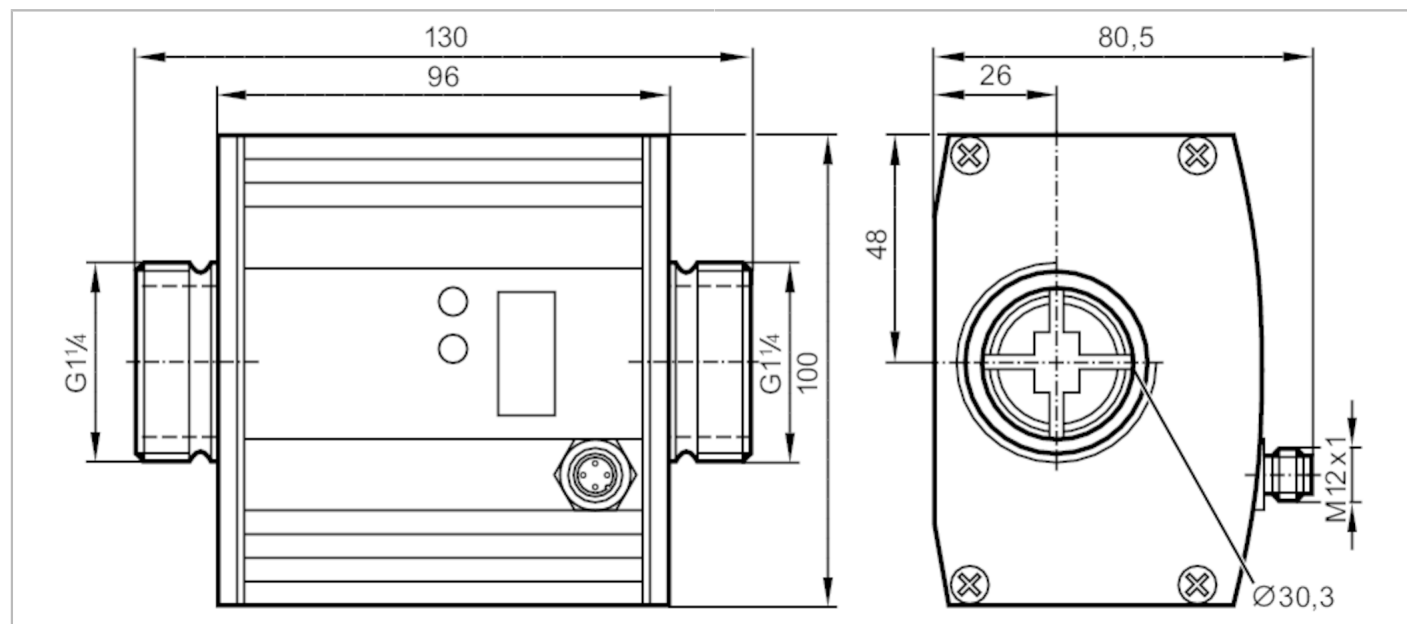


SU9000

Ultrasonic flow meter

SUR54HGBFRKG/W/US-100-IPF



Product characteristics

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

Application

System	gold-plated contacts	
Application	Totalizer 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	
Measuring principle	ultrasonic	

Inputs / outputs

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

Inputs	counter reset
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Outputs		
Total number of outputs	2	
Output signal	switching signal; analog signal; pulse signal; (configurable)	
Electrical design	PNP/NPN	
Number of digital outputs	2	
Output function	normally open / closed; (configurable)	
Max. voltage drop switching output DC [V]	2	
Permanent current rating of switching output DC [mA]	250; (per output)	
Number of analog outputs	1	
Analog current output [mA]	4...20; (scalable)	
Max. load [Ω]	500	
Analog 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	yes (non-latching)	
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
Analog start point ASP	0...160 l/min	0...9.6 m³/h
Analog 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	
Analog start point [°C]	-10...62	
Analog end point [°C]	8...80	
In steps of [°C]	0.2	
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)	water: < ± (3 % MW + 0,2 % MEW); glycol (35 %), oil (viscosity 68 mm²/s at 40 °C): < ± (8 % MW + 0,5 % MEW)	



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Repeatability		1 l/min; 60 l/h; 0,06 m³ /h	
Temperature monitoring			
Accuracy		[K]	± 3 (Q > 20 l/min)
Reaction 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
CPA approval	model number		001US
	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
Housing		rectangular	
Dimensions		[mm]	130 x 100 x 80.5
Material		housing: AlMgSi0.5 anodized; sealing: FKM; PA 6.6; cover film: PA	
Materials (wetted parts)		stainless steel (1.4404 / 316L); FKM; PPS; Centellen 200	
Process connection		threaded connection G 1 1/4 external thread 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

SU9000



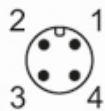
Ultrasonic flow meter

SUR54HGBFRKG/W/US-100-IPF

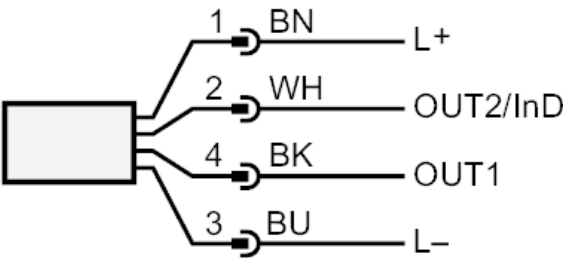
Accessories	
Items supplied	sealings: 2, Centellen
Accessories (optional)	adapter for pipe: 1 x R 1, stainless steel, E40205
Remarks	
Remarks	sealing: only with supplied Centellen seals
	MW = Measured value
	MEW = Final value of the measuring range
Pack quantity	1 pcs.

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 analog output Volumetric flow quantity monitoring / Temperature monitoring Input counter reset

SU9000

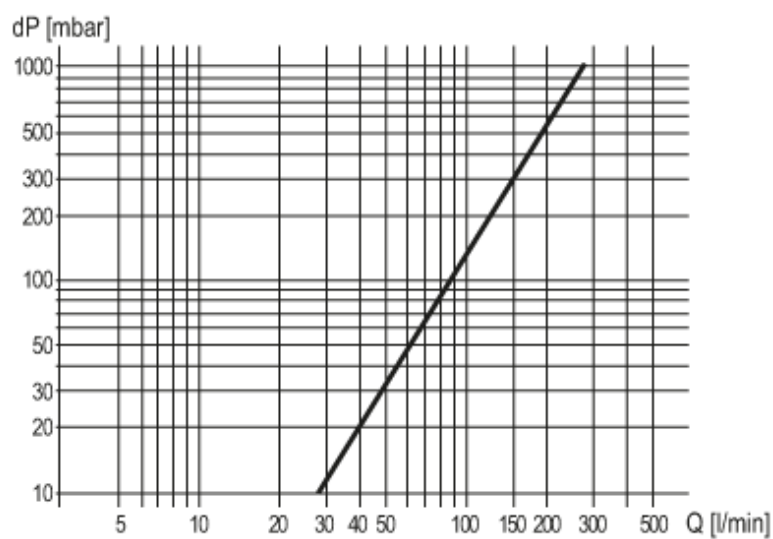
Ultrasonic flow meter

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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity