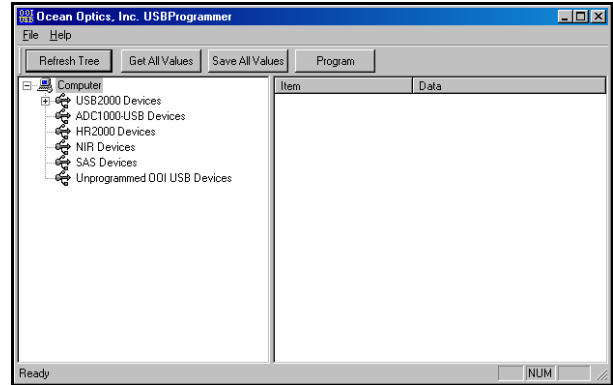


USB Programmer

The Ocean Optics USB Programmer enables you to re-program the EEPROM chip in your USB-enabled Ocean Optics spectrometer. Additionally, in certain situations, the USB Programmer allows you to recover a corrupt EEPROM program from a USB-enabled Ocean Optics spectrometer (if EEPROM programming is interrupted in mid-program).

The USB Programmer offers a simple-to-use interface with intuitive controls that allow you to quickly and easily manage and correct EEPROM-related issues, should they arise.

Note: The USB Programmer is an extremely powerful tool. You should not make any changes to your USB devices with the USB Programmer without a compelling reason to do so.



USB Programmer Interface

The following sections provide instructions on both programming EEPROM chips and recovering corrupt EEPROMs with the USB Programmer.

Interface Controls

The USB Programmer interface is an intuitive, easy-to-use console. The paragraphs below detail the various commands and controls available in the USB Programmer interface:

Menu Commands

The following commands are available from the Menu bar in the USB Programmer interface:

File Menu

The File menu contains the Unlock Features and the Exit options.



File Menu Options

The **Unlock Features** option brings up the Unlock Features dialog box. Enter the appropriate code in this dialog box to unlock features customized for your equipment (if applicable).

The **Exit** option closes the USB Programmer and exits the program.

Help Menu

The Help menu contains only the **About USB Programmer** option, which brings up the About USB Programmer dialog box. This dialog box provides information on the installed version of the program.

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Command Buttons

The USB Programmer interface also contains four command buttons that perform various functions. These buttons are detailed on the following pages:

Refresh Tree

The Refresh Tree button updates the status of all connected USB devices and performs a system scan for newly attached USB devices. Once updated, these devices are displayed in the left pane of the USB Programmer interface.

Get All Values

The Get All Values button refreshes the data shown in the right pane of the USB Programmer for the currently selected device.

You can edit specific entries for a selected device by double-clicking directly on the entry in the right pane of the USB Programmer.

Save All Values

When data for a specific device is displayed in the right pane of the screen, you can double-click on individual entries and modify the existing data in the EEPROM. Then, you can save the newly edited values to the EEPROM.

The Save All Values button saves all changes you have made to data in the right pane of the USB Programmer to the EEPROM of the selected device.

Program

The Program button commits the changes made in the USB Programmer interface to the EEPROM in the selected USB device. When a USB device is selected, clicking this button brings up the EEPROM update file dialog box. See the *Re-Programming a USB Device* section for more information.

Note: Do not interrupt the programming process for any reason! If the programming process is interrupted, permanent corruption can occur in the EEPROM on the USB device. Consult the Recovering a Corrupted EEPROM section of this document for a procedure that may rectify this condition.

Re-Programming a USB Device

Follow the steps below to re-program the EEPROM in a USB device:

1. Download and install the USB EEPROM Programmer utility from our website:

<http://www.oceanoptics.com/technical/softwaredownloads.asp>

This utility installs the latest version of the microcode for all Ocean Optics devices

2. Connect the USB device to the PC
3. Run the USB programmer by selecting **Start | Programs | Ocean Optics | USB Programmer | USB Programmer**.

In the left pane of the interface, the USB Programmer displays all Ocean Optics USB devices that are currently connected.

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- Click on a device to select it.

Once you select a device, detailed information for that device is displayed in the right pane of the interface. The current firmware version of the selected device is displayed in the first entry on the right pane.

- Press the Program button and select the appropriate EEPROM update file (.IIC file) for your Ocean Optics USB device. Programming begins immediately, and the estimated time for completion of the reprogramming process displays in the bottom status bar.

Note: Do not interrupt the programming process for any reason! If the programming process is interrupted, permanent corruption can occur in the EEPROM on the USB device. Consult the Recovering a Corrupted EEPROM section of this document for a procedure that may rectify this condition.

EEPROM update files are installed in the same location as the USB Programmer utility. The default location is C:\Program Files\Ocean Optics\USB Programmer.

- Unplug the USB device from the PC when programming is complete, and then plug the device back into the PC to allow the new EEPROM program to take effect.

Recovering a Corrupted EEPROM

If the programming process was interrupted, the EEPROM may be irretrievably corrupted. However, the device still may be functioning properly. Typically, devices with corrupted EEPROMs that will function properly are indicated in the Windows Device Manager with a yellow exclamation point icon and the title "Unknown Device." This normally means that the PC is missing a configuration file for that device.

You can attempt to restore the EEPROM to a useable state using the USB Programmer.

Follow the instructions below to attempt to restore a corrupted EEPROM:

- Download and install the USB EEPROM Programmer utility from our website:

<http://www.oceanoptics.com/technical/softwaredownloads.asp>

This utility installs the latest version of the microcode for all Ocean Optics devices

- Unplug the USB device from the PC
- Use a paper clip or small piece of wire to short the SDA pin on the USB device to the ground. Consult the table below for device-specific information:

Device	Location of SDA Pin	Available Ground Locations
USB2000	Pin 10 of the 10 pin connector	Pin 6 of the 10 pin connector, shell of USB connector
HR2000	Pin 10 of the 20 pin connector	Pin 6 of the 20 pin connector, shell of USB connector
ADC1000-USB	J8: Pin 4 (remove case by removing 2 screws on back panel)	J8: Pin 2, shell of USB connector, or DB25 connector.
NIR512/256	Consult Ocean Optics technical support: TechSupport@OceanOptics.com	

- Connect the device (with the pin shorted) to the PC to power it up.
- Remove the shorting wire.

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6. Run the USB programmer by selecting **Start | Programs | Ocean Optics | USB Programmer | USB Programmer**.
7. Locate the USB device under the **Unprogrammed OOI USB Devices** section in the left pane. If the unit does not appear in this section, repeat Steps 3-6, ensuring that the appropriate pin is shorted to the ground.
8. Click on the USB device and then click the **Program** button. The Select EEPROM Program dialog box appears.
9. Select the appropriate EEPROM file for the USB device, and then click the **Open** button.

Programming begins immediately, and the estimated time for completion of the reprogramming process displays in the bottom status bar.

Note: Do not interrupt the programming process for any reason! If the programming process is interrupted, permanent corruption can occur in the EEPROM on the USB device. Consult the Recovering a Corrupted EEPROM section of this document for a procedure that may rectify this condition.

10. Disconnect the USB device from the PC once programming is complete.
11. Reattach the USB device to the PC to activate the new program.
12. Wait 10 seconds and click the **Refresh Tree** button.

The device should appear in the appropriate category.