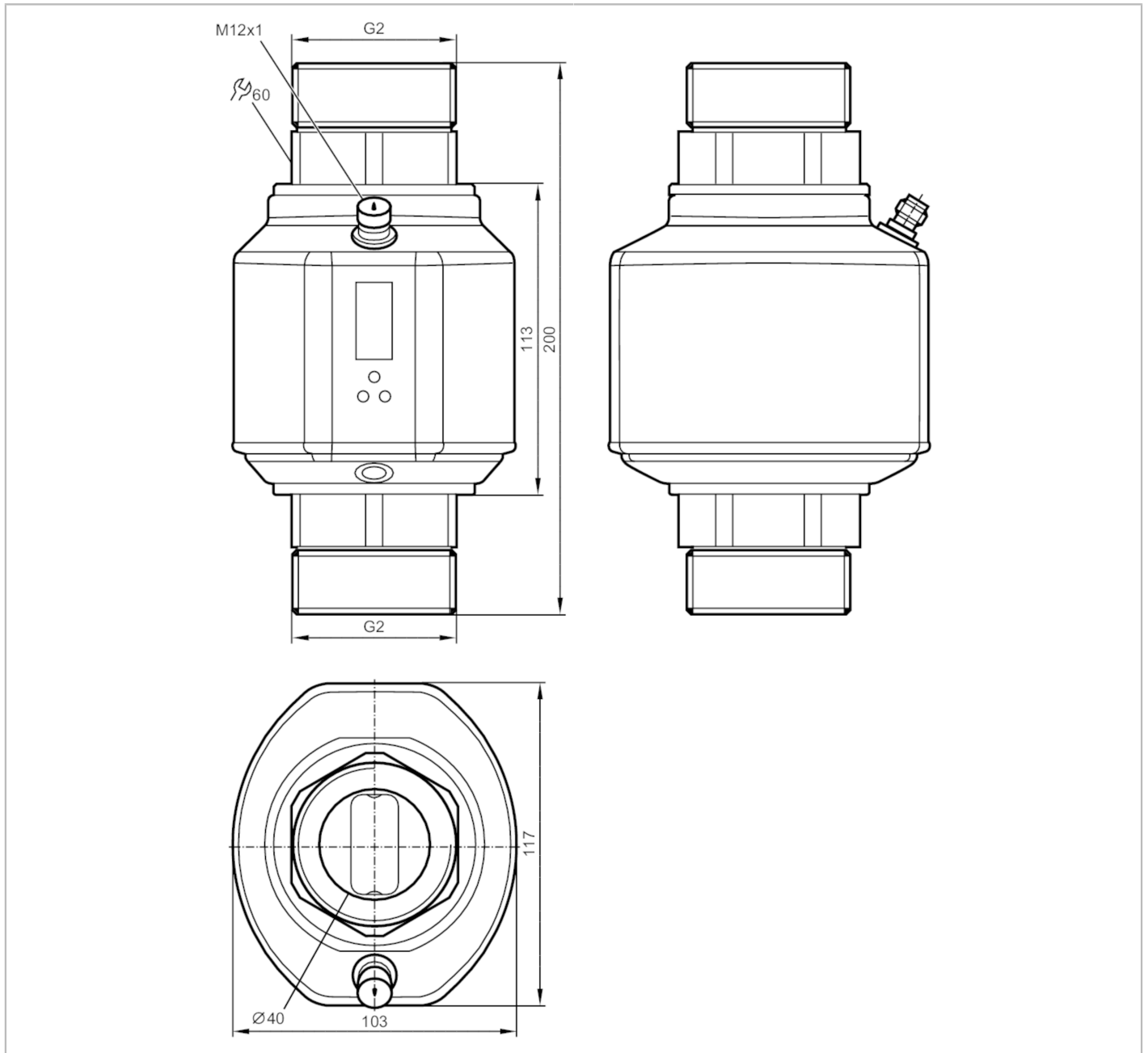


SM0510



Magnetic-inductive flow meter

SMR21XGXFRKG/US



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1	
Measuring range	5...900 l/min	0.3...54 m³/h
Process connection	threaded connection G 2 external thread 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

SM0510



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	16 bar	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	5...900 l/min	0.3...54 m ³ /h
Display range	-920...920 l/min	-55.2...55.2 m ³ /h
Resolution	1 l/min	0.05 m ³ /h
Set point SP	10...900 l/min	0.55...54 m ³ /h
Reset point rP	5...896 l/min	0.3...53.75 m ³ /h
Analog start point ASP	0...720 l/min	0...43.2 m ³ /h
Analog end point AEP	180...900 l/min	10.8...54 m ³ /h

SM0510



Magnetic-inductive flow meter

SMR21XGXFRKG/US

Low flow cut-off LFC	< 15 l/min	< 0.9 m ³ /h
In steps of	1 l/min	0.05 m ³ /h
Measuring dynamics	1:180	
Volumetric flow quantity monitoring		
Pulse value	0.1 l...600 x 10 ³ m ³	
In steps of	0.1 l	
Pulse length [s]	0,003...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 (bei 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 - SSP 0	Generic Profiled Sensor
	Function	Device identification
	Function	Process data variable

SM0510



Magnetic-inductive flow meter

SMR21XGXFRKG/US

SIO mode		yes
Required master port class		A
Process data analog		3
Process data binary		2
Min. process cycle time [ms]		5
Supported DeviceIDs	Type of operation	DeviceID
	default	509

Operating conditions

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

Tests / approvals

EMC	DIN EN 61000-4-2 ESD	4 kV CD / 8 kV AD
	DIN EN 61000-4-3 HF radiated	10 V/m
	DIN EN 61000-4-4 Burst	2 kV
	DIN EN 61000-4-5 Surge	1 kV
	DIN EN 61000-4-6 HF conducted	10 V
	CPA approval	model number
accuracy class		-
maximum allowable error		± 1,5 % FS
Q (min)		0,3 m³/h
Q (t)		-
Q (max)		54 m³/h
Medium temperature		-10...70 °C
Shock resistance		DIN EN 60068-2-27
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]		3212
Housing		rectangular
Inlet pipe length		3 x DN
Outlet pipe length		1 x DN
Dimensions [mm]		200 x 103 x 117
Material	stainless steel (1.4404 / 316L); stainless steel (1.4571/316Ti); PC; FKM; PBT-GF20; TPE-U	
Materials (wetted parts)	Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: NBR fiber-reinforced Gasket; FKM; stainless steel (1.4571/316Ti); PEEK	
Process connection	threaded connection G 2 external thread 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

SM0510



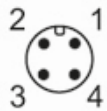
Magnetic-inductive flow meter

SMR21XGXFRKG/US

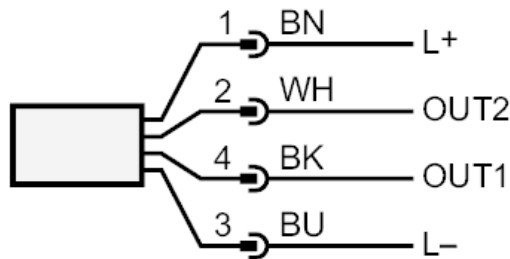
Accessories	
Items supplied	sealings: 2, Centellen Label
Remarks	
Remarks	MW = Measured value MEW = Final value of the measuring range
Pack quantity	1 pcs.

Electrical connection

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



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

SM0510

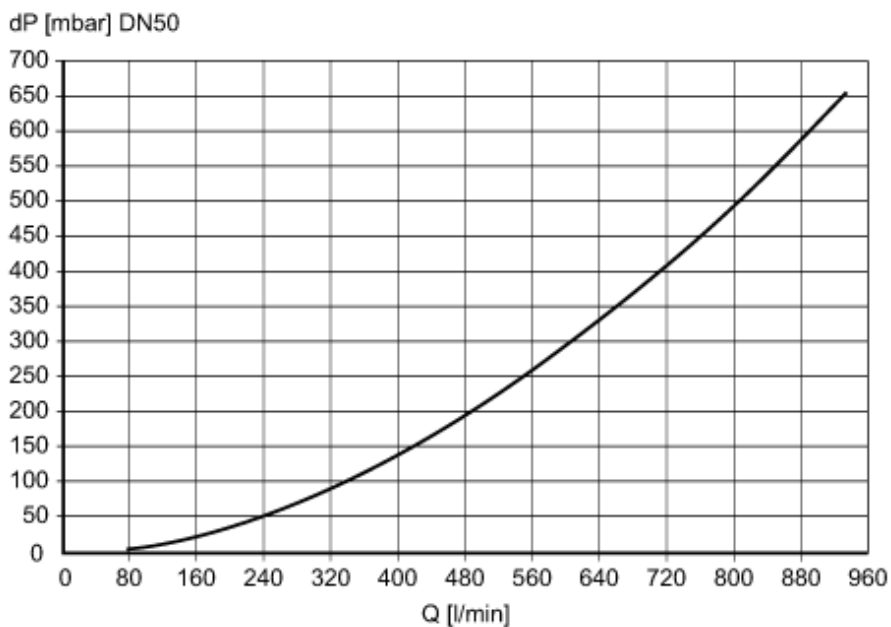


Magnetic-inductive flow meter

SMR21XGXFRKG/US

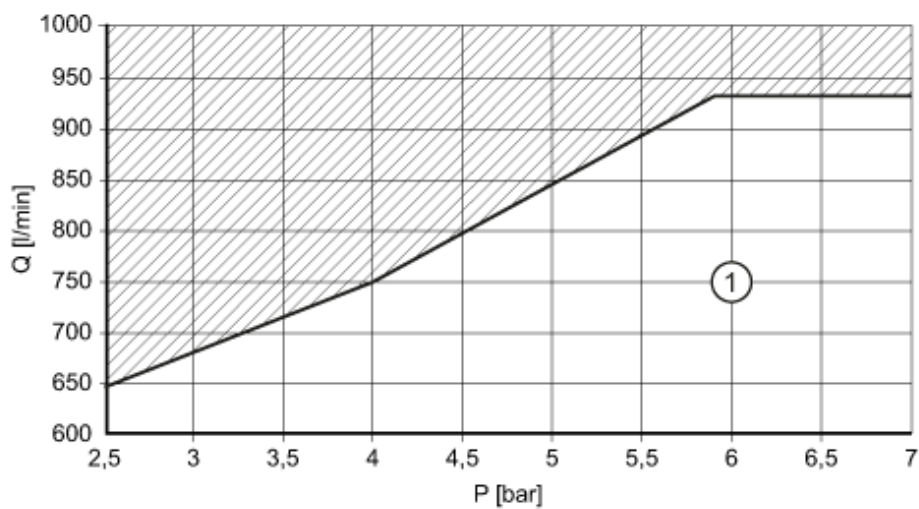
Diagrams and graphs

Pressure loss



dP Pressure loss
Q volumetric flow quantity

Cavitation



1 cavitation-free working area see operating instructions