

K110

Engineering ICP Programmer User Manual

Version 1.1



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Important notice:

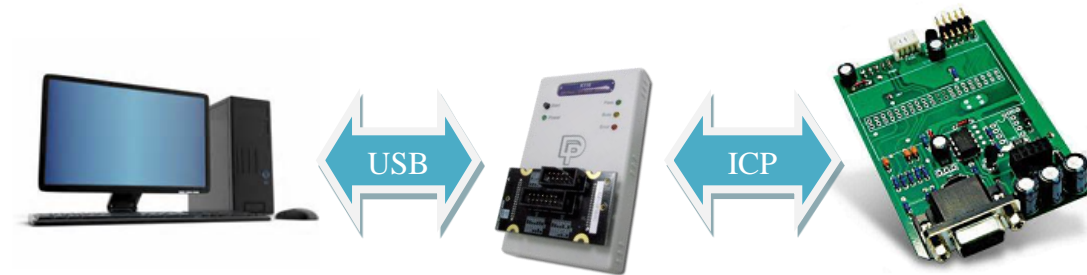
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I. Introduction

This manual describes the hardware specifications and applications of the K110 Programmer, and a quick guide for software installation.

K110 supports online programming, and offline programming through the socket adaptor. Online programming is for programming the IC that is already soldered on the circuit board, you can use the corresponding ISP adaptor and ISP cable to update the IC through the programmer. Please contact with DediProg for more information about the socket adaptor. K110 can be used for development and production. It provides USB control, stand-alone/offline programming, and ATE integration for programming control in production.



There are Dediware manual and K100 application note on DediProg official website.

II. Product Information

Programmer Models Function	K110	StarProg-ATE
Supported IC Kinds	EEPROM/SPI NOR/SPI NAND FLASH	EEPROM/SPI NOR/SPI NAND/MCU/CPLD
Mini USB Port	√	√
Socket Sites	√	X
ISP/ICP Port	√(Use with specific adaptor)	√
ATE Port	X (note1)	√
Power Cables/Pass/Busy/Error LED Light	√	√
Start button	√	√
Off-line/Standalone Programming	√	√
Multiple Programmers (Note 2)	√	√

Note1. The specific adaptor provides Start, Busy, Pass, and Fail signal.

Note2. 1PC can drive multiple programmers that have the same model.

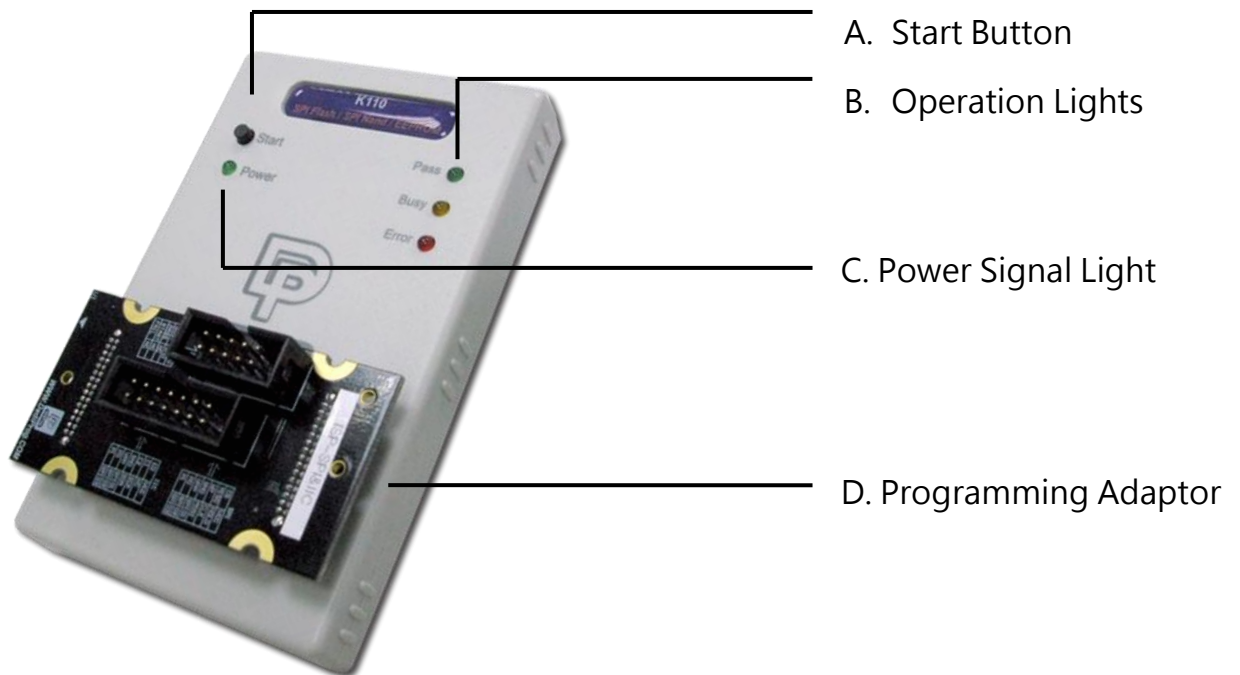
III. System Requirement

CPU:	P4 or above
OS:	Windows 7 / 8 / 8.1 / 10
USB Port:	USB 2.0
Free Disk Space:	At least 1GB
CD ROM:	It is necessary for installing the software

*When programming large volume ICs (ex. NAND), please reserve enough space for buffering.

IV. Product Descriptions

4.1 Exterior



A. Start Button

Manually trigger to start in the production mode.

B. Operation Lights

Red LED (Error): Programming has failed.

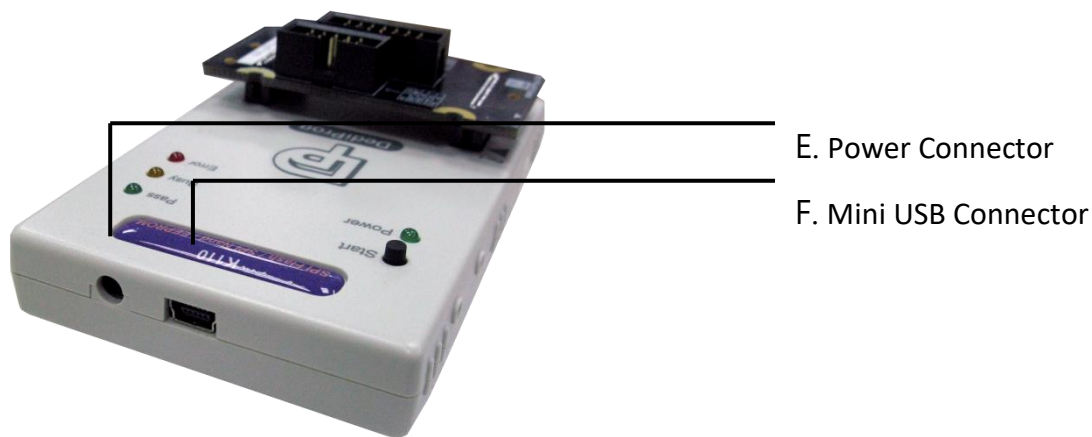
- **Yellow LED (Busy):** The programmer is operating.
- **Green (Pass):** The programming has completed successfully.

C. Power Signal Light

The light indicates the programmer is powered on.

D. Programming adaptor

It is inserting socket adaptor or specific ISP adaptor to provide the controls of IC Programming and the ATE equipment integration.



E. Power Connector

The power inputs for off-line/standalone mode. (Please use the power adaptor that DediProg provided, 5V/1A)

F. Mini USB Connector

Mini USB connector is for connecting the computer and the programmer when using Dediware. (Mini-B, Speed is above 15MB/s); when you are not using the power adaptor, then the USB is also able to provide electricity.

4.2 K110 Hardware Specifications

- **Programming Power Output**

VCC: 1.2~3.6V/200mA .

- **Programming Signal Specifications x8.**

Supported Voltage: 1.2V~3.6V

Dual direction

Support various programming protocol

Provides ESD protection

- **ATE Control Signals for Integration x4**

Output: 0-3.3V Pass/Fail/BusySignal.

Input: 0-3.3V Start Signal.

- **Embedded Memory:** Use 2Gbit Flash (For Standalone).

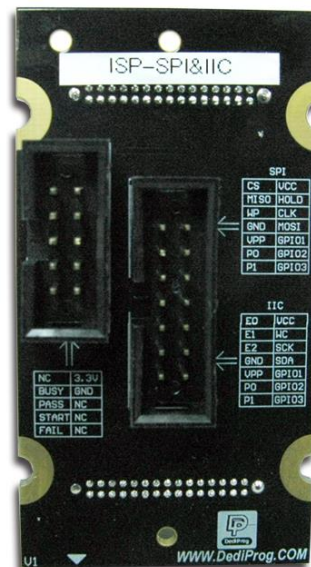
4.3 Related Accessories

4.3.1 Socket Adaptor

K110 supports the IC socket adaptors that are designed by DediProg, which includes SPI NOR Flash, SPI NAND Flash, and EEPROM. For more information, please contact with DediProg.

4.3.2 Dedicated ICP Socket Adaptor

DediProg provides corresponding ISP adaptor for different IC kinds. The SPI/IIC ISP adaptor supports SPI NOR Flash, SPI NAND Flash, SPI EEPROM, and I²C EEPROM Programming.

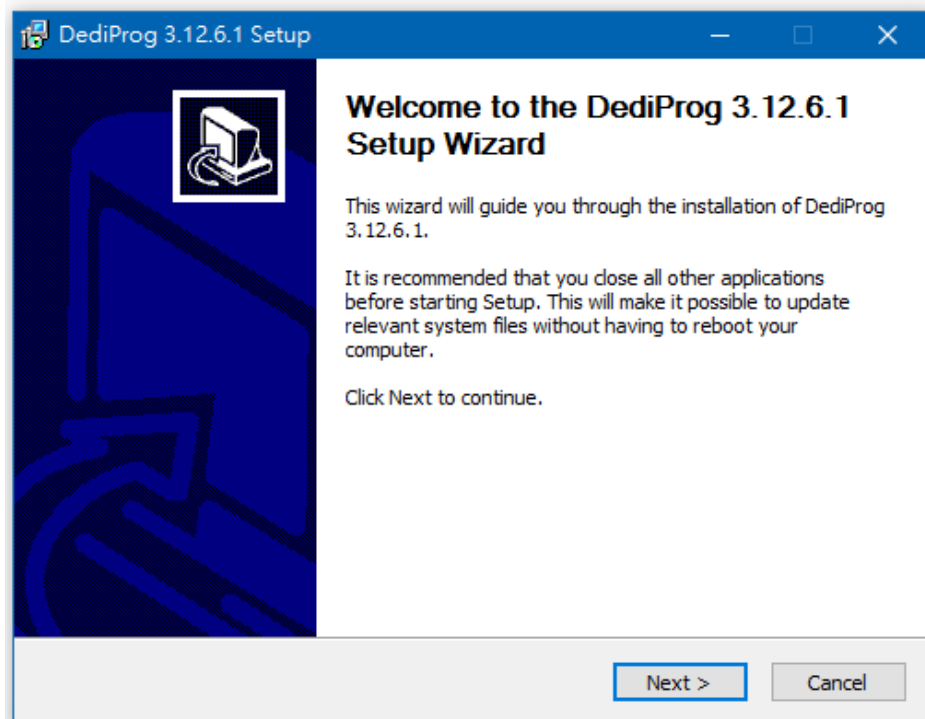


V. Dediware Quick Installation Guide

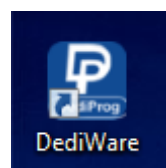
The software is provided with the purchase of K110 programmer.

5.1 Software Installation

1. Execute Dediware



2. Follow the instruction to complete the installation, and then a Dediprog icon will appear on the desktop.

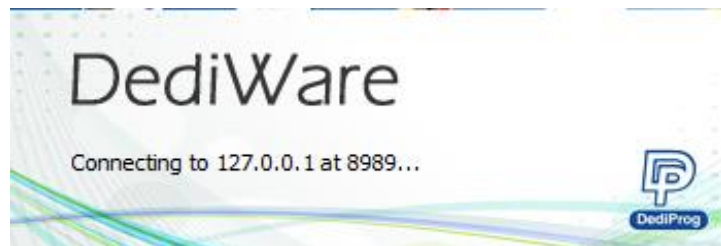


5.2 Install K110

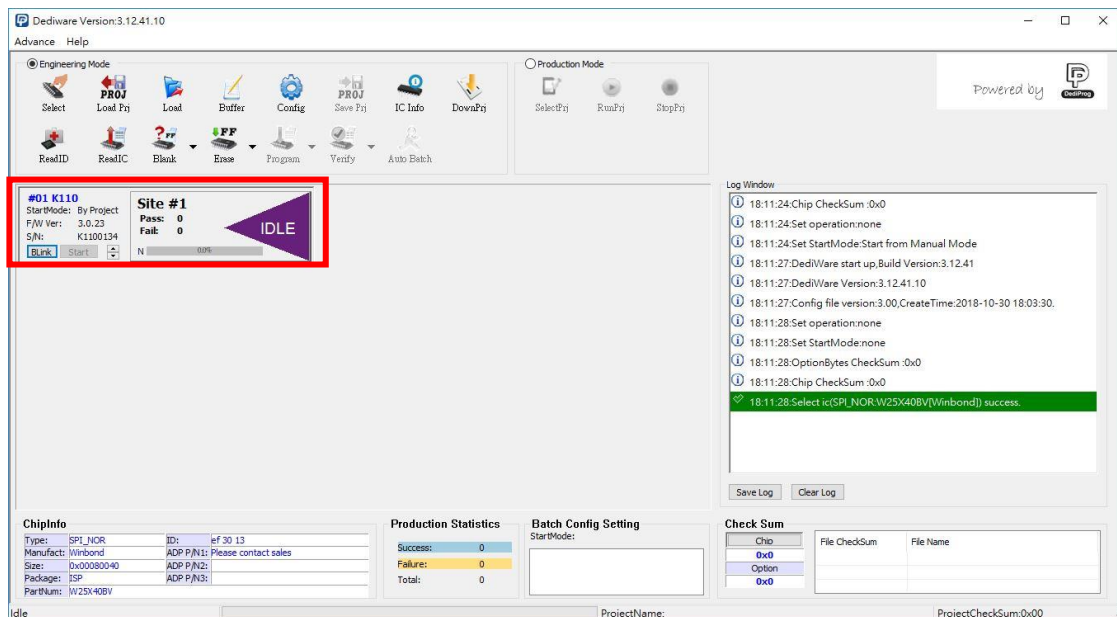
1. Connect K110 to a computer (Make sure the computer recognizes the programmer).
2. Install the socket adaptor. If you are using the dedicated ICP adaptor, then please use programming cable to connect to the circuit board.
3. Start programming after the software is open.

5.3 Dediware Setting

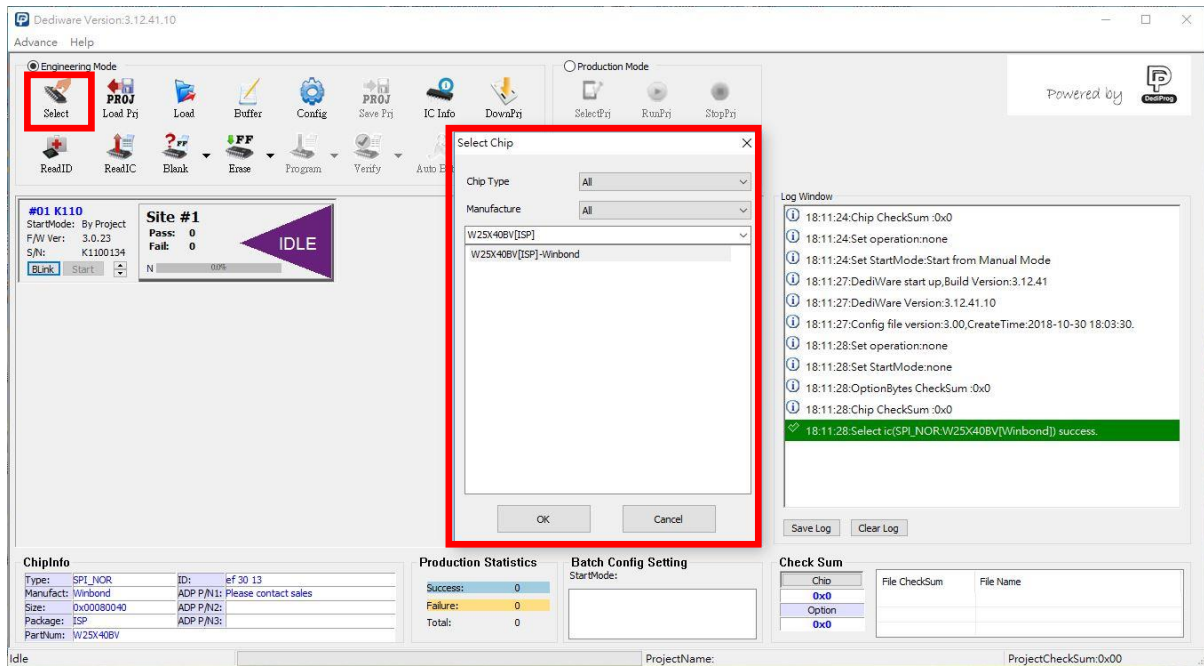
1. Double-Click the icon to run the software.



2. Software interface (Make sure the programmer has been detected by the Dediware, please see the below image for reference)

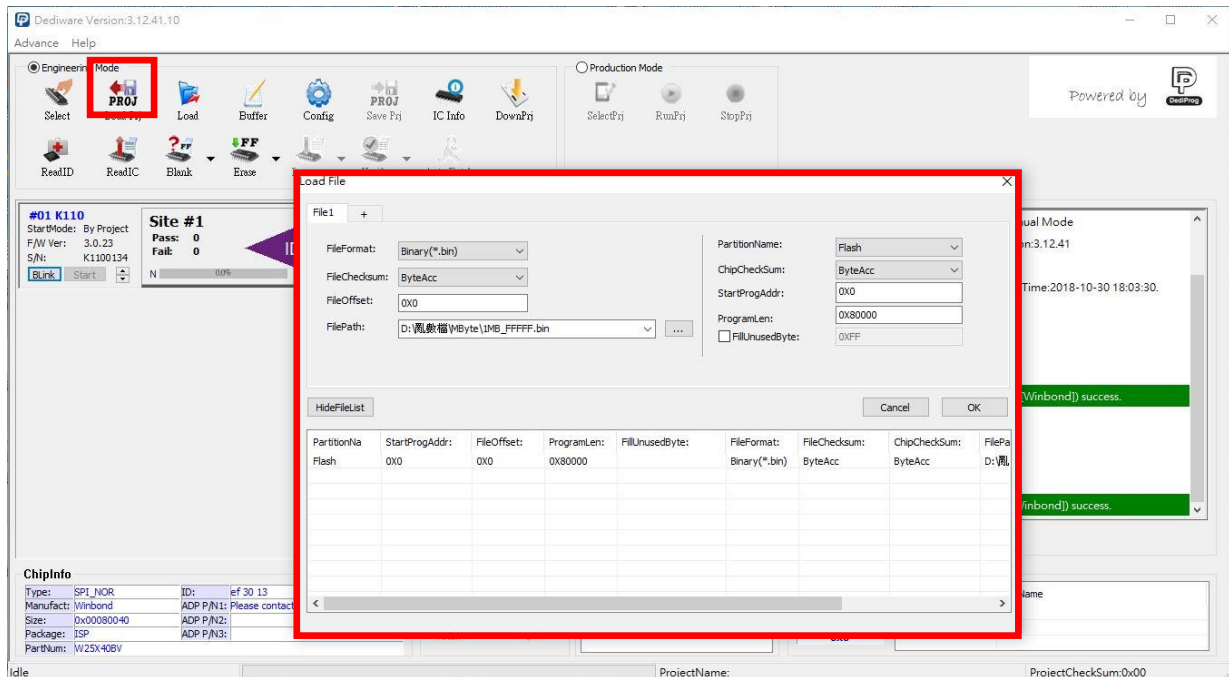


3. Select the IC brand and the part number

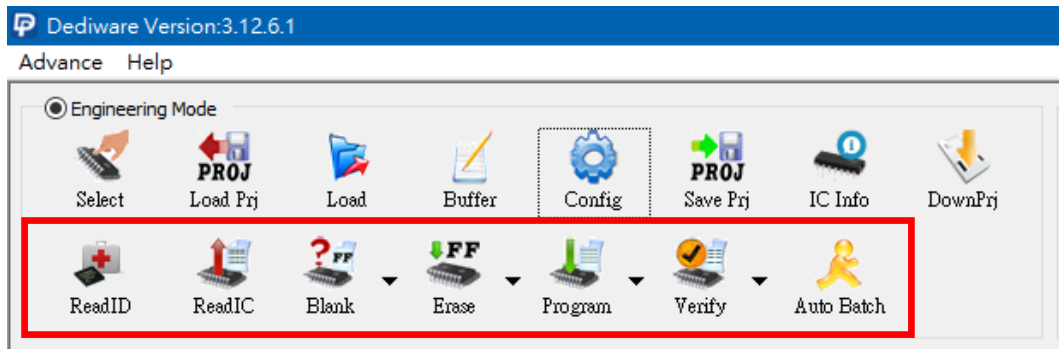


The screenshot displays the DediWare software interface. The 'Select' button in the top toolbar is highlighted with a red box. A 'Select Chip' dialog box is open, also highlighted with a red box, showing 'Chip Type' set to 'All' and 'Manufacture' set to 'All'. The 'Log Window' on the right shows a successful log entry: '18:11:28:Select ic(SPI_NOR,W25X40BV(Winbond)) success.' The main interface shows 'Site #1' in 'IDLE' mode.

4. Load the programming file.

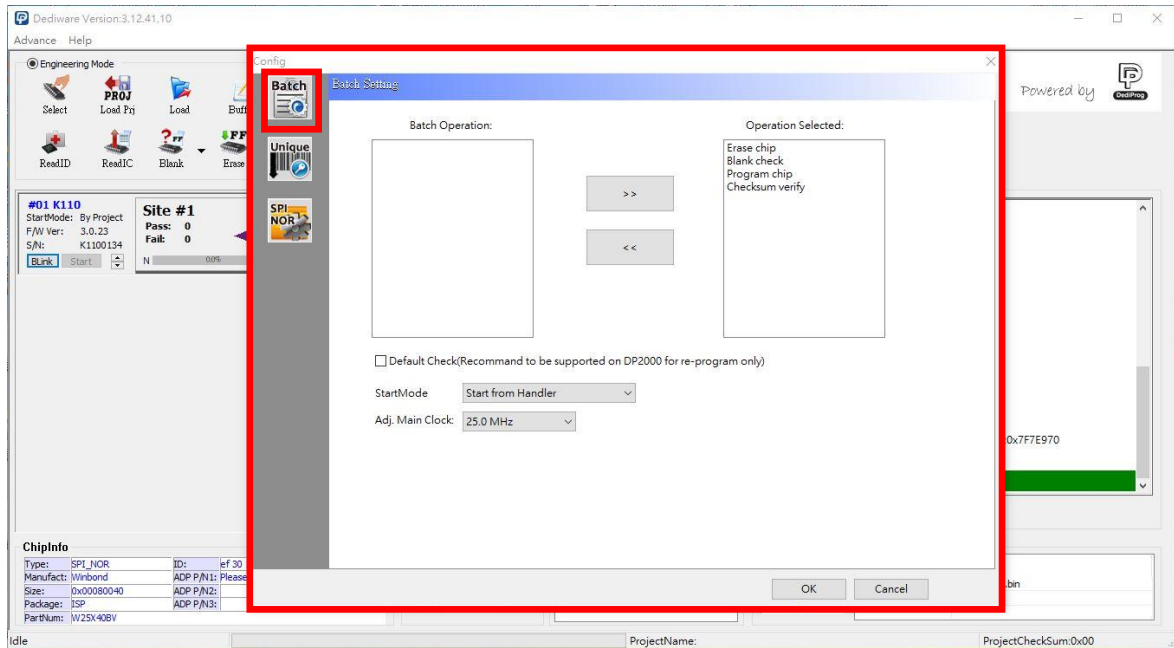


5. Single Programming Operation

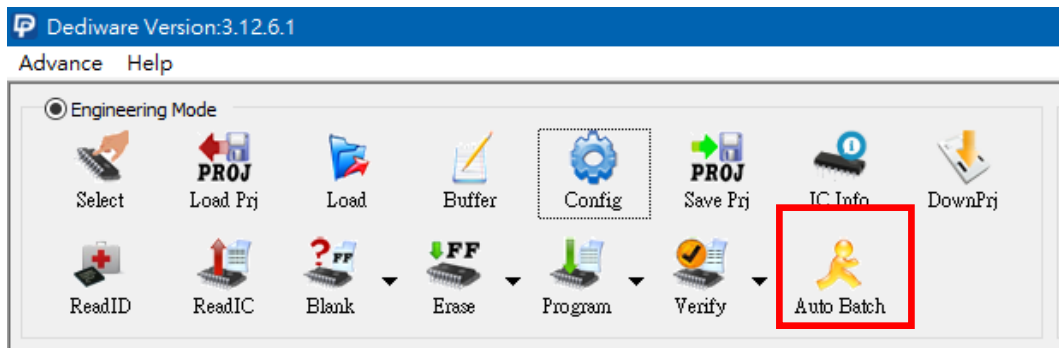


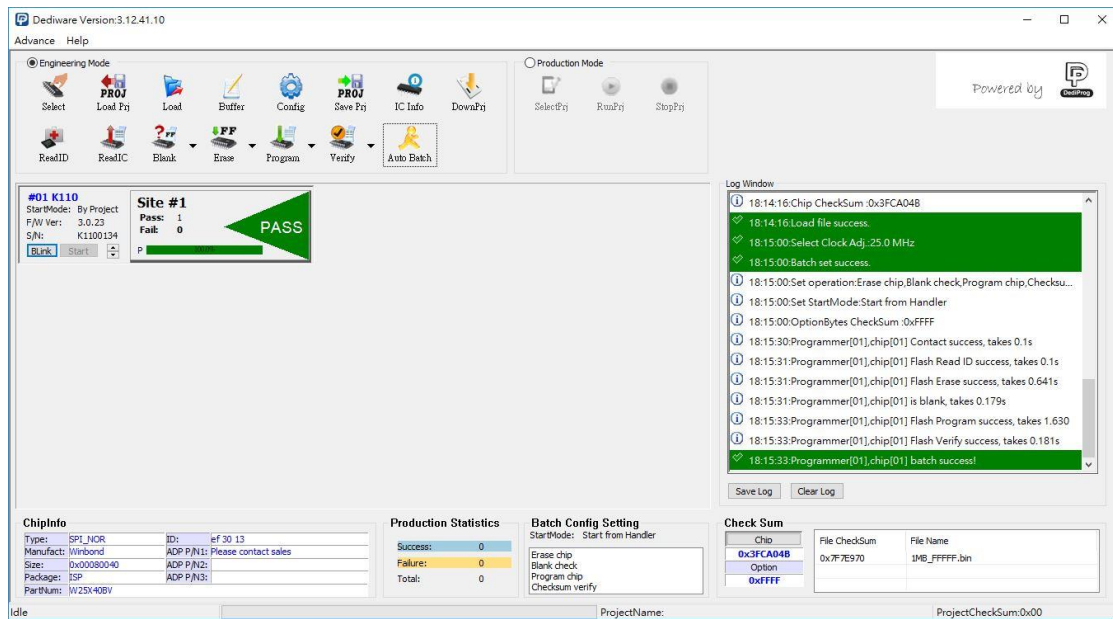
6. Batch Setup

Step1. Set up the Batch Setting in Config



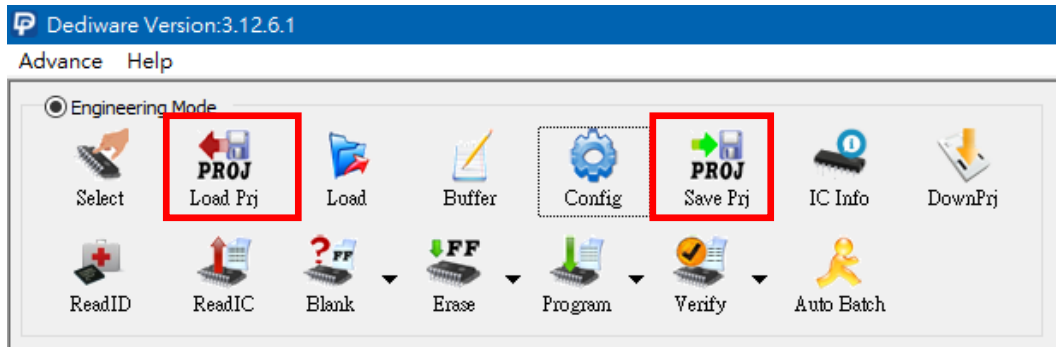
Step2. Click Auto batch to start programming





7. Save and Load the Project File.

SavePrj will save the entire select, load, and config settings into a project file (*.dprj). On the other hand, the Load Prj can import the previous project files.



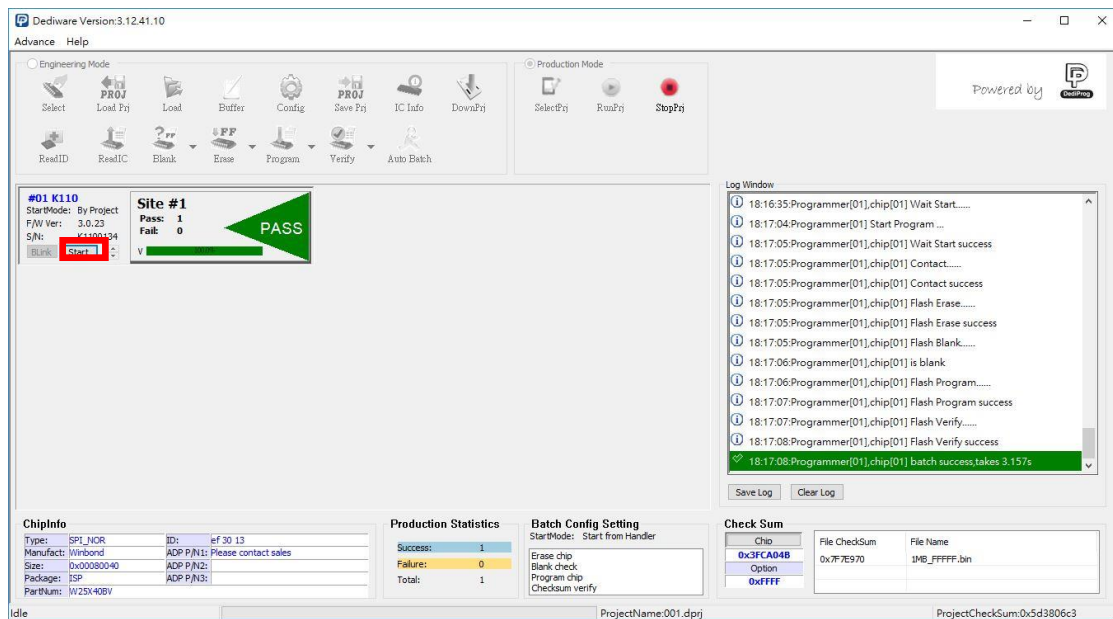
8. Production Mode Steps



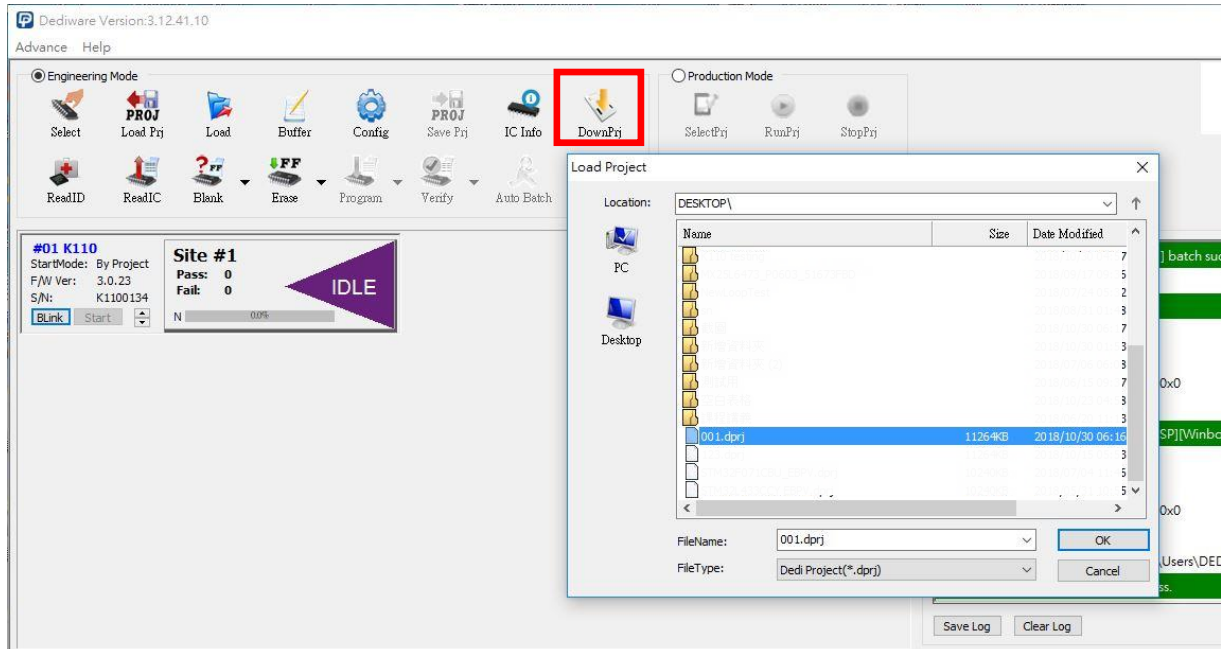
Step 1. Choose a project (SelectPrj)

Step 2. Run the Project (RunPrj)

Step 3. Click the start button when it is available (as shown), and then click StopPrj to stop.



9. Standalone/Offline programming Setting. Only need to save the project file into the programmer's embedded memory card through Down Prj, and then the programmer only needs to be connected to the external power in order to start programming. (Please refer to Method C and D in **VI. Application**)



VI. Applications

In the **engineering mode**, once the K110 has been tested and created a project file (*.dprj), there are several methods to conduct production.

Method A. Through Dediware

Operate and monitor all the production processes through Dediware. All the procedures will be recorded in the log and it can program serial numbers and the unique key's related serial numbers as well.

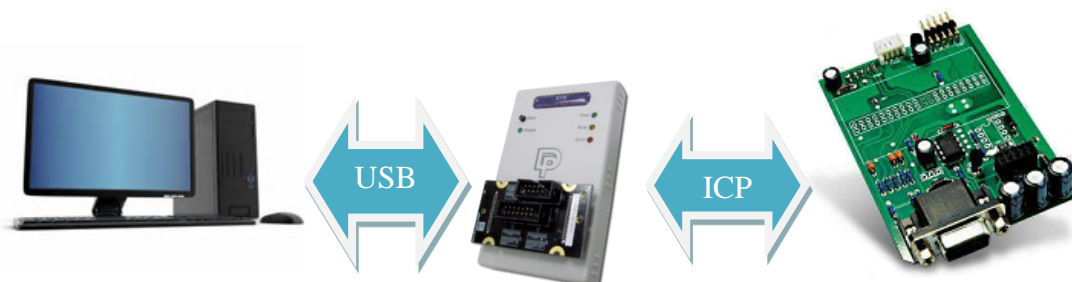


Step1 : Test and save the project (*.dprj) under Dediware engineering mode. Make sure to select “Start from handler” for start mode in the Config window.

Step2 : Load the project file under production mode, and then start programming.

Method B: Through CLI

CLI can integrate with the production software. Importing project files to start according to your production demands. However, the log and the serial number programming are not available under this circumstance.

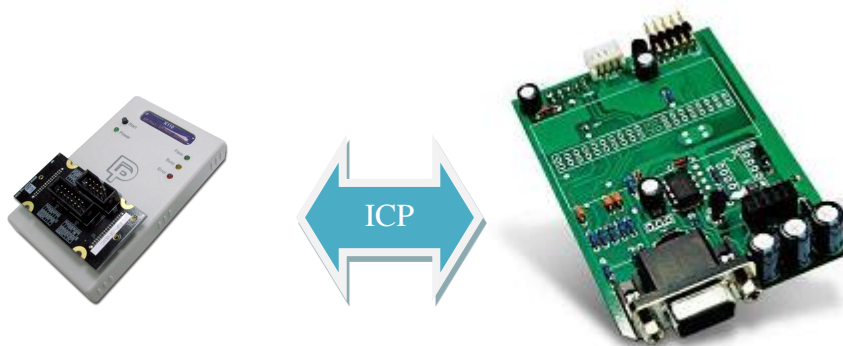


Step 1: Test and save the project (*.dprj) under Dediware **engineering mode**. Make sure you select “Start from handler” for **start mode** in the **Config** window.

Step 2: Connect the CLI (Command line) with your production software and import project file to proceed. Please use the CLI that is provided by DediProg.

Method C. Standalone Programming (Use start button)

Standalone does not require a computer for programming. Just insert a SD card with project files, connects a power cable to K110 and press the start button to begin.



Step 1: Test and save the project (*.dprj) under Dediware **engineering mode**. Make sure to select “Start from handler” for **start mode** in the **Config** window. And use DownPrj to load the project file to the embedded memory.



Step2: Connect the external power to K110 (Not connected to USB), only need to press the Start key on the programmer to execute programming.

Method D. ATE Integration (Through Start/Busy/Pass/Fail Control Signal)

Use the specific socket adaptor to integrate K110 with the ATE equipment. Able to control the programming functions through the Start, Busy, pass, and fail external signals after loading the project file into the embedded memory.



Step 1: Test it under Dediware engineering mode, and then save the project file as *.dprj. Use **start mode** to set-up the handler. And use DownPrj to load the project file to the embedded memory.

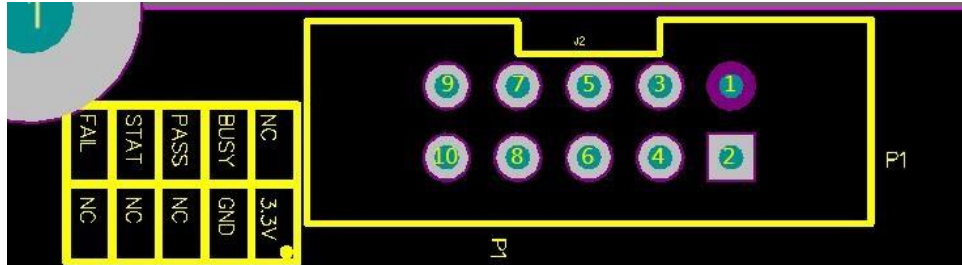


Step2: Connect the external power to K110 (Not connected to USB), only need to press the Start key on the programmer to execute programming.

※ Detail information, please refer to **chapter VII**.

VII. K110 External Control Signals

The dedicated ICP socket adaptor has a reserved set of connector for control signals to allow the external equipment to control; the pin define as below.



The corresponding pins are listed as the below chart:

Programmer Control Signal	Pin 2	Pin 4	Pin 3	Pin 5	Pin 9	Pin 7
Programming Signal	+3.3V D	GND	Busy Signal	Pass Signal	Fail Signal	Start Signal

When you need to integrate the K110 with the ATE equipment, here are some suggestions:

- i. **Use Standalone method after load in the project file (*.dprj).**
- ii. **The control signal Methods of the programmer are as the following:**
 - GND => Ground with the ATE equipment
 - VCC => Programmer fixed output 3.3V
 - Start => Send a 100ms high electrical potential start
 - Pass, Busy, Fail => Normally, it will stay at low electrical potential; it will turn to high electrical potential when it is in action.

After loading the project file into the programmer's embedded memory, and the hardware cables are all connected, then you can proceed to the below steps.

Step 1. Connect the electricity to the programmer

Step 2. Start initializing after the **Busy** light blinks for three times.

Step 3. Send a 100ms "Hi" signal to **Start**

Step 4. Meanwhile, the programmer will begin to program (Busy light will be on).

Step 5. After programming, whether it has passed or failed, the related signal will be Hi, and the signal lights will be on according to the result.

VIII. Revision History

Date	Version	Changes
2018/03/15	1.0	First release
2018/11/01	1.1	Remove K100

DediProg Technology Co., Ltd

Taiwan Headquarter TEL: 886-2-2790-7932 FAX: 886-2-2790-7916
4F., No.7, Ln. 143, Xinming Rd., Neihu Dist., Taipei City 114, Taiwan

China Office TEL: 86-21-5160-0157
Room 518, Building 66, Lane1333, Xinlong Road, Vanke Hongqiao CBD.Min Hang District,
Shanghai, P.R.C. 201101

U. S. Office TEL: 1-909-274-8860
209 E Baseline RD, Suite E208 #8, Tempe, AZ, 85283, USA

Technical Support: support@dediprogram.com Sales Support: sales@dediprogram.com

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