

SIMATIC S7-300, Analog input SM 331, isolated, 8 AI, resolution 14 bit, 0.052 ms/channel current, Voltage alarm, diagnostics, 1x 20-pole, suitable for isochronous mode Improved bus cycle time for isochronous mode



Figure similar

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.	100 mA
Power loss	
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
<b>Input ranges (rated values), voltages</b>	
• 0 to +10 V	No
• 1 V to 5 V	Yes
• Input resistance (1 V to 5 V)	100 k $\Omega$
• -1 V to +1 V	Yes
• Input resistance (-1 V to +1 V)	10 M $\Omega$
• -10 V to +10 V	Yes
• Input resistance (-10 V to +10 V)	100 k $\Omega$
• -5 V to +5 V	Yes
• Input resistance (-5 V to +5 V)	100 k $\Omega$
• -500 mV to +500 mV	Yes
• -80 mV to +80 mV	Yes
<b>Input ranges (rated values), currents</b>	
• 0 to 20 mA	Yes
• Input resistance (0 to 20 mA)	50 $\Omega$
• -20 mA to +20 mA	Yes
• Input resistance (-20 mA to +20 mA)	50 $\Omega$
• 4 mA to 20 mA	Yes
• Input resistance (4 mA to 20 mA)	50 $\Omega$
<b>Cable length</b>	
• shielded, max.	200 m
<b>Analog value generation for the inputs</b>	
Measurement principle	Actual value encryption
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	14 bit; Unipolar: 14 bit; bipolar: 13 bit + sign
• Integration time, parameterizable	Yes
• Basic conversion time (ms)	52 $\mu$ s per channel
• Interference voltage suppression for interference frequency f1 in Hz	none / 400 / 60 / 50 Hz
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
• for current measurement as 2-wire transducer	Yes
• for current measurement as 4-wire transducer	Yes
<b>Errors/accuracies</b>	
Operational error limit in overall temperature range	

• Voltage, relative to input range, (+/-)	0.4 %
• Current, relative to input range, (+/-)	0.3 %
<b>Basic error limit (operational limit at 25 °C)</b>	
• Voltage, relative to input range, (+/-)	0.25 %
• Current, relative to input range, (+/-)	0.2 %

### Interrupts/diagnostics/status information

Diagnostic functions	Yes
<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

### Potential separation

<b>Potential separation analog inputs</b>	
• between the channels and backplane bus	Yes

### Isolation

Isolation tested with	500 V DC
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### Connection method

required front connector	20-pin
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### Dimensions

Width	40 mm
Height	125 mm
Depth	117 mm

### Weights

Weight, approx.	230 g
<b>last modified:</b>	07/16/2018