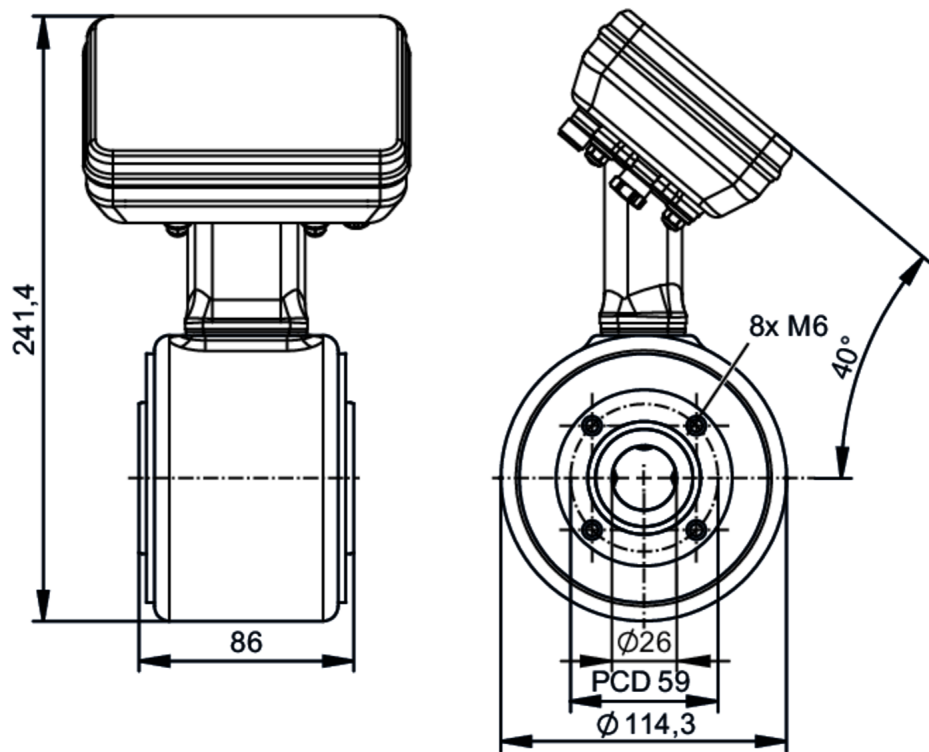


SMF250



Magnetic-inductive flow meter

SMG25KGFFRKG/UST



FCM



Product characteristics

Measuring range	2.5...300 l/min	0.15...18 m³/h	0.66...79.25 gpm	0.28...33.41 ft/s
Nominal diameter	DN25 (1")			
Process connection	ifm-specific device flange			

Application

System	gold-plated contacts			
Application	food and beverage industry			
Media	Conductive liquids; water; water-based media			
Note on media	food products such as beer, milk, fruit juices, soft drinks, ketchup, yogurt, yogurt toppings, ice cream			
	conductivity: $\geq 5 \mu\text{S/cm}$			
Medium temperature [°C]	-20...150			
Min. burst pressure	60 bar	870 psi	6 MPa	
Pressure rating	40 bar	580.1 psi	4 MPa	

Electrical data

Operating voltage [V]	18...32 DC
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Current consumption	[mA]	250; (24V)
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 totalizer reset
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Outputs

Total number of outputs	2	
Output signal	OUT1	pulse signal; totalizer switching signal; diagnostic signal; IO-Link
	OUT2	analog signal; pulse signal; totalizer switching signal; diagnostic signal
Electrical design	PNP/NPN	
Pulse output	flow rate meter	
Short-circuit protection	yes	
Type of short-circuit protection	yes (non-latching)	
Overload protection	yes	

Analog

Number of analog outputs		1
Analog current output	[mA]	4...20; (skalierbar)
Max. load	[Ω]	500
Resolution of analog 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	0.15...18 m³/h	0.66...79.25 gpm	0.28...33.41 ft/s
Note on factory setting		0...4,0 m³/h		
Analog start point ASP	-300...240 l/min	-18...14.4 m³/h	-79.25...63.4 gpm	-33.41...26.73 ft/s
Analog end point AEP	-240...300 l/min	-14.4...18 m³/h	-63.4...79.25 gpm	-26.37...33.41 ft/s
Low flow cut-off LFC	0...240 l/min	0...14.4 m³/h	0...63.4 gpm	0...26.37 ft/s
Pulse length	[s]	0.00005...2		
Pulse value		0.001...99999000 l		

Temperature monitoring

Measuring range	-20...150 °C	-4...302 °F
Analog start point	-20...116 °C	-4...240.8 °F
Analog end point	14...150 °C	57.2...302 °F

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Conductivity monitoring		
Measuring range	[μS/cm]	100...100000
Analog start point	[μS/cm]	0...80000
Analog end point	[μS/cm]	20000...100000
Accuracy / deviations		
Volumetric flow monitoring		
Accuracy (under reference conditions)	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
Reaction 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
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 class		A
Process data analog		6

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Process data binary	8	
Min. process cycle time [ms]	1.9	
IO-Link process data (cyclical)	Function	bit length
	totalizer	32
	flow	32
	temperature	32
	conductivity	32
	status	4
	binary switching information	8
IO-Link functions (acyclical)	direction of flow detection; totalizer; memory; operating hours counter; internal temperature; simulation function	
Supported DeviceIDs	Type of operation	DeviceID
	default	1788

Operating conditions

Ambient temperature	-20...65 °C	-4...149 °F
Storage temperature	-20...80 °C	-4...176 °F
Protection	IP 67; IP 69; (to DIN EN 60529)	

Tests / approvals

EMC	DIN 61326-1	
CPA approval	model number	SMF
	accuracy class	0,5
Shock resistance	DIN IEC 68-2-27	20 g (18ms)
Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)
MTTF [years]	82	
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	3620
Housing	tubular
Inlet pipe length	5 x DN
Outlet pipe length	2 x DN
Dimensions [mm]	Ø 114.3 / L = 86
Material	housing: stainless steel (1.4404 / 316L); flange: stainless steel (1.4301 / 304); electronics fixture: stainless steel (1.4301 / 304); electronics: stainless steel (1.4404 / 316L); LED ring: PP
Materials (wetted parts)	Pipe section: PFA; electrodes: stainless steel (1.4435 / 316L)
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	operating status	LED ring, three-color
Factory setting	m³/h; °C; µS/cm	

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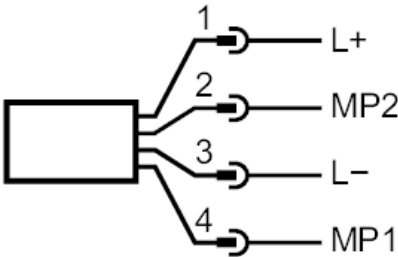
Remarks	
Remarks	MW = Measured value
	MEW = Final value of the measuring range
	pulse and totalizer signal are only available for one of the two outputs
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection
	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: analog output; DO: digital output; MP: multi-function connection