

\*\*\* 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)	
<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

### Work memory

- integrated 512 kbyte

### Load memory

- expandable FEPRM Yes
- expandable FEPRM, max. 4 Mbyte
- integrated RAM, max. 64 kbyte
- expandable RAM Yes
- expandable RAM, max. 2 Mbyte

### Backup

- present Yes
- with battery Yes; all blocks
- without battery 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

### DB

- Number, max. 2 047; Number band: 1 to 2047
- Size, max. 64 kbyte

### FB

- Number, max. 1 024; Number band: 0 to 1023
- Size, max. 64 kbyte

### FC

- Number, max. 1 024; Number band: 0 to 1023
- Size, max. 64 kbyte

### OB

- Description see instruction list
- Number, max. see instruction list
- Size, max. 64 kbyte
- Number of time alarm OBs 2; OB 10, 11
- Number of delay alarm OBs 2; OB 20, 21
- Number of cyclic interrupt OBs 2; OB 32, 35
- Number of process alarm OBs 2; OB 40, 41
- Number of startup OBs 1; OB 100
- Number of asynchronous error OBs 5; OB 80, 81, 85, 86, 87
- Number of synchronous error OBs 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
<b>of which distributed</b>	
— 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
<b>Number of DP masters</b>	
• integrated	2
• via CP	4; CP 342-5
<b>Number of operable FMs and CPs (recommended)</b>	
• FM	16
• CP, PtP	8
• CP, LAN	16
<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
• Deviation per day, max.	10 s
<b>Operating hours counter</b>	
• 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

### S7 message functions

Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	100

### Test commissioning functions

Status block	Yes
Single step	Yes
Number of breakpoints	4

#### Status/control

- Status/control variable Yes
- Variables Inputs, outputs, memory bits, DB, times, counters
- Number of variables, max. 70

#### Forcing

- Forcing Yes
- Forcing, variables Inputs, outputs, bit memories, peripheral inputs, peripheral outputs
- Number of variables, max. 256

#### Diagnostic buffer

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

### Configuration

#### Configuration software

- STEP 7 Yes; V5.0

#### 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
— HiGraph®	Yes

#### Software libraries

— Process diagnostics	Yes
— Software controller	Yes

#### 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	160 mm
Height	125 mm
Depth	130 mm

### Weights

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