




Figure similar

SIPLUS S7-1200 SM 1231 RTD based on 6ES7231-5PD32-0XB0 with conformal coating, -40...+70 °C, start up -25 °C, SIMATIC S7-1200, analog input, SM 1231 RTD, 4xAI RTD module

| General information | |
|---|---|
| Product type designation | SM 1231, AI 4x16 bit RTD |
| based on | 6ES7231-5PD32-0XB0 |
| 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; Resistance thermometer |
| permissible input voltage for voltage input (destruction limit), max. | ±35 V |
| Technical unit for temperature measurement adjustable | Degrees Celsius/degrees Fahrenheit |
| Input ranges | |
| • Voltage | No |
| • Current | No |
| • Thermocouple | No |
| • Resistance thermometer | Yes; Resistance-type transmitter: Pt10, Pt50, Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10, Cu50, Cu100, LG-Ni1000 |
| • Resistance | Yes; 150 Ω, 300 Ω, 600 Ω |
| Input ranges (rated values), resistance thermometer | |
| • Cu 10 | Yes |
| — Input resistance (Cu 10) | 10 Ω |
| • Ni 100 | Yes |
| — Input resistance (Ni 100) | 100 Ω |
| • Ni 1000 | Yes |
| — Input resistance (Ni 1000) | 1 000 Ω |
| • LG-Ni 1000 | Yes |
| — Input resistance (LG-Ni 1000) | 1 000 Ω |
| • Ni 120 | Yes |
| — Input resistance (Ni 120) | 120 Ω |
| • Ni 200 | Yes |
| — Input resistance (Ni 200) | 200 Ω |
| • Ni 500 | Yes |
| — Input resistance (Ni 500) | 500 Ω |
| • Pt 100 | Yes |
| — Input resistance (Pt 100) | 100 Ω |
| • Pt 1000 | Yes |

| | |
|--|---|
| — Input resistance (Pt 1000) | 1 000 Ω |
| • Pt 200 | Yes |
| — Input resistance (Pt 200) | 200 Ω |
| • Pt 500 | Yes |
| — Input resistance (Pt 500) | 500 Ω |
| Input ranges (rated values), resistors | |
| • 0 to 150 ohms | Yes |
| • 0 to 300 ohms | Yes |
| • 0 to 600 ohms | Yes |
| Thermocouple (TC) | |
| Temperature compensation | |
| — parameterizable | No |
| Analog value generation for the inputs | |
| Measurement principle | integrating |
| Integration and conversion time/resolution per channel | |
| • Resolution with overrange (bit including sign), max. | 15 bit; + sign |
| • Integration time, parameterizable | No |
| • Interference voltage suppression for interference frequency f1 in Hz | 85 dB at 50 / 60 / 400 Hz |
| Errors/accuracies | |
| Temperature error (relative to input range), (+/-) | 25 °C $\pm 0.1\%$ / $\pm 0.3\%$ total measurement range |
| Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) | 0.05 % |
| Interference voltage suppression for $f = n \times (f_1 \pm 1\%)$, f_1 = interference frequency | |
| • Common mode interference, min. | 120 dB |
| Interrupts/diagnostics/status information | |
| Alarms | Yes |
| Diagnostics function | Yes; Can be read out |
| 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. | -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C |
| • max. | 70 °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 | |
| • Operation at 25 °C without condensation, max. | 95 % |
| • 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 | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); |

| | |
|---|--|
| 60721-3-3 — to chemically active substances according to EN 60721-3-3 — to mechanically active substances according to EN 60721-3-3 | Class 3B3 on request Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 3S4 incl. sand, dust, * |
| Use on ships/at sea | |
| — to biologically active substances according to EN 60721-3-6 — to chemically active substances according to EN 60721-3-6 — to mechanically active substances according to EN 60721-3-6 | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); * Yes; Class 6S3 incl. sand, dust; * |
| Usage in industrial process technology | |
| — Against chemically active substances acc. to EN 60654-4 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 | Yes; Class 3 (excluding trichlorethylene) 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 | Yes; Class 2 for high reliability Yes; Type 1 protection Yes; Discoloration of coating possible during service life Yes; Conformal coating, Class A |
| connection method | |
| 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. | 220 g |
| last modified: | 5/29/2024  |