

SIMATIC S7-1200 Basic Controllers

Central processing units
Standard CPUs

CPU 1211C

Technical specifications (continued)

Article number	6ES7211-1BE40-0XB0	6ES7211-1AE40-0XB0	6ES7211-1HE40-0XB0
	CPU 1211C, AC/DC/RELAY, 6DI/4DO/2AI	CPU 1211C, DC/DC/DC, 6DI/4DO/2AI	CPU 1211C, DC/DC/RELAY, 6DI/4DO/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.	420 g	370 g	380 g

Ordering data

Article No.	Article No.
CPU 1211C	
Compact CPU, AC/DC/relay; Integrated program/data memory 50 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	6ES7211-1BE40-0XB0
Compact CPU, DC/DC/DC; Integrated program/data memory 50 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	6ES7211-1AE40-0XB0
Compact CPU, DC/DC/relay; Integrated program/data memory 50 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	6ES7211-1HE40-0XB0
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 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	6ES7223-0BD30-0XB0 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
SB 1231 thermocouple signal board 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
CB 1241 RS 485 communication board For point-to-point connection, with 1 RS 485 interface	6ES7241-1CH30-1XB0

Overview

- Digital inputs as a supplement to the integral I/O of SIMATIC S7-1200 CPUs
- Can be plugged directly into the CPU

3**Technical specifications**

Article number	6ES7221-3AD30-0XB0	6ES7221-3BD30-0XB0
	SIGNAL BOARD SB 1221, 4 DI 5VDC 200KHZ	SIGNAL BOARD SB 1221, 4 DI 24VDC 200KHZ
General information		
Product type designation	SB 1221 4xDI 5VDC 200kHz	SB 1221 4xDI 24VDC 200kHz
Input current		
from backplane bus 5 V DC, typ.	40 mA	40 mA
Power loss		
Power loss, typ.	1 W	1 W
Digital inputs		
Number of digital inputs	4; Current-sourcing	4; Current-sourcing
• in groups of	4	4
Input voltage		
• Type of input voltage	DC	DC
• Rated value (DC)	5 V	24 V
• for signal "0"	(L+ minus 1.0 V DC) ... L+ (2.2 ... 0 mA)	(L+ minus 5.0 V DC) ... L+ (1.4 ... 0 mA)
• for signal "1"	0 V ... (L+ minus 2.0 V DC (20 ... 5.1 mA))	0 V ... (L+ minus 10 V DC (10 ... 2.9 mA))
Input current		
• for signal "0", max. (permissible quiescent current)	2.2 mA	1.4 mA
• for signal "1", min.	5.1 mA	2.9 mA
• for signal "1", typ.		7 mA
Input delay (for rated value of input voltage)		
for standard inputs		
- parameterizable	Yes; 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 μs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms	Yes; 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 μs; 0.05 / 0.1 / 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / 10.0 / 12.8 / 20.0 ms
for interrupt inputs		
- parameterizable	Yes	Yes
for counter/technological functions		
- parameterizable	Yes	Yes
Cable length		
• shielded, max.	50 m; shielded, twisted pair	50 m; shielded, twisted pair
Diagnostics indication LED		
• for status of the inputs	Yes	Yes
Degree and class of protection		
Degree of protection acc. to EN 60529		
• IP20	Yes	Yes

SIMATIC S7-1200 Basic Controllers

I/O modules

Digital modules

SB 1221 digital input modules**Technical specifications** (continued)

Article number	6ES7221-3AD30-0XB0 SIGNAL BOARD SB 1221, 4 DI 5VDC 200KHZ	6ES7221-3BD30-0XB0 SIGNAL BOARD SB 1221, 4 DI 24VDC 200KHZ
Ambient conditions		
Free fall		
• Fall height, max.	0.3 m; five times, in product package	0.3 m; five times, in product package
Ambient temperature during operation		
• permissible temperature range	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting with 2 simultaneously activated, non-adjacent inputs; otherwise up to 55 °C with horizontal mounting or 45 °C with vertical mounting
• min.	-20 °C	-20 °C
• max.	60 °C	60 °C
Mechanics/material		
Enclosure material (front)		
• Plastic	Yes	Yes
Dimensions		
Width	38 mm	38 mm
Height	62 mm	62 mm
Depth	21 mm	21 mm
Weights		
Weight, approx.	35 g	35 g

Ordering data**Article No.****Article No.****SB 1221 signal board digital input modules**

4 inputs, 5 V DC, 200 kHz, sourcing

4 inputs, 24 V DC, 200 kHz, sourcing

6ES7221-3AD30-0XB0
6ES7221-3BD30-0XB0**Terminal block (spare part)**

For signal board

With 6 screws, gold-plated; 4 pcs.

6ES7292-1BF30-0XA0

Overview

- Digital inputs as a supplement to the integral I/O of SIMATIC S7-1200 CPUs
- Can be plugged directly into the CPU

Note:

SIPLUS extreme products are based on SIMATIC standard products. The contents listed here were adopted from the respective standard products. SIPLUS extreme specific information was added.

3**Technical specifications**

Article number	6AG1221-3AD30-5XB0	6AG1221-3BD30-5XB0
Based on	6ES7221-3AD30-0XB0 SIPLUS S7-1200 SB 1221 4DI 5VDC	6ES7221-3BD30-0XB0 SIPLUS S7-1200 SB 1221 4DI 24VDC
Ambient conditions		
Ambient temperature during operation		
• min. • max.	-40 °C; = Tmin; Startup @ -25 °C 60 °C; = Tmax; Tmax > 55 °C number of simultaneously activated inputs 2 (no adjacent points) for horizontal mounting position	-40 °C; = Tmin; Startup @ -25 °C 60 °C; = Tmax; Tmax > 55 °C number of simultaneously activated inputs 2 (no adjacent points) for horizontal mounting position
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)
Relative humidity		
- With condensation, tested in accordance with IEC 60068-2-38, max.	100%; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation	100%; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance		
- against biologically active substances / conformity with EN 60721-3-3	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!
- against chemically active substances / conformity with EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!
- against mechanically active substances / conformity with EN 60721-3-3	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!

Ordering data**Article No.****Article No.****SIPLUS SB 1221 digital input signal board**

(Extended temperature range and exposure to media)

4 inputs, 5 V DC, 200 kHz, sourcing

4 inputs, 24 V DC, 200 kHz, sourcing

6AG1221-3AD30-5XB0

6AG1221-3BD30-5XB0

Accessories

See SIMATIC S7-1200 digital input SB 1221, page 3/52