

SM4020

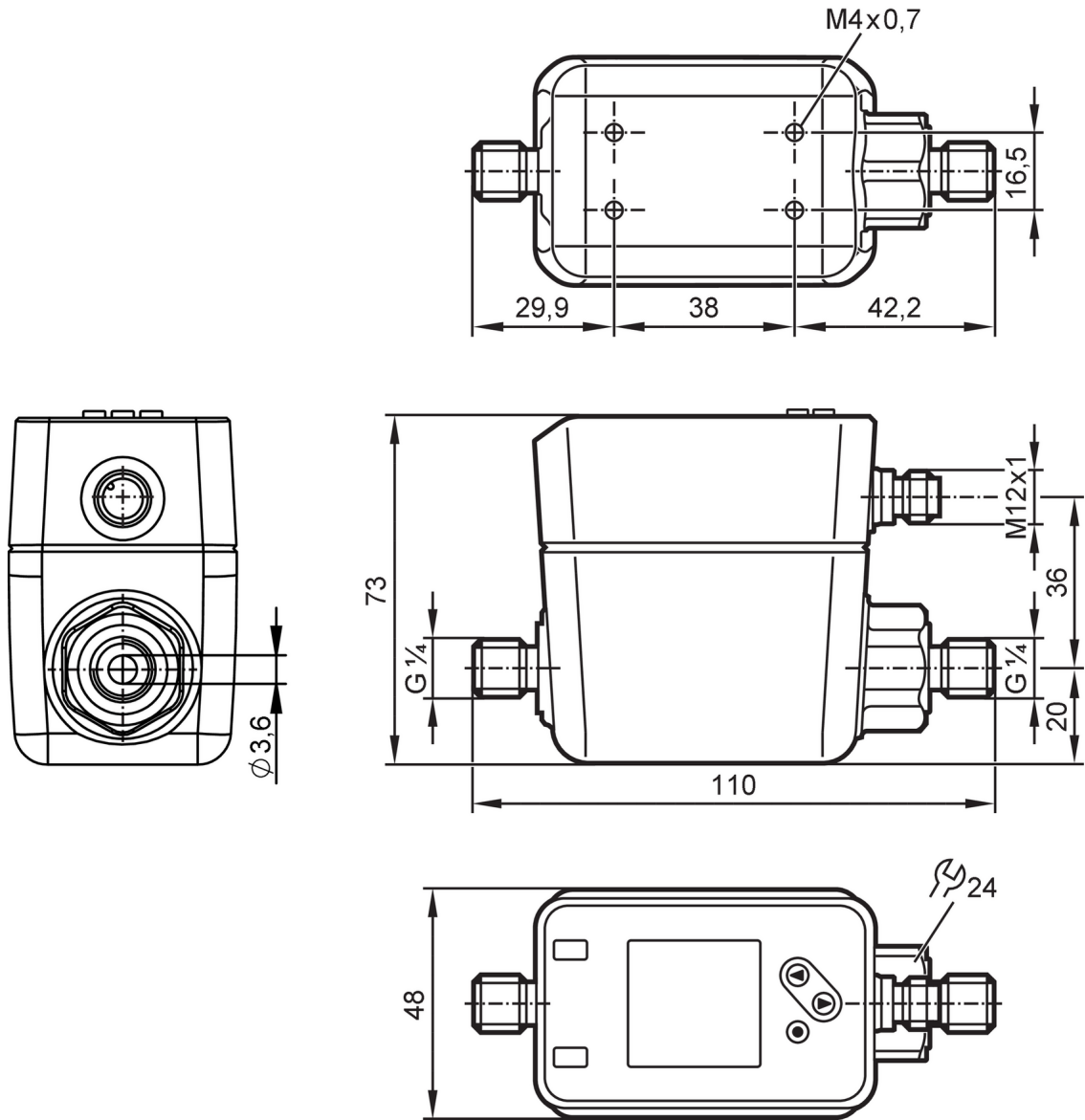


Magnetic-inductive flow meter

SMR14XGXFRKG/US-100

Alternative articles: SM4000

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 analog outputs: 1
Measuring range [ml/min]	5...5000
Process connection	threaded connection G 1/4 external thread DN6 flat seal
Application	
Special feature	gold-plated contacts
Media	Conductive liquids; water; water-based 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



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Pressure rating	16 bar	1.6 MPa
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	[ml/min]	5...5000
Display range	[ml/min]	-6000...6000
Resolution	[ml/min]	1
Set point SP	[ml/min]	33...5000
Reset point rP	[ml/min]	7...4974
Analog start point ASP	[ml/min]	0...3993
Analog end point AEP	[ml/min]	1007...5000
Low flow cut-off LFC	[ml/min]	5...250
Frequency end point, FEP	[ml/min]	1005...5000
Frequency at the end point FRP	[Hz]	1...10000
Volumetric flow quantity monitoring		
Pulse length	[s]	0.005...2
Pulse value	0.001...99990000 l	

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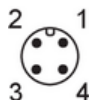
Temperature monitoring		
Measuring range	[°C]	-20...90
Display range	[°C]	-42...112
Resolution	[°C]	0.1
Set point SP	[°C]	-19.6...90
Reset point rP	[°C]	-20...89.6
Analog start point	[°C]	-20...68
Analog end point	[°C]	2...90
In steps of	[°C]	0.1
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)	± (0,8 % MW + 0,2 % MEW)	
Repeatability	± 0,2 % MEW	
Temperature monitoring		
Accuracy	[K]	± 2,5 (Q > 1 l/min)
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 > 1 l/min, 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	Common - I&D	Identification and Diagnosis
SIO mode	yes	
Required master port class	A	
Process data analog	3	
Process data binary	2	
Min. process cycle time	[ms]	8
Supported DeviceIDs	Type of operation	DeviceID
	default	943
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	
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]	712.8	
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)	Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: NBR fiber-reinforced Gasket; FKM; PEEK; carbon fiber PEEK	
Process connection	threaded connection G 1/4 external thread DN6 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: 4, gold-plated		
		

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Connection



- OUT1:
- Colors to DIN EN 60947-5-2
 - 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
- Core colors :
- BK = black
- BN = brown
- BU = blue
- WH = white

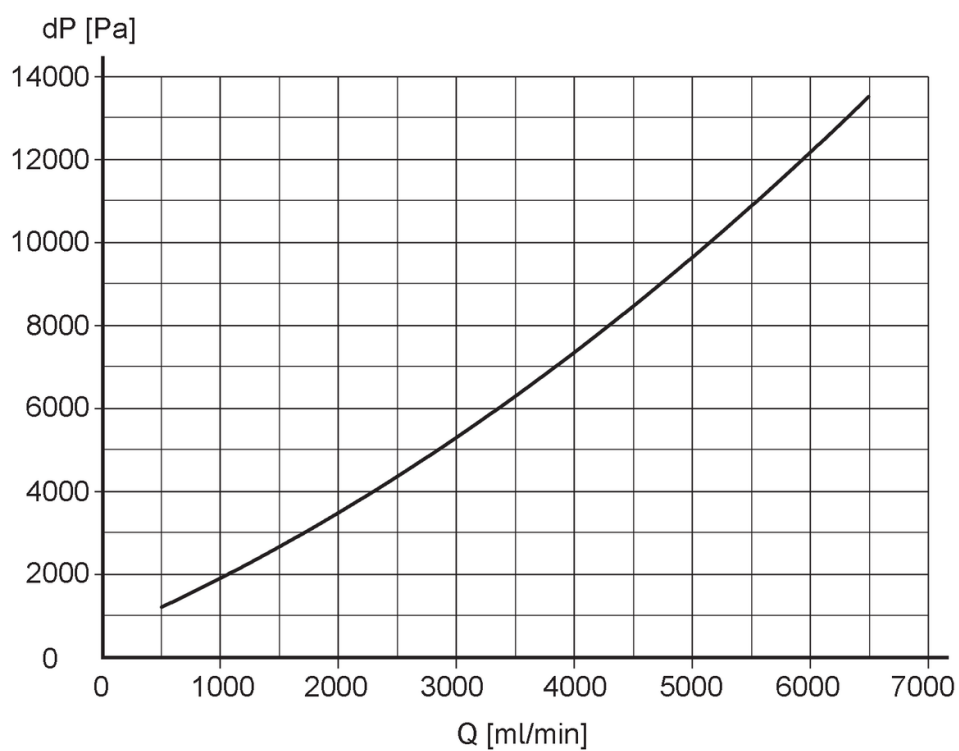
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Diagrams and graphs



Pressure loss / volumetric flow quantity