

Overview

- Digital inputs as supplement to the integral I/O of the CPUs
- For flexible adaptation of the controller to the relevant task
- For subsequent expansion of the system with additional inputs

Technical specifications

Article number	6ES7221-1BF32-0XB0 DIGITAL INPUT SM 1221, 8DI, 24V DC	6ES7221-1BH32-0XB0 DIGITAL INPUT SM 1221, 16DI, 24V DC
Product type designation		
Supply voltage		
Rated value (DC)		
• 24 V DC	Yes	Yes
permissible range, lower limit (DC)	20.4 V	20.4 V
permissible range, upper limit (DC)	28.8 V	28.8 V
Input current		
from backplane bus 5 V DC, max.	105 mA	130 mA
Digital inputs		
• from load voltage L+ (without load), max.	4 mA; per channel	4 mA; per channel
Output voltage		
Power supply to the transmitters		
• present	Yes	Yes
Power losses		
Power loss, typ.	1.5 W	2.5 W
Digital inputs		
Number of digital inputs	8	16
• In groups of	2	4
Input characteristic curve in accordance with IEC 61131, type 1	Yes	Yes
Number of simultaneously controllable inputs		
all mounting positions		
- up to 40 °C, max.	8	16
horizontal installation		
- up to 40 °C, max.	8	16
- up to 50 °C, max.	8	16
vertical installation		
- up to 40 °C, max.	8	16

SIMATIC S7-1200 basic controller

I/O modules

Digital modules

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

Article number	6ES7221-1BF32-0XB0 DIGITAL INPUT SM 1221, 8DI, 24V DC	6ES7221-1BH32-0XB0 DIGITAL INPUT SM 1221, 16DI, 24V DC
Input voltage		
• Type of input voltage	DC	DC
• Rated value (DC)	24 V	24 V
• for signal "0"	5 V DC at 1 mA	5 V DC at 1 mA
• for signal "1"	15 VDC at 2.5 mA	15 VDC at 2.5 mA
Input current		
• for signal "0", max. (permissible quiescent current)	1 mA	1 mA
• for signal "1", min.	2.5 mA	2.5 mA
• for signal "1", typ.	4 mA; Typical	4 mA; Typical
Input delay (for rated value of input voltage)		
for standard inputs		
- Parameterizable	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
for interrupt inputs		
- Parameterizable	Yes	Yes
Cable length		
• shielded, max.	500 m	500 m
• Unshielded, max.	300 m	300 m
Digital outputs		
Number of digital outputs	0	0
short-circuit protection	No	No
Interrupts/diagnostics/status information		
Alarms		
• Alarms	Yes	Yes
• Diagnostic alarm	Yes	Yes
Diagnostic messages		
• Diagnostic functions	Yes	Yes
• Monitoring the supply voltage	Yes	Yes
Diagnostics indication LED		
• for status of the inputs	Yes	Yes
• for maintenance	Yes	Yes
• Status indicator digital input (green)	Yes	Yes
Galvanic isolation		
Galvanic isolation digital inputs		
• between the channels, in groups of	2	4
Degree and class of protection		
Degree of protection to EN 60529		
• IP20	Yes	Yes
Standards, approvals, certificates		
CE mark	Yes	Yes
CSA approval	Yes	Yes
cULus	Yes	Yes
FM approval	Yes	Yes
RCM (formerly C-TICK)	Yes	Yes
Marine approval		
• Marine approval		Yes

Technical specifications (continued)

Article number	6ES7221-1BF32-0XB0 DIGITAL INPUT SM 1221, 8DI, 24V DC	6ES7221-1BH32-0XB0 DIGITAL INPUT SM 1221, 16DI, 24V DC
Ambient conditions		
Free fall		
• Drop height, max. (in packaging)	0.3 m; five times, in dispatch package	0.3 m; five times, in dispatch package
Ambient temperature in operation		
• Permissible temperature range	-20 °C to +60 °C horizontal mounting, -20 °C to 50 °C vertical mounting, 95% humidity, non-condensing	
• Min.	-20 °C	-20 °C
• max.	60 °C	60 °C
• Permissible temperature change	5°C to 55°C, 3°C / minute	
Storage/transport temperature		
• Min.	-40 °C	-40 °C
• max.	70 °C	70 °C
Air pressure acc. to IEC 60068-2-13		
• Storage/transport, min.	660 hPa	660 hPa
• Storage/transport, max.	1 080 hPa	1 080 hPa
Relative humidity		
• Permissible range (without condensation) at 25 °C	95 %	95 %
Connection method		
required front connector	Yes	Yes
Mechanics/material		
Type of housing (front)		
• plastic	Yes	Yes
Dimensions		
Width	45 mm	45 mm
Height	100 mm	100 mm
Depth	75 mm	75 mm
Weights		
Weight, approx.	170 g	210 g

Ordering data**SM 1221 digital input signal module**

8 inputs, 24 V DC, isolated, current sourcing/sinking
 16 inputs, 24 V DC, isolated, current sourcing/sinking

Extension cable for two-tier configuration

for connecting digital/analog signal modules;
 length 2 m

Article No.**6ES7221-1BF32-0XB0****6ES7221-1BH32-0XB0****6ES7290-6AA30-0XA0****Article No.****Terminal block (spare part)**

for 8/16-channel digital signal modules

with 7 screws, zinc-plated; 4 pcs.

Front flap set (spare part)

for 8/16-channel signal modules

6ES7292-1AG30-0XA0**6ES7291-1BA30-0XA0**