

\*\*\*Spare part\*\*\* SIMATIC S7-300, CPU 314 Central processing unit with MPI, Integr. power supply 24 V DC, Work memory 96 KB, Micro Memory Card required



Figure similar

General information	
HW functional status	01
Firmware version	V2.6
Engineering with	
<ul style="list-style-type: none"> <li>Programming package</li> </ul>	STEP 7 V5.2 + SP1 or higher with HW update
Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> <li>24 V DC</li> </ul>	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	2 A min.
Input current	
Current consumption (rated value)	0.6 A
Current consumption (in no-load operation), typ.	60 mA
Inrush current, typ.	2.5 A
I <sup>2</sup> t	0.5 A <sup>2</sup> ·s

Power loss	
Power loss, typ.	2.5 W
Memory	
Work memory	
<ul style="list-style-type: none"> <li>integrated</li> </ul>	96 kbyte; For program and data
<ul style="list-style-type: none"> <li>expandable</li> </ul>	No
Load memory	
<ul style="list-style-type: none"> <li>Plug-in (MMC)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Plug-in (MMC), max.</li> </ul>	8 Mbyte
<ul style="list-style-type: none"> <li>Data management on MMC (after last programming), min.</li> </ul>	10 y
Backup	
<ul style="list-style-type: none"> <li>present</li> </ul>	Yes; Guaranteed by MMC (maintenance-free)
<ul style="list-style-type: none"> <li>without battery</li> </ul>	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.1 $\mu$ s
for word operations, typ.	0.2 $\mu$ s
for fixed point arithmetic, typ.	2 $\mu$ s
for floating point arithmetic, typ.	3 $\mu$ s
CPU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	511; Number range: 1 to 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>	1 024; Number range: 0 to 2047
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	16 kbyte
FC	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	1 024; Number range: 0 to 2047
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	16 kbyte
OB	
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	16 kbyte
<ul style="list-style-type: none"> <li>Number of free cycle OBs</li> </ul>	1; OB 1
<ul style="list-style-type: none"> <li>Number of time alarm OBs</li> </ul>	1; OB 10
<ul style="list-style-type: none"> <li>Number of delay alarm OBs</li> </ul>	1; OB 20
<ul style="list-style-type: none"> <li>Number of cyclic interrupt OBs</li> </ul>	1; OB 35
<ul style="list-style-type: none"> <li>Number of process alarm OBs</li> </ul>	1; OB 40
<ul style="list-style-type: none"> <li>Number of startup OBs</li> </ul>	1; OB 100
<ul style="list-style-type: none"> <li>Number of asynchronous error OBs</li> </ul>	4; OB 80, 82, 85, 87
<ul style="list-style-type: none"> <li>Number of synchronous error OBs</li> </ul>	2; OB 121, 122

<b>Nesting depth</b>	
• per priority class	8
• additional within an error OB	4
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	256
<b>Retentivity</b>	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	8
<b>Counting range</b>	
— can be set	Yes
— lower limit	0
— upper limit	999
<b>IEC counter</b>	
• Number	Unlimited (limited only by RAM capacity)
<b>S7 times</b>	
• Number	256
<b>Retentivity</b>	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	No retentivity
<b>Time range</b>	
— lower limit	10 ms
— upper limit	9 990 s
<b>IEC timer</b>	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
<b>Data areas and their retentivity</b>	
retentive data area in total	All, max. 64 KB
<b>Flag</b>	
• Number, max.	256 byte
• Retentivity available	Yes; MB 0 to MB 255
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8; 1 memory byte
<b>Data blocks</b>	
• Retentivity adjustable	Yes; via non-retain property on DB
• Retentivity preset	Yes

<b>Local data</b>	
• per priority class, max.	510 byte
<b>Address area</b>	
<b>I/O address area</b>	
• Inputs	1 kbyte
• Outputs	1 kbyte
<b>Process image</b>	
• Inputs	128 byte
• Outputs	128 byte
<b>Digital channels</b>	
• Inputs	1 024
— of which central	1 024
• Outputs	1 024
— of which central	1 024
<b>Analog channels</b>	
• Inputs	256
— of which central	256
• Outputs	256
— of which central	256
<b>Hardware configuration</b>	
Number of expansion units, max.	3
<b>Number of DP masters</b>	
• integrated	0
• via CP	4
<b>Number of operable FMs and CPs (recommended)</b>	
• FM	8
• CP, PtP	8
• CP, LAN	10
<b>Rack</b>	
• Racks, max.	4
• Modules per rack, max.	8
<b>Time of day</b>	
<b>Clock</b>	
• Hardware clock (real-time)	Yes
• retentive and synchronizable	Yes
• Backup time	6 wk; At 40 °C ambient temperature
• Deviation per day, max.	10 s
<b>Operating hours counter</b>	
• Number	1
• Number/Number range	0
• Range of values	0 to 2 <sup>31</sup> hours (when using SFC 101)

• retentive	Yes; Must be restarted at each restart
<b>Clock synchronization</b>	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	No
• to DP, slave	No
• in AS, master	Yes
• in AS, slave	No
• on Ethernet via NTP	No
<b>Digital inputs</b>	
integrated channels (DI)	0
<b>Digital outputs</b>	
integrated channels (DO)	0
<b>Analog inputs</b>	
integrated channels (AI)	0
<b>Analog outputs</b>	
integrated channels (AO)	0
<b>Interfaces</b>	
Number of industrial Ethernet interfaces	0
Number of PROFINET interfaces	0
Number of RS 485 interfaces	2
Number of RS 422 interfaces	0
<b>1. Interface</b>	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	No
Power supply to interface (15 to 30 V DC), max.	200 mA
<b>Functionality</b>	
• MPI	Yes
• PROFIBUS DP master	No
• PROFIBUS DP slave	No
• Point-to-point connection	No
<b>MPI</b>	
• Number of connections	12
• Transmission rate, max.	187.5 kbit/s
<b>Services</b>	
— PG/OP communication	Yes
— Routing	No
— Global data communication	Yes

— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes

## Communication functions

PG/OP communication	Yes
<b>Global data communication</b>	
• supported	Yes
• Number of GD loops, max.	4
• Number of GD packets, max.	4
• Number of GD packets, transmitter, max.	4
• Number of GD packets, receiver, max.	4
• Size of GD packets, max.	22 byte
• Size of GD packet (of which consistent), max.	22 byte
<b>S7 basic communication</b>	
• supported	Yes
• User data per job, max.	76 byte
• User data per job (of which consistent), max.	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
• as client	Yes; Via CP and loadable FB
• User data per job, max.	180 byte; With PUT/GET
• User data per job (of which consistent), max.	64 byte
<b>S5 compatible communication</b>	
• supported	Yes; via CP and loadable FC
<b>Number of connections</b>	
• overall	12
• usable for PG communication	11
— reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	11
• usable for OP communication	11
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	11
• usable for S7 basic communication	8
— reserved for S7 basic communication	0
— adjustable for S7 basic communication, min.	0

— adjustable for S7 basic communication,  
max.

8

### S7 message functions

Number of login stations for message functions, max.	12; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	40

### Test commissioning functions

Status block	Yes
Single step	Yes
Number of breakpoints	2

#### Status/control

- |                                    |   |
|------------------------------------|---|
| • Status/control variable          | Yes   |
| • Variables                        | Inputs, outputs, memory bits, DB, times, counters |
| • Number of variables, max.        | 30  |
| — of which status variables, max.  | 30  |
| — of which control variables, max. | 14  |

#### Forcing

- |                             |                 |
|-----------------------------|-----------------|
| • Forcing                   | Yes             |
| • Forcing, variables        | Inputs, outputs |
| • Number of variables, max. | 10              |

#### Diagnostic buffer

- |                           |     |
|---------------------------|-----|
| • present                 | Yes |
| • Number of entries, max. | 100 |
| — adjustable              | No  |

### Configuration

#### Configuration software

- |          |  |
|----------|--|
| • STEP 7 | Yes; V5.2 SP1 or higher with HW update |
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#### Programming

- |                                |                      |
|--------------------------------|----------------------|
| • Command set                  | see instruction list |
| • Nesting levels               | 8                    |
| • System functions (SFC)       | see instruction list |
| • System function blocks (SFB) | see instruction list |

#### Programming language

- |            |     |
|------------|-----|
| — LAD      | Yes |
| — FBD      | Yes |
| — STL      | Yes |
| — SCL      | Yes |
| — CFC      | Yes |
| — GRAPH    | Yes |
| — HiGraph® | Yes |

#### Know-how protection

- User program protection/password protection Yes

#### Dimensions

Width	40 mm
Height	125 mm
Depth	130 mm

#### Weights

Weight, approx.	280 g
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**last modified:** 04/19/2018 