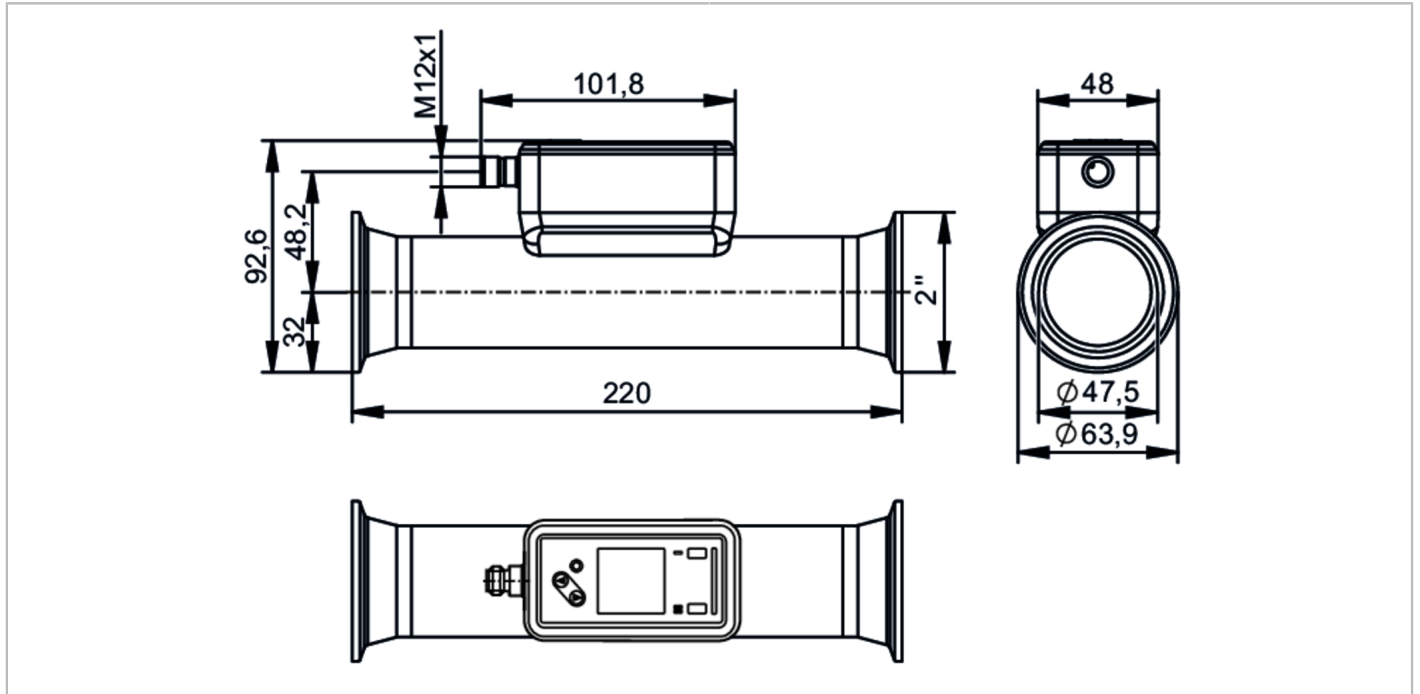


SUH401



Ultrasonic flow meter

SUC501JBFRKG/US



ACS EC 1935/2004 FDA KTW/W270 Reg31

Product characteristics

Measuring range	5...1000 l/min	0.3...60 m ³ /h	79...15850 gph	1.32...264.18 gpm
Process connection	Clamp 2" DIN 32676 series C			

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	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		
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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			
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 ³ /h	79...15850 gph	1.32...264.18 gpm
Display range	-1200...1200 l/min	-72...72 m ³ /h	-19020...19020 gph	-317...317 gpm
Resolution	0.1 l/min	0.001 m ³ /h	1 gph	0.01 gpm
Set point SP	10.5...1000 l/min	0.63...60 m ³ /h	166...15850 gph	2.77...264.17 gpm
Reset point rP	5.3...994.8 l/min	0.318...59.688 m ³ /h	84...15768 gph	1.4...262.8 gpm
Analog start point ASP	-1000...800 l/min	-60...48 m ³ /h	-15850...12680 gph	-264.17...211.34 gpm
Analog end point AEP	-800...1000 l/min	-48...60 m ³ /h	-12680...15850 gph	-211.34...264.17 gpm
Low flow cut-off LFC	5...50 l/min	0.3...3 m ³ /h	79...793 gph	1.32...13.21 gpm
Frequency end point, FEP	200.6...1000 l/min	12.037...60 m ³ /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	
Analog start point	-20...76 °C		-4...168.8 °F	
Analog end point	4...100 °C		39.2...212 °F	

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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)	± (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
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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	Function class	Description
	0x0030	BLOB, Binary Large Objects
	0x4000	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
default		1461

Operating conditions

Ambient temperature [°C]	-20...60
Storage temperature [°C]	-25...80

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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
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
Material	housing: stainless steel (1.4404 / 316L); Display: PFA; sealing Display: FKM; connector: POKAN
Materials (wetted parts)	Pipe section: stainless steel (1.4404 / 316L)
Nominal diameter	DN50
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	Color display 1,44", 128 x 128 pixels
Switching function	2 x LED, yellow
diagnosis	1 x LED, three-color

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



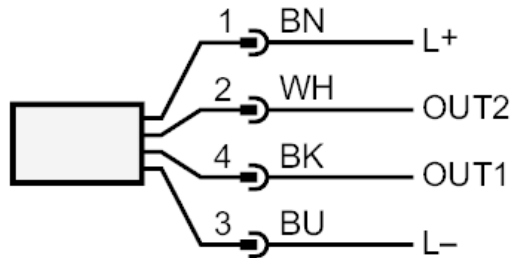
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Connection



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
Diagnostic output direction of flow detection
Diagnostic output signal quality
signal output Preset counter

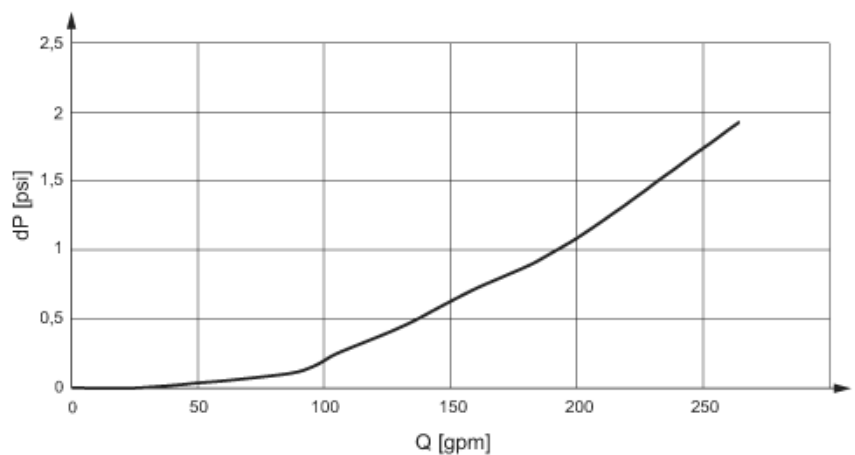
OUT2/InD: Switching output Volumetric flow quantity monitoring
Switching output Temperature monitoring
Pulse output quantity meter
analog output flow
analog output temperature
Diagnostic output direction of flow detection
Diagnostic output signal quality
signal output Preset counter
Input counter reset

Colors to DIN EN 60947-5-2

Core colors BK= black
BN= brown
BU= blue
WH= white

Diagrams and graphs

Note on pressure loss



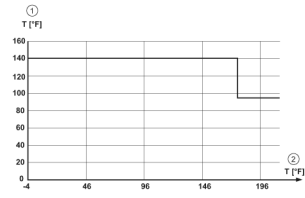
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derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature