

*** SPARE PART*** SIMATIC S7-300, CPU 315 CPU WITH INTEGRATED 24 V DC POWER SUPPLY, 48 KBYTE WORKING MEMORY

Product type designation

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

Rated value at 24 V DC	1 000 mA
Inrush current, max.	8 A

Power losses

Power loss, max.	8 W
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Memory

Work memory	
• Integrated	48 kbyte; 48 KB / 16K instructions RAM (integrated)
Load memory	
• expandable FEPRM	Yes; Flash-EPRM
• expandable FEPRM, max.	4 Mbyte
• integrated RAM, max.	80 kbyte
Backup	
• present	Yes
• with battery	Yes; all blocks
• 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	
• Number, max.	255
• Size, max.	16 kbyte
FB	

• Number, max.	192
• Size, max.	16 kbyte
FC	
• Number, max.	192
• Size, max.	16 kbyte
OB	
• Description	see instruction list
• Size, max.	16 kbyte
• Number of free cycle OBs	1; OB 1
• Number of time alarm OBs	1; OB 10
• Number of time 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
of which retentive with battery	
— can be set	Yes
— lower limit	0
— upper limit	63
of which retentive without battery	
— can be set	Yes
— lower limit	0
— upper limit	63
Counting range	
— lower limit	1
— upper limit	999
S7 times	
• Number	128
of which retentive with battery	
— can be set	Yes
— lower limit	0
— upper limit	127
of which retentive without battery	
— can be set	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	256 byte
• Outputs	256 byte

Process image	
• Inputs	128 byte
• Outputs	128 byte

Digital channels	
• Inputs	1 024
— Inputs, of which central	1 024
• Outputs	1 024
— Outputs, of which central	1 024

Analog channels	
• Inputs	256
— Inputs, of which central	256
• Outputs	256
— Outputs, of which central	128

Addressing volume	
• Inputs	122 byte
• Outputs	122 byte

Hardware configuration

Number of modules per DP slave interface, max.	32
Expansion devices, max.	3
Connectable programming devices/PCs	PGs/PCs with STEP 7 connectable via MPI interface

Number of DP masters	
• Integrated	0
• Via CP	1; CP 342-5

Number of operable FMs and CPs (recommended)	
• FM	8
• CP, point-to-point	4
• CP, LAN	2

Rack	
• Modules per rack, max.	32

Time of day	
Clock	
• Hardware clock (real-time clock)	Yes
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)
1st interface	
Functionality	
• MPI	Yes
MPI	
• Number of nodes, max.	32
• Transmission rate, max.	187.5 kbit/s
Services	
— PG/OP communication	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
User data per DP slave	
— User data per DP slave, max.	122 byte
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
programming	

<ul style="list-style-type: none"> • 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
<ul style="list-style-type: none"> • Nesting levels 	8
<ul style="list-style-type: none"> • Program organization 	Linear, structured
<ul style="list-style-type: none"> • System functions (SFC) 	Interrupt and error processing, copy data, clock functions, diagnostic functions, module parameterization, operating mode transitions
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Software libraries	
— Process diagnostics	Yes
— Software controller	Yes; depending on the required memory space and the resulting execution time
Know-how protection	
<ul style="list-style-type: none"> • User program protection/password protection 	Yes
Cycle time monitoring	
<ul style="list-style-type: none"> • lower limit 	1 ms
<ul style="list-style-type: none"> • upper limit 	6 000 ms
<ul style="list-style-type: none"> • can be set 	Yes
<ul style="list-style-type: none"> • preset 	150 ms
Dimensions	
Width	80 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	530 g; Memory card 16 g
last modified:	23.02.2015