

# GT Micro

#55-1875-1  
1-2005

NOVAK



## NOVAK'S High-Power Micro Racing ESC is here

...and the **Micro GT** is its name. Designed with the same ultra-powerful surface mount technology as the World Champion GTX programmable racing ESC (*electronic speed control*), the Micro GT will get the most performance from your 1/18th or 1/24th scale vehicle.

The Micro GT is capable of handling 4-7 cells and any sub-540 size motors that are used in 1/18th & 1/24th scale Micro R/C cars, and comes loaded with all the standard features found in Novak's award winning line-up of ESCs:

**Novak's One-Touch Set-Up** is the **original** & still the easiest way to program your ESC to your transmitter.

**Built-in B.E.C.**--no need for external receiver pack.

**Radio Priority Circuitry** means you'll never lose steering control under low battery operation.

**Polar Drive Technology** keeps the electronics cool, and also improves radio system performance.

**Thermal Overload Protection** for those extreme situations.

## PRECAUTIONS

- **WATER & ELECTRONICS DON'T MIX!** Do not operate model in or around water. Never allow water, moisture, or other foreign materials to get inside the ESC.
- **MICRO SIZE MOTORS ONLY** Use only motors that are intended for use with 1/18th scale or smaller R/C cars. Not intended for 540 size motors.
- **4 TO 7 CELLS ONLY** Never use fewer than 4 or more than 7 cells (4.8-8.4 volts DC) in the main battery pack.
- **NO REVERSE VOLTAGE!** Reverse battery polarity can damage speed control—Disconnect battery immediately.
- **DISCONNECT BATTERIES WHEN NOT IN USE** Always disconnect battery from ESC when unattended or not in use to avoid possible short circuits. Even if switch is off, MOSFETs may fail & cause shorting of battery pack that could result in fire or burning of ESC & surrounding objects.
- **TURN TRANSMITTER ON FIRST** Turn on transmitter before ESC so you will have control of the radio equipment.
- **INSULATE WIRES** Always insulate exposed wiring with heat shrink tubing or electrical tape to avoid short circuits.

## Micro GT SPECIFICATIONS

Input Voltage .....	4-7 cells (1.2VDC/cell)
Motor Size Limit .....	sub-540 size (smaller than 540)
Rated Current (fwd/brake) .....	450A/150A (Trans.rating@25°C)
On-Resistance .....	0.00056 ohm (@Transistors)
B.E.C. Voltage .....	5.0 volts DC
B.E.C. Current .....	0.5 amp
PWM Frequency .....	1000 Hertz
Protection .....	Thermal Overload
Case Width .....	0.95 inch (24.1mm)
Case Depth .....	1.12 inches (28.4mm)
Case Height .....	0.48 inch (12.1mm)
Weight .....	0.51 ounce (14.4 grams)
Part Number .....	1875

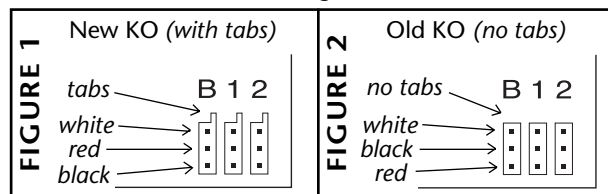
## STEP 1 CHANGING INPUT HARNESS

The Micro GT ESC comes with the industry-standard receiver input harness connector & **works with all major radio brand's new receivers**. However, some very old receivers must have the wiring sequence in the plastic 3-pin connector housing changed. **This is important, because receiver & servo electronics may be damaged if the sequence is incorrect.** Changing the sequence is easy to do, as described below.

### JR • Hitec • New KO • Airtronics Z

**JR, Hitec, Futaba, new KO, & Airtronics Z receivers do not need input harness re-wiring.** Airtronics Z receivers have blue plastic cases & new KO cases have tabs on the input harness openings as in Figure 1.

- Insert the input plug into the receiver with the **BLACK wire toward the outside edge** of the receiver case.



### Old-style KO • Old-style Sanwa/Airtronics

If you have an older KO or Sanwa/Airtronics, you must change the sequence of the ESC's input harness wires--*Old Sanwa/Airtronics cases are black color & Old KO cases do not have the tab openings, as in Figure 2 above.*

- **Interchange the red and black wires** in the plug plastic of the ESC's input harness as shown below.
- Insert the input plug into the receiver with the **RED wire toward the outside edge** of the receiver case.



## STEP 2 MOUNTING ELECTRONICS

### 1. DETERMINE BEST ESC MOUNTING LOCATION

The ESC should be positioned away from the receiver and antenna as shown in the Set-Up photo below. Choose a mounting position that will keep the power wires from obstructing movement of suspension or the motor pod.

### 2. INSTALL SPEED CONTROL

Use the included double-sided tape to mount the ESC.

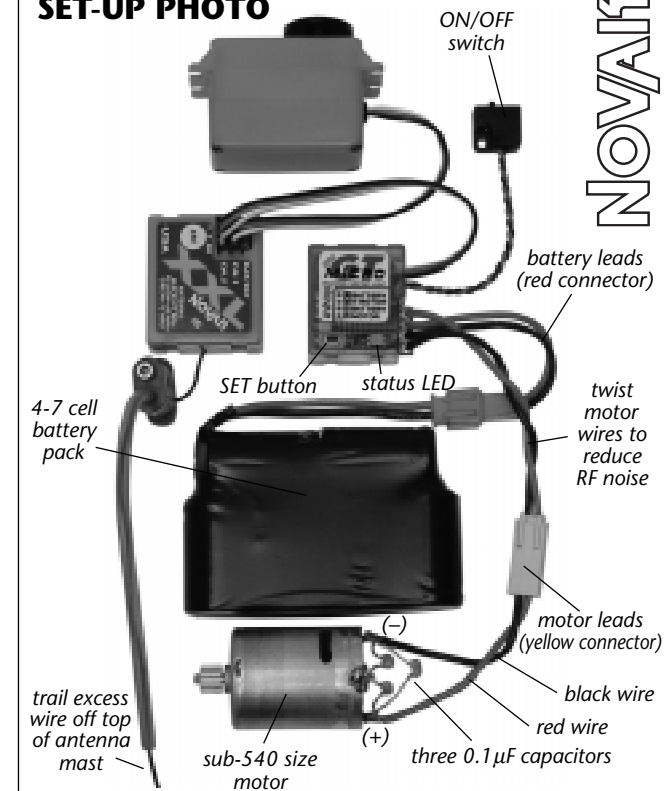
### 3. INSTALL ON/OFF SWITCH

Determine a convenient place to mount the switch where it will be easy to get to. Mount the switch using a piece of double-sided tape or with a screw through the hole in the base of the switch housing.

### 4. INSTALL RECEIVER

Mount the receiver as far from the motor, power wires, battery, and servo as possible. These components all emit radio noise when the throttle is being applied. On graphite or aluminum, place the receiver on edge with the crystal and antenna as far above the chassis as possible. Mount the antenna close to the receiver and trail any excess wire off the top of the antenna.

## SET-UP PHOTO



## STEP 3 CONNECTING ELECTRONICS

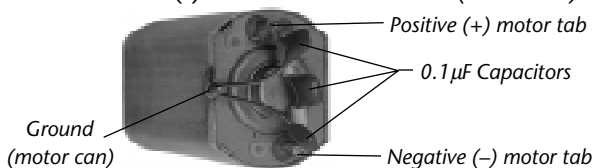
Refer to Set-Up photo on front

### 1. CHECK MOTOR CAPACITOR INSTALLATION

Electric motors generate radio noise that can interfere with your receiver and cause radio problems. Three 0.1µF (50V) non-polarized, ceramic capacitors are included and *must be installed* on every motor to help reduce the noise generated by the motor and to prevent ESC damage. If your motor does not have all 3 capacitors shown below, they must be added (*0.1µF capacitors are also available in Novak kit #5620*).

0.1µF (50V) capacitors should be soldered between:

- POSITIVE (+) motor tab & NEGATIVE (-) motor tab.
- POSITIVE (+) motor tab & GROUND (motor can).
- NEGATIVE (-) motor tab & GROUND (motor can).



### 2. NO EXTERNAL SCHOTTKY DIODE IS REQUIRED

The Micro GT speed control does NOT require an external Schottky diode.

### 3. CONNECT SPEED CONTROL TO THE RECEIVER

After the proper input plug plastic has been installed to match the receiver (Refer to Step 1), plug the speed control into the **THROTTLE CHANNEL (#2)** of the receiver.

### 4. CONNECT SPEED CONTROL TO THE BATTERY PACK

Plug the **RED** Micro connector from speed control into a 4 to 7 cell battery pack (1.2 volts DC/cell).

*\*Note: Use of non-OEM Micro connectors voids warranty.*

### 5. CONNECT SPEED CONTROL TO THE MOTOR

Plug the **YELLOW** Micro connector from speed control into the connector on the motor.

*\*Replacement battery/motor leads w/Micro connectors available in Novak kit #5330.*

*TIP: Twisting the motor wires once or twice as they go to the motor can help reduce any radio noise emitted from the wires.*

## CUSTOMER SERVICE

Monday-Thursday: 8:00am-5:00pm (PST)

Friday: 8:00am-4:00pm (closed every other Friday)

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## STEP 4 TRANSMITTER ADJUSTMENTS

1. Set **HIGH ATV** or **EPA** to **maximum** setting.

*[Amount of throw at full throttle]*

2. Set **LOW ATV**, **EPA**, or **ATL** to **maximum** setting.

*[Amount of throw at full brakes]*

3. Set **EXPONENTIAL** to **zero** setting.

*[Throttle channel linearity]*

4. Set **THROTTLE CHANNEL REV. SWITCH** to **either** position.

*[Do not change switch position after programming]*

5. Set **THROTTLE CHANNEL TRIM** to **middle** position.

*[Adjusts neutral position/Increases or decreases coast brakes]*

6. Set **ELECTRONIC TRIGGER THROW ADJUSTMENT** to **70% throttle** and **30% brake** throw (or 7:3).

*[Adjusts trigger throw on electronic/digital pistol-grip transmitters]*

7. Set **MECHANICAL TRIGGER THROW ADJUSTMENT** to position with **2/3 throttle** and **1/3 brake** throw.

*[Adjusts trigger throw on mechanical/analog pistol-grip transmitters]*

•NOT ALL TRANSMITTERS HAVE THESE ADJUSTMENTS•

## STEP 5 PROGRAMMING SPEED CONTROL

With ESC connected to receiver & charged battery pack:

1. **TURN ON THE TRANSMITTER, THEN SPEED CONTROL**

2. **PRESS AND HOLD SPEED CONTROL'S SET BUTTON**  
With transmitter throttle at neutral, press and hold the **ESC SET** button until the status **LED turns solid red**.

3. **RELEASE ESC SET BUTTON WHEN LED IS RED**

4. **PULL TRANSMITTER THROTTLE TO FULL-ON POSITION**

Hold it there until the status **LED turns solid green**.  
*NOTE: Motor will not run during programming even if connected.*

5. **PUSH TRANSMITTER THROTTLE TO FULL-REVERSE**

Hold it there until the status **LED blinks green**.

6. **RETURN TRANSMITTER THROTTLE TO NEUTRAL**

Status LED will turn solid red, indicating that throttle is at neutral and proper programming has been completed.

*If transmitter settings are changed, programming must be repeated.  
If you experience any problems, turn off ESC and repeat programming.*

## PRODUCT WARRANTY

The Micro GT is guaranteed to be free from defects in materials or workmanship for a period of 120 days from original date of purchase (*verified by dated, itemized sales receipt*). Warranty does not cover incorrect installation, components worn by use, damage from using fewer than 4 or more than 7 cells (1.2 volts DC/cell) input voltage, cross-connection of the battery/motor, using the same-gender connectors on ESC, not using OEM Micro connectors or using 540-size of larger motors, reverse voltage application, damage resulting from thermal overload, not installing three 0.1µF (50V) capacitors on motors, splices to input or switch harnesses, damage from disassembling case, replacing wires, or excessive force when using SET button, tampering with internal electronics, allowing water, moisture, or other foreign material to enter ESC or get onto PC board, incorrect installation/wiring of battery/motor leads, alternate input plug plastic, external receiver battery pack, or FET servo, allowing exposed wiring to short-circuit, leaving battery pack connected to ESC while unattended or for extended periods of time, or any damage caused by crash, flooding, or act of God.

In no case shall our liability exceed the product's original cost. We reserve the right to modify warranty provisions without notice.

Because Novak Electronics, Inc. has no control over connection and use of the ESC, no liability may be assumed nor will be accepted for damage resulting from the use of this product. Every ESC is thoroughly tested and cycled before leaving our facility and is, therefore, considered operational. By the act of connecting/operating ESC, the user accepts all resulting liability.

## TROUBLE-SHOOTING GUIDE

### Steering Channel Works But Motor Will Not Run

- Speed control has thermally shut down—Allow ESC to cool down—Use milder motor or smaller pinion gear—Check vehicle's drive train for free operation.
- Check motor connections. Check motor.
- Make sure ESC is plugged into the throttle channel (#2) of receiver. Check throttle channel operation with a servo. Check wiring color sequence of receiver signal harness.
- Possible internal damage—Refer to Service Procedures.

### Receiver Glitches/Throttle Stutters During Acceleration

- Motor capacitors broken or missing—Refer to Step 3.
- Receiver or antenna too close to speed control, power wires, battery, or motor—Refer to Step 2.
- Bad connections—Check wiring and connectors.
- Motor brushes worn—Replace/rebuild motor.
- Excessive motor current—Use milder motor/smaller pinion gear.

### Motor and Steering Servo Do Not Work

- Check wires, receiver signal harness wiring & color sequence, radio system, crystals, battery/motor connectors, & battery pack.
- Possible internal damage—Refer to Service Procedures.

### Model Runs Slowly/Slow Acceleration

- Check motor and battery connectors—Replace if needed.
- Bad battery or motor—Check operation with another.
- Incorrect transmitter/ESC adjustment—Refer to Steps 4 & 5.

### Motor Runs Backwards

- Motor wired backwards—Check wiring and reverse.

### ESC Is Melted Or Burnt/ESC Runs With Switch Off

- Internal damage—Refer to Service Procedures.

*\*For more assistance call our Customer Service Department or check our website.*

## SERVICE PROCEDURES

*Before sending your speed control in for service, review the Trouble-Shooting guide and the instructions. ESC may appear to have failed when other problems exist.*

After reviewing the instructions, if you feel that your ESC requires service, please obtain the most current product service options and pricing by one of the following methods:

**WEBSITE:** Print a copy of the **PRODUCT SERVICE FORM** from the SERVICE section of the website. Fill out the needed information on this form and return it with the Novak product for servicing.

**PHONE/FAX:** If you do not have access to the internet, please contact our customer service department by phone, or fax as listed in the CUSTOMER SERVICE section below, and they will supply you with current service options.

**WARRANTY SERVICE:** For warranty work, you **MUST CLAIM WARRANTY on the PRODUCT SERVICE FORM** and include a valid cash register receipt with purchase date on it, or an invoice from previous service work. If warranty provisions have been voided, there will be service charges.

### ADDITIONAL NOTES:

- Dealers/distributors are not authorized to replace Novak products thought to be defective.
- If a hobby dealer returns your Novak product for service, submit a completed **PRODUCT SERVICE FORM** to the dealer and make sure it is included with the product.
- Novak Electronics, Inc. does not make any internal electronic components (*transistors, resistors, etc.*) available for sale.