

SIMATIC S7-300, Analog input SM 331, isolated, 8 AI; +/-5/10V, 1-5 V, +/-20 mA, 0/4 to 20 mA, 16 bit (55ms), Single rooting (50 V COM.), 1x 40-pole



Figure similar

| Input current | |
|---|-----------------|
| from backplane bus 5 V DC, max. | 130 mA |
| Power loss | |
| Power loss, typ. | 0.6 W |
| Analog inputs | |
| Number of analog inputs | 8 |
| permissible input voltage for voltage input (destruction limit), max. | 50 V; Permanent |
| permissible input current for current input (destruction limit), max. | 32 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) | 2 M Ω |
| • 1 V to 10 V | No |
| • -1 V to +1 V | No |
| • -10 V to +10 V | Yes |
| — Input resistance (-10 V to +10 V) | 2 M Ω |
| • -2.5 V to +2.5 V | No |
| • -250 mV to +250 mV | No |
| • -5 V to +5 V | Yes |
| — Input resistance (-5 V to +5 V) | 2 M Ω |
| • -50 mV to +50 mV | No |
| • -500 mV to +500 mV | No |
| • -80 mV to +80 mV | No |
| Input ranges (rated values), currents | |
| • 0 to 20 mA | Yes |
| — Input resistance (0 to 20 mA) | 250 Ω |
| • -10 mA to +10 mA | No |
| • -20 mA to +20 mA | Yes |
| — Input resistance (-20 mA to +20 mA) | 250 Ω |
| • -3.2 mA to +3.2 mA | No |
| • 4 mA to 20 mA | Yes |
| — Input resistance (4 mA to 20 mA) | 250 Ω |
| Input ranges (rated values), thermocouples | |
| • Type B | No |
| • Type C | No |
| • Type E | No |
| • Type J | No |
| • Type K | No |
| • Type L | No |
| • Type N | No |
| • Type R | No |
| • Type S | No |
| • Type T | No |
| • Type U | No |
| • Type TXK/TXK(L) to GOST | No |
| Input ranges (rated values), resistance thermometer | |
| • Cu 10 | No |
| • Ni 100 | No |
| • Ni 1000 | No |
| • LG-Ni 1000 | No |

| | |
|--|---|
| • Ni 120 | No |
| • Ni 200 | No |
| • Ni 500 | No |
| • Pt 100 | No |
| • Pt 1000 | No |
| • Pt 200 | No |
| • Pt 500 | No |
| Input ranges (rated values), resistors | |
| • 0 to 150 ohms | No |
| • 0 to 300 ohms | No |
| • 0 to 600 ohms | No |
| • 0 to 6000 ohms | No |
| 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. | 16 bit; Unipolar: 15/15/15/15 bit; bipolar: 15 bit + sign/15 bit + sign/15 bit + sign/15 bit + sign |
| • Integration time, parameterizable | Yes; 10/ 16.67/ 20/ 100 ms |
| • Interference voltage suppression for interference frequency f1 in Hz | 400 / 60 / 50 / 10 Hz |
| Encoder | |
| Connection of signal encoders | |
| • for voltage measurement | Yes |
| • for current measurement as 2-wire transducer | Yes; with external transmitter; possible with separate supply for transmitter |
| • for current measurement as 4-wire transducer | Yes |
| Errors/accuracies | |
| Operational error limit in overall temperature range | |
| • Voltage, relative to input range, (+/-) | 0.1 %; At Ucm = 0 V or ±0.7 % at Ucm = 50 V |
| • Current, relative to input range, (+/-) | 0.3 %; At Ucm = 0 V or ±0.9 % at Ucm = 50 V |
| Basic error limit (operational limit at 25 °C) | |
| • Voltage, relative to input range, (+/-) | 0.05 % |
| • Current, relative to input range, (+/-) | 0.05 % |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes; Parameterizable |
| Alarms | |
| • Diagnostic alarm | Yes; Parameterizable |
| • Limit value alarm | Yes; Parameterizable, channels 0 and 2 |
| Diagnostic messages | |
| • 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, in groups of | 2 |
| • between the channels and backplane bus | Yes |
| Isolation | |
| Isolation tested with | 500 V DC |
| Connection method | |
| required front connector | 40-pin |
| Dimensions | |
| Width | 40 mm |
| Height | 125 mm |
| Depth | 117 mm |
| Weights | |
| Weight, approx. | 272 g |
| last modified: | 05/09/2020 |