



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

Supply voltage	
Load voltage L+	
Rated value (DC)	24 V
Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	200 mA
from backplane bus 5 V DC, max.	100 mA
Power losses	
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	
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
Input ranges (rated values), resistors	
0 to 150 ohms	No
0 to 300 ohms	No
0 to 600 ohms	No
0 to 6000 ohms	No
Thermocouple (TC)	
for thermocouples	Type B, E, J, K, L, N, R, S, T, U, C
Temperature compensation	
Parameterizable	Yes
internal temperature compensation	Yes
external temperature compensation with compensations socket	Yes
external temperature compensation with Pt100	Yes
Characteristic linearization	
Parameterizable	Yes
Cable length	
Cable length, shielded, max.	100 m
Analog value creation	
Measurement principle	integrating
Integrations 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 limit in overall temperature range	
Voltage, relative to input area	+/- 1 K
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes ; Parameterizable per group
Limit value alarm	Yes ; Parameterizable
Diagnostic messages	

Diagnostic functions	Yes ; Parameterizable
Diagnostic information readable	Yes
Diagnostics	Yes
Diagnostics indication LED	
Group error SF (red)	Yes
Galvanic isolation	
Galvanic isolation analog inputs	
between the channels	No
between the channels, in groups of	2
between the channels and the backplane bus	Yes
Isolation	
Isolation checked 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
Status	Oct 11, 2013