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SIMATIC S7-300, ANALOG INPUT SM 331, OPTICALLY ISOLATATED, 8 AI THERMOCOUPLE, TYPE B, E, J, K, L, N, R, S, T 16 BIT, 50 MS, 40 PIN

Supply voltage	
Load voltage L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	240 mA
from backplane bus 5 V DC, max.	100 mA
Power loss	
Power loss, typ.	3 W
Analog inputs	
Number of analog inputs	8
permissible input voltage for voltage input (destruction limit), max.	75 V; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 1:20)
Input ranges	
• Thermocouple	Yes
Input ranges (rated values), thermocouples	
• Type B	Yes
• Type E	Yes
• Type J	Yes
• Type K	Yes
• Type L	Yes
• Type N	Yes
• Type R	Yes
• Type S	Yes
• Type T	Yes
• Type U	Yes
Thermocouple (TC)	
Temperature compensation	
— parameterizable	Yes
— internal temperature compensation	Yes
— external temperature compensation with Pt100	Yes
— external temperature compensation with compensations socket	Yes

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— for definable comparison point temperature	Yes
Characteristic linearization	
• parameterizable	Yes
— for thermocouples	Type B, E, J, K, L, N, R, S. T, U, C
Cable length	
• shielded, max.	100 m

Analog value generation for the inputs	
Measurement principle	integrating
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit; Two's complement
• Integration time, parameterizable	Yes
• Basic conversion time (ms)	Up to 4 channels: 10 ms per module, 5 channels upwards: 190 ms per module
• Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 Hz

Errors/accuracies	
Operational error limit in overall temperature range	
• Voltage, relative to input range, (+/-)	±1 K
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input range, (+/-)	±0.5 K

Interrupts/diagnostics/status information	
Diagnostics function	Yes; Parameterizable
Alarms	
• Diagnostic alarm	Yes; Parameterizable per group
• Limit value alarm	Yes; Parameterizable
• Hardware interrupt	Yes; Parameterizable, channels 0 to 7
Diagnostic messages	
• Diagnostic information readable	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes

Potential separation	
Potential separation analog inputs	
• 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

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Height	125 mm
Depth	120 mm

Weights	
Weight, approx.	272 g

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