

SPECIFICATION

MODEL: B08015-LAP-I2C-M

PART NO: _____

VERSION: V2.05

Approver		Check	Design
GM	PM		

Customer Confirm

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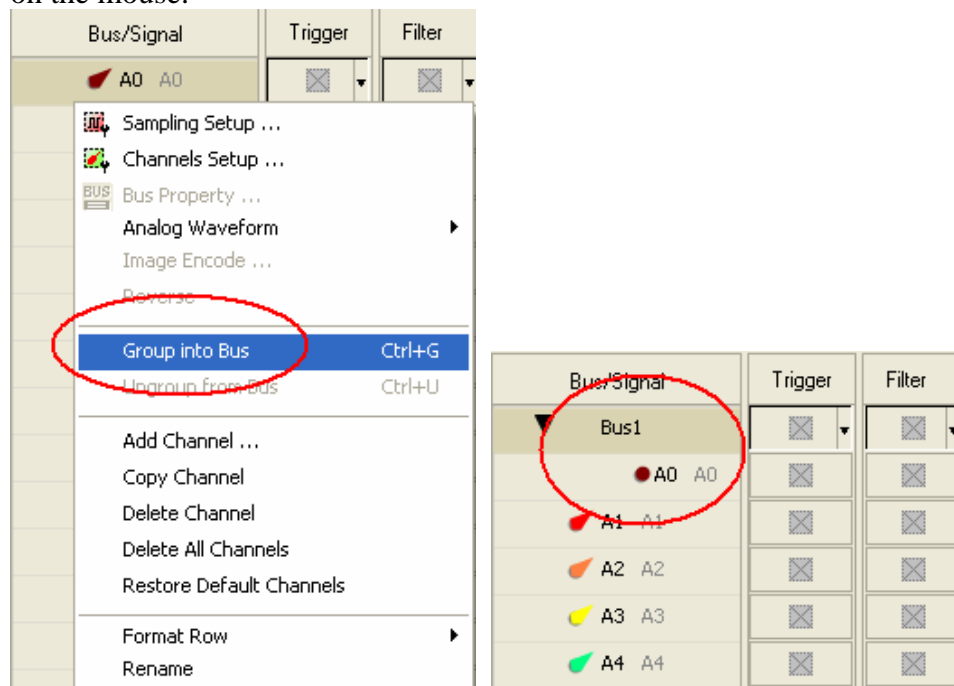
1. Software Register

Please register the software as the following steps:

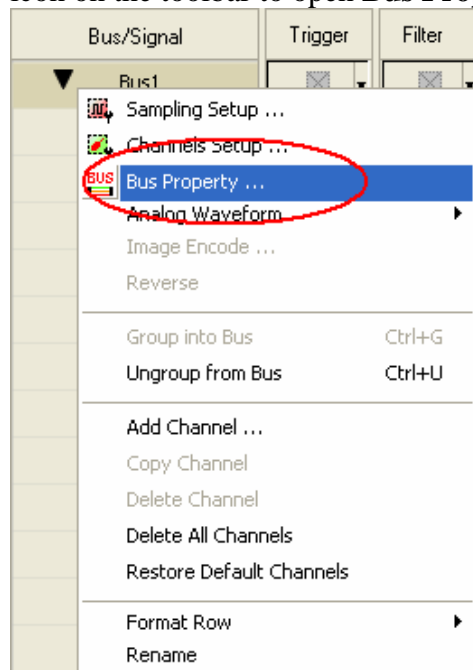
※ Remark1: The registration steps for all protocol analyzers are the same; you can complete the registration by following procedures. Following is an example on how to register the Protocol Analyzer BUS.

※ 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.

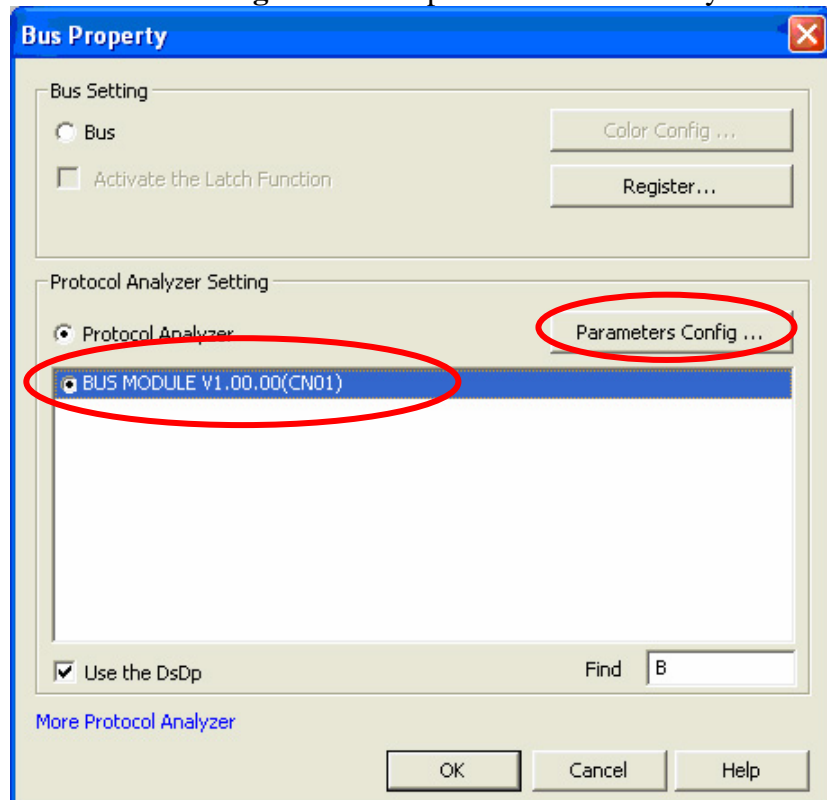
STEP 1. Open the Logic Analyzer and group the unanalyzed channels into **Bus1** by pressing the **Right Key** on the mouse.



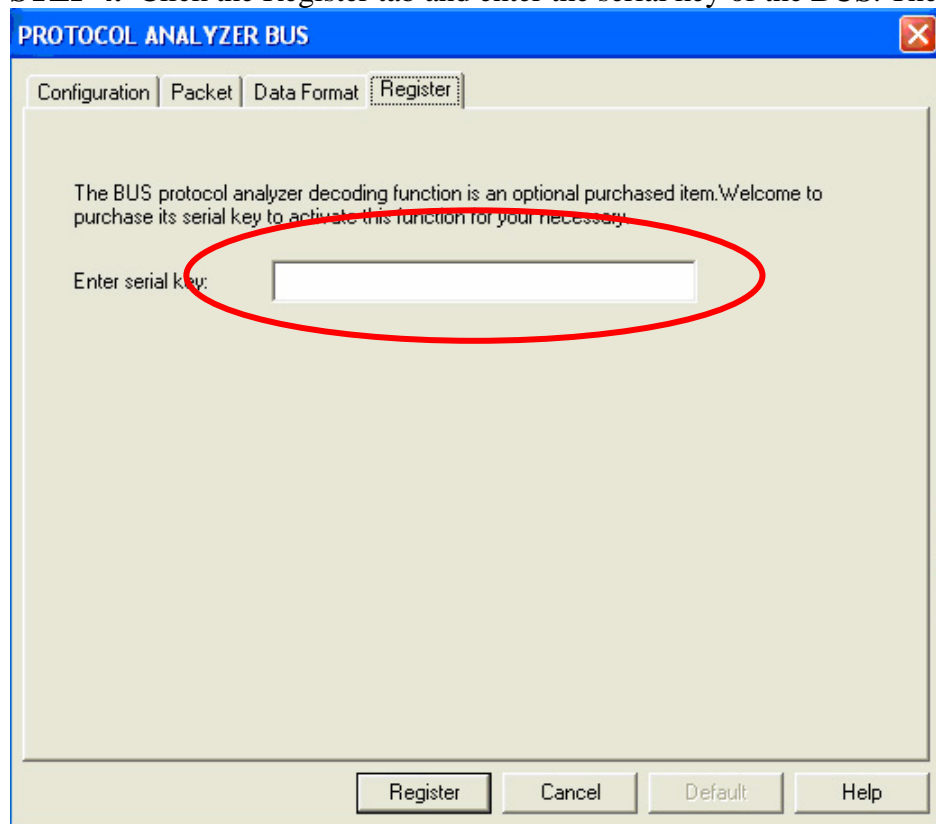
STEP 2. Select **Bus1**, and press **Right Key** on the mouse to list the menu, then click **Bus Property** or **Bus** icon on the toolbar to open **Bus Property** dialog box.



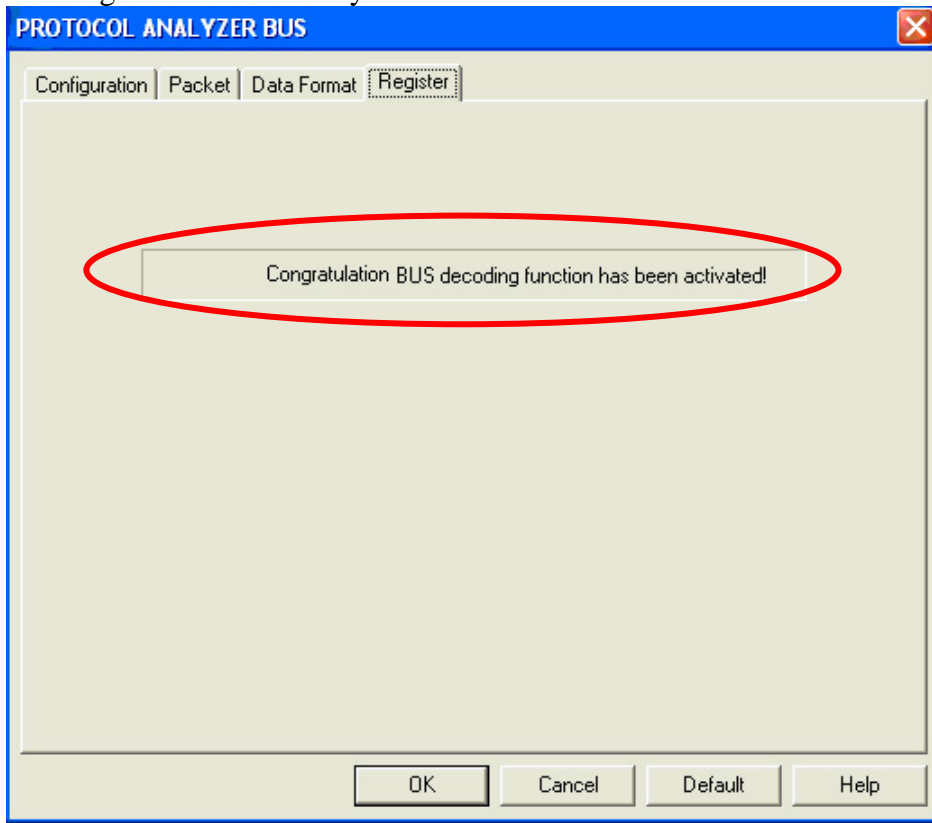
STEP 3. Select the Protocol Analyzer, and then choose **BUS MODULE V1.00.00 (CN01)**. Next click **Parameters Configuration** to open the Protocol Analyzer Bus dialog box.



STEP 4. Click the Register tab and enter the serial key of the **BUS**. Then click **Register**.



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



2. User Interface

Please refer to the below images to select options of setting **I2C** module.

I2C Configuration Dialog Box

PROTOCOL ANALYZER I2C

Configuration | Timing | Packet | Data Format | Register

Pin Assignment

SDA: A0

SCL: A1

Data Mode

Item	Name	Data Length
Slave Addr:	Address	7 bit
<input type="checkbox"/> Reg Addr:	Reg Addr	8 bit
Data:	Data	8 bit

Protocol Analyzer Property

☒ Write Bit Low Level ☐ Don't stop analyzing when NACK appears

☐ ACK Low Level ☐ Add the Read/Write Bit for Slave Address

Protocol Analyzer Color

Start	Data	Slave Addr	Read	Write	Reg Addr
A-ACK	A-NACK	D-ACK	D-NACK	Stop	

OK Cancel Default Help

Pin Assignment:

SDA: It is the Data channel, and the default is A0.

SCL: It is the Clock channel, and the default is A1.

Data Mode: Set the Data Length used by the Slave Addr, Reg Addr and the Data.

Protocol Analyzer Property:

Set the **Write Bit** or **Read Bit** to Low Level.

Set the **ACK** or **NACK** to Low Level.

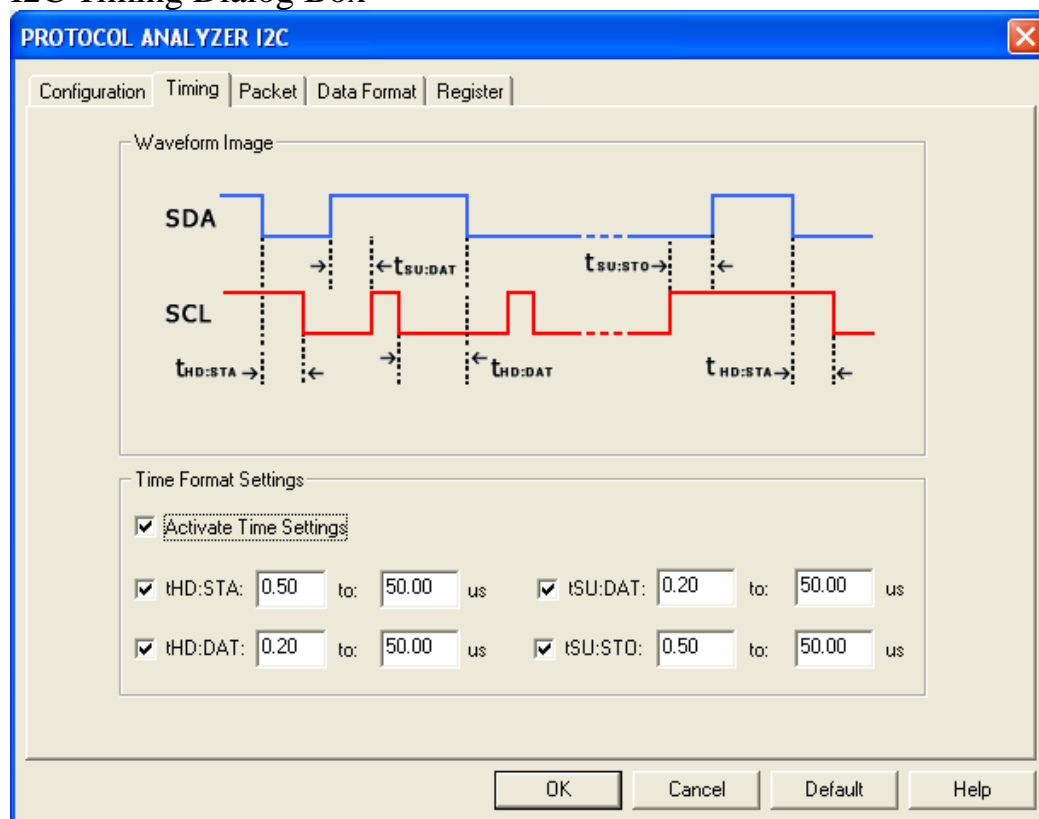
Don't stop analyzing when NACK appears: When the option is selected, the data will be analyzed continuously when the NACK appears.

Add the Read/Write Bit for Slave Address: When the option is selected, the decoding will be displayed by way of the added Read/Write Bit for Slave Address.

Protocol Analyzer Color:

Users can vary the colors of the decoded packet.

I2C Timing Dialog Box



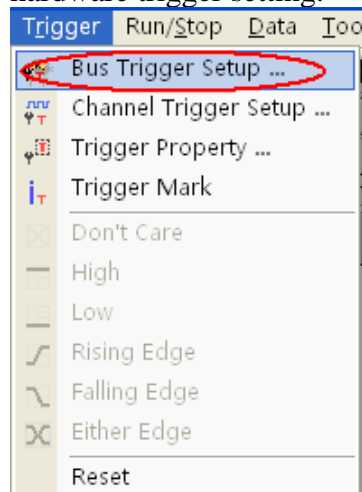
Waveform Image: Describe the position of the set time.

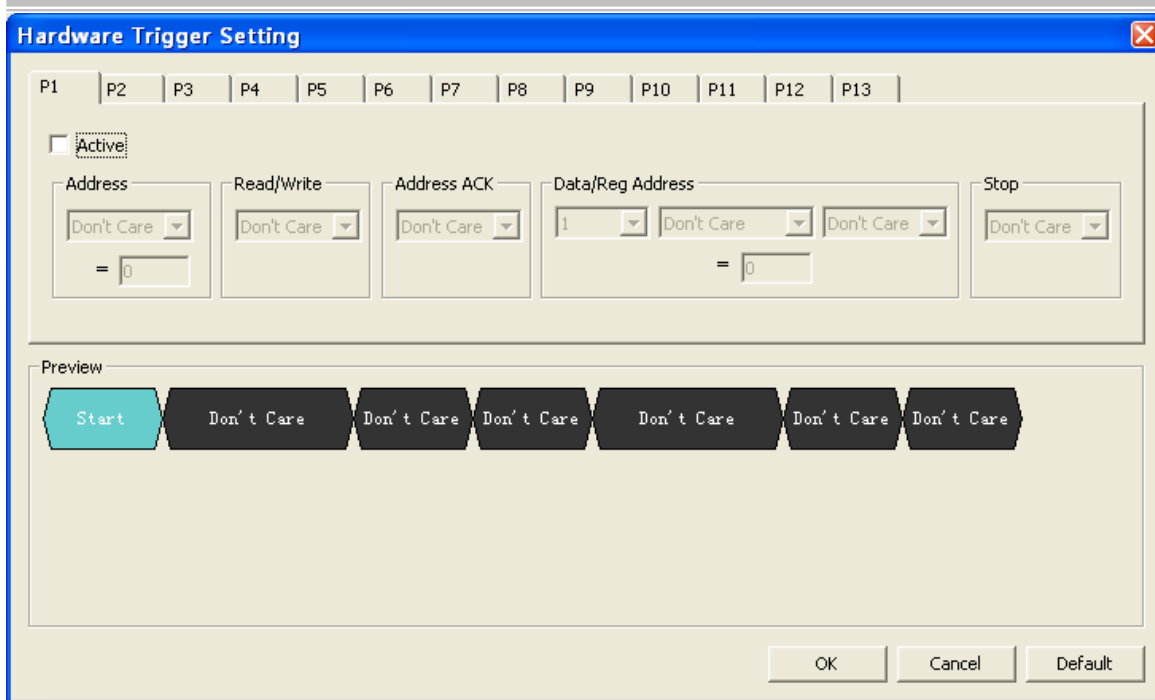
Time Format Settings: When the Time Settings is activated, the set time will become the condition of judging decoding. For example, when you want to decode START, you should judge whether the conditions of START are satisfied firstly, and then judge whether the set time of tHD: STA is coincident with the factual waveform. If the two conditions are satisfied, the START can be decoded. Other segments decoding of the packet is the same with that of the START.

Hardware Trigger Setting

Hardware trigger could help capturing the needed data more accurate and faster. I2C module supports trigger of Address, Read/write, Data or A-ACK/N-ACK packet, also supports serial trigger of 13 packets at most. The hardware will do the hardware trigger of packet, while the module will provide UI for users to set and convert their settings to hardware parameters, then sent them to the main program which would transfer them to the hardware to execute.

Group a I2C bus, then click 'Bus Trigger Setup' from the Trigger pulldown menu to open the interface of hardware trigger setting.





The dialog box is titled "Hardware Trigger Setting" and features a tabbed interface with tabs labeled P1 through P13. The P1 tab is currently selected. Below the tabs, there is a checkbox labeled "Active". Underneath, there are five main configuration sections, each with a dropdown menu and a hexadecimal input field:

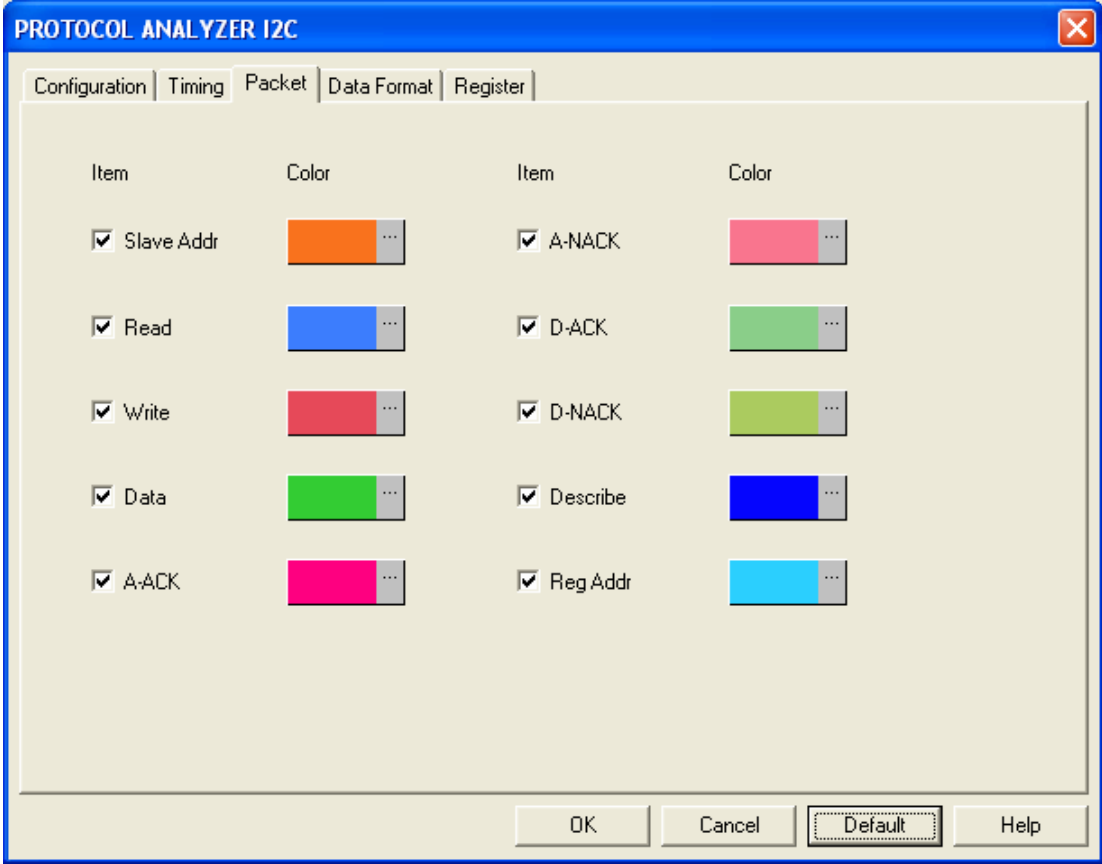
- Address:** Dropdown set to "Don't Care", input field set to "0".
- Read/Write:** Dropdown set to "Don't Care".
- Address ACK:** Dropdown set to "Don't Care".
- Data/Reg Address:** First dropdown set to "1", second dropdown set to "Don't Care", third dropdown set to "Don't Care", input field set to "0".
- Stop:** Dropdown set to "Don't Care".

Below these sections is a "Preview" area showing a sequence of seven colored blocks: a teal "Start" block followed by six dark grey "Don't Care" blocks. At the bottom right of the dialog are three buttons: "OK", "Cancel", and "Default".

Interface Description:

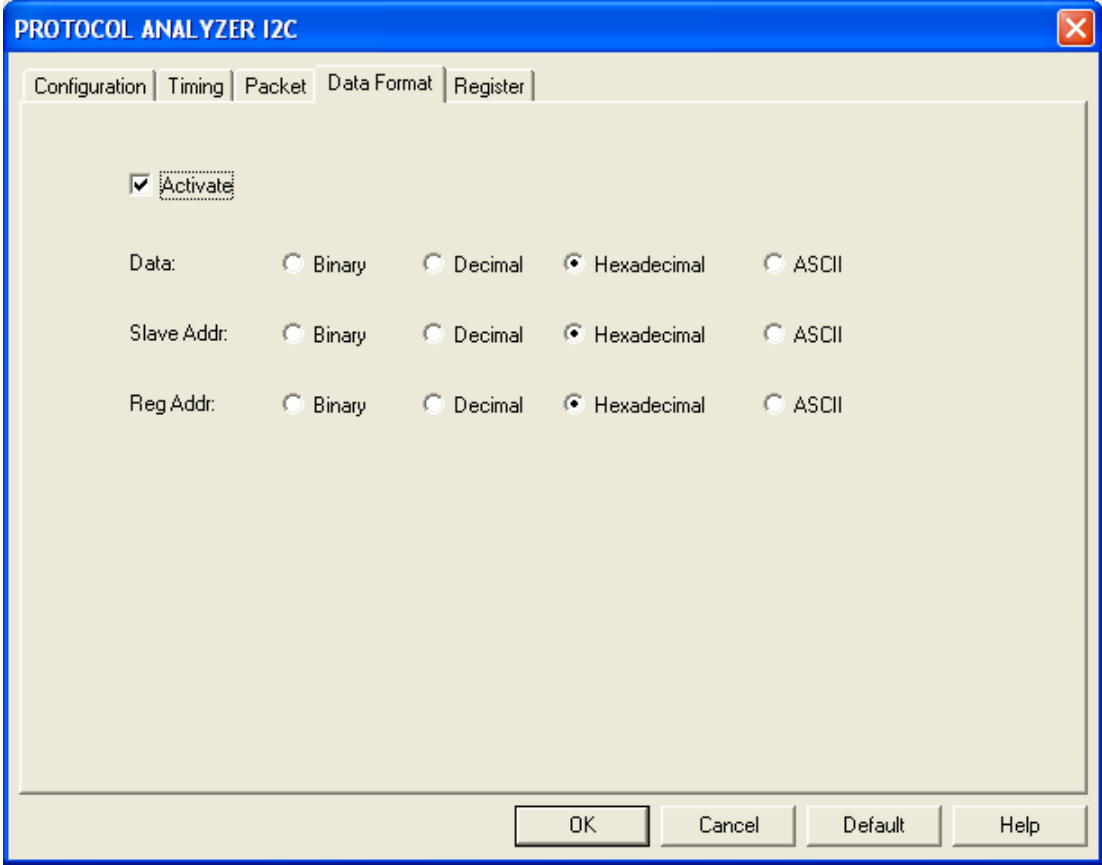
- 1.**Packet:** At most 13 packets could be set (in 256-level range), that depends on the setting of each packet. The software would check if the packet setting could be activated.
- 2.**Active:** Activate the current packet setting.
- 3.**Address:** Two options: Don't Care and Address.
- 4.**Address data:** Address data in hexadecimal.
- 5.**Read/Write:** Three options: Don't Care, Read and Write.
- 6.**Address ACK:** Three options: Don't Care, ACK and NACK.
- 7.**Data/Reg Address:** The first combo box is the index of data packet, which is 1-27 (256-level being the largest). If 1 is selected, the first data packet could be edited, and the like. The second combo box has three options: Don't Care, Data and Reg Address. Reg Address could only be selected once in one packet, and after that, only Don't Care and Date are in the combo box. The third combo box is the Data/Reg Address ACK which has three options: Don't Care, ACK and NACK.
- 8.**Data/Reg Address Data:** Data of Data/Reg Address in hexadecimal.
- 9.**Stop:** Three options: Don't Care, None and Stop.
- 10.**Preview:** Show the current setting of one packet in graphic in 1-3 lines. If the packet is set as Don't Care, the packet would be shown in unknown color.
- 11.**OK:** Set the data of all activated packets into the main program and close the interface.
- 12.**Cancel:** Close the interface.
- 13.**Default:** Return to the default setting of not active.

I2C Packet Dialog Box



In the Packet dialog box, users can select the set item to be displayed and the color of item.

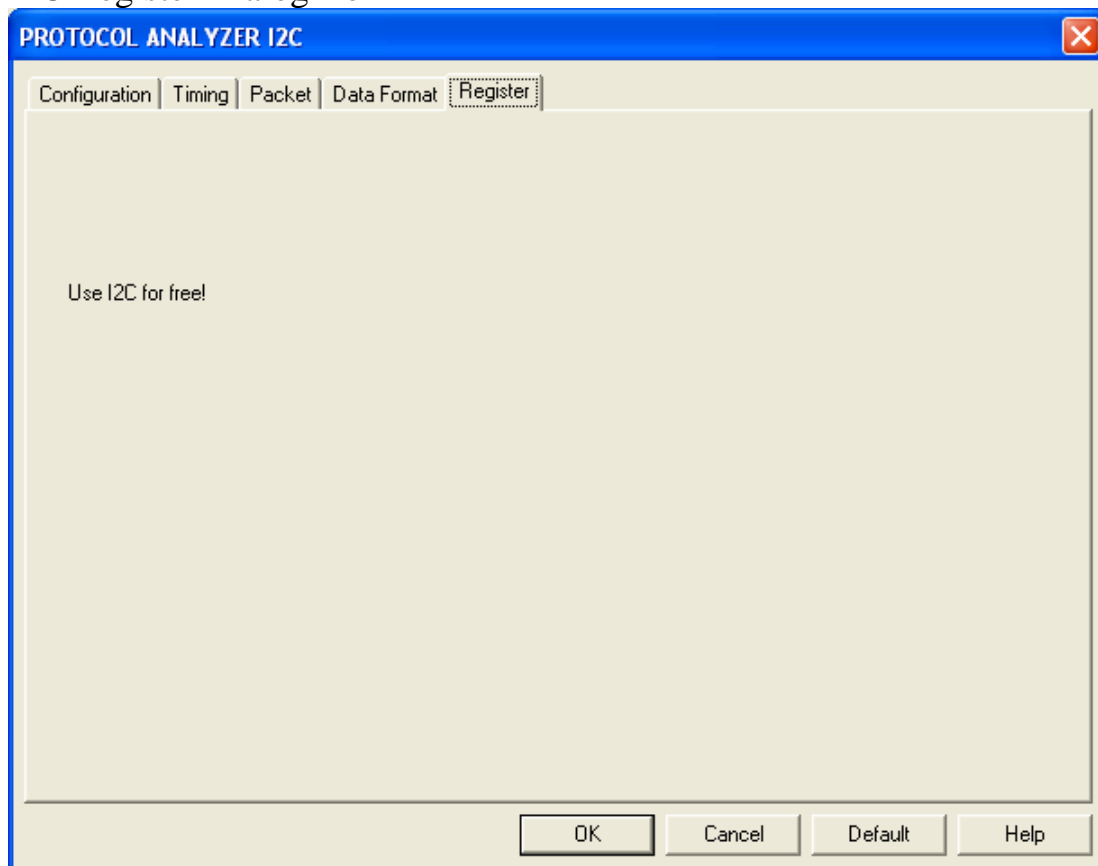
I2C Data Format Dialog Box



Users can set the data format of the Data, Slave Addr and Reg Addr as their requirements. When selecting the option, Activate, the data formats are decided by the settings in the Protocol Analyzer; when not selecting the

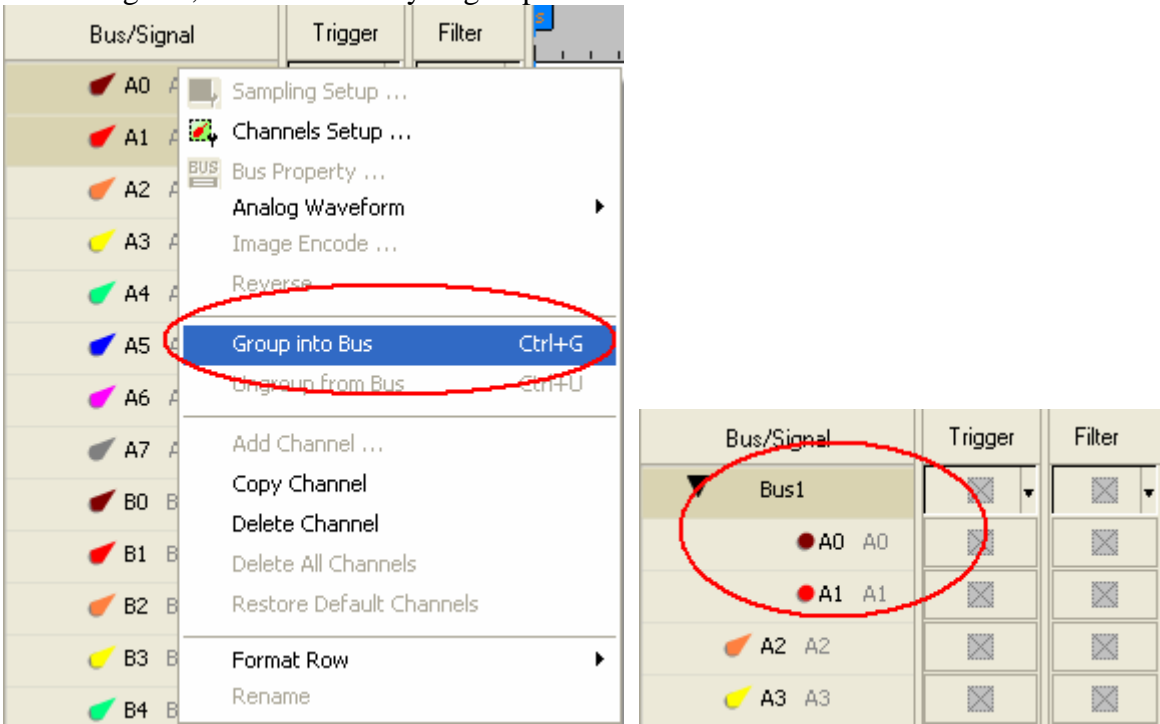
option, Activate, the data formats are decided by the settings in the main program.

I2C Register Dialog Box

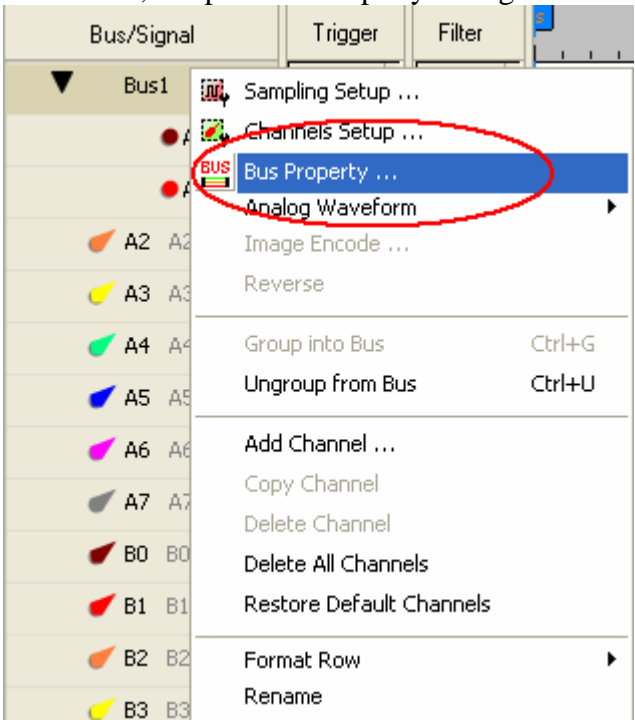


3. Operating Instructions

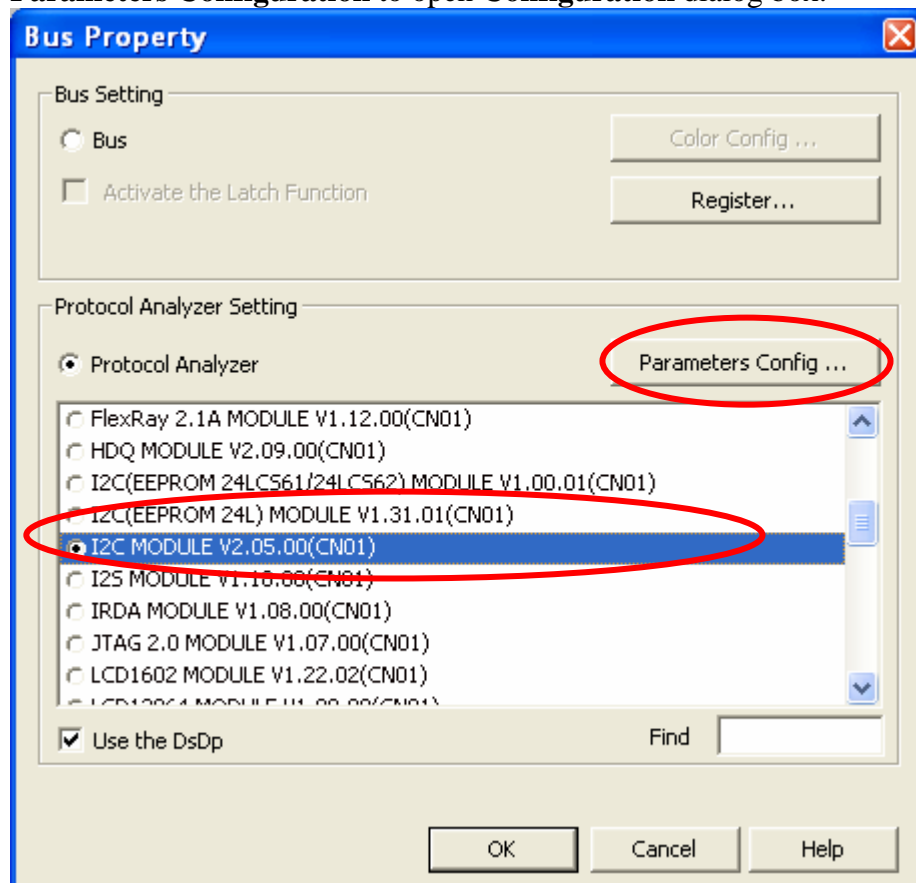
STEP 1. Group A0-A1 into Bus1 by pressing the Right Key on the mouse. I2C needs two channels to decode signals, so it is necessary to group two or more channels into a Bus.



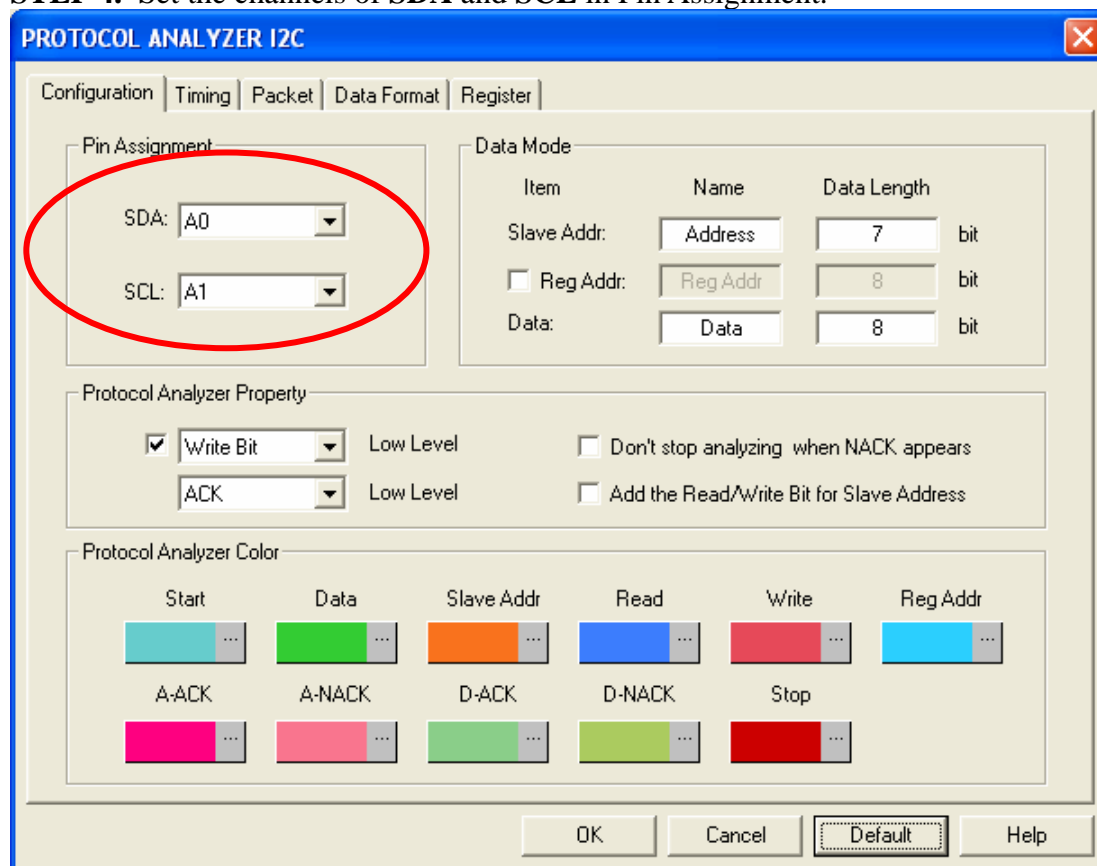
STEP 2. Select Bus1, press Right Key and select 'Bus Property' from the popup menu, or click Bus icon on the toolbar, to open Bus Property dialog box.



STEP 3. Select Protocol Analyzer, and then choose **I2C MODULE V2.05.00(CN01)**. Next click **Parameters Configuration** to open **Configuration** dialog box.



STEP 4. Set the channels of **SDA** and **SCL** in Pin Assignment.



STEP 5. Set the Data Length used by the Slave Addr and the Data in the Data Mode.

PROTOCOL ANALYZER I2C

Configuration | Timing | Packet | Data Format | Register

Pin Assignment

SDA: A0

SCL: A1

Data Mode

Item	Name	Data Length
Slave Addr:	Address	7 bit
<input type="checkbox"/> Reg Addr:	Reg Addr	8 bit
Data:	Data	8 bit

Protocol Analyzer Property

☒ Write Bit Low Level

☐ Don't stop analyzing when NACK appears

☐ Add the Read/Write Bit for Slave Address

Protocol Analyzer Color

Start	Data	Slave Addr	Read	Write	Reg Addr
A-ACK	A-NACK	D-ACK	D-NACK	Stop	

OK Cancel Default Help

STEP 6. Set the **Write Bit** or **Read Bit** to Low Level.

PROTOCOL ANALYZER I2C

Configuration | Timing | Packet | Data Format | Register

Pin Assignment

SDA: A0

SCL: A1

Data Mode

Item	Name	Data Length
Slave Addr:	Address	7 bit
<input type="checkbox"/> Reg Addr:	Reg Addr	8 bit
Data:	Data	8 bit

Protocol Analyzer Property

☒ Write Bit Low Level

☐ Don't stop analyzing when NACK appears

☐ Add the Read/Write Bit for Slave Address

Protocol Analyzer Color

Start	Data	Slave Addr	Read	Write	Reg Addr
A-ACK	A-NACK	D-ACK	D-NACK	Stop	

OK Cancel Default Help

STEP 7. Set the ACK or NACK to Low Level.

PROTOCOL ANALYZER I2C

Configuration | Timing | Packet | Data Format | Register

Pin Assignment

SDA: A0
SCL: A1

Data Mode

Item	Name	Data Length
Slave Addr:	Address	7 bit
<input type="checkbox"/> Reg Addr:	Reg Addr	8 bit
Data:	Data	8 bit

Protocol Analyzer Property

☒ Write Bit Low Level
☒ ACK Low Level
☐ Don't stop analyzing when NACK appears
☐ Add the Read/Write Bit for Slave Address

Protocol Analyzer Color

Start	Data	Slave Addr	Read	Write	Reg Addr
A-ACK	A-NACK	D-ACK	D-NACK	Stop	

OK Cancel Default Help

STEP 8. Set the Don't stop analyzing when NACK appears. When the option is selected, the data will be analyzed continuously when the NACK appears.

PROTOCOL ANALYZER I2C

Configuration | Timing | Packet | Data Format | Register

Pin Assignment

SDA: A0
SCL: A1

Data Mode

Item	Name	Data Length
Slave Addr:	Address	7 bit
<input type="checkbox"/> Reg Addr:	Reg Addr	8 bit
Data:	Data	8 bit

Protocol Analyzer Property

☒ Write Bit Low Level
☐ ACK Low Level
☒ Don't stop analyzing when NACK appears
☐ Add the Read/Write Bit for Slave Address

Protocol Analyzer Color

Start	Data	Slave Addr	Read	Write	Reg Addr
A-ACK	A-NACK	D-ACK	D-NACK	Stop	

OK Cancel Default Help

STEP 9. Set the **Add the Read/Write Bit for Slave Address**: When the option is selected, the decoding will be displayed by way of the added Read/Write Bit for Slave Address.

PROTOCOL ANALYZER I2C

Configuration | Timing | Packet | Data Format | Register

Pin Assignment

SDA: A0

SCL: A1

Data Mode

Item	Name	Data Length
Slave Addr:	Address	7 bit
<input type="checkbox"/> Reg Addr:	Reg Addr	8 bit
Data:	Data	8 bit

Protocol Analyzer Property

☒ Write Bit Low Level

☐ Don't stop analyzing when NACK appears

☐ Add the Read/Write Bit for Slave Address

Protocol Analyzer Color

Start	Data	Slave Addr	Read	Write	Reg Addr
A-ACK	A-NACK	D-ACK	D-NACK	Stop	

OK Cancel Default Help

STEP 10. Set the Protocol Analyzer Color.

PROTOCOL ANALYZER I2C

Configuration | Timing | Packet | Data Format | Register

Pin Assignment

SDA: A0

SCL: A1

Data Mode

Item	Name	Data Length
Slave Addr:	Address	7 bit
<input type="checkbox"/> Reg Addr:	Reg Addr	8 bit
Data:	Data	8 bit

Protocol Analyzer Property

☒ Write Bit Low Level

☐ Don't stop analyzing when NACK appears

☐ Add the Read/Write Bit for Slave Address

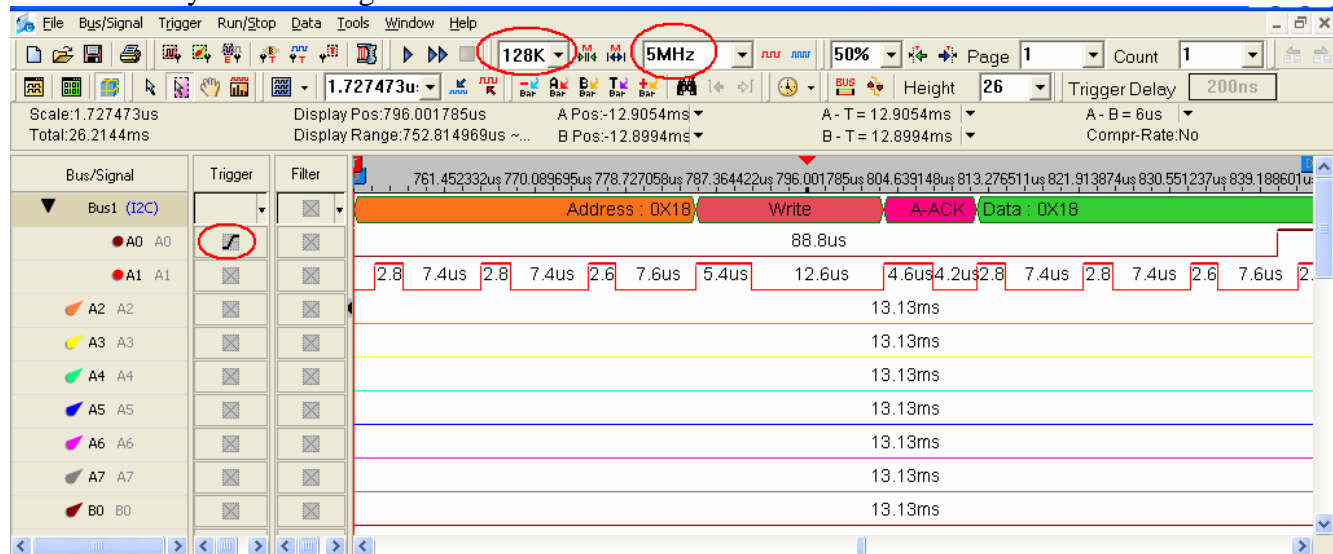
Protocol Analyzer Color

Start	Data	Slave Addr	Read	Write	Reg Addr
A-ACK	A-NACK	D-ACK	D-NACK	Stop	

OK Cancel Default Help

STEP 11. Following pictures show the completion of the protocol analyzer decoding and the packet list. The trigger condition is Rising Edge; the memory depth is 128K; the sampling frequency is 5MHz (the sampling frequency should be more than 4 times higher than the signal to be tested).

Protocol Analyzer Decoding



Packet List

