



Owners Manual

FETroller.2-4 Standard (voltage Reduction) and E-Wire Choke models

Fully Electronic Controller with 3rd Eye's exclusively designed
"All FET Design" Motor Drive "FETDrive" and Brakes "FETBrakes"
"Selectable Throttle Curve Controls" Cooling Fan, No Fuses Required
VR Model -- Electronic Choke with, On/Off Switch and (FTB) Bypass
E-Wire Model -- Electronic Wire Choke with On/Off and 3-20ft Switch and 20-30ft Switch

Keep Precision Resistor Clean (using a DRY Q-Tip)!

Hooking Up the FETroller.2

- The FETroller.2 is ONLY for use on **tracks wired for POSITIVE POLARITY (brake wired to "- side of battery)**. Verify the polarity of the track prior to use. **DO NOT attempt to connect the FETroller.2 to a track wired for negative polarity or to Drag or HO tracks.**
- **ALL** power leads must be connected to the correct colored terminals. Failure to do so may cause unnecessary tripping of re-settable fuses and reduce the life of the FETroller.2.
- When connecting the power leads, **ALWAYS connect the Red power lead first!** The Red lead must remain connected at all times. In the event the lead is not hooked up, the FETroller.2 will supply full power and the car will take off.
- Once the controller is hooked up, verify the FETroller.2 has power – the **blue** LED should be on/visible.

WARNING

ABSOLUTELY NO EXCEPTIONS - Third Eye Technology has taken reasonable measures to prevent FETroller.2 damage in the event of polarity reversal with resettable fuses. However, Third Eye Technology **does not warrant the FETROLLER.2 against abusive and/or repeated intentional polarity reversal. It is important to ensure the FETROLLER.2 is hooked up correctly at all times.**

Sensitivity Adjustment (Blue Control Knob)

- The **blue** knob is the **Sensitivity** adjustment. Turn the knob clockwise for less sensitivity, and counter-clockwise for greater sensitivity.
- A cluster of 4 small "DIP" (slide) switches is located on the side of the handle – these are **Throttle Curve Switches**. Setting a switch in the up position softens the bottom portion of the throttle curve. The switches have an additive effect - they all have the same weight and can be set in any order. Setting all four (4) switches in the up position will result in the "softest" throttle curve.
- (Option) The red "Mush" Button located at front of the handle when pressed, decreases the Sensitivity to minimum regardless of the sensitivity setting to allow cars to roll through glue.

Brake Adjustment (Red Control Knob)

- The **red** knob is the Brake adjustment.
 - Turn the knob clockwise for less Braking effect (car will "roll" further before coming to a complete stop)
 - Turn the knob counter-clockwise for greater Braking effect (car will "roll" less before coming to a complete stop)

4 position Dip Switches

A cluster of 4 slide switches located on the side of the handle is the **Throttle Curve Switches**. Setting a switch in the up position softens the bottom portion of the throttle curve. The switches effects are additive, they all have the same weight and be set in any order, with all 4 switch up has 4 times the effect.

Electronic Voltage Reduction Choke Control (Yellow Knob)

- The Electronic Choke Control provides racers with additional adjustments to fine-tune FETroller.2 behavior.
- The Choke On/Off Switch in the down position turns the Choke Off. When the switch is in the up position, the Choke is On.
- The **Yellow** knob is used to adjust the Choke (voltage reduction).
 - When the Choke On/Off switch is in the ON (up) position, turning the **Yellow** knob clockwise will reduce the amount of battery voltage which the controller passes to the track
 - When the Choke On/Off switch is in the ON (up) position, the Full Throttle Bypass (FTB) switch described below will further determine how the Choke behaves
- The Choke FTB Switch (Full Throttle Bypass) works in conjunction with the Choke On/Off switch. The Choke On/Off switch must be in the ON (down) position for the FTB Switch to have any effect.
 - When the FTB Switch is in the down position (FTB OFF), the **Yellow** knob adjustment is in effect at all times. For example, if you've used the **Yellow** knob to dial out some track voltage, the reduction is in effect around the entire track (even on the straights).
 - When the FTB Switch is in the up position (FTB ON), the **Yellow** knob adjustment is ONLY in effect when the controller is NOT at full throttle. When the controller is at full throttle, the Choke setting is "bypassed" and full battery power is passed to the track. This setting is particularly helpful if you want to dial out some track voltage to improve performance in corners or technical sections but still want full power/speed when at full throttle (e.g. straight sections).

E-Wire Electronic Wire Choke (Green Knob)

- When the Choke switch is in the ON (up) position the choke is initially set to 3-20ft
- The **Green** Knob is used to adjust the Choke Feet, , turning the **Green** knob clockwise the increase the number of Choke Feet, adding more Choke.
- When the Choke Switch is in the ON position and then the 40ft Switch is in the ON (up) position the Choke operates from 20Ft-40Ft.
- The **Green** Knob is used to adjust the Choke Feet, , turning the **Green** knob clockwise the increase the number of Choke Feet, adding more Choke.

Mush Button Installation

- The mush button is not standard and is a user installed option. Radio Shack P/N **275-1547**.
- Using a step drill, drill a ¼ inch hole into the front of the front cover near the throttle resistor area, allowing clearance so the button does not make contact with other components.
- There are 2 large pads at the back of the handle marked "Mush". Solder wires onto the 2 pads then connect the other wire ends to the Mush Button.

Reverse Polarity/Incorrect Hook-up

It is extremely importance the unit be hooked up correctly – this is a prerequisite of being a qualified racer. In the event the unit is hooked up incorrectly the unit will self –protect, by the time the connections are corrected the internal fuse will reset and operation will be normal.

If the Red Wire is not hooked up, the car will have no brakes and no full power. If the track's brake fuse is blown, the same condition will occur.

CARE AND MAINTENANCE

The **FETroller 2** is a precision electronic instrument and should be treated accordingly. To ensure optimal performance, follow the steps described below.

Do NOT:

- Throw or misuse or abuse the FETroller2 in any way.
- Carry the FETroller2 by the handle draped over the neck or place excessive strain on the entire assembly.
- Pull the power leads from the track terminals. Always disconnect the power leads one-at-a-time by "opening" the alligator clip.
- **Under any circumstances oil/lubricate the precision resistor or wiper button.**
- Cut away the FETroller2 handle. The precision resistor must remain protected from damage, dirt and debris!
- Perform maintenance on the FETRoller2 with the power applied.
- For any reason disassemble the Power box. There are no user serviceable components inside.

***** Important *** Keep Precision Resistor Clean (using a DRY Q-tip)!**

Maintaining the FETroller 2

***** Warning *** - Never use solvents/cleaning fluids other than Motor Spray (such as PURE contact cleaner for slot cars) to clean the Precision Resistor. Use only in extreme cases – a DRY Q-Tip will suffice for routine cleaning.**

The FETroller 2 requires minimal maintenance to achieve optimal performance:

- **Handle Hardware (Required) – Do not lose the spacer at the front of the back cover or the #4 washer and nylon spacer that set over the trigger stop screw at the front of the handles circuit board. If these parts are missing “Trigger to Hang-Up” can occur due to PC board misalignment.**
- Whenever the Precision Resistor shows evidence of “tracking” (discoloration across the face of the Precision Resistor where the Wiper Button travels), cleaning is recommended.
- Use a **DRY** Q-tip to clean the precision resistor – move the Q-tip up/down (same direction as resistor windings). NEVER use any type of liquid/chemical other than motor spray!
- Occasionally place a drop of light oil on either side of the trigger bushing.

Trigger Arm Adjustment Initial and periodic maintenance is necessary (Perform the below procedure before contacting 3rd Eye for repairs).

##Trigger Button Break-In Period##. Follow the below procedure:

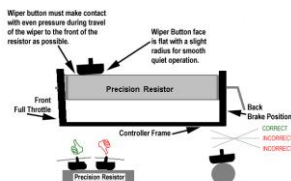
When the trigger is new, the Trigger Button needs use to become fully seated to provide smooth trigger action. Sometime after use the trigger will become scratchy. When this occurs, the button will require sanding to smooth the operation. Several sandings may be required to achieve longer-term smooth operation.

The Trigger Arm Button must remain in contact and track correctly across Precision Resistor at all times in order to function properly. Indications of an improperly adjusted trigger are inconsistent Trigger response or a scratchy/rough feeling when the Trigger is pulled during various points of throttle travel including reasonable side pressure on the Trigger (the car stutters or is inconsistent or inoperative).

If the Button and Trigger Arm are in good condition perform the following steps as necessary. **This function provides smooth and quiet Trigger operation and is a critical for maximum performance.**

Caution -- Use extreme care when around the throttle resistor, do not use sharp objects, damage may occur. In the event the throttle resistor is damaged, replacements are not available and repair by 3rd Eye will be necessary.

1. Remove the three (3) screws/nuts, which hold the 2 halves of the handle together. Carefully remove the Printed Circuit Board (PCB), which includes the Trigger assembly.
2. With the return spring installed, Adjust the Button tension on the Precision Resistor, by SLIGHTLY bending the Trigger Arm **near the base** (where it is already bent) to increase the tension or pulling LIGHTLY on the arm at the button to decrease the tension. Keep in mind that the Button **must** track at a slight angle with the Precision Resistor as illustrated below. If not, use your fingers to SLIGHTLY (carefully) bend the Trigger Arm until proper alignment is achieved.
3. Verify that proper tension is achieved when the Trigger slides across the Precision Resistor easily. Also, check when the trigger is slowly released and comes to rest, it must easily and repeatedly make contact with the Brake Stop. It may be necessary to repeat step 1. Note: **This portion of the operation is critical.**
4. Remove the Return Spring then “Pre-seat” the Trigger Button by placing slight pressure on the trigger button then cycling the button across the Precision Resistor until tracking occurs on the resistor. Blow off the tracked material.
5. Re-connect the return spring then carefully insert a 1”x3” piece of 400-600 grit sand paper between the Precision Resistor and Button length wise to the Resistor with the abrasive side facing toward the Button (AWAY from the resistor).
6. Holding the sandpaper in place and by pulling on the Trigger, cycle the Trigger Button across the full travel of the Resistor a number of times until the sand paper is loaded, then move the sand paper slightly and repeat.
7. Verify that the Trigger action is very smooth, all stops contacts and trigger travel/alignment is correct.
8. Check to see that under normal side thrust does not cause the Trigger Button to lift away from the Precision Resistor.
9. Carefully put the PCB in the Handle and re-assemble.
10. Apply power to the FETroller 2 and verify everything is functioning properly.



Any questions about products, repairs, or Track Sales locations contact Third Eye Technology (How at E-mail justin@thirdeyecontrollers.com