SIEMENS

Data sheet

6AG1231-5QF32-4XB0



SIPLUS S7-1200 SM 1231 TC 8 Al based on 6ES7231-5QF32-0XB0 with conformal coating, -20...+60 $^{\circ}\text{C},$ analog input, SM 1231 TC 8 Al thermocouples

Figure similar

General information		
Product type designation	SM 1231, AI 8x16 bit TC	
Supply voltage		
Rated value (DC)	24 V	
Input current		
Current consumption, typ.	40 mA	
from backplane bus 5 V DC, typ.	80 mA	
Power loss		
Power loss, typ.	1.5 W	
Analog inputs		
Number of analog inputs	4; Thermocouples	
permissible input voltage for voltage input (destruction limit), max.	±35 V	
Technical unit for temperature measurement adjustable	Degrees Celsius/degrees Fahrenheit	
Input ranges		
 Voltage 	No	
Current	No	
 Thermocouple 	Yes; J, K, T, E, R & S, B, N, C, TXK/XK(L); voltage range: ±80 mV	
 Resistance thermometer 	No	
Resistance	No	
Input ranges (rated values), voltages		
• -80 mV to +80 mV	Yes	
— Input resistance (-80 mV to +80 mV)	≥1 MOhm	
Input ranges (rated values), thermocouples		
Type B	Yes	
Type C	Yes	
Type E	Yes	
Type J	Yes	
• Type K	Yes	
Type N	Yes	
• Type R	Yes	
• Type S	Yes	
• Type T	Yes	
Type TXK/TXK(L) to GOST	Yes	
Thermocouple (TC)		
Temperature compensation		
— parameterizable	No	
Analog value generation for the inputs		

Measurement principle	integrating
Measurement principle Integration and conversion time/resolution per channel	integrating
Resolution with overrange (bit including sign), max.	15 bit; + sign
 Integration time, parameterizable 	No
Interference voltage suppression for interference	85 dB at 50 / 60 / 400 Hz
frequency f1 in Hz	03 db at 30 / 00 / 400 Hz
Smoothing of measured values	
parameterizable	Yes
Errors/accuracies	
Temperature error (relative to input range), (+/-)	25 °C ±0.1%, to 55 °C ±0.2% total measurement range
Repeat accuracy in steady state at 25 °C (relative to	0.5 %
output range), (+/-)	
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 =	
Common mode interference, min.	120 dB
Interrupts/diagnostics/status information	
Alarms	Yes
Diagnostics function	Yes; Can be read out
Alarms	
Diagnostic alarm	Yes
Diagnoses	V
Monitoring the supply voltage	Yes
Wire-break Diagnostics indication LED	Yes
Diagnostics indication LED	Voo
• for status of the inputs	Yes
• for maintenance	Yes
Degree and class of protection	IDOO
IP degree of protection	IP20
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	20 °C: - Train (incl. condensation/front): start up @ 0 °C
● min. ● max.	-20 °C; = Tmin (incl. condensation/frost); start-up @ 0 °C 60 °C; = Tmax
Ambient temperature during storage/transportation	00 C, - Illiax
min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	5 000 m
Ambient air temperature-barometric pressure-	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin
altitude	(Tmax - 10 K) at 795 hPa 658 hPa (+2 000 m +3 500 m) // Tmin
D.1.C. 1. 170	(Tmax -20 K) at 658 hPa 540 hPa (+3 500 m +5 000 m)
Relative humidity	400 (4 12)
 With condensation, tested in accordance with IEC 60068-2-38, max. 	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	Contraction Contraction
Coolants and lubricants	
Resistant to commercially available coolants	Yes; Incl. diesel and oil droplets in the air
and lubricants	, , , , , , , , , , , , , , , , , , , ,
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 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 Remark — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 Conformal coating • Coatings for printed circuit board assemblies acc. to EN 61086 • Protection against fouling acc. to EN 60684-3 • 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 connection method / header required front connector Mechanics/material Enclosure material (front) • Plastic Dimensions Width Height Depth Ves; Class 3 (excluding trichlorethylene) Yes; Class 3 (excluding trichlorethylene) Yes; Class 3 (excluding trichlorethylene) Yes; Class 3 (excluding trichlorethylene) Fax Glass		
EN 60654-4 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 Remark — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 Conformal coating • 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 connection method / header required front connector Mechanics/material Enclosure material (front) • Plastic Pinator of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil) * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during	Usage in industrial process technology	
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- Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 Conformal coating • 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 connection method / header required front connector Mechanics/material Enclosure material (front) • Plastic Ves Dimensions * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug covers must remain in place over the unused interfaces during operation! * The supplied plug to the final place over the unused interfaces during operation! * The supplied plug to the final place over the unused interfaces during operation! * Yes; Class 2 for high reliability * Yes; Discoloration of coating possible during service life * Yes; Conformal coating, Class A * Yes; Conformal coating, Class A * Yes	measuring and control systems acc. to ANSI/ISA-	concentrations up to the limits of EN 60721-3-3 class 3C4 permissible);
conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 Conformal coating • 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 connection method / header required front connector Mechanics/material Enclosure material (front) • Plastic Dimensions Width Height Depth To mithefaces during operation! Yes; Class 2 for high reliability Yes; Type 1 protection Yes; Discoloration of coating possible during service life Yes; Conformal coating, Class A Yes Yes Mechanics/material Enclosure material (front) • Plastic Yes Dimensions Width 45 mm Height 100 mm Depth 75 mm	Remark	
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 connection method / header required front connector Mechanics/material Enclosure material (front) Plastic Plastic Yes Yes Yes Yes Yes Yes Yes Mochanics/material Enclosure material (front) Plastic Yes Dimensions Width 45 mm Height 100 mm Depth 75 mm Weights	conditions acc. to EN 60721, EN 60654-4 and	
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 connection method / header required front connector Mechanics/material Enclosure material (front) • Plastic Dimensions Width 45 mm Height 100 mm Depth 75 mm Weights	Conformal coating	
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 Connection method / header required front connector Mechanics/material Enclosure material (front) Plastic Plastic Pimensions Width Height Depth Weights Yes; Discoloration of coating possible during service life Yes; Conformal coating, Class A Yes; Conformal coating, Class A Yes; Conformal coating, Class A Yes Yes Yes Yes Mechanics/material Frequired front connector Yes Mechanics/material Frequired front (front) Plastic Yes		Yes; Class 2 for high reliability
Amendment 7 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A connection method / header required front connector Mechanics/material Enclosure material (front) Plastic Piastic Ves Dimensions Width 45 mm Height Depth 75 mm Weights	 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection
Insulating Compound for Printed Board Assemblies according to IPC-CC-830A connection method / header required front connector Mechanics/material Enclosure material (front) • Plastic Ves Dimensions Width Height Height Depth To mm Weights		Yes; Discoloration of coating possible during service life
required front connector Mechanics/material Enclosure material (front)	Insulating Compound for Printed Board Assemblies	Yes; Conformal coating, Class A
Mechanics/material Enclosure material (front) Yes • Plastic Yes Dimensions Width 45 mm Height 100 mm Depth 75 mm Weights	connection method / header	
Enclosure material (front)	required front connector	Yes
● Plastic Yes Dimensions	Mechanics/material	
Dimensions Width 45 mm Height 100 mm Depth 75 mm Weights 45 mm	Enclosure material (front)	
Width 45 mm Height 100 mm Depth 75 mm Weights To me	Plastic	Yes
Height 100 mm Depth 75 mm Weights	Dimensions	
Depth 75 mm Weights	Width	45 mm
Weights	Height	100 mm
	Depth	75 mm
Weight, approx. 220 g	Weights	
	Weight, approx.	220 g

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