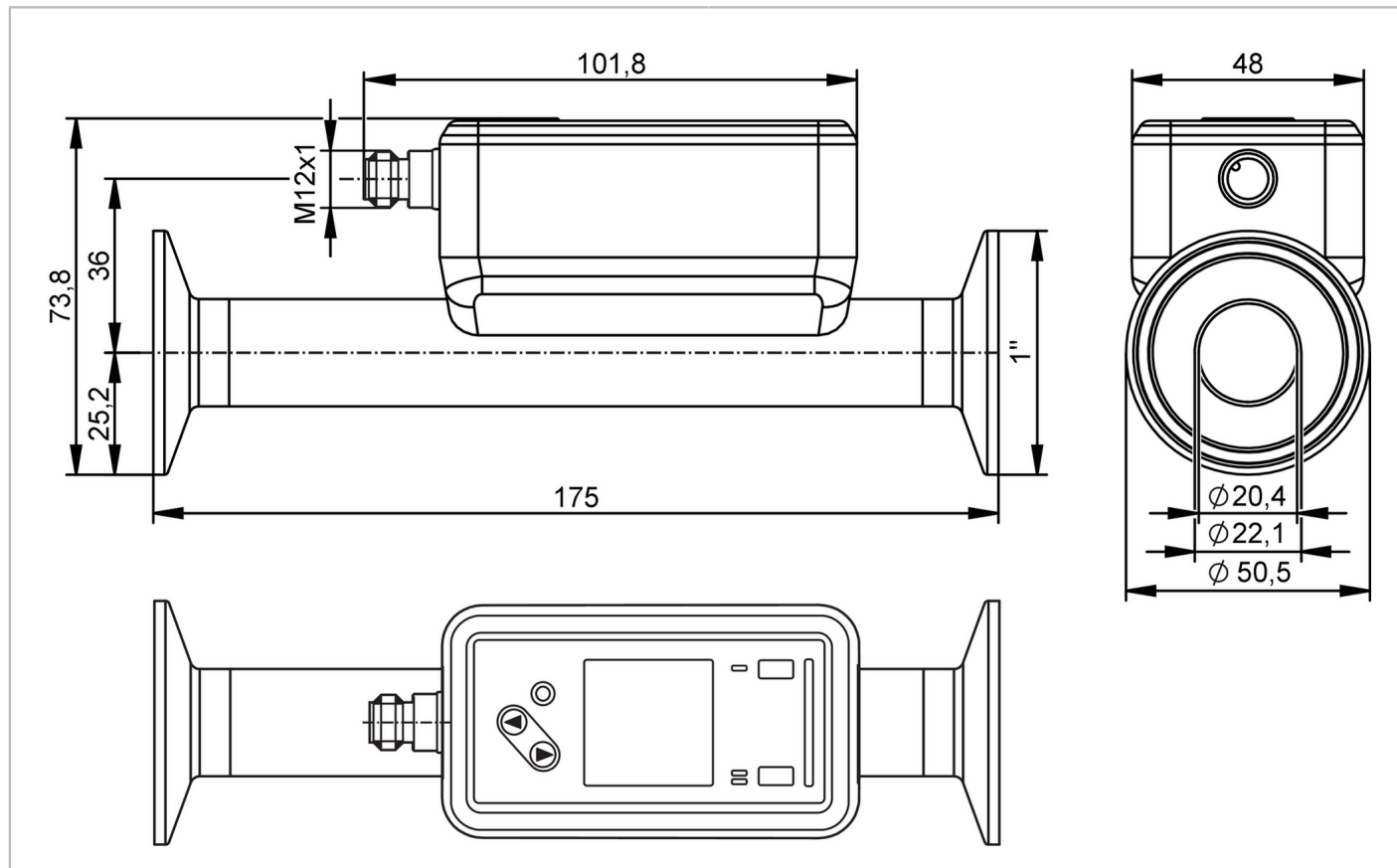


SUH200

Ultrasonic flow meter

SUC251JBFRKG/US



ACS



EC 1935/2004

FCM



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
Nominal diameter	DN25 (1")			
Process connection	Clamp 1" DIN 32676 series C (ASME BPE)			

Application

Special feature	Gold-plated contacts	
Media	ultra-pure water; water; hydrous media; edible oils	
Note on media	hydrous 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]	-20...100	
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			

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Measuring principle	ultrasonic			
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			
Min. load resistance [Ω]	2000			
Pulse output	flow rate meter			
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...14400 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			



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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	
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)	edible oils	± (5,0 % MW + 1,0 % MEW)	
	water	± (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		
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	BLOB	Binary Large Object transfer	
	Common - I&D	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	
CPA approval	model number	003US
	accuracy class	1,5
Shock resistance	DIN IEC 68-2-27	20 g (11ms)
Vibration resistance	DIN IEC 68-2-6	20 g (10...2000Hz)
MTTF	[years]	160
UL approval	UL approval no.	I034
	File number UL	E174189
Pressure Equipment Directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight	[g]	637.1
Housing		rectangular
Inlet pipe length		5 x DN
Outlet pipe length		1 x DN
Dimensions	[mm]	175 x 50.4 x 73.8
Materials	housing: stainless steel (316L/1.4404); Display: PFA; Sealing Display: FKM; connector: PBT	
Materials (wetted parts)	Pipe section: stainless steel (316L/1.4404)	
Nominal diameter	DN25 (1")	
Process connection	Clamp 1" DIN 32676 series C (ASME BPE)	
Process connection suitable for pipe standard	1" / Ø 25,4 mm x 1,65 mm (DIN 11866 series C); (DIN EN 10357 Series D)	
Surface characteristics Ra/Rz of the wetted parts	Ra < 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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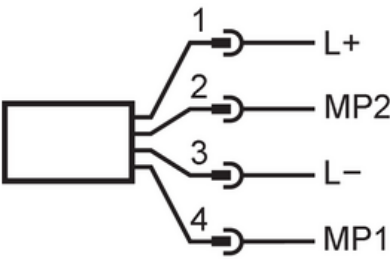
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Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



Connection

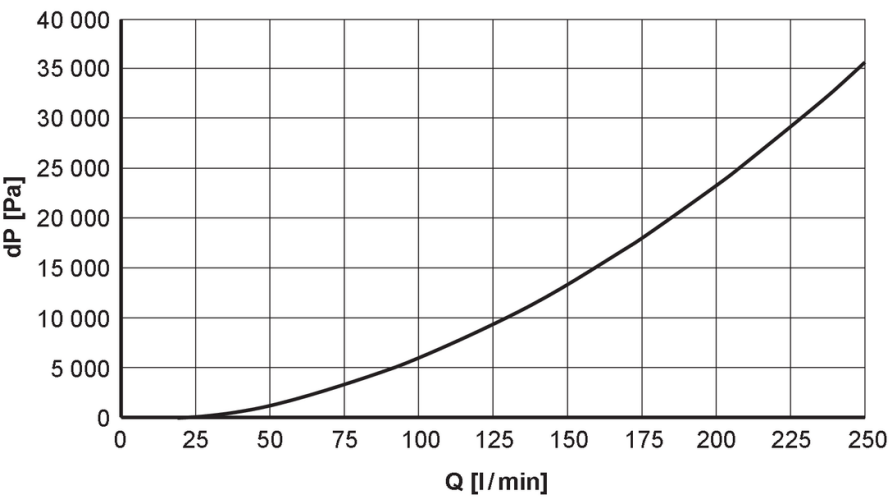


1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analogue output; DI: digital input; DO: digital output; FO: frequency output; MP: multi-function connection

Diagrams and graphs

Note on pressure loss



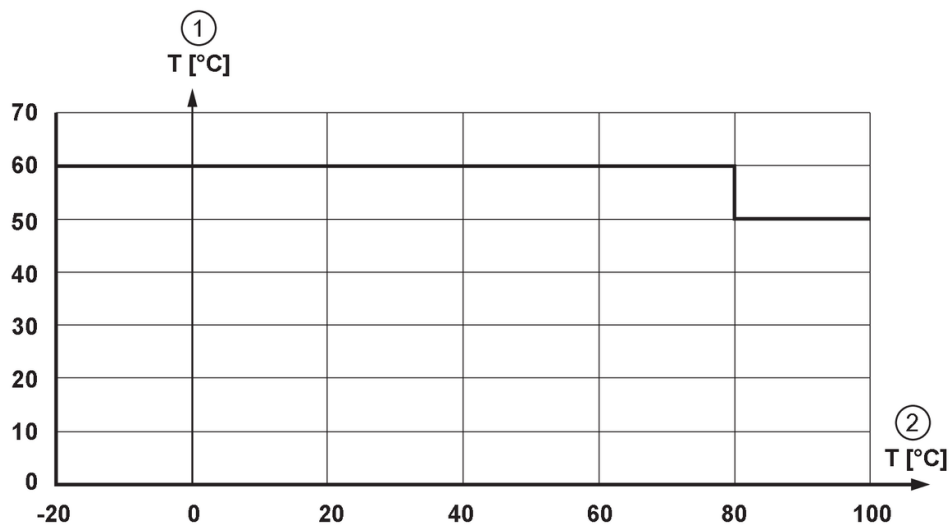
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derating ambient temperature



1 Ambient temperature

2 Medium temperature