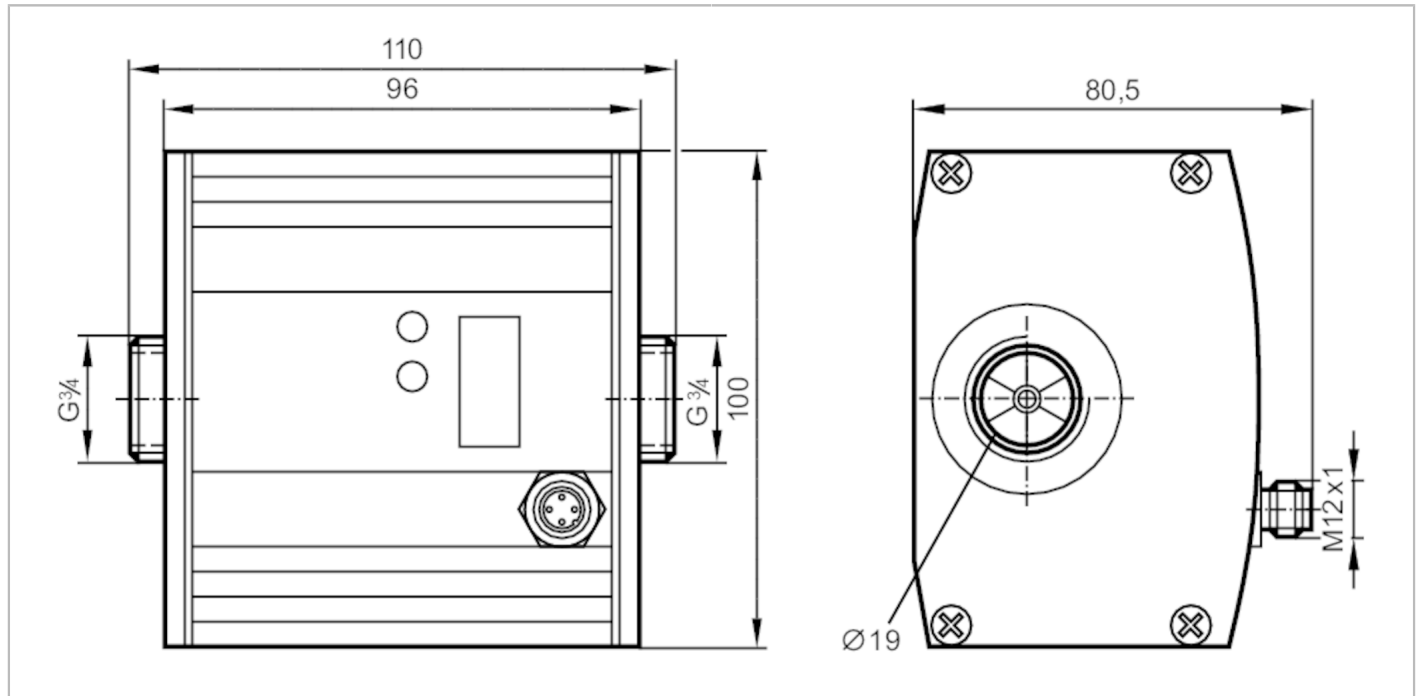


# SU7000



## Ultrasonic flow meter

SUR34HGBFRKG/W/US-100-IPF



### Product characteristics

|                              |                                                             |            |
|------------------------------|-------------------------------------------------------------|------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |            |
| Measuring range              | 0...50 l/min                                                | 0...3 m³/h |
| Process connection           | threaded connection G 3/4 flat seal                         |            |

### Application

|                    |                                                                                                                      |          |
|--------------------|----------------------------------------------------------------------------------------------------------------------|----------|
| Special feature    | Gold-plated contacts                                                                                                 |          |
| Application        | totaliser function; for industrial applications                                                                      |          |
| Installation       | connection to pipe by means of an adapter                                                                            |          |
| Media              | water; glycol solutions; coolants; oils                                                                              |          |
| Note on media      | low-viscosity oils with viscosity: 7...40 mm²/s (40 °C)<br>high-viscosity oils with viscosity: 30...68 mm²/s (40 °C) |          |
| Medium temperature | [°C]                                                                                                                 | -10...80 |
| Pressure rating    | 16 bar                                                                                                               | 1.6 MPa  |

### Electrical data

|                             |      |                            |
|-----------------------------|------|----------------------------|
| Operating voltage           | [V]  | 19...30 DC; (to SELV/PELV) |
| Current consumption         | [mA] | 100                        |
| Min. insulation resistance  | [MΩ] | 100; (500 V DC)            |
| Protection class            |      | III                        |
| Reverse polarity protection |      | yes                        |
| Power-on delay time         | [s]  | 10                         |

### Inputs / outputs

|                              |                                                             |
|------------------------------|-------------------------------------------------------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analogue outputs: 1 |
|------------------------------|-------------------------------------------------------------|

### Inputs

|        |               |
|--------|---------------|
| Inputs | counter reset |
|--------|---------------|



## Ultrasonic flow meter

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| Outputs                                              |                                                                                                             |                |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|----------------|
| Total number of outputs                              | 2                                                                                                           |                |
| Output signal                                        | switching signal; analogue signal; pulse signal; (configurable)                                             |                |
| Electrical design                                    | PNP/NPN                                                                                                     |                |
| Number of digital outputs                            | 2                                                                                                           |                |
| Output function                                      | normally open / normally closed; (parameterisable)                                                          |                |
| Max. voltage drop switching output DC [V]            | 2                                                                                                           |                |
| Permanent current rating of switching output DC [mA] | 250; (per output)                                                                                           |                |
| Number of analogue outputs                           | 1                                                                                                           |                |
| Analogue current output [mA]                         | 4...20; (scalable)                                                                                          |                |
| Max. load [Ω]                                        | 500                                                                                                         |                |
| Analogue voltage output [V]                          | 0...10; (scalable)                                                                                          |                |
| Min. load resistance [Ω]                             | 2000                                                                                                        |                |
| Pulse output                                         | flow rate meter                                                                                             |                |
| Short-circuit protection                             | yes                                                                                                         |                |
| Type of short-circuit protection                     | pulsed                                                                                                      |                |
| Overload protection                                  | yes                                                                                                         |                |
| Measuring/setting range                              |                                                                                                             |                |
| Measuring range                                      | 0...50 l/min                                                                                                | 0...3 m³/h     |
| Display range                                        | 0...60 l/min                                                                                                | 0...3.6 m³/h   |
| Resolution                                           | 0.1 l/min                                                                                                   | 0.005 m³/h     |
| Set point SP                                         | 0.1...50 l/min                                                                                              | 0.005...3 m³/h |
| Reset point rP                                       | 0...49.9 l/min                                                                                              | 0...2.995 m³/h |
| Analogue start point ASP                             | 0...40 l/min                                                                                                | 0...2.4 m³/h   |
| Analogue end point AEP                               | 10...50 l/min                                                                                               | 0.6...3 m³/h   |
| Max. flow rate                                       | 60 l/min                                                                                                    | 3.6 m³/h       |
| In steps of                                          | 0.1 l/min                                                                                                   | 0.005 m³/h     |
| Volumetric flow quantity monitoring                  |                                                                                                             |                |
| Pulse value                                          | 0.1 l...1 000 000 m³                                                                                        |                |
| Pulse length [s]                                     | 0,05...2                                                                                                    |                |
| Temperature monitoring                               |                                                                                                             |                |
| Measuring range [°C]                                 | -10...80                                                                                                    |                |
| Resolution [°C]                                      | 0.2                                                                                                         |                |
| Set point SP [°C]                                    | -9.8...80                                                                                                   |                |
| Reset point rP [°C]                                  | -10...79.8                                                                                                  |                |
| Analogue start point [°C]                            | -10...62                                                                                                    |                |
| Analogue end point [°C]                              | 8...80                                                                                                      |                |
| In steps of [°C]                                     | 0.2                                                                                                         |                |
| Accuracy / deviations                                |                                                                                                             |                |
| Flow monitoring                                      |                                                                                                             |                |
| Accuracy (in the measuring range)                    | water: < ± (3 % MW + 0,2 % MEW); glycol (35 %), oil (viscosity 68 mm²/s at 40 °C): < ± (5 % MW + 0,5 % MEW) |                |



## Ultrasonic flow meter

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|                                |                                                                                       |                                              |              |
|--------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------|--------------|
| Repeatability                  |                                                                                       | 0,1 l/min; 6 l/h; 0,006 m³/h                 |              |
| Temperature monitoring         |                                                                                       |                                              |              |
| Accuracy                       | [K]                                                                                   | ± 3 (Q > 1 l/min)                            |              |
| Response times                 |                                                                                       |                                              |              |
| Flow monitoring                |                                                                                       |                                              |              |
| Response time                  | [s]                                                                                   | 0.25; (dAP = 0)                              |              |
| Delay time programmable dS, dr | [s]                                                                                   | 0...50                                       |              |
| Damping process value dAP      | [s]                                                                                   | 0...1                                        |              |
| Temperature monitoring         |                                                                                       |                                              |              |
| Dynamic response T05 / T09     | [s]                                                                                   | T09 = 70 (Q > 5 l/min); (water)              |              |
| Software / programming         |                                                                                       |                                              |              |
| Parameter setting options      | Flow monitoring; quantity meter; Preset counter; Temperature monitoring               |                                              |              |
| Operating conditions           |                                                                                       |                                              |              |
| Ambient temperature            | [°C]                                                                                  | -10...60                                     |              |
| Storage temperature            | [°C]                                                                                  | -25...80                                     |              |
| Protection                     | IP 67                                                                                 |                                              |              |
| Tests / approvals              |                                                                                       |                                              |              |
| EMC                            | EN 61000-4-2 ESD                                                                      | 4 kV CD / 8 kV AD                            |              |
|                                | EN 61000-4-3 HF radiated                                                              | 10 V/m                                       |              |
|                                | EN 61000-4-4 Burst                                                                    | 2 kV                                         |              |
|                                | EN 61000-4-5 Surge                                                                    | 0,5 kV                                       |              |
|                                | EN 61000-4-6 HF conducted                                                             | 10 V                                         |              |
| CPA approval                   | model number                                                                          | 001US                                        |              |
|                                | accuracy class                                                                        | 3                                            |              |
|                                | maximum allowable error                                                               | -                                            |              |
|                                | Q (min)                                                                               | 0,5 m³/h                                     |              |
|                                | Q (t)                                                                                 | -                                            |              |
|                                | Q (max)                                                                               | 3 m³/h                                       |              |
|                                | Shock resistance                                                                      | DIN IEC 68-2-27                              | 20 g (11 ms) |
| Vibration resistance           | DIN IEC 68-2-6                                                                        | 5 g (10...2000 Hz)                           |              |
| MTTF                           | [ANN]                                                                                 | 175                                          |              |
| Pressure Equipment Directive   | Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request |                                              |              |
| Mechanical data                |                                                                                       |                                              |              |
| Weight                         | [g]                                                                                   | 1551.5                                       |              |
| Materials                      | housing: AlMgSi0,5 anodised; Sealing: FKM; PA 6.6; cover film: PA                     |                                              |              |
| Materials (wetted parts)       | stainless steel (1.4404 / 316L); FKM; PES; Centellen 200                              |                                              |              |
| Process connection             | threaded connection G 3/4 flat seal                                                   |                                              |              |
| Displays / operating elements  |                                                                                       |                                              |              |
| Display                        | Display unit                                                                          | 6 x LED, green (l/min, m³/h, l, m³, 10³, °C) |              |
|                                | switching status                                                                      | 2 x LED, yellow                              |              |
|                                | measured values                                                                       | alphanumeric display, 4-digit                |              |
|                                | programming                                                                           | alphanumeric display, 4-digit                |              |
| Аксессуары                     |                                                                                       |                                              |              |
| Items supplied                 | sealings: 2, Centellen                                                                |                                              |              |

# SU7000



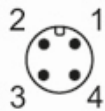
## Ultrasonic flow meter

SUR34HGBFRKG/W/US-100-IPF

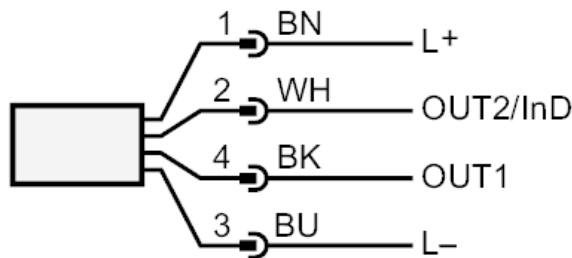
|                        |                                                     |
|------------------------|-----------------------------------------------------|
| Accessories (optional) | adapter for pipe: 1 x R1/2, stainless steel, E40178 |
|                        | adapter for pipe: 1 x R1/2, brass, E40151           |
| Remarks                |                                                     |
| Remarks                | MW = measured value                                 |
|                        | MEW = Final value of the measuring range            |
|                        | sealing: only with supplied Centellen seals         |
| Pack quantity          | 1 pcs.                                              |

### Electrical connection

Connector: 1 x M12; coding: A; Moulded body: brass, Optalloy-plated; Contacts: gold-plated



### Connection



|           |                                                                                                                                                                                      |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OUT1:     | switching output volumetric flow quantity monitoring<br>Pulse output quantity meter<br>signal output Preset counter                                                                  |
| OUT2/InD: | switching output volumetric flow quantity monitoring / Temperature monitoring<br>analogue output volumetric flow quantity monitoring / Temperature monitoring<br>input counter reset |

# SU7000

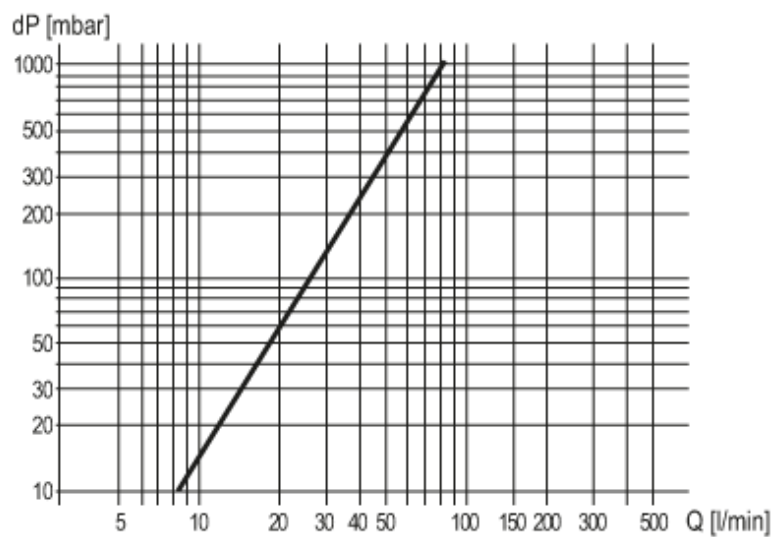
## Ultrasonic flow meter

SUR34HGBFRKG/W/US-100-IPF



### Diagrams and graphs

Pressure loss



dP Pressure loss

Q volumetric flow quantity