

SIMATIC S7-1200

Central processing units

CPU 1211C

Overview



- The clever compact solution
- With 10 integral input/outputs
- Expandable by:
 - 1 signal board (SB) or communication board (CB)
 - Max. 3 communication modules (CM)

Technical specifications

	6ES7 211-1BE31-0XB0 CPU 1211C AC/DC/Relay	6ES7 211-1AE31-0XB0 CPU 1211C DC/DC/DC	6ES7 211-1HE31-0XB0 CPU 1211C DC/DC/Relay
General information			
Engineering with			
• Programming package	As of STEP 7 V11.0 SP2	As of STEP 7 V11.0 SP2	As of STEP 7 V11.0 SP2
Supply voltage			
24 V DC		Yes	Yes
120 V AC	Yes		
230 V AC	Yes		
Encoder supply			
24 V encoder supply			
• 24 V	Permissible range: 20.4 to 28.8 V	Permissible range: 20.4 to 28.8 V	Permissible range: 20.4 to 28.8 V
Power losses			
Power loss, typ.	10 W	8 W	8 W
Memory			
Work memory			
• integrated	30 kbyte	30 kbyte	30 kbyte
Load memory			
• integrated	1 Mbyte	1 Mbyte	1 Mbyte
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
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 clock)	Yes	Yes	Yes

Technical specifications (continued)

	6ES7 211-1BE31-0XB0 CPU 1211C AC/DC/Relay	6ES7 211-1AE31-0XB0 CPU 1211C DC/DC/DC	6ES7 211-1HE31-0XB0 CPU 1211C DC/DC/Relay
Digital inputs			
Number/binary inputs • of which, inputs usable for technological functions	6; integrated 3; HSC (High Speed Counting)	6; integrated 3; HSC (High Speed Counting)	6; integrated 3; HSC (High Speed Counting)
Digital outputs			
Number/binary outputs • of which high-speed outputs	4; Relay	4 4; 100 kHz Pulse Train Output	4; Relay
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			
Type of interface	PROFINET	PROFINET	PROFINET
Physics	Ethernet	Ethernet	Ethernet
Functionality • PROFINET IO Controller	Yes	Yes	Yes
Communication functions			
S7 communication • supported	Yes	Yes	Yes
Open IE communication • TCP/IP • ISO-on-TCP (RFC1006) • UDP	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes
Web server • supported	Yes	Yes	Yes
Integrated Functions			
Number of counters	3	3	3
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			
Operating temperature • Min. • max.	-20 °C 60 °C	-20 °C 60 °C	-20 °C 60 °C
Configuration			
programming • Programming language - LAD - FBD - SCL	Yes Yes Yes	Yes Yes Yes	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
Weight			
Weight, approx.	420 g	370 g	380 g

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Ordering data	Order No.	Order No.
CPU 1211C Compact CPU, AC/DC/relay; integral program/data memory 25 KB, load memory 1 MB; wide-range power supply 85 ... 264 V AC; Boolean execution times 0.1 μs per operation; 6 digital inputs, 4 digital outputs (relays), 2 analog inputs; expandable by up to 3 communication modules and 1 signal board/communication board; digital inputs can be used as HSC at 100 kHz	6ES7 211-1BE31-0XB0	SB 1231 signal board 1 analog input, ±10 V with 12 bits or 0 ... 20 mA with 11 bits
Compact CPU, DC/DC/DC; integrated program/data memory 25 KB, load memory 1 MB; power supply 24 V DC; Boolean execution times 0.1 μs per operation; 6 digital inputs, 4 digital outputs, 2 analog inputs; expandable by up to 3 communication 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	6ES7 211-1AE31-0XB0	SB 1231 thermocouple signal board 1 input +/- 80 mV, resolution 15 bits + sign, thermocouples type J, K
Compact CPU, DC/DC/relay; integrated program/data memory 25 KB, load memory 1 MB; power supply 24 V DC; Boolean execution times 0.1 μs per operation; 6 digital inputs, 4 digital outputs (relays), 2 analog inputs; expandable by up to 3 communication modules and 1 signal board/communication board; digital inputs can be used as HSC at 100 kHz	6ES7 211-1HE31-0XB0	SB 1231 RTD signal board 1 input for resistance temperature sensors Pt 100, Pt 200, Pt 500, Pt 1000, resolution 15 bits + sign
SB 1221 signal board 4 inputs, 5 V DC, 200 kHz 4 inputs, 24 V DC, 200 kHz	6ES7 221-3AD30-0XB0 6ES7 221-3BD30-0XB0	SB 1232 signal board 1 analog output, ±10 V with 12 bits or 0 to 20 mA with 11 bits
SB 1222 signal board 4 outputs, 5 V DC, 0.1 A, 200 kHz 4 outputs, 24 V DC, 0.1 A, 200 kHz	6ES7 222-1AD30-0XB0 6ES7 222-1BD30-0XB0	CB 1241 RS485 communication board for point-to-point connection, with 1 RS485 interface
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 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	6ES7 223-0BD30-0XB0 6ES7 223-3AD30-0XB0 6ES7 223-3BD30-0XB0	Simulator (optional) 8 input switches, for CPU 1211C / CPU 1212C
		SIMATIC Memory Card (optional) 4 MB 12 MB 24 MB
		Terminal block (spare part) for CPU 1211C/1212C For DI, with 14 screws, tin-plated; 4 units For DO, with 8 screws, tin-plated; 4 units For AI, with 3 screws, tin-plated; 4 units
		RJ45 cable grip 4 items per pack Single port
		Front flap set (spare part) for CPU 1211C/1212C
		S7-1200 automation system, System Manual For SIMATIC S7-1200 and STEP 7 Basic German English French Spanish Italian Chinese
		6ES7 231-4HA30-0XB0 6ES7 231-5QA30-0XB0 6ES7 231-5PA30-0XB0 6ES7 232-4HA30-0XB0 6ES7 241-1CH30-1XB0 6ES7 274-1XF30-0XA0 6ES7 954 -8LC01-0AA0 6ES7 954 -8LE01-0AA0 6ES7 954 -8LF01-0AA0 6ES7 292-1AH30-0XA0 6ES7 292-1AP30-0XA0 6ES7 292-1BC30-0XA0 6ES7 290-3AA30-0XA0 6ES7 291-1AA30-0XA0 6ES7 298-8FA30-8AH0 6ES7 298-8FA30-8BH0 6ES7 298-8FA30-8CH0 6ES7 298-8FA30-8DH0 6ES7 298-8FA30-8EH0 6ES7 298-8FA30-8KH0

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SIPLUS central processing units

SIPLUS CPU 1211C

Technical specifications (continued)

Based on	6AG1 211-1BE31-4XB0 CPU 1211C AC/DC/Relay 6ES7 211-1BE31-0XB0	6AG1 211-1BE31-2XB0 CPU 1211C AC/DC/Relay 6ES7 211-1BE31-0XB0
Ambient conditions		
Operating temperature		
• Min.	-20 °C; = Tmin; startup @ 0 °C	-40 °C; = Tmin; startup @ -25 °C
• max.	60 °C; = Tmax	70 °C; = Tmax; > +60 °C Number of simultaneously controllable inputs and outputs max. 50%; no signal board can be used
• horizontal installation, min.	-20 °C; = Tmin; startup @ 0 °C	-40 °C; = Tmin; startup @ -25 °C
• horizontal installation, max.	60 °C; = Tmax	70 °C; = Tmax; > +60 °C Number of simultaneously controllable inputs and outputs max. 50%; no signal board can be used
• vertical installation, min.	-20 °C; = Tmin; startup @ 0 °C	-40 °C; = Tmin; startup @ -25 °C
• vertical installation, max.	50 °C; = Tmax	50 °C; = Tmax
Storage/transport temperature		
• Min.	-40 °C	-40 °C
• max.	70 °C	70 °C
Vibrations		
• Vibrations	2G wall mounting, 1G DIN rail	2G wall mounting, 1G DIN rail
• Operation, checked according to IEC 60068-2-6	Yes	Yes
Shock test		
• checked according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Extended ambient conditions		
• Relative to ambient temperature-atmospheric pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m)	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m) // Tmin ... (Tmax - 10K) at 795 hPa ... 658 hPa (+2000 m ... +3500 m) // Tmin ... (Tmax - 20K) at 658 hPa ... 540 hPa (+3500 m ... +5000 m)
• at cold restart	0 °C	-25 °C
• Relative humidity		
- with condensation	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
• Resistance		
- to biologically active substances	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!
- to chemically active substances	Yes	Yes
- to mechanically active substances	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!