

SIMATIC S7-300 Advanced Controllers

I/O modules

Digital modules

SM 322 digital output modules

Technical specifications (continued)

Article number	6ES7322-5GH00-0AB0 SM322, 16DO, AC/DC24-48V, 0,5A	6ES7322-1CF00-0AA0 SM322, 8DO, 48-125V DC, 1,5A	6ES7322-1BF01-0AA0 SM322, 8DO, 24V DC, 2A	6ES7322-1FF01-0AA0 SM322, 8DO, 120/230V AC, 1A	6ES7322-5FF00-0AB0 SM322, 8DO, AC120/230V, 2A	6ES7322-1FH00-0AA0 SM322, 16DO, 120/230V AC, 1A
Supply voltage						
Load voltage L+						
• Rated value (DC)	24 V; 24 / 48	48 V; 48 V DC to 125 V DC	24 V			
Load voltage L1						
• Rated value (AC)				230 V; 120/230V AC	230 V; 120/230V AC	230 V; 120/230V AC
Input current						
from supply voltage L+, max.	200 mA		60 mA			
from load voltage L+ (without load), max.		2 mA				
from load voltage L1 (without load), max.				2 mA	2 mA	2 mA
from backplane bus 5 V DC, max.	100 mA	100 mA	40 mA	100 mA	100 mA	200 mA
Power loss						
Power loss, typ.	2.8 W	7.2 W	6.8 W	8.6 W	8.6 W	8.6 W
Digital outputs						
Number of digital outputs	16	8	8	8	8	16
Limitation of inductive shutdown voltage to		M (-1 V)	L+ (-48 V)			
Switching capacity of the outputs						
• on lamp load, max.	2.5 W	15 W; 15 W (48 V) or 40 W (125 V)	10 W	50 W	50 W	50 W
Load resistance range						
• lower limit			12 Ω			
• upper limit			4 kΩ			
Output voltage						
• for signal "1", min.	L+ (-0.25 V)	L+ (-1.2 V)	L+ (-0.8 V)	L1 (-1.5 V)	L1 (-8.5 V)	
Output current						
• for signal "1" rated value	0.5 A	1.5 A	2 A	2 A	2 A	1 A
• for signal "1" permissible range for 0 to 40 °C, min.		10 mA	5 mA	10 mA	10 mA	10 mA
• for signal "1" permissible range for 0 to 40 °C, max.	0.5 A	1.5 A	2.4 A	2 A	2 A	1 A
• for signal "1" permissible range for 40 to 60 °C, min.		10 mA	5 mA	10 mA	10 mA	10 mA
• for signal "1" permissible range for 40 to 60 °C, max.	0.5 A	1.5 A	2.4 A	1 A	1 A	0.5 A
• for signal "1" minimum load current		10 mA	5 mA	10 mA	10 mA	10 mA
• for signal "1" permissible surge current, max.	1.5 A; for 50 ms, 1 A 2 s one-time	3 A; for 10 ms		20 A; max. 1 AC cycle	20 A; with 2 half waves	20 A; with 2 half waves
• for signal "0" residual current, max.	10 µA	0.5 mA	0.5 mA	2 mA	2 mA	2 mA
Switching frequency						
• with resistive load, max.	10 Hz	25 Hz	100 Hz	10 Hz	10 Hz	10 Hz
• with inductive load, max.	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz	0.5 Hz
• on lamp load, max.	0.5 Hz	10 Hz	10 Hz	1 Hz	1 Hz	1 Hz

Technical specifications (continued)

Article number	6ES7322-5GH00-0AB0 SM322, 16DO, AC/DC24-48V, 0,5A	6ES7322-1CF00-0AA0 SM322, 8DO, 48-125V DC, 1,5A	6ES7322-1BF01-0AA0 SM322, 8DO, 24V DC, 2A	6ES7322-1FF01-0AA0 SM322, 8DO, 120/230V AC, 1A	6ES7322-5FF00-0AB0 SM322, 8DO, AC120/230V, 2A	6ES7322-1FH00-0AA0 SM322, 16DO, 120/230V AC, 1A
Total current of the outputs (per group)						
horizontal installation						
- up to 40 °C, max.	0.5 A; 8 A per module	6 A	4 A	4 A	8 A	4 A
- up to 60 °C, max.	0.5 A; 8 A per module	3 A	4 A	2 A	4 A	2 A
vertical installation						
- up to 40 °C, max.	0.5 A; 8 A per module	4 A	4 A	2 A	4 A	2 A
Cable length						
• shielded, max.	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m	1 000 m
• unshielded, max.	600 m	600 m	600 m	600 m	600 m	600 m
Interrupts/diagnostics/status information						
Diagnostic functions	Yes; Parameterizable	No	No	Yes; Fuse blown or load voltage missing	Yes; Parameterizable	Yes; Fuse blown or load voltage missing
Alarms						
• Diagnostic alarm	Yes; Parameterizable	No	No	No	Yes; Parameterizable	No
Potential separation						
Potential separation digital outputs						
• between the channels	Yes	Yes	Yes	Yes	Yes	
• between the channels, in groups of 1	1	4	4	4	1	8
• between the channels and backplane bus	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler
Isolation						
Isolation tested with	1500 V AC	1500 V AC	500 V DC	1500 V AC	1500 V AC	4 000 V DC
Connection method						
required front connector	40-pin	20-pin	20-pin	20-pin	40-pin	20-pin
Dimensions						
Width	40 mm	40 mm	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm	120 mm	120 mm	120 mm
Weights						
Weight, approx.	260 g	250 g	190 g	275 g	275 g	275 g

SIMATIC S7-300 Advanced Controllers

I/O modules

Digital modules

SM 322 digital output modules

Ordering data	Article No.	Article No.
SM 322 digital output modules incl. labeling strips, bus connector 8 outputs, 24 V DC, 2 A 16 outputs, 24 V DC, 0.5 A 16 outputs, 24 V DC, 0.5 A, high speed 32 outputs, 24 V DC, 0.5 A 64 outputs, 24 V DC, 0.3 A Note: 6ES7392-4...0-0AA0 connecting cable and 6ES7392-1.N00-0AA0 terminal blocks necessary. 64 outputs, 24 V DC, 0.3 A, sink output Note: 6ES7392-4...0-0AA0 connecting cable and 6ES7392-1.N00-0AA0 terminal blocks necessary. 8 outputs, 24 V DC, 0.5 A, diagnostics-capable 16 outputs, 24/48 V DC, 0.5 A 8 outputs, 48 to 125 V DC, 1.5 A 8 outputs, 120/230 V AC, 1 A 8 outputs, 120/230 V AC, 2 A 16 outputs, 120/230 V AC, 1 A 32 outputs, 120 V AC, 1 A 8 outputs, relay contacts, 2 A 8 outputs, relay contacts, 5 A 8 outputs, relay contacts, 5 A, with RC filter, overvoltage protection 16 outputs, relay contacts, 8 A Front connector 20-pin, with screw contacts • 1 unit • 100 units 20-pin, with spring-loaded contacts • 1 unit • 100 units 40-pin, with screw contacts • 1 unit • 100 units 40-pin, with spring-loaded contacts • 1 unit • 100 units S7-300 connecting cable For 64-channel modules; 2 units 1 m 2.5 m 5 m Terminal block For 64-channel modules; 2 units With screw contacts With spring-loaded contacts	6ES7322-1BF01-0AA0 6ES7322-1BH01-0AA0 6ES7322-1BH10-0AA0 6ES7322-1BL00-0AA0 6ES7322-1BP00-0AA0 6ES7322-1BP50-0AA0 6ES7322-8BF00-0AB0 6ES7322-5GH00-0AB0 6ES7322-1CF00-0AA0 6ES7322-1FF01-0AA0 6ES7322-5FF00-0AB0 6ES7322-1FH00-0AA0 6ES7322-1FL00-0AA0 6ES7322-1HF01-0AA0 6ES7322-1HF10-0AA0 6ES7322-5HF00-0AB0 6ES7322-1HH01-0AA0 6ES7392-1AJ00-0AA0 6ES7392-1AJ00-1AB0 6ES7392-1BJ00-0AA0 6ES7392-1BJ00-1AB0 6ES7392-1AM00-0AA0 6ES7392-1AM00-1AB0 6ES7392-1BM01-0AA0 6ES7392-1BM01-1AB0 6ES7392-4BB00-0AA0 6ES7392-4BC50-0AA0 6ES7392-4BF00-0AA0 6ES7392-1AN00-0AA0 6ES7392-1BN00-0AA0	Front door, elevated design e.g. for 32-channel modules; for connecting 1.3 mm ² /16 AWG conductors 6ES7328-0AA00-7AA0 SIMATIC TOP connect See page 5/248 Bus connectors 1 unit (spare part) 6ES7390-0AA00-0AA0 Set of fuses for SM 322 10 fuses 8 A quick-response, 2 fuse holders; for 6ES7 322-1FF01-0AA0, 6ES7 322-1FH00-0AA0 6ES7973-1HD00-0AA0 10 fuses 6.3 A; for 6ES7 322-1CF00-0AA0 6ES7973-1GC00-0AA0 Labeling strips 10 units (spare part) for modules with 20-pin front connector 6ES7392-2XX00-0AA0 for modules with 40-pin front connector 6ES7392-2XX10-0AA0 Label cover 10 units (spare part) for modules with 20-pin front connector 6ES7392-2XY00-0AA0 for modules with 40-pin front connector 6ES7392-2XY10-0AA0 Labeling sheets for machine inscription for modules with 20-pin front connector, DIN A4, for printing with laser printer; 10 units Petrol 6ES7392-2AX00-0AA0 Light beige 6ES7392-2BX00-0AA0 Yellow 6ES7392-2CX00-0AA0 Red 6ES7392-2DX00-0AA0 for modules with 40-pin front connector, DIN A4, for printing with laser printer; 10 units Petrol 6ES7392-2AX10-0AA0 Light beige 6ES7392-2BX10-0AA0 Yellow 6ES7392-2CX10-0AA0 Red 6ES7392-2DX10-0AA0 SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC 6ES7998-8XC01-8YE0 SIMATIC Manual Collection update service for 1 year Current "Manual Collection" DVD and the three subsequent updates 6ES7998-8XC01-8YE2

SIMATIC S7-300 Advanced Controllers

I/O modules

SIPLUS S7-300 digital modules

SIPLUS S7-300 SM 322

Technical specifications (continued)

Article number	6AG1322-1BF01-2XB0	6AG1322-8BF00-2AB0	6AG1322-1BH01-2AA0	6AG1322-1BL00-2AA0
Based on	6ES7322-1BF01-0AA0 SIPLUS S7-300 SM322 8DO/24VDC 2A	6ES7322-8BF00-0AB0 SIPLUS SM322 8DA/24VDC	6ES7322-1BH01-0AA0 SIPLUS S7-300 SM322 16DA/24VDC 0.5A	6ES7322-1BL00-0AA0 SIPLUS S7-300 SM322 32DO/24VDC 0.5A
Resistance				
- against biologically active substances / conformity with EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
- against chemically active substances / conformity with EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
- against mechanically active substances / conformity with EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
Article number	6AG1322-1CF00-7AA0	6AG1322-1HF10-2AA0	6AG1322-5HF00-4AB0	6AG1322-1FF01-7AA0
Based on	6ES7322-1CF00-0AA0 SIPLUS SM322 8DA/48-125VDC	6ES7322-1HF10-0AA0 SIPLUS SM322 8DA - Relais	6ES7322-5HF00-0AB0 SIPLUS_SM322_8RO	6ES7322-1FF01-0AA0 SIPLUS S7-300 SM322 8DA/120/220VAC 1A
Ambient conditions				
Ambient temperature during operation				
• min.	-25 °C	-25 °C	0 °C; = Tmin	-40 °C
• max.	70 °C; = Tmax; for use on railway vehicles according to EN50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/ULhaz/ATEX/FM use applies	60 °C	60 °C; = Tmax	70 °C; = Tmax; for use on railway vehicles according to EN 50155, the rated temperature range -25 ... +55 °C (T1) or 60 °C @ UL/UL hazardous use applies
Ambient temperature during storage/transportation				
• min.	-40 °C	-40 °C	-40 °C	-40 °C
• max.	70 °C	70 °C	70 °C	70 °C
Extended ambient conditions				
• relative to ambient temperature-atmospheric pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m)	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m)	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m)	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m)
Relative humidity				
- With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)

Technical specifications (continued)

Article number	6AG1322-1CF00-7AA0	6AG1322-1HF10-2AA0	6AG1322-5HF00-4AB0	6AG1322-1FF01-7AA0
Based on	6ES7322-1CF00-0AA0 SIPLUS SM322 8DA/48-125VDC	6ES7322-1HF10-0AA0 SIPLUS SM322 8DA - Relais	6ES7322-5HF00-0AB0 SIPLUS_SM322_8RO	6ES7322-1FF01-0AA0 SIPLUS S7-300 SM322 8DA/120/220VAC 1A
Resistance				
- against biologically active substances / conformity with EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
- against chemically active substances / conformity with EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
- against mechanically active substances / conformity with EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!
Article number	6AG1322-5FF00-4AB0	6AG1322-1FH00-7AA0	6AG1322-1HH01-2AA0	
Based on	6ES7322-5FF00-0AB0 SIPLUS S7-300 SM322 8DO	6ES7322-1FH00-0AA0 SIPLUS S7-300 SM 322 16DO 120/ 230VAC 1A	6ES7322-1HH01-0AA0 SIPLUS SM322	
Ambient conditions				
Ambient temperature during operation				
• min.	0 °C; = Tmin	-40 °C; = Tmin	-40 °C	
• max.	60 °C; = Tmax	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	70 °C; = Tmax; 60 °C @ UL/cUL, ATEX and FM use	
Ambient temperature during storage/transportation				
• min.	-40 °C	-40 °C	-40 °C	
• max.	70 °C	70 °C	70 °C	
Extended ambient conditions				
• relative to ambient temperature-atmospheric pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m)	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m)	Tmin ... Tma x at 1080 hPa ... 795 hPa (-1000 m ... +2000 m)	
Relative humidity				
- With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)		100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	
Resistance				
- against biologically active substances / conformity with EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	
- against chemically active substances / conformity with EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	
- against mechanically active substances / conformity with EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	