

6ES7231-5QA30-0XB0

Signal Board SB 1231 TC, 1 AI

Technical data



SIMATIC S7-1200, Analog input, SB 1231 TC, 1 AI thermocouples Type J or K

General information	
Product type designation	SB 1231, AI 1x16 bit TC
Supply voltage	
Rated value (DC)	24 V
Input current	
Current consumption, typ.	5 mA
from backplane bus 5 V DC, typ.	20 mA
Power loss	
Power loss, typ.	0.5 W
Analog inputs	
Number of analog inputs	1; Thermocouples
permissible input voltage for current input (destruction limit), max.	±35 V
Technical unit for temperature measurement adjustable	Degrees Celsius/degrees Fahrenheit
Input ranges	
<ul style="list-style-type: none"> • Voltage • Current • Thermocouple • Resistance thermometer • Resistance 	Yes No Yes; J, K, T, E, R & S, B, N, C, TXK/XK(L); voltage range: ±80 mV No No
Input ranges (rated values), voltages	
<ul style="list-style-type: none"> • -80 mV to +80 mV — Input resistance (-80 mV to +80 mV) 	Yes ≥1 MOhm
Input ranges (rated values), thermocouples	
<ul style="list-style-type: none"> • Type J — Input resistance (type J) • Type K — Input resistance (Type K) 	Yes 1 200 °C Yes 1 372 °C
Thermocouple (TC)	
Temperature compensation	
— parameterizable	No
Analog outputs	
Number of analog outputs	0
Cable length	
<ul style="list-style-type: none"> • shielded, max. 	100 m; shielded, twisted pair
Analog value generation for the inputs	
Measurement principle	integrating
Integration and conversion time/resolution per channel	
<ul style="list-style-type: none"> • Resolution with overrange (bit including sign), max. • Integration time, parameterizable • Interference voltage suppression for interference frequency f1 in Hz 	15 bit; + sign No 85 dB at 10 / 50 / 60 / 400 Hz
Smoothing of measured values	
<ul style="list-style-type: none"> • 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 range), (+/-)	0.5 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency	
<ul style="list-style-type: none"> • Common mode interference, min. 	120 dB
Interrupts/diagnostics/status information	
Alarms	Yes
Diagnostics function	Yes; Can be read out
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes
Diagnoses	
<ul style="list-style-type: none"> • Wire-break 	Yes

Diagnostics indication LED	
• for status of the inputs	Yes
• for maintenance	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-20 °C
• max.	60 °C
• horizontal installation, min.	-20 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	-20 °C
• vertical installation, max.	50 °C
Ambient temperature during storage/transportation	
• 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	
• Operation at 25 °C without condensation, max.	95 %
Connection method	
required front connector	Yes
Mechanics/material	
Enclosure material (front)	
• Plastic	Yes
Dimensions	
Width	38 mm
Height	62 mm
Depth	21 mm
Weights	
Weight, approx.	35 g
last modified:	3/9/2020

Last changes: 01/21/2021