INSTALLATION INSTRUCTIONS

Integral-V UltraMaXX
CF-UltraMaXX V

CONTENTS
• Compact thermal energy meter
• Sealing materials
• Wall bracket
• Installation instructions
• Operating manual (please keep with the device)

ADVICE CONCERNING SAFETY:

Heating water systems operate at high temperatures and pressures and can cause serious injuries if not handled properly. Therefore the meters may only be installed by qualified and trained personnel. The pipework must be earthed. A thermal energy meter must be installed in a manner which complies with generally accepted codes of practice (e.g. EN 1434-6) such that measured values can be recorded correctly. It must be possible to read the meter without any additional aid; it must also be possible to dismantle the individual components without any problems at the end of the period for which the meter was calibrated.

IMPORTANT POINTS TO BE READ BEFORE INSTALLATION:
• Comply with the permissible ambient temperature (from 5°C to 50°C) and water temperature for the flow sensor (max. 120°C).
• Sealing the heat meter itself and on the temperature sensor is important and prevents unauthorised dismantling.
• Thoroughly jet the pipe system before installing the flow sensor.
• The calculator unit/metered flow sensor/signal cables (e.g., sensor cable) shall not be installed close to main power cables and/or sources of electromagnetic interference (minimum distance 50 mm).
• In case of strong sources for electromagnetic disturbances (e.g., high power machines and pumps, frequency and power converters, power switches, neon tubes) it’s recommended to increase the minimum distance to meter signal cables to 50 cm.
• The flow sensor must never be lifted or carried by its connecting cable.
• Do not install the cable on hot pipes.
• Breaking the seals invalidates the validity of the calibration and the guarantee.
• The casing may only be cleaned from the exterior and with a soft, damp cloth. Do not use any cleaning agents.
• Never carry out welding and drilling work near the meter.
• The meter should remain in its original packaging until all connection, insulation, painting and cleaning work has been completed.
• Always install the meter in the position printed on the maker's typeplate (supply or return / hot or cold pipe).
• The flow sensor can be installed in either the vertical or horizontal position.
• The heat meter must be protected against damage caused by impact or vibration which can occur in the position in which it was installed. When starting the meter, the stop valves must be opened slowly.
• Threaded connections to the meter must comply in terms of the nominal diameter (DN) and pressure (PN) (as in EN 1092) of the matching components of the pipework. The meter must not be subject to excessive tensions caused by the pipes or fittings. The pipework of the heating or cooling system must be properly anchored both upstream and downstream of the heat meter.
• All bolts, nuts and seals used must be designed for the nominal diameters (DN), pressure range (PN), the maximum temperature and the maximum permissible pressure.
• Discarded electronic devices or batteries contained within the product must not be discarded in normal household waste. Dispose in accordance to local government regulations.
• External cables must be installed in accordance with the ESD requirements of EN 61340-5-1:2008.
• Environmental class C according to EN 1434-1 and E1 and M1 according to Directive 2004/22/EC.
INSTALLATION (FIGURE 1)

Switch off the thermal energy system circulation pump and close the ballvalves. Always install the meter according to the mounting position indicated on the typeplate (return/supply). Unscrew the distance piece. Remove it with the old sealings.

Calibration ex-change

- Switch off the circulation pump.
- Close the ball valve and depressurise the pipe (possibly by slightly opening a ball valve).
- Break the seal and unscrew the temperature sensor from the T-piece or from the supply ball valve.
- Unscrew the thermal energy meter. Remove with old sealings, if applicable clean the sealings surfaces.
- Install as in Figure 2 and following.

INSTALLATION OF THE THERMAL ENERGY METER (FIGURE 2)

Install the compact thermal energy meter with new gaskets according to the flow direction indicated by the arrows (see the embossment on the flow sensor). The meter shouldn’t be installed at highest point of the network to ensure that air-bubbles won’t stay inside the flow meter.

By approval the meter doesn’t require any straight inlet/outlet. However we recommend to foreseea 5x DN straight inlet section (if feasible by installation).

Important: do NOT cut the cable when removing the calculator unit!

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
</tr>
</thead>
<tbody>
<tr>
<td>130 mm</td>
<td>1”</td>
</tr>
<tr>
<td>bzw.</td>
<td>bzw.</td>
</tr>
<tr>
<td>110 mm</td>
<td>3/4”</td>
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</tbody>
</table>
INSTALLATION OF THE TEMPERATURE SENSOR
For heat meters / combi-meters:
Insert the temperature sensor (red) in the supply hot measuring position and the temperature sensor (blue) in the return cold measuring position.
For cooling meters:
Insert the temperature sensor (blue) in the supply cold measuring position (cold pipe) and the temperature sensor (red) in the return warm measuring position.

TEMPERATURE SENSOR DS EN 1434 (FIGURE 3)
- Unscrew the blind covers of the temperature measuring positions taking care that the ball-valves are closed and remove along with the sealing.
- Screw in the temperature sensor with new gasket and tighten with 10 Nm.

TEMPERATURE SENSORS IN IMMERSION SLEEVES (FIGURE 4)
- Check the immersion sleeve in accordance with the installation.
- Screw in the temperature sensor until it is finger-tight.

START-UP (FIGURE 5)
Switch on circulation pump. Open valves slowly. Check for water tightness.

PLAUSIBILITY CHECK (FIGURE 5)
Activate the display on the calculator unit by pressing the button. Complete the LCD test. Check the figures for flow, supply temperature and return temperature for plausibility; check the error display (see Operating Manual).

SEALING (FIGURE 6)
Secure the screw connection of the flow sensor, the supply and return temperature sensor with a wire and metal snap seal.

INSTALLATION OF THE CALCULATOR UNIT (FIGURE 7)
Place the calculator unit on the flow sensor / wall bracket and press downwards until it clicks into position.

⚠️ Length of the connecting cable between the flow sensor and the calculator unit 0.5m
Large calculator unit:

Remove user seal from top cover screw (see figure page 1). Open the top cover. Connect the wires according to the terminal connectionscheme and secure the cables with the delivered support against tension. Break corresponding cable gland out of top cover. Close the top cover with the screw and secure it with a new user seal.

### SPECIFICATIONS

<table>
<thead>
<tr>
<th><strong>Input specification for water meters</strong></th>
<th><strong>M-BUS interface specification</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pulse value</strong></td>
<td><strong>Standard reference EN 1434-3</strong></td>
</tr>
<tr>
<td>1 / 2.5 / 10 / 25 / 100 or 250 l/pulse</td>
<td><strong>Baud rate</strong> 300 baud / 2400 baud</td>
</tr>
<tr>
<td>(programmable using buttons, same pulse value for all connected water meters)</td>
<td><strong>Protocol</strong> variable protocol, low-byte-first</td>
</tr>
<tr>
<td><strong>Scanning voltage</strong> typically 3V</td>
<td><strong>Standard data</strong> manufacturer no., energy, volume, power, flow, temperatures (supply, return, difference), operating date and time, optional volume water meters 1...4, firmware version, software version</td>
</tr>
<tr>
<td><strong>Impulse recognition</strong></td>
<td><strong>18 end of month values</strong></td>
</tr>
<tr>
<td>contact closed R &lt; 500 Ω / contact opened R &gt; 1 MΩ</td>
<td>energy, volume, power peak, flow peak and supply temperature peak with timestamp, optional water volumes 1...4</td>
</tr>
<tr>
<td>Impulse duration / break every &gt; 3 seconds</td>
<td></td>
</tr>
<tr>
<td><strong>Cable length</strong> max. 10 m</td>
<td></td>
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</tbody>
</table>

### Specification for pulse repetition output energy and volume

- **permissible voltage** max. 30 V, min. 2.5 V (Status OFF)
- **Max. permissible current** 20 mA (Status ON)
- **Max. internal resistance Ron** 100 Ω (during pulse ON)
- **Impulse length** 120 ms
- **Pulse value**
  - energy: 1 KWh (or 10 MJ), volume: 10 litres
  - Note: in case of combined heating & cooling versions the output indicated “V” (volume) will be used to output cooling energy pulses
- **Pulse characteristic** pull-down switch

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