



iEQ45 with 8407 Hand Controller Firmware Upgrade

The firmware of an 8407 hand controller, as well as the main control board, R.A. and DEC motor control boards can be upgraded by the customer. Please check iOptron's website, www.iOptron.com, under Support Directory, for the most up to date firmware.

To upgrade the firmware, you need some or all of the following software/hardware, depends on the upgrading you are performing:

- iOptron Upgrade Utility Program
- 8407 hand controller firmware
- iEQ45 main board firmware
- iEQ45 R.A. board firmware
- iEQ45 DEC board firmware
- RJ9 serial port to RS232 cable (included, for hand controller upgrade)
- RS232 cable (included, for control boards upgrade)
- USB to RS232 converter and driver. If your computer does not equip a RS232 port (9-pin D-shape connector) except the USB port, you need to buy a USB to RS232 converter, form a computer hardware store or on-line.

1. Find the serial port (COM port) number from your computer:

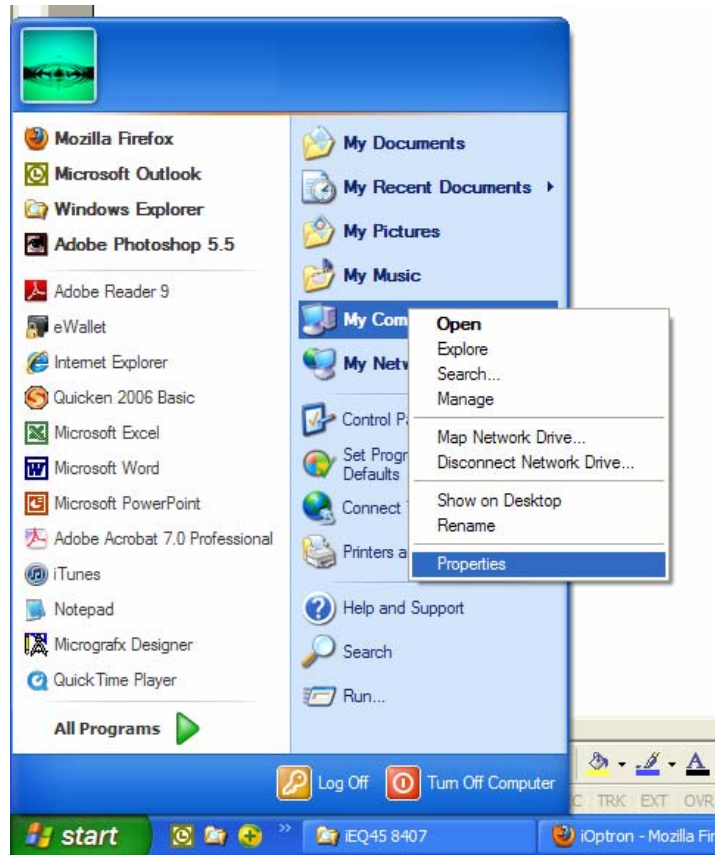
In order to perform the firmware upgrade (as well as to use planetarium software to control the mount), the communication between the PC and hand controller or mount has to be established.

The first step is to find the COM port number. If your computer has a serial port (9-pin D-shape male connector on the back, next to the 25 pin printer connector), the default assigned number is COM1.

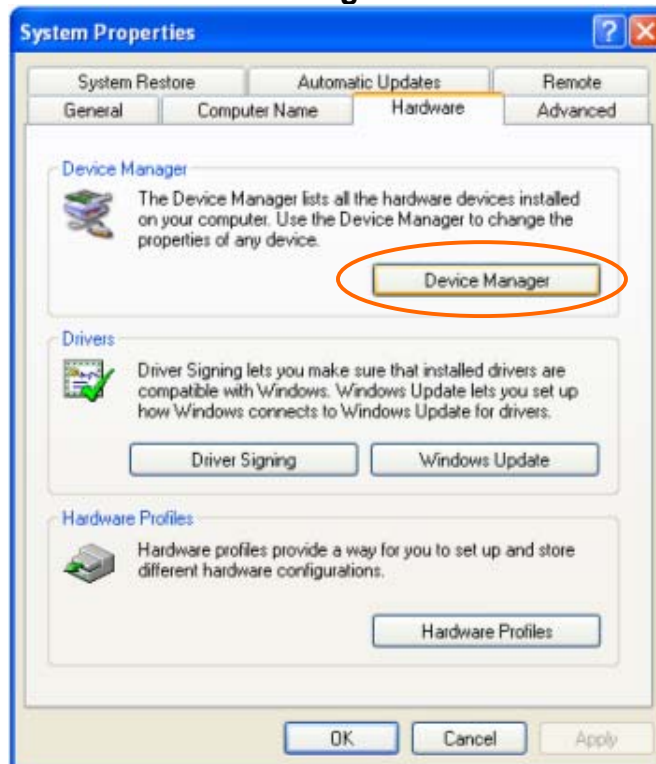
If your computer only has USB ports, like most laptops do, you need a USB to COM converter to convert one USB port to a COM port. Here are two examples of USB2COM converters.



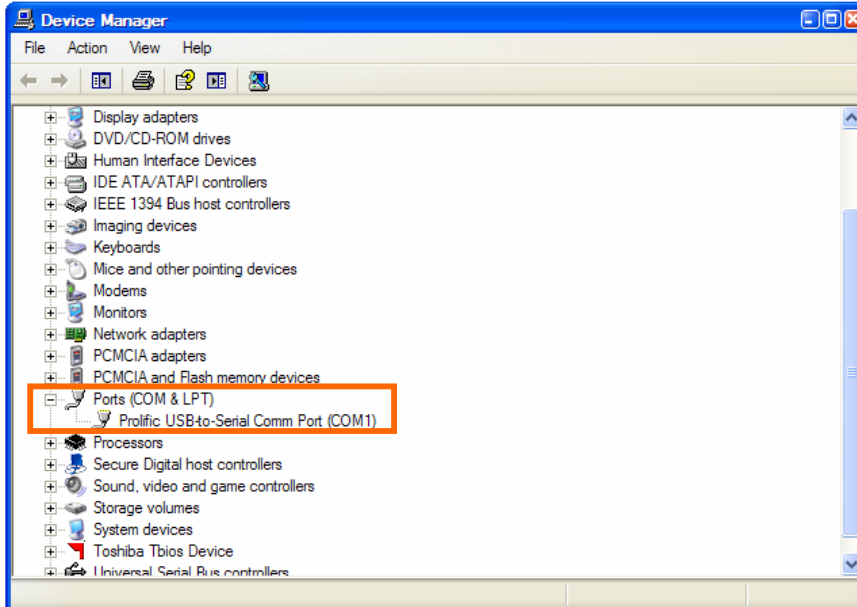
After install the USB2COM driver that comes with the device, click on **Start** located on the left bottom corner of your compute screen. Move the mouse to **My Computer** and right click on it. Move the mouse down and click on **Properties**.



Click on **Hardware** and select **Device Manager**.



Double click on **Ports(COM & LPT)**, find out the COM number and write it down (in the following figure, the USB2COM converter uses a Prolific chipset and the assigned port number is COM1)



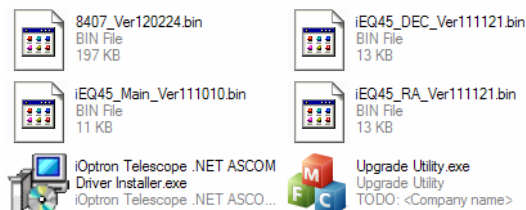
2. Download software and firmware from iOptron website:

Go to iOptron website, www.iOptron.com, click on **Download** tab. Locate **iEQ45 with 8407 hand controller** under **Software/Firmware Upgrades** catalog on the left part of the screen, and click on it.

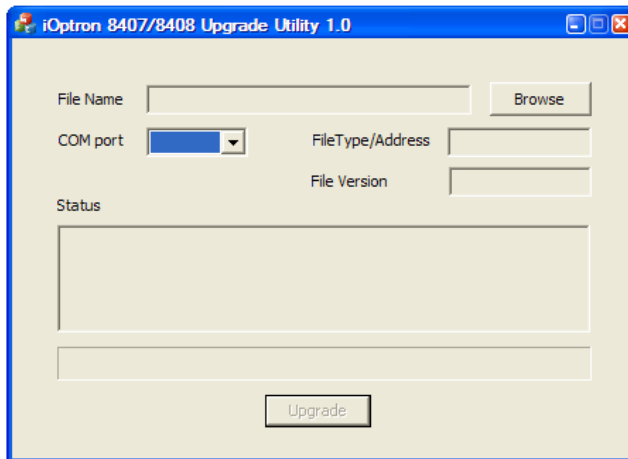
Download and save Upgrade Utility software, 8407 and/or iEQ45 board software as needed.

3. Upgrade 8407 hand controller firmware:

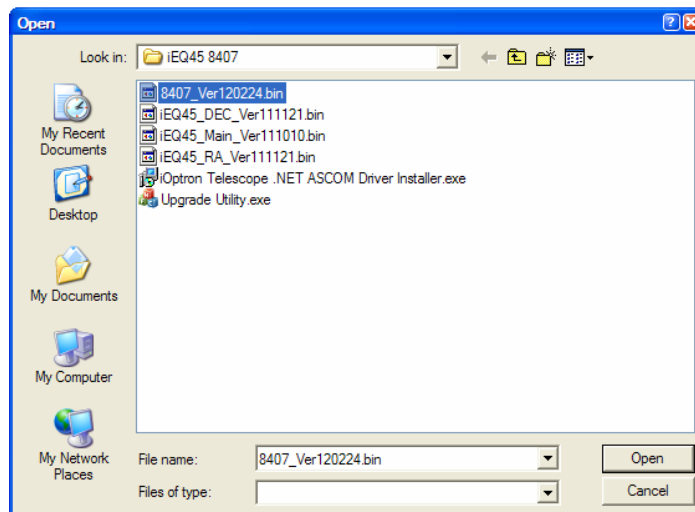
- (1) Connect 8407 hand controller to the HBX port of an iEQ45 mount. Make sure the mount power is OFF;
- (2) Connect RJ9 plug into the serial port of a 8407 hand controller and the 9-pin RS232 connector to your computer's RS232 port (or RS232 port of the USB2COM converter);
- (3) Hold **ENTER** button of the hand controller while switch the ON/OFF button to turn the mount power on;
- (4) Locate download software and click on **Upgrade Utility.exe**:



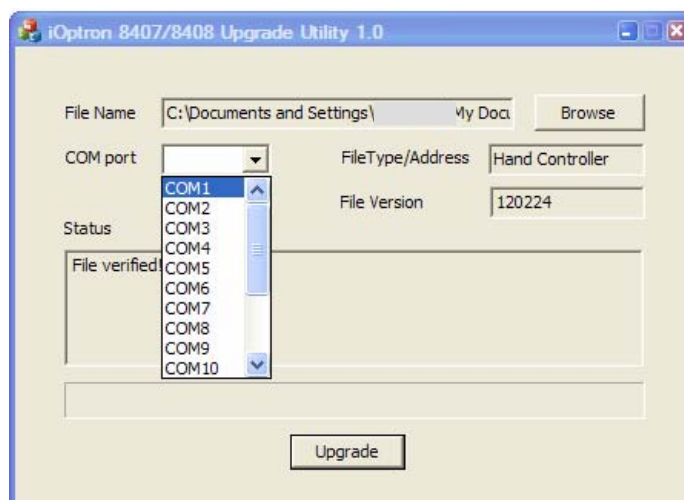
- (5) An iOptron Upgrade Utility window will display. Click on **Browse**:



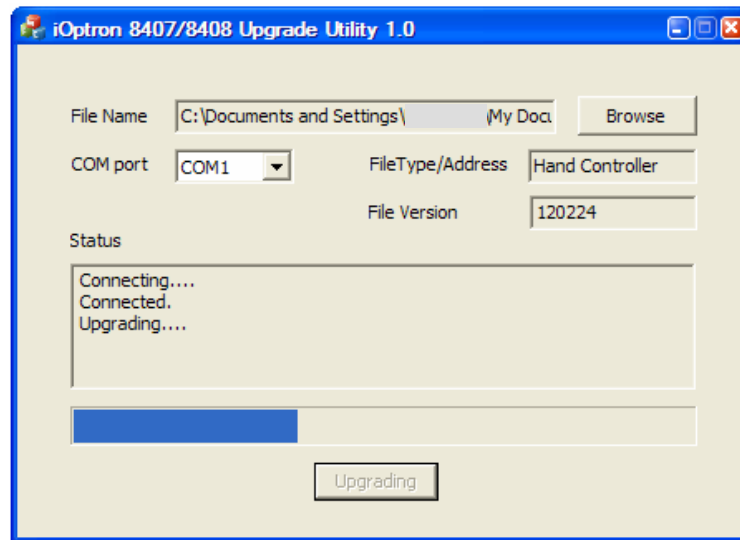
(6) Select hand controller firmware 8407_VerXXXXXX and click **Open**



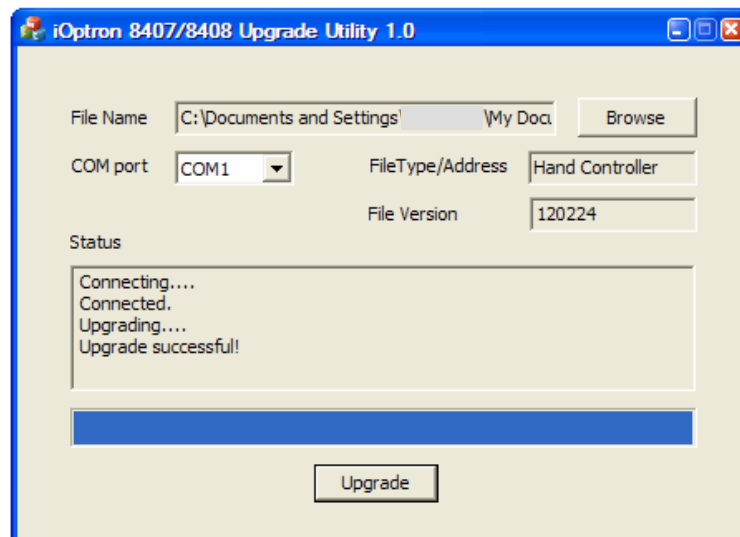
(7) The **FileType** and **Version** will be verified and displayed. Click on pull down menu of the COM port and select the COM port number. Here is **COM1**.



(8) Click on **Upgrade** button to start the process;



(9) After the firmware upgraded successfully, Exit the Upgrade Utility program.

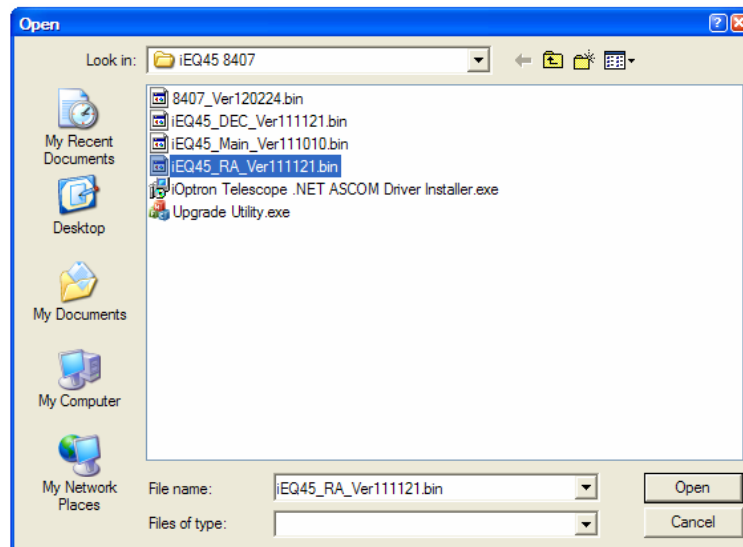


If the upgrade process was disrupted, wrong firmware is loaded, or the firmware does not successfully, just start over it again. Make sure a correct COM port is selected.

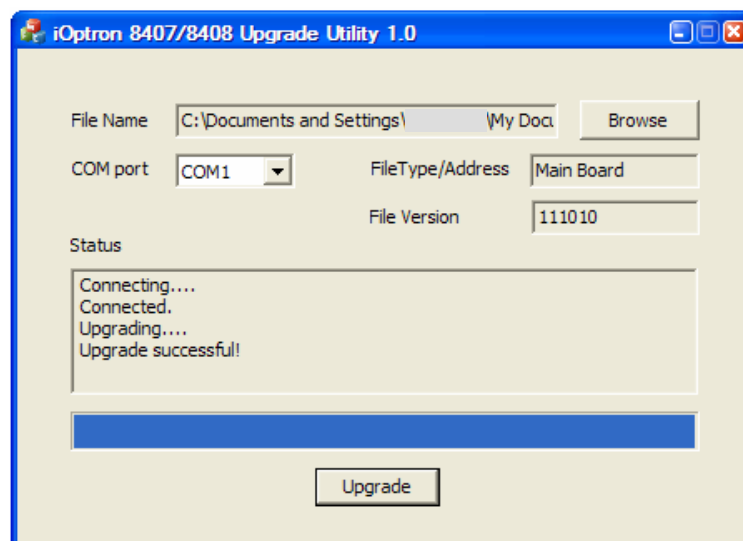
4. Upgrade iEQ45 main control board firmware:

- (1) Connect 8407 hand controller to the HBX port of an iEQ45 mount. Make sure the mount power is OFF;
- (2) Connect mount main board to your computer's RS232 port (or RS232 port of the USB2COM converter) using supplied RS232 cable;
- (3) Locate download software and click on **Upgrade Utility.exe**:

- (4) Click on **Browse** in iOptron Upgrade Utility window. Select main board firmware iEQ45_Main_VerXXXXXX and click **Open**



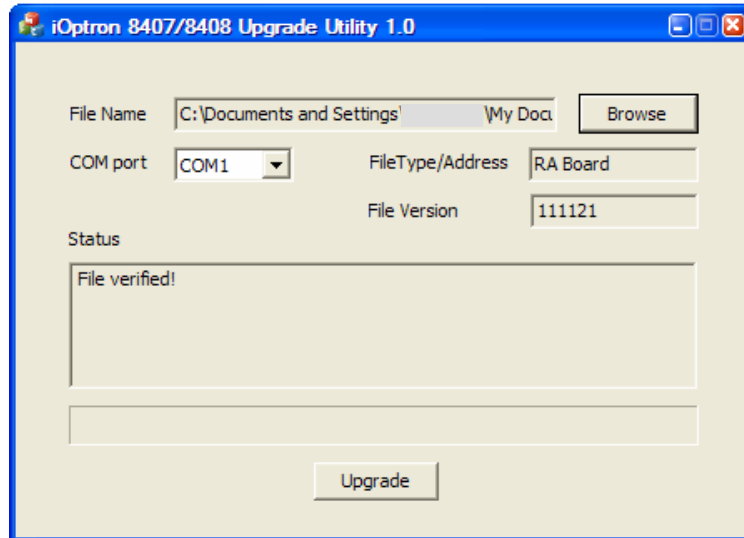
- (5) Click on pull down menu of the COM port and select the COM port number. Here is **COM1**. Click on **Upgrade** button. Switch the ON/OFF button to turn the mount power on. The upgrading process will begin. After the firmware upgraded successfully, exit the Upgrade Utility program.



5. Upgrade iEQ45 R.A. or DEC control board firmware:

- (1) Connect 8407 hand controller to the HBX port of an iEQ45 mount. Make sure the mount power is OFF;
- (2) Connect mount main board to your computer's RS232 port (or RS232 port of the USB2COM converter) using supplied RS232 cable;
- (3) Switch the ON/OFF button to turn the mount power on.

- (4) From your hand controller, press **MENU** button, select **Set Up Controller → Upgrade RA & DEC**, enter password (9999), then select **Upgrade R. A. Board** or **Upgrade DEC Board**;
- (5) Locate download software and click on **Upgrade Utility.exe**:
- (6) Click on **Browse** in iOptron Upgrade Utility window. Select R.A. or DEC board firmware, such as iEQ45_RA_VerXXXXXX and click **Open**;
- (7) Click on pull down menu of the COM port and select the COM port number. Here is **COM1**. Click on **Upgrade** button. The upgrading process will begin.



- (8) After the firmware upgrade finished, exit the Upgrade Utility program.

