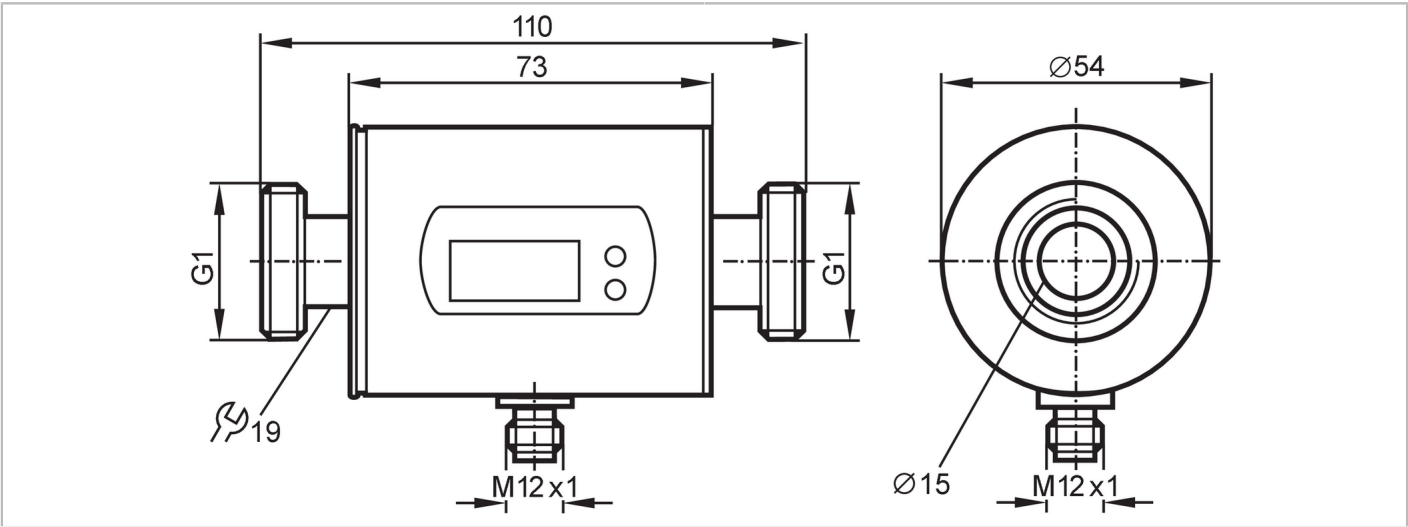


SM8000



Magnetic-inductive flow meter

SMR11GGXFRKG/US-100



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1	
Measuring range	0.2...100 l/min	0.01...6 m³/h
Process connection	threaded connection G 1 external thread DN25 flat seal	

Application

Special feature	gold-plated contacts	
Application	Totalizer function; for industrial applications	
Installation	connection to pipe by means of an adapter	
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]	-10...70	
Pressure rating	16 bar	1.6 MPa
MAWP (for applications according to CRN)	10.4 bar	1.04 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 analog outputs: 1
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Inputs

Inputs	counter reset
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Outputs

Total number of outputs	2
Output signal	switching signal; analog signal; pulse signal; IO-Link; (configurable)



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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]	200
Number of analog outputs	1
Analog current output [mA]	4...20; (scalable)
Max. load [Ω]	500
Analog 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	yes (non-latching)
Overload protection	yes

Measuring/setting range

Measuring range	0.2...100 l/min	0.01...6 m³/h
Display range	-120...120 l/min	-7.2...7.2 m³/h
Resolution	0.1 l/min	0.005 m³/h
Set point SP	0.7...100 l/min	0.04...6 m³/h
Reset point rP	0.2...99.5 l/min	0.01...5.97 m³/h
Analog start point ASP	0...80 l/min	0...4.8 m³/h
Analog end point AEP	20...100 l/min	1.2...6 m³/h
In steps of	0.1 l/min	0.005 m³/h

Volumetric flow quantity monitoring

Pulse value	0.00001...100 000 m³
Pulse length [s]	0,0025...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
Analog start point [°C]	-20...60
Analog 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 > 5 l/min)



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Reaction 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 > 5 l/min)
Software / programming		
Parameter setting options	Flow monitoring; quantity meter; Preset counter; Temperature monitoring; hysteresis / window; normally open / 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 class	A	
Process data analog	3	
Process data binary	2	
Min. process cycle time	[ms]	5
Supported DeviceIDs	Type of operation	DeviceID
	default	575
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	002MI
	accuracy class	-
	maximum allowable error	± 1,5 % FS
	Q (min)	0,01 m³/h
	Q (t)	-
	Q (max)	6 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
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]	577
Housing		tubular
Inlet pipe length		3 x DN
Outlet pipe length		1 x DN
Dimensions	[mm]	Ø 54 / L = 110
Material		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 external thread DN25 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		

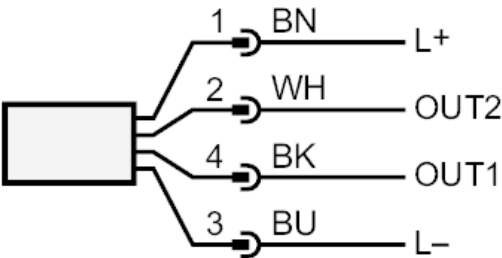
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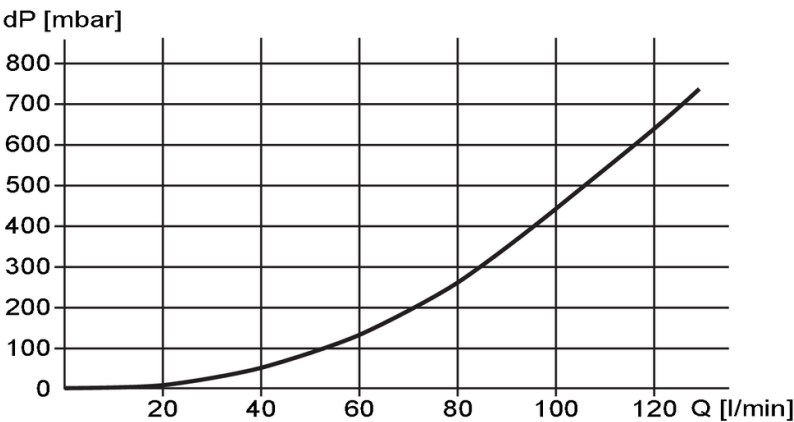
Connection



OUT1:	Colors to DIN EN 60947-5-2 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 analog output Volumetric flow quantity monitoring analog output Temperature monitoring Input counter reset
BK =	black
BN =	brown
BU =	blue
WH =	white

Diagrams and graphs

Pressure loss



dP Pressure loss
Q volumetric flow quantity