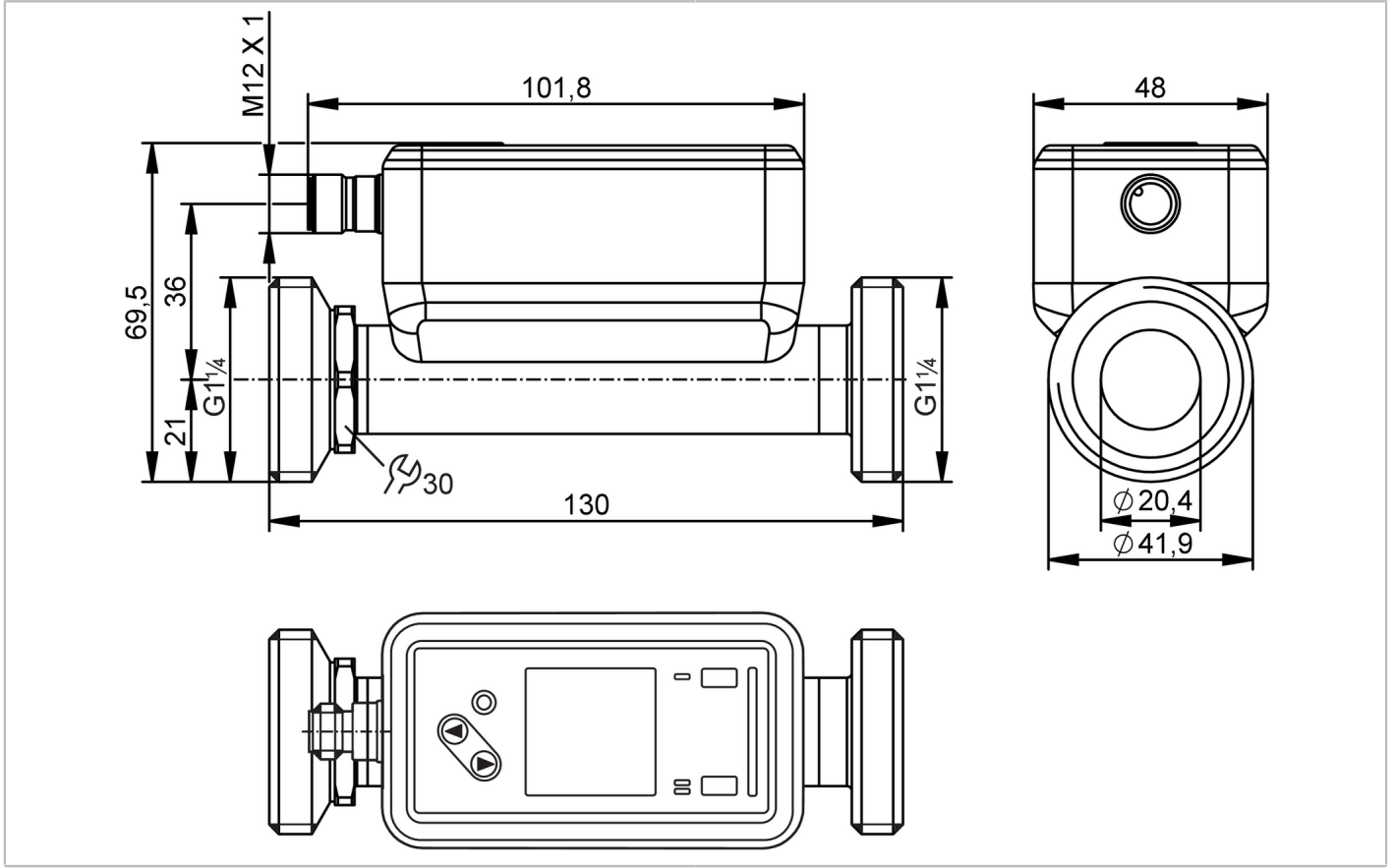


SU9030



Ultrasonic flow meter

SUR54XFBFRKG/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	threaded connection G 1 1/4 external thread DN32			

Application

Special feature	Gold-plated contacts	
Media	ultra-pure water; water; hydrous media; glycol solutions; oils; coolants	
Note on media	hydrous media: for media with >10 % additives, the repeatability is the only available value	
	low-viscosity oils with viscosity: 7...40 mm²/s (40 °C)	
	high-viscosity oils with viscosity: 30...68 mm²/s (40 °C)	
Medium temperature [°C]	-20...100	
Min. burst 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)	glycol solutions (35%)	$\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
	high-viscosity oils with viscosity 46mm ² /s (40°C)	$\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
	low-viscosity oils with viscosity 10mm ² /s (40°C)	$\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
	water	$\pm (1,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
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

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	BLOB	Binary Large Object transfer
	Common - I&D	Identification and Diagnosis
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	1760

Operating conditions

Ambient temperature	[°C]	-20...60
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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)
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]	607.55
Housing		rectangular
Type of mounting		inlet pipe length 5xDN; outlet pipe length 1xDN
Dimensions	[mm]	130 x 48 x 69.5
Materials		housing: stainless steel (316L/1.4404); Display: PFA; Sealing Display: FKM; connector: PBT
Materials (wetted parts)		Pipe section: stainless steel (316L/1.4404); Process connection sealing: NBR reinforced fibre Flat seal
Process connection		threaded connection G 1 1/4 external thread DN32
Surface characteristics Ra/Rz of the wetted parts		Ra < 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
Display unit		l/min; l/h; m³/h; m/s

Accessories

Items supplied	Flat seal 2, Centellen
	package insert

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: 4, gold-plated

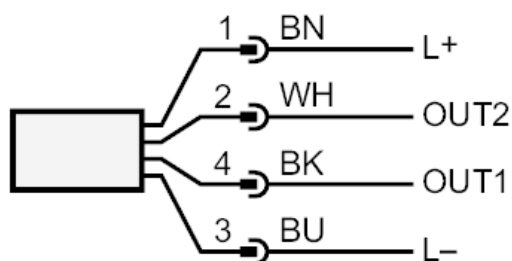




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Connection



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

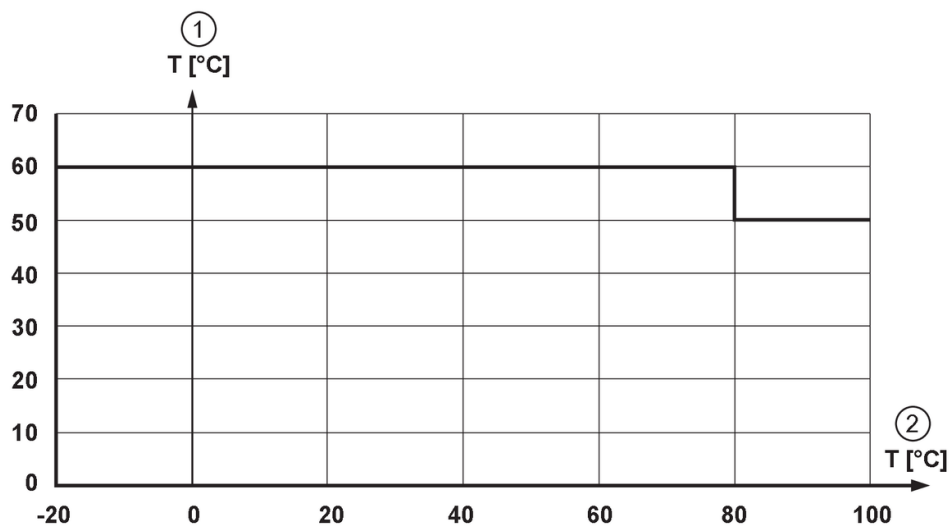
colours to DIN EN
60947-5-2

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



Diagrams and graphs

derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature

Pressure loss

