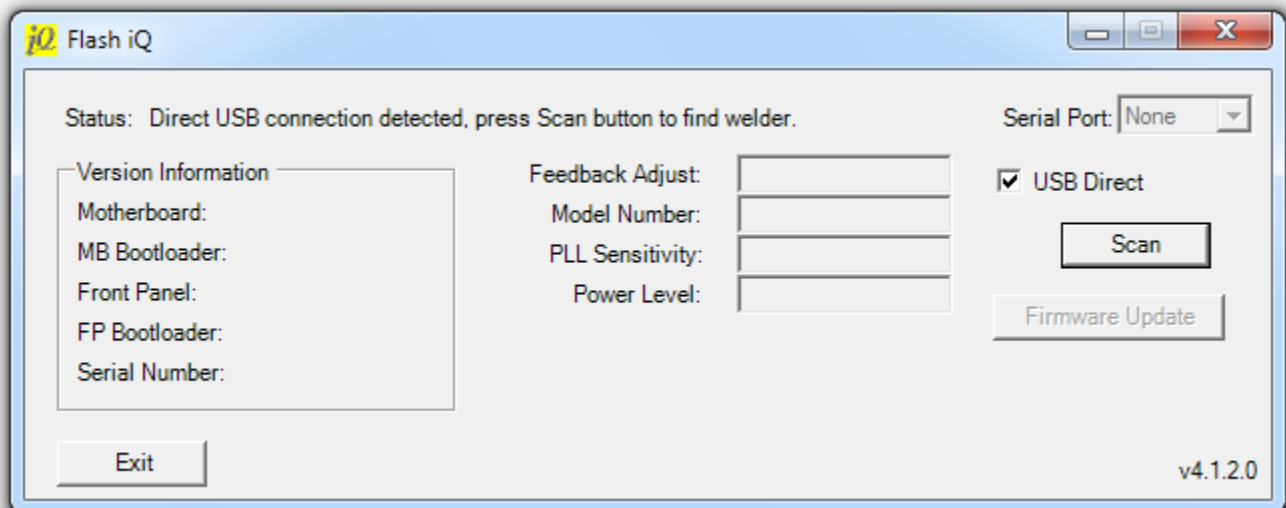




# Updating the Generator Firmware Using the *iQ Flash* Application



## Introduction:

All of Dukane's *iQ* Series generators operate due to various pieces of firmware. Built into every generator is the capability to update its firmware in the field. This avoids the need to send the *iQ* generator to Dukane for a software update due to new features or to resolve defects.

To update the firmware on an *iQ* generator, Dukane makes a PC application, available to the customer, called "*iQ Flash*". The software is typically installed on to a PC desktop computer or laptop, but it can also be installed on a standard Dukane industrial HMI.

Dukane can provide new firmware files, when needed. *iQ Flash* will identify the generator and after following a few easy steps, will be a guide to the upload process.

*Firmware upgrades are provided at no cost to Dukane customers.*

The *iQ Flash* application works on almost all of Microsoft's operating systems. It requires Microsoft dotNet Framework version 2.0 to run. All operating systems Microsoft provides, since the release of Windows Vista, includes version 2.0 of the dotNet Framework by default. If you want to use *iQ Flash* on a Windows XP system, you will need to install dotNet Frameworks 2.0 before installing *iQ Flash*. The dotNet Framework software can be found on Microsoft's website at the following links location: [Microsoft's dotNet 2.0 Framework](#).

## System Configuration:

For computers with standard DB9 serial ports, use a straight-through female/female serial cable (not null modem). A serial cable can be purchased from Dukane (Part #200-1126).

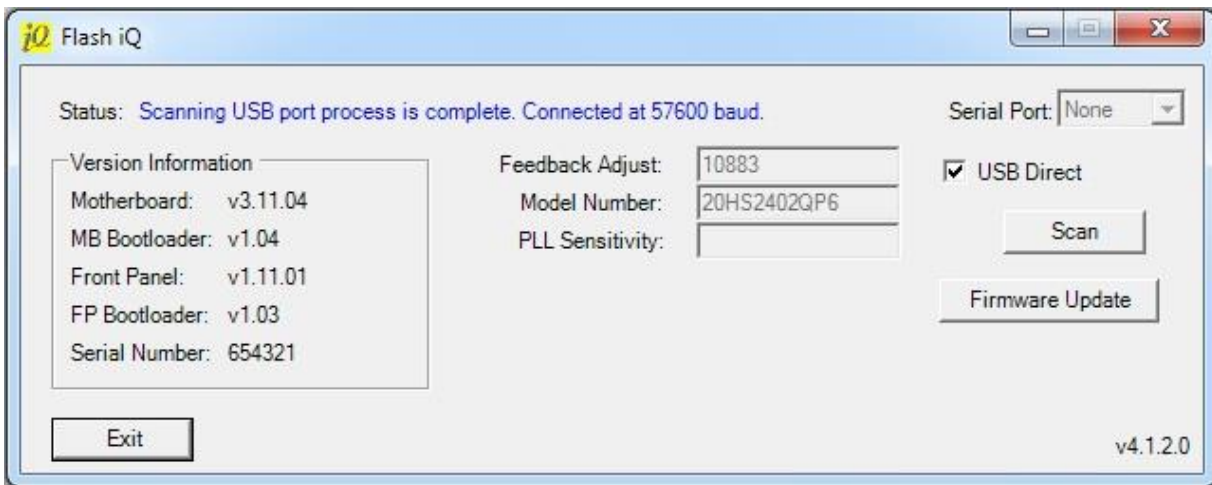
For computers with USB ports only, use a straight-through female/female serial cable with a USB to Serial Adapter. Dukane recommends using a FTDI USB-to-Serial Converter. FTDI adapters can be purchase from DigiKey (Part #768-1013-ND).

Some Dukane generators can be updated using a standard "Type A" USB cable. These generators do not require a serial cable or USB to Serial Adapter.

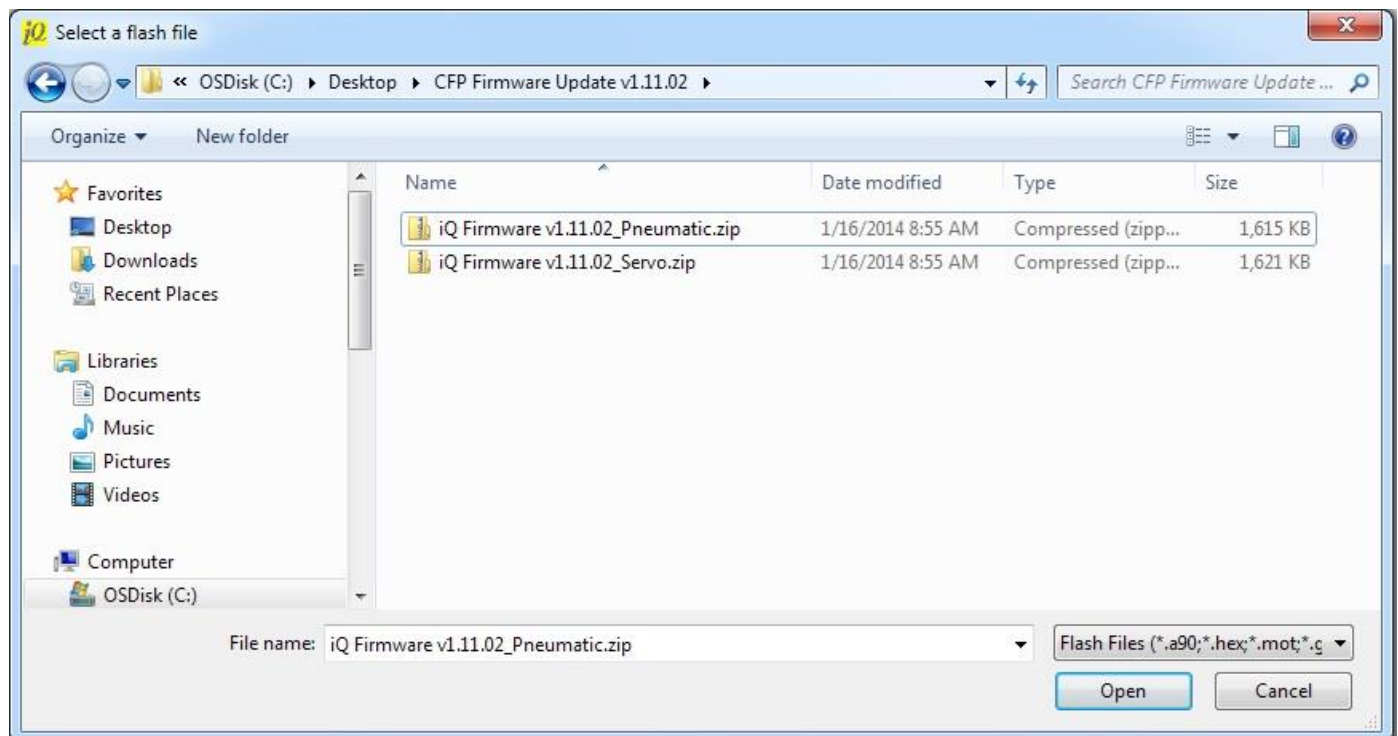
1. Connect the serial cable between the computer/laptop COM Port and the generators Configuration Port (J4). If using a USB cable, connect the USB cable between the computer/laptop USB port and the generator's USB port.
2. Switch ON the power to the generator and press the front panel OFFLINE button.  
**NOTE:** Older "A" Series generators do not have an OFFLINE button on the front panel. To place the generator OFFLINE, it must be done from the Utilities tab found in the *iQ Explorer* software.
3. Double-Click the *iQ Flash* icon, located on the desktop, to open the application.
4. If using a serial cable only, select the appropriate COM port that the serial cable is plugged into from the drop-down list. If using a serial cable with a FTDI adapter or a USB cable only, the COM port does not need to be selected.
5. A typical firmware update includes updating the generator's motherboard and front panel boards. If the generator is for a servo system, then the servo controller firmware, located in the thruster or external controller box, is updated first.

#### Flash Updating the Firmware:

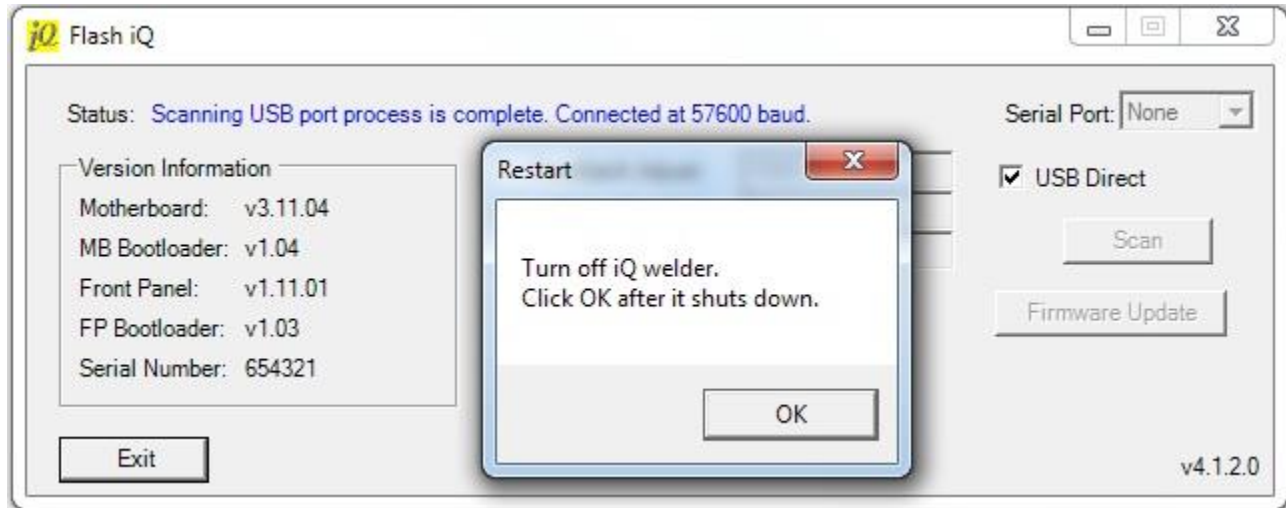
1. Click the “Scan” button and the application will connect to the generator as shown below. Note that the application identifies all but the servo controller’s version information. All of the firmware versions, including the servo controller’s version can be found from the generator’s front panel INFO or HELP screen. In this example, a serial cable with a FTDI adapter is used to update a “Q” series color front panel pneumatic system.



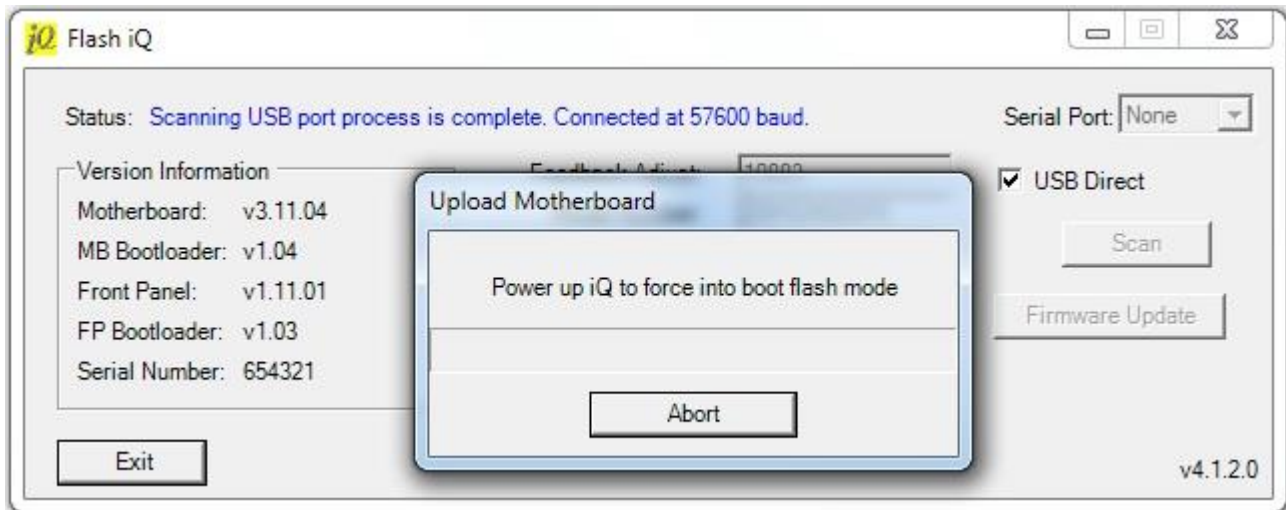
2. After connecting to the generator, click on the “Firmware Update” button and navigate to the appropriate firmware update file and select it. Click the “Open” button. A typical firmware update file is in a zip format, however, the individual firmware files located in the zip file can be unzipped and used to update only an individual board.



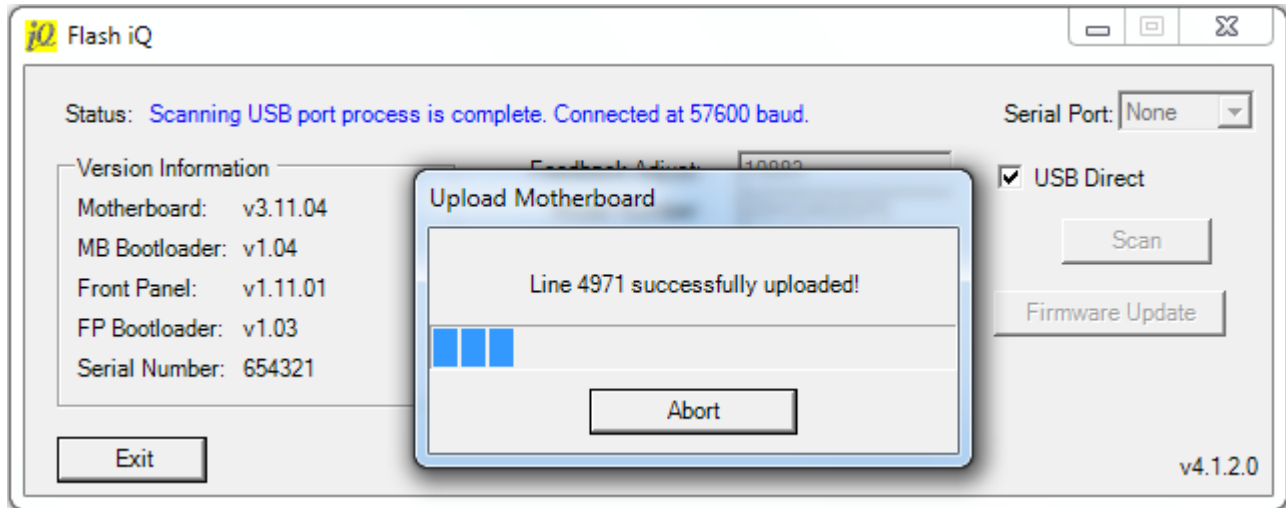
3. Switch OFF the power to the generator and click the “OK” button.



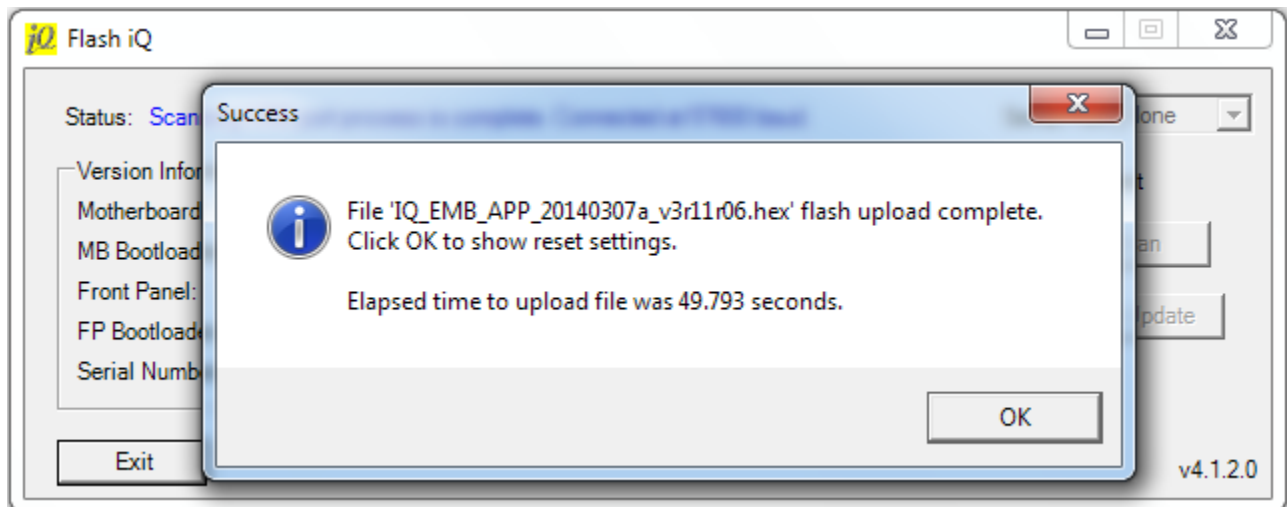
4. After the power to the generator has been OFF for 5 seconds or more, switch ON the power to the generator or press the “Abort” button to cancel the update process as shown below.



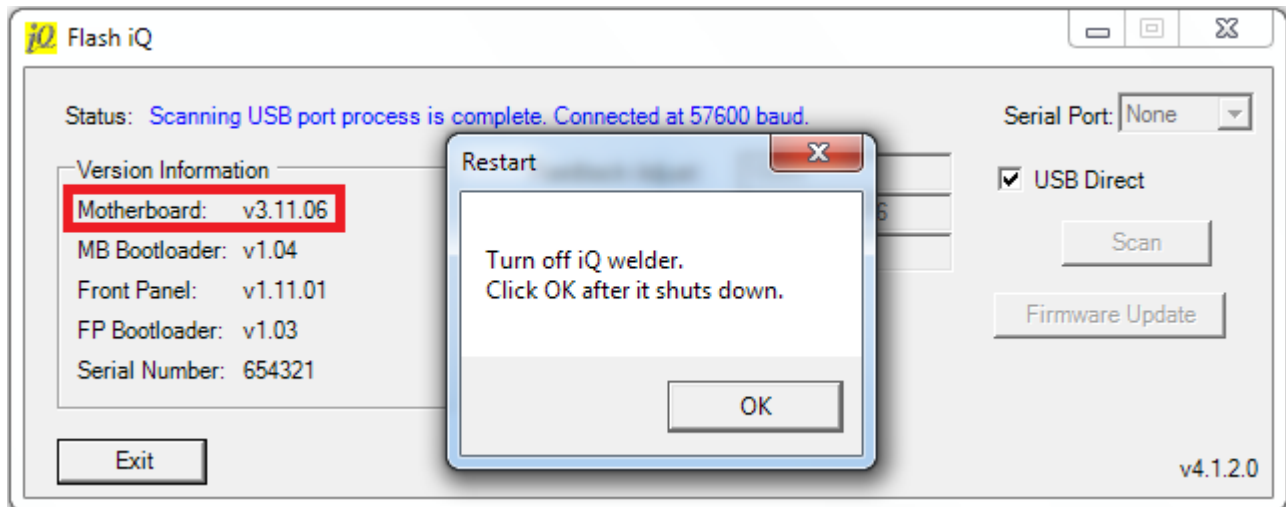
5. Switching ON the power to the generator starts the upload process of the motherboard as shown below.



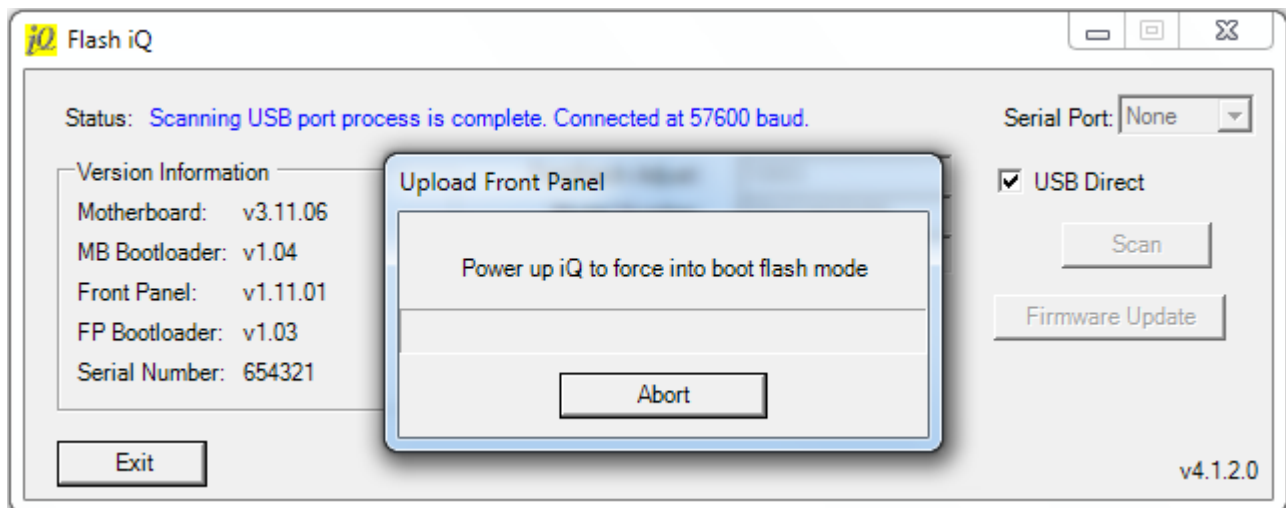
6. A successful upload will display the motherboard firmware filename and the elapsed time of the upload as shown below. Click the OK button.



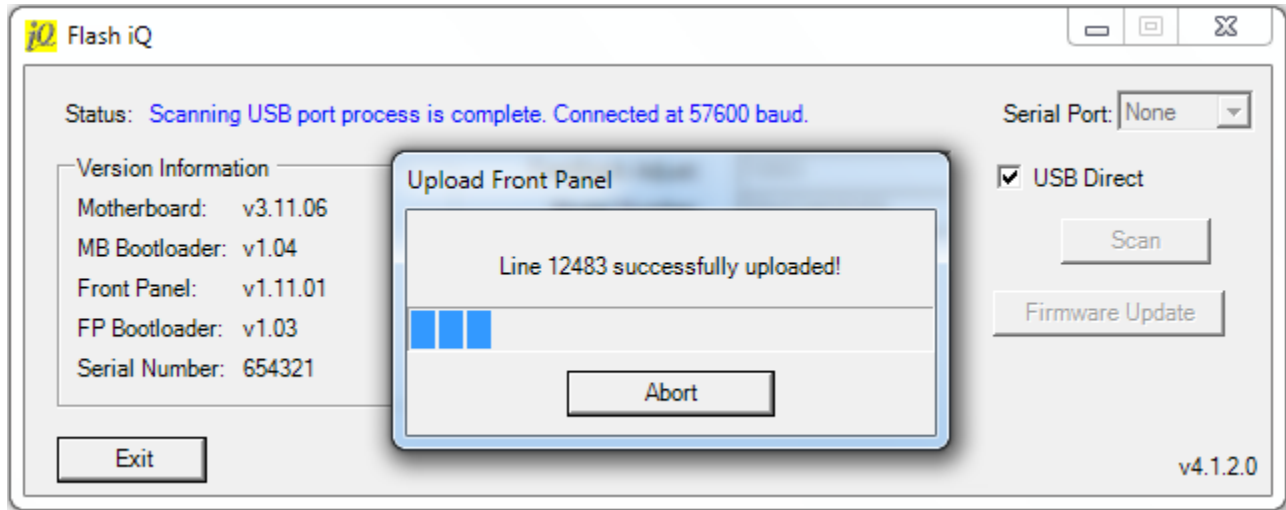
- The update to the generator motherboard firmware has been completed. Notice that the motherboard version now displays the new updated version. The application now begins the upload to the front panel firmware. Switch OFF the power to the generator and click the "OK" button.



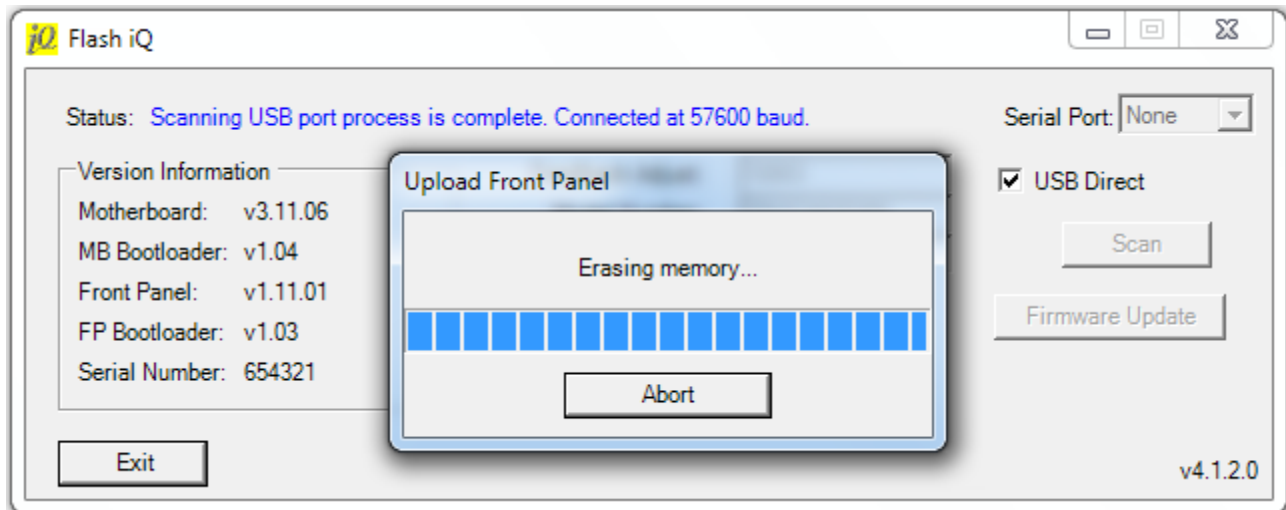
- After the power to the generator has been OFF for 5 seconds or more, switch ON the power to the generator or press the "Abort" button to cancel the update process.



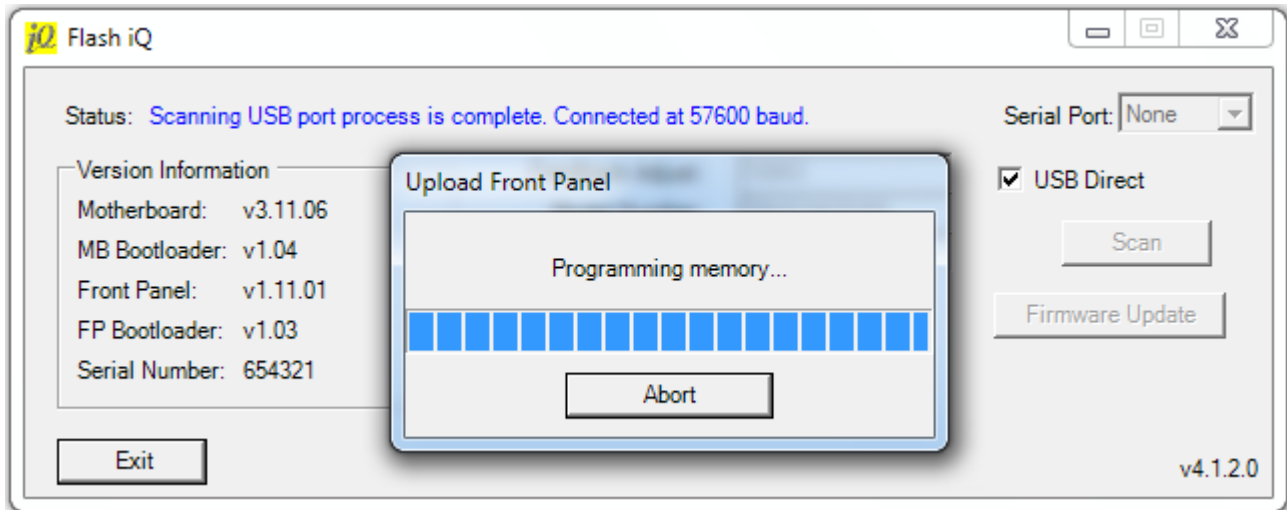
9. Switching ON the power to the generator starts the upload process of the front panel as shown below.



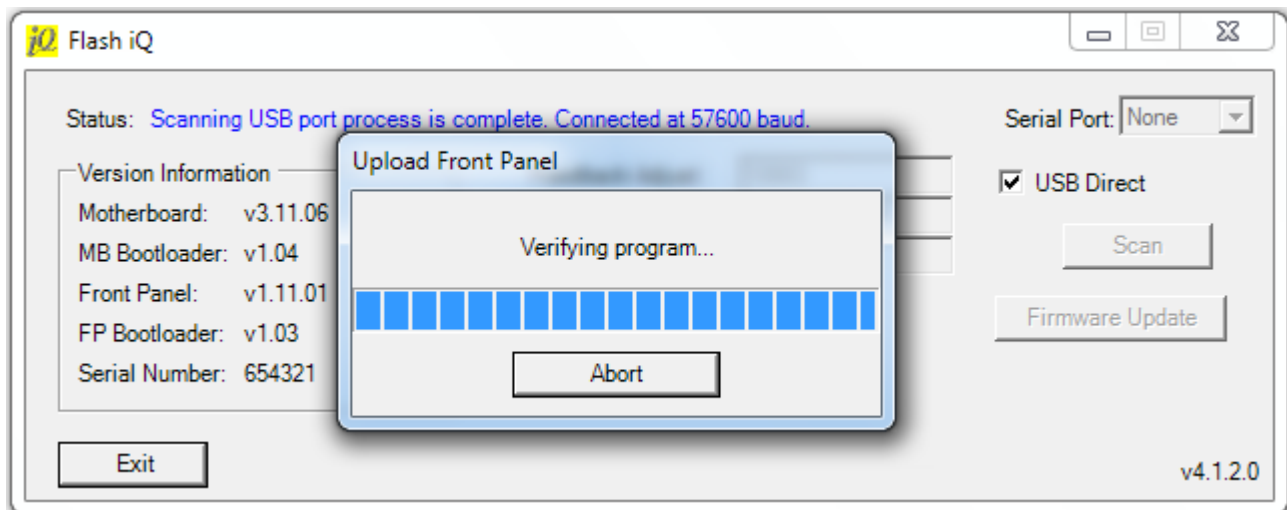
10. A successful front panel upload will begin the first of three front panel programming stages. In the first stage, it erases the existing firmware.



11. In the second stage, it programs the new firmware.

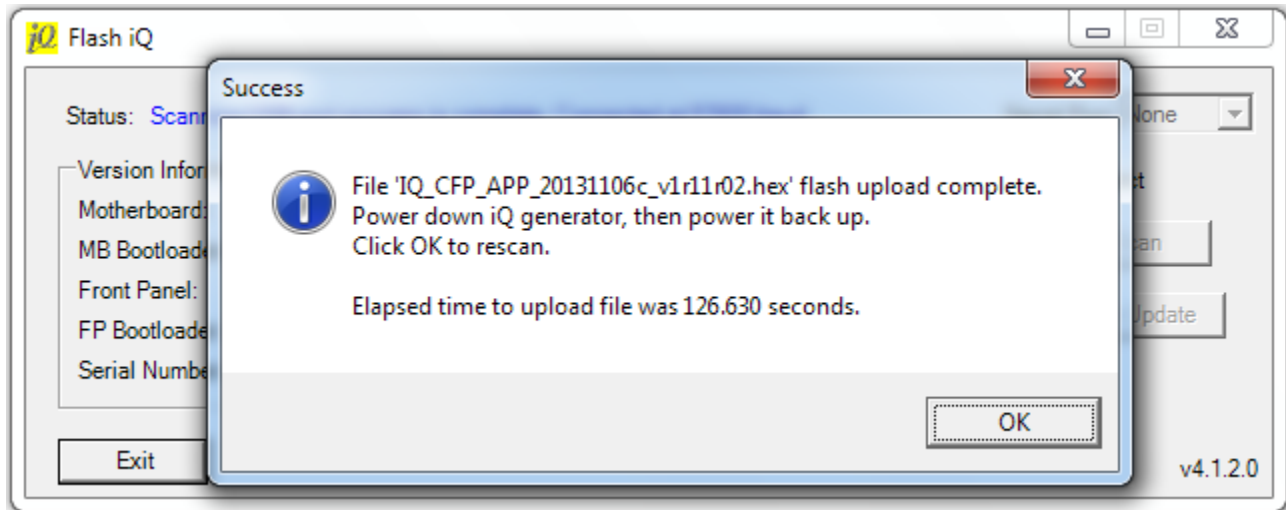


12. After the programming stage has finished, the third stage of verifying the front panel begins.

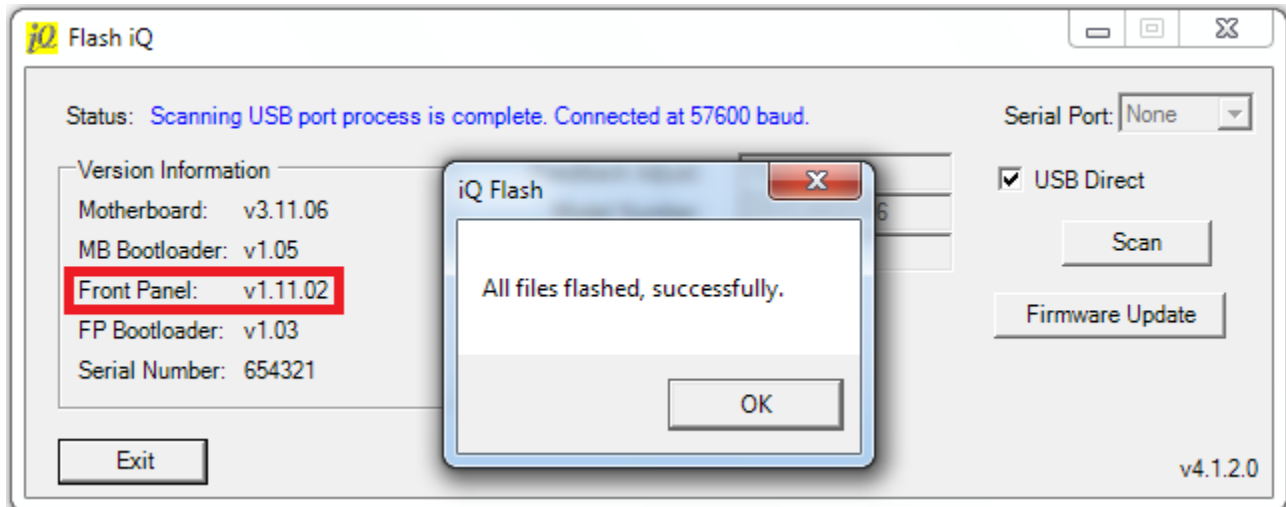




13. A successful upload will display the front panel firmware filename and the elapsed time of the upload as shown below. Click the OK button.



14. A completely successful upload will display that all of the files had flashed successfully as shown below. Notice that the front panel version now displays the new updated version. Click the OK button.



15. From the "Main Menu" press the "Utilities/Hardware" button and then the "Hardware Setting" button. Navigate to the bottom of the screen and select "Restore Factory Defaults". Press the "Restore Defaults" button, and then press "Yes".
16. After the restore has completed, the setup can now be entered manually or loaded from the iQ Explorer II software.

**Dukane IAS, LLC**  
**Intelligent Assembly Solutions**

2900 Dukane Drive  
St. Charles, IL 60174 USA  
Tel: (630) 797-4900  
Fax: (630) 797-4949  
<http://www.dukane.com/us>

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