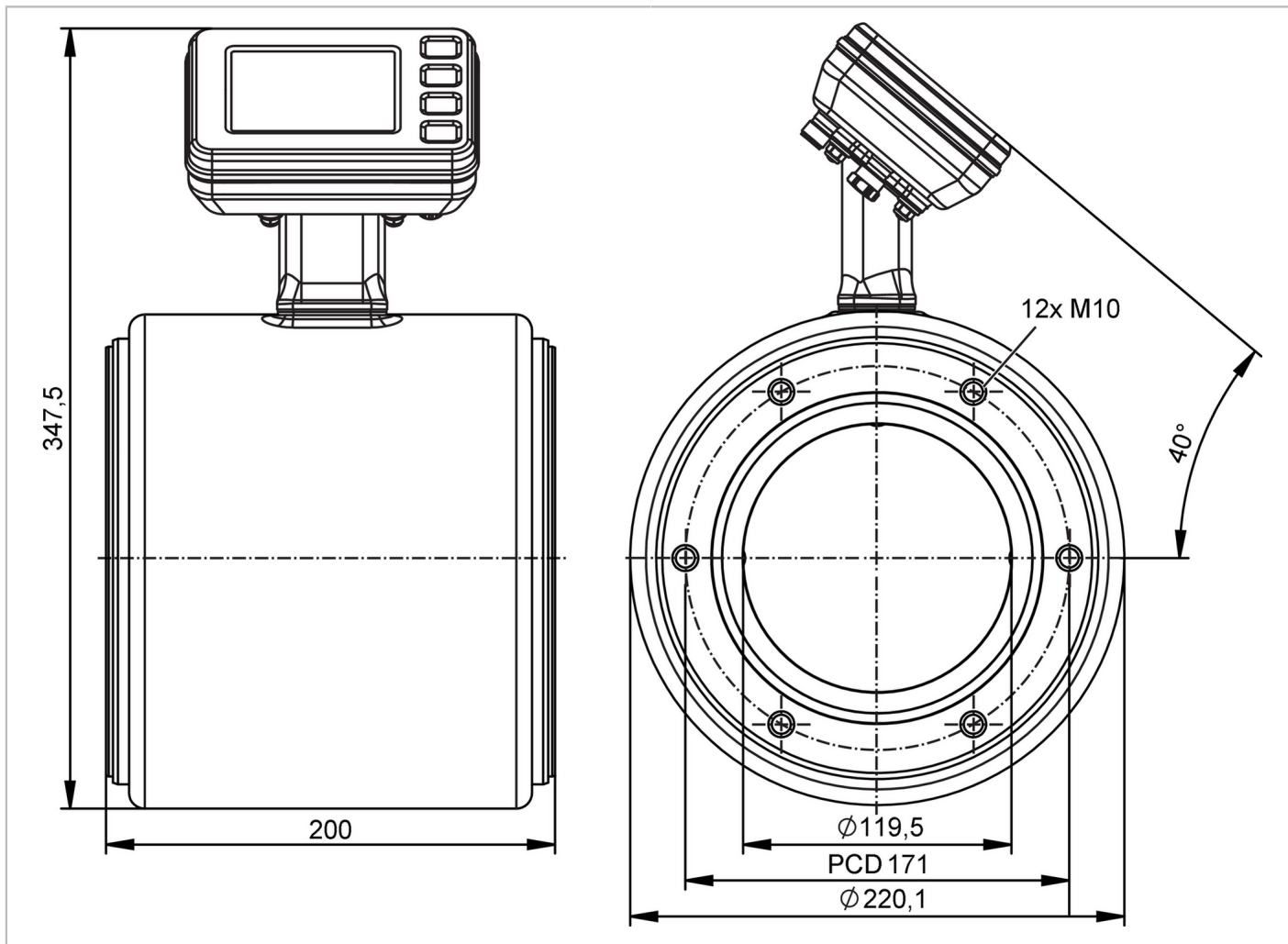


SMF820



Magnetic-inductive flow meter

SMGX1KGFFRKG/USD



EC 1935/2004

FCM



Hygienic Cleanable



IO-Link



Product characteristics

Measuring range	75...7500 l/min	4500...450000 l/h	0.1...10.19 m/s	4.5...450 m³/h
Nominal diameter	DN125 (5")			
Process connection	ifm-specific device flange			

Application

Special feature	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	24 bar	2.4 MPa		
Pressure rating	16 bar	1.6 MPa		

Electrical data

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

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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	0.1...10.19 m/s	4.5...450 m³/h
Display range	-9000...9000 l/min	-540000...540000 l/h	-12.22...12.22 m/s	-540...540 m³/h
Resolution	0.1 l/min	500 l/h	0.01 m/s	0.5 m³/h
Note on factory setting	0...110,0 m³/h			
Analog start point ASP	-7500...6000 l/min	-450000...360000 l/h	-10.19...8.15 m/s	-450...360 m³/h
Analog end point AEP	-6000...7500 l/min	-360000...450000 l/h	-8.15...10.19 m/s	-360...450 m³/h
Low flow cut-off LFC	0...6000 l/min	0...360000 l/h	0...8.15 m/s	0...360 m³/h
Pulse length [s]	0.00005...2			
Pulse value	0.013...99999000 l			
Temperature monitoring				
Measuring range [°C]	-20...150			
Display range [°C]	-20...150			

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Resolution	[°C]	0.01
Analog start point	[°C]	-20...116
Analog end point	[°C]	14...150

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 (v > 0,5 m/s)
Repeatability	[K]	± 0,5 (v > 0,5 m/s)

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; (v > 0,5 m/s)

Conductivity monitoring		
Response time	[s]	< 2

Software / programming

Diagnostic functions	direction of flow detection; liquid detection
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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	1804

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 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]		15092
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)	

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Nominal diameter	DN125 (5")
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; °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

Remarks

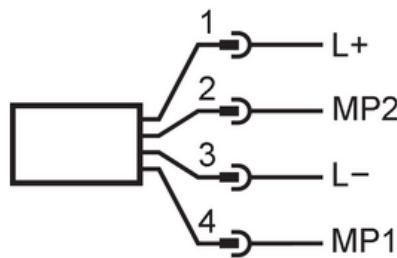
Remarks	MW = Measured value	
	MEW = Final value of the measuring range	
	pulse and totalizer signal are only available for one of the two outputs	
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection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



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