45A Dual-ESC Manual

Features

● Extreme low resistance, super current endurance.

● Full protection features: Low-voltage cutoff protection/overheat protection/throttle signal lost protection Effectively extend the ESC'S service life.

● 3 startup modes: Normal/Soft/Super-soft startup, can be used for both fixed-wing aircraft and helicopter models.

● Throttle range can be configured, fully compatible with all market available transmitters. Smooth and accurate speed control, excellent throttle linearity.

● Microprocessor uses separate voltage regulator IC, rather than taking power from the BEC output (6A and 10A ESC exception), has better anti-interference ability, greatly reducing the possibility of out-of-control.

● With complete independent intellectual property rights, sustainable product updates, users can enjoythe original software upgrade services.

specification

Class	Continues Current （A）	BEC (V/A)	Li-xx Battery Cell	Ni-xx	Size (cm)	Weight/pair g	Weight (g)
45A ESC	45A	5V/3A	2-5 5-15	2-6 5-18	7.80*9.90	126	63

Switch mode and linear mode function features

1. Switch-mode: the microprocessor IC use of an independent power regulator, BEC using an independent high-power high-performance low-loss power IC. Itself can stimulate high-power servo or many servos, has a better anti-interference ability, greatly reduce the possibility of getting out of control.

2. Linear model: microprocessors and BEC use IC regulated power supply using a linear power supply, its own loss, and enter the maximum voltage and maximum output current by the power regulator IC constraints themselves.

*New features: **This e-governor at the same time two brushless motor drive, there is a separate panel from the BEC to provide voltage and current steering gear so that the whole system more stable.***

Wiring diagram
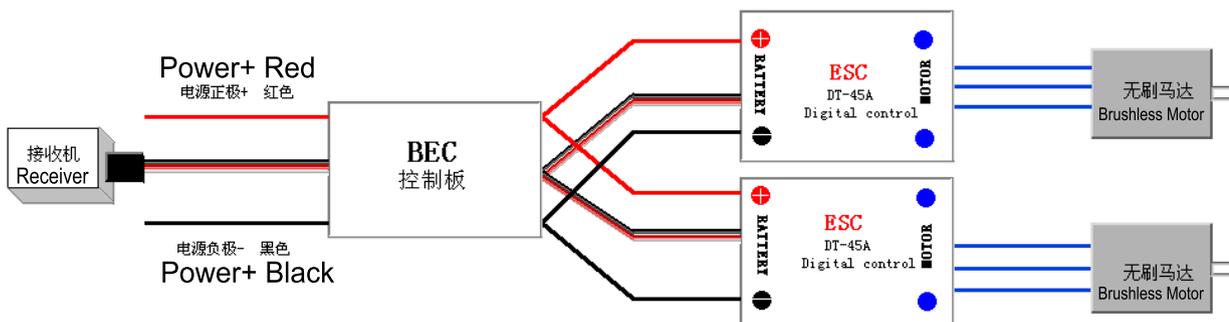
Feature Explanation:

1. Brake Setting: Brake Enabled/Brake Disabled, default is Brake Enabled.

2. Battery Tape: Li-xx(Li-ion o Li-poly)/Ni-xx(NiMh or Nicd), default is Li-xx.

3. Low Voltage Protection Mode: Output Power Reducing/Cut off, default is Output Power Reducing.

4. Low Voltage Protection Threshold: Low/Medium/High, default is Medium.

When not using balance discharge protecting function

① For Li-xx battery, number of battery cells are judged automatically, low/medium/high cutoff voltage for each cell are:2.6V/2.85V/3.1V. for example.

   ***3 cells Li-xx, when medium cutoff voltage is set, the cutoff voltage is :2.86*3=8.55V.

② For Ni-xx battery, low/medium/ high cutoff voltages are 60%65%70% of the startup voltage.0% means that no low-voltage protection. for example.

   ***6 cells NiMh battery, fully charged voltage is 1.44*6=8.64V,when medium cutoff voltage is set, the cutoff voltage is:8.64*60%=5.2V(<u>Remark: when 40A/60A ESC is used for Ni-xx battery , the low/medium/high cutoff voltage is startup voltage0%/45%/60%</u>)

When using the Li-xx balance discharge protection function

Low/medium/high cutoff voltage for each cell are 2.6V/2.58V/3.1V. Adjustment at this time in addition to monitoring the overall battery voltage, but also increase monitoring voltage of each li-xx cell, when the voltage of any cell in battery pack is lower than the set threshold, the protecting program startup.

5. Startup Mode: Normal/Soft/Super-soft, default is Normal startup.

Normal is good for fixed-wing aircraft. Soft/Super-soft are good for helicopters, the initial speeds of soft/super-soft mode are pretty low, 1sec/2sec from startup to full speed, But if throttle is closed and opened again within 3 seconds after the first startup, the startup will be in normal mode to get rid of the chances of rash caused by slow throttle response in aerobatic fly.

6. Timing: Low/Medium/ High, default is low

In normal cases, low timing can be used for most motors, However, since different motor structure, try to get all into timing driver satisfaction with the results. for higher speed, high timing could be chose. after you changing the timing setting, please test on ground first, then fly to sky.

7. BEC output   voltage 5V, output rated current 2.5A, the maximum current output of 3A, the situation can be selected according servo, pay attention to no more than the maximum current output, when the two groups in parallel, the rated current output of 5A, the maximum output current 6A.

The first time using your brushless ESC

Before using your new ESC, please check all the connection to make sure Connection is correct, reliable (at this time do not connect the battery),the startup the ESC in the following sequence:

a. Move the throttle stick to bottom, and then switch on the transmitter.

b. Connect battery pack to ESC, the ESC begins the self-test process, motor tone "123" is emitted, then a long "beep------"tone should be emitted, which means self-test is OK, waiting for you to start promoting the throttle motor.

   ● If nothing is happened, please check the battery pack and all the connections.

   ● If a special tone "56712" is emitted after 2 beep tone(beep-beep-),means the ESC has entered the programming mode, i.e. the throttle channel of your transmitter is reversed, please set it correctly.

   ● If a very rapid "beep-beep-,beep-beep-" tone is emitted, means the input voltage is too low or too high, please check your battery voltage.

c. Particular emphasis on

   power transfer in order to allow your remote control to adapt to the accelerator travel, the first use of

the power transfer or replacement of other remote control when used, should be re-set the throttle travel to obtain the best linear accelerator.(Please refer to the operation description of page 4)

Warning note

1. Abnormal voltage warning tone: when ESC start,will detect power supply voltage, when the supply voltage is not within the normal range, the power transfer for the following warning: "beep - beep - beep - beep -- Beep - beep - "(twice each time between 1 second), until the normal power supply voltage;

2. Throttle signal loss alert tone: When the power transfer was not detected when the throttle signal and power transfer for the following warning: "beep - beep - beep -" (the interval between each sound for 2 seconds);

3. Non-zero throttle (throttle rocker is not placed in the lowest position) warning tone: When the throttle did not reach the minimum, the power transfer for the following warning: "beep - beep - beep - beep - beep -" (very rapid tone calls);

4. Throttle travel warning sound is too small: when the journey is too narrow when the throttle setting (ESC design requirements of the accelerator grid trip throttle shall be not less than three), power transfer will do a warning, indicating that this visit set invalid, to be re-set . Alert for: "beep - beep - beep - beep - beep -" (very rapid tone call);
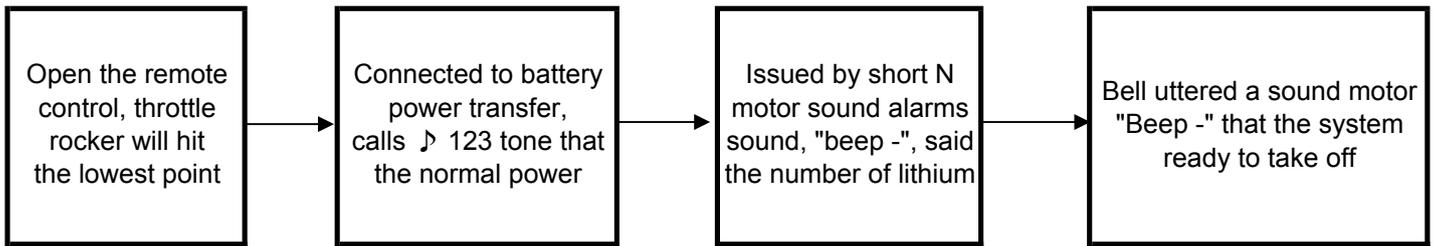
Protection Function

1. **Start up protection:** If the motor failed to start up in 2 seconds while the throttle stick moving up, the ESC will cut off the motor. In that case, the throttle stick must be moved to bottom again to restart the motor,(such a situation happens in the following cases: The connection between ESC and motor is not reliable or individual output line disconnected, propeller is blocked, Gearbox damaged, etc.).

2. **Temperature protection:** When the power transfer more than 110 degrees Celsius operating temperature, the power transfer will reduce the output power to protect, but it will not turn off all output power up to full power down to only the 40% to ensure that there is electrical power to avoid the crash. After the temperature drop, electricity will be gradually transferred power to restore the largest.

3. **Throttle signal lost protection:** The ESC will reduce output power if throttle signal lost for 1 second, If the signal still can not be restored, it has been   reduced to zero output (the process of lowering the power for 2 seconds),If the power in the process of lowering the accelerator to regain control signal, then an immediate resumption of throttle control, the benefits of doing so are: throttle signal moment in the case of the loss (less than 1 second), ESC will not be any protection; If the remote control signal is indeed a long time lost, then to protect, but not the immediate close output, but there is a gradual process of reducing the output power to give the players a certain amount of time to save machine, taking into account the safety and practicality.

4. **Overload protection:** When the load when suddenly a large, electric power transfer will be cut off, or automatically restart. Load increases rapidly there is usually the cause of the propeller hit the block to other objects.

Fault phenomenon and Solution

Fault phenomenon	Possible reasons	Solution
After the electric power can not start, no sound	Bad power connector	Re-connection or replacement of plugged connectors
after connect the power, motor can not start, issue "beep – beep" "beep - beep" beep - beep -" warning tone (Each twice the interval between the time 1 seconds)	Battery voltage is not normal	Check the battery voltage
After connect the power,motor can not start , issue "beep - beep - beep -" warning Tone (the interval between each time the sound is 2 seconds)	Receiver throttle channel output signal without throttle	Check with the transmitter and receiver are in working order, Throttle control channel connection is tight and Play
Connect the power, motor can not start ,issue of "beep, beep, beep, beep, beep" Shortness of monosyllabic	Non-zero throttle or throttle set too small trip	Throttle rocker will be placed in the lowest position; reset trip throttle
Connect the power, motor can not start after the issue of "beep - beep -" prompt, And then issued a "56712" special alert tone	Throttle channel "is / against" wrong	Reference manual remote control, adjust the throttle channel "Positive / anti-"
Motor reverse	Tune the output power lines and electrical lines connected to the wrong line of sequence	Output line 3 will be any two swap
Motor stops rotating switch	Throttle signal loss protection	Check the remote control and receiver with the normal, check whether the throttle cable access channel sound
	Less than the battery voltage, Access to low-voltage protection	To the battery to full power
	Bad wiring	Check whether the normal battery pack plug, electricity transfer lines and electrical line output connection is solid and reliable
Random restart and work status disorders	use of the environment with strong electromagnetic interference	Power transfer will be subject to the normal functioning of a strong electromagnetic wave Interference. When this occurs, please refer to Manual Instructions, attempt to re-start the power to restore normal Working condition; when the fault occurs repeatedly, the note is use of electromagnetic interference in the environment is too strong, please use of the product in other places

Normal Start Process

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┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐
│ Open the remote │     │ Connected to    │     │ Issued by short │     │ Bell uttered a  │
│ control, throttle│ ──► │ battery power   │ ──► │ N motor sound   │ ──► │ sound motor     │
│ rocker will hit │     │ transfer,       │     │ alarms sound,   │     │ "Beep -" that   │
│ the lowest point│     │ calls ♪ 123 tone│     │ "beep -", said  │     │ the system      │
│                 │     │ that the normal │     │ the number of   │     │ ready to take   │
│                 │     │ power           │     │ lithium         │     │ off             │
└─────────────────┘     └─────────────────┘     └─────────────────┘     └─────────────────┘
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Trip throttle setting

Attention!when the first time,transfer or replace other remote control when used should be re-set
the throttle travel,and other times don't need.

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┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐     ┌─────────────────┐
│ pen the remote  │     │ Connected to    │     │ Two seconds to  │     │ Will be pushed  │
│ control, throttle│     │ battery power   │     │ wait for a "Wow │     │ to the minimum  │
│ rocker will hit │ ──► │ transfer, calls │ ──► │ - Wow" double   │ ──► │ throttle rocker │
│ the highest point│     │ " ♪ 123" tone   │     │ short-ming      │     │ and wait for 1  │
│                 │     │ that the normal │     │ throttle sound  │     │ second, the     │
│                 │     │ power           │     │ that the success│     │ lowest point in │
│                 │     │                 │     │ of the highest  │     │ the accelerator │
│                 │     │                 │     │ point calibration│     │ calibration     │
│                 │     │                 │     │                 │     │ success         │
└─────────────────┘     └─────────────────┘     └─────────────────┘     └─────────────────┘
                                                                                 │
                                                                                 ▼
                        ┌─────────────────┐     ┌─────────────────┐
                        │ Bell uttered a  │     │ Issued by short │
                        │ sound motor     │     │ N motor sound   │
                        │ "Beep -" that   │ ◄── │ alarms sound,   │
                        │ the system ready│     │ "beep -", said  │
                        │ to take off     │     │ the number of   │
                        │                 │     │ lithium         │
                        └─────────────────┘     └─────────────────┘
```