

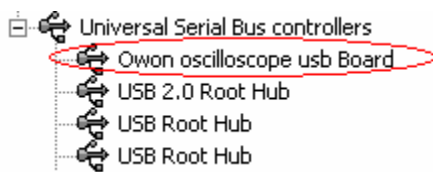
## I. How to upload waveforms from the Scope-Meter

Two ways of transmission are supported for the Scope-Meter

### 1. USB transmission

- 1) Connect the Scope meter and computer with USB cable.
- 2) Run the communication software on the computer.
- 3) Open "Port-Settings" in "Communication" menu. Choose the USB port (see figure3-10)
- 4) Select "Acquire" from "communication" menu to upload the waveform from the scope meter. Users can rename the waveforms before saving them into the designated directory(see figure3-11)

**Notice:** It is need to install device driver in WINDOWS system when you adopt USB transmission. The USB driver will auto-install when you run "Setup.exe", After correct installation,"Owon oscilloscope usb Board" will display in device manage when you connect the Scope meter and computer with USB cable.



**(Figure 1-1)**

If the installation needed to carry out manually, the driver can be found in the following directory :< install directory>\USBDRV\.

### 2. Serial Port transmission

The steps should be followed as below:

- (1). Install the PC Suite on the computer.
- (2). Connect the Scope Meter with the computer with a serial port cable.
- (3). Run communication software on the computer.
- (4). Open "Serial Port Setting" from "Communication" menu. Choose the serial port number and set Baud Rate (default: 115200,8,N,1).
- (5). Select "Acquire" from "Communication" menu to upload the waveform from the scope meter. Users can rename the waveforms before saving them into the designated directory (see figure 3-12).

**Notice:** the uploaded waveforms have two formats, one is Bitmap \*.bmp, the other is Vectorgram \*.bin. The users can use this software to upload both formats, but only the Vectorgram with the extension of \*.bin can be displayed and operated by the software. For bitmap, the users have to use other softwares to read it.

## II. Introduction to Users Interface

Introduction to Users Interface.

## 1 Greeting Window

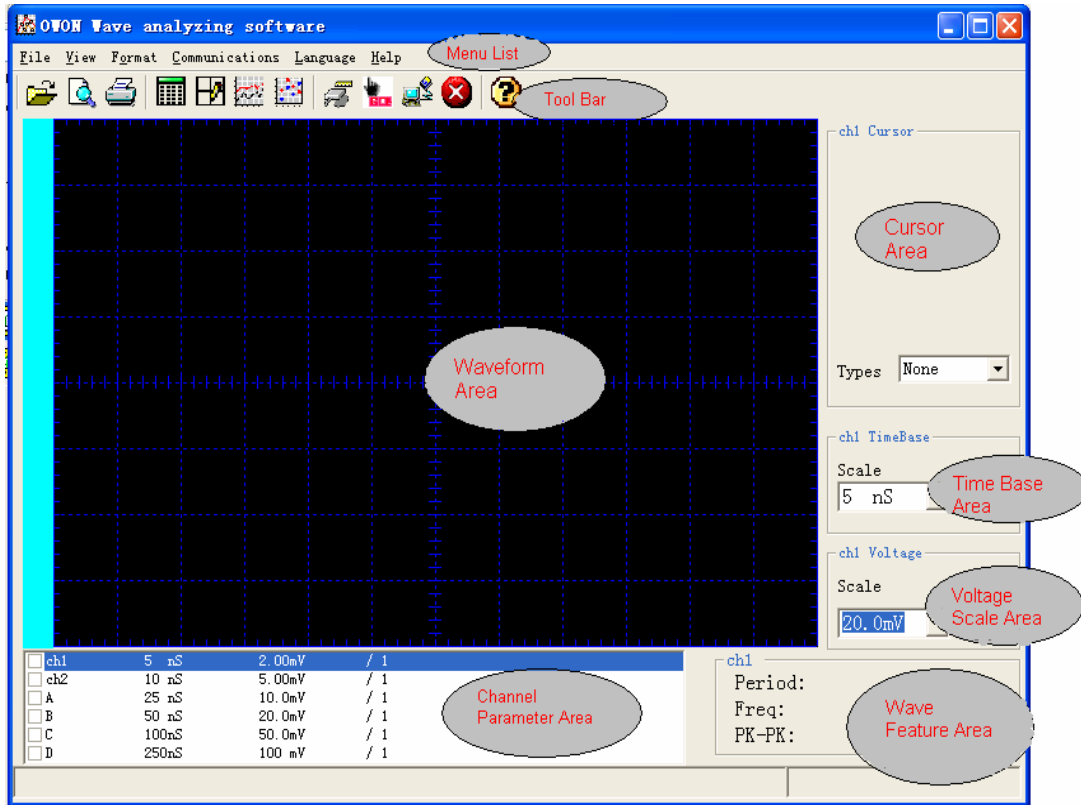
When the software starts, Greeting Window is shown as Figure 2-1, in which the company name, software name, and version number are displayed.



Figure 2-1 Greeting Window

## 2 Main Users Interface

After 3 seconds since the system starts, the system will automatically enter into main UI, which is shown as Figure 2-2, including the following 8 sections.



**Figure 2-2: Main UI**

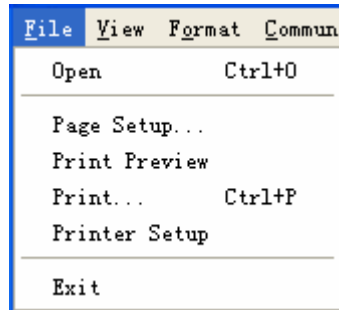
- (1). Menu List: the users can perform various software functions with this Menu List.
- (2). Tool bar: it includes the shortcut buttons for running the functions used frequently by the users.
- (3). Waveform Area: this area is the main window that displays waveforms.
- (4). Cursor Area: users can view and measure the waveforms with the help of the Reference Lines. The software has four reference modes, they are: None, Horizontal Line, Vertical Line and Grid line (Horizontal and Vertical Line).
- (5). Channel Parameter: This section displays basic information of each waveform channel. The users can view or hide each channel; and select a channel to implement relevant operations.
- (6). Time Base Area: the users can view and set the horizontal time base of each selected channels in this section.
- (7). Voltage Scale Area: the users can view and set the Voltage Scale of each selected channels in this section.
- (8). Waveform Feature Area: this section displays the Period, Frequency, and Peak Value of selected waveforms. If the signal is a nonperiodic waveform, both period and frequency will display Zero.

The further detail introductions for each section are given below.

### III. Introduction to menu

The menu list contains 6 groups of submenus: 1- File, 2-View, 3-Format, 4-Communication, 5-Language and 6-Help. The detailed description of each menu and submenu are as follows:

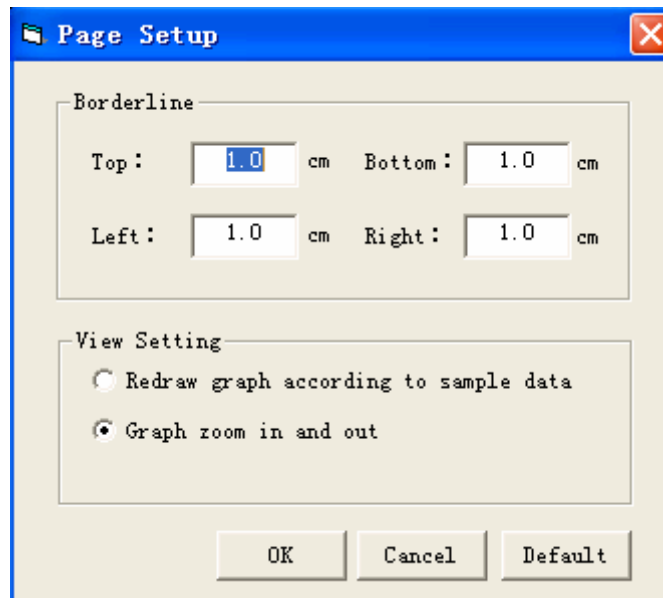
## 1 File (figure 3-1)



**Figure 3-1: "File" menu**

1.1 Open: open the saved waveform files, which have been stored with the extension of \*.bin in the file name.

1.2 Page Setup: see (figure 3-2)

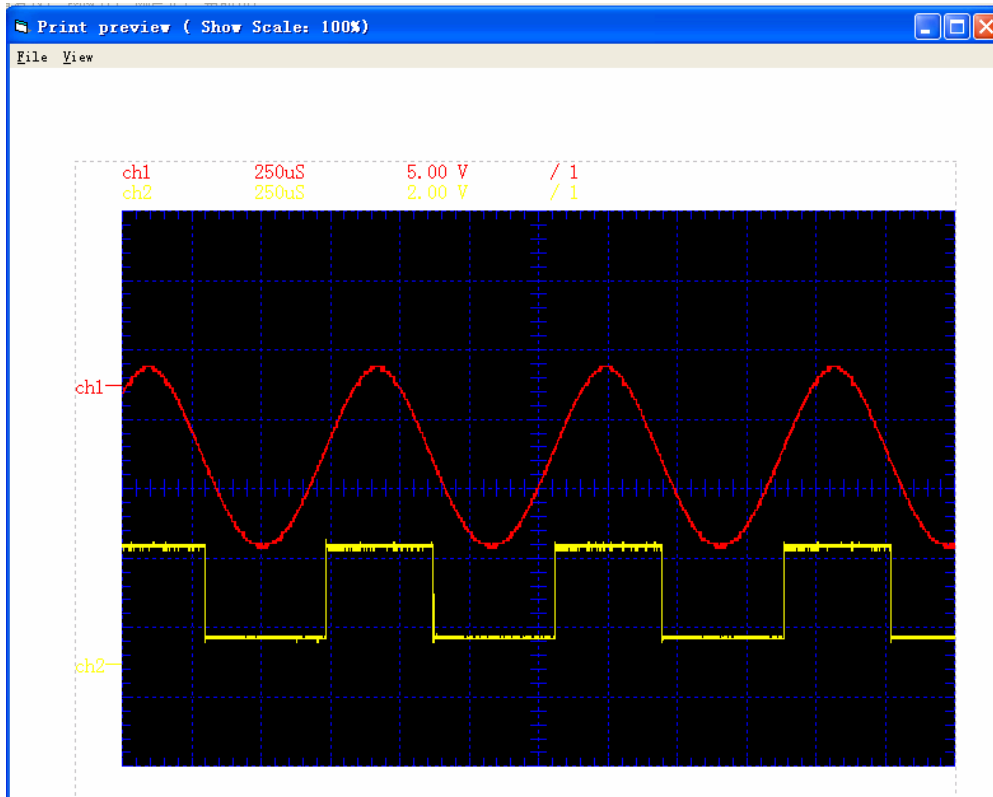


**Figure 3-2: Page Setup**

- Borderline: which is used to set the boundary and preview conditions of the printing paper, with the default value 1 cm set by system.
- View Setting:
  - When selecting "Redraw graph according to sample data", if the user changes display scale each time, the system will call the wave form data again according to the new scale, and thus the accurate waveform can be drawn and generated. But, because the software executes the operation of calling data and drawing again, some time is required.
  - When selecting "Graph zoom in and out", if the user changes the display scale each time, the system only implements "zoom in" or "zoom out"

operation on the previous diagram, and does not call the background data. So the waveform can be displayed rapidly. However, there will be distortion occurring in the changed wave to a certain extent.

### 1.3 Print preview: preview the waveform before printing, shown as figure 3-3.

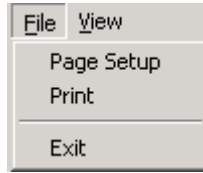


**Figure 3-3: Print preview UI**

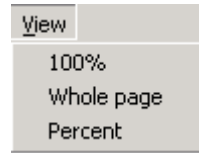
Above the waveform, the Time Base and Voltage Scale Unit of each channel are displayed. (Note: each channel has its own Time Base and Voltage Scale value). The white part is a printing paper and the area enclosed in the broken line frame is the printing range. There are also two menus on the print preview UI, that is, "File" and "View".

- File: see figure 3-4.
  - Page setting: used to set the boundary and preview condition of the paper to be printed (Figure 3-2).
  - Print: print the current page which is being previewed.
  - Close: exit from the printing preview mode
- View: see figure 3-5
  - With the "View" menu used, you can zoom in or out the previewing window. When click the right key of the mouse in the preview page, the "view" function table can be presented.

When the printing drawing can not be displayed completely in the screen, please press and hold the left key of the mouse and drag it;



**Figure 3-4**



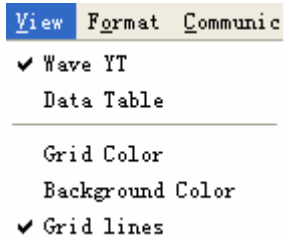
**Figure 3-5**

1.4 Printer setup: used to set up the printer parameters.

1.5 Print: print waveforms

1.6 Exit: close software

## 2. View (figure 3-6)



**Figure 3-6: "View" menu**

2.1 Wave YT: display waveform

2.2 Data list: display the waveform data and save it as Text document with the extension of \*.txt. Click "Exit" to close this table. You can select the channel data as your desire on the "Save" dialog box. "select" menu is to select all or not otherwise also you can right click to activate the "select" menu in the "save" list. "Exit" to exit.

Select	ch1 /1	ch2 /1	A /1	B /1	C /1	D /1
1	-600	3440				
2	-600	3360				
3	-600	3440				
4	-600	3360				
5	-600	3440				
6	-600	3360				
7	-600	3440				
8	-400	3360				
9	-600	3440				
10	-400	3360				
11	-600	3440				
12	-200	3360				
13	-600	3440				
14	-200	3360				
15	-600	3440				
16	-200	3360				
17	-600	3440				
18	-200	3280				
19	-400	3440				
20	-200	3360				
21	-400	3440				
22	-200	3360				
23	-400	3440				
24	-200	3360				
25	-200	3440				

Units: ( mV )

Save

- sequence
- ch1
- ch2
- A
- B
- C
- D

Save As ...

Exit

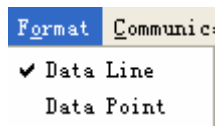
**Figure 3-7: Value list**

2.3 Grid Color: Display the color manual and choose a suitable color for the grid. The setting of the color is saved next time you open the waveform.

2.4 Background Color: Display the color manual or double click on the waveform area and choose a suitable color for the background. The setting of the color is saved next time you open the waveform.

2.5 Grid lines: view or hide gridlines on the background of the waveforms.

## 2. Format (figure 3-8)

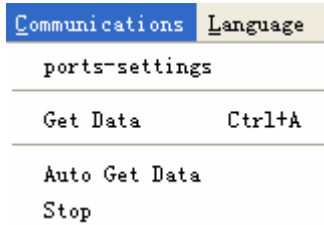


**Figure 3-8: "Format" menu**

3.1 Data line: display waveforms in Curve Mode. All sample points are connected with a line.

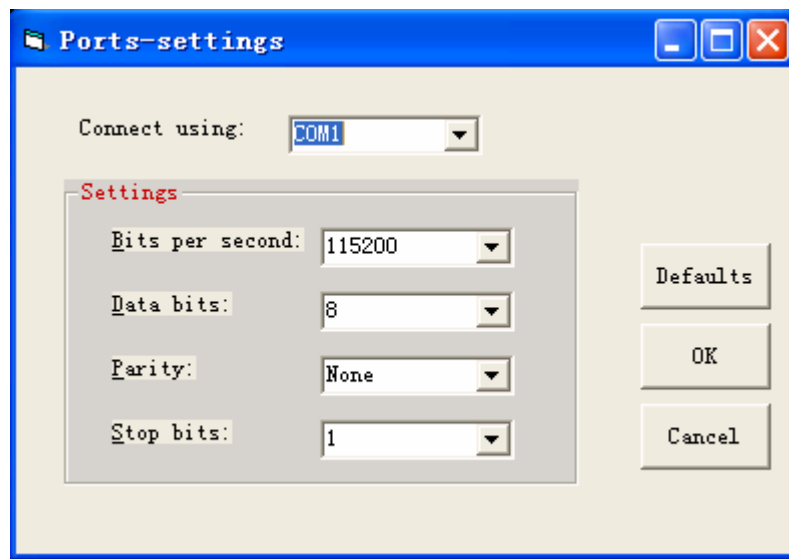
3.2 Data point: display waveforms in Point Mode. The waveforms are only displayed as sampled points.

## 3. Communications (figure 3-9)



**Figure 3-9: "Communication" menu**

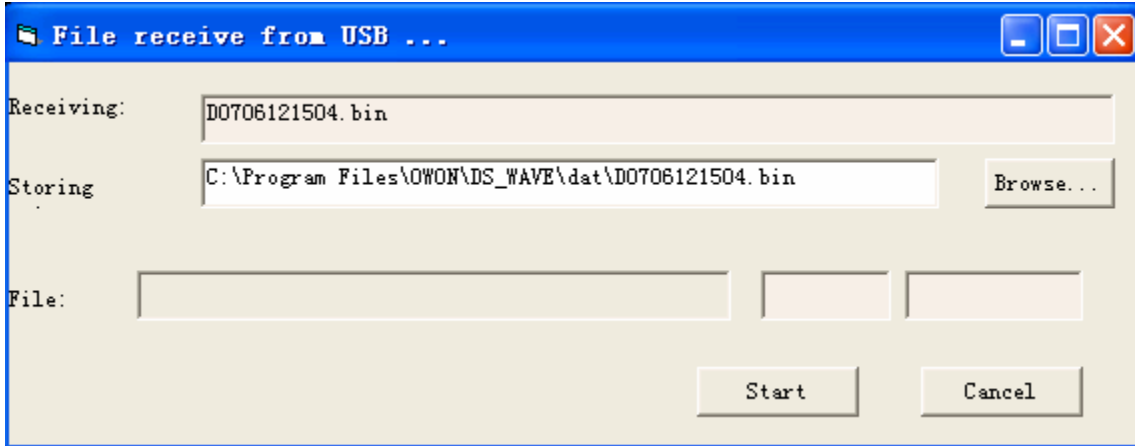
- 4.1 Ports-settings: see figure 3-10: Select the port you need (default: USB). It need to set Band Rare when you select a serial port select the appropriate COM port for communication with the Scope-Meter (default is 115200, 8, N, 1). In addition, you can make an option from the drop-down list.



**Figure 3-10: COM Properties**

- 4.2 Get Data: Uploading waveform data from the Scope Meter. (Before uploading, make sure the Scope Meter and computer have been well connected with USB or Serial cable, select the correct transmission setup vectorgram \*.bin. Display the acquired waveform on the LCD screen of the Scope Meter at the same time). Two formats of waveforms can be acquired by the software, one is bitmap \*.bmp, the other is vectorgram \*.bin. Please click "Browse" to set the saving locations and file name of the aquired waveform. "Transfer progress" indicates the transfer progress of the waveform. The two figures aside show the received size and total file size of the waveform data. Refer the following window for serial port transmission.

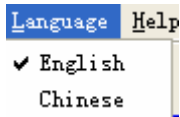




**Figure 3-11: Waveform downloading window**

4.4 Auto Get Data: Uploading waveform data from the Scope-Meter automatically until user press stop. (Make sure the scope meter and computer have been well connected with USB Serial cable. The right transmission setup vectorgram \*.bin should be selected. 4.5 Stop: stop auto get data.

#### 4. Language menu (figure 3-12)

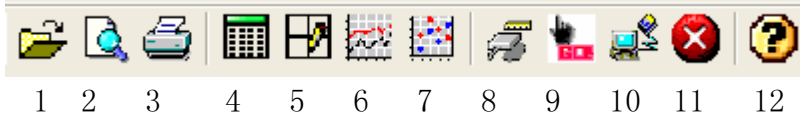


**Figure 3-12: "Language" menu**

In this menu, the users can make the language conversion between Chinese and English.

### IV. Introduction to the tool bar

The tool bar includes 12 buttons; please refer to the following table for their functions:



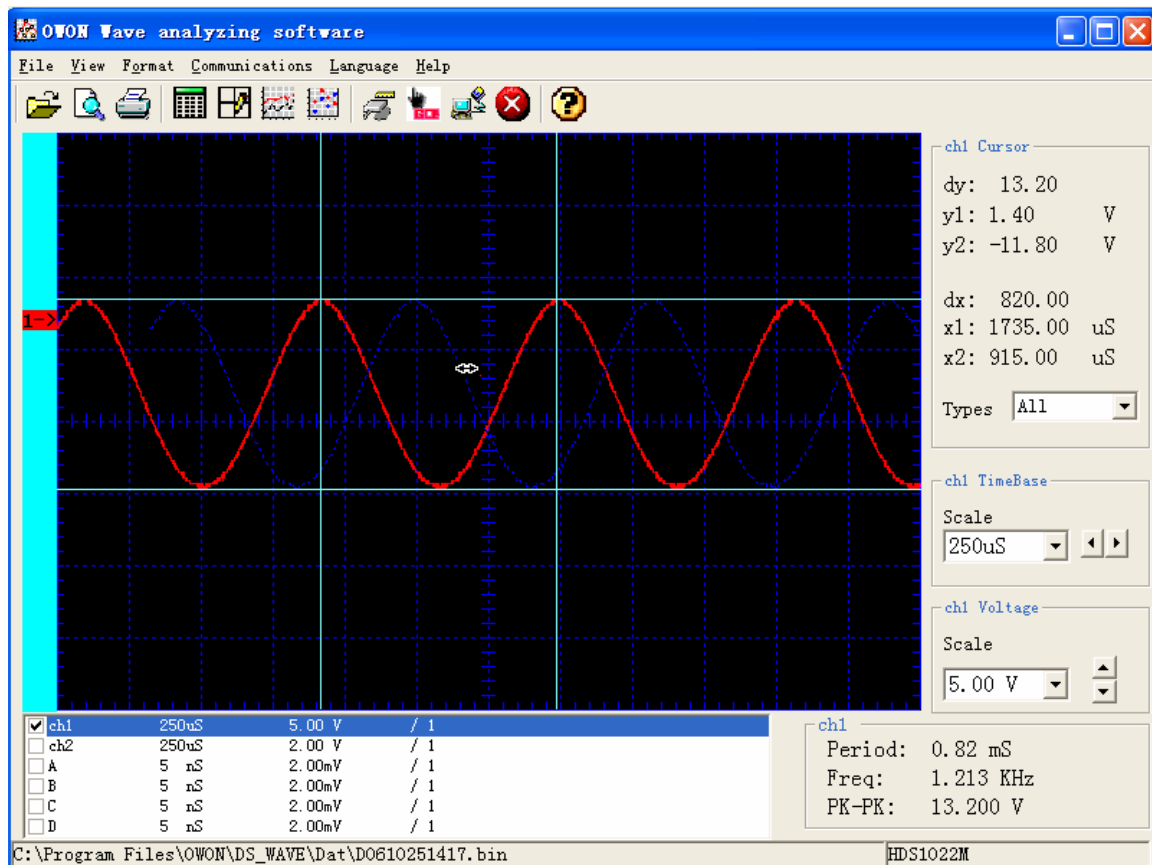
	Name	Function
1	Open	Open waveform files with the extension of *.bin
2	Print preview	Preview the waveform before printing
3	Print	Print waveform or data
4	Display data	Display the background database of the waveforms in the table.
5	Display/hide grid	View or hide gridlines when displaying waveforms
6	Display waveform	Display waveforms in Curve Mode. The sample points are connected in lines.

7	Display Waveforms In sample points	Display waveforms in Point Mode. The waveforms are only displayed as sample points.
8	Communication setup	Set communication parameters
9	Waveform Uploading	Open the interface for uploading wave
10	Auto uploading	Uploading waveform automatically
11	Stop	Stop Uploading
12	Help	Access help

## V. Operation in Waveform Area

(1). Move the waveform vertically: click "I->" and drag it up and down to move the waveform.

(2). Move the waveform horizontally: Move your mouse to the wave firstly. When the icon changes into the form of "↔" press down and hold the left button of your mouse and drag it to move the waveform horizontally. . (see figure 5-1)



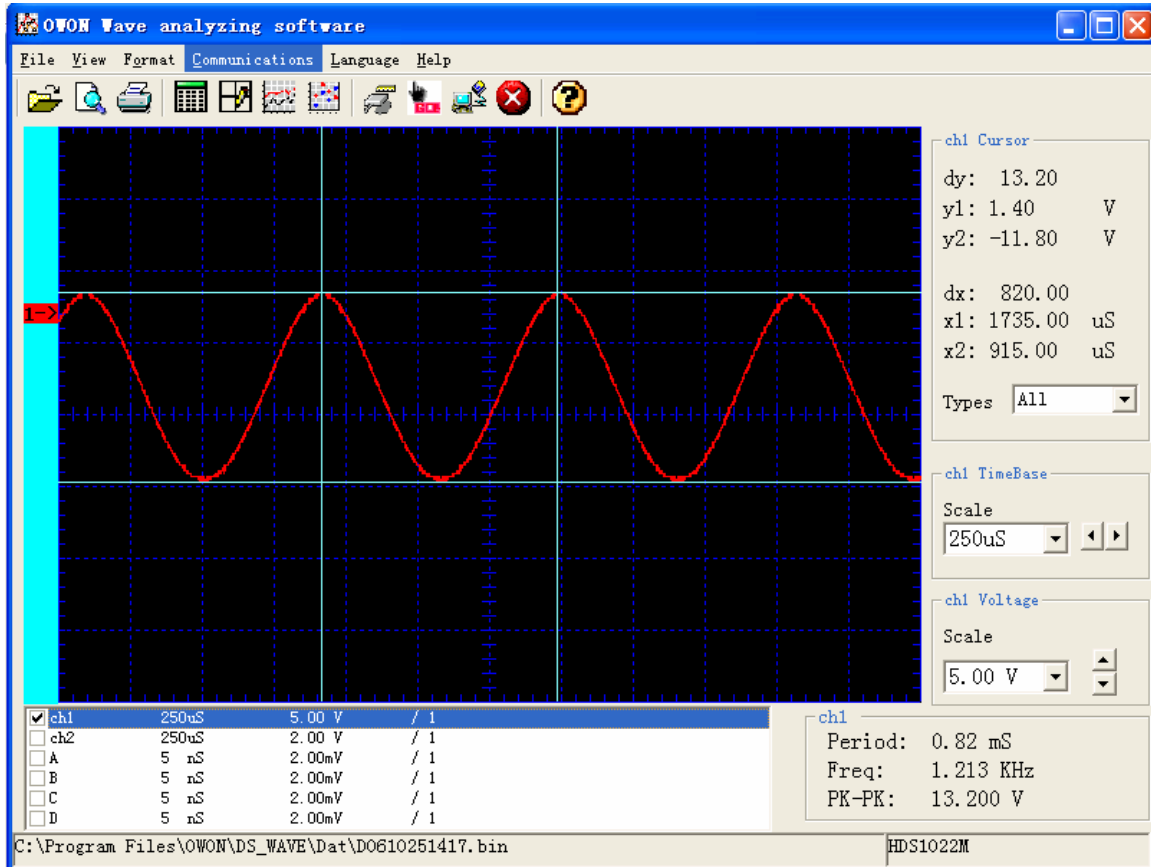
(figure 5-1)

(3). Change the colors of waveforms: double click 1-> to pop up the color dialog box, so as to change waveform color. The setting of the color is saved next time it is opened. (see figure 5-2)

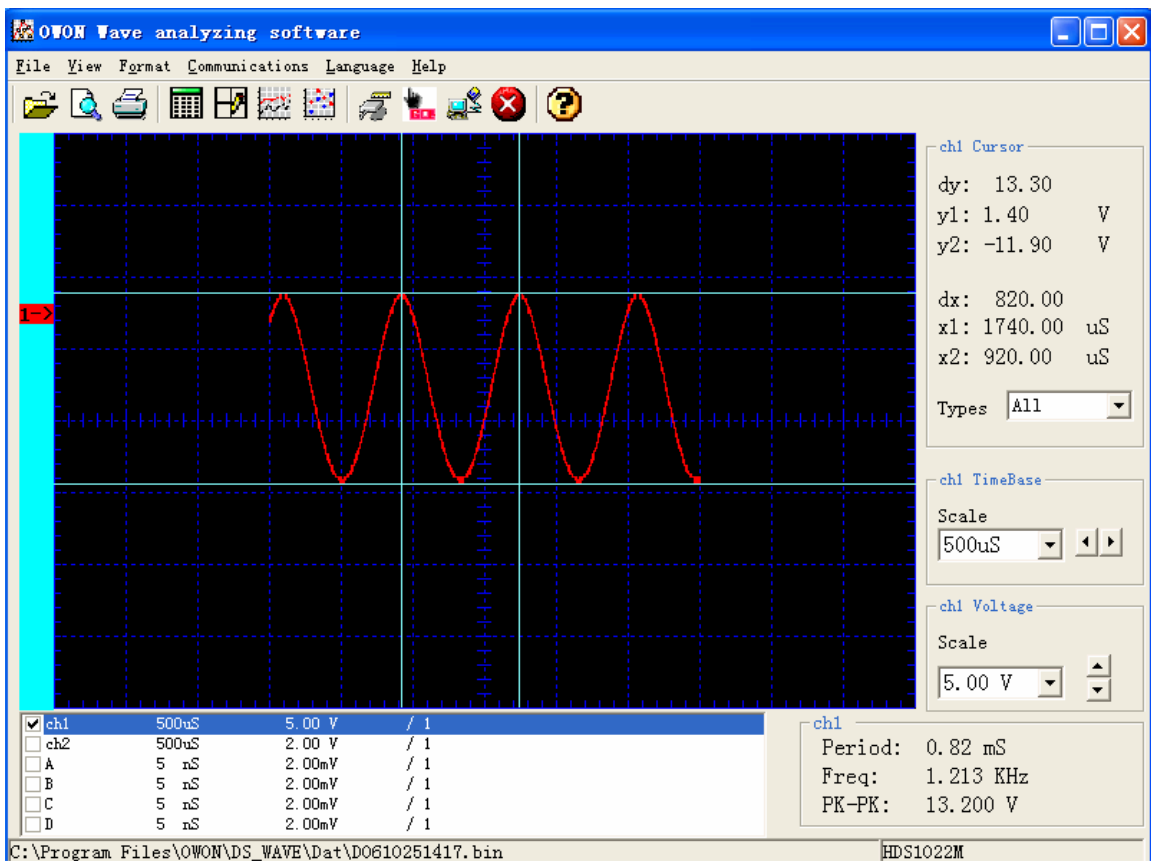


**(figure 5-2)**

(4). The users can set the time base scale of each waveform in the Time Base Area. For example, in figure 5-3, the Time Base of waveform 1 is set as 250uS, which indicates that scale value of each grid is 250uS. If the scale is changed to 500uS, the waveform will then displayed accordingly (see figure 5-4).

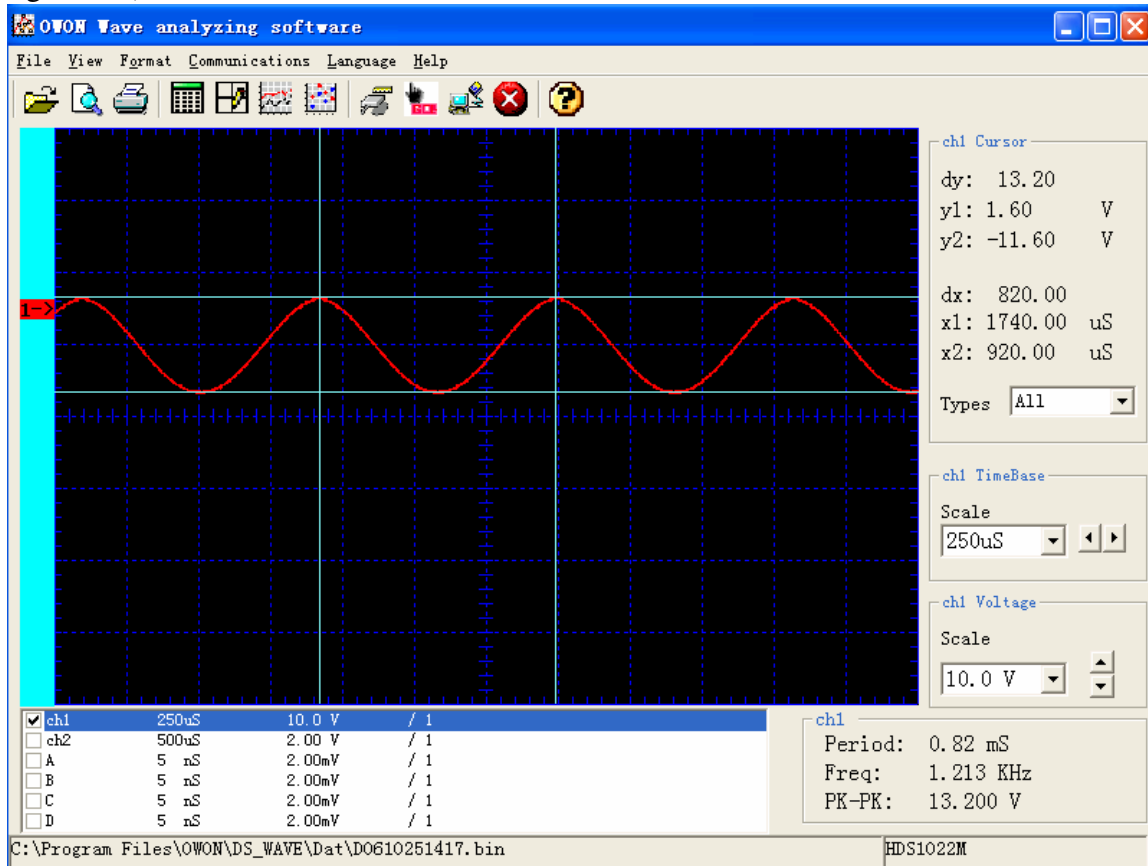


(figure 5-3)



(figure 5-4)

(5). The users can set voltage scale of each waveform in the Vertical Scale Adjusting Area. For example, in Figure 5-3, the voltage scale is set as 5.00V, which indicates that scale value of each grid is 5.00V. If the scale is changed to 10.0V, the waveform will then displayed accordingly (see figure 5-5).

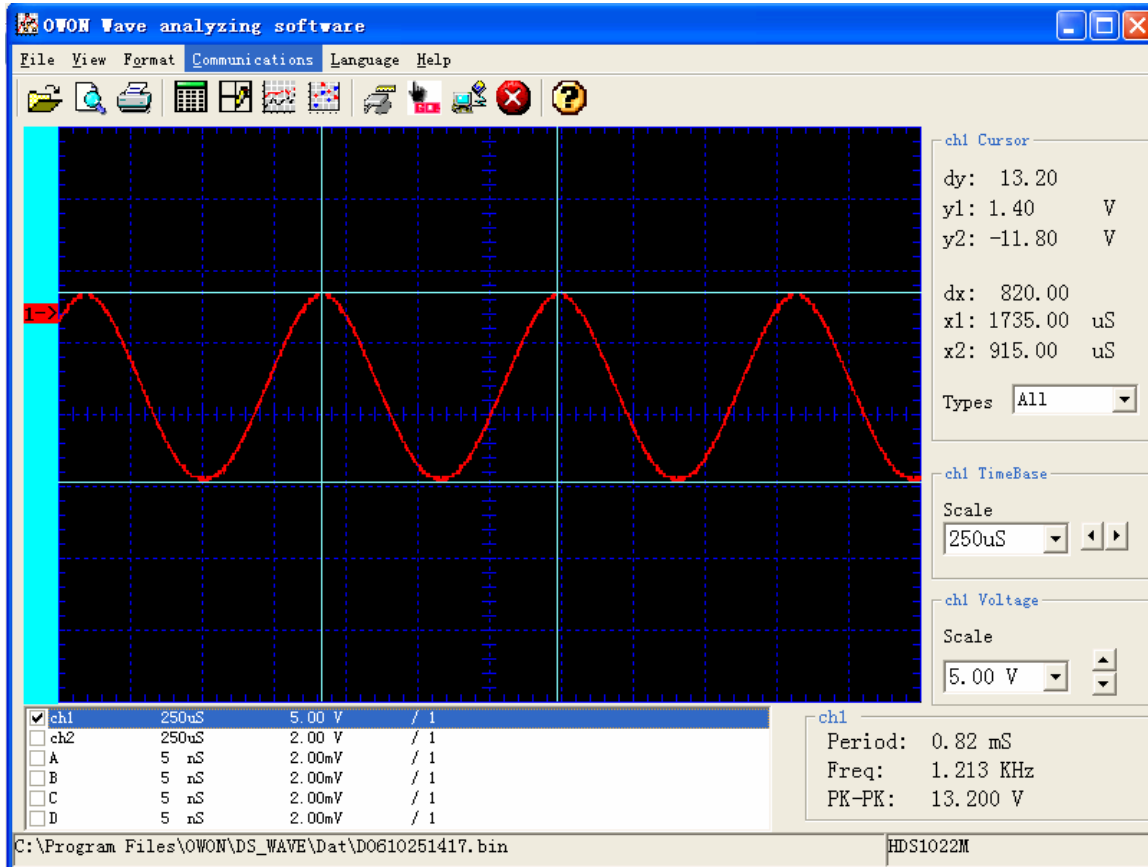


(figure 5-5)

**Notice: All operations above are taking CH1 channel as example. The operations for other channels are performed as the same. Moreover, operations for several channels can be done simultaneously.**

## VI. Operation in cursor area (see figure 6-1)

Four reference modes are available in the Cursor Area, they are: None, Horizontal Line, Vertical Line and Grid line (Horizontal and Vertical Line).



(figure 6-1)

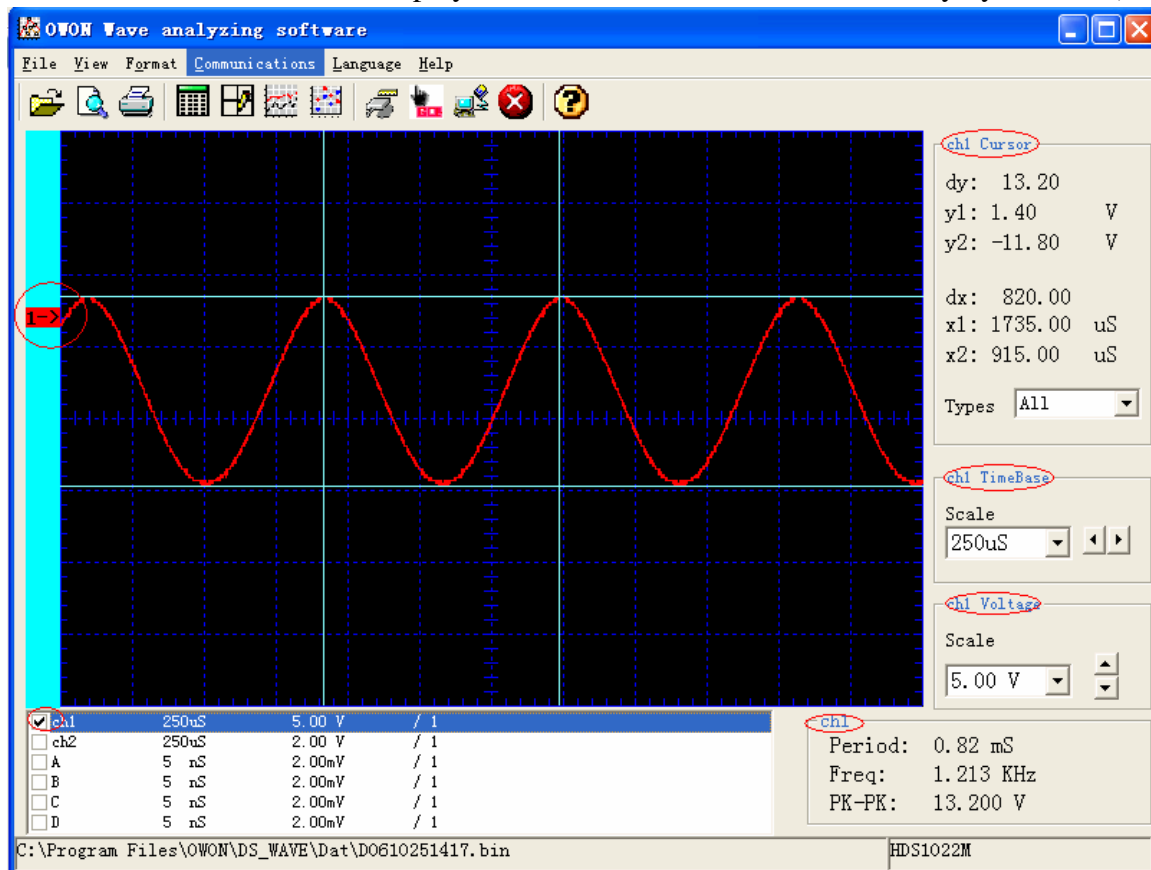
- (1). "None" There is no Measure Reference Line or Measuring Cursor Value displayed in the Cursor Area.
- (2). "Horizontal Line" Callout two horizontal lines to measure the voltage difference between any two points on the waveform. Y1 and Y2 in the Cursor Area indicate vertical Relative Value of the two horizontal lines "A->" on the left-hand side of the waveform is the Relative Zero position of this measurement). The value of "dy" is then the voltage difference between two reference lines.
- (3). "Vertical line" Callout two vertical lines to measure the time difference between any two points on the waveform. X1 and X2 in the cursor area are the time coordinates of each time position. The first sample point is Zero point of this time measurement. The value of "dx" is then the time difference between two reference lines.

Grid line (figure 6-1): The horizontal line and vertical line are both displayed in the Waveform Area simultaneously; the users can measure the voltage and time difference at the same time.

## VII. Operation in Channel Parameter Area (see figure 7-1)

- (1). The users can choose one designated channel by clicking the channel line, the background of this channel will turn to blue once been selected. Then the users can view and adjust the relevant information of this channel from "Time Base Area, Voltage Scale Area, Wave Feature Area and Cursor Area, "
- (2). When the waveform file is newly opened, the system will identify the channels with waveform stored and automatically tick the channel boxes in front of them. (Notice: the channels without

waveform stored will not be displayed even the boxes are ticked manually by the users)



(figure 7-1)

## VIII. Operation in Time Base Area (see figure 7-1)

- (1) The users can view and adjust the waveform's Time Base in this area after selecting a channel in the Channel Parameter Area.
- (2) The scale bar displays current time base of the waveform's with the ranges from 5ns to 5s.
- (3) To change the time base, the users can either select a required time base from the pull-down menu or press the buttons to increase or decrease the value.

(see figure 7-1)

## IX. Operation of Range Value Area (see figure 7-1)

- (1) The users can view and adjust the waveform's Voltage Scale in this area after selecting a channel in the Channel Parameter Area.
- (2) The scale bar displays current voltage scale of the waveforms, with the ranges from 2.00mV to 50.0V.
- (3) To change the voltage scale, the users can either select a required voltage scale from the pull-down menu or press the buttons to increase or decrease the value.

(see figure 7-1)