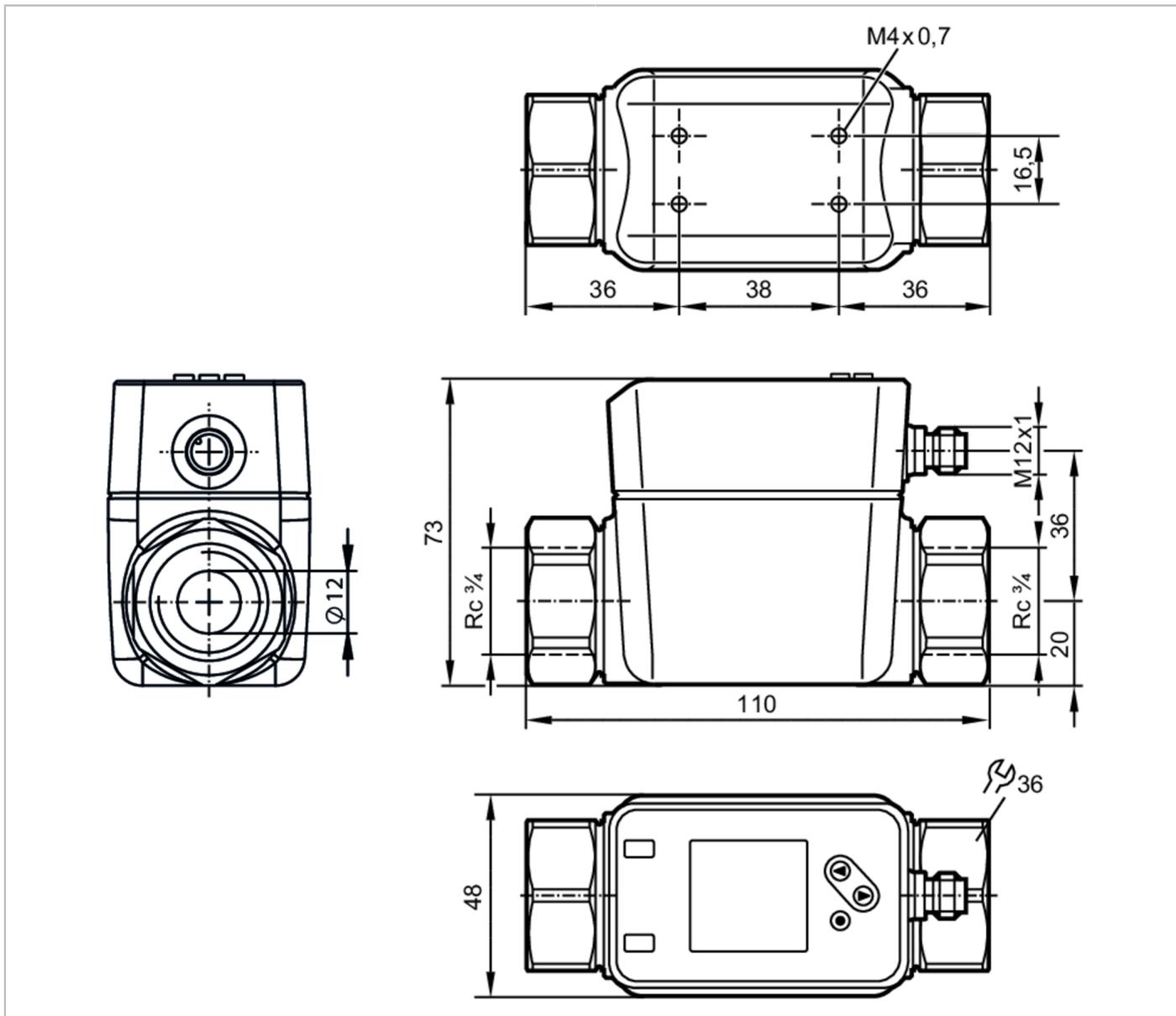# SM7420

Magnetic-inductive flow meter

Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1			
Measuring range	0.1...75 l/min	0.006...4.5 m³/h	1.2...1190 gph	0.02...19.82 gpm
Process connection	threaded connection Rc 3/4 internal thread DN20			

Application

Special feature	Gold-plated contacts
Media	conductive liquids; water; hydrous media
Note on media	conductivity: ≥ 20 µS/cm
	viscosity: < 70 mm²/s (40 °C)
Medium temperature [°C]	-20...90
Pressure rating [bar]	16
Pressure rating [MPa]	1.6

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Magnetic-inductive flow meter

SMK34XGXFRKG/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
Measuring principle		magnetic-inductive

Inputs / outputs	
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1

Inputs	
Inputs	counter reset

Outputs		
Total number of outputs		2
Output signal		switching signal; analogue signal; pulse signal; IO-Link; frequency signal; (configurable)
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / normally closed; (parameterisable)
Max. voltage drop switching output DC	[V]	2
Permanent current rating of switching output DC	[mA]	100
Number of analogue outputs		1
Analogue current output	[mA]	4...20; (scalable)
Max. load	[Ω]	500
Pulse output		flow rate meter
Short-circuit protection		yes
Type of short-circuit protection		pulsed
Overload protection		yes

Measuring/setting range				
Measuring range	0.1...75 l/min	0.006...4.5 m³/h	1.2...1190 gph	0.02...19.82 gpm
Display range	-90...90 l/min	-5.4...5.4 m³/h	-1426.8...1426.8 gph	-23.78...23.78 gpm
Resolution	0.1 l/min	0.006 m³/h	0.6 gph	0.01 gpm
Set point SP	0.5...75 l/min	0.03...4.5 m³/h	8.4...1189 gph	0.14...19.81 gpm
Reset point rP	0.1...74.6 l/min	0.006...4.48 m³/h	1.2...1183 gph	0.03...19.71 gpm
Analogue start point ASP	0...59.9 l/min	0...3.6 m³/h	0...950 gph	0...15.82 gpm
Analogue end point AEP	15.1...75 l/min	0.9...4.5 m³/h	240...1189 gph	3.99...19.81 gpm
Low flow cut-off LFC	0.1...3.8 l/min	0.006...0.23 m³/h	1.8...59.4 gph	0.03...0.99 gpm
Frequency end point, FEP	15.1...75 l/min	0.9...4.5 m³/h	240...1189 gph	3.99...19.81 gpm
Frequency at the end point FRP	[Hz]	1...10000		
Volumetric flow quantity monitoring				
Pulse length	[s]	0.003...2		
Pulse value		0.01...99990000 l		

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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
Analogue start point	[°C]	-20...68
Analogue end point	[°C]	2...90
In steps of	[°C]	0.1

Accuracy / deviations		
Flow monitoring		
Accuracy (in the measuring range)		± (0,8 % MW + 0,2 % MEW)
Repeatability		± 0,2 % MEW
Temperature monitoring		
Accuracy	[K]	± 2,5 (Q > 5 % MEW)

Response 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 > 10 % MEW, T09)

Software / programming	
Parameter setting options	hysteresis / window; normally open / normally 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 type		A
Process data analogue		3
Process data binary		2
Min. process cycle time	[ms]	6
Supported DeviceIDs	**Type of operation**	**DeviceID**
	default	960

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

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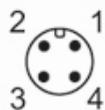| Tests / approvals		
EMC	DIN EN 60947-5-9	
CPA approval	model number	006MI
	accuracy class	-
	maximum allowable error	± 1,0 % FS
	Q (min)	0,006 m³/h
	Q (t)	-
	Q (max)	4,5 m³/h
Shock resistance	DIN IEC 68-2-27	20 g (11 ms)
Vibration resistance	DIN IEC 68-2-6:	5 g (10...2000 Hz)
MTTF [years]	114	
UL approval	UL Approval no.	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]	842
Housing	rectangular
Dimensions [mm]	110 x 48 x 73
Materials	stainless steel (316/1.4408); stainless steel (316L/1.4404); PC; PBT+PC-GF30
Materials (wetted parts)	stainless steel (316L/1.4404); PEEK; carbon fibre PEEK; FKM
Process connection	threaded connection Rc 3/4 internal thread DN20

Displays / operating elements	
Display	colour 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

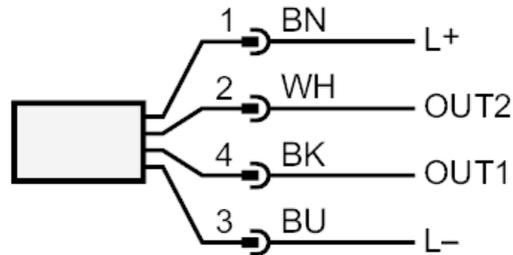Connector: 1 x M12; coding: A; Contacts: gold-plated

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Connection

```
1  BN ──── L+
2  WH ──── OUT2
4  BK ──── OUT1
3  BU ──── L−
```

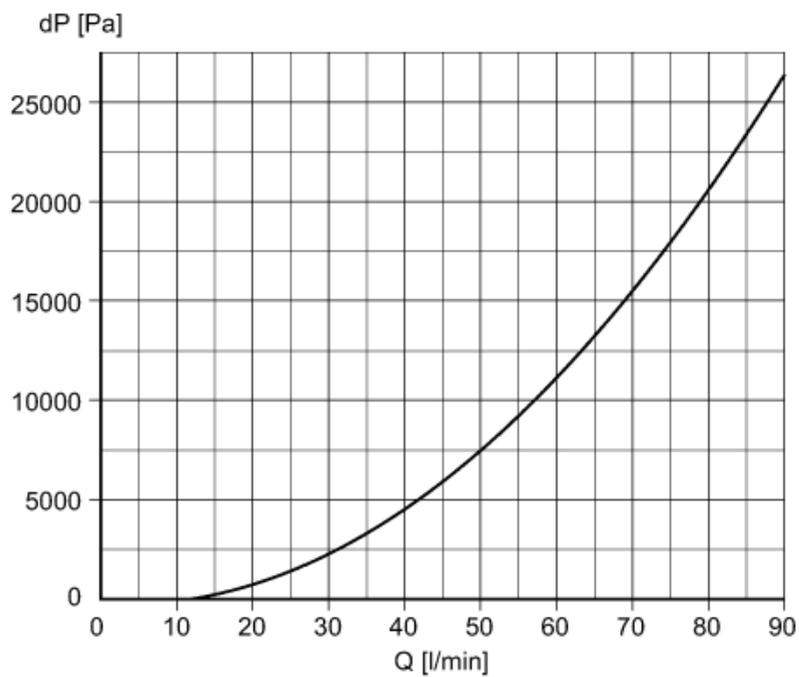|	
	colours to DIN EN 60947-5-2
OUT1:	switching output volumetric flow quantity monitoring
	switching output Temperature monitoring
	Pulse output quantity meter
	frequency output volumetric flow monitoring
	frequency output Temperature monitoring
	signal output Preset counter
	IO-Link
OUT2:	switching output volumetric flow quantity monitoring
	switching output Temperature monitoring
	analogue output flow
	analogue output temperature
	input counter reset
	Core colours :
BK =	black
BN =	brown
BU =	blue
WH =	white

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Pressure loss / volumetric flow quantity