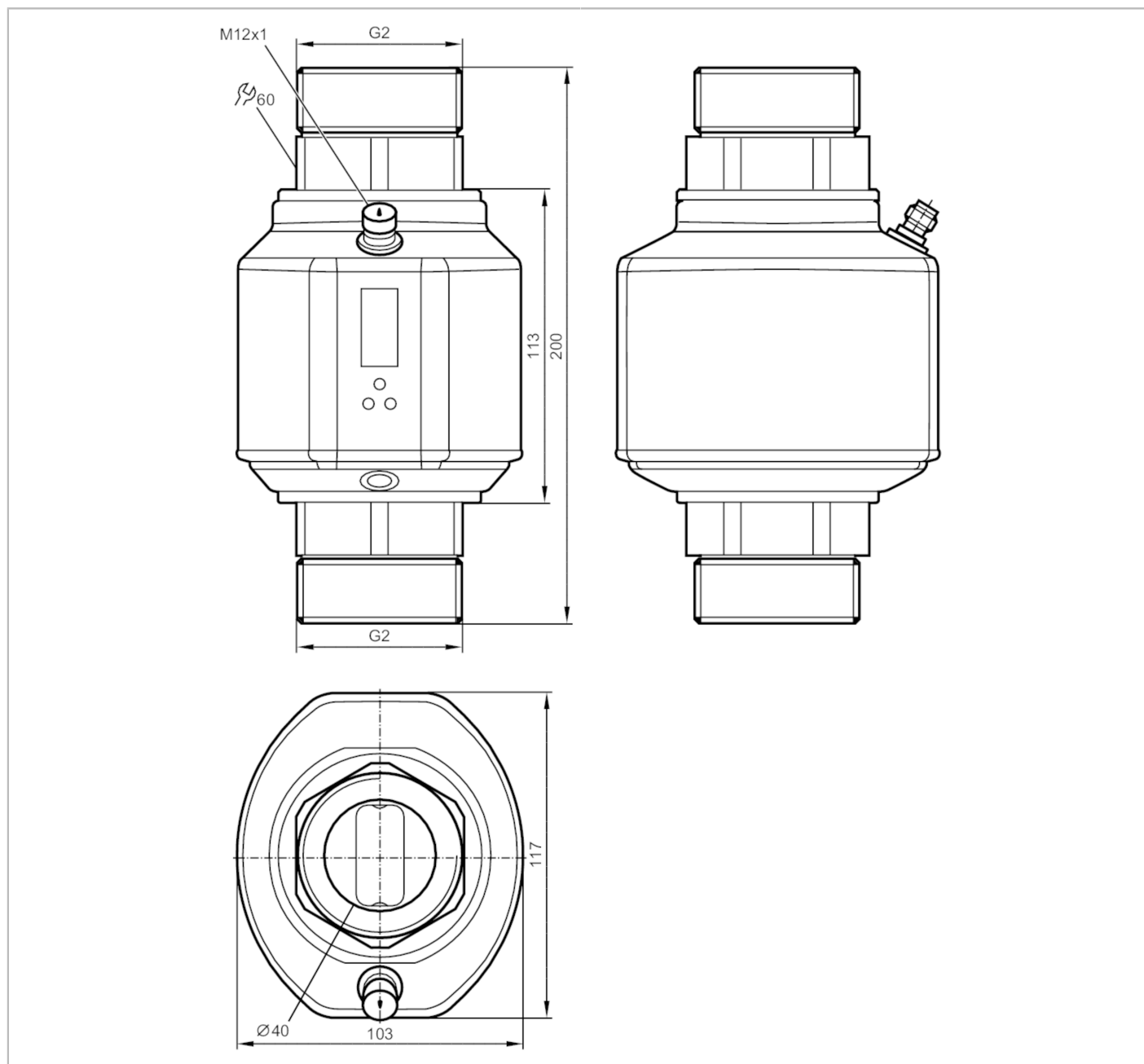


SM9100



Magnetic-inductive flow meter

SMR21XGXFRKG/US



ACS CE PA CRN cUL^{us} LISTED IO-Link KTW/W270 Reg31 UK CA

Product characteristics	
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1
Measuring range	5...300 l/min 0.3...18 m ³ /h
Process connection	threaded connection G 2 DN50 flat seal
Application	
System	gold-plated contacts
Application	Totalizer function; empty pipe detection; for industrial applications
Installation	connection to pipe by means of an adapter
Media	Conductive liquids; water; water-based media

SM9100



Magnetic-inductive flow meter

SMR21XGXFRKG/US

Note on media		conductivity: $\geq 20 \mu\text{S/cm}$ viscosity: $< 70 \text{ mm}^2/\text{s}$ (40 °C)
Medium temperature	[°C]	-10...90
Pressure rating	[bar]	16
Pressure rating	[MPa]	1.6
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
------------------------------	-----------------------------------------------------------

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	5...300 l/min	0.3...18 m ³ /h
Display range	-360...360 l/min	-21.6...21.6 m ³ /h
Resolution	0.5 l/min	0.02 m ³ /h
Set point SP	6.5...300 l/min	0.4...18 m ³ /h
Reset point rP	5...298.5 l/min	0.3...17.9 m ³ /h
Analog start point ASP	0...240 l/min	0...14.4 m ³ /h
Analog end point AEP	60...300 l/min	3.6...18 m ³ /h

SM9100



Magnetic-inductive flow meter

SMR21XGXFRKG/US

Low flow cut-off LFC	< 15 l/min	< 0.9 m ³ /h
In steps of	0.5 l/min	0.02 m ³ /h
Measuring dynamics	1:60	
Volumetric flow quantity monitoring		
Pulse value	0.0001...300 x 10 ³ m ³	
In steps of	0.0001 m ³	
Pulse length [s]	0,016...2	
Temperature monitoring		
Measuring range [°C]	-20...80	
Display range [°C]	-40...100	
Resolution [°C]	0.2	
Set point SP [°C]	-19.2...80	
Reset point rP [°C]	-19.6...79.6	
Analog start point [°C]	-20...60	
Analog end point [°C]	0...80	
In steps of [°C]	0.2	
Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)	± (0,8 % MW + 0,5 % MEW)	
Repeatability	± 0,2% MEW	
Temperature monitoring		
Temperature drift	± 0,0333 °C / K	
Accuracy [K]	± 1 (25 °C; Q > 15 l/min)	
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 > 15 l/min)	
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	

SM9100



Magnetic-inductive flow meter

SMR21XGXFRKG/US

Process data analog		3
Process data binary		2
Min. process cycle time [ms]		5
Supported DeviceIDs	Type of operation	DeviceID
	default	359

Operating conditions		
Ambient temperature [°C]		-10...60
Storage temperature [°C]		-25...80
Protection		IP 65; IP 67

Tests / approvals		
EMC	DIN EN 60947-5-9	
CPA approval	model number	004MI
	accuracy class	-
	maximum allowable error	± 1,5 % FS
	Q (min)	0,3 m³/h
	Q (t)	-
	Q (max)	18 m³/h
	Medium temperature	-10...70°C
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]		3050
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; Centellen; EPDM	
Process connection	threaded connection G 2 DN50 flat seal	

Displays / operating elements		
Display	Display unit	6 x LED, green (l/min, m³/h, l, m³, 10³, °C)
	Switching status	2 x LED, yellow
	Measured values	alphanumeric display, 4-digit
	Programming	alphanumeric display, 4-digit

Accessories		
Items supplied	sealings: 2, Centellen	
	Label	

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

SM9100



Magnetic-inductive flow meter

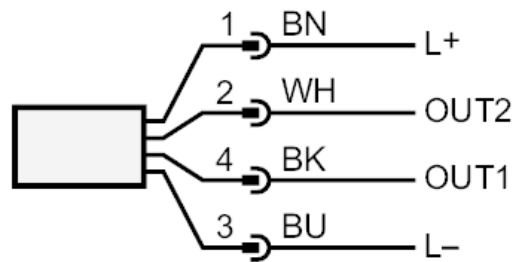
SMR21XGXFRKG/US

Electrical connection

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



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

SM9100

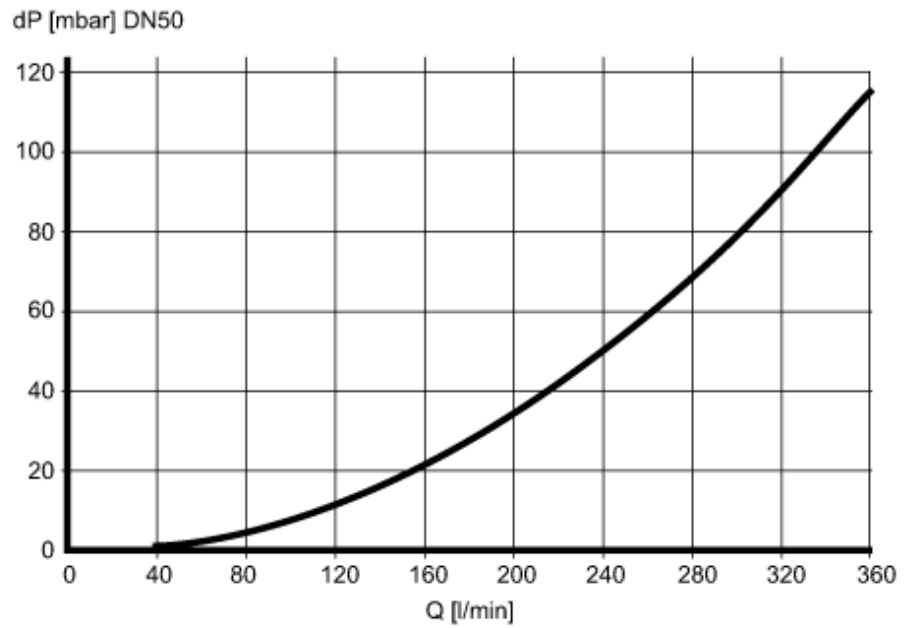


Magnetic-inductive flow meter

SMR21XGXFRKG/US

Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity