SIEMENS

Data sheet

*** SPARE PART*** SIMATIC S7-300, CPU 316-2DP CPU WITH INTEGRATED 24 V DC POWER SUPPLY, 128 KBYTE WORKING MEMORY 2ND INTERF. DP-MASTER/SLAVE

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, max.	8 W

Memory	
Work memory	
• integrated	128 kbyte; 128 KB / 42K instructions RAM (integrated)
Load memory	
• expandable FEPROM	Yes; Flash-EPROM
• expandable FEPROM, max.	4 Mbyte
• integrated RAM, max.	192 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 µs
for bit operations, max.	0.6 µs
for word operations, typ.	1 µs
for fixed point arithmetic, typ.	2 µs
for floating point arithmetic, typ.	50 µs
for timer/counter operations, typ.	12 µs

CPU-blocks	
DB	
• Number, max.	511
• Size, max.	16 kbyte
FB	
• Number, max.	256

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● Size, max.	16 kbyte
FC	
● Number, max.	256
● 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 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
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	
— adjustable	Yes
— lower limit	0
— upper limit	127
of which retentive without battery	
— adjustable	Yes
— lower limit	0
— upper limit	127
Time range	
— lower limit	10 ms
— upper limit	9 990 s

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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	2 kbyte
• Outputs	2 kbyte

Process image

• Inputs	128 byte
• Outputs	128 byte

Digital channels

• Inputs	16 384
— of which central	1 024
• Outputs	16 384
— of which central	1 024

Analog channels

• Inputs	1 024
— of which central	256
• Outputs	1 024
— of which central	128

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.	64

Number of DP masters

• integrated	1
• via CP	1; CP 342-5

Number of operable FMs and CPs (recommended)

• FM	8
• CP, PtP	4
• CP, LAN	2

Rack

• Modules per rack, max.	32

Time of day

Clock

• Hardware clock (real-time)	Yes

Interfaces

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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
● Transmission rate, min.	19.2 kbit/s
● Transmission rate, max.	187.5 kbit/s
Services	
— PG/OP communication	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes

2. Interface	
Functionality	
● PROFIBUS DP master	Yes
● PROFIBUS DP slave	Yes
DP master	
● Number of DP slaves, max.	124
Services	
— Equidistance	Yes
— Activation/deactivation of DP slaves	Yes
— Direct data exchange (slave-to-slave communication)	Yes; Transmitter and receiver
User data per DP slave	
— User data per DP slave, max.	244 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

• 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

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

• 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

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Weight, approx.	530 g; Memory card 16 g
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