



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 $\mu$ A
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 $\mu$ s; $\geq$ 2.5 $\mu$ s (200 kHz); $\leq$ 25 $\mu$ 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)	
<b>Output current</b>		
• 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	
<b>Output delay with resistive load</b>		
• "0" to "1", max.	300 µs	
<b>Encoder</b>		
<b>Connectable encoders</b>		
• 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	
<b>Interrupts/diagnostics/status information</b>		
Status indicator	Yes; 14 green LEDs for status of CR, DIR, inputs and outputs	
Diagnostics function	Yes	
<b>Alarms</b>		
• Diagnostic alarm	Yes; Parameterizable	
• Hardware interrupt	Yes; Parameterizable	
<b>Diagnoses</b>		
• Diagnostic information readable	Yes	
<b>Diagnostics indication LED</b>		
• internal fault INTF (red)	Yes	
• external fault EXTF (red)	Yes	
• Status indicator digital input (green)	Yes	
• Status indicator digital output (green)	Yes	
<b>Counter</b>		
Number of counter inputs	2; 32 bit or ±31 bit	
<b>Counter input 5 V</b>		
• Type	RS 422	
• Terminating resistor	220 Ω	
• 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 +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)	
<b>Potential separation</b>		
<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	
<b>Isolation</b>		
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>Classifications</b>		
	<b>Version</b>	<b>Classification</b>

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



[Miscellaneous](#)



[China RoHS](#)

[Miscellaneous](#)

General Product Approval

For use in hazardous locations

[Manufacturer Declaration](#)



[FM](#)



For use in hazardous locations

Maritime application

[Type Examination Certificate](#)



Maritime application

[NK / Nippon Kaiji Kyokai](#)



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

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