

ESC90

有刷电子调速器

用户指南

ISDT

感谢您购买ISDT ESC90有刷电子调速器。

欢迎您登陆艾斯特官方网站www.isdt.co了解更多。由于产品功能的不断更新，您手中的说明书可能会与实际操作有所出入。请以实际产品功能为准。

警告与安全提示

为确保您的安全和良好的用户体验，请在使用本产品前阅读本说明和警告。

- 电调与相关连接部件连接前，请确保所有电线和连接部件绝缘良好，短路将会毁坏电调；
- 使用此电调前，请认真查看各动力设备以及车架说明书，确保动力搭配合理，避免因错误的动力搭配导致电机超载，最终损坏电调；
- 若需对电调的输入输出线、插头做相关焊接时，为保证焊接牢靠，请使用至少60W功率的焊接设备进行焊接；
- 为了你和他人的安全考虑，请在车子悬空的情况下进行接线调试；
- 勿使电调外部温度超过90°C/194°F，高温将会毁坏电调并且可能导致电机损坏；
- 使用完毕后，切记断开电池与电调的连接。如电池未断开，即使电调开关处于关闭状态，电调也会一直消耗电能，长时间连接电池最终会被完全放电，进而导致电池或电调出现故障。

产品规格

型号：ESC90

持续/峰值电流：90/180A

支持电机类型：540/550/775有刷电机

适用车型：1/8或1/10各类车型

电池类型：2~3S Lipo或6~8 Cell NiMH

BEC输出：5V~7.5V可调（步进0.1V）

线材/插头：16AWG-200mm/无插头

尺寸：38.6×31.6×17.15mm(不含线材)

重量：电调约49g/开关约4.5g

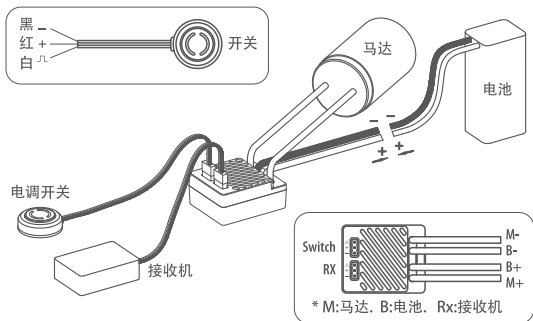
产品特点

- 全防水设计，适应各种气候环境；（注：浸水工作后尽快将电调洗净吹干，防止插头氧化）；
- 配备先进的电子开关、蓝牙二合一模块，可通过ISD GO APP实时查看工作状态和设置运行参数；
- 内置强大的开关模式BEC，持续电流达到3A，且支持 5V至7.5V以0.1V步进调节，轻松驱动各种强力舵机及高压舵机；
- PWM频率可调以及先进的同步续流功能，提供更加完美的油门线性以及更出色温度表现；
- 强大的主动拖刹功能；
- 多重保护功能：电池低压保护、过温保护、油门失控保护、BEC过压欠压保护；
- 可单独设置的无级调节油门、刹车曲线；
- 可自定义的启动音；
- OTA升级固件，随时使用最新功能；
- 特别针对攀爬车特性设计的坡道防滑锁止功能。

连接电子调速器

- 1.连接马达：**电调与电机相连无线序要求，电调的两根输出线与电机的两根线可以随意对接，若出现转向相反，将两条电机线互换位置或在APP中调整电机旋转方向。
- 2.连接接收机：**把电调的油门控制线插入接收机的油门通道（即THROTTLE通道）。电调油门控制线亦输出BEC电压给接收机及舵机，故请勿给接收机额外供电，否则可能损坏电调。
- 3.连接电池：**电调的输入线有极性之分，插入电池时，请确保电调的(+)极与电池的(+)相连，(-)极与(-)相连。如果电调接反电，电调将会损坏。

注：为安全起见，请在电调开关处于关闭状态时按图示接线。复查无误后在车轮悬空的情况下开启电调开关并进入下一步！

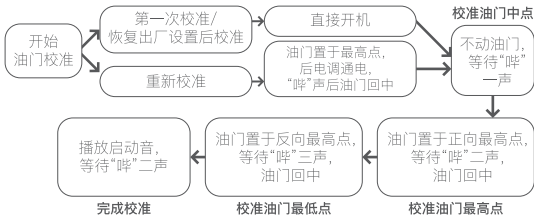


设置电子调速器

无开关模块校准油门行程

若未安装电子开关模块 (Switch) 则电子调速器通电后即处于开机状态。开始油门行程校准前请将遥控器油门通道的各项参数调到默认值并将油门通道的中点微调设置为0。

注：必须严格按照下列顺序进行油门校准，否则可能出现遥控器油门方向与车辆实际运行方向相反的情况。校准完成后运行模式默认为正反转带刹车模式。



使用APP (ISD GO) 进行设置

若已安装电子开关模块 (Switch) 则电子调速器通电后即处于关机 (低功耗) 状态。

- **开机：**给电子调速器通电，电子开关模块 (Switch) 的白灯将闪烁一次。此时长按按键一秒，电子开关模块 (Switch) 的白灯亮后转为绿灯常亮 (无错误信息) 或红灯闪烁 (有错误信息)。

关机：开机状态下长按按键至灯光熄灭。

若需对电调的输入输出线、插头做相关焊接时，为保证焊接牢靠，请使用至少60W功率的焊接设备进行焊接；

- **蓝牙配对：**在关机 (低功耗) 状态长按按键直到电子开关模块 (Switch) 的蓝灯闪烁，即可进行蓝牙配对。蓝牙连接成功后电子开关模块 (Switch) 的蓝灯常亮。
- **油门行程校准：**若电调当前油门行程未校准则设置界面最上方遥控油门校准项将显示红色感叹号提示。开始油门行程校准前请将打开遥控器油门通道的各项参数调到默认值并将油门通道的中点微调设置为0。点击遥控油门校准项将弹出油门校准窗口，此时按窗口提示即可完成油门行程校准。

注：未进行油门行程校准时其他所有选项皆不能进行设置！

注：最后一步需设置油门中点死区，对于大部分遥控器来说保持默认即可，只有当油门置于中位电机出现转动且重新校准油门行程也无效时需要设置较大的油门中点死区值。

- **运行模式：**

a. 正转带刹车：此模式下，车辆仅能前进和刹车。

b. 正反转带刹车：此模式下，车辆能够前进、倒车和刹车。此模式采用双击式倒车方式，即油门摇杆在第一次推至反向区域时，电机仅进行刹车。当油门回到中位并第二次推至反向区域时，若电机已停止转动，则进行倒车；若电机未停止转动，则仍然进行刹车。

c. 正反转：此模式下，油门处于反向区域时，电机立即进行倒车。

- **低压保护：**这项功能主要是防止锂电池过度放电而造成不可恢复的损坏。电调会时刻监视电池电压，一旦电压低于设定的阈值，将切断动力输出。

低压保护值可以设置为自动 (根据电池类型) 或手动指定5.0V至12.0V的值

- **BEC电压：**BEC电压支持5.0V至7.5V手动调节（0.1V步进）。
注：设置错误的BEC电压可能导致舵机或其他用电设备损毁。
- **电机转向：**此项可以调整电机转向。
- **PWM频率：**此项调节驱动模块MOS管的开关频率。较低的驱动频率，可以在低油门值时提供更大的扭矩，但会导致噪音增加；较高的驱动频率可以使马达转动更平滑，噪音更小，但同时也导致电调的发热量增加。
- **启动力度：**此项调节电调输出功率增加对油门值增加的跟随速度，值越大油门响应越快。
- **刹车力度：**此项调节电调刹车功率增加对油门值减小的跟随速度，值越大刹车响应越快。
- **主动拖刹等级：**此项调节仅在正反转模式下可调，当该项被设置为非关闭值且油门位于中位时电调将自动产生一个阻碍电机运动的力。此项设置值越大产生的力越大。
- **坡道防滑锁止：**正反转模式（攀爬模式）下，主动拖刹等级设置为非零值即可开启坡道防滑锁止功能。此功能开启后，当油门从非中点位置进入中点位置时电机将产生与当前运动方向相反的扭矩来使车辆保持静止。当车辆行驶于平路时该功能可以使车辆更快停止，行驶于陡峭路面时，可以使车辆在坡面上保持静止。主动拖刹等级需要与车辆重量匹配，等级过高时会导致车辆原地抖动，等级过低则会导致车辆无法在陡坡上保持静止。
- **主动刹车使能：**此项调节仅在正转带刹车和正反转带刹车模式下生效，当该项值设置为开启时，可以产生更大的刹车力度。
- **油门曲线：**此项可以设置无级调节的油门曲线。在预设的新手模式下最大动力输出被限制为70%。
- **刹车曲线：**此项可以设置无级调节的刹车曲线。在预设的新手模式下最大刹车力度被限制为70%。
- **自定义启动音：**此项可以设置电调开机时的启动音。



www.isdt.co

ESC90

Brushed Electronic Speed Controller

USER MANUAL

ISDT

Thank you for purchasing ISDT ESC90 brushed electronic speed controller.

Welcome to visit the official website www.isdt.co to learn more. Due to the continuous updating of product functions, The manual in your hand may differ from the actual operation.

Please refer to the actual function of the product.



Warnings and safety tips

To ensure your safety and good user experience, please read this description and warning before using this product.

- Before connecting the ESC to related connecting parts, please make sure that all wires and connecting parts are well insulated. Short-circuit will damage your ESC.
- Before using this ESC, please carefully check the manual to ensure all your motor/battery and your RC within our recommended specifications that the power mix is reasonable, and avoid the motor overload caused by the wrong power mix, poor connection and reverse polarity will damage your ESC.
- If you need to solder your input and output cables or battery plugs of the ESC. Please use reliable soldering equipment with a power of at least 60W or above for soldering. If the wire is too hot to hold, please remove the solder joint and let everything cool and try again. Excessive heat can damage your ESC.
- For your safety and the safety of others, we strongly advise keeping the RC unit in the air or on a Stand when you power on or ESC tuning or Calibrations.
- Do not allow the external operating temperature of your ESC to exceed over 90°C/194°F. Doing so may permanently damage your ESC and may also cause damage to your motor.
- 6. Always remember to disconnect the battery from the ESC after use. If the battery is not disconnected, the ESC will continue to consume power until your battery will eventually be completely discharged even if your ESC switch is turned off. Long Connection will cause the battery or the ESC to malfunction.



Specifications

Model: ESC90

Cont. / Peak Current: 90/180A

Motor type: 540/550/775 Brushed motor

Applications: 1/8 or 1/10 Various models

LiPo / NiMH Cells: 2~3S Lipo or 6~8 Cell NiMH

BEC output: 5V~7.5V adjustable (step by 0.1V)

Wire/ Connectors : 16AWG-200mm/ Without Plug

Dimension: 38.6×31.6×17.15mm(Without Wire)

Weight: about 49g/switch about 4.5g

Features

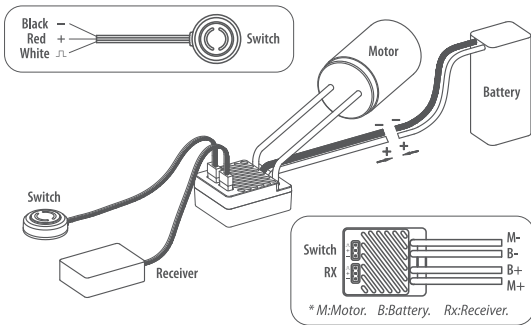
- Fully waterproof design for all conditions. (Note: please clean and perform maintenance after use for avoiding corrosion)
- Advanced electronic switch and Bluetooth two-in-one module, Support real time operating parameter and status via the ISD Go APP.
- Built-in BEC with adjustable output features; outputs continuous current up to 3A, and support 5V to 7.5V with 0.1V adjustment via ISD Go APP. Support various powerful rc applications and high-voltage servos.
- Adjustable PWM frequency and advanced synchronous function provide ideal throttle curve and outstanding performance for different vehicles, conditions.
- Adjustable Active drag brake function and adjustable Brake force or initial braking.
- Multiple protection functions: battery low-voltage protection, over-temperature protection, throttle out-of-control protection, BEC over-voltage and under-voltage protection;
- Infinitely adjustable throttle acceleration/punch and brake curves that can be set individually.
- Customizable startup sound.
- OTA upgrade firmware, ensure your ESC are up-to-date and functioning properly and enhanced user experience at all time.
- Slope anti-skid locking function specially designed for RC Crawler that characteristics operating on toughest terrain.

Use a New Brushed ESC

- 1. Motor Wiring:** Connect the ESC to the motor. The two output wires of the ESC can be connected to either of two wires of the motor at will. If the direction of rotation is reversed, the two motor wires can be interchanged or change the direction of motor rotation can be adjusted via the APP.
- 2. Connect ESC To Receiver:** Connect the throttle control cable of the ESC to the throttle channel of the receiver (ie Channel 1: Servo | Channel 2 ESC). Please be reminded the ESC throttle control port has BEC voltage adjustment function to the receiver and the servo, We Suggest DO NOT supply additional power to the receiver, otherwise your ESC may be damaged.

3. Connect to the battery: Connect to the battery, please **MAKE SURE** that the (+) pole of the ESC is connected to the battery's (+) and the (-) pole is connected to the (-). If the ESC is connected reversely, your ESC will be damaged.

Note: For safety purposes, Be sure the ESC is switched off when connecting the wires to motor and battery as above diagram. Switch on the ESC by keeping the RC unit in the air or on a Stand when you power on.



ESC Setup

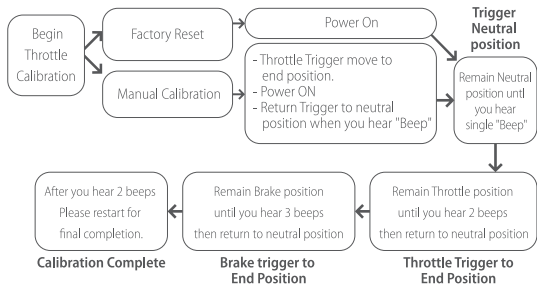
1. Calibrate the throttle stroke without two in one switch module

If the electronic switch module (Switch) is not equipped, The electronic speed controller will be TURNED ON when it detects the battery.

2. Before Calibrate throttle range, ensure the esc is connected to your receiver in channel 2 (CH2) , fully charged battery is connected and a well Calibrated Radio Ready.

3. Please adjust the throttle channel throttle/brake EPA parameters on your remote control to the default values and the midpoint to 0.

Note: The throttle must be calibrated in strict accordance with the following sequence, otherwise the car may engage laggy response and may run reversely with the remote control directives.



*After the calibration is completed, the default operation mode is forward and reverse with brake function.

Use APP (ISD GO) to set up

The ESC will be in low power consumption state after being powered on if two in one electronic switch modules have been inserted.

Turn on: Power on the electronic speed controller, white LED light will be shown on the switch module (Switch).

Press and hold the button for one second, the white LED light will turn to steady green (no error message) or flashing red (with error message).

Turn off: Press and hold the button until the LED light goes out.

Bluetooth pairing: In low power consumption state, press and hold the button until the blue LED light is indicated on the switch module

LED Light blinking on the switch module will start Bluetooth pairing. The blue LED light will always be on after Bluetooth is connected successfully. And then the ESC can be set up in the ISD APP.

Throttle Calibration: If the current throttle range of the ESC is not calibrated, the item "Remote Calibration" at the top of the Configuration interface will display a red "!" mark. Before start to calibrate the throttle range, please adjust the throttle channel parameters of the remote control to the default value and the midpoint of the throttle channel to 0.

Begin by clicking the "Remote Calibration" and the throttle calibration window will pop-up. Follow the instruction to complete the throttle calibration.

Operation mode:

- a. Forward with brake: In this mode, the vehicle can only move forward and brake.
- b. Forward /Reverse with brake: In this mode, the vehicle can forward, reverse and brake. This mode adopts double-click reversing mode, that is, when the throttle stick is pushed to the reverse zone for the first time, the motor only brakes. When the throttle is returned to the neutral position and pushed to the reverse zone for the second time, The car will be reversed if the motor has stopped rotating and the brake will still be applied if the motor is rotating.
- c. Forward and Reverse: In this mode, when the throttle is in the reverse zone, the motor will reverse immediately.

Low voltage protection: This function is mainly to prevent the ESC from irreversible damage caused by lithium batteries being over-discharged. The ESC will constantly monitor the battery voltage and will cut off the power output once the voltage is lower than the set data.

The low-voltage protection value can be set to automatic (according to the battery type) or manually specified from 5.0V to 12.0V.

BEC voltage: The BEC voltage supports manual adjustment from 5.0V to 7.5V (0.1V step).

Note: Wrong BEC voltage setting may lead to damage to the servo or other electrical equipment.

Motor rotation: This item can adjust the motor spinning rotation, moving to the left is the equivalent of the motor turning counter-clockwise, and moving right is clockwise..

PWM frequency: Adjust the frequency under this item. When ESC is set with A lower driving frequency. Motor output will be stronger, the throttle will feel more punchy due to the higher volume of torque; When ESC is set with higher driving frequency , Motor will output smaller torque while being more defined and rotating smoother with lesser noise, but it leads to increasing heating of the ESC and energy demand .

Starting Force: Adjust the Starting force of ESC under this item. The larger the value, the higher sensitivity of throttle response and the motor increasing throttle output.

Braking force: Adjust the braking power under this item. The larger the value, the higher sensitivity of braking response/force.

Active drag brake level: Adjust the Forward /Reverse mode under this item. Ensure A non-closed value and the throttle is in the neutral position, the ESC will automatically generate a force that hinders the movement of the motor. A bigger set value , the greater the force generated.

Ramp Anti-Skid lock: *Ramp Anti-Skid lock: In Forward/Reverse mode (climbing mode), the active drag brake level is set to a non-zero value to turn on the ramp anti-skid lock function. After this function is turned on, when accelerating movement from a throttle or braking position to a midpoint position, the motor will generate a torque force that is opposite to the current direction of movement to keep the vehicle stationary. This function can make the vehicle stop faster when the vehicle is driving on a flat road, and it can keep the vehicle still on the slope when driving on a steep road. The active drag brake level needs to match the weight of the vehicle. If the level is too high, the vehicle will not be stable in place, and if the level is too low, the vehicle will not be able to remain firmly on a steep slope.*

Active brake enable: This setting is only effective in forward and reverse with brake mode. When this value is set to on, it can produce greater braking force.

Throttle Curve: Set the throttle curve for stepless adjustment under this item.

Note: In the default novice mode, the maximum power output is limited to 70%.

Brake curve: Set the brake curve of stepless adjustment under this item.

Note: In the default novice mode, the maximum braking force is limited to 70%.

ESC90
90A OUTPUT CURRENT