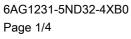
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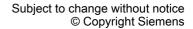
Data sheet

6AG1231-5ND32-4XB0

SIPLUS S7-1200 SM 1231 4AI with conformal coating based on 6ES7231-5ND32-0XB0 Analog input, SM 1231, 4 AI, +/-10 V, +/-5 V, +/-2.5 V, +/-1.25 or 0-20 mA/4-20 mA, 15 bit+sign bit

| General information | | |
|--|---|--|
| Product type designation | SM 1231, AI 4x16 bit | |
| Supply voltage | | |
| Rated value (DC) | 24 V | |
| | | |
| Input current | OF mA | |
| Current consumption, typ. | 65 mA | |
| from backplane bus 5 V DC, typ. | 80 mA | |
| Power loss | | |
| Power loss, typ. | 1.8 W | |
| Analog inputs | | |
| Number of analog inputs | 4; Current or voltage differential inputs | |
| permissible input voltage for voltage input | 35 V | |
| (destruction limit), max. | | |
| permissible input current for current input (destruction | 40 mA | |
| limit), max. | | |
| Cycle time (all channels) max. | 625 μs | |
| Input ranges | | |
| Voltage | Yes; ±10V, ±5V, ±2.5V or ±1.25V | |
| Current | Yes; 4 to 20 mA, 0 to 20 mA | |
| Thermocouple | No | |
| Resistance thermometer | No | |
| Resistance | Yes | |
| Input ranges (rated values), voltages | | |
| • -1.25 V to +1.25 V | Yes | |
| • -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 | |
| • 4 mA to 20 mA | Yes | |
| | | |





| Analog value generation for the inputs | |
|--|--|
| Integration and conversion time/resolution per channel | |
| Resolution with overrange (bit including sign), | 15 bit; + sign |
| max. | |
| Integration time, parameterizable | Yes |
| Interference voltage suppression for interference frequency f1 in Hz | 40 dB, DC to 60 V for interference frequency 50 / 60 Hz |
| Smoothing of measured values | |
| parameterizable | Yes |
| • Step: None | Yes |
| • Step: low | Yes |
| Step: Medium | Yes |
| • Step: High | Yes |
| Errors/accuracies | |
| Temperature error (relative to input range), (+/-) | 25 °C ±0.1% / ±0.3% total measurement range |
| Basic error limit (operational limit at 25 °C) | |
| Voltage, relative to input range, (+/-) | 0.1 % |
| Current, relative to input range, (+/-) | 0.1 % |
| Interference voltage suppression for f = n x (f1 +/- 1 %), | f1 = interference frequency |
| Common mode voltage, max. | 12 V |
| Interrupts/diagnostics/status information | |
| Alarms | Yes |
| Diagnostics function | Yes |
| Alarms | |
| Diagnostic alarm | Yes |
| Diagnoses | |
| Monitoring the supply voltage | Yes |
| Wire-break | Yes |
| Diagnostics indication LED | |
| for status of the inputs | Yes |
| • for maintenance | Yes |
| Degree and class of protection | |
| IP degree of protection | IP20 |
| Ambient conditions | |
| Free fall | |
| ● Fall height, max. | 0.3 m; five times, in product package |
| Ambient temperature during operation | |
| • min. | -20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C |
| • max. | 60 °C; = Tmax |
| Ambient temperature during storage/transportation | |
| • min. | -40 °C |



| • max. | 70 °C |
|---|---|
| Altitude during operation relating to sea level | |
| Installation altitude above sea level, max. | 5 000 m |
| Ambient air temperature-barometric pressure- altitude | Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin (Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m) |
| Relative humidity | |
| With condensation, tested in accordance with IEC 60068-2-38, max. | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions) |
| Resistance | |
| Coolants and lubricants | |
| Resistant to commercially available coolants and lubricants | Yes; Incl. diesel and oil droplets in the air |
| Use in stationary industrial systems | |
| to biologically active substances according to EN 60721-3-3 | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request |
| to chemically active substances according to EN 60721-3-3 | Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * |
| to mechanically active substances according to EN 60721-3-3 | Yes; Class 3S4 incl. sand, dust, * |
| Use on ships/at sea | |
| to biologically active substances according to EN 60721-3-6 | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request |
| to chemically active substances according to EN 60721-3-6 | Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * |
| to mechanically active substances according to EN 60721-3-6 | Yes; Class 6S3 incl. sand, dust; * |
| Usage in industrial process technology | |
| Against chemically active substances acc. to EN 60654-4 | Yes; Class 3 (excluding trichlorethylene) |
| Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 | Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil) |
| Remark | |
| Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 | * The supplied plug covers must remain in place over the unused interfaces during operation! |
| Conformal coating | |
| Coatings for printed circuit board assemblies acc. to EN 61086 | Yes; Class 2 for high reliability |
| • Protection against fouling acc. to EN 60664-3 | Yes; Type 1 protection |
| Military testing according to MIL-I-46058C, Amendment 7 | Yes; Discoloration of coating possible during service life |



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• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A

Yes; Conformal coating, Class A

| Connection method | |
|----------------------------|------------|
| required front connector | Yes |
| Mechanics/material | |
| Enclosure material (front) | |
| • Plastic | Yes |
| Dimensions | |
| Width | 45 mm |
| Height | 100 mm |
| Depth | 75 mm |
| Weights | |
| Weight, approx. | 180 g |
| last modified: | 10/13/2020 |

