



SIMATIC S7-1200, DIGITAL I/O SM 1223,  
16DI / 16DO, 16DI DC 24 V, SINK/SOURCE,  
16DO, RELAY 2A

Supply voltage	
24 V DC	Yes
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.	180 mA
Digital inputs	
from load voltage L+ (without load), max.	4 mA/input 11 mA/relay
Output voltage	
Power supply to the transmitters	
present	Yes
Power losses	
Power loss, typ.	10 W
Digital inputs	
Number of digital inputs	16
In groups of	2
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	

<b>all mounting positions</b>	
up to 40 °C, max.	16
<b>horizontal installation</b>	
up to 40 °C, max.	16
up to 50 °C, max.	16
<b>vertical installation</b>	
up to 40 °C, max.	16
<b>Input voltage</b>	
Type of input voltage	DC
Rated value, DC	24 V
for signal "0"	5 V DC at 1 mA
for signal "1"	15 VDC at 2.5 mA
<b>Input current</b>	
for signal "0", max. (permissible quiescent current)	1 mA
for signal "1", min.	2.5 mA
for signal "1", typ.	4 mA ; Typical
<b>Input delay (for rated value of input voltage)</b>	
<b>for standard inputs</b>	
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
<b>for interrupt inputs</b>	
Parameterizable	Yes
<b>Cable length</b>	
Cable length, shielded, max.	500 m
Cable length unshielded, max.	300 m
<b>Digital outputs</b>	
Number of digital outputs	16
In groups of	4
Short-circuit protection	No ; to be provided externally
<b>Switching capacity of the outputs</b>	
with resistive load, max.	2 A
on lamp load, max.	30 W with DC, 200 W with AC
<b>Output voltage</b>	
Rated value (AC)	5 V AC to 250 V AC
Rated value (DC)	5 V DC to 30 V DC
<b>Output current</b>	
for signal "1" permissible range, max.	2 A
<b>Output delay with resistive load</b>	

"0" to "1", max.	10 ms
"1" to "0", max.	10 ms
<b>Aggregate current of outputs (per group)</b>	
<b>horizontal installation</b>	
up to 50 °C, max.	8 A ; Current per mass
<b>Relay outputs</b>	
Number of relay outputs	16
Rated input voltage of relay coil L+ (DC)	24 V
Number of operating cycles, max.	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>	
Cable length, shielded, max.	500 m
Cable length unshielded, max.	150 m
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
Alarms	Yes
Diagnostic alarm	Yes
<b>Diagnostic messages</b>	
Diagnostic functions	Yes
Monitoring the supply voltage	Yes
<b>Diagnostics indication LED</b>	
for status of the inputs	Yes
For status of the outputs	Yes
for maintenance	Yes
Status indicator digital output (green)	Yes
Status indicator digital input (green)	Yes
<b>Galvanic isolation</b>	
<b>Galvanic isolation digital inputs</b>	
between the channels, in groups of	2
<b>Galvanic isolation digital outputs</b>	
between the channels	Relays
between the channels, in groups of	4
between the channels and the backplane bus	1500 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>	
<b>IP20</b>	Yes
<b>Standards, approvals, certificates</b>	
<b>CE mark</b>	Yes
<b>CSA approval</b>	Yes
<b>UL</b>	Yes
<b>cULus</b>	Yes
<b>RCM (former C-TICK)</b>	Yes
<b>FM approval</b>	Yes
<b>Marine approval</b>	
<b>Marine approval</b>	Yes
<b>Climatic and mechanical conditions for storage and transport</b>	
<b>Climatic conditions for storage and transport</b>	
<b>Free fall</b>	
<b>Drop height, max. (in packaging)</b>	0.3 m ; five times, in dispatch package
<b>Temperature</b>	
<b>Permissible temperature range</b>	-40 °C to +70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>	
<b>Permissible air pressure</b>	1080 to 660 hPa
<b>Relative humidity</b>	
<b>Permissible range (without condensation) at 25 °C</b>	95 %
<b>Mechanical and climatic conditions during operation</b>	
<b>Climatic conditions in operation</b>	
<b>Temperature</b>	
<b>Permissible temperature range</b>	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing
<b>Min.</b>	-20 °C
<b>max.</b>	60 °C
<b>Permissible temperature change</b>	5°C to 55°C, 3°C / minute
<b>Connection method</b>	
<b>required front connector</b>	Yes
<b>Mechanics/material</b>	
<b>Type of housing (front)</b>	
<b>Plastic</b>	Yes
<b>Dimensions</b>	
<b>Width</b>	70 mm
<b>Height</b>	100 mm
<b>Depth</b>	75 mm

## Weights

<b>Weight, approx.</b>	350 g
Status	Jun 19, 2014