

## Ultrasonic compact heat meters

WSM5.., WSM6..



**Ultrasonic heat meters to measure flow and energy in hydronic heating or cooling circuits.**

- Non-wearing due to non-moving parts
- Approved in accordance with EN 1434 and MID accuracy class 2
- Compact meter with flow measuring section
  - WSM5.. made of high-tech plastic
  - WSM6.. made of brass
- Mounting position optional (horizontal or vertical), heat or cold side
- Measuring range of flow 1:100 conforming to EN 1434 (total range 1:1000)
- Optical interface as per EN 62056-21
- M-bus wired or M-bus RF communication
- For use in the refrigeration circuit (optional)
- Self diagnostics

## Use

The heat (WSM5../WSM6..) and cooling meters (WSB5../WSB6..) is a measuring instrument to physically acquire the energy consumption. The device consists of a flow measuring section made of high-tech plastic (WSx5..) or brass (WSx6..), 2 ready connected temperature sensors, and an electronic unit which calculates the energy consumption from the flow and temperature differential. The compact meter WS.. is of compact design and therefore ideally suited for use in apartments. It is available in different versions for metering heat (WSM..) or cooling (WSB..) energy.

### Restrictions:

The temperature sensors and battery of the WS.. compact meters cannot be replaced.

## Functions

### Meter design

The meter consists of electronic unit, flow measuring section and 2 temperature sensors. The electronic unit is equipped with longlife batteries, ensuring up to 11 years of operation.

### Ultrasonic measuring principle

The flow is acquired based on the non-wearing ultrasonic measuring principle, which requires no moving parts.

The amount of energy transferred from the medium to the consumer over a defined period of time is proportional to the temperature differential between the warmer and colder side and the volume of water that has passed through.

The water volume is measured in the measuring tube by ultrasonic pulses which are transmitted in the direction of flow and against the direction of flow. Downstream, the time difference between the transmitter and receiver is reduced, upstream it is increased. The water volume is calculated based on the difference in runtime.

The flow and return temperature is acquired by platinum resistors.

The water volume as well as the temperature difference between the warmer and cooler side is multiplied using a heat coefficient and the product is integrated. The result, which is the consumed amount of thermal energy, is stored and displayed in the physical unit kWh, the volume in m<sup>3</sup>.

The WS.. uses an intelligent, adaptive temperature-measuring interval. With changing system conditions (e.g. rapid increase of flow), the WS.. changes for a certain time to a fast temperature-measuring interval. Thus, the meter always adapts itself to the current situation and acquires the system temperatures very accurately.

### Processor unit

A common electronic unit applies to all flow variables.

### Optical communication interface

The WSM5.. is equipped with an optical communication interface which facilitates readout and configuration on site with the help of the optical read head WZR-OP-USP and matching UltraAssist software.

### M-bus communication (optional)

The meter can be read out from a remote location via an M-bus master unit, if the meter uses M-bus communication.

### M-bus RF communication (optional)

If the meter uses M-bus RF communication, it can be read out remotely.

### Tampering

To open the device, the calibration seal at the top of the WS.. must be destroyed.

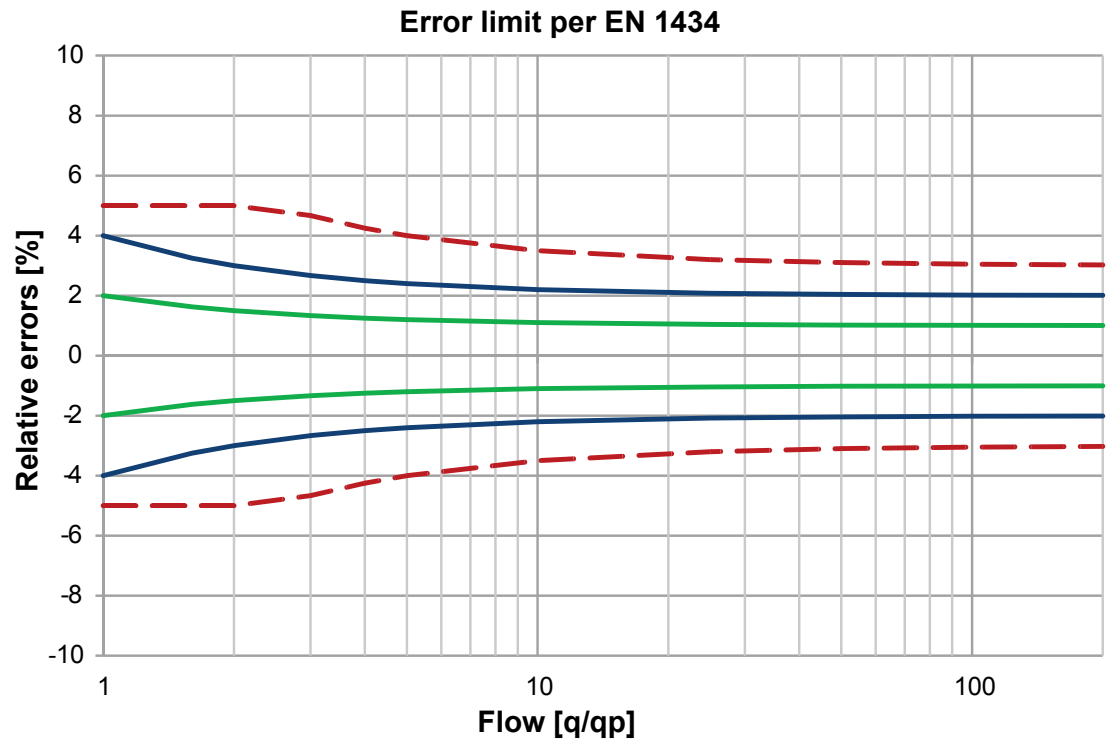
### Self diagnostics

The meter continuously performs self-diagnostics, allowing it to detect a number of mounting or device errors and to display them.

## Technical design

The diagram below shows the typical accuracy of the WSM5.. / WSM6.. compared to the error limits per EN 1434 class 2.

### Metering accuracy as per EN 1434



Key:

- - - EN 1434, class 3
- EN 1434, class 2
- WSM5.. / WSM6.. typical (EN 1434, 1/2 class 2)

The pressure loss in a flow sensor is indicated as nominal flow  $q_p$ .  
 Actual pressure loss at the indicated flow can be calculated using the  $K_v$  value, which indicates flow at 1 bar differential pressure:

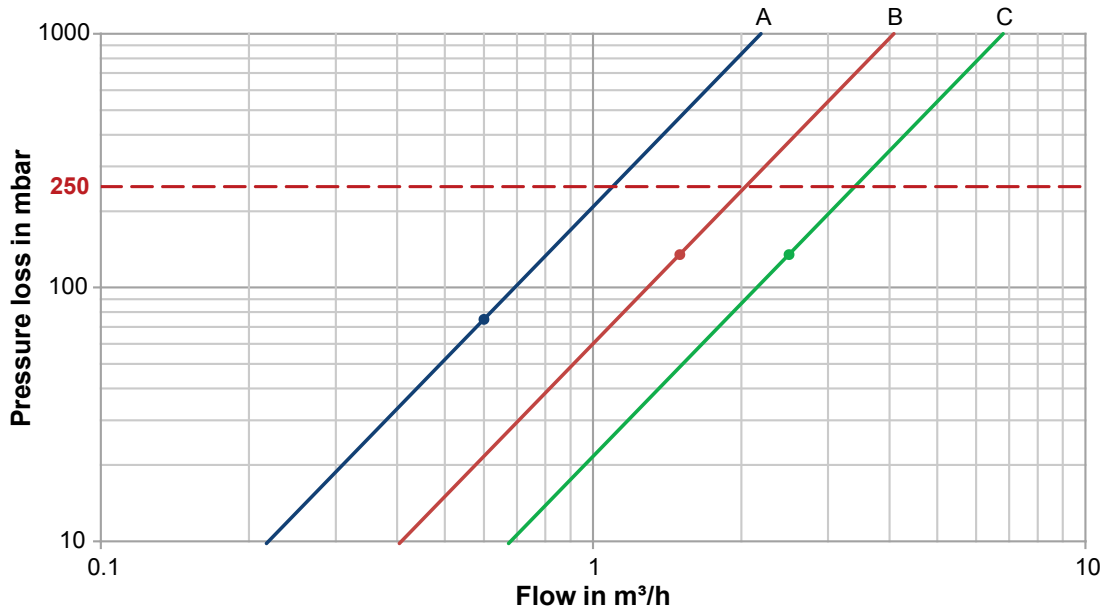
$$\Delta p = 1 \text{ bar} \times (Q / K_v)^2$$

$\Delta p$  = Pressure loss in bar  
 $Q$  = Flow in  $\text{m}^3 / \text{h}$   
 $K_v = K_v$  – Value at  $\Delta p = 1 \text{ bar}$

**Pressure loss characteristic WSM5..**

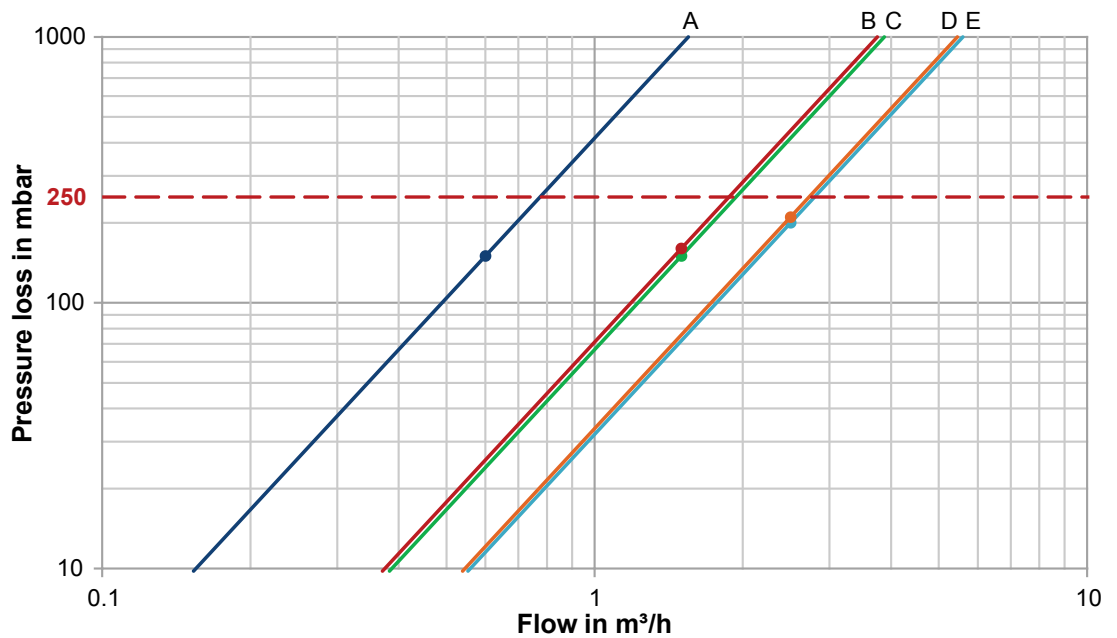
| Nominal flow $q_p$<br>$\text{m}^3/\text{h}$ | Mounting length<br>mm | PIN                   | Pressure loss at $q_p$<br>mbar | $K_v$ value at $\Delta p = 1 \text{ bar}$<br>$\text{m}^3/\text{h}$ | Curve in the diagram |
|---|-----------------------|-----------------------|--------------------------------|--|----------------------|
| 0.6   | 110                   | G $\frac{3}{4}$       | 75                             | 2.2  | A                    |
| 1.5   | 110, 130              | G $\frac{3}{4}$ , G 1 | 135                            | 4.1  | B                    |
| 2.5   | 130                   | G1                    | 135                            | 6.8  | C                    |

The value can also be read graphically using the diagram as an alternative.



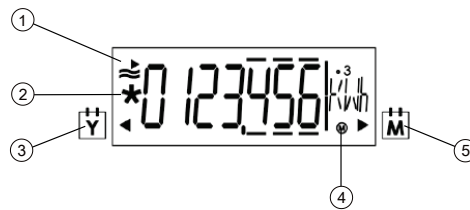
**Pressure loss characteristic WSM6..**

| Nominal flow $q_p$<br>$\text{m}^3/\text{h}$ | Mounting length<br>mm | Connection<br>G/DN | Pressure loss at $q_p$<br>mbar | $K_v$ value at $\Delta p = 1 \text{ bar}$<br>$\text{m}^3/\text{h}$ | Curve in the diagram |
|---|-----------------------|--------------------|--------------------------------|--|----------------------|
| 0.6   | 110, 190              | G $\frac{3}{4}$    | 150                            | 1.5  | A                    |
| 1.5   | 130, 190              | G1                 | 160                            | 3.8  | B                    |
| 1.5   | 110                   | G $\frac{3}{4}$ ,  | 150                            | 3.9  | C                    |
| 2.5   | 190                   | G1                 | 210                            | 5.3  | D                    |
| 2.5   | 130                   | G1                 | 200                            | 5.6  | E                    |



### Display

The WS.. has a large, easy-to-read LCD with 7 digits to display different values (e.g. energy or flow). This new type of dynamic display enables users to identify positive flow at a glance. Icons for previous year values and previous month values support the easy-to-understand display concept.

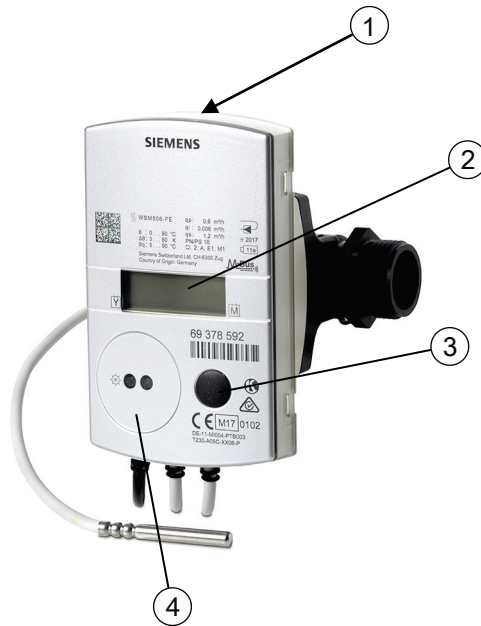


- |   |  |   |   |
|---|--|---|---|
| 1 | Activity indicator at flow                       | 4 | Icon for maximum                                  |
| 2 | Star icon: Calibrated value                      | 5 | Icon for previous month value<br>Calibrated value |
| 3 | Icon for previous year value<br>Calibrated value |   |   |

The meter's display is subdivided into several loops.

A short press on the button (<2 s) lets the current loop pass through line by line. The first line displays again after the last line. A long press (>3 s) displays the first line of the next loop. The first loop is displayed again after the last loop.

The arrow icons mark the display of a stored value of the previous year or previous month. A calibrated value (e.g. energy) is marked on the display by a star symbol. The decimal places of displayed values are indicated by a frame.



- |   |                  |   |                   |
|---|------------------|---|-------------------|
| 1 | Calibration seal | 3 | Optical interface |
| 2 | Display          | 4 | Optical interface |

| <b>User loop</b><br>LOOP 0 |                |  |
|----------------------------|----------------|--|
| 1234567                    | kWh            | Energy                                   |
| 1234567                    | m <sup>3</sup> | Volume                                   |
| 0000000                    |                | Segment test                             |
| F-----                     |                | In case of error message with error code |

| <b>Current values</b><br>LOOP 1 |                   |   |
|---------------------------------|-------------------|---|
| 1234567                         | m <sup>3</sup> /h | Current flow rate   |
| 1234567                         | kW                | Current thermal energy  |
| 80.0                            | °C                | Current temperature heat side at 2 second exchange with cooler side |
| 50.0                            | °C                | Current temperature cold side                                       |
| 21.0                            | K                 | Temperature difference  |
| Bd 1234                         | h                 | Runtime totalizer   |
| Fd 123                          | h                 | Missing time  |
| Pd 1234                         | h                 | Time with flow rate   |

| <b>Monthly values</b><br>LOOP 2 |                |  |
|---------------------------------|----------------|--|
| 01.06.2011                      |                | Monthly date (due date) saving day         |
| 1234567                         | kWh            | Monthly value (due date) energy on set day |
| 1234567                         | m <sup>3</sup> | Monthly value (due date) volume on set day |

|          |                   |                                       |
|----------|-------------------|---------------------------------------|
| Fd 123   | h                 | Missing time on set day               |
| 3.123    | m <sup>3</sup> /h | Maximum flow rate                     |
| 03.02.10 |                   | Date stamp of max. flow rate          |
| 279,4    | kW                | Maximum power                         |
| 03.02.10 |                   | Date stamp of max. power              |
| 93.7     | °C                | Maximum temperate heat side           |
| 03.02.10 |                   | Date stamp max. temperature heat side |
| 64.8     | °C                | Maximum temperate cold side           |
| 03.02.10 |                   | Date stamp max. temperature cold side |

|                                |    |                                      |
|--------------------------------|----|--------------------------------------|
| <b>General / communication</b> |    |                                      |
| LOOP 3                         |    |                                      |
| 1234567                        |    | Device number, 7 digits              |
| OMS                            |    | RF standard (M-bus RF only)          |
| Unbind                         |    | Meter not connected (M-bus RF only)  |
| Bind                           |    | Meter connected (M-bus RF only)      |
| MbuS                           |    | Interface (only for M-bus)           |
| 127A                           |    | Primary address (only for M-bus)     |
| 0000000A                       |    | Secondary address (only for M-bus)   |
| 01.01                          |    | Due date (yearly set day)            |
| 01.--.--                       |    | Monthly value (monthly set day)      |
| I 5-00                         | FW | Firmware version                     |
| CrC 1234                       |    | CRC code, part requiring calibration |


|              |   |   |
|--------------|---|---|
| <b>Other</b> |   |   |
| LOOP 4       |   |   |
| 17.11.11     |   | Current date [TT.MM.JJ]                 |
| 10.38.57     |   | Current time of day [hh.mm.ss]          |
| -----        | C | Code entry for test/parameter operation |

### Error messages

The meter continuously performs self-diagnostics, allowing it to detect and display a number of mounting or device errors.

|      |     |  |
|------|-----|--|
| FL   | nEG | Wrong direction of flow                          |
| DIFF | nEG | Negative temperature differential                |
| F0   |     | Flow cannot be measured                          |
| F1   |     | Break in sensor heat side                        |
| F2   |     | Break in sensor cold side                        |
| F3   |     | Electronics for temperature assessment defective |
| F4   |     | Battery empty, power supply problem              |
| F5   |     | Short circuit sensor, heat side                  |

|    |  |
|----|--|
| F6 | Short circuit sensor, cold side  |
| F7 | Disruption of internal memory operation  |
| F8 | F1, F2, F3, F5 or F6 persist longer than 8 hours<br>Detection of tampering<br>No further measurements are made |
| F9 | Error in the electronics   |

|   |   |
|---|---|
|  | <b>NOTICE</b>   |
|   | Manually reset message F8 in configuration mode or using the service software. All other error messages are deleted automatically as soon as the error is eliminated. |

### Previous year's values

The electronic unit stores the meter readings for energy, volume, missing time, and flow measuring time as well as the current maximum values of flow rate, power, temperature heat and cold side with their date stamps on a yearly set day.

The set day for previous year values can be parameterized.

### Monthly values

The electronic unit stores the meter readings for energy, volume, missing time, and flow measuring time as well as the monthly maximum values of flow rate, power, temperature heat and cold side with their date stamp for up to 24 months on the set day of each month.

The set day for previous monthly values can be parameterized.

In addition, a second programmable monthly set day is available for 24 months – the day on which energy and volume are stored.

### Standard parameters

The UH50.. comes programmed as follows:

- Set day [TT.MM]: 01.01

## Type summary



Cooling energy meter WSB.. is available upon request.

### Heat meter WSM..

|   |   |
|---|---|
| The types of meters listed below are equipped as follows: |   |
| Mounting location   | In return   |
| Rated pressure  | PN 16   |
| Length of control cable                                   | 1.5 m   |
| Sensor mounting   | Return sensor, integrated in the flow measuring section |
| Sensor type   | Pt500, Ø 5.2 mm, length = 45 mm                         |



|                                 |                                   |
|---------------------------------|-----------------------------------|
| Temperature sensor cable length | 1.5 m                             |
| Approval                        | EN 1434 class 2<br>MID 2004/22/EG |
| Display                         | kWh                               |

Heat meter with high-tech plastic flow measuring section WSM5..

#### Heat meter nominal flow 0.6 m<sup>3</sup>/h

| Options   | Order number  | Type      |
|---|---------------|-----------|
| Mounting length 110 mm, connecting thread G ¾", battery life 6 years without communication  | LYU:WSM506-0A | WSM506-0A |
| Mounting length 110 mm, connecting thread G ¾", battery life 11 years without communication | S55561-F133   | WSM506-0E |
| Mounting length 110 mm, connecting thread G ¾", battery life 11 years, M-bus                | S55561-F194   | WSM506-BE |
| Mounting length 110 mm, connecting thread G ¾", battery life 11 years, M-bus RF             | S55561-F246   | WSM506-FE |

#### Heat meter nominal flow 1.5 m<sup>3</sup>/h

| Options   | Order number  | Type      |
|---|---------------|-----------|
| Mounting length 110 mm, connecting thread G ¾", battery life 6 years without communication  | LYU:WSM515-0A | WSM515-0A |
| Mounting length 110 mm, connecting thread G ¾", battery life 11 years without communication | S55561-F135   | WSM515-0E |
| Mounting length 110 mm, connecting thread G ¾", battery life 11 years, M-bus                | S55561-F195   | WSM515-BE |
| Mounting length 110 mm, connecting thread G ¾", battery life 11 years, M-bus RF             | S55561-F247   | WSM515-FE |

#### Heat meter nominal flow 2.5 m<sup>3</sup>/h

| Options   | Order number  | Type      |
|---|---------------|-----------|
| Mounting length 130 mm, connecting thread G 1", battery life 6 years without communication  | LYU:WSM525-0A | WSM525-0A |
| Mounting length 130 mm, connecting thread G 1", battery life 11 years without communication | S55561-F137   | WSM525-0E |
| Mounting length 130 mm, connecting thread G 1", battery life 11 years, M-bus                | S55561-F196   | WSM525-BE |
| Mounting length 130 mm, connecting thread G 1", battery life 11 years, M-bus RF             | S55561-F248   | WSM525-FE |

### Heat meter with brass flow measuring section WSM6..

| Options  | Order number | Type      |
|--|--------------|-----------|
| Nominal flow 0.6 m <sup>3</sup> /h<br>Mounting length 110 mm, connecting thread G ¾", battery life 11 years, M-bus | S55561-F249  | WSM606-BE |
| Nominal flow 1.5 m <sup>3</sup> /h<br>Mounting length 110 mm, connecting thread G ¾", battery life 11 years, M-bus | S55561-F250  | WSM615-BE |
| Nominal flow 2.5 m <sup>3</sup> /h<br>Mounting length 130 mm, connecting thread G 1", battery life 11 years, M-bus | S55561-F251  | WSM625-BE |

### Accessories

Mounting accessories only for meters with high-tech plastic flow measuring sections:

#### Accessories for WSM5..

| Component  | Order number     | Type         |
|--|------------------|--------------|
| Mounting kit G ¾", consisting of:<br>2x threaded connection G ¾" x R ½"<br>2x cap nuts G ¾"<br>2x gaskets G ¾" | LYU:T23-E34      | T23-E34      |
| Mounting kit G 1", consisting of:<br>2x threaded connection G 1" x R ¾"<br>2x cap nuts G 1"<br>2x gaskets G 1" | LYU:T23-E1       | T23-E1       |
| 10x gaskets EPDM G ¾"  | LYU:T23-34EPDM10 | T23-34EPDM10 |
| 10x gaskets EPDM G 1"  | LYU:T23-1EPDM10  | T23-1EPDM10  |

Mounting accessories only for meters with brass flow measuring sections:

#### Accessories for WSM6..

| Component  | Order number    | Type        |
|--|-----------------|-------------|
| Mounting kit G ¾", consisting of:<br>2x threaded connection G¾" x R½"<br>2x cap nuts G¾"<br>2x gaskets G¾" | S55563-F124     | WZM-E34     |
| Mounting kit 1", consisting of:<br>2x threaded connection G1" x R¾"<br>2x cap nuts G1"<br>2x gaskets G1"   | S55563-F123     | WZM-E1      |
| Adapter piece 110 mm G¾" to 130 mm G¾":<br>1x extension G¾ B" to G¾ B"<br>1x gasket G¾"                    | LYU:WZM-V130    | WZM-V130    |
| Adapter piece 110 mm G¾" to 130 mm G1":<br>2x extension G¾ B" to G1 B"<br>2x gaskets G¾"<br>2x gaskets G1" | LYU:WZM-V130.G1 | WZM-V130.G1 |

|  |                |            |
|--|----------------|------------|
| Adapter piece 110 mm G ¾" to 165 mm G¾":<br>1x extension G¾ B" to G¾ B"<br>1x gasket G¾"                                 | LYU:WZM-VE165  | WZM-VE165  |
| Adapter piece 110 mm G¾" to 190 mm G1":<br>2x extension G¾ B" to G1 B"<br>2x gaskets G¾"<br>2x gaskets G1"               | LYU:WZM-V190   | WZM-V190   |
| Sealing disk for thread G¾", threaded connection R½"   | LYU:9060944002 | 9060944002 |
| Sealing disk for thread G1", threaded connection R¾"   | LYU:9060944003 | 9060944003 |
| Mounting set for sensor Ø 5.2x45 mm, consisting of:<br>- 1 sensor mount brass DS M10x1 mm<br>- 1 O-ring<br>- 1 dowel pin | LYU:9930127002 | 9930127002 |
| Sealing disk for temperature sensor M10x1 mm, Ø 8.6/5.3x1 mm, hard fiber   | LYU:9060944001 | 9060944001 |
| Sealing disk for temperature sensor M10x1 mm, Ø 8.6/5.3x1.5 mm, copper   | LYU:9060950    | 9060950    |
| Sealing disk, copper, for protection pocket G ½" or adapter WZT-A12, Ø 27.9/ 21.2 mm x 1.5 mm                            | LYU:9060948    | 9060948    |

Mounting accessories for both compact meter types:

#### Accessories for WSM5../WSM6..

| Component   | Order number   | Type       |
|---|----------------|------------|
| Ball valve R½" with union nut G¾"   | LYU:WZT-K12-34 | WZT-K12-34 |
| Ball valve R¾ " with union nut G¾"  | LYU:WZT-K34-34 | WZT-K34-34 |
| Ball valve R¾ " with union nut G1"  | LYU:WZT-K34-1  | WZT-K34-1  |
| Ball valve R 1" with union nut G1"  | LYU:WZT-K1-1   | WZT-K1-1   |
| Ball valve R½" to install a DS sensor M10 x 1 mm, length = 28 mm, max. 130°C, PN 25                                 | S55563-F104    | WZT-K12    |
| Ball valve R¾" to install a DS sensor M10 x 1 mm, length = 28 mm, max. 130°C, PN 25                                 | S55563-F120    | WZT-K34    |
| Ball valve R 1" to install a DS sensor M10 x 1 mm, length = 28 mm, max. 130°C, PN 25                                | S55563-F119    | WZT-K1     |
| Adapter G 3/8 B" with threaded hole M10x1 mm for sensor, including gasket G3/8" made of copper                      | LYU:WZT-A38    | WZT-A38    |
| Adapter G½ B" with threaded hole M10x1 mm for sensor, including gasket G½" made of copper                           | S55563-F116    | WZT-A12    |
| Adapter G¾ B" with threaded hole M10x1 mm for sensor, including gasket G¾" made of copper                           | LYU:WZT-A34    | WZT-A34    |
| Protection pocket G ½ B made of brass, Ø 5.2x35 mm for temperature sensor Ø 5.2x45 mm, including gasket G½", copper | S55563-F103    | WZT-M35    |

|  |                |            |
|--|----------------|------------|
| Protection pocket G½ B" made of brass, Ø 5.2x50 mm for temperature sensor Ø 5.2x45 mm, including gasket G½", copper            | LYU:WZT-M50    | WZT-M50    |
| Adapter kit consisting of:<br>- 1 plastic sensor adapter Ø 5.2x45 mm<br>- 1 mounting aid for sensor Ø 5.2x45 mm<br>- 2 O-rings | LYU:9956230    | 9956230    |
| Spacer G¾", length 110 mm, including 2 gaskets   | LYU:WZM-G110   | WZM-G110   |
| Spacer G1", length 130 mm, including 2 gaskets   | LYU:WZM-G130   | WZM-G130   |
| Welding sleeve with threaded hole for temperature sensor DS M10x1 mm   | S55563-F121    | WZT-G10    |
| Self-lock seal with sealing wire   | LYU:9956186001 | 9956186001 |
| 10 wall adapters for mounting the electronic unit on the wall, including 2 screws and 2 dowels                                 | LYU:T23-WA10   | T23-WA10   |

### Programming accessories

| Component  | Order number   | Type       |
|--|----------------|------------|
| Optical read head with USB plug for PC interface     | LYU:WZR-OP-USB | WZR-OP-USB |
| Readout and configuration software:<br>- UltraAssist | Download       | -          |

### Ordering

Please specify the quantity, order number, and type when ordering.

### Scope of delivery

The ultrasonic heat meter is supplied complete with Mounting Instructions in different languages, an adapter kit, 2 gaskets and a seal.

### Languages

The Installation Instructions are supplied in the following languages:

Bulgarian, Chinese, Czech, Dutch, English, French, German, Greek, Hungarian, Italian, Norwegian, Polish, Russian, Serbo-Croatian, Slovakian, Slovenian, Spanish and Turkish.

## Product documentation

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

<http://siemens.com/bt/download>

## Installation

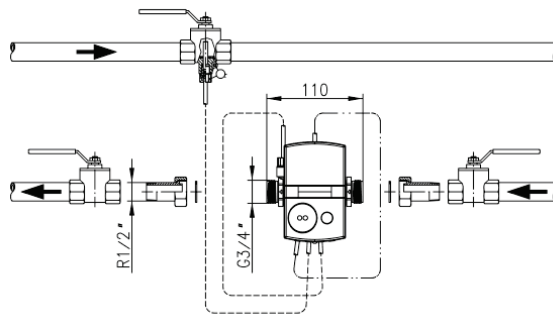
### Flow measuring section

The mounting orientation is optional, the mounting location (heat or cold side) must correspond to the type of meter used.

Settling paths upstream of and downstream from the meter are not required. If the meter is installed in the common return of 2 heating circuits (e.g. space heating and DHW), the mounting location must be in an adequate distance from the T-piece (min. 10 x DN) to allow the different water temperatures to properly mix.

Before mounting the meter, the system must be properly flushed.

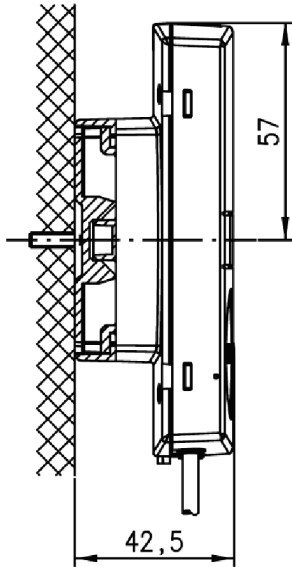
Mount the flow measuring section between 2 shutoff valves with the arrow pointing in the direction of flow. The sensors must be mounted in the same water circuit as the flow measuring section (observe mixing). The sensors can be fitted in T-pieces or ball valves, or can be immersed, either directly or in pockets (observe all national regulations). In any case, the end of the sensors' probe must extend to at least the pipe center. Temperature sensors and fittings must be sealed to prevent tampering.



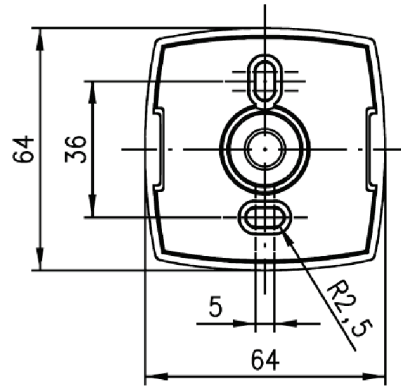
Mounting with ball valve

### Processor unit

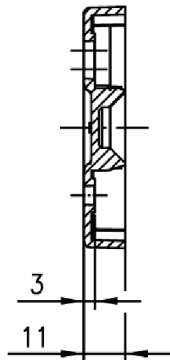
The ambient temperature of the processor unit cannot exceed 55 °C. Avoid direct sunlight. With water temperatures between 10 °C and 90 °C, the electronic unit can be left on the flow measuring section or can be fitted to a wall (detached mounting). The adapter plate on the wall or the flow measuring section can be aligned as needed to ensure ease of reading. To remove the electronic unit, turn the housing by 45° to the side and lift it up.



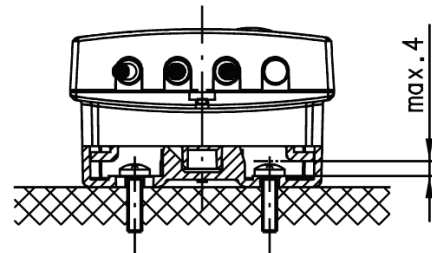
Wall mounting



Wall adapter (view from above)



Wall adapter (side view)



Maximum screw head height  
(if using the wall bracket)

### Maintenance

The meters are maintenance-free.  
Observe all national calibration regulations.

### Disposal



The device is considered an electronic device for disposal in accordance with the European Guidelines and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.
- Dispose of empty batteries in designated collection points.

## Warranty

The application-related technical data is only guaranteed together with the products mentioned in this Data Sheet. Siemens rejects any and all warranties in the event that third-party products are used

## Technical data

### Processor unit

| Power supply    |                                      |
|-----------------|--------------------------------------|
| Battery type    | Lithium battery (cannot be replaced) |
| Battery voltage | 3.6 V                                |
| Battery life    | 6 or 11 years                        |

| Function data                                    |  |
|--|--|
| Measuring range                                  | 0...180 °C   |
| Range of temperature differential $\Delta\Theta$ | 3 ... 80 K   |
| Temperature response threshold                   | 0.2 K  |
| Thermal coefficient                              | Shifting compensated   |
| Temperature-measuring error without sensor       | $(0.5 + \Delta\Theta_{\min.} / \Delta\Theta) \%$ ,<br>max. 1.5 % at $\Delta\Theta = 3$ K |

| Temperature sensor. |               |
|---------------------|---------------|
| Sensing element     | Pt500         |
| Type                | Ø 5.2 x 45 mm |

### Flow measuring section

| Function data  |                   |  |                                       |                                       |
|--|-------------------|--|---------------------------------------|---------------------------------------|
| Temperature range<br>(national approvals may differ)                 |                   | 5...90 °C (plastic flow measuring sections)<br>5...105 °C (brass flow measuring section) |                                       |                                       |
| Maximum temperature $t_{\max}$                                       | °C                | 90   |                                       |                                       |
| Rated pressure   | MPa               | 1.6 (PN 16)  |                                       |                                       |
| Nominal flow $q_p$   | m <sup>3</sup> /h | 0.6  | 1.5                                   | 2.5                                   |
| Metrological class   |                   | 1:100  | 1:100                                 | 1:100                                 |
| Maximum flow $q_s$   | m <sup>3</sup> /h | 1.2  | 3                                     | 5                                     |
| Minimum flow $q_i$   | l/h               | 6  | 15                                    | 25                                    |
| Response threshold   | l/h               | 1.2  | 3                                     | 5                                     |
| Pressure drop at $q_p$   |                   |  |                                       |                                       |
| • Mounting length 110 mm<br>$\Delta p$                               | mbar              | 75 <sup>1)</sup> / 150 <sup>2)</sup>   | 135 <sup>1)</sup> / 150 <sup>2)</sup> | ---                                   |
| • Mounting length 130 mm<br>$\Delta p$                               | mbar              | ---  | 135 <sup>1)</sup> / 160 <sup>2)</sup> | 165 <sup>1)</sup> / 200 <sup>2)</sup> |
| Flow rate at $\Delta p = 1$ bar, $K_v$ ,<br>m <sup>3</sup> /h        |                   | 2.2 <sup>1)</sup> / 1.5 <sup>2)</sup>  | 4.1 <sup>1)</sup> / 3.9 <sup>2)</sup> | 6.8 <sup>1)</sup> / 5.6 <sup>2)</sup> |
| Mounting position  |                   | Any  |                                       |                                       |
| 1) Plastic flow measuring section<br>2) Brass flow measuring section |                   |  |                                       |                                       |

| Communication  |  |
|--|--|
| Optical interface  |  |
| <ul style="list-style-type: none"> <li>• Basic design</li> <li>• Protocol</li> </ul>   | Similar to EN 62056-21<br>Per EN 13757-2 / -3                        |
| M-bus wired interface  | Option   |
| <ul style="list-style-type: none"> <li>• Voltage <math>V_{max}</math>.</li> </ul>  | 50 V   |
| <ul style="list-style-type: none"> <li>• Power consumption</li> </ul>  | 1 M-bus load   |
| <ul style="list-style-type: none"> <li>• Address</li> </ul>  | Primary or secondary   |
| <ul style="list-style-type: none"> <li>• Baud rate</li> </ul>  | 300 or 2400 baud   |
| <ul style="list-style-type: none"> <li>• Max. permissible reading frequency</li> </ul>   | 1x per minute  |
| <ul style="list-style-type: none"> <li>• Protocol</li> </ul>   | As per EN 13757-2/-3, EN 1434-3                                      |
| <ul style="list-style-type: none"> <li>• Connection cable length and cross section</li> </ul>  | 1.5 m, 2x AWG24/0.2 mm <sup>2</sup>                                  |
| M-bus RF interface   | Option   |
| <ul style="list-style-type: none"> <li>• Transmission frequency</li> </ul>   | 868.95 MHz (868.90 ... 869.00 MHz)                                   |
| <ul style="list-style-type: none"> <li>• Transmitter power</li> </ul>  | Min. 3.16 mW (5 dBm) to max. 25 mW (13.9 dBm)                        |
| <ul style="list-style-type: none"> <li>• Power supply</li> </ul>   | Max. 3 AA batteries  |
| <ul style="list-style-type: none"> <li>• Send heartbeat <ul style="list-style-type: none"> <li>– Mobile data acquisition</li> <li>– Stationary data acquisition</li> <li>– User defined telegrams</li> </ul> </li> </ul> | 20...34 s<br>15 minutes<br>12...900 s (depending on telegram length) |
| Protocol   | Per EN 13757-4   |
| Cable length, control cable  | 1.5 m  |

| Housing type   |                                      |
|--|--------------------------------------|
| Protection class   | III                                  |
| IP class   |                                      |
| <ul style="list-style-type: none"> <li>• Processor unit</li> <li>• Flow measuring section</li> </ul> | IP54<br>WSM5...: IP65, WSM6...: IP54 |

| Environmental conditions |  |                                     |                                     |
|--------------------------|--|-------------------------------------|-------------------------------------|
|                          | Operation  | Transportation                      | Storage                             |
|                          | EN 60721-3-3   | EN 60721-3-2                        | EN 60721-3-1                        |
| Climatic conditions      | Class A  | Class A                             | Class A                             |
| Temperature              | 5...55 °C  | -20...60 °C                         | -20...60 °C                         |
| Humidity                 | <93% r.h. at 25 °C (non-condensing)                        | <93% r.h. at 25 °C (non-condensing) | <93% r.h. at 25 °C (non-condensing) |
| Mechanical conditions    | Class M1   | Class M1                            | Class M1                            |
| Max. altitude            | Min. 700 hPa, corresponding to max. 2000 m above sea level |                                     |                                     |



| Standards, guidelines |                             |
|-----------------------|-----------------------------|
| Product standards     | DIN EN 1434-x (heat meters) |
| EU Conformity (CE)    | CE2T5372xx *)               |
| RCM Conformity        | CE2T5372en_C1 *)            |

| Environmental compatibility   |
|---|
| The product environmental declaration CE2E5372en *) contains data on environmentally compatible product design and assessments (RoHS compliance, material composition, packaging, environmental benefit, and disposal). |

| Dimensions (W x H x D) |                  |
|------------------------|------------------|
| Processor unit         | 116 x 71 x 32 mm |
| Flow measuring section | See "Dimensions" |

| Housing material    |          |
|---------------------|----------|
| Cover               | ABS      |
| Bottom section      | PC-GF10  |
| Battery compartment | PC clear |

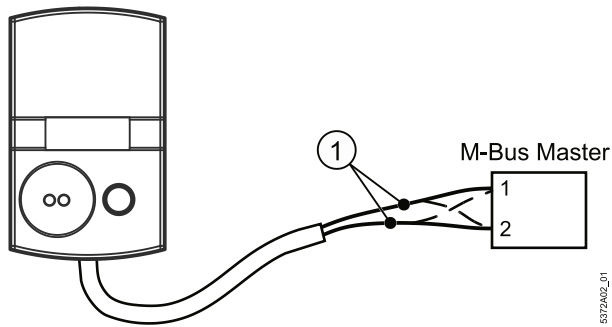
| Housing color  |          |
|----------------|----------|
| Cover          | RAL 9006 |
| Bottom section | RAL 9002 |

| Weight                         |  |
|--------------------------------|--|
| Unit complete with accessories | WSM506..: 0.52 kg<br>WSM515..: 0.52 kg<br>WSM525..: 0.56 kg<br>WSM606..: 0.80 kg<br>WSM615..: 0.76 kg<br>WSM625..: 0.84 kg |

\*) Documents can be downloaded at <http://www.siemens.com/bt/download>.

## Connection diagram

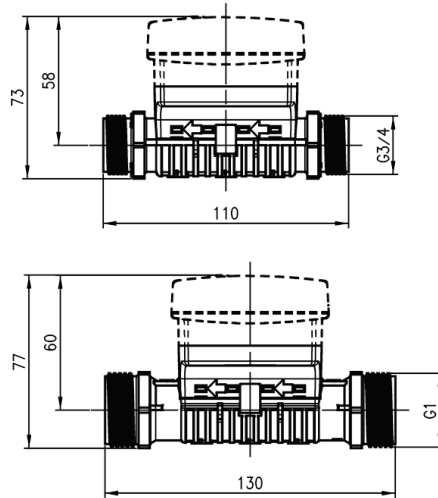
For meters with M-bus communication



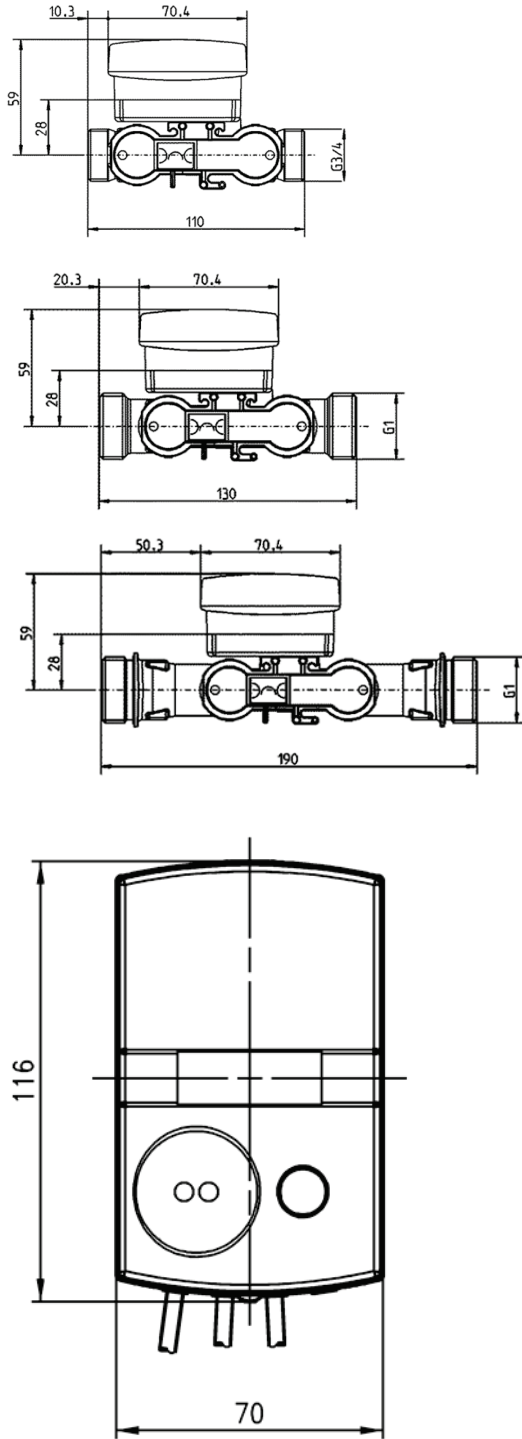
1 Brown / white

## Dimensions

WSM5..



WSM6..



Dimensions in mm

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