

SIMATIC S7-1200, DIGITAL I/O SM 1223, 16DI / 16DO, 16DI DC 24 V, SINK/SOURCE, 16DO, RELAY 2A



Supply voltage

| | |
|---|--------|
| Rated value (DC) | |
| <ul style="list-style-type: none"> • 24 V DC | Yes |
| 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. | 180 mA |
| Digital inputs | |
| <ul style="list-style-type: none"> • from load voltage L+ (without load), max. | 4 mA/input 11 mA/relay |

Output voltage

| | |
|---|-----|
| Power supply to the transmitters | |
| <ul style="list-style-type: none"> • present | Yes |

Power losses

| | |
|------------------|------|
| Power loss, typ. | 10 W |
|------------------|------|

Digital inputs

| | |
|--|-----|
| Number of digital inputs | 16 |
| <ul style="list-style-type: none"> • 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. | 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 | |
| • Type of input voltage | DC |
| • Rated value (DC) | 24 V |
| • for signal "0" | 5 V DC at 1 mA |
| • for signal "1" | 15 VDC 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; Typical |
| 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 |
| Digital outputs | |
| Number of digital outputs | 16 |
| • In groups of | 4 |
| short-circuit protection | No; to be provided externally |
| Switching capacity of the outputs | |
| • with resistive load, max. | 2 A |
| • on lamp load, max. | 30 W with DC, 200 W with AC |
| Output voltage | |
| • Rated value (DC) | 5 V DC to 30 V DC |
| • Rated value (AC) | 5 V AC to 250 V AC |
| Output current | |
| • for signal "1" permissible range, max. | 2 A |
| Output delay with resistive load | |
| • "0" to "1", max. | 10 ms |
| • "1" to "0", max. | 10 ms |
| Aggregate current of outputs (per group) | |
| horizontal installation | |
| — up to 50 °C, max. | 8 A; Current per mass |
| Relay outputs | |

| | |
|---|--|
| • Number of relay outputs | 16 |
| • Rated input voltage of relay coil L+ (DC) | 24 V |
| • Number of operating cycles, max. | mechanically 10 million, at rated load voltage 100,000 |
| Switching capacity of contacts | |
| — with inductive load, max. | 2 A |
| — on lamp load, max. | 30 W with DC, 200 W with AC |
| — with resistive load, max. | 2 A |
| Cable length | |
| • shielded, max. | 500 m |
| • Unshielded, max. | 150 m |

Interrupts/diagnostics/status information

| | |
|---|-----|
| Alarms | |
| • Alarms | Yes |
| • Diagnostic alarm | Yes |
| Diagnostic messages | |
| • Diagnostic functions | Yes |
| • Monitoring the supply voltage | Yes |
| Diagnostics indication LED | |
| • for status of the inputs | Yes |
| • For status of the outputs | Yes |
| • for maintenance | Yes |
| • Status indicator digital output (green) | Yes |
| • Status indicator digital input (green) | Yes |

Potential separation

| | |
|--|------------------------|
| Potential separation digital inputs | |
| • between the channels, in groups of | 2 |
| Potential separation digital outputs | |
| • between the channels | Relays |
| • between the channels, in groups of | 4 |
| • between the channels and the backplane bus | 1500 V AC for 1 minute |

Permissible potential difference

| | |
|----------------------------|-----------------------|
| between different circuits | 750 V AC for 1 minute |
|----------------------------|-----------------------|

Degree and class of protection

| | |
|---|-----|
| Degree of protection to EN 60529 | |
| • IP20 | Yes |

Standards, approvals, certificates

| | |
|--------------|-----|
| CE mark | Yes |
| CSA approval | Yes |
| UL approval | Yes |
| cULus | Yes |

| | |
|------------------------|-----|
| FM approval | Yes |
| RCM (formerly C-TICK) | Yes |
| Marine approval | |
| • Marine approval | Yes |

Ambient conditions

Free fall

| | |
|------------------------------------|--|
| • Drop height, max. (in packaging) | 0.3 m; five times, in dispatch package |
|------------------------------------|--|

Ambient temperature in operation

| | |
|----------------------------------|---|
| • Permissible temperature range | -20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing |
| • Min. | -20 °C |
| • max. | 60 °C; Number of simultaneously activated outputs: 8 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 16 at 55 °C horizontal or 45 °C vertical |
| • 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

| | |
|---------------------------|-----------|
| • Storage/transport, min. | 660 hPa |
| • Storage/transport, max. | 1 080 hPa |

Relative humidity

| | |
|---|------|
| • Permissible range (without condensation) at 25 °C | 95 % |
|---|------|

Connection method

| | |
|--------------------------|-----|
| required front connector | Yes |
|--------------------------|-----|

Mechanics/material

| | |
|-------------------------|-----|
| Type of housing (front) | |
| • plastic | Yes |

Dimensions

| | |
|--------|--------|
| Width | 70 mm |
| Height | 100 mm |
| Depth | 75 mm |

Weights

| | |
|-----------------|-------|
| Weight, approx. | 350 g |
|-----------------|-------|

last modified: 20.04.2015