

SIMATIC S7-1200, analog I/O SM 1234, 4 AI/2 AO, +/-10 V, 14-bit resolution or 0 (4)-20mA, 13-bit resolution



Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> • 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 μ s
Input ranges	
• Voltage	Yes; ± 10 V, ± 5 V, ± 2.5 V
• Current	Yes; 4 to 20 mA, 0 to 20 mA
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 mA to 20 mA	Yes
Analog outputs	
Number of analog outputs	2; Current or voltage
Output ranges, voltage	
• -10 V to +10 V	Yes
Output ranges, current	
• 0 to 20 mA	Yes
• 4 mA to 20 mA	Yes
Load impedance (in rated range of output)	
• with voltage outputs, min.	1 000 Ω
• with current outputs, max.	600 Ω
Cable length	
• shielded, max.	100 m; shielded, twisted pair
Analog value generation for the inputs	
Measurement principle	Differential
Integration and conversion time/resolution per channel	
• 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
Smoothing of measured values	
• parameterizable	Yes
• Step: None	Yes
• Step: low	Yes
• Step: Medium	Yes
• Step: High	Yes

Analog value generation for the outputs

Integration and conversion time/resolution per channel

- Resolution (incl. overrange) Voltage: 14 bits; Current : 13 bits

Errors/accuracies

Temperature error (relative to input range), (+/-) 25 °C ±0.1%, to 55 °C ±0.2% total measurement range

Temperature error (relative to output range), (+/-) 25 °C ±0.3%, to 55 °C ±0.6% total measurement range

Basic error limit (operational limit at 25 °C)

- Voltage, relative to input range, (+/-) 0.1 %
- Current, relative to input range, (+/-) 0.1 %
- Voltage, relative to output range, (+/-) 0.3 %
- Current, relative to output range, (+/-) 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 Yes

Diagnostic functions Yes

Alarms

- Diagnostic alarm Yes

Diagnostic messages

- 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

Potential separation

Potential separation analog outputs

- between the channels and the power supply of the electronics No

Degree and class of protection

Degree of protection acc. to EN 60529

- IP20 Yes

Standards, approvals, certificates

CE mark Yes

CSA approval Yes

FM approval Yes

RCM (formerly C-TICK) Yes

Marine approval Yes

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	45 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	220 g
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