

R1

ESC USER MANUAL

Thank you for purchasing the R1 Digital 2 electronic speed controller. The Digital 2 is specifically designed for 1/10 scale electric R/C racing. No matter which class of competition you race in, the Digital 2 will help you achieve better results. Before you start, please read through this instruction manual carefully. It contains important safety information as well as setup tips from the R1 website.

■ FEATURES ■

- 2 color LEDs for quick status display.
- Variable drive and brake frequency tuning for expert racing.
- Advanced boost and turbo timing with rpm and throttle control.
- Support for "Blinky" (Zero-Timing) spec racing mode.
- Fully configurable throttle and brake response.
- User adjustable low voltage and over temperature protection.
- R1 design cool aluminum housing with 30mm high rpm cooling fan.
- Programmable by R1 R program Card & PC Interface.
- User upgradable firmware.

■ CONNECTION AND MOUNTING ■

Connect the Rx connector to the throttle channel (CH2) of your radio receiver.

(White Shrink tube is Signal wire)

Connect one end of the sensor cable to the motor's sensor port, and the other end to the ESC's sensor port.

Secure the ESC, power switch, and capacitor on your model car's chassis with double sided tape.

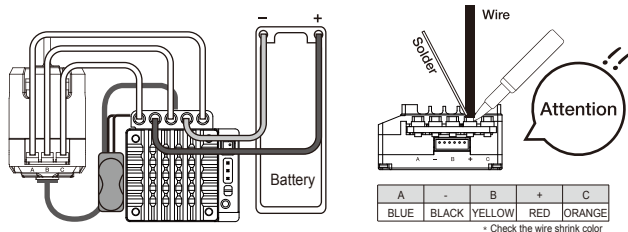
If necessary, install the included cooling fan on top of the ESC with screws, and make sure to check for correct polarity when connecting to the cooling fan power port.

■ BASIC INSTALLATION ■

Soldering Battery Wires, Motor Wires, and Capacitor

Make sure to use a soldering iron with sufficiently high temperature. Never leave the soldering iron on the mounting point for longer than 5 seconds.

If it takes more than 5 seconds to melt the solder between the joints, switch to a higher temperature solder iron. Overheating the mounting points will damage the ESC.



Pay special attention to the polarity marking below the mounting point. Make sure you connect each phase (A,B,C) of the motor to the corresponding (A,B,C) mounting point on the ESC.

We recommend using a red color wire for the positive(+) battery input terminal, and a black color wire for the negative(-) terminal. Connecting a battery in reverse polarity will damage the ESC !!

Remember to solder the included power capacitors to the battery input mounting point! Running the motor without connecting a capacitor will damage the ESC!

■ LED STATUS INDICATOR ■

There are different color LED's on the face of the ESC for status indication. Please refer to the following table for their meaning :

Green Solid	Neutral Throttle	Green solid / Red Flashing	Over Temperature Protection Activated
All Color Solid	Full Throttle / Reverse	All Color Flashing	No Sensor Cable Detected
Red Solid	Full Brake	Off the LED	Power ON Without Signal From Receiver
Green Flashing	Zero Timing Mode	Red Flashing	Motor connection error(A, B, C)

■ R1 PROGRAM CARD ■

R1 Program card is able to customize settings to R1 SPEC. (R1 Program card is purchased separately)

The R1 has 19 different program functions available.

Next page there is a description of the R1 Program Card.

■ SAFETY INFORMATION ■

- Keep this product out of reach of children.
- This product is designed only for R/C car model use. It is not suitable for any other purpose.
- Never leave this product unattended while it is connected to a power source.
- Make sure all cables are in good condition and securely fastened.
- Keep in mind that vibration during operation may loosen connections and cause loss of control.
- Do not connect in reverse polarity.
- To prevent short-circuits, please make sure that all cables and connectors are properly insulated.
- Keep this product away from water, oil, fuel or other conductive liquids. If this product becomes damp, immediately stop using it and let it dry completely.
- Avoid using excessive force when tightening the cooling fan screws. Over tightening them may permanently damage the aluminum housing.
- Make sure to use suitable gear ratios for your track condition. Unsuitable gear ratios may overload and damage your speed controller and motor.
- Never operate with throttle when the motor has no load. Running the motor without load may cause damage and risk of fire or burn.

■ SPECIFICATIONS ■

ESC Model	Digital 2 ESC
Current Continuous	200A
Current Burst	950A
Input	4-8 cells NiMH/NiCd or 2S LiPo, 2S LiFe
Built-in BEC	6V@3A
Suitable Motor	Over 3.0T
Supported Motor Type	540 size 2 pole brushless with sensor type
Size	30.4mm(L) x 37.1mm(W) x 19.5mm(H)
Weight	43g

■ POWERING ON R1 ■

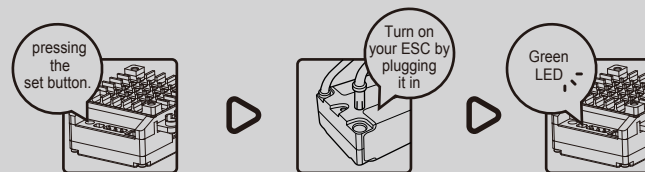
Always power ON your transmitter first before powering ON your ESC to avoid unexpected operation of the motor. For your safety, motor operation is automatically disabled until neutral throttle signal is detected from the radio receiver.

■ Synchronizing the Digital 2 and Transmitter ■

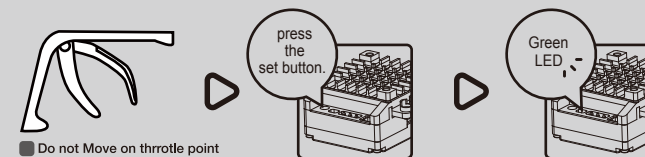
In order for the ESC to recognize the full throttle range of your radio, a throttle range calibration is required.

Before starting, make sure your radio throttle 2CH EPA and D/R is set at 100%. The trim and sub-trim should be zero.

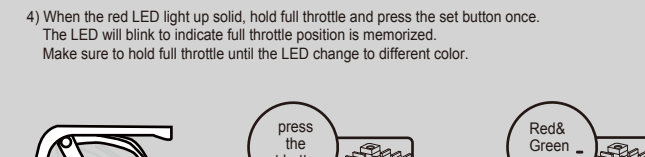
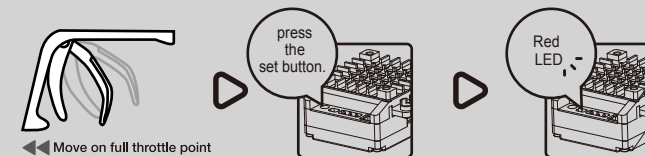
Warning: To prevent any chance of loss of control or damage and injuries, make sure to remove the pinion gear from the motor during the calibration process!



3) Press the set button once to set the neutral throttle position. The green LED will blink to indicate position is memorized.



5) When the green and red LED light up solid, hold full brake and press the set button once. The LED will blink to indicate full brake position is memorized, and return to green.



7) When the green and red LED light up solid, hold full brake and press the set button once. The LED will blink to indicate full brake position is memorized, and return to green.

8) Finished the calibration.