



SIMATIC S7-1200, Analog input, SB 1231, 1 AI, +/-10 V DC (12 bit resol.) or 0-20 mA

| General information | |
|---|---|
| Product type designation | SB 1231, AI 1x12 bit |
| Supply voltage | |
| Rated value (DC) | 24 V |
| Input current | |
| from backplane bus 5 V DC, typ. | 55 mA |
| Power loss | |
| Power loss, typ. | 0.4 W |
| Analog inputs | |
| Number of analog inputs | 1; Current or voltage differential inputs |
| permissible input voltage for current input (destruction limit), max. | ±35 V |
| permissible input voltage for voltage input (destruction limit), max. | 35 V |
| permissible input current for voltage input (destruction limit), max. | 40 mA |
| permissible input current for current input (destruction limit), max. | 40 mA |
| Cycle time (all channels) max. | 156.25 µs; 400 Hz suppression |
| Input ranges | |
| • Voltage | Yes; ±10V, ±5V, ±2.5V |
| • Current | Yes; 0 to 20 mA |
| • Thermocouple | No |
| • Resistance thermometer | No |
| • Resistance | No |
| Input ranges (rated values), voltages | |
| • -10 V to +10 V | Yes |
| — Input resistance (-10 V to +10 V) | ≥9 MOhm |
| • -2.5 V to +2.5 V | Yes |
| — Input resistance (-2.5 V to +2.5 V) | ≥9 MOhm |
| • -5 V to +5 V | Yes |
| — Input resistance (-5 V to +5 V) | ≥9 MOhm |
| Input ranges (rated values), currents | |
| • 0 to 20 mA | Yes |
| — Input resistance (0 to 20 mA) | ≥ 250 Ohm |
| Analog outputs | |
| Number of analog outputs | 0 |
| Cable length | |
| • shielded, max. | 100 m; shielded, twisted pair |
| Analog value generation for the inputs | |
| Measurement principle | integrating |

| | |
|--|---|
| Integration and conversion time/resolution per channel | |
| <ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. | 11 bit; + sign |
| <ul style="list-style-type: none"> Integration time, parameterizable | Yes |
| <ul style="list-style-type: none"> Interference voltage suppression for interference frequency f1 in Hz | 40 dB, DC to 60 Hz |
| Smoothing of measured values | |
| <ul style="list-style-type: none"> parameterizable | Yes |
| <ul style="list-style-type: none"> Step: None | Yes |
| <ul style="list-style-type: none"> Step: low | Yes |
| <ul style="list-style-type: none"> Step: Medium | Yes |
| <ul style="list-style-type: none"> Step: High | Yes |
| Errors/accuracies | |
| Temperature error (relative to input range), (+/-) | 25 °C ±0.3%, to 55 °C ±0.6% total measurement range |
| Interrupts/diagnostics/status information | |
| Alarms | Yes |
| Diagnostics function | Yes |
| Alarms | |
| <ul style="list-style-type: none"> Diagnostic alarm | Yes |
| Diagnoses | |
| <ul style="list-style-type: none"> Wire-break | No |
| Diagnostics indication LED | |
| <ul style="list-style-type: none"> for status of the inputs | Yes |
| <ul style="list-style-type: none"> for maintenance | Yes |
| Standards, approvals, certificates | |
| CE mark | Yes |
| CSA approval | Yes |
| UL approval | Yes |
| cULus | Yes |
| FM approval | Yes |
| RCM (formerly C-TICK) | Yes |
| KC approval | Yes |
| Marine approval | Yes |
| Ambient conditions | |
| Free fall | |
| <ul style="list-style-type: none"> Fall height, max. | 0.3 m; five times, in product package |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> min. | -20 °C |
| <ul style="list-style-type: none"> max. | 60 °C |
| <ul style="list-style-type: none"> horizontal installation, min. | -20 °C |
| <ul style="list-style-type: none"> horizontal installation, max. | 60 °C |
| <ul style="list-style-type: none"> vertical installation, min. | -20 °C |
| <ul style="list-style-type: none"> vertical installation, max. | 50 °C |
| Ambient temperature during storage/transportation | |
| <ul style="list-style-type: none"> min. | -40 °C |
| <ul style="list-style-type: none"> max. | 70 °C |
| Air pressure acc. to IEC 60068-2-13 | |
| <ul style="list-style-type: none"> Operation, min. | 795 hPa |
| <ul style="list-style-type: none"> Operation, max. | 1 080 hPa |
| <ul style="list-style-type: none"> Storage/transport, min. | 660 hPa |
| <ul style="list-style-type: none"> Storage/transport, max. | 1 080 hPa |
| Relative humidity | |
| <ul style="list-style-type: none"> Operation at 25 °C without condensation, max. | 95 % |
| Pollutant concentrations | |
| <ul style="list-style-type: none"> SO2 at RH < 60% without condensation | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free |
| connection method | |
| required front connector | Yes |
| Mechanics/material | |
| Enclosure material (front) | |
| <ul style="list-style-type: none"> Plastic | Yes |
| Dimensions | |

| | |
|-----------------|-------|
| Width | 38 mm |
| Height | 62 mm |
| Depth | 21 mm |
| Weights | |
| Weight, approx. | 35 g |

| Classifications | | | |
|------------------------|--------|----------------|-----------------------|
| | | Version | Classification |
| | eClass | 14 | 27-24-22-01 |
| | eClass | 12 | 27-24-22-01 |
| | eClass | 9.1 | 27-24-22-01 |
| | eClass | 9 | 27-24-22-01 |
| | eClass | 8 | 27-24-22-01 |
| | eClass | 7.1 | 27-24-22-01 |
| | eClass | 6 | 27-24-22-01 |
| | ETIM | 10 | EC001420 |
| | ETIM | 9 | EC001420 |
| | ETIM | 8 | EC001420 |
| | ETIM | 7 | EC001420 |
| | IDEA | 4 | 3562 |
| | UNSPSC | 15 | 32-15-17-05 |

Approvals / Certificates

General Product Approval



| Test Certificates | Maritime application | other |
|-------------------|----------------------|-------|
|-------------------|----------------------|-------|

[Type Test Certificates/Test Report](#)

[Special Test Certificate](#)



[Confirmation](#)

| other | Environment |
|-------|-------------|
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[Environmental Confirmations](#)

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