

SIMATIC S7-300, ANALOG INPUT SM 331, OPT. ISOL., 2/3/4 WIRE, 8AI, RESISTANCE, PT100/200/1000 NI100/120/200/500/1000, CU10, 16 (INTERN 24) BIT, 50MS, 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.	4.6 W
Analog inputs	
Number of analog inputs	8
• For resistance measurement	8
permissible input voltage for voltage input (destruction limit), max.	75 V; 35 V continuous, 75 V for max. 1 s (mark to space ratio 1:20)
Input ranges	
• Resistance thermometer	Yes
• Resistance	Yes
Input ranges (rated values), resistance thermometer	
• Cu 10	Yes
• Ni 100	Yes
• Ni 1000	Yes
• Ni 120	Yes
• Ni 200	Yes
• Ni 500	Yes
• Pt 100	Yes
• Pt 1000	Yes
• Pt 200	Yes
• Pt 500	Yes
Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
• 0 to 300 ohms	Yes
• 0 to 600 ohms	Yes
Characteristic linearization	

<ul style="list-style-type: none"> parameterizable — for resistance thermometer 	Yes Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate)
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Cable length	
<ul style="list-style-type: none"> shielded, max. 	200 m

Analog value generation for the inputs

Measurement principle	integrating
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> Resolution with overrange (bit including sign), max. 	16 bit; Two's complement
<ul style="list-style-type: none"> Integration time, parameterizable 	Yes
<ul style="list-style-type: none"> Basic conversion time (ms) 	up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms
<ul style="list-style-type: none"> Interference voltage suppression for interference frequency f1 in Hz 	400 / 60 / 50 Hz

Encoder

Connection of signal encoders	
<ul style="list-style-type: none"> for resistance measurement with two-wire connection 	Yes; without resistance correction
<ul style="list-style-type: none"> for resistance measurement with three-wire connection 	Yes
<ul style="list-style-type: none"> for resistance measurement with four-wire connection 	Yes

Errors/accuracies

Operational error limit in overall temperature range	
<ul style="list-style-type: none"> Resistance, relative to input range, (+/-) 	0.1 %
<ul style="list-style-type: none"> Resistance thermometer, relative to input range, (+/-) 	±1 K
Basic error limit (operational limit at 25 °C)	
<ul style="list-style-type: none"> Resistance, relative to input range, (+/-) 	0.05 %
<ul style="list-style-type: none"> Resistance thermometer, relative to input range, (+/-) 	±0.5 K

Interrupts/diagnostics/status information

Diagnostic functions	Yes; Parameterizable
Alarms	
<ul style="list-style-type: none"> Diagnostic alarm 	Yes; Parameterizable per group
<ul style="list-style-type: none"> Limit value alarm 	Yes; Parameterizable
<ul style="list-style-type: none"> Hardware interrupt 	Yes; Parameterizable, channels 0 to 7
Diagnostic messages	
<ul style="list-style-type: none"> Diagnostic information readable 	Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> 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

Height

125 mm

Depth

120 mm

Weights

Weight, approx.

272 g

last modified:

03/09/2018 