



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                                                                                                                                                     |                                                                                |
| <ul style="list-style-type: none"> <li>from load voltage L+ (without load), max.</li> </ul>                                                                        | 4 mA; per channel                                                              |
| output voltage / header                                                                                                                                            |                                                                                |
| supply voltage of the transmitters / header                                                                                                                        |                                                                                |
| <ul style="list-style-type: none"> <li>present</li> </ul>                                                                                                          | Yes                                                                            |
| Power loss                                                                                                                                                         |                                                                                |
| Power loss, typ.                                                                                                                                                   | 2.5 W                                                                          |
| Digital inputs                                                                                                                                                     |                                                                                |
| Number of digital inputs                                                                                                                                           | 8                                                                              |
| <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.                                                                                                                                                | 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                                                                                                                                                      |                                                                                |
| <ul style="list-style-type: none"> <li>Type of input voltage</li> <li>Rated value (DC)</li> <li>for signal "0"</li> <li>for signal "1"</li> </ul>                  | DC<br>24 V<br>5 V DC at 1 mA<br>15 V DC at 2.5 mA                              |
| Input current                                                                                                                                                      |                                                                                |
| <ul style="list-style-type: none"> <li>for signal "0", max. (permissible quiescent current)</li> <li>for signal "1", min.</li> <li>for signal "1", typ.</li> </ul> | 1 mA<br>2.5 mA<br>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 eq] | 12.1 kg                       |
| — global warming potential, (during operation) [CO2      | 111 kg                        |

eq]

— global warming potential, (after end of life cycle)  
[CO<sub>2</sub> 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**

EG-Konf.


[Manufacturer Declaration](#)
[Miscellaneous](#)


UL



RCM

|     |                                |
|-----|--------------------------------|
| EMV | For use in hazardous locations |
|-----|--------------------------------|



FM



[CCC-Ex](#)

#### Maritime application



[NK / Nippon Kaiji Kyokai](#)



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

#### Maritime application

#### Environment



last modified:

4/6/2025