**DediProg User Manual** 

11/2018

# **K110**

## **Engineering ICP Programmer User Manual**

Version 1.1



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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, standalone/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	V	v
Socket Sites	v	х
ISP/ICP Port	√(Use with specific adaptor)	V
ATE Port	X (note1)	v
Power Cables/Pass/Busy/Error LED Light	V	V
Start button	v	v
Off-line/Standalone Programming	v	v
Multiple Programmers (Note 2)	v	v

Note1. The specific adaptor provides Start, Busy, Pass, and Fail signal. Note2. 1PC can drive multiple programmers that have the same model.



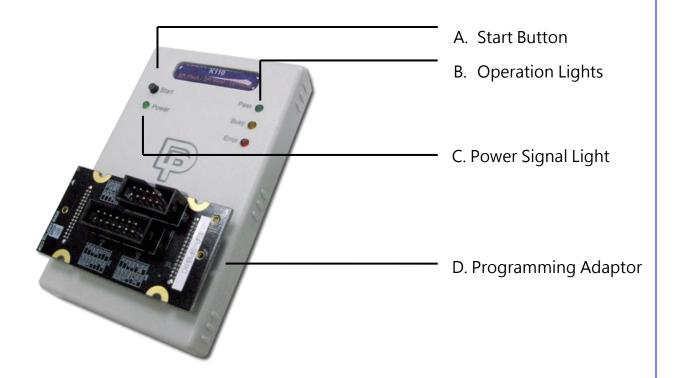
### **III. System Requirement**

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.



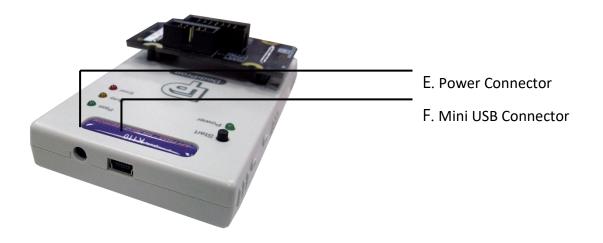
- Yellow LED (Busy): The programmer is operating.
- Green (Pass): The programming has completed successfully.

#### 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 proection

• 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).



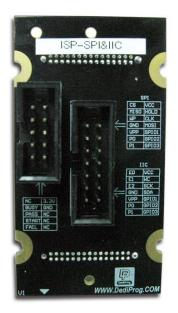
#### **4.3 Related Accessories**

#### 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 I<sup>2</sup>C EEPROM Programming.



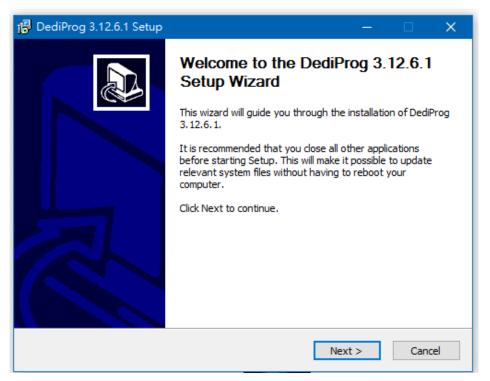


### V. Dediware Quick Installation Guide

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

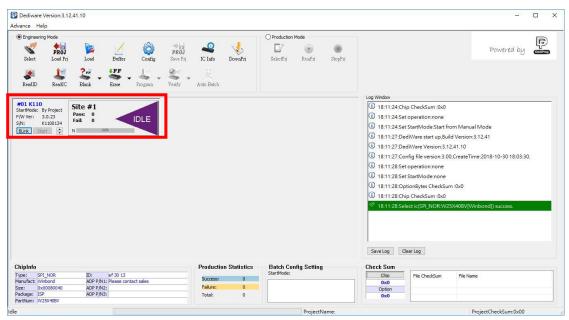
- 1. Connect K110 to a computer (Make sure the computer recognizes the programmer).
- 2. Install the socket adaptor. If you are using the dedicated ICP adaptor, then please use programming cable to connect to the circuit board.
- 3. Start programming after the software is open.

#### **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)





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3. Select the IC brand and the part number

Dediware Version:3.12.41.10		X
Advance Help		
© Engineering Mode	OProduction Mode C Info DownPri SelectPri RumPri StopPri	Powered by
ReadID ReadIC Eliank Ense Program Verify	Aub B Chip Type All	
#01 K110       Site #1         StartMode: By Project       Parse: 0         F/W Yer: 30.23       SN:         S/N:       K100134         Bunk       Start         Bunk       Start	Manufacture All ~	Log Window           ① 18:11:24.Chip CheckSum:0x0         0           ③ 18:11:24.Set operation:none         0           ③ 18:11:24.Set StartMode:Start from Manual Mode         0           ④ 18:11:27:DedIWare start up.Build Version:3.12.41         0           ④ 18:11:27:DedIWare Version:3.12.41.10         0           ④ 18:11:27:DedIWare Version:3.00,CreateTime:2018-10-30 18:03:30.         0           ④ 18:11:28:set operation:none         0           ④ 18:11:28:Set StartMode:none         0           ④ 18:11:28:Chip CheckSum:0x0         0           ④ 18:11:28:Chip CheckSum:0x0         0           ● 18:11:28:Chip CheckSum:0x0         0           ● 18:11:28:Set to; (SPLNORW25X408V(Winbond)) success.
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PartNum: W25X40BV		0.00



4. Load the programming file.

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	HideFileList			Cancel	(Winbond)) success.
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ChipInfo					(inbond]) success.
Type:         SPI_NOR         ID:         ef 30 13           Manufact:         Winbond         ADP P/N1:         Please contact           Size:         0x00080040         ADP P/N2:         Package:           Package:         ISP         ADP P/N3:           PartNum:         W25X408V         ADP P/N3:	<			0.00	kame
Idle			ProjectName:	L	ProjectCheckSum:0x00

#### 5. Single Programming Operation

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6. Batch Setup

#### Step1. Set up the Batch Setting in Config

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Engineering Mode     Config	Sating		× Powered by
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ChipInfo         ID:         if 30           Warufact:         Webord         ADP PN1: Please           Size:         bx00000040         ADP PN1: Please           Package:         ISP         ADP PN1:		OK Cancel	bin
PartNum: W25X408V	Proje	ctName:	ProjectCheckSum:0x00

#### Step2. Click Auto batch to start programming

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Adv	ance Hel	р							
	) Engineerin	g Mode							
	s.	PROJ		$\angle$	Ô	PROJ		1	
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		4	?rr -	<b>↓</b> FF	. 🕌 🖵	💒 🚽	<u></u>		
	ReadID	ReadIC	Blank	Erase	Program	Verify	Auto Batch		



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dvance Help										
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Select Load P		fer Config	Save Prj IC Info	DownPri	SelectPri	RunPrj	StopPrj			
1	? F									
ReadID ReadI	Blank Eras	Program	Verify Auto Batch							
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								Log Window		
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								18:15:31:P	rogrammer[01],chip[	[01] Flash Erase success, takes 0.641s
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									-	[01] Flash Verify success, takes 0.181s
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								Save Log	Clear Log	
								Jave Log	cicor coy	
ChipInfo			Product	tion Statistics	Batch Cont	fia Settina		Check Sum		
Type: SPI_NOR	ID: ef 30	13			StartMode: S	tart from Han	dler	Chip	File CheckSum	File Name
Manufact: Winbond	ADP P/N1: Pleas	e contact sales	Success		Erase chip			0x3FCA04B	0x7F7E970	1MB FFFFF.bin
	ADP P/N2:		Falure:	0	Blank check Program chip			Option 0xFFFF		2
Size: 0x00080040 Package: ISP	ADP P/N3:		Total:							

#### 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.

P Dediware Ve	ersion:3.12.6.	.1					
Advance Hel	р						
Engineering	1 Mode	-					
Select	<b>PROJ</b> Load Prj	≽ Load	Z Buffer	Config	<b>PROJ</b> Save Prj	RC Info	DownPrj
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ReadID	ReadIC	Blank	Erase	Program	Verify	Auto Batch	



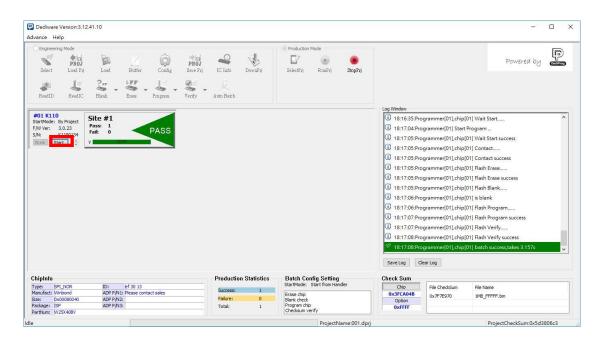
#### 8. Production Mode Steps

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ReadID	Readic	Filenk •	Error +	Frogram •	Venty -	Auto Batch				
	y Project	Site #1 Pass: 0 Fail: 0		IDLE						

Step 1. Choose a project (SelectPrj)

Step 2. Run the Project (RunPrj)

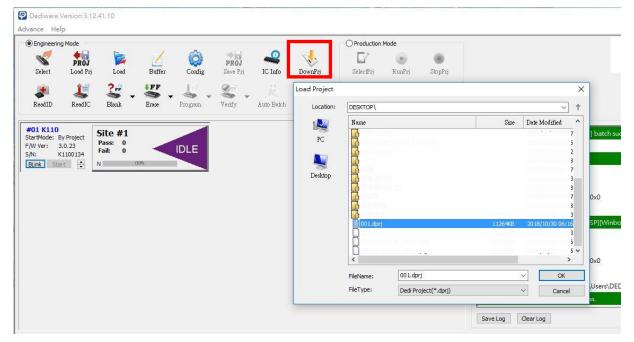
Step 3. Click the start button when it is available (as shown), and then click StopPrj to stop.





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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.



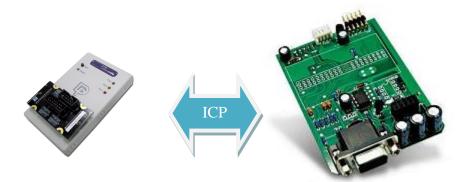
Step 1: Test and save the project (\*dprj) under Dediware engineering mode. Make sure you select "Start from handler" for start mode in the Config window.
Step 2: Connect the CLI (Command line) with your production software and import project file to proceed. Please use the CLI that is provided by DediProg.
Method C. Standalone Programming (Use start button)

www.dediprog.com



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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.

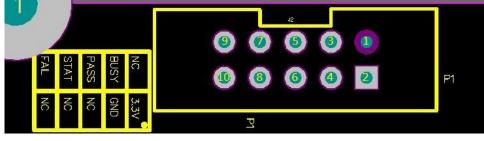
X Detail information, please refer to chapter VII.





### 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	Pin 2	Pin 4	Pin 3	Pin 5	Pin 9	Pin 7
<b>Control Signal</b>						
Programming	+3.3VD	GND	Busy Signal	Pass Signal	Fail	Start
Signal	D				Signal	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

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