

SIEMENS

Product data sheet

6ES7453-3AH00-0AE0


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

Supply voltage	
Auxiliary voltage	
Rated value (DC)	24 V
dynamic range	18.5 to 30.2 V
static area	20.4 to 28.8 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 losses	
Power loss, max.	8 W
Digital inputs	
Number/binary 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 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/binary outputs	4 ; for each channel/axis
Functions	configurable
Functionality/short-circuit strength	Yes
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 signal	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 I	
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 voltage	-10 to +10 V
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	
IP20	Yes
Ambient conditions	
Operating temperature	
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
Weight	
Weight, approx.	1620 g
Status	Jul 17, 2012