XC236x FLASH Programming Tool

User Guide

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Microcontroller Development Tool

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1. PREFACE

This manual will guide you through the installation and operation of the XC236x FLASH Programming Tool, referenced hereafter as the XC236x-Programmer.

The XC236x-Programmer has been designed for programming FLASH memory in the Infineon Microcontroller Unit (MCU):

XC2361A 56F
 XC2361A 72F
 XC2336R 56F
 XC2336R 72F
 XC2336R 40F

The XC236x-Programmer has been tested on the next modules:

✓ Ford 2010-Up
 ✓ GM 2012-Up
 ✓ Mazda 2011-Up
 ✓ Nissan 2013
 ✓ Kia 2013

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Note: The devices can be programmed in the In-circuit mode only.

Note: Devices that are not mentioned in above may not be programmable by XC236x-Programmer.

2. CHECKLIST AND REQUIREMENTS

The following describes what items are supplied with the XC236x-Programmer and the system requirements if used by a PC.

- ✓ One ETL Hyper Programmer Board *supplied*
- ✓ One 9 Pin Flat Cable *supplied*
- ✓ One USB cable *supplied*
- ✓ XC236x-Programmer PC software on CD-ROM <u>Optional Extra</u>
- Desktop/Laptop PC with USB Port
- Windows XP (SP3) or Windows 7/8 64/32 -bit
- Microsoft.NET Framwork Ver. 3.5 SP1 or later version.
- Power supply: +12V to supply airbag module.

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Note: Microsoft.NET Framwork can be downloaded by the link:

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

3. INSTALLATION AND USE

The XC236x-Programmer uses the ETL HYPER PROG board to communicate with the target MCU. The ETL HYPER PROG has full Optical Isolated interface to provide maximum safety at time of connection and programming. Also the ETL HYPER PROG board includes four LEDs (Figure 1).

LEDs indicate programmer state and external power supply voltage (Table 1, 2).

GREEN	USB cable is plugged and voltage is applied to the HYPER PROG.
DARK	Power voltage is not applied to the HYPER PROG. Check the USB Connector
	and cable. Try another PC USB port.
	Table 1. USB_POWER_OK LED color meaning
CDEEN	
GREEN	Voltage is applied to a target MCU. The HYPER PROG is connected to target MCU +5V circuit.
DARK	No voltage is applied to a target MCU. The HYPER PROG's 9 pin cable is
DAKK	not plugged or is not soldered to the MCU +5V circuit.
	Table 2. EXT_POWER_OK LED color meaning
GREEN	The HYPER PROG receives data via TDI pin.
DARK	The HYPER PROG receiver is in wait mode.
	Table 3. RX_ACTIVE LED color meaning
CDEEN	The UVDED DDOC (manageride date aris TDO aris
GREEN DARK	The HYPER PROG transmits data via TDO pin The HYPER PROG transmitter is in wait mode.
	Table 4. TX_ACTIVE LED color meaning
تو 222 22	

Figure 1. The ETL HYPER PROG board layout

3.1 USB DRIVERS INSTALLATION WINDOWS 7

This section describes how to install the USB drivers for the XC236x-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 XC236x-Programmer software form the ETL web site.
- Install the software. After installation the driver will be located in the "C:\Program Files\ETL\XC236x_Programmer\USB_Driver\" directory.
- Plug the HYPER PROG board in to USB port.
- Wait until the Windows7 failed to install the driver(Figure 2)

			EN	
	2	٥	a 1	s 起
Device driver software was not successfully in Click here for details.	insta	alled	¢Χ	
		7/	5/2013	3

Figure 2. The "Windows 7" driver installation failed

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

🔒 De	vice Man	ager		
File	Action	View	Help	
•	🔶 📷	?] 📘	
		er device TL Hype	-	

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).

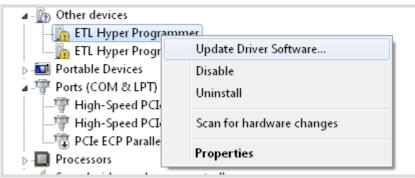


Figure 4. The "Update Driver Software" menu item selection



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- Press the "Browse" button to select the USB driver location. For Windows7 32-bit the location will be C:\Program_Files\ETL\XC236x_Programmer\USB_Driver".
- For Windows7 64-bit the location will be C:\Program_Files_(x86)\ETL\XC236x_Programmer\USB_Driver".

Base (x
G 🗓 Update Driver Software - ETL Hyper Programmer	
Browse for driver software on your computer	
Search for driver software in this location: 2	
C:\Program Files (x86)\ETL\H8SX172x 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 Cance	:

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

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

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

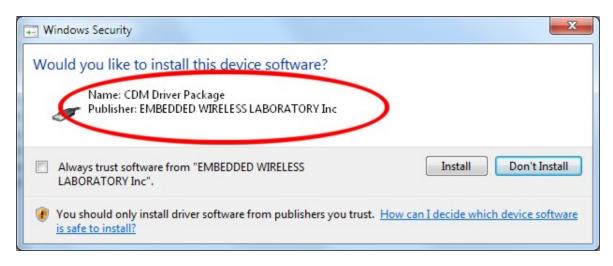


Figure 7. "Windows Security" alert

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). Another driver for the "ETL Hyper Programmer must be installed same way.

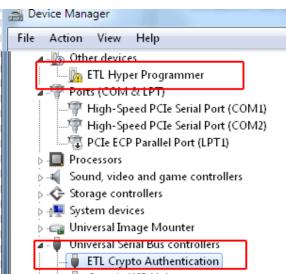


Figure 9. The "ETL Crypto Authentication" device successful installation

- 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 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 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 WINDOWS XP

This section describes how to install the USB drivers for the XC236x-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 XC236x-Programmer software form the ETL web site.

- Install the software. After installation the driver will be located in the "C:\Program Files\ETL\XC236x_Programmer\USB_Driver\" directory.
- Plug the HYPER PROG board in to 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...". Press "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\XC236x_Programmer\USB_Driver"
- Press "Next" Button.

Found	New Hardware Wizard
Ple	ease 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 that 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 softw	vare
ETL Hyper Programmer	
P.	
A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	P
Hardware Installation	
The software you are installing for th	is hardware:
ETL Hyper Programmer	
has not passed Windows Logo testi	ng to verify its compatibility
with Windows XP. (<u>Tell me why this</u>	
Continuing your installation of or destabilize the correct oper	ation of your system
either immediately or in the ful recommends that you stop this contact the hardware yendor	s installation now and
passed Windows Logo testing	
Continue An	yway 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...". Press "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\XC236x_Programmer\USB_Driver"
- Press "Next" Button.
- Wait for the "Found New Hardware.." security alert(Figure 14) and press "Continue Anyway" button. 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 in time of the driver installation delete all device entries by "CDMuninstaller" software. Please refer to Section 3.3 for more information.

Note: Proper XC236x-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 XC236x-Programmer. Also driver un-installation will be helpful if "Windows" installed 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) is remained the same 0403. To uninstall driver we will use the CDMUninstaller software provided by "FTDI Chip" company. The software can be downloaded for free at the http://www.ftdichip.com/Support/Utilities.htm web site.

Please follow next steps to uninstall the driver:

- Unplug the HYPER PROG board from 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 uninstall by 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 customer will need the "License key" provided in the time of XC236x-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 XC236x-Programmer software on more computers please contact the ETL technical support. Activation is valid for 14 days. After that period user has to activate the software again. The activation procedure is done automatically via Internet. Make sure there is internet connection before activation procedure is started. Follow next steps to complete the registration procedure:

- Connect the ETL HYPER PROG board to the computer.
- Execute the XC236x-Programmer software.
- Press the "Connect Programmer" button.
- Wait until the "ETL Programmer is connected!" and the programmer serial number message.

6	XC236x Programmer																		x
	File Edit License	Connection	Diagr	am	A	bout													
			0.0	01	02	03	04	05	06	07	08	09	0 A	0B	0 C	0D	0E	0F	
	Connect 1 Programmer	00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		00000010				00		00	00		00	00		00	00		00	00	
		00000020		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	Connect XC236x	00000030 00000040	00 00	00	00	00	00	00	00	00	00	00	00	00 00	00	00	00 00	00 00	
		00000040				00	00	00	00	00	00	00	00	00	00		00	00	
	Select FLASH	000000060		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	JEICOLI DADIT	00000070		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		00000080		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	Read Prog Verify	00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		000000A0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	Selected MCU	000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		000000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		000000D0		00		00	00	00	00	00	00	00	00	00	00		00	00	
	Туре	000000E0		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		000000F0		00	00	00	00	00	00	00	00	00		00	00	00	00	00	
		00000100 00000110		00 00	00	00 00	00 00	00	00 00	00 00	00	00 00	00	00 00	00 00	00 00	00 00	00 00	
		00000110	00			00							00					00	 -
		00000120	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	 · ·
	Start	ETL Hyper Pro	laram	mer	is c	onne	ecter	11		2		_	_	_	_	_			
		Programmer S							=	2									
		You have an u								aiste	erus	ina '	Licer	nse'	dialo	na.			
												9			2. 310	- <u>g</u> .			
l			_	_	_	_	_	_	_	_	_	_	_	_	_	_	_		

Figure 19 XC236x-Programmer software

- Select the "License" menu item and then press the "Register Product" button.
- 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 is completed the "Registration Status" must be "REGISTERED" and "Clock Manipulation" is "NOT DETECTED".

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

👄 XC236x Programmer	
File Edit License	Connection Diagram About
Connect Programmer	0 0 01 02 03 04 05 06 07 08 09 03 0B 0C 0D 0F 0F 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
Connect XC236x	0 Registration Status: NOT REGISTERED
	Registration
Select FLASH	Make sure you have an Internet Connection on this computer.
Read Prog Verify	Enter License Key: 2
Selected MCU	Enter Programmer SN: Read 1
Туре	Activate 3 Cancel
	ET Register Product Delete Registration Close Product Delete Register using 'License' dialog.
	Tou nave an unregistereu soltware. E lease register using Litelise Ulalog.

Figure 20 XC236x-Programmer software activation

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

Figure 21 Successful XC236x-Programmer software activation

5. FILES DOWNLOAD

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After successful XC236x-Programmer software installation and activation user is eligible to download the airbag connection diagrams. The new connection diagrams will be posted on the web site and 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 programmer is ready to use.
- Select the "File->Download new Files" menu item.

File Edit License	Connec	tion Diag	ram	A	bout													
Open	_	0.0	01	02	03	04	05	06	07	08	09	0 A	0B	0 C	0D	0E	0F	
Save	2	00 OO		00	00	00	00	00	00	00	00	00	00	00	00	00	00	<mark>.</mark>
Download new F	ilar	10 00		00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Download new P	lies	0 00		00	00	00	00	00	00	00	00	00	00	00			00	
Exit		80 OO 40 OO		00 00	00 00	00 00	00	00 00	00 00	00 00	00 00	00	00 00	00 00	00 00	00	00 00	
	000000			00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Select FLASH	000000			00	00	00	00	00	00	00	00	00	00	00	00	00	00	
JEIECCELASIT	000000			00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	000000			00	00	ÕÕ	ŌŌ	00	00	ÕÕ	ÕÕ	ÕÕ	ÕÕ	ÕÕ	00	00	00	
ead Prog Verify	000000	90 00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	000000,	10 00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Selected MCU	000000		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	000000			00	00	00	00	00	00	00	00	00	00	00	00	00	00	
	000000			00	00	00	00	00	00	00	00	00	00	00	00	00	00	
уре	000000				00	00	00	00	00	00	00	00	00	00	00	00	00	
	000000			00	00	00	00	00	00	00	00	00	00	00	00	00 00	00	
	000001			00	00	00	00	00	00	00	00	00	00	00	00	00	00 00	
	000001		00		00												00	
	L 000001	.0 00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Chart	ETL Hype	r Program	nme	ris c	onne	ecter	41											
Stall	Program				52F			-	1									
		is active.							-									

Figure 22 Download the new Files procedure

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

Note: In case download license is expired contact ETL support to renew it.

6. READING EXAMPLE

- Solder the XC236x-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 XC236x-Programmer software (Figure 23)
- Press "Connect XC236x" button.
- Select FLASH area(s) by "Select FLASH" button.
- Press "Start Button".
- Wait until reading procedure finishes with the message: "Read is Completed Successfully!"

File Edit I	License	Connection	n Diagr	am	A	bout													
-			00	01	02	03	04	05	06	07	08	09	0A	0B	0 C	0D	0E	0F	
Connect	1	00000000	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Programmer	•	00000010	00	00	00		00	00	00	00	00	00	00	00	00	00	00	00	
		00000020	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Connect XC23	36x2	00000030	00	00	00		00		00	00	00	00	00	00	00	00	00	00	
		00000040	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
-		00000050	00	00		00	00	00	00	00	00	00	00	00	00	00	00	00	
Select FLAS	H 3	00000060	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		00000070	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
lead Prog	V	00000080	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Read Prog	Verify	00000090	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		0A000000	00	00		00	00	00	00	00		00	00	00	00	00	00	00	
Selected MCU		000000B0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		000000C0 000000D0	00	00	00	00	00		00	00	00	00	00	00	00	00	00	00	
	- 6		00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
Гуре		000000E0 000000F0	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
		000000000000000000000000000000000000000	00	00		00				00	00	00						00	
	_	00000110	00	00	00		00	00	00	00	00	00	00	00	00	00	00	00	
		00000110		00		00													
	4	00000120	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	
								JI	_	_	_	_	_	_	_	_	_		_
Start		ETL Hyper Pr			risc				_										
		Programmer						C4E	-										
-		Software is a	ctive. F	rog	ramı	meri	s rea	ady t	o us	e.									

Figure 23 XC236x-Programmer reading sequence.

7. WARRANTY STATEMENT

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