



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
• 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 µs		
Encoder				
Connectable encoders				
• 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		
Diagnostics function		Yes		
Alarms				
• Diagnostic alarm		Yes; Parameterizable		
• Hardware interrupt		Yes; Parameterizable		
Diagnoses				
• Diagnostic information readable		Yes		
Diagnostics indication LED				
• internal fault INTF (red)		Yes		
• external fault EXTf (red)		Yes		
• 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 +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		≥ 2.5 µs (200 kHz); ≥ 25 µs (20 kHz) (parameterizable)		
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		
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	9	EC001422
ETIM	8	EC001422
ETIM	7	EC001422
IDEA	4	3567
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval	For use in hazardous locations
--------------------------	--------------------------------



[Miscellaneous](#)



For use in hazardous locations	Maritime application
--------------------------------	----------------------

[FM](#)



[Type Examination Certificate](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



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

last modified: 3/12/2024