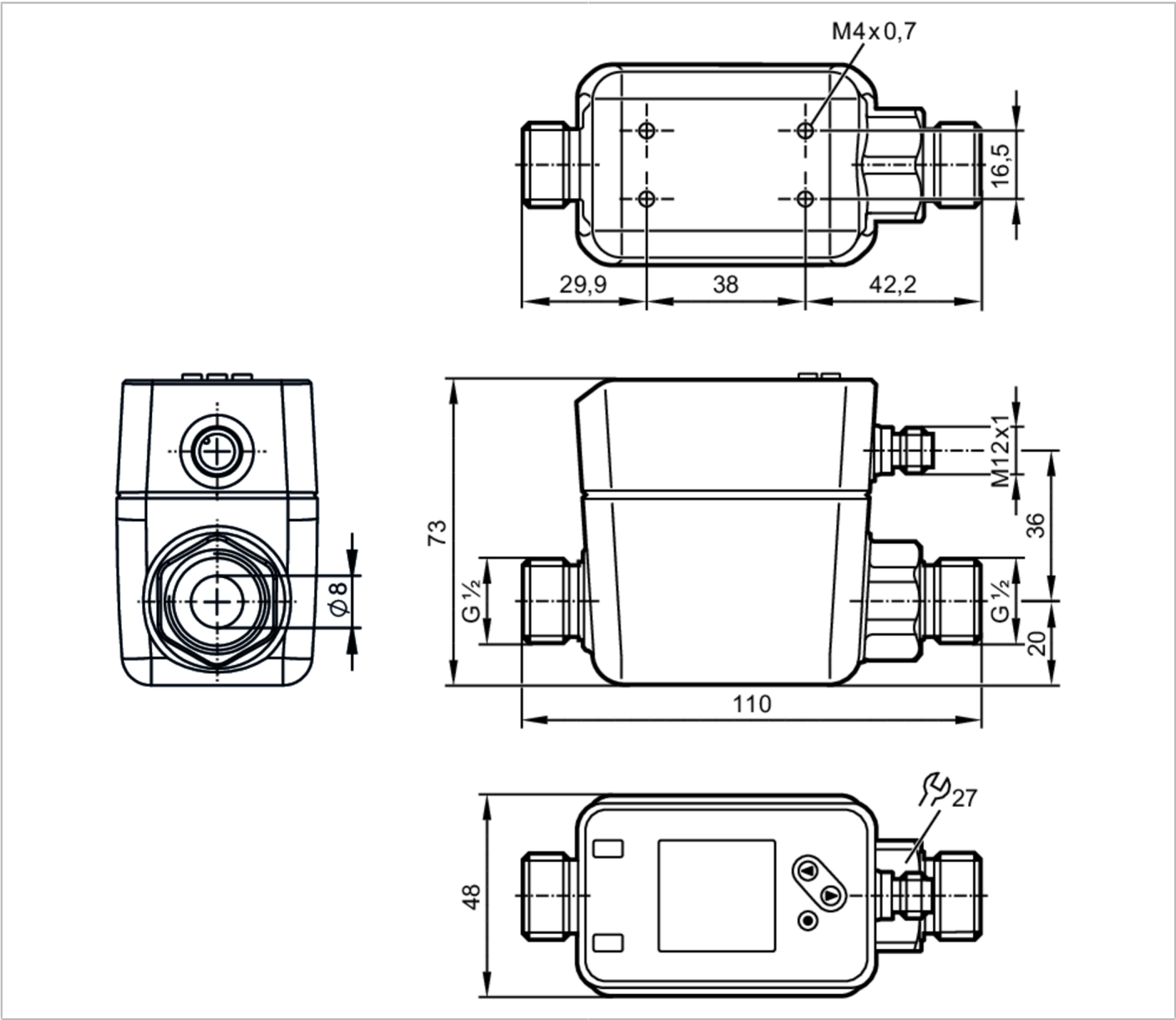


SM6020

Magnetic-inductive flow meter

SMR12XGXFRKG/US-100



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	G 1/2 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	[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 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
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
Analogue start point ASP		0...28 l/min	0...1.7 m³/h	0...666 gph
Analogue 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		
Temperature monitoring				
Measuring range	[°C]	-20...90		



Magnetic-inductive flow meter

SMR12XGXFRKG/US-100

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)	$\pm (0,8 \% \text{ MW} + 0,2 \% \text{ MEW})$
Repeatability	$\pm 0,2 \% \text{ MEW}$

Temperature monitoring

Accuracy	[K]	$\pm 2,5 (Q > 5 \% \text{ MEW})$
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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; $(Q > 10 \% \text{ MEW}, T09)$
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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
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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 type	A	
Process data analogue	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

Tests / approvals

EMC	DIN EN 60947-5-9
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Magnetic-inductive flow meter

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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	[ANN]	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
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 1/2 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: gold-plated



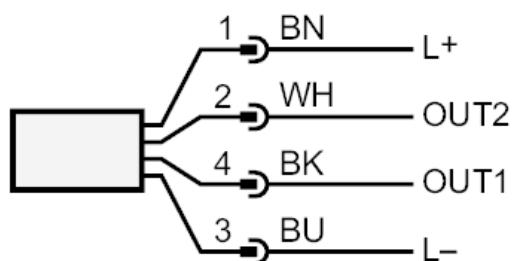
SM6020



Magnetic-inductive flow meter

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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

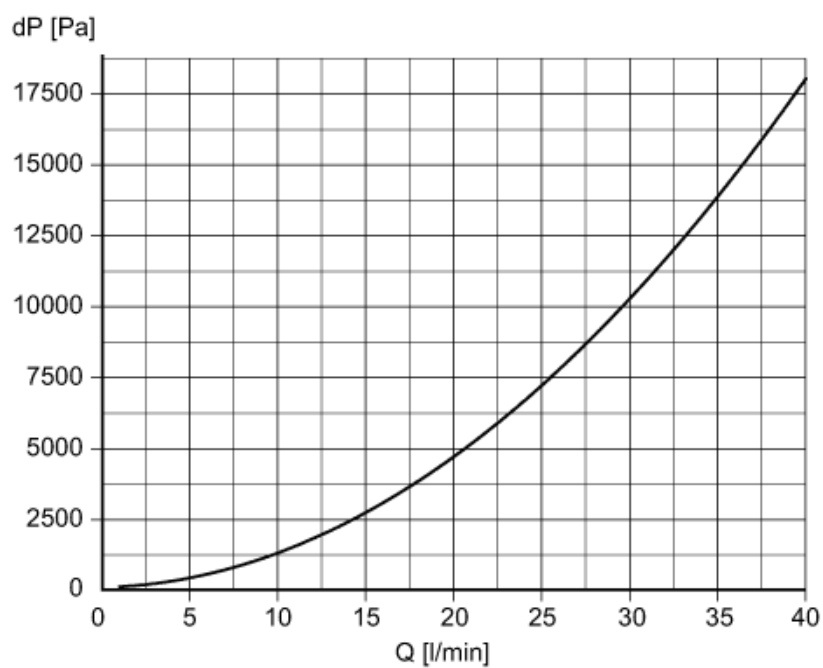
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Diagrams and graphs



Pressure loss / volumetric flow quantity