

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+	
• 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+, 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 loss

Power loss, typ.	8 W
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Digital inputs

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

- Rated value (DC) 24 V
- for signal "0" -3 to +5 V (max. 3 mA)
- for signal "1" 11 to 30 V (max. 7 mA)

Input delay (for rated value of input voltage)

for standard inputs

- at "0" to "1", max. 15 μ s; via input voltage range, 8 μ s at 24 V DC
- at "1" to "0", max. 45 μ s; via input voltage range

Digital outputs

Number of digital outputs	4; for each channel/axis
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Functions	configurable
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Short-circuit protection	Yes
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Output voltage

- Rated value (DC) 24 V
- for signal "1", min. UP - 0,3 V

Output current

- for signal "1" rated value 0.5 A; at 40 °C; 0.1 A at 60 °C
- for signal "1" permissible range for 0 to 40 °C, min. 5 mA
- for signal "1" permissible range for 0 to 40 °C, max. 0.6 A
- for signal "1" permissible range for 40 to 60 °C, min. 5 mA
- for signal "1" permissible range for 40 to 60 °C, max. 0.12 A
- for signal "0" residual current, max. 2 mA

Switching frequency

- with resistive load, max. 100 Hz
- with inductive load, max. 0.25 Hz

Encoder

Connectable encoders

- Incremental encoder (symmetrical) Yes
- Absolute encoder (SSI) Yes

Encoder signals, incremental encoder (symmetrical)

- Input voltage 5 V difference signal (phys. RS 422)

• Input frequency, max.	1 MHz; for 10 m cable length; 0.5 MHz for 35 m cable length
Encoder signals, absolute encoder (SSI)	
• Input signal	5 V difference signal (phys. RS 422)
• Clock frequency, max.	1.25 Mbit/s at 10 cable length (2.5 Mbit/s available soon)
• Cable length, shielded, max.	250 m; At max. 156 kbit/s

Drive interface

Signal Input	
• Type	Drive interface step, signal input "READY 1"
• 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

• 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 resistance, min.	55 Ω
• Output current, max.	60 mA
• Pulse frequency	200 kHz; 500 kHz available soon
• Cable length, shielded, max.	35 m; 35 m with symm. transmission; 10 m with asymm. transmission

Potential separation

Potential separation digital inputs	
• Potential separation digital inputs	Yes; Optocoupler
Potential separation digital outputs	
• Potential separation digital outputs	Yes; Optocoupler

Ambient conditions

Ambient temperature during operation	
• min.	0 °C
• max.	55 °C
Ambient temperature during storage/transportation	
• min.	-40 °C
• 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
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