STEP 5. ADVANCED PROGRAMMING - NOTE: ADVANCED USERS ONLY.

Depending on your driving style or the track surface you are running on, you may want to adjust the profile of the G2. There are 8 parameters that can be modified to fine tune the G2 to your specific preferences using the included pit card.

- *Battery selection(Auto NiCAD/NiMH - 4cell Lipo)*
- *Maximum Motor RPM (zero - 100%)*
- *Current Limit (zero - 100%)*
- *Maximum Brake Power (zero - 100%)*
- *Drag Brake (zero - 100%)*
- *Acceleration (zero - 100%)*
- *Launch Power (zero - 100%)*
- *Reverse (on or off)*

USING THE PIT CARD

2.1) With the speed control switched off, plug the pit card into the G2 using the 'S-LINK' port, connect so that the orange wire is towards the S-LINK logo on the G2 sticker. see fig 1.3

2.2) Switch your transmitter on, then switch the G2 speed control on (The pit card will light up)

NOTE: It is possible to adjust parameters in the pits without turning your transmitter on, before you do this you must remove the G2 speed control rx lead from the receiver first!

2.3) On the G2 pit card you will see five buttons. An increase and decrease button, a left and right arrow button and a program button see fig 1.3. *The increase and decrease buttons are for adjusting the selected parameter, the left and right arrow buttons are for scrolling through the parameters and the program button is for uploading your adjusted settings.*

2.4) To adjust any parameter, scroll to the desired parameter using the arrow buttons, increase or decrease that parameter then press program. The display will flash once to signal upload successful.

NOTE: You can adjust one or more parameters at any time before pressing the program button.

2.5) Once you have re-programmed your G2 speed control, you must first switch off your G2, then remove the pit card from the S-LINK port. The next time you switch on your G2 ESC it will be ready to use with your modified program.

PARAMETERS EXPLAINED

Battery Cutoff *- This allows you to select the type of battery and cut off you want to use. Options include, Auto NiCAD/NiMH, Auto Lipo, 2 cell Lipo, 3 cell Lipo, 4 cell Lipo..*

Max Speed *- This allows you to limit the top speed of your motor. Usually this is set to 100 to get the maximum speed out of your motor but sometimes it is better to limit your top speed depending on conditions.*

Max Torque *- This is effectively an adjustable current limiter. When set at 100 it gives you your maximum current limit (G2-MICRO - 50Amps), when using low power motors it is sometimes beneficial to lower the current limit to give the motor an easier ride!*

Max Brake *- This allows you to adjust the strength of the brakes*

Drag Brake *- This allows you to adjust the amount of drag brake you want to use, set to zero for no drag brake.*

Max Punch *- This is the acceleration setting, the higher this is set the faster it will accelerate. Sometimes it is better to lower this setting on certain surfaces where grip is low.*

Start Power *- This allows you to adjust how much power the G2 speed control throws at the motor to start it off the line. Like a turbo start! The more powerful the motor, the higher this will need to be! However, if set too high, this setting will drain your battery of power quicker so it is best to set this as low as you can without it affecting your start!*

mAh *- This is reverse on or off. As you would guess with this setting you can enable or disable the reverse function.*

Fig 1.3

WARRANTY

Mtroniks Ltd guarantee this product to be free from factory defects for 24 months from purchase date verified by receipts. This does not cover suitability for specific applications, components worn by use, tampering, incorrect connection, alteration to original connectors, switches or wires (apart from fitting of an in-line fuse), damage to batteries or other equipment through use, misuse or shipping damage.

Our liability is limited to repairing or replacing units to the original specification. Our liability will not exceed the cost of the product. By using this ESC, the user accepts all liability. We reserve the right to modify this guarantee without prior notice.

SET UP GUIDE - G2

MICRO RACING ESC

G2

24 MONTH WARRANTY

Mtroniks BRUSHLESS

SPECIFICATIONS

Input Voltage	*4-8cells NiMH/NiCAD (1.2Volts DC/cell) 2-3cells Lipo (3.7Volts DC/cell)*
Motor Limit	*8000kv 370can size*
Dimensions	*42.0mm x 27.0mm x 16.0mm*
Weight (w/o wires)	*40.0g*
*On-Resistance @ Transistors**	*0.9mΩ/phase*
Rated Current	*50amps*
Peak Current (Forward/Braking)	*60amps*
B.E.C. Voltage/Current	*5.0VoltsDC/1.5amps*
Schottky Diode	*Electronic built in*
Power Wires	*5x150.0mm/14G*
PWM Frequency	*10.0KHz*

** Transistor rating @25C*

100% WATERPROOF.....

NEW SMALL FOOTPRINT.....

INCREASED HIGH RELIABILITY.....

INCREASED HIGH POWER HANDLING

***** PLEASE READ ALL INSTRUCTIONS BEFORE USING THE G2 *****

MTRONIKS RACE ACCESSORIES

MPOWER CAPACITORS (#APMPC)

An Mpower capacitor is supplied with the G2 ESC and must be fitted to help the ESC run smoothly and also increase the efficiency of the initial power supplied from any battery pack. See fig.1.2

Replacement MPower capacitors are available from most good model shops.(#APMPC)

BATTERY CONNECTORS (#APM40 - ESC/#APF40 - BATT)

Mtroniks recommend the use of gold multi contact plugs.

Mtroniks gold multi contact plugs are available from most good model shops. (#APM40 - ESC/#APF40 - BATT)

WARNINGS & PRECAUTIONS

NEVER REVERSE CONNECT YOUR G2 ESC!

Reverse polarity battery connection or battery short circuit will damage your ESC.

ALWAYS KEEP WIRES AS SHORT AS POSSIBLE!

You must always keep your wires as short as possible to reduce power losses. It can make a HUGE difference!!.

ALWAYS INSULATE WIRE JOINTS!

You must always insulate any wire joints or bare wire with heat-shrink or electrical tape to prevent any short circuits that could damage your ESC.

DISCONNECT BATTERIES WHEN NOT IN USE!

Never leave your battery pack connected to your speed controller when not in use.

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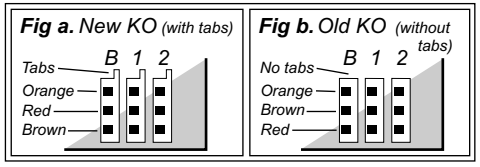
STEP 1. RECEIVER CONNECTIONS

The G2 speed controller is fitted with an industry standard JR receiver lead. The plug on the end of the lead is compatible with all major radio brands recent receivers. However, some of the older receivers must have the wiring order into the plug changed. ***This is important because the receiver and or the speed control could be damaged if connected up incorrectly.***

CHANGING WIRING ORDER

If you are using any of the following :
JR, HiTEC, Futaba, new KO & Airtronics Z receivers (Airtronics Z receivers have blue plastic cases & new KO cases have tabs on the input sockets, see fig.a), you do not need to change the wiring order on your receiver lead.
Simply plug the receiver plug into channel 2 on your receiver with the brown wire towards the edge of the receiver.



If your receiver is an older KO or Sanwa/ Airtronics, (Old Sanwa /Airtronics cases are black in colour & old KO cases do not have tabs on the input sockets, see fig.b), you will need to change the wiring order on your receiver lead.
To change the wiring order on your receiver lead you will need to gently lift the plastic retaining tabs on the plug remove the red and brown wires, interchange them and re-insert them into the plug so that the brown wire is now in the middle (see fig.b). Push the wires into the plug gently until the plastic retaining tab clicks. Now plug the receiver plug into channel 2 on your receiver with the red wire towards the edge of the receiver.

USING A RECEIVER BATTERY PACK

If using an external battery pack to power the receiver PLEASE observe the following points.

- ***REMOVE the red wire from the G2 receiver lead before plugging it into your receiver.***
- *Use ONLY a 4 Cell(1.5V cells) or 5 Cell(1.2V cells) battery pack and plug it into the battery slot on your receiver.*
- *Do not leave the G2 switched on even if the receiver battery pack switch is in the off position.*

STEP 2. MOTOR PREPARATION

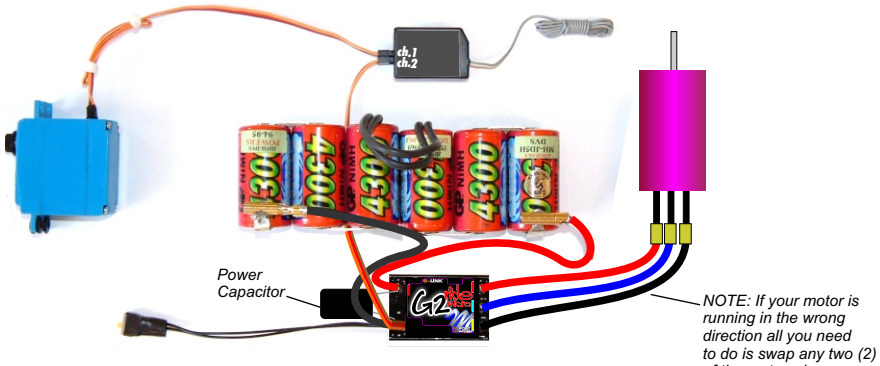
BRUSHLESS MOTORS

Sensorless brushless motors require very little preperation or maintenance. They do not use sensors or require the sensor harness that you would normally use with sensored set ups to connect to the speed control.
This makes the Mtroniks P2 micro motors very robust and very easy to use and install.
You must be sure that when installing your P2 Brushless sensorless motor you do not short out any of the wires as you solder them to the motors.
There is no correct order in which to solder the motor wires from the speed control to the motor but if you find that the motor turns in the wrong direction, all you need to do is simply unsolder any two (2) of the motor wires and swap them over!

Fig 1.1

The Mtroniks P2 micro motors are also available seperately in a range of winds. 5000kv, 6500kv and 8000kv
All the P2 micro motors are sensorless so cannot be used with any sensored brushless speed controls.

Fig 1.2



STEP 3. INSTALLING THE G2

POSITIONING OF THE G2

The G2 speed controller must be mounted as far away as possible from the other electronics in the model, especially the receiver & antenna wire. Do not bundle or tie-wrap any of the receiver wires or antenna wire to the G2's power wires. Mount the G2 in a position where it will receive as much air flow across it as possible, this will help a great deal in keeping the ESC cool and ultimately make the G2 run more efficiently. With a suitable mounting position decided, we can now attach the wires to the G2.

WIRING IN YOUR SPEED CONTROL

The G2 comes with a set of power wires and a Power capacitor that need fitting before you can use your speed control. See fig.1.2 for diagram
1. Fit the Power capacitor. To fit this, apply solder to the positive lead from the capacitor and position it over the positive battery post (RED) on the G2, then, apply solder to the negative lead from the capacitor and place over the negative battery post (BLACK). Once the capacitor is in position, hold each wire to the post and heat each joint with a soldering iron whilst applying thin solder to the point where the wire meets the post. DO NOT HOLD THE IRON ON THE POST FOR MORE THAN 3 SECONDS, prolonged heat can damage the ESC. The solder should run over the post and wire making a clean joint.
NOTE: Keep wires as short as possible!
2. Fit the battery wires. Solder one end of the first red wire to the positive battery post (RED) on the ESC. Solder the other end to your chosen battery connector. Solder one end of the first black wire to the negative battery post (BLACK) on the ESC. Solder the other end to your chosen battery connector See fig 1.2
3. Fit the motor wires. You should now have left, 1 red, 1 black and 1 blue wire. These are to connect to the 3 motor wires. As mentioned in the motor preperation section, there is no right or wrong way to do this so solder one wire from the red motor post on the ESC to the first motor wire, one wire from the blue motor post on the ESC to the next and the final wire from the yellow motor post on the ESC to the last free wire on the motor See fig 1.2
If the motor turns the wrong way, swap any 2 motor wires over!

STEP 4. PROGRAMMING

SET-UP

1) *Once installed you are ready to calibrate the G2 to your transmitter.*

1.1) *Switch your transmitter on and hold the throttle in the full reverse/brake position.*
1.2) *Connect the battery to your G2 (ensuring polarity is correct) and switch on using the on/off switch.*
NOTE: When you switch on, the red and green LEDs will come on, go out and the controller will beep, the green LED will come on on its own.
1.3) *Whilst the green LED is on, push the throttle to the full forwards position, hold there until the green LED goes out and the red LED comes on.*
1.4) *Whilst the red LED is on, return to neutral.*
1.5) *Calibration to the transmitter is complete and your G2 speed control is ready to use with last used settings (Factory settings if this is the first time you have switched on.)*

YOUR G2 SPEED CONTROL IS NOW SET & READY TO GO WITH FACTORY SETTINGS AS USED BY THE MARDAVE RACE TEAM!.

NOTES:

When the red and green LEDs come on, this denotes that you are in the neutral position.
Both LEDs will go out when you move in either direction, then the green LED will come on at full speed in either direction.

If you are not calibrating the system, after switch on, the controller is ready to use straight away!

If you adjust your transmitter settings you will need to go through the set-up procedure again.

If you want to repeat the set up procedure you must switch the unit off for 10 seconds before trying again.