




Figure similar

SIPLUS S7-1200 SM 1234 4AI/2AQ based on 6ES7234-4HE32-0XB0 with conformal coating, -40...+70 °C, start up -25 °C, analog I/O +/-10 V: 14-bit resolution 0-20 mA: 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 µs   |
| Input ranges   |  |
| <ul style="list-style-type: none"> <li>• Voltage</li> <li>• Current</li> <li>• Thermocouple</li> <li>• Resistance thermometer</li> <li>• Resistance</li> </ul>   | Yes; ±10V, ±5V, ±2.5V<br>Yes; 4 to 20 mA, 0 to 20 mA<br>No<br>No<br>No |
| Input ranges (rated values), voltages  |  |
| <ul style="list-style-type: none"> <li>• -10 V to +10 V<br/>— Input resistance (-10 V to +10 V)</li> <li>• -2.5 V to +2.5 V<br/>— Input resistance (-2.5 V to +2.5 V)</li> <li>• -5 V to +5 V<br/>— Input resistance (-5 V to +5 V)</li> </ul> | Yes<br>≥9 MOhm<br>Yes<br>≥9 MOhm<br>Yes<br>≥9 MOhm                     |
| Input ranges (rated values), currents  |  |
| <ul style="list-style-type: none"> <li>• 0 to 20 mA<br/>— Input resistance (0 to 20 mA)</li> <li>• 4 mA to 20 mA</li> </ul>  | Yes<br>280 Ω<br>Yes  |
| Analog outputs   |  |
| Number of analog outputs   | 2; Current or voltage  |
| Output ranges, voltage   |  |
| <ul style="list-style-type: none"> <li>• -10 V to +10 V</li> </ul>   | Yes  |
| Output ranges, current   |  |

|  |  |
|--|--|
| • 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 Ω  |
| • with current outputs, max.   | 600 Ω  |
| <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 with overrange (bit including sign), max.   | 14 bit; Voltage: 14 bit; Current : 13 bit  |
| <b>Errors/accuracies</b>   |  |
| Temperature error (relative to input range), (+/-)   | 25 °C ±0.1 % / -40 °C to 70 °C ±0.28 % of the full-scale deflection  |
| Temperature error (relative to output range), (+/-)  | 25 °C ±0.3 % / -40 °C to 70 °C ±0.85 % of the full-scale deflection  |
| <b>Basic error limit (operational limit at 25 °C)</b>  |  |
| • 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 %  |
| <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  |
| Diagnostics function   | Yes  |
| <b>Alarms</b>  |  |
| • Diagnostic alarm   | Yes  |
| <b>Diagnoses</b>   |  |
| • Monitoring the supply voltage  | Yes  |
| • Wire-break   | Yes  |
| • Short-circuit  | Yes  |
| <b>Diagnostics indication LED</b>  |  |
| • for status of the inputs   | Yes  |
| • for status of the outputs  | Yes  |
| • for maintenance  | Yes  |
| <b>Potential separation</b>  |  |
| <b>Potential separation analog outputs</b>   |  |
| • between the channels and the power supply of the electronics   | No   |
| <b>Degree and class of protection</b>  |  |
| IP degree of protection  | IP20   |
| <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.   | -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C   |
| • max.   | 70 °C; = Tmax; Tmax > +60 °C number of simultaneously used outputs 1, inputs 2 (no adjacent points) for horizontal mounting position |
| <b>Ambient temperature during storage/transportation</b>   |  |
| • min.   | -40 °C   |
| • max.   | 70 °C  |

|   |  |
|---|--|
| <b>Altitude during operation relating to sea level</b>  |  |
| <ul style="list-style-type: none"> <li>• Installation altitude above sea level, max.</li> <li>• Ambient air temperature-barometric pressure-altitude</li> </ul>   | 5 000 m<br>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) |
| <b>Relative humidity</b>  |  |
| <ul style="list-style-type: none"> <li>• With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>   | 100 %; RH incl. condensation/frost (no commissioning under condensation conditions)  |
| <b>Resistance</b>   |  |
| <b>Coolants and lubricants</b>  |  |
| — Resistant to commercially available coolants and lubricants   | Yes; Incl. diesel and oil droplets in the air  |
| <b>Use in stationary industrial systems</b>   |  |
| — 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, *   |
| <b>Use on ships/at sea</b>  |  |
| — 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; *   |
| <b>Usage in industrial process technology</b>   |  |
| — Against chemically active substances acc. to EN 60654-4   | Yes; Class 3 (excluding trichlorethylene)  |
| — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04  | Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)  |
| <b>Remark</b>   |  |
| — Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04   | * The supplied plug covers must remain in place over the unused interfaces during operation!   |
| <b>Conformal coating</b>  |  |
| <ul style="list-style-type: none"> <li>• Coatings for printed circuit board assemblies acc. to EN 61086</li> <li>• Protection against fouling acc. to EN 60664-3</li> <li>• Military testing according to MIL-I-46058C, Amendment 7</li> <li>• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A</li> </ul> | Yes; Class 2 for high reliability<br><br>Yes; Type 1 protection<br>Yes; Discoloration of coating possible during service life<br><br>Yes; Conformal coating, Class A   |
| <b>connection method / header</b>   |  |
| required front connector  | Yes  |
| <b>Mechanics/material</b>   |  |
| Enclosure material (front) <ul style="list-style-type: none"> <li>• Plastic</li> </ul>  | Yes  |
| <b>Dimensions</b>   |  |
| Width   | 45 mm  |
| Height  | 100 mm   |
| Depth   | 75 mm  |
| <b>Weights</b>  |  |
| Weight, approx.   | 220 g  |
| <b>last modified:</b>   | 3/11/2021   |