

## SB 1221 digital input modules

### Overview

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

### Application

The SB 1221 digital input signal boards enable connection of the controller to digital process signals.

### Design

The Signal Boards are plugged straight into the holder on the front of the S7-1200-CPU.

- Mounting:  
Signal Boards are plugged direct into the SIMATIC S7-1200-CPU and linked electrically and mechanically with the CPU in this way.
- The installation dimensions of the CPU remain unchanged.
- On all Signal Boards, replacement is facilitated by removable terminals ("permanent wiring").

### Function

The SB 1221 digital input/output signal board converts the level of the external digital signals from the process to the internal signal level of the S7-1200 Controller.

### Technical specifications

Article number	6ES7221-3AD30-0XB0 Signal Board SB 1221, 4 DI 5VDC 200KHz	6ES7221-3BD30-0XB0 Signal Board SB 1221, 4 DI 24VDC 200KHz
<b>General information</b>		
Product type designation	SB 1221, DI 4x5 V DC 200 kHz	SB 1221, DI 4x24 V DC 200 kHz
<b>Input current</b>		
from backplane bus 5 V DC, typ.	40 mA	40 mA
<b>Power loss</b>		
Power loss, typ.	1 W	1 W
<b>Digital inputs</b>		
Number of digital inputs	4; Current-sourcing	4; Current-sourcing
• in groups of	4	4
<b>Input voltage</b>		
• 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))
<b>Input current</b>		
• 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.	15 mA	7 mA
<b>Input delay (for rated value of input voltage)</b>		
<b>for standard inputs</b>		
— 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
<b>for interrupt inputs</b>		
— parameterizable	Yes	Yes
<b>for technological functions</b>		
— parameterizable	Yes	Yes
<b>Cable length</b>		
• shielded, max.	50 m; shielded, twisted pair	50 m; shielded, twisted pair
<b>Interrupts/diagnostics/status information</b>		
<b>Diagnostics indication LED</b>		
• for status of the inputs	Yes	Yes
<b>Standards, approvals, certificates</b>		
CE mark	Yes	Yes
CSA approval	Yes	Yes
UL approval	Yes	Yes
cULus	Yes	Yes
FM approval	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes
KC approval	Yes	Yes
Marine approval	Yes	Yes
<b>Ambient conditions</b>		
<b>Free fall</b>		
• Fall height, max.	0.3 m; five times, in product package	0.3 m; five times, in product package
<b>Ambient temperature during operation</b>		
• min.	-20 °C	-20 °C

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	Signal Board SB 1221, 4 DI 5VDC 200KHz	Signal Board SB 1221, 4 DI 24VDC 200KHz
• max.	60 °C	60 °C
• horizontal installation, min.	-20 °C	-20 °C
• horizontal installation, max.	60 °C	60 °C
• vertical installation, min.	-20 °C	-20 °C
• vertical installation, max.	50 °C	50 °C
<b>Ambient temperature during storage/transportation</b>		
• min.	-40 °C	-40 °C
• max.	70 °C	70 °C
<b>Air pressure acc. to IEC 60068-2-13</b>		
• Storage/transport, min.	660 hPa	660 hPa
• Storage/transport, max.	1 080 hPa	1 080 hPa
<b>Relative humidity</b>		
• Operation at 25 °C without condensation, max.	95 %	95 %
<b>Mechanics/material</b>		
Enclosure material (front)		
• Plastic	Yes	Yes
<b>Dimensions</b>		
Width	38 mm	38 mm
Height	62 mm	62 mm
Depth	21 mm	21 mm
<b>Weights</b>		
Weight, approx.	35 g	35 g

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