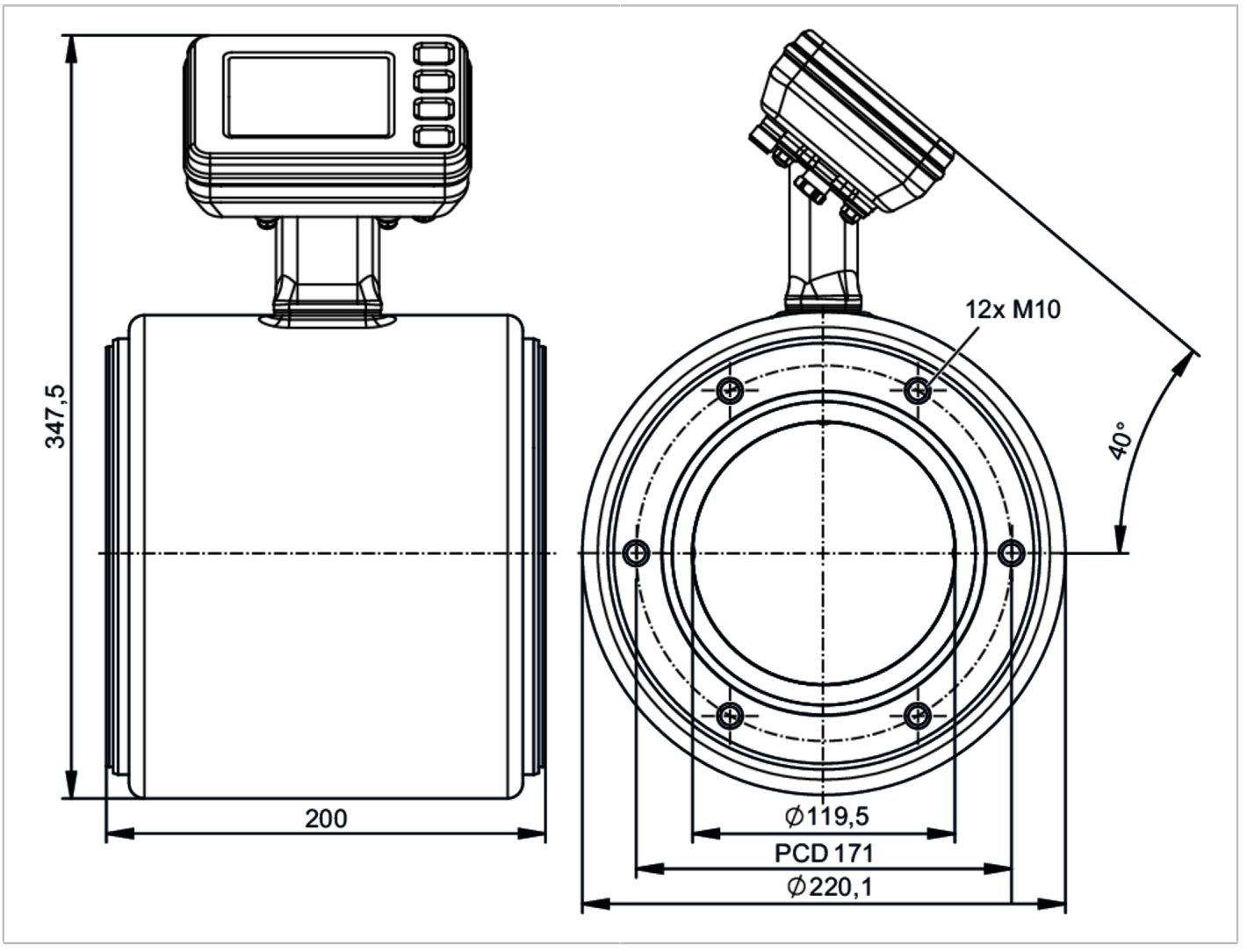
SMF821

Magnetic-inductive flow meter

SMGX1KGFFRKG/USD



EC 1935/2004 FCM IO-Link

Product characteristics				
Measuring range	75...7500 l/min	4500...450000 l/h	20...1981 gpm	0.33...33.42 ft/s
Nominal diameter	DN125 (5“)			
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: ≥ 5 µS/cm			
Medium temperature	-20...150 °C		-4...302 °F	
Min. burst pressure	348 psi		2.4 MPa	
Pressure rating	232 psi		1.6 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			
Inputs					
Inputs		OUT2	external totalizer reset		
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		75...7500 l/min	4500...450000 l/h	20...1981 gpm	0.33...33.42 ft/s
Display range		-9000...9000 l/min	-540000...540000 l/h	-2378...2378 gpm	-40.1...40.1 ft/s
Resolution		0.1 l/min	500 l/h	1 gpm	0.01 ft/s
Note on factory setting		0…485 gpm			
Analog start point ASP		-7500...6000 l/min	-450000...360000 l/h	-1981...1585 gpm	-33.42...26.73 ft/s
Analog end point AEP		-6000...7500 l/min	-360000...450000 l/h	-1585...1981 gpm	-26.73...33.42 ft/s
Low flow cut-off LFC		0...6000 l/min	0...360000 l/h	0...1585 gpm	0...26.73 ft/s
Pulse length	[s]	0.00005...2			
Pulse value		0.038...99990000 l			
Temperature monitoring					
Measuring range		-20...150 °C		-4...302 °F	

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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	

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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	1805
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]	15076	
Housing		tubular	
Inlet pipe length		5 x DN	
Outlet pipe length		2 x DN	
Dimensions	[mm]	Ø 220.1 / L = 200	
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		DN125 (5“)	

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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" 320 x 240 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 - plug

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

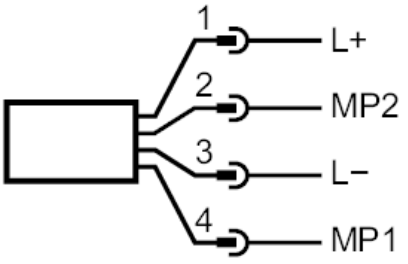


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Connection



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

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