

SIMATIC S7-400, FM 450-1 FUNCTION MODULE F.  
 COUNT.FUNCT. WITH 2 CHANNELS INCL. CONFIG. 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.	40 mA
from backplane bus 5 V DC, max.	450 mA
Encoder supply	
5 V encoder supply	

<ul style="list-style-type: none"> <li>• 5 V</li> <li>• short-circuit protection</li> <li>• Output current, max.</li> </ul>	Yes; 5.2 V +/-2% Yes 300 mA
<b>24 V encoder supply</b>	
<ul style="list-style-type: none"> <li>• 24 V</li> <li>• Short-circuit protection</li> <li>• Output current, max.</li> </ul>	Yes; 1L+ (-3 V) Yes 300 mA
<b>Power loss</b>	
Power loss, typ.	9 W
<b>Digital inputs</b>	
Number of digital inputs	6
Functions	1 for gate start, 1 for gate stop, 1 for setting the counter
<b>Input voltage</b>	
<ul style="list-style-type: none"> <li>• for signal "0"</li> <li>• for signal "1"</li> </ul>	-28.8 ... +5V +11 to +28.8V
<b>Input current</b>	
<ul style="list-style-type: none"> <li>• for signal "1", typ.</li> </ul>	9 mA
<b>Input delay (for rated value of input voltage)</b>	
<ul style="list-style-type: none"> <li>• Input frequency (with a time delay of 0.1 ms), max.</li> </ul>	200 kHz
<b>for standard inputs</b>	
<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)
<b>Digital outputs</b>	
Number of digital outputs	4
Short-circuit protection	Yes; Clocked electronically
Limitation of inductive shutdown voltage to	2L+ (-39 V)
<b>Output voltage</b>	
<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)
<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 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> </ul>	Yes; With 2 pulse trains offset by 90°

- Incremental encoder (asymmetrical) Yes
- 24 V initiator Yes
- 24 V directional element 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
Diagnostic functions	Yes
<b>Alarms</b>	
• Diagnostic alarm	Yes; Parameterizable
• Hardware interrupt	Yes; Parameterizable
<b>Diagnostic messages</b>	
• Diagnostic information readable	Yes
<b>Diagnostics indication LED</b>	
• Description	2 red LEDs for internal and external errors
• Status indicator digital input (green)	Yes
• Status indicator digital output (green)	Yes

### Counter

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 +5V
• 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); $\leq 25 \mu\text{s}$ (20 kHz) (parameterizable)

### Parameter

Remark	Assigned binary addresses: 64 bytes/64 bytes
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### Potential separation

<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

### Permissible potential difference

between different circuits	75 V DC/60 V AC
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### Isolation

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
<b>last modified:</b>	03/30/2017