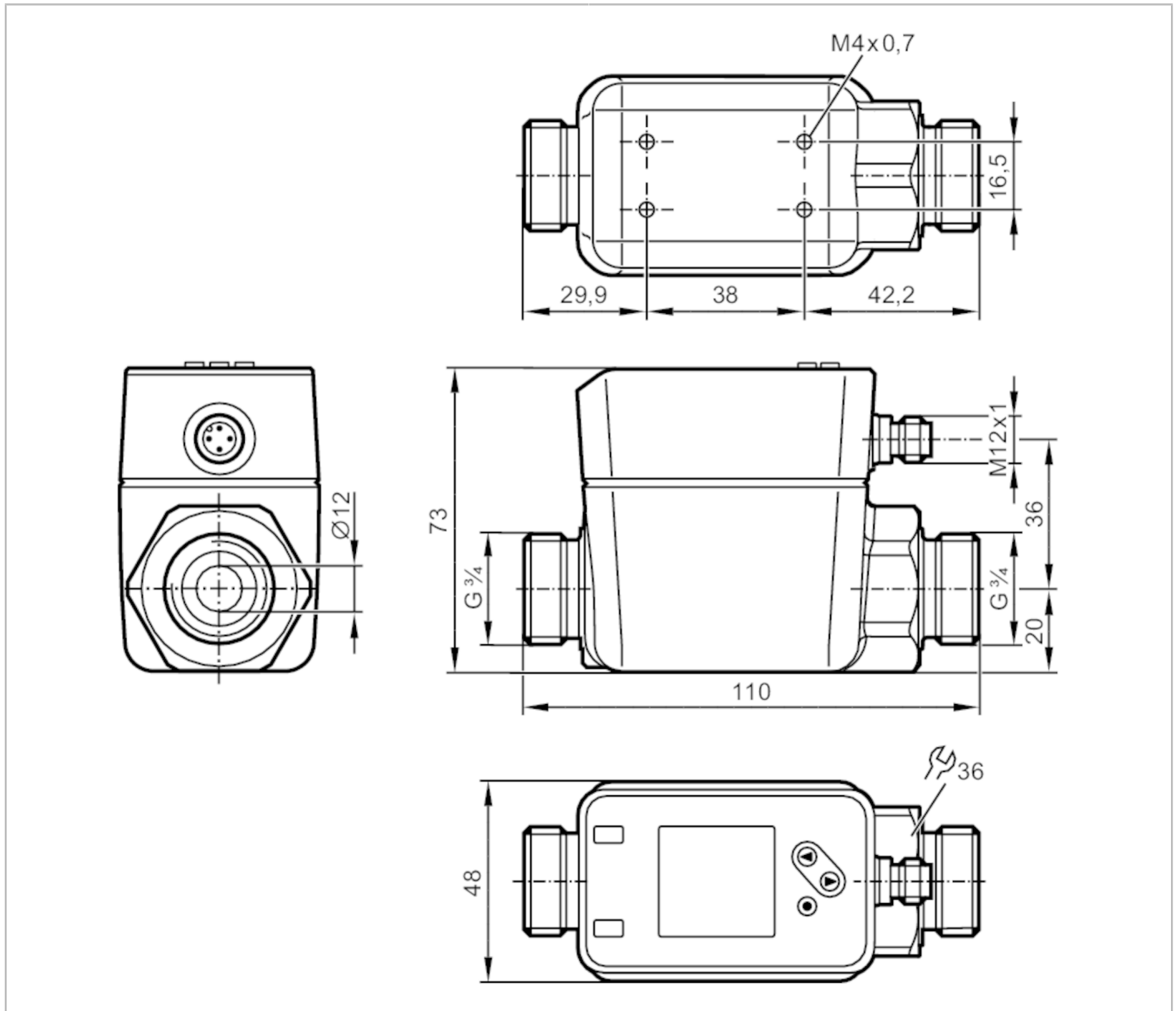


SM7020



Magnetic-inductive flow meter

SMR34XGXFRKG/US-100



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue 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

Special feature	Gold-plated contacts			
Media	conductive liquids; water; hydrous 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		

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Electrical data					
Operating voltage	[V]	18...30 DC; (according to EN 50178 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 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		0.1...75 l/min	0.006...4.5 m³/h	1.2...1190 gph	0.02...19.82 gpm
Display range		-90...90 l/min	-5.4...5.4 m³/h	-1426.8...1426.8 gph	-23.78...23.78 gpm
Resolution		0.1 l/min	0.006 m³/h	0.6 gph	0.01 gpm
Set point SP		0.5...75 l/min	0.03...4.5 m³/h	8.4...1189 gph	0.14...19.81 gpm
Reset point rP		0.1...74.6 l/min	0.006...4.48 m³/h	1.2...1183 gph	0.03...19.71 gpm
Analogue start point ASP		0...59.9 l/min	0...3.6 m³/h	0...950 gph	0...15.82 gpm
Analogue end point AEP		15.1...75 l/min	0.9...4.5 m³/h	240...1189 gph	3.99...19.81 gpm
Low flow cut-off LFC		0.1...3.8 l/min	0.006...0.23 m³/h	1.8...59.4 gph	0.03...0.99 gpm
Frequency end point, FEP		15.1...75 l/min	0.9...4.5 m³/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			

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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)		$\pm (0,8 \% MW + 0,2 \% MEW)$
Repeatability		$\pm 0,2 \% MEW$
Temperature monitoring		
Accuracy	[K]	$\pm 2,5 (Q > 5 \% MEW)$
Response times		
Flow monitoring		
Start-up delay	[s]	0...50
Response time	[s]	< 0.25; (dAP = 0, T09)
Damping for the switching output 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	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis	
SIO mode	yes	
Required master port type	A	
Process data analogue	3	
Process data binary	2	
Min. process cycle time	[ms]	6
Supported DeviceIDs	Type of operation Default	DeviceID 955
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	
	model number	006MI
	accuracy class	-
CPA approval	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 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]	797.5
Materials	stainless steel (1.4408/316); stainless steel (1.4404 / 316L); PC; PBT+PC-GF30	
Materials (wetted parts)	stainless steel (1.4404 / 316L); PEEK; carbon fibre PEEK; FKM; Centellen	
Process connection	G 3/4 DN20 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; Contacts: gold-plated



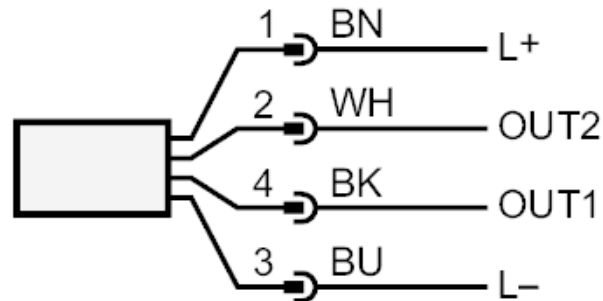
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Connection



colours to DIN EN 60947-5-2

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

Core colours :

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

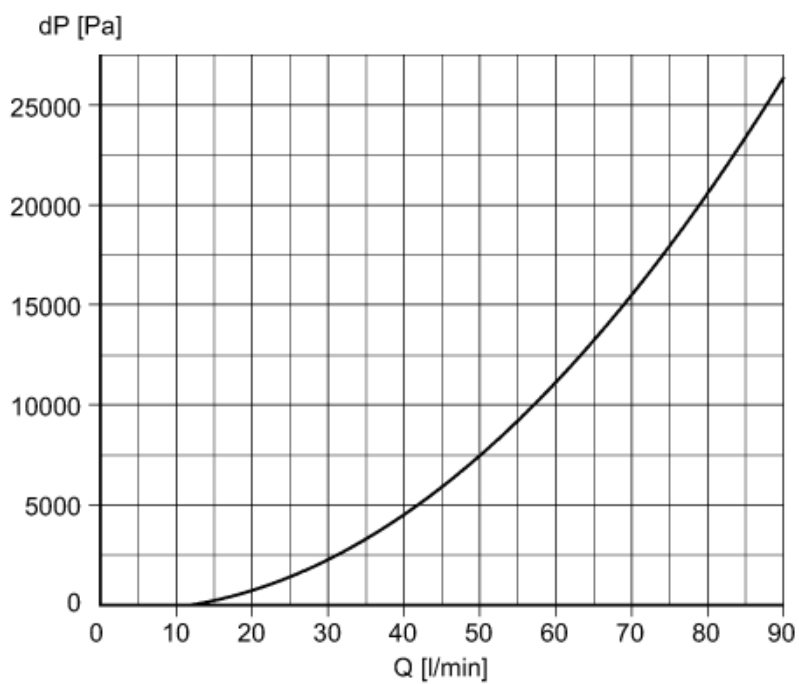
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Diagrams and graphs



Pressure loss / volumetric flow quantity