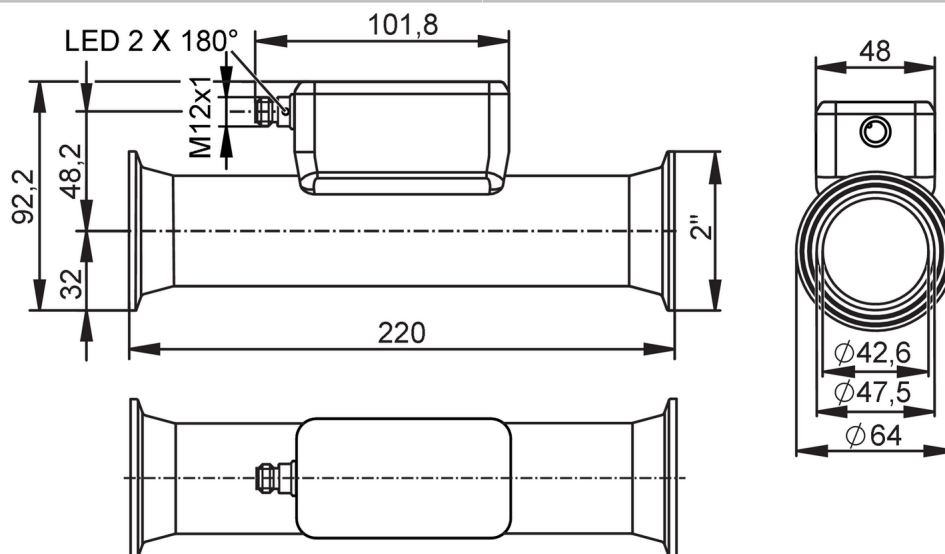


SUH451



Ultrasonic flow meter

SUC50XGBFRKG/US



Product characteristics

Measuring range	5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Nominal diameter	DN50 (2")			
Process connection	Clamp 2" DIN 32676 series C (ASME BPE)			

Application

Special feature	gold-plated contacts	
Application	food and beverage industry	
Media	ultra-pure water; water; water-based media; edible oils	
Note on media	water-based media: for media with >10 % additives, the repeatability is the only available value	
	edible oils: palm oil, soy oil, rapeseed oil, sunflower oil, peanut oil, olive oil and others	
Medium temperature [°C]	-40...130; (< 1 h: 150)	
Min. burst pressure	75 bar	7.5 MPa
Pressure rating	25 bar	2.5 MPa
Note on pressure rating	take into account the pressure resistance of the bracket and the seal used for clamp connection	
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
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Inputs

Inputs	OUT2	counter reset
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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	5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.01 gpm
Note on factory setting	gpm, °F			
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...48 m³/h	-15850...12680 gph	-264.17...211.34 gpm
Analog end point AEP	-800...1000 l/min	-48...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	-40...130 °C		-40...266 °F	
Resolution	0.1 °C		0.1 °F	
Set point SP	-39.4...130 °C		-38.9...266 °F	
Reset point rP	-40...129.4 °C		-40...264.9 °F	
Analog start point	-40...96 °C		-40...204.8 °F	
Analog end point	-6...130 °C		21.2...266 °F	

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Frequency start point, FSP	-40...96 °C	-40...204.8 °F
Frequency end point, FEP	-6...130 °C	21.2...266 °F
Frequency at the end point FRP [Hz]	1...10000	

Accuracy / deviations

Accuracy (in the measuring range)	only up to 100 °C; at higher temperatures, only the repeatability is within the specification.	
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Flow monitoring

Accuracy (in the measuring range)	edible oils	± (5,0 % MW + 1,0 % 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	
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Software / programming

Diagnostic functions	direction of flow detection; signal quality	
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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	1952

Operating conditions

Ambient temperature [°C]	-20...60	
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Storage temperature	[°C]	-25...80
Protection		IP 69; (DIN EN 60529)

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]	136
UL approval	UL approval number	I038
	File number UL	E174189
Pressure equipment directive		can be used for group 2 fluids; group 1 fluids on request

Mechanical data		
Weight	[g]	939
Housing		rectangular
Inlet pipe length		5 x DN
Outlet pipe length		1 x DN
Dimensions	[mm]	220 x 64 x 92.2
Material		housing: stainless steel (1.4404 / 316L); connector: PEI, FKM
Materials (wetted parts)		Pipe section: stainless steel (1.4435 / 316L); Process connection: stainless steel (1.4404 / 316L)
Nominal diameter		DN50 (2")
Process connection		Clamp 2" DIN 32676 series C (ASME BPE)
Process connection suitable for pipe standard		2" / Ø 50,8 mm x 1,65 mm; (DIN 11866 series C); (DIN EN 10357 Series D)
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm (16 µin); Rz = 4 µm (157 µin)

Displays / operating elements		
Display	operating status	1 x LED, green

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 surface characteristics Ra/Rz 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: gold-plated



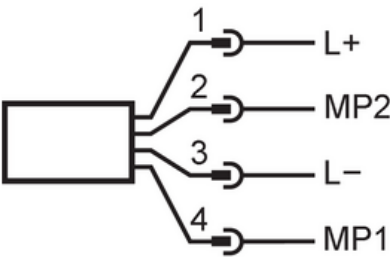
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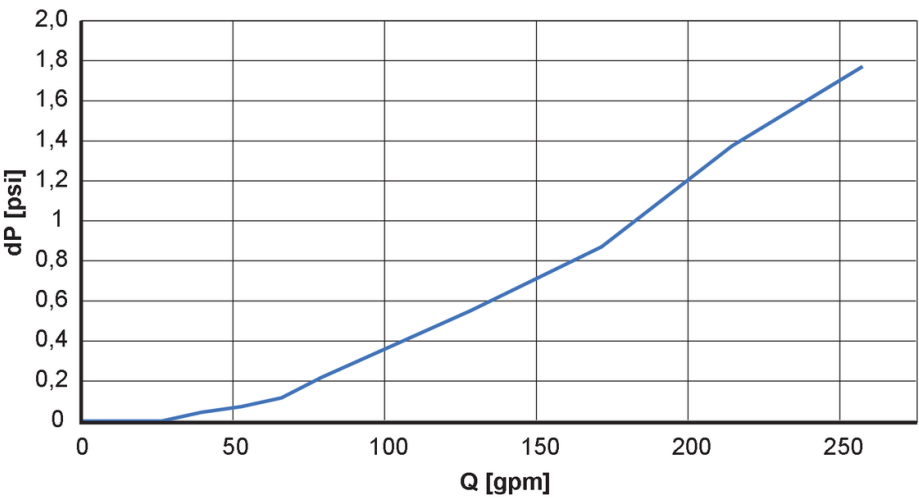
Connection



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

Diagrams and graphs



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