

6ES7331-7PF00-0AB0

SIMATIC S7-300, ANALOG INPUT

Technical data

SIMATIC S7-300, ANALOG INPUT SM 331, OPT. ISOL., 2/3/4 WIRE, 8AI, RESISTANCE, PT100/200/1000 NI100/120/200/500/1000, CU10, 16 (INTERN 24) BIT, 50MS, 40 PIN

Supply voltage

Load voltage L+	
• Rated value (DC)	24 V
• Reverse polarity protection	Yes

Input current

from load voltage L+ (without load), max.	240 mA
from backplane bus 5 V DC, max.	100 mA

Power loss

Power loss, typ.	4.6 W
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Analog inputs

Number of analog inputs	8
• For resistance measurement	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)

Input ranges

• Resistance thermometer	Yes
• Resistance	Yes

Input ranges (rated values), resistance thermometer

• Cu 10	Yes
• Ni 100	Yes
• Ni 1000	Yes
• Ni 120	Yes
• Ni 200	Yes
• Ni 500	Yes
• Pt 100	Yes
• Pt 1000	Yes
• Pt 200	Yes
• Pt 500	Yes

Input ranges (rated values), resistors

• 0 to 150 ohms	Yes
• 0 to 300 ohms	Yes
• 0 to 600 ohms	Yes

Characteristic linearization

• parameterizable	Yes
— for resistance thermometer	Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate)

Cable length

• shielded, max.	200 m
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Analog value generation for the inputs

Measurement principle	integrating
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Integration and conversion time/resolution per channel

• Resolution with overrange (bit including sign), max.	16 bit; Two's complement
• Integration time, parameterizable	Yes
• Basic conversion time (ms)	up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms
• Interference voltage suppression for interference frequency f1 in Hz	400 / 60 / 50 Hz

Encoder

Connection of signal encoders	
• for resistance measurement with two-wire connection	Yes; without resistance correction
• for resistance measurement with three-wire connection	Yes
• for resistance measurement with four-wire connection	Yes

Errors/accuracies

Operational error limit in overall temperature range	
• Resistance, relative to input range, (+/-)	0.1 %
• Resistance thermometer, relative to input range, (+/-)	±1 K

Basic error limit (operational limit at 25 °C)

• Resistance, relative to input range, (+/-)	0.05 %
• Resistance thermometer, relative to input range, (+/-)	±0.5 K

Interrupts/diagnostics/status information

Diagnostics function	Yes; Parameterizable
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Alarms

• Diagnostic alarm	Yes; Parameterizable per group
• Limit value alarm	Yes; Parameterizable
• Hardware interrupt	Yes; Parameterizable, channels 0 to 7

Diagnostic messages

• Diagnostic information readable	Yes
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Diagnostics indication LED

• Group error SF (red)	Yes
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Potential separation

Potential separation analog inputs	
• between the channels and backplane bus	Yes

Isolation

Isolation tested with	500 V DC
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Connection method

required front connector	40-pin
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Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	272 g
last modified:	08/15/2019
Last changes: 08/21/2019	
