

Overview

- 8, 16 and 32-channel digital output modules
- For flexible adaptation of the controller to the corresponding task
- For subsequent expansion of the system with additional outputs
- 35 mm wide modules with parameters and diagnostic functions
- 25 mm wide modules for use in tight spaces: particularly economical, without parameters or diagnostic functions

Technical specifications

Article number	6ES7522-1BH01-0AB0 S7-1500, DQ 16x24V DC/ 0.5A HF	6ES7522-1BL01-0AB0 S7-1500, DQ 32x24VDC/ 0.5A HF	6ES7522-1BF00-0AB0 S7-1500, DQ 8x24VDC/2A HF	6ES7522-5EH00-0AB0 S7-1500, DQ 16x24...48VUC/125VDC/ 0.5A ST
General information				
Product type designation	DQ 16x24VDC/0.5A HF	DQ 32x24VDC/0.5A HF	DQ 8x24VDC/2A HF	DQ 16x24 ... 48VUC/ 125VDC/0.5A ST
Product function				
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with				
• STEP 7 TIA Portal configurable/ integrated as of version	V13 SP1 / -	V13 SP1 / -	V13 SP1 / -	V13 SP1 / -
• STEP 7 configurable/integrated as of version			V5.5 SP3 / -	V5.5 SP3 / -
• PROFIBUS as of GSD version/ GSD revision	V1.0 / V5.1	V1.0 / V5.1	V1.0 / V5.1	V1.0 / V5.1
• PROFINET as of GSD version/ GSD revision	V2.3 / -	V2.3 / -	V2.3 / -	V2.3 / -
Operating mode				
• DQ	Yes	Yes	Yes	Yes
• DQ with energy-saving function	No	No	Yes; with an application	No
• PWM	No	No	Yes	No
• Oversampling	No	No	No	No
• MSO	Yes	Yes	Yes	Yes
Supply voltage				
Type of supply voltage	DC	DC	DC	
Rated value (DC)	24 V	24 V	24 V	
Reverse polarity protection	Yes; through internal protection with 7 A per group	Yes; through internal protection with 7 A per group	Yes; through internal protection with 10 A per group	
Digital outputs				
Type of digital output	Transistor	Transistor	Transistor	Transistor
Number of digital outputs	16	32	8	16
Current-sinking				Yes
Current-sourcing	Yes	Yes	Yes	Yes
Digital outputs, parameterizable	Yes	Yes	Yes	Yes
Short-circuit protection	Yes; Clocked electronically	Yes; Clocked electronically	Yes	
Limitation of inductive shutdown voltage to	L+ (-53 V)	L+ (-53 V)	-17 V	200 V (suppressor diode)
Controlling a digital input	Yes	Yes	Yes	Yes
Digital output functions, parameterizable				
• Freely usable digital output			Yes	
• PWM output			Yes	
- Number, max.			2	
- Cycle duration, parameterizable			Yes; 2 ... 100 ms continuous	

Technical specifications (continued)

Article number	6ES7522-1BH01-0AB0 S7-1500, DQ 16X24V DC/ 0.5A HF	6ES7522-1BL01-0AB0 S7-1500, DQ 32X24VDC/ 0.5A HF	6ES7522-1BF00-0AB0 S7-1500, DQ 8X24VDC/2A HF	6ES7522-5EH00-0AB0 S7-1500, DQ 16X24...48VUC/125VDC/ 0.5A ST
Diagnostics indication LED				
• RUN LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• ERROR LED	Yes; Red LED	Yes; Red LED	Yes; Red LED	Yes; Red LED
• Monitoring of the supply voltage (PWR-LED)	Yes; Green LED	Yes; Green LED	Yes; Green LED	No
• Channel status display	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• for channel diagnostics	Yes; Red LED	Yes; Red LED	Yes; Red LED	No
• for module diagnostics	Yes; Red LED	Yes; Red LED	Yes; Red LED	Yes; Red LED
Potential separation				
Potential separation channels				
• between the channels and backplane bus	Yes	Yes	Yes	Yes
Isolation				
Isolation tested with	707 V DC (type test)	707 V DC (type test)	707 V DC (type test)	2 000 V DC
Standards, approvals, certificates				
Suitable for safety functions	No	No	No	No
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.	0 °C			0 °C
• horizontal installation, max.	60 °C			60 °C
• vertical installation, min.	0 °C			0 °C
• vertical installation, max.	60 °C			40 °C
Decentralized operation				
Prioritized startup	Yes	Yes	Yes	Yes
Dimensions				
Width	35 mm	35 mm	35 mm	35 mm
Height	147 mm	147 mm	147 mm	147 mm
Depth	129 mm	129 mm	129 mm	129 mm
Weights				
Weight, approx.	230 g	280 g	240 g	230 g
Article number	6ES7522-5HF00-0AB0 S7-1500, DQ 8X230VAC/5A ST (RELAY)	6ES7522-5HH00-0AB0 S7-1500, DQ 16X230VAC/2A ST (RELAY)	6ES7522-5FF00-0AB0 S7-1500, DQ 8X230VAC/2A ST (TRIAC)	6ES7522-5FH00-0AB0 S7-1500, DQ 16X230VAC/1A ST (TRIAC)
General information				
Product type designation	DQ 8x230 V AC/5 A ST (relay)	DQ 16x230VAC/2A ST (relay)	DQ 8x230 V AC/2A ST (triac)	DQ 16x230VAC/1A ST (Triac)
Product function				
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with				
• STEP 7 TIA Portal configurable/ integrated as of version	V12 / V12	V13 SP1 / -	V12 / V12	V13 SP1 / -
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -	V5.5 SP3 / -
• PROFIBUS as of GSD version/ GSD revision	V1.0 / V5.1	V1.0 / V5.1	V1.0 / V5.1	V1.0 / V5.1
• PROFINET as of GSD version/ GSD revision	V2.3 / -	V2.3 / -	V2.3 / -	V2.3 / -
Operating mode				
• DQ	Yes	Yes	Yes	Yes
• DQ with energy-saving function	No	No	No	No
• PWM	No	No	No	No
• Oversampling	No	No	No	No
• MSO	Yes	Yes	Yes	Yes
Supply voltage				
Type of supply voltage	DC	DC		
Rated value (DC)	24 V	24 V		
Reverse polarity protection	Yes	Yes		

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I/O modules

Digital modules

SM 522 digital output modules

Technical specifications (continued)

Article number	6ES7522-5HF00-0AB0 S7-1500, DQ 8X230VAC/5A ST (RELAY)	6ES7522-5HH00-0AB0 S7-1500, DQ 16X230VAC/2A ST (RELAY)	6ES7522-5FF00-0AB0 S7-1500, DQ 8X230VAC/2A ST (TRIAC)	6ES7522-5FH00-0AB0 S7-1500, DQ 16X230VAC/1A ST (TRIAC)
Digital outputs				
Type of digital output	Relays	Relays	Triac	Triac
Number of digital outputs	8	16	8	16
Current-sinking	Yes	Yes		Yes
Current-sourcing	Yes	Yes	Yes	Yes
Digital outputs, parameterizable	Yes	Yes	Yes	Yes
Short-circuit protection	No	No	No	No
Controlling a digital input	possible	Yes		
Switching capacity of the outputs				
• with resistive load, max.			2 A	1 A
• on lamp load, max.	1 500 W; 10 000 operating cycles	50 W (230 V AC), 5 W (24 V DC)	50 W	50 W
• Low energy/fluorescent lamps with electronic control gear	10x 58 W (25 000 operating cycles)			
• Fluorescent tubes, conventionally compensated	1x 58 W (25 000 operating cycles)			
• Fluorescent tubes, uncompensated	10x 58 W (25 000 operating cycles)			
Output voltage				
• Type of output voltage			AC	AC
• for signal "1", min.			L1 (-1.5 V) at maximum output current; L1 (-8.5 V) at minimum output current	L1 (-1.5 V) at maximum output current; L1 (-8.5 V) at minimum output current
Output current				
• for signal "1" rated value	5 A	2 A	2 A	1 A
• for signal "0" residual current, max.	0 A	0 A	2 mA	2 mA
Output delay with resistive load				
• "0" to "1", max.			1 AC cycle	1 AC cycle
• "1" to "0", max.			1 AC cycle	1 AC cycle
Parallel switching of two outputs				
• for logic links	Yes	Yes	No	No
• for uprating	No	No	No	No
• for redundant control of a load	Yes	Yes	Yes	Yes
Switching frequency				
• with resistive load, max.	2 Hz	1 Hz	10 Hz	10 Hz
• with inductive load, max.	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz
• on lamp load, max.	2 Hz	1 Hz	1 Hz	1 Hz
Total current of the outputs				
• Current per channel, max.	8 A; see additional description in the manual	2 A; see additional description in the manual	2 A; see additional description in the manual	1 A; see additional description in the manual
• Current per group, max.	8 A; see additional description in the manual	2 A; see additional description in the manual	2 A; see additional description in the manual	2 A; see additional description in the manual
• Current per module, max.	64 A; see additional description in the manual	32 A; see additional description in the manual	10 A; see additional description in the manual	10 A; see additional description in the manual
Relay outputs				
• Number of relay outputs	8	16		
• Rated supply voltage of relay coil L+ (DC)	24 V	24 V		
• Current consumption of relays (coil current of all relays), typ.	80 mA	150 mA		
• external protection for relay outputs	With miniature circuit breaker with characteristic B for: cos ϕ 1.0: 600 A cos ϕ 0.5 ... 0.7: 900 A with 8 A Diazed fuse: 1000 A	Miniature circuit breaker B10 / B16		

Technical specifications (continued)

Article number	6ES7522-5HF00-0AB0 S7-1500, DQ 8X230VAC/5A ST (RELAY)	6ES7522-5HH00-0AB0 S7-1500, DQ 16X230VAC/2A ST (RELAY)	6ES7522-5FF00-0AB0 S7-1500, DQ 8X230VAC/2A ST (TRIAC)	6ES7522-5FH00-0AB0 S7-1500, DQ 16X230VAC/1A ST (TRIAC)
Relay outputs (continued)				
• Contact connection (internal)	No	No		
• Size of motor starters according to NEMA, max.	5	5		
• Number of operating cycles, max.	4 000 000; see additional description in the manual	see additional description in the manual		
• Relay approved acc. to UL 508	Yes; 250 V AC/5 A g.p.; 120 V AC TV-4 tungsten; A300, R300	No		
Switching capacity of contacts				
- with inductive load, max.	see additional description in the manual	2 A; see additional description in the manual		
- with resistive load, max.	see additional description in the manual	2 A; see additional description in the manual		
Triac outputs				
• Size of motor starters according to NEMA, max.			5	4
Cable length				
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m
• unshielded, max.	600 m	600 m	600 m	600 m
Isochronous mode				
Isochronous operation (application synchronized up to terminal)	No	No	No	No
Interrupts/diagnostics/status information				
Diagnostics function	Yes	Yes	No	No
Substitute values connectable	Yes	Yes	Yes	Yes
Alarms				
• Diagnostic alarm	Yes	Yes	No	No
Diagnostic messages				
• Monitoring the supply voltage	Yes	Yes	No	No
• Wire-break	No	No	No	No
• Short-circuit	No	No	No	No
Diagnostics indication LED				
• RUN LED	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• ERROR LED	Yes; Red LED	Yes; Red LED	Yes; Red LED	Yes; Red LED
• Monitoring of the supply voltage (PWR-LED)	Yes; Green LED	Yes; Green LED	No	No
• Channel status display	Yes; Green LED	Yes; Green LED	Yes; Green LED	Yes; Green LED
• for channel diagnostics	No	No	No	No
• for module diagnostics	Yes; Red LED	Yes; Red LED	Yes; Red LED	Yes; Red LED
Potential separation				
Potential separation channels				
• between the channels and backplane bus	Yes	Yes	Yes	Yes
Isolation				
Isolation tested with	Between channels: 3 100 V DC; between channels backplane bus: 3 100 V DC; between L+ and backplane bus: 707 V DC (type test)	Between channels: 3 100 V DC; between channels backplane bus: 3 100 V DC; between L+ and backplane bus: 707 V DC (type test)	3 100 V DC	3 100 V DC
Standards, approvals, certificates				
Suitable for safety functions	No	No	No	No
Ambient conditions				
Ambient temperature during operation				
• horizontal installation, min.	0 °C	0 °C	0 °C	0 °C
• horizontal installation, max.	60 °C	60 °C	60 °C	60 °C
• vertical installation, min.	0 °C	0 °C	0 °C	0 °C
• vertical installation, max.	40 °C	40 °C	40 °C	60 °C

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Digital modules

SM 522 digital output modules

Technical specifications (continued)

Article number	6ES7522-5HF00-0AB0 S7-1500, DQ 8X230VAC/5A ST (RELAY)	6ES7522-5HH00-0AB0 S7-1500, DQ 16X230VAC/2A ST (RELAY)	6ES7522-5FF00-0AB0 S7-1500, DQ 8X230VAC/2A ST (TRIAC)	6ES7522-5FH00-0AB0 S7-1500, DQ 16X230VAC/1A ST (TRIAC)
Decentralized operation				
Prioritized startup	Yes	Yes	Yes	Yes
Dimensions				
Width	35 mm	35 mm	35 mm	35 mm
Height	147 mm	147 mm	147 mm	147 mm
Depth	129 mm	129 mm	129 mm	129 mm
Weights				
Weight, approx.	350 g	350 g	290 g	310 g

Article number	6ES7522-1BH10-0AA0 S7-1500, DQ 16X24VDC/0.5A BA	6ES7522-1BL10-0AA0 S7-1500, DQ 32X24VDC/0.5A BA
General information		
Product type designation	DQ 16x24VDC/0.5A BA	DQ 32x24VDC/0.5A BA
Product function		
• I&M data	Yes; I&M0 to I&M3	Yes; I&M0 to I&M3
Engineering with		
• STEP 7 TIA Portal configurable/ integrated as of version	V13 / V13	V13 / V13
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -	V5.5 SP3 / -
• PROFIBUS as of GSD version/ GSD revision	V1.0 / V5.1	V1.0 / V5.1
• PROFINET as of GSD version/ GSD revision	V2.3 / -	V2.3 / -
Operating mode		
• DQ	Yes	Yes
• DQ with energy-saving function	No	No
• PWM	No	No
• Oversampling	No	No
• MSO	Yes	Yes
Supply voltage		
Type of supply voltage	DC	DC
Rated value (DC)	24 V	24 V
Reverse polarity protection	Yes; through internal protection with 7 A per group	Yes; through internal protection with 7 A per group
Digital outputs		
Type of digital output	Transistor	Transistor
Number of digital outputs	16	32
Current-sourcing	Yes	Yes
Digital outputs, parameterizable	No	No
Short-circuit protection	Yes	Yes
Limitation of inductive shutdown voltage to	L+ (-53 V)	L+ (-53 V)
Controlling a digital input	Yes	Yes
Switching capacity of the outputs		
• with resistive load, max.	0.5 A	0.5 A
• on lamp load, max.	5 W	5 W
Load resistance range		
• lower limit	48 Ω	48 Ω
• upper limit	12 kΩ	12 kΩ
Output voltage		
• Type of output voltage	DC	DC
• for signal "1", min.	L+ (-0.8 V)	L+ (-0.8 V)