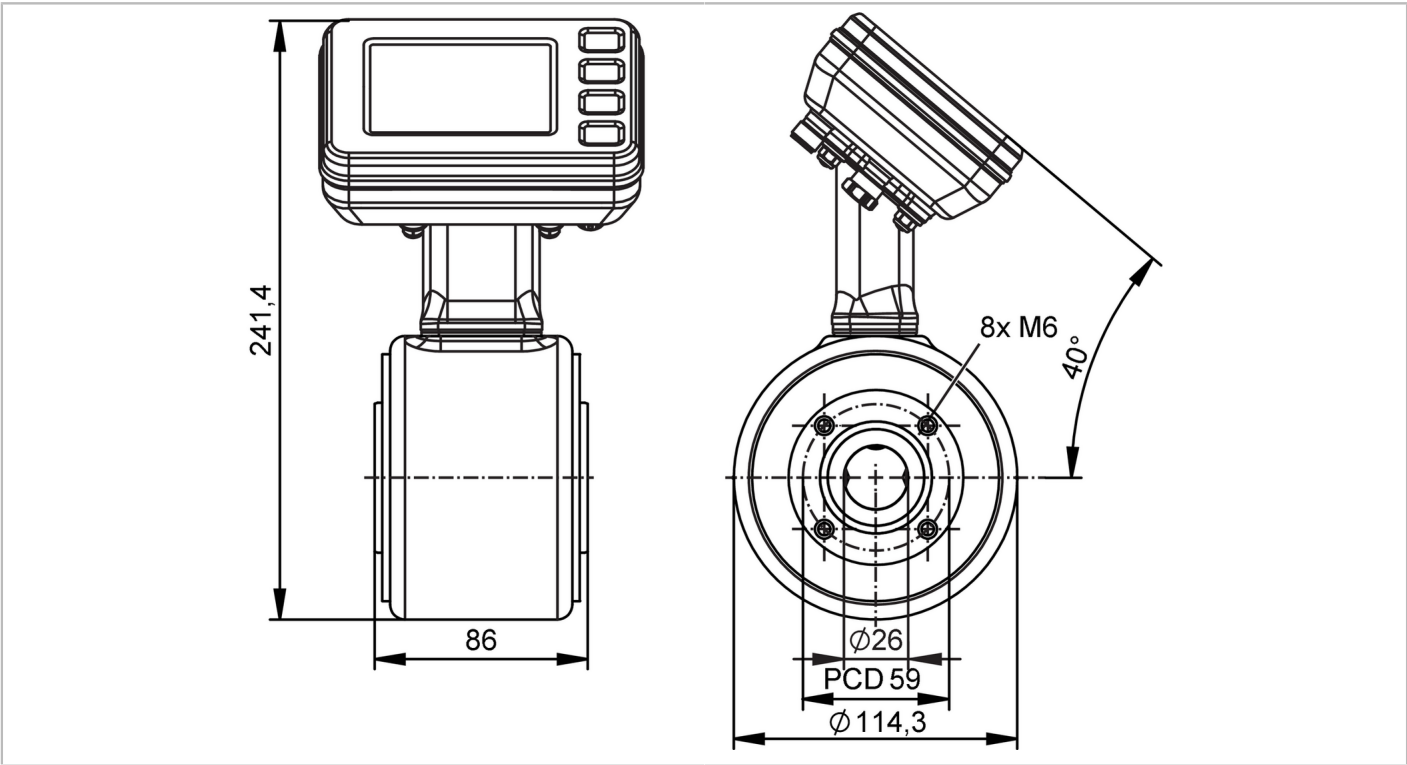


SMF220



Magnetic-inductive flow meter

SMG25KGFFRKG/USD



Product characteristics				
Measuring range	2.5...300 l/min	150...18000 l/h	0.08...10.18 m/s	0.15...18 m³/h
Nominal diameter	DN25 (1")			
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	-20...150			
Min. burst pressure	60 bar		6 MPa	
Pressure rating	40 bar		4 MPa	
Electrical data				
Operating voltage	[V]	18...32 DC		
Current consumption	[mA]	250; (24 V)		
Protection class		III		
Reverse polarity protection		yes		
Power-on delay time	[s]	< 5		
Measuring principle		magnetic-inductive		
Inputs / outputs				
Total number of inputs and outputs		2		



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Inputs					
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		2.5...300 l/min	150...18000 l/h	0.08...10.18 m/s	0.15...18 m³/h
Display range		-360...360 l/min	-21600...21600 l/h	-12.22...12.22 m/s	-21.6...21.6 m³/h
Resolution		0.01 l/min	10 l/h	0.01 m/s	0.01 m³/h
Note on factory setting		0...4,0 m³/h			
Analogue start point ASP		-300...240 l/min	-18000...14400 l/h	-10.18...8.15 m/s	-18...14.4 m³/h
Analogue end point AEP		-240...300 l/min	-14400...18000 l/h	-8.15...10.18 m/s	-14.4...18 m³/h
Low flow cut-off LFC		0...240 l/min	0...14400 l/h	0...8.15 m/s	0...14.4 m³/h
Pulse length [s]		0.00005...2			
Pulse value		0.001...99990000 l			
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			
Conductivity monitoring					
Measuring range [µS/cm]		100...100000			
Display range [µS/cm]		0...10000000			



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Resolution	[μS/cm]	1
Analogue start point	[μS/cm]	0...80000
Analogue end point	[μS/cm]	20000...100000

Accuracy / deviations

Volumetric flow monitoring

Accuracy (in the measuring range)	with optional factory calibration (availability is being planned)	± (0,2 % MW + 2 mm/s)
	standard	± (0,5 % MW + 1,5 mm/s)
Repeatability	0,1% MW	

Temperature monitoring

Accuracy	[K]	± 1 (v > 0,5 m/s)
Repeatability	[K]	± 0,5 (v > 0,5 m/s)

Conductivity monitoring

Accuracy (in the measuring range)	in the range of 100...20000 μS/cm	±10% MW
	in the range of 20000...100000 μS/cm	±20% MW
Repeatability	± 5% MW	

Response times

Volumetric flow monitoring

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

Temperature monitoring

Response time	[s]	< 3; (v > 0,5 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	Smart Sensor - SSP 4.3.4	Measuring and Switching Sensor, floating point, 4 channel
	BLOB	Binary Large Object transfer
	Common - I&D	Identification and Diagnosis
	Extension	Sensor Control Wide
	Extension	Quantity detection, switches when value exceeds the setpoint
	Function	Locator
	Function	ProductURI
SIO mode	yes	
Required master port type	A	
Process data analogue	6	
Process data binary	8	
Min. process cycle time	[ms]	1.9



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IO-Link process data (cyclical)	function	bit length
	totaliser	32
	flow	32
	temperature	32
	conductivity	32
	status	4
	binary switching information	8
IO-Link functions (acyclical)	direction of flow detection; totaliser; memory; operating hours counter; internal temperature; simulation function	
Supported DeviceIDs	Type of operation	DeviceID
	default	1786

Operating conditions

Ambient temperature	[°C]	-20...65
Storage temperature	[°C]	-20...80
Protection	IP 67; IP 69; (to DIN EN 60529)	

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
UL approval	UL approval no.	I031
	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]	3676.2
Housing	cylindrical	
Inlet pipe length	5 x DN	
Outlet pipe length	2 x DN	
Dimensions	[mm]	Ø 114.3 / L = 86
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: polysulfone; Display-Sealing: FKM; LED ring: PP	
Materials (wetted parts)	Pipe section: PFA; electrodes: stainless steel (316L/1.4435)	
Nominal diameter	DN25 (1")	
Process connection	ifm-specific device flange	
Surface characteristics Ra/Rz of the wetted parts	Ra < 0.4 µm	

Displays / operating elements

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
Display unit	l/min; l/h; hl/min; hl/h; m³/min; m³/h; m/s; °C; µS/cm; S/m; ms/cm	
Factory setting	m³/h; °C; µS/cm	
Language	German; English; Spanish; French; Italian; Japanese; Korean; Portuguese; Chinese	
Operating elements	4	capacitive pushbuttons

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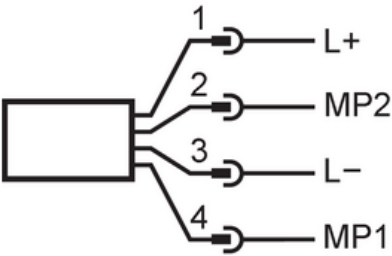
Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection
	reference conditions (2/2): inlet pipe length 10xDN, outlet pipe length 5xDN, device settling time: 30 minutes, device orientation: horizontal, display orientation: up
Pack quantity	1 pcs.

Electrical connection

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



Connection



Electrical connection - plug

1	L+	
2	MP2	DO2, AO, reset
3	L-	
4	MP1	DO1, IO-Link

AO: analogue output; DO: digital output; MP: multi-function connection