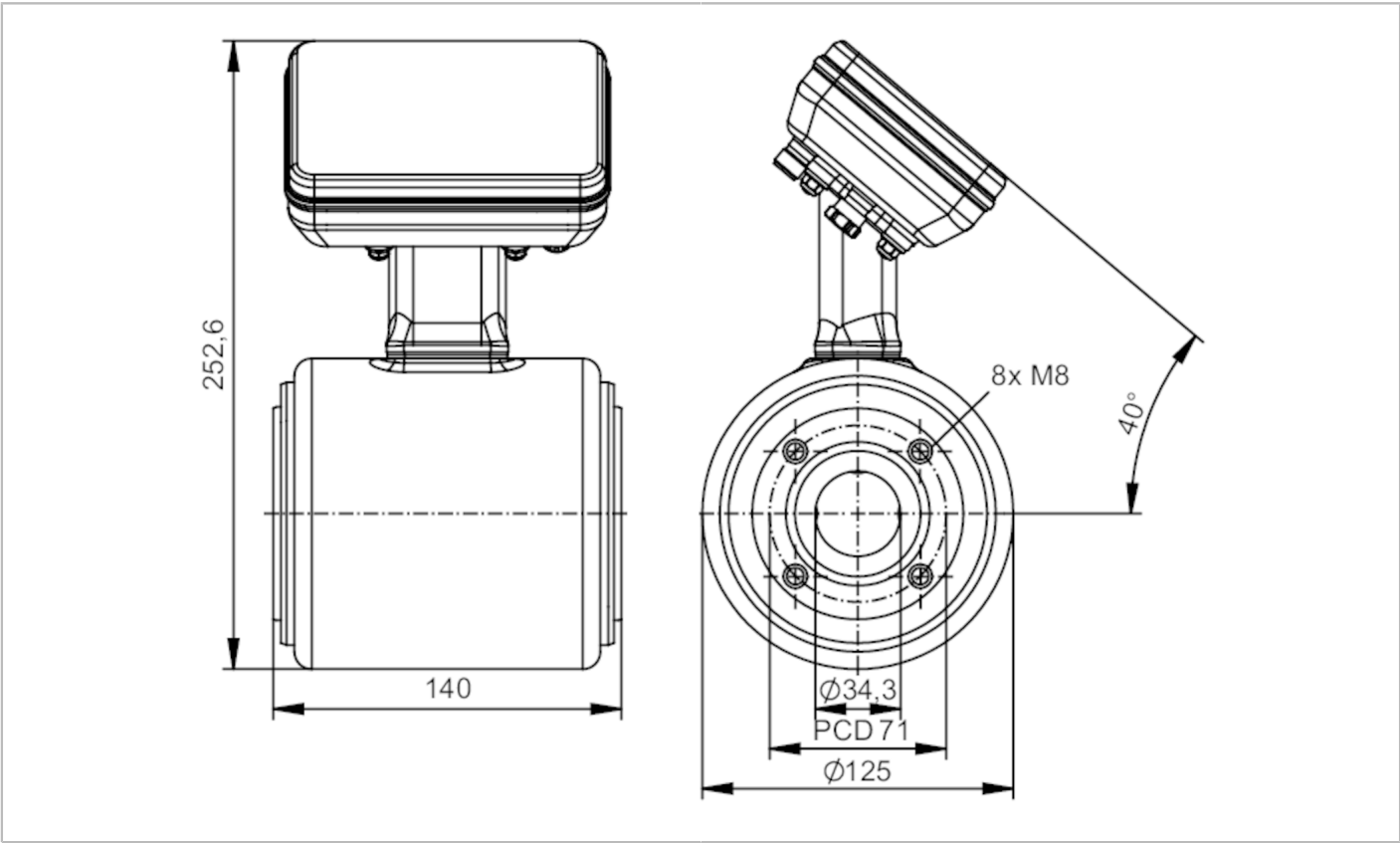


SMF350



Magnetic-inductive flow meter

SMG40KGFFRKG/UST



Product characteristics				
Measuring range	5...750 l/min	0.3...45 m³/h	1.32...198.15 gpm	0.23...32.8 ft/s
Nominal diameter	DN40 (1 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	-20...150 °C			
Min. bursting pressure	60 bar	870 psi	6 MPa	
Pressure rating	40 bar	580.1 psi	4 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		5...750 l/min	0.3...45 m³/h	1.32...198.15 gpm	0.23...32.8 ft/s
Note on factory setting		0...11,0 m³/h			
Analogue start point ASP		-750...600 l/min	-45...36 m³/h	-198.15...158.52 gpm	-32.8...26.24 ft/s
Analogue end point AEP		-600...750 l/min	-36...45 m³/h	-158.52...198.15 gpm	-26.24...32.8 ft/s
Low flow cut-off LFC		0...600 l/min	0...36 m³/h	0...158.52 gpm	0...26.24 ft/s
Pulse length [s]		0.00005...2			
Pulse value		0.001...99990000 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			
Analogue start point [µS/cm]		0...80000			
Analogue end point [µS/cm]		20000...100000			



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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	Common - I&D	Identification and Diagnosis
	Smart Sensor - SSP 4.3.4	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
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	

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Supported DeviceIDs	Type of operation	DeviceID
	default	1791
Operating conditions		
Ambient temperature	-20...65 °C	-4...149 °F
Storage temperature	-20...80 °C	-4...176 °F
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]	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]	5300	
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); LED ring: PP	
Materials (wetted parts)	Pipe section: PFA; electrodes: stainless steel (316L/1.4435)	
Nominal diameter	DN40 (1 1/2")	
Process connection	ifm-specific device flange	
Surface characteristics Ra/Rz of the wetted parts	≤ 0.4 µm	
Displays / operating elements		
Display	operating status	LED ring, three-colour
Factory setting	m³/h; °C; µS/cm	
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



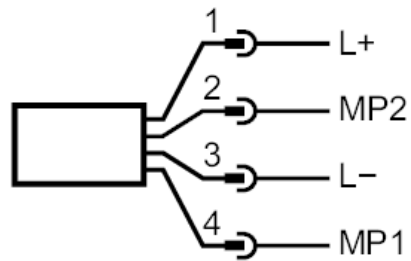
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Connection



Electrical connection - plug

1	L+	
2	OUT2	MP2, DO, AO, reset
3	L-	
4	OUT1	MP1, DO, IO-Link

AO: analogue output; DO: digital output; MP: multi-function connection