R5F642xx EEPROM Programming Tool

User Guide

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1. PREFACE

This manual will guide you through the installation and operation of the R5F642xx EEPROM Programming Tool, referenced hereafter as the R5F642xx-Programmer.

The R5F642xx-Programmer has been designed for programming EEPROM memory in the Renesas Microcontroller Unit (MCU):

✓ R5F64219

☞ **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 R5F642xx-Programmer.

2. CHECKLIST AND REQUIREMENTS

The following describes what items are supplied with the R5F642xx-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*
- ✓ R5F642xx-Programmer PC software on CD-ROM – *Optional Extra*

- ■ Desktop/Laptop PC with USB Port
- ■ Windows XP (SP3) or Windows 7 64/32 -bit
- ■ Microsoft.NET Framwork Ver. 3.5 SP1 or later version.
- ■ Power supply: +12V to supply airbag module.

☞ **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 R5F642xx-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

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 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 TXD pin.
DARK	The HYPER PROG receiver is in wait mode.

Table 3. RX_ACTIVE LED color meaning

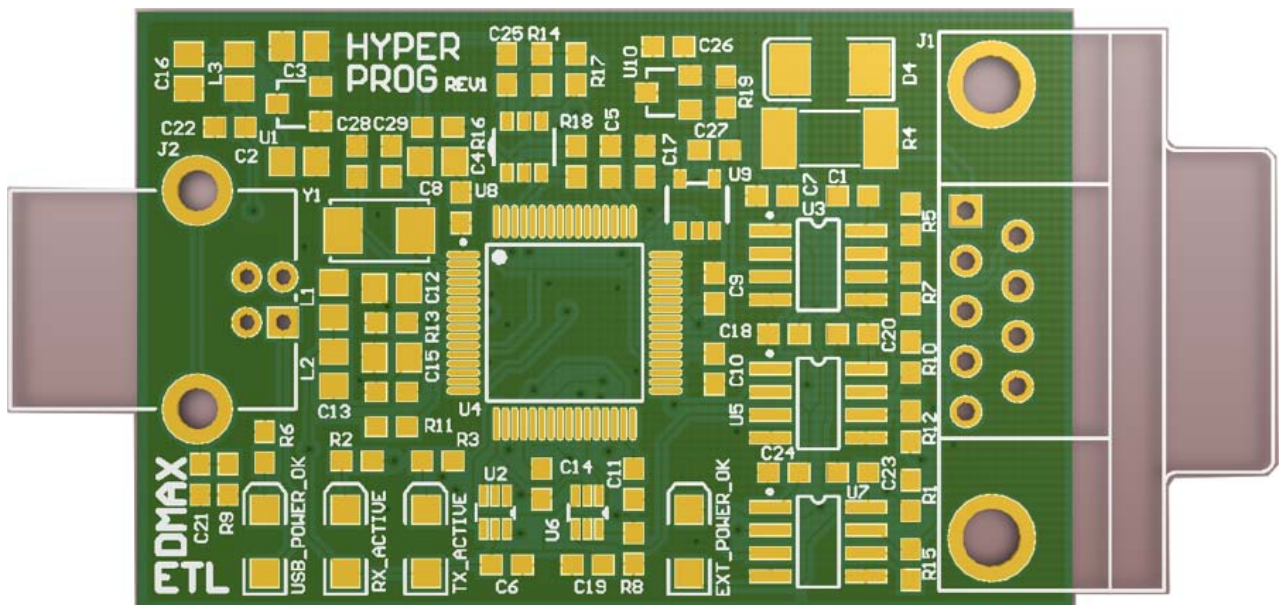| GREEN	The HYPER PROG transmits data via RXD pin
DARK	The HYPER PROG transmitter is in wait mode.

Table 3. TX_ACTIVE LED color meaning

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 R5F642xx-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 R5F642xx-Programmer software form the ETL web site.
- Install the software. After installation the driver will be located in the "C:\Program Files\ETL\R5F642xx_Programmer\USB_Driver\" directory.
- Plug the HYPER PROG board in to USB port.
- Wait until the Windows7 failed to install the driver(Figure 2)
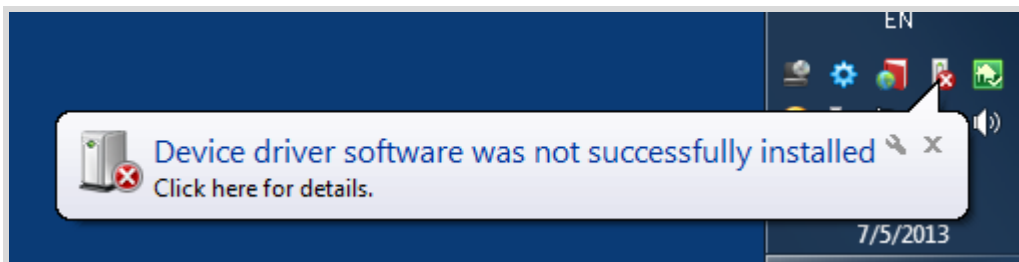

Figure 2. The "Windows 7" driver installation failed

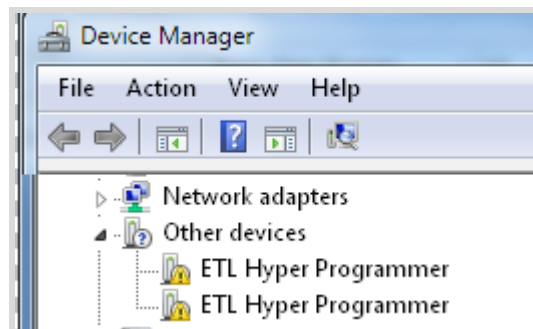- Open the "Device Manager" and locate "ETL Hyper Programmer" devices (Figure 3).

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).
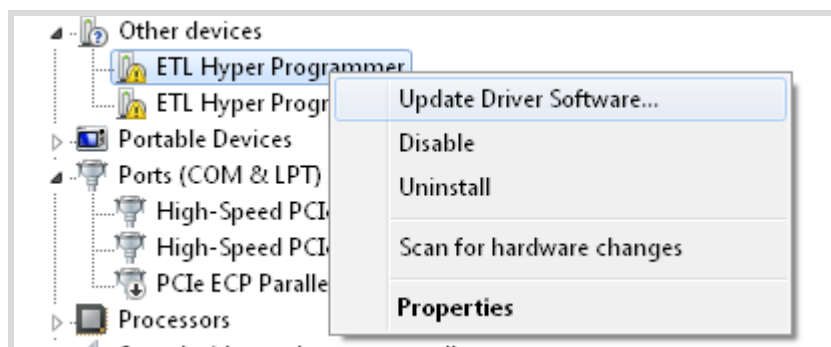

Figure 4. The "Update Driver Software" menu item selection

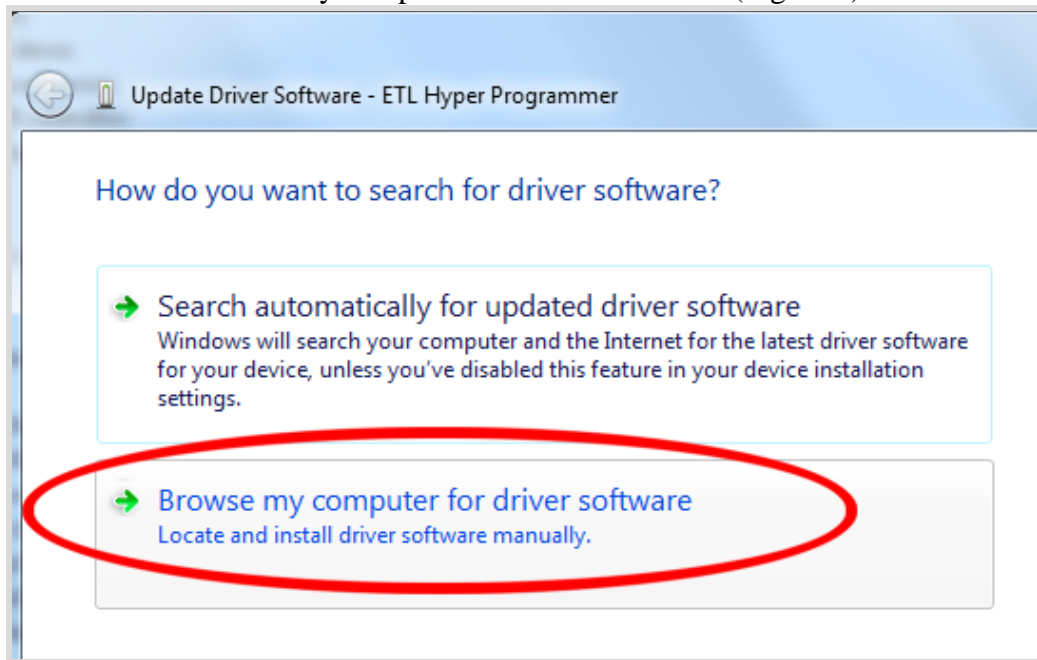■ Select the "Browse my computer for driver software" (Figure 5).

Figure 5. Update Driver Software - "ETL Hyper Programmer"

■ Press the "Browse" button to select the USB driver location. For Windows7 32-bit the location will be C:\Program_Files\ETL\R5F642xx_Programmer\USB_Driver".

■ For Windows7 64-bit the location will be C:\Program_Files_(x86)\ETL\R5F642xx_Programmer\USB_Driver".
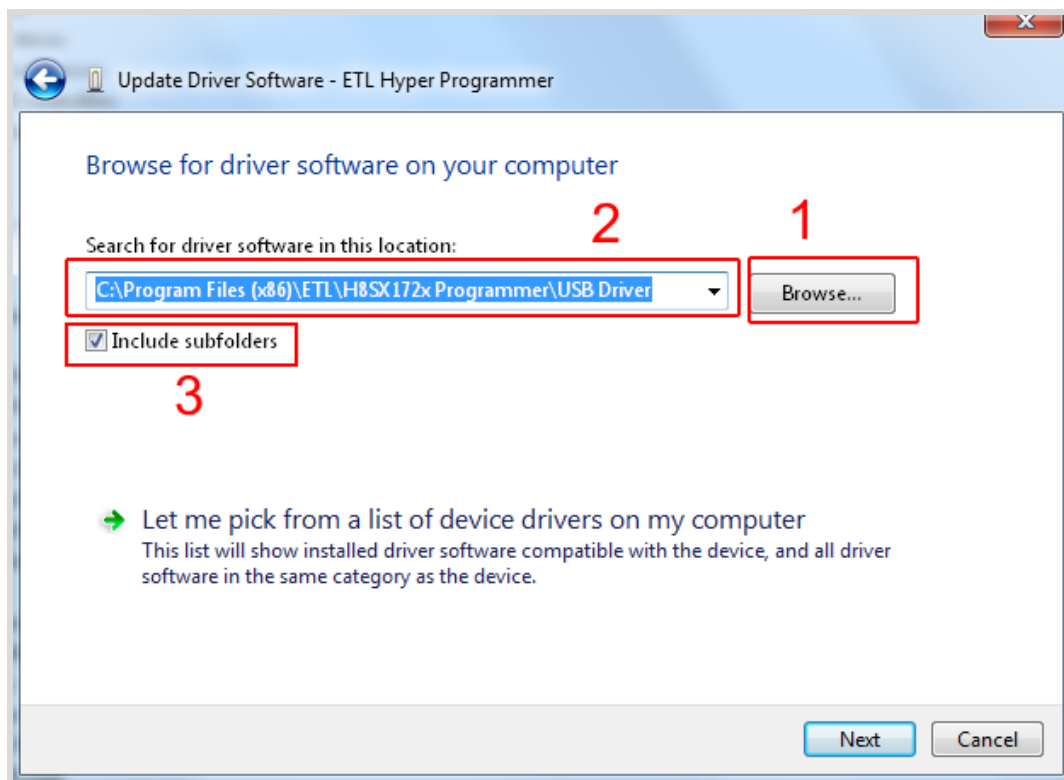

Figure 6. Update Driver Software - "ETL Hyper Programmer"

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

■ In a couple seconds the Windows security alert screen will appear. Select the "Install this driver software anyway"(Figure 7)
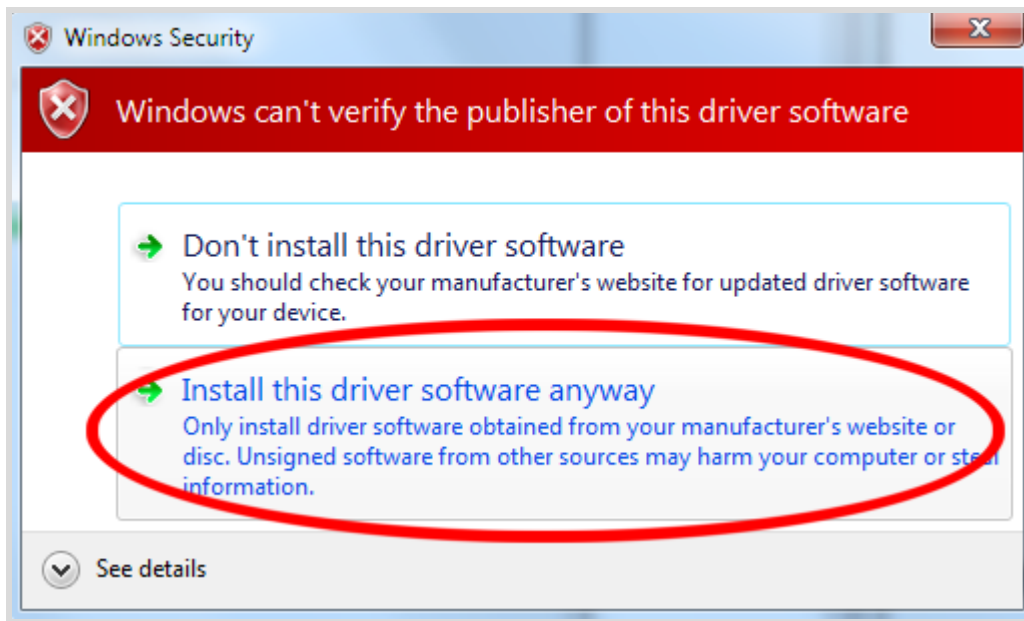

Figure 7. "Windows Security" alert

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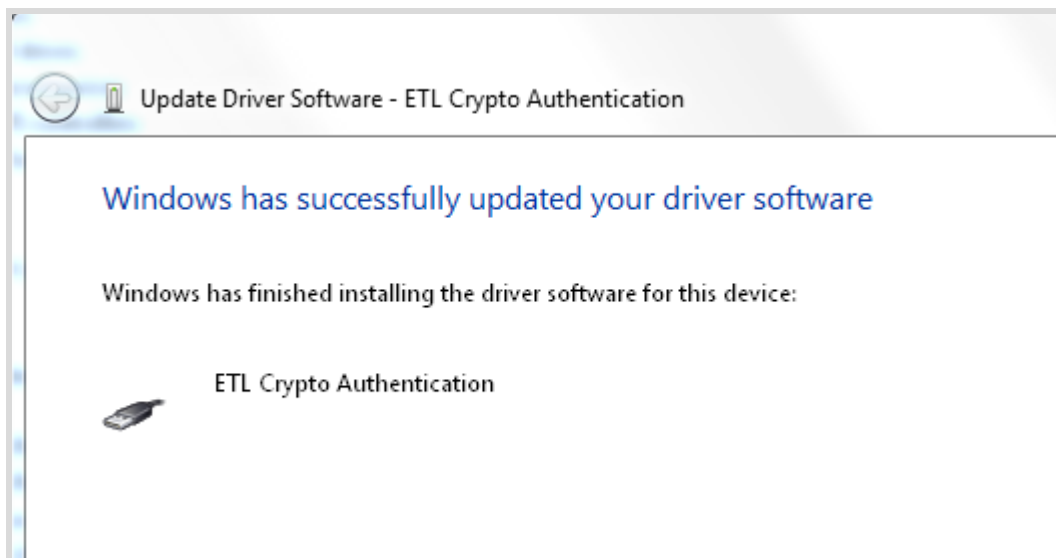

Figure 8. The successfully "Update Driver Software " screen

☞ **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.

■ One driver was installed successfully(Figure 9). Another driver for the "ETL Hyper Programmer must be installed same way.
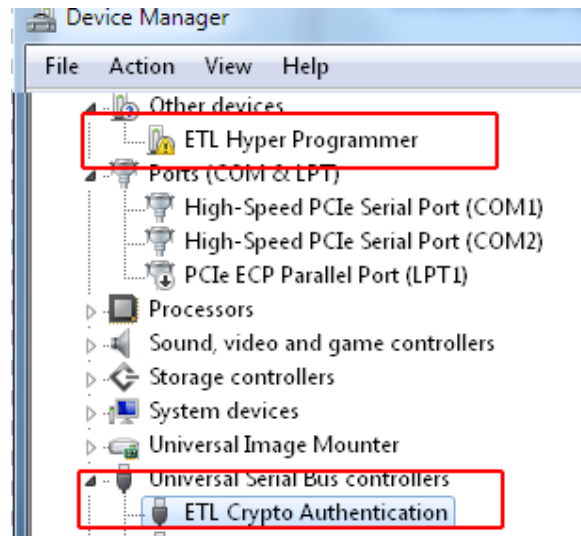

Figure 9. The "ETL Crypto Authentication" device successful installation

■ 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).
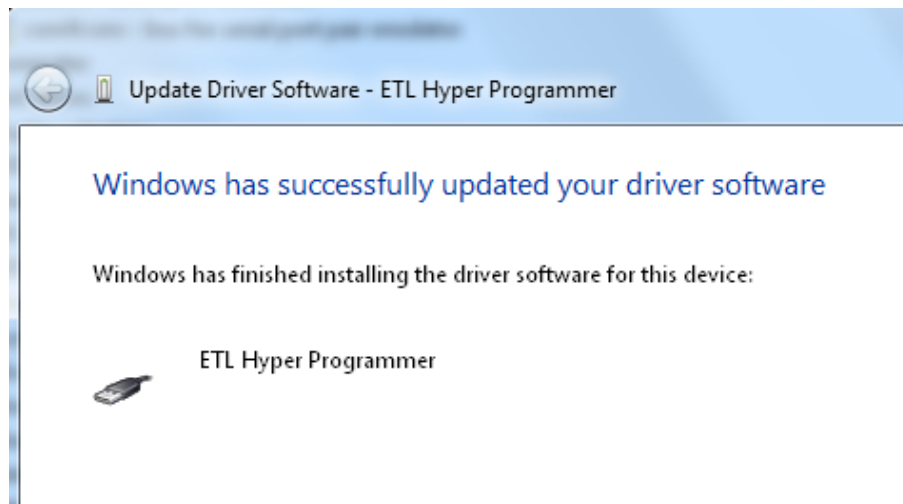

Figure 10. The "ETL Hyper Programmer" device successful installation

■ 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).
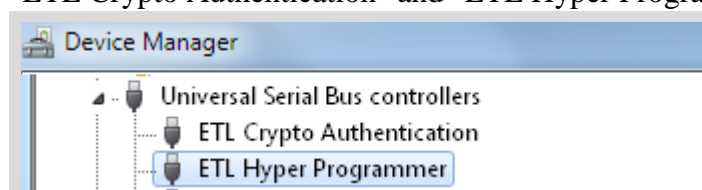

Figure 11 The "ETL Crypto Authentication" and "ETL Hyper Programmer" devices

3.2 USB DRIVERS INSTALLATION WINDOWS XP

This section describes how to install the USB drivers for the R5F642xx-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 R5F642xx-Programmer software form the ETL web site.
- Install the software. After installation the driver will be located in the "C:\Program Files\ETL\R5F642xx_Programmer\USB_Driver\" directory.
- Plug the HYPER PROG board in to USB port.
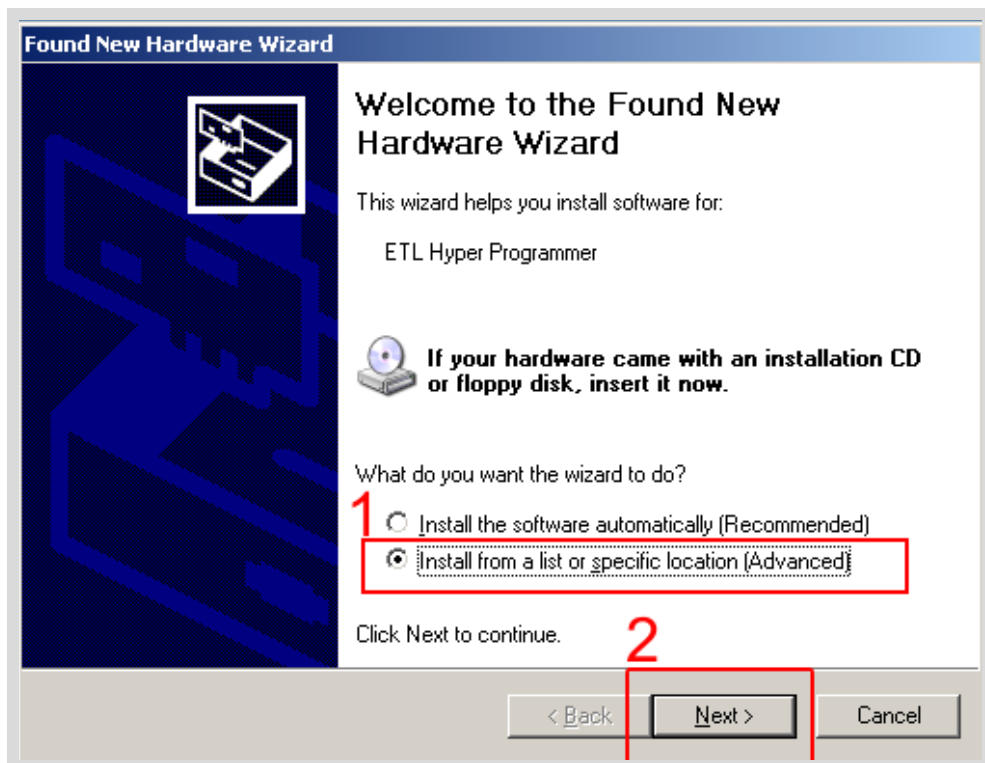- Wait for the "Welcome to the Found New Hardware Wizard" screen(Figure 12).

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\R5F642xx_Programmer\USB_Driver"
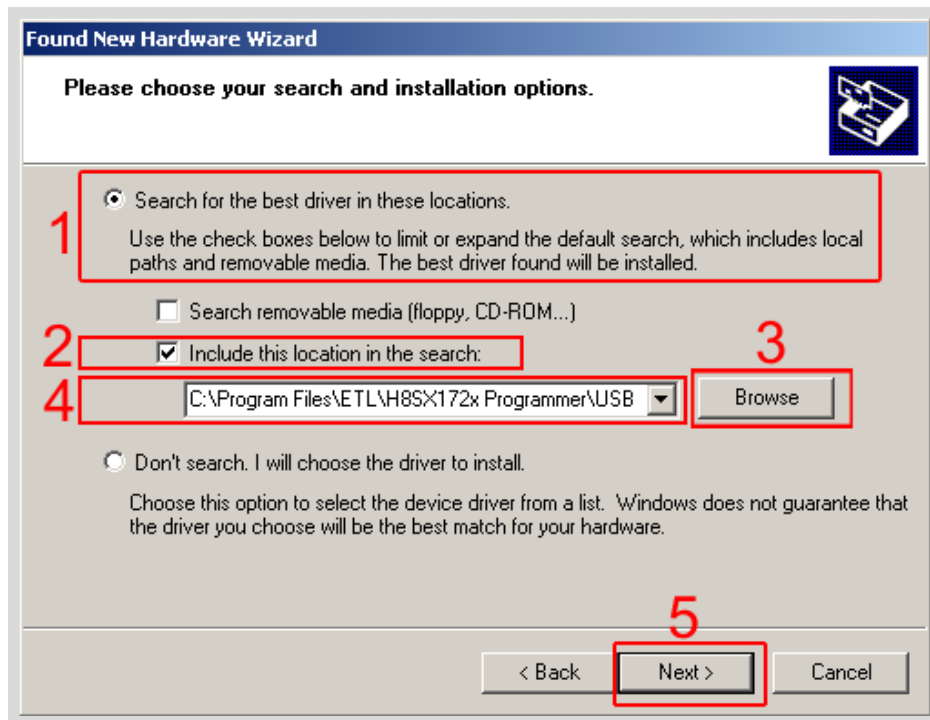- Press "Next" Button.

Figure 13 The Windows XP "Found New Hardware Wizard"

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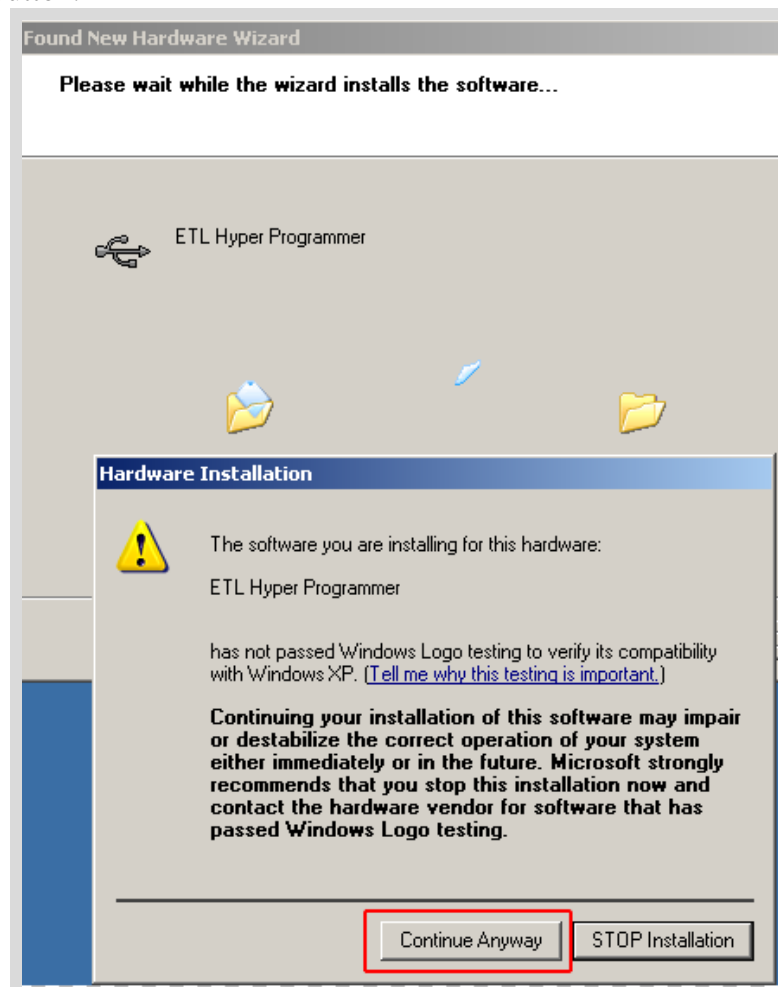

Figure 14. The "Found New Hardware.." security alert.

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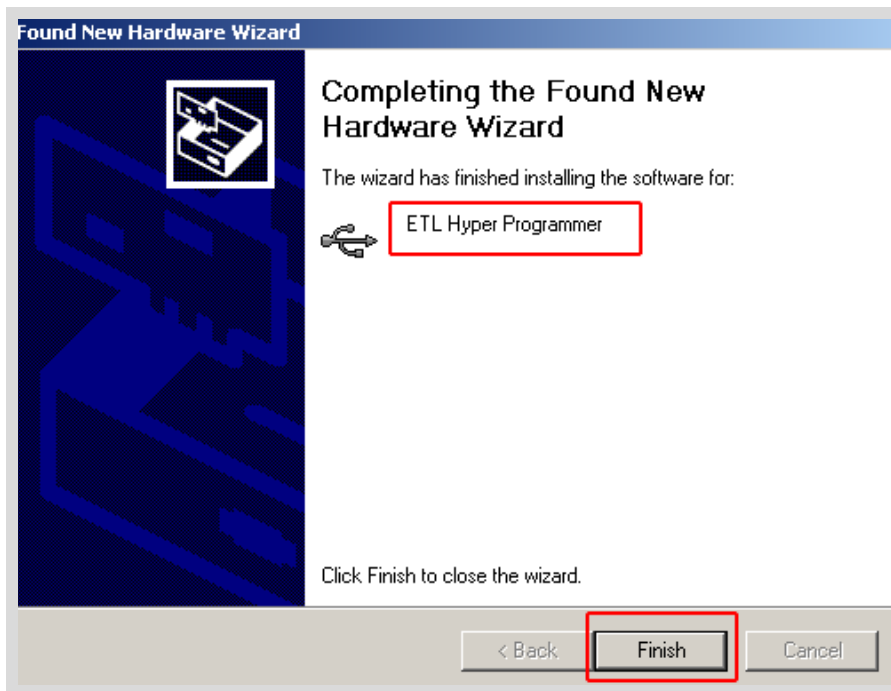

Figure 15. The "Completing The Found New Hardware.." screen

■ 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\R5F642xx_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).
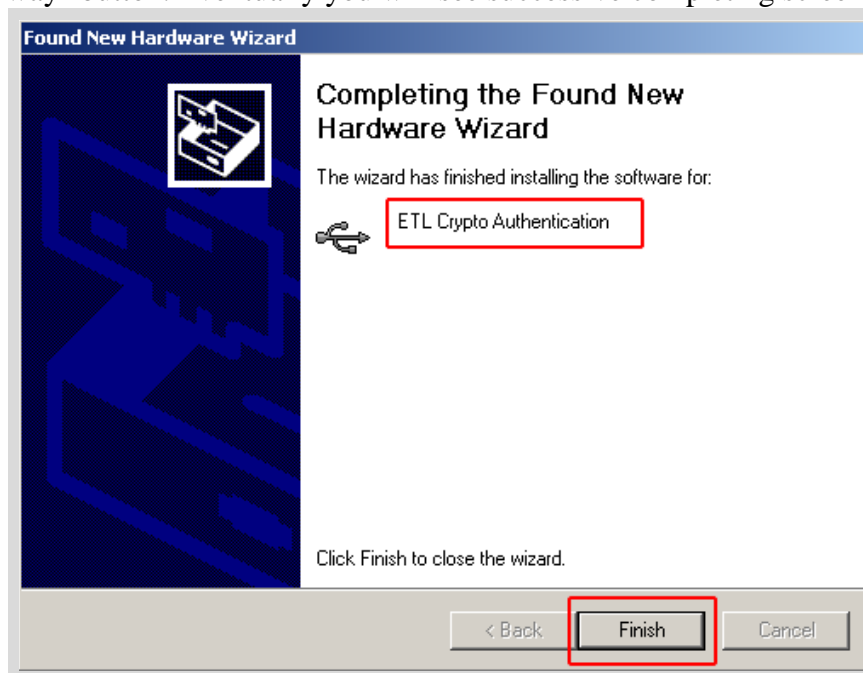

Figure 16. The "Completing The Found New Hardware.." screen

■ 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).
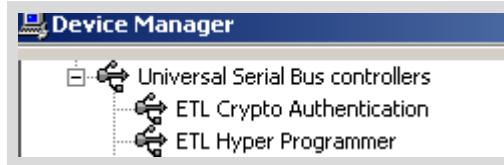

Figure 17 The "ETL Crypto Authentication" and "ETL Hyper Programmer" devices

☞   **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 R5F642xx-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 R5F642xx-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.
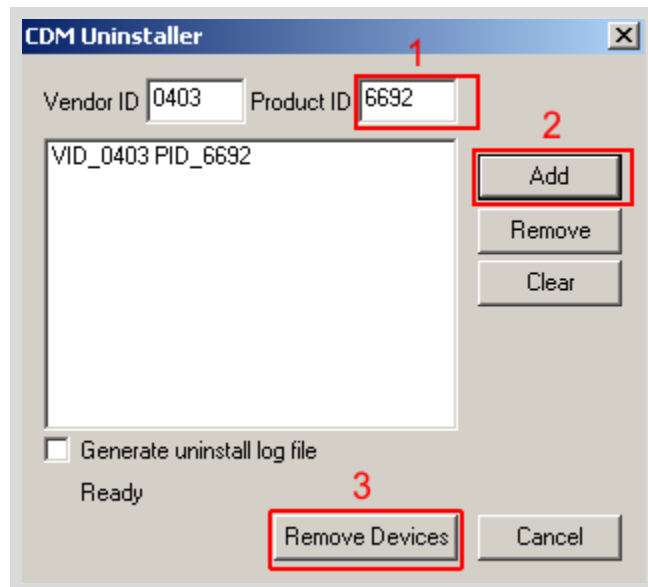- Click the "Remove Devices" Button.

Figure 18 The Drivers uninstall by CDM Uninstaller software

- If there were installed drivers in the system you will see the confirmation of un-installation.

6. SOFTWARE ACTIVATION

This section describes the software activation procedure. For activation customer will need the "License key" provided in the time of R5F642xx-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 R5F642xx-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 R5F642xx-Programmer software.
- Press the "Connect Programmer" button.
- Wait until the "ETL Programmer is connected!" and the programmer serial number message.
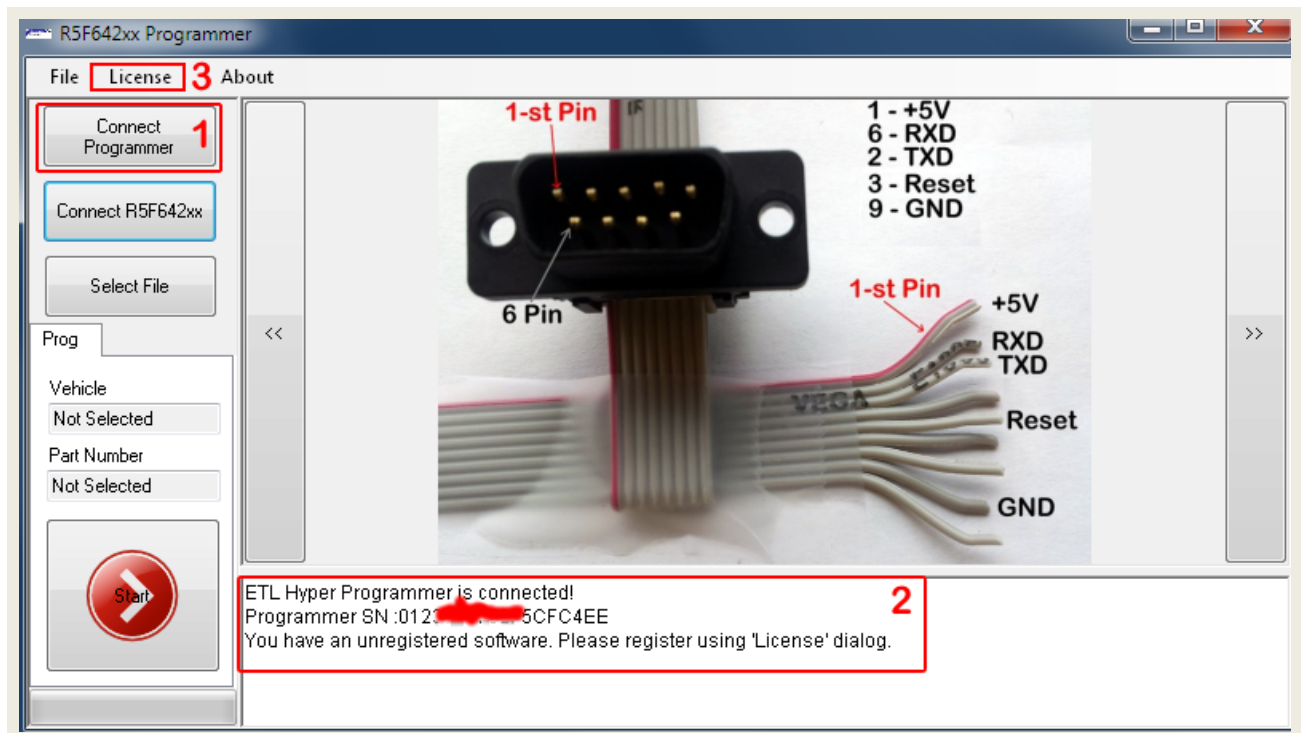

Figure 19 R5F642xx-Programmer software

- 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".

☞ **Note**: If activation procedure is failed please contact ETL technical support at the Email: techsupport@etlweb.net
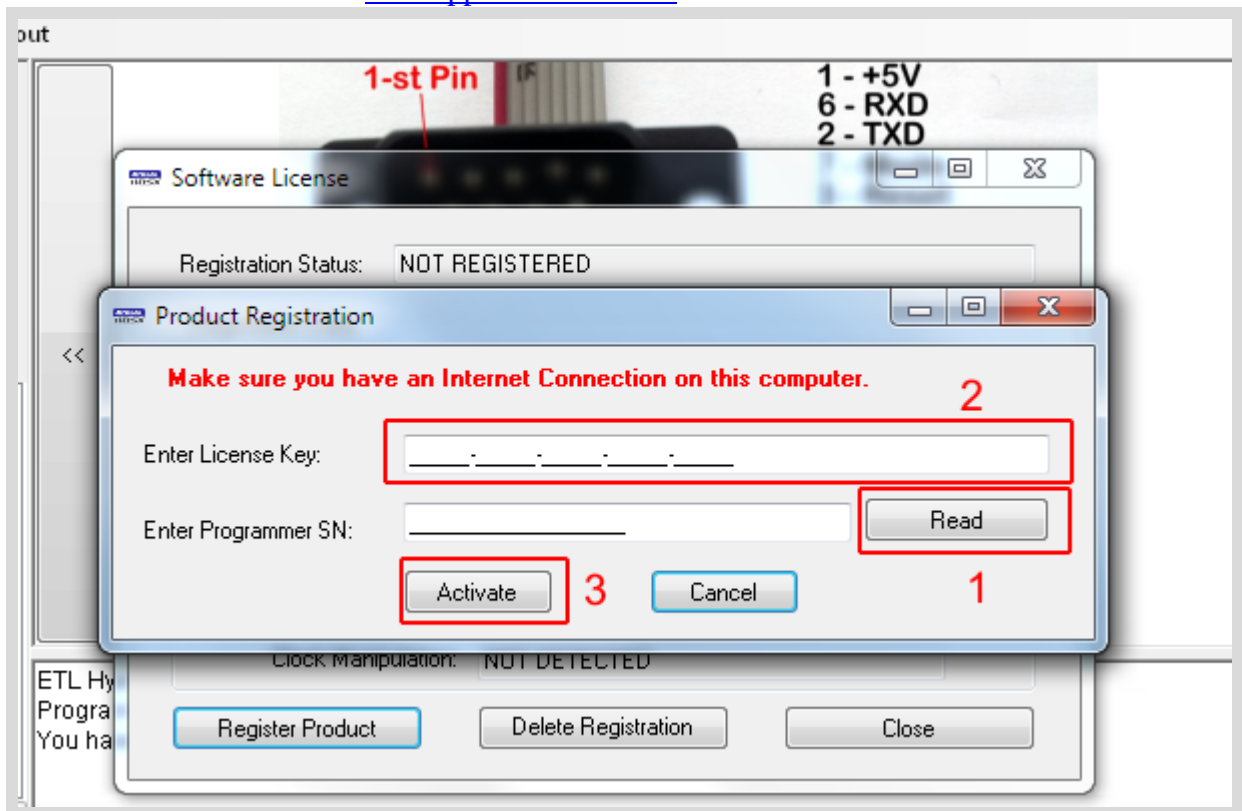

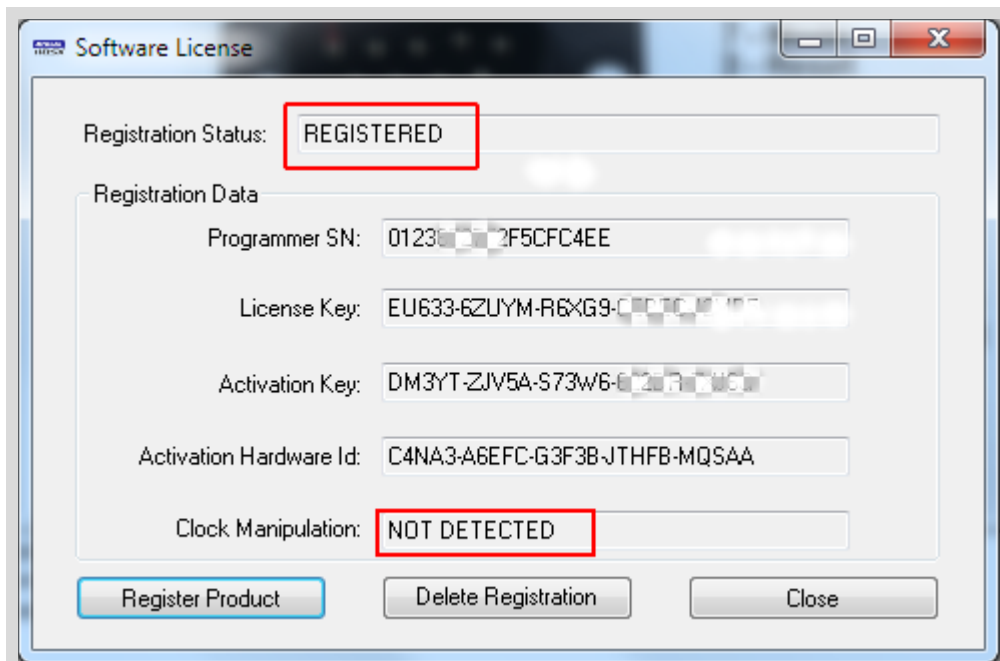Figure 20 R5F642xx-Programmer software activation

Figure 20 Successful R5F642xx-Programmer software activation

5. FILES DOWNLOAD

After successful R5F642xx-Programmer software installation and activation user is eligible to download the encrypted "BIN file". Each file is encrypted to the programmer serial number. Using files from the different programmer will case an airbag malfunction. The airbag connection diagrams will be loaded automatically as well. The new "BIN files" 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.

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

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

6. PROGRAMMING EXAMPLE

- Solder the R5F642xx-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 R5F642xx-Programmer software (Figure 20)
- Press "Connect R5F642xx" button.
- Select File by "Select File" button.
- Press "Start Button".
- Wait until programming procedure finishes with the message: "CRC16 Verification Completed Successfully. Programming is Completed Successfully!"
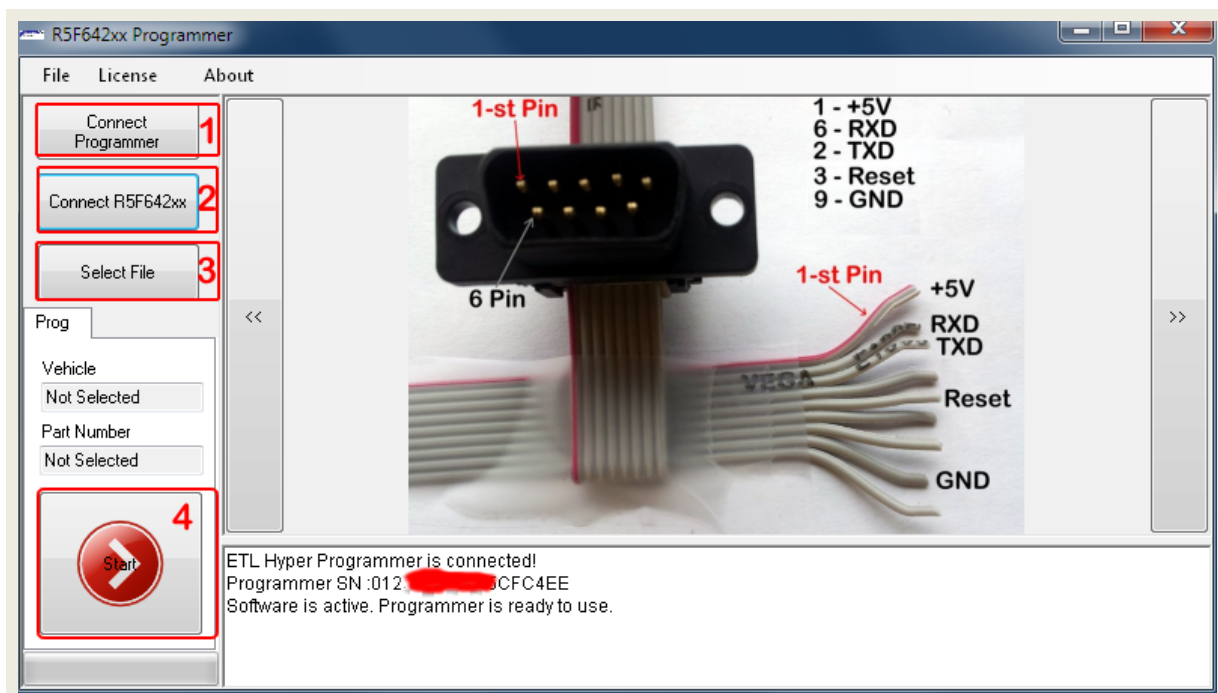

Figure 21 R5F642xx-Programmer programming sequence.

7. WARRANTY STATEMENT

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