

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 <ul style="list-style-type: none"> — for resistance thermometer 	Yes Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate)
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	
Diagnostics function	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:	04/12/2019