



SIMATIC S7-300, ANALOG INPUT SM 331,
 OPT. ISOL., 2/3/4 WIRE, 8AI, RESISTANCE,
 PT100/200/1000 NI100/120/200/500/1000,
 CU10,
 PLUS CHARACTERISTICS ACCORDING TO GOST
 STANDARD 16 (INTERN 24) BIT,
 50MS, 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.	240 mA
from backplane bus 5 V DC, max.	100 mA
Power losses	
Power loss, typ.	4.6 W
Analog inputs	
Number of analog inputs	8
Number of analog inputs 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	
Voltage	No
Current	No
Thermocouple	No
Resistance thermometer	Yes
Resistance	Yes

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	No
Type E	No
Type J	No
Type K	No
Type L	No
Type N	No
Type R	No
Type S	No
Type T	No
Type U	No
Type TXK/TXK(L) to GOST	No
Input ranges (rated values), resistance thermometers	
Cu 10	Yes
Ni 100	Yes
Ni 1000	Yes
LG-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
Resistance thermometer (RTD)	
Characteristic linearization	
for resistance thermometer	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate)
Characteristic linearization	
Parameterizable	Yes
Cable length	
Cable length, shielded, max.	200 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, over 5 channels: 190 ms per module, 8 channels: 80 ms
Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 Hz
Encoder	
Connection of signal encoders	
for resistance measurement with 2-conductor connection	Yes ; without resistance correction
for resistance measurement with 3-conductor connection	Yes
for resistance measurement with 4-conductor connection	Yes
Errors/accuracies	
Operational limit in overall temperature range	
Impedance, relative to input area	+/- 0,1 %
Resistance-type thermometer, relative to input area	+/- 1 K
Basic error limit (operational limit at 25 °C)	
Impedance, relative to input area	+/- 0,05 %
Resistance-type thermometer, relative to input area	+/- 0.5 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