

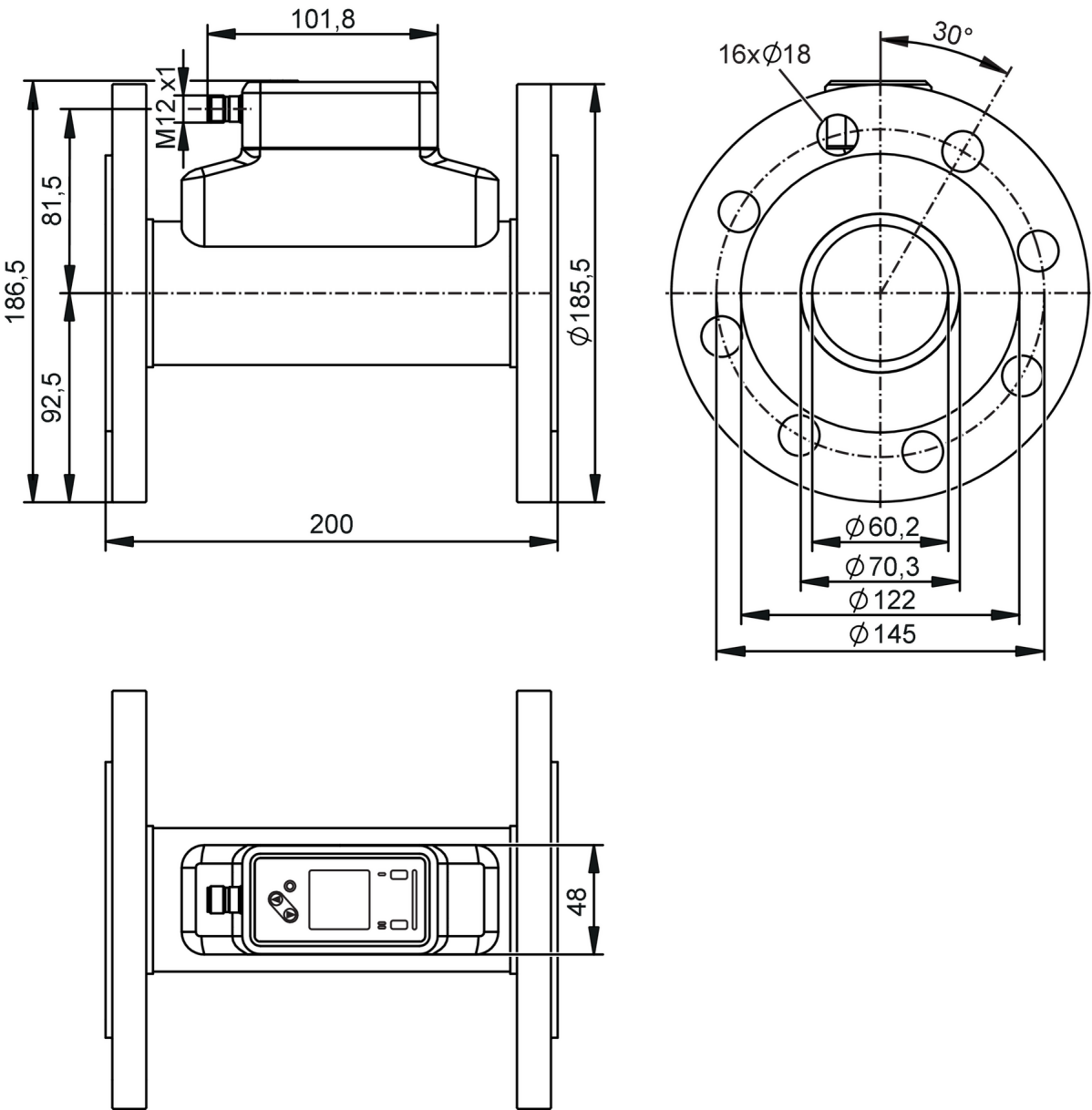
SUW500

Ultrasonic flow meter

SUF651GBFRKG/US



note: on the sensor side, the article can only be connected using an angled cable – see accessories



Product characteristics

Measuring range	20...2400 l/min	1200...144000 l/h	0.118...14.123 m/s	1.2...144 m³/h
Nominal diameter	DN65 (2 1/2")			
Process connection	DN65 EN1092-1 PN16 Flange			

Application

Special feature	gold-plated contacts
Application	Use in industrial applications
Media	ultra-pure water; water; water-based media
Note on media	water-based media: for media with >10 % additives, the repeatability is the only available value

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Medium temperature	[°C]	-20...100
Min. burst pressure	64 bar	6.4 MPa
Pressure rating	16 bar	1.6 MPa
Vacuum resistance	[mbar]	-1000

Electrical data

Operating voltage	[V]	18...32 DC; (to SELV/PELV)
Current consumption	[mA]	< 75
Protection class		III
Reverse polarity protection		yes
Power-on delay time	[s]	5
Measuring principle		ultrasonic

Inputs / outputs

Total number of inputs and outputs	2
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Inputs

Inputs	OUT2	counter reset
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Outputs

Total number of outputs	2	
Output signal	OUT1	switching signal; pulse signal; diagnostic signal; totalizer switching signal; frequency signal; IO-Link
	OUT2	switching signal; pulse signal; diagnostic signal; totalizer switching signal; analog 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	

Analog

Number of analog outputs		1
Analog current output	[mA]	4...20
Max. load	[Ω]	500

Digital

Number of digital outputs		2
Output function		normally open / closed; (configurable)
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...2400 l/min	1200...144000 l/h	0.118...14.123 m/s	1.2...144 m³/h
Display range	-2880...2880 l/min	-172800...172800 l/h	-16.948...16.948 m/s	-172.8...172.8 m³/h
Resolution	0.1 l/min	1 l/h	0.001 m/s	0.002 m³/h



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Note on factory setting	l/min, °C			
Set point SP	33.2...2400 l/min	1992...144000 l/h	0.196...14.123 m/s	1.992...144 m³/h
Reset point rP	20.7...2387.5 l/min	1243...143251 l/h	0.122...14.05 m/s	1.243...143.251 m³/h
Analog start point ASP	-2400...1920 l/min	-144000...115200 l/h	-14.123...11.298 m/s	-144...115.2 m³/h
Analog end point AEP	-1920...2400 l/min	-115200...144000 l/h	-11.298...14.123 m/s	-115.2...144 m³/h
Low flow cut-off LFC	20...120 l/min	1200...7200 l/h	0.118...0.706 m/s	1.2...7.2 m³/h
Frequency end point, FEP	481.5...2400 l/min	28889...144000 l/h	2.833...14.123 m/s	28.889...144 m³/h
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.1...99990000 l			
Temperature monitoring				
Measuring range [°C]	-20...100			
Display range [°C]	-44...124			
Resolution [°C]	0.1			
Set point SP [°C]	-19.6...100			
Reset point rP [°C]	-20...99.6			
Analog start point [°C]	-20...76			
Analog end point [°C]	4...100			
Frequency start point, FSP [°C]	-20...76			
Frequency end point, FEP [°C]	4...100			
Frequency at the end point FRP [Hz]	1...10000			
Accuracy / deviations				
Flow monitoring				
Accuracy (in the measuring range)	water	± (2,0 % MW + 0,5 % MEW)		
Repeatability	± 0,2 % MEW			
Temperature monitoring				
Accuracy [K]	± 2,5 (Q > 5 % MEW)			
Temperature coefficient [% of the span / 10 K]	0,2			
Reaction times				
Flow monitoring				
Response time [s]	< 0.5; (dAP = 0, T09)			
Damping process value dAP [s]	0...5			
Temperature monitoring				
Dynamic response T05 / T09 [s]	5,7 / 86			
Software / programming				
Diagnostic functions	direction of flow detection; signal quality			
Interfaces				
Communication interface	IO-Link			
Transmission type	COM2 (38,4 kBaud)			



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IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
Profiles	BLOB	Binary Large Object transfer
	Common - I&D	Identification and Diagnosis
Required master port class	A	
Process data analog	3	
Process data binary	2	
Min. process cycle time [ms]	9.6	
IO-Link process data (cyclical)	Function	bit length
	totalizer	32
	Flow monitoring	32
	Temperature monitoring	32
	status	4
	Output 1	1
	Output 2	1
Supported DeviceIDs	Type of operation	DeviceID
	default	2012

Operating conditions		
Ambient temperature [°C]		-20...60
Storage temperature [°C]		-25...80
Protection		IP 65; IP 67

Tests / approvals		
EMC	DIN 61326-1:2021	
Shock resistance	DIN IEC 68-2-27	20 g (11ms)
Vibration resistance	DIN IEC 68-2-6	20 g (10...2000Hz)
UL approval	UL approval number	I033
	File number UL	E174189
Pressure equipment directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight [g]		8162
Housing		rectangular
Inlet pipe length		15 x DN
Outlet pipe length		3 x DN
Dimensions [mm]		200 x 185.5 x 186.5
Material	housing: stainless steel (1.4404 / 316L); Display: PFA; sealing Display: FKM; connector: PBT	
Materials (wetted parts)	Pipe section: stainless steel (1.4435 / 316L); Process connection: stainless steel (1.4404 / 316L)	
Nominal diameter		DN65 (2 1/2")
Process connection		DN65 EN1092-1 PN16 Flange
Surface characteristics Ra/Rz of the wetted parts		Ra < 0.76 µm

Displays / operating elements		
Display		Color display 1,44", 128 x 128 pixels
	Switching function	2 x LED, yellow
	diagnosis	1 x LED, three-color

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Display unit	l/min; l/h; m³/h; m/s
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Accessories

Items supplied	package insert
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Remarks

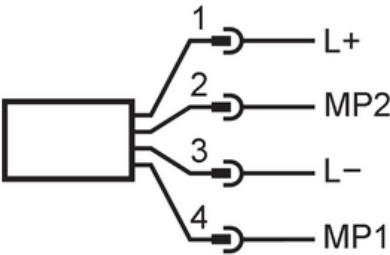
Remarks	MW = Measured value
	MEW = Final value of the measuring range
	pulse and totalizer signal are only available for one of the two outputs
	the specified Ra surface characteristics of the wetted surfaces do not apply to the weld seam.
Notes	note: on the sensor side, the article can only be connected using an angled cable – see accessories
Pack quantity	1 pcs.

Electrical connection - plug

Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



Connection



1 (L+)	L+	
2 (OUT2)	MP2	DO2, AO, DI
3 (L-)	L-	
4 (OUT1)	MP1	DO1, FO, IO-Link

AO: analog output; DI: digital input; DO: digital output; FO: Frequency output; MP: multi-function connection