



spare part SIPLUS S7-1200 SM 1231 RTD 8AI based on 6ES7231-5PF30-0XB0 with conformal coating, -25...+70 °C, analog input, SM 1231 RTD, 8xAI RTD module

General information	
Product type designation	SM 1231, AI 8x16 bit RTD
Supply voltage	
Rated value (DC)	24 V
Input current	
Current consumption, typ.	90 mA
from backplane bus 5 V DC, typ.	80 mA
Power loss	
Power loss, typ.	1.5 W
Analog inputs	
Number of analog inputs	8; Resistance thermometer
permissible input voltage for voltage input (destruction limit), max.	±35 V
Technical unit for temperature measurement adjustable	Degrees Celsius/degrees Fahrenheit
Input ranges	
• Resistance thermometer	Yes; Resistance-type transmitter: Pt10, Pt50, Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10, Cu50, Cu100, LG-Ni1000
• Resistance	Yes; 150 Ω, 300 Ω, 600 Ω
Input ranges (rated values), resistance thermometer	
• Cu 10	Yes
— Input resistance (Cu 10)	10 Ω
• Ni 100	Yes
— Input resistance (Ni 100)	100 Ω
• Ni 1000	Yes
— Input resistance (Ni 1000)	1 000 Ω
• LG-Ni 1000	Yes
— Input resistance (LG-Ni 1000)	1 000 Ω
• Ni 120	Yes
— Input resistance (Ni 120)	120 Ω
• Ni 200	Yes
— Input resistance (Ni 200)	200 Ω
• Ni 500	Yes
— Input resistance (Ni 500)	500 Ω
• 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 value generation for the inputs	
Measurement principle	integrating
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	15 bit; + sign
• Integration time, parameterizable	No
• Interference voltage suppression for interference frequency f1 in Hz	85 dB at 50 / 60 / 400 Hz
Errors/accuracies	
cold connection point	±1,5 °C
Temperature error (relative to input range), (+/-)	25 °C ±0.1%, -25 °C to 70 °C ±0.4 % entire measuring 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	
• Common mode interference, min.	120 dB
Interrupts/diagnostics/status information	
Alarms	Yes
Diagnostics function	Yes; Can be read out
Alarms	
• Diagnostic alarm	Yes
Diagnoses	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
Diagnostics indication LED	
• for status of the inputs	Yes
• for maintenance	Yes
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	70 °C; = Tmax
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 080 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	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost permitted (no commissioning in bedewed state)
Resistance	
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 incl. salt spray. The supplied connector covers must remain on the unused interfaces during operation!
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
connection method	
required front connector	Yes
Mechanics/material	

Enclosure material (front) • Plastic	Yes
Dimensions	
Width	70 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	220 g
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