SIEMENS

Data sheet 6ES7231-5ND32-0XB0

SIMATIC S7-1200, ANALOG INPUT, SM 1231, 4 AI, +/-10V, +/-5V, +/-2.5V, +/-1.25 OR 0-20MA/4-20 MA, 15 BIT + SIGN 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.	± 15 V
permissible input voltage for voltage input (destruction limit), max.	± 35 V
permissible input current for voltage input (destruction limit), max.	40 mA; limited by input resistance 1 MOhm
permissible input current for current input (destruction limit), max.	40 mA

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Cycle time (all channels) max.	100 µs
Input ranges	
• Voltage	Yes; ±10V, ±5V, ±2.5V or ±1.25V
• Current	Yes; 4 to 20 mA, 0 to 20 mA
• Thermocouple	No
• Resistance thermometer	No
• Resistance	No
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)	≥1 MOhm
• -2.5 V to +2.5 V	Yes
• Input resistance (-2.5 V to +2.5 V)	≥1 MOhm
• -5 V to +5 V	Yes
• Input resistance (-5 V to +5 V)	≥1 MOhm
Input ranges (rated values), currents	
• 0 to 20 mA	Yes
• 4 mA to 20 mA	Yes

Analog value generation	
Integration and conversion time/resolution per channel	
• 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
Smoothing of measured values	
• parameterizable	Yes
• Step: None	Yes
• Step: low	Yes
• Step: Medium	Yes
• Step: High	Yes

Errors/accuracies	
Temperature error (relative to input range), (+/-)	25 °C ±0.1% / ±0.3% 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 %
Interference voltage suppression for f = n x (f1 +/- 1 %), f1 = interference frequency	
• Common mode voltage, max.	12 V

Interrupts/diagnostics/status information	
Alarms	Yes
Diagnostic functions	Yes

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Alarms	
• Diagnostic alarm	Yes
Diagnostic messages	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
Diagnostics indication LED	
• for status of the inputs	Yes
• for maintenance	Yes

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	
• Marine approval	Yes

Ambient conditions

Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• permissible temperature range	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing
• min.	-20 °C
• max.	60 °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	
• permissible range (without condensation) at 25 °C	95 %
Extended ambient conditions	
Pollutant concentrations	
— SO2 at RH < 60% without condensation	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free

Connection method

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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

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