SIEMENS

Product Information

SIMATIC S7-300

Digital I/O Modules:

SM 321 DI 32 X 120 VAC and SM 322 DO 32 x 120 VAC/1.0 A

New Digital Input and Output Modules Available

The S7-300 digital input module SM 321 DI 32 x 120 VAC and digital output module SM 322 DO 32 x 120 VAC/1.0 A have been added to the S7-300 family. The order numbers for these modules are shown below:

- For the digital input module SM 321 DI 32 x 120 VAC, the order number is 6ES7 321–1EL00–0AA0.
- For the digital output module SM 322 DO 32 x 120 VAC/1.0 A, the order number is 6ES7 322–1EL00–0AA0.

The technical specifications for the digital input and output modules are included in this product information document. You can refer to the *S7-300 Installation and Hardware Manual* for more information about the S7-300 product family.

Additional Assistance

For assistance in answering technical questions, for training on this product, or for ordering, contact your Siemens distributor or sales office.

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Digital Input Module SM 321; DI 32 × 120 VAC

Order No. 6ES7 321-1EL00–0AA0

Characteristics

The digital input module, SM 321; DI 32 × 120 VAC, has the following salient features:

- 32 input points, isolated in groups of 8
- 120 VAC rated input voltage
- Suitable for switches and 2/3/4-wire proximity switches

Terminal Connection Diagram and Block Diagram

Figure 1 shows the terminal connection diagram and block diagram of the digital input module SM 321; DI 32 × 120 VAC.

You will find detailed technical specifications of the SM 321; DI 32 × 120 VAC on the following page.

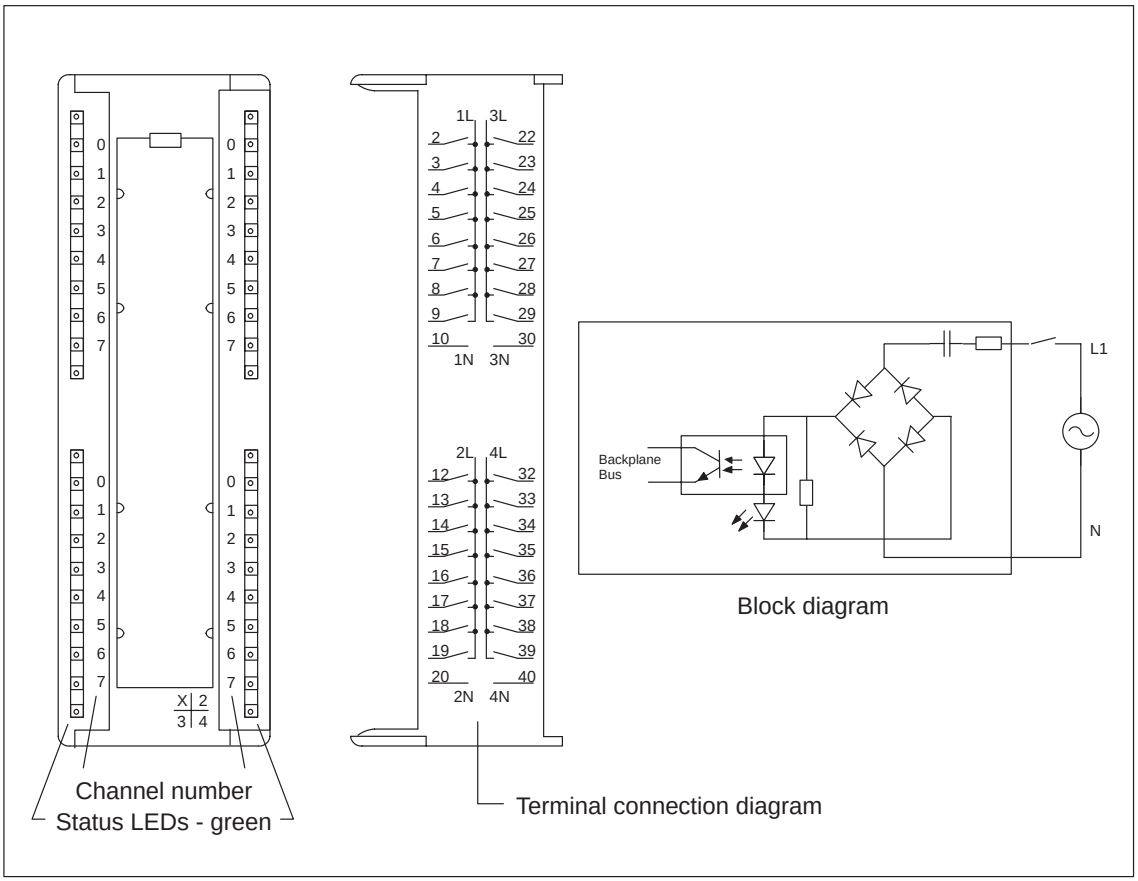

Figure 1 Terminal Connection Diagram and Block Diagram of Digital Input Module SM 321; DI 32 × 120 VAC

Dimensions and Weight	
Dimensions W × H × D	40 × 125 × 120 mm (1.56 × 4.88 × 4.68 in.)
Weight	approx. 300 g (10.6 oz.)
Module-Specific Data	
Number of input points	32
Length of cable	
• Unshielded	max. 600 m (654 yd.)
• Shielded	max. 1000 m (1090 yd.)
Voltages, Currents, Potentials	
Rated input voltage L1	120 VAC
Number of input points that can be driven simultaneously	
• Horizontal installation up to 60° C/140° F	24
• Horizontal or Vertical installation up to 40° C/104° F	32
Galvanic isolation	
• To backplane bus	Yes (optocoupler)
• Between the channels in groups of	Yes 8
Permiss. potential differences	
• Between N terminals of the groups	250 VAC
• Between the input (N terminal) and central grounding point	1500 VAC
• Insulation tested with	1500 VAC
Current drawn	
• from backplane bus	max. 16 mA
Module power losses	typ. 4 W

Status, Interrupts, Diagnostics	
Status display	Yes; green LED per channel
Interrupts	No
Diagnostics functions	No
Sensor Selection Data	
Input voltage	
• Rated value	AC 120 V
• Frequency	47 to 63 Hz
• For ‘‘1’’ signal	74 to 132 V
• For ‘‘0’’ signal	0 to 20 V
Input current	
• At ‘‘1’’ signal	max. 27 mA typ. 21 mA
Input delay	
• Programmable	No
• From ‘‘0’’ to ‘‘1’’	max. 15 ms
• From ‘‘1’’ to ‘‘0’’	max. 25 ms
Input characteristic	to IEC 1131, Type 2
Connection of 2-wire BEROs	Possible
• Permiss. closed-circuit current	< 4 mA

Digital Output Module SM 322; D0 32 × 120 VAC/1.0 A

Order No. 6ES7 322-1EL00–0AA0

Characteristics The digital output module, SM 322; DO 32 × 120 VAC/1.0 A has the following salient features:

- 32 output points, fused and isolated in groups of 8
- 1.0 A output current
- 120 VAC rated load voltage
- Blown fuse indicator for each group
- Suitable for AC solenoid valves, contactors, motor starters, fractional h.p. motors and indicator lights

Terminal Connection Diagram and Block Diagram

Figure 2 shows the terminal connection diagram and block diagram of the digital output module SM 322; D0 32 × 120 VAC/1.0 A.

You will find the detailed technical specifications of the module SM 322; D0 32 × 120 VAC/1.0 A on the following page.

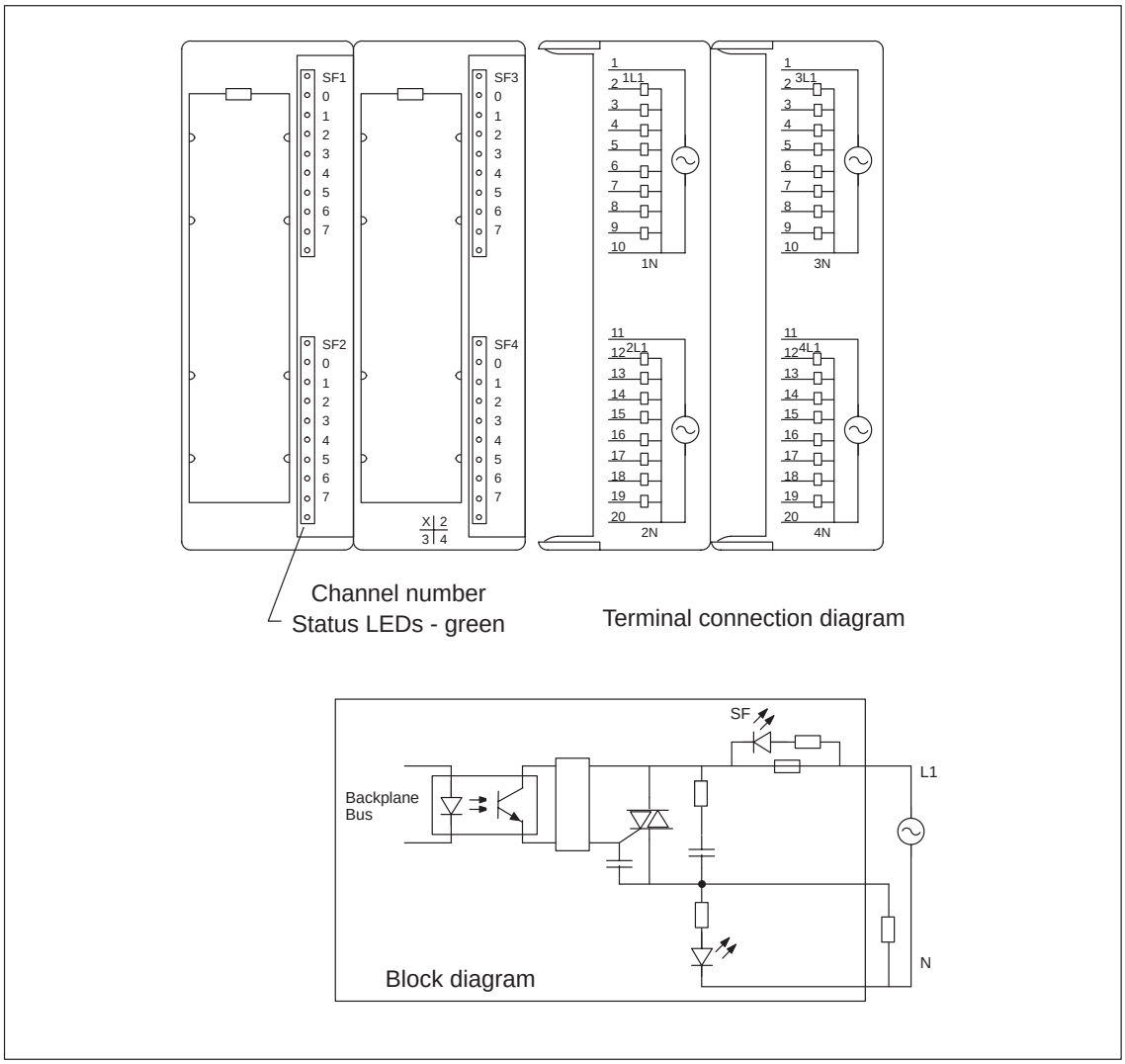

Figure 2 Terminal Connection Diagram and Block Diagram of Digital Output Module SM 322; D0 32 × 120 VAC/1.0 A

Dimensions and Weight	
Dimensions W × H × D	80 × 125 × 120 mm (3.15 × 4.88 × 4.68 in.)
Weight	approx. 500 g (19.3 oz.)
Module-Specific Data	
Number of output points	32
Length of cable	
• Unshielded	max. 600 m (654 yd.)
• Shielded	max. 1000 m (1090 yd.)
Voltages, Currents, Potentials	
Rated load voltage L1	120 VAC
• Reverse polarity protection	N/A
Total current of the outputs (per group)	
• Horizontal installation up to 20° C/68° F up to 60° C/140° F	 max. 6 A max. 3 A
• Vertical installation up to 40 °C/104 °F	 max. 4 A
Galvanic isolation	
• To backplane bus	Yes (optocoupler)
• Between the channels in groups of	Yes 8
Permiss. potential differences	
• Between the L1 terminals of the groups	250 VAC
• Between the input (L1 terminal) and the central grounding point	1500 VAC
• Insulation tested with	1500 VAC
Current drawn	
• From backplane bus	max. 100 mA
• From L1 (without load)	max. 275 mA
Module power losses	typ. max. 25 W

Status, Interrupts, Diagnostics	
Status display	Yes; green LED per channel
Interrupts	No
Diagnostics functions	Yes
• Group fault display on the module (fuse)	Yes
Actuator Selection Data	
Output voltage	
• At “1” signal	L1 – 1.5 V
Output current	
• At “1” signal Rated current Min. current Permiss. surge current (per group)	 1 A 10 mA max. 10 A (with 2 half waves)
• At “0” signal Residual current	 max. 3 mA
Zero cross inhibit voltage	Non-zero cross outputs
Size of motor starter	max. size 4 to NEMA
Output power	
• Lamp load	max. 25 W
Parallel connection of 2 outputs	
• For logic operations	Possible (only outputs of the same group)
• To increase power	Not possible
Driving of digital input	Possible
Max. switching frequency	
• Resistive loads	max. 10 Hz
• Inductive loads	max. 0.5 Hz
• Lamp loads	1 Hz
Short-circuit protection of output	7 A fuse, 125 V per group, not replaceable