

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: ohmmeter, 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

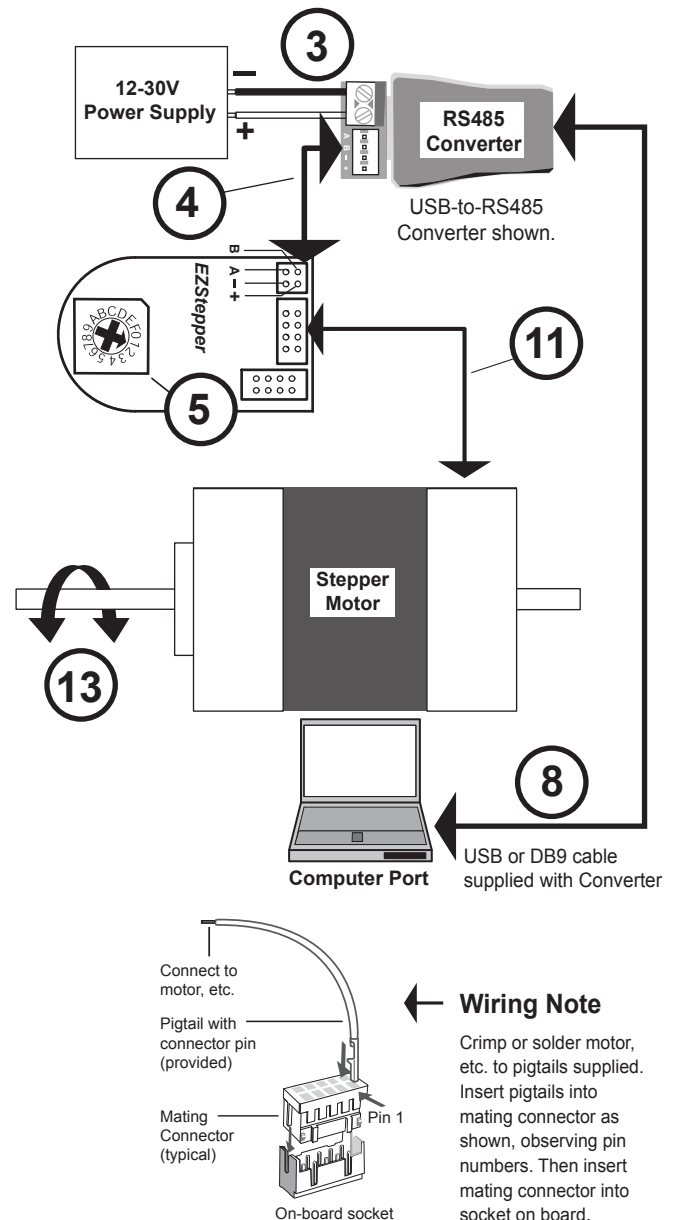
Start with power supply OFF.

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.) ➡
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.

Troubleshooting: See next page. ➡

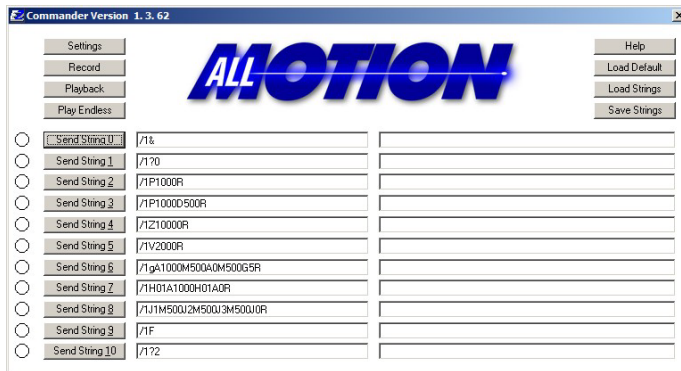


Using EZCommander™

Start with communications cable unplugged.

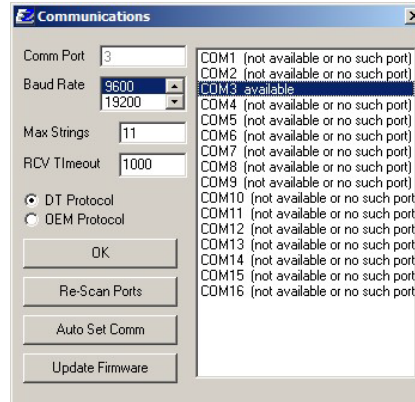
NOTE: If using RS232 Converter, disregard instructions for USB.

1 Open EZCommander.



2 Click the Settings button to open the Communications window.

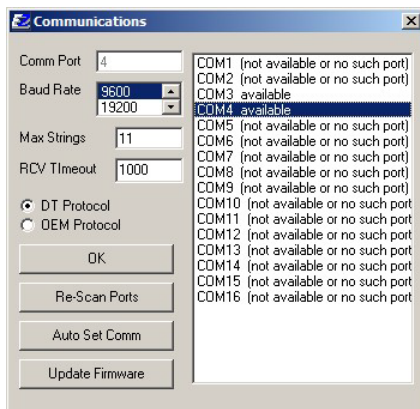
- Click Re-Scan Ports; note available ports; then click OK to close.



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:

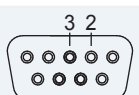
NOTE: If using RS232 Converter, disregard instructions for USB.

- 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 using RS232-to-485 Converter

At DB9 connectors pins 3 and 2, see 12V P-P pulses 100 μ sec 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.

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.

