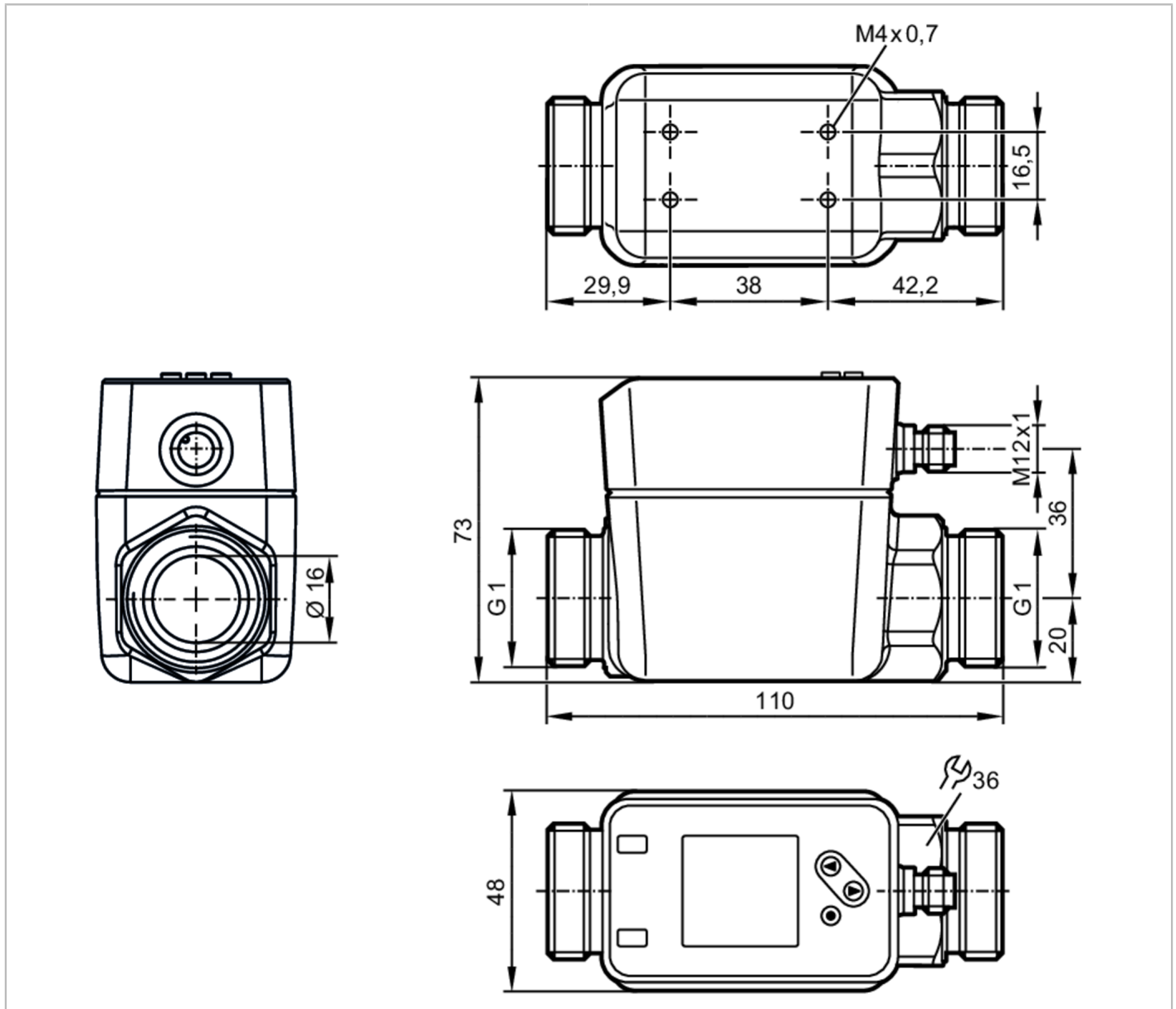


SM8020

Magnetic-inductive flow meter

SMR11XGXFRKG/US-100



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	0.2...150 l/min	0.012...9 m ³ /h	3.6...2376 gph	0.06...39.6 gpm
Process connection	G 1 DN25 flat seal			

Application

System	gold-plated contacts			
Media	Conductive liquids; water; water-based media			
Note on media	conductivity: $\geq 20 \mu\text{S/cm}$ viscosity: $< 70 \text{ mm}^2/\text{s}$ (40 °C)			
Medium temperature	[°C]	-20...90		
Pressure rating	[bar]	16		
Pressure rating	[MPa]	1.6		

SM8020



Magnetic-inductive flow meter

SMR11XGXFRKG/US-100

Electrical data					
Operating voltage	[V]	18...30 DC; (to SELV/PELV)			
Current consumption	[mA]	< 80			
Protection class		III			
Reverse polarity protection		yes			
Power-on delay time	[s]	5			
Inputs / outputs					
Number of inputs and outputs		Number of digital outputs: 2; Number of analog outputs: 1			
Inputs					
Inputs		counter reset			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; pulse signal; IO-Link; frequency signal; (configurable)			
Electrical design		PNP/NPN			
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			
Number of analog outputs		1			
Analog current output	[mA]	4...20; (scalable)			
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		0.2...150 l/min	0.012...9 m ³ /h	3.6...2376 gph	0.06...39.6 gpm
Display range		-180...180 l/min	-10.8...10.8 m ³ /h	-2853.6...2853.6 gph	-47.56...47.56 gpm
Resolution		0.1 l/min	0.006 m ³ /h	0.6 gph	0.01 gpm
Set point SP		1...150 l/min	0.06...9 m ³ /h	16.2...2376 gph	0.27...39.6 gpm
Reset point rP		0.2...149.2 l/min	0.012...8.95 m ³ /h	3.6...1903 gph	0.06...39.42 gpm
Analog start point ASP		0...120 l/min	0...7.2 m ³ /h	0...1903 gph	0...31.71 gpm
Analog end point AEP		30...150 l/min	1.8...9 m ³ /h	475...2376 gph	7.92...39.6 gpm
Low flow cut-off LFC		0.2...7.5 l/min	0.012...0.45 m ³ /h	3...118.4 gph	0.05...1.98 gpm
Frequency end point, FEP		30.2...150 l/min	1.8...9 m ³ /h	480...2376 gph	8...39.6 gpm
Frequency at the end point FRP	[Hz]	1...10000			
Volumetric flow quantity monitoring					
Pulse length	[s]	0.002...2			
Pulse value		0.01...99990000 l			
Temperature monitoring					
Measuring range	[°C]	-20...90			

SM8020



Magnetic-inductive flow meter

SMR11XGXFRKG/US-100

Display range	[°C]	-42...112
Resolution	[°C]	0.1
Set point SP	[°C]	-19.6...90
Reset point rP	[°C]	-20...89.6
Analog start point	[°C]	-20...68
Analog end point	[°C]	2...90
In steps of	[°C]	0.1

Accuracy / deviations

Flow monitoring		
Accuracy (in the measuring range)		$\pm (0,8 \% MW + 0,2 \% MEW)$
Repeatability		$\pm 0,2 \% MEW$

Temperature monitoring		
Accuracy	[K]	$\pm 2,5 (Q > 5 \% MEW)$

Reaction times

Flow monitoring		
Start-up delay	[s]	0...50
Response time	[s]	$< 0,25; (dAP = 0, T09)$
Damping process value dAP	[s]	0...5

Temperature monitoring		
Response time	[s]	15; $(Q > 10 \% MEW, T09)$

Software / programming

Parameter setting options	hysteresis / window; normally open / closed; switching logic; Frequency output; current/pulse output; Start-up delay; display can be deactivated; Display unit	
---------------------------	--	--

Interfaces

Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis	
SIO mode	yes	
Required master port class	A	
Process data analog	3	
Process data binary	2	
Min. process cycle time	[ms]	6
Supported DeviceIDs	Type of operation default	DeviceID 961

Operating conditions

Ambient temperature	[°C]	-20...60
Storage temperature	[°C]	-25...80
Protection		IP 65; IP 67

Tests / approvals

EMC	DIN EN 60947-5-9	
-----	------------------	--

SM8020



Magnetic-inductive flow meter

SMR11XGXFRKG/US-100

CPA approval	model number	006MI
	accuracy class	-
	maximum allowable error	± 1,0 % FS
	Q (min)	0,01 m³/h
	Q (t)	-
	Q (max)	9 m³/h
Shock resistance	DIN IEC 68-2-27	20 g (11 ms)
Vibration resistance	DIN IEC 68-2-6:	5 g (10...2000 Hz)
MTTF	[years]	114
UL approval	UL approval number	I014
	File number UL	E174189
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight	[g]	782
Material	stainless steel (1.4408/316); stainless steel (1.4404 / 316L); PC; PBT+PC-GF30	
Materials (wetted parts)	stainless steel (1.4404 / 316L); PEEK; carbon fiber PEEK; FKM; Centellen	
Process connection	G 1 DN25 flat seal	

Displays / operating elements

Display	Color display 1,44", 128 x 128 pixels
	2 x LED, yellow

Remarks

Remarks	MW = Measured value
	MEW = Final value of the measuring range
Pack quantity	1 pcs.

Electrical connection

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



SM8020



Magnetic-inductive flow meter

SMR11XGXFRKG/US-100

Connection



OUT1:	Colors to DIN EN 60947-5-2 Switching output Volumetric flow quantity monitoring Switching output Temperature monitoring Pulse output quantity meter Frequency output volumetric flow monitoring Frequency output Temperature monitoring signal output Preset counter IO-Link
OUT2:	Switching output Volumetric flow quantity monitoring Switching output Temperature monitoring analog output flow analog output temperature Input counter reset Core colors :
BK =	black
BN =	brown
BU =	blue
WH =	white

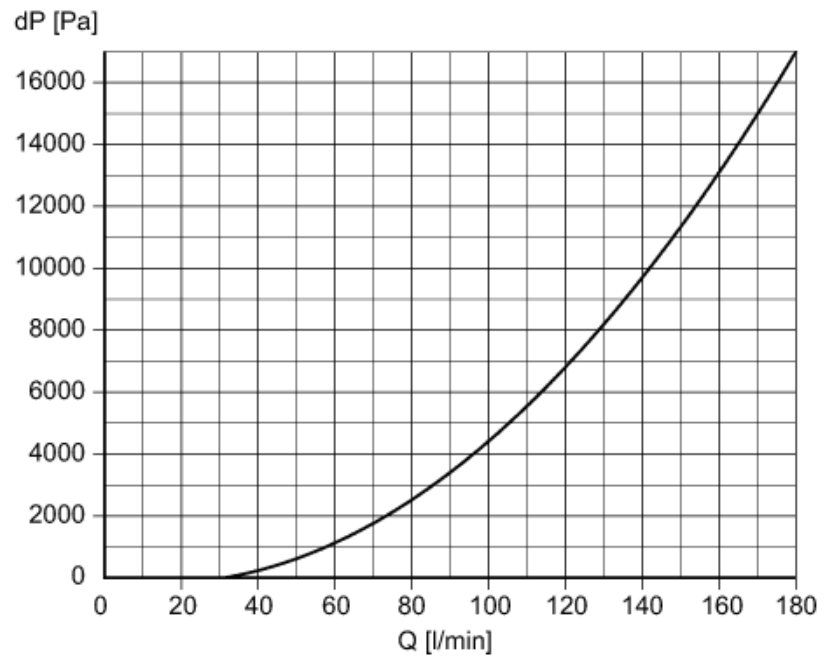
SM8020

Magnetic-inductive flow meter

SMR11XGXFRKG/US-100



Diagrams and graphs



Pressure loss / volumetric flow quantity