

SIPLUS S7-300 CPU 315F-2DP -25...+60 °C with conformal coating based on 6ES7315-6FF04-0AB0 . Fail-safe module with MPI Integr. power supply 24 V DC, Work memory 384 KB, 40 mm width, 2nd interface DP master/ slave Micro Memory Card required



Figure similar

General information	
HW functional status	01
Firmware version	V3.3
Engineering with	
<ul style="list-style-type: none"> <li>Programming package</li> </ul>	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.2 + SP1 or higher with HSP 218 + Distributed Safety
Supply voltage	
Rated value (DC)	
<ul style="list-style-type: none"> <li>24 V DC</li> </ul>	Yes
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	
<ul style="list-style-type: none"> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
<ul style="list-style-type: none"> <li>Repeat rate, min.</li> </ul>	1 s
Input current	

Current consumption (rated value)	850 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	3.5 A
$I^2t$	1 A <sup>2</sup> ·s

### Power loss

Power loss, typ.	4.5 W
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### Memory

#### Work memory

• integrated	384 kbyte
• expandable	No
• Size of retentive memory for retentive data blocks	128 kbyte

#### 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.	0.05 μs
for word operations, typ.	0.09 μs
for fixed point arithmetic, typ.	0.12 μs
for floating point arithmetic, typ.	0.45 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.
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#### 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

• Description	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 DPV1 alarm OBs 3; OB 55, 56, 57
- Number of isochronous mode OBs 1; OB 61
- Number of startup OBs 1; OB 100
- Number of asynchronous error OBs 5; OB 80, 82, 85, 86, 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

- adjustable Yes
- lower limit 0
- upper limit 255
- preset Z 0 to Z 7

#### Counting range

- lower limit 0
- upper limit 999

#### IEC counter

- 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, 128 KB max.

Flag	
• Number, max.	2 048 byte
• Retentivity available	Yes; MB 0 to MB 2047
• 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.	32 kbyte; Max. 2 KB per block
Address area	
I/O address area	
• Inputs	2 048 byte
• Outputs	2 048 byte
of which distributed	
— Inputs	2 048 byte
— Outputs	2 048 byte
Process image	
• Inputs	2 048 byte
• Outputs	2 048 byte
• Inputs, adjustable	2 048 byte
• Outputs, adjustable	2 048 byte
• Inputs, default	384 byte
• Outputs, default	384 byte
Subprocess images	
• Number of subprocess images, max.	1
Digital channels	
• Inputs	16 384
— of which central	1 024
• Outputs	16 384
— of which central	1 024
Analog channels	
• Inputs	1 024
— of which central	256
• Outputs	1 024
— of which central	256
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
• integrated	1
• 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; Typ.: 2 s
• Behavior of the clock following POWER-ON	Clock continues running after POWER OFF
• Behavior of the clock following expiry of backup period	Clock continues to run with the time at which the power failure occurred
Operating hours counter	
• Number	1
• Number/Number range	0
• Range of values	0 to 2 <sup>31</sup> hours (when using SFC 101)
• retentive	Yes; Must be restarted at each restart
Clock synchronization	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes; With DP slave only slave clock
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	No
Digital inputs	
Number of digital inputs	0
Digital outputs	
Number of digital outputs	0
Analog inputs	
Number of analog inputs	0
Analog outputs	
Number of analog outputs	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
<b>Functionality</b>	
• MPI	Yes
• PROFIBUS DP master	No
• PROFIBUS DP slave	No
• Point-to-point connection	No
<b>MPI</b>	
• 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; Only server, configured on one side
— S7 communication, as client	No
— S7 communication, as server	Yes

### 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>	
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	124; Per station
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes; Only server, configured on one side

— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61
— SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes
— Number of DP slaves that can be simultaneously activated/deactivated, max.	8
— DPV1	Yes
<b>Address area</b>	
— Inputs, max.	2 048 byte
— Outputs, max.	2 048 byte
<b>User data per DP slave</b>	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
<b>DP slave</b>	
• GSD file	The latest GSD file is available at: <a href="http://www.siemens.com/profibus-gsd">http://www.siemens.com/profibus-gsd</a>
• Transmission rate, max.	12 Mbit/s
• automatic baud rate search	Yes; only with passive interface
• Address area, max.	32
• User data per address area, max.	32 byte
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes; Only server, configured on one side
— S7 communication, as client	No
— S7 communication, as server	Yes
— Direct data exchange (slave-to-slave communication)	Yes
— DPV1	No
<b>Transfer memory</b>	
— Inputs	244 byte
— Outputs	244 byte
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	Yes
<b>Communication functions</b>	
PG/OP communication	Yes

Data record routing	Yes
<b>Global data communication</b>	
<ul style="list-style-type: none"> <li>supported</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Number of GD loops, max.</li> </ul>	8
<ul style="list-style-type: none"> <li>Number of GD packets, max.</li> </ul>	8
<ul style="list-style-type: none"> <li>Number of GD packets, transmitter, max.</li> </ul>	8
<ul style="list-style-type: none"> <li>Number of GD packets, receiver, max.</li> </ul>	8
<ul style="list-style-type: none"> <li>Size of GD packets, max.</li> </ul>	22 byte
<ul style="list-style-type: none"> <li>Size of GD packet (of which consistent), max.</li> </ul>	22 byte
<b>S7 basic communication</b>	
<ul style="list-style-type: none"> <li>supported</li> </ul>	Yes
<ul style="list-style-type: none"> <li>User data per job, max.</li> </ul>	76 byte
<ul style="list-style-type: none"> <li>User data per job (of which consistent), max.</li> </ul>	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
<b>S7 communication</b>	
<ul style="list-style-type: none"> <li>supported</li> </ul>	Yes
<ul style="list-style-type: none"> <li>as server</li> </ul>	Yes
<ul style="list-style-type: none"> <li>as client</li> </ul>	Yes; Via CP and loadable FB
<ul style="list-style-type: none"> <li>User data per job, max.</li> </ul>	180 byte; With PUT/GET
<ul style="list-style-type: none"> <li>User data per job (of which consistent), max.</li> </ul>	240 byte; as server
<b>S5 compatible communication</b>	
<ul style="list-style-type: none"> <li>supported</li> </ul>	Yes; via CP and loadable FC
<b>Number of connections</b>	
<ul style="list-style-type: none"> <li>overall</li> </ul>	16
<ul style="list-style-type: none"> <li>usable for PG communication</li> </ul>	15
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>reserved for PG communication</li> </ul> </li> </ul>	1
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>adjustable for PG communication, min.</li> </ul> </li> </ul>	1
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>adjustable for PG communication, max.</li> </ul> </li> </ul>	15
<ul style="list-style-type: none"> <li>usable for OP communication</li> </ul>	15
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>reserved for OP communication</li> </ul> </li> </ul>	1
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>adjustable for OP communication, min.</li> </ul> </li> </ul>	1
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>adjustable for OP communication, max.</li> </ul> </li> </ul>	15
<ul style="list-style-type: none"> <li>usable for S7 basic communication</li> </ul>	12
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>reserved for S7 basic communication</li> </ul> </li> </ul>	0
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>adjustable for S7 basic communication, min.</li> </ul> </li> </ul>	0
<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>adjustable for S7 basic communication, max.</li> </ul> </li> </ul>	12
<b>S7 message functions</b>	
Number of login stations for message functions, max.	16; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes



simultaneously active Alarm-S blocks, max.	300
<b>Test commissioning functions</b>	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
<b>Status/control</b>	
• 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
<b>Forcing</b>	
• Forcing	Yes
• Forcing, variables	Inputs, outputs
• Number of variables, max.	10
<b>Diagnostic buffer</b>	
• present	Yes
• Number of entries, max.	500
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
• Number of entries readable in RUN, max.	Yes; From 10 to 499
— can be set	Yes; From 10 to 499
— preset	10
<b>Service data</b>	
• can be read out	Yes
<b>Standards, approvals, certificates</b>	
CE mark	Yes
UL approval	Yes; File E239877
FM approval	Yes; CofC 3028431
RCM (formerly C-TICK)	Yes
KC approval	Yes
EAC (formerly Gost-R)	Yes
<b>Railway application</b>	
• EN 50155	No
<b>Use in hazardous areas</b>	
• ATEX	Yes
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
• min.	-25 °C
• max.	60 °C
<b>Ambient temperature during storage/transportation</b>	

• min.	-40 °C
• max.	70 °C
<b>Altitude during operation relating to sea level</b>	
• Installation altitude above sea level, max.	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
<b>Relative humidity</b>	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
<b>Use in stationary industrial systems</b>	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
<b>Use on ships/at sea</b>	
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
<b>from supply voltage 1L+</b>	
— Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!
<b>Configuration</b>	
<b>Configuration software</b>	
• STEP 7	Yes; V5.2 SP1 or higher with HW update
<b>Programming</b>	
• Command set	see instruction list
• Nesting levels	8
• System functions (SFC)	see instruction list
• System function blocks (SFB)	see instruction list
<b>Programming language</b>	
— 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. 290 g

**last modified:** 05/18/2018