

Items Needed to Perform Updates and Program your

Spektrum Smart Avian or Firma ESC

- Desktop or Laptop computer running Windows 7 or higher
- Micro USB to USB Cable (included with SPMXCA200)
- Male to Male Servo lead (included with SPMXCA200)
- Spektrum Smart ESC Programmer (SPMXCA200)
- Battery to Power the ESC

Connecting your Spektrum Smart ESC to the SmartLink PC App

1. Download the latest Spektrum SmartLink updater app [here](#)
2. Once downloaded, extract the compressed .RAR file to a location that you can easily find, we suggest the Desktop
3. Locate and Open the Spektrum USB Link.exe SmartLink application
4. You will see this screen →
5. Connect your Firma or Avian Smart ESC to your SPMXCA200 Programmer via ESC port
 - a. plug male to male servo lead into your ESC fan port (Firma ESCs and Avian 80 amp and above)
 - b. Plug into 3 Pin ESC program port (3 pin connector on Avian 15-60 amp)
6. Connect to your SPMXCA200 Programmer to your PC with the micro USB cable
7. Power on your Avian or Firma Smart ESC
8. The SmartLink app will connect to your Smart ESC

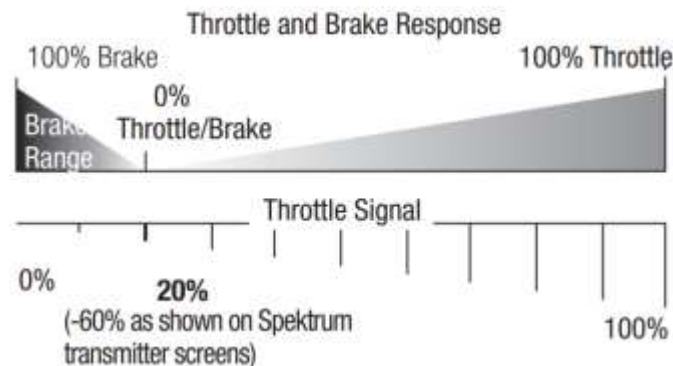


Using the Spektrum SmartLink App



GENERAL SETTINGS

- **Flight Mode**
 - Fixed Wing (*) Default – For use with Aircraft and non-governed Heli models
 - Helicopter – Enables the Speed governing “Governor” mode for fixed RPM motor speeds
- **Brake Type**
 - Disabled (*) Default – Motor will free wheel when throttle position is zero
 - Normal – When throttle position is zero, the assigned brake force will be applied
 - Proportional - With this option selected the throttle range changes so the ESC will not start below 20%. The throttle will operate as normal above 20%, but moving the throttle below 20% will apply the brakes, increasing in strength as the signal drops to 0%.



- **Brake Force** – This option is adjustable from level 0 (* Default) to level 7. The higher the level, the stronger the braking effect. Brake Force is only effective in the “Normal brake” mode.
- **Voltage Cutoff Type**
 - Soft Cutoff: Selecting this option will gradually reduce the ESC output to 50% of the full power within 3 seconds after the low-voltage cutoff protection is activated.
 - Hard Cutoff: Selecting this option will immediately cut off the ESC output when the low-voltage cutoff protection is activated.
- **LiPo Cells** - Select Auto Calc to cause the ESC to automatically calculate the number of LiPo cells based on a 3.7V/cell default. Alternatively, you can select a specific cell count to set the ESC to a fixed battery configuration.
- **Cutoff Voltage** - Use this option to adjust the cutoff voltage from 2.8V to 3.8V/cell or disable the cutoff voltage completely. 3.0v is the default **WARNING: Discharging a LiPo battery below 2.8V/cell may damage the battery. Attempting to charge or discharge a damaged battery can cause a fire.**



THROTTLE – CONTROL

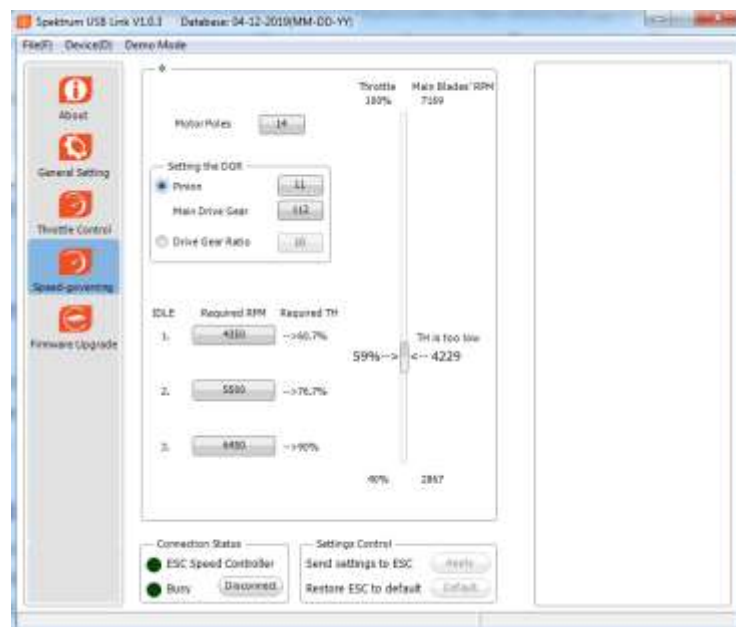
- **BEC Voltage** - Select the BEC output voltage. Default and available settings per ESC.
- **Start-up Mode**
 - Normal Start-up: If this mode is selected, the motor will immediately increase in RPM to correspond to the throttle stick input.
 - Soft Start-up: If this mode is selected, the motor will gradually increase in RPM to correspond to the throttle stick input.

TIP: We recommend using this soft start-up mode when using large diameter motors or gear drives.
- **Timing** - Select Low, Medium, or High motor timing.
- **Motor Rotation** - Adjust the rotation direction of the motor without changing wires.
- **Active Freewheeling** - This option can be set to Enabled or Disabled. Freewheeling can help provide better throttle linearity or smoother throttle response.



GOVERNOR SETUP

If the governor mode is activated, the ESC will try its best to hold the rotor head speed at a fixed value that you assign. In order for your Avian ESC to calculate the speed of the main rotor blades of your helicopter, you need to know the motor poles number and the gear ratio of main drive gear vs. the pinion. Below is an example of this screen with an Avian 100 setup for a Blade Fusion 480 model running a 14 pole motor, 11 tooth pinion and 112 tooth main gear.



When you adjust the throttle curve, please make sure that the motor can run at this preset speed even if the motor load is heaviest. Please note that the governor mode function is automatically disabled if the throttle volume is less than 60% or more than 90% to allow for proper motor control in high and low load scenarios.



FIRMWARE UPGRADE

Updating your Spektrum Smart ESC is easy. Simply download the latest version of the SmartLink app, go to the Firmware Upgrade Tab and click **Upgrade**. New ESC and Smart Technology features will be added in the future for applicable Smart ESCs. When that occurs a new SmartLink App version will be available.

Note: When a Firmware upgrade is performed, all settings on your Smart ESC will return to the defaults, please confirm the proper settings for your model before use.



BASIC

- **Running Mode** – Select between Forward and Brake (Fwd/Brk) or Forward, Reverse and Brake (Fwd/Rev/Brk) (* Default)
- **Lipo Cells** – Select between Auto-Calculation (* Default)– 8S Lipo Cutoff.
- **Low Voltage Cutoff** – Select between Auto Low – Auto Intermediate (*Default - Auto High
 - **Auto (Low)** - Low cutoff voltage, not very easy to get the LVC Protection activated, is applicable to batteries with poor discharge capability.
 - **Auto (Intermediate)** - Medium cutoff voltage, prone to getting the LVC Protection activated, is applicable to batteries with ordinary discharge capability.
 - **Auto (High)** - High cutoff voltage, very prone to getting the LVC Protection activated, is applicable to packs with great discharge capability.
- **BEC Voltage** – Select Between 6.0V (* Default) and 8.4V
- **Brake Force** – Select between 25% - 100% or Disabled



ADVANCED

- **Reverse Force** – Select between 25% and 50%. 25% is the default.
- **Start Mode (Punch)** - You can adjust the throttle punch from level 1 (very soft) to level 5 (very aggressive) as per the track, tires, grip, your preference and etc. This feature is very useful for preventing tires from slipping during the starting-up process. In addition, “level 4” and “level 5” have strict requirement on battery’s discharge capability. It may affect the starting-up if the battery discharges poorly and cannot provide large current in a short time. The car stutters/cogs or suddenly loses power in the starting-up process indicating the battery’s discharge capability is not adequate. Upgrade to higher C rating battery or you can reduce the punch or increase the FDR (Final Drive Ratio) to help.
- **Timing Mode** - 0° / 3.75° / 7.5° / 11.25° / *15° / 18.75° / 22.5° / 26.25°, default is 15°.

Usually, low timing value is suitable for most motors. But there are many differences among structures and parameters of different motors so please try and select the most suitable timing value according to the motor you are just using. The correct timing value makes the motor run smoothly. And generally, higher timing value brings out higher output power and higher speed/rpm. **Note: After changing the timing setting, please test your RC model on ground prior to flight. Monitor for cogging, stuttering and excessive motor heat, if these symptoms occur, reduce timing.**