

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.	40 mA
from backplane bus 5 V DC, max.	450 mA
Encoder supply	
5 V encoder supply	

<ul style="list-style-type: none"> • 5 V • Short-circuit protection • Output current, max. 	Yes; 5.2 V \pm 2 % Yes 300 mA
24 V encoder supply	
<ul style="list-style-type: none"> • 24 V • Short-circuit protection • Output current, max. 	Yes; 1L+ (-3 V) Yes 300 mA
Power loss	
Power loss, typ.	9 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"> • for signal "0" • for signal "1" 	-28.8 ... +5V +11 to +28.8V
Input current	
<ul style="list-style-type: none"> • for signal "1", typ. 	9 mA
Input delay (for rated value of input voltage)	
<ul style="list-style-type: none"> • Input frequency (with a time delay of 0.1 ms), max. 	200 kHz
for standard inputs	
<ul style="list-style-type: none"> — parameterizable — at "0" to "1", max. 	Yes 2.5 μ s; \geq 2.5 μ s (200 kHz); \leq 25 μ 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	
<ul style="list-style-type: none"> • for signal "0", max. • for signal "1", min. 	3 V 2L+ (-1,5 V)
Output current	
<ul style="list-style-type: none"> • for signal "1" rated value • for signal "1" permissible range for 0 to 60 °C, min. • for signal "1" permissible range for 0 to 60 °C, max. 	0.5 A 5 mA 0.6 A
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", max. 	300 μ s
Encoder	
Connectable encoders	
<ul style="list-style-type: none"> • Incremental encoder (symmetrical) 	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

Alarms

- Diagnostic alarm Yes; Parameterizable
- Hardware interrupt Yes; Parameterizable

Diagnostic messages

- Diagnostic information readable Yes

Diagnostics indication LED

- 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 ± 31 bit

Counter input 5 V

- Type RS 422
- Terminating resistor 220 Ω
- Differential input voltage min. 0.5 V
- Counting frequency, max. 500 kHz

Counter input 24 V

- 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

Potential separation

Potential separation digital inputs

- between the channels and backplane bus Yes; Optocoupler

Potential separation digital outputs

- between the channels and backplane bus Yes; Optocoupler

Potential separation counter

- between the channels and backplane bus Yes; Optocoupler

Permissible potential difference

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
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