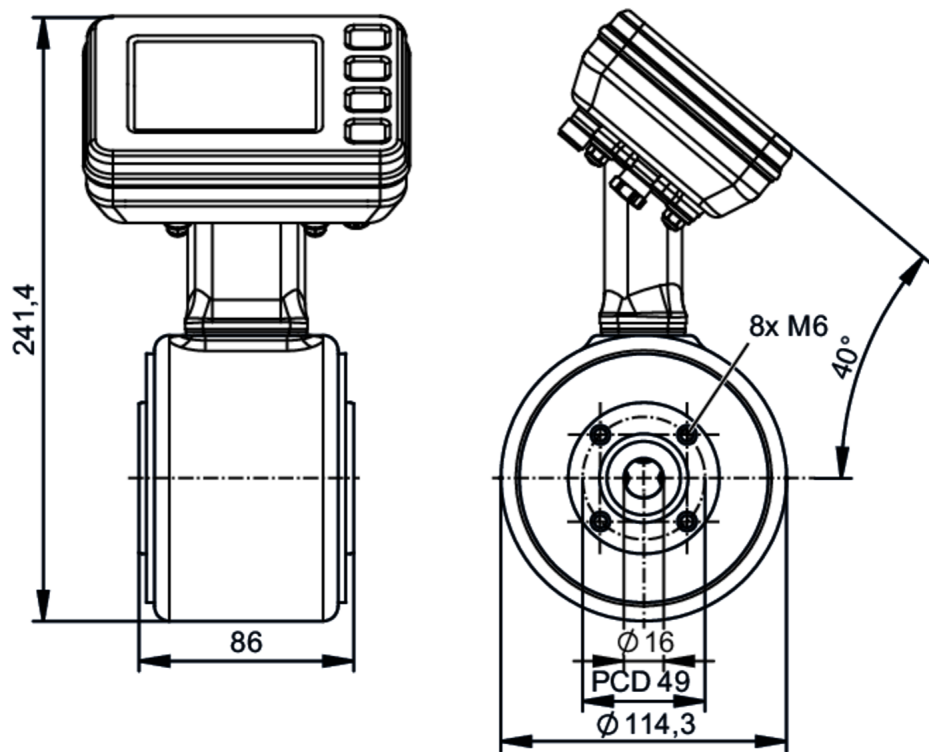


SMF121



Magnetic-inductive flow meter

SMG15KGFFRKG/USD



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				
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 °C		-4...302 °F	
Min. bursting 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 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	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			
Analogue start point ASP	-100...80 l/min	-6000...4800 l/h	-26.41...21.13 gpm	-30.94...24.75 ft/s
Analogue 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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Magnetic-inductive flow meter

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Display range	-20...150 °C	-4...302 °F
Resolution	0.01 °C	0.1 °F
Analogue start point	-20...116 °C	-4...240.8 °F
Analogue 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
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)
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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
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	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 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]		0.001
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		DN15 (1/2")
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; 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

SMF121



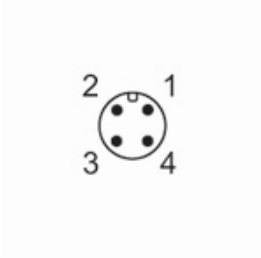
Magnetic-inductive flow meter

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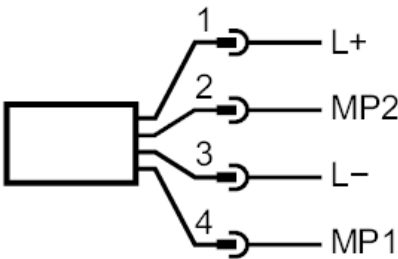
Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection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