



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	
• from load voltage L+ (without load), max.	4.1 mA; per channel
Digital outputs	
• 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
• 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	
• Rated value (DC)	24 V
• for signal "0"	5 V DC or 0.5 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	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		
Mechanics/material			
Enclosure material (front)			
Plastic	Yes		
Dimensions			
Width	50 mm		
Height	125 mm		
Depth	100 mm		
Weights			
Weight, approx.	311 g		
Classifications			
		Version	Classification
	eClass	16	27-24-22-04
	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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