



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



[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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