## **SIEMENS**

## **Data sheet**

## 6ES7321-1BH02-0AA0



SIMATIC S7-300, Digital input SM 321, isolated, 16 DI, 24 V DC, 1x 20-pole

Figure similar

Rated value (DC)	Supply voltage		
	Load voltage L+		
● permissible range, upper limit (DC)   Input current	<ul><li>Rated value (DC)</li></ul>	24 V	
Input current	<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V	
From backplane bus 5 V DC, max.	<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V	
Power loss   Power loss, typ.   3.5 W	Input current		
Power loss, typ.   3.5 W	from backplane bus 5 V DC, max.	10 mA	
Digital inputs	Power loss		
Number of digital inputs   16	Power loss, typ.	3.5 W	
Input characteristic curve in accordance with IEC 61131, type 1  Number of simultaneously controllable inputs  horizontal installation  — up to 40 °C, max. 16  — up to 60 °C, max. 16  vertical installation — up to 40 °C, max. 16  Input voltage  • Type of input voltage • Rated value (DC) 24 V • for signal "0" -30 to +5 V • for signal "1" 13 to 30V  Input current • for signal "1", typ. 7 mA  Input delay (for rated value of input voltage)  for standard inputs — parameterizable — at "0" to "1", min. 1.2 ms — at "0" to "1", min. 1.2 ms — at "1" to "0", min. 1.2 ms — at "1" to "0", max. 4.8 ms  Cable length • shielded, max. 1000 m • unshielded, max. 600 m  Encoder	Digital inputs		
Number of simultaneously controllable inputs   horizontal installation	Number of digital inputs	16	
Number of simultaneously controllable inputs   horizontal installation		Yes	
horizontal installation			
- up to 40 °C, max. 16 - up to 60 °C, max. 16  vertical installation - up to 40 °C, max. 16  Input voltage  • Type of input voltage • Rated value (DC) • for signal "0" • for signal "1" 13 to 30V  Input current • for signal "1", typ. 7 mA  Input delay (for rated value of input voltage)  for standard inputs - parameterizable - at "0" to "1", min. 1.2 ms - at "0" to "1", max. 4.8 ms - at "1" to "0", max. 4.8 ms  Cable length • shielded, max. 1000 m  Encoder	· · · · · · · · · · · · · · · · · · ·		
up to 60 °C, max.  vertical installation up to 40 °C, max.  16  Input voltage  • Type of input voltage • Rated value (DC) • for signal "0" • for signal "1" 13 to 30V  Input current • for signal "1", typ.  • for signal "1", typ.  7 mA  Input delay (for rated value of input voltage)  for standard inputs parameterizable at "0" to "1", min at "0" to "1", max at "1" to "0", min at "0" to "1", max at "1" to "0", max.  Cable length • shielded, max. • unshielded, max.  • unshielded, max. • unshielded, max.  Encoder		40	
vertical installation         — up to 40 °C, max.         16           Input voltage         DC           • Rated value (DC)         24 V           • for signal "0"         -30 to +5 V           • for signal "1"         13 to 30V           Input current         • for signal "1", typ.           • for signal "1", typ.         7 mA           Input delay (for rated value of input voltage)           for standard inputs         No           — parameterizable         No           — at "0" to "1", min.         1.2 ms           — at "0" to "1", max.         4.8 ms           — at "1" to "0", min.         1.2 ms           — at "1" to "0", max.         4.8 ms           Cable length         • shielded, max.         1 000 m           • unshielded, max.         600 m           Encoder	•		
	·	16	
Input voltage  • Type of input voltage • Rated value (DC) • for signal "0" • for signal "1" • for signal "1" • for signal "1", typ.  7 mA  Input delay (for rated value of input voltage)  for standard inputs  - parameterizable - at "0" to "1", min at "0" to "1", max at "1" to "0", min at "1" to "0", max.  - at "1" to "0", max.  Cable length • shielded, max. • unshielded, max. • foo the standard inputs  DC  - 30 to +5 V  - 30		40	
■ Type of input voltage     ■ Rated value (DC)     ■ Farted value (DC)     ■ For signal "0"     ■ For signal "1"     ■ For signal "1"     ■ For signal "1", typ.  Input current      ■ For signal "1", typ.  Input delay (for rated value of input voltage)  for standard inputs      □ parameterizable     □ at "0" to "1", min.     □ at "0" to "1", max.     □ at "1" to "0", min.     □ at "1" to "0", max.  Cable length      ■ shielded, max.     ■ unshielded, max.     ■ unshielded, max.     ■ Unshielded, max.     ■ Shielded, max.	·	16	
Rated value (DC)     • for signal "0"     • for signal "1"     • for signal "1"     13 to 30V  Input current     • for signal "1", typ.     7 mA  Input delay (for rated value of input voltage)     for standard inputs     — parameterizable     — at "0" to "1", min.     — at "0" to "1", max.     — at "0" to "1", min.     — at "1" to "0", min.     — at "1" to "0", max.      Cable length     • shielded, max.     • unshielded, max.     • unshielded, max.     600 m  Encoder  24 V  -30 to +5 V  -4 to +5			
● for signal "1" 13 to 30V  Input current  ● for signal "1", typ. 7 mA  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable No — at "0" to "1", min. 1.2 ms — at "0" to "1", max. 4.8 ms — at "1" to "0", min. 1.2 ms — at "1" to "0", max. 4.8 ms  Cable length  ● shielded, max. 4.8 ms  Cable length  ● shielded, max. 600 m  Encoder			
Input current  ● for signal "1", typ. 7 mA  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable No — at "0" to "1", min. 1.2 ms — at "0" to "1", max. 4.8 ms — at "1" to "0", min. 1.2 ms — at "1" to "0", max. 4.8 ms  Cable length  ● shielded, max. 4.8 ms  Cable length  ● shielded, max. 600 m  Encoder		-30 to +5 V	
<ul> <li>for signal "1", typ.</li> <li>Input delay (for rated value of input voltage)</li> <li>for standard inputs</li> <li>— parameterizable</li> <li>— at "0" to "1", min.</li> <li>— at "0" to "1", max.</li> <li>— at "1" to "0", min.</li> <li>— at "1" to "0", max.</li> <li>4.8 ms</li> <li>— at "1" to "0", max.</li> <li>4.8 ms</li> </ul> Cable length <ul> <li>shielded, max.</li> <li>unshielded, max.</li> <li>600 m</li> </ul> Encoder <ul> <li>Find the part of the part</li></ul>	● for signal "1"	13 to 30V	
Input delay (for rated value of input voltage)  for standard inputs  — parameterizable — at "0" to "1", min. — at "0" to "1", max. — at "1" to "0", min. — at "1" to "0", max.  Cable length  • shielded, max. • unshielded, max.  for standard inputs  No  1.2 ms  1.2 ms  4.8 ms  Cable length  • shielded, max.  • unshielded, max.  • unshielded, max.  for standard inputs  1.2 ms  1.2 ms  1.2 ms  600 m	Input current		
for standard inputs  — parameterizable — at "0" to "1", min. — at "0" to "1", max. — at "1" to "0", min. — at "1" to "0", max.  Cable length  • shielded, max. • unshielded, max.  • unshielded, max.  Encoder	● for signal "1", typ.	7 mA	
— parameterizable       No         — at "0" to "1", min.       1.2 ms         — at "0" to "1", max.       4.8 ms         — at "1" to "0", min.       1.2 ms         — at "1" to "0", max.       4.8 ms         Cable length         ● shielded, max.       1 000 m         ● unshielded, max.       600 m	Input delay (for rated value of input voltage)		
- at "0" to "1", min at "0" to "1", max at "0" to "1", max. 4.8 ms - at "1" to "0", min at "1" to "0", max. 4.8 ms  Cable length  • shielded, max. • unshielded, max.  • unshielded, max.  Encoder	for standard inputs		
at "0" to "1", max at "1" to "0", min at "1" to "0", max.  at "1" to "0", max.  at "1" to "0", max.  4.8 ms  Cable length  shielded, max unshielded, max unshielded, max to 00 m  Encoder	— parameterizable	No	
— at "1" to "0", min.       1.2 ms         — at "1" to "0", max.       4.8 ms         Cable length         ● shielded, max.       1 000 m         ● unshielded, max.       600 m         Encoder	— at "0" to "1", min.	1.2 ms	
— at "1" to "0", max.  Cable length  ● shielded, max.  • unshielded, max.  Encoder  4.8 ms  1 000 m  600 m	— at "0" to "1", max.	4.8 ms	
Cable length  • shielded, max.  • unshielded, max.  Encoder	— at "1" to "0", min.	1.2 ms	
● shielded, max.  ■ unshielded, max.  1 000 m  600 m  Encoder	— at "1" to "0", max.	4.8 ms	
• unshielded, max. 600 m  Encoder	Cable length		
Encoder	• shielded, max.	1 000 m	
****	• unshielded, max.	600 m	
Connectable encoders	Encoder		
Connectable encoders	Connectable encoders		

• 2-wire sensor	Yes
<ul> <li>permissible quiescent current (2-wire sensor), max.</li> </ul>	1.5 mA
Interrupts/diagnostics/status information	
Alarms	No
Diagnostics function	No
Alarms	
<ul> <li>Diagnostic alarm</li> </ul>	No
Hardware interrupt	No
Diagnostics indication LED	
<ul> <li>Status indicator digital input (green)</li> </ul>	Yes
Potential separation	
Potential separation digital inputs	
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels, in groups of</li> </ul>	16
<ul> <li>between the channels and backplane bus</li> </ul>	Yes; Optocoupler
Isolation	
Isolation tested with	500 V DC
connection method / header	
required front connector	20-pin
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm
Weights	
Weight, approx.	200 g

last modified: