

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	
<ul style="list-style-type: none"> <li>• for signal "0"</li> <li>• for signal "1"</li> </ul>	-28.8 ... +5V +11 to +28.8V
Input current	
<ul style="list-style-type: none"> <li>• for signal "1", typ.</li> </ul>	9 mA
Input delay (for rated value of input voltage)	
<ul style="list-style-type: none"> <li>• Input frequency (with a time delay of 0.1 ms), max.</li> </ul>	200 kHz
for standard inputs	
<ul style="list-style-type: none"> <li>— parameterizable</li> <li>— at "0" to "1", max.</li> </ul>	Yes 2.5 μs; ≥ 2.5 μs (200 kHz); ≤ 25 μs (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	
<ul style="list-style-type: none"> <li>• for signal "0", max.</li> <li>• for signal "1", min.</li> </ul>	3 V 2L+ (-1,5 V)
Output current	
<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
Output delay with resistive load	
<ul style="list-style-type: none"> <li>• "0" to "1", max.</li> </ul>	300 μs
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>	Yes; With 2 pulse trains offset by 90° Yes Yes Yes; 1 pulse train, 1 direction level
Interrupts/diagnostics/status information	
Status indicator	Yes; 14 green LEDs for status of CR, DIR, inputs and outputs
Diagnostics function	Yes
Alarms	

• Diagnostic alarm	Yes; Parameterizable
• Hardware interrupt	Yes; Parameterizable
<b>Diagnoses</b>	
• Diagnostic information readable	Yes
<b>Diagnostics indication LED</b>	
• internal fault INTF (red)	Yes
• external fault EXTF (red)	Yes
• Status indicator digital input (green)	Yes
• Status indicator digital output (green)	Yes
<b>Counter</b>	
Number of counter inputs	2; 32 bit or $\pm 31$ bit
<b>Counter input 5 V</b>	
• Type	RS 422
• Terminating resistor	220 $\Omega$
• Differential input voltage	min. 0.5 V
• Counting frequency, max.	500 kHz
<b>Counter input 24 V</b>	
• Input voltage for signal "0"	-30 to +5 V
• Input voltage for signal "1"	+11 to +30V
• Input current for signal "1", typ.	9 mA
• Counting frequency, max.	200 kHz
• Minimum pulse width	$\geq 2.5 \mu\text{s}$ (200 kHz); $\geq 25 \mu\text{s}$ (20 kHz) (parameterizable)
<b>Potential separation</b>	
<b>Potential separation digital inputs</b>	
• between the channels and backplane bus	Yes; Optocoupler
<b>Potential separation digital outputs</b>	
• between the channels and backplane bus	Yes; Optocoupler
<b>Potential separation counter</b>	
• between the channels and backplane bus	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:

09/03/2020