

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

SIEMENS

6ES7323-1BH01-0AA0

S7 300 DIGITAL I O

Used with the applicable PLC System configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: Siemens official manufacturer documentation

SIMATIC S7-300

Digital modules

SM 322 digital output modules

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Ordering data	Order No.	Order No.
SM 322 digital output modules		
incl. labeling strips, bus connector		
8 outputs, 24 V DC, 2 A	6ES7 322-1BF01-0AA0	
16 outputs, 24 V DC, 0.5 A	6ES7 322-1BH01-0AA0	
16 outputs, 24 V DC, 0.5 A, high speed	6ES7 322-1BH10-0AA0	
32 outputs, 24 V DC, 0.5 A	6ES7 322-1BL00-0AA0	
8 outputs, 24 V DC, 0.5 A, diagnostics-capable	6ES7 322-8BF00-0AB0	
16 outputs, 24/48 V DC, 0.5 A A)	6ES7 322-5GH00-0AB0	
8 outputs, 48 to 125 V DC, 1.5 A A)	6ES7 322-1CF00-0AA0	
8 outputs, 120/230 V AC, 1 A A)	6ES7 322-1FF01-0AA0	
8 outputs, 120/230 V AC, 2 A A)	6ES7 322-5FF00-0AB0	
16 outputs, 120/230 V AC, 1 A A)	6ES7 322-1FH00-0AA0	
32 outputs, 120 V AC, 1 A A)	6ES7 322-1FL00-0AA0	
8 outputs, relay contacts, 2 A	6ES7 322-1HF01-0AA0	
8 outputs, relay contacts, 5 A	6ES7 322-1HF10-0AA0	
8 outputs, relay contacts, 5 A, with RC filter, overvoltage protection A)	6ES7 322-5HF00-0AB0	
16 outputs, relay contacts, 8 A	6ES7 322-1HH01-0AA0	
Front connectors		
20-pin, with screw contacts		
• 1 unit	6ES7 392-1AJ00-0AA0	
• 100 units	6ES7 392-1AJ00-1AB0	
20-pin, with cage clamp contacts		
• 1 unit	6ES7 392-1BJ00-0AA0	
• 100 units	6ES7 392-1BJ00-1AB0	
40-pin, with screw contacts		
• 1 unit	6ES7 392-1AM00-0AA0	
• 100 units	6ES7 392-1AM00-1AB0	
40-pin with cage clamp contacts		
• 1 unit	6ES7 392-1BM01-0AA0	
• 100 units	6ES7 392-1BM01-1AB0	
Front door, elevated design A)	6ES7 328-0AA00-7AA0	
e.g. for 32-channel modules; for connecting 1.3 mm ² /16 AWG conductors		
SIMATIC TOP connect	See page 4/225; Information about which components can be used for the respective module, see A&D Mall or Catalog KT 10.2	
Bus connectors	6ES7 390-0AA00-0AA0	
1 unit (spare part)		
Set of fuses for SM 322		
10 fuses 8 A quick-response, 2 fuse holders; for 6ES7 322-1FF01-0AA0, 6ES7 322-1FH00-0AA0 A)	6ES7 973-1HD00-0AA0	
10 fuses 6.3 A; for 6ES7 322-1CF00-0AA0	6ES7 973-1GC00-0AA0	
Labeling strips		
10 units (spare part)		
for modules with 20-pin front connector	6ES7 392-2XX00-0AA0	
for modules with 40-pin front connector	6ES7 392-2XX10-0AA0	
Label cover		
10 units (spare part)		
for modules with 20-pin front connector	6ES7 392-2XY00-0AA0	
for modules with 40-pin front connector	6ES7 392-2XY10-0AA0	
S7 SmartLabel		
Software for automatic labeling of modules based on data of the STEP 7 project	2XV9 450-1SL01-0YX0	
Labeling sheets for machine inscription		
For 16-channel signal modules, DIN A4, for printing with laser printer; 10 units		
petrol	6ES7 392-2AX00-0AA0	
light-beige	6ES7 392-2BX00-0AA0	
yellow	6ES7 392-2CX00-0AA0	
red	6ES7 392-2DX00-0AA0	
For 32-channel signal modules, DIN A4, for printing with laser printer; 10 units		
petrol	6ES7 392-2AX10-0AA0	
light-beige	6ES7 392-2BX10-0AA0	
yellow	6ES7 392-2CX10-0AA0	
red	6ES7 392-2DX10-0AA0	
SIMATIC Manual Collection D)	6ES7 998-8XC01-8YE0	
Electronic manuals on DVD, multilingual: S7-200, S7-300, C7, S7-400, SIMATIC DP (Distributed I/O), SIMATIC PC, SIMATIC PG (Programming device), STEP 7, Engineering Tools, Runtime Software, SIMATIC PCS 7, SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication), SIMATIC Machine Vision, SIMATIC Sensors		
SIMATIC Manual Collection update service for 1 year D)	6ES7 998-8XC01-8YE2	
Current S7 Manual Collection DVD and the three subsequent updates		
S7-300 manual		
Design, CPU data, module data, instruction list		
German	6ES7 398-8FA10-8AA0	
English	6ES7 398-8FA10-8BA0	
French	6ES7 398-8FA10-8CA0	
Spanish	6ES7 398-8FA10-8DA0	
Italian	6ES7 398-8FA10-8EA0	

A) Subject to export regulations: AL: N and ECCN: EAR99H

D) Subject to export regulations: AL: N and ECCN: 5D992B1

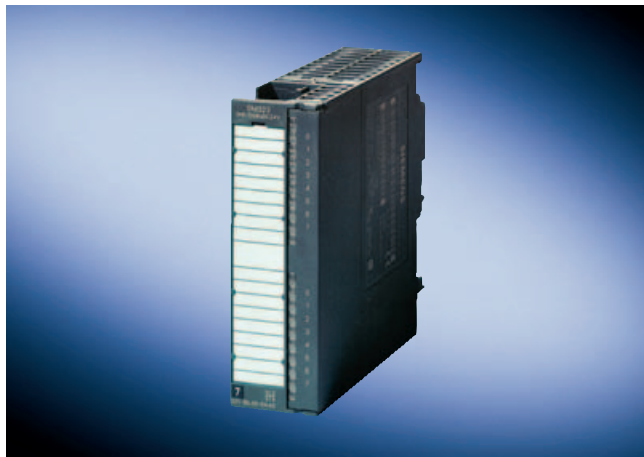
SIMATIC S7-300

Digital modules

SM 323/SM 327 digital input/output modules

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Overview



- Digital inputs and outputs
- For connecting standard switches, two-wire proximity switches (BERO), solenoid valves, contactors, low-power motors, lamps and motor starters

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Technical specifications

	6ES7 323-1BH01-0AA0	6ES7 323-1BL00-0AA0	6ES7 327-1BH00-0AB0
Voltages and currents			
Load voltage L+			
• Rated value (DC)	24 V	24 V	24 V
Current consumption			
from load voltage L+ (without load), max.	40 mA	80 mA	20 mA
from backplane bus DC 5 V, max.	40 mA	80 mA	60 mA
Power loss, typ.	3.5 W	6.5 W	3 W
Connection point			
required front connectors	20-pin	40-pin	20-pin
Isochronous mode			
Isochronous mode	No	No	No
Digital inputs			
Number of digital inputs	8	16	8; 8 hardwired, and 8 others individually parameterizable
Number of simultaneously controllable inputs			
• Number of simultaneously controllable inputs, up to 40 °C	8	16	16
• Number of simultaneously controllable inputs, up to 60 °C	8	8	16
Cable length			
• Cable length, shielded, max.	1,000 m	1,000 m	1,000 m
• Cable length unshielded, max.	600 m	600 m	600 m
Input characteristic curve to IEC 1131, type 1	Yes	Yes	Yes
Input voltage			
• Rated value, DC	24 V	24 V	24 V
• for signal "0"	-30V to 5 V	-30V to 5 V	-30V to 5 V
• for signal "1"	13 to 30 V	13 to 30 V	15 to 30 V
Input current			
• for signal "1", typ.	7 mA	7 mA	6 mA

Technical specifications (continued)

	6ES7 323-1BH01-0AA0	6ES7 323-1BL00-0AA0	6ES7 327-1BH00-0AB0
Input delay (for rated value of input voltage)			
• for standard inputs			
- at "0" to "1", min.	1.2 ms	1.2 ms	1.2 ms
- at "0" to "1", max.	4.8 ms	4.8 ms	4.8 ms
- at "1" to "0", min.	1.2 ms	1.2 ms	1.2 ms
- at "1" to "0", max.	4.8 ms	4.8 ms	4.8 ms
Digital outputs			
Number of digital outputs	8	16	8; can also be parameterized individually as DI
Cable length, shielded, max.	1,000 m	1,000 m	1,000 m
Cable length unshielded, max.	600 m	600 m	600 m
Short-circuit protection of the output	Yes; electronic	Yes; electronic	Yes; electronic
• Response threshold, typ.	1 A	1 A	1 A
Limitation of inductive shutdown voltage to	L+ (-53 V)	L+ (-48 V)	L+ (-54 V)
Lamp load, max.	5 W	5 W	5 W
Controlling a digital input	Yes	Yes	Yes
Output voltage			
• for signal "1", min.	L+ (-0.8 V)	L+ (-0.8 V)	L+ (-1.5 V)
Output current			
• for signal "1" rated value	0.5 A	0.5 A	0.5 A
• for signal "1" permissible range for 0 to 60 °C, min.			5 mA
• for signal "1" permissible range for 0 to 60 °C, max.			0.6 A
• for signal "1" minimum load current	5 mA	5 mA	
• for signal "0" residual current, max.	0.5 mA	0.5 mA	0.5 mA
Output delay with resistive load			
• "0" to "1", max.	100 µs	100 µs	350 µs
• "1" to "0", max.	500 µs	500 µs	500 µs
Parallel switching of 2 outputs			
• for increased power	No	No	No
• for redundant control of a load	Yes; Outputs of the same group only	Yes; Outputs of the same group only	Yes; only outputs of the same group
Switching frequency			
• with resistive load, max.	100 Hz	100 Hz	100 Hz
• with inductive load, max.	0.5 Hz	0.5 Hz	0.5 Hz
• on lamp load, max.	10 Hz	100 Hz	10 Hz
Aggregate current of the outputs (per group)			
• vertical installation			
- up to 40 °C, max.	4 A	2 A	2 A
• horizontal installation			
- up to 40 °C, max.		4 A	4 A
- up to 60 °C, max.	4 A	3 A	3 A

SIMATIC S7-300

Digital modules

SM 323/SM 327 digital input/output modules

Technical specifications (continued)

	6ES7 323-1BH01-0AA0	6ES7 323-1BL00-0AA0	6ES7 327-1BH00-0AB0
Digital outputs			
Load impedance range			
• lower limit	48 Ω	48 Ω	48 Ω
• upper limit	4 kΩ	4 kΩ	4 kΩ
Encoder			
Connectable encoders			
• 2-wire BEROs	Yes	Yes	Yes
• permissible quiescent current (2-wire BEROs), max.	2 mA	1.5 mA	1.5 mA
Status information/ alarms/diagnostics			
Alarms			
• Alarms	No	No	No
Diagnoses			
• Diagnostic functions	No	No	No
Diagnostics indication LED			
• Status indicator digital output (green)	Yes	Yes	Yes
• Status indicator digital input (green)	Yes	Yes	Yes
Isolation			
Isolation checked with	500 V DC	500 V DC	500 V DC
Isolation			
Isolation, digital outputs			
• between the channels	Yes	Yes	No
• between the channels, in groups of	8	8	
• between the channels and the backplane bus	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler
Galvanic isolation, digital inputs			
• between the channels	Yes	Yes	No
• between the channels, in groups of	8	16	
• between the channels and the backplane bus	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler
Permissible potential difference			
between different circuits	500 V DC	500 V DC	500 V DC
Dimensions and weight			
Width	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm
Weights			
Weight, approx.	220 g	260 g	200 g

SIMATIC S7-300

Digital modules

SM 323/SM 327 digital input/output modules

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Ordering data	Order No.		Order No.
SM 323 digital input/output modules		S7 SmartLabel	
incl. labeling strips, bus connector		Software for automatic labeling of modules based on data of the STEP 7 project	2XV9 450-1SL01-0YX0
8 inputs, 8 outputs	6ES7 323-1BH01-0AA0	Labeling sheets for machine inscription	
16 inputs, 16 outputs	6ES7 323-1BL00-0AA0	For 16-channel signal modules, DIN A4, for printing with laser printer; 10 units	
SM 327 digital input/output modules		petrol	6ES7 392-2AX00-0AA0
incl. labeling strips, bus connector		light-beige	6ES7 392-2BX00-0AA0
8 inputs, 8 inputs or outputs (can be configured)	6ES7 327-1BH00-0AB0	yellow	6ES7 392-2CX00-0AA0
Front connectors		red	6ES7 392-2DX00-0AA0
20-pin, with screw contacts		For 32-channel signal modules, DIN A4, for printing with laser printer; 10 units	
• 1 unit	6ES7 392-1AJ00-0AA0	petrol	6ES7 392-2AX10-0AA0
• 100 units	6ES7 392-1AJ00-1AB0	light-beige	6ES7 392-2BX10-0AA0
20-pin, with cage clamp contacts		yellow	6ES7 392-2CX10-0AA0
• 1 unit	6ES7 392-1BJ00-0AA0	red	6ES7 392-2DX10-0AA0
• 100 units	6ES7 392-1BJ00-1AB0	SIMATIC Manual Collection D)	6ES7 998-8XC01-8YE0
40-pin, with screw contacts		Electronic manuals on DVD, multilingual: S7-200, S7-300, C7, S7-400, SIMATIC DP (Distributed I/O), SIMATIC PC, SIMATIC PG (Programming device), STEP 7, Engineering Tools, Runtime Software, SIMATIC PCS 7, SIMATIC HMI (Human Machine Interface), SIMATIC NET (Industrial Communication), SIMATIC Machine Vision, SIMATIC Sensors	
• 1 unit	6ES7 392-1AM00-0AA0	SIMATIC Manual Collection update service for 1 year D)	6ES7 998-8XC01-8YE2
• 100 units	6ES7 392-1AM00-1AB0	Current S7 Manual Collection DVD and the three subsequent updates	
40-pin with cage clamp contacts		S7-300 manual	
• 1 unit	6ES7 392-1BM01-0AA0	Design, CPU data, module data, instruction list	
• 100 units	6ES7 392-1BM01-1AB0	German	6ES7 398-8FA10-8AA0
Front door, elevated design A)	6ES7 328-0AA00-7AA0	English	6ES7 398-8FA10-8BA0
e.g. for 32 channel modules; enables connection of 1.3 mm ² /16 AWG wires		French	6ES7 398-8FA10-8CA0
SIMATIC TOP connect	See page 4/225; Information about which components can be used for the respective module, see A&D Mall or Catalog KT 10.2	Spanish	6ES7 398-8FA10-8DA0
Bus connectors	6ES7 390-0AA00-0AA0	Italian	6ES7 398-8FA10-8EA0
1 unit (spare part)			
Labeling strips			
10 units (spare part)			
for modules with 20-pin front connector	6ES7 392-2XX00-0AA0		
for modules with 40-pin front connector	6ES7 392-2XX10-0AA0		
Label cover			
10 units (spare part)			
for modules with 20-pin front connector	6ES7 392-2XY00-0AA0		
for modules with 40-pin front connector	6ES7 392-2XY10-0AA0		

A) Subject to export regulations: AL: N and ECCN: EAR99H

D) Subject to export regulations: AL: N and ECCN: 5D992B1

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Overview

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- Digital inputs
- For connecting standard switches and two-wire proximity switches (BERO)

SIPLUS SM 321	16 DI	32 DI	16 DI
Order No.	6AG1 321-1BH02-2AA0	6AG1 321-1BL00-2AA0	6AG1 321-7BH01-2AB0
Order No. based on	6ES7 321-1BH02-0AA0	6ES7 321-1BL00-0AA0	6ES7 321-7BH01-0AB0
Ambient temperature range	-25 °C to +60 °C, condensation permissible		
Ambient conditions	Suitable for extraordinary medial load (for example by chloric and sulphuric atmospheres).		
Conformity with standard for electronic devices on rail vehicles (EN 50155, temperature T1, category 1)	Yes	Yes	Yes
Technical data	The technical data are identical with the technical data of the based on modules.		

SIPLUS SM 321	16 DI – 48 ... 125 V DC	8 DI – 120/230 V AC
Order No.	6AG1 321-1CH20-2AA0	6AG1 321-1FF01-2AA0
Order No. based on	6ES7 321-1CH20-0AA0	6ES7 321-1FF01-0AA0
Ambient temperature range	-25 °C to +60 °C, condensation permissible	
Ambient conditions	Suitable for extraordinary medial load (for example by chloric and sulphuric atmospheres).	
Conformity with standard for electronic devices on rail vehicles (EN 50155, temperature T1, category 1)	Yes	Yes
Technical data	The technical data are identical with the technical data of the based on modules.	

Ordering data	Order No.	Order No.
Digital input modules SIPLUS SM 321 (extended temperature range and medial load) incl. labeling strips, bus connector		
16 inputs, 24 V DC	A) 6AG1 321-1BH02-2AA0	see S7-300 digital input modules, page 4/97
32 inputs, 24 V DC	A) 6AG1 321-1BL00-2AA0	
16 inputs, 24 V DC, diagnostics-capable	A) 6AG1 321-7BH01-2AB0	
16 inputs, 48 ... 125 V DC	A) 6AG1 321-1CH20-2AA0	
8 inputs, 120/230 V AC	A) 6AG1 321-1FF01-2AA0	
Accessories		

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SIMATIC S7-300

SIPLUS digital modules

SIPLUS SM 322 digital output modules

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Overview



- Digital outputs
- For connecting solenoid valves, contactors, low-power motors, lamps and motor starters

SIPLUS SM 322	16 DO	8 DO	8 DO	16 DO – 48 ... 125 V DC
Order No.	6AG1 322-1BH01-2AA0	6AG1 322-1BF01-2XB0	6AG1 322-8BF00-2AB0	6AG1 322-1CF00-2AA0
Order No. based on	6ES7 322-1BH01-0AA0	6ES7 322-1BF01-0AA0	6ES7 322-8BF00-0AB0	6ES7 322-1CF00-0AA0
Ambient temperature range	-25 °C to +60 °C, condensation permissible			
Ambient conditions	Suitable for extraordinary medial load (for example by chloric and sulphuric atmospheres).			
Conformity with standard for electronic devices on rail vehicles (EN 50155, temperature T1, category 1)	Yes	Yes	Yes	Yes
Technical data	The technical data are identical with the technical data of the based on modules.			

SIPLUS SM 322	8 DO – 120/230 V AC	8 RO	32 DO	16 RO
Order No.	6AG1 322-1FF01-2AA0	6AG1 322-1HF10-2AA0	6AG1 322-1BL00-2AA0	6AG1 322-1HH01-2AA0
Order No. based on	6ES7 322-1FF01-0AA0	6ES7 322-1HF10-0AA0	6ES7 322-1BL00-0AA0	6ES7 322-1HH01-0AA0
Ambient temperature range	-25 °C to +60 °C, condensation permissible			
Ambient conditions	Suitable for extraordinary medial load (for example by chloric and sulphuric atmospheres).			
Conformity with standard for electronic devices on rail vehicles (EN 50155, temperature T1, category 1)	Yes	Yes	Yes	Yes
Technical data	The technical data are identical with the technical data of the based on modules.			

Ordering data	Order No.	Ordering data	Order No.
Digital output modules SIPLUS SM 322		Digital output modules SIPLUS SM 322	
(extended temperature range and medial load)		(extended temperature range and medial load)	
incl. labeling strips, bus connector		incl. labeling strips, bus connector	
16 outputs, 24 V DC, 0.5 A	A) 6AG1 322-1BH01-2AA0	8 outputs, 120/230 V AC, 1 A	A) 6AG1 322-1FF01-2AA0
8 outputs, 24 V DC, 2 A	A) 6AG1 322-1BF01-2XB0	8 outputs, relay contacts, 5 A	6ES7 322-1HF10-0AA0
8 outputs, 24 V DC, 0.5 A, diagnostics-capable	A) 6AG1 322-8BF00-2AB0	32 outputs, 24 V DC, 0.5 A	6AG1 322-1BL00-2AA0
8 outputs, 48 to 125 V DC, 1.5 A	A) 6AG1 322-1CF00-2AA0	16 outputs, relay contacts, 8 A	6AG1 322-1HH01-2AA0
		Accessories	see S7-300 digital output modules, page 4/103

A) Subject to export regulations: AL: N and ECCN: EAR99H

SIMATIC S7-300

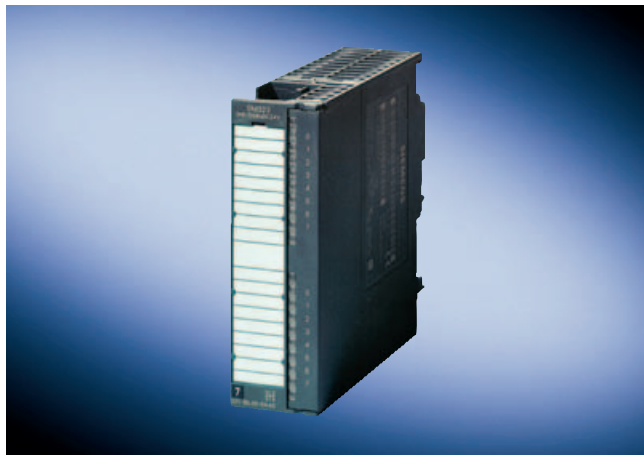
SIPLUS digital modules

SIPLUS SM 323 digital input/output modules

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Overview

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- Digital inputs and outputs
- For connecting standard switches, two-wire proximity switches (BERO), solenoid valves, contactors, low-power motors, lamps and motor starters

SIPLUS SM 323	8 DI/8 DO
Order No.	6AG1 323-1BH01-2AA0
Order No. based on	6ES7 323-1BH01-0AA0
Ambient temperature range	-25 °C to +60 °C, condensation permissible
Ambient conditions	Suitable for extraordinary medial load (for example by chloric and sulphuric atmospheres).
Conformity with standard for electronic devices on rail vehicles (EN 50155, temperature T1, category 1)	Yes
Technical data	The technical data are identical with the technical data of the based on modules.

Ordering data

Order No.

Digital input/output modules SIPLUS SM 323

(extended temperature range and medial load)

incl. labeling strips,
bus connector

8 inputs, 8 outputs

A) **6AG1 323-1BH01-2AA0**

A) Subject to export regulations: AL: N and ECCN: EAR99H

Order No.

Accessories

see S7-300 digital input/output modules, page 4/107