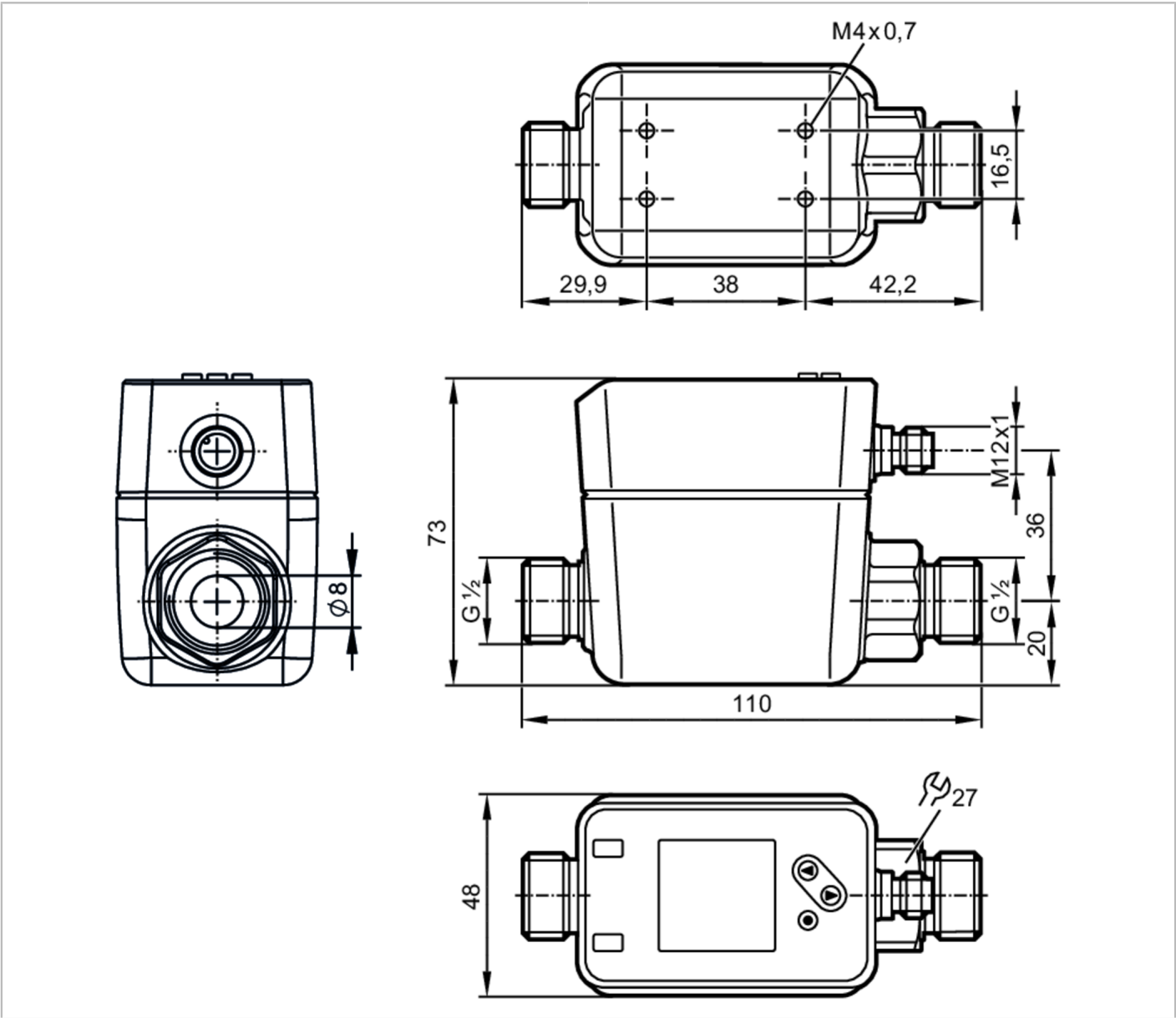


SM6020



Magnetic-inductive flow meter

SMR12XGXFRKG/US-100



Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	0.05...35 l/min	0.003...2.1 m³/h	0.6...555 gph	0.01...9.25 gpm
Process connection	threaded connection G 1/2 external thread DN15 flat seal			
Application				
System	gold-plated contacts			
Media	Conductive liquids; water; water-based media			
Note on media	conductivity: ≥ 20 µS/cm			
	viscosity: < 70 mm²/s (40 °C)			
Medium temperature	-20...90			
Pressure rating	16 bar		1.6 MPa	

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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		
Measuring principle		magnetic-inductive		
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		0.05...35 l/min	0.003...2.1 m³/h	0.6...555 gph
Display range		-42...42 l/min	-2.5...2.5 m³/h	-666...666 gph
Resolution		0.02 l/min	0.002 m³/h	0.6 gph
Set point SP		0.25...35 l/min	0.015...2.1 m³/h	4.2...555 gph
Reset point rP		0...34.8 l/min	0...2.08 m³/h	1.2...552 gph
Analog start point ASP		0...28 l/min	0...1.7 m³/h	0...666 gph
Analog end point AEP		7...35 l/min	0.42...2.1 m³/h	111...555 gph
Low flow cut-off LFC		0.05...1.75 l/min	0.003...0.1 m³/h	0.6...27.6 gph
Frequency end point, FEP		7...35 l/min	0.42...2.1 m³/h	111.6...555 gph
Frequency at the end point FRP	[Hz]	1...10000		
Volumetric flow quantity monitoring				
Pulse length	[s]	0.001...2		
Pulse value		0.001...99990000 l		



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Temperature monitoring		
Measuring range	[°C]	-20...90
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	
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	DeviceID
	default	949
Operating conditions		
Ambient temperature	[°C]	-20...60
Storage temperature	[°C]	-25...80
Protection	IP 65; IP 67	

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Tests / approvals		
EMC	DIN EN 60947-5-9	
CPA approval	model number	005MI
	accuracy class	-
	maximum allowable error	± 1,0 % FS
	Q (min)	0,003 m³/h
	Q (t)	-
	Q (max)	2,1 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]	717.2
Housing		rectangular
Dimensions	[mm]	110 x 48 x 73
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	threaded connection G 1/2 external thread DN15 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		
		

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Connection



- OUT1:

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
Colors to DIN EN 60947-5-2
Core colors :
- BK =

black
- BN =

brown
- BU =

blue
- WH =

white

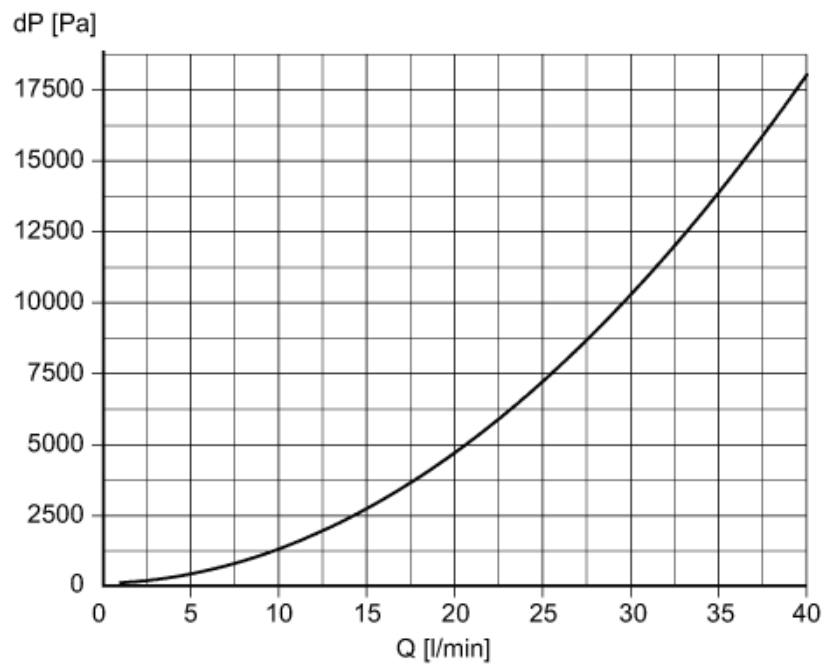
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Diagrams and graphs



Pressure loss / volumetric flow quantity