ZENNER

Display description

for

Ultrasonic water meter

IUW (Bulk) & IUWS (Residential)
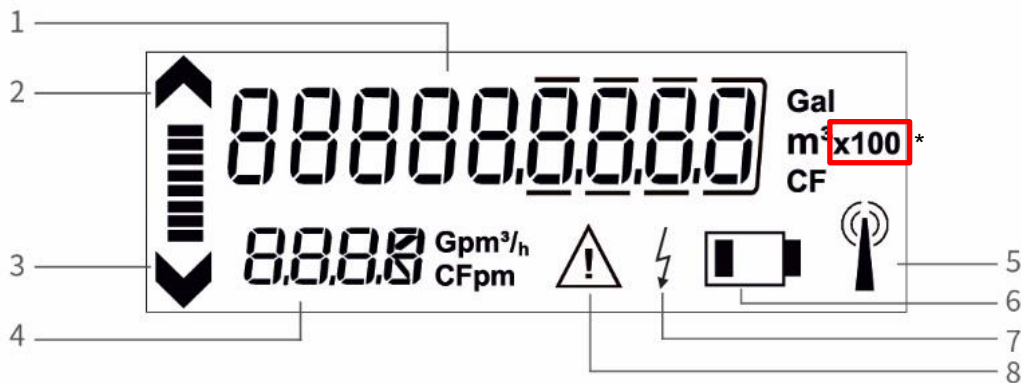

| IUW | IUWS | NDC |

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1 Significance of the displays

1	Consumption with unit m³ (for nominal diameters DN15-DN50: 6 digits before / 3 after the decimal point, for DN50 - DN125: 6 digits before / 3 after the decimal point, for DN150-DN300: 7 digits before / 2 after the decimal point)
2	Flow direction display in forward flow direction
3	Flow direction display in return flow direction
4	4-digit flow rate display, unit in m³/h; with automatic point shifting; the flow rate display is updated every 2 seconds
5	Data transfer display: Symbols for displaying the join status with LoRaWAN® or the wireless M-Bus radio status
6	Battery capacity display: Symbol is activated 15 months prior to fully discharged battery.
7	External power supply: Symbol is activated briefly once an NDC communication module is switched on via the NFC interface
8	Indication of alarm or error messages (those are saved in the data logger and can be read out via the NFC interface)
*	Note "x100": only visible with large water meters IUW from DN150

2 General information

2.1 4-digit current flow display

In addition to the standard consumption display, the second line shows the 4-digit current flow rate display in m³/h. The flow rate display has a decimal shift. The flow rate display has a decimal point shift. The display starts with 0.000m³/h and the decimal point jumps one place to the right as soon as the maximum value is reached.

2.2 Exceeding the measuring limit

If the upper measuring limit of an ultrasonic water meter is exceeded, the flow rate display is deactivated and FOR = Flow Out of Range (Flow outside the intended range) is displayed. While the flow rate is exceeded, the consumption progress is not registered. The last overload message is stored in the error memory as "undersized detection".
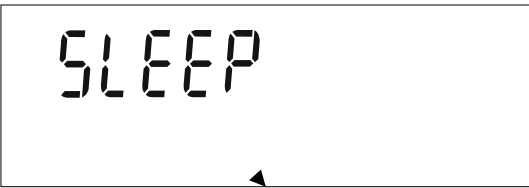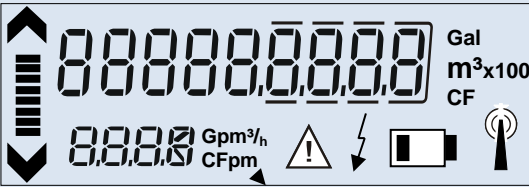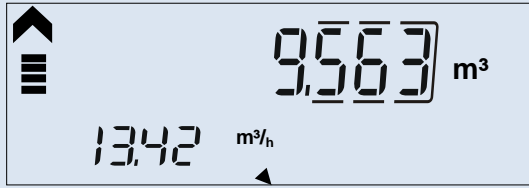
2.3 Meter reading display

Leading zeros (digits before the decimal point) of the consumption display, as known from the mechanical meter, are not yet displayed during commissioning (display 0.000).
After a meter display "overflow", however, all leading zeros (00000.000) are displayed for reasons of traceability. The total consumption (consumption before overflow + consumption after overflow) can be read out with a smartphone via NFC interface.

2.4 Unit Consumption-Display in m³

The display unit used for MID-compliant meters is m³. Other country-specific units are available.

3 Display indications

3.1 Display sequence during commissioning / activation

No.	LC-Display	Description	Duration of the display
1.	SLEEP	Reset to delivery „SLEEP-Mode". The meter (display & radio) is activated automatically as soon as the unit is filled with water for >10s.	---
2.	88888.8888 Gal m³x100 CF 8.8.8.8 Gpm³/h CFpm	After activation, the segment test appears first (flashing).	3 s
3.	1.07.09 1791	1st line: Firmware version 2nd line: Firmware revision	3 s
4.	9.563 m³ 13.42 m³/h	Main view: Consumption value (meter reading) 2nd line: current flow rate in m³/h Possible country-specific displays: GAL= US Gallons CF = Cubic feet Gpm = Gallons per minute CFpm = Cubic feet per minute	5 min. then the segment test according to 2. appears again.

3.2 Standard display

In normal operation, the main display as per point 4. of the above table is usually visible. In the LC menu, the respective status of the meter is also displayed if necessary. Further information on the status of the respective meter is also displayed in the LCD menu in the second line or with symbols or also in the "SystemInfo View" (section 3.2.2).

3.2.1 Display sequence in normal operation

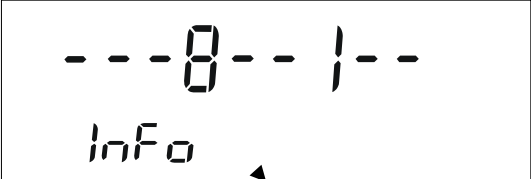The following views are displayed in an endless loop:

No.	LC-Display	Description	Duration of the display
1.		Main view consumption display (meter value index) 2nd line: current flow rate + unit	5 minutes
2.		Segment test (flashing)	Appears every 5 minutes for 3 sec.
3.		1st line: Firmware version 2nd line: Firmware revision	every 5 minutes (is displayed directly after the segment test)
	Optional additional displays:		
4.		Normally, the second LCD line is used to display the current flow rate. If, however, the flow cannot be calculated due to a condition such as air in the pipe, the second line permanently displays this condition as text. The most recent event is displayed. (For details see chapter 6)	Event based, permanent and flashing
5.		1st line: Accumulated volume in return flow direction. 2nd line: current flow in return direction. If there is flow in the reverse direction, the corresponding arrow symbol in the reverse direction also appears on the left of the display..	Event based

3.2.2 SystemInfo View

The SystemInfo view provides a detailed status view of the meter. All unit states are visible in the SystemInfo view. The SystemInfo is a 32-bit status used for hardware and function diagnostics of the meter. It shows the exact internal problem, with the aim of providing appropriate support or understanding whether the unit can continue to be used or should be replaced.
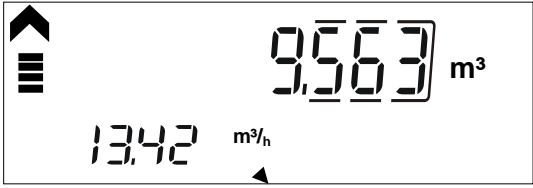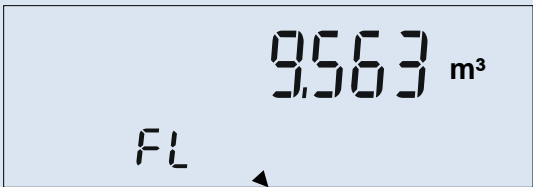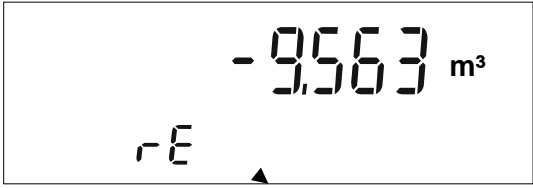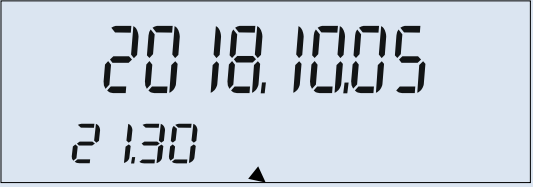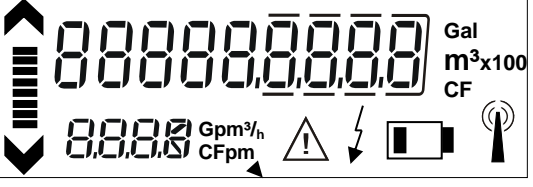
The system info view is not assigned to a specific sequence, but is triggered event-based.

Example of a system info view:

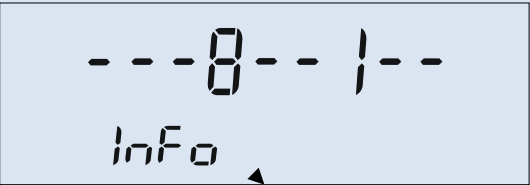| LC-Display	Description	Duration of the display
---8--1-- InFo	System-Info If an error is present, the corresponding error code (Info Code) is displayed. Further information on the error codes is available on request.	---

4 Readout options via NFC interface

With an NFC-enabled device, the following (non-editable) menu displays can be called up and advanced. To do this, the NFC terminal must be brought close to the NFC interface of the meter and taken away again. With each new contact, the next display appears. After the last display, the display returns back to the main display at the next contact.

No.	LC-Display	Description	Duration of the display
1.		Main view consumption display Meter value (index) 2nd line: current flow rate	On contact (see above) with the NFC interface
2.		Forward flow volume	On contact (see above) with the NFC interface
3.		Return flow volume	On contact (see above) with the NFC interface
4.		1st line: Current date 2nd line: Current time (usually German winter time)	On contact (see above) with the NFC interface
5.		Segment test (flashing)	Appears every 5 minutes for 3 sec.

6.		System-Info If an error is present, the error code is displayed, otherwise the unit goes directly to the high-resolution test display	On contact (see above) with the NFC interface if available
7.		High resolution test display in ml 2. line: (flow / text "CHK" alternating)	On contact (see above) with the NFC interface

5 Data transfer display

Status of the radio symbol in the LCD display	IUWS with integrated LoRaWAN® interface (Communication Scenario 2xx)	IUWS with integrated wM-Bus interface (Communication Scenario 3xx)	IUWS with attached external NDC radio module
no symbol	Radio off	State of symbol provides no information about operation mode of device	NDC module not yet discovered
	Radio on, but not yet joined to LoRa network or LoRa network join failed	<N/A>	(only in case of LoRa) radio on, but not yet joined to LoRa network or LoRa network join failed
	LoRa network join request was sent, accept not yet received	wM-Bus packet is being transmitted	<N/A>
	LoRa network joined	<N/A>	LoRa network joined

6 Alarms and error messages

Alarms and error messages	Representation on the display
Leakage	SF01
Burst	SF06
Wrong installation	SF02
Reverse flow	SF09 or Info Code
Meter oversized	SF04
Meter undersized	SF05 or FOR
Meter blocked	SF10
Meter dry	SF07 oder dry or Info Code
Frost warning	SF08
Battery warning	SF03, Err7 or Info Code or battery symbol
Temperature out intended measuring range	tOR or Info Code
Overload	FOR or Info Code
Device error	ErrX or Info Code
Air bubbles inside the medium	AIR or Info Code
Communication problem	Radio mast - symbol without radio waves or nEXX