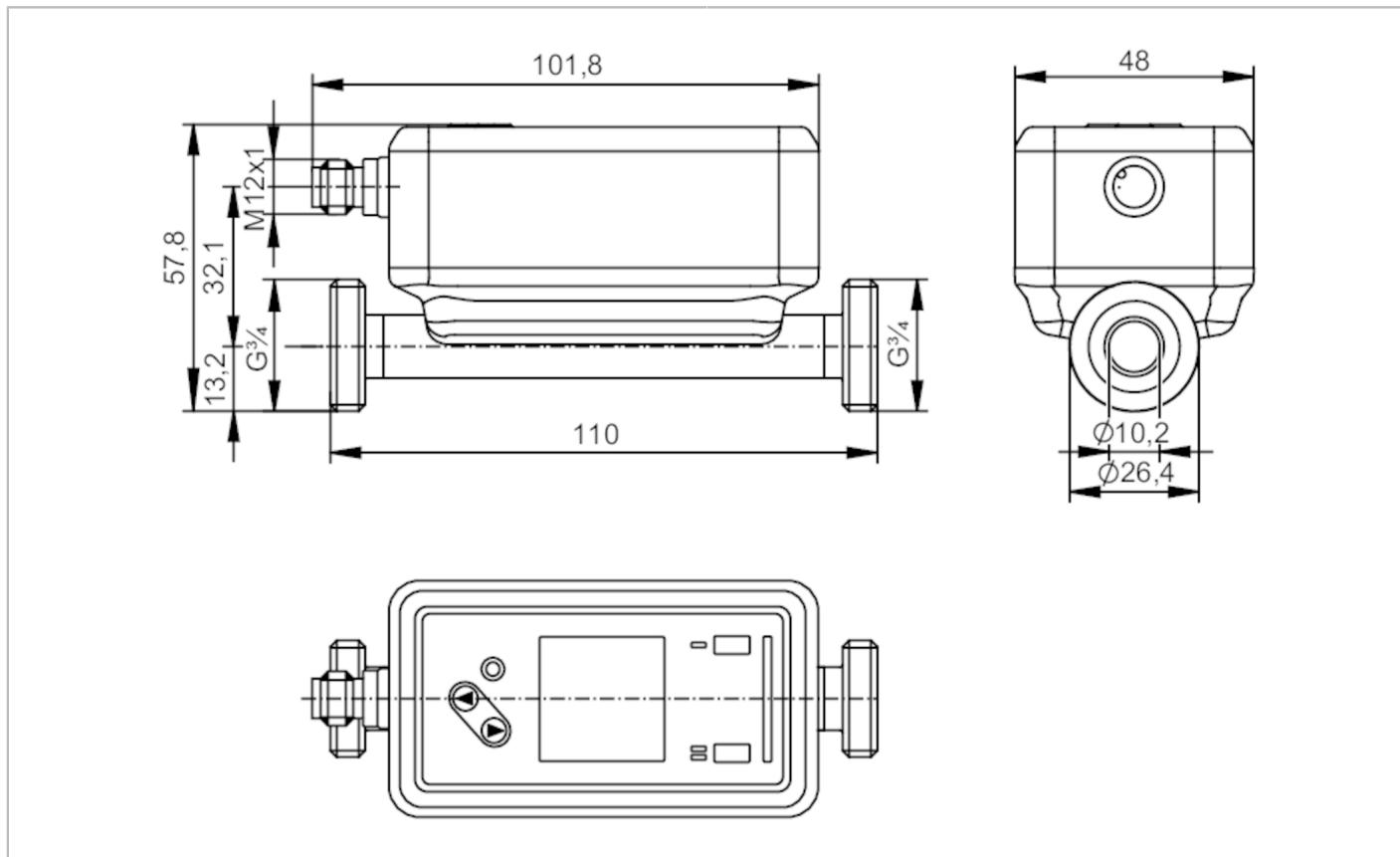


Ultrasonic flow meter

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Product characteristics

Measuring range	0.5...75 l/min	0.03...4.5 m³/h	8...1189 gph	0.13...19.81 gpm
Process connection	G 3/4 DN20 external thread			
Application				
System	gold-plated contacts			
Media	ultra-pure water; water; water-based media; glycol solutions; oils; Coolants			
Note on media	water-based media: for media with >10 % additives, the repeatability is the only available value low-viscosity oils with viscosity: 7...40 mm²/s (40 °C) high-viscosity oils with viscosity: 30...68 mm²/s (40 °C)			
Medium temperature	-20...100 °C		-4...212 °F	
Min. bursting pressure	150 bar		15 MPa	
Pressure rating	100 bar		10 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							
Inputs	counter reset						
Outputs							
Total number of outputs	2						
Output signal	switching signal; pulse signal; analog signal; IO-Link; frequency signal; diagnostic signal; totalizer switching signal						
Electrical design	PNP/NPN						
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						
Analog current output [mA]	4...20						
Max. load [Ω]	500						
Pulse output	flow rate meter						
Short-circuit protection	yes						
Type of short-circuit protection	yes (non-latching)						
Overload protection	yes						
Measuring/setting range							
Measuring range	0.5...75 l/min	0.03...4.5 m³/h	8...1189 gph	0.13...19.81 gpm			
Display range	-90...90 l/min	-5.4...5.4 m³/h	-1427...1427 gph	-23.78...23.78 gpm			
Resolution	0.1 l/min	0.002 m³/h	1 gph	0.01 gpm			
Set point SP	0.9...75 l/min	0.055...4.5 m³/h	15...1189 gph	0.24...19.81 gpm			
Reset point rP	0.5...74.6 l/min	0.032...4.477 m³/h	9...1183 gph	0.14...19.71 gpm			
Analog start point ASP	-75...60 l/min	-4.5...3.6 m³/h	-1189...951 gph	-19.81...15.85 gpm			
Analog end point AEP	-60...75 l/min	-3.6...4.5 m³/h	-951...1189 gph	-15.78...19.81 gpm			
Low flow cut-off LFC	0.5...3.2 l/min	0.03...0.195 m³/h	8...59 gph	0.13...0.99 gpm			
Frequency end point, FEP	15...75 l/min	0.903...4.5 m³/h	238...1189 gph	3.97...19.81 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; 0.005...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			
Frequency start point, FSP	-20...76 °C			4...168.8 °F			
Frequency end point, FEP	4...100 °C			4...168.8 °F			
Frequency at the end point FRP	[Hz] 1...10000						

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Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)	glycol solutions (35%)	±(5,0 % MW + 0,5 % MEW)
	high-viscosity oils with viscosity 46mm ² /s (40°C)	±(5,0 % MW + 1,0 % MEW)
	low-viscosity oils with viscosity 10mm ² /s (40°C)	±(5,0 % MW + 1,0 % MEW)
	water	± (2,0 % 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
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		Identification and Diagnosis (0x4000)
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	1757
Operating conditions		
Ambient temperature [°C]		-20...60
Storage temperature [°C]		-25...80
Protection		IP 67

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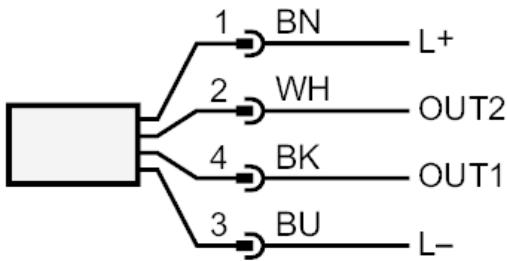
Tests / approvals		
EMC	DIN 61326-1:2021	
Shock resistance	DIN IEC 68-2-27	20 g (11ms)
Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)
UL approval	UL approval number	I034
Pressure equipment directive		can be used for group 2 fluids; group 1 fluids on request
Mechanical data		
Weight	[g]	494.1
Type of mounting		inlet pipe length 5xDN; outlet pipe length 1xDN
Material		housing: stainless steel (1.4404 / 316L); Display: PFA; sealing Display: FKM; connector: POKAN
Materials (wetted parts)		Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: Centellen Gasket
Process connection		G 3/4 DN20 external thread
Surface characteristics Ra/Rz of the wetted parts		1.25 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
Display unit		l/min; l/h; m³/h; m/s; gpm; gph; ft/s; oz/min
Accessories		
Items supplied		Gasket 2, Centellen package insert
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



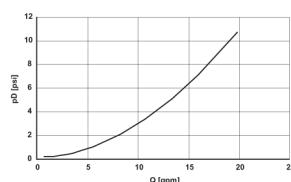
- OUT1/IO-Link:
Switching output Volumetric flow quantity monitoring
Switching output Temperature monitoring
Pulse output quantity meter
Frequency output Volumetric flow quantity monitoring
Frequency output Temperature monitoring
Diagnostic output direction of flow detection / signal quality
signal output 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 / signal quality
signal output Preset counter
Input counter reset

Colors to DIN EN
60947-5-2

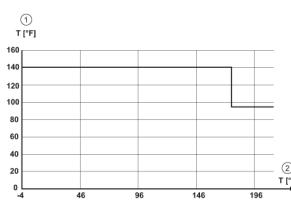
Core colors
BK= black
BN= brown
BU= blue
WH= white

Diagrams and graphs

Note on pressure loss



derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature