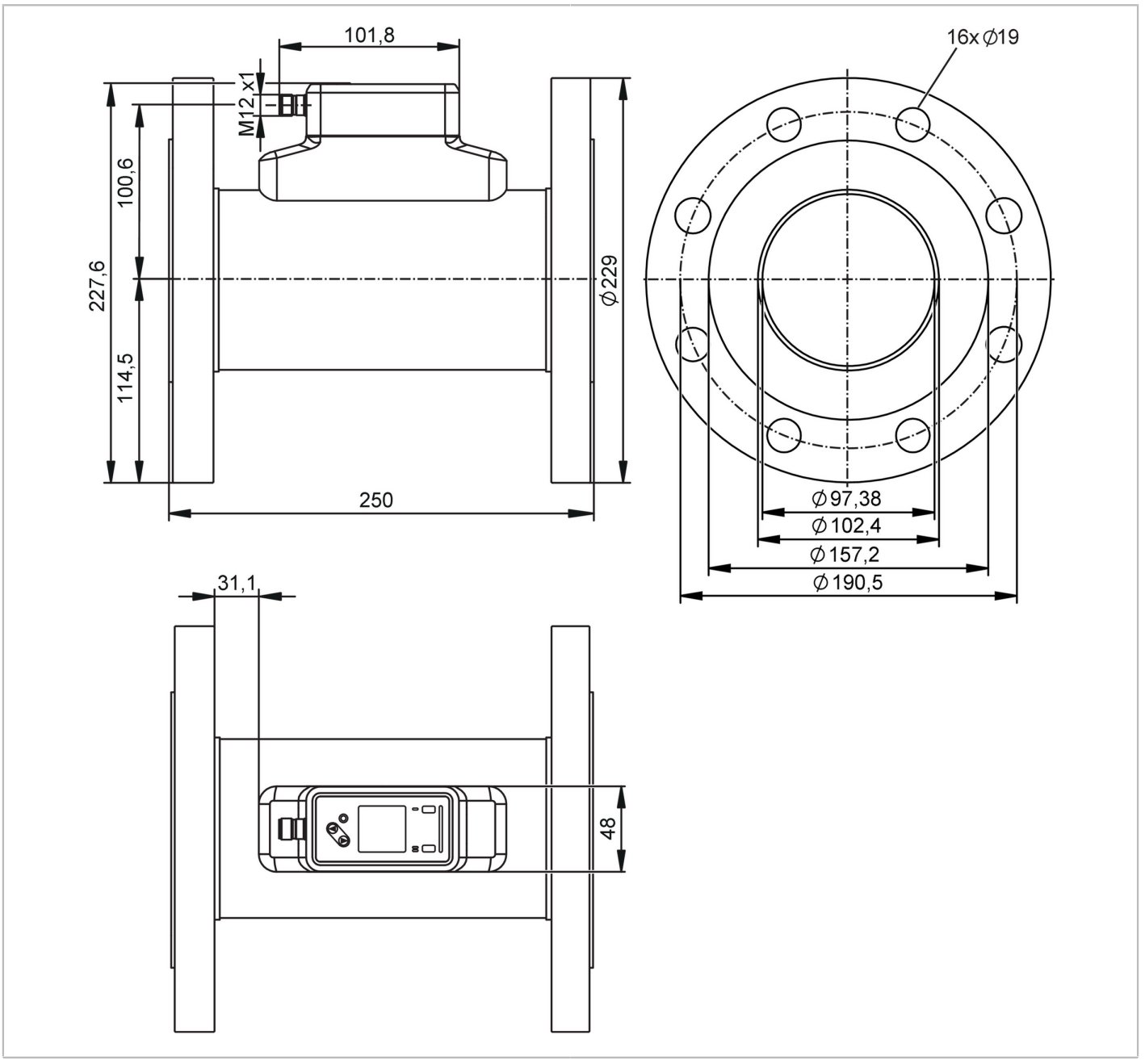
SUW711

Ultrasonic flow meter

SUFX0IGBFRKG/US



Product characteristics				
Measuring range	45...6000 l/min	2.7...360 m³/h	714...95102 gph	11.9...1585 gpm
Nominal diameter	DN100 (4“)			
Process connection	4" ASME B16.5 Class 150 Flange			
Application				
Special feature	gold-plated contacts			
Application	Use in industrial applications			
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			

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Medium temperature	[°C]	-20...100			
Min. burst pressure		40 bar	928 psi	4 MPa	
Pressure rating		16 bar	232 psi	1.6 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			
Inputs / outputs					
Total number of inputs and outputs		2			
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			
Pulse output		flow rate meter			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
Overload protection		yes			
Analog					
Number of analog outputs		1			
Analog current output	[mA]	4...20			
Max. load	[Ω]	500			
Digital					
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			
Measuring/setting range					
Measuring range		45...6000 l/min	2.7...360 m³/h	714...95102 gph	11.9...1585 gpm
Display range		-7200...7200 l/min	-432...432 m³/h	-114122...114122 gph	-1902.04...1902.04 gpm
Resolution		0.1 l/min	0.001 m³/h	1 gph	0.01 gpm

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Note on factory setting	gpm, °F			
Set point SP	78...6000 l/min	4.7...360 m³/h	1236...95102 gph	20.6...1585 gpm
Reset point rP	46.8...5968.8 l/min	2.8...358.1 m³/h	742...94607 gph	12.4...1576.8 gpm
Analog start point ASP	-6000...4800 l/min	-360...288 m³/h	-95102...76082 gph	-1585...1268 gpm
Analog end point AEP	-4800...6000 l/min	-288...360 m³/h	-76082...95102 gph	-1268...1585 gpm
Low flow cut-off LFC	45...300 l/min	2.7...18 m³/h	713...4755 gph	11.9...79.3 gpm
Frequency end point, FEP	1203.7...6000 l/min	72.2...360 m³/h	19079...95102 gph	318...1585 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	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			
Accuracy / deviations				
Flow monitoring				
Accuracy (in the measuring range)	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]	< 0.5; (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			
SDCI standard	IEC 61131-9			

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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	2016
Operating conditions			
Ambient temperature	[°C]	-20...60	
Storage temperature	[°C]	-25...80	
Protection		IP 65; IP 67	
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)
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]	14.15	
Housing		rectangular	
Inlet pipe length		15 x DN	
Outlet pipe length		3 x DN	
Dimensions	[mm]	250 x 229 x 229	
Material		housing: stainless steel (1.4404 / 316L); Display: PFA; sealing Display: FKM; connector: PBT	
Materials (wetted parts)		Pipe section: stainless steel (1.4435 / 316L); Process connection: stainless steel (1.4404 / 316L)	
Nominal diameter		DN100 (4“)	
Process connection		4" ASME B16.5 Class 150 Flange	
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.76 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	

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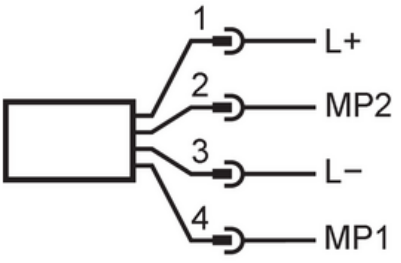
Accessories	
Items supplied	package insert

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 specified Ra surface characteristics of the wetted surfaces do not apply to the weld seam.
Pack quantity	1 pcs.

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated

Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analog output; DI: digital input; DO: digital output; FO: Frequency output; MP: multi-function connection

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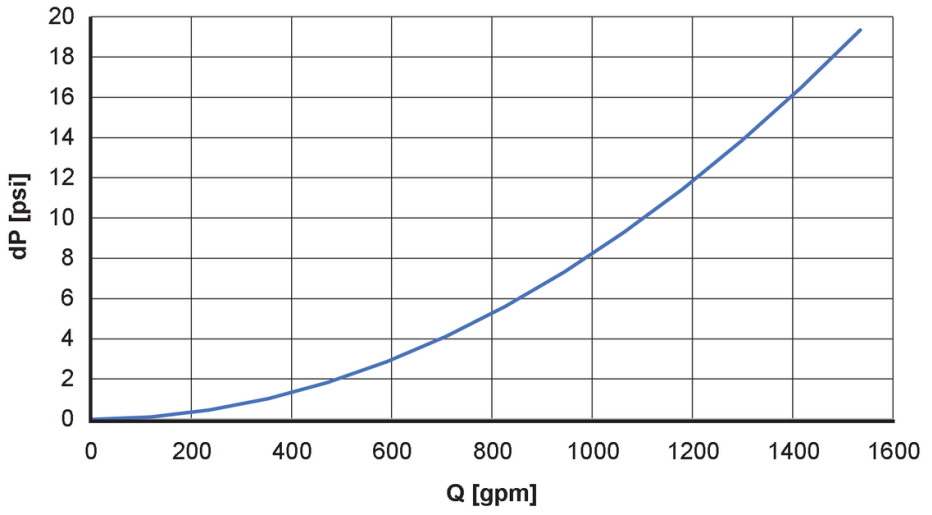
Diagrams and graphs



dP [psi] Pressure loss

Q [gpm] volumetric flow quantity