NIS Elements Driver

89 North PhotoFluor 2

Installation and Setup

Rev 1.00

By: Austin Blanco

2011

Table of Contents

Requirements for Operation

In order to use this driver on your system you'll need the following hardware and software components:

- NIS Elements AR, or NIS Elements BR with Advanced Interpreter
- Administrator Installation rights on your PC
- NIS Elements version 3.22 or higher
- One available Serial port, capable of 19,200 Baud, or the included USB to Serial adapter supplied with new PhotoFluor 2 units.
- Windows XP Service Pack 3 or Windows 7 (x32 / x64)

Hardware Connection

The PhotoFluor unit must be connected to the PC, using the provided Serial cable (or if you don't have this cable any straight "extension" cable may be used. A null modem cable is not used with the PhotoFluor 2.

Either connect the PC side of the cable to the PC itself, making sure to identify the serial port in use, or connect the cable to the supplied USB to Serial Adapter (Fig 1).

Figure 1 – USB to Serial Cable

If using the USB to Serial Adapter, make sure that the driver is properly installed and operational in Windows Device Manager. Also make note of the Com # for your serial adapter. In Fig 2 below the Com # is Com-12.

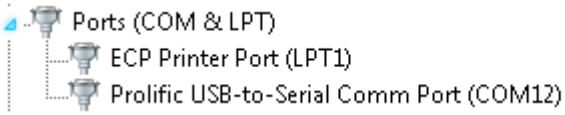

Figure 2 – Com port correctly installed in Windows Device Manager

Software Installation

1. Extract the “PhotoFluor_v1**.mac” file into your macro directory. If you don’t use a custom macro directory, the default path is c:\program files\nikon\shared\macros.
2. Browse to your Nikon Elements program folder using the Start menu, and locate the “Modify Installation” program. Run this program. (Figure 3)

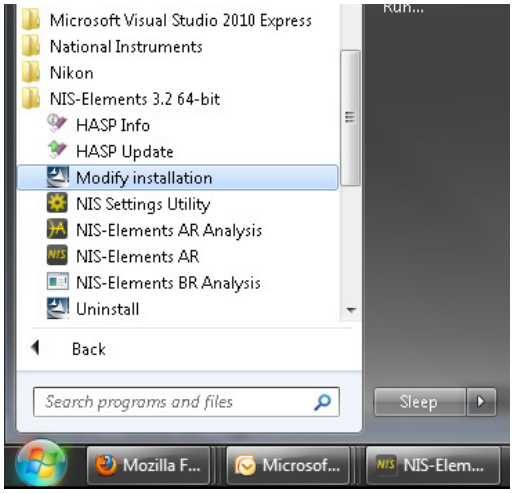

Figure 3

3. Please do not modify any settings other than the hardware devices. This will ensure we don’t affect any other hardware devices during install.
4. In the “Devices” page, select the “Other” devices group, and check the boxes for “General Shutter” and “General Filter”.
5. Continue through the remaining “modify installation” pages until the installer is complete.
6. Open NIS Elements
7. Under the Macro menu, select “open”.
8. Browse to the macro file and open it.
9. Press F8 or select the Macro Menu, then “edit” to open the macro.
10. At the top portion of the macro, you’ll see a line reading “pfserial = 6;“. See figure 4 below. Change the 6 value, to the number of your COM port.
11. Save the macro and close the editor.
12. Press F-4, or select macro menu, and click Run, to load the macro functions.

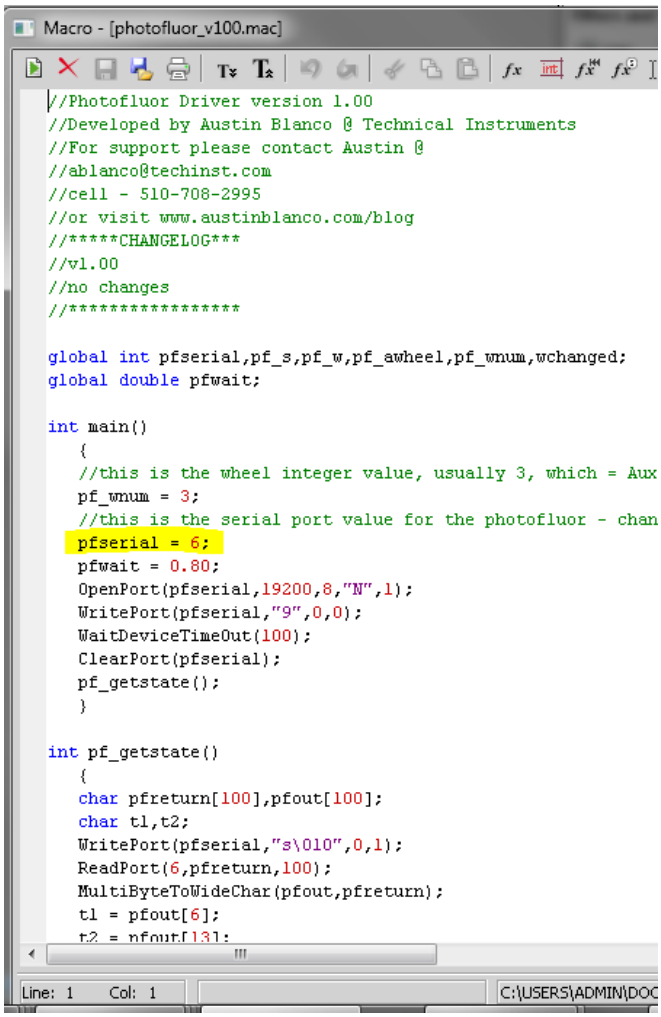

Figure 4

13. Select the Devices Menu, then click “Manage Devices”.
14. Under the Manage Devices window, click the “Add” button, and select the “General Filter” Device.
15. When you add the device, it will show up in the connected hardware list. Click on the filter device itself, then click the “Device parameters” button. (Figure 5)

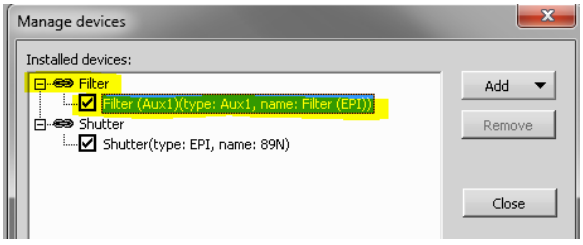

Figure 5

16. Set the filter type to “Aux 1”. Set the # of filters to 5.

17. In the “Set Position” and “Get Position“ boxes, type in the following text, (refer to figure 6 below)
    Set Position box should read “pf_change();”
    Get Position box should read “pf_checker();”

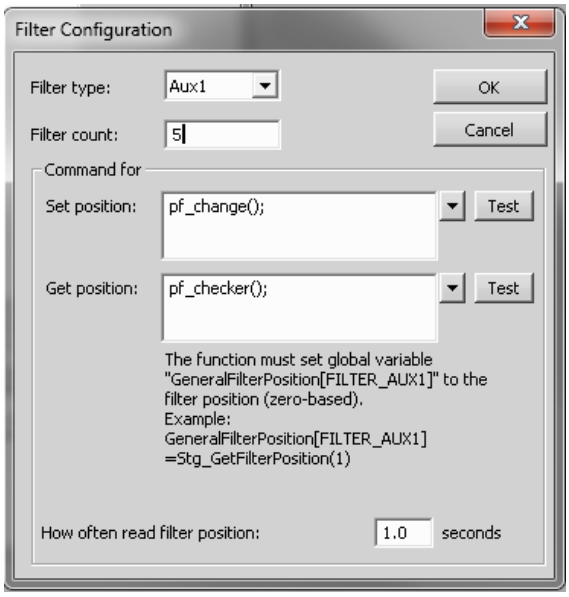

Figure 6 - Note the "Set" and "get" command strings

18. Click OK to close the filter setup window.
19. Click Add button again, this time select “General Shutter”.
20. Highlight the Shutter device, and click the “device parameters” button.
21. Configure the General Shutter as “Epi” type if this is your primary light source. If using this as a secondary source, you can use Aux 1 or Aux 2 device type. Configure the position boxes as follows, refer to figure 7 below if needed. The toolbar name can be anything, this will show up next to the shutter on the Elements program toolbar.
    Open box should read “pf_open();”
    Close box should read “pf_close();”

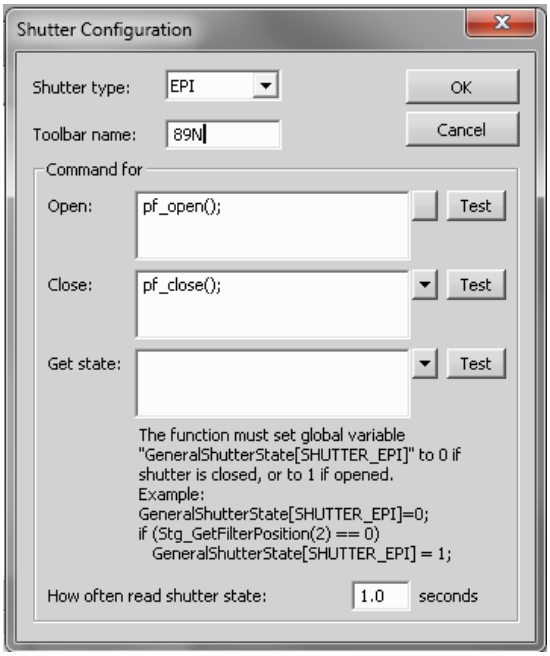

Figure 7

22. Click OK to close this window.
23. Click Close on the Manage Devices Window.

Your PhotoFluor should now be installed as a shutter and filter device.

Configuring your Filters

1. Right-Click on the Elements Background, and select the “Acquisition Controls” group. Next select “Filters and Shutters”. This window should now show your other devices (if installed), as well as the PhotoFluor 5 position filter wheel, and the PhotoFluor Shutter. See Figure 8 below.

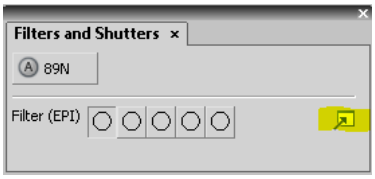

Figure 8

2. Click the Icon in the far right of the filter list (Highlighted in Figure 8 above). This box allows you to specify the filter wheel positions for the PhotoFluor.
3. The default filter positions are as follows.
    a. Position 1 = 20%
    b. Position2 = 40%
    c. Position3 = 60%
    d. Position4 = 75%
    e. Position5 = 100%

4. In order to modify the filter setting for each position, each position can be modified, and a custom filter will be added.
5. Click the Edit box on the far right side of the filter name. This brings up the filter edit panel. (See Figure 9 below)

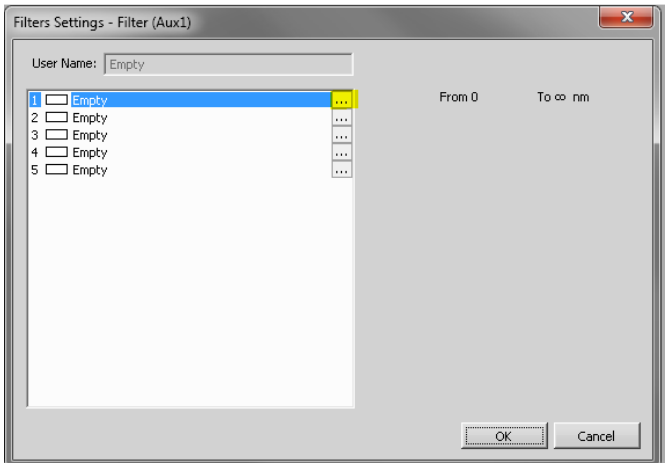

Figure 9

6. Select the “Custom” filter menu on the right side, and click the NEW button to add a new filter. See figure 10 below on an example name for a filter.

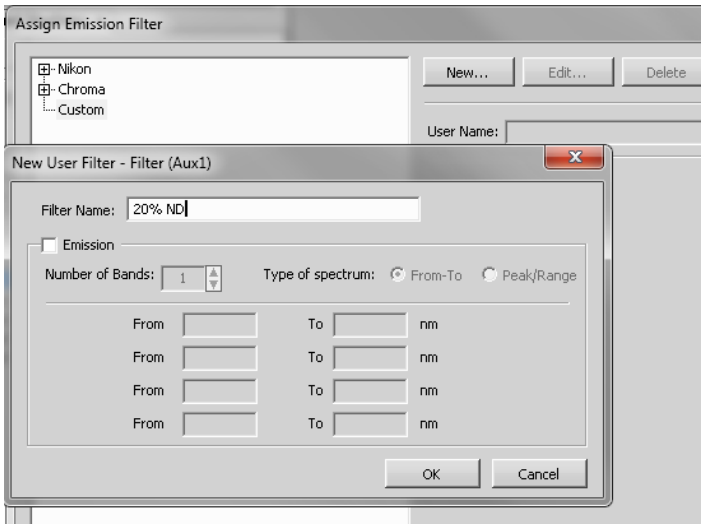

Figure 10

7. Repeat steps 5 and 6 above for each additional filter. If you have added custom filters such spectra specific exciters, you can Specify the wavelength as needed in the New filter box, or may be able to use a filter from the Nikon or Chroma pre-loaded lists.

Your PhotoFluor filter wheel and shutter devices should now be ready for use.

Troubleshooting

Macro will not run or returns errors when attempting to run.

Confirm using NIS Elements BR with Advanced Interpreter, or Elements AR.

General Filter or General Shutter is not available from Manage Devices window

Confirm General Shutter and General Filter devices were loaded when running “Modify Elements”.

When attempting to open or close the shutter, or when moving filter positions, either a failure window appears or the PhotoFluor does not respond, or both problems occur.

This indicates a problem with the communication between the PhotoFluor and elements. Check that:

- The COM port is correctly specified in the macro driver
- The cable is securely connected to the PhotoFluor and to the PC or USB to serial Adapter
- The USB adapter (if used) has it’s driver loaded correctly into Windows

Occasionally error messages appear stating "Error in pf_update();", or "Failed to execute function".

These errors are occurring due to the response time of the PhotoFluor. In some units the response time may be slower or faster, this is a value that can be changed in the macro under the "pfwait = 0.800;" entry. 0.800 = 800 milliseconds. You can increase the response delay to 1.00 or higher if needed.

The PhotoFluor Device is responding very slowly, can I speed it up?

The PhotoFluor unit has a relatively modest switch time (300-400ms). To insure consistent communication in the driver, a generous delay between move commands and device response has been added. The default for this command is 800ms. See the question above regarding error messages on how to edit this delay time. Delay times below 600ms have been found to cause problems with communication, if both shutter commands and filter move commands are issued from Elements, so if you increase the delay time, and the software starts to throw errors, or the device fails to respond, you may have to move the time back up.

I have a question or problem not listed here, who do I contact?

For support on the PhotoFluor device itself, contact 89 North. The software driver basically mimics commands entered manually on the control pad of the PhotoFluor, thus if you have a problem that can be repeated using manual controls, please contact 89 North. If your manual controls work, and you are having software side trouble, please contact Technical Instruments via the following info, and ask for macro or driver assistance.

Technical Instruments
1826 Rollins Rd.
Burlingmae, CA 94010-2215
P. 650-651-3000
F. 650-651-3001
ablanco@techinst.com