

SIMATIC S7-400 advanced controller

Digital modules

SM 421 digital input module

Overview



- Digital inputs for the SIMATIC S7-400
- For connecting standard switches and two-wire proximity switches (BERO)

Technical specifications

Article number	6ES7421-7BH01-0AB0	6ES7421-1BL01-0AA0	6ES7421-1EL00-0AA0	6ES7421-1FH20-0AA0	6ES7421-7DH00-0AB0
	SM421, 16DI, DC24V, 0.05MS INPUT DELAY	SM421, 32DI, DC24V	SM421, 32DI, DC/AC 120V	SM421, 16DE, UC120/230V	SM421, 16DE, UC24-60V
Product type designation					
Supply voltage					
Load voltage L+					
• Rated value (DC)	24 V				
• permissible range, lower limit (DC)	20.4 V				
• permissible range, upper limit (DC)	28.8 V				
Input current					
from backplane bus 5 V DC, max.	130 mA	20 mA	200 mA	80 mA	150 mA
from supply voltage L+, max.	120 mA				
Power losses					
Power loss, max.	5 W	6 W	16 W	12 W	8 W; 3.5 W (24 V DC); 6.5 W (48 V DC); 8.0 W (60 V DC)
Digital inputs					
Number of digital inputs	16	32	32	16	16
Number of simultaneously controllable inputs					
all mounting positions					
- up to 40 °C, max.	16	32	32	16	16
- up to 60 °C, max.	16	32	32	16	16
Input voltage					
• Type of input voltage	DC	DC	AC/DC	AC/DC	AC/DC
• Rated value (DC)	24 V	24 V			
• Rated value (UC)			120 V	230 V; 120/230 V UC	24 V; 24 to 60 V UC
• for signal "0"	-30 V DC to +5 V DC	-30 V DC to +5 V DC	0 to 20 V UC	0 to 40 V AC/ -40 to +40 V DC	-6 to +6 V DC/ 0 to 5 V AC
• for signal "1"	11 V DC to 30 V DC	13 V DC to 30 V DC	79 to 132 V AC; 80 to 132 V DC	74 to 264 V AC; 80 to 264 V DC, -80 to -264 V	15 to 72 V DC; -15 to -72 V DC; 15 to 60 V AC
• Frequency range			47 ... 63 Hz	47 ... 63 Hz	47 to 63 Hz AC / DC

Technical specifications (continued)

Article number	6ES7421-7BH01-0AB0 SM421, 16DI, DC24V, 0.05MS INPUT DELAY	6ES7421-1BL01-0AA0 SM421, 32DI, DC24V	6ES7421-1EL00-0AA0 SM421, 32DI, DC/AC 120V	6ES7421-1FH20-0AA0 SM421, 16DE, UC120/230V	6ES7421-7DH00-0AB0 SM421, 16DE, UC24-60V
Input current • for signal "0", max. (permissible quiescent current) • for signal "1", typ.	6 mA; 6 ... 8 mA	1.3 mA 7 mA	1 mA 2 mA; 2 ... 5 mA	6 mA; AC: 6 mA; DC: 2 mA 10 mA; at 120 V: 10 mA AC, 1.8 mA DC; at 230 V: 14 mA AC, 2 mA DC	4 mA; 4 ... 10 mA
Input delay (for rated value of input voltage) for standard inputs - Parameterizable - nominal	Yes				Yes 0.5 ms; 0.5 / 3 / 10 / 20 ms
Cable length • shielded, max. • Unshielded, max.	1 000 m; 1000 m/3 ms; 70 m/0.5 ms; 30 m/0.1 ms; 30 m/0.05 ms 600 m; 600 m: 3 ms; 50 m: 0.5 ms; 20 m: 0,1 ms; 20 m: 0,05 ms	1 000 m 600 m	1 000 m 600 m	1 000 m 600 m	1 000 m 600 m; 600 m: 3, 10, 20 ms; 100 m: 0,5 ms
Encoder Connectable encoders • 2-wire sensor - Permissible quiescent current (2-wire sensor), max.	Yes 3 mA	Yes 1.5 mA	Yes 1 mA	Yes 5 mA; AC: 5 mA	Yes 0.5 mA; 0.5 to 2 mA
Interrupts/diagnostics/ status information Alarms • Diagnostic alarm • Hardware interrupt	Yes; Parameterizable Yes; Parameterizable				Yes; Parameterizable Yes; Parameterizable
Diagnostic messages • Diagnostics	Yes; internal/ external fault				Yes; internal/ external fault
Galvanic isolation Galvanic isolation digital inputs • between the channels, in groups of • between the channels and the backplane bus	8 Yes	32 Yes	8 Yes	4 Yes	1 Yes
Isolation Isolation checked with	500 V DC	500 V DC	1500 V AC	1500 V AC	1500 V AC
Dimensions Width Height Depth	25 mm 290 mm 210 mm	25 mm 290 mm 210 mm	25 mm 290 mm 210 mm	25 mm 290 mm 210 mm	25 mm 290 mm 210 mm
Weights Weight, approx.	600 g	500 g	600 g	650 g	600 g

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Ordering data**Article No.****Article No.****SM 421 digital input modules**16 inputs, 24 V DC,
with process/diagnostics interrupt**6ES7421-7BH01-0AB0**

32 inputs, 24 V DC

6ES7421-1BL01-0AA0

32 inputs, 120 V AC/DC

6ES7421-1EL00-0AA016 inputs, 120/230 V AC/DC, inputs
according to IEC 1131-2 Type 2**6ES7421-1FH20-0AA0**16 inputs, 24 to 60 V AC/DC,
with process/diagnostics interrupt**6ES7421-7DH00-0AB0****Front connector**

48-pin

- with screw contacts, 1 unit
- with screw contacts, 84 units
- with spring-loaded terminals,
1 unit
- with crimp contacts, 1 unit
- with crimp contacts, 84 units

6ES7492-1AL00-0AA0**6ES7492-1AL00-1AB0****6ES7492-1BL00-0AA0****6ES7492-1CL00-0AA0****6ES7492-1CL00-1AB0****Cover film for labeling strips****6ES7492-2XX00-0AA0**

Spare part

**Labeling sheets for machine
inscription**DIN A4, for printing using laser
printer; pack of 10

petrol

6ES7492-2AX00-0AA0

light-beige

6ES7492-2BX00-0AA0

yellow

6ES7492-2CX00-0AA0

red

6ES7492-2DX00-0AA0**SIMATIC Manual Collection****6ES7998-8XC01-8YE0**Electronic manuals on DVD,
multilingual: LOGO!, SIMADYN,
SIMATIC bus components,
SIMATIC C7,
SIMATIC distributed I/O,
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