EZ Start

A quick guide to the EZ10EN

Revision D1

This guide applies using the USB-to-RS485 Converter or RS232-to-RS485 Converter.

For these products

- EZ10EN

You will need:

- Your EZStepper® Controller/Driver and stepper motor. A motor rated at about 1/4 of supply voltage is best.
- RS485 Converter: USB-to-RS485 or RS232-to-RS485, with cable supplied.
- PC with port to match RS485 Converter being used (USB or serial D).
- Power supply, 12 to 30V. For first-time EZStepper users we recommend a current-limited power supply to protect against miswiring.
- Crimp tool (if not using Starter Kit): Digikey part H9924-ND. Otherwise, soldering equipment.
- Small Philips screwdriver for operating address switch
- If troubleshooting is required: ohmeter, oscilloscope

Precautions

- Observe all electrostatic discharge precautions to avoid damaging circuit boards.
- DO NOT place EZStepper board or RS485 Converter on metal surface when powered (to prevent shorts).
- For future encoder and IO Hookups: avoid bundling encoder or IO wires with motor power wires, as this may cause noise pickup from motor wires. If bundling is necessary, put motor wires in a separate shielded twisted-pair cable.
  -For 10' or longer, shield each IO line individually.
  -If using ribbon cable, add grounds between signal wires and motor wires.

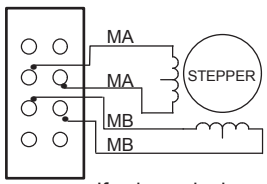
Starting up

Start with power supply OFF.

NOTE: If using RS232 Converter, disregard instructions for USB.

1. Download and install the EZCommander™ application from www.allmotion.com/support.
2. If using USB-to-RS485 Converter, download and install appropriate USB driver from www.allmotion.com/support.
3. Connect power supply to RS485 Converter. Ensure power is OFF.
4. Connect EZ Stepper to RS485 Converter.
   - If using EZ Start kit, use cable provided. If not using kit, wire mating 4-pin connectors on AllMotion circuit board and RS485 Converter pin-to-pin, for example pin A to pin A. (See Wiring Note below.)
   - Turn power ON. Confirm that green Life LED slowly blinks. *If not, look for bad power connection.*
5. Set address switch firmly to number 1 with Philips screwdriver.
6. Cycle power OFF/ON if address switch was moved in preceding step.
7. *With USB cable from Converter to PC unplugged*: Start the EZCommander application (see other side of sheet for instructions if needed). Click Settings, then Re-scan Ports. Note available ports, then click OK.
8. Connect RS485 Converter to a PC USB port with the cable supplied.
9. In EZCommander, click Settings, then Re-Scan Ports. Select the new port that becomes available, and click OK. (For RS232 converter, the new port will be com1.) *If no new port appears, a problem with the USB driver is indicated. Re-install the driver for your system.*
10. In EZCommander, click Send String 0 to issue the command /1&. Confirm return message showing product name and firmware version. *If return message says "No EZStepper Found", troubleshoot communications (page 2) before connecting motor.*
11. *With power OFF*, connect stepper motor to middle four pins of the motor connector as shown in diagram. Use pigtails provided for wiring connectors. (See Wiring Note below.)

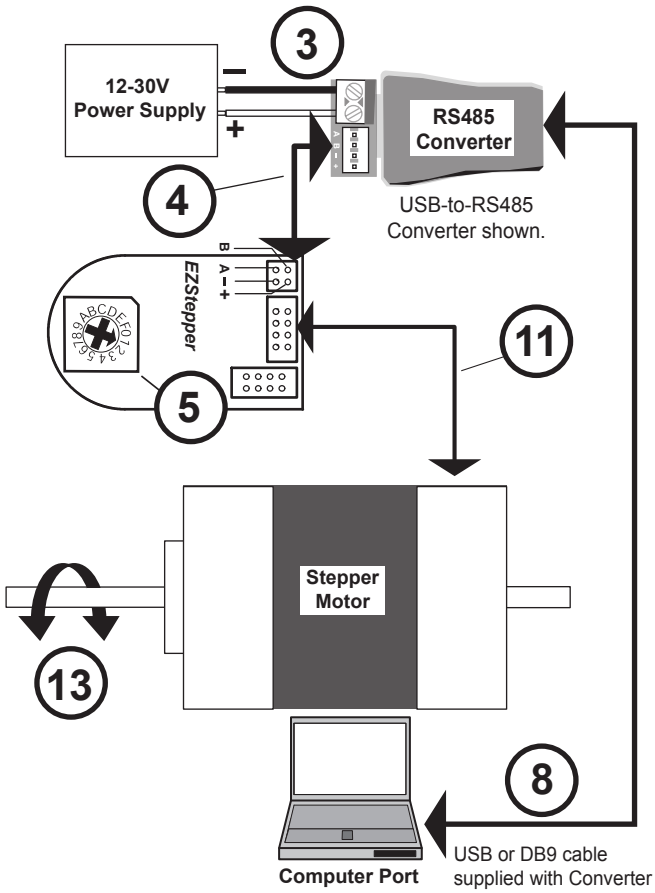
    CAUTION!
    Always turn off power before connecting or disconnecting motor to avoid damaging circuit board.

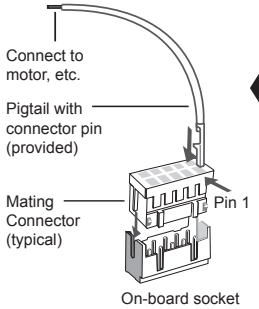


If using unipolar motor, leave center taps unconnected.

12. Turn power ON.
13. In EZ Commander, click Send String 2 to issue the command /1A1000A0R. Confirm that motor goes back and forth.

You're on your way! For other commands and hookups, see the full command set and wiring diagram on our website.





Wiring Note

Crimp or solder motor, etc. to pigtails supplied. Insert pigtails into mating connector as shown, observing pin numbers. Then insert mating connector into socket on board.

Troubleshooting: See next page. →

Using EZCommander™

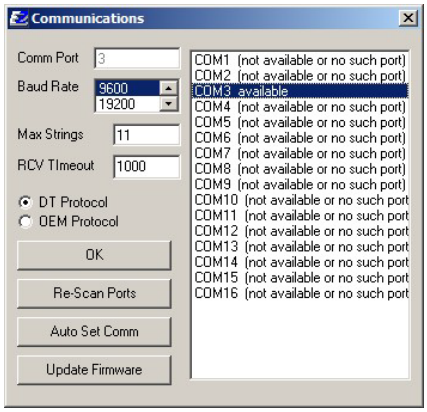
Start with communications cable unplugged.

NOTE: If using RS232 Converter, disregard instructions for USB.

1 Open EZCommander.

2 Click the **Settings** button to open the Communications window.

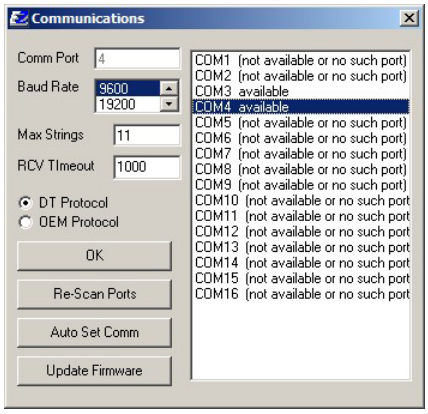
- Click Re-Scan Ports; note available ports; then click OK to close.



NOTE: USB cable is disconnected for this step.

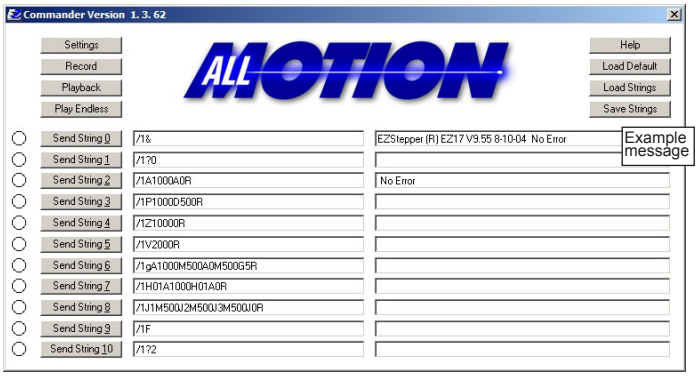
3 Plug USB cable into the PC.

- Click Settings button, then Re-scan Ports. A new comm port will become available (will be com1 if using RS232 Converter).
- Select the newly available comm port and click OK to close the Communications Window.



4 Issue commands :

- Enter string in a left-hand field.
- Press adjacent **Send String** button to issue command.
- See return message in field to right.



Troubleshooting

If motor does not respond to commands:

NOTE: If using RS232 Converter, disregard instructions for USB.

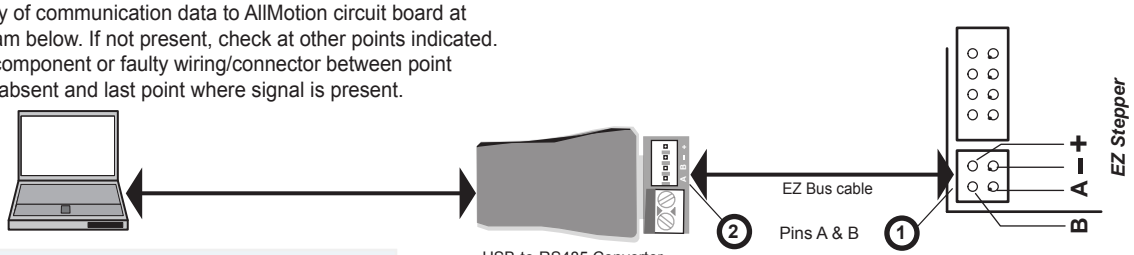
- Make sure address switch is detented exactly on position number 1. (After resetting, power must be cycled to establish new address.)
- Re-check that correct comm port is selected.
- Confirm good ground between PC and negative terminal of power supply. First measure resistance with power off; then check for voltage drop with power on. Repair poor ground connections.
- Issue command /1& and verify that a response identifying the product and firmware version is received. If ok, motor connection may be miswired or loose. If not ok, re-install USB driver. Continue to next item if not resolved.
- Check continuity of communication data to AllMotion circuit board at point 1 in diagram below. If not present, check at other points indicated. Suspect failed component or faulty wiring/connector between point where signal is absent and last point where signal is present.

If motor misses steps at high speed:

- Increase either the Move current or the supply voltage.
  To increase Move current, issue an "m" command. Example: /1m75 = set current to 75% max.
  Step misses typically happen in the middle of a move, where the motor "catches" in the beginning and end, but stalls in the middle.

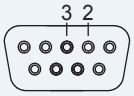
If motor direction is not consistent:

- Check that coils of motor are securely connected at both ends.
  This is typically caused when one of the coils has a loose connection.



If using RS232-to-485 Converter

At DB9 connectors pins 3 and 2, see 12V P-P pulses 100 µsec wide (@9600 baud). Check at cable end and at Converter connector.



USB-to-RS485 Converter shown.

At both sets of A & B pins, confirm 3V P-P pulses centered on +2.5V. See points 1 and 2.

NOTE: Signal presence at point 1 suggests problem in motor, EZStepper® board, or wiring to motor.