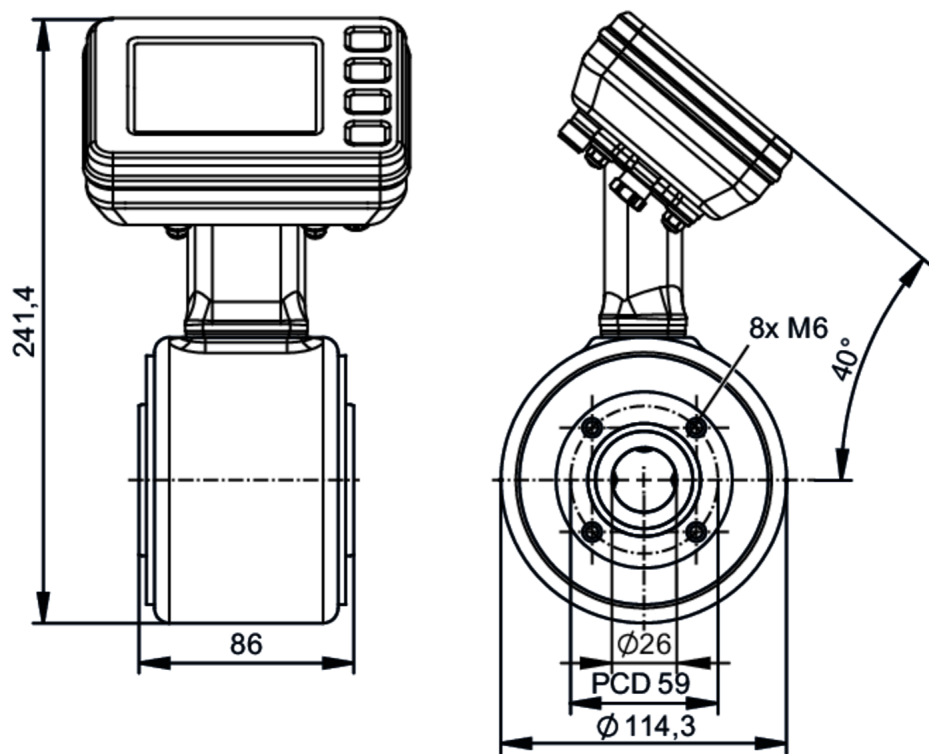


SMF220



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	[°C]	-20...150		
Min. bursting pressure	60 bar	6 MPa		
Pressure rating	40 bar	4 MPa		
Electrical data				
Operating voltage	[V]	18...32 DC		



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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
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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
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Magnetic-inductive flow meter

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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
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
Repeatability	[K]	± 0,5
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; (flow velocity: ≥ 0,5m/s)
Conductivity monitoring		
Response time	[s]	< 2
Software / programming		
Diagnostic functions		direction of flow detection; liquid detection
Interfaces		
Communication interface		IO-Link
IO-Link revision		1.1.3
SDCI standard		IEC 61131-9
SIO mode		yes
Required master port type		A
Process data analogue		6
Process data binary		8



Magnetic-inductive flow meter

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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]	2700
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

SMF220



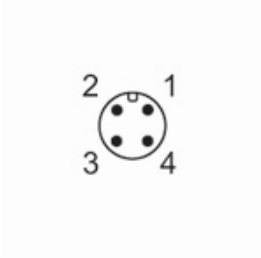
Magnetic-inductive flow meter

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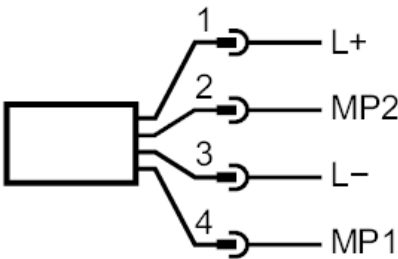
Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection
	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: 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