



**孕龍科技股份有限公司**  
**ZeroPlus Technology Co., Ltd.**

# SPECIFICATION

**MODEL: 027-LAP-FlexRay 2.1A-M**

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

**VERSION:** V1.11

Approver		Check	Design
GM	PM		

Customer Confirm

\*Please fax the file to ZeroPlus Technology after signing.

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## 1 Software Download

Please install the software as the following steps:

**Remark:** 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.** Visit the website of ZeroPlus: <http://www.zeroplus.com.tw>.

**STEP 2.** Click the **English** in the Instrument Division part on the Homepage.

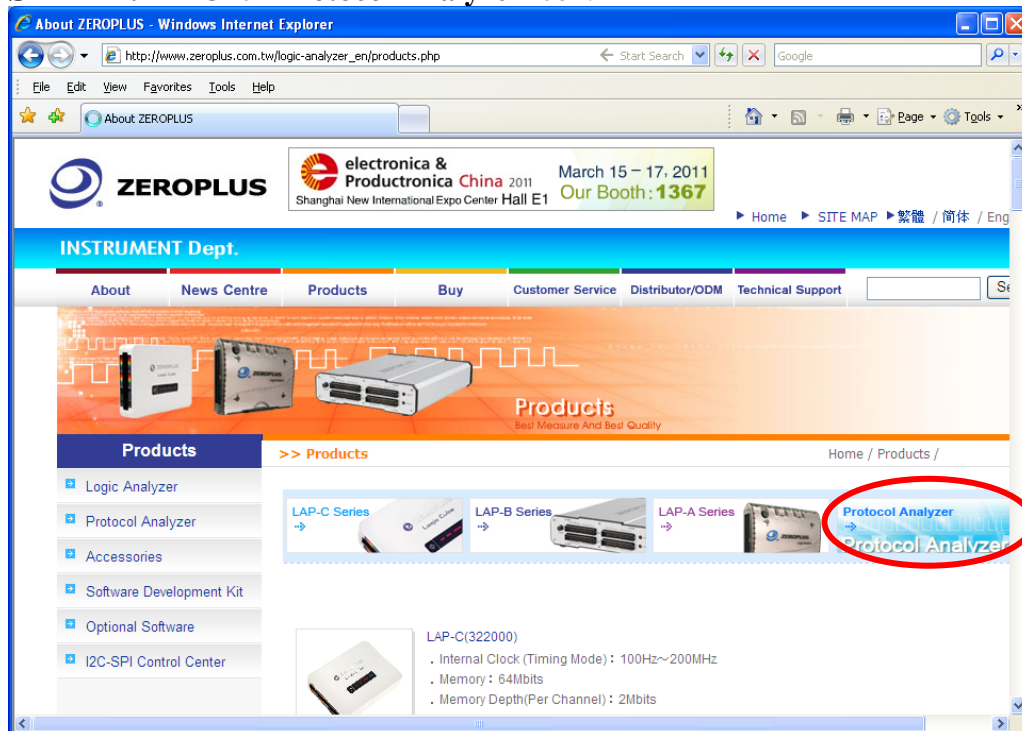




**STEP 3.** Click **Products** menu or select **Protocol Analyzer** item from its pull-down menu to go straight to STEP 5.

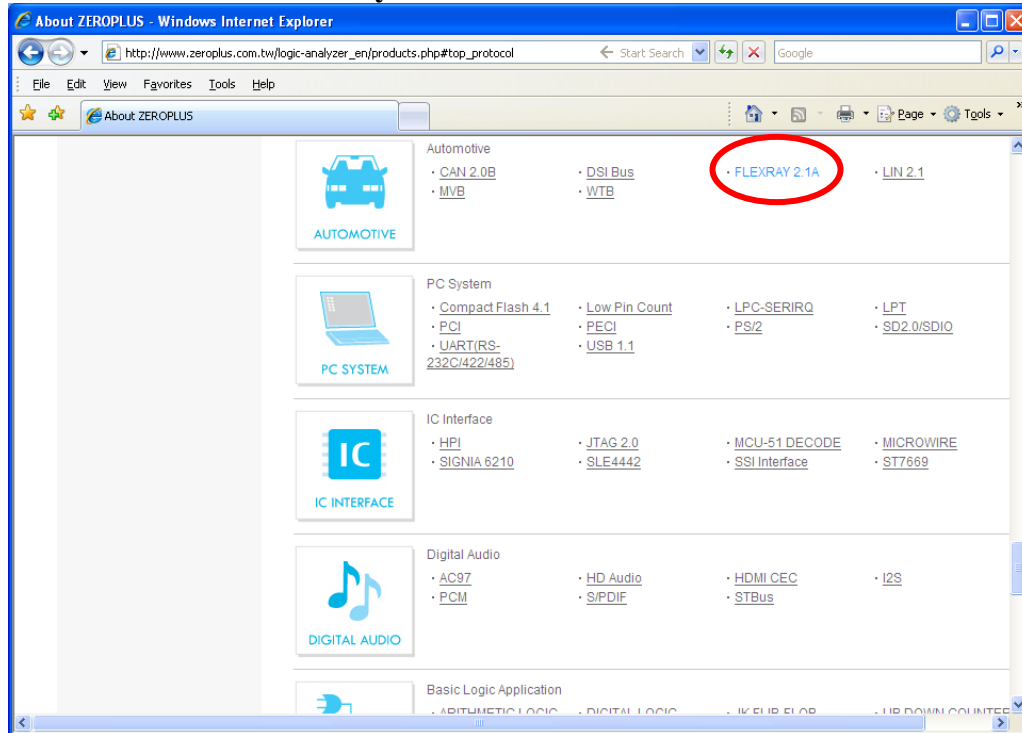


**STEP 4.** Click **Protocol Analyzer** icon.

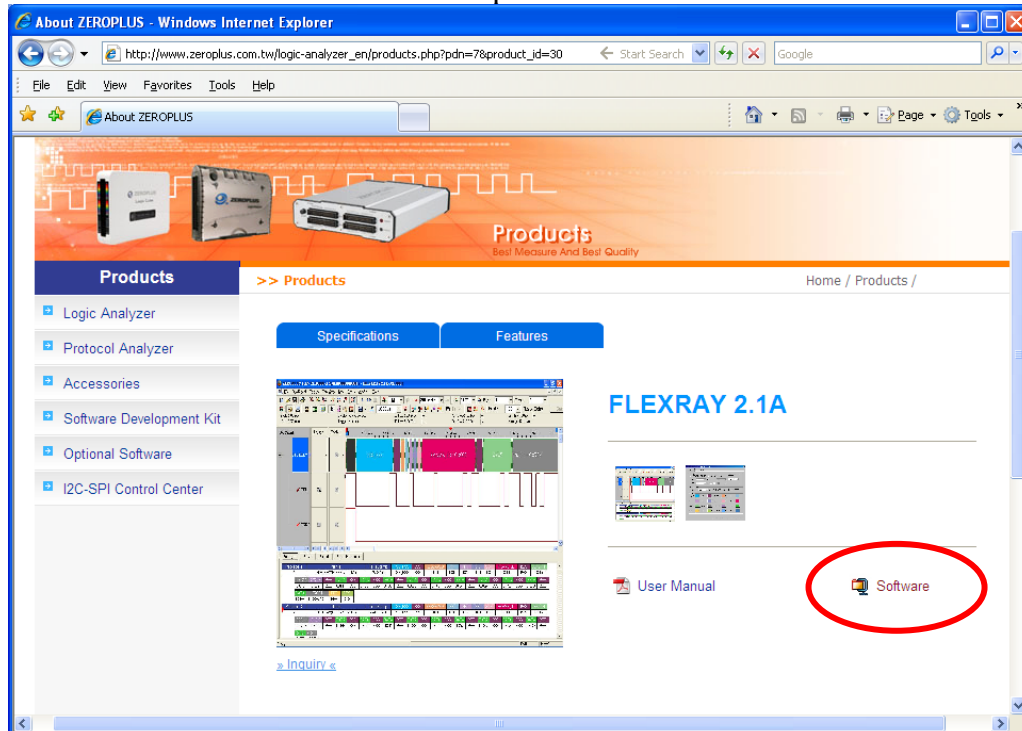




**STEP 5.** Click **FlexRay 2.1A** in the Automotive.



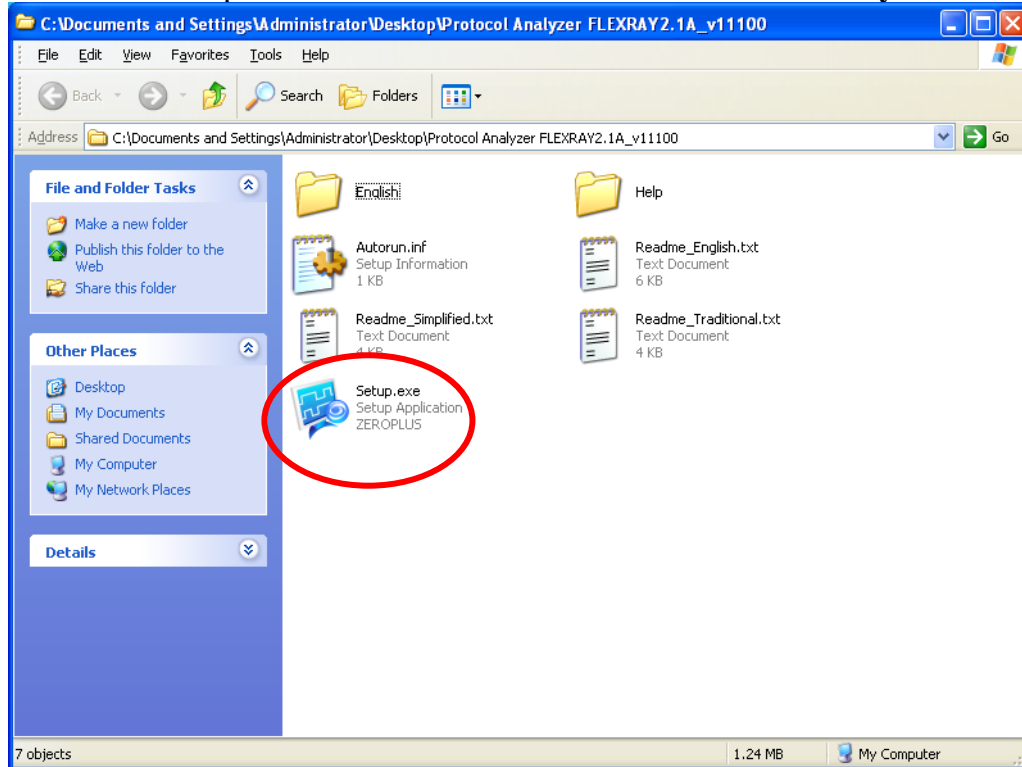
**STEP 6.** Click **Software** in the Products page. When the File Download dialog box appears, you can click **Save** button to save the compressed files.



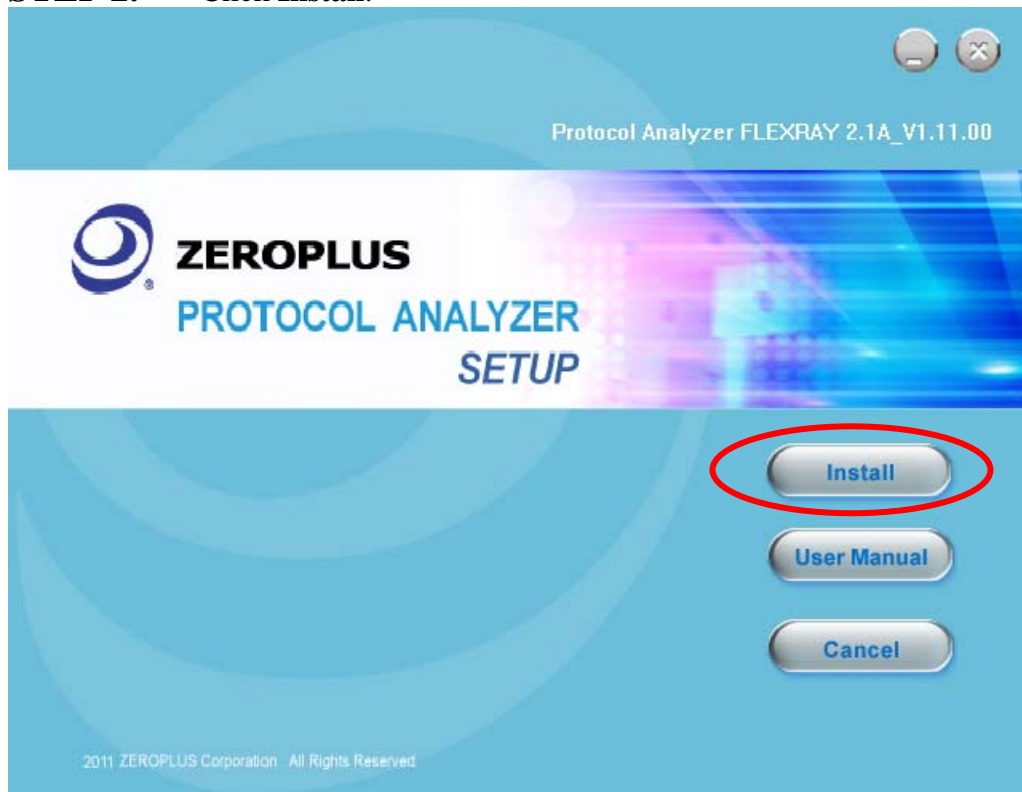


## 2 Software Installation

**STEP 1.** Open the downloaded folder to install **Protocol Analyzer FlexRay 2.1A**.



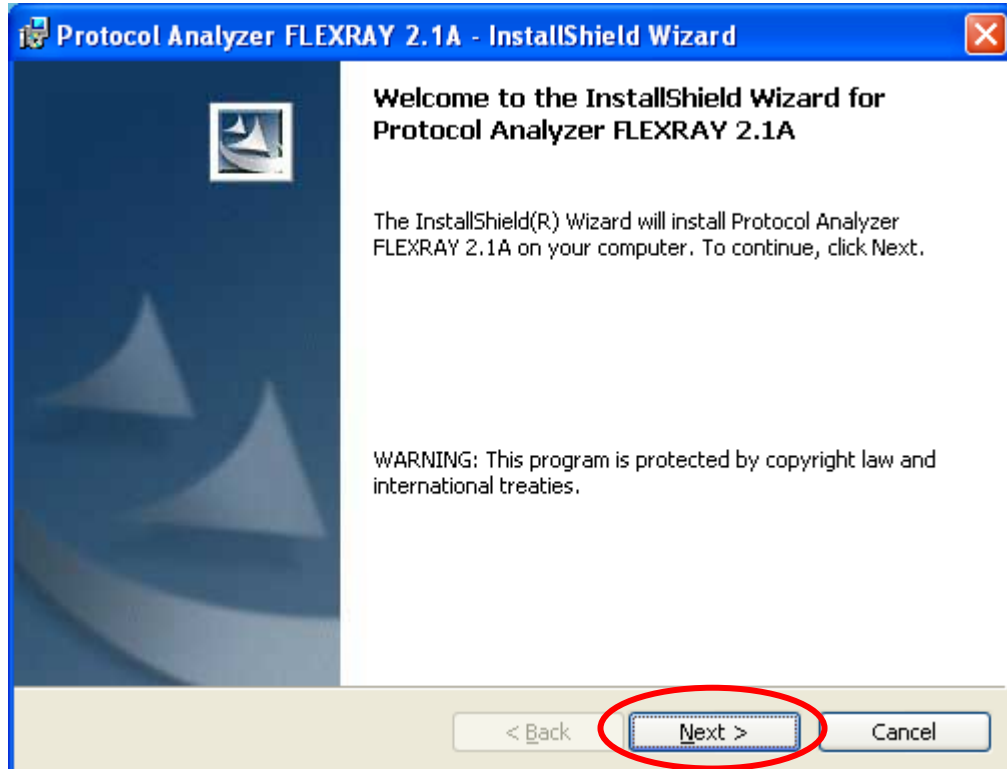
**STEP 2.** Click **Install**.



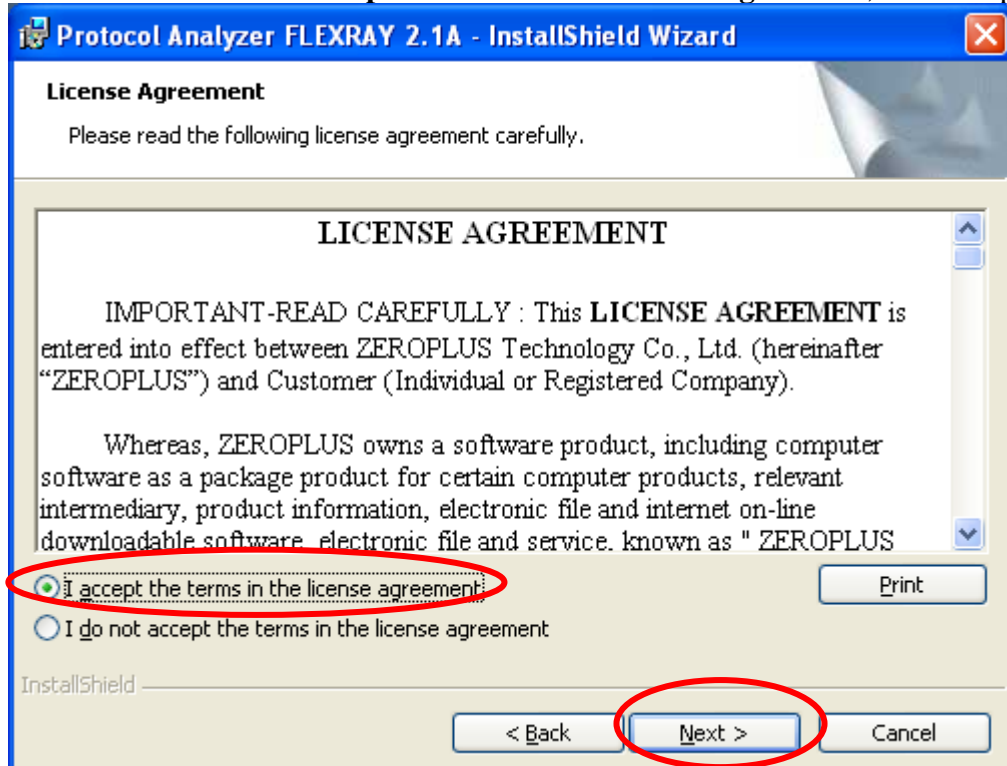




**STEP 3.** Click Next.



**STEP 4.** Select **I accept the terms in the license agreement**, and then press Next.





**STEP 5.** Fill in users' information in the below dialog box and click **Next**.

The dialog box is titled "Protocol Analyzer FLEXRAY 2.1A - InstallShield Wizard". It has a "Customer Information" section with the instruction "Please enter your information." Below this, there are two text input fields: "User Name:" with "Microsoft" entered, and "Organization:" with "User" entered. Further down, there is a section "Install this application for:" with two radio button options: "Anyone who uses this computer (all users)" (which is selected) and "Only for me (Microsoft)". At the bottom, there are three buttons: "< Back", "Next >" (which is circled in red), and "Cancel". The "InstallShield" logo is visible in the bottom left corner.

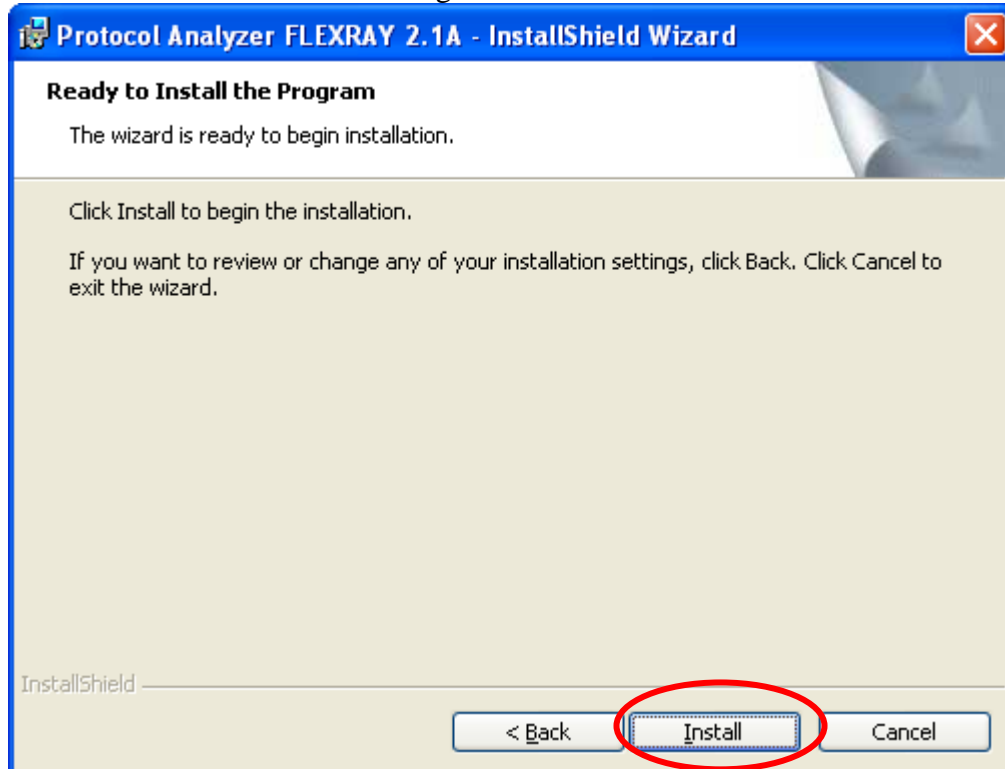
**STEP 6.** Select **Complete** and then click **Next**.

The dialog box is titled "Protocol Analyzer FLEXRAY 2.1A - InstallShield Wizard". It has a "Setup Type" section with the instruction "Choose the setup type that best suits your needs." Below this, there is a text input field with "Please select a setup type." and two radio button options: "Complete" (which is selected) and "Custom". Each option has a small icon and a description: "Complete" has an icon of a computer with a red 'X' and the text "All program features will be installed. (Requires the most disk space.)"; "Custom" has an icon of a computer with a red 'X' and the text "Choose which program features you want installed and where they will be installed. Recommended for advanced users." At the bottom, there are three buttons: "< Back", "Next >" (which is circled in red), and "Cancel". The "InstallShield" logo is visible in the bottom left corner.

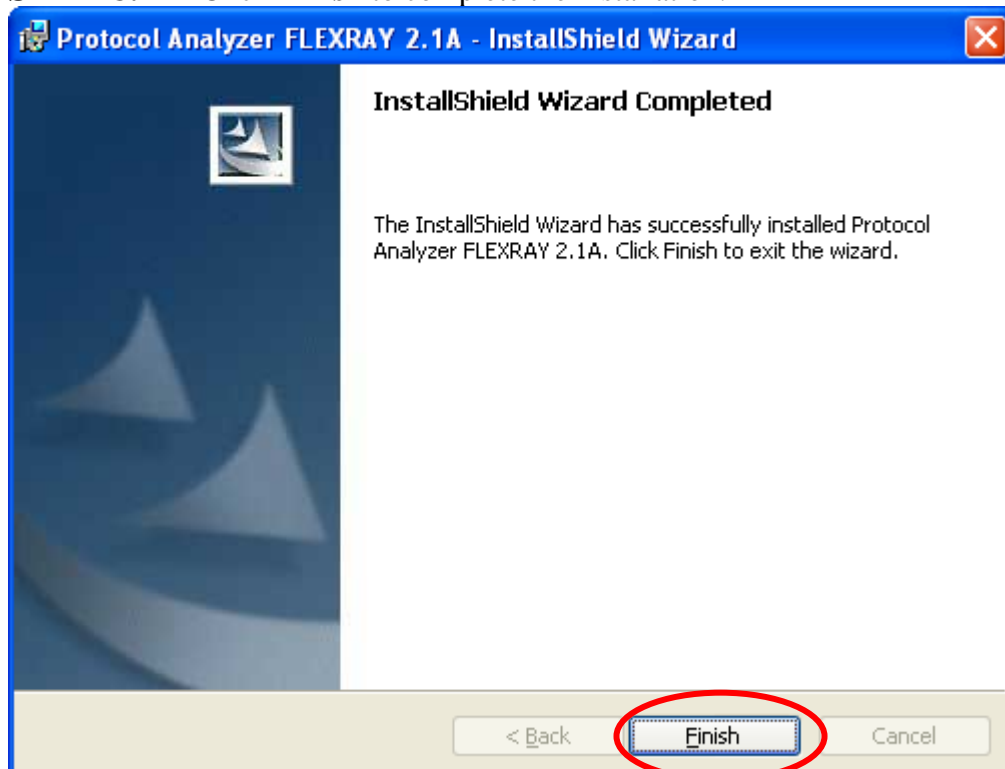




**STEP 7.** Click **Install** to begin the installation.



**STEP 8.** Click **Finish** to complete the installation.

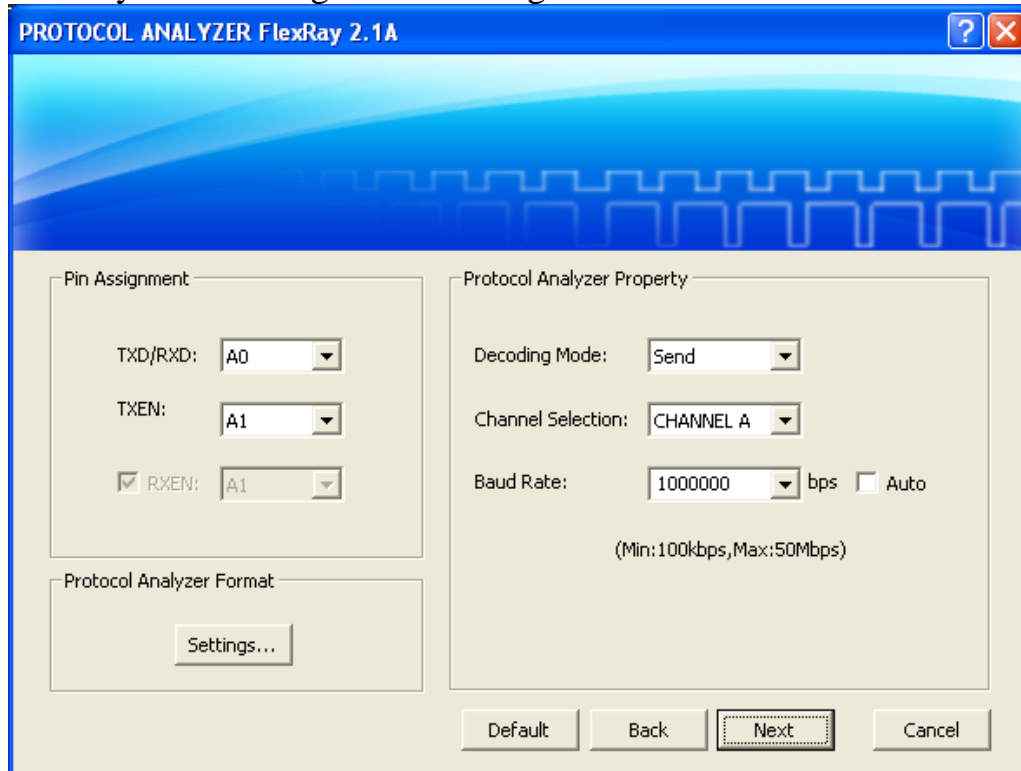




### 3 User Interface

Please refer to below images to select options of setting **FlexRay 2.1A Module**.

#### FlexRay 2.1A Configuration Dialog Box



#### Pin Assignment:

TXD/RXD is the Transmitted Data / Received Data line; TXEN is the Transmitted Enable line (It is available for the Low Level.); RXEN is the Received Enable line (It is available for the Low Level.). RXEN line is mostly designed in the Transmission and Receiving modules of the FlexRay 2.1A and it is not used to transmit any data, so it is unnecessary to consider the RXEN line during the decoding process and the Channel Selection is related to the CRC initialization.

#### Protocol Analyzer Property:

**Decoding Mode:** Set the Mode to Send or Receive.

**Channel Selection:** Set the Channel to CHANNEL A or CHANNEL B.

**Baud Rate:** The Baud Rate is 1000000bps by default. And the Baud Rate can be set in the range from 100Kbps to 50Mbps or selected from the value (1000000, 2000000, 4000000, 6000000, 8000000 and 10000000) bps on the pull-down menu.

**Auto:** When it is selected, the Baud Rate can be judged and displayed on the Dialog Box by the Main Program.

#### Protocol Analyzer Format:

Press the **Settings** button to open the Protocol Analyzer Format dialog box. The Color of each Item can be varied as the users' requirements. The Items (Frame\_ID, Length, CRC/NCRC, Cycle and Data) can be set as Binary, Decimal, Hexadecimal, ASCII or Default. And the Data Format of these Items (Frame\_ID, Length, CRC/NCRC, Cycle and Data) in the Waveform Display Area and Packet List is controlled by the Protocol Analyzer. The default Data Format is controlled by the main program and



the Data Format of these items (Frame\_ID, Length, CRC/NCRC, Cycle and Data) is the Default.

The dialog box titled "Protocol Analyzer Format" contains two columns of configuration options. Each row represents an item with a color-coded icon, a "Data Format" dropdown menu, and a "Default" button. The items are arranged in two columns, with the right column containing items that are not present in the left column.

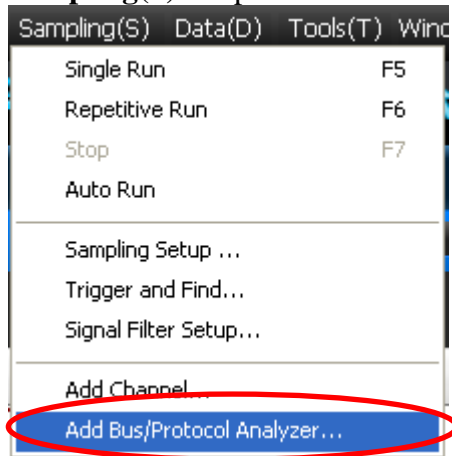
Item	Color	Data Format	Item	Color	Data Format
TSS_FSS		Default	Length		Default
BSS		Default	CRC/NCRC		Default
Reserved		Default	Cycle		Default
PPI		Default	Data		Default
NFI		Default	FES		Default
SFI		Default	DTS		Default
SUFI		Default	CAS_MTS		Default
Frame_ID		Default	WUS		Default

At the bottom of the dialog box are three buttons: "OK", "Cancel", and "Default".

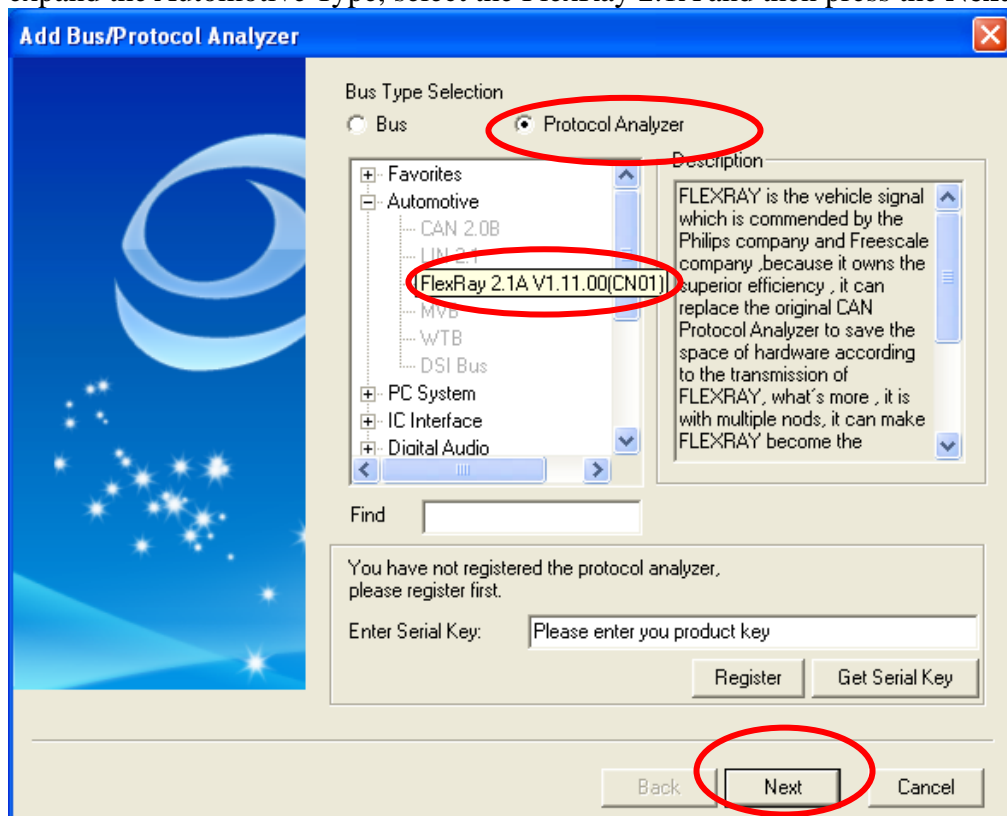


## 4 Operating Instructions

**STEP 1.** Select the **Add Bus/Protocol Analyzer** item on the pull-down menu of the **Sampling(S)** to open the **Add Bus/Protocol Analyzer** dialog box.

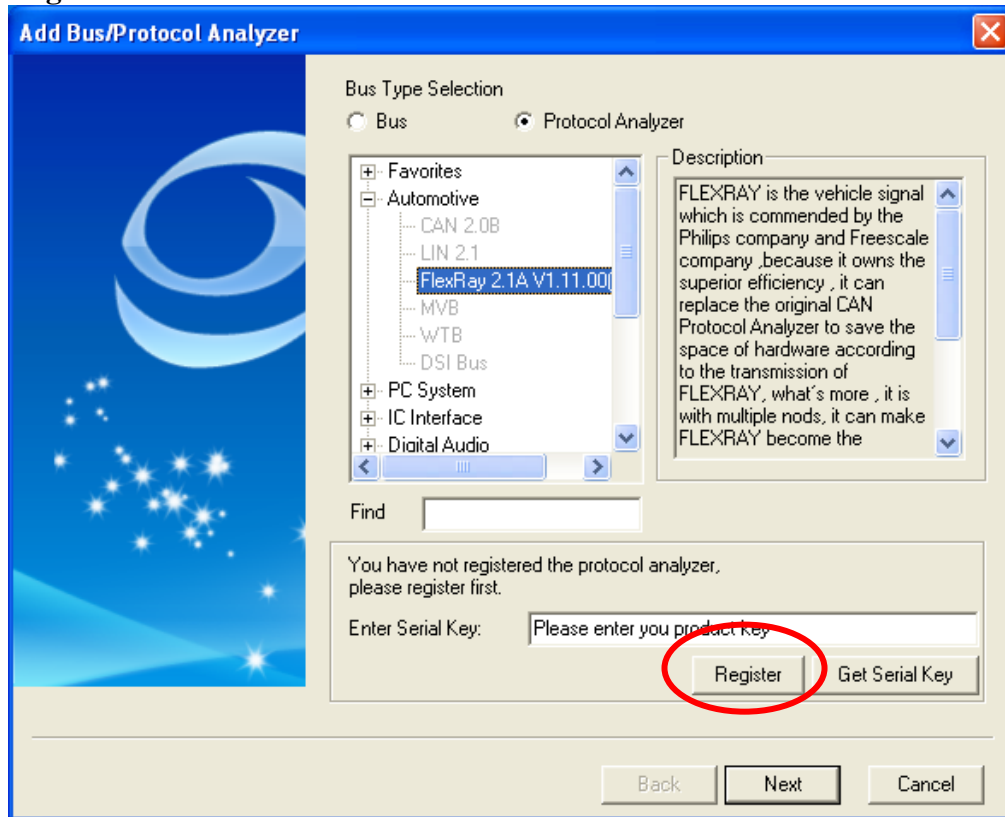


**STEP 2.** Select the Protocol Analyzer item in the Add Bus/Protocol Analyzer dialog box, expand the Automotive Type, select the FlexRay 2.1A and then press the **Next**.

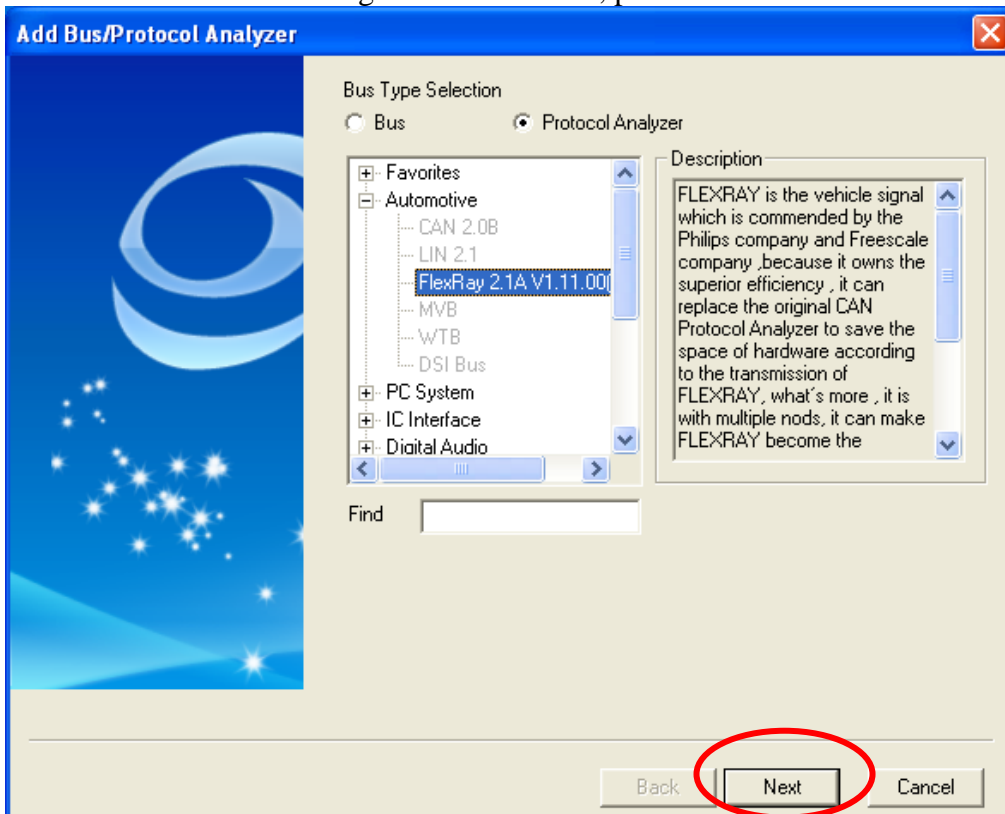




**STEP 3.** Enter the Serial Key of the FlexRay 2.1A under this Model, and then press the **Register**.

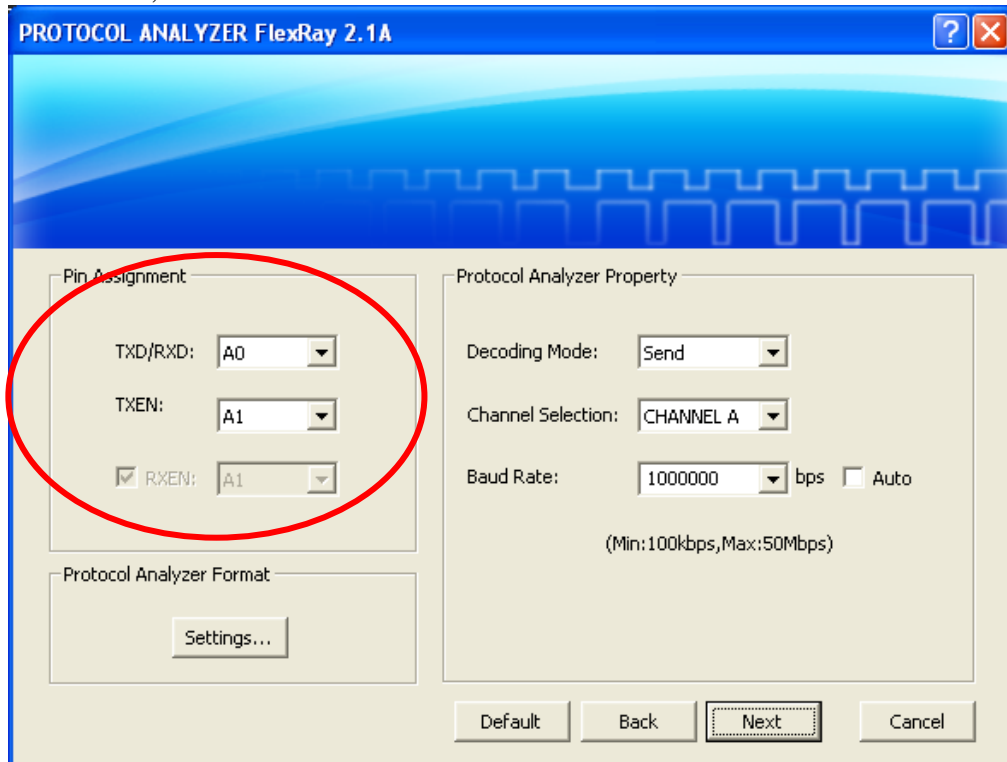


**STEP 4.** After the Register is successful, press the **Next**.

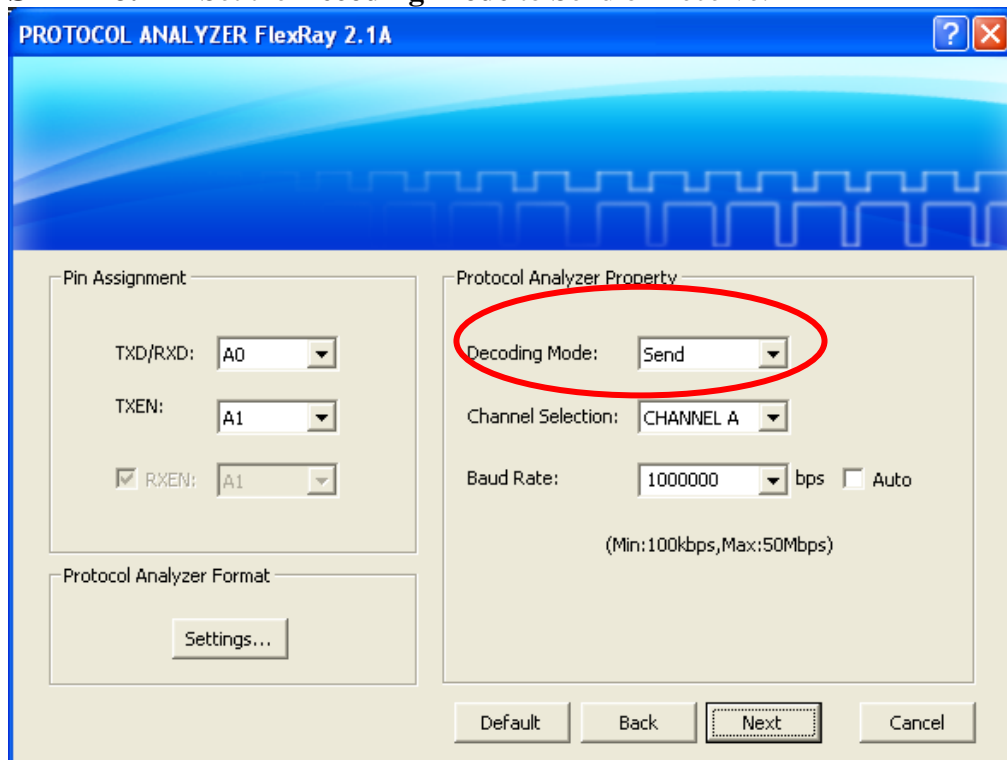




**STEP 5.** Open the PROTOCOL ANALYZER FlexRay 2.1A dialog box and set the Channels for TXD/RXD, TXEN and RXEN.

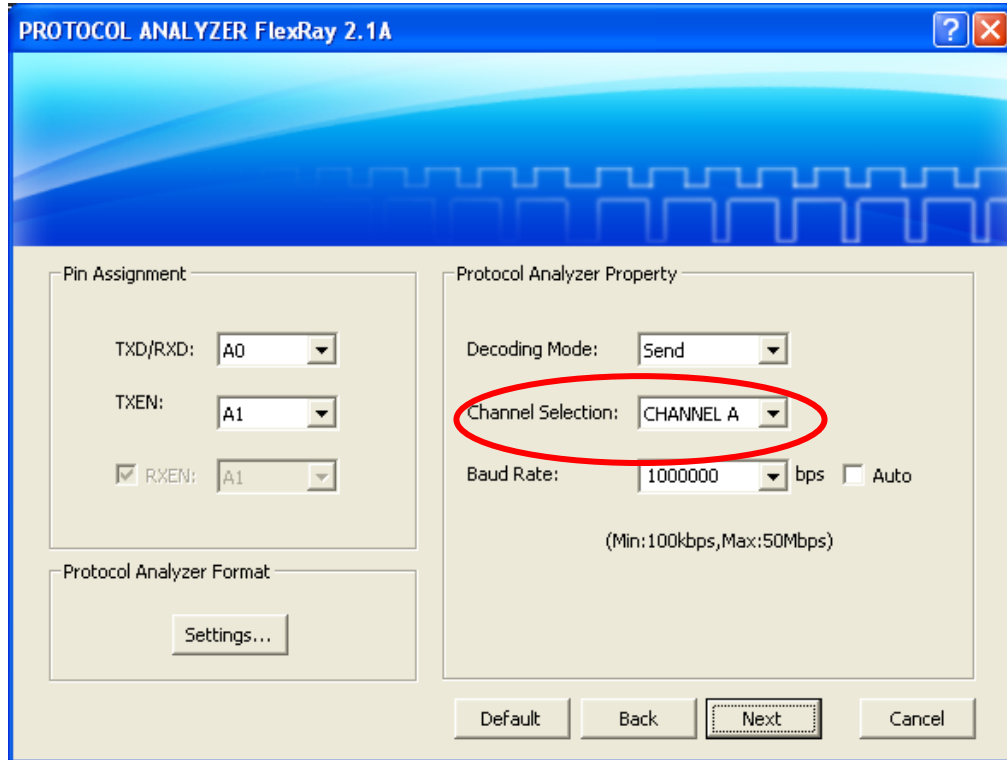


**STEP 6.** Set the Decoding Mode to Send or Receive.

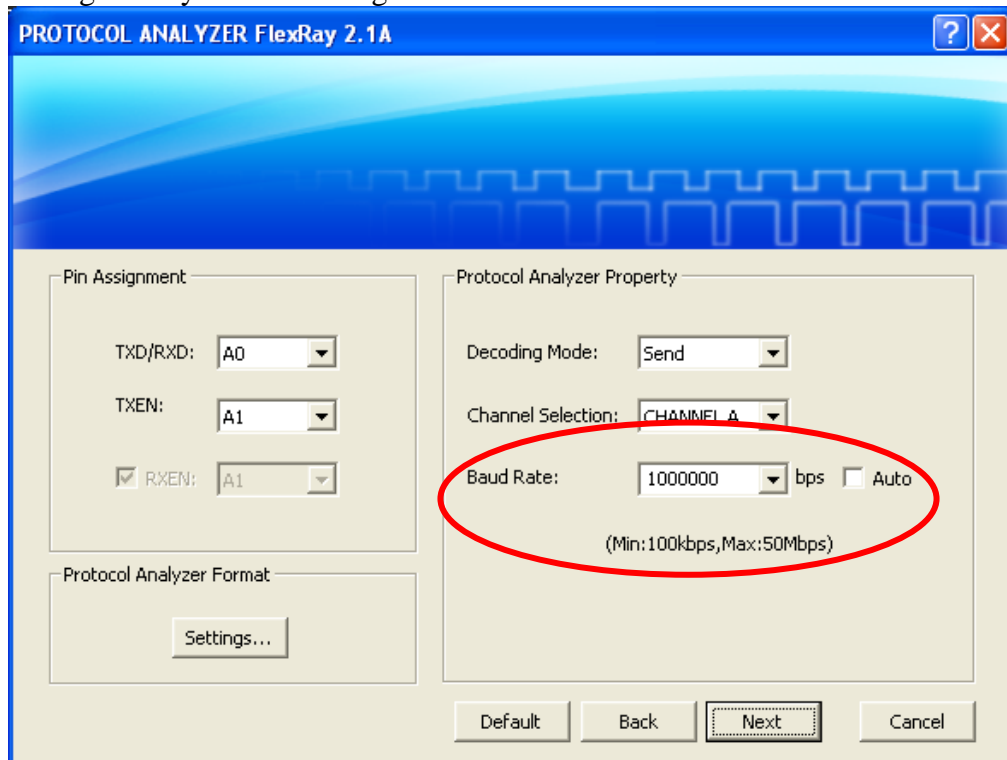




**STEP 7.** Set the **Channel Selection** to CHANNEL A or CHANNEL B.



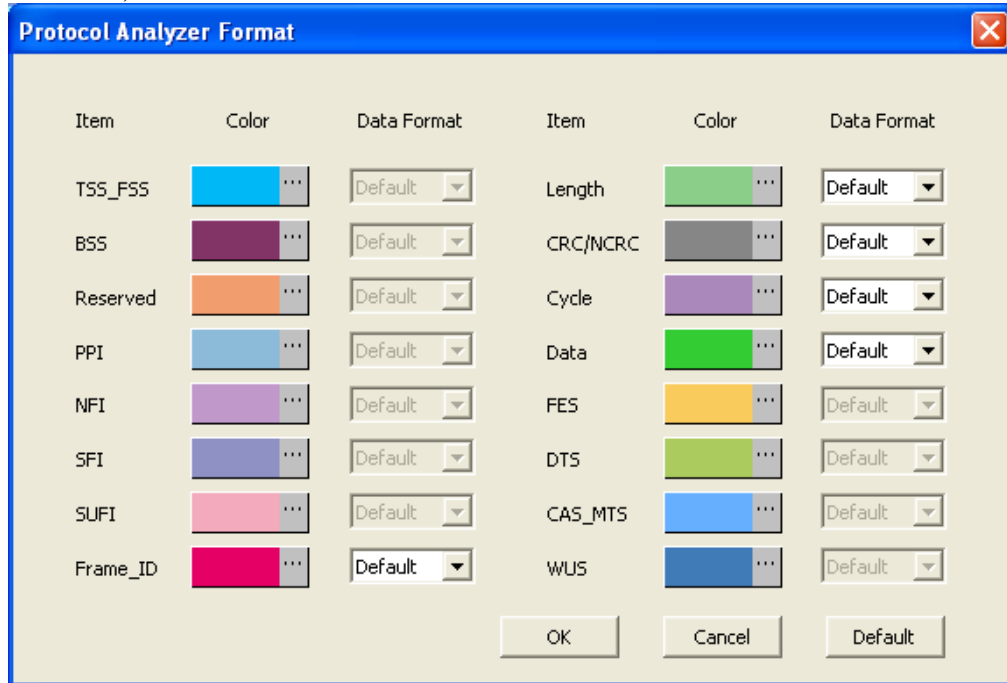
**STEP 8.** Select the Baud Rate from the pull-down menu or enter a value in the range from 100Kbps to 50Mbps. When the Auto is selected, the Baud Rate will be judged and displayed on the Dialog Box by the Main Program.







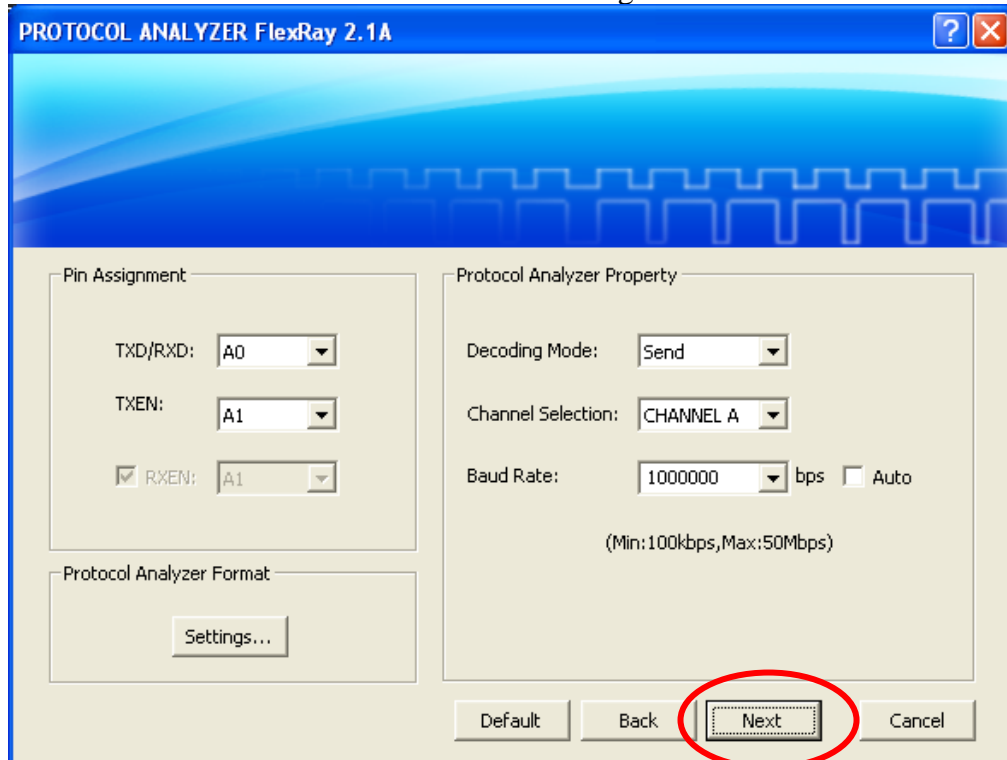
**STEP 9.** Press the **Settings** button to open the Protocol Analyzer Format dialog box, and then set the Color of each Item and the Data Format of the Items (Frame\_ID, Length, CRC/NCRC, Cycle and Data).



The dialog box titled "Protocol Analyzer Format" contains two columns of settings. Each row represents an item with a color selection box and a data format dropdown menu. The items are: TSS\_FSS, BSS, Reserved, PPI, NFI, SFI, SUFI, Frame\_ID, Length, CRC/NCRC, Cycle, Data, FES, DTS, CAS\_MTS, and WUS. All data format dropdowns are currently set to "Default". At the bottom are buttons for "OK", "Cancel", and "Default".

Item	Color	Data Format	Item	Color	Data Format
TSS_FSS	[Blue]	Default	Length	[Green]	Default
BSS	[Purple]	Default	CRC/NCRC	[Grey]	Default
Reserved	[Orange]	Default	Cycle	[Purple]	Default
PPI	[Light Blue]	Default	Data	[Green]	Default
NFI	[Purple]	Default	FES	[Yellow]	Default
SFI	[Purple]	Default	DTS	[Green]	Default
SUFI	[Pink]	Default	CAS_MTS	[Blue]	Default
Frame_ID	[Pink]	Default	WUS	[Blue]	Default

**STEP 10.** Press the **Next** to finish all settings.



The main configuration window for the Protocol Analyzer. It includes sections for Pin Assignment, Protocol Analyzer Property, and a Protocol Analyzer Format section with a "Settings..." button. The "Next" button at the bottom is circled in red.

**Pin Assignment:**

- TXD/RXD: A0
- TXEN: A1
- ☒ RXEN: A1

**Protocol Analyzer Property:**

- Decoding Mode: Send
- Channel Selection: CHANNEL A
- Baud Rate: 1000000 bps ☐ Auto
- (Min:100kbps,Max:50Mbps)

**Buttons:** Default, Back, **Next** (circled), Cancel



**STEP 11.** Please enter the Bus Name, select **Yes, please delete** or **No, please reserve** and then press **Finish**.

**Add Bus/Protocol Analyzer**

Please input the Bus name

BUS

Do you want to delete the other Buses and channels in the software?

☐ Yes, please delete

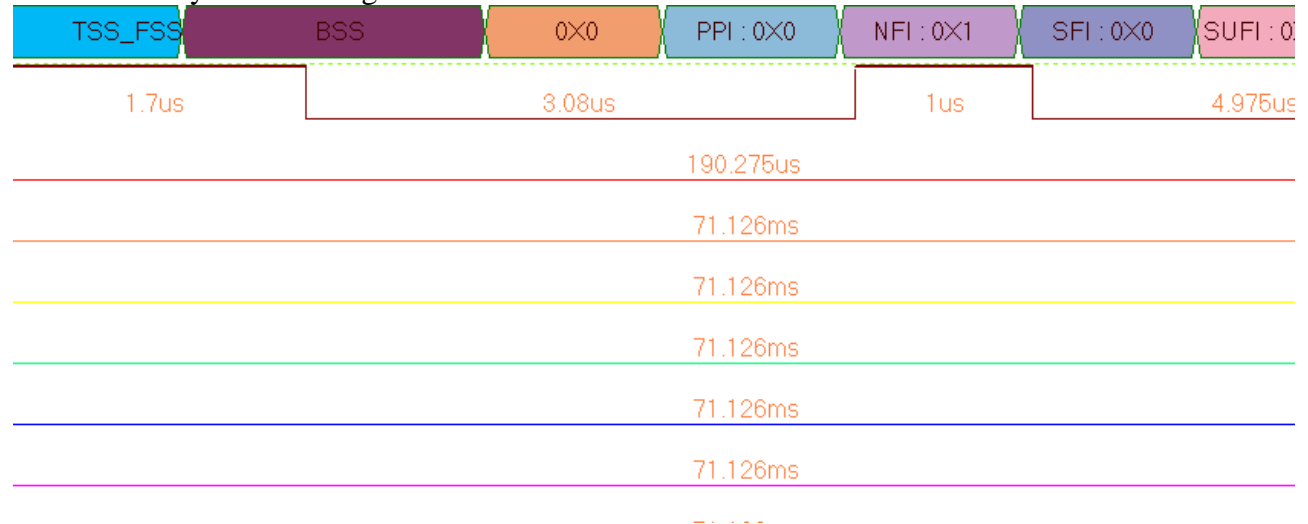
☒ No, please reserve

Back Finish Cancel



**STEP 12.** Following pictures show the completion of the protocol analyzer decoding and the packet list. The Trigger condition is set as Either Edge; the Memory depth is 128K; the Sampling frequency is 200MHz (the sampling frequency should be more than five times higher than the signal to be tested).

### Protocol Analyzer Decoding



### Packet List

Navigator	Packet List	Statistics	Memory Analyzer
Setting...	Refresh	Export...	Synch. Parameter...
Packet #	Name	TimeStamp	TSS_FSS BSS Reserved PPI NFI SFI SUFI Frame_ID BSS Length CRC11 Cycle BSS
1	Bus1(FlexRay 2.1A)	0.22553ms	TSS_FSS BSS 0 0 1 0 0 005 BSS 05 75F 09 BSS
	Data BSS Data BSS Data BSS Data BSS Data BSS Data BSS Data BSS Data BSS Data BSS Data NCRC		
	FF BSS 00 BSS 01 BSS 23 BSS 45 BSS 67 BSS 89 BSS AB BSS CD BSS EF NCRC		
	DESCRIBE		
	CRC Check Error		
Packet #	Name	TimeStamp	WUS
2	Bus1(FlexRay 2.1A)	0.43260ms	WUS
Packet #	Name	TimeStamp	WUS
3	Bus1(FlexRay 2.1A)	0.45320ms	WUS
Packet #	Name	TimeStamp	CAS_MTS
4	Bus1(FlexRay 2.1A)	0.49068ms	CAS_MTS
Packet #	Name	TimeStamp	TSS_FSS BSS Reserved PPI NFI SFI SUFI Frame_ID BSS Length CRC11 Cycle BSS
5	Bus1(FlexRay 2.1A)	0.57985ms	TSS_FSS BSS 0 0 1 0 0 005 BSS 05 75F 09 BSS