



SIMATIC S7-1200, ANALOG INPUT, SM 1231RTD, 8 X AI RTD MODULE,

Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> 24 V DC 	Yes
Input current	
Current consumption, typ.	40 mA
from backplane bus 5 V DC, typ.	80 mA
Power losses	
Power loss, typ.	1.5 W
Analog inputs	
Number of analog inputs	8; Resistance thermometer
permissible input frequency 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"> Thermocouple 	No
<ul style="list-style-type: none"> Resistance thermometer 	Yes; Resistance-type transmitter: Pt10, Pt50, Pt100, Pt200, Pt500, Pt1000, Ni100, Ni120, Ni200, Ni500, Ni1000, Cu10, Cu50, Cu100, LG-Ni1000
<ul style="list-style-type: none"> Resistance 	Yes; 150 Ω, 300 Ω, 600 Ω
Input ranges (rated values), resistance thermometer	
<ul style="list-style-type: none"> Cu 10 	Yes
<ul style="list-style-type: none"> Input resistance (Cu 10) 	10 Ω
<ul style="list-style-type: none"> 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 outputs	
Number of analog outputs	0
Analog value creation	
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 area), (+/-)	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	
• Alarms	Yes
• Diagnostic alarm	Yes
Diagnostic messages	
• Diagnostic functions	Yes; Can be read out
• 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

Degree of protection to EN 60529	
• IP20	Yes

Standards, approvals, certificates

CE mark	Yes
RCM (formerly C-TICK)	Yes
FM approval	Yes
Highest safety class achievable in safety mode	
• SIL according to IEC 61508:2010	none

Ambient conditions

Free fall	
• Drop height, max. (in packaging)	0.3 m; five times, in dispatch package
Ambient temperature in operation	
• Permissible temperature range	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing
Storage/transport temperature	
• 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	
• Permissible range (without condensation) at 25 °C	95 %
Pollutant concentrations	
— SO ₂ 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	
Type of housing (front)	Yes
<ul style="list-style-type: none"> plastic 	
Dimensions	
Width	70 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	220 g
last modified:	10.02.2015