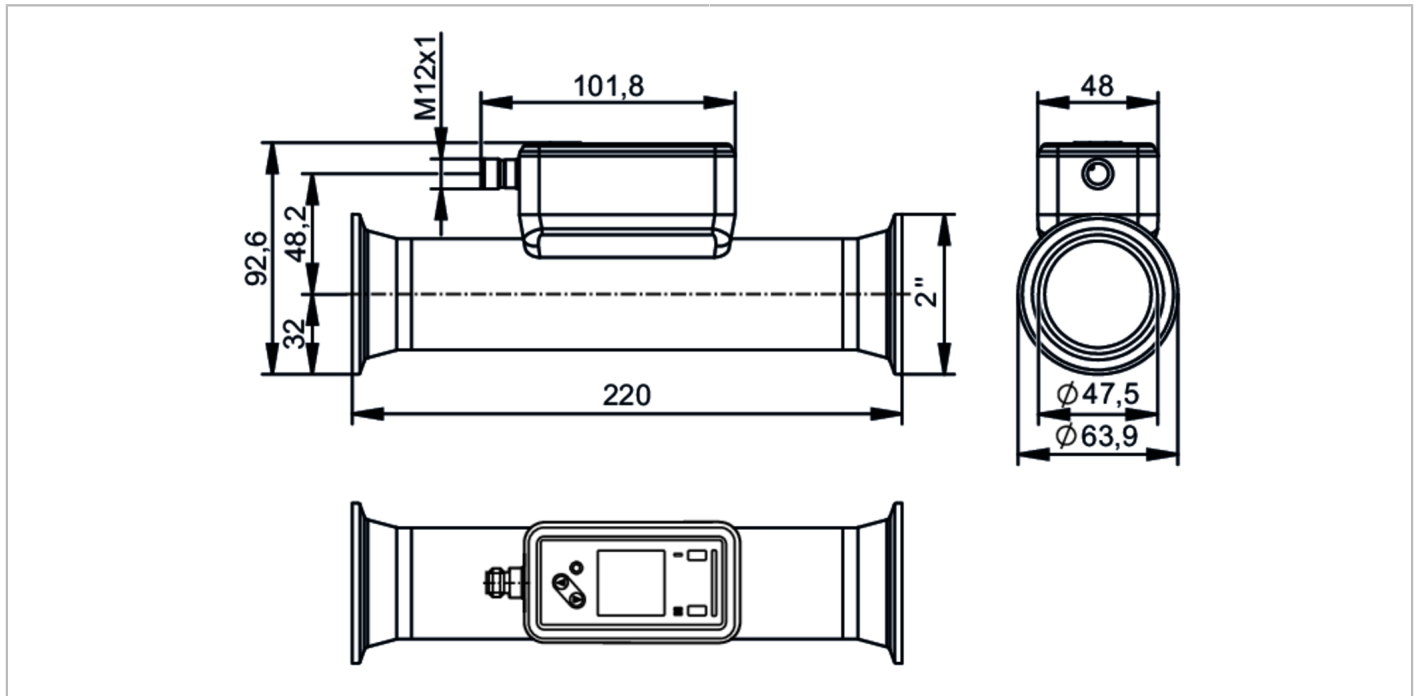


SUH400



Ultrasonic flow meter

SUC501JBFRKG/US



ACS



EC 1935/2004



KTW/W270 Reg31

Product characteristics

Measuring range	5...1000 l/min	300...60000 l/h	0.058...11.666 m/s	0.3...60 m³/h
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 [°C]	-20...100		
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	300...60000 l/h	0.058...11.666 m/s	0.3...60 m³/h
Display range	-1200...1200 l/min	-72000...72000 l/h	-13.999...13.999 m/s	-72...72 m³/h
Resolution	0.1 l/min	1 l/h	0.001 m/s	0.002 m³/h
Set point SP	10.5...1000 l/min	630...60000 l/h	0.122...11.666 m/s	0.63...60 m³/h
Reset point rP	5.3...994.8 l/min	318...59688 l/h	0.062...11.605 m/s	0.318...59.688 m³/h
Analog start point ASP	-1000...800 l/min	-60000...48000 l/h	-11.666...9.333 m/s	-60...48 m³/h
Analog end point AEP	-800...1000 l/min	-48000...60000 l/h	-9.333...11.666 m/s	-48...60 m³/h
Low flow cut-off LFC	5...50 l/min	300...3000 l/h	0.058...0.583 m/s	0.3...3 m³/h
Frequency end point, FEP	200.6...1000 l/min	12037...60000 l/h	2.34...11.666 m/s	12.037...60 m³/h
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.02...99990000 l			
Temperature monitoring				
Measuring range [°C]	-20...100			
Display range [°C]	-44...124			
Resolution [°C]	0.1			
Set point SP [°C]	-19.6...100			
Reset point rP [°C]	-20...99.6			
Analog start point [°C]	-20...76			

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Analog end point	[°C]	4...100
Frequency start point, FSP	[°C]	-20...76
Frequency end point, FEP	[°C]	4...100
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

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	Function class	Description
	0x0030	BLOB transfer
	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	DeviceID
	default	1461

Operating conditions

Ambient temperature	[°C]	-20...60
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Storage temperature	[°C]	-25...80
Protection		IP 69K

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 number	I033
Pressure equipment directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight	[g]	933
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 (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

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



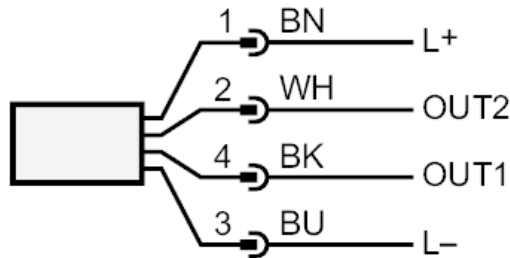
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Ultrasonic flow meter

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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

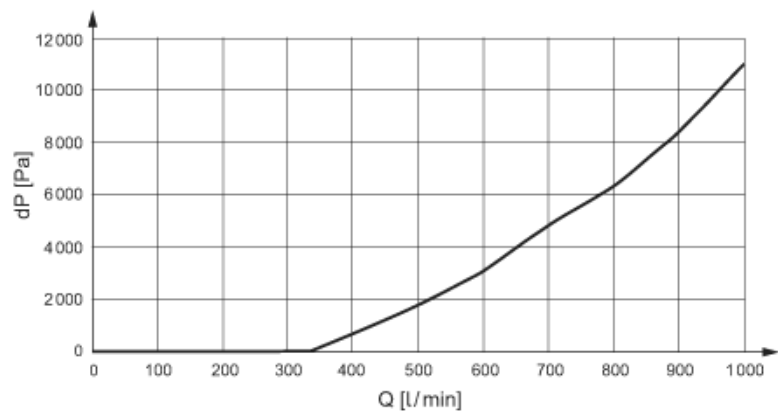
OUT2/InD: Switching output Volumetric flow quantity monitoring
Switching output Temperature monitoring
Pulse output quantity meter
analog output flow
analog output temperature
Diagnostic output direction of flow detection
Diagnostic output signal quality
signal output Preset counter
Input counter reset

Colors to DIN EN 60947-5-2

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

Diagrams and graphs

Note on pressure loss



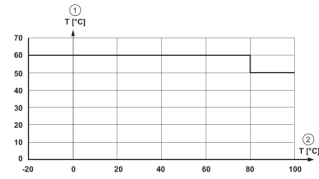
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derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature