

# HY11P/HY12P Hex Loader User Manual



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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.



- 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.

選取安裝語言 🛛 🕹 🗙				
選取安裝時要使用的語言:				
English				
確定取消				
Setup - HYTTP and HYT2P HexLoader Welcome to the HYT1P and HYT2P HexLoader Setup Wizard This will install HYT1P and HYT2P HexLoader version 2.5 on your computer. It is recommended that you close all other applications before continuing. Click Next to continue, or Cancel to exit Setup. Next > Cancel				
Setup - HY11P and HY12P HexLoader -      Kicense Agreement     Please read the following important information before continuing.				
Please read the following License Agreement. You must accept the terms of this agreement before continuing with the installation.				
HY11P and HY12P HexLooder程式最終用戶使用條款 拡康科技股份有限公司以下簡稱「本公司」)係依據HY11P and HY12P HexLooder程式最終用戶使用條款以下簡稱本使用條款I於HYCON網站 (http://www.hycontek.com/,以下簡稱「本站」)提供「HY11P and HY12P HexLooder」(以下簡稱「軟體」)之下載服務。				
壹、軟體內容 「軟體」係指紙康科技所開發之整合開發環境,適用於本公司所開發之 HY14F巠제異片。    ❤				
I accept the agreement     O I do not accept the agreement				
too not accept the agreement  http://www.hycontek.com      < Back Next > Cancel				



Setup - HY11P and HY12P HexLoader	– 🗆 X			
Please read the following important information before continuing.				
When you are ready to continue with Setup, dick Next.				
Version Revision Record				
V2.50 (2016.12/06) *. Hardware support model:				
-Writer: HY10000-WK01, HY10000-WK0 -Writer: HY10000-WK05 (support OSC C	02, HY10000-WK02B Calibration function)			
-Writer: HY10000-WK06 (support OSC Calibration function) -Writer: HY10000-WK07/07B (support OSC Calibration function)				
-Writer: HY10000-WK08C (support OSC	Calibration function)			
-HY11P12, HY11P13, HY11P14				
-HY11P22, HY11P23, HY11P24 -HY11P32, HY11P33, HY11P35, HY11P	36			
-HY11P41, HY11P42, HY11P414M, HY1	1P48, HY11P49 🗸			
http://www.hycontek.com				
	< Back Next > Cancel			
	↓			
▲ c				
Setup - HY11P and HY12P HexLoader	- L X			
Select Destination Location				
Where should ht 11P and ht 12P hexcoade				
Setup will install HY11P and HY12	P HexLoader into the following folder.			
To continue, click Next. If you would like to	o select a different folder, click Browse.			
C:\HYCON\HY11P and HY12P Heyl pader	Browse			
	Diowachi			
At least 12, 1 MP of free dick space is requ	irad			
http://www.hycontek.com				
	< Back Next > Cancel			
	<b>4</b>			
Setup - HY11P and HY12P HexLoader	-			
•				
Select Components	<b>~</b>			
Select Components Which components should be installed?				
Select Components Which components should be installed?	<b>~</b>			
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Beachter Test-"					
Dondy to Tool "					
Setup is now rea computer.	ady to begin installing HY11P and HY12P HexLoader on your				
Click Install to continue with the installation, or click Back if you want to review or change any settings.					
Destination loca C: \HYCON\	Destination location: C: \HYCON\HY11P and HY12P HexLoader				
Setup type: Full installation					
Selected compo Main proced Documents Demo Code	onents: dure				
Additional tasks Additional ic	s: cons:				
http://www.hvconte	ek.com				
	< Back Install Cancel				
	<b>↓</b>				
📀 Setup - HY11P an	nd HY12P HexLoader — 🗆 🔿				
Installing	· · · · · · · · · · · · · · · · · · ·				
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Figure 1-1

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



### 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.

File Show Windows Revision History	
DownLoad To Flash Memory	D/ D- D/ D. 🐺
Read From Flash Memory	
Exit(Q) Ctrl+Q	Download to Flash memory of programmer
	Read Flash memory from programmer Exit(Q)
D:\HexLoader\7.hex	Body on board Checksum = 0xE77E

### Figure 1-3

Down Load To Flash Memory  $\rightarrow$  Download to Flash memory of programmer Read From Flash Memory  $\rightarrow$  Read Flash memory from programmer



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

🕅 Message		
Code had been protected !! OTP Chip is 11P32		
Read CheckSum = OR9Ab7		
//0/1 Edit		
Vider version of writer must cho	oose	
HAO Calibration Enable H/W Calibration Enable S/W Calibration	System Parameter	ACM Voltage
Permissible Error	Chip	C ACM = 1.2V C ACM = 1.0V
Input HA0 Hz ± %		
(RANGE 1900000 ~ 2050000 Hz)	IDF Version	☐ Stack over reset
1 PO Calibration	IDE Version	Program Protect
Enable S/W Calibration		Writer Version
Instit P0	CheckSum	
(DANCE 22000 ~ 25000 U-)		
( NANGE 22000 30000 HZ )		

Figure1-4

#### Message → Message field

Edit  $\rightarrow$  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





Figure 1-6

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

Open						? ×
查詢①:	🚞 HexLoader		•	- 🗈 💣	· 🏢 -	
<ul> <li>我最近的文件</li> <li>() 人名 () 人2 () \end{pmatrix}) () () (</li></ul>	HexLoader_v2 7.hex 8.hex 2.2.hex 2.1.hex 2.2.hex 3.1_E.hex 3.2_E.hex 3.9_E.hex 4.0_E.hex	8				
	檔名(N): 檔案類型(T):	40_E.hex		-		開啓(0) 取消
		".nex				-1411

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

Message	
1 Flash had been protected !! 2 read only, Programmer ID:80000343 3 H/W HAO Calibration Function ON! 4 SW LPO Calibration Eurocian ON!	<ul> <li>1.Flash Memory protection starts</li> <li>2.Specify the Programmer function to start</li> <li>3.HAO hardware calibration function starts</li> </ul>
5 D:\HexLoader\40_E.hex Download OK 6 Program Times Download OK !! 7 Program Times Function Enable ***** Program Times = 1000	<ul><li>4.LPO software calibration function starts</li><li>5.The successful downloading of the program to the flash memory of the programmer is displayed</li></ul>
<u> </u>	<ul><li>6. Enable Program limit</li><li>7. The number of Program Times</li></ul>

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.

HAD Calibration Enable S/W Calibration Permissible Error	System Parameter Chip HV11P32	ACM Voltage C ACM = 1.2V C ACM = 1.0V
Input HA0         Hz         ±         %           (RANGE 1700000 ~ 2100000 Hz)         H2         H2	IDE Version	Stack over reset
Enable S/W Calibration Input LPO Skip frequency trim	CheckSum 9A67	Writer Version
(RANGE 22000 ~ 35000 Hz)		

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.



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.

	OTP	online	]
D:\HexLoader\40_E.hex	Body on bo	ard	Checksum = 0xD2A0









# 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.

Message	- 🗆 🗵
Chip Blank OK	
SBM Blank OK	



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.



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.



# 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

🌃 Message	
Verify Chip OK	
Verify SBM OK	
	F



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

III Message	
Verify Chip Fail	
Error at 0x0000H	





# 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 •

KM Program Memory										×						
	0	1	2	3	4	5	6	7	8	9	A	в	С	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													
081	FFFF															
082	FFFF															
083	FFFF	-														
۲																
																1

Figure 1-22

# 1.5.6. AUTO <sup>3</sup>

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.

🌃 Message	
HAO Calibration OK	
HAO Clock = 2003 KHz	
Chip Blank OK	
SBM Blank OK	
Program Chip OK	
Program SBM OK	
Verify Chip OK	
Verify SBM OK	
Program Times Left 999	Program times left
•	If Enable Program Times is selected

### Figure 1-6

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



### 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.



### 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  $\rightarrow$  Program  $\rightarrow$  Verify.

If blank off is chosen: the procedure is Program  $\rightarrow$  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.

ProgramKey function settings
C Blank ON
Blank OFF
PBKINPUT

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

Buzzer function settings
C Buzzer ON Buzzer OFF
Buzzer Setting



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



### **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;

Checksum function setting
C Check ON
Check OFF     Check OFF
Cnecksum Setting



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.

HAO Calibration						
Enable H/W Calibration Enable S/W Calibration						
Permissible Error						
Input HAO Hz ± %						
(RANGE 1850000 ~ 2150000 Hz)						
LPO Calibration						
Enable S/W Calibration						
Input LPO Skip frequency trim						
(RANGE 10000 ~ 15000 Hz)						



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



### 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 <u>http://www.hycontek.com.</u>



## 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	Add the supportable programmer model. (WK02B).		
		P.18	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,	Add description that programmer chip type		
		P17	selection(Chip Type) has no		
		P18	Programmer Key executes blank function option,		
			amend to support version after WK02B only, and apply		
			offline programming only.		
		All	Add information of programmer WK07B.		
2017/01/12	V05	All	Update the illustration		
			Add the programmer model WK08C information		
		P19	Add the checksum check mechanism description, add		
			skip frequency trim function description		