

Siemens  
EcoTech



SIMATIC S7-1200 G2: SM 1223 digital I/O, 8 DI/8 RLY; inputs: 8x DI 24 V DC sink/source; outputs: 8x DO relay 2 A

Figure similar

| General information  |   |
|--|---|
| Product type designation   | SM 1223, DI 8x 24 V DC, DQ 8x relay                 |
| 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.  | 105 mA  |
| Digital inputs   |   |
| <ul style="list-style-type: none"> <li>from load voltage L+ (without load), max.</li> </ul>  | 4.1 mA; per channel                                 |
| Digital outputs  |   |
| <ul style="list-style-type: none"> <li>from load voltage L+, max.</li> </ul>   | 9 mA; per relay coil                                |
| Power loss   |   |
| Power loss, typ.   | 4.8 W   |
| Digital inputs   |   |
| Number of digital inputs   | 8   |
| <ul style="list-style-type: none"> <li>in groups of</li> </ul>   | 4   |
| 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  |   |
| <ul style="list-style-type: none"> <li>Type of input voltage</li> <li>Rated value (DC)</li> <li>for signal "0"</li> <li>for signal "1"</li> </ul>                  | DC<br>24 V<br>5 V DC or 0.5 mA<br>15 V DC at 2.5 mA |
| Input current  |   |
| <ul style="list-style-type: none"> <li>for signal "0", max. (permissible quiescent current)</li> <li>for signal "1", min.</li> <li>for signal "1", typ.</li> </ul> | 1 mA<br>2.5 mA<br>4 mA                              |

|   |   |
|---|---|
| <b>Input delay (for rated value of input voltage)</b> |   |
| 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                                     | No  |
| <b>Cable length</b>                                   |   |
| • shielded, max.                                      | 500 m   |
| • unshielded, max.                                    | 300 m   |
| <b>Digital outputs</b>                                |   |
| Number of digital outputs                             | 8   |
| • in groups of  | 8   |
| Short-circuit protection                              | No; to be provided externally   |
| <b>Switching capacity of the outputs</b>              |   |
| • with resistive load, max.                           | 2 A   |
| • on lamp load, max.                                  | 30 W with DC, 200 W with AC   |
| <b>Output voltage</b>                                 |   |
| • Rated value (DC)                                    | 5 V DC to 30 V DC   |
| • Rated value (AC)                                    | 5 V AC to 250 V AC  |
| <b>Output current</b>                                 |   |
| • for signal "1" rated value                          | 2 A   |
| <b>Output delay with resistive load</b>               |   |
| • "0" to "1", max.                                    | 10 ms   |
| • "1" to "0", max.                                    | 10 ms   |
| <b>Total current of the outputs (per group)</b>       |   |
| horizontal installation                               |   |
| — up to 50 °C, max.                                   | 16 A; Current per mass  |
| <b>Relay outputs</b>                                  |   |
| • Number of relay outputs                             | 8   |
| • Rated supply voltage of relay coil L+ (DC)          | 24 V  |
| • Number of operating cycles, max.                    | mechanically 10 million, at rated load voltage 100 000  |
| <b>Switching capacity of contacts</b>                 |   |
| — with inductive load, max.                           | 2 A   |
| — on lamp load, max.                                  | 30 W with DC, 200 W with AC   |
| — with resistive load, max.                           | 2 A   |
| <b>Cable length</b>                                   |   |
| • shielded, max.                                      | 500 m   |
| • unshielded, max.                                    | 150 m   |
| <b>Interrupts/diagnostics/status information</b>      |   |
| Diagnostics function                                  | Yes   |
| <b>Alarms</b>   |   |
| • Diagnostic alarm                                    | Yes   |
| <b>Diagnoses</b>                                      |   |
| • Monitoring the supply voltage                       | 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>                           |   |
| Potential separation digital inputs                   |   |
| • between the channels, in groups of                  | 4   |
| • between the channels and backplane bus              | Yes; 707 V DC (type test)   |
| Potential separation digital outputs                  |   |
| • between the channels                                | Relays  |
| • between the channels, in groups of                  | 8   |
| • between the channels and backplane bus              | Yes; 4 200 V DC (type test)   |
| <b>Isolation</b>                                      |   |
| Isolation tested with                                 | 1500 V AC (type test)   |
| <b>Degree and class of protection</b>                 |   |

|  |   |
|--|---|
| IP degree of protection  | IP20  |
| <b>Standards, approvals, certificates</b>  |   |
| Siemens Eco Profile (SEP)  | Siemens EcoTech   |
| CE mark  | Yes   |
| CSA approval   | No  |
| UL approval  | Yes   |
| cULus  | Yes   |
| FM approval  | No  |
| RCM (formerly C-TICK)  | Yes   |
| KC approval  | Yes   |
| Marine approval  | No  |
| <b>Ecological footprint</b>  |   |
| <ul style="list-style-type: none"> <li>environmental product declaration</li> </ul>                              | Yes; type 2 acc. to ISO 14021   |
| <b>Global warming potential</b>  |   |
| <ul style="list-style-type: none"> <li>— global warming potential, (total) [CO2 eq]</li> </ul>                   | 40.3 kg   |
| <ul style="list-style-type: none"> <li>— global warming potential, (during production) [CO2 eq]</li> </ul>       | 7.79 kg   |
| <ul style="list-style-type: none"> <li>— global warming potential, (during operation) [CO2 eq]</li> </ul>        | 32.5 kg   |
| <ul style="list-style-type: none"> <li>— global warming potential, (after end of life cycle) [CO2 eq]</li> </ul> | -0.089 kg   |
| <b>Ambient conditions</b>  |   |
| <b>Free fall</b>   |   |
| <ul style="list-style-type: none"> <li>Fall height, max.</li> </ul>  | 0.3 m; five times, in product package   |
| <b>Ambient temperature during operation</b>  |   |
| <ul style="list-style-type: none"> <li>min.</li> </ul>   | -20 °C; No condensation   |
| <ul style="list-style-type: none"> <li>max.</li> </ul>   | 40 °C; at max. voltages and max. specifications   |
| <ul style="list-style-type: none"> <li>horizontal installation, min.</li> </ul>                                  | -20 °C; No condensation   |
| <ul style="list-style-type: none"> <li>horizontal installation, max.</li> </ul>                                  | 60 °C; at rated voltages, 50 % of max. specification and alternate IO active              |
| <ul style="list-style-type: none"> <li>vertical installation, min.</li> </ul>                                    | -20 °C; No condensation   |
| <ul style="list-style-type: none"> <li>vertical installation, max.</li> </ul>                                    | 50 °C; at rated voltages, 50 % of max. specification and alternate IO active              |
| <ul style="list-style-type: none"> <li>permissible temperature change</li> </ul>                                 | 5°C to 55°C, 3°C / minute   |
| <b>Ambient temperature during storage/transportation</b>   |   |
| <ul style="list-style-type: none"> <li>min.</li> </ul>   | -40 °C  |
| <ul style="list-style-type: none"> <li>max.</li> </ul>   | 70 °C   |
| <b>Air pressure acc. to IEC 60068-2-13</b>   |   |
| <ul style="list-style-type: none"> <li>Operation, min.</li> </ul>  | 540 hPa   |
| <ul style="list-style-type: none"> <li>Operation, max.</li> </ul>  | 1 140 hPa   |
| <ul style="list-style-type: none"> <li>Storage/transport, min.</li> </ul>  | 540 hPa   |
| <ul style="list-style-type: none"> <li>Storage/transport, max.</li> </ul>  | 1 140 hPa   |
| <b>Altitude during operation relating to sea level</b>   |   |
| <ul style="list-style-type: none"> <li>Installation altitude, min.</li> </ul>                                    | -1 000 m  |
| <ul style="list-style-type: none"> <li>Installation altitude, max.</li> </ul>                                    | 4 000 m; Restrictions for installation altitudes > 2 000 m, see manual                    |
| <b>Relative humidity</b>   |   |
| <ul style="list-style-type: none"> <li>Operation at 25 °C without condensation, max.</li> </ul>                  | 95 %  |
| <b>Vibrations</b>  |   |
| <ul style="list-style-type: none"> <li>Vibration resistance during operation acc. to IEC 60068-2-6</li> </ul>    | 3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz  |
| <ul style="list-style-type: none"> <li>Operation, tested according to IEC 60068-2-6</li> </ul>                   | Yes   |
| <b>Shock testing</b>   |   |
| <ul style="list-style-type: none"> <li>tested according to IEC 60068-2-27</li> </ul>                             | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms |
| <b>Pollutant concentrations</b>  |   |
| <ul style="list-style-type: none"> <li>SO2 at RH &lt; 60% without condensation</li> </ul>                        | SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free                               |
| <b>Connection method</b>   |   |
| required front connector   | No  |
| <b>Mechanics/material</b>  |   |
| Enclosure material (front)   |   |
| <ul style="list-style-type: none"> <li>Plastic</li> </ul>  | Yes   |
| <b>Dimensions</b>  |   |

|                 |        |
|-----------------|--------|
| Width           | 30 mm  |
| Height          | 125 mm |
| Depth           | 100 mm |
| <b>Weights</b>  |        |
| Weight, approx. | 194 g  |

| <b>Classifications</b> |                |                       |
|------------------------|----------------|-----------------------|
|                        | <b>Version</b> | <b>Classification</b> |
| eClass                 | 14             | 27-24-22-04           |
| eClass                 | 12             | 27-24-22-04           |
| eClass                 | 9.1            | 27-24-22-04           |
| eClass                 | 9              | 27-24-22-04           |
| eClass                 | 8              | 27-24-22-04           |
| eClass                 | 7.1            | 27-24-22-04           |
| eClass                 | 6              | 27-24-22-04           |
| ETIM                   | 10             | EC001419              |
| ETIM                   | 9              | EC001419              |
| ETIM                   | 8              | EC001419              |
| ETIM                   | 7              | EC001419              |

**Approvals / Certificates**

General Product Approval



[Miscellaneous](#)

[China RoHS](#)



| EMV | For use in hazardous locations | Test Certificates |  |                        |  |
|-----|--------------------------------|-------------------|--|------------------------|--|
|     |                                |                   |  | <a href="#">CCC-Ex</a> | <a href="#">Type Test Certificates/Test Report</a> |

| Maritime application | Environment |  |  |  |
|----------------------|-------------|--|--|--|
|                      |             |  |  |  |

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