

SIMATIC S7-400,  
FM 450-1 FUNCTION MODULE F. COUNT.FUNCT. WITH 2  
CHANNELS INCL. CONFIG. PACKAGE ON CD

|  |  |
|--|--|
| <b>Supply voltage</b>                          |  |
| <b>Load voltage 1L+</b>                        |  |
| Reverse polarity protection                    | Yes  |
| <b>Load voltage 2L+</b>                        |  |
| Reverse polarity protection                    | Yes  |
| <b>Auxiliary voltage 1L+, load voltage 2L+</b> |  |
| 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                                      |
| <b>non-periodic skip</b>                       |  |
| Duration                                       | 500 ms   |
| Recovery time                                  | 50 s   |
| Value  | 35 V   |
| <b>Input current</b>                           |  |
| 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   |
| <b>Encoder supply</b>                          |  |
| <b>5 V encoder supply</b>                      |  |
| 5 V  | Yes ; 5.2 V +/-2%  |
| Short-circuit protection                       | Yes  |
| Output current, max.                           | 300 mA   |
| <b>24 V encoder supply</b>                     |  |
| 24 V   | Yes ; 1L+ (-3 V)   |
| Short-circuit protection                       | Yes  |
| Output current, max.                           | 300 mA   |
| <b>Power loss</b>                              |  |
| Power loss, typ.                               | 6 W  |
| <b>Digital inputs</b>                          |  |
| Number of digital inputs                       | 6  |
| Functions                                      | 1 for gate start, 1 for gate stop, 1 for setting the counter |

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|---|---|
| <b>Input voltage</b>                                  |   |
| for signal "1"  | +11 to +28.8 V  |
| <b>Input current</b>                                  |   |
| for signal "1", typ.                                  | 9 mA  |
| <b>Input delay (for rated value of input voltage)</b> |   |
| 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)               |
| <b>Digital outputs</b>                                |   |
| Number of digital outputs                             | 4   |
| Short-circuit protection                              | Yes ; Clocked electronically                                  |
| Limitation of inductive shutdown voltage to           | 2L+ (-39 V)   |
| <b>Output voltage</b>                                 |   |
| 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 |
| <b>Alarms</b>   |   |
| Diagnostic alarm                                      | Yes ; Parameterizable   |
| Hardware interrupt                                    | Yes ; Parameterizable   |
| <b>Diagnostic messages</b>                            |   |
| Diagnostic functions                                  | Yes   |
| Diagnostics   | Yes ; Diagnostic information readable                         |
| <b>Diagnostics indication LED</b>                     |   |
| Description   | 2 red LEDs for internal and external errors                   |

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| Status indicator digital output (green)    | Yes  |
| Status indicator digital input (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 +30 V   |
| 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>Parameter</b>                           |  |
| Remark                                     | Assigned binary addresses: 64 bytes/64 bytes             |
| <b>Galvanic isolation</b>                  |  |
| <b>Galvanic isolation digital inputs</b>   |  |
| between the channels and the backplane bus | Yes ; Optocoupler  |
| <b>Galvanic isolation digital outputs</b>  |  |
| between the channels and the backplane bus | Yes ; Optocoupler  |
| <b>Galvanic isolation counter</b>          |  |
| between the channels and the backplane bus | Yes ; Optocoupler  |
| <b>Permissible potential difference</b>    |  |
| between different circuits                 | 75 VDC / 60 VAC  |
| <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  |
| Status                                     | Jul 18, 2014   |