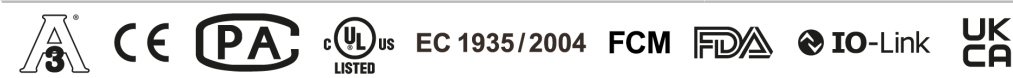
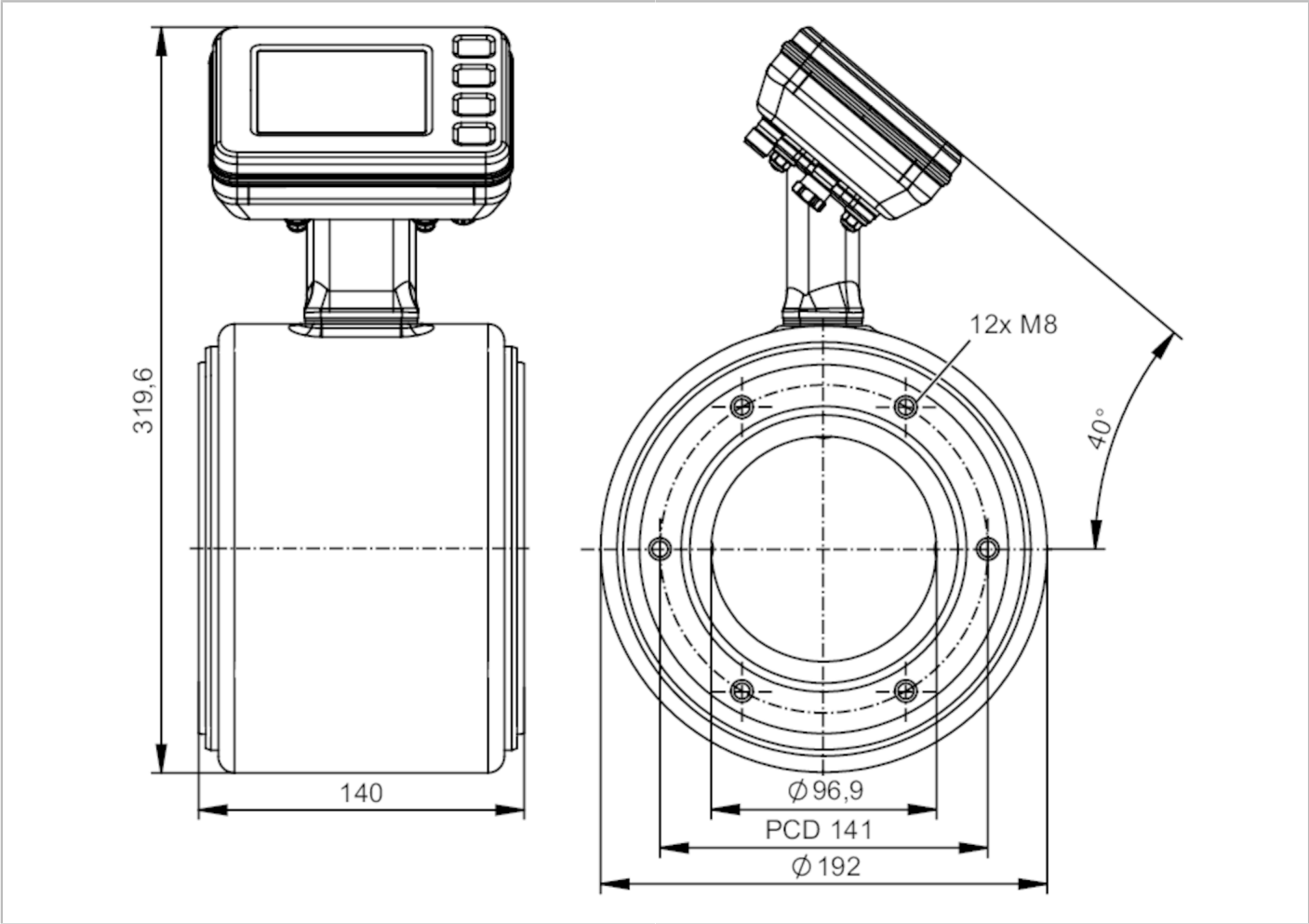


SMF720

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				
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	[°C]	-20...150		
Min. burst 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 totaliser reset		
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	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			
Analogue start point ASP	-5000...4000 l/min	-300000...240000 l/h	-10.61...8.61 m/s	-300...240 m³/h
Analogue 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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Analogue start point	[°C]	-20...116
Analogue end point	[°C]	14...150
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 (under reference conditions)	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)
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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Magnetic-inductive flow meter

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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 type	A		
Process data analogue	6		
Process data binary	8		
Min. process cycle time [ms]	1.9		
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	1801	
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		
CPA approval	model number	SMF	
	accuracy class	0,5	
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	
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request		
Mechanical data			
Weight [g]	8758.5		
Housing	cylindrical		
Inlet pipe length	5 x DN		
Outlet pipe length	2 x DN		
Dimensions [mm]	Ø 192 / L = 140		
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		

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Materials (wetted parts)	Pipe section: PFA; electrodes: stainless steel (316L/1.4435)
Nominal diameter	DN100 (4")
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" 320 x 240 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; °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

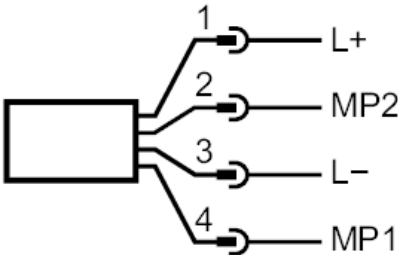
Remarks	MW = measured value	
	MEW = Final value of the measuring range	
	pulse and totaliser signal are only available for one of the two outputs	
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection	
	reference conditions (2/2): inlet pipe length 10xDN, outlet pipe length 5xDN, device settling time: 30 minutes, device orientation: horizontal, display orientation: up	
	accuracy specifications according to factory certificate on delivery	
	Pack quantity	1 pcs.

Electrical connection

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



Connection



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Magnetic-inductive flow meter

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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