

SM9601



Magnetic-inductive flow meter

SMN32XGXFRKG/US-100



Product characteristics		
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1	
Measuring range	80...4800 gph	1.3...80 gpm
Process connection	threaded connection 1 1/2" NPT Internal thread DN40	
Application		
System	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)	



Magnetic-inductive flow meter

SMN32XGXFRKG/US-100

Medium temperature	[°F]	14...194
Pressure rating		16 bar 1.6 MPa
MAWP (for applications according to CRN)	[bar]	16

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...4800 gph	1.3...80 gpm
Display range	-5760...5760 gph	-96...96 gpm
Resolution	5 gph	0.1 gpm
Set point SP	105...4800 gph	1.7...80 gpm
Reset point rP	80...4775 gph	1.3...79.6 gpm
Analog start point ASP	0...3840 gph	0...64 gpm
Analog end point AEP	960...4800 gph	16...80 gpm
Low flow cut-off LFC	< 240 gph	< 4 gpm
In steps of	5 gph	0.1 gpm



Magnetic-inductive flow meter

SMN32XGXFRKG/US-100

Measuring dynamics	1:60
Volumetric flow quantity monitoring	
Pulse value	0.02...80 E06 gal
In steps of	0.02 gal
Pulse length [s]	0,016...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)	$\pm (0,8 \% \text{ MW} + 0,5 \% \text{ MEW})$
Repeatability	$\pm 0,2\% \text{ MEW}$
Temperature monitoring	
Temperature drift	$\pm 0,0185 \text{ }^{\circ}\text{F} / \text{K}$
Accuracy [K]	$\pm 1 (77 \text{ }^{\circ}\text{F}; Q > 4 \text{ gpm})$
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: Process Data Variable; Device Identification
SIO mode	yes
Required master port class	A
Process data analog	3
Process data binary	2

SM9601



Magnetic-inductive flow meter

SMN32XGXFRKG/US-100

Min. process cycle time	[ms]	5
Supported DeviceIDs	Type of operation	DeviceID
	default	392

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]	2776.5
Housing		rectangular
Dimensions	[mm]	170 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 1 1/2" NPT Internal thread DN40

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		
-----------------------	--	--

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



SM9601



Magnetic-inductive flow meter

SMN32XGXFRKG/US-100

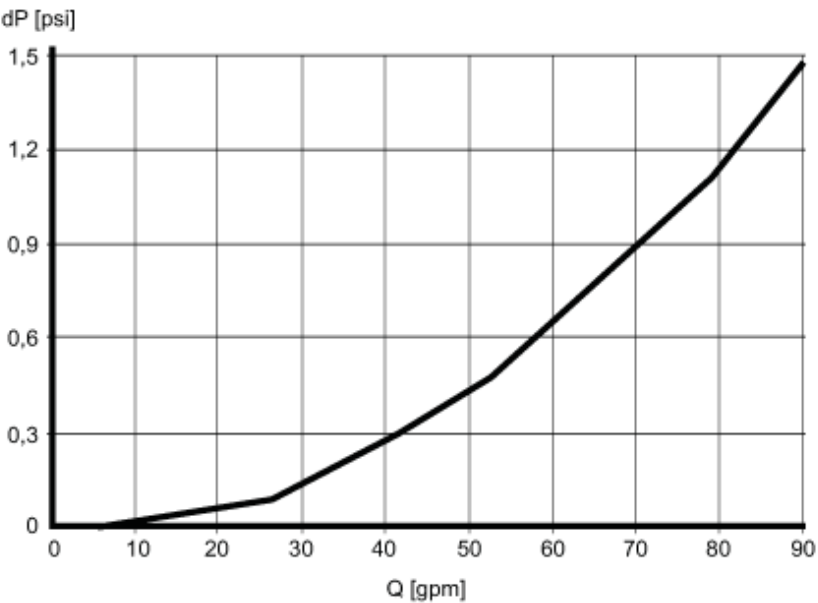
Connection



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

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity