

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

PRODUCT BRAND

Siemens

PRODUCT MODEL

6ES7231-4HA30-0XB0

Siemens 6ES7231-4HA30-0XB0 is a SIMATIC S7-1200 SB 1231 signal board with one differential analog input. The channel can be configured for voltage measurement up to ± 10 V DC or for a 0–20 mA current signal with 12-bit class conversion.

The compact board installs in the signal-board position of a compatible S7-1200 CPU and is not a standalone analog module. The selected measuring type, input range, wiring, filtering, diagnostics, and shielded cable arrangement must match the engineering project before the channel is commissioned.

OFFICIAL SOURCE

SIMATIC S7-1200 SB 1231 Technical Data

6ES7231-4HA30-0XB0

[Open current Siemens source](#)



SIMATIC S7-1200, Analog input, SB 1231, 1 AI, ± 10 V DC (12 bit resol.) or 0-20 mA

General information	
Product type designation	SB 1231, AI 1x12 bit
Supply voltage	
Rated value (DC)	24 V
Input current	
from backplane bus 5 V DC, typ.	55 mA
Power loss	
Power loss, typ.	0.4 W
Analog inputs	
Number of analog inputs	1; Current or voltage differential inputs
permissible input voltage 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 μ s; 400 Hz suppression
Input ranges	
• Voltage	Yes; ± 10 V, ± 5 V, ± 2.5 V
• Current	Yes; 0 to 20 mA
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
Input ranges (rated values), voltages	
• -10 V to +10 V — Input resistance (-10 V to +10 V)	Yes ≥ 9 MOhm
• -2.5 V to +2.5 V — Input resistance (-2.5 V to +2.5 V)	Yes ≥ 9 MOhm
• -5 V to +5 V — Input resistance (-5 V to +5 V)	Yes ≥ 9 MOhm
Input ranges (rated values), currents	
• 0 to 20 mA — Input resistance (0 to 20 mA)	Yes ≥ 250 Ohm
Analog outputs	
Number of analog outputs	0
Cable length	
• shielded, max.	100 m; shielded, twisted pair
Analog value generation for the inputs	

Measurement principle	integrating
Integration and conversion time/resolution per channel	
• 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
Smoothing of measured values	
• Parameterizable	Yes
• Step: None	Yes
• Step: low	Yes
• Step: Medium	Yes
• Step: High	Yes
Errors/accuracies	
Temperature error (relative to input range), (+/-)	25 °C ±0.3%, to 55 °C ±0.6% total measurement range
Interrupts/diagnostics/status information	
Alarms	Yes
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
Diagnoses	
• Wire break	No
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 %
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
Mechanics/material	
Enclosure material (front)	

• plastic		Yes			
Dimensions					
Width	38 mm				
Height	62 mm				
Depth	21 mm				
Weights					
Weight, approx.	35 g				
Classifications					
		Version	Classification		
	eClass	16	27-24-22-01		
	eClass	14	27-24-22-01		
	eClass	12	27-24-22-01		
	eClass	9.1	27-24-22-01		
	eClass	9	27-24-22-01		
	eClass	8	27-24-22-01		
	eClass	7.1	27-24-22-01		
	eClass	6	27-24-22-01		
	ETIM	10	EC001420		
	ETIM	9	EC001420		
	ETIM	8	EC001420		
	ETIM	7	EC001420		
	IDEA	4	3562		
	UNSPSC	15	32-15-17-05		
Approvals / Certificates					
General Product Approval					
 EG-Konf.		Miscellaneous	Manufacturer Declaration	 UL	Metrological Approval
General Product Approval		EMV	For use in hazardous locations		
 RCM		Manufacturer Declaration	China RoHS	 RCM	 ATEX
For use in hazardous locations			Maritime application		
 IECEx	EM	 UL	Miscellaneous	CCC-Ex	 ABS
Maritime application					
	 DNV	NK / Nippon Kaiji Kyokai	 RINA	 RMPS	CCS (China Classification Society)
last modified:		7/2/2025 			