



SIMATIC S7-1200, ANALOG INPUT, SM 1231,  
8 AI, +/-10V, +/-5V, +/-2.5V,  
OR 0-20 MA 12 BIT + SIGN OR (13 BIT ADC)

Supply voltage	
24 V DC	Yes
Input current	
Current consumption, typ.	45 mA
from backplane bus 5 V DC, typ.	90 mA
Power losses	
Power loss, typ.	1.5 W
Analog inputs	
Number of analog inputs	8 ; Current or voltage differential inputs
permissible input frequency for current input (destruction limit), max.	± 35 V
permissible input voltage for voltage input (destruction limit), max.	35 V
permissible input current for voltage input (destruction limit), max.	40 mA
permissible input current for current input (destruction limit), max.	40 mA
Cycle time (all channels) max.	625 μs
Input ranges	
Voltage	Yes ; ±10 V, ±5 V, ±2.5 V
Current	Yes ; 4 to 20 mA, 0 to 20 mA
Thermocouple	No

Resistance thermometer	No
Resistance	Yes
<b>Input ranges (rated values), voltages</b>	
-10 V to +10 V	Yes
Input resistance (-10 V to +10 V)	≥9 MOhm
-2.5 V to +2.5 V	Yes
Input resistance (-2.5 V to +2.5 V)	≥9 MOhm
-5 V to +5 V	Yes
Input resistance (-5 V to +5 V)	≥9 MOhm
<b>Input ranges (rated values), currents</b>	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	280 Ω
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
Parameterizable	No
<b>Analog outputs</b>	
Number of analog outputs	0
<b>Analog value creation</b>	
<b>Integrations and conversion time/ resolution per channel</b>	
Resolution with overrange (bit including sign), max.	12 bit ; + sign
Integration time, parameterizable	Yes
Interference voltage suppression for interference frequency f1 in Hz	40 dB, DC to 60 V for interference frequency 50 / 60 Hz
<b>Smoothing of measured values</b>	
Parameterizable	Yes
Step: None	Yes
Step: low	Yes
Step: Medium	Yes
Step: High	Yes
<b>Errors/accuracies</b>	
Temperature error (relative to input area)	25 °C ±0.1 % to 55 °C ±0.2 % total measurement range
<b>Basic error limit (operational limit at 25 °C)</b>	
Voltage, relative to input area	+/- 0.1 %
Current, relative to input area	+/- 0.1 %
<b>Interference voltage suppression for <math>f = n \times (f1 \pm 1 \%)</math>, f1 = interference frequency</b>	
common mode voltage, max.	12 V
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	

<b>Alarms</b>	Yes
<b>Diagnostic alarm</b>	Yes
<b>Diagnostic messages</b>	
<b>Diagnostic functions</b>	Yes
<b>Monitoring the supply voltage</b>	Yes
<b>Wire break</b>	Yes
<b>Diagnostics indication LED</b>	
<b>for status of the inputs</b>	Yes
<b>for maintenance</b>	Yes
<b>Galvanic isolation</b>	
<b>Galvanic isolation analog outputs</b>	
<b>between the channels and the power supply of the electronics</b>	No
<b>Degree and class of protection</b>	
<b>IP20</b>	Yes
<b>Standards, approvals, certificates</b>	
<b>CE mark</b>	Yes
<b>CSA approval</b>	Yes
<b>C-TICK</b>	Yes
<b>FM approval</b>	Yes
<b>Marine approval</b>	Yes
<b>Highest safety class achievable in safety mode</b>	
<b>acc. to IEC 61508</b>	none
<b>Climatic and mechanical conditions for storage and transport</b>	
<b>Climatic conditions for storage and transport</b>	
<b>Free fall</b>	
<b>Drop height, max. (in packaging)</b>	0.3 m ; five times, in dispatch package
<b>Temperature</b>	
<b>Permissible temperature range</b>	-40 °C to +70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
<b>Permissible air pressure</b>	1080 to 660 hPa
<b>Mechanical and climatic conditions during operation</b>	
<b>Climatic conditions in operation</b>	
<b>Temperature</b>	
<b>Permissible temperature range</b>	-20 °C to +60 °C horizontal mounting -20 °C to 50 °C vertical mounting 95% humidity, non-condensing
<b>Air pressure acc. to IEC 60068-2-13</b>	
<b>Permissible air pressure</b>	1080 to 795 hPa
<b>Pollutant concentrations</b>	

<b>SO2 at RH &lt; 60% without condensation</b>	SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
<b>Connection method</b>	
<b>required front connector</b>	Yes
<b>Mechanics/material</b>	
<b>Type of housing (front)</b>	
<b>Plastic</b>	Yes
<b>Dimensions</b>	
<b>Width</b>	45 mm
<b>Height</b>	100 mm
<b>Depth</b>	75 mm
<b>Weights</b>	
<b>Weight, approx.</b>	180 g
Status	Aug 21, 2013