

SIMATIC S7-300, ANALOG INPUT SM 331, OPTICALLY ISOLATED, 8 AI THERMOCOUPLE, TYPE B, E, J, K, L, N, R, S, T TXK/TXK(L) ACCORDING GOST 16 BIT, 50 MS, 1 X 40 PIN



Figure similar

Supply voltage	
Load voltage L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>Reverse polarity protection</li> </ul>	<p>24 V</p> <p>Yes</p>
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	
<ul style="list-style-type: none"> <li>Voltage</li> <li>Current</li> <li>Thermocouple</li> <li>Resistance thermometer</li> </ul>	<p>No</p> <p>No</p> <p>Yes</p> <p>No</p>

• Resistance	No
<b>Input ranges (rated values), voltages</b>	
• 0 to +10 V	No
• 1 V to 5 V	No
• 1 V to 10 V	No
• -1 V to +1 V	No
• -10 V to +10 V	No
• -2.5 V to +2.5 V	No
• -250 mV to +250 mV	No
• -5 V to +5 V	No
• -50 mV to +50 mV	No
• -500 mV to +500 mV	No
• -80 mV to +80 mV	No
<b>Input ranges (rated values), currents</b>	
• 0 to 20 mA	No
• -10 mA to +10 mA	No
• -20 mA to +20 mA	No
• -3.2 mA to +3.2 mA	No
• 4 mA to 20 mA	No
<b>Input ranges (rated values), thermocouples</b>	
• Type B	Yes
• Type C	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
• Type TXK/TXK(L) to GOST	Yes
<b>Input ranges (rated values), resistance thermometer</b>	
• 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
<b>Input ranges (rated values), resistors</b>	
• 0 to 150 ohms	No
• 0 to 300 ohms	No
• 0 to 600 ohms	No
• 0 to 6000 ohms	No
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
— parameterizable	Yes
— internal temperature compensation	Yes
— external temperature compensation with compensations socket	Yes
— external temperature compensation with Pt100	Yes
<b>Characteristic linearization</b>	
• parameterizable	Yes
— for thermocouples	Type B, E, J, K, L, N, R, S, T, U, C
<b>Cable length</b>	
• shielded, max.	100 m
<b>Analog value generation</b>	
Measurement principle	integrating
<b>Integration and conversion time/resolution per channel</b>	
• 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
<b>Errors/accuracies</b>	
<b>Operational error limit in overall temperature range</b>	
• Voltage, relative to input area, (+/-)	+/- 1 K
<b>Interrupts/diagnostics/status information</b>	
Diagnostic functions	Yes; Parameterizable
<b>Alarms</b>	
• Diagnostic alarm	Yes; Parameterizable per group
• Limit value alarm	Yes; Parameterizable
<b>Diagnostic messages</b>	
• Diagnostic information readable	Yes
<b>Diagnostics indication LED</b>	

- 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:**

18.12.2015