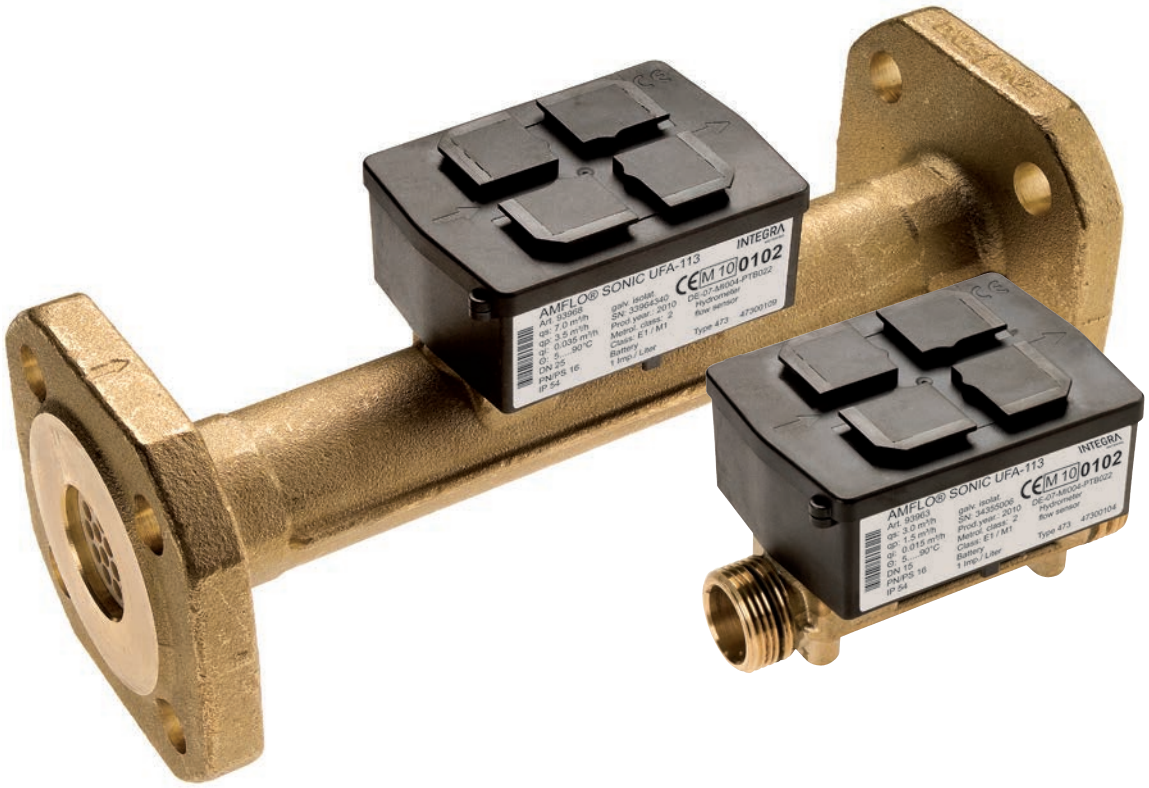
INTEGRA METERING

AMFLO® SONIC UFA-113

Ultrasonic flow sensor

Applications

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



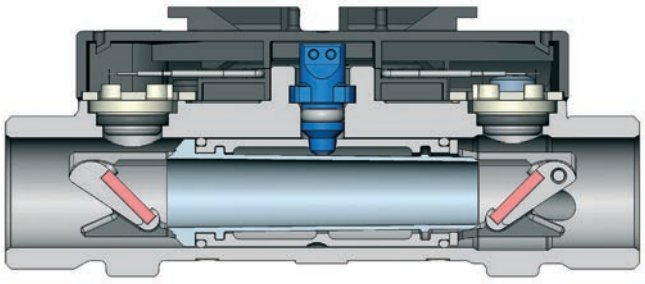
Features

- 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 1:100 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

Function



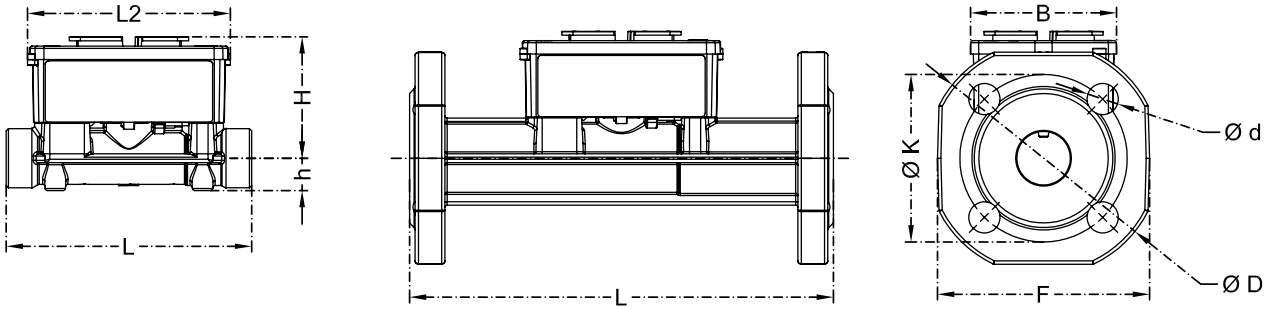
With the ultrasonic transit time measuring technique, ultrasonic signals are sent back and forth in the measuring tube between two ultrasonic transducers. One of the signals is sent in the direction of flow (downstream) while the other is sent against it (upstream). The difference in the upstream and 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 (e.g. by CALEC® calculator with Namuradapter)
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

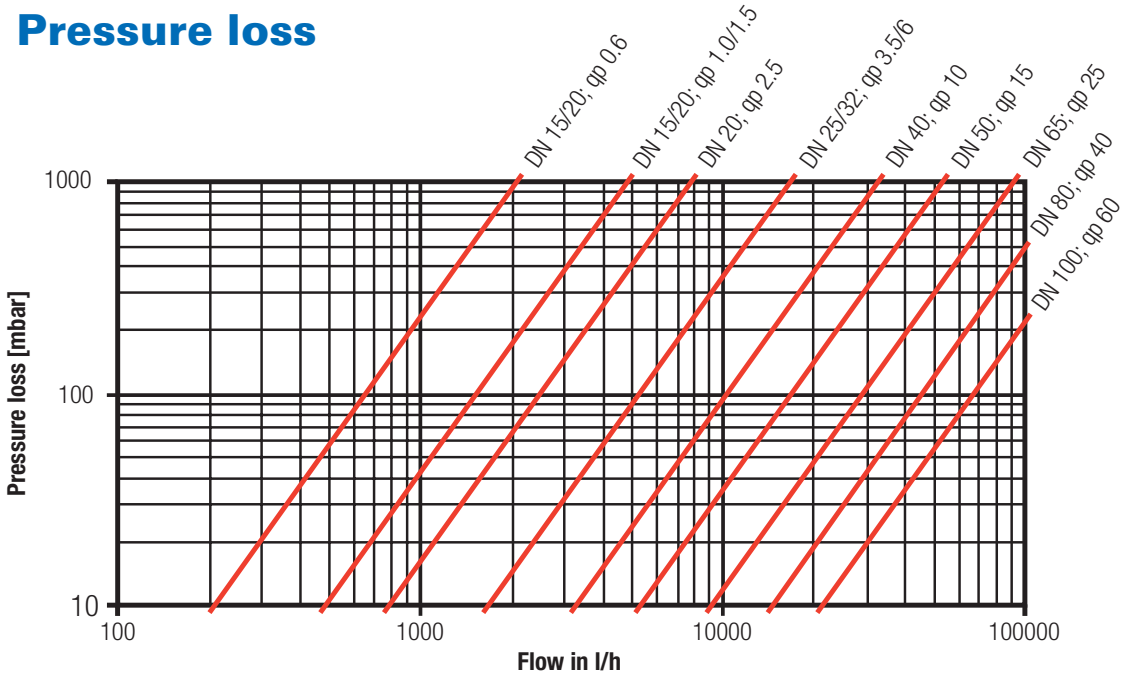
DN50-100: if used in > 105°C, brass version required.

Nominal flow rate	**[m³/h]**	**qp = 0.6**				**qp = 1.0 / 1.5**				**qp = 2.5**			**qp = 3.5**					**qp = 6**				
Nominal diameter DN	[mm]	15	20	20	20	15	20	20	20	20	20	20	25	25	32	25	25	25	25	32	32	32
Max. operating pressure PN	[bar]	16 (25)	16 (25)	16 (25)	25	16 (25)	16 (25)	16 (25)	25	16 (25)	16 (25)	25	25	25	25	25	25	25	25	25	25	25
Connection thread	[Zoll]	G¾B	G1B	G1B	--	G¾B	G1B	G1B	--	G1B	G1B	--	G1¼B	--	--	G1¼B	G1¼B	G1¼B	--	--	G1¼B	G1¼B
Flange	[mm]	--	--	--	FL20	--	--	--	FL20	--	--	FL20	--	FL25	FL32	--	--	--	FL25	FL32	--	--
Max. flow rate qs	[m³/h]	1.2	1.2	1.2	1.2	2/3	2/3	2/3	2/3	5	5	5	7	7	7	7	7	12	12	12	12	12
Min. flow rate qi	[l/h]	6	6	6	6	10/6	10/6	10/6	10/6	10	10	10	35	35	35	35	35	24	24	24	24	24
Overload qp	[m³/h]	2.5	2.5	2.5	2.5	4.6	4.6	4.6	4.6	6.7	6.7	6.7	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4	18.4
Threshold flow rate	[l/h]	1	1	1	1	2.5	2.5	2.5	2.5	4	4	4	12	12	12	12	12	12	12	12	12	12
Head loss Δp at qp	[mbar]	95	85	85	85	120	36/75	36/75	36/75	100	100	100	44	44	44	44	44	128	128	128	128	128
Kvs value	[m³/h]	1.95	2.06	2.06	2.06 5.48	4.33	5.27/ 5.48	5.27/ 5.48	5.27/	7.91	7.91	7.91	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
Length L	[mm]	110	130	190	190	110	130	190	190	130	190	190	260	260	260	135	150	260	260	260	135	150
Heigth H	[mm]	54.5	56.5	56.5	56.5	54.5	56.5	56.5	56.5	56.5	56.5	56.5	61	61	61	61	61	61	61	61	61	61
Heigth h	[mm]	14.5	18	18	47.5	14.5	18	18	47.5	18	18	47.5	23	50	62.5	62.5	62.5	23	50	62.5	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	4	4
Weight	[kg]	0.76	0.85	0.96	2.75	0.76	0.85	0.96	2.75	0.85	0.96	2.75	1.5	3.5	4.8	4.8	4.8	1.5	3.5	4.8	4.8	4.8

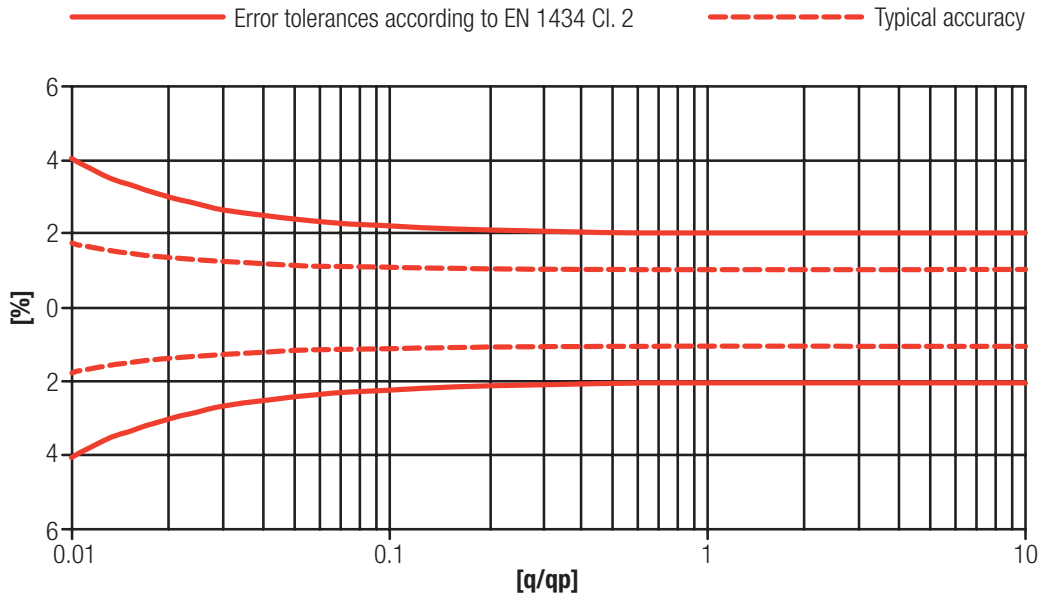
Nominal flow rate	**[m³/h]**	**qp = 10**			**qp = 15**	**qp = 25**	**qp = 40**	**qp = 60**
Nominal diameter DN	[mm]	40	40	40	50	65	80	100
Max. operating pressure PN	[bar]	25	25	25	25	25	25	25
Connection thread	[Zoll]	G2B	--	G2B	--	--	--	--
Flange	[mm]	--	FL40	--	FL50	FL65	FL80	FL100
Max. flow rate qs	[m³/h]	20	20	20	30	50	80	120
Min. flow rate qi	[l/h]	40[1)]/100	40[1)]/100	40[1)]/100	60[1)]/150	100[1)]/250	160	240[1)]/600
Overload qp	[m³/h]	24	24	24	36	60	90	132
Threshold flow rate	[l/h]	20	20	20	40	50	80	120
Head loss Δp at qp	[mbar]	140	95	95	140	75	80	75
Kvs value	[m³/h]	26.73	32.4	32.4	40.09	91.3	141.4	219
Length L	[mm]	300	300	200	270	300	300	360
Heigth H	[mm]	66.5	66.5	66.5	71.5	79	86.5	96.5
Heigth h	[mm]	33	69	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
Weight	[kg]	2.6	6.6	6.6	7.5	9.5	11.1	16.9

[1)] Nur bei horizontalem Einbau

Pressure loss



Accuracy



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.