

Spare part SIMATIC S7-300, CPU 314 Central processing unit with Integr. power supply 24 V DC Work memory 24 KB

Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption (rated value)	1 000 mA
Inrush current, typ.	8 A
Power loss	
Power loss, typ.	8 W
Memory	
Work memory	
<ul style="list-style-type: none"> integrated 	24 kbyte; 24 KB/8 K instructions RAM (integrated); 1 instruction means 3 bytes on average
Load memory	
<ul style="list-style-type: none"> expandable FEPRM 	Yes; Flash-EPRM
<ul style="list-style-type: none"> expandable FEPRM, max. 	4 Mbyte
<ul style="list-style-type: none"> integrated RAM, max. 	40 kbyte
Backup	
<ul style="list-style-type: none"> present 	Yes
<ul style="list-style-type: none"> with battery 	Yes; all blocks
<ul style="list-style-type: none"> without battery 	Yes; 4 KB: bit memory, counter, times and data
CPU processing times	
for bit operations, typ.	0.3 μ s
for bit operations, max.	0.6 μ s
for word operations, typ.	1 μ s
for fixed point arithmetic, typ.	2 μ s
for floating point arithmetic, typ.	50 μ s
for timer/counter operations, typ.	12 μ s
CPU-blocks	
DB	
<ul style="list-style-type: none"> Number, max. 	127
<ul style="list-style-type: none"> Size, max. 	8 kbyte
FB	
<ul style="list-style-type: none"> Number, max. 	128

• Size, max.	8 kbyte
FC	
• Number, max.	128
• Size, max.	8 kbyte
OB	
• Description	see instruction list
• Size, max.	8 kbyte
• Number of free cycle OBs	1; OB 1
• Number of time alarm OBs	1; OB 10
• Number of cyclic interrupt OBs	1; OB 35
• Number of process alarm OBs	1; OB 40
• Number of startup OBs	1; OB 100
Nesting depth	
• per priority class	8

Counters, timers and their retentivity

S7 counter	
• Number	64
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	63
Counting range	
— lower limit	1
— upper limit	999
S7 times	
• Number	128
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	127
Time range	
— lower limit	10 ms
— upper limit	9 990 s

Data areas and their retentivity

Flag	
• Number, max.	256 byte
• Retentivity available	Yes; MB 0 to MB 255
• of which retentive with battery	0 to 2 047 (M 0.0 to M 255.7, adjustable)
• of which retentive without battery	0 to 2 047 (M 0.0 to M 255.7, adjustable)

Address area

I/O address area	
• Inputs	512 byte
• Outputs	512 byte
Process image	
• Inputs	128 byte
• Outputs	128 byte
Digital channels	
• Inputs	1 024
• Outputs	1 024
Analog channels	
• Inputs	256
• Outputs	128
Addressing volume	
• Inputs	122 byte
• Outputs	122 byte
Hardware configuration	
Number of expansion units, max.	3
connectable programming devices/PCs	PGs/PCs with STEP 7 connectable via MPI interface
Number of modules per DP slave interface, max.	16
Number of DP masters	
• integrated	0
• via CP	1; CP 342-5
Number of operable FMs and CPs (recommended)	
• FM	4
• CP, PtP	2
• CP, LAN	1
Rack	
• Modules per rack, max.	32
Time of day	
Clock	
• Hardware clock (real-time)	Yes
Interfaces	
MPI	
• Cable length, max.	9 100 m; without repeaters: 50 m; with 2 repeaters: 1100 m; with 10 repeaters in series: 9100 m; via fiber optic cable: 23.8 km (with 16 star hubs or OLMs)
1. Interface	
Functionality	
• MPI	Yes
MPI	

• Number of nodes, max.	32; 32 nodes on MPI bus; PG/PC, OP, additional S7-300/400, C7; per CPU max. 4 static and 4 dynamic connections
• Transmission rate, max.	187.5 kbit/s
Services	
— PG/OP communication	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
Communication functions	
PG/OP communication	Yes
Global data communication	
• supported	Yes
S7 basic communication	
• supported	Yes
S7 communication	
• supported	Yes
• as server	Yes
S5 compatible communication	
• supported	Yes; via loadable blocks
Standard communication (FMS)	
• supported	Yes; via loadable blocks
Number of connections	
• overall	
— of which dynamic	8
— of which static	4
Configuration	
Configuration software	
• STEP 7	Yes; V5.0, V5.0 SP1
Programming	
• Command set	Binary logic operations, bracketed operations, result allocation, saving, counting, loading, transferring, comparing, shifting, rotating, complementation, calling blocks, fixed point arithmetic, floating point arithmetic, jump functions
• Nesting levels	8
• Program organization	Linear, structured
• System functions (SFC)	Interrupt and error processing, copy data, clock functions, diagnostic functions, module parameterization, operating mode transitions
• System function blocks (SFB)	1
Programming language	
— LAD	Yes
— FBD	Yes

— STL	Yes
— SCL	Yes
— GRAPH	Yes
Software libraries	
— Process diagnostics	Yes
— Software controller	Yes; depending on the required memory space and the resulting execution time
Know-how protection	
• User program protection/password protection	Yes
Cycle time monitoring	
• lower limit	1 ms
• upper limit	6 000 ms
• adjustable	Yes
• preset	150 ms
Dimensions	
Width	80 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	530 g; Memory card 16 g
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