Chroma

# Programmable AC Source

## 64xx Series

## Soft Panel User's Manual

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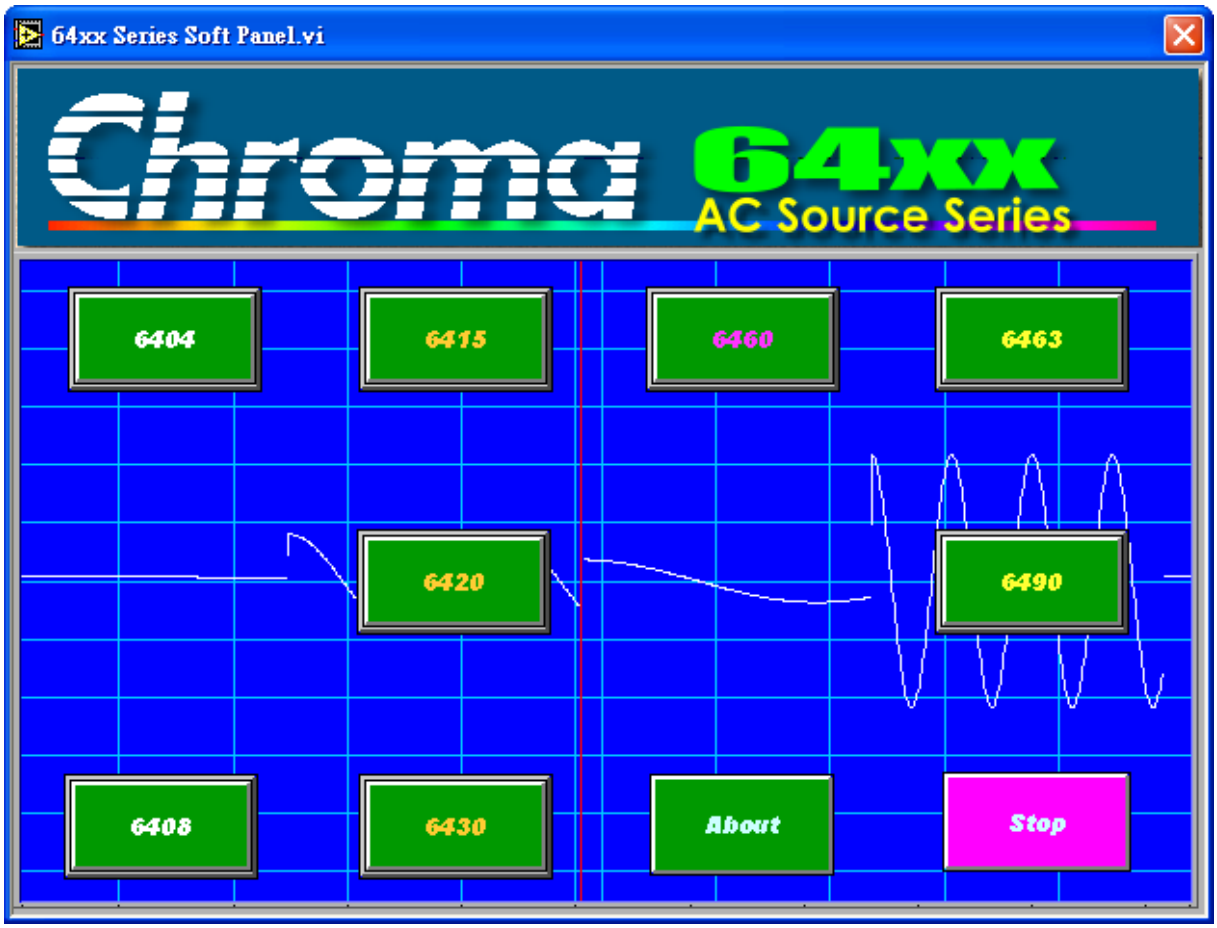


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# Revision History

The following lists the additions, deletions and modifications in this manual at each revision.

| Date | Version | Revised Sections |
|---|---|---|
| Oct. 2012 | 1.0 | Complete this manual. |

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# 1. System Structure

This chapter explains the structure and functions of Chroma 64xx Soft Panel application. The supported instruments and communication interfaces are listed below so that the user can identify the required environment easily.

## 1.1 Introduction

This software is applicable to CHROMA AC Source 64xx Series only. The remote transmission between PC and AC Source must be active before using the software in order to communicate by commands.

The software application can perform internal parameter settings for AC Source and monitor the output measurement. Another feature of the application is to preview the simulated output waveform. Before sending the parameters set for voltage frequency, the screen will display an output waveform element for previewing the waveform. Once the waveform is confirmed by the user, the voltage will be sent. In addition the software is able to save the parameter settings so that user can open an existing file from hard disk for execution easily.

## 1.2 Supported Hardware

Chroma 64xx Series Programmable AC Sources contain the following models:

a. 6404
b. 6408
c. 6415
d. 6420
e. 6430
f. 6460
g. 6463
h. 6490

## 1.3 Communication Interface

There are two types of communication interfaces between PC and AC Sources:

a. GPIB
b. RS232

## 1.4 Software & Hardware Requirements

The soft panel program is quite large; therefore, the following PC software and hardware environments are suggested.

- Intel CPU 2GHz or above
- Microsoft Windows 98 (Second edition), XP
- 20GB hard disk space at least
- 256 MB memory at least
- VGA or SVGA color monitor
- PS2 mouse

# 2. Installation

First install the Chroma 64xx Soft Panel software to the hard disk on PC before using it. This chapter describes how to install the software on Windows step by step.

- Ensure there is at least 256MB or above hard disk space on PC.
- Insert the 64xx Series Soft Panel CD into the CD drive.

## 2.1 Setting up the Soft Panel

Place in the CD and execute the `Setup.exe` file in it to start the installation. The installation main screen appears as Figure 2-1. Both “Chroma 64xx Soft Panel” and “NI VISA Run Time Engine” need to be installed to connect the hardware for testing.

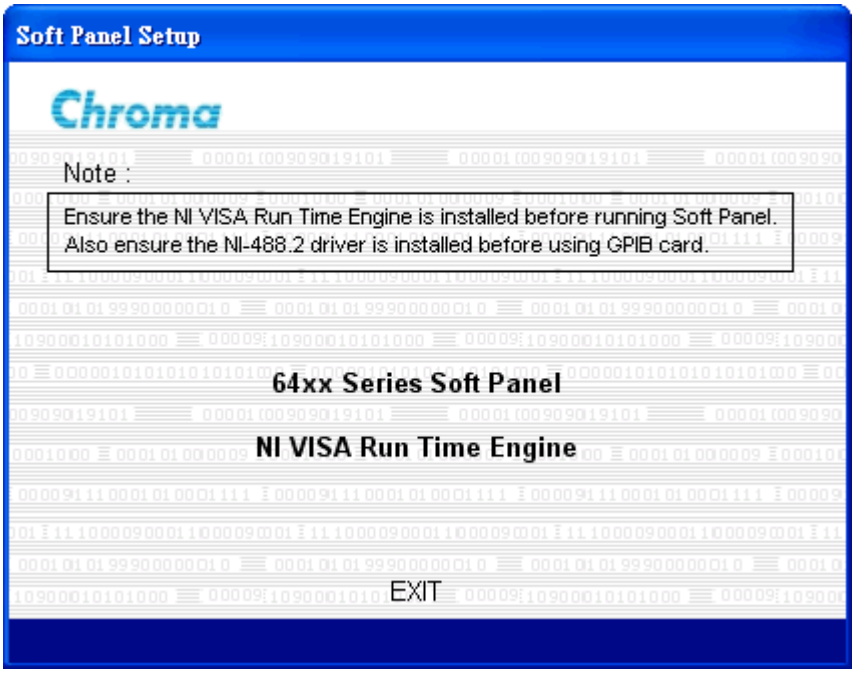



Figure 2-1 Setting Up the Soft Panel

## 2.2 Installation Procedure

Click 64xx Series Soft Panel and the Soft Panel Installation Wizard is prompted as Figure 2-2 shows.

Figure 2-2 64xx Series Soft Panel Installation Wizard

## 2.2.1 Setting 64xx Series Soft Panel Installation Path

Click **Next>** it will prompt the setup window as Figure 2-3 shows.

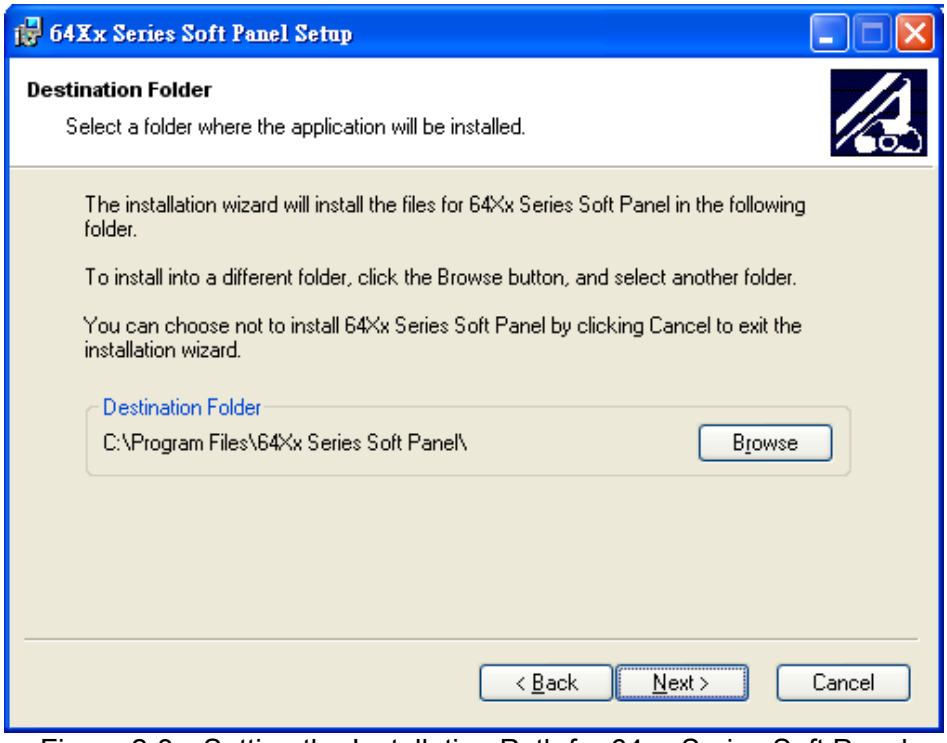



Figure 2-3 Setting the Installation Path for 64xx Series Soft Panel

- As Figure 2-3 shows, the program is default installed in `C:\Program Files` directory. If the directory path needs to be changed, click **Browse** and specify the path for installation.
- Click **Next>** to proceed with the installation as Figure 2-4。

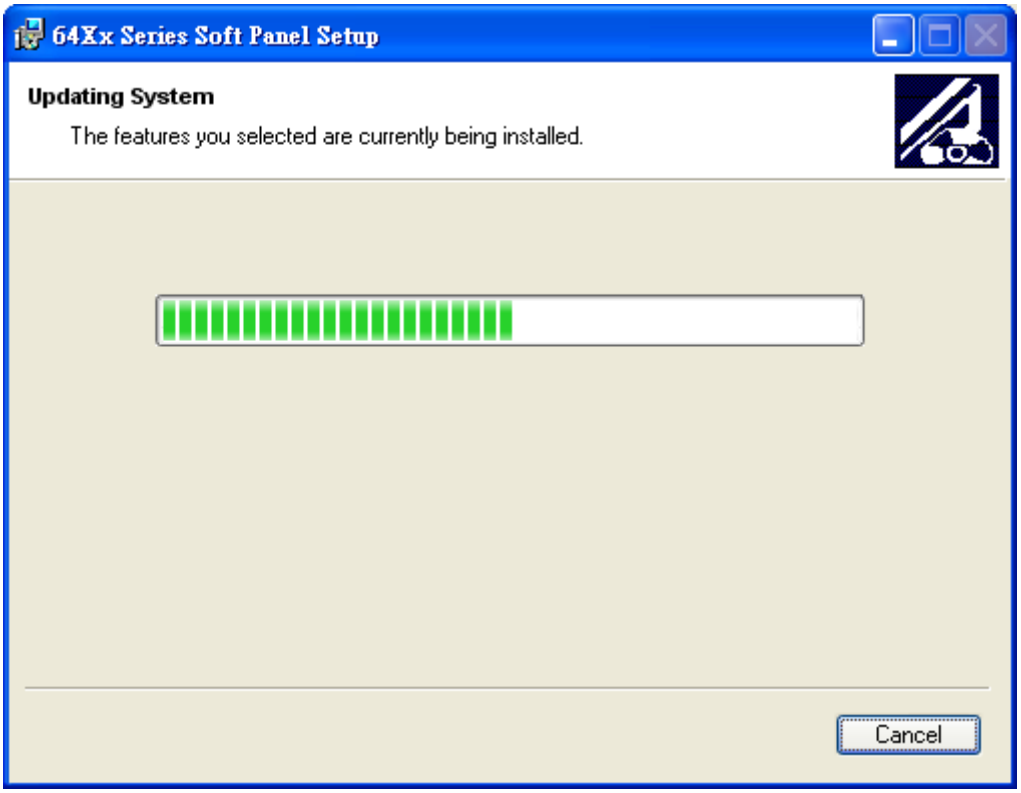



Figure 2-4 Installation Proceeding Window

- When the installation is done, the window appears as Figure 2-5.

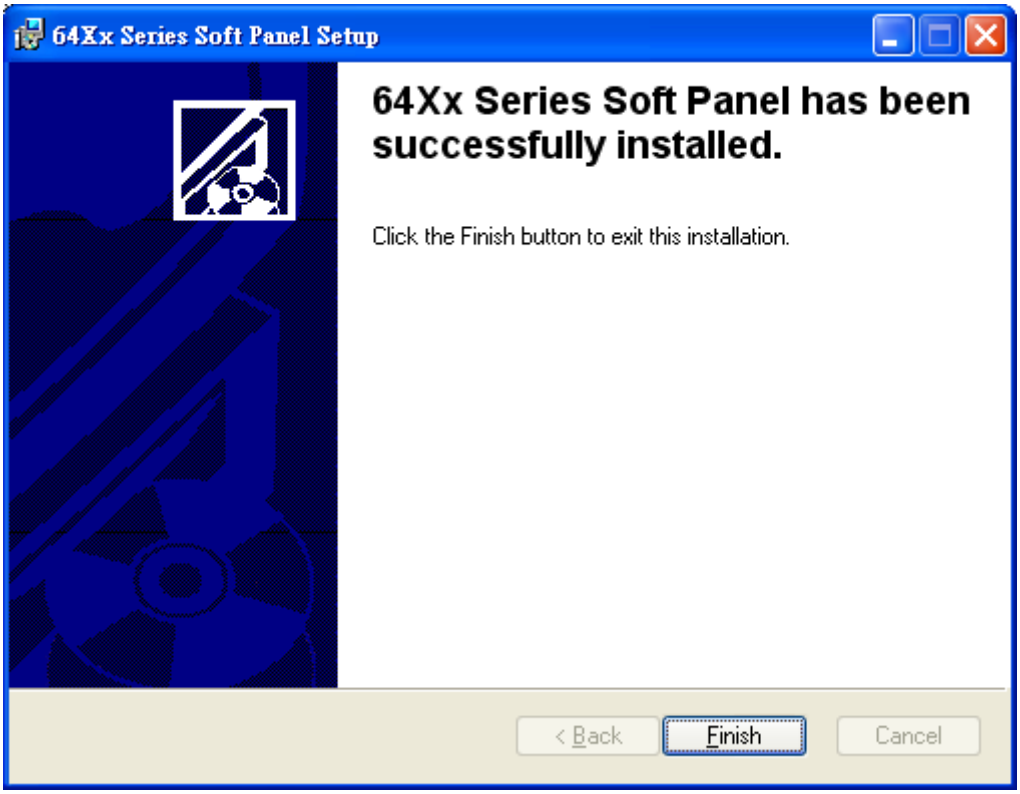



Figure 2-5 Installation Complete Window

## 2.2.2 Installing NI VISA

The Soft Panel installation disk has NI VISA Run Time Engine 3.0 and 4.1 (default installation version) placed in NI directory. Though these two versions are tested valid by Chroma, the user still can follow the Operating System installed to select the suitable VISA version. Other related information, see the web site http://www.ni.com/support/zht/. Please ignore this section if NI VISA Run Time Engine driver has been installed.

1. To install NI VISA 4.1 driver, double-click **NI VISA Run Time Engine** in Figure 2-1 and after the program is initialized, it will prompt the installation as Figure 2-6 shows.

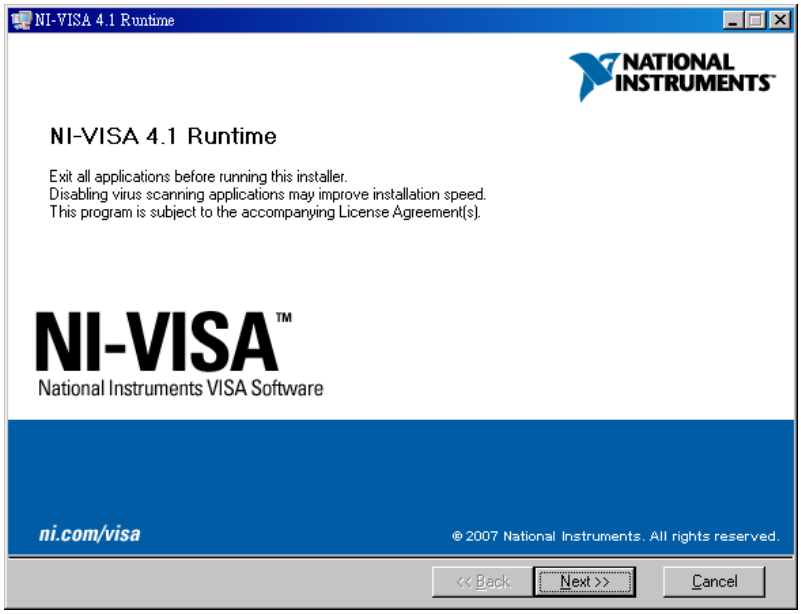



Figure 2-6 Installation Window of NI VISA Ver. 4.1 Driver

2. It is suggested to end the other running applications first, and then click **Next >>** to start the installation. It will enter into the next installation procedure and ask the user for installation path as Figure 2-7 shows.

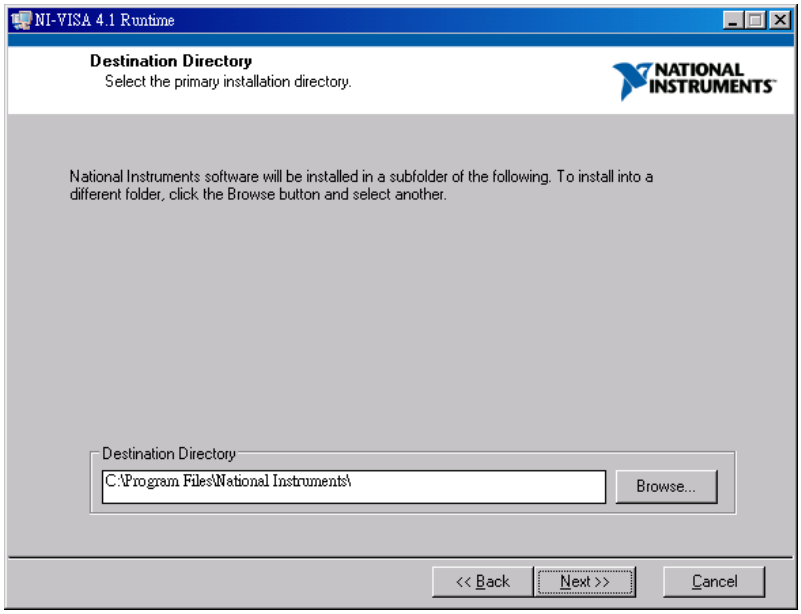



Figure 2-7 Setting Destination Directory for Installation

3. Follow the prompt message to click **Next >>** and complete the installation procedure as Figure 2-8.

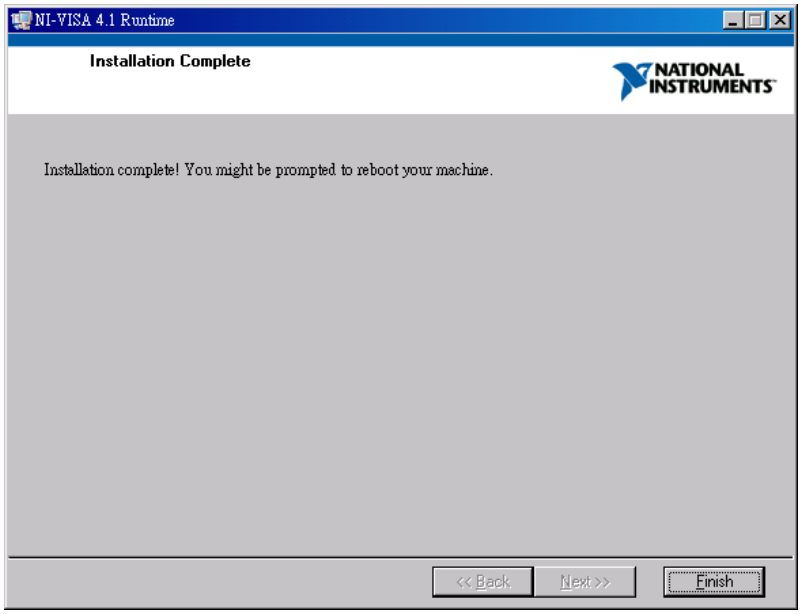



Figure 2-8 Installation Complete Window

4. Whenever the Operating System is updated, the supported NI VISA driver has to be updated as well. Please visit the web site http://www.ni.com/support/zht/ to see the associated link for download.

## 2.3 Installing GPIB Interface Driver

Follow the steps listed in the User's Manual of GPIB Interface Driver for installation.

## 2.4 Uninstalling 64xx Series Soft Panel

To remove the 64xx Series Soft Panel, it is suggested to click **Start→Settings →Control Panel→Add/Remove Programs** to uninstall the related programs.

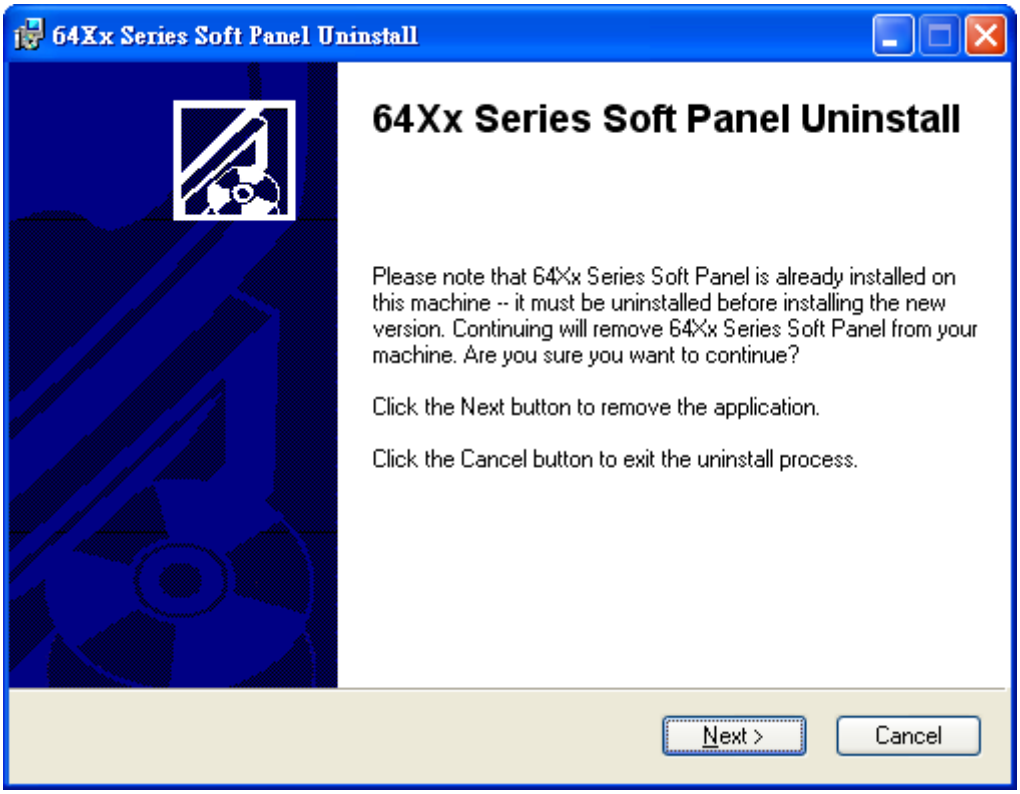



Figure 2-9 Removing 64xx Series Soft Panel

# 3. Starting 64xx Series Soft Panel

## 3.1 Starting

After the installation is done, click [**Start**] →[**Programs**]→ [**64xx Series Soft Panel**] will prompt the start window as Figure 3-1 shows.

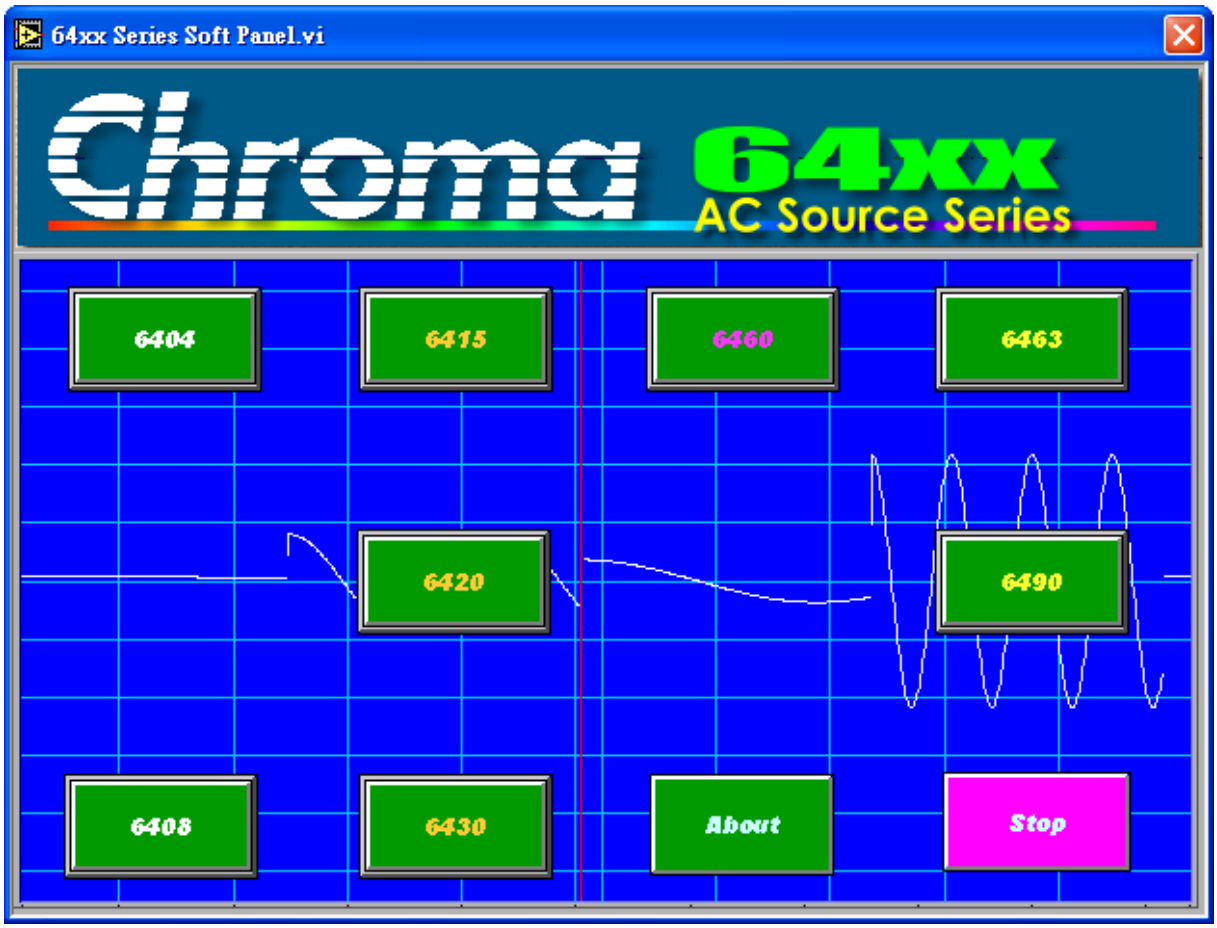



Figure 3-1 64xx Series Soft Panel Start-up Window

Description of Function Keys:

- 6404: Click it to enter into the control mode when using the AC Source of Chroma 6404.
- 6408: Click it to enter into the control mode when using the AC Source of Chroma 6408.
- 6415: Click it to enter into the control mode when using the AC Source of Chroma 6415.
- 6420: Click it to enter into the control mode when using the AC Source of Chroma 6420.
- 6430: Click it to enter into the control mode when using the AC Source of Chroma 6430.
- 6460: Click it to enter into the control mode when using the AC Source of Chroma 6460.
- 6463: Click it to enter into the control mode when using the AC Source of Chroma 6463.
- 6490: Click it to enter into the control mode when using the AC Source of Chroma 6490.
- About: Click it to check the version number. ◦
- Stop: Quit the execution program.

## 3.2 Unit Control Window

When one of the above function keys is clicked, it will enter into the unit control window as Figure 3-2 shows. Click 6430 for instance:

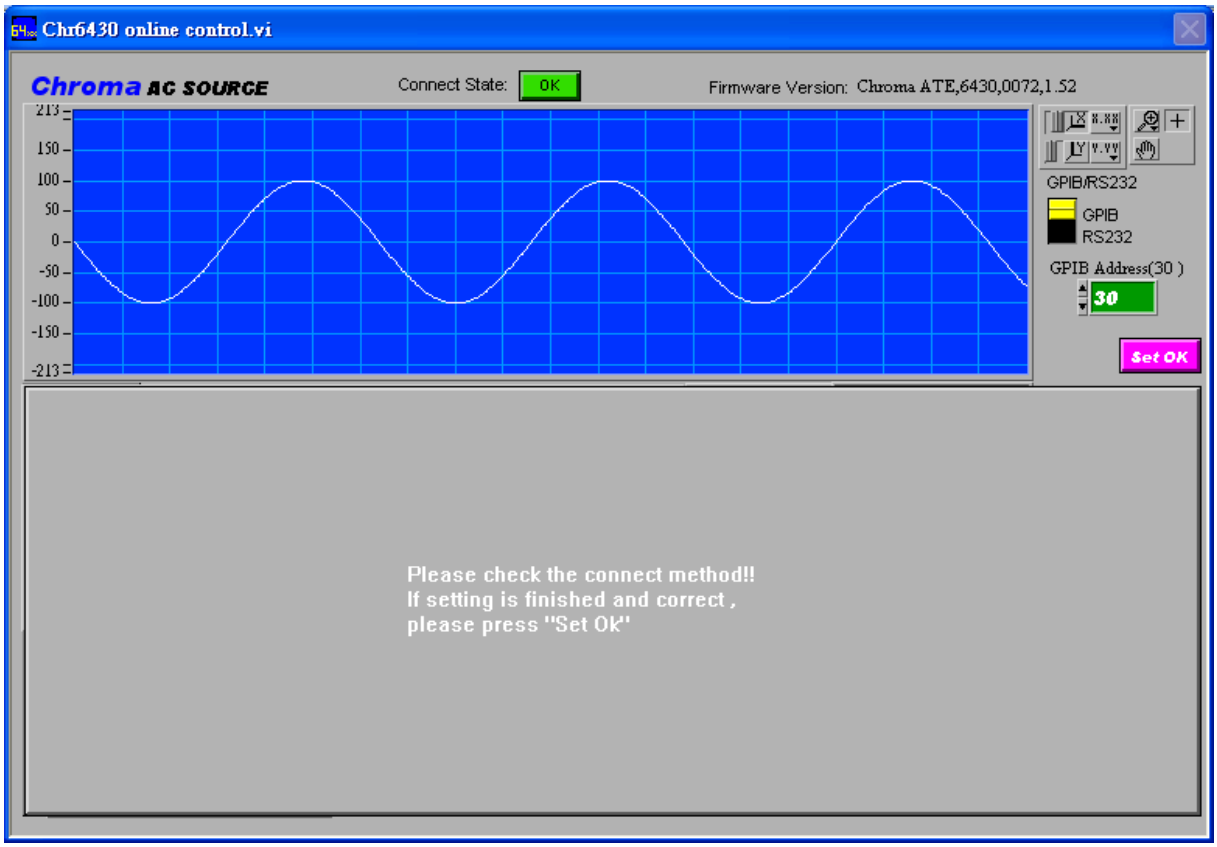



Figure 3-2 Initial Window of Unit Control

First select the communication interface and set the correct protocol parameters, for example Address for GPIB, and Com Port, Baud Rate and Parity for RS232 as Figure 3-3 shows. Press **Set OK** when the setting is done to enter into the screen as Figure 3-4 shows. To modify the communication protocol or parameter, it is necessary to exit the control panel and re-enter again.

Figure 3-3 Setting Communication Protocol

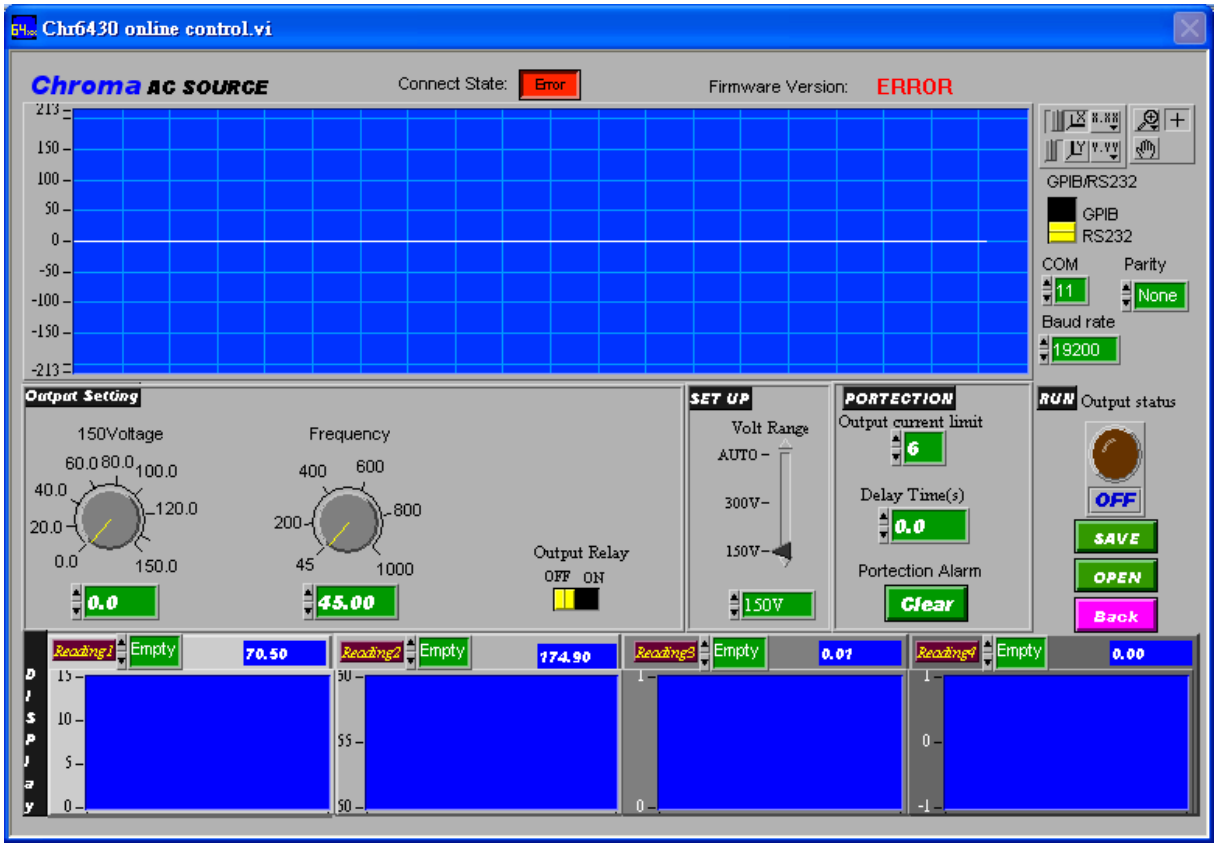



Figure 3-4 Main Control Panel

Check if the instrument is connected in the unit control initial window. If yes, the Firmware Version number will appear as Figure 3-5 shows such as Chroma ATE,6430,0072 ,1.52.

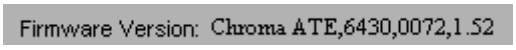



Figure 3-5 Firmware Version on the Unit Control Initial Window

If the instrument is not connected, ERROR will appear instead of Version no. as Figure 3-6 shows:

Figure 3-6 Error Appears When No Instrument is Connected

Check if the communication interface and its parameter settings are correct when error appears.

## 3.2.1 Function Key Description

1. Simulation Output Window:

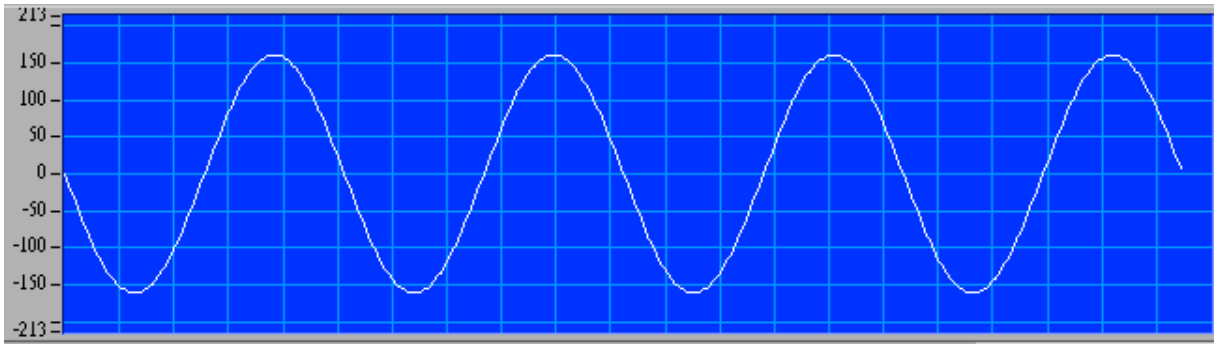



Figure 3-7 Simulation Output Window

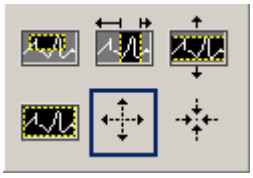
The main function of this window is: It is able to predict the present output status once the input is changed before the instrument output is not turned on. The function is similar to a DSO that is connected to the instrument output terminal. It can simulate the changes between the settings and output at any time so that users can easily know if the settings are correct or meet the requirements.

This window simulates the result with or without output voltage from the instrument.

Graph tools : There are normal , zoom in and move as explained below.

Normal : No action will be performed on Waveform Chart. Click the button will return to normal.

Zoom In : It has 5 zoom in and 1 zoom out functions as the figure shown below. The yellow part in and can zoom in partially by click-and-drag the mouse. The means to zoom in the area clicked by the mouse while means to zoom out the area clicked by the mouse.



Move : Select this function can move the waveform up and down or left and right by click-and-hold Waveform, which means to change the view position but not the scale.

2. Output Setting: There are Voltage, Frequency and Output Relay 3 parameters for setting.

   Voltage: It sets the output voltage.

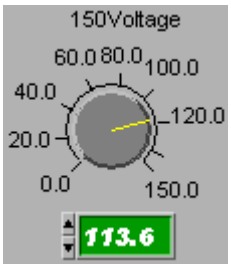



Figure 3-8 Setting Output Voltage

   Frequency: It sets the output frequency.

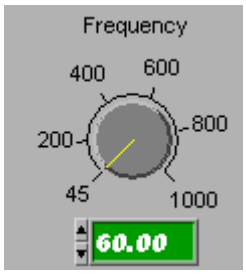



Figure 3-9 Setting Output Frequency

   **Output Relay**: This is to set the Output Relay to ON or OFF. If it sets to OFF, the Relay hookup sound will be heard when the Output is On every time. The release sound can be heard when the Output is OFF. (Not valid for model 6404 and 6408.)

Figure 3-10 Preset the Relay ON or OFF

3. SET UP:
   Voltage Range: The Volt Range sets the instrument voltage ranges to AUTO, 300V or 150V. The user can hear the Relay switch sound. If Auto is set, the output Relay is defined by the voltage set. If output 120V is set, the Relay will switch at 150V. It will affect the output current level. Auto range is not valid for model 6460, 6463 and 6490.

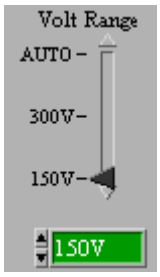



Figure 3-11 Setting the Output Voltage Range

4. RUN: It sets the Output Status to ON or OFF to control the instrument for sending out voltage. The Display area has readings returned only when the Output Status is ON.

Figure 3-12 Voltage Output Button

5. Protection: There Output current limit, Delay time, and Clear for selection.
Output current limit: It sets the maximum limit of output current. It goes into protection mode when the limit is exceeded.

Figure 3-13 Setting the Output Current Maximum Limit

Delay Times(s): It sets the time delayed for the instrument to alarm when the output current exceeds the limit.

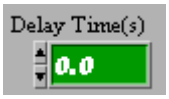



Figure 3-14 Setting the Time Delayed

Alarm: It clears the alarm.

Figure 3-15 Clear the Alarm

6. Back: Click this button to exit the execution window and return the previous one.

Figure 3-16 Exit the Current Window

7. Display: It displays the read back readings. This function only activates when the Output status is ON.

Figure 3-17 "ON" for Output Status

Select the reading by clicking the mouse as Figure 3-18 shows on Reading1~Reading4 to monitor the voltage.

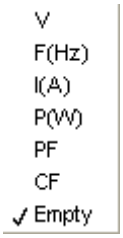



Figure 3-18 Selecting the Measured Output Voltage for Reading to Read Back

Waveform Chart: It displays the readings chart that recorded 100 dots. The interval of each dot is read back in the fastest speed.

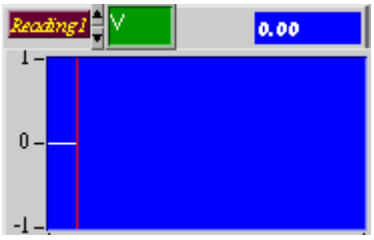



Figure 3-19 Display of Readings

8. Save: Click this button as Figure 3-20 shows can save the current settings to a .fixed file. This function allows users to open the saved .fixed file to save the setting procedures.

Figure 3-20 Button to Save the Current Settings

If the user wishes to save the parameters used presently in the 6430 Soft Panel so that they can be opened directly, click

to open a dialog box as Figure 3-21 shows. Select the path for storing the file and give it a filename (the file extension .6430fixed will be added according to model no.) Users can use this function to save the settings to different files and they may take some hard disk space. Various files may be saved as long as the disk space is big enough.

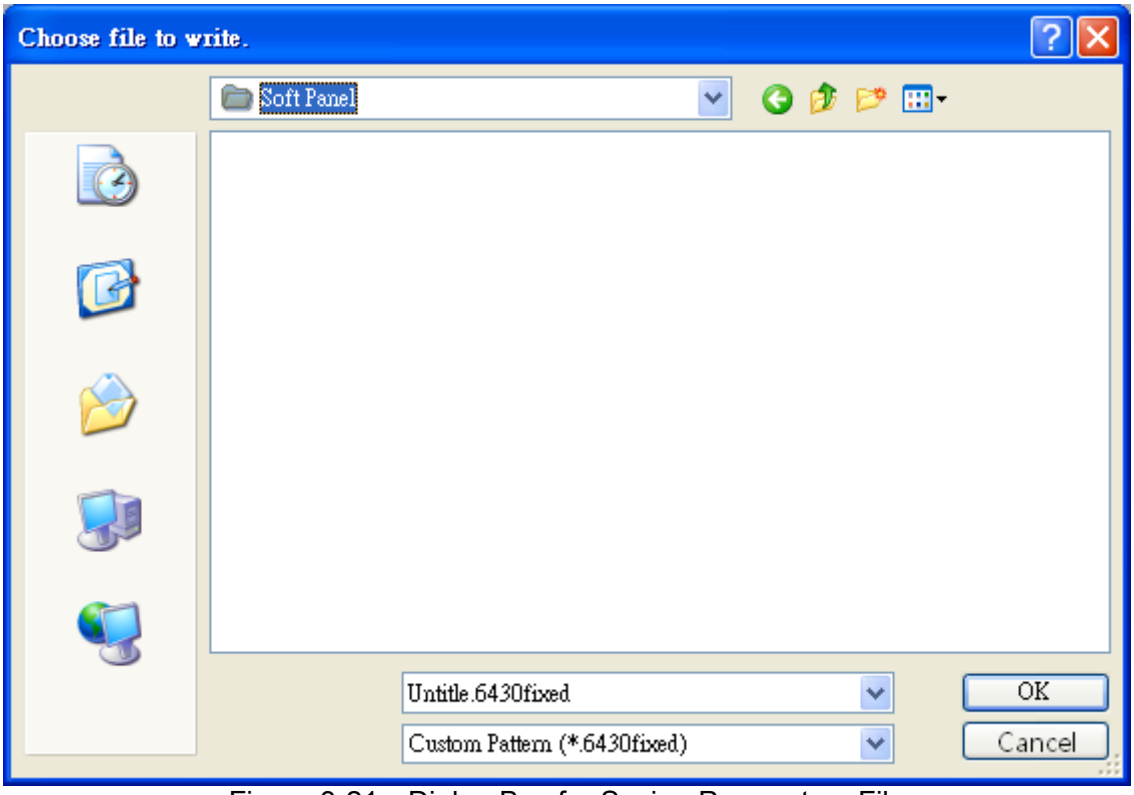



Figure 3-21 Dialog Box for Saving Parameters File

9. Open: Click this button as Figure 3-22 shows can open the file (with extension .6430fixed) saved in hard disk. This can simplify the parameter input and avoid errors from occurring.

Figure 3-22 Button to Open the File

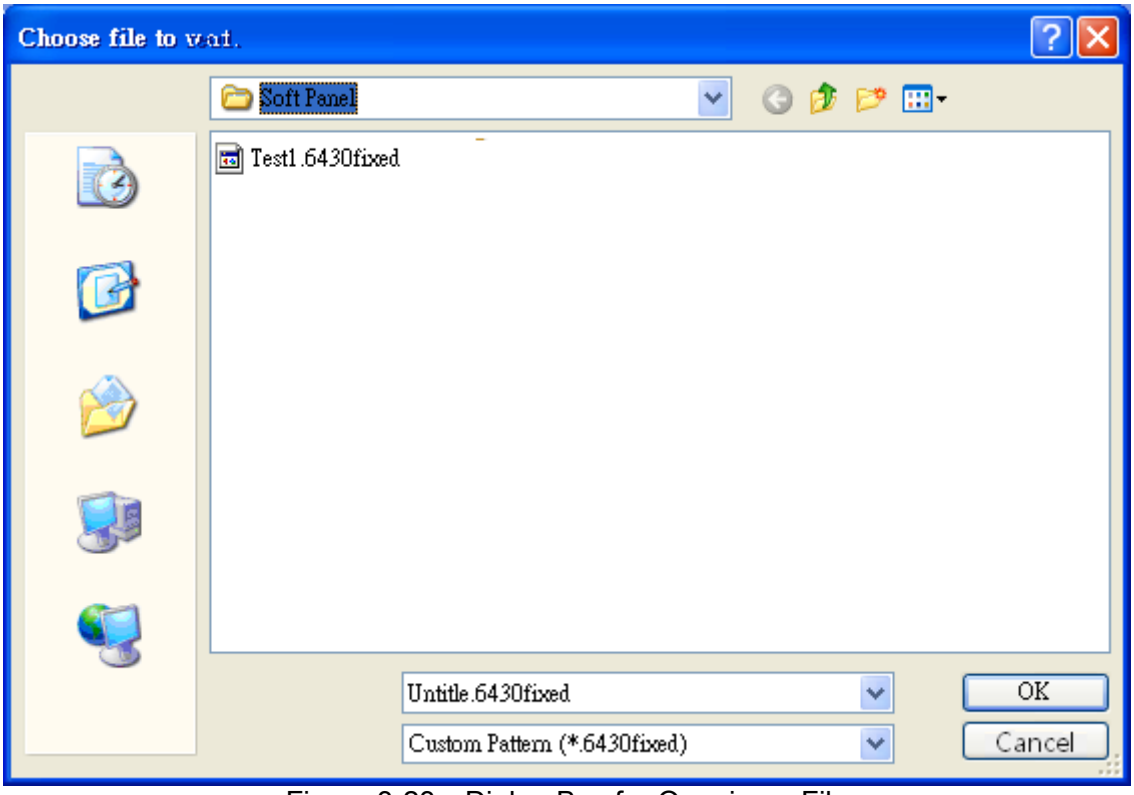



Figure 3-23 Dialog Box for Opening a File

**6460:**
6460 is a series output model with voltage output up to 500V.
Phase Select: Parallel or Series. When Series is selected and Voltage Range is set to 300V, the Voltage setting range is 0~250V. If it sets to 250, the series output can up to 500V output.

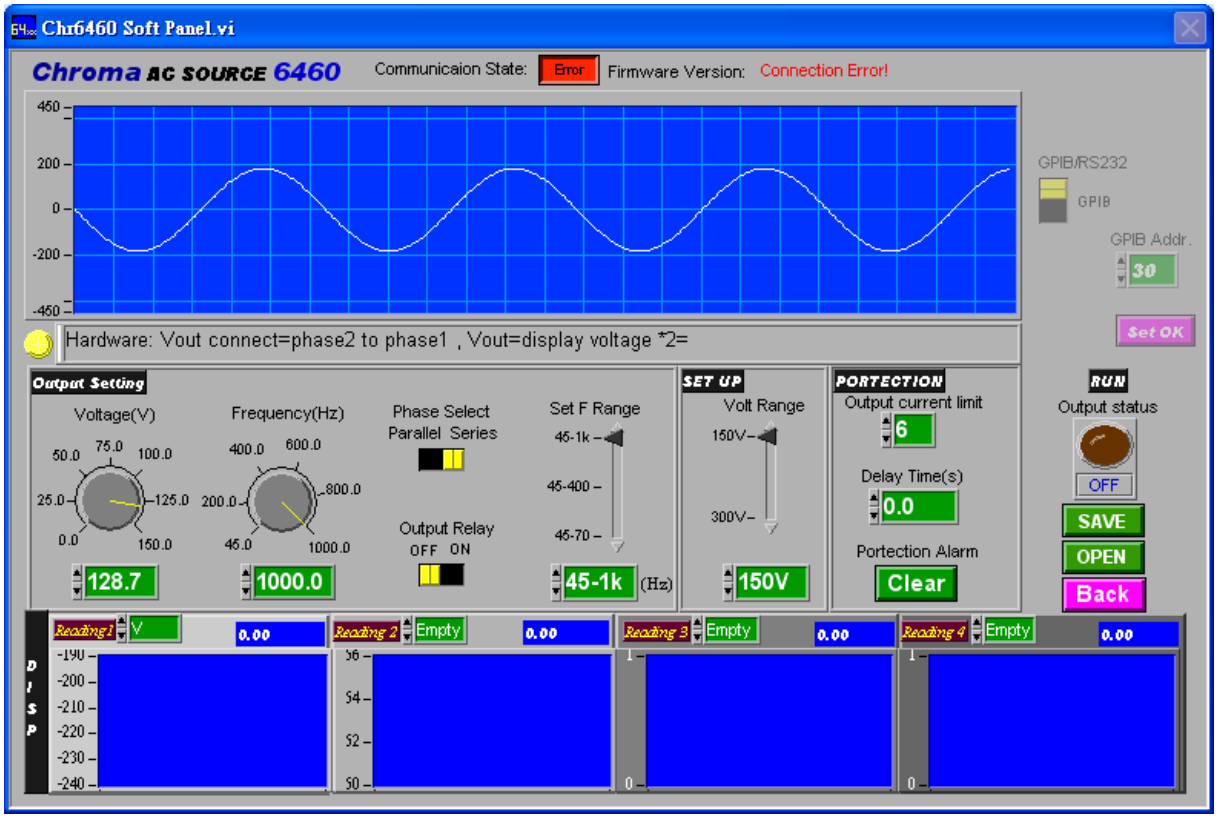



Figure 3-24 6460 Main Panel

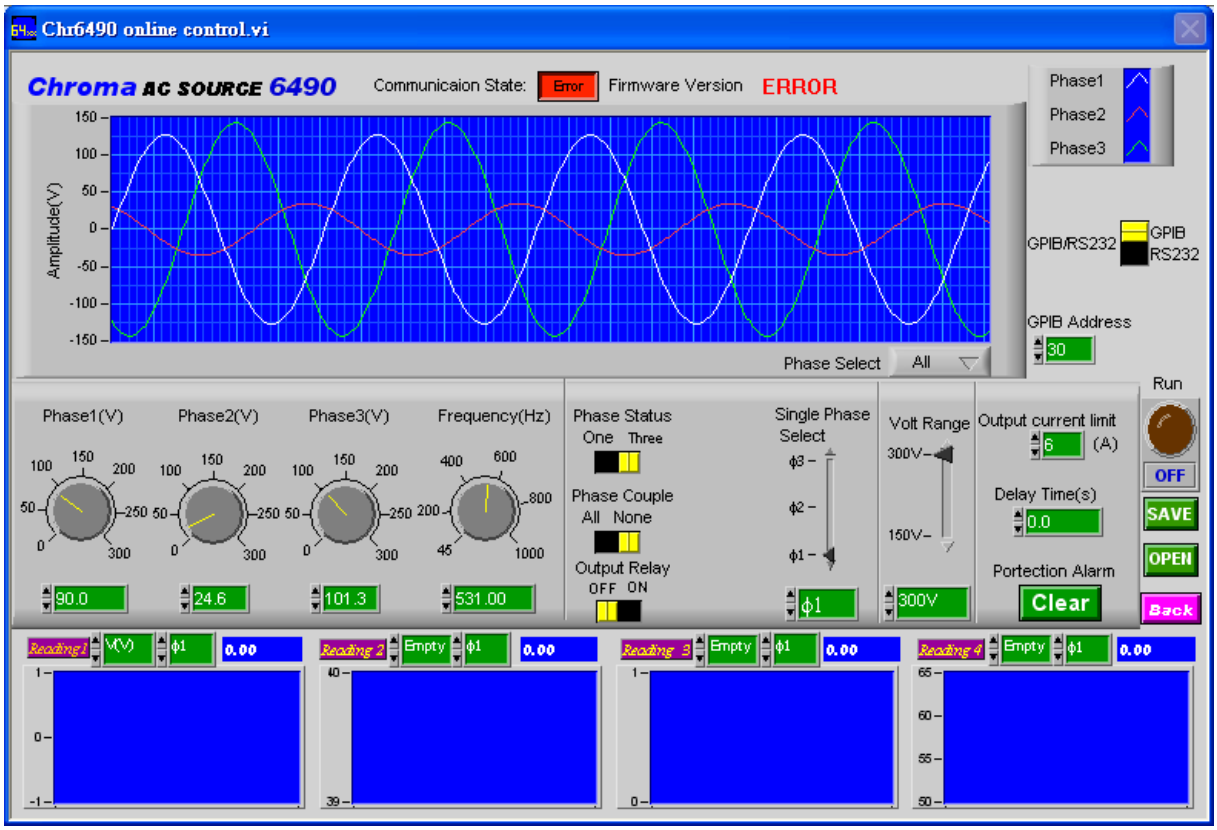
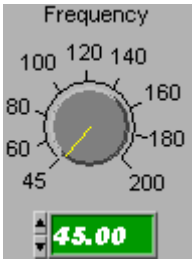


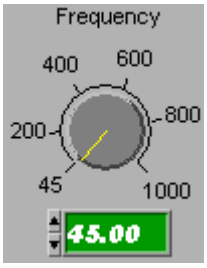

Figure 3-25 6490 Main Panel

**Discrepancies among 6430, 6460 and 6490:**

1. The setting range of frequency for model 6460 and 6463: 45-1000Hz.



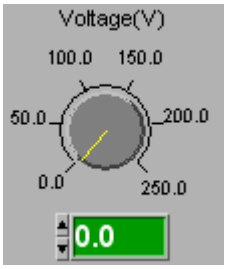

6404 & 6408: 45 ~ 200Hz.



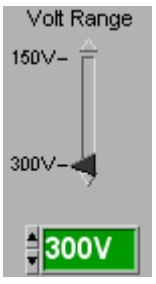

6415, 6420, 6430, 6460, 6463 & 6490: 45~1000Hz.

2. Model 6460 has additional Series and Parallel selections.

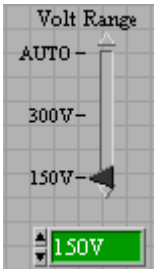
When Series is selected and the Voltage Range is in 300V, the voltage setting range is 0 ~ 250V and voltage output range is 0 ~ 500V.




3. Model 6460, 6463 and 6490 have no Auto in Voltage Range.



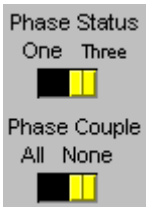

6460, 6463, 6490 Voltage Range: 150V, 300V.

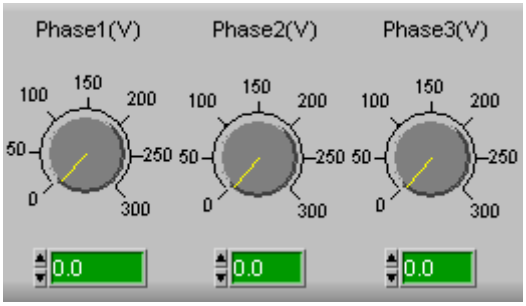



6404, 6408, 6415, 6420, 6430 Voltage Range: 150V, 300V, Auto.

4. The Reading Display of model 6463 and 6490 has additional ψ1~ψ3 for selection.

5. 6490 has 3-phase voltage output. It has an extra Phase status for selection. Phase Couple will appear for setting when Three is set. It can set 3 different phases of output voltages when None is selected.



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