

AMTRON[®] S2

Compact heat and cooling meter

Application

The AMTRON[®] S2 compact meter is used for energy consumption measurements for heating and cooling applications in small premises such as apartments, offices as well as for local and district heating. The AMTRON[®] S2 can be supplied with pulse output, M-Bus interface or wireless M-Bus (radio) using the manufacturer-independent OMS[®] standard.



Features

- Power supply from ten-year battery
- Available with wireless M-Bus radio
- Supports the open OMS[®] standard
- The last 15 end of month values are memorised in the integrated data logger
- Installation in horizontal and vertical piping
- Metrological approval in accordance with 2004/22/EC (MID) and PTB K 7.2

Customer benefits

- Easy mounting
- Long operating lifetime
- Radio using OMS[®] standard for easy mobile or fixed readout
- Combined heat and cooling measurement
- Also approved for commercial billing processes

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1 Operating principle and system structure

The compact meter consists of a flow transmitter, a calculator and matched temperature sensors.

The flow transmitter uses highly-precise single-jet functionality ('h' and 'h&c' variants) or multi-jet functionality ('c' variants). The electronic impeller scanning does not use magnets and is fraud-proof.

The temperature sensors are equipped with high-quality Pt500 platinum resistors with long-term stability, offering short response times and high measuring accuracy. The return sensor is integrated into the flow sensor. The supply sensor, with a cable length of 1.5m and measuring 5mm in diameter, is equipped with a CEN M10x1 threaded connection for directly immersed installation.

The calculator is rotatable and can be installed remotely (max. 30cm).

The large, high-contrast display shows the energy in MWh with three fractional digits. A brief press of the operating button can be used to access various pieces of data across three display loops. For quick and easy use, these display loops are divided by application into the main loop, technical loop and statistics loop. The last 15 end of month values can be read via this display.

Depending on the model chosen, it may have a voltage-free pulse output, M-Bus interface or wireless M-Bus radio using the manufacturer-independent OMS standard.

Two pulse inputs are available for connecting a hot and cold water meter, depending on the model chosen.

The calculator also has a self-monitoring function with detailed error display for installation control and to support commissioning.

2 Technical specifications and order informations

Thermal energy meter	
Basic features	
Environment class	EN 1434 class C
Ambient temperature	5 - 50°C
Protection type	IP65 flow sensor / IP54 calculator
Installation position	Horizontal or vertical
Required inlet and outlet sections	None
Accuracy class	EN 1434 class 3
Power supply	Battery 10+1 years (Pulse output variants 5+1 year)
Display	
Units	LCD, 8-digit MWh; optional kWh, GJ
Total values	99 999.999
Values displayed	Energy, volume, flow rate, power, temperature, temperature difference, maximum values, the last 15 end of month values
Temperature measurement	
Temperature differential range	3 - 105°C
Temperature measurement resolution	typically ±0.01 K
Measurement cycle	Managed dynamically, 12.5 - 60 s
Interfaces	
Optical interface	M-Bus protocol
Pulse output (depending on version)	Voltage-free pulse output (class A0 under EN1434), 1kWh / pulse
M-Bus (depending on version)	M-Bus as per EN1434-3 / EN13757 Read-outs per day primary addressing > 105 Read-outs per day secondary addressing > 27
Wireless M-Bus radio (depending on version)	868 MHz, open metering standard (OMS) For S1/T1 and S2/T2 modes as per EN13757 Short or long telegram For mobile walk-by or fixed AMR readout Sending interval 2 - 240 minutes Sending times freely selectable AES 128 encryption (Default: mode T1, long telegram with current energy and volume meter reading and the last 15 end of month energy values, sending interval of 4 minutes on working days from 07:00 – 19:00, encrypted)

Flow-rate measurement			
Nominal flow	[m ³ /hr]	qp = 1.5	qp = 2.5
Nominal diameter DN	[mm]	15	20
Connecting thread	[inches]	G3/4	G1
Overall length	[mm]	110	130
Nominal pressure PN	[bar]	16	16
Max. flow rate qs	[m ³ /hr]	3	5
Min. flow rate qi	(l/hr)	30	50
Low flow threshold values	(l/hr)	7	10
Heat meters, installation on cold side (return)			
Water temperature	[°C]	15 - 90°C	15 - 90°C
Kvs value	[m ³ /hr]	3.35	6.06
Pressure drop Δp at qp	[bar]	0.200	0.170
Installed height from pipe centre	[mm]	81	81
Approval		MID 2004/22/EC	MID 2004/22/EC
Item no. basic model		95162	95163
Item no. with M-Bus		95164	95165
Item no. with M-Bus and pulse inputs		95166	95167
Item no. with radio		95168	95169
Item no. with radio and pulse inputs		95170	95171
Item no. with pulse output		95172	-
Combined heat and cooling meter, installation in return line (h&c)			
Water temperature	[°C]	5 ... 90	5 ... 90
Kvs value	[m ³ /hr]	3.35	6.06
Pressure drop Δp at qp	[bar]	0.200	0.170
Installed height from pipe centre	[mm]	81	81
Approval		MID 2004/22/EC	MID 2004/22/EC
Basic model item no.		95175	95176
Item no. battery version with M-Bus		95177	95178
Item no. with M-Bus and pulse inputs		95179	95180
Item no. with radio		95181	95182
Item no. with radio and pulse inputs		95183	95185
Cooling meters, installation in return line (c)			
Water temperature	[°C]	5 ... 50	5 ... 50
Kvs value	[m ³ /hr]	3.6	6.0
Pressure drop Δp at qp	[bar]	0.230	0.240
Installed height from pipe centre	[mm]	99	99
Certification		PTB K 7.2	PTB K 7.2
Item no. with M-Bus		95185	95186
Item no. with radio		95187	95188

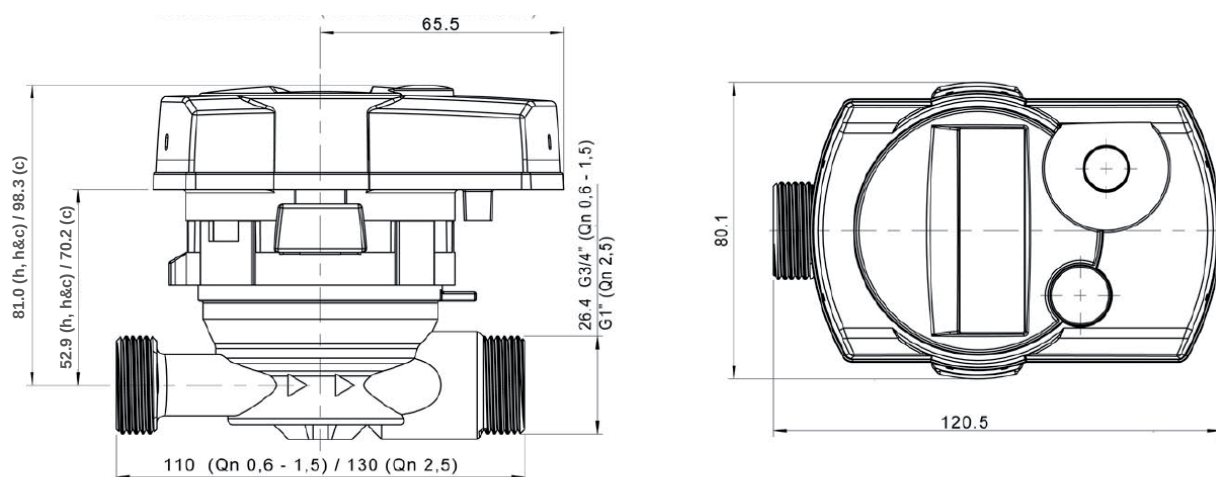
3 Engineering notes

For automatic readouts via M-Bus or wireless M-Bus radio, we offer you comprehensive system technology for fixed or mobile readout. We would also be happy to advise you on readout and billing services.

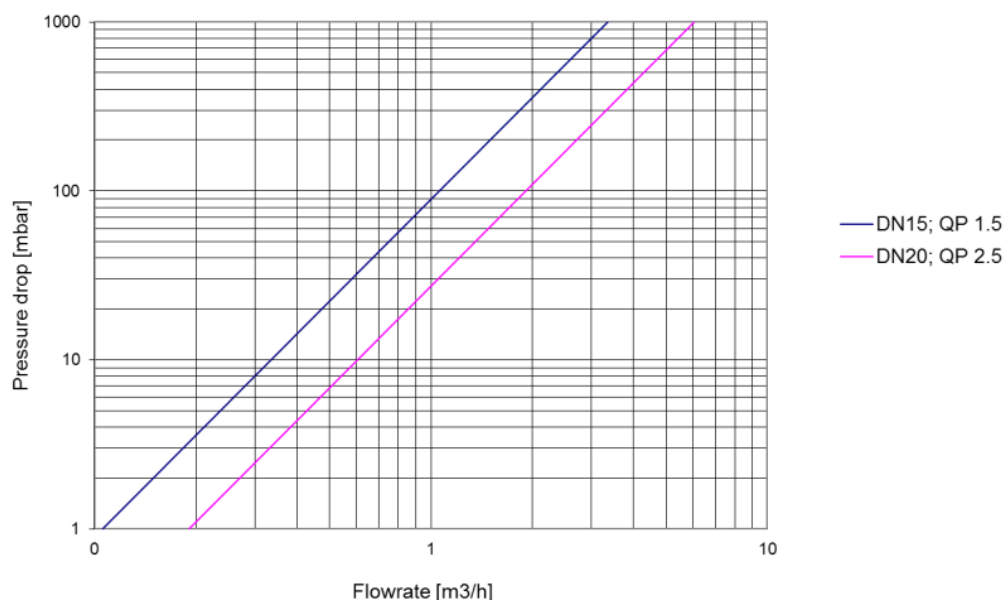
4 Installation

The AMTRON® S2 heat and cooling meters can be installed horizontally or vertically in the pipeline. No inlet or outlet straight piping is required. The totalizer may be facing upwards or sideways. An optional wall mounting support is available for remote installation of the totalizer.

5 Dimensional drawings



6 Nomogram of pressure loss



7 Approval permits

The instruments are approved according to the European MID directive 2004/22/EC and the PTB K 7.2 standard (cooling). Instruments for commercial heat or cooling measurement are subject to commercial verification in most countries. Equipment subject to this obligation must be recalibrated after expiry of the calibration period. The operator is responsible for compliance with the regulations.

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