

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 losses  |                        |
| 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                    |
| 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  |
| <b>vertical installation</b>                           |   |
| — 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; Typical   |
| <b>Input delay (for rated value of input voltage)</b>  |   |
| <b>for standard inputs</b>                             |   |
| — 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 |
| <b>for interrupt inputs</b>                            |   |
| — 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)                                     | 5 V DC to 30 V 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>Aggregate current of outputs (per group)</b>        |   |
| <b>horizontal installation</b>                         |   |
| — up to 50 °C, max.                                    | 8 A; Current per mass   |
| <b>Relay outputs</b>                                   |   |

|   |  |
|---|--|
| • 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 |
| <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  |

### Interrupts/diagnostics/status information

|   |     |
|---|-----|
| <b>Alarms</b>                             |     |
| • Alarms                                  | Yes |
| • Diagnostic alarm                        | Yes |
| <b>Diagnostic messages</b>                |     |
| • Diagnostic functions                    | Yes |
| • 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 |

### Potential separation

|  |                        |
|--|------------------------|
| <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 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

|   |     |
|---|-----|
| <b>Degree of protection to EN 60529</b> |     |
| • IP20                                  | Yes |

### Standards, approvals, certificates

|              |     |
|--------------|-----|
| 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 |

### Ambient conditions

|                                    |  |
|------------------------------------|--|
| <b>Free fall</b>                   |  |
| • Drop height, max. (in packaging) | 0.3 m; five times, in dispatch package |

|   |   |
|---|---|
| <b>Ambient temperature in 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 % |

### Connection method

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

### Mechanics/material

|                                |     |
|--------------------------------|-----|
| <b>Type of housing (front)</b> |     |
| • plastic                      | Yes |

### Dimensions

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

### Weights

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

**last modified:** 20.04.2015