

# XP DIGITAL #29141 XP SC450-BL Brushless ESC

## Introduction

Congratulations on your purchase of the XP SC450-BL Brushless Electronic Speed Control (ESC). The latest electronics technology along with the design and engineering experience that is responsible for multiple World Championship titles has been incorporated into its design.

The XP SC450-BL Brushless ESC is light and compact for easy installation in most 1/10 vehicles. Simple calibration and a wide variety of tuning options make this ESC perfect for both casual enthusiast and racers. When paired with a Reedy 540R Brushless Motor, you create a potent combination of power and efficiency that brings performance to a new level. More power and less maintenance elevate the fun factor by increasing top speeds and reducing down time.

**Please read the following before installing and operating your new ESC.**

## Features

- LiPo Low Voltage Cutoff
- LiPo Cell Auto Detect
- Reversible with Reverse Lockout
- Fully Proportional Brakes
- Adjustable Drag Brakes
- Adjustable Throttle Profile
- Hard Case with Aluminum Heat Sink
- Heavy Duty Silicone Wires
- Deans® Ultra Plug® Connector
- 3.5mm Motor Connectors

## Specifications

Cells	2-3 LiPo, 6-8 NiMH
On Resistance	2.5 mΩ
Max Continuous Current	45A
Brakes	Proportional
Reversible	Yes, w/Brakes Only Option
Low Voltage Cutoff	Adjustable, w/Cell Auto-Detect
Motor Limit	6100kV w/2S LiPo, 3900kV w/3S LiPo
Overload Protection	Yes
Set-Up Procedure	Transmitter Based
Dimensions	44mm x 38mm x 28mm
Weight	77g (2.3oz)
Power Wires	14-Gauge Silicone
Connector Type	Battery/Deans®, Motor/3.5mm sockets

## Installation

- Mount your ESC securely using double-sided tape.
- Install your ESC in a position that allows easy access to all connectors.
- Plug the ESC's receiver wire into the receiver (refer to radio manufacturer's manual).
- To prevent radio interference, arrange ESC wiring so that it is not in close proximity to the receiver antenna wire.
- Connect the three motor leads exiting the ESC to the three leads exiting your motor. If the motor runs backwards when giving it forward throttle, reverse any two motor leads. The motor will now run the desired direction.
- Always power ON your transmitter before the ESC and power OFF the ESC before the transmitter.

## 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, in order for the product to operate properly and to avoid damage or injury.

## Throttle Calibration

Your new ESC must be calibrated before use. Before calibration, be sure to set your radio's throttle and brake EPAs to 100% and your throttle trim to neutral. Then follow the steps outlined below.

Step #	Procedure	Signal From ESC	
		Audio	LED
1	Power ON transmitter		
2	Throttle trigger position to maximum		
3	Power ON ESC	bibibibibibi	red static/6 green flash
4	Throttle trigger position to neutral	bibi-bibi	red static/4 green flash
5	Throttle trigger position to maximum brake	bibi-bibi	red static /4 green flash
6	Throttle trigger position to neutral		red static
7	Power OFF ESC		
8	Power OFF transmitter		

Once the calibration procedure is complete, turn on your transmitter, then your ESC, and begin operating your vehicle. Note: If you choose to make settings adjustments at this time, you can do so immediately after step #6 of the throttle calibration procedure.

## Programmable Settings

Your ESC comes pre-programmed and can be used immediately. But you can also change the settings based on the type of vehicle and battery used as well as personal performance preferences based on the track you are driving on and your driving style.

**Drag Brake** - Drag brake is the amount of braking achieved when the throttle is returned to neutral. A setting of 0% means the vehicle will free wheel to a stop while higher settings will stop the car faster. Please note that regardless of the drag brake setting, you will still be able to use the brake trigger to manually slow the car. This push brake action can be adjusted by changing your transmitter's brake EPA setting.

**Throttle Profile** - This setting adjusts the power delivery of your ESC/motor combination. The Very Soft setting can be used on loose or bumpy track to reduce wheel spin while the Maximum setting works well when high traction is available. Four settings provide options for any track condition.

**Run Mode** - This gives the option of using reverse or eliminating it completely (for competition). With reverse activated, you will still have fully proportional braking. Reverse will engage after a once-second delay beginning when the vehicle comes to a complete stop. Reverse with Safe Brake brings a reversing vehicle to a complete stop before forward motion can begin again.

**Battery Management System** - A choice of either LiPo mode or NiMH mode adjusts the low voltage cutoff point. This is particularly important when using LiPo batteries that should not, for performance and safety reasons, be discharged below 3.0V per cell. In LiPo mode, the ESC detects whether you are using 2 or 3 cells and adjusts the cutoff accordingly.

To make settings adjustments, you must first follow the calibration procedure. After step #6, you will encounter a 5-second delay before entering the settings adjustment mode. All changes will be made using your transmitter's throttle trigger. Note: Once you enter the settings adjustment mode, the ESC will scroll through all options. If you fail to choose a setting, the ESC will keep the previously saved setting.

For example, if you want to change the throttle profile from Soft to Standard, enter the settings mode. You will encounter the Battery Management System and Drag Brake modes first at which time you can let the ESC scroll through the choices (the previously saved setting will be kept) until you reach the Throttle Profile choices. You must make the selection by pulling the throttle trigger to maximum after the ESC scrolls to the desired setting (in this case Standard) indicated by the appropriate audible tones. Once this setting (or any setting for that matter) is chosen, you can skip to Step #5 if no other changes are desired.

Step #	Procedure	Signal From ESC	
		Audio	LED
<b>Battery Management System</b>			
1	NiMH 4.5V Cut-Off	~~	
	LiPo 3.0V/Cell Cut-Off (default)	~~	red static/green flashes
	Throttle trigger position to maximum to select value	bibi-bibi	red static/4 green flash
	Throttle position to neutral		red static
<b>Drag Brakes</b>			
2	0%	~~	
	2.5% (default)	~~	
	5%	~~	
	10%	~~	red static/green flashes
	Throttle trigger position to maximum to select value	bibi-bibi	red static/4 green flash
	Throttle position to neutral		red static
<b>Throttle Profile</b>			
3	Very Soft	~~	
	Soft (default)	~~	
	Standard	~~	
	Maximum	~~	red static/green flashes
	Throttle trigger position to maximum to select value	bibi-bibi	red static/4 green flash
	Throttle position to neutral		red static
<b>Run Mode</b>			
4	Reverse Off (Forward Only)	~~	
	1-Second Reverse (default)	~~	
	1-Second Reverse w/Safe Brake	~~	red static/green flashes
	Throttle trigger position to maximum to select value	bibi-bibi	red static/4 green flash
Throttle position to neutral			
5	Power OFF ESC and transmitter		
6	Power ON transmitter and ESC	melody bi-bi	2 red flash/green static

## Warranty

Your ESC is warranted to the original purchaser for 90 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.

#916	Reedy 540R 3300kV Motor
#917	Reedy 540R 3900kV Motor
#918	Reedy 540R 4900kV Motor
#919	Reedy 540R 6100kV Motor
#936	XP SC450-BL ESC w/Reedy 3300kV Motor
#937	XP SC450-BL ESC w/Reedy 3900kV Motor
#938	XP SC450-BL ESC w/Reedy 4900kV Motor
#939	XP SC450-BL ESC w/Reedy 6100kV Motor



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