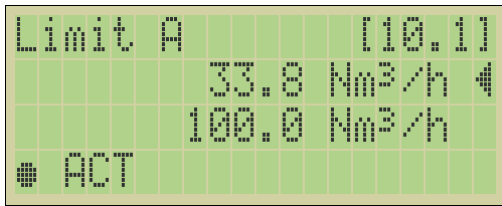


Illustration 16: Limit value A [10.1]

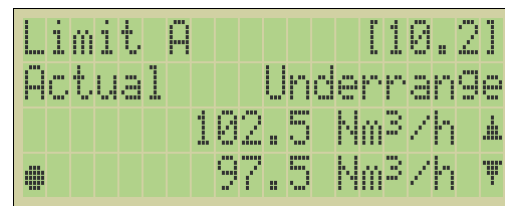



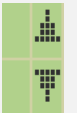


Illustration 17: Settings limit value A [10.2]

**Legend**

-  Current measured value (line 2)
-  Limit value A is triggered
-  Limit value A is not triggered
-  Limit value range based on defined hysteresis (lines 3 and 4)

5.1.9 LIVE Screen: Limit value B [11.x]

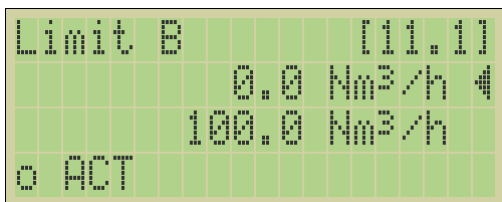


Illustration 18: Limit value B [11.1]

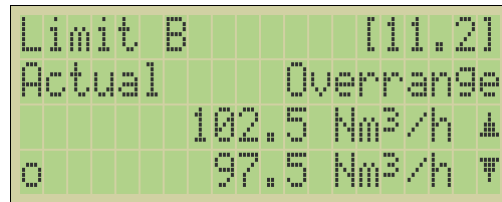




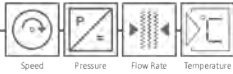


Illustration 19: Limit value B settings [11.2]

**Legend**

-  Current measured value
-  Limit value B is triggered
-  Limit value B is not triggered
-  Limit value range based on defined hysteresis

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### 5.1.10 LIVE Screen: Modbus [12.x]

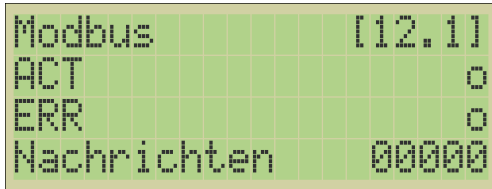


Illustration 20: Modbus [12.1]

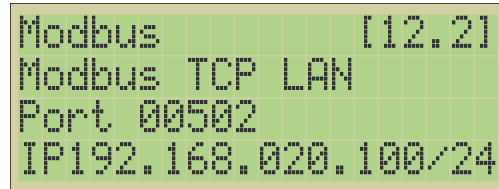
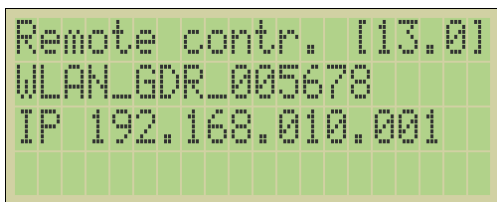


Illustration 21: Modbus settings [11.2]

### 5.1.11 LIVE Screen: Remote control [13.0]



The SSID of the WLAN hotspot is displayed in line 2.  
Line 3 shows the IP address for accessing the device's website.

Illustration 22: Remote control [13.0]

### 5.1.12 LIVE Screen: LAN network [14.x]

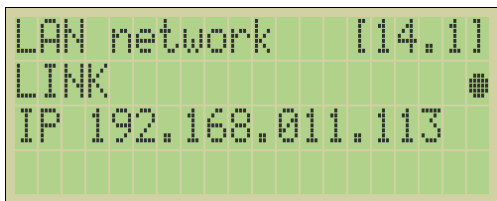


Illustration 23: LAN network [14.1]

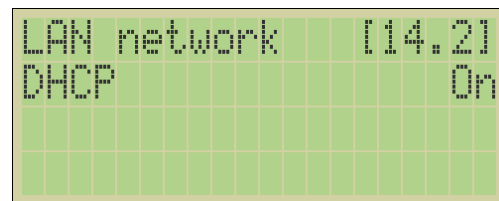


Illustration 24: LAN network settings [14.2]

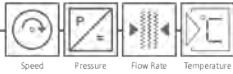
#### Legend



LINK: Device is connected to LAN network



LINK: Device is not connected to LAN network



5.1.13 LIVE Screen: WIFI network [15.x]<sup>2</sup>

```

WIFI network [15.1]
LINK          o
IP192.168.030.100/24
    
```



Illustration 26: WIFI network status [15.1].

```

WIFI network [15.2]
DHCP          On
WLAN_ClientSSID
    
```

Illustration 25: WIFI network settings [15.2].

Legend

-  LINK: Device is connected to WIFI network
-  LINK: Device is not connected to WIFI network

5.1.14 LIVE Screen: Error state [16.0]

```

Error state [16.0]
Current error 0
    
```

Illustration 27: Error state [16.0] - no errors

```

Error state [16.0]
Current error 1
E07 Sensor failure H
    
```

Illustration 28: Error state [16.0] - 2 errors

```

Error state [16.7]
Error          1/2
Error code     E07
Sensor failure HD51
    
```

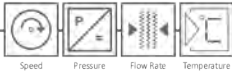
Illustration 29: Error state [16.0] - 1 of 2 errors

```

Error state [16.8]
Error          2/2
Error code     E08
Current output load
    
```

Illustration 30: Error state [16.0] - 2 of 2 errors

<sup>2</sup> WIFI network function not available in firmware version 12.11.



### 5.1.15 LIVE Screen: System status [17.x]

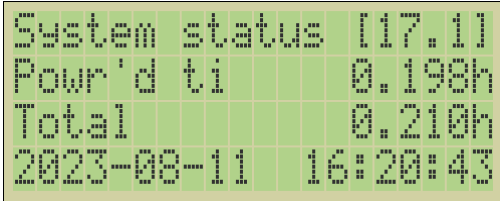


Illustration 32: System status [17.1]

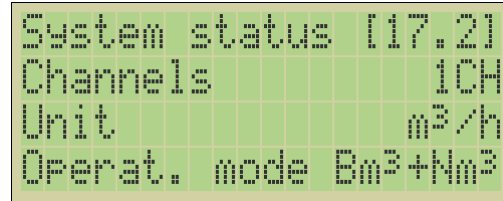


Illustration 31: System status [17.2]

## 5.2 Display: PARAMETER Screen (settings menu) and navigation

The PARAMETER Screen is used to parameterize/configure the device. From the live screen, you can access the PARAMETER Screen by holding the ENTER button or OK button for approx. 3 seconds

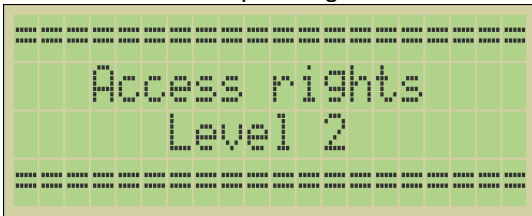


Illustration 34: Displaying the hierarchy level when opening the PARAMETER Screen (approx. 3 sec.)

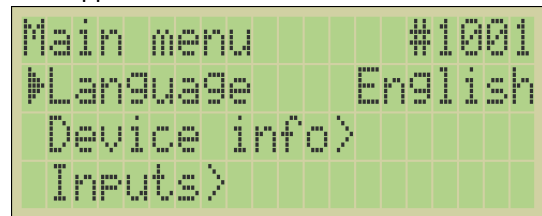


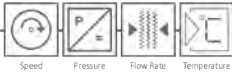
Illustration 33: Settings menu (PARAMETER Screen)

The settings menu or PARAMETER Screen opens on a newly delivered device with the write rights of "Access rights 2". When the menu is opened, the access rights level is displayed for approx. 3 seconds before switching to the menu.

Within the "Access rights 2" level, the user can make all the necessary system settings for commissioning. A PIN code (PIN1) can be defined to protect the parameters. The PIN assigned at the factory is: 10000. The factory-defined PIN code means that the device is "open" and therefore access to the parameter settings is not protected. The parameter settings are only protected against unauthorized access once an individual PIN code has been assigned. When the device is restarted or when the user logs out, the level is downgraded to "Access rights 1". If the buttons on the device are not used within 300 seconds, the user is automatically logged out and thus downgraded to access level (1).

In the "Access rights 1" level, no changes can be made to the settings. The information is only available in read mode. To change the access rights, you must log in to the system (see section 6.12 Menu structure: Access rights (#1950)).

All other access levels are only accessible by customer service. In the event of such a support case, the customer service employee will instruct you accordingly.



### 5.2.1 Explanation of the settings menu (PARAMETER Screen)

The settings menu in the PARAMETER Screen is displayed as a tree structure. Menu nodes can be setting values (parameters), commands (commands) or submenu items. Each parameter and each menu node has a unique ID code. A parameter can be "open" (adjustable) or "closed" (locked). A locked parameter is identified by a lock symbol.

#### Legend

**Unique parameter ID or menu ID**

#1522

**Open parameter**

Parameter can be changed.

▶Festwert +11.000

For better readability, a separator "-" is inserted between the name and value of the parameter for longer texts of open parameters

▶Relativ/abs#Relativ

**Closed/locked parameter**

Cannot be changed at the current access level.

▶Festwert⊘ +11.000

For better readability, a "space" separator is inserted between the name and value of the parameter for longer texts of locked parameters

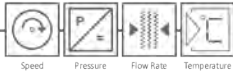
▶Relativ/ab⊘ Relativ

**Command**





▶Abmelden

**Submenu**

▶Zugriffsrechte>



### 5.2.2 Navigation in the menu tree (PARAMETER Screen)

Navigation in the menu tree ( PARAMETER Screen)	
	Switching a menu item down or up
	LEFT: Temporarily hide parameter values Press and hold RIGHT: Load default value for the displayed parameter (if not locked)
	<ul style="list-style-type: none"> <li>- Opens a submenu item</li> <li>- Executes a command or</li> <li>- Edits a parameter<sup>3</sup></li> </ul>
	<ul style="list-style-type: none"> <li>- One menu level back</li> <li>- LONG HOLD/ PRESS Exit menu and return to the live screen</li> </ul>

### 5.2.3 Setting parameters

Navigate to the desired parameter<sup>4</sup> that you want to adjust as described above and confirm with Enter. The editing mode appears.

A distinction is made between enumeration parameters (AP) and numerical parameters (NP).

For the enumeration parameters, the value can be set using the predefined selection. For numerical parameters, the setting is made by defining the individual digits. The cursor marks the position of the item to be changed.

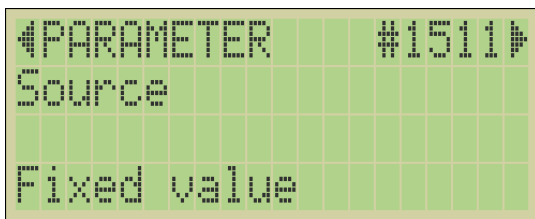


Illustration 36: Enumeration parameters (AP)

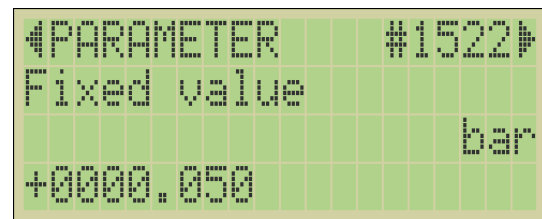
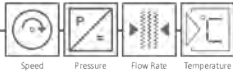






Illustration 35: Numerical parameter (NP)

<sup>3</sup> If a parameter cannot be edited because it is locked, a parameter info display opens instead.

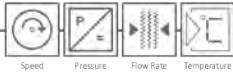
<sup>4</sup> Details on the menu structure and the parameters can be found in section 6. Menu structure and parameter IDs, page 13.



### Navigation in edit mode

	<ul style="list-style-type: none"> <li>- <b>Enumeration parameter (AP):</b> Adjust option</li> <li>- <b>Numerical parameter (NP):</b> Adjusting digits (The cursor marks the digit to be adjusted and flashes alternately with the digit located there)</li> </ul>
	<ul style="list-style-type: none"> <li>- <b>Enumeration parameters:</b> Adjust option</li> <li>- <b>Numerical parameter:</b> Move cursor</li> </ul>
	<p>Save value and exit edit mode</p>
	<p>Do not save value and exit edit mode</p>

After exiting the editing mode with the OK button (save), you return to the previous position in the menu tree. If it was a "chained" parameter, the next parameter in the chain is opened for editing instead (e.g. time-year, time-month, time-day ... time-minute). The chain is interrupted if a parameter is not saved because the menu item was exited with ESC.

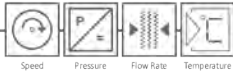


## 6 Menu structure and parameter IDs (PARAMETER Screen)

### 6.1 Menu structure: Main menu

ID	MENU STRUCTURE: MAIN MENU
#1001	<p><b>LANGUAGE</b></p> <p>The device software has various languages that can be set according to customer requirements</p> <ul style="list-style-type: none"> <li>- German as factory setting (FS)</li> </ul>
#1100	<p><b>DEVICE INFO</b></p> <p>Display of relevant device information, e.g. device family, firmware, serial number, ...</p> <p>Entering upgrade keys</p>
#1500	<p><b>INPUTS</b></p> <p>Settings relating to the connected units, such as flow meter, temperature and pressure sensor.</p>
#2400	<p><b>OUTPUTS</b></p> <p>Setting the relay outputs and the current output.</p>
#2900	<p><b>LIMITS</b></p> <p>Defining the limit values A and B</p>
#1270	<p><b>REMOTE CONTROL</b></p> <p>Deactivating or activating the remote control function via the device's internal WLAN hotspot</p>
#2945	<p><b>NETWORK</b></p> <p>Definition of the type of network</p>
#2805	<p><b>Modbus</b></p> <p>Definition of the Modbus connection</p>
#1200	<p><b>SYSTEM</b></p> <p>Definition of system settings, e.g. operating mode, display, LED status, error display, ...</p>
#1900	<p><b>ASSISTANTS</b></p> <p>Selection of wizards, e.g. quick start via menu ID, restarting the device, resetting to factory settings, ...</p>
#1950	<p><b>ACCESS RIGHTS</b></p> <p>Functions such as logging on and off the device in relation to the access levels and setting a separate device pin for access level 2.</p>
#1300	<p><b>COUNTER VALUE</b></p> <p>Display of the volume and pulse counters</p>

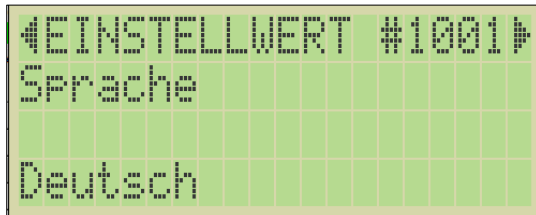




## 6.2 Menu structure: Language

### 6.2.1 Setting the language: New device

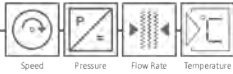
For new devices and devices that have been reset to factory settings, the firmware starts in German. The LANGUAGE setting parameter is opened automatically. The change is made in accordance with the explanations for enumeration parameters in section 5.2.3 Setting parameters.



**Illustration 37: Language setting for new devices**

### 6.2.2 Setting the language: Configured device

The language can only be changed in the "Access rights 2" level. If no separate PIN code (factory setting (FS): 10000) has been assigned and no previous logout has taken place, it is not necessary to log in to the device again. The device is therefore open and does not need to be unlocked. The change is made in accordance with the explanations for enumeration parameters in section 5.2.3 Setting parameters.



### 6.3 Menu structure: Device info (#1100)<sup>5</sup>

All parameters within the device info are locked parameters and cannot be changed by the customer.

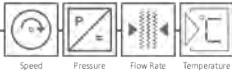
Only the measuring point parameter for changing the designation can be changed. Additionally purchased function extensions are activated here by entering the upgrade keys on the device.

#1100	MENU STRUCTURE: DEVICE INFO	PARA. TYPE
#1102	<b>Firmware</b> Display the firmware version, e.g. G09.15	-
#1008 #1011	<b>PcbID</b> Display of the installed hardware PcbID (main) PcbID (piggy)	-
#1965	<b>Model</b> Specification of the device type	-
#1103	<b>Serial number</b> Displaying the serial number of the device	-
#1107	<b>Year of manufacture</b> Display the year of manufacture of the device	-
#1108	<b>Month of manufacture</b> Display the month of manufacture of the device	-
#1104	<b>Operating hours</b> Displaying the total operating hours of the device	-
#1290	<b>Measuring point<sup>6</sup></b> Setting the name of the measuring point – Measuring point A (FS)	NP

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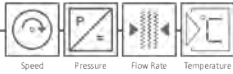
<sup>5</sup> The menu item is not available in previous versions.

<sup>6</sup> The setting for "Measuring point" can be found in previous versions under menu item "System".



#1100	MENU STRUCTURE: DEVICE INFO	PARA. TYPE
#1968	<p><b>Upgrade key</b> Enter the upgrade key for function extension</p> <p><b>Upgrade options that can be purchased later:</b></p> <ul style="list-style-type: none"> <li>- LAN interface (requires a LAN socket to be available on the device)</li> <li>- Modbus RTU</li> <li>- Modbus RTU + TCP</li> </ul>	NP
<p><b>Enter the activation key</b> Use the arrow buttons (up/down) to change the specification of the individual positions. Use the arrow buttons (left/right) to move the cursor between the positions. After entering the complete key, exit the menu item by pressing the "OK" button.</p> <div data-bbox="987 678 1457 864" style="border: 1px solid black; padding: 5px; background-color: #e0f0e0;"> <pre>PARAMETER #1968 Upgrade-Key 36GA-0000-0000-0000</pre> </div> <p>Once the activation key has been successfully entered, the device must be restarted. To restart, briefly remove the power supply from the device and reconnect it to the power supply.</p> <div data-bbox="987 934 1457 1120" style="border: 1px solid black; padding: 5px; background-color: #e0f0e0;"> <pre>UPGRADE-KEY Loaded successful ===== Restart required</pre> </div> <p><b>Check change of option code</b> Exit the settings menu by pressing the "Esc" button repeatedly until you are back on the live screen. Press the "Ok" button once and a display with information about your device will appear. You will find the device type in the first line.</p> <div data-bbox="987 1167 1457 1352" style="border: 1px solid black; padding: 5px; background-color: #e0f0e0;"> <pre>GDR-1530-2200-202310 SUVERS: 612.37 OPTIME: 2.254h SERIAL: 005678</pre> </div> <p>GDR-1530-XXXX-202310, XXXX defines the option codes. Check whether the option codes have changed in accordance with the specifications of the functions.</p>		

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## 6.4 Menu structure: Inputs (#1500)

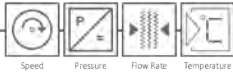
### 6.4.1 Measuring input: Flow rate

#1500	MENU STRUCTURE: FLOW MEASUREMENT INPUT	PARA. TYPE
#1206	<p><b>Typ-CH-A</b> Flow rate signal: channel A Selection of types:</p> <ul style="list-style-type: none"> <li>– Off</li> <li>– GD Sensor direct (FS) (further settings required)</li> <li>– eCan Sensor (only for internal use)</li> <li>– HB300<sup>7</sup> /SC300/UNI100 (further settings required)</li> <li>– Namur</li> <li>– Current input</li> <li>– Test frequency (further settings required)</li> </ul> <p><b>NOTE:</b> <b>GD Sensor direct:</b> In the NON-ATEX area, the GD 300/ GD 500 gas flow meter and the predecessor model GD 100 can be connected directly. If an SC 300 is installed in the current installation situation, it no longer needs to be connected.</p> <p><b>HB300/SC300/UNI100</b></p> <ul style="list-style-type: none"> <li>– HB 300 Ex-R000000 / UNI-100: In the ATEX area, the GD 300 Ex/ GD 500 Ex gas flow meter is connected via the integrated HB 300 Ex-R000000 volume corrector. Older installations with UNI-100 of the predecessor model GD 100 can be connected.</li> <li>– HB 300 -R000000 / SC 300 / SC 310: In the NON-ATEX range, the gas flow meter GD 300/ GD 500 can be connected via the integrated volume corrector HB 300-R000000 or via the external signal conditioners<sup>8</sup> SC 300 and SC 310.</li> </ul>	AP

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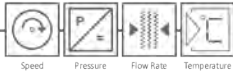
<sup>7</sup> Only the integrated volume correctors HB300 with the type code HB 300-R000000 / HB 300 Ex-R000000 can be connected.

<sup>8</sup> Signal conditioners<sup>8</sup> SC 300 and SC 310 can be connected, but it is also possible to connect the GD 100 / GD 300 / GD 500 gas flow meter directly via the platinum wire.



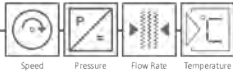
#1500	MENU STRUCTURE: FLOW MEASUREMENT INPUT	PARA. TYPE
#2551	<b>Namur puls count A</b> (only when selecting: Namur) Namur puls count in 1/m <sup>3</sup> (FS: 1000.000)	NP
#1260	<b>Flow range</b> (only when selecting: Current input) Selection of ranges: <ul style="list-style-type: none"> <li>- 0-1 m<sup>3</sup>/h (WE)</li> <li>- 0-2 m<sup>3</sup>/h</li> <li>- 0-5 m<sup>3</sup>/h</li> <li>- 0-10 m<sup>3</sup>/h</li> <li>- 0-20 m<sup>3</sup>/h</li> <li>- 0-50 m<sup>3</sup>/h</li> <li>- 0-100 m<sup>3</sup>/h</li> <li>- 0-200 m<sup>3</sup>/h</li> <li>- 0-500 m<sup>3</sup>/h</li> <li>- 0-1000 m<sup>3</sup>/h</li> <li>- .....</li> <li>- 0-50000 m<sup>3</sup>/h</li> <li>- Custom (further settings required)</li> </ul>	AP
#1261	<b>Max flow</b> (only when selecting: Current input - Custom) Max. flow in m <sup>3</sup> /h (FS: 100.0)	NP
#2500	<b>Test frequency</b> (only when selecting: Test frequency) Selection of types: <ul style="list-style-type: none"> <li>- 0.1 Hz</li> <li>- 0.2 Hz</li> <li>- 0.5 Hz</li> <li>- 1 Hz</li> <li>- 2 Hz</li> <li>- 5 Hz (FS)</li> <li>- ....</li> <li>- 1 kHz</li> </ul>	AP

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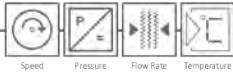
#1500	MENU STRUCTURE: FLOW MEASUREMENT INPUT	PARA. TYPE
#2110	<p><b>Sensor curve CH-A</b> (only for selection: GD-300 sensor direct, HB300/SC300/UNI100, test frequency)</p> <p><b>#2101 Valid Points</b> - 02 (FS)</p> <p><b>NOTE:</b> The number of support points can be defined as follows:</p> <ul style="list-style-type: none"> <li>- Transfer of the resolution/native pulse (liters/pulse) specification from the nameplate of the gas flow meter (For examples see 11.1 Overview of type plates GD 300 (Ex) and GD 100)</li> </ul> <p>This applies to connections with HB 300 (Ex)-R000000 or direct connection of the GD 300/ GD 500 gas flow meter and if <u>no</u> calibration protocol is available</p> <p>Number of points: 2</p> <ul style="list-style-type: none"> <li>- Transfer of the values from the factory calibration protocol</li> </ul> <p>Number of points: n+1 n+1 = number of measuring points in the calibration record plus 1 (For details see 11.2 Factory calibration certificate for gas flow meters)</p> <p>Entering the support curve is preferable to entering the liter/pulse number on the rating plate, as entering the support curve ensures greater accuracy. If you do not have the protocol, please contact us! Please provide us with the serial number of the device so that we can send you the log by e-mail (vertrieb@esters.de).</p> <p><b>#2111 Adjustment</b> - 00 (FS)</p>	<p>NP</p> <p>NP</p>

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#1500	MENU STRUCTURE: FLOW MEASUREMENT INPUT	PARA. TYPE
	<p><b>Continuation:</b> Support curve CH-A (only with selection: GD-300 sensor direct, HB300/SC300/UNI100)</p>	
	<p><b>#220x Charline</b>            Number depends on the number of measuring points specified in #2101, whereby the first measuring point is always 0            # 2201 Frequency 1 (NP): 0 Hz (FS)            # 2202 Volume 1 (NP): 0 l (FS)</p> <p># 2203 Frequency 2 (NP): x.x Hz (FS)            # 2204 Volume 2 (NP): x.x l (FS)            ...            # 220x Frequency n (NP): x.x Hz            # 220y Volume n (NP): x.x l</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>- Adoption of the resolution (liters/pulse) data from the gas flow meter nameplate</li> </ul> <p>Examples acc. 11.1 Overview of type plates GD 300 (Ex) and GD 100</p> <p># 2201 Frequency 1 (NP): 0.0 Hz # 2202 Volume 1 (NP): 0</p> <p># 2203 Frequency 2 (NP): 1 Hz            # 2204 Volume 2 (NP): 0.5002 l (example)</p> <ul style="list-style-type: none"> <li>- Transfer of the values from the factory calibration report            Number of points: n+1,            corresponding to the number of measuring points in the protocol plus 1</li> </ul> <p>Example acc. 11.2 Factory calibration certificate for gas flow meters</p> <p># 2201 Frequency 1 (NP): 0.0 Hz # 2202 Volume 1 (NP): 0</p> <p># 2203 Frequency 2 (NP): 3.16 Hz            # 2204 Volume 2 (NP): 2.1982 l</p> <p># 2205 Frequency 3 (NP): 17.27 Hz            # 2206 Volume 3 (NP): 2.1974 l</p> <p>....</p> <p># 2212 Frequency 7 (NP): 82.69 Hz            # 2213 Volume 7 (NP): 2.18994 l</p> <p>A maximum of 32 measuring points can be defined.</p>	<p>NP</p>

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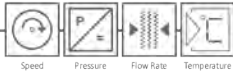


## 6.4.2 Measuring input: Temperature

#1510	MENU STRUCTURE: TEMPERATURE MEASUREMENT INPUT	PARA. TYPE
#1511	<p><b>Source</b> Definition of the source for the temperature measured value Selection of types:</p> <ul style="list-style-type: none"> <li>– Fixed value (FS) (further settings required)</li> <li>– 4-20mA (further settings required)</li> <li>– PT100-3W (3-wire)</li> <li>– PT100-4W (4-wire)</li> </ul>	AP
#1512	<p><b>Fixed value °C</b> (display only when fixed value is selected) Specification of the desired fixed value in °C (FS: +30 °C)</p>	NP
#1513	<p><b>Minimum °C</b> (display only when 4-20mA is selected) min. Measuring range of the sensor in °C (minimum -100 °C)</p> <p><b>NOTE:</b> Please take the information from the connected pressure sensor or set it according to the settings of the higher-level system (value supplier).</p>	NP
#1514	<p><b>Maximum °C</b> (display only when 4-20mA is selected) max. measuring range of the sensor in °C (maximum +800 °C)</p> <p><b>NOTE:</b> Please take the information from the connected pressure sensor or set it according to the settings of the higher-level system (value supplier).</p>	NP

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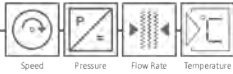
### 6.4.3 Measuring input: Pressure

#1520	MENU STRUCTURE: MEASUREMENT INPUT PRINT	PARA. TYPE
#1521	<b>Source</b> Definition of the source for the pressure measured value Selection of types: <ul style="list-style-type: none"> <li>– Fixed value (FS) (further settings required)</li> <li>– 4-20mA (further settings required)</li> </ul>	AP
#1525	<b>Relative/ absolute</b> Definition of the type of sensor connected (also for fixed value) <ul style="list-style-type: none"> <li>– Relative (FS)</li> <li>– Absolute</li> </ul>	AP
#1522	<b>Fixed value bar</b> (display only when fixed value is selected) Specification of the desired fixed value in bar (FS: 0.050 bar)	NP
#1523	<b>Min value mbar</b> (display only with 4-20mA selection) min. Measuring range of the sensor in mbar (minimum -0.050 bar)  <b>NOTE:</b> Please take the information from the connected pressure sensor or set it according to the settings of the higher-level system (value supplier).	NP
#1524	<b>Max value mbar</b> (display only with 4-20mA selection) max. measuring range of the sensor in mbar (maximum +0.250 bar)  <b>NOTE:</b> Please take the information from the connected pressure sensor or set it according to the settings of the higher-level system (value supplier).	NP

### 6.4.4 Measuring input: Barometric pressure

#1540	MENU STRUCTURE: AMBIENT PRESSURE	PARA. TYPE
#1541	<b>Hydr. Press</b> Definition of the source for the ambient pressure measured value <ul style="list-style-type: none"> <li>– Internal (FS)</li> <li>– Fixed value (further settings required)</li> </ul>	AP
#1542	<b>Hydr. fixed value</b> (display only when fixed value is selected) Specification of the desired fixed value in mbar (FS: 1013.0 mbar)	NP

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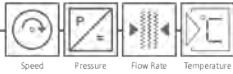
### 6.4.5 Measurement input: Conversion (standardization)

#1550	MENU STRUCTURE: CONVERSION	PARA. TYPE
#1530	<b>Standard</b> (Only when selecting System > Operating mode (#1201): Bm +Nm ) <sup>33</sup> Definition of the calculation formula for standardization, selection of standards <ul style="list-style-type: none"> <li>– DIN1343 (FS)</li> <li>– DIN6358</li> <li>– ISO2533</li> <li>– DIN102</li> <li>– Other (further settings required)</li> </ul>	AP
#1531	<b>Ref. Temp °C</b> (only displayed if Other is selected) Reference temperature in °C (FS: +20°C)	NP
#1532	<b>Ref. Pressure mbar</b> (only displayed if Other is selected) Reference pressure in mbar (FS: +1013 mbar)	NP

### 6.5 Menu structure: Outputs (#2400)

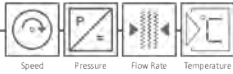
#### 6.5.1 Output: Relay

#1600	MENU STRUCTURE: RELAY	PARA. TYPE
#1610	<b>Relay 1</b> <b>Definition of the output of relay 1</b> Selection of types: <ul style="list-style-type: none"> <li>– Type Off</li> <li>– Type Pulse A (FS) (further settings required)</li> <li>– Type Status OK</li> <li>– Type Error code</li> <li>– Type Limit A</li> <li>– Type Limit B</li> </ul>	AP
#1611	<b>Relay 2</b> <b>Definition of the output of relay 2</b> Selection of types: <ul style="list-style-type: none"> <li>– Type Off</li> <li>– Pulse A type (further settings required)</li> <li>– Type Status OK (FS)</li> <li>– Type Error code</li> <li>– Type Limit A</li> <li>– Type Limit B</li> </ul>	AP



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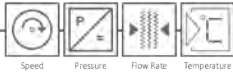
#1600	MENU STRUCTURE: RELAY	PARA. TYPE
#1220	<p><b>Pulse weight m<sup>3</sup>/pulse</b> (only displayed if pulse A is selected)                      Selection:</p> <ul style="list-style-type: none"> <li>- 0.01</li> <li>- 0.1</li> <li>- 1 (FS)</li> <li>- 10</li> <li>- 100</li> <li>- 1000</li> <li>- 10000</li> <li>- 100000</li> <li>- 1000000</li> <li>- Custom (further settings required)</li> </ul> <p><b>NOTE:</b>                      The pulse weighting depends on the flow rate and must be defined in the same way for the receiver.</p>	AP
#1203	<p><b>Volume m<sup>3</sup> /pulse</b>                      (Display only if Custom is selected)                      xxxx.xxxxxx m<sup>3</sup> /pulse (FS: 0001.000000 m<sup>3</sup> /pulse)</p>	NP
#1603	<p><b>Pulse/pause in milliseconds</b> (display only when pulse is selected)                      Selection:</p> <ul style="list-style-type: none"> <li>- 500/500 (1Hz) (FS)</li> <li>- 250/250 (2Hz)</li> <li>- 100/100 (5Hz)</li> <li>- 50/50 (10Hz)</li> <li>- 10/10 (50Hz)</li> <li>- 5/5 (100Hz)</li> <li>- 1/2 (333Hz)</li> <li>- 1/1 (500Hz)</li> <li>- Custom (further settings required)</li> </ul> <p><b>NOTE:</b>                      The pulse weighting depends on the flow rate and must be defined in the same way for the receiver.</p>	AP
#1601	<p><b>Pause length in milliseconds</b>                      (Display only when Pulse/Pause: Individual is selected)                      xxx ms (FS: 500 ms)</p>	NP
#1602	<p><b>Pulse length in milliseconds</b>                      (Display only when Pulse/Pause: Individual is selected)                      xxx ms (FS: 500 ms)</p>	NP



### 6.5.2 Output: Current output

#1800	MENU STRUCTURE: CURRENT OUTPUT	PARA. TYPE
#1804	<p><b>Function</b> Definition of the current output Selection of types:</p> <ul style="list-style-type: none"> <li>– Off (FS)</li> <li>– 0-20 mA (further settings required)</li> <li>– 4-20 mA (further settings required)</li> </ul>	AP
#1802	<p><b>Source</b> (display only when 0-20mA or 4-20mA is selected) Selection of types:</p> <ul style="list-style-type: none"> <li>– Standard volume (FS)</li> <li>– Operational volume</li> </ul>	AP
#1810	<p><b>Quantity in m<sup>3</sup> /h</b> (display only when 0-20mA or 4-20mA is selected) Definition of the output area Selection of types:</p> <ul style="list-style-type: none"> <li>– 0-5 m /h<sup>3</sup></li> <li>– 0-10 m /h<sup>3</sup></li> <li>– 0-20 m /h<sup>3</sup></li> <li>– 0-50 m /h<sup>3</sup></li> <li>– 0-100 m<sup>3</sup> /h (FS)</li> <li>– 0-200 m /h<sup>3</sup></li> <li>– 0-400 m /h<sup>3</sup></li> <li>– 0-800 m /h<sup>3</sup></li> <li>– 0-1000 m /h<sup>3</sup></li> <li>– 0-1500 m /h<sup>3</sup></li> <li>– 0-2000 m /h<sup>3</sup></li> <li>– 0-3000 m /h<sup>3</sup></li> <li>– 0-5000 m /h<sup>3</sup></li> <li>– 0-7000 m /h<sup>3</sup></li> <li>– 0-10000 m /h<sup>3</sup></li> <li>– 0-20000 m /h<sup>3</sup></li> <li>– 0-50000 m /h<sup>3</sup></li> <li>– 0-100000 m /h<sup>3</sup></li> <li>– 0-200000 m /h<sup>3</sup></li> <li>– 0-500000 m /h<sup>3</sup></li> <li>– 0-1000000 m /h<sup>3</sup></li> <li>– 0-2000000 m /h<sup>3</sup></li> <li>– 0-5000000 m /h<sup>3</sup></li> <li>– Custom (further settings required)</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>– The selection depends on the max. flow rate per hour of the gas flow measurement or the system.</li> <li>– If the data is standardized, the standardized values (Nm<sup>3</sup> /h) are passed on, otherwise in m /h<sup>3</sup></li> <li>– Please note that the settings for the data receiver are configured accordingly in terms of type and unit.</li> <li>– Example: With an expected flow rate of 950 m<sup>3</sup> /h, type 0-1000 m<sup>3</sup> /h (if necessary 0-1500 m<sup>3</sup> /h) should be selected.</li> </ul>	AP

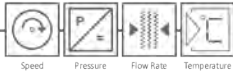
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#1800	MENU STRUCTURE: CURRENT OUTPUT	PARA. TYPE
#1810	<b>Quantity (20mA)</b> (only if quantity is selected: Individual) xxxxxxx.x (FS: 0000100.00)	NP

## 6.6 Menu structure: Limit values (#2900)

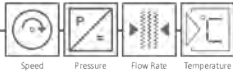
#2900	MENU STRUCTURE: LIMIT VALUES	PARA. TYPE
#2910	<b>Limit value A</b>	AP
#2913	<b>Function</b> Defines the function of the limit value of the device – Off (FS) – Underrange – Overrange – Band – Notch	AP
#2911	<b>Limit value A</b> xxxxxxxx.xx m <sup>3</sup> /h (FS: 100.00 m <sup>3</sup> /h)	NP
#2912	<b>Hysteresis A</b> xxx.x % (WE 2.5 %)	NP
#2920	<b>Limit value B</b>	AP
#2923	<b>Function</b> Defines the function of the limit value of the device – Off (FS) – Underrange – Overrange – Band – Notch	AP
#2921	<b>Limit value B</b> xxxxxxxx.xx m <sup>3</sup> /h (FS: 100.00 m <sup>3</sup> /h)	NP
#2922	<b>Hysteresis B</b> xxx.x % (WE 2.5 %)	NP



## 6.7 Menu structure: Remote control (#1270)

#1270	MENU STRUCTURE: REMOTE CONTROL	PARA. TYPE
#1271	<p><b>Remote access</b> Activation and deactivation of the remote control via integrated WLAN HOTSPOT, WLAN or LAN.</p> <p>Selection of types:</p> <ul style="list-style-type: none"> <li>- Off (FS)</li> <li>- ON</li> </ul> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>- Remote control of the device via WLAN and LAN network is only available if the two optional functions are available accordingly.</li> </ul>	AP
#1274	<p><b>WLAN Server SSID</b> Name of the SSID of the device's WLAN hotspot. SSID: WLAN_GDR_00XXXX (FS)</p> <p><b>NOTE:</b></p> <ul style="list-style-type: none"> <li>- The name of the SSID of the WLAN hotspot cannot be changed.</li> <li>- The factory-defined SSID is made up of WLAN_GDR_00 plus the serial number (XXXX), so that each device is uniquely identifiable.</li> </ul>	
#1275	<p><b>WLAN Server Password</b> Assignment of the password for the WLAN access point of the device. Password: 12345678 (FS)</p> <p><b>NOTE:</b> Passwords cannot contain spaces.</p>	NP

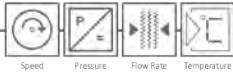
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## 6.8 Menu structure: Network (#2940)

#2940	MENU STRUCTURE: NETWORK	PARA. TYPE
#2945	<p><b>Type</b> Activating and deactivating network access</p> <p>Selection of types:</p> <ul style="list-style-type: none"> <li>– Off (FS)</li> <li>– LAN (only available if function is enabled)</li> <li>– WLAN</li> </ul>	AP
#2960	<p><b>LAN</b> (only displayed if LAN is selected) The LAN function is only available if it is enabled on the device. If the device does not have this function, it can be purchased subsequently via an upgrade.</p>	AP
#2961	<p><b>DHCP</b> Selection of types:</p> <ul style="list-style-type: none"> <li>– On (FS)</li> <li>– Off (further settings required)</li> </ul>	
#2962	<p><b>IP address</b> (only if DHCP Off is selected) Enter the defined IP address of the device for the network xxx.xxx.xxx.xxx/xx (FS: 192.168.020.100/24)</p>	NP
#2963	<p><b>Gateway</b> (only if DHCP Off is selected) Entering the default gateway for the network xxx.xxx.xxx.xxx (FS: 192.168.020.001)</p>	NP
#2964	<p><b>DNS server</b> (only if DHCP Off is selected) Entering the DNS server for the network xxx.xxx.xxx.xxx (FS: 192.168.020.001)</p>	NP

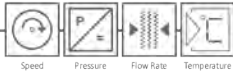
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#2940	MENU STRUCTURE: NETWORK	PARA. TYPE
#2950	<b>WLAN</b> (only displayed if WLAN is selected)	
#2951	<b>DHCP</b> Selection of types: – On (FS) (further settings required) – Off (further settings required)	AP
#1272	<b>WLAN Client SSID</b> Enter the SSID of the WLAN to which the device is to be added. xxxxxxxxxxxxxxxx (FS: WLAN_ClientSSID)	NP
#1273	<b>WLAN client password</b> Enter the password of the SSID of the WLAN to which the device is to be added. xxxxxxxxxxxxxxxx (FS: WLAN_ClientPsw)  <b>NOTE:</b> – WLAN SSIDs must not contain spaces. – Passwords must not contain spaces.	NP
#2952	<b>IP address</b> (only if DHCP Off is selected) Enter the defined IP address of the device for the network xxx.xxx.xxx.xxx/xx (FS: 192.168.020.100/24)	NP
#2953	<b>Gateway</b> (only if DHCP Off is selected) Entering the default gateway for the network xxx.xxx.xxx.xxx (FS: 192.168.030.001)	NP
#2954	<b>DNS server</b> (only if DHCP Off is selected) Entering the DNS server for the network xxx.xxx.xxx.xxx (FS: 192.168.030.001) –	NP

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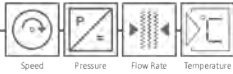




## 6.9 Menu structure: Modbus (#2805)

#1200	MENU STRUCTURE: MODBUS	PARA. TYPE
#1201	<p><b>Bus type</b> Defines the type of Modbus interface</p> <ul style="list-style-type: none"> <li>– Off (FS)</li> <li>– Modbus RTU</li> <li>– Modbus TCP LAN</li> <li>– Modbus TCP WLAN</li> </ul> <p><b>NOTE:</b> For Modbus TCP to work via LAN or WLAN, the connection must be activated and parameterized in the Network area. The function is only available if it is enabled on the device. If the device does not have the function, it can be purchased subsequently via an upgrade.</p>	AP
#2810	<p><b>Bus address</b> (display only if Modbus RTU is selected) Defines the bus address of the Modbus RTU interface</p> <ul style="list-style-type: none"> <li>– 001 (FS)</li> </ul>	NP
#2820	<p><b>Baud rate</b> (display only when Modbus RTU is selected) Defines the baud rate of the Modbus RTU interface</p> <ul style="list-style-type: none"> <li>– 19200 (FS)</li> </ul>	NP
#2830	<p><b>Parity</b> (display only when Modbus RTU is selected) Defines parity of the Modbus RTU interface</p> <ul style="list-style-type: none"> <li>– EVEN (FS)</li> <li>– NONE</li> </ul>	AP
#2840	<p><b>Parameter access</b></p> <ul style="list-style-type: none"> <li>– No access (FS)</li> </ul> <p><b>NOTE:</b> Locked parameter</p>	
#2855	<p><b>Port</b> (only displayed if Modbus TCP LAN is selected) Enter the defined port (FS: 502)</p>	NP
#2840	<p><b>Parameter access</b></p> <ul style="list-style-type: none"> <li>– No access (FS)</li> </ul> <p><b>NOTE:</b> Locked parameter</p>	

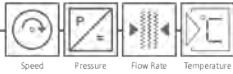
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### 6.10 Menu structure: System (#1200)

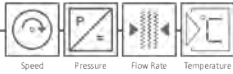
#1200	MENU STRUCTURE: SYSTEM	PARA. TYPE
#1201	<p><b>Operating mode</b> Defines the operating mode of the device</p> <ul style="list-style-type: none"> <li>- 1:1</li> <li>- Bm<sup>3</sup></li> <li>- Bm +Nm<sup>33</sup> (FS)</li> </ul> <p><b>NOTE:</b> <b>Operating mode Bm<sup>3</sup> +Nm<sup>3</sup>:</b> This operating mode must be selected to standardize the measured values. Measured values for pressure and temperature must be provided accordingly. The measured values can be processed by connected temperature and pressure sensors or by a higher-level system via mA input in the GDR 1560. In systems without measured value fluctuations in pressure and temperature, corresponding fixed values can be defined. Please define the applicable standard (WE DIN1243) under "Inputs &gt; Standard (#1530)" <b>Operating mode 1:1:</b> For third-party gas flow meters for 1:1 transmission of the measured values.</p>	AP
#1700	<p><b>Mean value</b> Mean value is used to stabilize the measured value on the display in the event of strong and rapidly fluctuating flow rates. The setting has no influence on the measured values themselves.</p> <p><b>#1701 Flow operational:</b> Filter for operating volume (FS: 10) <b>#1702 Flow standard:</b> Filter for normalized volume (FS: 10) <b>#1704 freqGate:</b> Filter for Frequency in seconds (FS: 10)</p>	AP AP AP
#1703	<p><b>Min Frequency</b> Definition of a minimum threshold to distinguish between gas flow and standstill. xx.x Hz (WE 0.0 Hz)</p>	NP
#1202	<p><b>Display</b> Defines the measuring unit to be shown on the display</p> <ul style="list-style-type: none"> <li>- m<sup>3</sup> /h (FS)</li> <li>- m /min<sup>3</sup></li> <li>- l/h</li> <li>- l/min</li> </ul>	AP

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#1200	MENU STRUCTURE: SYSTEM	PARA. TYPE
#1204	<p><b>LED</b></p> <p>Setting the status of the left-hand "Status" LED</p> <ul style="list-style-type: none"> <li>- Device status (FS)</li> <li>- Pulse input</li> <li>- Pulse output</li> </ul> <p><b>NOTE:</b> The left-hand LED labeled "Status" on the housing of the device can be individually assigned.</p>	AP
#1207	<p><b>Display switch</b></p> <p>Defines the display change in the LIVE screen.</p> <ul style="list-style-type: none"> <li>- Off</li> <li>- On error (FS)</li> <li>- Time triggered</li> </ul> <p><b>NOTE:</b> <b>On error:</b> In the event of an error, the system switches directly to the error screen. Once the error has been rectified, the system switches to the last LIVE SCREEN. New errors are prioritized and displayed according to their priority. Once all errors have been rectified, the system switches back to the last LIVE SCREEN displayed. <b>Time triggered:</b> Rolling change between the LIVE Screens based on the defined time.</p>	AP
#1227	<p><b>Display time</b> (display only if selected: Time-controlled Define number of seconds (FS: 10 s)</p>	NP
#1248	<p><b>Menu preview</b></p> <p>Definition of the display time in seconds for the menu preview before the configuration of the individual parameters is displayed.</p> <ul style="list-style-type: none"> <li>- Off</li> <li>- 1s (FS)</li> <li>- 2.5s</li> <li>- 5s</li> <li>- 7.5s</li> <li>- 10s</li> </ul>	AP
#1210	<p><b>Time&amp;Date</b></p> <p>Definition of date and time</p>	NP

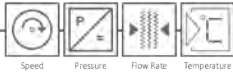
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### 6.11 Menu structure: Assistants (#1900)

#1900	MENU STRUCTURE: WIZARDS	PARA. TYPE
#1006	<b>Service</b> Direct access to settings via parameter or menu ID	NP
#1901	<b>Reboot</b> Restarting the device	AP
#1902	<b>Clear counters</b> Deletes the data of all volume and pulse counters	AP
#1903	<b>Factory settings</b> Resets the device to factory settings (FS), all individual settings are lost.  <b>NOTE:</b> Please note that the individually predefined support curve/characteristic curve in relation to the connected gas flow meter will also be deleted. The data for the characteristic curve is contained in the factory calibration protocol (see 11.2 Factory calibration certificate for gas flow meters). The description of the settings on the device can be found in 6.4.1 Measuring input: Flow rate.	AP
#1905	<b>Welcome</b> Activates the automatic Language prompt when the device is started.	AP

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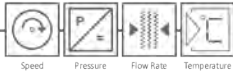


### 6.12 Menu structure: Access rights (#1950)

#1950	MENU STRUCTURE: ACCESS RIGHTS	PARA. TYPE
#1007	<b>Logout</b> (only displayed if logged in at a higher level than "Access rights 1") Log out of the current access level and return to level "Access rights 1". No changes can be made to the settings within "Access rights 1", they can only be read.	-
#1002	<b>Login</b> Display only if logged in at "Access rights 1" level Login to higher access level with PIN code.	NP
#1205	<b>PIN code</b> Change the PIN code for level "Access rights 1". (FS: 10000)  <b>NOTE:</b> If a brand new appliance is to be locked to prevent unintentional changes to settings, a separate PIN code must be defined. The factory-defined code "10000" means that the appliance is "open". Any other PIN code locks the device as soon as it is restarted, the user logs out or no buttons have been used on the device for a longer period of time. The settings menu closes automatically after 300 seconds and the device logs out automatically after a further 900 seconds. Logging back in is then only possible with the previously assigned PIN code.	AP

### 6.13 Menu structure: Meter readings (#1300)

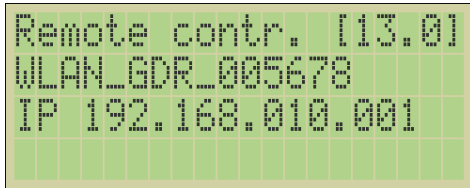
#1300	MENU STRUCTURE: METER READINGS	PARA. TYPE
#1301	<b>Volume CH-A</b> Display of the info screen for the respective meter readings.	-
#1303	<b>Pulses CH-A</b> Display of the info screen for the respective meter readings.	-



## 7 Remote control of the device via web browser

The device can be operated directly via the keypad. However, remote control via a web browser is also available.

The device has its own WLAN hotspot. However, the function must be activated on the device using the keypad. You can check whether the function is activated in the LIVE Screens . If the "Remote control [13.0]" LIVE screen is displayed, remote control is active.



The SSID of the WLAN hotspot is displayed in line 2 .  
Line 3 shows the IP address for accessing the device's website.

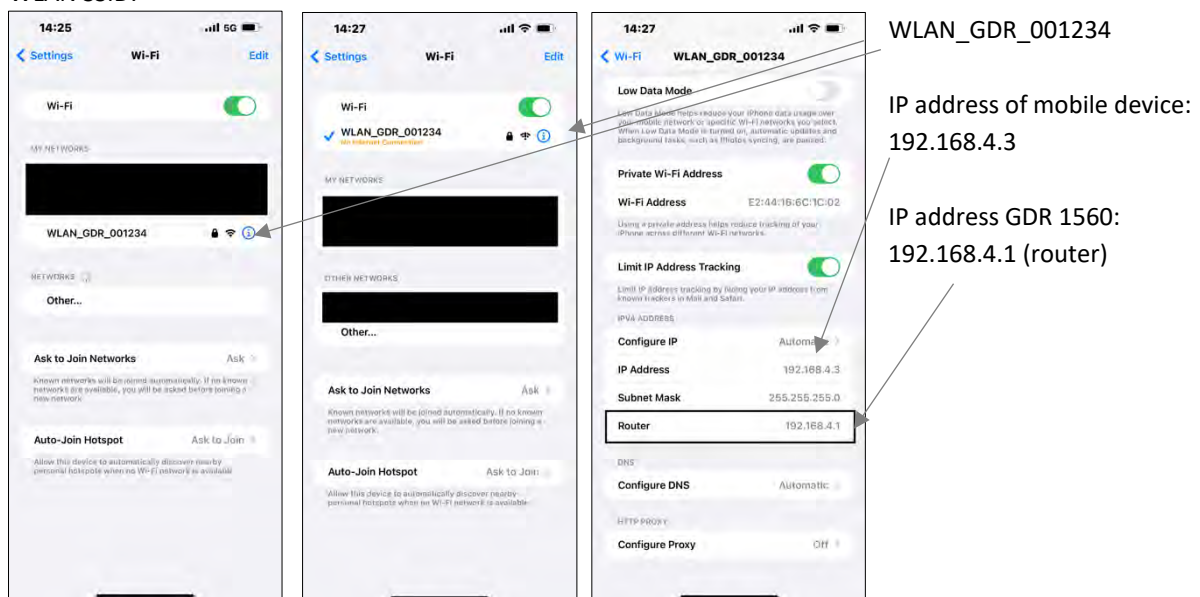
**Illustration 38: Remote control [13.0]**

If the device is connected to the network via LAN connection or WLAN connection and the remote control function is activated, the device can also be accessed via these IP addresses using a web browser.

### 7.1 Connecting to WLAN hotspot (mobile devices)

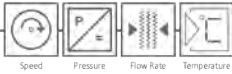
Connect your mobile device to the device hotspot "WLAN\_GDR\_00xxxx" (example: WLAN\_GDR\_001234). The factory default password is "12345678" . If the connection is successful, your mobile device may display a message such as "No Internet connection" or "Unsecured network". However, this is irrelevant for remote control, as only direct access to the device is required. The GDR 1560 automatically assigns an IP address to the connected end device. This is located in the IP range 192.168.4.x by default. The IP address of the GDR 1560 is 192.168.4.1 by default.

WLAN SSID:



**Illustration 39: WLAN hotspot connection with mobile device**

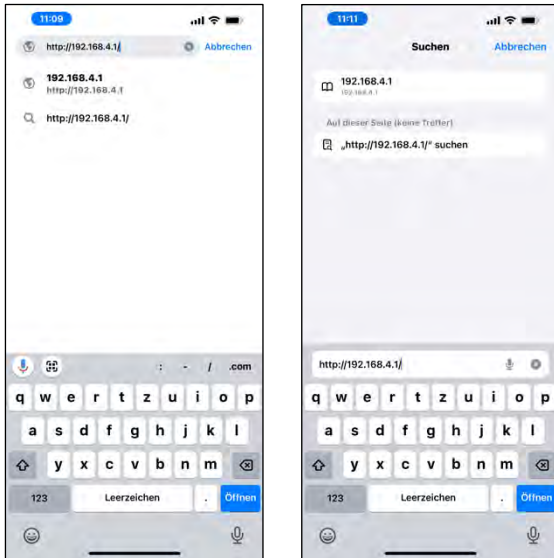
<sup>9</sup> The password for the WLAN hotspot can be changed (see 6.7. Menu structure: Remote control (#1270))



## 7.2 Remote control via web browser: WLAN Hotspot

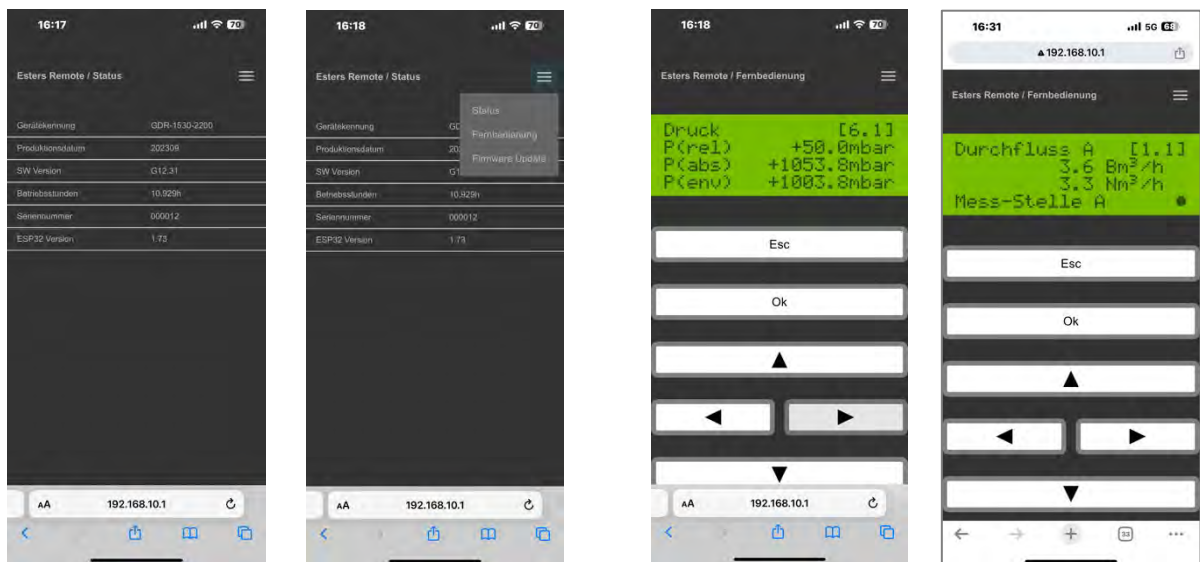
Open the web browser on your mobile device and enter the URL <http://192.168.4.1> (or the router IP address from the WLAN connection). The website of the device will then open.

The IP address can also be read on the live screen remote control (LIVE Screen [13.0] remote control line 3).

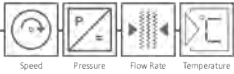


**Illustration 40: Enter URL in web browser (e.g. Google Chrome, Safari)**

After successfully entering the URL, the status page of the device is displayed. The hamburger menu in the top right-hand corner takes you to the page for remote control of the device. The operation is similar to the operation on the keyboard.



**Illustration 41: Website for remote control of the device (e.g. Google Chrome, Safari)**



### 7.3 Remote control via web browser: LAN or WLAN connection in your own network

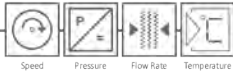
The IP address for access via web browser can be found in the respective LIVE Screens (LAN Net. [14.1] or WLAN network [15.1] in the 3rd line. Enter this IP address in the web browser.



**Illustration 42: Website for remote control of device II**

From ESP32 version no. 1.95, the navigation elements can also be controlled via the keyboard. The arrow keys on the keyboard are used to control the navigation arrows (arrow buttons), the Enter key for the Ok button and Delete key for the Esc button.



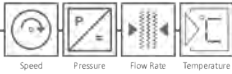


## 8 Modbus RTU/TCP data set (optional function)

Offset	Format	Contents	Unit
0x00	U16	Counter approx. 10 Hz	-
0x02	U64	Operating quantity „A“	Bl
0x0A	U64	Standardized quantity „A“	NI
0x12	U32	Flow rate „A“	0.1 l/h
0x16	U32	Flow rate standardized „A“	Bl/h
0x1A	U64	Operating quantity „B“	Bl
0x22	U64	Standardized quantity „B“	NI
0x2A	U32	Flow rate „B“	0.1 l/h
0x2E	U32	Flow rate standardized „B“	NI/h
0x32	U32	Gas pressure	0.1 mbar
0x36	U16	Barometric pressure	0.1 mbar
0x38	S16	Gas temperature	0.1 °C
0x3A	U16	Gas 1	0.1 %
0x3C	U16	Gas 2	0.1 %

### Notes:

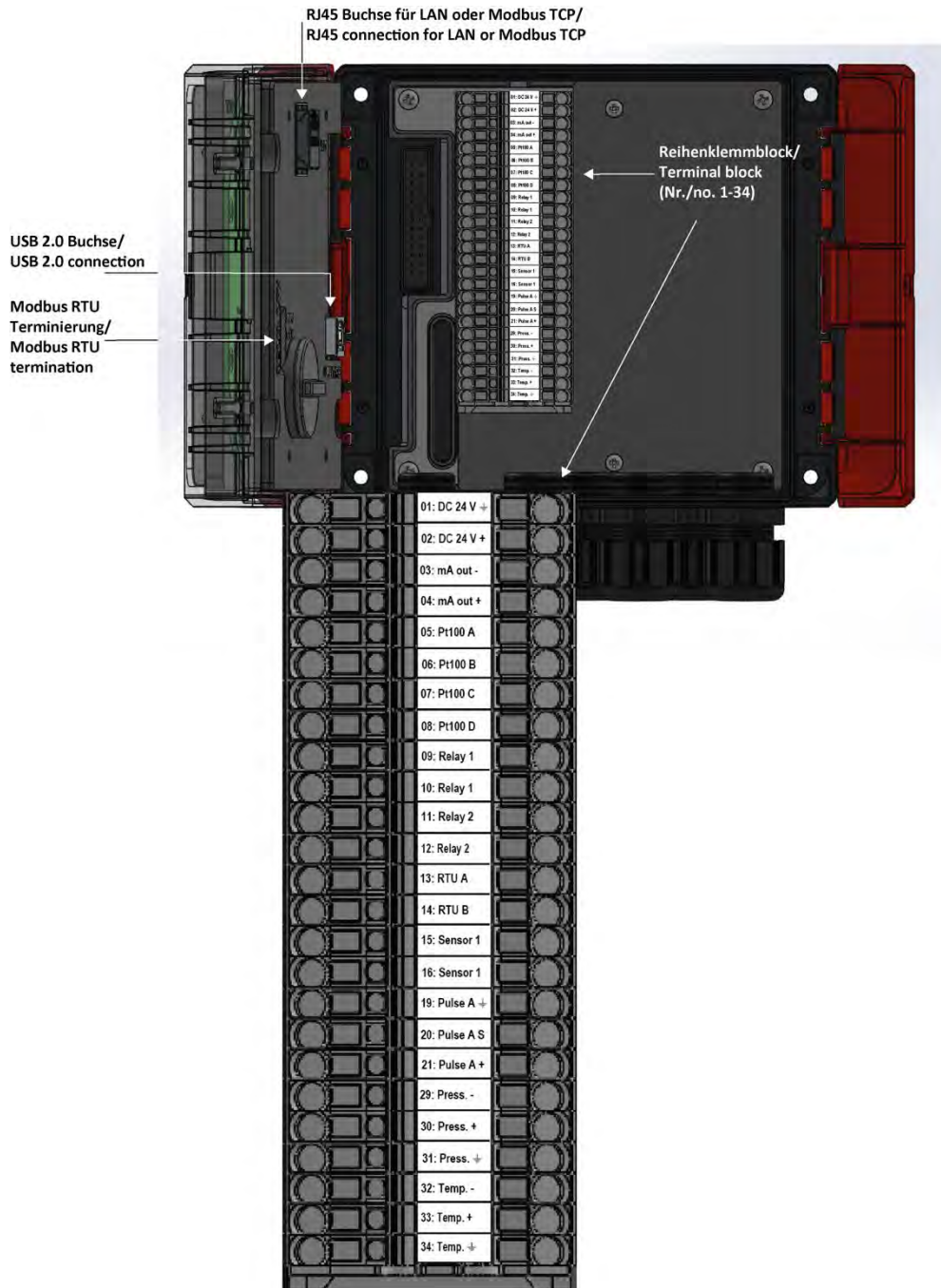
- All data is stored on the bus in MOTOROLA format.
- For 32-bit values, the HI word comes first, followed by the LO word
- For 64-bit values, the most significant word comes first, followed by the remaining three words in descending order of significance
- The two's complement applies to signed values



## 9 Connecting diagram

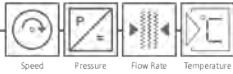
Always observe the following safety instructions:

- Only connect when de-energized
- If overvoltages or voltage peaks are to be expected, install overvoltage protection devices
- Before commissioning, make sure that the power supply matches the specifications on the rating plate



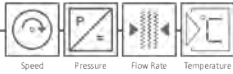
**Illustration 43: Connection terminals GDR 1560**

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	Terminal block no.		
Power supply	01	DC 24 V $\perp$	
	02	DC 24 V +	
Current output: mA	03	mA out -	
	04	mA out +	
Pt100 sensor, 3-wire or Pt100 sensor, 4-wire	05	Pt100 A	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>3-wire</p> </div> <div style="text-align: center;"> <p>4-wire</p> </div> </div>
	06	Pt100 B	
	07	Pt100 C	
	08	Pt100 D	
Relay: K1 (NO contact)	09	Relay 1	
	10	Relay 1	
Relay: K2 (NO contact/ NO)	11	Relay 2	
	12	Relay 2	
Modbus RTU (optional)	13	MB RTU A	Modbus RTU A / + / D+
	14	MB RTU B	Modbus RTU B / - / D-
Platinum wire sensor A (Flow rate)	15	Sensor 1	
	16	Sensor 1	
			<b>Connection HB 300 (Ex)-R000000</b>
Pulse A: HB 300 / HB 300 Ex Open-Collector/ Reed-Relay (Flow rate)	19	Pulse A $\perp$	$\perp$ Ground (GND)
	20	Pulse A S	<b>P</b> Native pulse output
	21	Pulse +	<b>+24 DC</b> Power supply
Namur A (Flow rate)	25	Namur A -	
	26	Namur A +	
Pressure (P): mA	29	-	
	30	+	
	31	$\perp$	
Temperature (T): mA	32	-	
	33	+	
	34	$\perp$	
mA input A (Flow rate)	35	-	
	36	+	
	37	$\perp$	

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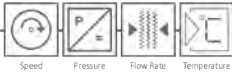
## 10 Error code list

CODE	GERMAN	ENGLISH
E01	EEP Hardware	EEP hardware
E02	Parametersatz	Param data
E03	Seriennummer	Serial number
<b>E04</b>	<b>Eingang Überl. CH-A</b>	<b>Input overflow CH-A</b>
<b>E05</b>	<b>Ausgang Überl. CH A</b>	<b>Output overflow CH-A</b>
<b>E06</b>	<b>Ausgang Überl. CH-B</b>	<b>Input overflow CH-B</b>
E07	<b>Sensorfehler CH A</b>	<b>Sensor error CH-A</b>
<b>E08</b>	<b>Stromausgang Bürde</b>	<b>Current output load</b>
<b>E09</b>	Key Hardware	Key Hardware
E10	LCD Hardware	LCD Hardware
E11	RTC Hardware	RTC Hardware
E12	<b>Uhrzeit Datenverlust</b>	<b>Time data lost</b>
<b>E13</b>	<b>Sensorfehler Temp.</b>	<b>Sensor failure temp</b>
<b>E14</b>	<b>Sensorfehler Druck</b>	<b>Sensor failure press.</b>
<b>E15</b>	System param. 171x	System param. 171x
E16	<b>Sensorfehler CH-B</b>	<b>Sensor break CH-B</b>
<b>E17</b>	<b>Eingang Überl. CH-B</b>	<b>Input failure CH-B</b>
<b>E18</b>	<b>Überl. Betrieb CH-A</b>	<b>Overflow CH-A oper.</b>
E19	<b>Überl. Betrieb CH-B</b>	<b>Overflow CH-B oper.</b>
<b>E20</b>	<b>Überl. Normiert CH-A</b>	<b>Overflow CH-A std.</b>
<b>E21</b>	<b>Überl. Normiert CH-B</b>	<b>Overflow CH-B std.</b>
<b>E22</b>	Hardwareaufbau	Hardware
<b>E23</b>	Hydrostatischer Druck	Hydrostatic pressure

The error messages in bold can occur on the appliance during normal operation.

The other messages may occur during device production, troubleshooting or device defects.

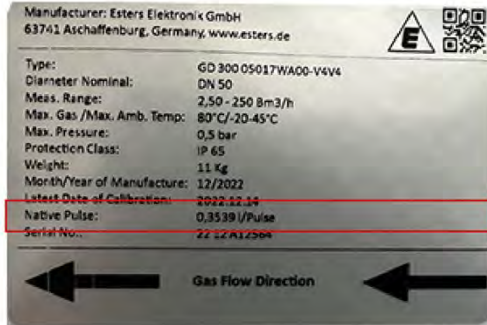
**Table 2: Error codes**



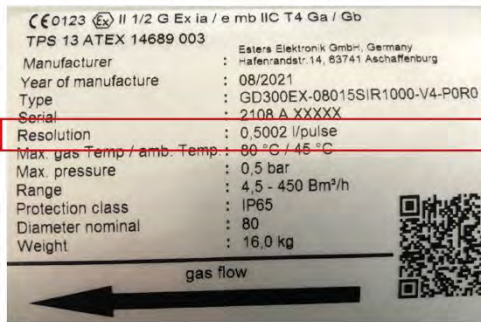
## 11 Appendix

### 11.1 Overview of type plates GD 300 (Ex) and GD 100

Example: Nameplate GD 300



Example: Nameplate GD 300 Ex



Resolution or native pulses  
(liter/pulse) for defining  
the support curve

Example: Nameplate GD 100

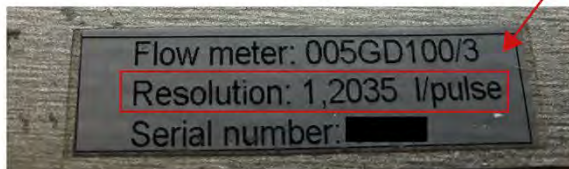
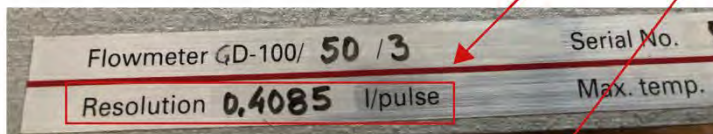
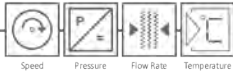


Illustration 44: Overview of name plates GD 300 (Ex) and GD 100



### 11.2 Factory calibration certificate for gas flow meters

Werkkalibrierschein				ESTERS ELEKTRONIK E	
Prüfstelle für Gasdurchflussmesser				<b>Esters Elektronik GmbH</b> Hafenrandstr. 14 63741 Aschaffenburg Tel.: +49 6021/45807-0 E-Mail: info@esters.de	
Prüfer	John	Unterschrift		Durchflussrichtung	unicirektional
gemessen	Datum			Normierung	Abgleich in Bm <sup>3</sup>
Gültigkeit *	07.2023	Messintervall (Sek.)	45	Normal Zähler 1	Aerzen Zc 11.4 / KANR:61-341297-00
Baujahr	2021	Druckstufe	PN 10	Normal Zähler 2	Aerzen Zc 038.06 / KANR:61-341297-01
Datum	28.07.2021	Druckprüfung	<input checked="" type="checkbox"/> Bestanden	Liter-Puls-Zahl (l/Puls) Prüfling	2,1930
Typ	GD300_100_17	Kanaltausch Prüf/Norm	<input checked="" type="checkbox"/> Aktiv	Liter-Puls-Zahl (l/Puls) Normalzähler 1	1,00
Seriennummer				Liter-Puls-Zahl (l/Puls) Normalzähler 2	10,00

Messung	Prüfling Frequenz/Hz	Normalzähler Frequenz/Hz	m <sup>3</sup> /h Prüfling	Liter-Puls-Zahl Prüfling	Abweichung Mittelwert/%
1	3,16	7,34	24,97	2,1982	0,24
2	17,27	40,15	136,59	2,1974	0,20
3	34,49	80,17	272,77	2,1959	0,18
4	48,16	111,35	378,88	2,1855	-0,34
5	70,13	162,53	552,98	2,1907	-0,13
6	82,69	191,60	651,89	2,1899	-0,14

2,1930	Prüfung
--------	---------

**Support curve:**  
 No. of points: n  
 Example: n+1 = 7  
 Acc.to no.of measuring points plus 1

**Support curve:**  
 Frequency:  
 1 = 0  
 2 = 3,16  
 ...  
 7 (n+1) = 82,69

**Support curve:**  
 Volume:  
 1 = 0  
 2 = 2.1982  
 ...  
 7 (n+1) = 2.1899

It is preferable to enter the entire support curve n+1 rather than just the liter/pulse number on the nameplate, since entering the support curve achieves a higher degree of accuracy.

**Liters-Pulses-No. acc. to type plate**  
 No. of interpolation points n = 2  
 Example.:  
 Frequency 1 = 0  
 Volume 1 = 0  
 Frequency 2 = 1  
 Volume 2 = 2,1930

Illustration 45: Factory calibration certificate for gas flow meters