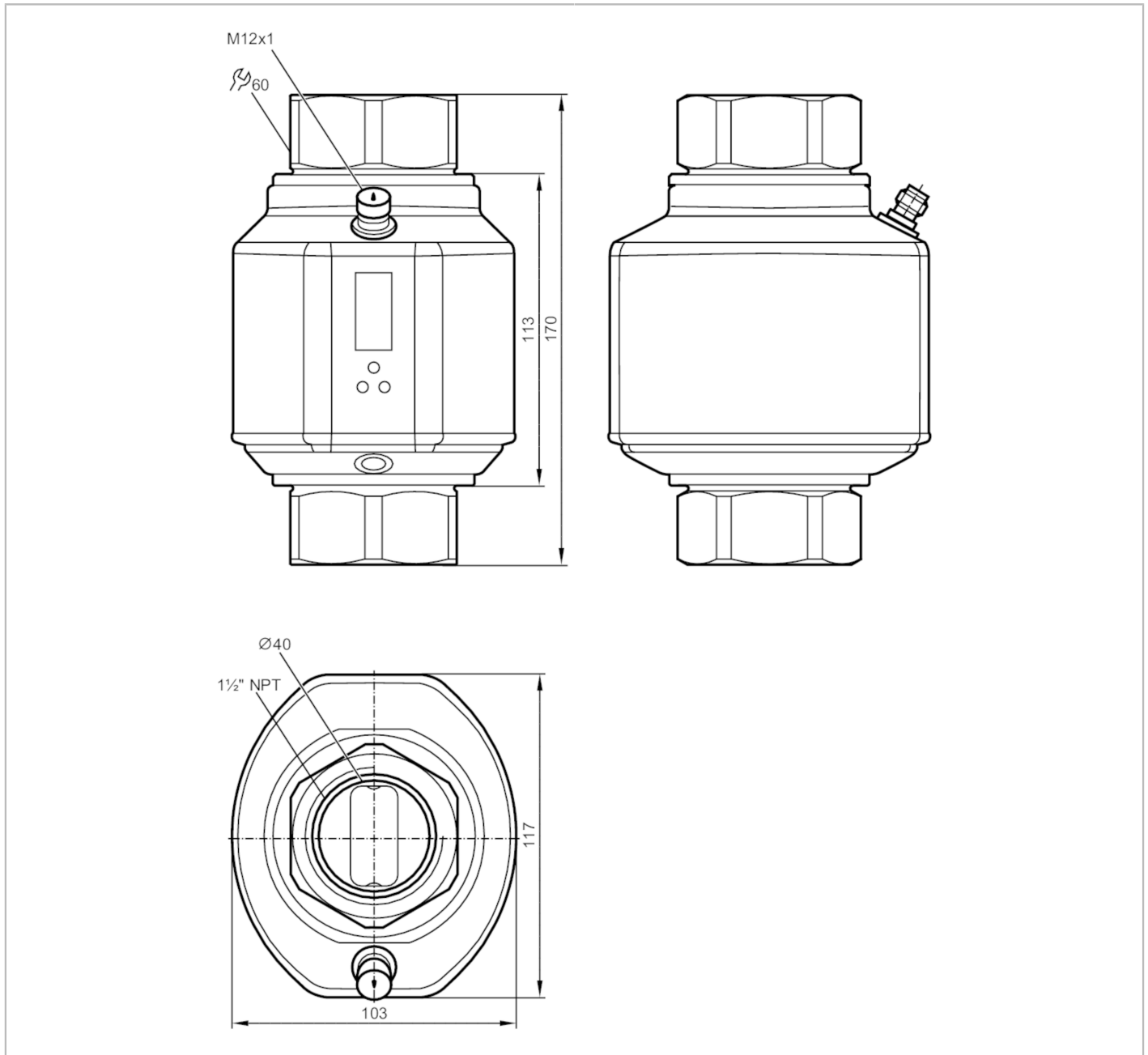


# SM9601



## 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 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: $\geq 20 \mu\text{S/cm}$ viscosity: $< 70 \text{ mm}^2/\text{s}$ (40 °C)

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Medium temperature	[°F]	14...194
Pressure rating	[bar]	16
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

### Inputs / outputs

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1
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### Inputs

Inputs	counter reset
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### 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
Measuring dynamics		1:60

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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)	$\pm (0,8 \% MW + 0,5 \% MEW)$
Repeatability	$\pm 0,2\% MEW$
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
Min. process cycle time [ms]	5

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## Magnetic-inductive flow meter

SMN32XGXFRKG/US-100

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
Vibration resistance		DIN EN 60068-2-6
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
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 DN40

### 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

Items supplied	Label
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### 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



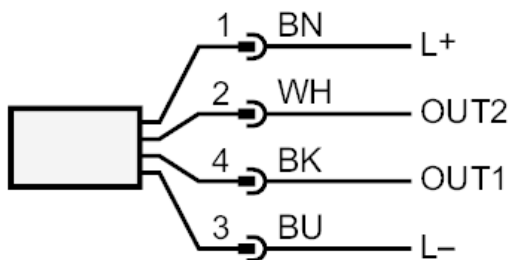
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## Magnetic-inductive flow meter

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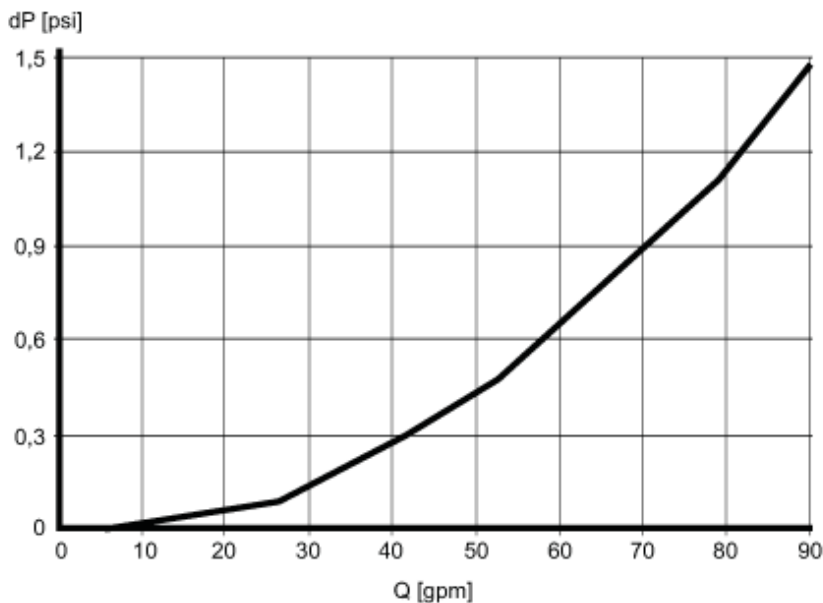
### Connection



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

### Diagrams and graphs

#### Pressure loss



dP Pressure loss

Q volumetric flow quantity