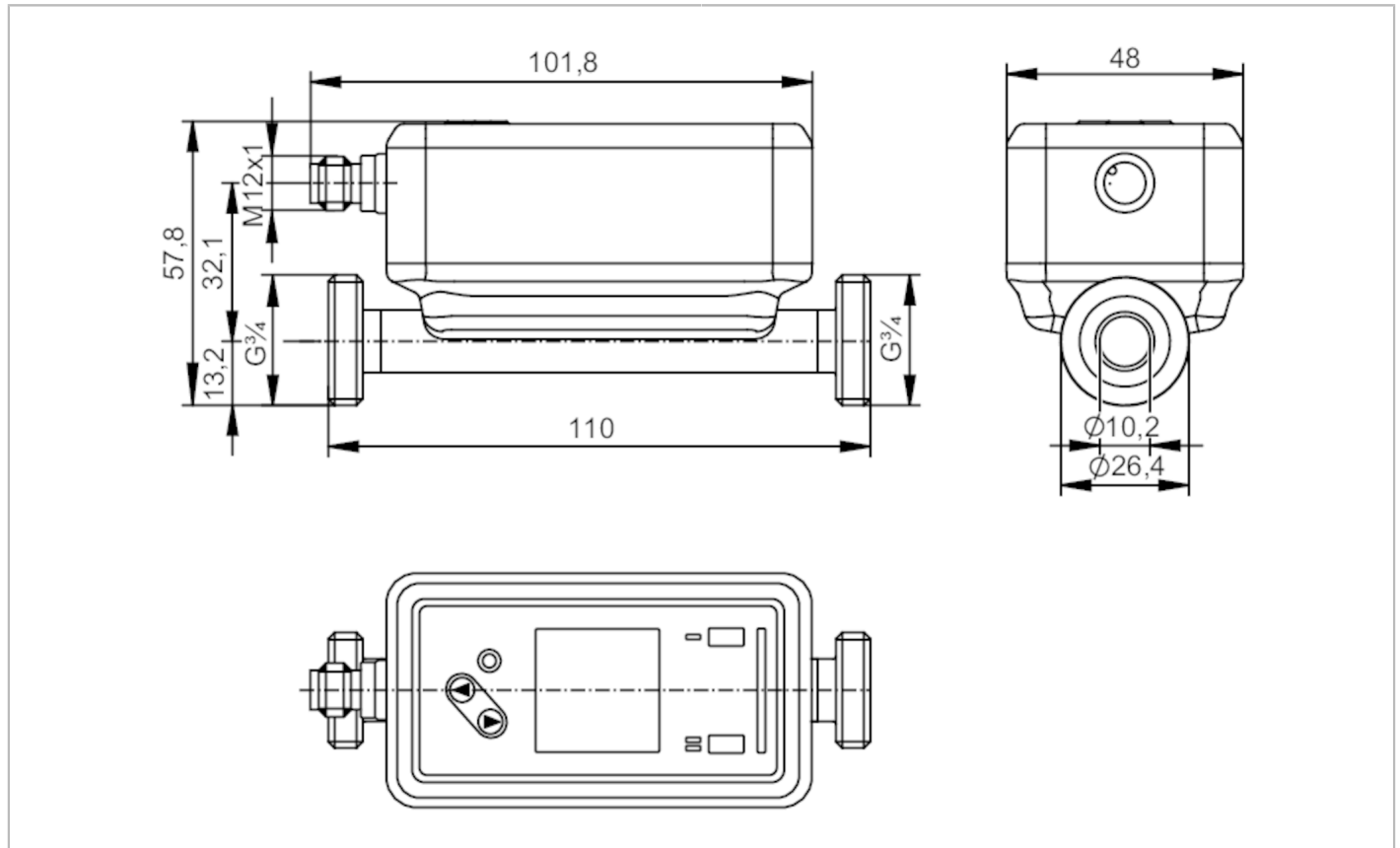


# SU7021



## Ultrasonic flow meter

SUR34XXBFRKG/US



ACS KTW/W270 Reg31

| Product characteristics     |  |
|-----------------------------|--|
| Measuring range             | 0.5...75 l/min    0.03...4.5 m <sup>3</sup> /h    8...1189 gph    0.13...19.81 gpm               |
| Process connection          | G 3/4 DN20 external thread   |
| 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          | -20...100 °C    -4...212 °F  |
| 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...75 l/min  | 0.03...4.5 m³/h    | 8...1189 gph     | 0.13...19.81 gpm   |
| Display range  | -90...90 l/min  | -5.4...5.4 m³/h    | -1427...1427 gph | -23.78...23.78 gpm |
| Resolution   | 0.1 l/min   | 0.002 m³/h         | 1 gph            | 0.01 gpm           |
| Set point SP   | 0.9...75 l/min  | 0.055...4.5 m³/h   | 15...1189 gph    | 0.24...19.81 gpm   |
| Reset point rP                                       | 0.5...74.6 l/min  | 0.032...4.477 m³/h | 9...1183 gph     | 0.14...19.71 gpm   |
| Analog start point ASP                               | -75...60 l/min  | -4.5...3.6 m³/h    | -1189...951 gph  | -19.81...15.85 gpm |
| Analog end point AEP                                 | -60...75 l/min  | -3.6...4.5 m³/h    | -951...1189 gph  | -15.78...19.81 gpm |
| Low flow cut-off LFC                                 | 0.5...3.2 l/min   | 0.03...0.195 m³/h  | 8...59 gph       | 0.13...0.99 gpm    |
| Frequency end point, FEP                             | 15...75 l/min   | 0.903...4.5 m³/h   | 238...1189 gph   | 3.97...19.81 gpm   |
| 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; 0.005...26414563.515 gal   |                    |                  |                    |
| Temperature monitoring                               |   |                    |                  |                    |
| Measuring range                                      | -20...100 °C  |                    | -4...212 °F      |                    |
| Display range  | -44...124 °C  |                    | -47.2...255.2 °F |                    |
| Resolution   | 0.1 °C  |                    | 0.1 °F           |                    |
| Set point SP   | -19.6...100 °C  |                    | -3.2...212 °F    |                    |
| Reset point rP                                       | -20...99.6 °C   |                    | -4...211.2 °F    |                    |
| Analog start point                                   | -20...76 °C   |                    | -4...168.8 °F    |                    |
| Analog end point                                     | 4...100 °C  |                    | 39.2...212 °F    |                    |
| Frequency start point, FSP                           | -20...76 °C   |                    | 4...168.8 °F     |                    |
| Frequency end point, FEP                             | 4...100 °C  |                    | 4...168.8 °F     |                    |
| Frequency at the end point FRP [Hz]                  | 1...10000   |                    |                  |                    |

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## Ultrasonic flow meter

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| Accuracy / deviations                          |                        |   |
|--|------------------------|---|
| Flow monitoring                                |                        |   |
| Accuracy (in the measuring range)              |                        | $\pm (2,0 \% MW + 0,5 \% MEW)$              |
| Repeatability                                  |                        | $\pm 0,2 \% MEW$                            |
| Temperature monitoring                         |                        |   |
| Accuracy [K]                                   |                        | $\pm 2,5 (Q > 5 \% MEW)$                    |
| Temperature coefficient [% of the span / 10 K] |                        | 0,2   |
| 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                                       |                        | Identification and Diagnosis (0x4000)       |
| 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)                | <b>Function</b>        | <b>bit length</b>                           |
|  | totalizer              | 32  |
|  | Flow monitoring        | 32  |
|  | Temperature monitoring | 32  |
|  | status                 | 4   |
|  | Output 1               | 1   |
|  | Output 2               | 1   |
|  | Supported DeviceIDs    | <b>Type of operation</b>                    |
| default  |                        | 1636  |
| 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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## Ultrasonic flow meter

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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]  | 494.4 |
| Type of mounting                                  | inlet pipe length 5xDN; outlet pipe length 1xDN  |       |
| Material  | 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 Gasket    |       |
| Process connection                                | G 3/4 DN20 external thread   |       |
| Surface characteristics Ra/Rz of the wetted parts | 1.25 µm  |       |

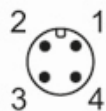
| Displays / operating elements |                    |                                       |
|-------------------------------|--------------------|---------------------------------------|
| Display                       |                    | Color display 1,44", 128 x 128 pixels |
|                               | Switching function | 2 x LED, yellow                       |
|                               | diagnosis          | 1 x LED, three-color                  |

| Accessories    |                                       |  |
|----------------|---------------------------------------|--|
| Items supplied | Gasket 2, Centellen<br>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



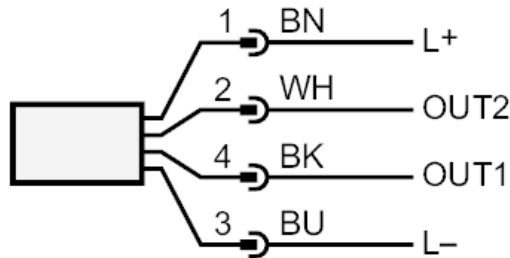
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## Ultrasonic flow meter

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### Connection



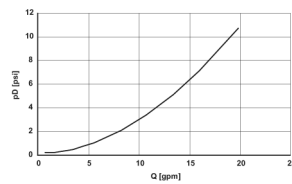
- OUT1/IO-Link: Switching output Volumetric flow quantity monitoring  
 Switching output Temperature monitoring  
 Pulse output quantity meter  
 Frequency output Volumetric flow quantity monitoring  
 Frequency output Temperature monitoring  
 Diagnostic output direction of flow detection / signal quality  
 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

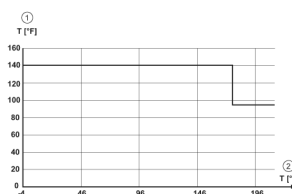
- Core colors
- BK= black
  - BN= brown
  - BU= blue
  - WH= white

### Diagrams and graphs

Note on pressure loss



derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature