

# CEM26/GEM28 Firmware Upgrade

The firmware of CEM26 and GEM28 mount is customer upgradable. The upgrading process is only supported by Windows. Please check iOptron's website, [www.iOptron.com](http://www.iOptron.com), under **Support**, for the most up to date firmware.

The firmware upgrade will be done via the USB2.0 port on an 8409 hand controller.

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 (*Version 2.01*);
- Mount firmware upgrade package;
- FTDI VCP (Virtual COM Port) driver if this is the first time connecting the mount to a computer.

## Step 1. Download files

Go to CEM26 or GEM28 product page. Download FTDI VCP driver, iOptron Upgrade Utility and CEM26GEM28 firmware package. Save them on your computer desktop or designated folder.

## Step 2. Install FTDI VCP driver

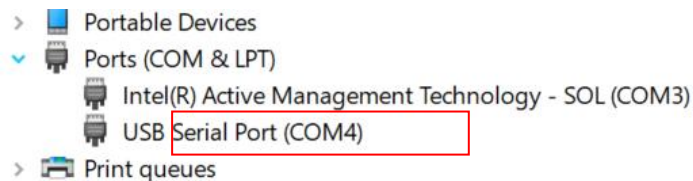
If this is the first time you connect the mount to a computer, please run FTDI VCP installer. If you've done firmware upgrade before or run the mount via iOptron Commander, you may skip this step.

## Step 3. Find the COM port number

Plug USB B plug of a USB cable into the USB port on a 8409 hand controller as shown below. Plug the USB A plug into any available USB port of the computer.



Click on Windows Device Manager to find the assigned COM port for the USB connection. Here the port # is COM4.

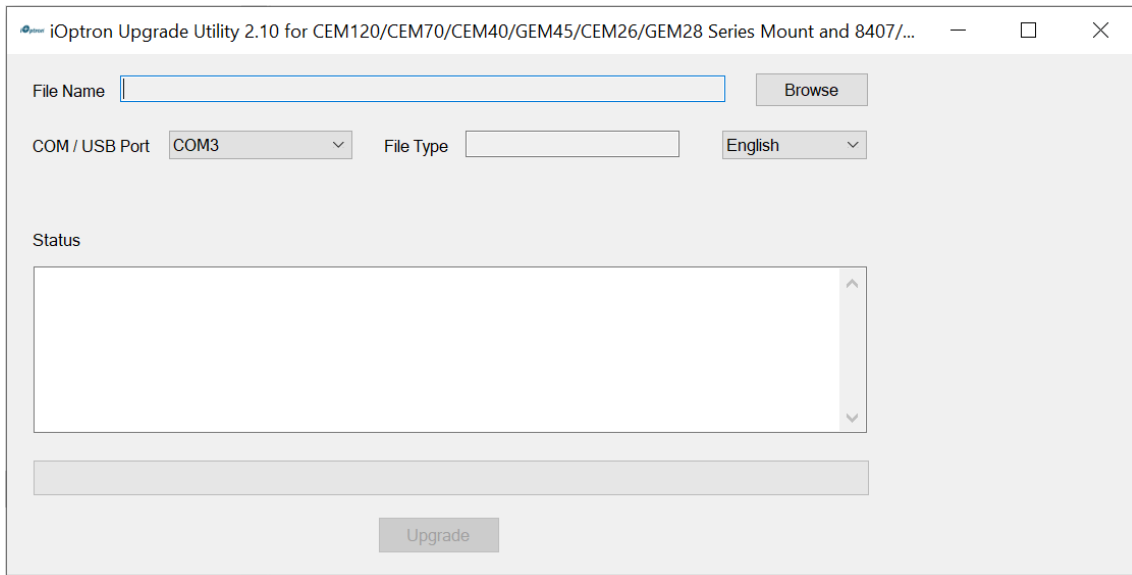


## Step 4 Upgrade firmware

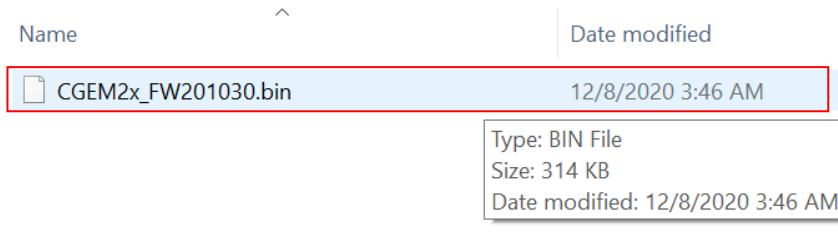
(1) Locate downloaded software and click on ***iOptronUpgradeUtility.exe***.

Name	Date modified
CGEM2x_FW201030.bin	12/8/2020 3:46 AM
<b>iOptronUpgradeUtility.exe</b>	<b>1/21/2021 5:29 PM</b>

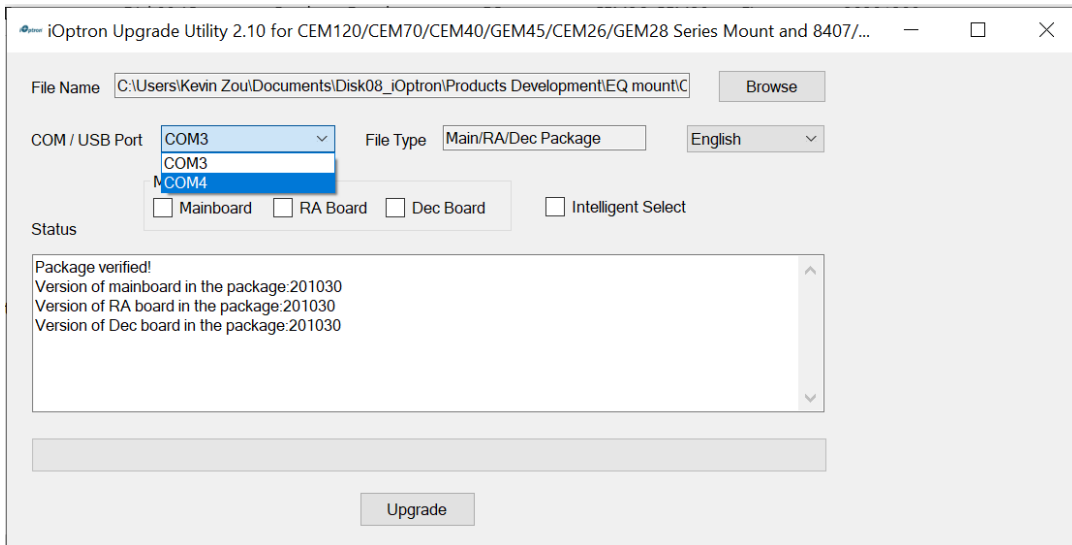
This will bring up the upgrade window:



- (2) Click on **Browse** in iOptron Upgrade Utility window. Select the mount firmware package, such as CGEM2x\_FW201030.bin, and click **Open**;

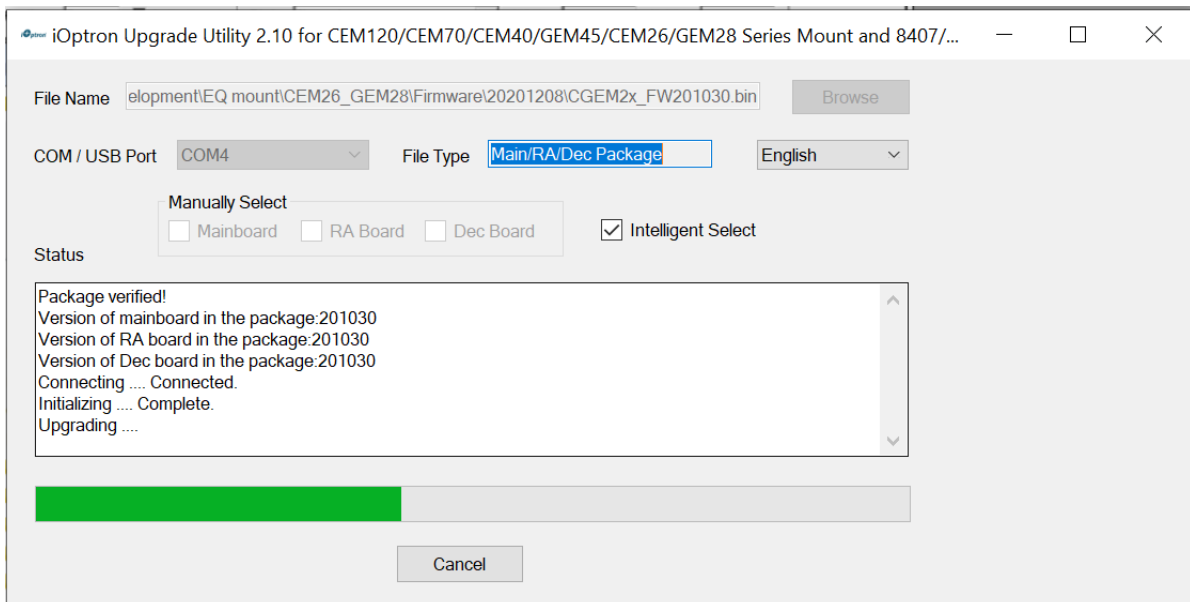
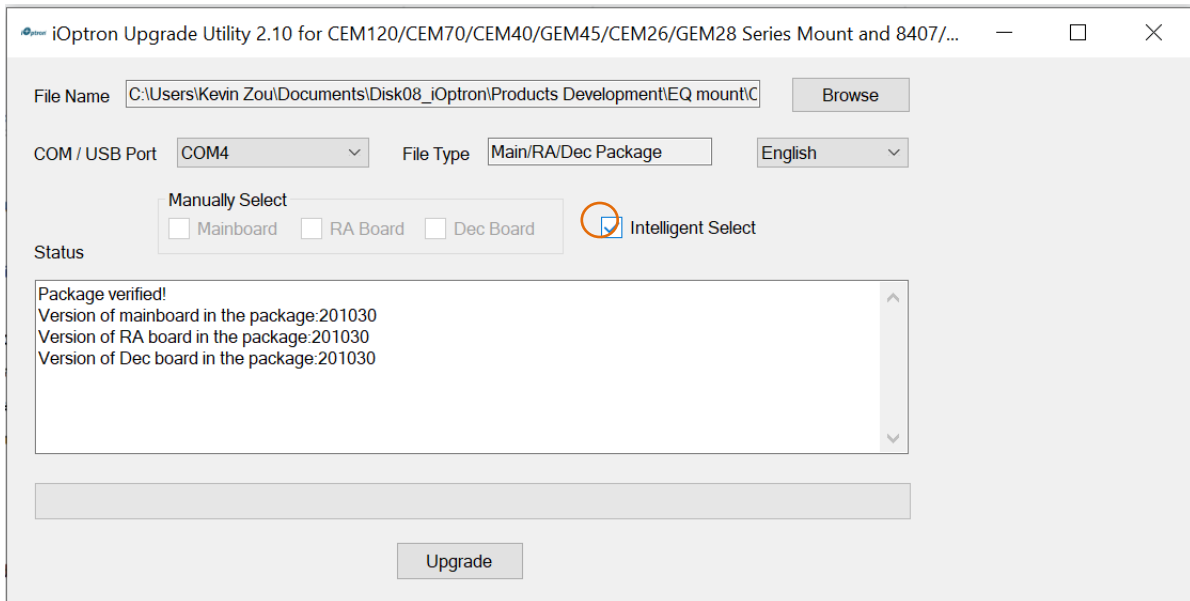


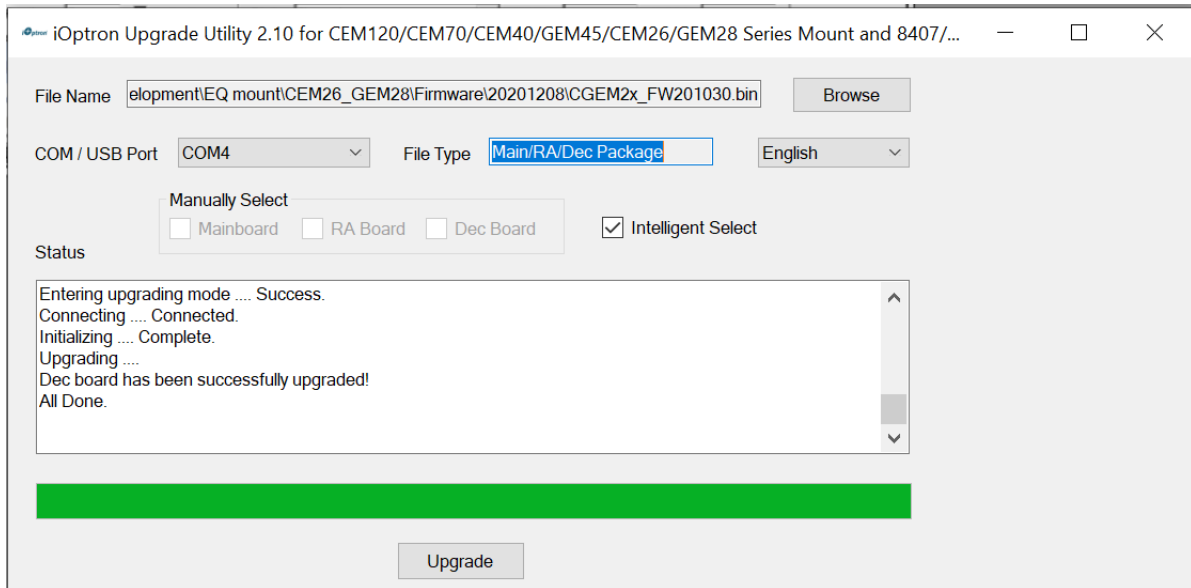
- (1) The **FileType** and **Version** will be verified and displayed. Select the COM4 from **COM/USB Port** pull down menu.



- (3) Now you can choose **“Intelligent Select”** to let the software decided which part of mount firmware needs be upgraded, or use **“Manually Select”** to select which firmware you want to upgrade.

If chose “**Intelligent Select**”, check the small box in front of it and click on **Upgrade** button. If any or all firmware needs be upgraded, or “**Manually Select**” is chosen, the software will do so.





- (4) Power cycling the mount. Check your firmware version after all four firmware upgrade is finished by press **MENU→Firmware Information**.
- (5) Exit the **Upgrade Utility** program.

### Calibration CEM26EC and GEM28EC high precision encoder:

CEM26EC and GEM28EC version needs to perform encoder calibration after the firmware upgrade to ensure precise tracking.

To calibrate the encoder:

- (1) Send the mount to Zero Position by using GOTO Zero Position.
- (2) Turn off the mount.
- (3) Press and hold number "2" button on the hand controller when power on the mount. The calibration process will start automatically.

The mount will swing to the eastern side quickly. Then will slowly move from eastern side to western side to calibrate the encoder. It will return to Zero Position after the calibration is finished. The total procedure may take a few minutes.

- (4) After the mount stopped, turn off the mount, and turn on again.

### Common errors during firmware upgrade:

- (1) COM port cannot be opened:
  - Wrong COM port is selected;
  - A mount is not connected;
  - Cable is not plugged in firmly;
  - FTDI VCP driver is not installed

(2) Connection failed:

- Mount power is not turned on;
- Cable is not plugged in firmly;
- Malfunctioned control board;
- Wrong firmware selected.

(3) Upgrade stopped in the middle or failed:

- Cable is not plugged in firmly;
- Cable is moved during process;

Contact [support@ioptron.com](mailto:support@ioptron.com) for technical support.