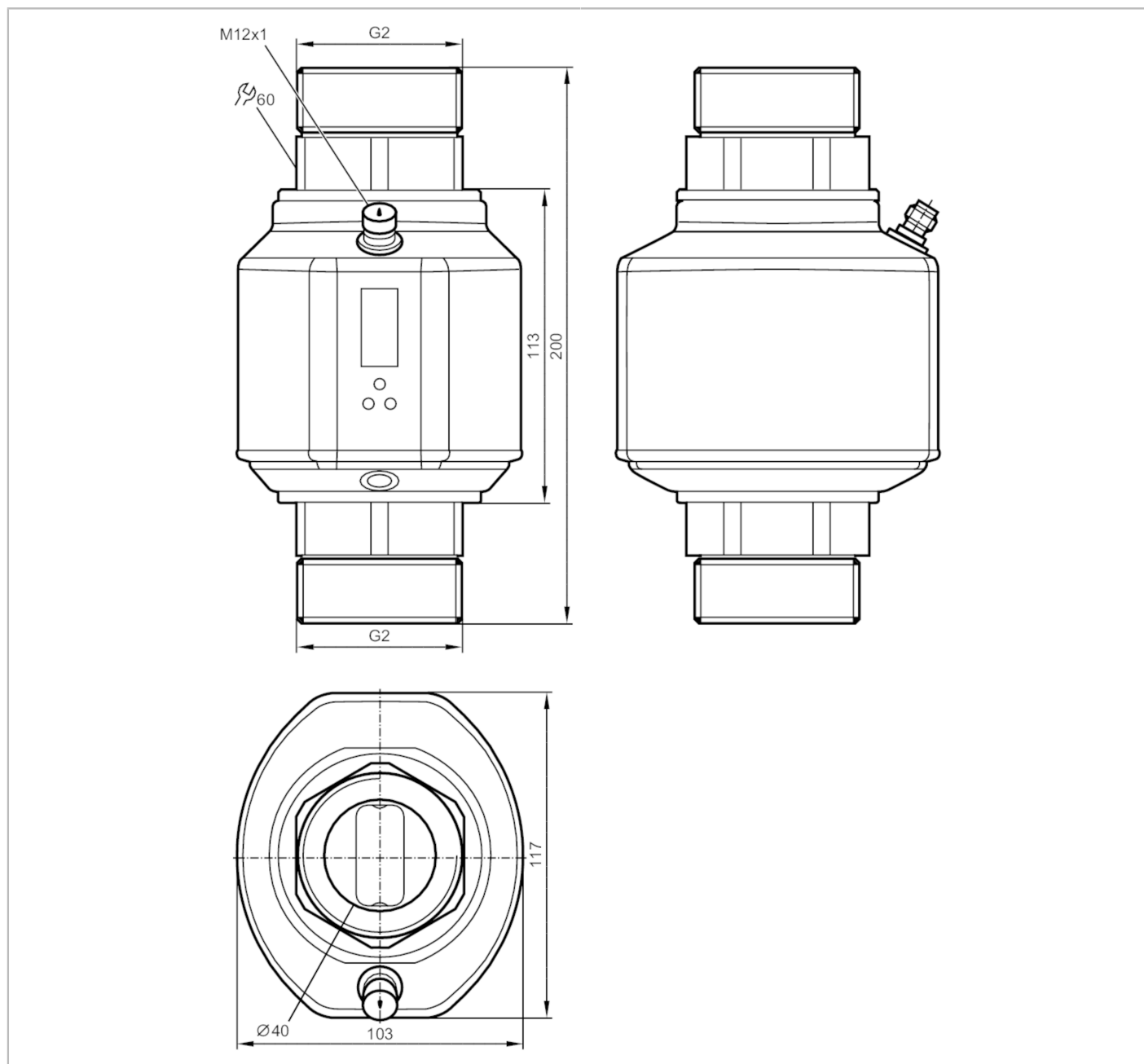


# SM2001



## Magnetic-inductive flow meter

SMR21XGXFRKG/US



Application	
Application	totaliser function; empty pipe detection; 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	[°F] 14...158
Pressure rating	[bar] 16
Pressure rating	[psi] 232

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Electrical data		
Operating voltage	[V]	18...32 DC; (according to EN 50178 SELV/PELV)
Current consumption	[mA]	< 150
Protection class		III
Reverse polarity protection		yes
Power-on delay time	[s]	5
Inputs		
Inputs		counter reset
Outputs		
Total number of outputs		2
Output signal		switching signal; analogue signal; pulse signal; frequency 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]	250; (per output)
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
Frequency of the output	[Hz]	0.1...10000
Measuring/setting range		
Measuring range		80...9600 gph
Display range		-11520...11520 gph
Resolution		5 gph
Set point SP		130...9600 gph
Reset point rP		80...9550 gph
Analogue start point ASP		0...7680 gph
Analogue end point AEP		1920...9600 gph
Low flow cut-off LFC		< 240 gph
Measuring dynamics		1:120
In steps of		5 gph
		0.1 gpm
volumetric flow quantity monitoring		
Pulse value		0.02...160 E06 gal
In steps of		0.02 gal
Pulse length	[s]	0,008...2

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Temperature monitoring		
Measuring range	[°F]	-4...176
Display range	[°F]	-40...212
Resolution	[°F]	0.5
Set point SP	[°F]	-2...176
Reset point rP	[°F]	-3...175
Analogue start point	[°F]	-4...140
Analogue end point	[°F]	32...176
In steps of	[°F]	0.5
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)		$\pm (0,8 \% MW + 0,5 \% MEW)$ ; (4 gpm; medium and operating temperature: 72 °F $\pm$ 7 °F)
Repeatability		$\pm 0,2\% MEW$
Temperature monitoring		
Temperature drift		$\pm 0,0185$ °F / K
Accuracy	[K]	$\pm 1$ (77 °F; Q > 4 gpm)
Response times		
Flow monitoring		
Response time	[s]	0.35; (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 = 3 (Q > 4 gpm)
Software / programming		
Parameter setting options		Flow monitoring; quantity meter; Preset counter; Temperature monitoring; hysteresis / window; normally open / normally closed; switching logic; current/voltage/frequency/pulse output; start-up delay; display can be deactivated; Display unit; empty pipe detection
Interfaces		
Communication interface		IO-Link
Transmission type		COM2 (38,4 kBaud)
IO-Link revision		1.1
SDCI standard		IEC 61131-9 CDV
IO-Link device ID		390d / 00 01 86h
Profiles		Smart Sensor: Process Data Variable; Device Identification
SIO mode		yes
Required master port type		A
Process data analogue		3
Process data binary		2
Min. process cycle time	[ms]	5

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## Magnetic-inductive flow meter

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Operating conditions		
Ambient temperature	[°F]	14...140
Storage temperature	[°F]	-13...176
Protection		IP 65; IP 67
Tests / approvals		
EMC		DIN EN 60947-5-9
Shock resistance		DIN EN 60068-2-27
Vibration resistance		DIN EN 60068-2-6
MTTF	[years]	78
Pressure Equipment Directive		Sound Engineering Practice; can be used for group 2 fluids; group 1 fluids on request
Mechanical data		
Weight	[g]	3060.8
Materials		stainless steel (1.4404 / 316L); stainless steel (1.4571/316Ti ); PEI; FKM; PBT-GF20; TPE-U
Materials (wetted parts)		stainless steel (1.4404 / 316L); stainless steel (1.4571/316Ti ); PEEK; Centellen; FKM
Process connection		threaded connection G 2 flat seal
Displays / operating elements		
Display	Display unit	6 x LED, green (gpm, gph, gal, °F, 10 <sup>3</sup> , 1000 x 10 <sup>3</sup> )
	switching status	2 x LED, yellow
	measured values	alphanumeric display, 4-digit
	programming	alphanumeric display, 4-digit
Accessories		
Accessories (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; Contacts: gold-plated		

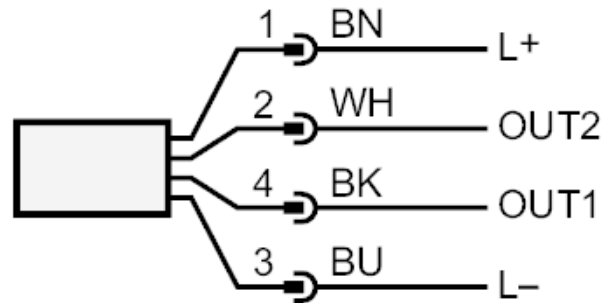
# SM2001



## Magnetic-inductive flow meter

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### Connection



	colours to DIN EN 60947-5-2
OUT1:	switching output empty pipe detection switching output volumetric flow quantity monitoring frequency output volumetric flow quantity monitoring Pulse output quantity meter signal output Preset counter IO-Link
OUT2:	switching output empty pipe detection 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

# SM2001

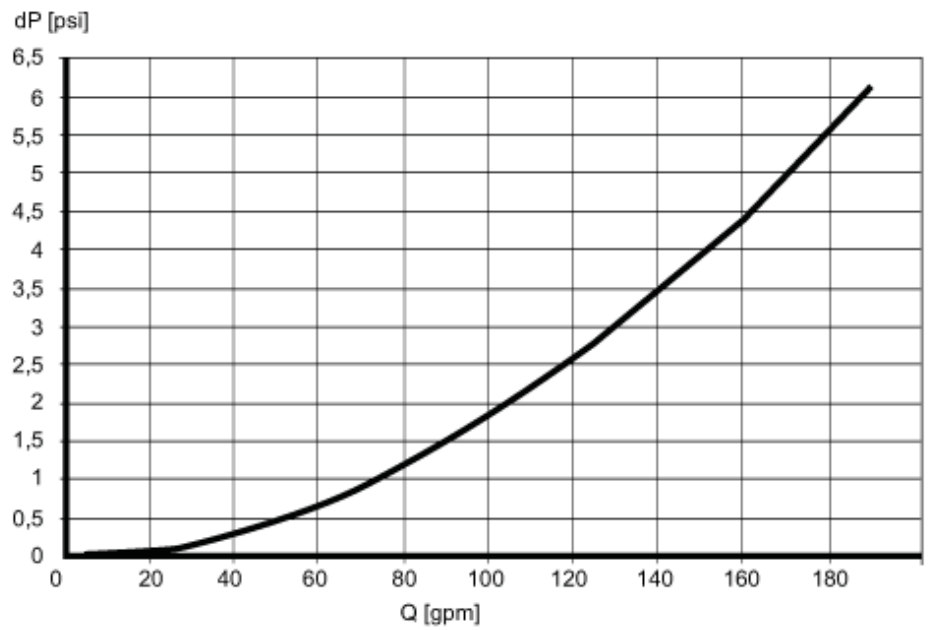


## Magnetic-inductive flow meter

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### Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity