FEATURES

1. Water-resistant 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

MODEL		XB40
Cont. / Burst Current		Forward : 40A / 180A ; Backward : 20A / 90A
Input		2-3S Lipo, 5-9 cells NiMH
Cars Applicable		1:10 on-road, off-road Buggy, Truggy, SCT, Crawler, Tank
Motor Turns	2S Lipo or 4-6 cells NiMH	540 or 550 size motor ≥ 12T or RPM < 30000 @7.2V
	3S Lipo or 8-9 cells NiMH	540 or 550 size motor ≥ 18T or RPM < 20000 @7.2V
Resistance		Fwd : 0.002 Ohm, Bwd : 0.004 Ohm
Buit-in BEC		5V/2A (Linear mode BEC)
RWM Frequency		1KHz
Dimension & Weight		46.5×34×28.5, 65g

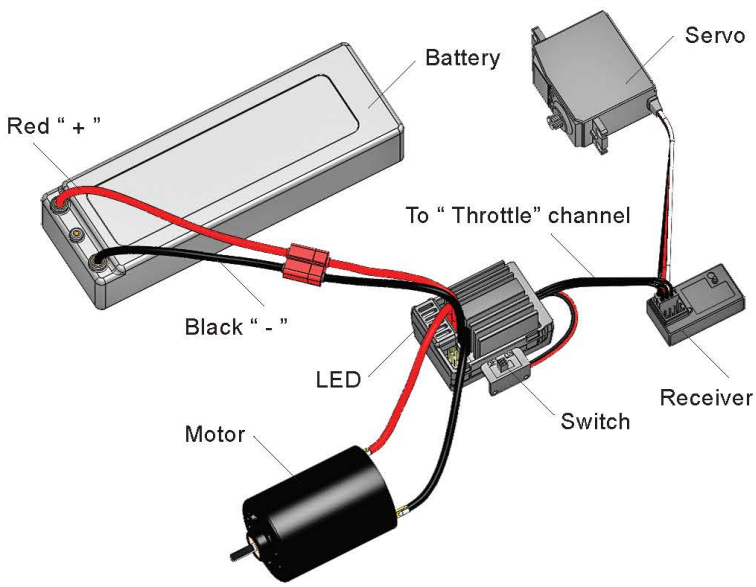
BEGIN TO USE

STEP 1 Connect the ESC, motor, receiver, battery and servo according to the diagram at right

"+" 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.



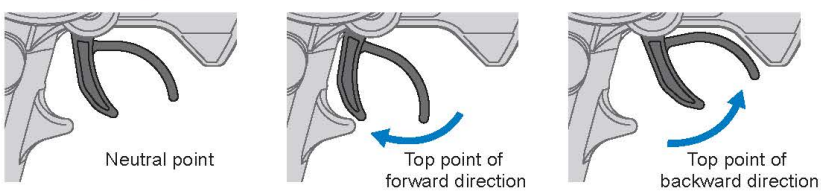
STEP 2 The transmitter

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 FutabaTM 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.

[THROTTLE STICK POSITION]



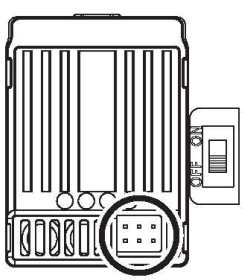
STEP 3 Throttle Range Setting (Throttle Range Calibration)

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.

[SET THE ESC]

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



REV	ON	OFF
BATT	Lipo	NiMH

REV ON : Forward / Brake / Reverse
REV OFF : Forward / Brake

BEEP SOUND AND LED STATUS

The Meaning of Beep Sound	LED Status
■ 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	■ 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

PROTECTION FUNCTIONS

1. Low voltage Cut-off (LVC) 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.

LVC protection for XB-40

2S Lipo	3S Lipo	5-9 cells NiMH
Output reduces 50% at 6.5V Output cuts off at 6.0V, cannot be recovered	Output reduces 50% at 9.75V Output cuts off at 9.0V, cannot be recovered	Output reduces 50% at 4.5V Output cuts off at 4.0V, cannot be recovered

2. Over-heat protection: When the internal temperature of the ESC is higher than 100 Celsius degree or 212 Fahrenheit degree 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 (176 Fahrenheit 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 motor doesn’t work, but the LED in the ESC works normally.	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.

保護功能說明

❶ 電壓保護：當電變連續 2 秒檢測到電池電壓低於保護值後，將進入低壓保護狀態（降低輸出功率，直至徹底關閉輸出），且電變上的紅燈會持續閃爍。

XB-40 低壓保護功能表：

2S 鋰電	3S 鋰電	5-9S NiMH
電壓降至 6.5V，輸出功率減半 電壓降至 6.0V，關閉輸出，不再恢復	電壓降至 9.75V，輸出功率減半 電壓降至 9.0V，關閉輸出，且不再恢復	電壓降至 4.5V，輸出功率減半 電壓降至 4.0V，關閉輸出，不再恢復

❷ 溫度保護：當電變內部溫度高於 100°C 時將會降低輸出功率直至切斷輸出（以防止突然切斷輸出而造成意外）。停止後紅燈將閃爍，待溫度低於 80°C 後則恢復正常的輸出功率。

❸ 油門訊號斷訊保護：當電變連續 0.1 秒沒有檢測到油門訊號將會關閉輸出，訊號恢復後立即恢復正常運行。強烈建議同時開啟遙控器的失控保護功能，將遙控器油門頻道的無訊號保護“ F / S ”設置為關閉輸出方式或將保護值設置為中點位置。

（備註：F / S 關閉輸出方式指當接收機無法接收到遙控訊號則不輸出訊號到電變）

故障快速處理

故障現象	可能原因	解決方法
通電後指示燈不亮，不自檢，無鳴音。	❶ 電變沒有得到工作電源。	❶ 檢查電池到電變的電源輸入電路是否有焊接不良情況，並重新焊好。
	❷ 電變開關損壞。	❷ 更換電變開關。
通電後紅色 LED 閃爍，馬達無法啟動。	❶ 電變油門線插反或頻道插錯。	❶ 將電變的油門排線按正確方向插到接收機的油門頻道（Throttle, 通常為 CH2）。
	❷ 電變無法完成油門自檢校調。	❷ 將遙控器的油門頻道的中點微調，“ TRIM ”調為 0 或相應旋鈕調到中點位置。
遙控器做前進操作，車子反而倒退。	❶ 遙控器油門頻道方向設置錯誤或馬達接線錯誤。	❶ 將馬達的兩條線互換。
		❷ 將遙控器油門頻道反向，從原“ NOR ”換為“ REV ”或從原” REV ”換為“ NOR ”。
車子無法達到全速，油門打到最大，紅燈不恒亮。	❶ 遙控器設置錯誤。	❶ 將遙控器油門頻道的“ D/R ”、“ EPA ”、“ ATL ”等參數調到 100% 或相應旋鈕調到最大位置， 油門頻道的中點微調，“ TRIM ”調為 0 或相應旋鈕調到中點位置。
車子無法倒車。	❶ 倒車選項跳線帽位置錯誤。	❶ 將倒車選項跳線帽插入正確位置。
	❷ 油門中點偏移。	❷ 將遙控器的油門頻道的中點微調，“ TRIM ”調為 0 或相應旋鈕調到中點位置。
車子正向加油不走，反向倒車卻行走。	❶ 遙控器油門頻道方向設置錯誤	❶ 將遙控器油門頻道反向換，從原“ NOR ”換為“ REV ”或從原“ REV ”換為“ NOR ”。
馬達轉動過程中，突然停轉。	❶ 油門訊號斷訊。	❶ 檢查遙控器電池電壓是否過低。
	❷ 電變進入電池低壓保護或過熱保護狀態。	❷ 電變紅燈閃爍表示低壓或過熱保護，請更換電池組或檢查電變溫度。
車子無法前進也無法倒車，指示燈正常。	❶ 電變和馬達之間的連接中斷	❶ 檢查馬達和電變之間的接頭，確保連接可靠。
	❷ 馬達損壞。	❷ 更換新馬達。
馬達啟動時急加速，馬達有卡住或停頓的現象。	❶ 電池放電能力不夠。	❶ 更換放電能力強的電池。
	❷ 馬達轉速過高，齒輪比搭配過於激進。	❷ 更換低速馬達，或將減速比提高。
	❸ 車子傳動系統有問題。	❸ 檢查車架傳動系統是否順暢。

產品特色

1. 完全防水防塵，一體式設計（內置電解電容），適應各種氣候環境。
2. 高品質用料，具有強大的耐電流能力。
3. 自動油門行程校正，簡便易用。
4. 採用跳線帽設置電變參數，簡單明瞭。
5. 具有低電壓保護、過熱保護、油門訊號斷訊保護等多重保護功能。

車用有刷電子變速器產品規格

型　號		XB40
持續 / 峰值電流		前進 40A / 180A ; 後退 20A / 90A
支援電壓範圍		2-3S 鋰電（Lipo）或 5-9S 鎳氫（NiMH）
主要適用車型		1/10：電房、電越、短卡、大腳、卡車、攀岩車、坦克
支持馬達T數	2S鋰電 或 6S鎳氫	540 或 550 尺寸馬達 ≧ 12T 或 RPM 低於 30000@7.2V
	3S鋰電 或 9S鎳氫	540 或 550 尺寸馬達 ≧ 18T 或 RPM 低於 20000@7.2V
內阻（單橋臂）		正轉 0.002 歐姆，反轉 0.004 歐姆
BEC 輸出		5V/2A （線性穩壓內置 BEC）
PWM 頻率		1KHz
尺寸（mm） / 重量		46.5×34×28.5 , 65g

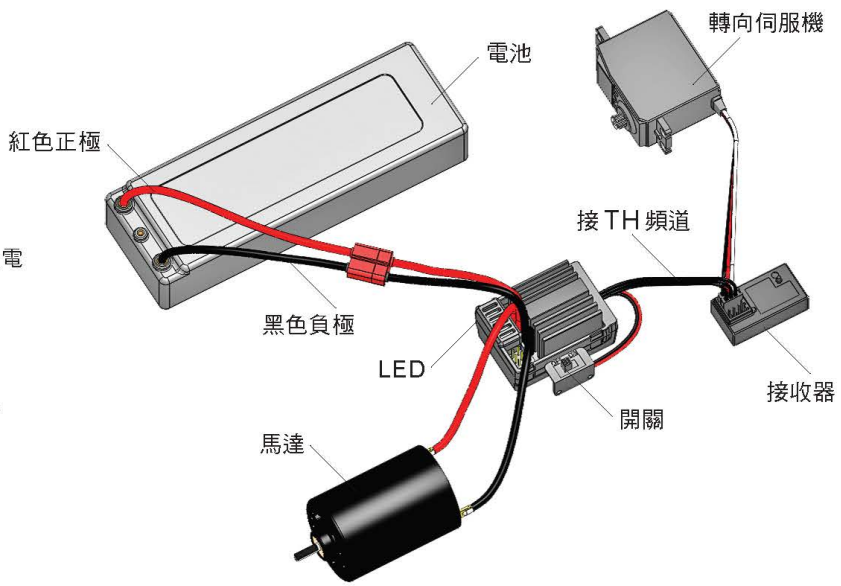
首次使用車用有刷電子變速器

步驟 1

關閉電變開關，按右圖接線，複查無誤後進入下一步。

【注意事項】

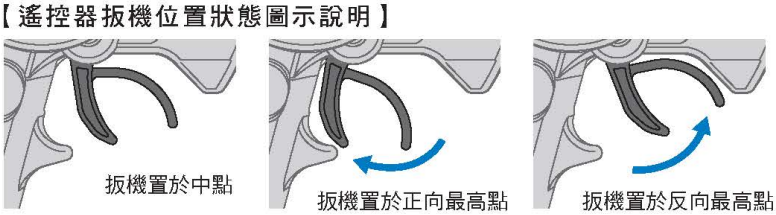
1. 電變不具備電源反接保護功能。如果電源反接，將可能對電變及電池瞬間造成不可恢復的損壞，請使用時特別注意電池極性。
   建議使用具有防呆功能的電池插頭。
2. 如果馬達轉向不對，將馬達兩條線互換即可。
3. 右圖中的“ TH 頻道 ”表示“ 油門頻道（Throttle Channel）”



步驟 2

打開遙控器，將油門頻道的“ D/R ”、“ EPA ”、“ ATL ”等參數調到100%（如遙控器無顯示幕，則將對應旋鈕調到最大位置），油門頻道的中點微調“ TRIM ”調為 0（如遙控器無顯示幕，則將對應旋鈕調到中間位置）。 FUTABA及類似的遙控器需要將油門頻道向設為“ REV ”，其它品牌遙控器的油門頻道方向應設為“ NOR ”。（強烈建議同時開啟遙控器的失控保護功能，將遙控器油門頻道的 斷訊保護“ F / S ”設置為關閉輸出方式或將保護值設置為中點位置，使得當接收機無法收到遙控器訊號後，車子能夠停止。）

【遙控器扳機位置狀態圖示說明】

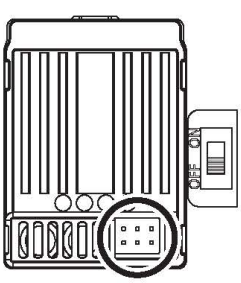


步驟 3

打開電變開關，將遙控器油門扳機置於中立點，等待電變自檢和自動油門校正過程結束（3 秒內完成），聽到自檢成功鳴聲後即可正常運作。

【程式設計設定說明】

使用跳線帽可以設置倒車及電池類型。設置方法簡單明瞭，如圖所示：
（建議使用鑷子拔插跳線帽）



後退	開	關
電池	鋰電	鎳氫

後退　開：前進 / 煞車 / 後退
後退　關：前進 / 煞車

電池S數及自檢鳴叫音說明	行駛過程中指示燈（LED）狀態說明
■ 鳴叫 1 聲短音，表示鎳氫鎳鎘電池。 ■ 鳴叫 2 聲短音，表示 2S 鋰電。 ■ 鳴叫 3 聲短音，表示 3S 鋰電。 ■ 鳴叫 1 聲長音，表示油門自檢校正成功。	■ 當油門扳機處於中立點時，紅色 LED 熄滅。 ■ 非全油門前進、剎車、倒車時，紅色 LED 閃爍。 ■ 全油門前進、剎車、倒車時，紅色 LED 恒亮。