



# Applied Motion Products ST5-10-Si Stepper Motor Controller User Guide

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## ST5/10-Si Quick Setup Guide

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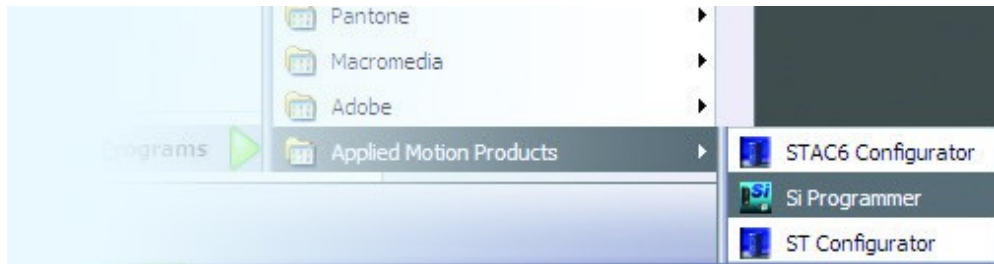
## Requirements

To begin, make sure you have the following equipment:

- A compatible stepper motor.
- A small flat blade screwdriver for tightening the connectors (included).
- A personal computer running Microsoft Windows 95, 98, NT, Me, 2000, XP, Vista, 7/8/10/11.
- Si Programmer™ software, available at: <http://www.applied-motion.com>
- An Applied Motion programming cable (included).
- For more detailed information, please download and read the ST5/10-QSiC Hardware Manual, available at [www.applied-motion.com/support/manuals](http://www.applied-motion.com/support/manuals).

## Step 1

- a) Download and install the Si Programmer™ software.
- b) Launch the software by clicking: Start / Programs / Applied Motion Products / Si Programmer
- c) Connect the drive to your PC using the appropriate programming cable.



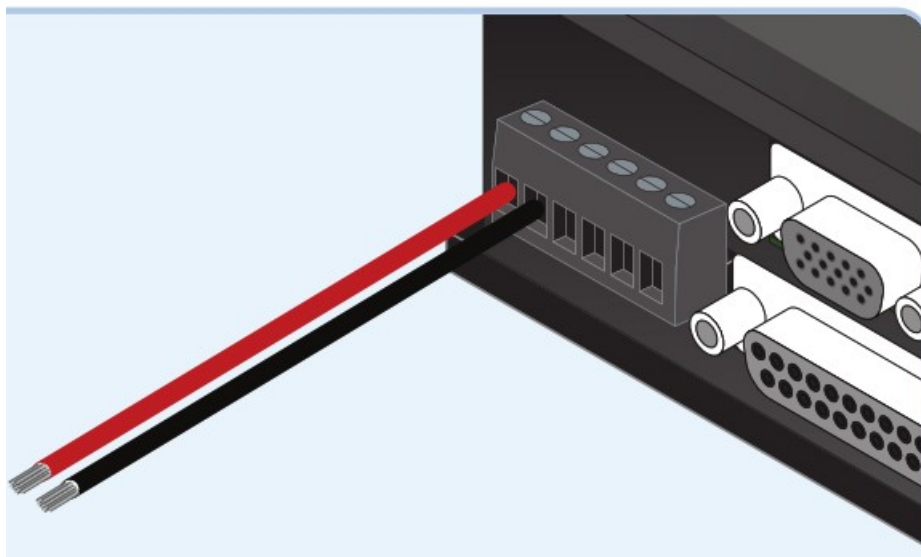
## Step 2

**Warning – If you are using a non-Applied Motion motor, do not connect the motor until after you have configured the drive for your motor. Refer to Step 5.**

- a) Wire the drive to the DC power source.

**(do not apply power until all connections to the drive have been made)**

Note, the ST5-Si accepts DC voltages from 24-48V, while the ST10-Si accepts DC voltages from 24-80V.



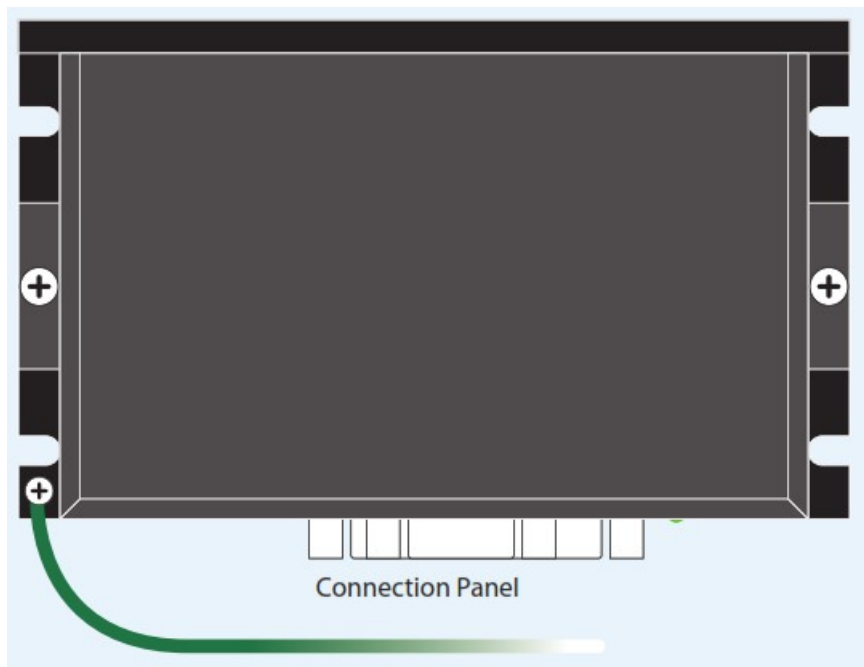
- b) Ensure a proper earth ground connection by using the screw on the left side of the chassis.

If using an external fuse, we recommend the following:

ST5-Si: 7 amp fuse, fast acting.

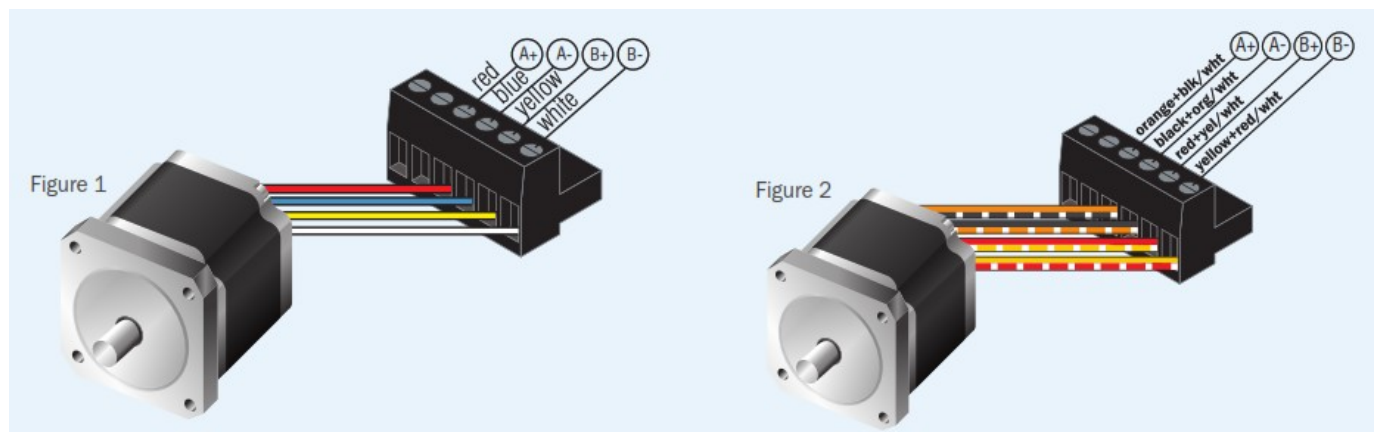
ST10-Si: 7 amp fuse, fast acting.

See the ST5/10-QSiC Hardware Manual for more information about power supply and fuse selection.

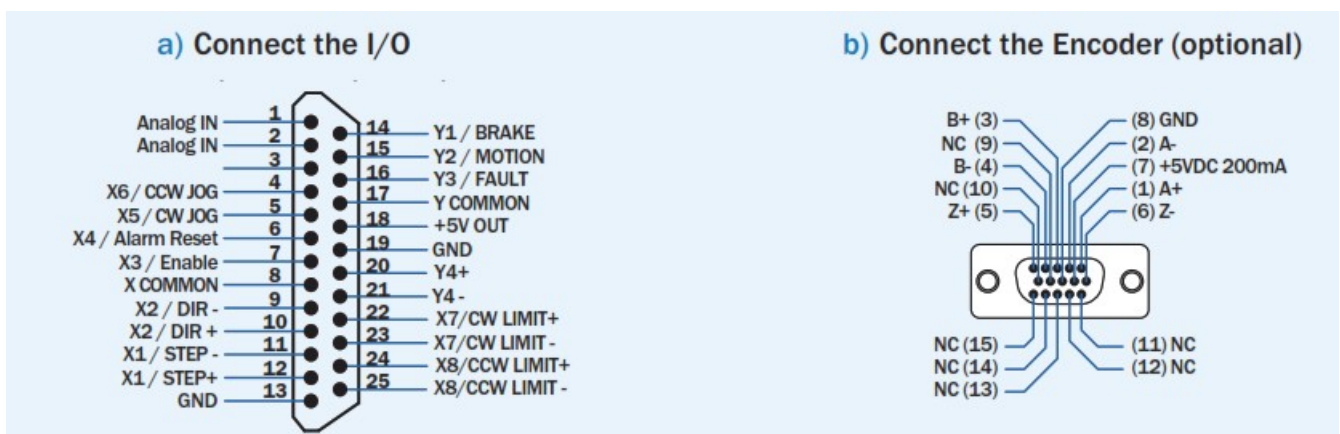


### Step 3

Connect the drive to the motor. Four lead motors can be connected in only one way, as shown in Figure 1. We recommend that eight lead motors be connected in parallel, as shown in Figure 2. If using a non-Applied Motion Products motor, please refer to your motor specs for wiring information.



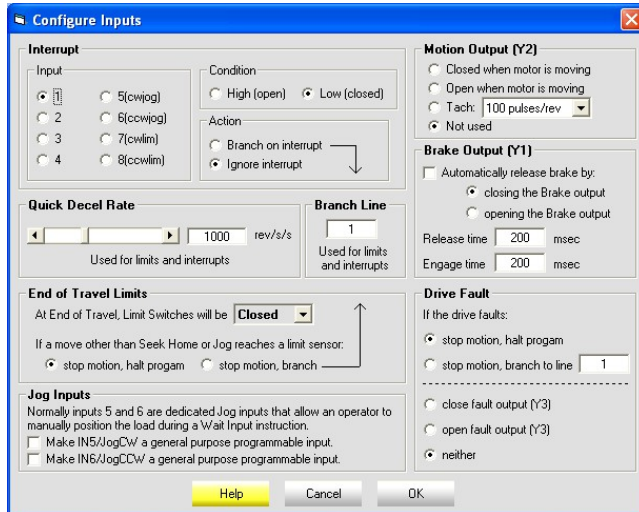
### Step 4



### Step 5

a) Apply power to the drive.

b) The Si Programmer™ software can be used to configure and program the drive for operation. Once an Si program has been constructed and downloaded to the drive, the program can be executed stand-alone at power-up or from an external trigger.



**Configure Inputs**

**Interrupt**

Input: ☒ 1 ☐ 5(cw/jog) ☐ 6(ccw/jog) ☐ 3 ☐ 7(cw/lm) ☐ 4 ☐ 8(ccw/lm)

Condition: ☐ High (open) ☒ Low (closed)

Action: ☐ Branch on interrupt ☒ Ignore interrupt

**Quick Decel Rate**

Used for limits and interrupts: 1000 rev/s/s

**End of Travel Limits**

At End of Travel, Limit Switches will be: **Closed**

If a move other than Seek Home or Jog reaches a limit sensor:

- ☒ stop motion, halt program
- ☐ stop motion, branch

**Jog Inputs**

Normally inputs 5 and 6 are dedicated Jog inputs that allow an operator to manually position the load during a Wait Input instruction.

- ☐ Make IN5/JogCW a general purpose programmable input.
- ☐ Make IN6/JogCCW a general purpose programmable input.

**Motion Output (Y2)**

- ☐ Closed when motor is moving
- ☐ Open when motor is moving
- ☐ Tach: 100 pulses/rev
- ☒ Not used

**Brake Output (Y1)**

- ☐ Automatically release brake by:
- ☒ closing the Brake output
- ☐ opening the Brake output

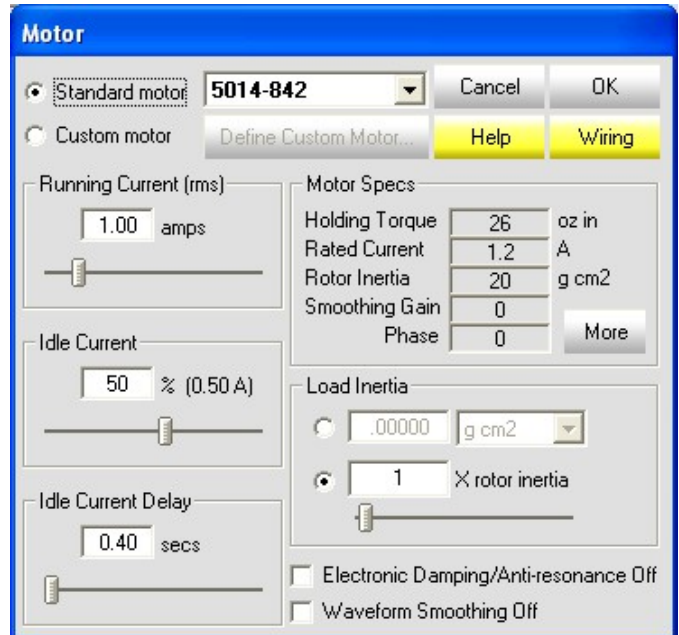
Release time: 200 msec  
Engage time: 200 msec

**Drive Fault**

If the drive faults:

- ☒ stop motion, halt program
- ☐ stop motion, branch to line 1
- ☐ close fault output (Y3)
- ☐ open fault output (Y3)
- ☒ neither

Help Cancel OK



**Motor**

☒ Standard motor: **5014-842** Cancel OK

☐ Custom motor: Define Custom Motor... Help Wiring

**Running Current (rms)**

1.00 amps

**Idle Current**

50 % (0.50 A)

**Idle Current Delay**

0.40 secs

**Motor Specs**

Holding Torque	26	oz in
Rated Current	1.2	A
Rotor Inertia	20	g cm <sup>2</sup>
Smoother Gain	0	
Phase	0	

More

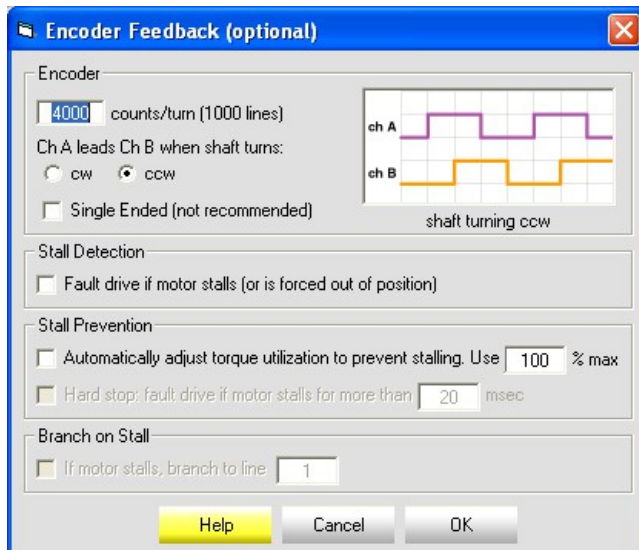
**Load Inertia**

☐ .00000 g cm<sup>2</sup>

☒ 1 X rotor inertia

☐ Electronic Damping/Anti-resonance Off

☐ Waveform Smoothing Off



**Encoder Feedback (optional)**

**Encoder**

4000 counts/turn (1000 lines)

Ch A leads Ch B when shaft turns:

- ☐ CW
- ☒ CCW

☐ Single Ended (not recommended)

shaft turning ccw

**Stall Detection**

☐ Fault drive if motor stalls (or is forced out of position)

**Stall Prevention**

☐ Automatically adjust torque utilization to prevent stalling. Use 100 % max

☐ Hard stop: fault drive if motor stalls for more than 20 msec

**Branch on Stall**

☐ If motor stalls, branch to line 1

Help Cancel OK



**Si Programmer V2.6.83 - untitled**

Applied Motion Products

ST5-Si Drive ?

Motor... Encoder... Alarms...

20000 Steps/rev

**Jog Parameters**

Speed: 4.000 rev/sec

Accel: 25 rev/s/s

Configure I/O...

COM port: COM1

Help Line Description Clear

1	↓	
2	↓	
3	↓	
4	↓	
5	↓	
6	↓	
7	↓	
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If you have any questions or comments, please call Applied Motion Products Customer Support: (800) 525-1609, or visit us online: [www.applied-motion.com](http://www.applied-motion.com).

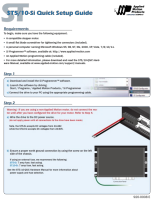


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## Documents / Resources

	<p><a href="#">Applied Motion Products ST5-10-Si Stepper Motor Controller</a> [pdf] User Guide ST5-10-Si Stepper Motor Controller, ST5-10-Si, Stepper Motor Controller, Motor Controller, Controller</p>
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## References

-  [Applied Motion](#)
-  [Product Manuals by Type | Applied Motion](#)