

\*\*\* SPARE PART\*\*\* SIMATIC S7-300, CPU 318-2 DP 512 KBYTE  
 USER MEMORY (256 KB CODE; 256 KB DATA 1ST INTERF. = MPI  
 12 MBIT/S; 2ND INTERF. = PROFIBUS DP



General information	
Hardware product version	03
Firmware version	V3.0
Engineering with	
<ul style="list-style-type: none"> <li>Programming package</li> </ul>	STEP 7 V5.1 SP2
Supply voltage	
Rated value (DC)	Yes
<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)	Miniature circuit breaker; 2 A, type B or C
Input current	
Current consumption (in no-load operation), typ.	1.2 A
Inrush current, typ.	8 A
I <sup>2</sup> t	0.4 A <sup>2</sup> ·s
Power loss	
Power loss, typ.	12 W

Memory	
<b>Work memory</b>	
<ul style="list-style-type: none"> <li>integrated</li> </ul>	512 kbyte
<b>Load memory</b>	
<ul style="list-style-type: none"> <li>expandable FEPRM</li> </ul>	Yes
<ul style="list-style-type: none"> <li>expandable FEPRM, max.</li> </ul>	4 Mbyte
<ul style="list-style-type: none"> <li>integrated RAM, max.</li> </ul>	64 kbyte
<ul style="list-style-type: none"> <li>expandable RAM</li> </ul>	Yes
<ul style="list-style-type: none"> <li>expandable RAM, max.</li> </ul>	2 Mbyte
<b>Backup</b>	
<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; 11 KB
CPU processing times	
for bit operations, typ.	0.1 $\mu$ s
for bit operations, max.	0.1 $\mu$ s
for word operations, typ.	0.1 $\mu$ s
for fixed point arithmetic, typ.	0.1 $\mu$ s
for floating point arithmetic, typ.	0.6 $\mu$ s
for timer/counter operations, typ.	0.1 $\mu$ s
CPU-blocks	
<b>DB</b>	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	2 047; Number band: 1 to 2047
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	64 kbyte
<b>FB</b>	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	1 024; Number band: 0 to 1023
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	64 kbyte
<b>FC</b>	
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	1 024; Number band: 0 to 1023
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	64 kbyte
<b>OB</b>	
<ul style="list-style-type: none"> <li>Description</li> </ul>	see instruction list
<ul style="list-style-type: none"> <li>Number, max.</li> </ul>	see instruction list
<ul style="list-style-type: none"> <li>Size, max.</li> </ul>	64 kbyte
<ul style="list-style-type: none"> <li>Number of time alarm OBs</li> </ul>	2; OB 10, 11
<ul style="list-style-type: none"> <li>Number of delay alarm OBs</li> </ul>	2; OB 20, 21
<ul style="list-style-type: none"> <li>Number of cyclic interrupt OBs</li> </ul>	2; OB 32, 35
<ul style="list-style-type: none"> <li>Number of process alarm OBs</li> </ul>	2; OB 40, 41
<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>	5; OB 80, 81, 85, 86, 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	16
• additional within an error OB	3

### Counters, timers and their retentivity

#### S7 counter

• Number	512
of which retentive without battery	
— can be set	Yes
— preset	Z 0 to Z 7

#### Counting range

— lower limit	0
— upper limit	999

#### IEC counter

• present	Yes
• Type	SFB

#### S7 times

• Number	512
Retentivity	
— adjustable	Yes
— preset	No times retentive

#### Time range

— lower limit	10 ms
— upper limit	9 990 s

#### IEC timer

• present	Yes
• Type	SFB

### Data areas and their retentivity

#### Flag

• Number, max.	1 024 byte
• Retentivity available	Yes; MB 0 to MB 1023
• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8; 1 memory byte

#### Data blocks

• Number, max.	2 047; from DB 1 to DB 2047
• Size, max.	64 kbyte

#### Local data

• adjustable, max.	8 192 byte
• preset	3 584 byte
• per priority class, max.	8 192 byte

### Address area

<b>I/O address area</b>	
• Inputs	8 kbyte
• Outputs	8 kbyte
of which distributed	
— Inputs	8 kbyte
— Outputs	8 kbyte
<b>Process image</b>	
• Inputs	2 048 byte
• Outputs	2 048 byte
• Inputs, default	256 byte
• Outputs, default	256 byte
<b>Digital channels</b>	
• Inputs	65 536
— of which central	1 024
• Outputs	65 536
— of which central	1 024
<b>Analog channels</b>	
• Inputs	4 096
— of which central	256
• Outputs	4 096
— of which central	128
<b>Hardware configuration</b>	
Number of expansion units, max.	3
Number of DP masters	
• integrated	2
• via CP	4; CP 342-5
Number of operable FMs and CPs (recommended)	
• FM	16
• CP, PtP	8
• CP, LAN	16
<b>Rack</b>	
• Racks, max.	4
• Modules per rack, max.	8
<b>Time of day</b>	
Clock	
• Hardware clock (real-time)	Yes
• retentive and synchronizable	Yes
• Deviation per day, max.	10 s
Operating hours counter	
• Number	8
• Number/Number range	0 to 7

• Range of values	0 to 32767 hours
• Granularity	1 hour
• retentive	Yes
<b>Clock synchronization</b>	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes

## 1. Interface

Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
<b>Functionality</b>	
• MPI	Yes
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No
<b>MPI</b>	
• Number of connections	32
• Number of nodes, max.	32
• Transmission rate, max.	12 Mbit/s
<b>Services</b>	
— PG/OP communication	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as server	Yes
<b>DP master</b>	
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125
<b>Services</b>	
— PG/OP communication	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication, as server	Yes
— Equidistance	Yes
— SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes

— Direct data exchange (slave-to-slave communication)	Yes; Transmitter and receiver
<b>Address area</b>	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
<b>User data per DP slave</b>	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
<b>DP slave</b>	
• Number of connections	12
• Transmission rate, max.	12 Mbit/s
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes
<b>Transfer memory</b>	
— Inputs	244 byte
— Outputs	244 byte

## 2. Interface

Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
<b>Functionality</b>	
• MPI	No
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No
<b>DP master</b>	
• Number of connections, max.	16
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— SYNC/FREEZE	Yes

— Activation/deactivation of DP slaves	Yes
<b>Address area</b>	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
<b>User data per DP slave</b>	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
<b>DP slave</b>	
• GSD file	siem807f.gsg
• Transmission rate, max.	12 Mbit/s
<b>Services</b>	
— Routing	Yes
<b>Transfer memory</b>	
— Inputs	244 byte
— Outputs	244 byte
<b>Communication functions</b>	
PG/OP communication	Yes
<b>Global data communication</b>	
• supported	Yes
• Number of GD packets, transmitter, max.	1
• Number of GD packets, receiver, max.	2
• Size of GD packets, max.	54 byte
• Size of GD packet (of which consistent), max.	32 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
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
• User data per job, max.	160 byte
<b>S5 compatible communication</b>	
• supported	Yes; via CP and loadable FC
<b>Standard communication (FMS)</b>	
• supported	Yes; via CP and loadable FC
<b>Number of connections</b>	
• overall	32
• usable for PG communication	31
— reserved for PG communication	1
• usable for OP communication	31
— reserved for OP communication	1

• usable for S7 basic communication	30
• usable for S7 communication	30
<b>S7 message functions</b>	
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	100
<b>Test commissioning functions</b>	
Status block	Yes
Single step	Yes
Number of breakpoints	4
<b>Status/control</b>	
• Status/control variable	Yes
• Variables	Inputs, outputs, memory bits, DB, times, counters
• Number of variables, max.	70
<b>Forcing</b>	
• Forcing	Yes
• Forcing, variables	Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
• Number of variables, max.	256
<b>Diagnostic buffer</b>	
• present	Yes
• Number of entries, max.	100
— adjustable	No
<b>Configuration</b>	
<b>Configuration software</b>	
• STEP 7	Yes; V5.0
<b>Programming</b>	
• Command set	see instruction list
• Nesting levels	8
• System functions (SFC)	see instruction list
• System function blocks (SFB)	see instruction list
<b>Programming language</b>	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— HiGraph®	Yes
<b>Software libraries</b>	
— Process diagnostics	Yes
— Software controller	Yes
<b>Know-how protection</b>	
• 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	160 mm
Height	125 mm
Depth	130 mm

### Weights

Weight, approx.	930 g
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**last modified:** 03/23/2017 