

Vicious Piranha 60-80 ESC *Instructions*



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Piranha ESC Instructions

Vicious Teknology Piranha 60a & 80a speed controllers for car or truck

Thank you for your purchase of the Vicious Piranha speed controller. This powerful unit is specifically designed to provide peak performance for your sensor or sensorless brushless car or truck motor. High power systems for RC models can be dangerous and we strongly recommend that you read this manual carefully before using this product.

Here comes the legal mumbo, jumbo: *Vicious Teknology has no control over the correct use, installation, application or maintenance of this products, thus no liability shall be assumed nor accepted for any damages, losses of costs resulting from the use of this item. Any claims arising from the operating, failure or malfunction etc. will be denied. We assume no liability for personal injury, property damage or consequential damages resulting from our product or workmanship. As far as legally permitted, the obligation for compensation is limited to the invoice amount of the product in question.*

Features:

- **Enhanced throttle response, excellent acceleration, strong brakes and throttle linearity.**
- **Using the advanced program card, you can set up or update the firmware, software and easily make adjustments to up to 10 different settings.**
- **Multiple protections features: Low voltage cutoff, overheat, and throttle signal loss.**

Before you begin:

Before using your new esc, please carefully check to make sure all connections are attached to your electronics properly. Failure to connect them properly could damage your new ESC:

Sensorless brushless motor

When using a sensorless motor (2 or 4 pole), the blue, Yellow and Orange motor wires may be connected to any of the 3 ESC sockets. If the motor spins in the opposite direction, just swap any two motor wires to reverse the rotation.

Connect the ESC signal wire to the receiver.

- Black wire = negative
- Red wire = positive (6v)
- White wire = signal wire



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ESC's LED functions

When power is connected, the ESC can automatically identify the motor type(sensor/sensorless) and many other operating conditions. They will be shown via LED light as follows:

Sensorless ESC Lights/Alerts			
Function	LED color	LED status	Beep Tone
Throttle Neutral	None	Off	none
Part throttle	Red	On solid	
Braking	Red	Flashing	
Full throttle	Green	On solid	
Input voltage alert	N/A	N/A	Double beep 1 second interval between double beeps.
Throttle signal alert	N/A	N/A	Double beep 2 second interval between double beeps.

Throttle range Calibration procedure (For the first time using transmitter or changing the transmitter, you must re-calibrate the throttle range on the ESC).

1. Switch off the ESC, then connect the ESC to the battery pack and turn on the transmitter. Set the direction of the transmitter to "REV", set the throttle trim to "0", set the EPA/ATV value to 100% and disable any ABS function on the transmitter.
2. Hold the "set" button on the esc. While still holding the switch down, turn the ESC on. Wait for about 1 second until the red Led begins to flash. Release the set button immediately* (*see note 1)
3. Put the throttle to the neutral position, then press and release the set button, the green LED will flash once and you should hear the esc Beep once.
4. Put the throttle to the full forward position, then press and release the set button, the green LED will flash twice and you should hear the esc Beep twice.
5. Push the throttle to the full reverse position. Then press the "set" button once, the green LED should flash three times and you should hear the ESC Beep 3 times. The Esc is now calibrated to your transmitter.

**Note 1. Failing to release the set button after the LED starts flashing will enter the esc inter program mode. In such a case, turn off the ESC and begin the calibration procedure again.*



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Piranha 60 and 80 programmable features and default settings. Default settings indicated by highlighted cells.

Programmable Items	Programmable values								
	1	2	3	4	5	6	7	8	9
Running Mode	Forward/ Brake	Forward/ Reverse/Brake	Forward/ Reverse						
Drag Brake	0%	5%	10%	20%	40%	60%	80%	100%	
Cut-Off voltage	Off	2.6v	3.0v	3.2v	3.4v				
Start Mode (punch)	Level 1	2	3	4	5	6	7	8	9
Brake Force	25%	50%	75%	100%					
Reverse Force	25%	50%	75%	100%					
Initial Brake Force	Drag brake	0%	20%	40%					
Neutral Range	6%	9%	12%						
Motor Timing	0°	3.75°	7.5°	11.25°	15°	18.75°	22.5°	26.25°	
Overheat Protect	Enable	Disable							

Esc Setting Explanations:

1. Running mode – Forward/brake/no reverse, Forward/brake with pause then reverse (default), Forward/reverse

- Use setting 1 Forward/Brake/no reverse for racing. Most race tracks require disabling reverse for competition.
- Setting 2 Forward/brake with pause then reverse (default) is used for general bashing around and when events allow reverse to be used. The esc requires 2 seconds of continuous neutral from the transmitter prior to reverse operating. *This is an automatic protection built in to this ESC to prevent damage to the driveline when quickly switching directions.*
- Setting 3 forward/reverse eliminates the braking circuit.



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Program features continued

2. Drag Brake

- The drag brake function provides the driver a set percentage of braking pressure when you have the throttle resting in neutral. This will create the feel more like a brushed motor. Drag brakes are often used to slow the vehicle as you let off entering a corner to eliminate the need to have to push the brake at every corner.
 - If you are running on a tight track, a higher setting might work better.
 - If you are running on a large open track, a lower setting might give you better control.
 - If you are running on dusty or slippery surfaces, you might try the lowest setting for maximum control.

3. Cut-off voltage threshold (LVC) – 2.6v/cell; 2.8v/cell; 3.0v/cell (default); 3.2v/cell; 3.4v/cell; no protection

- According to the type of battery, setup the type and Low voltage Cutoff threshold via PC software or program card. The ESC will detect the voltage of the battery and stop working once the threshold has been reached.
- When using NiMH or NiCd batteries, you do not need to run LVC to protect the batteries.
- When using lithium batteries (LiPo) it is very important to use the LVC. Allowing lithium batteries to operate below 3v per cell can severely and permanently damage the batteries. The default is set to 3.0v per cell, but most battery manufacturers (including Vicious Teknology) recommend setting the LVC at 3.2-3.4v per cell for maximum battery life.

4. Start Mode: - Low, Normal, High (default), Very high

- Use this to limit the initial power that is sent to the motor when starting from a complete stop. The default is “High”. Using the “Low” option the vehicle will launch very slowly and provide the longest run times. When using the High option, you will have wheel-spinning acceleration at the cost of run time. This also puts a higher amperage load on your batteries. If your vehicle cuts out, hesitates or loses radio control, you should consider changes this to a lower value.

5. Brake force – Gives you the ability to have full control over the amount of braking power you have.

- Note: Percentage braking relates to the throttle stick position. The highest brake percentage equals the effect of pushing the throttle to full brake. Lowering this setting reduces the amount of maximum brake force.

6. Reverse throttle percentage: default 50%

- Use this to limit the power available using reverse throttle.

7. Initial Brake force – forward (default), reverse



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8. Neutral range

- This setting adjusts the amount of “dead band” off neutral on the throttle. This is in milliseconds. If your vehicle creeps a little when in neutral, widen the setting to correct.

9. Motor timing – Level 1-9

- This option affects the power band and efficiency (runtime) of the motor. The default is “7” and is a good starting point to deliver power and provide good run time.

10. Overheat Protection - On or off. Default is on.

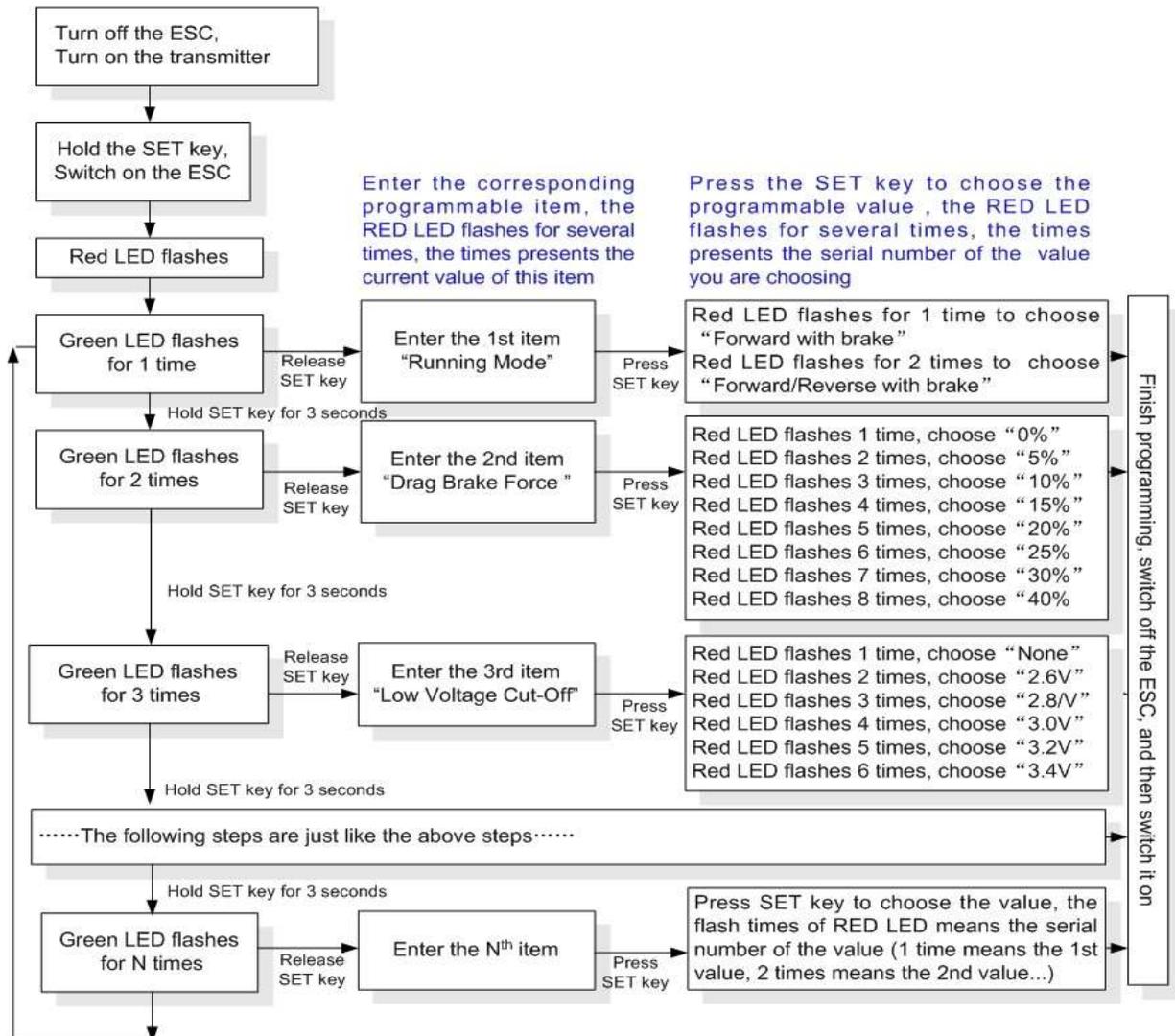


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Programming Instructions.

The Piranha 60 and 80a ESC's can be programmed either with the Vicious LED program card, Hobbywing advanced LCD program card, PC software (LCD card required) or onboard via the lights and beep tones emitted by the ESC. Below are the programming instructions for the onboard process.

1. Program Method



Notes: In the program process, the motor will emit a beep tone at the same time the LED is flashing.

- If the "N" number is bigger than 5, we use the long flash and long beep tone to represent 5, so it is easier to recognize 5 and numbers higher than 5.

Example: A long flash + a short flash (motor sounds "Beeeeeep-Beep") = program choice 6.



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Troubleshooting

Trouble	Possible reason	Solution
After power on, the LED doesn't light up, fan doesn't work	<ul style="list-style-type: none"> • ESC is not receiving working voltage • ESC switch is damaged • Connections between Battery and esc are not correct 	<ul style="list-style-type: none"> • Check the circuit from the battery to the ESC is soldered properly and making good contact. • Return the ESC to repair or replace the switch. • Check and repair battery connections
After power on, esc emits "beep, beep, beep alert w/ 1 second interval	Battery input voltage out of range (too high or too low)	Check the battery pack voltage.
After power on, esc emits "beep, beep, beep alert w/ 2 second interval	Abnormal throttle signal	Check transmitter and receiver and their connections. Check throttle channel antenna.
Vehicle runs in the wrong direction	Wire connection sequence between the motor and ESC is incorrect.	Swap any two motor wires to reverse the rotation.
Motor stops suddenly during operation	<ul style="list-style-type: none"> • Receiver signal was interrupted. • ESC enters in to Low Voltage or overheat protection mode 	<ul style="list-style-type: none"> • Check that receiver is connected properly and/or antenna has not been cut or damaged. • Check the battery pack voltage or temperature of the motor.
Random stop or restart or irregular operation.	<ul style="list-style-type: none"> • Motor rotation is too high from improper gearing. • Motor timing is too low. • Poor connections. • Alien attack using an EMP 	<ul style="list-style-type: none"> • Change to a lower speed motor or change the vehicles gearing. • Set motor timing higher. • Repair damaged connections • Take your RC and run for cover.