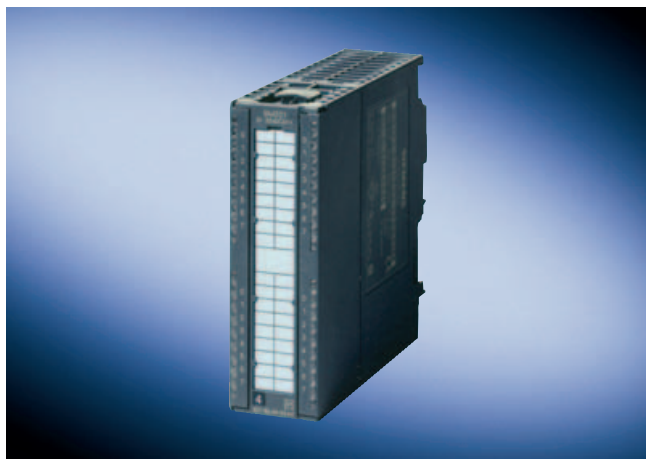


SIMATIC S7-300

Digital modules

SM 321 digital input modules

Overview



- Digital inputs
- For connecting standard switches and two-wire proximity switches (BERO)

Technical specifications

	6ES7 321-1BH02-0AA0	6ES7 321-1BH50-0AA0	6ES7 321-1BL00-0AA0	6ES7 321-1BH10-0AA0
Voltages and currents				
Load voltage L+				
• Rated value (DC)	24 V	24 V	24 V	24 V
Current consumption				
from load voltage L+ (without load), max.	25 mA			
from backplane bus DC 5 V, max.	10 mA	10 mA	15 mA	110 mA
Power loss, typ.	3.5 W	3.5 W	6.5 W	3.8 W
Connection point				
required front connectors	20-pin	20-pin	40-pin	20-pin
Isochronous mode				
Isochronous mode	No	No	No	Yes
Digital inputs				
Number of digital inputs	16	16	32	16
Number of simultaneously controllable inputs				
• vertical installation				
- up to 40 °C, max.	16	16	32	16
• horizontal installation				
- up to 40 °C, max.			32	
- up to 60 °C, max.	16	16	16	16
Cable length				
• Cable length, shielded, max.	1,000 m	1,000 m	1,000 m	1,000 m
• Cable length unshielded, max.	600 m	600 m	600 m	600 m
Input characteristic curve to IEC 1131, type 1	Yes	Yes	Yes	Yes
Input voltage				
• Rated value, DC	24 V	24 V	24 V	24 V
• for signal "0"	-30 V to 5 V	30 V to -5V	-30 to 5 V	-30 V to 5 V
• for signal "1"	13 to 30 V	-13 to -30 V	13 to 30 V	13 to 30 V
Input current				
• for signal "1", typ.	7 mA	7 mA	7 mA	7 mA

Technical specifications (continued)

	6ES7 321-7BH01-0AB0	6ES7 321-1CH00-0AA0	6ES7 321-1CH20-0AA0	6ES7 321-1FH00-0AA0
Isolation				
Isolation checked with	500 V DC	1500 V AC	1500 V DC	4000 V DC
Isolation				
Galvanic isolation, digital inputs				
• between the channels		Yes	Yes	Yes
• between the channels, in groups of	16	1	8	4
• between the channels and the backplane bus	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler
Dimensions and weight				
Width	40 mm	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm	120 mm
Weights				
Weight, approx.	200 g	260 g	200 g	240 g
	6ES7 321-1EL00-0AA0	6ES7 321-1FF01-0AA0	6ES7 321-1FF10-0AA0	
Voltages and currents				
Load voltage L1				
• Rated value (AC)	120 V	230 V; 120V/230V AC	230 V; 120/230 V AC; all load voltages must have the same phase.	
Current consumption				
from backplane bus DC 5 V, max.	16 mA	29 mA	100 mA	
Power loss, typ.	4 W	4.9 W	4.9 W	
Connection point				
required front connectors	40-pin	20-pin	40-pin	
Isochronous mode				
Isochronous mode	No	No	No	
Digital inputs				
Number of digital inputs	32	8	8	
Number of simultaneously controllable inputs				
• vertical installation - up to 40 °C, max.	32	8	8	
• horizontal installation - up to 40 °C, max.	32			
- up to 60 °C, max.	24	8	8	
Cable length				
• Cable length, shielded, max.	1,000 m	1,000 m	1,000 m	
• Cable length unshielded, max.	600 m	600 m	600 m	
Input characteristic curve to IEC 1131, type 1		Yes	Yes	
Input characteristic curve to IEC 1131, type 2	Yes			
Input voltage				
• Rated value, AC	120 V	230 V; 120/230 V AC	120 V; 120/230 V AC	
• for signal "0"	0 to 20 V	0 to 40 V	0 to 40 V	
• for signal "1"	74 to 132 V	85 to 264 V	85 to 264 V	
• Frequency range	47 to 63 Hz	47 to 63 Hz	47 to 63 Hz	

SIMATIC S7-300

Digital modules

SM 321 digital input modules

Technical specifications (continued)

	6ES7 321-1EL00-0AA0	6ES7 321-1FF01-0AA0	6ES7 321-1FF10-0AA0
Input current			
• for signal "1", typ.	21 mA	6.5 mA; (120 V); 11mA (230 V)	7.5 mA; (120 V); 17.3 mA (230 V)
Input delay (for rated value of input voltage)			
• for standard inputs	No	No	No
- programmable	15 ms	25 ms	25 ms
- at "0" to "1", max.			
Encoder			
Connectable encoders			
• 2-wire BEROs	Yes	Yes	Yes
• permissible quiescent current (2-wire BEROs), max.	4 mA	2 mA	2 mA
Status information/alarms/diagnostics			
Alarms			
• Alarms	No	No	No
• Diagnostic alarm	No	No	No
• Process alarm	No	No	No
Diagnoses			
• Diagnostic functions	No	No	No
Diagnostics indication LED			
• Status indicator digital input (green)	Yes	Yes	Yes
Isolation			
Isolation checked with	2500 V DC	4000 V DC	1500 V AC
Isolation			
Galvanic isolation, digital inputs			
• between the channels	Yes	Yes	Yes
• between the channels, in groups of	8	2	1
• between the channels and the backplane bus	Yes; Optocoupler	Yes; Optocoupler	Yes; Optocoupler
Dimensions and weight			
Width	40 mm	40 mm	40 mm
Height	125 mm	125 mm	125 mm
Depth	120 mm	120 mm	120 mm
Weights			
Weight, approx.	300 g	240 g	240 g