SUH201

Ultrasonic flow meter

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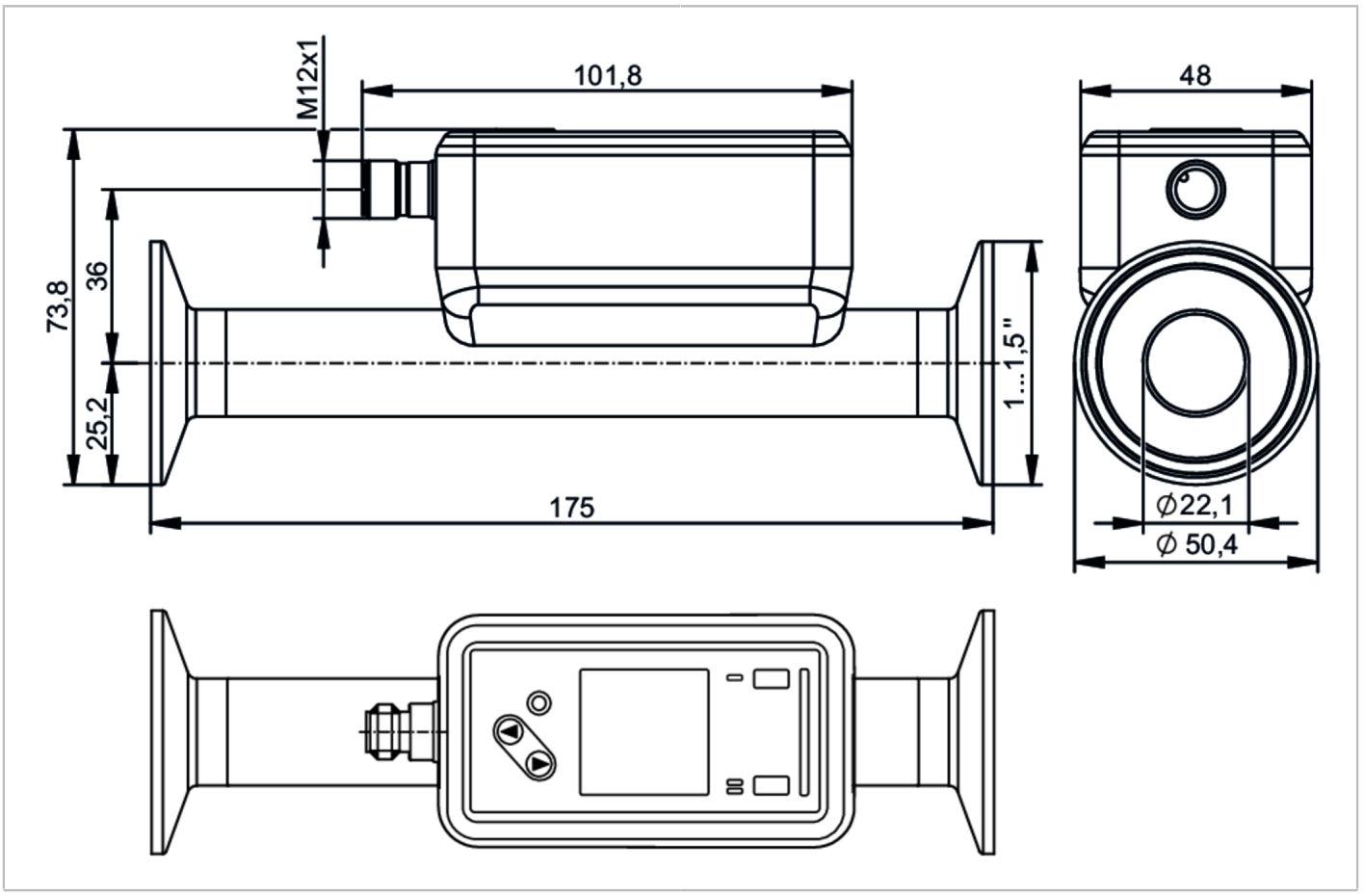

ACS EC 1935/2004 IO-Link KTW/W270 Reg31

Product characteristics				
Measuring range	1...240 l/min	0.06...14.4 m³/h	16...3804 gph	0.26...63.4 gpm
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	-20...100 °C		-4...212 °F	
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	0.06...14.4 m³/h	16...3804 gph	0.26...63.4 gpm
Display range	-288...288 l/min	-17.28...17.28 m³/h	-4565...4565 gph	-76.08...76.08 gpm
Resolution	0.1 l/min	0.001 m³/h	1 gph	0.02 gpm
Set point SP	2.3...240 l/min	0.139...14.4 m³/h	37...3804 gph	0.61...63.4 gpm
Reset point rP	1.1...238.8 l/min	0.064...14.325 m³/h	17...3784 gph	0.28...63.07 gpm
Analogue start point ASP	-240...192 l/min	-14.4...11.522 m³/h	-3804...3044 gph	-63.4...50.73 gpm
Analogue end point AEP	-191.9...240 l/min	-11.511...14.4 m³/h	-3041...3804 gph	-50.68...63.4 gpm
Low flow cut-off LFC	1...12 l/min	0.06...0.72 m³/h	16...190 gph	0.26...3.17 gpm
Frequency end point, FEP	48.1...240 l/min	2.889...14.4 m³/h	763...3804 gph	12.72...63.4 gpm
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; 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		

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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
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

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

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Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1463
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]	639.4	
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 / 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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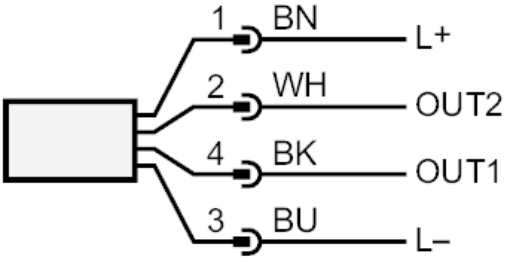
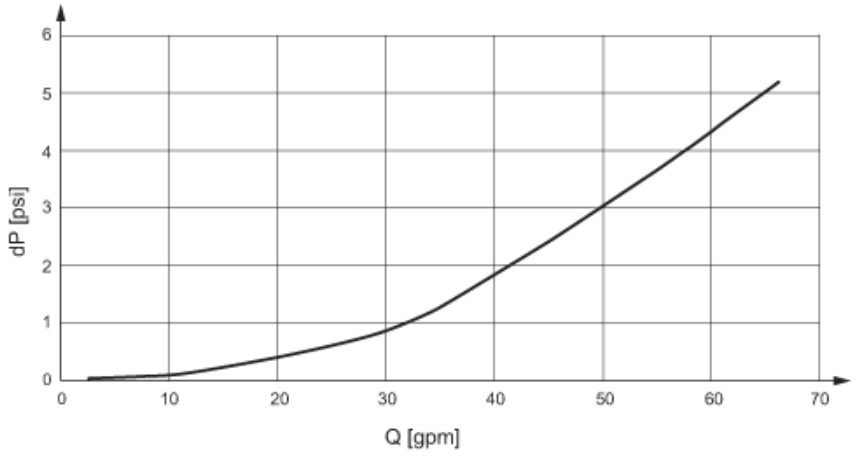
Connection



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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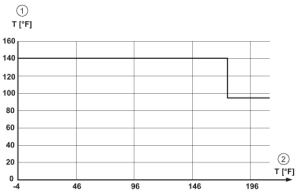
derating ambient temperature	 1 Ambient temperature 2 Medium temperature