



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 / header	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 mm
Weights	
Weight, approx.	230 g
last modified:	12/19/2020 