



SIMATIC S7-300, ANALOG INPUT SM 331, OPT. ISOL., 2/3/4 WIRE, 8AI, RESISTANCE, PT100/200/1000 NI100/120/200/500/1000, CU10, PLUS CHARACTERISTICS ACCORDING TO GOST STANDARD 16 (INTERN 24) BIT, 50MS, 1 X 40 PIN

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. | 240 mA |
| from backplane bus 5 V DC, max.           | 100 mA |

### Power losses

- |                  |       |
|------------------|-------|
| Power loss, typ. | 4.6 W |
|------------------|-------|

### 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

- |                          |     |
|--------------------------|-----|
| • Voltage                | No  |
| • Current                | No  |
| • Thermocouple           | No  |
| • Resistance thermometer | Yes |
| • Resistance             | Yes |

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

- |               |    |
|---------------|----|
| • 0 to +10 V  | No |
| • 1 V to 5 V  | No |
| • 1 V to 10 V | No |

• -1 V to +1 V	No
• -10 V to +10 V	No
• -2.5 V to +2.5 V	No
• -250 mV to +250 mV	No
• -5 V to +5 V	No
• -50 mV to +50 mV	No
• -500 mV to +500 mV	No
• -80 mV to +80 mV	No
<b>Input ranges (rated values), currents</b>	
• 0 to 20 mA	No
• -10 mA to +10 mA	No
• -20 mA to +20 mA	No
• -3.2 mA to +3.2 mA	No
• 4 mA to 20 mA	No
<b>Input ranges (rated values), thermoelements</b>	
• Type B	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
<b>Input ranges (rated values), resistance thermometer</b>	
• Cu 10	Yes
• Ni 100	Yes
• Ni 1000	Yes
• LG-Ni 1000	Yes
• Ni 120	Yes
• Ni 200	Yes
• Ni 500	Yes
• Pt 100	Yes
• Pt 1000	Yes
• Pt 200	Yes
• Pt 500	Yes
<b>Input ranges (rated values), resistors</b>	
• 0 to 150 ohms	Yes
• 0 to 300 ohms	Yes

<ul style="list-style-type: none"> <li>• 0 to 600 ohms</li> </ul>	Yes
<b>Characteristic linearization</b>	
<ul style="list-style-type: none"> <li>• Parameterizable <ul style="list-style-type: none"> <li>— for resistance thermometer</li> </ul> </li> </ul>	Yes Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10; (standard/climate)
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	200 m
<b>Analog value creation</b>	
Measurement principle	integrating
<b>Integration and conversion time/resolution per channel</b>	
<ul style="list-style-type: none"> <li>• Resolution with overrange (bit including sign), max.</li> </ul>	16 bit; Two's complement
<ul style="list-style-type: none"> <li>• Integration time, parameterizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Basic conversion time (ms)</li> </ul>	up to 4 channels: 10 ms per module, over 5 channels: 190 ms per module, 8 channels: 80 ms
<ul style="list-style-type: none"> <li>• Interference voltage suppression for interference frequency f1 in Hz</li> </ul>	400 / 60 / 50 Hz
<b>Encoder</b>	
<b>Connection of signal encoders</b>	
<ul style="list-style-type: none"> <li>• for resistance measurement with two-wire connection</li> </ul>	Yes; without resistance correction
<ul style="list-style-type: none"> <li>• for resistance measurement with three-wire connection</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• for resistance measurement with four-wire connection</li> </ul>	Yes
<b>Errors/accuracies</b>	
<b>Operational limit in overall temperature range</b>	
<ul style="list-style-type: none"> <li>• Resistance, relative to input area, (+/-)</li> </ul>	0.1 %
<ul style="list-style-type: none"> <li>• Resistance thermometer, relative to input area, (+/-)</li> </ul>	+/- 1 K
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>• Resistance, relative to input area, (+/-)</li> </ul>	0.05 %
<ul style="list-style-type: none"> <li>• Resistance thermometer, relative to input area, (+/-)</li> </ul>	+/- 0,5 K
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	No
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes; Parameterizable per group
<ul style="list-style-type: none"> <li>• Limit value alarm</li> </ul>	Yes; Parameterizable
<b>Diagnostic messages</b>	

• Diagnostic functions	Yes; Parameterizable
• Diagnostic information readable	Yes
• Diagnostics	Yes
<b>Diagnostics indication LED</b>	
• Group error SF (red)	Yes

<b>Galvanic isolation</b>	
<b>Galvanic isolation analog inputs</b>	
• between the channels	No
• between the channels, in groups of	2
• between the channels and the backplane bus	Yes

<b>Isolation</b>	
Isolation checked with	500 V DC

<b>Connection method</b>	
required front connector	40-pin

<b>Dimensions</b>	
Width	40 mm
Height	125 mm
Depth	120 mm

<b>Weights</b>	
Weight, approx.	272 g

**last modified:** 12.03.2015