OWNER'S MANUAL

R1
R1 Pro
Forward / Brake /Reverse

10th SCALE
BRUSHLESS / BRUSHED
ELECTRONIC SPEED CONTROL

- **Adjustable Drag Brake/Reverse Type**
- **Voltage Cutoff for LiPo Cells**
- **Brushed or Brushless Motors**
- **QuickTune™ Digital Setup**
- **Temperature Monitor**

INTRODUCTION

Congratulations and thank you for purchasing the ***R1/R1 Pro***, Tekin's High Performance 10th Scale Brushless/Brushed Motor Electronic Speed Control. This may well be the last ESC you ever need to buy! The QuickTune™ feature allows the user to quickly and accurately adjust all critical operating parameters.

QUICKSTART

By far, the fastest and easiest way to get up and running is to watch Tekin's online instructional videos at www.teamtekin.com. Watching these short and informative videos will simplify installation and help you to avoid most common problems.

Figure 5———Brushless Connection Diagram

Figures 6 & 7—Brushed Connection Diagram

CAUTION: The following statements need to be understood before using the *R1/ R1 Pro*:

1) Do not operate speed control in or around water.
2) Do not hook-up the battery backwards! No reverse voltage protection.
3) Turn on the transmitter first THEN turn on the speed control.
4) Disconnect battery from speed control when not in use.
5) Insulate exposed wire with heat shrink tubing to avoid shorts.
6) The *R1* series is intended for 10th scale or smaller vehicles.

BEFORE YOU BEGIN

Plan Speed Control Placement

1) Choose a location for the speed control that is protected from debris. To prevent radio interference place the speed control as far away from the radio receiver as possible and keep the power wires as short as possible. Plan on routing power and motor wires away from the radio receiver and radio wires.
2) For best results clean the bottom of the speed control and chassis. Peel off the cover on one side of the doubled-sided tape, (included) and stick to the bottom of the speed control. DO NOT peel off the other side yet.
3) Use a small piece of double-sided tape on the ON/OFF switch.
4) Determine how you would prefer to connect the motor and battery pack to the speed control. For the motor, using connector pairs such as Tekin's 4.0 mm Banana Connectors #TT3052, is preferable for most applications as it allows you to easily change motors (Fig.1). For the battery, consider where your pack sits and how much wire will be needed to attach to the speed control.

Figure 1.

4.0 mm Banana Connector Part # TT3052 (3 Pairs)

POWER CAPACITOR

CAUTION: A power capacitor is supplied with the R1 Series (TT3520) and MUST BE MOUNTED on the speed control for proper operation (Fig. 2). Failure to use the power capacitor can cause irreparable damage to the speed control.

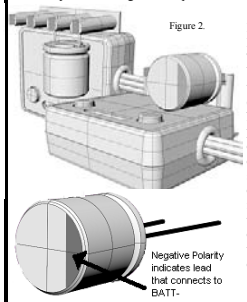


Figure 2.

INSTALLING THE POWER CAP:
The capacitor should be mounted directly to the Battery Positive (+BATT) and Battery Negative (–BATT) posts on the speed control, with the capacitor wires cut as short as possible. The capacitor polarity is indicated on the top of the capacitor by a colored half-circle which is the -BATT connection (Fig. 3).

Negative Polarity indicates lead that connects to BATT-

SOLDERING

TIPS & TRICKS: Place the speed control on its side and use servo tape to secure it to the bench. Doing so provides a stable work area and allows easy access to the solder posts (Fig. 4). A good rule of thumb is that if a wire is to hot to hold at about 2 inches out in the wire, then the soldering iron has been on the joint to long—stop, let everything cool, then try again.

- Heat Posts
- Heat Wire
- THEN heat both

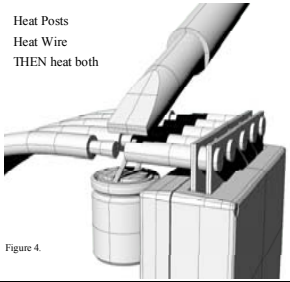


Figure 4.

SOLDERING CONT...

ATTACHING WIRES TO THE SPEED CONTROL:

1) Red wires are usually used to connect the speed control to the positive battery terminal and the positive motor terminal. Black wire is typically used for the battery negative terminal, and blue is used for the negative motor connection. Inspect the sticker on the speed control or refer to the diagrams to determine which color wire to attach to each post.

1) Strip back the insulation of the wire by about 3/32" to 1/8" and "pre-tin" the wire by heating the end and applying solder until it is thoroughly covered. **CAUTION:** Be very careful not to splash yourself with hot solder.

1) Place the tip of the iron in the notch on top of the post and apply a small amount of solder to the post. When the solder has flowed, remove the soldering iron, wipe the tip clean and apply a small amount of fresh solder to it.

1) Hold the wire so the tinned end is in contact with the notch of the post. Now touch the iron tip to the wire and the post. Wait about 2 seconds for the solder to flow, and then remove the iron while still holding the wire. You may let go of the wire after a second or two when the solder sets.

SOLDERING CONT...

ATTACHING WIRES TO THE BATTERY:
The same techniques described in the preceding section may be used to solder the wires to the battery or to battery connectors.

IMPORTANT: Take precautions if removing factory battery connectors. Connecting the battery backwards will cause damage, and will void warranty. When soldering connectors to a battery pack, cut only one wire of the battery pack at a time to ensure that the exposed wires cannot short together.

HINT: If you are using connectors for both the battery and the motor, make sure that they are not the same or that you have a male and a female attached to the speed control wires. That way, you cannot accidentally connect the battery to the motor wires or vice versa.

1) Make sure that the connector ends will be mated together correctly, male to female, and that the wire colors match—red to red and black to black.
2) Solder the wires from the speed control to each of the connectors, then solder wires from the battery to each connector's mate.

ATTACHING WIRES TO THE MOTOR:
The same techniques described in section 5 and 6 may be used to solder the wires to the motor.

HOOKUP INSTRUCTIONS

HINT: If you plan on frequently switching from Brushless Motor operation to Forward Only Brushed, a connector that simplifies this can be constructed. Join 3 male banana connectors into 1 piece of wire, then attach that wire to your Brushed motor's negative terminal (Fig.5). You can now plug the 3 male connectors directly into the 3 female banana connectors on the ESC.

Figure 4.

1) CONNECT SPEED CONTROL TO RECEIVER
Plug the speed control into the throttle channel of the receiver.
   - Channel 1: Servo
   - Channel 2: Speed Control
   "REMEMBER: 1 to Turn, 2 to Burn"
2) CONNECT SPEED CONTROL TO BATTERY
Visually verify that the connector on the battery pack and the speed control match the chart below then connect.

HOOKUP INSTRUCTION, CONT.

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

ESC	*BATTERY*
(B-) Black Wire	(-) Negative
(B +) Red Wire	(+) Positive

3) CONNECT SPEED CONTROL TO MOTOR. First, determine if your motor is Brushless or Brushed type.

CAUTION: Before connecting the motor, verify that the correct Motor Type (MT) is selected in the user adjustable settings.

SPEED CONTROL	*BRUSHLESS MOTOR*
(R) Red Wire	(A) Red
(W) White Wire	(B) White
(B) Black Wire	(C) Black

SPEED CONTROL	*BRUSHED MOTOR*
(B) Black Wire	(-) Negative
(R) Red Wire	(+) Positive

FACTORY RESET

The *R1 series* has a built-in factory reset mode that resets all user programmable settings to the default values. To activate, turn the speed control on, then press/hold INC button and then press/hold MODE button simultaneously for 3 seconds. After 3 seconds the LEDs will ramp up in sets of three. **NOTE:** Activating the self-test mode also resets all the radio calibration settings to their default values.

RADIO CALIBRATION

NOTE: Before Radio Calibrating, ensure speed control is hooked up to the receiver, a charged battery is properly connected, and the transmitter is turned on. On your radio, set all trim adjustments to the middle, throttle/brake EPAs and Dual Rate set to max and ensure that your throttle direction is set to "normal".
Calibration is really very simple, you just press and hold the MODE button for 3 seconds to enter radio calibrate, let the speed control "find" your neutral, then let it "find" your full throttle and full brake. If you are unsure how to perform this procedure, follow the detailed steps outlined below. After calibrating to your radio, when the speed control power switch is turned ON the unit will begin looking for the neutral signal. If a neutral signal is found the Arming Sequence (flashes LEDs/chime) will occur followed by LED4 on, then flashing to LED1. **HINT:** Once calibrated, the LEDs on the speed control will advance as the throttle or brake is applied.

RADIO CALIBRATION, CONT...

One Touch Radio Calibration

1) Turn on transmitter and, if it has them, set throttle/brake EPAs to maximum, Dual Rate to max, then set throttle trim/ sub trim to center.
2) Turn on speed control.
3) Press and hold the MODE button on the speed control for 3 seconds. All LEDs will blink red 3 times with 3 chimes. The speed control will make a pulsing chime as it looks for a neutral signal—you do not need to do anything yet.
4) When NEUTRAL position is found and recorded, LED4 will flash and a confirmation chime will sound.
5) The pulsing chime will begin again and LED7 will flash; pull transmitter trigger to the full throttle position and hold until the confirmation chime sounds.
6) The pulsing chime will begin again and LED1 will flash; push transmitter trigger to the full brake position and hold until the confirmation chime sounds.
7) Release trigger to return to the neutral position. LEDs will flash and the Arming Sequence chime will sound.
8) Calibration is complete and you are ready to drive!

SPEED CONTROL SPECIFICATIONS

Controls, R1/R1 Pro	Fwd/Brk or Fwd/Brk/Rev
Input Power (Cells) R1	4-9 NiCd/NiMh (2-3S LiPo)
Input Power (Cells) R1 Pro	4-9 NiCd/NiMh (2-3S LiPo)
Motor Limits, R1 Brushless Brushed Fwd Mode Brushed Fwd/Rev Mode	 5 Turn, 36mm Can 8 Turn 10 Turn
Motor Limits, R1 Pro Brushless Brushed Fwd Mode Brushed Fwd/Rev Mode	 No Limit, 36mm Can No Limit No Limit
On Resistance, R1 Brushless Brushed Fwd Brushed Fwd/Rev	 0.0003 Ohms 0.0001 Ohms 0.0003 Ohms
On Resistance, R1 Pro Brushless Brushed Fwd Brushed Fwd/Rev	 0.00015 Ohms 0.00005 Ohms 0.00015 Ohms
Max Current R1/R1-Pro, Brushed Fwd. R1/R1-Pro, Brushless Per Phase	 312 Amps/624 Amps 104 Amps/208 Amps
BEC	6 Volts, 3 Amps
Dimensions, R1	1.0 x 1.3 x 0.45 In. (25 x 33 x 12 mm)
Dimensions, R1 Pro	1.0 x 1.3 x 0.65 In. (25 x 33 x 16.5 mm)

QuickTune™

Tekin's QuickTune™ electronic setup feature allows users to change every critical operating parameter in a quick, easy, and accurate fashion. The basic operation is described as:

- Use "MODE" button to scroll to a Program Feature.
- Use "INC" (increment) button to view/adjust the Feature

QuickTune™ :

1) **Press and release the "MODE" button to access a Program Feature.** The LED starts blinking to indicate that Feature Programming is under way. Each time the MODE button is pressed and released, the LED advances. For example, to get to the Voltage Cutoff adjustment, simply press and release the MODE button 7 times. **NOTE:** Do not wait longer than 5 seconds to adjust the selected MODE or the speed control will return to normal operation. Once the Feature is selected, move on to step 2 within 5 seconds.
2) **Press and release the "INCR" button to adjust the value of the Feature.** The first time INCR button is pressed, the LED(s) will display the existing setting. Each time the INCR button is pushed the value will advance, then after maximum, start over again at the low end of the scale. If two LEDs are on at once, it indicates a value mid-way between the LEDs.

QuickTune Example: Let's say you want to use a 2 cell LiPo battery. To change the Voltage Cutoff from the default setting (1 = None) to setting 2 (2 = 6.0 Volt Cutoff), first follow step 1 above by pressing and releasing the MODE button 7 times. Now press and release the INC button, the LED should show the current setting of 1. Press and release the INC button again and the LED will move to position 2, indicating that Voltage Cutoff is now set to 6.0 Volts. Wait 5 seconds and the ESC returns to normal operation.
HINT: If you wish to set another Program Feature, press the "MODE" button again. After 5 seconds pause, the values you selected will be saved in memory and the speed control will resume normal operation.

Pit Tune Mode

PIT TUNING: If you are in the pit area and cannot use your transmitter you may use pit tuning mode to adjust settings by following this procedure: Unplug the steering servo from the receiver to avoid servo damage. Hold down either MODE or INCR button while turning the power switch on. LEDs will ramp up and down in sequence indicating you are in pit tune mode. The user settings will be active, but the motor will not run and the speed control will not respond to receiver signals. Turn the speed control power off and back on to resume normal operation.

QuickTune™ MODES

MODE	*RANGE*	*DEFAULT*
DRAG BRAKE (DB)	1-13	1 (No Drag)
BRAKE/REVERSE STRENGTH (BS) —Brushlesss Mode Only	1-13	4&5
PUSH CONTROL ANTI DRAG (PC)—Brushed Mode Only	1-13	1 (Off)
CURRENT LIMITER (LIM)	1-13	13 (No Limit)
NEUTRAL WIDTH (NW)	1-13	4&5
THROTTLE PROFILE (TP)	1-7	3 (Linear)
MOTOR TYPE (MT)	1-6	3 (Brushless) (Fwd/Brk/Rev w/ Delay)
VOLTAGE CUTOFF (VC)	1-4	1 (NONE)

LED Display: The LEDs light bar displays values in several ways: One LED shown at a time indicates a value range of 1-7. One or two LEDs that "walk" up the display can show a greater range of 1-13 values. Critical Settings (Motor Type and Voltage Cutoff) are indicated by multiple lights, making it easier to verify correct settings—pay close attention to these when adjusting.

ADJUSTMENT MODES

LED1: DRAG BRAKE provides immediate braking action in the neutral zone. This gently slows the car down when you let off the trigger. Drag Brake can provide a better cornering approach. Higher values increase the degree of drag braking.
LED2 (IN BRUSHLESS MODE): REVERSE/BRAKE STRENGTH adjusts your maximum brake strength and reverse speed when in brushless mode. Higher values increase brake strength and increase reverse speed.
LED2 (IN BRUSHED MODE): PUSH CONTROL or ANTI-DRAG overcomes the natural drag of a brushed motor when throttle returns to neutral. Racers refer to this as "creep", this setting eliminates the need to trim the throttle forward to create a coasting (pushing) effect. Low values give you a short duration push, higher values a longer duration push. **HINT:** Use transmitter EPAs to adjust Brake/Rev Strength while in Brushed Mode.
LED3: CURRENT LIMITER adjusts the throttle response during acceleration, gentle to abrupt. Low values allow low amounts of current to pass to the motor, higher values allow higher amounts of current. The highest value (13) turns off current limit.
LED4: NEUTRAL WIDTH adjusts your dead band around the neutral point. A low neutral width value provides more sensitive trigger response around neutral. A higher value allows you to move the trigger slightly before throttle or brake is engaged.

HotWire™ PC INTERFACE

The HotWire PC Interface (TT1450) unlocks the full potential of your Tekin Speed Control, much more than just a pretty interface to your user–adjustable settings.
When you connect the HotWire to your speed control you can download and install the latest software revisions as improvements and features are added to the speed control design.
Further, because Tekin continually seeks to push performance levels, we occasionally releases Beta Version Software. With the HotWire you can, if you so choose, elect to join the team and become part of our Product Research and Development at Team Tekin.
The HotWire also allows you to adjust several hidden features not accessible through the on-board programming, such as user-defined Custom Throttle Profiles and Custom Voltage Cutoffs. Another feature is the ability to save and reload settings. If you want to recall the settings that helped put you in the A-Main last time, you can save your settings, then later instantly tweak your speed control to revert to that particular track and specific driving conditions. If you feel like leveling the playing field, you can share your custom settings with a friend.
Even better, downloadable speed control configurations from our top-level drivers give you access to the exact speed control settings that they have used in specific setups and for particular races! Check it out at www.teamtekin.com/HotWire

Brushless Motor Wiring Diagram

Motor Type Settings
1. **FWD/BRK**
2. **FWD/BRK/REV**
3. **FWD/BRK/REV Delay**

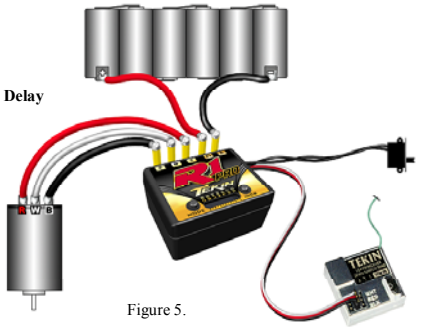


Figure 5.

BRUSHLESS MOTORS

For R1/R1 Pro Brushless Connection, Refer to Figure 1.
1) Connect the battery pack: BAT (+) to the speed control BAT (+) then BAT (-) to the speed control BAT (-).
2) **IMPORTANT:** Before connecting the motor, first plug the speed control into the receiver, connect a charged battery, then power on your transmitter. Turn on the speed control and perform a radio calibrate as described in the Radio Calibration section of this manual.
3) Select Motor Type: Press and release the MODE button 5 times to get to the MOTOR TYPE selection in the user settings. Press and release the INC button once to view the current motor type selected (brushless types are indicated by LEDs 1-3 lit). If necessary, continue to press and release the INC button to scroll through the motor types until brushless motor type is selected.
4) Wiring: Determine whether you would prefer to use connectors from speed control to motor and from speed control to battery. Refer to the instructions in the Soldering section of this manual for more information and refer to Figure 1.
5) Power off the speed control and connect the motor wires, matching colors appropriately.
6) Power on the speed control, listen for the arming chime. Congratulations, you are ready to drive!

ADJUSTMENT MODES CONT...

LED5: THROTTLE PROFILES
1) Mildest profile, concave (LED1 ON)
2) Mild profile, concave (LED1-LED2 ON)
3) Linear profile (LED1-LED3 ON)
4) Aggressive profile convex (LED1-LED4 ON)
5) More aggressive profile, convex (LED1-LED5 ON)
6) User Custom—Requires Tekin HotWire PC Connection (LED1-LED6 ON)
7) User Custom—Store different throttle profiles for different track conditions (LED1-LED7 ON)

LED6: MOTOR TYPE
1) Brushless, Fwd/Brk (LED1 ON)
2) Brushless, Fwd/Brk/Rev (LED1-LED2 ON)
3) Brushless, Fwd/Brk/Rev Delay (LED1-LED3 ON)
4) Brushed, Fwd/Brk (LED1-LED4 ON)
5) Brushed, Fwd/Brk/Rev (LED1-LED5 ON)
6) Brushed, Fwd/Brk/Rev Delay (LED1-LED6 ON)

LED7: VOLTAGE CUTOFF
IMPORTANT: **If using LiPo batteries, DO NOT operate your vehicle with the factory default Cutoff Voltage setting (None).**
1) NONE (LED1 ON). For NiCd/NiMh Cells.
2) 6 Volts (LED1-LED2 ON). Use for 2 Cells LiPo (2S)
3) 9 Volts (LED1-LED3 ON). Use for 3 Cells LiPo (3S)
4) Custom (LED1-LED5 ON).
User Selectable Using Tekin HotWire PC Connection

TROUBLESHOOTING

HINT: When powered on, the ESC emits an all-systems-go chime if it is connected correctly to the motor and radio.

NO LIGHTS COME ON
Check for dead batteries or reverse battery connection. Check the connections between the batteries and the speed controller and that the switch is in the "ON" position. Verify that there are no bad connections at the speed controller.

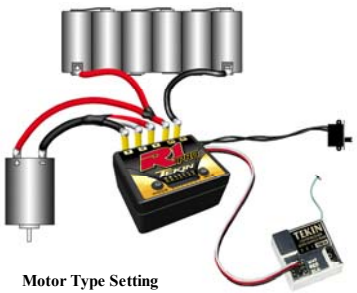
ALL LEDs FLASHING
No radio signal can be found. Check receiver connection and verify that ESC is plugged into correct channel. Verify transmitter and receiver are functioning properly.

BOTTOM OR TOP 3 LEDs FLASHING
Radio signal found, but neutral point from transmitter is out of expected range. Speed control not calibrated properly or radio settings have been changed. Adjust trim and recalibrate speed control as described in the Radio Calibration section.

SERVO AND THROTTLE DEAD
Check for dead batteries, bad battery connections to speed control, bad receiver plug connection, broken power switch, broken wires, bad or mismatched crystals, or bad radio equipment. Check that servo plug is not shorting to the speed control plug and that speed control is plugged into THR (CH2).

Brushed Motor Wiring Diagrams

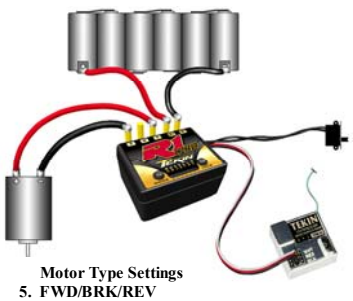
Forward Only



Motor Type Setting
4. **FWD/BRK**

Figure 6.

Forward and Reverse



Motor Type Settings
5. **FWD/BRK/REV**
6. **FWD/BRK/REV Delay**

Figure 7.

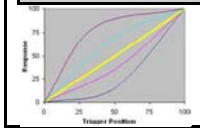
BRUSHED MOTORS

For R1/R1 Pro Brushed Connection, Refer To Figs 2 or 3.
1) Connect the battery pack: BAT (+) to the speed control BAT (+) then BAT (-) to the speed control BAT (-).
2) **IMPORTANT:** Before connecting the motor, first plug the speed control into the receiver, connect a charged battery, then power on your transmitter. Turn on the speed control and perform a radio calibrate.
3) Select Motor Type: Press and release the MODE button 5 times to get to the MOTOR TYPE selection in the user settings. Press and release the INC button once to view the current motor type selected (brushed types are indicated by LEDs 1-4, 1-5, or 1-6 lit—See Adjustment Modes table for motor type details).
4) Forward Only Wiring (use only Motor Type 4): Refer to Fig. 2 and the instructions in the Soldering section of this manual. Connect all 3 speed control motor outputs together, then connect them to the NEG (-) terminal of the motor. Connect another wire from the motor's POS (+) terminal to the BAT (+) terminal on the speed control.
5) Forward/Reverse Wiring (Motor Types 5&6): Refer to Fig. 3, connect motor NEG (-) terminal to speed control (B) post, then connect motor POS (+) terminal to speed control (R) post. NOTE: Speed control (W) is not used.
6) Power on the speed control, listen for the arming chime.

TEMPERATURE MONITOR

The On-Board Temperature Monitor works to provide you with important feedback on speed control temperature, helping you to adjust gearing and avoid long term heat damage. To use;
1) The speed control must be calibrated to your radio and the radio must be in the neutral position.
2) The middle LED will be on steady then blink out every 2 seconds.
3) At the moment that the center LED blinks out, one or more of the other LEDs will light up.
4) LEDs 1-3 lit is typical of light loads or a stock motor. LEDs 1-6 lit indicates heavy loads and is typical when running mod motors. LEDs 1-7 lit indicates high internal temperatures approaching thermal shutdown. Discontinue use until the speed control returns to normal operating temperature.

THROTTLE PROFILES



1) Mildest profile, concave
2) Mild profile, concave
3) **Linear profile (DEFAULT)**
4) Aggressive profile convex
5) More aggressive profile, convex

TROUBLESHOOTING CONT...

SERVO WORKS, THROTTLE DEAD
If LEDs 1,3 and 5 are flickering, it indicates that Voltage Cutoff may be set above battery pack voltage, or that unit is in thermal shutdown. Check that cutoff is correctly set and that battery is fully charged. Motor or connections to motor are bad. Speed control not plugged into throttle channel on receiver, or receiver plug connection is bad. May be in Pit Tune mode.

STUTTERING UNDER HEAVY ACCELERATION
Damaged or disconnected power capacitor. Receiver bad or getting magnetic field interference, try mounting receiver on its side and/or spacing it 3/16 inch up from the chassis. Try adding an electrolytic cap on the power supply (BATT socket) of receiver. Move power wires away from receiver. Remove any zip ties securing wires and check for kinked, broken, or damaged motor wires. Twist motor wires around each other to help suppress noise.

BRAKES DO NOT WORK AT ALL
Speed control or radio transmitter improperly adjusted. Adjust EPAs on transmitter all the way out and recalibrate speed control to radio.

MOTOR RUNS BACKWARDS
First check that your radio trigger setting is set to NORMAL, not REVERSE, then perform a radio calibration. Disconnect the red and black motor wires and switch their connections.

TROUBLESHOOTING CONT...

NO REVERSE
QuickTune mode, Brake/Reverse Type is set to option 1. QuickTune mode, Brake/Reverse Type is set to option 3 (transmitter trigger must be in neutral position for 1 second before reverse is enabled).

MOTOR WILL NOT SHUT OFF OR RUNS SLOWLY
Incorrect radio calibration or throttle trim setting on transmitter. Check transmitter settings and recalibrate speed control. Moisture in speed control: Unhook batteries and let the speed control dry.

MOTOR CUT OUT/POOR RANGE
Transmitter batteries are low or damaged. Mismatched crystals. The three-wire cable from speed control to receiver may be routed improperly, try rerouting. This speed control radiates very low noise and you should have no trouble with interference. If you do have interference, mount the speed control in the pan, and mount the receiver and antenna at the top of the shock tower. Try to keep the receiver away from the batteries, power wires, metal or graphite.

THROTTLE WORKS, SERVO DEAD
Broken servo. Servo plug wiring is bad or incorrectly wired.

ERROR CODES

LED INDICATOR (S)	ERROR DESCRIPTION
All LEDs Flashing	No Radio Signal, check radio system
LEDs 1,2,3 Flashing	Radio signal found but lower than expected, See Radio Calibration Section
LEDs 5,6,7 Flashing	Radio signal found but higher than expected, See Radio Calibration Section
LEDs 1,3,5 Flashing	Voltage Cutoff set below battery voltage or in hi-temperature thermal shutdown
LEDs ramp up then down	ESC is in Pit Tune Mode
LED's 3&4 flashing	Short Circuit Detected! Remove battery and check setup wiring carefully!
LED 4 on briefly, then flashes to one or more other LEDs	Normal operation, see Temperature Monitor Section.

OPERATING TIPS

BRAKE STRENGTH: Reducing your brake strength helps control excess skidding during heavy braking and on loose surfaces. This is a very useful setting to have, spend some time experimenting to find the right setting for your car/style/track.
DRAG BRAKE: Increased drag brake settings help by allowing you to concentrate less on braking, more on driving a good line, and can also be very helpful with free-spinning slotless motors.
NEUTRAL WIDTH: A tight neutral width can interfere with correct operation of Drag Brake and Push Control if your radio trigger does not return precisely to the same neutral position.

WARRANTY / REPAIR

TEKIN, INC. guarantees speed controllers to be free from factory defects in materials and workmanship for a period of 120 days from date of purchase, when verified by sales receipt. This warranty does not cover: suitability for specific application, components worn by use or improper voltage, tampering, misuse, or shipping. Our warranty liability shall be limited to repairing unit to our original specifications. Because we have no control over the installation or use of this product, in no case shall we be liable for damages. Additionally, these items void the warranty:
1) Using the same polarity connectors on the battery and motor wires from the speed controller.
2) Allowing water or moisture into the speed controller.
3) Failure to attach the supplied capacitor.
4) Incorrect wiring or use inconsistent with the instructions.

WARRANTY SERVICE: For warranty work, you MUST CLAIM WARRANTY on A COMPLETELY FILLED OUT PRODUCT SERVICE FORM and include a VALID CASH REGISTER RECEIPT with purchase date, dealer name & phone# on it, or an invoice from previous service. If warranty provisions have been voided, there will be service charges.

REPAIR: Before sending your R1/R1 Pro in for service, please review the Instructions and Troubleshooting sections. After reviewing these instructions, if your speed control still requires service, please contact our customer service department for additional assistance.

NOTE: Hobby dealers or distributors are not authorized to replace TEKIN products thought to be defective.

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