



SIMATIC S7-400, digital input SM 421, isolated 16 DI; 24 V DC with 0.05 ms input delay alarm, diagnostics

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
• Reverse polarity protection	Yes
Input current	
from supply voltage L+, max.	120 mA
from backplane bus 5 V DC, max.	130 mA
Encoder supply	
Number of outputs	2
Type of output voltage	L+ (-2.5 V)
Short-circuit protection	Yes; Electronic
additional (redundant) feed	Yes; possible
Output current	
• Rated value	120 mA
• permissible range, lower limit	0 mA
• permissible range, upper limit	150 mA
Power loss	
Power loss, typ.	5 W
Digital inputs	
Number of digital inputs	16
Input characteristic according to IEC 61131	Type 2
Number of simultaneously controllable inputs	
• Number of simultaneously controllable inputs	16
Input voltage	
• Type of input voltage	DC
• Rated value (DC)	24 V
• for signal "0"	-30 V DC to +5 V DC
• for signal "1"	11 V DC to 30 V DC
Input current	
• for signal "0", min.	6 mA; < 6 mA
• for signal "1", typ.	6 mA; 6 to 8 mA
Input delay (for rated value of input voltage)	
• Input frequency (with a time delay of 0.1 ms), max.	2 kHz
for standard inputs	
— parameterizable	Yes
— at "0" to "1", min.	3 µs; 0.05 / 0.1 / 0.5 / 3 ms
Encoder connection	

<ul style="list-style-type: none"> • Fixed current limitation for wire-break monitoring, min. 	10 kΩ	
<ul style="list-style-type: none"> • Fixed current limitation for wire-break monitoring, max. 	18 kΩ	
Cable length		
<ul style="list-style-type: none"> • shielded, max. 	1 000 m; 1 000 m: 3 ms, 70 m: 0.5 ms, 30 m: 0.1 ms, 30 m: 0.05 ms	
<ul style="list-style-type: none"> • unshielded, max. 	600 m; 600 m: 3 ms; 50 m: 0,5 ms; 20 m: 0,1 ms; 20 m: 0,05 ms	
Encoder		
Connectable encoders		
<ul style="list-style-type: none"> • 2-wire sensor 	Yes	
<ul style="list-style-type: none"> — permissible quiescent current (2-wire sensor), max. 	3 mA	
Interrupts/diagnostics/status information		
Diagnostics function	Yes; Parameterizable	
Alarms		
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes; Parameterizable	
<ul style="list-style-type: none"> • Hardware interrupt 	Yes; Parameterizable	
Diagnoses		
<ul style="list-style-type: none"> • Diagnostic information readable 	Yes	
<ul style="list-style-type: none"> • Monitoring the supply voltage 	Yes	
<ul style="list-style-type: none"> • Wire break 	Yes; I < 1 mA	
Diagnostics indication LED		
<ul style="list-style-type: none"> • Rated load voltage PWR (green) 	Yes; Per group	
<ul style="list-style-type: none"> • internal fault INTF (red) 	Yes	
<ul style="list-style-type: none"> • external fault EXTF (red) 	Yes	
<ul style="list-style-type: none"> • Status indicator digital input (green) 	Yes	
<ul style="list-style-type: none"> • Channel fault indicator F (red) 	No	
Potential separation		
Potential separation digital inputs		
<ul style="list-style-type: none"> • between the channels 	Yes	
<ul style="list-style-type: none"> • between the channels, in groups of 	8	
<ul style="list-style-type: none"> • between the channels and backplane bus 	Yes	
Isolation		
Isolation tested with	500 V DC	
Dimensions		
Width	25 mm	
Height	290 mm	
Depth	210 mm	
Weights		
Weight, approx.	600 g	
Classifications		
	Version	Classification
eClass	14	27-24-22-04
eClass	12	27-24-22-04
eClass	9.1	27-24-22-04
eClass	9	27-24-22-04
eClass	8	27-24-22-04
eClass	7.1	27-24-22-04
eClass	6	27-24-22-04
ETIM	10	EC001419
ETIM	9	EC001419
ETIM	8	EC001419
ETIM	7	EC001419
IDEA	4	3566
UNSPSC	15	32-15-17-05
Approvals / Certificates		
General Product Approval		



[Miscellaneous](#)



General Product Approval

EMV

For use in hazardous locations

[China RoHS](#)

[Miscellaneous](#)



For use in hazardous locations

Maritime application

[EM](#)



[Type Examination Certificate](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



Maritime application



[CCS \(China Classification Society\)](#)

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