

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"> <li>• 24 V DC</li> </ul> | 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"> <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 |
| <ul style="list-style-type: none"> <li>• in groups of</li> </ul> | 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 VDC 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                                       | 16  |
| • 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)  | 5V DC to 30V DC   |
| • Rated value (AC)  | 5 V AC to 250 V AC  |
| <b>Output current</b>   |   |
| • 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> |  |
| Alarms   | Yes  |
| Diagnostic functions                             | Yes  |
| <b>Alarms</b>                                    |  |
| • Diagnostic alarm                               | Yes  |
| <b>Diagnostic messages</b>                       |  |
| • Monitoring the supply voltage                  | Yes  |
| <b>Diagnostics indication LED</b>                |  |
| • 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  |
| <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         | 1500 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>            |  |
| Degree of protection acc. to EN 60529            |  |

|  |   |
|--|---|
| • IP20   | Yes   |
| <b>Standards, approvals, certificates</b>                |   |
| CE mark  | Yes   |
| CSA approval   | Yes   |
| UL approval  | Yes   |
| cULus  | Yes   |
| FM approval  | Yes   |
| RCM (formerly C-TICK)                                    | Yes   |
| <b>Marine approval</b>                                   |   |
| • Marine approval  | Yes   |
| <b>Ambient conditions</b>                                |   |
| <b>Free fall</b>   |   |
| • Fall height, max.                                      | 0.3 m; five times, in dispatch package  |
| <b>Ambient temperature during operation</b>              |   |
| • 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   |
| <b>Ambient temperature during storage/transportation</b> |   |
| • min.   | -40 °C  |
| • max.   | 70 °C   |
| <b>Air pressure acc. to IEC 60068-2-13</b>               |   |
| • Storage/transport, min.                                | 660 hPa   |
| • Storage/transport, max.                                | 1 080 hPa   |
| <b>Relative humidity</b>                                 |   |
| • permissible range (without condensation) at 25 °C      | 95 %  |
| <b>Connection method</b>                                 |   |
| required front connector                                 | Yes   |
| <b>Mechanics/material</b>                                |   |
| <b>Enclosure material (front)</b>                        |   |
| • Plastic  | Yes   |
| <b>Dimensions</b>  |   |
| Width  | 70 mm   |
| Height   | 100 mm  |
| Depth  | 75 mm   |
| <b>Weights</b>   |   |
| Weight, approx.  | 350 g   |

last modified:

22.01.2016