

# SPECIFICATION

**MODEL: 020-LAP-7-SEGMENT LED-M**

**PART NO:** \_\_\_\_\_

**VERSION:** V1.14

Approver		Check	Design
GM	PM		

Customer Confirm

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# Content

1.	Software Register .....	3
2.	User Interface.....	6
3.	Operating Instructions .....	9
4	Function Description .....	15

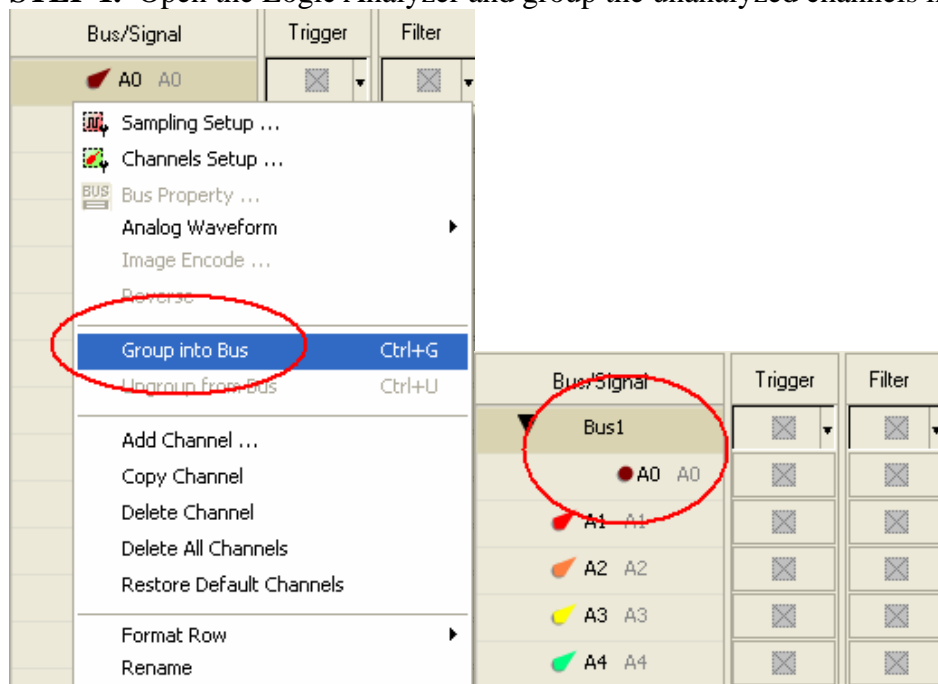
# 1. Software Register

Please register the software as the following steps:

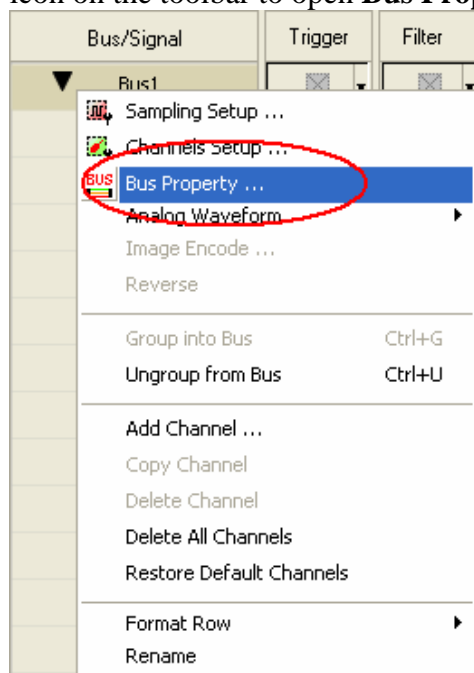
※ Remark1: The registration steps for all protocol analyzers are the same; you can complete the registration by following procedures. Following is an example on how to register the Protocol Analyzer BUS.

※ Remark2: We won't have additional notice for you, when there is any modification of the module specification. If there is some unconformity caused by the module version upgrade, users should take the module software as the standard.

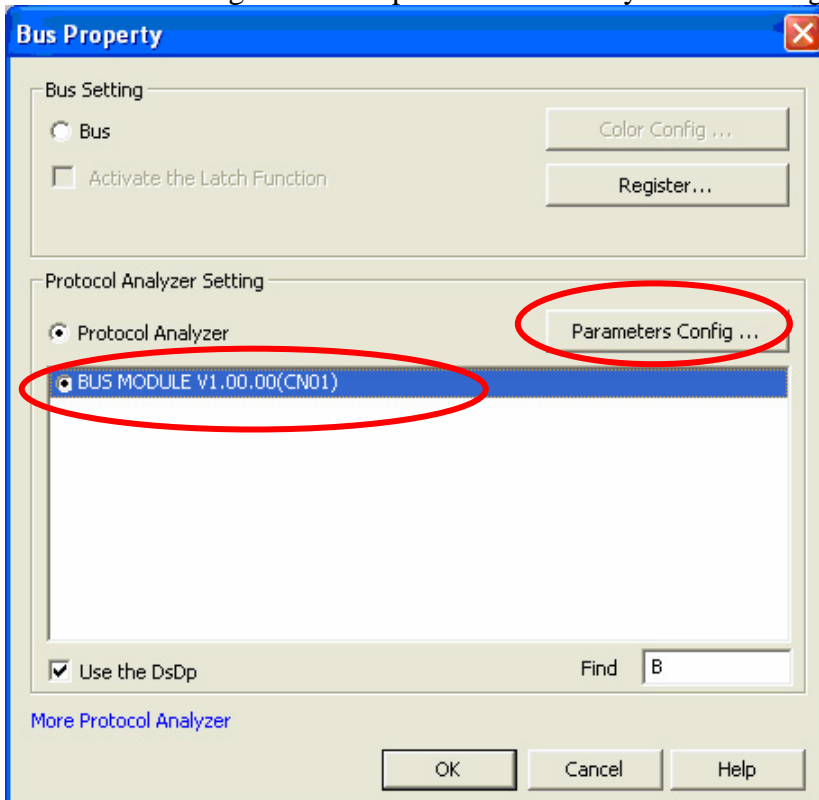
**STEP 1.** Open the Logic Analyzer and group the unanalyzed channels into **Bus1** by pressing the **Right Key**.



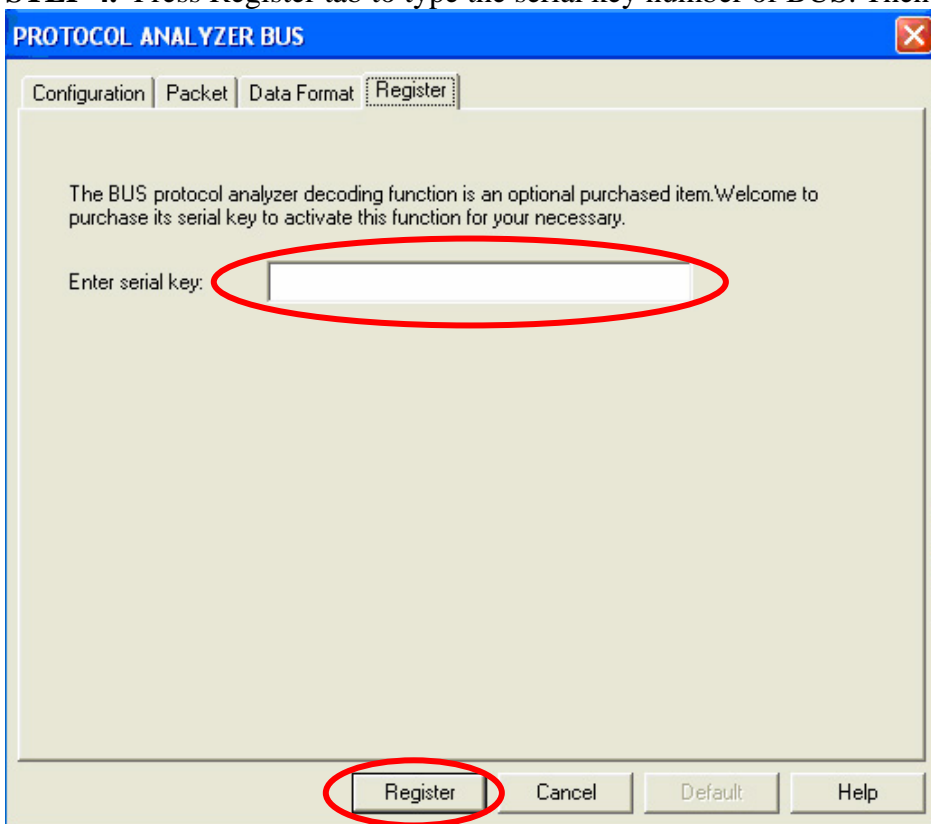
**STEP 2.** Select **Bus 1**, then press **Right Key** on the mouse to list the menu, then click **Bus Property** or **Bus** icon on the toolbar to open **Bus Property** dialog box.



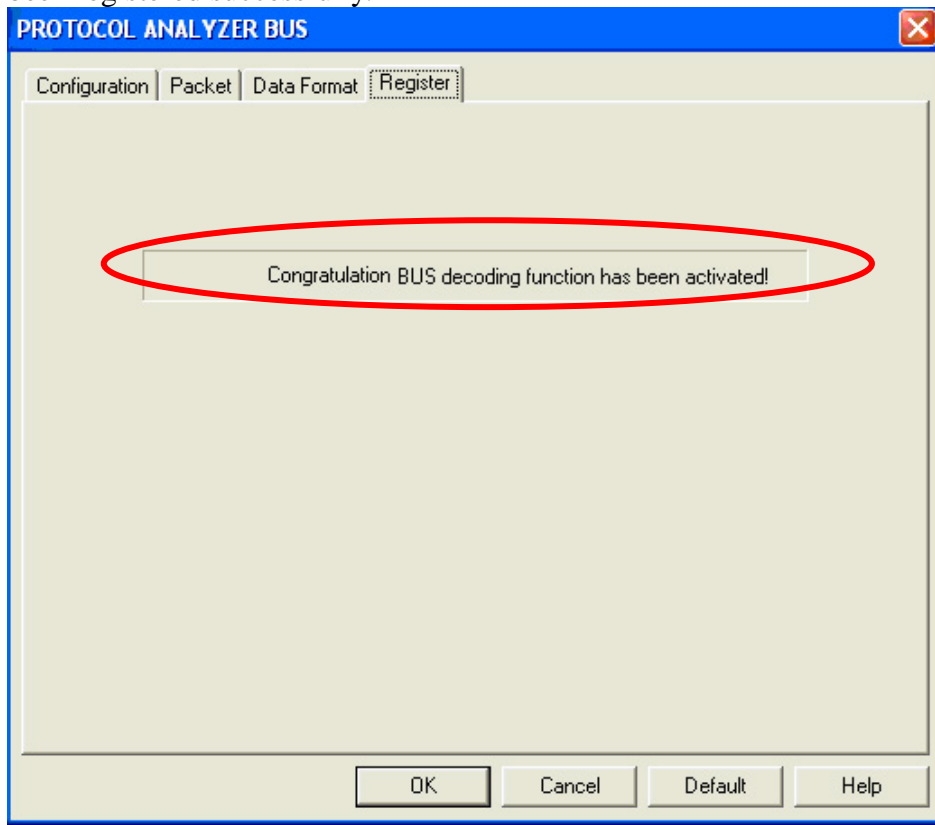
**STEP 3.** Select the Protocol Analyzer, and then choose **BUS MODULE V1.00.00 (CN01)**. Next click Parameters Configuration to open Protocol Analyzer Bus dialog box.



**STEP 4.** Press Register tab to type the serial key number of BUS. Then click Register.



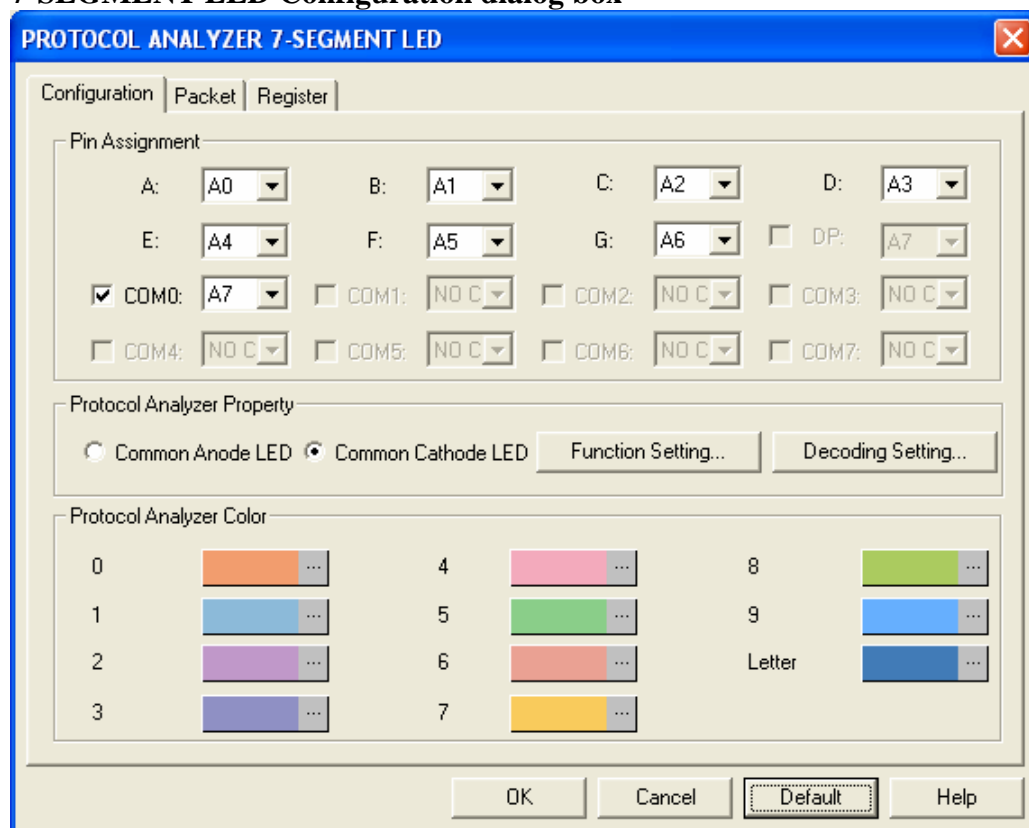
**STEP 5.** After pressing the Register button, following dialog box will appear, it denotes that the BUS has been registered successfully.



## 2. User Interface

Please refer to below images to select options of setting 7-SEGMENT LED module.

### 7-SEGMENT LED Configuration dialog box



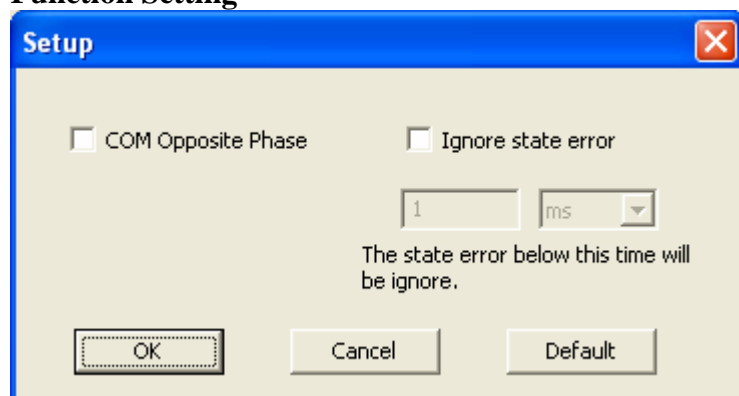
#### Pin Assignment:

Users can set the channel for A-G, Dp and COM0-7 by themselves; they are A0-B7 by default.

#### Protocol Analyzer Property:

Common Anode LED and Common Cathode LED can be chosen; it is Common Anode LED by default.

#### Function Setting



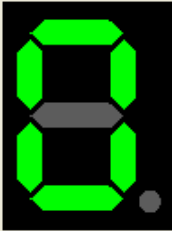
COM Opposite Phase: Decode the high signal as low signal and low signal as high signal (the display of waveform wouldn't change).

Ignore state error: When two or more COM pins are in effective level state, if the reclosing time is lower that the set time, then the signal would be decoded as normal. Value within 1-1000 could be inputted with unit of 'ms', 'us' and 'ns'. It is 1 ms by default.

## Decoding Setting:

**PROTOCOL ANALYZER 7-SEGMENT LED**

Value	a	b	c	d	e	f	g
0	1	1	1	1	1	1	0
1	0	1	1	0	0	0	0
2	1	1	0	1	1	0	1
3	1	1	1	1	0	0	1
4	0	1	1	0	0	1	1
5	1	0	1	1	0	1	1
6	1	0	1	1	1	1	1
7	1	1	1	0	0	0	0
8	1	1	1	1	1	1	1
9	1	1	1	1	0	1	1
A	1	1	1	0	1	1	1
b	0	0	1	1	1	1	1
C	1	0	0	1	1	1	0
d	0	1	1	1	1	0	1
E	1	0	0	1	1	1	1
F	1	0	0	0	1	1	1



☒ 0~F  
☐ 0~9

Default

OK

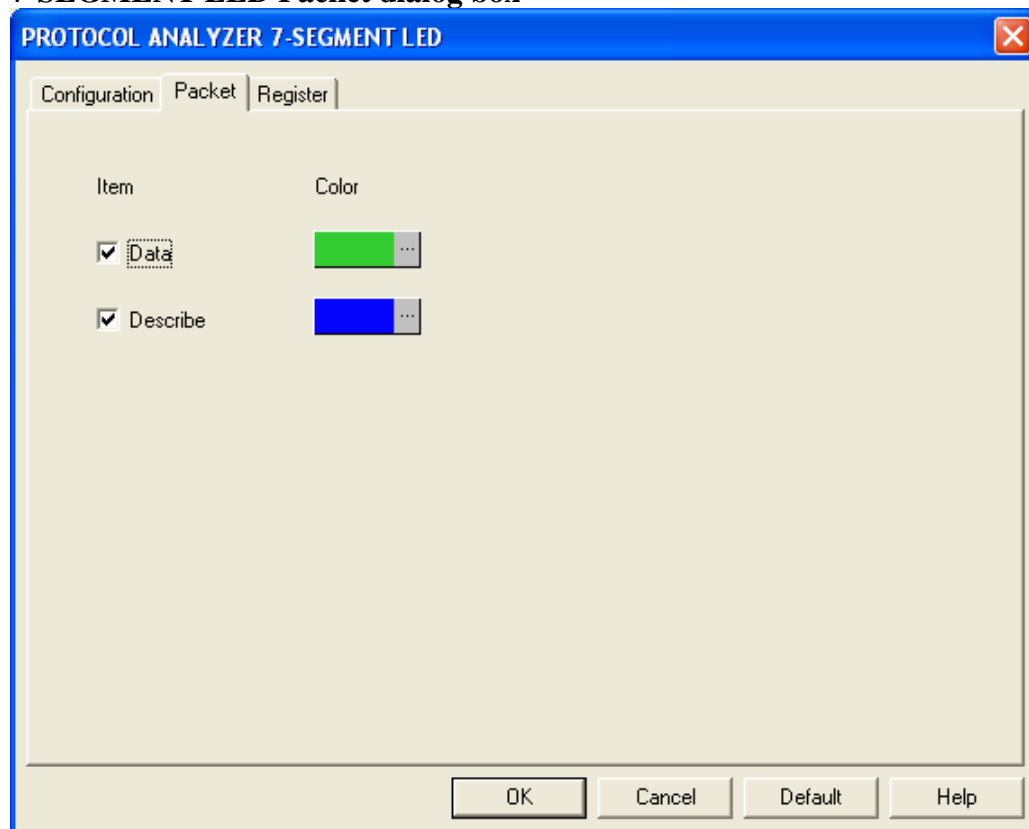
Cancel

Click the left screen to change the decoding value, which can be 0-F or 0-9; it is 0-F by default.

## Protocol Analyzer Color:

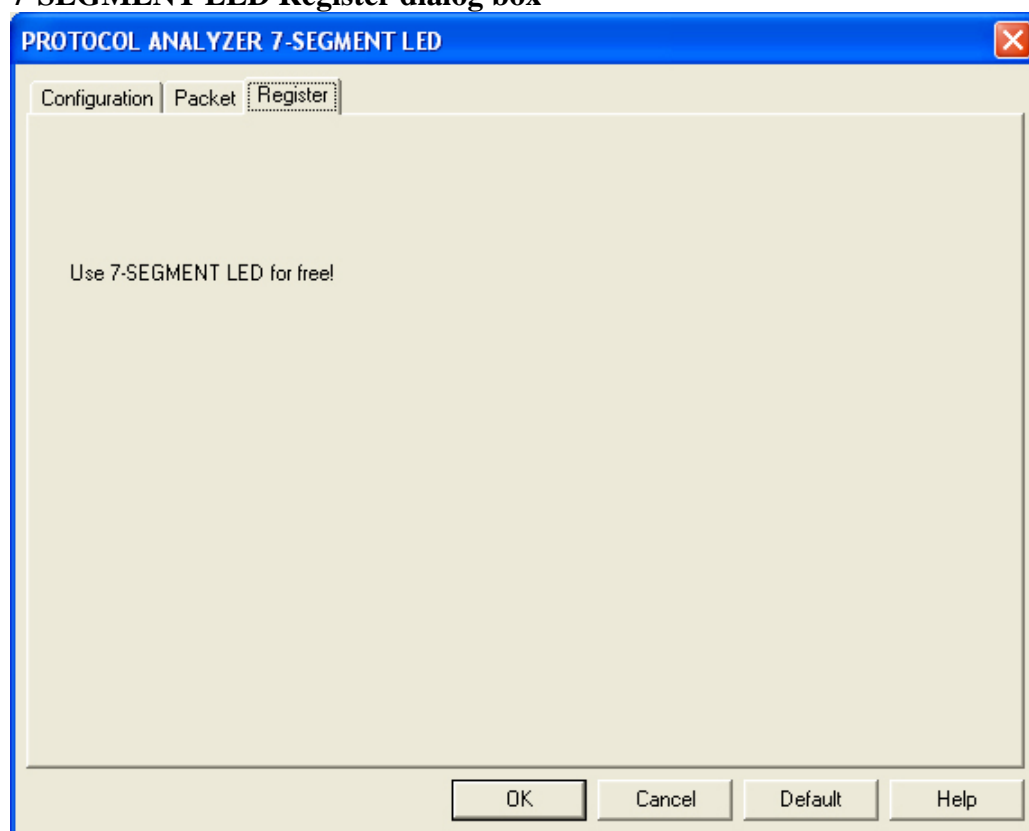
The color can be varied by users.

### 7-SEGMENT LED Packet dialog box



In the Packet part, users can select the items to be displayed and their colors as their requirements.

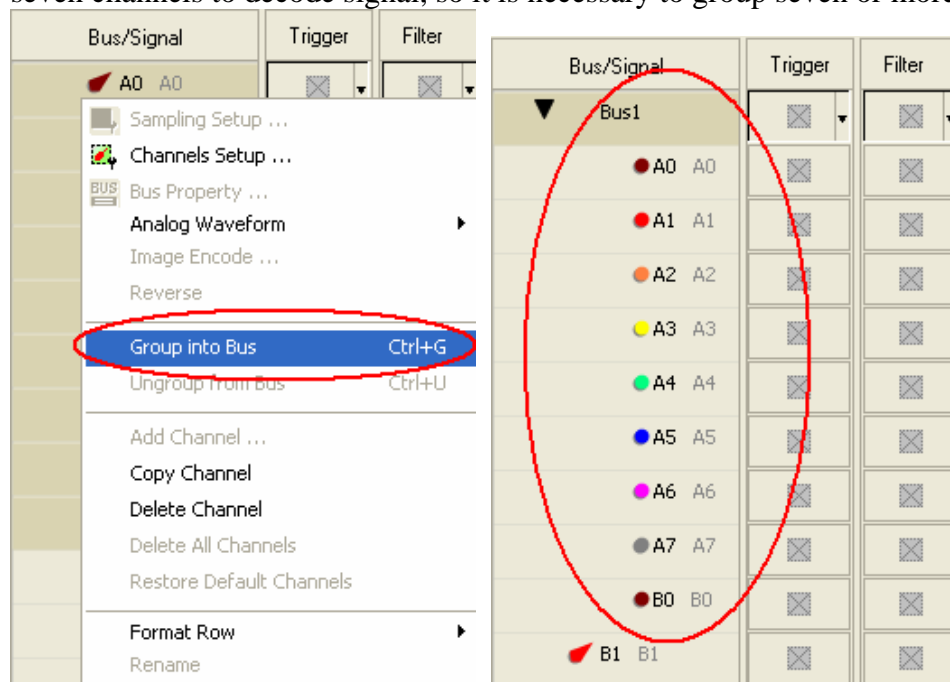
### 7-SEGMENT LED Register dialog box



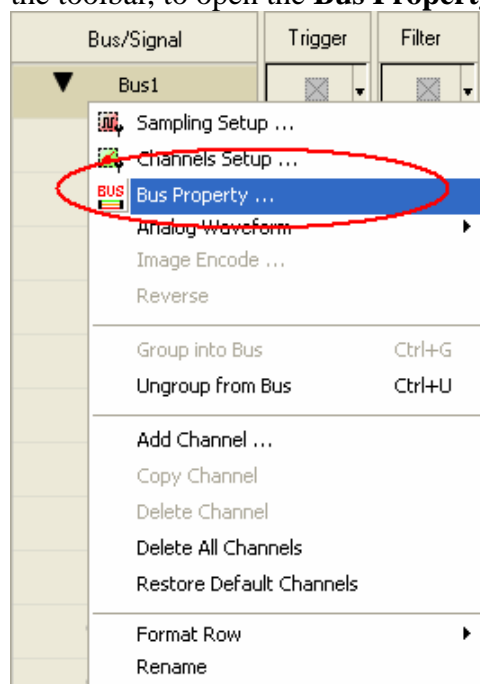


### 3. Operating Instructions

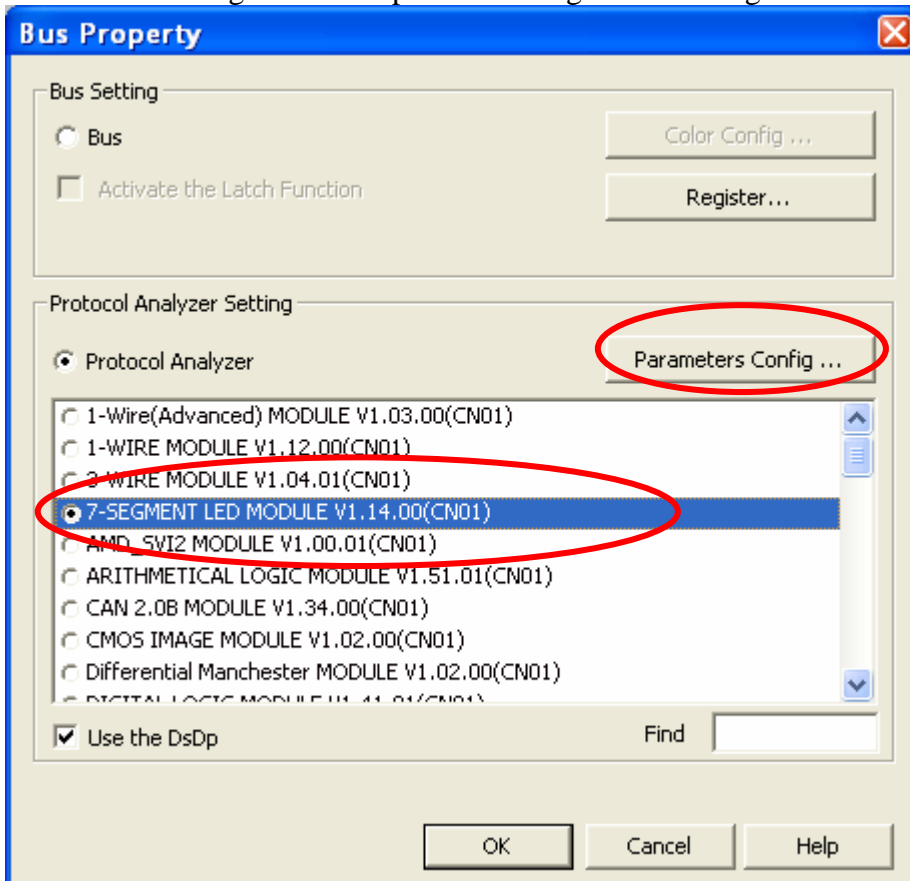
**STEP 1.** Group A0-B0 into Bus1 by pressing the Right Key on the mouse. 7-SEGMENT LED needs at least seven channels to decode signal, so it is necessary to group seven or more channels into a Bus.



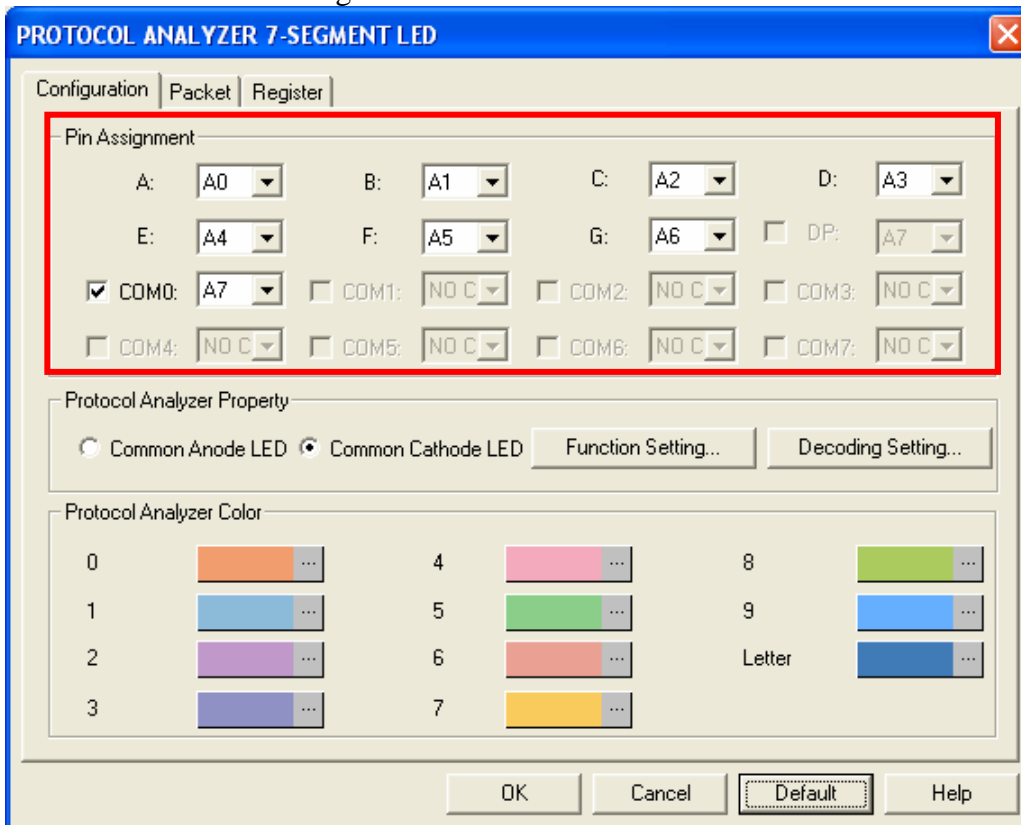
**STEP 2.** Select **Bus1**, press right key and select **Bus Property** from the popup menu, or click the **Bus** icon on the toolbar, to open the **Bus Property** dialog box.



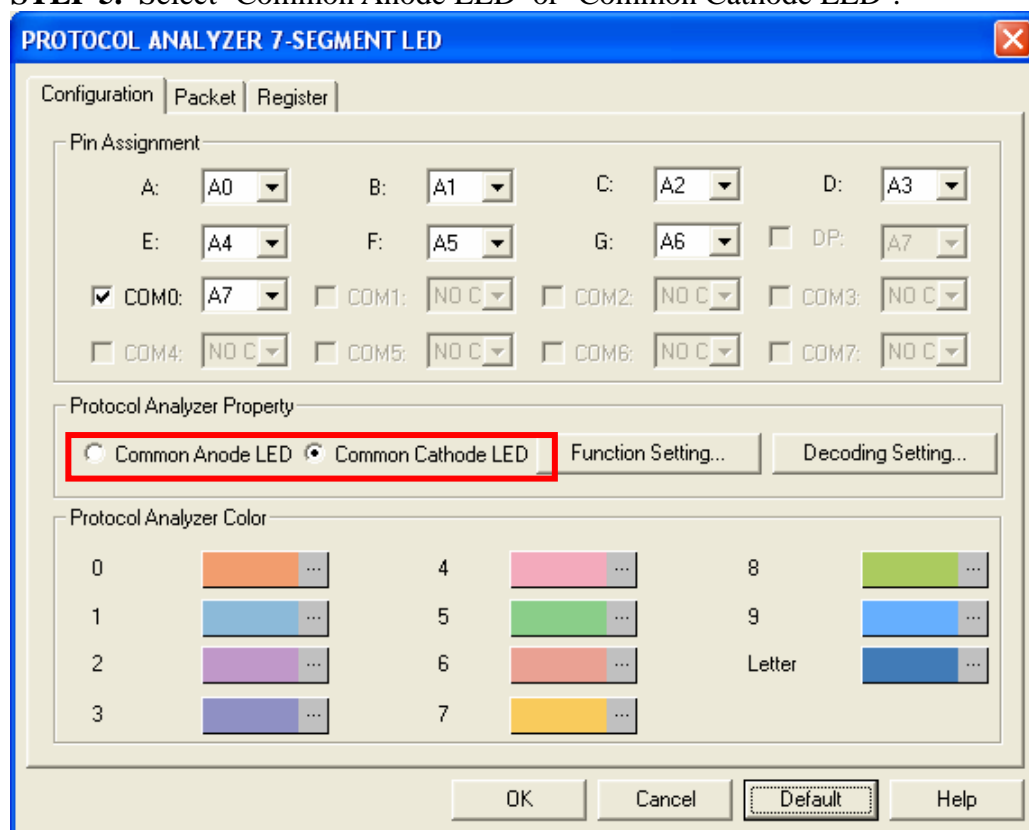
**STEP 3.** Select Protocol Analyzer, and select 7-SEGMENT MODULE V1.14.00(CN01). Then click Parameters Configuration to open the Configuration dialog box.



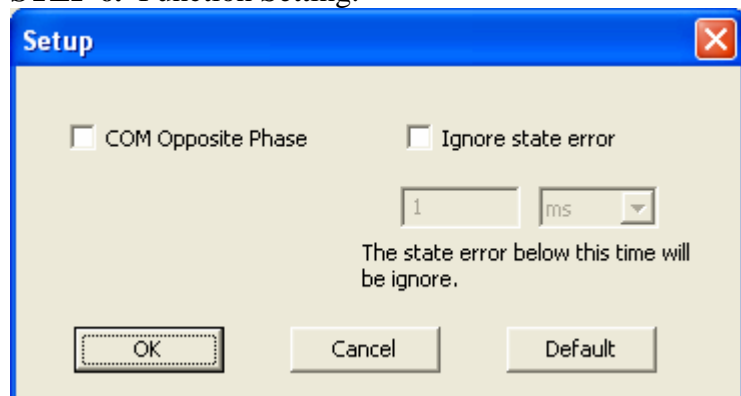
**STEP 4.** Set the Pin Assignment.



**STEP 5.** Select 'Common Anode LED' or 'Common Cathode LED'.



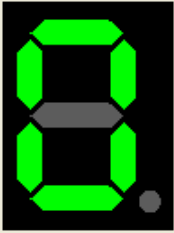
**STEP 6.** Function Setting.



## STEP 7. Set the Decoding.

**PROTOCOL ANALYZER 7-SEGMENT LED**

Value	a	b	c	d	e	f	g
0	1	1	1	1	1	1	0
1	0	1	1	0	0	0	0
2	1	1	0	1	1	0	1
3	1	1	1	1	0	0	1
4	0	1	1	0	0	1	1
5	1	0	1	1	0	1	1
6	1	0	1	1	1	1	1
7	1	1	1	0	0	0	0
8	1	1	1	1	1	1	1
9	1	1	1	1	0	1	1
A	1	1	1	0	1	1	1
b	0	0	1	1	1	1	1
C	1	0	0	1	1	1	0
d	0	1	1	1	1	0	1
E	1	0	0	1	1	1	1
F	1	0	0	0	1	1	1



☒ 0~F  
☐ 0~9

Default  
OK  
Cancel

## STEP 8. Set the Protocol Analyzer Color.

**PROTOCOL ANALYZER 7-SEGMENT LED**

Configuration | Packet | Register












Pin Assignment

A: A0 B: A1 C: A2 D: A3  
E: A4 F: A5 G: A6 DP: A7  
☒ COM0: A7 ☐ COM1: NO C ☐ COM2: NO C ☐ COM3: NO C  
☐ COM4: NO C ☐ COM5: NO C ☐ COM6: NO C ☐ COM7: NO C

Protocol Analyzer Property

☐ Common Anode LED ☒ Common Cathode LED Function Setting... Decoding Setting...

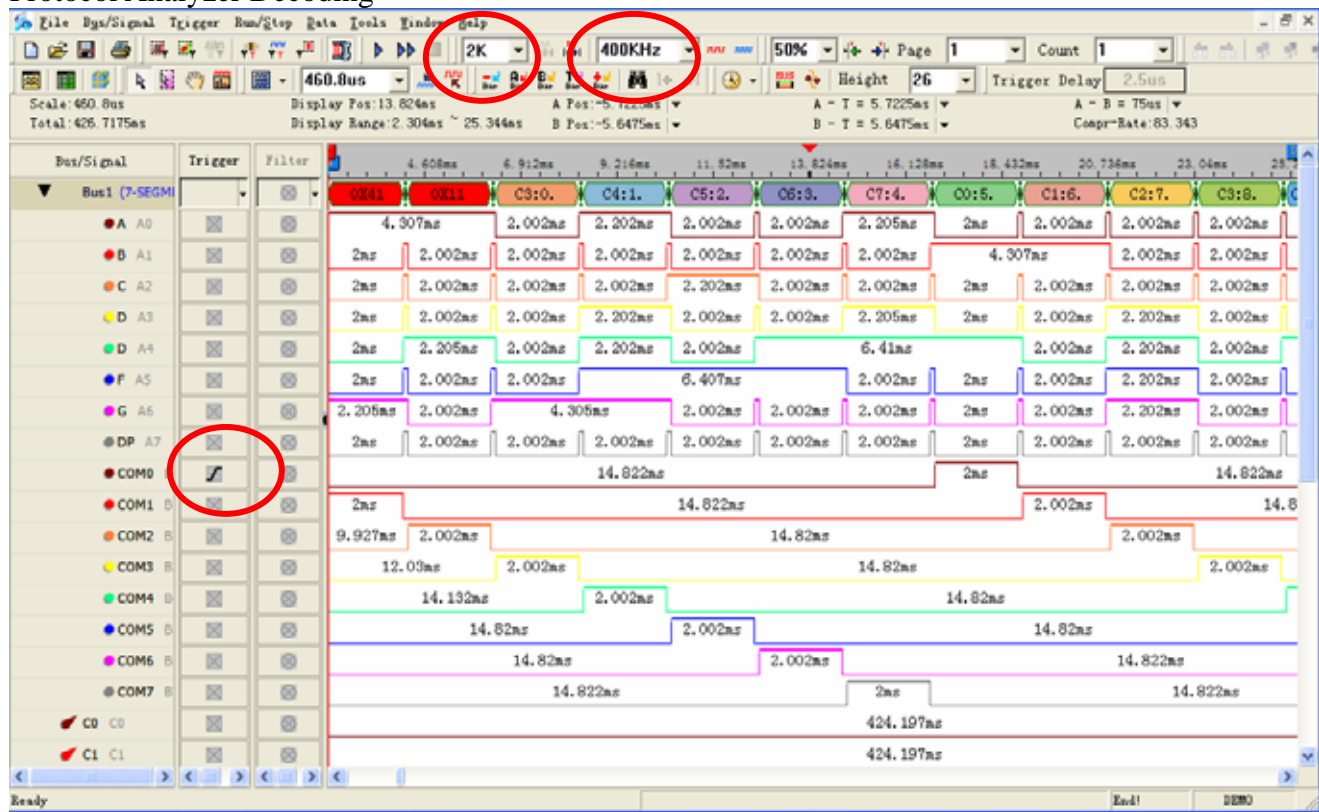
Protocol Analyzer Color

0		4		8	
1		5		9	
2		6		Letter	
3		7			

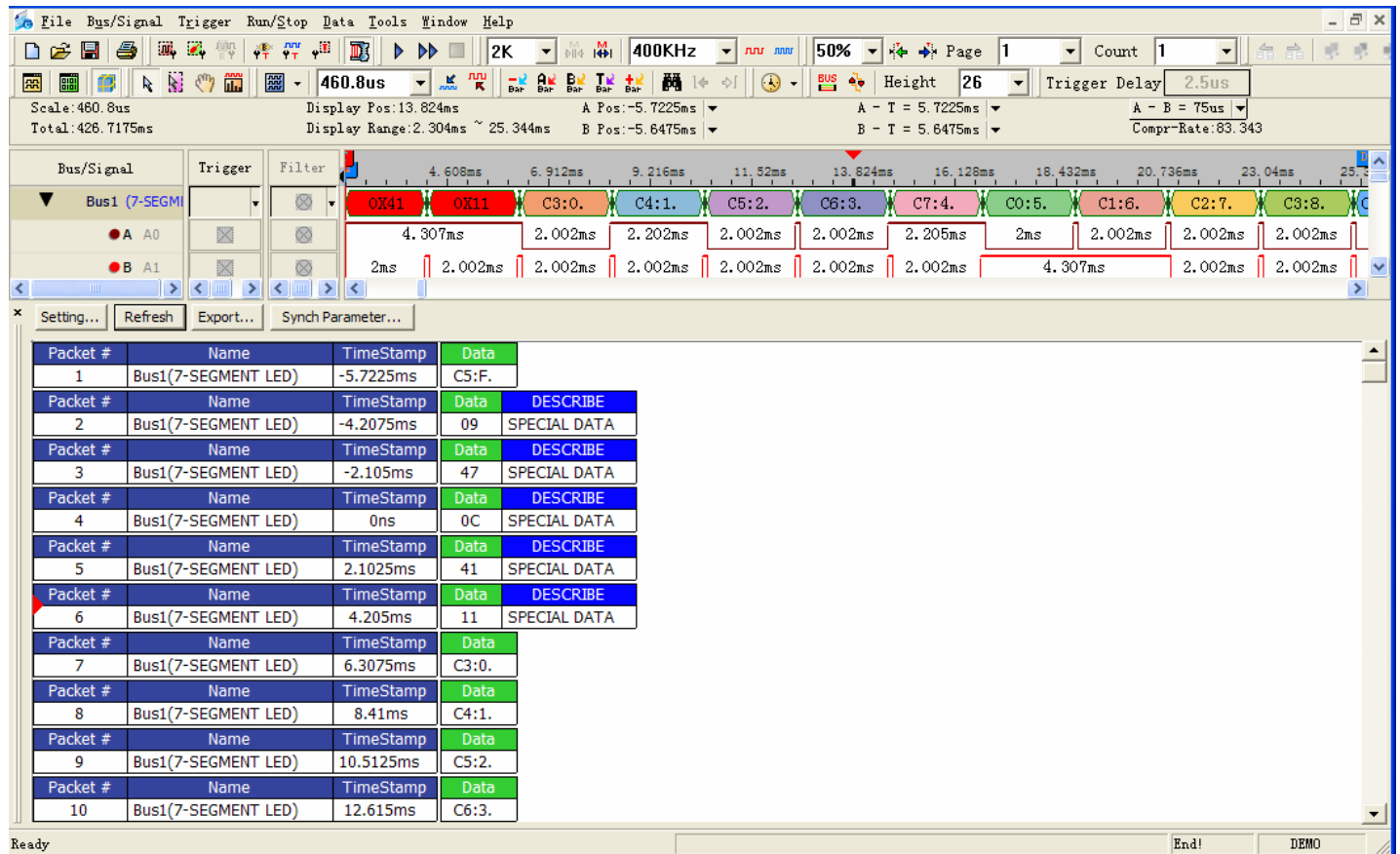
OK Cancel Default Help

**STEP 9.** Following pictures show the completion of the protocol analyzer decoding and the packet list. The trigger condition is Rising Edge; the memory depth is 2K; the sampling frequency is 400KHz (the sampling frequency should be more than four times higher than the signal to be tested).

### Protocol Analyzer Decoding



## Packet List



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## 4 Function Description


### 4.1 Image Encode


This function can decode the data format of protocol analyzer and display the decoded data in images. (Only LAP-A, LAP-C and smart+ are supported.)

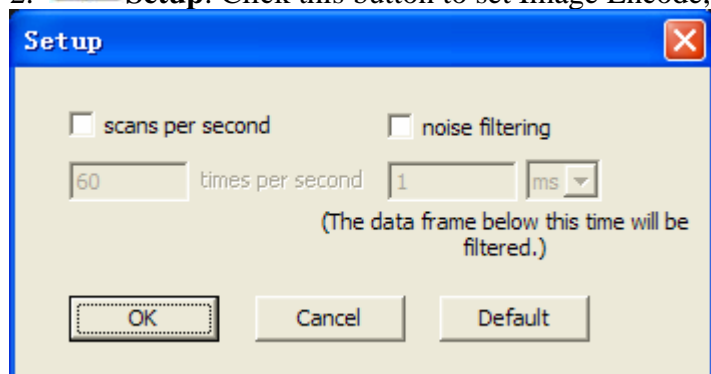
#### 4.1.1 Interface



The display time of data is same with the time bit length of data by default. The data will be displayed one by one; no data is displayed under Unknown and Scan Error until correct data or Data error is decoded. The screen could display 8 data, see above image. From left to right the data would be displayed one after another.

1.  **Capture:** Click this button to capture the picture in the display area and add the current title information(the current frame number); the file supports the formats of BMP, JPG and PNG, it is PNG by default.

2.  **Setup:** Click this button to set Image Encode, see below:



**scans per second:** It means the image refreshment rate per second. The values can be input between 1 and 80, if the value you input is beyond the range, a prompt dialog box will popup and display the message of “Please input an integer between 1 and 80.” It is 60 by default, and this function is not activated by default.

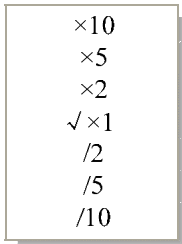
**noise filtering:** Activating the noise filtering option helps filter the data below the setting time. The edit box is used to input the time value, whose range is limited between 1 and 10; if the time value you input is beyond the range, a prompt dialog box will popup and display the message of “Please input an integer between 1 and 10.” It is 1 by default. Composite box is used to select the unit of data, such as “ms”, “us” and “ns”, and the default is ms. This function is not activated by default.



3. **Display Amount:** Show the page number of current data on the right of title.



4. **Play Speed:** These speeds are in proportion with the time bit length of data. For example, x10 indicates the speed is 1/10 of the time bit length of data. Click it to select the play speed.



5. **Full Screen:** This function is not supported in this module; it is disable.



6. **Loop:** Show the data repeatedly. In default display mode it only shows the data repeatedly in the most right grid; in moving display mode it shows the data form right to left repeatedly.



7. **Play/Pause:** Click the play button to play while it changes to the pause button, click the pause button to pause and display the current data while it changes to the play button.



8. **Previous:** Show the previous data in default display mode, or move one grid rightward in moving display mode.



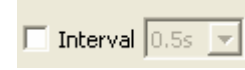
9. **Next:** Show the next data in default display mode, or move one grid leftward in moving display mode.



10. **Stop:** Stop the playing.



11. **Run:** Click this button to capture data for one time.

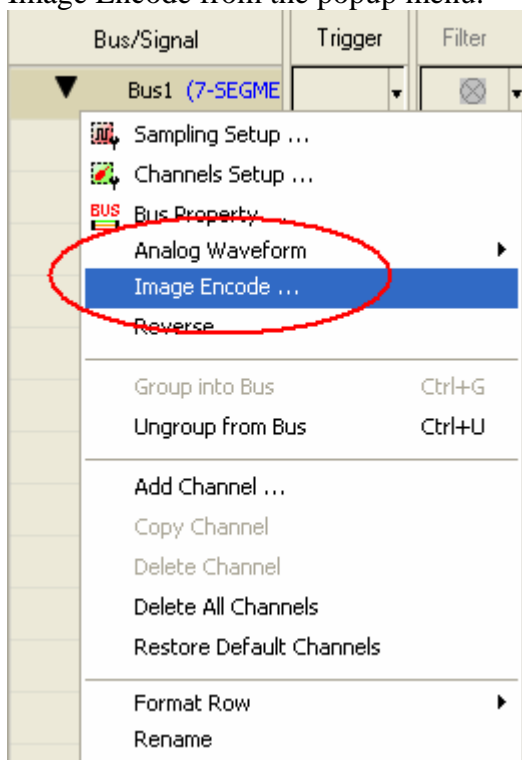


12. **Interval:** If selected, the data will be captured continuously with that interval no matter the Run button is clicked or not. It is not selected by default.



## 4.1.2 Operating Instructions

**STEP 1.** After decoding finished, press right key on the Bus name (Bus1(7-SEGMENT LED)) and select the Image Encode from the popup menu.



**STEP 2.** The interface of Image Encode.

