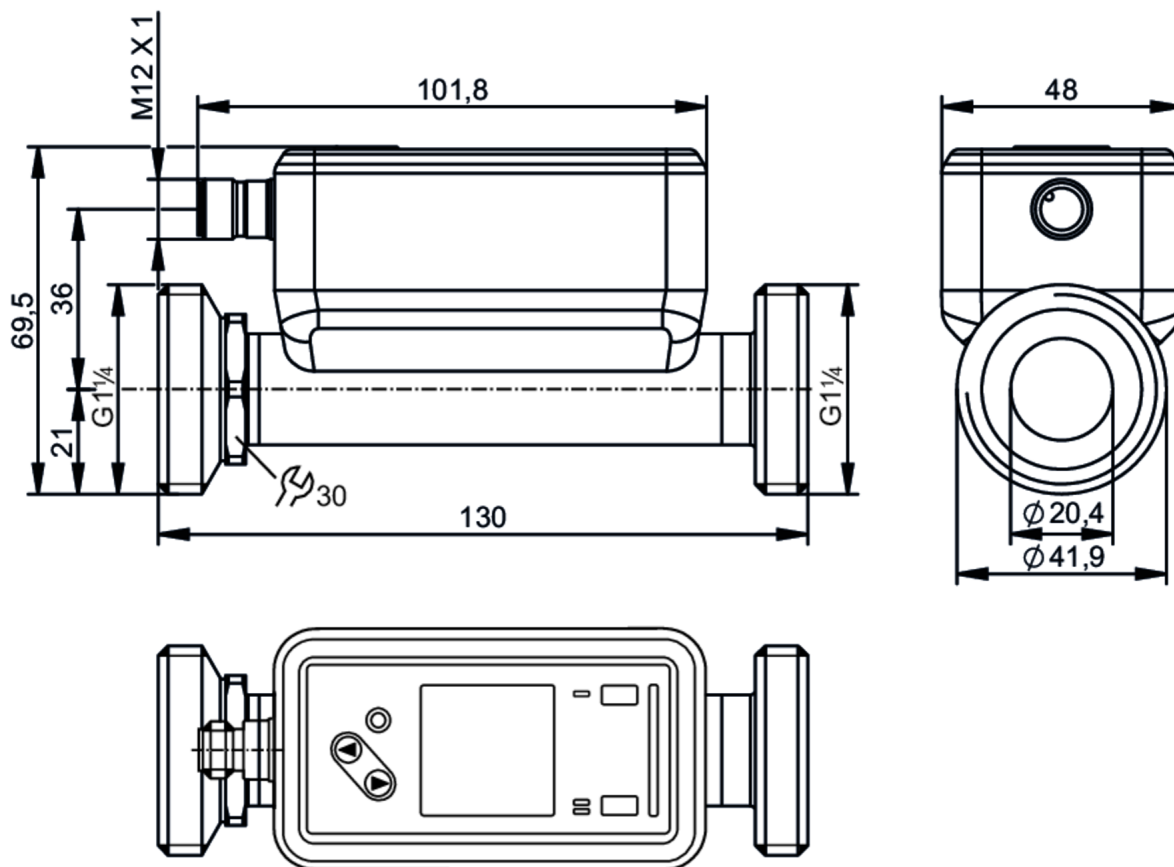


SU9020

Ultrasonic flow meter

SUR54XXBFRKG/US



ACS KTW/W270 Reg31

Product characteristics

Measuring range	1...275 l/min	60...16500 l/h	0.051...13.981 m/s	0.06...16.5 m³/h
Process connection	G 1 1/4 DN32 external thread			

Application

Special feature	Gold-plated contacts	
Media	ultra-pure water; water; hydrous media	
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value	
Medium temperature [°C]	-20...100	
Min. bursting pressure	150 bar	15 MPa
Pressure rating	100 bar	10 MPa
Vacuum resistance [mbar]	-1000	

Electrical data

Operating voltage [V]	18...32 DC; (to SELV/PELV)			
Current consumption [mA]	< 75			
Protection class	III			
Reverse polarity protection	yes			
Power-on delay time [s]	5			
Measuring principle	ultrasonic			



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Inputs				
Inputs		counter reset		
Outputs				
Total number of outputs		2		
Output signal		switching signal; pulse signal; analogue signal; IO-Link; frequency signal; diagnostic signal; totaliser switching signal		
Electrical design		PNP/NPN		
Output function		normally open / normally closed; (parameterisable)		
Max. voltage drop switching output DC	[V]	2		
Permanent current rating of switching output DC	[mA]	100		
Switching frequency DC	[Hz]	0...10000		
Analogue current output	[mA]	4...20		
Max. load	[Ω]	500		
Pulse output		flow rate meter		
Short-circuit protection		yes		
Type of short-circuit protection		pulsed		
Overload protection		yes		
Measuring/setting range				
Measuring range		1...275 l/min	60...16500 l/h	0.051...13.981 m/s 0.06...16.5 m³/h
Display range		-330...330 l/min	-19800...19800 l/h	-16.777...16.777 m/s -19.8...19.8 m³/h
Resolution		0.1 l/min	1 l/h	0.001 m/s 0.001 m³/h
Set point SP		2.5...275 l/min	151...16500 l/h	0.128...13.981 m/s 0.151...16.5 m³/h
Reset point rP		1.1...273.6 l/min	65...16414 l/h	0.055...13.908 m/s 0.065...16.414 m³/h
Analogue start point ASP		-275...220 l/min	-16500...13200 l/h	-13.981...11.185 m/s -16.5...13.2 m³/h
Analogue end point AEP		-220...275 l/min	-13200...16500 l/h	-11.185...13.981 m/s -13.2...16.5 m³/h
Low flow cut-off LFC		1...13.8 l/min	60...825 l/h	0.051...0.699 m/s 0.06...0.825 m³/h
Frequency end point, FEP		55.2...275 l/min	3310...16500 l/h	2.805...13.981 m/s 3.31...16.5 m³/h
Frequency at the end point FRP	[Hz]	1...10000		
Volumetric flow quantity monitoring				
Pulse length	[s]	0.002...2		
Pulse value		0.02...99990000 l		
Temperature monitoring				
Measuring range	[°C]	-20...100		
Display range	[°C]	-44...124		
Resolution	[°C]	0.1		
Set point SP	[°C]	-19.6...100		
Reset point rP	[°C]	-20...99.6		
Analogue start point	[°C]	-20...76		
Analogue end point	[°C]	4...100		
Frequency start point, FSP	[°C]	-20...76		
Frequency end point, FEP	[°C]	4...100		



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Frequency at the end point FRP	[Hz]	1...10000
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Accuracy / deviations

Flow monitoring		
Accuracy (in the measuring range)		$\pm (1,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
Repeatability		$\pm 0,2 \% \text{ MEW}$
Temperature monitoring		
Accuracy	[K]	$\pm 2,5 (Q > 5 \% \text{ MEW})$
Temperature coefficient	[% of the span / 10 K]	0,2

Response times

Flow monitoring		
Response time	[s]	$< 0,25; (dAP = 0, T09)$
Damping process value dAP	[s]	0...5
Temperature monitoring		
Dynamic response T05 / T09	[s]	5,7 / 86

Software / programming

Diagnostic functions	direction of flow detection; signal quality
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Interfaces

Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1.3	
SDCI standard	IEC 61131-9: 2013-07	
Profiles	Identification and Diagnosis (0x4000)	
Required master port type	A	
Process data analogue	3	
Process data binary	2	
Min. process cycle time	[ms]	9.6
IO-Link process data (cyclical)	function	bit length
	totaliser	32
	Flow monitoring	32
	Temperature monitoring	32
	status	4
	Output 1	1
	Output 2	1
Supported DeviceIDs	Type of operation	DeviceID
	default	1460

Operating conditions

Ambient temperature	[°C]	-20...60
Storage temperature	[°C]	-25...80
Protection		IP 67

Tests / approvals

EMC	DIN 61326-1:2021	
Shock resistance	DIN IEC 68-2-27	20 g (11ms)



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Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)
MTTF [years]		160
UL approval	UL Approval no.	I034
Pressure Equipment Directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	639.4
Type of mounting	inlet pipe length 5xDN; outlet pipe length 1xDN
Materials	housing: stainless steel (316L/1.4404); Display: PFA; Sealing Display: FKM; connector: POKAN
Materials (wetted parts)	Pipe section: stainless steel (316L/1.4404); Process connection sealing: Centellen Flat seal
Process connection	G 1 1/4 DN32 external thread
Surface characteristics Ra/Rz of the wetted parts	1.25 µm

Displays / operating elements

Display	colour display 1,44", 128 x 128 pixels
Switching function	2 x LED, yellow
diagnosis	1 x LED, three-colour

Accessories

Items supplied	Flat seal 2, Centellen package insert
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Remarks

Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	the accuracy indications are adhered to over the entire application area
Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated

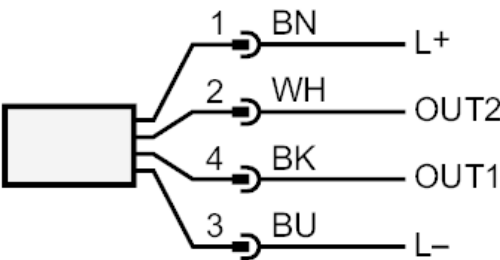




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Connection



- OUT1/IO-Link:
- switching output volumetric flow quantity monitoring
 - switching output Temperature monitoring
 - Pulse output quantity meter
 - frequency output volumetric flow quantity monitoring
 - frequency output Temperature monitoring
 - Diagnostic output direction of flow detection
 - Diagnostic output signal quality
 - signal output Preset counter
- OUT2/InD:
- switching output volumetric flow quantity monitoring
 - switching output Temperature monitoring
 - Pulse output quantity meter
 - analogue output flow
 - analogue output temperature
 - Diagnostic output direction of flow detection
 - Diagnostic output signal quality
 - signal output Preset counter
 - input counter reset

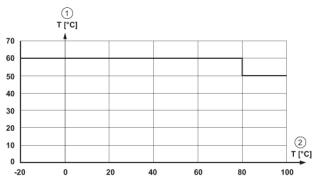
colours to DIN EN 60947-5-2

Core colours

- BK= black
- BN= brown
- BU= blue
- WH= white

Diagrams and graphs

derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature

Druckverlustkurve

