SIEMENS

Data sheet 6ES7450-1AP01-0AE0



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

Subject to change without notice
© Copyright Siemens

● 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

Subject to change without notice
© Copyright Siemens

eClass	16	27-24-22-05
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

General Product Approval

Miscellaneous

Manufacturer Declaration

For use in hazardous locations

FM

For use in hazardous locations

Type Examination Certificate

Maritime application

Maritime application

NK / Nippon Kaiji Kyokai

CCS (China Classification Society)

last modified: 6/7/2025

Subject to change without notice
© Copyright Siemens