## **SIEMENS**

## Data sheet

6ES7223-1QH32-0XB0

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		
Power supply to the transmitters		
• present	Yes	
Power loss		
Power loss, typ.	7.5 W	
Digital inputs		
Number of digital inputs	8	
• in groups of	4	

61131, type 1  Number of simultaneously controllable inputs  all mounting positions  — up to 40 °C, max.  horizontal installation  — up to 40 °C, max.  — up to 50 °C, max.  8  vertical installation  — up to 40 °C, max.  8  Input voltage  • Type of input voltage  • Rated value (AC)  • for signal "0"  • for signal "0"  • for signal "0", max. (permissible quiescent current)  • for signal "1", min.  • for signal "1", min.  • for signal "1", typ.  • for signal remeterizable  — 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.  • shielded, max.  • soo m  300 m	Input characteristic curve in accordance with IEC	Yes
all mounting positions — up to 40 °C, max. horizontal installation — up to 50 °C, max. — up to 50 °C, max. 8  - up to 50 °C, max. 8  retrical installation — up to 40 °C, max. 8    8    10	•	
	Number of simultaneously controllable inputs	
horizontal installation  - up to 40 °C, max up to 50 °C, max.  - up to 40 °C, max.  - up to 40 °C, max.  8  Input voltage  • Type of input voltage  • Type of input voltage  • Type of input voltage  • Rated value (AC) • for signal "1"  • for signal "1"  • for signal "0", max. (permissible quiescent current)  • for signal "1", min. • for signal "1", typ.  • parameterizable  - parameterizable  - parameterizable  • Selectable in groups of four  for interrupt inputs  - parameterizable  • shelded, max. • on lamp load, max. • unshielded, max. • on lamp load, max. • for signal "1", permissible range, max. • for signal load; "1" permissible range, max.  • for signal load; "1" permissible range, max.  • for signal load; "1" permissible range, max.  2 A  5 VAC to 250 VAC  Output current • for signal "1" permissible range, max.  2 A  5 VAC to 250 VAC  Output current • for signal "1" permissible range, max.	all mounting positions	
	— up to 40 °C, max.	8
- up to 50 °C, max.  vertical installation - up to 40 °C, max.  8  Input voltage  • Type of input voltage  • Type of input voltage  • Type of signal "0" • for signal "0" • for signal "0" • for signal "1" • for signal "1" • for signal "1", min. • for signal "1", typ.  • parameterizable  • sieledaly (for rated value of input voltage)  • for interrupt inputs  • shielded, max.  • unshielded, max.  • shielded, max.  • shielded, max.  • shielded, max.  • short-circuit protection  No, to be provided externally  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  • on lamp load, max.  • no lamp load, max.  • Rated value (DC)  • Rated value (AC)  • Vex Cat t 1 mA   *Coutput current  • for signal "1" permissible range, max.  2 A  • on loutput courrent  • for signal "1" permissible range, max.	horizontal installation	
vertical installation — up to 40 °C, max.    Input voltage	— up to 40 °C, max.	8
Input voltage	— up to 50 °C, max.	8
Input voltage  • Type of input voltage • Rated value (AC) • for signal "0" • for signal "1" • for signal "1" • for signal "1" • for signal "1", max. (permissible quiescent current) • for signal "1", min. • for signal "1", typ. • for signal "1", typ.  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  • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  • with resistive load, max. • on lamp load, max. • on lamp load, max. • Rated value (DC) • Rated value (AC)  Output current • for signal "1" permissible range, max.  2 A Output current • for signal "1" permissible range, max.  2 A Output current • for signal "1" permissible range, max.	vertical installation	
Type of input voltage Rated value (AC) Rated value (AC)  For signal "0" Rot signal "1" Rot signal "1", max. (permissible quiescent current) Rot signal "1", min. Rot signal "1", typ. Rot sandard input voltage  For standard inputs Rot sandard inputs Rot signal metric able Rot signal m	— up to 40 °C, max.	8
Rated value (AC)     • for signal "0"     • for signal "1"     • for signal "1"     • for signal "1"     • for signal "0", max. (permissible quiescent current)     • for signal "1", min.     • for signal "1", typ.     • for signal "1", typ.  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     • shielded, max.     • unshielded, max.     • unshielded, max.  Digital outputs  Number of digital outputs     • in groups of  Short-circuit protection     No; to be provided externally  Switching capacity of the outputs  • with resistive load, max.     • on lamp load, max.  • on lamp load, max.  • on lamp load, max.  • Rated value (DC)     • Rated value (AC)  Output current  • for signal "1" permissible range, max.  2 A  Output current  • for signal "1" permissible range, max.  2 A	Input voltage	
	Type of input voltage	AC
• for signal "1" 79 V AC at 2.5 mA  Input current  • for signal "0", max. (permissible quiescent current) • 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. 2 A • on lamp load, max. 30 W with DC, 200 W with AC  Output voltage • Rated value (DC) • Rated value (AC)  Output current • for signal "1" permissible range, max. 2 A	• Rated value (AC)	120/230 V AC
Input current  • for signal "0", max. (permissible quiescent current)  • for signal "1", min. • for signal "1", typ. • for signal "1", typ.  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. • unshielded, max.  • unshielded, max.  • in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  • with resistive load, max. • on lamp load, max.  • on lamp load, max.  • Rated value (DC) • Rated value (AC)  Output current  • for signal "1" permissible range, max.  2 A  Output voutcurrent  • for signal "1" permissible range, max.  2 A	• for signal "0"	20 V AC at 1 mA
• for signal "0", max. (permissible quiescent current)  • for signal "1", min. • for signal "1", typ.  Input delay (for rated value of input voltage)  for standard inputs  parameterizable  parameteriz	• for signal "1"	79 V AC at 2.5 mA
current)  • for signal "1", min. • for signal "1", typ.  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. • unshielded, max.  100 m  Singups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  Output voltage  • Rated value (DC) • Rated value (AC)  Output current  • for signal "1" permissible range, max.  2 A  Output current • for signal "1" permissible range, max.  2 A	Input current	
• for signal "1", min. • for signal "1", typ.  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable  — shielded, max.  • unshielded, max.  ■ unshielded, max.  ■ in groups of  Short-circuit protection  Switching capacity of the outputs  ■ with resistive load, max.  ■ on lamp load, max.  ■ on lamp load, max.  ■ Rated value (DC)  ■ Rated value (AC)  Output current  ● for signal "1" permissible range, max.  ■ 2 A  Output current  ● for signal "1" permissible range, max.  2 A  9 mA  9	• for signal "0", max. (permissible quiescent	1 mA
for signal "1", typ.     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	current)	
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. • unshielded, max.  100 m  Suppose of digital outputs  Number of digital outputs  • in groups of  Short-circuit protection  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  100 uput voltage  Rated value (DC) Rated value (AC)  Stort cape of value inputs of value in provided externally  Stort cape of	• for signal "1", min.	2.5 mA
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.  • unshielded, max.  500 m  300 m  Digital outputs  Number of digital outputs  • in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  2 A  • on lamp load, max.  30 W with DC, 200 W with AC  Output voltage  • Rated value (DC) • Rated value (AC)  5 V AC to 250 V AC  Output current • for signal "1" permissible range, max.  2 A	• for signal "1", typ.	9 mA
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.  • unshielded, max.  500 m  300 m   Digital outputs  Number of digital outputs  • in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  Output voltage  • Rated value (DC)  • Rated value (AC)  Output current  • for signal "1" permissible range, max.  2 A  2 A  2 A  2 A  2 Output current  • for signal "1" permissible range, max.  2 A	Input delay (for rated value of input voltage)	
selectable in groups of four  for interrupt inputs  — parameterizable  Yes  Cable length  • shielded, max. • unshielded, max.  300 m  Digital outputs  Number of digital outputs  8  • in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  • Rated value (DC) • Rated value (AC)  Output current  • for signal "1" permissible range, max.  2 A	for standard inputs	
— parameterizable Yes  Cable length  ● shielded, max. ● unshielded, max.  Soo m  300 m  Digital outputs  Number of digital outputs  ● in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  ● with resistive load, max.  ● on lamp load, max.  Output voltage  ● Rated value (DC)  ● Rated value (AC)  Output current  ● for signal "1" permissible range, max.  2 A	— parameterizable	
Cable length  • shielded, max. • unshielded, max.  100 m  Digital outputs  Number of digital outputs  • in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  Output voltage  • Rated value (DC) • Rated value (AC)  Output current  • for signal "1" permissible range, max.  500 m  300 m  8  8  4  A  500 m  300 m	for interrupt inputs	
shielded, max.     unshielded, max.  Soo m  Digital outputs  Number of digital outputs     in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  with resistive load, max.  on lamp load, max.  The residual output output output on lamp load, max.  Rated value (DC)  Rated value (DC)  Rated value (AC)  Output current  for signal "1" permissible range, max.  Soo m  Soo m  300 m  Soo m  So	— parameterizable	Yes
<ul> <li>unshielded, max.</li> <li>Digital outputs</li> <li>Number of digital outputs</li> <li>in groups of</li> <li>4</li> <li>Short-circuit protection</li> <li>No; to be provided externally</li> <li>Switching capacity of the outputs</li> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>on lamp load, max.</li> <li>Output voltage</li> <li>Rated value (DC)</li> <li>Rated value (AC)</li> <li>V DC to 30 V DC</li> <li>Rated value (AC)</li> <li>V AC to 250 V AC</li> </ul> Output current <ul> <li>for signal "1" permissible range, max.</li> </ul> 2 A	Cable length	
Digital outputs  Number of digital outputs  ● in groups of  Short-circuit protection  Switching capacity of the outputs  ● with resistive load, max.  ● on lamp load, max.  Output voltage  ● Rated value (DC)  • Rated value (AC)  S V AC to 250 V AC  Output current  ● for signal "1" permissible range, max.  8  4  4  2 A  30 W with DC, 200 W with AC  5 V DC to 30 V DC  5 V AC to 250 V AC	• shielded, max.	500 m
Number of digital outputs  ● in groups of  Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  ● with resistive load, max.  ● on lamp load, max.  Output voltage  ● Rated value (DC)  ● Rated value (AC)  S V DC to 30 V DC  5 V AC to 250 V AC  Output current  ● for signal "1" permissible range, max.  2 A	• unshielded, max.	300 m
<ul> <li>in groups of</li> <li>Short-circuit protection</li> <li>No; to be provided externally</li> <li>Switching capacity of the outputs</li> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>100 on lamp load, max.</li> <li>Output voltage</li> <li>Rated value (DC)</li> <li>Rated value (AC)</li> <li>V DC to 30 V DC</li> <li>Rated value (AC)</li> <li>V AC to 250 V AC</li> </ul> Output current <ul> <li>for signal "1" permissible range, max.</li> </ul> 2 A	Digital outputs	
Short-circuit protection  No; to be provided externally  Switching capacity of the outputs  with resistive load, max.  on lamp load, max.  Output voltage  Rated value (DC)  Rated value (AC)  Output current  for signal "1" permissible range, max.  No; to be provided externally  2 A  5 V DC  2 A  5 V DC to 30 V DC  5 V AC to 250 V AC	Number of digital outputs	8
Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  Output voltage  • Rated value (DC)  • Rated value (AC)  Output current  • for signal "1" permissible range, max.  2 A  30 W with DC, 200 W with AC  5 V DC to 30 V DC  5 V AC to 250 V AC	• in groups of	4
<ul> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>Output voltage</li> <li>Rated value (DC)</li> <li>Rated value (AC)</li> <li>V DC to 30 V DC</li> <li>Rated value (AC)</li> <li>V AC to 250 V AC</li> </ul> Output current <ul> <li>for signal "1" permissible range, max.</li> </ul> 2 A <ul> <li>2 A</li> </ul>	Short-circuit protection	No; to be provided externally
<ul> <li>on lamp load, max.</li> <li>Output voltage</li> <li>Rated value (DC)</li> <li>Rated value (AC)</li> <li>V DC to 30 V DC</li> <li>Rated value (AC)</li> <li>V AC to 250 V AC</li> </ul> Output current <ul> <li>for signal "1" permissible range, max.</li> </ul> 2 A	Switching capacity of the outputs	
Output voltage  • Rated value (DC) • Rated value (AC)  • Rated value (AC)  Output current • for signal "1" permissible range, max.  2 A	<ul><li>with resistive load, max.</li></ul>	2 A
<ul> <li>Rated value (DC)</li> <li>Rated value (AC)</li> <li>V DC to 30 V DC</li> <li>V AC to 250 V AC</li> <li>Output current</li> <li>for signal "1" permissible range, max.</li> </ul> 2 A	• on lamp load, max.	30 W with DC, 200 W with AC
Rated value (AC)  Output current      for signal "1" permissible range, max.  2 A	Output voltage	
Output current  • for signal "1" permissible range, max.  2 A	• Rated value (DC)	5 V DC to 30 V DC
• for signal "1" permissible range, max. 2 A	<ul><li>Rated value (AC)</li></ul>	5 V AC to 250 V AC
isi signar i pormisoisio rango, maxi	Output current	
Output delay with resistive load	• for signal "1" permissible range, max.	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.	8 A; Current per mass
Relay outputs	
Number of relay outputs	8
<ul> <li>Rated supply voltage of relay coil L+ (DC)</li> </ul>	24 V
<ul> <li>Number of operating cycles, max.</li> </ul>	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	
Alarms	
Diagnostic alarm	Yes
Diagnostics indication LED	
• for status of the inputs	Yes
• for status of the outputs	Yes
Potential separation	
Potential separation digital inputs	
• between the channels, in groups of	2
Potential separation digital outputs	
<ul><li>between the channels</li></ul>	Relays
<ul><li>between the channels, in groups of</li></ul>	2
<ul> <li>between the channels and backplane bus</li> </ul>	1500 V AC for 1 minute
Permissible potential difference	
between different circuits	750 V AC for 1 minute
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
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
Ambient conditions	
Free fall	
● Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• 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
<ul> <li>horizontal installation, min.</li> </ul>	-20 °C
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-20 °C
<ul> <li>vertical installation, max.</li> </ul>	50 °C
• 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	
• Storage/transport, min.	660 hPa
<ul> <li>Storage/transport, max.</li> </ul>	1 080 hPa
Relative humidity	
● Operation at 25 °C without condensation, max.	95 %
Connection method	
required front connector	Yes
Mechanics/material	
Enclosure material (front)	
● Plastic	Yes
Dimensions	
Width	45 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	230 g
last modified:	08/16/2019