

OWNER'S MANUAL

G11

G11-PRO-TR



| | |
|-------------------|--------------------|
| Motor Limit | None |
| Power Wires | (3) 12 GA Silicone |
| Dimensions (Inch) | 1.85 x 1.25 x 0.65 |
| Weight (oz.) | 1.25 |

*Specifications: subject to change without notice.

** BEC – Battery Elimination Circuit

PRECAUTION

The following statements need to be understood before using the G11 series:

- 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 to avoid uncontrollable noise to speed control.
- 4) Disconnect battery from speed control when not in use.
- 5) Insulate exposed wires with heat shrink tubing to prevent short circuits.

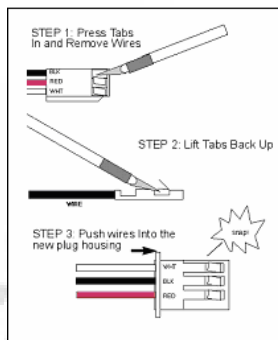
CONNECTION SELECTION

The first step to prepare your speed control for installation is to ensure that it is compatible with the type of radio receiver you are using. The standard connector on this unit is the TEKIN/Futaba J plug. If using a different receiver, the side tab on the TEKIN plug can be removed to fit.

IMPORTANT: With some older style receivers, the wiring sequence in the housing connector must be changed (due to polarity) or damage will occur.

*If a change is needed, follow the steps below to change plugs:

- 1) Remove the original plug housing. Using a small hobby knife, press in the three metal tabs far enough that each of the wires can be removed from the black plug housing (Figure 1: Step 1).
- 2) After removing the wires from the plug housing, use a hobby knife and **carefully** lift the metal tabs back up (Figure 1: Step 2).
- 3) Select the plug housing that matches your radio system and insert the wires into the housing matching the wire colors to the



labels on the plug (Figure 1: Step 3).

FIGURE 1: CHANGING PLUG TYPES

IMPORTANT: As long as the instructions are followed correctly and proper polarity is observed, changing the motor and battery plugs will not void warranty. Wiring the plug incorrectly may damage the speed control or radio receiver and void the warranty.

SOLDERING

The soldering posts are 10GA gold-plated copper for the lowest resistance. If you need to change a wire on the speed control, follow the steps below. You will need a hot soldering iron and ordinary 60/40 electronic grade solder.

IMPORTANT: Use extreme care and observe proper safety precautions when soldering. Always wear eye protection. Be sure that both wires are disconnected from the battery before soldering on the posts.

REMOVING:

- 1) Have a hot iron and the speed control secured. Clean the tip of the iron and apply a small amount of solder. While the tip is still smoking from the flux in the solder, touch the tip of the iron to the top of the post.
- 2) As the solder on the post melts, pull on the wire you wish to remove.
- 3) If there is excess solder remaining on the post, you may remove it by heating the post until the solder just starts to melt, then quickly tapping the speed control firmly against the workbench to knock off the excess solder.

ATTACHING:

- 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. You may shake of any excess solder while it is still hot. Be very careful not to splash yourself with hot solder.

- 2) If there is no solder on the post, touch the tip of the iron to the top of the post and apply a small amount of solder to the post. Wipe the tip clean and apply a small amount of fresh solder to it.
- 3) Secure the speed control in place on the workbench. Hold the wire so the tinned end is in contact with the flat side of the post. Now touch the iron tip to the wire pressing towards 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 after a second or two when the solder sets.

NOTE: It should only take a few seconds to solder the wire to the post. If you do not complete the solder joint in approximately 3 seconds, remove the iron, clean and tin the tip, and start over.

- 4) Inspect the solder joint for shorts or solder bridges between wires, and repair when necessary.
- 5) These same techniques may be used to solder the wires to the batteries. You may need to scrape or sand off the battery contact before the solder will stick.

FUSE REPAIR

This speed control uses an exclusive zero-loss solder-drop fuse link for higher efficiency, improved

performance, and for the coolest operation. The patented circuit also delivers longer run time than any Schottky diode circuit. This special fuse also eliminates damaged diodes due to an overload or accidental reverse voltage hookup. Instead, you need only replace the solder on the fuse link.

To repair the fuse, use a small-tipped soldering iron. Touch the tip of the iron to the metal pins on the fuse, then apply a small amount of solder as close to the pins as possible. Hold the iron upright so the solder can flow down the iron onto the pins. If you apply too much solder, hold the speed control upside down and touch iron on the solder allowing it to melt and flow down onto the tip. This speed control has its own exclusive circuit with the Schottky diode built in for maximum performance. There is no need to use an external Schottky diode on the motor, the speed control will not be damaged, but using a second diode will slow down the car slightly.

SOLDER DROP FUSE



Apply Solder

MOUNTING

- 1) Placement: Choose a location for the speed control that is protected from debris. To prevent radio interference place as far away from the radio receiver as possible and keep the power wires as short as possible.
- 2) Mounting: Clean the bottom of the speed control and chassis for best results. Using

PRO FORWARD

- Adjustable Brake Frequency
- Adjustable Drive Frequency
- QuickTune Digital Setup
- Ultra Low On-Resistance
- Digital Current Limiter

"Drivers report noticeably faster lap times, and exceptional smoothness with more zip out of the corners and mid range punch."



INTRODUCTION

Congratulations on purchasing the G11 Series, Tekin's new electronic speed control. The G11 series uses the most advanced technology to create a speed control that provides virtually limitless multiple setup tuning options of every critical operating parameter. The QuickTune feature allows the user the to adjust key parameters including Drive Frequency and Brake Frequency.

SPECIFICATIONS

| Controls | Fwd/Brk |
|----------------------|-----------------------------------|
| Input Power (Cells) | 4-10 |
| ON Resistance (Ohm) | PRO/ TR - 0.0002 G11 - 0.00085 |
| Drive Frequency (Hz) | 1250 – 11250 |
| Brake Frequency (Hz) | 1500 – 8000 |
| Max Current (Amps) | PRO/ TR - 280 G11 – 320 |
| BEC** (Volts/Amps) | 6.0/5.0 |

the doubled-sided tape, (included in accessory pack) mount the speed control to chassis.

- Using a piece of double-sided tape mount the ON/OFF switch in a convenient place.

HOOKUP INSTRUCTIONS

IMPORTANT: Take precautions if changing factory battery connector. Connecting the battery backwards will cause damage, and will void warranty.

- CONNECT SPEED CONTROL TO RECEIVER

After the correct plug has been installed according to your receiver, plug the speed control into the throttle channel of the receiver.

- Channel 1: Servo
- Channel 2: Speed Control
"1 to Turn, 2 to Burn"

- CONNECT SPEED CONTROL TO BATTERY AND MOTOR

| ESC | BATTERY | MOTOR |
|------------|--------------|--------------|
| Black Wire | (-) Negative | |
| Red Wire | (+) Positive | |
| Blue Wire | | (-) Negative |
| Red Wire | (+) Positive | (+) Positive |

*Refer to Wiring Diagram

CAUTION: If the battery wires touch during the plug installation. It will cause an electrical short circuit resulting in damage to the pack and possibly a fire hazard.

NOTE: Make sure all wires are secure and a safe distance from all moving parts using the zip-ties in the accessory pack.

- INSTALL MOTOR CAPACITORS
Check your motor; it may have pre-installed capacitors. If not, install the 0.1uF capacitors on the motor that were included in your accessory kit. These capacitors help reduce the noise generated by the motor and prevent speed control damage. Solder the capacitors between:



Capacitor 1:
Negative (-) motor tab to ground or motor can.
Capacitor 2:
Positive (+) motor tab to ground or motor can.
Capacitor 3

(Optional): Positive (+) motor tab to Negative (-) motor tab.

NOTE: The 2" red wire bundled with the radio plug wires is a switched battery supply. This wire can use for FET servo or brake light kit.

TRANSMITTER ADJ.

Before turning on your speed control, there are a few transmitter adjustments that will ensure optimum operation.

NOTE: Not all transmitters have these adjustments.

- Set HIGH ATV/EPA to maximum setting. (Amount of throw at full throttle)
- Set LOW ATV/EPA/ATL to maximum setting. (Amount of throw at full brakes)
- Set EXPONENTIAL to zero setting. (Throttle channel linearity)
- Set THROTTLE CHANNEL TRIM to middle setting. (Adjust neutral position/increase or decrease coast brakes)
- Set ELECTRONIC TRIGGER THROW to 70% throttle and 30% brakes or 7:3. (Adjust trigger throw for digital transmitters)
- Set MECHANICAL TRIGGER THROW to

NOTE: Speed control is hooked up to the receiver, a charged battery being used, and the transmitter is adjusted properly.

Calibration:

- Turn on transmitter.
- Turn on speed control.
- Press and hold the set button on the speed control (5 secs). The light will start to blink.
- Pull transmitter trigger to the full position.
- Push transmitter trigger to the full brake position.
- Release trigger.
- Solid red light means unit is calibrated.

NOTES: Must complete these steps while the light continues to blink (5 seconds). If any problems occur, turn off the speed control and repeat programming. If you do not apply brakes during calibration procedure, the brakes will be disabled.

Hairpin Trigger:

If you wish to have a very short trigger range, then only squeeze the throttle trigger partially during the set-up procedure. Throttle response will not be quite as smooth, but can pull full throttle very

full throttle/brake. There may be some flickering in between lights as the throttle is advanced. This is normal, and is caused by modulation noise from the radio.

QuickTune:

- Press the "MODE" button to access the desired setup mode. The light starts blinking to indicate that mode selection is under way. Continue pressing the "MODE" button until the light advances to indicate the mode you wish to adjust. Do not wait longer than 5 seconds to select the mode, or the speed control will return to normal operation. Once the mode is selected, move on to step 2 within 5 seconds.
- Press the "INCR" button to adjust the value. The first time "INCR" button is pressed, the light(s) will indicated the existing setting. Each time the "INCR" button is pushed the value will advance towards MAX, and then start over again at the low end of the scale. If two lights are on at once, it indicates a value mid-way between the lights.

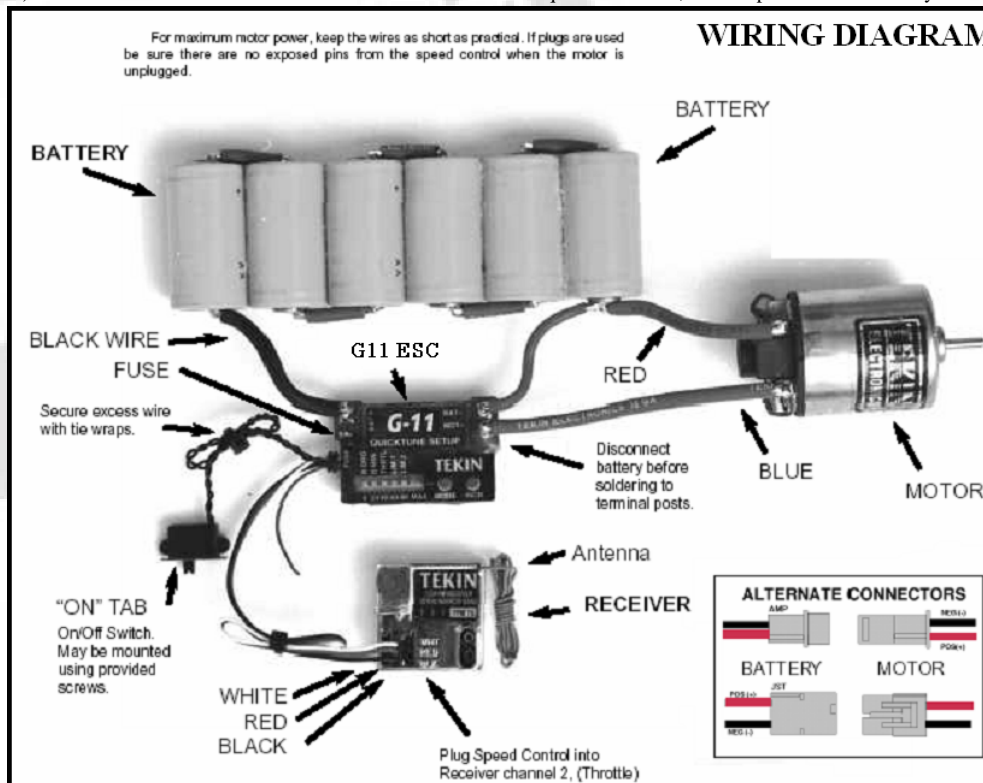
If you wish to set another mode, you may go back and press the "MODE" button again. After 5 seconds pause, the values you selected will be saved in memory and the speed control will resume normal operation.

MODES

| MODE | RANGE | DEFAULT |
|--------------------------|--------------|---------|
| BRAKE MINIMUM (B MIN) | 0-10 | 0 |
| DRAG BRAKE (DRG B) | 0-10 | 0 |
| THROTTLE (THR) | 1-10 | 2 |
| CURRENT LIMITER (LIM) | 10-90 AMPS | MAX |
| DRIVE FREQUENCY (D FREQ) | 1.2-11.2 kHz | 4.2 kHz |
| BRAKE FREQUENCY (B FREQ) | 1.5-8.0 kHz | 1.5 kHz |

BRAKE MINIMUM controls how strongly the brakes initially engage. Higher values make the brakes come on strong initially, and with generally more aggressive response. This can speed up trigger response by eliminating unused trigger motion, but very light brake positions will be lost. A value of zero provides very light, fine braking action.

DRAG BRAKE control provides immediate braking action, even in the neutral zone. This gently slows the car down when you let off the trigger. It can allow a better cornering approach. Higher values increase the drag braking. A value of zero provides no drag brake. **THROTTLE** higher values increase the bottom end response, and require less trigger travel to reach the same speed. A value of zero is a linear response, with a very slow low speed crawl. You should select a value



position with 2/3 throttle and 1/3 brake.
(Adjust trigger throw on analog transmitters)

QuickTune

quickly.
Once calibrated, the lights on the speed control will advance as the throttle or brake is applied. The "0" light is Neutral, and the "MAX" light is

based on motor power and gearing that provides smooth fluid trigger motion when driving.

LIM This is the current limiter. On a DC electric motor, torque is proportional to current flow. LIM regulates how much current can flow to the motor to control torque and excessive wheel spin. It also provides longer motor life by reducing burned brushes. The G11's exclusive fully digital current limiter provides precise, perfectly repeatable results every time. Set this limiter to a high value for normal driving, or to a low value to conserve battery power and motor life, or when driving on slippery surfaces. LIM may be adjusted from 10 to 90 amps, plus bypass (MAX). In the MAX mode, the current limiter is totally disabled and the speed control can pass the full short-circuit battery current.

NOTE: Setting the limiter to a value of 10 may not allow enough power for the motor to reach full RPM. In this case, increase the current limiter setting.

DRIVE FREQUENCY: Gives the user the option to switch the drive frequency. Lower frequencies are mainly used for stock motors to get more punch at low throttle and higher frequencies are mainly used for modified motors to reduce the punch at low throttle.

| LEDs ON | Drive Frequency (Hz) |
|---------|----------------------|
| 1 | 1250 |
| 1/ 2 | 2250 |
| 2 | 3250 |
| 2/3 | 4250 |
| 3 | 5250 |
| 3/4 | 6250 |
| 4 | 7250 |
| 4/5 | 8250 |
| 5 | 9250 |
| 5/6 | 10250 |
| 6 | 11250 |

*Increments of 1000 Hz.

BRAKE FREQUENCY: Gives the user the option to switch the brake frequency.

| LEDs ON | Brake Frequency (Hz) |
|---------|----------------------|
| 1/ 2 | 1500 |
| 2 | 3000 |
| 2/3 | 4500 |
| 3 | 6000 |
| 3/4 | 7500 |
| 4 | 9000 |
| 4/5 | 10500 |
| 5 | 12000 |
| 5/6 | 13500 |
| 6 | 15000 |

*Increments of 1500 Hz.

PIT TUNING: If you are in the pit area and do not have access to your transmitter, you may still make speed controller adjustments by following

this procedure: Hold down either MODE or INCR button while turning the power switch on. The settings and controls will be active, but the motor will not run and the speed control will not respond to receiver signals. If the steering servo continues to run, you will need to unplug the servo from receiver. Turn the speed control power off and back on to resume normal operation.

OPERATING TIPS

Listed below are a number of tips to ensure that you will get years of trouble-free performance from your Tekin speed control.

PROPER ON/OFF PROCEDURE
Always turn your transmitter on first and then turn on your speed control. At the conclusion of your run, simply reverse the above procedure.

BATTERY POLARITY
It is extremely important to ensure the battery pack is connected to the speed control properly. Connecting them backwards could cause severe damage to the battery pack and/or speed control.

DO NOT JAM GEARS
Avoid rapidly switching from forward to reverse. This will cause tremendous reduction in run time and excessive heat build-up.

RADIO INTERFERENCE
Try to keep the receiver at least 1-2 inches away from any motor or battery wires.

RECEIVER BATTERY
The built-in BEC (Battery Eliminator Circuit) is strong enough for 1 standard servo. If you are using a high power servo or over 7 cells, a separate receiver battery is needed.

RECEIVER BATTERY

NOTE: Optional
Connect a separate battery pack to the receiver using the "B" or "BAT" socket on the receiver. A small switch should be used on the receiver pack to operate the radio. The receiver pack should have no more than 5 cells. For operation turn on transmitter and turn on receiver switch. Leave the speed control switch in the OFF position.

TROUBLESHOOTING

The G11 series has a built-in self-test mode that checks all major systems on the speed control. Before using the self-test mode, be sure the rear wheels are free to spin. To activate the self-test, turn the speed control on, then press and hold both MODE and INCR buttons simultaneously for 3 seconds. After 3 seconds, the motor will run. The motor should accelerate to full throttle, and then the brakes should come on. This should happen 3 times. Other circuits inside the speed control are also tested. If the unit passes self-test then all the LEDs will flash simultaneously three times at the end of the cycle. A bad motor will cause the test

to fail. If the motor is known to be good, and still only one or so of the LEDs come on at the end of the test, there **may** be an internal problem.

Activating the self-test mode also resets all the mode selection and other set-up parameters to default values. The user's radio calibration settings do not change.
If the receiver does not supply a proper signal to the speed control, the speed control NEUTRAL LIGHT will blink. In this case, check the radio system.

SERVO AND THROTTLE DEAD

Dead batteries. Bad connections to speed control. Bad receiver plug connection. Customer-installed receiver plug is wired wrong. Switch needs replacing. Broken wires. Bad crystal, radio equipment or blown fuse.

SERVO WORKS, THROTTLE DEAD

Motor or connections to motor are bad. Motor brushes hanging up. Speed control not adjusted correctly. Receiver plug or connections are bad. TSC not plugged into throttle channel on receiver. THROTTLE WORKS, SERVO DEAD
Bad servo. Wiring of plug is bad or incorrect. STUTTERING UNDER HEAVY ACCELERATION

Receiver getting magnetic field interference. Try mounting receiver on its side and/or spacing it 3/16 inch up from the chassis. If this does not work, try mounting it on its other side. Move power wires away from receiver. Also, try wrapping the receiver in aluminum foil if it must be placed close to power wires.

MOTOR CUT OUT/RADIO INTERFERENCE /POOR RANGE

No capacitors or insufficient capacitors on motor: Try 2 sets of capacitors. Incorrect control wiring to receiver or servo. Transmitter batteries are low or radio out of tune. Three-wire cable from speed control to receiver may also be too long; 6 inches is the maximum. 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. Also try wrapping the receiver in metal foil. Try to keep the receiver away from the batteries, power wires, metal or graphite.

AUTOCOUNT NOT WORKING

Capacitors required on motor. Mount transponder at front of car away from batteries and wires. If these do not fix problems, replace with new autocount system.

MOTOR WILL NOT SHUT OFF OR RUNS SLOWLY

Moisture in speed control: Unhook batteries and let the speed control dry.

SPEED CONTROL SHUTS DOWN

Motor or capacitor shorted, or motor stalled. Motor diode shorted. Gears or transmission are

binding. Incorrect current limiter settings. Speed control overheating: More airflow needed. BRAKES DO NOT WORK AT ALL
Speed control improperly adjusted. Recalibrated. Also, be sure the brake adjustment on the transmitter is turned to maximum before calibrating.

REPAIR & SERVICE

Before sending your G11 in for service, please review the Instructions and Troubleshooting sections. After reviewing these instructions, if your G11 still requires service, please obtain the most current product service options & pricing by the following:

WEBSITE: (www.teamtekin.com) Follow the instructions from the Service Request section of our website.

PHONE/FAX: Contact our customer service department. WARRANTY SERVICE: For warranty work, you MUST CLAIM WARRANTY on PRODUCT SERVICE FORM & include a valid cash register receipt with purchase date and dealer name & phone# on it, or an invoice from previous service. If warranty provisions have been voided, there will be service charges.

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

Tekin, Inc.

McCall, Idaho

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www.teamtekin.com

WARRANTY

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 (fuse provides protection in most cases), 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) Incorrect wiring.
- 4) Use inconsistent with the instructions.

