



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

Supply voltage	
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
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)

<b>Output current</b>	
<ul style="list-style-type: none"> <li>• for signal "1" rated value</li> <li>• for signal "1" permissible range for 0 to 60 °C, min.</li> <li>• for signal "1" permissible range for 0 to 60 °C, max.</li> </ul>	0.5 A; Res. / P.D. 5 W tungsten 24 V DC 5 mA 0.6 A
<b>Output delay with resistive load</b>	
<ul style="list-style-type: none"> <li>• "0" to "1", max.</li> </ul>	300 µs
<b>Encoder</b>	
<b>Connectable encoders</b>	
<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>	Yes; With 2 pulse trains offset by 90° Yes Yes Yes; 1 pulse train, 1 direction level
<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>	Yes; Parameterizable Yes; Parameterizable
<b>Diagnoses</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>• internal fault INTF (red)</li> <li>• external fault EXTF (red)</li> <li>• Status indicator digital input (green)</li> <li>• Status indicator digital output (green)</li> </ul>	Yes Yes Yes Yes
<b>Counter</b>	
Number of counter inputs	2; 32 bit or ±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>	RS 422 220 Ω min. 0.5 V 500 kHz
<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>	-30 to +5 V +11 to +30V 9 mA 200 kHz ≥ 2.5 µs (200 kHz); ≥ 25 µs (20 kHz) (parameterizable)
<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>Isolation</b>	
Isolation tested with	500 V
<b>connection method</b>	
required front connector	1x 48-pin
<b>Dimensions</b>	
Width	25 mm
Height	290 mm
Depth	210 mm
<b>Weights</b>	
Weight, approx.	650 g

last modified: 1/16/2021 