



## Heat and cold meter Q heat 5.5 US R

### Static ultrasonic heat and cold meter

- › Precise and durable ultrasonic measurement technology
- › Flow sensor in all-metal design with nominal flow rate  $q_p$  0,6-10 m<sup>3</sup>/h
- › Integrated radio technology for integration into a Q walk-by or Q AMR system
- › Flexibility by changing the return and supply flow as well as the energy unit
- › Heat meter, heat meter with cooling option and cold meter
- › Short and static temperature measurement cycle
- › Compact design and detachable calculator unit
- › Any installation position without restrictions

## Application

The measuring device is used to record heat energy or cold energy. The main areas of application are supply systems with a central heating or cooling circuit in which only water is used as the energy medium.

## Features

- › Flow sensor in all-metal design with nominal flow  $Q_p$  0.6 m<sup>3</sup>/h ... 10. m<sup>3</sup>/h
- › Patented, contamination-resistant ultrasonic measurement process
- › Position-independent, high dynamic range up to 1:100 for detection of smallest flow rates
- › Radio data transmission by sending Q AMR- and Q walk-by telegrams in C-mode as standard
- › Optional only with Q AMR telegrams or Q AMR extended telegrams<sup>1</sup> available for system optimization
- › For secure data transmission optionally with AES encryption mode 5 and mode 7 available
- › Flexibility during commissioning by switching the return and supply flow without exchanging the temperature sensors as well as changing the energy unit
- › Available as heat meter, heat meter with cooling option and cold meter
- › Standard ort and static temperature measurement cycle every 12 seconds (with 10 year battery) - ideal for use in central supply facilities
- › Compact design and detachable calculator unit as standard for tight and difficult-to-access installation situations
- › any installation position, also „overhead“

## Technical data - Norms and standards

Conformity	see EU Declaration of Conformity
<b>Standards</b>	
Interference resistance and interference emission	EN 301489-1, EN 301489-3
Safety	EN 62368-1, EN 62479
<b>IP protection rating</b>	
Calculator unit	IP65 according to EN 60529
Flow sensor	IP65 according to 60529
<b>Meter</b>	
European Measuring Instruments Directive (MID)2014/32/EU	
Meter	EN1434
Quality of heat medium	according to VDI guideline 2035, according to AGFW standard 510
<b>Influencing quantities</b>	
Electromagnetic class	E1
Mechanical class	M2
Measuring accuracy class	3 / 2 (depending on Flow sensor)

<sup>1</sup> Q AMR telegram extended by current flow temperature, current return temperature, current volume flow and current output

## Technical data - Calculator unit

Temperature range	as heat meter: 10 °C ... 105 °C as heat meter with cooling option: 0 °C ... 105 °C as cold meter: 0 °C ... 50 °C
Temperature difference range	as heat meter: 3 K ... 70 K as heat meter with cooling option: 3 K ... 70 K as cold meter: 3 K ... 50 K start of metering temperature difference: 0.2 K
Ambient temperature	5 °C ... 55 °C
<b>Power supply</b>	
Lithium battery	Nominal voltage 3.0 V
Battery life	7 (opt. 10) years
<b>Display levels</b>	
Display	8-digit LCD + pictograms
Energy display (switchable)	kWh <-> MWh MJ <-> GJ kWh <-> MJ (only up to 50 liters cumulative flow) MWh <-> GJ (only up to 50 liters cumulative flow)
Connection cable Calculator unit - flow sensor	80 cm

## Technical data - Temperature sensor

Measuring element	Pt1000 according to EN 60751
Version	type DS
Diameter Ø	5.0 mm - 5.2 mm - 6.0 mm - AGFW
Installation variant	5,0 mm - direct (Ball valve) / indirect <sup>1)</sup> (Immersion sleeve) 5,2 mm - direct (Ball valve) / indirect <sup>1)</sup> (Immersion sleeve) 6,0 mm - direct (Ball valve) / indirect <sup>1)</sup> (Immersion sleeve) AGFW 27,5 mm - direct (Ball valve) AGFW 38 mm (≥ q <sub>p</sub> 3.5 m <sup>3</sup> ) - direct (Ball valve)
Cable length	standard: 1.5 m optional: 3.0 m

<sup>1)</sup> Note national and country-specific regulations concerning the use of immersion sleeves!

## Technical data - Radio technology

Transmission behavior C-mode	
Q walk-by	every 112 seconds 10 hours per day (8 am ... 8 pm) 365 days a year
Q AMR <sup>1)</sup>	every 7.5 minutes 24 hours per day 365 days a year
Radio technology	
Radio frequency	C-mode (868.95 +/- 0.25) MHz
Transmission power	typically 10 dBm, maximum 14 dBm
Encryption <sup>2)</sup>	Security Mode 5 or 7 according to EN 13757-7, Security Profile A or B according to OMS specification
Duty cycle	< 0.1 % (50 ms/128 s)
Data transmission	EN 13757-4

<sup>1)</sup> OMS conform data telegrams

<sup>2)</sup> Encryption optional

## Technical data - Flow sensor 0.6 to 2.5 m<sup>3</sup>

Nominal flow rate $q_p$	0,6 m <sup>3</sup> /h	1,5 m <sup>3</sup> /h	1,5 m <sup>3</sup> /h	2,5 m <sup>3</sup> /h
Overall length	110 mm	110 mm	130 mm	130 mm
Connection	G <sup>3</sup> / <sub>4</sub> B	G <sup>3</sup> / <sub>4</sub> B	G 1 B	G 1 B
Weight	530 g	530 g	660 g	660 g
Installation location	Return or supply flow (switchable up to 50 litres cumulative flow)			
Installation position	any			
Inflow and outflow zone	not required (U0/D0)			
Minimum flow $q_i$	12 l/h	15 l/h	30 l/h	25 l/h
Maximum flow $q_s$	1200 l/h	3000 l/h	3000 l/h	5000 l/h
Start-up limit $q_o$	6 l/h	6 l/h	10 l/h	10 l/h
Dynamic range $q_i/q_p$	1:50	1:100	1:50	1:100
Measuring accuracy class	3	2	3	2
Pressure loss at $q_p$	20 mbar	130 mbar	65 mbar	180 mbar
Max. permissible operating pressure	16 bar			
Min. system pressure to avoid cavitation <sup>1)</sup>	1 bar	1,5 bar	1 bar	2 bar
Temperature range as Heat meter	5 °C ... 90 °C			
Temperature range as Heat meter with cooling option	5 °C ... 90 °C			
Temperature range as cold meter	5 °C ... 50 °C			

<sup>1)</sup> Cavity formation in fast flowing liquids

## Technical data - Flow sensor 3.5 to 10 m<sup>3</sup>

Nominal flow rate $q_p$	3.5 m <sup>3</sup> /h	3.5 m <sup>3</sup> /h	6.0 m <sup>3</sup> /h	6.0 m <sup>3</sup> /h	10.0 m <sup>3</sup> /h	10.0 m <sup>3</sup> /h
Overall length	150 mm	260 mm	150 mm	260 mm	200 mm	300 mm
Connection	G 1 1/4 B	G 1 1/4 B	G 1 1/4 B	G 1 1/4 B	G 2 B	G 2 B
Weight	875 g	1173 g	875 g	1173 g	1390 g	1750 g
Installation location	Return or supply flow (switchable up to 50 litres cumulative flow)					
Installation position	any					
Inflow and outflow zone	not required (U0/D0)					
Minimum flow $q_i$	28 l/h	28 l/h	48 l/h (24 l/h) <sup>1</sup>	48 l/h (24 l/h) <sup>1</sup>	100 l/h	100 l/h
Maximum flow $q_s$	7000 l/h	7000 l/h	12000 l/h	12000 l/h	20000 l/h	20000 l/h
Start-up limit $q_0$	14 l/h	14 l/h	24 l/h (12 l/h) <sup>1</sup>	24 l/h (12 l/h) <sup>1</sup>	50 l/h	50 l/h
Dynamic range $q_i/q_p$	1:125	1:125	1:125 (1:250) <sup>1</sup>	1:125 (1:250) <sup>1</sup>	1:100	1:100
Measuring accuracy class	2	2	2	2	2	2
Pressure loss at $q_p$	49 mbar	38 mbar	152 mbar	122 mbar	110 mbar	110 mbar
Max. permissible operating pressure	16 bar					
Min. system pressure to avoid cavitation <sup>2)</sup>	1 bar	1 bar	1.5 bar	1.5 bar	1.5 bar	1.5 bar
Temperature range als Heat meter	5 °C ... 90 °C					
Temperature range as Heat meter with cooling option	5 °C ... 90 °C					
Temperature range als cold meter	5 °C ... 50 °C					

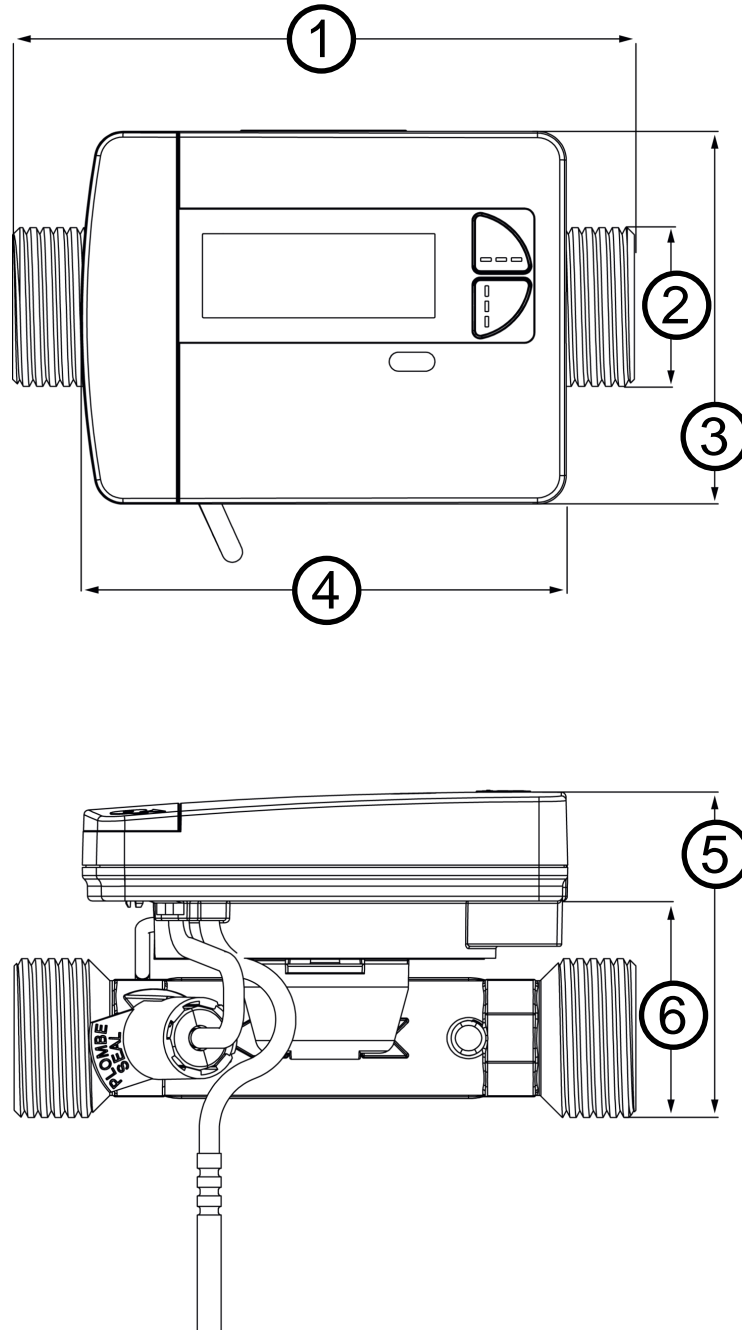
<sup>1)</sup>optionally available

<sup>2)</sup>Cavity formation in fast flowing liquids

### Ambient conditions

Transport	-25 °C ... 70 °C, < 95 % r.h. (without condensation)
Storage	-5 °C ... 45 °C, < 95 % r.h. (without condensation)
Usage	+5 °C ... 55 °C, < 95 % r.h. (without condensation)
Medium	Only use water without chemical additives as the medium for this device (heat and cold meter). Glycol additives or sodium chloride NaCl (common salt) are expressly not permitted!

## Dimensional drawings



	0,6 m³/h	1,5 m³/h	1,5 m³/h	2,5 m³/h	3,5 m³/h	3,5 m³/h	6,0 m³/h	6,0 m³/h	10,0 m³/h	10,0 m³/h
<b>1</b>	110 mm	110 mm	130 mm	130 mm	150 mm	260 mm	150 mm	260 mm	200 mm	300 mm
<b>2</b>	G 3/4 B	G 3/4 B	G 1 B	G 1 B	G 1 1/4 B	G 1 1/4 B	G 1 1/4 B	G 1 1/4 B	G 2 B	G 2 B
<b>3</b>	78 mm									
<b>4</b>	101,5 mm									
<b>5</b>	65 mm	65 mm	68,48 mm	68,48 mm	84 mm	84 mm	84 mm	84 mm	100 mm	100 mm
<b>6</b>	41,5 mm	41,5 mm	45 mm	45 mm	60,5 mm	60,5 mm	60,5 mm	60,5 mm	76,5 mm	76,5 mm



**QUNDIS GmbH**

Sonnentor 2  
99098 Erfurt  
Germany  
Phone.: +49 (0) 361 26 280-0  
Fax: +49 (0) 361 26 280-175  
E mail: info@qundis.com

**www.qundis.com**

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**noventic group**

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