



Figure similar

SIMATIC S7-1200 G2: SB 1231 analog input, 4 AI; inputs: 4 x AI 14 bit ADC (+/-10 V, +/-5 V, +/-2.5 V or 0-20 mA/4-20 mA)

General information	
Product type designation	SB 1231, AI 4x 14 bit
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption, typ.	30 mA
from backplane bus 5 V DC, typ.	28 mA
Power loss	
Power loss, typ.	1.4 W
Analog inputs	
Number of analog inputs	4; Current or voltage differential inputs
permissible input voltage for voltage input (destruction limit), max.	35 V
permissible input current for current input (destruction limit), max.	40 mA
Cycle time (all channels) max.	0.625 ms; at 400 Hz rejection
Input ranges	
• Voltage • Current • Thermocouple • Resistance thermometer • Resistance	Yes; $\pm 10\text{V}$, $\pm 5\text{V}$, $\pm 2.5\text{V}$ Yes; 4 to 20 mA, 0 to 20 mA No No No
Input ranges (rated values), voltages	
• -10 V to +10 V — Input resistance (-10 V to +10 V) • -2.5 V to +2.5 V — Input resistance (-2.5 V to +2.5 V) • -5 V to +5 V — Input resistance (-5 V to +5 V)	Yes $\geq 1\text{ M}\Omega$ Yes $\geq 1\text{ M}\Omega$ Yes $\geq 1\text{ M}\Omega$
Input ranges (rated values), currents	
• 0 to 20 mA — Input resistance (0 to 20 mA) • 4 mA to 20 mA — Input resistance (4 mA to 20 mA)	Yes $< 290\ \Omega$, $> 270\ \Omega$ Yes $< 290\ \Omega$, $> 270\ \Omega$
Cable length	
• shielded, max.	100 m; shielded, twisted pair
Analog value generation for the inputs	

Measurement principle	successive approximation
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	13 bit; + sign
Integration time, parameterizable	Yes
Interference voltage suppression for interference frequency f_1 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 ± 0.1 % / -20 °C to 60 °C ± 0.2 % of the full-scale deflection
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input range, (+/-)	0.1 %
Current, relative to input range, (+/-)	0.1 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \text{ %})$, f_1 = interference frequency	
Common mode voltage, max.	12 V
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
Diagnostic alarm	Yes
Diagnoses	
Monitoring the supply voltage	Yes
Wire-break	Yes
Diagnostics indication LED	
DIAG LED	Yes
for status of the inputs	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	No
UL approval	Yes
cULus	Yes
FM approval	No
RCM (formerly C-TICK)	Yes
KC approval	No
Marine approval	No
Ecological footprint	
environmental product declaration	Yes
Ambient conditions	
Free fall	
Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
min.	-20 °C
max.	40 °C; at max. voltages and max. specifications
horizontal installation, min.	-20 °C
horizontal installation, max.	60 °C; at rated voltages, 50 % of max. specification and alternate IO active
vertical installation, min.	-20 °C
vertical installation, max.	50 °C; at rated voltages, 50 % of max. specification and alternate IO active
Ambient temperature during storage/transportation	
min.	-40 °C
max.	70 °C
Air pressure acc. to IEC 60068-2-13	
Operation, min.	540 hPa
Operation, max.	1 140 hPa
Storage/transport, min.	540 hPa
Storage/transport, max.	1 140 hPa
Altitude during operation relating to sea level	
Installation altitude, min.	-1 000 m
Installation altitude, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual

Relative humidity	
• Operation at 25 °C without condensation, max.	95 %
Vibrations	
• Vibration resistance during operation acc. to IEC 60068-2-6	3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz
• Operation, tested according to IEC 60068-2-6	Yes
Shock testing	
• tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
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	No
Mechanics/material	
Enclosure material (front)	
• Plastic	Yes
Dimensions	
Width	15 mm
Height	62 mm
Depth	63 mm
Weights	
Weight, approx.	30 g
Classifications	

	Version	Classification
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	9	EC001420
ETIM	8	EC001420
ETIM	7	EC001420

Approvals / Certificates	
General Product Approval	EMV

[Manufacturer Declaration](#)


EG-Konf.



[KC](#)


RCM

[KC](#)

For use in hazardous locations


UL


IECEX


UL

[CCC-Ex](#)

Environment



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