



Figure similar

spare part SIMATIC S7-300, CPU 314 central processing unit with MPI, integrated power supply 24 V DC, work memory 128 KB, Micro Memory Card required

General information	
Product type designation	CPU 314
HW functional status	01
Firmware version	V3.3
Engineering with	
• Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	2 A min.
Mains buffering	
• Mains/voltage failure stored energy time	5 ms
• Repeat rate, min.	1 s
Input current	
Current consumption (rated value)	650 mA
Current consumption (in no-load operation), typ.	140 mA
Inrush current, typ.	3.5 A
I_t	1 A ² ·s
Power loss	
Power loss, typ.	4 W
Storage	
Work memory	
• integrated	128 kbyte
• expandable	No
Load memory	
• Plug-in (MMC)	Yes
• Plug-in (MMC), max.	8 Mbyte
• Data management on MMC (after last programming), min.	10 a
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
• without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.06 μs
for word operations, typ.	0.12 μs
for fixed point arithmetic, typ.	0.16 μs
for floating point arithmetic, typ.	0.59 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.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
• Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
• Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• Number, max.	see instruction list
• Size, max.	64 kbyte
• Number of free cycle OBs	1; OB 1
• Number of time alarm OBs	1; OB 10
• Number of delay alarm OBs	2; OB 20, 21
• Number of cyclic interrupt OBs	4; OB 32, 33, 34, 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
Nesting depth	
• per priority class	16
• additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
• Number	256
Retentivity	
— can be set	Yes
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 timer	
• Number	256
Retentivity	
— adjustable	Yes
— 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 (incl. timers, counters, flags), max.	64 kbyte
Flag	
• Size, 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	

<ul style="list-style-type: none"> • Retentivity adjustable 	Yes; via non-retain property on DB
<ul style="list-style-type: none"> • Retentivity preset 	Yes
Local data	
<ul style="list-style-type: none"> • per priority class, max. 	32 kbyte; Max. 2 KB per block
Address area	
I/O address area	
<ul style="list-style-type: none"> • Inputs 	1 024 byte
<ul style="list-style-type: none"> • Outputs 	1 024 byte
Process image	
<ul style="list-style-type: none"> • Inputs 	1 024 byte
<ul style="list-style-type: none"> • Outputs 	1 024 byte
<ul style="list-style-type: none"> • Inputs, adjustable 	1 024 byte
<ul style="list-style-type: none"> • Outputs, adjustable 	1 024 byte
<ul style="list-style-type: none"> • Inputs, default 	128 byte
<ul style="list-style-type: none"> • Outputs, default 	128 byte
Digital channels	
<ul style="list-style-type: none"> • Inputs 	1 024
<ul style="list-style-type: none"> — of which central 	1 024
<ul style="list-style-type: none"> • Outputs 	1 024
<ul style="list-style-type: none"> — of which central 	1 024
Analog channels	
<ul style="list-style-type: none"> • Inputs 	256
<ul style="list-style-type: none"> — of which central 	256
<ul style="list-style-type: none"> • Outputs 	256
<ul style="list-style-type: none"> — of which central 	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
<ul style="list-style-type: none"> • integrated 	0
<ul style="list-style-type: none"> • via CP 	4
Number of operable FMs and CPs (recommended)	
<ul style="list-style-type: none"> • FM 	8
<ul style="list-style-type: none"> • CP, PtP 	8
<ul style="list-style-type: none"> • CP, LAN 	10
Rack	
<ul style="list-style-type: none"> • Racks, max. 	4
<ul style="list-style-type: none"> • Modules per rack, max. 	8
Time of day	
Clock	
<ul style="list-style-type: none"> • Hardware clock (real-time) 	Yes
<ul style="list-style-type: none"> • retentive and synchronizable 	Yes
<ul style="list-style-type: none"> • Backup time 	6 wk; At 40 °C ambient temperature
<ul style="list-style-type: none"> • Deviation per day, max. 	10 s; Typ.: 2 s
<ul style="list-style-type: none"> • Behavior of the clock following POWER-ON 	Clock continues running after POWER OFF
<ul style="list-style-type: none"> • Behavior of the clock following expiry of backup period 	the clock continues at the time of day it had when power was switched off
Operating hours counter	
<ul style="list-style-type: none"> • Number 	1
<ul style="list-style-type: none"> • Number/Number range 	0
<ul style="list-style-type: none"> • Range of values 	0 to 2 ³¹ hours (when using SFC 101)
<ul style="list-style-type: none"> • Granularity 	1 h
<ul style="list-style-type: none"> • retentive 	Yes; Must be restarted at each restart
Clock synchronization	
<ul style="list-style-type: none"> • supported 	Yes
<ul style="list-style-type: none"> • to MPI, master 	Yes
<ul style="list-style-type: none"> • on MPI, device 	Yes
<ul style="list-style-type: none"> • in AS, master 	Yes
<ul style="list-style-type: none"> • in AS, device 	No
Digital inputs	
Number of digital inputs	0

Digital outputs	
Number of digital outputs	0
Analog inputs	
Number of analog inputs	0
Interfaces	
Number of PROFINET interfaces	0
Number of RS 485 interfaces	1; MPI
Number of RS 422 interfaces	0
1. Interface	
Interface type	Integrated RS 485 interface
Isolated	No
Interface types	
<ul style="list-style-type: none"> • RS 485 • Output current of the interface, max. 	<ul style="list-style-type: none"> Yes 200 mA
Protocols	
<ul style="list-style-type: none"> • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection 	<ul style="list-style-type: none"> Yes No No No
MPI	
<ul style="list-style-type: none"> • Transmission rate, max. 	187,5 kbit/s
Services	
<ul style="list-style-type: none"> — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server 	<ul style="list-style-type: none"> Yes No Yes Yes Yes; Only server, configured on one side No Yes
Protocols	
PROFIsafe	No
Communication functions	
PG/OP communication	Yes
Data record routing	No
Global data communication	
<ul style="list-style-type: none"> • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packet (of which consistent), max. 	<ul style="list-style-type: none"> Yes 8 8 8 8 22 byte 22 byte
S7 basic communication	
<ul style="list-style-type: none"> • supported • User data per job, max. • User data per job (of which consistent), max. 	<ul style="list-style-type: none"> Yes 76 byte 76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
S7 communication	
<ul style="list-style-type: none"> • supported • as server • as client • User data per job, max. • User data per job (of which consistent), max. 	<ul style="list-style-type: none"> Yes Yes Yes; Via CP and loadable FB 180 byte; With PUT/GET 240 byte; as server
S5 compatible communication	
<ul style="list-style-type: none"> • supported 	Yes; via CP and loadable FC
Number of connections	
<ul style="list-style-type: none"> • overall • usable for PG communication <ul style="list-style-type: none"> — reserved for PG communication 	<ul style="list-style-type: none"> 12 11 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.	300
Test commissioning functions	
Status block	Yes; Up to 2 simultaneously
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.	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.	500
— can be set	No
— of which powerfail-proof	100; Only the last 100 entries are retained
● Number of entries readable in RUN, max.	499
— can be set	Yes; From 10 to 499
— preset	10
Service data	
● Can be read out	Yes
Ambient conditions	
Ambient temperature during operation	
● min.	0 °C
● max.	60 °C
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
• Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	40 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	280 g
Classifications	

	Version	Classification
eClass	14	27-24-22-07
eClass	12	27-24-22-07
eClass	9.1	27-24-22-07
eClass	9	27-24-22-07
eClass	8	27-24-22-07
eClass	7.1	27-24-22-07
eClass	6	27-24-22-07
ETIM	10	EC000236
ETIM	9	EC000236
ETIM	8	EC000236
ETIM	7	EC000236
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



[Miscellaneous](#)



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