Ultrasonic Heat Meter 2WR6 ULTRAHEAT XS

Installation instructions

3250 004 101 I

Safety instructions

- Never hold and transport the heat meter by the calculator but only by the flanged or threaded joint.
- Pay attention to sharp egdes (thread, measuring pipe).
- Calibration, maintenance, replacement of components, and repairs must only be performed by a qualified person familiar with the hazards involved.
- Assembly and dismantling may be carried out only in a pressureless plant.
- After the installation the tightness must be proved by pressurizing with cold water.
- Use meter only under the specified operating conditions. Otherwise dangers may arise and the warranty expires.
- Calibration-related seals of the heat meter may not be damaged or removed! Otherwise, the warranty of the heat meter becomes void.
- Return of the Lithium batteries must be carried out professionally.
- A lightning protection cannot be ensured; this has to be made sure through the house installation.

General

The electronic unit is fixed to a mounting plate. Never handle the heat meter by the electronic unit. Handle the heat meter only by the threaded connection.

All cables must be laid at least 12 inches from power or high frequency cables.

If two or more meters are installed in one unit, make sure all the meters operate under the same mounting conditions.

Avoid cavitation over the entire measurement range by overpressure, i.e**. at least 1 bar to q_p** and about 2 bar on overload q_s (valid for ca. 80°C).

The heat meter left the factory in perfect safe condition. Calibration, maintenance, component replacement, and repairs must only be performed by trained personnel who are familiar with the hazards involved. The manufacturer will provide further technical support on request. Heat meter safety marks that are relevant for calibration must not be damaged or removed! Doing so voids the warranty and calibration validity of the device.

Mounting

The installation location for the meter (return/flow pipe) is printed on the dial plate. Please study the dimensions and check there is sufficient clearance.

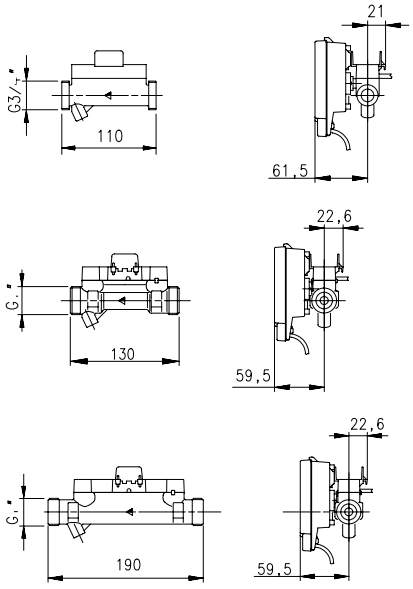

Fig. 1: Mounting dimensions

If the heat meter is installed on the common return of two heating circuits, e.g. heating and hot water, the mounting location must be a sufficient distance, at least 10 × DN, from the T-element to ensure different temperatures of water homogenize.

As shown in the examples, mount the volume measuring unit horizontally or vertically between two shut-off valves with the arrow pointing in the direction of flow. The sensors must be mounted in the same heating circuit as the volume measuring unit. (Pay attention to mixture).

Rinse the system thoroughly before mounting the heat meter.

The sensors can be mounted in T elements, ball valves, direct immersed or in pockets. The end of the sensors must extend in any case as far as the center of the pipe cross-section. Temperature sensors and screw connections must be sealed against manipulation.

Mounting Examples

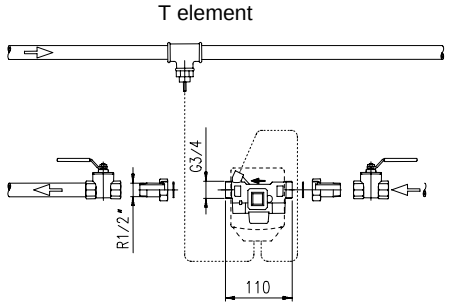

Fig 2: Example of mounting with a T element and heat meter with 110 mm fitting

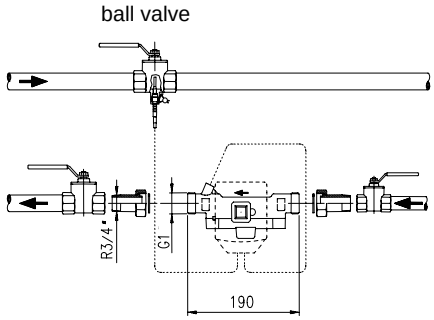

Fig 3: Example of mounting with ball valve and heat meter with 190 mm fitting

Hint for mounting adapter set (sensor direct immersed)

For heat meters with temperature sensor 5,2x45 mm a mounting set is enclosed. Hereby the sensor can be installed direct immersed e.g. in a mounting element or a ball valve.
Mounting advice (see figure): Install O-ring with enclosed fit-up aid/fit-up pen in the mounting point. Take both halves of the plastic bolting and put them around the 3 gaps of the sensor, compress and screw in until bedstop (hand-screwed, fastening torque 3 – 5 Nm).

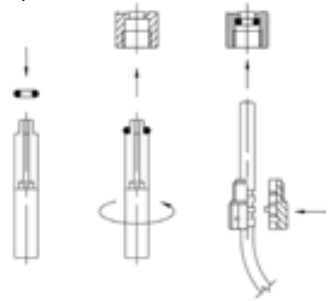

Fig. 4: Mounting adapter set

Installation as a cold meter

The transducers must be directed sideward or to the bottom when mounted as a **cold meter** (condensation of water). The measuring tube has to be installed **always in return**. The calculator must be split from the tube and e.g. mounted to the wall. It has to be ensured that no condensed water can run along the wiring into the calculator.

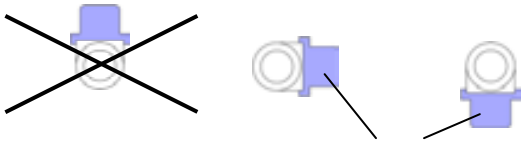

Fig. 5: Allowed position of the cold meter

Calculator

The ambient temperature of the calculator must not exceed 55°C. Avoid direct sunlight. Mounting can be vertical or horizontal with respect to the volume measuring unit (Fig. 6). Remove the calculator from the volume measuring unit, rotate it, and plug it in the required position.
For heating water temperatures above 90 °C, the calculator must be mounted on the wall.
For wall mounting, remove the electronic unit from the volume measuring unit, unscrew mounting plate, and mount on wall. Slice the calculator onto the mounting plate again. (Fig. 7)

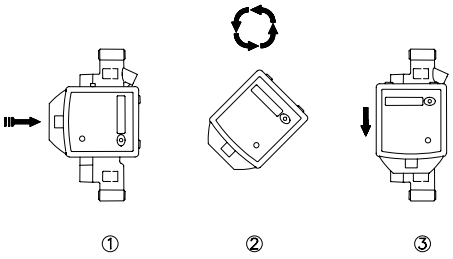

Fig 6: Mounting location of calculator

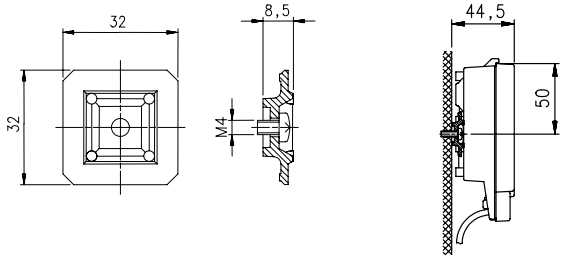

Fig 7: Mounting plate and wall mounting

Power Supply

ULTRAHEAT® XS comes as a standard equipped with a long-life battery for 6 or 11 years operating time (24V AC/DC external supply, with galvanic insulation, is also possible).

If the meter needs to be sent back by air freight then the battery must be removed prior to shipping!

Interfaces of the Calculator

The heat meter ULTRAHEAT® XS is equipped with an M-bus protocol optical interface.

Communication

If the heat meter is equipped with one of the options “M-bus”, “Mini bus” or “pulse output”, it is delivered with a two wire cable, which can be lengthened with a cable 2 x 0.75mm^2 (put a distributing box). Pay attention to the proper polarity in case of the pulse output.

Temperature Sensors

The cables must not be split, shortened, or extended.

Sealing

Two self-lock seals are delivered with the heat meter for sealing of the temperature sensor in the flow pipe and of the fitting of the measuring tube.

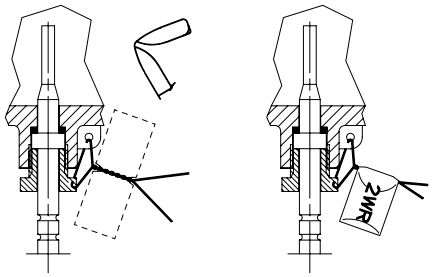

Fig. 8: Example temperature sensor

Parameterization

From code entry in the service loop, continuously pressing the button takes you to the entry mode. After entering the current date, you will enter the parameterization level. Set a value with a long press of the button. Accept the value with a short press of the button. After correct entry, a rolling menu appears and switches to the next menu item every 1.5s.

You can parameterize as follows:

01.01. - -	S	Yearly set day (01.01. --)
05.04.06	D	Date (05.04.06)
15.33.06	T	Time (15:33:06)
2 3 4 5 6 7 8	K	Property No. or M-BUS (secondary address) *
123	A	Primary address *
Ft	+	Reset missing time
Nb - - - - -		Return to normal mode

As soon as the required function is displayed, press the scroll button to accept the function. Set the value by pressing the button continuously. Press the button briefly to accept the flashing value. The next least significant digit then flashes and can also be set by pressing the button continuously and accepted by pressing the button briefly. The Σ character is output briefly as end acknowledgment for a display line.
To correct a wrong entry run through the loop again.

* **If the meter is already connected to the M-Bus then a change in M-bus supply voltage must be initiated manually in order to make a new M-bus address effective.**

Para mode is exited:

- By pressing the scroll button when Nb ----- appears in the display
- Automatically after 10 minutes

Commissioning

Open shut-off valves. Check the heating system for tightness and vent carefully. After no more than 100 s message F0 will disappear again. Then check the measurement values "temperatures" and "flowrate" for plausibility. (See display list in Operating Instructions UH 304-101.) Vent the system until the flowrate display is stable. Attach user locks on screw connections and sensors. Read and note readings for heat quantity / volume and operating / missing hours.

When the response thresholds are exceeded and the flow rate and temperature difference are positive, the **heat quantity** and the **volume** are summated.
The **segment test** displays all display segments for test purposes.
On the **yearly set day**, the meter readings for heat quantity and volume are placed in a previous year memory each year

The **flowrate, heat power**, and **temperature difference** are recorded signed. Values below the response threshold are preceded by a ***u***. The current **temperatures** are displayed together as integer **°*C*** values on one display line.

The 8-digit **property number** (secondary address for M-bus operation) can be set in parameterization mode. In this case, the most significant digit is not displayed and set to zero internally. The **device number** is assigned by the manufacturer.

The **operating hours** are counted from initial connection of the power source. **Missing hours** are summated if a fault is pending that prevents the heat meter from measuring. Missing hours summated while meter on stock (because of error F0 due to air in the measuring tube) **are reset once** after installation at a volume reading of 10 liters.

The **date** is incremented daily. As a standard the meter is always delivered with Central European Time (CET).

The **firmware version** number is assigned by the manufacturer.

Fault Codes and IDs

The heat meter constantly performs self-diagnosis and can display various faults.

Fault Code	Fault	Measures
FL nEG	Wrong flow direction	Check / correct flow or mounting direction
	Eventually changing with	
DIFF nEG	Negative temperature difference	Check / exchange mounting position of sensors
	Eventually changing with	
F0	No flow rate can be measured	Air in the measuring unit/pipe, vent pipe (as-delivered state)
F1	Interruption in the supply sensor	Contact service
F2	Interruption in the return sensor	Contact service
F3	Electronics for temperature evaluation defective	Contact service
F4	Battery empty	Contact service
F5	Short-circuit in the supply sensor	Contact service
F6	Short-circuit in the return sensor.	Contact service
F7	Fault in internal storage operation	Contact service
F8	Fault F1, F2, or F3 or F5, F6 pending for longer than 8 hours, detection of fraud attempts. No more measurements are performed.	This F8 error message must be reset by service.
F9	Fault in the electronics	Contact service

Notes

- Regulations for the use of heat meters must be observed, see EN1434 part 6! Particularly cavitation in the system must be avoided.
- Heat meters up to DN25 may only be installed with direct immersed sensors according to German calibration law!
- Ensure by appropriate mounting of the meter that flooding the meter or water dripping is avoided.
- Regulations for electrical installations must be observed!
- All information given in the data sheet of the heat meter must be observed.
- Heat meter safety marks relevant for calibration must not be damaged or removed! Doing so void the warranty and calibration validity of the device.
- The transport of the heat meter is permitted only in the original package.
- If the meter needs to be sent back by air freight then the battery must be removed prior to shipping!

For up-to-date information, go to INTERNET address:
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