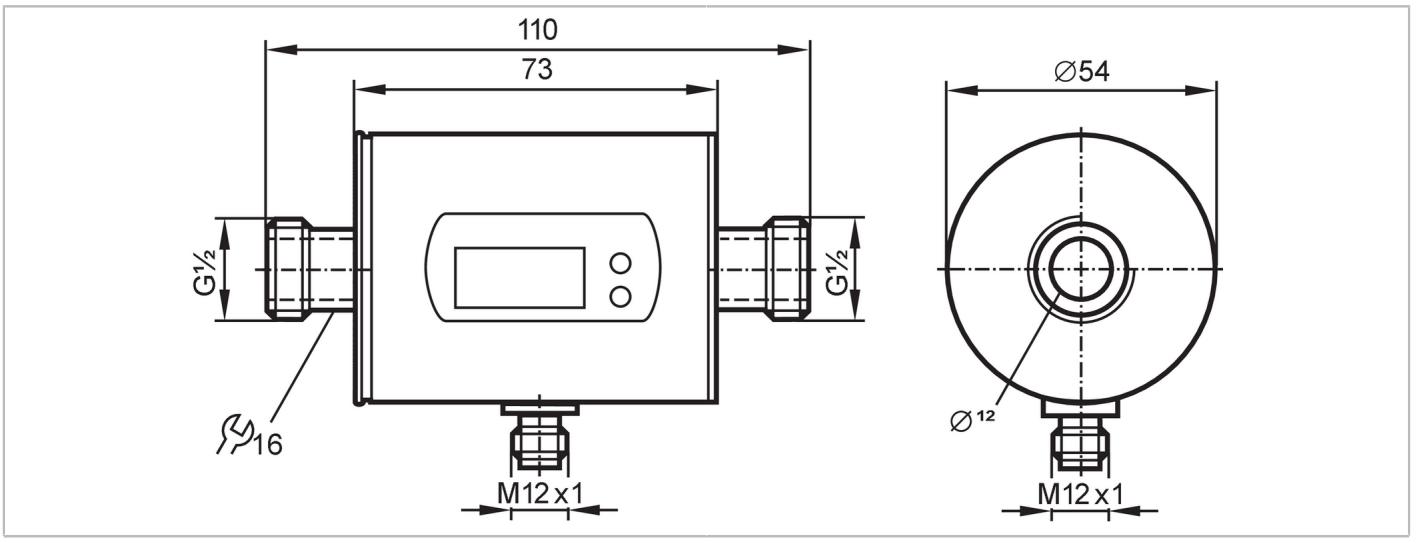
SM6000

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 external thread 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: ≥ 20 µS/cm	
		viscosity: < 70 mm²/s (40 °C)	
Medium temperature	[°C]	-10...70	
Pressure rating		16 bar	1.6 MPa
MAWP for applications according to CRN		15.3 bar	1.53 MPa
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	
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	

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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 m³/h
Display range		-30...30 l/min	-1.8...1.8 m³/h
Resolution		0.02 l/min	0.002 m³/h
Set point SP		0.25...25 l/min	0.015...1.5 m³/h
Reset point rP		0.1...24.9 l/min	0.005...1.495 m³/h
Analogue start point ASP		0...20 l/min	0...1.2 m³/h
Analogue end point AEP		5...25 l/min	0.3...1.5 m³/h
In steps of		0.02 l/min	0.002 m³/h
Volumetric flow quantity monitoring			
Pulse value		0.00001...30 000 m³	
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)		± (0,8 % MW + 0,5 % MEW)
Repeatability		± 0,2% MEW
Temperature monitoring		
Accuracy	[K]	± 2,5 (Q > 1 l/min)

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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 - SSP 0	Generic Profiled Sensor
		Function	Device identification
		Function	Process data variable
		Function	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	
CPA approval		model number	001MI
		accuracy class	-
		maximum allowable error	± 1,5 % FS
		Q (min)	0,005 m³/h
		Q (t)	-
		Q (max)	1,5 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]	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
Housing		cylindrical
Inlet pipe length		3 x DN
Outlet pipe length		1 x DN
Dimensions	[mm]	Ø 54 / L = 110
Materials		stainless steel (316L/1.4404); PBT-GF20; PC; FKM; TPE
Materials (wetted parts)		stainless steel (316L/1.4404); PEEK; FKM
Process connection		threaded connection G 1/2 external thread DN15 flat seal

Displays / operating elements		
Display	Display unit	6 x LED, green (l/min, m³/h, l, m³, 10³, °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: 4, gold-plated

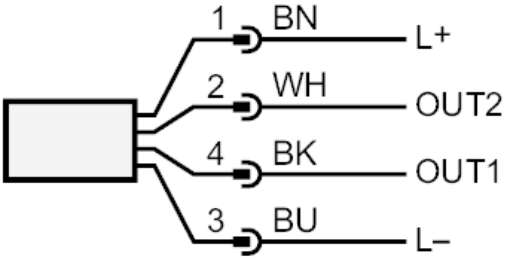


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Connection



colours to DIN EN 60947-5-2

OUT1:
- switching output volumetric flow quantity monitoring
- Pulse output quantity meter
- signal output Preset counter
- IO-Link

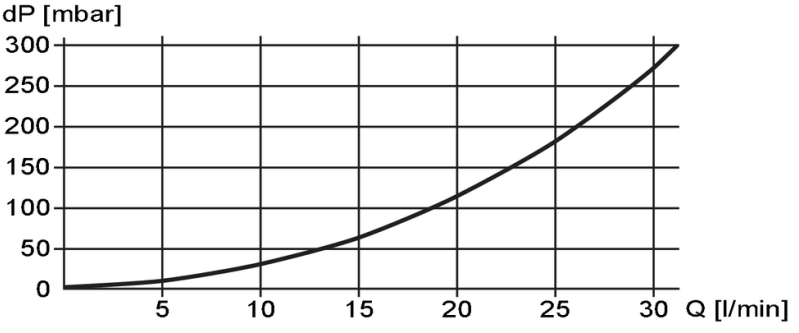
OUT2:
- switching output volumetric flow quantity monitoring
- switching output Temperature monitoring
- analogue output volumetric flow quantity monitoring
- analogue output Temperature monitoring
- input counter reset

Core colours :

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

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity