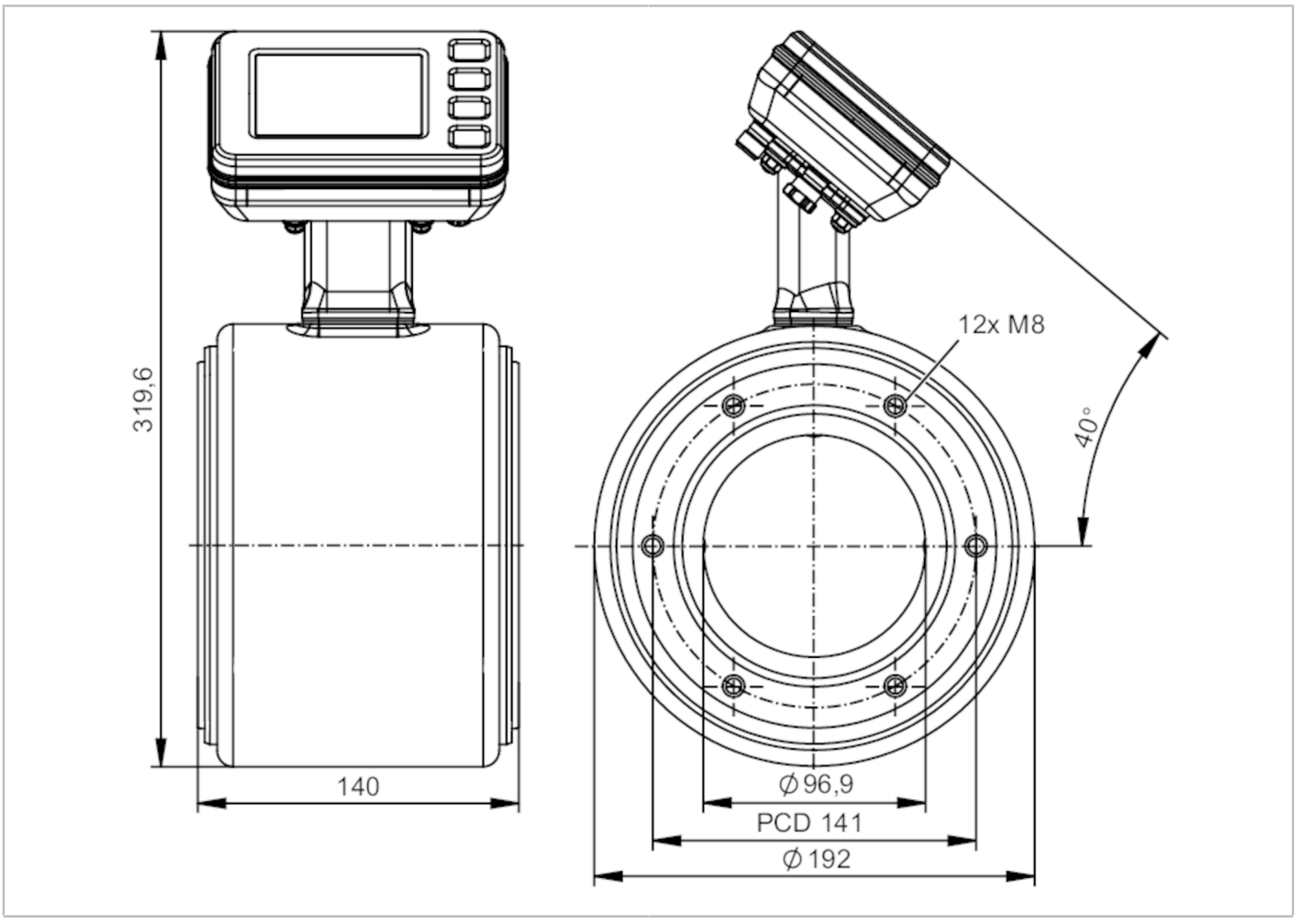
SMF720

Magnetic-inductive flow meter

SMGX0KGFFRKG/USD



Product characteristics				
Measuring range	50...5000 l/min	3000...300000 l/h	0.1...10 m/s	3...300 m³/h
Nominal diameter	DN100 (4“)			
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 [°C]	-20...150			
Min. bursting pressure	37.5 bar		3.75 MPa	
Pressure rating	25 bar		2.5 MPa	
Electrical data				
Operating voltage [V]	18...32 DC			
Current consumption [mA]	250; (24V)			
Protection class	III			

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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		50...5000 l/min	3000...300000 l/h	0.1...10 m/s	3...300 m³/h
Display range		-6000...6000 l/min	-360000...360000 l/h	-12...12 m/s	-360...360 m³/h
Resolution		0.1 l/min	200 l/h	0.01 m/s	0.2 m³/h
Note on factory setting		0...70,0 m³/h			
Analog start point ASP		-5000...4000 l/min	-300000...240000 l/h	-10.61...8.61 m/s	-300...240 m³/h
Analog end point AEP		-4000...5000 l/min	-240000...300000 l/h	-8.61...10.61 m/s	-240...300 m³/h
Low flow cut-off LFC		0...4000 l/min	0...240000 l/h	0...8.61 m/s	0...240 m³/h
Pulse length	[s]	0.00005...2			
Pulse value		0.009...99990000 l			
Temperature monitoring					
Measuring range	[°C]	-20...150			
Display range	[°C]	-20...150			
Resolution	[°C]	0.01			

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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 (under reference conditions)		with optional factory calibration (available from 2025)	± (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		**Function class**	**Description**
		0x4000	Identification and Diagnosis
		0x001B	Measuring and Switching Sensor, floating point, 4 channel
SIO mode		yes	
Required master port class		A	
Process data analog		6	
Process data binary		8	

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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; Speicher; operating hours counter; internal temperature; simulation function	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1801
Operating conditions			
Ambient temperature	[°C]	-20...65	
Storage temperature	[°C]	-20...80	
Protection		IP 67; IP 69	
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
Pressure equipment directive		sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data			
Weight	[g]	8758.5	
Inlet pipe length		5 x DN	
Outlet pipe length		2 x DN	
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: polysulfane; Display-sealing: FKM; LED ring: PP	
Materials (wetted parts)		Pipe section: PFA; electrodes: stainless steel (1.4435 / 316L)	
Nominal diameter		DN100 (4“)	
Process connection		ifm-specific device flange	
Surface characteristics Ra/Rz of the wetted parts		≤ 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

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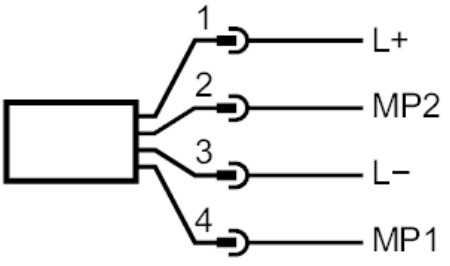
Remarks

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



1:	L+
2:	OUT MP2, DO, AO, Reset
3:	L-
4:	OUT1 MP1, DO, IO-Link