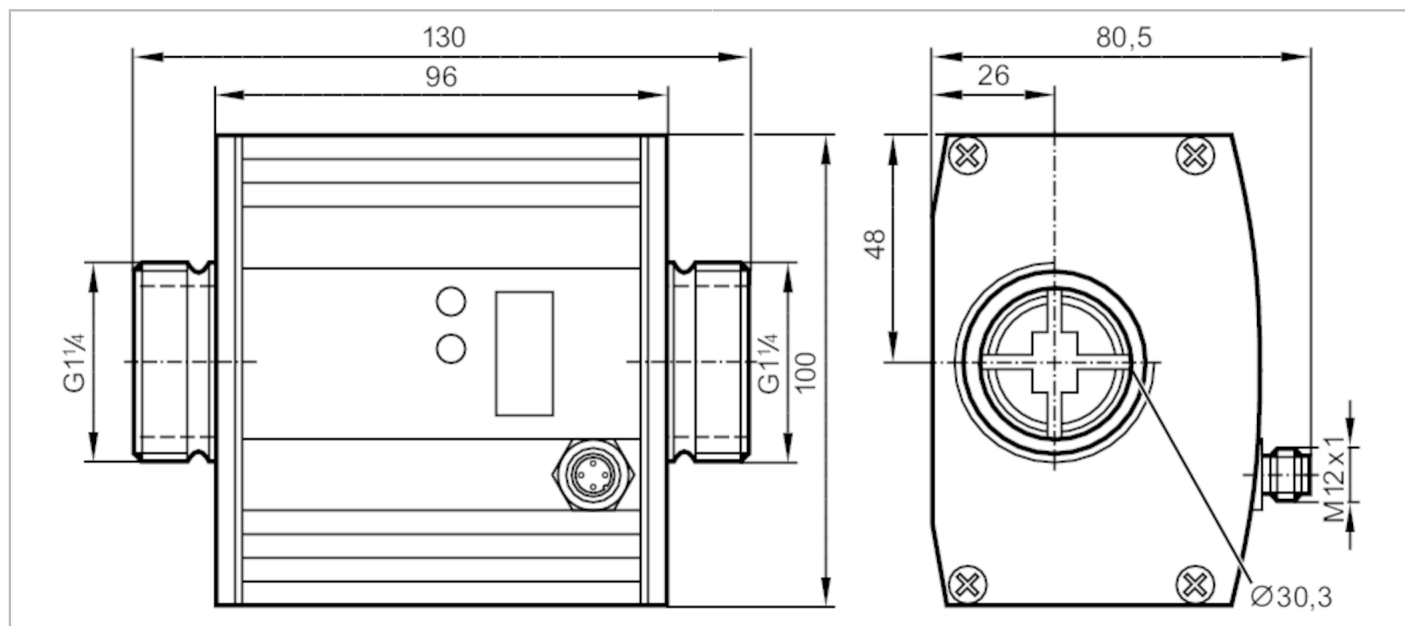




Ultrasonic flow meter

SUR54HGBFRKG/W/US-100-IPF



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
Measuring range	0...200 l/min	0...12 m³/h
Process connection	threaded connection G 1 1/4 flat seal	

Application

Special feature	Gold-plated contacts	
Application	totaliser function; for industrial applications	
Installation	connection to pipe by means of an adapter	
Media	water; glycol solutions; coolants; oils	
Note on media	low-viscosity oils with viscosity: 7...40 mm²/s (40 °C) high-viscosity oils with viscosity: 30...68 mm²/s (40 °C)	
Medium temperature [°C]	-10...80	
Pressure rating	16 bar	1.6 MPa

Electrical data

Operating voltage [V]	19...30 DC; (to SELV/PELV)	
Current consumption [mA]	100	
Min. insulation resistance [MΩ]	100; (500 V DC)	
Protection class	III	
Reverse polarity protection	yes	
Power-on delay time [s]	10	

Inputs / outputs

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1
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Inputs

Inputs	counter reset
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Outputs

Total number of outputs	2
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Output signal	switching signal; analogue signal; pulse signal; (configurable)	
Electrical design	PNP/NPN	
Number of digital outputs	2	
Output function	normally open / normally closed; (parameterisable)	
Max. voltage drop switching output DC [V]	2	
Permanent current rating of switching output DC [mA]	250; (per output)	
Number of analogue outputs	1	
Analogue current output [mA]	4...20; (scalable)	
Max. load [Ω]	500	
Analogue voltage output [V]	0...10; (scalable)	
Min. load resistance [Ω]	2000	
Pulse output	flow rate meter	
Short-circuit protection	yes	
Type of short-circuit protection	pulsed	
Overload protection	yes	

Measuring/setting range

Measuring range	0...200 l/min	0...12 m³/h
Display range	0...240 l/min	0...14.4 m³/h
Resolution	0.1 l/min	0.01 m³/h
Set point SP	0.4...200 l/min	0.02...12 m³/h
Reset point rP	0...199.6 l/min	0...11.98 m³/h
Analogue start point ASP	0...160 l/min	0...9.6 m³/h
Analogue end point AEP	40...200 l/min	2.4...12 m³/h
Max. flow rate	220 l/min	13.2 m³/h
In steps of	0.1 l/min	0.01 m³/h

Volumetric flow quantity monitoring

Pulse value	0.1 l...100000 m³	
Pulse length [s]	0,0125...2	

Temperature monitoring

Measuring range [°C]	-10...80	
Resolution [°C]	0.2	
Set point SP [°C]	-9.8...80	
Reset point rP [°C]	-10...79.8	
Analogue start point [°C]	-10...62	
Analogue end point [°C]	8...80	
In steps of [°C]	0.2	

Accuracy / deviations

Flow monitoring		
Accuracy (in the measuring range)	water: $< \pm (3 \% \text{ MW} + 0,2 \% \text{ MEW})$; glycol (35 %), oil (viscosity 68 mm²/s at 40 °C): $< \pm (8 \% \text{ MW} + 0,5 \% \text{ MEW})$	
Repeatability	1 l/min; 60 l/h; 0,06 m³/h	



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Temperature monitoring		
Accuracy	[K]	± 3 ($Q > 20$ l/min)
Response times		
Flow monitoring		
Response time	[s]	0.25; (dAP = 0)
Delay time programmable dS, dr	[s]	0...50
Damping process value dAP	[s]	0...1
Temperature monitoring		
Dynamic response T05 / T09	[s]	T09 = 30 ($Q > 20$ l/min); (water)
Software / programming		
Parameter setting options		Flow monitoring; quantity meter; Preset counter; Temperature monitoring
Operating conditions		
Ambient temperature	[°C]	-10...60
Storage temperature	[°C]	-25...80
Protection		IP 67
Tests / approvals		
EMC	EN 61000-4-2 ESD	4 kV CD / 8 kV AD
	EN 61000-4-3 HF radiated	10 V/m
	EN 61000-4-4 Burst	2 kV
	EN 61000-4-5 Surge	0,5 kV
	EN 61000-4-6 HF conducted	10 V
	model number	001US
CPA approval	accuracy class	3
	maximum allowable error	-
	Q (min)	0,3 m³/h
	Q (t)	0,84 m³/h
	Q (max)	12 m³/h
Shock resistance	DIN IEC 68-2-27	20 g (11 ms)
Vibration resistance	DIN IEC 68-2-6	5 g (10...2000 Hz)
MTTF	[years]	185
Pressure Equipment Directive		Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request
Mechanical data		
Weight	[g]	1906.5
Materials		housing: AlMgSi0,5 anodised; Sealing: FKM; PA 6.6; cover film: PA
Materials (wetted parts)		stainless steel (316L/1.4404); FKM; PPS; Centellen 200
Process connection		threaded connection G 1 1/4 flat seal
Displays / operating elements		
Display	Display unit	6 x LED, green (l/min, m³/h, l, m³, 10³, °C)
	switching status	2 x LED, yellow
	measured values	alphanumeric display, 4-digit
	programming	alphanumeric display, 4-digit
Accessories		
Items supplied		sealings: 2, Centellen
Accessories (optional)		adapter for pipe: 1 x R 1, stainless steel, E40205

SU9000



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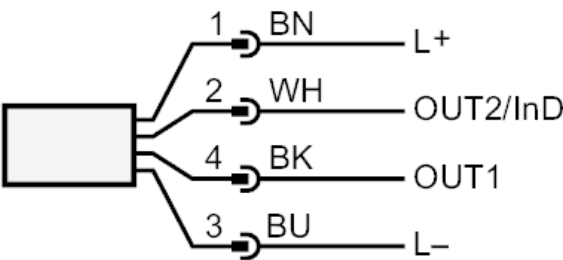
Remarks	
Remarks	sealing: only with supplied Centellen seals
	MW = measured value
	MEW = Final value of the measuring range
Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Moulded body: brass, Optalloy-plated; Contacts: gold-plated



Connection



OUT1:	switching output volumetric flow quantity monitoring Pulse output quantity meter signal output Preset counter
OUT2/InD:	switching output volumetric flow quantity monitoring / Temperature monitoring analogue output volumetric flow quantity monitoring / Temperature monitoring input counter reset

SU9000

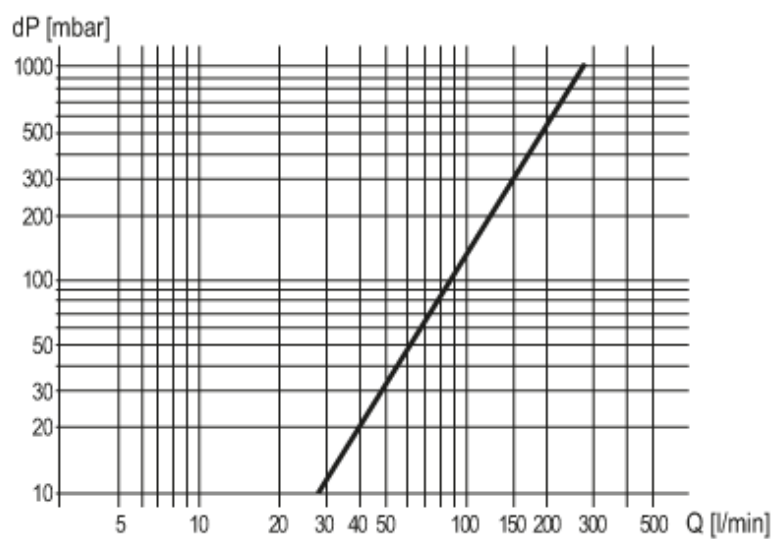
Ultrasonic flow meter

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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity