Upload V4.12 to Your Keypad

Follow these instructions after you have downloaded keypad412.exe from the Astro-Physics website.

Printable PDF Version of these Instructions

Setup the system

- Connect the power cable to the GTO control box. Since the motor cables are not needed for the download, you can use just the GTO control box, you don't have to use the whole mount. DO NOT connect the keypad at this time. DO NOT turn the power on yet.
- 2. Connect the RS-232 cable to your personal computer and the GTO control box. This upload process will only work if you plug the cable into the TOP RS-232 connector (marked COM 1 on the GTOCP1 control boxes). It will not work if you use the bottom connector. You must also use a "straight through" (as opposed to a "null modem or crosswired") serial cable. We now have these Straight Through Serial Cables as well as USB to Serial Adapters available for purchase. Please note that COM1 on the control box does not mean that you will necessarily be using COM1 on your computer.



Test Procedure

- 1. **IMPORTANT:** Your keypad CANNOT be set to Auto-Connect YES for this upgrade. If your current version has the Auto-Connect feature, set it to NO or EXT. Then UNPLUG the keypad and shut the power off to the control box.
- 2. Start your PC. The keypad upgrade tool will run under Windows 95 or later.
- 3. Assuming that you downloaded with the default file location settings, select Start | Programs | Astro-Physics | Keypad Upgrade Tool + V4.12 ROM. The Keypad Update Tool window will display. The white window should display two digits, one above the other, corresponding to the COM port number in the selection box. It will probably be two "1" digits. The ROM Level Loading box will show the version number that you about to load. If the box does not display 4.12, then this is not the correct upgrade tool.



- 4. Double check to be sure your cables are connected as described above, then turn on the power to your control box. Remember that the keypad cable is not connected at this point.
- 5. Set COM port selection. The number selected will display in the white box.
- 6. Click on Test Computer COM Port to Mount. Message should read "mount found". If not, check to be sure that your keypad is NOT plugged in. If it is, turn off the power to the control box, unplug the keypad and exit from the Keypad Upgrade Tool. After 30 seconds, turn the power back on and bring up the Keypad Upgrade Tool again. Repeat this step. If you have an error and the keypad is not plugged in, select another COM port. To select another computer COM port, it is best to exit the loader program completely, then restart it and select the next COM port before clicking on the Test Computer COM Port to Mount button. Repeat this if you need to select the next COM port and so on.

When the "mount found" message appears, look at the entry in the white box. If it shows a series of zeros followed by a "#" sign (i.e. 00:00.0#), you have found the correct COM port. If #:GR# appears in the white box, then that COM port is connected to another device, perhaps a modem or digital camera, etc. If that is the case, try another COM port. Please click "ok" to move on to the next step.

- 7. Click the Check Mount Firmware button. The program will poll the GTO control chip to determine if the chip version number will support the upgrade procedure. Chips issued prior to version "C" (shipped prior to January 22, 2001) do not have the upgrade function. The white box will display the chip version number and "#" sign. Don't press the Send Controller Code to Mount button yet. Please read on.
- 8. If you have the proper chip, press "ok", then turn off the power to your GTO control box. Keep this Keypad Update window open in your web browser since you will use it later. DO NOT press any other buttons on the keypad just yet. Proceed to the Keypad Update section below.

- 9. If you get an error message, check all cables and connections. Then click the Check Mount Firmware button again TWO times (the first click will clear the buffer and you will see an error code, click it again). You will need to press "ok" at each of the prompts.
- 10. If the chip is an older version and fails this test, contact Astro-Physics to obtain a new chip. DO NOT attempt to continue this upgrade until you install the new chip. Otherwise, you will erase the old program with no means of installing the new one.

Keypad Update

Do not try this procedure unless you have successfully completed the test above. Otherwise, you will erase the current program from your keypad. The screen will be blank and you will not be able to use your keypad.

Upgrading from all versions - your location data and other settings will be erased during this procedure. Please be sure to write all of the settings that you wish to remember on a sheet of paper.

Please follow these steps in order. If the power is interrupted, restart from step 1.

BE SURE THAT ALL OTHER PROGRAMS ON YOUR COMPUTER ARE CLOSED. SET YOUR SCREEN SAVER TO "NONE". DO NOT ATTEMPT TO USE YOUR COMPUTER WHILE THIS UPGRADE IS UNDERWAY.

- 1. The power to the control box should be off. If not, turn if off.
- 2. Plug in the keypad and be sure that the power cable is connected to the GTO control box and locked in place. The motor cables do not need to be attached.
- 3. Place the keypad on a solid surface and press any three buttons (except stop) simultaneously and hold them down. We call this a "three-finger salute.". As you are holding these three keys, apply the power to the control box.
- 4. A new display will appear on the window of the keypad. At this point, release the three buttons. Then, press the West button to indicate YES for the next four windows. The last window requesting to Test Flash must be responded with NO by pressing the East button. This will erase the current program. These are the screen displays and the responses (note, the display says "FN=No", however you will press the "E" button):

"Load defaults" - Choose Yes (West) "Are you sure" - Choose Yes (West) "Clear flash" - Choose Yes (West) "Are you sure" - Choose Yes (West) "Test flash" - Choose No (East)

- 5. Once you have completed the previous step, the keypad will be placed in a ready-to-receive mode. A blank window with the blinking cursor in the upper left corner of the screen will indicate this.
- 6. Look back to the Keypad Upgrade Tool window on your PC. Press the Send Controller Code to Keypad button. The Keypad Loader Pre-Load Checklist will appear. Review and check all boxes, then press Continue.

pad Controller Code Loader				
Keypad Loader Pre-Load Checklist				
Before this loader sends the controller code to your mount make sure you have:				
Have recorded your Latitude, Longtitude, Time Zone, and Backlash settings, on paper for easy re-entry into the keypad.				
🔽 Have gone through the 'three	-finger salute' procedure	?		
see Upload the Program to Y	'our Keypad page for det	ails	three-finger salute?	
The display has a single blin	king cursor in the top corr	ner.		
Have set your screensaver to computer.	o none and closed all oth	er pro	grams running on your	
You Must	Have All Boxes Checked	l to Pr	oceed	
Are you ready	y to update your keypad (contro	ller code?	
WARNING: This will erase	the program in your keyp	bad if y	you select 'CONTINUE'	
Online Manual	CONTINUE		CANCEL	

- 7. You will hear a series of beeps from the keypad as uploading begins, but will get no audible feedback during the rest of the upload. From this point on, the upload can take anywhere from 20 minutes to 35 minutes. Do not remove the power from the mount. Do not try to run any other application during this time. If you happen to check the task manager of your OS, it will state that the program is not responding, however it really is running properly, just slowly. Since the program must run through the control box into the keypad, it cannot run very fast. Make yourself a cup of tea (or your favorite beverage).
- 8. As the upload progresses, the white display box within the Upgrade Tool Utility will display a few lines of code, then go dormant for quite a few minutes. Don't worry, the upload is working properly. New code will display periodically, then pause again. If you have any difficulties with the download, please write down the first 10 lines that appear in the box so that we can help to diagnose the problem.
- 9. When the upload is complete, the Keypad Controller Post-load Checklist will appear on your computer screen. Please follow each step of the process carefully. This part of the process will set all personal settings to the default settings. This is necessary because of the storage location of this information has changed. We provided checkboxes to help you keep your place. If you accidentally press the wrong button on the keypad, remove power to the control box and follow the steps on the post-load checklist again.

Keypad Controller Initialization Step				
Keypad Controller Post-load Checklist				
Before you are ready to use your new contrrol software you MUST initialize the keypad to the default settings:				
Please complete this checklist to complete the load:				
Power down the mount and restart it after 30 seconds.				
Choose Location 0 (Press #0) from the Selection menu, then Press GOTO				
Resume from Park. (Press #3)				
Enter the setup menu in the keypad (Press #2)				
Enter into the keypad options menu (Press #3)				
Enter into the keypad update menu (Press #5)				
🗹 Choose Reset Keypad (Press #2)				
Accept "RESETTING" your keypad will set all your entered data to default values (Press #1)				
After the Keypad is finished resetting, exit out to the main menu (Press Menu a few times)				
Power down the mount and wait for 30 seconds.				
Power up the mount and you are ready to enter your Location data.				
You Must Have All Boxes Checked to Proceed				
Exit Loader and start using your version 4.x Keypad				
EXIT				
Note: You will need to enter your location and time data into the keypad before you can start using the keypad in the field.				

10. Your GTO keypad is now updated to the new EPROM code and is ready to use. Turn the power to the control box off, wait 30 seconds, then turn back on. If the location selection screen comes up first, enter 0 and press GOTO. Then, press Resume from Park to get to the Main Menu.

If the keypad is locked up on the Astro-Physics 4.12 screen, it is likely that Auto-Connect was set to YES prior to the upgrade. Please follow the instructions below to resolve this issue.

11. Please refer to the 4.1x Information Manual for further instructions.

What to do if the keypad is locked up on Astro-Physics 4.12 screen

These are known causes related to the keypad. If you are unable to resolve the lockup with the suggestions below, there may be other electrical or mechanical reasons. Please call Astro-Physics.

The power was not turned off for a long enough period of time. Be sure to turn the power to the control box off for at least 30 seconds.

The keypad was set to Auto-Connect YES. To resolve this problem, you have two choices:

• Run Mount Test Utility.

- Establish a link to the mount with external software.
 - Set up the mount with the power cable. DO NOT PLUG IN THE KEYPAD.
 - Bring up an external computer program that will control the mount TheSky, DigitalSky Voice or PulseGuide etc.
 - Link to the mount with the software program.
 - Confirm that you are linked, for instance, slew to an object.
 - After you are linked, plug in the keypad.
 - The keypad should go to the Main Menu.

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