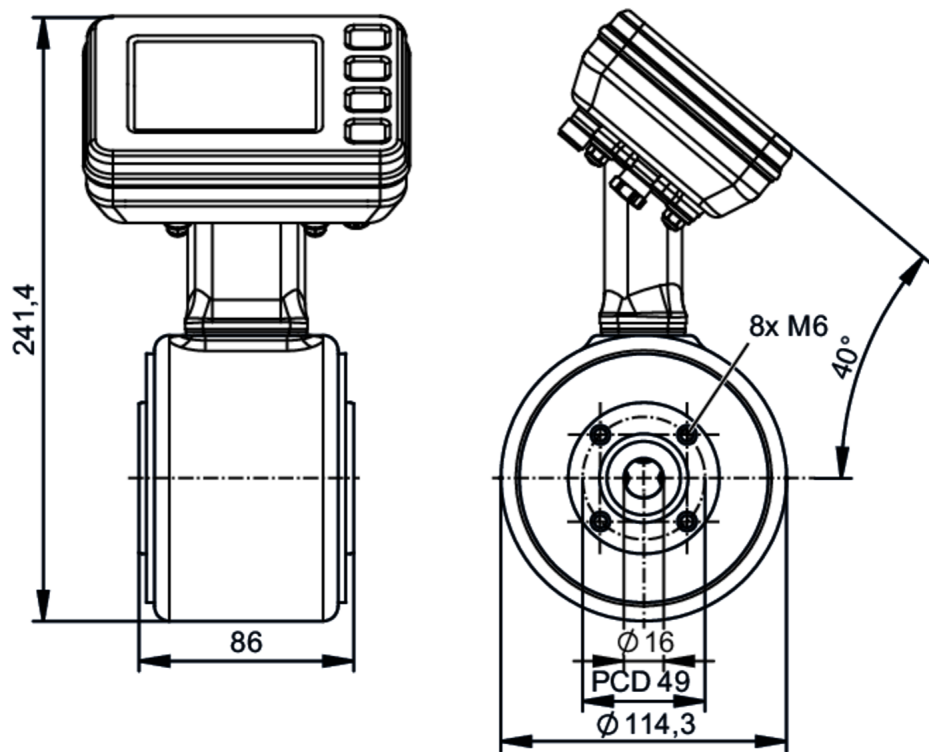


SMF121



Magnetic-inductive flow meter

SMG15KGFFRKG/USD



EC 1935/2004

FCM



Product characteristics

Measuring range	1...100 l/min	60...6000 l/h	0.26...26.41 gpm	0.31...30.94 ft/s
Nominal diameter	DN15 (1/2")			
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	-20...150 °C	-4...302 °F		
Min. burst pressure	870 psi	6 MPa		
Pressure rating	580.1 psi	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 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	1...100 l/min	60...6000 l/h	0.26...26.41 gpm	0.31...30.94 ft/s
Display range	-120...120 l/min	-7200...7200 l/h	-31.7...31.7 gpm	-37.13...37.13 ft/s
Resolution	0.01 l/min	1 l/h	0.01 gpm	0.01 ft/s
Note on factory setting			0...7 gpm	
Analog start point ASP	-100...80 l/min	-6000...4800 l/h	-26.41...21.13 gpm	-30.94...24.75 ft/s
Analog end point AEP	-80...100 l/min	-4800...6000 l/h	-21.13...26.41 gpm	-24.75...30.94 ft/s
Low flow cut-off LFC	0...80 l/min	0...4800 l/h	0...21.13 gpm	0...24.75 ft/s
Pulse length	[s]		0.00005...2	
Pulse value			0.002...99990000 l	

Temperature monitoring

Measuring range	-20...150 °C	-4...302 °F
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SMF121



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Display range	-20...150 °C	-4...302 °F
Resolution	0.01 °C	0.1 °F
Analog start point	-20...116 °C	-4...240.8 °F
Analog end point	14...150 °C	57.2...302 °F
Conductivity monitoring		
Measuring range	[μS/cm]	100...100000
Display range	[μS/cm]	0...10000000
Resolution	[μS/cm]	1
Analog start point	[μS/cm]	0...80000
Analog 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
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

SMF121



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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	
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	1784
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	
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 number	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]	3660	
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); Display: polysulfone; Display-sealing: FKM; LED ring: PP	
Materials (wetted parts)	Pipe section: PFA; electrodes: stainless steel (1.4435 / 316L)	
Nominal diameter	DN15 (1/2")	

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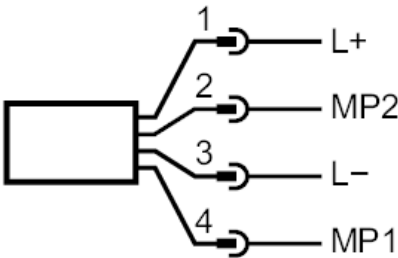
Process connection	ifm-specific device flange	
Surface characteristics Ra/Rz of the wetted parts	Ra < 0.4 µm	
Displays / operating elements		
Display	process value	full graphics TFT display, multi-color 3,5" 128 x 128 Pixel
		display layouts: 4
		display rotation: 4 x 90°
	operating status	LED ring, three-color
Display unit	l/min; l/h; hl/min; hl/h; m³/min; m³/h; m/s; gpm; gph; ft/s; °C; °F; µS/cm; S/m; ms/cm	
Factory setting	gpm; °F; µS/cm	
Language	German; English; Spanish; French; Italian; Japanese; Korean; Portuguese; Chinese	
Operating elements	4	capacitive pushbuttons
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	
	accuracy specifications according to factory certificate on delivery	
Pack quantity	1 pcs.	

Electrical connection

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



Connection



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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