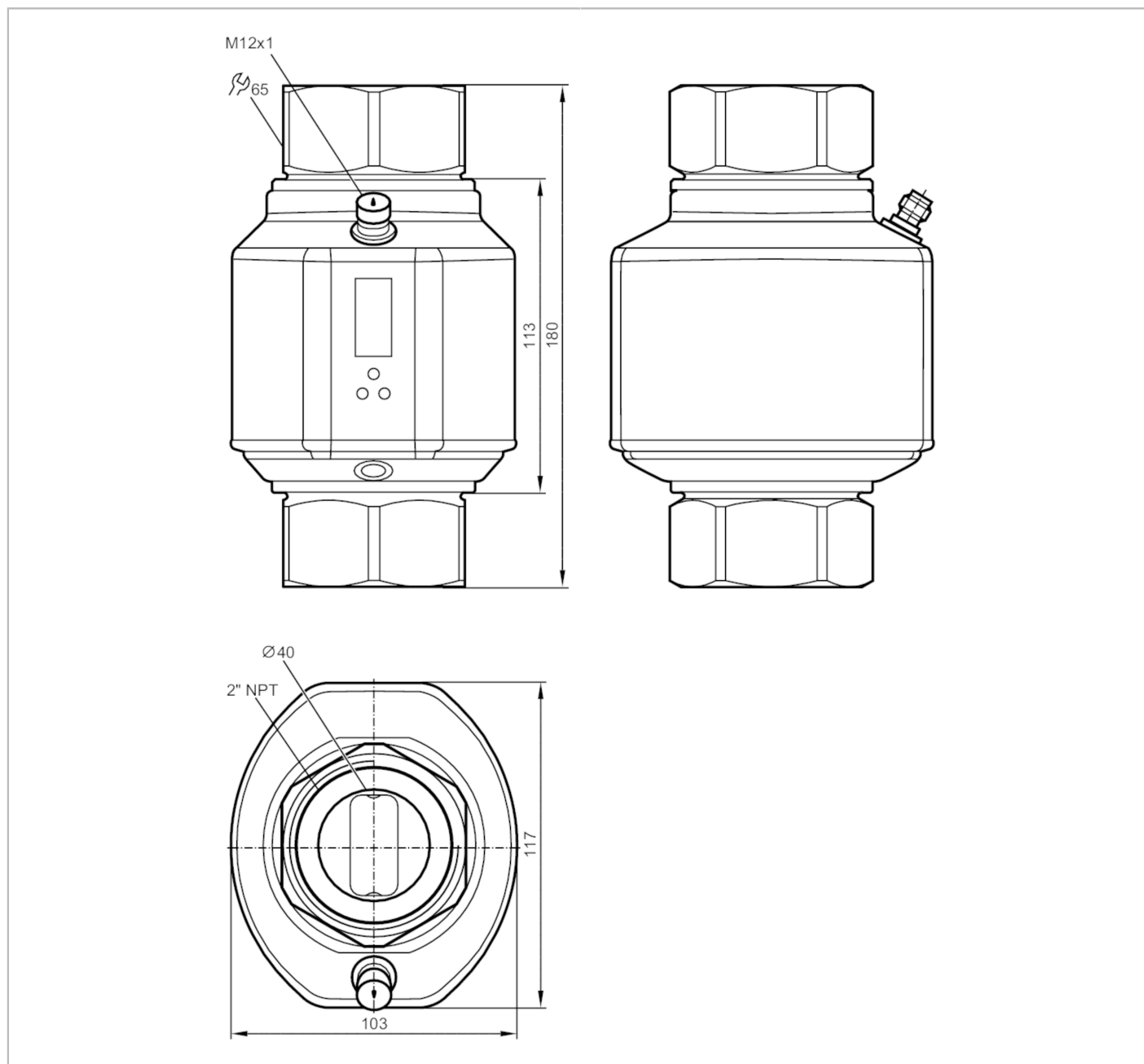


SM2601



Magnetic-inductive flow meter

SMN21XGXFRKG/US-100



Application	
Application	totaliser function; empty pipe detection; for industrial applications
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	1.3...160 gpm
Display range	-11520...11520 gph	-190...190 gpm
Resolution	5 gph	0.1 gpm
Set point SP	130...9600 gph	2.1...160 gpm
Reset point rP	80...9550 gph	1.3...159.2 gpm
Analogue start point ASP	0...7680 gph	0...128 gpm
Analogue end point AEP	1920...9600 gph	32...160 gpm
Low flow cut-off LFC	< 240 gph	< 4 gpm
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]	± 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		390 d / 00 01 86 h
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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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	20 g (11 ms)
Vibration resistance		DIN EN 60068-2-6	5 g (10...2000 Hz)
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]	2728	
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; FKM	
Process connection		threaded connection 2 NPT	
Displays / operating elements			
Display	Display unit	6 x LED, green (gpm, gph, gal, °F, 10 ³ , 1000 x 10 ³)	
	switching status	2 x LED, yellow	
	measured values	alphanumeric display, 4-digit	
	programming	alphanumeric display, 4-digit	
Accessories			
Accessories (supplied)		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			



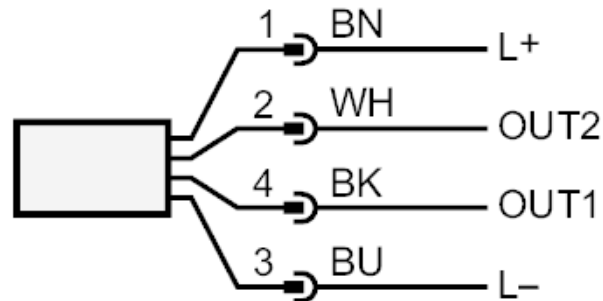
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Connection



	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

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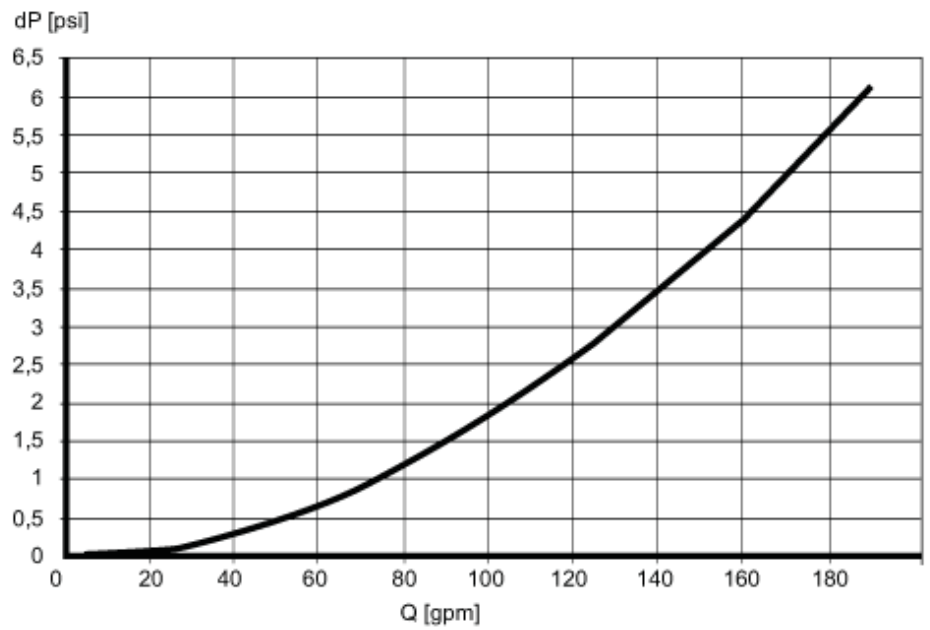


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Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity