

## X-TEAM Car ESC Manual

### DECLARATION:

Thank you for purchasing X-TEAM car series ESC product! Brushless power system can be very dangerous. Any improper use may cause personal injury and damage to the product and related devices. We strongly recommend reading through this user manual before use.

Because we have no control over the use, installation, or maintenance of this product, no liability may be assumed for any damage or losses resulting from the use of the product. We do not assume responsibility for any losses caused by unauthorized modifications to our product. For the latest specifications and use details, please visit our company website: [www.x-teamrc.com](http://www.x-teamrc.com)

### NOTE:

1. Make sure the ESC is matching with your car system, such like battery, motor and the car size.
2. Make sure every part has been connected correctly.
3. After racing, please disconnect ESC with battery.

### FEATURES:

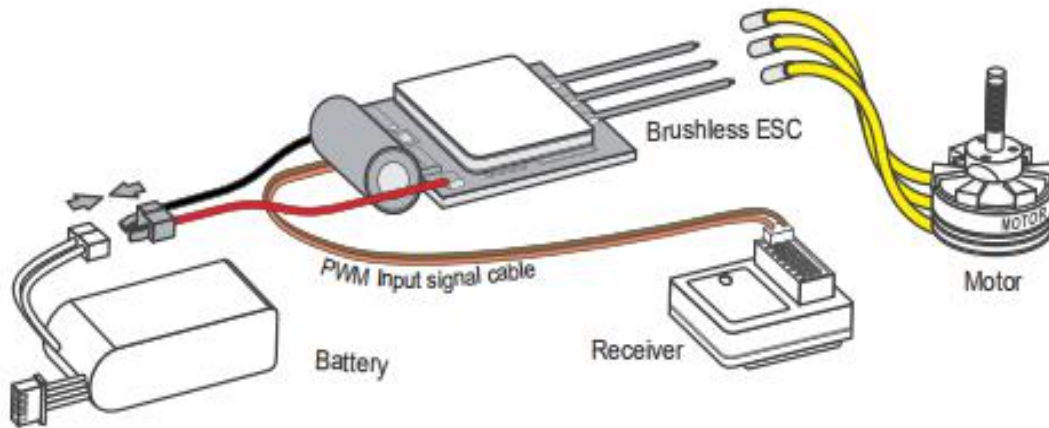
- This is sensorless and brushless ESC, due to the excellent algorithm, it is with excellent low speed performance and powerful acceleration performance.
- 10 popular style profile included, supports quick change to meet requirements with different cars, they are good for most of races, just select and go! Also you can export your settings!
- Adopt with electronic key switch, long life and reliability, Anti-misoperation, clean wires and assemble space design.
- Powerful throttle and brake functions: throttle acceleration、throttle curve and throttle soften are adjustable; drag brake, brake strength, brake frequency, brake curve are adjustable, they are good for all your requirements.
- Including Turbo Timing and Boost Timing technology and fine adjustable time setting, suitable for different racers.
- Multiple protections: Low voltage protection, overheat protection and Throttle out of control protection.
- Data recording: LCD programming box can read out Min voltage, Highest temperature, Max RPM, you can analyze based on all the data.
- Easy to use and keep upgrading.

### Specification

ITEM	XT-WP30A,XT-WP60A,XT-WP80A,XT-WP120A,XT-WP150A
INPUT VOLTAGE	6V~26 (2~6 CELLS LIPO)
Continue Power	30A, 60A,80A,120A,150A
Motor support	Brushless and sensorless
Car support	Rally car, touring car, drift car, crawler, monster truck, etc

BEC Output	6.0V/2A(30A), 6.0V/3A (60A,80A,120A,150A)
Fan power	From BEC
Parameters setting port	Fan port

## Connection Diagram



## ESC setup

### 1. ON and OFF

When connected ESC with battery, press the power key to power ON/OFF ESC, please don't power off ESC when motor is still running.

### 2. Throttle Calibration

Please set throttle when the first time to use the ESC.

Power on ESC, press and hold SET key for 3S until motor beeps and green light flashes, this means ESC has got into calibration setting. You need to set three throttle positions: neutral throttle, forward max throttle and backward max throttle, as below:

- 1) Green light one-flash and repeat, this is to remind to set neutral throttle, please put stick to the middle position and press SET key, motor will sound up one beep, means neutral throttle has been set OK.
- 2) After neutral throttle setting OK, green light two-flash and repeat, this means setting with forward max throttle, please push stick to highest position, motor will sound up two beeps means forward max throttle set OK.
- 3) After forward max throttle setting OK, green light three-flash and repeat, this means setting with backward max throttle, please push stick to lowest position, motor will sound up three beeps means backward max throttle set OK

Note: calibration only can do before push stick and running motor. If you already push stick to run, please power on ESC again and then calibrate.

### 3. Setting with LCD programming box

Connect ESC with programming box through a connection cable(male JR-male JR),

power on ESC, LCD will show “Connect OK”, it will show the mode, press any key to go to setting UI. The first item is running data, next are parameters, press item key to select.

Press item key to select the items, Value key to set value, press OK to restore settings, press Read key to read out the parameters.

**Read out record data**

When connected ESC with programming box, the first item is running data record, press Value key to show the four parameters one by one, they are: Min Voltage, ESC temperature, Motor temperature and Max RPM. Record data only can be read, can't be modified.

**4. Setting with VGOOD Car Suite GUI**

Connect ESC with PC through VGOOD car USB cable, open VGOOD Car Suite in your computer, select COM port, click “Connect”, power on ESC, you will see green and red light flash there, this means connection is succeed

Click:”Readpara ”, you can read out and modify parameters, after that, you can click : “Writepara” to restore parameters.

And you can save, red parameter profile under ”File”menu.

**07 Parameter settings**

Settings	CODE	Programmable Items	Parameter Values					
General Setting	A1	RunMode	Forward	FWD/Brake Reverse	FWD/Reverse Direct			
	A2	Low Voltage Cutoff	No Protection	Auto	Custom			
	A3	ESC Thermal Protect	105°C/221F	125°C/257F	No Protect			
	A4	Motor Thermal Protect	105°C/221F	125°C/257F	No Protect			
	A5	BEC Voltage	6.0V	7.4V				
	A6	Max Reverse strength	25%	50%	75%	100%		
	A7	PWM Frequency	8K	12K	16k	20K	24K	32K
	A8	Sensor Mode	Full Sensored	Sensored/Sensorless Hybrid				
	A9	Motor Reverse	CW	CCW				
Brake Control	B1	Drag Brake	0%~100%, 1.56% each step					
	B2	Brake Strength	0%~100%,12.5% each step					
	B3	Brake Rate	1~30					
	B4	Brake Frequency	1K	2K	4K	8K		
	B5	Brake Curve	Linear	Concave				

Throttle Control	C1	Throttle Rate	1~30						
	C2	Neutral Width	10~80us, 10us each step						
	C3	Min Power	1~8						
	C4	Throttle Profile	concave++	concave+	Linear	convex+	convex++		
	C5	Softening Value	0~7						
Timing	D1	Timing	Dynamic	0°~30°					
	D2	Boost Timing	0~30						
	D3	Boost Mode	RPM	Throttle					
	D4	Boost Start RPM	500~35000RPM,500RPM each step						
	D5	Boost End RPM	3000~60000RPM,500RPM each step						
	D6	Turbot Timing	0~30						
	D7	Turbo Delay	0~1s, 0.1s each step						
	D8	Turbo Increase rate	1°/0.1s						
	D9	Turbo Decrease Rate	1°/0.1s						

### A1: RunMode

#### Forward:

This is racing mode, under this mode, motor only can run forward, push throttle above neutral, it runs forward, push throttle under neutral, it brakes.

#### FWD/Brake Reverse:

This is training mode, when the first time to push throttle to backward range, it brakes, not run backward, only when you push back throttle to neutral again, then if you push throttle to backward range, it will run backward.

#### FWD/Reverse Direct:

This mode is mostly used for crawler, when you push throttle from forward range to backward range, it will reverse directly; work the same if you push throttle from backward range to forward range.

### A2: Low Voltage Cutoff

This is mainly to protect battery from being destroyed by over discharged, if voltage is under setting value, it will reduce power to 1/4 gradually within 3S and yellow light flashes means it's at low voltage status.

#### No Protection:

For racing, we suggest you to set with no protection to avoid power to be decreased or cutoff, but please note this may destroyed your battery☺

#### Auto:

If you set with Auto, ESC will detect battery cells automatically and set cutoff voltage each cell with 3.3V, for example if ESC detects 3 cells, cutoff voltage for the battery will be set with 9.9V.

#### Custom:

You can set battery cutoff voltage from 5~25V, for example if you hope to set 3.0V for each cell and you are using 2 cells battery; you can set cutoff voltage with 6.0V.

**A3: ESC Thermal Protect**

If ESC temperature reaches your set protect temperature, ESC will reduce output gradually, when temperature is become normal, ESC will come back with full power. Yellow light double-flashes warn temperature is too high.

**A4: Motor Thermal Protect**

If motor temperature reaches your set protect temperature, ESC will let motor reduce output gradually, when temperature is become normal, motor will come back with full power. Yellow light tri-flashes warn temperature is too high.

Please note if not connected with sensor cable or no sensor, this feature is invalid.

**A5: BEC Voltage**

This X-TEAM series car ESC is fixed with 6.0V as default, not programmable, if you need 7.4V, please get confirmation from us before you make order.

**A6: Max Reverse Strength**

This is to set backward RPM percentage, we suggest you to use a smaller one, as if backward speed is too fast may be hard to control your car.

**A7: PWM Frequency**

Frequency is higher, more smooth for your motor and also will increase ESC temperature, please select the suitable value accordingly.

**A8: Sensor Mode****Full Sensored:**

When ESC has been sensored connected, it always works at sensored mode, if not connected with sensored cable, it works with sensorless mode.

**Sensored/Sensorless Hybrid:**

When ESC has been sensored connected, lower RPM will work at sensored mode, high RPM will work at sensorless mode

If not connected with sensor cable, it will work at sensorless mode.

Please note sensorless ESC is always works at sensorless mode.

**A9: Motor Reverse**

When using sensorless motor, if you want to change motor spin direction, you can exchange any two of the three motor wires, you can also change with this selection.

When using sensored motor and under sensored mode, as the three phase wires must fixed connected, you can't change motor spin direction by exchange wires, but you still can change with this selection.

**B1: Drag Brake**

Drag Brake is working as automatically brake, when your throttle go back to neutral, ESC will produce brake power, this assist you to brake your car easier.

**B2: Brake Strength**

Brake Strength is to set the max brake strength percentage.

**B3: Brake Rate**

This is to control brake response speed, the lower means brake response slower, the

higher means the brake response faster.

#### **B4: Brake Frequency**

Frequency is set lower, motor with harder brake force; frequency is set higher, motor with more smooth brake force

#### **B5: Brake Curve**

##### **Linear:**

ESC to control brake according throttle, brake force and throttle are linear relationship.

##### **Concave:**

If set brake curve with Linear and feel brake force is too strong, then you can try to set brake curve with Concave, the brake force at first range will be softer and harder at last range.

#### **C1: Throttle Rate**

This is to Control acceleration of throttle, lower means acceleration is slower, higher means acceleration is higher.

#### **C2: Neutral Width**

This is to set width of neutral, to that to make a better experience for different racers.

#### **C3: Min Power**

This is to set min power of ESC, when starting motor with a small throttle, the bigger of the value set, the faster of motor speed.

#### **C4: Throttle Profile**

This is to set throttle curve, you can choose according your requirements, the default value is Linear. Concave means starting slower, convex means starting faster.

#### **C5: Softening Value**

This is to soften throttle curve in MODIFY racing, 0 means no softening effect, 7 means strong softening effect.

#### **D1: Timing**

Set as Dynamic, ESC will active Boost and Turbo function, or you can set timing manually.

#### **D2: Boost Timing**

Set with Boost Timing, timing will change corresponding with RPM or throttle accordingly D3.

#### **D3: Boost Mode**

##### **RPM:**

When set as RPM, boost timing will change according RPM.

##### **Throttle:**

When set as Throttle, boost timing will change according throttle.

#### **D4: Boost (Boost Start RPM)**

This is to set start RPM to active boost timing, ex. If set at 5000, only RPM above 5000 then active boost timing.

#### **D5: Boost End RPM**

This is to set boost timing end RPM, ex. If boost end timing has been set at 15°, Boost END RPM is set at 2000 RPM, when RPM reach 20000m Boost Timing will be set as 15°, if RPM lower than 2000, boost timing will change accordingly RPM.

#### **D6: Turbo Timing**

Turbo time will only be activated at max throttle. It is to activate motor max power.

#### D7: Turbo Delay

This is to set how much time that max throttle should be hold to activate turbo timing

#### D8: Turbo Increase Rate

This is to set Turbo timing increase rate when Turbo timing is activated.

#### D9: Turbo Decrease Rate

This is to set turbo timing decrease rate when Turbo timing is deactivated because of not at full throttle.

**Warning! Boost timing and Turbo Timing may help in racing, but at the same time it may burn your ESC or motor!**

#### Preset Mode:

There are 10 preset modes, you can just choose one instead set every parameters by yourself. The default parameters for the 10 modes are listed as below:

(1-5 of 10 modes)

Settings	CODE	Programmable Items	Zero Timing	TC-Modify	Buggy 2WD-MOD	Buggy 4WD-MOD	Practice
General Setting	A1	RunMode	Fwd/Brk	Fwd/Brk	Fwd/Brk	Fwd/Brk	Fwd/Rev/Brk
	A2	Low Voltage Cutoff	Auto	Auto	Auto	Auto	Auto
	A3	ESC Thermal Protect	105°C/221F	105°C/221F	105°C/221F	105°C/221F	105°C/221F
	A4	Motor Thermal Protect	105°C/221F	105°C/221F	105°C/221F	105°C/221F	105°C/221F
	A5	BEC Voltage	6.0V	6.0V	6.0V	6.0V	6.0V
	A6	Max Reverse strength	0.25	0.25	0.25	0.25	0.25
	A7	PWM Frequency	16k	16k	16k	16k	16k
	A8	Sensor Mode	Full Sensored	Full Sensored	Full Sensored	Full Sensored	Full Sensored
	A9	Motor Reverse	CW	CW	CW	CW	CW
Brake Control	B1	Drag Brake	0%	0%	0%	0%	0%
	B2	Brake Strength	100%	87.5%	87.5%	87.5%	100%
	B3	Brake Rate	20	10	20	20	20
	B4	Brake Frequency	1K	1K	1K	1K	1K
	B5	Brake Curve	Linear	Linear	Linear	Linear	Linear
Throttle Control	C1	Throttle Rate	20	15	10	15	10
	C2	Neutral Width	60	60	60	60	60
	C3	Min Power	2	2	2	2	2
	C4	Throttle Profile	Linear	Linear	Linear	Linear	Linear
	C5	Softening Value	0	0	0	0	0
Timing	D1	Timing	0°	0°	0°	0°	5°
	D2	Boost Timing	0°	5°	5°	5°	5°
	D3	Boost Mode	RPM	RPM	RPM	RPM	RPM



D4	Boost Start RPM	8000	15000	8000	8000	8000
D5	Boost End RPM	25000	25000	25000	25000	25000
D6	Turbot Timing	0°	20°	0°	10°	5°
D7	Turbo Delay	0.3	0.1	0.3	0.3	0.3
D8	Turbo Increase rate	2	3	2	2	2
D9	Turbo Decrease Rate	4	4	4	4	4

(6-10 of 10 modes)

Settings	CODE	Programmable Items	Open-BL 13.5T	Open-BL 17.5T	SCT-4 Pole	Crawler	Drift
General Setting	A1	RunMode	Fwd/Brk	Fwd/Brk	Fwd/Brk	Fwd/Rev	Fwd/Rev/Brk
	A2	Low Voltage Cutoff	Auto	Auto	Auto	Auto	Auto
	A3	ESC Thermal Protect	105°C/221F	105°C/221F	105°C/221F	105°C/221F	105°C/221F
	A4	Motor Thermal Protect	105°C/221F	105°C/221F	105°C/221F	105°C/221F	105°C/221F
	A5	BEC Voltage	6.0V	6.0V	6.0V	6.0V	6.0V
	A6	Max Reverse strength	25%	25%	25%	100%	25%
	A7	PWM Frequency	16k	16k	16k	16k	16k
	A8	Sensor Mode	Full Sensored	Full Sensored	Hybrid	Full Sensored	Full Sensored
	A9	Motor Reverse	CW	CW	CW	CW	CW
Brake Control	B1	Drag Brake	5%	5%	0%	100%	0%
	B2	Brake Strength	87.5%	87.5%	75%	100%	75%
	B3	Brake Rate	20	20	10	30	10
	B4	Brake Frequency	1K	1K	1K	1K	1K
	B5	Brake Curve	Linear	Linear	Linear	Linear	Linear
Throttle Control	C1	Throttle Rate	25	25	10	15	15
	C2	Neutral Width	60	60	60	60	60
	C3	Min Power	2	2	2	2	2
	C4	Throttle Profile	Linear	Linear	Linear	Linear	Linear
	C5	Softening Value	0	0	0	0	0
Timing	D1	Timing	0°	0°	0°	0°	0°
	D2	Boost Timing	15°	15°	0°	0°	0°
	D3	Boost Mode	RPM	RPM	RPM	RPM	RPM
	D4	Boost Start RPM	4000	3000	8000	8000	8000
	D5	Boost End RPM	12000	10000	25000	25000	25000
	D6	Turbot Timing	15°	20°	10°	0°	0°
	D7	Turbo Delay	0.2	0.1	Instant	0.3	0.3
	D8	Turbo Increase rate	4	4	2	2	2
	D9	Turbo Decrease Rate	3	3	4	4	4



## Restore factory settings

There are two ways to restore factory settings:

1. Using LCD programming box, press ITEM key to select MODE, press Value to select "Set Default", press OK key and you will restore to factory settings.
2. Using VGOOD Car Suite GUI to restore factory settings.

## 08 LED Status Indicator

Red light lit: Throttle at neutral and ready.

Red light quick flash: Motor is stopped but throttle is not at neutral.

Red light lit on and off alternately: No receiving with throttle signal

Green light quick flash: Motor work at sensorless mode.

Green light and red light quick flash: Motor works at sensed mode

Green light lit: Motor works full throttle

We define red light and green light lit at the same time as a yellow light.

Yellow light slowly flash: battery voltage is too low, under low voltage protection.

Yellow light twin-flash: ESC is too hot, under temperature protection.

Yellow light tri-flash: Motor is too hot, under temperature protection.

## 09 Trouble shooting

Troubles	Possible Causes	Solutions
Light is not lit, motor can't start	1.No power input 2.Power switch problem	Check connection
Red light flash slowly	Not receiving with throttle signal	Check if receiver is work fine
Motor stuttered, but can't start	Motor connection is not good or ESC is broken	1.Check motor soldering and connection 2.Repairing ESC
Red light flash, motor can't start	Motor need to receive neutral throttle signal to get ready.	Push throttle stick to neutral
When push throttle forward, car goes backward	Motor direction is wrong	Change motor wire or reverse motor direction by card/GUI
Motor suddenly stopped or decreased power	1.Receiver influenced 2.Happen with low voltage protection 3.Happen with temperature protection	1.Check receiver related causes 2.If yellow light flash, change or charge battery 3.If yellow light twin flash, cool your ESC
forward running is ok, but can't run backward	Run at no backward mode	Change running mode