## SIEMENS

## Data sheet

## 6ES7222-1HF22-0XA0



\*\*\*Spare part\*\*\* SIMATIC S7-200, Digital output EM 222, only for S7-22X CPU, 8 DA (relay outputs), 2A  $\,$ 

Figure	similar
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Supply voltage           Load voltage L+           • Rated value (DC)         24 V           • permissible range, lower limit (DC)         5 V           • permissible range, lower limit (DC)         30 V           Load voltage L1         •           • Rated value (AC)         24 V, 24V AC to 230V AC           • permissible range, lower limit (AC)         25 V           • permissible range, lower limit (AC)         250 V           • for moload voltage L+, max.         72 mA; 9 mA per switched output           Power loss, typ.         2 W           Power loss, typ.         2 W           Digital outputs         8: Relays           Short-circuit protection         No           Limitation of inductive shutdown voltage to         to be provided externally (see m		
<ul> <li>Rate value (DC)</li> <li>24 V</li> <li>permissible range, lower limit (DC)</li> <li>5 V</li> <li>permissible range, lower limit (DC)</li> <li>30 V</li> <li>Load voltage L1</li> <li>Rated value (AC)</li> <li>permissible range, lower limit (AC)</li> <li>permissible range, upper limit (AC)</li> <li>permissible frequency range, lower limit</li> <li>that AT Hz</li> <li>permissible frequency range, upper limit (AC)</li> <li>permissible frequency range, upper limit</li> <li>that AT Hz</li> <li>permissible frequency range, upper limit</li> <li>that C</li> <li>permissible range for 0 c, max.</li> <li>the provided externally (see manual package "Setting up an S7-200")</li> <li>Output current</li> <li>for signal "1" rated value</li> <li>per up to 40 °C, max.</li> <li>all mounting positions</li> <li>- up to 40 °C, max.</li> <li>all mounting positions</li> <li>- up to 40 °C, max.</li> <li>all mounting positions</li> <li>- up to 50 °C, max.</li> <li>A</li> <li>A</li> <li>Number of operating cycles, max.</li></ul>	Supply voltage	
<ul> <li>permissible range, lower limit (DC)</li> <li>5 V</li> <li>permissible range, upper limit (DC)</li> <li>30 V</li> <li>Load voltage L1</li> <li>Rated value (AC)</li> <li>permissible range, lower limit (AC)</li> <li>5 V</li> <li>permissible frequency range, lower limit (AC)</li> <li>permissible frequency range, upper limit (AC)</li> <li>permissible frequency range, upper limit (AC)</li> <li>permissible frequency range, upper limit</li> <li>47 Hz</li> <li>permissible frequency range, upper limit</li> <li>63 Hz</li> <li>Input current</li> <li>from backplane bus 5 V DC, max.</li> <li>40 mA</li> <li>Digital outputs</li> <li>from load voltage L+, max.</li> <li>72 mA; 9 mA per switched output</li> <li>Power loss</li> <li>Power loss, typ.</li> <li>2 W</li> <li>Digital outputs</li> <li>for isolar voltage L4</li> <li>for signal "1" read value</li> <li>for signal "1" permissible range for 0 to 55 "C, max.</li> <li>of or signal "1" permissible range for 0 to 55 "C, max.</li> <li>of or signal "1" permissible range for 0 to 55 "C, max.</li> <li>all mounting positions</li> <li>— up to 40 "C, max.</li> <li>mounting positions</li> <li>— up to 55 "C, max.</li> <li>AA</li> <li>Relay outputs</li> <li>Nombor of operating cycles, max.</li> <li>AA</li> <li>Relay outputs</li> <li>No mA</li> <li>Total current of the outputs (per group)</li> <li>all mounting positions</li> <li>— up to 55 "C, max.</li> <li>AA</li> <li>Relay outputs</li> <li>Number of operating cycles, max.</li> <li>AA</li> <li>Relay outputs</li> <li>Number of operating cycles, max.</li> <li>AA</li> <li>Relay outputs</li> <li>AA</li> <li>Relay outputs</li> <li>AA</li> <li>AA<!--</td--><td>Load voltage L+</td><td></td></li></ul>	Load voltage L+	
	<ul> <li>Rated value (DC)</li> </ul>	24 V
Load voltage L1 <ul> <li>Rated value (AC)</li> <li>permissible range, lower limit (AC)</li> <li>permissible range, upper limit (AC)</li> <li>permissible frequency range, lower limit</li> <li>permissible frequency range, lower limit</li> <li>permissible frequency range, upper limit</li> <li>state</li> </ul> <li>permissible frequency range, upper limit</li> <li>state</li> <li>permissible frequency range, upper limit</li> <li>Power loss</li> <li>power loss, typ.</li> <li>power loss, typ.</li> <li>power loss, typ.</li> <li>power loss, typ.</li> <li>power loss</li> <li>Short-circuit protection</li> <li>Limitation of inductive shutdown voltage to</li> <li>to be provided externally (see manual package "Setting up an S7-200")</li> <li>Output current         <ul> <li>for signal "1" rated value</li> <li>state and value</li> <li>state and value</li> <li>at an antice and value</li> <li>at an outring positions</li> <li>- up to 40 °C, max.</li> <li>at an outring positions</li> <li>- up to 50 °C, max.</li> <li>bak</li> <li>Relay on the outputs</li> <li>Nomkanged on the state and value</li> <li>at an outring positions</li> <li>- up to 50 °C, max.</li> <li>at an outring positions</li> <li>- up to 50 °C, max.</li> <li>bak</li> <li>Relay outputs</li> <li>Number of operating cycles, max.</li> <li>at an output state load voltage 100</li></ul></li>	<ul> <li>permissible range, lower limit (DC)</li> </ul>	5 V
<ul> <li>Rated value (AC)</li> <li>Permissible range, lower limit (AC)</li> <li>SV</li> <li>permissible range, upper limit (AC)</li> <li>SV</li> <li>permissible range, upper limit (AC)</li> <li>SV</li> <li>permissible frequency range, upper limit</li> <li>AT Hz</li> <li>At Max</li> <li>At Ma</li></ul>	<ul> <li>permissible range, upper limit (DC)</li> </ul>	30 V
<ul> <li>permissible range, lower limit (AC)</li> <li>permissible range, upper limit (AC)</li> <li>250 V</li> <li>permissible frequency range, lower limit</li> <li>47 Hz</li> <li>permissible frequency range, upper limit</li> <li>BAT</li> </ul> Input current from backplane bus 5 V DC, max. 40 mA Digital outputs • from load voltage L+, max. Power loss, typ. 2 W Digital outputs Short-circuit protection No Limitation of inductive shutdown voltage to to be provided externally (see manual package "Setting up an S7-200") Output current • for signal "1" rated value • for signal "1" rated value • for signal "0" residual current, max. Total current of the outputs (per group) all mounting positions — up to 40 °C, max. 8 A Relayouts Noticial installation — up to 55 °C, max. 8 A Relayouts Noticial installation — up to 55 °C, max. 8 A Relayouts 10 000 000; mechanically 10 million, at rated load voltage 100 000 Switching capacity of contacts — with inductive load, max. 2 A 0 00 000; With DC, 200 W with AC — with resistive load, max. 2 A	Load voltage L1	
Permissible range, upper limit (AC)     250 V     Permissible frequency range, lower limit     A7 Hz     Permissible frequency range, upper limit     A7 Hz     Bermissible frequency range, upper limit     G3 Hz     Power loss 5 V DC, max.     A0 mA     Digital outputs     From load voltage L+, max.     72 mA; 9 mA per switched output     Power loss, typ.     Power loss, typ.     Z W     Digital outputs     Short-circuit protection     No     Limitation of inductive shutdown voltage to     to be provided externally (see manual package "Setting up an S7-200")     Output current     for signal "1" rated value         2 A         for signal "1" rated value         all mounting positions         - up to 40 °C, max.         bat         all mounting positions         - up to 55 °C, max.         bat         horizontal installation         - up to 5° C, max.         bat         horizontal installation         - up to 5° C, max.         bat         hourber of operating cycles, max.         bat         hourber of operating cycles, max.         bat         all mounting positions         - with inductive load, max.         2A         2A         con alamp load, max.         2A         con alamp load, max.         2A         con alamp load, max.         zA         con alamp load, max.         zA         con signal "0" con laamp load, max.         zA         con signal "0" con laamp load, max.         zA         con signel "0" con laamp load, max.         zA         con signel "0" con laamp load, max.         con laamp load, max.	Rated value (AC)	24 V; 24V AC to 230V AC
<ul> <li>permissible frequency range, lower limit</li> <li>47 Hz</li> <li>permissible frequency range, upper limit</li> <li>63 Hz</li> <li>Input current</li> <li>from backplane bus 5 V DC, max.</li> <li>40 mA</li> <li>Digital outputs</li> <li>from load voltage L+, max.</li> <li>72 mA; 9 mA per switched output</li> <li>Power loss, typ.</li> <li>2 W</li> <li>Digital outputs</li> <li>Short-circuit protection</li> <li>No</li> <li>Limitation of inductive shutdown voltage to</li> <li>to be provided externally (see manual package "Setting up an S7-200")</li> <li>Output current</li> <li>for signal "1" rated value</li> <li>2 A</li> <li>2 for signal "1" rated value</li> <li>2 A</li> <li>2 for signal "1" rated value</li> <li>2 A</li> <li>2 A</li> <li>2 for signal "1" rated value</li> <li>2 A</li> <li>3 mA</li> <li>4 or signal "1" rated value</li> <li>4 or signal "1" rated value</li> <li>4 or signal "1" permissible range for 0 to 55 "C, max.</li> <li>4 or signal "1" permissible range for 0 to 55 "C, max.</li> <li>4 or box signal "1" permissible range for 0 to 55 "C, max.</li> <li>4 or "10 ta Current of the outputs (per group)</li> <li>all mounting positions</li> <li>- up to 40 "C, max.</li> <li>8 A</li> <li>- Current per conductor/group, max.</li> <li>8 A</li> <li>horizontal installation</li> <li>- up to 55 "C, max.</li> <li>8 A</li> <li>Relay outputs</li> <li>Number of operating cycles, max.</li> <li>10 000 000; mechanically 10 million, at rated load voltage 100 000</li> <li>Switching capacity of contacts</li> <li>- with inductive load, max.</li> <li>2 A</li> <li>- on lamp load, max.</li> <li>2 A</li> </ul>	<ul> <li>permissible range, lower limit (AC)</li> </ul>	5 V
• permissible frequency range, upper limit     63 Hz      1nput current     from backplane bus 5 V DC, max.     10 jital outputs     • from load voltage L+, max.     72 mA; 9 mA per switched output     Power loss, typ.     72 mA; 9 mA per switched output     Power loss, typ.     2 W      1gital outputs     Short-circuit protection     Limitation of inductive shutdown voltage to     to be provided externally (see manual package "Setting up an S7-200")     Output current     • for signal "1" rated value     • for signal "1" permissible range for 0 to 55 °C, max.     • for signal "1" permissible range for 0 to 55 °C, max.     • for signal "1" permissible range for 0 to 55 °C, max.     • for signal "0" residual current, max.     0 mA      Total current of the outputs (per group)     all mounting positions     - up to 40 °C, max.     - Current per conductor/group, max.     8 A     horizontal installation     - up to 55 °C, max.     10 000 000; mechanically 10 million, at rated load voltage 100 000      Switching capacity of contacts     - with inductive load, max.     - on lamp load, max.     - with resistive load, max.     2 A	<ul> <li>permissible range, upper limit (AC)</li> </ul>	250 V
Input current         from backplane bus 5 V DC, max.       40 mA         Digital outputs       72 mA; 9 mA per switched output         Power loss       Power loss, typ.         Power loss, typ.       2 W         Digital outputs       8; Relays         Number of digital outputs       8; Relays         Short-circuit protection       No         Limitation of inductive shutdown voltage to       to be provided externally (see manual package "Setting up an S7-200")         Output current       6 for signal "1" rated value       2 A         • for signal "1" permissible range for 0 to 55 °C, max.       0 mA         Total current of the outputs (per group)       all mounting positions         - up to 40 °C, max.       8 A         - Current per conductor/group, max.       8 A         horizontal installation       -         - up to 55 °C, max.       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts       2 A         - on lamp load, max.       2 A         - on lamp load, max.       2 A         - with resistive load, max.       2 A	<ul> <li>permissible frequency range, lower limit</li> </ul>	47 Hz
from backplane bus 5 V DC, max.       40 mA         Digital outputs       • from load voltage L+, max.         Power loss       72 mA; 9 mA per switched output         Power loss, typ.       2 W         Digital outputs       8; Relays         Number of digital outputs of digital outputs shutdown voltage to       8; Relays         Short-circuit protection       No         Limitation of inductive shutdown voltage to       to be provided externally (see manual package "Setting up an S7-200")         Output current       2 A         • for signal "1" rated value       2 A         • for signal "1" residual current, max.       0 mA         Total current of the outputs (per group)       all mounting positions         - up to 40 °C, max.       8 A         - Current per conductor/group, max.       8 A         horizontal installation       -         - up to 55 °C, max.       8 A         Relay outputs       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts       -         - with inductive load, max.       2 A         - on lamp load, max.       2 A         - on lamp load, max.       2 A	<ul> <li>permissible frequency range, upper limit</li> </ul>	63 Hz
Digital outputs         • from load voltage L+, max.         Power loss         Power loss, typ.         Digital outputs         Number of digital outputs         Short-circuit protection         Limitation of inductive shutdown voltage to         to be provided externally (see manual package "Setting up an S7-200")         Output current         • for signal "1" rated value       2 A         • for signal "1" permissible range for 0 to 55 °C, max.       2 A         • for signal "0" residual current, max.       0 mA         Total current of the outputs (per group)         all mounting positions         - up to 40 °C, max.       8 A         - Current per conductor/group, max.       8 A         horizontal installation       8 A         - up to 55 °C, max.       8 A         Relay outputs       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts       - with inductive load, max.         - with inductive load, max.       2 A         - on lamp load, max.       2 A	Input current	
• from load voltage L+, max.         72 mA; 9 mA per switched output           Power loss         2 W           Digital outputs         2 W           Number of digital outputs         8; Relays           Short-circuit protection         No           Limitation of inductive shutdown voltage to         to be provided externally (see manual package "Setting up an S7-200")           Output current         2 A           • for signal "1" rated value         2 A           • for signal "0" residual current, max.         0 mA           Total current of the outputs (per group)         all mounting positions           - up to 40 °C, max.         8 A           - Current per conductor/group, max.         8 A           horizontal installation         - up to 55 °C, max.           - up to 55 °C, max.         8 A           Relay outputs         10 000 000; mechanically 10 million, at rated load voltage 100 000           Switching capacity of contacts         - with inductive load, max.           - on lamp load, max.         2 A           - with resistive load, max.         2 A	from backplane bus 5 V DC, max.	40 mA
Power loss         Power loss, typ.       2 W         Digital outputs       8; Relays         Number of digital outputs       8; Relays         Short-circuit protection       No         Limitation of inductive shutdown voltage to       to be provided externally (see manual package "Setting up an S7-200")         Output current       2 A         • for signal "1" rated value       2 A         • for signal "1" permissible range for 0 to 55 °C, max.       2 A         • for signal "0" residual current, max.       0 mA         Total current of the outputs (per group)       all mounting positions         - up to 40 °C, max.       8 A         - Current per conductor/group, max.       8 A         Norizontal installation       -         - up to 55 °C, max.       8 A         Relay outputs       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts       -         - with inductive load, max.       2 A         - on lamp load, max.       2 A         - with resistive load, max.       2 A	Digital outputs	
Power loss, typ.       2 W         Digital outputs       8; Relays         Number of digital outputs       8; Relays         Short-circuit protection       No         Limitation of inductive shutdown voltage to       to be provided externally (see manual package "Setting up an S7-200")         Output current       2 A         • for signal "1" rated value       2 A         • for signal "0" residual current, max.       0 mA         Total current of the outputs (per group)       all mounting positions         - up to 40 °C, max.       8 A         - Current per conductor/group, max.       8 A         horizontal installation       8 A         - up to 55 °C, max.       8 A         Relay outputs       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts       -         - with inductive load, max.       2 A         - with inductive load, max.       2 A         - with resistive load, max.       2 A         - with resistive load, max.       2 A	• from load voltage L+, max.	72 mA; 9 mA per switched output
Digital outputs         Number of digital outputs         Short-circuit protection         Limitation of inductive shutdown voltage to         to be provided externally (see manual package "Setting up an S7-200")         Output current         • for signal "1" rated value         • for signal "1" permissible range for 0 to 55 °C, max.         • for signal "0" residual current, max.         • up to 40 °C, max.         • Current per conductor/group, max.         • A         • horizontal installation         - up to 55 °C, max.         • Number of operating cycles, max.         • Number of operating cycles, max.         • Number of operating cycles, max.         • with inductive load, max.         - with inductive load, max. </td <td>Power loss</td> <td></td>	Power loss	
Number of digital outputs       8; Relays         Short-circuit protection       No         Limitation of inductive shutdown voltage to       to be provided externally (see manual package "Setting up an S7-200")         Output current       • for signal "1" rated value       2 A         • for signal "0" residual current, max.       0 mA         Total current of the outputs (per group)       all mounting positions         - up to 40 °C, max.       8 A         - Current per conductor/group, max.       8 A         horizontal installation       -         - up to 55 °C, max.       8 A         Relay outputs       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts       2 A         - with inductive load, max.       2 A         - with resistive load, max.       2 A	Power loss, typ.	2 W
Short-circuit protection       No         Limitation of inductive shutdown voltage to       to be provided externally (see manual package "Setting up an S7-200")         Output current <ul> <li>for signal "1" rated value</li> <li>for signal "0" residual current, max.</li> <li>for signal "0" residual current, max.</li> <li>max.</li> <li>max.</li> <li>max.</li> <li>max.</li> <li>for current per conductor/group, max.</li> <li>for signal installation</li></ul>	Digital outputs	
Short-circuit protection       No         Limitation of inductive shutdown voltage to       to be provided externally (see manual package "Setting up an S7-200")         Output current <ul> <li>for signal "1" rated value</li> <li>for signal "0" residual current, max.</li> <li>for signal "0" residual current, max.</li> <li>max.</li> <li>max.</li> <li>max.</li> <li>max.</li> <li>for current per conductor/group, max.</li> <li>for signal installation</li></ul>	Number of digital outputs	8; Relays
Output current       2 A         • for signal "1" rated value       2 A         • for signal "1" permissible range for 0 to 55 °C, max.       2 A         • for signal "0" residual current, max.       0 mA         Total current of the outputs (per group)       all mounting positions         - up to 40 °C, max.       8 A         - Current per conductor/group, max.       8 A         horizontal installation       8 A         - up to 55 °C, max.       8 A         Relay outputs       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts       2 A         - with inductive load, max.       2 A         - on lamp load, max.       2 A         - with resistive load, max.       2 A	Short-circuit protection	
<ul> <li>for signal "1" rated value</li> <li>for signal "1" permissible range for 0 to 55 °C, max.</li> <li>for signal "0" residual current, max.</li> <li>0 mA</li> </ul> Total current of the outputs (per group) <ul> <li>all mounting positions</li> <ul> <li>- up to 40 °C, max.</li> <li>- Current per conductor/group, max.</li> <li>8 A</li> <li>- Current per conductor/group, max.</li> <li>8 A</li> <li>horizontal installation</li> <li>- up to 55 °C, max.</li> <li>8 A</li> </ul> Relay outputs <ul> <li>Number of operating cycles, max.</li> <li>10 000 000; mechanically 10 million, at rated load voltage 100 000</li> <li>Switching capacity of contacts</li> <ul> <li>- with inductive load, max.</li> <li>- on lamp load, max.</li> <li>2 A</li> </ul> </ul></ul>	Limitation of inductive shutdown voltage to	to be provided externally (see manual package "Setting up an S7-200")
<ul> <li>for signal "1" permissible range for 0 to 55 °C, max.</li> <li>for signal "0" residual current, max.</li> <li>0 mA</li> </ul> Total current of the outputs (per group) <ul> <li>all mounting positions</li> <li>- up to 40 °C, max.</li> <li>- Current per conductor/group, max.</li> <li>8 A</li> <li>- Current per conductor/group, max.</li> <li>8 A</li> <li>horizontal installation</li> <li>- up to 55 °C, max.</li> <li>8 A</li> </ul> Relay outputs <ul> <li>10 000 000; mechanically 10 million, at rated load voltage 100 000</li> <li>Switching capacity of contacts</li> <li>- with inductive load, max.</li> <li>2 A</li> <li>- on lamp load, max.</li> <li>- with resistive load, max.</li> <li>2 A</li> </ul>	Output current	
• for signal "0" residual current, max.         0 mA           Total current of the outputs (per group)         all mounting positions           - up to 40 °C, max.         8 A           - Current per conductor/group, max.         8 A           horizontal installation         8 A           - up to 55 °C, max.         8 A           Relay outputs         10 000 000; mechanically 10 million, at rated load voltage 100 000           Switching capacity of contacts         2 A           - with inductive load, max.         2 A           - on lamp load, max.         2 A           - with resistive load, max.         2 A	<ul> <li>for signal "1" rated value</li> </ul>	2 A
Total current of the outputs (per group)         all mounting positions	<ul> <li>for signal "1" permissible range for 0 to 55 °C, max.</li> </ul>	2 A
all mounting positions       8 A         - up to 40 °C, max.       8 A         - Current per conductor/group, max.       8 A         horizontal installation       8 A         - up to 55 °C, max.       8 A         Relay outputs       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts       2 A         - with inductive load, max.       200 W; 30 W with DC, 200 W with AC         - with resistive load, max.       2 A	<ul> <li>for signal "0" residual current, max.</li> </ul>	0 mA
	Total current of the outputs (per group)	
Current per conductor/group, max.       8 A         horizontal installation	all mounting positions	
horizontal installation	— up to 40 °C, max.	8 A
— up to 55 °C, max.       8 A         Relay outputs	- Current per conductor/group, max.	8 A
Relay outputs         • Number of operating cycles, max.       10 000 000; mechanically 10 million, at rated load voltage 100 000         Switching capacity of contacts	horizontal installation	
<ul> <li>Number of operating cycles, max.</li> <li>10 000 000; mechanically 10 million, at rated load voltage 100 000</li> <li>Switching capacity of contacts         <ul> <li>with inductive load, max.</li> <li>A</li> <li>on lamp load, max.</li> <li>With resistive load, max.</li> <li>A</li> </ul> </li> <li>with resistive load, max.</li> <li>A</li> </ul>	— up to 55 °C, max.	8 A
Switching capacity of contacts         — with inductive load, max.         — on lamp load, max.         — with resistive load, max.         2 A         200 W; 30 W with DC, 200 W with AC         2 A	Relay outputs	
	<ul> <li>Number of operating cycles, max.</li> </ul>	10 000 000; mechanically 10 million, at rated load voltage 100 000
— on lamp load, max.       200 W; 30 W with DC, 200 W with AC         — with resistive load, max.       2 A	Switching capacity of contacts	
- with resistive load, max. 2 A	— with inductive load, max.	2 A
	— on lamp load, max.	200 W; 30 W with DC, 200 W with AC
Cable length	— with resistive load, max.	2 A
	Cable length	

• shielded, max.	500 m
• unshielded, max.	150 m
Potential separation	
Potential separation digital outputs	
<ul> <li>Potential separation digital outputs</li> </ul>	Yes; Relays
<ul> <li>between the channels, in groups of</li> </ul>	4
connection method / header	
Plug-in I/O terminals	Yes
Dimensions	
Width	45 mm
Height	80 mm
Depth	62 mm
Weights	
Weight, approx.	170 g
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