

\*\*\* 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"> <li>integrated</li> </ul>	128 kbyte; 128 KB / 42K instructions RAM (integrated)
Load memory	
<ul style="list-style-type: none"> <li>expandable FEPROGRAM</li> </ul>	Yes; Flash-EPROGRAM
<ul style="list-style-type: none"> <li>expandable FEPROGRAM, max.</li> </ul>	4 Mbyte
<ul style="list-style-type: none"> <li>integrated RAM, max.</li> </ul>	192 kbyte
Backup	
<ul style="list-style-type: none"> <li>present</li> </ul>	Yes
<ul style="list-style-type: none"> <li>with battery</li> </ul>	Yes; all blocks
<ul style="list-style-type: none"> <li>without battery</li> </ul>	Yes; 4 KB: bit memory, counter, times and data

### CPU processing times

for bit operations, typ.	0.3 $\mu$ s
for bit operations, max.	0.6 $\mu$ s
for word operations, typ.	1 $\mu$ s
for fixed point arithmetic, typ.	2 $\mu$ s
for floating point arithmetic, typ.	50 $\mu$ s
for timer/counter operations, typ.	12 $\mu$ s

### CPU-blocks

DB	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	511
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	16 kbyte
FB	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	256

• Size, max.	16 kbyte
<b>FC</b>	
• Number, max.	256
• Size, max.	16 kbyte
<b>OB</b>	
• 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
<b>Nesting depth</b>	
• per priority class	8
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• 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
<b>Counting range</b>	
— lower limit	1
— upper limit	999
<b>S7 times</b>	
• 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
<b>Time range</b>	
— 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

<b>MPI</b>	
<ul style="list-style-type: none"> <li>• Cable length, max.</li> </ul>	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)

<b>1. Interface</b>	
<b>Functionality</b>	
<ul style="list-style-type: none"> <li>• MPI</li> </ul>	Yes
<b>MPI</b>	
<ul style="list-style-type: none"> <li>• Number of nodes, max.</li> <li>• Transmission rate, min.</li> <li>• Transmission rate, max.</li> </ul>	32 19.2 kbit/s 187.5 kbit/s
<b>Services</b>	
— PG/OP communication	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes

<b>2. Interface</b>	
<b>Functionality</b>	
<ul style="list-style-type: none"> <li>• PROFIBUS DP master</li> <li>• PROFIBUS DP slave</li> </ul>	Yes Yes
<b>DP master</b>	
<ul style="list-style-type: none"> <li>• Number of DP slaves, max.</li> </ul>	124
<b>Services</b>	
— Equidistance	Yes
— Activation/deactivation of DP slaves	Yes
— Direct data exchange (slave-to-slave communication)	Yes; Transmitter and receiver
<b>User data per DP slave</b>	
— User data per DP slave, max.	244 byte

<b>Communication functions</b>	
PG/OP communication	Yes
<b>Global data communication</b>	
<ul style="list-style-type: none"> <li>• supported</li> </ul>	Yes
<b>S7 basic communication</b>	
<ul style="list-style-type: none"> <li>• supported</li> </ul>	Yes
<b>S7 communication</b>	
<ul style="list-style-type: none"> <li>• supported</li> <li>• as server</li> </ul>	Yes Yes
<b>S5 compatible communication</b>	
<ul style="list-style-type: none"> <li>• supported</li> </ul>	Yes; via loadable blocks
<b>Standard communication (FMS)</b>	

• supported	Yes; via loadable blocks
<b>Number of connections</b>	
• overall	
— of which dynamic	8
— of which static	4
<b>Configuration</b>	
<b>Configuration software</b>	
• STEP 7	Yes; V5.0
<b>Programming</b>	
• 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
<b>Programming language</b>	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
<b>Software libraries</b>	
— Process diagnostics	Yes
— Software controller	Yes; depending on the required memory space and the resulting execution time
<b>Know-how protection</b>	
• User program protection/password protection	Yes
<b>Cycle time monitoring</b>	
• lower limit	1 ms
• upper limit	6 000 ms
• adjustable	Yes
• preset	150 ms
<b>Dimensions</b>	
Width	80 mm
Height	125 mm
Depth	130 mm
<b>Weights</b>	

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Weight, approx.

530 g; Memory card 16 g

**last modified:**

03/23/2017