

SIMATIC S7-1200, ANALOG I/O SM 1234,
4 AI / 2 AO, +/-10V,
14 BIT RESOLUTION OR 0(4) - 20 mA,
13 BIT RESOLUTION

Supply voltage	
24 V DC	Yes
Input current	
Current consumption, typ.	60 mA
from backplane bus 5 V DC, typ.	80 mA
Power loss	
Power loss, typ.	2 W
Analog inputs	
Number of analog inputs	4 ; Current or voltage differential inputs
permissible input voltage 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
Input ranges (rated values), voltages	
-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
Input ranges (rated values), currents	
0 to 20 mA	Yes
Input resistance (0 to 20 mA)	280 Ω
4 to 20 mA	Yes

Analog outputs	
Number of analog outputs	2 ; Current or voltage
Output ranges, voltage	
-10 to +10 V	Yes
Output ranges, current	
0 to 20 mA	Yes
4 to 20 mA	Yes
Load impedance (in rated range of output)	
with voltage outputs, min.	1000 Ω
with current outputs, max.	600 Ω
Analog value generation	
Measurement principle	Differential
Integration and conversion time/resolution per channel	
Resolution (incl. overrange)	Voltage: 14 bits; Current : 13 bits
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
Smoothing of measured values	
parameterizable	Yes
Step: None	Yes
Step: Low	Yes
Step: Medium	Yes
Step: High	Yes
Errors/accuracies	
Temperature error (relative to output range), (+/-)	25 °C $\pm$ 0.3% to 55 °C $\pm$ 0.6% total measurement range
Basic error limit (operational limit at 25 °C)	
Voltage, relative to input area, (+/-)	0.1 %
Current, relative to input area, (+/-)	0.1 %
Voltage, relative to output area, (+/-)	0.3 %
Current, relative to output area, (+/-)	0.3 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency	
Common mode voltage, max.	12 V
Interrupts/diagnostics/status information	
Alarms	
Alarms	Yes
Diagnostic alarm	Yes
Diagnostic messages	
Diagnostic functions	Yes

Monitoring the supply voltage	Yes
Wire-break	Yes
Short-circuit	Yes
Diagnostics indication LED	
for status of the inputs	Yes
for status of the outputs	Yes
for maintenance	Yes
Galvanic isolation	
Galvanic isolation analog outputs	
between the channels and the power supply of the electronics	No
Degree and class of protection	
IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes
RCM (former C-TICK)	Yes
FM approval	Yes
Marine approval	
Marine approval	Yes
Highest safety class achievable in safety mode	
acc. to IEC 61508	none
Climatic and mechanical conditions for storage and transport	
Climatic conditions for storage and transport	
Free fall	
Drop height, max. (in packaging)	0.3 m ; five times, in dispatch package
Temperature	
permissible temperature range	-40 °C to +70 °C
Air pressure acc. to IEC 60068-2-13	
permissible air pressure	1080 to 660 hPa
Relative humidity	
permissible range (without condensation) at 25 °C	95 %
Mechanical and climatic conditions during operation	
Climatic conditions in operation	
Temperature	
permissible temperature range	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing
Air pressure acc. to IEC 60068-2-13	
permissible air pressure	1080 to 795 hPa

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	
Type of housing (front)	
Plastic	Yes
Dimensions	
Width	45 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	220 g
Status	Aug 6, 2014