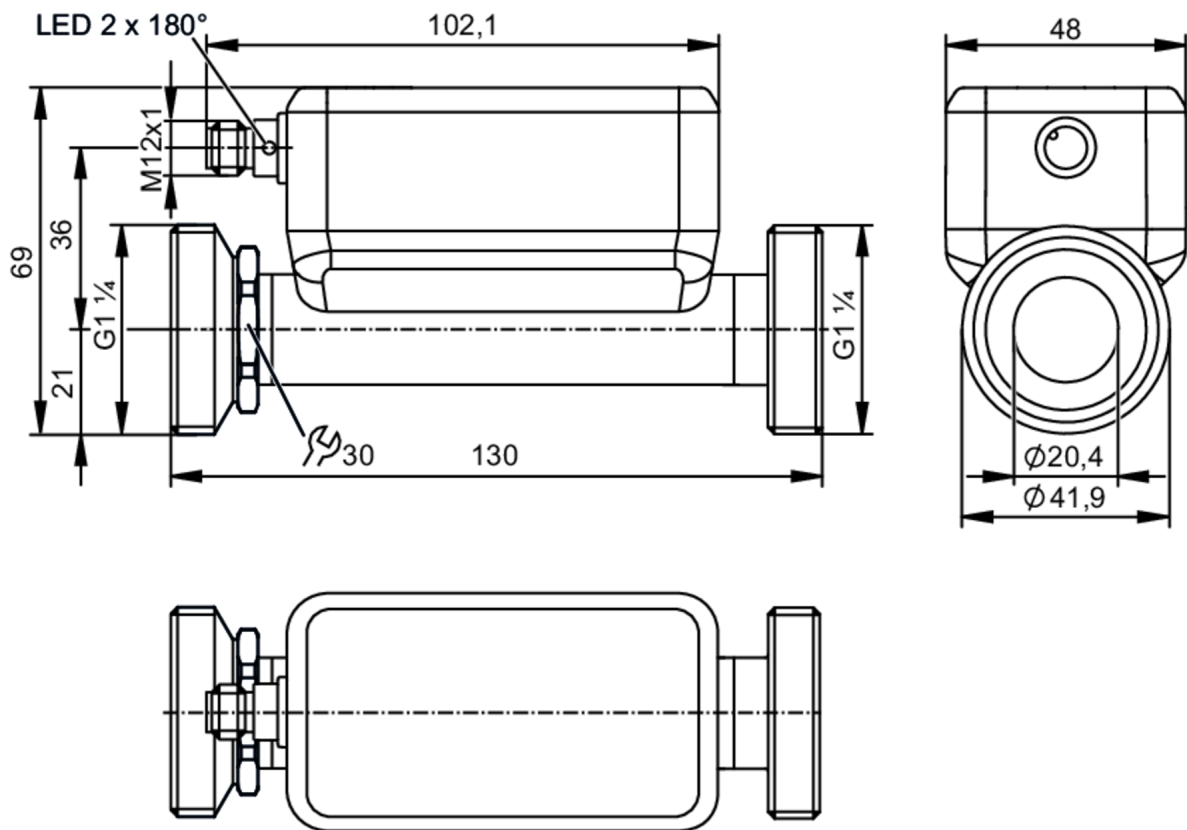


SU9050

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

System	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)
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Current consumption	[mA]	< 175
Protection class		III
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
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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

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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	0.1...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			

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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
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
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Accessories

Items supplied	Gasket 2, NBR fiber-reinforced package insert
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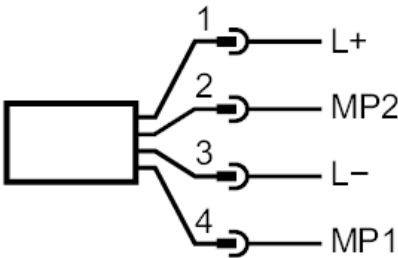
Remarks	
Remarks	MW = Measured value
	MEW = Final value of the measuring range
	pulse and totalizer signal are only available for one of the two outputs
	the accuracy indications are adhered to over the entire application area
Pack quantity	1 pcs.

Electrical connection

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



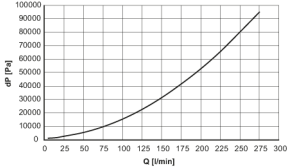
Connection



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	
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