

## Overview

- Analog input module for the SIMATIC S7-1200
- With extremely short conversion times
- For the connection of analog sensors without additional amplifiers
- For the solution of more complex automation tasks as well
- Can be plugged directly into the CPU

## Technical specifications

Article number	<b>6ES7231-4HA30-0XB0</b> SIGNAL BOARD SB 1231, 1 AI
<b>Product type designation</b>	
<b>Supply voltage</b>	
Rated value (DC)	
• 24 V DC	Yes
<b>Input current</b>	
from backplane bus 5 V DC, typ.	55 mA
<b>Power losses</b>	
Power loss, typ.	0.4 W
<b>Analog inputs</b>	
Number of analog inputs	1; Current or voltage differential inputs
permissible input frequency for current input (destruction limit), max.	± 35 V
permissible input voltage for voltage input (destruction limit), max.	35 V
permissible input current for voltage input (destruction limit), max.	40 mA
permissible input current for current input (destruction limit), max.	40 mA
Cycle time (all channels) max.	156.25 µs; 400 Hz suppression
<b>Input ranges</b>	
• Voltage	Yes; ±10V, ±5V, ±2.5V
• Current	Yes; 0 to 20 mA
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
<b>Input ranges (rated values), voltages</b>	
• -10 V to +10 V	Yes
• Input resistance (-10 V to +10 V)	≥9 MOhm
• -2.5 V to +2.5 V	Yes
• Input resistance (-2.5 V to +2.5 V)	≥9 MOhm
• -5 V to +5 V	Yes
• Input resistance (-5 V to +5 V)	≥9 MOhm
<b>Input ranges (rated values), currents</b>	
• 0 to 20 mA	Yes
• Input resistance (0 to 20 mA)	≥ 250 Ohm
<b>Analog outputs</b>	
Number of analog outputs	0

Article number	<b>6ES7231-4HA30-0XB0</b> SIGNAL BOARD SB 1231, 1 AI
<b>Analog value creation</b>	
Measurement principle	integrating
<b>Integration and conversion time/ resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	11 bit; + sign
• Integration time, parameterizable	Yes
• Interference voltage suppression for interference frequency f1 in Hz	40 dB, DC to 60 Hz
<b>Smoothing of measured values</b>	
• Parameterizable	Yes
• Step: None	Yes
• Step: low	Yes
• Step: Medium	Yes
• Step: High	Yes
<b>Errors/accuracies</b>	
Temperature error (relative to input range), (+/-)	25 °C ±0.3%, to 55 °C ±0.6% total measurement range
<b>Interrupts/diagnostics/ status information</b>	
<b>Alarms</b>	
• Alarms	Yes
• Diagnostic alarm	Yes
<b>Diagnostic messages</b>	
• Diagnostic functions	Yes
• Wire break	No
<b>Diagnostics indication LED</b>	
• for status of the inputs	Yes
• for maintenance	Yes
<b>Degree and class of protection</b>	
Degree of protection to EN 60529	
• IP20	Yes
<b>Standards, approvals, certificates</b>	
CE mark	Yes
CSA approval	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes

**SIMATIC S7-1200 basic controller**

I/O modules

Analog modules

**SB 1231 analog input modules****Technical specifications** (continued)

Article number	<b>6ES7231-4HA30-0XB0</b> SIGNAL BOARD SB 1231, 1 AI
<b>Ambient conditions</b>	
<b>Free fall</b>	
• Drop height, max. (in packaging)	0.3 m; five times, in dispatch package
<b>Ambient temperature in operation</b>	
• Permissible temperature range	0 °C to 55 °C horizontal installation, 0 °C to 45 °C vertical installation
• Min.	0 °C
• max.	55 °C
<b>Storage/transport temperature</b>	
• Min.	-40 °C
• max.	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
<b>Relative humidity</b>	
• Permissible range (without condensation) at 25 °C	95 %
<b>Pollutant concentrations</b>	
- SO <sub>2</sub> at RH < 60% without condensation	SO <sub>2</sub> : < 0.5 ppm; H <sub>2</sub> S: < 0.1 ppm; RH < 60% condensation-free
<b>Connection method</b>	
required front connector	Yes
<b>Mechanics/material</b>	
Type of housing (front)	
• plastic	Yes
<b>Dimensions</b>	
Width	38 mm
Height	62 mm
Depth	21 mm
<b>Weights</b>	
Weight, approx.	35 g

**Ordering data****Article No.****SB 1231 signal board analog input module**1 analog input, ±10 V with 12 bits or  
0 ... 20 mA with 11 bits**6ES7231-4HA30-0XB0****Terminal block (spare part)**for signal board  
with 6 screws, gold-plated; 4 pcs.**6ES7292-1BF30-0XA0**

3