



Figure similar

SIMATIC S7-1200, Digital I/O SM 1223, 8 DI/8 DO, 8 DI 24 V DC, Sink/Source, 8 DO, transistor 0.5 A

| General information                                             |                                                                                |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------|
| Product type designation                                        | SM 1223, DI 8x24 V DC, DO 8x24 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.                                 | 145 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                                        | 8                                                                              |
| • 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.                                             | 8                                                                              |
| horizontal installation                                         |                                                                                |
| — up to 40 °C, max.                                             | 8                                                                              |
| — up to 50 °C, max.                                             | 8                                                                              |
| vertical installation                                           |                                                                                |
| — up to 40 °C, max.                                             | 8                                                                              |
| Input voltage                                                   |                                                                                |
| • 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                         |
| <b>Digital outputs</b>                               |                               |
| Number of digital outputs                            | 8                             |
| • 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.                                  | 4 A; Current per mass         |
| Cable length                                         |                               |
| • shielded, max.                                     | 500 m                         |
| • unshielded, max.                                   | 150 m                         |
| <b>Interrupts/diagnostics/status information</b>     |                               |
| Alarms                                               |                               |
| • Diagnostic alarm                                   | Yes                           |
| Diagnostics indication LED                           |                               |
| • for status of the inputs                           | Yes                           |
| • for status of the outputs                          | Yes                           |
| <b>Potential separation</b>                          |                               |
| 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                      |
| <b>Degree and class of protection</b>                |                               |
| IP degree of protection                              | IP20                          |
| <b>Standards, approvals, certificates</b>            |                               |
| 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                           |
| Ecological footprint                                 |                               |
| • environmental product declaration                  | Yes                           |
| Global warming potential                             |                               |
| — global warming potential, (total) [CO2 eq]         | 123 kg                        |
| — global warming potential, (during production) [CO2 | 12.1 kg                       |

|                                                                |           |
|----------------------------------------------------------------|-----------|
| eq]                                                            |           |
| — global warming potential, (during operation) [CO2 eq]        | 111 kg    |
| — global warming potential, (after end of life cycle) [CO2 eq] | -0.434 kg |

#### 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  | 45 mm  |
| Height | 100 mm |
| Depth  | 75 mm  |

#### Weights

|                 |       |
|-----------------|-------|
| Weight, approx. | 210 g |
|-----------------|-------|

#### Classifications

|        | Version | Classification |
|--------|---------|----------------|
| eClass | 14      | 27-24-22-04    |
| eClass | 12      | 27-24-22-04    |
| eClass | 9.1     | 27-24-22-04    |
| eClass | 9       | 27-24-22-04    |
| eClass | 8       | 27-24-22-04    |
| eClass | 7.1     | 27-24-22-04    |
| eClass | 6       | 27-24-22-04    |
| ETIM   | 10      | EC001419       |
| ETIM   | 9       | EC001419       |
| ETIM   | 8       | EC001419       |
| ETIM   | 7       | EC001419       |
| IDEA   | 4       | 3566           |
| UNSPSC | 15      | 32-15-17-05    |

#### Approvals / Certificates

|                          |  |
|--------------------------|--|
| General Product Approval |  |
|--------------------------|--|



[Miscellaneous](#)

[Manufacturer Declaration](#)



|                          |     |                                |  |  |  |
|--------------------------|-----|--------------------------------|--|--|--|
| General Product Approval | EMV | For use in hazardous locations |  |  |  |
|--------------------------|-----|--------------------------------|--|--|--|



[FM](#)



|                                |                      |  |  |  |  |
|--------------------------------|----------------------|--|--|--|--|
| For use in hazardous locations | Maritime application |  |  |  |  |
|--------------------------------|----------------------|--|--|--|--|

[CCC-Ex](#)



[NK / Nippon Kaiji Kyokai](#)



|                      |             |  |  |  |  |
|----------------------|-------------|--|--|--|--|
| Maritime application | Environment |  |  |  |  |
|----------------------|-------------|--|--|--|--|

[CCS \(China Classification Society\)](#)

[KR \(Korean Register of Shipping\)](#)



last modified:

4/6/2025