



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	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • -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	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • shielded, max. 	100 m; shielded, twisted pair
Analog value generation for the inputs	

Measurement principle	successive approximation
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 f_1 in Hz 	13 bit; + sign Yes 40 dB, DC to 60 Hz
Smoothing of measured values	
<ul style="list-style-type: none"> parameterizable Step: None Step: low Step: Medium Step: High 	Yes Yes Yes Yes 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)	
<ul style="list-style-type: none"> Voltage, relative to input range, (+/-) Current, relative to input range, (+/-) 	0.1 % 0.1 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency	
<ul style="list-style-type: none"> Common mode voltage, max. 	12 V
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
<ul style="list-style-type: none"> Diagnostic alarm 	Yes
Diagnoses	
<ul style="list-style-type: none"> Monitoring the supply voltage Wire-break 	Yes Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> DIAG LED for status of the inputs 	Yes 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
Ambient conditions	
Free fall	
<ul style="list-style-type: none"> Fall height, max. 	0.3 m; five times, in product package
Ambient temperature during operation	
<ul style="list-style-type: none"> min. max. horizontal installation, min. horizontal installation, max. vertical installation, min. vertical installation, max. 	-20 °C 40 °C; at max. voltages and max. specifications -20 °C 60 °C; at rated voltages, 50 % of max. specification and alternate IO active -20 °C 50 °C; at rated voltages, 50 % of max. specification and alternate IO active
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> min. max. 	-40 °C 70 °C
Air pressure acc. to IEC 60068-2-13	
<ul style="list-style-type: none"> Operation, min. Operation, max. Storage/transport, min. Storage/transport, max. 	540 hPa 1 140 hPa 540 hPa 1 140 hPa
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> Installation altitude, min. Installation altitude, max. 	-1 000 m 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	
<ul style="list-style-type: none"> Operation at 25 °C without condensation, max. 	95 %

Vibrations	
<ul style="list-style-type: none"> Vibration resistance during operation acc. to IEC 60068-2-6 Operation, tested according to IEC 60068-2-6 	<p>3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz</p> <p>Yes</p>
Shock testing	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 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) <ul style="list-style-type: none"> 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			Environment	
			CCC-Ex	
UL	IECEX	UL		EPD

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