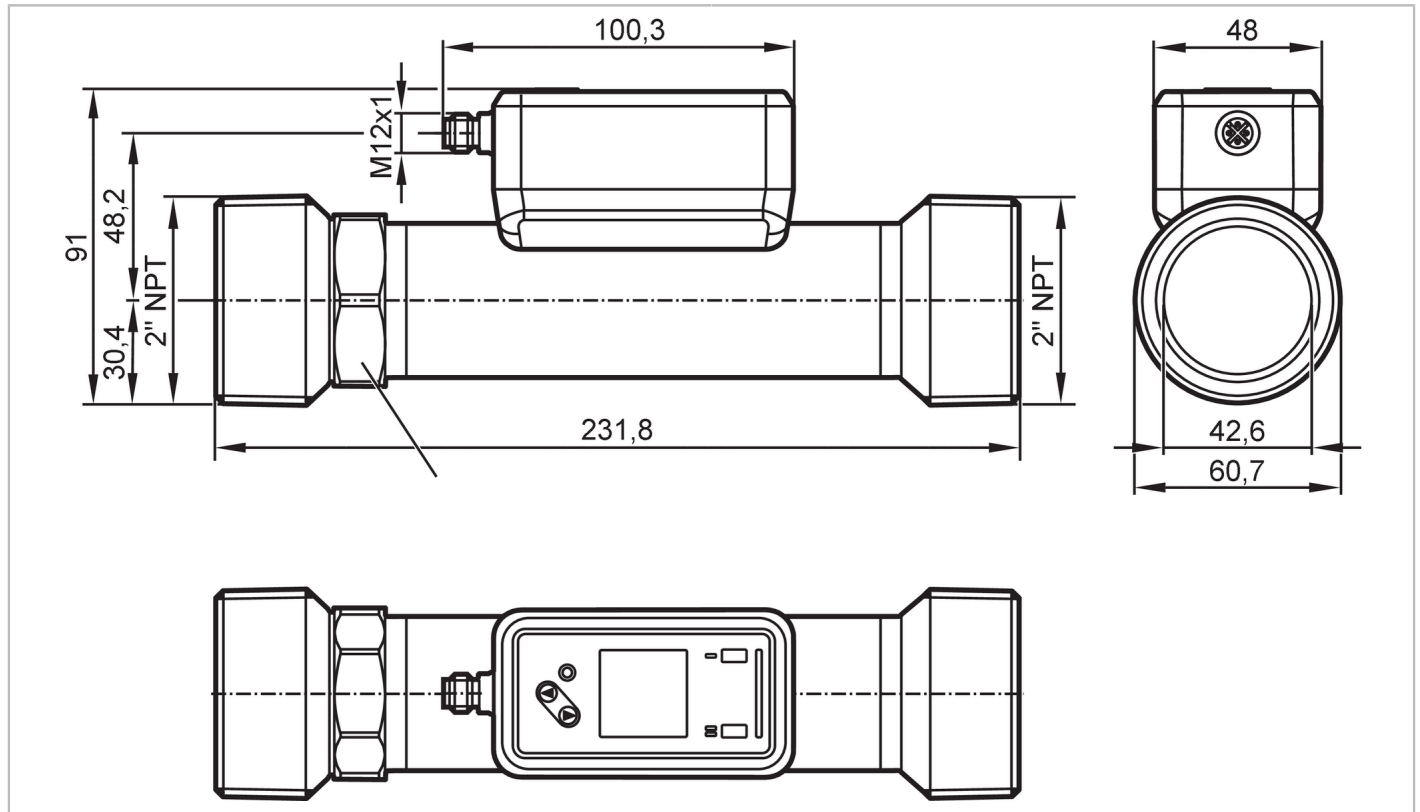


SU2631



Ultrasonic flow meter

SUN21XFBFRKG/US



ACS KTW/W270 Reg31

| Product characteristics | |
|-----------------------------|--|
| Measuring range | 5...1000 l/min 0.3...60 m ³ /h 79...15850 gph 1.32...264.18 gpm |
| Process connection | threaded connection 2" NPT external thread DN50 |
| Application | |
| Special feature | gold-plated contacts |
| Media | ultra-pure water; water; water-based media; glycol solutions; oils; 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 mm ² /s (40 °C) high-viscosity oils with viscosity: 30...68 mm ² /s (40 °C) |
| Medium temperature | -20...100 °C -4...212 °F |
| 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 |

SU2631



Ultrasonic flow meter

SUN21XFBFRKG/US

| Inputs | | | | |
|--|---|---------------------|--------------------|----------------------|
| Inputs | counter reset | | | |
| 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 | 5...1000 l/min | 0.3...60 m³/h | 79...15850 gph | 1.32...264.18 gpm |
| Display range | -1200...1200 l/min | -72...72 m³/h | -19020...19020 gph | -317...317 gpm |
| Resolution | 0.1 l/min | 0.001 m³/h | 1 gph | 0.01 gpm |
| Set point SP | 10.5...1000 l/min | 0.63...60 m³/h | 166...15850 gph | 2.77...264.17 gpm |
| Reset point rP | 5.3...994.8 l/min | 0.318...59.688 m³/h | 84...15768 gph | 1.4...262.8 gpm |
| Analog start point ASP | -1000...800 l/min | -60...48000 m³/h | -15850...12680 gph | -264.18...211.34 gpm |
| Analog end point AEP | -800...1000 l/min | -48000...60 m³/h | -12680...15850 gph | -211.34...264.17 gpm |
| Low flow cut-off LFC | 5...50 l/min | 0.3...3 m³/h | 79...793 gph | 1.32...13.21 gpm |
| Frequency end point, FEP | 200.6...1000 l/min | 12.037...60 m³/h | 3180...15850 gph | 53...264.17 gpm |
| Frequency at the end point FRP [Hz] | 1...10000 | | | |
| Volumetric flow quantity monitoring | | | | |
| Pulse length [s] | 0.002...2 | | | |
| Pulse value | 0.1...99990000 l; 0.026...26414563.515 gal | | | |
| Temperature monitoring | | | | |
| Measuring range | -20...100 °C | | -4...212 °F | |
| Display range | -44...124 °C | | -47.2...255.2 °F | |
| Resolution [°C] | 0.1 | | | |
| 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 | | 39.2...212 °F | |
| Frequency at the end point FRP [Hz] | 1...10000 | | | |

SU2631



Ultrasonic flow meter

SUN21XFBFRKG/US

| Accuracy / deviations | | |
|--|--|--|
| Flow monitoring | | |
| Accuracy (in the measuring range) | glycol solutions (35%) | $\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$ |
| | high-viscosity oils with viscosity 46mm ² /s (40°C) | $\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$ |
| | low-viscosity oils with viscosity 10mm ² /s (40°C) | $\pm(5,0 \% \text{ MW} + 0,5 \% \text{ MEW})$ |
| | water | $\pm (1,0 \% \text{ MW} + 0,5 \% \text{ MEW})$ |
| 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 | |
| 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 | |
| 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 | 1763 |
| Operating conditions | | |
| Ambient temperature [°C] | -20...60 | |
| Storage temperature [°C] | -25...80 | |
| Protection | IP 65; IP 67 | |

SU2631



Ultrasonic flow meter

SUN21XFBFRKG/US

| 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 number | I033 |
| Pressure equipment directive | can be used for group 2 fluids; group 1 fluids on request | |

| Mechanical data | | |
|---|--|--|
| Weight [g] | 1366.8 | |
| Housing | rectangular | |
| Type of mounting | inlet pipe length 5xDN; outlet pipe length 1xDN | |
| Dimensions [mm] | 231.8 x 60.7 x 91 | |
| Material | housing: stainless steel (1.4404 / 316L); Display: PFA; sealing Display: FKM; connector: PBT | |
| Materials (wetted parts) | Pipe section: stainless steel (1.4404 / 316L) | |
| Process connection | threaded connection 2" NPT external thread DN50 | |
| Surface characteristics Ra/Rz of the wetted parts | 49.21 µin | |

| Displays / operating elements | | |
|-------------------------------|---|---------------------------------------|
| Display | | Color display 1,44", 128 x 128 pixels |
| | Switching function | 2 x LED, yellow |
| | diagnosis | 1 x LED, three-color |
| Display unit | l/min; l/h; m³/h; m/s; gpm; gph; ft/s; oz/min | |

| 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. | |

| Electrical connection | | |
|---|--|--|
| Connector: 1 x M12; coding: A; Contacts: 4, gold-plated | | |
| | | |

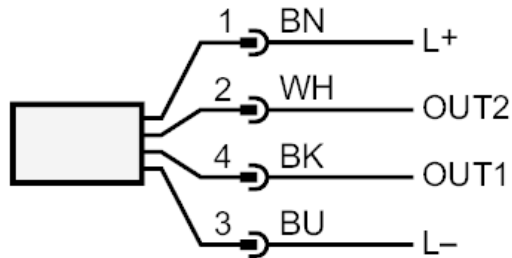
SU2631



Ultrasonic flow meter

SUN21XFBFRKG/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

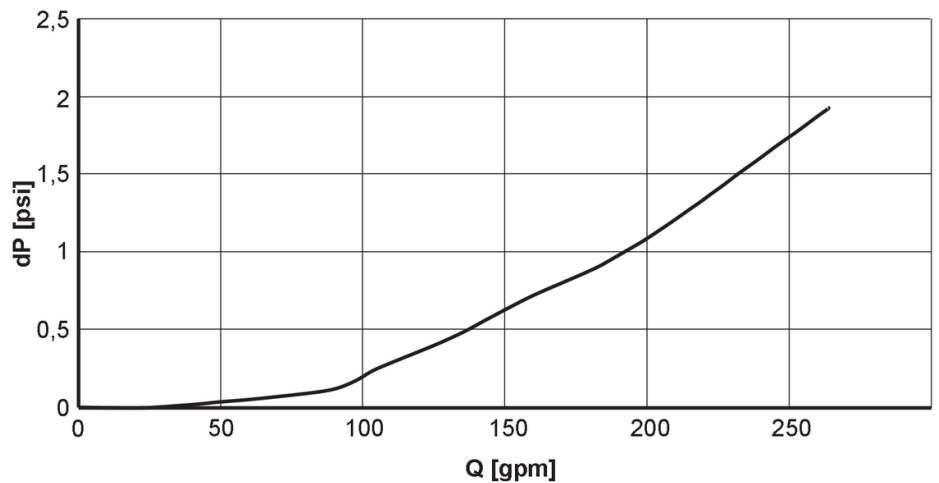
OUT2/InD: Switching output Volumetric flow quantity monitoring
Switching output Temperature monitoring
Pulse output quantity meter
analog output flow
analog output temperature
signal output Preset counter
Input counter reset

Colors to DIN EN 60947-5-2

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

Diagrams and graphs

Note on pressure loss



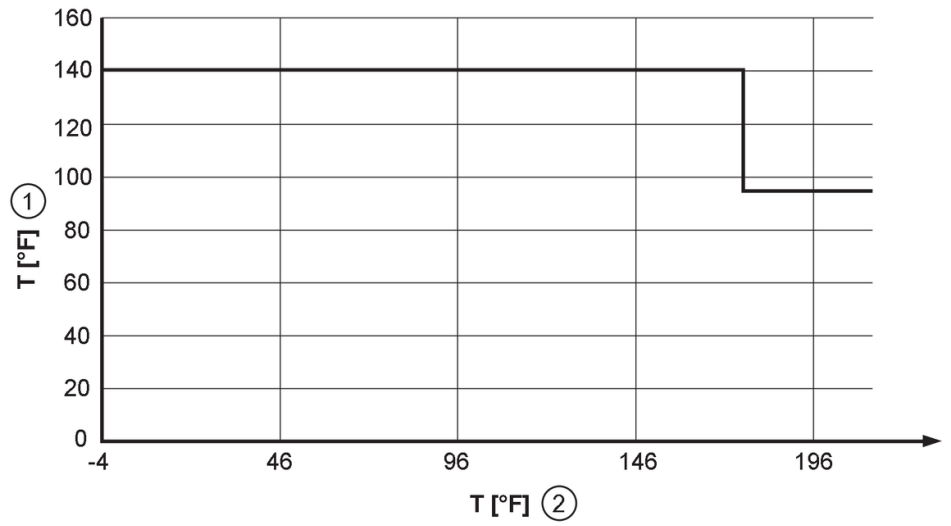
SU2631

Ultrasonic flow meter

SUN21XFBFRKG/US



derating ambient temperature



- 1 Ambient temperature
- 2 Medium temperature