



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 µA
from backplane bus 5 V DC, max.	300 mA
Encoder supply	
5 V encoder supply	
• 5 V	Yes; 5.2 V ±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 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	
• for signal "0", max.	3 V

<ul style="list-style-type: none"> • for signal "1", min. 	2L+ (-1,5 V)		
Output current			
<ul style="list-style-type: none"> • for signal "1" rated value 	0.5 A; Res. / P.D. 5 W tungsten 24 V DC		
<ul style="list-style-type: none"> • for signal "1" permissible range for 0 to 60 °C, min. 	5 mA		
<ul style="list-style-type: none"> • for signal "1" permissible range for 0 to 60 °C, max. 	0.6 A		
Output delay with resistive load			
<ul style="list-style-type: none"> • "0" to "1", max. 	300 µs		
Encoder			
Connectable encoders			
<ul style="list-style-type: none"> • Incremental encoder (symmetrical) 	Yes; With 2 pulse trains offset by 90°		
<ul style="list-style-type: none"> • Incremental encoder (asymmetrical) 	Yes		
<ul style="list-style-type: none"> • 24 V initiator 	Yes		
<ul style="list-style-type: none"> • 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		
Diagnostics function	Yes		
Alarms			
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes; Parameterizable		
<ul style="list-style-type: none"> • Hardware interrupt 	Yes; Parameterizable		
Diagnoses			
<ul style="list-style-type: none"> • Diagnostic information readable 	Yes		
Diagnostics indication LED			
<ul style="list-style-type: none"> • internal fault INTF (red) 	Yes		
<ul style="list-style-type: none"> • external fault EXTF (red) 	Yes		
<ul style="list-style-type: none"> • Status indicator digital input (green) 	Yes		
<ul style="list-style-type: none"> • Status indicator digital output (green) 	Yes		
Counter			
Number of counter inputs	2; 32 bit or ±31 bit		
Counter input 5 V			
<ul style="list-style-type: none"> • Type 	RS 422		
<ul style="list-style-type: none"> • Terminating resistor 	220 Ω		
<ul style="list-style-type: none"> • Differential input voltage 	min. 0.5 V		
<ul style="list-style-type: none"> • Counting frequency, max. 	500 kHz		
Counter input 24 V			
<ul style="list-style-type: none"> • Input voltage for signal "0" 	-30 to +5 V		
<ul style="list-style-type: none"> • Input voltage for signal "1" 	+11 to +30V		
<ul style="list-style-type: none"> • Input current for signal "1", typ. 	9 mA		
<ul style="list-style-type: none"> • Counting frequency, max. 	200 kHz		
<ul style="list-style-type: none"> • Minimum pulse width 	≥ 2.5 µs (200 kHz); ≥ 25 µs (20 kHz) (parameterizable)		
Potential separation			
Potential separation digital inputs			
<ul style="list-style-type: none"> • between the channels and backplane bus 	Yes; Optocoupler		
Potential separation digital outputs			
<ul style="list-style-type: none"> • between the channels and backplane bus 	Yes; Optocoupler		
Potential separation counter			
<ul style="list-style-type: none"> • between the channels and backplane bus 	Yes; Optocoupler		
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		
Classifications			
		Version	Classification

eClass	14	27-24-22-05
eClass	12	27-24-22-05
eClass	9.1	27-24-22-05
eClass	9	27-24-22-05
eClass	8	27-24-22-05
eClass	7.1	27-24-22-05
eClass	6	27-24-22-05
ETIM	10	EC001422
ETIM	9	EC001422
ETIM	8	EC001422
ETIM	7	EC001422
IDEA	4	3567
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



EG-Konf.

[Miscellaneous](#)



RCM

[China RoHS](#)

[Miscellaneous](#)

For use in hazardous locations



IECEX



ATEX

[FM](#)



CCC



IECEX

[Type Examination Certificate](#)

For use in hazardous locations

Maritime application



ATEX



ABS



DNV



LRS

[NK / Nippon Kaiji Kyokai](#)

Maritime application



RINA

[CCS \(China Classification Society\)](#)

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