



SIMATIC S7-1200, ANALOG INPUT, SM 1231 RTD, 4 X AI RTD MODULE

Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> <li>24 V DC</li> </ul>	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	4; 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"> <li>Thermocouple</li> </ul>	No
<ul style="list-style-type: none"> <li>Resistance thermometer</li> </ul>	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"> <li>Resistance</li> </ul>	Yes; 150 Ω, 300 Ω, 600 Ω
Input ranges (rated values), resistance thermometer	
<ul style="list-style-type: none"> <li>Cu 10</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Input resistance (Cu 10)</li> </ul>	10 Ω
<ul style="list-style-type: none"> <li>Ni 100</li> </ul>	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
<b>Input ranges (rated values), resistors</b>	
• 0 to 150 ohms	Yes
• 0 to 300 ohms	Yes
• 0 to 600 ohms	Yes
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
— Parameterizable	No
<b>Analog outputs</b>	
Number of analog outputs	0
<b>Analog value creation</b>	
Measurement principle	integrating
<b>Integration and conversion time/resolution per channel</b>	
• 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
<b>Errors/accuracies</b>	
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
CSA approval	Yes
RCM (formerly C-TICK)	Yes
FM approval	Yes
Highest safety class achievable in safety mode	
• SIL according to IEC 61508	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
• Min.	-20 °C
• max.	60 °C
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 %

<b>Pollutant concentrations</b>	
— SO2 at RH < 60% without condensation	SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
<b>Connection method</b>	
required front connector	Yes
<b>Mechanics/material</b>	
Type of housing (front)	
• plastic	Yes
<b>Dimensions</b>	
Width	45 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	220 g
<b>last modified:</b>	12.03.2015