

SIMATIC S7-1200, DIGITAL INPUT SM 1221, 16 DI, 24VDC,  
SINK/SOURCE INPUT



| 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.             | 130 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.                            | 2.5 W             |
| Digital inputs                              |                   |
| Number of digital inputs                    | 16                |
| • in groups of                              | 4                 |

|                                                                 |                                                                                               |
|-----------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| 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 VDC 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                                                                                         |
| Interrupts/diagnostics/status information                       |                                                                                               |
| Alarms                                                          |                                                                                               |
| • Alarms                                                        | Yes                                                                                           |
| • Diagnostic alarm                                              | Yes                                                                                           |
| Diagnostics indication LED                                      |                                                                                               |
| • for status of the inputs                                      | Yes                                                                                           |
| • for maintenance                                               | Yes                                                                                           |
| • Status indicator digital input (green)                        | Yes                                                                                           |
| Potential separation                                            |                                                                                               |
| Potential separation digital inputs                             |                                                                                               |
| • between the channels, in groups of                            | 4                                                                                             |
| Degree and class of protection                                  |                                                                                               |

|                                                          |                                        |
|----------------------------------------------------------|----------------------------------------|
| 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>              |                                        |
| • min.                                                   | -20 °C                                 |
| • max.                                                   | 60 °C                                  |
| • 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>                                |                                        |
| Enclosure material (front)                               |                                        |
| • Plastic                                                | Yes                                    |
| <b>Dimensions</b>                                        |                                        |
| Width                                                    | 45 mm                                  |
| Height                                                   | 100 mm                                 |
| Depth                                                    | 75 mm                                  |
| <b>Weights</b>                                           |                                        |
| Weight, approx.                                          | 210 g                                  |
| <b>last modified:</b>                                    | 30.09.2015                             |