

AMTRON[®] SONIC D

Compact ultrasonic heat and cooling meter

Application

AMTRON[®] SONIC D is a fully-electronic compact heat meter for measuring thermal energy in heating and cooling plants used in facility management systems, local and district heating systems. With wireless M-Bus (Radio) or M-Bus all possibilities of communication are open.



Features

- Certified measuring range 1:250, class 2
- Can be equipped with an M-Bus or wireless M-Bus (Radio) interface and 2 pulsed inputs or outputs
- Stores the data of the past 24 months and 440 meter readings along with error status
- Battery with 11-year typical lifetime or 24 VAC or 230 VAC power pack module

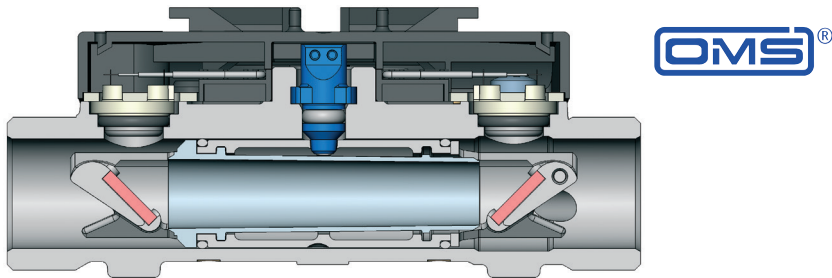
Benefits

- Static measurement principle with no moving parts; insensitive to grit
- Measurement in heating and cooling plants
- Remote reading of 2 meters via M-Bus
- Multipurpose data storing
- Any mounting position possible
- Radio according to the OMS[®] open standard for mobile or fixed reading without difficulties

Instrument design

The compact ultrasonic heat meter consists of an ultrasonic flow sensor, two temperature sensors, for measuring forward and return flow temperatures, and an electronic totalizer. This totalizer can be mounted either on the flowmeter or on a wall.

AMTRON® SONIC D is equipped with a ZVEI optical interface with an EN 1434 M-Bus protocol.



Optional modules

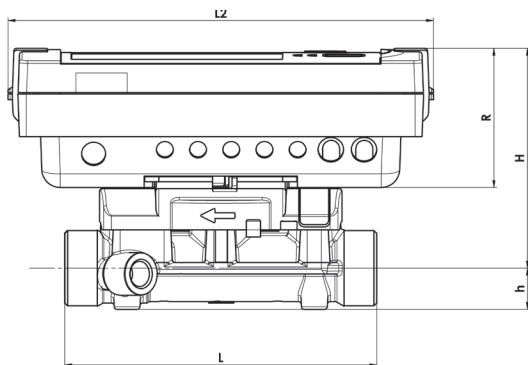
There are two slots for the following optional modules:

- M-Bus
- RS-232 (300/2400 baud)
- RS-485 (300/2400 baud)
- Pulse output module (2 outputs)
- Pulse input module (2 inputs)
- Combined pulse module (2 pulse inputs, 1 pulse output galvanically not isolated)

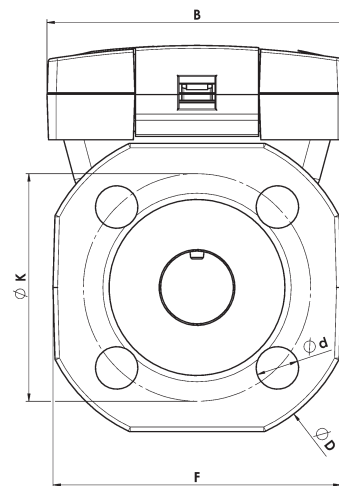
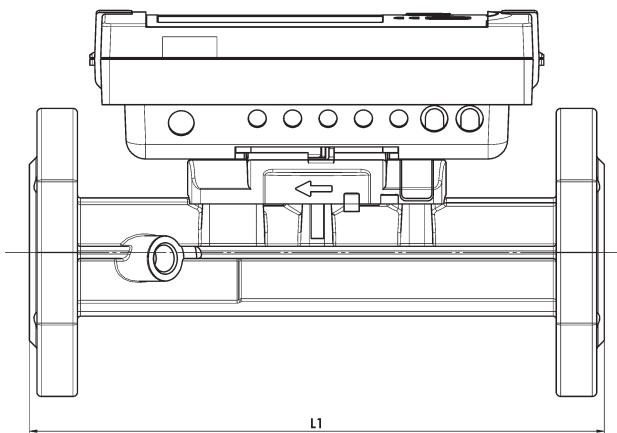
Memory and logger function

With an internal memory can be logged the measured parameters, maximum values and error alerts for a free programmable interval. (E.g. 25 different values can be saved monthly for more than two years)

Dimensions



Dimensions of the electronics module
L2 x B x R = 150 x 100 x 50 mm



Technical data

Energy meter			
Basic features			
Ambient class	EN 1434 Class C / A		
Ambient temperature	5...50 °C		
Ingress protection	IP 54 (heat meters) / IP 68 (flow sensor for cooling)		
Liquid temperature	Heat meter 5...130 °C (upwards qp 3.5 m³/h 5...150 °C)		
Display			
Units	LC display, 8-character MWh-kWh-GJ-Gcal-MBtu		
Values, total	99 999.999		
Values displayed	Energy, flow rate, totalized flow, power, temperatures, temperature difference		
Input			
Temp. sensor	Type	Pt500 as two-wire version up to qp 2.5 m³/h, length 2 m The sensors has to be ordered separately from qp 3.5 m³/h upwards.	
Measuring cycle	T	s	Mains power: 1 s Battery: 16 s
Max. temp. difference	ΔΘmax	K	177 (acc. to certification)
Min. temp. difference	ΔΘmin	K	3 (acc. to certification)
Power supply			
Battery supply	3.6 VDC, A cell (standard) 11 years, D cell (option) 16 years		
Mains supply	230 VAC		
Low voltage supply	24 VAC		
Integrated radio			
Frequency band	868 MHz		
Type of radio telegram	Open Metering Standard (OMS)		
Data transmission	Unidirectional		
Sending interval	Mains power 12 s; Battery D-cell (option) 12s; Battery A-cell (standard) 180s		

Ordering information

Nominal flow rate [m ³ /h]		qp=0.6			qp=1.5			qp=2.5			qp=3.5			qp =6		
Nominal diameter DN	[mm]	15	15	20	20	20	20	25	25	32	25	25	32			
Connection thread	[inches]	G3/4	G3/4	–	G1	G1	–	G1 1/4	–	–	G1 1/4	–	–			
Flange	[mm]	–	–	FL20	–	–	FL20	–	FL25	FL32	–	FL25	FL32			
Length L	[mm]	110	110	190	130	190	190	260	260	260	260	260	260			
Max. operating pressure PN	[bar]	16 (25)	16 (25)	25	16 (25)	16 (25)	25	16 (25)	25	25	16 (25)	25	25			
Max. flow rate qs	[m ³ /h]	1.2	3	3	5	5	5	7	7	7	12	12	12			
Min. flow rate qi	[l/h]	6	6	6	10	10	10	35	35	35	24	24	24			
Overload qp	[m ³ /h]	2.5	4.6	4.6	6.7	6.7	6.7	18.4	18.4	18.4	18.4	18.4	18.4			
Threshold flow rate	[l/h]	1	2.5	2.5	4	4	4	7	7	7	7	7	7			
Value Kvs	[m ³ /h]	2.06	5.48	5.48	7.91	7.91	7.91	16.7	16.7	16.7	16.7	16.7	16.7			
Pressure loss Δp at qp	[mbar]	85	75	75	100	100	100	44	44	44	128	128	128			
Height H	[mm]	78	78	80	80	80	80	84.5	84.5	84.5	84.5	84.5	84.5			
Height h	[mm]	14.5	14.5	47.5	18	18	47.5	23	50	62.5	23	50	62.5			
Diameter D	[mm]	–	–	105	–	–	105	–	114	139	–	114	139			
Diameter d	[mm]	–	–	14	–	–	14	–	14	18	–	14	18			
Width of the flange F	[mm]	–	–	95	–	–	95	–	100	125	–	100	125			
Hole circle K	[mm]	–	–	75	–	–	75	–	85	100	–	85	100			
Number of drillings		–	–	4	–	–	4	–	4	4	–	4	4			
Flow sensor in brass		X	X	X	X	X	X	X	X	X	X	X	X			
Flow sensor in grey cast iron with KTL-coating		–	–	–	–	–	–	–	–	–	–	–	–			
Weight	[kg]	0.76	0.76	2.75	0.85	0.96	2.75	1.5	3.5	4.8	1.5	3.5	4.8			
Art. No. battery version		94802	94803	*)	94804	94805	94809	94806	*)	*)	94807	94810	94811			
Art. No. battery version with M-Bus		94817	94818	*)	94819	94820	94824	94821	*)	*)	94822	94825	94826			
Art. No. battery version with Radio		94908	94909	*)	94910	94911	94915	94912	*)	*)	94913	94916	94841			
Art. No. battery version with Radio and puls inputs		94938	94939	*)	94940	94941	94945	94942	*)	*)	94943	94946	94947			
Art. No. main supply version 230 VAC		94832	94833	*)	94834	94835	94839	94836	*)	*)	94837	94840	94917			
Art. No. main supply version 230 VAC with M-Bus		94847	94848	180436	94849	94850	94854	94851	*)	*)	94852	94855	94856			

*) On request

Ordering information

Nominal flow rate [m ³ /h]	qp=10	qp=15	qp=25	qp=40	qp=60	
Nominal diameter DN [mm]	40	40	50	65	80	100
Connection thread [inches]	G2	--	--	--	--	--
Flange [mm]	--	FL40	FL50	FL65	FL80	FL100
Length L [mm]	300	300	270	300	300	360
Max. operating pressure PN [bar]	16 (25)	25	25	25	25	25
Max. flow rate qs [m ³ /h]	20	20	30	50	80	120
Min. flow rate qi [l/h]	40*/100	40*/100	60*/150	100*/250	160	240*/600
Overload qp [m ³ /h]	24	24	36	60	90	132
Threshold flow rate [l/h]	20	20	40	50	80	120
Value Kvs [m ³ /h]	32.4	32.4	53.0	91.3	141.4	219
Pressure loss Δp at qp [mbar]	95	95	80	75	80	75
Height H [mm]	90	90	95	102.5	110	115
Height h [mm]	33	69	73.5	85	92.5	108
Diameter D [mm]	--	148	163	184	200	235
Diameter d [mm]	--	18	18	18	19	22
Width of the flange F [mm]	--	138	147	170	185	216
Hole circle K [mm]	--	110	125	145	160	190
Number of drillings	--	4	4	8	8	8
Flow sensor in brass	X	X	**)	**)	**)	**)
Flow sensor in grey cast iron with KTL-coating	--	--	X	X	X	X
Weight [kg]	3	6.8	5.9	7.7	9.6	15.2
Art. No. battery version	94808	94812	94813	94941	94815	94816
Art. No. battery version with M-Bus	94823	94827	94828	94829	94830	94831
Art. No. battery version with Radio	94914	94918	94919	94920	94921	94922
Art. No. battery version with Radio and puls inputs	94944	94948	94949	94950	94951	94952
Art. No. main supply version 230 VAC	94838	94842	94843	94844	94845	94846
Art. No. main supply version 230 VAC with M-Bus	94853	94857	94858	94859	94860	94861

*) Only when installed horizontally

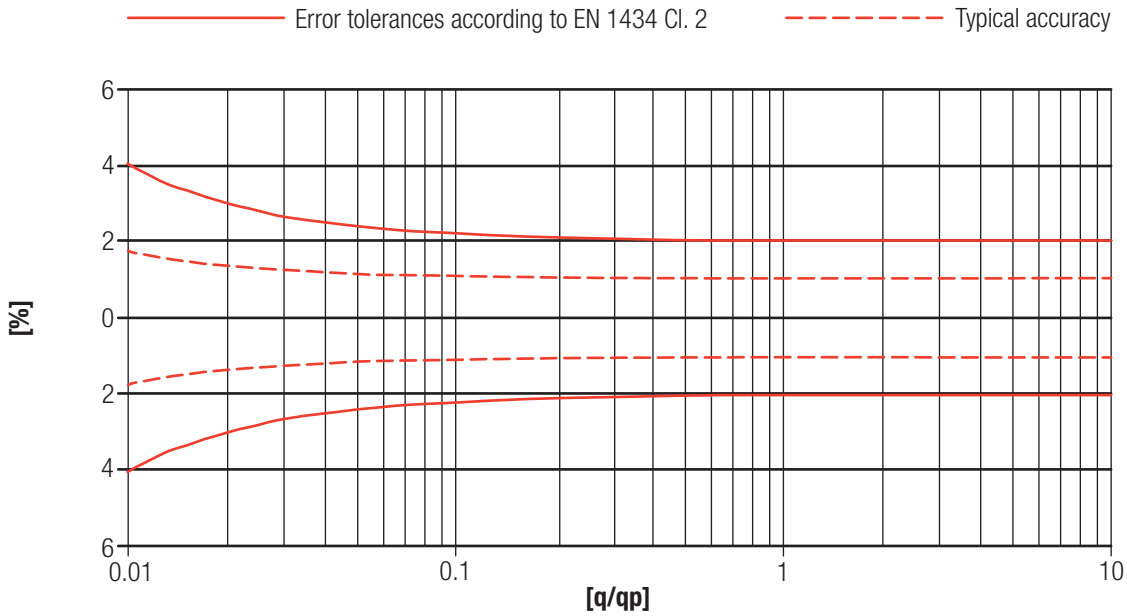
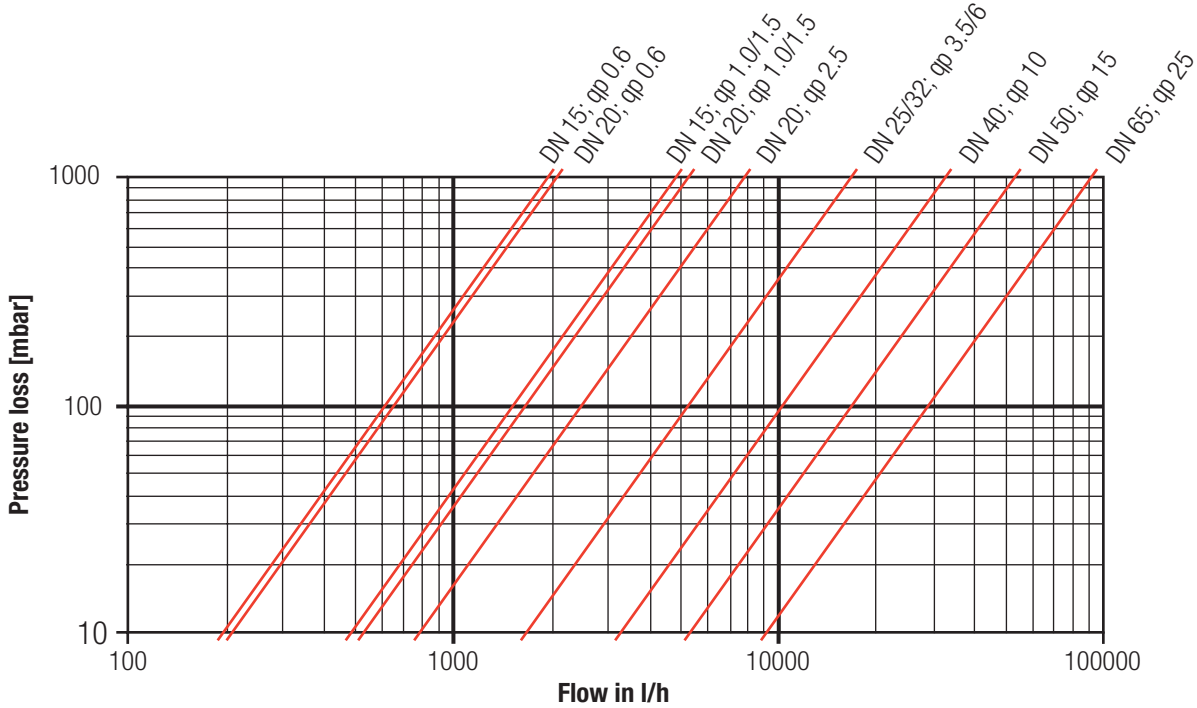
***) DN50-100: if used in > 105°C, brass version required

Options on request

Installation on warm side, cooling version and version for combined heating and cooling operation (BDE)

Pressure loss and accuracy

acc. to EN 1434 Class 2



CE conformity and approval

The instruments are approved according to the MID directive 2004/22/CE. Instruments for commercial heat 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.