




SIMATIC S7-300, Analog input SM 331, isolated, 8 AI, resolution 14 bit, 0.052 ms/channel current, Voltage alarm, diagnostics, 1x 20-pole, suitable for isochronous mode Improved bus cycle time for isochronous mode

| Supply voltage | |
|---|--|
| Load voltage L+ | |
| • Rated value (DC) | 24 V |
| • Reverse polarity protection | Yes |
| Input current | |
| from load voltage L+ (without load), max. | 50 mA |
| from backplane bus 5 V DC, max. | 100 mA |
| Power loss | |
| Power loss, typ. | 1.5 W |
| Analog inputs | |
| Number of analog inputs | 8 |
| permissible input voltage for voltage input (destruction limit), max. | 20 V; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 1:20) |
| permissible input current for current input (destruction limit), max. | 40 mA |
| Input ranges | |
| • Voltage | Yes |
| • Current | Yes |
| • Thermocouple | No |
| • Resistance thermometer | No |
| • Resistance | No |
| Input ranges (rated values), voltages | |
| • 0 to +10 V | No |
| • 1 V to 5 V | Yes |
| — Input resistance (1 V to 5 V) | 100 kΩ |
| • -1 V to +1 V | Yes |
| — Input resistance (-1 V to +1 V) | 10 MΩ |
| • -10 V to +10 V | Yes |
| — Input resistance (-10 V to +10 V) | 100 kΩ |
| • -5 V to +5 V | Yes |
| — Input resistance (-5 V to +5 V) | 100 kΩ |
| • -500 mV to +500 mV | Yes |
| • -80 mV to +80 mV | Yes |
| Input ranges (rated values), currents | |
| • 0 to 20 mA | Yes |
| — Input resistance (0 to 20 mA) | 50 Ω |
| • -20 mA to +20 mA | Yes |
| — Input resistance (-20 mA to +20 mA) | 50 Ω |
| • 4 mA to 20 mA | Yes |
| — Input resistance (4 mA to 20 mA) | 50 Ω |
| Cable length | |

| | |
|--|---|
| • shielded, max. | 200 m |
| Analog value generation for the inputs | |
| Integration and conversion time/resolution per channel | |
| • Resolution with overrange (bit including sign), max. | 14 bit; Unipolar: 14 bit; bipolar: 13 bit + sign |
| • Integration time, parameterizable | Yes |
| • Basic conversion time (ms) | 52 µs per channel |
| • Interference voltage suppression for interference frequency f1 in Hz | none / 400 / 60 / 50 Hz |
| Encoder | |
| Connection of signal encoders | |
| • for current measurement as 2-wire transducer | Yes |
| • for current measurement as 4-wire transducer | Yes |
| Errors/accuracies | |
| Operational error limit in overall temperature range | |
| • Voltage, relative to input range, (+/-) | 0.4 % |
| • Current, relative to input range, (+/-) | 0.3 % |
| Basic error limit (operational limit at 25 °C) | |
| • Voltage, relative to input range, (+/-) | 0.25 % |
| • Current, relative to input range, (+/-) | 0.2 % |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes |
| Alarms | |
| • Diagnostic alarm | Yes; Parameterizable |
| • Limit value alarm | Yes; Parameterizable, channels 0 and 2 |
| Diagnoses | |
| • Diagnostic information readable | Yes |
| Diagnostics indication LED | |
| • Group error SF (red) | Yes |
| Potential separation | |
| Potential separation analog inputs | |
| • between the channels | No |
| • between the channels and backplane bus | Yes |
| • between the channels and the power supply of the electronics | Yes |
| Isolation | |
| Isolation tested with | 500 V DC |
| connection method | |
| required front connector | 20-pin |
| Dimensions | |
| Width | 40 mm |
| Height | 125 mm |
| Depth | 117 mm |
| Weights | |
| Weight, approx. | 230 g |
| last modified: | 3/12/2024  |