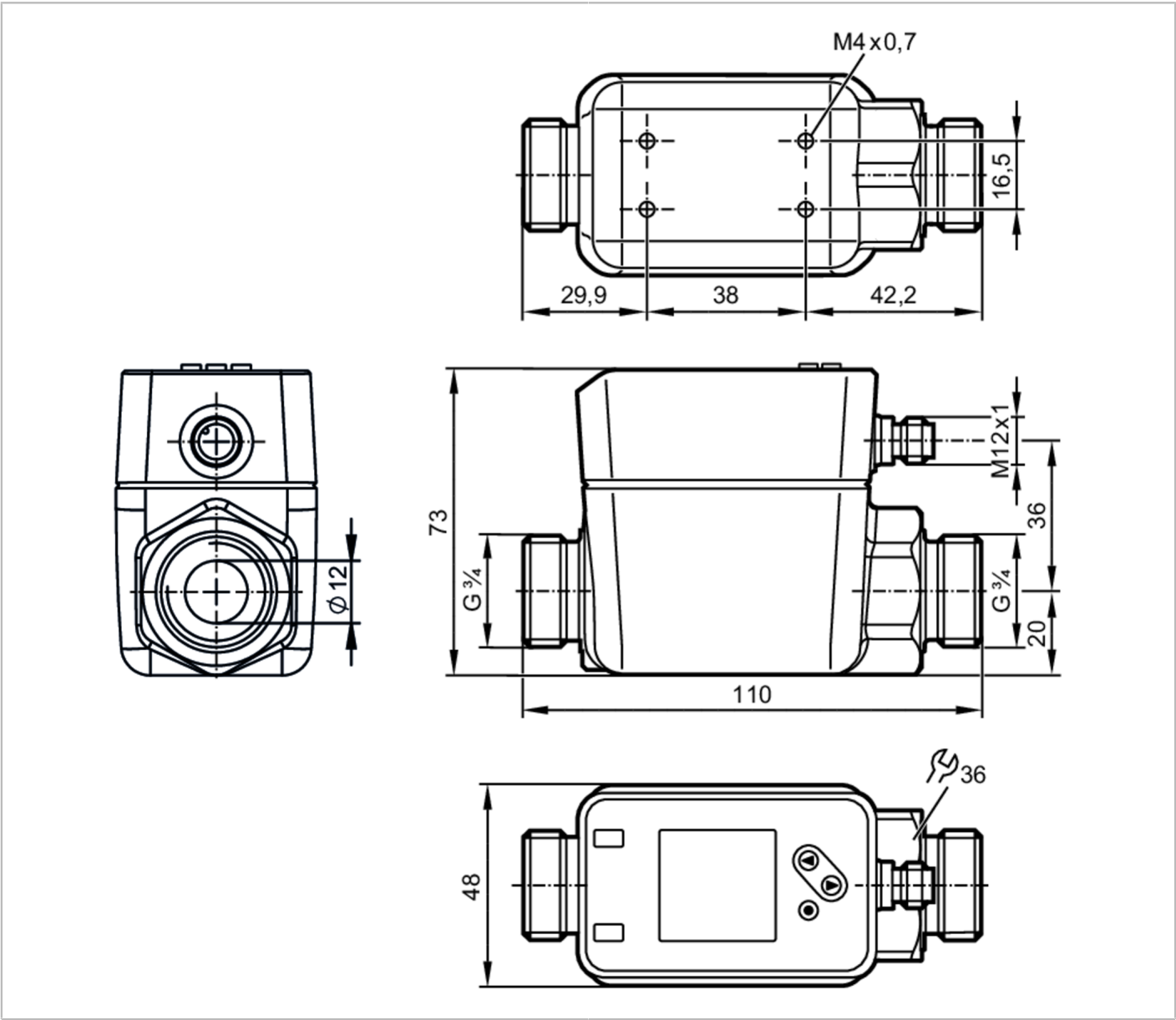


SM7020

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 m³/h	1.2...1190 gph	0.02...19.82 gpm
Process connection	threaded connection G 3/4 external thread DN20 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	[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		
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		0.1...75 l/min	0.006...4.5 m³/h	1.2...1190 gph
Display range		-90...90 l/min	-5.4...5.4 m³/h	-1426.8...1426.8 gph
Resolution		0.1 l/min	0.006 m³/h	0.6 gph
Set point SP		0.5...75 l/min	0.03...4.5 m³/h	8.4...1189 gph
Reset point rP		0.1...74.6 l/min	0.006...4.48 m³/h	1.2...1183 gph
Analogue start point ASP		0...59.9 l/min	0...3.6 m³/h	0...950 gph
Analogue end point AEP		15.1...75 l/min	0.9...4.5 m³/h	240...1189 gph
Low flow cut-off LFC		0.1...3.8 l/min	0.006...0.23 m³/h	1.8...59.4 gph
Frequency end point, FEP		15.1...75 l/min	0.9...4.5 m³/h	240...1189 gph
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)		± (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	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	DeviceID
	default	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	
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 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
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)	stainless steel (316L/1.4404); PEEK; carbon fibre PEEK; FKM; Centellen	
Process connection	threaded connection G 3/4 external thread 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; coding: A; 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

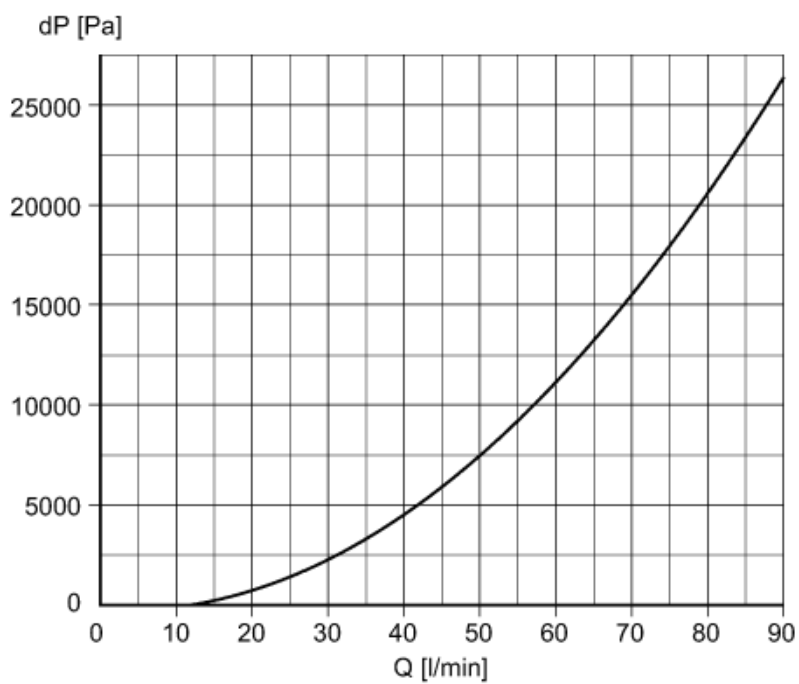
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Diagrams and graphs



Pressure loss / volumetric flow quantity