Instrument Manager Instructions

Overview:

Instrument manager provides relevant bundled software installation instruction for oscilloscopes and signal sources, which includes:

Software Installation

Driver Installation

Instrument Manager and Instrument Connection

Oscilloscope Control Software

Waveform Analysis

Software Installation

Hardware Requirements

- Hardware configuration which satisfies Windows system requirements
- 1024 x 768 or higher display resolution

System Requirements

- Supports WinXP, Win Vista, Win7, Win8 and 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.

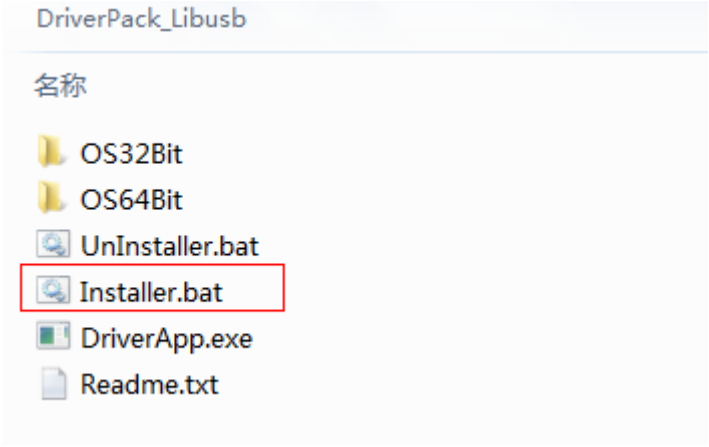
Software Installation:

- Run "Devices Manager Installer.exe" and install it step by step.

Driver Installation

USB Driver Installation:

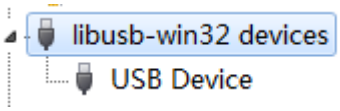
Find the driver installation: ..\\DriverPack_Libusb. Run **Installer.bat** to start the driver installation guide. Please follow the tip and click "next step" to install.



If any other prompt occurs through the process, click “ignore” and continue.

Successful Installation Checking Method:

1. Start device manager. The following prompt means installation is successful.



2. Unrecognized device is no longer indicated after the device is connected to computer through USB, means the device driver has been installed correctly.

3. Connection with control software also means the driver has been installed successfully.

Instrument Manager Usage and Instrument Connection

1. Find Device:

Start instrument manger and select the communication type. Click the “Find” button or right click to select the communication type name. Select “Scan” in the popup menu to find the all connected network devices.



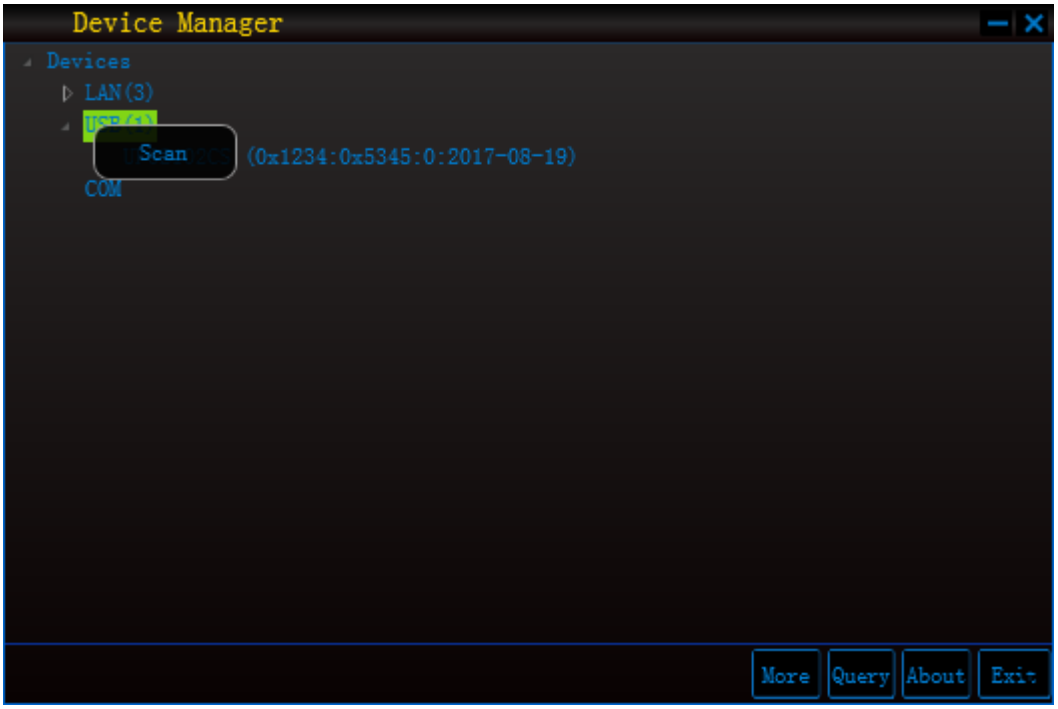
Picture 1：DP-1



Picture 2：DP-2

2. Connect Device:

For different devices, the control software and relevant bundled software will also be different. Left click to select the device, and then right click to select the software you would like to start in the popup menu.



Picture 3：DP-3

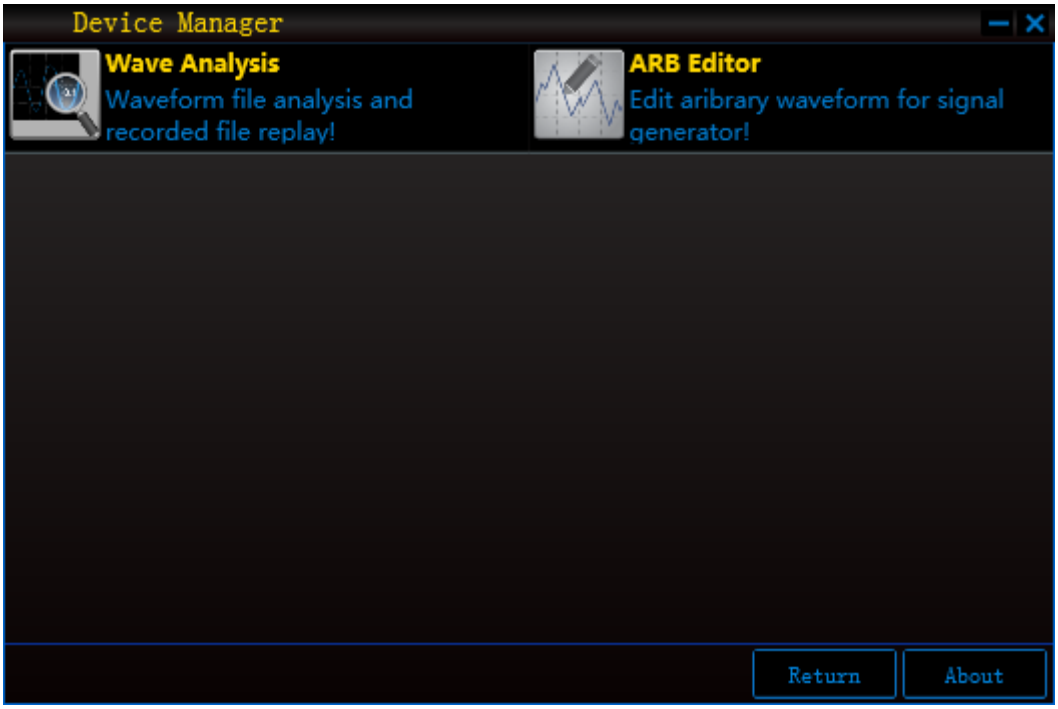
3. Start Assistant Software:

If you need to directly start other assistant software, click the “More” button to enter “Software” list.

Click to start.



Picture 4：DP-4



Picture 5：DP-5

You can also start these additional software by Connect Device method of Chapter 2.

Oscilloscope Control Software

Overview:

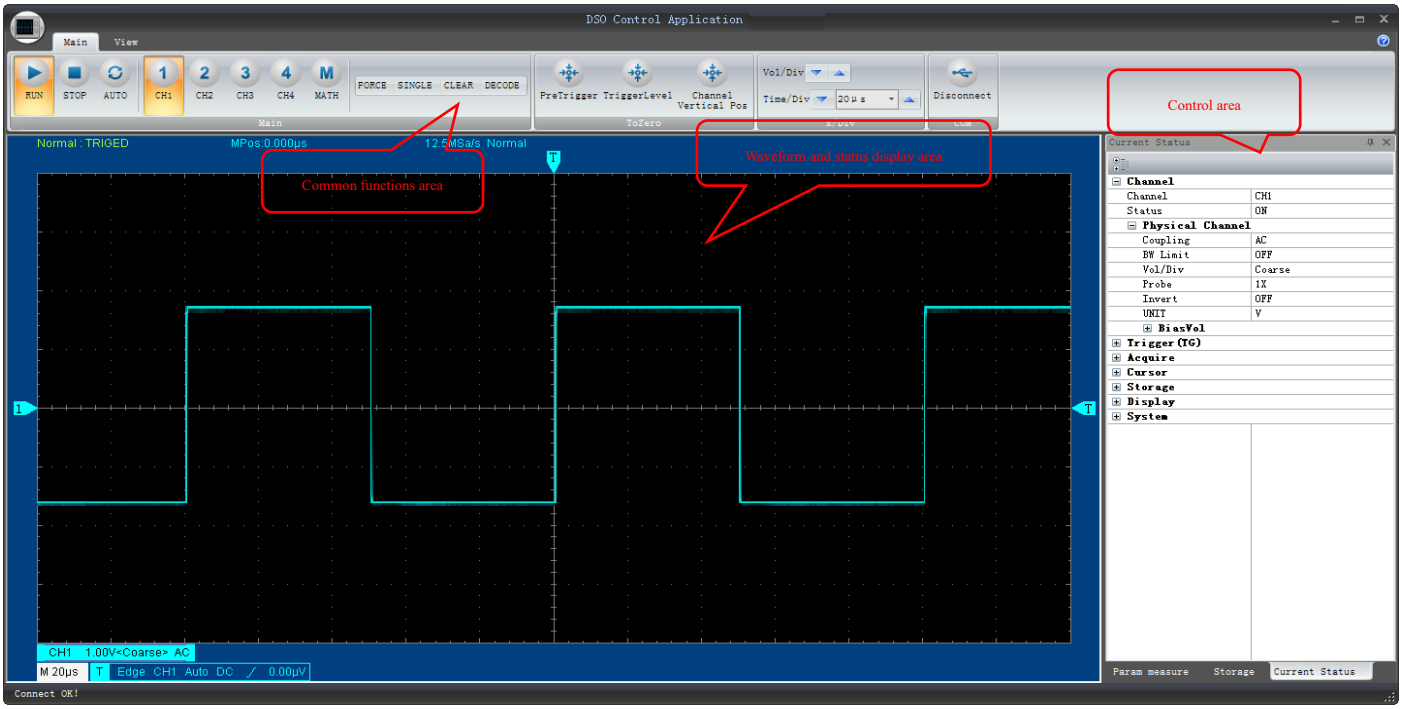
All the functions of control software are based on the device terminal (oscilloscope). So the software interface is different after the different device is connected to control software. But all the function items should match with the instrument.

Controlling software configuration is faster than directly operating device terminal. For example, channel position and cursor line can be dragged directly by sliding block. Some parametric number is not adjusted by knob, but can be input directly. Waveform and screen capture are not saved by U disk copy but can be exported directly to computer disk.

At the same time the functions of **waveform record, data export and process, screen capture** are strengthened. See more details as the chapters.

Start:

Enter “oscilloscope control software ” by the method in “ instrument connection->Connect device” :

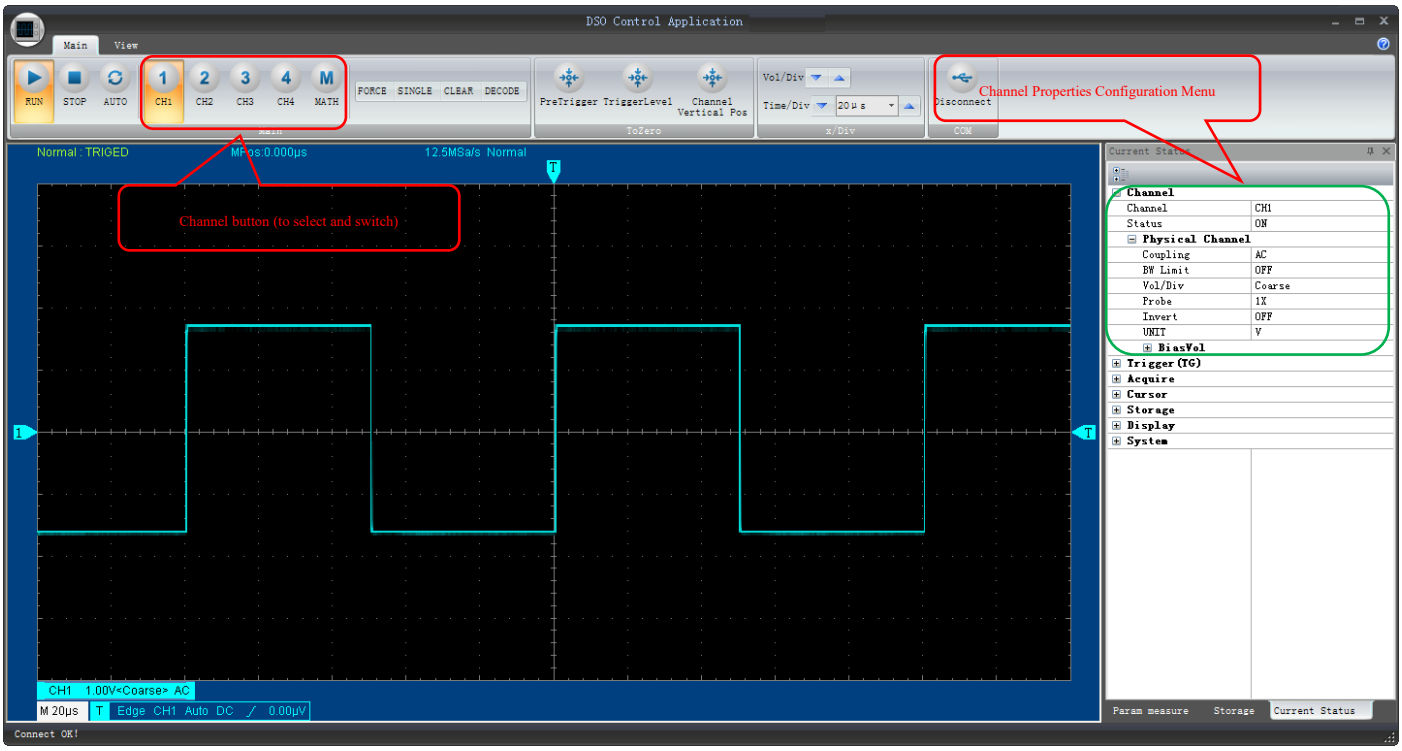


(Picture D-1)

Function:

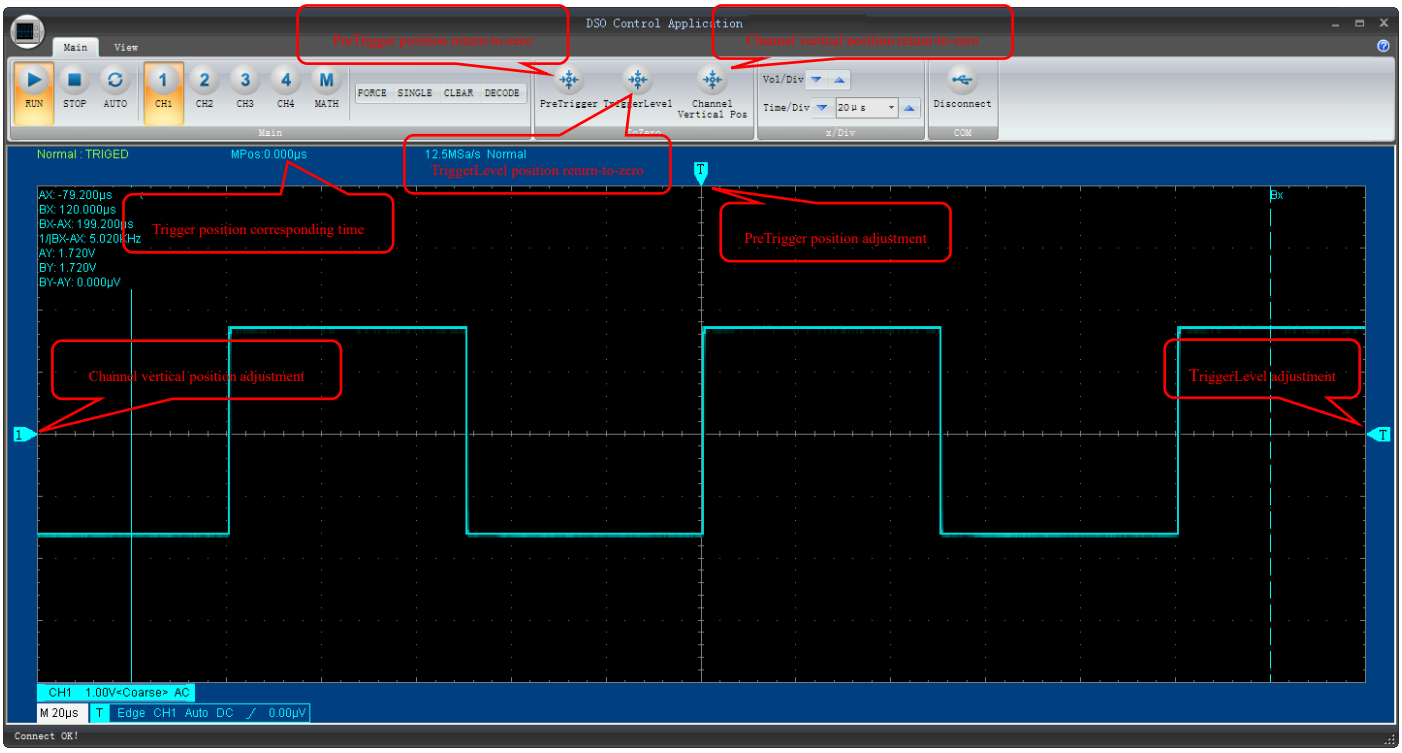
- Channel Property
- Location System
- Waveform Width
- Trigger System
- Waveform Collection
- Cursor Measurement
- Waveform Record
- Data Export
- Parameter Measurement
- Display and System Configuration
- Decode System

Channel Property



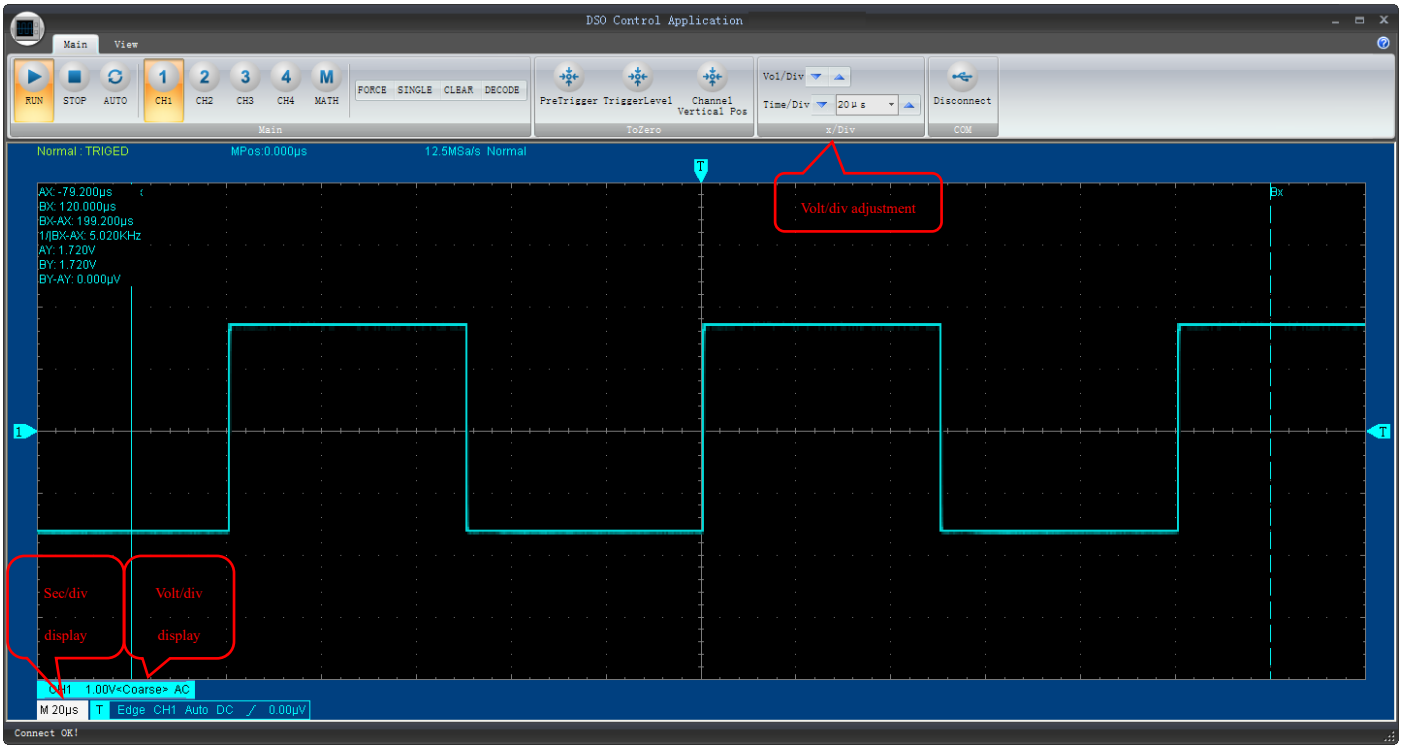
If you need to select the channel or control on-off, you can realize by two methods: homepage shortcut button and "current status->channel" on the right. Both MATH and REF are in the channel classification.

Location System

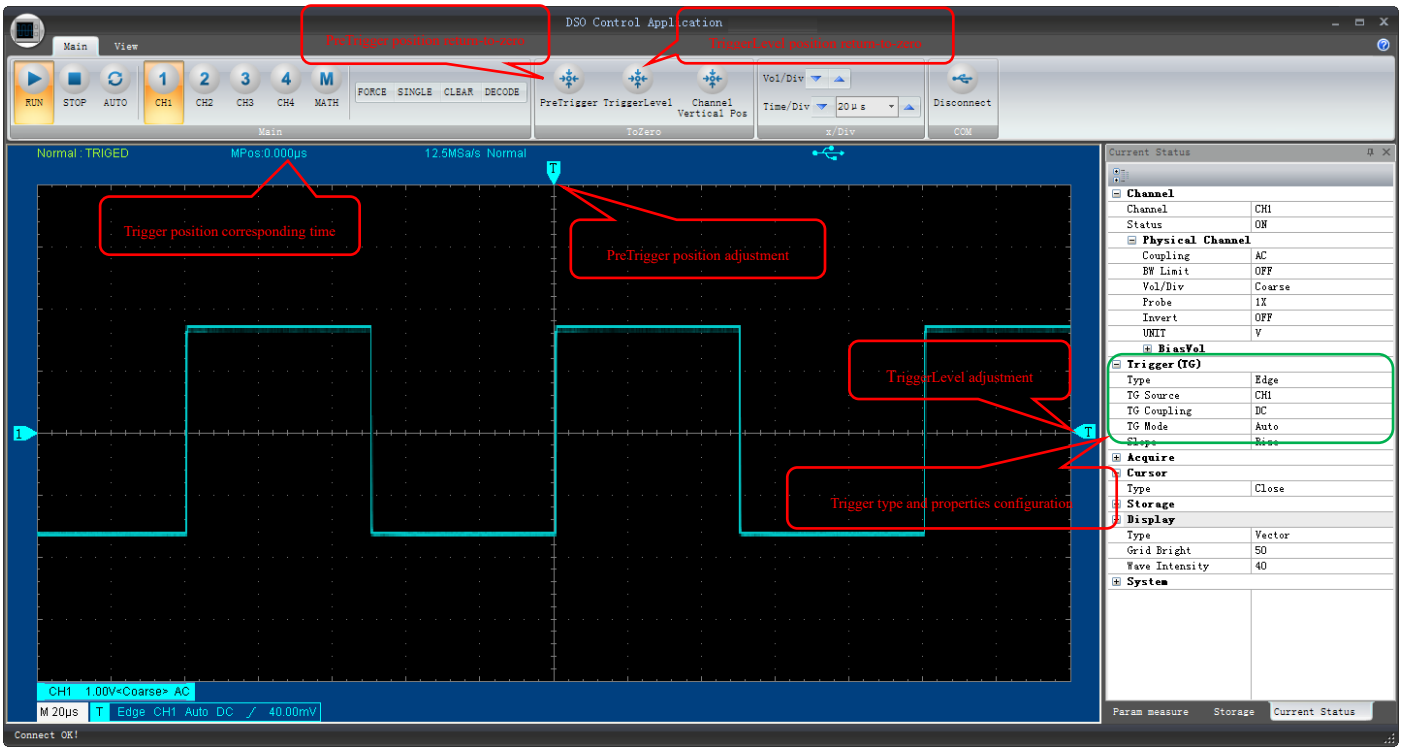


Waveform Width

Adjust vertical sensitivity slot (lengthways width) and time base slot (crosswise width) to realize.

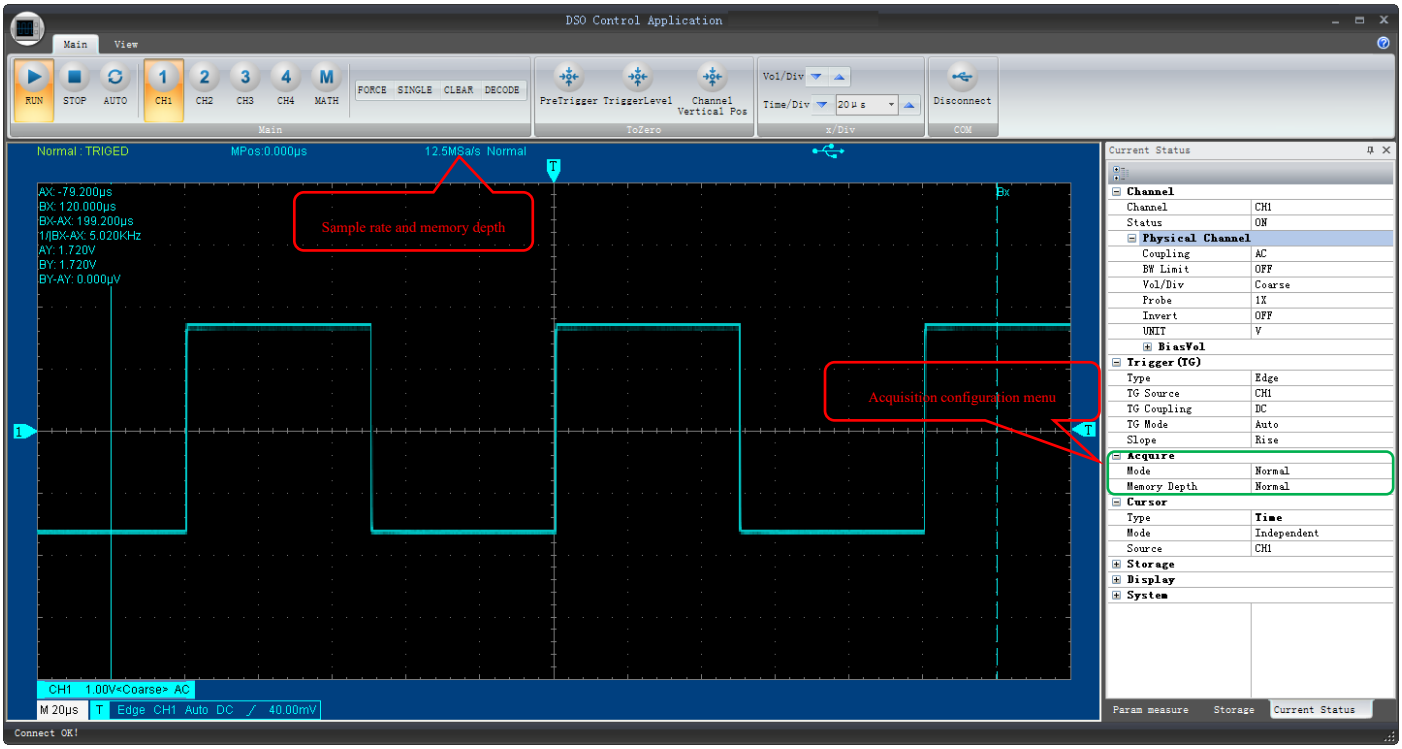


Trigger System

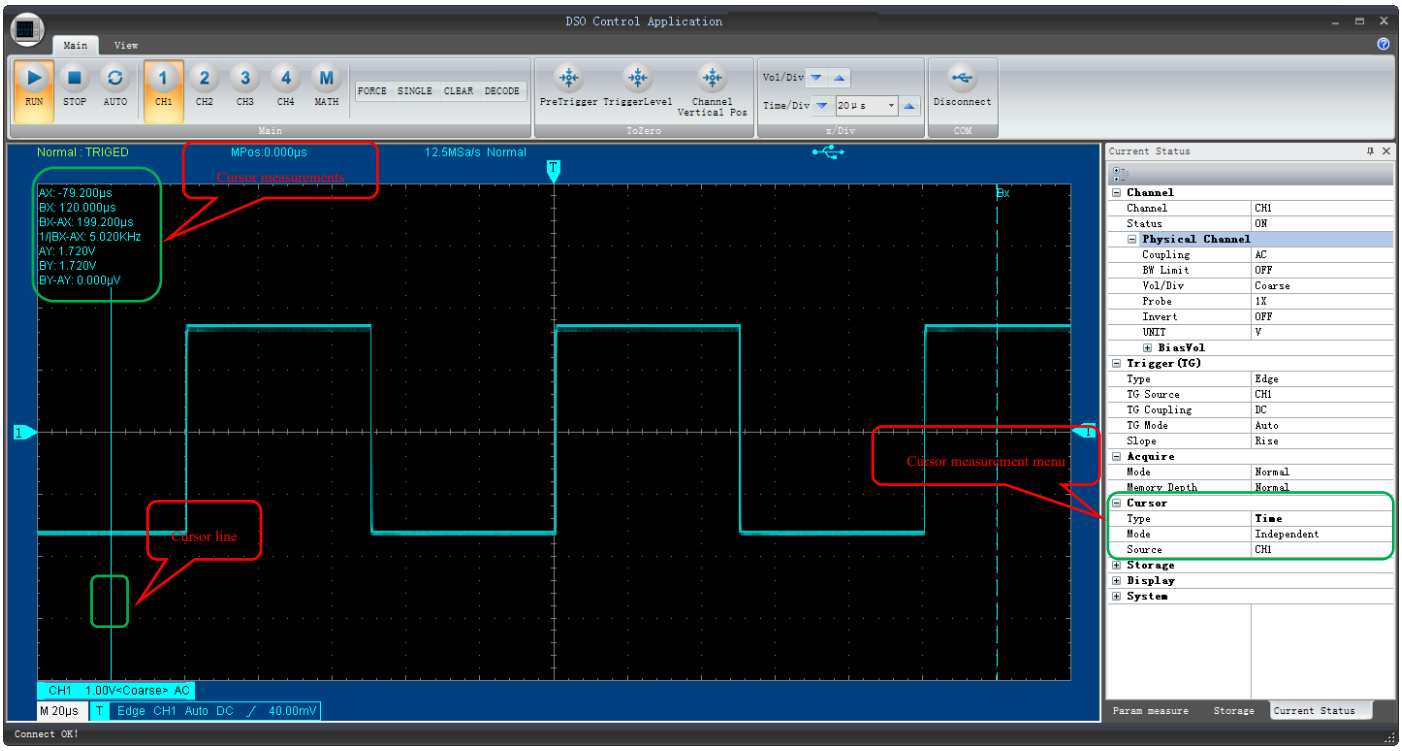


Note: Different model has different trigger type and property but adjustment methods and menu location are constant.

Waveform Collection



Cursor Measurement

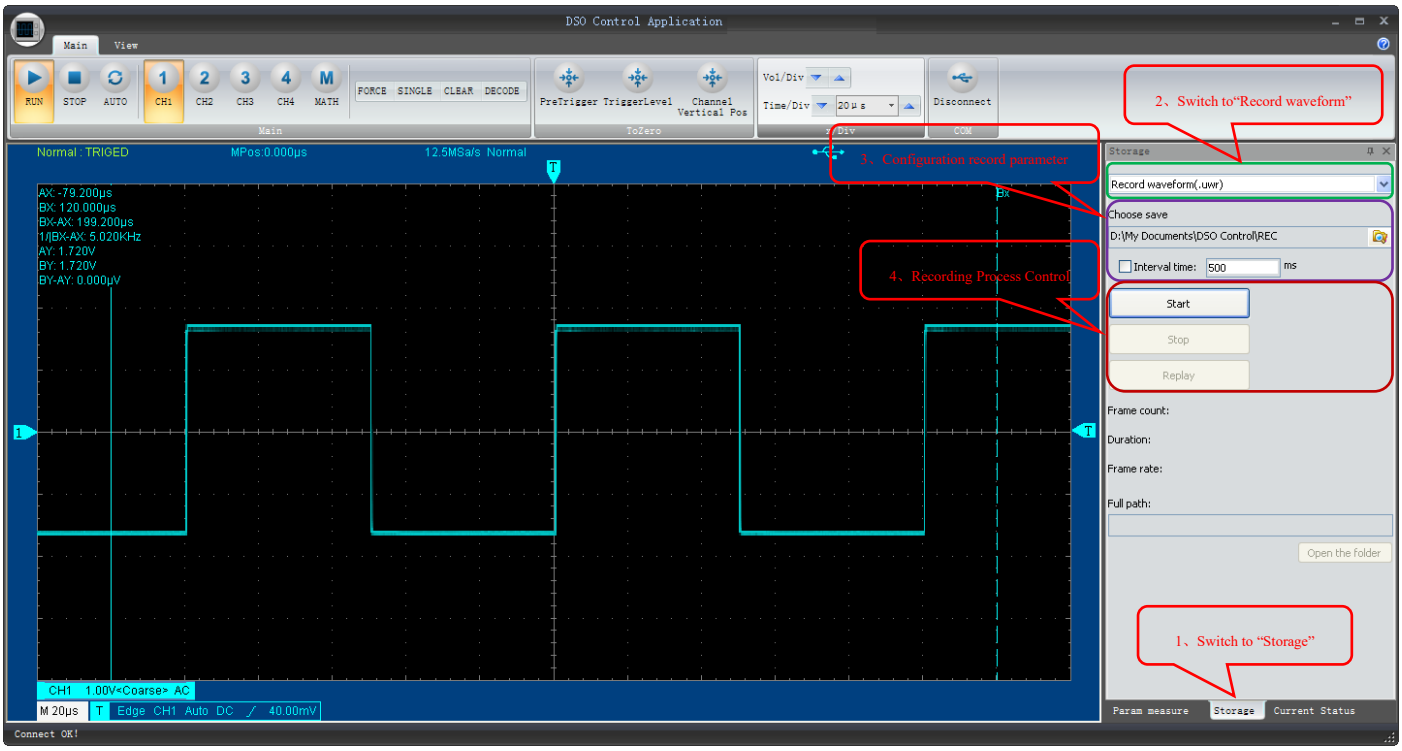


Note:

1. The display mode of cursor measurement is different due to the different model.

2. Mouse can directly drag the cursor line.

Waveform Record

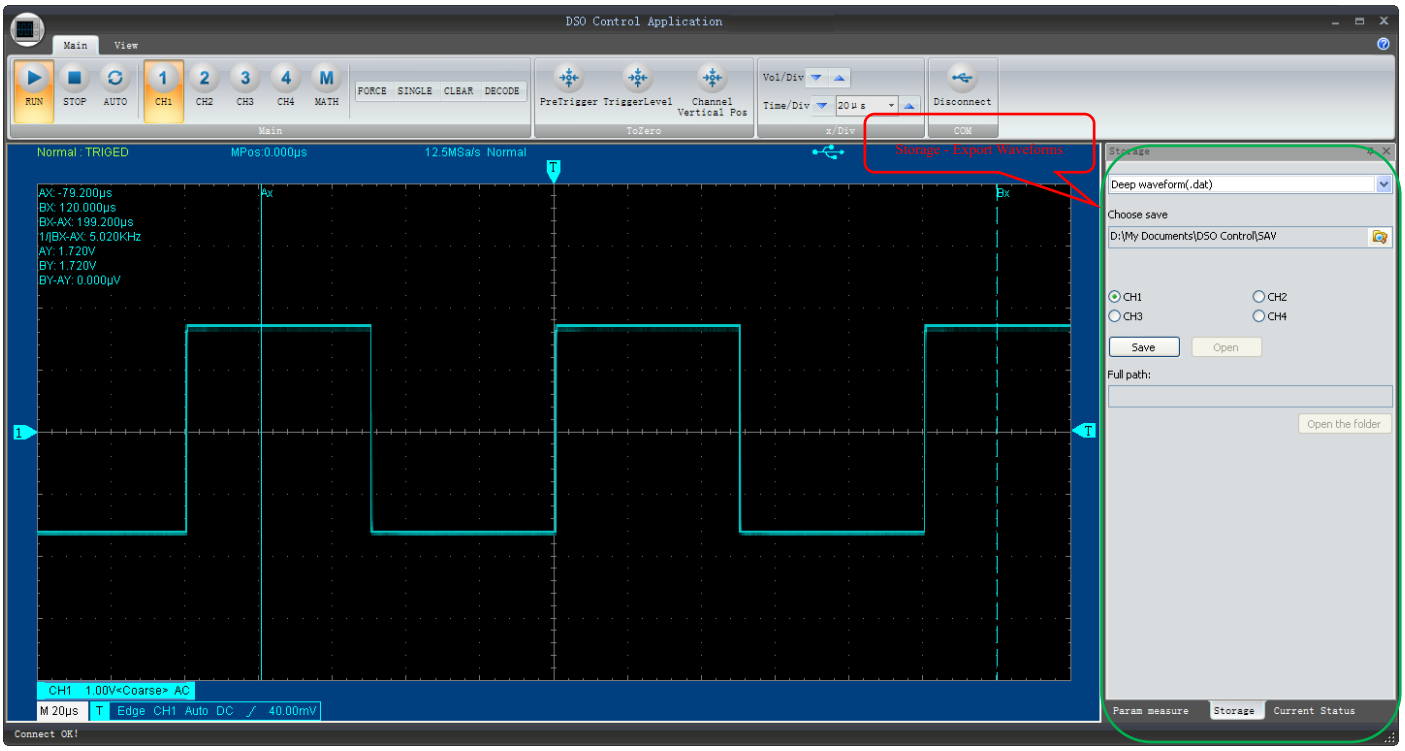


The record waveform of control software has no direct relation with that of the device terminal, but their principles are same.

Features of control software waveform record:

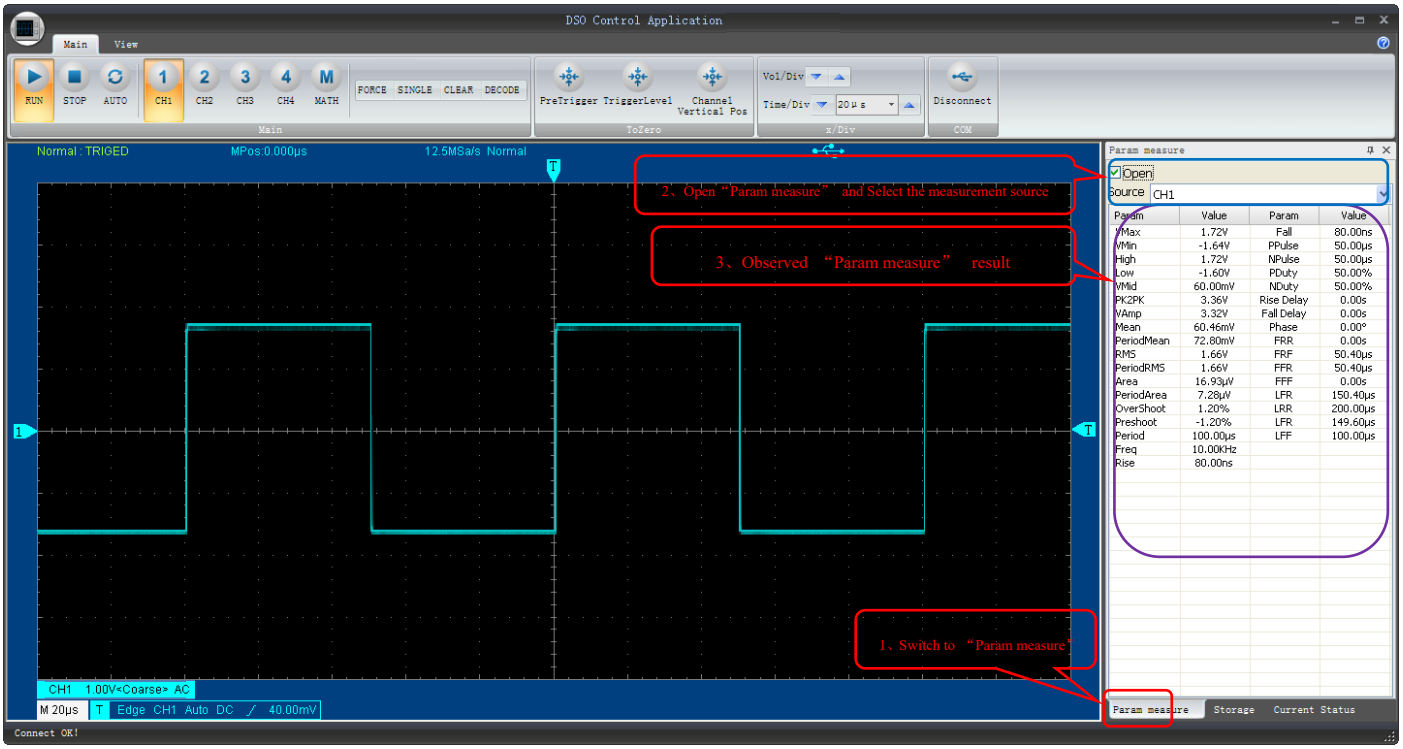
1. Directly record waveform to computer disk and the record waveform is compressed format data. So the record time is longer, and the resources occupancy is smaller.
2. The record interval time can be set, that is, set as a timer. Record one frame when time is up. If the function is not used, the record will be continuous.
3. Record playback is directly played by **waveform analysis software.**

Data Export



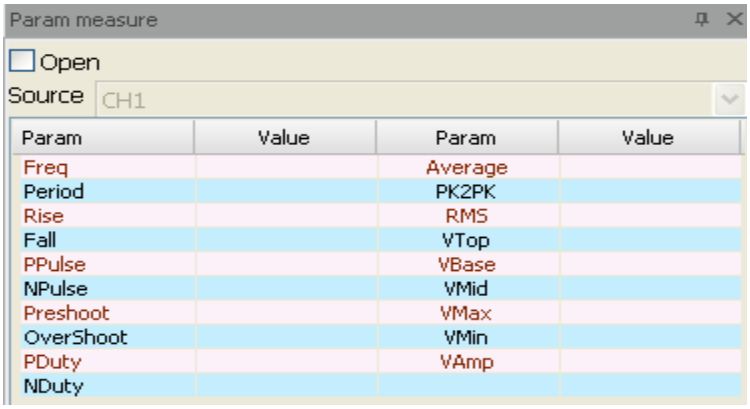
The exported waveform can be opened by **waveform analysis software** to check, analyze and measure.

Parameter Measurement



Parameter quantity and content of parameter measurement depend on the product model.

Some models may show advanced measurement configuration interface, for example, UTD 2000M.



Picture 3-8

If the Open option is ticked, the parameter measurement function will be enabled and various measured parameter values will be obtained in real time. See Fig.3-9.

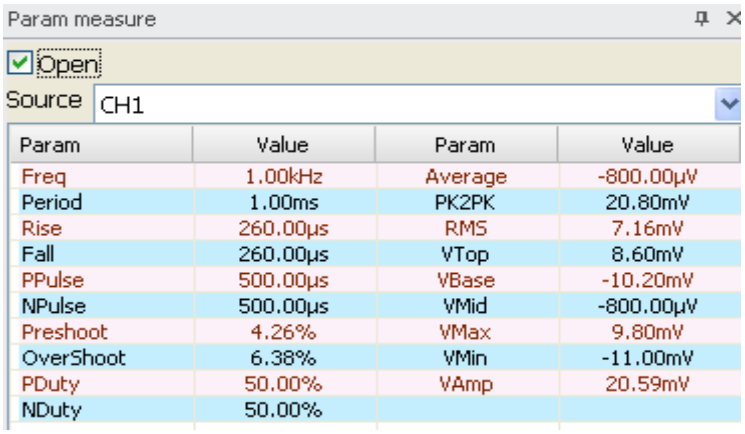
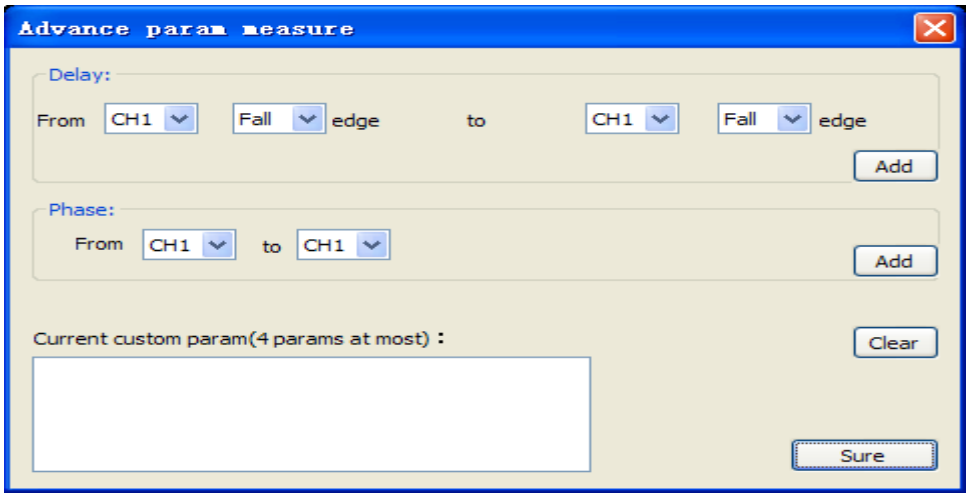


Fig.3-9

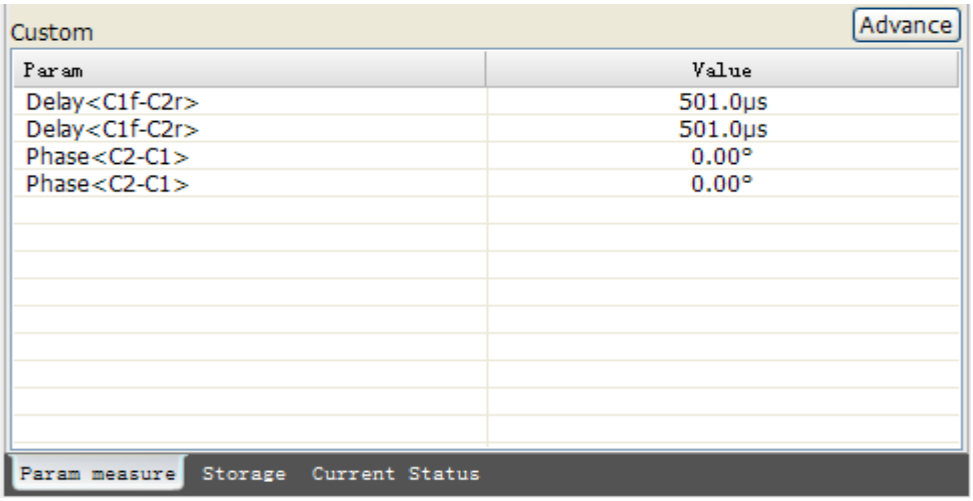
Click the advanced parameter button and advanced parameter measurement window pops up as picture 3-10 shows:



Picture 3-10

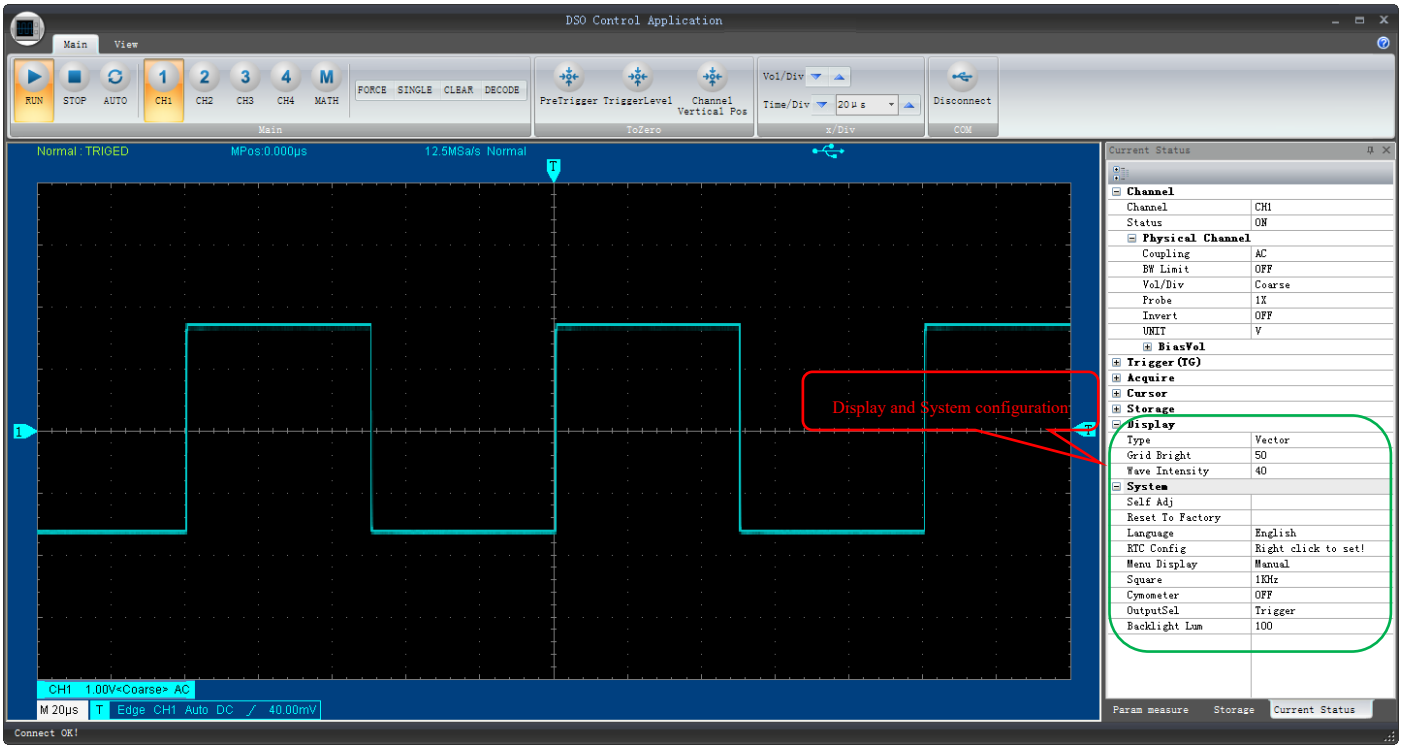
The real time measurement of delay parameter and phase parameter can be set in the window as picture

3-11 shows. The max parameter quantity can be up to 4.



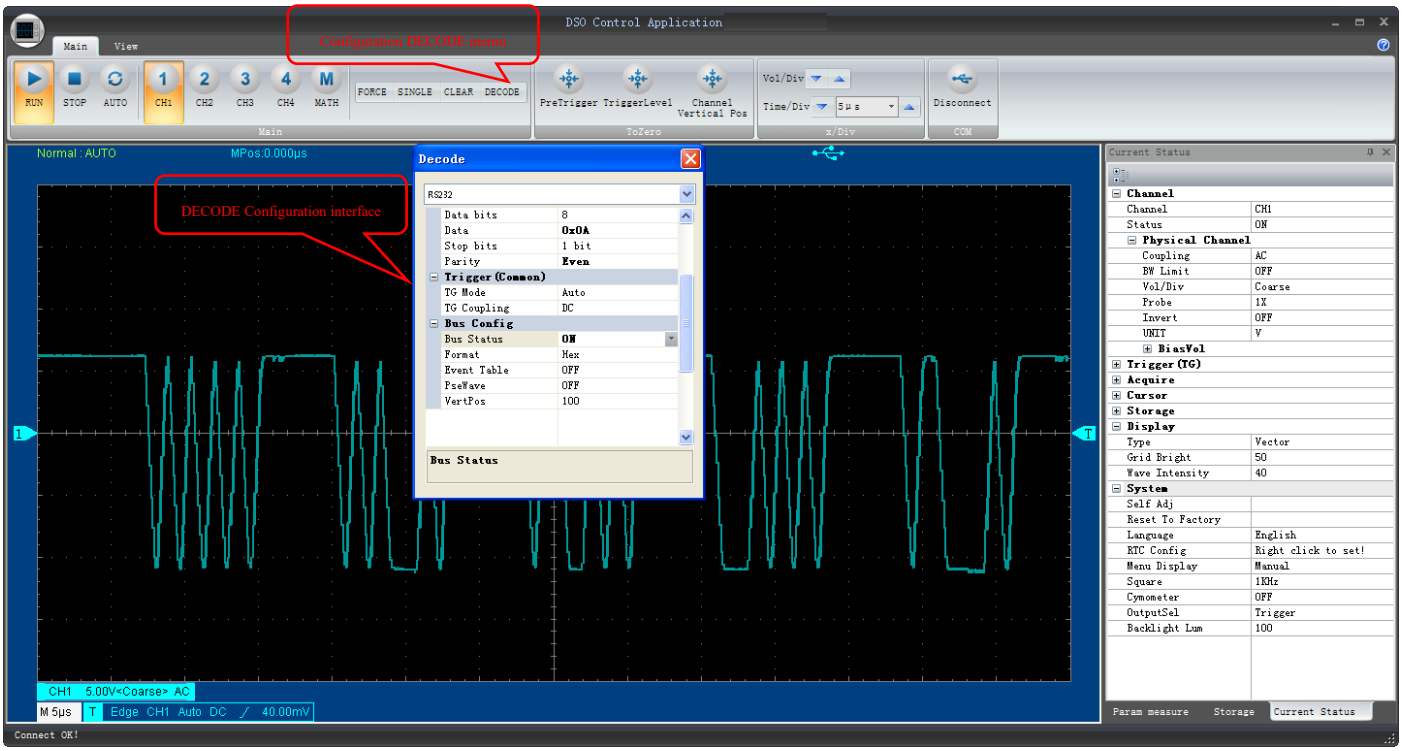
Picture 3-11

Display and System Configuration



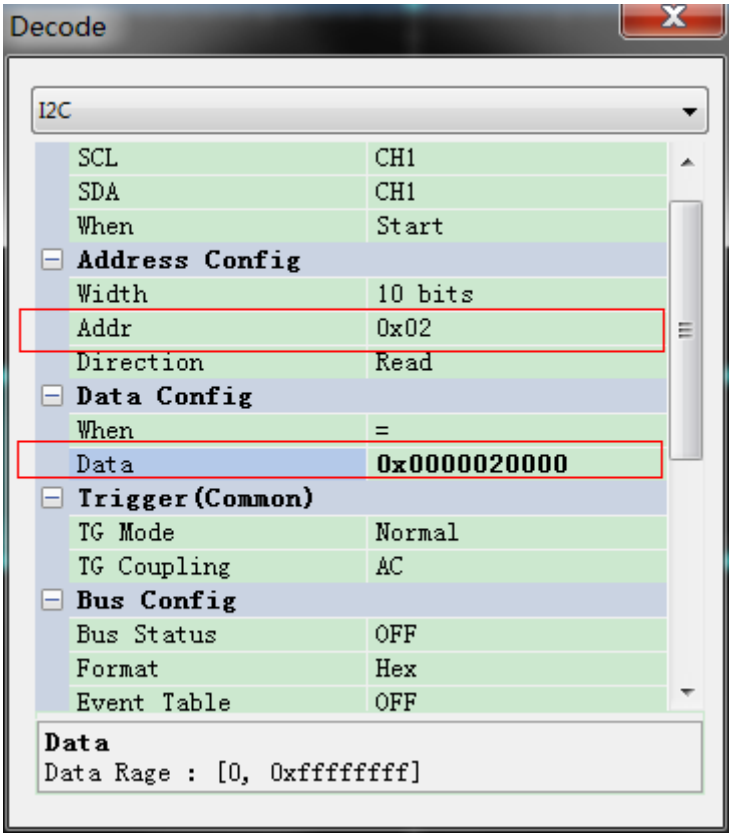
Decode System

Decode function can only be used for specific model. If upper computer shows DECODE menu and the menu can be opened, that means the model supports decode function. As to the instruction of decode function, please see the corresponding model manual.



The decode function configuration is more convenient than the device terminal configuration.

As the following picture shows, the number can be directly input at will during setting address and data, which is more convenient than device terminal setting.



Others such as RS232 baud rate, SPI condition setting and free time setting.

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.

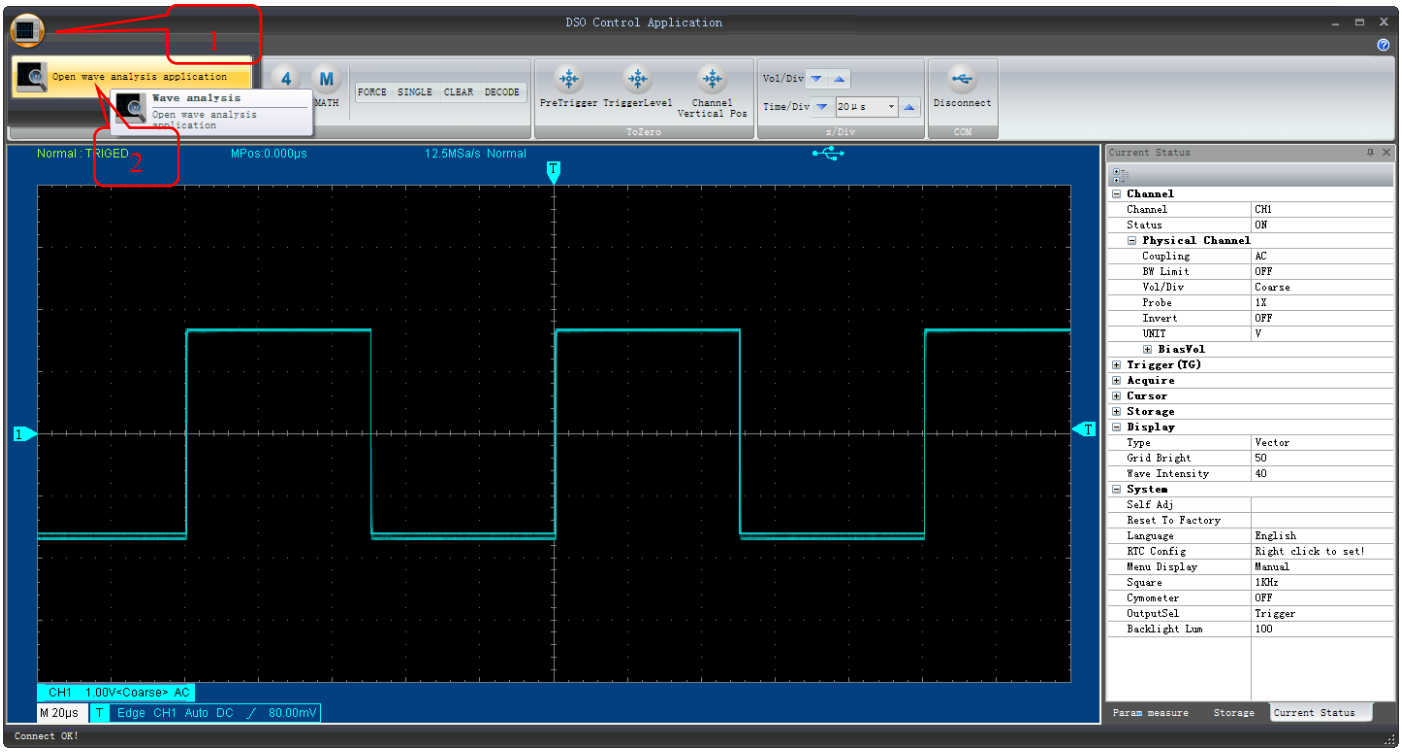
Start:

1. Use instrument manager to start. Method: Start assistant software

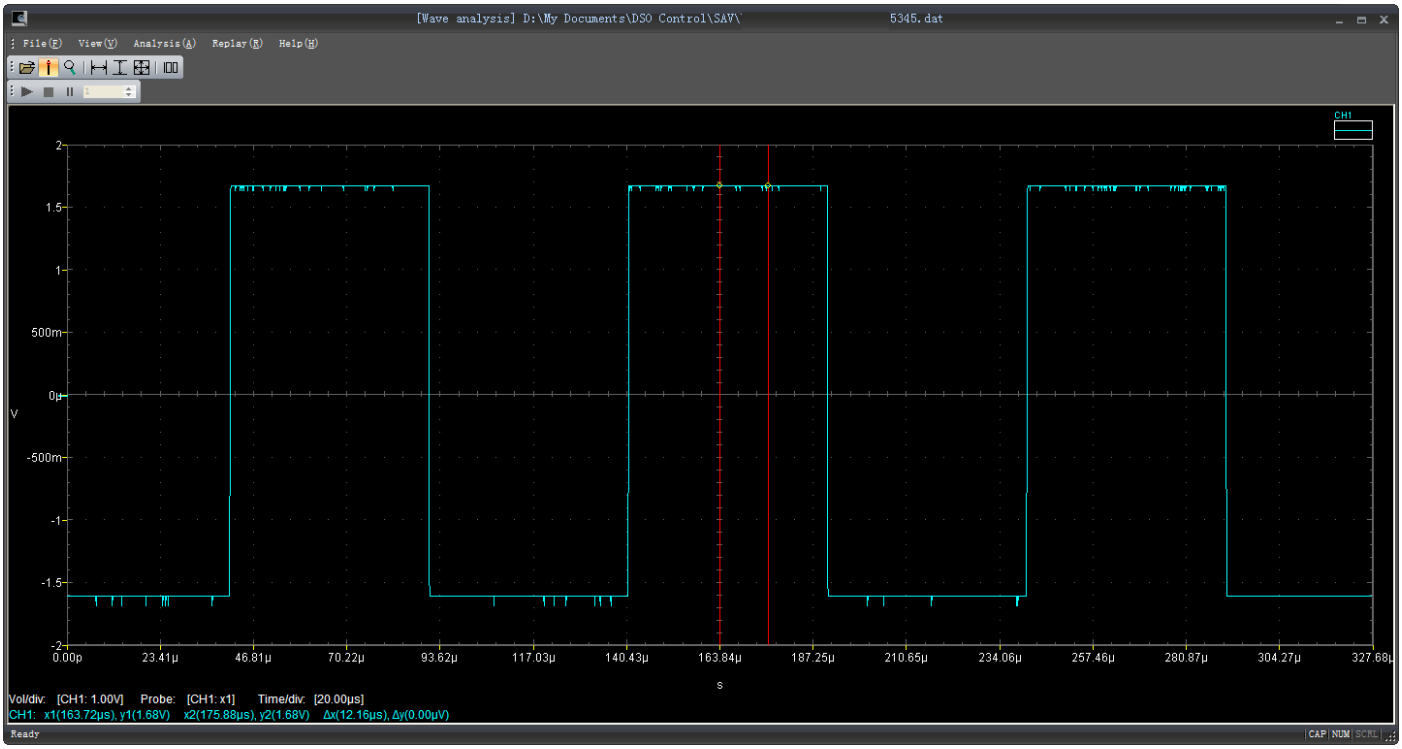
2. Use oscilloscope control software to start:

   1) Indirectly start. Check: data export and waveform record;

   2) Directly start:



Preview:



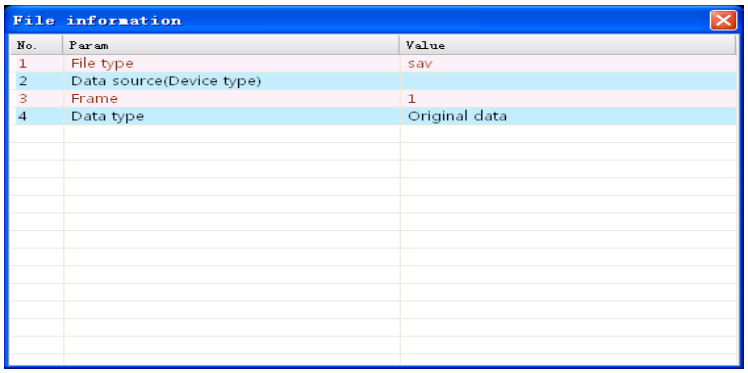
Waveform Analysis Software Menu Instruction

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

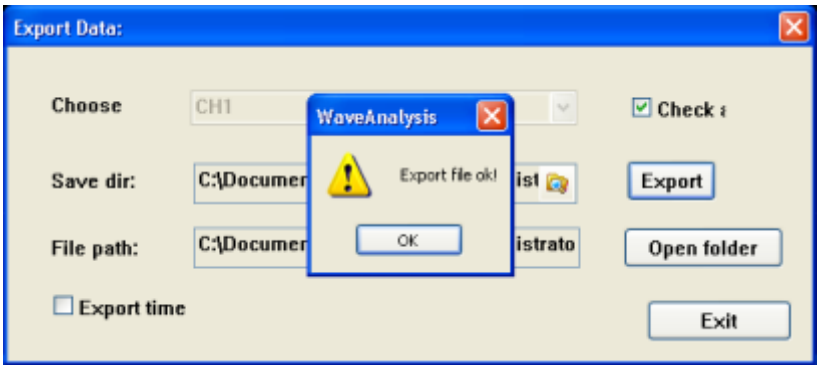
Open: Read waveform in the document of computer hard disk or other storage medium to digital storage oscilloscope analysis software. Select "document" → "open" ,and load supported format documents to the waveform analysis software.

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:



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 (△t)and amplitude difference(△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.

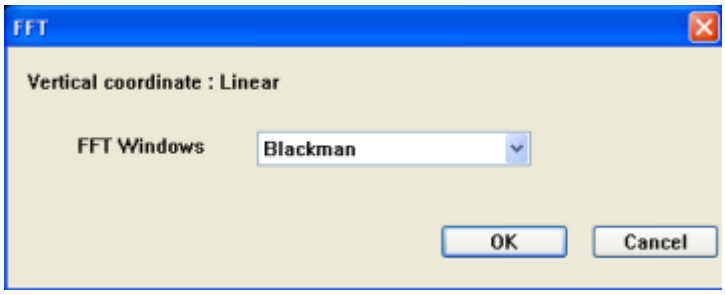
Status bar: Move the mouse to the relative shortcut button icons or menus. The status bar at the left corner of virtual screen will display the relevant information the mouse indicates currently. The display can be closed here.

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

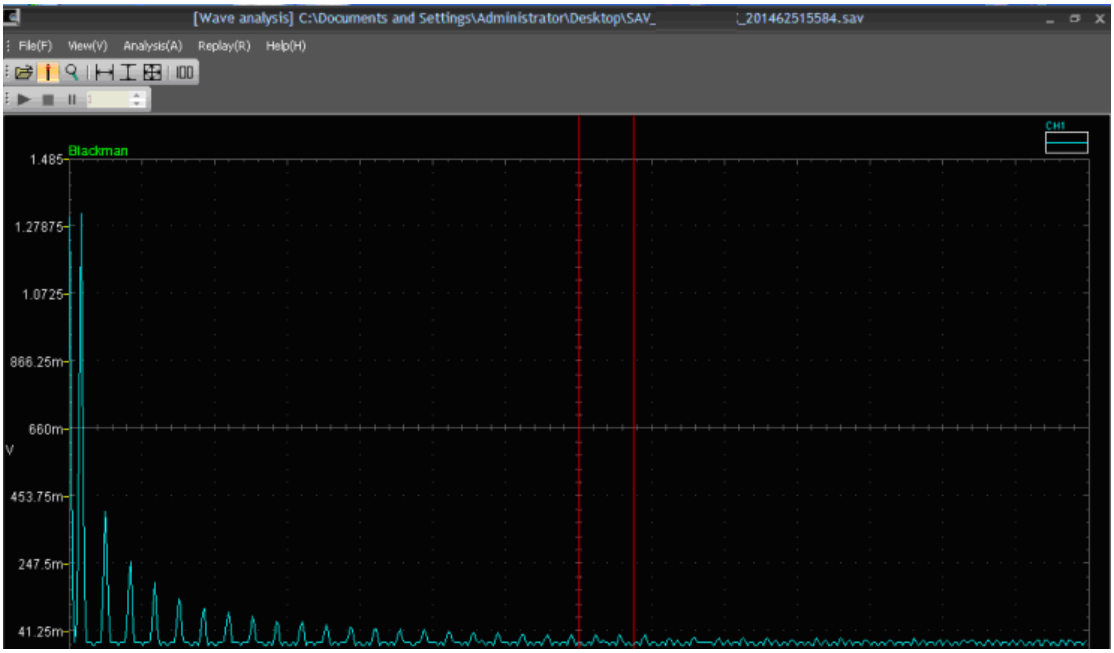
Measurement: Measure amplitude, frequency, pulse width and duty ratio of the imported waveform as the following picture shows:



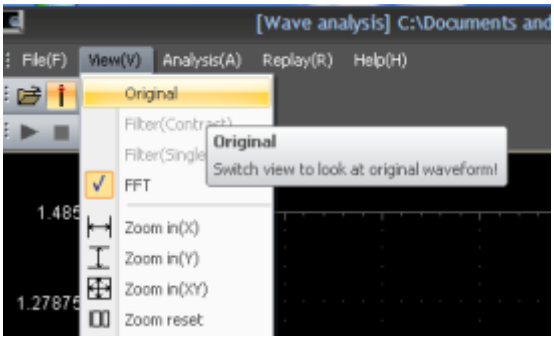
FFT: Fourier transforms the imported waveform. The selectable window functions are: Blackman, Hamming, Hanning, and Rectangle as the following picture shows.



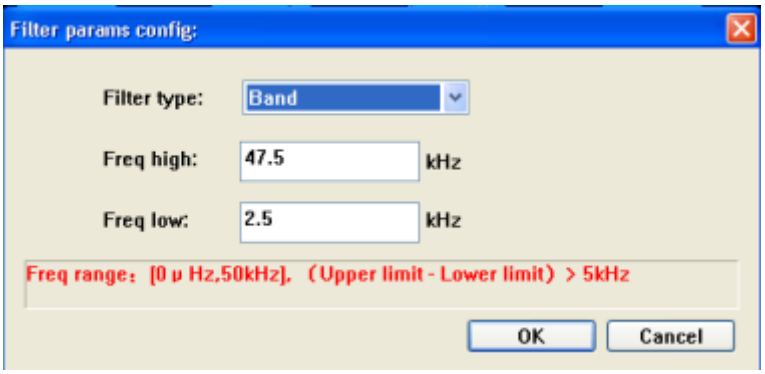
Select suitable window function and click “Confirm”. Original waveform data is converted to FFT waveform data as the following picture shows.



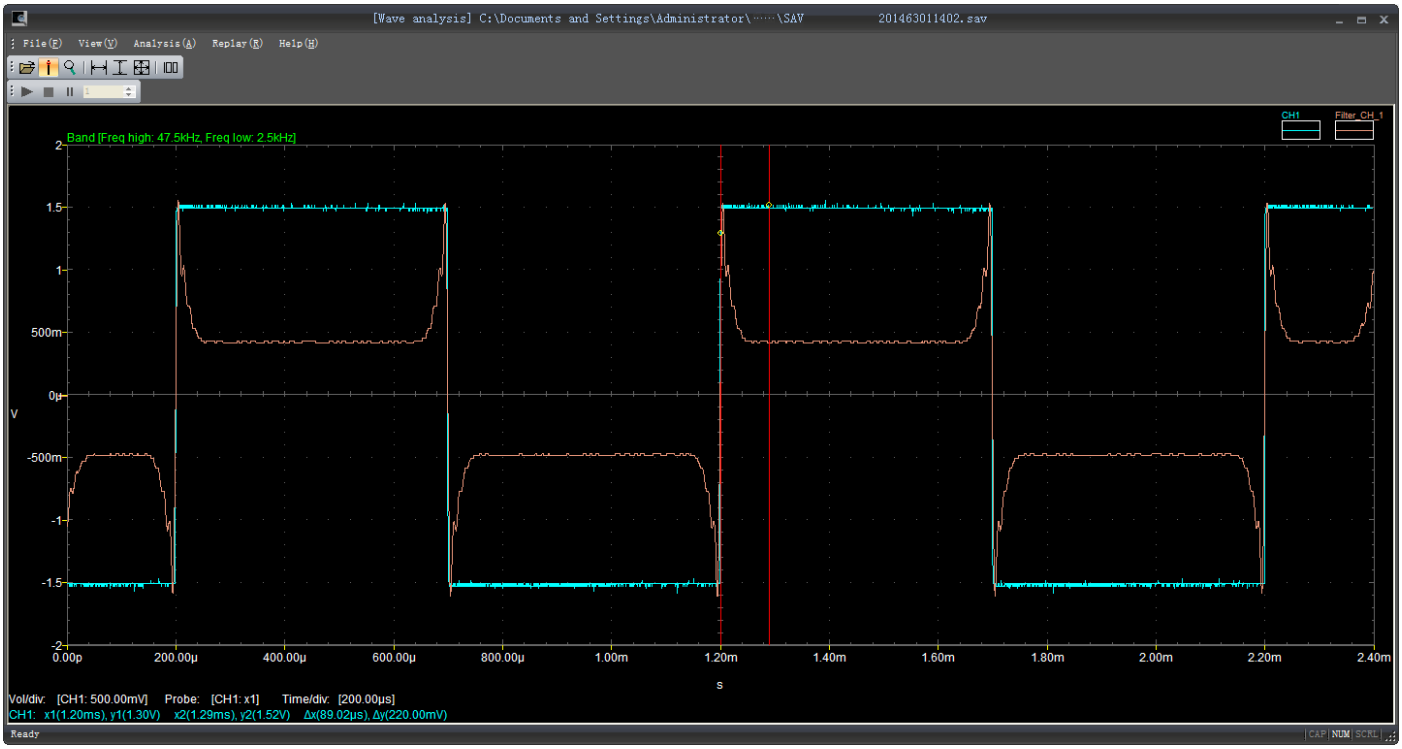
If the original waveform data need to be restored, click the “original” of view menu as the following picture shows:



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.



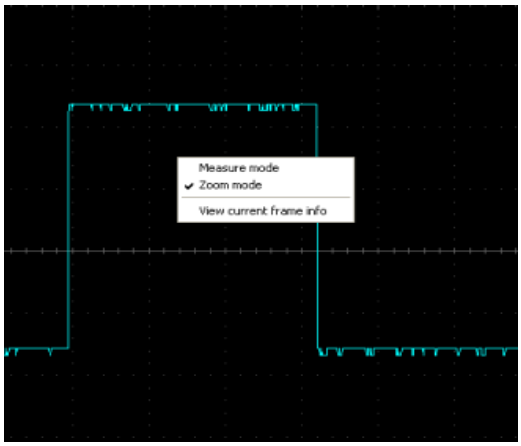
Help

About: Display relevant version information of the current software.

Check the Current Frame Property

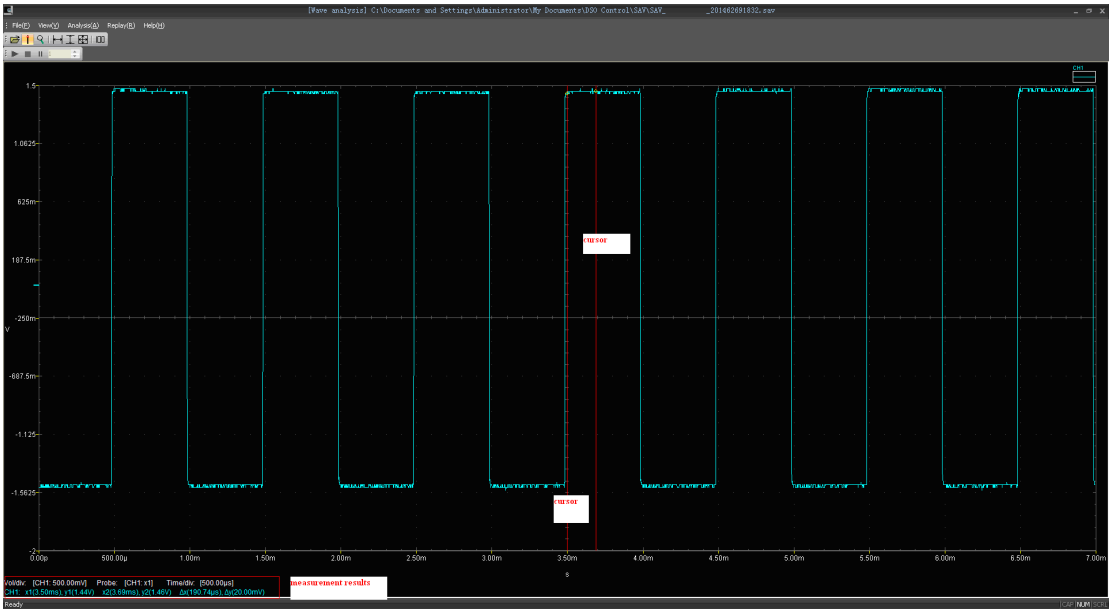
Measurement Mode

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:

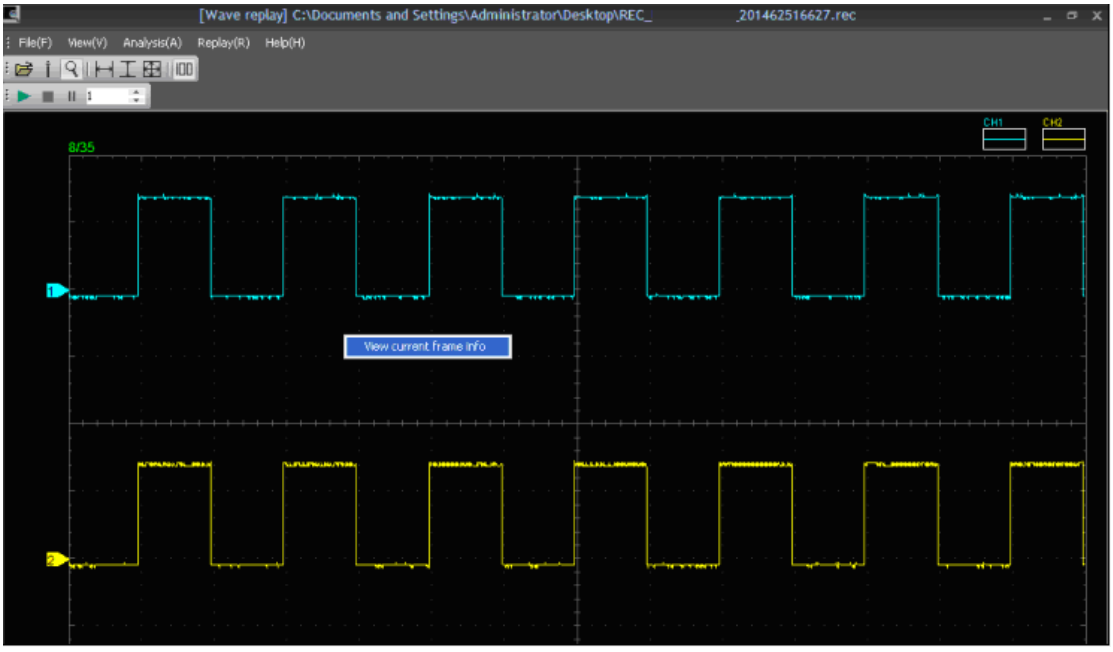


Reset to 100% view:

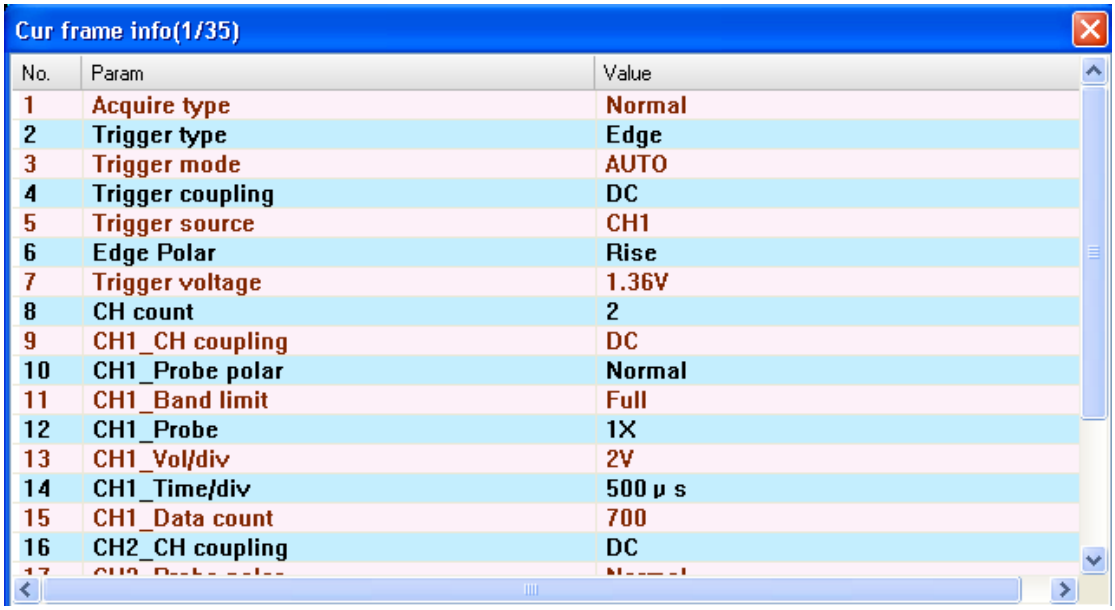


Check the Current Frame Property

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.



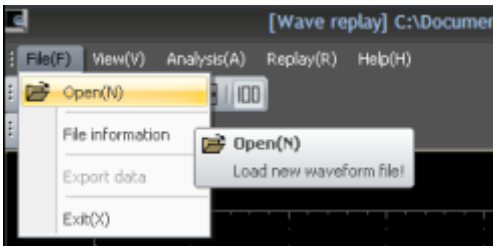
Click “check the current frame property “and the frame information window pops up. The window displays the waveform parameter information of current frame as the following picture shows.

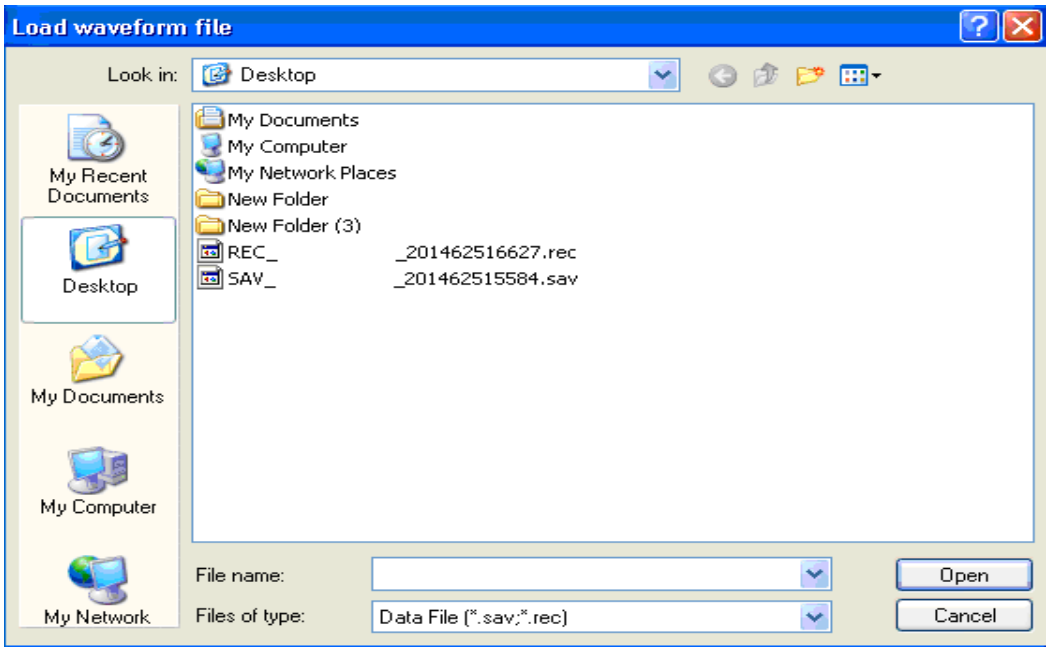


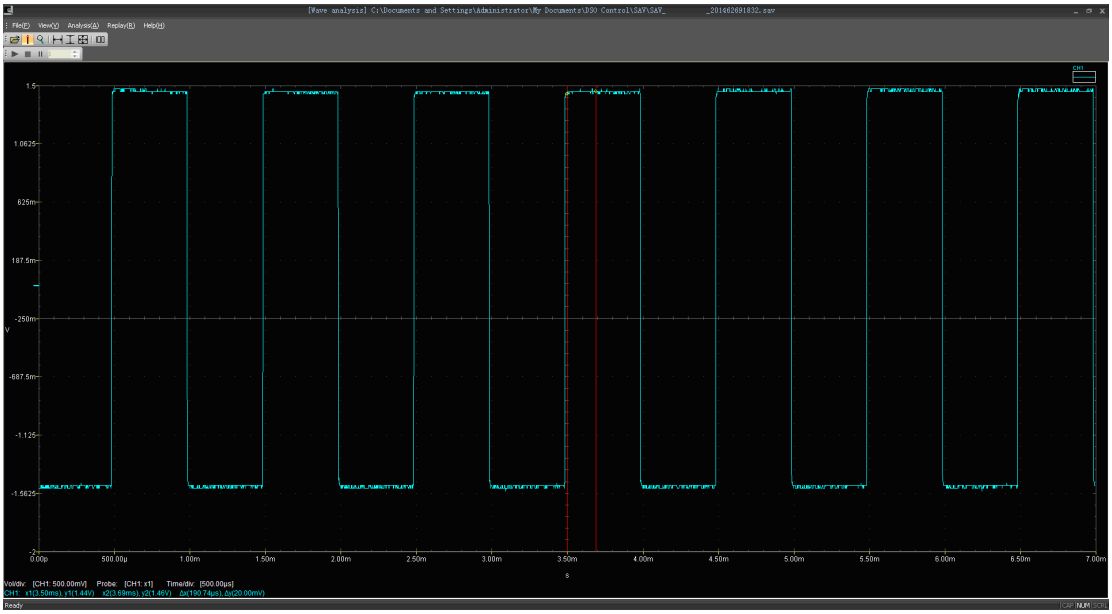
Application Example

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.

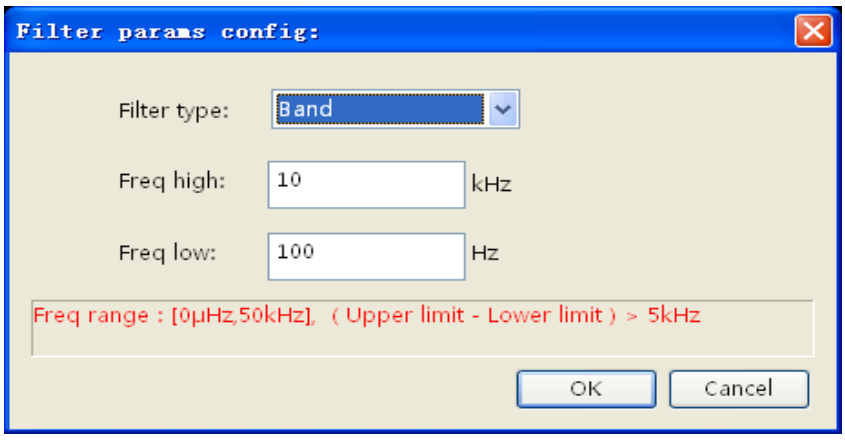
- Start waveform analysis software according to methods of Chapter 1
- Select "document - >open" in the menu, and then select waveform document according to the correct path as the following picture shows

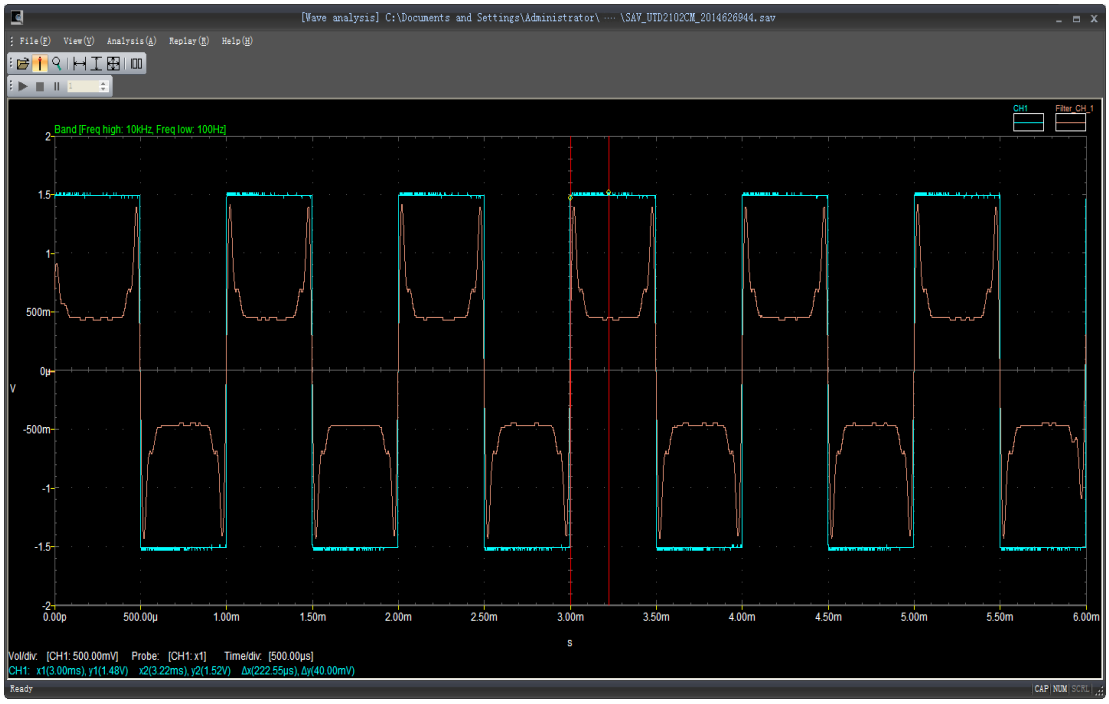




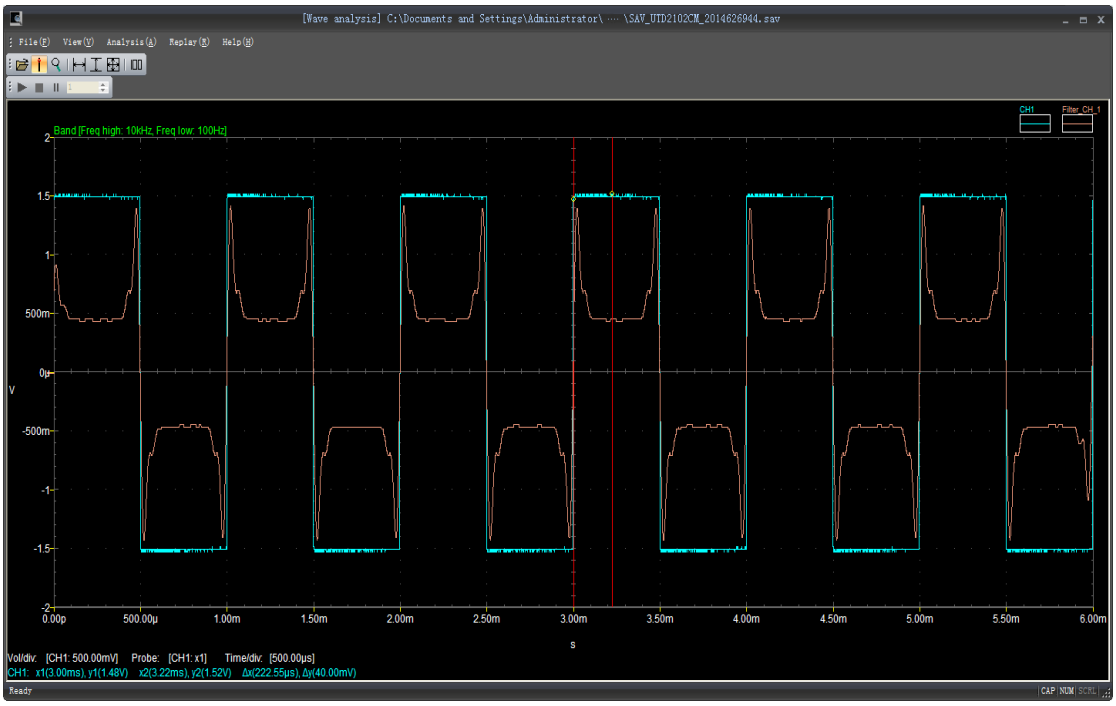


3. Select “analysis—>filtering ” in the menu and filter parameter setup dialog box pops up. Select “Band” among the filtering type. Set upper limit to 10KHz and lower limit to 100Hz. Click ” OK” as the following picture shows:





4. Select" view - >filtering(single)" in the menu, and check "virtual screen "of waveform analysis software as the following picture:



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Thank You!