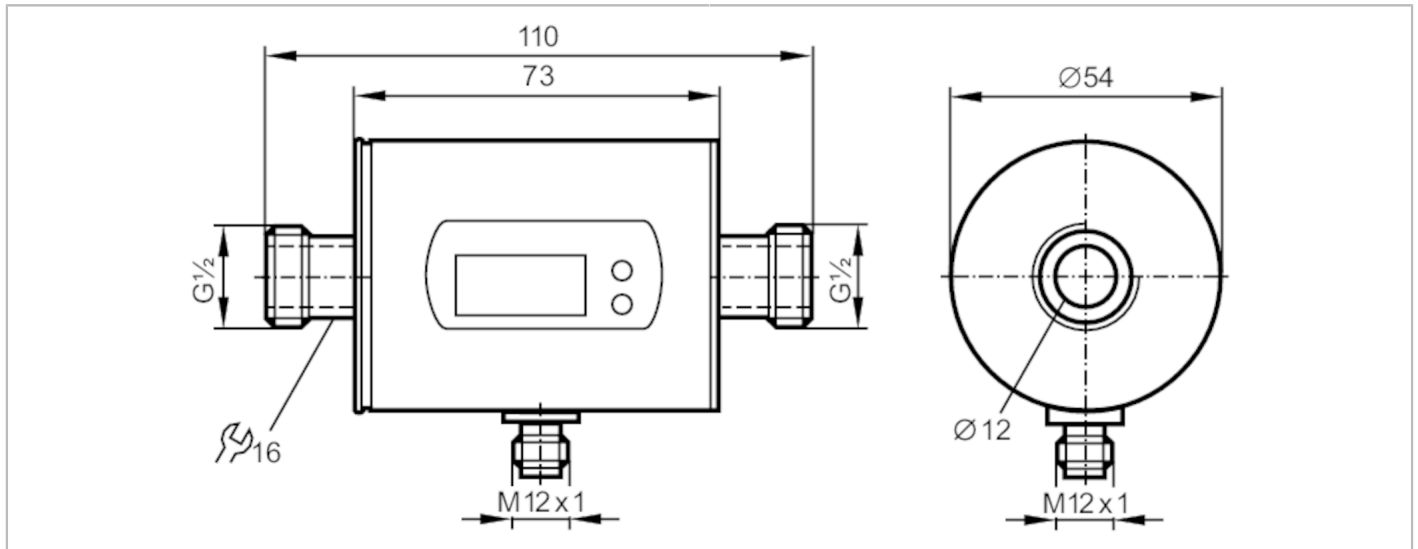


SM6000



Magnetic-inductive flow meter

SMR12GGXFRKG/US-100



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
Measuring range	0.1...25 l/min	0.005...1.5 m³/h
Process connection	threaded connection G 1/2 DN15 flat seal	

Application

Special feature	Gold-plated contacts	
Application	totaliser function; for industrial applications	
Installation	connection to pipe by means of an adapter	
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]	-10...70	
Pressure rating [bar]	16	
Pressure rating [Mpa]	1.6	
MAWP (for applications according to CRN) [bar]	17.7	

Electrical data

Operating voltage [V]	18...30 DC; (to SELV/PELV)	
Current consumption [mA]	95; (24 V)	
Min. insulation resistance [MΩ]	100; (500 V DC)	
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	
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Inputs

Inputs	counter reset	
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Outputs		
Total number of outputs		2
Output signal		switching signal; analogue signal; pulse signal; IO-Link; (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]		200
Number of analogue outputs		1
Analogue current output [mA]		4...20; (scalable)
Max. load [Ω]		500
Analogue voltage output [V]		0...10; (scalable)
Min. load resistance [Ω]		2000
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...25 l/min	0.005...1.5 m ³ /h
Display range	-30...30 l/min	-1.8...1.8 m ³ /h
Resolution	0.02 l/min	0.002 m ³ /h
Set point SP	0.25...25 l/min	0.015...1.5 m ³ /h
Reset point rP	0.1...24.9 l/min	0.005...1.495 m ³ /h
Analogue start point ASP	0...20 l/min	0...1.2 m ³ /h
Analogue end point AEP	5...25 l/min	0.3...1.5 m ³ /h
In steps of	0.02 l/min	0.002 m ³ /h
Volumetric flow quantity monitoring		
Pulse value		0.00001...30 000 m ³
Pulse length [s]		0,01...2
Temperature monitoring		
Measuring range [°C]		-20...80
Resolution [°C]		0.2
Set point SP [°C]		-19.2...80
Reset point rP [°C]		-19.6...79.6
Analogue start point [°C]		-20...60
Analogue end point [°C]		0...80
In steps of [°C]		0.2
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)		$\pm (0,8 \% MW + 0,5 \% MEW)$
Repeatability		$\pm 0,2\% MEW$

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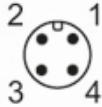
Temperature monitoring		
Accuracy	[K]	± 2,5 (Q > 1 l/min)
Response times		
Flow monitoring		
Response time	[s]	0.15; (dAP = 0, T19)
Delay time programmable dS, dr	[s]	0...50
Damping process value dAP	[s]	0...5
Temperature monitoring		
Dynamic response T05 / T09	[s]	T09 = 20 (Q > 1 l/min)
Software / programming		
Parameter setting options	Flow monitoring; quantity meter; Preset counter; Temperature monitoring; hysteresis / window; normally open / normally closed; switching logic; current/ voltage/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]	5
Supported DeviceIDs	Type of operation	DeviceID
	Default	569
Operating conditions		
Ambient temperature	[°C]	-10...60
Storage temperature	[°C]	-25...80
Protection		IP 67
Tests / approvals		
EMC	DIN EN 60947-5-9	
	model number	001MI
	accuracy class	-
	maximum allowable error	± 1,5 % FS
	Q (min)	0,005 m³/h
	Q (t)	-
CPA approval	Q (max)	1,5 m³/h
	Shock resistance	
	DIN IEC 68-2-27	
Vibration resistance		20 g (11 ms)
DIN IEC 68-2-6		5 g (10...2000 Hz)
MTTF	[years]	162
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

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Mechanical data		
Weight [g]	544	
Materials	stainless steel (1.4404 / 316L); PBT-GF20; PC; FKM; TPE	
Materials (wetted parts)	stainless steel (1.4404 / 316L); PEEK; FKM	
Process connection	threaded connection G 1/2 DN15 flat seal	
Displays / operating elements		
Display	Display unit	6 x LED, green (l/min, m ³ /h, l, m ³ , 10 ³ , °C)
	switching status	2 x LED, yellow
	measured values	alphanumeric display, 4-digit
	programming	alphanumeric display, 4-digit
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
- Pulse output quantity meter
- signal output Preset counter
- IO-Link

OUT2:

- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring
- input counter reset

Core colours :

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

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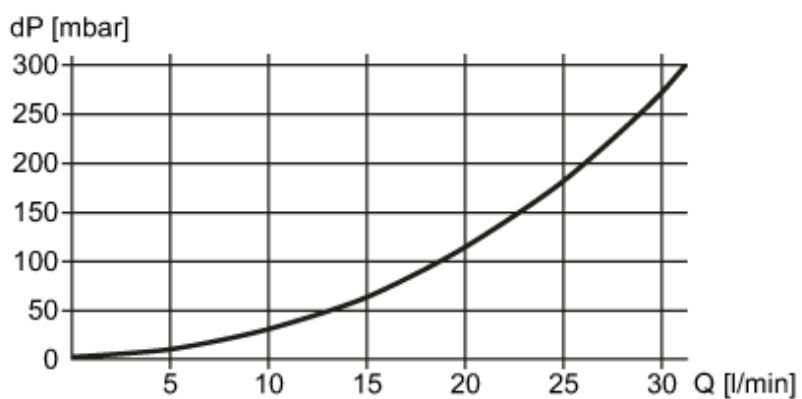


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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity