*This product is designed and manufactured by Embedded Wireless Laboratory Inc. for ETL.

H8SX172x FLASH/EEPROM Programming Tool

User Guide

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Microcontroller Development Tool

TABLE OF CONTENTS

1. PREFACE	3
2. CHECKLIST AND REQUIREMENTS	3
3. INSTALLATION AND USE	4
3.1 USB DRIVERS INSTALLATION FOR WINDOWS 7	5
3.2 USB DRIVERS INSTALLATION FOR WINDOWS XP	9
3.3 USB DRIVERS UNINSTALLATION	13
6. SOFTWARE ACTIVATION	14
5. FILES DOWNLOAD	16
6. PROGRAMMING EXAMPLE	17
7. WARRANTY STATEMENT	

1. PREFACE

This manual will guide you through the installation and operation of the H8SX172x FLASH/EEPROM Programming Tool, referenced hereafter as the H8SX172x-Programmer.

The H8SX172x-Programmer is designed for programming the FLASH/EEPROM memory in the Renesas Microcontroller Unit (MCU):

R5F61721
R5F61725
H8SX/1721
H8SX/1725



Note: The In-circuit mode only available for the programming devices.

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Note: Devices that are not mentioned in above may not be programmable by H8SX172x-Programmer.

2. CHECKLIST AND REQUIREMENTS

The following describes what items are supplied with the H8SX172x-Programmer and the system requirements if used by a PC.

- ✓ One ETL Hyper Programmer Board *provided*
- ✓ One 9 Pin Flat Cable *provided*
- ✓ One USB cable *provided*
- ✓ H8SX172x-Programmer PC software on CD-ROM <u>Extra Option</u>
- Desktop/Laptop PC with USB Port
- Windows XP (SP3) or Windows 7 64/32-bit
- Microsoft.NET Framework Ver. 3.5 SP1 or later version.
- Power supply: +12V to supply airbag module.



Note: The link can download Microsoft.NET Framework:

http://www.microsoft.com/downloads/thankyou.aspx?familyId=ab99342f-5d1a-413d-8319-81da479ab0d7&displayLang=en

3. INSTALLATION AND USE

The H8SX172x-Programmer uses the ETL HYPER PROG board to communicate with the target MCU. The ETL HYPER PROG has Optical Isolated interface to provide maximum safety at the time of connection and programming. Also, the ETL HYPER PROG board includes four LEDs (Figure 1).

LEDs indicate the HYPER PROG state and external power supply voltage (Table 1, 2).

GREEN USB cable plugged, and the voltage applied to the HYPER PROG.	
BLACK	No voltage applied to the HYPER PROG. Check the USB Connector and cable.
	Try another PC USB port.
	Table 1. USB_POWER_OK LED color meaning

GREEN	No voltage applied to a target MCU. The HYPER PROG is connected to target MCU +5V circuit.
BLACK	No voltage applied to a target MCU. The HYPER PROG's 9-pin cable not
	plugged or not soldered to the MCU +5V circuit.
	Table 2. EXT_POWER_OK LED color meaning

GREEN The HYPER PROG receives data via TXD pin.	
BLACK	The HYPER PROG receiver is in wait mode.
	Table 3. RX_ACTIVE LED color meaning

GREEN	The HYPER PROG transmits data via RXD pin
BLACK	The HYPER PROG transmitter is in wait mode.
	Table 3 TX ACTIVE LED color meaning

Table 3. TX_ACTIVE LED color meaning

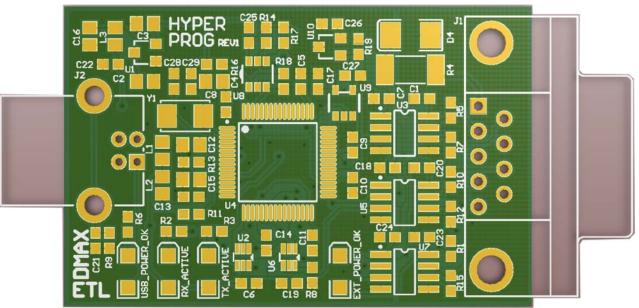


Figure 1. The ETL HYPER PROG board layout

3.1 USB DRIVERS INSTALLATION FOR WINDOWS 7

This section describes how to install the USB drivers for the H8SX172x-Programmer on the Windows 7 OS. The ETL HYPER PROG uses the driver supplied by "FTDI Chip" company. The Product ID (PID) was changed to meet the design requirements.

Please follow next steps to install the driver:

- Download the H8SX172x-Programmer software form the ETL website.
- Install the software. After installation, the driver will be located in the "C:\Program Files\ETL\H8SX172x_Programmer\USB_Driver\" directory.
- Plug the HYPER PROG board into a USB port.
- Wait until the Windows7 failed to install the driver(Figure 2)

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	2	۰ 🕈	7	.
Device driver software was not successfully in Click here for details.	nsta	lled	٩x	())
		7/5	5/2013	

Figure 2. The "Windows 7" driver installation failed

Open the "Device Manager" and locate "ETL Hyper Programmer" devices (Figure 3).

D	evice Man	ager		
File	Action	View	Help	
(▶ 📰	?		
	Network adapters			
	🚛 🐚 Othe			
			er Prograi	
	<u>I</u> E	TL Hype	er Prograi	nmer

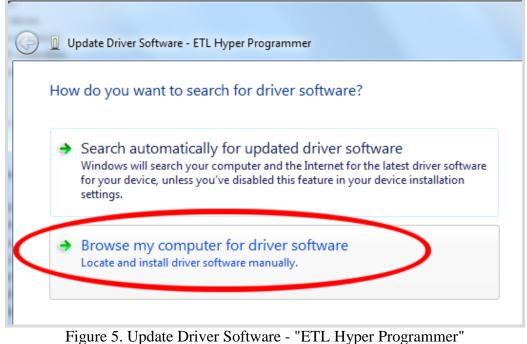
Figure 3. The "ETL Hyper Programmer" devices in the "Device Manager."

Right Click on the first "ETL Hyper Programmer" device and then select "Update Driver Software" menu item. (Figure 4).

imer
Update Driver Software
Disable
Uninstall
Scan for hardware changes
-
Properties

Figure 4. The "Update Driver Software" menu item selection





- Press the "Browse" button to choose the USB driver location. For Windows7 32-bit the location will be C:\Program_Files\ETL\H8SX172x_Programmer\USB_Driver".
- For Windows7 64-bit the location will be C:\Program_Files_(x86)\ETL\H8SX172x_Programmer\USB_Driver".

G Dupdate Driver Software - ETL Hyper Programmer	
Browse for driver software on your computer	
Search for driver software in this location: 2 1	
C:\Program Files (x86)\ETL\H&SX172x Programmer\USB Driver Browse Include subfolders	
3	
Let me pick from a list of device drivers on my computer This list will show installed driver software compatible with the device, and all driver software in the same category as the device.	
Next	Cancel

Figure 6. Update Driver Software - "ETL Hyper Programmer"

Check the "Include subfolders" checkmark. Click the "Next" Button.

■ In a couple of seconds, the Windows security alert screen will appear. Make sure the drivers are signed by "EMBEDDED WIRELESS LABORATORY Inc." Press the "Install" button (Figure 7)

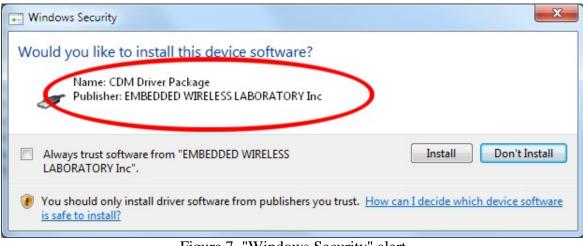


Figure 7. "Windows Security" alert

Shortly the "Update Driver Software" screen will appear(Figure 8)



Figure 8. The successfully "Update Driver Software " screen

Note: If an error occurred during the driver installation, probably the user does not have administrative rights on this Windows account. Log in as an Administrator and repeat steps described above.

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• One driver was installed successfully (Figure 9). Install another driver for the "ETL Hyper Programmer" same way.

📇 Device Manager
File Action View Help
▲ 🐌 Other devices
🔤 📠 ETL Hyper Programmer
Ports (COIVI & LPT)
🚏 High-Speed PCIe Serial Port (COM2)
Processors
🖕 🐗 🛛 Sound, video and game controllers
Storage controllers
⊳ ₁₽ System devices
🔈 👍 Universal Image Mounter
🖬 📲 Universal Serial Bus controllers
🚽 🖶 ETL Crypto Authentication

Figure 9. The "ETL Crypto Authentication" device successful installation

- Open the "Device Manager" and locate "ETL Hyper Programmer" devices (Figure 3).
- Right Click on the first "ETL Hyper Programmer" device and then select "Update Driver Software" menu item. (Figure 4).
- Select the "Browse my computer for driver software" (Figure 5).
- Press "Next" button.
- In a couple of seconds, the Windows security alert screen will appear. Select the "Install this driver software anyway" (Figure 7)
- Finally, you will see the driver installation confirmation for the second device. (Figure 10).



Figure 10. The "ETL Hyper Programmer" device successful installation

To make sure that the drivers were installed successfully open the "Device Manager" and locate the "ETL Crypto Authentication" and "ETL Hyper Programmer" (Figure 11).



Figure 11 The "ETL Crypto Authentication" and "ETL Hyper Programmer" devices

3.2 USB DRIVERS INSTALLATION FOR WINDOWS XP

This section describes how to install the USB drivers for the H8SX172x-Programmer on the Windows XP OS. The ETL HYPER PROG uses the driver supplied by "FTDI Chip" company. The Product ID (PID) was changed to meet the design requirements.

Please follow next steps to install the driver:

Download the H8SX172x-Programmer software form the ETL website.

- Install the software. After installation, the driver will be located in the "C:\Program Files\ETL\H8SX172x_Programmer\USB_Driver\" directory.
- Plug the HYPER PROG board into a USB port.
- Wait for the "Welcome to the Found New Hardware Wizard" screen(Figure 12).

Found New Hardware Wizard	
	Welcome to the Found New Hardware Wizard
	This wizard helps you install software for:
	ETL Hyper Programmer
	If your hardware came with an installation CD or floppy disk, insert it now.
	What do you want the wizard to do?
	 Install the software automatically (Recommended) Install from a list or specific location (Advanced)
	Click Next to continue. 2
	< <u>B</u> ack <u>N</u> ext > Cancel

Figure 12 The "ETL Crypto Authentication" and "ETL Hyper Programmer" devices

- Select the "Install from a list..." button. Press the "Next" button to continue.
- In next screen select the "Search for best driver in the locations" (Figure 13).
- Check "Include this location in the search:" checkbox.
- Browse for the drivers folder location. The location is "C:\Program_Files\ETL\H8SX172x_Programmer\USB_Driver"
- Press "Next" Button.

Found New Hardware Wizard
Please choose your search and installation options.
Search for the best driver in these locations.
1 Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.
Search removable media (floppy, CD-ROM)
2 Include this location in the search:3
4 C:\Program Files\ETL\H8SX172x Programmer\USB 🗾 Browse
O Don't search. I will choose the driver to install.
Choose this option to select the device driver from a list. Windows does not guarantee th the driver you choose will be the best match for your hardware.
5
< Back Next > Cancel

Figure 13 The Windows XP "Found New Hardware Wizard."

Wait for the "Found New Hardware.." security alert(Figure 14) and press "Continue Anyway" button.

Found New Hardware Wizard			
Please wait while the wizard installs the software			
e	ETL Hyper Programmer		
	4		
Ľ	lardware Installation		
	The software you are installing for this hardware:		
	ETL Hyper Programmer		
	has not passed Windows Logo testing to verify its compatibility		
	with Windows XP. (Tell me why this testing is important.)		
	Continuing your installation of this software may impair or destabilize the correct operation of your system		
	either immediately or in the future. Microsoft strongly recommends that you stop this installation now and		
	contact the hardware vendor for software that has passed Windows Logo testing.		
	Continue Anyway STOP Installation		

Figure 14. The "Found New Hardware.." security alert.

Soon you will see the "Completing The Found New Hardware.." screen (Figure 14) and press "Continue Anyway" button.

Found New Hardware Wizard	
	Completing the Found New Hardware Wizard The wizard has finished installing the software for: ETL Hyper Programmer
	< Back Finish Cancel

Figure 15. The "Completing The Found New Hardware.." screen

- Next, the new driver installation wizard will appear.
- Select the "Install from a list..." button. Press the "Next" button to continue.
- In next screen select the "Search for best driver in the locations" (Figure 13).
- Check "Include this location in the search" checkbox.
- Browse for the drivers folder location. The location is "C:\Program_Files\ETL\H8SX172x_Programmer\USB_Driver"
- Press "Next".
- Wait for the "Found New Hardware" security alert (Figure 14) and press "Continue Anyway". Eventually, you will see successive completing screen (Figure 16).



Figure 16. The "Completing The Found New Hardware.." screen

To make sure that the drivers were installed successfully open the "Device Manager" and locate the "ETL Crypto Authentication" and "ETL Hyper Programmer" (Figure 17).



Figure 17 The "ETL Crypto Authentication" and "ETL Hyper Programmer" devices

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Note: If you are logged in as an Administrator and there is still an error at the moment of the driver installation, delete all device entries with the "CDMuninstaller" software. Please refer to Section 3.3 for more information.

Note: Proper H8SX172x-Programmer and drivers operation can be guaranteed on the Windows XP Service Pack 3 only.

3.3 USB DRIVERS UNINSTALLATION

This section describes how to uninstall the USB drivers for the H8SX172x-Programmer. Also, the driver un-installation will be helpful if "Windows" installed the wrong or old driver automatically. The ETL HYPER PROG uses the driver supplied by "FTDI Chip" company. The Product ID (PID) was changed to meet the design requirements. The Product PID of the HYPER PROG is 6692. The Vendor ID (VID) remained the same 0403. To uninstall the driver, we will use the CDMUninstaller software provided by "FTDI Chip" company. Download software at the http://www.ftdichip.com/Support/Utilities.htm website.

Please follow the next steps to uninstall the driver:

- Unplug the HYPER PROG board from the USB port.
- Run the "CDMuninstallerGUI.exe" file.
- Change the PID to 6692(Figure 18).
- Click the "Add" button.
- Click the "Remove Devices" Button.

CDM Uninstaller	×			
Vendor ID 0403 Product ID 6692	2			
VID_0403 PID_6692	Add			
	Remove			
	Clear			
🔲 Generate uninstall log file				
Ready <u>3</u>				
Remove Devices	Cancel			

Figure 18 The Drivers are uninstalled by the CDM Uninstaller software

■ If there were installed drivers in the system, you will see the confirmation of uninstallation.

6. SOFTWARE ACTIVATION

This section describes the software activation procedure. For activation, the user will need the "License key" provided in the time of H8SX172x-Programmer purchase. Also, the "ETL HYPER PROG" board has to be connected to the USB port and drivers previously installed. Refer to the Section 3. Note that the software can be activated on five computers only. If you are going to activate the H8SX172x-Programmer software on more computers, please contact the ETL technical support. Activation is valid for 14 days. After that period, the user has to activate the software again. The activation procedure is done automatically via the Internet. Make sure there is internet connection before activation procedure.

Follow next steps to complete the registration process:

- Connect the ETL HYPER PROG board to the computer.
- Execute the H8SX172x-Programmer software.
- Press the "Connect Programmer" button.
- Wait until the "ETL Programmer is connected!" and the HYPER PROG serial number messages appear.

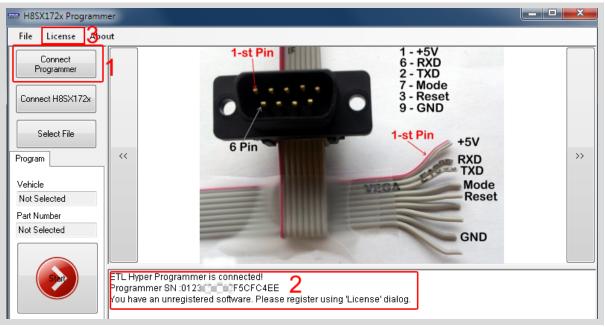


Figure 19 H8SX172x-Programmer software

- Select the "License" menu item and then press "Register Product".
- Press the "Read" button to read the HYPER PROG board serial number. (Figure 20).
- Compare this serial number with the serial number provided together with the license key.
- Enter License Key.
- Press the "Activate" button.
- After Activation process completed, the "Registration Status" must be "REGISTERED" and "Clock Manipulation" is "NOT DETECTED".

Note: If activation procedure failed, please contact ETL technical support at the Email: <u>techsupport@etlweb.net</u>

out	
	1-st Pin 1 - +5V 6 - RXD 2 - TXD
	Software License
	Registration Status: NOT REGISTERED
	Product Registration
~~]	Make sure you have an Internet Connection on this computer. 2
	Enter License Key:
	Enter Programmer SN:
	Activate 3 Cancel 1
ETL	
Prog You I	ra Delete Persistration Class

Figure 20 H8SX172x-Programmer software activation

Software License	
Registration Status: REGIS	TERED
Registration Data	
Programmer SN:	0123 2F5CFC4EE
License Key:	EU633-6ZUYM-R6XG9-C
Activation Key:	DM3YT-ZJV5A-S73W6-E 20 R DC
Activation Hardware Id:	C4NA3-A6EFC-G3F3B-JTHFB-MQSAA
Clock Manipulation:	NOT DETECTED
Register Product	Delete Registration Close

Figure 21 Successful H8SX172x-Programmer software activation

5. FILES DOWNLOAD

After the successful installation and activation of the H8SX172x-Programmer software, the user is eligible to download the "BIN file". Each file is encrypted to the HYPER PROG serial number. Using data from the different HYPER PROG will cause an airbag malfunction. The airbag connection diagrams will be loaded automatically as well. The new "BIN files" will be posted on the website and will be available for download.

To start download, follow next steps:

- Connect the ETL HYPER PROG board to the computer.
- Press the "Connect Programmer" button.
- Make sure that the software is active and HYPER PROG is ready to use.
- Select the "File->Download new files" menu item.



Note: Make sure the computer has the Internet connection before downloading.

Note: In the case that the download license has expired contact ETL support to renew it.

6. PROGRAMMING EXAMPLE

- Solder the H8SX172x-Programmer 9 pin Connector to a target board (airbag).
- Plug the 9-pin connector to the ETL HYPER PROG board.
- Press "Connect Programmer" button on H8SX172x-Programmer software (Figure 20)
- Press "Connect H8SX172x" button.
- Select File with the "Select File" button.
- Press "Start" Button.
- Wait until programming procedure finishes with the message: "CRC16 Verification Completed Successfully. Programming is Completed Successfully!"

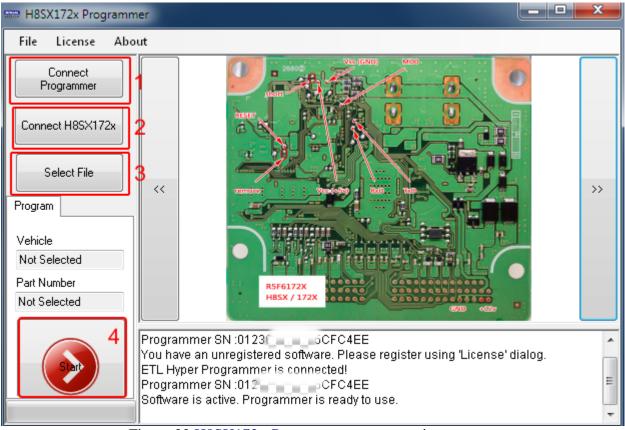


Figure 22 H8SX172x-Programmer programming sequence.

7. WARRANTY STATEMENT

ETL guarantees all delivered products for 60 days from registration date against manufactory defects.