

SIMATIC S7-1200

Digital modules

SM 1222 digital output module

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

Application

Digital output modules permit the output of digital signals from the controller to the process.

This provides users with the following advantages:

- **Optimum adaptation:**
With signal modules which can be mixed as desired, users can adapt their controllers exactly to the relevant task. This avoids superfluous investments. Modules with 8, 16 and 32 input/output channels are available.
- **Flexibility:**
If the task is expanded subsequently, the controller can be upgraded. Updating of the user program is extremely simple.

Function

The SM 1222 digital output signal modules convert the internal signal level of the SIMATIC S7-1200 into the external signal level required by the process.

Technical specifications

	6ES7 222-1BF30-0XB0	6ES7 222-1BH30-0XB0	6ES7 222-1HF30-0XB0	6ES7 222-1HH30-0XB0
Product name	SM 1222 DQ 8 x 24 V DC	SM 1222 DQ 16 x 24 V DC	SM 1222 DQ 8 x relay	SM1222 DQ 16 x relay
Current consumption				
from 5 V DC backplane bus, max.	120 mA	140 mA	120 mA	135 mA
Digital inputs				
• from load voltage L+ (no load), max.			11 mA / for relay coil	11 mA / for relay coil
Current consumption/ power loss				
Power loss, typ.	1.5 W	2.5 W	4.5 W	8.5 W
Connection system				
Required front connector	Yes	Yes	Yes	Yes
Digital outputs				
Number of digital outputs	8	16	8	16
• in groups of	1	1	2	1
Short-circuit protection	No; to be provided externally	No; to be provided externally	No; to be provided externally	No; to be provided externally
Voltage induced on current interruption limited to	Typ. (L+) -48 V	Typ. (L+) -48 V		
Switching capacity of outputs				
• with ohmic load, max.	0.5 A	0.5 A	2 A	2 A
• with lamp load, max.	5 W	5 W	30 W DC; 200 W AC	30 W DC; 200 W AC
Output voltage				
• Rated value (AC)				5 ... 250 V AC
• Rated value (DC)	24 V	24 V	5 ... 250 V AC	5 ... 30 V DC
• for "0" signal (DC), max.	0.1 V; at 10 kOhm	0.1 V; at 10 kOhm	5 ... 30 V DC	
• for "1" signal, min.	20 V DC	20 V DC		

Technical specifications (continued)

	6ES7 222-1BF30-0XB0	6ES7 222-1BH30-0XB0	6ES7 222-1HF30-0XB0	6ES7 222-1HH30-0XB0
Product name	SM 1222 DQ 8 x 24 V DC	SM 1222 DQ 16 x 24 V DC	SM 1222 DQ 8 x relay	SM1222 DQ 16 x relay
Output current				
• for "1" signal, rated value	0.5 A	0.5 A	2 A	2 A
• for "0" signal, residual current, max.	10 µA	10 µA		
Output delay with ohmic load				
• "0" to "1", max.	50 µs	50 µs	10 ms	10 ms
• "1" to "0", max.	200 µs	200 µs	10 ms	10 ms
Aggregate current of outputs (per group)				
• Horizontal mounting position				
- up to 50 °C	4 A; current per ground	8 A; current per ground	10 A; current per ground	10 A; current per ground
Cable length				
• Max. cable length, shielded	500 m	500 m	500 m	500 m
• Max. cable length, unshielded	150 m	150 m	150 m	150 m
Relay outputs				
Number of relay outputs			8	16
Rated power supply L+ to the relays (DC)			24 V	24 V
Number of operating cycles			Mechanically 10 million, with rated load voltage 100000	Mechanically 10 million, with rated load voltage 100000
Switching capacity of contacts				
• with inductive load, max.	0.5 A	0.5 A	2 A	2 A
• with lamp load, max.	5 W	5 W	30 W DC; 200 W AC	30 W DC; 200 W AC
• with ohmic load, max.	0.5 A	0.5 A	2 A	2 A
Interrupts/diagnostics/status information				
Interrupts				
• Interrupts	Yes	Yes	Yes	Yes
• Diagnostic interrupt	Yes	Yes	Yes	Yes
Diagnostics				
• Diagnostic functions	Yes	Yes	Yes	Yes
• Monitoring of the supply voltage of the electronics	Yes	Yes	Yes	Yes
Diagnostics LEDs				
• for status of the outputs	Yes	Yes	Yes	Yes
• for maintenance	Yes	Yes	Yes	Yes
• Digital output status indicator (green)	Yes	Yes	Yes	Yes
Galvanic isolation				
Isolation of digital outputs				
• between the channels			Relay, dry contact	Relay, dry contact
• between the channels, in groups of	1	1	2	4
• between channels and the backplane bus	500 V AC	500 V AC	1500 V AC for 1 minute	1500 V AC for 1 minute

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Technical specifications (continued)

	6ES7 222-1BF30-0XB0	6ES7 222-1BH30-0XB0	6ES7 222-1HF30-0XB0	6ES7 222-1HH30-0XB0
Product name	SM 1222 DQ 8 x 24 V DC	SM 1222 DQ 16 x 24 V DC	SM 1222 DQ 8 x relay	SM1222 DQ 16 x relay
Permissible potential difference				
Between different circuits			750 V AC for 1 minute	750 V AC for 1 minute
Climatic and mechanical conditions for storage and transport				
Climatic conditions for storage and transport				
Free fall				
- max. height of fall (in packaging)	0.3 m; five times, in transport packaging	0.3 m; five times, in transport packaging	0.3 m; five times, in transport packaging	0.3 m; five times, in transport packaging
Temperature				
- permissible temperature range	-40° C ... +70° C	-40° C ... +70° C	-40° C ... +70° C	-40° C ... +70° C
Atmospheric pressure acc. to IEC 60068-2-13				
- permissible atmospheric pressure	1080 ... 660 hPa	1080 ... 660 hPa	1080 ... 660 hPa	1080 ... 660 hPa
Relative humidity				
- permissible range (without condensation) at 25 °C	95%	95%	95%	95%
Mechanical and climatic conditions in operation				
Climatic conditions in operation				
Temperature				
- permissible temperature range	0° C ... 55° C (horizontal mounting) 0° C ... 45° C (vertical mounting)	0° C ... 55° C (horizontal mounting) 0° C ... 45° C (vertical mounting)	0° C ... 55° C (horizontal mounting) 0° C ... 45° C (vertical mounting)	0° C ... 55° C (horizontal mounting) 0° C ... 45° C (vertical mounting)
- permissible temperature change	5° C ... 55°, 3 °C/min	5° C ... 55°, 3 °C/min	5° C ... 55°, 3 °C/min	5° C ... 55°, 3 °C/min
Degree of protection				
IP20	Yes	Yes	Yes	Yes
Standards, approvals, certificates				
CE mark	Yes	Yes	Yes	Yes
C-TICK	Yes	Yes	Yes	Yes
FM approval	Yes	Yes	Yes	Yes
Mechanical system				
Enclosure type (front)				
Plastic	Yes	Yes	Yes	Yes
Dimensions and weight				
Dimensions and weight				
Width	45 mm	45 mm	45 mm	45 mm
Height	100 mm	100 mm	100 mm	100 mm
Depth	75 mm	75 mm	75 mm	75 mm
Weight				
Approx. weight	180 g	220 g	190 g	260 g

Ordering data	Order No.
SM 1222 digital output signal module	
8 outputs, 24 V DC; 0.5 A, 5 W, isolated	C 6ES7 222-1BF30-0XB0
16 outputs, 24 V DC; 0.5 A, 5 W, isolated	C 6ES7 222-1BH30-0XB0
8 relay outputs, 5 ... 30 V DC/5 ... 250 V AC, 2 A, 30 W DC/200 W AC	C 6ES7 222-1HF30-0XB0
16 relay outputs, 5 ... 30 V DC/5 ... 250 V AC, 2 A, 30 W DC/200 W AC	C 6ES7 222-1HH30-0XB0
S7-1200 automation system, System Manual	
for SIMATIC S7-1200 and STEP 7 Basic	
German	6ES7 298-8FA30-8AH0
English	6ES7 298-8FA30-8BH0
STEP 7 Basic engineering software	
<i>Target system:</i> SIMATIC S7-1200 controllers and the associated I/O. The WinCC Basic which is included permits configuration of the SIMATIC Basic Panels	
<i>Requirement:</i> MS Windows XP SP3 / MS Windows Vista SP1	
<i>Type of delivery:</i> German, English, with online documentation	
Single license	D 6ES7 822-0AA00-0YA0
STEP 7 Basic Software Update Service, 1 year	D 6ES7 822-0AA00-0YL0

C: Subject to export regulations: AL: N and ECCN: EAR99H

D: Subject to export regulations: AL: N and ECCN: EAR99S

More information**Brochures**

Information material for downloading can be found in the Internet:

<http://www.siemens.com/simatic/printmaterial>