

maXam

**INSTRUCTION
MANUAL**

Storm R10

C0366 Storm R10 1/10

THUNDER M10

C0363 Thunder M10 1/10

DIGITAL PROPORTIONAL SYSTEM

2.4GHZ XT16/XR16 MT-303

SYSTEM FEATURES

- Unique and functional pistol grip transmitter design
- Well balanced for precise control
- Non-slip foam steering wheel
- Well placed digital trim & D/R levers
- Optimum third channel switch location
- Low Battery warning
- Quick Binding and Fail Safe Setup
- High performance micro 3 channel receiver
- Ni-Cd charger jack in transmitter
- Sound Beep

SYSTEM SPECIFICATIONS

Transmitter

Model: MT-303

FHSS Output Power: <100mW

Operating Voltage: 4.8 or 6V

Power Supply: 4 Cell Alkaline/Ni-Cd/Ni-MH

Weight: 15.2oz(433g) with Alkalines

Frequency/Modulation Type: 2.4GHz FHSS

Receiver

Model: MR-300 or MR303

Frequency: 2.4GHz FHSS

Operating Voltage: 4.8 or 6V

Weight: 0.26 oz (7.4g)
0.4 oz (11.6g)

Dimensions: 1.38 x 1 x 0.5 in (35.1 x 25.3 x 13 mm)
1.34x1.02x0.63in (34x26x16mm)

Fail Safe: Yes (All Channels)

FEATURES DESCRIPTIONS

Receiver Antenna Wire: The antenna wire receives the transmitter signal. The antenna wire should be installed through a nylon tube (antenna tube) in the vertical position for the best reception.

Auxiliary Channel 3 Switch: Controls Auxiliary Channel 3 High and Low servo travel.

Battery Compartment: Houses the 4 'AA' Alkaline batteries that power the transmitter.

Bind Button: Used in the process of Binding the transmitter and receiver.

Bind LED: Displays the current status of the transmitter and receiver pair.

Steering Dual Rate (D/R): The Dual Rate Keys are used to adjust the Steering Dual Rate quickly and easily during use.

Grip: The Grip is molded in an ergonomic shape for increased comfort, control and feel.

Power Indicator: Indicates that there is Power to the transmitter.

Power Switch: Turns the transmitter ON and OFF.

Steering Trim Lever (CH1): Used to adjust the center Trim of the Steering servo.

Steering Wheel(CH1): Proportionally operates the model's right and left steering control. The Steering Wheel features a molded grip for increased comfort, control and feel.


Throttle Trigger(CH2): Controls the speed of the model, both forward and backward, or the model's brake.

Throttle Trim Lever (CH2): Used to adjust the center Trim of the Throttle servo.

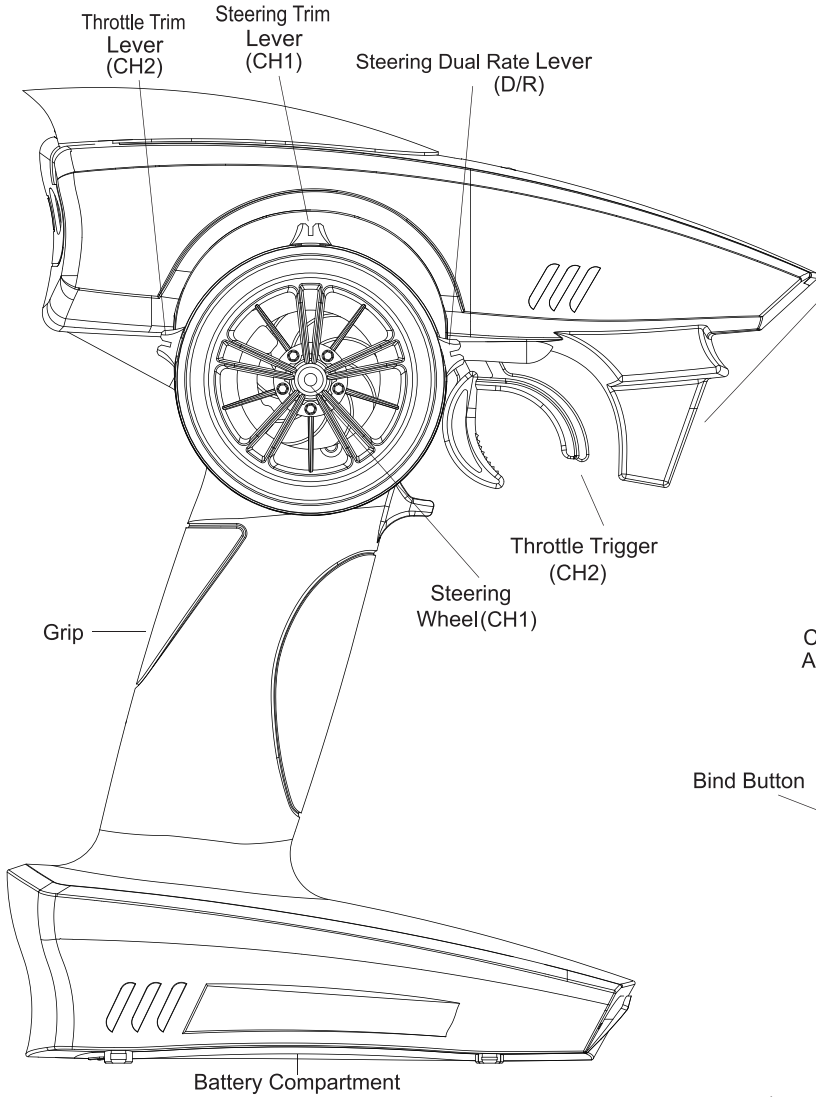
TRANSMITTER AND RECEIVER DIAGRAMS

Use the diagram below to familiarize yourself with the different parts of your **MT-303** transmitter and **MT-303(MR-300)** receiver.

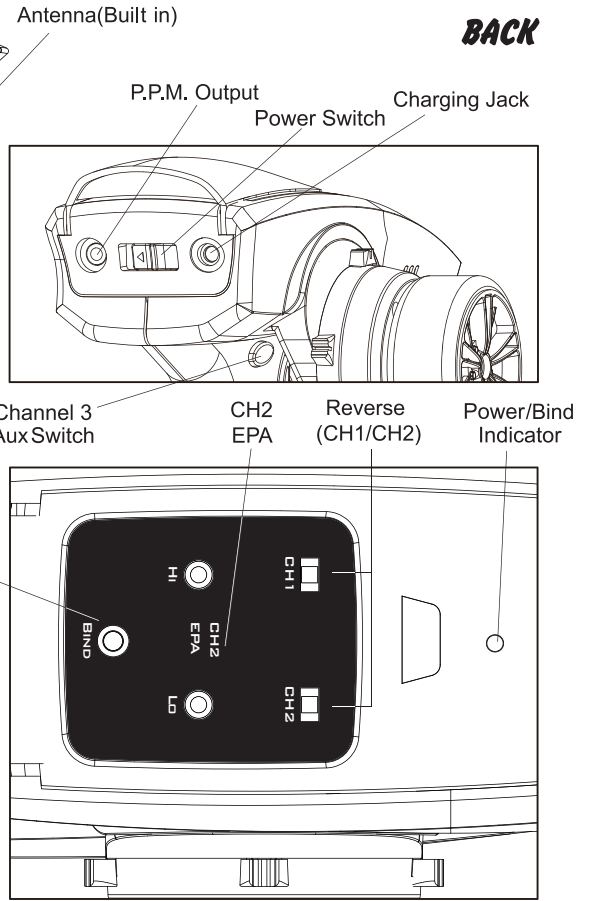
Descriptions of these parts can be found in the transmitter and receiver layout.

 The transmitter antenna is mounted internally and is located in the front portion of the transmitter. When you're driving your model, hold the transmitter so that it's orientated as close to vertical as possible at all times and try not to 'follow' your model with the transmitter. This provides the best RF signal between the transmitter and the receiver. Do NOT cover the front of the transmitter in any way during use! Doing so can block the RF signal, resulting in the loss of control of your model.

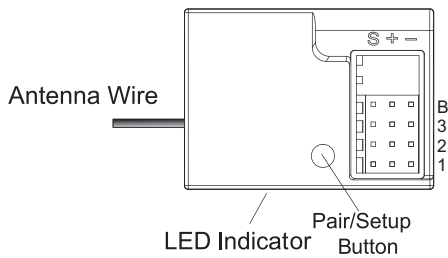
FRONT



BACK



RECEIVER

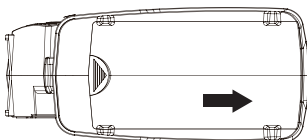


Channel Output

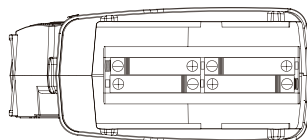
- "1": Steering (CH1)
- "2": Throttle (CH2)
- "3": AUX (CH3)
- "B": Power

TRANSMITTER BATTERY INSTALLATION

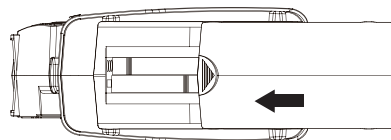
To Open slide cover



Install Batteries



To Close slide cover



1. Press down on the battery cover and slide in the direction of the arrow to remove.
2. Install 4 AA alkaline cells (or Ni-Cd, or Ni-MH) as indicated inside the battery compartment. Make sure to match the polarity (+ and -) as shown in the battery compartment or the transmitter will not function.


3. Install the battery cover in place and slide to close.

WARNING: Improper installation of transmitter batteries can cause serious damage to your system.


RECEIVER CONNECTIONS AND MOUNTING


Use the diagram below to familiarize yourself with how to connect the switch harness, servos (available separately), and the 4 cell battery holder to your **MT-303(MR-300)** 3-Channel receiver.

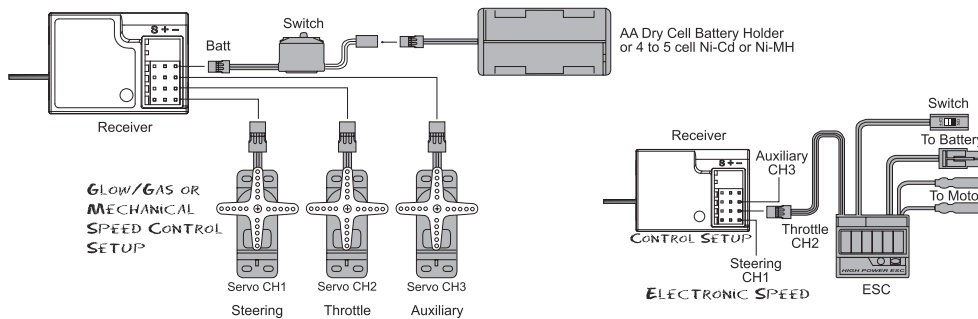
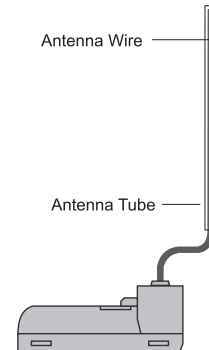
- 1) Install four fresh 'AA' Alkaline batteries into the battery holder, making sure that the polarity is correct. The direction that each battery should be installed is molded into the battery holder (+ Positive and - Negative).

 The **MT-303(MR-300)** 3-Channel receiver's Nominal Input Voltage is **3.6v~7v**, therefore, the receiver can be powered powered using a 4 or 5 cell Ni-Cd or Ni-MH battery pack (available separately).

- We suggest Binding the transmitter and receiver and setting the Fail Safe position, prior to mounting the receiver in your model.
- The receiver should be mounted as far away from any electrical components as possible.
- Route the antenna wire up through a plastic tube so that it is in the vertical position.
- To protect the receiver from vibration and other damage, we recommend wrapping the receiver in shock absorbing foam rubber when installing it in your model.

 Set your model on a stand so the wheels are off the ground before turning on your radio control system or connecting your motor for the first time.

 The receiver does not feature BEC circuitry. If using an electronic speed control, verify that it features BEC circuitry to drop the receiver voltage between 3.6v~7v.



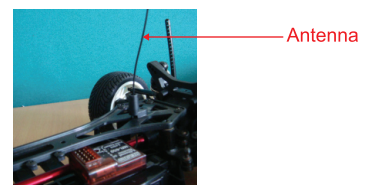
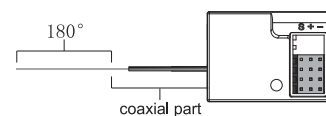
RECEIVER'S ANTENNA INSTALLATION

The wave length of the 2.4GHz is much shorter than that of the conventional frequencies, it is very susceptible to loss of signal which results in a receiving error.

To obtain the best results, please refer to the following instructions;

- 1.The antenna must be kept as straight as possible. Otherwise it will reduce the effective range.
- 2.The antenna should be perpendicular to the model. Larger models can have large metal objects that can attenuate the RF signal. In this case the antennas should be placed at sides of the model. Then the best RF signal condition is obtained at any attitude.
- 3.The antennas must be kept away from conductive materials, such as metal and carbon by at least a half inch. The coaxial part of the antennas does not need to follow these guidelines, but do not bend it in a small radius.
- 4.Keep the antennas away from the motor, ESC, and other noise sources as much as possible.

*The main purpose of the photo demonstrates how the antenna should be placed. For actual installation the receiver must be wrapped with a sponge or placed with floating material to protect it from vibration.



The receiver contains precision electronic parts. It is the most delicate radio component on-board the model and should be protected from vibration, shock and temperature extremes. To protect the receiver, wrap it in R/C foam rubber or other vibration-absorbing material. If appropriate, waterproof the receiver by placing it in a plastic bag and closing the open end with a rubber band before wrapping it in foam. If moisture enters the receiver, intermittent operation or a failure may result. Wrapping the receiver in a plastic bag also protects it from fuel and exhaust residue which, in some models, can work its way into the model.

STEERING TRIM(CH1)

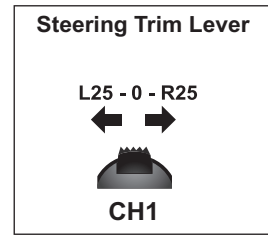
Steering neutral adjustments can be made by moving the steering trim lever to the left or right. When you install a servo, always check to be sure the servo is at its neutral position. Adjust the servo horn position and linkage so both are parallel. Be sure the steering trim on the transmitter is at the neutral position.

Trim Operation And Maximum Travel

Changing the trim can affect the overall settings. When adjustments are made with the trims, recheck your installation for maximum travel. (Steering D/R at 100%)

When Trim Usage Is Extreme

If it takes most of your trim movement to get a servo to the neutral position, reposition the servo horn on the servo and inspect your linkage installation.



THROTTLE TRIM(CH2)

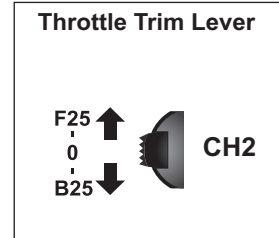
Throttle neutral adjustments can be made by moving the throttle trim lever to the up or down. When using an electronic speed control, set the throttle trim to neutral and make adjustment to the speed control. On a gas powered model, set the trim to neutral and adjust the linkage to the point where the carburetor is fully closed in accordance with the engine instruction manual.

Trim Operation And Travel

Trim adjustments will affect the overall servo travel. Check the brake side (backward) movement when changes are made.

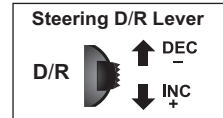
When Trim Movement Is Extreme

If you use most of the trim movement to get the servo to the neutral position, recenter the servo horn closer to the neutral position and inspect your throttle linkage.



STEERING DUAL RATES(D/R-CH1)

Use this function to adjust the steering travel of your model. If the model understeers while cornering, add steering by pressing the lower side of the D/R button. When the model oversteers, take away steering by pressing the upper side of the D/R button.

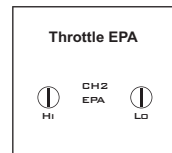


THROTTLE END POINT ADJUSTMENT(EPA-CH2)

This function is used to adjust the forward and brake side servo travel. Each direction can be adjusted independent of each other. Use this feature to set the throttle servo travel.



Be sure that your throttle linkage does not apply excessive force to the servo. If your linkage installation causes an unreasonable amount of force to be applied to the servo, the servo may be damaged and result in loss of control.



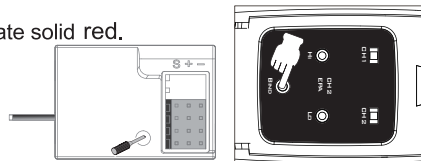
TRANSMITTER AND RECEIVER BINDING

The Binding function allows you to Bind the transmitter and receiver pair. When new, it is necessary to pair the transmitter and receiver to prevent interference from radio controllers operated by other users. This operation is referred to as 'binding'. Once the binding process is complete, the setting is remembered even when the transmitter and receiver are turned OFF. Therefore, this procedure usually only needs to be done once.



Before beginning the binding process, connect the switch harness, servos, and the receiver battery to your **MT-303(MR-300)** 3-Channel receiver, using the diagram on page 5. Make sure that both the transmitter and the receiver receiver are turned OFF.

- 1) Turn the transmitter ON. The Power Indicator on the transmitter will illuminate solid red.
- 2) Press and hold the receiver setup button, then turn the power switch on the ON position. The receiver LED will flash quickly. Release the setup button after 1 second.
- 3) Press and hold the binding button on the transmitter for 1 second until the LED on the receiver is continuously lit.



When the binding process is successful, the Bind LED on the receiver will stay solid red when both the transmitter and receiver are turned ON. If the Bind LED on the receiver is flashing rapidly or not illuminated at all, the transmitter and receiver are not paired. In this case, turn both the transmitter and receiver OFF, then repeat the binding process.



Under some circumstances, the receiver may not operate after turning the transmitter and receiver ON. If this occurs, perform the binding process again.

FAIL SAFE SETUP

Please note the setup must be based on pair procedure well.

1. Turn the power switch on the transmitter & receiver to the ON position, the LED on transmitter & receiver are continuously lit.
2. Move the steering wheel or throttle trigger to the position where you want the servo to move, press and hold the receiver setup button for 2 second until the red LED on the receiver flash slowly, then press and hold the receiver setup button again within 5 seconds (Note: after 5 seconds F/S setup will reset, you have to start over at step one above) until the receiver LED is continuously lit, that's mean the F/S function has been correctly set.
3. Verify if the failsafe function has been correctly set. Turn off the transmitter, then check if the servos moves to the position that you set.
4. Any new binding (pair procedure) will clear the preset Fail-Safe.

Thanks for purchasing our electronic speed controller (ESC). The power system for RC model can be very dangerous, please read this manual carefully. In that we have no control over the correct use, installation, application, or maintenance of our products, no liability shall be assumed nor accepted for any damages, losses or costs resulting from the use of the product.

【FEATURES】

1. Water-proof and dust-proof for all weather races.
2. Small size with built-in capacitor module.
3. Automatic throttle range calibration, easy to use.
4. Multiple protections: Low voltage cut-off protection for Lipo or NiMH battery / Over-heat protection / Throttle signal loss protection.
5. Easily programmed with the jumpers.

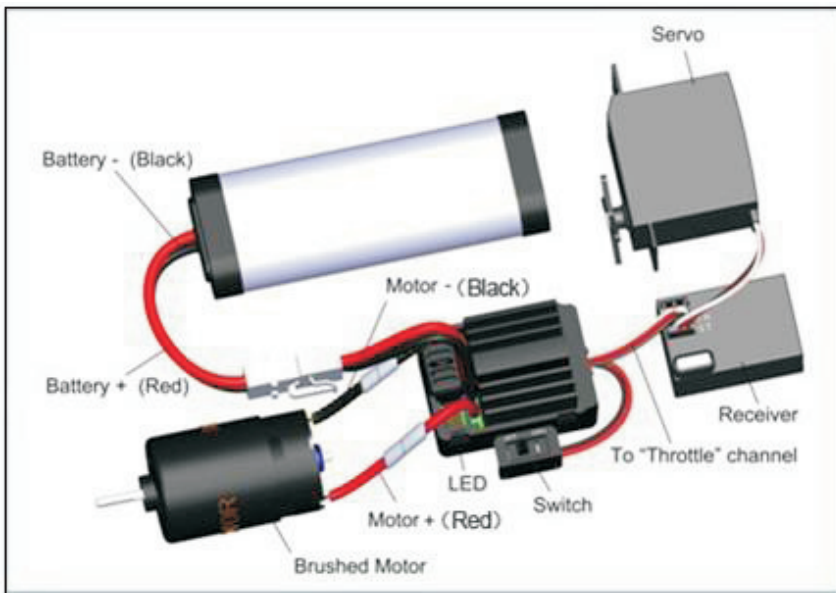
【SPECIFICATIONS】

		WP-1040-BRUSHED WP-1040-BRUSHED-CRAWLER & BOAT	
FWD Cont. / Burst Current		Forward: 40A / 180A	
BWD Cont. / Burst Current		Backward: 20A / 90A	
Input		2-3S Lipo, 5-9 Cells NiMH/NiCd	
Cars Applicable		1:10 on-road, off-road Buggy, SCT, Truggy 1:10 Crawler, Tank & Boat	
Motor Limit	2 Lipo or 6 NiMH	540 or 550 size motor ≥12T RPM < 30000 @7.2V	
	3 Lipo or 9 NiMH	540 or 550 size motor ≥18T RPM < 20000 @7.2V	
Resistance		FWD: 0.002 Ohm; BWD: 0.004 Ohm	
Built-in BEC		2A/5V (Linear mode BEC)	
PWM Frequency		1KHz	
Dimension		46.5mm*34mm*28.5mm	
Weight		WP-1040-BRUSHED: 65g WP-1040-BRUSHED-CRAWLER: 70g	

* There are 2 kinds of WP-1040-BRUSHED-CRAWLER & BOAT, one has 1 output for 1 motor, and the other one has 2 outputs for 2 motors (There is only one input for the ESC, 2 motors work synchronously).

【BEGIN TO USE】

1. **Connect the ESC, motor, receiver, battery and servo according to the following diagram**



“+” and “-” wires of the ESC are connected to the battery pack.

Attention: The incorrect polarity will damage the ESC immediately.

The control cable of the ESC (trio wires with black, red and white color) is connected to the throttle channel of the receiver (Usually CH2).

The “Motor +” and “Motor -” wires are connected to ESC without any order. If the motor runs in the opposite direction, please swap these two wire connections.

2. **Set the Transmitter**

Please set the “D/R”, “EPA” and “ATL” to 100% for throttle channel (for transmitter without LCD, please turn the knobs to

the maximum value), and set the “TRIM” of the throttle channel to 0 (for transmitter without LCD, please turn the TRIM knob to its neutral position).

For Futaba™ and the similar transmitters, the direction of throttle channel shall be set to “REV”, while other radio systems shall be set to “NOR”.

The “Fail Save” function of the radio system is strongly recommended to be activated. Please make sure that the motor can be stopped when the “Fail Save” happens.

3. Throttle Range Setting (Throttle Range Calibration)

In order to make the ESC match the throttle range of different transmitters, the calibration of the ESC is necessary. To calibrate the ESC, please turn on the transmitter, keep throttle stick at its neutral position, wait for 3 seconds to let the ESC execute self-test and automatic throttle calibration. When the ESC is ready to run, a long beep sound is emitted from the motor.

Note: Please calibrate the throttle range again when using a new transmitter or changing the settings of the neutral position of throttle channel, D/R, ATV, ATL or EPA parameters, otherwise the ESC may not work properly.

【BEEP SOUND AND LED STATUS】

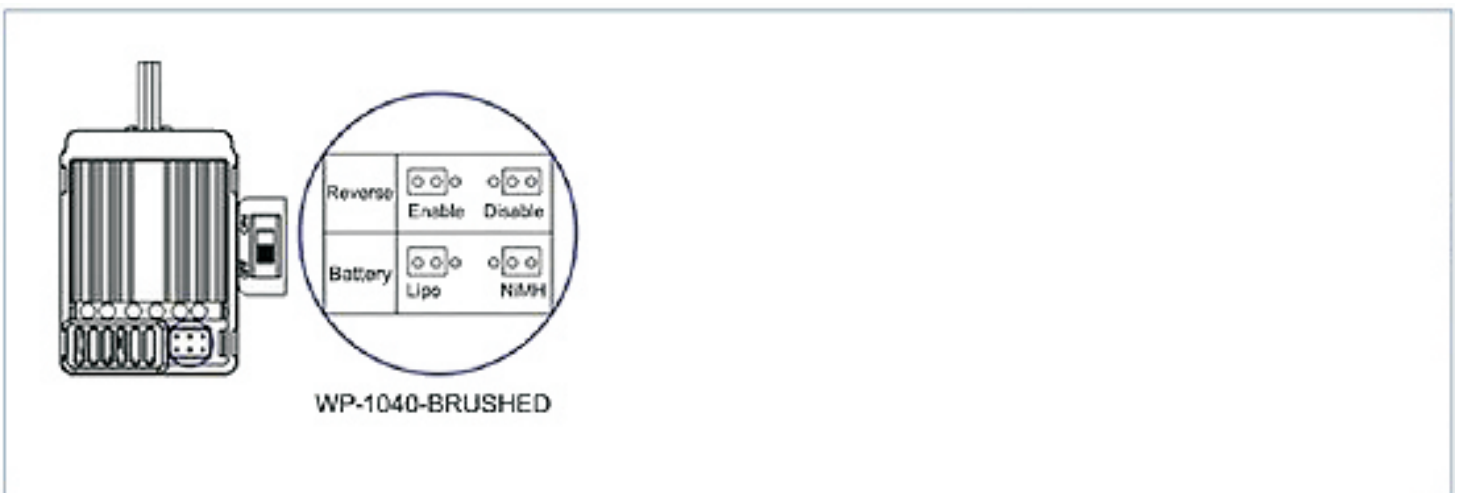
The Meaning of Beep Sound	LED Status
<ul style="list-style-type: none"> ● 1 short Beep: The battery is NiMH/NiCd ● 2 short Beeps: The battery is 2S Lipo ● 3 short Beeps: The battery is 3S Lipo ● 1 long Beep: Self-test and throttle calibration is OK, the ESC is ready to run 	<ul style="list-style-type: none"> ● When the throttle stick is in neutral range, red LED is off ● Forward, brake or reverse at partial throttle, red LED blinks ● Forward, brake or reverse at full throttle, red LED is solid

【THROTTLE STICK POSITION】



【SET THE ESC】

The ESC is programmed by the jumpers (Tweezers is recommended to plug and unplug the jumper).



【PROTECTION FUNCTIONS】

1. Low voltage cut-off protection: If the voltage of battery pack is lower than the threshold for 2 seconds, the ESC will enter the protection mode.

When the car stops, the red LED blinks to indicate the low voltage cut-off protection has been activated.

Model	2S Lipo	3S Lipo	5-9 cells NiMH
WP-1040-BRUSHED	Output reduces 50% at 6.5V	Output reduces 50% at 9.75V	Output reduces 50% at 4.5V

Model	2S Lipo	3S Lipo	5-9 cells NiMH
WP-1040-BRUSHED-CRAWLER&BOAT	Output cuts off at 6.5V. If the throttle stick moves to neutral and then up again, the output can be recovered to 50%. If the voltage drops to 6.5V again, the above process repeats in circles.	Output cuts off at 9.75V. If the throttle stick moves to neutral and then up again, the output can be recovered to 50%. If the voltage drops to 9.75V again, the above process repeats in circles.	Output cuts off at 4.5V. If the throttle stick moves to neutral and then up again, the output can be recovered to 50%. If the voltage drops to 4.5V again, the above process repeats in circles.

2. Over-heat protection: When the internal temperature of the ESC is higher than a factory preset threshold for 5 seconds, the ESC will reduce and cut off the output power.
 When the car stops, the red LED blinks to indicate the over-heat protection has been activated. If the ESC cools down to 80 Celsius degree, the output power is recovered to normal state.
3. Throttle signal loss protection: The ESC will cut off the output power if the throttle signal has been lost for 0.1 second.
 The "Fail Save" function of the radio system is strongly recommended to be activated.

【TROUBLE SHOOTING】

Trouble	Possible Reason	Solution
After power on, motor can't work, no sound is emitted, and LED is off.	The ESC doesn't get its working voltage; Connections between battery pack and ESC are broken.	Check the battery wires connection or replace the defective connectors.
	Switch is damaged.	Replace the switch.
After power on, motor can't work; red LED blinks.	Throttle signal is abnormal.	Check the throttle wire connection; make sure it is plugged into the throttle channel of the receiver.
	Automatic throttle range calibration is failed.	Set the "TRIM" of throttle channel to 0 or turn the knob to its neutral position.
The car runs backward while giving throttle. (The motor runs in the opposite direction)	The wire connections between ESC and the motor need to be changed.	Swap two wire connections between the ESC and the motor.
The car can't go backward.	The jumper position is wrong.	Check the jumper and plug it to the correct position.
	The neutral point of throttle channel is changed or drifted.	Set the "TRIM" of throttle channel to 0 or turn the knob to its neutral position.
The car can't go forward, but can go backward.	The direction of throttle channel is not correct.	Reset the direction of throttle channel from original "NOR" to "REV", or from original "REV" to "NOR".
The motor doesn't work, but the LED in the ESC works normally.	The connections between motor and ESC are broken.	Check the connections and replace the defective connectors.
	Motor is damaged.	Replace the motor.
The motor suddenly stops running while in working state	The throttle signal is lost.	Check the transmitter and the receiver. Check the throttle wire connection.
	Low voltage cut-off protection or Over-heat cut-off protection has been activated.	Replace the battery pack, or cool down the ESC.
The car cannot get top speed and the red LED doesn't solid on at full throttle	Some setting in the transmitter are incorrect.	Check the settings. Set D/R, EPA, ATL to 100% or turn the knobs to maximum value. Set TRIM to 0 or turn the knob to its neutral position.
Motor is cogging when accelerated quickly.	The battery has limited discharge ability.	Use battery with better discharge ability.
	Motor RPM is too high, the gear ratio is too aggressive.	Use motor with lower RPM, or use smaller pinion to get softer gear ratio.
	Something wrong in the driving system of the car.	Check the driving system of the car.

User Manual Of Brushless Speed Controller For Car (RTR Application)

【FEATURES】

1. Specially designed for RC car RTR (Ready To Run) application.
2. Excellent start-up, acceleration and linearity features.
3. Compatible with sensorless brushless motor.
4. Running modes: Forward mode (single direction) and Forward/Backward mode (dual directions)
5. Proportional ABS brake function, with 4 steps of maximum brake force adjustment, 8 steps of drag-brake force adjustment.
6. Different options of start modes (Also called "Punch") from "soft" to "aggressive".
7. Multiple protection features: Low voltage cut-off protection for lithium or nickel battery / Over-heat protection / Throttle signal loss protection / Motor blocked protection.
8. Splash proof and dustproof.

【SPECIFICATIONS】

Model	S18 RTR	S16 RTR	S10 On-Road	S10 Off-Road	S8 RTR
Suitable Car	1/18 car	1/16 car	1/10 On-Road	1/10 Off-Road	1/8 car
Battery	4-9 cells NiMH or 2-3S Lipo				2-4S Lipo
Cooling Fan	N/A	N/A	5V	5V	5V
	For 4-6 cells NiMH or 2S Lipo: Just use the cooling fan combined with the ESC; For 7-9 cell NiMH or 3S Lipo: Please choose a high voltage cooling fan or supply the fan from the receiver, (Please check the instructions on page 3)				The cooling fan get its power supply from a built-in regulator of 5.75V
Suitable Brushless Motor	2S Lipo On-road: $\geq 12T$ Off-road: $\geq 18T$ 2030 size motor	2S Lipo On-road: $\geq 12T$ Off-road: $\geq 18T$ 2030 size motor	2S Lipo On-road: $\geq 9T$ Off-road: $\geq 12T$ 3650 size motor	2S Lipo On-road: $\geq 5.5T$ Off-road: $\geq 8.5T$ 3650 size motor	4S Lipo Turn $\geq 6T$ KV ≤ 2400 4074 size motor
	3S Lipo On-road: $\geq 18T$ Off-road: $\geq 24T$ 2030 size motor	3S Lipo On-road: $\geq 18T$ Off-road: $\geq 24T$ 2030 size motor	3S Lipo On-road: $\geq 12T$ Off-road: $\geq 18T$ 3650 size motor	3S Lipo On-road: $\geq 8.5T$ Off-road: $\geq 13.5T$ 3650 size motor	
BEC Output	6V@1A	6V@1.5A	6V@1.5A	6V@3A	5.75V@3A
Motor Type	Sensorless Brushless Motor				
Dimension	31.5* 24* 15	31.5* 27.5* 16	31.5*27.5*30	31.5*27.5*33	58*46*35

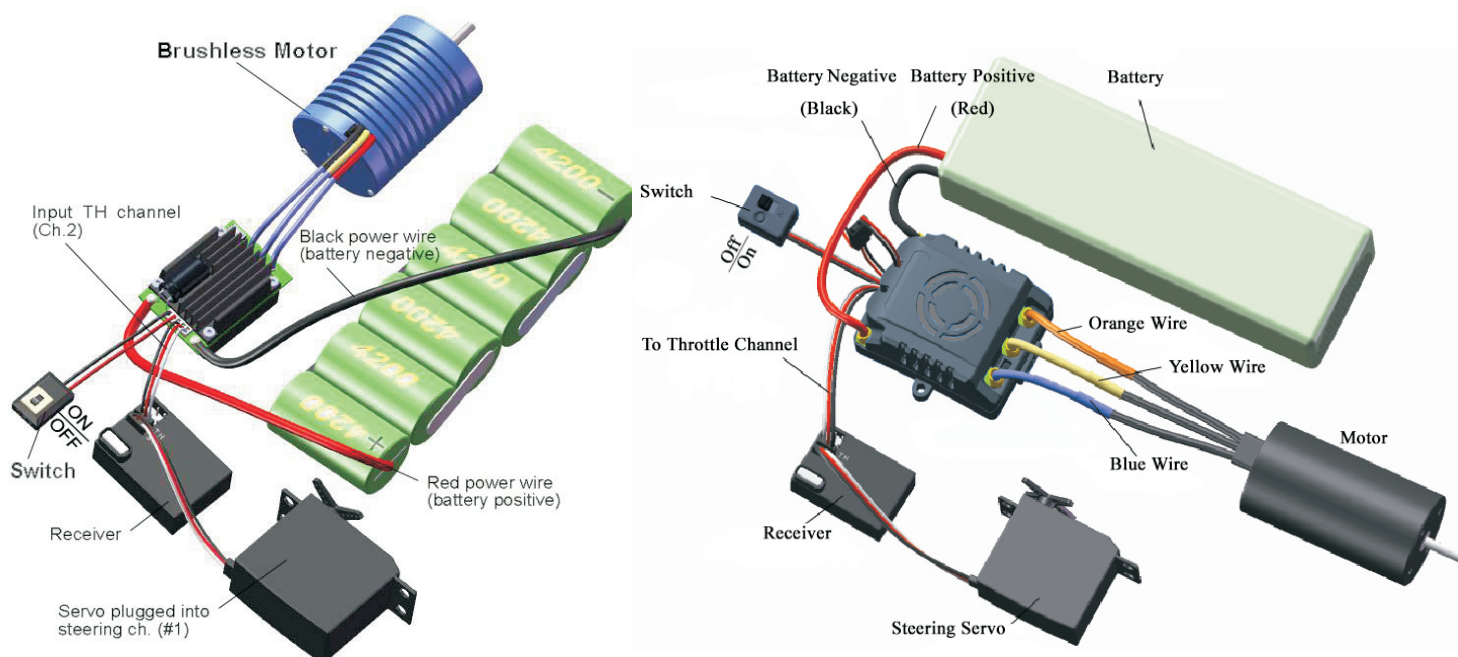
【BEGIN TO USE THE NEW ESC】

1. Connect the ESC, motor, receiver, battery and servo according to the following diagrams

"+" and "-" wires of the ESC are connected with the battery pack, and #A, #B and #C are connected with the motor wires. The control cable of the ESC (trio wires with black, red and white color) is connected with the throttle channel of the receiver (Usually CH2).

The #A, #B, #C wires of the ESC can be connected with the motor wires freely (without any order). If the motor runs in the opposite direction, please swap any two wire connections.

The "SET" button is used for programming the ESC.



If there are 2 battery packs need to be connected in series, please refer to the following picture:

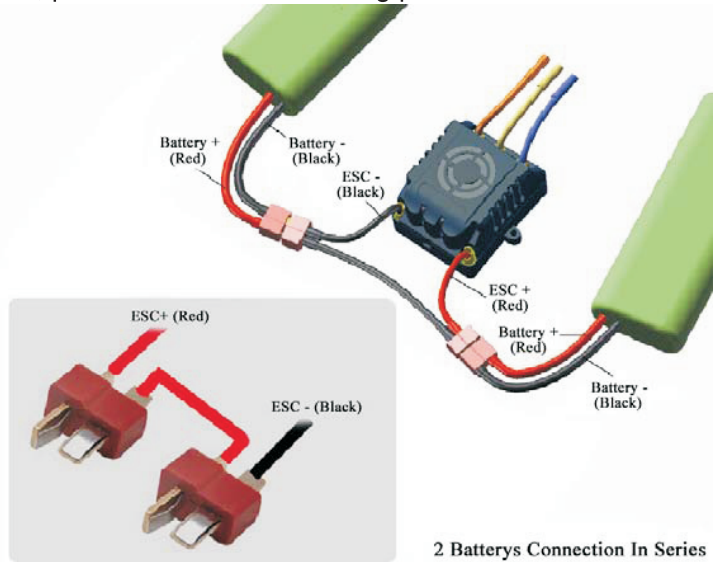
2. Throttle Range Setting (Throttle Range Calibration)

In order to make the ESC fit the throttle range of your transmitter, you must calibrate it for the following cases; otherwise the ESC cannot work properly.

- 1) Begin to use a new ESC;
- 2) Begin to use a new transmitter;
- 3) Change the settings of neutral position of the throttle stick, ATV or EPA parameters, etc.

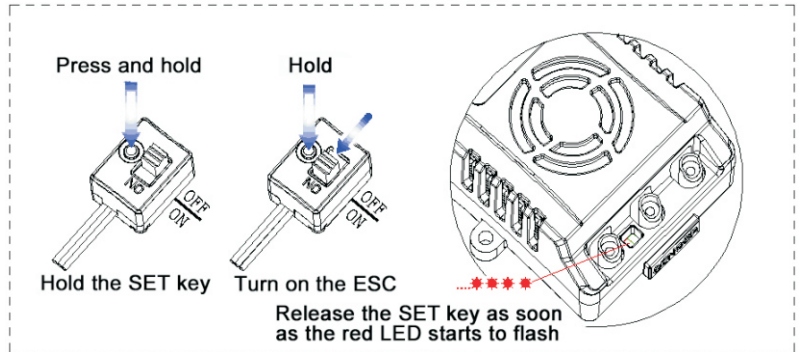
There are 3 points need to be set, they are the end point of "forward", the end point of "backward" and the neutral point.

The following pictures show how to set the throttle range with a Futaba™ transmitter.



2 Batterys Connection In Series

- A) Switch off the ESC, turn on the transmitter, set the direction of throttle channel to "REV", set the "EPA/ATV" value of throttle channel to "100%", and disable the ABS function of your transmitter.
- B) Hold the "SET" key ([Note1](#)) and then switch on the ESC, and release the "SET" key as soon as the red LED begins to flash. ([Note2](#))

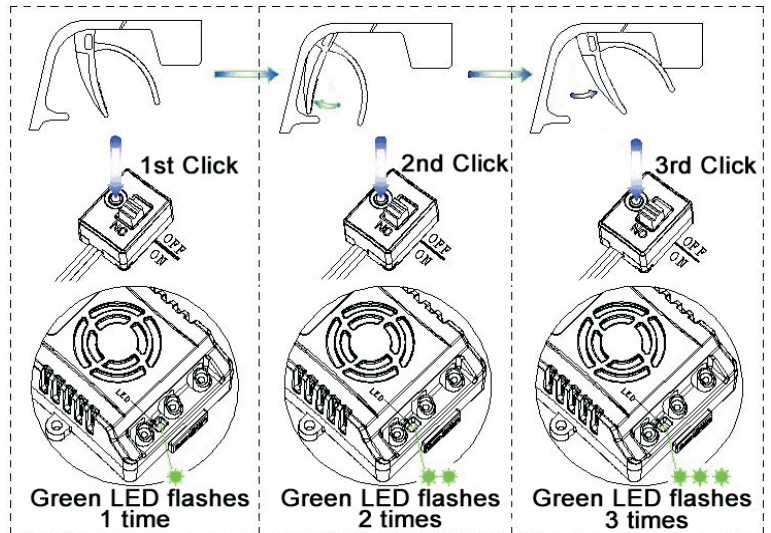


Note1: The "SET" key of S18 and S8 ESC is beside the main switch of the controller.

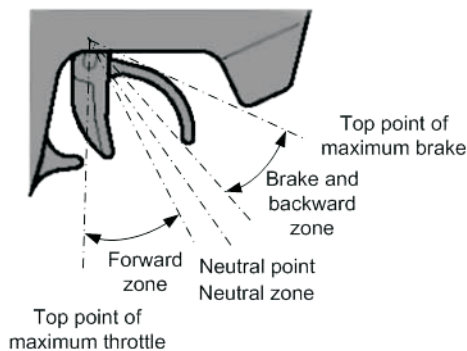
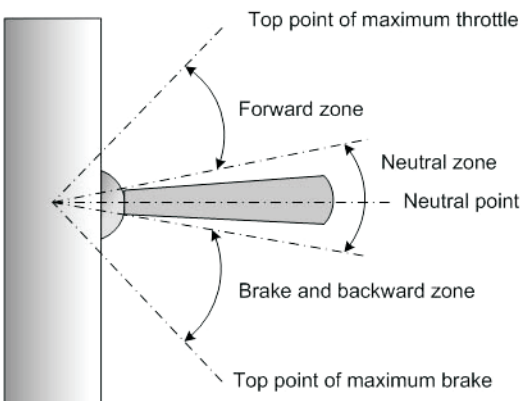
The "SET" key of S16, S10 On-Road and S10 Off-Road ESC is located on the main board of the controller.

Note2: If you don't release the "SET" key as soon as the red LED begins to flash, the ESC will enter the program mode, in such a case, please switch off the ESC and re-calibrate the throttle range again from step A to step D.

- C) Set the 3 points according to the steps shown in the pictures on the right side.
 - 1) **The neutral point**
Move the throttle stick at the neutral point, and then click the SET key, the green LED flashes 1 time.
 - 2) **The end point of forward direction**
Move the throttle stick at the end point of forward direction, and then click the SET key, the green LED flashes 2 times.
 - 3) **The end point of backward direction**
Move the throttle stick at the end point of backward direction, and then click the SET key, the green LED flashes 3 times.
- D) Throttle range is calibrated; motor can be started after 3 seconds.



3. Throttle Range Explanation



【LED STATUS IN NORMAL RUNNING】

1. In normal use, if the throttle stick is in the neutral range, neither the red LED nor the green LED lights.
2. The red LED lights when the car is running forward or backward and it will flash quickly when the car is braking.
3. The green LED lights when the throttle stick is moved to the top point (end point) of the forward zone or backward zone.

【ALERT TONES】

1. Input voltage abnormal alert tone: The ESC begins to check the input voltage when power on, if it is out of the normal range, such an alert tone will be emitted: “beep-beep-, beep-beep-, beep-beep-” (There is 1 second time interval between every “beep-beep-” tone).
2. Throttle signal abnormal alert tone: When the ESC can't detect the normal throttle signal, such an alert tone will be emitted: “beep-, beep-, beep-” (There is 2 seconds time interval between every “beep-” tone).

【PROTECTION FUNCTION】

1. Low voltage cut-off protection: If the voltage of a lithium battery pack is lower than the threshold for 2 seconds, the ESC will cut of the output power. Please note that the ESC cannot be restarted if the voltage of each lithium cell is lower than 3.5V.

For NiMH battery packs, if the voltage of the whole NiMH battery pack is higher than 9.0V but lower than 12V, it will be considered as a 3S lithium battery pack; If it is lower than 9.0V, it will be considered as a 2S lithium battery pack. For example, if the NiMH battery pack is 8.0V, and the threshold is set to 2.6V/Cell, so it will be considered as a 2S lithium battery pack, and the low-voltage cut-off threshold for this NiMH battery pack is 2.6*2=5.2V.

2. Over-heat protection: When the temperature of the ESC is over a factory preset threshold for 5 seconds, the ESC will cut off the output power. When the over-heat protection happens, the Green LED will flash in such a style: “☆, ☆, ☆” (Single flash).

3. Throttle signal loss protection: The ESC will cut off the output power if the throttle signal is lost for 0.2 second.

【PROGRAM THE ESC】

1. Programmable Items List *(The italic texts in the form are the default settings)*

Table A: Programable Items for S8 RTR ESC									
Programmable Items	Options								
	1	2	3	4	5	6	7	8	9
1. Running Mode	Forward with Brake	<i>Forward/Reverse with Brake</i>	Forward and Reverse						
2. Drag Brake Force	<i>0%</i>	5%	10%	20%	40%	60%	80%	100%	
3. Low Voltage Cut-Off Threshold	Non-Protection	2.6V/Cell	2.8V/Cell	<i>3.0V /Cell</i>	3.2V /Cell	3.4V /Cell			
4. Start Mode(Punch)	Level1	Level2	Level3	Level4	<i>Level5</i>	Level6	Level7	Level8	Level9
5. Max Brake Force	25%	<i>50%</i>	75%	100%	Disable				

Table B: Programable Items For S18,S16,S10 On-Road & S10 Off-Road RTR ESC								
Programmable Items	Programmable Value							
	1	2	3	4	5	6	7	8
1. Running Mode	Forward with Brake	<i>Forward/Reverse with Brake</i>						
2. Drag Brake Force	0%	5%	<i>10%</i>	15%	20%	25%	30%	40%
3. Low Voltage Cut-Off Threshold	Non-Protection	<i>2.6V/Cell</i>	2.8V/Cell	3.0V /Cell	3.2V /Cell	3.4V /Cell		
4. Start Mode(Punch)	Level1	Level2	<i>Level3</i>	Level4				
5. Maximum Brake Force	25%	50%	<i>75%</i>	100%				

2. Explanation For Each Programmable Item

2.1. **Running Mode:** With “Forward with Brake” mode, the car can go forward and brake, but cannot go backward, this mode is suitable for competition; “Forward/Reverse with Brake” mode provides backward function, which is suitable for daily training.

Note: For S8 ESC, “Forward/Reverse with Brake” mode uses “Treble-click” method to make the car go backward. When you move the throttle stick from forward zone to backward zone for the 1st and 2nd time (The 1st and 2nd “click”), the ESC begins to brake the motor, the motor speeds down but it is still running, not completely stopped, so the backward action is NOT happened immediately. When the throttle stick is moved to the backward

zone for the 3rd time (The 3rd “click”), if the motor speed is slowed down to zero (i.e. stopped), the backward action will happen. The “Treble-Click” method can prevent mistaken reversing action when the brake function is frequently used in steering.

By the way, in the process of brake or reverse, if the throttle stick is moved to forward zone, the motor will run forward at once.

But for S18, S16, S10 ESC, “Forward/Reverse with Brake” mode uses “Double-click” method to make the car go backward.

“Forward/Reverse” mode uses “Single-click” method to make the car go backward. When you move the throttle stick from forward zone to backward zone, the car will go backward immediately. This mode is usually suitable for Rock Crawler.

2.2. Drag Brake Force: Set the amount of drag brake applied at neutral throttle to simulate the slight braking effect of a neutral brushed motor while coasting.

2.3. Low Voltage Cut-Off: The function prevents the lithium battery pack from over discharging. The ESC detects the battery’s voltage at any time, if the voltage is lower than the threshold for 2 seconds, the output power will be reduced 70%, 10 seconds later the output will be completely stopped, and the red LED flashes in such a style: “☆☆, ☆☆, ☆☆☆” (Double flashes).

2.4. Start Mode (Also called “Punch”): Select from “Level1” to “Level9” (For S8 ESC) or “Level1” to “Level4” (For S18, S16 and S10 ESC). Higher number means more aggressive start effect. Please note that if you choose “Level7” to “Level9” mode, you must use good quality battery pack with powerful discharge ability, otherwise these modes cannot get the burst start effect as you want. If the motor runs hardly (trembling), it may caused by the weak discharge ability of the battery pack, please choose a better battery or increase the gear rate (Use a smaller pinion).

2.5. Maximum Brake Force: The ESC provides proportional brake function. The brake force is related to the position of the throttle stick. Maximum brake force refers to the force when the throttle stick is located at the end point of the backward zone. A very large brake force can shorten the brake time, but it may damage the gears. The “Disable” option of S8 ESC inhibits the inherent brake function of the speed controller. When this option is selected, the brake function is realized by a traditional disc-brake system driven by a servo.

3. Program The ESC With SET Button

Please check the instructions on the page 3.

4. Reset All Items To Default Values

At any time when the throttle is located in neutral zone (except in the throttle calibration process or ESC program mode), hold the “SET” key for over 3 seconds, the red LED and green LED will flash at the same time , which means each programmable item has be reset to its default value.

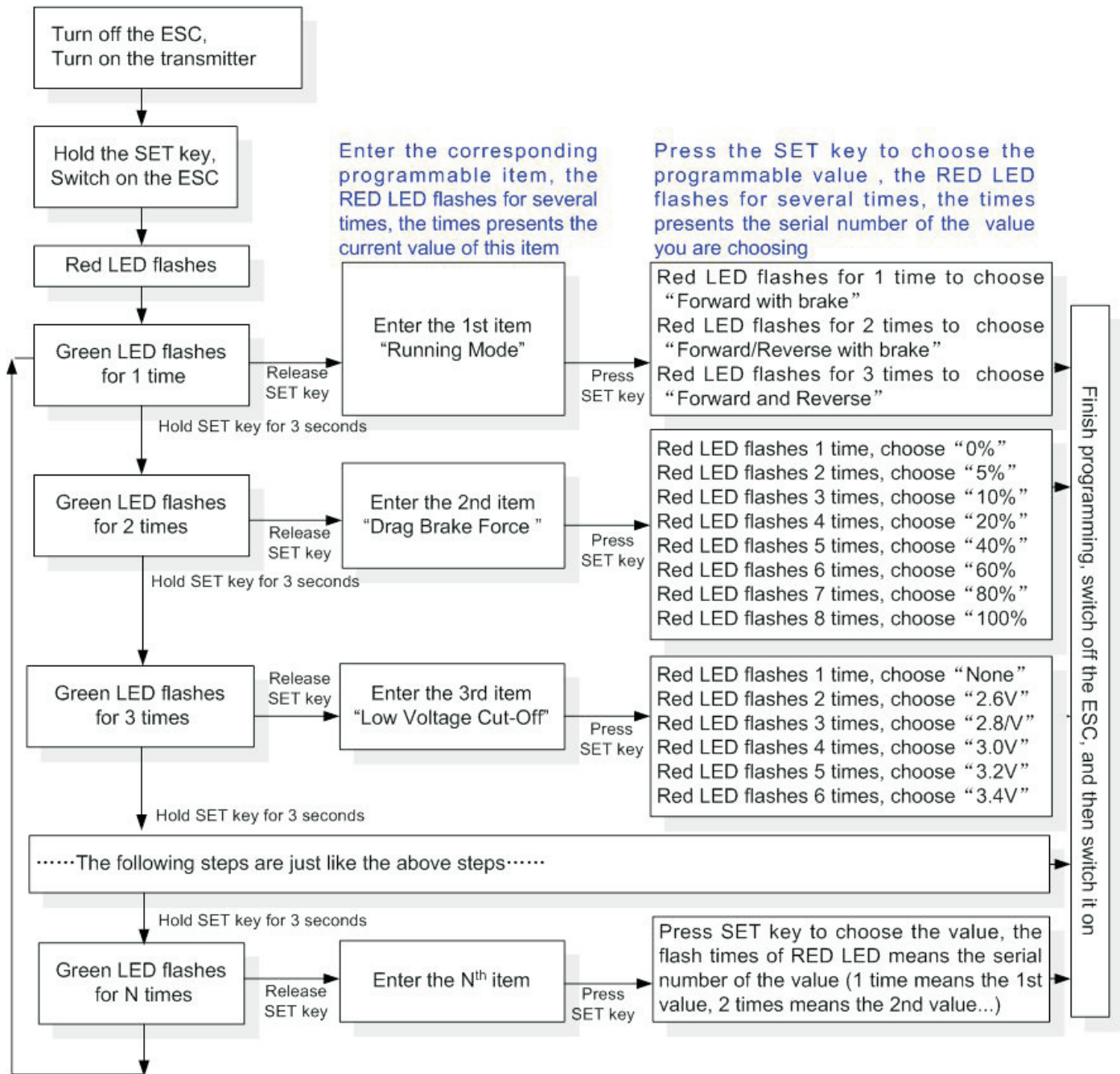
【TROUBLE SHOOTING】

Trouble	Possible Reason	Solution
After power on, motor doesn't work, and the cooling fan doesn't work	The connections between battery pack and ESC are not correct	Check the power connections Replace the connectors
After power on, motor can't work, but emits “beep-beep-, beep-beep-” alert tone. (Every group of “beep-beep-” has a time interval of 1 second)	Input voltage is abnormal, too high or too low	Check the voltage of the battery pack
After power on, red LED always lights, the motor doesn't work	Throttle signal is abnormal	Plug the control wire into the throttle channel of the receiver correctly.
The motor runs in the opposite direction when it is accelerated	The wire connections between ESC and the motor are not correct	Swap any two wire connections between the ESC and the motor.
The motor suddenly stops running	The throttle signal is lost	Check the transmitter and the receiver Check the signal wire from the throttle channel of your receiver
	The ESC has entered the Low Voltage Protection Mode or Over-heat Protection Mode	Red LED flashing means Low voltage protection. Please replace battery pack. Green LED flashing means Over-heat protection, please stop running to cool the ESC.
When accelerating quickly, the motor stops or trembles	1) The battery has a bad discharge performance 2) The gear rate is too small 3) The “Start Mode (Punch)” of the ESC is too aggressive	1) Use a better battery 2) Use lower KV motor or change the gear rate, choose smaller pinion 3) Select a softer option for the “Start Mode (Punch)”

【PROGRAM THE ESC WITH SET BUTTON】

The following is a flow chart sample for programming a S8 ESC.

Flow chart: Program the ESC with the SET key



Note3: In the program process, when the LED is flashing, the motor will emit "Beep" tone at the same time.

【OPTIONAL ACCESSORIES FOR UPGRADE】

High Voltage Cooling fan (12V): The high voltage fan is necessary when you are using 3S Lipo or more than 6 cells NiMH battery pack for S10 On-Road and S10 Off-Road ESCs.

It is installed on the heat sink of the ESC, it helps to cool the ESC with **downward** airflow.

WARNING!

The original cooling fan (5V) combined with the S10 ESC can ONLY work with a 2S lipo battery pack or 4-6 cells NiMH battery pack. Please NEVER use it with a 3S Lipo battery pack or NiMH battery pack more than 6 cells, otherwise it may be damaged.

The 12V cooling fan is only useful for the following ESCs:

- ★ S10 On-Road ESC
- ★ S10 Off-Road ESC

1/10th 4WD Electric Power R/C Off-Road

Specifications:

Styles	Motor	KV (Brushless Motor)	Motor RPM range	Battery Specification	ESC Specification	ESC Temperature protection	Under Voltage Protection		Speed
Brush Version	Rc550		20000rpm	NiMH-7.2V-2000 mAh	Continue Forward150A/ Continue outward100A				28KM
Brushless Version	3650 (Rc550)	3300KV	24420rpm	LiPO-7.4V-3500 mAh 35C	Brushless 60A	98*(+/-3-5 centigrade)	below 5V1A		60KM

All spare parts starts with: C0300-XXXXXX

12001-Front Lower Arm (Thunder) 	12002-Rear Lower Arm (Thunder) 	02014-Steering Hubs (L/R) 	02015-Front Hub Carrier(L/R) 	02013-Rear Upright+ Set Screws 
02033-Wheel Axle 	02016-Universal Joint Cup B+ Grub Screw 	02032-Universal Joint Cup C 	02021-Rear Suspension Arm Holder 	02022-Front Suspension Arm Holder 
08002- Front Bumper 	08003-Rear Bumper 	08012- Fron/Rear Shock Tower 	08001-Shock Absorber (Thunder) 	02500-Motor Line 
03007-Motor Mount 	03601-Chassis 	03990-Radio Tray 	03013-Radio Tray Holder 	03610-Battery Cover Holder 
04004-Battery Corner Holder 	03009-Battery Cover post 	02074-Steering Joint 	02025E-Steering Assembly A 	02075-Steering Assembly B 

All spare part starts with:C0300-XXXXX


03401-Gear Shelter 	03300-Motor Heat Proof Cover 	08074-Crown Gear (38T) (Copper infiltration) 	02030-Drive Gear 	02024-Diff.Gear Complete 
03015-Drive Shaft+E-Clip 	02066-Diff.Pinions+pin 	02039-Differential Box (With 2 Rings&Steel Washers) 	02051-Gear Box 	12006-Steering Link 44mm (Thunder) 
10391-Servo Link 	12005-Front/Rear Link 50mm (Thunder) 	02372-Servo Arm 	03008- Switch Cover 	2530-Power Commutator 
08032-Bumper Spring 	08028- Bump Post 	08007- Body Post 	12020-Front/Rear Dogbone 100mm (Thunder) 	08027- Pin 2*10 
08019- Rear Lower Arm Pin B 3*30mm 	08020- Front Lower Arm Pin B 3*33mm 	02036-Front Lower Arm Pins A ϕ 3*44mm 	02063-Rear Lower Arm Pin A ϕ 3*54mm 	04003-Centre Dogbone 
02057-Antenna Pipe 	03006-Antenna Mount 	02017-Suspension Reinforcement Brace 	08008-Wheel Rims 	08043-Tires+Insert Sponge 
08071- Wheels Complete 	02053-R- Clip 	02101- Steering Bushing 	02103- Zip Tie 	02100- Wheel Hex. 

All spare part starts with:C0300-XXXXX



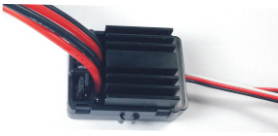

<p>02501-Washer 8*5.2*0.5</p> 	<p>02037-E-Clip ($\phi 7 \phi 4 \phi 2.5 \phi 2.3$)</p> 	<p>02139-Ball Bearing $\phi 10 * \phi 5 * 4$</p> 	<p>02138-Ball Bearing $\phi 15 * \phi 10 * 4$</p> 	<p>02078-O-Ring</p> 
<p>02079-Oil Bearing $\phi 15 * \phi 10 * 4$</p> 	<p>02080-Oil Bearing $\phi 5 * \phi 10 * 4$</p> 	<p>06007-Shock Ball Head</p> 	<p>02055-M4 Nylon Nut</p> 	<p>02102- M3 Nylon Lock Nut</p> 
<p>08021- Shock Ball Head Holder 1</p> 	<p>08072- Shock Ball Head Holder 2</p> 	<p>06023-Shock Ball Mount B</p> 	<p>02038-Ball Head Screw</p> 	<p>02099- Grub Screw M4*4</p> 
<p>02098- Grub Screw M3*4</p> 	<p>02127-M3*14 Grub Hex. Screw 10P</p> 	<p>02087-Countersunk Cross Head Self-Tapping Screw 3*10 15P</p> 	<p>02088-Countersunk Cross Head Self-Tapping Screw 3*14 13P</p> 	<p>02089-Countersunk Cross Head Self-Tapping Screw 3*15 9P</p> 
<p>02180-Flat Head Self-Tapping Screw 3*16 10P</p> 	<p>02092-ISO 3*10 Screw 8P</p> 	<p>81220-5-Flat Head Machine Screw 3*14 4P</p> 	<p>02095-M3*8 Column Head Machine Screw 4P</p> 	<p>02093-M3*10 Column Head Machine Screw 10P</p> 
<p>02086-Round Head Self-Tapping Screw 2*10 10P</p> 	<p>01083-Round Head Machine Screw 3*11 6P</p> 	<p>02085-Round Head Self-Tapping Screw 2*8 8P</p> 	<p>86072 -Round Head Self-Tapping Screw 2.6*12 4P</p> 	<p>02083-Cap Head Self-Tapping Screw 3*12 6P</p> 
<p>02081-Cap Head Self-Tapping Screw 3*8 6P</p> 	<p>02082-Cap Head Self-Tapping Screw 3*10 10P</p> 	<p>02181-Cap Head Self-Tapping Screw 3*15 10P</p> 	<p>02096-3*10 Cap Head Machine Screw 6P</p> 	<p>02097-Cap Head Machine Screw 3*14 6P</p> 

Replaces page 17 in the instruction manual

All spare part starts with:C0300-XXXXX

08024- Discal Screw M3*11 8P 	Sp6003-Servo(6Kg) (Waterproof) 	XT16 Transmitter 2ch. 2.4G 	13003- Body Green Thunder 03272- Body clear 	13006 - Body storm green 
91009-Receiver 				





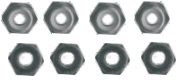









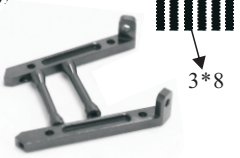






C0363 Thunder M10 1/10

28446-Motor (Rc550) 	11119-Motor Gear (17T) 	E0302-Electronic Speed Controller (Waterproof) 	11164-Diff.Main Gear (64T) 	

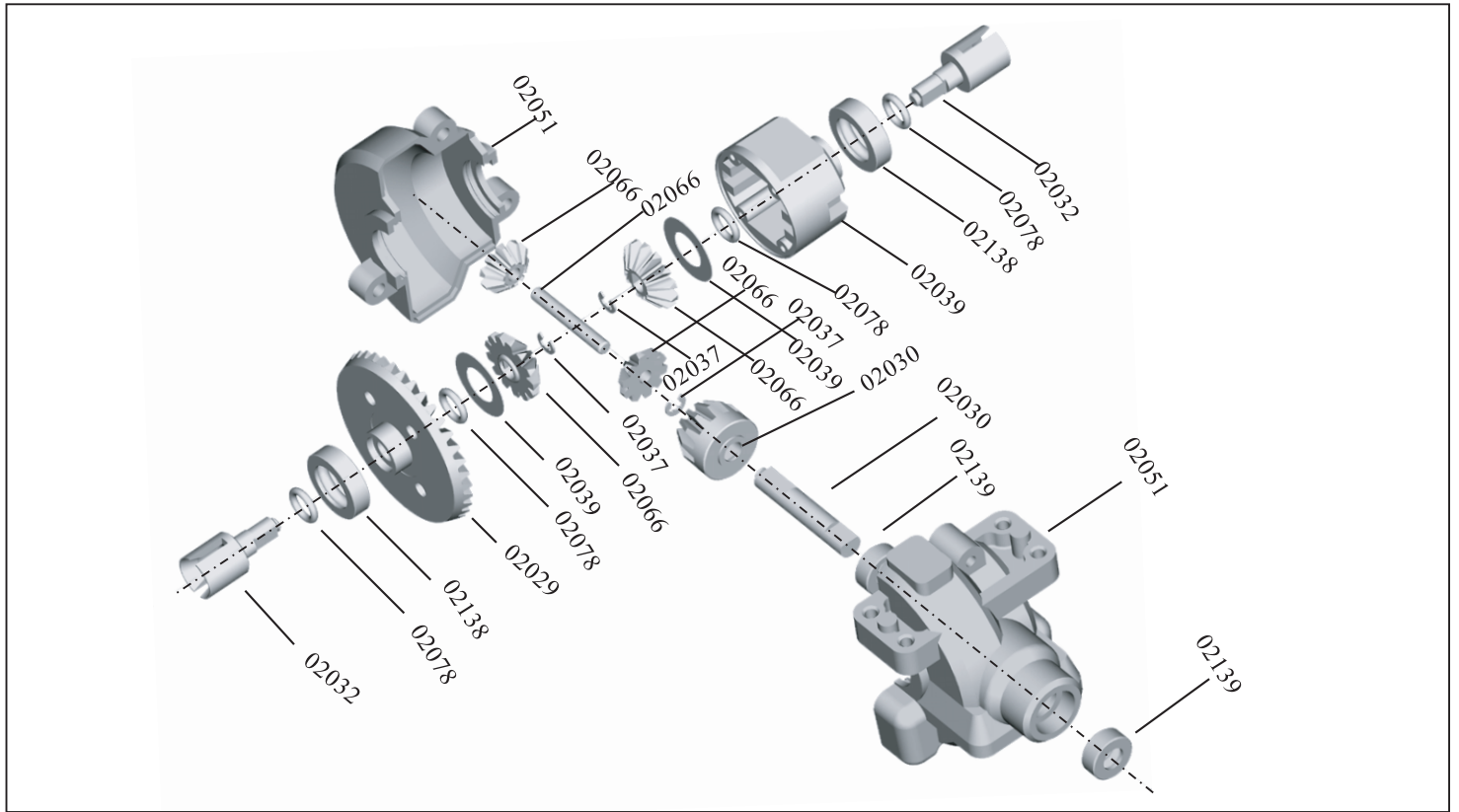
C0366 Storm R10 1/10

03302-Brushless Motor KV:3300 	108004-Aluminum Shock Absorber 	E0301-Brushless ESC Output:60A 	11188-Diff.Main Gear (48T) 11184-Diff.Main Gear Metal (64T) 	11185-Motor Gear(15T) 11181-Motor Gear Metal (21T) Optional  Optional
11200-Motor Gear Metal (19T)  Optional				

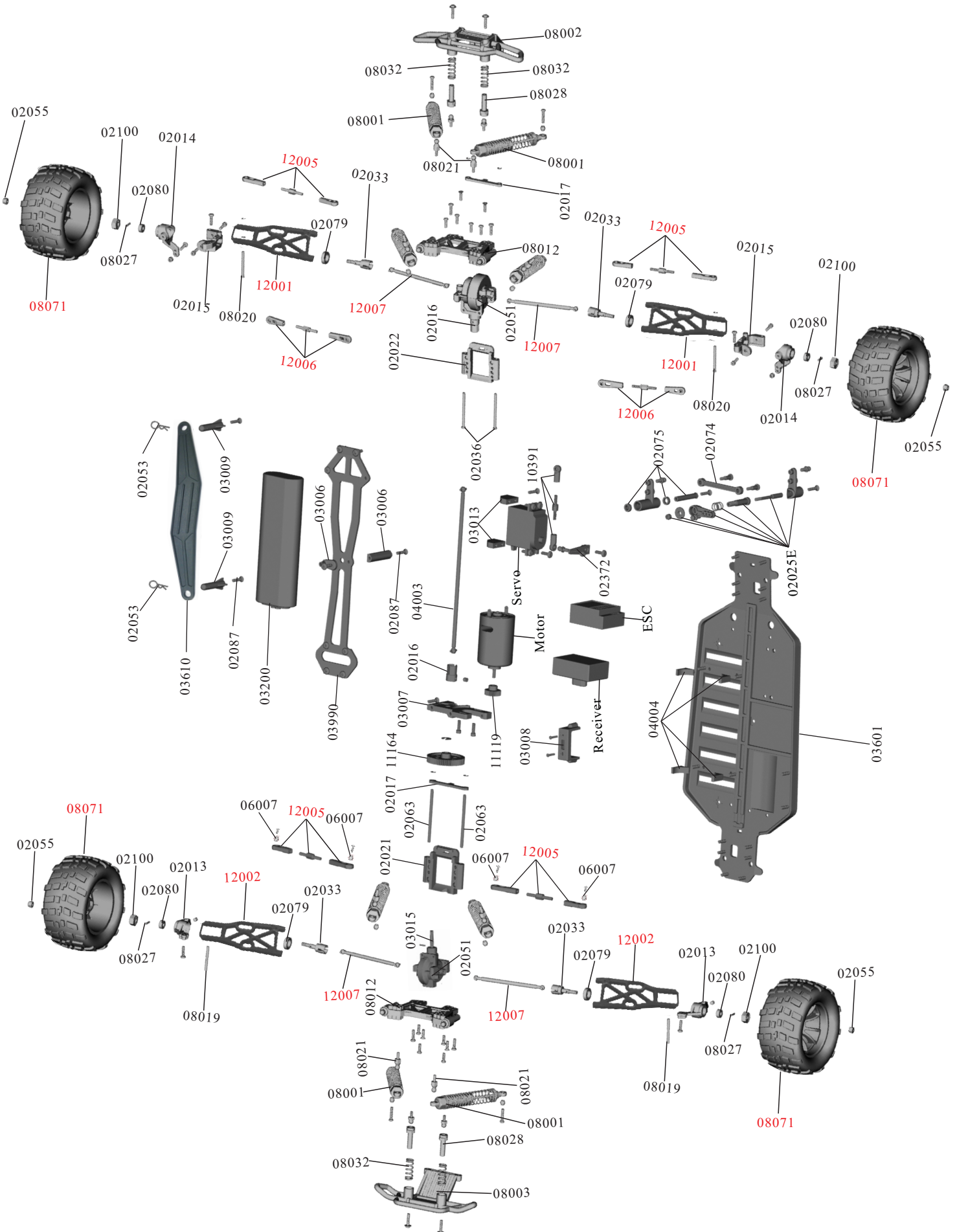
Upgradable Optionals

<p>102210-Aluminum Front Hub Carrier(L/R)+Flat Head Mechanical Screws 3*15mm*2P</p>  <p>3*15</p>	<p>102211-Steering Hub (L/R)(AL.)+Cap Head Mechanical Screws 3*12*2P/3*11mm*2P</p>  <p>3*11 3*12</p>	<p>102212-Aluminum Rear Hub Carrier(L/R)+Flat Head Mechanical Screws 3*15mm*2P+M4*4 Grub Hex. Screw 2P</p>  <p>4*4 3*15</p>	<p>102042-Aluminum Wheel Hex. Mount</p> 	<p>102048-Aluminum Nut M3</p> 
<p>102049-Aluminum Nut M4</p> 	<p>108822-Aluminum Shock Tower+Cap Head Machine Screw 3*12 2P</p>  <p>3*12</p>	<p>108837-Aluminum Body Post</p> 	<p>108004-Aluminum Shock Absorber</p> 	<p>102240-Aluminum Ackerman Plate</p> 
<p>102260-Aluminum Front Gear Box Mount</p> 	<p>102261-Aluminum Rear Gear Box Mount</p> 	<p>102227-Suspension Arm Brace(AL.)</p> 	<p>103371-Motor Brace (AL.)+Flat Head Machine Screw 3*8*4P/ Cap Head Machine Screw 3*8*2P</p>  <p>M3*8 M3*8</p>	<p>108835-Aluminum Front Brace+Cap Head Machine Screws 3*8mm*6P</p>  <p>3*8</p>
<p>108836-Aluminum Rear Brace+Cap Head Machine Screws 3*8mm*4P/3*10mm*2P</p>  <p>3*10 3*8</p>	<p>103006-Antenna Mounts (AL.)+Flat Head Machine Screw 3*10*1P/Cap Head Machine Screw 3*10*1P</p>  <p>3*10 3*10</p>	<p>103009-Aluminum Battery Posts+Flat Head Machine 3*10*2P</p>  <p>3*10</p>	<p>102257-Aluminum Steering Servo Saver Set</p> 	<p>103013-Servo Mount(AL.)+Flat Head Machine Screw 3*8*2P+Cap Head Machine Screw 3*8*4P</p>  <p>3*8 3*8</p>
<p>103004-Aluminum Battery Mount+Flat Head Machine 3*10*4P</p>  <p>3*10</p>				

Gear Box Assembly View-Common parts



Off-Road Truck Full Assembly View





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