



SIPLUS S7-1200 SB 1231 1AI RTD based on 6ES7231-5PA30-0XB0 with conformal coating, -40...+60 °C, start up -25 °C, SIPLUS S7-1200, analog input, SB 1231RTD, 1 AI RTD, Pt100 and Pt1000

| General information                                                   |                                    |
|-----------------------------------------------------------------------|------------------------------------|
| Product type designation                                              | SB 1231, AI 1x16 bit RTD           |
| based on                                                              | <a href="#">6ES7231-5PA30-0XB0</a> |
| Supply voltage                                                        |                                    |
| Rated value (DC)                                                      | 24 V                               |
| Input current                                                         |                                    |
| Current consumption, typ.                                             | 5 mA                               |
| from backplane bus 5 V DC, typ.                                       | 20 mA                              |
| Power loss                                                            |                                    |
| Power loss, typ.                                                      | 0.5 W                              |
| Analog inputs                                                         |                                    |
| Number of analog inputs                                               | 1; Resistance thermometer          |
| permissible input voltage for current input (destruction limit), max. | ±35 V                              |
| Technical unit for temperature measurement adjustable                 | Degrees Celsius/degrees Fahrenheit |
| Input ranges                                                          |                                    |
| • Voltage                                                             | Yes                                |
| • Current                                                             | No                                 |
| • Thermocouple                                                        | No                                 |
| • Resistance thermometer                                              | Yes; Platinum (Pt)                 |
| • Resistance                                                          | Yes; 150 Ω, 300 Ω, 600 Ω           |
| Input ranges (rated values), voltages                                 |                                    |
| • -80 mV to +80 mV                                                    |                                    |
| — Input resistance (-80 mV to +80 mV)                                 | >= 10 MOhm                         |
| Input ranges (rated values), resistance thermometer                   |                                    |
| • Pt 100                                                              | Yes                                |
| — Input resistance (Pt 100)                                           | 100 Ω                              |
| • Pt 1000                                                             | Yes                                |
| — Input resistance (Pt 1000)                                          | 1 000 Ω                            |
| • Pt 200                                                              | Yes                                |
| — Input resistance (Pt 200)                                           | 200 Ω                              |
| • Pt 500                                                              | Yes                                |
| — Input resistance (Pt 500)                                           | 500 Ω                              |
| Input ranges (rated values), resistors                                |                                    |
| • 0 to 150 ohms                                                       | Yes                                |
| • 0 to 300 ohms                                                       | Yes                                |
| • 0 to 600 ohms                                                       | Yes                                |
| Thermocouple (TC)                                                     |                                    |
| Temperature compensation                                              |                                    |
| — parameterizable                                                     | No                                 |

|                                                                                                                  |                                                                                                                                                                                                                 |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <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.                                                           | 15 bit; + sign                                                                                                                                                                                                  |
| • Integration time, parameterizable                                                                              | No                                                                                                                                                                                                              |
| • Interference voltage suppression for interference frequency f1 in Hz                                           | 85 dB at 10 / 50 / 60 / 400 Hz                                                                                                                                                                                  |
| <b>Errors/accuracies</b>                                                                                         |                                                                                                                                                                                                                 |
| Temperature error (relative to input range), (+/-)                                                               | 25 °C ±0.1%, up to 55 °C ±0.25% total measurement range                                                                                                                                                         |
| Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)                                       | 0.05 %                                                                                                                                                                                                          |
| <b>Interference voltage suppression for <math>f = n \times (f1 \pm 1 \%)</math>, f1 = interference frequency</b> |                                                                                                                                                                                                                 |
| • Common mode interference, min.                                                                                 | 120 dB                                                                                                                                                                                                          |
| <b>Interrupts/diagnostics/status information</b>                                                                 |                                                                                                                                                                                                                 |
| Alarms                                                                                                           | Yes                                                                                                                                                                                                             |
| Diagnostics function                                                                                             | Yes; Can be read out                                                                                                                                                                                            |
| <b>Alarms</b>                                                                                                    |                                                                                                                                                                                                                 |
| • Diagnostic alarm                                                                                               | Yes                                                                                                                                                                                                             |
| <b>Diagnoses</b>                                                                                                 |                                                                                                                                                                                                                 |
| • Wire-break                                                                                                     | Yes                                                                                                                                                                                                             |
| <b>Diagnostics indication LED</b>                                                                                |                                                                                                                                                                                                                 |
| • for status of the inputs                                                                                       | Yes                                                                                                                                                                                                             |
| • for maintenance                                                                                                | 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.                                                                                                           | -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C                                                                                                                                                    |
| • max.                                                                                                           | 60 °C; = Tmax                                                                                                                                                                                                   |
| • vertical installation, min.                                                                                    | -40 °C; = Tmin; Startup @ -25 °C                                                                                                                                                                                |
| • vertical installation, max.                                                                                    | 50 °C; = Tmax                                                                                                                                                                                                   |
| <b>Ambient temperature during storage/transportation</b>                                                         |                                                                                                                                                                                                                 |
| • min.                                                                                                           | -40 °C                                                                                                                                                                                                          |
| • max.                                                                                                           | 70 °C                                                                                                                                                                                                           |
| <b>Altitude during operation relating to sea level</b>                                                           |                                                                                                                                                                                                                 |
| • 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) |
| <b>Relative humidity</b>                                                                                         |                                                                                                                                                                                                                 |
| • With condensation, tested in accordance with IEC 60068-2-38, max.                                              | 100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation                                                                                                               |
| <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; *                                                                                                                                                                              |

|                                                                                              |                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Usage in industrial process technology                                                       |                                                                                                                                                                                     |
| — 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) |

|                                                                                                             |                                                                                              |
|-------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| Remark                                                                                                      |                                                                                              |
| — 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! |

|                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Conformal coating                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                          |
| <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><br>Yes; Discoloration of coating possible during service life<br><br>Yes; Conformal coating, Class A |

|                          |     |
|--------------------------|-----|
| connection method        |     |
| required front connector | Yes |

|                                                           |     |
|-----------------------------------------------------------|-----|
| Mechanics/material                                        |     |
| Enclosure material (front)                                |     |
| <ul style="list-style-type: none"> <li>Plastic</li> </ul> | Yes |

|            |       |
|------------|-------|
| Dimensions |       |
| Width      | 38 mm |
| Height     | 62 mm |
| Depth      | 21 mm |

|                 |      |
|-----------------|------|
| Weights         |      |
| Weight, approx. | 35 g |

|                 |        |         |                |
|-----------------|--------|---------|----------------|
| Classifications |        |         |                |
|                 |        | Version | Classification |
|                 | eClass | 14      | 27-24-22-01    |
|                 | eClass | 12      | 27-24-22-01    |
|                 | eClass | 9.1     | 27-24-22-01    |
|                 | eClass | 9       | 27-24-22-01    |
|                 | eClass | 8       | 27-24-22-01    |
|                 | eClass | 7.1     | 27-24-22-01    |
|                 | eClass | 6       | 27-24-22-01    |
|                 | ETIM   | 10      | EC001420       |
|                 | ETIM   | 9       | EC001420       |
|                 | ETIM   | 8       | EC001420       |
|                 | ETIM   | 7       | EC001420       |
|                 | IDEA   | 4       | 3562           |
|                 | UNSPSC | 15      | 32-15-17-05    |

|                          |     |
|--------------------------|-----|
| Approvals / Certificates |     |
| General Product Approval | EMV |



[Manufacturer Declaration](#)



[China RoHS](#)



|                                |                      |
|--------------------------------|----------------------|
| For use in hazardous locations | Maritime application |
|--------------------------------|----------------------|



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7/30/2025

