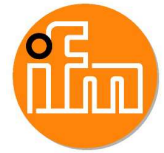
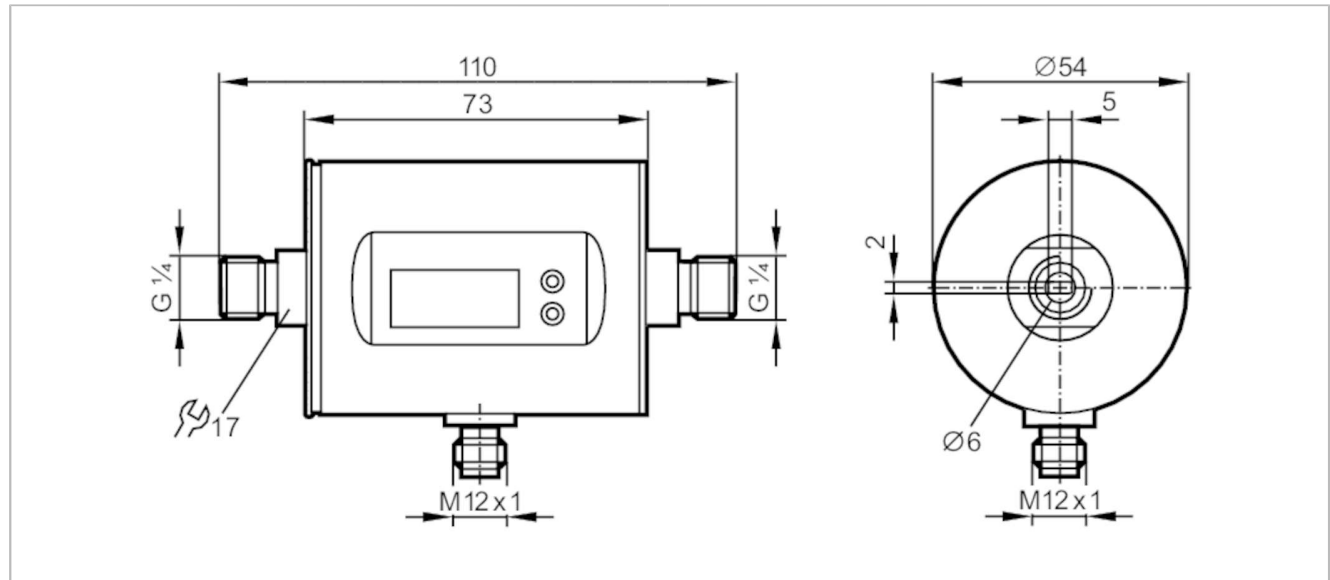


SM4000



Magnetic-inductive flow meter

SMR14DXXFRKG/US-100



Product characteristics	
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1
Measuring range [ml/min]	5...3000
Process connection	threaded connection G 1/4 DN6 flat seal
Application	
System	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]	0...60
Pressure rating [bar]	10
Pressure rating [Mpa]	1.2
MAWP (for applications according to CRN) [bar]	7.3
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 analog outputs: 1
Inputs	
Inputs	counter reset

SM4000



Magnetic-inductive flow meter

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Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; pulse signal; IO-Link; (configurable)
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	[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
Analog start point ASP	[ml/min]	0...2400
Analog 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
Analog start point	[°C]	-20...60
Analog end point	[°C]	0...80
In steps of	[°C]	0.2

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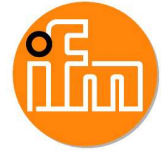


Magnetic-inductive flow meter

SMR14DXXFRKG/US-100

Accuracy / deviations					
Flow monitoring					
Accuracy (in the measuring range)	$\pm (2 \% MW + 0,5 \% MEW)$				
Repeatability	$\pm 0,2\% MEW$				
Temperature monitoring					
Accuracy [K]	$\pm 2,5 (Q > 0,5 \text{ l/min})$				
Reaction times					
Flow monitoring					
Response time [s]	0.15; (dAP = 0, T19)				
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 / 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 class	A				
Process data analogue	3				
Process data binary	2				
Min. process cycle time [ms]	4				
Supported DeviceIDs	<table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>default</td> <td>671</td> </tr> </tbody> </table>	Type of operation	DeviceID	default	671
Type of operation	DeviceID				
default	671				
Operating conditions					
Ambient temperature [°C]	-10...60				
Storage temperature [°C]	-25...80				
Protection	IP 67				

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Magnetic-inductive flow meter

SMR14DXXFRKG/US-100

Tests / approvals		
EMC	DIN EN 60947-5-9	
	model number	007MI
CPA approval	accuracy class	-
	maximum allowable error	± 2,5 % FS
	Q (min)	0,0003 m ³ /h
	Q (t)	-
	Q (max)	0,18 m ³ /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]	144
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data	
Weight	[g] 536,5
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 1/4 DN6 flat seal

Displays / operating elements		
Display	Display unit	6 x LED, green (ml/min, l/h, l, m ³ , °C, 10 ³)
	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



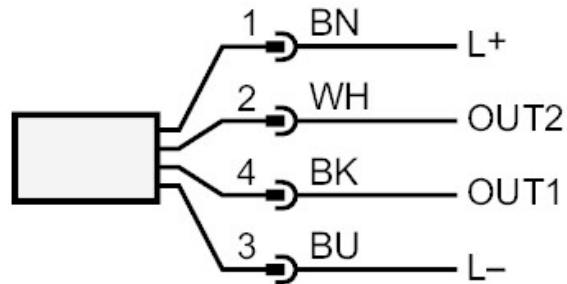
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Magnetic-inductive flow meter

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
- analog output Volumetric flow quantity monitoring
- analog output Temperature monitoring
- Input counter reset

Core colors :

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

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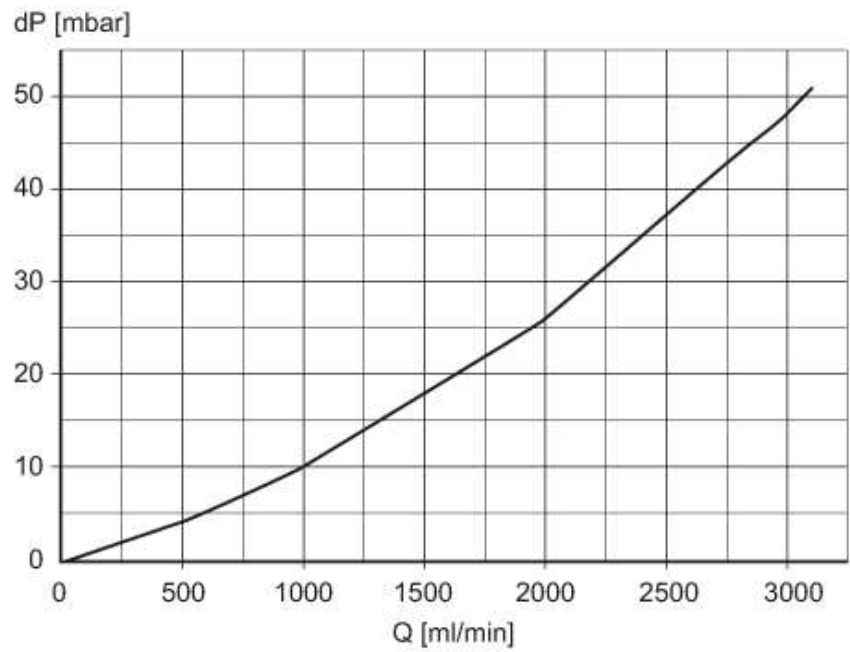


Magnetic-inductive flow meter

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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity