SIEMENS

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	
● Programming package	STEP 7 V5.2 + SP1 or higher with HW update

Supply voltage	
Rated value (DC)	
● 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)	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
I²t	0.5 A²·s

Power loss

Power loss, typ.	2.5 W

Memory

Work memory

• integrated	96 kbyte; For program and data
• expandable	No

Load memory

• Plug-in (MMC)	Yes
• Plug-in (MMC), max.	8 Mbyte
• Data management on MMC (after last programming), min.	10 y

Backup

• present	Yes; Guaranteed by MMC (maintenance-free)
• without battery	Yes; Program and data

CPU processing times

for bit operations, typ.	0.1 µs
for word operations, typ.	0.2 µs
for fixed point arithmetic, typ.	2 µs
for floating point arithmetic, typ.	3 µs

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

• Number, max.	511; Number range: 1 to 511
• Size, max.	16 kbyte

FB

• Number, max.	1 024; Number range: 0 to 2047
• Size, max.	16 kbyte

FC

• Number, max.	1 024; Number range: 0 to 2047
• Size, max.	16 kbyte

OB

• Size, max.	16 kbyte
• Number of free cycle OBs	1; OB 1
• Number of time alarm OBs	1; OB 10
• Number of delay alarm OBs	1; OB 20
• Number of cyclic interrupt OBs	1; OB 35
• Number of process alarm OBs	1; OB 40
• Number of startup OBs	1; OB 100
• Number of asynchronous error OBs	4; OB 80, 82, 85, 87
• Number of synchronous error OBs	2; OB 121, 122

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Nesting depth	
• per priority class	8
• additional within an error OB	4

Counters, timers and their retentivity

S7 counter

• Number	256

Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	8

Counting range	
— adjustable	Yes
— lower limit	0
— upper limit	999

IEC counter

• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)

S7 times

• Number	256

Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	No retentivity

Time range	
— lower limit	10 ms
— upper limit	9 990 s

IEC timer

• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)

Data areas and their retentivity

retentive data area in total	All, max. 64 KB

Flag

• 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

Data blocks

• Retentivity adjustable	Yes; via non-retain property on DB
• Retentivity preset	Yes

Local data

• per priority class, max.	510 byte

Address area

I/O address area

• Inputs	1 kbyte
• Outputs	1 kbyte

Process image

• Inputs	128 byte
• Outputs	128 byte

Digital channels

• Inputs	1 024
— of which central	1 024
• Outputs	1 024
— of which central	1 024

Analog channels

• Inputs	256
— of which central	256
• Outputs	256
— of which central	256

Hardware configuration

Number of expansion units, max.	3

Number of DP masters

• integrated	0
• via CP	4

Number of operable FMs and CPs (recommended)

• FM	8
• CP, PtP	8
• CP, LAN	10

Rack

• Racks, max.	4
• Modules per rack, max.	8

Time of day

Clock

• Hardware clock (real-time)	Yes
• retentive and synchronizable	Yes
• Backup time	6 wk; At 40 °C ambient temperature
• Deviation per day, max.	10 s

Operating hours counter

• Number	1

• Number/Number range	0
• Range of values	0 to 2^31 hours (when using SFC 101)
• Granularity	1 h
• retentive	Yes; Must be restarted at each restart
Clock synchronization	
• 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

Digital inputs	
integrated channels (DI)	0

Digital outputs	
integrated channels (DO)	0

Analog inputs	
integrated channels (AI)	0

Analog outputs	
integrated channels (AO)	0

Interfaces	
Number of industrial Ethernet interfaces	0
Number of PROFINET interfaces	0
Number of RS 485 interfaces	2
Number of RS 422 interfaces	0

1. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	No
Power supply to interface (15 to 30 V DC), max.	200 mA
Protocols	
• MPI	Yes
• PROFIBUS DP master	No
• PROFIBUS DP slave	No
• Point-to-point connection	No
MPI	
• Number of connections	12
• Transmission rate, max.	187.5 kbit/s
Services	

— 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

Global data communication	
• 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

S7 basic communication	
• 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)

S7 communication	
• 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

S5 compatible communication	
• supported	Yes; via CP and loadable FC

Number of connections	
• 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
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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