



Figure similar

SIMATIC S7-300, Analog input SM 331, isolated, 8 AI; +/-5/10V, 1-5 V, +/- 20 mA, 0/4 to 20 mA, 16 bit, Single rooting (60 V COM.), 4-channel operation: 10 ms, 8-channel operation: 23-95ms, 1x 40-pole

Supply voltage	
Load voltage L+	
<ul style="list-style-type: none"> Rated value (DC) 	24 V
<ul style="list-style-type: none"> Reverse polarity protection 	Yes
Input current	
from load voltage L+ (without load), max.	200 mA
from backplane bus 5 V DC, max.	100 mA
Power loss	
Power loss, typ.	3 W
Analog inputs	
Number of analog inputs	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)
permissible input current for current input (destruction limit), max.	40 mA
Input ranges	
<ul style="list-style-type: none"> Voltage 	Yes
<ul style="list-style-type: none"> Current 	Yes
<ul style="list-style-type: none"> Thermocouple 	No
<ul style="list-style-type: none"> Resistance thermometer 	No
<ul style="list-style-type: none"> Resistance 	No
Input ranges (rated values), voltages	
<ul style="list-style-type: none"> 0 to +10 V 	No
<ul style="list-style-type: none"> 1 V to 5 V 	Yes
<ul style="list-style-type: none"> — Input resistance (1 V to 5 V) 	10 MΩ
<ul style="list-style-type: none"> 1 V to 10 V 	No
<ul style="list-style-type: none"> -1 V to +1 V 	No
<ul style="list-style-type: none"> -10 V to +10 V 	Yes
<ul style="list-style-type: none"> — Input resistance (-10 V to +10 V) 	10 MΩ
<ul style="list-style-type: none"> -2.5 V to +2.5 V 	No
<ul style="list-style-type: none"> -250 mV to +250 mV 	No
<ul style="list-style-type: none"> -5 V to +5 V 	Yes
<ul style="list-style-type: none"> — Input resistance (-5 V to +5 V) 	10 MΩ
<ul style="list-style-type: none"> -50 mV to +50 mV 	No
<ul style="list-style-type: none"> -500 mV to +500 mV 	No
<ul style="list-style-type: none"> -80 mV to +80 mV 	No
Input ranges (rated values), currents	

<ul style="list-style-type: none"> • 0 to 20 mA <ul style="list-style-type: none"> — Input resistance (0 to 20 mA) • -10 mA to +10 mA • -20 mA to +20 mA <ul style="list-style-type: none"> — Input resistance (-20 mA to +20 mA) • -3.2 mA to +3.2 mA • 4 mA to 20 mA <ul style="list-style-type: none"> — Input resistance (4 mA to 20 mA) 	<p>Yes</p> <p>250 Ω</p> <p>No</p> <p>Yes</p> <p>250 Ω</p> <p>No</p> <p>Yes</p> <p>250 Ω</p>
Input ranges (rated values), thermocouples	
<ul style="list-style-type: none"> • Type B • Type C • Type E • Type J • Type K • Type L • Type N • Type R • Type S • Type T • Type U • Type TXK/TXK(L) to GOST 	<p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p>
Input ranges (rated values), resistance thermometer	
<ul style="list-style-type: none"> • Cu 10 • Ni 100 • Ni 1000 • LG-Ni 1000 • Ni 120 • Ni 200 • Ni 500 • Pt 100 • Pt 1000 • Pt 200 • Pt 500 	<p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p> <p>No</p>
Input ranges (rated values), resistors	
<ul style="list-style-type: none"> • 0 to 150 ohms • 0 to 300 ohms • 0 to 600 ohms • 0 to 6000 ohms 	<p>No</p> <p>No</p> <p>No</p> <p>No</p>
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	<p>200 m</p>
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Basic conversion time (ms) • Interference voltage suppression for interference frequency f1 in Hz 	<p>16 bit; Unipolar: 15/15/15/15 bit; bipolar: 15 bit + sign/15 bit + sign/15 bit + sign/15 bit + sign</p> <p>Yes; 23 / 72 / 83 / 95 ms</p> <p>10 ms (4-channel mode); 95/83/72/23 ms (8-channel mode)</p> <p>400 / 60 / 50 Hz, combinations of 400, 60, 50 Hz</p>
Encoder	
Connection of signal encoders	
<ul style="list-style-type: none"> • for voltage measurement • for current measurement as 2-wire transducer • for current measurement as 4-wire transducer 	<p>Yes</p> <p>Yes; with external transmitter, current supply; possible with separate supply for transmitter</p> <p>Yes</p>
Errors/accuracies	
Operational error limit in overall temperature range	
<ul style="list-style-type: none"> • Voltage, relative to input range, (+/-) • Current, relative to input range, (+/-) 	<p>0.1 %</p> <p>0.1 %</p>
Basic error limit (operational limit at 25 °C)	

<ul style="list-style-type: none"> • Voltage, relative to input range, (+/-) 	0.05 %
<ul style="list-style-type: none"> • Current, relative to input range, (+/-) 	0.05 %
Interrupts/diagnostics/status information	
Diagnostics function	Yes; Parameterizable
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes; Parameterizable
<ul style="list-style-type: none"> • Limit value alarm 	Yes; Parameterizable all channels (end of cycle interrupt is also supported across modules)
<ul style="list-style-type: none"> • Hardware interrupt 	Yes; Parameterizable, channels 0 to 7 (on exceeding limit value), at end of cycle
Diagnoses	
<ul style="list-style-type: none"> • Diagnostic information readable 	Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> • Group error SF (red) 	Yes
Potential separation	
Potential separation analog inputs	
<ul style="list-style-type: none"> • between the channels 	Yes
<ul style="list-style-type: none"> • between the channels, in groups of 	2
<ul style="list-style-type: none"> • between the channels and backplane bus 	Yes
<ul style="list-style-type: none"> • between the channels and the power supply of the electronics 	Yes
Isolation	
Isolation tested with	500 V AC
Connection method	
required front connector	40-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	117 mm
Weights	
Weight, approx.	272 g
last modified:	1/17/2021 