

Technical specifications (continued)

	6ES7 312-1AE14-0AB0	6ES7 314-1AG14-0AB0	6ES7 315-2AH14-0AB0	6ES7 315-2EH14-0AB0
Configuration				
programming				
• Programming language				
- LAD	Yes	Yes	Yes	Yes
- FBD	Yes	Yes	Yes	Yes
- STL	Yes	Yes	Yes	Yes
- SCL	Yes	Yes	Yes	Yes
- CFC	Yes	Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes	Yes
- HiGraph®	Yes	Yes	Yes	Yes
Know-how protection				
• User program protection/ password protection	Yes	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions				
Width	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm
Depth	130 mm	130 mm	130 mm	130 mm
Weight				
Weight, approx.	270 g	280 g	290 g	340 g
	6ES7 317-2AK14-0AB0	6ES7 317-2EK14-0AB0	6ES7 318-3EL01-0AB0	
General information				
Engineering with				
• Programming package	STEP7 as of V5.5 + SP1 or STEP 7 V5.2 + SP1 or higher with HSP 202	STEP7 V 5.5 or higher	STEP7 V 5.5 or higher	
Supply voltage				
24 V DC	Yes	Yes	Yes	
Power losses				
Power loss, typ.	4.5 W	4.65 W	14 W	
Memory				
Work memory				
• integrated	1 024 kbyte	1 024 kbyte	2 048 kbyte	
• Size of retentive memory for retentive data blocks	256 kbyte	256 kbyte	700 kbyte	
Load memory				
• pluggable (MMC), max.	8 Mbyte	8 Mbyte	8 Mbyte	
CPU processing times				
for bit operations, typ.	0.025 µs	0.025 µs	0.004 µs	
for word operations, typ.	0.03 µs	0.03 µs	0.01 µs	
for fixed point arithmetic, typ.	0.04 µs	0.04 µs	0.01 µs	
for floating point arithmetic, typ.	0.16 µs	0.16 µs	0.04 µs	
Counters, timers and their retentivity				
S7 counter				
• Number	512	512	2 048	
IEC counter				
• present	Yes	Yes	Yes	
S7 times				
• Number	512	512	2 048	
IEC timer				
• present	Yes	Yes	Yes	
Data areas and their retentivity				
Flag				
• Number, max.	4 096 byte	4 096 byte	8 192 byte	

SIMATIC S7-300

Central processing units

Standard CPUs

Technical specifications (continued)

	6ES7 317-2AK14-0AB0	6ES7 317-2EK14-0AB0	6ES7 318-3EL01-0AB0
Address area			
I/O address area			
• Inputs	8 192 byte	8 192 byte	8 192 byte
• Outputs	8 192 byte	8 192 byte	8 192 byte
Process image			
• Inputs, adjustable	8 192 byte	8 192 byte	8 192 byte
• Outputs, adjustable	8 192 byte	8 192 byte	8 192 byte
Time of day			
Clock			
• Hardware clock (real-time clock)	Yes	Yes	Yes
Operating hours counter			
• Number	4	4	4
1st interface			
Type of interface	Integrated RS 485 interface	Integrated RS 485 interface	Integrated RS 485 interface
Physics	RS 485	RS 485	RS 485
Functionality			
• MPI	Yes	Yes	Yes
• DP master	Yes	Yes	Yes
• DP slave	Yes; A DP slave at both interfaces simultaneously is not possible	Yes	Yes; A DP slave at both interfaces simultaneously is not possible
• Point-to-point connection	No	No	No
DP master			
• Number of DP slaves, max.	124	124	124
2nd interface			
Type of interface	Integrated RS 485 interface	PROFINET	Integrated RS 485 interface
Physics	RS 485	Ethernet RJ45	RS 485
Number of ports			
		2	
Functionality			
• MPI	No	No	No
• DP master	Yes	No	Yes
• DP slave	Yes; A DP slave at both interfaces simultaneously is not possible	No	Yes; A DP slave at both interfaces simultaneously is not possible
• PROFINET IO Controller		Yes; Also simultaneously with IO-Device functionality	No
• PROFINET IO Device		Yes; Also simultaneously with IO Controller functionality	No
• PROFINET CBA		Yes	No
DP master			
• Number of DP slaves, max.	124		124
PROFINET IO Controller			
• Max. number of connectable IO devices for RT		128	
• Number of IO devices with IRT and the option "high flexibility"		128	
• Number of IO Devices with IRT and the option "high performance", max.		64	
3rd interface			
Type of interface			PROFINET
Physics			Ethernet RJ45
Number of ports			
			2
Functionality			
• MPI			No
• DP master			No
• DP slave			No
• PROFINET IO Controller			Yes; Also simultaneously with I-Device functionality
• PROFINET IO Device			Yes; Also simultaneously with IO Controller functionality
• PROFINET CBA			Yes

Technical specifications (continued)

	6ES7 317-2AK14-0AB0	6ES7 317-2EK14-0AB0	6ES7 318-3EL01-0AB0
PROFINET IO Controller			
• Max. number of connectable IO devices for RT			256
• Number of IO devices with IRT and the option "high flexibility"			256
• Number of IO Devices with IRT and the option "high performance", max.			64
Isochronous mode			
Isochronous operation (application synchronized up to terminal)		Yes; Via PROFIBUS DP or PROFINET interface	Yes; Via 2nd PROFIBUS DP or PROFINET interface
Communication functions			
PG/OP communication	Yes	Yes	Yes
Data record routing	Yes	Yes	Yes
Global data communication			
• supported	Yes	Yes	Yes
S7 basic communication			
• supported	Yes	Yes	Yes
S7 communication			
• supported	Yes	Yes	Yes
S5-compatible communication			
• supported	Yes; via CP and loadable FC	Yes; via CP and loadable FC	Yes; via CP and loadable FC
Open IE communication			
• TCP/IP		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		16	32
• ISO-on-TCP (RFC1006)		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		16	32
• UDP		Yes; via integrated PROFINET interface and loadable FBs	Yes; via integrated PROFINET interface and loadable FBs
- Number of connections, max.		16	32
Web server			
• supported		Yes	Yes
Number of connections			
• overall	32	32	32
Ambient conditions			
Operating temperature			
• Min.	0 °C	0 °C	0 °C
• max.	60 °C	60 °C	60 °C
Configuration			
programming			
• Programming language			
- LAD	Yes	Yes	Yes
- FBD	Yes	Yes	Yes
- STL	Yes	Yes	Yes
- SCL	Yes	Yes	Yes
- CFC	Yes	Yes	Yes
- GRAPH	Yes	Yes	Yes
- HiGraph®	Yes	Yes	Yes
Know-how protection			
• User program protection/ password protection	Yes	Yes	Yes
• Block encryption	Yes; With S7 block Privacy	Yes; With S7 block Privacy	Yes; With S7 block Privacy
Dimensions			
Width	40 mm	40 mm	120 mm
Height	125 mm	125 mm	125 mm
Depth	130 mm	130 mm	130 mm
Weight			
Weight, approx.	360 g	340 g	1 250 g

SIMATIC S7-300

Central processing units

Standard CPUs

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Ordering data	Order No.	Order No.
CPU 312 32 KB main memory, 24 V DC power supply, MPI; MMC required	6ES7 312-1AE14-0AB0	SIMATIC Manual Collection Electronic manuals on DVD, multilingual: LOGO!, SIMADYN, SIMATIC bus components, SIMATIC C7, SIMATIC distributed I/O, SIMATIC HMI, SIMATIC Sensors, SIMATIC NET, SIMATIC PC Based Automation, SIMATIC PCS 7, SIMATIC PG/PC, SIMATIC S7, SIMATIC Software, SIMATIC TDC
CPU 314 128 KB main memory, 24 V DC power supply, MPI; MMC required	6ES7 314-1AG14-0AB0	SIMATIC Manual Collection 6ES7 998-8XC01-8YE0
CPU 315-2 DP 256 KB main memory, 24 V DC power supply, MPI, PROFIBUS DP master/slave interface, MMC required	6ES7 315-2AH14-0AB0	SIMATIC Manual Collection update service for 1 year 6ES7 998-8XC01-8YE2 Current "Manual Collection" DVD and the three subsequent updates
CPU 315-2 PN/DP 384 KB main memory, 24 V DC power supply, combined MPI/PROFIBUS DP master/slave interface, Ethernet/PROFINET interface with 2-port switch; MMC required	6ES7 315-2EH14-0AB0	Power supply connector 6ES7 391-1AA00-0AA0 10 units, spare part
CPU 317-2 DP Main memory 1 MB, power supply 24 V DC, MPI, PROFIBUS DP master/slave interface, MMC required	6ES7 317-2AK14-0AB0	SIMATIC S7 training case 6ES7 910-3AA00-0XA0 With mounting components for mounting S7-200 and S7-300
CPU 317-2 PN/DP 1 MB main memory, 24 V DC power supply, combined MPI/PROFIBUS DP master/slave interface, Ethernet/PROFINET interface with 2-port switch; MMC required	6ES7 317-2EK14-0AB0	PC adapter USB A2 6GK1 571-0BA00-0AA0 For connecting a PG/PC or notebook to PROFIBUS or MPI, USB cable included in scope of supply
CPU 319-3 PN/DP 1.4 MB main memory, 24 V DC power supply, combined MPI/PROFIBUS DP master/slave interface, PROFIBUS DP master/slave interface, Ethernet/PROFINET interface with 2-port switch; MMC required	6ES7 318-3EL01-0AB0	PROFIBUS bus components PROFIBUS DP bus connector RS 485 • With 90° cable outlet, max. transfer rate 12 Mbit/s - Without PG interface - With PG interface • With 90° cable outlet for FastConnect connection system, max. transfer rate 12 Mbit/s - Without PG interface, 1 unit - Without PG interface, 100 units - With PG interface, 1 unit - With PG interface, 100 units • With axial cable outlet for SIMATIC OP, for connecting to PPI, MPI, PROFIBUS
SIMATIC Micro Memory Card 64 KB 128 KB 512 KB 2 MB 4 MB 8 MB	6ES7 953-8LF20-0AA0 6ES7 953-8LG20-0AA0 6ES7 953-8LJ30-0AA0 6ES7 953-8LL31-0AA0 6ES7 953-8LM20-0AA0 6ES7 953-8LP20-0AA0	6ES7 972-0BA12-0XA0 6ES7 972-0BB12-0XA0 6ES7 972-0BA52-0XA0 6ES7 972-0BA52-0XB0 6ES7 972-0BB52-0XA0 6ES7 972-0BB52-0XB0 6GK1 500-0EA02
MPI cable for connection of SIMATIC S7 and PG via MPI; 5 m in length	6ES7 901-0BF00-0AA0	PROFIBUS Fast Connect bus cable 6XV1 830-0EH10 Standard type with special design for quick mounting, 2-core, shielded, sold by the meter, max. delivery unit 1000 m, minimum ordering quantity 20 m
Slot number plates	6ES7 912-0AA00-0AA0	RS 485 repeater for PROFIBUS 6ES7 972-0AA02-0XA0 Transmission rate up to 12 Mbit/s; 24 V DC; IP20 enclosure
S7-300 manual Design, CPU data, module data, instruction list German English	6ES7 398-8FA10-8AA0 6ES7 398-8FA10-8BA0	

Overview SIPLUS CPU 317-2 PN/DP



- The CPU with a large program memory and quantity framework for demanding applications
- Distributed intelligence in Component Based Automation (CBA) on PROFINET
- PROFINET proxy for intelligent devices on PROFIBUS DP in Component Based Automation (CBA)
- PROFINET I/O Controller for operating distributed I/O on PROFINET
- For cross-industry automation tasks in series machine, special machine and plant construction
- Used as central controller in production lines with central and distributed I/O
- For comprehensive I/O expansion
- For configuring distributed I/O structures
- High processing performance in binary and floating-point arithmetic
- Combined MPI/PROFIBUS DP master/slave interface
- Optionally supports the use of SIMATIC engineering tools

Micro Memory Card required for operation of CPU.

Note:

SIPLUS extreme products are based on Siemens Industry standard products. The contents listed here were taken from the respective standard products. SIPLUS extreme-specific information was added.

SIPLUS CPU 317-2 PN/DP		
Order number	6AG1 317-2EK14-7AB0	6AG1 317-2EK14-2AY0
Order number based on	6ES7 317-2EK14-0AB0	6ES7 317-2EK14-0AB0
Ambient temperature range	-25 ... +70 °C	
Conforms with standard for electronic equipment used on rolling stock (EN 50155)	No	Yes
Conformal coating	Coating of the printed circuit boards and the electronic components	
Technical data	The technical data of the standard product applies except for the ambient conditions.	
Ambient conditions		
Relative humidity	100%, condensation/frost permissible. No commissioning if condensation present.	
Biologically active substances, compliance with EN 60721-3-3	Class 3B2 mold and fungal spores (excluding fauna). The supplied plug covers must remain in place over the unused interfaces during operation!	
Chemically active substances, compliance with EN 60721-3-3	Class 3C4 incl. salt spray in accordance with EN 60068-2-52 (degree of severity 3). The supplied plug covers must remain in place over the unused interfaces during operation!	
Mechanically active substances, compliance with EN 60721-3-3	Class 3S4 incl. sand, dust. The supplied plug covers must remain in place over the unused interfaces during operation!	
Air pressure (depending on the highest positive temperature range specified)	1080 ... 795 hPa (-1000 ... +2000 m) see ambient temperature range 795 ... 658 hPa (+2000 ... +3500 m) derating 10 K 658 ... 540 hPa (+3500 ... +5000 m) derating 20 K	

For technical documentation on SIPLUS, see:
www.siemens.com/siplus-extreme

Ordering data

Order No.

SIPLUS CPU 317-2 PN/DP

(extended temperature range and medial exposure)

Main memory 1 MB, power supply 24 V DC, combined MPI/PROFIBUS DP master/slave interface, Ethernet/PROFINET interface;
MMC required

Additional conformance with EN 50155

6AG1 317-2EK14-7AB0

6AG1 317-2EK14-2AY0

Accessories

See SIMATIC CPU 317-2 PN/DP, page 5/12