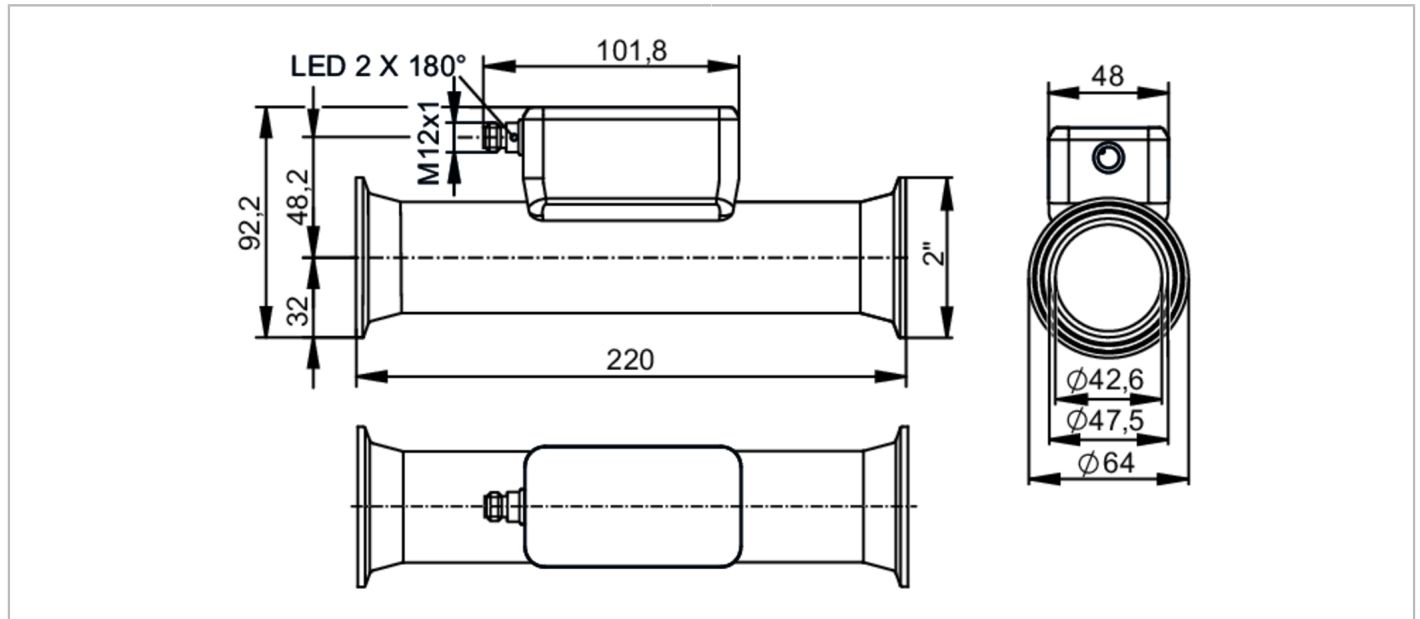


# SUH451



## Ultrasonic flow meter

SUC50XGBFRKG/US



Product characteristics	
Measuring range	5...1000 l/min    0.3...60 m <sup>3</sup> /h    79...15850 gph    1.32...264.18 gpm
Nominal diameter	DN50 (2")
Process connection	Clamp 2" DIN 32676 series C (ASME BPE)
Application	
System	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
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 m <sup>3</sup> /h	79...15850 gph	1.32...264.18 gpm
Resolution	0.1 l/min	0.001 m <sup>3</sup> /h	1 gph	0.01 gpm
Note on factory setting				gpm, °F
Set point SP	10.5...1000 l/min	0.63...60 m <sup>3</sup> /h	166...15850 gph	2.77...264.17 gpm
Reset point rP	5.3...994.8 l/min	0.318...59.688 m <sup>3</sup> /h	84...15768 gph	1.4...262.8 gpm
Analog start point ASP	-1000...800 l/min	-60...48 m <sup>3</sup> /h	-15850...12680 gph	-264.17...211.34 gpm
Analog end point AEP	-800...1000 l/min	-48...60 m <sup>3</sup> /h	-12680...15850 gph	-211.34...264.17 gpm
Low flow cut-off LFC	5...50 l/min	0.3...3 m <sup>3</sup> /h	79...793 gph	1.32...13.21 gpm
Frequency end point, FEP	200.6...1000 l/min	12.037...60 m <sup>3</sup> /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	

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## Ultrasonic flow meter

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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
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.	
<b>Flow monitoring</b>		
Accuracy (in the measuring range)	edible oils	± (5,0 % MW + 1,0 % MEW)
	water	± (1,0 % MW + 0,5 % MEW)
Repeatability	± 0,2 % MEW	
<b>Temperature monitoring</b>		
Accuracy [K]	± 2,5 (Q > 5 % MEW)	
Temperature coefficient [% of the span / 10 K]	0,2	

### Reaction times

<b>Flow monitoring</b>		
Response time [s]	< 0.25; (dAP = 0, T09)	
Damping process value dAP [s]	0...5	
<b>Temperature monitoring</b>		
Dynamic response T05 / T09 [s]	5,7 / 86	

### 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)	<b>Function</b>	<b>bit length</b>
	totalizer	32
	Flow monitoring	32
	Temperature monitoring	32
	status	4
	Output 1	1
	Output 2	1
Supported DeviceIDs	<b>Type of operation</b>	<b>DeviceID</b>
	default	1952

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## Ultrasonic flow meter

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Operating conditions		
Ambient temperature	[°C]	-20...60
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.

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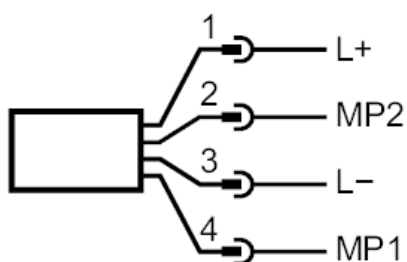
SUC50XGBFRKG/US

### Electrical connection - plug

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



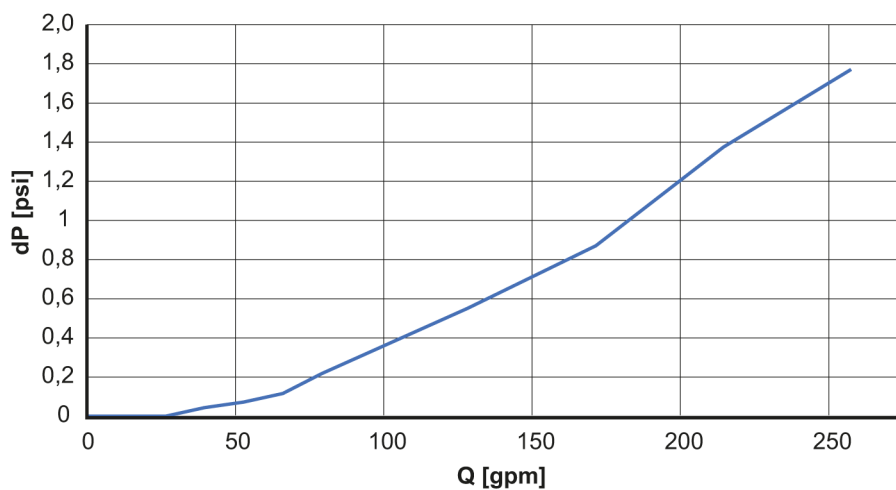
### Connection



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

### Diagrams and graphs



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