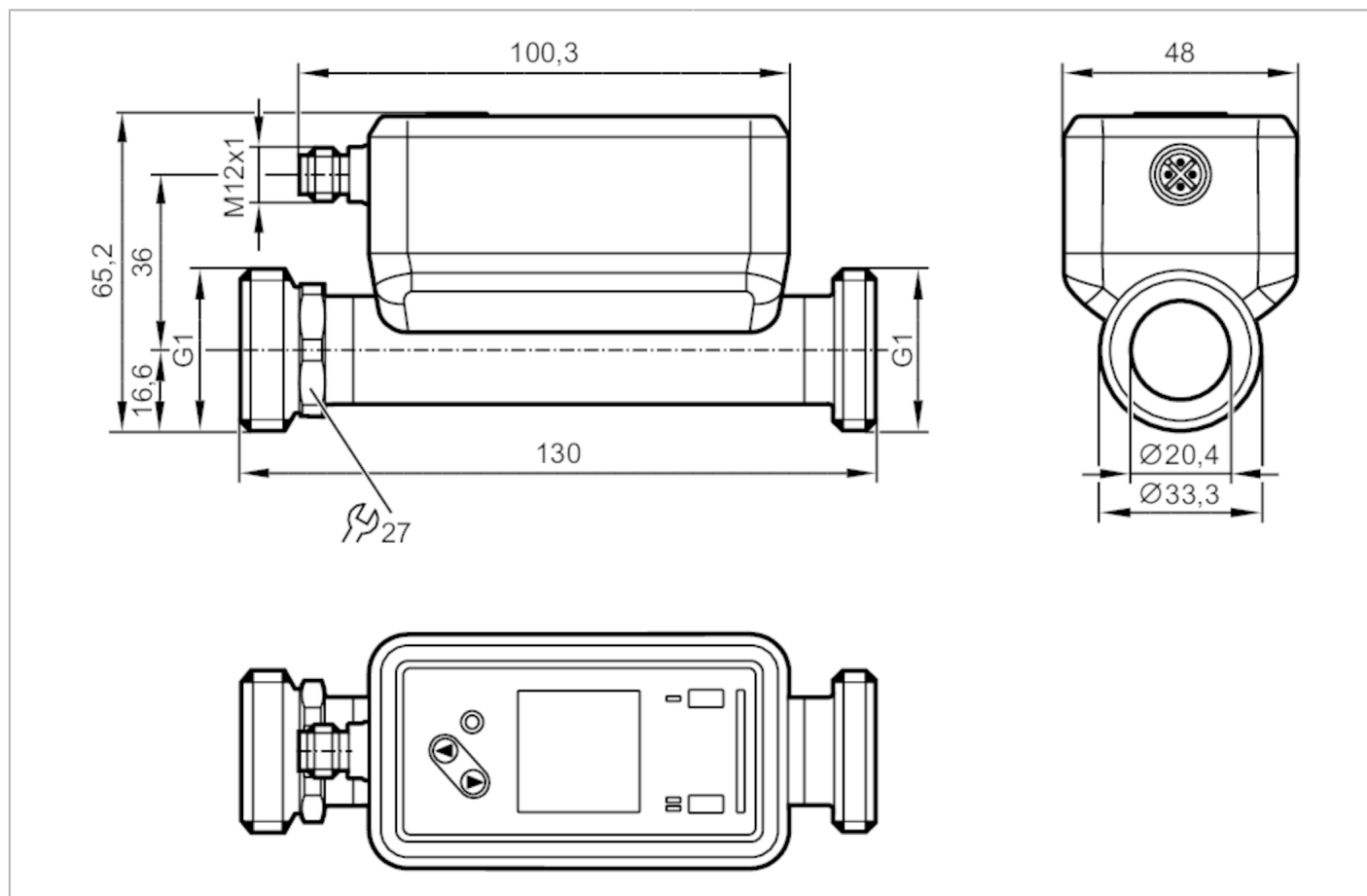


SU8020

Ultrasonic flow meter

SUR11XFBFRKG/US



ACS CE PA c UL LISTED US IO-Link KTW/W270 Reg31

Product characteristics				
Measuring range	1...240 l/min	60...14400 l/h	0.051...12.202 m/s	0.06...14.4 m³/h
Process connection	G 1 DN25 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		
MAWP (for applications according to CRN)	[bar]	100		
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		



Ultrasonic flow meter

SUR11XFBFRKG/US

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...240 l/min	60...14400 l/h	0.051...12.202 m/s 0.06...14.4 m³/h
Display range		-288...288 l/min	-17280...17280 l/h	-14.642...14.642 m/s -17.28...17.28 m³/h
Resolution		0.1 l/min	1 l/h	0.001 m/s 0.002 m³/h
Set point SP		2.3...240 l/min	139...14400 l/h	0.118...12.202 m/s 0.139...14.4 m³/h
Reset point rP		1.1...238.8 l/min	64...14325 l/h	0.055...12.139 m/s 0.064...14.325 m³/h
Analogue start point ASP		-240...192 l/min	-14400...11522 l/h	-12.202...9.763 m/s -14.4...11.522 m³/h
Analogue end point AEP		-192...240 l/min	-11522...14400 l/h	-9.763...12.202 m/s -11.522...14.4 m³/h
Low flow cut-off LFC		1...12 l/min	60...720 l/h	0.051...0.61 m/s 0.06...0.72 m³/h
Frequency end point, FEP		48.1...240 l/min	2889...14400 l/h	2.448...12.202 m/s 2.89...14.4 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		



Ultrasonic flow meter

SUR11XFBFRKG/US

Frequency at the end point FRP	[Hz]	1...10000
--------------------------------	------	-----------

Accuracy / deviations

Flow monitoring		
Accuracy (in the measuring range)		$\pm (1,0 \% \text{ MW} + 0,5 \% \text{ MEW})$
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	
----------------------	---	--

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	1460

Operating conditions

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

Tests / approvals

EMC	DIN 61326-1:2021	
-----	------------------	--



Ultrasonic flow meter

SUR11XFBFRKG/US

CPA approval	model number	002US
	accuracy class	1,5
Shock resistance	DIN IEC 68-2-27	20 g (11ms)
Vibration resistance	DIN IEC 68-2-6	5 g (10...2000Hz)
MTTF [years]		160
UL approval	UL Approval no.	I034
	File number UL	E174189
Pressure Equipment Directive	can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	542.95
Type of mounting	inlet pipe length 5xDN; outlet pipe length 1xDN
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 1 DN25 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
----------------	--

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





Ultrasonic flow meter

SUR11XFBFRKG/US

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

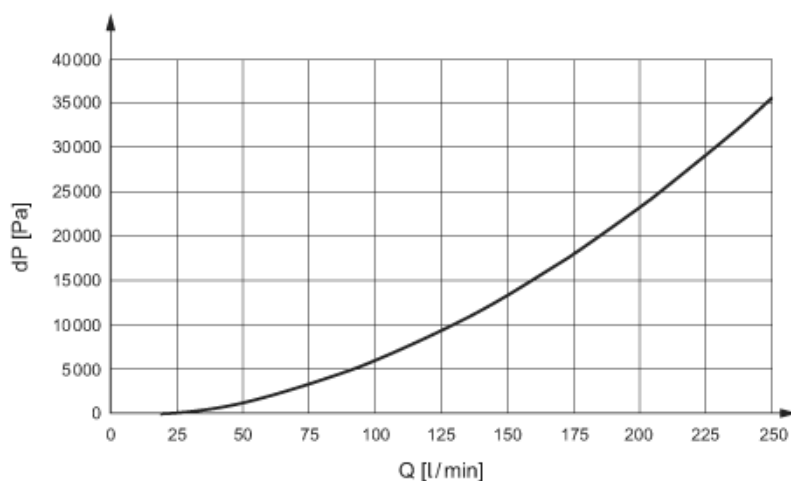
OUT2/InD: switching output volumetric flow quantity monitoring
switching output Temperature monitoring
Pulse output quantity meter
analogue output flow
analogue output temperature
signal output Preset counter
input counter reset

colours to DIN EN 60947-5-2

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

Diagrams and graphs

Note on pressure loss



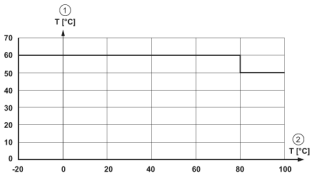
SU8020

Ultrasonic flow meter

SUR11XFBFRKG/US



derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature