



Figure similar

SIPLUS S7-1200 SM 1223 8DI/8DQ based on 6ES7223-1BH32-0XB0 with conformal coating, -40...+70 °C, start up -25 °C, digital input/output SM 1223, 8 DI/8 DQ, 8 DI 24 V DC, sink/source, 8 DQ, transistor 0.5 A

| General information                                             |                                     |
|-----------------------------------------------------------------|-------------------------------------|
| Product type designation                                        | SM 1223, DI 8x24 V DC, DQ 8x24 V DC |
| based on                                                        | <a href="#">6ES7223-1BH32-0XB0</a>  |
| Supply voltage                                                  |                                     |
| Rated value (DC)                                                | 24 V                                |
| permissible range, lower limit (DC)                             | 20.4 V                              |
| permissible range, upper limit (DC)                             | 28.8 V                              |
| Input current                                                   |                                     |
| from backplane bus 5 V DC, max.                                 | 145 mA                              |
| Digital inputs                                                  |                                     |
| • from load voltage L+ (without load), max.                     | 4 mA; per channel                   |
| output voltage / header                                         |                                     |
| supply voltage of the transmitters / header                     |                                     |
| • present                                                       | Yes                                 |
| Power loss                                                      |                                     |
| Power loss, typ.                                                | 2.5 W                               |
| Digital inputs                                                  |                                     |
| Number of digital inputs                                        | 8                                   |
| • in groups of                                                  | 2                                   |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes                                 |
| Number of simultaneously controllable inputs                    |                                     |
| all mounting positions                                          |                                     |
| — up to 40 °C, max.                                             | 8                                   |
| horizontal installation                                         |                                     |
| — up to 40 °C, max.                                             | 8                                   |
| — up to 50 °C, max.                                             | 8                                   |
| vertical installation                                           |                                     |
| — up to 40 °C, max.                                             | 8                                   |
| Input voltage                                                   |                                     |
| • Type of input voltage                                         | DC                                  |
| • Rated value (DC)                                              | 24 V                                |
| • for signal "0"                                                | 5 V DC at 1 mA                      |
| • for signal "1"                                                | 15 V DC at 2.5 mA                   |
| Input current                                                   |                                     |
| • for signal "0", max. (permissible quiescent current)          | 1 mA                                |
| • for signal "1", min.                                          | 2.5 mA                              |
| • for signal "1", typ.                                          | 4 mA                                |
| Input delay (for rated value of input voltage)                  |                                     |
| for standard inputs                                             |                                     |

|                                                                |                                                                                               |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| — parameterizable                                              | Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four |
| for interrupt inputs                                           |                                                                                               |
| — parameterizable                                              | Yes                                                                                           |
| Cable length                                                   |                                                                                               |
| • shielded, max.                                               | 500 m                                                                                         |
| • unshielded, max.                                             | 300 m                                                                                         |
| <b>Digital outputs</b>                                         |                                                                                               |
| Number of digital outputs                                      | 8                                                                                             |
| • in groups of                                                 | 1                                                                                             |
| Short-circuit protection                                       | No; to be provided externally                                                                 |
| Limitation of inductive shutdown voltage to                    | L+ (-48 V)                                                                                    |
| Switching capacity of the outputs                              |                                                                                               |
| • with resistive load, max.                                    | 0.5 A                                                                                         |
| • on lamp load, max.                                           | 5 W                                                                                           |
| Output voltage                                                 |                                                                                               |
| • Rated value (DC)                                             | 24 V                                                                                          |
| • for signal "0", max.                                         | 0.1 V; with 10 kOhm load                                                                      |
| • for signal "1", min.                                         | 20 V DC                                                                                       |
| Output current                                                 |                                                                                               |
| • for signal "1" rated value                                   | 0.5 A                                                                                         |
| • for signal "1" permissible range, max.                       | 0.5 A                                                                                         |
| • for signal "0" residual current, max.                        | 10 µA                                                                                         |
| Output delay with resistive load                               |                                                                                               |
| • "0" to "1", max.                                             | 50 µs                                                                                         |
| • "1" to "0", max.                                             | 200 µs                                                                                        |
| Total current of the outputs (per group)                       |                                                                                               |
| horizontal installation                                        |                                                                                               |
| — up to 50 °C, max.                                            | 4 A; Current per mass                                                                         |
| Cable length                                                   |                                                                                               |
| • shielded, max.                                               | 500 m                                                                                         |
| • unshielded, max.                                             | 150 m                                                                                         |
| <b>Interrupts/diagnostics/status information</b>               |                                                                                               |
| Alarms                                                         | Yes                                                                                           |
| Diagnostics function                                           | Yes                                                                                           |
| Alarms                                                         |                                                                                               |
| • Diagnostic alarm                                             | Yes                                                                                           |
| Diagnoses                                                      |                                                                                               |
| • Monitoring the supply voltage                                | Yes                                                                                           |
| Diagnostics indication LED                                     |                                                                                               |
| • for status of the inputs                                     | Yes                                                                                           |
| • for status of the outputs                                    | Yes                                                                                           |
| • for maintenance                                              | Yes                                                                                           |
| <b>Potential separation</b>                                    |                                                                                               |
| Potential separation digital inputs                            |                                                                                               |
| • between the channels, in groups of                           | 2                                                                                             |
| Potential separation digital outputs                           |                                                                                               |
| • between the channels, in groups of                           | 1                                                                                             |
| • between the channels and backplane bus                       | 500 V AC                                                                                      |
| <b>Degree and class of protection</b>                          |                                                                                               |
| IP degree of protection                                        | IP20                                                                                          |
| <b>Standards, approvals, certificates</b>                      |                                                                                               |
| Ecological footprint                                           |                                                                                               |
| • environmental product declaration                            | Yes                                                                                           |
| Global warming potential                                       |                                                                                               |
| — global warming potential, (total) [CO2 eq]                   | 123 kg                                                                                        |
| — global warming potential, (during production) [CO2 eq]       | 12.1 kg                                                                                       |
| — global warming potential, (during operation) [CO2 eq]        | 111 kg                                                                                        |
| — global warming potential, (after end of life cycle) [CO2 eq] | -0.434 kg                                                                                     |

| Ambient conditions                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Free fall                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>Fall height, max.</li></ul>                                                                                                                                                                                                                                                                                                  | 0.3 m; five times, in product package                                                                                                                                                                                                |
| Ambient temperature during operation                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>min.</li><li>max.</li></ul>                                                                                                                                                                                                                                                                                                  | -40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C<br>70 °C; = Tmax; Tmax > +60 °C number of simultaneously activated outputs 4, inputs 4 (no adjacent points) for horizontal mounting position                            |
| <ul style="list-style-type: none"><li>At cold restart, min.</li></ul>                                                                                                                                                                                                                                                                                              | -25 °C                                                                                                                                                                                                                               |
| Ambient temperature during storage/transportation                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>min.</li><li>max.</li></ul>                                                                                                                                                                                                                                                                                                  | -40 °C<br>70 °C                                                                                                                                                                                                                      |
| Altitude during operation relating to sea level                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                      |
| <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)           |
| Relative humidity                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                      |
| <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)                                                                                                                                                  |
| Resistance                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                      |
| Coolants and lubricants                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>Resistant to commercially available coolants and lubricants</li></ul>                                                                                                                                                                                                                                                        | Yes                                                                                                                                                                                                                                  |
| Use in stationary industrial systems                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>to biologically active substances according to EN 60721-3-3</li><li>to chemically active substances according to EN 60721-3-3</li><li>to mechanically active substances according to EN 60721-3-3</li></ul>                                                                                                                  | Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request<br>Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *<br>Yes; Class 3S4 incl. sand, dust, * |
| Use on ships/at sea                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>to biologically active substances according to EN 60721-3-6</li><li>to chemically active substances according to EN 60721-3-6</li><li>to mechanically active substances according to EN 60721-3-6</li></ul>                                                                                                                  | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request<br>Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *<br>Yes; Class 6S3 incl. sand, dust; *                      |
| Usage in industrial process technology                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>Against chemically active substances acc. to EN 60654-4</li><li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04</li></ul>                                                                                                                                                         | Yes; Class 3 (excluding trichlorethylene)<br><br>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                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                      |
| <ul style="list-style-type: none"><li>Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04</li></ul>                                                                                                                                                                                                          | * 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>Yes; Discoloration of coating possible during service life<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                                                                                                                                                                                                                                                                                                                                                              | 45 mm                                                                                                                                                                                                                                |
| Height                                                                                                                                                                                                                                                                                                                                                             | 100 mm                                                                                                                                                                                                                               |
| Depth                                                                                                                                                                                                                                                                                                                                                              | 75 mm                                                                                                                                                                                                                                |
| Weights                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                      |
| Weight, approx.                                                                                                                                                                                                                                                                                                                                                    | 210 g                                                                                                                                                                                                                                |

