

SIMATIC S7-1200, Analog input, SB 1231, 1 AI, +/-10 V DC (12 bit resol.) or 0-20 mA



### General information

Product type designation SB 1231, AI 1x12 bit

### Supply voltage

Rated value (DC) 24 V

### Input current

from backplane bus 5 V DC, typ. 55 mA

### Power loss

Power loss, typ. 0.4 W

### Analog inputs

Number of analog inputs 1; 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.	156.25 $\mu$ s; 400 Hz suppression
<b>Input ranges</b>	
• Voltage	Yes; $\pm 10$ V, $\pm 5$ V, $\pm 2.5$ V
• Current	Yes; 0 to 20 mA
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
<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)	$\geq 250$ Ohm
<b>Analog outputs</b>	
Number of analog outputs	0
<b>Cable length</b>	
• shielded, max.	100 m; shielded, twisted pair
<b>Analog value generation for the inputs</b>	
Measurement principle	integrating
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	11 bit; + sign
• Integration time, parameterizable	Yes
• Interference voltage suppression for interference frequency f1 in Hz	40 dB, DC to 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 range), (+/-)	25 $^{\circ}$ C $\pm 0.3\%$ , to 55 $^{\circ}$ C $\pm 0.6\%$ total measurement range
<b>Interrupts/diagnostics/status information</b>	
Alarms	Yes
Diagnostics function	Yes
<b>Alarms</b>	

• Diagnostic alarm	Yes
<b>Diagnoses</b>	
• Wire-break	No
<b>Diagnostics indication LED</b>	
• for status of the inputs	Yes
• for maintenance	Yes
<b>Standards, approvals, certificates</b>	
CE mark	Yes
CSA approval	Yes
UL approval	Yes
cULus	Yes
FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
<b>Ambient conditions</b>	
<b>Free fall</b>	
• Fall height, max.	0.3 m; five times, in product package
<b>Ambient temperature during operation</b>	
• 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
<b>Ambient temperature during storage/transportation</b>	
• min.	-40 °C
• max.	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
• Operation, min.	795 hPa
• Operation, max.	1 080 hPa
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
<b>Relative humidity</b>	
• Operation at 25 °C without condensation, max.	95 %
<b>Pollutant concentrations</b>	
• SO <sub>2</sub> at RH < 60% without condensation	SO <sub>2</sub> : < 0.5 ppm; H <sub>2</sub> S: < 0.1 ppm; RH < 60% condensation-free
<b>Connection method</b>	
required front connector	Yes
<b>Mechanics/material</b>	
Enclosure material (front)	

• Plastic

Yes

### Dimensions

Width	38 mm
Height	62 mm
Depth	21 mm

### Weights

Weight, approx. 35 g

**last modified:** 08/25/2020