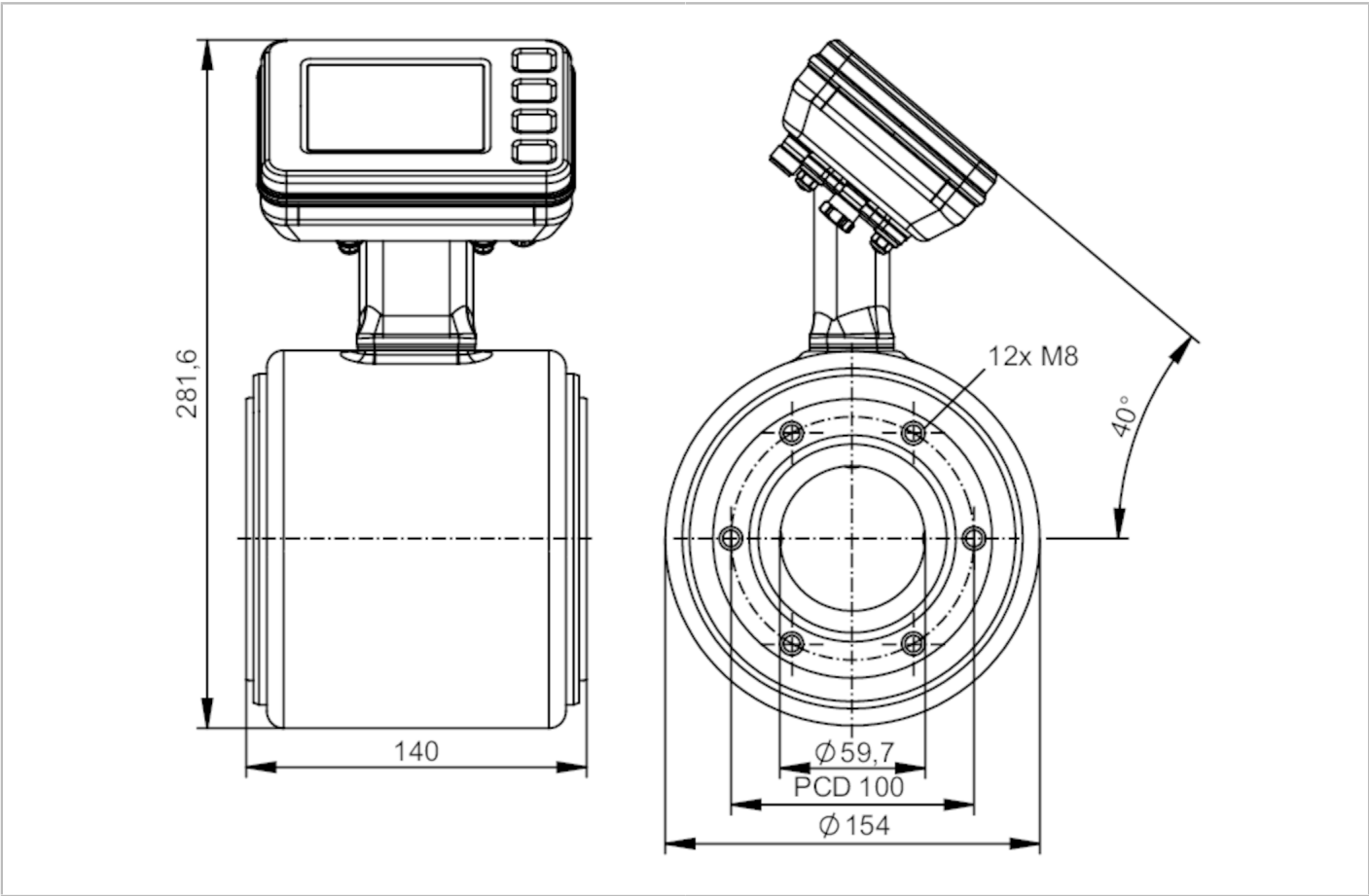


SMF521



Magnetic-inductive flow meter

SMG65KGFFRKG/USD



Product characteristics				
Measuring range	20...2000 l/min	1200...120000 l/h	5.28...528.4 gpm	0.33...32.8 ft/s
Nominal diameter	DN65 (2 1/2")			
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: ≥ 5 µS/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			

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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		20...2000 l/min	1200...120000 l/h	5.28...528.4 gpm
Display range		-2400...2400 l/min	-144000...144000 l/h	-634.01...634.01 gpm
Resolution		0.1 l/min	100 l/h	0.01 gpm
Note on factory setting		0...132,10 gpm		
Analogue start point ASP		0...1600 l/min	0...96000 l/h	0...422.72 gpm
Analogue end point AEP		400...2000 l/min	24000...120000 l/h	105.68...528.4 gpm
Low flow cut-off LFC		0...1600 l/min	0...96000 l/h	0...422.72 gpm
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		

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Resolution	[°C]	0.01
Resolution	[°F]	0.1
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)
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conductivity monitoring

Response time	[s]	< 2
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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	
Profiles	Function class	Designation
	0x4000	Identification and Diagnosis
	0x001B	Measuring and Switching Sensor, floating point, 4 channel



Magnetic-inductive flow meter

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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; 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]	7000
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		DN65 (2 1/2")
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	

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Operating elements	4	capacitive pushbuttons
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Remarks

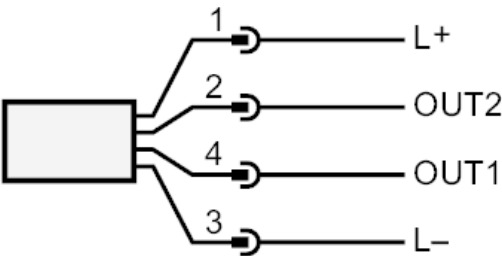
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	reference conditions : water , 15...35 °C, inlet pipe length: 10 x DN, outlet pipe length: 5 x DN
Pack quantity	1 pcs.

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