

*** 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
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Memory

Work memory	
<ul style="list-style-type: none"> integrated 	128 kbyte; 128 KB / 42K instructions RAM (integrated)
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. 	192 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. 	511
<ul style="list-style-type: none"> Size, max. 	16 kbyte
FB	
<ul style="list-style-type: none"> Number, max. 	256

• 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

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

MPI	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • MPI 	Yes
MPI	
<ul style="list-style-type: none"> • Number of nodes, max. • Transmission rate, min. • Transmission rate, max. 	32 19.2 kbit/s 187.5 kbit/s
Services	
— PG/OP communication	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes

2. Interface

Functionality	
<ul style="list-style-type: none"> • PROFIBUS DP master • PROFIBUS DP slave 	Yes Yes
DP master	
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • supported 	Yes
S7 basic communication	
<ul style="list-style-type: none"> • supported 	Yes
S7 communication	
<ul style="list-style-type: none"> • supported • as server 	Yes Yes
S5 compatible communication	
<ul style="list-style-type: none"> • 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	

Weight, approx.

530 g; Memory card 16 g

last modified:

03/23/2017