

Astro-Physics

Keypad Database Corruption and Reloading

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Corrupted Database

You may need to reload your database if you attempt to slew to an object catalog (Messier, NGC, etc) and your telescope moves to the wrong location or indicates that the object is below the horizon (and you know it is not). Check the coordinates of that item on the keypad (refer to your manual for instructions on how to do this). If the following information is incorrect, your database is corrupted: coordinates, object type, constellation or magnitude. Note that your keypad will slew to stars and planets correctly since the calculations and data for these objects reside in a different memory location.

Known causes of database corruption:

- If your keypad is dropped or suffers a blow that causes the internal battery to shift from its position momentarily and lose contact. This is unlikely to happen to keypads with serial number 1568GTO or later due to the different configuration of the battery.
- Your keypad battery needs to be changed. Battery life is estimated to be 5 years at room temperature. If you reload the database and it corrupts again a short time later, the battery may not have enough voltage.

The procedures below will enable you to reload your database. In order to use this database loader, you must have the proper microprocessor chip in your control box, and you must be running version 3.20 or later keypad firmware. Determine if you can use this database loader by removing the cover of the GTOCP1 or GTOCP2 control box. (The GTOCP3's can all use the database loader.) The label on the chip must be dated January 22, 2001 or later. Chips with an earlier date or no label at all, must be [upgraded](#). It is also important to distinguish between the Keypad Firmware and the Database. These are separate, independent items. As long as the microprocessor chip is correct and you have either firmware version 3.20 or 4.12, you can load the database. While earlier 4.x versions (ie. v.4.07) can also use the database loader, those of you with the earlier v.4.x programs should upgrade first to v.4.12.

Important Note: On rare occasions you may get an error message when attempting to run the "database_loader.exe". [Error message: "Handloader Component 'MSCOMM32.OCX' or one of its dependencies not correctly registered: a file is missing or invalid."] This means that your computer is missing a file component that helps COM Port communication. Simply download "MSCOMM32.OCX" (from a Google search) and place it in "C:\windows\system32" folder (XP, Vista, or Windows 7 32bit) or in the "SysWOW64" folder (Windows 7 64bit).

We strongly suggest that you print these instructions. [\[Printable PDF Version\]](#) Later in the procedure you will need to close all programs including your browser leaving you without

Download from the Internet or CD

1. Click on [database_loader.exe](#)
2. The file must be downloaded to the drive of your choice. Make a note of where you stored the file so you can find it later.
3. Find the database_loader.exe file that you just downloaded. Click on it to run the installer program. Follow the instructions on your screen.

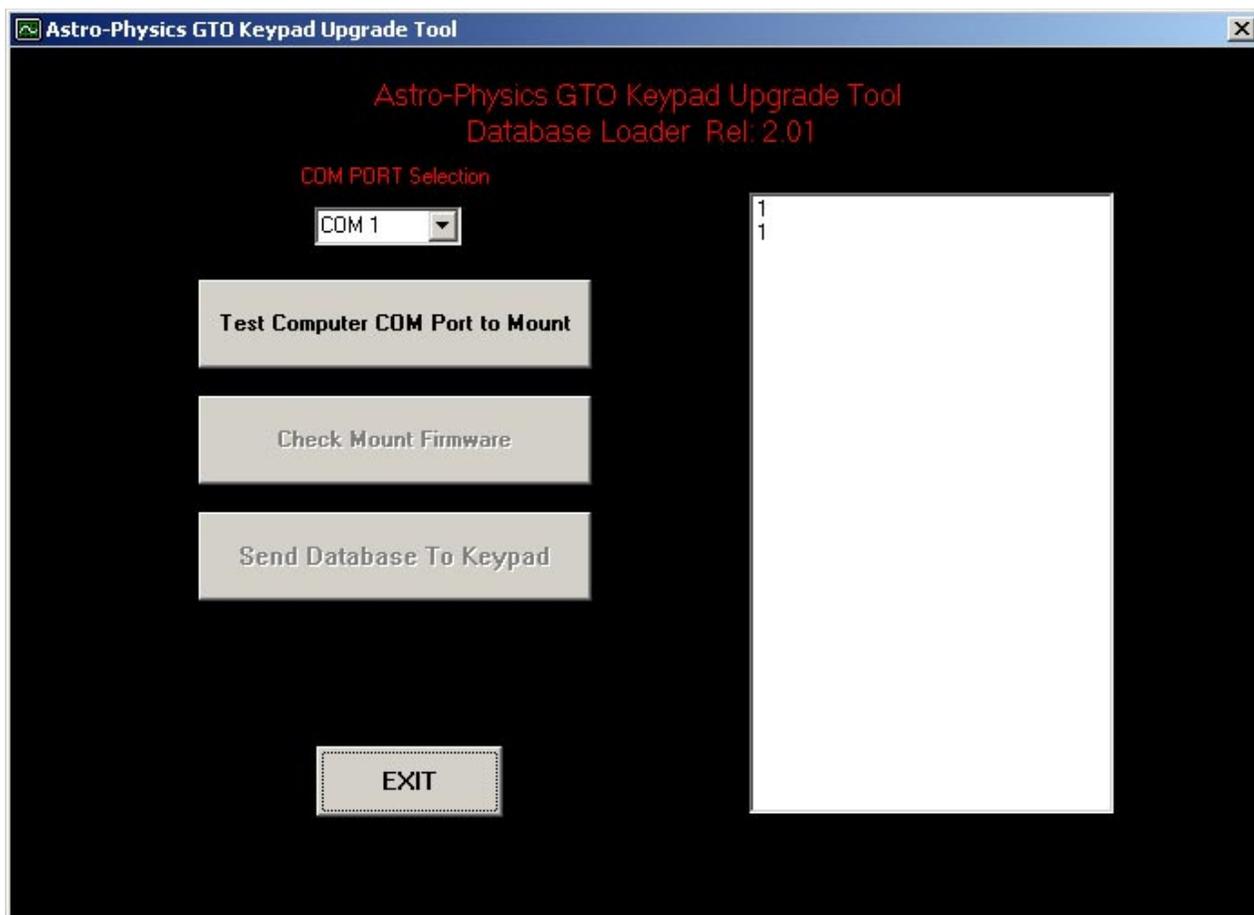
Setup the system

1. Before starting, set your keypad to: Auto-Connect = YES. (Main Menu. 2=Setup. 3=Keypad Options. 1 toggles to Auto-Connect = Yes) Once this is set, DISCONNECT the power to the GTO control box and DISCONNECT the keypad from the GTO Control Box.
2. Re-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.
3. 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:** These instructions assume that your keypad is set to Auto-Connect YES.
2. Start your PC. The Keypad Database Loader Tool will run under Windows 95 or later.
3. Assuming that you downloaded and installed the tool with the default file location settings, select Start | Programs | Astro-Physics | Keypad Data Base Loader Tool. The GTO 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.



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 the button labeled 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 message 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 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.
9. 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.

Database Upload

Do not try this procedure unless you have successfully completed the test above.

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

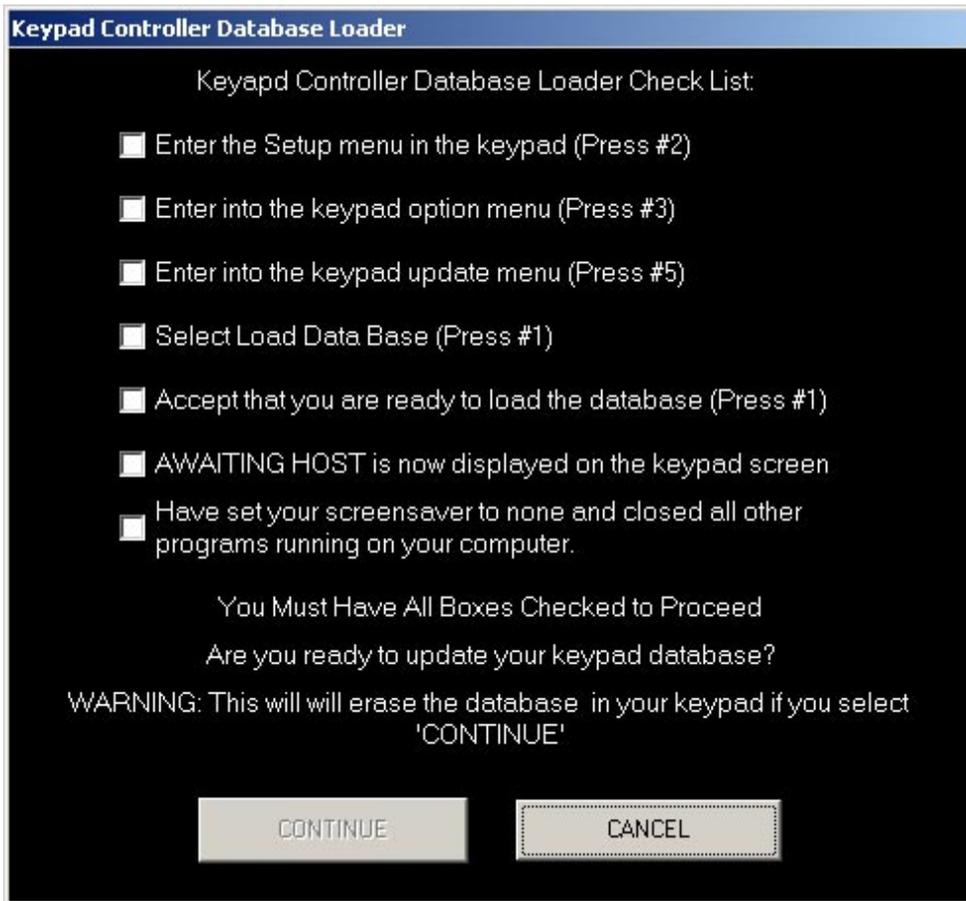
BE SURE THAT ALL OTHER PROGRAMS ON YOUR COMPUTER ARE CLOSED (INCLUDING VIRUS AND SPYWARE PROTECTION AND YOUR BROWSER). SET YOUR SCREEN SAVER TO "NONE". DO NOT ATTEMPT TO USE YOUR COMPUTER FOR ANYTHING ELSE WHILE THIS LOAD IS UNDERWAY.

1. The power to the control box should be on.
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. If your Auto-Connect is set to YES, the main menu will appear. Please follow the steps below for the firmware version loaded on your keypad.

Keypad Firmware Version 3.20 - Press 2= Setup, press NEXT> four times to get to the Mount Menu, press 4=Load. Then, press 1=Load to confirm. The words Awaiting Host will appear. On your computer screen, click the Send Database to Keypad button. The screen below will appear. The instructions that will appear (as shown below) pertain to the 4.12 version of the keypad. Simply click the boxes so that the Continue button will be active, then click on that button.

Keypad Firmware Versions 4.07 to 4.11 - Upgrade to version 4.12 first.

Keypad Firmware Version 4.12 - Press the Send Database to Keypad button on your computer screen. Follow the instructions that will appear (as shown below) and click off each step as you go. When you have clicked all of the boxes, the Continue button will be active. Click on that button.



4. As the database loads into the keypad, you will see the word CONNECTED on the top of the keypad display as well as the following words: Data:, Writing Page:, Writing Data: in the white box on the computer screen. You will also see numbers rapidly scrolling. Please note: The upload process may take well over half an hour to complete. WARNING: If you do not see the word CONNECTED on the keypad screen, but instead Awaiting Host remains, you probably have a keypad firmware version prior to 3.20 and you will not be able to load the database without first upgrading your firmware.
5. As the upload progresses, the white display box within the Keypad Database Loader 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.
6. When the upload is finished, the keypad will display the message: "Done. Press MENU to exit." Press the MENU button 5 times in succession to return to the main menu. Your GTO keypad is now loaded with the proper database and is ready to use. Turn the power to the control box off, wait 15 seconds, then turn back on and you are ready to go!.

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