MSH

Energy meter with coaxial multi-jet flow meter

Externally threaded, compact energy meters with coaxial multi-jet flow meter, intended for heating or cooling.

- ✓ Size DN15…DN20
- ✓ Nominal flow 0.6…2.5 m³/h
- ✓ For horizontal or vertical mounting
- ✓ Compact meter with easy-to-read display that can be rotated 360° for easy viewing
- ✓ Very low threshold flow values enable exact measurements
- ✓ 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.

The return temperature sensor is normally integrated into the flow meter while the supply temperature sensor is connected via a cable.

Mounting

The temperature sensor can be mounted directly in the medium or in sensor pockets. The compact design of the energy meter allows it to be mounted even in narrow spaces. A seal and wall mounting set is included on delivery, enabling the meter to be mounted at a distance of up to 30 cm away from the flow meter.

More installation accessories are also available such as ball valves with installation point for a temperature sensor or pipe connection kits etc. See more under the heading Accessories.

High reliability

The meter offers reliable and accurate performance over long periods of measurement. Very low threshold flow values guarantee reliable measurements, which are further ensured through routine self-checks performed by the measuring unit.

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).

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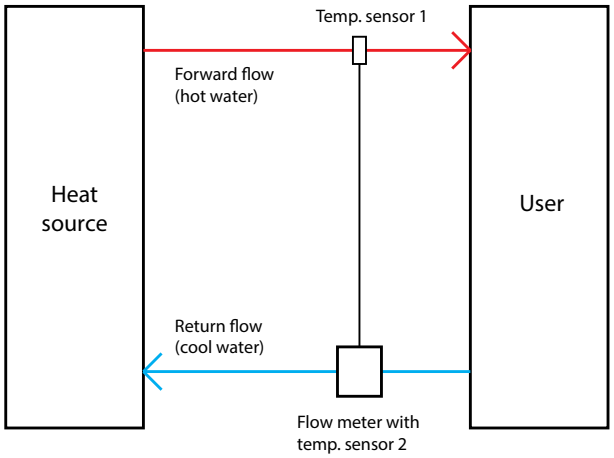
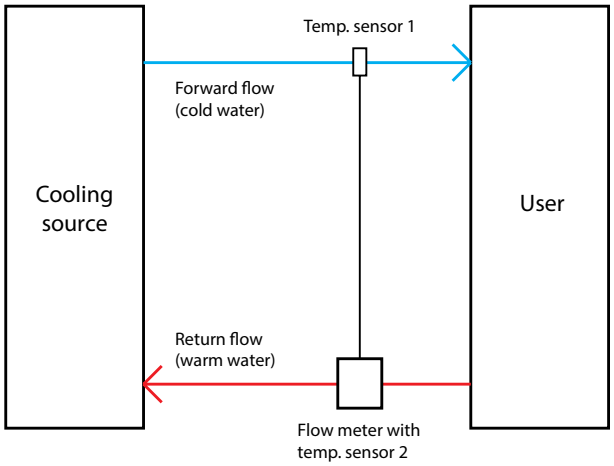
Installation example, heating



Installation example, cooling



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Technical data, calculator

Power supply	3 V lithium battery, min. 6 + 1 years
Temperature range	1...150 °C
Temperature difference limits	3…100 K
Temperature resolution	0.01 °C
Ambient temperature	5...55 °C
Storage temperature	-20…+60 °C
Ambient humidity	< 93 % RH
Protection class	IP54
Minimum temperature difference	0.2 K
Measurement frequency at q_p	Dynamically controlled measurement cycle from 12.5…60 s
Data storage	Non-volatile memory, data stored once daily
Interfaces	M-Bus, pulse output or M-Bus with 2 pulse inputs
Reading dates	15 monthly values via display, annual billing date selectable; 18 monthly values via optical interface
Display	LCD, 8 digits + special characters
Display units	MWh; optional KWh, GJ, 3 decimal places
Mechanical class	Class M1 (MID: 31.03.2004 annex I)
EMC	Class E1 (MID: 31.03.2004 annex I)
Cable length (measuring unit)	60 cm

Technical data, temperature sensor

Cable length	1.5 m (the other temperature sensor is integrated into the flow meter)
Sensor element	PT500; separately approved type as per EN60751, unshielded
Diameter, sensor	5 mm
Installation	Direct (see the accessories section) or indirect in a temperature sensor pocket 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	Threaded according to ISO 228/1
Pressure rating	PN16
Media	Water (contact Regin if other media are needed, e.g. glycol-mixed water)
Mounting position	Horizontal or vertical
Point of installation	Return flow
Temperature range	15…90 °C
Measuring principle	Mechanical multi-jet
Dynamic range q_i/q_p	1:50
Accuracy according to MID	Class 2
Recommended minimum system pressure	500 mbar

Models

Article	Nominal diameter	Nominal flow, q_p	Maximum flow, q_s	Minimum flow, q_i	Flow at 0.1 bar pressure drop	Low flow threshold	Pressure drop at q_p	Pressure drop at q_s
MSH15-0.6…	DN15	0.6 m^3/h	1.2 m^3/h	12 l/h	0.550 m^3/h	2.5 l/h	0.120 bar	0.360 bar
MSH15-1.5…	DN15	1.5 m^3/h	3.0 m^3/h	30 l/h	0.890 m^3/h	3.0 l/h	0.230 bar	0.680 bar
MSH20-2.5…	DN20	2.5 m^3/h	5.0 m^3/h	50 l/h	1.050 m^3/h	5.0 l/h	0.240 bar	0.740 bar

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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

Options	MSH…	-…	-…
Flow (thread on meter body) (DN) (length of flow meter)			
0.6 m³/h (G3/4") (DN15) (110 mm)	MSH15-0.6[1]		
1.5 m³/h (G3/4") (DN15) (110 mm)	MSH15-1.5		
2.5 m³/h (G1") (DN20) (130 mm)	MSH20-2.5		
Type of measurement and installation point			
Heating, installation of flow meter in return pipe (MID approval)		-HR	
Cooling[2], installation of flow meter in return pipe		-CR	
Heating and cooling in combination[3], installation of flow meter in return pipe		-HCR	
Communication interface			
M-Bus			-M
M-Bus with 2 pulse inputs[4]			-MPI
Pulse output for energy			-PO

[1] 0.6 is available for heating and heating/cooling in combination, not for just cooling.

[2] National German approval.

[3] MID approval for heating, not for cooling

[4] 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 1:

Desired application: Meter with 1.5 m³/h. Heating, installation in return pipe. M-Bus.

Resulting item ordering number: **MSH15-1.5-HR-M**

Possible accessories needed:

- KH-¾, 2 pcs, ball valve connection for both sides of the meter, alternatively brass fittings VSR-½
- KH-S-¾, 1 pc, ball valve with installation point for a temperature sensor in supply flow

Example 2:

Desired application: Meter with 2.5 m³/h. Cooling, installation in return pipe. M-Bus + pulse input.

Resulting item ordering number: **MSH20-2.5-CR-MPI**

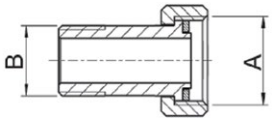
Possible accessories needed:

- KH-1, 2 pcs, ball valve connection for both sides of the meter, alternatively brass fittings VSR-¾
- KH-S-1, 1 pc, ball valve with installation point for a temperature sensor in supply flow

Accessories

Threaded fitting with coupling ring and gasket *

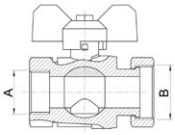
Article	Connection A	Connection B	Compatible with
VSR-1/2	G¾	R½	q_p0.6/1.5 m³/h
VSR-3/4	G1	R¾	q_p2.5/3.5 m³/h



* Either the brass threaded fittings or the ball valves are to be used on each side of the flow meter. 2 pcs are required for each meter.

Ball valve with coupling ring and gasket *

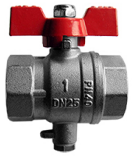
Article	Connection A	Connection B	Compatible with
KH-3/4	Rp¾	G¾	q_p0.6/1.5 m³/h
KH-1	Rp1	G1	q_p2.5/3.5 m³/h

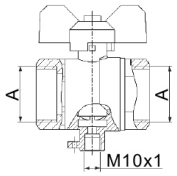


* Either the brass threaded fittings or the ball valves are to be used on each side of the flow meter. 2 pcs are required for each meter.

Ball valve with installation point for a temperature sensor (socket M10x1)

Article	Connection A	Compatible with
KH-S-3/4	G¾	q_p0.6/1.5 m³/h
KH-S-1	G1	q_p2.5/3.5 m³/h



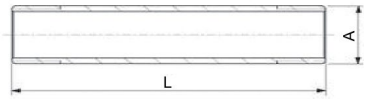


Supply flow adapter with gasket, for direct mounting of a temperature sensor in a T-piece

Article	Connection A
VAD-1/2	G½, M10x1
VAD-3/8	G3/8, M10x1

Threaded adapter to replace a flow meter temporarily or permanently

Article	Connection A	Compatible with	Installation length
PS-110-3/4	G¾	q_p0.6/1.5 m³/h	110 mm
PS-130-1	G1	q_p2.5 m³/h	130 mm



Optical interface and read-out software

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

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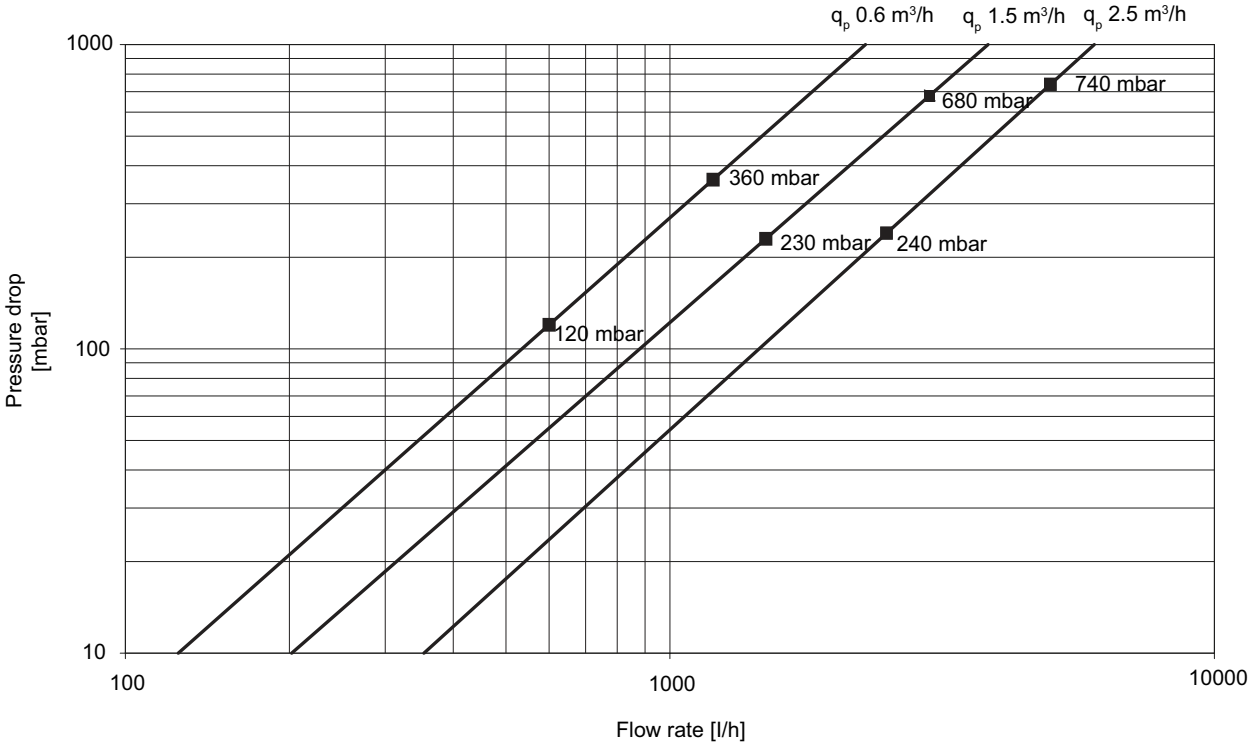
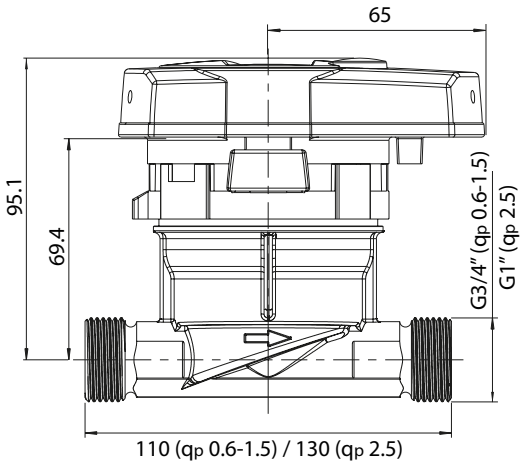
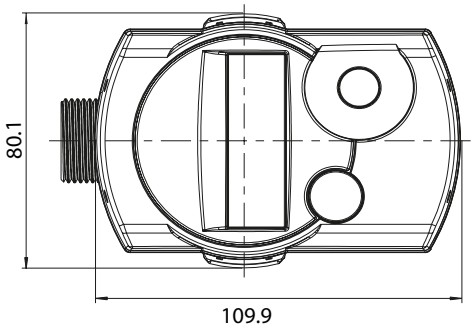
Pressure drop curves



Dimensions





Measurements in mm unless otherwise specified.

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