Instrument Manager

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Software Installation

Hardware Requirements

- Hardware configuration which satisfies Windows system requirements

- 1024 x 768 or higher display resolution

System Requirements

- Supports Win2000, WinXP, Win Vista, Win7, Win8 , Win10.

- System which needs to be pre-installed: .Net Framework 4 Client Profile.

Other Requirement

- Original USB cable should be used to connect with the device.

Software Installation：

- Run "Instrument manager Installation Program.exe" and install it step by step.

Driver Installation

USB Driver Installation：

- The installer "Device Mangager Installer.exe" is installed with the driver, so there is no need to install the driver separately.

- If the device still does not find the corresponding driver after the installation program is installed, you can install the driver program in the download folder of the upper computer separately and restart the computer to complete the driver installation, as shown in the following figure:

- Drive engine download link address: http://www.ni.com/download/ni-visa-run-time-engine-5.4/4231/en/

名称	修改日期	类型	大小
license	2020/7/9 13:24	文件夹	
Products	2020/7/9 13:25	文件夹	
SupportFiles	2020/7/9 13:25	文件夹	
nidist.id	2013/8/5 15:01	ID 文件	1 KB
patents.txt	2013/8/5 15:01	文本文档	21 KB
setup.exe	2013/8/5 15:01	应用程序	1,404 KB
setup.ini	2013/8/5 15:01	配置设置	12 KB
spec.ini	2013/8/5 15:01	配置设置	3 KB

Click SETUP.EXE, follow the prompts, and then click "Next" to install.

Successful Installation Checking Method：

- Open the computer device manager, if you can see the following display, it means the installation is

  successful.

  USB Test and Measurement Devices
 USB Test and Measurement Device (IVI)
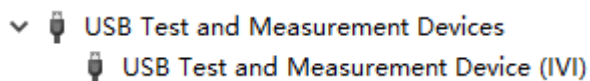
- After connecting the device to the computer via USB, it no longer prompts the unrecognized device,

  which also means that the device driver has been installed correctly.

- It can also be connected through the control software to indicate that the driver has been installed.

Instrument Manager Usage and Instrument Connection

1. Find Device：

Start the instrument management application, select the communication type to be queried, right-click to

select the communication type name, and select "refresh" in the pop-up menu or directly select the

communication type and click the F5 refresh button to query all devices on the network (connected) .
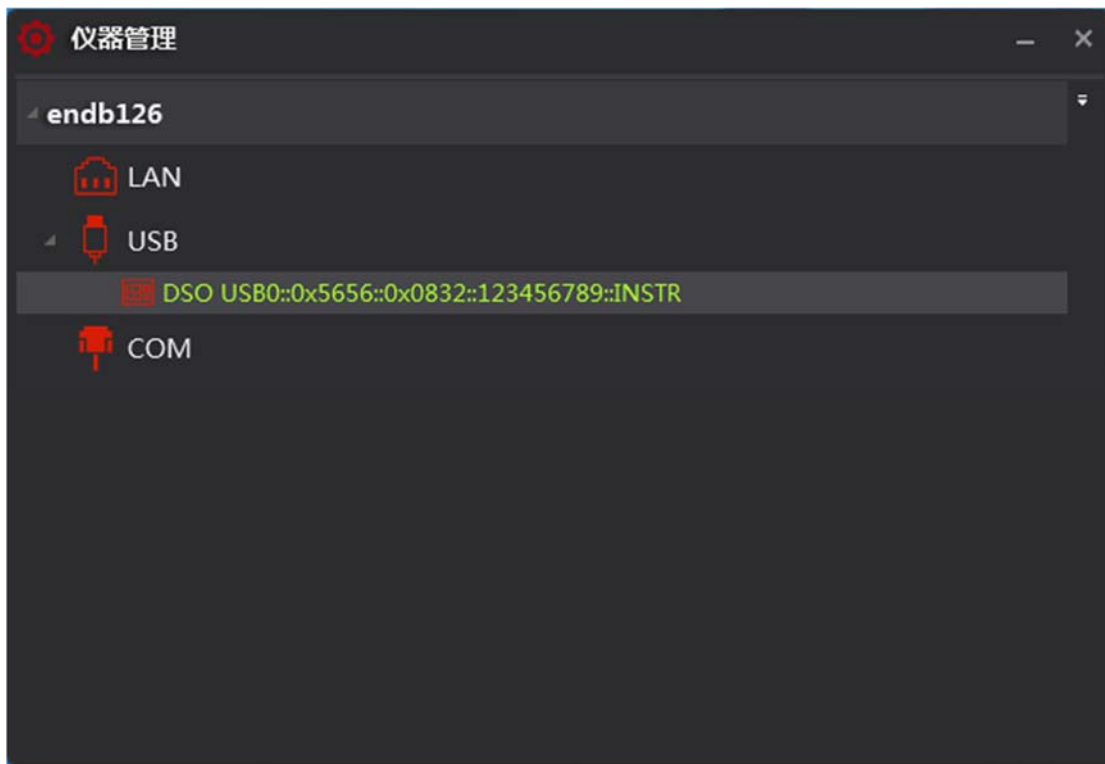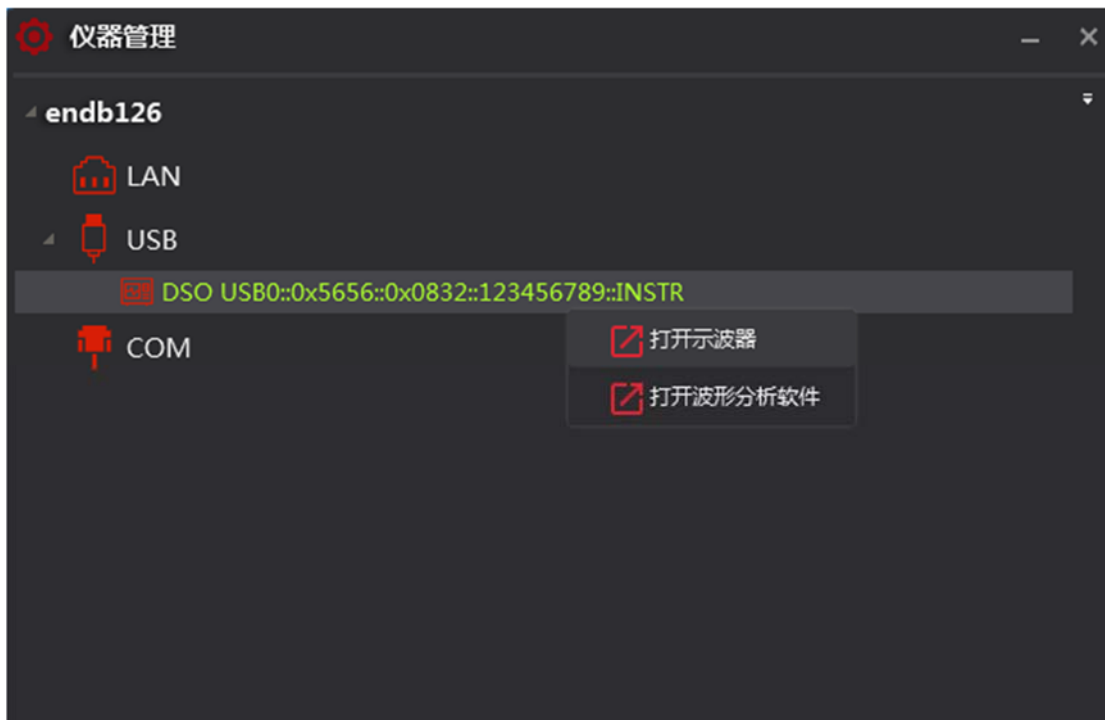
Picture 1: DP-1
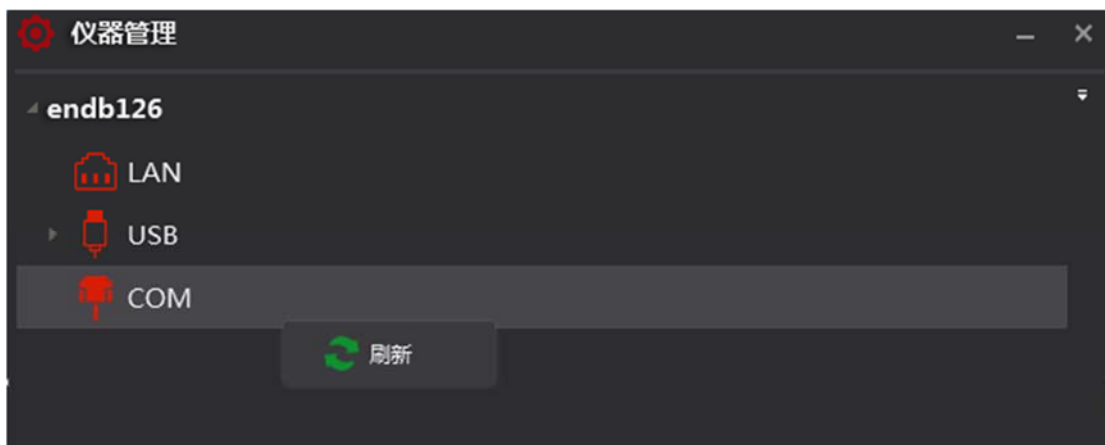
Picture 2: DP-2

2. Connect Device：

For different devices, the corresponding control software and related supporting software are different.

You can use:

First select the device with the left mouse button, then right-click the software menu to pop up, and select the software you want to start.

Picture 3: DP-3

The oscilloscope can open the virtual control panel and waveform analysis software.

The signal source can open the virtual control panel and arbitrary waveform editor.
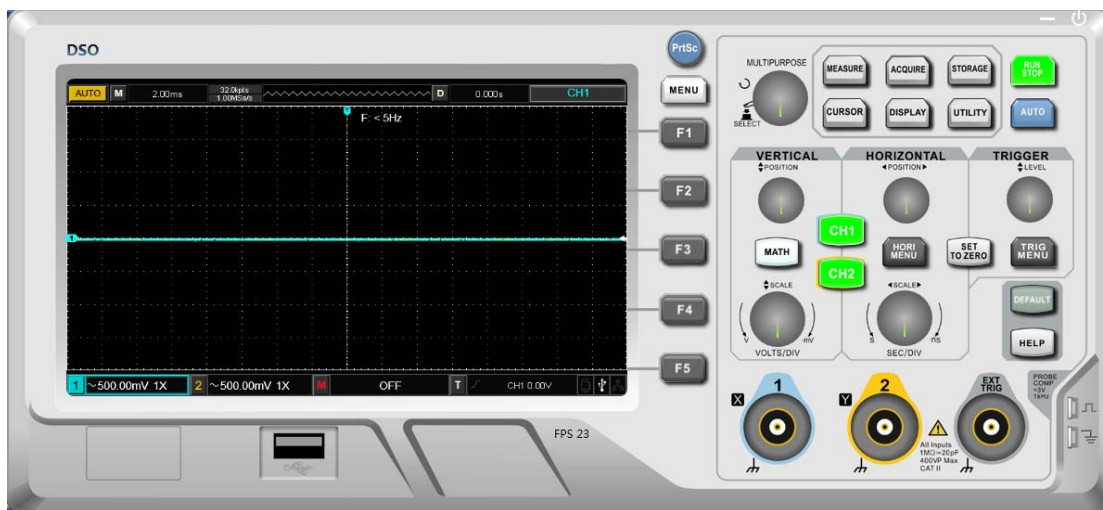
Other types of equipment (such as power supplies and bridge testers) can open the control panel or virtual control panel.

3. Start Virtual Software：

Select the device that has been found, right-click the pop-up menu, such as oscilloscope device, click to open the oscilloscope, the virtual control panel will be opened, as shown in the figure below:
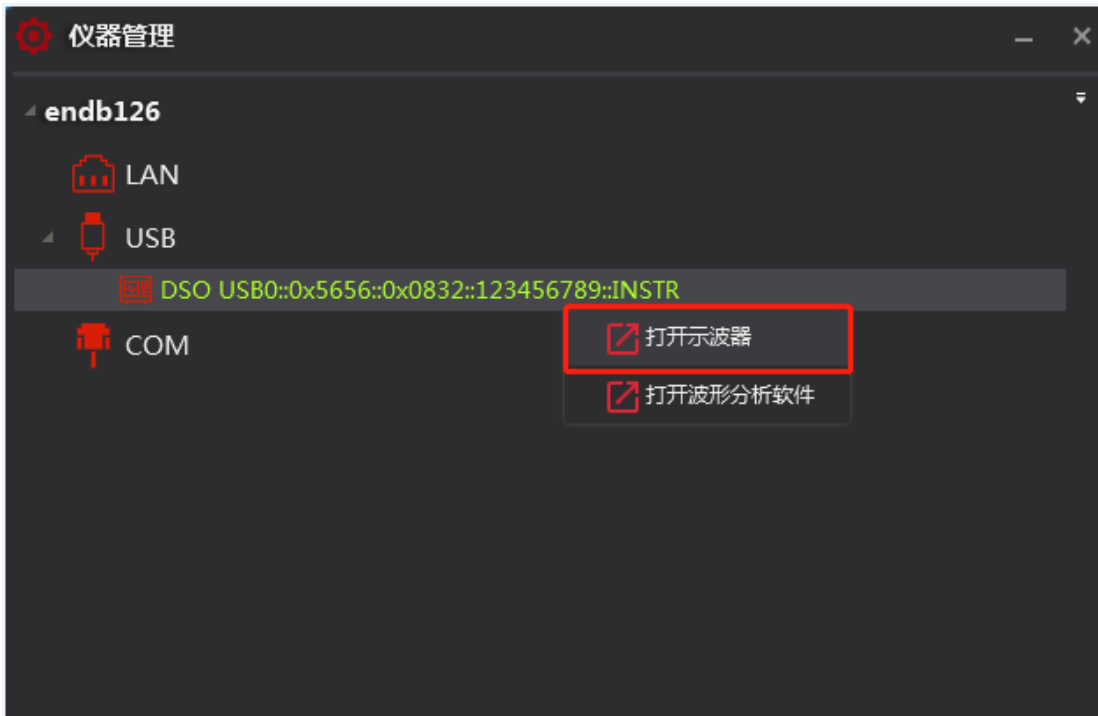
Picture 5: DP-5

Picture 6: DP-6

You can also start these additional software by <u>Connect Device</u> method of Chapter 2.

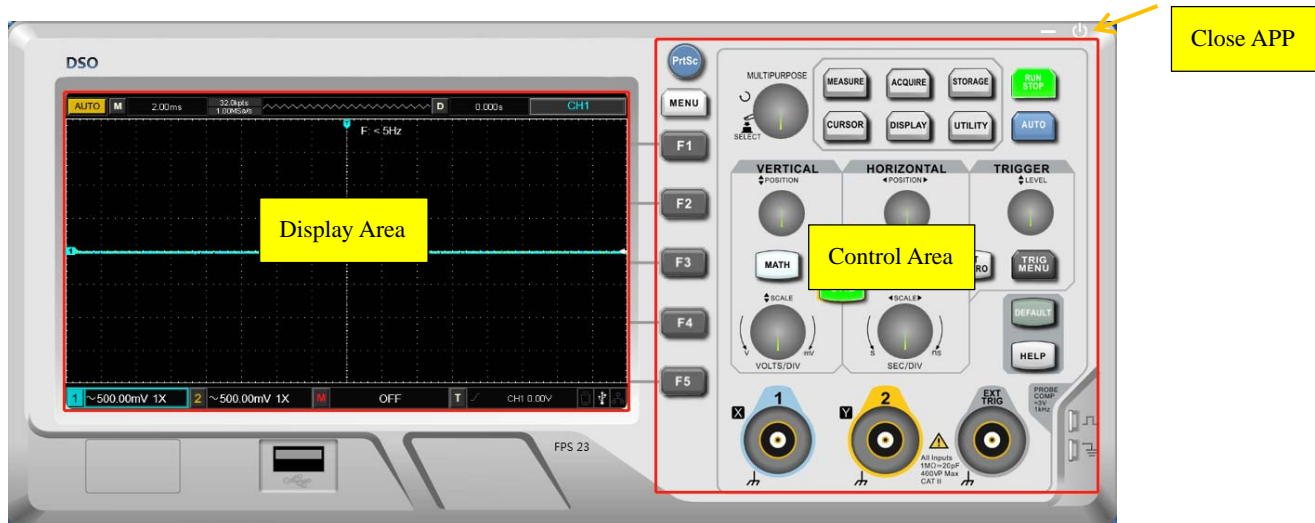# Oscilloscope Control Software

Overview:

At present, the oscilloscope, signal source, and bridge tester support virtual control panels. This document only takes the oscilloscope as an example.

Start:

Only support to start this software through instrument management, E.g Start Virtual Software： .

Preview:

Picture 7: DP-7

Control:

- Directly use the mouse and keyboard shortcuts to perform shortcut operations on the buttons on the panel. For example, when entering numbers, you can directly enter the number keys on the keyboard.

- Virtual panel knob, you can use the mouse wheel to scroll up and down to simulate the left and right

rotation of the knob, double-click the knob to press the knob button

- In the display area, double-click to enlarge the display area, double-click again to restore the original display.

Additional features:

- Save the image of the display area and take a screenshot to a file.

- Copy the image of the display area to the pasteboard.

- The oscilloscope has recording and playback functions.

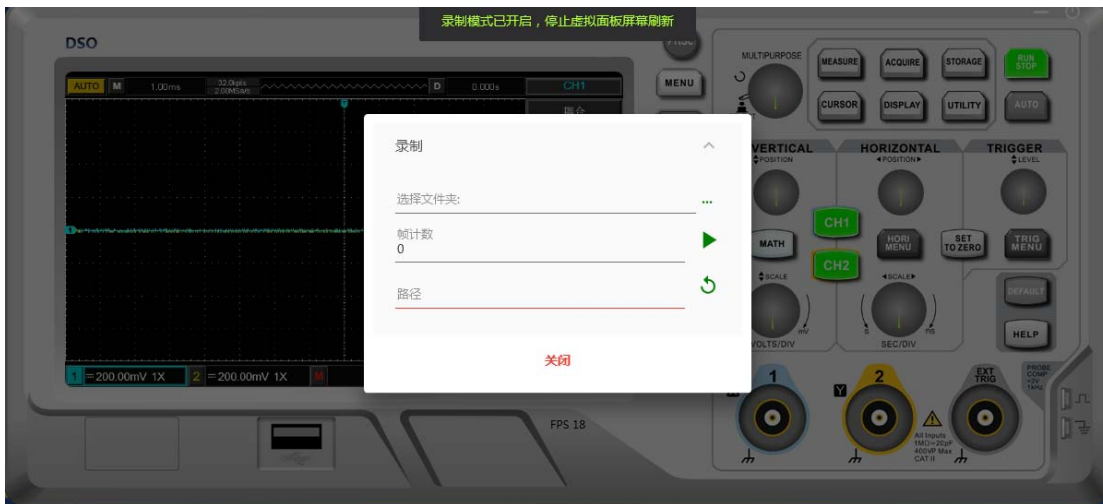- The oscilloscope can read single-channel waveform data and save it as a waveform file.

    E.g
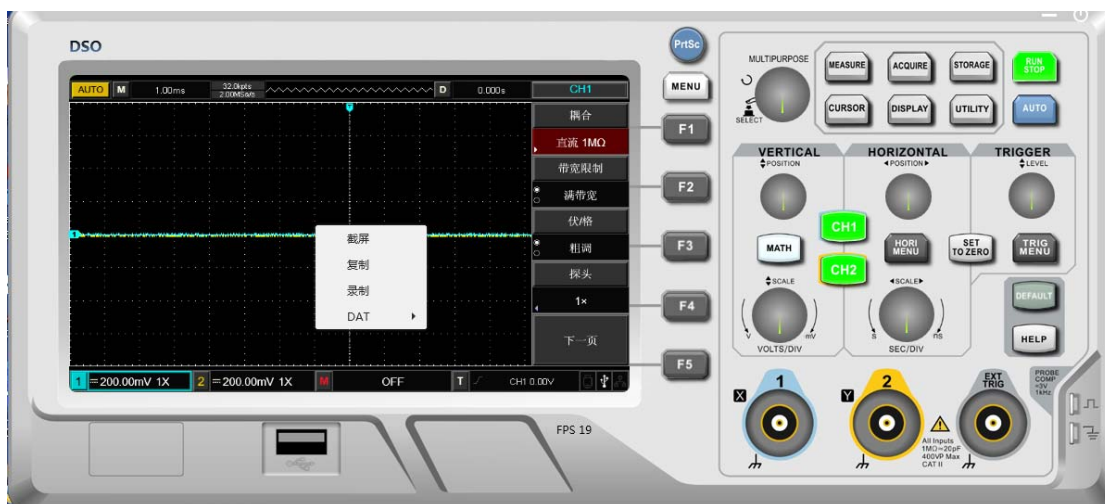
Picture 8: DP-8

The recording control is shown below:

- First select the desired folder to save the recorded files.

- Click Record to record the waveform.

- Click he playback button to open the waveform analysis software to playback the recorded waveform.
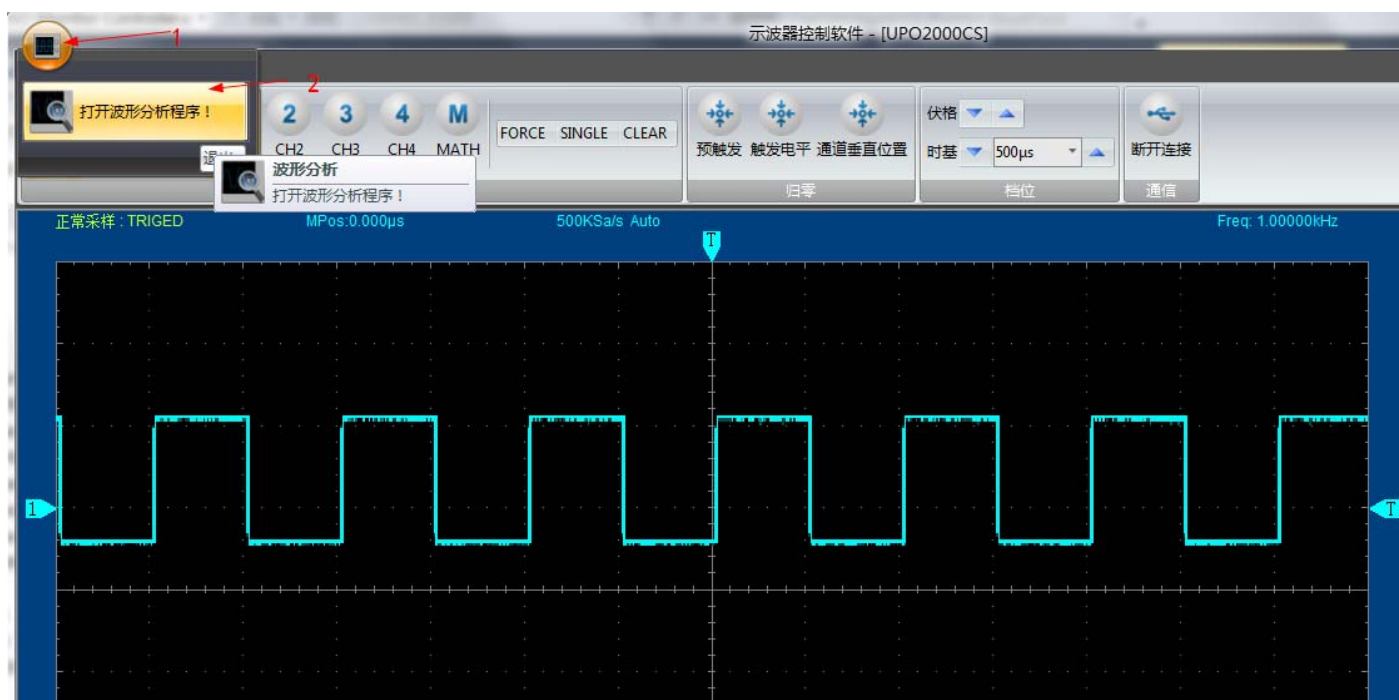
Waveform Analysis

Overview：

Waveform analysis software aims to analyze waveform data and playback the record data of control software. It can check the waveform exported from the device terminal and control software and analyze parameter measurement, filtering and FFT. It can also convert inner waveform document to CSV document in order to support the third software like MATLAB\EXCEL.
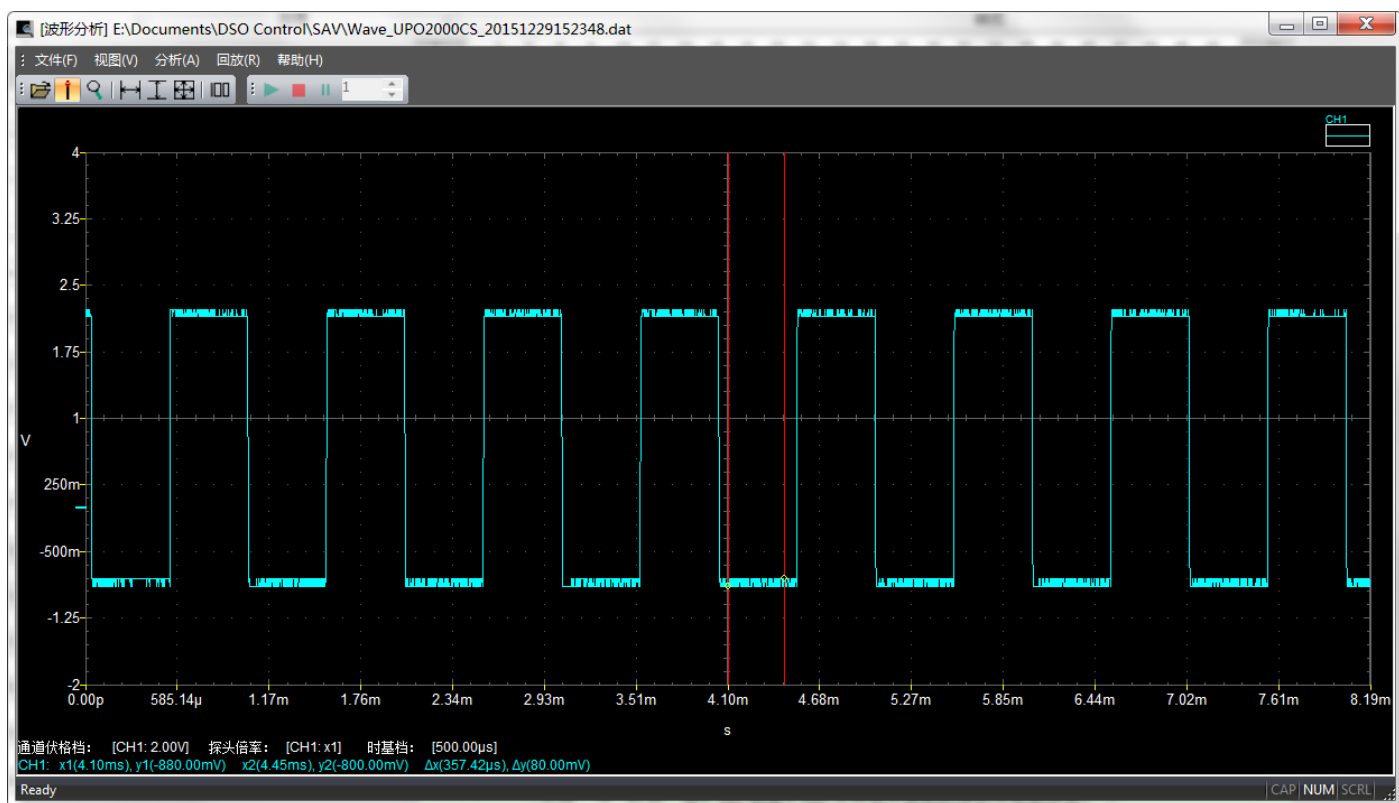
Only one can be selected between waveform analysis and waveform record playback, that is, they are mutually exclusive.

Start：

1. Use instrument manager to start. Method: <u>Start assistant software</u>

2. Use oscilloscope control software to start：

    1) Indirectly start. Check：<u>data export</u> and <u>waveform record</u>；

    2) Directly start：

Preview：

Waveform Analysis Software Menu Instruction

As the above picture shows, there are five menus at the top left of screen: document, view, analysis, playback and help. The followings are the five menus instructions.
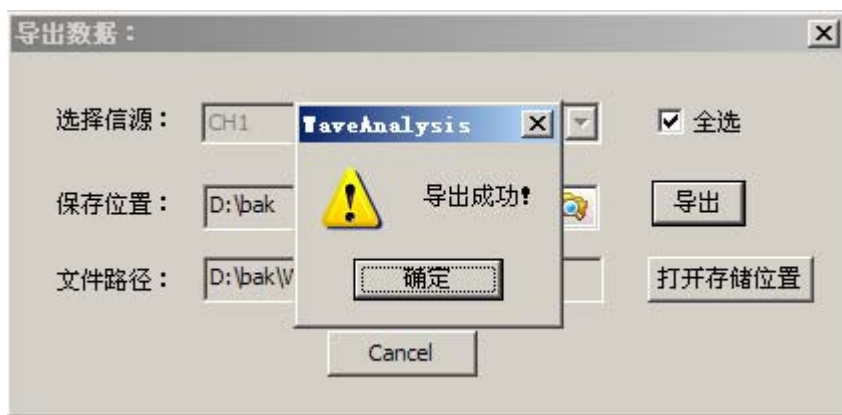
Document

Open： Read waveform in the document of computer hard disk or other storage medium to digital storage oscilloscope analysis software. Select "document"→"open" ,and load supported format documents to the waveform analysis software.

Document Information： Waveform status can be seen clearly in the document information column when it is saved. Waveform during being saved can be played again easily as the following picture shows:

文件信息		☒
序号	参数	值
0	文件类型	rec
1	数据来源（设备信号）	
2	帧数	61
3	数据类型	屏幕数据

Picture W-3

Export Data： Export the current data of waveform analysis software to the computer hard disk or other storage medium by *.CSV format.

Exit: Exit waveform analysis software.

View

As to the imported *.rec document type data, only toolbar and status bar are usable under view menu.

Original : Display the most original *.sav document type data that oscilloscope records.

Filtering (Comparison/Single) : Only when the imported waveform is filtered under the "analysis" menu after importing data, can be used this function. The filtered waveform can be individually display or contrastively display.

FFT : Only when the imported waveform is FFT under the "analysis" menu, can be used this function and displayed the waveform through FFT.

Scaling Mode : Enlarge the waveform of virtual screen at different axis directions. For example, enlarge X. Press the left mouse button and hold on in the waveform area. Then drag mouse crosswise to select the area. Finally release the mouse left button to enlarge the selected area at X direction

Measurement Mode : The cursor can measure time difference ($\triangle$t)and amplitude difference($\triangle$V) between two cursors. Move the mouse to the cursor, and then press the mouse left button to drag the cursor. Read the difference value among

coordinate axis, and time difference (△t=|x1-x2|) and amplitude difference (△

V=|y1-y2|) can be calculated.

Toolbar : Select the items "standard" and "playback", and display shortcut toolbar

under menu bar.

Status bar : Move the mouse to the relative shortcut button icons or menus. The status bar

at the left corner of virtual screen will display the relevant information the

mouse indicates currently. The display can be closed here.

Analysis (It is effective for *.SAV type data)

Measurement : Measure amplitude, frequency, pulse width and duty ratio of the imported

waveform as the following picture shows:

序号	参数	CH1
0	最大值	1.52V
1	最小值	-1.54V
2	顶端值	1.50V
3	底端值	-1.52V
4	中间值	-20.00mV
5	峰峰值	3.06V
6	幅度	3.02V
7	平均值	-20.00mV
8	均方根	1.50V
9	周期平均值	-20.00mV
10	周期均方根	1.50V
11	面积	10.56μVS
12	周期面积	3.04μVS
13	频率	1.00kHz
14	周期	1.00ms
15	上升时间	4.00μs
16	下降时间	4.00μs
17	正脉宽	500.00μs
18	负脉宽	500.00μs

FFT: Fourier transforms the imported waveform. The selectable window functions are:

Blackman, Hamming, Hanning, and Rectangle as the following picture shows.
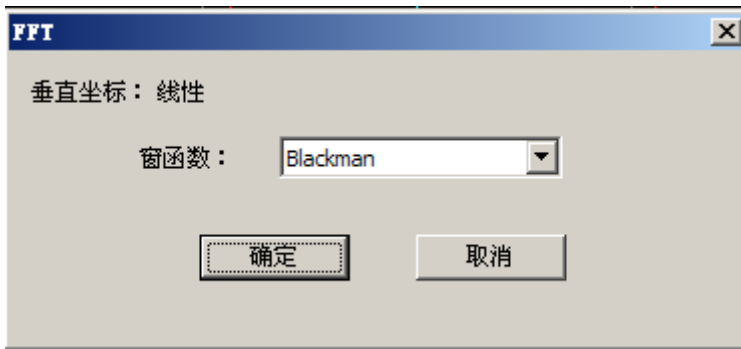
Select suitable window function and click "Confirm". Original waveform data is converted to FFT
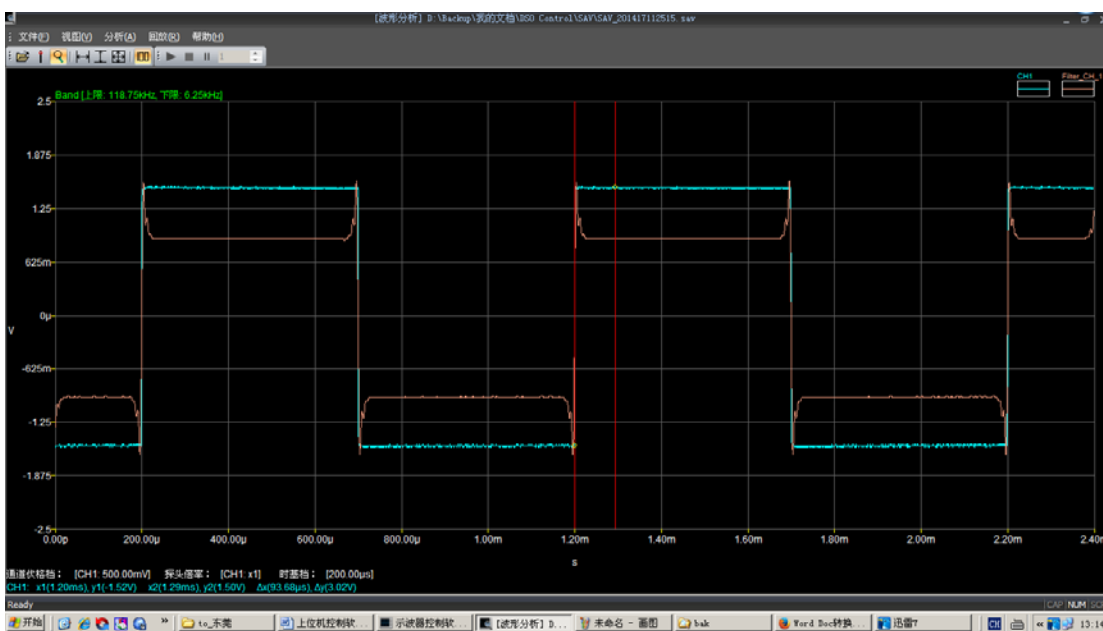
waveform data as the following picture shows.
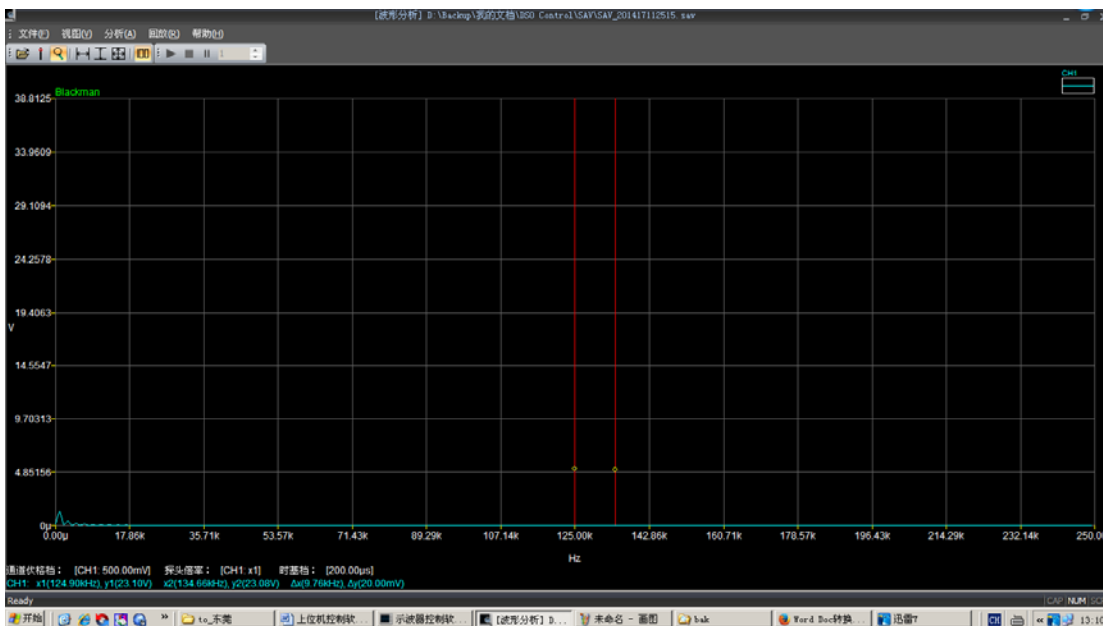
If the original waveform data need to be restored, click the "original" of view menu as the following

picture shows:

Filtering : Filter the imported waveform. Filter signals except frequency band. There are

three filtering types to select: band-pass, high pass and low pass as the following picture
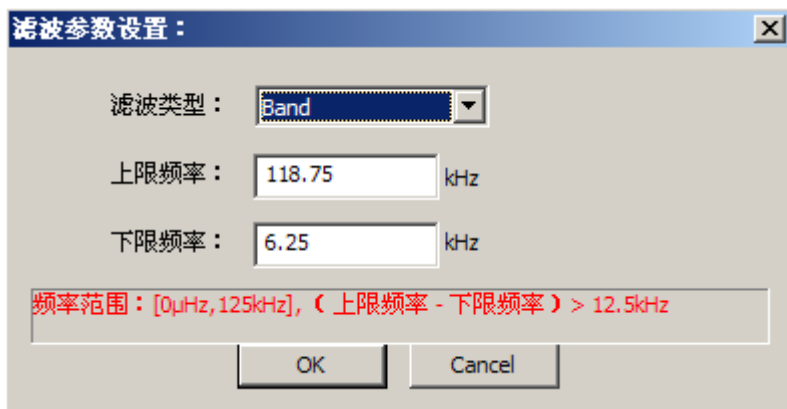
shows:

Set the filtering type, upper and lower limit of frequency, and then click OK. The filtered waveform data is

displayed in the waveform analysis software as the following picture shows:

Playback (It is effective for *.REC type data)

Play/Pause/Stop : The imported waveform type data (*.REC) document is played, stopped

or paused.

Single Frame Play: Click the counting up button or counting down button as the following picture
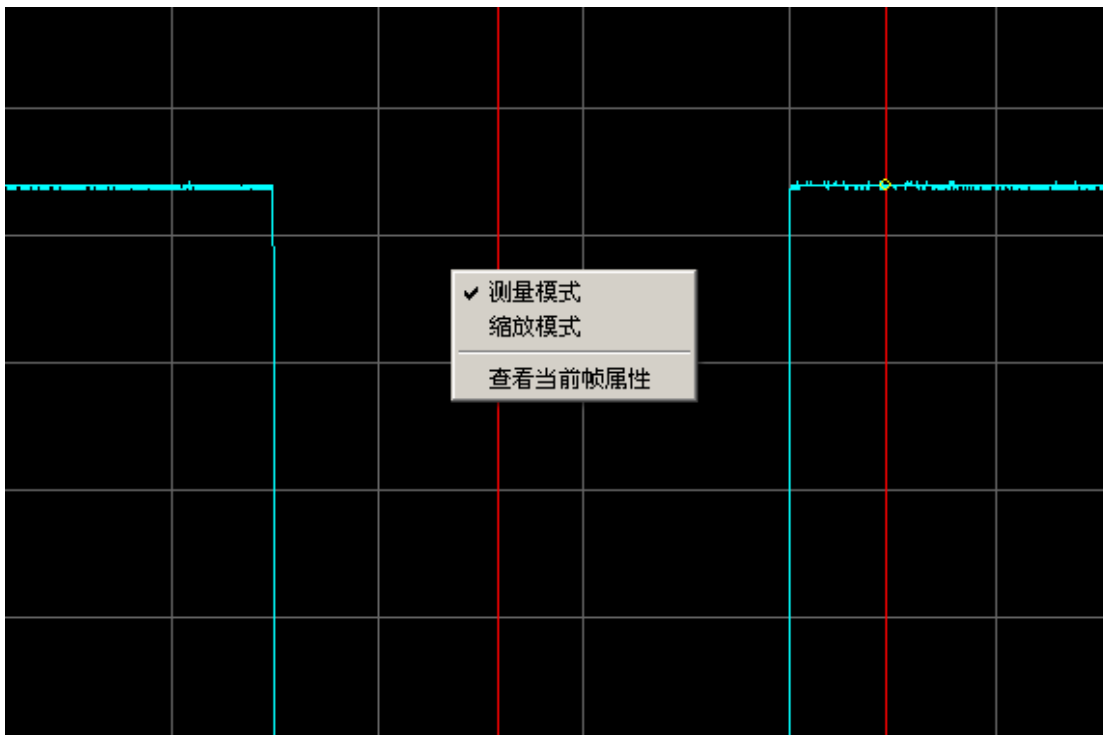
shows to realize single frame play waveform data.

Help

About: Display relevant version information of the current software.

Check the Current Frame Property

Measurement Mode

Open SAV waveform data. Right click mouse in the tool bar and in the waveform display area to enter measurement mode as the following shows:


Picture 4-14

Under measurement mode, use cursor line to realize measuring and analyzing SAV wave form data as the following shows:
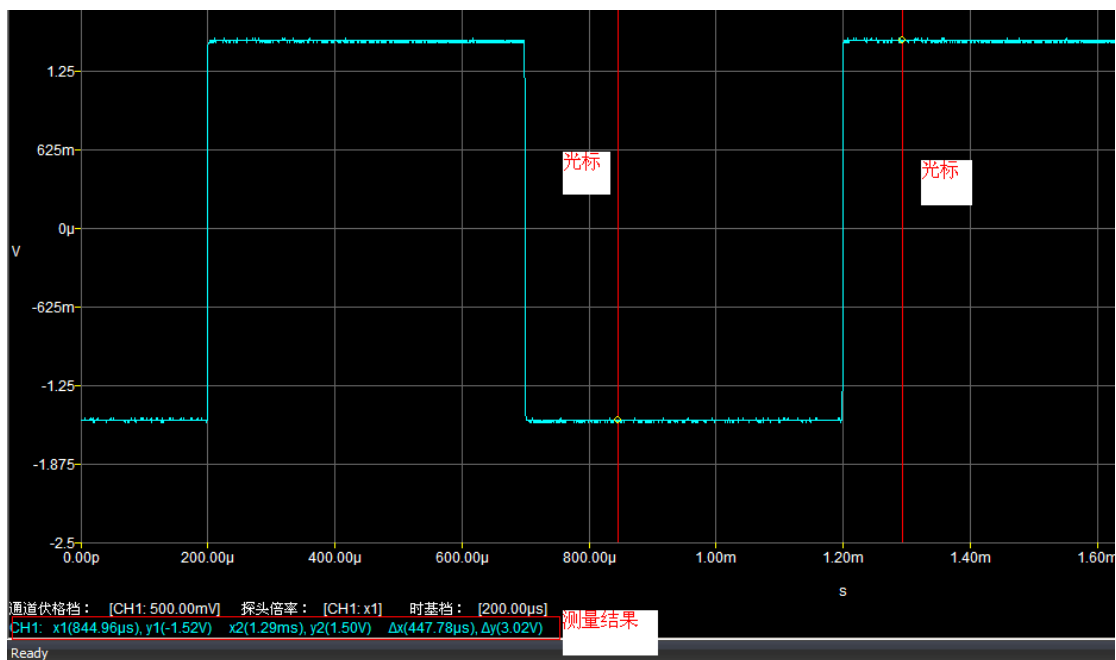
Two vertical red cursor lines can be dragged by mouse. With the cursor being dragged, the voltage and

relevant time parameter value will be displayed real time at the left bottom corner.

Scaling Mode

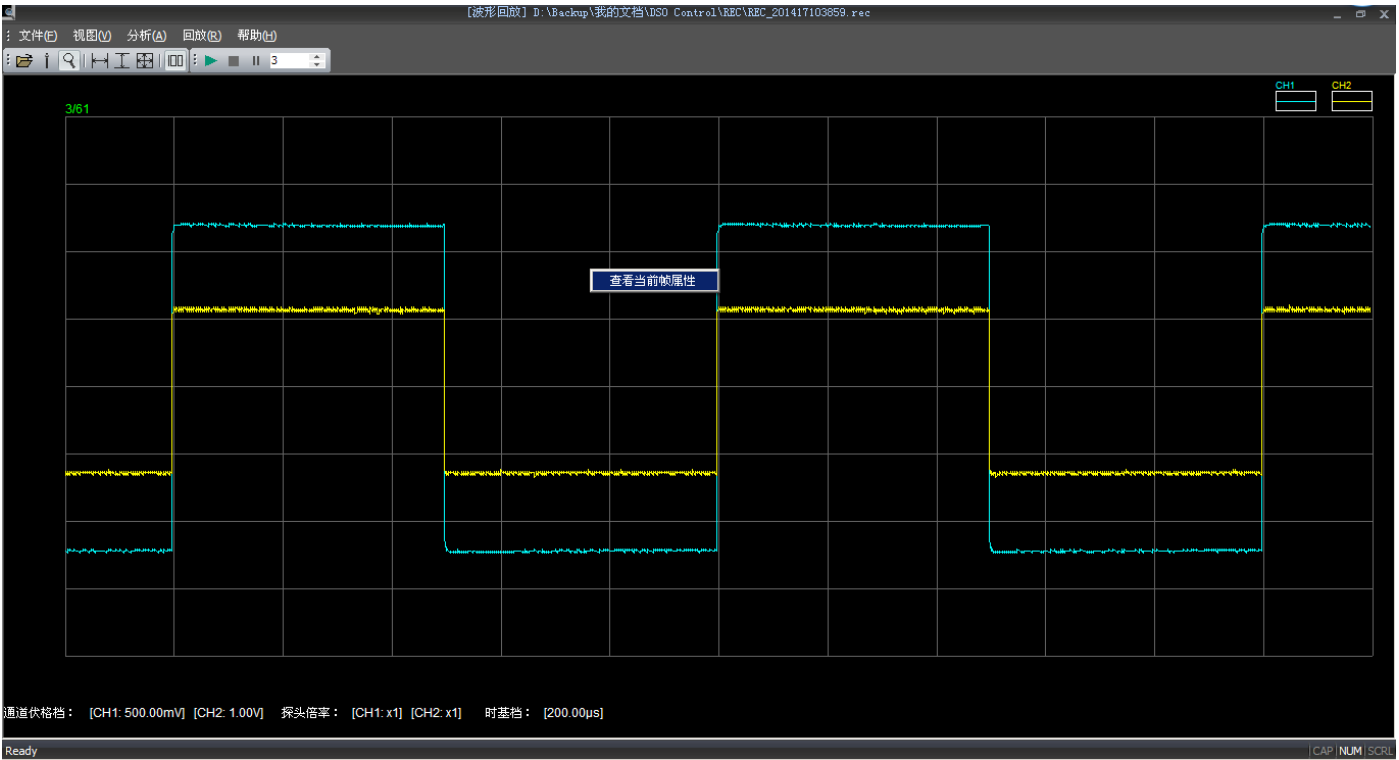There are totally three modes: X ,Y and XY as the following picture shows:
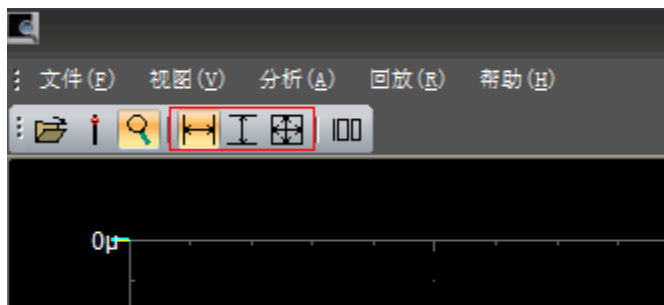
Reset to 100% view：

Check the Current Frame Property

Open *.SAV or *.REC document, and then right click mouse in the waveform display area. The "check the

current frame property" option pops up as the following picture shows. Take *.REC document for an

example.

Click "check the current frame property "and the frame information window pops up. The window

displays the waveform parameter information of current frame as the following picture shows.


Application Example

Load 1 KHz/3Vpp square wave signal data (*.SAV) to the waveform analysis software.

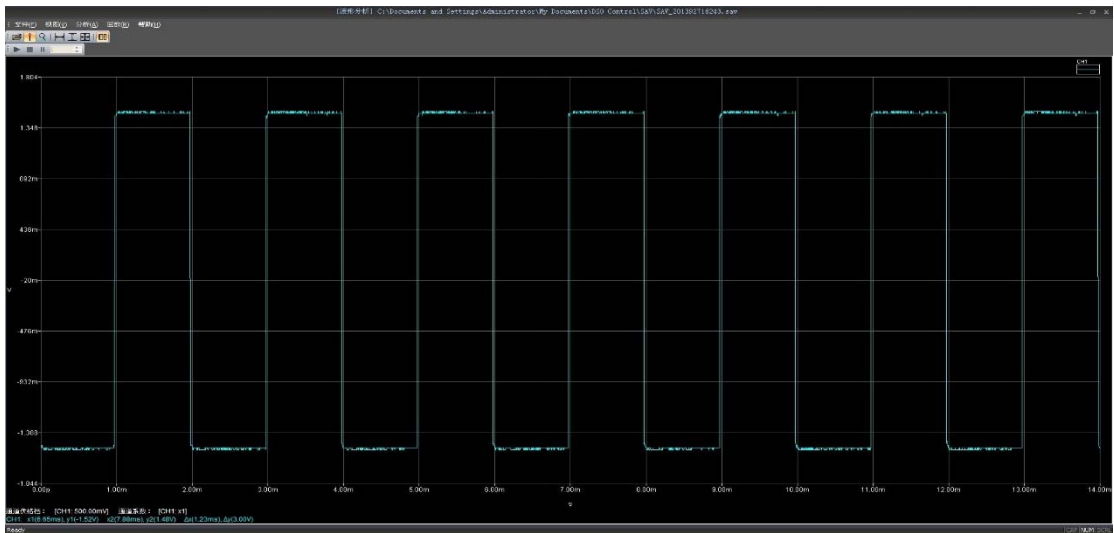Use band-pass filter with 100Hz upper limit and 10Hz lower limit to filter. "Virtual screen"

only can display filtering wave.

1. Start waveform analysis software according to methods of Chapter 1

2. Select "document - >open" in the menu, and then select waveform document

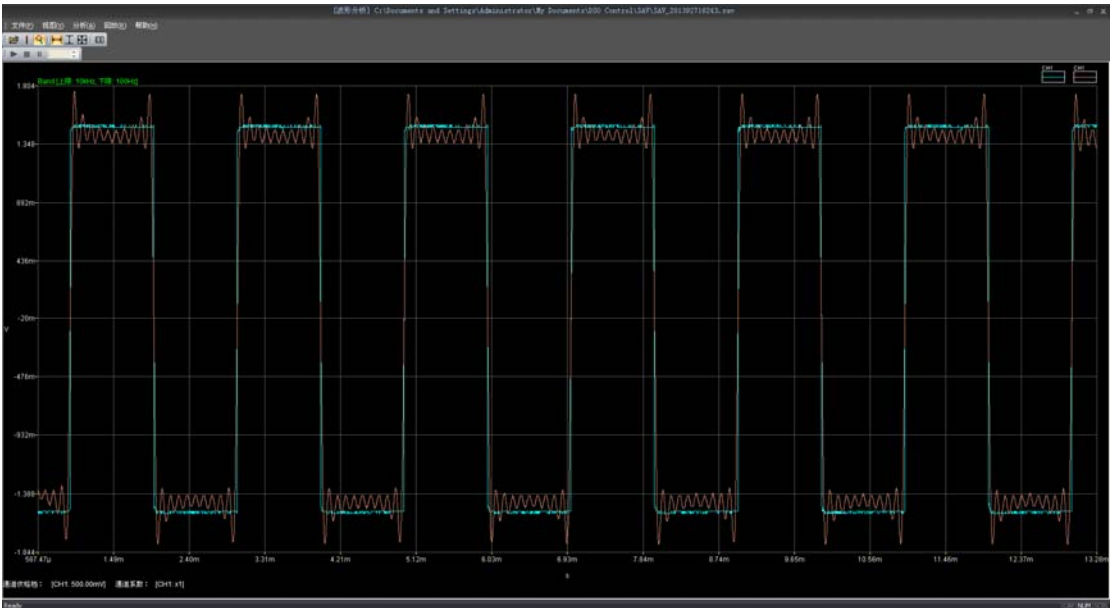   according to the correct path as the following picture shows

Picture 4 - 20（a）
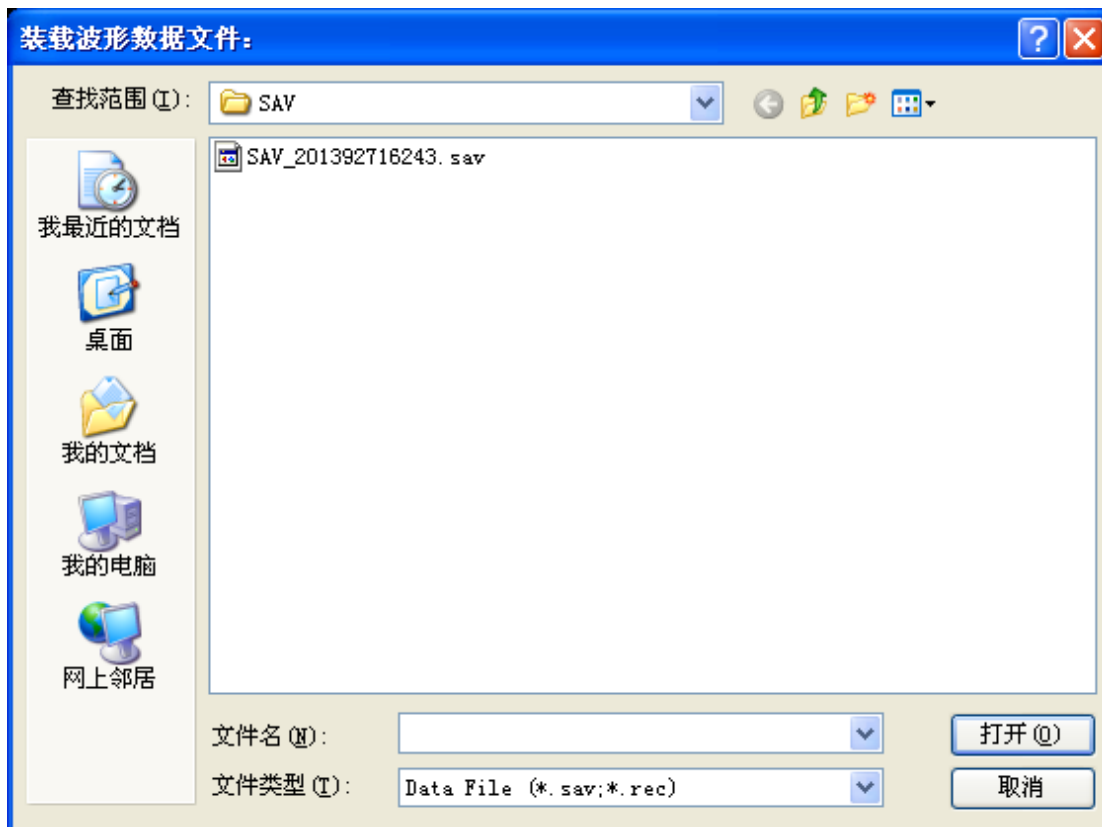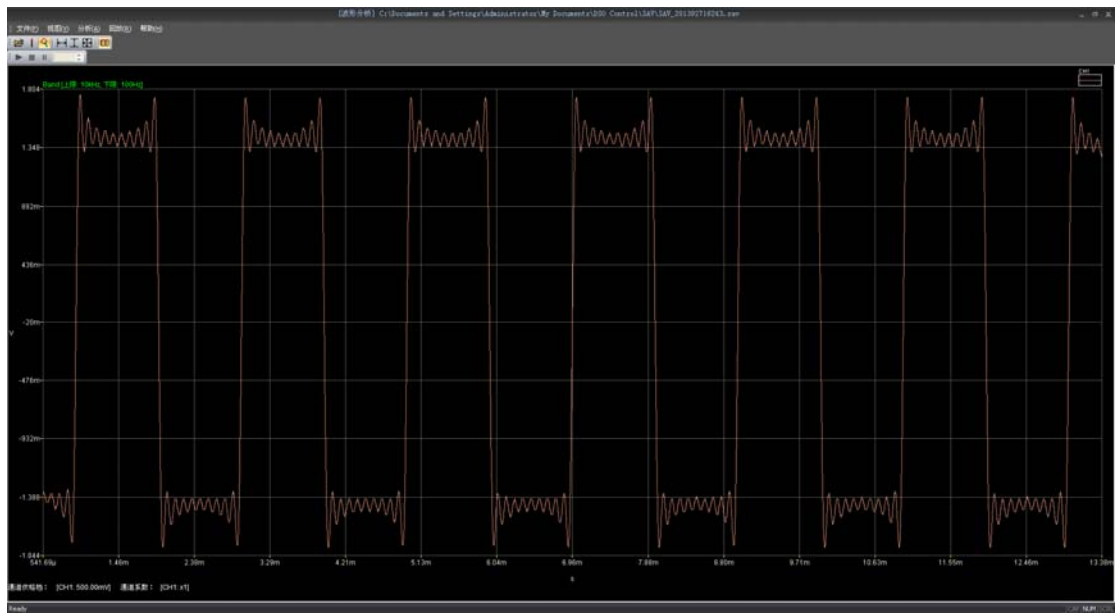
3. Select "analysis—>filtering" in the menu and filter parameter setup dialog box pops up.

   Select "Band" among the filtering type. Set upper limit to 10KHz and lower limit to

   100Hz. Click "OK" as the following picture shows:

4. Select "view - >filtering(single)" in the menu, and check "virtual screen "of waveform

analysis software as the following picture:

Thank You!