

SIPLUS S7-1200 SM 1231 4AI with conformal coating based on 6ES7231-5ND32-0XB0 Analog input, SM 1231, 4 AI, +/-10 V, +/-5 V, +/-2.5 V, +/-1.25 or 0-20 mA/4-20 mA, 15 bit+sign bit

### General information

Product type designation SM 1231, AI 4x16 bit

### Supply voltage

Rated value (DC)

- 24 V DC

Yes

### Input current

Current consumption, typ.

65 mA

from backplane bus 5 V DC, typ.

80 mA

### Power loss

Power loss, typ.

1.8 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

### Input ranges

- Voltage Yes;  $\pm 10$ V,  $\pm 5$ V,  $\pm 2.5$ V or  $\pm 1.25$ V
- Current Yes; 4 to 20 mA, 0 to 20 mA
- Thermocouple No
- Resistance thermometer No
- Resistance Yes

### Input ranges (rated values), voltages

- -1.25 V to +1.25 V Yes
- -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)	≥9 MOhm
<b>Input ranges (rated values), currents</b>	
• 0 to 20 mA	Yes
• 4 mA to 20 mA	Yes
<b>Analog value generation for the inputs</b>	
<b>Integration and conversion time/resolution per channel</b>	
• Resolution with overrange (bit including sign), max.	15 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 range), (+/-)	25 °C ±0.1% / ±0.3% total measurement range
<b>Basic error limit (operational limit at 25 °C)</b>	
• Voltage, relative to input range, (+/-)	0.1 %
• Current, relative to input range, (+/-)	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>	
Alarms	Yes
Diagnostic functions	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes
<b>Diagnostic messages</b>	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
<b>Diagnostics indication LED</b>	
• for status of the inputs	Yes
• for maintenance	Yes
<b>Degree and class of protection</b>	
Degree of protection acc. to EN 60529	
• IP20	Yes
<b>Standards, approvals, certificates</b>	
CE mark	Yes

Ambient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-20 °C; = Tmin; Startup @ 0 °C
• max.	60 °C; = Tmax
Ambient temperature during storage/transportation	
• min.	-40 °C
• max.	70 °C
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax - 20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Coolants and lubricants	
— Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
from supply voltage 1L+	
— Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!
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. 180 g

**last modified:** 05/18/2018