



SIMATIC S7-1200, Analog input, SM 1231 RTD, 4xAI RTD module

Figure similar

| General information | |
|---|---|
| Product type designation | SM 1231, AI 4x16 bit RTD |
| 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 |

| | |
|---|---|
| <ul style="list-style-type: none"> • Pt 200 <ul style="list-style-type: none"> — Input resistance (Pt 200) | Yes 200 Ω |
| <ul style="list-style-type: none"> • Pt 500 <ul style="list-style-type: none"> — Input resistance (Pt 500) | Yes 500 Ω |
| Input ranges (rated values), resistors | |
| <ul style="list-style-type: none"> • 0 to 150 ohms | Yes |
| <ul style="list-style-type: none"> • 0 to 300 ohms | Yes |
| <ul style="list-style-type: none"> • 0 to 600 ohms | Yes |
| Thermocouple (TC) | |
| Temperature compensation | |
| <ul style="list-style-type: none"> — parameterizable | No |
| 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. | 15 bit; + sign |
| <ul style="list-style-type: none"> • Integration time, parameterizable | No |
| <ul style="list-style-type: none"> • 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 ±0.1%, to 55 °C ±0.2% total measurement range |
| Repeat accuracy in steady state at 25 °C (relative to output range), (+/-) | 0.05 % |
| 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 | Yes |
| <ul style="list-style-type: none"> • Wire-break | Yes |
| Diagnostics indication LED | |
| <ul style="list-style-type: none"> • for status of the inputs | Yes |
| <ul style="list-style-type: none"> • for maintenance | Yes |
| Degree and class of protection | |
| IP degree of protection | IP20 |
| 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 |
| Ecological footprint | |
| <ul style="list-style-type: none"> • environmental product declaration | Yes |
| Global warming potential | |
| <ul style="list-style-type: none"> — global warming potential, (total) [CO2 eq] | 43.1 kg |
| <ul style="list-style-type: none"> — global warming potential, (during production) [CO2 eq] | 7.62 kg |
| <ul style="list-style-type: none"> — global warming potential, (during operation) [CO2 eq] | 36 kg |
| <ul style="list-style-type: none"> — global warming potential, (after end of life cycle) [CO2 eq] | -0.544 kg |
| 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 |

| | |
|--|---|
| • horizontal installation, min. | -20 °C |
| • horizontal installation, max. | 60 °C |
| • vertical installation, min. | -20 °C |
| • vertical installation, max. | 50 °C |
| Ambient temperature during storage/transportation | |
| • min. | -40 °C |
| • max. | 70 °C |
| Air pressure acc. to IEC 60068-2-13 | |
| • Operation, min. | 795 hPa |
| • Operation, max. | 1 080 hPa |
| • Storage/transport, min. | 660 hPa |
| • Storage/transport, max. | 1 080 hPa |
| Relative humidity | |
| • Operation at 25 °C without condensation, max. | 95 % |
| Pollutant concentrations | |
| • 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) | |
| • Plastic | Yes |
| Dimensions | |
| Width | 45 mm |
| Height | 100 mm |
| Depth | 75 mm |
| Weights | |
| Weight, approx. | 220 g |

| | 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 | 9 | EC001420 |
| ETIM | 8 | EC001420 |
| ETIM | 7 | EC001420 |
| IDEA | 4 | 3562 |
| UNSPSC | 15 | 32-15-17-05 |

| | |
|---------------------------------|-------|
| Approvals / Certificates | |
| General Product Approval | other |



[Confirmation](#)

Environment



last modified:

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