



SIMATIC S7-1200, ANALOG SB 1231 T, 1 X AI THERMOCOUPLE, TYPE J OR K

Supply voltage

Rated value (DC)

- 24 V DC

Yes

Input current

Current consumption, typ.

5 mA

from backplane bus 5 V DC, typ.

20 mA

Power losses

Power loss, typ.

0.5 W

Analog inputs

Number of analog inputs

1; Thermocouples

permissible input frequency for current input (destruction limit), max.

± 35 V

Technical unit for temperature measurement adjustable

Degrees Celsius/degrees Fahrenheit

Input ranges

- Thermocouple
- Resistance thermometer
- Resistance

Yes; J, K; voltage range ± 80 mV

No

No

Input ranges (rated values), voltages

- -80 mV to +80 mV
- Input resistance (-80 mV to +80 mV)

Yes

≥ 1 MOhm

Input ranges (rated values), thermoelements

- Type J
- Input resistance (type J)

Yes

1200 °C

• Type K	Yes
• Input resistance (Type K)	1372 °C
Thermocouple (TC)	
• permissible input voltage for voltage input (destruction limit), max.	+35 V
Temperature compensation	
— Parameterizable	No
Analog outputs	
Number of analog outputs	0
Analog value creation	
Measurement principle	integrating
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	15 bit; + sign
• Integration time, parameterizable	No
• Interference voltage suppression for interference frequency f1 in Hz	85 dB at 10 / 50 / 60 / 400 Hz
Analog value generation (in isochronous mode)	
Smoothing of measured values	
• Parameterizable	Yes
Errors/accuracies	
Temperature error (relative to input range), (+/-)	25 °C ±0.1%, to 55 °C ±0.2% total measurement range
Repeat accuracy in steady state at 25 °C (relative to output area), (+/-)	0.5 %
Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, f1 = interference frequency	
• Common mode interference, min.	120 dB
Interrupts/diagnostics/status information	
Alarms	
• Alarms	Yes
• Diagnostic alarm	Yes
Diagnostic messages	
• Diagnostic functions	Yes; Can be read out
• Wire break	Yes
Diagnostics indication LED	
• for status of the inputs	Yes
• for maintenance	Yes
Degree and class of protection	
Degree of protection to EN 60529	
• IP20	Yes
Standards, approvals, certificates	

CE mark	Yes
CSA approval	Yes
RCM (formerly C-TICK)	Yes
FM approval	Yes

Ambient conditions

Free fall

- Drop height, max. (in packaging) 0.3 m; five times, in dispatch package

Ambient temperature in operation

- Permissible temperature range 0 °C to 55 °C horizontal installation, 0 °C to 45 °C vertical installation
- Min. 0 °C
- max. 55 °C

Storage/transport temperature

- Min. -40 °C
- max. 70 °C

Air pressure acc. to IEC 60068-2-13

- Operation, min. 795 hPa
- Operation, max. 1 080 hPa
- Storage/transport, min. 660 hPa
- Storage/transport, max. 1 080 hPa

Relative humidity

- Permissible range (without condensation) at 25 °C 95 %

Pollutant concentrations

- SO₂ at RH < 60% without condensation SO₂: < 0.5 ppm; H₂S: < 0.1 ppm; RH < 60% condensation-free

Connection method

required front connector	Yes
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Mechanics/material

Type of housing (front)	
• plastic	Yes

Dimensions

Width	38 mm
Height	62 mm
Depth	21 mm

Weights

Weight, approx.	35 g
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last modified: 12.03.2015