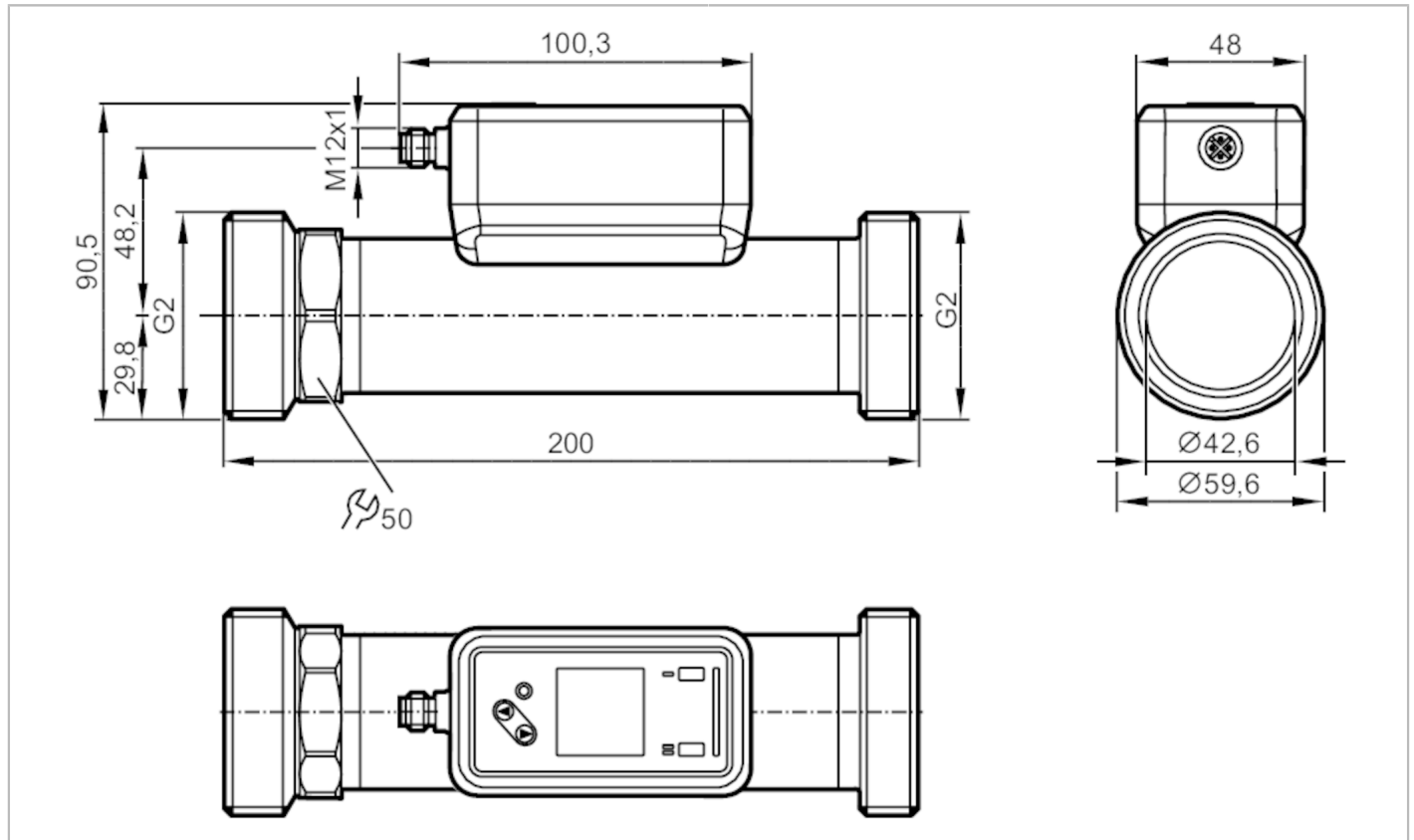


SU2020



Ultrasonic flow meter

SUR21XFBFRKG/US



ACS   IO-Link KTW/W270 Reg31

Product characteristics	
Process connection	G 2 DN50 external thread
Application	
Special feature	Gold-plated contacts
Media	ultra-pure water; water; hydrous media
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value
Medium temperature [°C]	-20...100
Min. bursting pressure	150 bar 15 MPa
Pressure rating	100 bar 10 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	
Inputs	counter reset
Outputs	
Total number of outputs	2



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Output signal	switching signal; pulse signal; analogue signal; IO-Link; frequency signal; diagnostic signal; totaliser switching signal
Electrical design	PNP/NPN
Output function	normally open / normally closed; (parameterisable)
Max. voltage drop switching output DC [V]	2
Permanent current rating of switching output DC [mA]	100
Switching frequency DC [Hz]	0...10000
Analogue current output [mA]	4...20
Max. load [Ω]	500
Pulse output	flow rate meter
Short-circuit protection	yes
Type of short-circuit protection	pulsed
Overload protection	yes

Measuring/setting range

Measuring range	5...1000 l/min	300...60000 l/h	0.058...11.666 m/s	0.3...60 m ³ /h
Display range	-1200...1200 l/min	-72000...72000 l/h	-13.999...13.999 m/s	-72...72 m ³ /h
Resolution	0.1 l/min	1 l/h	0.001 m/s	0.002 m ³ /h
Set point SP	10.5...1000 l/min	630...60000 l/h	0.122...11.666 m/s	0.63...60 m ³ /h
Reset point rP	5.3...994.8 l/min	318...59688 l/h	0.062...11.605 m/s	0.318...59.688 m ³ /h
Analogue start point ASP	-1000...800 l/min	-60000...48000 l/h	-11.666...9.333 m/s	-60...48 m ³ /h
Analogue end point AEP	-800...1000 l/min	-48000...60000 l/h	-9.333...11.666 m/s	-48...60 m ³ /h
Low flow cut-off LFC	5...50 l/min	300...3000 l/h	0.058...0.583 m/s	0.3...3 m ³ /h
Frequency end point, FEP	200.6...1000 l/min	12037...60000 l/h	2.34...11.666 m/s	12.037...60 m ³ /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
Analogue start point [°C]	-20...76
Analogue 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)	$\pm (1,0 \% MW + 0,5 \% MEW)$



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Repeatability		± 0,2 % MEW
Temperature monitoring		
Accuracy	[K]	± 2,5 (Q > 5 % MEW)
Temperature coefficient	[% of the span / 10 K]	0,2
Response times		
Flow monitoring		
Response time	[s]	< 0.25; (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)
IO-Link revision		1.1.3
SDCI standard		IEC 61131-9: 2013-07
Profiles		Identification and Diagnosis (0x4000)
Required master port type		A
Process data analogue		3
Process data binary		2
Min. process cycle time	[ms]	9.6
IO-Link process data (cyclical)	function	bit length
	totaliser	32
	Flow monitoring	32
	Temperature monitoring	32
	status	4
	Output 1	1
	Output 2	1
Supported DeviceIDs	Type of operation	DeviceID
	Default	1461
Operating conditions		
Ambient temperature	[°C]	-20...60
Storage temperature	[°C]	-25...80
Protection		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	5 g (10...2000Hz)
Pressure Equipment Directive	can be used for group 2 fluids; group 1 fluids on request	
Mechanical data		
Weight	[g]	1180
Type of mounting		inlet pipe length 5xDN; outlet pipe length 1xDN

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Materials	housing: stainless steel (1.4404 / 316L); Display: PFA; Sealing Display: FKM; connector: POKAN
Materials (wetted parts)	Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: Centellen Flat seal
Process connection	G 2 DN50 external thread
Surface characteristics Ra/Rz of the wetted parts	1.25 µm

Displays / operating elements

Display	colour display 1,44", 128 x 128 pixels
Switching function	2 x LED, yellow
diagnosis	1 x LED, three-colour

Accessories

Items supplied	Flat seal 2, Centellen package insert
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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 the accuracy indications are adhered to over the entire application area
Pack quantity	1 pcs.

Electrical connection

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





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Connection



OUT1/IO-Link: switching output volumetric flow quantity monitoring
switching output Temperature monitoring
Pulse output quantity meter
frequency output volumetric flow quantity monitoring
frequency output Temperature monitoring
signal output Preset counter

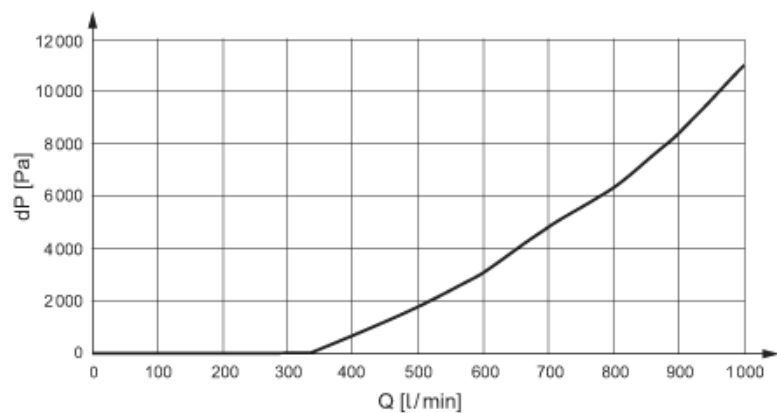
OUT2/InD: switching output volumetric flow quantity monitoring
switching output Temperature monitoring
Pulse output quantity meter
analogue output flow
analogue output temperature
signal output Preset counter
input counter reset

colours to DIN EN
60947-5-2

Core colours BK= black
 BN= brown
 BU= blue
 WH= white

Diagrams and graphs

Note on pressure loss



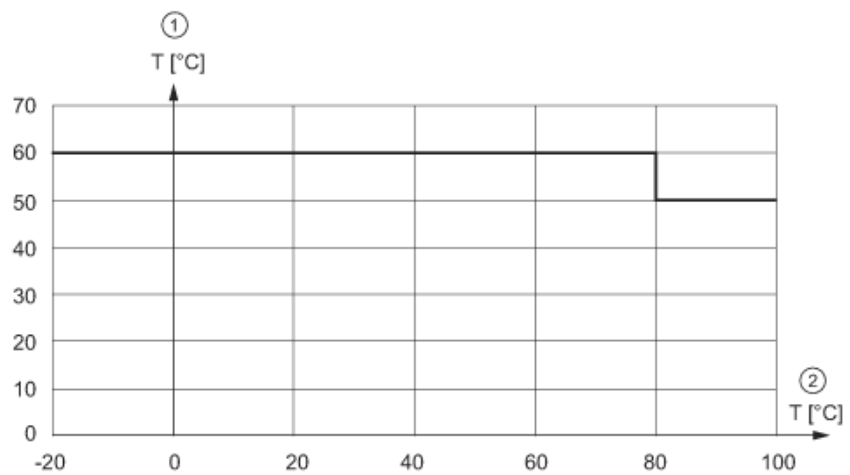
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derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature