WARRANTY

TEKIN ELECTRONICS, INC. guarantees this ESC to be free from factory defects in materials and workmanship for a period of 120 days from date of purchase, verified by sales receipt. This warranty does not cover; suitability for specific application, components worn by use, application or reverse 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 our liability exceed the original cost of the product. Additionally, these items void the warranty:

1. Using the same polarity connectors on the battery and motor wires from the Speed Control.
2. Wires or connections which are exposed and not insulated properly.
3. Not using TEKIN heatsinks when pulling more than 10 amps average current, such as on 1/10 scale cars.
4. Shorting the heatsinks or other wires.
5. Allowing water or moisture into the ESC.

By the act of using this Speed Control the user accepts all resulting liability.

TEKIN™

ELECTRONICS, INC.

TEMFET® SPEED CONTROLS

Electronically protected against motor shorts and overheating.

1/12th, 1/10th, 2wd, 4wd, Modified OVAL, DRAG.

OPERATING INSTRUCTIONS

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TEKIN SPEED CONTROLS

CASE SIZE	ESC300 PRO T		ESC600 PRO XT
	1.1" L x 1.5" W x .5" H		
WEIGHT Less Wires	1.2 oz.	1.2 oz.	1.2 oz
RESPONSE TIME	.018 SECOND		
EFFICIENCY	99.9% CURRENT		
POWER CONSUMPTION	.018 Amp LED On		
PEAK CURRENT RATING	720 Amp		900 Amp
VOLTAGE DROP 10 Amp Load	.03 V		.025V
TEMPERATURE DRIFT	Less than 1%		
VOLTAGE INPUT	4 - 10 Cells		
Continuous Current	240 Amps		300 Amps
PLUGS	FUTG, FUTJ, AIR, KO, KYOSHO		

All TEKIN ESC's are computer designed on a mainframe in the USA.
Assembled and computer tested in the USA.

MOUNTING

A Use double sided servo tape to mount. Position unit for maximum air-flow over the transistor (or heatsinks). Heatsinks, part #HS1300, are mandatory for all races less than 8 minutes, (or any model which pulls more than 10 amps average current) and are recommended for 8 minute races. When installing heatsinks **DO NOT USE SUPER GLUE** or any type of glue or damage can result. If heatsinks are too loose press end fins of heatsink inward against the table to increase tension. Also, sufficient airflow must be provided or the unit can overheat. Make sure the transistors (or heatsinks) are away from any metal where a short could occur.

B Mount switch with servo tape, contact cement, or silicone glue. **DO NOT USE SUPER GLUE.**

C Special mounting notes. On RC10 cars mount ESC in the pan and put the receiver and antenna on the shock tower to avoid radio glitches.

HOOK UP

AA Use extreme caution when installing and using your Speed Control, as extensive damage can easily be done. See your dealer if you need assistance.

A The Speed Control supplies power to the receiver and servo. No additional power supply should be used for the receiver. Make sure the battery plug of the receiver is disconnected. If receiver has B.E.C. to not use receiver's B.E.C. Be careful to avoid turning on the radio when the batteries are charging.

B Plug the 3 wire harness from the Speed Control into the throttle channel of the receiver. The ESC supplies a regulated 6 volts for receiver and servo when running on 4 to 10 cells. The regulator puts out enough current for one servo maximum. **4 Cell Option;** run a jumper wire from the black switch wire to the red receiver power wire in order to bypass the regulator. Do not connect to more than 4 cells after doing this. This modification is required for proper 4 cell operation. It bypasses the internal B.E.C.. It causes the power to run stronger up until the end of the charge, **or** if the ESC has a 2 wire pigtail coming out then connect the 2 wires and put tape over joint.

C The ESC Pro-T and Pro-XT Tempfet Speed Controls do not use a fuse.

D Wires should be connected as follows; the black wire from the Speed Control to the negative (−) battery; the light blue wire from the Speed Control to the negative (−) motor; one red wire from the Speed Control to the positive (+) battery, and another red wire to the positive motor. Be sure to use large wires or they can melt. To get maximum power to the motor keep the wires as short as practical. If plugs are used be sure there will not be any exposed pins from the Speed Control if the motor is unplugged.

SPECIAL INSTRUCTIONS FOR ESC 600 (X). The X model has special selected and matched mosfets, as well as heavier wires for oval and high power applications: The X model only has one large red wire running out of it. This should be connected to the positive battery. Run another red

wire from the positive battery directly to the positive motor, this gives maximum power to the motor.

E If the receiver plug on the Speed Control does not fit your receiver you will need to supply a plug that does. Cut the existing plug off the Speed Control and splice yours on. For Airtronics radios wire (pin) #1 is signal and goes to the white (or blue or yellow) wire, #2 goes to the black wire and #3 is the red (+) wire. If you have a KYOSHO/PULSAR radio then use a FUTABA "J" type connector on the Speed Control and trim the small tab off with an x-acto knife to fit. The total length of this wire should be 6" or less. Incorrect wiring voids warranty.

TRANSMITTER ADJUSTMENTS

A Adjust transmitter as follows:

MAGNUM JUNIOR: (refer to Futaba FP-2PK instructions)

1. Set mechanical throttle neutral adjuster to position 2 as per Fig. 5.
2. Set throttle trim knob to either position 5. Do not adjust again.
3. Set throttle ATV high pot to 10.
4. Set throttle ATV low pot to 6. This is the adjustment you use for more or less brakes, not throttle trim.

MAGNUM SENIOR: (refer to Futaba FP-3PG instructions)

1. Set throttle neutral adjuster to position 2 as per Fig. 3.
2. Set brake trimmer knob to minimum.
3. Set throttle high side trim knob to maximum.
4. Set throttle exponential knob to minimum.

FUTABA MAGNUM PCM1024

1. Set channel 2 reversing switch to reverse (up).
2. Set throttle sub trim pot to 0.
3. Set throttle trim to neutral.
4. Set throttle ATL pot to position 10.
5. Set throttle ATV low and high pots to 10.
6. Set throttle exponential pot to 10.
7. Set mechanical throttle neutral adjuster to ⅓.

PULSAR EXP 2001

1. Set throttle reversing switch to normal (to the right).
2. Set throttle EPA to HI (fully clockwise).
3. Set throttle EPA to LOW (fully clockwise). Use for brake adjustment.

KRAFT KB2KW & KO PROPO:

1. Set the high and throttle trim adjustments to maximum.
2. Set throttle exponential to minimum.
3. Set brake trim to minimum.

AIRTRONICS XL2P:

1. Set brake trim to HI. This gives zero brakes.
2. Set throttle EPA high and low adjustments to maximum.

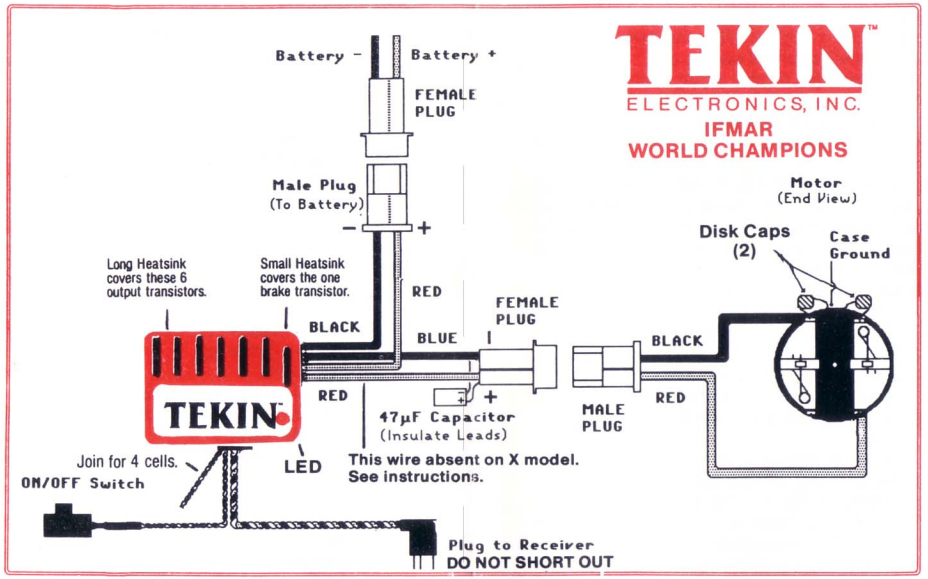
OTHER TRANSMITTERS:

The transmitter adjustments should be similar to one of the above.

B It is recommended that you disengage the drive wheels (or propeller) from the motor before adjusting. This helps prevent any accidents.

C Turn on the transmitter and Speed Control.

D Rotate the neutral (N) pot on the Speed Control until the motor just stops. If you rotate the pot a little more the


TEKIN™
ELECTRONICS, INC.
IFMAR
WORLD CHAMPIONS
Battery −
Battery +
FEMALE
PLUG
Male Plug
(To Battery)
− +
Motor
(End View)
Disk Caps
(2)
Case
Ground
Long Heatsink
covers these 6
output transistors.
Small Heatsink
covers the one
brake transistor.
RED
FEMALE
PLUG
BLACK
BLUE
BLACK
TEKIN
RED
+
47µF Capacitor
(Insulate Leads)
MALE
PLUG
RED
Join for 4 cells.
ON/OFF Switch
LED
This wire absent on X model.
See instructions.
Plug to Receiver
DO NOT SHORT OUT

LED will start to come on, indicating that the brakes are coming on. Use a 3/32" or 1/8" screwdriver (Phillips or straight type will work) and exercise care.

E Advancing the throttle slightly should cause the throttle to come on. If not, flip the throttle reversing switch on the transmitter and repeat step D.

F Adjust the throttle brake trim on the transmitter to maximum.

G Advance the throttle on the transmitter, then adjust the throttle (T) pot on the Speed Control until the LED suddenly comes on bright, then increase a little more. The LED should go out when the transmitter trigger is about 1/8" from full throttle.

H Adjust the brakes with the transmitter brake trim. If more brakes are required adjust the neutral (N) pot on the Speed Control toward "B" slightly. As brakes are applied the LED will come on brighter. When the throttle is on the LED will go out, except when full throttle is reached, when it will come on solid. The LED is more precise than digital voltmeters and is your guarantee that you are reaching full throttle.

I Feel free to readjust as required for best operation, then place a piece of tape over the holes.

J ADVANCED TUNING. This ESC has sophisticated feedback from the motor to smooth out the throttle response, thereby giving more quicker, consistent laps and longer running time. If desired it is possible to tune the mid-range as follows. For broader midrange response turn the throttle throw on the transmitter up to maximum and set the

transmitter trigger for increased throw if you have a mechanical adjustment on the trigger. Then readjust the ESC to the transmitter. For quicker, tighter midrange response turn the transmitter high speed throw to minimum, and set the trigger for less travel if it adjusts, then retune the ESC for these transmitter settings.

OPERATION

A Heatsinks are recommended, but not required for 1/12th scale use (8 minute races). For 1/10th scale on road and off road use they are mandatory. If running 7 cell off road with a hot modified motor it is mandatory to have a direct airflow on the heatsinks. The air should flow between the heatsink fins, not just over them. It is the user's responsibility to make sure adequate cooling is provided. On Tempfet® Speed Controls the throttle (or brake) will shut off if enough cooling is not available. It will resume when the unit cools slightly. It is recommended that the brake heatsink be used at **all times.**

B The unit must not be allowed to get wet. Any moisture will adversly effect operation and can result in damage. If the unit gets wet disconnect the battery and allow to dry 24 hours. Do not use **ANY** type of chemical cleaners on the inside of the unit.

C When installing heatsinks disconnect the battery. The heatsinks must not be allowed to touch any wires. The offset brake transistor must not come in contact with any of the six power transistors.

D Use with 4 to 10 nickle cadnium cells.

E The motor must have 3 capacitors on it to prevent glitches. The large round capacitor (47uf) supplied goes across the two motor power wires. Be sure to note the polarity, it is marked on the side of the capacitor. Place the capacitor as close to the motor brushes as possible. A small disc type goes from the negative motor wire to the can and another from the pos motor wire to the can.

F Replacement switches are available, part #RS425. A replacement fuse, capacitor, is also available, #CK350.

G To run a separate receiver, servo(s), battery, cut the small red wire in the three wire cable coming from the speed control and going to the receiver. Plug the battery into the BAT socket on the receiver and use a seperate switch. Doing this will help eliminate radio interference and allows you to use up to 10 cells on the Speed Control (as long as it is not overheated), and 6 servos.

H A receiver power cell (#PC1200) is available that extends running time an extra 2 - 5 seconds, and helps reduce glitches. To install you need to supply an extra connector to fit your receiver. Plug it into the battery socket and solder the red and black wires to the power cell (either way). Cut the white wire off.

TROUBLESHOOTING

1 SERVO AND THROTTLE DEAD:
Batteries dead, bad connections to Speed Control, receiver plug connection bad, customer installed receiver plug wired wrong, switch needs replacing, broken wires, bad crystals or radio equipment.

2 SERVO WORKS, THROTTLE DEAD:
Motor bad, bad connections to motor, motor brushes hang ing up, Speed Control not adjusted correctly, receiver plug or connection bad, ESC not plugged into throttle channel on receiver. Tempfet circuit activate . Switch ESC off then back on.

3 THROTTLE WORKS, SERVO DEAD:
Servo plug or wiring bad or incorrect, servo bad.

4 MOTOR CUT OUT OR RADIO INTERFERENCE:
No capacitors on motor, Speed Control wiring to receiver or servo incorrect, optional power cell required, #PC1200. Transmitter batteries low, radio out of tune. Also, 3 wire cable from Speed Control to receiver to long, should be 6" maximum. Tips; this ESC radiates less than 1/10 the noise of most popular ESC's, and you should have no trouble, but if you do then mount the ESC in the pan and the receiver at the top of the shock tower. Mount antenna at top of shock tower too. Do not run antenna along a metal or graphite chassis, it should exit receiver and then go straight up. Keep receiver and antenna away from motor.

5 MOTOR WON'T SHUT OFF, RUNS SLOWLY:
Moisture in Speed Control. Disconnect battery and let dry.

6 TEMPFET® ESC SHUTS DOWN:
Motor shorted or stalled, something else shorted. Gears or transmission binding. Heatsinks needed, more airflow needed.

7 BRAKES DON'T WORK AT ALL:
Inproper ESC adjustment, Damaged ESC.

REPAIRS

This electronic Speed Control is the most advanced unit available and we believe also the most reliable. As long as it is not abused it can last literally 5 years of frequent service. In the rare event you do have a problem, you may proceed as follows.

WARRANTY: Hobby dealers and distributors are not authorized to replace units thought to be defective. Repairs must be returned directly to the factory. A sales receipt must be enclosed. If unit is working properly and you just want it checked over there will be a small inspection charge.

NON WARRANTY repairs may be sent directly to the factory. We are not responsible for independent service stations. No estimate is provided. Customer assumes res ponsibility for charges, which will never exceed 50% of the list price. Repairs are returned via UPS/COD/CASH. You must enclose a note stating the problem, the legible return address, any special shipping instructions. We can not return units to a P.O. Box unles payment is sent with ESC. Please allow sufficient shipping time, up to 2 weeks. **Hobby Dealers** will not replace units thought to be defective, these units must be returned directly to TEKIN ELECTRONICS, INC. for repair. Repair prices are as follows; flat rate labor $5.00, replace wires $3.00, replace switch $4.00, replace plug $4.00, repair brakes $3.00, COD $2.50, 2 day return shipping $3.00, next day return shipping $12.00. Most repairs are shipped back out within 3 working days. Rates subject to change. Sorry, we do not repair non-TEKIN ESC's.

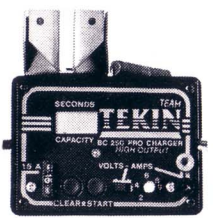
SEND REPAIRS TO:

TEKIN ELECTRONICS

970 CALLE NEGOCIO, SAN CLEMENTE, CA 92672

Optional high capacity heatsinks available. Provides 60% more cooling than standard units. For very high power motors, prevents premature shut down of Tempfet ESC's. Increases power and braking. (Part #HS1800)

HIGH OUTPUT CHARGERS 2-9 AMPS MORE POWER WITH SCR CELLS



BC250 PRO CHARGER
LCD digital charge capacity meter. Measures actual charge going into battery while charging pack, calibrated in seconds at 10 amps. LDI circuitry and double deck PC board for compact size. Volts/amps output jacks, 4-8 cells 250-1700 mah, 2-9 amps adjustable. Estimates running time and battery capacity.

NEW BC100 PEAK CHARGER
New BC100 is similar to BC870, but has 2-9 amps adjustable output current. Provides the ultimate peak charge and voltage and is highly recommended for SCR Sanyo cells to extract the maximum power. Also great to get charged in a hurry.