

Siemens 6ES7234-4HE32-0XB0 Manual

Brand	Siemens
Product Series	Siemens
Product Type	designation SM 1234, AI 4x13 bit/AQ 2x14 bit

Description

6ES7234-4HE32-0XB0

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

General information

Product type designation SM 1234, AI 4x13 bit/AQ 2x14 bit

Supply voltage

Rated value (DC) 24 V

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 voltage input (destruction limit),

max.

35 V

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
- Thermocouple No
- Resistance thermometer No
- Resistance No

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

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- 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

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Analog value generation for the outputs

Integration and conversion time/resolution per channel

- Resolution with overrange (bit including sign), max. 14 bit; Voltage: 14 bit; Current : 13 bit

Errors/accuracies

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

Temperature error (relative to output range), (+/-) 25 °C $\pm 0.3\%$, to 55 °C $\pm 0.6\%$ 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 $f = n \times (f1 \pm 1 \%)$, $f1$ = interference frequency

- Common mode voltage, max. 12 V

Interrupts/diagnostics/status information

Alarms Yes

Diagnostics function Yes

Alarms

- Diagnostic alarm Yes

Diagnoses

- 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

IP degree of protection IP20

Standards, approvals, certificates

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

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

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Depth 75 mm

Weights

Weight, approx. 220 g

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