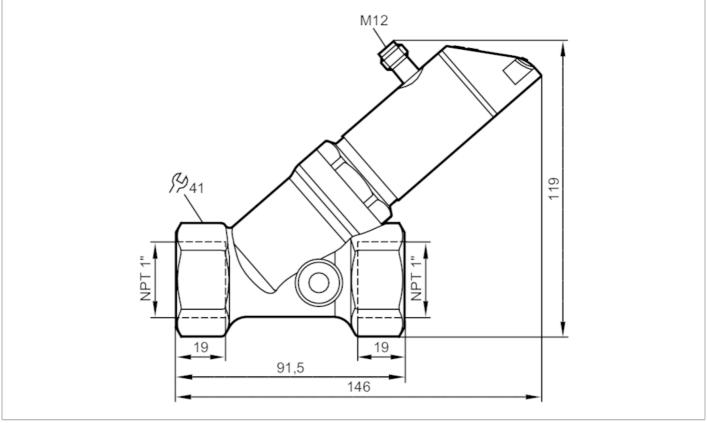
Flow meter with integrated backflow prevention and display



SBN11IF0FRKG



| Product characteristics | |
|-------------------------|--|
| | |

| FIGURE CHARACTERISTICS | | |
|--|----------|---|
| Number of inputs and outp | outs | Number of digital outputs: 2; Number of analogue outputs: 1 |
| Measuring range | [gph] | 301620 |
| Process connection | | threaded connection 1" NPT |
| Application | | |
| Special feature | | Gold-plated contacts |
| Application | | for industrial applications |
| Media | | Liquids; water; glycol solutions; coolants |
| Note on media | | oil 1 with viscosity: 10 mm ² /s (104 °F) |
| | | oil 2 with viscosity: 46 mm ² /s (104 °F) |
| Medium temperature | [°F] | 14212 |
| Pressure rating | [bar] | 25 |
| Pressure rating | [MPa] | 2.5 |
| MAWP (for applications according to CRN) | [bar] | 25 |
| Electrical data | | |
| Operating voltage | [V] | 1830 DC; (to SELV/PELV) |
| Current consumption | [mA] | < 50 |
| Protection class | | III |
| Reverse polarity protection | <u>ו</u> | yes |
| Power-on delay time | [s] | < 3 |
| | | |

Flow meter with integrated backflow prevention and



display

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| Number of inputs and outputs Number of digital outputs: 2; Number of analogue outputs: 1 Outputs 2 Total number of outputs 2 Output signal switching signal; analogue signal; frequency signal; IO-Link; (configurable) Number of digital outputs 2 Output function normally open / normally closed; (parameterisable) Max. voltage drop switching of [mA] switching output DC 1 Permanent current rating of (mA) switching cycles (mechanical) 10 million Number of analogue outputs 1 Analogue current output [mA] 420 Max. load [Q] Short-circuit protection yes Overload protection yes Verendency of the output [Hz] 01620 Display range 01840 gph 032.4 gpm Resolution 10 gph 0.128.8 gpm Set point SP 01620 gph 0.227 gpm Reset point rP 01620 gph 026.8 gpm Frequency at the end point [Hz] 101620 gph 0.10000 | Inputs / outputs | | | | |
|---|------------------------------|-------|--|--------------------------|--|
| Total number of outputs 2 Output signal switching signal; analogue signal; frequency signal; IO-Link; (configurable) Number of digital outputs 2 Output function normally open / normally closed; (parameterisable) Max. voltage drop switching output DC 2 Permanent current rating of switching output DC 150; (per output 2 x 200 (140 *F); 2 x 250 (104 *F)) Switching output DC 10 million Number of analogue outputs 1 Analogue current output [mA] 420 Max. load [Q] Short-circuit protection yes Overload protection yes Overload protection 9 Display range 01940 gph IO set point SP 01620 gph IO set point SP 01620 gph IO set point SP 01620 gph In steps of 10 gph In steps of 10 gph | Number of inputs and outputs | | Number | of digital outputs: 2; I | Number of analogue outputs: 1 |
| Output signalswitching signal; analogue signal; frequency signal; 10-Link; (configurable)Number of digital outputs2Output functionnormally open / normally closed; (parameterisable)Max. voltage drop switching of grupt DC2Permanent current rating of switching output DC1Switching cycles (mechanical)10 millionNumber of analogue outputs1Analogue current output [mA]420Max. load[Ω]Short-circuit protectionyesOverload protectionyesFrequency of the output [Hz]01620Display range01940 gphResolution10 gphSet point SP101620 gphIn steps of1010000 | Outputs | | | | |
| Number of digital outputsOutput functionMax. voltage drop switching output DCPermanent current rating of switching cycles (mechanical)Number of analogue outputsAnalogue current output (mechanical)Number of analogue outputsAnalogue current output (mechanical)Number of analogue outputsAnalogue current output (mA)Analogue current output (mechanical)Number of analogue outputsAnalogue current output (mA)Max. load (D2)Short-circuit protection | Total number of outputs | | | | 2 |
| Output functionnormally open / normally closed; (parameterisable)Max. voltage drop switching output DC[M]Permanent current rating of switching cycles (mechanical)[mA]Switching cycles (mechanical)10 millionNumber of analogue outputs1Analogue current output [mA]420Max. load Solor-circuit protection[Q]Switching range Frequency of the output [H2]010000Measuring range Resolution01940 gph01940 gph032.4 gpmSet point SP101620 gph101620 gph026.8 gpmFrequency end point, FEP1101620 gph101620 gph0.1 gpmFrequency at the end point FRP[H2]10100001110000 | Output signal | | switching signal; analogue signal; frequency signal; IO-Link; (configurable) | | |
| Max. voltage drop switching output DC[V]2Permanent current rating of switching output DC[mA] switching output DC150; (per output 2 x 200 (140 °F); 2 x 250 (104 °F))Switching cycles (mechanical)10 millionNumber of analogue outputs1Analogue current output (mak)[mA]Analogue current output (mechanical)[mA]Number of analogue outputs1Analogue current output (mA]420Max. load Overload protection[Q]Short-circuit protectionyesOverload protectionyesFrequency of the output (Hz][Hz]Measuring range Resolution01940 gph01940 gph032.4 gpmResolution10 gph01610 gph026.8 gpmFrequency end point, FEP1101620 gph10 sphs of Frequency at the end point FRP[Hz]Frequency at the end point <br< td=""><td>Number of digital outputs</td><td></td><td colspan="2"></td></br<> | Number of digital outputs | | | | |
| output DC2Permanent current rating of switching output DC[mA]Switching cycles (mechanical)10 millionNumber of analogue outputs1Analogue current output[mA]Analogue current output[mA]Analogue current output[mA]Max. load[Q]Short-circuit protectionyesOverload protectionyesOverload protectionyesMeasuring/setting range[gh]Measuring range[gh]Set point SP101620 gphSet point SP101620 gphIn steps of10 gphIn steps of1010000 | Output function | | normally open / normally closed; (parameterisable) | | |
| switching output DCIsol: (per output 2 x 200 (140 °F.); 2 x 250 (104 °F.))Switching cycles (mechanical)10 millionNumber of analogue outputs1Analogue current output[mA]Analogue current output[mA]Max. load[Ω]Short-circuit protectionyesOverload protectionyesOverload protectionyesFrequency of the output[Hz]Measuring/setting range[gph]Measuring range[gph]Output SP01620Display range01620 gph01620 gph0227 gpmResel point SP101620 gphIn steps of10 gph | • • | [V] | | | |
| Image: InstanceNumber of analogue outputs1Analogue current output[mA]Analogue current output[mA]Max. load[Ω]Short-circuit protectionyesOverload protectionyesFrequency of the output[H2]Measuring/setting range[gph]Display range01940 gphNo1620032.4 gpmResolution10 gphO1620 gph0.227 gpmReset point SP101620 gphIn steps of10 gphIn steps of <td>•</td> <td>[mA]</td> <td>150; (</td> <td>per output 2 x 200 (</td> <td>140 °F); 2 x 250 (104 °F))</td> | • | [mA] | 150; (| per output 2 x 200 (| 140 °F); 2 x 250 (104 °F)) |
| Analogue current output[mA]Max. load[Ω]Short-circuit protectionyesOverload protectionyesOverload protectionyesFrequency of the output[Hz]Output[Hz]Measuring/setting range[gph]Display range01940 gphIbisplay range01620 gphSet point SP101620 gphNeset point rP01610 gphFrequency end point, FEP1101620 gphIn steps of10 gphIn steps of10 gphFrequency at the end point[Hz]Frequency at the end | | | 10 million | | |
| Max. load[Ω]500Short-circuit protectionyesOverload protectionyesFrequency of the output[Hz]Prequency of the output[Hz]Measuring/setting range[gph]Measuring range[gph]Output010000Measuring range[gph]Output01940 gphOutput032.4 gpmResolution10 gphSet point SP01620 gphReset point rP01610 gphOutput026.8 gpmFrequency end point, FEP1101620 gphIn steps of10 gphIn steps of10 gphFrequency at the end point[Hz]Frequency at the end point[Hz]F | Number of analogue outputs | | 1 | | |
| Short-circuit protectionyesOverload protectionyesFrequency of the output[Hz]010000Measuring/setting range[gph]01940 gph032.4 gpmDisplay range01940 gph01940 gph0.1 gpmSet point SP101620 gphPrequency end point, FEP1101620 gphIn steps of10 gph0 gph0.1 gpmFrequency at the end point[Hz]Frequency at the | Analogue current output | [mA] | | 4. | 20 |
| Overload protectionyesFrequency of the output[Hz]010000Measuring/setting range[gph]Measuring range[gph]01620Display range01940 gph01940 gph032.4 gpmResolution10 gph0.1 gpmSet point SP101620 gphReset point rP01610 gph01610 gph026.8 gpmFrequency end point, FEP1101620 gphIn steps of10 gph0.1 gpm0.1 gpm | Max. load | [Ω] | | | |
| Frequency of the output[Hz]010000Measuring/setting range[gph]301620Display range01940 gph032.4 gpmResolution10 gph0.1 gpmSet point SP101620 gph0.227 gpmReset point rP01610 gph026.8 gpmFrequency end point, FEP1101620 gph1.827 gpmIn steps of10 gph0.1 gpm | Short-circuit protection | | | | |
| Measuring/setting range[gph]301620Display range[gph]01940 gph032.4 gpmResolution10 gph0.1 gpmSet point SP101620 gph0.227 gpmReset point rP01610 gph026.8 gpmFrequency end point, FEP1101620 gph1.827 gpmIn steps of10 gph0.1 gpmFrequency at the end point[Hz]FRP1010000 | Overload protection | | | у | es |
| Measuring range[gph]301620Display range01940 gph032.4 gpmResolution10 gph0.1 gpmSet point SP101620 gph0.227 gpmReset point rP01610 gph026.8 gpmFrequency end point, FEP1101620 gph1.827 gpmIn steps of10 gph0.1 gpmFrequency at the end point[Hz]10 gphFrequency at the end point[Hz]Frequency at the end point[Hz] <td>Frequency of the output</td> <td>[Hz]</td> <td></td> <td>01</td> <td>.0000</td> | Frequency of the output | [Hz] | | 01 | .0000 |
| Display range01940 gph032.4 gpmResolution10 gph0.1 gpmSet point SP101620 gph0.227 gpmReset point rP01610 gph026.8 gpmFrequency end point, FEP1101620 gph1.827 gpmIn steps of10 gph0.1 gpmFrequency at the end point[Hz]FRP1010000 | Measuring/setting range | | | | |
| Resolution10 gph0.1 gpmSet point SP101620 gph0.227 gpmReset point rP01610 gph026.8 gpmFrequency end point, FEP1101620 gph1.827 gpmIn steps of10 gph0.1 gpmFrequency at the end point[Hz]FRP1010000 | Measuring range | [gph] | | 30 | .1620 |
| Set point SP101620 gph0.227 gpmReset point rP01610 gph026.8 gpmFrequency end point, FEP1101620 gph1.827 gpmIn steps of10 gph0.1 gpmFrequency at the end point [Hz]1010000 | Display range | | 01940 gph | | 032.4 gpm |
| Reset point rP01610 gph026.8 gpmFrequency end point, FEP1101620 gph1.827 gpmIn steps of10 gph0.1 gpmFrequency at the end point[Hz]1010000 | Resolution | | 10 gph | | 0.1 gpm |
| Frequency end point, FEP1101620 gph1.827 gpmIn steps of10 gph0.1 gpmFrequency at the end point[Hz]1010000 | Set point SP | | 101620 gph | | 0.227 gpm |
| In steps of 10 gph 0.1 gpm Frequency at the end point [Hz] 1010000 | · · · | | | | |
| Frequency at the end point [Hz] FRP 1010000 | | | | | |
| FRP 1010000 | - | | 10 gph | | 0.1 gpm |
| | FRP | [Hz] | 1010000 | | |
| Measuring dynamics 1:50 | Measuring dynamics | | | 1 | :50 |
| Temperature monitoring | Temperature monitoring | | | | |
| Measuring range [°F] 14212 | Measuring range | [°F] | 14212 | | |
| Display range [°F] -26252 | Display range | [°F] | | -26. | 252 |
| Resolution [°F] 2 | Resolution | [°F] | | | |
| Set point SP [°F] 16212 | Set point SP | [°F] | 16212 | | |
| Reset point rP [°F] 14210 | Reset point rP | [°F] | | | |
| In steps of [°F] 2 | In steps of | | | | |
| Frequency start point, FSP [°F] 14172 | Frequency start point, FSP | | | 14. | 172 |
| Frequency end point, FEP [°F] 54212 | Frequency end point, FEP | | | 54. | 212 |
| Frequency at the end point [Hz] 1010000 | Frequency at the end point | | | | |
| Accuracy / deviations | | | | | |
| Flow monitoring | Flow monitoring | | | | |
| Accuracy (in the measuring range) ± (4 % MW + 1 % MEW); (Q > 2 I/min; medium and operating temperature: +71,6 °F ± | | | ± (4 % MW + 1 % MEW) | ; (Q > 2 I/min; medi | um and operating temperature: +71,6 °F \pm 4K) |
| Repeatability ± 1 % MEW | | | | ±1% | MEW |

Flow meter with integrated backflow prevention and



| display |
|--------------|
| SBN11IF0FRKG |

| SBN11IF0FRKG | | | |
|-------------------------------------|---------|---------------------------|--|
| Temperature monitoring | | | |
| Temperature drift | | | 0,9802 °F / K |
| Accuracy | [K] | | 3 K (77 °F; Q > 1 l/min) |
| Response times | | | |
| Flow monitoring | | | |
| Response time | [s] | | 0.01 |
| Damping process value dAF | • [s] | | 05 |
| Damping for the analogue output dAA | [S] | | 05 |
| Temperature monitoring | | | |
| Dynamic response T05 / T0 | 9 [s] | | T09 = 120 (Q > 1 l/min) |
| Software / programming | | | |
| Parameter setting options | | medium selection; dampi | ally open / normally closed; switching logic; current output; ng for the switching output / analogue output; display can off; standard unit of measurement; process value colour |
| Interfaces | | | |
| Communication interface | | | IO-Link |
| Transmission type | | | COM2 (38,4 kBaud) |
| IO-Link revision | | | 1.1 |
| SDCI standard | | | IEC 61131-9 CDV |
| Profiles | | Smart Sensor | r: Process Data Variable; Device Identification |
| SIO mode | | | yes |
| Required master port type | | | А |
| Process data analogue | | | 2 |
| Process data binary | | | 2 |
| Min. process cycle time | [ms] | | 5 |
| Supported DeviceIDs | | Type of operation | DeviceID |
| | | default | 568 |
| Operating conditions | 50 | | |
| Ambient temperature | [°F] | | 32140 |
| Note on ambient temperatur | re | | medium temperature < 176 °F |
| Storage temperature | [°F] | | um temperature < 212 °F: 32104 °F 5176 |
| Protection | I.1 | | IP 65; IP 67 |
| Tests / approvals | | | ······· |
| EMC | | DIN EN 61000-6-2 | |
| | | DIN EN 61000-6-3 | |
| Shock resistance | | DIN EN 60068-2-27 | 20 g (11 ms) |
| Vibration resistance | | DIN EN 60068-2-6 | 5 g (102000 Hz) |
| MTTF | [years] | | 145 |
| UL approval | | UL Approval no. | 1006 |
| Pressure Equipment Directiv | ve | Sound engineering practic | e; can be used for group 2 fluids; group 1 fluids on request |
| Mechanical data | | | |
| Weight | [g] | | 1088.9 |

Flow meter with integrated backflow prevention and



display

| Materials | | s steel (316L/1.4404); PBT+PC-GF30; 20; PC; brass chemically nickel-plated | | |
|------------------------------|--|---|--|--|
| Materials (wetted parts) | stainless steel (316 / 1.4401); stainless steel (316L/1.4404); brass (2.0371); brass chemically nickel-plated; PPS; O-ring: FKM | | | |
| Process connection | threaded connection 1" NPT | | | |
| Displays / operating element | ts | | | |
| Display | Display unit | 3 x LED, green | | |
| | switching status | 2 x LED, yellow | | |
| | measured values | alphanumeric display, red/green 4-digit | | |
| | programming | alphanumeric display, 4-digit | | |
| Remarks | | | | |
| Remarks | Recor | nmendation: use a 200-micron filter. | | |
| | | All data refer to water (68 °F). | | |
| | | MW = measured value | | |
| | MEW = Final value of the measuring range | | | |
| | 1 pcs. | | | |

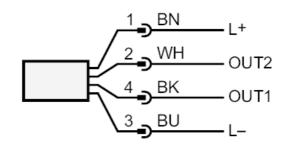


Flow meter with integrated backflow prevention and display



SBN11IF0FRKG

Connection



OUT1:

| - | switching output volumetric flow quantity monitoring |
|-------|--|
| - | switching output Temperature monitoring |
| - | frequency output volumetric flow quantity monitoring |
| - | frequency output Temperature monitoring |
| - | IO-Link |
| OUT2: | |
| - | switching output volumetric flow quantity monitoring |
| - | switching output Temperature monitoring |
| - | analogue output volumetric flow quantity monitoring |
| - | analogue output Temperature monitoring |
| | colours to DIN EN 60947-5-2 |
| | Core colours : |
| BK = | black |
| BN = | brown |
| BU = | blue |
| WH = | white |

Diagrams and graphs

Pressure loss

