

SIMATIC S7-1200, DIGITAL I/O SM 1223, 16DI / 16DO, 16DI DC 24 V, SINK/SOURCE, 16DO, TRANSISTOR 0.5A



| Supply voltage                              |                   |
|---------------------------------------------|-------------------|
| Rated value (DC)                            |                   |
| • 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.             | 185 mA            |
| Digital inputs                              |                   |
| • from load voltage L+ (without load), max. | 4 mA; per channel |
| Output voltage                              |                   |
| Power supply to the transmitters            |                   |
| • present                                   | 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" 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.                       | 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                                    | Yes                   |
| Diagnostic functions                      | Yes                   |
| Alarms                                    |                       |
| • Diagnostic alarm                        | 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, in groups of      | 1                     |
| • between the channels and backplane bus  | 500 V AC              |
| Degree and class of protection            |                       |
| Degree of protection acc. 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 |

#### Ambient conditions

##### Free fall

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

##### Ambient temperature during 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
- 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

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

#### Dimensions

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

#### Weights

|                 |       |
|-----------------|-------|
| Weight, approx. | 310 g |
|-----------------|-------|

**last modified:** 08.04.2016