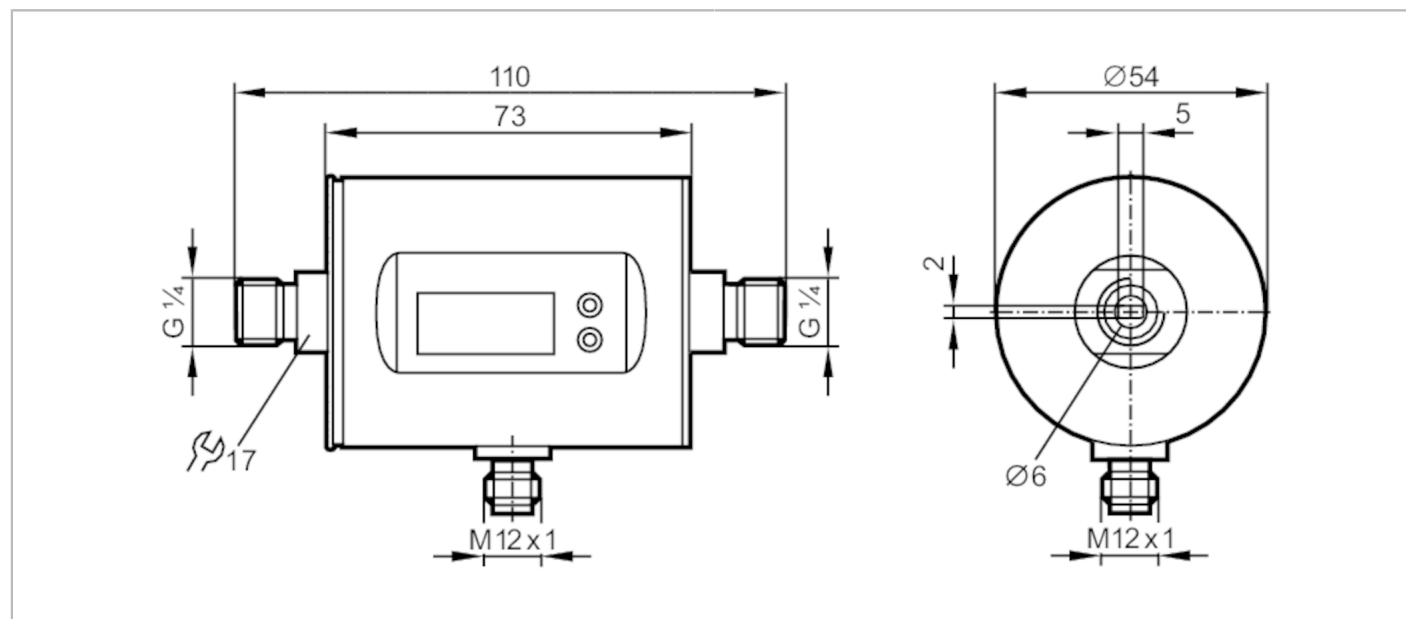


SM4000



Magnetic-inductive flow meter

SMR14DXXFRKG/US-100



Application		
Application		totaliser function; for industrial applications
Installation		connection to pipe by means of an adapter
Media		conductive liquids; water; hydrous media
Medien		conductivity: $\geq 20 \mu\text{S/cm}$ viscosity: $< 70 \text{ mm}^2/\text{s}$ (40 °C)
Medium temperature	[°C]	0...60
Pressure rating	[bar]	10
Electrical data		
Operating voltage	[V]	18...30 DC; (according to EN 50178 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



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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 [ml/min]		5...3000
Display range [ml/min]		-1999...3600
Resolution [ml/min]		1
Set point SP [ml/min]		20...3000
Reset point rP [ml/min]		5...2984
Analogue start point ASP [ml/min]		0...2400
Analogue end point AEP [ml/min]		600...3000
Low flow cut-off LFC [ml/min]		< 60
volumetric flow quantity monitoring		
Pulse value		0.001...3000 l
Pulse length [s]		0,008...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



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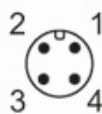
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)		± (2 % MW + 0,5 % MEW)
Repeatability		± 0,2% MEW
Temperature monitoring		
Accuracy	[K]	± 1,5 (Q > 0,5 l/min)
Response times		
Flow monitoring		
Response time	[s]	0.15; (dAP = 0)
Delay time programmable dS, dr	[s]	0...50
Damping for the switching output dAP	[s]	0...5
Temperature monitoring		
Dynamic response T05 / T09	[s]	T09 = 40 (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	
IO-Link device ID	671d / 00 02 9Fh	
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]	4
Operating conditions		
Ambient temperature	[°C]	-10...60
Storage temperature	[°C]	-25...80
Protection	IP 67	
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]	144
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]	532
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 1/4 flat seal	
Displays / operating elements		
Display	Display unit	6 x LED, green (ml/min, l/h, l, m³, °C, 10³)
	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; Contacts: gold-plated		
		

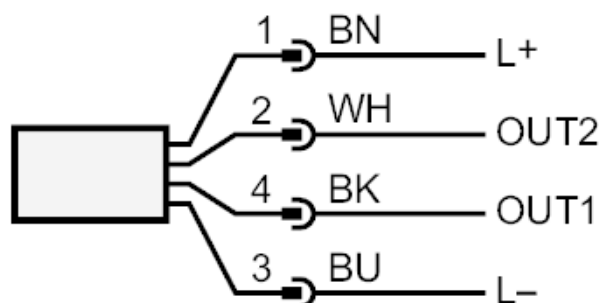
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Magnetic-inductive flow meter

SMR14DXXFRKG/US-100

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

SM4000

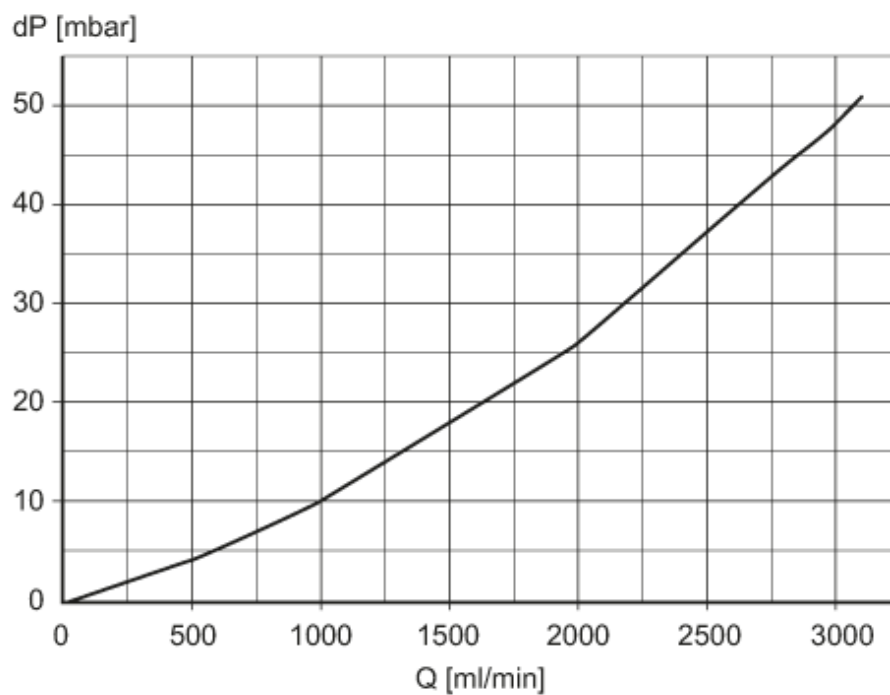
Magnetic-inductive flow meter

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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity