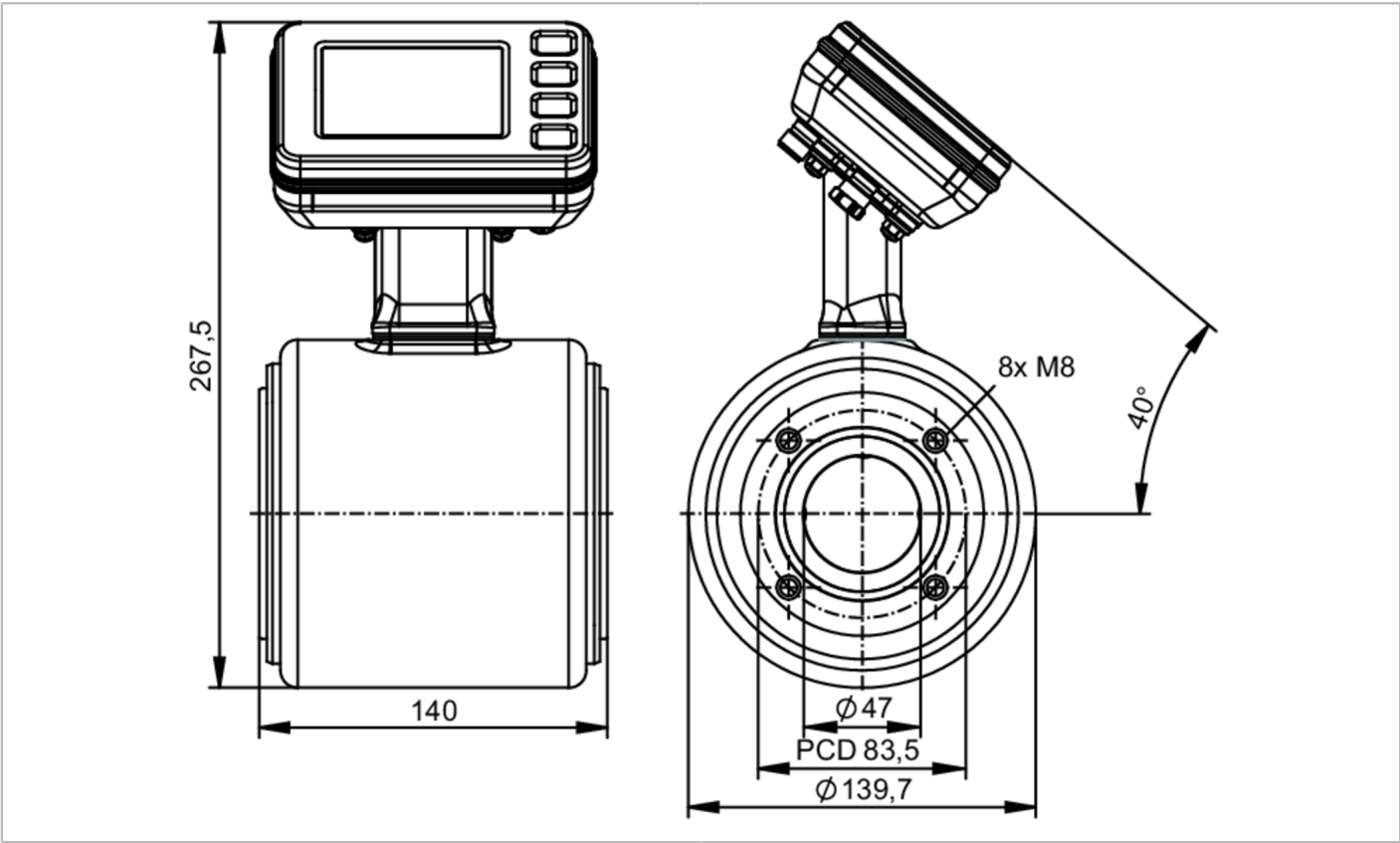


SMF421



Magnetic-inductive flow meter

SMG50KGFFRKG/USD



Product characteristics

Measuring range	10...1200 l/min	600...72000 l/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		
Medium temperature	[°F]	-4...302		
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
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	600...72000 l/h	2.64...317.04 gpm	0.3...32.8 ft/s
Display range	-1440...1440 l/min	-86400...86400 l/h	-380.41...380.41 gpm	-39.4...39.4 ft/s
Resolution	0.1 l/min	50 l/h	0.01 gpm	0.01 ft/s
Note on factory setting	0...79,26 gpm			
Analogue start point ASP	0...960 l/min	0...57600 l/h	0...253.63 gpm	0...26.24 ft/s
Analogue end point AEP	240...1200 l/min	14400...72000 l/h	63.41...317.04 gpm	6.56...32.8 ft/s
Low flow cut-off LFC	0...960 l/min	0...57600 l/h	0...253.63 gpm	0...26.24 ft/s
Pulse length [s]	0.002...2			
Pulse value	0.001...99990000 l			
Temperature monitoring				
Measuring range [°C]	-20...150			
Measuring range [°F]	-4...302			
Display range [°C]	-20...150			
Display range [°F]	-4...302			
Resolution [°C]	0.01			
Resolution [°F]	0.1			

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Analogue start point	[°C]	-20...116
Analogue start point	[°F]	-4...240.8
Analogue end point	[°C]	14...150
Analogue end point	[°F]	57.2...302
conductivity monitoring		
Measuring range	[μS/cm]	100...100000
Display range	[μS/cm]	0...100000
Resolution	[μS/cm]	1
Analogue start point	[μS/cm]	0...80000
Analogue end point	[μS/cm]	20000...100000
Accuracy / deviations		
volumetric flow monitoring		
Accuracy (in the measuring range)	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
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	Function class	Designation
	0x4000	Identification and Diagnosis
	0x001B	Measuring and Switching Sensor, floating point, 4 channel
SIO mode		yes
Required master port type		A



Magnetic-inductive flow meter

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Process data analogue	6														
Process data binary	8														
Min. process cycle time [ms]	1.9														
IO-Link process data (cyclical)	<table> <tr> <th>function</th><th>bit length</th></tr> <tr> <td>totaliser</td><td>32</td></tr> <tr> <td>flow</td><td>32</td></tr> <tr> <td>temperature</td><td>32</td></tr> <tr> <td>conductivity</td><td>32</td></tr> <tr> <td>status</td><td>4</td></tr> <tr> <td>binary switching information</td><td>8</td></tr> </table>	function	bit length	totaliser	32	flow	32	temperature	32	conductivity	32	status	4	binary switching information	8
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; Speicher; operating hours counter; internal temperature; simulation function														

Operating conditions

Ambient temperature [°C]	-20...65
Ambient temperature [°F]	-4...149
Storage temperature [°C]	-20...80
Storage temperature [°F]	-4...176
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)
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	6100
Inlet pipe length	5 x DN
Outlet pipe length	2 x DN
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: PPSU; Display-Sealing: FKM; 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	≤ 0.4 µm

Displays / operating elements

Factory setting	gpm; °F; µS/cm	
Display	process value	full graphics TFT display, multi-colour 3,5" 128 x 128 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; gpm; gph; bbl/min; bbl/h; ft/s; °C; °F; µS/cm; S/m; ms/cm	
Language	German; English; Spanish; French; Italian; Japanese; Korean; Portuguese; Chinese	
Operating elements	4	capacitive pushbuttons

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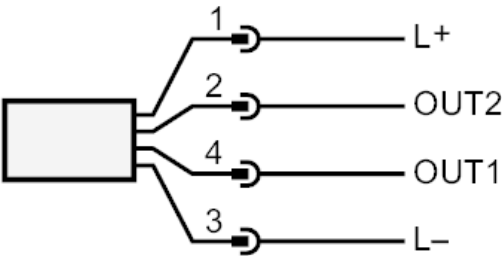
Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	reference conditions : water , 15...35 °C, inlet pipe length: 10 x DN, outlet pipe length: 5 x DN
Pack quantity	1 pcs.

Electrical connection

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



Connection



1:	L+
2:	OUT2 DO, AO, reset
3:	L-
4:	OUT1 DO, IO-Link