



Figure similar

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

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
Digital inputs	
Number of digital inputs	6; for each channel/axis
Functions	configurable
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 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	
• Rated value (DC)	24 V
• for signal "1", min.	UP - 0,3 V
Output current	

• 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.	0.5 A; at 40 °C; 0.1 A at 60 °C 5 mA 0.6 A 5 mA 0.12 A 2 mA
Switching frequency	
• with resistive load, max. • with inductive load, max.	100 Hz 0.25 Hz
Encoder	
Connectable encoders	
• Incremental encoder (symmetrical) • Absolute encoder (SSI)	Yes Yes
Encoder signals, incremental encoder (symmetrical)	
• Input voltage • Input frequency, max.	5 V difference signal (phys. RS 422) 1 MHz; for 10 m cable length; 0.5 MHz for 35 m cable length
Encoder signals, absolute encoder (SSI)	
• Input signal • Clock frequency, max. • Cable length, shielded, max.	5 V difference signal (phys. RS 422) 1.25 Mbit/s at 10 cable length (2.5 Mbit/s available soon) 250 m; At max. 156 kbit/s
Drive interface	
Signal Input	
• Type • Function	Drive interface step, signal input "READY 1" "Power section ready" where $U_i < 1\text{ V}$, $I_i = 2\text{ mA}$
Analog drive	
Setpoint signal	
— Rated voltage range — Output current — Cable length, max.	-10 to +10V -3 to +3 mA 30 m
Output controller enable	
— Switching voltage, max. — Switching current, max. — Switching capacity, max.	50 V 1 A 30 VA
Stepper drive	
• Differential output voltage, min. • Differential output voltage for signal "0", max. • Differential output voltage for signal "1", min. • Load resistance, min. • Output current, max. • Pulse frequency • Cable length, shielded, max.	2 V; $R_L = 100\text{ Ohm}$ 1.1 V; $I_o = 30\text{ mA}$ 3.7 V; $I_o = -30\text{ mA}$ 55 Ω 60 mA 200 kHz; 500 kHz available soon 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. • max.	0 °C 55 °C
Ambient temperature during storage/transportation	
• min. • max.	-40 °C 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	
Classifications			
		Version	Classification
	eClass	14	27-24-22-05
	eClass	12	27-24-22-05
	eClass	9.1	27-24-22-05
	eClass	9	27-24-22-05
	eClass	8	27-24-22-05
	eClass	7.1	27-24-22-05
	eClass	6	27-24-22-05
	ETIM	10	EC001422
	ETIM	9	EC001422
	ETIM	8	EC001422
	ETIM	7	EC001422
	IDEA	4	3567
	UNSPSC	15	32-15-17-05

Approvals / Certificates			
General Product Approval			



[Miscellaneous](#)



[China RoHS](#)



[KC](#)

General Product Approval	EMV		For use in hazardous locations	Maritime application	
			FM		

Maritime application					
		NK / Nippon Kaiji Kyokai			

Maritime application	
CCS (China Classification Society)	

last modified: 6/7/2025