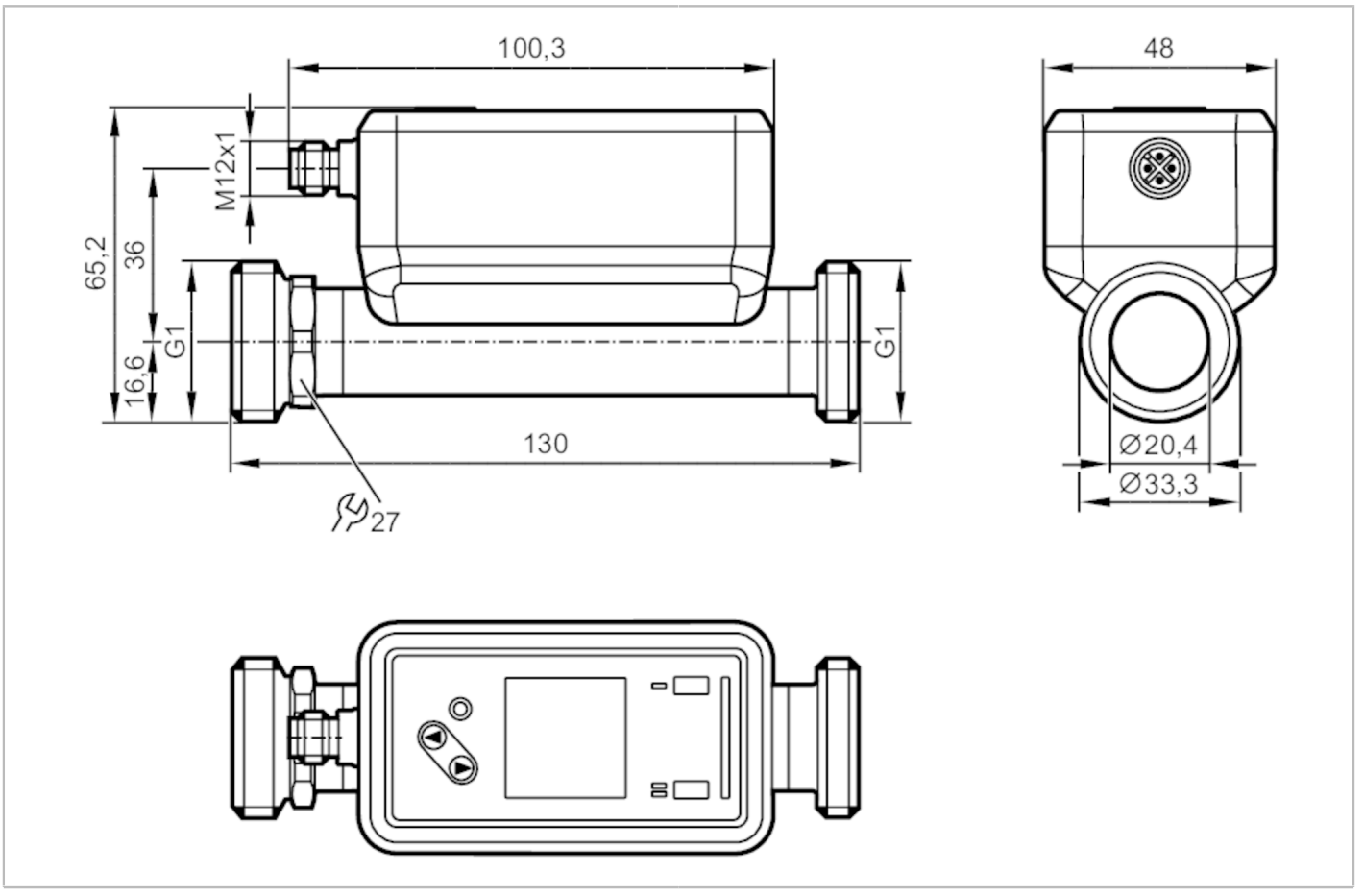
SU8021

Ultrasonic flow meter

SUR11XXBFRKG/US



ACS IO-Link KTW/W270 Reg31

Product characteristics				
Measuring range	1...240 l/min	0.06...14.4 m³/h	16...3804 gph	0.26...63.4 gpm
Process connection	G 1 DN25 external thread			
Application				
Special feature	Gold-plated contacts			
Media	ultra-pure water; water; hydrous media			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature	-20...100 °C		-4...212 °F	
Min. bursting pressure	150 bar		15 MPa	
Pressure rating	100 bar		10 MPa	
Vacuum resistance [mbar]	-1000			
MAWP (for applications according to CRN) [bar]	100			
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	analogue signal; pulse signal; analogue signal; IO-Link; frequency signal; diagnostic signal; totaliser switching signal			
Electrical design	PNP/NPN			
Output function	normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC [V]	2			
Permanent current rating of switching output DC [mA]	100			
Switching frequency DC [Hz]	0...10000			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Measuring/setting range				
Measuring range	1...240 l/min	0.06...14.4 m³/h	16...3804 gph	0.26...63.4 gpm
Display range	-288...288 l/min	-17.28...17.28 m³/h	-4565...4565 gph	-76.08...76.08 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.02 gpm
Set point SP	2.3...240 l/min	0.139...14.4 m³/h	37...3804 gph	0.61...63.4 gpm
Reset point rP	1.1...238.8 l/min	0.064...14.325 m³/h	17...3784 gph	0.28...63.07 gpm
Analogue start point ASP	-240...192 l/min	-14.4...11.522 m³/h	-3804...3044 gph	-63.4...50.73 gpm
Analogue end point AEP	-192...240 l/min	-11.522...14.4 m³/h	-3044...3804 gph	-50.73...63.4 gpm
Low flow cut-off LFC	1...12 l/min	0.06...0.72 m³/h	16...190 gph	0.26...3.17 gpm
Frequency end point, FEP	48.1...240 l/min	2.889...14.4 m³/h	763...3804 gph	12.72...63.4 gpm
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; 0.005...26414563.515 gal			
Temperature monitoring				
Measuring range	-20...100 °C	-4...212 °F		
Display range	-44...124 °C	-47.2...255.2 °F		
Resolution	0.1 °C	0.1 °F		
Set point SP	-19.6...100 °C	-3.2...212 °F		
Reset point rP	-20...99.6 °C	-4...211.2 °F		
Analogue start point	-20...76 °C	-4...168.8 °F		
Analogue end point	4...100 °C	39.2...212 °F		
Frequency start point, FSP	-20...76 °C	-4...168.8 °F		
Frequency end point, FEP	4...100 °C	39.2...2121 °F		
Frequency at the end point FRP [Hz]	1...10000			

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Accuracy / deviations			
Flow monitoring			
Accuracy (in the measuring range)		± (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	
Response 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		Identification and Diagnosis (0x4000)	
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	9.6	
IO-Link process data (cyclical)		**function**	**bit length**
		totaliser	32
		Flow monitoring	32
		Temperature monitoring	32
		status	4
		Output 1	1
		Output 2	1
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1463
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 67	
Tests / approvals			
EMC		DIN 61326-1:2021	
CPA approval		model number	002US
		accuracy class	1,5
Shock resistance		DIN IEC 68-2-27	20 g (11ms)

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Vibration resistance		DIN IEC 68-2-6	5 g (10...2000Hz)
MTTF	[years]	160	
UL approval		UL Approval no.	I034
		File number UL	E174189
Pressure Equipment Directive		can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight	[g]	451.8	
Type of mounting		inlet pipe length 5xDN; outlet pipe length 1xDN	
Materials		housing: stainless steel (1.4404 / 316L); Display: PFA; Sealing Display: FKM; connector: POKAN	
Materials (wetted parts)		Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: Centellen Flat seal	
Process connection		G 1 DN25 external thread	
Surface characteristics Ra/Rz of the wetted parts		1.25 µm	

Displays / operating elements

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

Accessories

Items supplied	Flat seal 2, Centellen
	package insert

Remarks

Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser 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

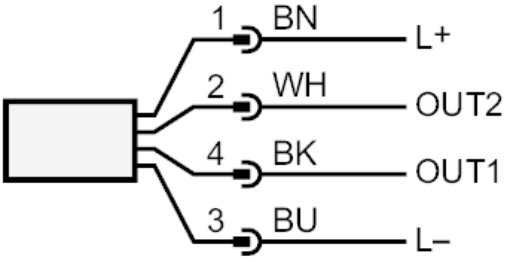


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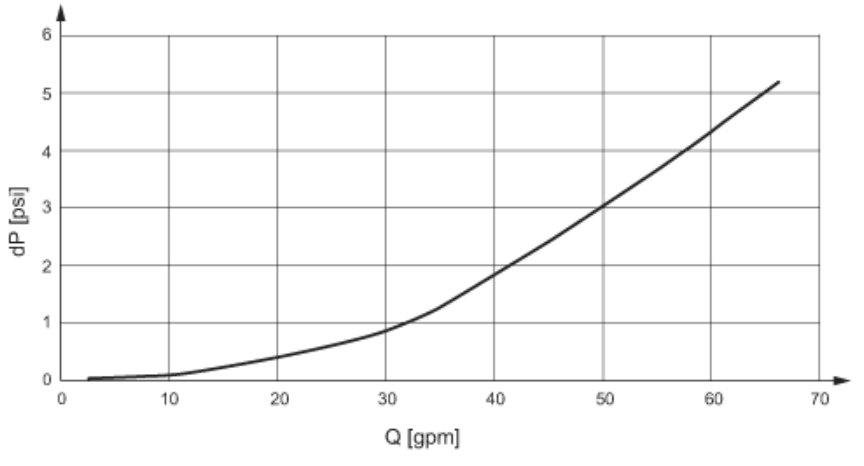
Connection

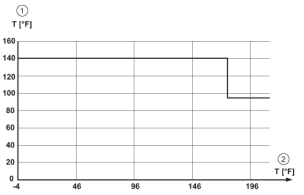


OUT1/IO-Link:	switching output volumetric flow quantity monitoring switching output Temperature monitoring Pulse output quantity meter frequency output volumetric flow quantity monitoring frequency output Temperature monitoring signal output Preset counter
OUT2/InD:	switching output volumetric flow quantity monitoring switching output Temperature monitoring Pulse output quantity meter analogue output flow analogue output temperature signal output Preset counter input counter reset
colours to DIN EN 60947-5-2	
Core colours	BK= black BN= brown BU= blue WH= white

Diagrams and graphs

Note on pressure loss



derating ambient temperature	 1 Ambient temperature 2 Medium temperature