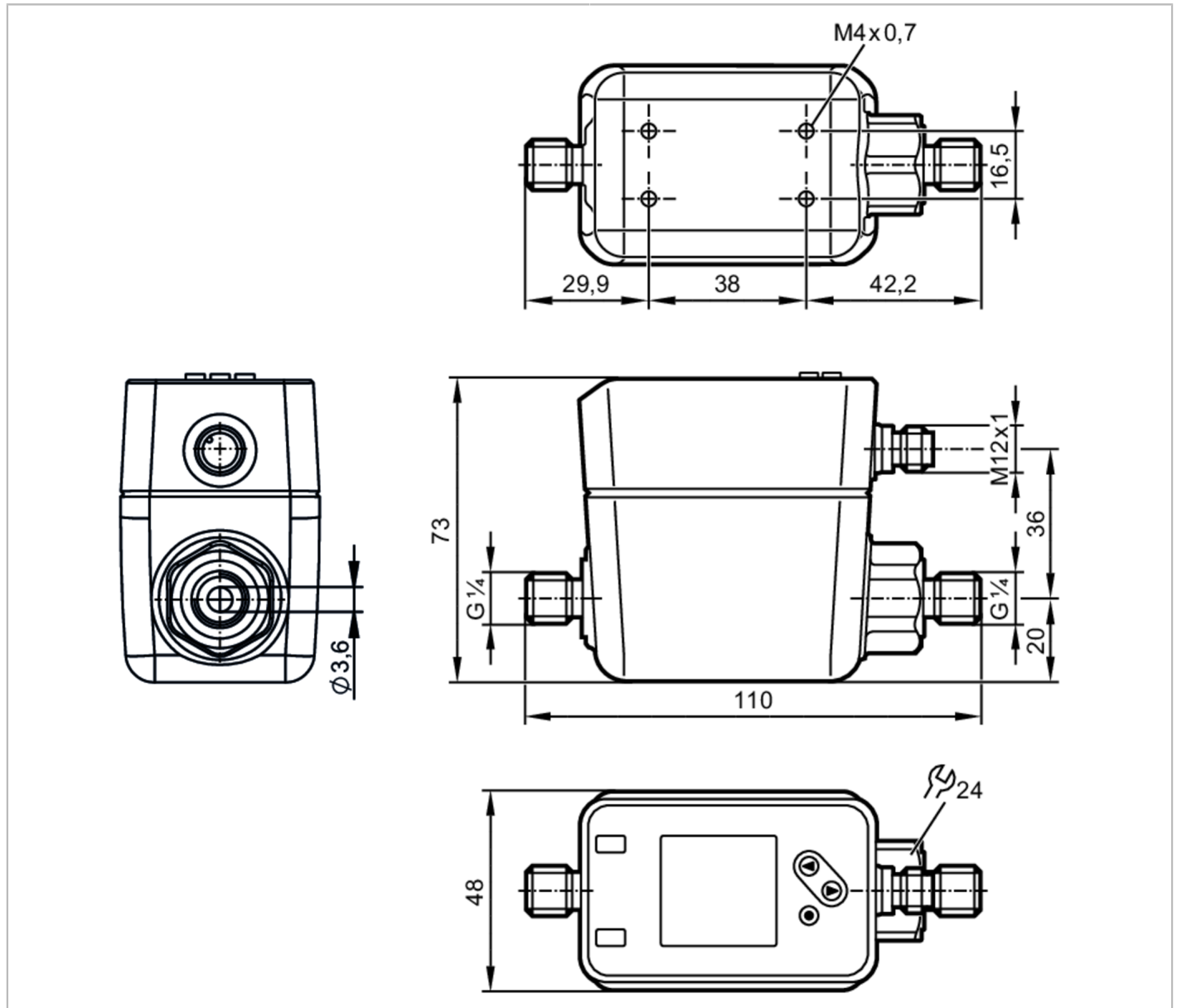


# SM4020

## Magnetic-inductive flow meter

SMR14XGXFRKG/US-100



### Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1
Measuring range [ml/min]	5...5000
Process connection	G 1/4 DN6 flat seal

### Application

System	gold-plated contacts
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)
Medium temperature [°C]	-20...90
Pressure rating [bar]	16
Pressure rating [MPa]	1.6

# SM4020



## Magnetic-inductive flow meter

SMR14XGXFRKG/US-100

Electrical data	
Operating voltage [V]	18...30 DC; (to SELV/PELV)
Current consumption [mA]	< 80
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; IO-Link; frequency signal; (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]	100
Number of analog outputs	1
Analog current output [mA]	4...20; (scalable)
Max. load [ $\Omega$ ]	500
Pulse output	flow rate meter
Short-circuit protection	yes
Type of short-circuit protection	yes (non-latching)
Overload protection	yes
Measuring/setting range	
Measuring range [ml/min]	5...5000
Display range [ml/min]	-6000...6000
Resolution [ml/min]	1
Set point SP [ml/min]	33...5000
Reset point rP [ml/min]	7...4974
Analog start point ASP [ml/min]	0...3993
Analog end point AEP [ml/min]	1007...5000
Low flow cut-off LFC [ml/min]	5...250
Frequency end point, FEP [ml/min]	1005...5000
Frequency at the end point FRP [Hz]	1...10000
Volumetric flow quantity monitoring	
Pulse length [s]	0.005...2
Pulse value	0.001...99990000 l

# SM4020



## Magnetic-inductive flow meter

SMR14XGXFRKG/US-100

Temperature monitoring		
Measuring range	[°C]	-20...90
Display range	[°C]	-42...112
Resolution	[°C]	0.1
Set point SP	[°C]	-19.6...90
Reset point rP	[°C]	-20...89.6
Analog start point	[°C]	-20...68
Analog end point	[°C]	2...90
In steps of	[°C]	0.1

Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)		$\pm (0,8 \% MW + 0,2 \% MEW)$
Repeatability		$\pm 0,2 \% MEW$
Temperature monitoring		
Accuracy	[K]	$\pm 2,5 (Q > 1 \text{ l/min})$

Reaction times		
Flow monitoring		
Start-up delay	[s]	0...50
Response time	[s]	$< 0.25; (dAP = 0, T09)$
Damping process value dAP	[s]	0...5
Temperature monitoring		
Response time	[s]	15; $(Q > 1 \text{ l/min}, T09)$

Software / programming	
Parameter setting options	hysteresis / window; normally open / closed; switching logic; Frequency output; current/pulse output; Start-up delay; display can be deactivated; Display unit

Interfaces					
Communication interface	IO-Link				
Transmission type	COM2 (38,4 kBaud)				
IO-Link revision	1.1				
SDCI standard	IEC 61131-9				
Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis				
SIO mode	yes				
Required master port class	A				
Process data analog	3				
Process data binary	2				
Min. process cycle time	[ms] 6				
Supported DeviceIDs	<table border="1"><thead><tr><th>Type of operation</th><th>DeviceID</th></tr></thead><tbody><tr><td>default</td><td>943</td></tr></tbody></table>	Type of operation	DeviceID	default	943
Type of operation	DeviceID				
default	943				

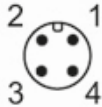
Operating conditions		
Ambient temperature	[°C]	-20...60
Storage temperature	[°C]	-25...80
Protection		IP 65; IP 67

# SM4020



## Magnetic-inductive flow meter

SMR14XGXFRKG/US-100

Tests / approvals		
EMC	DIN EN 60947-5-9	
Shock resistance	DIN IEC 68-2-27	20 g (11 ms)
Vibration resistance	DIN IEC 68-2-6:	5 g (10...2000 Hz)
MTTF [years]		114
UL approval	UL approval number	I014
	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]	712.8	
Material	stainless steel (1.4408/316); stainless steel (1.4404 / 316L); PC; PBT+PC-GF30	
Materials (wetted parts)	stainless steel (1.4404 / 316L); PEEK; carbon fiber PEEK; FKM; Centellen	
Process connection	G 1/4 DN6 flat seal	
Displays / operating elements		
Display	Color display 1,44", 128 x 128 pixels	
	2 x LED, yellow	
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		
		

# SM4020



## Magnetic-inductive flow meter

SMR14XGXFRKG/US-100

### Connection



OUT1:	Colors to DIN EN 60947-5-2 Switching output Volumetric flow quantity monitoring Switching output Temperature monitoring Pulse output quantity meter Frequency output volumetric flow monitoring Frequency output Temperature monitoring signal output Preset counter IO-Link
OUT2:	Switching output Volumetric flow quantity monitoring Switching output Temperature monitoring analog output flow analog output temperature Input counter reset Core colors :
BK =	black
BN =	brown
BU =	blue
WH =	white

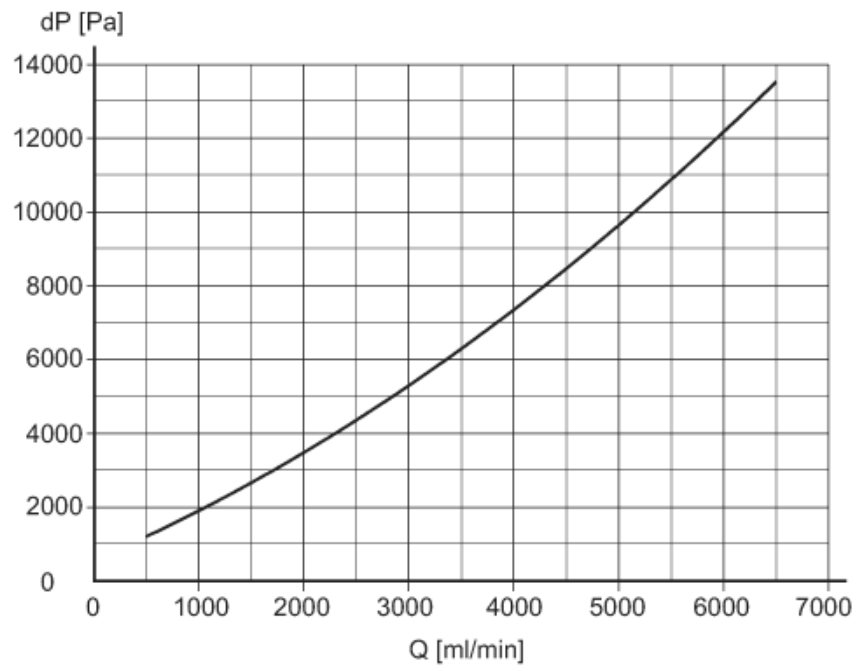
# SM4020



## Magnetic-inductive flow meter

SMR14XGXFRKG/US-100

### Diagrams and graphs



Pressure loss / volumetric flow quantity