



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, sinking output, NPN transistor 0.5 A

General information	
Product type designation	SM 1223, DI 16x24 V DC, DO 16x 24 V DC Sink
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.	40 mA
from backplane bus 5 V DC, max.	165 mA
Digital inputs	
from load voltage L+ (without load), max.	4.1 mA; per channel
Output voltage	
Power supply to the transmitters	
present	Yes
Power loss	
Power loss, typ.	4.4 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) - for signal "0" - for signal "1"	24 V 5 V DC or 0.5 mA 15 V DC at 2.5 mA
Input current	
- for signal "0", max. (permissible quiescent current) - for signal "1", min. - for signal "1", typ.	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
Cable length	
• shielded, max.	500 m
• unshielded, max.	300 m
Digital outputs	
Number of digital outputs	16; Transistor current sinking
• in groups of	8
Short-circuit protection	No; to be provided externally
Limitation of inductive shutdown voltage to	Typ 45 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.	0.5 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.	75 µA
Output delay with resistive load	
• "0" to "1", max.	350 µs
• "1" to "0", max.	20 µs
Total current of the outputs (per group)	
horizontal installation	
— up to 50 °C, max.	4 A; Current per mass
Relay outputs	
Switching capacity of contacts	
— with inductive load, max.	0.5 A
— on lamp load, max.	5 W
— with resistive load, max.	0.5 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, in groups of	8
• between the channels and backplane bus	Yes; 707 V DC (type test)
Isolation	
Isolation tested with	707 V DC (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			
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	S02: < 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.	260 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

Approvals / Certificates

General Product Approval	For use in hazardous locations
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[Miscellaneous](#)



[CCC-Ex](#)

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