

Instruction Manual

FuriaX Maxi 1S Sensored ESC for 1/12 Racing

SK-300081-01
V.92

INTRODUCTION

Thank you for purchasing SkyRC FuriaX Maxi 1S Sensored ESC for 1/12 Racing. Please read the Instruction Manual thoroughly before you use the product. These operating instructions are designed to ensure that you quickly become familiar with its features and functions and make full use of this product.

! SAFETY NOTES

- The product is NOT a toy and is intended for users aged 14 and above.
- Never allow water, moisture, oil or other foreign materials to get inside ESC, motor, or on the PC Boards. It may damage the ESC completely.
- Never disassemble the ESC and modify the components on the PC Boards.
- Please make sure the location where to fix the ESC has good airflow ventilating so that the heat could dissipate quickly.
- To avoid short circuit, please keep the ESC connectors far away from other metal parts.
- Never connect the battery in polarity in reverse.
- Please remove the pinion gear before performing calibration with this system. Please keep your hands, hair, cloth, clear from the gear train and wheels.
- Before you switch on the ESC, please make sure all the cables are well solder with the connectors (It is easy to get loose when running) . What's more, make sure the cables not touch the moving parts.
- To avoid signal interference, please always turn on the transmitter first THEN turn on the speed control. Do the opposite when powering it off.
- Never use faulty accessories, e.g. faulty motor which may damage the ESC. Always insulate exposed wiring with heat shrink tubing or electrical tape to prevent short circuits, which can damage ESC too.
- Always disconnect the battery pack from the speed control when not in use to avoid short circuits and possible fire hazard. When the ESC is switched off, there is still small current and it may cause over discharge of the battery after some time.
- This ESC support 1S LiPo.

Note: Product damage caused by failure to follow the above precautions is not covered by the warranty.

SETUP

1. ESC Placement

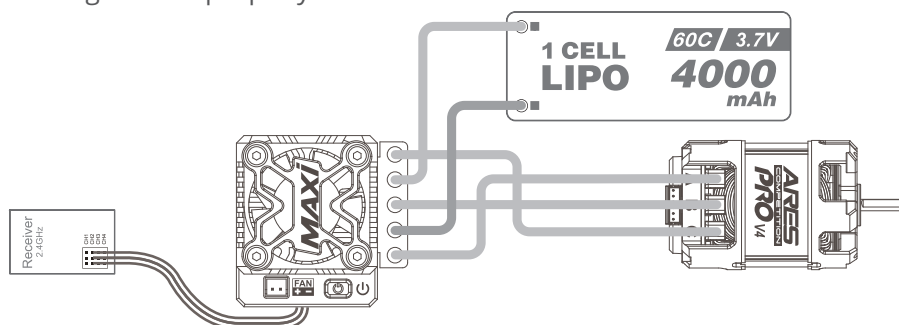
Mount the ESC in a location protected from debris and impact. To avoid interference with the wireless receiver system, keep the ESC as far away from the receiver as possible, and keep the battery wires as short as possible. Choose a well-ventilated spot—the ESC performs more efficiently when cooled by airflow.

2. Secure the ESC

Use double-sided tape to fix the ESC to the car (do not use instant glue).

3. Wiring

Connect the three silicone wires labeled A, B, and C on the ESC directly to the corresponding A, B, and C terminals on the motor, and connect the signal wire properly to the receiver.



CALIBRATION

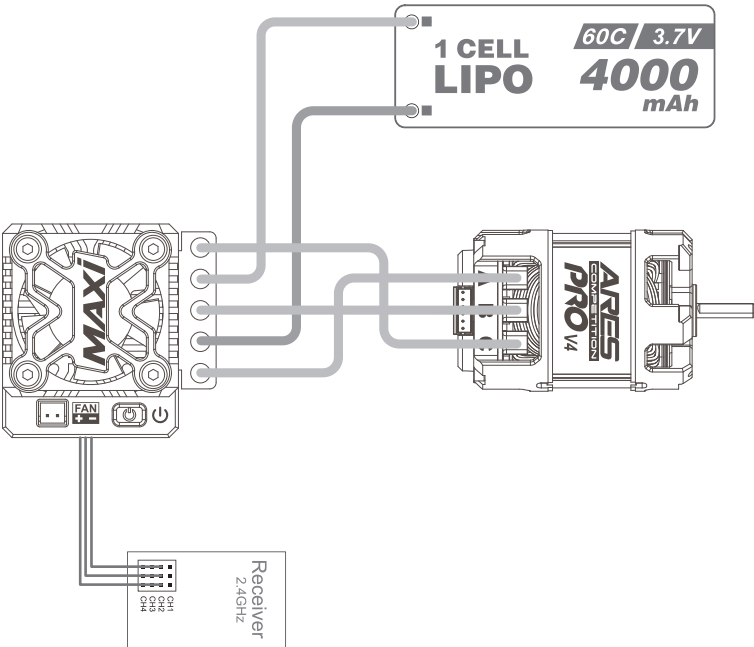
Calibration is required when using the ESC for the first time, or whenever it is paired with a new or different transmitter. Each transmitter may have slightly different signals for full throttle, full brake, and neutral. Proper calibration ensures the ESC works precisely with your transmitter.

Before Calibration: Check Transmitter Settings (If Available)

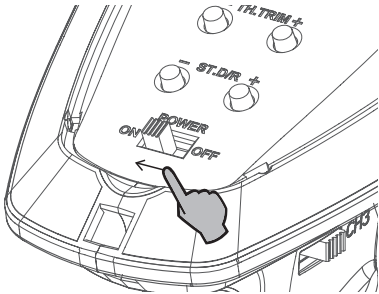
Transmitter Setting	Common Names	Recommended Setting
Throttle End Point	Throttle EPA / ATV	100%
Brake End Point	Brake EPA / ATV / ATL	100%
Throttle Exponential	Throttle EXP / EXPO	0%
Throttle Trim	Throttle Trim	0 / Neutral
Throttle Sub-Trim	Throttle Sub Trim / Sub-Trim	0 / Neutral
Throttle Channel Direction	Throttle Reverse / REV	Set as required

How to calibrate:

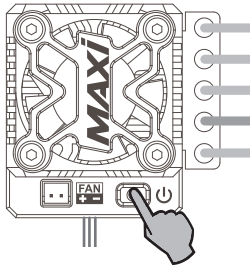
1. Connect the ESC to the battery and motor. Make sure the ESC is OFF.



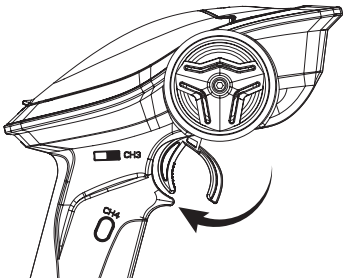
2. Turn on the transmitter.



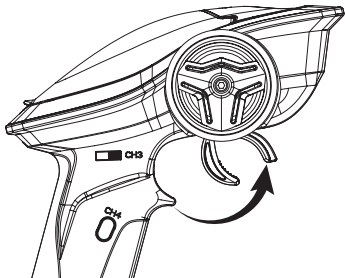
3. Long press the power button of the ESC until you hear a beep, then release. The purple LED lights on, entering calibration mode.



4. Pull the throttle trigger to full throttle and hold it until you hear one beep, indicating that the full throttle calibration is complete.

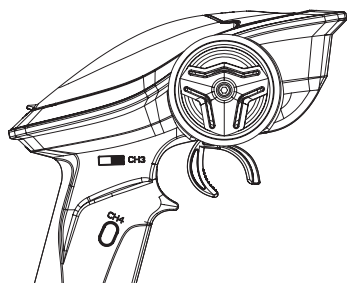


5. Move the throttle trigger to full brake and hold it until you hear two beeps, indicating that the full brake calibration is complete.



6. Release the throttle and leave it in the neutral position until you hear three beeps, indicating that the neutral position calibration is complete.

7. After calibration is completed, the LED will flash blue slowly, and the system will automatically enter standby mode.



NOTICE:

1. Calibration steps: Maximum Throttle → Maximum Brake → Neutral.
2. If calibration fails, power off the ESC and restart the calibration process.
3. Never reverse the polarity when connecting the ESC to the battery, as this may damage the ESC.
4. During calibration, do not adjust Throttle EPA/ATV, Trim, Sub-Trim, EXP, or other related settings.
5. After calibration, if you change the throttle channel direction, throttle/brake endpoints, or neutral-related settings, recalibrate the ESC throttle range.
6. If you cannot enter calibration mode normally, or if the throttle and brake directions are reversed, check the transmitter's throttle channel direction (Normal/Reverse). Adjust it as necessary and recalibrate.
7. Function names may vary between transmitter brands. Refer to your transmitter manual for the appropriate settings.

POWER ON/OFF AND LED STATUS

1. POWER ON/OFF

- Short-press the power button to turn on the ESC. After a red flash, the LED will slowly flash blue, indicating standby mode.
- Long-press the power button for 2s to turn off the ESC. The red & purple LEDs will turn off.

NOTICE

1. While the device is on, long press the power button for 2 seconds until the red & purple LEDs turn off, then release the button after the red LED lights up again. This will restore the ESC to factory settings.
2. After restoring factory settings, reconnect in the app using the default password "0000."

2. LED Indicator

- Forward: Flashing Blue, the flashing speed increases with the throttle; Steady Purple at full throttle
- Reverse: Flashing Blue, the flashing speed increases with the throttle; Steady Red at full throttle

3. LED Status Indicators

Problem	LED Indicator
Low Voltage Cutoff	Flashes RED twice every second
Thermal Cutoff	Flashes RED once every second
Abnormal Current	Flashes RED three times every second
Transmitter Connection Error	Flashes BLUE twice every second
Motor Stall	Flashes RED rapidly

Note: When low-voltage protection or over-temperature protection is triggered, the throttle output will be limited to 50%.

OTA Upgrade

No programming card or extra module needed. Connect with the RC Gears app on your smartphone to adjust all settings with ease. The app will notify you of firmware updates to keep your ESC running at its best.

Scan the QR code to download the app and get started.



RC Gears





Rogramming and Description

General				
#	Setting	Values	Step	Default
A1	Motor Rotation	CW/CCW	-	CCW
A2	Motor Poles	2P/4P	-	2P
A3	Running Mode	Forward/Brake Forward/Brake/Reverse Forward/Reverse	-	Forward/Brake
A4	Reverse Delay	0.0s~5.00s	0.50s	0.0s
A5	Reverse Mode	One-Tap Reverse Double-Tap Reverse	-	Double-Tap Reverse
A6	Cutoff Voltage	0(OFF) 2.0V~3.90V	0.10V	2.0V
A7	Cutoff Temp	Unprotected 95°C 105°C 130°C	-	105°C
A8	BEC Voltage	6V 7.4V	-	6V
Throttle				
B1	Throttle Response	0.1ms~3ms	0.1ms	0.1ms
B2	Neutral Range	3%~12%	1%	3%
B3	Initial Throttle	2%~16%	1%	3%
B4	Max. Forward Force	25%~100%	1%	100%
B5	Max. Reverse Force	25%~100%	1%	25%
B6	Throttle Acceleration	1~30	1	30
B7	Throttle Smoothing Level	0%~30%	1%	0%
B8	Throttle Smoothing Range	0%~75%	5%	0%
B9	Throttle Frequency	1kHz~32kHz	1kHz	8kHz
B10	Throttle Curve	Custom(10-Point Custom Curves)	-	Linear
Brake				
C1	Brake Response	0.1ms~3ms	0.1ms	0.1ms
C2	Initial Brake Force	0%~50%	1	0%
C3	Max. Brake Force	10%~100%	1	90%
C4	Fwd. Drag Brake Force	0%~100%	1	0%
C5	Rev. Drag Brake Force	0%~100%	1	0%
C6	Brake Frequency	0.1K~0.9K, 1K~32K	-	4kHz
C7	Brake Acceleration	1~20	1	10
C8	Brake Curve	Custom(10-Point Custom Curves)	-	Linear
Boost				
D1	Boost Timing	1deg~64deg	1	0(OFF)
D2	Boost Trigger	Throttle/RPM	-	Throttle
D3	Boost Trigger Throttle	10%~90%	1	50%
D4	Boost Trigger RPM	8kr/min~50kr/min	1kr/min	18kr/min
D5	Boost Initial Timing	1deg~64deg	1	1deg
D6	Boost Increase Rate	1deg/0.1s~64deg/0.1s	1	35deg/0.1s
D7	Boost Decrease Rate	1deg/0.1s~64deg/0.1s	1	64deg/0.1s
Turbo				
E1	Turbo Timing	0deg~64deg	1	0(OFF)
E2	Turbo Delay	0(Instant) 0.01s~0.20s 0.30s~1.00s		0.10s
E3	Turbo Increase Rate	1deg/0.1s~64deg/0.1s	1	35deg/0.1s
E4	Turbo Decrease Rate	1deg/0.1s~64deg/0.1s	-	64deg/0.1s
E5	Race Mode	Modify / Stock	-	Modify

Explanation of Parameters

General

A1: Motor Rotation

Sets the motor rotation direction to match the vehicle drivetrain and motor installation orientation.

- CW: Motor rotates clockwise.
- CCW: Motor rotates counterclockwise.

If the vehicle moves backward when forward throttle is applied, change this setting without swapping the motor wires.

****Note:** After changing this setting, verify that the vehicle moves correctly in both forward and reverse.

A2: Motor Poles

Sets the number of motor poles, which is used by the ESC or App to calculate motor RPM.

- 2P: For 2-pole motors.
- 4P: For 4-pole motors.

The incorrect pole setting normally does not affect motor operation, but may cause the RPM displayed in the App to be incorrect by a proportional factor.

For example, if a 4-pole motor is used but the setting is set to 2P, the displayed RPM will not match the actual motor speed.

Set the correct pole count according to the motor manufacturer's specifications.

A3: Running Mode

Sets the forward, brake, and reverse functions.

Option 1: Forward / Brake

The vehicle can only drive forward and brake; reverse is disabled.

This mode prevents accidental reverse activation during a race and is recommended for racing.

Option 2: Forward / Brake / Reverse

The vehicle can drive forward, brake, and reverse. This mode is suitable for practice and general use.

When reverse is applied while the vehicle is moving forward, the ESC applies the brake first. After the vehicle stops, reverse is engaged according to the A5 Reverse Mode setting.

Option 3: Forward / Reverse

The vehicle can switch directly between forward and reverse, with limited or no independent braking function.

This mode is not recommended for high-speed racing, as sudden direction changes at high speed may place excessive stress on the motor and drivetrain.

A4: Reverse Delay

Sets the delay before the vehicle can switch from forward to reverse.

For example, if reverse is applied immediately after the vehicle comes to a stop:

- 0 s: Reverse can engage immediately.
- Longer delay: Reverse engages only after the set delay has elapsed.

A shorter delay provides faster reverse response, while a longer delay helps prevent the motor from reversing before the vehicle has fully stopped.

For high-speed vehicles, a longer reverse delay can help reduce sudden stress on the gears, drivetrain, and motor.

For faster reverse response, use a shorter delay.

A5: Reverse Mode

Sets how reverse is engaged.

One-Tap Reverse

Once the conditions for reverse are met, a single reverse input engages reverse.

This provides quick and simple reverse operation and is suitable for vehicles that frequently switch between forward and reverse.

However, on high-speed vehicles, there is a greater chance of accidentally engaging reverse.

Double-Tap Reverse

The first time the throttle is moved into the reverse range, the ESC applies the brake first.

After the vehicle stops, return the throttle to neutral, then move it into the reverse range again to engage reverse.

This helps prevent reverse from being engaged accidentally during repeated braking, making it more suitable for racing or high-speed vehicles.

****Note:** A5 mainly applies when reverse is enabled in Running Mode.

A6: Cutoff Voltage

This function helps prevent battery over-discharge, especially for lithium batteries.

The ESC continuously monitors the battery voltage during operation. When the voltage drops below the set cutoff voltage, the maximum output power is limited to approximately 50%, indicating that the battery voltage is low.

If you continue driving, the battery voltage may drop further until the ESC can no longer drive the motor properly.

Off

Disables low-voltage protection.

This setting can generally be used with NiMH batteries, which do not require lithium battery low-voltage protection.

Disabling this protection is not recommended when using lithium batteries, as over-discharge may cause permanent battery damage.

2.0-3.9 V

Sets the voltage threshold at which low-voltage protection is triggered.

****Recommendation:** When using lithium batteries, select an appropriate cutoff voltage according to the battery type and the battery manufacturer's recommendations.

A7: Cutoff Temp.

This function helps prevent the ESC from overheating.

The ESC continuously monitors its internal temperature during operation. When the temperature exceeds the set threshold, the maximum output power is automatically limited to approximately 50% to reduce further temperature rise.

Options:

- Unprotected
- 95°C
- 105°C
- 130°C

A lower setting triggers thermal protection earlier, while a higher setting allows the ESC to operate at a higher temperature before protection is activated.

If thermal protection is triggered frequently, check the following:

- The gear ratio is not too aggressive.
- The motor is not overloaded.
- The Boost / Turbo timing is not set too high.
- The cooling fan is operating properly.
- There is adequate airflow around the ESC.

Warning: Disabling thermal protection is not recommended for normal use. Prolonged operation at high temperatures without thermal protection may damage the ESC or motor.

A8: BEC Voltage

The BEC supplies power to the receiver, servo, and other devices connected to the receiver system.

6.0 V

Suitable for standard receivers and standard-voltage servos, providing broad compatibility.

7.4 V

Suitable for HV servos and receiver equipment designed to operate at higher voltages.

A higher BEC voltage can generally provide faster response and higher torque from servos that support high-voltage operation.

Warning: Before setting the BEC output to 7.4 V, make sure the receiver, servo, and all other devices connected to the BEC support this voltage. Otherwise, the devices may be damaged.

Throttle

B1: Throttle Response

Controls how quickly the ESC responds to changes in throttle input from the transmitter.

- Lower value: Faster response for a more direct throttle feel.
- Higher value: Smoother response with less abrupt power delivery.

For example, when the throttle is applied quickly:

A faster response setting allows the motor to follow the throttle input more quickly, while a slower setting smooths out sudden throttle changes.

On high-grip tracks, a faster response can be used for more immediate power delivery. On low-grip tracks, a smoother setting can help reduce sudden loss of traction.

B2: Neutral Range

Sets the width of the neutral range around the transmitter's throttle neutral position.

When the throttle returns near neutral, the ESC considers any signal within this range to be neutral and does not apply forward or reverse power.

- Lower value: Narrower neutral range for more sensitive throttle response.
- Higher value: Wider neutral range with greater tolerance for transmitter neutral-point drift.

If the vehicle occasionally creeps forward or backward after the throttle is released, increase the neutral range slightly.

If the neutral range is set too wide, it creates a larger unresponsive area around the center of the throttle trigger, making the initial throttle and brake response feel less sensitive.

B3: Initial Throttle

Sets the minimum power applied when the motor starts to run.

Brushless motors may not start smoothly at very low output levels. Setting an appropriate initial throttle helps the motor overcome resistance from a standstill.

- Lower value: Smoother, gentler starts.
- Higher value: Stronger initial power for easier motor startup.

If the motor stutters, struggles to start, or fails to rotate smoothly with a light throttle input, increase this setting slightly.

If set too high, however, the vehicle may suddenly surge forward as soon as throttle is applied. This can be especially noticeable with high-grip tires or high-power motors.

For smooth and reliable starts, use the lowest setting that allows the motor to start consistently.

B4: Max. Forward Force

Limits the maximum forward power the ESC can deliver at full throttle.

Adjustment Range:

25%–100%

For example, when set to 70%, the ESC output is limited to 70% even when the transmitter throttle reaches 100%.

Lowering this setting does not change the transmitter's throttle range; it only limits the maximum power output.

This can be useful for:

- Beginner practice
- Wet or low-grip surfaces
- Overpowered vehicles
- Limiting the vehicle's maximum power

At 100%, full forward power is available.

B5: Max. Reverse Force

Limits the maximum power available when the vehicle is in reverse.

Adjustment Range:

25%–100%

A higher value provides greater reverse power and speed.

In most cases, reverse does not need the same amount of power as forward, so this setting can be set lower than Max. Forward Force.

Lower reverse power makes the vehicle easier to control and helps reduce the risk of collisions caused by sudden or accidental reverse input.

B6: Throttle Acceleration

Controls how quickly power increases when the throttle is applied. A higher value provides more aggressive acceleration, while a lower value delivers smoother acceleration.

- Higher value: Power increases faster with less limitation.
- Lower value: Power increases more gradually for smoother acceleration.

A lower Throttle Acceleration setting can help reduce:

- Wheelspin during launch
- Sudden oversteer when exiting corners
- High current spikes
- Stress on the gears and drivetrain

Higher settings are better suited to high-grip tracks or experienced drivers who prefer more immediate power delivery.

Difference from B1:

B1 Throttle Response determines how quickly the ESC begins to respond to a change in throttle input.

B6 Throttle Acceleration determines how quickly the power increases after the ESC begins responding.

B7: Throttle Smoothing Level

Optimizes power delivery in the low-throttle range for smoother, more precise throttle control during launch, cornering, and corner exit.

With high-power setups, the vehicle may be very sensitive to small throttle inputs. Increasing Throttle Smoothing provides finer and more progressive power delivery at low throttle.

- Higher value: Stronger smoothing for softer, more progressive initial throttle.
- Lower value: Less smoothing for more direct power delivery.

This function mainly affects the initial throttle range and does not simply limit the vehicle's maximum power.

A higher setting can be useful for high-power vehicles, low-grip surfaces, or technical tracks.

B8: Throttle Smoothing Range

Sets the throttle range over which the Throttle Smoothing function is active.

For example, when set to 50%:

Throttle input from 0% to 50% is affected by smoothing. As the throttle increases, the smoothing effect gradually decreases, allowing the power delivery to transition back to its normal characteristics.

If a wider range, such as 75%, is selected, smoothing affects a larger portion of the throttle range.

In simple terms:

- B7 Throttle Smoothing Level determines how strong the smoothing effect is.
- B8 Throttle Smoothing Range determines how much of the throttle range is affected by smoothing.

For example, a higher B7 setting + B8 at 50% can provide very smooth initial throttle on corner exit while maintaining strong power delivery at mid to high throttle.

B9: Throttle Frequency

Sets the PWM frequency used to drive the motor during forward operation.

PWM frequency affects power response, motor sound, smoothness, and ESC temperature.

In general:

Lower Frequency

Provides a more direct power feel with stronger punch.

Suitable when a more immediate throttle response is preferred.

Higher Frequency

Provides smoother, more refined power delivery and may also change the motor sound.

However, a higher frequency can increase switching losses and may cause the ESC to run hotter.

The optimal frequency depends on the motor, gear ratio, and vehicle load. Adjust this setting based on ESC temperature and driving feel.

B10: Throttle Curve

Adjusts the relationship between the transmitter throttle position and the actual power output.

The system supports a 10-point custom throttle curve.

With the default linear curve, the power output generally follows the throttle input proportionally. For example, 30% throttle corresponds approximately to 30% of the available output.

The custom curve allows different throttle ranges to be adjusted independently.

Reduced Initial Range

Reduces power output in the 10%–30% throttle range.

This is useful for high-power vehicles, providing finer control when exiting corners.

Increased Mid-Range

Provides more aggressive acceleration in the mid-throttle range.

Increased High-End Range

Allows the output to approach maximum power more quickly at higher throttle positions.

The Throttle Curve does not change the transmitter's physical throttle travel. It changes the power output corresponding to each throttle position.

Brake

C1: Brake Response

Controls how quickly the ESC begins to apply braking after receiving a brake input.

- Lower value: Faster brake response.
- Higher value: Smoother, more gradual brake engagement.

A faster setting provides a more direct braking feel and is suitable for high-grip tracks.

If the vehicle becomes unstable when braking begins, or if the rear wheels tend to lose traction, use a slower brake response setting.

C2: Initial Brake Force

Sets the initial braking force applied when the throttle first enters the brake range.

- 0%: No additional initial braking force is applied.
- Higher value: Provides stronger braking with a small brake input.

This setting mainly affects the initial braking feel.

If you prefer the brakes to respond more strongly to a light brake input, increase this setting.

If the wheels tend to lock up or the vehicle becomes unstable with light braking, reduce this setting.

C3: Max. Brake Force

Limits the maximum braking force the ESC can apply at full brake input.

Higher value: Provides stronger maximum braking force.

If set too high, it may cause:

- Wheel lockup
- Vehicle oversteer
- Excessive vehicle instability under braking
- Increased stress on the drivetrain

If the maximum braking force exceeds the available tire grip, reduce this setting accordingly.

C4: Fwd. Drag Brake Force

Drag brake is a continuous braking force automatically applied by the ESC when the throttle is released and returns to neutral.

- 0%: Disables drag brake, allowing the vehicle to coast more freely when the throttle is released.
- Higher value: Provides stronger deceleration when the throttle returns to neutral.

Drag brake is applied automatically at neutral and does not require the driver to actively apply the brake.

Increasing the drag brake can help the vehicle slow down more quickly before entering a corner.

If set too high, however, the vehicle may decelerate abruptly when the throttle is released, reducing its coasting distance.

C5: Reverse Drag Brake Force

Works similarly to Fwd. Drag Brake Force, but only applies when the vehicle is in reverse.

When the throttle is released while reversing:

- 0%: Allows the vehicle to coast freely.
- Higher value: Provides stronger deceleration.

Adjust this setting according to the desired reverse braking feel and control.

C6: Brake Frequency

Sets the PWM frequency used by the ESC during braking.

Different brake frequencies can affect braking feel, motor sound, and braking smoothness.

In general:

- Lower frequency: Provides a more direct braking feel.
- Higher frequency: Provides smoother, more refined braking.

The actual effect may vary depending on the motor, vehicle weight, gear ratio, and tire grip.

Adjust this setting based on driving feel rather than simply using the highest or lowest frequency.

C7: Brake Acceleration

Controls how quickly the braking force increases after braking begins, directly affecting how aggressively the brake is applied.

- Higher value: Braking force increases faster for more direct braking.
- Lower value: Braking force increases more gradually for smoother braking.

A lower setting can reduce sudden braking impact and help prevent wheel lockup or oversteer, while a higher setting provides faster, more aggressive braking.

C8: Brake Curve

Adjusts the relationship between the transmitter brake position and the actual braking force.

The system supports a 10-point custom brake curve.

For example, the curve can be adjusted for:

Softer Initial Range

Provides less braking force with light brake input, allowing finer speed control.

Stronger Mid-Range

Increases braking force more quickly through the main braking range.

Stronger High-End Range

Allows the braking force to reach its maximum more quickly near full brake input.

Difference from C3:

C3 Max. Brake Force determines the maximum braking force available.

C8 Brake Curve determines how much braking force is applied at each position throughout the brake range.

Boost

D1: Boost Timing

Sets the maximum electronic timing that can be added in Boost mode.

- 0°: Disables Boost Timing.
- Higher value: Applies more timing in Boost mode.

Increasing electronic timing can generally increase motor speed and power in the mid-to-high RPM range.

However, increasing timing may also result in:

- Higher motor current
- Higher motor temperature
- Higher ESC temperature
- Increased battery load

Avoid making large increases at once. Adjust the timing gradually and monitor both motor and ESC temperatures.

D2: Boost Trigger

Selects the condition used to activate Boost.

Throttle

Boost is activated based on the current throttle position.

Suitable when you want Boost Timing to begin after the throttle reaches a specified level.

RPM

Boost is activated based on the actual motor speed.

Boost Timing begins to increase only after the motor reaches the specified RPM.

This helps prevent timing from being added too early at low motor speeds.

D3: Boost Trigger Throttle

When D2 Boost Trigger is set to Throttle, this parameter sets the throttle position at which Boost begins to activate.

For example, when set to 50%, Boost Timing begins to increase according to the configured settings once the throttle reaches approximately 50%.

Lower value: Boost activates earlier.

Higher value: More throttle input is required before Boost activates.

D4: Boost Trigger RPM

When D2 Boost Trigger is set to RPM, this parameter sets the motor speed at which Boost begins to activate.

For example, 18 kr/min means Boost begins to activate when the motor reaches approximately 18,000 RPM.

Lower value: Boost activates earlier at lower motor speeds.

Higher value: Boost activates later and mainly affects the higher RPM range.

D5: Boost Initial Timing

Sets the amount of timing applied immediately when the Boost trigger condition is met.

For example, if Boost Timing is set to 30° and Boost Initial Timing to 5°, the timing does not immediately increase to 30° when Boost is triggered. Instead, it starts at approximately 5° and then gradually increases at the rate set by D6 Boost Increase Rate.

- Lower value: Smoother Boost engagement.
- Higher value: More noticeable power increase when Boost first engages.

A lower initial timing setting can be useful on low-grip tracks.

D6: Boost Increase Rate

Controls how quickly the timing increases toward the target value after Boost is activated. For example, 35° / 0.1 s means the Boost Timing increases at a rate of 35° every 0.1 seconds.

- Higher value: Boost Timing increases faster, providing a more aggressive power increase.
- Lower value: Boost Timing increases more gradually for smoother power delivery.

If the vehicle experiences a sudden power increase or wheelspin when Boost engages, reduce this setting.

D7: Boost Decrease Rate

Controls how quickly the timing returns to its normal value when the Boost trigger condition is no longer met.

- Higher value: Timing decreases faster.
- Lower value: Timing decreases more gradually for smoother Boost disengagement.

If the decrease rate is too high, the change in power may feel abrupt when the throttle is reduced or motor RPM drops. A lower decrease rate provides a smoother transition as Boost disengages.

Turbo

E1: Turbo Timing

Sets the amount of electronic timing added in Turbo mode.

- 0°: Disables Turbo.
- Higher value: Adds more timing in Turbo mode.

Turbo is typically applied at high throttle and high motor speeds to increase top-end RPM and straight-line performance. Increasing Turbo Timing also increases the load on the motor, ESC, and battery, so operating temperatures should be monitored carefully. Increase the timing gradually in small steps and avoid setting it too high at once.

E2: Turbo Delay

Sets the delay before Turbo Timing begins to increase after the Turbo activation conditions are met.

When a delay is set, Turbo does not activate immediately after the conditions are met. Instead, it activates after the specified delay has elapsed.

- 0: Turbo activates immediately when the conditions are met.
- Higher value: Turbo activates later.

Increasing the delay can help prevent a sudden power increase when the throttle first reaches the Turbo activation range. On low-grip tracks, a longer delay can allow the vehicle to accelerate normally before Turbo engages.

E3: Turbo Increase Rate

Controls how quickly the timing increases after Turbo is activated.

- Higher value: Turbo Timing increases faster.
- Lower value: Turbo Timing increases more gradually.

A higher increase rate delivers the performance boost from Turbo more quickly, but may also result in a more abrupt power increase. A lower increase rate provides smoother, more controllable power delivery at high motor speeds.

E4: Turbo Decrease Rate

Controls how quickly the timing returns to its normal value when Turbo disengages.

- Higher value: Turbo Timing decreases faster.
- Lower value: Turbo disengages more gradually for a smoother transition.

This setting mainly affects the change in power when the throttle is reduced or the Turbo activation conditions are no longer met. If the vehicle feels abrupt or jerky when Turbo disengages, reduce the decrease rate.

E5: Race Mode

Selects the Boost / Turbo control strategy based on the motor type and racing requirements.

Modified Mode

Designed for high-performance, low-turn motors.

Boost and Turbo are applied with a more progressive control strategy to prevent excessive timing from being added too early on high-power motors.

Recommended: 4.5T–9.5T motors.

Stock Mode

Designed for higher-turn Stock motors.

In Stock Mode, Boost and Turbo engage earlier, allowing electronic timing to be added sooner to improve mid-to-high RPM performance and straight-line speed.

Recommended: 10.5T and higher-turn motors.

Note: While Stock Mode can improve performance, it may also significantly increase motor and ESC temperatures.

Boost / Turbo Setup Notes

After adjusting Boost / Turbo, check the following:

- Motor temperature
- ESC temperature
- Battery temperature
- Motor current
- Gear ratio

Do not continuously increase timing simply to achieve higher speed, as this may cause the power system to overheat or become damaged.

Troubleshooting

Problem	Possible Cause	Solution
Indicator light does not turn on after power-up; motor cannot start and fan does not rotate.	No input voltage to the ESC.	Check the power input terminals for poor soldering or other connection issues, and re-solder if necessary.
After power-on, the blue LED flashes twice repeatedly and the motor does not start.	The ESC throttle cable is connected in the wrong direction or to the wrong receiver channel.	Connect the ESC throttle cable to the receiver's Throttle channel (usually CH2) in the correct orientation.
Vehicle moves backward when throttle is increased in the forward direction.	The phase sequence between the ESC output wires and motor wires is incorrect.	For a sensorless motor, swap any two of the three motor wires to reverse the motor direction. For a sensored motor, the rotation direction depends on the motor installation orientation. In either case, the motor rotation direction can also be changed in the App.
Motor suddenly stops or power output is significantly reduced during operation.	1. Receiver interference. 2. ESC has entered low-voltage protection. 3. ESC has entered over-temperature protection.	1. Check the cause of receiver interference and check the transmitter battery level. 2. Flash alternately in blue and red in sequence indicates low-voltage protection. Replace the battery. 3. Flash alternately in blue and red in sequence indicates thermal protection. Wait until the ESC temperature decreases before continuing operation.
Motor jitters and cannot start.	Incorrect wiring between the ESC and motor.	Check that the motor wiring is correct (A-A, B-B, and C-C) and that all soldered terminals are secure.
Forward operation is normal, but reverse does not work.	1. The throttle channel neutral point is shifted into the braking range. 2. The "Running Mode" parameter is set incorrectly.	1. Recalibrate the throttle neutral point. With the transmitter throttle stick in the neutral position, the blue LED on the ESC should flash slowly and continuously, indicating that the ESC is in standby mode. 2. Set Running Mode to Forward/Brake or Forward/Brake/Reverse.
Motor stutters or stalls when the throttle is increased rapidly from a standstill.	1. Battery has insufficient discharge capability. 2. Motor RPM is too high and the gear ratio is too low.	1. Replace the battery with one that has a higher discharge capability. 2. Use a lower-RPM motor or a more suitable gear ratio.

SPECIFICATION

Constant/Burst Current	100A/360A
Supported Motors	Brushless Sensor & Sensorless Motor
Applicable Vehicles	1/12 onroad competition
Battery Cell Count	1S LiPo
BEC Output	6V/7.4V
Low Voltage Cutoff	0(OFF), 2.0~3.90V, step 0.10V
Thermal Protection	Unprotected/95°C/105°C/130°C (105°C)
Cooling	Airflow / Fan / Heatsink
Dimensions	34 x 28 x 26.8mm
Weight	27.9 g

Conformity Declaration

ES001 satisfies all relevant and mandatory CE directives and FCC Part 15 Subpart B.

Test Standard	Title	Result
EN-55032	Electromagnetic compatibility of multimedia equipment - Emission requirements	Conform
EN-55035	Electromagnetic compatibility of multimedia equipment - Immunity requirements	Conform
EN 61000-3-2	Electromagnetic compatibility (EMC) – Part 3-2: – Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)	Conform
EN 61000-3-3	Electromagnetic compatibility (EMC) - Part 3-3: Limitation of voltage supply systems for equipment with rated current ≤ 16 A.	Conform
FCC Part Subpart 15B	Title 47 Telecommunication PART 15 - RADIO FREQUENCY DEVICES Subpart B - Unintentional Radiators	Conform

WARRANTY AND SERVICE

Liability Exclusion

This ESC is designed to be used only with the battery and motor types listed in these operating instructions. We are unable to ensure that you follow the instructions supplied with the ESC, and we have no control over the methods you employ for using, operating, and maintaining the device. For this reason, we are obliged to deny all liability for loss, damage, or costs that are incurred due to the incompetent or incorrect use and operation of our products, or which are connected with such operation in any way. Unless otherwise prescribed by law, our obligation to pay compensation, regardless of the legal argument employed, is limited to the invoice value of those SkyRC products which were immediately and directly involved in the event in which the damage occurred.

Warranty and Service

We guarantee this product to be free of manufacturing and assembly defects for a period of one year from the time of purchase. The warranty only applies to material or operational defects, which are present at the time of purchase. During that period, we will repair or replace free of service charge for products deemed defective due to those causes.

This warranty is not valid for any damage or subsequent damage arising as a result of misuse, modification, or as a result of failure to observe the procedures outlined in this manual.

Note:

The warranty service is valid in China only.

If you need warranty service overseas, please contact your dealer in first instance, who is responsible for processing guarantee claims overseas. Due to high shipping costs, and complicated custom clearance procedures to send back to China, please understand that SkyRC can't provide warranty service to overseas end users directly.

If you have any questions which are not mentioned in the manual, please feel free to send an email to support@skyrc.com



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If you have any questions about this document, please contact SkyRC by sending a message to **support@skyrc.com**

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