

Laser Controller Software Version 1.6

Laser Controller Software Version 1.6 is a Software Control Program to control the Laser system. It provides a simple and comfortable method of controlling the Laser Driver through a Windows™ interface. This software is designed in such a way that it offers safe operation. The laser is computer-controlled. The operator can be some distance away from the laser head making the operation safer

The software is user friendly and provides lots of flexibility in operation. Repeatability of sequence of operation is possible as one operation settings can be saved and retrieved when needed. Modifications to an operation can be made very easily without changing the sequence of operations.

With this software it is easy for the user to:

- Set various parameters such as Diode Current and display the actual value of the same parameter; set versus actual parameter value.
- Change the status (ON / OFF) of various controls for example QSW, Shutter, Laser Diode, etc.,
- Monitor the present status of the various controls for example QSW, Shutter, Laser Diode, etc.,
- Save all of the current settings, in a file, in the PC for future use with a single left click.
- Load all the settings from a file and set them all with just one click.
- Receive Warning if any faults occur in the laser controller system.
- Build process routines through effective programming
- Repeat program routines (Save Programs and re-use when needed).
- To protect it by setting the user's own Username and Password

Software Setup

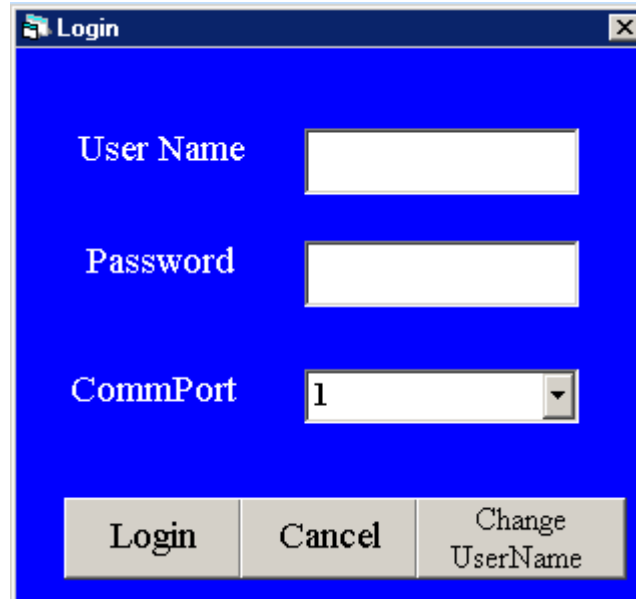
Load the CD in the CD-Drive. Open Windows Explorer and double click the CD drive to view its contents. Double click the Setup.exe file to run the setup. Go through all the steps. When it is finished, restart the computer.

Run the Software

To run the Software, click on *Start → Programs → Photonics Industries Int → Laser Control Software V1.5*. At this stage, Login Screen will appear on the computer screen.

Login Screen

Once you start the software, a Login Screen appears prompting for i) Username, ii) Password and iii) the communication port through which the Laser controller Enclosure is connected.



- Enter Username and Password in the corresponding text fields.
- Select the Comport from the pull-down menu.
- Then left click *Login* Button.

If the “**Cancel**” Button is left clicked, the software closes. In this event, the user must restart the software to Login.

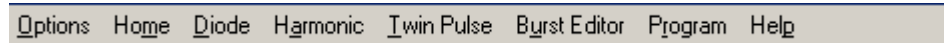
Changing Username and Password

To change the Username and Password Click on *Change User Name* Button on the Login Screen:

- Enter preferred UserName in the UserName Box.
- Enter Old Password in the next box.
- And then enter New Password in the New Password box.
- Click *Set* to set the new password.

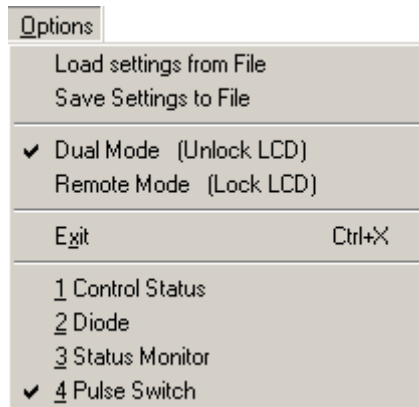
Note: If the original, now invalid, password is entered, the username and password cannot be changed.

Menu Bar

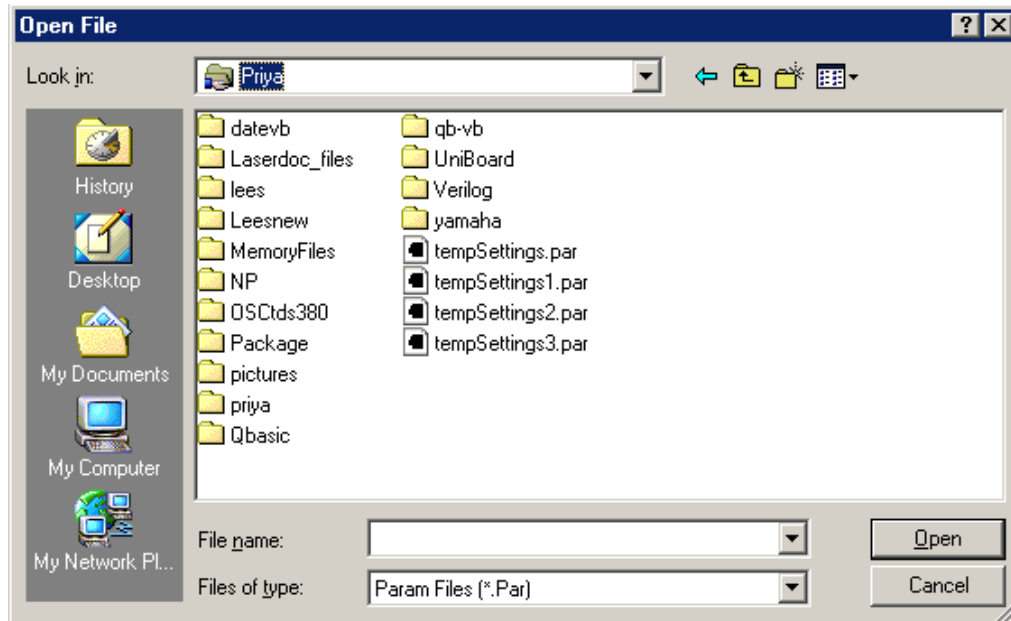


In the menu bar, clicking

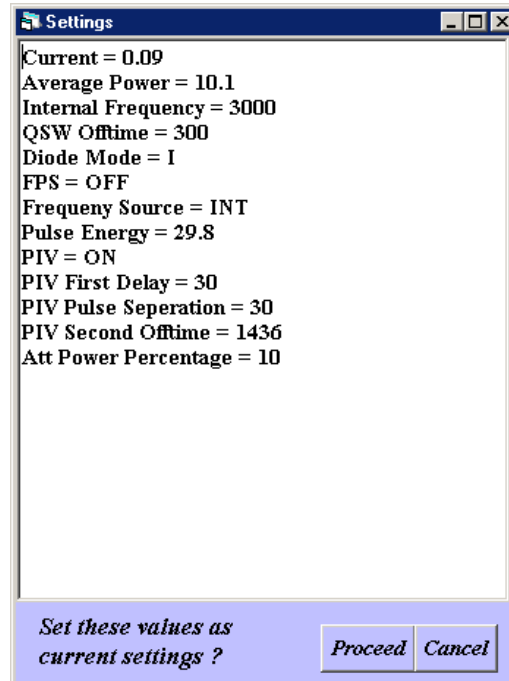
Options Menu–



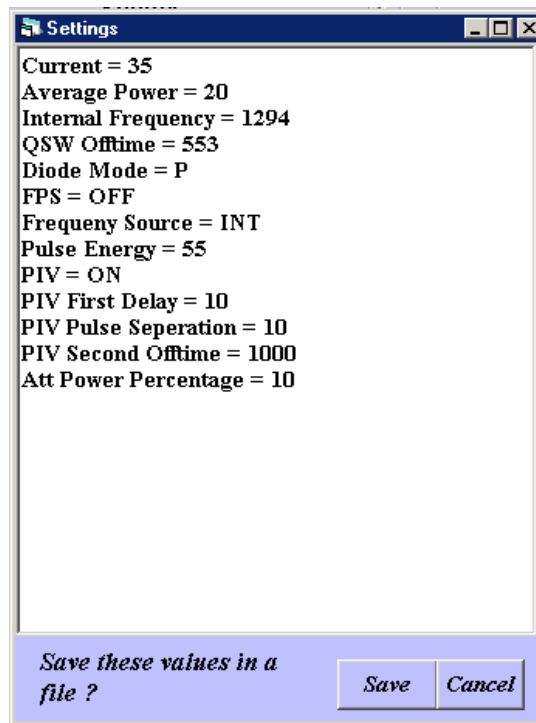
Load settings from file submenu – Opens an *Open File* Dialog box. Choose the .Par file (parameters) to load and click *OK*.



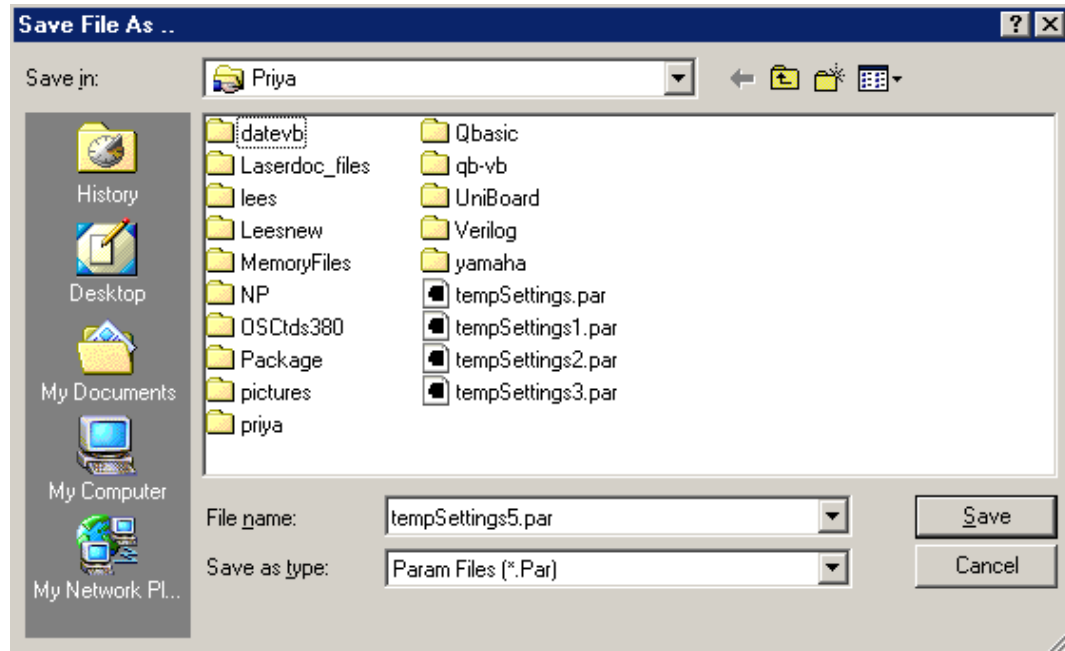
The file will be loaded in a Settings Screen as shown below. To load these values to the Laser, left click *Proceed* button.



Save settings to file submenu – Opens the Settings Screen with all parameters and the present values of those parameters.



To save these values in a file, left click *Save* button. A *Save File* Dialog box will appear. Choose the directory and enter the file name into which you want to save the parameters and left click *OK*. The parameters will be saved in that file under the chosen directory.



A Confirmation message will appear.

Dual Mode submenu – Enables the LCD Keypad. The Laser can be controlled from LCD keypad or from the Computer.

Remote Mode submenu – Disables the LCD Keypad. Parameters can be set only from the PC.

Exit submenu – Closes the software.

Home menu – Opens the [Home Screen](#)

Diode menu – Opens the [Diode Screen](#)

Chiller menu – Opens the [Chiller Screen](#)

Harmonic menu – SHG, THG, FHG, 5HG (The LCD display is laser model specific)

Crystal Position submenu – Opens the [Crystal Position Screen](#)

Beam Separation submenu – Opens the [Beam Separation Screen](#)

Phase Matching submenu – Opens the [Harmonic Phase Matching Screen](#)

FPS – Opens the [First Pulse Suppression](#)

Wavelength Tuning – Opens the [Wavelength Tuning Screen](#)

Crystal Temperature Settings submenu – Opens the [Crystal Temperature Settings Screen](#)

Twin Pulse menu – Opens the [Twin Pulse Screen](#)

Power Attenuator menu – Opens the [Power Attenuator Screen](#)

Burst Editor menu – Opens the [Burst Editor Screen](#)

Program menu – Opens the [Program Screen](#)

Help menu –

Laser Manual submenu – Opens the Laser Manual


Software Manual submenu – Opens the Software Manual

Laser System Info submenu – The Information Screen is opened.

Home Screen

Upon Login, The Home Screen loads automatically.

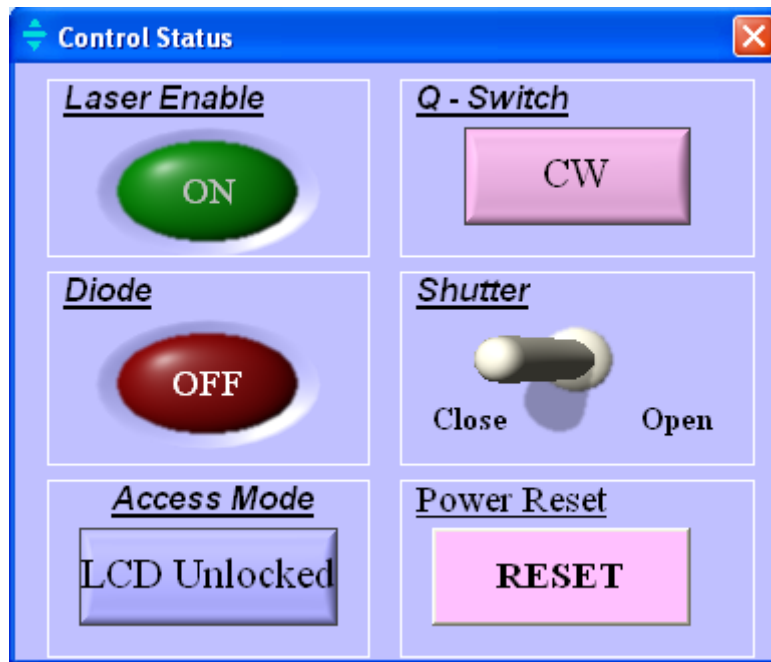


Left clicking *Home* in the [Menu Bar](#) or the  icon in the Toolbar opens the Home Screen.

The Home Screen includes:

- [Controls Status Screen](#)
- [Diode Screen](#)
- [Pulse Screen](#)
- [Status Monitor \(Warning Indicators\)](#)

Control Status Screen

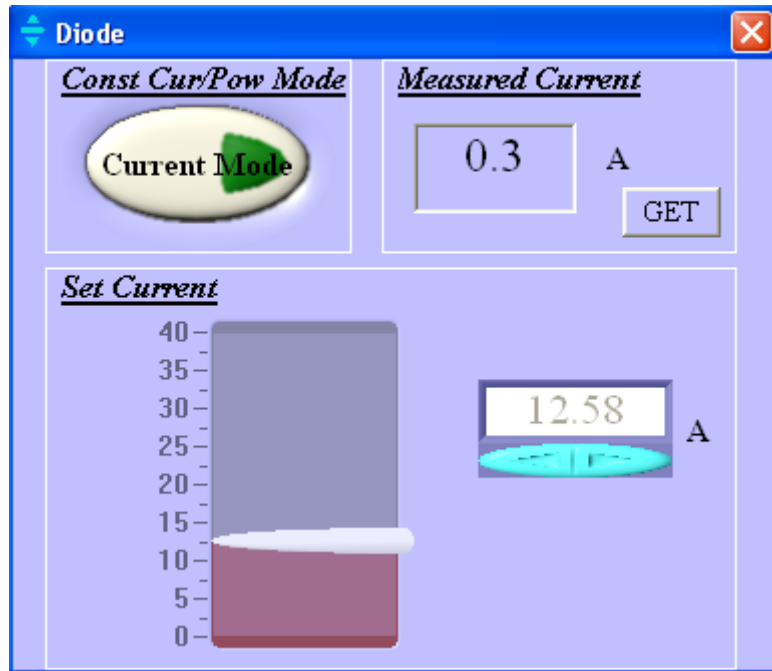


The Control Screen consists of the following items:

- Laser Enable button - This is an indicator to indicate whether the Laser Key switch is on or off. The Key Enable cannot be changed from the Computer Interface. It is a read-only command.
- Q-Switch button - This button indicates the present status of the QSW. For example, if the QSW is either ON or OFF, to change the status of QSW, simply left click the button once. (**Note:** When the Q-Switch button is left clicked, an alert message will appear. Click *YES* to turn off the Q-Switch button, click *NO* to remain in the same setting. **Before turning the QSW off, reduce the laser diode current to <1.0 Ampere, or the Laser Crystal could be damaged.**)
- Diode Button - This button indicates whether the laser diode is ON or OFF. To change the laser diode status, left click the button once.
- Shutter Switch - This switch controls the shutter status. To open / close the shutter, left click on this switch. (**Note:** When you open the Shutter an alert message will appear. Click *YES* to open the shutter, click *NO* to remain in the same setting. **Before opening the shutter, be sure to reduce the diode current to <1.0 Ampere, or the Laser Crystal could be damaged.**)
- Access Mode Button - This indicates the present access mode. To disable the LCD Keypad of the Laser Controller, select *LCD Locked Mode*. Otherwise, select *LCD Unlocked Mode*.

- Power Reset Button – This button will reset the Laser Driver. It functions similar to the front amber power switch to accomplish a Software Reset.
(**Note: Do not use this button if the laser system is in operation**)

Diode Screen (in Home Page)



The Diode screen in Home Page is the brief version of the Diode Screen. This Diode Screen contains:

Diode Mode: (constant current mode / constant power mode)

- Diode Mode Button - This button indicates the present operation mode of the diode i.e., it indicates whether the diode is operating in constant Current Mode or constant Power Mode. To change the mode, click the button once.

Set & Get Diode Current / Power (Amps / Watts):

To set the value for current (for constant current mode) / power (for constant power mode), you can use one of the following.

- Slider - Use the Slider to select the required value for Current (for constant current mode) or Power (for constant Power mode). This is a faster method.
- Text Field - One can also use the text field to directly enter the desired value.
- Inc/Dec Button – One can also use the Inc/Dec button below the text box to modify the value.

To view the actual value, left click on the *Get* button. The measured read-only value appears in the corresponding text box. You cannot change this value directly. To obtain the required actual value, enter the Set value of current / power required for readjustment.

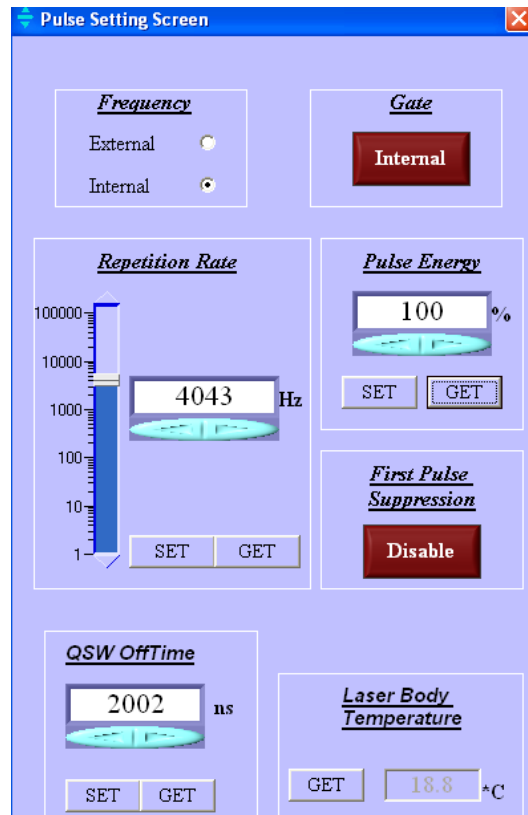
To access more features of Diode, go to the detailed version of [Diode Screen](#) by clicking



Diode in the Menu bar or the

Pulse Screen

Reference the Installation and Operation Manual for more detailed information regarding functionality and input signal requirements/specifications.



External / Internal Frequency Mode:

In the Pulse Screen You can choose between *External* TTL Frequency mode and *Internal* TTL frequency mode. Click the corresponding option button to choose the mode.

External / Internal Gate Mode:

In the Pulse Screen You can choose between *External* TTL Gate mode and *Internal* Gate (no gating when it's set internal) mode. Click the corresponding option button to choose the mode.

Set & Get Repetition rate (Hz):

If you choose external mode, you cannot set the Repetition rate (frequency) from the Computer Interface. But you can get the actual repetition rate by clicking *Get* button in the Repetition rate window. The set values and get values are same for repetition rate. After setting the value the user should click on the *Get* button to confirm the required actual value.

If you choose internal mode, you can set the Repetition rate (frequency) from the PC. To do this

Slide - You can use this slide to select the required value for Repetition Rate. This is a fast way.

Text field - You can also use the text field to enter the value you want to set directly.

Inc/Dec Button - You can also use the Inc/Dec button below the text box and above the Set button to modify the value.

After selecting the desired value by any one of above means, Click *Set* button to set the value.

You can check the present Repetition rate by clicking *Get* button in the Repetition rate window. The Measured value appears in the text box.

First Pulse Suppression Enable / Disable:

First Pulse Suppression Button – This button indicates whether the First Pulse Suppression is enabled or disable. If the button is green FPS is enabled. If it is red, FPS is disabled. To change its present state (from enable to disable or vice versa), click the button once.

Pulse Energy (%):

You can change the Pulse Energy using the Inc/Dec button or type the value in percentage into the textbox directly and then click *Set*. To view the present Pulse Energy value, click *Get*.

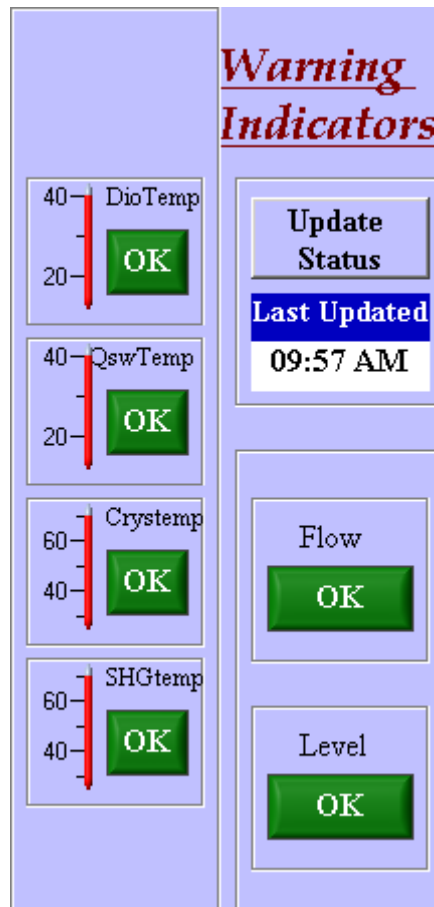
QSW off time (ns):

You can change the Offtime using the Inc/Dec button or directly typing the value in nanoseconds into the textbox and then click *Set*. To view the present offtime value, click *Get*.

QSW temperature (°C):

You can get the actual temperature of the QSW by clicking the *Get* button in the QSW temperature Window.

Status Monitor Screen



Warning Indicators:

In this screen, the status of various parameters like Diode temperature, Q-switch temperature, Harmonic temperature, Flow, Water level, and etc. are pictured above. If there are any warning being generated, status of that icon will turn red and blinking message will be display.

The following are the warning information:

- Diode Temp - This warning occurs when the diode group 1 temperature is too high or too low or the temperature sensor is damaged.
- LC/Diode Temp - This warning occurs when the diode group 2 or LC temperatures is too high or too low or the temperature sensor is damaged.
- QSW/Diode - This warning occurs when the diode group 3 or body temperatures is too high or too low or the temperature sensor is damaged.
- SHG – This warning occurs when SHG is too high or too low or the temperature sensor is damaged

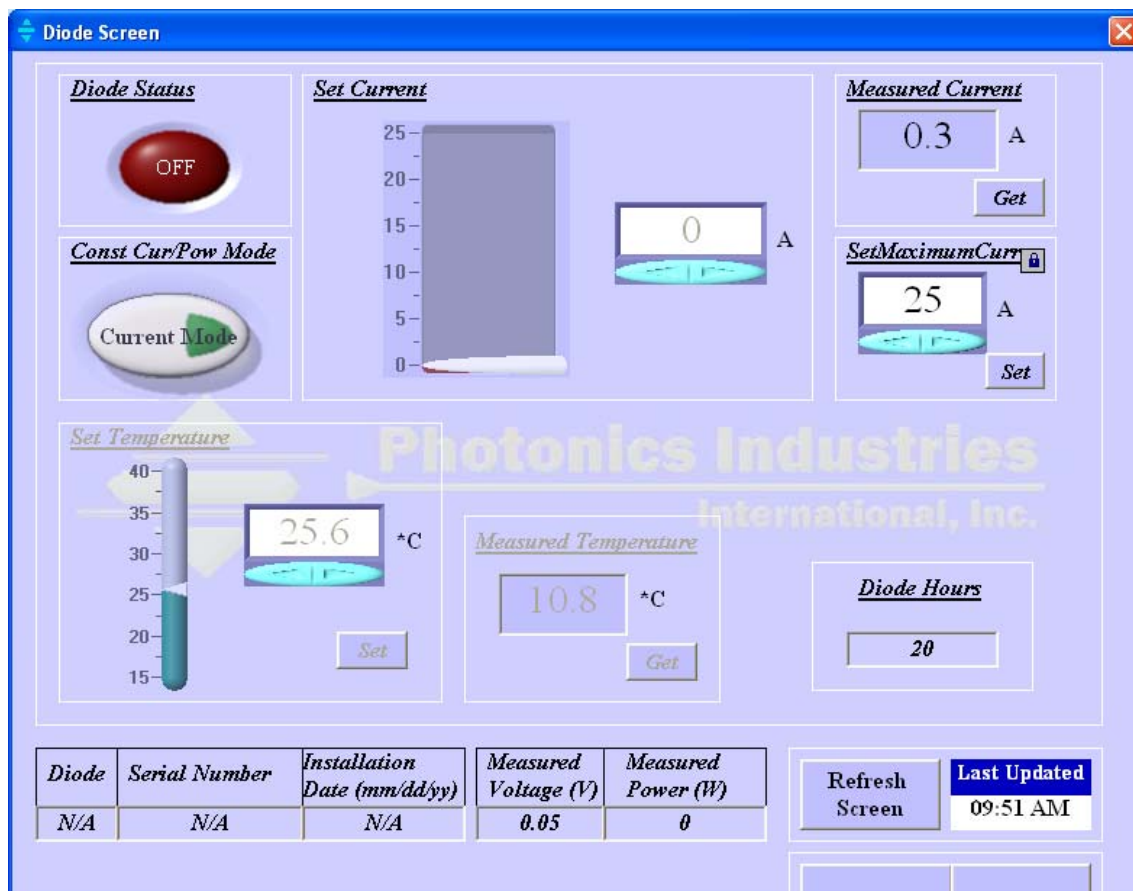
- THG – This warning occurs when THG is too high or too low or the temperature sensor is damaged
- 4th/5th HG – This warning occurs when 4th/5th SHG is too high or too low or the temperature sensor is damaged
- Water Flow Error - This warning occurs when there is no cooling water flow.
- Water Leaking - This warning occurs when there is some water leakage in the laser head.

The time at which the values get updated is also displayed. If you want to update the status, you may have to click on the *Update Status* button.

Diode Screen (detailed version)



Clicking *Diode* in the [Menu Bar](#) or the  icon in the Toolbar opens the Diode Screen.



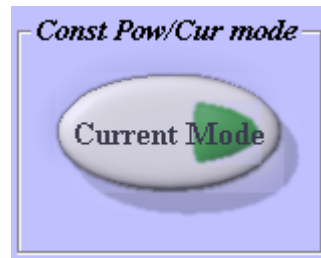
The Diode screen contains:

Diode Status:



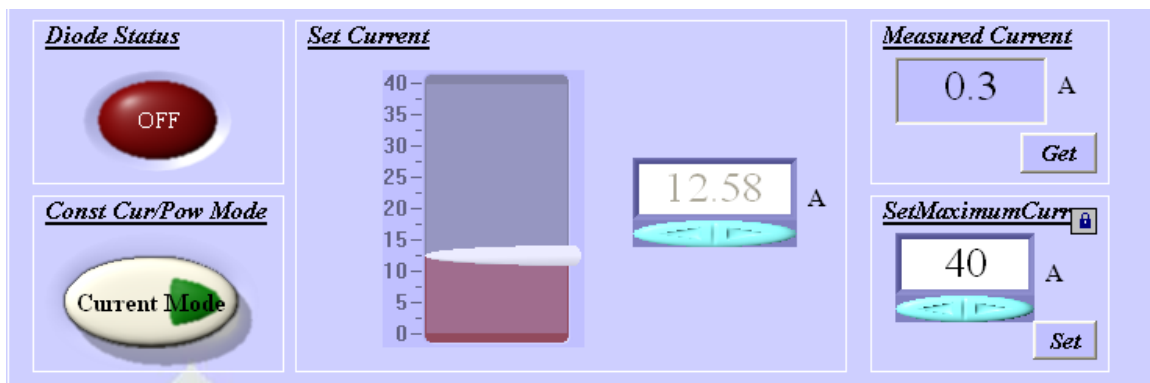
- Diode Status Button - This button indicates whether the diode is ON or OFF. To change the present status (from OFF to ON or vice versa), click this button.

Diode Mode: (constant current mode / constant power mode)



- Diode Mode Button - This button indicates the present operation mode of the diode i.e., it indicates whether the diode operates in constant Current Mode or constant Power Mode. To change the mode (from Current Mode to Power Mode or vice versa), click this button once.

Set & Get Diode Current / Power (Amps / Watts)



To set the value for current (in constant current mode) / power (in constant power mode), you can use one of the following.

- Slide - You can use your mouse to drag the pointer in the Slide to point the required value to select the required value for Current (for constant current mode) or Power (for constant Power mode). This is a quicker way.
- Text field - You can also use the text field to enter directly the value you want to set under Set Current.
- Arrow Buttons - You can also use the arrow buttons present under the text box to modify the value.

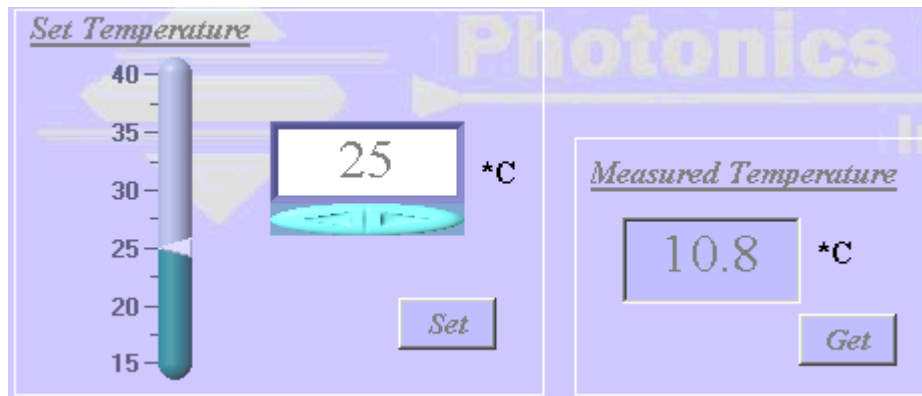
After selecting the desired value by any one of above means, Click *Set* button to set the value.

To view the actual value, click *Get* button. The measured value appears in the corresponding text box. You cannot change the measured value.

Set Maximum Current (Amps):

This feature is Password protected. To set the maximum limit for current, enter the value to be set in the textbox and then click *Set*. A window appears prompting you to enter Password. Enter your Password in the textbox and click *OK*. If your Password is incorrect, you cannot set the maximum current.

Set & Get Diode Temperature (°C):



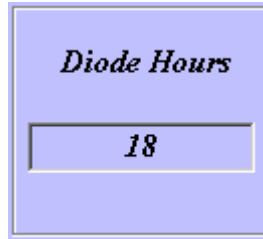
To set the value for diode temperature, you may use any one of the following.

- Slide - You can use your mouse to drag the pointer in the slide to select the required value for diode temperature. This is a quick and easy way.
- Text field - You can also use the text field to enter the value you want to set directly.
- Arrow Buttons - You can also use the arrow buttons present under the text box to modify the value.

After selecting the desired value by any one of above means, Click *Set* button to set the value.

To view the actual value of temperature, click *Get* button. The measured value appears in the corresponding text box. You cannot change the measured value, as it is read-only actual value from the system.

Diode Hours:

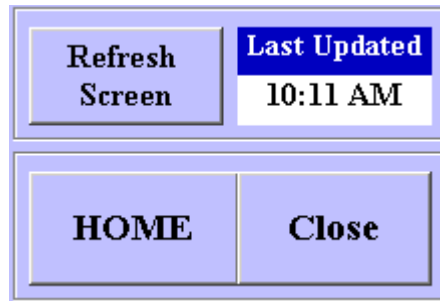


This window displays the number of hours the diode has been used at any point in time. You cannot alter the value since it is read-only.

Diode Table:

| <i>Diode</i> | <i>Serial Number</i> | <i>Installation Date (mm/dd/yy)</i> | <i>Measured Voltage (V)</i> | <i>Measured Power (W)</i> |
|--------------|----------------------|-------------------------------------|-----------------------------|---------------------------|
| N/A | N/A | N/A | 10 | 0 |

This table has diode information such as serial number, installation date, measured voltage and measured power. These values are read-only.



Refresh Screen Button – updates the screen with current values, when you click this button. This is required to get present values of some of the system parameters, which may differ, with the stored values acquired by the software previously. The present value and the last stored value can differ if the user changes them by using the front panel button of the laser driver or if the environment changes for any other reasons.

Last Updated Window – displays the time at which the screen was updated last.

Home Button – Loads the [Home Screen](#), when you click it.

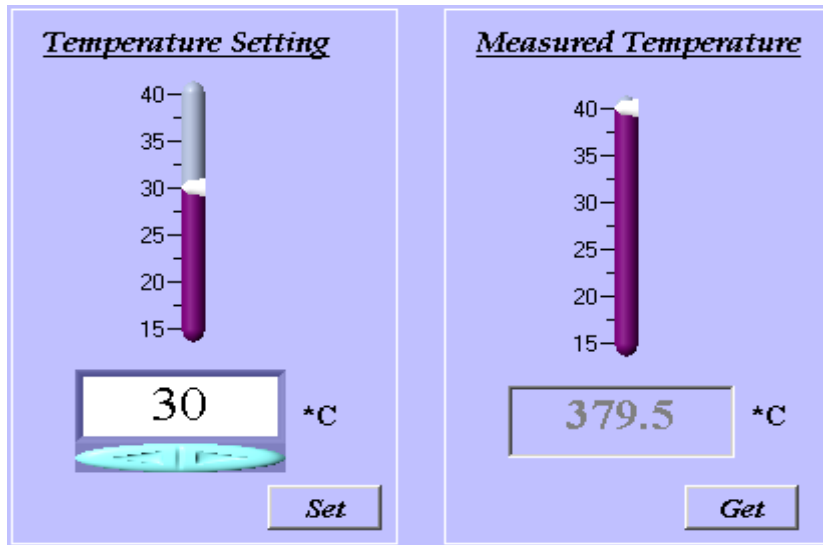
Close Button – Closes the diode screen, if clicked.

Chiller Screen



Clicking *Chiller* in the [Menu Bar](#) or the  icon in the Toolbar opens the Chiller Screen.

Set & Get Chiller Temperature (°C):

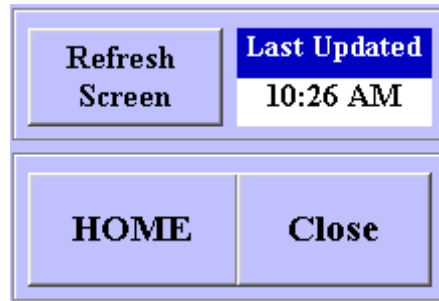


To set the value for chiller temperature, you may use any one of the following.

- Slide - You can use your mouse to drag the pointer in the slide to select the required value for chiller temperature. This is a quicker and easier way.
- Text field - You can also use the text field to enter the value you want to set directly.
- Arrow buttons - You can also use the arrow buttons present under the text box to modify the value.

Selecting the desired value by any one of the above means, Click *Set* button to set the value.

To view the actual value of temperature, click *Get* button. The measured value appears in the corresponding text box. You cannot change the measured value, as it is read-only actual value from the system.



Refresh Screen Button – updates the screen with current values, when you click this button. This is required to get present values of some of the system parameters, which may differ, with the stored values acquired by the software previously. The present value and the last stored value can differ if the user changes them by using the front panel button of the laser driver or if the environment changes for any other reasons.

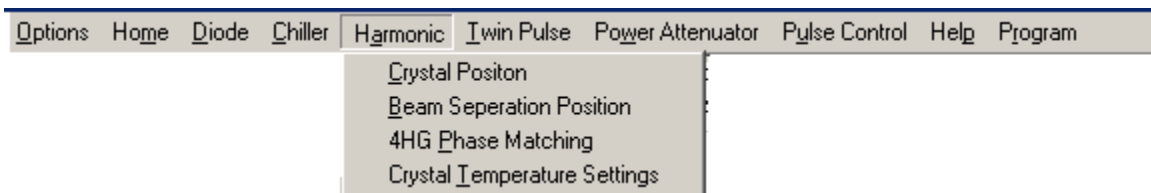
Last Updated Window – displays the time at which the screen is updated last.

Home Button – Loads the [Home Screen](#), when you click it.


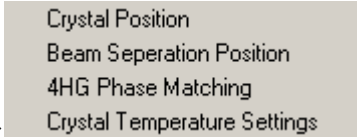
Close Button – Closes the chiller screen, if clicked.

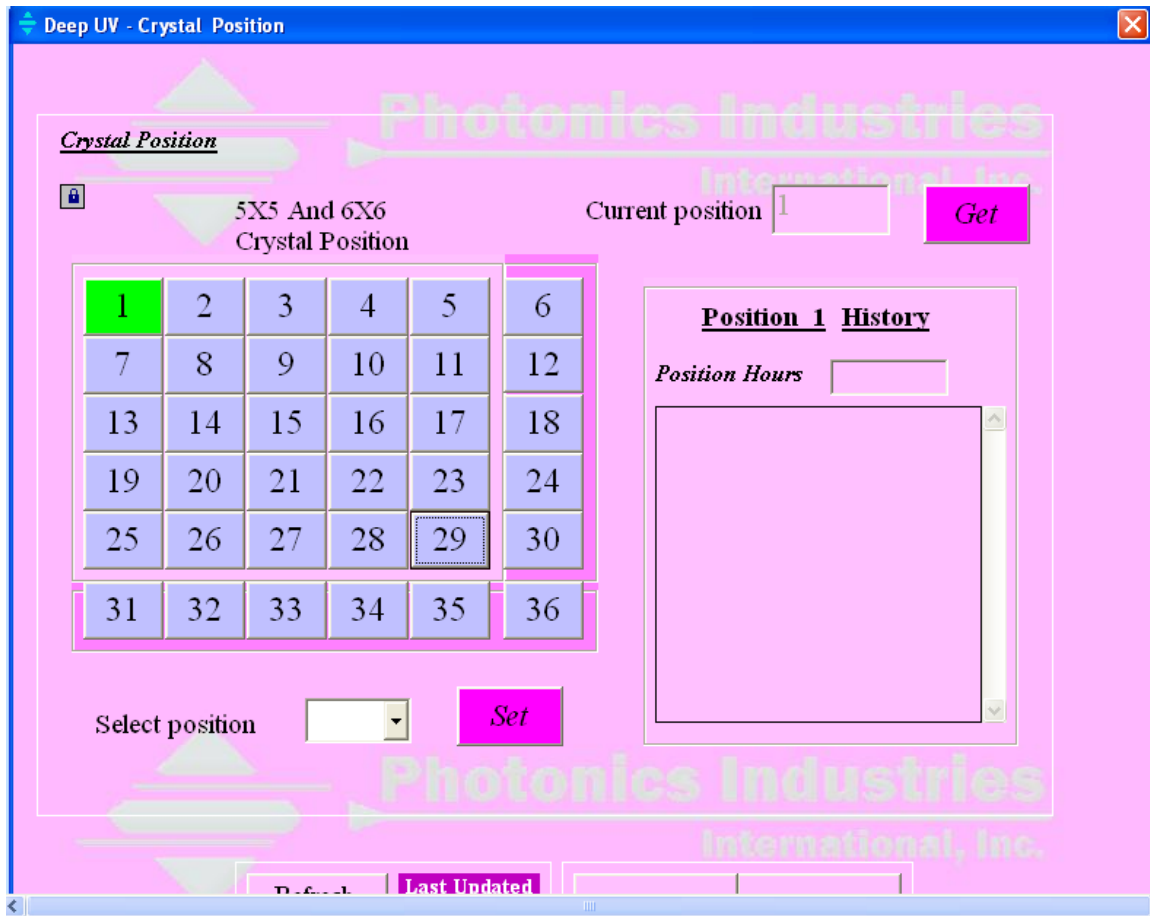
Harmonic

Crystal Position Screen



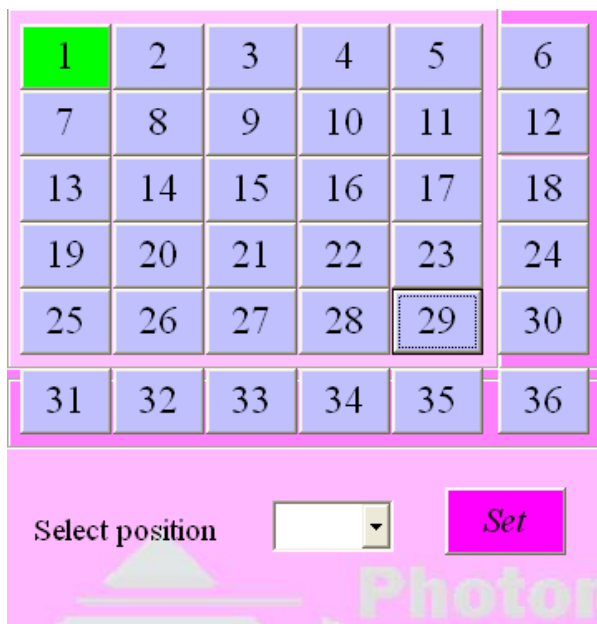
Clicking *Harmonic* → *Crystal Position* in the [Menu Bar](#) opens the Crystal Position Screen.

Also, clicking  icon will open this list → . Clicking *Crystal Position* in this list opens the Crystal Position Screen.



Set Crystal Position:

This feature is password protected. To set crystal position, you may

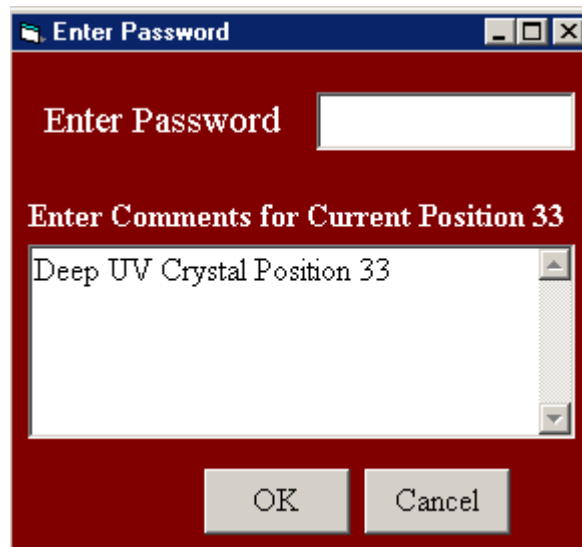


- For 5x5, select inter-boxed 25 positions
- For 6x6, select a position (1 to 36) in the number-pad by clicking on the number. The number you selected changes to blue color.

In the number-pad

- Green color – Present Position
 - Blue color – Selected Position
 - Purple – Last Set Position (Changes to green automatically when the motor moves to this position)
- Select position from the dropdown box at the bottom of the crystal position window.

Then, click *Set* button to set the position. After clicking the Set button, a window as pictured below appears prompting you to enter the password and any suggestions comments to be stored for that particular position. Any text message or data could be store. Enter password and comments (if any) and then click *OK*. The number in number-pad changes to purple, when you set the position.



Once you set a position, a window appears with a message that indicates the movement of the motor. When the motor stops moving. This window will disappear automatically.

Get Crystal Position:

| | | |
|------------------|--------------------------------|------------------------------------|
| Current position | <input type="text" value="1"/> | <input type="button" value="Get"/> |
|------------------|--------------------------------|------------------------------------|

To view the current position, click *Get* button. Current crystal position appears in the corresponding text box.

Position History:

| | |
|--|---------------------------------|
| <u>Position 36 History</u> | |
| <i>Position Hours</i> | <input type="text" value="10"/> |
| <div>Deep UV Crystal Position 36</div> | |

The position history window displays information about a selected crystal position. The information includes the number of hours for which this particular position was used previously and the details/comments saved against it. The user can see the information in relation to the Position History of a particular position just by clicking that position on the Select Position Screen. At this stage, with the aid of the Set Crystal Position Screen they can also set a new position if they wish.

| | | | |
|---|---|-------------------------------------|--------------------------------------|
| <input type="button" value="Refresh Screen"/> | <div>Last Updated 10:35 AM</div> | <input type="button" value="HOME"/> | <input type="button" value="Close"/> |
|---|---|-------------------------------------|--------------------------------------|

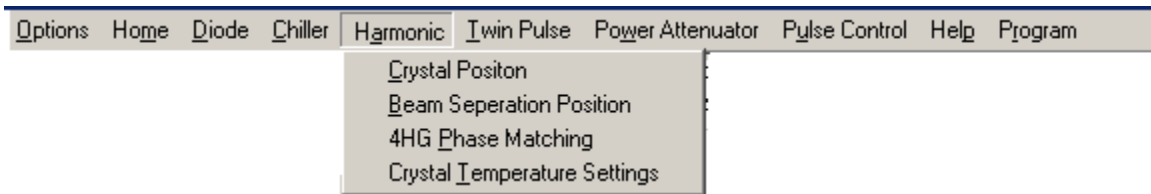
Refresh Screen Button – updates the screen with current values, once you click this button. This is required to get present values of some of the system parameters, which may differ, with the stored values acquired by the software previously. The present value and the last stored value can differ if the user changes them by using the front panel button of the laser driver or for any other reasons.

Last Updated Window – displays the time at which the screen is updated last.


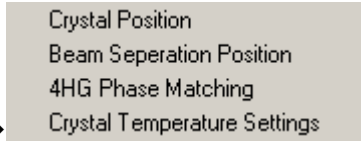
Home Button – Loads the [Home Screen](#), when you click it.

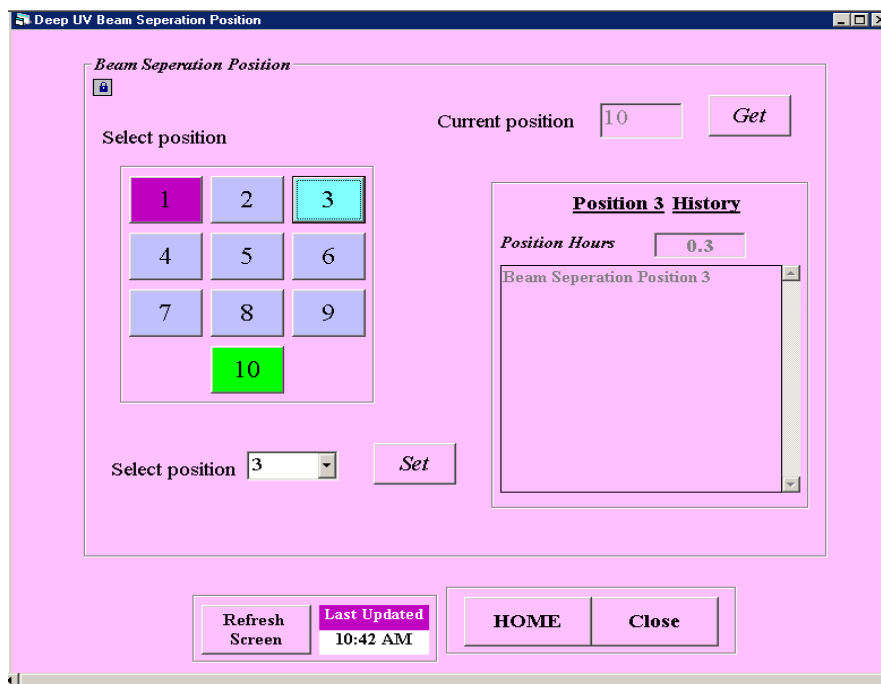
Close Button – Closes the Crystal Position Screen, if clicked.

Beam Separation Motor Position Screen



Clicking *Harmonic* → *Beam Separation Position* in the [Menu Bar](#) opens the Beam separation Position Screen.

Also, clicking  icon will open this list → . Clicking *Beam Separation Position* in this list opens the Beam separation Position Screen.



Set Beam Separation Position:

The screenshot shows a software window titled "Select position". Inside, there is a grid of ten buttons numbered 1 through 10. Button 1 is purple, button 3 is blue, and button 10 is green. The other buttons (2, 4, 5, 6, 7, 8, 9) are light blue. Below the grid, there is a label "Select position" followed by a dropdown menu showing the number "3". To the right of the dropdown is a button labeled "Set".

This feature is password protected. To set beam separation position, you may

- Select a position (1 to 10) in the number-pad by clicking on the number. The number you selected changes into Blue color.

In the number-pad

- Green color – indicates Present Position
 - Blue color – indicates Selected Position
 - Purple – indicates Last Set Position (Changes to green automatically when the motor moves to this position)
- Select position from the dropdown box

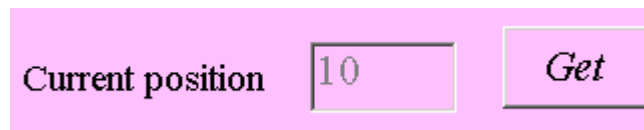
Then, click *Set* button to set the position. After clicking the *Set* button, a window appears prompting you to enter the password and any suggestions or comments to be stored for that particular position, to be referred in future if required. Any text message or data could be store. Enter password and comments (if any) and then click *OK*. The number in number-pad changes to purple, when you set the position.



A dialog box titled "Enter Password" with a red background. It contains a label "Enter Password" and a text input field with "****". Below this is a label "Enter Comments for Current Position 1" and a text area containing "Beam Separation Position 1". At the bottom are "OK" and "Cancel" buttons.

Once you set a position, a window appears with a message that indicates the movement of the motor. When the motor stops moving. The window disappears automatically.

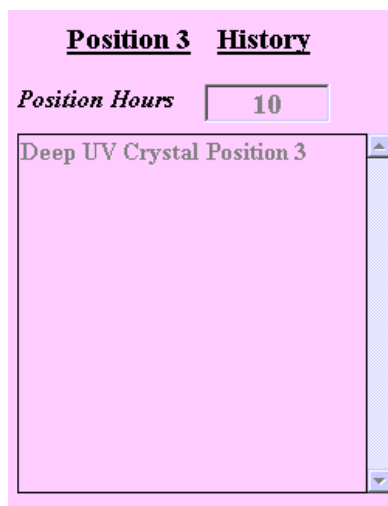
Get Beam Separation Position



A control panel with a pink background. It features a label "Current position" next to a text input field containing "10", and a button labeled "Get".

To view the current position, click *Get* button. Current beam separation position appears in the corresponding text box.

Position History:



A window titled "Position 3 History" with a pink background. It has a label "Position Hours" next to a text input field containing "10". Below this is a text area labeled "Deep UV Crystal Position 3".

The position history window displays information about a current or selected crystal position. The information includes the number of hours for which this particular position was used previously and the details/comments saved against it. The user can see the information in relation to the Position History of a particular position just by clicking that position on the Select Position Screen. At this stage, with the aid of the Set Beam Separation Position Screen they can also set a new position.



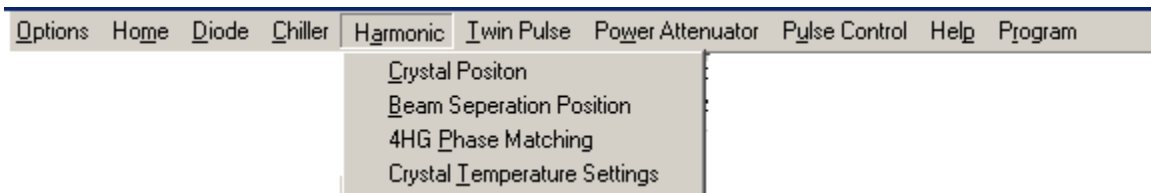
Refresh Screen Button – updates the screen with current values, once you click this button. This is required to get present values of some of the system parameters, which may differ, with the stored values acquired by the software previously. The present value and the last stored value can differ if the user changes them by using the front panel button of the laser driver or for any other reasons.

Last Updated Window – displays the time at which the screen is updated last.

Home Button – Loads the [Home Screen](#), when you click it.


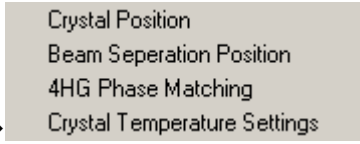
Close Button – Closes the screen, if clicked.

Harmonic Phase Matching Screen



Clicking *Harmonic* → *4HG Phase Matching* in the [Menu Bar](#) opens the 4HG Phase Matching Screen.



Also, clicking  icon will open this list → . Clicking *4HG Phase Matching* in this list opens the 4HG Phase Matching Screen.

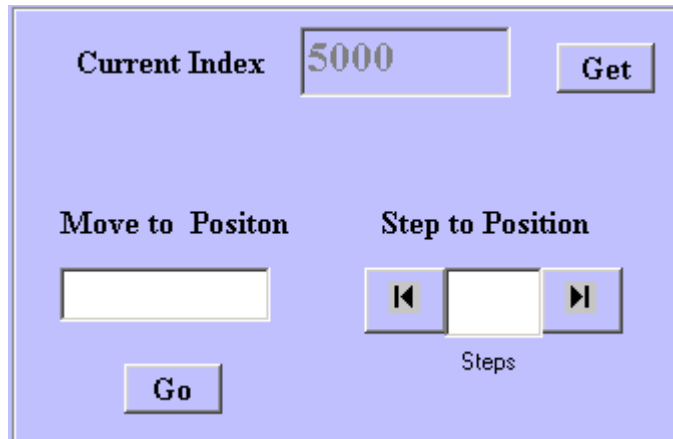
In this window, the Phase Matching index (at which the laser power is optimum) can be accurately obtained by moving the crystal in steps in both directions. The position can also be moved directly to a desired index.

Laser Power:



The screenshot shows a software window with a light blue background. On the left, the word "Power" is displayed in a large, dark blue serif font. To its right is a dark blue rectangular box containing the number "23632" in a yellow serif font. Further to the right is a button with a black border and a light blue background, containing the text "Update Power" in a black serif font.

Clicking *Update Power* Button gets the Laser Power.



The screenshot shows a software window with a light blue background. At the top, the text "Current Index" is followed by a text box containing the number "5000". To the right of the text box is a button labeled "Get". Below this, there are two main sections. The left section is titled "Move to Positon" (note the typo) and contains a large empty text box. Below this text box is a button labeled "Go". The right section is titled "Step to Position" and contains a text box flanked by two arrow buttons (left-pointing and right-pointing). Below the text box in this section is the label "Steps".

Get Index:

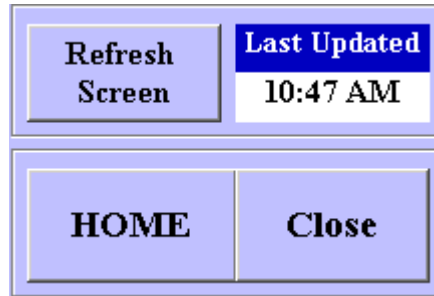
Clicking *Get* Button gets the Current Index.

Move to Position:

You can move the Crystal to a particular position by entering the position index in the Move to Position text box and then by clicking *OK*.

Step to Position:

To move the Crystal in steps, enter the number of steps to be moved in the Step to Position text box and click in the arrow buttons in the right side or left side of the textbox to move the motor clockwise or anticlockwise respectively. Each time you click, the motor is moved the number of steps you entered.



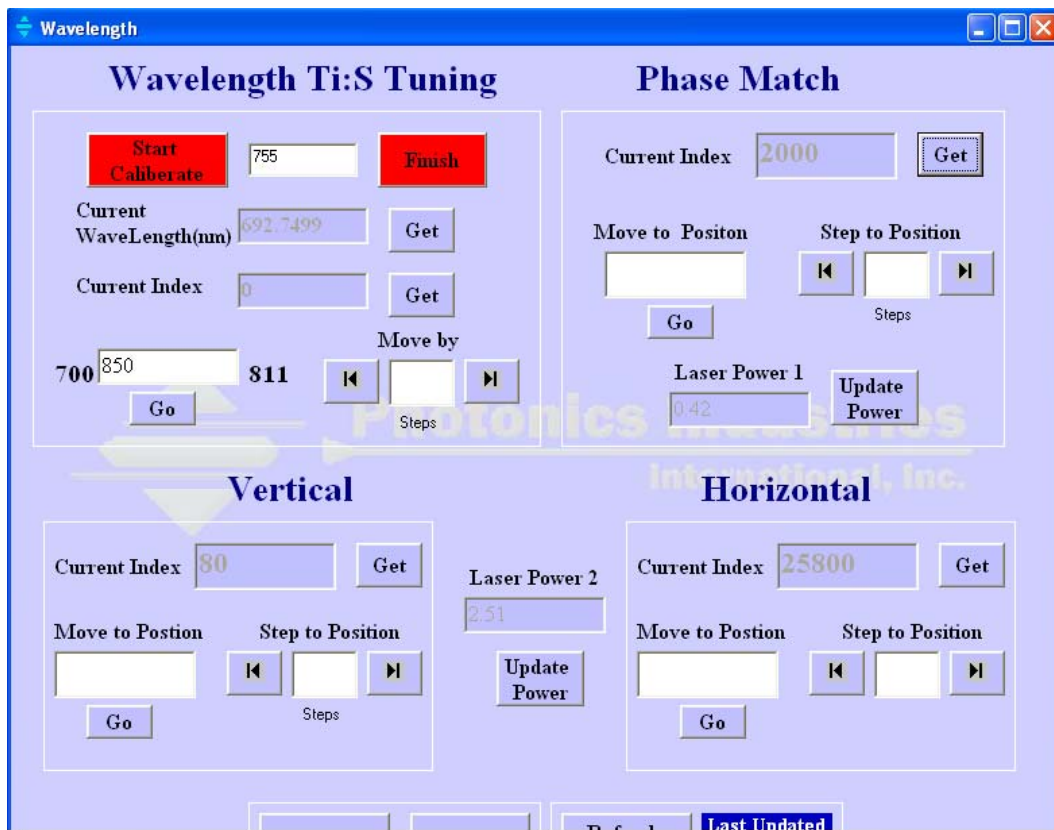
Refresh Screen Button – updates the screen with current values, once you click this button. This is required to get present values of some of the system parameters, which may differ, with the stored values acquired by the software previously. The present value and the last stored value can differ if the user changes them by using the front panel button of the laser driver or for any other reasons.

Last Updated Window – displays the time at which the screen was updated

Home Button – Loads the [Home Screen](#)

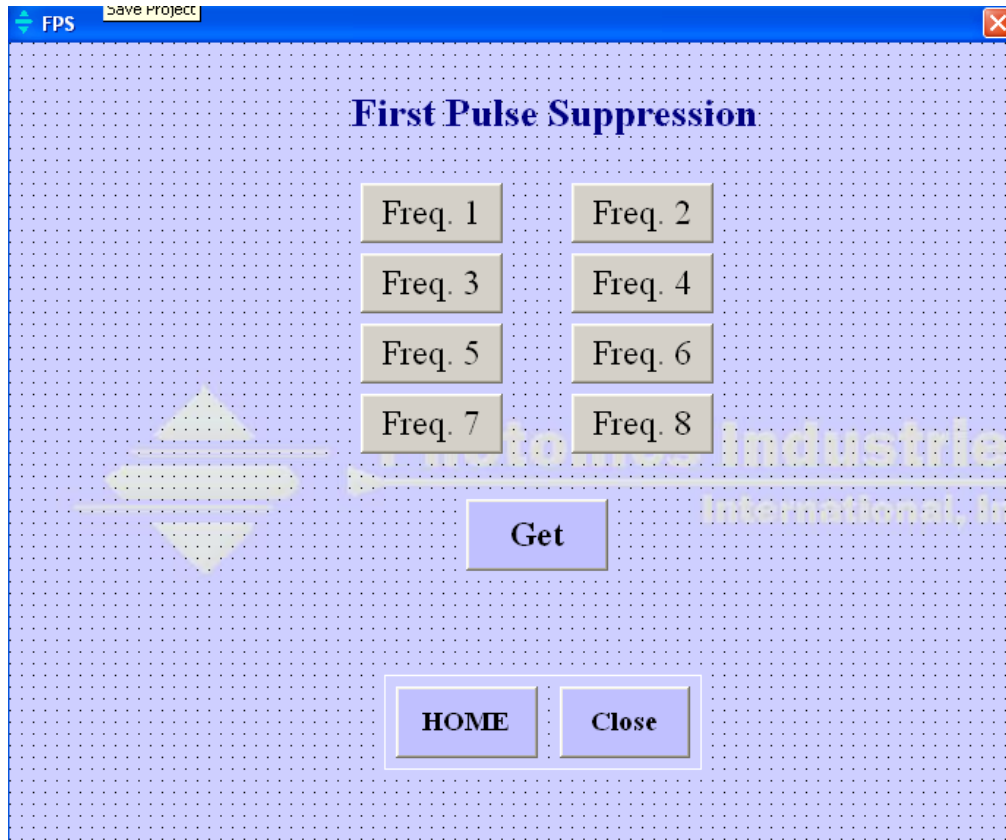
Close Button – Closes the screen

Wavelength Tuning



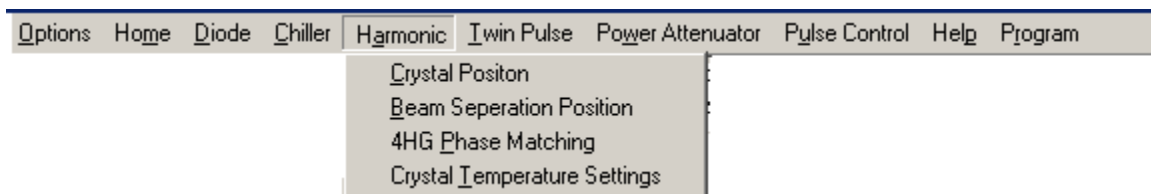
Instruction will be provide for needed model

First Pulse Suppression


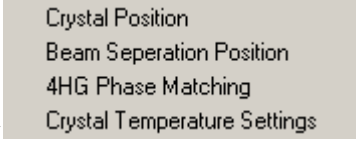


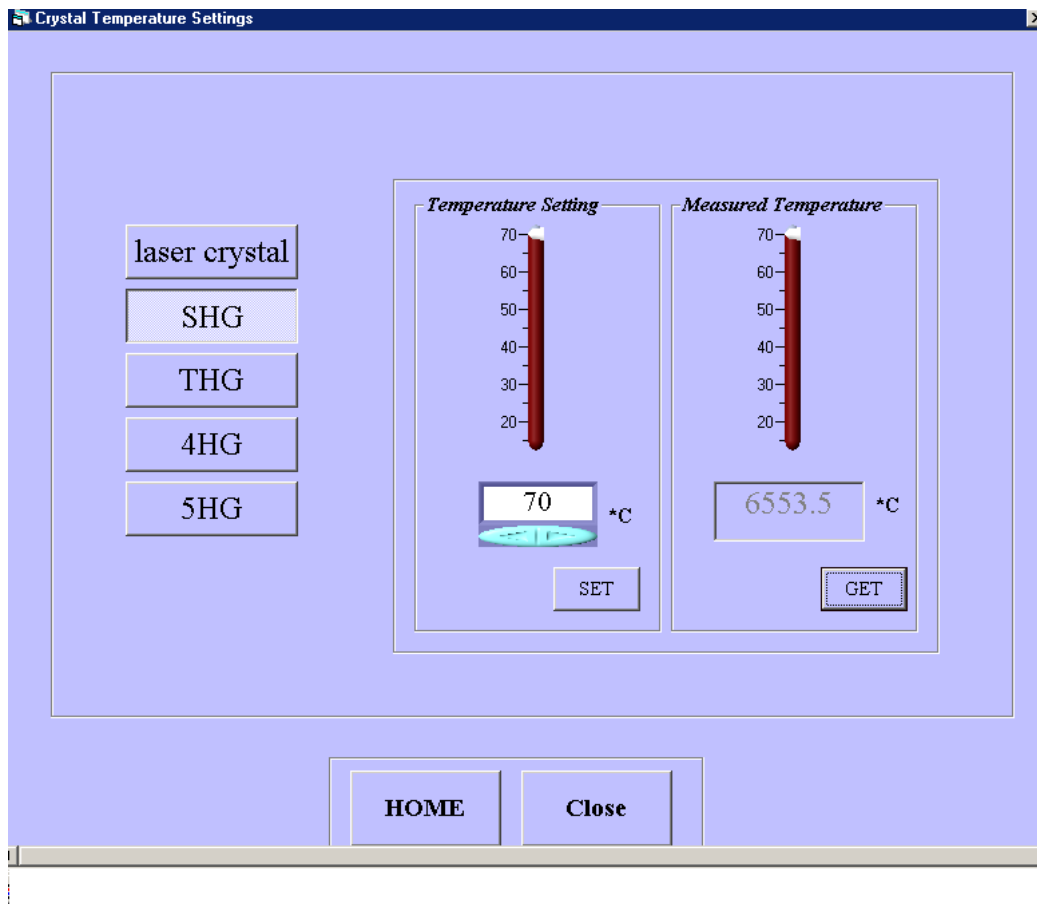
First Pulse Suppression is optimized to operate at one end user selected q-switched frequency and at one laser energy level. The software FPS default parameters in the Laser Controller are factory preset. If various materials to be processed, or other laser parameters changed, the FPS default parameters in the Laser Controller require change to optimize the laser application

Crystal Temperature Settings Screen



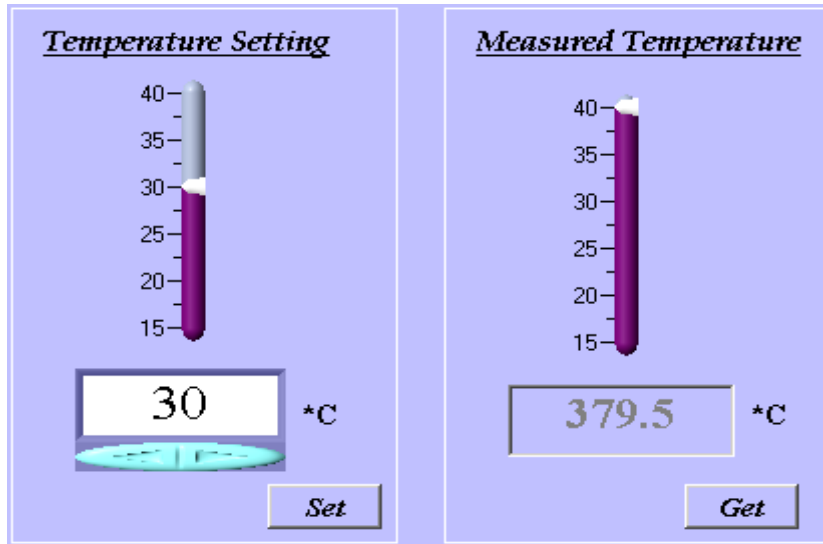
Clicking *Harmonic* → *Crystal Temperature Settings* in the [Menu Bar](#) opens the Crystal Temperature Settings Screen.

Clicking  icon will open this list → . Clicking *Crystal Temperature Settings* in this list opens the Crystal Temperature Settings Screen.



In this window, the temperature for various crystals can be set easily. The actual temperature reading can also be obtained. For example, to set the SHG crystal temperature, the user needs to click on the SHG button on the left side of the Crystal Temperature Settings Screen. Then to set and/or get the SHG temperature the following should be followed.

Set & Get Temperature (°C):



To set the temperature value, you may use any one of the following.

Slide - You can use your mouse to drag the pointer in the slide to select the required temperature value. This is a quicker and easier way.

Text field - You can also use the text field to enter the value you want to set directly.

Arrow buttons - You can also use the arrow buttons present under the text box to modify the value.

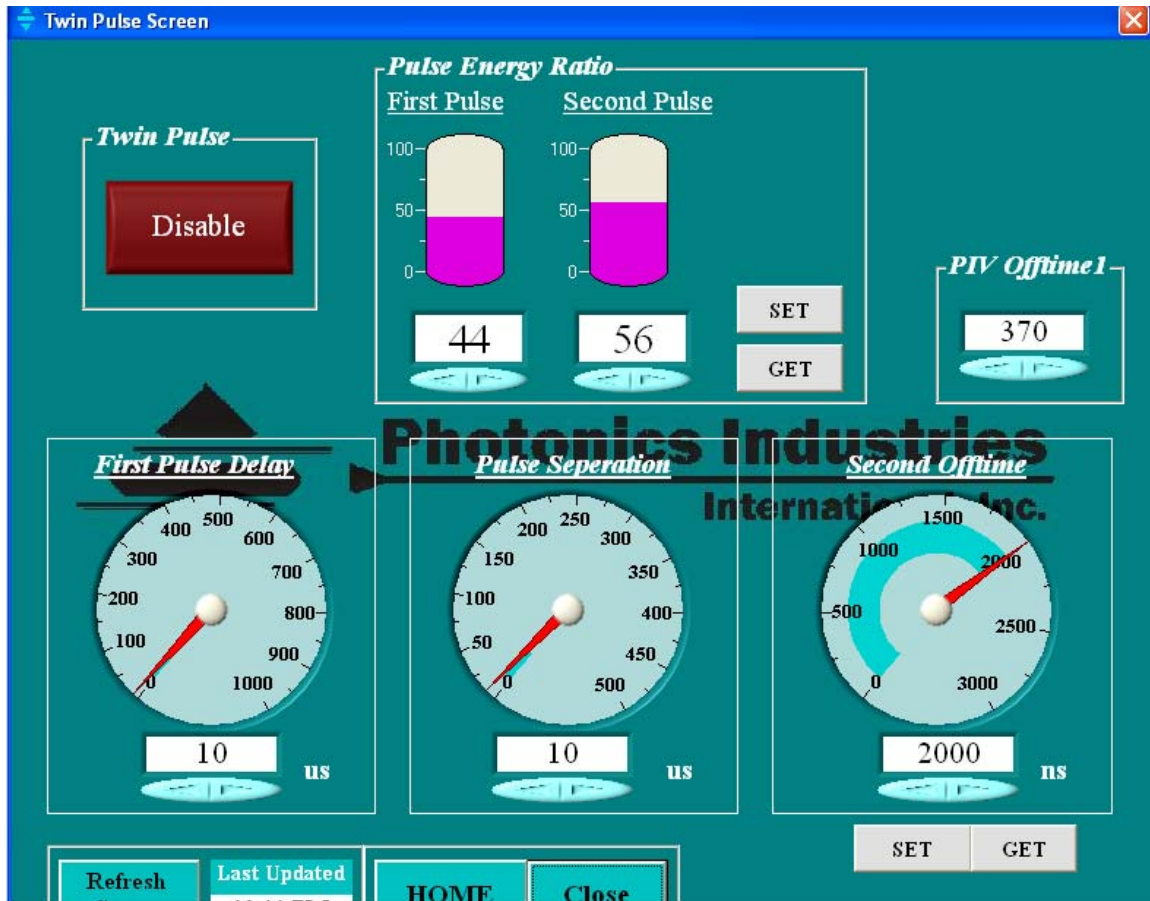
Selecting the desired value by any one of the above means, Click *Set* button to set the value.


To view the actual value of temperature, click *Get* button. The measured value appears in the corresponding text box. You cannot change the measured value, as it is read-only actual value from the system.

Home Button – Loads the [Home Screen](#), when you click it.

Close Button – Closes the screen, if clicked.

Twin Pulse Screen



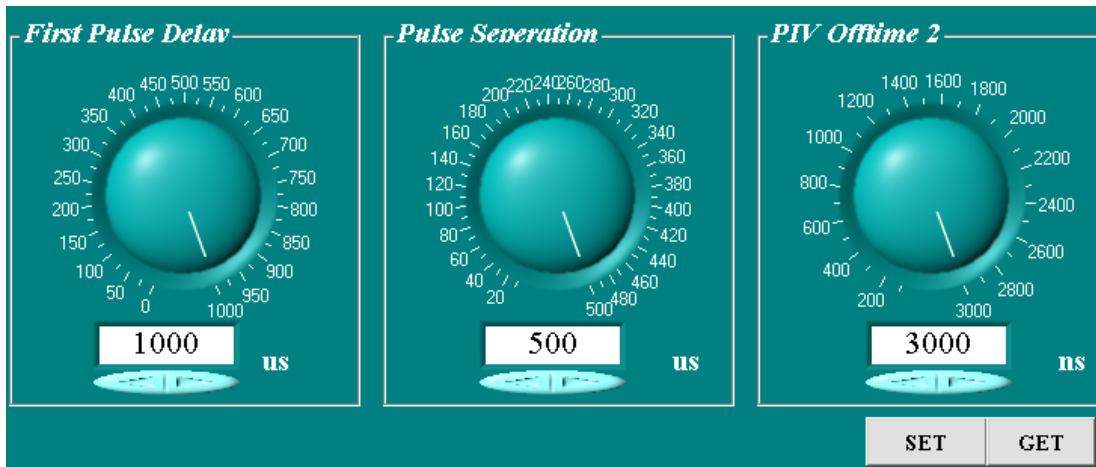
Clicking *Twin Pulse* in the [Menu Bar](#) or the  icon in the Toolbar opens the Twin Pulse Screen. The Twin Pulse screen has:

Twin Pulse Enable / Disable:



This button indicates whether twin pulse mode is either enabled or disabled. To change the modes just click the button once.

Set & Get First Pulse Delay, Pulse Separation and second Offtime:



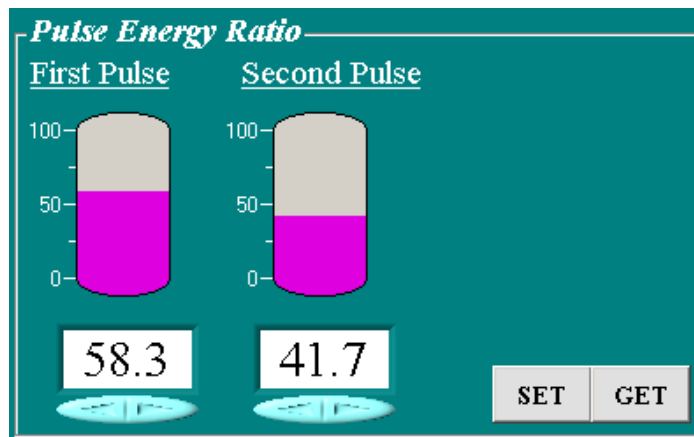
To set the value for first Pulse Delay, Pulse Separation and Second Offtime, you may use any one of the following methods

- Knobs - You can use your mouse to drag the pointers in the respective knobs to point and select the required values.
- Text fields - You can also use the respective text fields to enter directly the values you want to set.
- Arrow Keys - You can also use the arrow keys present under the text box to modify the values.

After selecting the desired values for all the three parameters by any one of the above means, click *Set* button at the bottom to set the values.

To view the actual values click *Get* button. The actual values of first delay, pulse separation and second Offtime will appear in the corresponding text boxes.

Set & Get Diode First and Second Pulse Energy Ratio:



To set the pulse energy ratio, you may alter one pulse (either first or second pulse) using any one of the following. The other pulse energy will be adjusted automatically, so that the total of the ratios is 100 %.

- Slide - You can use your mouse to drag the pointer in the slide to select the required value for pulse energy. This way is quicker and easier.
- Text field - You can also use the text field to directly enter the value you want to set.
- Arrow Keys - You can also use the arrow keys present under the text box to modify the value.

After selecting the desired value by any one of above, Click *Set* button to set the value.

To view the actual values, click *Get* button. The measured value appears in the corresponding text box.



Refresh Screen Button – updates the screen with current values, once you click this button. This is required to get present values of some of the system parameters, which may differ, with the stored values acquired by the software previously. The present value and the last stored value can differ if the user changes them by using the front panel button of the laser driver or for any other reasons.

Last Updated Window – displays the time at which the screen is updated last.

Home Button – Loads the [Home Screen](#), when you click it.

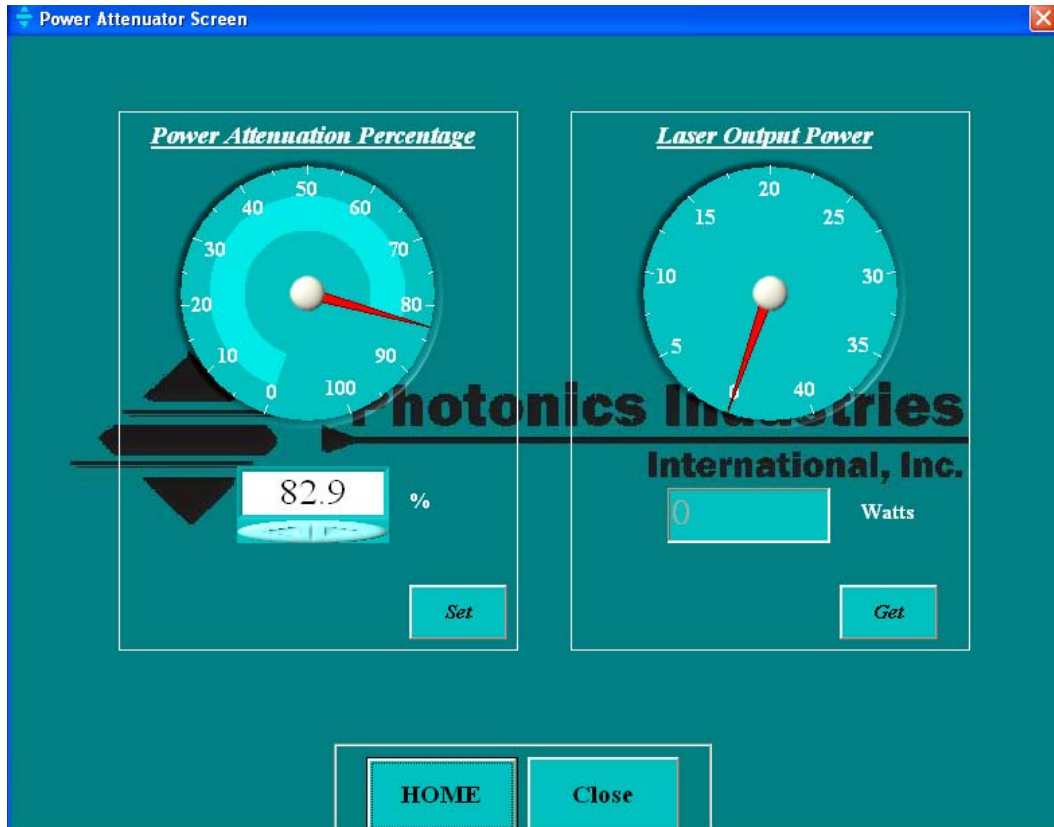
Close Button – Closes the screen, if clicked.

Power Attenuator Screen



Clicking *Power Attenuator Pulse* in the [Menu Bar](#) or the icon in the Toolbar opens the Twin Pulse Screen. The Twin Pulse screen has:

Set Power Attenuation (%):



To set the value for attenuator percentage, you may use any one of the following methods

- Knob - You can use your mouse to drag the pointer in the respective knob to point and select the required value.
- Text field - You can also use the respective text field to enter directly the value you want to set.
- Arrow Buttons - You can also use the arrow buttons present under the text box to modify the value.

After selecting the desired values for all the three parameters by any one of above means, Click *Set* button to set the values.

Get Output Power (watts):


To view the actual value of the laser output power, click *Get* button. The value will appear in the corresponding text box.

Home Button – Loads the [Home Screen](#), when you click it.

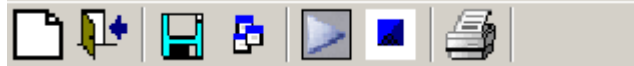
Close Button – Closes the screen, if clicked.

Burst Editor Screen



Clicking *Burst Editor* in the [Menu Bar](#) or the  icon in the Toolbar opens the Burst Editor Screen. Burst Editor Screen is used to program the burst pulse generation.

Burst Editor Toolbar:



The Toolbar in the Burst Editor Screen has icons for

New File icon – Creates a new *.Bst* file to start the program.

Open File icon – Pops up an *Open File Window*. Choose the *.Bst* file (burst file) you want to load and click *OK*. The file will be loaded in the Table.


Save File icon – Saves a program in a *.Bst* file.

Save as File icon – Opens a *Save As File Window*. Choose the directory in which you want to save your file and enter a file name and click *OK*. The values will be stored in the *.Bst* file for future reference.

Run icon – Runs the burst program loaded in the screen, when you click this icon.

Print icon – Opens a *Printer Dialog box*. Choose the printer you are using, number of copies to be printed, etc., and click *OK*. The program will be printed.

Enter values for the table:

| | |
|--|----------------------|
| <i>Number</i> | <input type="text"/> |
| <i>Frequency(Hz)</i> | <input type="text"/> |
| <i>Offtime (ns)</i> | <input type="text"/> |
| <i>Delay (ms)</i> | <input type="text"/> |
| <i>No. of Pulses</i> | <input type="text"/> |
| <i>Energy (%)</i> | <input type="text"/> |
| <div> <i>Next</i></div> | |

Beyond loading from a file, you may enter values manually. To do this, use the textboxes provided for number, frequency (Hz), offtime (ns), delay (ms), number of pulses and pulse energy (%). After entering a set of value, if you click *Next*, the values get added to the table, which is in the right side of the screen. You may enter up to 20 entries. If you enter more than 20 entries, only first 20 entries will be taken when you run the program. You may enter less than 20 entries.

Edit values in the table:

To edit values in the table, double click on the particular value you want to edit. The corresponding row will get loaded in the textboxes. Edit the value in the textbox. The new value automatically gets loaded in the table.

Once you finish entering the whole table, click *Set* Button or use the Toolbar *Run* icon to run the program. You can use the Toolbar *Save* icon to save the value in a file or Toolbar *Print* icon to print the table.

The entire burst program with multiple entries can be repeated by entering the desired repetition number in the *Number of Cycle* box of the Burst Editor screen.

Get current values from the Control Box:



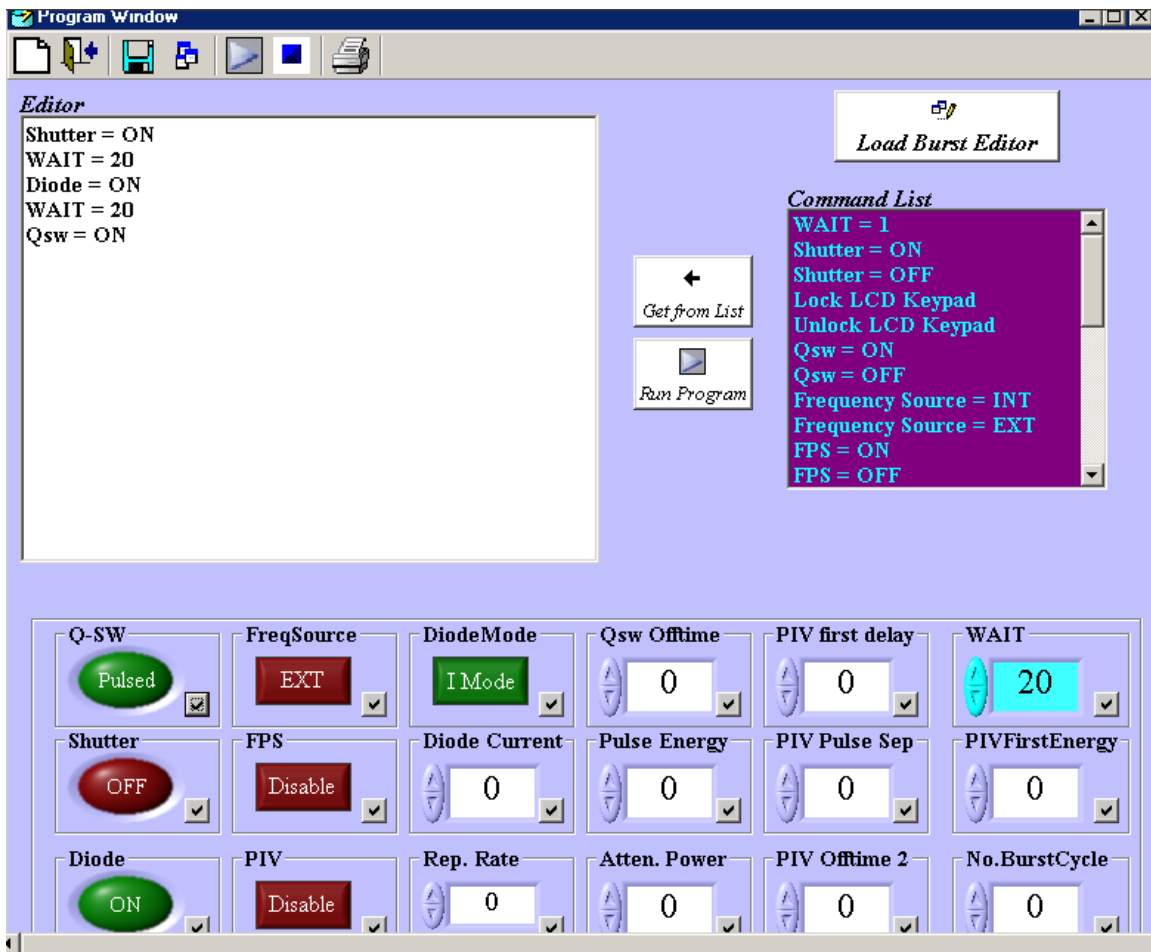
To get the present values from the control box, click the *Get Current Values* Button.

Note: Be sure to choose *.Bst* file, while you are working in Burst Program Editor.

Program Screen



Clicking *Program* in the [Menu Bar](#) or the *Program* icon in the Toolbar opens the Program Screen. Program Screen is used to program a set of commands in a sequence. The commands will be executed in the same sequence.



Program Editor Toolbar:



The tool bar in the Program Screen has icons for

New File icon – Creates a new *.Pro* file (program file) to start entering the program

Open File icon – Opens an *Open File* Dialog box. Choose the *.Pro* file you want to load and click *OK*. The file will be loaded in Command Editor.

Save File icon – Saves a program in a *.Pro* file.

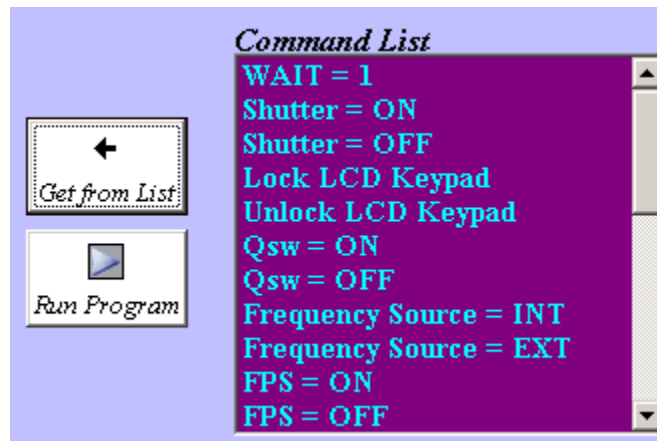
Save as File icon – Opens a *Save As File* Dialog box. Choose the directory in which you want to save your file and enter a file name and click *OK*. The values will be stored in the file for future reference.

Run icon – Runs the program loaded in the command editor, when you click this icon.

Print icon – Opens a *Printer* Dialog box. Choose the printer you are using, number of copies to be printed, etc., and click *OK*. The program is printed.

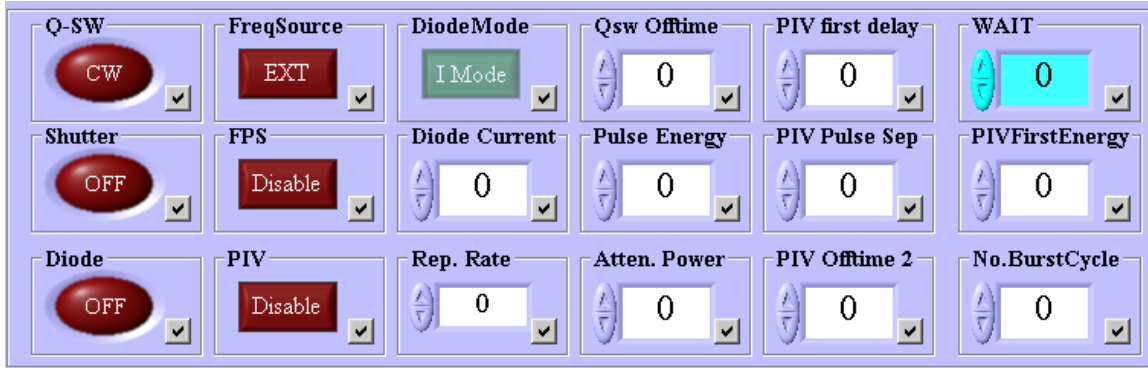
Entering Program:

You may enter the program in the Command Editor in two ways:




1. Using the Command List:

Select a command from the Command List in the right-hand side and click *Get from List* Button or double-click on a command in the Command List. The command will be added in the Command Editor.



2. Using the Visual Selection:


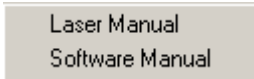
Set the desired value on any of the parameter icon and click the  Button. The corresponding command will be added into the Command Editor.

Once you finish entering the program into the Command Editor, click *Run Program* Button or use the Toolbar *Run* icon to run the program. You can use the Toolbar *Save* icon to save the value in a file or Toolbar *Print* icon to print the program.

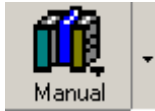
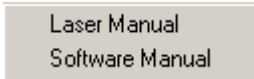
Note: Be sure to choose .Pro file, while you are working in Program Screen.

Manual

Clicking *Help* → *Software Manual* in the [Menu Bar](#) opens Software Manual.


Also, clicking the  icon will open a list like this → . Clicking *Software Manual* in this list opens the Software Manual.

Clicking *Help* → *Laser Manual* in the Menu bar opens Laser Manual.

Also, clicking the  icon will open a list like this → . Clicking *Laser Manual* in this lists, opens the Laser Manual.

About



Clicking *Help* → *Laser System Info* in the Menu bar or the  icon in the Toolbar opens the About Screen.