ZENNER

Ultrasonic bulk water meter type IUW

Product description
- Ultrasonic bulk water meter IUW type for cold water up to 50 °C

Intended use
- For the consumption measurement of drinking water up to 50 °C
- For the consumption measurement of clean service water up to 50 °C

Scope of delivery
- Water meter, Installation instruction(s), Declaration of Conformity

Remark
This installation manual is intended for qualified specialists only. Basic installation steps are therefore not described. In order to ensure a proper flow measurement, the measuring device must be completely filled with water at all times.

NDC modules or pulse sensors may be retrofitted to the installation point of the meter if required. Retrofitting should only be carried out by qualified specialists. It is recommended to secure the modules against unauthorised removal with a user safeguard.

Permissible installation positions
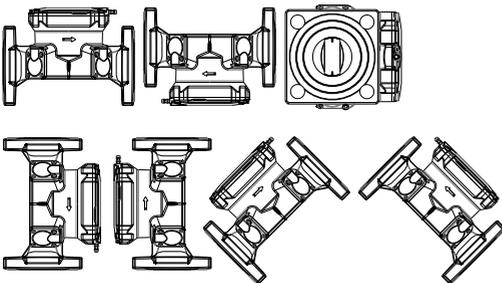
Activating of the measuring device
Upon delivery, the display of the measuring device is in "sleep mode". The display is activated ten seconds after the measuring device has been filled with water. For this purpose, the pipeline or measuring device must be completely vented or filled with water.

The measuring device can be retrofitted with the following NDC modules: **wM-Bus, LoRaWAN**®

General information
- Water meters are precision devices. Protect against shock and vibration. Store in a frost-free, cool and dry location.
- Suitable measures must be taken to ensure that any contamination or damage is excluded during transport to the installation location.
- The IUW series has been approved with a flow sensitivity class U0/D0 (no inlet or outlet section required).
- All series are not approved for measuring backflow.
- The pipe cross-section should not be reduced or extended directly in front of or behind the measuring device.
- Connection seals must not protrude into the pipe cross-section.
- Valves or other flow regulators should be installed behind of the measuring device if possible.
- If necessary, the measuring device should be protected by a filter, so that no foreign particles, such as stones or sand, are flushed into the measuring device and cause damage.
- The measuring device must be protected against pressure surges in the pipe network.
- The measuring device may only be installed in a frost-proof location and the ambient temperature must not exceed +55 °C.
- The measuring device should be installed, where possible, at the deepest point of the pipe installation so that air bubbles are not able to form in the measuring device and the pipe is always completely filled.

- The water temperature must not exceed the permissible 50 °C (T50).
- When using lubricants / assembly pastes e.g. for the seals, it must be ensured that these are suitable for contact with drinking water.
- If there is a risk of frost, shut off the system and empty it completely (including the measuring device!), removing the measuring device if necessary.

Installation manual

- Read the installation instructions carefully right up to the end before beginning installation.
- Prior to installing the measuring device, the pipe system is to be carefully flushed.
- Close the valves upstream and downstream of the measuring device and relieve the pressure at the installation point.
- Dismantle existing measuring device or adapter piece.
- Old seals must be removed immediately after dismantling the existing measuring device or adapter piece. The corresponding sealing surfaces must be cleaned and checked for damage.
- Check before starting installation:
  - that all sealing surfaces are plane and free of damages such as notches, grooves or similar.
  - all information on the dial/register cap/type plate must be readable.
  - the measuring device is suitable in design, size, temperature range and pressure rating for the installation site.
- Only use new and flawless sealing material.
- It must be ensured that the flow direction of the measuring device matches that of the pipe.
- Tighten the fixing screws of the measuring device crosswise and evenly while ensuring that the seals are correctly situated.
- It must be ensured that the meter is installed in a tensionless state in the pipe. In the case of an installation that is not tensionless, the housing of the measuring device can be damaged and water may escape.
- To prevent damage to the measuring device caused by pressure surges after installation, the pipe must be filled slowly after installation.

- The measuring device must be easily accessible at all times after installation to guarantee that the identify data and the conformity/metrology mark can be read at all times.
- Check all sealing points for leaks after installation.
- We recommend securing the connection points against unauthorised disassembly with a user safeguard. It should not be possible to remove or loosen the guard without visibly damaging it.

Menu display

Segment test

Firmware version

Total consumption value
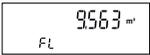
Forward flow volume

Return flow volume

High resolution test display
Display in millilitres (ml)

With an NFC-enabled device, the following (non-editable) menu displays can be called up. Bring the NFC device close to the NFC interface and remove it 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.

Segment test / Firmware version:
The segment test will be carried out every 5 minutes and after then the firmware version is displayed. After then the display returns to the main display. The segment test and firmware version can be also queried via the menu level.

Consumption value:
- DN50 to DN125, 9-digit, with 3 digits after the decimal place
- DN150 to DN300, 9-digit, with 2 digits after the decimal place
- Leading zeros (pre-decimal positions) of the consumption display are not displayed at the start (display 0.000 or 0.00). These are increased after reaching the respective volume.
- In the event of an overrun, all leading zeros are displayed in the consumption display (display 000000.000 or 0000000.00). The actual consumption is fully recorded in the internal memory and can be retrieved via the NFC interface.
- Unit of consumption display: m^3 (for the Gal and CF display units, as well as the x10 or x100 factors, this involves factory-preset programmable country-specific units / factors).

Attention!
In the case of exceeding the max. overload flow rate (Q_{4m}), the flow rate display is deactivated and FOR = Flow Out of 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.

Display description
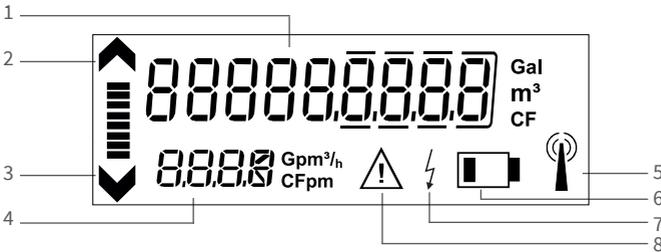

1	Consumption with unit m³ (for nominal diameters DN15-DN50: 6 digits before/3 after the decimal point, for DN50 - DN125: 6 digits before/3 after the decimal point, for DN150-DN300: 7 digits before/2 after the decimal point)
2	Flow direction display in forward flow direction
3	Flow direction display 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 lifetime 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)

Data transfer display

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

Weight and dimensions:										
Nominal diameter	DN	mm	50	65	80	100	125	150	200
Overall length	L	mm	200/270	200/300	225/300	250/360	250	300/500	350
Height	H	mm	60	73	92	102	117	135	162
Height	H1	mm	150	165	204	222	247	278	326
Width	B	mm	120x120	145x145	= D	= D	= D	= D	= D
Width	B1	mm	135	150	< D	< D	< D	< D	< D
Flange diameter	D	mm	165	185	200	220	250	285	340
Bolt circle diameter	D1	mm	125	145	160	180	210	240	295
Number of bolts	-	pcs.	4	4	8	8	8	8	12
Screw size	-	mm	M16	M16	M16	M16	M16	M20	M20
Bolt diameter	-	mm	19	19	19	19	19	23	23
Weight approx.	-	kg	7.0/8.8	8.7/10.8	11.6/12.6	13.7/16.3	16.4	24.1/29.4	35.5
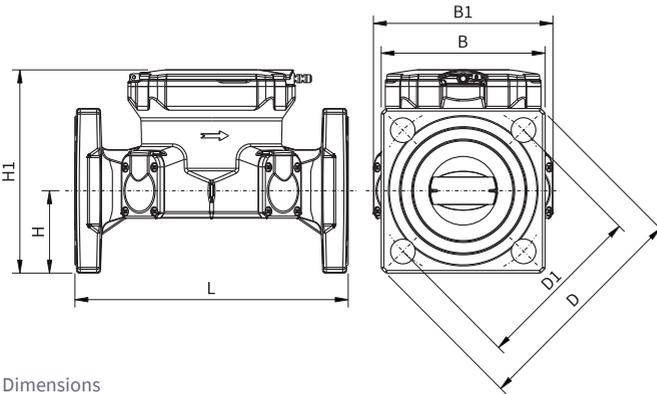
Dimensions

Status information / Smart functions / Alarms

The IUW / IUWS meter series has smart functions. This means that the meter can detect certain conditions and display warnings. The warnings can be sent by radio, but can also be shown on the display. The following smart functions with associated numeration can be shown on the display:

Leakage	SF01	Burst	SF06
ReverseInstallation	SF02	Dry	SF07
BatteryWarning	SF03	Frost	SF08
Oversized	SF04	Backflow	SF09
Undersized	SF05	NoConsumption	SF10

In the case of an active LoRa communication scenario, a related radio packet is sent each time a smart meter function triggers a warning.

Disposal

This device contains a non-removable and non-rechargeable lithium battery. Batteries contain substances, which could harm the environment and might endanger human health if not disposed of properly. To reduce the disposal quantity so as unavoidable pollutants from electrical and electronic equipment in waste, old equipment should be reused prior or materials recycled or reused as another form. This is only possible if old equipment, batteries, other accessories and packaging of the products are returned to the manufacturer or handed in at recycling centres. Our business processes generally provide that we or the specialist companies we use take old devices including batteries, other accessories and packaging material back with us after they have been replaced or at the end of their useful life and dispose of them properly.

Insofar as no other contractual arrangement has been made in this respect, your local or municipal authority or the local waste disposal company can give you information relating the collection points for your used equipments.
ZENNER will always ensure correct disposal.

Attention

Do not dispose of the devices with domestic waste. In this way, you will help to protect natural resources and to promote the sustainable reuse of material resources.

Should you have any questions, please contact **info@zenner.com**

The latest information on this product and the current version of these instructions can be found at **www.zenner.com**

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