



SIMATIC S7-1200 G2, SM 1223 digital I/O, 16 DI / 16 DO, inputs: 16x DI 24 V DC, sourcing/sinking input, outputs: 16x DO, sourcing output, PNP transistor 0.5 A

General information	
Product type designation	SM 1223, DI 16x24 V DC, DO 16x24 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	
Current consumption, typ.	45 mA
from backplane bus 5 V DC, max.	165 mA
Digital inputs	
<ul style="list-style-type: none"> <li>from load voltage L+ (without load), max.</li> </ul>	4.1 mA; per channel
Power loss	
Power loss, typ.	4.6 W
Digital inputs	
Number of digital inputs	16
<ul style="list-style-type: none"> <li>in groups of</li> </ul>	4
Sourcing/sinking input	Yes
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	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>for signal "0"</li> <li>for signal "1"</li> </ul>	24 V 5 V DC or 0.5 mA 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 2.5 mA 4.1 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	No
<b>Cable length</b>	
• shielded, max.	500 m
• unshielded, max.	300 m
<b>Digital outputs</b>	
Number of digital outputs	16
• in groups of	8
Short-circuit protection	No; to be provided externally
Limitation of inductive shutdown voltage to	typ. (L+) -40 V, 1 W dissipation
<b>Switching capacity of the outputs</b>	
• with resistive load, max.	0.5 A
• on lamp load, max.	5 W
<b>Output voltage</b>	
• Rated value (DC)	24 V
• for signal "0", max.	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V DC
<b>Output current</b>	
• 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
<b>Output delay with resistive load</b>	
• "0" to "1", max.	50 µs
• "1" to "0", max.	200 µs
<b>Total current of the outputs (per group)</b>	
horizontal installation	
— up to 50 °C, max.	4 A; Current per mass
<b>Relay outputs</b>	
Switching capacity of contacts	
— with inductive load, max.	0.5 A
— on lamp load, max.	5 W
— with resistive load, max.	0.5 A
<b>Cable length</b>	
• shielded, max.	500 m
• unshielded, max.	150 m
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes
<b>Diagnoses</b>	
• Monitoring the supply voltage	Yes
<b>Diagnostics indication LED</b>	
• DIAG LED	Yes
• 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	4
• between the channels and backplane bus	Yes; 707 V DC (type test)
Potential separation digital outputs	
• between the channels, in groups of	8
• between the channels and backplane bus	Yes; 707 V DC (type test)
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Degree and class of protection</b>	
IP degree of protection	IP20
<b>Standards, approvals, certificates</b>	
CE mark	Yes
CSA approval	No
UL approval	Yes

cULus	Yes
FM approval	No
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	No

#### Ambient conditions

##### Free fall

- Fall height, max. 0.3 m; five times, in product package

##### Ambient temperature during operation

- horizontal installation, min. -20 °C
- horizontal installation, max. 60 °C; at max. voltages and max. specification
- vertical installation, min. -20 °C
- vertical installation, max. 50 °C; at max. voltages and max. specification
- 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

- Operation, min. 540 hPa
- Operation, max. 1 140 hPa
- Storage/transport, min. 540 hPa
- Storage/transport, max. 1 140 hPa

##### Altitude during operation relating to sea level

- Installation altitude, min. -1 000 m
- Installation altitude, max. 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual

##### Relative humidity

- Operation at 25 °C without condensation, max. 95 %

##### Vibrations

- Vibration resistance during operation acc. to IEC 60068-2-6 3.5 mm from 5 - 8.4 Hz, 1g from 8.4 - 150 Hz
- Operation, tested according to IEC 60068-2-6 Yes

##### Shock testing

- tested according to IEC 60068-2-27 Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms

##### Pollutant concentrations

- SO2 at RH < 60% without condensation SO2: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60 % condensation-free

#### Connection method

required front connector	No
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#### Mechanics/material

Enclosure material (front)	
• Plastic	Yes

#### Dimensions

Width	50 mm
Height	125 mm
Depth	100 mm

#### Weights

Weight, approx.	262 g
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#### 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

Approvals / Certificates

General Product Approval

[Miscellaneous](#)



[China RoHS](#)



EMV

For use in hazardous locations



[CCC-Ex](#)

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