



SIMATIC S7-400, FM 453 FUNCTION MODULE FOR POSITIONING WITH SERVO AND STEPPER MOTORS (3 CHANNELS) INCL. CONFIG. PACKAGE ON CD

Figure similar

Supply voltage

Auxiliary voltage

• Rated value (DC)	24 V
• static area	20.4 to 28.8V

Input current

from load voltage 1L+, max.	1 A; with 24 V position encoder; 1 A for 5 V position encoder
from load voltage 2L+ to 4L+, max.	2 A; Per channel
from backplane bus 5 V DC, max.	1.6 A; Rated current

Encoder supply

5 V encoder supply

• 5 V	Yes
• Output current, max.	300 mA
• Cable length, max.	35 m; at max. 210 mA; 25 m at max. 300 mA

24 V encoder supply

• 24 V	Yes
• Cable length, max.	100 m; at max. 300 mA

Power losses

Power loss, max.	8 W
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Digital inputs

Number of digital inputs	6; for each channel/axis
Functions	configurable

Input voltage

• Rated value (DC)	24 V
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<ul style="list-style-type: none"> • for signal "0" • for signal "1" 	<p>-3 to +5 V (max. 3 mA)</p> <p>11 to 30 V (max. 7 mA)</p>
Input delay (for rated value of input voltage)	
for standard inputs	
<ul style="list-style-type: none"> — at "0" to "1", max. — at "1" to "0", max. 	<p>15 µs; via input voltage range, 8 µs at 24 V DC</p> <p>45 µs; via input voltage range</p>

Digital outputs

Number of digital outputs	4; for each channel/axis
Functions	configurable
short-circuit protection	Yes
Output voltage	
<ul style="list-style-type: none"> • Rated value (DC) • for signal "1", min. 	<p>24 V</p> <p>UP - 0,3 V</p>
Output current	
<ul style="list-style-type: none"> • for signal "1" rated value • for signal "1" permissible range for 0 to 40 °C, min. • for signal "1" permissible range for 0 to 40 °C, max. • for signal "1" permissible range for 40 to 60 °C, min. • for signal "1" permissible range for 40 to 60 °C, max. • for signal "0" residual current, max. 	<p>0.5 A; at 40 °C; 0.1 A at 60 °C</p> <p>5 mA</p> <p>0.6 A</p> <p>5 mA</p> <p>0.12 A</p> <p>2 mA</p>
Switching frequency	
<ul style="list-style-type: none"> • with resistive load, max. • with inductive load, max. 	<p>100 Hz</p> <p>0.25 Hz</p>

Encoder

Connectable encoders	
<ul style="list-style-type: none"> • Incremental encoder (symmetrical) • Absolute encoder (SSI) 	<p>Yes</p> <p>Yes</p>
Encoder signals, incremental encoder (symmetrical)	
<ul style="list-style-type: none"> • Input signal • Input frequency, max. 	<p>5 V difference signal (phys. RS 422)</p> <p>1 MHz; for 10 m cable length; 0.5 MHz for 35 m cable length</p>
Encoder signals, absolute encoder (SSI)	
<ul style="list-style-type: none"> • Input signal • Clock frequency, max. • Cable length, shielded, max. 	<p>5 V difference signal (phys. RS 422)</p> <p>1.25 Mbit/s at 10 cable length (2.5 Mbit/s available soon)</p> <p>250 m; At max. 156 kbit/s</p>

Drive interface

Signal input I	
<ul style="list-style-type: none"> • Type 	Drive interface step, signal input "READY 1"

• Function	"Power section ready" where $U_i < 1 \text{ V}$, $I_i = 2 \text{ mA}$
Signal output I	
• Type	5 V (phys. RS 422)
• Function	Clock pulse, direction, enable, current control
• Differential output voltage, min.	2 V; $R_L = 100 \text{ Ohm}$
• Differential output voltage for signal "0", max.	1.1 V; $I_o = 30 \text{ mA}$
• Differential output voltage, for signal "1", min.	3.7 V; $I_o = -30 \text{ mA}$
• Load impedance	55 Ω
• Pulse frequency	200 kHz; 500 kHz available soon
• Cable length, max.	35 m; 35 m with symm. transmission; 10 m with asymm. transmission
Signal output II	
• Type	Contact relay
• Function	Drive disconnection for operation
• Load	1 A/50 V/30 VA DC
Signal output III	
• Type	Analog output
• Function	Drive interface Servo: Setpoint output for drive
• Output current	-3 to +3 mA
• Cable length, max.	30 m
Galvanic isolation	
Galvanic isolation digital inputs	
• Galvanic isolation digital inputs	Yes; Optocoupler
Galvanic isolation digital outputs	
• Galvanic isolation digital outputs	Yes; Optocoupler
Degree and class of protection	
Degree of protection to EN 60529	
• IP20	Yes
Ambient conditions	
Ambient temperature in operation	
• Min.	0 °C
• max.	55 °C
Storage/transport temperature	
• Min.	-40 °C
• max.	70 °C
Relative humidity	
• Humidity class F	No
Connection method	
required front connector	1x 48-pin
Dimensions	

Width	50 mm
Height	290 mm
Depth	210 mm

Weights

Weight, approx.	1 620 g
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