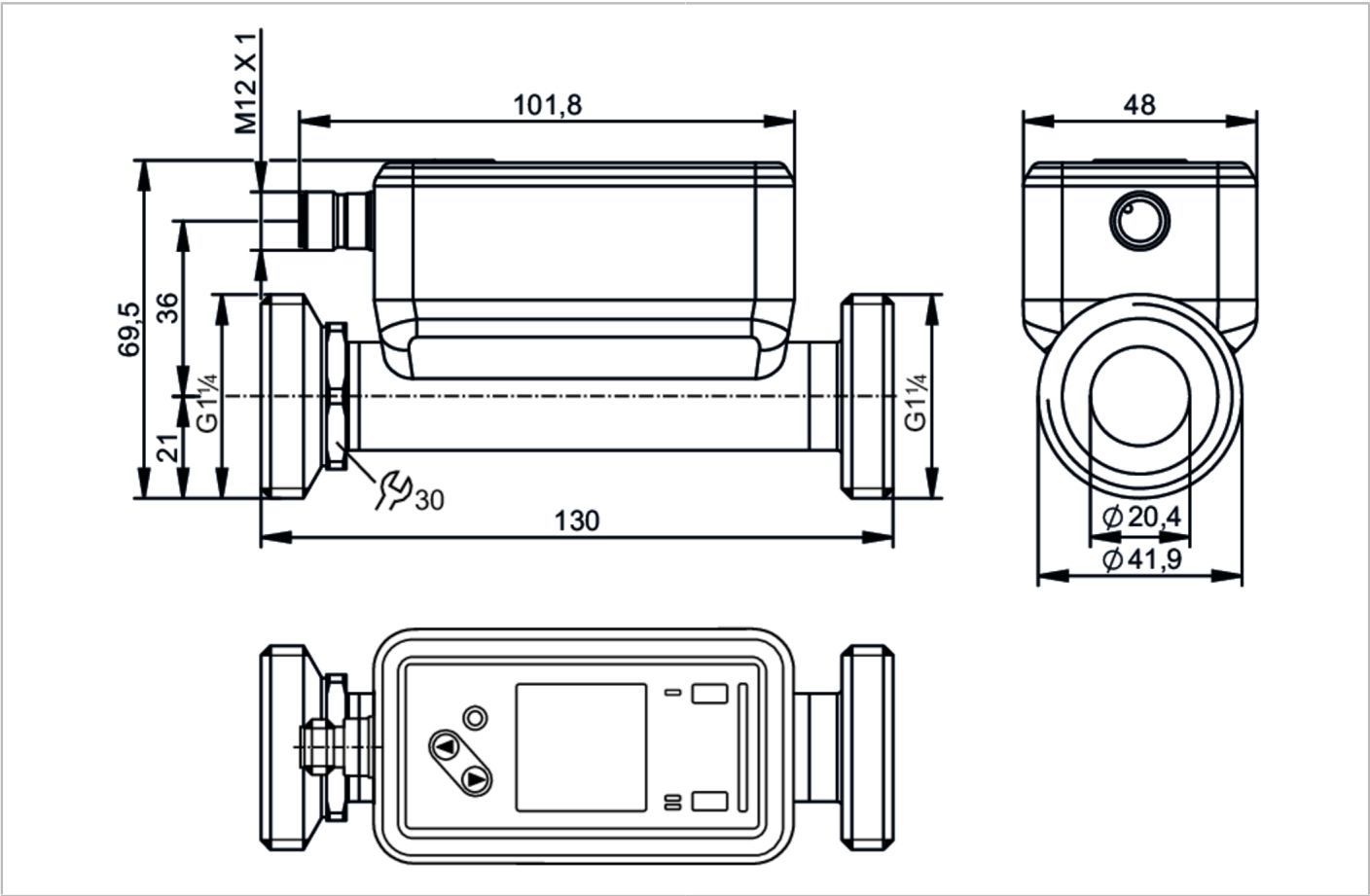


SU9020



Ultrasonic flow meter

SUR54XXBFRKG/US



ACS CE PA cUL US LISTED IO-Link KTW/W270 NSF 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	threaded connection G 1 1/4 external thread DN32			
Application				
System	gold-plated contacts			
Media	ultra-pure water; water; water-based media			
Note on media	water-based 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; analog signal; IO-Link; frequency signal; diagnostic signal; totalizer switching signal			
Electrical design		PNP/NPN			
Output function		normally open / closed; (configurable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	100			
Switching frequency DC	[Hz]	0...10000			
Analog current output	[mA]	4...20			
Max. load	[Ω]	500			
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		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
Analog start point ASP		-275...220 l/min	-16500...13200 l/h	-13.981...11.185 m/s	-16.5...13.2 m³/h
Analog 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		
Analog start point		[°C]	-20...76		
Analog 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

Reaction 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	Function class	Description
	0x4000	Identification and Diagnosis
Required master port class	A	
Process data analog	3	
Process data binary	2	
Min. process cycle time	[ms]	9,6
IO-Link process data (cyclical)	Function	bit length
	totalizer	32
	Flow monitoring	32
	Temperature monitoring	32
	status	4
	Output 1	1
	Output 2	1
Supported DeviceIDs	Type of operation	DeviceID
	default	1637

Operating conditions

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

Tests / approvals

EMC	DIN 61326-1:2021	
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CPA approval	model number	003US
	accuracy class	1,5
Shock resistance	DIN IEC 68-2-27	20 g (11ms)
Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)
MTTF [years]		160
UL approval	UL approval number	I034
Pressure equipment directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	639.4
Housing	rectangular
Type of mounting	inlet pipe length 5xDN; outlet pipe length 1xDN
Dimensions [mm]	130 x 48 x 69.5
Material	housing: stainless steel (1.4404 / 316L); Display: PFA; sealing Display: FKM; connector: PBT
Materials (wetted parts)	Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: Centellen Gasket
Process connection	threaded connection G 1 1/4 external thread DN32
Surface characteristics Ra/Rz of the wetted parts	1.25 µm

Displays / operating elements

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

Accessories

Items supplied	Gasket 2, Centellen package insert
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Remarks

Remarks	MW = Measured value MEW = Final value of the measuring range pulse and totalizer 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
analog output flow
analog output temperature
Diagnostic output direction of flow detection
Diagnostic output signal quality
signal output Preset counter
Input counter reset

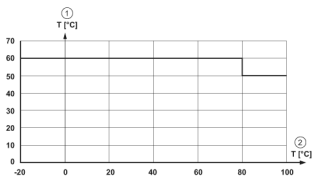
Colors to DIN EN 60947-5-2

Core colors

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

Diagrams and graphs

derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature

Druckverlustkurve

