

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	
Rated value (DC)	Yes
<ul style="list-style-type: none"> <li>• 24 V DC</li> </ul>	
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.	$\pm 35$ 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 $\mu$ s
<b>Input ranges</b>	
• Voltage	Yes; $\pm 10$ V, $\pm 5$ V, $\pm 2.5$ V
• Current	Yes; 4 to 20 mA, 0 to 20 mA
<b>Input ranges (rated values), voltages</b>	
• -10 V to +10 V	Yes
• Input resistance (-10 V to +10 V)	$\geq 9$ MOhm
• -2.5 V to +2.5 V	Yes
• Input resistance (-2.5 V to +2.5 V)	$\geq 9$ MOhm
• -5 V to +5 V	Yes
• Input resistance (-5 V to +5 V)	$\geq 9$ MOhm
<b>Input ranges (rated values), currents</b>	
• 0 to 20 mA	Yes
• Input resistance (0 to 20 mA)	280 $\Omega$
• 4 mA to 20 mA	Yes
<b>Analog outputs</b>	
Number of analog outputs	2; Current or voltage
<b>Output ranges, voltage</b>	
• -10 V to +10 V	Yes
<b>Output ranges, current</b>	
• 0 to 20 mA	Yes
• 4 mA to 20 mA	Yes
<b>Load impedance (in rated range of output)</b>	
• with voltage outputs, min.	1 000 $\Omega$
• with current outputs, max.	600 $\Omega$
<b>Analog value generation for the inputs</b>	
Measurement principle	Differential
<b>Integration 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>Analog value generation for the outputs</b>	
<b>Integration and conversion time/resolution per channel</b>	

- 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
<b>last modified:</b>	10/13/2017