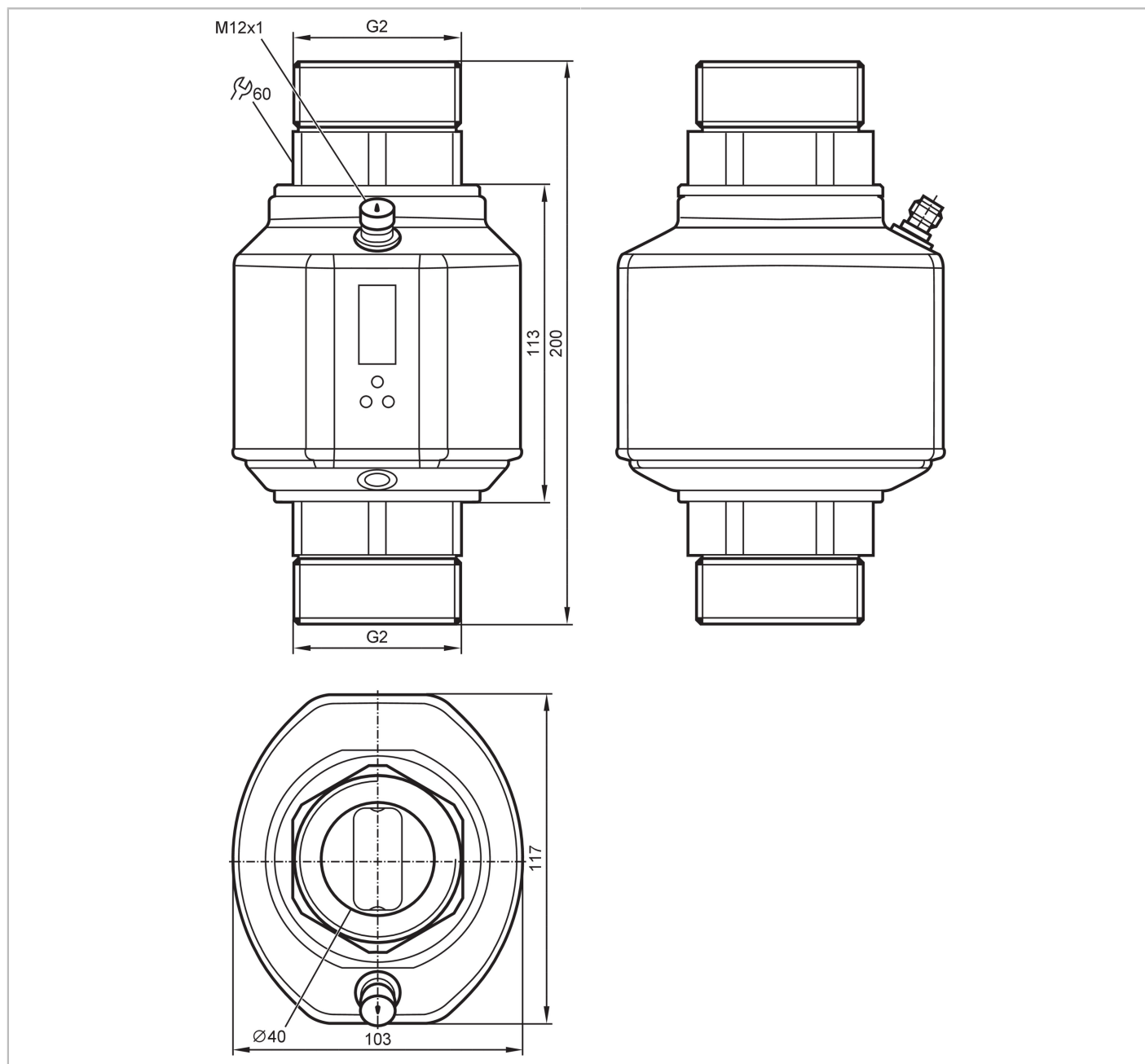


# SM9004



## Magnetic-inductive flow meter

SMR21XGX50KG/US



Product characteristics				
Number of inputs and outputs	Number of analog outputs: 2			
Measuring range	5...300 l/min	0.3...18 m <sup>3</sup> /h	80...4755 gph	1.3...79.3 gpm
Process connection	threaded connection G 2 external thread DN50 flat seal			
Application				
Special feature	gold-plated contacts			
Application	empty pipe detection; for industrial applications			
Installation	connection to pipe by means of an adapter			
Media	Conductive liquids; water; water-based media			

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Note on media	conductivity: $\geq 20 \mu\text{S/cm}$		
	viscosity: $< 70 \text{ mm}^2/\text{s}$ (40 °C)		
Medium temperature	-10...90 °C	14...194 °F	
Pressure rating	16 bar	232 psi	1.6 MPa
MAWP (for applications according to CRN)	8.9 bar	0.89 MPa	

Electrical data	
Operating voltage [V]	18...32 DC; (to SELV/PELV)
Current consumption [mA]	$< 150$
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 analog outputs: 2

Outputs	
Total number of outputs	2
Output signal	analog signal
Number of analog outputs	2
Analog current output [mA]	4...20; ( $\leq 22 \text{ mA}$ ; scalable)
Max. load [ $\Omega$ ]	500

Measuring/setting range				
Measuring range	5...300 l/min	0.3...18 m <sup>3</sup> /h	80...4755 gph	1.3...79.3 gpm
Display range	-360...360 l/min	-21.6...21.6 m <sup>3</sup> /h	-5705...5705 gph	-95.1...95.1 gpm
Resolution	0.5 l/min	0.02 m <sup>3</sup> /h	5 gph	0.1 gpm
Analog start point ASP	0...240 l/min	0...14.4 m <sup>3</sup> /h	0...3800 gph	0...63.4 gpm
Analog end point AEP	60...300 l/min	3.6...18 m <sup>3</sup> /h	955...4755 gph	15.9...79.3 gpm
Low flow cut-off LFC	$< 15 \text{ l/min}$	$< 0.9 \text{ m}^3/\text{h}$	$< 240 \text{ gph}$	$< 4 \text{ gpm}$
In steps of	0.5 l/min	0.02 m <sup>3</sup> /h	5 gph	0.1 gpm
Measuring dynamics	1:60			

Temperature monitoring		
Measuring range	-20...80 °C	-4...176 °F
Display range	-40...100 °C	-40...212 °F
Resolution	0.2 °C	0.5 °F
Analog start point	-20...60 °C	-4...140 °F
Analog end point	0...80 °C	32...176 °F
In steps of	0.2 °C	0.5 °F

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	
Temperature drift	$\pm 0,0333 \text{ }^\circ\text{C} / \text{K}; \pm 0,0599 \text{ }^\circ\text{F} / \text{K}$
Accuracy [K]	$\pm 1 (25 \text{ }^\circ\text{C}; Q > 15 \text{ l/min}) / \pm 1 (77 \text{ }^\circ\text{F}; Q > 4 \text{ gpm})$

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Reaction times		
Flow monitoring		
Response time [s]		0.35; (dAP = 0)
Damping process value dAP [s]		0...5
Temperature monitoring		
Dynamic response T05 / T09 [s]		T09 = 3 (Q > 15 l/min) / T09 = 3 (Q > 4 gpm)
Software / programming		
Parameter setting options		display can be deactivated; Display unit; empty pipe detection
Operating conditions		
Ambient temperature	-10...60 °C	14...140 °F
Storage temperature	-25...80 °C	-13...176 °F
Protection		IP 65; IP 67
Tests / approvals		
EMC	DIN EN 60947-5-9	
CPA approval	model number	004MI
	accuracy class	-
	maximum allowable error	± 1,5 % FS
	Q (min)	0,3 m³/h
	Q (t)	-
	Q (max)	18 m³/h
	Medium temperature	-10...70 °C
	Medium temperature	14...158 °F
Shock resistance	DIN EN 60068-2-27	20 g (11 ms)
Vibration resistance	DIN EN 60068-2-6	5 g (10...2000 Hz)
MTTF [years]		85
Pressure equipment directive		sound engineering practice; can be used for group 2 fluids; group 1 fluids on request
Mechanical data		
Weight [g]		3050
Housing		rectangular
Inlet pipe length		3 x DN
Outlet pipe length		1 x DN
Dimensions [mm]		200 x 103 x 117
Material		stainless steel (1.4404 / 316L); stainless steel (1.4571/316Ti); PEI; FKM; PBT-GF20; TPE-U
Materials (wetted parts)		Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: NBR fiber-reinforced Gasket; FKM; stainless steel (1.4571/316Ti); PEEK
Process connection		threaded connection G 2 external thread DN50 flat seal
Displays / operating elements		
Display	Display unit	6 x LED, green (l/min, m³/h, gpm, gph, °C, °F)
	Function display	1 x LED, yellow (10³)
	Measured values	alphanumeric display, 4-digit
	Programming	alphanumeric display, 4-digit
Display unit		l/min; m³/h; gpm; gph; °C; °F

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## Magnetic-inductive flow meter

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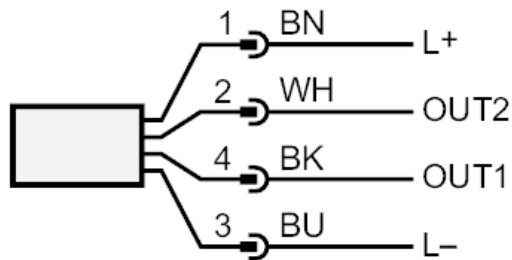
Accessories	
Items supplied	sealings: 2, Centellen Label
Remarks	
Remarks	MW = Measured value MEW = Final value of the measuring range
Pack quantity	1 pcs.

### Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



### Connection



OUT1: analog output Temperature monitoring  
OUT2: analog output Volumetric flow quantity monitoring  
Core colors :  
BK = black  
BN = brown  
BU = blue  
WH = white

# SM9004



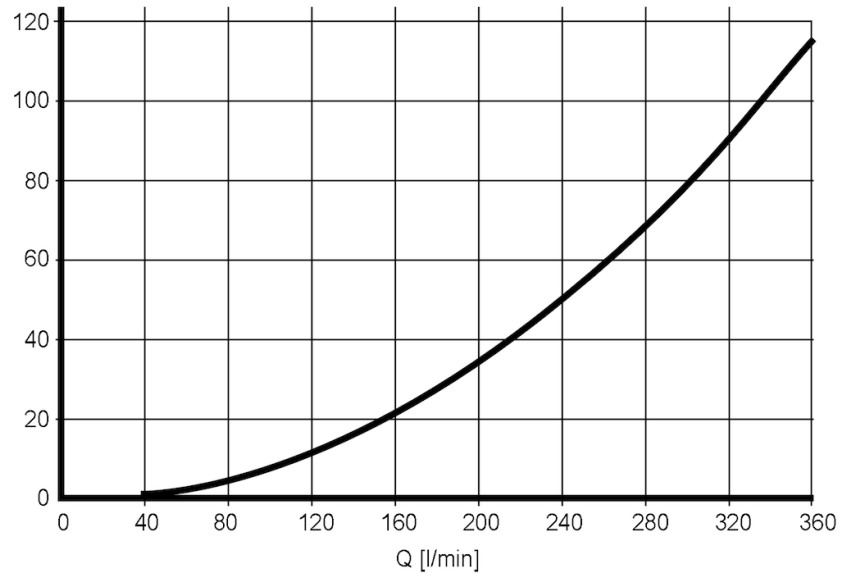
## Magnetic-inductive flow meter

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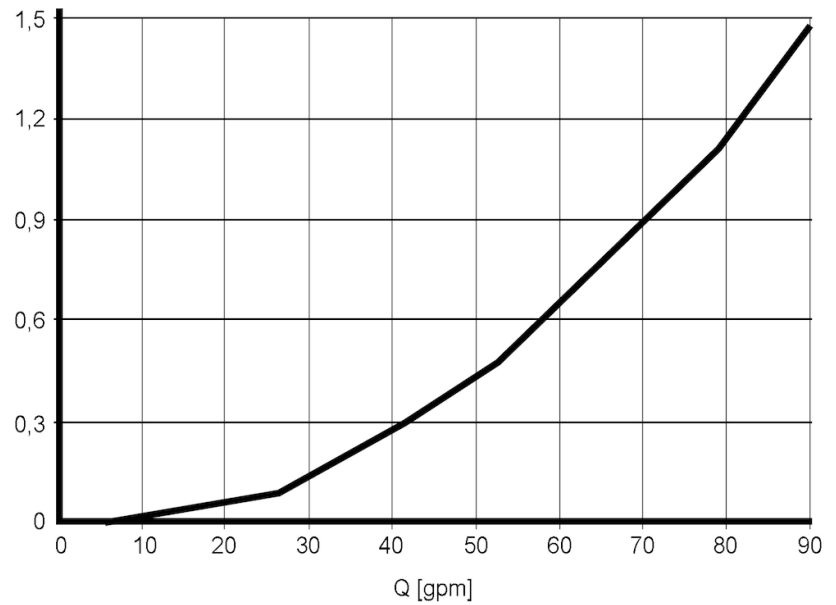
### Diagrams and graphs

#### Pressure loss

dP [mbar] DN50



dP [psi]



dP Pressure loss

Q volumetric flow quantity