12. Firmware Programmer

The firmware programmer allows the agents or users to change the Firmware program in the **TITAN** ECU for different engines. This is also used for upgrading to the latest version of the manufacturers firmware. The programmer is bought optional and not a requirement. It is very useful if the agent is far from the manufacturer. The firmware software is free as it is developed. **Read the Precautions below to prevent damage.**

12.1 NB! Precautions

- Note however that you may not program firmware into an EMU or ECU or TCU if it was not written for that specific electronic hardware. The setup of the micro processors is different and you may connect inputs to outputs that will damage the processor or the electronics. E1 Firmware is for EMU and E2 Firmware is for *TITAN* ECU.
- A Type 3 or Standard ECU can only take T3 firmware programs. If you load T11 or T15 in, the Yellow LED will flash twice when you switch it on and will not allow you to save the data maps.
- A Type 11 or Intermediate ECU can take T11 and T3 firmware programs. If you load T15 in, the Yellow LED will flash twice when you switch it on and will not allow you to save the data maps.
- A Type 15 or Advance ECU can take T15, T11 and T3 firmware programs. This will allow the user any combination as this ECU is the top of the range.
- Never press the Erase all code space. button in the Programmer Software. This will erase the ECU ID Code and then it will not work. The Yellow LED will flash three times when you switch it on and hang the processor. This ECU will have to be reprogrammed by the manufacturer.
- Always disconnect the 10 Way output harness from the ECU. When the programmer is connected all the outputs ere switch to the high state which means that coils and injectors will be switched on. This may damage the coil drivers or coils and fill the engine with fuel.
- Follow the <u>Startup Procedure</u> to make sure that the right firmware and settings is loaded to prevent damage.

12.2 Installation

On the CD in the *Firmware Programmer File* run the setup file mcu_ide.exe to install the software program. If you do not have the programmer software you may download the latest version from the internet at the following link:

http://www.silabs.com/Support%20Documents/Software/mcu_ide.exe

Follow the onscreen instructions till you are asked for the following. Click on Custom and uncheck Examples and Utilities.

Silicon Laboratories IDE & Examples - InstallSh	nield Wizard 🛛 🔀
Setup Type Select the setup type to install.	Nex -
Please select a setup type.	
Complete All program features will be installed to a disk space.)	default location. (Requires the most
Custom Select which program features you want directory. Recommended for advanced or	installed and the default installation users.
InstallShield	ack <u>N</u> ext > Cancel
Silicon Laboratories IDE & Examples - InstallSt	nield Wizard 🛛 🔀
Select Features Select the features setup will install.	
Select the features you want to install, and deselect the	efeatures you do not want to install.
DE Examples ∎ Utilities	Description This option includes additional utilities for Silicon Laboratories devices.
9.17 MB of space required on the C drive 83495.06 MB of space available on the C drive InstallShield	

You will not need these and they will only take up unnecessary disk space. No harm if you install the complete programmer. Connect the USB programmer to the PC only and start the program at the start button, activate Silicone Laboratories and click on Silicone Laboratories IDE.

Now click on Options, Connect Options and select USB Debug Adapter and also C2 interface. Click OK and you are all set to use the Programmer.



	Connection Options 🛛 🔀	
Options Window Help	Serial Adapter	
Connection Options	C RS232 Serial Adapter (EC2)	
Multiple Step Configuration	COMPORT: COM1	
Toolbar <u>C</u> onfiguration	Baud Rate: 115200	
Toolbar <u>E</u> xtended Styles	Check port status	
Editor <u>F</u> ont Selection Editor <u>T</u> ab Configuration Select <u>L</u> anguage	USB Debug Adapter 1.6.0.0 Adapter Selection: EC30001EDF5	
Debug Window Font Selection Disassembly ⊻iew	Power target after disconnect	
File Backup Setting	Debug Interface	
 Connect Before Opening Project 	C JTAG JTAG Chain Configuration	
Flash Persist on Download		
Show Ascii in Memory Windows	OK Cancel	

12.3 Operation

To program the *TITAN* ECU first connect the Programmer to the ECU Com Port. Connect only the 12 Way connector and earth the ECU. Switch the ignition on. Click on

the 🧾 button to connect.
Options Window Help
Connect (Alt+C)
The download 🔛 button will become active, click on
Options Window Help
Download code (Alt+D)

Now use the **Browse** button to select the correct HEX file on the hard disk or CD. Do not at any stage press the **Erase all code space button**.

it.

Download		
Select download Filename:		
l		Browse
Erase all code space.	Download	

Select the *Files of Type* to be *Intel Hex (*.hex)* then go to *Look in:* to search for the correct file.

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Click *Download* to program the ECU.

Download 🔀
Select download Filename: s Ver2.0\E2 T15 14 36-1 Lexus Ver 2.0 .hex Erase all code space. Download
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Preparing to download D:\ECU\Hex Files Ver2.0\E2 T15 14 36-1 Lexus Ver 2.0 .hex
41%
Cancel

Click the disconnect button when it is finished and switch the ignition off. Disconnect the programmer and connect the USB to RS232 Converter cable. Do not connect the 10 Way cable before you run through the startup procedure. This will ensure that load the right firmware and not to damage the ECU.