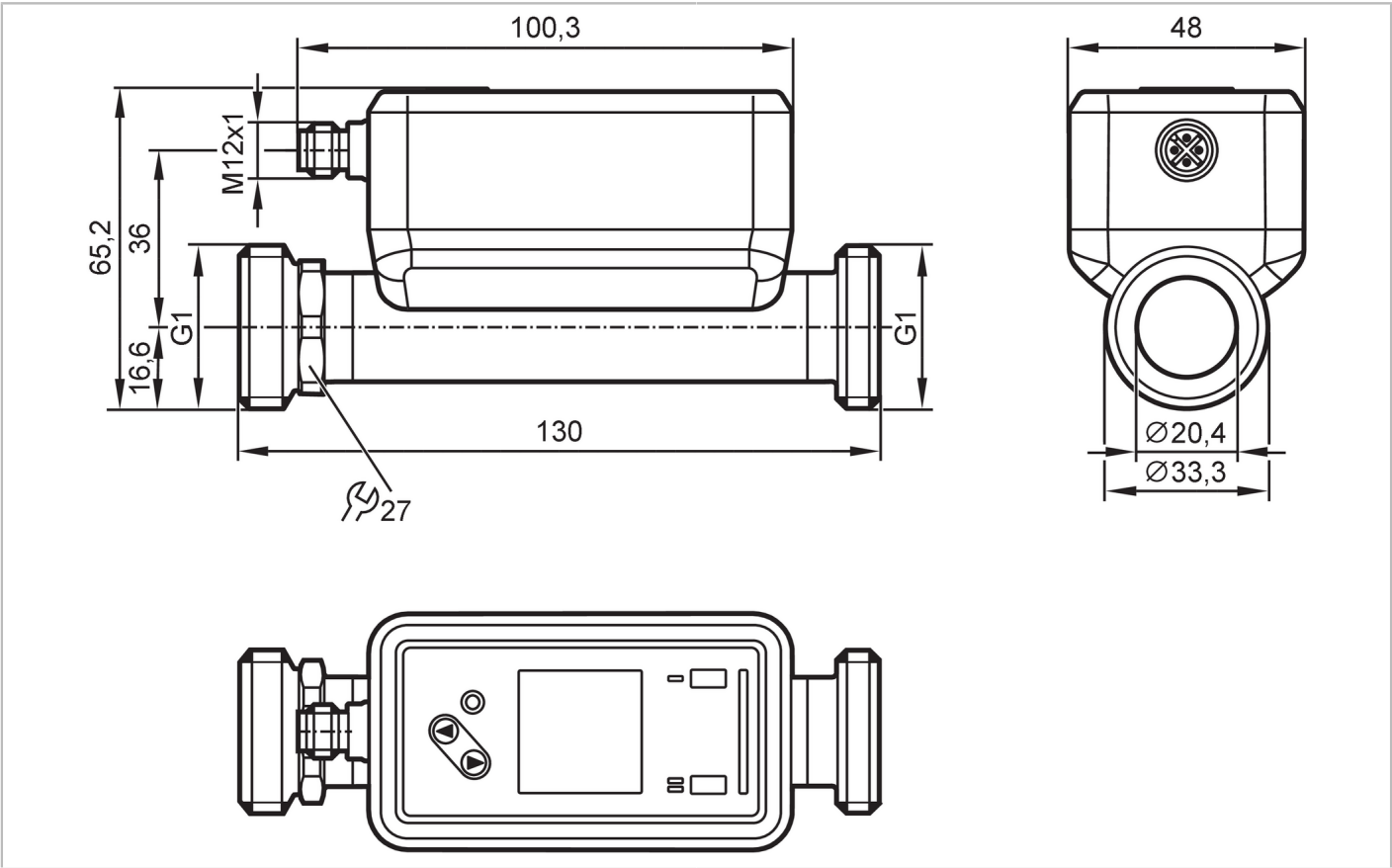


SU8031



Ultrasonic flow meter

SUR11XFBFRKG/US



ACS CE cUL US LISTED IO-Link KTW/W270 NSF 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	threaded connection G 1 external thread DN25			
Application				
Special feature	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	-20...100 °C		-4...212 °F	
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		
Measuring principle		ultrasonic		



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Inputs				
Inputs		counter reset		
Outputs				
Total number of outputs		2		
Output signal		analog 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...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
Analog start point ASP		-240...192 l/min	-14.4...11.522 m³/h	-3804...3044 gph -63.4...50.73 gpm
Analog 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
Analog start point		-20...76 °C		-4...168.8 °F
Analog 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...212 °F
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%)	±(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	
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	1759
Operating conditions		
Ambient temperature [°C]	-20...60	
Storage temperature [°C]	-25...80	
Protection	IP 65; IP 67	

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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]	544	
Housing	rectangular	
Type of mounting	inlet pipe length 5xDN; outlet pipe length 1xDN	
Dimensions [mm]	130 x 48 x 65.2	
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 external thread DN25	
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; gpm; gph; ft/s; oz/min	
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: 4, gold-plated		
		

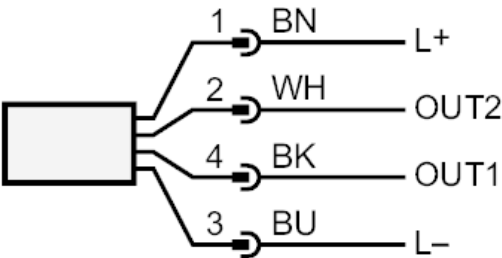
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Connection



- 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
 - analog output flow
 - analog output temperature
 - signal output Preset counter
 - Input counter reset

Colors to DIN EN 60947-5-2

- Core colors
- BK= black
 - BN= brown
 - BU= blue
 - WH= white

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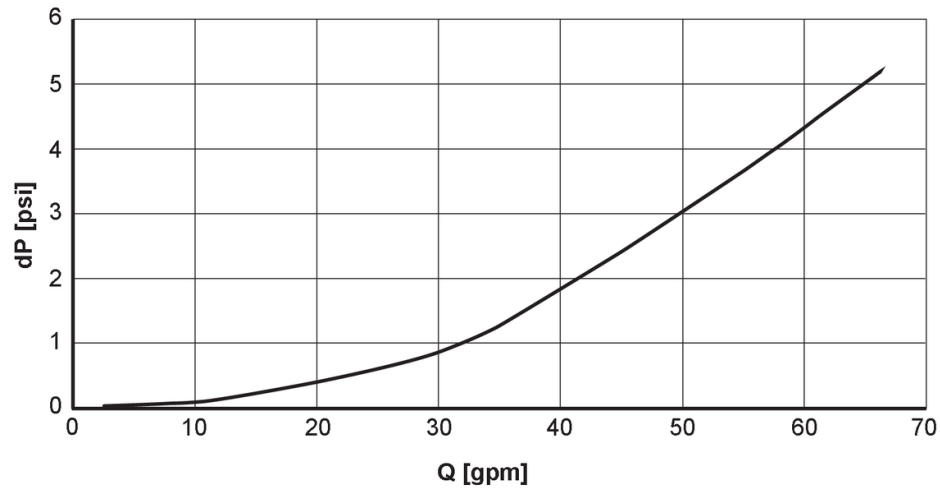
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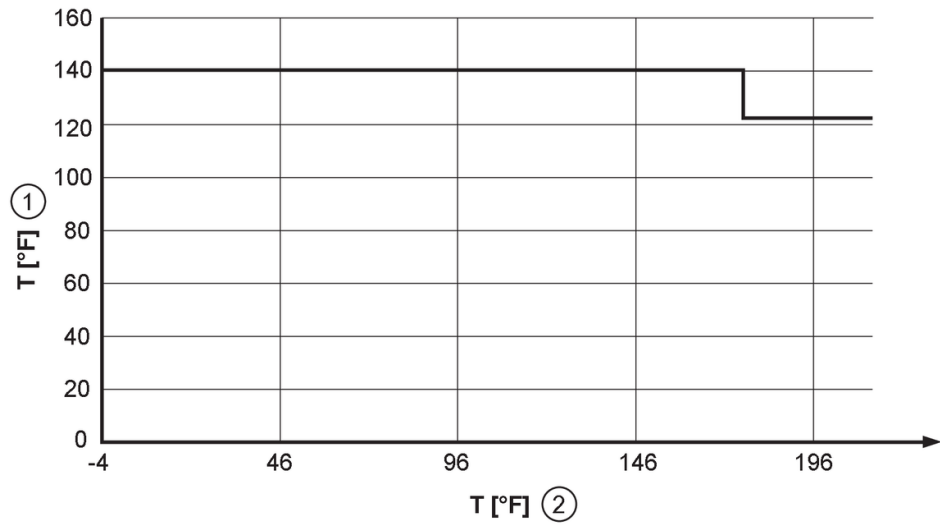
Diagrams and graphs

Note on pressure loss



dP Pressure loss
[psi]
Q volumetric flow quantity
[gpm]

derating ambient temperature



1 Ambient temperature
2 Medium temperature