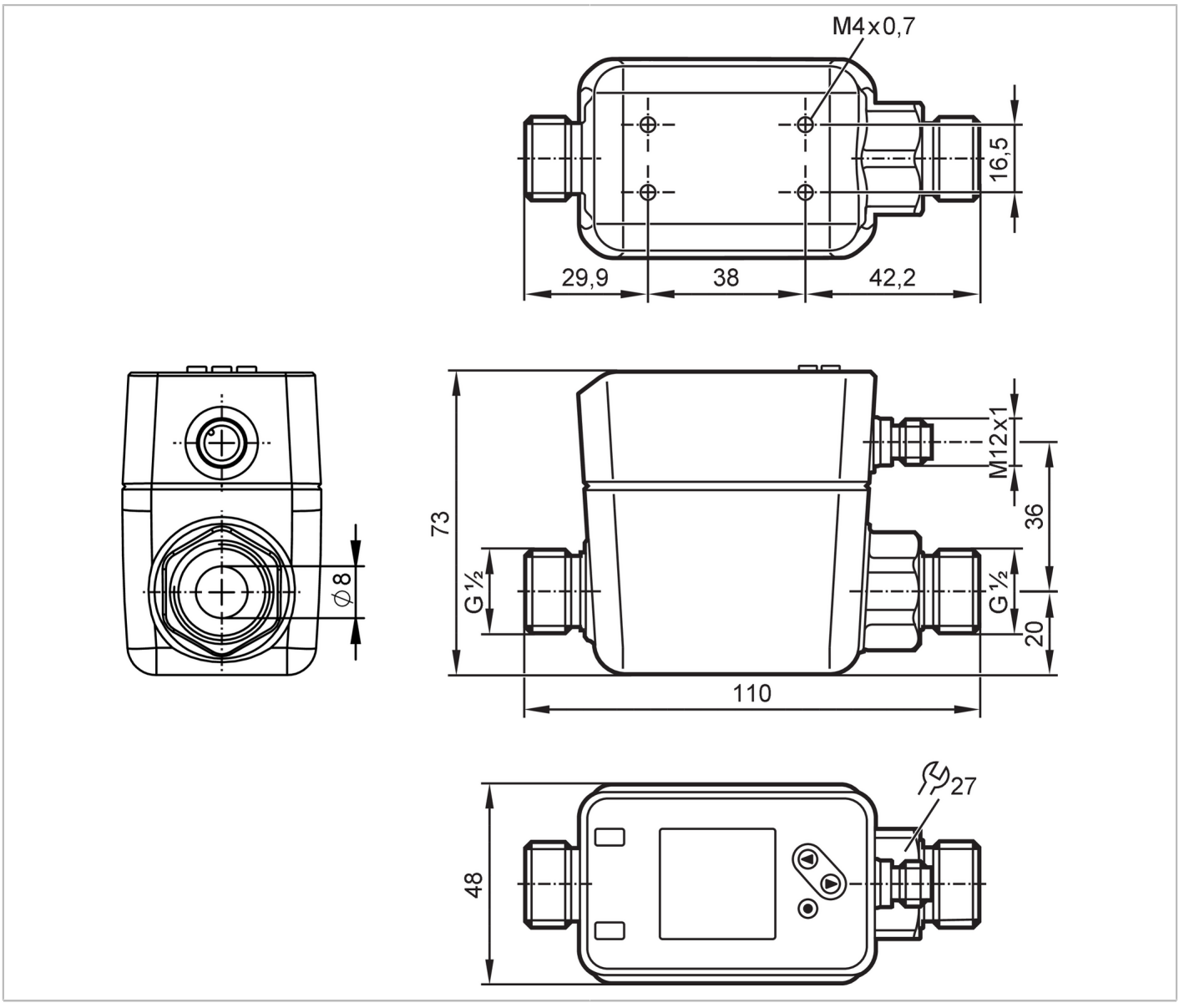
SM6020

Magnetic-inductive flow meter

SMR12XGXFRKG/US-100

Alternative articles: SM6000

When selecting an alternative article and accessories please note that technical data may differ!



Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue 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				
Special feature	Gold-plated contacts			
Media	conductive liquids; water; hydrous media			
Note on media	conductivity: ≥ 20 µS/cm			
	viscosity: < 70 mm²/s (40 °C)			
Medium temperature [°C]	-20...90			
Pressure rating	16 bar	1.6 MPa		

SM6020

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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 analogue outputs: 1			
Inputs					
Inputs		counter reset			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analogue signal; pulse signal; IO-Link; frequency signal; (configurable)			
Electrical design		PNP/NPN			
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			
Number of analogue outputs		1			
Analogue current output	[mA]	4...20; (scalable)			
Max. load	[Ω]	500			
Pulse output		flow rate meter			
Short-circuit protection		yes			
Type of short-circuit protection		pulsed			
Overload protection		yes			
Measuring/setting range					
Measuring range		0.05...35 l/min	0.003...2.1 m³/h	0.6...555 gph	0.01...9.25 gpm
Display range		-42...42 l/min	-2.5...2.5 m³/h	-666...666 gph	-11.1...11.1 gpm
Resolution		0.02 l/min	0.002 m³/h	0.6 gph	0.01 gpm
Set point SP		0.25...35 l/min	0.015...2.1 m³/h	4.2...555 gph	0.07...9.25 gpm
Reset point rP		0...34.8 l/min	0...2.08 m³/h	1.2...552 gph	0.02...9.2 gpm
Analogue start point ASP		0...28 l/min	0...1.7 m³/h	0...666 gph	0...7.4 gpm
Analogue end point AEP		7...35 l/min	0.42...2.1 m³/h	111...555 gph	1.85...9.25 gpm
Low flow cut-off LFC		0.05...1.75 l/min	0.003...0.1 m³/h	0.6...27.6 gph	0.01...0.46 gpm
Frequency end point, FEP		7...35 l/min	0.42...2.1 m³/h	111.6...555 gph	1.86...9.25 gpm
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			

SM6020

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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	
Analogue start point	[°C]	-20...68	
Analogue 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)	
Response 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 / normally 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		Common - I&D	Identification and Diagnosis
		Function	Measurement data, standard resolution
SIO mode		yes	
Required master port type		A	
Process data analogue		3	
Process data binary		2	
Min. process cycle time	[ms]	8	
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 no.	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
Materials		stainless steel (316/1.4408); stainless steel (316L/1.4404); PC; PBT+PC-GF30
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4404); Process connection sealing: NBR reinforced fibre Flat seal; FKM; PEEK; carbon fibre PEEK
Process connection		threaded connection G 1/2 external thread DN15 flat seal

Displays / operating elements		
Display		colour 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: 4, gold-plated

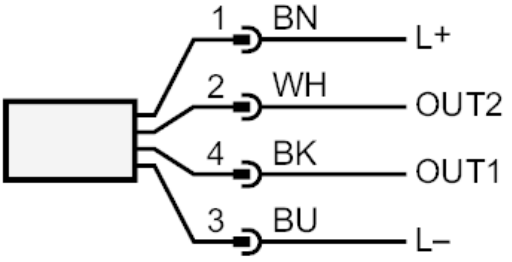


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Connection



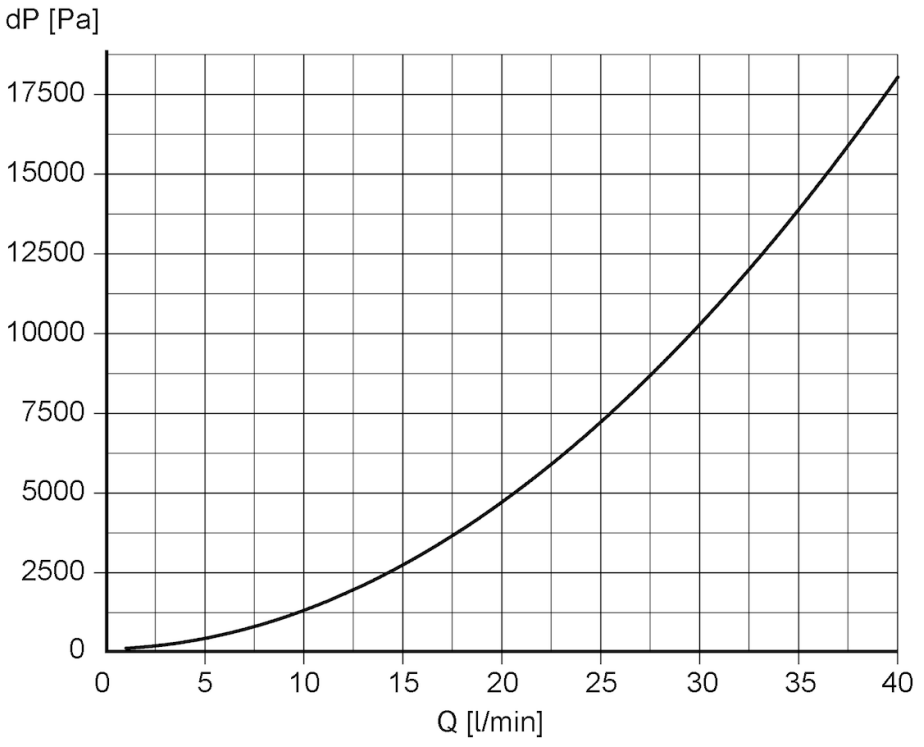
OUT1:	switching output volumetric flow quantity monitoring
	switching output Temperature monitoring
	Pulse output quantity meter
	frequency output volumetric flow monitoring
	frequency output Temperature monitoring
	signal output Preset counter
	IO-Link
OUT2:	switching output volumetric flow quantity monitoring
	switching output Temperature monitoring
	analogue output flow
	analogue output temperature
	input counter reset
	colours to DIN EN 60947-5-2
	Core colours :
BK =	black
BN =	brown
BU =	blue
WH =	white

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Diagrams and graphs



Pressure loss / volumetric flow quantity