

Siemens 6ES7453-3AH00-0AE0 Manual

Brand	Siemens
Product Series	Siemens
Product Type	Drive interface step, signal input "READY 1"

Description

6ES7453-3AH00-0AE0

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. 100 mA; 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 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 VA

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

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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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