



## SS2U

Energy meter with ultrasonic flow meter

Externally threaded, compact energy meters with built-in ultrasonic flow meter, intended for heating and cooling.

- ✓ Size DN15...DN25
- ✓ Nominal flow 0.6...6.0 m<sup>3</sup>/h
- ✓ For horizontal or vertical mounting
- ✓ Compact meter with easy-to-read display
- ✓ Nominal flow is 100 % overloadable
- ✓ No moving parts enable flow measurement at low pressure drops
- ✓ Back flow detection
- ✓ 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 PT1000 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.

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.

### Flexible design

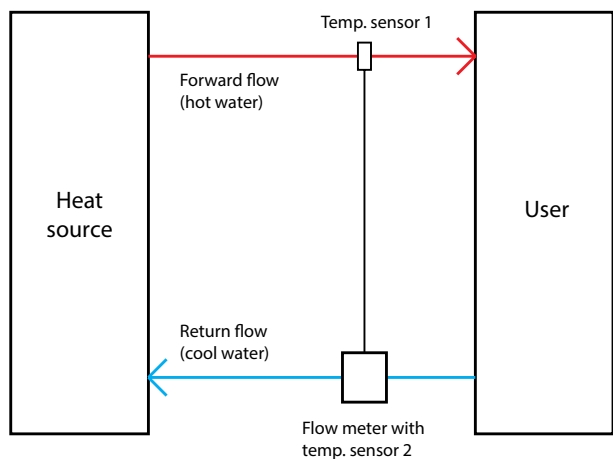
Due to the multiple combination options offered by its components, the meters can easily be adapted to suit a large number of individual requirements.

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

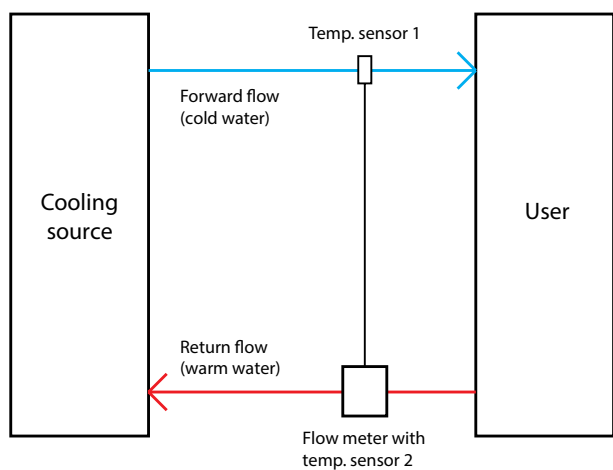
Energy meters with M-Bus have a default address of "0", which is not a valid primary communication address. This

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

<b>Power supply</b>	3 V lithium battery, min. 6 + 1 years
<b>Temperature range</b>	1...105 °C
<b>Temperature difference limits</b>	3...100 K
<b>Temperature resolution</b>	0.01 °C
<b>Ambient temperature</b>	5...55 °C
<b>Storage temperature</b>	-20...+60 °C
<b>Ambient humidity</b>	< 93 % RH
<b>Protection class</b>	IP54
<b>Minimum temperature difference</b>	> 0.5 K
<b>Measurement frequency at <math>q_p</math></b>	4...60 s
<b>Data storage</b>	Non-volatile memory, data stored once daily
<b>Interfaces</b>	M-Bus, pulse output or M-Bus with 2 pulse inputs
<b>Reading dates</b>	15 monthly values via display, annual billing date selectable; 18 monthly values
<b>Display</b>	LCD, 8 digits + special characters
<b>Display units</b>	kWh, MWh, GJ, m <sup>3</sup> , m <sup>3</sup> /h, l/h, kW, MW, 3 decimal places
<b>Mechanical class</b>	Class M1 (MID: 31.03.2004 annex I)
<b>EMC</b>	Class E1 (MID: 31.03.2004 annex I)
<b>Cable length (measuring unit)</b>	60 cm

## Technical data, temperature sensor

<b>Cable length</b>	1.5 m (the other temperature sensor is integrated into the flow meter)
<b>Sensor element</b>	PT1000, DIN IEC 60751
<b>Diameter, sensor</b>	5 mm
<b>Installation</b>	Direct (see the accessories section) or indirect in a temperature sensor pocket per EN1434
<b>Temperature sensor requirements, heat meter</b>	EU (MID) identification on the temperature sensors
<b>Temperature sensor requirements, cooling meter</b>	National German approval as a temperature sensor for cooling meters. Requirements in other countries may be different.

## Technical data, flow meter

<b>Connection</b>	Threaded according to ISO 228/1
<b>Pressure rating</b>	PN16
<b>Media</b>	Water
<b>Mounting position</b>	Horizontal or vertical
<b>Point of installation</b>	Return flow
<b>Temperature range</b>	15...90 °C
<b>Measuring principle</b>	Ultrasonic
<b>Dynamic range <math>q_i/q_p</math></b>	1:100 (1:50 for $q_p 0.6$ )
<b>Accuracy according to MID</b>	Class 2
<b>Recommended minimum system pressure</b>	1 bar (to avoid cavitation problems)

## 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 $q_s$
SS2U15-0.6...	DN15	0.6 m <sup>3</sup> /h	1.2 m <sup>3</sup> /h	12 l/h	1.0 m <sup>3</sup> /h	6 l/h	0.03 bar	0.15 bar
SS2U15-1.5...	DN15	1.5 m <sup>3</sup> /h	3.0 m <sup>3</sup> /h	15 l/h	1.0 m <sup>3</sup> /h	6 l/h	0.21 bar	0.87 bar
SS2U20-2.5...	DN20	2.5 m <sup>3</sup> /h	5.0 m <sup>3</sup> /h	25 l/h	2.5 m <sup>3</sup> /h	12 l/h	0.115 bar	0.425 bar
SS2U20-3.5...	DN20	3.5 m <sup>3</sup> /h	7.0 m <sup>3</sup> /h	35 l/h	2.5 m <sup>3</sup> /h	17 l/h	0.21 bar	0.835 bar
SS2U25-3.5...	DN25	3.5 m <sup>3</sup> /h	7.0 m <sup>3</sup> /h	35 l/h	2.5 m <sup>3</sup> /h	17 l/h	0.21 bar	0.835 bar
SS2U25-6.0...	DN25	6.0 m <sup>3</sup> /h	12 m <sup>3</sup> /h	60 l/h	4.4 m <sup>3</sup> /h	30 l/h	0.20 bar	0.79 bar

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

Options	SS2U...	-...	-...
<b>Flow (thread on meter body) (DN) (length of flow meter)</b>			
0.6 m <sup>3</sup> /h (G3/4") (DN15) (110 mm)	SS2U15-0.6 <sup>1</sup>		
1.5 m <sup>3</sup> /h (G3/4") (DN15) (110 mm)	SS2U15-1.5		
2.5 m <sup>3</sup> /h (G1") (DN20) (130 mm)	SS2U20-2.5		
3.5 m <sup>3</sup> /h (G1") (DN20) (130 mm)	SS2U20-3.5		
3.5 m <sup>3</sup> /h (G1¼") (DN25) (150 mm)	SS2U25-3.5		
6.0 m <sup>3</sup> /h (G1¼") (DN25) (150 mm)	SS2U25-6.0		
<b>Type of measurement and installation point</b>			
Heating, installation of flow meter in return pipe (MID approval)		-HR	
Cooling <sup>2</sup> , installation of flow meter in return pipe		-CR	
Heating and cooling in combination <sup>3</sup> , installation of flow meter in return pipe		-HCR	
<b>Communication interface</b>			
M-Bus			-M
M-Bus with 2 pulse inputs <sup>4</sup>			-MPI
Pulse output for energy			-PO

<sup>1</sup> 0.6 is only available for heating, not for cooling

<sup>2</sup> National German approval.

<sup>3</sup> MID approval for heating, not for cooling

<sup>4</sup> 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 m<sup>3</sup>/h. Heating, installation in return pipe. M-Bus.

Resulting item ordering number: SS2U15-1.5-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 3.5 m<sup>3</sup>/h, DN25. Cooling, installation in return pipe. M-Bus + pulse input.

Resulting item ordering number: SS2U20-3.5-CR-MPI

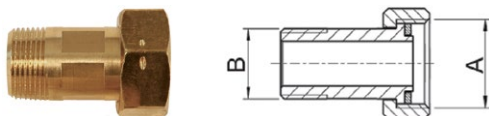
### Possible accessories needed:

- KH-1¼, 2 pcs, ball valve connection for both sides of the meter or brass fittings VSR-1
- KH-S-1¼, 1 pc, ball valve with installation point for a temperature sensor in supply flow

## Accessories

## Threaded fitting with coupling ring and gasket \*

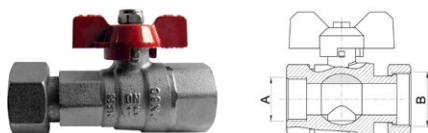
Article	Connection A	Connection B	Compatible with
VSR-1/2	G $\frac{3}{4}$	R $\frac{1}{2}$	q <sub>p</sub> 0.6/1.5 m <sup>3</sup> /h
VSR-3/4	G1	R $\frac{3}{4}$	q <sub>p</sub> 2.5/3.5 m <sup>3</sup> /h
VSR-1	G1 $\frac{1}{4}$	R1	q <sub>p</sub> 3.5/6.0 m <sup>3</sup> /h



\* 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 \*

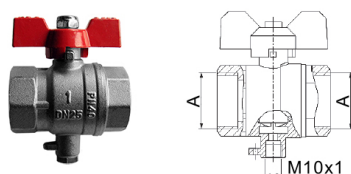
Article	Connection A	Connection B	Compatible with
KH-3/4	Rp $\frac{3}{4}$	G $\frac{3}{4}$	q <sub>p</sub> 0.6/1.5 m <sup>3</sup> /h
KH-1	Rp1	G1	q <sub>p</sub> 2.5/3.5 m <sup>3</sup> /h
KH-1 1/4	Rp1 $\frac{1}{4}$	G1 $\frac{1}{4}$	q <sub>p</sub> 3.5/6.0 m <sup>3</sup> /h



\* 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	G $\frac{3}{4}$	q <sub>p</sub> 0.6/1.5 m <sup>3</sup> /h
KH-S-1	G1	q <sub>p</sub> 2.5/3.5 m <sup>3</sup> /h
KH-S-1 1/4	G1 $\frac{1}{4}$	q <sub>p</sub> 3.5/6.0 m <sup>3</sup> /h



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

Article	Connection A
VAD-1/2	G $\frac{1}{2}$ , M10x1
VAD-3/8	G $\frac{3}{8}$ , M10x1



## Threaded adapter to replace a flow meter temporarily or permanently

Article	Connection A	Compatible with	Installation length
PS-110-3/4	G $\frac{3}{4}$	q <sub>p</sub> 0.6/1.5 m <sup>3</sup> /h	110 mm
PS-130-1	G1	q <sub>p</sub> 2.5 m <sup>3</sup> /h	130 mm
PS-150-1 1/4	G1 $\frac{1}{4}$	q <sub>p</sub> 3.5/6 m <sup>3</sup> /h	150 mm

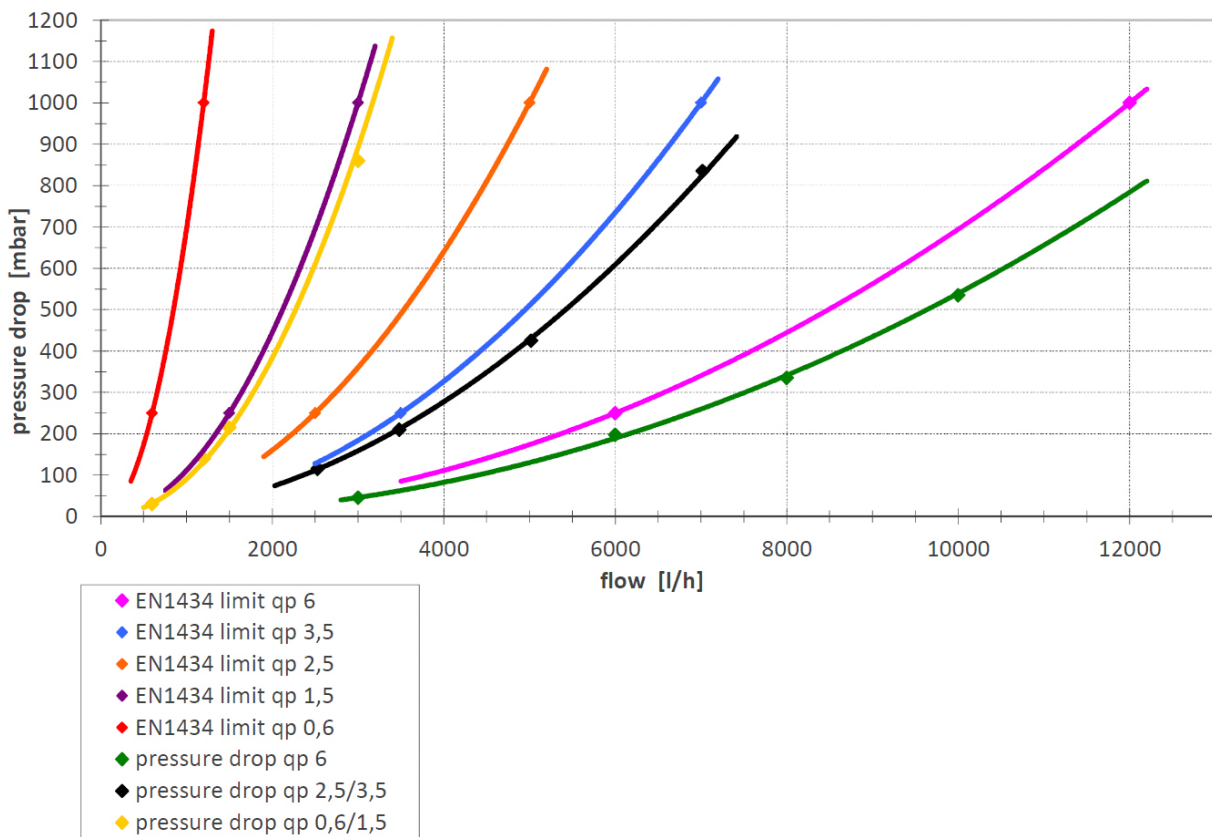


## Optical interface and read-out software

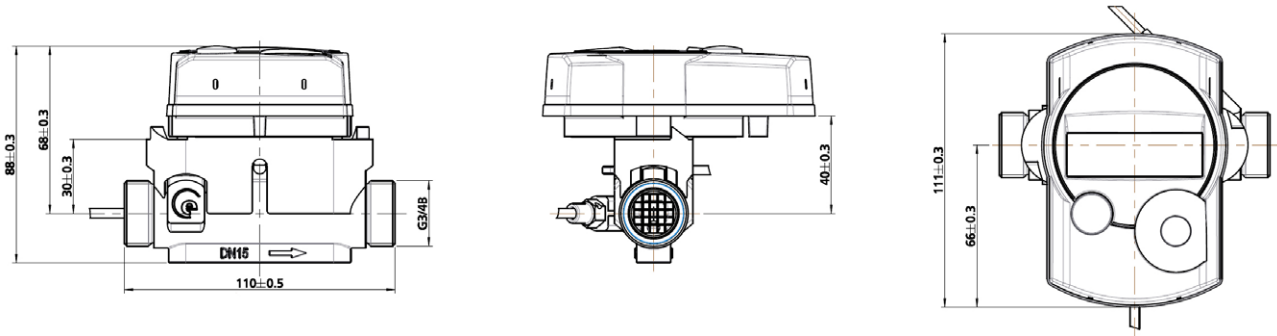
Article	Description
OPTO-CABLE-USB	Optocoupler with USB interface
OPTO-TOOL	Software device monitor



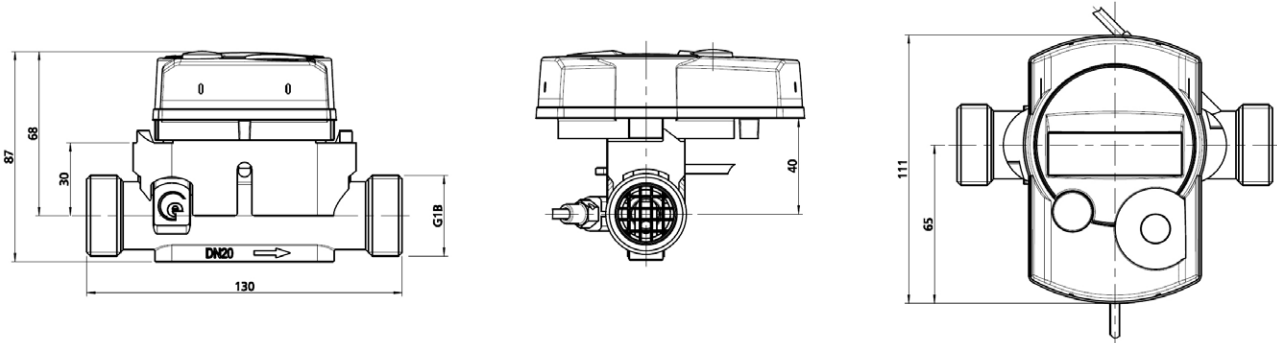
## Pressure drop curves



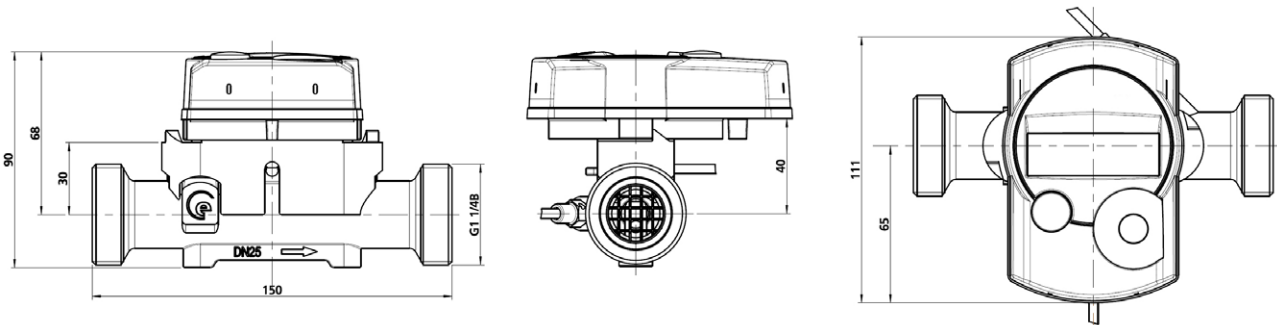
## Dimensions



DN15 - 3/4"



DN20 - 1"



DN25 - 1 1/4"

Measurements in mm unless otherwise specified.