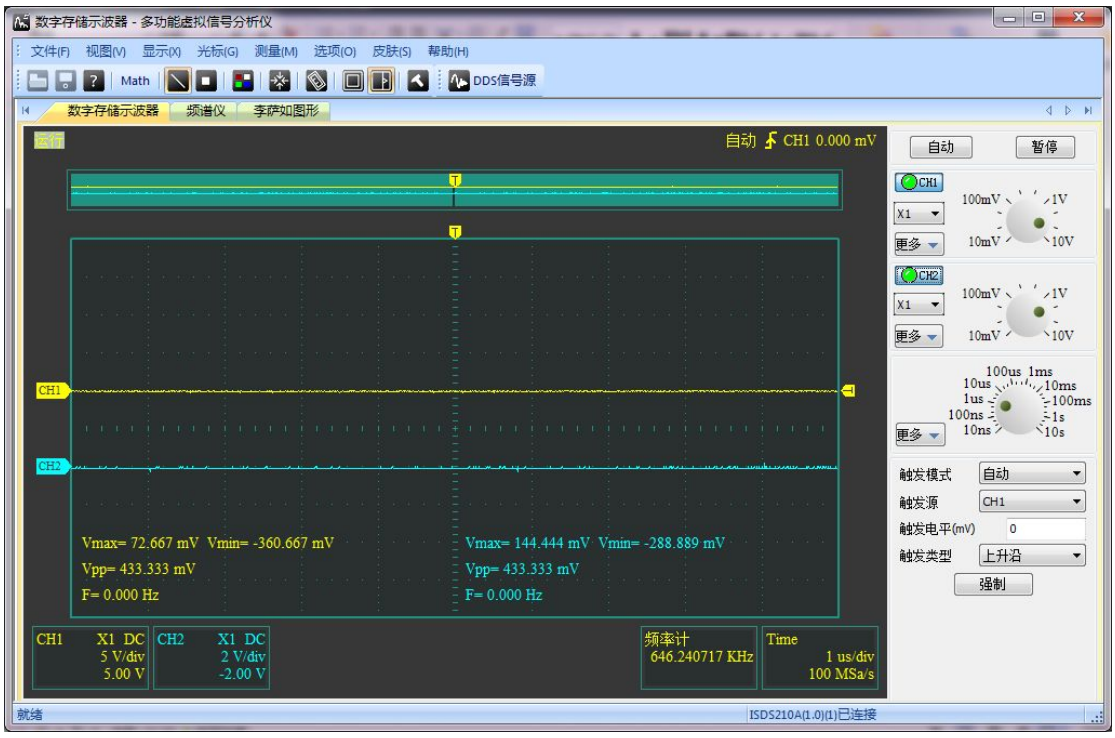
Digital Storage Oscilloscope

(Simplified Version)



InstruStar Electronic Technology

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PC SYSTEM REQUIREMENTS

- Windows XP，Win7，Win8，Win10
- Pentium or higer processor
- USB2.0 High speed port.
- 512MB RAM
- 1GB hard disk space

1.File Operation

1.1 File Open

Non operation state of the oscilloscope, you can use the menu to "open" or icon to open the CSV and OSC format file.

1.2 File Save

Using Menu "save" or icon, to save the wave as a CSV or BMP format file.

2.View

2.1 Toolbar

Hide and display the corresponding toolbar.

2.2 Status Bar

Hide and display status bar.

2.3 Control Panel

Hide and display control panel for the right side of the waveform.

2.4 Full Screen

Full screen display waveform interface.

3.Display

3.1 Display Settings

“Vectors” Display waveform in the form of vector connection.

“Dots” Display waveform in the form of points.

3.2 Color Settings

Set the color of the interface and the waveform.

4.Cursor

Supports 3 forms of cursor measurement function "X/Time", "Y/Voltage" and "Track".

4.1 X/Time

The "X/Time" mode, the horizontal direction of the 2 measuring lines, respectively measure the corresponding line position and vertical value; and the difference between the horizontal direction of the 2 lines.

4.2 Y/Voltage

The "Y/Voltage" mode, the vertical direction of the 2 measurement lines, respectively measure the corresponding line position of the vertical direction of the value; as well as the vertical direction of the difference between the 2 lines.

4.3 Track

The "Track" model, based on the "X/Time" model, provides a tracking line corresponding to the vertical direction values.

4.4 Measurement Line

Measurement line is divided into "selected" and "non selected" state.The "selected" state of the line, will be displayed on both sides of the white tips. Press the left mouse button to move the "selected" state of the measurement line.In the measurement line, click the left mouse button, you can switch between the "selected" and "non selected" state.Move a measurement line at the same

time, press "Shift" to move another measurement line at the same time.The keyboard "C" can quickly switch the Cur1 "check" and "non selected" state. The keyboard "Shift+C" can quickly switch the Cur2 "check" and "non selected" state. Rolling the mouse wheel can be fine tuned line.

5.Measure

Set the measurement parameters of the waveform and FFT.

6.Option

6.1 Default Directory

Set file to save the default directory.

6.2 Oscilloscope parameters

Set the parameters of the oscilloscope algorithm, not recommended to adjust.

6.3 Color setting

Set the color of the interface and the waveform.

7.Skin

The main color setting interface.

8.Help

8.1 About

Display software information dialog.

8.2 Update

Open the software download site, you can choose to download the latest version of the software.

9.Oscilloscope

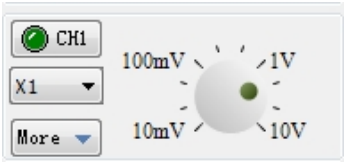

Figure 9.1 Channel panel

After connecting the device to the computer, the software will automatically detect and connect with the hardware. In the digital storage oscilloscope, the status bar will display the connected device model, and the corresponding channel button is also optional.

9.1 Channel

Figure9.1, CH1 is the switch button for the channel; X1 drop-down selection box set the multiple of the probe; The right knob is used to adjust the vertical direction of the corresponding channel.

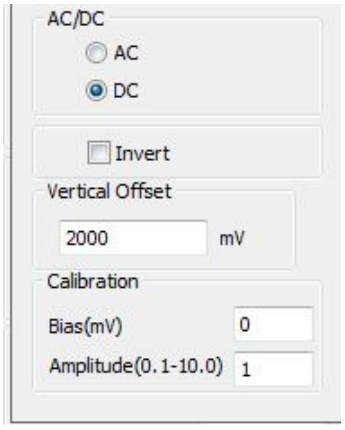

Figure 9.2 Channel More

Click on the "more" button, which is shown in Figure 9.2. "AC/DC" set AC and DC coupling;“Invert”Invert wave；"Vertical offset" shows the offset of the 0 voltage relative to the center of the interface.

“Calibration”Calibration the offset and amplitude of the waveform of oscilloscope. Amplitude calibration: for example, the input 3.0V, the measurement result is 3.2V, the results of the 3.0/3.2 fill in the range of calibration. Bias calibration (mV): for

example, the input signal -1V to the 1V of the sine wave, the measurement results -0.9V to 1.1V, the bias -100 fill in the bias calibration.

9.2 Time

Figure 9.3, on the right side of the knob to set the time base. Click the "more" button, the pop-up 9.4. "Fixed sample" to specify the sample for oscilloscope data acquisition, not affected by the time adjustment."Auto interpolation" when the frequency of the high frequency of the waveform, the waveform is not very smooth when it is not very smooth, start the interpolation function, so that the waveform is more beautiful. “algorithm interpolation” is the interpolation algorithm to using.

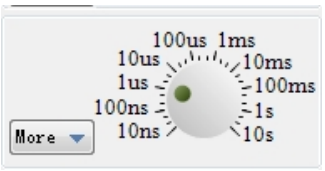

Figure 9.3 Time

9.3 Auto

Click the Auto" button, you can start the oscilloscope automatic detection function. The oscilloscope will automatically detect the amplitude and frequency of the signal to be measured, and the corresponding adjustment time and vertical scale.

Note that this feature will change the trigger mode to "auto", and adjust the trigger level according to the wave amplitude.

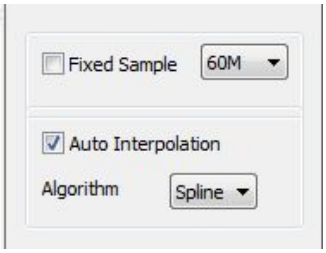

Figure 9.4 Time More

9.4 Pause

Click the “Pause” button, you can pause the oscilloscope. If you choose a single trigger, the acquisition waveform is completed, it will automatically pause oscilloscope.

9.5 Trigger

Trigger setting interface as shown in figure 9.5.

Note: the device is different, the trigger support is different, the actual display will be different from the interface in figure. If there is no option, the device does not support to change the function.

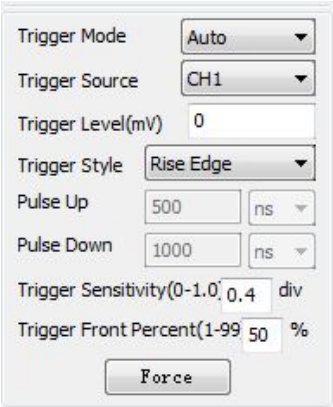

Figure 9.5 Trigger Setting

Trigger Mode：

"Auto", in accordance with the setting of the trigger condition detection, if the longer time is not triggered, it is collected once and displayed;

"Normal", has been detected to meet the trigger conditions of the waveform, collection and display;

"Single", detect the waveform to meet the trigger conditions, and pause.

Trigger Source：

"CH1", using the CH1 trigger point;

"CH2", using the CH2 trigger point。

Trigger Style：

"None",For the hardware trigger, do not trigger direct acquisition. For the software trigger, the data acquisition is directly displayed, not to do any triggers;；

"Rise Edge",Detected rising edge and higher than the trigger level will trigger;

"Fall Edge",Detected falling edge and below the trigger level;

"Edge",Meet the above "Rise Edge" or "Fall Edge" situation to trigger;

"Positive Pulse(>)",the positive pulse is greater than the width of the “pulse up” to trigger;

"Positive Pulse(<)",,the positive pulse is less than the width of the “pulse down” to trigger;

"Positive Pulse(<>)", the positive pulse width is between the "pulse down" and "pulse up" to trigger;

"Negative Pulse(>)",the negative pulse is greater than the width of the “pulse up” to trigger;

"Negative Pulse(<)",,the negative pulse is less than the width of the “pulse down” to trigger;

"Negative Pulse(<>)", the negative pulse width is between the "pulse down" and "pulse up" to trigger;

Trigger Sensitivity：

When setting the detection trigger, the use of the sensitivity to eliminate interference.

Trigger Front Percent：

Set the length of the acquisition before the acquisition of the entire length of the acquisition.

Force：

Force oscilloscope trigger once, and display waveform.

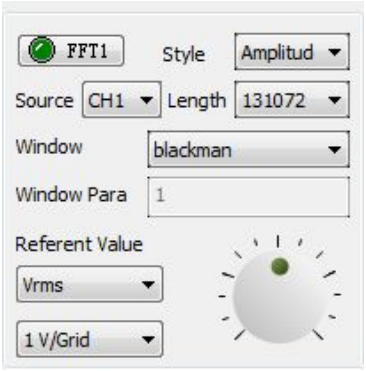

Figure 10.1 FFT

10.Spectrum Analyzer

Click the "spectrum analyzer" tab, open the spectrum instrument waveform display interface. support analysis of 2 groups of FFT.

10.1 FFT

Figure 10.1，”FFT1” Starting and closing analysis；

"Style" Set FFT analysis amplitude or phase.

"Source" Select the data source for FFT analysis;

"FFT length" Set FFT length;

"window style" Set FFT window type;

"window parameter" Set the parameters of the window style;

"Referent Value"Set the reference value for the display waveform;

"1V/Grid" Set the scale value of the vertical direction.

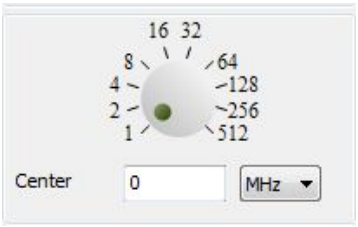

Figure 10.2 Horizontal Axis

10.2 Horizontal Axis

Figure 10.2，"Center" set the center of the FFT's results to display the frequency; the knob is set at the center of the frequency, and the horizontal axis is enlarged.

11. Lissajous

Click the "Lissajous" tab to open the Li Saru graphics display interface.

As shown in Figure 11.1, the "show" opens and closes the Lissajous display;

“Data length” set the length of the data used by Lissajous graphics;

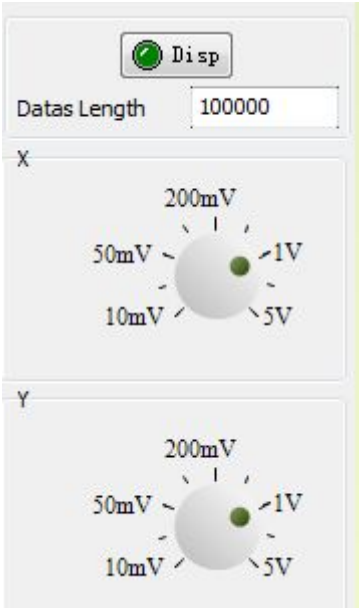

Figure 11.1 Lissajous

X knob, set the scale of the horizontal axis;

Y knob, set the the scale of vertical axis;

12. DDS(Need device support)

After opening the DDS signal source interface, as shown in Figure 12.1, a waveform can be output to set the waveform and frequency; amplitude and bias need to use the 2 knob of USB port to adjust. Sweep a block, can be set according to the parameters of the sweep frequency output waveform.

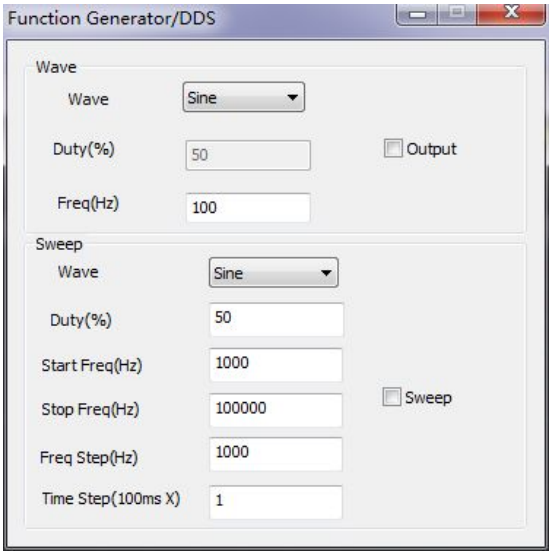

Figure 12.1 DDS