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Tough and precise – flow measurement technology from SICK

SICK provides innovative sensor solutions for flow measurement technology which combine flexible measuring methods and rugged equipment design with cost-efficient connection designs for higher-order systems. Whether you need to measure the current flow rate using analog values or calculate the quantity using pulse detection – SICK's flow sensors are always reliable and safe, for a wide range of media under difficult process conditions.

Your benefits

- High system availability due to non-contact, rugged sensor design
- Maintenance-free sensors reduce the total cost of ownership
- Cost savings due to multiple output signals from one sensor – on both the sensor side and the control side
- Universal measuring devices, thanks to product-independent sensor technology
- Compact designs allow simple installation, even in tight mounting situations

Non-contact flow measurement



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Product description

The non-contact, ultrasonic flow sensor FFU detects the flow volumes of conductive and non-conductive liquids. Swimming against the current requires more strength than with the current – this is the simple fact on which ultrasonic flow measurement according to the phase difference process is based. The device has a compact design, and its wide range of possible applications means it can

also be used in restricted spaces. The seal-free sensor design, with high-quality polysulfone (Ultrason S) combined with enclosure rating IP 67, not only makes it possible to use the device in harsh ambient conditions, but also guarantees high process reliability. The large text display also helps ensure simple, fast and problem-free commissioning.

At a glance

- Flow sensor for conductive and non-conductive liquids
- No moving parts, compact design
- Process temperature up to 80 °C, process pressure up to 10 bar
- High chemical resistance thanks to seal-free sensor design
- Large display with membrane keyboard
- Integrated teaching tube detection
- Easy-to-clean, hygienic variants available (EHEDG certification and conformance with FDA), CIP capable

Your benefits

- Maintenance-free flow sensor; saves maintenance costs
- Adjustable measuring ranges, reduced number of variants
- Can be used for conductive and non-conductive liquids – fewer variants and lower storage costs
- Straight measuring tube reduces pressure loss, thus saving energy costs
- Sensor without seals increases process reliability and availability
- Flexible measurement system for all industries



Additional information

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Detailed technical data

Features

	NW 10	NW 15	NW 20	NW 25
Measuring principle	Ultrasonic sensor			
Medium	Fluids			
Nominal width measuring tube	NW 10	NW 15	NW 20	NW 25
Process temperature	0 °C ... +80 °C			
Process pressure	Max. 10 bar		Max. 6 bar	
EHEDG approval	✓			

Performance

	NW 10	NW 15	NW 20	NW 25
Minimum flow	0.3 l/min	0.9 l/min	3.5 l/min	5 l/min
Maximum flow	21 l/min	36 l/min	60 l/min	240 l/min
Inlet zone	10 cm	30 cm	50 cm	80 cm
Outlet zone	5 cm		10 cm	20 cm
Conductivity	No limitation			
Accuracy	≤ 2 % (of final value)			
Reproducibility	0.5 %			
Resolution	0.003 l/min	0.006 l/min	0.012 l/min	0.03 l/min

Mechanics

	NW 10	NW 15	NW 20	NW 25
Process connection	G 1/2	G 3/4	G 1	G 1 1/4
Wetted parts	PSU			
Housing material	PSU			
Weight	340 g	350 g	420 g	460 g

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Electronics

Supply voltage ¹⁾	18 V DC ... 30 V DC
Ripple ²⁾	$\leq 5 V_{pp}$
Power consumption ³⁾	$\leq 180 \text{ mA}$
Initialisation time	$\leq 5 \text{ s}$
Protection class	III
Electrical connection	M12x1, 5-pin
Signal output ¹⁾	Analog output: 4 mA ... 20 mA, 0 mA ... 20 mA current flow, pulse/status output: PNP transistor output for flow rate meter, empty pipe detection, flow monitoring
Impuls/frequency output	0 kHz ... 10 kHz
Puls width	$\leq 1 \text{ s}$
Signal voltage HIGH	$V_s - 2 \text{ V}$
Signal voltage LOW	$\leq 2 \text{ V}$
Output current	$< 100 \text{ mA}$
Inductive load	1 H
Capacitive load	100 nF
Response time ⁴⁾	Filter off 100 ms, filter low 300 ms, filter medium 1 s, filter strong 4.2 s
Enclosure rating	IP 67
Output load	$< 500 \text{ Ohm}$
Lower signal level	3.8 mA ... 4 mA
Upper signal level	20 mA ... 20.5 mA

¹⁾ All connections are polarity protected. All outputs are overload and short-circuit protected.

²⁾ May not exceed or fall short of V_s tolerances.

³⁾ Without load.

⁴⁾ Analog output

Ambient data

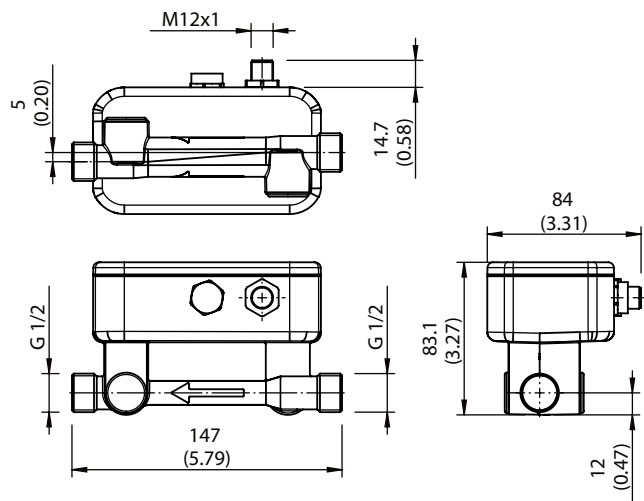
Ambient temperature, operation	0 °C ... +60 °C
Ambient temperature, storage	-20 °C ... +70 °C

Ordering information

Process pressure	Process connection	Nominal width measuring tube	Maximum flow	Model name	Part No.
Max. 10 bar	G 1/2	NW 10	21 l/min	FFUS10-1G1IO	6041737
	G 3/4	NW 15	36 l/min	FFUS15-1G1IO	6041249
Max. 6 bar	G 1	NW 20	60 l/min	FFUS20-1G1IO	6041738
	G 1 1/4	NW 25	240 l/min	FFUS25-1G1IO	6041739

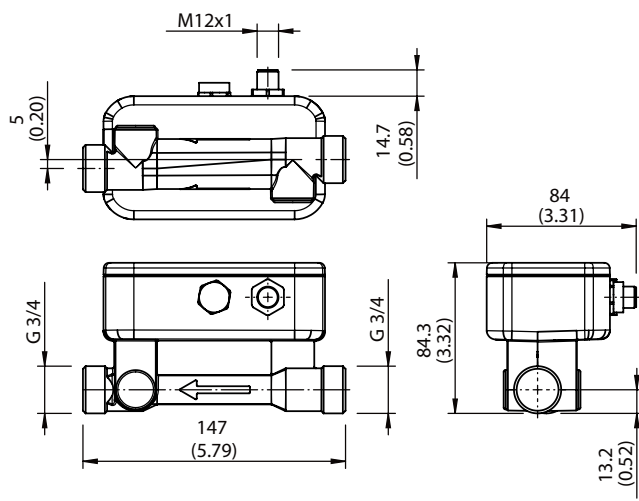
Dimensional drawings

NW 10, process connection G 1/2



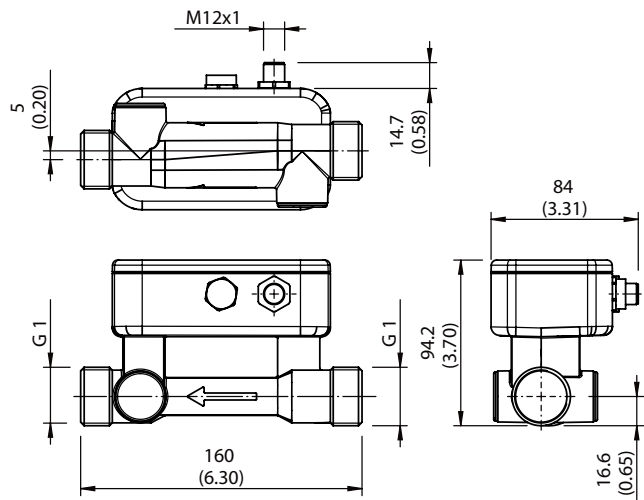
All dimensions in mm (inch)

NW 15, process connection G 3/4



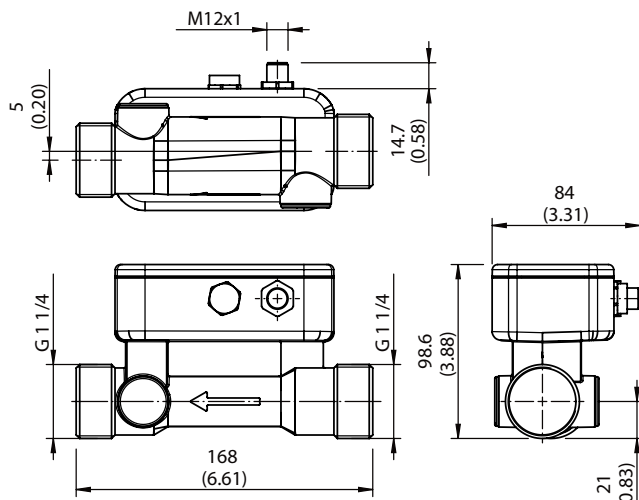
All dimensions in mm (inch)

NW 20, process connection G 1



All dimensions in mm (inch)

NW 25, process connection G 1 1/4



All dimensions in mm (inch)

