

SIMATIC S7-1200, ANALOG INPUT, SM 1231 TC, 4 AI THERMOCOUPLE



| Supply voltage | |
|---|---|
| Rated value (DC) | |
| <ul style="list-style-type: none"> 24 V DC | Yes |
| Input current | |
| Current consumption, typ. | 40 mA |
| from backplane bus 5 V DC, typ. | 80 mA |
| Power losses | |
| Power loss, typ. | 1.5 W |
| Analog inputs | |
| Number of analog inputs | 4; Thermocouples |
| permissible input frequency for current input (destruction limit), max. | ± 35 V |
| Technical unit for temperature measurement adjustable | Degrees Celsius/degrees Fahrenheit |
| Input ranges | |
| <ul style="list-style-type: none"> Thermocouple | Yes; J, K, T, E, R, S, N, C, TXK/XK(L); voltage range: +/-80 mV |
| <ul style="list-style-type: none"> Resistance thermometer | No |
| <ul style="list-style-type: none"> Resistance | No |
| Input ranges (rated values), voltages | |
| <ul style="list-style-type: none"> -80 mV to +80 mV | Yes |
| <ul style="list-style-type: none"> Input resistance (-80 mV to +80 mV) | >= 1 MOhm |
| Input ranges (rated values), thermoelements | |
| <ul style="list-style-type: none"> Type B | Yes |
| <ul style="list-style-type: none"> Type C | Yes |

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| • Type E | Yes |
| • Type J | Yes |
| • Type K | Yes |
| • Type N | Yes |
| • Type R | Yes |
| • Type S | Yes |
| • Type T | Yes |
| • Type TXK/TXK(L) to GOST | Yes |
| Thermocouple (TC) | |
| • permissible input voltage for voltage input (destruction limit), max. | +35 V |
| Temperature compensation | |
| — Parameterizable | No |
| Analog outputs | |
| Number of analog outputs | 0 |
| Analog value creation | |
| 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 |
| Analog value generation (in isochronous mode) | |
| Smoothing of measured values | |
| • 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 area), (+/-) | 0.5 % |
| Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, f1 = interference frequency | |
| • Common mode interference, min. | 120 dB |
| Interrupts/diagnostics/status information | |
| Alarms | |
| • Alarms | Yes |
| • Diagnostic alarm | Yes |
| Diagnostic messages | |
| • Diagnostic functions | Yes; Can be read out |
| • Monitoring the supply voltage | Yes |
| • Wire break | Yes |
| Diagnostics indication LED | |

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| • for status of the inputs | Yes |
| • for maintenance | Yes |
| Degree and class of protection | |
| Degree of protection to EN 60529 | |
| • IP20 | Yes |
| Standards, approvals, certificates | |
| CE mark | Yes |
| CSA approval | Yes |
| FM approval | Yes |
| RCM (formerly C-TICK) | Yes |
| Highest safety class achievable in safety mode | |
| • SIL acc. to IEC 61508 | none |
| Ambient conditions | |
| Free fall | |
| • Drop height, max. (in packaging) | 0.3 m; five times, in dispatch package |
| Ambient temperature in operation | |
| • Permissible temperature range | -20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing |
| • Min. | -20 °C |
| • max. | 60 °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 | |
| • Permissible range (without condensation) at 25 °C | 95 % |
| Pollutant concentrations | |
| — SO ₂ at RH < 60% without condensation | SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free |
| Connection method | |
| required front connector | Yes |
| Mechanics/material | |
| Type of housing (front) | |
| • plastic | Yes |
| Dimensions | |
| Width | 45 mm |

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|-----------------------|------------|
| Height | 100 mm |
| Depth | 75 mm |
| Weights | |
| Weight, approx. | 180 g |
| last modified: | 20.04.2015 |