



SIMATIC S7-400, function module FM 453, (3-channel) for positioning with servo and stepper motors, incl. configuration package on CD

Figure similar

Supply voltage	
Auxiliary voltage 1L+, load voltage 2L+	
<ul style="list-style-type: none"> Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) 	24 V 20.4 V; Dynamic 18.5 V 28.8 V; dynamic 30.2 V
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	
<ul style="list-style-type: none"> 5 V Output current, max. Cable length, max. 	Yes 300 mA 35 m; at max. 210 mA; 25 m at max. 300 mA
24 V encoder supply	
<ul style="list-style-type: none"> 24 V Cable length, max. 	Yes 100 m; at max. 300 mA
Power loss	
Power loss, typ.	8 W
Digital inputs	
Number of digital inputs	6; for each channel/axis
Functions	configurable
Input voltage	
<ul style="list-style-type: none"> Rated value (DC) for signal "0" for signal "1" 	24 V -3 to +5 V (max. 3 mA) 11 to 30 V (max. 7 mA)
Input delay (for rated value of input voltage)	
for standard inputs	
— at "0" to "1", max.	15 µs; via input voltage range, 8 µs at 24 V DC
— at "1" to "0", max.	45 µs; via input voltage range
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) 	24 V

<ul style="list-style-type: none"> • for signal "1", min. 	UP - 0,3 V
Output current	
<ul style="list-style-type: none"> • for signal "1" rated value 	0.5 A; at 40 °C; 0.1 A at 60 °C
<ul style="list-style-type: none"> • for signal "1" permissible range for 0 to 40 °C, min. 	5 mA
<ul style="list-style-type: none"> • for signal "1" permissible range for 0 to 40 °C, max. 	0.6 A
<ul style="list-style-type: none"> • for signal "1" permissible range for 40 to 60 °C, min. 	5 mA
<ul style="list-style-type: none"> • for signal "1" permissible range for 40 to 60 °C, max. 	0.12 A
<ul style="list-style-type: none"> • for signal "0" residual current, max. 	2 mA
Switching frequency	
<ul style="list-style-type: none"> • with resistive load, max. 	100 Hz
<ul style="list-style-type: none"> • with inductive load, max. 	0.25 Hz
Encoder	
Connectable encoders	
<ul style="list-style-type: none"> • Incremental encoder (symmetrical) 	Yes
<ul style="list-style-type: none"> • Absolute encoder (SSI) 	Yes
Encoder signals, incremental encoder (symmetrical)	
<ul style="list-style-type: none"> • Input voltage 	5 V difference signal (phys. RS 422)
<ul style="list-style-type: none"> • Input frequency, max. 	1 MHz; for 10 m cable length; 0.5 MHz for 35 m cable length
Encoder signals, absolute encoder (SSI)	
<ul style="list-style-type: none"> • Input signal 	5 V difference signal (phys. RS 422)
<ul style="list-style-type: none"> • Clock frequency, max. 	1.25 Mbit/s at 10 cable length (2.5 Mbit/s available soon)
<ul style="list-style-type: none"> • Cable length, shielded, max. 	250 m; At max. 156 kbit/s
Drive interface	
Signal Input	
<ul style="list-style-type: none"> • Type 	Drive interface step, signal input "READY 1"
<ul style="list-style-type: none"> • Function 	"Power section ready" where $U_i < 1 \text{ V}$, $I_i = 2 \text{ mA}$
Analog drive	
Setpoint signal	
— Rated voltage range	-10 to +10V
— Output current	-3 to +3 mA
— Cable length, max.	30 m
Output controller enable	
— Switching voltage, max.	50 V
— Switching current, max.	1 A
— Switching capacity, max.	30 V·A
Stepper drive	
<ul style="list-style-type: none"> • Differential output voltage, min. 	2 V; $R_L = 100 \text{ Ohm}$
<ul style="list-style-type: none"> • Differential output voltage for signal "0", max. 	1.1 V; $I_o = 30 \text{ mA}$
<ul style="list-style-type: none"> • Differential output voltage for signal "1", min. 	3.7 V; $I_o = -30 \text{ mA}$
<ul style="list-style-type: none"> • Load resistance, min. 	55 Ω
<ul style="list-style-type: none"> • Output current, max. 	60 mA
<ul style="list-style-type: none"> • Pulse frequency 	200 kHz; 500 kHz available soon
<ul style="list-style-type: none"> • Cable length, shielded, max. 	35 m; 35 m with symm. transmission; 10 m with asymm. transmission
Potential separation	
Potential separation digital inputs	
<ul style="list-style-type: none"> • Potential separation digital inputs 	Yes; Optocoupler
Potential separation digital outputs	
<ul style="list-style-type: none"> • Potential separation digital outputs 	Yes; Optocoupler
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> • min. 	0 °C
<ul style="list-style-type: none"> • max. 	55 °C
Ambient temperature during storage/transportation	
<ul style="list-style-type: none"> • min. 	-40 °C
<ul style="list-style-type: none"> • max. 	70 °C
Connection method	
required front connector	1x 48-pin

Dimensions	
Width	50 mm
Height	290 mm
Depth	210 mm
Weights	
Weight, approx.	1 620 g
last modified:	1/16/2021 