

SIMATIC S7-1200, Digital I/O SM 1223, 16 DI/16 DO, 16 DI 24 V DC, Sink/Source, 16 DO, relay 2 A



### General information

|                          |                                      |
|--------------------------|--------------------------------------|
| Product type designation | SM 1223, DI 16x24 V DC, DQ 16x 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. | 180 mA |
|---------------------------------|--------|

### Digital inputs

|   |                        |
|---|------------------------|
| <ul style="list-style-type: none"> <li>from load voltage L+ (without load), max.</li> </ul> | 4 mA/input 11 mA/relay |
|---|------------------------|

### Output voltage

#### Power supply to the transmitters

|   |     |
|---|-----|
| <ul style="list-style-type: none"> <li>present</li> </ul> | Yes |
|---|-----|

### Power loss

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

### Digital inputs

|                          |    |
|--------------------------|----|
| Number of digital inputs | 16 |
|--------------------------|----|

|   |   |
|---|---|
| • in groups of  | 2   |
| Input characteristic curve in accordance with IEC 61131, type 1 | Yes   |
| <b>Number of simultaneously controllable inputs</b>             |   |
| 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  |
| <b>Input voltage</b>  |   |
| • 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   |
| <b>Input current</b>  |   |
| • for signal "0", max. (permissible quiescent current)          | 1 mA  |
| • for signal "1", min.  | 2.5 mA  |
| • for signal "1", typ.  | 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   | Yes   |
| <b>Cable length</b>   |   |
| • shielded, max.  | 500 m   |
| • unshielded, max.  | 300 m   |
| <b>Digital outputs</b>  |   |
| Number of digital outputs                                       |   |
| • in groups of  | 4   |
| 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   |

|  |  |
|--|--|
| • for signal "1" permissible range, max.         | 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.                              | 8 A; Current per mass                                  |
| <b>Relay outputs</b>                             |  |
| • Number of relay outputs                        | 16   |
| • 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> |  |
| <b>Alarms</b>                                    |  |
| • Diagnostic alarm                               | Yes  |
| <b>Diagnostics indication LED</b>                |  |
| • for status of the inputs                       | Yes  |
| • for status of the outputs                      | Yes  |
| <b>Potential separation</b>                      |  |
| <b>Potential separation digital inputs</b>       |  |
| • between the channels, in groups of             | 2  |
| <b>Potential separation digital outputs</b>      |  |
| • between the channels                           | Relays   |
| • between the channels, in groups of             | 4  |
| • between the channels and backplane bus         | 1 500 V AC for 1 minute                                |
| <b>Permissible potential difference</b>          |  |
| between different circuits                       | 750 V AC for 1 minute                                  |
| <b>Degree and class of protection</b>            |  |
| IP degree of protection                          | IP20   |
| <b>Standards, approvals, certificates</b>        |  |
| CE mark  | Yes  |
| CSA approval                                     | Yes  |
| UL approval                                      | Yes  |
| cULus  | Yes  |

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

### Ambient conditions

#### Free fall

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

#### Ambient temperature during operation

- 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
- horizontal installation, min. -20 °C
- horizontal installation, max. 60 °C
- vertical installation, min. -20 °C
- vertical installation, max. 50 °C
- 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

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

### Connection method

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

### Mechanics/material

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

### Dimensions

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

### Weights

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

**last modified:** 10/13/2020