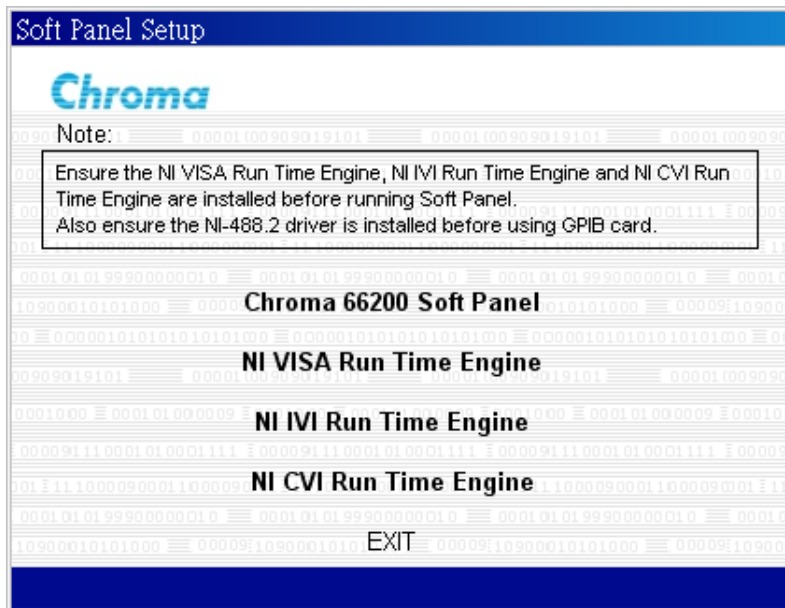


Digital Power Meter

66200 Series

Soft Panel User's Manual

Digital Power Meter 66200 Series Soft Panel User's Manual



Legal Notices

The information in this document is subject to change without notice.

Chroma ATE INC. makes no warranty of any kind with regard to this manual, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Chroma ATE INC. shall not be held liable for errors contained herein or direct, indirect, special, incidental or consequential damages in connection with the furnishing, performance, or use of this material.

CHROMA ATE INC.

66 Hwa-Ya 1st Rd., Hwa-Ya Technical Park, Kuei-Shan Hsiang, Taoyuan Hsien, Taiwan

Copyright Notices. Copyright 2007 Chroma ATE INC., all rights reserved. Reproduction, adaptation, or translation of this document without prior written permission is prohibited, except as allowed under the copyright laws.

Warranty

All Chroma instruments are warranted against defects in material and workmanship for a period of one year after date of shipment. Chroma agrees to repair or replace any assembly or component found to be defective, under normal use during this period. Chroma's obligation under this warranty is limited solely to repairing any such instrument, which in Chroma's sole opinion proves to be defective within the scope of the warranty when returned to the factory or to an authorized service center. Transportation to the factory or service center is to be prepaid by purchaser. Shipment should not be made without prior authorization by Chroma.

This warranty does not apply to any products repaired or altered by persons not authorized by Chroma, or not in accordance with instructions furnished by Chroma. If the instrument is defective as a result of misuse, improper repair, or abnormal conditions or operations, repairs will be billed at cost.

Chroma assumes no responsibility for its product being used in a hazardous or dangerous manner either alone or in conjunction with other equipment. High voltage used in some instruments may be dangerous if misused. Special disclaimers apply to these instruments. Chroma assumes no liability for secondary charges or consequential damages and in any event, Chroma's liability for breach of warranty under any contract or otherwise, shall not exceed the purchase price of the specific instrument shipped and against which a claim is made.

Any recommendations made by Chroma for use of its products are based upon tests believed to be reliable, but Chroma makes no warranty of the results to be obtained. This warranty is in lieu of all other warranties, expressed or implied, and no representative or person is authorized to represent or assume for Chroma any liability in connection with the sale of our products other than set forth herein.

CHROMA ATE INC.

66 Hwa-Ya 1st Rd., Hwa-Ya Technical Park,
Kuei-Shan 33383, Taoyuan County, Taiwan
Tel: 886-3-327-9999
Fax: 886-3-327-2886
e-mail: info@chromaate.com

<http://www.chromaate.com>

Revision History

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

Date	Version	Revised Sections
May 2007	1.0	Complete this manual.
Apr. 2008	1.1	Add the following contents: <ul style="list-style-type: none">– “<i>Setting CT Ratio</i>” in the section of “<i>System Configuration</i>.”– Plot and Statistics functions in the chapter of “<i>Recording Window</i>.”
June 2009	1.2	Add Class “C>25W/C<=25W” & V_Fund(V) display in the chapter of “ <i>Harmonic Measurement Window</i> .”
Nov. 2011	1.3	Modify the following sections in the chapter of “ <i>Harmonic Measurement Window</i> ”: <ul style="list-style-type: none">– “<i>Setting V/I Para.</i>”– “<i>Measurement Display</i>”

Table of Contents

1. System Structure	1-1
1.1 Introduction	1-1
1.2 Supported Hardware	1-1
1.3 Communication Interface	1-1
1.4 Operation	1-1
1.5 Software and Hardware Requirements	1-1
2. Installation	2-1
2.1 Files in CD	2-1
2.2 Installing Chroma 66200 Soft Panel	2-1
2.3 Installation of Required Drivers	2-4
2.4 Installing GPIB Interface Driver	2-14
2.5 Uninstalling Chroma 66200 Soft Panel	2-14
3. Starting Chroma 66200 Soft Panel	3-1
3.1 Starting	3-1
4. Main Measurement Window	4-1
4.1 Using Demo Mode	4-1
4.2 Digital Type Elements	4-1
4.3 General	4-2
4.3.1 Setting Voltage	4-2
4.3.2 Setting Current	4-2
4.3.3 Setting Shunt	4-2
4.3.4 Setting Trigger Level	4-2
4.3.5 Setting Delay	4-3
4.3.6 Setting Time	4-3
4.3.7 Setting Energy Mode and Time	4-3
4.3.8 Setting Trigger Mode and On/Off	4-3
4.4 System Configuration	4-4
4.4.1 Setting Measure Mode and Window Time	4-4
4.4.2 Setting THD Mode and Order	4-4
4.4.3 Setting Filter	4-5
4.4.4 Setting Power Integrate	4-5
4.4.5 Setting Protection Clear	4-5
4.4.6 Setting CT Ratio	4-5
4.5 Waveform Display	4-6
4.6 Chart Display	4-6
4.7 GO/NG Setting	4-7
4.8 Status Monitor	4-8
4.9 Save As Button	4-8
4.10 Open Button	4-8
4.11 Back Button	4-9
4.12 Exit Button	4-9
5. Recording Window	5-1
6. Harmonic Measurement Window	6-1
6.1 Setting Regulation	6-1
6.2 Setting V/I Para.	6-2
6.3 Setting Class	6-2
6.4 Setting Current Limit Ratio	6-2
6.5 Setting Class D Parameters	6-2
6.6 Measurement	6-3

6.7 Status..... 6-3
6.8 Measurement Display..... 6-4
6.9 Save Report Button 6-5
6.10 Save As, Open and Back Buttons 6-5

1. System Structure

This chapter explains the structure and functions of Digital Power Meter 66200 Series Soft Panel application. The supported instruments and communication interfaces that connect to PC are listed below for users to identify the required environment easily.

1.1 Introduction

This software is applicable to Chroma Digital Power Meter 66200 Series instruments only. The remote transmission between PC and Digital Power Meter must be active before using the software in order to communicate by commands.

The software application can perform internal parameter settings for Digital Power Meter and monitor the input measurements. It has parameter saving and report generating functions. Users can open an existing file for execution from hard disk easily. In addition the functions of voltage and current harmonic measurements can be used to identify if they comply with the IEC61000-3-2 regulation in advance.

1.2 Supported Hardware

Chroma 66200 Series Digital Power Meters contain the following models:

- A. 66201
- B. 66202

1.3 Communication Interface

There are two types of communication interfaces between PC and the Digital Power Meter:

- A. GPIB
- B. USB

1.4 Operation

It is recommended to work through the Soft Panel by clicking the mouse and keyboard input for operation.

1.5 Software and Hardware Requirements

It is suggested to use the PC software and hardware environments as listed below:

- Intel CPU 500MHz or above
- Microsoft Windows 2000 or XP

- Drivers: NI VISA Run Time Engine 3.0 or above, NI IVI Run Time Engine 1.83 or above, NI CVI Run Time Engine 6.0 or above
- 400 MB or above hard disk with at least 40 MB or more free space
- 256 MB memory at least
- VGA or SVGA color monitor
- PS2 mouse

2. Installation

First install the NI VISA Run Time Engine, NI IVI Run Time Engine and NI CVI Run Time Engine drivers to the PC under Operating System before using Chroma 66200 Soft Panel. It is necessary to install NI 488.2 if GPIB card is in use. This chapter describes how to install the software on Windows step by step. First place the CD that contains Chroma 66200 Soft Panel application to the CD drive.

2.1 Files in CD

The CD contains the files shown in Figure 2-1 in which the “Manual” directory has the user’s manual of both English and Traditional Chinese version.



Figure 2-1 Files in CD

2.2 Installing Chroma 66200 Soft Panel

1. After placing the CD in CD drive, the program “Setup.exe” will execute automatically and prompt a Soft Panel Setup screen as Figure 2-2 shows. If it does not run automatically, double-click “Setup.exe” to execute it manually.

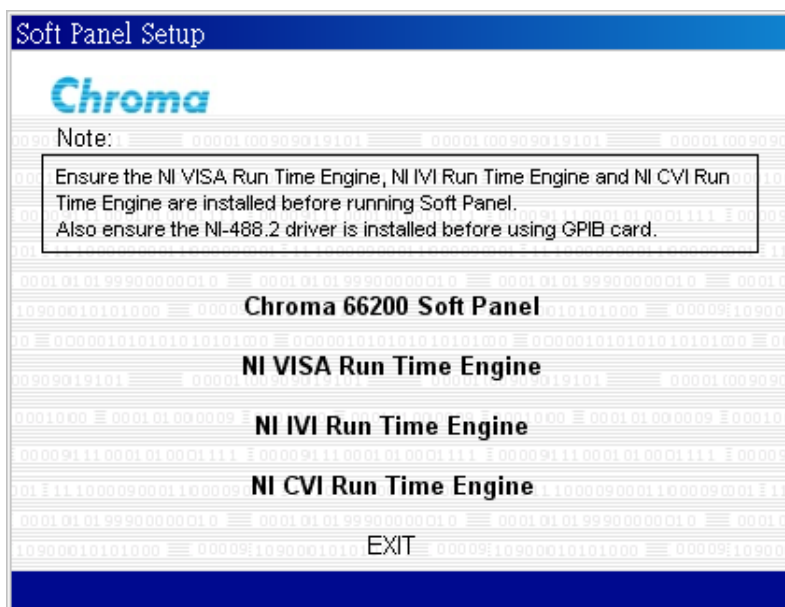


Figure 2-2 Soft Panel Setup Screen

2. Click **Chroma 66200 Soft Panel** and it will prompt a window as Figure 2-3 shows. Click **Next** to carry on the installation.

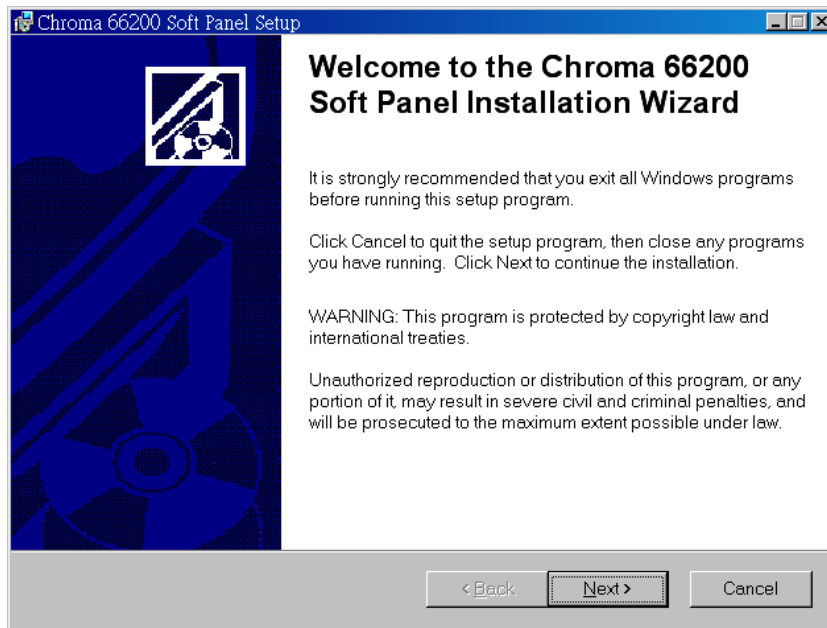


Figure 2-3 Chroma 66200 Soft Panel Installation Screen

3. Select the installation path. The program is default installed in C:\Program Files\Chroma\66200 Soft Panel directory as Figure 2-4 shows. To change it, click **Browse** and specify the path for installation and click **Next** to proceed.

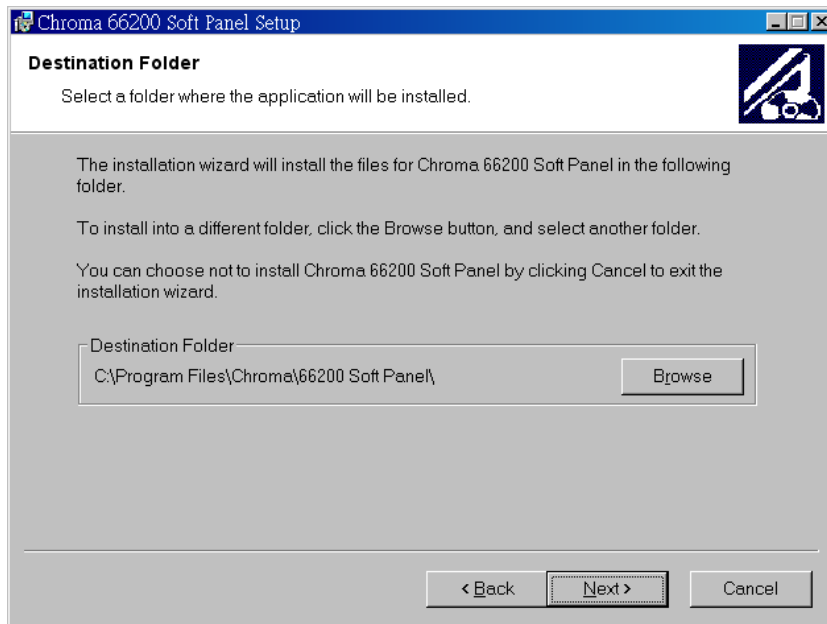


Figure 2-4 Selecting Chroma 66200 Soft Panel Installation Path

- Ready to begin the installation. Click **Next** to go on.

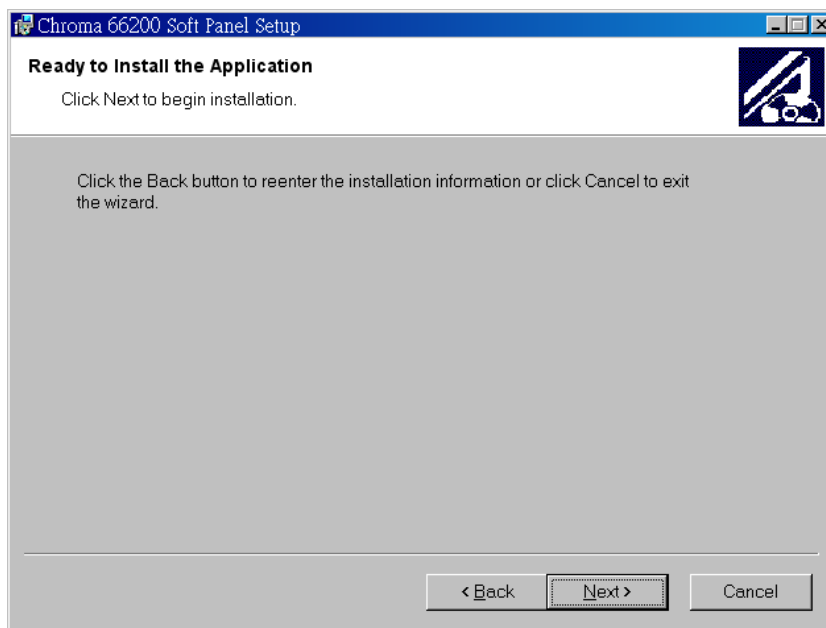


Figure 2-5 Screen of Ready to Install the Application

- Click **Cancel** to stop the installation if any mistake is found during installation.

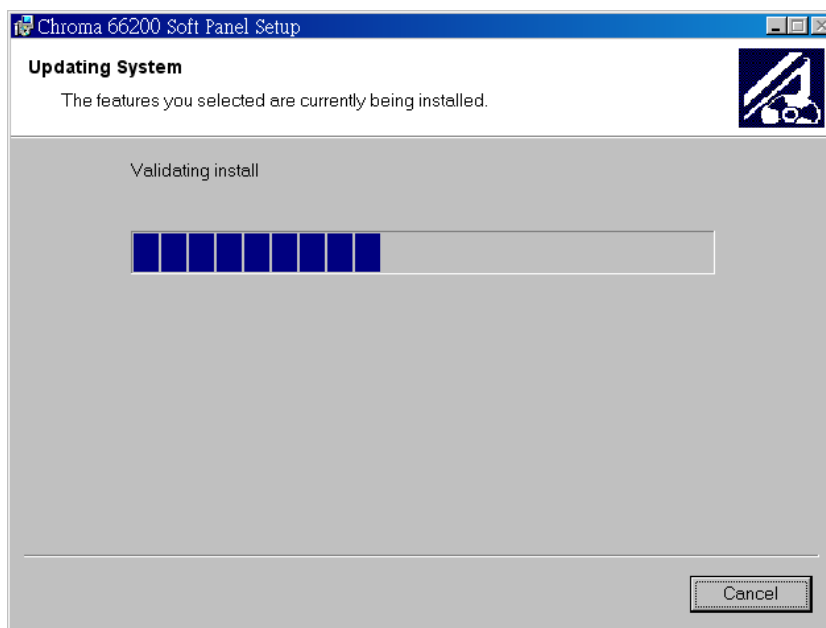


Figure 2-6 Progress of Installation

6. Figure 2-7 prompts once the installation is completed. Click **Finish** to end the program without reboot the PC.

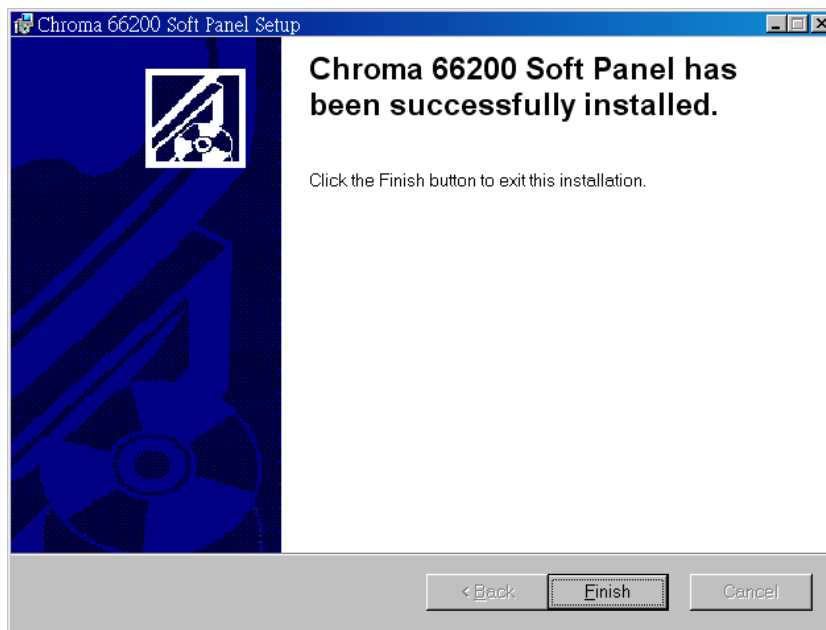


Figure 2-7 Installation Complete Screen

2.3 Installation of Required Drivers

It is ok to ignore this section if the required drivers of NI VISA Run Time Engine 3.0, NI IVI Run Time Engine 1.83 and NI CVI Run Time Engine 6.0 are already installed.

1. Click the **NI VISA Run Time Engine** in Figure 2-2 will prompt the following screen to install the NI VISA Run Time Engine driver and then click **Setup** to continue.

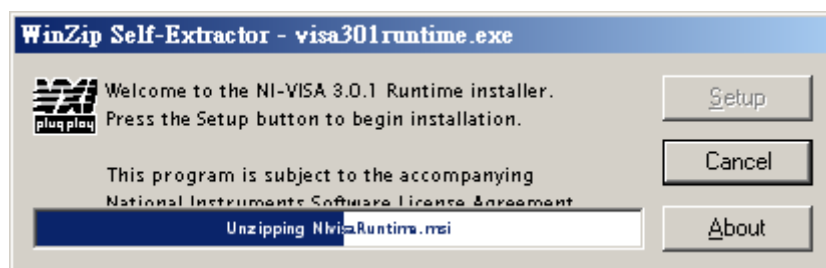


Figure 2-8 NI VISA Installation Screen

- The following window shows the decompressed NI VISA file. Click **Next** to carry on the installation.



Figure 2-9 The Decompressed NI VISA

- The License Agreement Window of NI VISA prompts. Click “I accept the License Agreement(s)” and **Next** to continue.

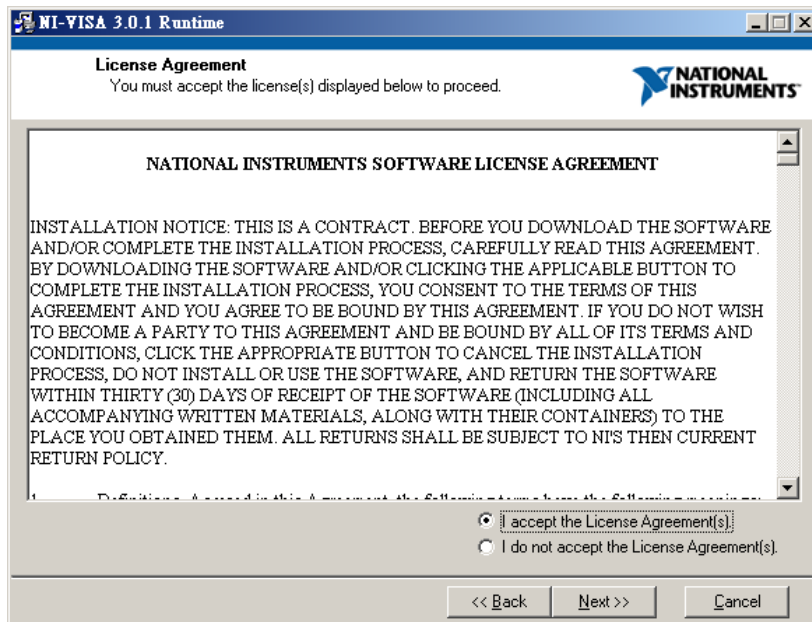


Figure 2-10 The License Agreements of NI VISA

- The window shows the installation path for NI VISA. The program is default installed in C:\Program Files\National Instruments as Figure 2-11 shows. To change it, click **Browse** and specify the path for installation. Click **Next** to proceed.

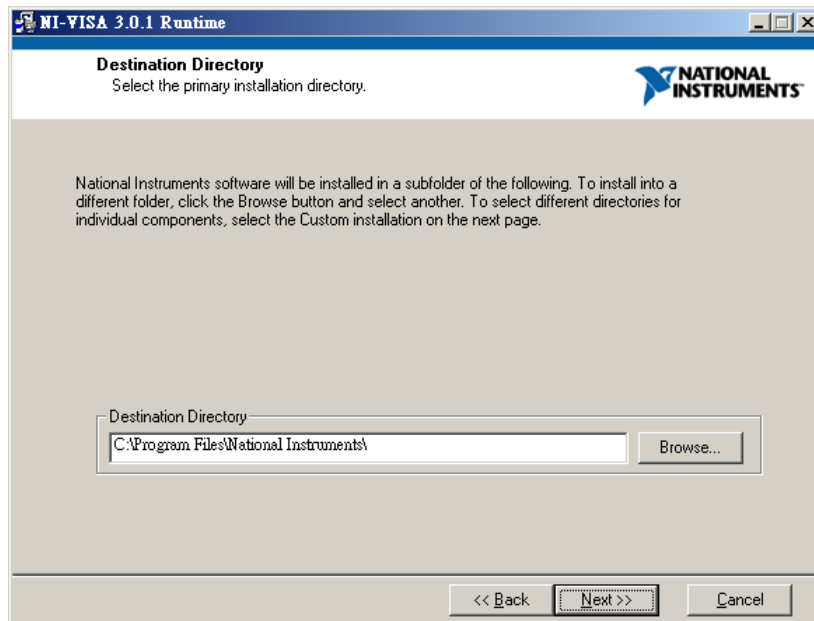


Figure 2-11 Selecting NI VISA Installation Path

- Select the NI VISA installation option. The default is Complete. Click **Next** to continue.

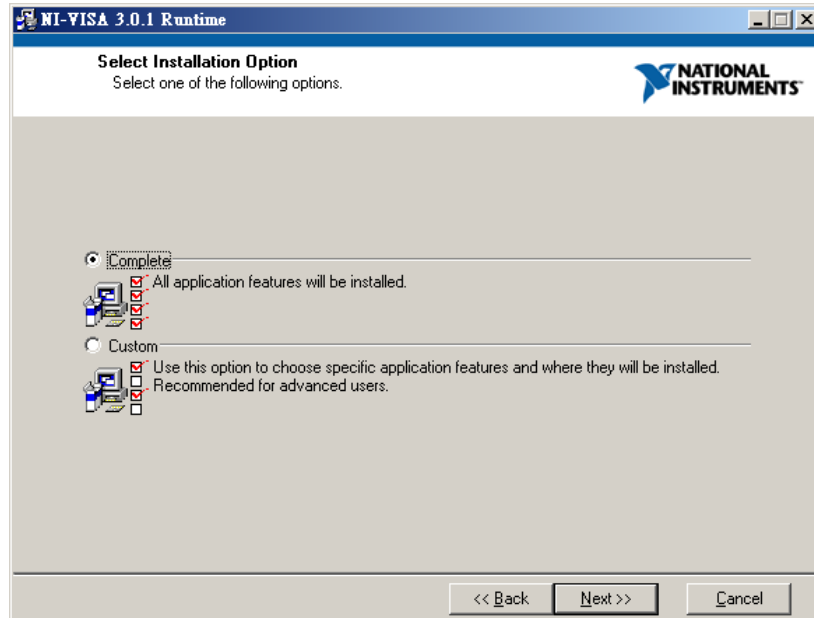


Figure 2-12 Selecting NI VISA Installation Option

6. Start installing NI VISA. Click **Next** to go on.

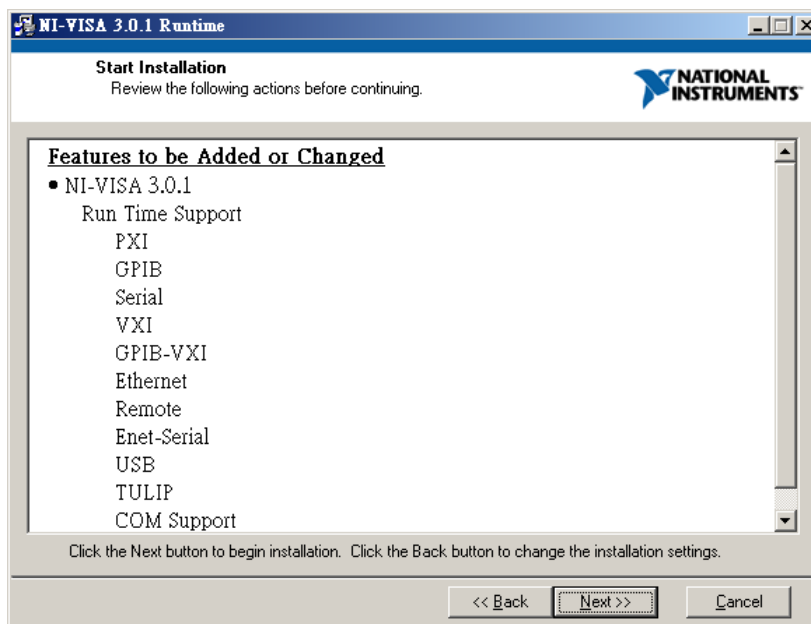


Figure 2-13 Start Installing NI VISA

7. Figure 2-14 shows the installation progress of NI VISA and if any mistake is found, click **Cancel** to stop the installation. Figure 2-15 prompts when the installation is done. Reboot the PC when the NI VISA is successfully installed.

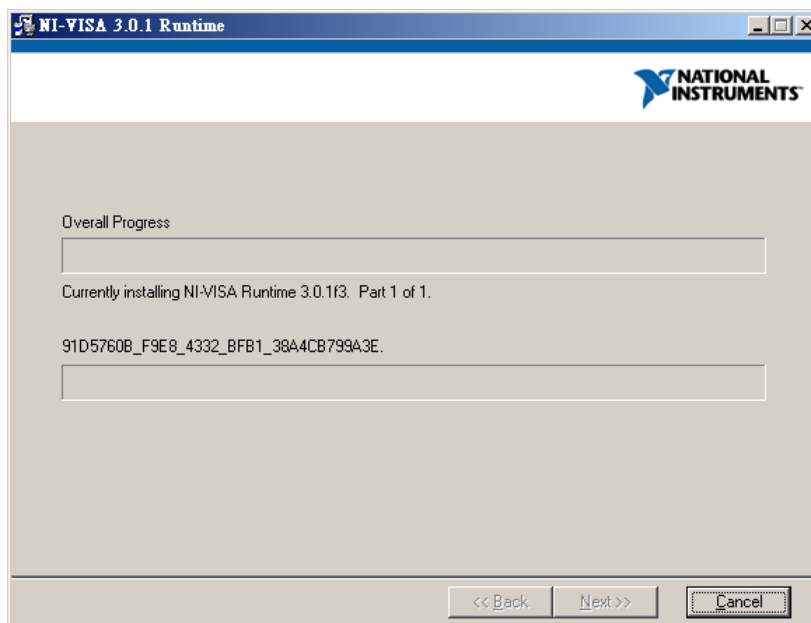


Figure 2-14 NI VISA Installation Progress

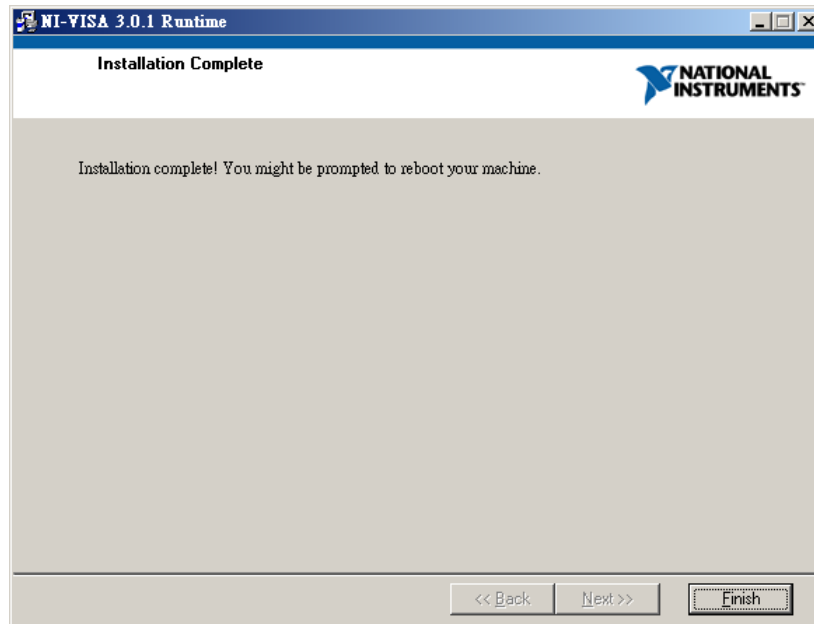


Figure 2-15 NI VISA Installation Complete Screen

8. Click the **NI IVI Run Time Engine** in Figure 2-2 will prompt the following screen to install the NI IVI Run Time Engine driver and then click **Next** to continue.



Figure 2-16 NI IVI Installation Screen

- The License Agreement Window of NI IVI prompts. Click “I accept the license agreement” and **Next** to continue.

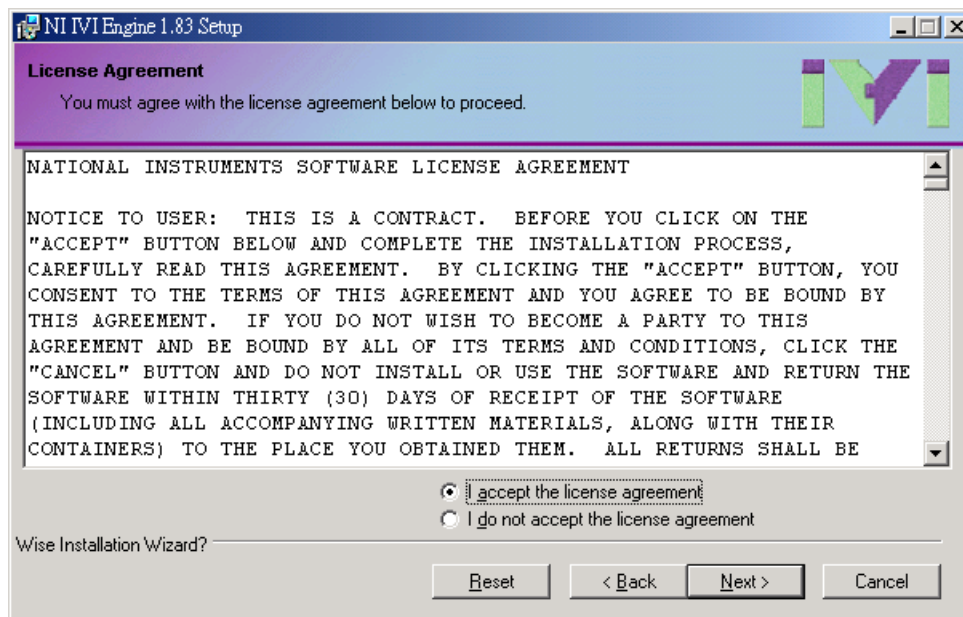


Figure 2-17 The License Agreements of NI IVI

- Select the NI IVI feature for installation. Click **Next** to continue.

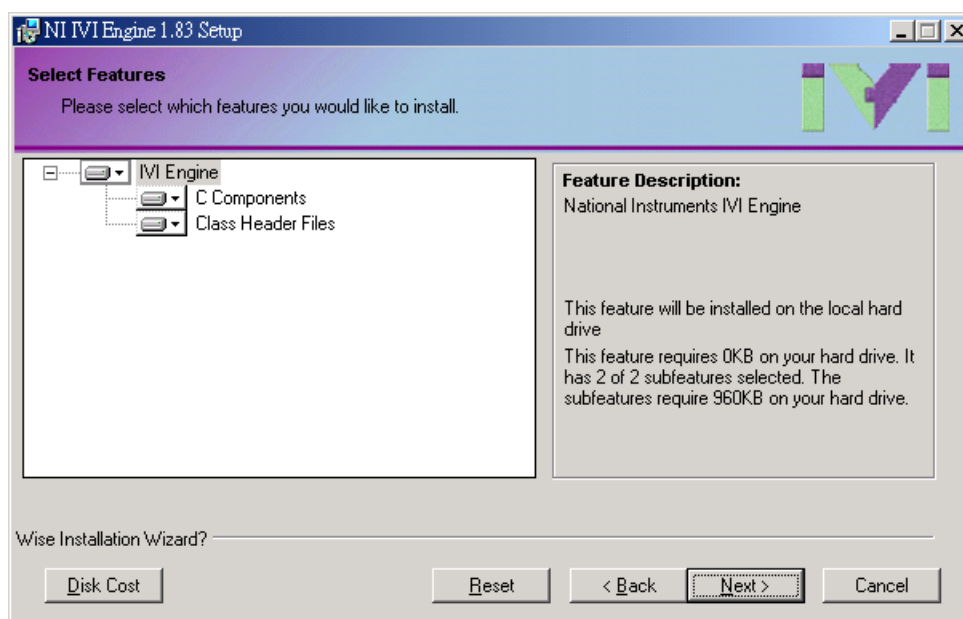


Figure 2-18 Selecting NI IVI Feature for Installation

11. Ready to install NI IVI. Click **Next** to go on.

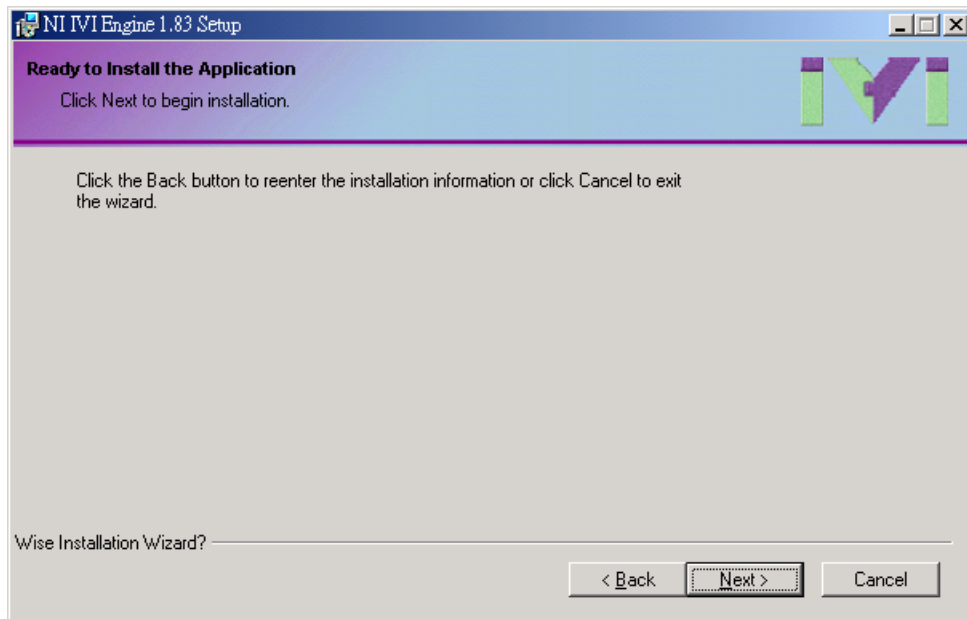


Figure 2-19 Ready to Install the Application of NI IVI

12. Figure 2-20 shows the installation progress of NI IVI and if any mistake is found, click **Cancel** to stop the installation.

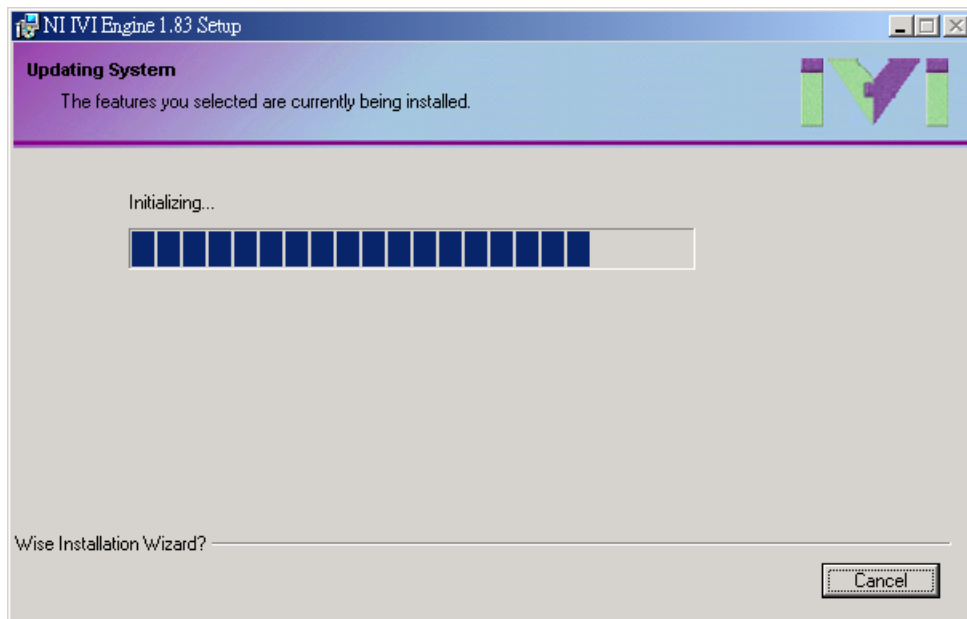


Figure 2-20 NI IVI Installation Progress

- The following screen prompts when the NI IVI installation is done successfully. Click **Finish** to end it.



Figure 2-21 NI IVI Installation Complete Screen

- Click the **NI CVI Run Time Engine** in Figure 2-2 will prompt the following screen to install the NI CVI Run Time Engine driver and then click **Next** to continue.



Figure 2-22 NI CVI Installation Screen

15. The window shows the installation path for NI CVI. The program is default installed in C:\WINNT\system32 as Figure 2-23 shows. To change it, click **Browse** and specify the path for installation. Click **Next** to proceed.

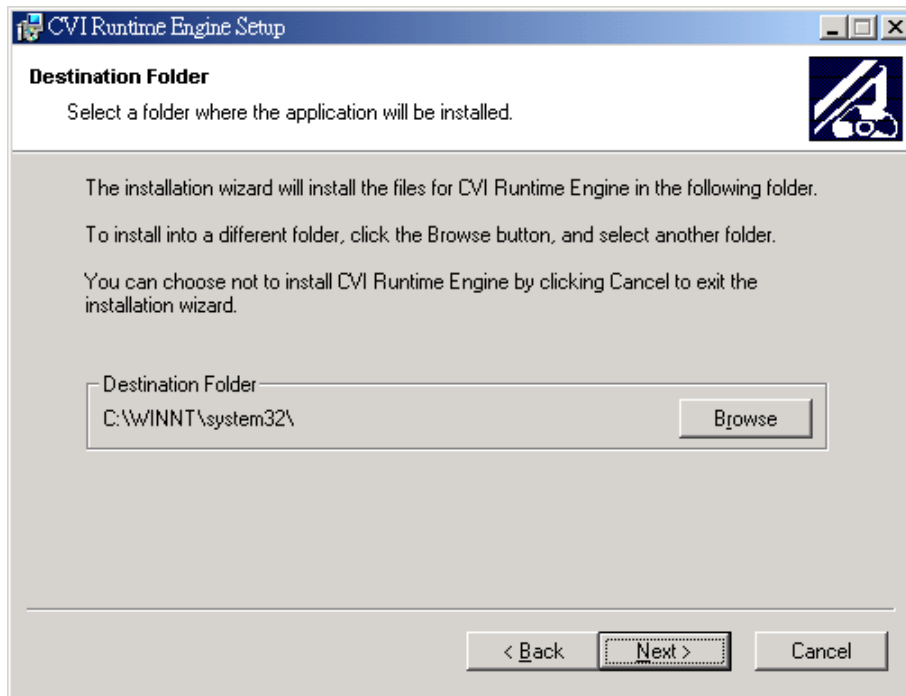


Figure 2-23 Selecting NI CVI Installation Path

16. Ready to install NI CVI. Click **Next** to go on.

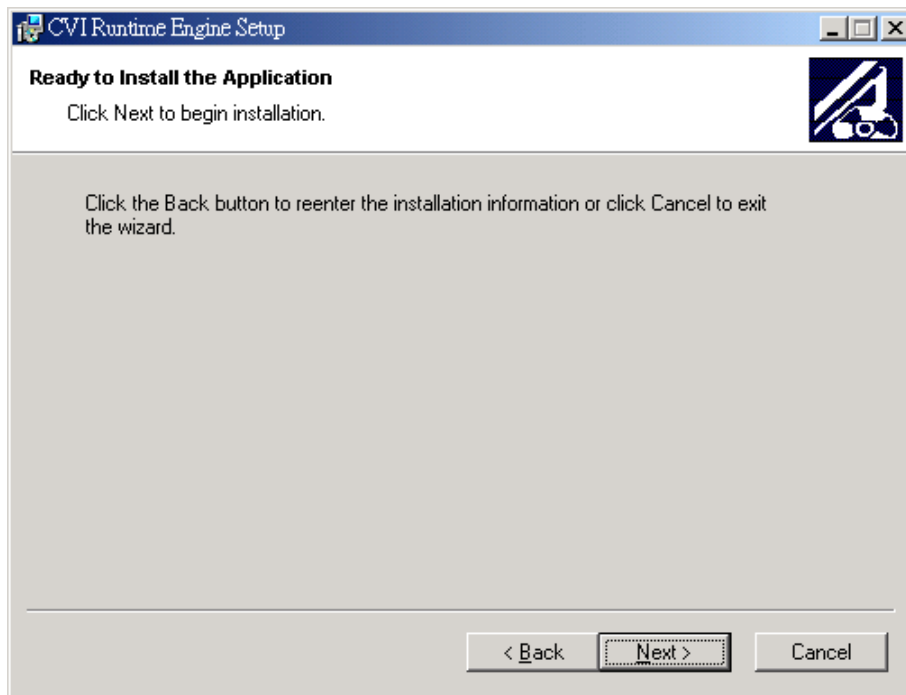


Figure 2-24 Ready to Install the Application of NI CVI

17. Figure 2-25 shows the installation progress of NI CVI and if any mistake is found, click **Cancel** to stop the installation.

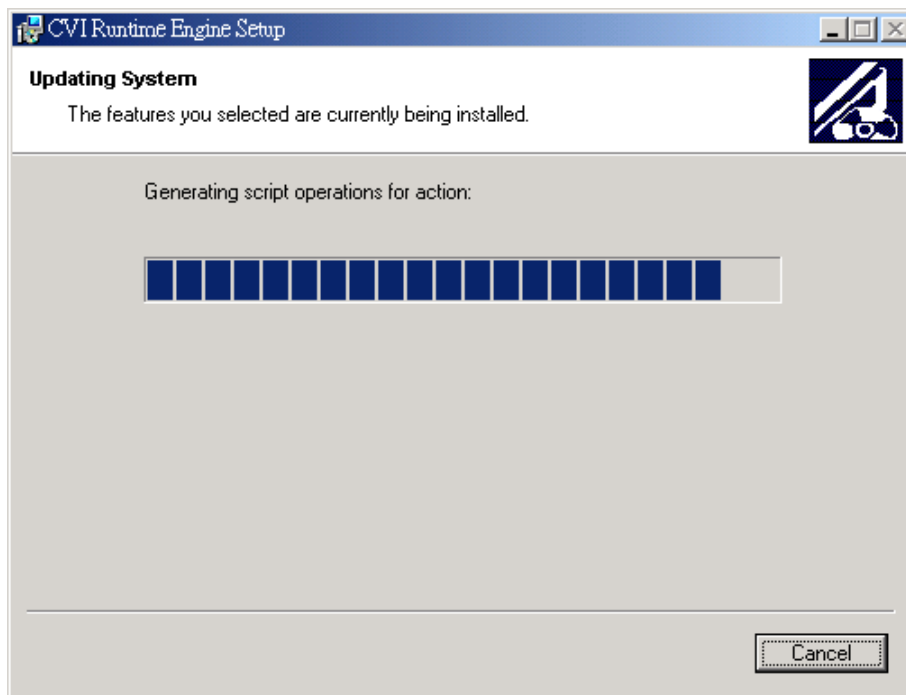


Figure 2-25 NI CVI Installation Progress

18. The following screen prompts when the NI CVI installation is done successfully. Click **Finish** to end it.

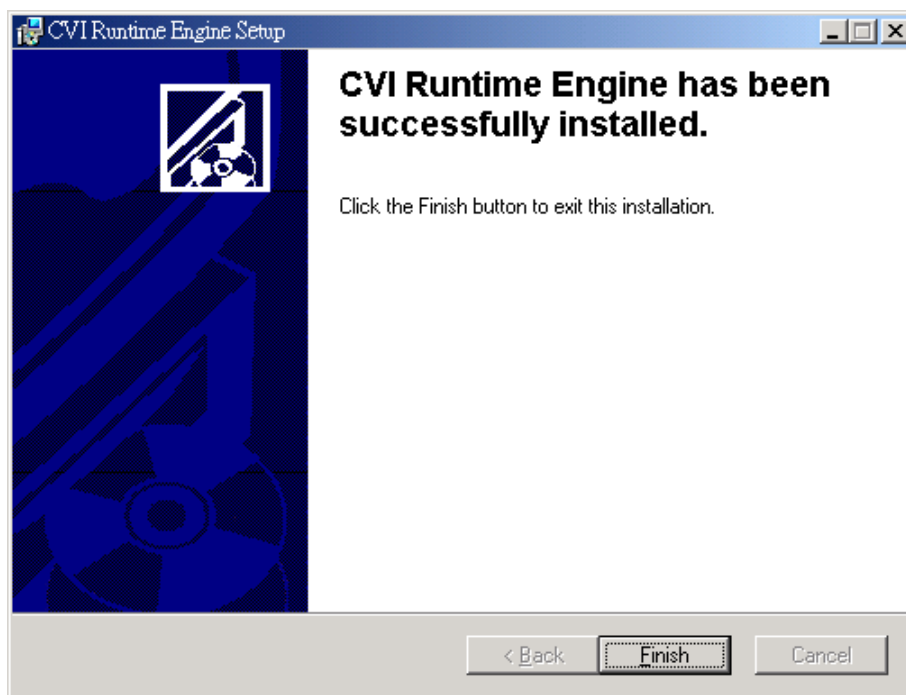


Figure 2-26 NI CVI Installation Complete Screen

2.4 Installing GPIB Interface Driver

Follow the steps listed in the user's manual of GPIB Interface Driver for installation. There is no need to install this driver if USB interface is in use.

2.5 Uninstalling Chroma 66200 Soft Panel

To remove the Chroma 66200 Soft Panel application, it is suggested to click **Start→Settings→Control Panel→Add/Remove Programs** to uninstall the related items.

3. Starting Chroma 66200 Soft Panel

3.1 Starting

Once the installation is done, click **Start\Programs\Chroma 66200 Soft Panel\Chroma 66200 Soft Panel** will prompt the start screen as Figure 3-1 shows.

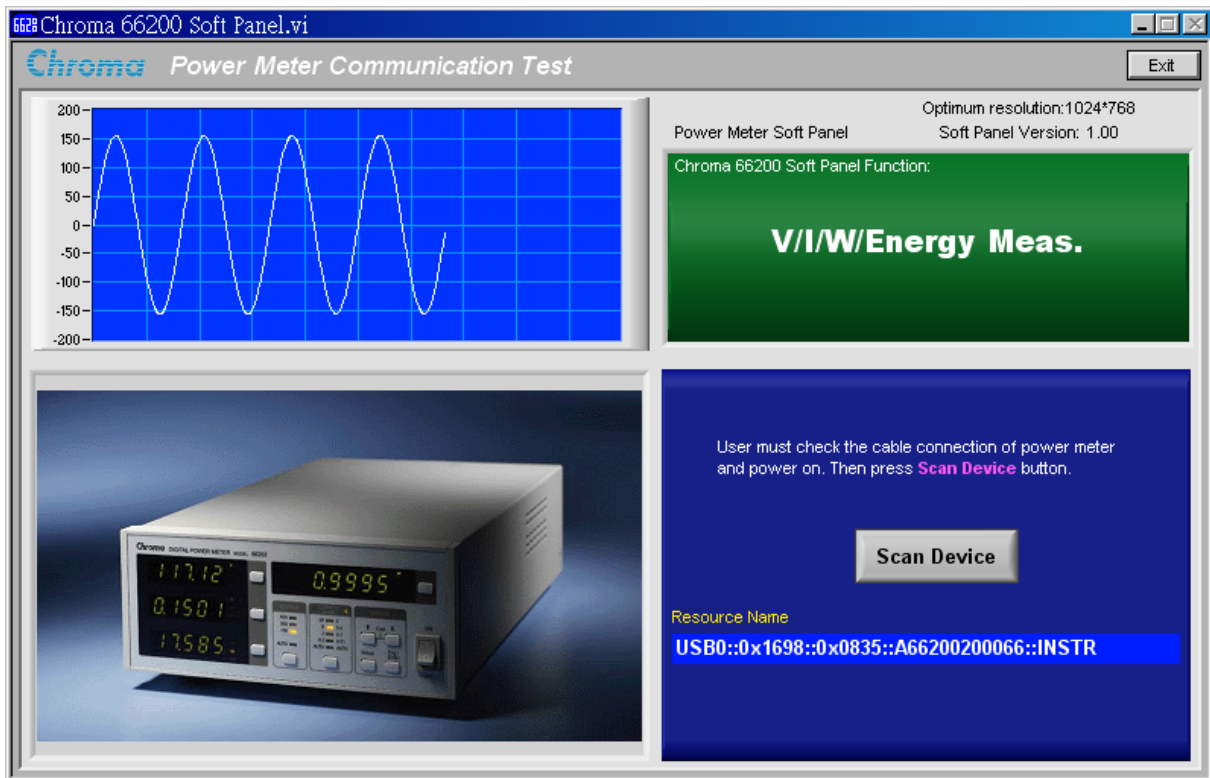


Figure 3-1 Start Screen of Chroma 66200 Soft Panel

Ensure the PC and Digital Power Meter are well connected. Turn on the Digital Power Meter and click **Scan Device**. A Select Device screen as Figure 3-2 shows will prompt for users to select the correct one if the program detects more than two devices.

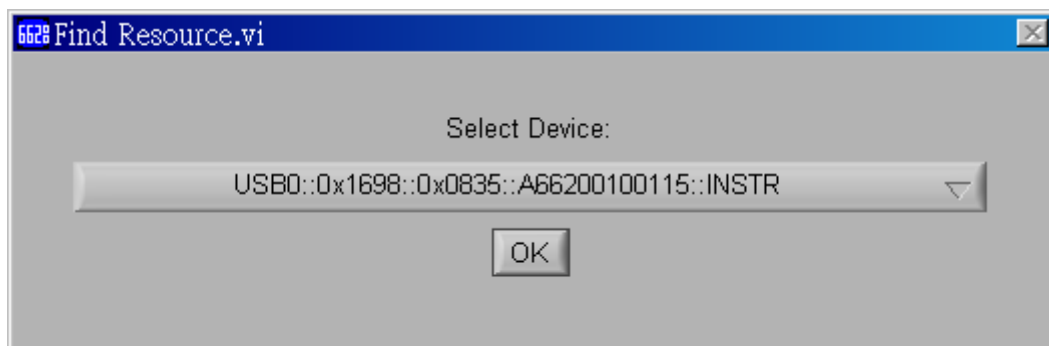


Figure 3-2 Selecting Device

4. Main Measurement Window

Click **Scan Device** from the start screen will prompt the window as Figure 4-1 shows.

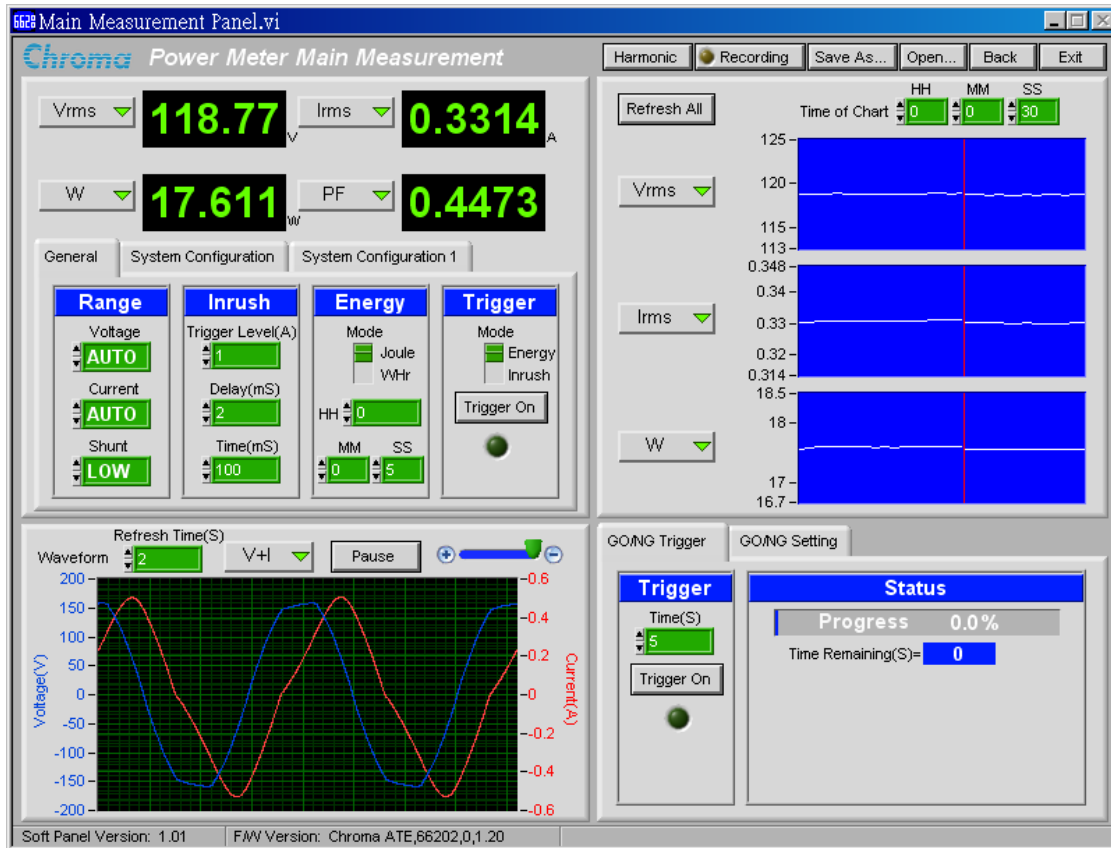


Figure 4-1 Main Measurement Window

If the communication checked ok it will read back the F/W version info of the instrument and show on the bottom of the window. If there is any error in the communication protocol, the message “Connection Error” will appear.

4.1 Using Demo Mode

The software will enter into Demo mode if no hardware device is connected, and users can understand the functions of Soft Panel through the Demo program.

4.2 Digital Type Elements

There are four digital type elements to show the measured value. Available parameters are varied with 66201 and 66202; or choosing Off not to show any measurement.

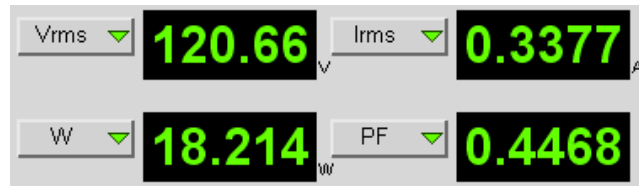


Figure 4-2 Digital Type Element

4.3 General

The General tab sets the Voltage/Current/Shunt range of Power Meter as well as the Inrush Current and Energy parameters.

4.3.1 Setting Voltage

It sets the voltage range for Power Meter.



Figure 4-3 Setting Voltage

4.3.2 Setting Current

It sets the current range for Power Meter.



Figure 4-4 Setting Current

4.3.3 Setting Shunt

It sets the Current Shunt range for Power Meter. This function is not valid for 66201.



Figure 4-5 Setting Shunt

4.3.4 Setting Trigger Level

It sets the inrush current trigger level for Power Meter. This function is not valid for 66201.



Figure 4-6 Setting Trigger Level

4.3.5 Setting Delay

It sets the delay time of inrush current for Power Meter. This function is not valid for 66201.



Figure 4-7 Setting Delay

4.3.6 Setting Time

It sets the inrush current measurement time for Power Meter. This function is not valid for 66201.



Figure 4-8 Setting Time

4.3.7 Setting Energy Mode and Time

It sets the energy measurement mode and time for Power Meter. This function is not valid for 66201.

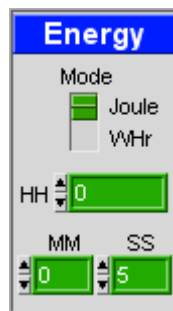


Figure 4-9 Setting Energy Mode and Time

4.3.8 Setting Trigger Mode and On/Off

Once the measurement parameters of inrush current and energy are set, select the Mode for measuring inrush current or energy, click **Trigger On** to start the measurement and the light beneath will be on. To stop the measurement, just click **Trigger Off**. This function is not valid for 66201.



Figure 4-10 Setting Trigger Mode and On/Off

4.4 System Configuration

The System Configuration is used to set the measure, THD calculation, digital filter, power integrate and protection mode clear of Power Meter.

4.4.1 Setting Measure Mode and Window Time

It sets the measure to Window or Average along with no. of times for Power Meter.

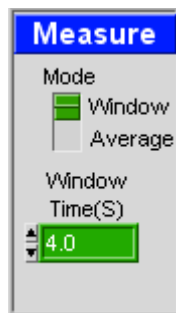


Figure 4-11 Setting Measure Mode and Window Time

4.4.2 Setting THD Mode and Order

It sets the order calculated by the THD (Total Harmonic Distortion) of voltage and current for Power Meter. If Full Mode is selected, it means 100 orders are used for THD calculation; and if Order is selected, it indicates the orders set by users are applied for THD calculation. This function is not valid for 66201.

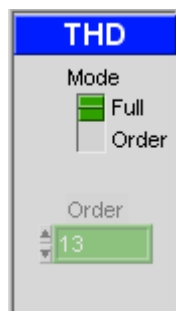


Figure 4-12 Setting THD Mode and Order

4.4.3 Setting Filter

It sets the digital filter to On or Off for Power Meter.



Figure 4-13 Setting Filter

4.4.4 Setting Power Integrate

It sets the power integrate for Power Meter. When set to 0 it means to disable the power integrate; while set to 1 or above it means to enable the power integrate and the time set is the integration time.



Figure 4-14 Setting Power Integrate

4.4.5 Setting Protection Clear

When protection occurred on the Power Meter, click **Protection Clear** can clear the protection mode.



Figure 4-15 Setting Protection Clear

4.4.6 Setting CT Ratio

It sets the CT Ratio for Power Meter. This function is not valid for 66201.

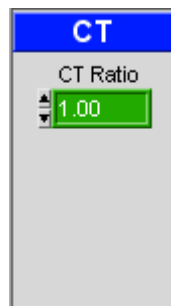


Figure 4-16 Setting CT Ratio

4.5 Waveform Display

Figure 4-17 shows the Power Meter captured voltage/current waveform. It can select to display V or I or V+I. Use Refresh Time to set the seconds interval for capturing the waveform, to pause the capture or zoom in/out the waveform display. This function is not valid for 66201.

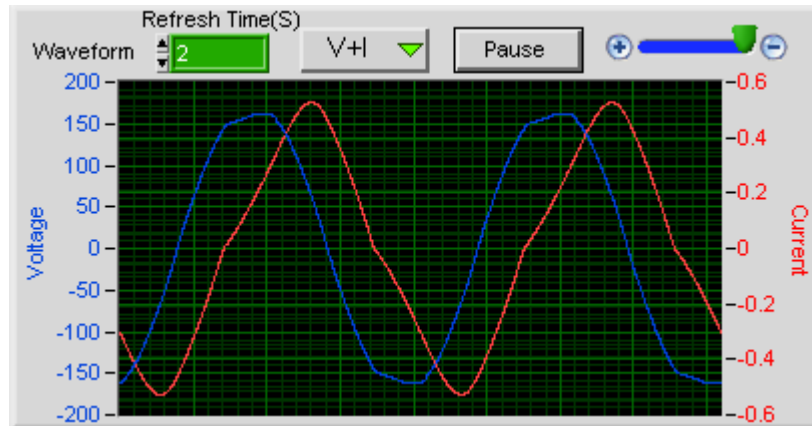


Figure 4-17 Waveform Display

4.6 Chart Display

There are 3 Charts to show the measurement variation curve. The parameters are varied with 66201 and 66202. Select Off can suspend the curve from update and click **Refresh All** can update the Chart from the beginning. Time of Chart is able to set the time for entire Chart, for instance, if users wish to see the variation curve of voltage, current and power within 1 hour, the fastest measure time for Chart is 1 second and the measure time will increase due to the increment of Time of Chart. It is determined by the program automatically.

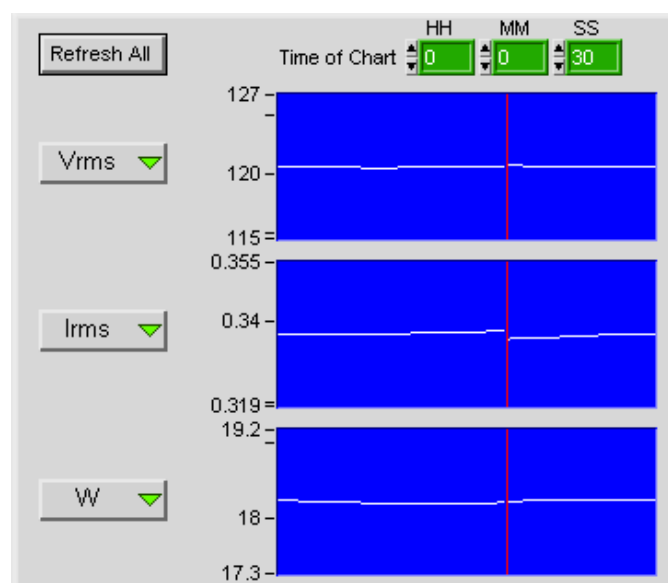


Figure 4-18 Chart Display

4.7 GO/NG Setting

The specification ranges input to GO/NG Setting can judge the DUT for PASS and FAIL as Figure 4-19 shows. Enable the parameter to do GO/NG judgment. Lower Bound is the low limit of specification and Upper Bound is the high limit of specification.

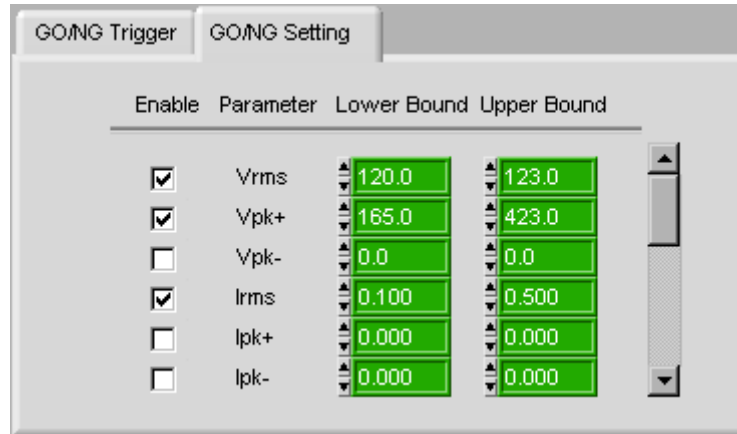


Figure 4-19 GO/NG Setting

Switch to GO/NG Trigger screen as Figure 4-20 shows after the GO/NG Setting is done. Time(S) sets the detection time of GO/NG and the light beneath the button **Trigger On** will turn on when it is clicked to start the judgment. To pause it, just click **Trigger Off**. If the measured value is inside the specification range within the time set, PASS will appear when the time is due; or FAIL will prompt as well as the parameter that exceeds the specification rang as Figure 4-21 shows.

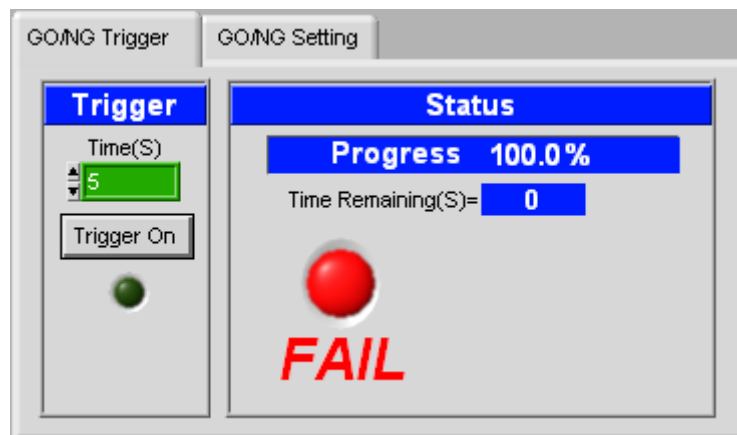


Figure 4-20 GO/NG Trigger

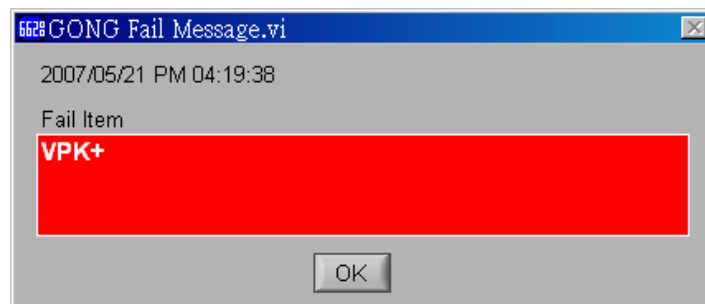


Figure 4-21 GONG Fail Message

4.8 Status Monitor

When the program detects error on the Power Meter such as over voltage/current protection, over current range and etc., a dialog box will appear as Figure 4-22 shows. It is necessary for users to switch to proper voltage/current range to avoid incorrect measurement or resolve the error condition as soon as possible.

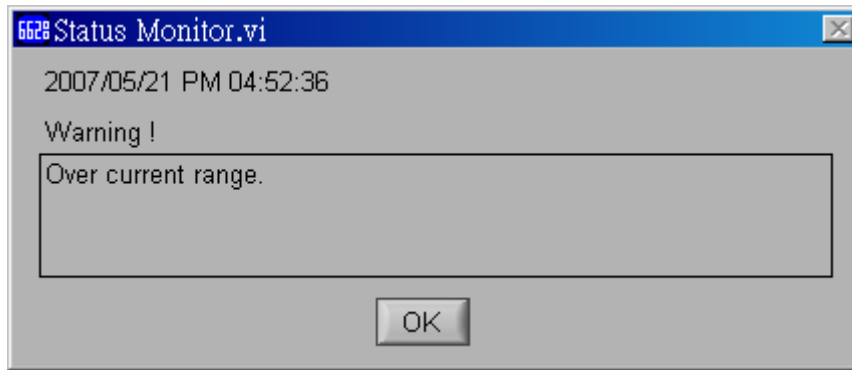


Figure 4-22 Status Monitor

4.9 Save As Button

Click the **Save As** button as Figure 4-23 shows can save the parameters set on the present screen to a .Mea file.



Figure 4-23 Button to Save Current Settings

To save the present parameters for use at next power on, users can click **Save As...** and select a directory path and a filename (with extension .Mea) for storage. Users can save the settings to different files through this function. The saved files will take some disk space, thus if the disk space is big enough it can store many kinds of settings.

4.10 Open Button

Click the **Open...** button as Figure 4-24 shows can open an existing .Mea file. It simplifies the action of parameter input and avoids error from occurrence.



Figure 4-24 Open Button

4.11 Back Button

Click this button to skip the present window and return to previous window.



Figure 4-25 Back Button

4.12 Exit Button

Click this button to exit the Soft Panel.



Figure 4-26 Exit Button

5. Recording Window

Click **Recording** in the Main Measurement window will enter into the window as Figure 5-1 shows to log the measured data and save them to file.

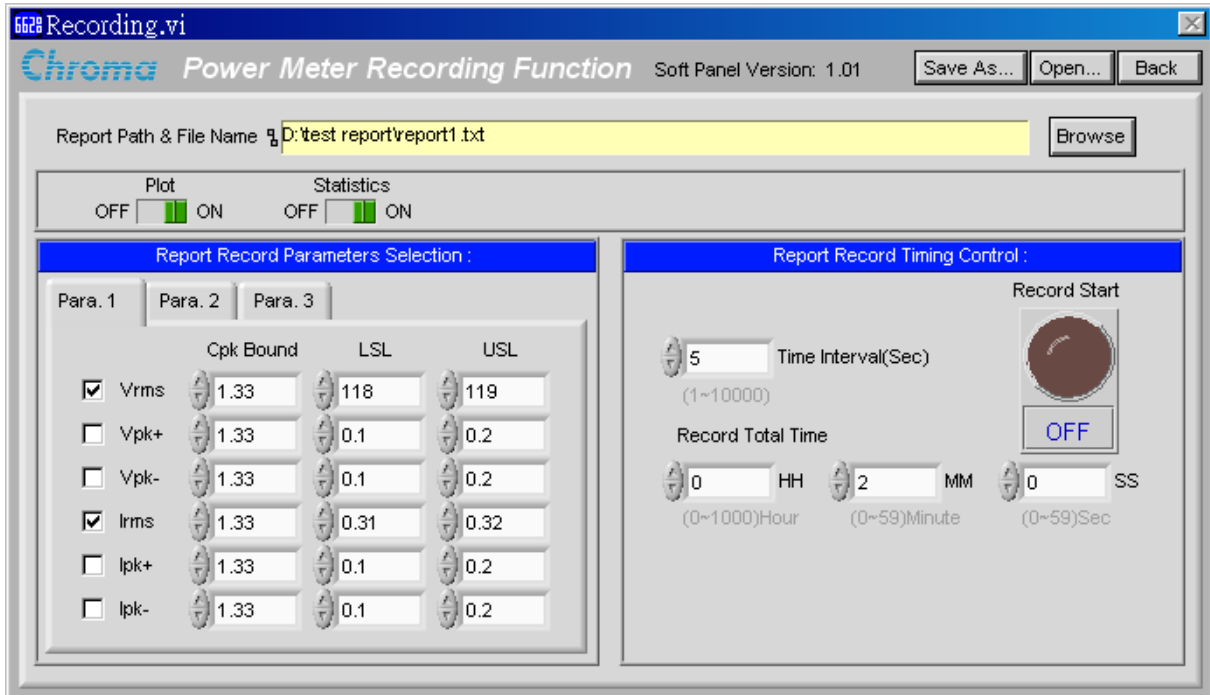


Figure 5-1 Recording Window

First, click **Browse** to select the directory path and filename for save and then select the parameters to be logged at the left side of window. Next, set the Record Total Time and Time Interval at the right side of window, and click **Record Start** to begin recording. See section 4.9, 4.10 and 4.11 for the descriptions of **Save As...**, **Open...** and **Back** buttons. The report is a pure text *.txt file and Figure 5-2 shows its format.

Time	Urms(V)	Irms(A)	W	PF	THDv(%)	THDi(%)
2007/05/21 19:28:41	120.30	0.2990	18.016	0.5007	2.4340	12.760
2007/05/21 19:28:46	120.39	0.2999	18.055	0.4999	2.4419	12.740
2007/05/21 19:28:51	120.27	0.2999	18.032	0.4999	2.4639	12.690
2007/05/21 19:28:56	120.27	0.3004	18.047	0.4993	2.4695	12.670
2007/05/21 19:29:01	120.04	0.2999	17.996	0.4997	2.7337	12.715
2007/05/21 19:29:06	120.05	0.3010	18.034	0.4990	2.7465	12.659
2007/05/21 19:29:11	119.96	0.3014	18.029	0.4985	2.7529	12.637
2007/05/21 19:29:16	119.96	0.3020	18.034	0.4977	2.7458	12.604
2007/05/21 19:29:21	119.94	0.3023	18.019	0.4968	2.7242	12.557
2007/05/21 19:29:26	119.98	0.3032	18.037	0.4957	2.6960	12.509
2007/05/21 19:29:31	120.02	0.3042	18.057	0.4945	2.7491	12.483
2007/05/21 19:29:36	119.99	0.3046	18.194	0.4976	2.7195	13.054
2007/05/21 19:29:41	120.07	0.3066	18.449	0.5009	2.7476	12.990
2007/05/21 19:29:46	119.99	0.3070	18.423	0.5000	2.7644	12.946
2007/05/21 19:29:51	120.04	0.3081	18.446	0.4986	2.7670	12.902
2007/05/21 19:29:56	120.10	0.3095	18.288	0.4919	2.7481	12.162
2007/05/21 19:30:01	120.09	0.3101	18.188	0.4882	2.7102	12.103
2007/05/21 19:30:06	120.04	0.3106	18.182	0.4876	2.7430	12.105
2007/05/21 19:30:11	120.13	0.3118	18.217	0.4862	2.7289	12.055
2007/05/21 19:30:16	120.16	0.3126	18.222	0.4850	2.7388	11.983
2007/05/21 19:30:21	120.23	0.3137	18.243	0.4836	2.7656	11.920
2007/05/21 19:30:26	120.22	0.3141	18.234	0.4827	2.7657	11.888
2007/05/21 19:30:31	120.23	0.3148	18.232	0.4816	2.7437	11.845
2007/05/21 19:30:36	120.24	0.3158	18.247	0.4804	2.7481	11.816

Figure 5-2 Report Format of Recording

When the Plot is set to ON, it can log the change curve, minimum, maximum and average of parameter. When the Statistics is set to ON, it can set Cpk Bound, LSL and USL, also create a statistics histogram. The file extension is *.doc.

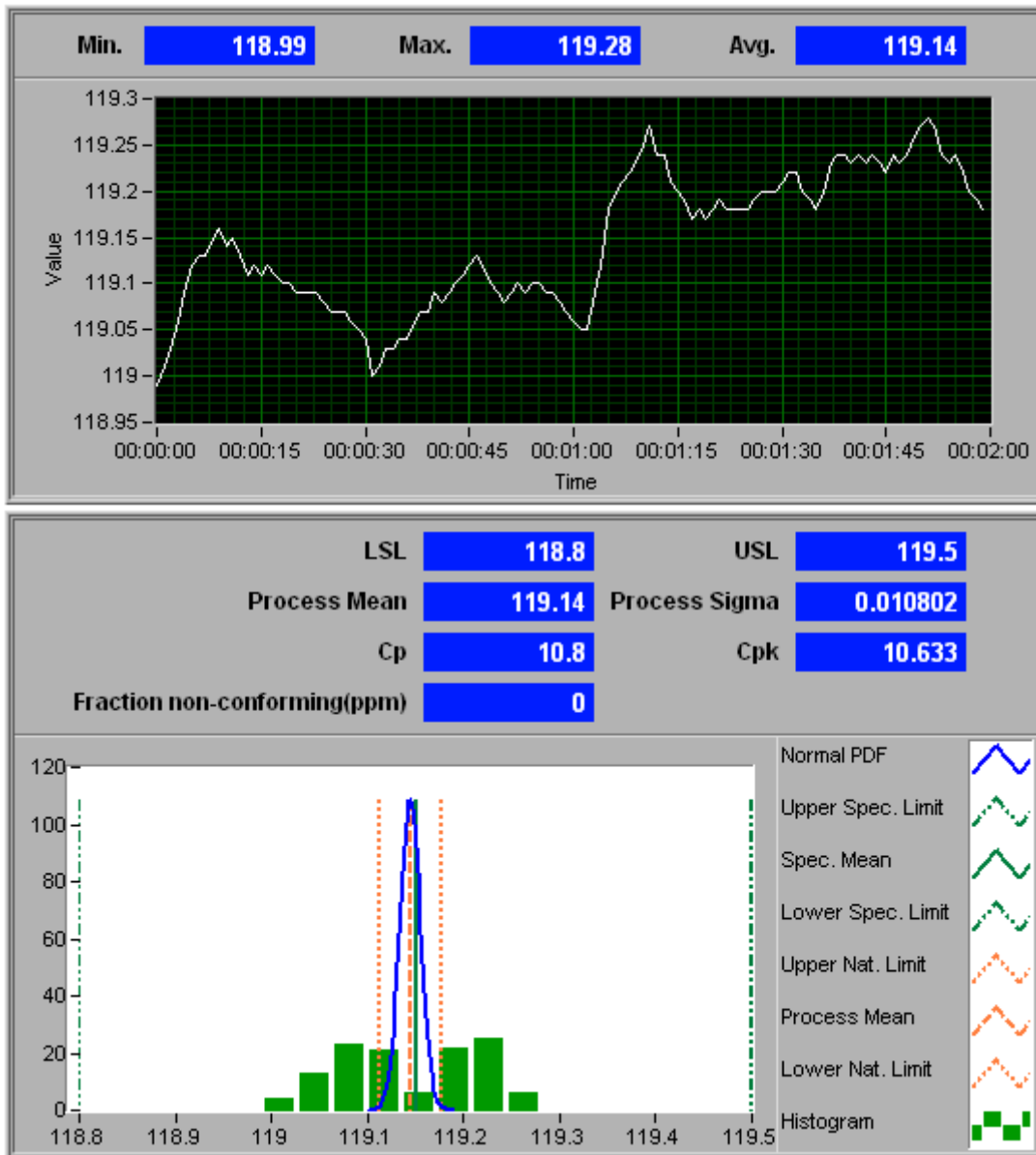


Figure 5-3 Graphs of Plot and Statistics

Notice

Please make sure Microsoft® Word has been installed on the PC when using Plot and Statistics function.

6. Harmonic Measurement Window

Click **Harmonic** in the Main Measurement window will enter into the window as Figure 6-1 shows to measure the harmonic of voltage and current, also to save the measured results to files. In addition, it can pre test the harmonic of input voltage and current for Class A/B/C>25W/C<=25W/D DUT based on the IEC61000-3-2 regulation. This function is not valid for 66201.

Notice

This test function is only pre-compliance with IEC61000-3-2 because the measurement method of Chroma 66202 Digital Power Meter does not fully follow the regulation.

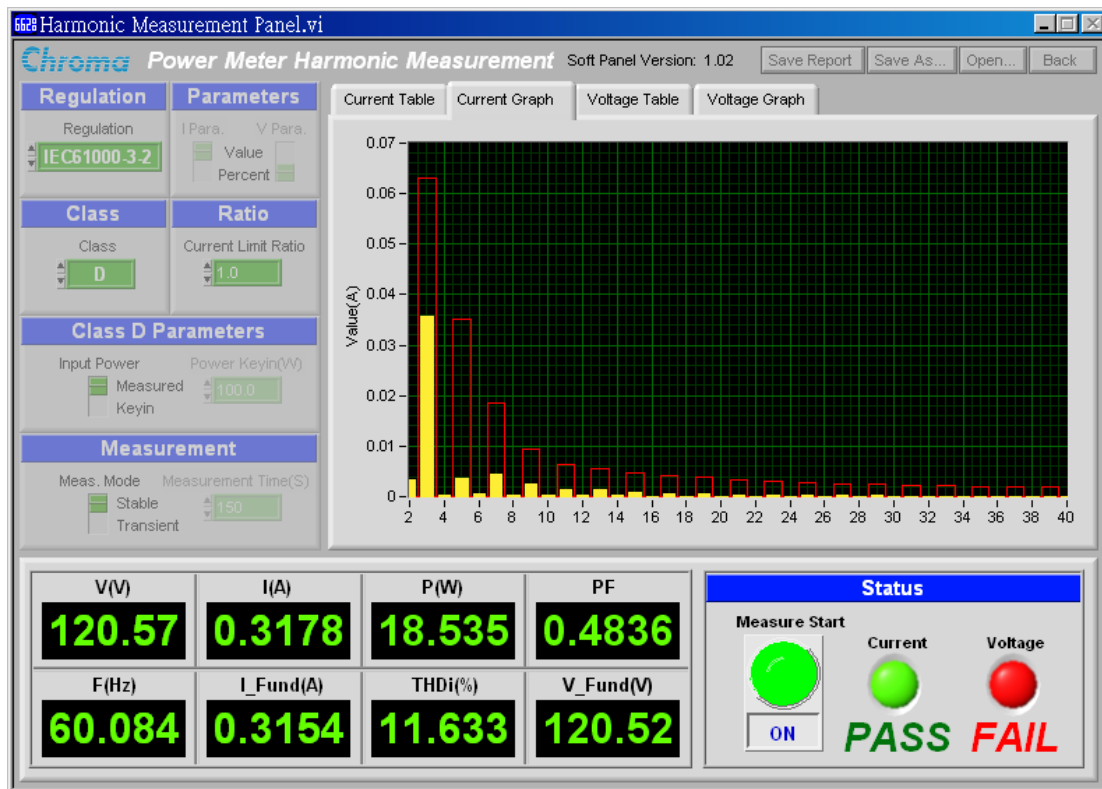


Figure 6-1 Harmonic Measurement Window

6.1 Setting Regulation

When None is selected it means to do voltage and current harmonic test only, and when IEC61000-3-2 is selected it means to check if the measured voltage and current harmonic meets the IEC61000-3-2 regulation.



Figure 6-2 Setting Regulation

6.2 Setting V/I Para.

It selects voltage and current harmonic in Value or Percent. V Para. is only valid when Regulation is set to None.

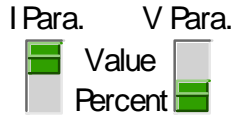


Figure 6-3 Setting V/I Para.

6.3 Setting Class

It sets the DUT class for regulation. There are A, B, C>25W, C<=25W and D 5 classes for selection. When the DUT is in the class of C<=25W, it can select Class D for test as stated in the regulation.



Figure 6-4 Setting DUT Class

6.4 Setting Current Limit Ratio

It sets the current limit ratio of regulation. The default is 1. For example, when testing in Japan with voltage 100V, the ratio can set to 2.3 to comply with the test.



Figure 6-5 Setting Current Limit Ratio

6.5 Setting Class D Parameters

Input Power and Power Keyin are only valid when the Class is set to D. Input Power can select the power value to be measured by Power Meter or got from keyin.

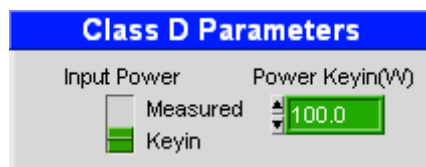


Figure 6-6 Setting Class D Parameters

6.6 Measurement

Selecting Stable in Meas. Mode indicates it captures the voltage and current harmonic once every one second for PASS/FAIL judgment. While in Transient mode it means to capture the voltage and current harmonic once every one second during Measurement Time and calculates the average and maximum; and PASS/FAIL judgment only performs when the time ends.

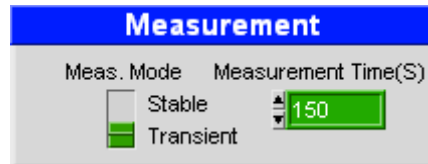


Figure 6-7 Measurement

6.7 Status

Click **Measure Start** to start measurement after all parameters are set. When the Regulation is set to IEC61000-3-2, there are Current and Voltage lights to show if they meet the regulation.

Standard criteria of voltage: Do not exceed the value of Limit column in Voltage Table tab.

Standard criteria of current:

1. The average harmonic currents of entire test period shall be less or equal to the limits.
2. The harmonic currents of entire test period shall be less or equal to 150% of the limits.
3. For harmonics of the order above 19, an overview of the spectrum is taken. If this overview shows an envelope of the spectrum with a monotonic decrease of the increasing order harmonics, measurement can be restricted to harmonics up to and including over 19.
4. Harmonic currents less than 0.6% of the input current, or less than 5mA, are disregarded.
5. The manufacturer may specify any power which is within +-10% of the actual measured value for class D.

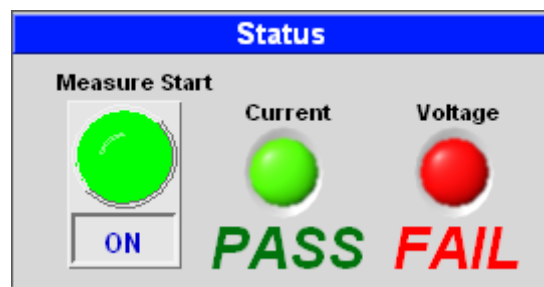


Figure 6-8 Status

6.8 Measurement Display

Click **Measure Start** the measurement starts to update. There are two measurement display areas and Figure 6-9 shows one of it in which I_Fund(A) indicates the Fundamental Current and V_Fund(V) indicates the Fundamental Voltage.

V(V)	I(A)	P(W)	PF
120.57	0.3178	18.535	0.4836
F(Hz)	I_Fund(A)	THDi(%)	V_Fund(V)
60.084	0.3154	11.633	120.52

Figure 6-9 Measurement Display 1

Figure 6-10 shows the other display area that has 4 tabs: Current Table, Current Graph, Voltage Table and Voltage Graph. Current Table shows the value of current harmonic where the measured data is in the Value column and the limit is in Limit column. Current Graph shows the Bar Plot of current harmonic where yellow indicates the measured data and red indicates the limit. Other two tabs are the harmonic value and bar plot of voltage.

In IEC 61000-3-2 Class C<25W harmonic measurement, it can measure the angles of current start phase, peak phase and end phase.

Current Table		Current Graph		Voltage Table		Voltage Graph					
No.	Value(A)	Limit(A)	No.	Value(A)	Limit(A)	No.	Value(A)	Limit(A)	No.	Value(A)	Limit(A)
			11	0.0015	0.0064	21	0.0004	0.0033	31	0.0001	0.0023
2	0.0035	-----	12	0.0002	-----	22	0.0001	-----	32	0.0000	-----
3	0.0388	0.0621	13	0.0012	0.0054	23	0.0003	0.0031	33	0.0001	0.0021
4	0.0002	-----	14	0.0002	-----	24	0.0001	-----	34	0.0000	-----
5	0.0040	0.0347	15	0.0009	0.0047	25	0.0002	0.0028	35	0.0001	0.0020
6	0.0007	-----	16	0.0002	-----	26	0.0001	-----	36	0.0000	-----
7	0.0042	0.0183	17	0.0006	0.0041	27	0.0002	0.0026	37	0.0001	0.0019
8	0.0004	-----	18	0.0001	-----	28	0.0000	-----	38	0.0000	-----
9	0.0027	0.0091	19	0.0005	0.0037	29	0.0002	0.0024	39	0.0000	0.0018
10	0.0003	-----	20	0.0001	-----	30	0.0000	-----	40	0.0000	-----

Figure 6-10 Measurement Display 2

Current Table		Current Graph		Voltage Table		Voltage Graph	
I Start Phase:	56.6 °	I Peak Phase:	99.8 °	I End Phase:	129.8 °		

Figure 6-11 Angle of Current Start Phase, Peak Phase & End Phase

6.9 Save Report Button

Click this button as Figure 6-12 shows can save the test result to a pure text *.txt file. See Figure 6-13 for its format.

Save Report

Figure 6-12 Save Report Button

```

Current Harmonic Test Report

Date/Time:                2007/05/21 14:23:03

===== Setting =====
Regulation:                IEC61000-3-2
Class:                    D
Current Limit Ratio:      1.0
Input Power:              Measured
Meas. Mode:               Stable

===== Reading =====
Voltage Test Result:      FAIL
Current Test Result:      PASS
U(V)                      120.61
I(A)                      0.3106
P(W)                      18.527
PF                        0.4943
F(Hz)                    59.987
I_Fund(A)                 0.3076
THDi(%)                  12.911

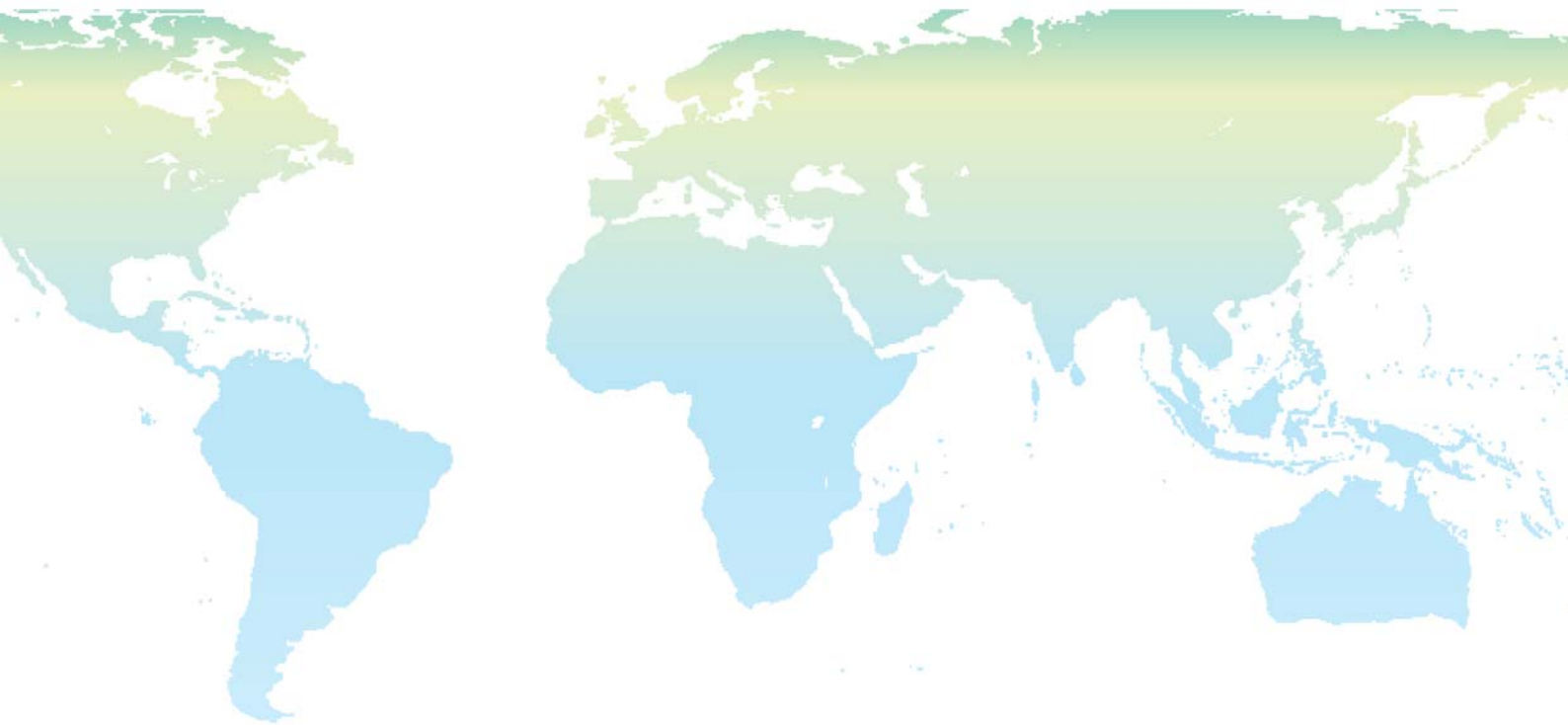
**** Voltage Reading ****
Unit: %
No.    Value    Limit    Pass/Fail
2      0.0247    0.2000    Pass
3      4.6396    0.9000    Fail
4      0.0038    0.2000    Pass
5      1.6306    0.4000    Fail
6      0.0046    0.2000    Pass
7      1.0746    0.3000    Fail
8      0.0102    0.2000    Pass
9      0.3328    0.2000    Fail
10     0.0118    0.2000    Pass
11     0.1847    0.1000    Fail
12     0.0055    0.1000    Pass
13     0.4006    0.1000    Fail
14     0.0079    0.1000    Pass
15     0.0321    0.1000    Pass

```

Figure 6-13 Harmonic Test Report Format

6.10 Save As, Open and Back Buttons

See section 4.9, 4.10 and 4.11 for the descriptions of **Save As...**, **Open...** and **Back** buttons.



Headquarters 總公司

CHROMA ATE INC. 致茂電子股份有限公司

66, Hwa-ya 1st Rd., Hwaya Technology Park,

Kueishan 33383, Taoyuan, Taiwan

台灣桃園縣33383龜山鄉華亞科技園區華亞一路 66 號

TEL: + 886 - 3 - 327 - 9999

FAX: + 886 - 3 - 327 - 8898

e-mail: info@chromaate.com