Astro Mighty Micro 010 Geared System
Geared 010 Motor with control.....p/n 801G
Geared 010 Motor only, no control...p/n 801GM

Congratulations you have just purchased one of the finest brushless geared motors made for small models. The new Astro 010 Brushless Geared Motor has the latest advances in hi-tech, samarium cobalt rotor and a sensorless speed controller**.** It has outstanding performance. It is perfect for models up to 20 ounces flying weight.

The Astro 010 Geared Motor is very small. It is only 0.975 inches in diameter, 1.50 inches long and weighs only 1.8 ounces. On a 10 cell 1100 Nimh pack or on a 3 cell lithium polymer pack the Astro 010 Geared system can handle 75 watts, and a ten inch prop.

The Sensorless Control has a decoder for the radio receiver signal and a micro processor for controlling the motor. Actual commutation is done by a six phase Mosfet bridge housed in nine tiny surface mount packages. The control can safely handle nine amps but the motor should be limited to 7.5 amps maximum. We recommend choosing a propeller that limits the current draw on the ground to a maximum of 7 amps on a fully charged battery pack. This way the current draw in the air will be between five and six amps for best motor efficiency and longest flights. The entire control is very small measuring 1 inches by 1/2 inch and 1/8 inch thick. The control weighs 1/4 ounce. One side of the circuit board contains the 1 amp BEC circuit and micro processor and the other side contains the power mosfets. The control comes with one pair of Deans 2 pin micro connectors.

No Adjustments The sensorless speed control has no adjustments and is set up to work with any airplane receiver. The control adjusts to your transmitter low throttle command as long as the command is between 1ms and 1.3 ms.

Motor speed will increase linearly up to full throttle as the transmitter pulse width is increased by 0.7 ms.

Safe Start The speed control has a safe start feature. The soft ware requires a continuous low throttle command between 1ms and 1.3ms for five seconds after battery power is applied before it allows the motor to start. When first setting up your transmitter you may have to set the throttle trim low and the throttle stick low before advancing the throttle stick to get the motor to run. Once the motor starts running the control will respond to radio command as long as battery power is present. If the motor does not start, set your throttle gain to plus 100% and minus 100% and set the transmitter throttle reversing switch to reverse position.

Brakes The control is manufactured with brakes activated. The brakes can be activated and de-activated. To de-activate the brakes disconnect battery power and set the transmitter to **Full throttle.**
1. Connect battery power and wait for led to flash.
2. Go to **half throttle** and wait for flash.
3. Go to **full throttle** and wait for flash.
4. Go to **half throttle** and wait for flash.
5. Go to l**ow throttle** then disconnect motor battery.

Next time you power up the brakes it will be de-activated.
To re-activate the brakes, repeat the above procedure except at step 5 go to **Full throttle.**

Reverse The Mighty Micro 010 Geared Motor can be run in either direction. To reverse motor direction reverse the three pin connector between motor and speed control.

BEC This speed control has a BEC circuit so that you do not need to install a separate receiver NiCad in your model.

Auto Voltage cut off This speed control has auto voltage cut off to prevent your battery from being discharged too far. This is especially important for Lithium polymer batteries.

Astro 010 Geared Motor Characteristics

Gear Ratio	**3.3 to 1**
Winding	**14 turns #24**
RPM/volt	**2300 rpm/volt**
Resistance	**0.275 ohms**
No load	**200 ma**
Motor Diameter	**0.98 inches**
Length	**1.50 inches**
Weight	**1.8 oz**
Shaft Dia.	**1/8 inch**
Drive Shaft	**3/16 inch**
Control	**Sensorless**
Mosfets	**Six**
B. E. C.	**5 volts**
Voltage cut off	**Automatic for lipo**
Power Con	**Deans 2 p**
Servo Con	**Universal**
Nicads/ Nimh	**6 to10 cells**
Lithium Polymer	**2 to 3 cells**
Max Amps	**7.5 amps**
Max Power	**75 watts**

Other parts you may need

p/n	Name	Price
100	**Micro Meter**	**$59.95**
109	**Lithium Charger**	**$129.95**
110	**Deluxe Digital Charger 1-24 cells**	**$129.95**
201	**Speed Control for 801 motor**	**$54.95**
522	**Deans 2 pin micro connector**	**$1.95**
520	**Deans 3 pin micro connector**	**$1.95**
709	**Micro Gear Box 3.3 ratio**	**$34.95**
762	**APC Prop 8 x 6 E**	**$3.95**
760	**APC Prop 9 X 6E**	**$3.95**
763	**APC Prop 10x7E**	**$3.95**

Expected Performance with a 8 x 6 APC-E prop

3 Lithium	3.2 amps	25 watts	4,300 rpm
8 Nimh	3.9 amps	35 watts	5,500 rpm
3 Lithium	5.4 amps	60 watts	6,600 rpm
10 Nimh	6.0 amps	73 watts	6,900 rpm

Expected Performance with a 9 x 6 APC-E prop

2 Lithium	3.7 amps	29 watts	4,800 rpm
8 Nimh	4.5 amps	39 watts	5,200 rpm
3 Lithium	6.0 amps	68 watts	6.200 rpm
10 Nimh	6.9 amps	83 watts	6,700 rpm

Expected Performance with a 10 x 7 APC-E prop

2 Lithium	4.7 amps	36 watts	4,300 rpm
8 Nimh	5.6 amps	50 watts	4,800 rpm
3 Lithium	7.3 amps	80 watts	5,600 rpm
10 Nimh	8.0 amps	97 watts	5,800 rpm

Expected Performance with a 11 x 7 APC-E prop

2 lithium poly	5.5 amps	42 watts	3,900 rpm
8 Nimh	6.5 amps	58 watts	4,300 rpm
3 Lithium	8.3 amps	91 watts	5,000 rpm
10 Nimh	9.0 amps	110 watts	5,200 rpm