

SIMATIC S7-400,
FM 450-1 FUNCTION MODULE F. COUNT.FUNCT. WITH 2
CHANNELS INCL. CONFIG. 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 +/-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 "1"	+11 to +28.8 V
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
Alarms	
Diagnostic alarm	Yes ; Parameterizable
Hardware interrupt	Yes ; Parameterizable
Diagnostic messages	
Diagnostic functions	Yes
Diagnostics	Yes ; Diagnostic information readable
Diagnostics indication LED	
Description	2 red LEDs for internal and external errors

Status indicator digital output (green)	Yes
Status indicator digital input (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 +30 V
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
Galvanic isolation	
Galvanic isolation digital inputs	
between the channels and the backplane bus	Yes ; Optocoupler
Galvanic isolation digital outputs	
between the channels and the backplane bus	Yes ; Optocoupler
Galvanic isolation counter	
between the channels and the backplane bus	Yes ; Optocoupler
Permissible potential difference	
between different circuits	75 VDC / 60 VAC
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
Status	Jul 18, 2014