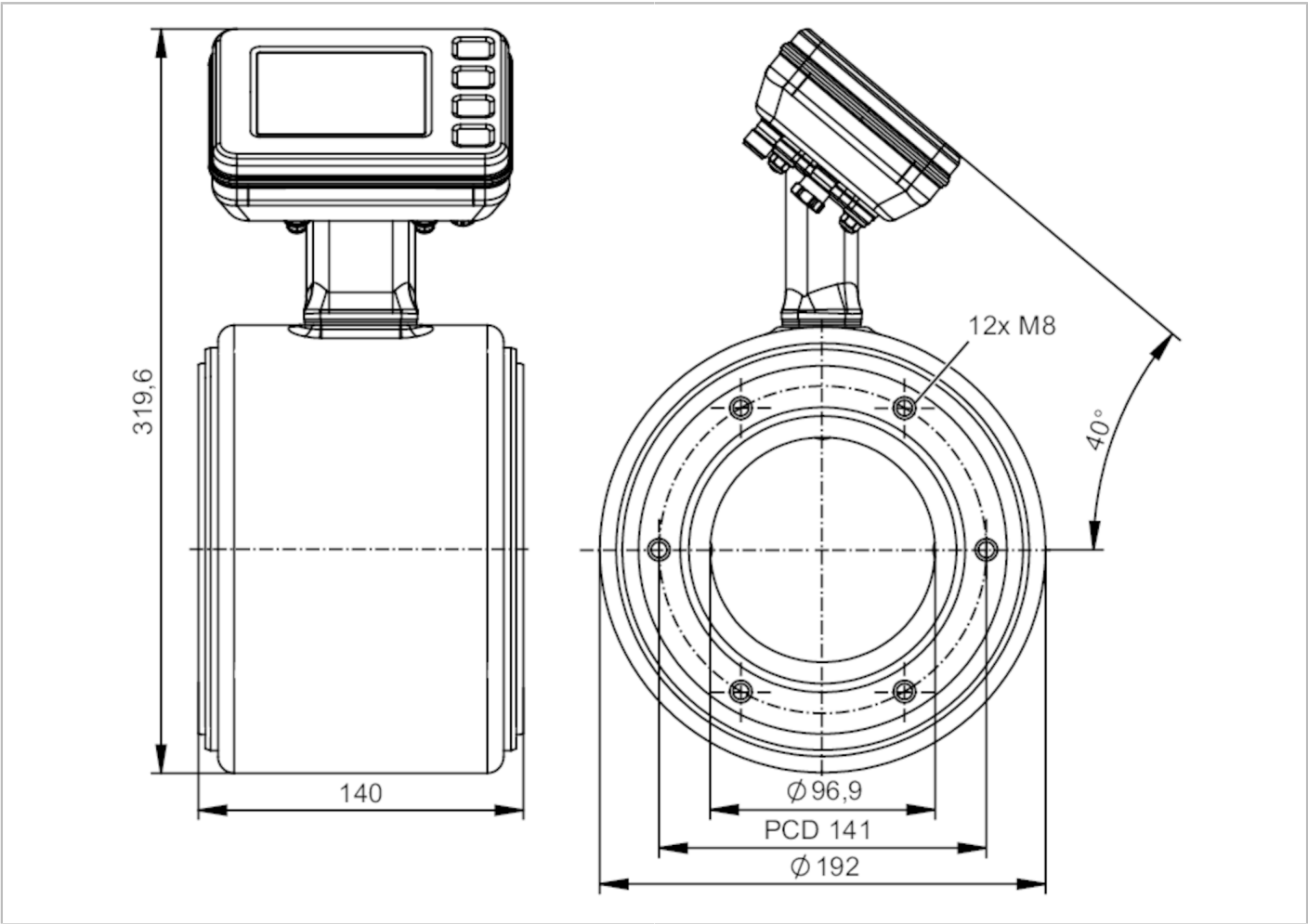


SMF721



Magnetic-inductive flow meter

SMGX0KGFFRKG/USD



Product characteristics				
Measuring range	50...5000 l/min	3000...300000 l/h	13...1321 gpm	0.34...34.82 ft/s
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	-20...150 °C		-4...302 °F	
Min. bursting pressure	543.75 psi		3.75 MPa	
Pressure rating	362.5 psi		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	13...1321 gpm	0.34...34.82 ft/s
Display range	-6000...6000 l/min	-360000...360000 l/h	-1585.03...1585.03 gpm	-39.4...39.4 ft/s
Resolution	0.1 l/min	200 l/h	0.01 gpm	0.01 ft/s
Note on factory setting	0...310 gpm			
Analog start point ASP	-5000...4000 l/min	-300000...240000 l/h	-1321...1056.8 gpm	-32.8...26.24 ft/s
Analog end point AEP	-4000...5000 l/min	-240000...300000 l/h	-1056.8...1321 gpm	-26.24...32.8 ft/s
Low flow cut-off LFC	0...4000 l/min	0...240000 l/h	0...1056.8 gpm	0...26.24 ft/s
Pulse length [s]	0.00005...2			
Pulse value	0.009...99990000 l			
Temperature monitoring				
Measuring range	-20...150 °C		-4...302 °F	
Display range	-20...150 °C		-4...302 °F	
Resolution	0.01 °C		0.1 °F	

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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 (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

Operating conditions		
Ambient temperature	-20...65 °C	-4...149 °F
Storage temperature	-20...80 °C	-4...176 °F
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]	8759.6
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; 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

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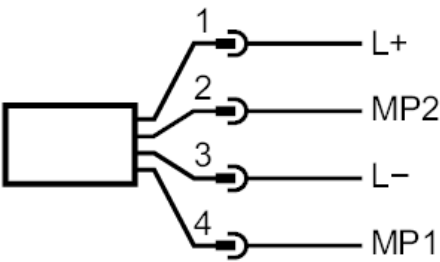
Remarks	
Remarks	MW = Measured value
	MEW = Final value of the measuring range
	pulse and totalizer signal are only available for one of the two outputs
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection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