

SIMATIC S7-300, Analog input SM 331, isolated, 8 AI; +/-5/10V, 1-5 V, +/-20 mA, 0/4 to 20 mA, 16 bit (55ms), Single rooting (50 V COM.), 1x 40-pole



Figure similar

Input current	
from backplane bus 5 V DC, max.	130 mA
Power loss	
Power loss, typ.	0.6 W
Analog inputs	
Number of analog inputs	8
permissible input voltage for voltage input (destruction limit), max.	50 V; Permanent
permissible input current for current input (destruction limit), max.	32 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 V to 5 V Yes
- Input resistance (1 V to 5 V) 2 M $\Omega$
- 1 V to 10 V No
- -1 V to +1 V No
- -10 V to +10 V Yes
- Input resistance (-10 V to +10 V) 2 M $\Omega$
- -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) 2 M $\Omega$
- -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 Yes
- Input resistance (0 to 20 mA) 250  $\Omega$
- -10 mA to +10 mA No
- -20 mA to +20 mA Yes
- Input resistance (-20 mA to +20 mA) 250  $\Omega$
- -3.2 mA to +3.2 mA No
- 4 mA to 20 mA Yes
- Input resistance (4 mA to 20 mA) 250  $\Omega$

#### Input ranges (rated values), thermocouples

- Type B No
- Type C 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 thermometer

- 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>Cable length</b>	
• shielded, max.	200 m
<b>Analog value generation for the inputs</b>	
Measurement principle	integrating
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	16 bit; Unipolar: 15/15/15/15 bit; bipolar: 15 bit + sign/15 bit + sign/15 bit + sign/15 bit + sign
• Integration time, parameterizable	Yes; 10/ 16.67/ 20/ 100 ms
• Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 / 10 Hz
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
• for current measurement as 2-wire transducer	Yes; with external transmitter; possible with separate supply for transmitter
• for current measurement as 4-wire transducer	Yes
<b>Errors/accuracies</b>	
<b>Operational error limit in overall temperature range</b>	
• Voltage, relative to input range, (+/-)	0.1 %; At Ucm = 0 V or ±0.7 % at Ucm = 50 V
• Current, relative to input range, (+/-)	0.3 %; At Ucm = 0 V or ±0.9 % at Ucm = 50 V
<b>Basic error limit (operational limit at 25 °C)</b>	
• Voltage, relative to input range, (+/-)	0.05 %
• Current, relative to input range, (+/-)	0.05 %
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes; Parameterizable
<b>Alarms</b>	
• Diagnostic alarm	Yes; Parameterizable
• Limit value alarm	Yes; Parameterizable, channels 0 and 2
<b>Diagnostic messages</b>	
• Diagnostic information readable	Yes

<b>Diagnostics indication LED</b>	
• Group error SF (red)	Yes
<b>Potential separation</b>	
<b>Potential separation analog inputs</b>	
• between the channels and backplane bus	Yes
<b>Isolation</b>	
Isolation tested with	500 V DC
<b>Connection method</b>	
required front connector	40-pin
<b>Dimensions</b>	
Width	40 mm
Height	125 mm
Depth	117 mm
<b>Weights</b>	
Weight, approx.	272 g
<b>last modified:</b>	08/30/2019