Scope User Manual

Version No：1.1

Copyright Information

Declare: If you have registered the software, you can use all functions which are introduced in the manual. If you have not registered the software, please register it, then you can use all functions.

Introduction

Scope Software introduces a family of windows 95/98/XP/2000(Intel)/NT 4.0(Intel) applications that connect your oscilloscopes to your PC desktop by USB serial interface. The software provide the display area to display captured waveforms data、 measurements data、waveforms and the LCD waveform interface. Waveforms can refresh automatically, which is help to users analyzing and researching data further; Meanwhile, the software can upload/download setups of the oscilloscope; Further, the software also have control panel setup function, save and print measurements and sampling data functions.

Preface

This manual is the user guide for the Scope software, and it contains four chapters.

Chapter1: Accidence

This chapter guides you install or uninstall the software and introduces you the interface,

Chapter 2: Operating the Scope

This chapter introduces how to use mostly function of the Scope software.

Chapter 3: Troubleshooting

This chapter introduces ways to solve frequently encountered problems.

Catalogue

Chapter1 Accidence

1.1 Install and Uninstall

This section describes how to install Scope software on your computer.

To install Scope, follow these steps:

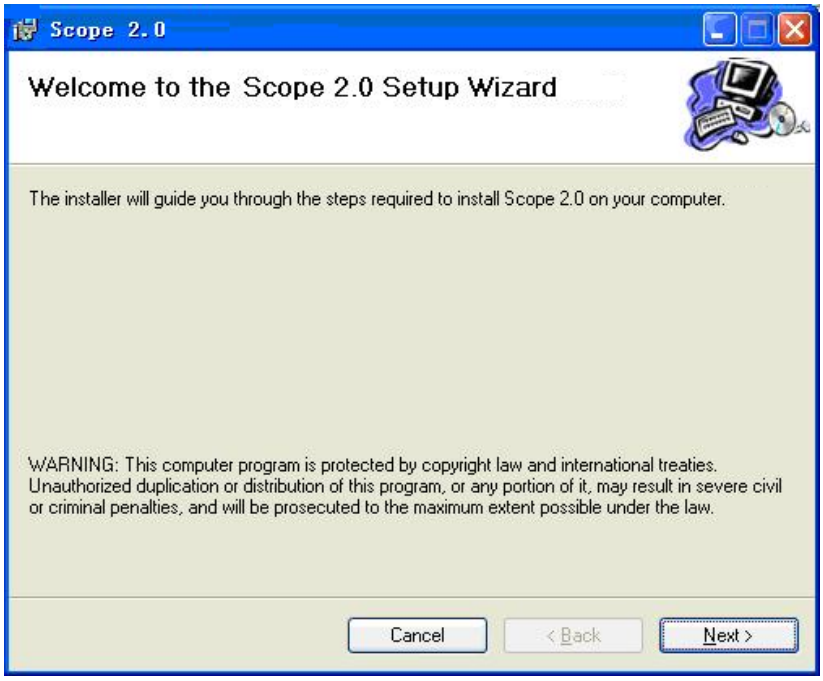
. Insert the installation disk into the CD-ROM drive.

. Open the install file “Scope2.0”→ “Set up”.

. Double click “Setup. Exe” to start the installation wizard（See picture 1-1）.

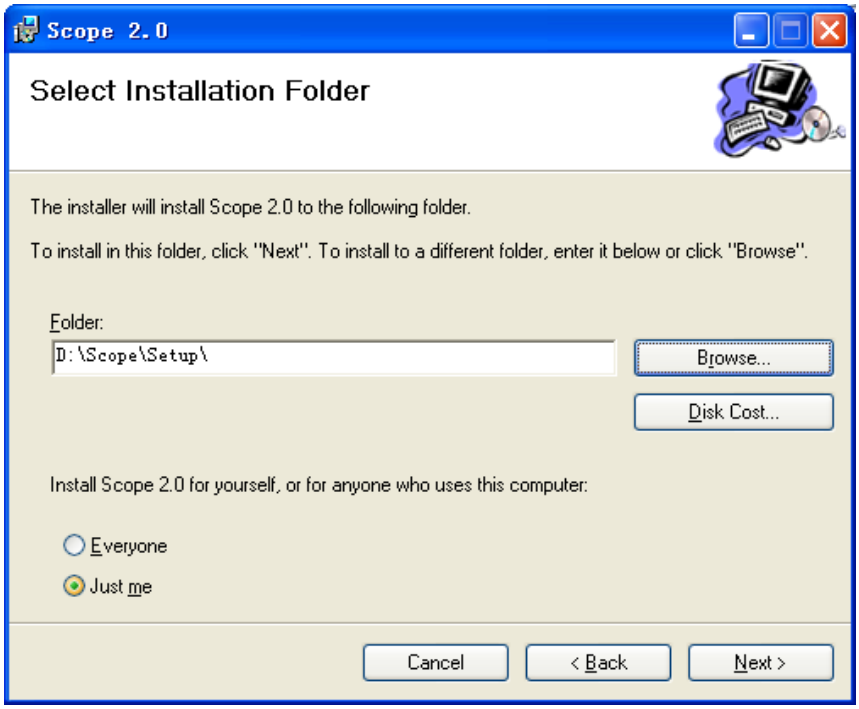
Picture 1-1

. The Welcome to the Scope Setup Wizard dialog box appears (See Picture1-2).



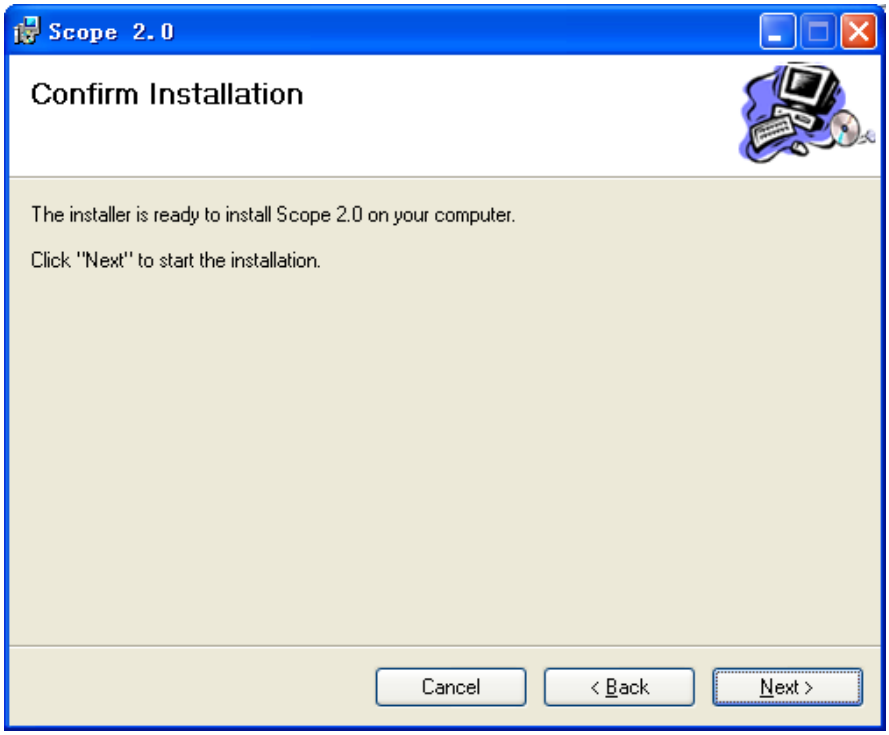
Picture 1-2

. Read the information in the dialog box, and click “Next” to pop up the “Select Installation Folder” dialogue box (See picture 1-3). Select the installation folder, click “Next” to accept the default location or click “Browse” to select other folder.



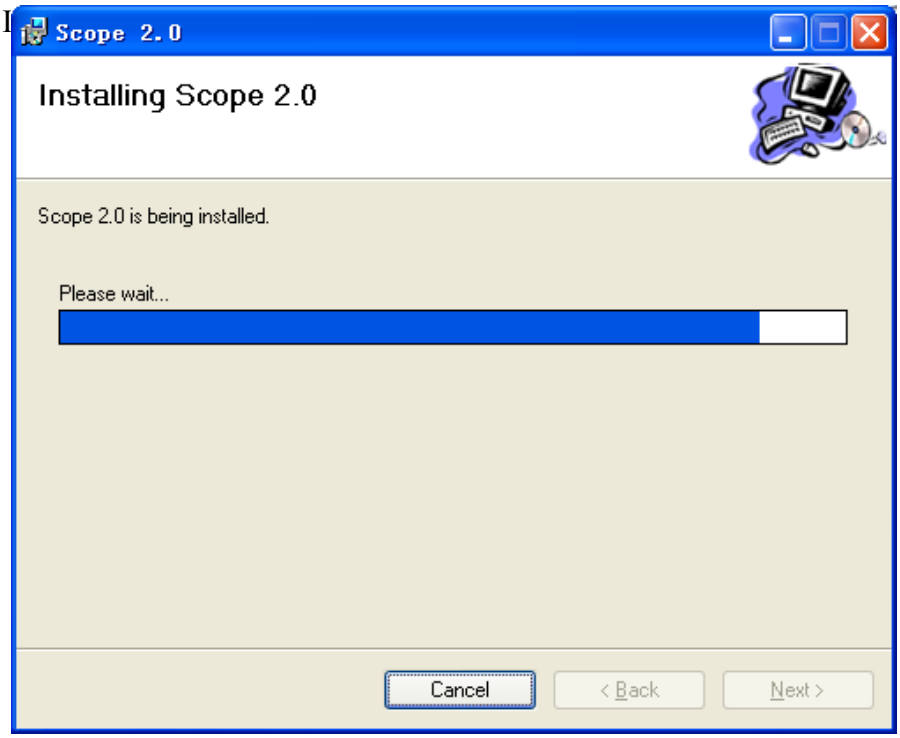
Picture 1-3

. The Confirm Installation dialog box appears (See picture 1-4) and clicks “Next”.



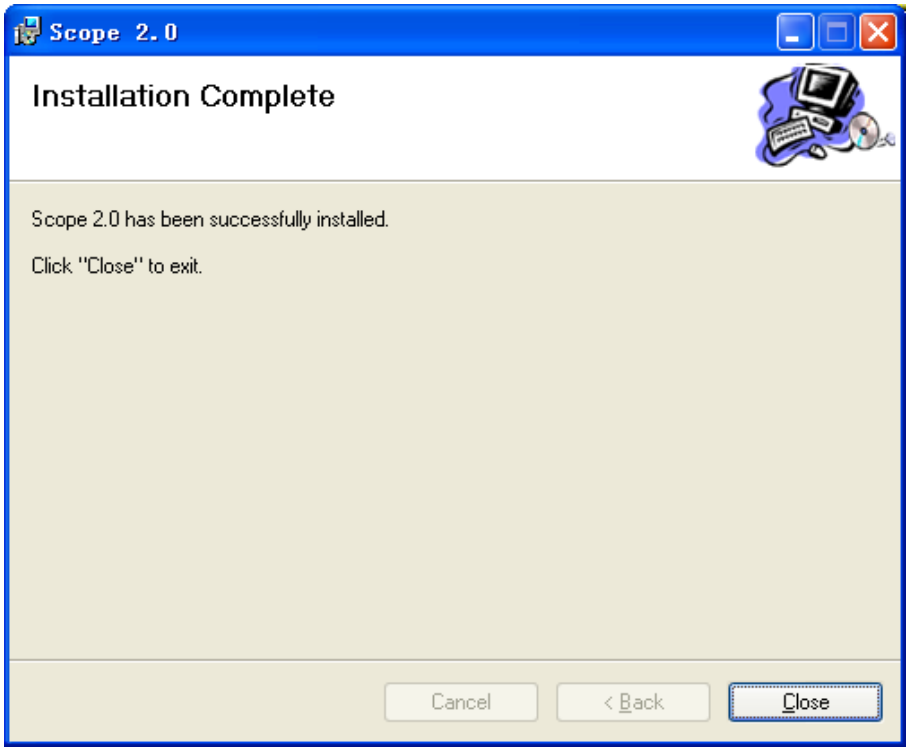
Picture 1-4

. I



Picture 1-5

. After all the files have been installed, the installation complete and click “Close”. (See picture 1-6)



Picture 1-6

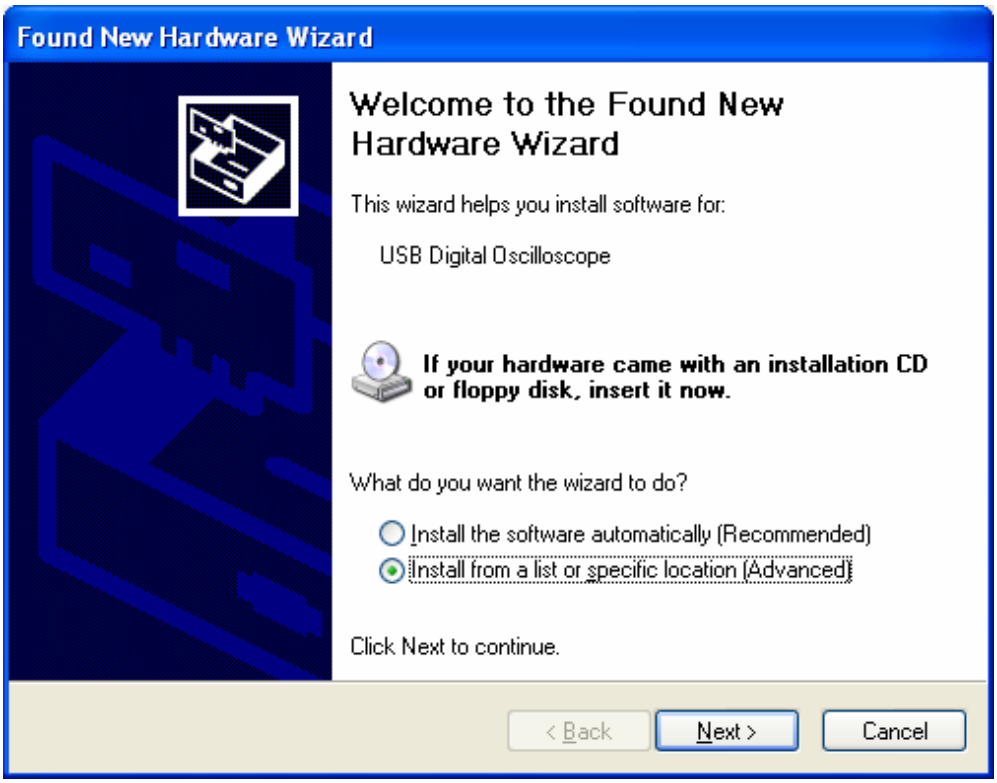
Installing the USB driver

. Connect the oscilloscope (now you should make sure the oscilloscope is working) to your computer using the included USB cable.

. The windows device manager automatically detects the system and will display “Find new hardware”.（See picture 1-7）

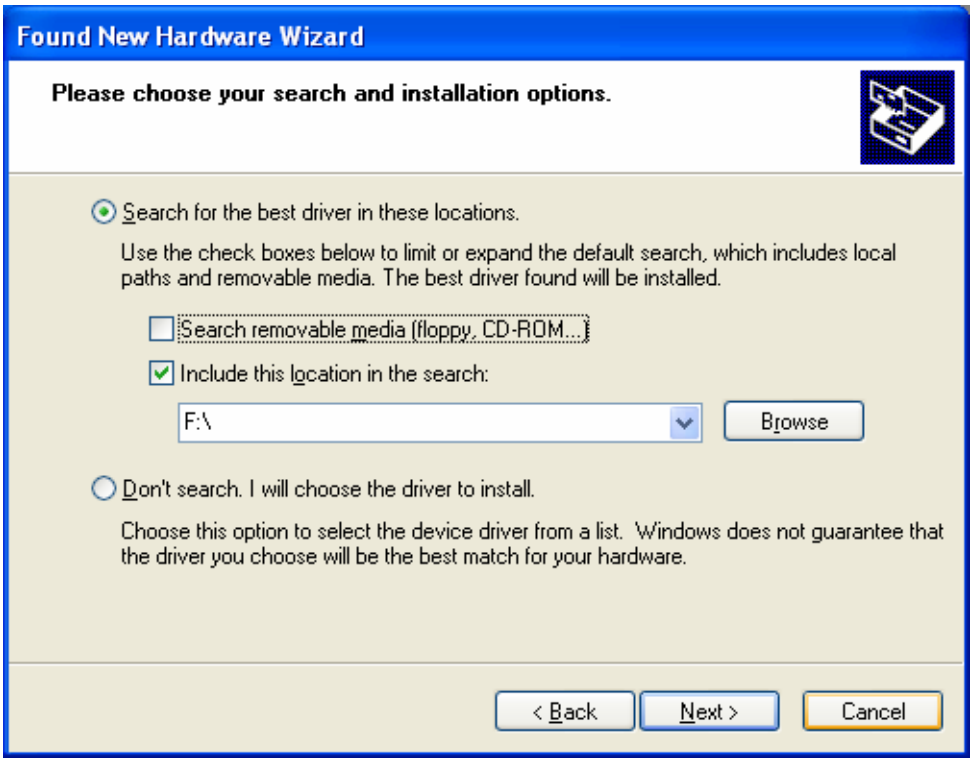
Picture1-7

. The welcome to found new hardware wizard dialogue box appears (see picture 1-8), select “Install from a list or specific location (Advanced)”. Click “Next”.



Picture1-8

. The “Please choose your search and installation options” dialogue box appears (See picture 1-9). Select “Include this location in the search” and click “Browse”. Then click “Next”.



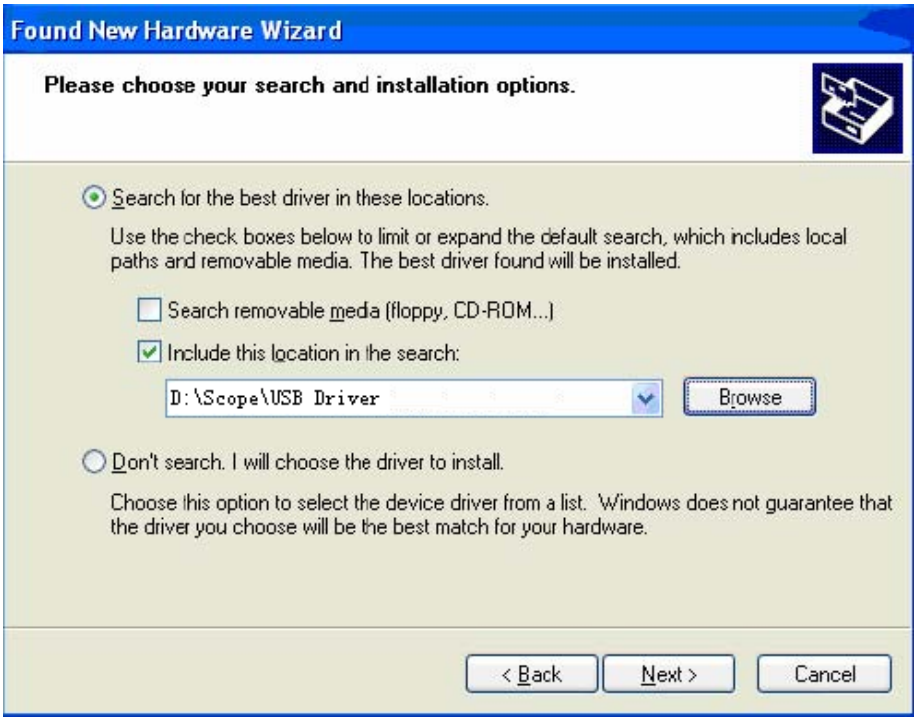
Picture 1-9

. The “Browse For Folder” dialogue box appears. Browse to the “USB Driver” folder in Scope intall folder(See picture 1-10, picture 1-11). Click “OK”.

Picture 1-10

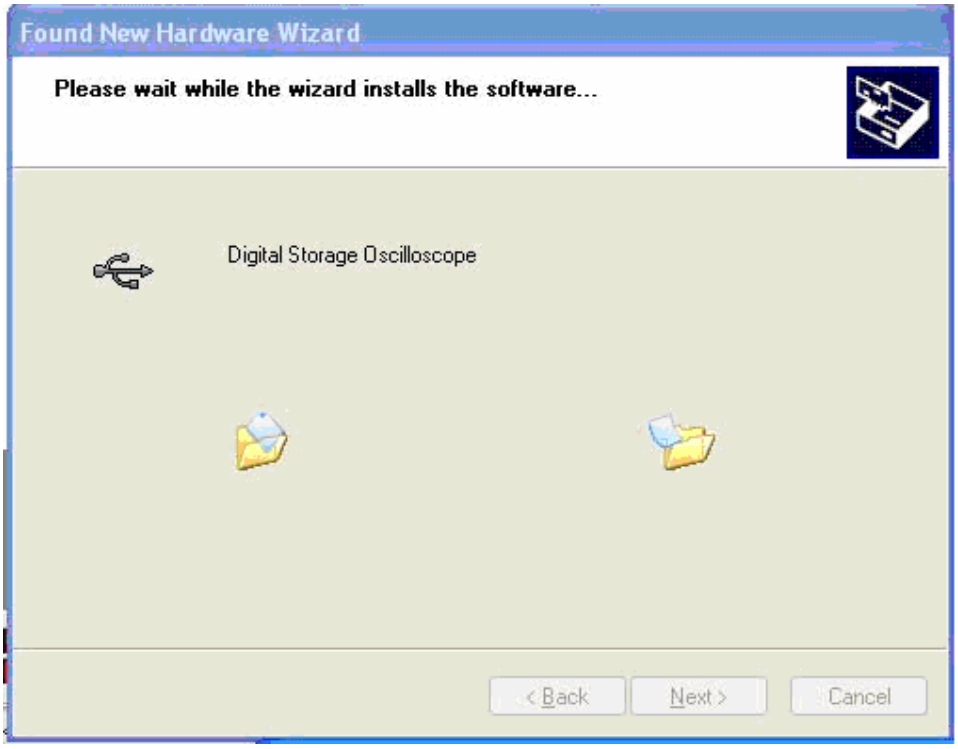
Picture 1-11

. Now you have chosen your search and installation options, Click "Next" in dialogue box 1-12:



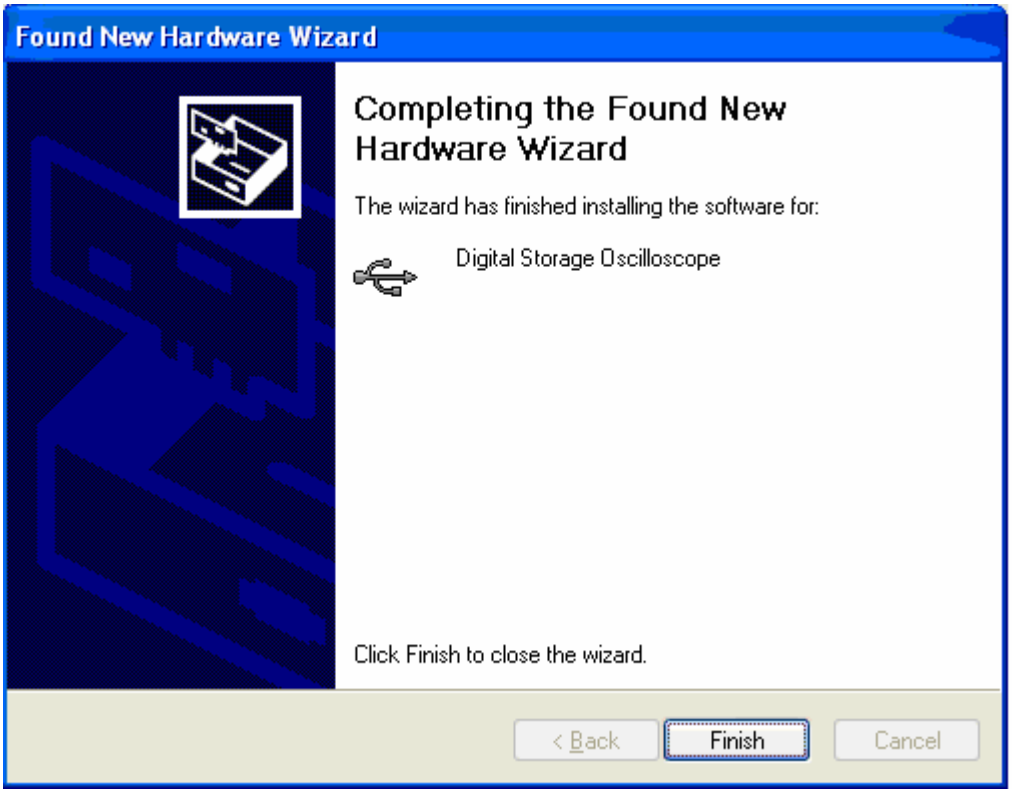
Picture 1-12

. The USB driver will now be installed. (See picture 1-13)



Picture 1-13

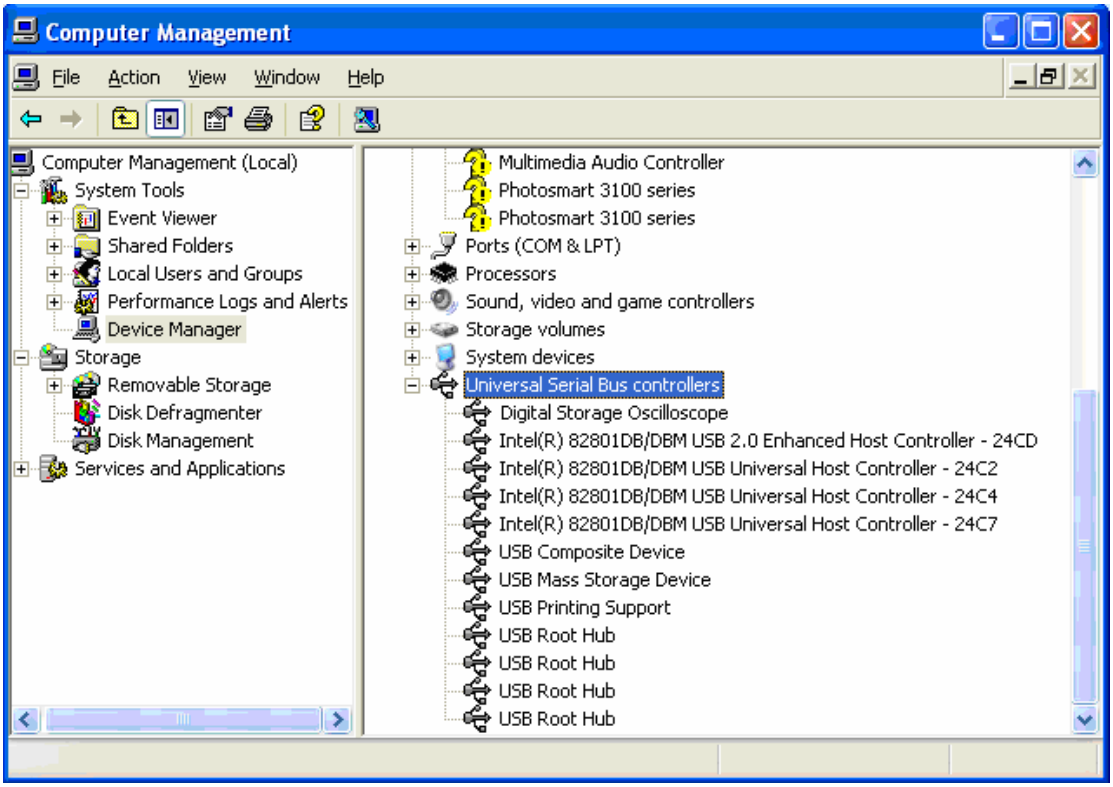
. Complete the driver installation, click “Finish”. (See picture 1-14)



Picture 1-14

. You can check if the installation of the driver was successful by checking the

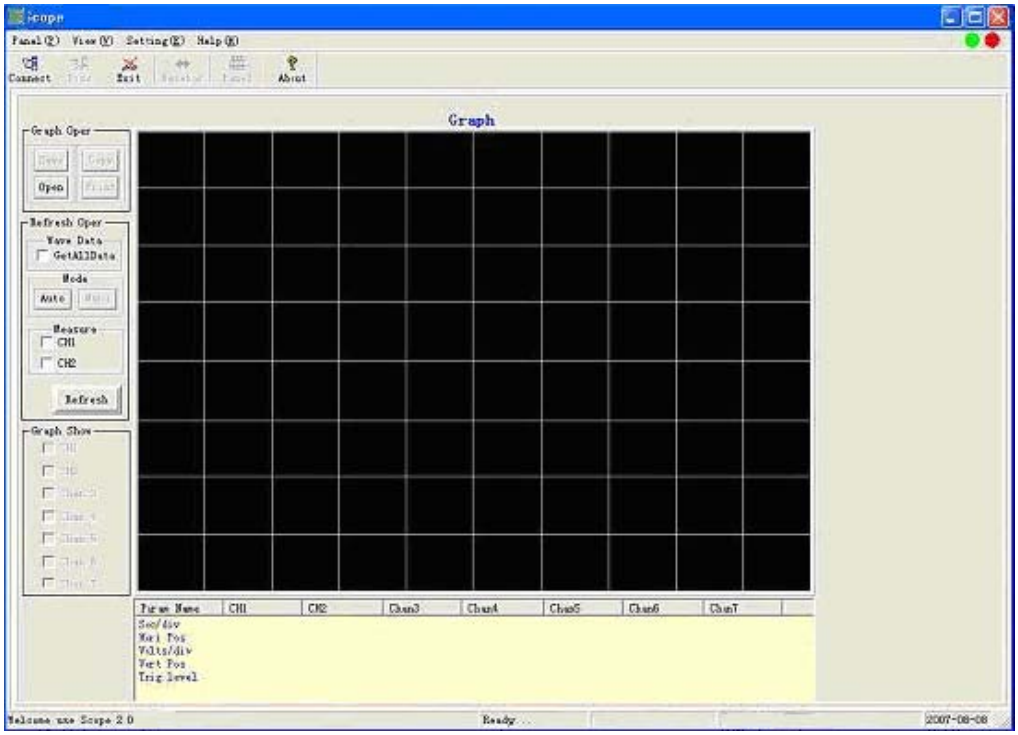
windows device manager. You should see the entry "Digital Storage Oscilloscope" under'Universal Serial Bus controllers" .(See picture 1-15)



Picture 1-15

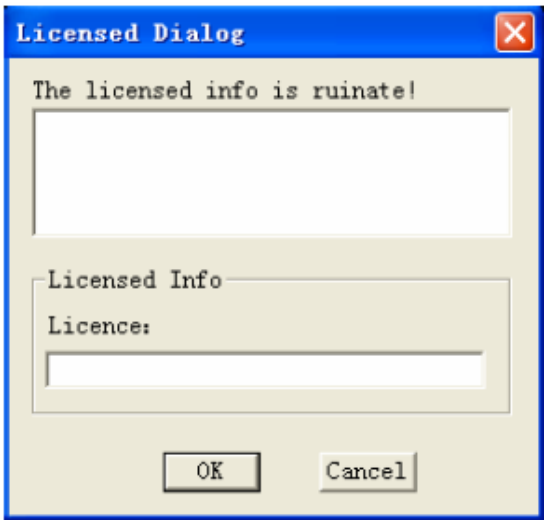
Software registration

Before you can use the full functionality of this software, you must enable register it by entering the license key included on the installation CD. Prior registration, the screen will look as depicted on picture 1-16:



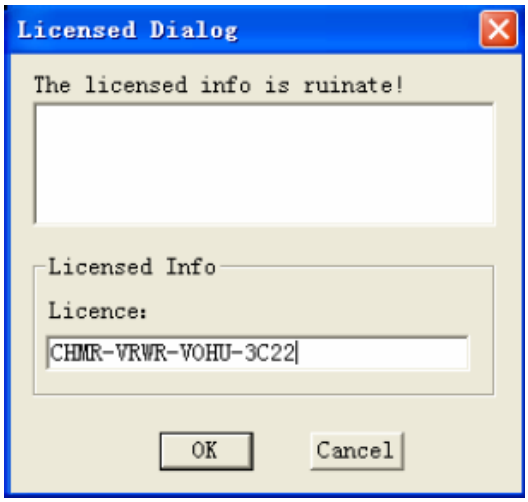
Picture 1-16

. Click the submenu “Software register” of the “Setting” menu to pop up the licensed dialog box (See picture 1-17).



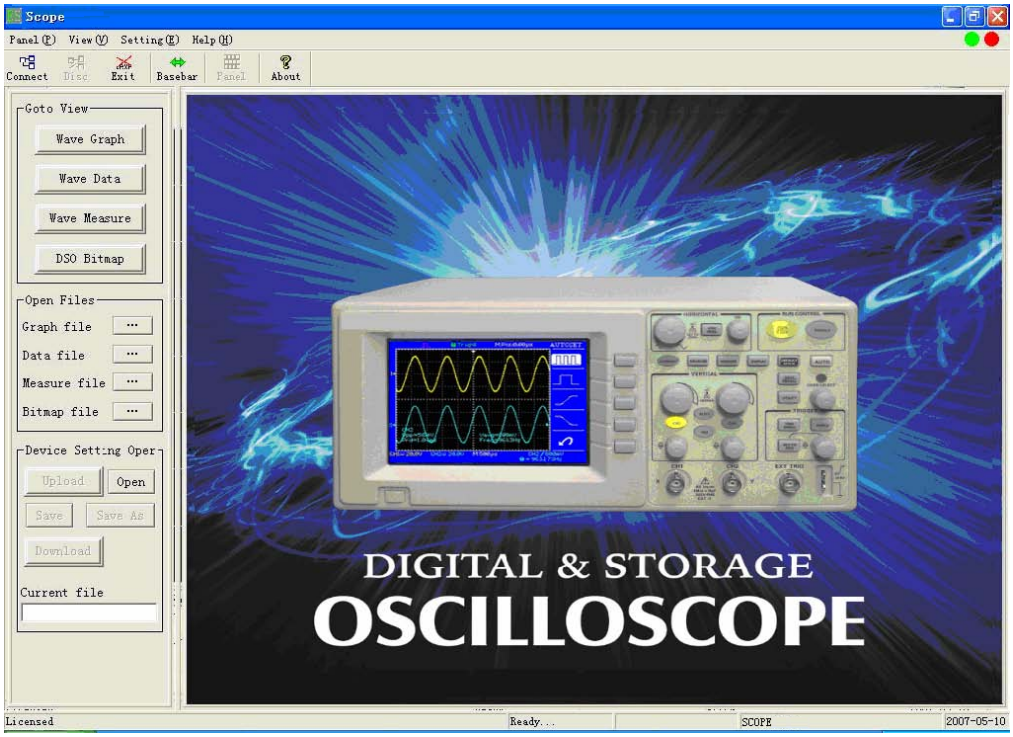
Picture 1-17

. Input the license information of the file “Scope2.0 Key” in dialogue box 1-17, See picture 1-18:



Picture 1-18

. Click “OK”, the software interface will be as picture 1-19. Now the software has been registered, you can use all functions of the software normally.

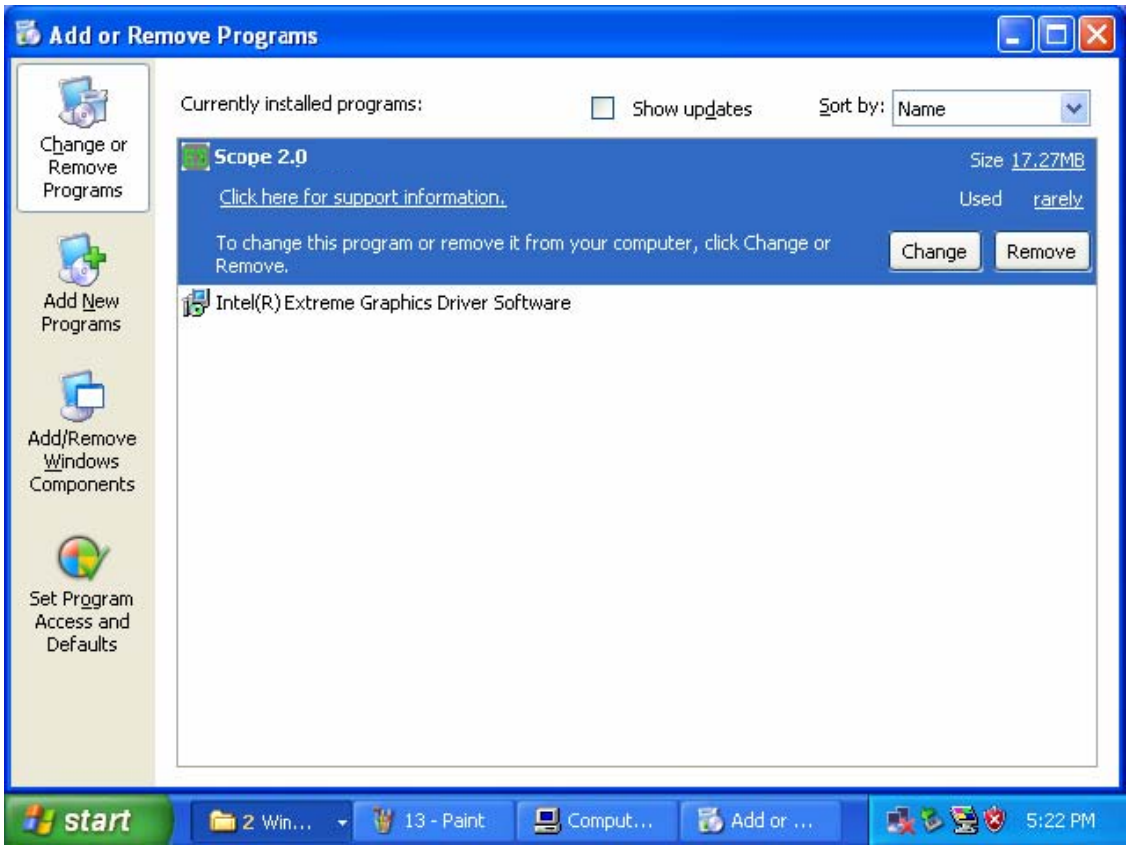


Picture 1-19

Uninstall

After you install the software, you can find “Scope2.0” from the “Add/Remove program” in the Microsoft Windows Control Panel and click “Remove”（See picture1-20）. You also can run “Setup.exe” again and remove

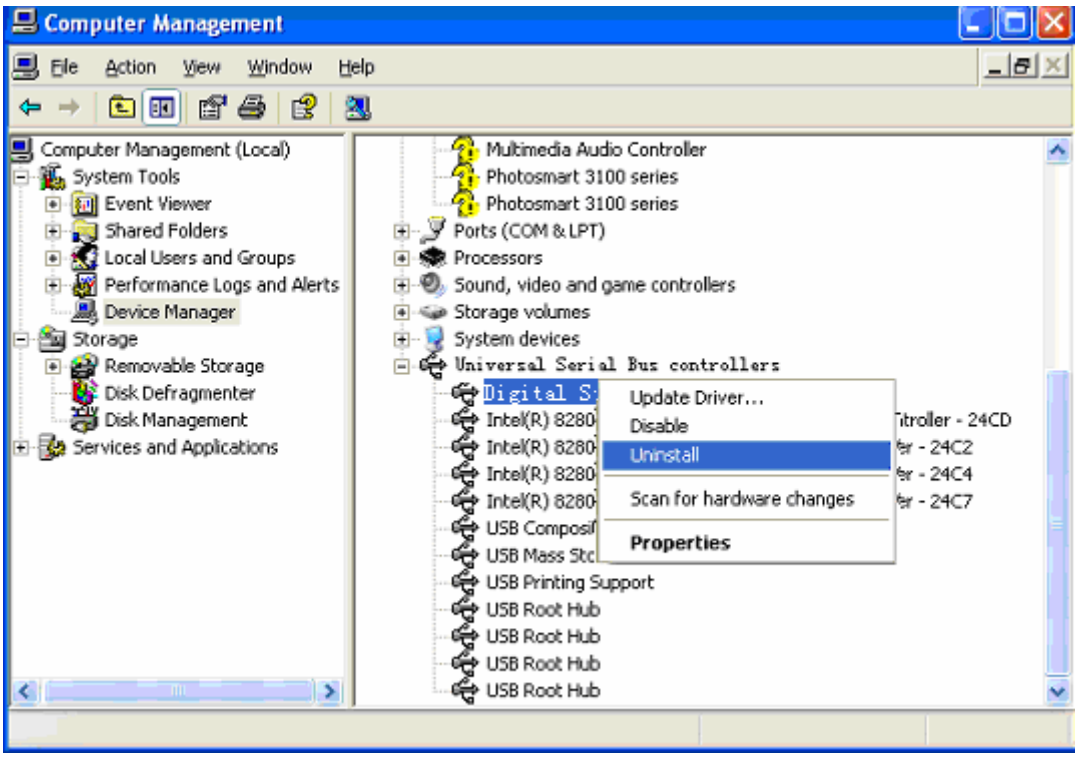
Scope2.0 (See picture1-21). Of course, please check original installation path, if you are not delete the software completely, please manual delete it.(After you install the software, once you add the new file to the path in the course of using the software, you will not delete the software completely when you delete it.)



Picture1-20

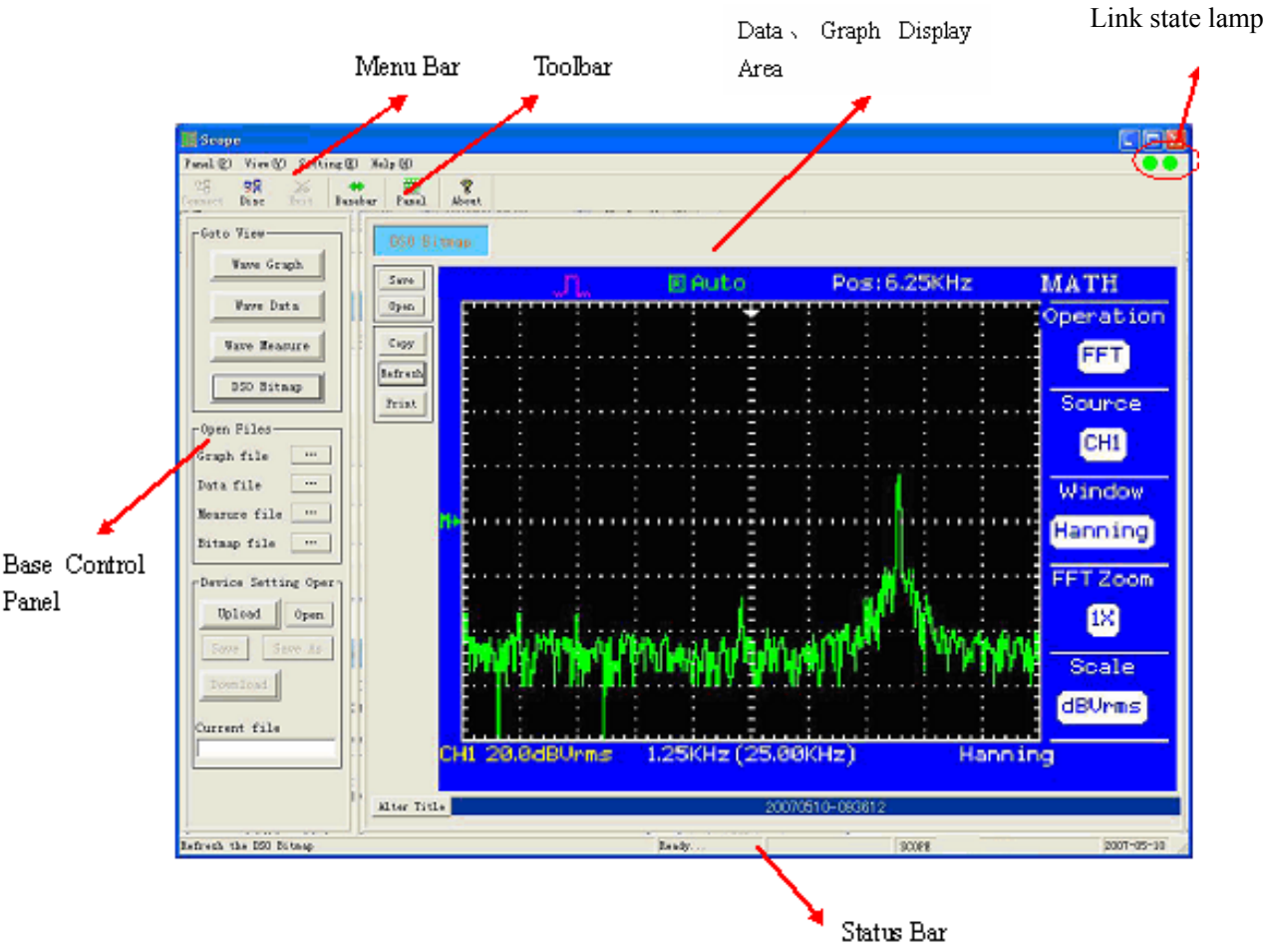
Picture1-21

• Remove USB driver, please follow next steps: Right-Click "My computer"→ "Manager"→ "Device Manager" →"Universal Serial Bus controllers" →"Digital oscilloscope" →Right-click "Digital oscilloscope" →click "Uninstall".(See picture 1-22)



Picture 1-22

1.2 Software Interface



Picture 1-23

1.2.1 Menu Bar

Picture 1-24

Panel

Connect: Connect the oscilloscope to the software, make them do data communication.

Disconnect: Disconnect the link between the oscilloscope and the software, they will not do data communication.

Exit: Exit Scope (you can't exit the software while the oscilloscope is in data communication with the software.)

View

Toolbar: Turns the toolbar on and off

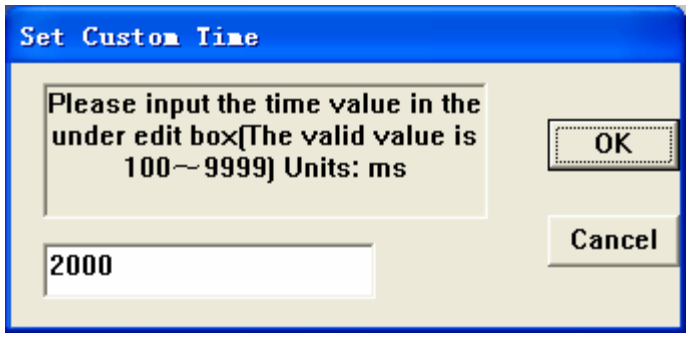
Status Bar: Turns the status bar on and off

Base Control Panel: Turns the Base Control panel on and off

Setting

1. **Time Setting**→0.5s、1s、2s、3s、5s、10s、custom.

"Time Setting" option is used to set auto refresh time interval. For example, Set time to 0.5s, which is to say that the waveforms automatically refresh once every 0.5s when you choose "auto" refresh mode; you can also define the refresh time interval yourself: **"**Setting→ Time Setting → Custom" and the interface will pop up the follow dialog box:



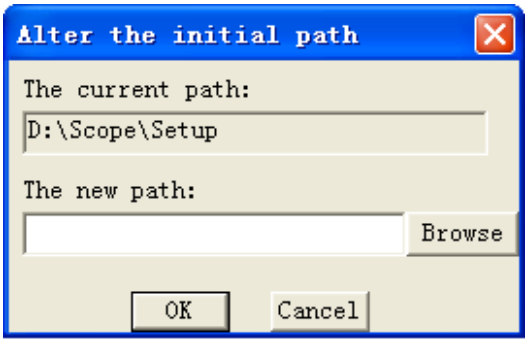
Picture 1-25

Define refresh time interval according to your need, then click “OK”.

Note: custom time interval range: 100～9999（ms）.

2. Path Setting

Select the file path to save data or graphs by this option, you can select default file path or custom file path through “Browse”, see the follow dialog box:



Picture 1-26

3. Operate file

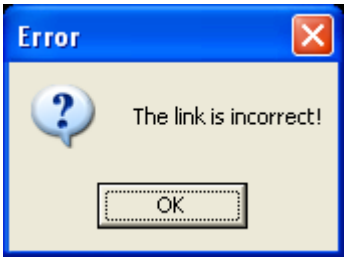
Select this option to save the operation to the software to the selected files, Default setup is in unchecked state.

4. Default setting

Select this option can make setup recover to the default setup.

5. Test Link State

Select this option to detect the link state between the oscilloscope and software automatically. If the link is not in normal state, the system will give you the follow prompting message:



Picture 1-27

Now you need to check whether the oscilloscope connecting to PC is ok.

6. Software register

If you want to use all software functions of the software, you have to register the software by this option.

Help

About Scope: Display information about Scope software

1.2.2 Toolbar

Picture 1-28

Put the mouse on icons, there will appear follow prompting messages:

Connect: Bind DSO by USB Line.

Disc: Unbind the link

Exit: Exits the App.

Basebar: View the Base Control Panel.

Panel: View the stimulant panel.

About: Show the info of Scope 2.0.

Basebar

Click this button to turn the Base Control Panel on or off.

Panel

Click this button to pop up the virtual panel, you can operate the oscilloscope through this panel.

Note:

1. “Connect”、 “Disc” and “Exit” have the same function as submenus “Connect”、“Disconnect” and “Exit” of the “panel” menu .
2. “About” have the same function as submenus “About Scope” of the “Help” menu.

1.2.3 Link state display

Pictutre1-29

There are two link status Lamps in the right of the menu bar, they are used to detect whether the link between PC and the oscilloscope is normal and whether Scope and the oscilloscope is communicating data or not.

The first lamp on the left will turn green in connecting status, and it will turn red after disconnect the link between PC and Oscilloscope.

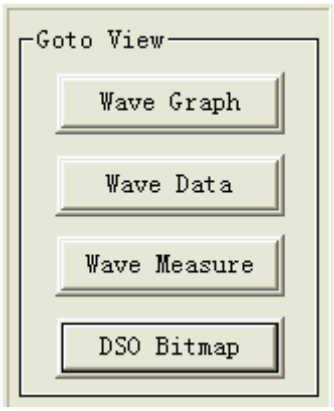
Second lamp will turn green when the oscilloscope and Scope is communicating data, and it will turn red when they stop data communication.

1.2.4 Base Control Panel

Base Control Panel covers three parts: Goto View、Open files、Device setting operate.

Goto View

As picture1-30:



Picture1-30

Wave Graph: Click this button to display “Waveform Graph Interface” in the Display area; it can display seven waveform graphs at the same time.

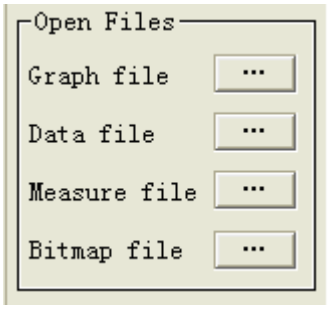
Wave Data: Click this button to display the “Waveform Data Interface” in the Display area; it can display seven waveforms’ data at the same time.

Wave Measure: Click this button to display the "Waveform Measurement Value Interface" in the Display area; it can display seven waveforms' measurement values at the same time.

DSO Bitmap: Click this button to display "DSO bitmap" in the Display area.

Open files

As picture1-31:

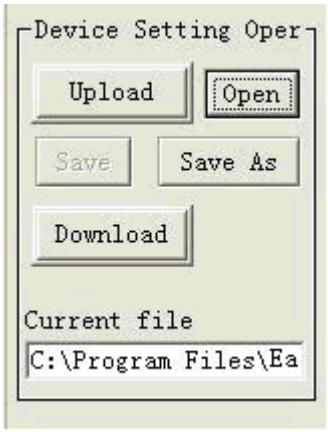


Picture 1-31

Clicks four buttons on the right of Picture 1-31, it will pop up corresponding dialogue box to recall corresponding saved files. They can be used to analyze and research.

Device Setting Operate

As picture 1-32:



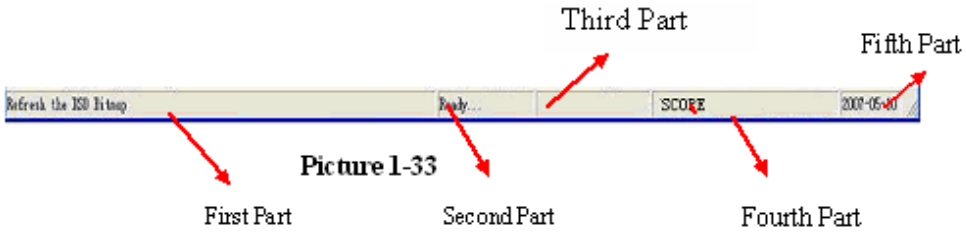
Picture1-32

You can click the "Upload" button to transfer setting data to your oscilloscope, and you can get these setting data by pressing the "Download" button to actualize the corresponding setting on the oscilloscope.

1.2.4 Data、Graph display area

This part is used to display graphs and data.

1.2.5 Status Bar



Picture 1-33

Status Bar covers fi First Part

First Part: Displays current operation

Second Part: Displays communication status.

Third Part: Displays communication schedule

Fourth Part: Displays link status or oscilloscope model

Fifth Part: Displays current date.

Chapter 2 Operating the Scope

This chapter covers the following topics:

- Graph、Data control operate
- Device Setting operate
- Virtual panel operate

2.1 Graph、Data control operate

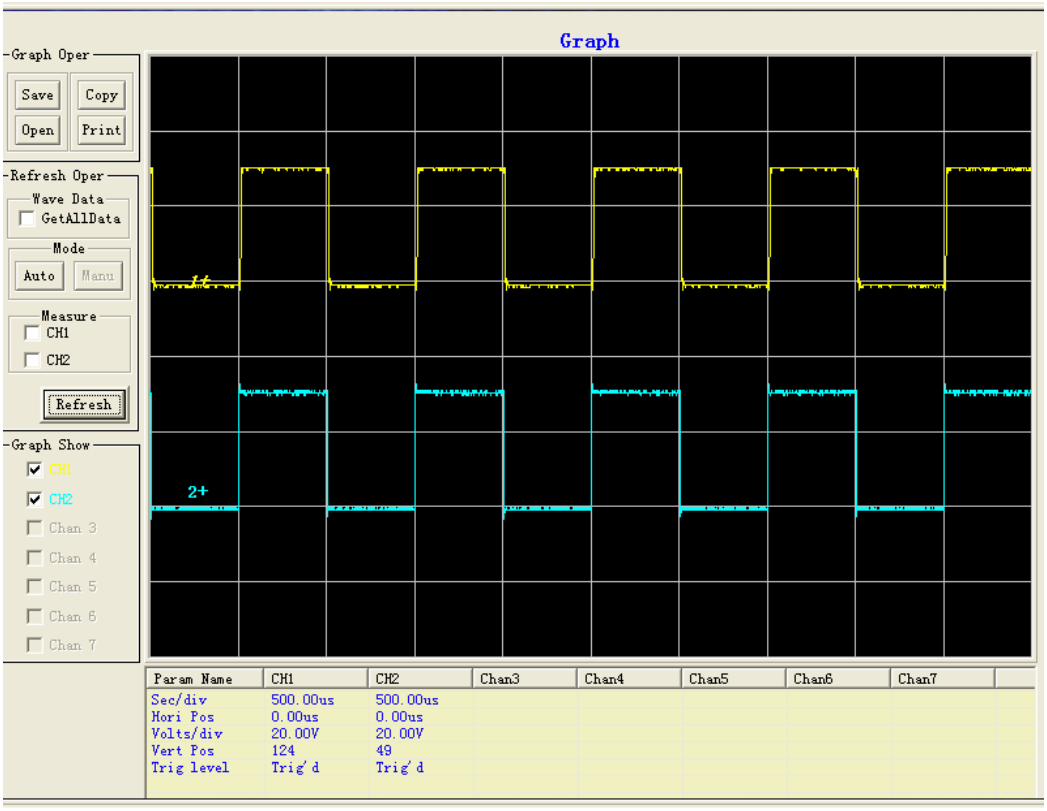
First，Connect the oscilloscope to the computer by USB cable and open the oscilloscope ,now the left link status lamp display green.Scope and the oscilloscope can communicate data after clicking the “connect” button in the Toolbar, now you can click buttons which are in the base control panel and in the corresponding interface in the display area to actualize control operation for graphs and data.

2.1.1 Graph control

一、Wave Graph control

1. Wave Graph

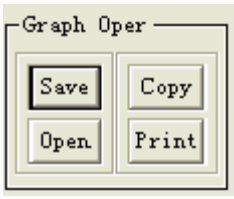
To display “Waveform Graph” interface in the display area, clicks the “Wave Graph” button in “Goto View”. The left of the interface covers three parts: Graph Operate、Refresh Operate、Graph Show; the right of the waveform graph interface is waveform graph display area; Blow the waveform graph display area is parameters display area , which displays waveform correlative parameters: Sec/div、Horizontal position、Volts/div、Vertical Position、Trigger level. (See picture 2-1)



Picture 2-1

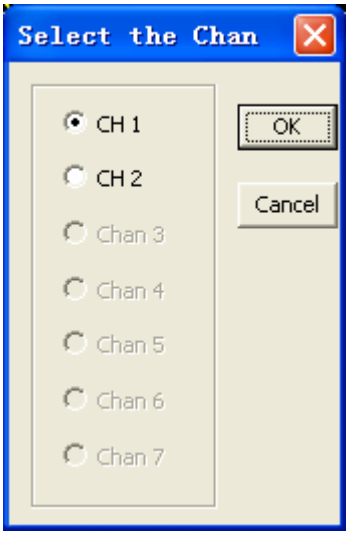
1). **Graph Operate**

This part has four buttons: save、copy、open and print(See Picture2-2). You can use them to operate waveform corrective parameters.



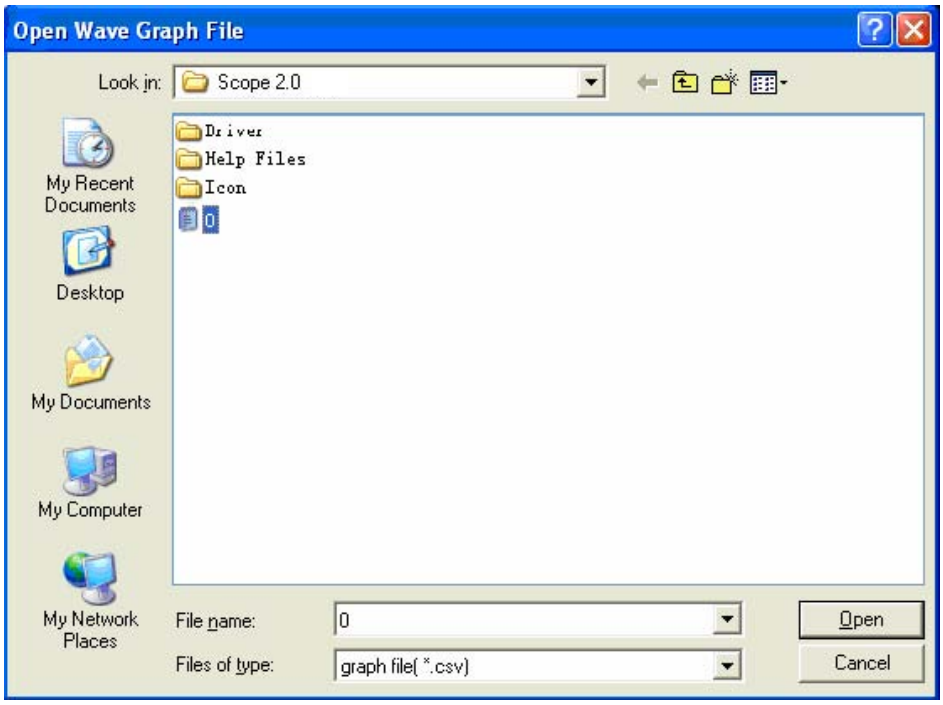
Picture 2-2

Save There will pop up a dialogue box after clicking the “save” button, now you can save waveform data according to your need, then clicks “ok”, the waveform data will be saved to the appointed file(See picture 2-3).



Picture 2-3

Open Clicks the "open" button (or clicks the button on the left of "Graph file" in "Open Files") to open saved graph files (See picture2-4), and the waveform will display on the waveform display area and correlative parameters will display on the parameter display area. Meanwhile, the corresponding button in the "Graph Show" part is in selected state automatically. You also can open "waveform data file" or "waveform measurement value file" by clicking corrective buttons in the "open files" part, now corrective parameters will display on the parameter display area. But if you want to display the corresponding waveform, you must pitch on the corresponding waveform channel in "Graph Show".



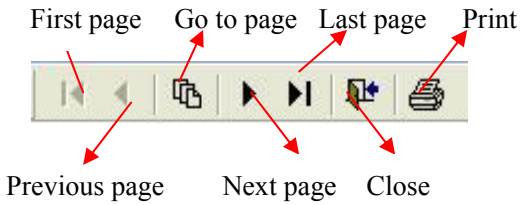
Picture 2-4

Print Click this button to pop up the print preview interface. See picture 2-5:

Item Name	CH1	CH2	Chan3	Chan4	Chan5	Chan6	Chan7
1	130						
2	130						
3	130						
4	131						
5	131						
6	132						
7	130						
8	133						
9	132						
10	133						
11	133						
12	134						
13	134						
14	135						
15	135						
16	136						
17	135						
18	136						
19	135						
20	137						

Picture 2-5

Toolbar instruction on the preview page：



Picture 2-6

2) Refresh operate

Scope software has two refresh modes: “Auto” mode and “manu” mode.

See Picture 2-7

Picture 2-7

“Auto” mode: Selects the channel what your need in the “Graph Show” part、Selects auto refresh time interval in submenu “Time Setting” of “setting” menu and clicks the “auto” button, the waveform will auto refresh according to time interval setting and waveform sampling data also will refresh automatically at the same time.

“Manual” mode: The “Manu” button is visible in “Auto” mode (Because the default refresh mode is “Manu” when you start up the software).After you click the “manu” button and “refresh” button , the waveform and waveform data will be refreshed once.

Wave Data： If you select this option, you will get 4K data of the waveform (you can see them in “Wave Data” interface) when you refresh waveforms in time base scale 2.5μs/div-50s/div except in scan mode.

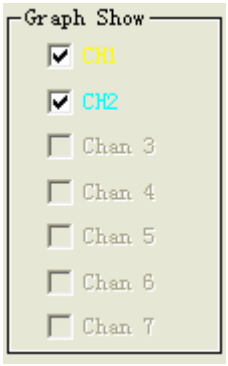
Measure: you can select “CH1” or “CH2”, or select them at the same time, then click the “refresh” button to get waveform measurements. You can see them in the

measurement interface.

Note: You need to open the auto measurement function of the oscilloscope and the waveform measurement value can be refreshed when you refresh waveforms.

3) Graph Show

CH1 & CH2 buttons correspond to channel 1 and channel 2 of the oscilloscope, and other buttons are used to display saved waveforms. See Picture2-8:



Picture 2-8

2. Obtain and display wave Graph

When Communication between the oscilloscope and Scope is in normal status(Now two status lamps all display green) and Channel 1 waveform & Channel 2 waveform display on the oscilloscope screen at the same time, you want to display them on the waveform graph interface at the same time, please carry out follow steps:

First, select a refresh mode in the waveform graph interface. If you want to select "manu" refresh mode, click the "manu" button.

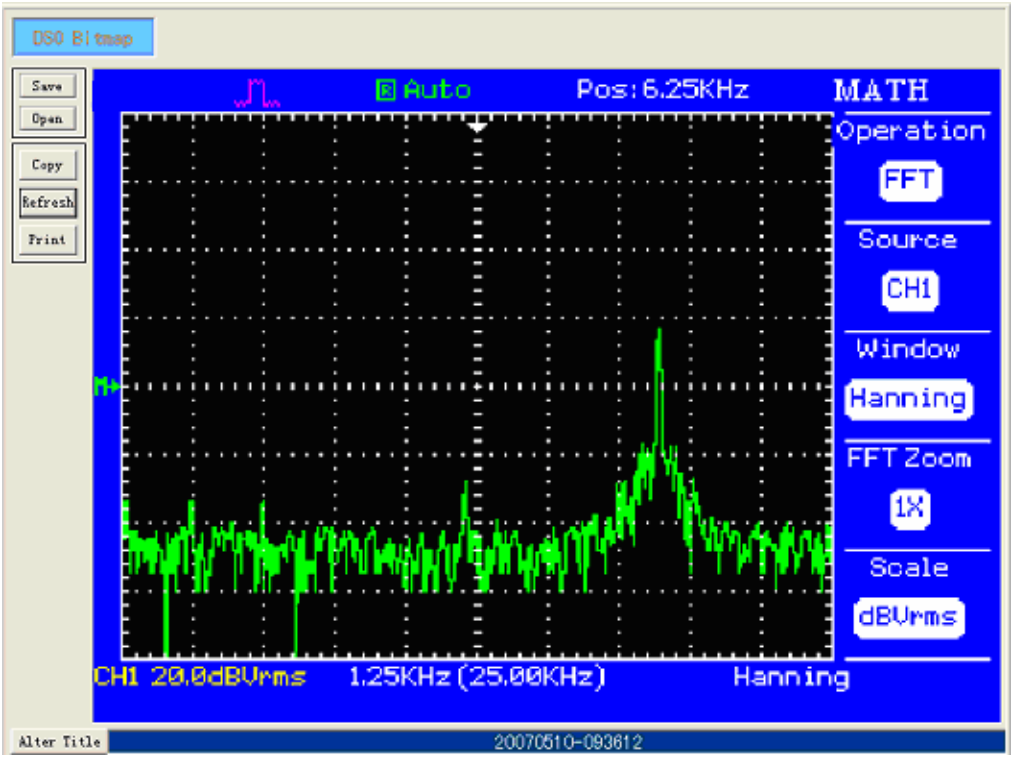
Then clicks the "refresh" button. Now you have got two channel waveforms and waveform sampling data (you can see them in the waveform data interface). Parameters in the parameter display area are two channel waveforms' corrective parameters.

Picture 2-1: Selects "manual" refresh mode to get CH1 and CH2 waveforms at the same time.

Note: If you only need to display CH1 waveform or CH2 waveform, you can only select CH2 or CH1 in "Graph Show" part.

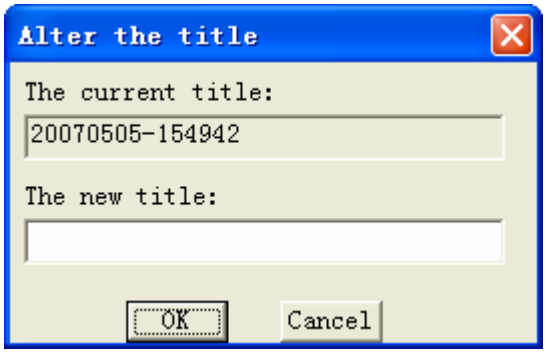
二、DSO Bitmap Control

To display the current LCD waveform bitmap interface on the display area, Clicks “DSO Bitmap” button in “Goto View”. Click the “refresh” button to get current LCD waveform interface bitmap. (See picture 2-9).



Picture 2-9

you can copy、save and print it. You also can click the “open” button in “Graph Operate” (or click the button on the right of the “Bitmap file” button in “open files”) to display saved interface bitmaps. The current bitmap’s title can be changed in “Alter Title” below the display area. (See Picture2-10)



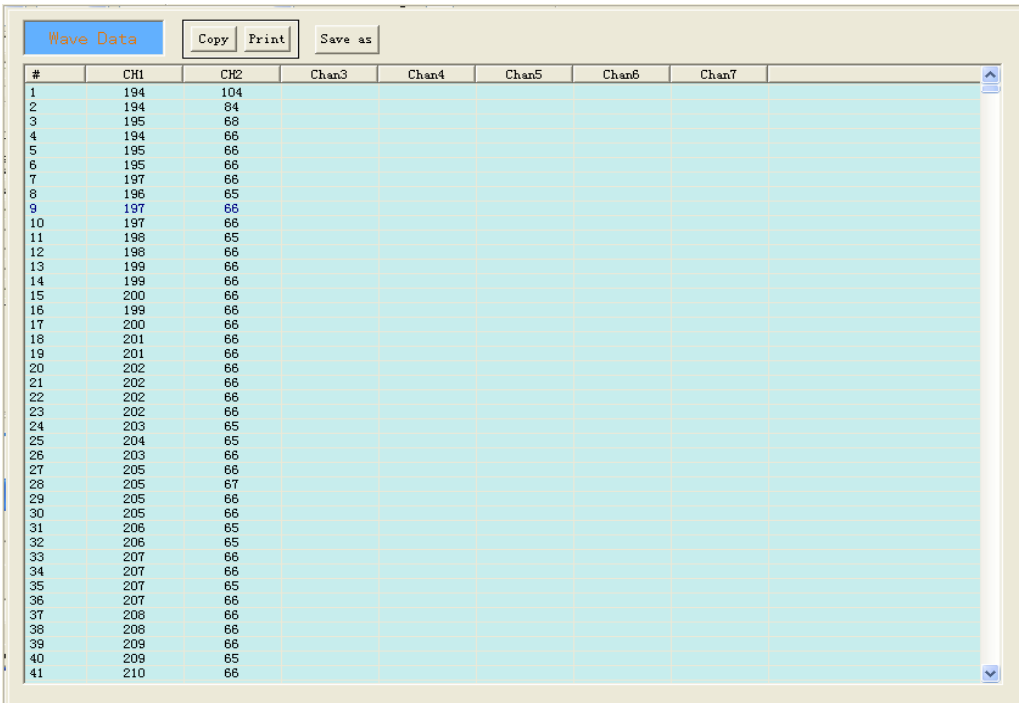
Picture 2-10

2.1.2 Data control

一、Obtain and display waveform data

You have got waveform sampling data when you get the waveform. Clicked the "Wave Data" button in "Goto View", Display area will display the waveform data interface. Seven waveforms' data can be displayed on the waveform data interface at the same time, and you can copy、print and save them.

Picture 2-11: CH1 and CH2 waveforms' data display on the wave data interface



#	CH1	CH2	Chan3	Chan4	Chan5	Chan6	Chan7
1	194	104					
2	194	84					
3	195	68					
4	194	66					
5	195	66					
6	195	66					
7	197	66					
8	196	65					
9	197	66					
10	197	66					
11	198	65					
12	198	66					
13	199	66					
14	199	66					
15	200	66					
16	199	66					
17	200	66					
18	201	66					
19	201	66					
20	202	66					
21	202	66					
22	202	66					
23	202	66					
24	203	65					
25	204	65					
26	203	66					
27	205	66					
28	205	67					
29	205	66					
30	205	66					
31	206	65					
32	206	65					
33	207	66					
34	207	66					
35	207	65					
36	207	66					
37	208	66					
38	208	66					
39	209	66					
40	209	65					
41	210	66					

Picture 2-11

Note: you can recall saved waveform data by clicking the button on the right of the "Data file" button in "Open Files" and observe them in the waveform data interface.

二、Obtain and display waveform measurements

This series digital storage oscilloscopes can automatically measure eleven parameters, so the software also can obtain these eleven parameters value.

If you want to get CH1 and CH2 waveforms' measurement value, please follow next steps:

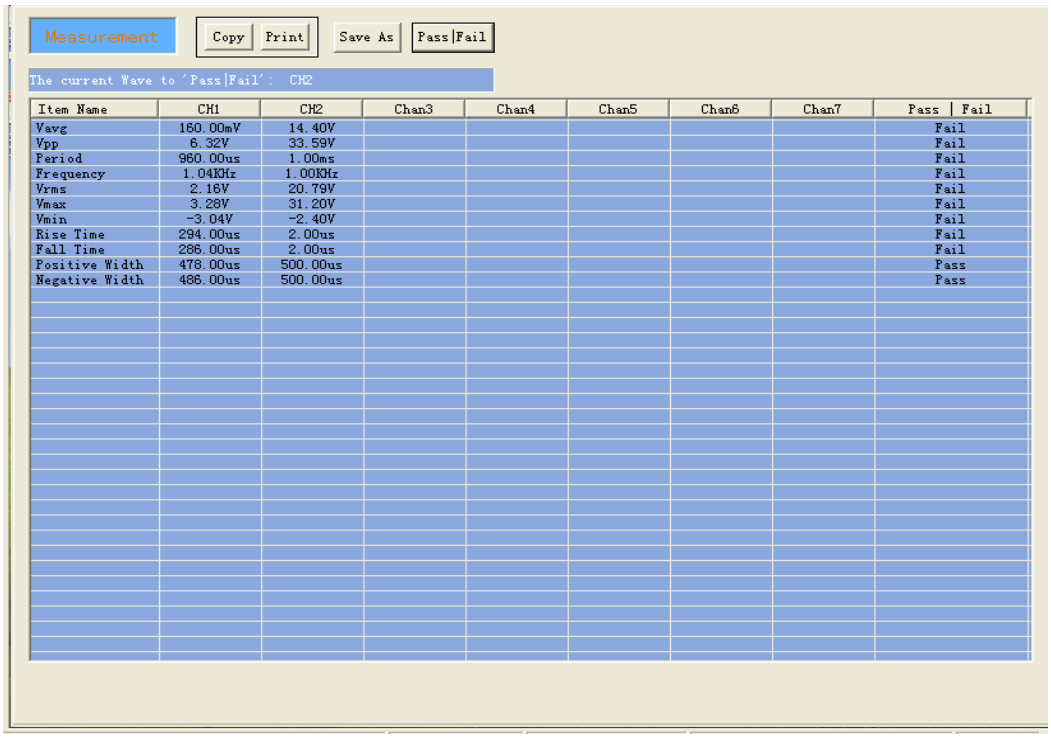
1. Selects “CH1” and “CH2” at the same time in “Graph Show” item of the “Wave Graph interface” .

2. If you select “manu” refresh mode, click the “refresh” button, now you have get measurements what you need.

2. Display waveform measurements

Display area will display corresponding measurements when you click the “wave Measure” button in “Goto View” part.

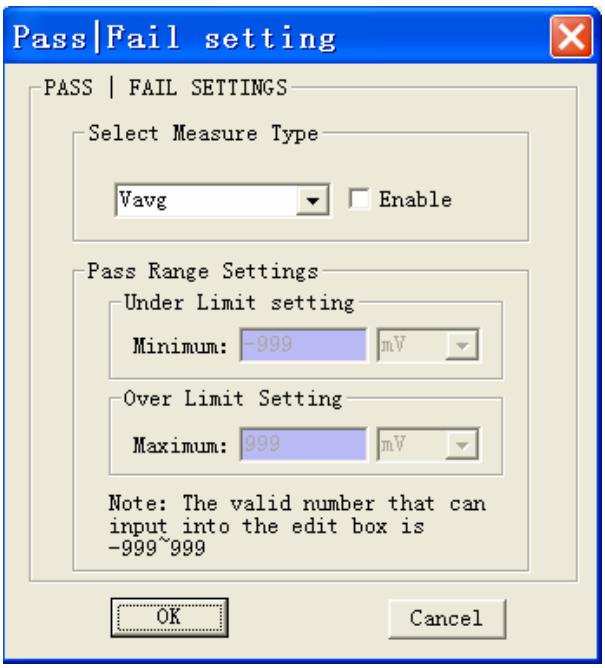
Picture 2-12: CH1 and CH2 waveforms’ measurements display on the “Waveform Measurement Interface” at the same time.



Item Name	CH1	CH2	Chan3	Chan4	Chan5	Chan6	Chan7	Pass | Fail
Vavg	160.00mV	14.40V						Fail
Vpp	6.32V	33.59V						Fail
Period	960.00us	1.00ms						Fail
Frequency	1.04KHz	1.00KHz						Fail
Vrms	2.16V	20.79V						Fail
Vmax	3.28V	31.20V						Fail
Vmin	-3.04V	-2.40V						Fail
Rise Time	294.00us	2.00us						Fail
Fall Time	286.00us	2.00us						Fail
Positive Width	478.00us	500.00us						Pass
Negative Width	486.00us	500.00us						Pass

Picture 2-12

You can copy、print and save them. This interface has a “Pass/Fail” button, clicks this button to pop up the Pass/Fail setting dialogue box, You can set pass/fail factors range in this dialogue box. (See Picture 2-13)



Picture 2-13

Note: you can input valid number is: -999～999 in max and min editor box . If the measurement value is in this range, it will show “pass” on the Pass/Fail list in the measurement panel; If the measurement value is not in this range, the measurement panel will display test result as “Fail”.

To set the range of these pass/fail factors according to the following steps:

1. Select parameters for pass/fail factors from the list, and pitch up “Enable” option.
2. Input number and select unit for this parameter to set pass/fail range.

Note: you can recall saved waveform measurements by clicking the corresponding button on the right of the “Measure file” in the “Open Files” part and you can see them in the waveform measurements interface.

Open the saved “waveform measurements file”, not only measurements can be displayed on the waveform measurements interface 、waveform data can be displayed on the waveform data interface but also waveform graph can be displayed on the waveform graph interface after pitching on the corresponding channel in “Graph Show”. This owing to before obtaining waveform measurements we must obtain the waveform, and the waveform is composed of sample data.

2.2 Device Setting operate

Upload

You can click the “upload” button to transfer the oscilloscope setup data to your computer, then you can click the “save” button or “save as” button to save them to the appointed file.

◇ Clicks the “save” button: Save the oscilloscope setup data to the default configure file.

◇ Clicks the “save as” button: Save the oscilloscope setup data to the appointed configure file.

Download

You can download the setup data from saved configure file to the oscilloscope by clicking the “Download” button, and the oscilloscope will actualize the corresponding setup. Please follow nest steps:

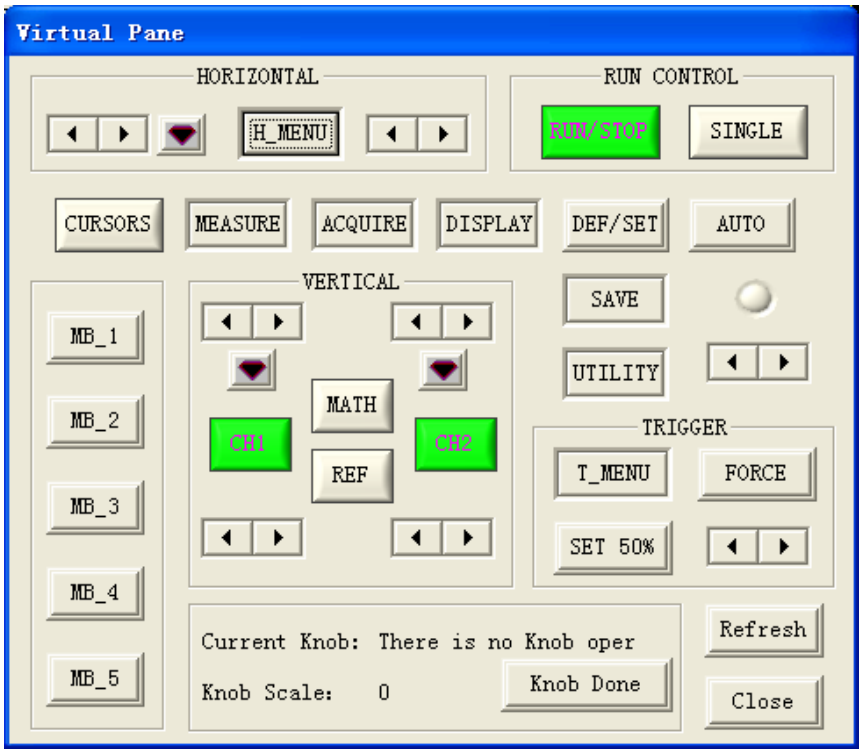
1. Clicks the “open” button

2. Selects saved Device configure file and clicks the “open” button

3. Click the “Download” button and the oscilloscope will execute the corresponding setup operation.

2.3 Virtual panel operation

Click the “connect” button in Toolbar. If you use “manual” refresh mode, there will pop up the virtual panel as picture 2-14 when you click the “panel” button in Toolbar. If you use “auto” refresh mode, there is no “Refresh” button on the virtual panel. The arrangement of the softkeys on the virtual panel is the same as those buttons and knobs on the front panel of the oscilloscope basically. You can click these softkeys to control the oscilloscope by PC.



Picture 2-14

Button

Click buttons on the virtual panel, which can actualize the same function as press the corresponding button on the front panel of the oscilloscope. “MB-N (N=1,2,…5)” buttons respectively correspond to five option buttons on the left of the front panel of the oscilloscope.

Note: If the display waveform on the oscilloscope screen is in trigger status when you click the “SINGLE” button on the virtual panel, the “RUN/STOP” button on the virtual panel should display red and the “SINGLE” button should display green. But now the “RUN/STOP” button and the “SINGLE” button may all display green owing

to period of time communication delay between the oscilloscope and PC, now you need to click the “manual” button for several times and the “RUN/STOP” button on the virtual panel can display red accord with the oscilloscope.

Knob

◇ Click once  button on the virtual panel and “Knob Scale” will subtract 1, then click the “Knob Done” button, which be equal to anticlockwise turn the corresponding button a scale.

◇ Click once  button on the virtual panel and “Knob Scale” will add 1, then click the “Knob Done” button, which be equal to clockwise turn the corresponding button a scale.

◇ “s/div” knob and “volts/div” knob of the oscilloscope can be pressed, you can double-click  button and click the “Knob Done” button to actualize the corresponding function.

Chapter 3 Troubleshooting

Note：

1. You'd better set the screen resolution rate to "1024×768" and set font to "small font" when you use this software, which can reach the best vision interface effect.

Set the System, follow next steps:

Click the blank area of the desktop using the right key of mouse→ "property" →"Setting" →set the screen resolution rate to "1024×768" →click the "advanced" option button →set the font to small font→ click "OK".

2. In the course of using the software, if you use "Auto" refresh mode, you'd better not set the waveform status to stop when you use virtual panel. Because when waveforms of the oscilloscope stop, the software will get data fail.

3. In the course of using the software, if you use "Auto" refresh mode, please disconnect "Auto" refresh first when you need to reinstall refresh time interval and select "Auto" refresh mode after setting the new refresh time interval, or else, the new setup will be ignored.

4. You need to open the auto measure function of the oscilloscope when you measure waveform parameter values using the software, or else waveform measure value will not be refreshed when you refresh the waveform; If you select "manual" refresh mode, you need to click the "Refresh" button several times when you click "Refresh" button in the "Wave Graph" interface but you can't get measurement value in the "Wave measure" interface.

5. In the course of using the software, sometimes the top right sign not display on the software interface, now please move or drag the main frame of the software interface.

6. In the course of using the software, if you are not connect or disconnect it in normal, you can turn on/off the oscilloscope over again and connect or disconnect the software again.