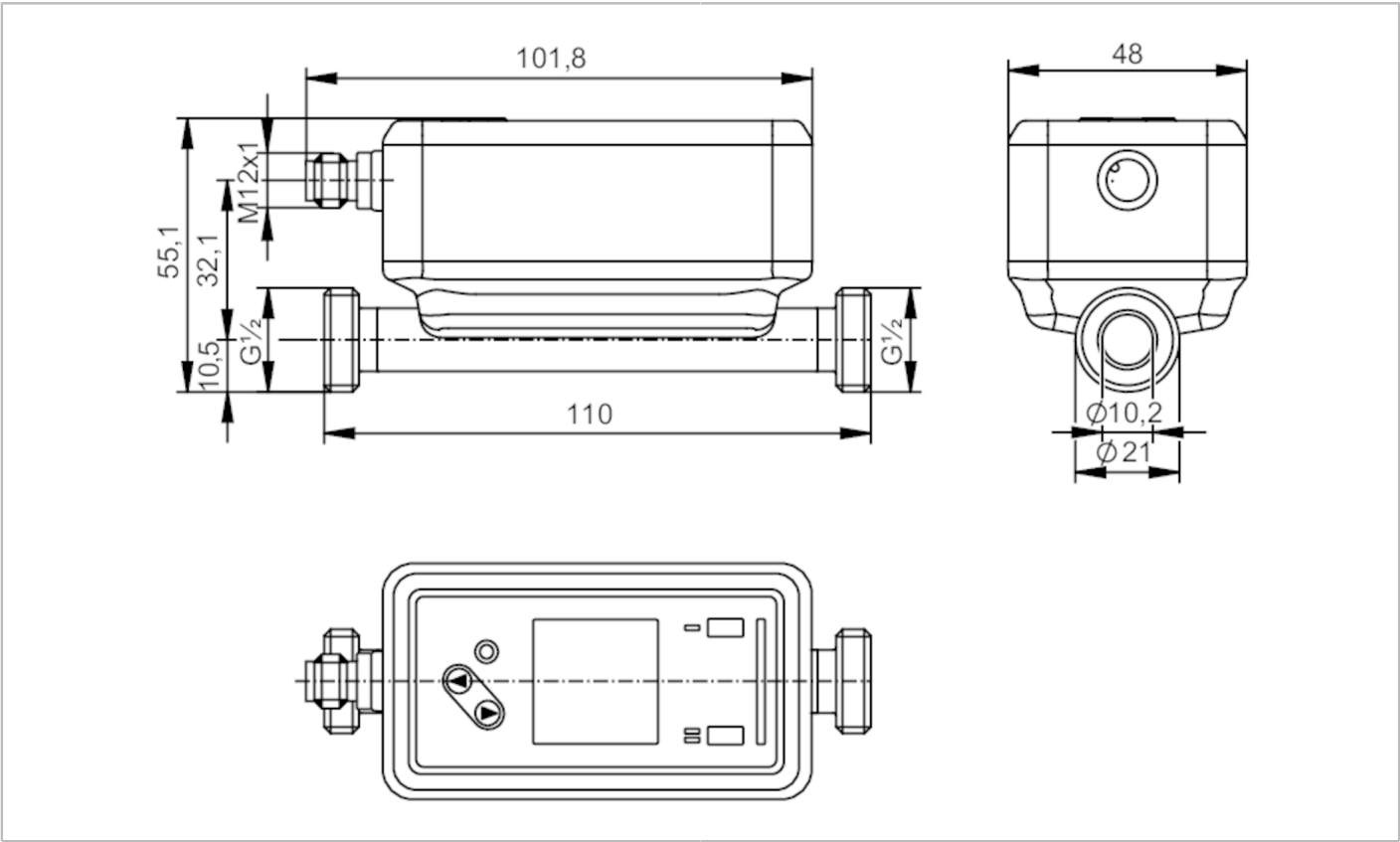


SU6020



Ultrasonic flow meter

SUR12XXBFRKG/US



ACS IO-Link KTW/W270 Reg31

Product characteristics				
Measuring range	0.5...65 l/min	30...3900 l/h	0.104...13.521 m/s	0.03...3.9 m³/h
Process connection	threaded connection G 1/2 external thread DN15			
Application				
System	gold-plated contacts			
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			
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			



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Outputs				
Total number of outputs	2			
Output signal	switching signal; pulse signal; analog signal; IO-Link; frequency signal; diagnostic signal; totalizer switching signal			
Electrical design	PNP/NPN			
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			
Analog current output [mA]	4...20			
Max. load [Ω]	500			
Pulse output	flow rate meter			
Short-circuit protection	yes			
Type of short-circuit protection	yes (non-latching)			
Overload protection	yes			
Measuring/setting range				
Measuring range	0.5...65 l/min	30...3900 l/h	0.104...13.521 m/s	0.03...3.9 m³/h
Display range	-78...78 l/min	-4680...4680 l/h	-16.225...16.225 m/s	-4.68...4.68 m³/h
Resolution	0.1 l/min	2 l/h	0.001 m/s	0.002 m³/h
Set point SP	0.9...65 l/min	52...3900 l/h	0.18...13.521 m/s	0.052...3.9 m³/h
Reset point rP	0.5...64.7 l/min	32...3880 l/h	0.111...13.452 m/s	0.032...3.88 m³/h
Analog start point ASP	-65...52 l/min	-3900...3120 l/h	-13.521...10.817 m/s	-3.9...3.12 m³/h
Analog end point AEP	-52...65 l/min	-3120...3900 l/h	-10.817...13.521 m/s	-3.12...3.9 m³/h
Low flow cut-off LFC	0.5...3.2 l/min	30...195 l/h	0.104...0.676 m/s	0.03...0.195 m³/h
Frequency end point, FEP	13...65 l/min	782...3900 l/h	2.713...13.521 m/s	0.782...3.9 m³/h
Frequency at the end point FRP [Hz]	1...10000			
Volumetric flow quantity monitoring				
Pulse length [s]	0.002...2			
Pulse value	0.02...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)		$\pm (2,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
Repeatability		$\pm 0,2 \% \text{ MEW}$
Temperature monitoring		
Accuracy [K]		$\pm 2,5 (Q > 5 \% \text{ MEW})$
Temperature coefficient [% of the span / 10 K]		0,2
Reaction 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	Function class	Description
	0x4000	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	1459
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)

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MTTF	[years]	160
UL approval	UL approval number	I034
Pressure equipment directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data		
Weight	[g]	477.9
Housing	rectangular	
Type of mounting	inlet pipe length 5xDN; outlet pipe length 1xDN	
Dimensions	[mm]	110 x 48 x 55.1
Material	housing: stainless steel (1.4404 / 316L); Display: PFA; sealing Display: FKM; connector: PBT	
Materials (wetted parts)	Pipe section: stainless steel (1.4404 / 316L); Process connection sealing: Centellen Gasket	
Process connection	threaded connection G 1/2 external thread DN15	
Surface characteristics Ra/Rz of the wetted parts	1.25 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

Accessories		
Items supplied	Gasket 2, Centellen	
	package insert	

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 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
Diagnostic output direction of flow detection / signal quality
signal output Preset counter
- OUT2/InD:
- Switching output Volumetric flow quantity monitoring
Switching output Temperature monitoring
Pulse output quantity meter
analog output flow
analog output temperature
Diagnostic output direction of flow detection / signal quality
signal output Preset counter
Input counter reset

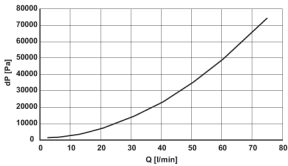
Colors to DIN EN 60947-5-2

Core colors

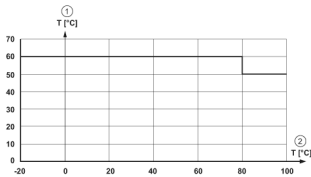
BK= black
BN= brown
BU= blue
WH= white

Diagrams and graphs

Note on pressure loss



derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature