

NEPHELOMETER SOFTWARE MANUAL

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1. Getting Started

1.1 *Install Driver and Software*

Insert the CD-ROM that comes with the device and

1. Install USB Driver
2. Install Software

1.2 *Connect Device for the first time*

When the device is to be connected to the computer for the first time, it may take awhile for the computer to recognize this USB device and install drivers properly.

Please follow the general guideline below

If this is the first time this device is to be connected.

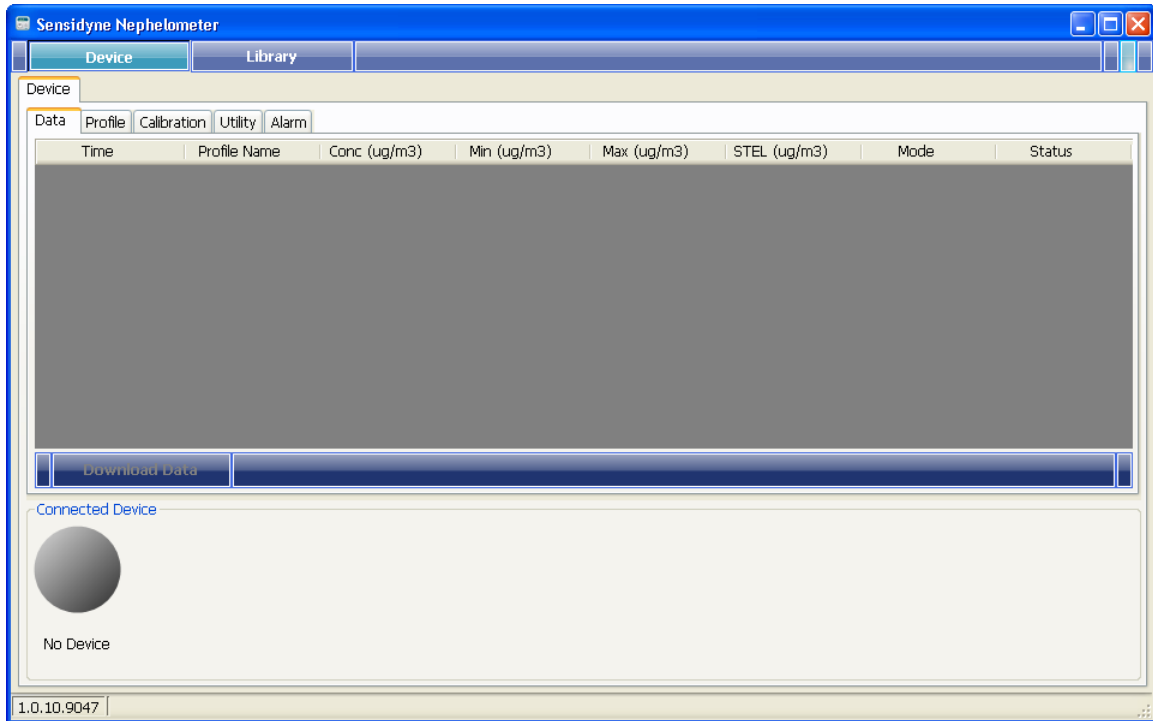
1. Close this program if it is running.
2. Power on device by press on the Start/Stop button.
3. Connect the device with the USB cable to the computer.
4. Wait for the computer to recognize it and install all the drivers.

After the computer has recognized this device for the first time, you can

1. run the program first, plug in the device, or
2. plug in the device and then run the program

Either way, program will detect the connected device automatically.

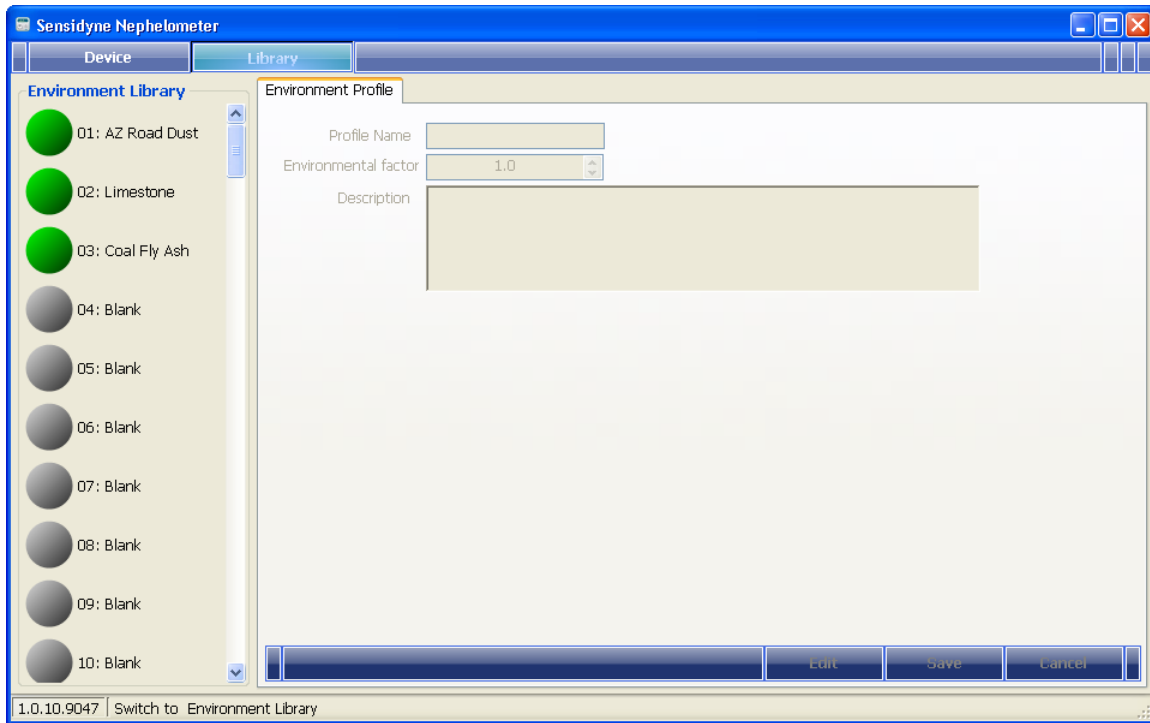
It is not necessary to connect a device if you are only going to build the Environmental Library, see section 2. Environmental Library.



By default, program starts with Device Folder **Device** selected.

Click on **Library** to go to the Library Folder for Adding/Editing Environmental Library entries.

2. Environmental Library



Click on the Library tab to select.

For blank library entry, program displays it as

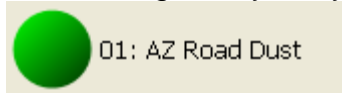


when not selected and



when selected.

For existing library entry,




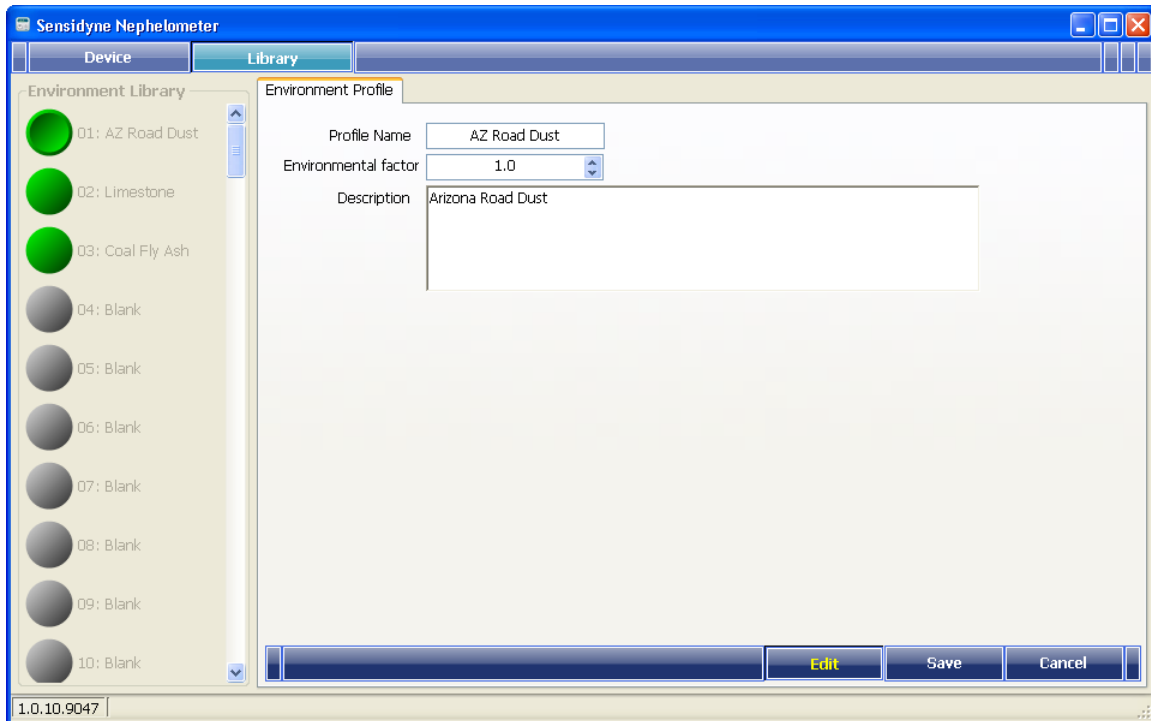
when not selected and



when selected.

2.1 Edit Library Entry

 to enter edit mode for the selected entry, as shown in the following page.



Enter Profile Name, Environmental factor and Description and then click on



to save information or

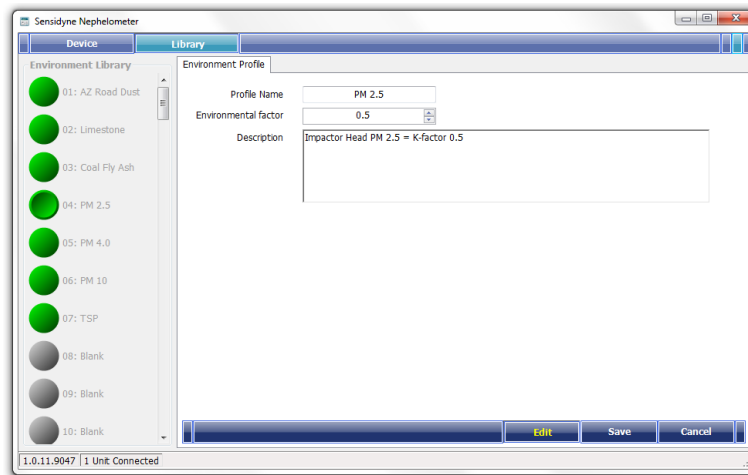


to discard edited data and restore the original information.

2.2 Environmental K-Factors for Size Selective Impactor Heads

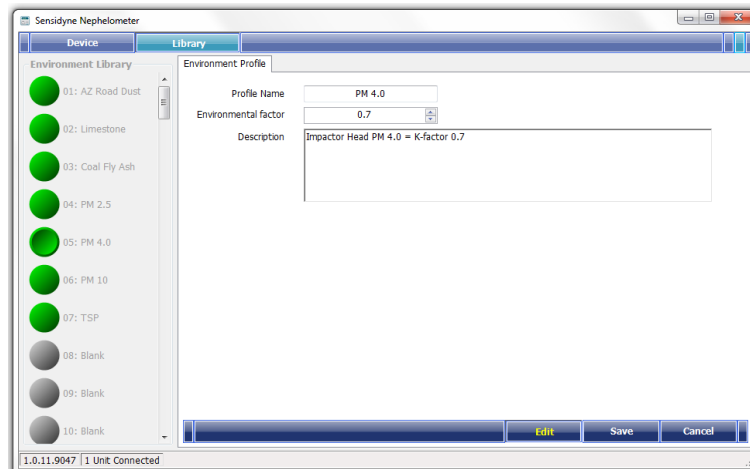
2.2.1 2.5 μ Impactor Head

1. Open the Sensidyne Nephelometer software
2. Click on the Library tab located at the top
3. Select the next available “Blank” item, the button will turn from grey to yellow.
4. Press the Edit button.
 - a. For profile name put “PM 2.5”
 - b. For environmental factor put “0.5”
 - c. Press Save



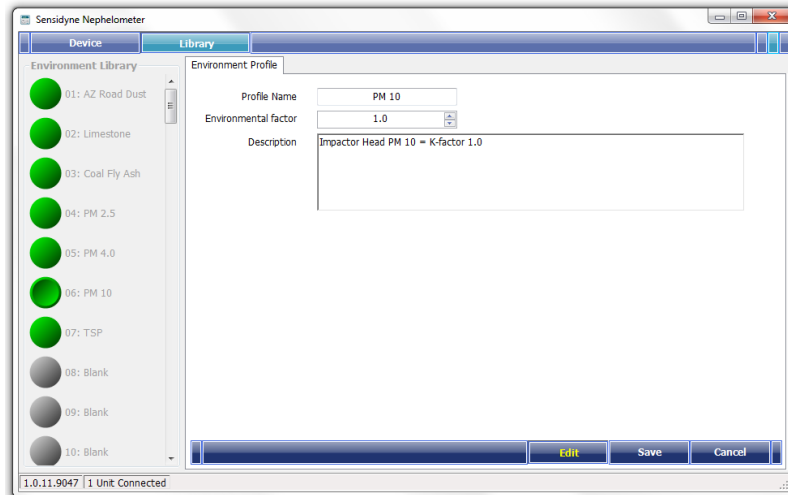
2.2.2 4.0 μ Impactor Head

1. Select the next available “Blank” item, the button will turn from grey to yellow.
2. Press the Edit button.
 - a. For profile name put “PM 4.0”
 - b. For environmental factor put “0.7”
 - c. Press Save



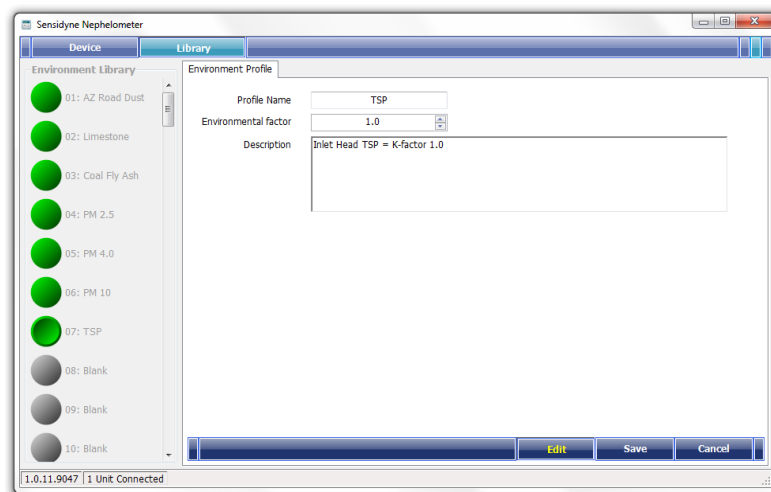
2.2.3 10 μ Impactor Head

1. Select the next available “Blank” item, the button will turn from grey to yellow.
2. Press the Edit button.
 - a. For profile name put “PM 10”
 - b. For environmental factor put “1.0”
 - c. Press Save

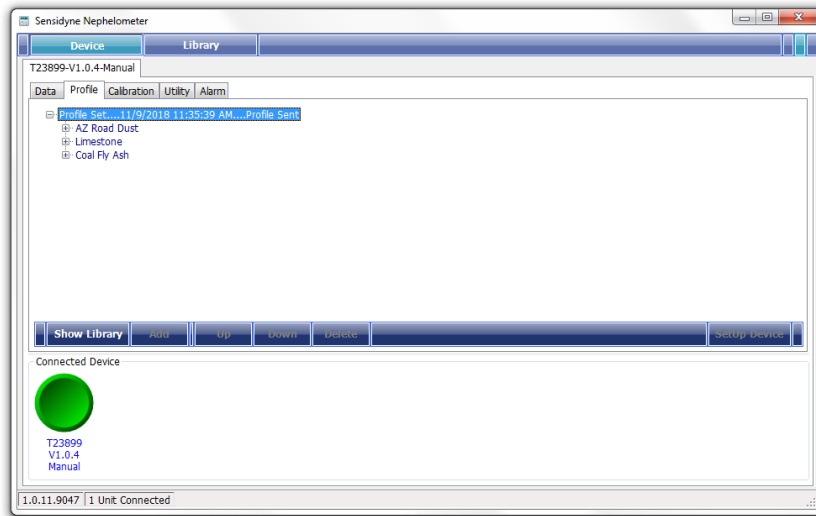


2.2.4 Total Suspended Particulate (TSP) Head

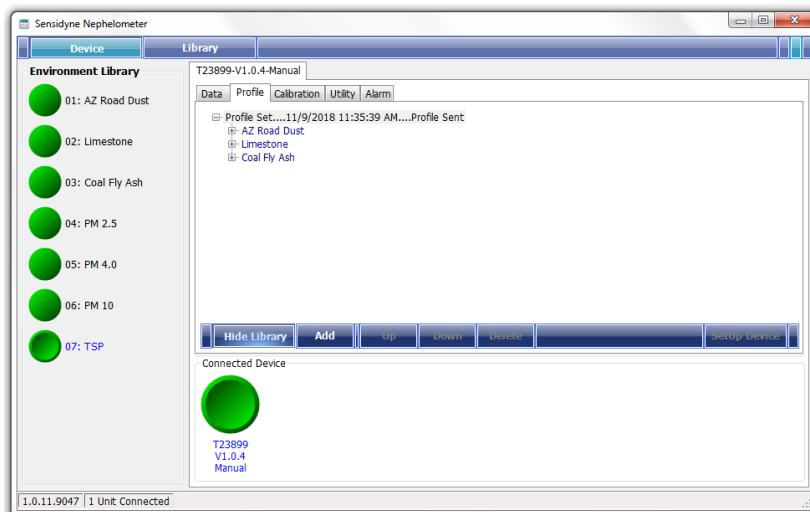
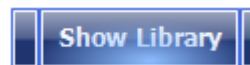
1. Select the next available “Blank” item, the button will turn from grey to yellow.
2. Press the Edit button.
 - a. For profile name put “TSP”
 - b. For environmental factor put “1.0”
 - c. Press Save



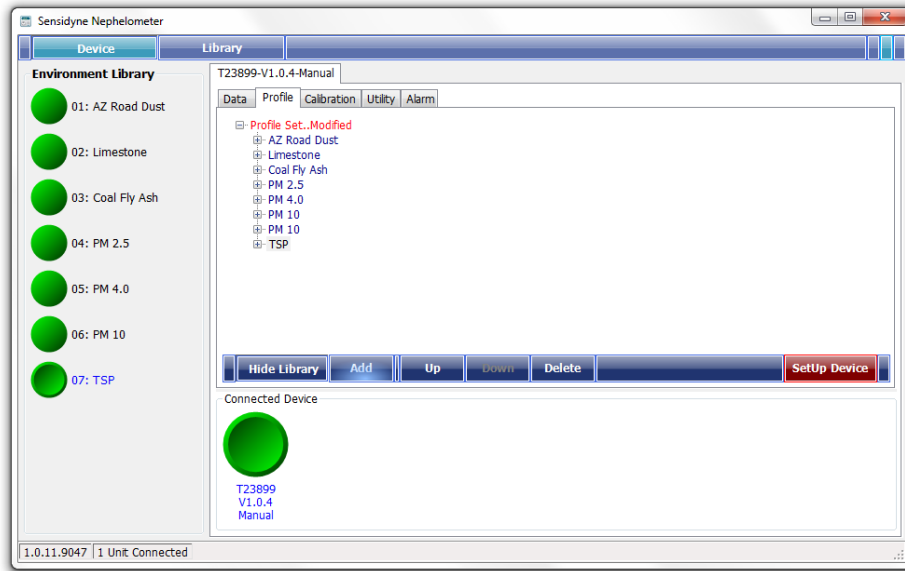
- Once the new environmental library is saved to your PC software, connect your device and upload the new environments.



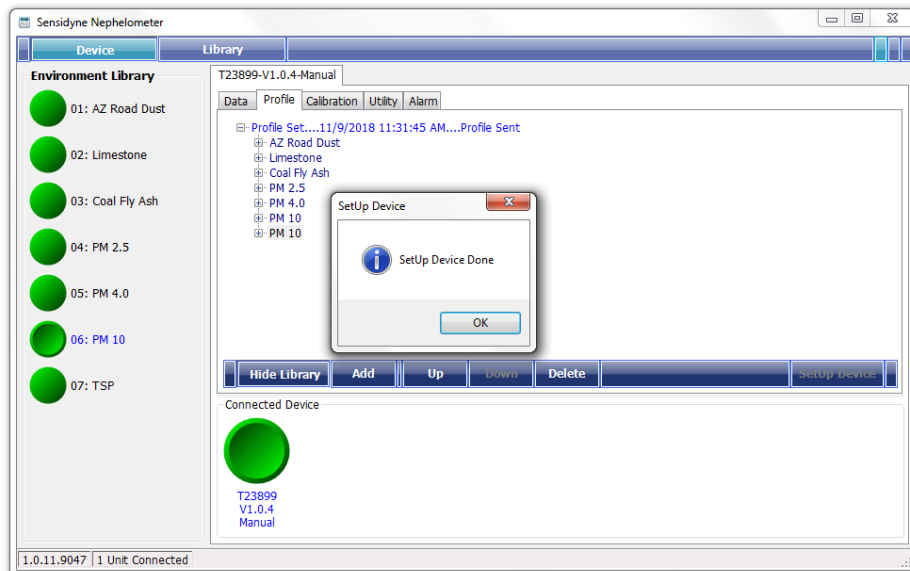
- Press the Show Library button



- Select the first Environment, PM 2.5 from you library, and press the Add button. This will add the environment to the Profile Set.
- Repeat this step for each new additional Environment K-factor that was added.



- Press the “Setup Device” to send the new environments and K-factors to the Nephelometer. All environments should be in your Profile Set.



2.3 Multiplying K-Factor Environments

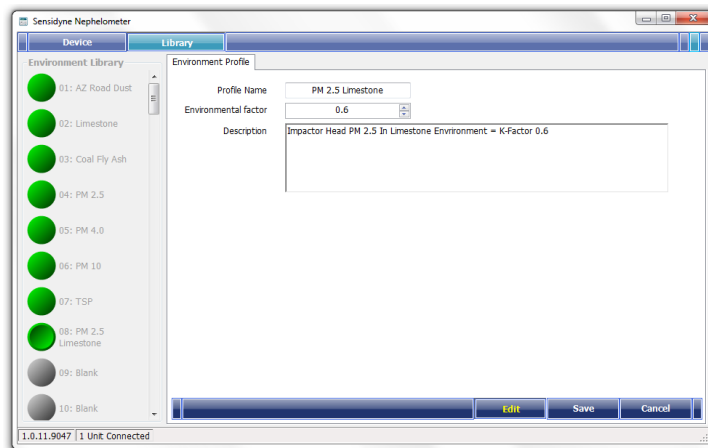
When using a size selective impactor head in an Environment with a K-factor other than 1.0, you must multiply the K-Factor for the impactor head by the K-factor for the Environment being sampled. The numbers should be rounded to the tenth.

Example: The K-factor for coal fly ash with the PM 4.0 impactor head would be the product of the K-factor of PM 4.0 = 0.7 and K-factor for Coal Fly Ash = 1.9

$$K_2 = 0.7 * 1.9 = 1.33 = 1.3$$

Environment/ Impactor Head	AZ Road Dust (K=1.0)	Limestone (K=1.1)	Coal Fly Ash (K=1.9)
TSP (K=1.0)	(K ₂ =1.0)	(K ₂ =1.1)	(K ₂ =1.9)
PM 2.5 (K=0.5)	(K ₂ =0.5)	(K ₂ =0.6)	(K ₂ =0.8)
PM 4.0 (K=0.7)	(K ₂ =0.7)	(K ₂ =0.8)	(K ₂ =1.3)
PM 10 (K=1.0)	(K ₂ =1.0)	(K ₂ =1.1)	(K ₂ =1.9)

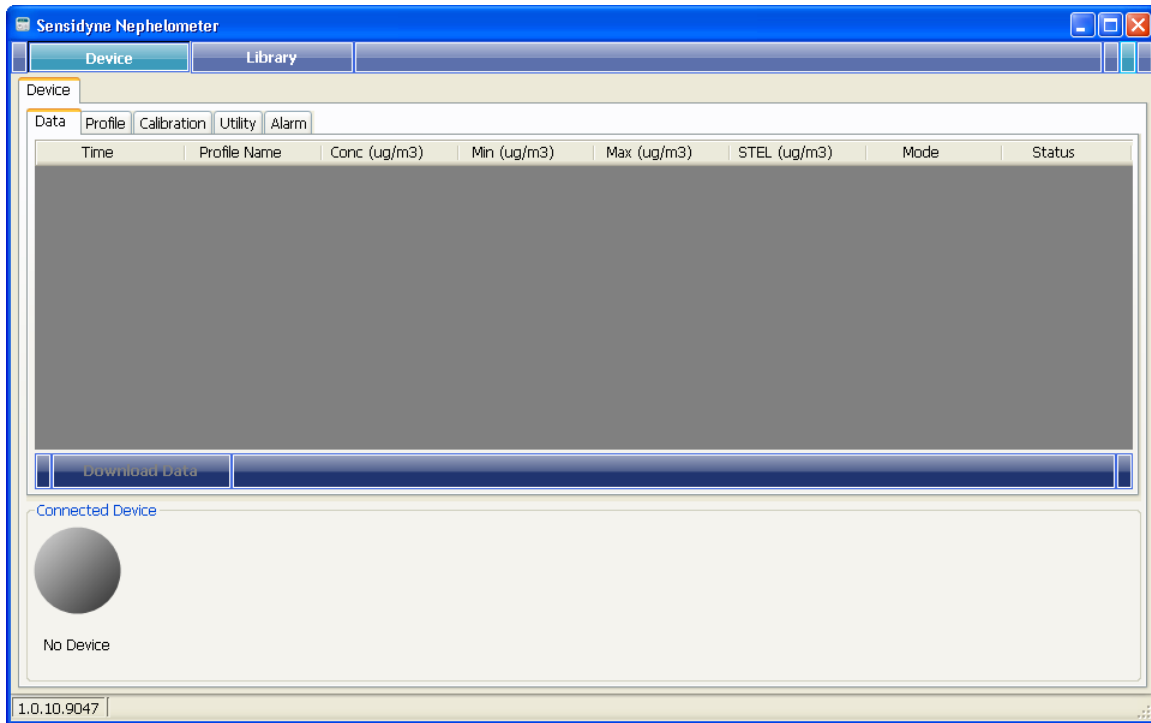
1. Select the next available “Blank” item, the button will turn from grey to yellow.
2. Press the Edit button.
 - a. For profile name put “PM 2.5 Limestone”
 - b. For environmental factor put “0.6”
 - c. Press Save



3. Repeat this step for each new additional Environment K-factor that was added.
4. Press the “Setup Device” to send the new environments and K-factors to the Nephelometer. All environments should be in your Profile Set.

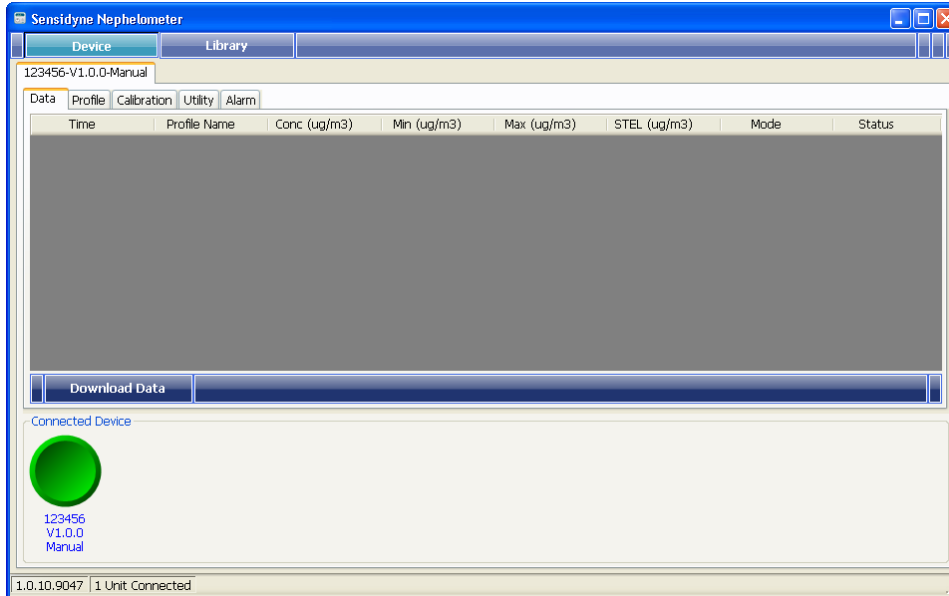


3. Device Operation

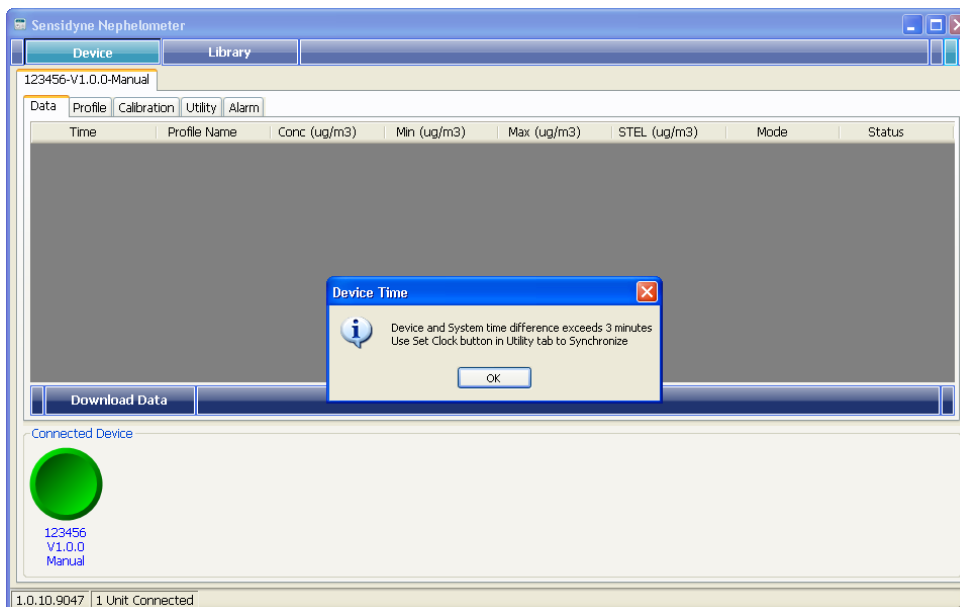


Connect Sensidyne Nephelometer to the USB port of computer, the program will detect the connected device automatically and its serial number; “123456” in this example, along with the firmware version, e.g. “V1.0.0”, and current operating mode, “Manual” will be shown as a tag. The same information is also shown on the folder tab, as shown in next page.






If this is the first device connected, it will be selected automatically.

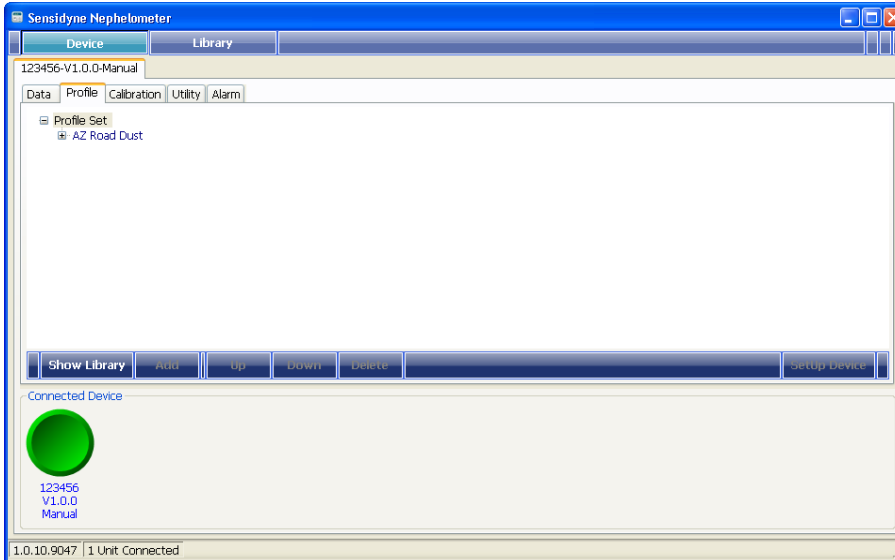


When a device is connected and detected, its clock will be checked. If time difference between this device and computer exceeds 3 minutes, a message will show up, as above.

Use  to synchronize device's clock, see section 3.2, Utility Folder.

3.1 Profile Folder

Click on the Profile folder, the existing profiles in the device are shown in a tree style hierarchy.



3.1.1 Adding a profile entry

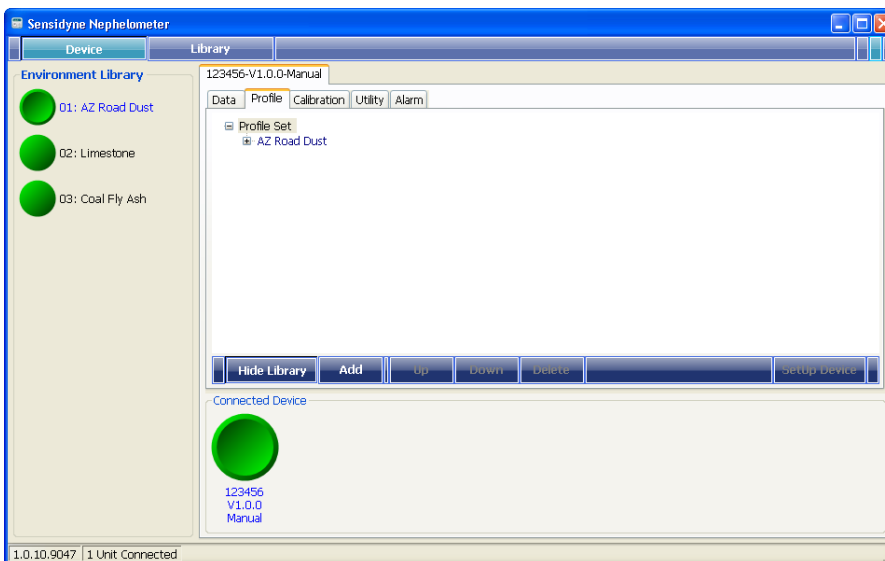
Show Library

to open up the Environmental Library.

Hide Library

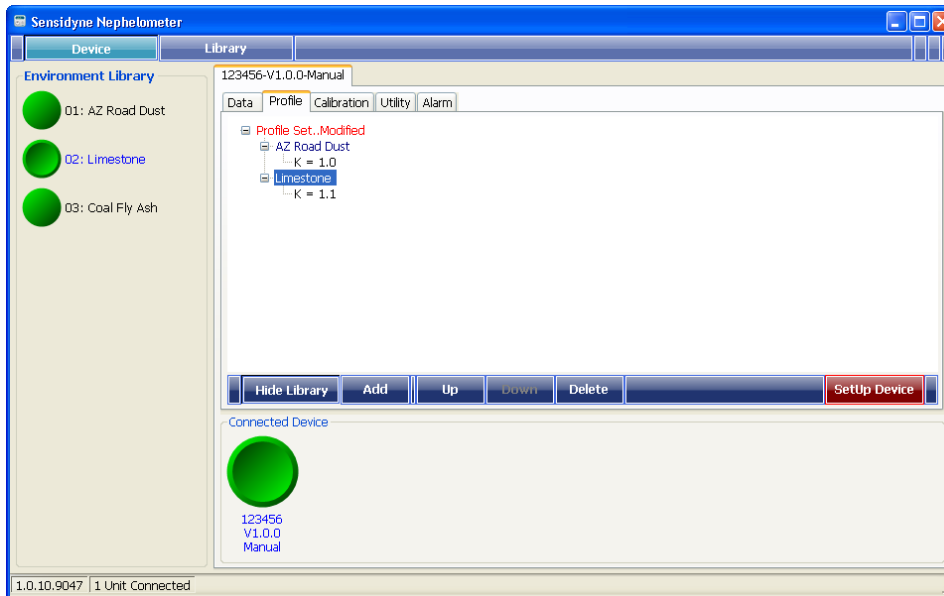
to close the Environmental Library.

Only the valid library entries will be shown in the library box for selection.

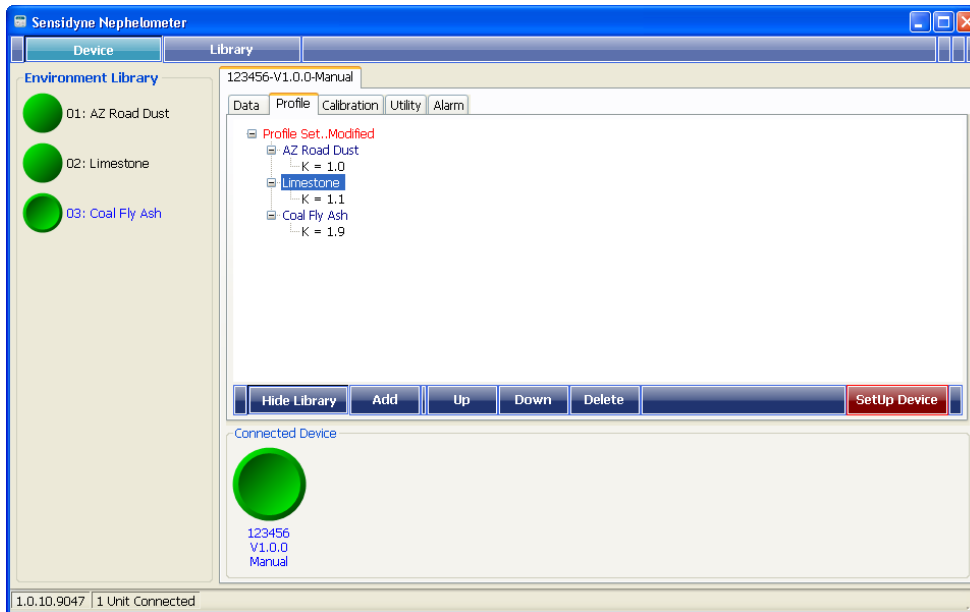




to add this selected library entry to the device's profile set.



3.1.2 Changing profile entry order, removing entry



Select the profile entry displayed on the Device's [Profile Set] tree,



or



to change the order of this selected entry on the tree hierarchy.



to remove this selected entry from the tree hierarchy.

3.1.3 Sending Profile Set to Device

Whenever an entry is added to, moved up/down or deleted from the tree hierarchy, the root item (the top item) will be changed to red color and displayed as “**Profile Set..Modified**” and

SetUp Device

will become highlighted.

After all the modifications are done, click **SetUp Device** to send [Profile Set] to the device.

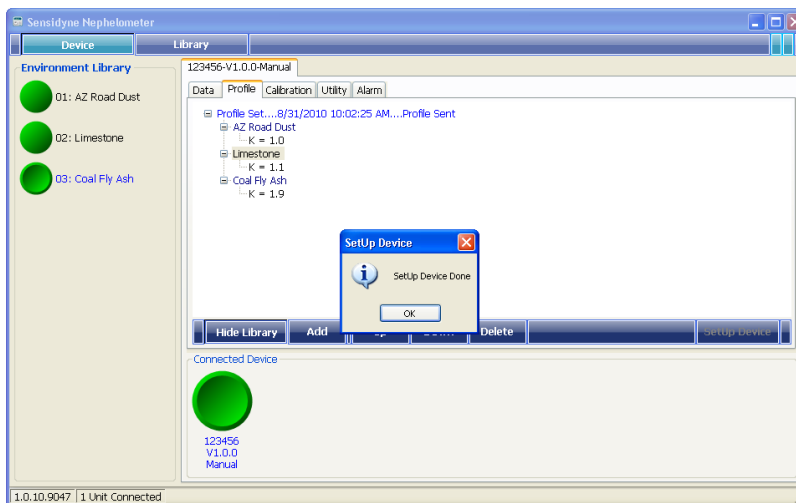
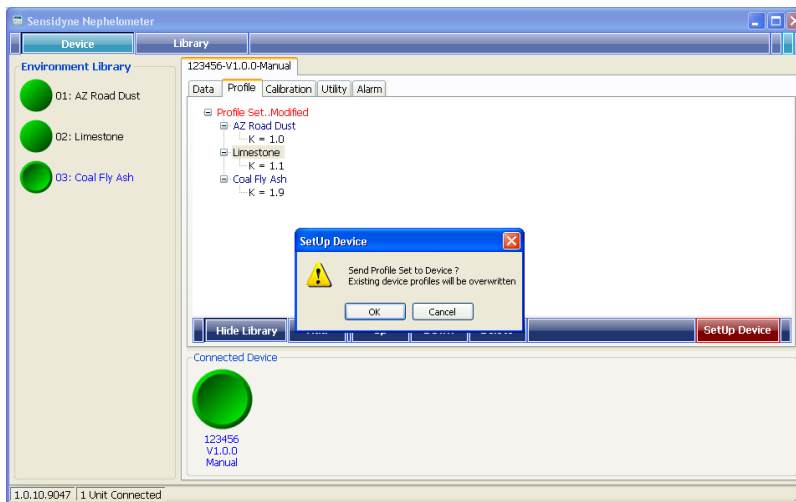
A message window will show up for confirmation,

OK

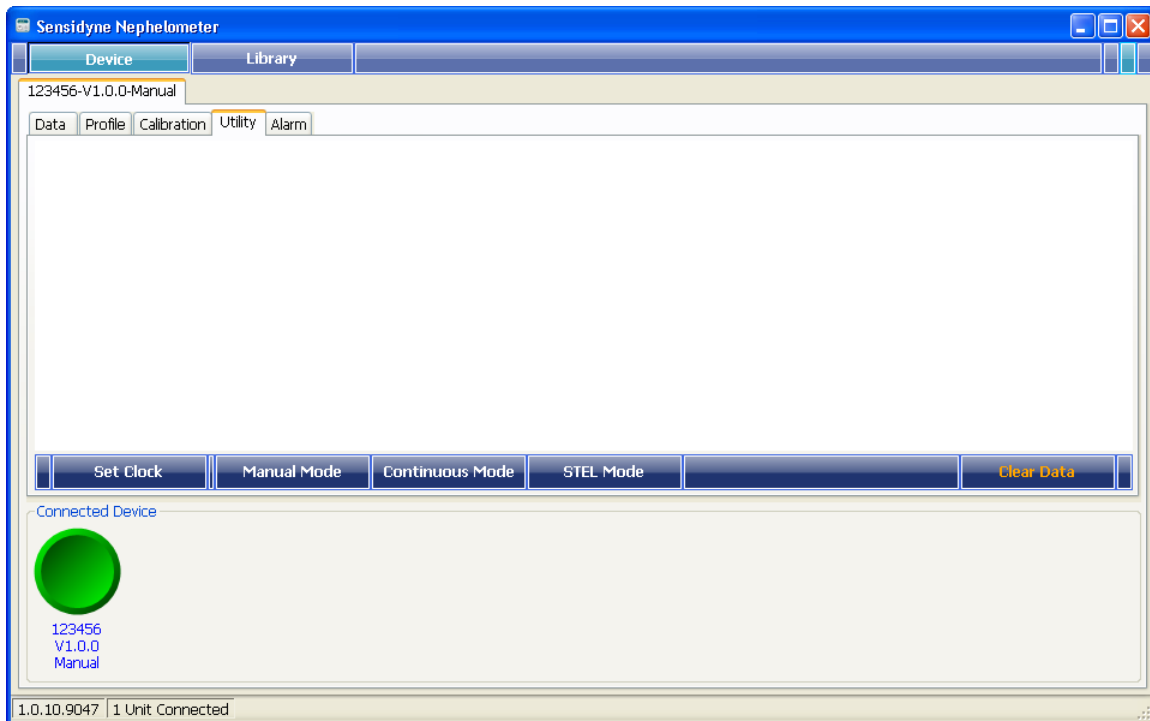
to start sending profile to device.

Cancel

to return to Profile Editing.

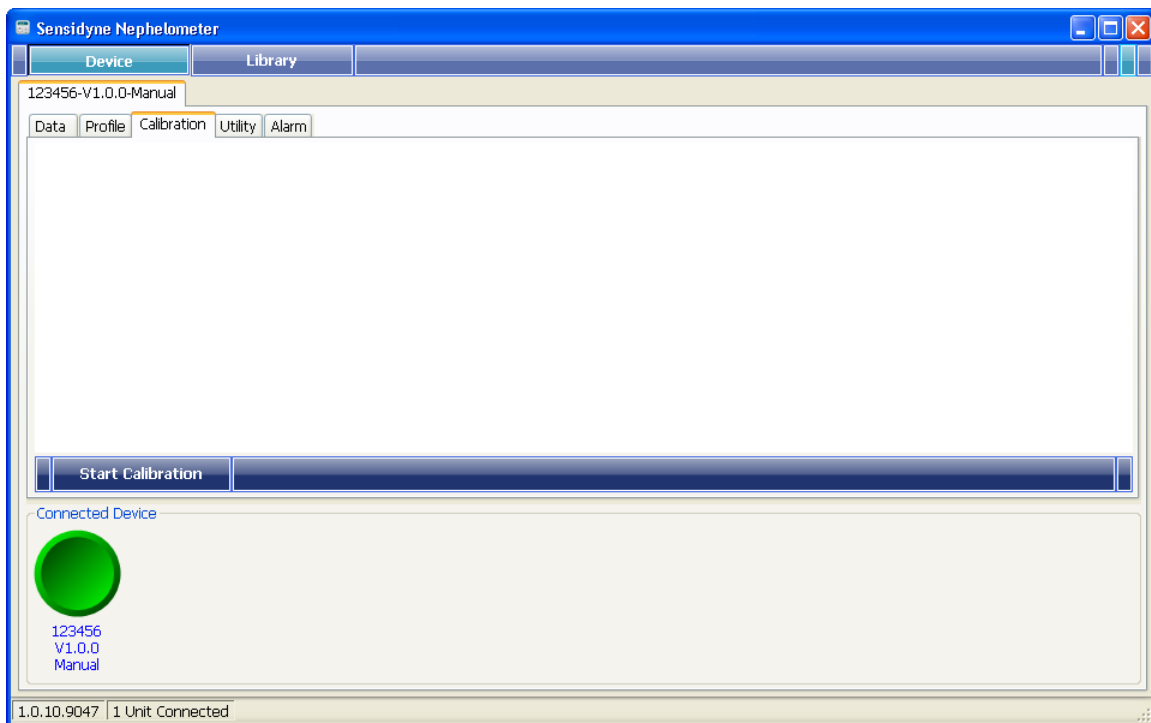


3.2 Utility Folder



Set Clock	to synchronize device's clock with computer's.
Manual Mode	to set device to Manual Mode
Continuous Mode	to set device to Continuous Mode
STEL Mode	to set device to STEL mode
Clear Data	to clear device data file.

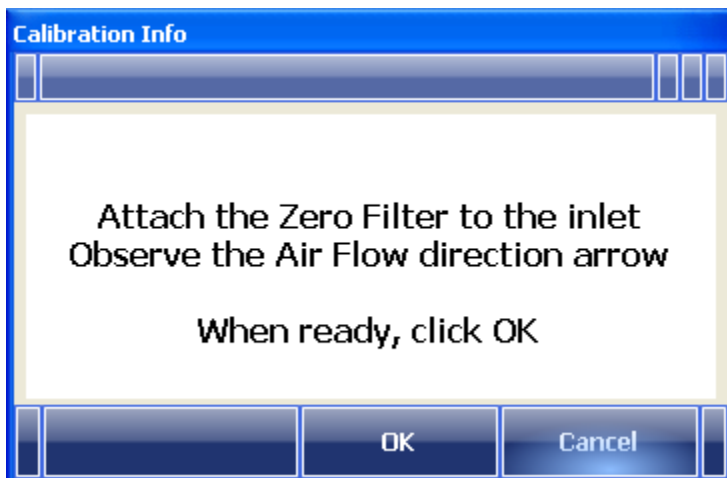
3.3 Calibration Folder




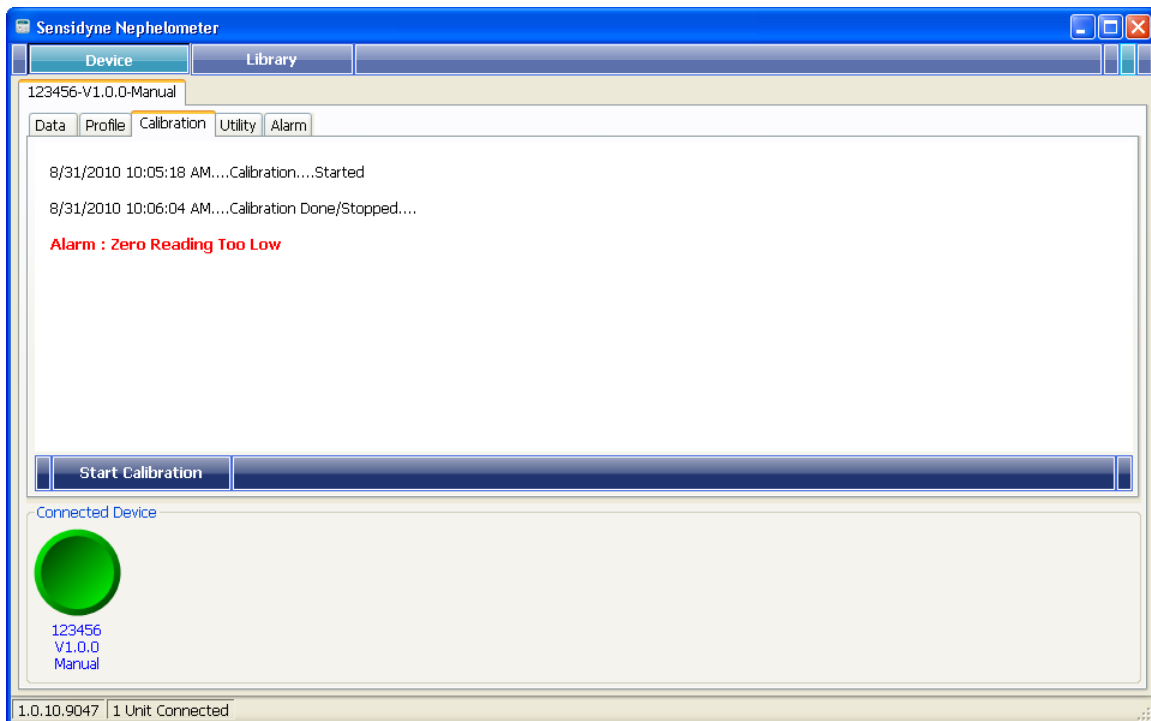
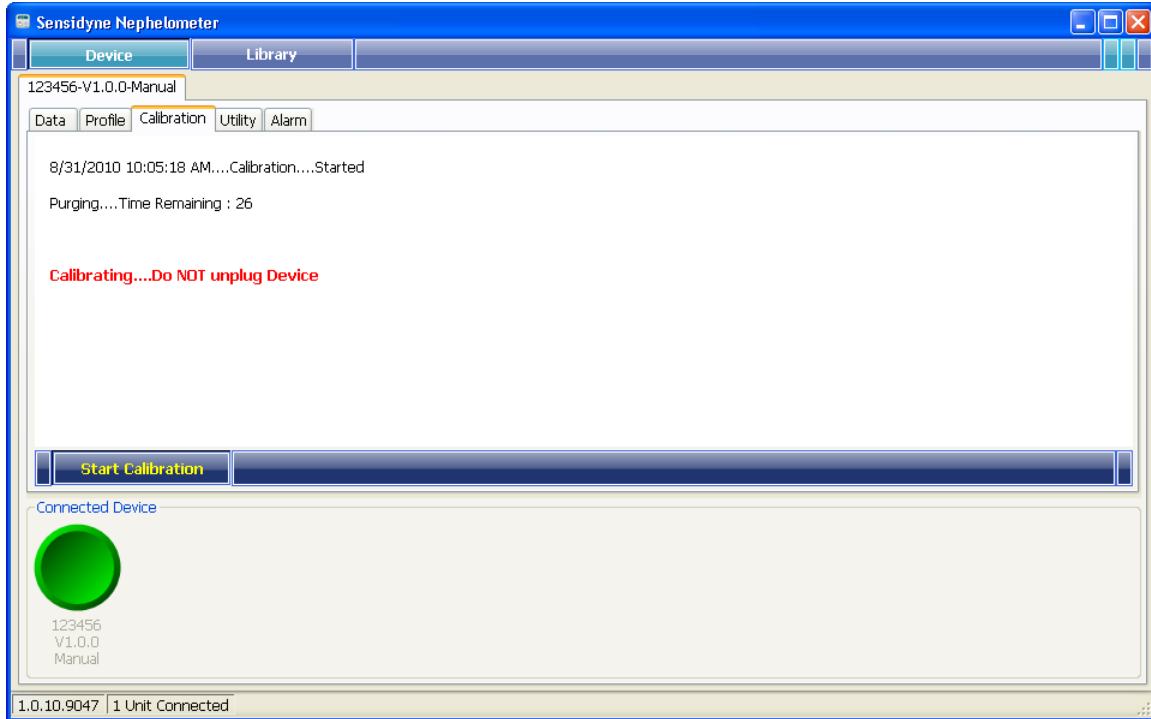
Start Calibration

for starting zero calibration process.

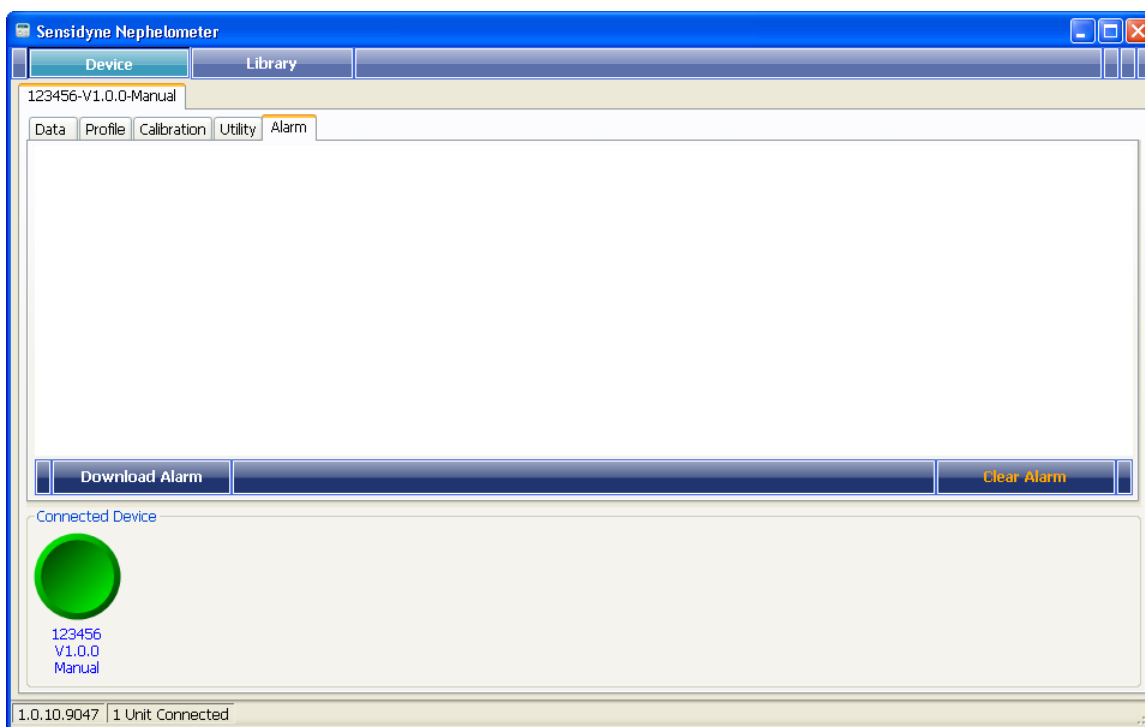
A message window will show up



Follow the instructions in this message window and click  to start.

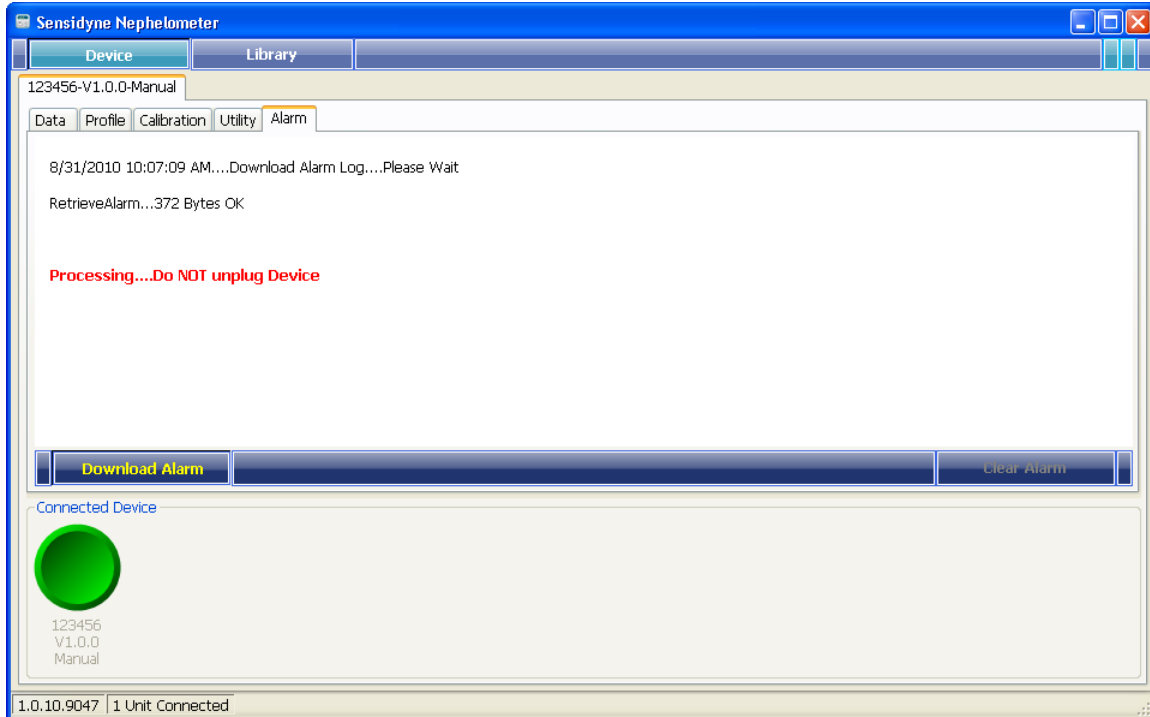


3.4 Alarm Folder

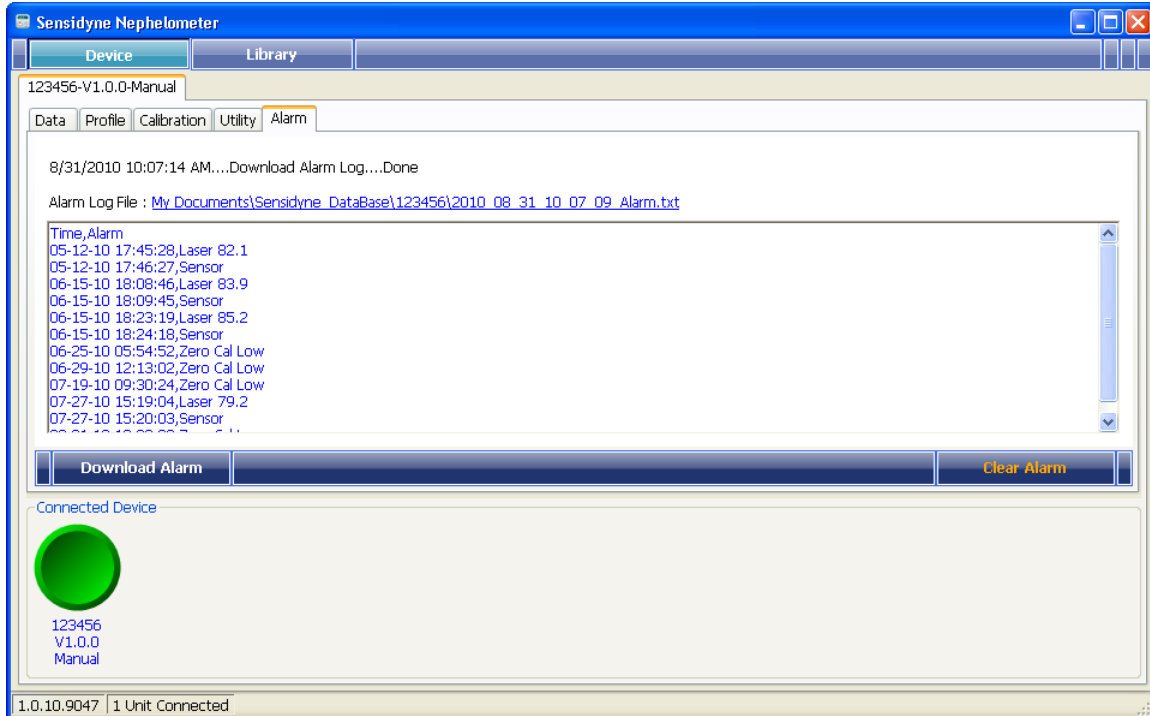


To Clear Alarm Log File

To Down Load Alarm Log File

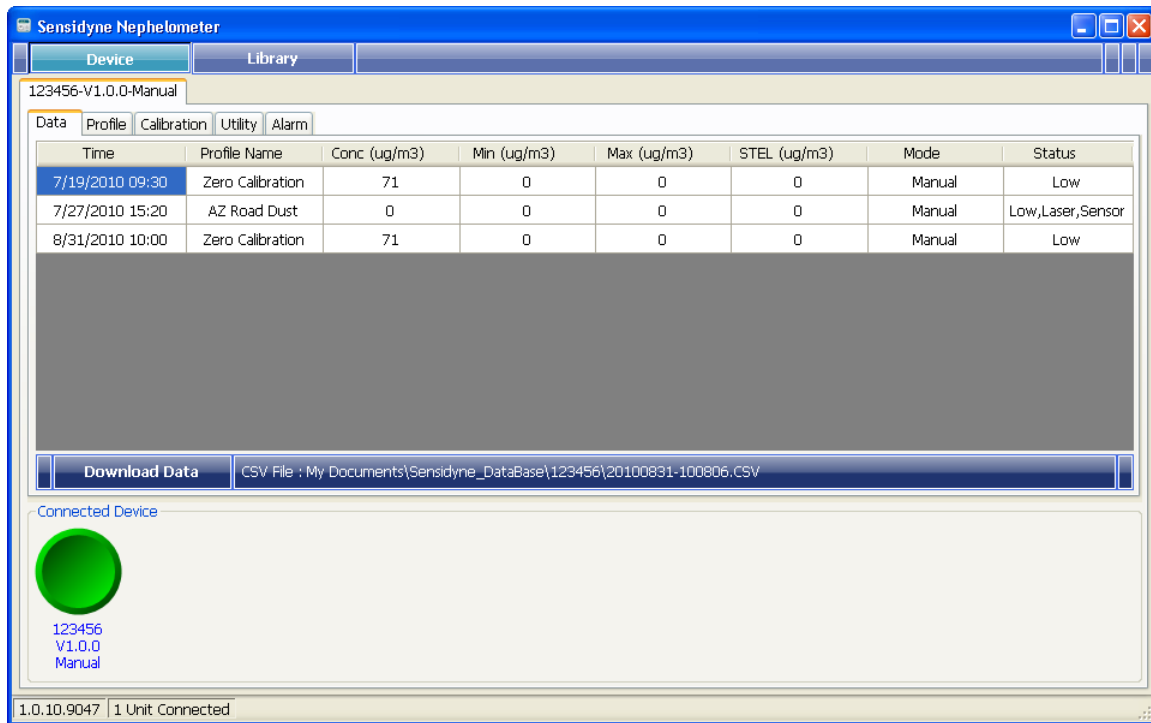


Downloading alarm record.



When alarm retrieval is done, records will be displayed, as above.

3.5 Data Folder



Download Data

to start downloading data from the device.

When data retrieval is done, record(s) will be shown in the data grid, as shown above. Records will be save in a CSV file located in a sub folder named "Sensidyne_DataBase\xxxxx" under "My Documents", where xxxxx stands for the device's serial number.

CSV File : My Documents\Sensidyne_DataBase\K0124\20100512-084916.CSV

A quick link to open up this CSV file.

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