



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, relay 2 A

General information	
Product type designation	SM 1223, DI 16x24 V DC, DQ 16x relay
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.	175 mA
from backplane bus 5 V DC, max.	160 mA
Digital inputs	
<ul style="list-style-type: none"> from load voltage L+ (without load), max. 	4.1 mA; per channel
Digital outputs	
<ul style="list-style-type: none"> from load voltage L+, max. 	9 mA; per relay coil
Power loss	
Power loss, typ.	8.2 W
Digital inputs	
Number of digital inputs	16
<ul style="list-style-type: none"> in groups of 	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"> Rated value (DC) 	24 V
<ul style="list-style-type: none"> for signal "0" 	5 V DC or 0.5 mA
<ul style="list-style-type: none"> for signal "1" 	15 V DC at 2.5 mA
Input current	
<ul style="list-style-type: none"> for signal "0", max. (permissible quiescent current) 	1 mA
<ul style="list-style-type: none"> for signal "1", min. 	2.5 mA
<ul style="list-style-type: none"> 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	No
Cable length	
• shielded, max.	500 m
• unshielded, max.	300 m
Digital outputs	
Number of digital outputs	16
• in groups of	8
Short-circuit protection	No; to be provided externally
Switching capacity of the outputs	
• with resistive load, max.	2 A
• on lamp load, max.	30 W with DC, 200 W with AC
Output voltage	
• Rated value (DC)	5 V DC to 30 V DC
• Rated value (AC)	5 V AC to 250 V AC
Output current	
• for signal "1" rated value	2 A
Output delay with resistive load	
• "0" to "1", max.	10 ms
• "1" to "0", max.	10 ms
Total current of the outputs (per group)	
horizontal installation	
— up to 50 °C, max.	16 A; Current per mass
Relay outputs	
• Number of relay outputs	16
• Rated supply voltage of relay coil L+ (DC)	24 V
• Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
Switching capacity of contacts	
— with inductive load, max.	2 A
— on lamp load, max.	30 W with DC, 200 W with AC
— with resistive load, max.	2 A
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
• Diagnostic alarm	Yes
Diagnoses	
• Monitoring the supply voltage	Yes
Diagnostics indication LED	
• DIAG LED	Yes
• for status of the inputs	Yes
• for status of the outputs	Yes
Potential separation	
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	Relays
• between the channels, in groups of	8
• between the channels and backplane bus	Yes; 4 200 V DC (type test)
Isolation	
Isolation tested with	1500 V AC (type test)
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
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

- min. -20 °C; No condensation
- max. 40 °C; at max. voltages and max. specifications
- horizontal installation, min. -20 °C; No condensation
- horizontal installation, max. 60 °C; at rated voltages, 50 % of max. specification and alternate IO active
- vertical installation, min. -20 °C; No condensation
- vertical installation, max. 50 °C; at rated voltages, 50 % of max. specification and alternate IO active
- 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. 4 000 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.	311 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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