

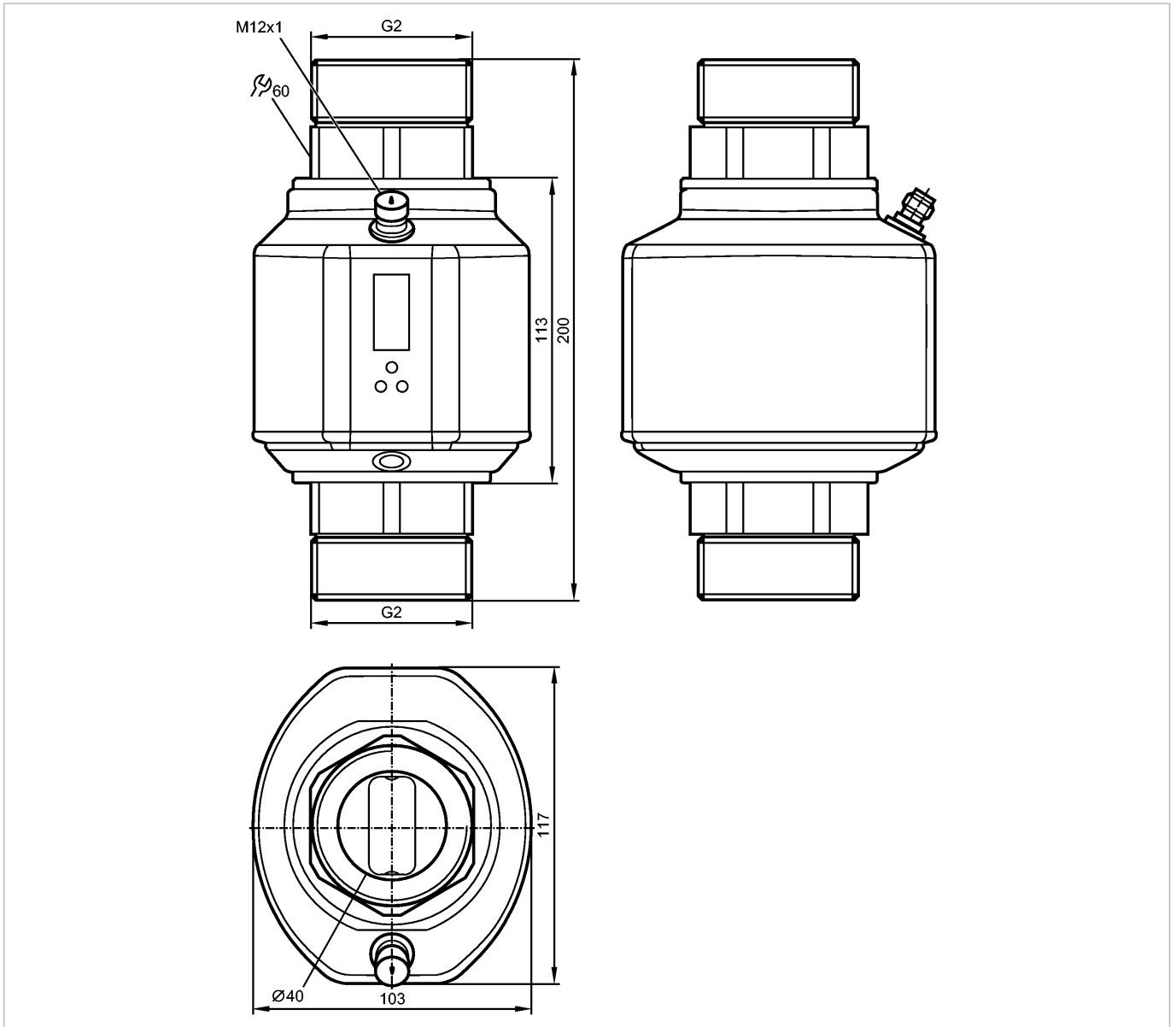


SM2004

SMR21XGX50KG/US



Flow sensors



Product characteristics

Magnetic-inductive flow meter

Quick disconnect

Process connection: G2 flat seal

connection to pipe by means of an adapter

Empty pipe detection

2 outputs

OUT1 = analogue signal temperature

OUT2 = analogue signal flow

4-digit alphanumeric display

Display units: l/min, m³/h, gpm, gph, °C, °F

Measuring range

5...600 l/min (1.3...158.5 gpm)

Application



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Flow sensors

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)
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Pressure rating [psi]	232
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Medium temperature [$^\circ\text{C}$ / $^\circ\text{F}$]	-10...70 / 14...158
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Electrical data

Electrical design	DC
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Operating voltage [V]	18...32 DC; to DIN EN 50178, SELV, PELV
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Current consumption [mA]	< 150
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Insulation resistance [$\text{M}\Omega$]	> 100 (500 V DC)
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Protection class	III
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Reverse polarity protection	yes
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Outputs

Output function	OUT1: analogue (4...20 mA scalable) OUT2: Analogue (4...20 mA scalable)
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Analog output	4...20 mA; $\leq 22 \text{ mA}$
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Max. load [Ω]	500
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Measuring / setting range

Flow monitoring

Measuring range	5...600 l/min	0.3...36 m ³ /h	80...9510 gph	1.3...158.5 gpm
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Display range	-720...720 l/min	-43.2...43.2 m ³ /h	-11410...11410 gph	-190.2...190.2 gpm
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Resolution	0.5 l/min	0.02 m ³ /h	5 gph	0.1 gpm
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Analog start point, ASP	0...480 l/min	0...28.8 m ³ /h	0...7610 gph	0...126.8 gpm
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Analog end point, AEP	120...600 l/min	7.2...36 m ³ /h	1900...9510 gph	31.7...158.5 gpm
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Low flow cut-off, LFC	5...15 l/min	0.3...0.9 m ³ /h	80...240 gph	1.3...4 gpm
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in steps of	0.5 l/min	0.02 m ³ /h	5 gph	0.1 gpm
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Measuring dynamics	1:120			
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Temperature monitoring

Measuring range [$^\circ\text{C}$ / $^\circ\text{F}$]	-20...80 / -4...176
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Display range [$^\circ\text{C}$ / $^\circ\text{F}$]	-40...100 / -40...212
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Resolution [$^\circ\text{C}$ / $^\circ\text{F}$]	0.2 / 0.5
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Analog start point, ASP [$^\circ\text{C}$ / $^\circ\text{F}$]	-20...60 / -4...140
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Analog end point, AEP [$^\circ\text{C}$ / $^\circ\text{F}$]	0...80 / 32...176
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in steps of [$^\circ\text{C}$ / $^\circ\text{F}$]	0.2 / 0.5
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Accuracy / deviations

Flow monitoring

Accuracy [% of the final value]	$\pm (0.8\% \text{ MW} + 0.5\% \text{ MEW})^*$
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Repeatability	$\pm 0.2\% \text{ MEW}$
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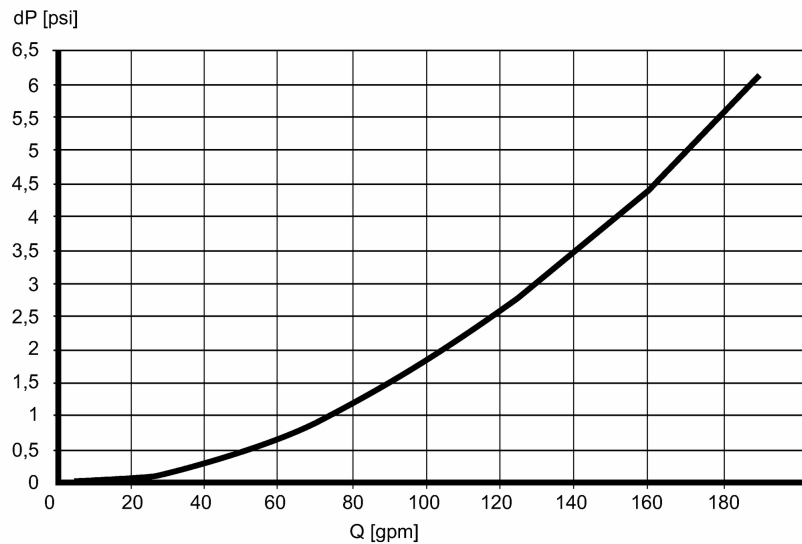
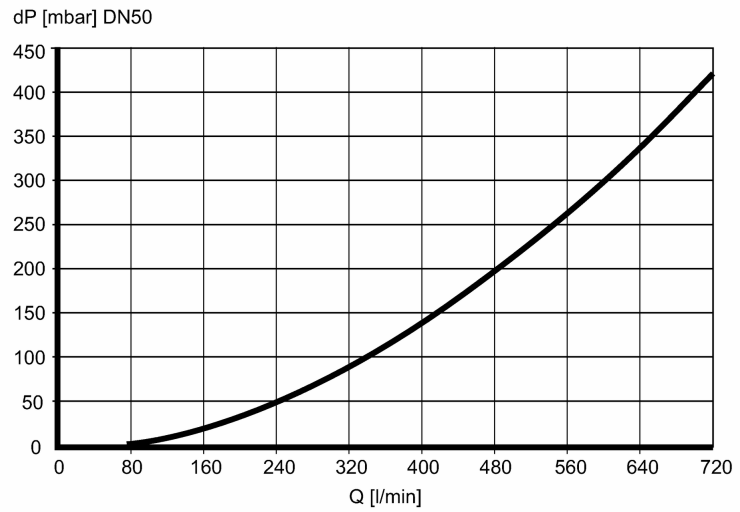
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Flow sensors

Pressure loss (dP) / flow rate (Q)



Temperature monitoring

Accuracy [K] ± 1 (25 °C; Q > 15 l/min) / ± 1 (77 °F; Q > 4 gpm)

Temperature drift ± 0.0333 °C / K; ± 0.0599 °F / K

Reaction times

Power-on delay time [s] 5

Flow monitoring

Response time [s] < 0.35 (dAP = 0)

Damping, dAP [s] 0...5

Temperature monitoring

Response time [s] T09 = 3 (Q > 15 l/min) / T09 = 3 (Q > 4 gpm)

Software / programming

Programming options Display can be deactivated; Display unit; Empty pipe detection

Environment

Ambient temperature [°C / °F] -10...60 / 14...140

Storage temperature [°C / °F] -25...80 / -13...176

Protection IP 65 / IP 67

Tests / approvals

Pressure equipment directive article 3, section 3 - sound engineering practice

EMC DIN EN 60947-5-9



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Flow sensors

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]		78

Mechanical data

Process connection	G2 flat seal	
Materials (wetted parts)	stainless steel 316L / 1.4404; stainless steel 316Ti / 1.4571; PEEK (polyether ether ketone); Hastelloy C-4 (2.4610); Centellen; FKM	
Housing materials	stainless steel 316L / 1.4404; stainless steel 316Ti / 1.4571; PEI; FKM; PBT-GF 20; elastolan	
Weight [kg]	3.065	

Displays / operating elements

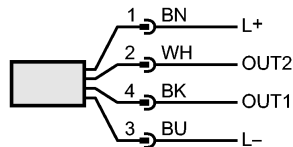
Display	Display unit 6 x LED green (l/min, m ³ /h, gpm, gph, °C, °F) Function display 1 x LED yellow (10 ³) Measured values 4-digit alphanumeric display Programming 4-digit alphanumeric display
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Electrical connection

Connection	M12 connector; gold-plated contacts
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Wiring

- Core colors
- BK black
 - BN brown
 - BU blue
 - WH white



Colours to DIN EN 60947-5-2

 OUT1: analogue output temperature
 OUT2: analogue output flow rate

Accessories

Accessories (included)	2 x packing washer (Centellen); Label
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Remarks

Remarks	*) Q > 15l/min, medium and ambient temperature +22 °C ± 4K (+72 °F ± 7 °F) MW = measured value MEW = final value of the measuring range
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Pack quantity [piece]	1
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