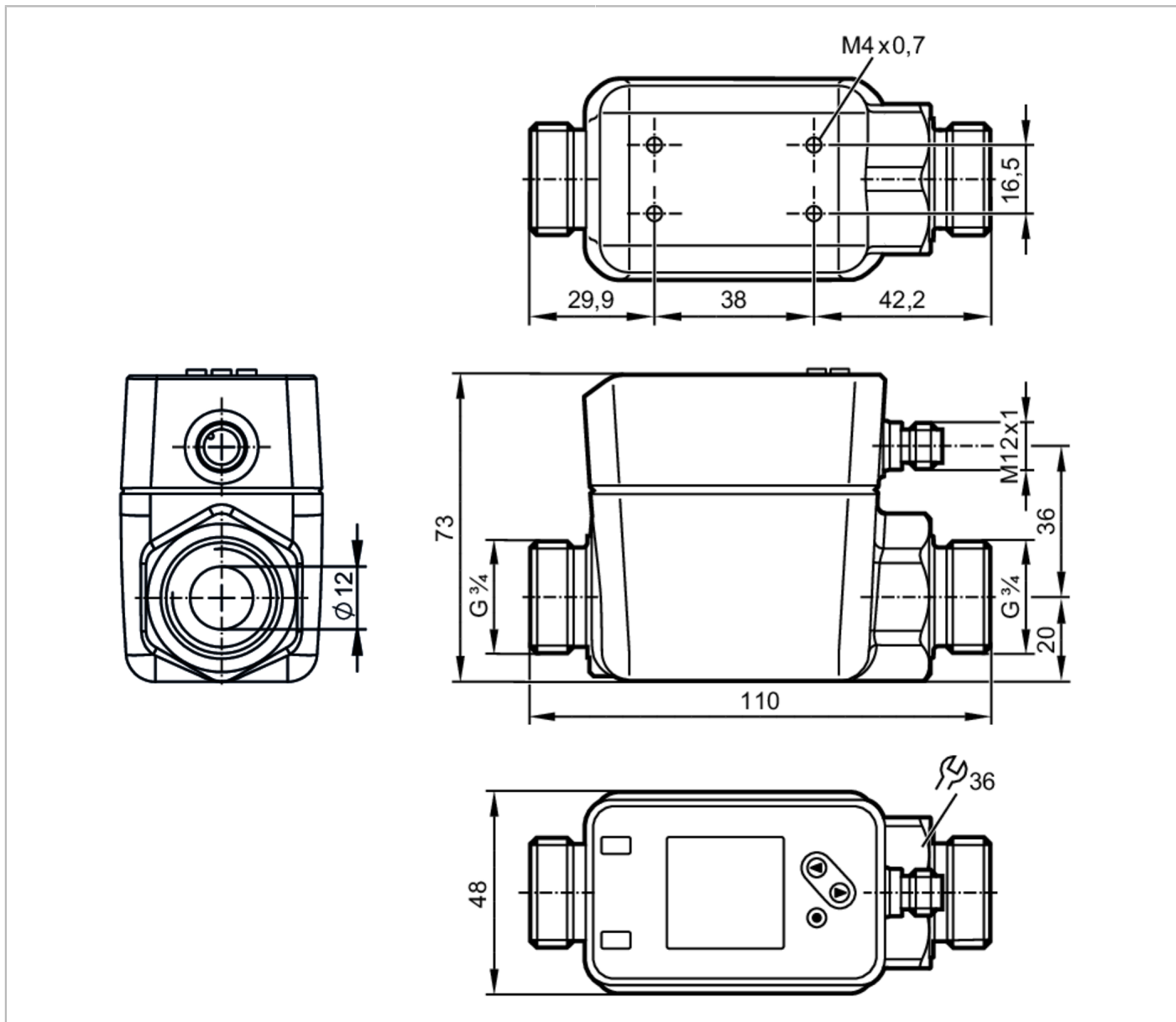


SM7020



Magnetic-inductive flow meter

SMR34XGXFRKG/US-100



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	0.1...75 l/min	0.006...4.5 m ³ /h	1.2...1190 gph	0.02...19.82 gpm
Process connection	G 3/4 DN20 flat seal			

Application

System	gold-plated contacts			
Media	Conductive liquids; water; water-based media			
Note on media	conductivity: ≥ 20 μS/cm viscosity: < 70 mm ² /s (40 °C)			
Medium temperature	[°C]	-20...90		
Pressure rating	[bar]	16		
Pressure rating	[MPa]	1.6		

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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		0.1...75 l/min	0.006...4.5 m ³ /h	1.2...1190 gph	0.02...19.82 gpm
Display range		-90...90 l/min	-5.4...5.4 m ³ /h	-1426.8...1426.8 gph	-23.78...23.78 gpm
Resolution		0.1 l/min	0.006 m ³ /h	0.6 gph	0.01 gpm
Set point SP		0.5...75 l/min	0.03...4.5 m ³ /h	8.4...1189 gph	0.14...19.81 gpm
Reset point rP		0.1...74.6 l/min	0.006...4.48 m ³ /h	1.2...1183 gph	0.03...19.71 gpm
Analog start point ASP		0...59.9 l/min	0...3.6 m ³ /h	0...950 gph	0...15.82 gpm
Analog end point AEP		15.1...75 l/min	0.9...4.5 m ³ /h	240...1189 gph	3.99...19.81 gpm
Low flow cut-off LFC		0.1...3.8 l/min	0.006...0.23 m ³ /h	1.8...59.4 gph	0.03...0.99 gpm
Frequency end point, FEP		15.1...75 l/min	0.9...4.5 m ³ /h	240...1189 gph	3.99...19.81 gpm
Frequency at the end point FRP	[Hz]	1...10000			
Volumetric flow quantity monitoring					
Pulse length	[s]	0.003...2			
Pulse value		0.01...99990000 l			
Temperature monitoring					
Measuring range	[°C]	-20...90			

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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)		± (0,8 % MW + 0,2 % MEW)
Repeatability		± 0,2 % MEW
Temperature monitoring		
Accuracy	[K]	± 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
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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	<table><tr><th>Type of operation</th><th>DeviceID</th></tr><tr><td>default</td><td>955</td></tr></table>	Type of operation	DeviceID	default	955
Type of operation	DeviceID				
default	955				

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
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CPA approval	model number	006MI
	accuracy class	-
	maximum allowable error	± 1,0 % FS
	Q (min)	0,006 m³/h
	Q (t)	-
	Q (max)	4,5 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]	797.5
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 3/4 DN20 flat seal	

Displays / operating elements

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



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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

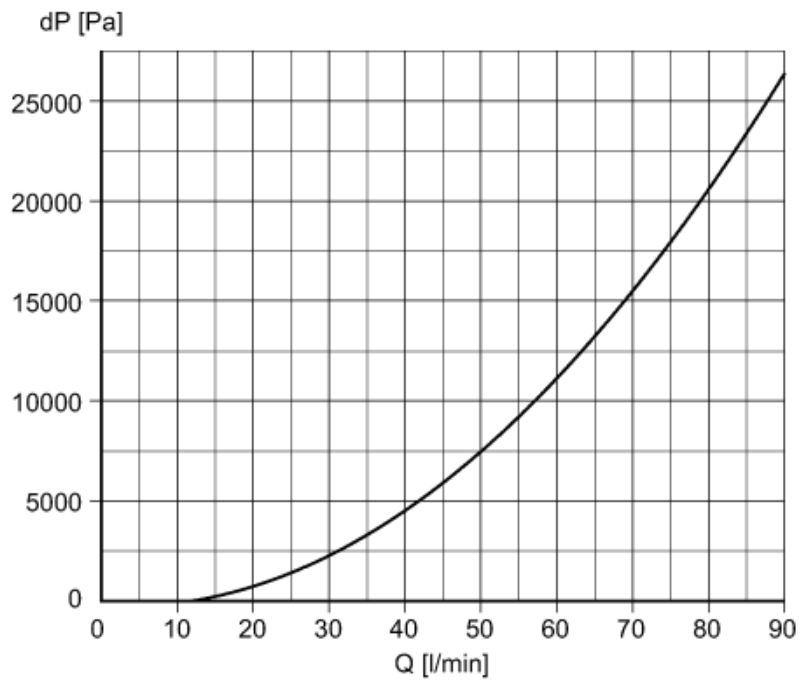
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Diagrams and graphs



Pressure loss / volumetric flow quantity