

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 µA
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 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	
• 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 μ s
Encoder	
Connectable encoders	

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|--------------------------------------|--|
| • 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
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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
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Isolation

Isolation tested with	500 V
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Connection method

required front connector	1x 48-pin
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Dimensions

Width	25 mm
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Height	290 mm
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Depth	210 mm
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Weights

Weight, approx.	650 g
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last modified:	06/15/2018
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