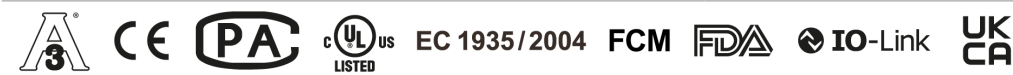
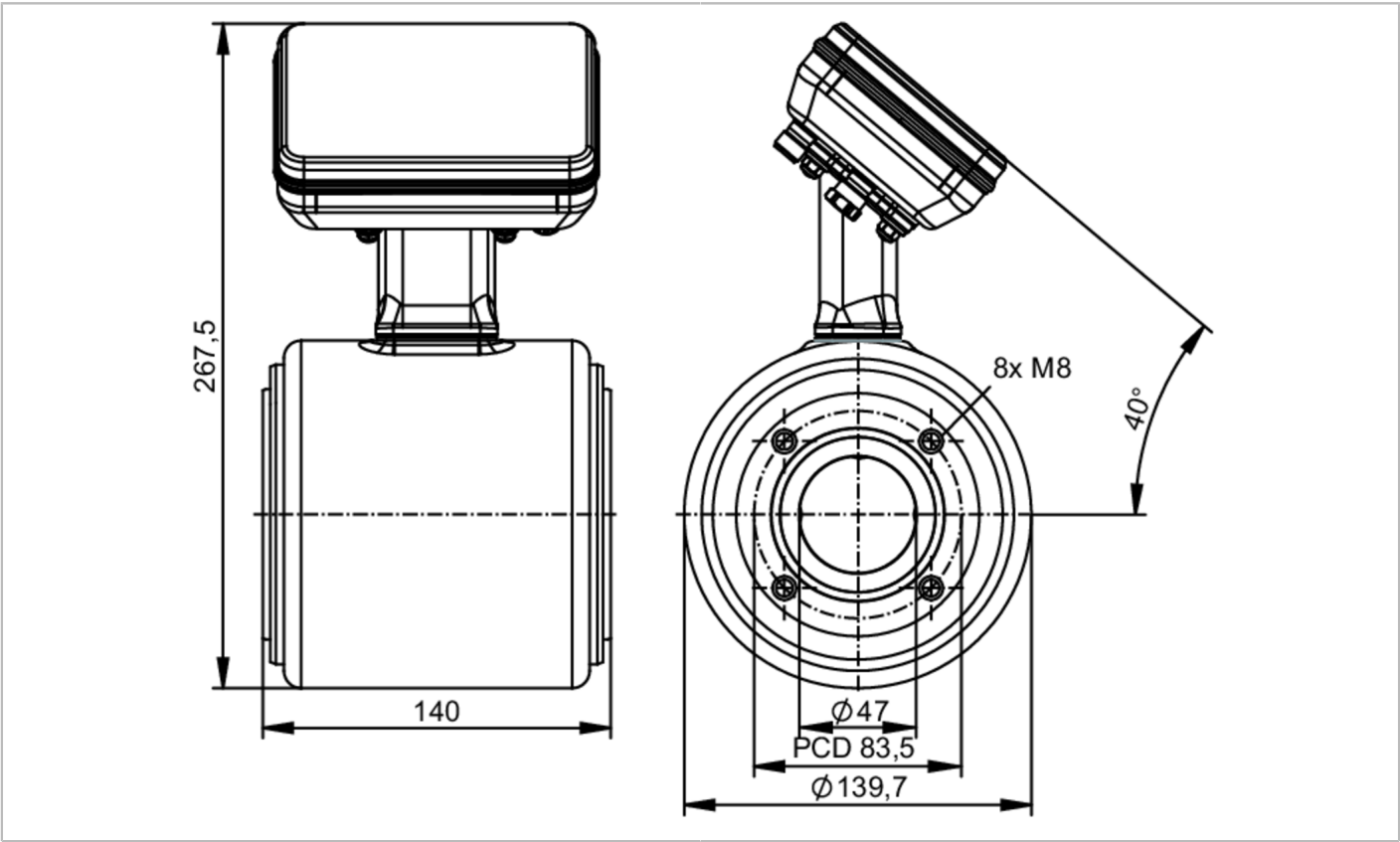


SMF450



Magnetic-inductive flow meter

SMG50KGFFRKG/UST



Product characteristics

Measuring range	10...1200 l/min	0.6...72 m³/h	2.64...317.04 gpm	0.3...32.8 ft/s
Nominal diameter	DN50 (2")			
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: $\geq 5 \mu\text{S/cm}$			
Medium temperature [°C]	-20...150			
Min. bursting pressure	37.5 bar	543.75 psi	3.75 MPa	
Pressure rating	25 bar	362.5 psi	2.5 MPa	

Electrical data

Operating voltage [V]	18...32 DC			
Current consumption [mA]	250; (24V)			
Protection class	III			
Reverse polarity protection	yes			
Power-on delay time [s]	< 5			
Measuring principle	magnetic-inductive			

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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	10...1200 l/min	0.6...72 m³/h	2.64...317.04 gpm	0.3...32.8 ft/s
Note on factory setting	0...18,0 m³/h			
Analogue start point ASP	-1200...960 l/min	-72...57.6 m³/h	-317.04...253.63 gpm	-32.8...26.24 ft/s
Analogue end point AEP	-960...1200 l/min	-57.6...72 m³/h	-253.63...317.04 gpm	-26.24...32.8 ft/s
Low flow cut-off LFC	0...960 l/min	0...57.6 m³/h	0...253.63 gpm	0...26.24 ft/s
Pulse length [s]	0.00005...2			
Pulse value	0.002...99999000 l			
Temperature monitoring				
Measuring range	-20...150 °C		-4...302 °F	
Analogue start point	-20...116 °C		-4...240.8 °F	
Analogue end point	14...150 °C		57.2...302 °F	
Conductivity monitoring				
Measuring range [µS/cm]	100...100000			
Resolution [µS/cm]	1			
Analogue start point [µS/cm]	0...80000			
Analogue end point [µS/cm]	20000...100000			



Magnetic-inductive flow meter

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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	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM3 (230,4 kBaud)	
IO-Link revision	1.1.3	
SDCI standard	IEC 61131-9	
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

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Magnetic-inductive flow meter

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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	1794

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	
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]		82
UL approval	UL approval no.	I032
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight [g]		5815.2
Housing		cylindrical
Inlet pipe length		5 x DN
Outlet pipe length		2 x DN
Dimensions [mm]		Ø 139.7 / 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); LED ring: PP	
Materials (wetted parts)	Pipe section: PFA; electrodes: stainless steel (316L/1.4435)	
Nominal diameter		DN50 (2")
Process connection		ifm-specific device flange
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.4 µm

Displays / operating elements		
Display	operating status	LED ring, three-colour
Factory setting		m³/h; °C; µS/cm

SMF450



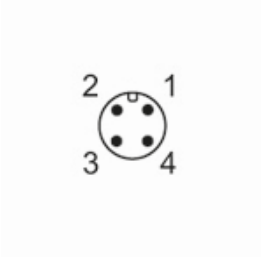
Magnetic-inductive flow meter

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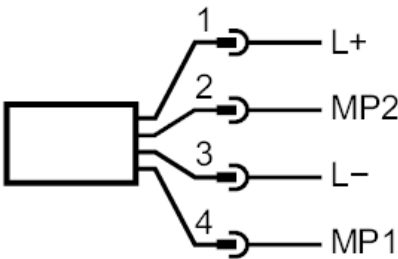
Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection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

Electrical connection

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



Connection



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