

DSO2250/2150/2090 Second Design Manual

1 . Functions introduction

Define struct:

```
struct Control_Data1_Struct{
    WORD Trig_Source;           //Trigger Source
    WORD Ch_select;            //Channel Select
    WORD TIMEBASE;             //TimeBase
    WORD Trig_Addr;            //Address of trigger point
    WORD Data_Length;          //Length of data
    WORD Data_BufferSize;      //Buffer Size
    WORD Alt_flag;             //Remark of ALT
};
```

```
struct Levers_Struct{
    WORD Ch1Lever;             //Position of Channel 1
    WORD Ch2Lever;             //Position of Channel 2
    WORD Ch1TrigLever;         //Position of Channel 1 trigger
    WORD Ch2TrigLever;         //Position of Channel 2 trigger
    WORD ExtTrigLever;         //Position of extern trigger
};
```

Functions for hardware

1.

```
WORD __stdcall dsoSetTriggerAndSampleRate (
    WORD DeviceIndex, //Device Index
    Struct Control_Data1_Struct *Control_Data1 )
```

Note: Init and set trigger and sample rate. If you change TimeBase, you must use this function. If successful return **1**, else return **0**.

2.

```
WORD __stdcall dsoSetFilt ( WORD DeviceIndex,  
                            WORD Ch1_Filt,      //Channel 1 filter  
                            WORD Ch2_Filt,      //Channel 2 filter  
                            WORD Trigger_Filt)  // Trigger filter
```

Note: Init and set channel or trigger filter. If successful return 1, else return 0.

3.

```
WORD __stdcall dsoSetVoltageAndCoupling (  
                            WORD DeviceIndex,  
                            WORD Ch1_Att,      //Channel 1 voltage  
                            WORD Ch2_Att,      //Channel 2 voltage  
                            WORD Ch1_ACDC,     //Channel 1 AC/DC  
                            WORD Ch2_ACDC     //Channel 2 AC/DC,  
                            WORD TriggerSource ) //Trigger source
```

Note: Init and set channel voltage and coupling. If successful return 1, else return 0.

4.

```
bool __stdcall dsoSetOffset ( WORD DeviceIndex,  
                              struct Levers_Struct * Levers, /* Channels and trigger  
                                                            lever data */  
                              WORD Ch1_Att,  
                              WORD Ch2_Att,  
                              WORD TriggerSource,  
                              WORD * level ) //Channels level data
```

Note: Init and set trigger lever and level. If successful return TRUE, else return FALSE.

5.

```
WORD __stdcall dsoGetCaptureState ( WORD DeviceIndex,  
                                     int *Ram_Addr ) //Address of trigger point
```

Note: Get address of trigger point. If successful return **2**, else return **0** or **1**.

6.

```
WORD __stdcall dsoGetChannelData ( WORD DeviceIndex,  
                                   WORD Ch1_Att,  
                                   WORD Ch2_Att,  
                                   WORD pos_trig, //Position of trigger point  
                                   WORD * ch1_data, //Channel 1 data  
                                   WORD * ch2_data, //Channel 2 data  
                                   struct Control_Data1_Struct *Control_Data1,  
                                   int Ram_Addr,  
                                   int calData ) //Calibration Data Offset
```

Note:

Variable: '**calData**': Calibration Data Offset. Range(0~10).

Get Channel1 and Channel 2 data. If successful return **1**, else return **0**.

7.

```
WORD __stdcall dsoCaptureStart ( WORD DeviceIndex )
```

Note: Start capturing data. If successful return **1**, else return **0**.

8.

```
long __stdcall dsoTriggerEnabled ( WORD DeviceIndex,  
                                   WORD Ch1_Att,  
                                   WORD Ch2_Att )
```

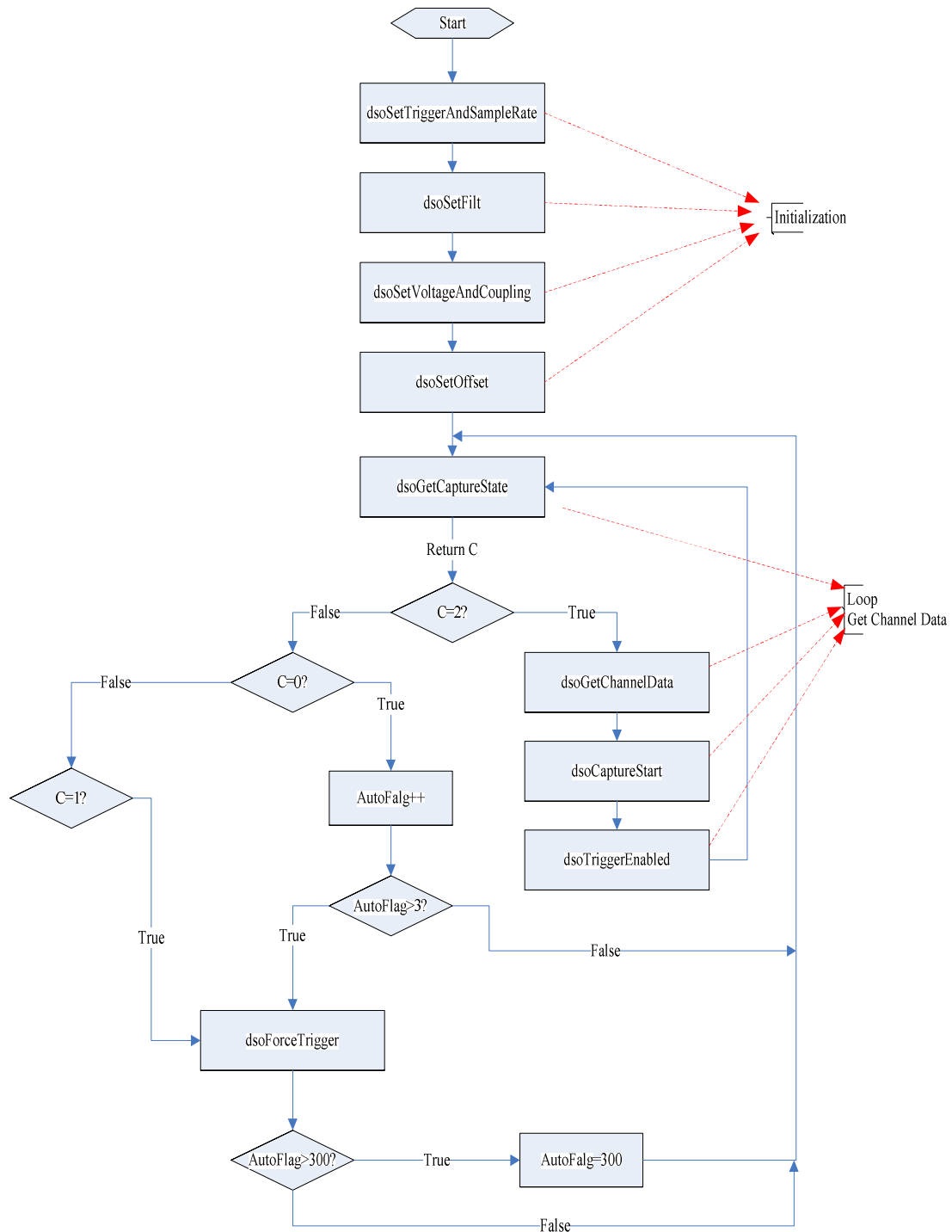
Note: Allow of next trigger. If the function succeeds, the return value is **nonzero**. If the function fails, the return value is **zero**.

9.

BOOL __stdcall dsoForceTrigger (WORD DeviceIndex)

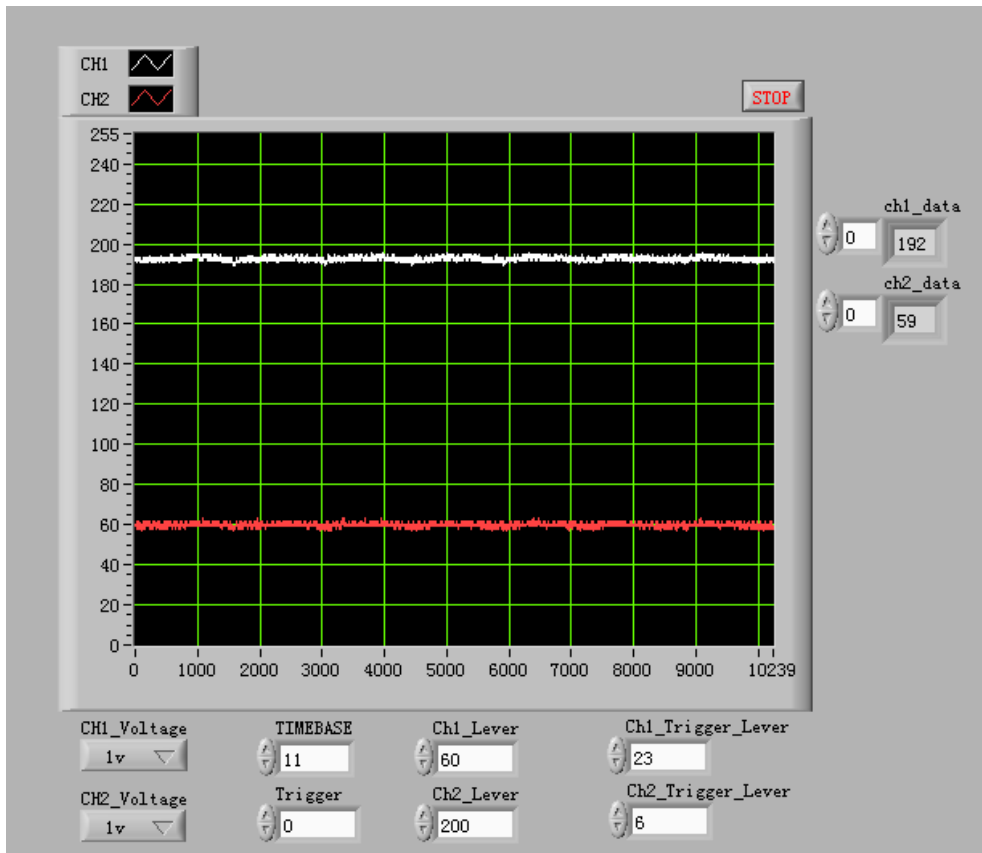
Note: If hardware does not trigger long time, this function will trigger one time. If the function succeeds, the return value is **nonzero**. If the function fails, the return value is **zero**.

2. Flow chart



3. LabVIEW Example

Image:

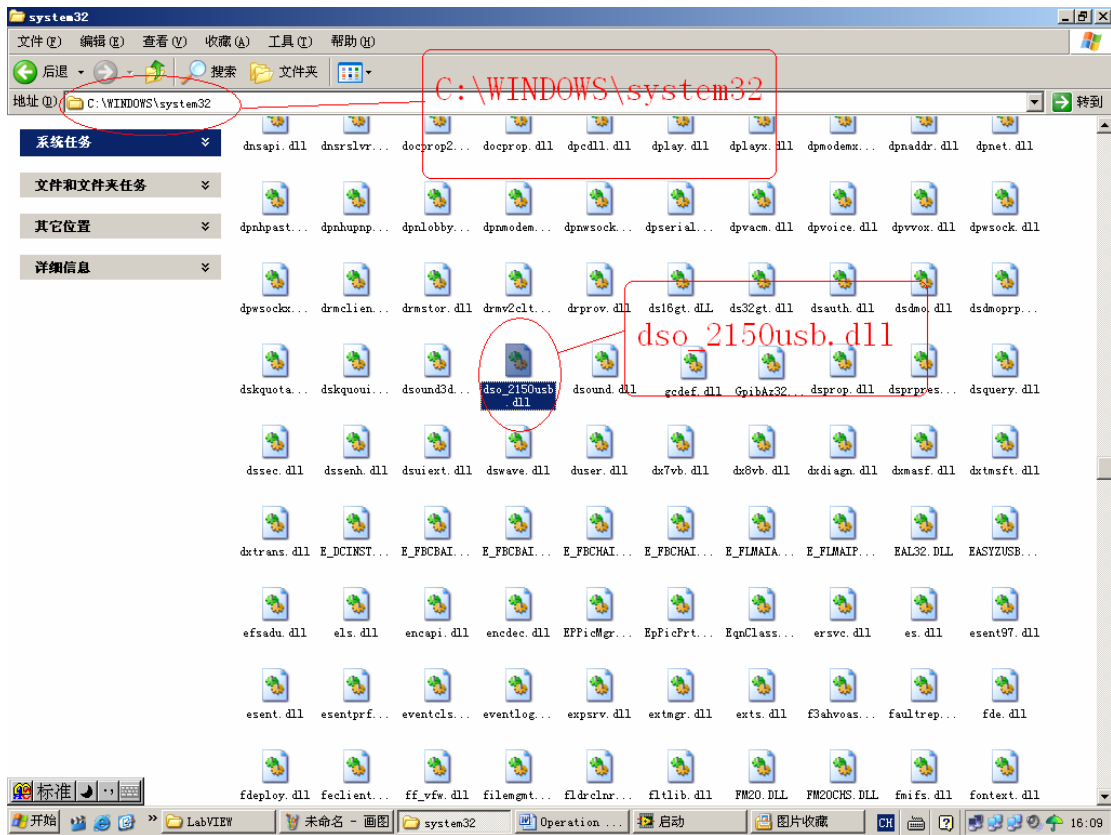


Operation Manual

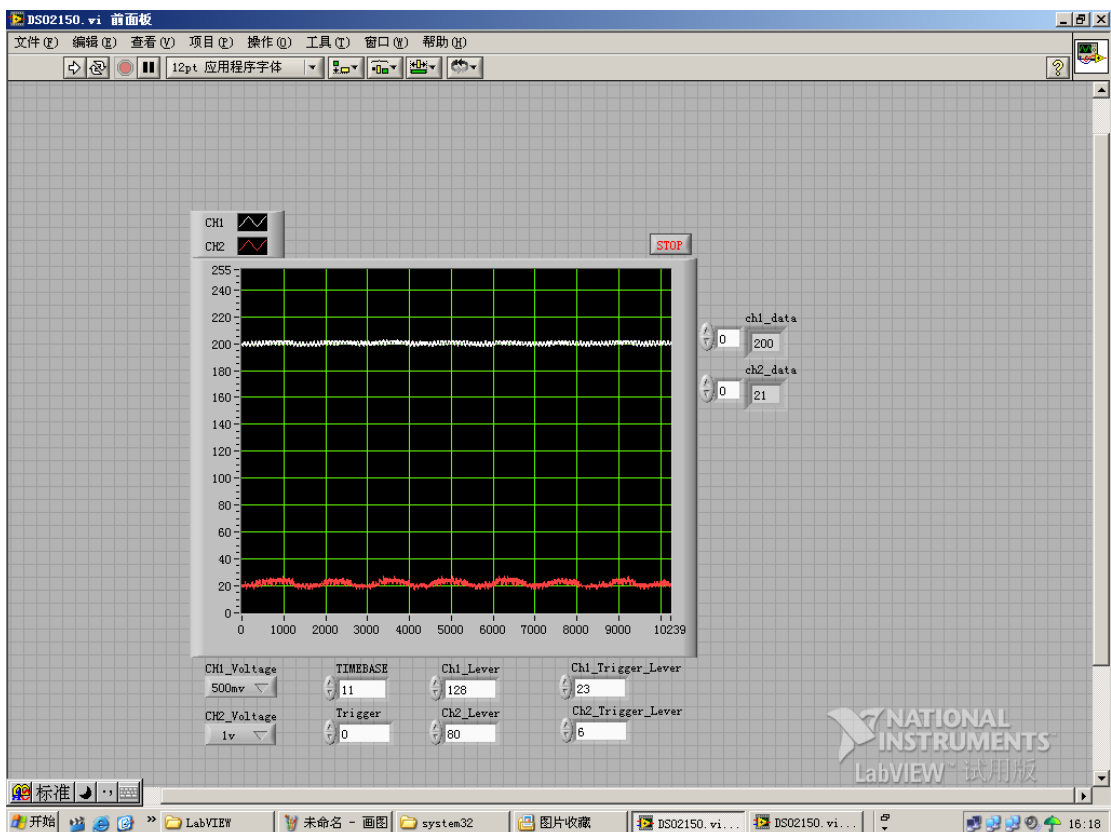
For example: **DSO2150 USB**

Running Step:

- 1 . Install labVIEW.
- 2 . Copy the file "**dso_2150usb.dll**" to the path "C:\WINDOWS\system32".

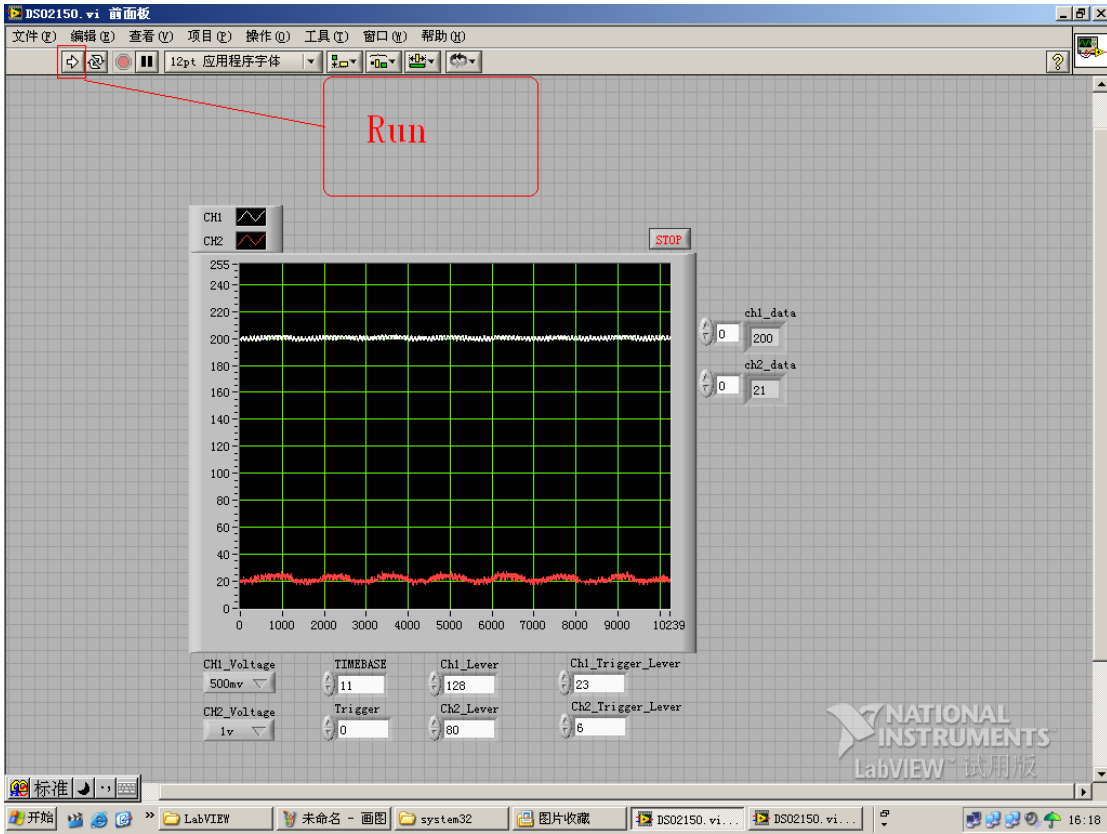


3. Click "DSO2150.vi".

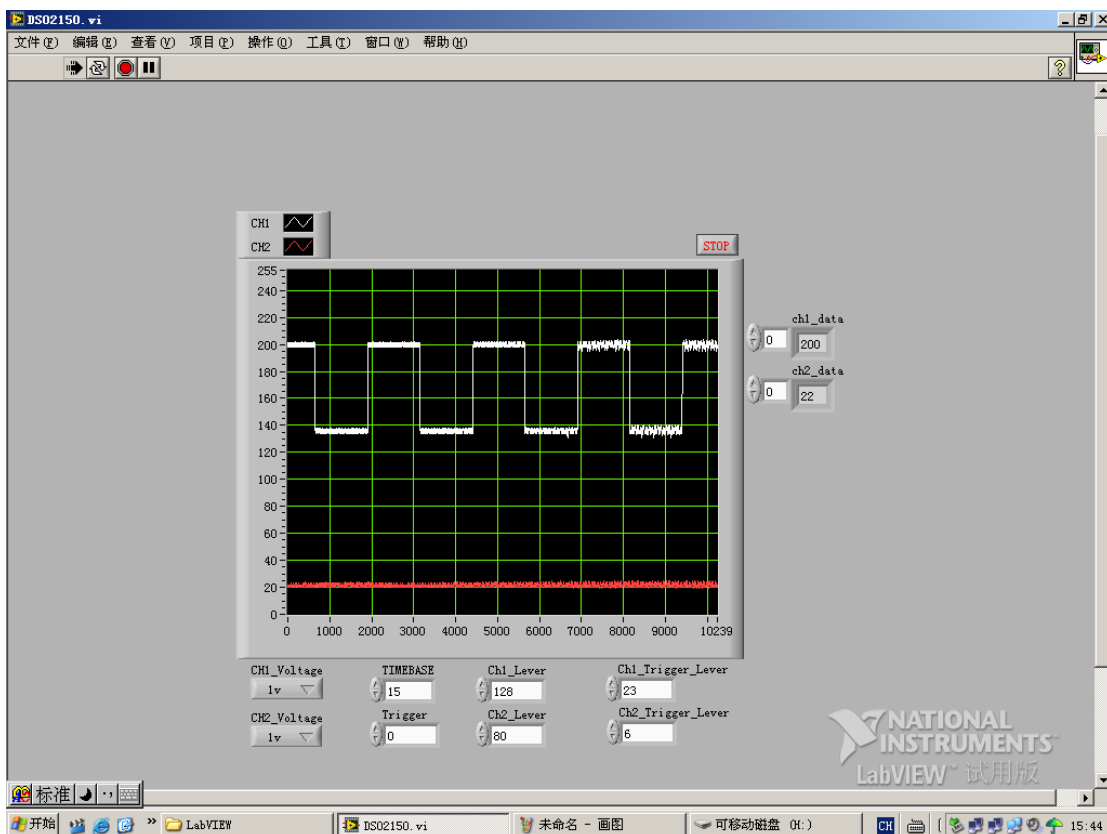


4 . Connect **DSO2150USB** to your PC.

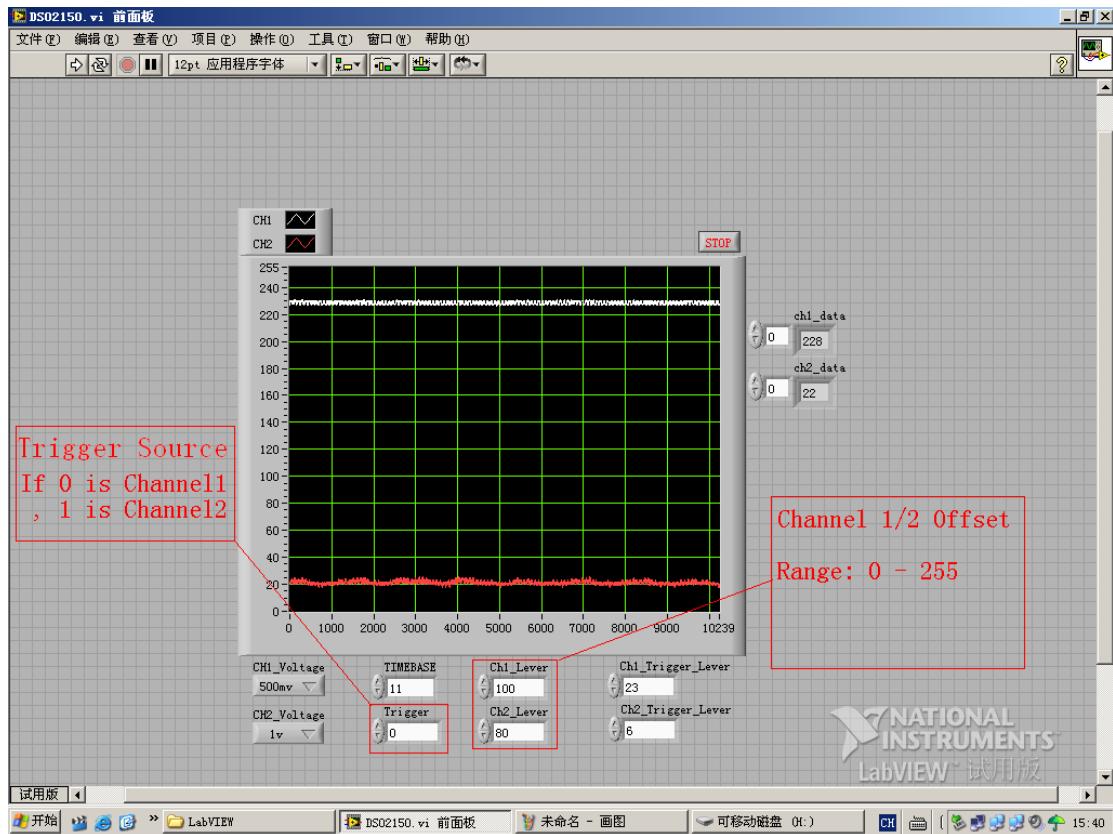
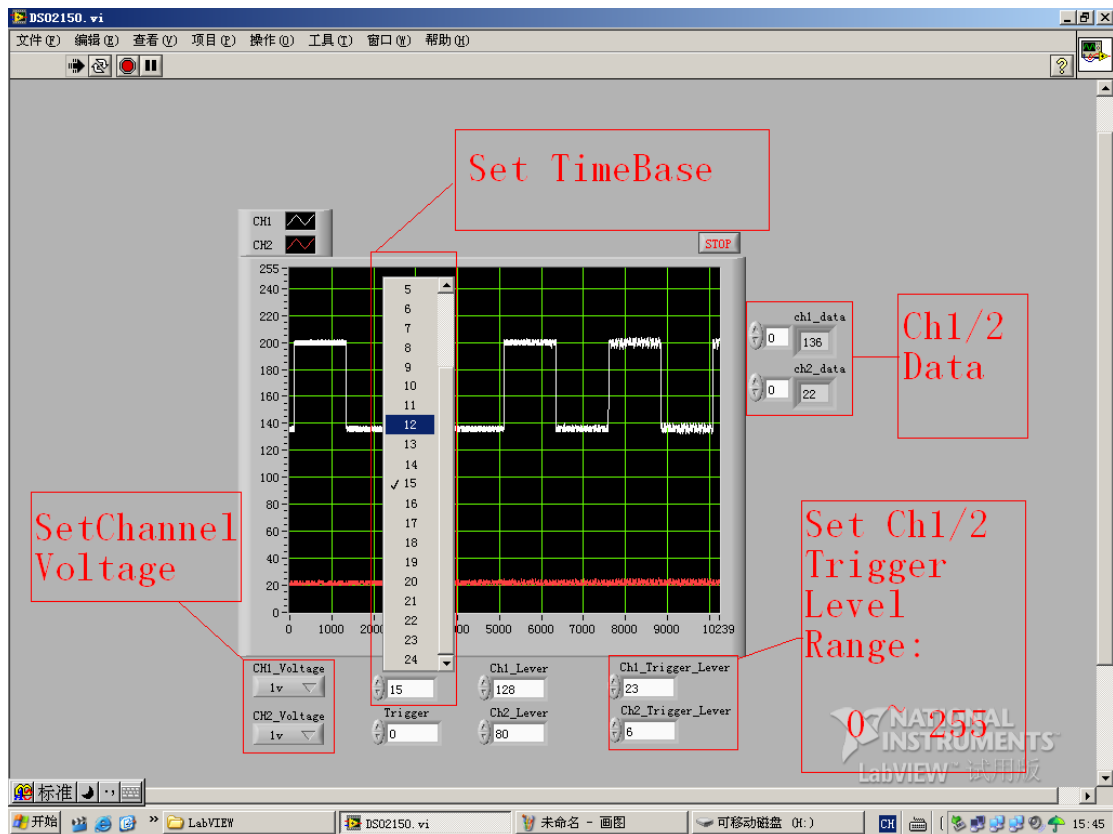
5 . Run "**DSO2150.vi**".



6 . Waveform display.



Operation:



Note:

CH1_Voltage and CH2_Volatge:

Set CH1/CH2 Voltage.

Trigger:

If value is 0, it is Ch1 trigger.

If value is 1, it is Ch2 trigger.

CH1_Lever and CH2_Lever:

Set CH1/CH2 waveform position. (0 ~ 255).

CH1_Trigger_Lever and CH2_Trigger_Lever:

Set CH1/CH2 trigger position. (0 ~ 255).