




Figure similar

SIPLUS S7-1200 SM 1231 TC based on 6ES7231-5QD32-0XB0 with conformal coating, -20...+60 °C, analog input, 4 AI thermocouples

| General information | |
|---|---|
| Product type designation | SM 1231, AI 4x16 bit TC |
| Supply voltage | |
| Rated value (DC) | 24 V |
| Input current | |
| Current consumption, typ. | 40 mA |
| from backplane bus 5 V DC, typ. | 80 mA |
| Power loss | |
| Power loss, typ. | 1.5 W |
| Analog inputs | |
| Number of analog inputs | 4; Thermocouples |
| permissible input voltage for voltage input (destruction limit), max. | ±35 V |
| Technical unit for temperature measurement adjustable | Degrees Celsius/degrees Fahrenheit |
| Input ranges | |
| <ul style="list-style-type: none"> • Voltage • Current • Thermocouple • Resistance thermometer • Resistance | No No Yes; J, K, T, E, R, S, N, C, TXK/XK(L); voltage range: ±80 mV No No |
| Input ranges (rated values), voltages | |
| <ul style="list-style-type: none"> • -80 mV to +80 mV — Input resistance (-80 mV to +80 mV) | Yes ≥1 MOhm |
| Input ranges (rated values), thermocouples | |
| <ul style="list-style-type: none"> • Type B • Type C • Type E • Type J • Type K • Type N • Type R • Type S • Type T • Type TXK/TXK(L) to GOST | Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes |
| Thermocouple (TC) | |
| Temperature compensation | |
| — parameterizable | No |
| Analog value generation for the inputs | |

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|---|--|
| Measurement principle | integrating |
| Integration and conversion time/resolution per channel | |
| <ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. Integration time, parameterizable Interference voltage suppression for interference frequency f1 in Hz | 15 bit; + sign No 85 dB at 50 / 60 / 400 Hz |
| Smoothing of measured values | |
| <ul style="list-style-type: none"> parameterizable | Yes |
| Errors/accuracies | |
| Temperature error (relative to input range), (+/-) | 25 °C ±0.1%, to 55 °C ±0.2% total measurement range |
| Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) | 0.5 % |
| Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, f1 = interference frequency | |
| <ul style="list-style-type: none"> Common mode interference, min. | 120 dB |
| Interrupts/diagnostics/status information | |
| Alarms | Yes |
| Diagnostics function | Yes; Can be read out |
| Alarms | |
| <ul style="list-style-type: none"> Diagnostic alarm | Yes |
| Diagnoses | |
| <ul style="list-style-type: none"> Monitoring the supply voltage Wire-break | Yes Yes |
| Diagnostics indication LED | |
| <ul style="list-style-type: none"> for status of the inputs for maintenance | Yes Yes |
| Degree and class of protection | |
| IP degree of protection | IP20 |
| 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. max. | -20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C 60 °C; = Tmax |
| Ambient temperature during storage/transportation | |
| <ul style="list-style-type: none"> min. max. | -40 °C 70 °C |
| Altitude during operation relating to sea level | |
| <ul style="list-style-type: none"> Installation altitude above sea level, max. Ambient air temperature-barometric pressure-altitude | 5 000 m 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 | |
| <ul style="list-style-type: none"> 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; * |

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|---|---|
| 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 | |
| <ul style="list-style-type: none"> Coatings for printed circuit board assemblies acc. to EN 61086 Protection against fouling acc. to EN 60664-3 Military testing according to MIL-I-46058C, Amendment 7 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A | <p>Yes; Class 2 for high reliability</p> <p>Yes; Type 1 protection</p> <p>Yes; Discoloration of coating possible during service life</p> <p>Yes; Conformal coating, Class A</p> |
| connection method / header | |
| required front connector | Yes |
| Mechanics/material | |
| Enclosure material (front) <ul style="list-style-type: none"> Plastic | Yes |
| Dimensions | |
| Width | 45 mm |
| Height | 100 mm |
| Depth | 75 mm |
| Weights | |
| Weight, approx. | 180 g |
| last modified: | 12/18/2020  |