



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

<b>Supply voltage</b>	
<b>Load voltage L+</b>	
Rated value (DC)	24 V
Reverse polarity protection	Yes
<b>Input current</b>	
from load voltage L+ (without load), max.	200 mA
from backplane bus 5 V DC, max.	100 mA
<b>Power losses</b>	
Power loss, typ.	3 W
<b>Analog inputs</b>	
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)
<b>Input ranges</b>	
Voltage	No
Current	No
Thermocouple	Yes
Resistance thermometer	No
Resistance	No

Input ranges (rated values), voltages	
0 to +10 V	No
1 to 5 V	No
1 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
Input ranges (rated values), currents	
0 to 20 mA	No
-10 to +10 mA	No
-20 to +20 mA	No
-3.2 to +3.2 mA	No
4 to 20 mA	No
Input ranges (rated values), thermoelements	
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
Type TXK/TXK(L) to GOST	Yes
Input ranges (rated values), resistance thermometers	
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>	
for thermocouples	Type B, E, J, K, L, N, R, S, T, U, C
<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
<b>Cable length</b>	
Cable length, shielded, max.	100 m
<b>Analog value creation</b>	
Measurement principle	integrating
<b>Integrations 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 limit in overall temperature range</b>	
Voltage, relative to input area	+/- 1 K
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	No
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
Diagnostic alarm	Yes ; Parameterizable per group
Limit value alarm	Yes ; Parameterizable
<b>Diagnostic messages</b>	

<b>Diagnostic functions</b>	Yes ; Parameterizable
<b>Diagnostic information readable</b>	Yes
<b>Diagnostics</b>	Yes
<b>Diagnostics indication LED</b>	
<b>Group error SF (red)</b>	Yes
<b>Galvanic isolation</b>	
<b>Galvanic isolation analog inputs</b>	
<b>between the channels</b>	No
<b>between the channels, in groups of</b>	2
<b>between the channels and the backplane bus</b>	Yes
<b>Isolation</b>	
<b>Isolation checked with</b>	500 V DC
<b>Connection method</b>	
<b>required front connector</b>	40-pin
<b>Dimensions</b>	
<b>Width</b>	40 mm
<b>Height</b>	125 mm
<b>Depth</b>	120 mm
<b>Weights</b>	
<b>Weight, approx.</b>	272 g
Status	Sep 2, 2013