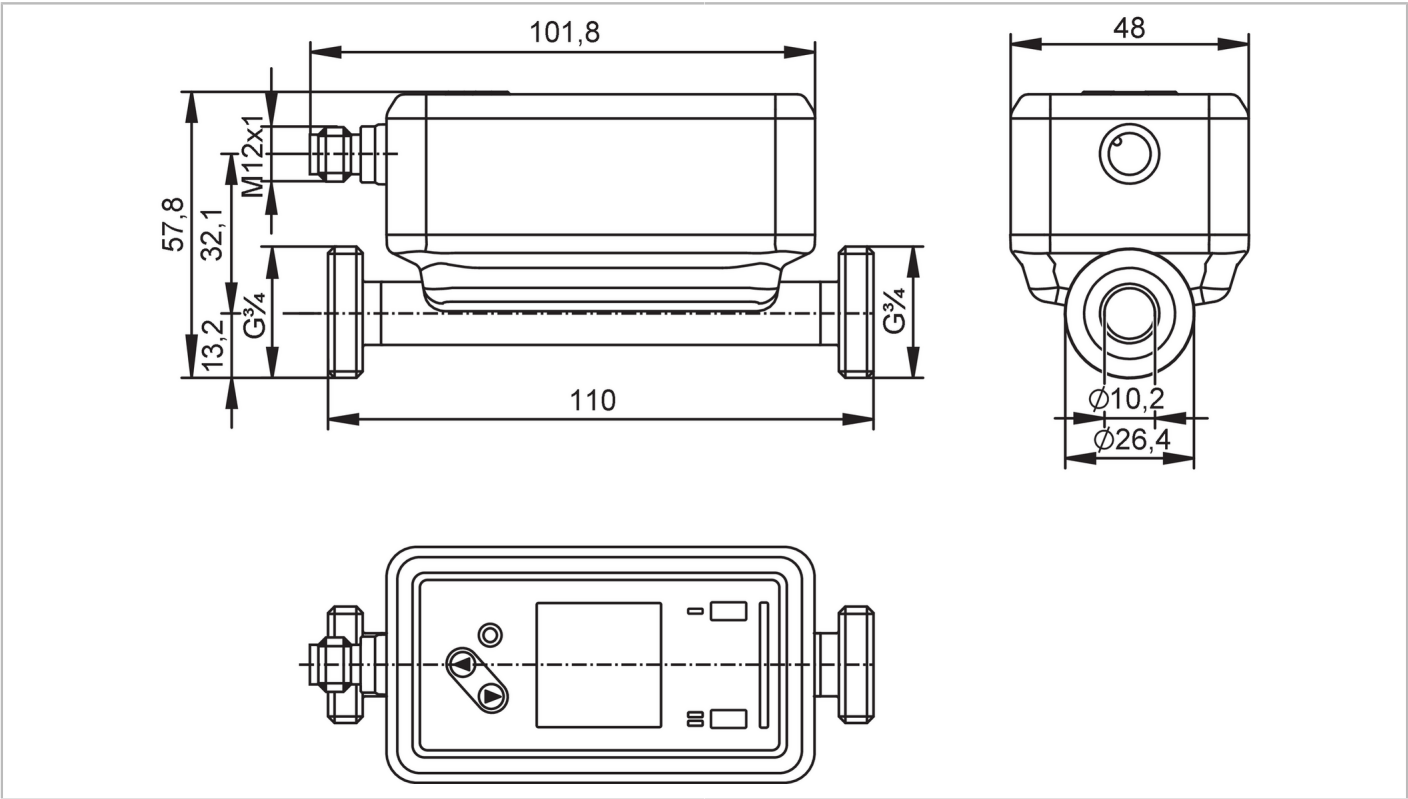


# SU7020



## Ultrasonic flow meter

SUR34XXBFRKG/US



ACS KTW/W270 Reg31

| Product characteristics     |                                                                                              |               |                    |                 |
|-----------------------------|----------------------------------------------------------------------------------------------|---------------|--------------------|-----------------|
| Measuring range             | 0.5...75 l/min                                                                               | 30...4500 l/h | 0.104...15.601 m/s | 0.03...4.5 m³/h |
| Process connection          | threaded connection G 3/4 external thread DN20                                               |               |                    |                 |
| 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. 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                                                                                   |               |                    |                 |
| Inputs                      |                                                                                              |               |                    |                 |
| Inputs                      | counter reset                                                                                |               |                    |                 |
| Outputs                     |                                                                                              |               |                    |                 |
| Total number of outputs     | 2                                                                                            |               |                    |                 |



## Ultrasonic flow meter

SUR34XXBFRKG/US

|                                                      |                                                                                                                              |  |  |  |
|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| Output signal                                        | switching signal; pulse signal; analogue signal; IO-Link;<br>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                     | 0.5...75 l/min   | 30...4500 l/h    | 0.104...15.601 m/s   | 0.03...4.5 m³/h    |
| Display range                       | -90...90 l/min   | -5400...5400 l/h | -18.721...18.721 m/s | -5.4...5.4 m³/h    |
| Resolution                          | 0.1 l/min        | 2 l/h            | 0.001 m/s            | 0.002 m³/h         |
| Set point SP                        | 0.9...75 l/min   | 55...4500 l/h    | 0.192...15.601 m/s   | 0.055...4.5 m³/h   |
| Reset point rP                      | 0.5...74.6 l/min | 32...4477 l/h    | 0.112...15.521 m/s   | 0.032...4.477 m³/h |
| Analogue start point ASP            | -75...60 l/min   | -4500...3600 l/h | -15.604...12.481 m/s | -4.5...3.6 m³/h    |
| Analogue end point AEP              | -60...75 l/min   | -3600...4500 l/h | -12.481...15.601 m/s | -3.6...4.5 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            | 15...75 l/min    | 903...4500 l/h   | 3.13...15.601 m/s    | 0.903...4.5 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     |
| Frequency at the end point FRP [Hz] | 1...10000   |

| Accuracy / deviations             |                          |
|-----------------------------------|--------------------------|
| Flow monitoring                   |                          |
| Accuracy (in the measuring range) | ± (2,0 % MW + 0,5 % MEW) |



## Ultrasonic flow meter

SUR34XXBFRKG/US

|                                                   |                                                           |                              |
|---------------------------------------------------|-----------------------------------------------------------|------------------------------|
| Repeatability                                     | ± 0,2 % MEW                                               |                              |
| Temperature monitoring                            |                                                           |                              |
| Accuracy                                          | [K]                                                       | ± 2,5 (Q > 5 % MEW)          |
| Temperature coefficient<br>[% 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                                          | 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<br>(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                                                   | 1635                         |
| Operating conditions                              |                                                           |                              |
| Ambient temperature                               | [°C]                                                      | -20...60                     |
| 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 |                              |

# SU7020



## Ultrasonic flow meter

SUR34XXBFRKG/US

| Mechanical data                                         |                    |                                                                                                         |
|---------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------|
| Weight                                                  | [g]                | 494.6                                                                                                   |
| Housing                                                 |                    | rectangular                                                                                             |
| Type of mounting                                        |                    | inlet pipe length 5xDN; outlet pipe length 1xDN                                                         |
| Dimensions                                              | [mm]               | 110 x 48 x 57.8                                                                                         |
| 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 3/4 external thread DN20                                                          |
| 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                                                                                   |
| 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 |                    |                                                                                                         |
|                                                         |                    |                                                                                                         |



## Ultrasonic flow meter

SUR34XXBFRKG/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  
Diagnostic output direction of flow detection / signal quality  
signal output Preset counter

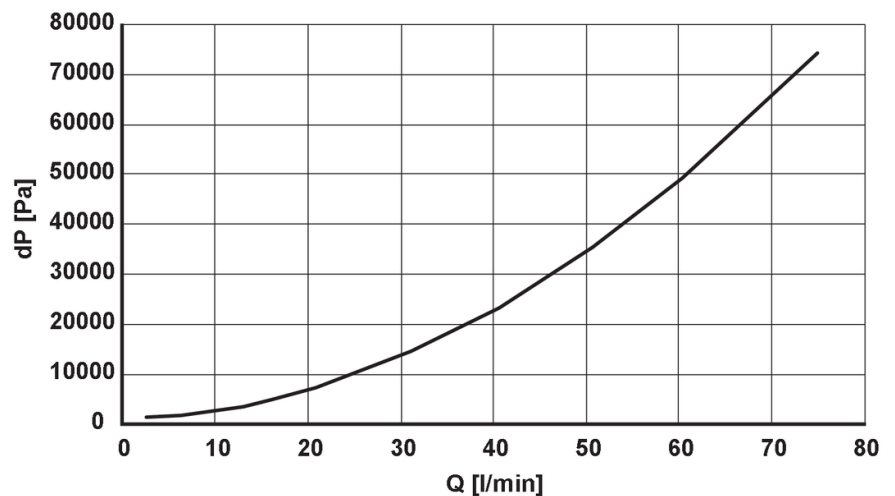
OUT2/InD: switching output volumetric flow quantity monitoring  
switching output Temperature monitoring  
Pulse output quantity meter  
analogue output flow  
analogue output temperature  
Diagnostic output direction of flow detection / signal quality  
signal output Preset counter  
input counter reset

colours to DIN EN  
60947-5-2

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

### Diagrams and graphs

Note on pressure loss



# SU7020

## Ultrasonic flow meter

SUR34XXBFRKG/US



derating ambient temperature

