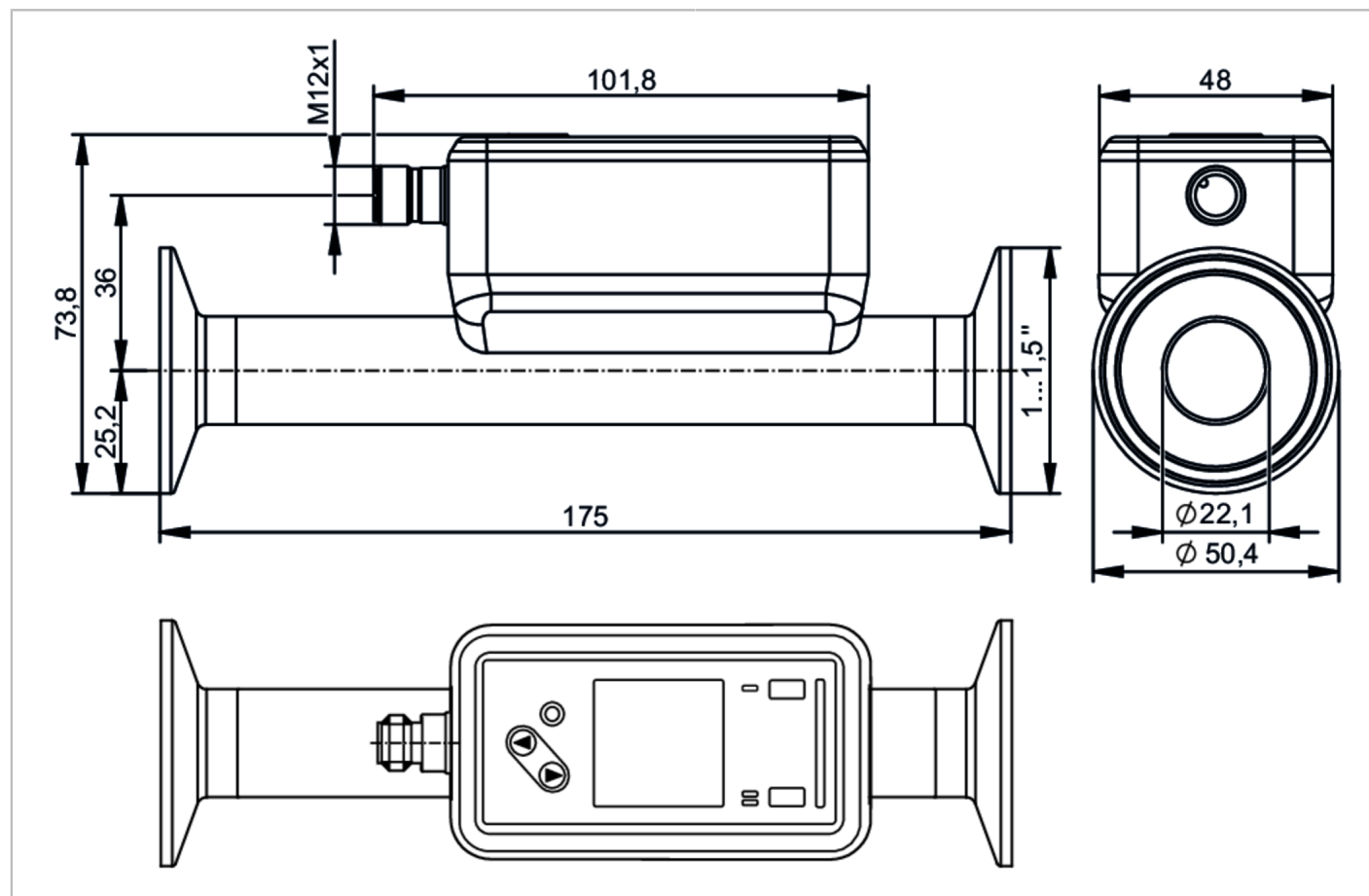


SUH200

Ultrasonic flow meter

SUC251JBFRKG/US



ACS



EC 1935/2004



IO-Link

KTW/W270 Reg31

Product characteristics

Measuring range	1...240 l/min	60...14400 l/h	0.051...12.202 m/s	0.06...14.4 m³/h
Process connection	Clamp 1" 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 [°C]	-20...100	
Min. bursting pressure	75 bar	7.5 MPa
Pressure rating	25 bar	2.5 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			

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Inputs / outputs				
Total number of inputs and outputs	2			
Inputs				
Inputs	OUT2	counter reset		
Outputs				
Total number of outputs	2			
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	1...240 l/min	60...14400 l/h	0.051...12.202 m/s	0.06...14.4 m³/h
Display range	-288...288 l/min	-17280...17280 l/h	-14.642...14.642 m/s	-17.28...17.28 m³/h
Resolution	0.1 l/min	1 l/h	0.001 m/s	0.002 m³/h
Set point SP	2.3...240 l/min	139...1440 l/h	0.118...12.202 m/s	0.139...14.4 m³/h
Reset point rP	1.1...238.8 l/min	64...14325 l/h	0.055...12.139 m/s	0.064...14.325 m³/h
Analogue start point ASP	-240...192 l/min	-14400...11522 l/h	-12.202...9.763 m/s	-14.4...11.522 m³/h
Analogue end point AEP	-192...240 l/min	-11522...14400 l/h	-9.763...12.202 m/s	-11.522...14.4 m³/h
Low flow cut-off LFC	1...12 l/min	60...720 l/h	0.051...0.61 m/s	0.06...0.72 m³/h
Frequency end point, FEP	48.1...240 l/min	2889...14400 l/h	2.448...12.202 m/s	2.89...14.4 m³/h
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			
Temperature monitoring				
Measuring range [°C]	-20...100			



Ultrasonic flow meter

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Display range	[°C]	-44...124
Resolution	[°C]	0.1
Set point SP	[°C]	-19.6...100
Reset point rP	[°C]	-20...99.6
Analogue start point	[°C]	-20...76
Analogue 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)	$\pm (1,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
Repeatability	$\pm 0,2 \% \text{ MEW}$

Temperature monitoring

Accuracy	[K]	$\pm 2,5 (Q > 5 \% \text{ MEW})$
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
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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	<table> <tr> <th>Function class</th><th>Designation</th></tr> <tr> <td>0x0030</td><td>BLOB transfer</td></tr> <tr> <td>0x4000</td><td>Identification and Diagnosis</td></tr> </table>	Function class	Designation	0x0030	BLOB transfer	0x4000	Identification and Diagnosis
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						



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IO-Link process data (cyclical)	function	bit length
	totaliser	32
	Flow monitoring	32
	Temperature monitoring	32
	status	4
	Output 1	1
Supported DeviceIDs	Output 2	1
	Type of operation	DeviceID
	default	1750

Operating conditions		
Ambient temperature	[°C]	-20...60
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 no.	I034
Pressure Equipment Directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight	[g]	637.1
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		DN25 (1")
Process connection		Clamp 1" DIN 32676 series C
Process connection suitable for pipe standard		1" / Ø 25,4 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		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.



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Electrical connection

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



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

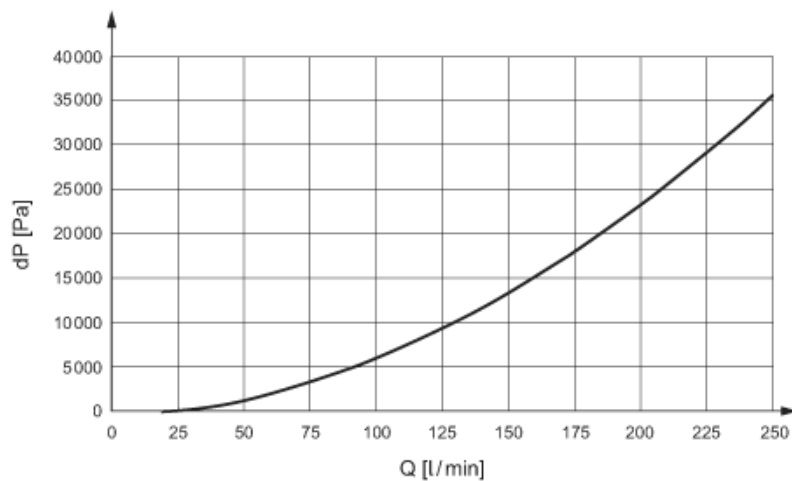
colours to DIN EN
60947-5-2

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

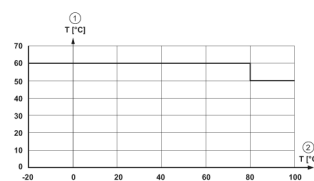


Diagrams and graphs

Note on pressure loss



derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature