

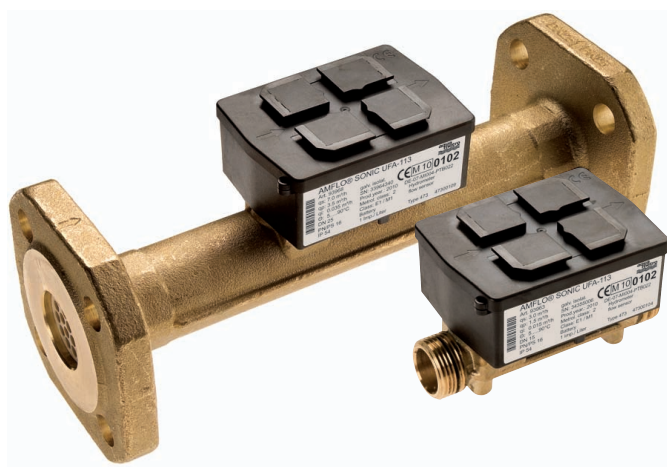
AMFLO® SONIC

UFA-113

Ultrasonic flow sensor

Applications

Ultrasonic flow sensor for use with energy calculators for heating and cooling applications.



Features

- Static sensor based on the ultrasonic transit time principle
- Tough stainless steel reflectors
- Measuring tube is easy to maintain
- Low start-up value and high measurement dynamics
- Flow-optimised design
- Approved range of measurement 1:250 in class 2

Benefits

- Wear-free as no moving parts
- Resistant to deposits
- No dirt filter required
- Low pressure loss
- No in- and outlet section needed
- Any mounting position possible

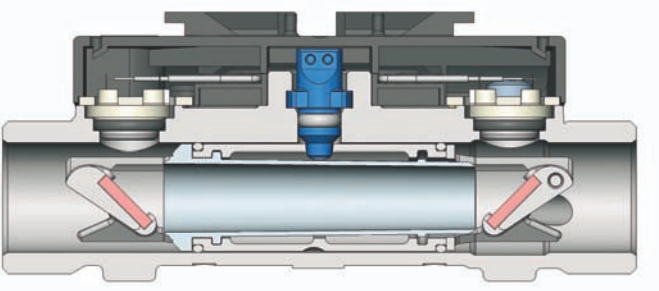
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Function



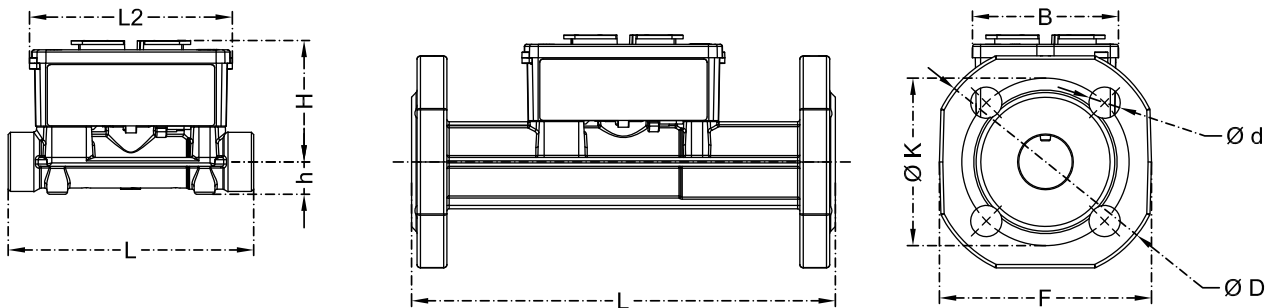
With the ultrasonic transit time measuring technique, ultrasonic signals are sent back and forth in the measuring tube between two ultrasonic transducers. One of the signals is sent in the direction of flow (downstream) while the other is sent against it (upstream). The difference in the upstream and downstream transit times is a measure of the flow rate in the measuring tube.

Technical data

Ambient	5...55 °C (IP 54)
Water temperature	5...90 °C ¹⁾ for battery versions 5...130 °C (5...150 °C ¹⁾ qp ≥3.5 m³/h)
Operating pressure	max. 16 bar for threaded version max. 25 bar for flanged version
Measuring accuracy	better than EN1434 class 2 and 3
Voltage supply	3.0 VDC lithium battery, 3.0 - 5.5 VDC external
Pulse output	open collector (not galvanically isolated)
Pulse value, pulse duration	Battery: 1 liter, 10 ms (10 liter, 25 ms for qp ≥15 m³/h) External power supply: 1 liter, 10 ms (2.5 liter, 10 ms for qp ≥40 m³/h)
Cable length	standard 2.5 m (optional 10 m)

¹⁾ mounting in vertical or tipped position

Hydraulic and mechanical specifications



Dimensions of electronics module

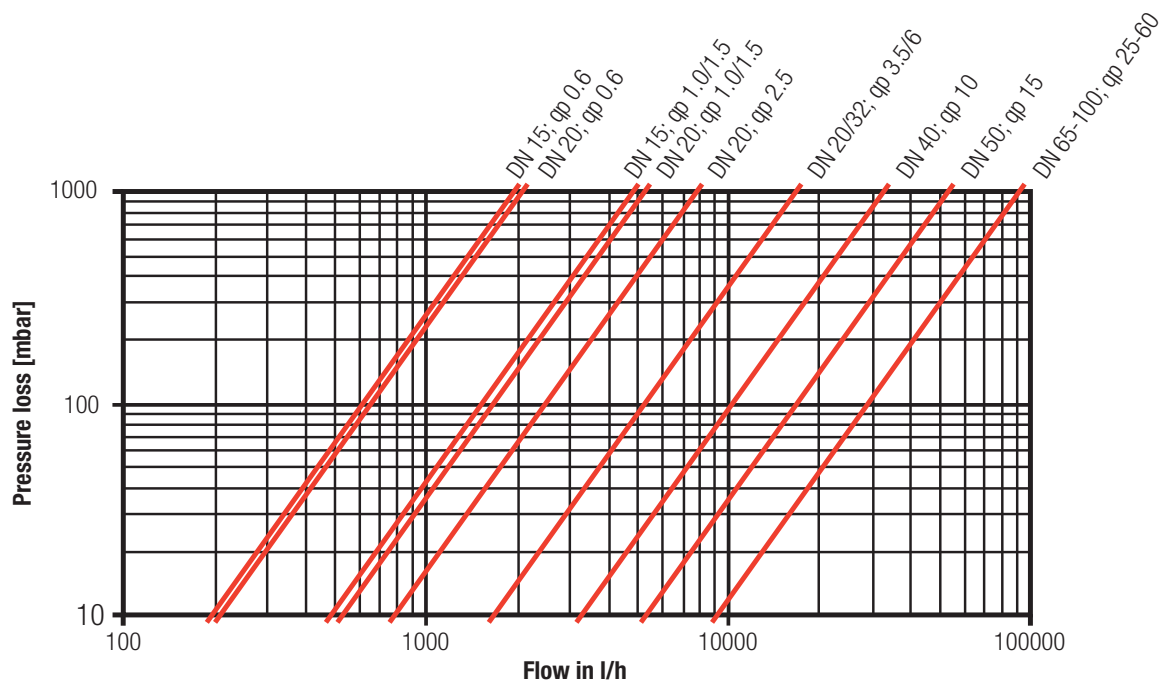
L2 x B = 90 x 65.5 mm

Nominal flow rate		qp = 0.6				qp = 1.0 / 1.5				qp = 2.5				qp = 3.5				qp = 6			
	[m³/h]	15	20	20	20	15	20	20	20	15	20	20	20	20	25	25	32	25	25	32	32
Nominal diameter DN	[mm]	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	16 (25)	25	25	25	25	25	25	25
Max. operating pressure PN	[bar]	G3/4B	G1B	G1B	G1B	G3/4B	G1B	G1B	G1B	G1B	G1B	G1B	G1B	G1B	G1 1/4B	--	--	G1 1/4B	--	--	--
Connection thread	[inches]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flange	[mm]	1.2	1.2	1.2	1.2	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	2/3	FL20	FL20	FL20	FL25	FL32	FL25	FL32
Max. flow rate qs	[m³/h]	6	6	6	6	10/6	10/6	10/6	10/6	10/6	10/6	10/6	10/6	10/6	5	5	5	7	7	7	12
Min. flow rate qi	[l/h]	2.5	2.5	2.5	2.5	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	4.6	35	35	35	35	35	24	24
Overload qp	[m³/h]	1	1	1	1	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4	4	4	12	12	12	12
Threshold flow rate	[l/h]	85	85	85	85	36/75	36/75	36/75	36/75	36/75	36/75	36/75	36/75	36/75	100	100	100	44	44	44	128
Head loss Δp at qp	[mbar]	2.06	2.06	2.06	2.06	5.27/5.48	5.27/5.48	5.27/5.48	5.27/5.48	5.27/5.48	5.27/5.48	5.27/5.48	5.27/5.48	5.27/5.48	7.91	7.91	7.91	16.7	16.7	16.7	16.7
Kvs value	[m³/h]	0.76	0.85	0.96	2.75	0.76	0.85	0.96	2.75	0.76	0.85	0.96	2.75	0.76	1.5	3.5	4.8	1.5	3.5	4.8	4.8
Length L	[mm]	110	130	190	190	110	130	190	190	130	190	190	190	130	260	260	260	260	260	260	260
Height H	[mm]	54.5	56.5	56.5	56.5	54.5	56.5	56.5	56.5	54.5	56.5	56.5	56.5	56.5	61	61	61	61	61	61	61
Height h	[mm]	14.5	18	18	47.5	14.5	18	18	47.5	14.5	18	18	47.5	18	23	50	62.5	23	50	62.5	62.5
Diameter D	[mm]	--	--	--	105	--	--	--	105	--	--	--	105	--	--	114	139	--	--	114	139
Diameter d	[mm]	--	--	--	14	--	--	--	14	--	--	--	14	--	--	14	18	--	--	14	18
Width of the flange F	[mm]	--	--	--	95	--	--	--	95	--	--	--	95	--	--	100	125	--	--	100	125
Hole circle K	[mm]	--	--	--	75	--	--	--	75	--	--	--	75	--	--	85	100	--	--	85	100
Number of drillings		--	--	--	4	--	--	--	4	--	--	--	4	--	--	4	4	--	--	4	4
Weight	[kg]	0.76	0.85	0.96	2.75	0.76	0.85	0.96	2.75	0.76	0.85	0.96	2.75	0.85	1.5	3.5	4.8	1.5	3.5	4.8	4.8

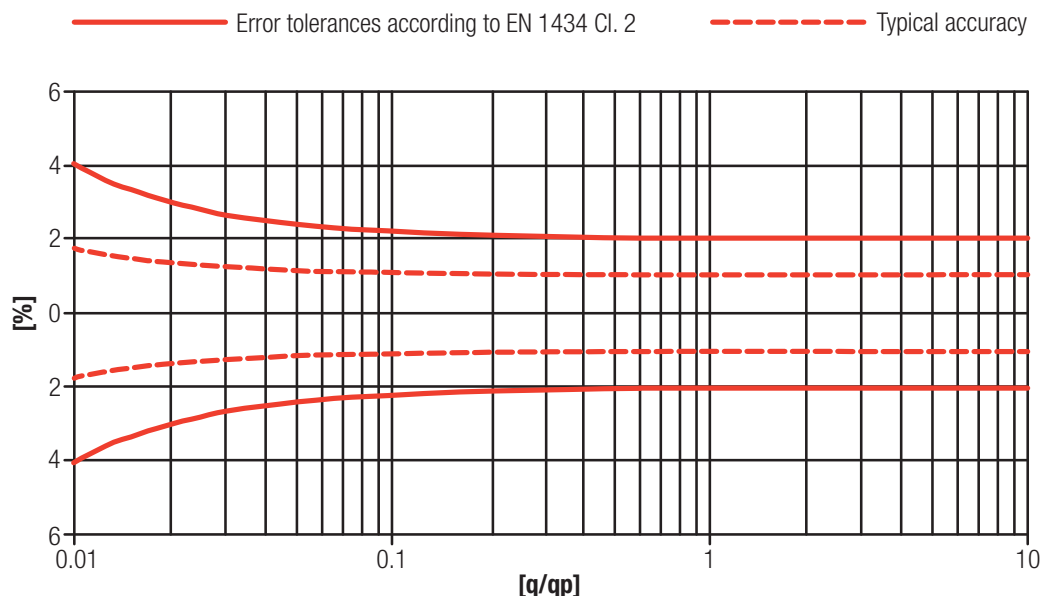
Nominal flow rate		qp = 10				qp = 15				qp = 25				qp = 40				qp = 60			
	[m³/h]	40	40	25	25	40	50	25	25	65	65	25	25	80	80	100	100	100	100	100	100
Nominal diameter DN	[mm]	40	40	25	25	40	50	25	25	65	65	25	25	80	80	100	100	100	100	100	100
Max. operating pressure PN	[bar]	G2B	G2B	--	--	G2B	G2B	--	--	G2B	G2B	--	--	G2B	G2B	G2B	G2B	G2B	G2B	G2B	G2B
Connection thread	[inches]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Flange	[mm]	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Max. flow rate qs	[m³/h]	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Min. flow rate qi	[l/h]	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
Overload qp	[m³/h]	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Threshold flow rate	[l/h]	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Head loss Δp at qp	[mbar]	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4
Kvs value	[m³/h]	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
Length L	[mm]	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5	66.5
Height H	[mm]	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
Height h	[mm]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diameter D	[mm]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Diameter d	[mm]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Width of the flange F	[mm]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hole circle K	[mm]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Number of drillings		--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weight	[kg]	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6

¹⁾ Only when installed horizontally

Pressure loss



Accuracy



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