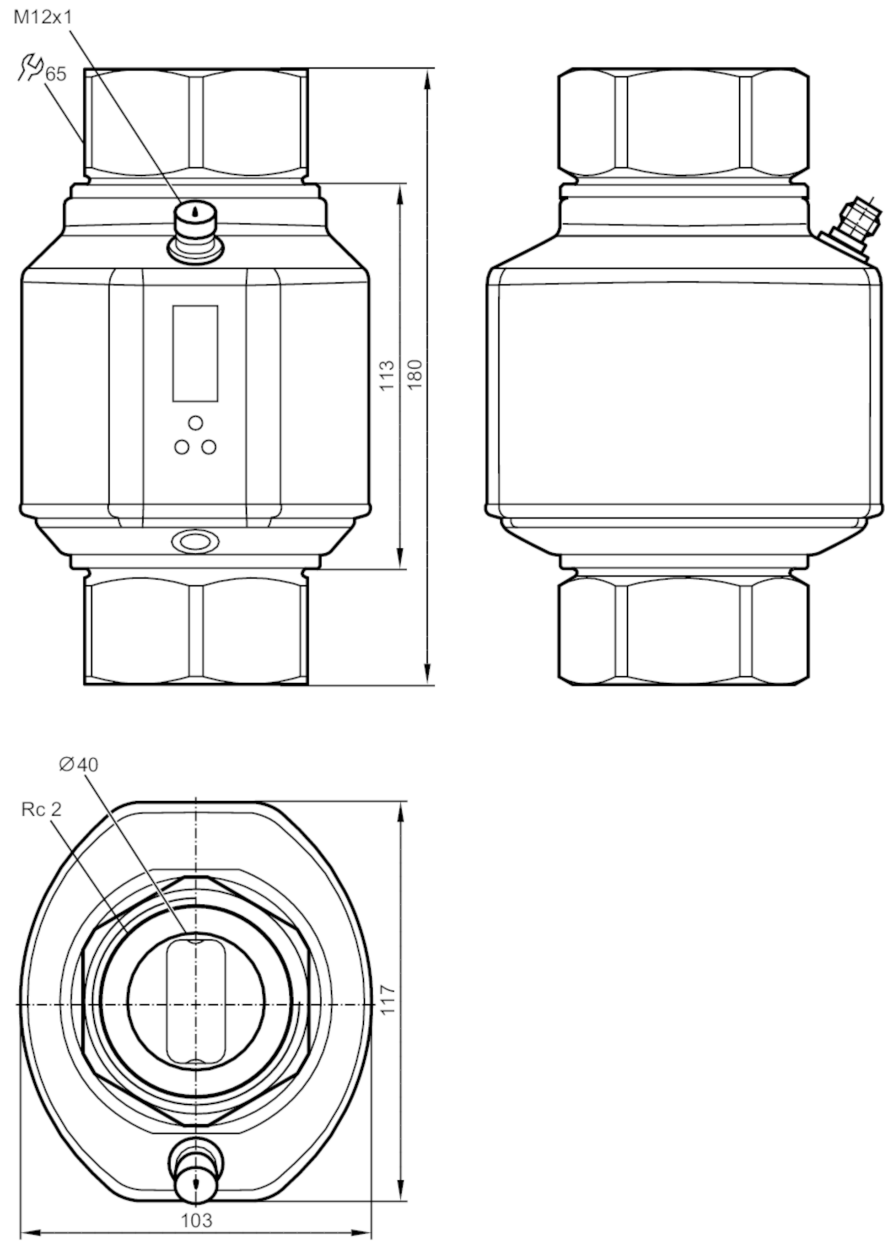


SM2500



Magnetic-inductive flow meter

SMK21XGXFRKG/US-100



Product characteristics		
Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
Measuring range	5...600 l/min	0.3...36 m³/h
Process connection	threaded connection Rc 2 internal thread DN50	
Application		
Special feature	Gold-plated contacts	
Application	totaliser function; empty pipe detection; for industrial applications	
Media	conductive liquids; water; hydrous media	
Note on media	conductivity: ≥ 20 µS/cm	
	viscosity: < 70 mm²/s (40 °C)	

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Medium temperature	[°C]	-10...90
Pressure rating	[bar]	16
Pressure rating	[MPa]	1.6

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 analogue outputs: 1

Inputs	
Inputs	counter reset

Outputs		
Total number of outputs		2
Output signal		switching signal; analogue signal; pulse signal; frequency signal; IO-Link; (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]	250; (per output)
Number of analogue outputs		1
Analogue current output	[mA]	4...20; (scalable)
Max. load	[Ω]	500
Analogue 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		pulsed
Overload protection		yes
Frequency of the output	[Hz]	0.1...10000

Measuring/setting range		
Measuring range	5...600 l/min	0.3...36 m³/h
Display range	-720...720 l/min	-43.2...43.2 m³/h
Resolution	0.5 l/min	0.02 m³/h
Set point SP	8...600 l/min	0.5...36 m³/h
Reset point rP	5...597 l/min	0.3...35.8 m³/h
Analogue start point ASP	0...480 l/min	0...28.8 m³/h
Analogue end point AEP	120...600 l/min	7.2...36 m³/h
Low flow cut-off LFC	< 15 l/min	< 0.9 m³/h
In steps of	0.5 l/min	0.02 m³/h



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Measuring dynamics	1:120
Volumetric flow quantity monitoring	
Pulse value	0.0001...600 x 10 ³ m ³
In steps of	0.0001 m ³
Pulse length [s]	0,008...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
Analogue start point [°C]	-20...60
Analogue 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)
Response 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 / normally 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 type	A
Process data analogue	3
Process data binary	2

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Magnetic-inductive flow meter

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Min. process cycle time	[ms]	5	
Supported DeviceIDs		Type of operation	DeviceID
		default	389
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)	36 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 no.	I008
Pressure Equipment Directive		Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	2743.5	
Housing		rectangular	
Dimensions	[mm]	180 x 103 x 117	
Materials		stainless steel (316L/1.4404); stainless steel (316Ti/1.4571); PEI; FKM; PBT-GF20; TPE-U	
Materials (wetted parts)		stainless steel (316L/1.4404); stainless steel (316Ti/1.4571); PEEK; EPDM	
Process connection		threaded connection Rc 2 internal thread DN50	
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		Label	
Remarks			
Remarks		MW = measured value	
		MEW = Final value of the measuring range	
Pack quantity		1 pcs.	

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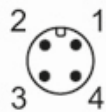


Magnetic-inductive flow meter

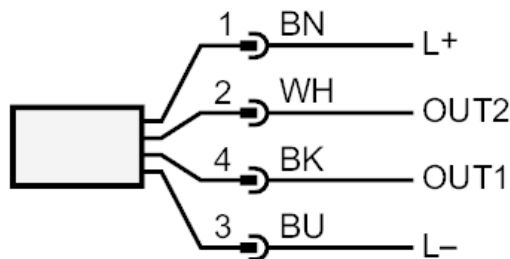
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Electrical connection

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



Connection



OUT1:	colours 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 analogue output volumetric flow quantity monitoring analogue output Temperature monitoring input counter reset Core colours :
BK =	black
BN =	brown
BU =	blue
WH =	white

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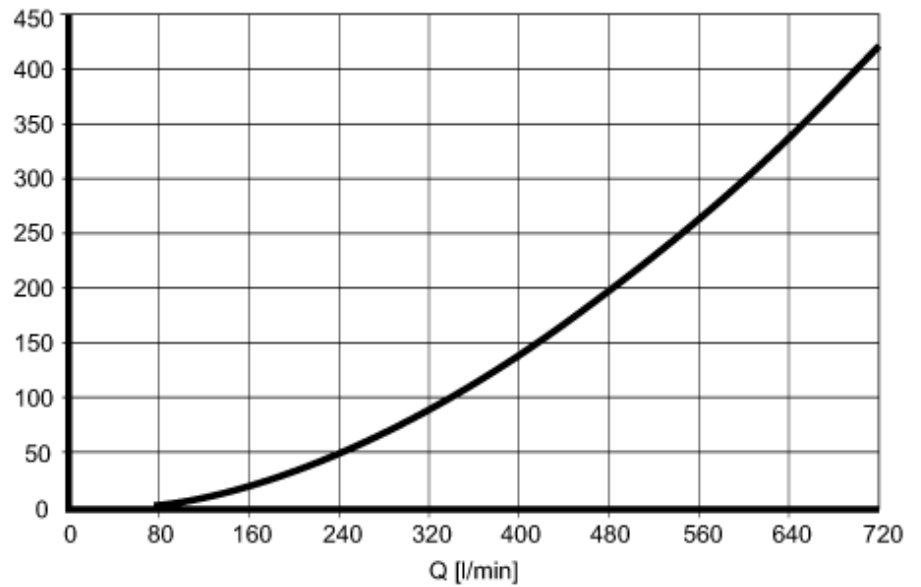
Magnetic-inductive flow meter

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Diagrams and graphs

Pressure loss

dP [mbar] DN50



dP Pressure loss

Q volumetric flow quantity