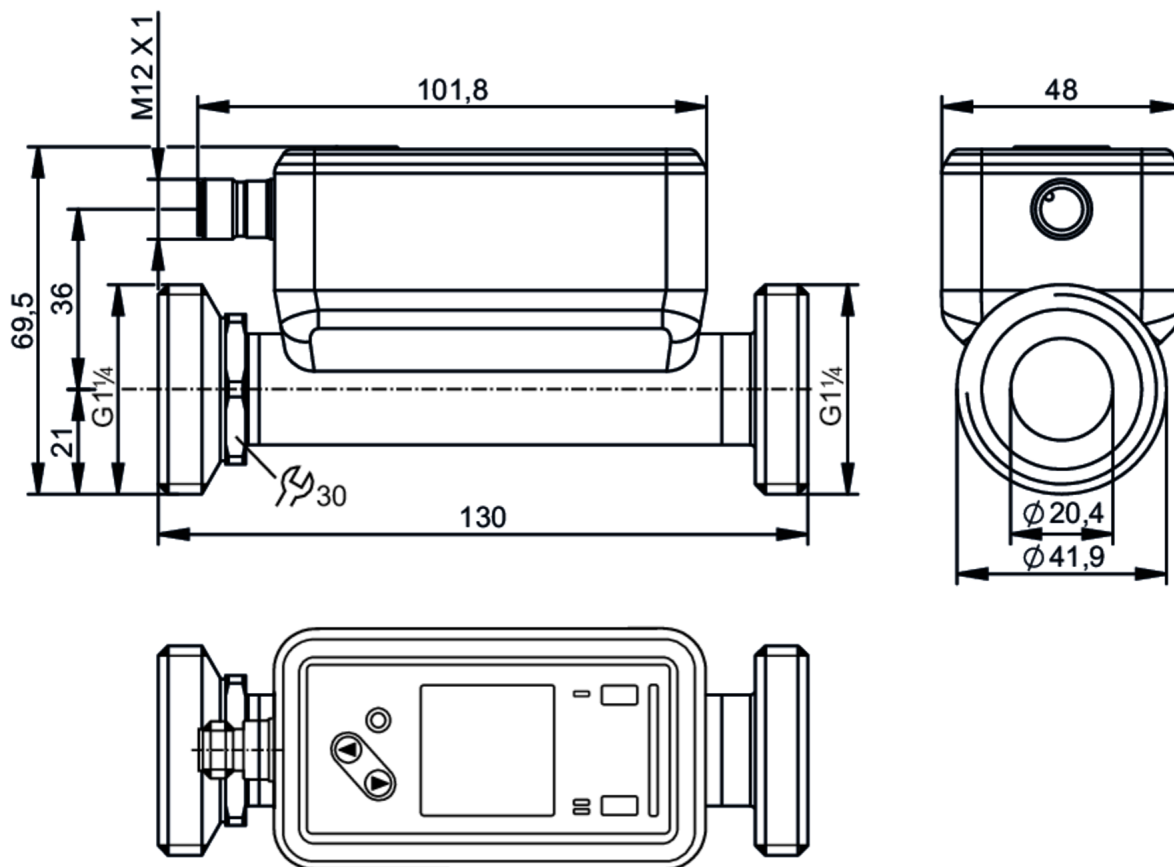


SU9030

Ultrasonic flow meter

SUR54XFBFRKG/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	threaded connection G 1 1/4 external thread DN32			

Application

System	gold-plated contacts	
Media	ultra-pure water; water; water-based media; glycol solutions; oils; Coolants	
Note on media	water-based media: for media with >10 % additives, the repeatability is the only available value	
	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]	-20...100	
Min. burst 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



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Measuring principle	ultrasonic			
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)	glycol solutions (35%)	$\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
	high-viscosity oils with viscosity 46mm ² /s (40°C)	$\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
	low-viscosity oils with viscosity 10mm ² /s (40°C)	$\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
	water	$\pm (1,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
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	BLOB	Binary Large Object transfer
	Common - I&D	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
	Type of operation	DeviceID
Supported DeviceIDs	default	1760

Operating conditions

Ambient temperature	[°C]	-20...60
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Storage temperature	[°C]	-25...80
Protection		IP 65; 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	20 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]	607.55
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: NBR fiber-reinforced Gasket
Process connection		threaded connection G 1 1/4 external thread DN32
Surface characteristics Ra/Rz of the wetted parts		Ra < 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
Display unit		l/min; l/h; m³/h; m/s

Accessories

Items supplied	Gasket 2, Centellen
	package insert

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



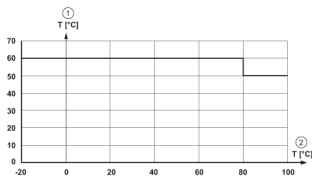
- OUT1/IO-Link:
- Switching output Volumetric flow quantity monitoring
Switching output Temperature monitoring
Pulse output quantity meter
Frequency output Volumetric flow quantity monitoring
Frequency output Temperature monitoring
Diagnostic output direction of flow detection
Diagnostic output signal 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

Pressure loss

