

*** 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"> Programming package 	STEP 7 V5.1 SP2
Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> 24 V DC 	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^2t	0.4 A ² ·s
Power loss	
Power loss, typ.	12 W

Memory	
Work memory	
<ul style="list-style-type: none"> integrated 	512 kbyte
Load memory	
<ul style="list-style-type: none"> expandable FEPRM 	Yes
<ul style="list-style-type: none"> expandable FEPRM, max. 	4 Mbyte
<ul style="list-style-type: none"> integrated RAM, max. 	64 kbyte
<ul style="list-style-type: none"> expandable RAM 	Yes
<ul style="list-style-type: none"> expandable RAM, max. 	2 Mbyte
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; 11 KB
CPU processing times	
for bit operations, typ.	0.1 μ s
for bit operations, max.	0.1 μ s
for word operations, typ.	0.1 μ s
for fixed point arithmetic, typ.	0.1 μ s
for floating point arithmetic, typ.	0.6 μ s
for timer/counter operations, typ.	0.1 μ s
CPU-blocks	
DB	
<ul style="list-style-type: none"> Number, max. 	2 047; Number band: 1 to 2047
<ul style="list-style-type: none"> Size, max. 	64 kbyte
FB	
<ul style="list-style-type: none"> Number, max. 	1 024; Number band: 0 to 1023
<ul style="list-style-type: none"> Size, max. 	64 kbyte
FC	
<ul style="list-style-type: none"> Number, max. 	1 024; Number band: 0 to 1023
<ul style="list-style-type: none"> Size, max. 	64 kbyte
OB	
<ul style="list-style-type: none"> Description 	see instruction list
<ul style="list-style-type: none"> Number, max. 	see instruction list
<ul style="list-style-type: none"> Size, max. 	64 kbyte
<ul style="list-style-type: none"> Number of time alarm OBs 	2; OB 10, 11
<ul style="list-style-type: none"> Number of delay alarm OBs 	2; OB 20, 21
<ul style="list-style-type: none"> Number of cyclic interrupt OBs 	2; OB 32, 35
<ul style="list-style-type: none"> Number of process alarm OBs 	2; OB 40, 41
<ul style="list-style-type: none"> Number of startup OBs 	1; OB 100
<ul style="list-style-type: none"> Number of asynchronous error OBs 	5; OB 80, 81, 85, 86, 87
<ul style="list-style-type: none"> Number of synchronous error OBs 	2; OB 121, 122

Nesting depth	
• 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	

I/O address area	
• Inputs	8 kbyte
• Outputs	8 kbyte
of which distributed	
— Inputs	8 kbyte
— Outputs	8 kbyte
Process image	
• Inputs	2 048 byte
• Outputs	2 048 byte
• Inputs, default	256 byte
• Outputs, default	256 byte
Digital channels	
• Inputs	65 536
— of which central	1 024
• Outputs	65 536
— of which central	1 024
Analog channels	
• Inputs	4 096
— of which central	256
• Outputs	4 096
— of which central	128
Hardware configuration	
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
Rack	
• Racks, max.	4
• Modules per rack, max.	8
Time of day	
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
Clock synchronization	
• 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

Functionality	
• MPI	Yes
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No

MPI	
• Number of connections	32
• Number of nodes, max.	32
• Transmission rate, max.	12 Mbit/s

Services	
— PG/OP communication	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as server	Yes

DP master	
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125

Services	
— 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
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
DP slave	
• Number of connections	12
• Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
Transfer memory	
— 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
Functionality	
• MPI	No
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No
DP master	
• Number of connections, max.	16
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	125
Services	
— 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
Address area	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
DP slave	
• GSD file	siem807f.gsg
• Transmission rate, max.	12 Mbit/s
Services	
— Routing	Yes
Transfer memory	
— Inputs	244 byte
— Outputs	244 byte
Communication functions	
PG/OP communication	Yes
Global data communication	
• 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
S7 basic communication	
• supported	Yes
• User data per job, max.	76 byte
• User data per job (of which consistent), max.	76 byte
S7 communication	
• supported	Yes
• as server	Yes
• User data per job, max.	160 byte
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Standard communication (FMS)	
• supported	Yes; via CP and loadable FC
Number of connections	
• 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