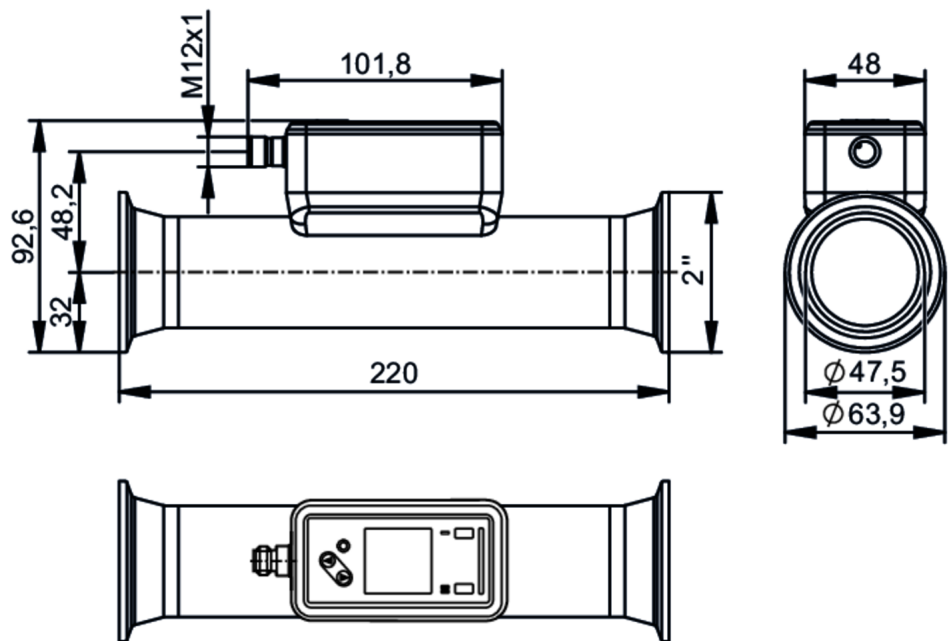


SUH401

Ultrasonic flow meter

SUC501JBFRKG/US



Product characteristics				
Measuring range	5...1000 l/min	0.3...60 m³/h	79...15850 gph	1.32...264.18 gpm
Process connection	Clamp 2" DIN 32676 series C			
Application				
Special feature	Gold-plated contacts			
Media	ultra-pure water; water; hydrous media			
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value			
Medium temperature	-20...100 °C		-4...212 °F	
Min. bursting pressure	50 bar		5 MPa	
Pressure rating	16 bar		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		

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Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totaliser switching signal; frequency signal; IO-Link		
	OUT2	switching signal; pulse signal; diagnostic signal; totaliser switching signal; analogue signal		
Electrical design	PNP/NPN			
Short-circuit protection	yes			
Type of short-circuit protection	pulsed			
Overload protection	yes			
Analogue				
Number of analogue outputs	1			
Analogue current output [mA]	4...20			
Max. load [Ω]	500			
Digital				
Number of digital outputs	2			
Output function	normally open / normally closed; (parameterisable)			
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
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
Analogue start point ASP	-1000...800 l/min	-60...48 m³/h	-15850...12680 gph	-264.17...211.34 gpm
Analogue 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	0.01...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	
Analogue start point	-20...76 °C		-4...168.8 °F	
Analogue 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	



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Frequency at the end point FRP	[Hz]	1...10000
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)		$\pm (1,0 \% MW + 0,5 \% MEW)$
Repeatability		$\pm 0,2 \% MEW$
Temperature monitoring		
Accuracy	[K]	$\pm 2,5 (Q > 5 \% MEW)$
Temperature coefficient [% of the span / 10 K]		0,2
Response 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	Function class	Designation
	0x0030	BLOB transfer
	0x4000	Identification and Diagnosis
Required master port type		A
Process data analogue		3
Process data binary		2
Min. process cycle time	[ms]	9.6
IO-Link process data (cyclical)	function	bit length
	totaliser	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 69K

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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	5 g (10...2000Hz)
MTTF [years]		160
UL approval	UL Approval no.	I033
Pressure Equipment Directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight [g]		936.1
Inlet pipe length		5 x DN
Outlet pipe length		1 x DN
Materials	housing: stainless steel (316L/1.4404); Display: PFA; Sealing Display: FKM; connector: POKAN	
Materials (wetted parts)	Pipe section: stainless steel (316L/1.4404)	
Nominal diameter		DN50 (2")
Process connection		Clamp 2" DIN 32676 series C
Process connection suitable for pipe standard		2" / Ø 50,8 mm x 1,65 mm (DIN 11866 series C; ASME BPE)
Surface characteristics Ra/Rz of the wetted parts		≤ 0.8 µm / 32 µin

Displays / operating elements		
Display		colour display 1,44", 128 x 128 pixels
	Switching function	2 x LED, yellow
	diagnosis	1 x LED, three-colour

Remarks		
Remarks		MW = measured value
		MEW = Final value of the measuring range
		pulse and totaliser 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
Diagnostic output direction of flow detection
Diagnostic output signal quality
signal output Preset counter

OUT2/InD: switching output volumetric flow quantity monitoring
switching output Temperature monitoring
Pulse output quantity meter
analogue output flow
analogue output temperature
Diagnostic output direction of flow detection
Diagnostic output signal quality
signal output Preset counter
input counter reset

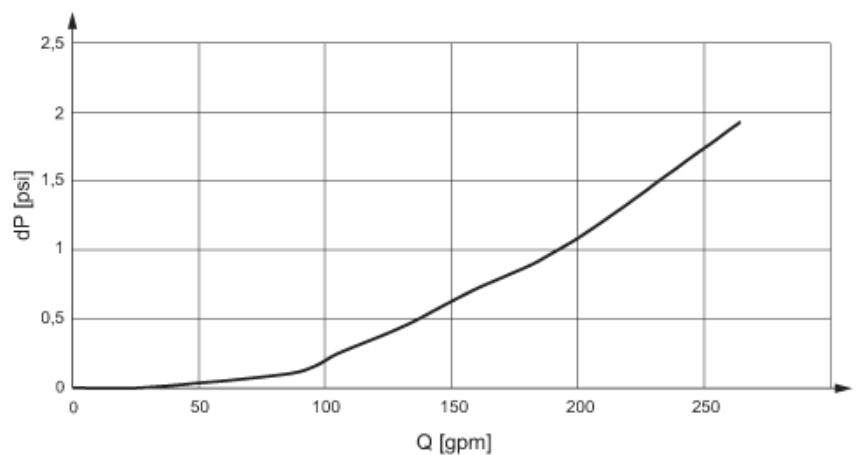
colours to DIN EN 60947-5-2

Core colours

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

Diagrams and graphs

Note on pressure loss



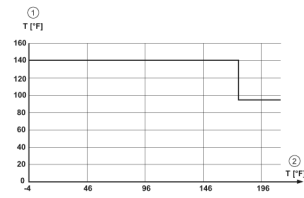
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derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature