

SIMATIC S7-400, function module FM 450-1 for counter function with 2 channels incl. configuration package on CD



Supply voltage	
Load voltage 1L+	
• Reverse polarity protection	Yes
Load voltage 2L+	
• Reverse polarity protection	Yes
Auxiliary voltage 1L+, load voltage 2L+	
• Rated value (DC)	24 V
• permissible range, lower limit (DC)	20.4 V; Dynamic 18.5 V
• permissible range, upper limit (DC)	28.8 V; dynamic 30.2 V
non-periodic skip	
— Duration	500 ms
— Recovery time	50 s
— Value	35 V
Input current	
from load voltage 1L+ (without load), max.	50 mA
from load voltage 2L+ (without load), max.	60 $\mu$ A
from backplane bus 5 V DC, max.	300 mA
Encoder supply	

5 V encoder supply	
• 5 V	Yes; 5.2 V $\pm$ 2 %
• Short-circuit protection	Yes
• Output current, max.	300 mA
24 V encoder supply	
• 24 V	Yes; 1L+ (-3 V)
• Short-circuit protection	Yes
• Output current, max.	300 mA
Power loss	
Power loss, typ.	6 W
Digital inputs	
Number of digital inputs	6
Functions	1 for gate start, 1 for gate stop, 1 for setting the counter
Input voltage	
• for signal "0"	-28.8 ... +5V
• for signal "1"	+11 to +28.8V
Input current	
• for signal "1", typ.	9 mA
Input delay (for rated value of input voltage)	
• Input frequency (with a time delay of 0.1 ms), max.	200 kHz
for standard inputs	
— parameterizable	Yes
— at "0" to "1", max.	2.5 $\mu$ s; $\geq$ 2.5 $\mu$ s (200 kHz); $\leq$ 25 $\mu$ s (20 kHz)
Digital outputs	
Number of digital outputs	4
Short-circuit protection	Yes; Clocked electronically
Limitation of inductive shutdown voltage to	2L+ (-39 V)
Output voltage	
• for signal "0", max.	3 V
• for signal "1", min.	2L+ (-1,5 V)
Output current	
• for signal "1" rated value	0.5 A; Res. / P.D. 5 W tungsten 24 V DC
• for signal "1" permissible range for 0 to 60 °C, min.	5 mA
• for signal "1" permissible range for 0 to 60 °C, max.	0.6 A
Output delay with resistive load	
• "0" to "1", max.	300 $\mu$ s
Encoder	
Connectable encoders	

<ul style="list-style-type: none"> <li>• Incremental encoder (symmetrical)</li> <li>• Incremental encoder (asymmetrical)</li> <li>• 24 V initiator</li> <li>• 24 V directional element</li> </ul>	<p>Yes; With 2 pulse trains offset by 90°</p> <p>Yes</p> <p>Yes</p> <p>Yes; 1 pulse train, 1 direction level</p>
<b>Interrupts/diagnostics/status information</b>	
Status indicator	Yes; 14 green LEDs for status of CR, DIR, inputs and outputs
Diagnostics function	Yes
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> <li>• Hardware interrupt</li> </ul>	<p>Yes; Parameterizable</p> <p>Yes; Parameterizable</p>
<b>Diagnostic messages</b>	
<ul style="list-style-type: none"> <li>• Diagnostic information readable</li> </ul>	Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• Description</li> <li>• Status indicator digital input (green)</li> <li>• Status indicator digital output (green)</li> </ul>	<p>2 red LEDs for internal and external errors</p> <p>Yes</p> <p>Yes</p>
<b>Counter</b>	
Number of counter inputs	2; 32 bit or $\pm 31$ bit
<b>Counter input 5 V</b>	
<ul style="list-style-type: none"> <li>• Type</li> <li>• Terminating resistor</li> <li>• Differential input voltage</li> <li>• Counting frequency, max.</li> </ul>	<p>RS 422</p> <p>220 <math>\Omega</math></p> <p>min. 0.5 V</p> <p>500 kHz</p>
<b>Counter input 24 V</b>	
<ul style="list-style-type: none"> <li>• Input voltage for signal "0"</li> <li>• Input voltage for signal "1"</li> <li>• Input current for signal "1", typ.</li> <li>• Counting frequency, max.</li> <li>• Minimum pulse width</li> </ul>	<p>-30 to +5V</p> <p>+11 to +30V</p> <p>9 mA</p> <p>200 kHz</p> <p><math>\geq 2.5 \mu\text{s}</math> (200 kHz); <math>\geq 25 \mu\text{s}</math> (20 kHz) (parameterizable)</p>
<b>Parameter</b>	
Remark	Assigned binary addresses: 64 bytes/64 bytes
<b>Potential separation</b>	
<b>Potential separation digital inputs</b>	
<ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>	Yes; Optocoupler
<b>Potential separation digital outputs</b>	
<ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>	Yes; Optocoupler
<b>Potential separation counter</b>	
<ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>	Yes; Optocoupler
<b>Permissible potential difference</b>	
between different circuits	75 V DC/60 V AC

Isolation	
Isolation tested with	500 V
Connection method	
required front connector	1x 48-pin
Dimensions	
Width	25 mm
Height	290 mm
Depth	210 mm
Weights	
Weight, approx.	650 g
<b>last modified:</b>	12/24/2018