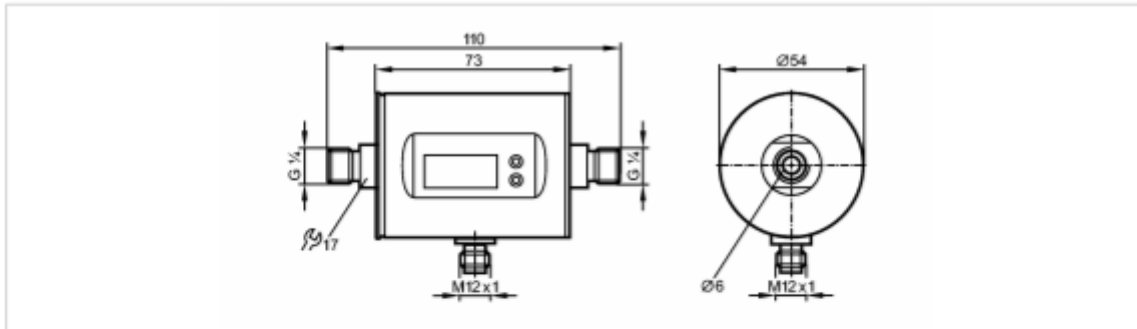


MM MiniMag – Electromagnetic Flowmeter

New 10mm size

Improved!



CE

Product characteristics

Magnetic-inductive flow meter

Connector

Process connection: G 1/4 flat seal

connection to pipe by means of an adapter

Function programmable

Totaliser function

2 outputs

OUT1 = flow monitoring (binary), flow rate meter (pulse), preset meter (binary)

OUT2 = flow monitoring or temperature monitoring (analogue or binary)

Input for counter reset

Measuring range

5...3000 ml/min

Application

Application: conductive liquids of the fluid group 2 according to the Pressure Equipment Directive (PED) (conductivity: $\geq 20 \mu\text{S/cm}$ / viscosity: $< 70 \text{ mm}^2/\text{s}$ at 40°C)

Pressure rating [bar]: 10

Medium temperature [°C]: 0...60

Electrical data

Electrical design: DC PNP/NPN

Operating voltage [V]: 18...30 DC; to EN 50178, SELV, PELV

Current consumption [mA]: < 80

Protection class: III

Reverse polarity protection: yes

Outputs

Output function: OUT1: normally open / closed programmable or pulse or IO-Link
OUT2: normally open / closed programmable or analogue (4...20 mA / 0...10 V, scaleable)

Current rating [mA]: 200

Voltage drop [V]: < 2

Short-circuit protection: pulsed

Overload protection: yes

Analogue output: 4...20 mA; 0...10 V

Max. load [Ω]: 500 (4...20 mA)

Min. load [Ω]: 2000 (0...10 V)

Pulse output flow rate meter

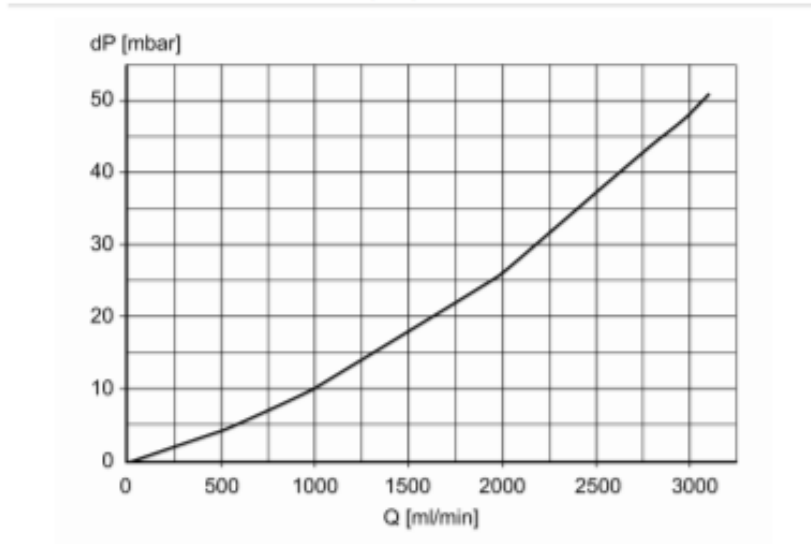
Measuring / setting range

Flow monitoring		
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]	5...60
Frequency end point, FEP	[ml/min]	1
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...80.0
Reset point, rP	[°C]	-19.6...79.6
Analogue start point, ASP	[°C]	-20.0...60.0
Analogue end point, AEP	[°C]	0.0...80.0
in steps of	[°C]	0.2

Accuracy / deviations

Flow monitoring		
Accuracy	[% of the final value]	± (2% MW + 0.5% MEW)
Repeatability		± 0.2% MEW

Pressure loss (dP) / flow rate (Q)



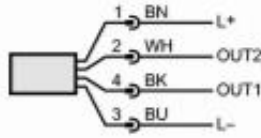
Temperature monitoring		
Accuracy	[K]	± 1.5 (Q > 0.5 l/min)

Reaction times

Power-on delay time	[s]	5
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Flow monitoring	
Start-up delay	[s] 0...50
Response time	[s] < 0.150 (dAP = 0)
Damping, dAP	[s] 0.0...5.0
Temperature monitoring	
Response time	[s] T09 = 40 (Q > 1 l/min)
Software / programming	
Programming options	hysteresis / window function; N.O. / N.C; output polarity; current / voltage / pulse output; start-up delay; display can be deactivated; display unit
Interfaces	
IO-Link device	
Transfer 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 class	A
Process data analogue	3
Process data binary	2
Min. process cycle time	[ms] 4.1
Environment	
Ambient temperature	[°C] -10...60
Storage temperature	[°C] -25...80
Protection	IP 67
Tests / approvals	
Pressure equipment directive	Article 3, section 3 - sound engineering practice
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
Mechanical data	
Process connection	G ¼ flat seal
Materials (wetted parts)	stainless steel 316L / 1.4404; PEEK (polyether ether ketone); FKM
Housing materials	stainless steel 316L / 1.4404; PBT-GF 20; PC; FKM; TPE
Weight	[kg] 0.56
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 4-digit alphanumeric display Programming 4-digit alphanumeric display
Electrical connection	
Connection	M12 connector; Gold-plated contacts
Wiring	

Core colours
 BK black
 BN brown
 BU blue
 WH white



Colours to DIN EN 60947-5-2

OUT1: 4 selection options

- switching output flow rate monitoring
- pulse output quantity meter
- signal output preset counter
- IO-Link

OUT2: 5 selection options

- switching output flow rate monitoring
- switching output temperature monitoring
- analogue output flow rate
- analogue output temperature
- Input for counter reset

Remarks	
Remarks	MW = measured value MEW = final value of the measuring range
Pack quantity [piece]	1

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