



SIMATIC S7-1200, Analog input, SM 1231 RTD, 8xAI RTD module



Figure similar

General information	
Product type designation	SM 1231, AI 8x16 bit RTD
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	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	
• Voltage	No
• Current	No
• Thermocouple	No
• 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	
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 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
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ecological footprint	
• environmental product declaration	Yes
Global warming potential	
— global warming potential, (total) [CO2 eq]	43.1 kg
— global warming potential, (during production) [CO2 eq]	7.62 kg
— global warming potential, (during operation) [CO2 eq]	36 kg
— global warming potential, (after end of life cycle)	-0.544 kg

[CO2 eq]			
Ambient conditions			
Free fall			
● Fall height, max.		0.3 m; five times, in product package	
Ambient temperature during operation			
● min.		-20 °C	
● max.		60 °C	
● horizontal installation, min.		-20 °C	
● horizontal installation, max.		60 °C	
● vertical installation, min.		-20 °C	
● vertical installation, max.		50 °C	
Ambient temperature during storage/transportation			
● min.		-40 °C	
● max.		70 °C	
Air pressure acc. to IEC 60068-2-13			
● Operation, min.		795 hPa	
● Operation, max.		1 080 hPa	
● Storage/transport, min.		660 hPa	
● Storage/transport, max.		1 080 hPa	
Relative humidity			
● Operation at 25 °C without condensation, max.		95 %	
Pollutant concentrations			
● SO2 at RH < 60% without condensation		SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free	
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	
Classifications			
		Version	Classification
	eClass	16	27-24-22-01
	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			other



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Environment



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