INTRODUCTION

Congratulations and thank you for purchasing the RSX PRO. The RSX PRO Brushless/Sensored Electronic Speed Control (ESC). The RSX comes from years of brushed R&D and supplies racers with the ultimate package for modernizing. 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 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 is within the TEKIN spec.
3) Check battery polarity! NO Reverse Polarity Protection.
4) Check labeling of solder points before soldering.
5) Locate the power connector 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

Input Voltage - RSX PRO
2-3S LiPo (4S & 5S NiMH/NiCd)
Motor Currents
Brushed (B) 2.5 turn 2-3 pole 36mm Can 6.5 turn 2-3 pole 36mm Can 12 turn 36mm Can
Brushless (BL) 25 turn 36mm Can
Max Current
20 Amps (6S)
Programmable ESC 20 Amps (6S)
Dimensions With Fan Shroud Weight
1.21 x 1.43 x 0.82” 36mm Can 1.21 x 1.43 x 1.26” 36mm Can 1.21 x 1.43 x 0.82” 36mm Can
36mm Can 0.82” / 30g 0.82” / 30g 0.82” / 30g

WARNING

Exceeding product specifications or using equipment outside of the specification range above automatically voids the 180-day manufacturer warranty. Any damage caused from misuse 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.tekin.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 (either side down). Route fan wire as shown. The shroud is mounted to the RSX using (4) #12 x 1-1/2 screws and 3mm aluminum spaces. We recommend using replacement fans (TT3833 25mm Fan Pack) and plastic louver (TT3850).

SOLDERING

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

Tips & Tricks

Using the ESC in a ‘vane (pav)’ provides a stable work area to do a quality job (Fig. 3). Solder without the fan shroud in place to avoid damaging fan. The order for proper soldering is:

1. Tin Posts
2. Tin Wires
3. Heat Posts
4. Heat Wires
5. Heat both and connect

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

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.tekin.com/support/esc_code.html to view these codes in an online code reader. Each code will flash rapidly.

ALL LEDS FLASHING

LEDs 1, 2, 3 & 4

LEDs 1, 2 & 5

LEDs 1 & 6

LEDs 5, 6 & 7

LED 5 & 6

LED 6

SEED Mode activated. Senored Only, no bind or Power Loss.

Sensored Mode activated. Sensored Only, no bind or Power Loss.

Sensored Mode activated. Sensored Only, no bind or Power Loss.

ERROR CODES

The On-Board Temperature Monitor works to provide you 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 battery setup.
2) The middle LEDs will be on steady until they 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 with no activity. LED 6 is on steady.
3) At the moment that the center LED turns on, all or more of the other LEDs will light up.
4) LED Temperature readings:

LED1: 120°F / 50°C
LED2: 160°F / 70°C
LED3: 180°F / 80°C
LED4: 220°F / 100°C

Should your ESC show all 7 LEDs, stop driving and let it cool. The ESC will go into Thermal Shutdown if it is allowed to cool down. You may need to lower your gearing, lower your Boost settings, change to a higher turn motor or even changing the drivetrain. Continuous use at high temperatures and multiple ‘thermals’ can damage the ESC.
THROTTLE & BRAKE FREQUENCY

Throttle and Brake Frequency both change the feel of the ESC dramatically. By default they are set to:

- Throttle: 6kHz (2-12kHz range)
- Brake: 4kHz (750kHz-12kHz range)

Modifying the frequency can create a more precise feel or a smoother aggression. If anything other than 0kHz is needed, perform a radio calibration with the trim at 0.

LED1: DRAG BRAKE

Provides immediate braking action in neutral. This greatly slows the car down when you let off the trigger. Higher values increase the drag brake power.

LED2: BRUSHLESS MODE

Reverses the motor power on brushless motors when throttle returns to neutral. Low values give you a shorter duration, higher values a longer duration push.

LED3: TORQUE CONTROL

Adjusts the initial power delivered to the motor under acceleration. Low values give you a higher power output to the wheel, while high values give a lower power output.

LED4: NEUTRAL WIDTH

Adjusts the dead band area around neutral. A low neutral value will provide more precise and quick trigger sensitivity around neutral. Higher values decrease trigger sensitivity.

LED5: TIMING PROFILES

Pre-programmed profiles that control the Raspberry Pi/microcontroller. These profiles are available and adjustable through this onboard system, with additional higher resolution and higher resolution control via the Hotwire software on a PC or mobile device.

LED6: VOLTAGE CUTOFF

Adjusts the voltage cutoff. Lowest value gives the longest duration, highest value gives the shortest duration.

THROTTLE & BRAKE FREQUENCY

Throttle frequency changes the pulse width being applied during throttle application. In general higher frequencies provide a softer throttle feel, while with a lower throttle aggression for a better throttle modulation while keeping full throttle pulse width lower. Reverse Brake frequency gives stronger braking with a stronger overall feel.

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LEDS: QUICKTUNING

The Tekin QUICKTUNE system printer allows you to easily reprogram your ESC. All the settings in section 12 are adjustable through this system. Higher values provide a higher range of control through the Hotwire software on a PC or mobile device.

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