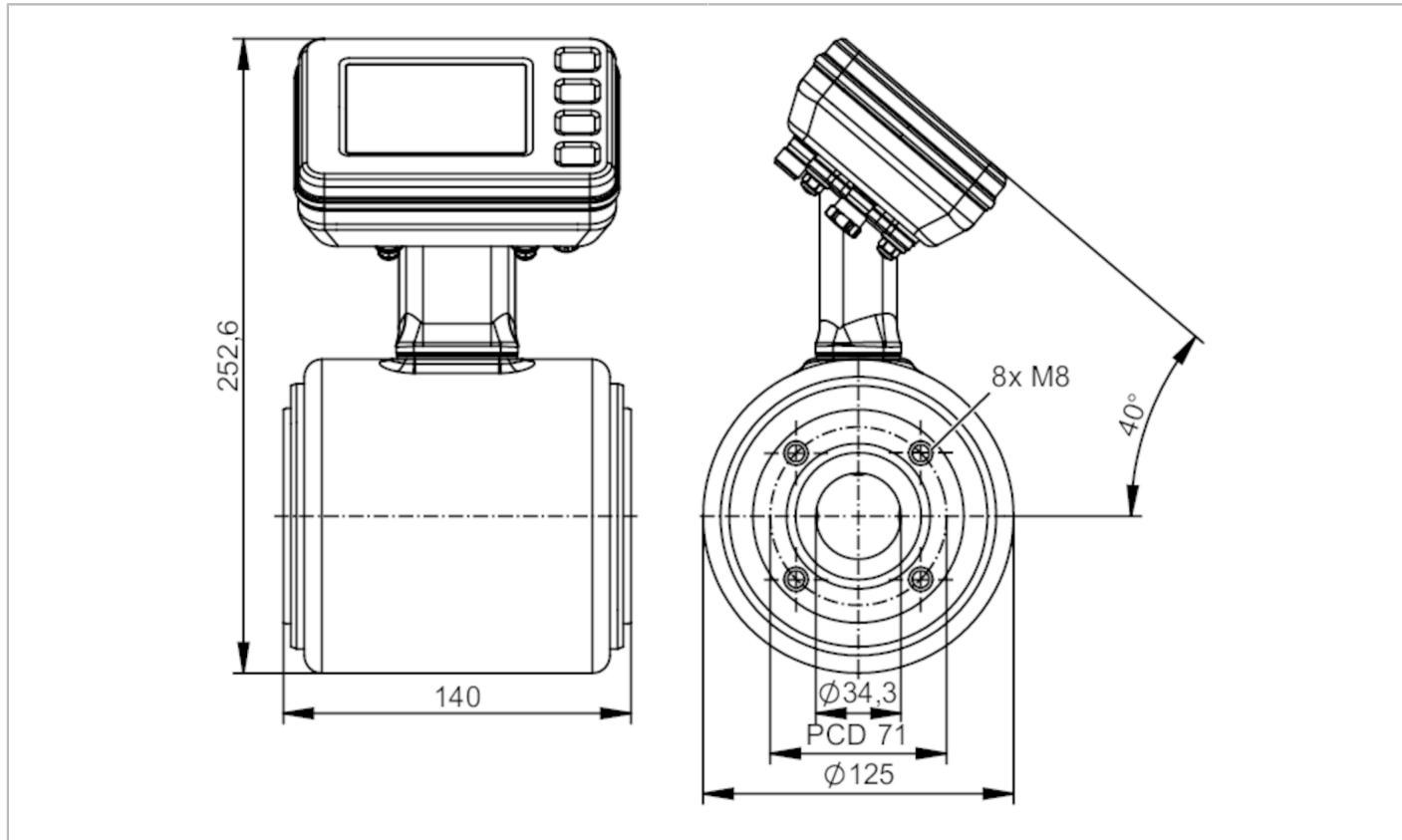


SMF320

Magnetic-inductive flow meter

SMG40KGFFRKG/USD



A³ CE EC 1935/2004 FCM FDA UK CA

Product characteristics

Measuring range	5...750 l/min	300...45000 l/h	0.07...10 m/s	0.3...45 m ³ /h
Nominal diameter			DN40 (1 1/2")	
Process connection	ifm-specific device flange			
Application				
Special feature	Gold-plated contacts			
Application	food and beverage industry			
Media	conductive liquids; water; hydrous media			
Note on media	food products such as beer, milk, fruit juices, soft drinks, ketchup, yoghurt, yoghurt toppings, ice cream conductivity: ≥ 5 µS/cm			
Medium temperature [°C]			-20...150	
Min. bursting pressure	60 bar		6 MPa	
Pressure rating	40 bar		4 MPa	

Electrical data

Operating voltage [V]	18...32 DC
Current consumption [mA]	250; (24V)
Protection class	III
Reverse polarity protection	yes
Power-on delay time [s]	< 5
Measuring principle	magnetic-inductive

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Inputs / outputs				
Inputs		Outputs		
Total number of inputs and outputs		2		
Inputs	OUT2	external totaliser reset		
Outputs				
Total number of outputs		2		
Output signal	OUT1	pulse signal; totaliser switching signal; diagnostic signal; IO-Link		
	OUT2	analogue signal; pulse signal; totaliser switching signal; diagnostic signal		
Electrical design		PNP/NPN		
Pulse output		flow rate meter		
Short-circuit protection		yes		
Type of short-circuit protection		pulsed		
Overload protection		yes		
analogue				
Number of analogue outputs		1		
Analogue current output [mA]		4...20; (skalierbar)		
Max. load [Ω]		500		
Resolution of analogue output		0.38 µA		
Digital				
Number of digital outputs		2		
Max. voltage drop switching output DC [V]		2		
Permanent current rating of switching output DC [mA]		100		
Switching frequency DC [Hz]		0...10000		
Measuring/setting range				
Measuring range	5...750 l/min	300...45000 l/h	0.07...10 m/s	0.3...45 m³/h
Display range	-900...900 l/min	-54000...54000 l/h	-12...12 m/s	-54...54 m³/h
Resolution	0.1 l/min	50 l/h	0.01 m/s	0.05 m³/h
Note on factory setting		0...11,0 m³/h		
Analogue start point ASP	0...600 l/min	0...36000 l/h	0...7.95 m/s	0...36 m³/h
Analogue end point AEP	150...750 l/min	9000...45000 l/h	2...9.95 m/s	9...45 m³/h
Low flow cut-off LFC	0...600 l/min	0...36000 l/h	0...7.95 m/s	0...36 m³/h
Pulse length [s]		0.002...2		
Pulse value		0.001...99990000 I		
Temperature monitoring				
Measuring range [°C]		-20...150		
Display range [°C]		-20...150		
Resolution [°C]		0.01		
Analogue start point [°C]		-20...116		
Analogue end point [°C]		14...150		

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conductivity monitoring

Measuring range	[$\mu\text{S}/\text{cm}$]	100...100000
Display range	[$\mu\text{S}/\text{cm}$]	0...100000
Resolution	[$\mu\text{S}/\text{cm}$]	1
Analogue start point	[$\mu\text{S}/\text{cm}$]	0...80000
Analogue end point	[$\mu\text{S}/\text{cm}$]	20000...100000

Accuracy / deviations

volumetric flow monitoring

Accuracy (in the measuring range)	with optional factory calibration (available from 2025)	$\pm (0,2 \% \text{ MW} + 2 \text{ mm/s})$
Repeatability	standard	$\pm (0,5 \% \text{ MW} + 1,5 \text{ mm/s})$
Repeatability	0,1% MW	

Temperature monitoring

Accuracy	[K]	± 1
Repeatability	[K]	$\pm 0,5$

conductivity monitoring

Accuracy (in the measuring range)	in the range of 100...20000 $\mu\text{S}/\text{cm}$	$\pm 10\% \text{ MW}$
Repeatability	in the range of 20000...100000 $\mu\text{S}/\text{cm}$	$\pm 20\% \text{ MW}$
Repeatability	$\pm 5\% \text{ MW}$	

Response times

volumetric flow monitoring

Response time	[s]	< 0.3
Damping process value dAP	[s]	0...5

Temperature monitoring

Response time	[s]	< 3; (flow velocity: $\geq 0,5\text{m/s}$)
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conductivity monitoring

Response time	[s]	< 2
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Software / programming

Diagnostic functions	direction of flow detection; liquid detection
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Interfaces

Communication interface	IO-Link
Transmission type	COM3 (230,4 kBaud)
IO-Link revision	1.1.3
SDCI standard	IEC 61131-9
Profiles	

	Function class	Designation
0x4000		Identification and Diagnosis
0x001B		Measuring and Switching Sensor, floating point, 4 channel

SIO mode	yes
Required master port type	A
Process data analogue	6
Process data binary	8
Min. process cycle time	[ms]

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IO-Link process data (cyclical)	function	bit length
	totaliser	32
	flow	32
	temperature	32
	conductivity	32
	status	4
IO-Link functions (acyclical)	binary switching information	8
	direction of flow detection; totaliser; Speicher; operating hours counter; internal temperature; simulation function	
Operating conditions		
Ambient temperature	[°C]	-20...65
Storage temperature	[°C]	-25...80
Protection		IP 67; IP 69
Tests / approvals		
EMC	DIN 61326-1	
Shock resistance	DIN IEC 68-2-27	20 g (18ms)
Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)
MTTF [years]		81
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data		
Weight [g]	5316.8	
Inlet pipe length	5 x DN	
Outlet pipe length	2 x DN	
Materials	housing: stainless steel (316L/1.4404); flange: stainless steel (304/1.4301); electronics fixture: stainless steel (304/1.4301); electronics: stainless steel (316L/1.4404); Display: PPSU; Display-Sealing: FKM; LED ring: PP	
Materials (wetted parts)	Pipe section: PFA; electrodes: stainless steel (316L/1.4435)	
Nominal diameter	DN40 (1 1/2")	
Process connection	ifm-specific device flange	
Surface characteristics Ra/Rz of the wetted parts	≤ 0.4 µm	
Displays / operating elements		
Factory setting	m³/h; °C; µS/cm	
Display	process value	full graphics TFT display, multi-colour 3,5" 128 x 128 Pixel
		display layouts: 4
		display rotation: 4 x 90°
	operating status	LED ring, three-colour
	totaliser Display range	-999990...999990 m³
	totaliser Resolution	0,00001 m³
Display unit	l/min; l/h; hl/min; hl/h; m³/min; m³/h; m/s; µS/cm; S/m; ms/cm	
Language	German; English; Spanish; French; Italian; Japanese; Korean; Portuguese; Chinese	
Operating elements	4	capacitive pushbuttons

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Remarks

Remarks

MW = measured value

MEW = Final value of the measuring range

pulse and totaliser signal are only available for one of the two outputs

reference conditions : water , 15...35 °C, inlet

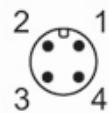
pipe length: 10 x DN, outlet pipe length: 5 x DN

Pack quantity

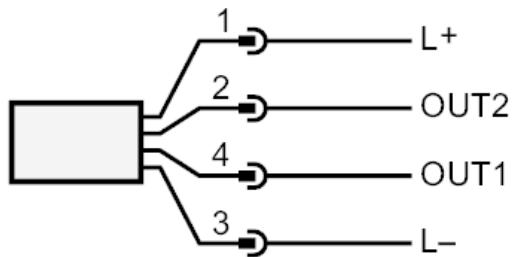
1 pcs.

Electrical connection

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



Connection



- | | |
|----|--------------------|
| 1: | L+ |
| 2: | OUT2 DO, AO, reset |
| 3: | L- |
| 4: | OUT1 DO, IO-Link |