

SIMATIC S7-1200 basic controller

I/O modules

Digital modules

SM 1222 digital output modules**Overview**

- Digital outputs as supplement to the integral I/O of the CPUs
- For flexible adaptation of the controller to the relevant task
- For subsequent expansion of the system with additional outputs

Technical specifications

Article number	6ES7222-1BF32-0XB0	6ES7222-1BH32-0XB0	6ES7222-1HF32-0XB0	6ES7222-1HH32-0XB0	6ES7222-1XF32-0XB0
	DIGITAL OUTPUT SM1222, 8 DO, 24V DC	DIGITAL OUTPUT SM1222, 16 DO, 24V DC	DIGITAL OUTPUT SM 1222, 8 DO, RELAY	DIGITAL OUTPUT SM1222, 16 DO, RELAY	DIGITAL OUTPUT SM 1222, 8 DO, CHANGEOVER
Product type designation					
Supply voltage					
permissible range, lower limit (DC)	20.4 V	20.4 V	20.4 V	20.4 V	20.4 V
permissible range, upper limit (DC)	28.8 V	28.8 V	28.8 V	28.8 V	28.8 V
Input current					
from backplane bus 5 V DC, max.	120 mA	140 mA	120 mA	135 mA	140 mA
Digital inputs					
• from load voltage L+ (without load), max.			11 mA/relay coil	11 mA/relay coil	16.7 mA/relay coil
Power losses					
Power loss, typ.	1.5 W	2.5 W	4.5 W	8.5 W	5 W
Digital inputs					
Number of digital inputs	0	0	0	0	0
Digital outputs					
Number of digital outputs	8	16	8	16	8
• In groups of	1	1	2	1	1
short-circuit protection	No; to be provided externally	No; to be provided externally	No; to be provided externally	No; to be provided externally	No; to be provided externally
Limitation of inductive shutdown voltage to	typ. (L+) -48 V	typ. (L+) -48 V			
Switching capacity of the outputs					
• with resistive load, max.	0.5 A	0.5 A	2 A	2 A	2 A
• on lamp load, max.	5 W	5 W	30 W with DC, 200 W with AC	30 W with DC, 200 W with AC	30 W with DC, 200 W with AC
Output voltage					
• Rated value (DC)	24 V	24 V	5 V DC to 30 V DC	5 V DC to 30 V DC	5 V DC to 30 V DC
• Rated value (AC)			5 V AC to 250 V AC	5 V AC to 250 V AC	5 V AC to 250 V AC
• for signal "0", max.	0.1 V; with 10 kOhm load	0.1 V; with 10 kOhm load			
• for signal "1", min.	20 V DC	20 V DC			
Output current					
• for signal "1" rated value	0.5 A	0.5 A			
• for signal "1" permissible range, max.			2 A	2 A	2 A
• for signal "0" residual current, max.	10 µA	10 µA			

Technical specifications (continued)

Article number	6ES7222-1BF32-0XB0 DIGITAL OUTPUT SM1222, 8 DO, 24V DC	6ES7222-1BH32-0XB0 DIGITAL OUTPUT SM1222, 16 DO, 24V DC	6ES7222-1HF32-0XB0 DIGITAL OUTPUT SM 1222, 8 DO, RELAY	6ES7222-1HH32-0XB0 DIGITAL OUTPUT SM1222, 16 DO, RELAY	6ES7222-1XF32-0XB0 DIGITAL OUTPUT SM 1222, 8 DO, CHANGEOVER
Output delay with resistive load					
• "0" to "1", max.	50 µs	50 µs	10 ms	10 ms	10 ms
• "1" to "0", max.	200 µs	200 µs	10 ms	10 ms	10 ms
Aggregate current of outputs (per group)					
horizontal installation					
- up to 50 °C, max.	4 A; Current per mass	8 A; Current per mass	10 A; Current per mass	10 A; Current per mass	2 A; Current per mass
Relay outputs					
• Number of relay outputs			8	16	8
• Rated input voltage of relay coil L+ (DC)			24 V	24 V	24 V
• Number of operating cycles, max.			mechanically 10 million, at rated load voltage 100,000	mechanically 10 million, at rated load voltage 100,000	mechanically 10 million, at rated load voltage 100,000
Switching capacity of contacts					
- with inductive load, max.	0.5 A	0.5 A	2 A	2 A	2 A
- on lamp load, max.	5 W	5 W	30 W with DC, 200 W with AC	30 W with DC, 200 W with AC	30 W with DC, 200 W with AC
- with resistive load, max.	0.5 A	0.5 A	2 A	2 A	2 A
Cable length					
• shielded, max.	500 m	500 m	500 m	500 m	500 m
• Unshielded, max.	150 m	150 m	150 m	150 m	150 m
Interrupts/diagnostics/ status information					
Alarms					
• Alarms	Yes	Yes	Yes	Yes	Yes
• Diagnostic alarm	Yes	Yes	Yes	Yes	Yes
Diagnostic messages					
• Diagnostic functions	Yes	Yes	Yes	Yes	Yes
• Monitoring the supply voltage	Yes	Yes	Yes	Yes	Yes
Diagnostics indication LED					
• For status of the outputs	Yes	Yes	Yes	Yes	Yes
• for maintenance	Yes	Yes	Yes	Yes	Yes
• Status indicator digital output (green)	Yes	Yes	Yes	Yes	Yes
Galvanic isolation digital outputs					
• between the channels			Relays	Relays	Relays
• between the channels, in groups of	1	1	2	4	1
• between the channels and the backplane bus	500 V AC	500 V AC	1500 V AC for 1 minute	1500 V AC for 1 minute	1500 V AC for 1 minute
Permissible potential difference					
between different circuits			750 V AC for 1 minute	750 V AC for 1 minute	750 V AC for 1 minute
Degree and class of protection					
Degree of protection to EN 60529					
• IP20	Yes	Yes	Yes	Yes	Yes
Standards, approvals, certificates					
CE mark	Yes	Yes	Yes	Yes	Yes
CSA approval	Yes	Yes	Yes	Yes	Yes
cULus	Yes	Yes	Yes	Yes	Yes
FM approval	Yes	Yes	Yes	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes	Yes	Yes	Yes
Marine approval					
• Marine approval	Yes	Yes	Yes	Yes	Yes

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SM 1222 digital output modules**Technical specifications (continued)**

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Ambient conditions					
Free fall					
• Drop height, max. (in packaging)	0.3 m; five times, in dispatch package	0.3 m; five times, in dispatch package	0.3 m; five times, in dispatch package	0.3 m; five times, in dispatch package	0.3 m; five times, in dispatch package
Ambient temperature in operation					
• Permissible temperature range	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing
• Min.	-20 °C	-20 °C	-20 °C	-20 °C	-20 °C
• max.	60 °C	60 °C	60 °C	60 °C; Number of simultaneously activated outputs: 8 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 16 at 55 °C horizontal or 45 °C vertical	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
• Permissible temperature change	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute	5°C to 55°C, 3°C / minute
Storage/transport temperature					
• Min.	-40 °C	-40 °C	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C	70 °C	70 °C
Air pressure acc. to IEC 60068-2-13					
• Storage/transport, min.	660 hPa	660 hPa	660 hPa	660 hPa	660 hPa
• Storage/transport, max.	1 080 hPa	1 080 hPa	1 080 hPa	1 080 hPa	1 080 hPa
Relative humidity					
• Permissible range (without condensation) at 25 °C	95 %	95 %	95 %	95 %	95 %
Connection method					
required front connector	Yes	Yes	Yes	Yes	Yes
Mechanics/material					
Type of housing (front)					
• plastic	Yes	Yes	Yes	Yes	Yes
Dimensions					
Width	45 mm	45 mm	45 mm	45 mm	45 mm
Height	100 mm	100 mm	100 mm	100 mm	100 mm
Depth	75 mm	75 mm	75 mm	75 mm	75 mm
Weights					
Weight, approx.	180 g	220 g	190 g	260 g	310 g

Ordering data**SM 1222 digital output signal module**8 outputs, 24 V DC;
0.5 A, 5 W, isolated16 outputs, 24 V DC;
0.5 A, 5 W, isolated8 relay outputs, 5 ... 30 V DC /
5 ... 250 V AC, 2 A, 30 W DC /
200 W AC8 relay outputs, change-over
contact, 5 ... 30 V DC /
5 ... 250 V AC, 2 A,
30 W DC / 200 W AC16 relay outputs, 5 ... 30 V DC /
5 ... 250 V AC, 2 A, 30 W DC /
200 W AC**Article No.****6ES7222-1BF32-0XB0****6ES7222-1BH32-0XB0****6ES7222-1HF32-0XB0****6ES7222-1XF32-0XB0****6ES7222-1HH32-0XB0****Article No.****Extension cable for two-tier configuration**for connecting digital/analog
signal modules;
length 2 m**Terminal block (spare part)**for 8/16-channel digital signal
modules

with 7 screws, zinc-plated; 4 pcs.

Front flap set (spare part)

for 8/16-channel signal modules

6ES7290-6AA30-0XA0**6ES7292-1AG30-0XA0****6ES7291-1BA30-0XA0**