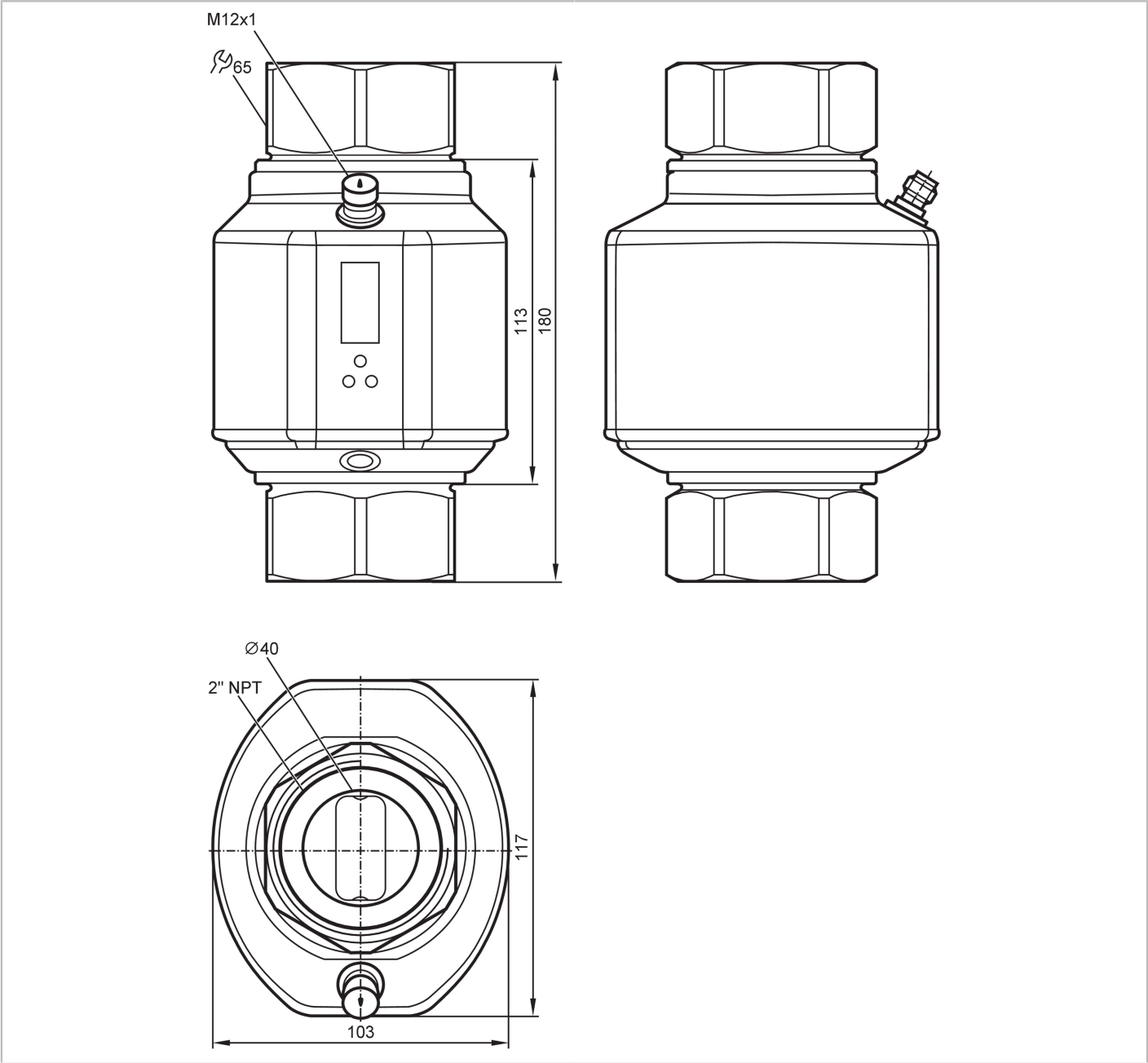


SM2601



Magnetic-inductive flow meter

SMN21XGXFRKG/US-100



CE CRN cUL US LISTED EC 1935/2004 FCM IO-Link UK CA

Product characteristics		
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1	
Measuring range	80...9600 gph	1.3...160 gpm
Process connection	threaded connection 2" NPT Internal thread DN50	
Application		
Special feature	gold-plated contacts	
Application	Totalizer function; empty pipe detection; for industrial applications	
Media	Conductive liquids; water; water-based media	
Note on media	conductivity: ≥ 20 μS/cm	
	viscosity: < 70 mm²/s (40 °C)	

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Medium temperature	[°F]	14...194		
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 digital outputs: 2; Number of analog outputs: 1

Inputs	
Inputs	counter reset

Outputs	
Total number of outputs	2
Output signal	switching signal; analog signal; pulse signal; frequency signal; IO-Link; (configurable)
Electrical design	PNP/NPN
Number of digital outputs	2
Output function	normally open / closed; (configurable)
Max. voltage drop switching output DC	[V] 2
Permanent current rating of switching output DC	[mA] 250; (per output)
Number of analog outputs	1
Analog current output	[mA] 4...20; (scalable)
Max. load	[Ω] 500
Analog 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	yes (non-latching)
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
Analog start point ASP	0...7680 gph	0...128 gpm
Analog end point AEP	1920...9600 gph	32...160 gpm
Low flow cut-off LFC	< 240 gph	< 4 gpm
In steps of	5 gph	0.1 gpm



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Measuring dynamics		1:120	
Volumetric flow quantity monitoring			
Pulse value		0.02...160 E06 gal	
In steps of		0.02 gal	
Pulse length [s]		0,008...2	
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	
Analog start point [°F]		-4...140	
Analog end point [°F]		32...176	
In steps of [°F]		0.5	
Accuracy / deviations			
Flow monitoring			
Accuracy (in the measuring range)		± (0,8 % MW + 0,5 % MEW)	
Repeatability		± 0,2% MEW	
Temperature monitoring			
Temperature drift		± 0,0185 °F / K	
Accuracy [K]		± 1 (77 °F; Q > 4 gpm)	
Reaction times			
Flow monitoring			
Response time [s]		0.35; (dAP = 0)	
Delay time programmable dS, dr [s]		0...50	
Damping process value 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 / 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	
Profiles		Smart Sensor - SSP 0	Generic Profiled Sensor
		Function	Device identification
		Function	Process data variable
SIO mode		yes	
Required master port class		A	

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Process data analog	3	
Process data binary	2	
Min. process cycle time [ms]	5	
Supported DeviceIDs	Type of operation	DeviceID
	default	390

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]	85	
UL approval	UL approval number	I008
	File number UL	E174189
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight [g]	2643	
Housing	rectangular	
Inlet pipe length	3 x DN	
Outlet pipe length	1 x DN	
Dimensions [mm]	180 x 103 x 117	
Material	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 Internal thread DN50	

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		
Items supplied	Label	

Remarks		
Remarks	MW = Measured value	
	MEW = Final value of the measuring range	
Pack quantity	1 pcs.	

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



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Connection



- OUT1:

Colors to DIN EN 60947-5-2
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
analog output Volumetric flow quantity monitoring
analog output Temperature monitoring
Input counter reset
- BK =

black
- BN =

brown
- BU =

blue
- WH =

white

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Diagrams and graphs

Pressure loss

