WB-Link PRO User Manual

Westberry Technology (ChangZhou) Corp., ltd

Contents

1 Introduction

Wb-link PRO is a product with online debugging and offline programming (download) functions launched by Westberry Technology (ChangZhou) Corp., ltd. It is used to support the development and mass production of our 32-bit MCU WB32F series.

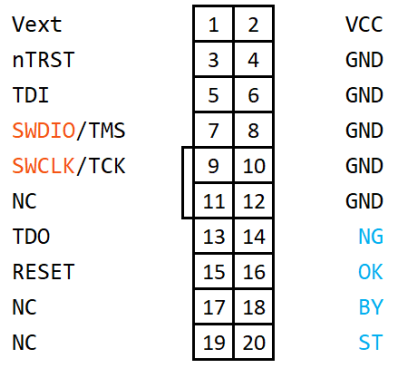
The main features are as follows:

- online debugger
- offline programmer
- plug and play
- use USB power supply

2 Hardware Interface

Wb-link PRO consists of a USB interface, a target interface, a button and four LED lights.

2.1 Interface definition



Pin	Signal	Type	Description
1	Vext	Output	Floating or output 3.3V power supply. (Determined by jumper cap on board)
2	VCC	Output	Output 3.3V power supply.
3	nTRST	Output	JTAG reset signal.
5	TDI	Output	JTAG data input for the target chip.
7	SWDIO/TMS	IO/Output	SWDIO：SWD data transfer. TMS：JTAG Settings input signal.
9	SWDCLK/TCK	Output	SWCLK：SWD Clock signal. TCK： JTAG Clock signal.
11	NC	NC	Do not connect.
13	TDO	Input	The target is JTAG data output pin.
14	NG	Output	Offline programming failure signal.(mass production)
15	RESET	IO	Reset signal of the target chip.
16	OK	Output	Offline programming success signal. (mass production)
17	NC	NC	Do not connect.
18	BY	Output	Offline programming Busy signal. (mass production)
19	NC	NC	Do not connect.
20	ST	Input	Offline programming start signal. (mass production)

3 LED Indicator light

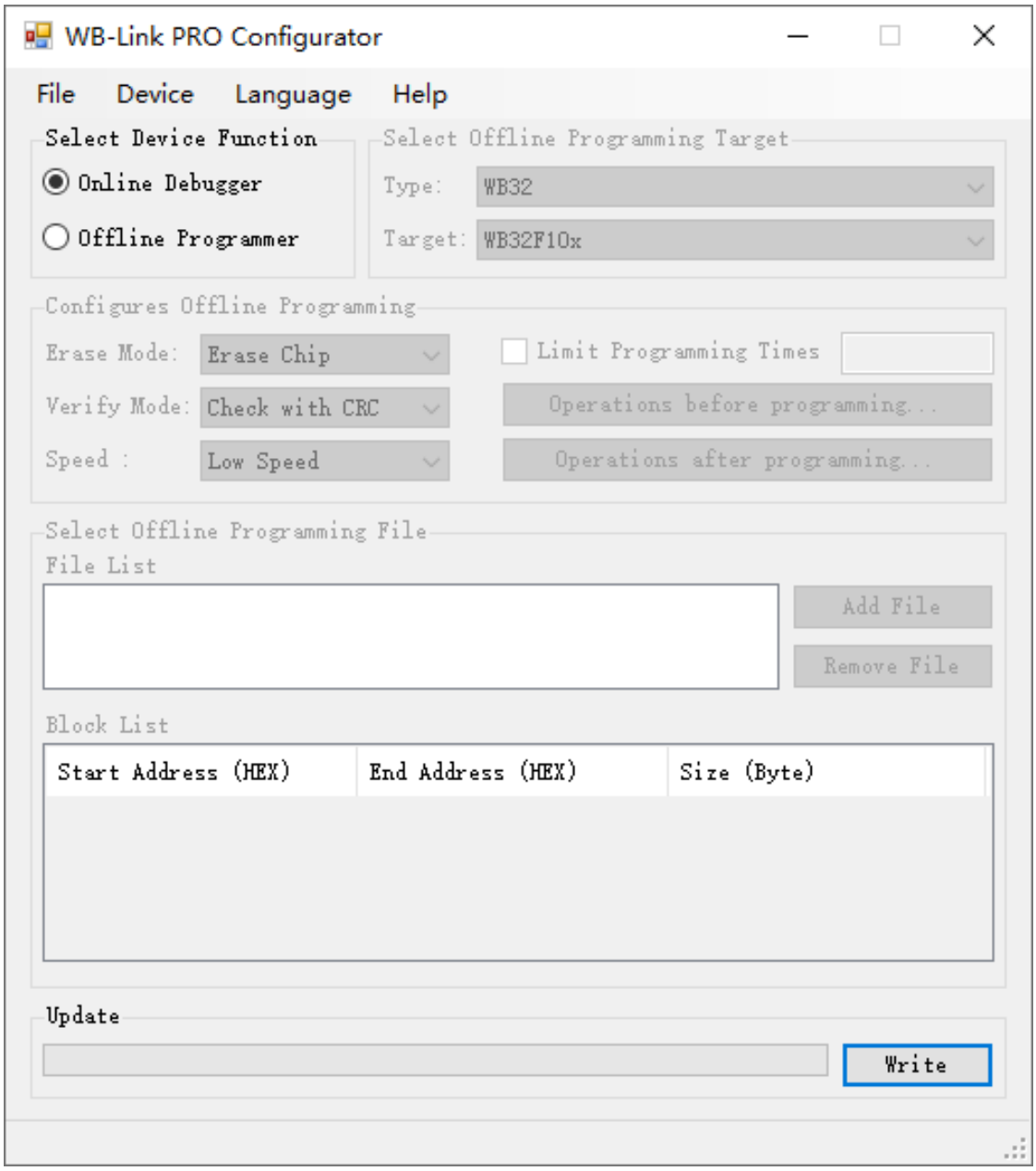
Status LEDs				Description
1	2	3	4	
-	-	-	ON	After the device is powered on,if LED4 is on, indicating that the device is working as an online debugger.
-	-	ON	ON	After the device is powered on,if LED3 and LED4 are on，indicating that the device is working as an Offline Programer.
-	-	BLINK	ON	If the indicator "LED3" blinks and "LED4" is on, it means that it is being programmed offline
ON	-	-	-	LED1 is on, Indicates that the offline download is successful.
-	BLINK	BLINK	BLINK	LED2, LED3, and LED4 are blinking at a slow speed, indicating that the offline programming fails.

Note: *When the device is working as an online Debugger, LED2 indicates* ***Debugger Connected****, and LED1 indicates* ***Target Running****.*

4 WB-Link PRO Configurator

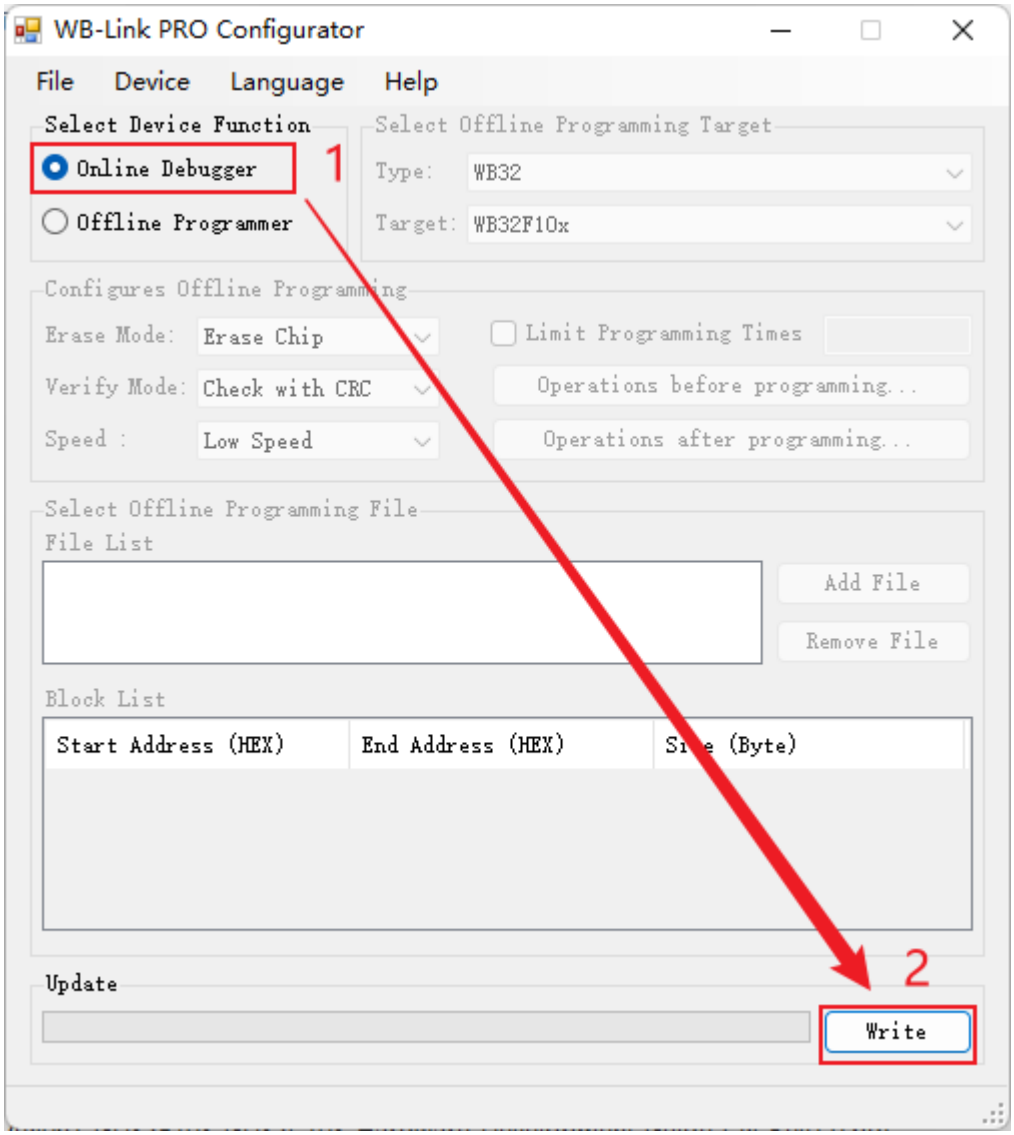
Wb-link PRO Configurator is the software used to configure WB-Link PRO devices. Its main interface is shown in the following picture.

You will need to connect the WB-Link PRO device to your computer via a USB cable during configuration.



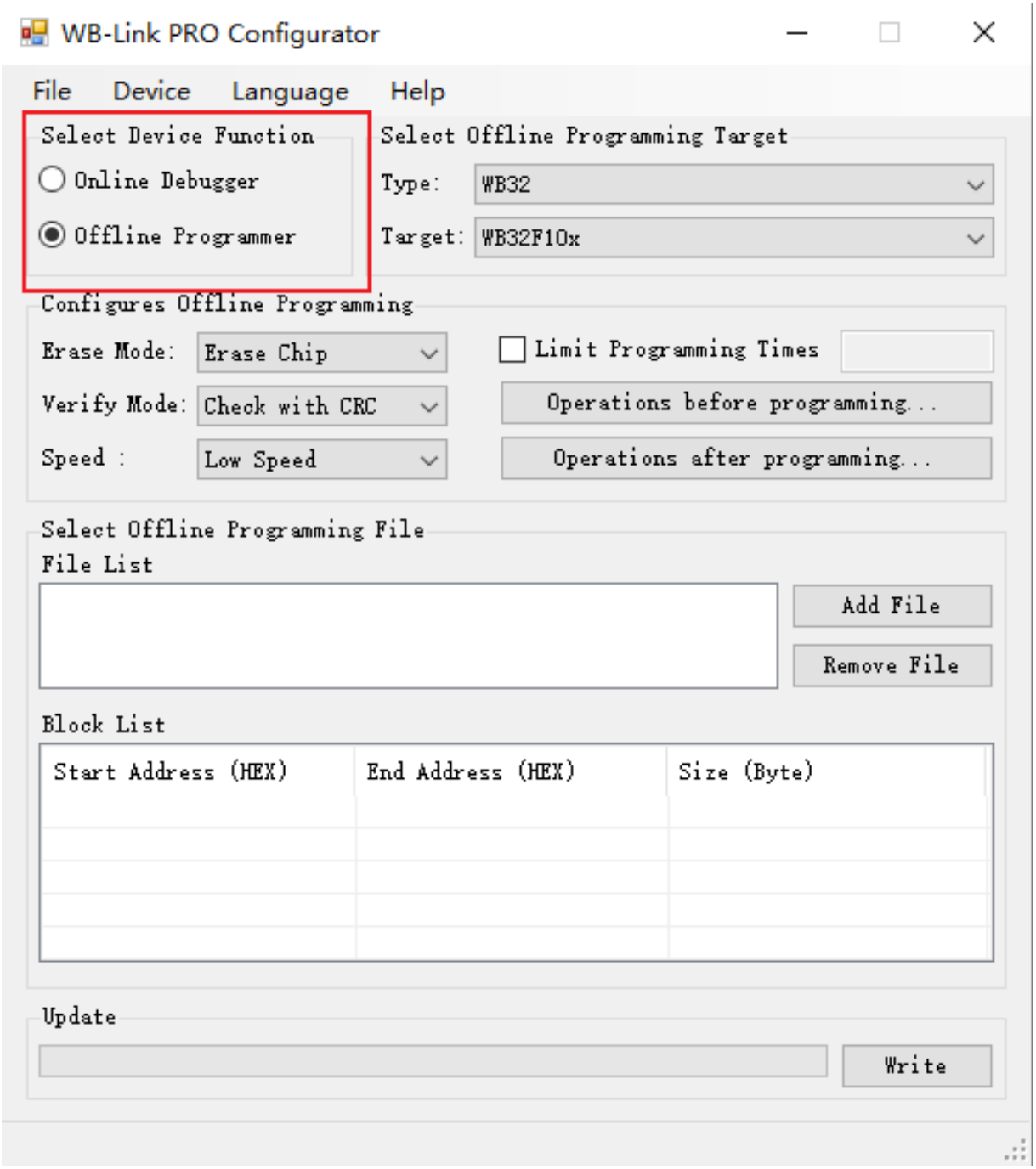
4.1 Configuring the Online Debugger Function

Wb-link PRO can be configured as an online debugger by selecting the “Online Debugger” in the “Select Divice Function” module and then clicking **Write** button.

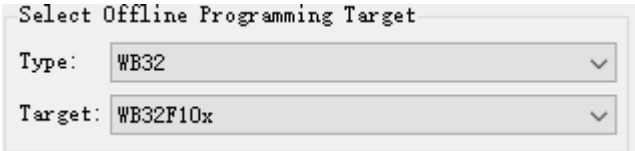


4.2 Configuring the Offline Programer Function

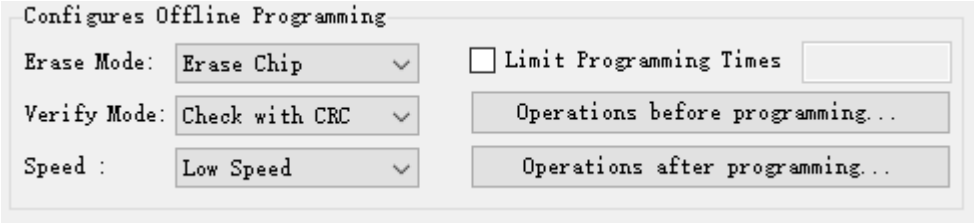
When the “offline programmer” is selected in the “Select Divice Function” module, you need to configure the offline programmer function.



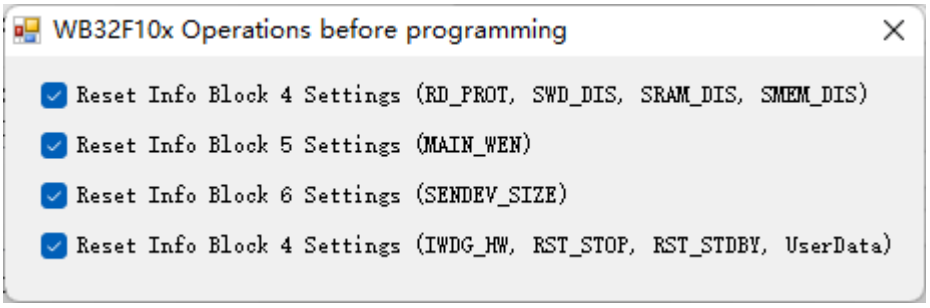
Step 01. Select Offline Programing Target: Select target chip



Step 02. Configures Offline Programming:



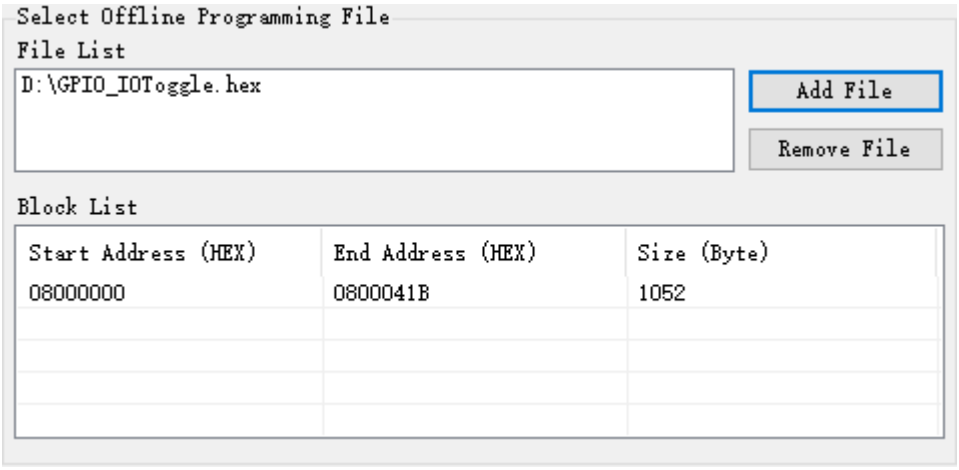
- **Erase Mode**: Select how to erase the target chip Flash
- **Verify Mode**: When offline programming is complete, choose whether to validate the program.
- **Speed**: Select programming speed
- **Limit Programing Times**: When the number of offline programming times reaches the configured number, the device cannot be used for offline programming.
- **Operations before programing…**: It is used to configure operations to be performed prior to programming, typically to perform operations such as removing read protection



- **Operations after Programing…**: It is used to configure operations to be performed after programming is complete. It is commonly used to configure read/write protection.

Step 03. Select Offline Programing File:

When the HEX file is added, the firmware information for that file is displayed in the Block list



Step 04. Update: Once the offline programmer is configured, click the **Write** button to write the offline programmer configuration to the WB-Link PRO device.

Step 05. (Optional) Offline programmer configuration information saved.

To save the current offline programmer configuration information, click

file->Save Configuration in the upper left corner to save the current configuration information. When you configure the offline programmer next time, select Load configuration to load the saved offline configuration information

5 Online Debugger Function

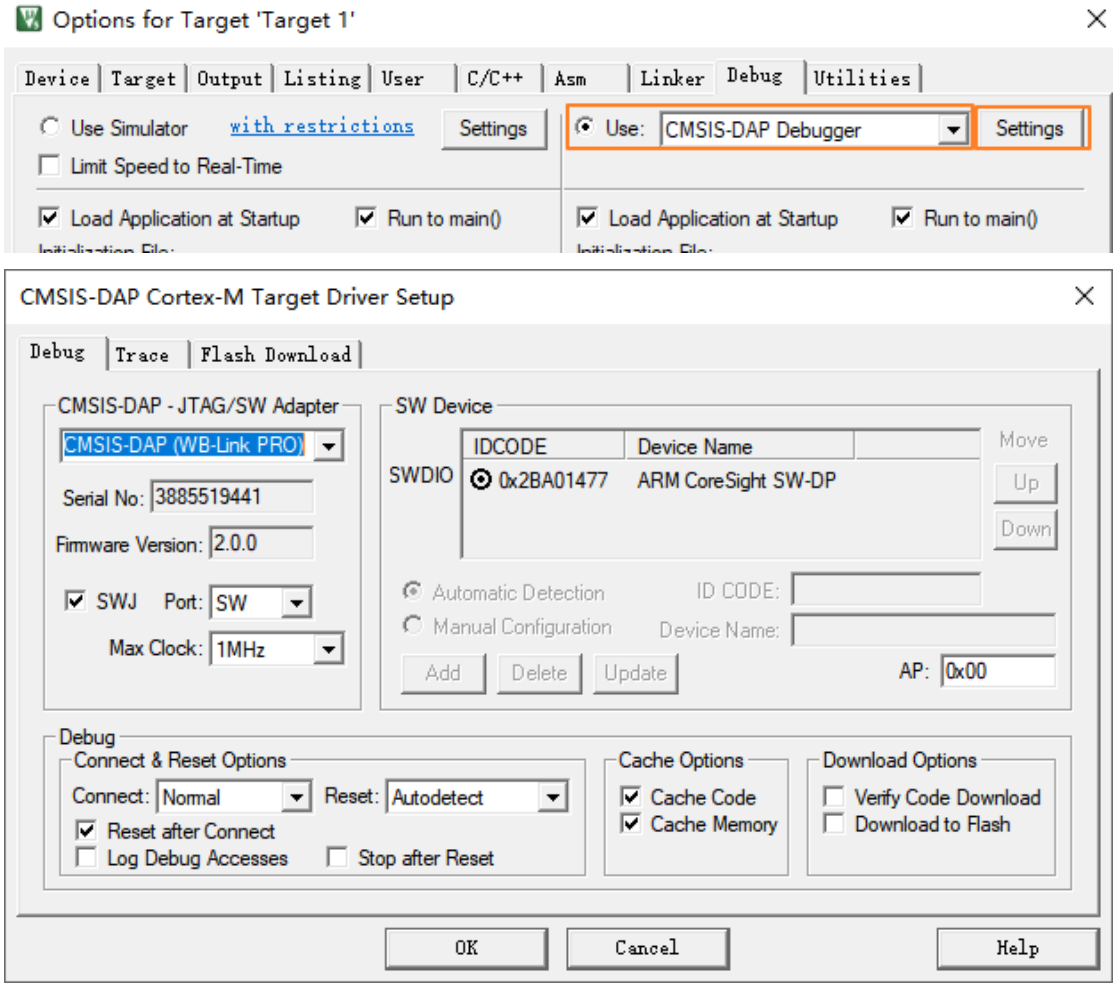
Wb-link PRO integrates online debugger functionality (CMSIS-DAP V2) and supports the SWD and JTAG protocols.It is available in Keil MDK V5.25 and above.

For more information, please refer to:

https://arm-software.github.io/CMSIS_5/DAP/html/index.html

5.1 How to use online debugging in Keil software

Open a project using Keil software and open the project configuration as shown in the figure. On the Debug TAB, select “CMSIS-DAP Debugger” and click **Settings** to configure the online Debugger.



After the configuration is complete, you can program and debug online.

6 Offline Programmer Function

The offline programmer feature is typically used for MCU programming in bulk and supports the SWD protocol.

When using the offline programmer function, LED3 and LED4 light up when powered on

When WB-Link PRO is used as an offline programmer, LED3 and LED4 light up when it is powered on.

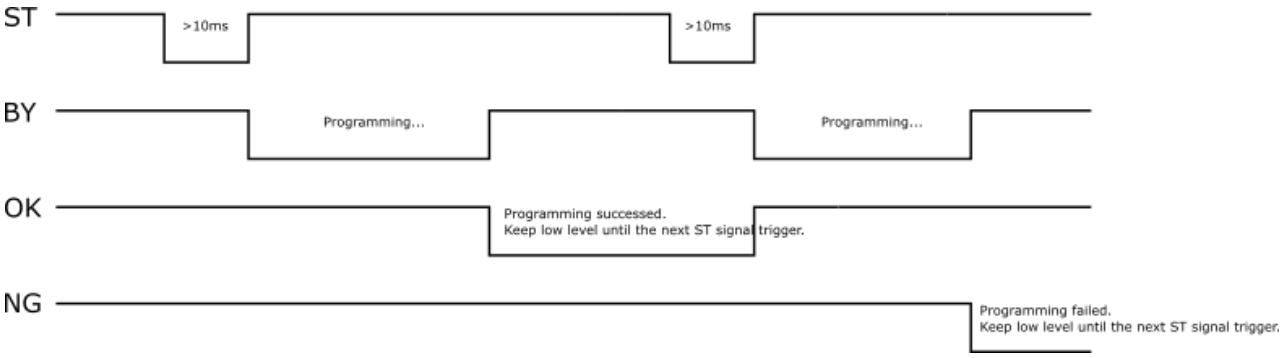
Connect the programming signal wires (SWDIO, SWDCLK, GND, Vext[optional]).

Then press the button, you can see the LED3 blinking quickly, this means that programming.

When the programming is finished, if the LED1 is on, it means that the programming is successful. If the LED2, LED3 and LED3 are blinking, it means that the programming failed. In this case, it is necessary to check whether the programming signal wires are connected correctly or whether the WB-Link PRO has exceeded the limit programming times.

6.1 Burning Machine Interface

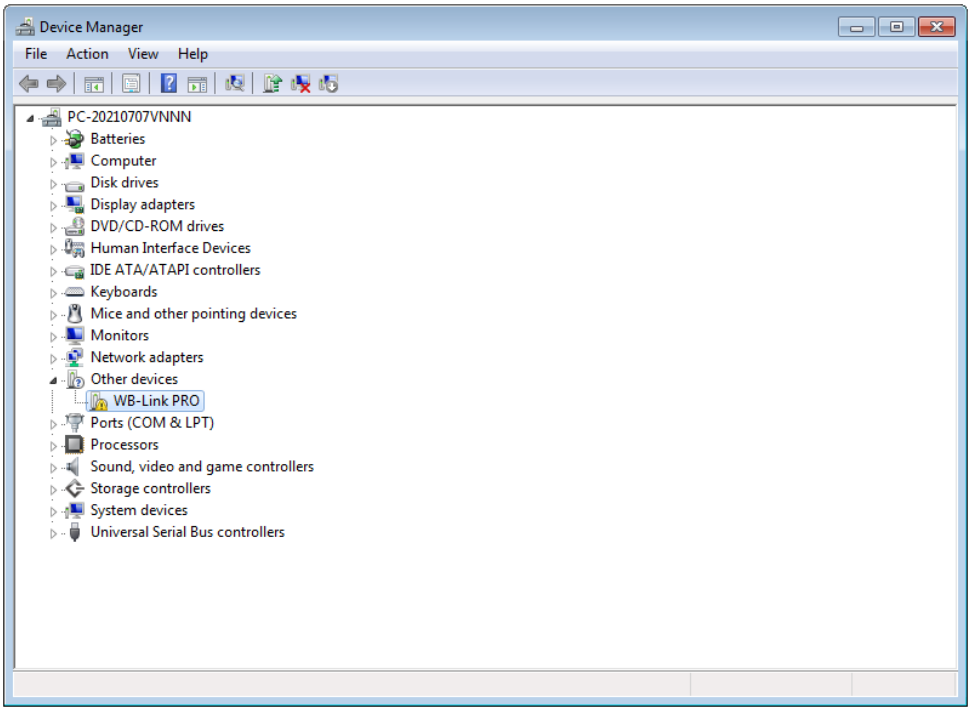
Signal sequence diagram of burning machine interface:



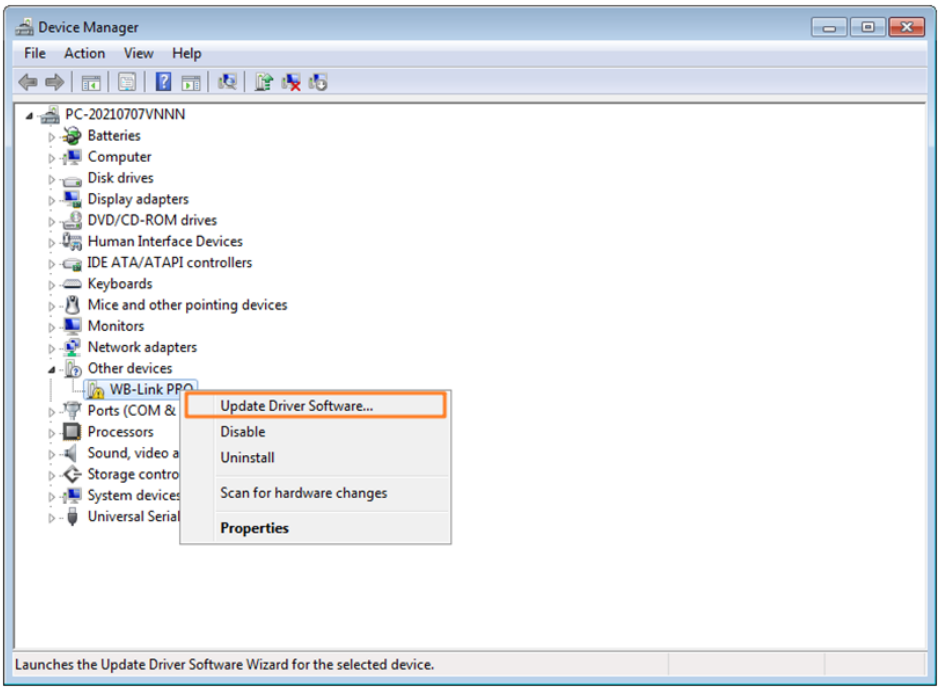
7 WB-Link Win7 Driver Installation Guide

Note:*This driver is required only for Windows 7.*

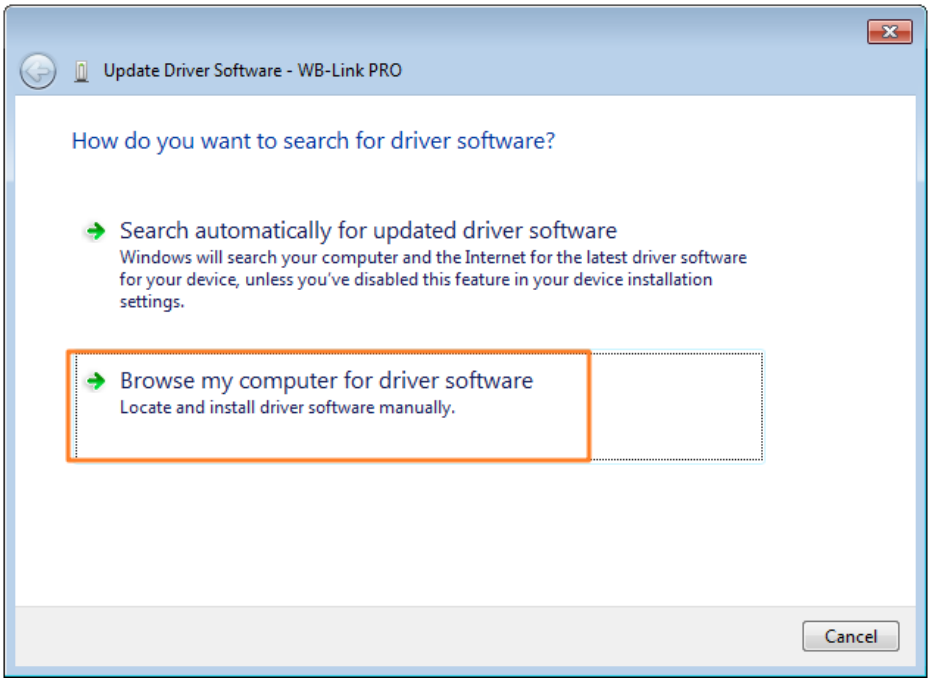
Step 01. Connect WB-Link PRO to your computer and open the Device Manager



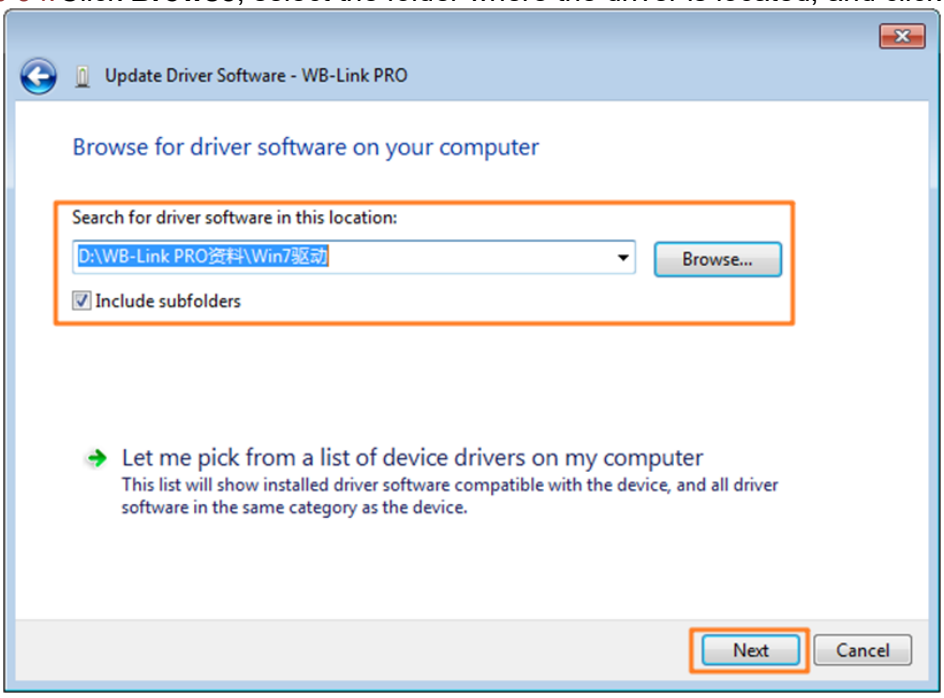
Step 02. Right-click on the WB-Link PRO device item in Device Manager and click Update Driver software



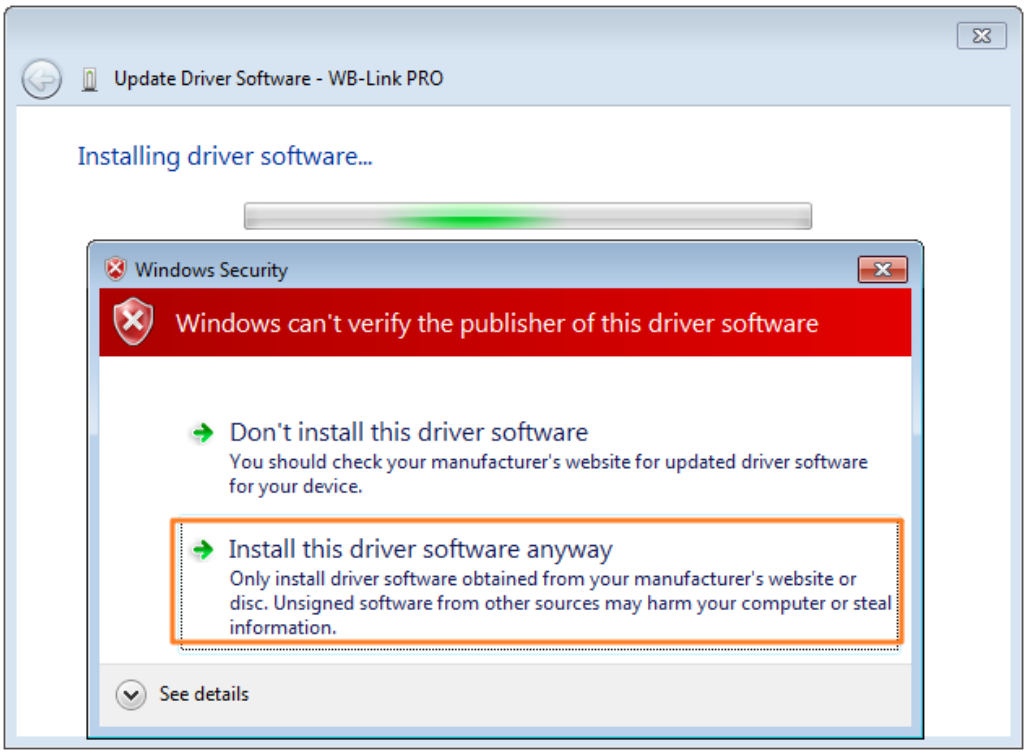
Step 03. Click "Browse my computer for driver sofware"



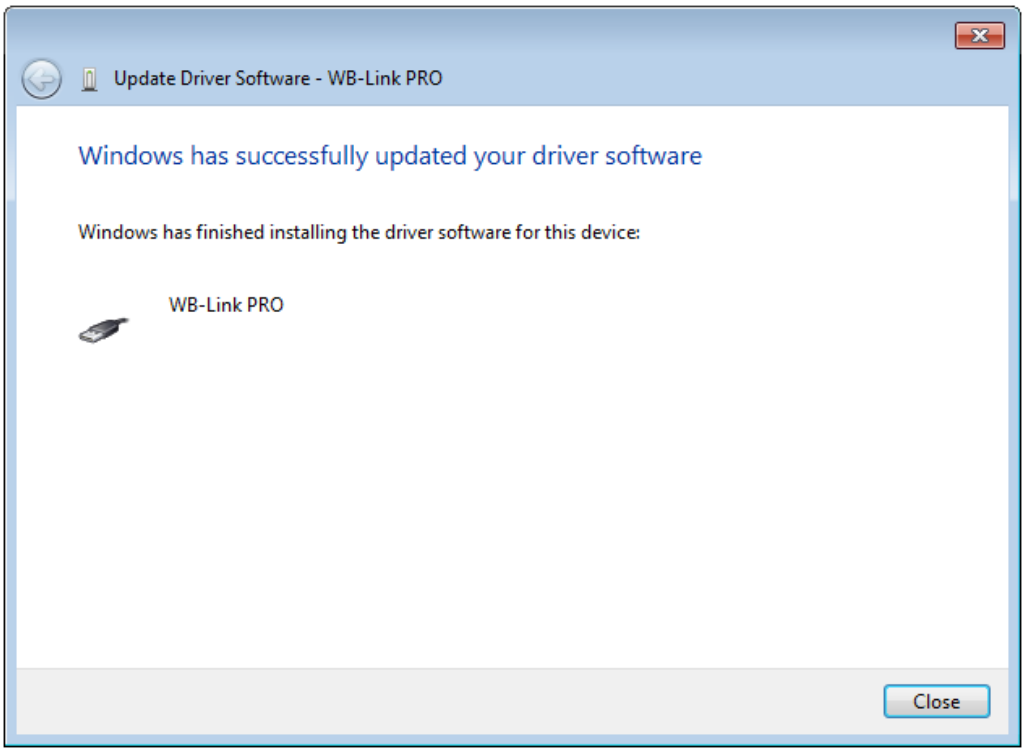
Step 04. Click **Browse**, select the folder where the driver is located, and click **Next.**

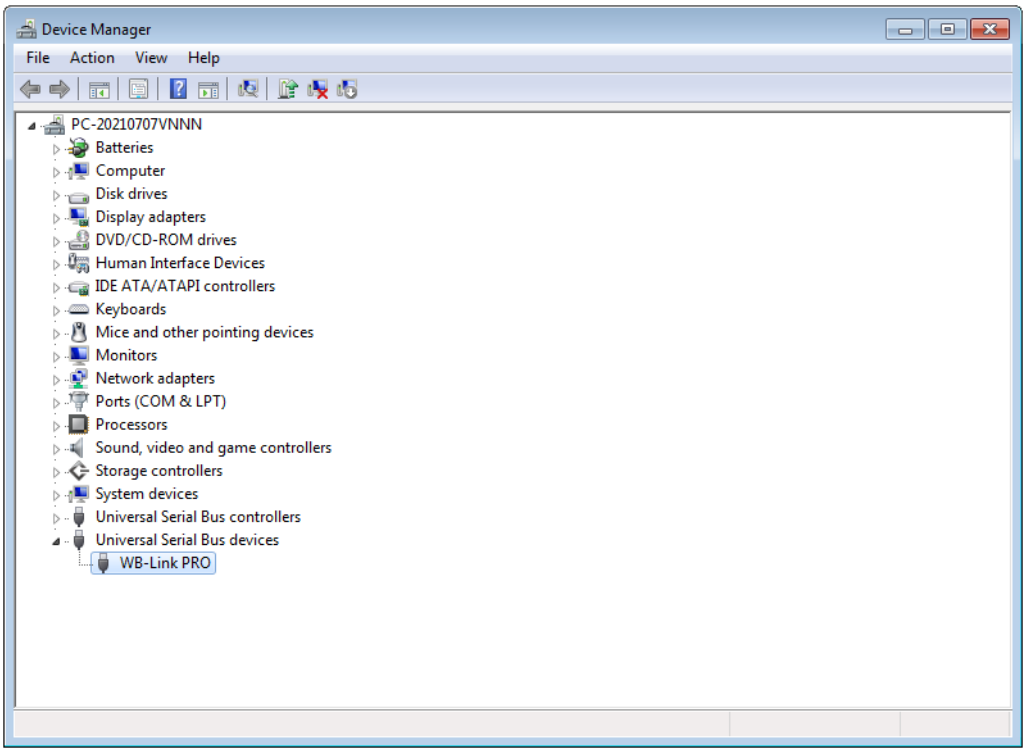


Step 05. When the driver installation begins, the following dialog box will pop up to select ”Install this driver software alway”



Step 06. The driver is installed successfully.




Device Manager
File Action View Help
PC-20210707VNNN
Batteries
Computer
Disk drives
Display adapters
DVD/CD-ROM drives
Human Interface Devices
IDE ATA/ATAPI controllers
Keyboards
Mice and other pointing devices
Monitors
Network adapters
Ports (COM & LPT)
Processors
Sound, video and game controllers
Storage controllers
System devices
Universal Serial Bus controllers
Universal Serial Bus devices
WB-Link PRO

Revision History

Revision	Date	Description
1.0	2021/10/05	Initial Release

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