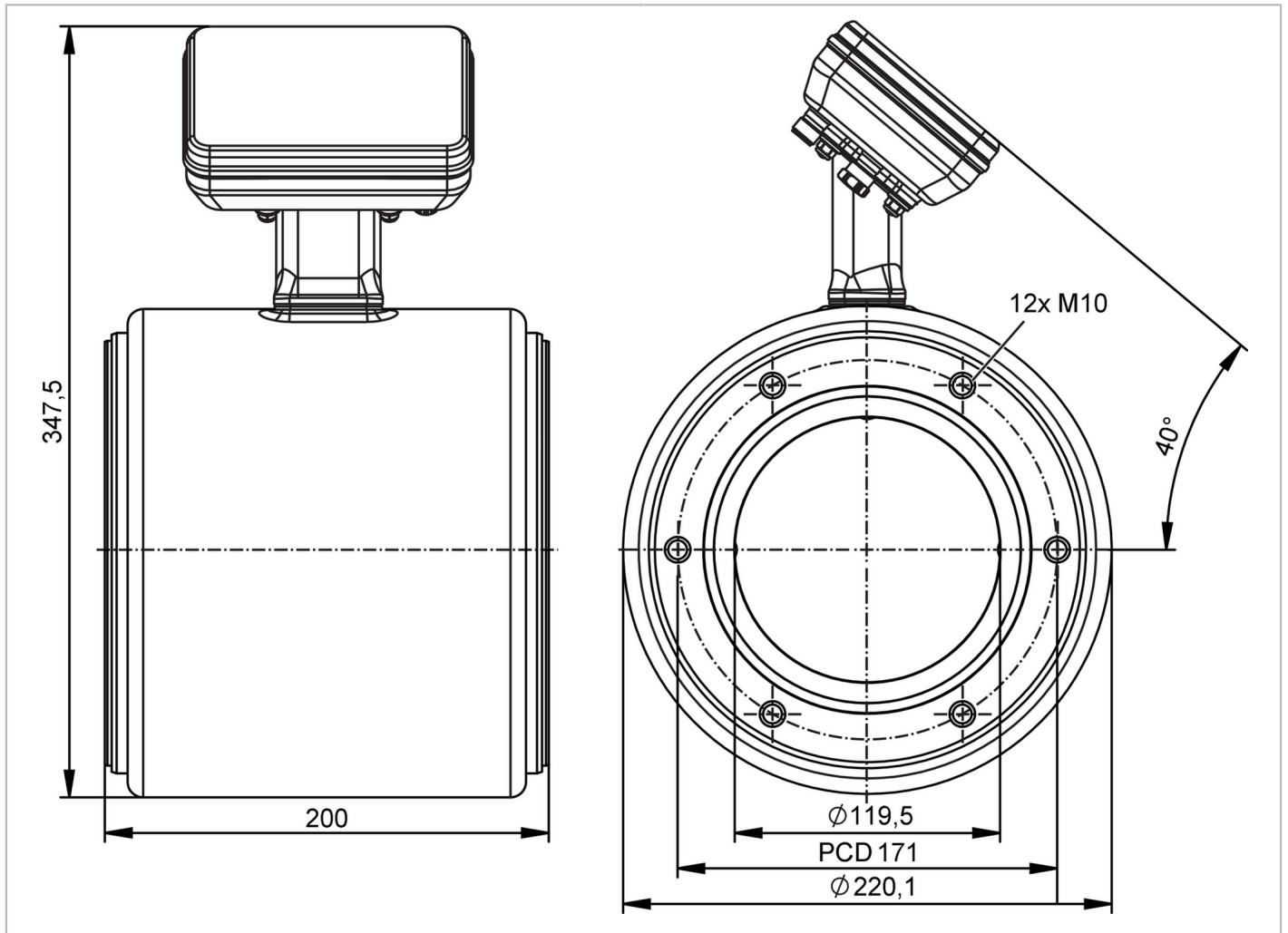


# SMF850



## Magnetic-inductive flow meter

SMGX1KGFFRKG/UST



Product characteristics				
Measuring range	75...7500 l/min	4.5...450 m <sup>3</sup> /h	20...1981 gpm	0.33...33.42 ft/s
Nominal diameter	DN125 (5")			
Process connection	ifm-specific device flange			
Application				
Special feature	gold-plated contacts			
Application	food and beverage industry			
Media	Conductive liquids; water; water-based media			
Note on media	food products such as beer, milk, fruit juices, soft drinks, ketchup, yogurt, yogurt toppings, ice cream conductivity: ≥ 5 μS/cm			
Medium temperature	[°C]	-20...150		
Min. burst pressure	24 bar	348 psi	2.4 MPa	
Pressure rating	16 bar	232 psi	1.6 MPa	
Electrical data				
Operating voltage	[V]	18...32 DC		
Current consumption	[mA]	250; (24V)		

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Protection class	III			
Reverse polarity protection	yes			
Power-on delay time [s]	< 5			
Measuring principle	magnetic-inductive			
<b>Inputs / outputs</b>				
Total number of inputs and outputs	2			
<b>Inputs</b>				
Inputs	OUT2	external totalizer reset		
<b>Outputs</b>				
Total number of outputs	2			
Output signal	OUT1	pulse signal; totalizer switching signal; diagnostic signal; IO-Link		
	OUT2	analog signal; pulse signal; totalizer switching signal; diagnostic signal		
Electrical design	PNP/NPN			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	yes (non-latching)			
Overload protection	yes			
<b>Analog</b>				
Number of analog outputs	1			
Analog current output [mA]	4...20; (skalierbar)			
Max. load [ $\Omega$ ]	500			
Resolution of analog output	0.38 $\mu$ A			
<b>Digital</b>				
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			
<b>Measuring/setting range</b>				
Measuring range	75...7500 l/min	4.5...450 m <sup>3</sup> /h	20...1981 gpm	0.33...33.42 ft/s
Note on factory setting	0...110,0 m <sup>3</sup> /h			
Analog start point ASP	-7500...6000 l/min	-450...360 m <sup>3</sup> /h	-1981...1585 gpm	-33.42...26.73 ft/s
Analog end point AEP	-6000...7500 l/min	-360...450 m <sup>3</sup> /h	-1585...1981 gpm	-26.73...33.42 ft/s
Low flow cut-off LFC	0...6000 l/min	0...360 m <sup>3</sup> /h	0...1585 gpm	0...26.73 ft/s
Pulse length [s]	0.00005...2			
Pulse value	0.013...99999000 l			
<b>Temperature monitoring</b>				
Measuring range	-20...150 °C		-4...302 °F	
Analog start point	-20...116 °C		-4...240.8 °F	
Analog end point	14...150 °C		57.2...302 °F	

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Conductivity monitoring		
Measuring range	[ $\mu$ S/cm]	100...100000
Analog start point	[ $\mu$ S/cm]	0...80000
Analog end point	[ $\mu$ S/cm]	20000...100000
Accuracy / deviations		
Volumetric flow monitoring		
Accuracy (in the measuring range)	with optional factory calibration (availability is being planned)	$\pm (0,2 \% \text{ MW} + 2 \text{ mm/s})$
	standard	$\pm (0,5 \% \text{ MW} + 1,5 \text{ mm/s})$
Repeatability		0,1% MW
Temperature monitoring		
Accuracy	[K]	$\pm 1 (v > 0,5 \text{ m/s})$
Repeatability	[K]	$\pm 0,5 (v > 0,5 \text{ m/s})$
Conductivity monitoring		
Accuracy (in the measuring range)	in the range of 100...20000 $\mu$ S/cm	$\pm 10\% \text{ MW}$
	in the range of 20000...100000 $\mu$ S/cm	$\pm 20\% \text{ MW}$
Repeatability		$\pm 5\% \text{ MW}$
Reaction times		
Volumetric flow monitoring		
Response time	[s]	< 0.3
Damping process value dAP	[s]	0...5
Temperature monitoring		
Response time	[s]	< 3; ( $v > 0,5 \text{ m/s}$ )
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	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 class		A
Process data analog		6

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Process data binary		8
Min. process cycle time	[ms]	1.9
IO-Link process data (cyclical)	<b>Function</b>	<b>bit length</b>
	totalizer	32
	flow	32
	temperature	32
	conductivity	32
	status	4
	binary switching information	8
IO-Link functions (acyclical)	direction of flow detection; totalizer; memory; operating hours counter; internal temperature; simulation function	
Supported DeviceIDs	<b>Type of operation</b>	<b>DeviceID</b>
	default	1806

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	
Shock resistance	DIN IEC 68-2-27	20 g (18ms)
Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)
MTTF	[years]	83
UL approval	UL approval number	I032
	File number UL	E174189
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight	[g]	15024
Housing		tubular
Inlet pipe length		5 x DN
Outlet pipe length		2 x DN
Dimensions	[mm]	Ø 220.1 / L = 200
Material	housing: stainless steel (1.4404 / 316L); flange: stainless steel (1.4301 / 304); electronics fixture: stainless steel (1.4301 / 304); electronics: stainless steel (1.4404 / 316L); LED ring: PP	
Materials (wetted parts)	Pipe section: PFA; electrodes: stainless steel (1.4435 / 316L)	
Nominal diameter		DN125 (5")
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-color
Factory setting	m <sup>3</sup> /h; °C; µS/cm	

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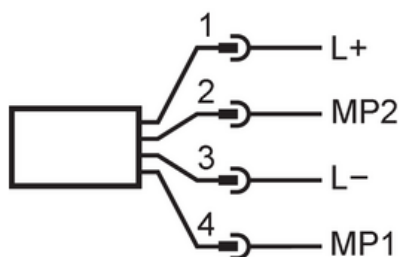
Remarks	
Remarks	MW = Measured value
	MEW = Final value of the measuring range
	pulse and totalizer signal are only available for one of the two outputs
	reference conditions (1/2): water (free of gas bubbles), 15...35 °C, process connection: DIN32676 series A, pipe standard suitable for process connection
	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 - plug

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



### Connection



1	L+	
2	MP2	DO2, AO, Reset
3	L-	
4	MP1	DO1, IO-Link

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