

SIMATIC S7-1200, Digital I/O SM 1223, 8 DI AC/8 DO RLY, 8 DI 120/230 V AC, 8 DO relay 2 A

General information	
Product type designation	SM 1223, DI 8x120/230 V AC, DQ 8x 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	
from backplane bus 5 V DC, max.	120 mA
output voltage / header	
supply voltage of the transmitters / header	
• present	Yes
Power loss	
Power loss, typ.	7.5 W
Digital inputs	
Number of digital inputs	8
• in groups of	4
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	
• Type of input voltage	AC
• Rated value (AC)	120/230 V AC
• for signal "0"	20 V AC at 1 mA
• for signal "1"	79 V AC 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.	9 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
Digital outputs	
Number of digital outputs	8
• in groups of	4
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	

<ul style="list-style-type: none"> <li>Rated value (DC)</li> </ul>	5 V DC to 30 V DC
<ul style="list-style-type: none"> <li>Rated value (AC)</li> </ul>	5 V AC to 250 V AC
<b>Output current</b>	
<ul style="list-style-type: none"> <li>for signal "1" rated value</li> </ul>	2 A
<ul style="list-style-type: none"> <li>for signal "1" permissible range, max.</li> </ul>	2 A
<b>Output delay with resistive load</b>	
<ul style="list-style-type: none"> <li>"0" to "1", max.</li> </ul>	10 ms
<ul style="list-style-type: none"> <li>"1" to "0", max.</li> </ul>	10 ms
<b>Total current of the outputs (per group)</b>	
horizontal installation	
— up to 50 °C, max.	8 A; Current per mass
<b>Relay outputs</b>	
<ul style="list-style-type: none"> <li>Number of relay outputs</li> </ul>	8
<ul style="list-style-type: none"> <li>Rated supply voltage of relay coil L+ (DC)</li> </ul>	24 V
<ul style="list-style-type: none"> <li>Number of operating cycles, max.</li> </ul>	mechanically 10 million, at rated load voltage 100 000
<b>Switching capacity of contacts</b>	
— with inductive load, max.	2 A
— on lamp load, max.	30 W with DC, 200 W with AC
— with resistive load, max.	2 A
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>shielded, max.</li> </ul>	500 m
<ul style="list-style-type: none"> <li>unshielded, max.</li> </ul>	150 m
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>Diagnostic alarm</li> </ul>	Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>for status of the inputs</li> </ul>	Yes
<ul style="list-style-type: none"> <li>for status of the outputs</li> </ul>	Yes
<b>Potential separation</b>	
<b>Potential separation digital inputs</b>	
<ul style="list-style-type: none"> <li>between the channels, in groups of</li> </ul>	2
<b>Potential separation digital outputs</b>	
<ul style="list-style-type: none"> <li>between the channels</li> </ul>	Relays
<ul style="list-style-type: none"> <li>between the channels, in groups of</li> </ul>	2
<ul style="list-style-type: none"> <li>between the channels and backplane bus</li> </ul>	1 500 V AC for 1 minute
<b>Permissible potential difference</b>	
between different circuits	750 V AC for 1 minute
<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
<b>Ecological footprint</b>	
<ul style="list-style-type: none"> <li>environmental product declaration</li> </ul>	Yes
<b>Global warming potential</b>	
— global warming potential, (total) [CO2 eq]	123 kg
— global warming potential, (during production) [CO2 eq]	12.1 kg
— global warming potential, (during operation) [CO2 eq]	111 kg
— global warming potential, (after end of life cycle) [CO2 eq]	-0.434 kg
<b>Ambient conditions</b>	
<b>Free fall</b>	
<ul style="list-style-type: none"> <li>Fall height, max.</li> </ul>	0.3 m; five times, in product package

<b>Ambient temperature during operation</b>	
• min.	-20 °C
• max.	60 °C; Number of simultaneously activated outputs: 4 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 at 55 °C horizontal or 45 °C vertical
• 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
<b>Ambient temperature during storage/transportation</b>	
• min.	-40 °C
• max.	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
• Storage/transport, min.	660 hPa
• Storage/transport, max.	1 080 hPa
<b>Relative humidity</b>	
• Operation at 25 °C without condensation, max.	95 %
<b>connection method</b>	
required front connector	Yes
<b>Mechanics/material</b>	
Enclosure material (front)	
• Plastic	Yes
<b>Dimensions</b>	
Width	45 mm
Height	100 mm
Depth	75 mm
<b>Weights</b>	
Weight, approx.	230 g

**last modified:** 10/9/2024 