



Freewing MODEL RTF 40A-UBEC Brushless Speed Controller User Manual

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User Manual of Brushless Speed Controller

Electronic Speed Controller (ESC). High power system for RC model is 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. Any claims arising from the operating, failure or malfunctioning etc. will be denied. We assume no liability for personal injury, property damage or consequential damages resulting from our product or our workmanship. As far as is legally permitted, the obligation to compensation is limited to the invoice amount of the affected product. Thanks for purchasing our

Model	Con t. Cur rent	Burs t Curr ent (>10 s)	BEC Mode	BEC Outp ut	BEC Output Capability				Battery Cell		Weig ht	Size
					2S Li po	3S Li po	4S Li po	6S Li po	Lipo	NiMH		L*W*H
RTF 40A-UBEC	40A	55A	Switc h	5V/3 A	5 ser vos	5 ser vos	5 ser vos		2-4S	5-12 c ells	43g	65*25*1 2
RTF 60A-UBEC	60A	80A	Switc h	5V/5 A	8 ser vos	8 ser vos	6 ser vos	6 ser vos	2-6S	5-18 c ells	63g	77*35*1 4
RTF 80A -OP TO+UBEC5A	80A	100A	Switc h	5V/5 A	8 ser vos	8 ser vos	6 ser vos	6 ser vos	2-6S	5-18 c ells	77g	83*31*1 4
RTF 100A-OP TO+UBEC8i	100 A	120A	Switc h	5V/8 A	12 se rvos	12 se rvos	10 se rvos	10 se rvos	2-6S	5-18 c ells	77g	75*40*1 7.5
RTF 130A-OP TO+UBEC8i	130 A	160A	Switc h	5V/8 A	12 se rvos	12 se rvos	10 se rvos	10 se rvos	2-6S	5-18 c ells	77g	75*40*1 7.5

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Programmable Items

(The option written in bold font is the default setting)

1. Brake Setting Enabled / Disabled
2. Battery Type Lipo / NiMH
3. Low Voltage Protection Mode(Cut-Off Mode) Soft Cut-Off (Gradually reduce the output power) /Cut-Off (Immediately stop the output power)
4. Low Voltage Protection Threshold(Cut-Off Threshold) Low / Medium / High
 - 1) For lithium battery, the battery cell number is calculated automatically. Low / medium / high cutoff voltage for each cell is: 2.85V/3.15V/3.3V. For example: For a 3S Lipo, when "Medium" cutoff threshold is set, the cut-off voltage will be: $3.15 \times 3 = 9.45V$
 - 2) For NiMH battery, low / medium / high cutoff voltages are 0%/50%/65% of the startup voltage (i.e. the initial voltage of battery pack), and 0% means the low voltage cut-off function is disabled. For example: For a 6 cells NiMH battery, fully charged voltage is $1.44 \times 6 = 8.64V$, when "Medium" cut-off threshold is set, the cut-off voltage will be: $8.64 \times 50\% = 4.32V$
5. Startup Mode Normal /Soft /Super-Soft (300ms / 1.5s / 3s)
 - a) Normal mode is suitable for fixed-wing aircraft. Soft or Super-soft modes are suitable for helicopters. The initial acceleration of the Soft and Super-Soft modes are slower, it takes 1.5 second for Soft startup or 3 seconds for Super-Soft startup from initial throttle advance to full throttle. If the throttle is completely closed (throttle stick moved to bottom position) and opened again (throttle stick moved to top position) within 3 seconds after the first startup, the re-startup will be temporarily changed to normal mode to get rid of the chance of a crash caused by slow throttle response. This special design is suitable for aerobatic flight when quick throttle response is needed.
6. Timing Low / Medium / High,(3.75°/15°/26.25°)

Usually, low timing is suitable for most motors. To get higher speed, High timing value can be chosen.


Begin To Use Your New ESC

IMPORTANT! Because different transmitter has different throttle range, please calibrate throttle range before flying.

Throttle range setting (Throttle range should be reset whenever a new transmitter is being used)

Switch on the transmitter, move the throttle stick to the top position	Connect battery pack to the ESC, and wait for about 2 seconds	The “Beep-Beep-” tone should be emitted, means the top point of throttle range has been confirmed	Move throttle stick to the bottom position, several “beep-” tones should be emitted to present the amount of battery cells	A long “Beep-” tone should be emitted, means the lowest point of throttle range has been correctly confirmed
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Normal startup procedure

Move throttle stick to bottom position and then switch on transmitter.	Connect battery pack to ESC, special tone like “  123” means power supply is OK	Several “beep-” tones should be emitted to present the amount of lithium battery cells	When self-test is finished, a long “beep—” tone should be emitted	Move throttle stick upwards to go flying
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Protection Function

1. Start up failure protection: If the motor fails to start within 2 seconds of throttle application, the ESC will cut-off the output power. In this case, the throttle stick MUST be moved to the bottom again to restart the motor. (Such a situation happens in the following cases: The connection between ESC and motor is not reliable, the propeller or the motor is blocked, the gearbox is damaged, etc.)
2. Over-heat protection: When the temperature of the ESC is over about 110 Celsius degrees, the ESC will reduce the output power.
3. Throttle signal loss protection: The ESC will reduce the output power if throttle signal is lost for 1 second, further loss for 2 seconds will cause the output to be cut-off completely.

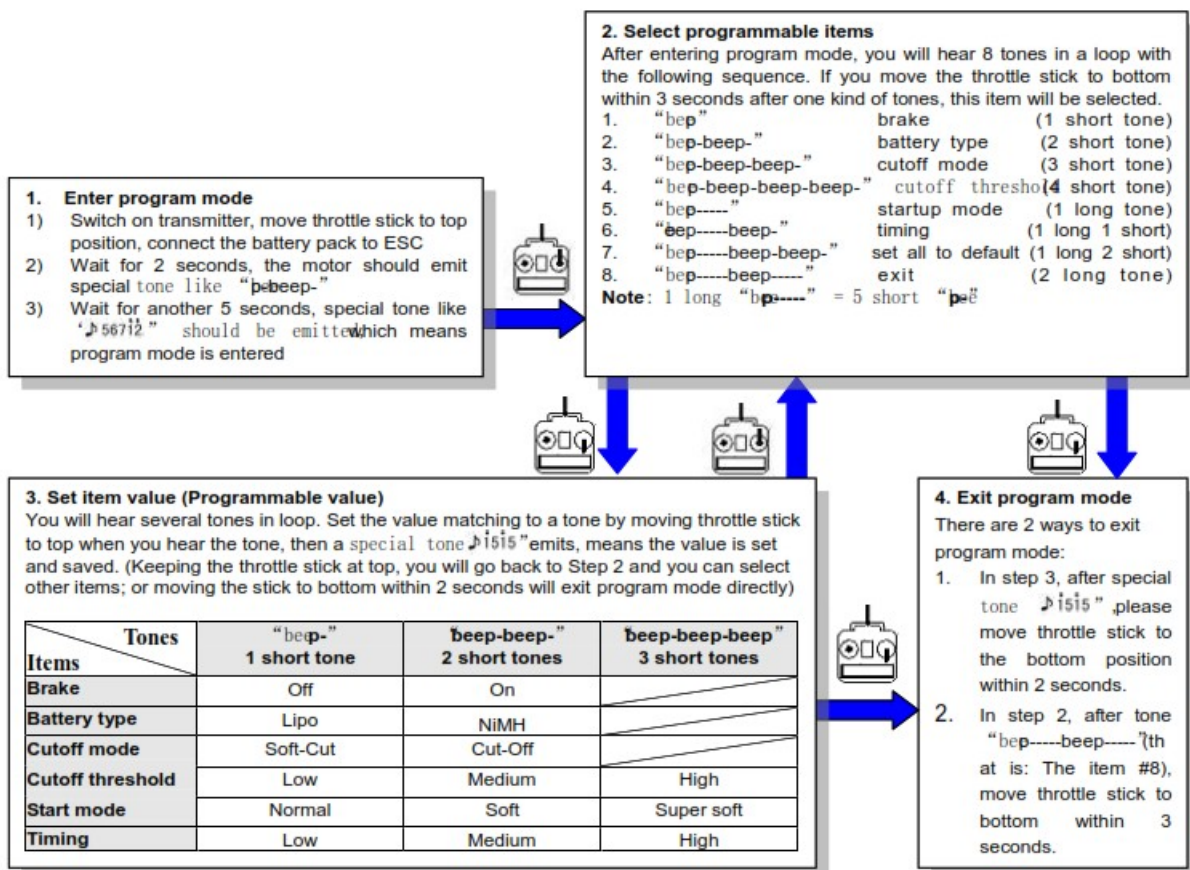
Trouble Shooting

Trouble	Possible Reason	Action
After power on, motor does not work, no sound is emitted	The connection between battery pack and ESC is not correct	Check the power connection. Replace the connector.
After power on, motor does not work, such as an alert tone is emitted: “beep-beep-, beep-beep-,beep-beep-” (Every “beep-beep-” has a time interval of about 1 second)	Input voltage is abnormal, too high or too low.	Check the voltage of battery pack
After power on, motor does not work, such as an alert tone is emitted: “beep-, beep-, beep- ”(Every “beep-” has a time interval of about 2 seconds)	Throttle signal is irregular	Check the receiver and transmitter Check the cable of throttle channel
After power on, motor does not work, such as an alert tone is emitted: “beep-, beep-, beep-” (Every “beep-” has a time interval of about 0.25 second)	The throttle stick is not in the bottom (lowest) position	Move the throttle stick to bottom position
After power on, motor does not work, as a special tone “  56712” is emitted after 2 beeps (beep-beep-)	Direction of the throttle channel is reversed, so the ESC has entered the program mode	Set the direction of throttle channel correctly
The motor runs in the opposite direction	The connection between ESC and the motor needs to be changed.	Swap any two wire connections between ESC and motor

Program the ESC with your transmitter (4 Steps)

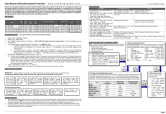
Note: Please make sure the throttle curve is set to 0 when the throttle stick is at bottom position and 100% for the top position.

1. Enter program mode
2. Select programmable items
3. Set item's value (Programmable value)
4. Exit program mode



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 CNF177-SM003DUL-20130904

Documents / Resources

	Freewing MODEL RTF 40A-UBEC Brushless Speed Controller [pdf] User Manual RTF 40A-UBEC, RTF 60A-UBEC, RTF 80A-OPTO UBEC5A, RTF 100A-OPTO UBEC8A, RTF 130A-OPTO UBEC8A, RTF 40A-UBEC Brushless Speed Controller, Brushless Speed Controller, Speed Controller, Controller
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