

## ZENNER ZSU Stealth Ultrasonic Meters Installation Manual



### Product Description

ZENNER ZSU Ultrasonic Bulk Water Meters are designed for cold water applications up to 122°F.

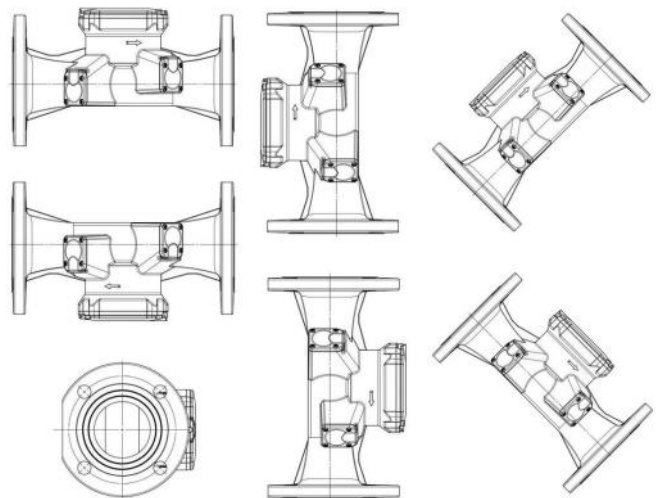
### Intended purpose

- For the consumption measurement of drinking water up to 122°F.
- For the consumption measurement of non-potable water up to 122°F.

### Comment

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

### Permissible installation positions



## Activating the Meter

Upon delivery, the display of the meter will arrive in "sleep mode". To activate the meter, simply fill the meter with water for ten seconds. This will move the meter into active reading mode. During the installation, all air must be ventilated from the meter and the meter must be completely filled with water in order for activation to be achieved.

Once the meter has been activated, an automatic display check takes place (segment test). The segment test is represented by three flashes of all segments on the display indicator and is repeated every 60 seconds during operation.

## Readout options of the ZSU meter via the NFC (Near Field Communication) Interface Cable

The following data can be directly read from the measuring instrument via the NFC interface, e.g. with NFC-capable smartphone:

- Meter ID (serial number)
- Current consumption value or total volume in the case of an overrun
- Up to 15 previous month's values
- Software version
- Alarms or error messages

The meter can be retrofitted with NDC modules, or ordered with a factory-fitted module.

## Meter Installation

- To achieve optimal measurement results, (3) times the pipe diameter should be allowed on the inlet and (2) times the pipe diameter should be allowed on the outlet side of the meter. However, ZSU Ultrasonic Meters are designed to be installed without straight sections in front and after the meter and still meet AWWA accuracy standards.
- Clean and flush the service line thoroughly on the inlet side of the meter before installing.
- The pipe cross section should not be reduced directly in front of and behind the meter.
- Valves or other flow regulators should be installed, where possible, behind the meter.
- The meter should be installed, where possible, at the deepest point of the pipe installation insuring air is not entrapped within the meter and the meter body is always completely water filled.
- During installation, ensure the flow arrow indicator on the meter housing is pointed toward the customer's side of the service line. Install using new bolts and gaskets.
- To insure unrestricted flow of water through the meter, use the proper size and type of gaskets. Connections should only be sufficiently tight to seal; do not over-tighten. Flange gaskets must not extend into the pipe.
- If necessary, the meter should be protected by a strainer. This will keep foreign matter, such as stones or debris, from entering the meter and potentially cause damage.
- The meter is designed for use in a frost-proof location with ambient temperature not to exceed +130°F and with water temperatures not to exceed +122°F .
- To prevent damage during the installation process, ensure that the meter is slowly filled with water.

## Display description



Segment test display

8888888888 Consumption value



Flow direction display in forward flow direction



Flow direction display in return flow direction

8888

4-digit flowrate display with automatic point shifting in Gpm, Cfm or m<sup>3</sup>/h



Alarm or error messages (are saved in the data logger and can be read out via the NFC interface)

External power supply: Symbol is activated once a communication module is connected via the NFC interface



Battery capacity display: Symbol is activated approx. 180 days prior to fully discharged battery. The battery capacity is 12 to a maximum of 15 years (depending on the ambient conditions as well as use and configuration of a connected NDC module)



Data transfer display: Symbol is only activated for the connected NDC module



## Consumption value Cubic Feet

- 2" to 3", 9-digit, with 2 digits after the decimal place.
- 4" to 8", 9-digit, with 1 digit after the decimal place.
- 10" to 12", 9-digit, with no decimal place.
- Unit of consumption display: CF

## Consumption value Cubic Meters

- 2" to 4", 9-digit, with 3 digits after the decimal place.
- 6" to 10", 9-digit, with 2 digits after the decimal place.
- 12", 9-digit, with 1 digit after the decimal place.
- Unit of consumption display: m<sup>3</sup>

## Consumption value US Gallons

- 2" to 4", 9-digit, with 1 digit after the decimal place.
- 6" to 8", 9-digit, with no decimal place.
- 10" to 12", 9-digit, with X10 multiplier. The X10 multiplier will be displayed.
- Unit of consumption display: Gal

## Overrun event

In the event of an overrun, all leading zeros are displayed in the consumption display (display 000000.000, 0000000.00, 00000000.0 or 000000000). The actual consumption is fully recorded in the internal memory and can be retrieved via the NFC interface.

## Caution

In the case of exceeding the max. overload flowrate (Q<sub>4m</sub>), the flowrate display is deactivated to protect the measuring instrument (set to zero). While the flowrate is exceeded, the consumption progress is not registered. The exceeded overload is stored as an "Alarm or error message" in the data logger with details of the date and length of exceedance.

## Alarms and Error Messages



Error Code on Display	Description
SF01	Leakage
SF02	Installed backwards
SF03, Err7, Info Code, or Battery Symbol	Battery warning
SF04	Meter oversized
SF05 or 'FOR'	Meter undersized
SF06	Burst
SF07, 'DRY', or Info Code	Meter dry
SF08	Frost warning
SF09, or Info Code	Reverse flow
SF10	Meter blocked
tOR, or Info Code	Temperature out of range
FOR, or Info Code	Overload
ErrX, or Info Code	Device error
AIR, or Info Code	Air bubbles in the line

MODEL			ZSU02	ZSU03	ZSU04	ZSU06	ZSU08	ZSU10	ZSU12
Nominal diameter	DN	Inches	2"	3"	4"	6"	8"	10"	12"
Overall length	L	Inches	10	12	14	18	20	17 3/4	19 11/16
Height	H	Inches	5 5/8	7 1/2	8 3/4	10 5/8	12 5/8	15 3/16	18 1/8
Height	H1	Inches	2	3 5/16	4 3/32	5 5/16	6 5/16	7 5/8	9 1/16
Flange diameter (also width)	D	Inches	6	7 1/2	9	11	13 1/2	16	19
Bolt circle diameter	D1	Inches	4 1/2	6	7 1/2	9 1/2	11 3/4	14 1/4	17
Number of bolts per flange	--	Pcs.	2	4	8	8	8	12	12
Bolt size	-	Inches	5/8	5/8	5/8	3/4	3/4	7/8	7/8
Weight approx.	-	Pounds	18	36	48	61	94	116	170

