



SIPLUS S7-1200 SB 1231 1AI RTD based on 6ES7231-5PA30-0XB0 with conformal coating, -40...+60 °C, start up -25 °C, SIPLUS 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	
• Voltage	Yes
• Current	No
• Thermocouple	No
• Resistance thermometer	Yes; Platinum (Pt)
• Resistance	Yes; 150 Ω, 300 Ω, 600 Ω
Input ranges (rated values), voltages	
• -80 mV to +80 mV	
— Input resistance (-80 mV to +80 mV)	≥ 10 MOhm
Input ranges (rated values), resistance thermometer	
• Pt 100	Yes
— Input resistance (Pt 100)	100 Ω
• Pt 1000	Yes
— Input resistance (Pt 1000)	1 000 Ω
• Pt 200	Yes
— Input resistance (Pt 200)	200 Ω
• Pt 500	Yes
— Input resistance (Pt 500)	500 Ω
Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
• 0 to 300 ohms	Yes
• 0 to 600 ohms	Yes
Thermocouple (TC)	
Temperature compensation	
— parameterizable	No
Analog outputs	
Number of analog outputs	0

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 f1 in Hz 	15 bit; + sign No 85 dB at 10 / 50 / 60 / 400 Hz
Errors/accuracies	
Temperature error (relative to input range), (+/-)	25 °C ±0.1%, up to 55 °C ±0.25% total measurement range
Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.05 %
Interference voltage suppression for $f = n \times (f1 \pm 1 \%)$, f1 = 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
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. vertical installation, min. vertical installation, max. 	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C 60 °C; = Tmax -40 °C; = Tmin; Startup @ -25 °C 50 °C; = Tmax
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> min. max. 	-40 °C 70 °C
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> Installation altitude above sea level, max. Ambient air temperature-barometric pressure-altitude 	5 000 m Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
<ul style="list-style-type: none"> With condensation, tested in accordance with IEC 60068-2-38, max. 	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)

Remark	
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
<ul style="list-style-type: none"> • Coatings for printed circuit board assemblies acc. to EN 61086 • Protection against fouling acc. to EN 60664-3 • Military testing according to MIL-I-46058C, Amendment 7 • Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A 	<p>Yes; Class 2 for high reliability</p> <p>Yes; Type 1 protection</p> <p>Yes; Discoloration of coating possible during service life</p> <p>Yes; Conformal coating, Class A</p>
connection method / header	
required front connector	Yes
Mechanics/material	
Enclosure material (front) <ul style="list-style-type: none"> • Plastic 	Yes
Dimensions	
Width	38 mm
Height	62 mm
Depth	21 mm
Weights	
Weight, approx.	35 g
last modified:	12/18/2020 