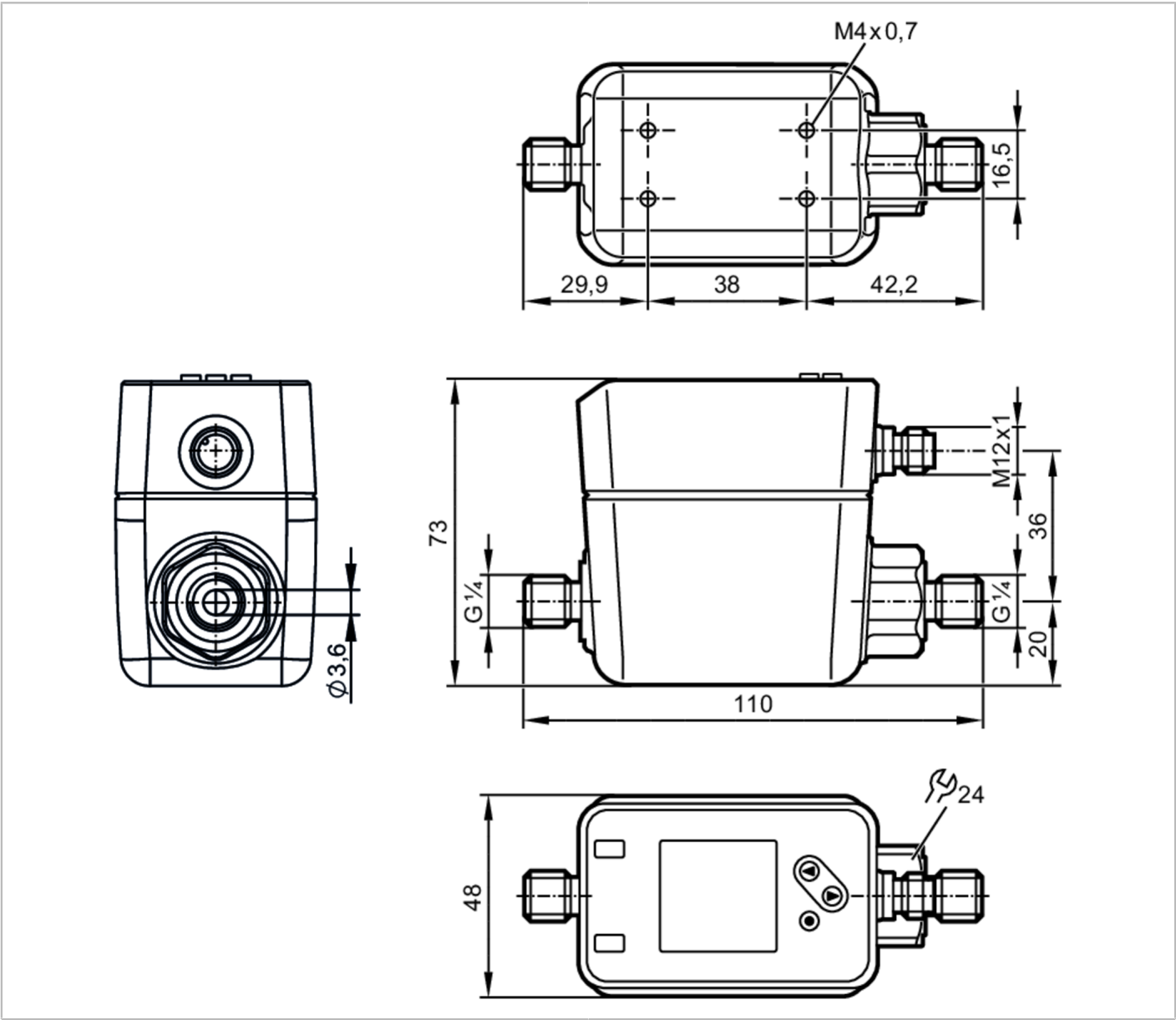


SM4020

Magnetic-inductive flow meter

SMR14XGXFRKG/US-100



Product characteristics	
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1
Measuring range [ml/min]	5...5000
Process connection	G 1/4 DN6 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; (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	[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
Analogue start point ASP	[ml/min]	0...3993
Analogue 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
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 > 1 l/min)
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 > 1 l/min, 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	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 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]	712.8	
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	G 1/4 DN6 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



OUT1:	colours 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 analogue output flow analogue output temperature input counter reset Core colours :
BK =	black
BN =	brown
BU =	blue
WH =	white

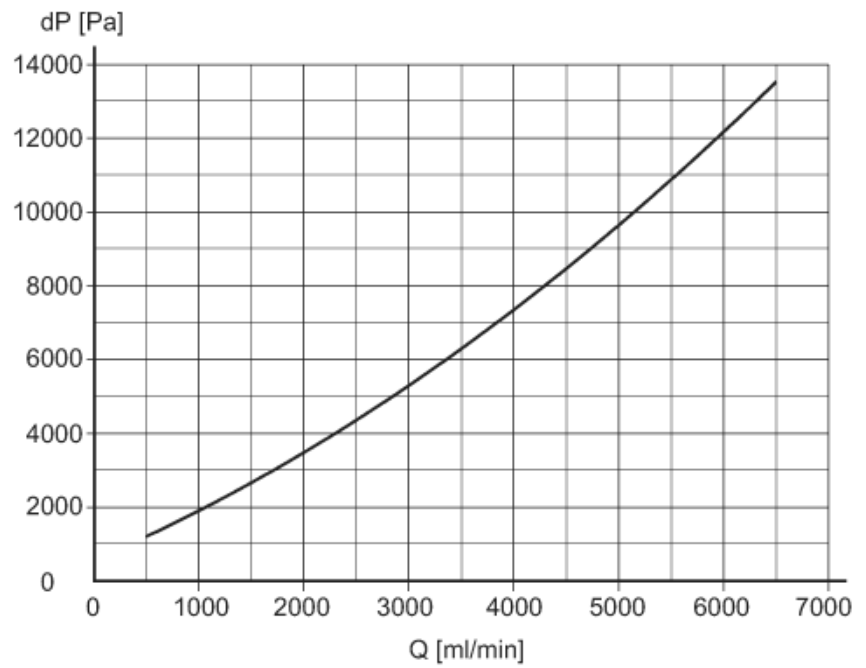
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Diagrams and graphs



Pressure loss / volumetric flow quantity