

SIMATIC S7-1200 basic controller

Central processing units
Standard CPUs

CPU 1212C**Overview**

- The superior compact solution
- With 14 integral input/outputs
- Expandable by:
 - 1 signal board (SB) or communication board (CB)
 - 2 signal modules (SM)
 - Max. 3 communication modules (CM)

Technical specifications

Article number	6ES7212-1BE40-0XB0 CPU 1212C, AC/DC/RELAY, 8DI/6DO/2AI	6ES7212-1AE40-0XB0 CPU 1212C, DC/DC/DC, 8DI/6DO/2AI	6ES7212-1HE40-0XB0 CPU 1212C, DC/DC/RELAY, 8DI/6DO/2AI
Product type designation			
General information			
Engineering with			
• Programming package	STEP 7 V13 SP1 or higher	STEP 7 V13 SP1 or higher	STEP 7 V13 SP1 or higher
Supply voltage			
Rated value (DC)		Yes	Yes
• 24 V DC			
Rated value (AC)	Yes		
• 120 V AC	Yes		
• 230 V AC	Yes		
Encoder supply			
24 V encoder supply			
• 24 V		L+ minus 4 V DC min.	L+ minus 4 V DC min.
Power losses			
Power loss, typ.	11 W	9 W	9 W
Memory			
Work memory			
• Integrated	75 kbyte	75 kbyte	75 kbyte
Load memory			
• Integrated	1 Mbyte	1 Mbyte	1 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.	0.085 µs; / instruction	0.085 µs; / instruction	0.085 µs; / instruction
for word operations, typ.	1.7 µs; / instruction	1.7 µs; / instruction	1.7 µs; / instruction
for floating point arithmetic, typ.	2.5 µs; / instruction	2.5 µs; / instruction	2.5 µs; / instruction
Data areas and their retentivity			
Flag			
• Number, max.	4 kbyte; Size of bit memory address area	4 kbyte; Size of bit memory address area	4 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

Technical specifications (continued)

Article number	6ES7212-1BE40-0XB0 CPU 1212C, AC/DC/RELAY, 8DI/6DO/2AI	6ES7212-1AE40-0XB0 CPU 1212C, DC/DC/DC, 8DI/6DO/2AI	6ES7212-1HE40-0XB0 CPU 1212C, DC/DC/RELAY, 8DI/6DO/2AI
Time of day			
Clock			
• Hardware clock (real-time clock)	Yes	Yes	Yes
Digital inputs			
Number of digital inputs	8; Integrated	8; Integrated	8; Integrated
• of which, inputs usable for technological functions	4; HSC (High Speed Counting)	4; HSC (High Speed Counting)	4; HSC (High Speed Counting)
Digital outputs			
Number of digital outputs	6; Relays	6	6; Relays
• of which high-speed outputs		4; 100 kHz Pulse Train Output	
Analog inputs			
Integrated channels (AI)	2; 0 to 10 V	2; 0 to 10 V	2; 0 to 10 V
Input ranges			
• Voltage	Yes	Yes	Yes
1st interface			
Interface type	PROFINET	PROFINET	PROFINET
Physics	Ethernet	Ethernet	Ethernet
Functionality			
• PROFINET IO Device	Yes	Yes	Yes
• PROFINET IO Controller	Yes	Yes	Yes
Communication functions			
S7 communication			
• supported	Yes	Yes	Yes
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
Number of connections			
• overall	16; dynamically	16; dynamically	16; dynamically
Integrated Functions			
Number of counters	4	4	4
Counter frequency (counter) max.	100 kHz	100 kHz	100 kHz
Frequency meter	Yes	Yes	Yes
controlled positioning	Yes	Yes	Yes
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 in operation			
• Min.	-20 °C	-20 °C	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical	60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical	60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent points) at 60 °C horizontal or 50 °C vertical, 8 or 6 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

SIMATIC S7-1200 basic controllerCentral processing units
Standard CPUs**CPU 1212C****Technical specifications** (continued)

Article number	6ES7212-1BE40-0XB0 CPU 1212C, AC/DC/RELAY, 8DI/6DO/2AI	6ES7212-1AE40-0XB0 CPU 1212C, DC/DC/DC, 8DI/6DO/2AI	6ES7212-1HE40-0XB0 CPU 1212C, DC/DC/RELAY, 8DI/6DO/2AI
Configuration			
programming			
Programming language			
- LAD	Yes	Yes	Yes
- FBD	Yes	Yes	Yes
- SCL	Yes	Yes	Yes
Dimensions			
Width	90 mm	90 mm	90 mm
Height	100 mm	100 mm	100 mm
Depth	75 mm	75 mm	75 mm
Weights			
Weight, approx.	425 g	370 g	385 g

Ordering data**Article No.****Article No.****CPU 1212C**

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

6ES7212-1BE40-0XB0

Compact CPU, DC/DC/DC;
integrated program/data memory
75 KB, load memory 1 MB;
power supply 24 V DC;
Boolean execution times
0.1 µs per operation;
8 digital inputs,
6 digital outputs,
2 analog inputs;
expandable by up to
3 communication modules,
2 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

6ES7212-1AE40-0XB0

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

6ES7212-1HE40-0XB0**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
2 inputs, 24 V DC, 200 kHz
2 outputs 24 V DC, 0.1 A, 200 kHz

6ES7223-3AD30-0XB0**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**Thermocouple signal board
SB 1231**

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

6ES7231-5QA30-0XB0**RTD signal board SB 1231**

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**Communication board
CB 1241 RS 485**

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

6ES7241-1CH30-1XB0

Ordering data	Article No.	Article No.
Digital input simulator Simulator Module SIM 1274 (optional) 8 input switches, for CPU 1211C / CPU 1211C	6ES7274-1XF30-0XA0	STEP 7 Professional / Basic V13 SP1 Target system: SIMATIC S7-1200, S7-1500, S7-300, S7-400, WinAC Requirement: Windows 7 Professional SP1 (64-bit), Windows 7 Enterprise SP1 (64-bit), Windows 7 Ultimate SP1 (64-bit), Windows 8.1 (64-bit), Windows 8.1 Professional (64 bit), Windows 8.1 Enterprise (64-bit), Windows Server 2008 R2 StdE (full installation), Windows Server 2012 StdE (full installation) Available in: German, English, Chinese, Italian, French, Spanish STEP 7 Professional V13 SP1, floating license STEP 7 Professional V13 SP1, floating license, software download incl. license key ¹⁾ Email address required for delivery STEP 7 Basic V13 SP1, floating license STEP 7 Basic V13 SP1, floating license, software download incl. license key ¹⁾ Email address required for delivery
Analog input simulator Simulator Module SIM 1274 (optional) 2 potentiometers	6ES7274-1XA30-0XA0	
SIMATIC Memory Card (optional) 4 MB	6ES7954-8LC02-0AA0	
12 MB	6ES7954-8LE02-0AA0	
24 MB	6ES7954-8LF02-0AA0	
256 MB	6ES7954-8LL02-0AA0	
2 GB	6ES7954-8LP01-0AA0	
Extension cable for two-tier configuration for connecting digital/analog signal modules; length 2 m	6ES7290-6AA30-0XA0	
Starter box CPU 1212C AC/DC/relay Complete offer SIMATIC S7-1200, starter box, comprising: CPU 1212C AC/DC/relay, simulator, STEP 7 BASIC CD, manual CD, info material, in Systainer	6ES7212-1BD34-4YB0	
Terminal block (spare part) for CPU 1211C/1212C For DI, with 14 screws, tin-plated; 4 units	6ES7292-1AH30-0XA0	
For DO, with 8 screws, tin-plated; 4 units	6ES7292-1AP30-0XA0	
For AI, with 3 screws, tin-plated; 4 units	6ES7292-1BC30-0XA0	
RJ45 cable grip 4 units per pack Single port	6ES7290-3AA30-0XA0	
Front flap set (spare part) for CPU 1211C/1212C	6ES7291-1AA30-0XA0	

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