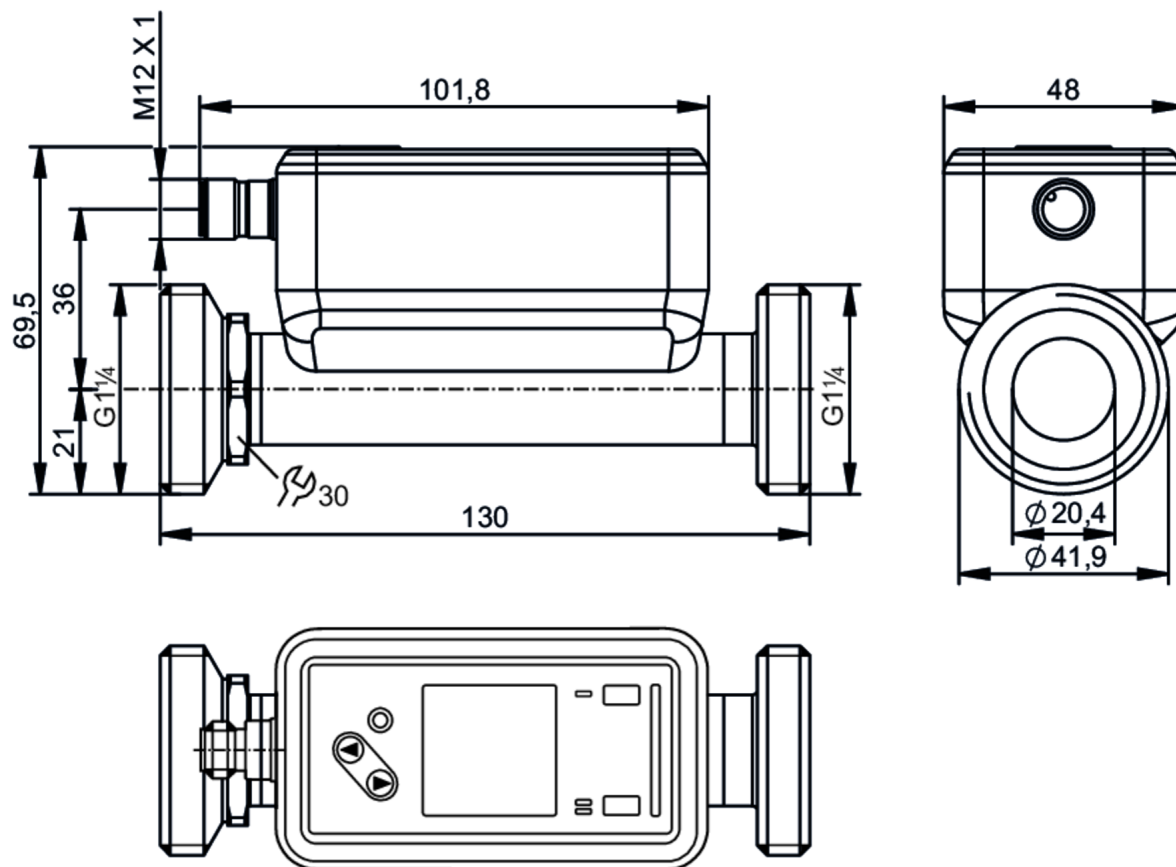


SU9021

Ultrasonic flow meter

SUR54XXBFRKG/US



ACS KTW/W270 Reg31

Product characteristics

Measuring range	1...275 l/min	0.06...16.5 m³/h	16...4359 gph	0.26...72.64 gpm
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	-20...100 °C	-4...212 °F
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	0.06...16.5 m³/h	16...4359 gph	0.26...72.64 gpm
Display range		-330...330 l/min	-19.8...19.8 m³/h	-5231...5231 gph	-87.18...87.18 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Set point SP		2.5...275 l/min	0.151...16.5 m³/h	40...4359 gph	0.66...72.65 gpm
Reset point rP		1.1...273.6 l/min	0.065...16.414 m³/h	17...4336 gph	0.29...72.27 gpm
Analogue start point ASP		-275...220 l/min	-16.5...13.2 m³/h	-4359...3487 gph	-72.65...58.12 gpm
Analogue end point AEP		-220...275 l/min	-13.2...16.5 m³/h	-3487...4359 gph	-58.12...72.65 gpm
Low flow cut-off LFC		1...13.8 l/min	0.06...0.825 m³/h	16...218 gph	0.26...3.63 gpm
Frequency end point, FEP		55.2...275 l/min	3.31...16.5 m³/h	874...4359 gph	14.75...72.65 gpm
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; 0.026...26414563.515 gal			
Temperature monitoring					
Measuring range		-20...100 °C		-4...212 °F	
Display range		-44...124 °C		-47.2...255.2 °F	
Resolution		0.1 °C		0.1 °F	
Set point SP		-19.6...100 °C		-3.2...212 °F	
Reset point rP		-20...99.6 °C		-4...211.2 °F	
Analogue start point		-20...76 °C		-4...168.8 °F	
Analogue end point		4...100 °C		39.2...212 °F	
Frequency start point, FSP		-20...76 °C		4...168.8 °F	
Frequency end point, FEP		4...100 °C		39.2...212 °F	
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
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	1463
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)
Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)



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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]	620.4
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

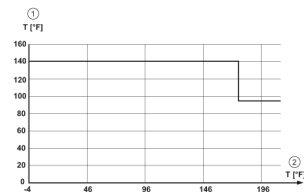
colours to DIN EN 60947-5-2

Core colours

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

Diagrams and graphs

derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature

Druckverlustkurve

