



SIMATIC S7-1200, Analog input, SB 1231RTD, 1 AI RTD, Pt100 and Pt1000

General information	
Product type designation	SB 1231, AI 1x16 bit RTD
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; Resistance thermometer
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 	<ul style="list-style-type: none"> Yes No No Yes; Platinum (Pt) Yes; 150 Ω, 300 Ω, 600 Ω
Input ranges (rated values), voltages	
<ul style="list-style-type: none"> • -80 mV to +80 mV — Input resistance (-80 mV to +80 mV) 	<ul style="list-style-type: none"> >= 10 MOhm
Input ranges (rated values), resistance thermometer	
<ul style="list-style-type: none"> • Pt 100 — Input resistance (Pt 100) • Pt 1000 — Input resistance (Pt 1000) • Pt 200 — Input resistance (Pt 200) • Pt 500 — Input resistance (Pt 500) 	<ul style="list-style-type: none"> Yes 100 Ω Yes 1 000 Ω Yes 200 Ω Yes 500 Ω
Input ranges (rated values), resistors	
<ul style="list-style-type: none"> • 0 to 150 ohms • 0 to 300 ohms • 0 to 600 ohms 	<ul style="list-style-type: none"> Yes Yes Yes
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 f_1 in Hz 	15 bit; + sign No 85 dB at 10 / 50 / 60 / 400 Hz
Errors/accuracies	
Temperature error (relative to input range), (+/-)	25 °C \pm 0.1%, to 55 °C \pm 0.2% total measurement range
Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.05 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, $f_1 =$ 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	
<ul style="list-style-type: none"> for status of the inputs for maintenance 	Yes 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	
<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 60 °C -20 °C 60 °C -20 °C 50 °C
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. 	795 hPa 1 080 hPa 660 hPa 1 080 hPa
Relative humidity	
<ul style="list-style-type: none"> Operation at 25 °C without condensation, max. 	95 %
Pollutant concentrations	
<ul style="list-style-type: none"> SO₂ at RH < 60% without condensation 	SO ₂ : < 0.5 ppm; H ₂ S: < 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
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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	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	Test Certificates
 EG-Konf.	
 c UL us	
	Type Test Certificates/Test Report
	Special Test Certificate

Maritime application	other
	
	
	Confirmation
	

Environment

[Environmental Confirmations](#)

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