



SIMATIC S7-300, ANALOG INPUT SM 331,
OPTICALLY ISOLATED, 8 AI,
13 BIT RESOLUTION,
U/I/RESISTANCE/PT100, NI100, NI1000,
LG-NI1000, PTC / KTY,
66 MS MODULE UPDATE, 1 X 40 PIN

Input current	
from backplane bus 5 V DC, max.	90 mA
Power losses	
Power loss, typ.	0.4 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.	30 V ; 12 V continuous, 30 V for max. 1 s
permissible input current for current input (destruction limit), max.	40 mA
Input ranges	
Voltage	Yes
Current	Yes
Thermocouple	No
Resistance thermometer	Yes
Resistance	Yes
Input ranges (rated values), voltages	
0 to +10 V	Yes
Input resistance (0 to 10 V)	100 k Ω
1 to 5 V	Yes

Input resistance (1 to 5 V)	100 k Ω
1 to 10 V	No
-1 V to +1 V	Yes
Input resistance (-1 V to +1 V)	100 k Ω
-10 V to +10 V	Yes
Input resistance (-10 V to +10 V)	100 k Ω
-2.5 V to +2.5 V	No
-250 mV to +250 mV	No
-5 V to +5 V	Yes
Input resistance (-5 V to +5 V)	100 k Ω
-50 mV to +50 mV	Yes
Input resistance (-50 mV to +50 mV)	100 k Ω
-500 mV to +500 mV	Yes
Input resistance (-500 mV to +500 mV)	100 k Ω
-80 mV to +80 mV	No
Input ranges (rated values), currents	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	100 Ω
-10 to +10 mA	No
-20 to +20 mA	Yes
Input resistance (-20 to +20 mA)	100 Ω
-3.2 to +3.2 mA	No
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	100 Ω
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	No
Ni 100	Yes ; Standard/climate

Input resistance (Ni 100)	100 MΩ
Ni 1000	Yes
Input resistance (Ni 1000)	100 MΩ
LG-Ni 1000	Yes ; Standard/climate
Input resistance (LG-Ni 1000)	100 MΩ
Ni 120	No
Ni 200	No
Ni 500	No
Pt 100	Yes ; Standard/climate
Input resistance (Pt 100)	100 MΩ
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	Yes
Input resistance (0 to 600 ohms)	100 MΩ
0 to 6000 ohms	Yes
Input resistance (0 to 6000 ohms)	100 MΩ
Thermocouple (TC)	
for thermocouples	No
Temperature compensation	
Parameterizable	No
internal temperature compensation	No
external temperature compensation with compensations socket	No
Resistance thermometer (RTD)	
Characteristic linearization	
for resistance thermometer	yes; Pt100 standard/air con.; Ni100 standard/air con.; Ni1000 standard/air con.; LG-Ni1000 standard/air con.
Characteristic linearization	
Parameterizable	Yes
Cable length	
Cable length, shielded, max.	200 m ; max. 50 m at 50 mV
Analog value creation	
Measurement principle	integrating
Integrations and conversion time/ resolution per channel	
Resolution with overrange (bit including sign), max.	13 bit

Integration time, parameterizable	Yes ; 60 / 50 ms
Basic conversion time, ms	66 / 55 ms
Interference voltage suppression for interference frequency f1 in Hz	50 / 60 Hz
Encoder	
Connection of signal encoders	
for current measurement as 2-wire transducer	Yes ; with external supply
for current measurement as 4-wire transducer	Yes
for resistance measurement with 2-conductor connection	Yes
for resistance measurement with 3-conductor connection	Yes
for resistance measurement with 4-conductor connection	Yes
Errors/accuracies	
Operational limit in overall temperature range	
Voltage, relative to input area	+/- 0,6 % ; +/-0.6% (+/-5 V, 10 V, 1 to 5 V, 0 to 10 V); +/-0.5% (+/-50 mV, 500 mV, 1 V)
Current, relative to input area	+/- 0,5 % ; +/-20 mA, 0 to 20 mA, 4 to 20 mA
Impedance, relative to input area	+/- 0,5 % ; 0 to 6 kohms, 0 to 600 kohms
Resistance-type thermometer, relative to input area	1 Kelvin (Pt100, Ni100, climatic; Ni1000, LG-Ni1000, standard; Ni1000, LG-Ni1000, climatic); 1.2 Kelvin (Pt100, Ni100, standard)
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area	+/- 0,4 % ; 0.4% (+/-5 V, 10 V, 1 to 5 V, 0 to 10 V); 0.3% (+/-50 mV, 500 mV, 1 V)
Current, relative to input area	+/- 0,3 % ; +/-20 mA, 0 to 20 mA, 4 to 20 mA
Impedance, relative to input area	+/- 0,3 % ; 0 to 6 kohms, 0 to 600 kohms
Resistance-type thermometer, relative to input area	1 Kelvin (Pt100, Ni100, standard); 0.8 Kelvin (Pt100, Ni100, climatic; Ni1000, LG-Ni1000, standard; Ni1000, LG-Ni1000, climatic)
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	No
Limit value alarm	No
Diagnostic messages	
Diagnostic functions	No
Diagnostic information readable	No
Diagnostics	No
Group error	No
Diagnostics indication LED	
Group error SF (red)	No
Galvanic isolation	

Galvanic isolation analog inputs	
between the channels	No
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	117 mm
Weights	
Weight, approx.	250 g
Status	Sep 2, 2013