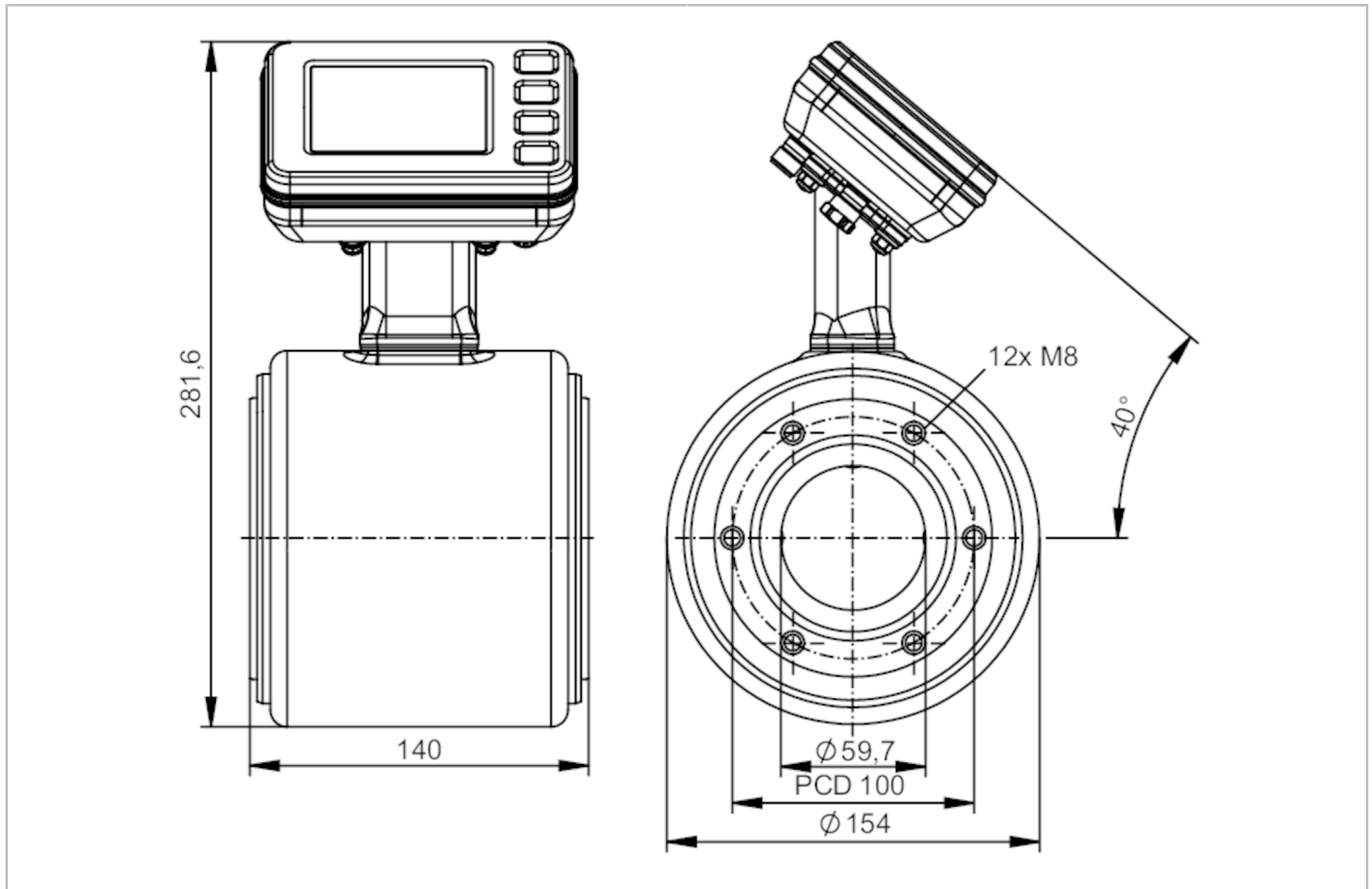


SMF520



Magnetic-inductive flow meter

SMG65KGFFRKG/USD



Product characteristics	
Measuring range	20...2000 l/min 1200...120000 l/h 0.1...10 m/s 1.2...120 m³/h
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: $\geq 5 \mu\text{S/cm}$
Medium temperature [°C]	-20...150
Min. bursting 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
Reverse polarity protection	yes
Power-on delay time [s]	< 5

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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	0.1...10 m/s	1.2...120 m³/h
Display range	-2400...2400 l/min	-144000...144000 l/h	-12...12 m/s	-144...144 m³/h
Resolution	0.1 l/min	100 l/h	0.01 m/s	0.01 m³/h
Note on factory setting	0...30,0 m³/h			
Analogue start point ASP	0...1600 l/min	0...96000 l/h	0...8.05 m/s	0...96 m³/h
Analogue end point AEP	400...2000 l/min	24000...120000 l/h	2...10.05 m/s	24...120 m³/h
Low flow cut-off LFC	0...1600 l/min	0...96000 l/h	0...8.05 m/s	0...96 m³/h
Pulse length [s]	0.002...2			
Pulse value	0.004...99990000 l			
Temperature monitoring				
Measuring range [°C]	-20...150			
Display range [°C]	-20...150			
Resolution [°C]	0.01			
Analogue start point [°C]	-20...116			
Analogue end point [°C]	14...150			

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Conductivity monitoring								
Measuring range	[μ S/cm]	100...100000						
Display range	[μ S/cm]	0...100000						
Resolution	[μ S/cm]	1						
Analogue start point	[μ S/cm]	0...80000						
Analogue end point	[μ S/cm]	20000...100000						
Accuracy / deviations								
Volumetric flow monitoring								
Accuracy (in the measuring range)	with optional factory calibration (available from 2025)	$\pm (0,2 \% \text{ MW} + 2 \text{ mm/s})$						
	standard	$\pm (0,5 \% \text{ MW} + 1,5 \text{ mm/s})$						
Repeatability		0,1% MW						
Temperature monitoring								
Accuracy	[K]	± 1						
Repeatability	[K]	$\pm 0,5$						
Conductivity monitoring								
Accuracy (in the measuring range)	in the range of 100...20000 μ S/cm	$\pm 10\% \text{ MW}$						
	in the range of 20000...100000 μ S/cm	$\pm 20\% \text{ MW}$						
Repeatability		$\pm 5\% \text{ MW}$						
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: $\geq 0,5 \text{ m/s}$)						
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	<table border="1"> <thead> <tr> <th>Function class</th> <th>Designation</th> </tr> </thead> <tbody> <tr> <td>0x4000</td> <td>Identification and Diagnosis</td> </tr> <tr> <td>0x001B</td> <td>Measuring and Switching Sensor, floating point, 4 channel</td> </tr> </tbody> </table>	Function class	Designation	0x4000	Identification and Diagnosis	0x001B	Measuring and Switching Sensor, floating point, 4 channel	
Function class	Designation							
0x4000	Identification and Diagnosis							
0x001B	Measuring and Switching Sensor, floating point, 4 channel							
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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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	
Supported DeviceIDs	Type of operation	DeviceID
	default	1795

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

Mechanical data		
Weight	[g]	6925.7
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: polysulfane; 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	m³/h; °C; µS/cm	
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	
Language	German; English; Spanish; French; Italian; Japanese; Korean; Portuguese; Chinese	
Operating elements	4	capacitive pushbuttons

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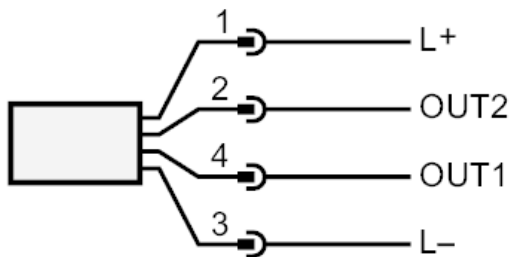
Remarks	
Remarks	MW = measured value
	MEW = Final value of the measuring range
	pulse and totaliser signal are only available for one of the two outputs
	reference conditions : water , 15...35 °C, inlet pipe length: 10 x DN, outlet pipe length: 5 x DN
Pack quantity	1 pcs.

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