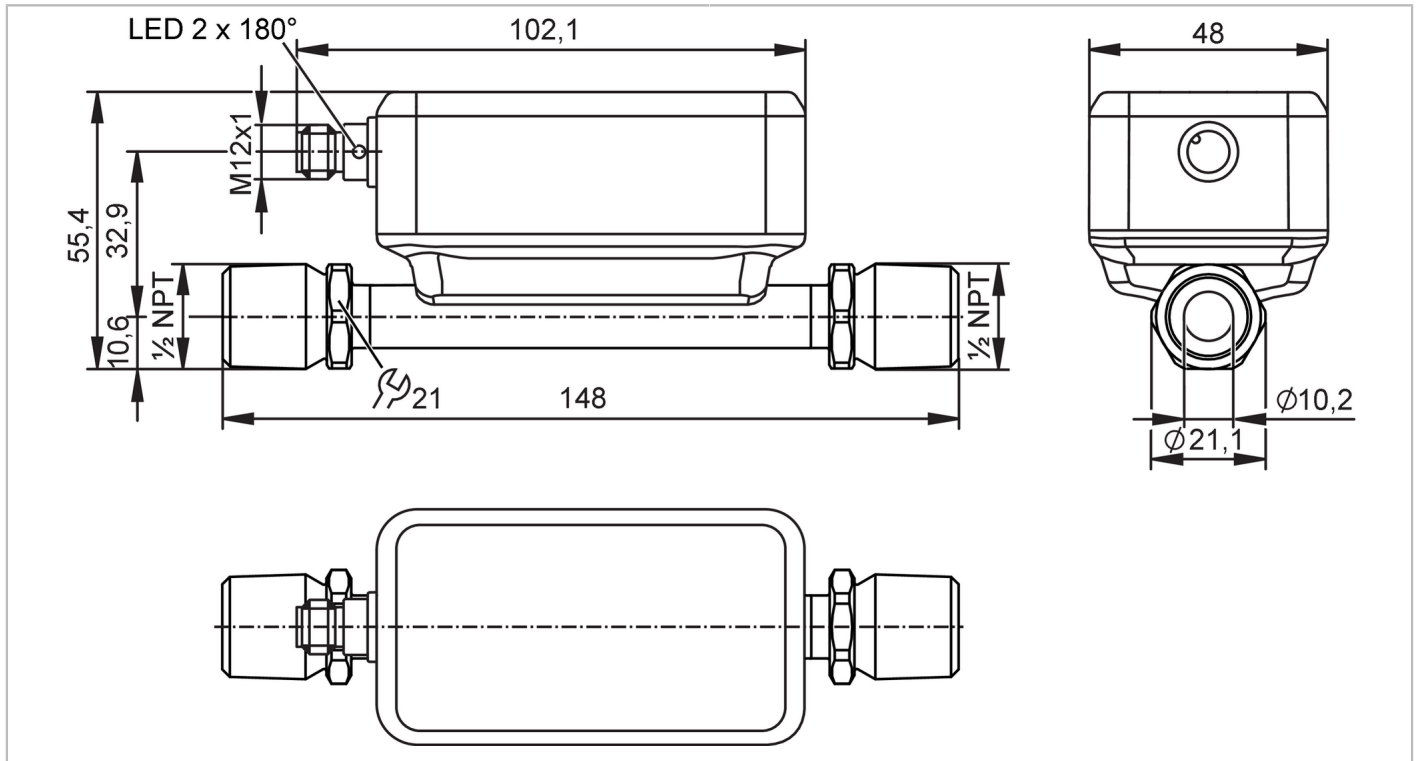


SU6651



Ultrasonic flow meter

SUN12XJBFRKG/US



ACS KTW/W270 Reg31

Product characteristics

| | | | | |
|------------------------------|---|-----------------|--------------|------------------|
| Number of inputs and outputs | Number of digital outputs: 2; Number of analog outputs: 1 | | | |
| Measuring range | 0.5...65 l/min | 0.03...3.9 m³/h | 8...1030 gph | 0.13...17.17 gpm |
| Nominal diameter | DN15 (1/2") | | | |
| Process connection | threaded connection 1/2" NPT external thread DN15 | | | |

Application

| | | |
|--------------------------|--|--------------|
| Special feature | gold-plated contacts | |
| Application | use in mobile and industrial applications | |
| Media | ultra-pure water; water; water-based media; glycol solutions; oils (of high and low viscosity); Coolants | |
| Note on media | water-based 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 | -40...120 °C | -40...248 °F |
| Min. burst pressure | 150 bar | 15 MPa |
| Pressure rating | 100 bar | 10 MPa |
| Vacuum resistance [mbar] | -1000 | |

Electrical data

| | | |
|-----------------------------|---------------------------|--|
| Operating voltage [V] | 8...32 DC; (to SELV/PELV) | |
| Current consumption [mA] | < 175 | |
| Protection class | III | |
| Reverse polarity protection | yes | |
| Power-on delay time [s] | 5 | |

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| | | | | |
|--|---|--|-----------------|--------------------|
| Measuring principle | ultrasonic | | | |
| Inputs / outputs | | | | |
| Total number of inputs and outputs | 2 | | | |
| Number of inputs and outputs | Number of digital outputs: 2; Number of analog outputs: 1 | | | |
| Inputs | | | | |
| Inputs | OUT2 | counter reset | | |
| Outputs | | | | |
| Total number of outputs | 2 | | | |
| Output signal | OUT1 | switching signal; pulse signal; diagnostic signal; totalizer switching signal; frequency signal; IO-Link | | |
| | OUT2 | switching signal; pulse signal; diagnostic signal; totalizer switching signal; analog signal | | |
| Electrical design | PNP/NPN | | | |
| Number of digital outputs | 2 | | | |
| 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 | | | |
| Number of analog outputs | 1 | | | |
| Analog current output [mA] | 4...20; (scalable) | | | |
| Max. load [Ω] | 500 | | | |
| Analog voltage output [V] | 0...10 / 0.5...4.5; (scalable) | | | |
| Min. load resistance [Ω] | 2000 | | | |
| 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...65 l/min | 0.03...3.9 m ³ /h | 8...1030 gph | 0.13...17.17 gpm |
| Resolution | 0.1 l/min | 0.002 m ³ /h | 1 gph | 0.01 gpm |
| Note on factory setting | gpm °F | | | |
| Set point SP | 0.9...65 l/min | 0.052...3.9 m ³ /h | 14...1030 gph | 0.23...17.17 gpm |
| Reset point rP | 0.5...64.7 l/min | 0.032...3.88 m ³ /h | 8...1025 gph | 0.14...17.08 gpm |
| Analog start point ASP | -65...52 l/min | -3.9...3.12 m ³ /h | -1030...824 gph | -17.17...13.74 gpm |
| Analog end point AEP | -52...65 l/min | -3.12...3.9 m ³ /h | -824...1030 gph | -13.74...17.17 gpm |
| Low flow cut-off LFC | 0.5...3.2 l/min | 0.03...0.195 m ³ /h | 8...52 gph | 0.13...0.86 gpm |
| Frequency end point, FEP | 13...65 l/min | 0.782...3.9 m ³ /h | 207...1030 gph | 3.44...17.17 gpm |
| Frequency at the end point FRP [Hz] | 1...10000 | | | |
| Volumetric flow quantity monitoring | | | | |
| Pulse length [s] | 0.002...2 | | | |

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| | | |
|-------------------------------------|---|----------------|
| Pulse value | 0.1...99990000 l; 0.03...26414563.515 gal | |
| Temperature monitoring | | |
| Measuring range | -40...120 °C | -40...248 °F |
| Resolution | 0.1 °C | 0.1 °F |
| Set point SP | -40...119.4 °C | -40...247 °F |
| Reset point rP | -40...88 °C | -40...190.4 °F |
| Analog start point | -8...120 °C | 17.6...248 °F |
| Analog end point | -40...88 °C | -40...190.4 °F |
| Frequency start point, FSP | -8...120 °C | 17.6...248 °F |
| Frequency end point, FEP | -40...119.4 °C | -40...247 °F |
| Frequency at the end point FRP [Hz] | 1...10000 | |

Accuracy / deviations

| | | |
|--|--|--------------------------|
| Flow monitoring | | |
| Accuracy (in the measuring range) | only up to 100 °C; at higher temperatures, only the repeatability is within the specification. | |
| Accuracy (in the measuring range) | glycol solutions (35%) | ±(5,0 % MW + 0,5 % MEW) |
| | high-viscosity oils with viscosity 46mm ² /s (40°C) | ±(5,0 % MW + 1,0 % MEW) |
| | low-viscosity oils with viscosity 10mm ² /s (40°C) | ±(5,0 % MW + 1,0 % MEW) |
| | water | ± (2,0 % MW + 0,5 % MEW) |
| Repeatability | ± 0,2 % MEW | |
| Temperature monitoring | | |
| Accuracy [K] | ± 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 | BLOB | Binary Large Object transfer |
| | Common - I&D | Identification and Diagnosis |
| Required master port class | A | |
| Process data analog | 3 | |
| Process data binary | 2 | |
| Min. process cycle time [ms] | 9.6 | |

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| IO-Link process data (cyclical) | Function | bit length |
|---------------------------------|------------------------|------------|
| | totalizer | 32 |
| | Flow monitoring | 32 |
| | Temperature monitoring | 32 |
| | status | 4 |
| | Output 1 | 1 |
| | Output 2 | 1 |
| Supported DeviceIDs | Type of operation | DeviceID |
| | default | 1834 |

| Operating conditions | | |
|----------------------|------|---------------|
| Ambient temperature | [°C] | -25...60 |
| Storage temperature | [°C] | -40...80 |
| Protection | | IP 67; IP 69K |

| 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] | 136 |
| UL approval | UL approval number | I037 |
| | File number UL | E174189 |
| Pressure equipment directive | can be used for group 2 fluids; group 1 fluids on request | |

| Mechanical data | | |
|---|------|--|
| Weight | [g] | 533.8 |
| Housing | | rectangular |
| Inlet pipe length | | 5 x DN |
| Outlet pipe length | | 1 x DN |
| Dimensions | [mm] | 148 x 48 x 55.4 |
| Material | | housing: stainless steel (1.4404 / 316L); connector: PEI FKM |
| Materials (wetted parts) | | Pipe section: stainless steel (1.4404 / 316L) |
| Nominal diameter | | DN15 (1/2") |
| Process connection | | threaded connection 1/2" NPT external thread DN15 |
| Surface characteristics Ra/Rz of the wetted parts | | 49.21 µin |

| Displays / operating elements | | |
|-------------------------------|------------------|----------------|
| Display | operating status | 1 x LED, green |

| Accessories | | |
|----------------|--|----------------|
| Items supplied | | 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. |

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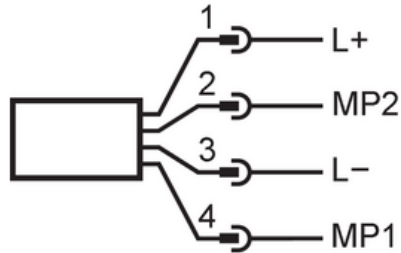
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Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



| | | |
|----------|-----|---------------|
| 1 (L+) | L+ | |
| 2 (OUT2) | MP2 | DO, AO, Reset |
| 3 (L-) | L- | |
| 4 (OUT1) | MP1 | DO, IO-Link |

Electrical connection - plug

Diagrams and graphs

Note on pressure loss

