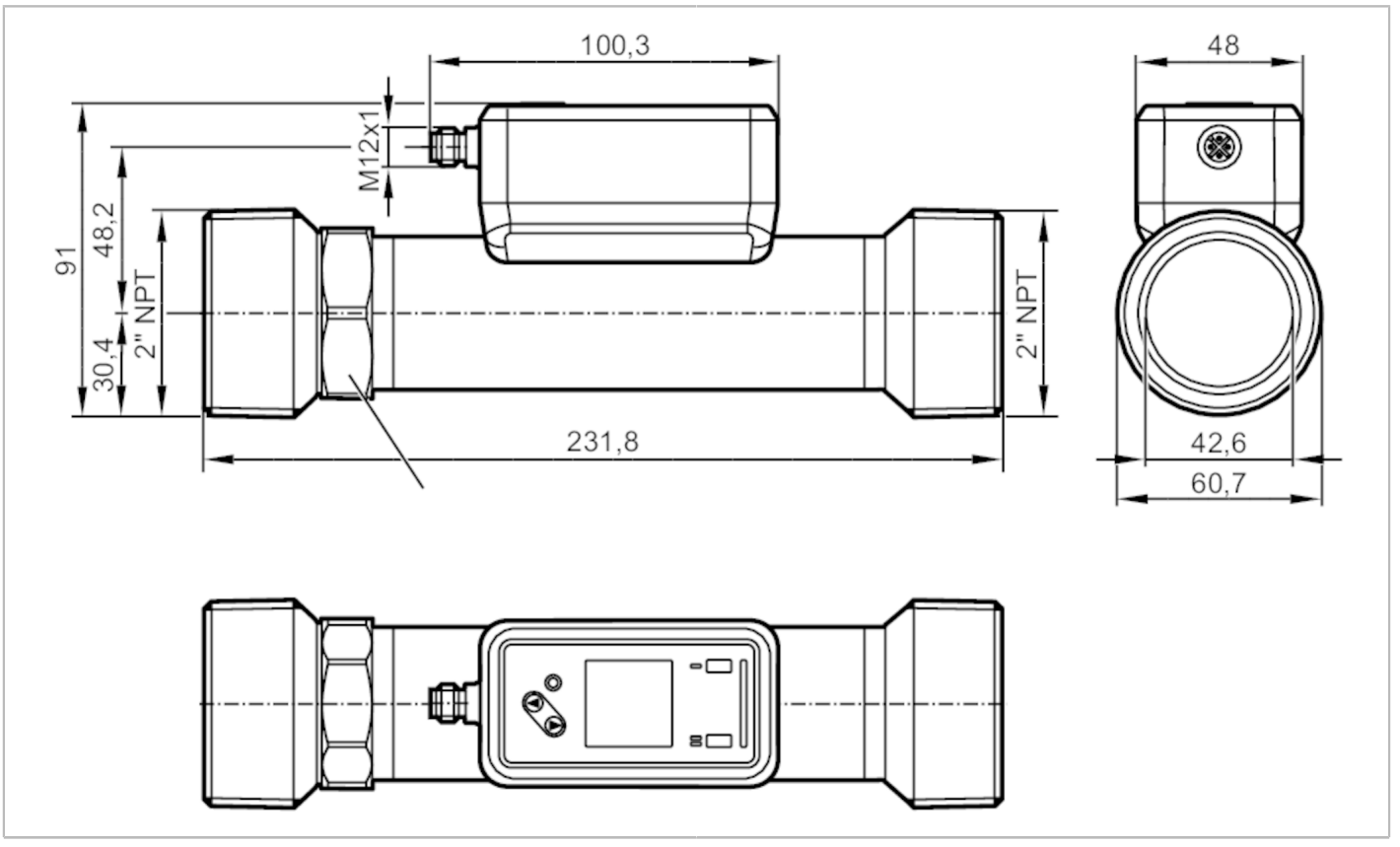
SU2621

Ultrasonic flow meter

SUN21XFBFRKG/US



ACS CE PA c UL us LISTED IO-Link KTW/W270 Reg31

Product characteristics					
Measuring range		5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Process connection		2" NPT DN50 external thread			
Application					
System		gold-plated contacts			
Media		ultra-pure water; water; water-based media			
Note on media		water-based 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		switching 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		5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Display range		-1200...1200 l/min	-72...72 m³/h	-19020...19020 gph	-317...317 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Set point SP		10.5...1000 l/min	0.63...60 m³/h	166...15850 gph	2.77...264.17 gpm
Reset point rP		5.3...994.8 l/min	0.318...59.688 m³/h	84...15768 gph	1.4...262.8 gpm
Analog start point ASP		-1000...800 l/min	-60...48000 m³/h	-15850...12680 gph	-264.18...211.34 gpm
Analog end point AEP		-800...1000 l/min	-48000...60 m³/h	-12680...15850 gph	-211.34...264.17 gpm
Low flow cut-off LFC		5...50 l/min	0.3...3 m³/h	79...793 gph	1.32...13.21 gpm
Frequency end point, FEP		200.6...1000 l/min	12.037...60 m³/h	3180...15850 gph	53...264.17 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; 0.026...26414563.515 gal			
Temperature monitoring					
Measuring range		-20...100 °C		-4...212 °F	
Display range		-44...124 °C		-47.2...255.2 °F	
Resolution	[°C]	0.1			
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)		± (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		Identification and Diagnosis (0x4000)	
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	1461
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 number	I033
		File number UL	E174189
Pressure equipment directive		can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight	[g]	1384.5	
Type of mounting		inlet pipe length 5xDN; outlet pipe length 1xDN	
Material		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		2" NPT DN50 external thread	
Surface characteristics Ra/Rz of the wetted parts		49.21 µin	

Displays / operating elements

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

Accessories

Items supplied	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: gold-plated

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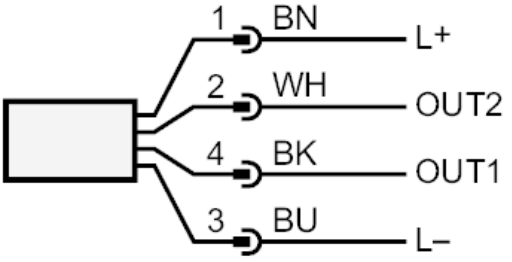
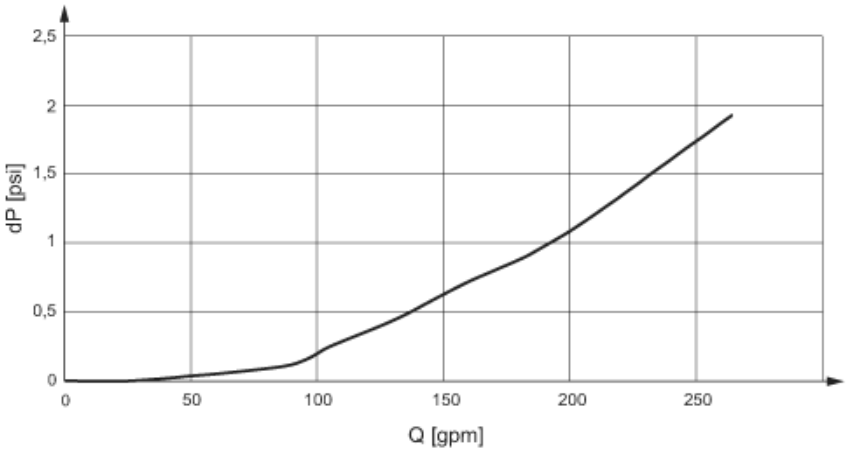
Connection



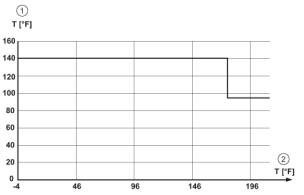
OUT1/IO-Link:	Switching output Volumetric flow quantity monitoring Switching output Temperature monitoring Pulse output quantity meter Frequency output Volumetric flow quantity monitoring Frequency output Temperature monitoring signal output Preset counter
OUT2/InD:	Switching output Volumetric flow quantity 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

Diagrams and graphs

Note on pressure loss



derating ambient temperature



1 Ambient temperature

2 Medium temperature