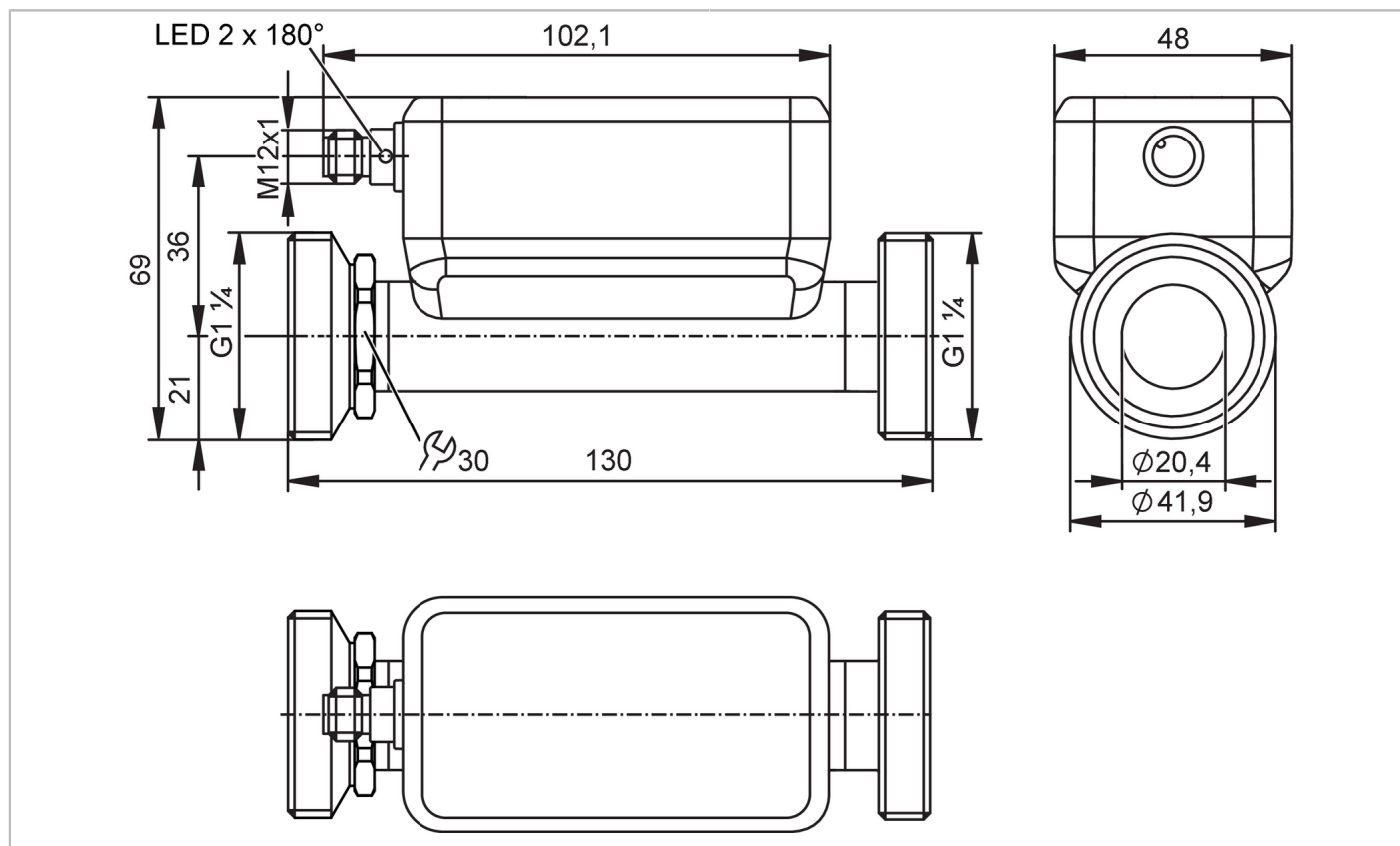


SU9050



Ultrasonic flow meter

SUR54XJBFRKG/US



ACS KTW/W270 Reg31

Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	1...275 l/min	0.06...16.5 m³/h	16...4359 gph	0.26...72.64 gpm
Nominal diameter	DN 32 (1 1/4")			
Process connection	threaded connection G 1 1/4 external thread DN32			

Application

Special feature	gold-plated contacts	
Application	use in mobile and industrial applications	
Media	ultra-pure water; water; water-based media; glycol solutions; oils (of high and low viscosity); 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	-40...120 °C	-40...248 °F
Min. burst pressure	150 bar	15 MPa
Pressure rating	100 bar	10 MPa
Vacuum resistance [mbar]	-1000	

Electrical data

Operating voltage [V]	8...32 DC; (to SELV/PELV)
Current consumption [mA]	< 175
Protection class	III

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Reverse polarity protection	yes			
Power-on delay time [s]	5			
Measuring principle	ultrasonic			
Inputs / outputs				
Total number of inputs and outputs	2			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Inputs				
Inputs	OUT2	counter reset		
Outputs				
Total number of outputs	2			
Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totalizer switching signal; frequency signal; IO-Link		
	OUT2	switching signal; pulse signal; diagnostic signal; totalizer switching signal; analog signal		
Electrical design	PNP/NPN			
Number of digital outputs	2			
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			
Number of analog outputs	1			
Analog current output [mA]	4...20; (scalable)			
Max. load [Ω]	500			
Analog voltage output [V]	0...10 / 0.5...4.5; (scalable)			
Min. load resistance [Ω]	2000			
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	0.06...16.5 m³/h	16...4359 gph	0.26...72.64 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting	l/min			
	°C			
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
Analog start point ASP	-275...220 l/min	-16.5...13.2 m³/h	-4359...3487 gph	-72.65...58.12 gpm
Analog 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			

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Volumetric flow quantity monitoring		
Pulse length [s]	0.002...2	
Pulse value	0.1...99990000 l; 0.03...26414563.515 gal	
Temperature monitoring		
Measuring range	-40...120 °C	-40...248 °F
Resolution	0.1 °C	0.1 °F
Set point SP	-40...119.4 °C	-40...247 °F
Reset point rP	-40...88 °C	-40...190.4 °F
Analog start point	-8...120 °C	17.6...248 °F
Analog end point	-40...88 °C	-40...190.4 °F
Frequency start point, FSP	-8...120 °C	17.6...248 °F
Frequency end point, FEP	-40...119.4 °C	-40...247 °F
Frequency at the end point FRP [Hz]	1...10000	
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)	only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
Accuracy (in the measuring range)	glycol solutions (35%)	±(5,0 % MW + 0,5 % MEW)
	high-viscosity oils with viscosity 46mm2/s (40°C)	±(5,0 % MW + 0,5 % MEW)
	low-viscosity oils with viscosity 10mm2/s (40°C)	±(5,0 % MW + 0,5 % MEW)
	water	± (1,0 % MW + 0,5 % MEW)
Repeatability	± 0,2 % MEW	
Temperature monitoring		
Accuracy [K]	± 2,5 (Q > 5 % 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	
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	

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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	1839

Operating conditions		
Ambient temperature [°C]		-25...60
Storage temperature [°C]		-40...80
Protection		IP 67; IP 69K

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]		136
UL approval	UL approval number	I037
	File number UL	E174189
Pressure equipment directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight [g]		606.3
Housing		rectangular
Inlet pipe length		5 x DN
Outlet pipe length		1 x DN
Dimensions [mm]		130 x 48 x 69
Material	housing: stainless steel (1.4404 / 316L); connector: PEI, FKM	
Materials (wetted parts)	Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: NBR fiber-reinforced	
Nominal diameter		DN 32 (1 1/4")
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	operating status	1 x LED, green

Accessories		
Items supplied	Gasket 2, NBR fiber-reinforced 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	

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Pack quantity

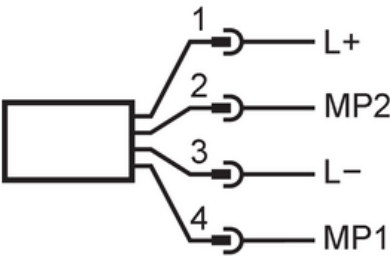
1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO, AO, Reset
3 (L-)	L-	
4 (OUT1)	MP1	DO, IO-Link

Electrical connection - plug

Diagrams and graphs

Pressure loss

