

SIMATIC S7-1200, Digital I/O SM 1223, 16 DI/16 DO, 16 DI 24 V DC, Sink/Source, 16 DO, transistor 0.5 A



### General information

|                          |                                       |
|--------------------------|---------------------------------------|
| Product type designation | SM 1223, DI 16x24 V DC, DQ 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

|                                 |        |
|---------------------------------|--------|
| from backplane bus 5 V DC, max. | 185 mA |
|---------------------------------|--------|

### Digital inputs

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

### Output voltage

#### Power supply to the transmitters

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

### Power loss

|                  |       |
|------------------|-------|
| Power loss, typ. | 4.5 W |
|------------------|-------|

### Digital inputs

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

|                                                                 |                                                                                               |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| • 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 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                                                                                         |
| Digital outputs                                                 |                                                                                               |
| Number of digital outputs                                       | 16                                                                                            |
| • 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" 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.                       | 8 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 |                       |
| Alarms                                    |                       |
| • Diagnostic alarm                        | Yes                   |
| Diagnostics indication LED                |                       |
| • for status of the inputs                | Yes                   |
| • for status of the outputs               | Yes                   |
| Potential separation                      |                       |
| 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              |
| Degree and class of protection            |                       |
| IP degree of protection                   | IP20                  |
| Standards, approvals, certificates        |                       |
| 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                                 |
| • 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.                                   | 310 g                                 |
| last modified:                                    | 01/29/2020                            |