



WSTH/WPTH

Woltmann type combined energy meter

Flanged Woltmann flow meters for large nominal flows, intended for flow measurements in large plants, such as those found in district heating systems.

- ✓ Size DN50...DN300
- ✓ Nominal flow 15...600 m³/h
- ✓ For horizontal mounting (WSTH), for horizontal or vertical mounting (WPTH)
- ✓ No data loss when changing battery
- ✓ Available with M-Bus, pulse output or M-Bus and 2 pulse inputs

Function

The menu system, available in the display, makes it possible to read a large number of parameters, such as heat and cold consumption, total energy spent on heating and cooling, temperatures along with current energy consumption.

Installation is normally in the return pipe.

Connection

The energy meter comes equipped with two PT500 temperature sensors. The resistors for the sensors are composed of platinum and maintain a standard of DIN IEC 60751.

In the flow meters, only the turbine wheel operates inside the wet chamber. The impeller has a hard bearing. In order to protect against magnetic interference, the counters are shielded.

Mounting

The WSTH model flow meters are designed for horizontal mounting positions while the WPTH models can be mounted both horizontally and vertically (rising or falling pipes).

Both temperature sensors have a cable length of 3 m.

The calculator can be wall mounted or DIN-rail mounted.

Measuring distance

In case of changes in pipe diameter (narrowing or widening), a 3x DN straight pipe must be used both before and after the flow meter (inlet/outlet). The pipe must be of the same diameter as the meter.

In cases where pipe elbows exist, a 5x DN straight pipe of the same diameter as the meter must be used before the flow meter (inlet) to avoid turbulence.

High reliability

The meter offers reliable and accurate performance over long periods of measurement.

The calculator features a high accuracy of measurement, in addition to a long life and robust design. The calculator utilizes EEPROM memory, meaning loss of data does not occur if the battery is changed.

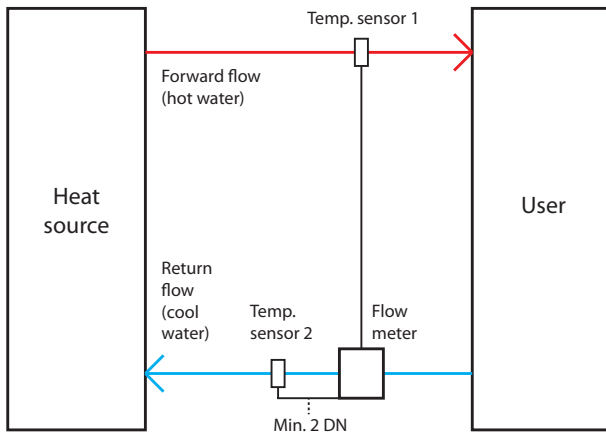
Flexible design

Due to the multiple combination options offered by its components, the meters can easily be adapted to suit a large number of individual requirements.

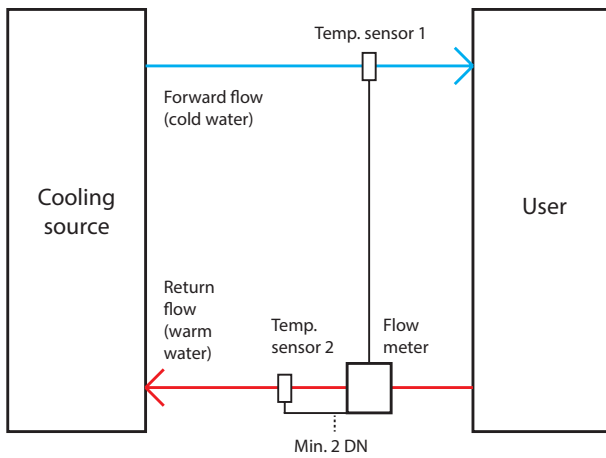
Models with M-Bus, pulse output or M-Bus + pulse input are available.

Energy meters with M-Bus have a default address of "0", which is not a valid primary communication address. This primary address can be changed by searching for secondary addresses (i.e. the ID number of the meter).

Installation example, heating



Installation example, cooling



Technical data, calculator

| | |
|--|---|
| Power supply | 3 V lithium AA battery, replaceable |
| Temperature range | 1...150 °C |
| Temperature difference limits | 3...100 K (heating), -3...-50 K (cooling) K |
| Temperature resolution | 0.01 °C |
| Ambient temperature | 5...55 °C |
| Storage temperature | -20...+60 °C |
| Ambient humidity | < 93 % RH |
| Protection class | IP65 |
| Calculation of heat from K | $\Delta\Theta > 0.05$ K |
| Calculation of cooling from K | $\Delta\Theta < -0.05$ K |
| Dual purpose heat/cooling meter | $\Delta\Theta_{HC} < -0.5$ K |
| Measurement frequency at q_p | Every 30 s |
| Data storage | EEPROM, data stored daily |
| Interfaces | M-Bus, pulse output or M-Bus with 2 pulse inputs |
| Reading dates | 24 monthly values (15 in display), annual billing date selectable |
| Display | LCD, 8 digits + additional symbols |
| Display units | MWh, optional kWh, GJ |
| Mechanical class | Class M1 (MID: 31.03.2004 annex I) |
| EMC | Class E1 (MID: 31.03.2004 annex I) |
| Environmental class | A (EN 1434) |

Technical data, temperature sensor

| | |
|---|--|
| Cable length | 3 m |
| Sensor element | PT500; separately approved type as per EN60751, unshielded |
| Diameter, sensor | 6 mm |
| Installation | Indirect in a temperature sensor pocket or direct (up to 50 mm) as per EN1434 |
| Temperature sensor requirements, heat meter | EU (MID) identification on the temperature sensors |
| Temperature sensor requirements, cooling meter | National German approval as a temperature sensor for cooling meters. Requirements in other countries may be different. |

Technical data, flow meter

| | |
|--|--|
| Connection | Flanged according to EN 1092-2 |
| Pressure rating | PN16 |
| Media | Water (contact Regin if other media are needed, e.g. glycol-mixed water) |
| Mounting position | WSTH horizontal only, WPTH horizontal or vertical |
| Point of installation | Return flow |
| Temperature range | 1...120 °C |
| Cable length | 3 m (to calculator) |
| Dial indication range for volume, min | 0.05...0.5 l |
| Dial indication range for volume, max | 10 ⁶ ...10 ⁷ m ³ |
| Recommended minimum system pressure | 500 mbar |

Models

| Article | Nominal diameter | Nominal flow, q_p | Maximum flow, q_s (short term) | Minimum flow, q_i | Flow at 0.1 bar pressure drop | Low flow threshold |
|----------------|------------------|-----------------------|----------------------------------|-----------------------|-------------------------------|------------------------|
| WPTH50-15... | DN50 | 15 m ³ /h | 30 m ³ /h | 0.6 m ³ /h | 35 m ³ /h | 0.13 m ³ /h |
| WPTH65-25... | DN65 | 25 m ³ /h | 30 m ³ /h | 1.0 m ³ /h | 63 m ³ /h | 0.13 m ³ /h |
| WPTH80-32... | DN80 | 32 m ³ /h | 45 m ³ /h | 3.2 m ³ /h | 102 m ³ /h | 0.4 m ³ /h |
| WPTH100-60... | DN100 | 60 m ³ /h | 180 m ³ /h | 2.0 m ³ /h | 95 m ³ /h | 0.4 m ³ /h |
| WPTH125-100... | DN125 | 100 m ³ /h | 250 m ³ /h | 3.0 m ³ /h | 200 m ³ /h | 0.6 m ³ /h |
| WPTH150-200... | DN150 | 200 m ³ /h | 300 m ³ /h | 8.0 m ³ /h | 310 m ³ /h | 1.5 m ³ /h |
| WPTH200-250... | DN200 | 250 m ³ /h | 500 m ³ /h | 10 m ³ /h | 550 m ³ /h | 2 m ³ /h |
| WPTH250-400... | DN250 | 400 m ³ /h | 800 m ³ /h | 25 m ³ /h | 1300 m ³ /h | 2.5 m ³ /h |
| WPTH300-600... | DN300 | 600 m ³ /h | 1000 m ³ /h | 30 m ³ /h | 2000 m ³ /h | 5 m ³ /h |
| WSTH50-15... | DN50 | 15 m ³ /h | 50 m ³ /h | 0.2 m ³ /h | 19 m ³ /h | 0.06 m ³ /h |
| WSTH65-25... | DN65 | 25 m ³ /h | 50 m ³ /h | 0.2 m ³ /h | 21 m ³ /h | 0.06 m ³ /h |
| WSTH80-40... | DN80 | 40 m ³ /h | 110 m ³ /h | 0.3 m ³ /h | 42 m ³ /h | 0.09 m ³ /h |
| WSTH100-60... | DN100 | 60 m ³ /h | 140 m ³ /h | 0.4 m ³ /h | 70 m ³ /h | 0.09 m ³ /h |
| WSTH150-150... | DN150 | 150 m ³ /h | 350 m ³ /h | 2 m ³ /h | 160 m ³ /h | 1 m ³ /h |

CE

Measuring Instruments Directive: This product conforms to the requirements of the Measuring Instruments Directive 2004/22/EC through product standards OIML R75, EN 1434, EN 60751, EN 14154 and PTB-Richtlinie K 7.1.

Low Voltage Directive (LVD) standards: This product conforms to the requirements of the European Low Voltage Directive (LVD) 2006/95/EC through product standards EN 61140, VDE 0140-1, EN 60529 and DIN 40050.

EMC emissions & immunity standards: This product conforms to the requirements of the EMC Directive 2004/108/EC through product standards EN 13757-2, EN 13757-3 and DIN 12900-1.

RoHS: This product conforms to the Directive 2011/65/EU of the European Parliament and of the Council.

Ordering code selection table WPTH

| Options | WPTH... | -... | -... |
|---|-------------|------|------|
| Flow (DN) (length) (flange) | | | |
| 15 m ³ /h (DN50) (200 mm) (PN16 flange with 4 bolt holes) | WPTH50-15 | | |
| 25 m ³ /h (DN65) (200 mm) (PN16 flange with 4 bolt holes) | WPTH65-25 | | |
| 32 m ³ /h (DN80) (225 mm) (PN16 flange with 8 bolt holes) | WPTH80-32 | | |
| 60 m ³ /h (DN100) (250 mm) (PN16 flange with 8 bolt holes) | WPTH100-60 | | |
| 100 m ³ /h (DN125) (250 mm) (PN16 flange with 8 bolt holes) | WPTH125-100 | | |
| 200 m ³ /h (DN150) (300 mm) (PN16 flange with 8 bolt holes) | WPTH150-200 | | |
| 250 m ³ /h (DN200) (350 mm) (PN16 flange with 12 bolt holes) | WPTH200-250 | | |
| 400 m ³ /h (DN250) (450 mm) (PN16 flange with 12 bolt holes) | WPTH250-400 | | |
| 600 m ³ /h (DN300) (500 mm) (PN16 flange with 12 bolt holes) | WPTH300-600 | | |
| Type of measurement and installation point | | | |
| Heating, installation of flow meter in return pipe (MID approval) | | -HR | |
| Cooling ¹ , installation of flow meter in return pipe | | -CR | |
| Heating and cooling in combination ² , installation of flow meter in return pipe | | -HCR | |
| Communication interface | | | |
| M-Bus | | | -M |
| M-Bus with 2 pulse inputs ³ | | | -MPI |
| Pulse output for energy | | | -PO |

¹ National German approval.

² MID approval for heating, not for cooling

³ The standard setting for the pulse counters is 1 l/pulse. Please contact Regin if other values (10 l/pulse or 100 l/pulse) are needed.

If any further requirements or options are needed, please contact Regin.

Example:

Desired application: Meter with 60 m³/h. Heating, vertical installation in return pipe. M-Bus.

Resulting item ordering number: WPTH100-60-HR-M

Possible accessories needed:

- Sensor pockets (2 pcs): TH-120-½

Ordering code selection table WSTH

| Options | WSTH... | -... | -... |
|---|-------------|------|------|
| Flow (DN) (length) (flange) | | | |
| 15 m ³ /h (DN50) (270 mm) (PN16 flange with 4 bolt holes) | WSTH50-15 | | |
| 25 m ³ /h (DN65) (300 mm) (PN16 flange with 4 bolt holes) | WSTH65-25 | | |
| 40 m ³ /h (DN80) (300 mm) (PN16 flange with 8 bolt holes) | WSTH80-40 | | |
| 60 m ³ /h (DN100) (360 mm) (PN16 flange with 8 bolt holes) | WSTH100-60 | | |
| 150 m ³ /h (DN150) (500 mm) (PN16 flange with 8 bolt holes) | WSTH150-150 | | |
| Type of measurement and installation point | | | |
| Heating, installation of flow meter in return pipe (MID approval) | | -HR | |
| Cooling ¹ , installation of flow meter in return pipe | | -CR | |
| Heating and cooling in combination ² , installation of flow meter in return pipe | | -HCR | |
| Communication interface | | | |
| M-Bus | | | -M |
| M-Bus with 2 pulse inputs ³ | | | -MPI |
| Pulse output for energy | | | -PO |

¹ National German approval.

² MID approval for heating, not for cooling

³ The standard setting for the pulse counters is 1 l/pulse. Please contact Regin if other values (10 l/pulse or 100 l/pulse) are needed.

If any further requirements or options are needed, please contact Regin.

Example:

Desired application: Meter with 150 m³/h. Cooling, horizontal installation of flow meter in return pipe. M-Bus + 2 pulse inputs.

Resulting item ordering number: WSTH150-150-CR-MPI

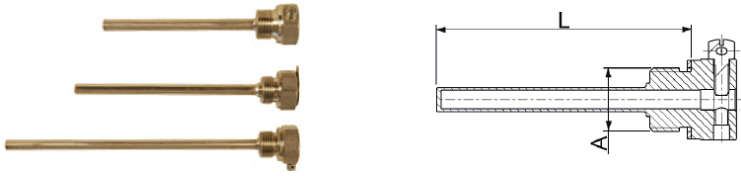
Possible accessories needed:

- Sensor pockets (2 pcs): TH-210-½

Accessories

Temperature sensor pocket for installation of universal temperature sensor with 6 mm sheath diameter

| Article | Connection A | Compatible with | Installation length |
|------------|-----------------|---|---------------------|
| TH-120-1/2 | G $\frac{1}{2}$ | q _p 15...100 m ³ /h | 120 mm |
| TH-210-1/2 | G $\frac{1}{2}$ | ≥ q _p 150 m ³ /h | 210 mm |



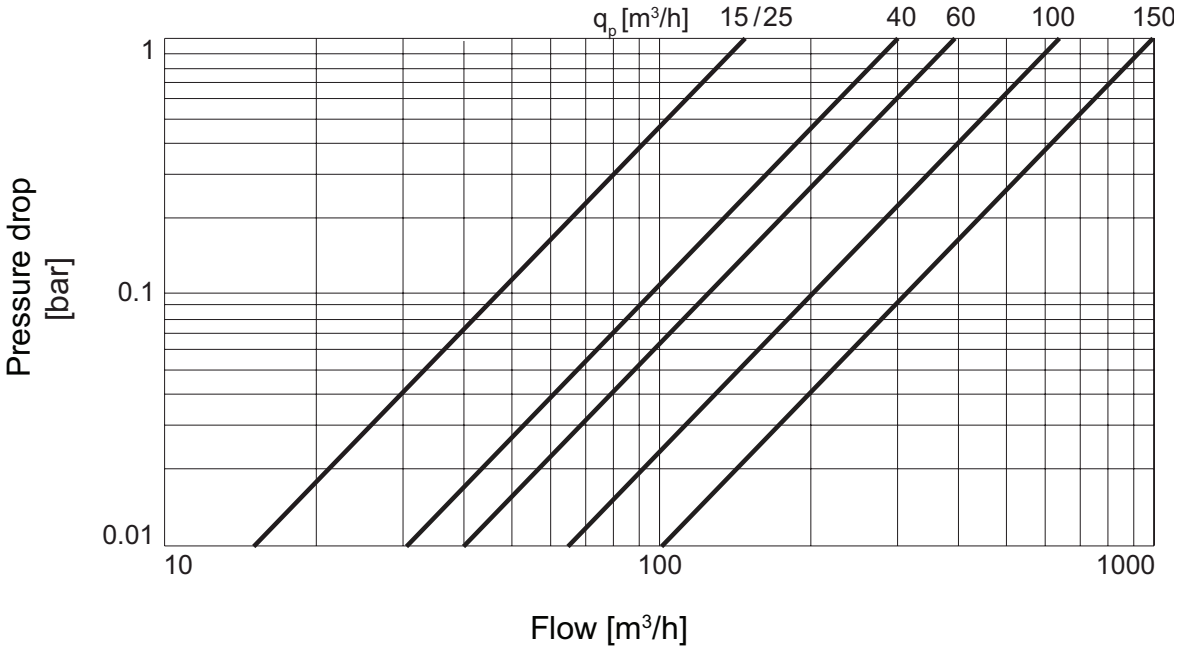
Optical interface and read-out software

| Article | Description |
|----------------|--------------------------------|
| OPTO-CABLE-USB | Optocoupler with USB interface |
| OPTO-TOOL | Software device monitor |

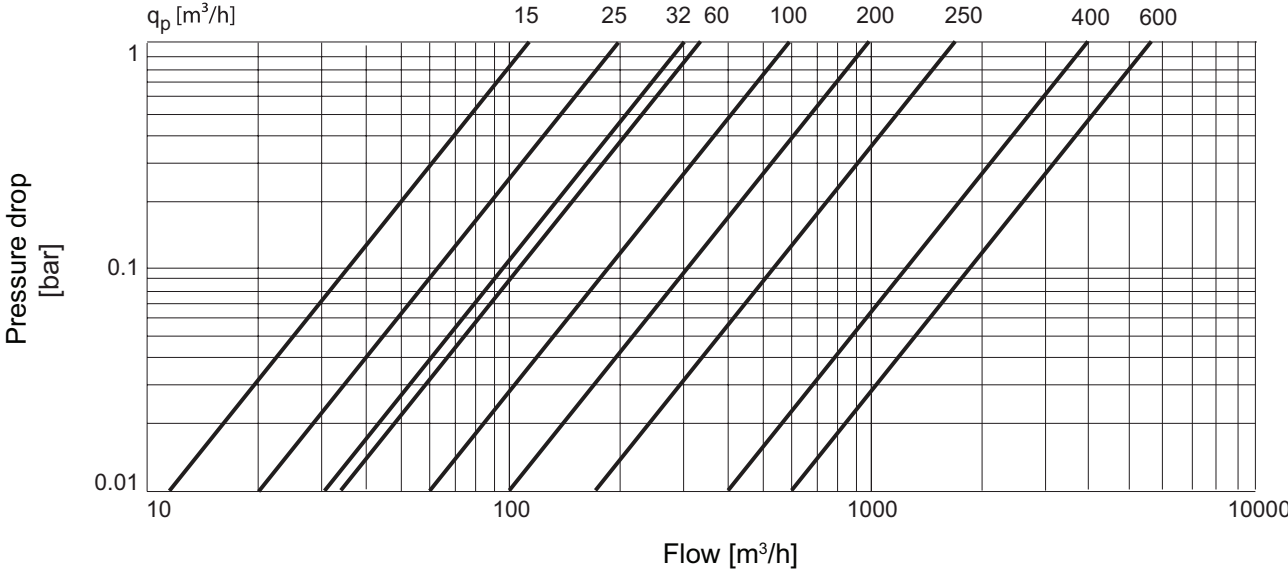


Pressure drop curves

WSTH

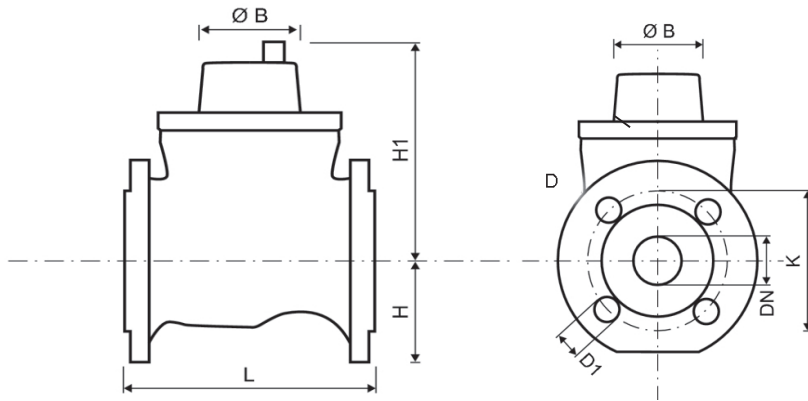


WPTH



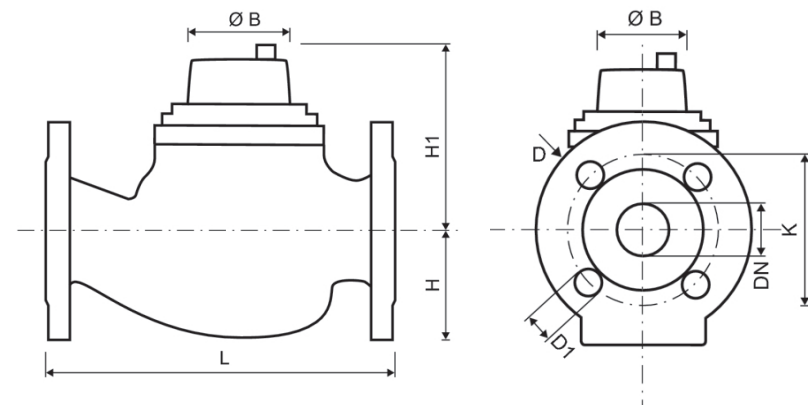
Dimensions

Flow meter WPTH



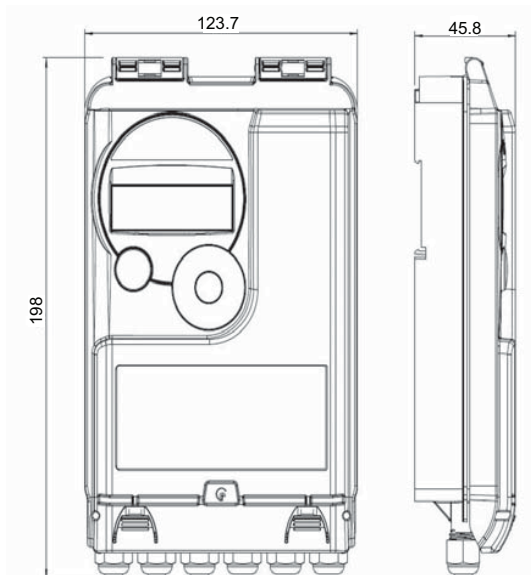
| DN | q _p (m ³ /h) | D | ØK | No. of screws | ØD1 | L | ØB | H | H1 |
|-----|------------------------------------|-----|-----|---------------|-----|-----|-----|------|-----|
| 50 | 15 | 165 | 125 | 4 | 18 | 200 | 165 | 75 | 182 |
| 65 | 25 | 185 | 145 | 4 | 18 | 200 | 185 | 82.5 | 182 |
| 80 | 32 | 200 | 160 | 8 | 18 | 225 | 200 | 94 | 182 |
| 100 | 60 | 220 | 180 | 8 | 18 | 250 | 220 | 110 | 240 |
| 125 | 100 | 250 | 210 | 8 | 18 | 250 | 250 | 200 | 240 |
| 150 | 200 | 285 | 240 | 8 | 22 | 300 | 285 | 244 | 284 |
| 200 | 250 | 340 | 295 | 12 | 22 | 350 | 340 | 244 | 284 |
| 250 | 400 | 405 | 355 | 12 | 26 | 450 | 405 | 240 | 280 |
| 300 | 600 | 460 | 410 | 12 | 26 | 500 | 460 | 270 | 310 |

Flow meter WSTH



| DN | q _p (m ³ /h) | D | ØK | No. of screws | ØD1 | L | ØB | H | H1 |
|-----|------------------------------------|-----|-----|---------------|-----|-----|-----|-----|-----|
| 50 | 15 | 165 | 125 | 4 | 18 | 270 | 165 | 84 | 195 |
| 65 | 25 | 185 | 145 | 4 | 18 | 300 | 185 | 97 | 195 |
| 80 | 40 | 200 | 160 | 8 | 18 | 300 | 200 | 102 | 230 |
| 100 | 60 | 220 | 180 | 8 | 18 | 360 | 220 | 113 | 240 |
| 150 | 150 | 285 | 240 | 8 | 23 | 500 | 285 | 285 | 440 |

Calculator



Measurements in mm unless otherwise specified.