EM3ev Infineon Programming Software Installation Instructions 24 Feb 2014

Please note that the Controller can be damaged by operating it with excessive Current levels beyond the standard settings that the controller comes with. Also the Controllers are recommended for use on 36-50V pack with 60V max for the IRFB3077 equipped models and 36-75V pack with 90V max for the IRFB4110 equipped models. The Max voltage is the approximate max charge voltage of the battery pack, not the normal operating voltage of the battery pack. To avoid excessive voltage spikes that can damage the mosfets, it is not recommended to operate controllers at or near to the voltage rating of the mosfets, hence the conservative voltage ratings that are suggested. Ignore these suggestions at your own risk

1. Run the prolific driver file, Prolific_USB_Driver.exe
2. Install the em3ev.exe file. It is common to have an error when you try to then run the file due to missing .ocx files. However, recently the Prolific Driver has been changed and this seems to have solved many of the problems with errors. If you do not see any errors, do not make any changes.
3. **For XP and Win7 32bit** Firstly, you could try running the program in compatibility mode if there is the option to do so. Compatibility mode is found by right clicking on the EM3ev.exe program, select properties, then select "Compatibility", then tick "Run this program in compatibility mode for", select Windows XP, SP 2 or SP3. Try again to run the program again.
4. (if you experience any problems) you may need to copy the missing file/files (MSCOMM32.OCX, mscomctl.ocx, Comdlg32.ocx and/or RICHTX32.OCX) to: **C:\windows\system32**
5. To register the files, you will need to use Command Prompt. Go to Start menu, you can either search for Command Prompt, or go to "Accessories" and you will see Command Prompt listed. Do not select it, instead right click and select "Run as Administrator" from the options. Copy and paste the following command to register MSCOMM32.OCX (if required):
   regsvr32 %Systemroot%\System32\MSCOMM32.OCX
   Remove any spaces from the end, before pressing the enter key. A message stating the file register succeeded, should be shown. Press OK.

   Do the same for mscomctl.ocx (if required). Enter the following command:
   regsvr32 %Systemroot%\System32\mscomctl.ocx
   Remove any spaces from the end, before pressing the enter key. A message stating the file register succeeded, should be shown. Press OK.

   Do the same for Comdlg32.ocx (if required). Enter the following command:
   regsvr32 %Systemroot%\System32\Comdlg32.ocx
   Remove any spaces from the end, before pressing the enter key. A message stating the file register succeeded, should be shown. Press OK.

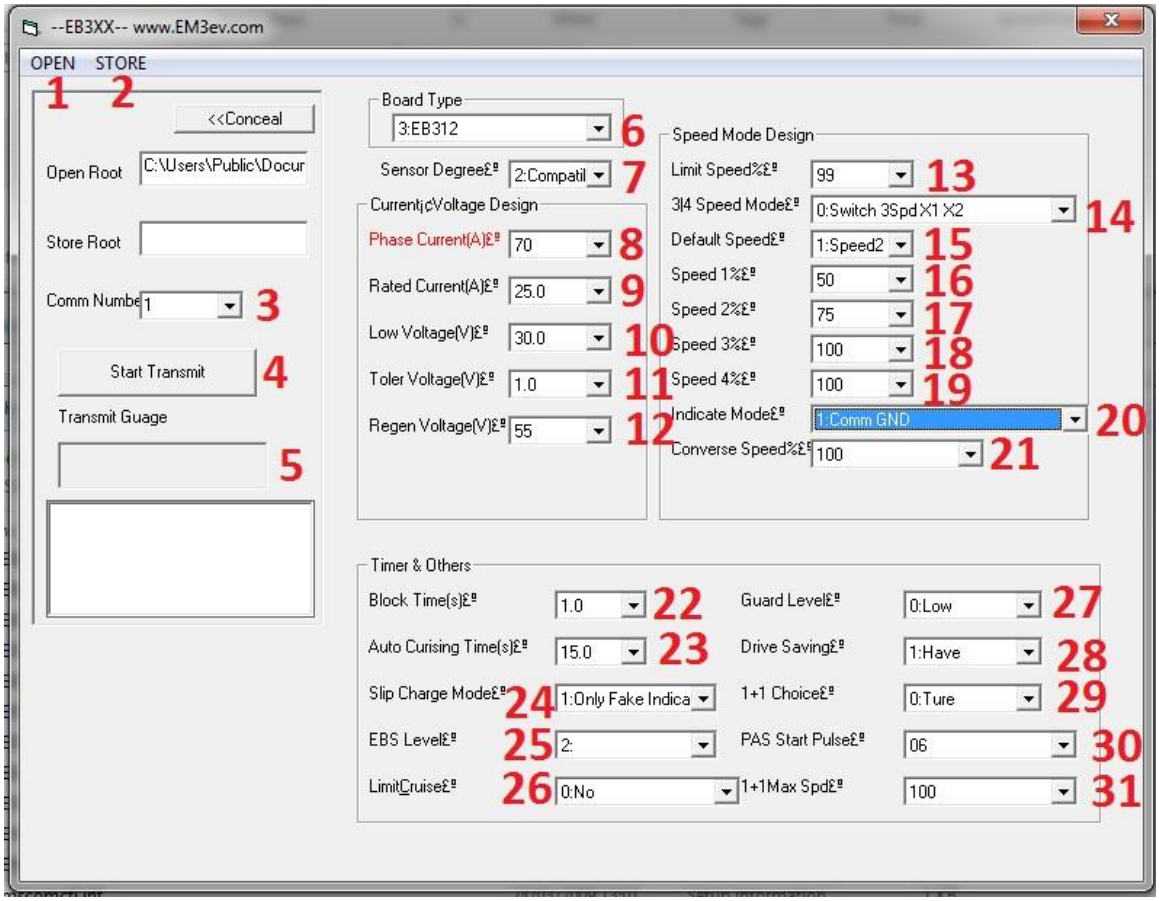
Do the same for RICHTX32.OCX I (if required). Enter the following command:
regsvr32 %Systemroot%\System32\RICHTX32.OCX
Remove any spaces from the end, before pressing the enter key. A message stating the file register succeeded, should be shown. Press OK.

6. **For Win7 64 Bit** (if you experience any problems), initially try to run the program in XP mode, this can be done by right clicking on the program or shortcut to the program and selecting properties, then select "Compatibility", then tick "Run this program in compatability mode for:", select "Windows XP (service pack 3)"
7. If this does not work you can try to copy any files that are highlighted as a problem to folder **C:\windows\SysWOW64** (but Windows 7 can be quite difficult to do this).
8. To register the files you need open up a command prompt window as an administrator. Go to the start menu, and in the search field, enter cmd (don't press enter) and then right click on the cmd.exe program icon in the menu, and choose 'run as administrator'. This can also be found in "All Program", then open "Accessories", you will see "Command Prompt". Right click, and select "Run as Administrator"
9. That will now open a command prompt window as an admin. Paste the following commands into the window, 1 at a time (you should only need to add files and register them if you receive a message stating the file is missing or has a problem when the program is started):
   C:\Windows\system32>regsvr32 c:\Windows\SysWOW64\comdlg32.ocx
   then press enter.
   paste in:
   C:\Windows\system32>regsvr32 c:\Windows\SysWOW64\mscomm32.ocx
   then press enter.
   paste in:
   C:\Windows\system32>regsvr32 c:\Windows\SysWOW64\richtx32.ocx
   then press enter.
   paste in:
   C:\Windows\system32>regsvr32 c:\Windows\SysWOW64\mscomctl.ocx
   then press enter.
10. Now run the EM3ev program.
11. Connect the Programming Cable to a USB port on your computer.
12. In order for the EM3ev Program to communicate with the programming cable, you must ensure the Prolific Com port has been assigned to a com port with a number between 1 and 5. Open Device Manager to check the assigned com port and change if necessary. Device Manager can be found by going through the following links from Control Panel, Control Panel/System/Hardware/Device Manager. When you select Device Manager, a new window will open, select Ports (Com & LPT). You should see Prolific USB to Serial Comm Port in the list and there will be a com port number alongside. Right click and select Properties. Select Port Settings, then Advanced. You will see a drop down box where you can select an alternative port number. In many cases, the port you want to select will

already have “in use”, but have a look at the other devices assigned by going back to Device Manager and shuffle around the ports or just try a port and see if it works.

13. Now you have selected a port between 1 and 5 for the Prolific Device, you can go back to the EM3ev software and select the same port number. If you plug the program cable into a different USB port on your computer it may assign a different port number, so if the software shows a communication error, check the port number assigned in device manager as previously detailed.
14. Open the applicable .asv file for your model controller, a file for each of the models is included in the folder you downloaded. Select Open in the software and browse to the loacation the folder was saved to. Please note that when programming the 6 or 9 fet (EB306, EB309), unless otherwise advised, you should select EB312 in the Board Type drop down menu. When programming a 12 fet EB312, select EB312 from “Board Type” menu, but set the current levels to only 50% of the desired current level. Phase current should be set to between 2 and 2.5 * the “Rated” (battery) current. When programming the 18 fet, select EB318 and program to 50% of the desired current levels. Controllers fitted with IRFB4115 mosfets, intended for over 100V operation have the R12 mod to trick the controller that it is operating at only 50% of the actual voltage. So for any 4115 equipped controller, program all voltage levels to 50% of the desired value. When programming the EB324 model, select EB312 and program to only 25% of the desired current levels, the voltage settings are as per the EB318 settings mentioned previously
15. When programming the controller it should not be powered and all other parts should be disconnected.
16. Press “Start Transmit” in the EM3ev software, the button will then change to “Stop Transmit”, now press and hold the small push button on the programming lead. You should then see the transmit gauge scroll as the new program is installed onto the controller.
17. Now go forth to enjoy your revised (and safe) controller settings ☺ See more details on what each section in the software represents on the next page.

Software Parameter Description:



1. Select to open the standard or saved .asv files on your computer.
2. Existing settings can be saved to a new/existing .asv file by selecting store.
3. Select the appropriate com port assigned to the USB cable, as detailed previously.
4. Press start transmit to send a new file, you will need to also press the mini switch on the USB cable to send the settings to the controller.
5. Progress of the upload will scroll across the gauge and a message showing the status of the upload.
6. Select board type, following guidelines previously suggested and by following the selection used in the standard .asv file for your model.
7. Leave it in the standard setting, “2: compatible”, there should be no need to use anything else.
8. Phase is typically set to approx. 2 to 3* the Rated current. Base settings around the standard values in the supplied .asv files.
9. Rated current is the max current that can be pulled from the battery. Follow previously detailed guidelines as to what is correct and base settings around standard settings. Often it is necessary to set the rated current to only 50% of the required current level.

10. Low voltage cut. Set to appropriate level to protect your battery. For some models of high voltage controller, the voltage levels are set to only 50% of the desired value.
11. LVC Tolerance. What it says, not critical, set to 1V should be ok.
12. Voltage at which regen ebraking is disabled. To avoid over charge of the battery. For some models of high voltage controller, the voltage levels are set to only 50% of the desired value.
13. Max speed, set to 99%, so full speed is available.
14. Set to standard "0: Switch 3spd X1 X2" to use with a standard 3 position switch.
15. Set to "1:Speed2", it will default to speed 2 without a 3 speed switch connected.
16. What is says. Adjust the position 1 speed to a percentage of full speed.
17. What is says. Adjust the position 1 speed to a percentage of full speed.
18. What is says. Adjust the position 1 speed to a percentage of full speed. Do not use any setting greater than 100%. 105, 110 and 120% all do the same things and are not safe for the controller.
19. Set same as speed 3 setting, no purpose.
20. Controller diagnostics, leave as standard, not important.
21. Reverse speed as a percentage of the full speed.
22. Allows short term over current. It is recommended it be set to the minimum, 1.0s.
23. Time taken for auto cruise to lock. Not important for EM3ev controller, we do not use the Auto Cruise function.
24. Regen Braking operating mode. 1 = regen functions when ebrakes are pulled. 0 = regen enables when ebrakes are activated or when throttle is reduced. Regen only functions if it has been hardware enabled.
25. Regen level. Higher number results in more powerful regen braking.
26. Enable/Disable cruise. Yes will disable, No will enable.
27. Guard Level is a function that causes the controller to lock the motor, a type of anti-theft function. Link PCB point "TB" to ground with "0:Low" setting. Connect TB to Battery Positive to activate when "1:High" is selected. Connection is not fitted as standard to EM3ev controllers.
28. Drive saving is throttle protection enable/disable function. If throttle signal goes over the normal range, the controller will cut power. "1:Have" is with Throttle Over Volt protection.
29. Enable/Disable PAS function. "0:Ture" to enable.
30. Number of PAS pulses before PAS assist starts.
31. Speed limit for PAS assist.