

BLACKBOX 300R

Owner's Manual

INTRODUCTION

Reedy's Blackbox 300R Competition ESC utilizes the latest electronics technology along with the design and engineering experience responsible for 30 IFMAR World Championship titles.

Track tested and competition proven, Reedy's Blackbox 300R is a versatile and powerful ESC purpose-built to meet the unique demands of 1:28 micro racing, delivering exceptional throttle response, smooth braking, and robust hardware in a compact package. A wide range of adjustability makes the Blackbox 300R suitable for a wide variety of micro racing applications.

Please read the following instructions before installing and operating your ESC.

FEATURES

- CNC machined black aluminum case
- Compact, lightweight design
- Fully adjustable brake, throttle, power, and safety functions*
- Precision throttle and brake control
- Ultra-low resistance FET board
- On-board power button
- Heavy-duty silicone power wires

*Requires optional program card

WARNINGS

- Never expose your ESC to water
- Never operate your ESC/motor under no load at high RPM
- Never apply reverse voltage
- Always unplug the battery from the ESC when not in use or while in storage
- Never let children use this product without the strict supervision of an adult
- Never leave the ESC unattended while powered ON
- Always use caution when handling your ESC as it may become extremely hot during use
- Always disconnect the battery and stop using the ESC if it begins to act abnormally
- Always power ON your transmitter before the ESC and power OFF the ESC before the transmitter

IMPORTANT! ESCs that display evidence of contact with moisture, reverse voltage, or internal/external modifications to wiring are not covered under warranty.

WARNINGS

- Choose the most convenient location to mount your ESC taking into consideration easy access to the battery connectors and Power button
- Mount your ESC securely using high quality double-sided tape
- Determine the ideal sensor wire length and plug one end into the ESC's sensor port and the other end into the motor's sensor port
- Plug the RX wire into the receiver (refer to radio manufacturer's manual)
- Cut the battery and motor wires to the desired length
- Solder the appropriate battery connector(s) to the battery leads
- Solder the three motor leads labeled A-B-C to the corresponding motor tabs labeled A-B-C

ESC/RADIO CALIBRATION

- Power ON the transmitter and adjust the throttle/brake endpoints to 100% and the throttle trim to neutral.
- Plug the ESC into a charged battery and place your vehicle on a stand with the wheels off the ground.
- While the transmitter is at neutral and the ESC off, press and hold the Power button. Continue to hold the button until the red LED switches to blue and the ESC simultaneously emits a series of beeps. Release the Power button and the LED will go out.
- While the transmitter remains in the neutral position, press and hold the Power button (approximately .5 seconds), then release it. The red LED will blink once, and the ESC will emit one beep to indicate that ESC's neutral point has been saved.
- Move the transmitter to the full throttle position and press the Power button (approximately .5 seconds), then release it. The red LED will blink twice, and the ESC will emit two beeps indicating that the full throttle position has been saved.
- Move the transmitter to the full brake position and press the Power button (approximately .5 seconds), then release it. The red LED will blink three times, and the ESC will emit three beeps indicating that the full brake position has been saved.
- Return the transmitter to neutral. The blue LED will either blink (zero-timing default setting) or remain solid (depending on activation of timing setting) to signify that it is in the neutral position.
- The ESC calibration is complete, and the ESC is ready to use.

IMPORTANT! ESC/Radio calibration must be completed with new ESCs and when changing transmitters

SAFETY PRECAUTIONS

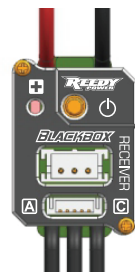
This product is a sophisticated hobby product and not a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this product in a safe and responsible manner could result in injury or damage to the product or property. This product is not intended to be used by children without direct adult supervision. It is essential to read and follow all instructions and warnings found in this manual prior to installation, set up, and use, for the product to operate properly and to avoid damage or injury.

POWERING THE ESC ON/OFF

- To turn the ESC ON, press the Power button.
- To turn the ESC OFF, press the Power button or unplug the battery.

SPECIFICATIONS

Voltage input	2S LiPo
Continuous current (A).....	30
Burst current (A)	80
Dimensions (mm).....	21 x 13.8 x 11
Weight w/wires (g)	7.6
Motor Type.....	Sensored
Motor limit (1525)	6800 kV
BEC	6.0V/7.4V 3A
Application	1:28

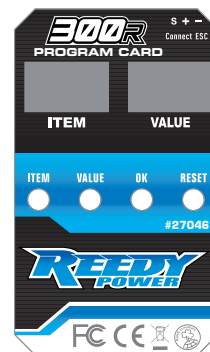


- RX wire port
- Sensor port
- Power button
- Status LED
- Motor wires
- Battery wires

27045	Blackbox 300R Competition Micro ESC
27046	Blackbox 300R Program Card
27503	Sonic 1525 2500kV Micro Brushless Motor
27504	Sonic 1525 3500kV Micro Brushless Motor
27505	Sonic 1525 4500kV Micro Brushless Motor
27506	Sonic 1525 5500kV Micro Brushless Motor
27507	Sonic 1525 6800kV Micro Brushless Motor

CHANGE SETTINGS

Using the included program card, the Blackbox 300R ESC settings can be changed to suit different vehicles, track conditions, class requirements, and skill levels.



- Remove the RX wire from the receiver and plug it into the +/-s port on the program card.
- Install a charged battery, then power ON the ESC. The card will automatically scroll through each item and display the current values, signaling that the connection is good.
- Press the "ITEM" button to scroll through each item and read the currently selected value.
- Press the "VALUE" button until you reach the desired value.
- Press and hold the "OK" button to confirm the newly selected value. The newly selected value is locked in when the value flashes to 0 and back to the selection. This must be done after every single change to save the selection.
- Press and hold the "RESET" button to return the ESC to the factory default settings. The process is completed when the value flashes to 0 and returns to item 1.
- Once all changes have been completed and saved, power OFF the ESC, unplug the RX wire from the program card, and plug it back into the receiver. The ESC is now ready to power ON and use with the newly saved settings.

SETTINGS MENU

Item	Value	1	2	3	4	5	6	7	8
1. Battery Cutoff		3.4V (slow)*	3.1V (slow)	Disabled					
2. Punch Control		Level 1	Level 2	Level 3*	Level 4	Level 5	Level 6		
3. Brake Strength		25%	50%*	75%	100%	Disabled			
4. Reverse Power		25%*	50%	75%	100%				
5. Dead Band		1%	3%	6%	9%*	12%			
6. ESC Temp Cutoff		105°C (stop)*	105°C (slow)	Disabled					
7. Run Mode		F/B/R*	F/B	F/R					
8. Drag Brake		0%*	5%	10%	20%	30%			
9. Boost Timing		0°-60°							
10. Turbo Timing		0°-60°							
11. Drive Frequency		2KHz	4KHz	8KHz*	12KHz	16KHz	24KHz	32KHz	48KHz
12. Brake Frequency		400Hz	600Hz	800Hz	1KHz*	2KHz	4KHz		
13. Motor Rotation		CCW*	CW						
14. BEC Voltage		6.0V*	7.4V						

*Default

PROGRAMMABLE ITEMS

- Low Voltage Battery Cutoff - Select the cell voltage at which the ESC will reduce motor power to signal engagement and prevent over-discharge of the battery. Disabling the cutoff is an option but not recommended for most racing applications.
- Punch Control - By reducing the Punch Control setting, you will experience slower throttle response which may be advantageous in low traction conditions or make the vehicle easier to control when high power motors are used.
- Brake Strength - Changes the maximum brake strength of the ESC to suit different applications and circuits which may require different braking power.
- Reverse Power - Adjusts reverse power when F/B/R or F/R has been selected as the Run Mode.
- Dead Band - Adjusts the percentage of trigger movement available before the throttle/ brake initially engages.
- ESC Temp Cutoff - Reduces or cuts power to the motor to prevent permanent damage to the ESC. Disabling the cutoff is an option but not recommended, and doing so will void the warranty.
- Run Mode - Select the appropriate mode depending on if the ESC is used for racing or for practice.
- Drag Brake - Drag Brake is a percentage of the Brake Strength and provides automatic braking when the throttle trigger is returned to the neutral position. The Drag Brake value may require adjustment when changes to the Brake Frequency and Brake Strength are made.
- Boost Timing - Determines the maximum advanced timing beginning at 10% throttle input with maximum timing achieved at 95% and beyond. This value must be set at 0° for zero-timing stock classes.
- Turbo Timing - The maximum timing added during Turbo Timing activation. Turbo Timing is activated beyond 95% throttle input. It provides additional timing beyond boost timing; therefore, the Turbo Timing value must be higher than the Boost Timing value for it to engage. This value must be set at 0° for zero-timing stock classes
- Drive Frequency - A lower frequency will provide a more aggressive throttle feel. A higher frequency will provide a smoother, more precise throttle feel but may also result in higher ESC temperatures.

- Brake Frequency - A lower frequency will provide a more aggressive feel while a higher frequency will provide a smoother, more precise braking feel but may result in higher ESC temperatures.
- Motor Rotation - Reverses the motor's direction of rotation if required by a vehicle's design.
- BEC Voltage - Values of 6.0V or 7.4V can be chosen to match the input voltage requirements of the selected servo or to fine tune the servo's speed for the desired feel.

OPERATION AND WARNINGS			
Operation	ESC Signal		
	Red	Blue	
		0° Blinky	Timing
Neutral throttle position F/B Mode		blink	solid
Mid-throttle position	blink*		
Full throttle position	solid		
Full brake position	solid		

*Blinking speed increases as the throttle position increases

Warning	ESC Signal		Motor Power
	Red	Blue	
No radio signal	solid		
Abnormal battery voltage	blink x1	blink x1	
LVC engaged	blink x2	blink x2	reduced*
ESC temp cutoff	blink x3	blink x3	reduced/cut*
Sensor wire removed/failure	blink x4	blink x4	

*Full operation resumes when the ESC is powered OFF and ON, and the problem that signaled the shutdown has been resolved.

WARRANTY Your Reedy Blackbox ESC is warranted to the original purchaser for 120 days from the date of purchase, verified by the sales receipt, against defects in material and workmanship. Product that has been mishandled, abused, used incorrectly, used for an application other than intended, or damaged by the user are not covered under warranty. Associated Electrics Inc. is not liable for any loss or damage, whether direct or indirect, incidental or consequential, or from any special situation, arising from the use, misuse, or abuse of this product.



INTRODUCTION

Congratulations on your purchase of Reedy's Sonic 1525 Competition Micro Brushless Motor. The Sonic 1525 is designed specifically for 1:28 and other micro vehicles intended for competition use. Thanks to input from our racing team and customers, the Reedy development team has created reliable, yet powerful sensored design featuring the latest brushless motor technology along with the engineering experience that is responsible for 30 World Championship titles.

FEATURES

- CNC machined lightweight can
- Low-resistance components
- High-strength, balanced rotor
- Precision ball bearings
- Competition proven

Please read the following before installing and using your new motor.

PRECAUTIONS AND WARNINGS

- Please read the instructions before installing and operating your motor
- Avoid over gearing by monitoring motor temperature. Operating temperatures should not exceed 80C (175F)
- Be sure to use the proper size motor mounting screws
- Do not over-tighten the motor mounting screws

INSTALLATION AND MAINTENANCE

- Your motor should be installed using M2 screws with a length that does not allow the screw to extend into the motor more than 2.5mm. Consult with the vehicle's instruction manual to determine the best length.
- Do not over-tighten the motor mounting screws. Doing so may strip the mounting hole threads.
- Solder the three leads from your Electronic Speed Control (ESC) noting the A, B, and C connections. Do not allow solder to bridge the gap between each connection.
- Plug the sensor cable into the motor and ESC sensor ports.
- To clean your motor, lightly brush dirt away on a regular basis paying particularly close attention to the area around the ball bearing. Occasionally add a small drop of bearing oil. DO NOT spray cleaners or solvents into the motor.

GEARING AND TIMING

The correct gear ratio depends on several factors, so it is impossible to determine an exact ratio for any particular motor. Your best option is to consult with other races in your class or the dealer from which you bought your motor to determine a good starting gear ratio. Reedy representatives are also available by calling the customer service telephone number found at www.reedypower.com

SPECIFICATIONS

Cells	8.4V (2S LiPo)
Diameter (mm).....	15.0
Length (mm)	25.0
Shaft Dia. (mm)	2.0
Weight (g)	17

WARRANTY

Due to the competition nature of this product, this motor is warranted to the original purchaser to be free from defects in material and workmanship at the time of purchase. Motors that have been mishandled, abused, used incorrectly, used for an application other than intended or damaged by the user are not covered under warranty. Associated Electrics, Inc. is not liable for any loss or damage, whether direct or indirect, incidental or consequential, or from any special situation, arising from the use, misuse, or abuse of this product.

Visit www.reedypower.com for a complete list of tuning rotors, spare parts, and complete list of specifications.

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Associated Electrics, Inc. declares that this product complies with the essential requirements and other relevant provisions of the European directive 2014/30/EU.

The crossed-out wheeled bin means that within the European Union the product must be taken to separate collection at the product's end of life. Do not dispose of these products as unsorted municipal waste.