



SIMATIC S7-300, ANALOG INPUT SM 331,
 GALVANICALLY ISOLATED, 8 AI, 14 BIT,
 0.052MS/CHANNEL, CURRENT, VOLTAGE,
 INTERRUPTS, DIAGNOSTICS, 1 X 20 PIN,
 FIT FOR ISOCHRONOUS MODE IMPROVED DP-CYCLE TIME
 FOR ISOCHRONOUS MODE

Supply voltage	
Load voltage L+	
Rated value (DC)	24 V
Reverse polarity protection	Yes
Input current	
from load voltage L+ (without load), max.	50 mA
from backplane bus 5 V DC, max.	60 mA
Power losses	
Power loss, typ.	1.5 W
Analog inputs	
Number of analog inputs	8
permissible input voltage for voltage input (destruction limit), max.	20 V ; 20 V DC permanent, 75 V DC for max. 1 s (duty factor 1:20)
permissible input current for current input (destruction limit), max.	40 mA
Input ranges	
Voltage	Yes
Current	Yes
Thermocouple	No
Resistance thermometer	No
Resistance	No

Input ranges (rated values), voltages	
0 to +10 V	No
1 to 5 V	Yes
Input resistance (1 to 5 V)	100 k Ω
-1 V to +1 V	Yes
Input resistance (-1 V to +1 V)	10 M Ω
-10 V to +10 V	Yes
Input resistance (-10 V to +10 V)	100 k Ω
-5 V to +5 V	Yes
Input resistance (-5 V to +5 V)	100 k Ω
-500 mV to +500 mV	Yes
-80 mV to +80 mV	Yes
Input ranges (rated values), currents	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	50 Ω
-20 to +20 mA	Yes
Input resistance (-20 to +20 mA)	50 Ω
4 to 20 mA	Yes
Input resistance (4 to 20 mA)	50 Ω
Cable length	
Cable length, shielded, max.	200 m
Analog value creation	
Measurement principle	Actual value encryption
Integrations and conversion time/ resolution per channel	
Resolution with overrange (bit including sign), max.	14 bit ; Unipolar: 14 bits; bipolar: 13 bits + sign
Integration time, parameterizable	Yes
Basic conversion time, ms	52 μ s per channel
Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 / 10 Hz
Encoder	
Connection of signal encoders	
for current measurement as 2-wire transducer	Yes
for current measurement as 4-wire transducer	Yes
Errors/accuracies	
Operational limit in overall temperature range	
Voltage, relative to input area	+/- 0,4 %
Current, relative to input area	+/- 0,3 %
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area	+/- 0,25 %

Current, relative to input area	+/- 0,2 %
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes ; Parameterizable
Limit value alarm	Yes ; Parameterizable, channels 0 and 2
Diagnostic messages	
Diagnostic functions	Yes
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 and the backplane bus	Yes
Isolation	
Isolation checked with	500 V DC
Connection method	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	200 g
Status	Oct 26, 2013