

SIMATIC S7-300,  
 CPU 315F CENTRAL UNIT FOR S7-300F,  
 192 KB WORKING MEM., 40MM WIDE,  
 384 BYTES PAE/384 BYTES PAA,  
 2 INTERFACES: 1 MPI UND 1 DP INTEGRATED 24V DC  
 POWER SUPPLY,  
 MICRO MEMORY CARD REQUIRED

General information	
Hardware product version	01
Firmware version	V2.6
Engineering with	
Programming package	STEP 7 V5.2 SP1 or higher with HSP 0126
Supply voltage	
24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
External protection for supply cables (recommendation)	2 A min.
Input current	
Current consumption (in no-load operation), typ.	60 mA
Inrush current, typ.	2.5 A
I <sup>2</sup> t	0.5 A <sup>2</sup> ·s
Power losses	
Power loss, typ.	2.5 W
Memory	
Type of memory	other
Work memory	
Integrated	192 kbyte ; The number of F-instructions compared to a standard program is limited due to the F-specific overheads; depending on the type of programming, about 36 K F-instructions are possible.
expandable	No
Load memory	
pluggable (MMC)	Yes
pluggable (MMC), max.	8 Mbyte
Backup	
present	Yes ; Guaranteed by MMC (maintenance-free)
CPU processing times	

<b>for bit operations, typ.</b>	0.1 µs
<b>for word operations, typ.</b>	0.2 µs
<b>for fixed point arithmetic, typ.</b>	2 µs
<b>for floating point arithmetic, typ.</b>	6 µs
<b>CPU-blocks</b>	
<b>Number of blocks (total)</b>	1024 ; DBs, FCs, FBs
<b>DB</b>	
<b>Number, max.</b>	1023 ; DB 0 reserved
<b>Size, max.</b>	16 kbyte
<b>FB</b>	
<b>Number, max.</b>	2048 ; see instruction list
<b>Size, max.</b>	16 kbyte
<b>FC</b>	
<b>Number, max.</b>	2048 ; see instruction list
<b>Size, max.</b>	16 kbyte
<b>OB</b>	
<b>Size, max.</b>	16 kbyte
<b>Number of free cycle OBs</b>	1 ; OB 1
<b>Number of time alarm OBs</b>	1 ; OB 10
<b>Number of delay alarm OBs</b>	1 ; OB 20
<b>Number of time interrupt OBs</b>	1 ; OB 35
<b>Number of process alarm OBs</b>	1 ; OB 40
<b>Number of DPV1 alarm OBs</b>	3 ; OB 55, 56, 57
<b>Number of startup OBs</b>	1 ; OB 100
<b>Number of asynchronous error OBs</b>	5 ; OB 80, 82, 85, 86, 87
<b>Number of synchronous error OBs</b>	1 ; OB 121, 122
<b>Nesting depth</b>	
<b>per priority class</b>	8
<b>additional within an error OB</b>	4
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
<b>Number</b>	256
<b>of which retentive without battery</b>	
<b>can be set</b>	Yes
<b>preset</b>	Z 0 to Z 7
<b>Counting range</b>	
<b>lower limit</b>	0
<b>upper limit</b>	999

<b>IEC counter</b>	
<b>present</b>	Yes
<b>Type</b>	SFB
<b>Number</b>	Unlimited (limited only by RAM capacity)
<b>S7 times</b>	
<b>Number</b>	256
<b>Retentivity</b>	
<b>can be set</b>	Yes
<b>preset</b>	No retentivity
<b>Time range</b>	
<b>lower limit</b>	10 ms
<b>upper limit</b>	9990 s
<b>IEC timer</b>	
<b>present</b>	Yes
<b>Type</b>	SFB
<b>Data areas and their retentivity</b>	
<b>retentive data area, total</b>	all standard data
<b>Flag</b>	
<b>Number, max.</b>	2048 byte
<b>Retentivity available</b>	Yes ; MB 0 to MB 2047
<b>Retentivity preset</b>	MB 0 to MB 15
<b>Number of clock memories</b>	8 ; 1 memory byte
<b>Data blocks</b>	
<b>Number, max.</b>	1023 ; DB 0 reserved
<b>Size, max.</b>	16 kbyte
<b>Local data</b>	
<b>per priority class, max.</b>	1024 byte
<b>Address area</b>	
<b>I/O address area</b>	
<b>Inputs</b>	2 kbyte
<b>Outputs</b>	2 kbyte
<b>of which, distributed</b>	
<b>Inputs</b>	2 kbyte
<b>Outputs</b>	2 kbyte
<b>Process image</b>	
<b>Inputs</b>	384 byte
<b>Outputs</b>	384 byte
<b>Digital channels</b>	

<b>Inputs</b>	16384
<b>Outputs</b>	16384
<b>Inputs, of which central</b>	1024
<b>Outputs, of which central</b>	1024
<b>Analog channels</b>	
<b>Inputs</b>	1024
<b>Outputs</b>	1024
<b>Inputs, of which central</b>	256
<b>Outputs, of which central</b>	256
<b>Hardware configuration</b>	
<b>Number of DP masters</b>	
<b>Integrated</b>	1
<b>Via CP</b>	1
<b>Number of operable FMs and CPs (recommended)</b>	
<b>FM</b>	8
<b>CP, point-to-point</b>	8
<b>CP, LAN</b>	10
<b>Rack</b>	
<b>Racks, max.</b>	4
<b>Modules per rack, max.</b>	8
<b>Time of day</b>	
<b>Clock</b>	
<b>Hardware clock (real-time clock)</b>	Yes
<b>battery-backed and synchronizable</b>	Yes
<b>Deviation per day, max.</b>	10 s
<b>Backup time</b>	6 wk ; At 40 °C ambient temperature
<b>Operating hours counter</b>	
<b>Number</b>	1
<b>Number/Number range</b>	0
<b>Range of values</b>	0 to 2 <sup>31</sup> hours (when using SFC 101)
<b>Granularity</b>	1 hour
<b>retentive</b>	Yes ; Must be restarted at each restart
<b>Clock synchronization</b>	
<b>supported</b>	Yes
<b>to MPI, master</b>	Yes
<b>to MPI, slave</b>	Yes
<b>to DP, master</b>	Yes ; With DP slave only slave clock
<b>to DP, slave</b>	Yes

in AS, master	Yes
<b>Digital inputs</b>	
integrated channels (DI)	0
<b>Digital outputs</b>	
integrated channels (DO)	0
<b>Analog inputs</b>	
Integrated channels (AI)	0
<b>Analog outputs</b>	
Integrated channels (AO)	0
<b>Interfaces</b>	
Number of parallel interfaces	0
Number of 20 mA interfaces (TTY)	0
Number of RS 232 interfaces	0
Number of RS 422 interfaces	0
Number of other interfaces	0
<b>1st interface</b>	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	No
Power supply to interface (15 to 30 V DC), max.	200 mA
<b>Functionality</b>	
MPI	Yes
DP master	No
DP slave	No
Point-to-point connection	No
<b>MPI</b>	
Number of connections	16
Transmission rate, max.	187.5 kbit/s
<b>Services</b>	
PG/OP communication	Yes
Routing	Yes
Global data communication	Yes
S7 basic communication	Yes
S7 communication	Yes
S7 communication, as client	Yes ; Via CP and loadable FB
S7 communication, as server	Yes
<b>2nd interface</b>	
Interface type	Integrated RS 485 interface

<b>Physics</b>	RS 485
<b>Isolated</b>	Yes
<b>Power supply to interface (15 to 30 V DC), max.</b>	200 mA
<b>Functionality</b>	
<b>MPI</b>	No
<b>DP master</b>	Yes
<b>DP slave</b>	Yes
<b>Point-to-point connection</b>	No
<b>DP master</b>	
<b>Number of connections, max.</b>	16
<b>Transmission rate, max.</b>	12 Mbit/s
<b>Number of DP slaves, max.</b>	125
<b>Services</b>	
<b>PG/OP communication</b>	Yes
<b>Routing</b>	Yes
<b>Global data communication</b>	No
<b>S7 basic communication</b>	No
<b>S7 communication</b>	No
<b>Equidistance mode support</b>	Yes
<b>SYNC/FREEZE</b>	Yes
<b>DPV1</b>	Yes
<b>Address area</b>	
<b>Inputs, max.</b>	244 kbyte
<b>Outputs, max.</b>	244 kbyte
<b>DP slave</b>	
<b>Number of connections</b>	16
<b>GSD file</b>	The latest GSD file is available at: <a href="http://www.siemens.com/profibus-gsd">http://www.siemens.com/profibus-gsd</a>
<b>Transmission rate, max.</b>	12 Mbit/s
<b>Address area, max.</b>	32
<b>User data per address area, max.</b>	32 byte
<b>Services</b>	
<b>PG/OP communication</b>	Yes
<b>Routing</b>	Yes ; with interface active
<b>Global data communication</b>	No
<b>S7 basic communication</b>	No
<b>S7 communication, as client</b>	No
<b>S7 communication, as server</b>	No
<b>Direct data exchange (slave-to-slave communication)</b>	Yes

<b>DPV1</b>	No
<b>Transfer memory</b>	
<b>Inputs</b>	244 byte
<b>Outputs</b>	244 byte
<b>Communication functions</b>	
<b>PG/OP communication</b>	Yes
<b>Global data communication</b>	
<b>supported</b>	Yes
<b>Number of GD packets, max.</b>	8
<b>Number of GD packets, transmitter, max.</b>	8
<b>Number of GD packets, receiver, max.</b>	8
<b>Size of GD packets, max.</b>	22 byte
<b>Size of GD packet (of which consistent), max.</b>	22 byte
<b>S7 basic communication</b>	
<b>supported</b>	Yes
<b>User data per job, max.</b>	76 byte
<b>User data per job (of which consistent), max.</b>	76 byte ; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
<b>S7 communication</b>	
<b>supported</b>	Yes
<b>as server</b>	Yes
<b>As client</b>	Yes ; Via CP and loadable FB
<b>User data per job, max.</b>	180 byte ; With PUT/GET
<b>User data per job (of which consistent), max.</b>	64 byte ; as server
<b>S5-compatible communication</b>	
<b>supported</b>	Yes ; via CP and loadable FC
<b>Number of connections</b>	
<b>overall</b>	16
<b>usable for PG communication</b>	15
<b>reserved for PG communication</b>	1
<b>Adjustable for PG communication, min.</b>	1
<b>Adjustable for PG communication, max.</b>	15
<b>usable for OP communication</b>	15
<b>reserved for OP communication</b>	1
<b>adjustable for OP communication, min.</b>	1
<b>adjustable for OP communication, max.</b>	15
<b>usable for S7 basic communication</b>	12
<b>Reserved for S7 basic communication</b>	0
<b>adjustable for S7 basic communication, min.</b>	0

<b>adjustable for S7 basic communication, max.</b>	12
<b>S7 message functions</b>	
<b>Number of login stations for message functions, max.</b>	16 ; Depending on the configured connections for PG/OP and S7 basic communication
<b>Process diagnostic messages</b>	Yes
<b>simultaneously active Alarm-S blocks, max.</b>	40
<b>Test commissioning functions</b>	
<b>Status block</b>	Yes
<b>Single step</b>	Yes
<b>Number of breakpoints</b>	2
<b>Status/control</b>	
<b>Status/control variable</b>	Yes
<b>Variables</b>	Inputs, outputs, memory bits, DB, times, counters
<b>Number of variables, max.</b>	30
<b>of which status variables, max.</b>	30
<b>of which control variables, max.</b>	14
<b>Forcing</b>	
<b>Forcing</b>	Yes
<b>Force, variables</b>	Inputs, outputs
<b>Number of variables, max.</b>	10
<b>Diagnostic buffer</b>	
<b>present</b>	Yes
<b>Number of entries, max.</b>	100
<b>can be set</b>	No
<b>Configuration</b>	
<b>Configuration software</b>	
<b>STEP 7</b>	Yes ; V5.1 SP6 or higher
<b>programming</b>	
<b>Command set</b>	see instruction list
<b>Nesting levels</b>	8
<b>System functions (SFC)</b>	see instruction list
<b>System function blocks (SFB)</b>	see instruction list
<b>Programming language</b>	
<b>LAD</b>	Yes
<b>FBD</b>	Yes
<b>STL</b>	Yes
<b>SCL</b>	Yes
<b>Know-how protection</b>	
<b>User program protection/password protection</b>	Yes

**Dimensions**

<b>Width</b>	40 mm
<b>Height</b>	125 mm
<b>Depth</b>	130 mm

**Weights**

<b>Weight, approx.</b>	290 g
Status	Oct 13, 2014