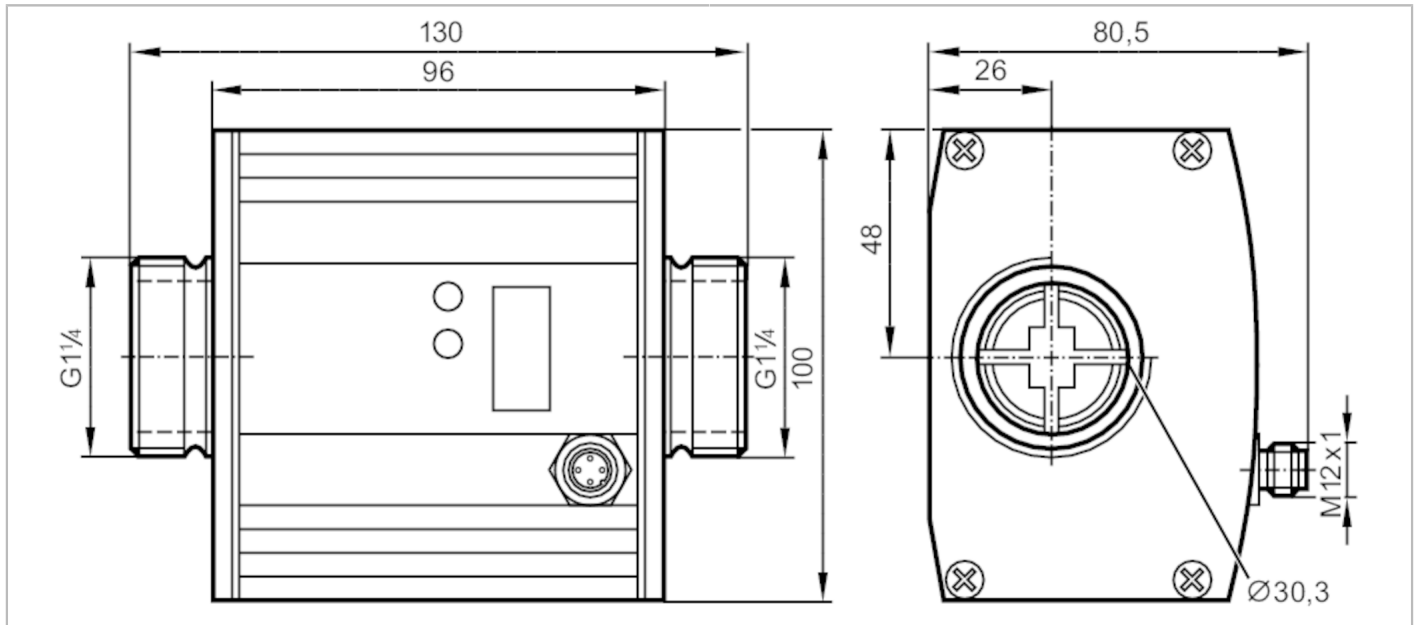


# SU9000



## 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; oil	
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 [bar]	16	

### Electrical data

Operating voltage [V]	19...30 DC; (according to EN 50178 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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## Ultrasonic flow meter

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Outputs		
Total number of outputs		2
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
Display range		0...240 l/min
Resolution		0.1 l/min
Set point SP		0.4...200 l/min
Reset point rP		0...199.6 l/min
Analogue start point ASP		0...160 l/min
Analogue end point AEP		40...200 l/min
Max. flow rate		220 l/min
In steps of		0.1 l/min
Volumetric flow quantity monitoring		
Pulse value		0.1 l...100000 m <sup>3</sup>
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

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Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)	$< \pm (3 \% MW + 0,2 \% MEW) / < \pm (8 \% MW + 0,5 \% MEW);$ (water; glycol: 35%; oil: viscosity 68 mm <sup>2</sup> /s at 40 °C)	
Repeatability	1 l/min; 60 l/h; 0,06 m <sup>3</sup> /h	
Temperature monitoring		
Accuracy [K]	$\pm 3 (Q > 20 \text{ l/min})$	
Response times		
Flow monitoring		
Response time [s]	0.25; (dAP = 0)	
Delay time programmable dS, dr [s]	0...50	
Damping for the switching output 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
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; connector housing: brass Optalloy-plated; 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 flat seal	
Displays / operating elements		
Display	Display unit	6 x LED, green (l/min, m <sup>3</sup> /h, l, m <sup>3</sup> , 10 <sup>3</sup> , °C)
	switching status	2 x LED, yellow
	measured values	alphanumeric display, 4-digit
	programming	alphanumeric display, 4-digit

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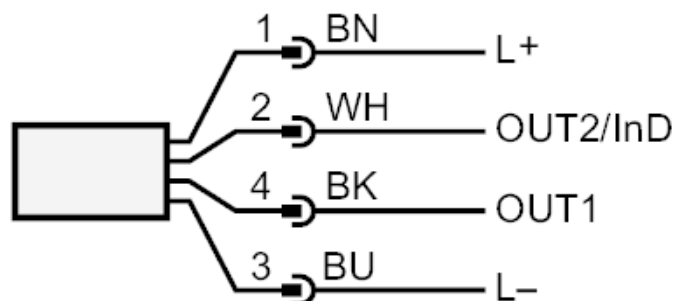
Accessories	
Accessories (supplied)	sealings: 2, Centellen
Accessories (optional)	adapter for pipe: 1 x R1, stainless steel, E40205
Remarks	
Remarks	sealing: only with supplied Centellen seals MW = measured value MEW = Final value of the measuring range
Pack quantity	1 pcs.

## Electrical connection

Connector: 1 x M12; 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

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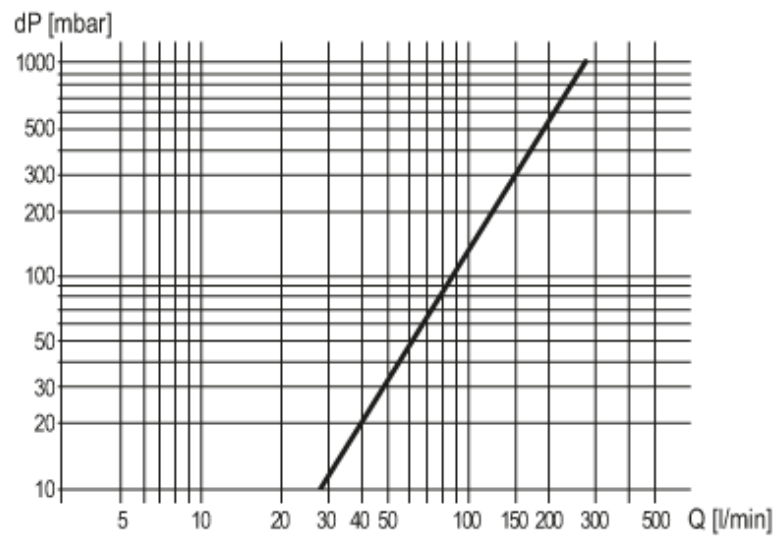


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### Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity