HY11P/HY12P Hex Loader
User Manual

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Table of Contents

1. HEX LOADER OVERVIEW 4

1.1. Introduction 4

1.2. Installation and System Requirement 4

1.3. Interface 8

1.4. Offline programming Operation Procedures 9

1.5. PC Online OTP Programming 13

2. HEX LOADER NOTICE 18

2.1. Configuration Items 18

3. ANCILLARY FUNCTIONS 19

3.1. Program Key Executive blank function selection 19

3.2. Buzzer function selection 19

3.3. Checksum function selection 20

3.4. Skip frequency trim function selection 20

3.5. Read Burner Setting Function button 21

4. REVISION RECORD 22

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1. Hex Loader Overview

1.1. Introduction

The programming software, Hex Loader, aims to program the .Hex file that generated by all present version of HYCON 8-bit MCU IDE by means of hardware programmers (Users are required to accurately select IC model number and programmer ID, detailed description is given in Chapter 2).

1.2. Installation and System Requirement

1.2.1. Installation

Minimum system disposition required by operating Hex Loader:

- PC Hardware Request
  Compatible PC with PENTIUM® CPU
  256 MB Memory（512MB is recommended）
  500 MB Hard Disk Space
- Operation System Requirement:
  Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10
  Supporting 32/64bit(WK06/WK07B/WK08C programmer only) system.
- Applicable Interface
  USB Port, USB HID Port
- Supporting Software Version
  HY11P and HY12P Hex Loader V2.5 above
- Supporting Products
  -HY11P12, HY11P13, HY11P14
  -HY11P22, HY11P23, HY11P24
  -HY11P32, HY11P33, HY11P35, HY11P36
  -HY11P41, HY11P42
  -HY11P52, HY11P52B, HY11P54, HY11P54B, HY11P58
  -HY12P63, HY12P65, HY12P66
- Supporting Hardware Model No.
  - WK01/WK02/WK02B/WK05 programmer
  - WK06/WK07B/WK08C programmer
- Software Version consistency
  Hex files that compiled by all present version of HYCON-IDE can be downloaded for programming via HY-Hex Loader software.
- Function
  -Supporting download the Hex files to Flash Memory of programmers
  -Supporting read out function of the Hex files that downloaded to Flash Memory of programmers.

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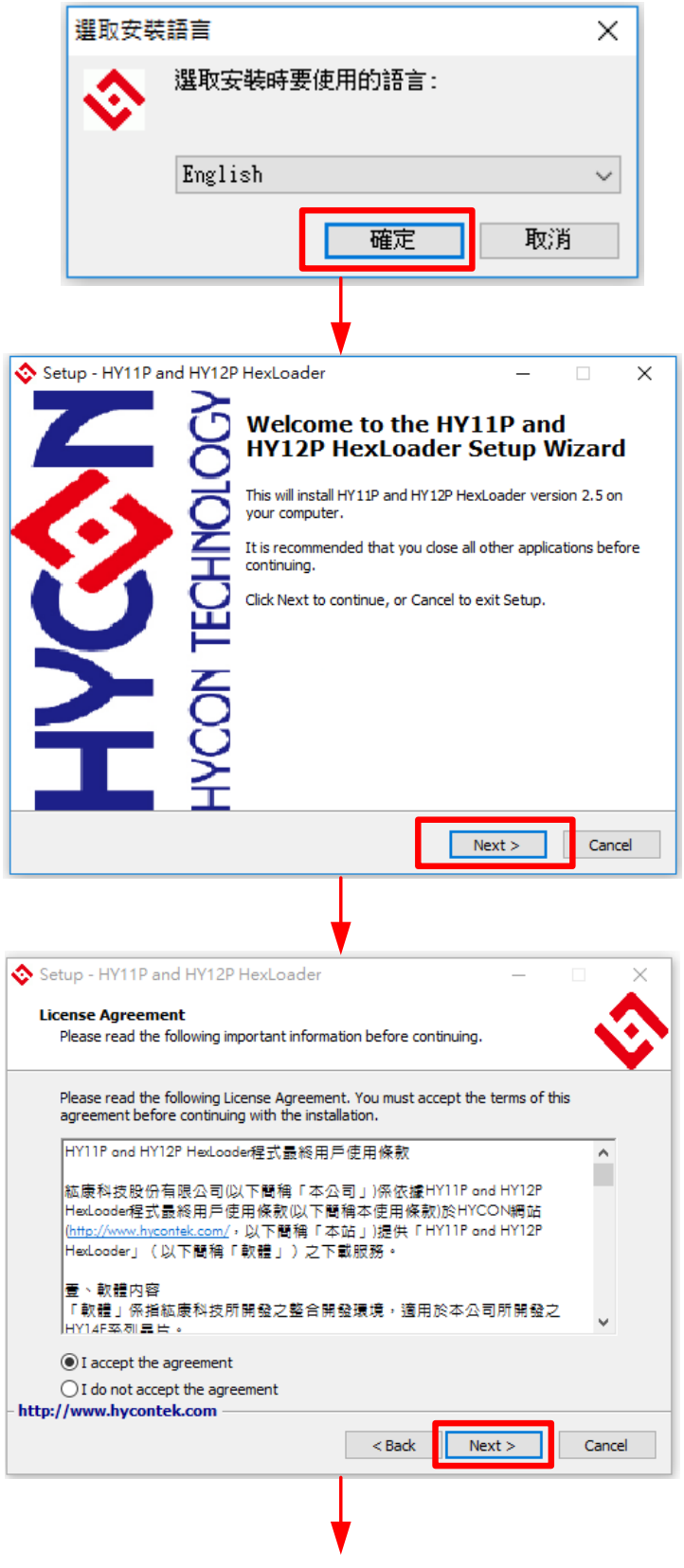
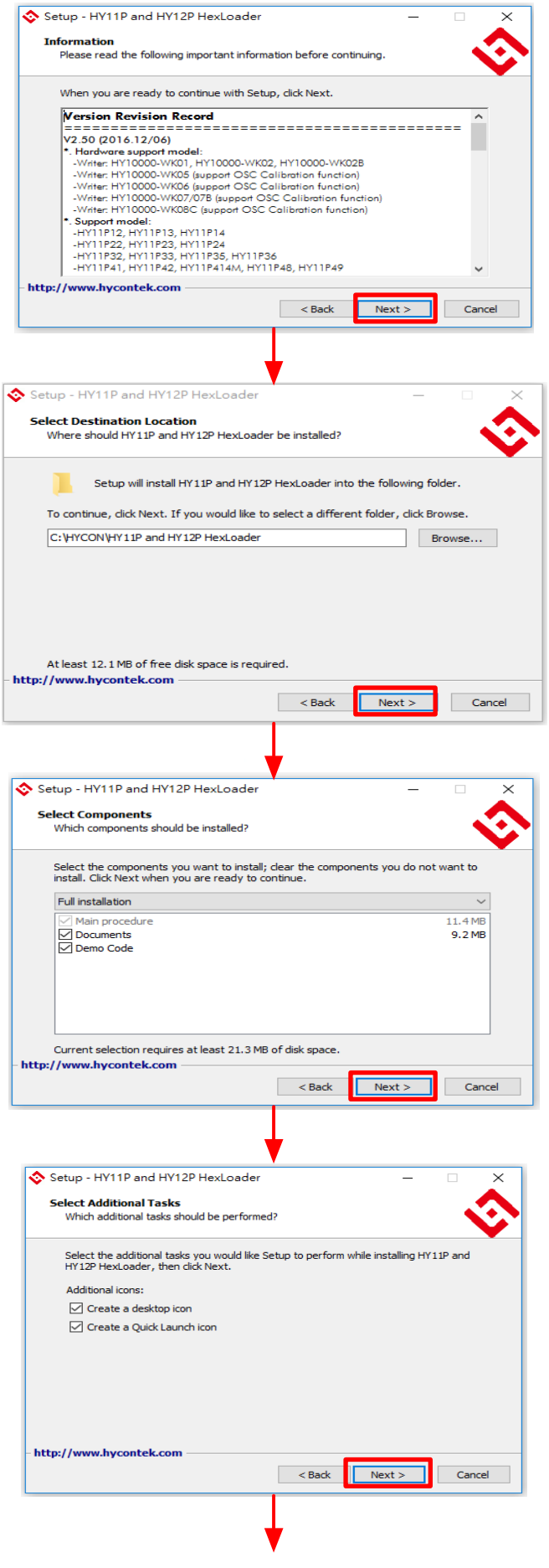
- Execute the Setup.exe executable file to start the installation
- Following the instruction window dialogs step by step to continue setup procedures. As shown in Figure 1-1.




Setup - HY11P and HY12P HexLoader
Information
Please read the following important information before continuing.
When you are ready to continue with Setup, click Next.
Version Revision Record
V2.50 (2016.12/06)
*. Hardware support model:
-Writer: HY10000-WK01, HY10000-WK02, HY10000-WK02B
-Writer: HY10000-WK05 (support OSC Calibration function)
-Writer: HY10000-WK06 (support OSC Calibration function)
-Writer: HY10000-WK07/07B (support OSC Calibration function)
-Writer: HY10000-WK08C (support OSC Calibration function)
*. Support model:
-HY11P12, HY11P13, HY11P14
-HY11P22, HY11P23, HY11P24
-HY11P32, HY11P33, HY11P35, HY11P36
-HY11P41, HY11P42, HY11P414M, HY11P48, HY11P49
http://www.hycontek.com
< Back
Next >
Cancel
Setup - HY11P and HY12P HexLoader
Select Destination Location
Where should HY11P and HY12P HexLoader be installed?
Setup will install HY11P and HY12P HexLoader into the following folder.
To continue, click Next. If you would like to select a different folder, click Browse.
C:\HYCON\HY11P and HY12P HexLoader
Browse...
At least 12.1 MB of free disk space is required.
http://www.hycontek.com
< Back
Next >
Cancel
Setup - HY11P and HY12P HexLoader
Select Components
Which components should be installed?
Select the components you want to install; clear the components you do not want to install. Click Next when you are ready to continue.
Full installation
Main procedure 11.4 MB
Documents 9.2 MB
Demo Code
Current selection requires at least 21.3 MB of disk space.
http://www.hycontek.com
< Back
Next >
Cancel
Setup - HY11P and HY12P HexLoader
Select Additional Tasks
Which additional tasks should be performed?
Select the additional tasks you would like Setup to perform while installing HY11P and HY12P HexLoader, then click Next.
Additional icons:
Create a desktop icon
Create a Quick Launch icon
http://www.hycontek.com
< Back
Next >
Cancel

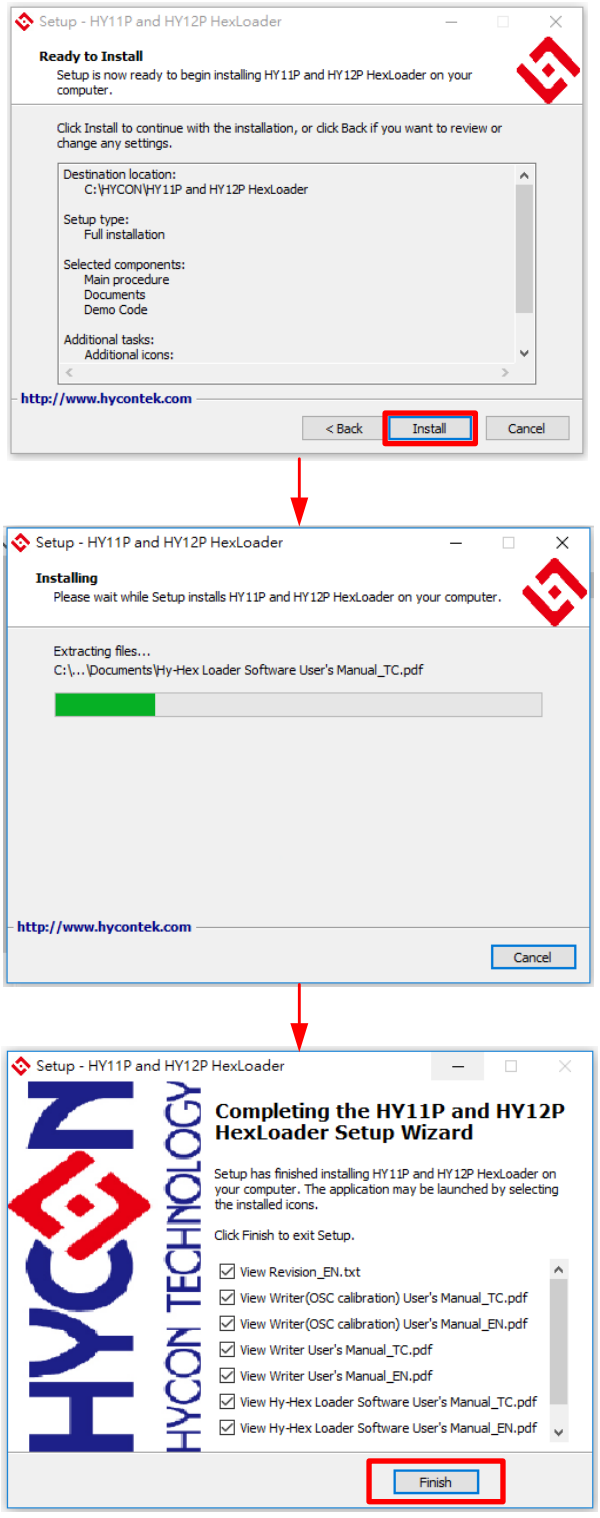


Figure 1-1

Note: For some Windows OS, it may require to have administrator identity to install the Hex Loader to the computer.

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1.2.2. Uninstall

Please remove the file of “HY11P and HY12P Hex Loader” in “Add/Remove Program” under Control Panel.

1.3. Interface

When the software is opened, the window in below will pop up, as Figure 1- 2 shown.

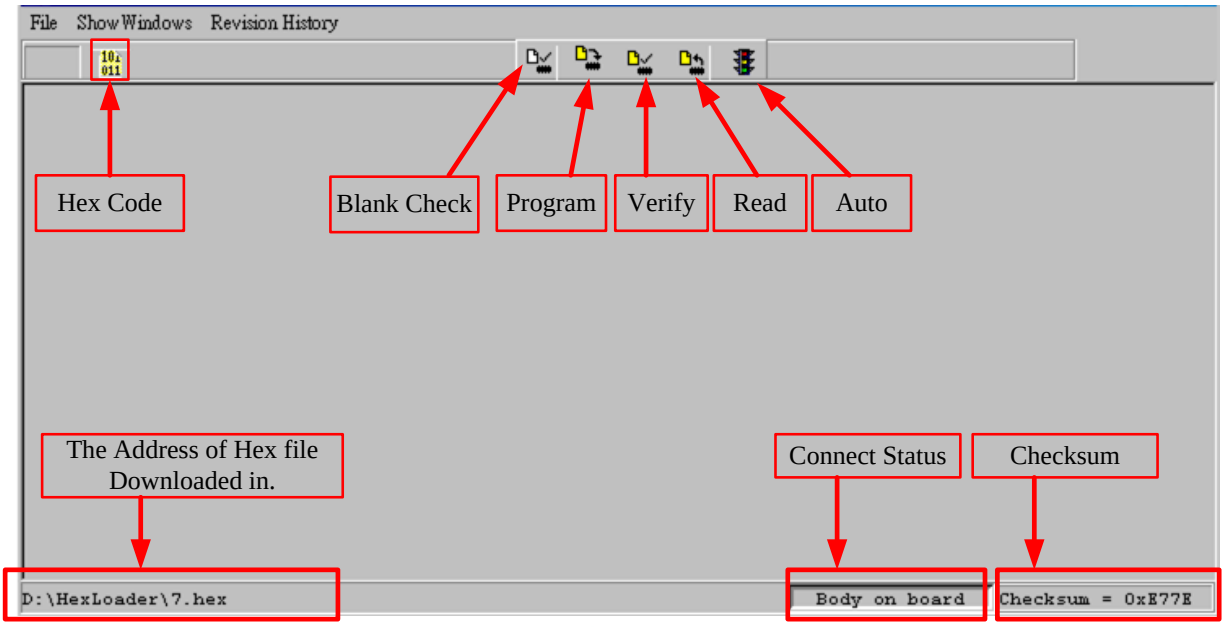

Figure1- 2

- Click File and the window will show as Figure 1- 3.

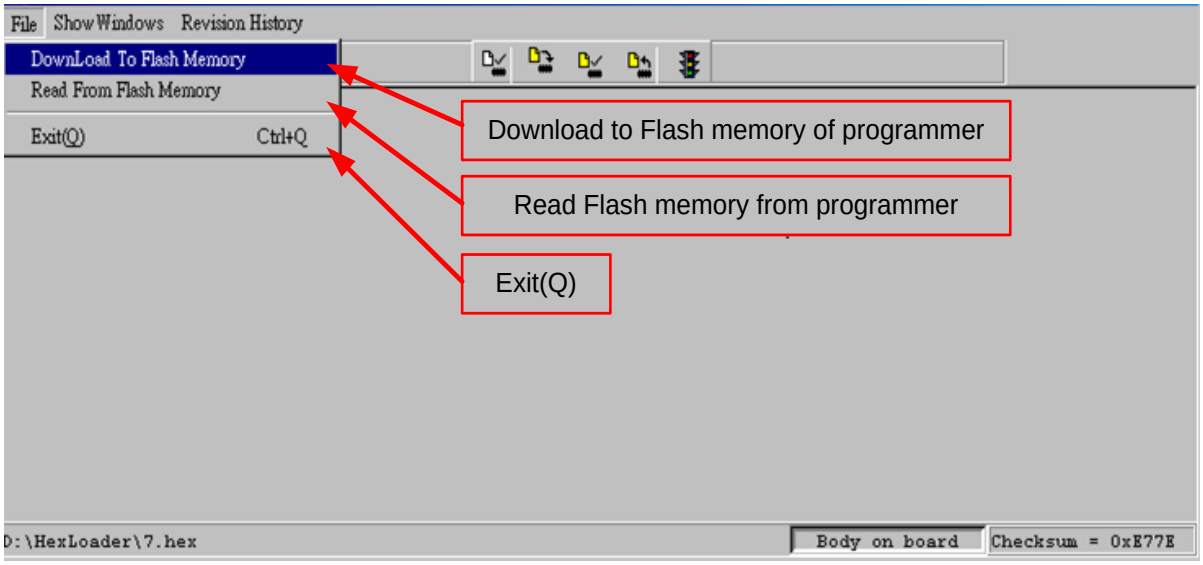

Figure 1- 3

Down Load To Flash Memory → Download to Flash memory of programmer

Read From Flash Memory → Read Flash memory from programmer

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- When Show Windows button is clicked, the window will show as Figure 1- 4.

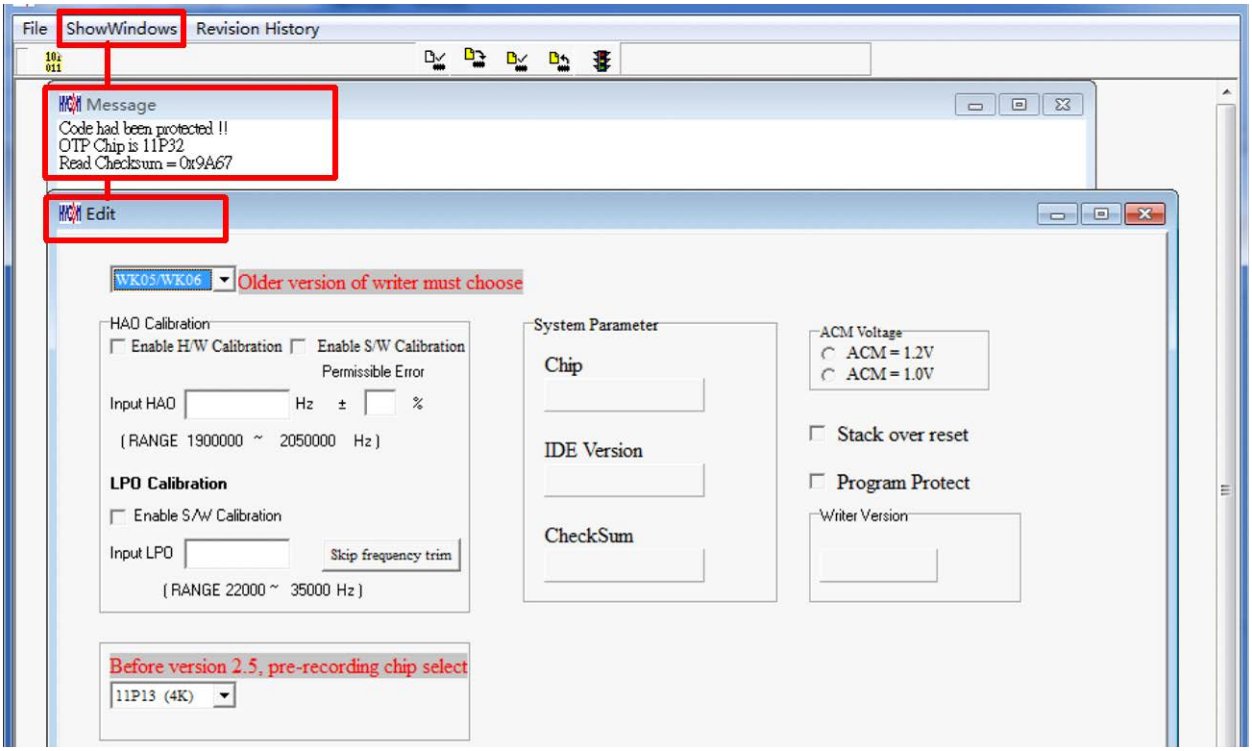

Figure1- 4

Message → Message field

Edit → A display window that is defined confirmation item, serve as display function only. No need to tick on this window

1.4. Offline programming Operation Procedures

Step 01: Choose "Down Load To Flash Memory" from File, as shown in Figure 1- 5.

Figure1- 5

Step 02：Select programmer version

Step 03：Select IC model. Note: this option has no actual meaning at present, selecting IC part no. doesn't influence programming result.

Step 04：Select IC program limit times; to enable this function, tick "Enable Program Times" and input the limit number (Input range is 1 to 9999999). Do not tick if this function is unnecessary.

Step 05：Click OK when setups are finished

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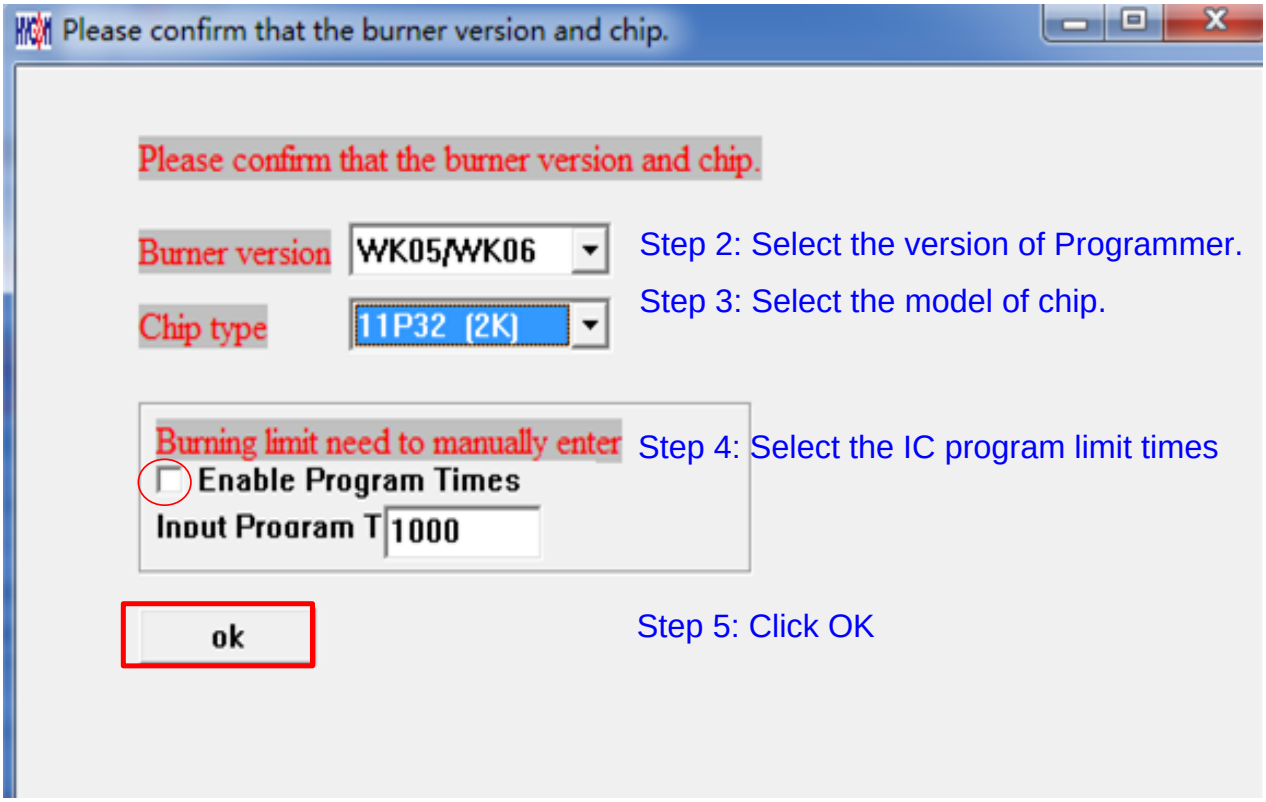


Figure 1- 6

Step 06：Select Hex files and download to Flash Memory of programmer, as Figure 1- 7 indicated

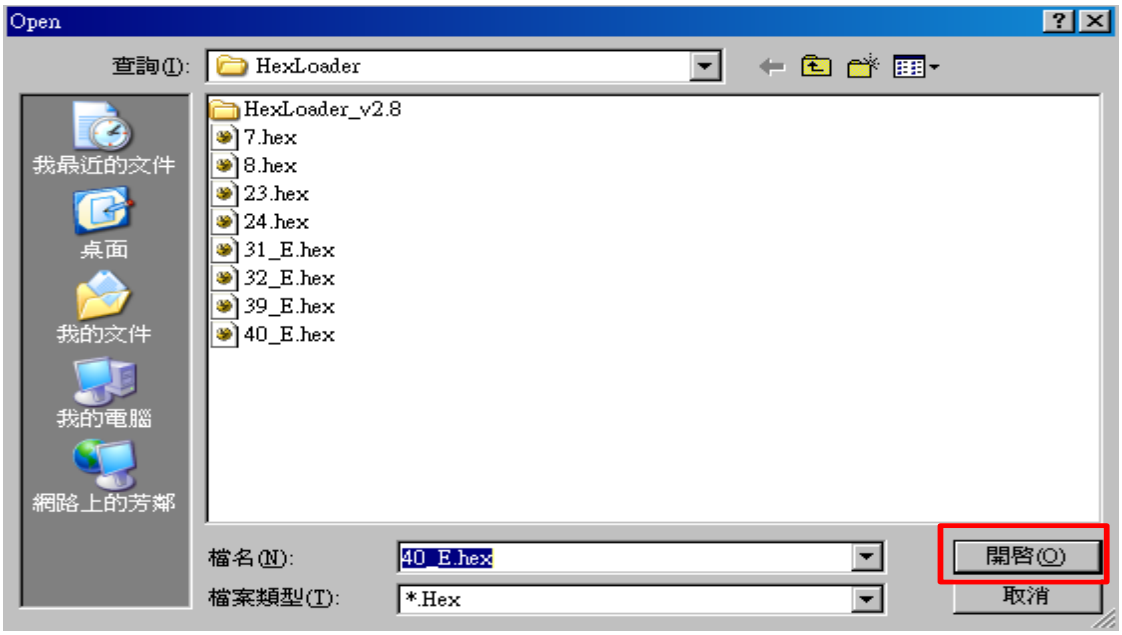


Figure 1- 7

Step 07：Select whether to input Password, as Figure 1- 8

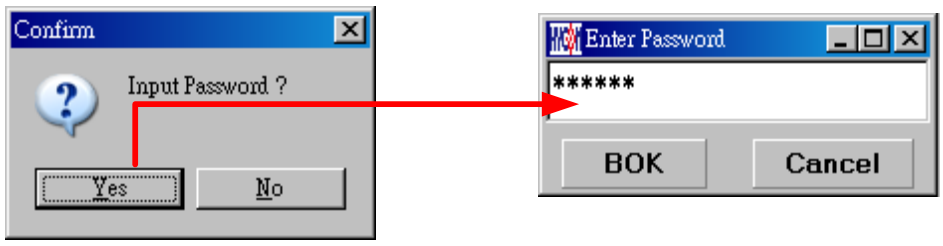
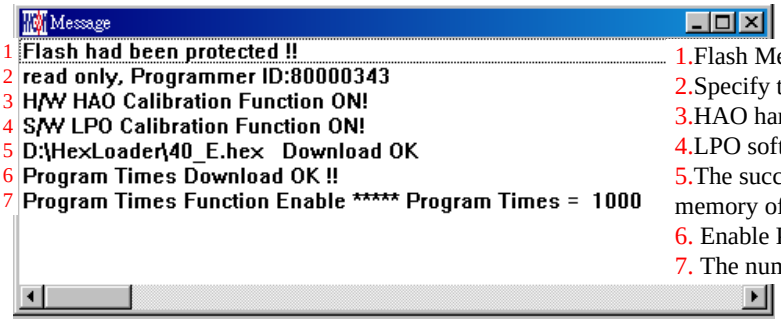


Figure 1- 8

Step 08：Message field will show the information once setups were all done, as Figure 1- 9



1.Flash Memory protection starts
2.Specify the Programmer function to start
3.HAO hardware calibration function starts
4.LPO software calibration function starts
5.The successful downloading of the program to the flash memory of the programmer is displayed
6. Enable Program limit
7. The number of Program Times

Figure 1- 9

Step 9：Select Edit to display the information after Hex file was loaded. This window is for information display purpose, no need to change the setups.

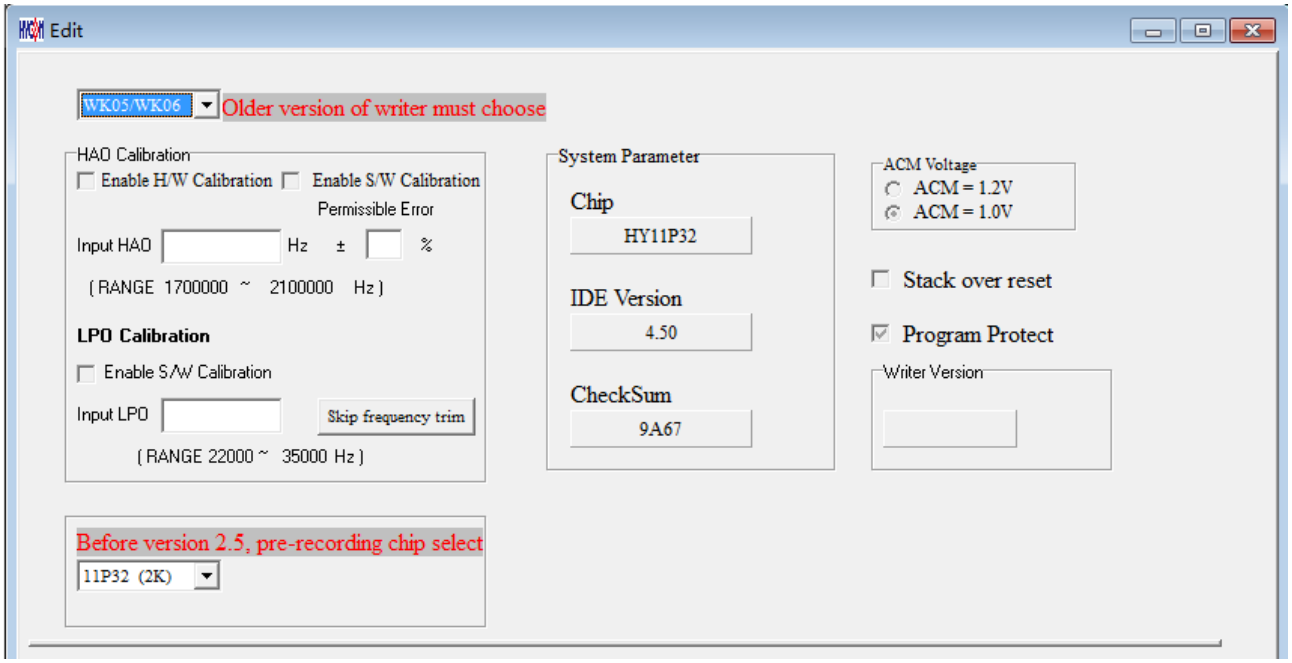


Figure 1- 10

(1) When used USB interface, program code would be loaded to Flash Memory of programmer once the main program was compiled for mass production programming purpose.
(2) Users can choose whether to input password before loading the code to Flash Memory of programmer, as shown in Figure1- 8. This function enables users to see the code that has been loaded from PC to Flash Memory of programmer. Please note that Password can only have 6 digits (ASCII Code). In order to protect the code developed by user, the programmer is defaulted to have a set of Password. If the Password was canceled during operation processes, then it is prohibited to read out the code from the programmer in the future.
Notice: Once the Password was set, it is the same password of programmer operation. This password would be required every time the CODE was to be read out. Please memorize the password carefully so that to prevent that the password cannot be read out. The programmer would ask to re-input the password every time a new code is loaded.
(3) If assembly options have enabled programming time selection, the message field will display the programming limit time.
(4) After compile finished, the Hex file name and Checksum would be shown below as shown in Figure 1- 11.

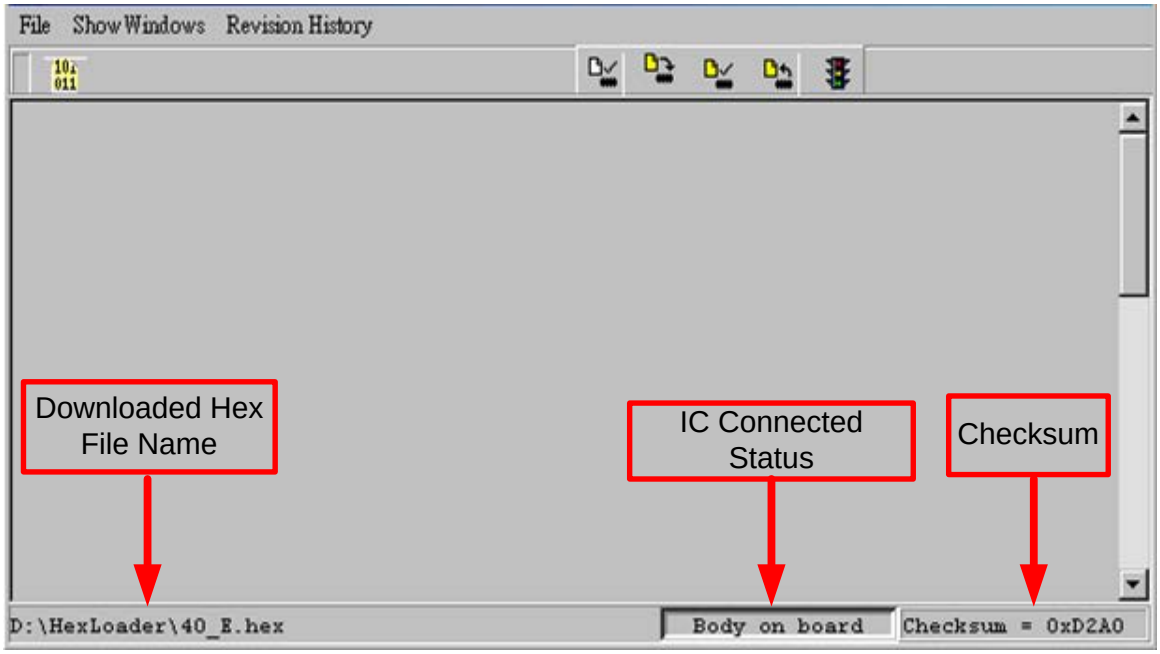


Figure 1- 1

1.4.1. Read out the Code in Flash Memory of Programmer

Users can utilize this function to confirm whether the Code in Flash Memory of programmer conformed to the Download Code. However, the input Password must be the same with that of the Download code to enable the display.

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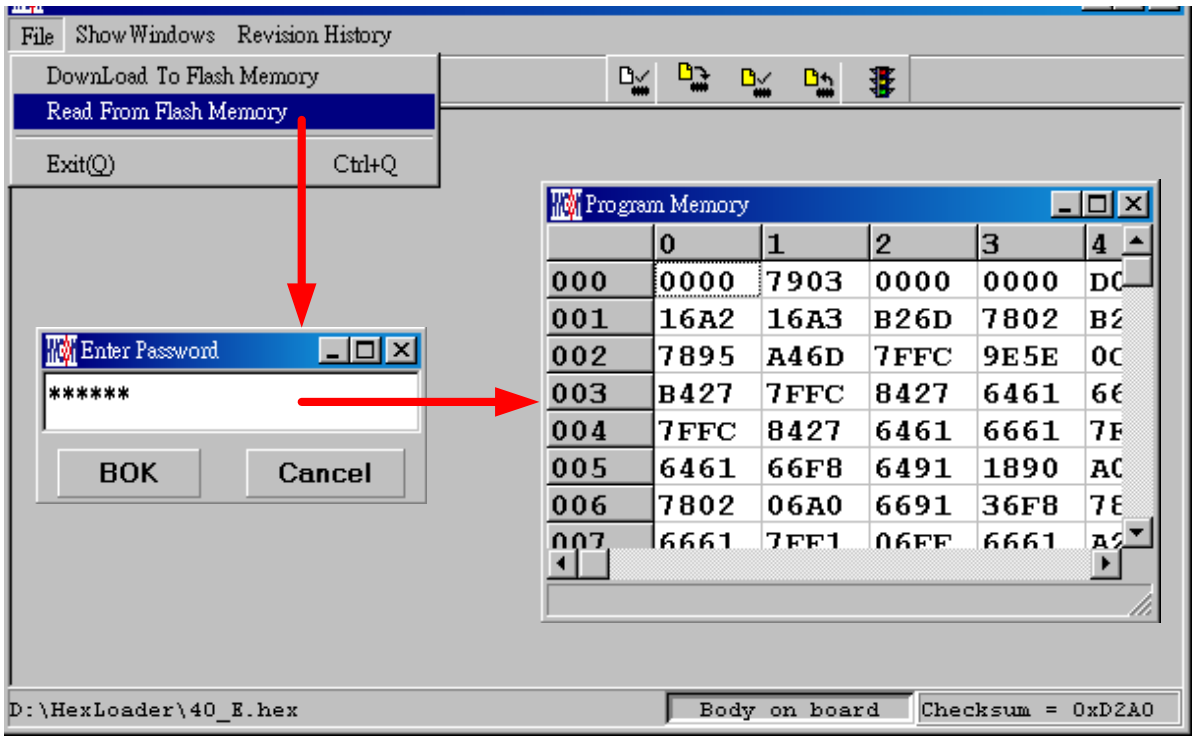

Figure 1- 2

1.5. PC Online OTP Programming

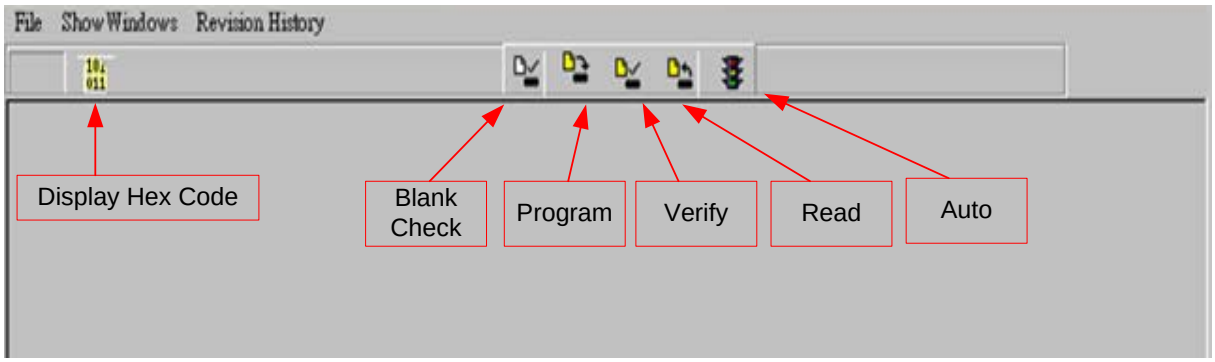

Figure 1-1

Blank Check, Programming, Verify and Read Commands can be implemented when the programmed file was successfully loaded into programmer or IDE Flash Memory; IC is connected as Figure 1-14 shown, not as Figure 1-15 shown.

Figure 1-2

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Figure 1-3

1.5.1. Blank Check

The internal code of Blank ICs that have yet been programmed is 0xFFFF. The purpose of checking the IC is to make sure the OTP address content is 0xFFFF.
To check whether the IC is blank means the OTP that will be programmed address content is 0xFFFF.
If the IC selection is correct and the content is empty, a message will appear as Figure 1-16.

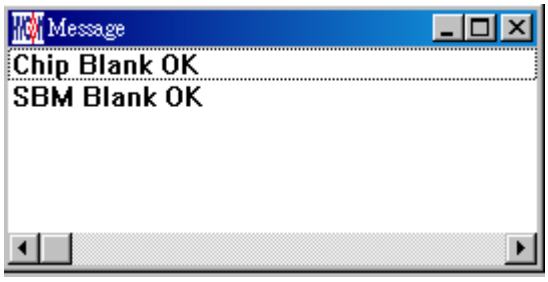

Figure 1-4

If the IC selection is incorrect or the content is not empty, a message will show up as Figure 1-17 described.

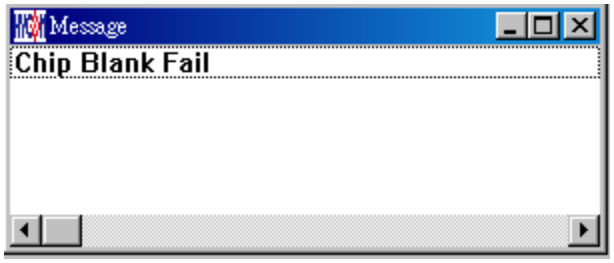

Figure 1-5

1.5.2. Program

The purpose of programming is to write Compiler accomplished program into IC OTP. When programming is completed and the IC is assembled as finished goods, programmer can operate the program as users commanded.
Program the downloaded or assembly finished Hex file (displayed at the bottom of the column) in the selected IC and verify the correctness of the programming content.

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If the selected IC is correct and the programming succeeds, message will appear at the information column, if “Enable Program Times” is ticked up, the enable program times will minus 1 and the program times left will be revealed in the message column as Figure 1-18 illustrated.

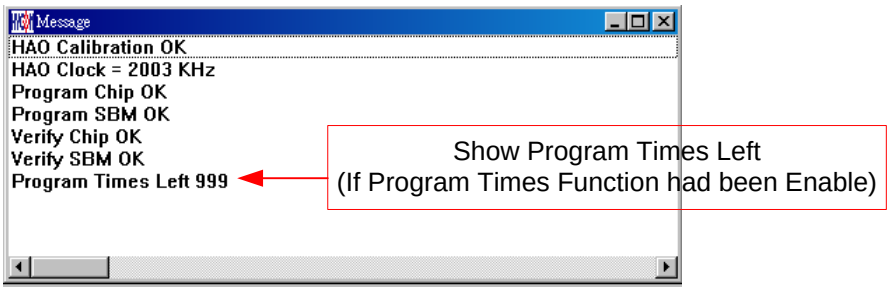

Figure 1-18

1.5.3. Verify

The purpose to verify programming IC is to compare whether the code written into the IC OTP conforms to the program downloaded to programmer Flash Memory.
Verify programming IC content consistency with the downloaded or assembled finished Hex file (displayed at the bottom of the column). If the IC is protected by programmed, this verification is ineffective or the comparison failed.
If IC selection and program verification is success, a message will appear as Figure 1- 19

Figure 1-19

If IC selection is incorrect or the program verification miscarries, a message will pop up as Figure 1-20.

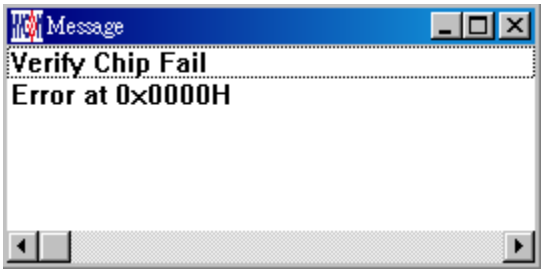

Figure 1-20

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1.5.4. Read

The purpose to read the IC is to verify the consistency of OTP Checksum and programmed Hex file. To read IC content, the procedures are illustrated as Figure 1-21. The content will reveal at ”Display Code” window.

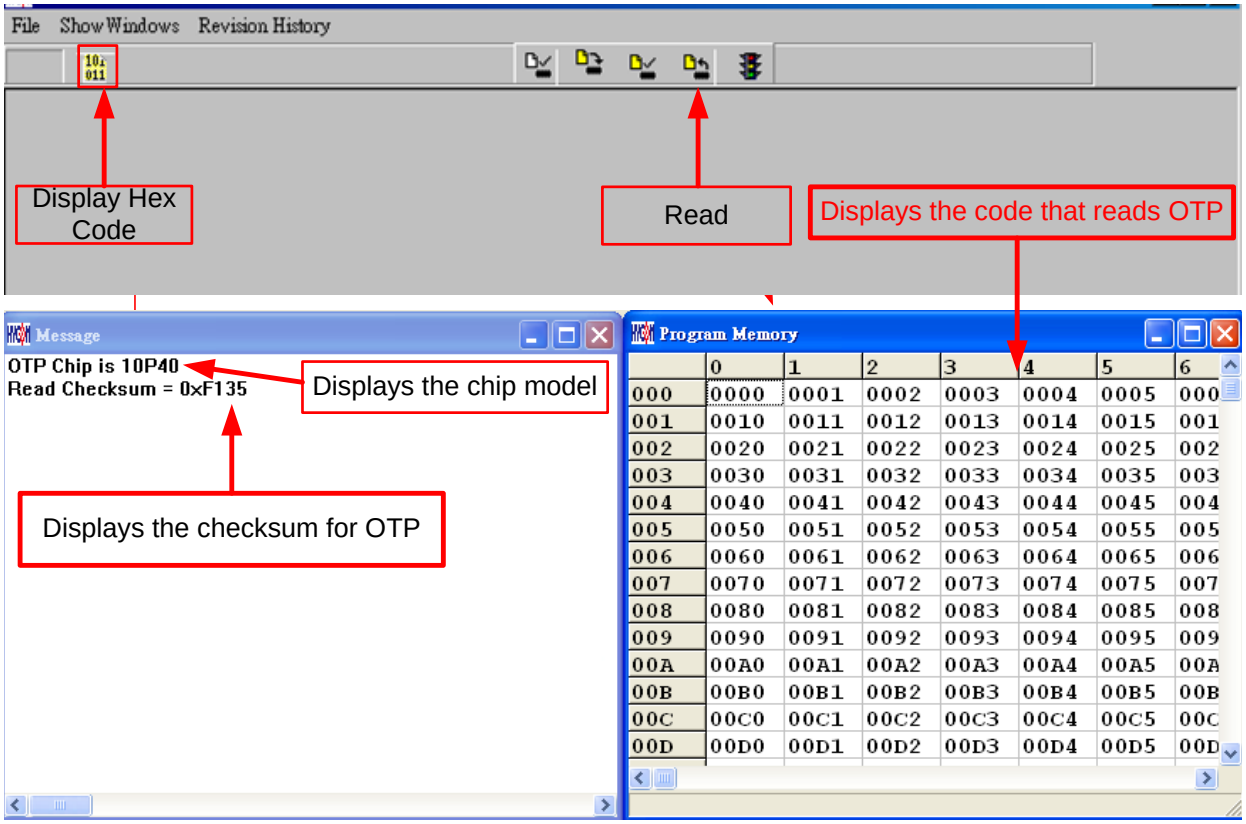
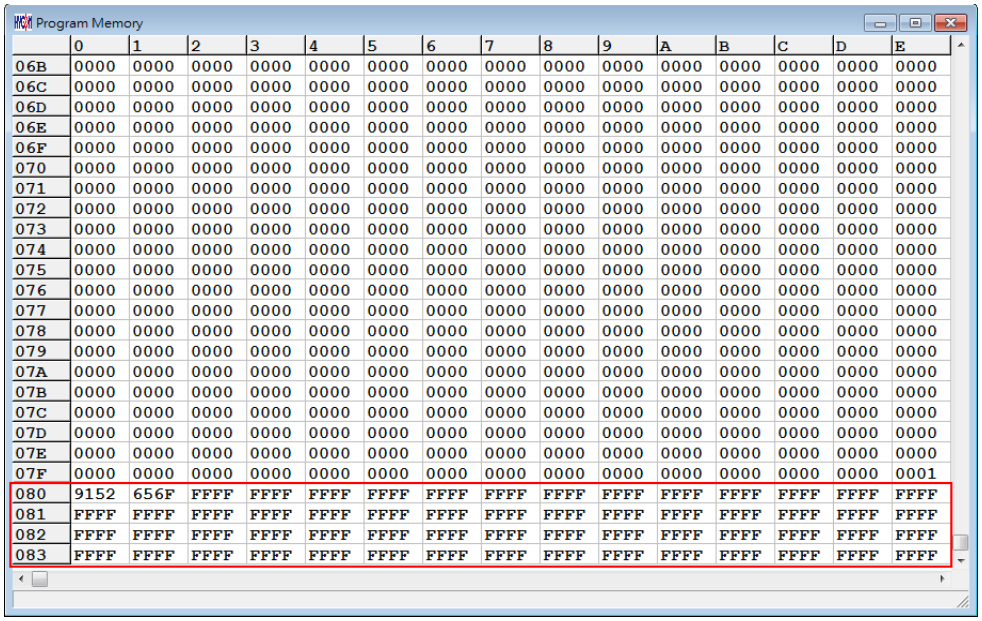


Figure 1-21

1.5.5. Read BIE

Support Part No:HY11P32、HY11P33、HY11P35、HY11P36、HY11P41、HY11P42、HY11P52、HY11P52B、HY11P54

For the chips that support BIE, while reading chip, you can see BIE information in last 64 word of Program Memory。



	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E
06B	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
06C	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
06D	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
06E	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
06F	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
070	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
071	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
072	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
073	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
074	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
075	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
076	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
077	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
078	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
079	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
07A	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
07B	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
07C	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
07D	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
07E	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
07F	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0001
080	9152	656F	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF
081	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF
082	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF
083	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF	FFFF

Figure 1-22

1.5.6. AUTO

Auto integrates Blank Check, Program and Verify function. If user selects Auto, it will first check whether the IC is blank, then to program and verify.

After the execution succeeded, a message will be displayed as Figure 1-23. If the option, ”Enable Program Times” is ticked up, the program permitted times will reduce 1 and the program times left will be shown in the message column.

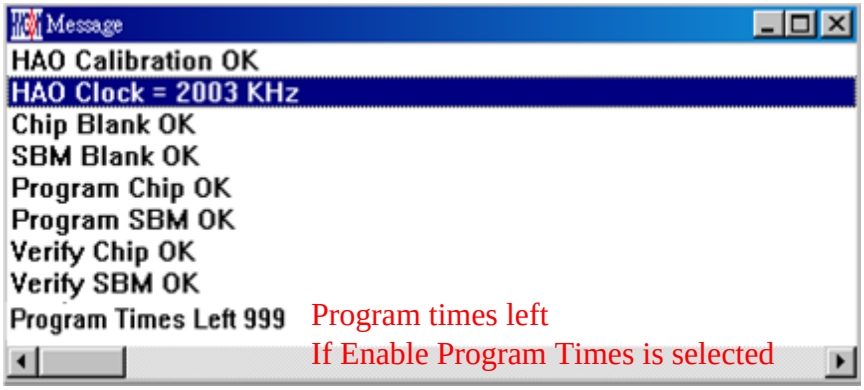


Figure 1-6

If any function fails, the whole process will stop and display an error message in the message column.

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2. Hex Loader Notice

2.1. Configuration Items

Pay attention to Notice 01 to 03 when using Hex Loader programming software or it would lead to error programming.

Notice 01: Please correctly choose programmers (WK01, WK02, WK05, WK06, WK07B).
Notice 02: Please pick the right IC model number (chip type) that matches to the Hex Code. Note: this option function has no actual meaning, IC number selection doesn't influence programming result.
Notice 03: Mind the Programming limit time. Tick "Enable Program Times" to enable the function and input the programming times. If this function is not necessary, please do not tick.

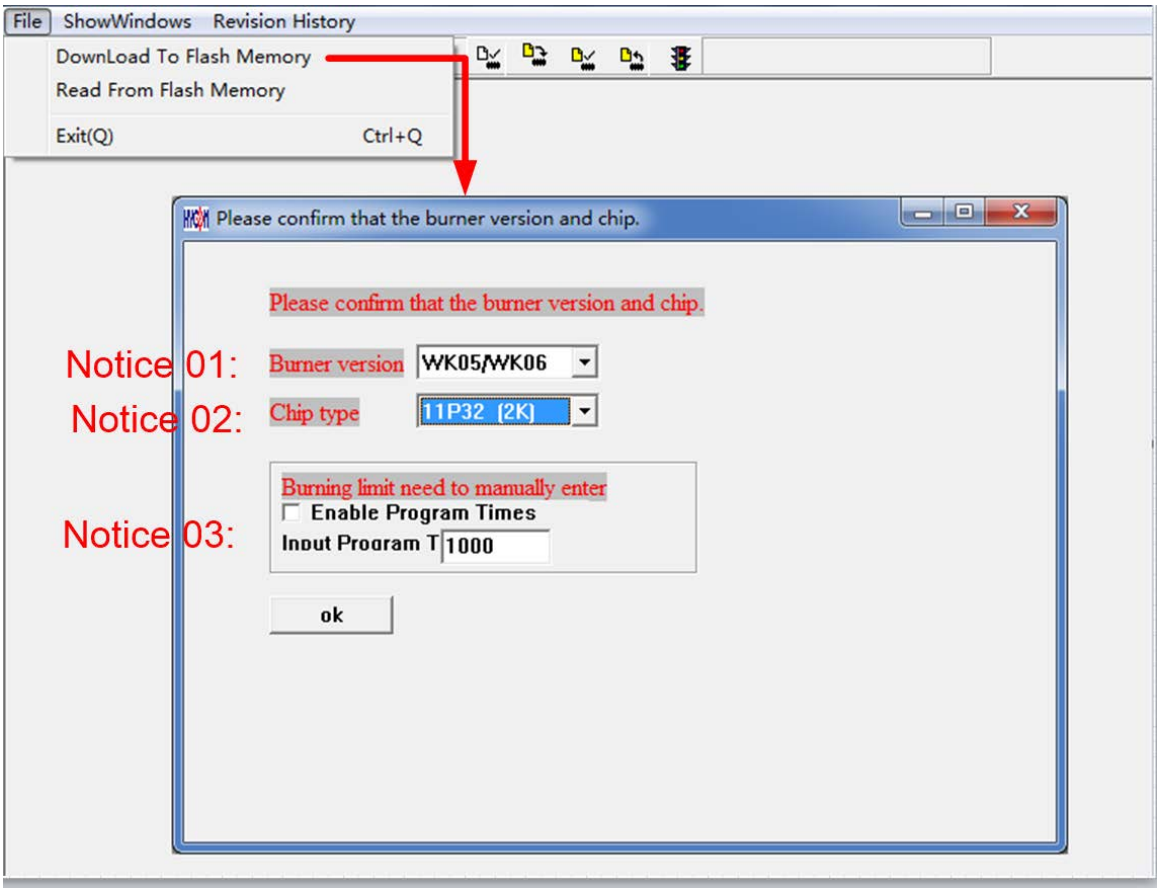

Figure 2-1

The way to connect hardware programmer, refer to the corresponding programmer manual.
※When using online programming function, make sure 9V adapter is connected before connecting USB LINE. Do not unplug 9V adapter while PC connected or the PC may crash.
Note: Programmer WK07B doesn't have input port Adapter 9V, only have port USB 5V.When WK07B is connected with USB 5V, OTP programming can be executed.

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3. Ancillary functions

First download the Hex file to the programmer. And then set the relevant additional functions.

3.1. Program Key Executive blank function selection

As Figure 3- 1, when setting the software function, Program Key can set whether to switch on the blank function by selecting blank on or blank off. Then press the button of PBKIUPUT to write the setting into programmer.

If blank on is chosen: the procedure is Blank Check → Program → Verify.

If blank off is chosen: the procedure is Program → Verify.

If “Program Protect” of Build Options was chosen before downloading the file to Flash Memory, After the Verify, the programming protection is executed. If uncheck programming protection, stop after Verify. When the setting is finished, the setting status of the software can be read on each type of programmer’s information.

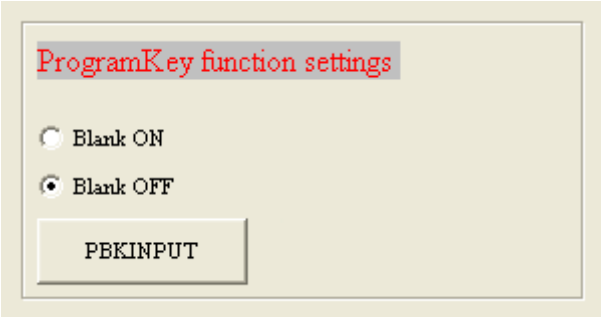

Figure 3-1

Notice: This function is only available after WK02B, and only for offline programming.

3.2. Buzzer function selection

As shown in Figure 3- 2, the Buzzer will provide Fail sound

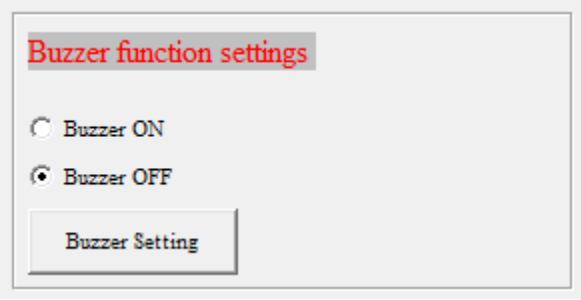

Figure 3-2

Note: This function only supports HY11P and HY12P Hex Loader V2.5 and above.

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3.3. Checksum function selection

Figure 3- 3 Select whether Program key checksum is executed. If Check ON is selected, check the IC checksum data before Programming.

- When checking the chip checksum data, and meet the same Checksum program, it means the chip has been programmed and checksum the same, compared with the good, direct display "This chip has been programmed!" Light green LED.
- When check the chip checksum data for the above information, it means that the sample has been programmed, and there are different Checksum, so for the defective products, directly display "Error 18 Programmed by other!", Light red LED;
- When checking the chip checksum = 0xffff, it represents the chip is blank, the normal programming process;

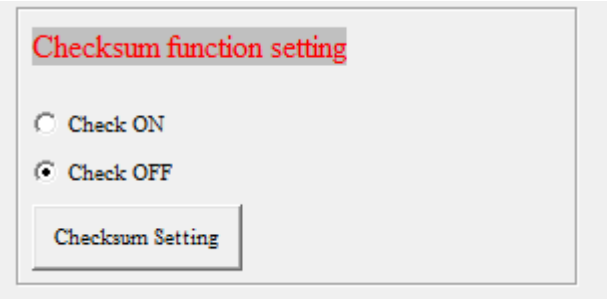

Figure 3-3

Note: This function only supports FW version of WV08C WRIV2.21 or above, and HY11P and HY12P Hex Loader V2.5 or above.

3.4. Skip frequency trim function selection

As shown in Figure 3- 4 to increase skip frequency trim function, through the Hex loader off frequency Calibration function, to turn frequency Calibration back on, reload the original BIN file to the programmer.

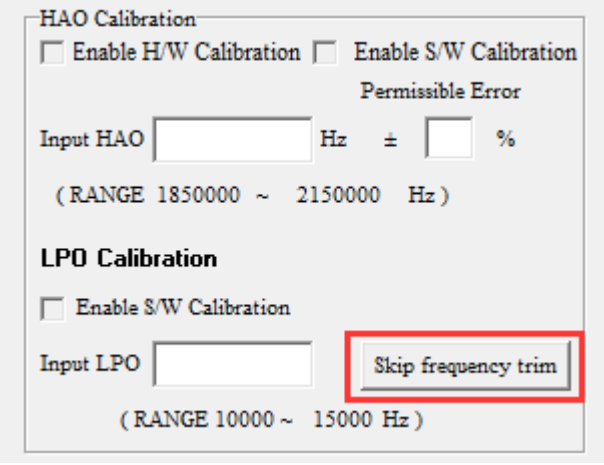

Figure 3-4

Note: This function is only available after WK02B and HY11P and HY12P Hex Loader V2.5 or later.

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3.5. Read Burner Setting Function button

As shown in Figure 3- 5, the Read Burner Setting function button can be added to view the current firmware version of the programmer and the status of the auxiliary functions.

Figure 3-5

Refer to the HY11P series technical support of the corresponding writer's manual http://www.hycontek.com.

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4. Revision Record

Major differences are stated therein after:

Date	Version	Page	Revision Summary
2011/11/28	V01	All	First edition
2012/03/15	V02	P.4 P.18	Add the supportable programmer model. (WK02B). Add the description of Program Key functions under offline programming.
2014/11/03	V03	P.19	Add chapter 1.5.5 for Read BIE
2016/01/18	V04	P6~7, P17 P18 All	Add description that programmer chip type selection(Chip Type) has no Programmer Key executes blank function option, amend to support version after WK02B only, and apply offline programming only. Add information of programmer WK07B.
2017/01/12	V05	All P19	Update the illustration Add the programmer model WK08C information Add the checksum check mechanism description, add skip frequency trim function description

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