



Welcome to Scorpion ESC Programmer v1.4

This programming software works with the following ESC's

Scorpion 90HV v5 or later.  
Scorpion 130HV v5 or later.  
Scorpion 160HV v5 or later.

It works with both BEC and non BEC (OPTO) version.

Introduction note:

This new software for the ESC programming is updating both itself and it's firmware via Internet. You can run it in offline mode but in case you are to update the firmware you have to have the .enc file downloaded already.

With this, make sure your Firewall and Antivirus allows for this program to access the internet.

### USB Adapter installation

Before you start, install the Driver software for the Prolific USB-Serial hardware.

If you have not downloaded the software it can be found here

<http://www.prolific.com.tw/eng/downloads.asp?ID=31>

When you have installed the software drivers, insert the Prolific USB-Serial adapter into a free USB Port, the Driver should now load correctly.

If it does not find the drivers for some reason, please re-run the driver installation

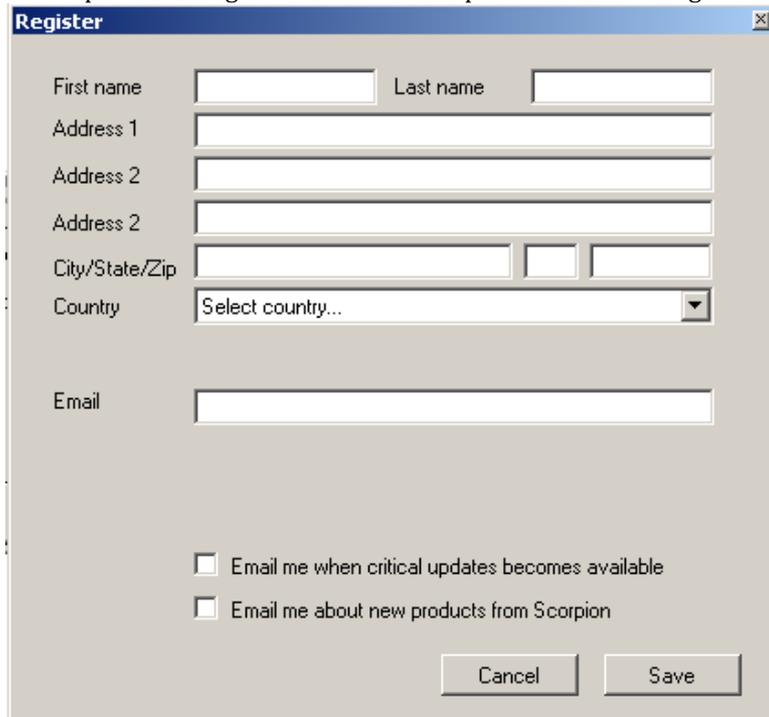
### Running the program

When you start this program for the first time you are shown this question box.



With this software you are now required to register to utilize the full functionality of the program, this is important for us as we can then notify you in case there is an emergency update.

Please press the Register now button to proceed with the registration.

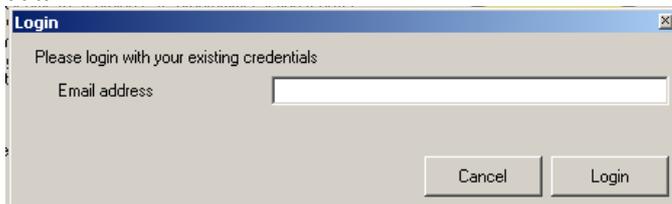


The Register dialog box contains the following fields and options:

- First name: [Text input]
- Last name: [Text input]
- Address 1: [Text input]
- Address 2: [Text input]
- Address 2: [Text input]
- City/State/Zip: [Text input] [Text input] [Text input]
- Country: [Dropdown menu with "Select country..." text]
- Email: [Text input]
- Email me when critical updates becomes available
- Email me about new products from Scorpion
- Buttons: Cancel, Save

The email address you fill in here will be the key if you need to re-install the software.

If you are already registered, press "Already Registered" and you get this option to retrieve your data.



The Login dialog box contains the following elements:

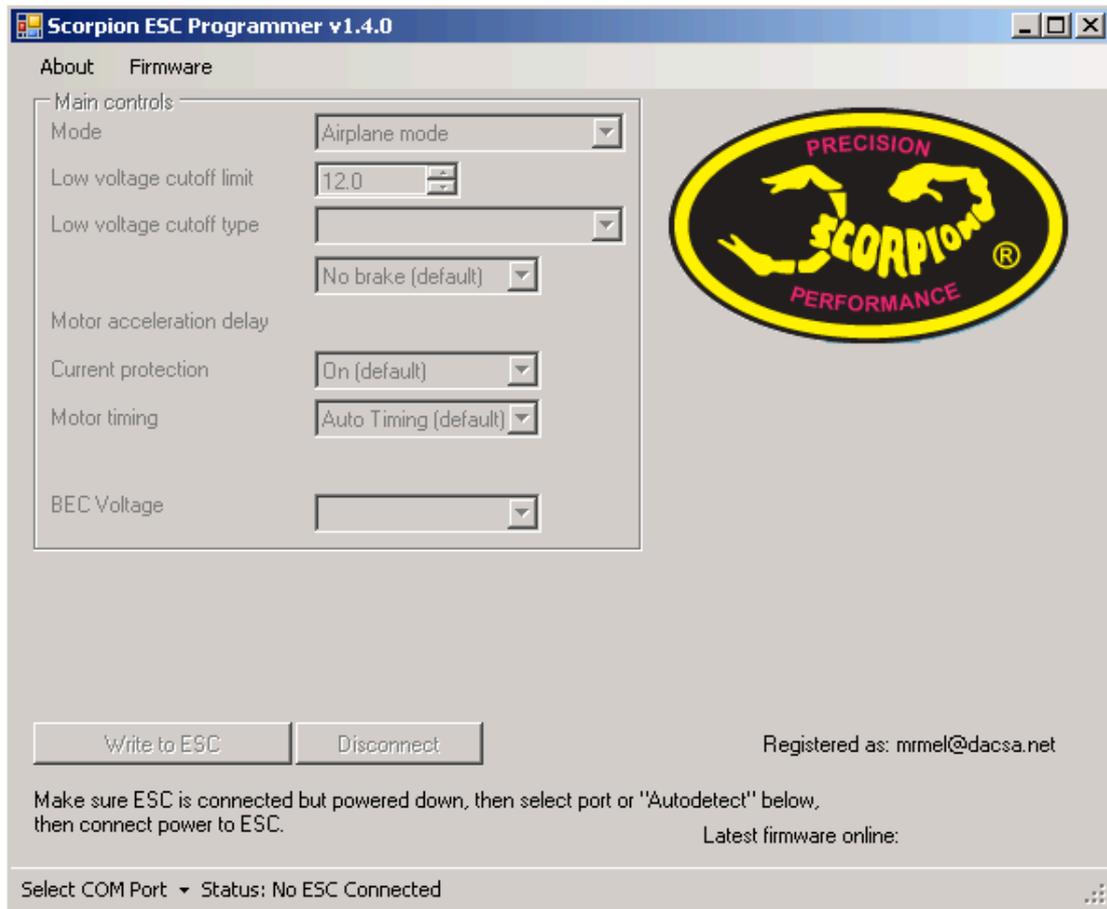
- Title: Login
- Text: Please login with your existing credentials
- Email address: [Text input]
- Buttons: Cancel, Login



The Welcome dialog box contains the following elements:

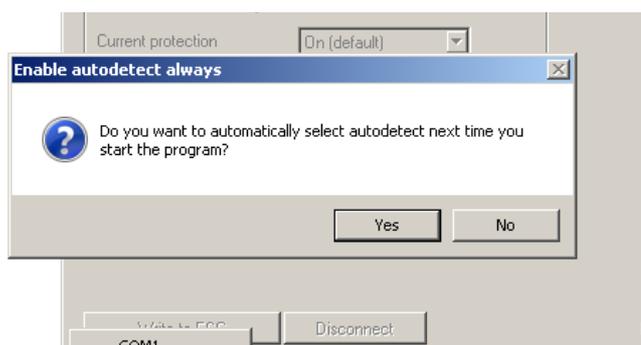
- Title: Welcome
- Text: Welcome to Scorpion ESC programmer, if you register now the system will automatically check for new firmware updates for your ESC, it also gives you option to get pushed with information via email when it comes critical updates.
- Text: Registration is mandatory for downloading firmware
- Image: Scorpion logo with "PRECISION" and "PERFORMANCE" text
- Buttons: Register now, Already registered, Skip

Note that the system allows you to Skip which in terms allow you to change values, but with that prevent firmware updates, so you cannot download any new firmware from our server.



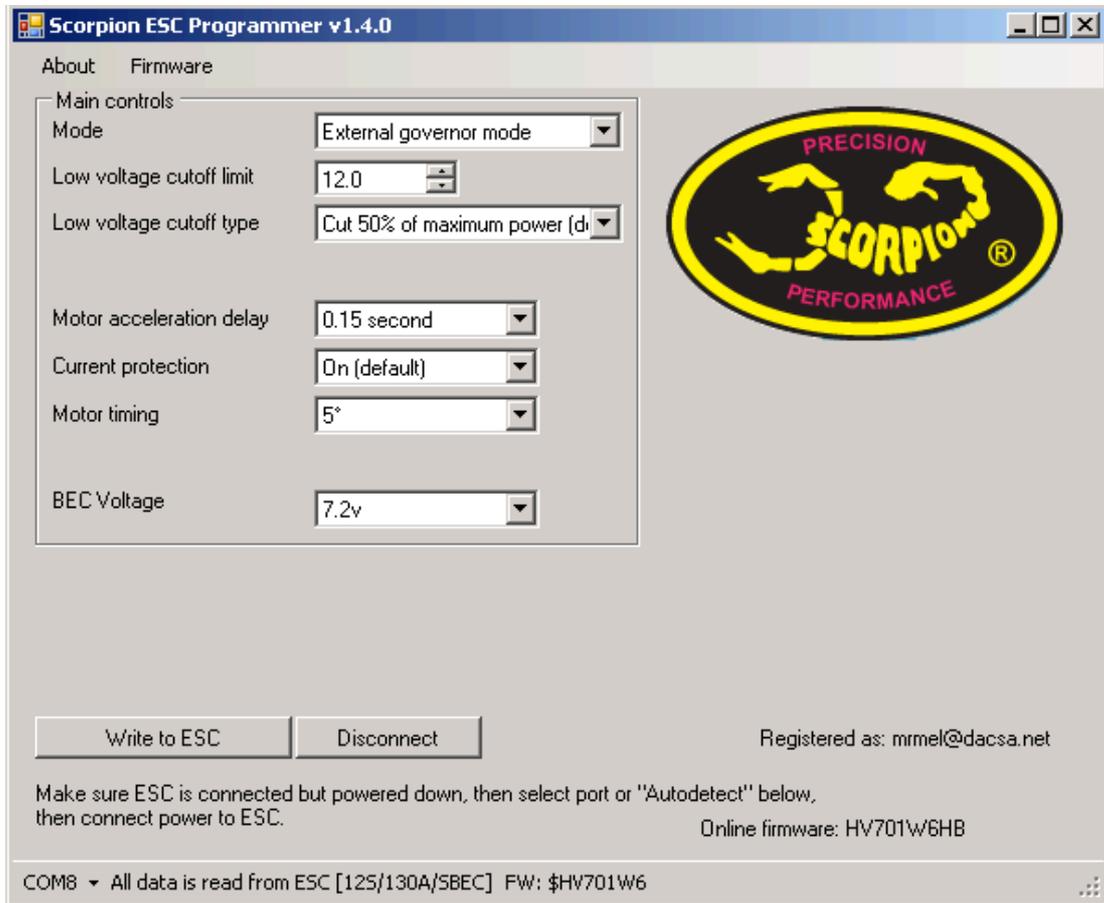
When you start the program you see it as presented in the picture above, at this time you should have the USB already connected to the computer, the programming cable of the ESC should be connected to the USB adapter, but no power should be connected to the ESC.

Now in the lower left corner, select COM Port (or choose Automatic)  
If you choose to automatically detect, it will then ask you if you want to start in this mode next time (i.e. go directly into automatic mode)



After you have selected port (or automatic) please connect the power to the ESC's main battery connector 12v is sufficient. (4s or higher)

Now the program will read the values from the ESC and will be turned active like this.



**The different settings are as follows.**

**Mode**

- Airplane mode
- External governor mode
- Heli mode, No governor
- Heli mode, Governor

**Low voltage cutoff level**

Setting the LVC for the ESC, from 10v to 50v, 1v increment.

**Low voltage cutoff type**

- Cut to 50% of the maximum power (default setting)
- No cutoff, only warn via LED
- Pulse warning (pulse on power)

**Brake type (Airplane mode only)**

- No brake (default setting)
- Very soft brake
- Soft brake
- Hard brake
- Very hard brake

**Motor acceleration delay (Airplane/Ext gov mode only)**

- 0.15 seconds (default for external governor mode)
- 0.30 seconds (default setting)
- 0.45 seconds
- 0.7 seconds
- 1.3 seconds

**Current protection**

- On (default setting)
- Off (OBS Warranty voided)

**Motor timing**

- Auto (default for most modes)
- 5 degree (default for external governor mode)
- 15 degree
- 20 degree
- 25 degree
- 30 degree

~~**Auto rotation Bailout time (Heli modes only)**~~

- ~~• 15 seconds (default setting)~~
- ~~• 25 seconds~~
- ~~• 35 seconds~~

*\*\*\*\* SEE NOTE BELOW ABOUT AUTORATION BAILOUT*

**BEC Voltage**

- 5.4 volt (default setting)
- 6.2 volt
- 7.2 volt (only newer 5.1 hardware has this option)
- 8.4 volt

**Governor setting (Heli governor mode only)**

Governor P gain (1-11)

Governor I gain (1-8)

\*\* Autorotation bailout it the time limited form was removed from 703 firmware.  
In the 703 firmware you have control over the autorotation bailout via throttle %

20% is what you set your throttlehold to when you want to use bailout.

30% - 100% is regular flying throttle.

So if you fly at 75% throttle, then go to throttle hold with 20% it's in autorotation bailout mode.

If you abort now (back to 75%) it will spool up fast.

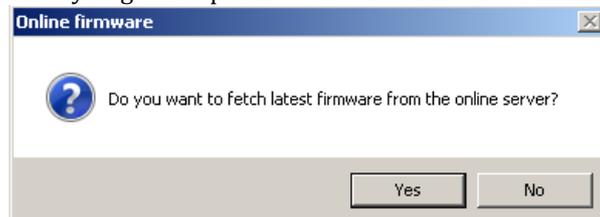
If you need slow start you need to go down to 0%

In the lower right corner you will see "Online firmware" which tells which versions is the latest one on the server.

In the bottom row you see what ESC it has detected, and what firmware it has.

If the online firmware has a later version (3 digit number) please go to Firmware menu and then choose to update.

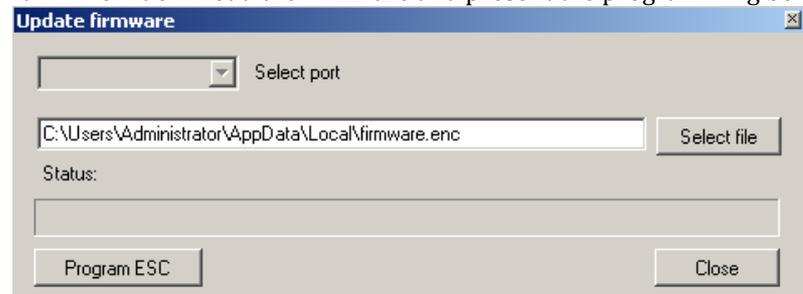
Then you get an option to download the latest firmware



Press yes to do so.

Only press no if you have received any special firmware on file and which to upload that one instead.

It will now download the firmware and present the programming box.



Press Program ESC and wait for it to finish.

## **Troubleshooting**

In case of catastrophic failure during firmware update there is a recovery method.

Open the program, but do NOT select port nor connect the ESC's main power.

Go directly into firmware update.

Now select the correct COM port which the ESC is present at.

Press Program ESC and press YES, and then connect the power to the ESC, that will force the boot-loader to start loading a firmware again.

If you have trouble connecting or trouble programming (errors) there is a debugging text file present after you close the program.

It's named ScorpionProgrammer-debug.txt please include this file in any correspondence you have with any support staff.