# Upgrading Firmware on Controller+Drivers

This application note describes how to field upgrade using a Windows PC.

Most AllMotion® Controller+Driver products are field upgradable. At the time of publication, field upgradable products include the following:

- EZHR17EN
- EZHR23ENHC
- EZSV23
- EZ4AXIS
- EZPZ (all versions)
- XR Series

## Prerequisites

- The firmware on the product must be version 7.02 or higher. If the version is older, it must be upgraded at the factory. To determine the firmware version, query the product using the EZ Commander™ application. (Refer to steps 1-5 and 13 of the Firmware Upgrade Procedure below.)

- The PC should have latest version of EZ Commander™ installed. At minimum, version 1.3.62 is required. To download the latest version of EZ Commander™, go to www.allmotion.com/support.htm and click on "EZStepper Windows Application." The same application works for steppers and servos.

- You must have the new firmware (the upgrade file) for your product accessible on your local system, e.g., saved to disk. Firmware files are available by request from AllMotion® on a case-by-case basis. Email your request to support@allmotion.com. The upgrade file has a .amx extension.

- Programming voltage on the product to be upgraded must be enabled. On some boards, this voltage is already enabled; on others, it may be enabled as described below.

  To determine whether the programming voltage is enabled on your board, you may do either of the following:
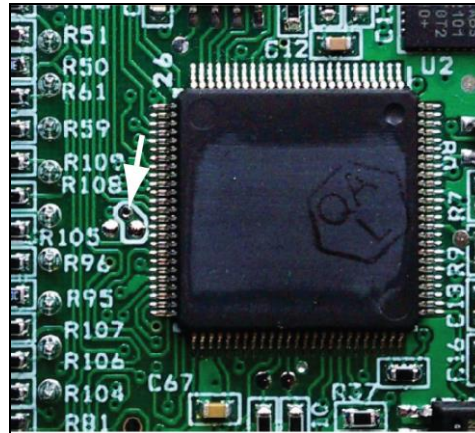
  - Run the Firmware Upgrade Procedure, which begins on page 2. If you receive the "Unrecognized Response" error message in EZ Commander™, the programming voltage is not being supplied. If this occurs, examine and modify the board as described in the following instructions.

    Or,

  - Examine the board and ensure that the programming voltage pads are connected together.  Refer to the figure on the next page, which is a close-up of the EZ4AXIS board.

    Locate the two small pads near the microprocessor that are surrounded by a silkscreened line. In the figure, the two pads are just below the "R108" silkscreen.

If the two pads are not already connected together, connect them. Be sure to connect only the two pads within the silkscreened boundary.



**Example programming voltage pads**

## Firmware Upgrade Procedure

Once you have all the necessary items and have confirmed that the programming voltage on the board has been enabled, perform the upgrade procedure. (If you require additional assistance during the upgrade, email us at support@allmotion.com  or call 510.471.4000.)

1. Verify the address switch on the product is set to "1." Use a small Phillips screwdriver to change the address, if necessary.

2. Start EZ Commander™.

3. In EZ Commander™ press "Settings", then Rescan Ports", and note which comm ports are available. Then press "OK."

4. Connect your product to the computer through the RS485 converter as described in the EZ Start instructions or wiring diagrams for your product. If needed, download these from the AllMotion support page (http://www.allmotion.com/support.htm). Click on "Starter Kit Instructions."

    **Note:** Only one board may be connected to the computer for this procedure. Disconnect any other boards from the communications bus.

5. In EZ Commander™ press "Settings", then Rescan Ports", and select new port that becomes available after plugging the product in. Then press "OK."

6. In EZ Commander™, press "Settings."

7. Click "Update Firmware."

8. Click "Load Image."

9. Select the AMX file sent to you by AllMotion®.

10. Click "Open."

11. Click "Yes" to any pop-up boxes asking whether you want to continue.

    Updating will begin. Do not disturb the PC and do not interrupt power to the product during this process.

> **Remember**: If you receive the "Unrecognized Response" error message while trying to update, it means that the programming voltage is not being supplied to the microprocessor. If this occurs, connect programming voltage pads together as described on page 1.

12. After you receive the message stating that the update is complete, close the update window and cycle power to the unit.

13. To verify that the upgrade was successful, perform a version readback by issuing the "/1&" command.

## After the Firmware Upgrade

You may leave the programming voltage enabled or, after you have removed all power and connections to the upgraded board, you may disable the programming voltage by removing the solder connecting the two pads.

**NOTE:** The board will function correctly with the programming voltage enabled, but if it ever receives an upgrade command, the flash memory will be erased.

## XR Series Upgrades

The latest XR Series motor drives uses a third party application to do the upgrade. Visit https://www.codeskin.com/c2prog-download and install "C2Prog. Place the XML file https://www.allmotion.com/XML_Files/custom_184.xml in to the "Targets" folder of the C2Prog application.

After installing C2Prog:

1. Run "C2Prog.

2. Connect the Target board to the system. It is best to use either direct USB or one of our high speed USB to 485 converters.

3. Select the correct COM port in C2Prog.

4. For target, select 28069 and ensure that "XBL-184.1" Is displayed to the drop down box next to the Target drop down.

5. Browse for the Update file. The application will ask for a password. You will have been provided one with the file.

6. Click "Program".

7. Apply power to the target. The application should find the Target and begin the update process.

8. After update is complete, close C2Prog. The board is ready for use.