

TEKIN

RSX PRO



- ◆ **Sensored/Sensorless Compatible**
- ◆ **D2 Brushless Drive Technology**
- ◆ **Brushed/Brushless Compatible**
- ◆ **QuickTune Digital Setup**
- ◆ **HotWire & Datalogging Capability**
- ◆ **High Voltage Programmable BEC**

INTRODUCTION

Congratulations and thank you for purchasing the RSX PRO Brushless/Brushed Sensored Electronic Speed Control (ESC). The RSX comes from years of brushless R&D and supplies racers with the ultimate package for modified racing. The small footprint and optional fan shroud make the RSX PRO versatile and able to cover a wide range of vehicles and applications.

BEFORE YOU BEGIN

Read through this manual and familiarize yourself with the terms, error codes and general workings of the ESC. Keep this manual for future reference.

- 1) The RSX PRO is intended only for 1/10th scale and smaller vehicles that weigh under 4lbs ready to run.
- 2) Make sure the motor/battery are within Tekin specs.
- 3) Check battery polarity! **NO** Reverse Polarity Protection.
- 4) Check labeling of solder posts before soldering.
- 5) Locate the power capacitor and note that it **MUST** be installed or warranty will be void. Section 3.
- 6) Use in or around water can damage the ESC and void the warranty.

SPECIFICATIONS

Controls - RSX PRO	Fwd/Brk or Fwd/Brk/Rev
Input Voltage - RSX PRO	2-3S LiPo (4-9S NiMH/NiCd)
Motor Limits - RSX PRO	
Brushless (2S)	2.5Turn 2-Pole 36mm Can
Brushless (3S)	8.5Turn 2-Pole 36mm Can
Brushed (2S)	6Turn 36mm Can
Brushed (3S)	12Turn 36mm Can
Max Current RSX PRO	210 Amps per Phase
Programmable BEC	6V-7.4V / 5.5Amp
Dimensions With Fan Shroud	1.21 x 1.43 x .82" / 30 x 36 x 20mm
Weight	1.21 x 1.43 x 1.26" / 30 x 36 x 32mm 1.5oz / 42g

WARNING: Exceeding product specifications or using equipment outside of the specification ranges above automatically voids the 180-day manufacturer warranty. Any damage caused from misuse or use of equipment outside of the specifications will be subject to servicing and or replacement fees to be determined by the Tekin Service Department. For further warranty information, please refer to Section 22 or visit us on the web at www.teamtekin.com.

FAN SHROUD & CAPACITORS

CAUTION: A power capacitor is supplied with the RSX PRO and **MUST BE MOUNTED** on the ESC for proper operation (Figs. 2 & 3). Failure to use the power capacitor can cause irreparable damage to the ESC.

MOUNTING FAN SHROUD: (Fig. 1) Secure the included 25x7mm fan to the shroud using (4) 6/32 x 3/8 button head screws (sticker side down). Route fan wire as shown. The shroud is mounted to the RSX using (4) #1-72 x 1/2 screws and 3mm aluminum spacers. We offer replacement fans (TT3833 25mm Fan Pack) and plastic / shroud kits (TT3850).

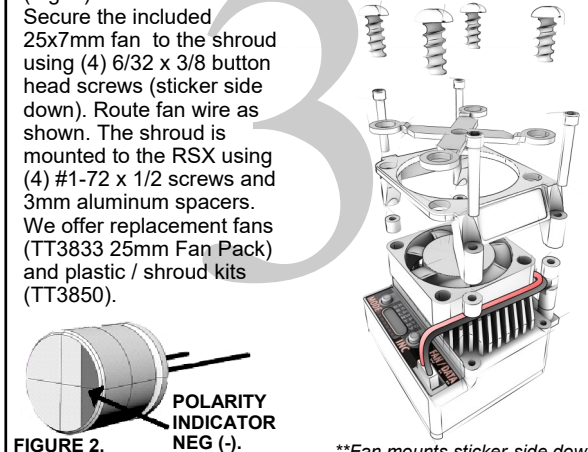


FIGURE 2. POLARITY INDICATOR NEG (-). **Fan mounts sticker-side down

INSTALLATION

Plan Speed Control Placement

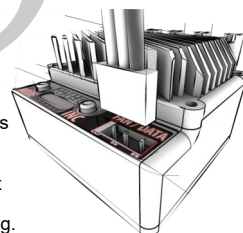
- 1) Choose a location for the ESC that is protected from debris and moving parts. Plan ahead with wire routing and try to keep the motor leads about the same length. Motor leads should be short, but not tight. Leave some slack in the wiring to account for chassis flex and vibrations while driving.
- 2) Mock up your wire lengths for your planned ESC placement. It is recommended to solder the power cap and all leads to the ESC before mounting to the chassis.
- 3) Choose a wiring method for the motor and battery leads. Direct wiring uses no plugs and provides the best connection between the motor and the ESC. You can use Tekin 4.0mm Hi-Power bullet connectors (TT3054) for easy motor removal. Battery connector choice is up to you, use the female plug on the battery and the male on the ESC and double check the polarity.
- 4) To mount the ESC, clean the bottom with rubbing alcohol. NEVER use any chemicals such as motor spray or acetone as they will damage the plastic. Use the provided double sided tape or a 3M adhesive tape.
- 5) Secure the ON/OFF switch in a safe, accessible place away from moving parts and debris.

QUICKSTART

After properly installing your ESC, follow these steps for a quick setup:

- 1) With the ESC installed and properly wired, (Figs. 4, 5 & 6) connect the battery.
- 2) Turn the transmitter on FIRST, then the ESC.
- 3) Take note any codes that may be present. Refer to Section 18 on reverse side for codes.
- 4) Set transmitter throttle trims to 0 and throttle EPAs to 100. You can access these features in the system menu on the transmitter.
- 5) Perform a Radio Calibration, refer to Sections 9 & 10.
- 6) Factory default voltage cutoff is set for a 2S LiPo battery @ 6.4V. Double check the battery you are using and adjust Voltage Cutoff if needed.
- 7) Updating Firmware via HotWire:

You can connect to the RSX PRO through the Fan/Data Port or through the receiver wire. Hotwire 3.0 connects directly to the Data Port for both Bluetooth and USB programming. HotWire 2.0 connects to the Data Port with the included harness or through the receiver plug for USB programming.



SOLDERING

Brushless wiring instructions refer to Fig. 4 Brushed, refer to Figs. 5 & 6.

Tips & Tricks

Placing the ESC in a vise (gently) provides a stable work area to do a quality job (Figure 3). Solder without the fan shroud/fan in place to avoid damaging them. The order for proper soldering is:

- ◆ Tin Posts
- ◆ Tin Wires
- ◆ Heat Posts
- ◆ Heat Wires
- ◆ Heat both and connect

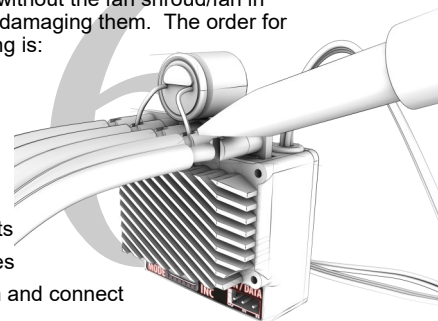


FIGURE 3.

Hint: If the wire is too hot to hold 2" away from the solder joint, the iron has been on for too long—stop, let everything cool and try again. Excessive heat can damage the ESC.

WIRING INSTRUCTIONS

1) CONNECT ESC TO RECEIVER

Plug the ESC into the throttle (TH) channel of the receiver.

- ◆ Channel 1: Servo
- ◆ Channel 2: ESC

"REMEMBER: 1 to Turn, 2 to Burn"

2) CONNECT ESC TO BATTERY

Visually verify that the connector on the battery pack and the ESC wiring match.

DO NOT CONNECT BATTERY INCORRECTLY TO ESC, VERIFY THAT THE BATTERY POSITIVE WIRE WILL CONNECT TO THE ESC POSITIVE WIRE BEFORE CONNECTING!

3) CONNECT ESC TO MOTOR

First, determine the type of motor you are using. **SENSORED** motors require the sensor harness, **SENSORLESS** motors do not. Refer to Figures 4, 5 and 6 for wiring brushless and brushed motors.

IMPORTANT LED CODES

Refer to this section should your ESC show you any LED sequence out of the ordinary. You can also go to www.teamtekin.com/esc_codes.html to see these codes in action. Each code will FLASH rapidly:

ALL LEDS FLASHING	No signal from receiver. Check that receiver bind light is on and ESC is plugged into CH2.
LEDS 1, 2, 6 & 7	Wrong motor type, or internal short in ESC or motor detected. Check motor wire solder joints.
LEDS 1, 2 & 3	LOW neutral signal. Adjust radio trims to center and perform radio calibration.
LEDS 5, 6 & 7	HIGH neutral signal. Adjust radio trims to center and perform radio calibration.
LEDS 1, 3 & 5	LOW VOLTAGE CUTOFF. Battery voltage is below programmed voltage cutoff. Charge battery.
LEDS 3 & 5	Spec Mode activated. Sensored-Only, no Timing or Boost. ROAR Legal.
LEDS 3, 4 & 5	Big Event Spec Lockout mode activated. Can only be undone via HotWire™. ROAR Legal.
LEDS 6, 5, 4 & 3	Fan Reverse Polarity. Check fan plug polarity.

BRUSHLESS MOTOR WIRING DIAGRAM

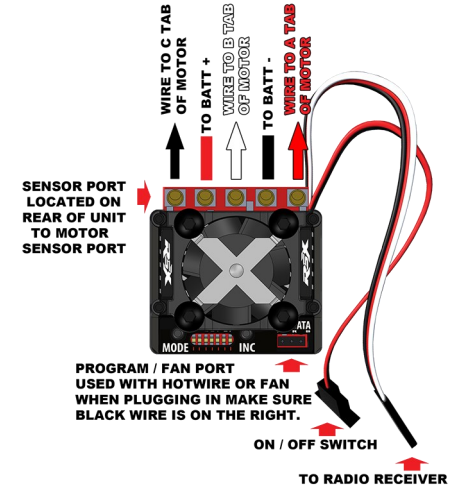


FIGURE 4.

MOTOR TYPE (MT) SETTINGS
 MT1 / LED 1 - FWD/BRK
 MT2 / LED 2 - FWD/REV IMMEDIATE
 MT3 / LED 3 - FWD/BRK/REV DELAY

BRUSHED MOTOR WIRING DIAGRAMS

FORWARD / REVERSE

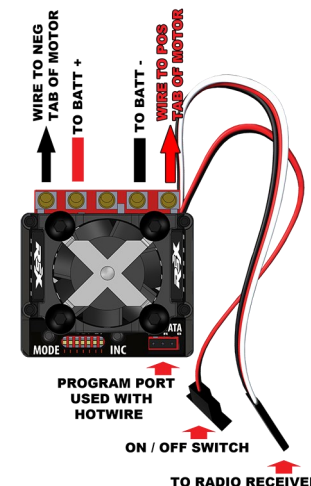


FIGURE 5.

MOTOR TYPE (MT) SETTINGS
 MT5 / LED 5 - FWD/REV IMMEDIATE
 MT6 / LED 6 - FWD/BRK/REV DELAY

FORWARD ONLY

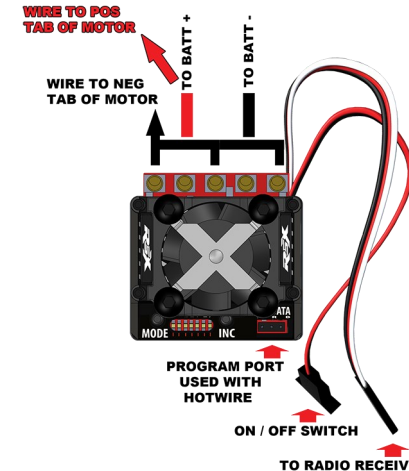


FIGURE 6.

MOTOR TYPE (MT) SETTINGS
 MT4 / LED 4 - FWD/BRK

RADIO CALIBRATION

NOTE: Before Radio Calibrating, ensure the ESC is hooked up to the receiver in Channel 2 (CH2), a charged battery is properly connected, and the transmitter is turned on and bound to your receiver.

Refer to Section 10 below.

- 1) On your transmitter, set all trim adjustments to the middle, throttle/brake EPAs and Dual Rate set to 100.
- 2) Press and hold MODE for 3-5 seconds or until the ESC gives a 4 chime confirmation. It is now in calibration mode and will start by looking for the neutral signal first, while blinking the center (#4) LED with a simultaneous "beep" with each blink.
- 3) Once neutral is found, the 4 chime confirmation will sound again and the right (#7) LED will begin to blink, indicating the ESC is looking for a full throttle signal. Pull and hold full throttle until you hear the confirmation chime.
- 4) The ESC will then switch to the left (#1) LED and look for a full brake/reverse signal. Push and hold full brake until you hear the confirmation chime. After the confirmation, let go of the trigger and the ESC will arm, go to neutral and actively show the onboard temperature (Section 11).
- 5) If the ESC does not show the temperature monitor (LED 4 and cycling back and forth) check Section 8 to see if any Error Codes are present.

STEP 1.

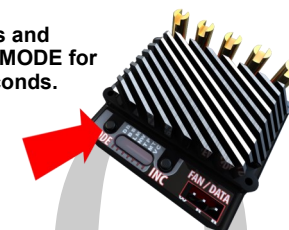
Power the transmitter and your ESC on.



LED BLINKING CENTER

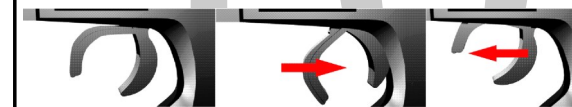
STEP 2.

Press and hold MODE for 3 seconds.



LED BLINKING RIGHT

LED BLINKING LEFT



STEP 3.

Leave trigger in Neutral. WAIT FOR CHIME

STEP 4.

Pull and hold full throttle. WAIT FOR CHIME

STEP 5.

Push and hold full brake. WAIT FOR CHIME

Hint: If the ESC fails to recognize your full throttle signal, try reversing the throttle channel in the transmitter system menu.

TEMPERATURE MONITOR

The On-Board Temperature Monitor works to provide you with important feedback on ESC temperature, helping you to adjust gearing and avoid long term heat damage. To use:

- 1) The ESC must be calibrated to your transmitter and must be in neutral.
- 2) The middle LED will be on steady then blink out every 2 seconds. *Blinky mode will show LEDs 3 & 5 blinking rapidly in neutral and Locked Spec Mode will show LEDs 3, 4 & 5 blinking rapidly.*
- 3) At the moment that the center LED blinks out, one or more of the other LEDs will light up.
- 4) LED Temperature readings:

LED1	LED1-2	LED1-3	LED1-4	LED1-5	LED1-6	LED1-7
Ambient	120°F	140°F	160°F	180°F	200°F	220°F

Should your ESC show all 7 LEDs, stop driving and let it cool. The ESC will go into Thermal Shutdown if it is not allowed to cool down. You may need to lower your gearing, lower your Boost settings, change to a higher turn motor or repair any binding in the drivetrain. Continuous use at high temperatures and multiple "thermals" can damage the ESC.

