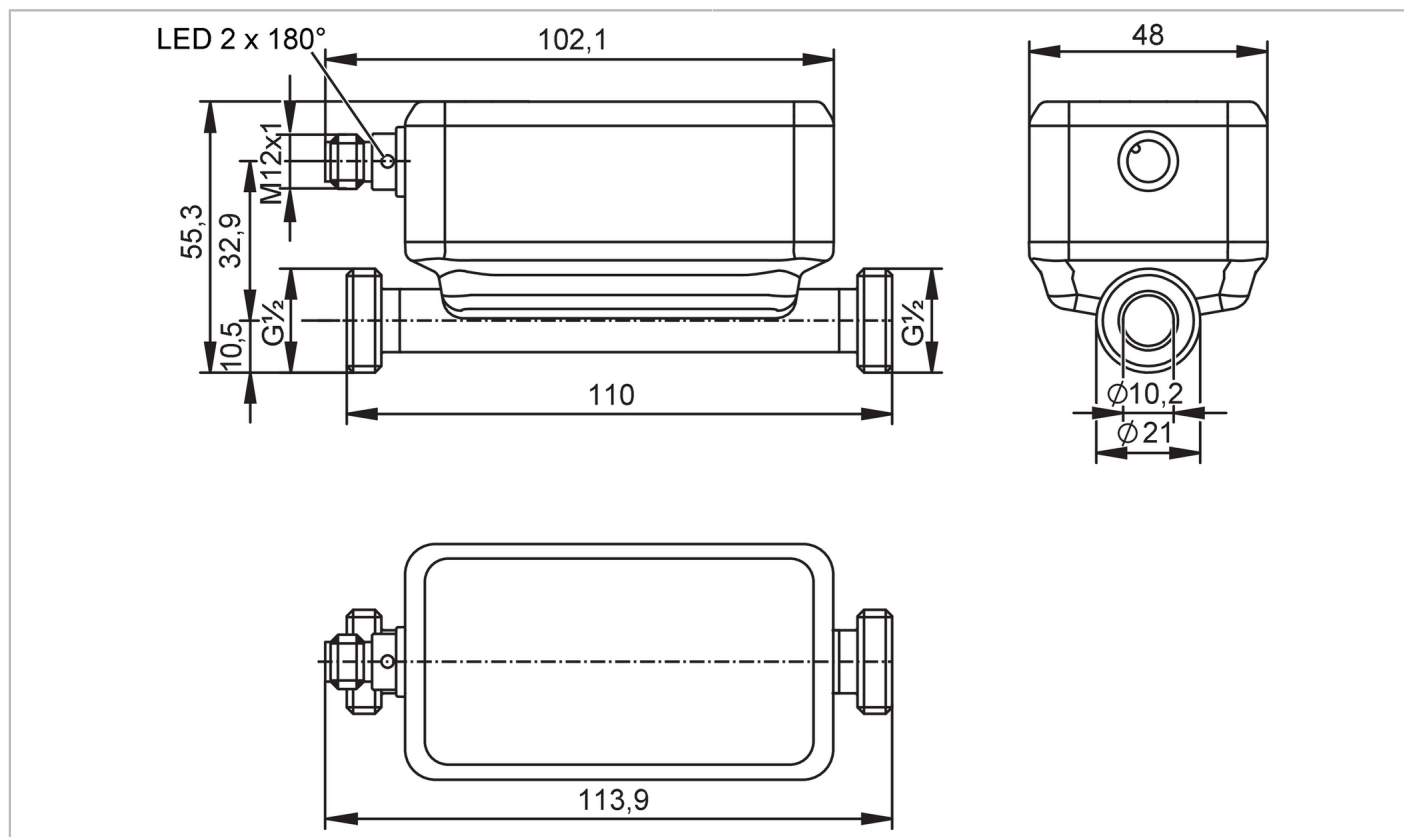


SU6050



Ultrasonic flow meter

SUR12XJBFRKG/US



ACS



IO-Link

KTW/W270



Reg31

Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	0.5...65 l/min	0.03...3.9 m³/h	8...1030 gph	0.13...17.17 gpm
Nominal diameter	DN15 (1/2")			
Process connection	threaded connection G 1/2 external thread DN15			

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	0.5...65 l/min	0.03...3.9 m³/h	8...1030 gph	0.13...17.17 gpm
Resolution	0.1 l/min	0.002 m³/h	1 gph	0.01 gpm
Note on factory setting	l/min			
	°C			
Set point SP	0.9...65 l/min	0.052...3.9 m³/h	14...1030 gph	0.23...17.17 gpm
Reset point rP	0.5...64.7 l/min	0.032...3.88 m³/h	8...1025 gph	0.14...17.08 gpm
Analog start point ASP	-65...52 l/min	-3.9...3.12 m³/h	-1030...824 gph	-17.17...13.74 gpm
Analog end point AEP	-52...65 l/min	-3.12...3.9 m³/h	-824...1030 gph	-13.74...17.17 gpm
Low flow cut-off LFC	0.5...3.2 l/min	0.03...0.195 m³/h	8...52 gph	0.13...0.86 gpm
Frequency end point, FEP	13...65 l/min	0.782...3.9 m³/h	207...1030 gph	3.44...17.17 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 + 1,0 % MEW)
	low-viscosity oils with viscosity 10mm2/s (40°C)	±(5,0 % MW + 1,0 % MEW)
	water	± (2,0 % 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	1835

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]		160
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]		477.9
Housing		rectangular
Inlet pipe length		5 x DN
Outlet pipe length		1 x DN
Dimensions [mm]		113.9 x 48 x 55.3
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		DN15 (1/2")
Process connection		threaded connection G 1/2 external thread DN15
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

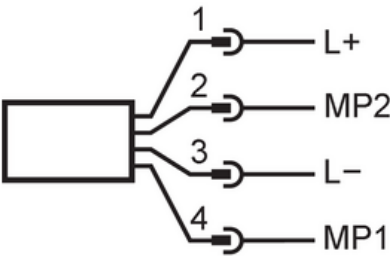
1 pcs.

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

Note on pressure loss

