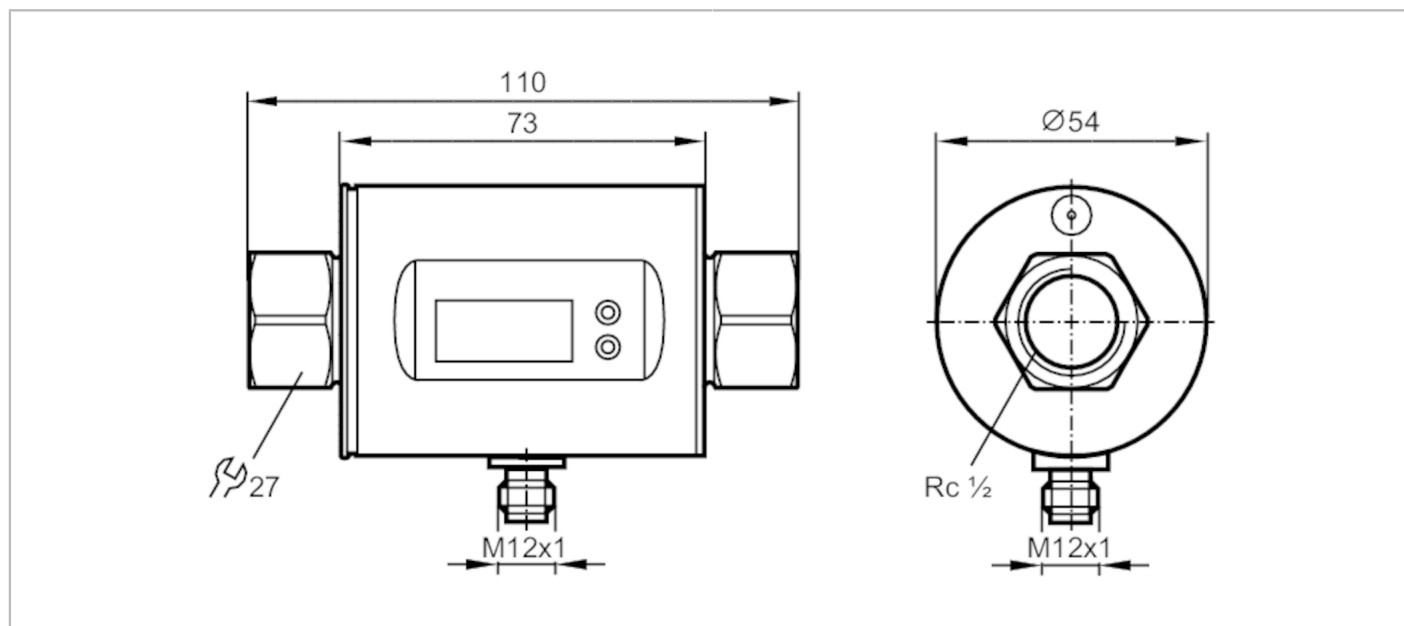


SM6400



Magnetic-inductive flow meter

SMK12GGXFRKG/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 Rc 1/2 internal thread DN15	

Application

Special feature	Gold-plated contacts	
Application	totaliser function; for industrial applications	
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	16 bar	1.6 MPa

Electrical data

Operating voltage [V]	18...30 DC; (to SELV/PELV)	
Current consumption [mA]	95; (24 V)	
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	
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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)



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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)	$\pm (0,8 \% \text{ MW} + 0,5 \% \text{ MEW})$
Repeatability	$\pm 0,2\% \text{ MEW}$
Temperature monitoring	
Accuracy [K]	$\pm 2,5 (Q > 1 \text{ l/min})$



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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: 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 default	DeviceID 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]	145
UL approval	UL Approval no.	I010
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data		
Weight	[g]	580.5
Housing	cylindrical	

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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 Rc 1/2 internal thread DN15

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: gold-plated





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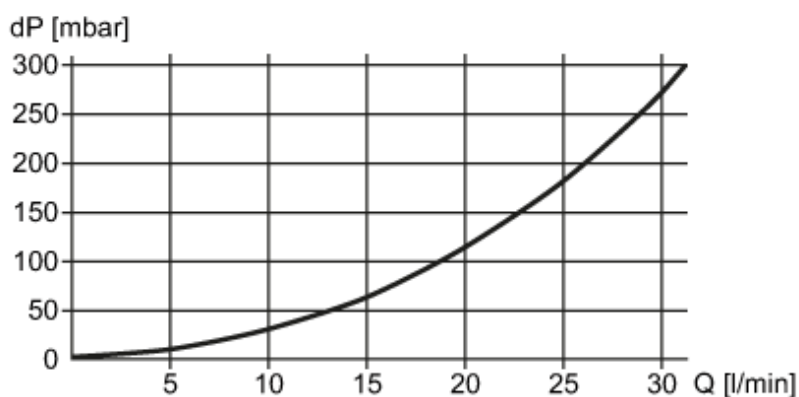
Connection



OUT1:	colours to DIN EN 60947-5-2
	switching output volumetric flow quantity monitoring
OUT2:	Pulse output quantity meter
	signal output Preset counter
	IO-Link
	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