User Manual of XC Series for Car V2.0

Features

- Full protection feature including low voltage, over-heat, throttle signal lost, startup protection and self-check.
- Compatible with sensorless brushless motor.
- Excellent startup performance, great throttle linear and quick throttle response.
- Support highest motor speed 240,000RPM(2 poles), 80,000RPM(6 poles) and 40,000(12 poles).
- Easy configure with LCD program card.
- System can automatically detect throttle neutral point and neutral range is adjustable.
- Three work mode can match different requirement.
- 4 steps of maximum reverse force adjustment, 5steps of maximum start force adjustment.
- 3steps of maximum brake force adjustment, 5 steps of drag brake force adjustment, 4 steps of initial brake force adjustment.
- Support 1 cell operation (min voltage: 3V, only available for XC-6A and XC-10A).

Specification

P/N	Continuous current	Battery Cell		Dimension (mm) L×W×H	Weight （g）	BEC （Linear）	Program By card	Program By key
		Li-XX	Ni-H					
XC-6A	6A	1-2	3-8	12 x 20 x 5	4	1A/5V	Yes	NO
XC-10A	10A	1-2	3-8	22 x 17 x 7	8	1A/5V	Yes	NO
Quik-30A	30A	2-3	4-9	45x32x20	50	2A/5V	Yes	Yes
Quik -45A	45A	2-3	4-12	45x32x20	50	2A/5V	Yes	Yes
Quik -60A	60A	2-4	4-15	47x41x29	80	2A/5V	Yes	Yes
Quik -80A	80A	2-4	4-15	47x41x29	80	2A/5V	Yes	Yes
Quik -100A	100A	2-4	4-15	47x41x29	80	2A/5V	Yes	Yes
XC-150A	150A	2-6	5-18	96x55x21	180	0.2A/5V	Yes	NO
XC-120A-HV	120A	2-10	5-30	96x55x21	180	0.2A/5V	Yes	NO

Note: For XC-150A and XC-120A-HV, an UBEC or individual battery pack should be required to power the receiver and servos, and the red line (+5V) in 3 pin must be pulled out !

Using ESC

Normal Startup Procedure

Move throttle stick to the neutral position → Switch on the transmitter →Connect battery pack to ESC → System detects the neutral throttle point, makes **a long** "**beep-**" sound → System detects battery voltage and makes several short "**beep-**" sounds, which denotes the number of battery cells → when self-test is finished → "**♪1 2 3**" tone should be emitted →ready for start.

Set Throttle Range (Throttle range should be setup when a new transmitter is being used)

Push the throttle stick to the top point of forward → switch on the transmitter →Connect battery pack to ESC → wait for 2 seconds → System detects the Max throttle signal, and makes **two** "**beep-**" sounds, which denotes that Max throttle has been confirmed and saved → Pull the throttle stick to the top point of backward → System detects the Min throttle signal, makes **two** "**beep-**" sounds, which denotes that Min throttle has been confirmed and saved →setup end**.**

Push the throttle stick to the neutral position → System detects the neutral throttle signal, makes **a long** "**beep-**" sound → System detects battery voltage and makes several short "**beep-**" sounds, which denotes the

number of battery cells → when self-test is finished → "♪ 1 2 3" tone should be emitted → Ready for start.

If the system doesn't detect the throttle signal, it will make "beep-" sounds continuously without stopping.

Any fault in self- test, it will make 20 very short "beep-" sounds.

LED will light according to 'beep-' tone.

Protection

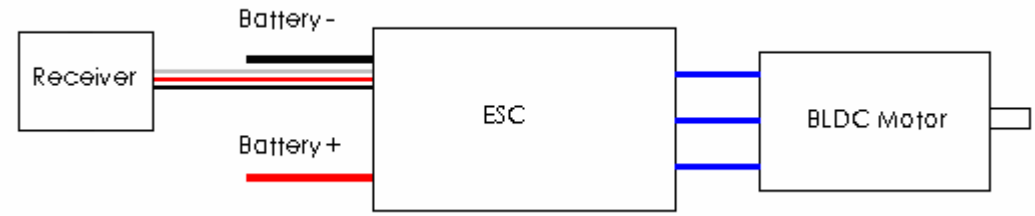
A. Low voltage protection: When power voltage is lower than the cutoff threshold, ESC will cut off output power.

B. Throttle signal lose protection: 0.5 second later after losing throttle signal, ESC will cut off motor.

C. Overheat protection: output power will be reduce to cool down if temperature of mosfet gets to 110℃, and the output power will raise after temperature gets low.

D. Self-check: ESC will check itself when power on. If there is any failure in hardware, ESC will continuously emit 20 short "**beep-**" tones.

Wiring Diagram



Configurable Parameter With Program Card (LCD)

1. OffVolt(Low voltage threshold): user can set proper voltage threshold according to cell quantity in range of 00.0-49.9V, the default is 00.0V。

Note: System will detect battery cells and calculate proper threshold automatically if this setting is 00.0V, protection threshold for each Li-XX cell is 2.8V. For example: if the battery pack is 3 cells Li-xx, cutoff voltage will be: 2.8V*3=8.4V.

2. Brake Force: 50%,75%,100%. default is 100%.the ESC provide proportional brake function. the brake force is related to the position of the throttle stick. the brake force refers to the maximum force when the throttle stick is located at the top point of the backward zone.

3. Drag Brake: 0,5%,10%,15%,20%. default is 0. when the throttle stick is located at the neutral zone, the ESC provide a slight brake force.

4. Run Mode: One, Two, Two2. default is **Two2**.

One: the car can go forward only, and brake continuously if push the throttle stick to backward zone.

Two: Bi-directional mode, the car go forward when the throttle stick is located at the forward zone, and when the throttle stick is located at the backward zone, the car will go backward, the brake will occur when direction change.

Two2: Conditional Bi-directional mode. With this option, the car go backward only when car is stop and throttle stick is pushed from neutral zone to backward zone. When car is running forward, push throttle stick to backward zone, car will keep brake until it stops, the throttle stick return the neutral zone, and push the throttle stick to the backward zone, then the car will go backward

5. Start Force: 20%,25%,30%,35%,40%. default is 30%. The maximum force for the car start.

6. **Timing : low, middle ,high and highest.** default is middle. Low advance timing is recommended for high inductance and low KV motors. High advance timing is recommended for low inductance and high KV motors.
7. **Neutral Range: 6%,8%,10%.** default is 8%. within this zone, the motor will be turned off.
8. **Initial Brake Force: 5%,10%,20%,30%.** default is 5%.it refers to the brake force when the throttle stick is located at the initial position of the backward zone.
9. **Reverse Force: 25%,50%,75%,100%.** default is 50%. it refers to the maximum force when car run in reverse direction.

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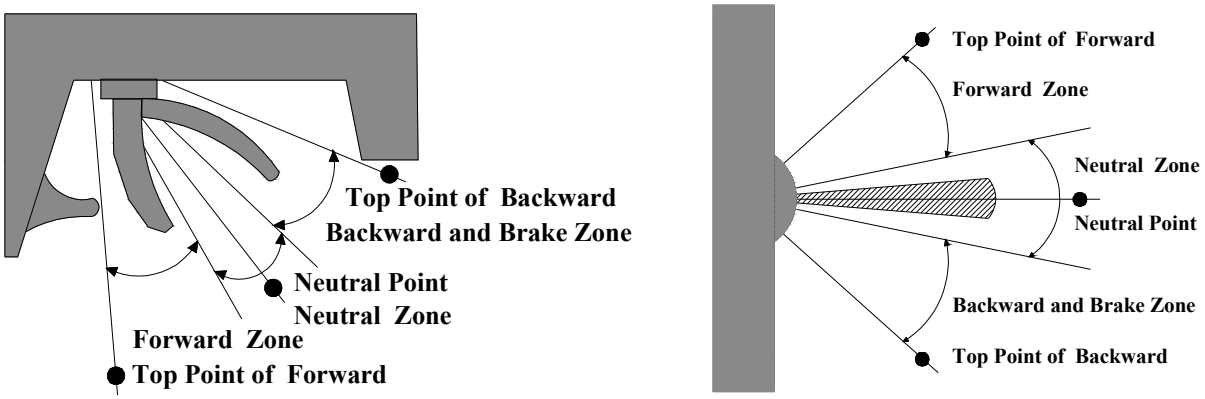
Throttle Diagram



Using program card

Adopting 2x16 point LCD panel, program card can make all setting conveniently and directly.

The keys function

KEY	➡	⬆	↵	WR
FUNCTION	To move the cursor horizontally	To move the cursor vertically and change item or item value	To confirm selected item or item value.	To write and save setting parameter to ESC

Program procedure

1. Unplug the battery of ESC and connect the PPM wire to program card properly.
2. Connect the battery to ESC, program card will read the parameter from ESC and display on LCD panel.
3. Push ⬆ to select programmable items and push ↵ to enter the item.

4. Use ➡ key to move the cursor to proper place (if it need), use ⬆ to select or change item value (programmable Value) and push ↩ to confirm.
5. When all setting is finished, push **WR** to save to ESC. After that, you can push ↩ to check updated parameter.

Parameter Display

Item	Specification	Option or value	Default
1.OffVolt=	Low Voltage Protection Threshold	00.0V－49.9V	**00.0V**
2. BrakeForc:	Brake Force	50%,75%,100％	**100％**
3. DragBrake:	Drag Brake	0,5%,10%,15%,20%	**0**
4. RunMode:	Run Mode	One, Two, Two2	**Two2**
5. StartForc:	Start Force	20%,25%,30%,35%,40%	**30%**
6. Timing:	Timing	low, middle ,high and highest	**middle**
7.NeutRange:	the neutral range of throttle	6%,8%,10%	**8%,**
8. InitBrake:	Initial Brake Force	5%,10%,20%,30%.	**5%**
9. ReverForc:	Reverse Force	25%,50%,75%,100%.	**50%**