



SIMATIC S7-1200 G2, SM 1223 digital I/O, 16 DI / 16 DO, inputs: 16x DI 24 V DC, sourcing/sinking input, outputs: 16x DO, sourcing output, PNP transistor 0.5 A

| General information | |
|--|---|
| Product type designation | SM 1223, DI 16x24 V DC, DO 16x24 V DC |
| 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 | |
| Current consumption, typ. | 45 mA |
| from backplane bus 5 V DC, max. | 165 mA |
| Digital inputs | |
| <ul style="list-style-type: none"> from load voltage L+ (without load), max. | 4.1 mA; per channel |
| Power loss | |
| Power loss, typ. | 4.6 W |
| Digital inputs | |
| Number of digital inputs | 16 |
| <ul style="list-style-type: none"> in groups of | 4 |
| Sourcing/sinking input | Yes |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes |
| Number of simultaneously controllable inputs | |
| all mounting positions | |
| — up to 40 °C, max. | 16 |
| horizontal installation | |
| — up to 40 °C, max. | 16 |
| — up to 50 °C, max. | 16 |
| vertical installation | |
| — up to 40 °C, max. | 16 |
| Input voltage | |
| <ul style="list-style-type: none"> Rated value (DC) for signal "0" for signal "1" | 24 V 5 V DC or 0.5 mA 15 V DC at 2.5 mA |
| Input current | |
| <ul style="list-style-type: none"> for signal "0", max. (permissible quiescent current) for signal "1", min. for signal "1", typ. | 1 mA 2.5 mA 4.1 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 | No |
| Cable length | |
| • shielded, max. | 500 m |
| • unshielded, max. | 300 m |
| Digital outputs | |
| Number of digital outputs | 16 |
| • in groups of | 8 |
| Short-circuit protection | No; to be provided externally |
| Limitation of inductive shutdown voltage to | typ. (L+) -40 V, 1 W dissipation |
| 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 |
| Relay outputs | |
| Switching capacity of contacts | |
| — with inductive load, max. | 0.5 A |
| — on lamp load, max. | 5 W |
| — with resistive load, max. | 0.5 A |
| Cable length | |
| • shielded, max. | 500 m |
| • unshielded, max. | 150 m |
| Interrupts/diagnostics/status information | |
| Diagnostics function | Yes |
| Alarms | |
| • Diagnostic alarm | Yes |
| Diagnoses | |
| • Monitoring the supply voltage | Yes |
| Diagnostics indication LED | |
| • DIAG LED | Yes |
| • for status of the inputs | Yes |
| • for status of the outputs | Yes |
| Potential separation | |
| 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, in groups of | 8 |
| • between the channels and backplane bus | Yes; 707 V DC (type test) |
| Isolation | |
| Isolation tested with | 707 V DC (type test) |
| Degree and class of protection | |
| IP degree of protection | IP20 |
| Standards, approvals, certificates | |
| 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 |

Ambient conditions

Free fall

- Fall height, max. 0.3 m; five times, in product package

Ambient temperature during operation

- horizontal installation, min. -20 °C
- horizontal installation, max. 60 °C; at max. voltages and max. specification
- vertical installation, min. -20 °C
- vertical installation, max. 50 °C; at max. voltages and max. specification
- permissible temperature change 5°C to 55°C, 3°C / minute

Ambient temperature during storage/transportation

- min. -40 °C
- max. 70 °C

Air pressure acc. to IEC 60068-2-13

- Operation, min. 540 hPa
- Operation, max. 1 140 hPa
- Storage/transport, min. 540 hPa
- Storage/transport, max. 1 140 hPa

Altitude during operation relating to sea level

- Installation altitude, min. -1 000 m
- Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual

Relative humidity

- Operation at 25 °C without condensation, max. 95 %

Vibrations

- Vibration resistance during operation acc. to IEC 60068-2-6 3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz
- Operation, tested according to IEC 60068-2-6 Yes

Shock testing

- tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms

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 | No |
|--------------------------|----|

Mechanics/material

| | |
|----------------------------|-----|
| Enclosure material (front) | |
| • Plastic | Yes |

Dimensions

| | |
|--------|--------|
| Width | 50 mm |
| Height | 125 mm |
| Depth | 100 mm |

Weights

| | |
|-----------------|-------|
| Weight, approx. | 262 g |
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Classifications

| | Version | Classification |
|--------|---------|----------------|
| 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 |

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|------|---|----------|
| ETIM | 9 | EC001419 |
| ETIM | 8 | EC001419 |
| ETIM | 7 | EC001419 |

Approvals / Certificates

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|--------------------------|--------------------------------|
| General Product Approval | For use in hazardous locations |
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[Miscellaneous](#)



[CCC-Ex](#)

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