Scorpion Power System

www.scorpion-team.com

Scorpion Manual for S2-50 Clubrace Kit Set

V1.2

IMPORTANT

Please consult your reseller to config the motor turns you want.

Introduction

Thank you for purchasing Scorpion Vanguard Electronic Speed Controller. This ultimate ready to race ESC gives you a powerful range and reliable performance, even in the extreme conditions.

A high power system for RC model can be very dangerous, please read this manual carefully before installing your new ESC.

1.0 Features

- The first RC Car ESC has zero timing, maximum rpm and blinky mode
- With the same turn of motor will perform the same rpm and power
- Available on 13.5T, 17.5T, 21.5T
- Wide input voltage range 6-8.4V (2S LiPo)
- Sensored brushless motors (BLDC)
- Motor Limits from 13.5T or above
- Up to 50A continued current
- Aluminum heat sinks
- RPM limit for 21.5T motor (11kRPM)
- RPM limit for 17.5T motor (14kRPM)
- RPM limit for 13.5T motor (17kRPM)
- No RPM limit

2.0 Specification

	S2-50 Clubrace Kit
Cont./ Brust Current, A	50/100
Brushless Motor Type Supported	Sensored Brushless Motor
Cars Applicable	1/12th On Road and Off Road
Motor Limits	>= 13.5T
Resistance	0.0017Ohm *2
Voltage Input	2s LiPo
BEC	6V@3A DC-DC
Footprint	30 mm (W) x 30 mm (L)
Size (w/o FAN)	35.2 x 30.2 x 14.4 mm
Weight	22g
FAN	Battery
External Programming Port Output	1

2.1 Vanguard Super Booster

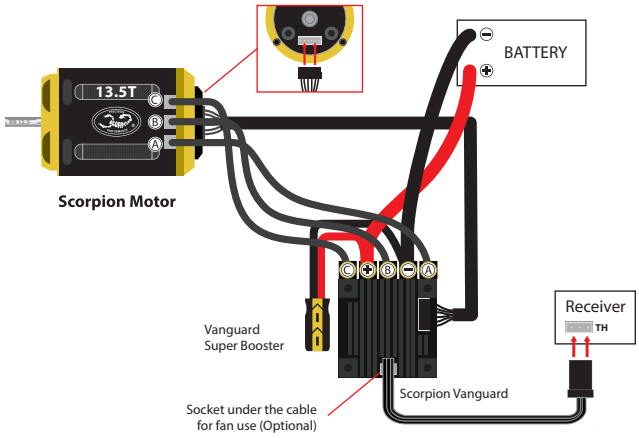
- 1000 uf x 1
- Voltage: 25V
- Size: 10.2mm (D) x 21mm(L)
- Working Temperature: 105 °C

3.0 Preparation

- Choose a location for the ESC that is close to the motor, but away from the receiver and single cable to prevent radio interference
- If using double-side tape, clean the bottom of the ESC before applying for best result
- Keep the motor wire as short as possible for the best electric current
- Install cooling fan (optional)
- Install Scorpion Vanguard Super Booster (included), placing the booster as close as to the ESC, to keep the booster wire as short as possible
- Booster should be mounted directly to the positive (+) and negative (-) on the ESC, as shown in the diagram below
- Keep battery wire as short as possible to create the best electric current efficiency

4.0 Soldering and Connection

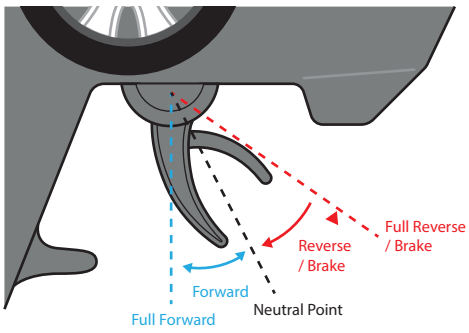
- Always provide a steady working area and easy access to the solder posts
- Do not connect the car battery while working on soldering
- Cut the motor wires to desired length and strip the insulation about 3.2mm-6.35mm from the end. Apply solder to the exposed wire until it is thoroughly covered. ** Caution: Solder and iron tip are hot
- Refer to the below diagram for proper connection
- Check with battery supplier for the battery connectors (excluded)



5.0 Radio Throttle Calibration

Calibration is necessary for any first use of the ESC.

- Turn on the transmitter
- Move and hold throttle trigger to full reserve/brake before power up the ESC. Important: if the full reserve/brake is not held, then the ESC will not activate calibration mode.
- Hold the throttle and wait for the first beeping sound (Beep...), ESC is power on.
- Hold the throttle and wait for the second single beeping sound (Beep...), then the full reserve/brake will be set
- Pull and hold the throttle trigger to full forward
- Wait for the double beeping sound (Beep....Beep....), then the full throttle been set
- Hold the throttle trigger in neutral position
- Wait for third beep sound (Beep….Beep….. Beep……), the neutral been set
- Calibration finish, ESC will restart automatically



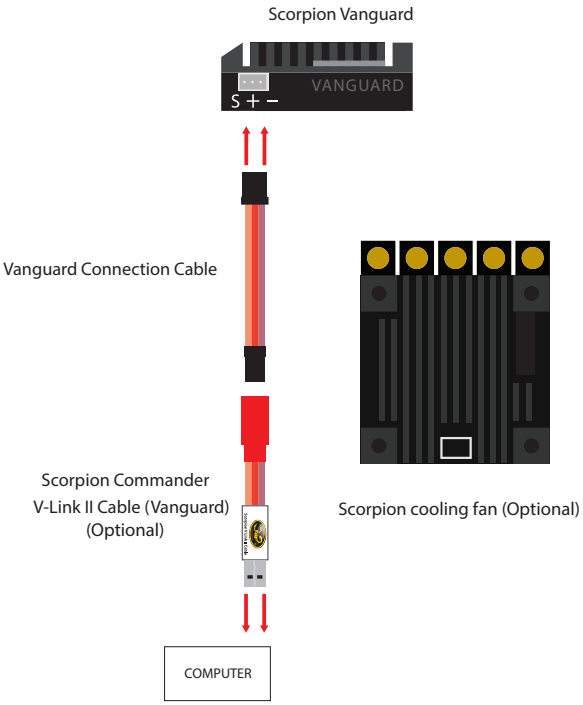
6.0 Led & Motor Sound Indication

ESC turn on	LED - Blink with the status
Blinky mode status indication	• Green blink: RPM limit for 21.5T motor (11kRPM) • Blue blink: RPM limit for 17.5T motor (14kRPM) • Green and Blue blink : RPM limit for 13.5T motor (17kRPM) • Green, blue and Red blink : No RPM limit

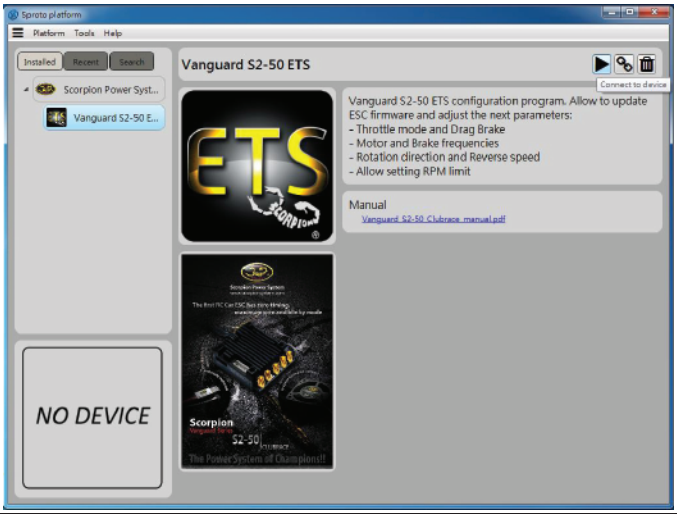
7.0 How to Connect the ESC to Computer

Team Scorpion provides the most advance setting features. Please contact your reseller for advance setting.
For the PC program please contact the administrator at support@spihk.com or download from the below link.
http://www.scorpionsystem.com/files/download/Vanguard_S2-50_ETS2.exe

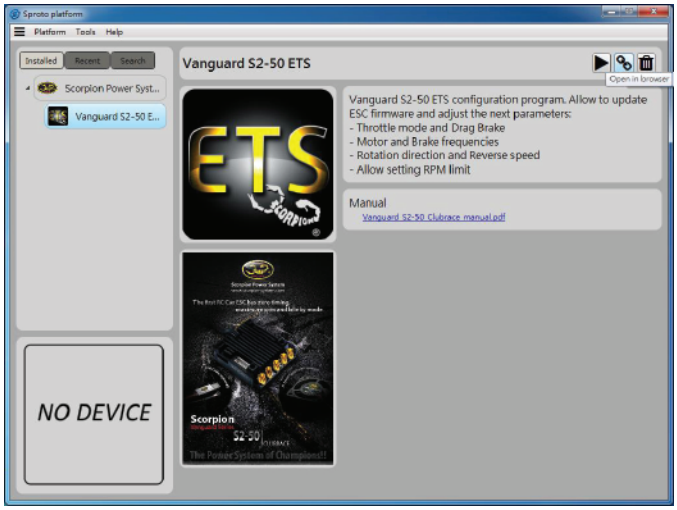
- Follow the below diagram to connect the ESC to computer, using the Scorpion V-link USB Cable (Optional) Driver below. http://www.scorpionsystem.com/files/download/DriverProlificPL2303.zip



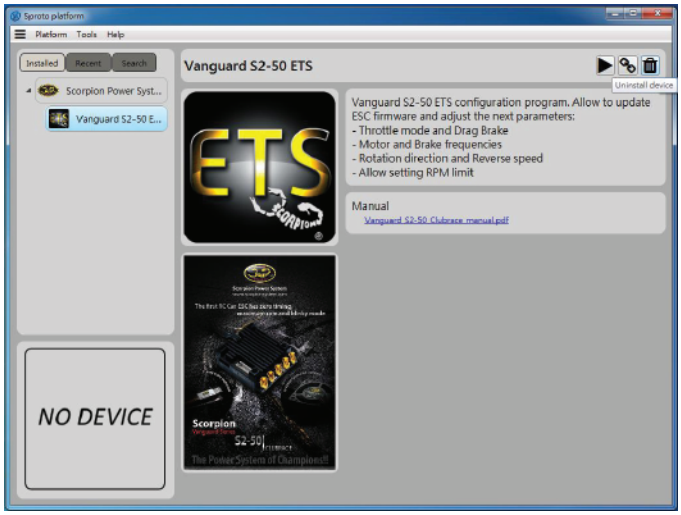
Program started then click the connect buton to connect with PC



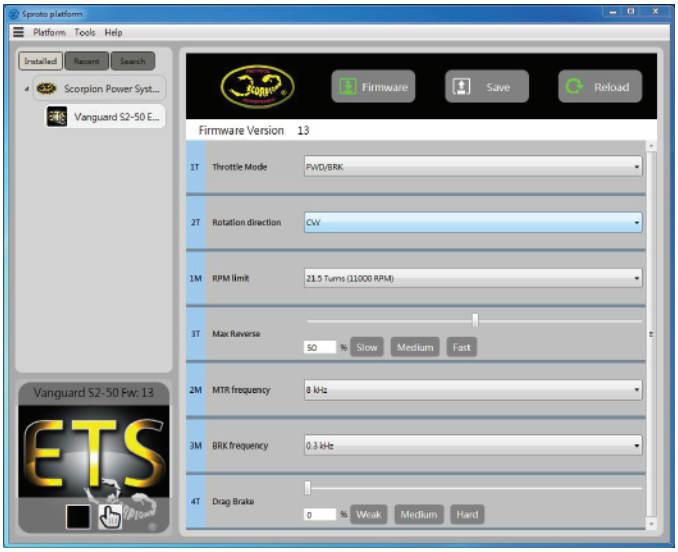
Open in browser



Uninstall device



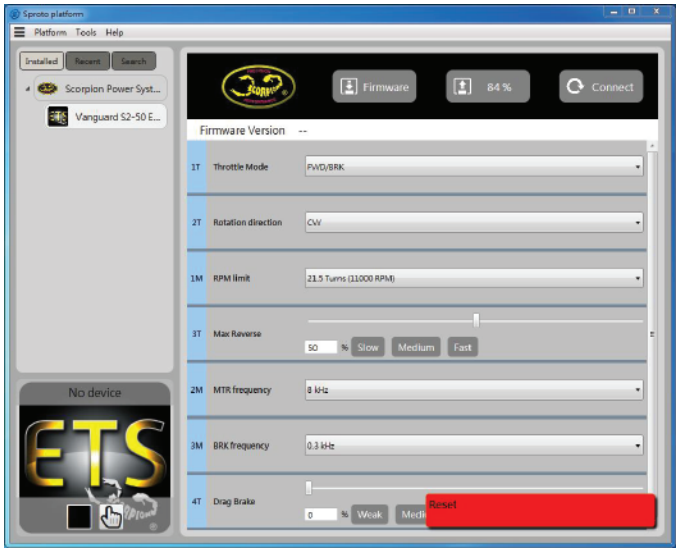
Click the Firmware button to update the firmware version





Click the Save button to save all setting





8.0 Trouble Shooting

Trouble	Possible Reason	Solution
After powered on, the motor does not rotate and there is no signal light	Throttle not calibrate or not at the neutral position	Calibrate the throttle. Check the power connections, replace the connectors if necessary. Sensor cable not connect or broken.
No signs of recognizing from computer program	• ESC off • Cable failure • Poor connection • USB driver	• Power up the ESC • Change a new cable • Check all the sockets • Replace the Windows® default USB driver with Scorpion provided USB driver

9.0 Warranty and Service

Scorpion Vanguard Speed Controller is guaranteed to be free from defected materials a dated, itemized sales receipt).
During the warranty period Scorpion will repair speed controller that are found to be defective, providing that it has no signs of damage or abuse. The user will be responsible for shipping charges back to an authorized Scorpion Repair Facility, and Scorpion will pay the return shipping charges. If the damage is the result of a crash or mis-use, the returned item will be repaired, but the cost of repairs will be billed to the user. Repairs will never exceed 50% of the cost of a new speed controller, and if the speed controller is badly damaged or non-repairable, a brand new ESC will be offered at 50% discount of the current retail price for the ESC, plus a nominal shipping charge. If the speed controller returned is no longer in production, Scorpion reserves the right to substitute any other speed controller of equal or better quality. In any event, Scorpion shall not be responsible for the damage that may result from the overuse of products, for consequential or special damages, or for any amount that exceeds the product value. If the motor product is purchased in clearance section, crash and dent section from www.scorpionsystem.com and www.scorpion-team.com, then the items are sold "AS IS". No refund or warranty policy will be covered with these products. It is because we do not have parts anymore to repair or replace. or replacement. Please obtain an RMA number by submitting a request by email to our RMA Department support@spihk.com or our distributors for the RMA number before sending. The RMA process normally takes around 3 - 4 weeks.

RMA form can be found and download from
http://www.scorpion-team.com/downloads/
http://www.scorpionsystem.com