

Reventon PRO Brushless Motor Speed Controller Manual V1.2 Created on Aug 30th 2012

Thank you for purchasing the Speed Passion *REVENTON* series electronic speed controller (ESC). High power systems for RC models can be very dangerous. Users should read this manual carefully. Speed Passion has no control over the correct use, installation, application, or maintenance of our products. No liability shall be assumed not accepted for any damages, losses or costs resulting from the use of the product. Any claims arising from the failure of the ESC, malfunctioning etc. will be denied. Speed Passion assumes no liability for personal injury or consequential damages resulting from our products or our workmanship. As far as is legally permitted, the obligation to compensation is limited to the invoiced amount of the affected product.

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1. Reventon ESC Features:

The Reventon ESC is suitable for 1/10th scale on road and off road vehicles.

- Compatible with all sensored and sensorless brushless motors.
- Built in ESC enhancement feature will allow users to update to the latest **DRRS Version 3.0** software and any future software developments.
- New **"Reventon - Dynamic Sensor Technology Series"** feature. State of the art, new development in software will give users maximum efficiency along with a wide power band for consistent performance and maximum power output!
- Proportional ABS brake function with 11 steps of brake adjustment. 9 steps of Auto drag-brake adjustment.
- New Digital Racing Response modes Version 3.0 (From Level 1 - Smooth to Level 9 - Aggressive) ***"Digital Racing Response System – DRRS3.0"*** ***(note 1).*** Fully upgradeable for different modes and levels of tuning.
- Multiple safety protection features: Low voltage cut-off protection for lithium batteries / Over-heat protection / Throttle signal loss protection.
- **New "Dynamic Multi Timing System - DMTS"** To maximize motor and ESC performance, the Reventon ESC has a special 8 mode adjustment system designed for any brand of brushless motor.
- 4 running modes (**Forward with brake " No Reverse"**, **Forward with reverse after "FULL Stop", Forward with reverse** and **Forward/reverse with brake**) ***(note 2)*** **.**
- Four buttons for easy programming. Compatible with pocket-sized USB SMART ESC program unit.

2. Specifications:

Reventon-PRO ESC Feature List

Part Number	Barcode	Model
SP000162	4895135156083	Reventon - Pro 2 Cell LiPo Laser Blue Color
SP000222	4895135156731	Reventon - Pro 2 Cell LiPo Metal Black Silver Color

Model	**Reventon – PRO**
Continuous/Burst Current	140A / 960A
Resistance	0.0003 ohm
Brushless Motor Limit	Max ≧ 3.5T (***note 3***)
Battery(***note 5***)	4-8 Cell Ni-xx (NiMh or NiCd) or 2 Cell Li-Po / 2 Cell Li-Fe • For 4-6 Cell Ni-xx or 2s Lipo: Use the standard fan supplied with the ESC; For 7-8 Cell Ni-xx: The included ESC fan is not compatible with high voltage. ESC fan must be replaced with a high voltage fan or connect the fan to the receiver port (+6V). (***note 4***)
BEC Output	6.0V / BEC 3A
ESC Type	Sensored /Sensorless
Motor Type	Sensorless or Sensored brushless motor
Dimension & weight	40mm (L) x 35mm (W) x 20mm (H) , 40g without cooling fan and wires
ESC Fan	25MM

Model	Reventon – PRO
Supports Smart LCD program card for program setting	Yes
Supports 2.4G handset for program setting	Yes (optional 2.4G handset programmer sold separately)
Supports Bluetooth module setting (note 6)	Yes (optional Bluetooth module sold separately)
Supports Wi-Fi Module software setting (note 7)	Yes (optional Wi-Fi module sold separately)
Battery voltage display (note 8,10)	Yes
Temperature display (note 9,10)	Yes
Racing Profile setting	Modify 1

Note 1: For **Reventon version**, New Digital Racing Respond System (From Level 1 - smooth to Level 9 - aggressive) ***"Digital Racing Response System – DRRS3.0".***

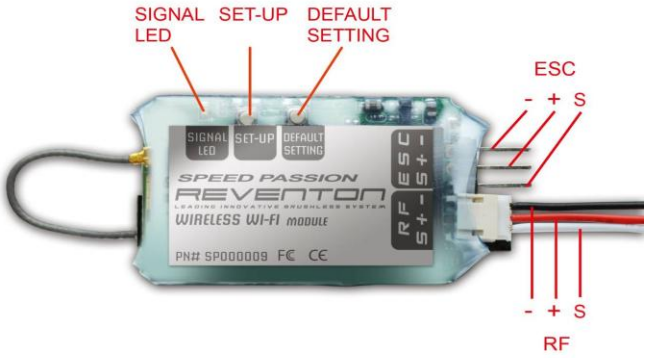
Note 2: Running mode item settings will vary according to different racing profiles.
(Refer to page 3 Table 1)

Note 3: The brushless motor limit is tested under the following conditions:
a) The input is a 2 cell Li-Po battery;
b) The ESC is equipped with a fan.

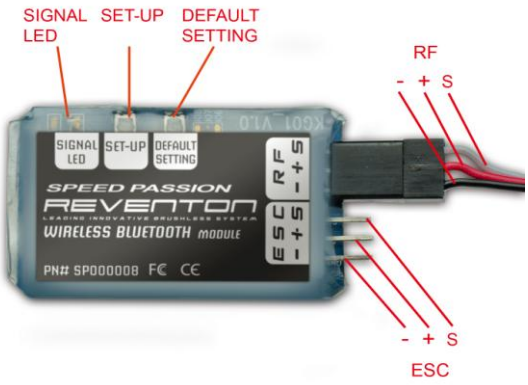
Note 4: The voltage of fan socket on the ESC is not equal to the voltage of the battery. It is supplied by a regulator, and the socket is output +6V.

Note 5: For brushless motors, the ESC supports up to 8 cell NiMh/NiCd (or 2 cells Li-Po) input.

Note 6: For **Reventon Pro version,** the ESC supports the Bluetooth module. The user can modify the ESC settings by using an Android phone / Tablet, "Android OS2.2"★. Furthermore, users can download the latest firmware and updates for the ESC using the module.



Wi-Fi Module



Bluetooth Module

Note 7: For **Reventon Pro version,** the ESC supports the Wi-Fi module. The user can modify the ESC settings by using an iPhone / iPad / iPod touch, "iOS 4.1"★. Furthermore, users can download the latest firmware and updates for the ESC using the module.

Note 8: The display of battery voltage is for reference only.

Note 9: The display of temperature is for reference only.

Note 10: **LCD program card, Bluetooth module**, or **Wi-Fi module** are required to display the temperature and the battery voltage of the ESC

★ Smartphone / Tablet support list is on the Speed Passion website - www.speedpassion.net

Table 1: Racing firmware feature listing for REVENTON ESC

Description	Drift	Rock Crawler	Modify1	Modify0	Stock0 Blinking mode	Hybrid Boost Stock1 (coming soon)
Running mode -Forward with brake " No reverse"	√	√	√	√	√	√
Running mode -Forward / reverse with brake	√	√	NA	√	NA	NA
Running mode -Forward with reverse	NA	√	NA	NA	NA	NA
Running mode -Forward with reverse after " FULL STOP"	NA	√	NA	NA	NA	NA
Threshold Voltage / Cell Li Po Cut off	√	√	√	√	√	√
Dynamic Multi Timing System - DMTS 3.0	√	√	√	√	NA	√
Digital Racing Response System - DRRS 3.0	√	√	√	√	√	√
Percentage Braking - ABS	√	√	√	√	√	√
Percent Drag Brake	√	√	√	√	√	√
Throttle Percent Reverse	√	√	NA	√	NA	NA
Neutral Range	√	√	√	√	√	√
Over Heat Protection	√	√	√	√	√	√
Motor rotation (CW/CCW)	NA	NA	NA	NA	NA	NA
ESC Temperature	√	√	√	√	√	√
Battery Voltage	√	√	√	√	√	√
ESC Firmware	√	√	√	√	√	√

3. ESC's indicating LEDs:

* When the ESC is connected to the battery and turned on, the ESC can automatically identify the motor type (Sensored/Sensorless) via the indicator LED.
* If the ESC is in Sensored mode, remove the sensor wire and the ESC will automatically change to Sensorless mode.

Sensored ESC's indicator LED		
Status	**Indicating LED**	**Status of the LED**
Low battery voltage	Red LED	Blinking
Over-heating of ESC and motor (95℃ / 203℉)	Orange LED	Blinking
Sensored motor	Red and Orange LED	ON
Sensorless motor	Orange LED	ON
Sensorless ESC's Indicating LED		
Status	**Indicating LED**	**Status of the LED**
Low battery voltage	Red LED	Blinking
Over-heating of ESC and motor (95℃ / 203℉)	Orange LED	Blinking
Sensored / Sensorless motor	Orange LED	ON

Using the Reventon ESC

4. Wiring Diagram:

4.1 Connect the ESC, motor, receiver, battery and servo according to the diagram below.

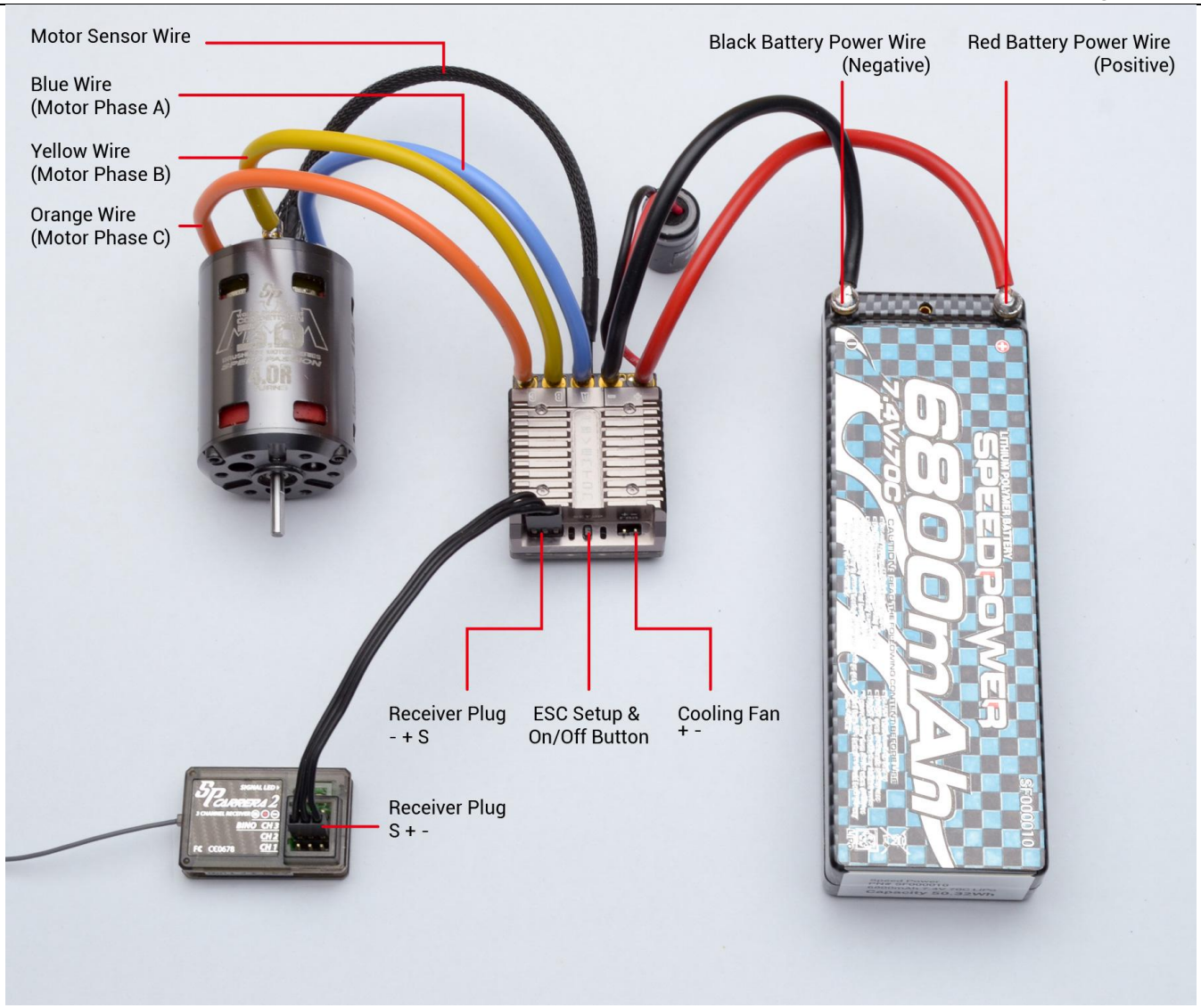
Positive "+" and Negative "-" wires on the ESC are connected to the respective positive and negative terminals on the battery pack. Motor wires A, B and C are to be connected to respective terminals on the motor. The "SET" button is used for programming the ESC. The "Fan" connector is used to supply the cooling fan.

The receiver cable of the ESC (black color, non-crossover wire) is connected to the throttle channel of the receiver (Usually CH2). Face direction same as this photo (Golden Metal face direction)



NOTE:

*The Capacitor **MUST** be connected to the Positive (+) and Negative (-) terminals of the ESC. **DAMAGE WILL OCCUR IF THE CAPACITOR IS NOT CONNECTED!***



Picture A: Wiring with a brushless motor

4.2 Brushless Motor Wiring

★ **Connecting to a sensored brushless motor**

When using a sensored motor, it is necessary to connect the sensor cable to the "SENSOR" socket on the ESC and the sensor port on the motor. The ESC can automatically identify the motor type (sensored or sensorless) by detecting the signal coming from the SENSOR socket.

WARNING! When using a sensored brushless motor, the A, B, C wires of the ESC MUST connect with the motor wire A, B, C respectively. Do not change the wire sequence! The motor sensor cable must be a non-crossover wire.

★ **Connecting to a sensorless brushless motor**

When using a brushless motor without a Hall Sensor, the #A, #B, #C wires of the ESC can be connected with the motor wires in any order. If the motor runs backwards, swap any two of the motor wire connections.

5. On / Off the ESC

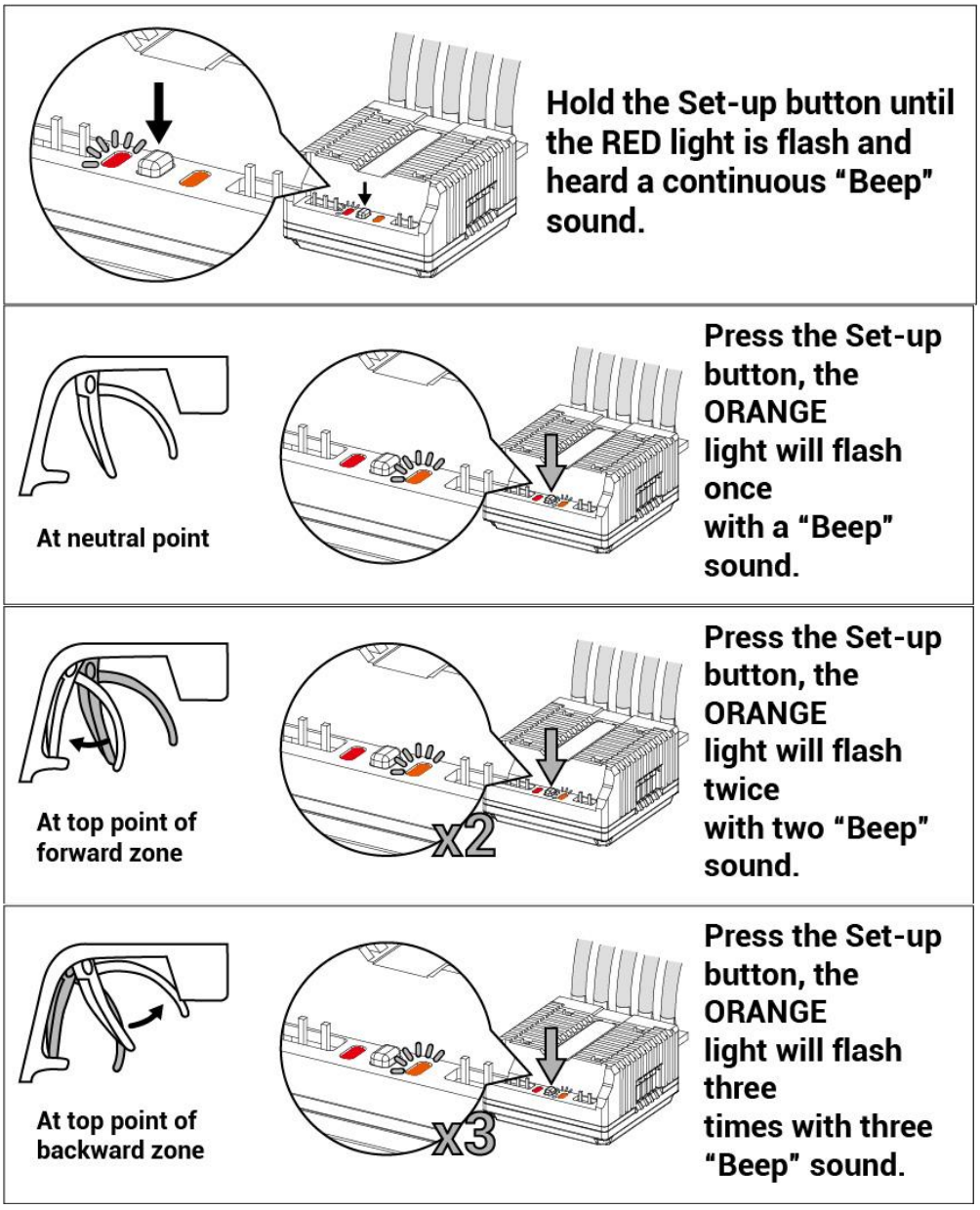
ON: Connect ESC to receiver, turn on transmitter and then press set up button to turn on the ESC.

OFF: Hold the setup button for 2 seconds and wait for Red flashing LED. When the Red LED is done flashing, release the setup button and the ESC will shut off.

6. Throttle Range Setting/Calibration

In order to the ESC to recognize the transmitter throttle range, the ESC must be calibrated it. The ESC must be calibrated when setting up a new ESC, using a new transmitter, or change the ATV or EPA settings of the radio. The ESC must be calibrated after each firmware update or the ESC will not work properly.

There are 3 points that need to be set, "full throttle", "full brake" and the neutral point.
The following pictures show how to set the throttle range with a **Futaba**™ transmitter.



A) Ensure the ESC is switched off. Turn on the transmitter.

B) Set the direction of throttle channel to"REV" (**ONLY for Futaba Radios**), set the "EPA/ATV" value of throttle channel to "100%".

C) Use a pen or screwdriver to press and hold the "Setup" button on the ESC. Release the "Setup" button when the red LED begins to flash.

D) Set the 3 points according to the steps shown in the picture to the left
   a) Neutral point
   b) Full throttle
   c) Full brake

E) When the calibration process is completed, The ESC will automatically turn off.

(Please refer to the figures to the left)

7. The LED Status in Normal Running

- ★ In normal use, if the throttle is at the neutral setting and the sensor cable is connected, the red LED and the orange LED will be lit.
- ★ The red LED lights up and will flash when the ESC senses a low input voltage.
- ★ The orange LED lights up and will flash when the ESC overheating (over 95℃ / 203℉).

Alert signal

7.1 Abnormal input voltage alert tone:

The ESC checks the input voltage when powered on. If it is out of the normal range, the red LED will begin flashing.

8. Protection Function

8.1 Low voltage cut-off protection:

8.1.1 If the lithium battery pack's voltage is lower than the voltage threshold for 2 seconds, the ESC will cut power output. Please note that the ESC cannot be restarted if the voltage of each lithium cell is lower than 3.5V. Users can disable cutoff voltage protection function for competitive racing.

8.1.2 For NiMh/NiCd battery packs, if the voltage of the NiMh/NiCd battery pack is higher than 12V, it will be recognized as a 4 cell lithium battery pack. If it is higher than 9.0V, but lower than 12V, it will be recognized as a 3 cell lithium battery pack. If it is lower than 9.0V, it will be recognized as a 2 cell lithium battery pack. For example, a NiMh battery pack measuring 8.0V and the voltage threshold is set to 2.6V/Cell will be recognized as a 2 cell lithium battery pack. The low voltage cut-off for this NiMh battery pack will be 2.6V x 2=5.2V.

8.2 Over-heat protection: When the temperature of the ESC is over 95℃ / 203℉ for 5 seconds, the ESC will cut power output. Users can disable over-heat protection function for competitive racing.

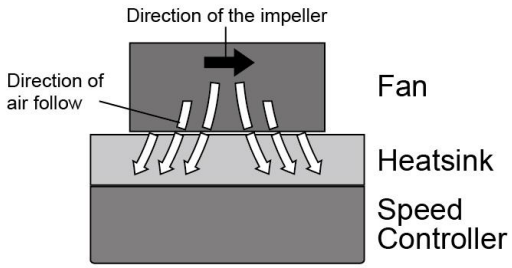
8.3 Throttle signal loss protection: The ESC will cut power output if the throttle signal is lost for 0.5 second.

9. Optional Upgrade Accessories

Speed Passion provides the following accessories to upgrade the Reventon ESC:



Upper side Lower side



9.1 Heat sink fan (6V): The 6V fan is necessary when using battery packs is more than 6 cell NiMh/NiCd or 2s Lipo. It is mounted to the heat sink of the ESC. It helps to cool the ESC with downward airflow. The picture on the top side shows the installation.

WARNING! Please note, the fan included with the ESC can ONLY work with a 2 cell lithium battery pack or 4-6 cell NiMh / NiCd battery pack. Do not operate at higher voltages, otherwise it will be destroyed.
Please check the label of the fan to confirm its working voltage before using it.

9.2 Low resistance, High capacity filtering capacitors.

9.3 Multi Smart Program Card.

10. Trouble Shooting

Always start troubleshooting by resetting the ESC to the throttle range of the transmitter. Calibration will most likely solve the issue. (Throttle range calibration above)

Trouble	Possible Reason	Solution
After the ESC is powered on, the motor does not work	Connections between battery pack and ESC are not correct	- Check power connections - Replace connectors
	Throttle signal is abnormal	- Check transmitter and receiver - Check wire of throttle channel
Motor runs in the opposite direction	Wire connections between ESC and motor need to be changed	- Swap any two wire connections between ESC and motor.(Attention: This method only applies to sensorless motors)
Motor suddenly stops running while running regularly	Throttle signal is lost	- Check transmitter and receiver - Check throttle channel polarity - Recalibrate the ESC to transmitter
Motor suddenly stops running or speed is lower than normal while in working state and Red LED is blinking	ESC has entered low voltage protection mode	- Replace battery pack
Motor suddenly stops running or speed is lower than normal while in working state and Orange LED is blinking	ESC has entered over-heat protection mode	- Install a fan for cooling down - Turn off over-heat protection (Attention: over-heat will damage ESC)
Random stop or restart or irregular working state	Some connections are not reliable	- Check all connections: battery pack connections, throttle signal wire, motor connections, and motor sensor cable, etc. - Reset ESC throttle range to transmitter
	There is strong Electro - Magnetic interference field	- Reset ESC to resume normal operation. If this function does not resume, user may need to move to another area to operate the car.

11. Programming the ESC

Part Number	Barcode	Model
SP000056	4895135171390	Smart LCD Program Card

The Smart Program card is an optional accessory which may be purchased separately. Programming the ESC is easy and fast with the pocket sized device. To change settings, plug the receiver wire from the ESC into the socket of the program card (the socket is on the left corner, and marked with ⊓⊕⊖). Turn on the ESC, each item's value will be shown on the program card. Use "ITEM" and "VALUE" buttons to select the programmable items and new values, and press the "OK" button to send the new settings to the ESC.

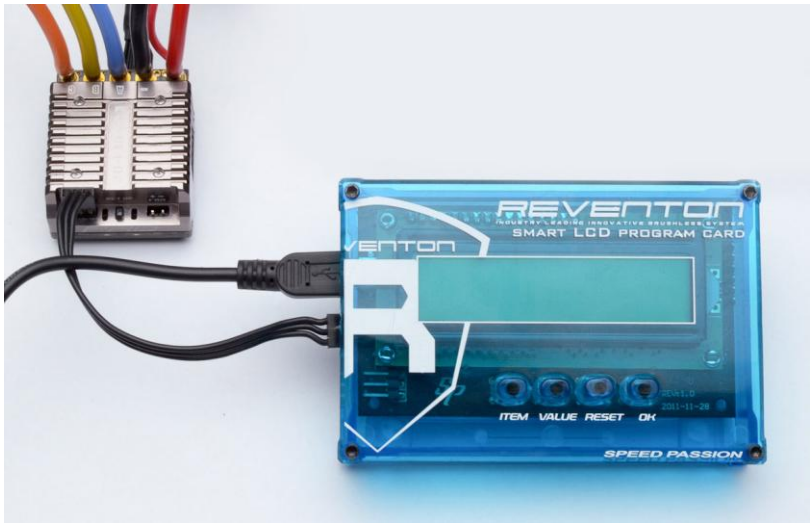


11.1 ESC PC Program Method and update ESC software:

The Speed Passion Program Card is used to make all the adjustments to the active profile in the ESC. Any active profile can be modified via PC software with.

i. Connect the **Speed Passion Smart Program Card** to the Reventon ESC. **Do not connect ESC with ESC fan and battery.**



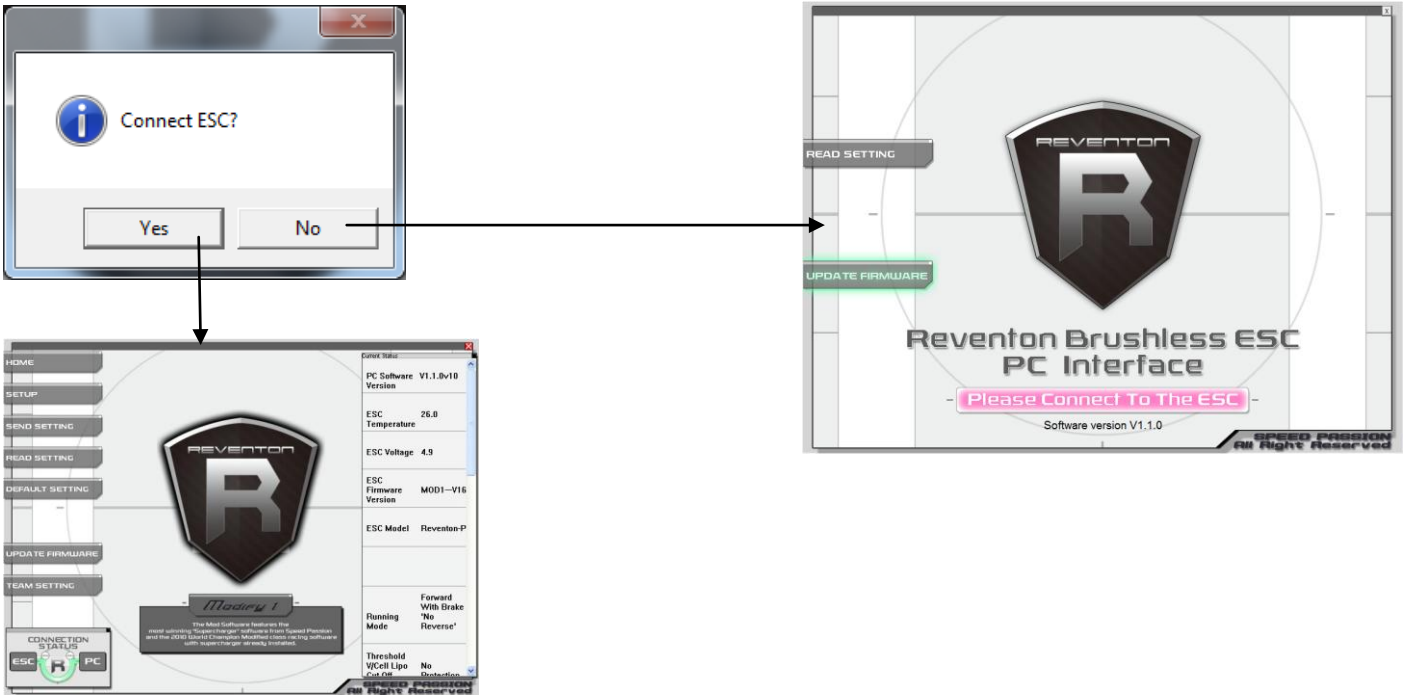


ii. Download Reventon PC Interface from www.speedpassion.net.
iii. Install Reventon PC interface software.
iv. Install Reventon PC interface USB driver. (see Page 16 about steps of install the USB driver)
v. Connect the PC and **Speed passion Smart Program Card** by the USB Cable.
vi. Start Reventon PC Program.

vii. The program will prompt if the user is connecting the ESC. Selecting "Yes" will retrieve data from the ESC and enter main program. **(If there is any error upgrading the firmware of the ESC, select "No" to update firmware again)**

(If the dialog does not pop up, ensure the ESC is power off and press and hold the red highlighted button ("VALUE" button) on the smart program card as shown below. Plug in the Speed Passion Smart Program Card into your PC or laptop computer and the Smart Program Card will show "CONNECTING PC" on the display. Connect the Speed passion Smart Program Card to the mini USB connector with the USB Cable)





viii. Speed Passion Software Connection status icons should now be both GREEN.

ix. The Speed Passion software is now installed and ready for use.

x. Please refer to the section above for general overview and field specific help.

xi. Take a moment to review the selectable functions and read the specific help text for each to become familiar with the programmable function. To make configuration changes to a function, select the setting, then select from the drop down menu the new choice or option. When finished with the configuration, click the "SEND Settings" button located on the bottom of each tabbed page to send the settings to the ESC.

Connection: *There are two connection states. One is when the ESC is connected to the PC (Green symbol - left bottom corner). The other is when the ESC is disconnected from PC (refer back to startup interface).*

12. Programmable Items list

12.1 Programmable Items list just for Reventon (Firmware of Modify1)

Attention: The bold texts in the below form are the default settings.

Programmable Items	Programmable Value										
	1	2	3	4	5	6	7	8	9	10	11
Basic Item											
1. Running mode	**Forward with brake "No reverse"**										
2. Threshold V / Cell Li Po Cut off	2.6V /Cell	2.8V /Cell	3.0V /Cell	3.2V /Cell	3.4V /Cell	**No prote-ction**					
3. Dynamic Multi Timing System - DMTS 3.0	0°	3.75°	7.5°	11.25°	15°	**18.75°**	22.5°	26.5°			
4. Digital Racing Response System - DRRS 3.0	Level 1	Level 2	Level 3	Level 4	**Level 5**	Level 6	Level 7	Level 8	Level 9		
Advanced Item											
5. Percentage Braking - ABS	8%	10%	20%	**30%**	40%	50%	60%	70%	80%	90%	100%
6. Percent Drag Brake	0%	10%	**20%**	30%	40%	50%	60%	70%	80%		
7. Neutral Range	2%	4%	**6%**	8%	10%	12%					
8. Over Heat Protection	**Enable "95 °C Cut off"**	Disable									
Special Item											
9.ESC Temperature	 23℃										
10. Battery Voltage	 7.7V										
11. ESC Firmware	 Modify1										

Please visit Speed passion website to download other programmable item lists (such as drift, stock) (coming soon).
http://www.speedpassion.net/en/download.asp

12.2 Properties of programmable items

12.2.1 Running Mode:

Forward with Brake "No reverse" mode– Forward and brake, but reverse is disabled. This mode is suitable for competition.

Forward/Reverse with Brake mode– provides reverse function, which is suitable for practice.

Note: "Forward/Reverse with Brake" mode uses "double-tap" method to engage reverse, i.e. when you first apply brakes (The 1st"tap"), the ESC begins to brake and the motor reduces speed, but it will not engage reverse. When the throttle is moved back to neutral and quickly back to brake, (The 2nd"tap") reverse will engage as long as the car is stopped. The "Double-tap" method can prevent mistakenly reversing if the brakes are frequently used.

Forward with reverse mode–use "single-tap" method to engage reverse. This mode is usually for the Rock Crawler.

Forward with reverse after "Full Stop" mode– use "single-tap" method to engage reverse after the throttle is moved back to neutral. The car will "full stop" when the throttle is moved back to neutral.

Note: There is automatic protection built within the Speed Passion ESC. Only after the vehicle has stopped and the trigger has returned to neutral will reverse become available. If while traveling in reverse, pull the trigger to go forward. This is to prevent serious damage to the drive train.

At any time in the process of braking or reversing, if forward throttle is applied, the motor will respond at once.

12.2.2 Threshold V/cell Lipo cut off

Customize Voltage Cutoff selectable cutoff voltage of **2.6V/cell, 2.8V/cell, 3.0V/cell, 3.2V/cell, 3.4V/cell and No Protection.**

According to the type of batteries, set up of the type of the batteries and Low Voltage Cutoff Threshold is programmed via PC software or program card. The ESC can detect the Voltage of the battery at any time and will cut output once the Voltage of the battery is lower than the preset Low Voltage Cutoff Threshold.

12.2.3 "Dynamic Multi Timing System – DMTS 3.0":

Users can select a timing system of **0~, 3.75~, 3.75~, 7.5~, 11.25~, 15~, 18.75~, 22.5~, 26.5~**

This parameter is only available for brushless motors. There are many differences among styles and parameters of different brushless motors, so a fixed timing ESC is not ideal for all brushless motors. If it is necessary to make changes to the timing value, please select the most suitable timing value according to the motor you are using. Generally, higher timing value brings out higher power output, but at the expense of excess motor heat.

Note: ESC timing advance ***adds*** with any physical advance already used on the motor itself. If the ESC value is 11.25, and you have 5.0 set on the motor, the total advance will be 16.25.

Please note that the "timing" value will be available for both sensored and sensorless brushless motors.

12.2.4 "Digital Racing Response System – DRRS3.0" Digital Racing Mode:

Users can select the response system of **Level 1, Level 2 Level, 3, Level 4, Level 5, Level 6, Level 7, Level 8, Level 9.** Select from "smooth" to "aggressive" response system as required. The higher the level, the more punch and more aggressive the throttle response. Please note that if you choose "Level 9", a good quality battery pack with high discharge ability is recommended, otherwise the levels will not give the effect expected.

12.2.5 Percentage Braking-ABS:

The ESC provides a proportional brake function. Braking force is related to the position of the throttle stick. Maximum brake force refers to the ESC braking force when the throttle stick is located at the top point of the braking zone. A large brake force value can shorten the brake time, but it may damage gears.

12.2.6 Percent Drag Brake:

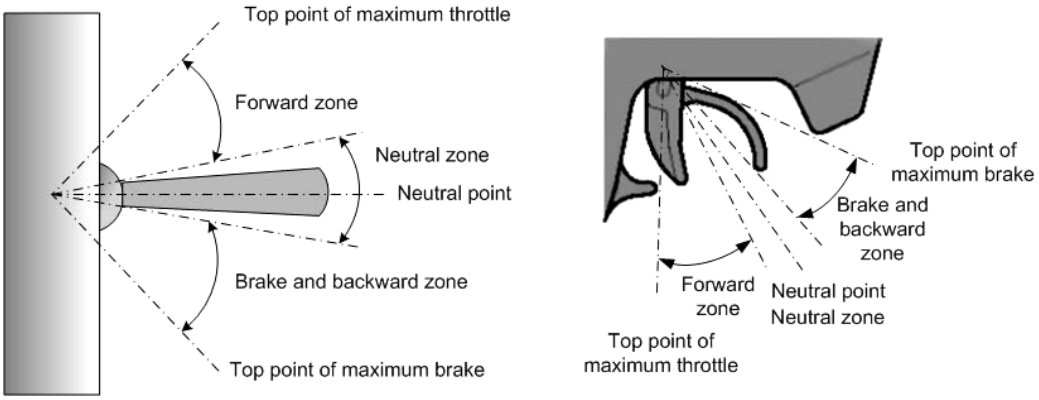
Sets the amount of drag brake applied at neutral throttle to simulate a slight braking effect of a neutral brushed motor while coasting.

12.2.7 Throttle Percent Reverse Force:

Sets how much power will be applied in the reverse direction.

12.2.8 Radio Neutral Range:

(Dead band) Please see the illustration below to adjust the neutral range.



12.2.9 Over Heat Protection:

If the function is activated, the power output will be cut-off when the temperature of the ESC or the internal temperature of the motor reaches 95ºC / 203℉ for more than 5 seconds. When the protection engages, the power to the motor will be cut off.

Exemption Clause:

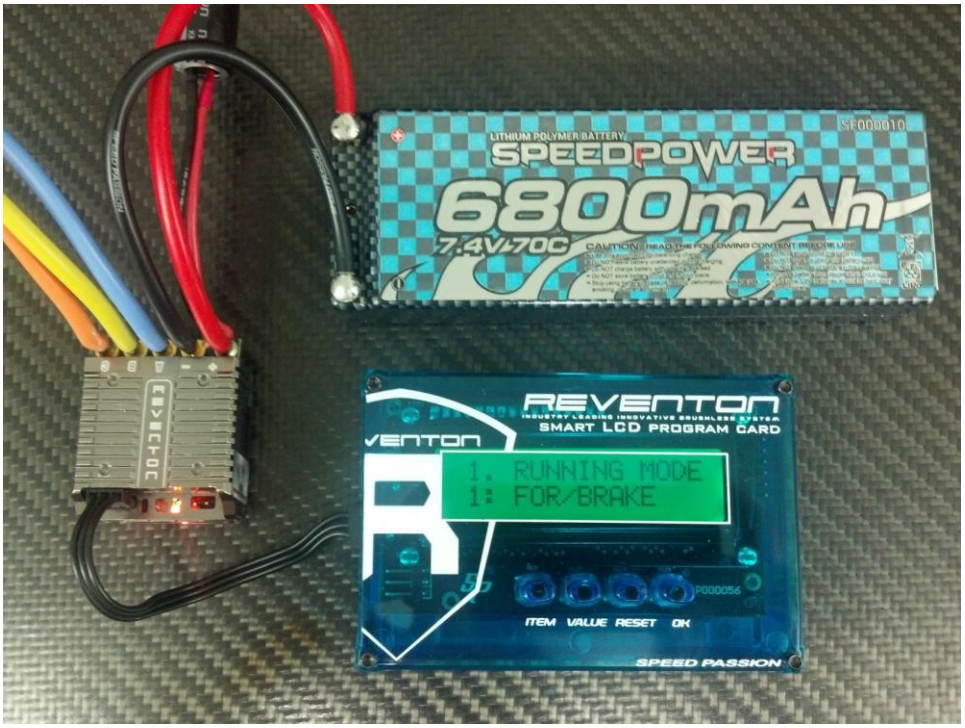
Speed Passion does not have control over the proper installation or use of this product therefore no liability for any damages incurred in its use will be accepted. Operation of this product is at the user's risk. The use of radio control models requires a degree of skill. If you are a beginner please consult the advice of an experienced user to prevent injury to goods or other persons.

Caution:

1) Do not operate the ESC at voltages lower than 6.0V or higher the 8.4V battery, damage to the ESC can result.
2) When mounting the brushless motor to the car, pay careful attention to the length of the motor screws. Screws must not exceed 4.0mm in depth. Any longer than this and internal damage to the motor will result which will void the product warranty.
3) Ensure all connections are secure before using this product.

13. LCD program card

13.1 WIRING SEQUENCE



1. Disconnect the battery from ESC.
2. Disconnect ESC wire (trio wires) from your receiver, then plug it into the socket marked with ⊓⊕⊖ (This socket is on the left side of the program box).
3. Connect the battery to ESC and then turn on the ESC.
4. Wait for several seconds, if the connection is successfully established, the user interface for the 1st programmable item will be displayed on the LCD. For example, if the program box is connected with a Reventon ESC, the screen will display:

1 . RUNNING MODE 1 : FOR/BRAKE

If the connection is not success, then the program box will try to reconnect the ESC continually The LCD will display this message:

SPEED PASSION **REVENTON**

13.2 OPERATION

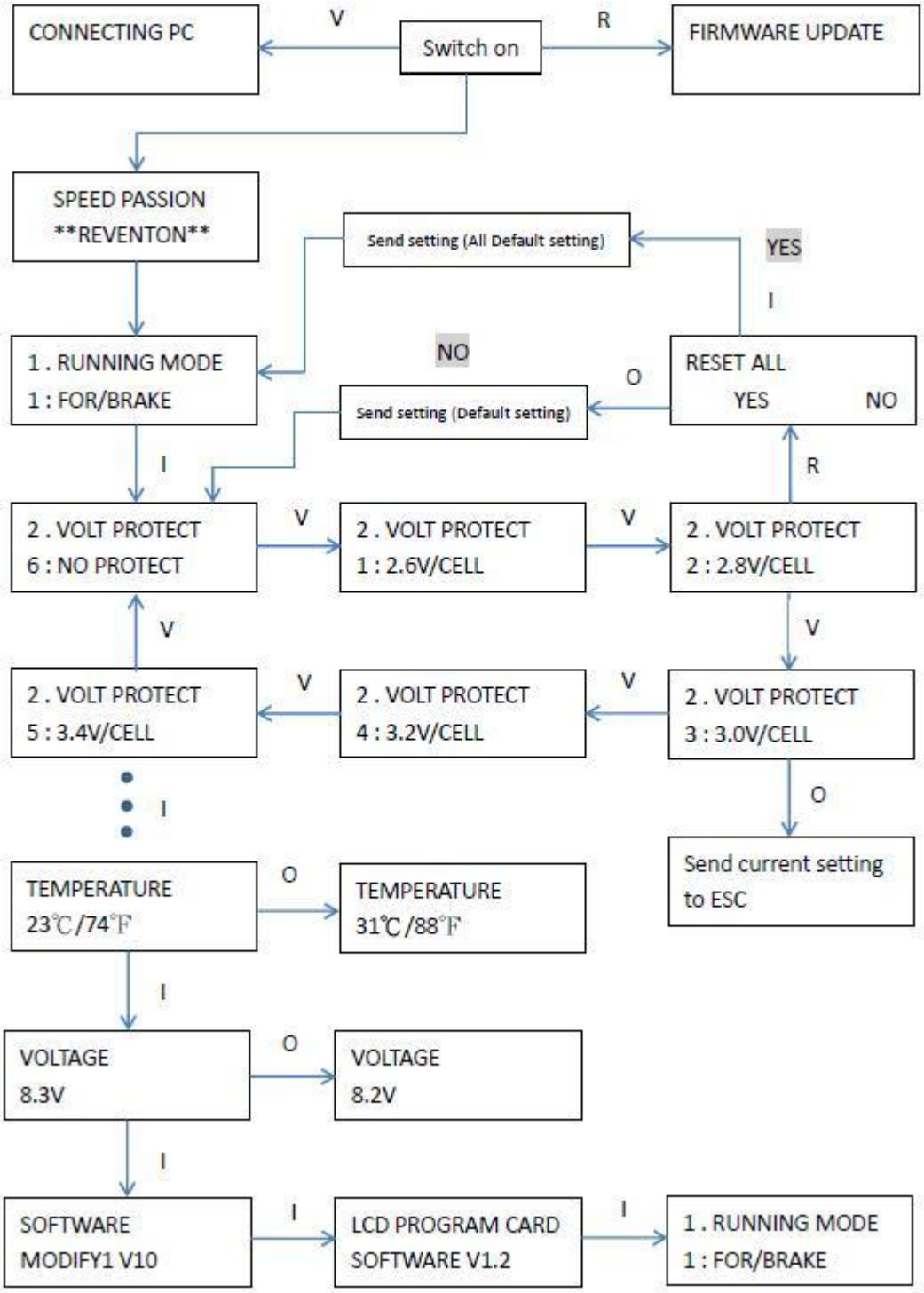
1. Program box button functions to program the ESC
   "ITEM" Button: Change the programmable items.
   "VALUE" Button: Change the setting of each programmable item. ***Note1***
   "RESET" Button: Change the setting to default setting and save it to the ESC.
   "OK": Button: Save the setting changes to the ESC.
   Note1: You must press the "OK" button to save the setting to the ESC.

2. Working as an USB adapter to link the ESC with a PC
   Please download the latest software and the user manual from the Speed Passion website.
   http://www.speedpassion.net/en/download.asp

13.3 PROGRAM EXAMPLE

In the following example, the characters below represent the different buttons on the programmer box.

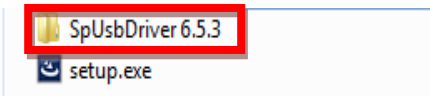
- I = Press the "ITEM" button, V = Press the "VALUE" button
- R = Press the "RESET" button, O = Press the "OK" button



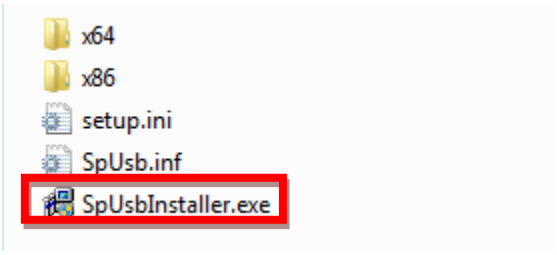
14. Install USB driver:

For Windows 7 / Vista

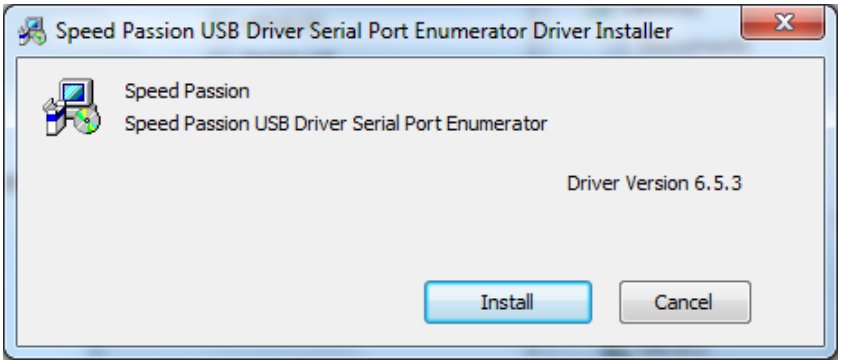
1. Open SpUsbDriver folder.



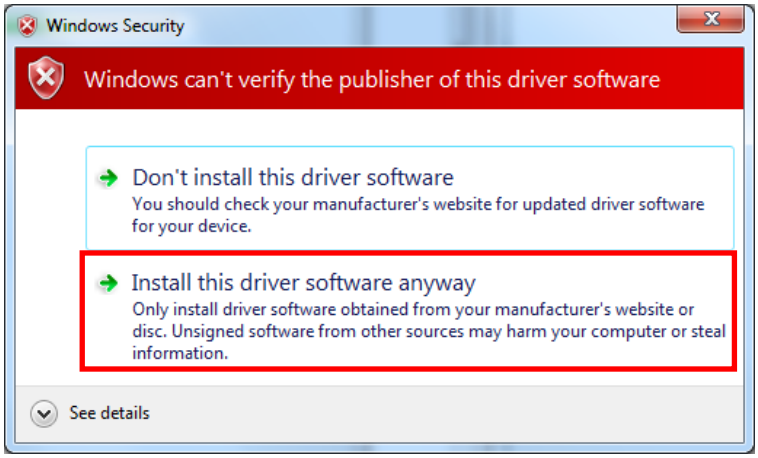
2. Double click SpUsbInstaller.exe to install usb driver.



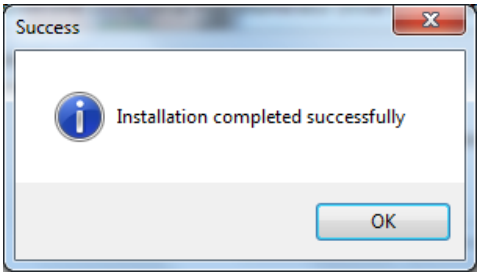
3. Press “Install” button to start.



4. USB driver will install automatically.
5. If security warning pops up, click on “Install this driver software anyway.”

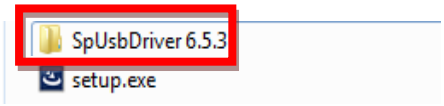


6. Click ok to finish driver installation.

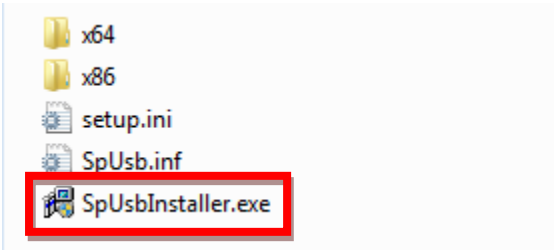


For Windows XP

1. Open SpUsbDriver folder.



2. Double click SpUsbInstaller.exe to install usb driver.



3. Press “Install” button to start.



4. USB driver will install automatically.
5. Restart computer.
6. Connect PC and program card by USB cable.

7. Select “No, not this time”, then click “Next>” button.



8. Select “Install the software automatically (Recommended)”, then click “Next>” button.



9. Click “Continue Anyway”



10. Click “Finish” to finish the installation.

15. Updating Program Card Firmware:

1. Install Speed Passion Reventon PC Interface on the PC.
2. Plug in the mini USB cable to the program card.
3. Pressing and hold the "RESET" button while plugging in the other end of the USB cable to the PC.



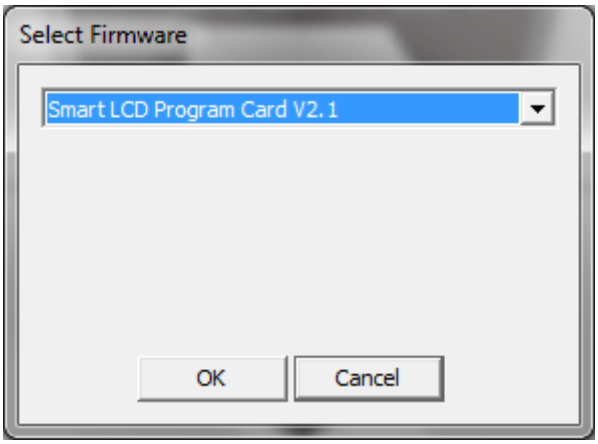
4. The program card will be display "FIRMWARE UPDATE ". Release the "RESET" button and launch the "Speed Passion Reventon PC Interface" program.



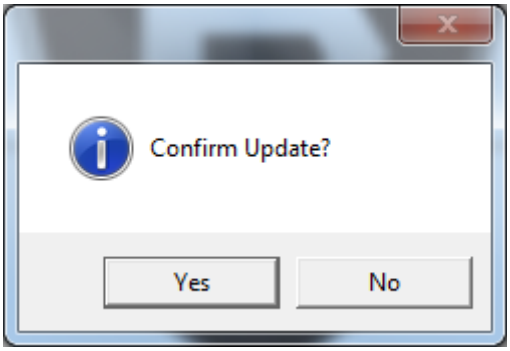
5. Click the button – "UPDATE FIRMWARE"



6. Select “Smart LCD Program Card V2.1” and click OK.

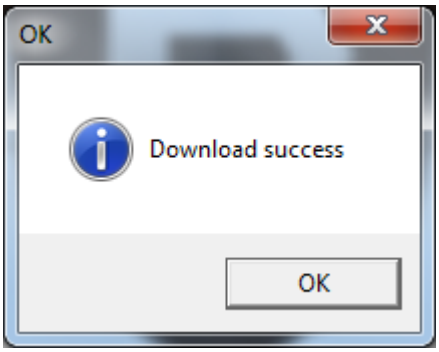


7. Click “Yes” to start the update.



8. The process time is around 3.5 minute. The Speed Passion Reventon PC Interface program will show a process bar to display the status of the update firmware.

9. When the firmware update is complete, a message box will pop up confirming completion. Close the Speed Passion Reventon PC Interface program and unplug the USB cable from the program card to finish the update. If the pop up box does not display “Download Success”, please repeat the process again from step 2. Ensure the selection of the firmware is correct. **Selecting the LED firmware instead of LCD to update the program card will cause the update to be unsuccessful.**



16. ESC Product Warranty Period:

Product Warranty:

Please see the full warranty terms and procedures on www.SpeedPassion.net for your country and product before returning any product. **User accepts all resulting liability. We reserve the right to modify warranty provisions without notice. Warranty does not cover incorrect installation, components worn by use, or any damage caused by crash, flooding or natural disaster. The company has no control over the installation of this product; no liability may be assumed nor will be accepted for any damage resulting from the use of this product.**

Dear customer:

Thank you for purchasing one of the many Speed Passion R/C products. Please complete the below online product registration for your recent purchase. If you are not already a Speed Passion member, please complete the new member registration process before registering your new Speed Passion product. After the completion of this process, our system will e-mail you within the next 24 hours to confirm your product registration and activate your products warranty. In the event you require warranty service, your product registration information will be available from the www.speedpassion.net website allowing you to submit your warranty item to any of our service centers located near you.

In addition, registered Speed Passion members will receive product notices, including notification of the warranty expiration date of your Speed Passion products. Some Speed Passion products will be eligible for an extended warranty service allowing Speed Passion members to enable additional protection of your Speed Passion products.

- **# This product Registration will not suitable for Japan, Thailand and Australia.**
- * Thailand Motors and Speed Controllers (ESC) Warranty 7 Days only;
- Japan Motors 30days and Speed Controllers (ESC) Warranty 90 Days only
  http://www.speedpassion.net/news/newsDetails.asp?n=168