



\*\*\*spare part\*\*\* SIMATIC S7-300, CPU 315-2DP central processing unit with MPI integrated power supply 24 V DC work memory 256 KB 2nd interface DP master/device Micro Memory Card required

General information	
Product type designation	CPU 315-2 DP
HW functional status	01
Firmware version	V3.3
Product function	
<ul style="list-style-type: none"> <li>• Isochronous mode</li> </ul>	Yes
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
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	
<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 <sup>2</sup> t	1 A <sup>2</sup> ·s
Power loss	
Power loss, typ.	4.5 W
Memory	
Work memory	
<ul style="list-style-type: none"> <li>• integrated</li> </ul>	256 kbyte
<ul style="list-style-type: none"> <li>• expandable</li> </ul>	No
Load memory	
<ul style="list-style-type: none"> <li>• Plug-in (MMC)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Plug-in (MMC), max.</li> </ul>	8 Mbyte
<ul style="list-style-type: none"> <li>• Data management on MMC (after last programming), min.</li> </ul>	10 a
Backup	
<ul style="list-style-type: none"> <li>• present</li> </ul>	Yes; Guaranteed by MMC (maintenance-free)
<ul style="list-style-type: none"> <li>• without battery</li> </ul>	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 $\mu$ s
<b>CPU-blocks</b>	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
<b>DB</b>	
• Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
<b>FB</b>	
• Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
<b>FC</b>	
• Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
<b>OB</b>	
• 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 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
<b>Nesting depth</b>	
• per priority class	16
• additional within an error OB	4
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	256
<b>Retentivity</b>	
— adjustable	Yes
— preset	Z 0 to Z 7
<b>Counting range</b>	
— lower limit	0
— upper limit	999
<b>IEC counter</b>	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
<b>S7 times</b>	
• Number	256
<b>Retentivity</b>	
— adjustable	Yes
— preset	No retentivity
<b>Time range</b>	
— lower limit	10 ms
— upper limit	9 990 s
<b>IEC timer</b>	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	128 kbyte
<b>Flag</b>	
• Size, max.	2 048 byte
• Retentivity available	Yes; MB 0 to MB 2 047

<ul style="list-style-type: none"> <li>• Retentivity preset</li> </ul>	MB 0 to MB 15
<ul style="list-style-type: none"> <li>• Number of clock memories</li> </ul>	8; 1 memory byte
<b>Data blocks</b>	
<ul style="list-style-type: none"> <li>• Retentivity adjustable</li> </ul>	Yes; via non-retain property on DB
<ul style="list-style-type: none"> <li>• Retentivity preset</li> </ul>	Yes
<b>Local data</b>	
<ul style="list-style-type: none"> <li>• per priority class, max.</li> </ul>	32 kbyte; Max. 2 KB per block
<b>Address area</b>	
<b>I/O address area</b>	
<ul style="list-style-type: none"> <li>• Inputs</li> </ul>	2 048 byte
<ul style="list-style-type: none"> <li>• Outputs</li> </ul>	2 048 byte
of which distributed	
<ul style="list-style-type: none"> <li>— Inputs</li> </ul>	2 048 byte
<ul style="list-style-type: none"> <li>— Outputs</li> </ul>	2 048 byte
<b>Process image</b>	
<ul style="list-style-type: none"> <li>• Inputs</li> </ul>	2 048 byte
<ul style="list-style-type: none"> <li>• Outputs</li> </ul>	2 048 byte
<ul style="list-style-type: none"> <li>• Inputs, adjustable</li> </ul>	2 048 byte
<ul style="list-style-type: none"> <li>• Outputs, adjustable</li> </ul>	2 048 byte
<ul style="list-style-type: none"> <li>• Inputs, default</li> </ul>	128 byte
<ul style="list-style-type: none"> <li>• Outputs, default</li> </ul>	128 byte
<b>Subprocess images</b>	
<ul style="list-style-type: none"> <li>• Number of subprocess images, max.</li> </ul>	1
<b>Digital channels</b>	
<ul style="list-style-type: none"> <li>• Inputs</li> </ul>	16 384
<ul style="list-style-type: none"> <li>— of which central</li> </ul>	1 024
<ul style="list-style-type: none"> <li>• Outputs</li> </ul>	16 384
<ul style="list-style-type: none"> <li>— of which central</li> </ul>	1 024
<b>Analog channels</b>	
<ul style="list-style-type: none"> <li>• Inputs</li> </ul>	1 024
<ul style="list-style-type: none"> <li>— of which central</li> </ul>	256
<ul style="list-style-type: none"> <li>• Outputs</li> </ul>	1 024
<ul style="list-style-type: none"> <li>— of which central</li> </ul>	256
<b>Hardware configuration</b>	
Number of expansion units, max.	3
<b>Number of DP masters</b>	
<ul style="list-style-type: none"> <li>• integrated</li> </ul>	1
<ul style="list-style-type: none"> <li>• via CP</li> </ul>	4
<b>Number of operable FMs and CPs (recommended)</b>	
<ul style="list-style-type: none"> <li>• FM</li> </ul>	8
<ul style="list-style-type: none"> <li>• CP, PtP</li> </ul>	8
<ul style="list-style-type: none"> <li>• CP, LAN</li> </ul>	10
<b>Rack</b>	
<ul style="list-style-type: none"> <li>• Racks, max.</li> </ul>	4
<ul style="list-style-type: none"> <li>• Modules per rack, max.</li> </ul>	8
<b>Time of day</b>	
<b>Clock</b>	
<ul style="list-style-type: none"> <li>• Hardware clock (real-time)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• retentive and synchronizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Backup time</li> </ul>	6 wk; At 40 °C ambient temperature
<ul style="list-style-type: none"> <li>• Deviation per day, max.</li> </ul>	10 s; Typ.: 2 s
<ul style="list-style-type: none"> <li>• Behavior of the clock following POWER-ON</li> </ul>	Clock continues running after POWER OFF
<ul style="list-style-type: none"> <li>• Behavior of the clock following expiry of backup period</li> </ul>	the clock continues at the time of day it had when power was switched off
<b>Operating hours counter</b>	
<ul style="list-style-type: none"> <li>• Number</li> </ul>	1
<ul style="list-style-type: none"> <li>• Number/Number range</li> </ul>	0
<ul style="list-style-type: none"> <li>• Range of values</li> </ul>	0 to 2 <sup>31</sup> hours (when using SFC 101)
<ul style="list-style-type: none"> <li>• Granularity</li> </ul>	1 h
<ul style="list-style-type: none"> <li>• retentive</li> </ul>	Yes; Must be restarted at each restart

<b>Clock synchronization</b>	
• supported	Yes
• to MPI, master	Yes
• on MPI, device	Yes
• to DP, master	Yes; With DP slave only slave clock
• on DP, device	Yes
• in AS, master	Yes
• in AS, device	No

<b>Digital inputs</b>	
Number of digital inputs	0

<b>Digital outputs</b>	
Number of digital outputs	0

<b>Analog inputs</b>	
Number of analog inputs	0

<b>Interfaces</b>	
Number of PROFINET interfaces	0
Number of RS 485 interfaces	2; MPI and PROFIBUS DP
Number of RS 422 interfaces	0

<b>1. Interface</b>	
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Interface type	Integrated RS 485 interface
Isolated	No

<b>Interface types</b>	
• RS 485	Yes
• Output current of the interface, max.	200 mA

<b>Protocols</b>	
• MPI	Yes
• PROFIBUS DP master	No
• PROFIBUS DP device	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

<b>2. Interface</b>	
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Interface type	Integrated RS 485 interface
Isolated	Yes

<b>Interface types</b>	
• RS 485	Yes
• Output current of the interface, max.	200 mA

<b>Protocols</b>	
• MPI	No
• PROFIBUS DP master	Yes
• PROFIBUS DP device	Yes
• Point-to-point connection	No

<b>PROFIBUS DP master</b>	
• Transmission rate, max.	12 Mbit/s
• max. number of DP devices	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 devices	Yes
— max. number of DP devices that can be activated/deactivated at the same time	8
— DPV1	Yes
<b>Address area</b>	
— Inputs, max.	2 048 byte
— Outputs, max.	2 048 byte
<b>User data per DP device</b>	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
<b>PROFIBUS DP device</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>Protocols</b>	
PROFIsafe	No
<b>Communication functions</b>	
PG/OP communication	Yes
Data record routing	Yes
<b>Global data communication</b>	
• supported	Yes
• Number of GD loops, max.	8
• Number of GD packets, max.	8
• Number of GD packets, transmitter, max.	8
• Number of GD packets, receiver, max.	8
• Size of GD packets, max.	22 byte
• Size of GD packet (of which consistent), max.	22 byte
<b>S7 basic communication</b>	
• 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)
<b>S7 communication</b>	
• 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.	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 <ul style="list-style-type: none"> <li>reserved for PG communication</li> <li>adjustable for PG communication, min.</li> <li>adjustable for PG communication, max.</li> </ul> </li> <li>usable for OP communication <ul style="list-style-type: none"> <li>reserved for OP communication</li> <li>adjustable for OP communication, min.</li> <li>adjustable for OP communication, max.</li> </ul> </li> <li>usable for S7 basic communication <ul style="list-style-type: none"> <li>reserved for S7 basic communication</li> <li>adjustable for S7 basic communication, min.</li> <li>adjustable for S7 basic communication, max.</li> </ul> </li> </ul>	15 1 1 15 15 1 1 15 12 0 0 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>	
<ul style="list-style-type: none"> <li>Status/control variable</li> <li>Variables</li> <li>Number of variables, max. <ul style="list-style-type: none"> <li>of which status variables, max.</li> <li>of which control variables, max.</li> </ul> </li> </ul>	Yes Inputs, outputs, memory bits, DB, times, counters 30 30 14
<b>Forcing</b>	
<ul style="list-style-type: none"> <li>Forcing</li> <li>Forcing, variables</li> <li>Number of variables, max.</li> </ul>	Yes Inputs, outputs 10
<b>Diagnostic buffer</b>	
<ul style="list-style-type: none"> <li>present</li> <li>Number of entries, max. <ul style="list-style-type: none"> <li>adjustable</li> <li>of which powerfail-proof</li> </ul> </li> <li>Number of entries readable in RUN, max. <ul style="list-style-type: none"> <li>adjustable</li> <li>preset</li> </ul> </li> </ul>	Yes 500 No 100; Only the last 100 entries are retained Yes; From 10 to 499 10
<b>Service data</b>	
<ul style="list-style-type: none"> <li>can be read out</li> </ul>	Yes
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>min.</li> <li>max.</li> </ul>	0 °C 60 °C
<b>Configuration</b>	
<b>Configuration software</b>	
<ul style="list-style-type: none"> <li>STEP 7</li> </ul>	Yes; V5.2 SP1 or higher with HW update
<b>Programming</b>	
<ul style="list-style-type: none"> <li>Command set</li> <li>Nesting levels</li> <li>System functions (SFC)</li> <li>System function blocks (SFB)</li> </ul>	see instruction list 8 see instruction list see instruction list
<b>Programming language</b>	
<ul style="list-style-type: none"> <li>LAD</li> <li>FBD</li> </ul>	Yes Yes

- STL Yes
- SCL Yes
- CFC Yes
- GRAPH Yes
- HiGraph® Yes

<b>Know-how protection</b>	
• User program protection/password protection	Yes
• Block encryption	Yes; With S7 block Privacy

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

<b>Weights</b>	
Weight, approx.	290 g

<b>Classifications</b>			
		<b>Version</b>	<b>Classification</b>
	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**



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last modified:

4/7/2025 