

# ISDS205 User Guide

InstruStar Electronic Technology

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## **PC SYSTEM REQUIREMENTS**

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

## 1.Introduction

ISDS205 dual-channel digital oscilloscope, with "low-cost, high-performance" as the design goals. well-designed bandwidth of 16M, 48M sampling rate, 2 channels, alternating support X-T and XY alternating pattern of two-channel virtual oscilloscope, spectrum analyzer, data recorder.

205C and 205X support logic analyzer. Logic analyzer support our Logic software and Saleae Logic 2 kinds of software, Saleae Logic supports SPI, IIC, UART, etc. 17 kinds protocol analysis.

205B and 205X support DDS function. DDS support 5 kinds of waveform output,

	Oscilloscope	Spectrum Analyzer	Data Recorder	Logic Analyzer	DDS
ISDS205A	√	√	√		
ISDS205B	√	√	√		√
ISDS205C	√	√	√	√	
ISDS205X	√	√	√	√	√

Sine wave can output up to 20M.

## 2.Feature Description

Digital Oscilloscope	
Channels	2
Impedance	1MΩ 25pF
Coupling	AC/DC
Vertical Resolution	8Bit
Gain Range	-5V ~ 5V (probe X1) -50V ~ 50V (probe X10)
Vertical Accuracy	±3%
Time Base Range	10ns/div-100ms/div
Input Protection	Diode, 50Vpk
Auto Set	Yes(10Hz to 10MHz)
Trigger Mode	Auto、 Normal and Signal
Trigger Type	No、 Rising edge、 Falling edge、 Rising edge or Falling edge
Trigger Level	Yes
Trigger Source	CH1, CH2
Buffer Size	1MB/CH
Bandwidth	16MHz(Max 20M)
Max Sample	48MS/s

<b>Vertical Mode</b>	CH1, CH2, ADD, SUB, MUL
<b>Display Mode</b>	X、Y-T 和 X-Y
<b>Measurements</b>	Yes
<b>Wave Save</b>	Osc(Private)、Excel and Bmp

<b>Spectrum Analyzers</b>	
<b>Channels</b>	2
<b>Bandwidth</b>	16MHz
<b>Algorithm</b>	FFT(18 windows)、correlation
<b>FFT Points</b>	8-1048576/CHN
<b>FFT Measure</b>	Harmonic(1-7)、SNR、SINAD、ENOB、THD、SFDR
<b>Filter Process</b>	<p>FIR filter supports arbitrary range of frequency sampling method , and Rectangle, bartlett, triangular, cosine, hanning, bartlett_hanning, hamming, blackman, blackman_Harris, tukey, Nuttall, FlatTop, Bohman, Parzen, Lanczos, kaiser, gaussand dolph_chebyshev, window method design.</p> <p>IIR filter support "Butterworth", "Chebyshev I", "Chebyshev II", "Elliptic" type of filter design</p>

**Note:**

- 1, The oscilloscope factory calibration, if you are not satisfied with the measurements, can manual calibration, the specific reference oscilloscope instructions.**
- 2, Oscilloscope with probe: X1 can measure -5V to +5V voltage, X10 can measure -50V to +50V.**
- 3, The measurement of the electric supply 220V/110V is different from the normal waveform measurement and needs to be re-measured by an isolated transformer.**

<b>Data Recorder</b>	
<b>Channel</b>	2
<b>Impedance</b>	1MΩ 25pF
<b>Coupling</b>	AC/DC
<b>Vertical Resolution</b>	8Bit
<b>Gain Range</b>	-5V ~ 5V (probe X1) -50V ~ 50V (probe X10)
<b>Sample</b>	1 channel : 1K~24M Hz 2 channel : 1K~16M Hz
<b>Save File</b>	The maximum 4G, recording time associated with the sampling rate

**Note: The specific speed recorder with computer processing speed, and if use high sampling rate, the situation may break.**

Logic Analyzer(205C/205X)	
Channel	16
Sample	8 channel: 250K~24M Hz 16 channel: 250K~16M Hz
Sample Points	1M-2GB

Saleae Logic Logic Analyzer (205C/205X)	
Channel	8
Sample	25K~24M Hz
Protocol Analyzer	Atmel SWI、BiSS C、SPI、I2C、CAN、UART、I2S/PCM、DMX-512、JTAG、LIN、Manchester、1-WIRE、UNI/O、Simple Parallel、MDIO、USB1.1、PS/2 Keyboard/Mouse
Sample Points	1MB~10TB

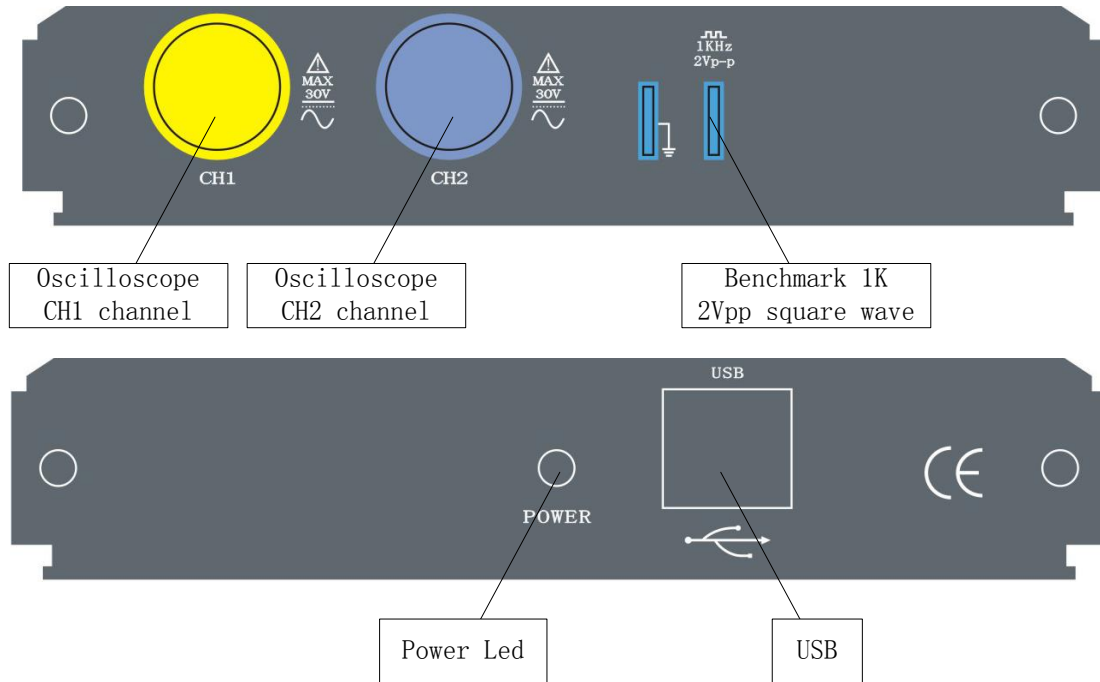
DDS(205B/205X)	
Wave	Sine, Square(Duty circle variable),Triangle,Up Sawtooth,Down Sawtooth
Amplitude	$\geq 9V_{p-p}$ (no load)
Impedance	$200\Omega \pm 10\%$
Offset	$\pm 2.5V$
Frequency Range	1Hz ~ 20MHz(Sine), 1Hz ~ 2MHz(Others)
Frequency Resolution	1Hz
Frequency Steadiness	$\pm 1 \times 10^{-3}$
Frequency Precision	$\pm 5 \times 10^{-3}$
Triangular Wave Linearity	$\geq 98\%$ (1Hz~10kHz)
Sine Wave Distortion	$\leq 0.8\%$ (1kHz)
Square Wave Rising/Falling Time	$\leq 100ns$
Square Wave Duty Circle	1%~99%
Sweep	
Sweep Range	$F_s$ 到 $F_e$
Sweep Time Range	0.1 ~ 10 s
Amplitude	0.5V <sub>p-p</sub> ~ 10V <sub>p-p</sub>

### 3.Software Installation

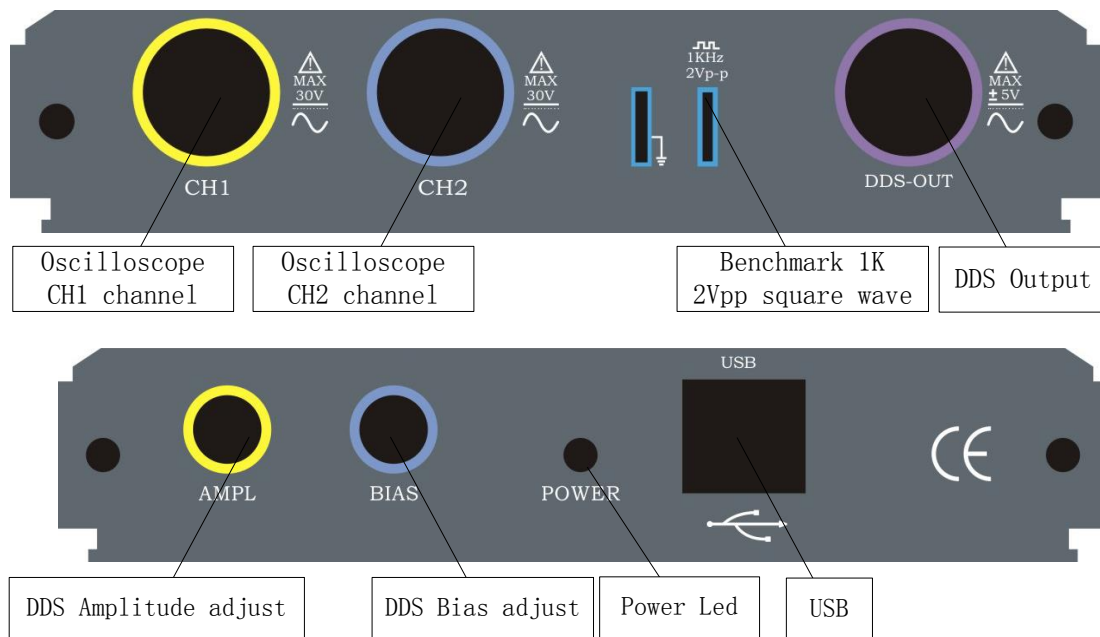
Please refer to the "Software and Driver Installation.pdf".

## 4. Interface

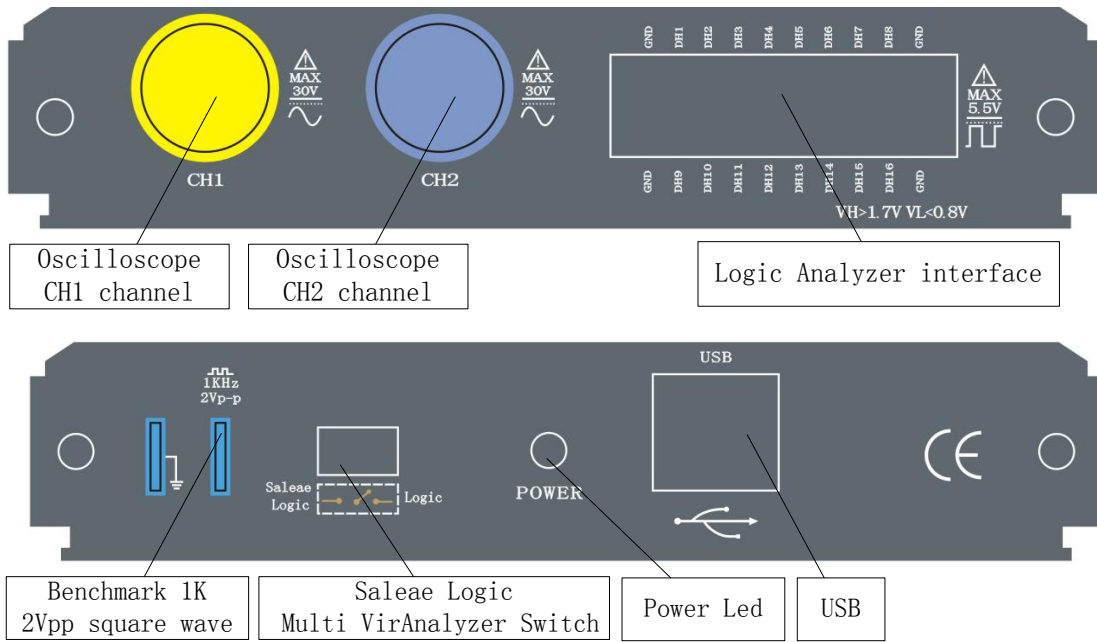
### 4.1 ISDS205A



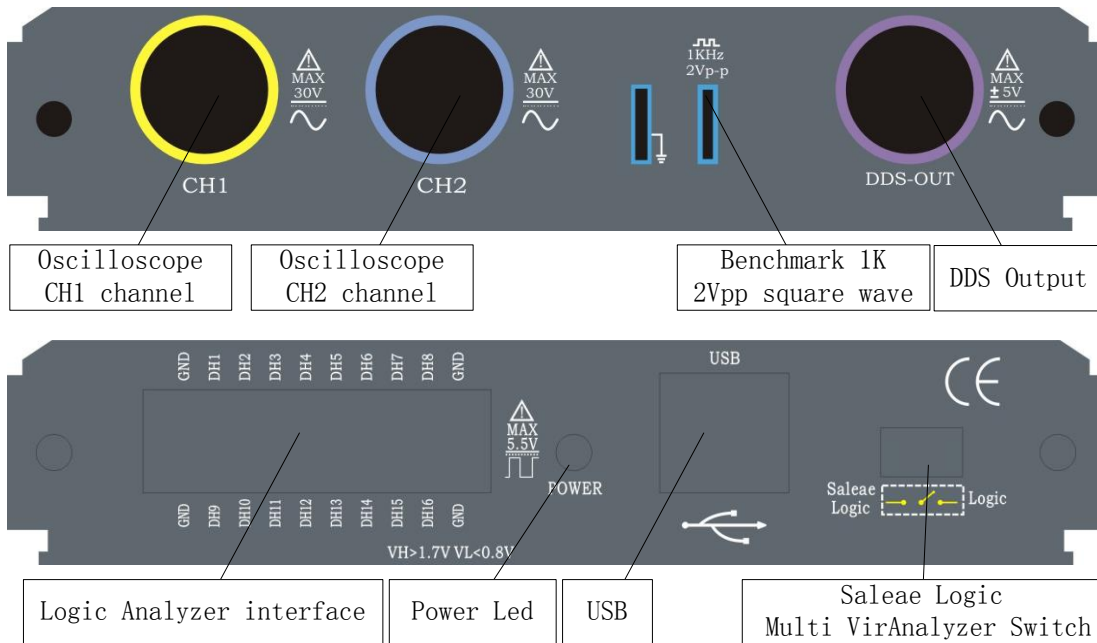
### 4.2 ISDS205B



### 4.3 ISDS205C



#### 4.4 ISDS205X



### 5.Oscilloscope / Spectrum analyzer/DDS

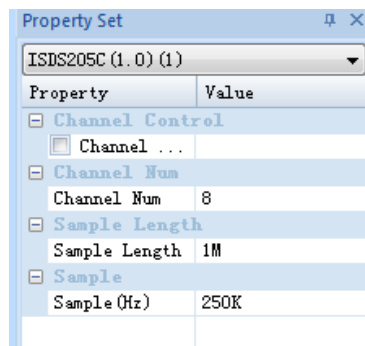
Please refer to the "Multi VirAnalyzer User Guide.pdf", "Digital storage oscilloscope (Professional Version).pdf" and "Digital storage oscilloscope (Simplified Version).pdf".

### 6.Data Recorder

Please refer to the "Data Recorder.pdf".

### 7.Logic Analyzer

After the success of USB devices, data recoder, equipment selection drop-downcombo box will appear ISDS205C/X(1.0) (N) option, choose a good future, the interface in Figure 7.1.





**7.1 Basic control**

**7.1.1 Channel Control**

Start or Stop Capture.

**7.1.2 Channel Num**

Set the num of the channels to be collected.

**7.1.3 Sample Length**

Set the length of the data to be collected.

**7.1.4 Sample**

Select the speed of data collection.

**7.2 Record**

Click the lower right corner "data record", the interface appears in Figure 6.2. Can display the recorded file. Double click the corresponding file, you can

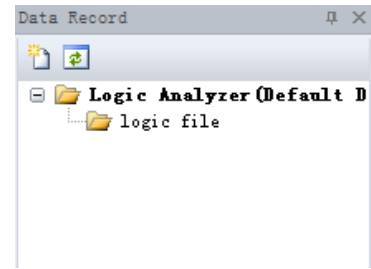
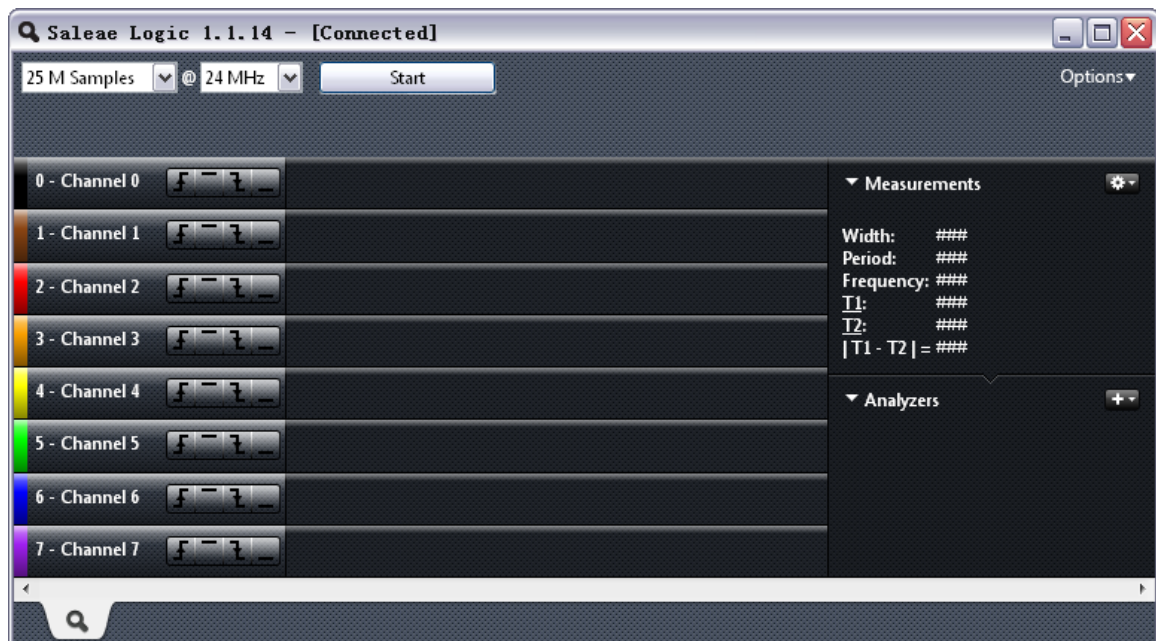


Figure 7.1 properties



load, view the collected data.

**8.Saleae Logic Logic Analyzer**

The device to support Saleae Logic software, the development of the hardware above appropriated Saleae Logic position. Plugged into the USB, the software automatically recognizes and displays the Connected. Interface shown in Figure 8.1

More information, please view Saleae Logic software instructions, is located in "\\Saleae Logic\Logic Guide.pdf"

Figure 8.1 Saleae Logic interface