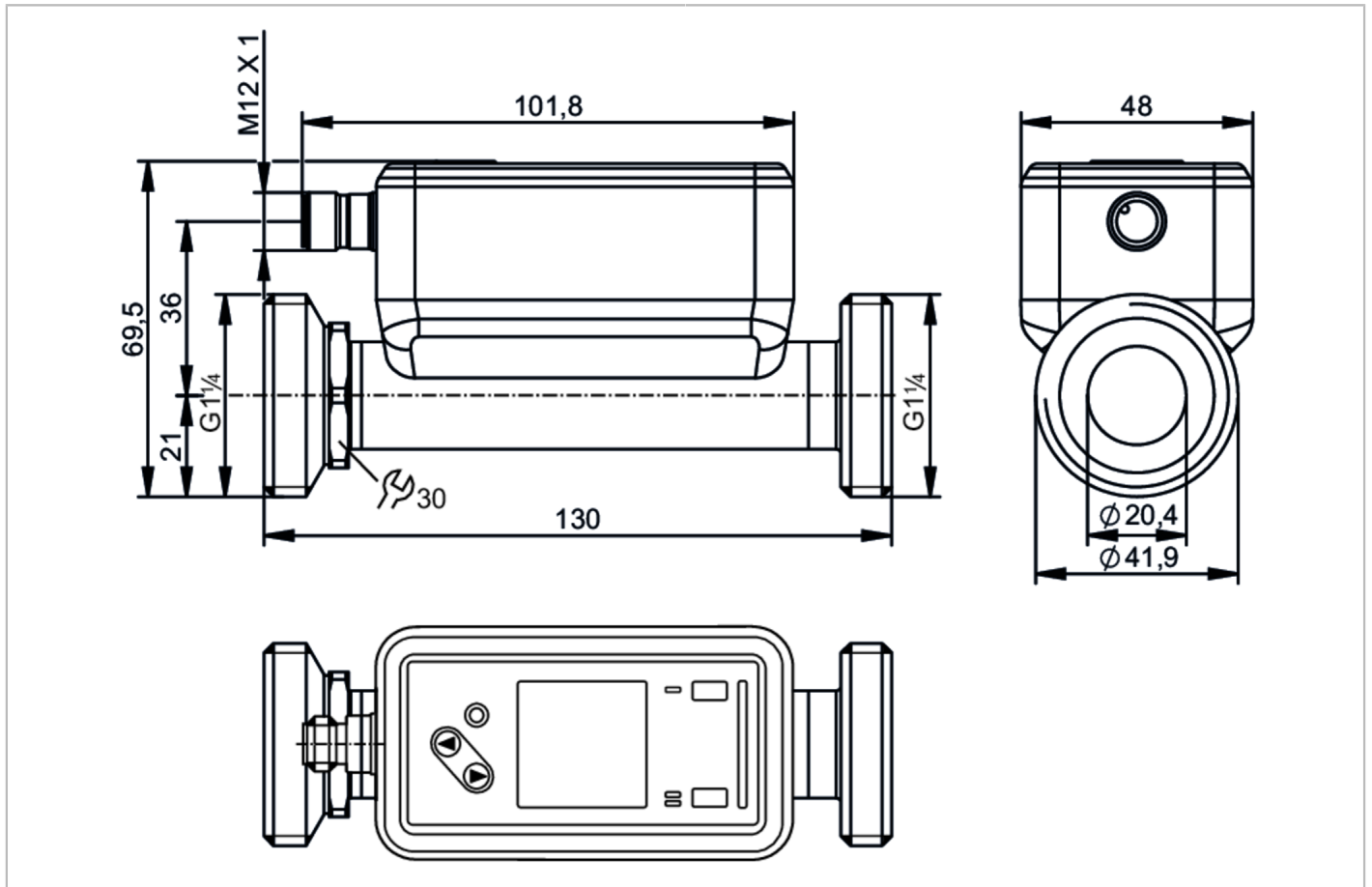


# SU9020



## Ultrasonic flow meter

SUR54XXBFRKG/US



ACS IO-Link KTW/W270 Reg31

### Product characteristics

Measuring range	1...275 l/min	60...16500 l/h	0.051...13.981 m/s	0.06...16.5 m³/h
Process connection	G 1 1/4 DN32 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			



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Inputs				
Inputs	counter reset			
Outputs				
Total number of outputs	2			
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	1...275 l/min	60...16500 l/h	0.051...13.981 m/s	0.06...16.5 m³/h
Display range	-330...330 l/min	-19800...19800 l/h	-16.777...16.777 m/s	-19.8...19.8 m³/h
Resolution	0.1 l/min	1 l/h	0.001 m/s	0.001 m³/h
Set point SP	2.5...275 l/min	151...16500 l/h	0.128...13.981 m/s	0.151...16.5 m³/h
Reset point rP	1.1...273.6 l/min	65...16414 l/h	0.055...13.908 m/s	0.065...16.414 m³/h
Analogue start point ASP	-275...220 l/min	-16500...13200 l/h	-13.981...11.185 m/s	-16.5...13.2 m³/h
Analogue end point AEP	-220...275 l/min	-13200...16500 l/h	-11.185...13.981 m/s	-13.2...16.5 m³/h
Low flow cut-off LFC	1...13.8 l/min	60...825 l/h	0.051...0.699 m/s	0.06...0.825 m³/h
Frequency end point, FEP	55.2...275 l/min	3310...16500 l/h	2.805...13.981 m/s	3.31...16.5 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			
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			

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Frequency at the end point FRP	[Hz]	1...10000
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### Accuracy / deviations

Flow monitoring		
Accuracy (in the measuring range)		$\pm (1,0 \% MW + 0,5 \% MEW)$
Repeatability		$\pm 0,2 \% MEW$
Temperature monitoring		
Accuracy	[K]	$\pm 2,5 (Q > 5 \% MEW)$
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
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### 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)	<b>function</b>	<b>bit length</b>
	totaliser	32
	Flow monitoring	32
	Temperature monitoring	32
	status	4
	Output 1	1
	Output 2	1
Supported DeviceIDs	<b>Type of operation</b>	<b>DeviceID</b>
	default	1637

### 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)

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Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)
MTTF [years]		160
UL approval	UL Approval no.	I034
Pressure Equipment Directive	can be used for group 2 fluids; group 1 fluids on request	

### Mechanical data

Weight [g]	639.4
Type of mounting	inlet pipe length 5xDN; outlet pipe length 1xDN
Materials	housing: stainless steel (316L/1.4404); Display: PFA; Sealing Display: FKM; connector: POKAN
Materials (wetted parts)	Pipe section: stainless steel (316L/1.4404); Process connection sealing: Centellen Flat seal
Process connection	G 1 1/4 DN32 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

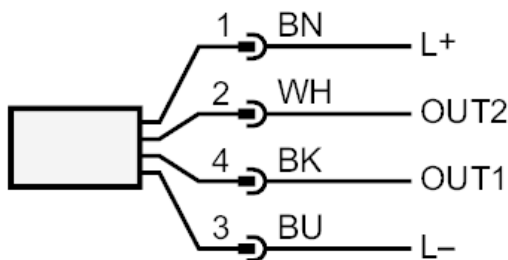




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### Connection



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  
 Diagnostic output direction of flow detection  
 Diagnostic output signal quality  
 signal output Preset counter

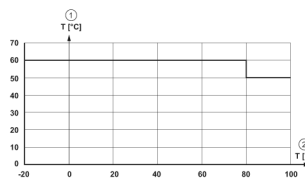
OUT2/InD: switching output volumetric flow quantity monitoring  
 switching output Temperature monitoring  
 Pulse output quantity meter  
 analogue output flow  
 analogue output temperature  
 Diagnostic output direction of flow detection  
 Diagnostic output signal quality  
 signal output Preset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

colours to DIN EN 60947-5-2

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

### Diagrams and graphs

derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature

Druckverlustkurve

