

SIMATIC S7-1200 Basic Controllers

Central processing units
Standard CPUs

CPU 1214C

Overview



- Controller for intro to S7 with flexible expansion options
- Expandable by:
 - 1 signal board (SB), battery board (BB) or communication board (CB)
 - 8 signal modules (SM)
 - Max. 3 communication modules (CM)

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Technical specifications

Article number	6ES7214-1BG40-0XB0	6ES7214-1AG40-0XB0	6ES7214-1HG40-0XB0
	CPU 1214C, AC/DC/Relay, 14DI/10DQ/2AI	CPU 1214C, DC/DC/DC, 14DI/10DQ/2AI	CPU 1214C, DC/DC/Relay, 14DI/10DQ/2AI
General information			
Product type designation	CPU 1214C AC/DC/relay	CPU 1214C DC/DC/DC	CPU 1214C DC/DC/relay
Engineering with			
• Programming package	STEP 7 V14 or higher	STEP 7 V14 or higher	STEP 7 V14 or higher
Supply voltage			
Rated value (DC)			
• 24 V DC		Yes	Yes
Rated value (AC)			
• 120 V AC	Yes		
• 230 V AC	Yes		
Encoder supply			
24 V encoder supply			
• 24 V	20.4 to 28.8V	L+ minus 4 V DC min.	L+ minus 4 V DC min.
Power loss			
Power loss, typ.	14 W	12 W	12 W
Memory			
Work memory			
• integrated	100 kbyte	100 kbyte	100 kbyte
Load memory			
• integrated	4 Mbyte	4 Mbyte	4 Mbyte
• Plug-in (SIMATIC Memory Card), max.	with SIMATIC memory card	with SIMATIC memory card	with SIMATIC memory card
Backup			
• without battery	Yes	Yes	Yes
CPU processing times			
for bit operations, typ.	0.08 µs; / instruction	0.08 µs; / instruction	0.08 µs; / instruction
for word operations, typ.	1.7 µs; / instruction	1.7 µs; / instruction	1.7 µs; / instruction
for floating point arithmetic, typ.	2.3 µs; / instruction	2.3 µs; / instruction	2.3 µs; / instruction
Data areas and their retentivity			
Flag			
• Number, max.	8 kbyte; Size of bit memory address area	8 kbyte; Size of bit memory address area	8 kbyte; Size of bit memory address area
Process image			
• Inputs, adjustable	1 kbyte	1 kbyte	1 kbyte
• Outputs, adjustable	1 kbyte	1 kbyte	1 kbyte
Time of day			
Clock			
• Hardware clock (real-time)	Yes	Yes	Yes

Technical specifications (continued)

Article number	6ES7214-1BG40-0XB0 CPU 1214C, AC/DC/Relay, 14DI/10DQ/2AI	6ES7214-1AG40-0XB0 CPU 1214C, DC/DC/DC, 14DI/10DQ/2AI	6ES7214-1HG40-0XB0 CPU 1214C, DC/DC/Relay, 14DI/10DQ/2AI
Digital inputs			
Number of digital inputs	14; Integrated	14; Integrated	14; Integrated
• of which inputs usable for technological functions	6; HSC (High Speed Counting)	6; HSC (High Speed Counting)	6; HSC (High Speed Counting)
Digital outputs			
Number of digital outputs	10; Relays	10	10; Relays
• of which high-speed outputs		4; 100 kHz Pulse Train Output	
Analog inputs			
Number of analog inputs	2	2	2
Input ranges			
• Voltage	Yes	Yes	Yes
Analog outputs			
Number of analog outputs	0	0	0
1. Interface			
Interface type	PROFINET	PROFINET	PROFINET
Physics	Ethernet	Ethernet	Ethernet
Protocols			
• PROFINET IO Controller	Yes	Yes	Yes
• PROFINET IO Device	Yes	Yes	Yes
• SIMATIC communication	Yes	Yes	Yes
• Open IE communication	Yes	Yes	Yes
• Web server	Yes	Yes	Yes
• Media redundancy	No	No	No
Protocols			
Open IE communication			
• TCP/IP	Yes	Yes	Yes
• ISO-on-TCP (RFC1006)	Yes	Yes	Yes
• UDP	Yes	Yes	Yes
Web server			
• supported	Yes	Yes	Yes
Communication functions			
S7 communication			
• supported	Yes	Yes	Yes
Number of connections			
• overall	16; dynamically	16; dynamically	16; dynamically
Integrated Functions			
Number of counters	6	6	6
Counting frequency (counter) max.	100 kHz	100 kHz	100 kHz
Frequency measurement	Yes	Yes	Yes
controlled positioning	Yes	Yes	Yes
Number of position-controlled positioning axes, max.	8	8	8
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222	4; With integrated outputs	Up to 4 with SB 1222
PID controller	Yes	Yes	Yes
Number of alarm inputs	4	4	4
Number of pulse outputs		4	
Limit frequency (pulse)		100 kHz	
Ambient conditions			
Ambient temperature during operation			
• min.	-20 °C	-20 °C	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical	60 °C; Number of simultaneously activated inputs or outputs 7 or 5 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 14 or 10 at 55 °C horizontal or 45 °C vertical
Pollutant concentrations			
• SO ₂ at RH < 60% without condensation	SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free	SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free	SO ₂ : < 0.5 ppm; H ₂ S: < 0.1 ppm; RH < 60% condensation-free

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CPU 1214C

Technical specifications (continued)

Article number	6ES7214-1BG40-0XB0 CPU 1214C, AC/DC/Relay, 14DI/10DQ/2AI	6ES7214-1AG40-0XB0 CPU 1214C, DC/DC/DC, 14DI/10DQ/2AI	6ES7214-1HG40-0XB0 CPU 1214C, DC/DC/Relay, 14DI/10DQ/2AI
Configuration			
Programming			
Programming language			
- LAD	Yes	Yes	Yes
- FBD	Yes	Yes	Yes
- SCL	Yes	Yes	Yes
Dimensions			
Width	110 mm	110 mm	110 mm
Height	100 mm	100 mm	100 mm
Depth	75 mm	75 mm	75 mm
Weights			
Weight, approx.	455 g	415 g	435 g

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Ordering data

Article No.

Article No.

CPU 1214C

Compact CPU, AC/DC/relay;
Integrated program/data memory
100 KB, load memory 2 MB;
Wide-range power supply
85 ... 264 V AC;
Boolean execution times 0.1 μs
per operation;
14 digital inputs,
10 digital outputs (relays),
2 analog inputs;
Expandable by up to
3 communication modules,
8 signal modules and 1 signal
board/communication board;
Digital inputs can be used as HSC
at 100 kHz

6ES7214-1BG40-0XB0

Compact CPU, DC/DC/DC;
Integrated program/data memory
100 KB, load memory 2 MB;
Power supply 24 V DC;
Boolean execution times 0.1 μs
per operation;
14 digital inputs,
10 digital outputs,
2 analog inputs;
expandable by up to
3 communication modules,
8 signal modules, and 1 signal
board/communication board;
Digital inputs can be used as HSC
at 100 kHz,
24 V DC digital outputs can be
used as pulse outputs (PTO) or
pulse-width modulated outputs
(PWM) at 100 kHz

6ES7214-1AG40-0XB0

Compact CPU, DC/DC/relay;
Integrated program/data memory
100 KB, load memory 2 MB;
Power supply 24 V DC;
Boolean execution times 0.1 μs
per operation;
14 digital inputs, 10 digital outputs
(relays), 2 analog inputs;
Expandable by up to
3 communication modules,
8 signal modules, and 1 signal
board/communication board;
Digital inputs can be used as HSC
at 100 kHz

6ES7214-1HG40-0XB0

SB 1221 signal board

4 inputs, 5 V DC, 200 kHz

4 inputs, 24 V DC, 200 kHz

6ES7221-3AD30-0XB0

6ES7221-3BD30-0XB0

SB 1222 signal board

4 outputs, 5 V DC, 0.1 A, 200 kHz

4 outputs, 24 V DC, 0.1 A, 200 kHz

6ES7222-1AD30-0XB0

6ES7222-1BD30-0XB0

SB 1223 signal board

2 inputs, 24 V DC,
IEC type 1 current sinking;
2 x 24 V DC transistor outputs,
0.5 A, 5 W;
can be used as HSC at
up to 30 kHz

6ES7223-0BD30-0XB0

2 inputs, 5 V DC, 200 kHz
2 outputs 5 V DC, 0.1 A, 200 kHz

6ES7223-3AD30-0XB0

2 inputs, 24 V DC, 200 kHz
2 outputs 24 V DC, 0.1 A, 200 kHz

6ES7223-3BD30-0XB0

SB 1231 signal board

1 analog input, ±10 V with 12 bits or
0 ... 20 mA with 11 bits

6ES7231-4HA30-0XB0

SB 1231 thermocouple signal board

1 input +/- 80 mV, resolution 15 bits
+ sign, thermocouples type J, K

6ES7231-5QA30-0XB0

SB 1231 RTD signal board

1 input for resistance temperature
sensors Pt 100, Pt 200, Pt 500,
Pt 1000, resolution 15 bits + sign

6ES7231-5PA30-0XB0

SB 1232 signal board

1 analog output, ±10 V with 12 bits
or 0 to 20 mA with 11 bits

6ES7232-4HA30-0XB0

CB 1241 RS 485 communication board

For point-to-point connection,
with 1 RS 485 interface

6ES7241-1CH30-1XB0

Ordering data	Article No.	Ordering data	Article No.
BB1297 battery board For long-term backup of real-time clock, can be plugged into the signal board slot; battery (CR1025) is not included in scope of supply	6ES7297-0AX30-0XA0	RJ45 cable grip 4 units per pack Single port	6ES7290-3AA30-0XA0
Digital input simulator SIM 1274 simulator module (optional) 14 input switches, for CPU 1214C/1215C	6ES7274-1XH30-0XA0	Front flap set (spare part) For CPU 1214C	6ES7291-1AB30-0XA0
Analog input simulator SIM 1274 simulator module (optional) 2 potentiometers	6ES7274-1XA30-0XA0	STEP 7 Professional / Basic V15.1 Target system: SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC Requirement: Windows 7 Home Premium SP1 (64-bit) Windows 7 Professional SP1 (64-bit) Windows 7 Enterprise SP1 (64-bit) Windows 7 Ultimate SP1 (64-bit) Windows 10 Home Version 1709, 1803 Windows 10 Professional Version 1709, 1803 Windows 10 Enterprise Version 1709, 1803 Windows 10 Enterprise 2016 LTSP Windows 10 IoT Enterprise 2015 LTSP Windows 10 IoT Enterprise 2016 LTSP Windows Server 2012 R2 StdE (full installation) Windows Server 2016 Standard (full installation) Type of delivery: en, de, fr, it, es, zh STEP 7 Professional V15.1, floating license STEP 7 Professional V15.1, floating license software download incl. license key ¹⁾ Email address required for delivery STEP 7 Basic V15.1, floating license STEP 7 Basic V15.1, floating license, software download incl. license key ¹⁾ Email address required for delivery	
SIMATIC Memory Card (optional) 4 MB	6ES7954-8LC03-0AA0		6ES7822-1AA05-0YA5
12 MB	6ES7954-8LE03-0AA0		6ES7822-1AE05-0YA5
24 MB	6ES7954-8LF03-0AA0		6ES7822-0AA05-0YA5
256 MB	6ES7954-8LL03-0AA0		6ES7822-0AE05-0YA5
2 GB	6ES7954-8LP02-0AA0		
32 GB	6ES7954-8LT03-0AA0		
Extension cable for two-tier configuration For connecting digital/analog signal modules; length 2 m	6ES7290-6AA30-0XA0		
Terminal block (spare part) For CPU 1214C AC/DC/relay • For DI, with 20 screws, tin-coated, coded; 4 units • For DQ, with 12 screws, tin-coated, coded; 4 units • For AI, with 3 screws, gold-plated; 4 units For CPU 1214C DC/DC/DC • For DI, with 20 screws, tin-coated; 4 units • For DQ, with 12 screws, tin-coated; 4 units • For AI, with 3 screws, gold-plated; 4 units For CPU 1214C DC/DC/relay • For DI, with 20 screws, tin-coated; 4 units • For DQ, with 12 screws, tin-coated, coded; 4 units • For AI, with 3 screws, gold-plated; 4 units	6ES7292-1AV40-0XA0 6ES7292-1AM40-0XA0 6ES7292-1BC30-0XA0 6ES7292-1AV30-0XA0 6ES7292-1AM30-0XA0 6ES7292-1BC30-0XA0 6ES7292-1AV30-0XA0 6ES7292-1AM40-0XA0 6ES7292-1BC30-0XA0		

¹⁾ For up-to-date information and download availability, see: <http://www.siemens.com/tia-online-software-delivery>