Spektrum Avian ESC Update Instructions

Items Needed to Perform Updates and Program your Spektrum Smart ESC

- Desktop or Laptop computer running Windows 7 or higher
- Spektrum Smart ESC Programmer (SPMXCA200)
- Micro USB to USB Cable (included with SPMXCA200)
  - This is a USB-C to USB on the V2 SPMXCA200
- Male to Male Servo lead (included with SPMXCA200)
- Battery to Power the ESC

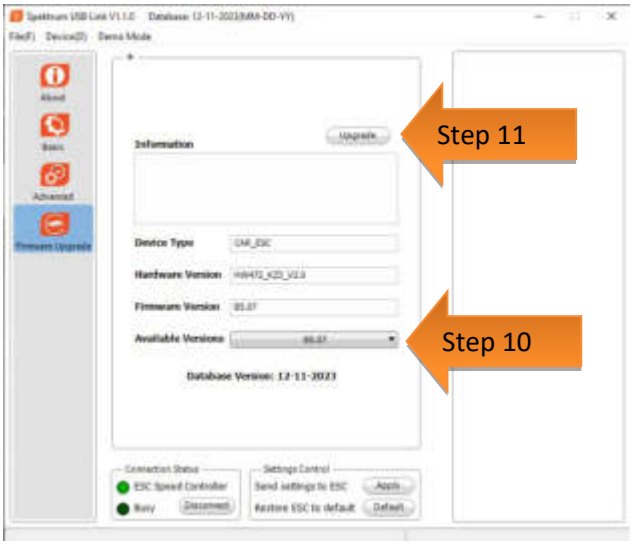
Connecting your Spektrum Smart ESC to the SmartLink PC App

1. Restart your computer
2. Download the latest Spektrum SmartLink updater app here
3. Once downloaded, extract the .ZIP file to a location that you can easily find, we suggest the Desktop
4. Locate and open the Spektrum USB the Spektrum USB Link.exe
5. You will see this screen



6. Connect your Avian Smart ESC to your SPMXCA200 Programmer via the ESC port
   - This may be a standalone lead or a port directly on the ESC case
7. Connect to your SPMXCA200 Programmer to your PC with the micro USB cable (USB-C to USB)
8. Power on your Avain Smart ESC
9. The SmartLink app will connect to your Smart ESC
10. Go to the “Firmware Upgrade” tab and select the top version from the “Available Versions” drop down box
11. Click the “Upgrade” button to perform the update

www.modellmarkt24.ch



12. Once the “Upgrade**”** button has been selected to install the update on your Smart ESC, a progress bar will appear on your computer screen. Please allow the update to finish then click “OK” to save the settings. You can disconnect and use your Smart ESC with the updated firmware now.

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

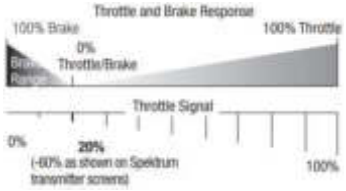
13. Restart your ESC for the firmware version to be applied
14. Plug any disconnected fans back in

www.modellmarkt24.ch

Spektrum Avian ESC Programming Instructions

GENERAL SETTINGS

- **Flight Mode**
  - Fixed Wing (*) Default – For use with Aircraft and non-governed Heli models
  - Helicopter – Enables the Speed governing “Govenor” 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%.



  - Reverse – When selected transmitter channel is positioned between 0 – 100% travel, the motor will run in reverse, allowing for braking during taxi/landing and reverse thrust
  - ***Please Note*** – Reverse mode needs to be assigned to an OPEN channel on your transmitter, this channel is selected in ESC menu item #15 using in conjunction with another function can cause unexpected behavior in flight.
- **Brake Force** – This option is adjustable from level 0 (* Default) to level 7. The higher the level, the stronger the braking effect. *When running Reverse Brake Type, we recommend setting this to 7.*
- **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 sell 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.***

www.modellmarkt24.ch

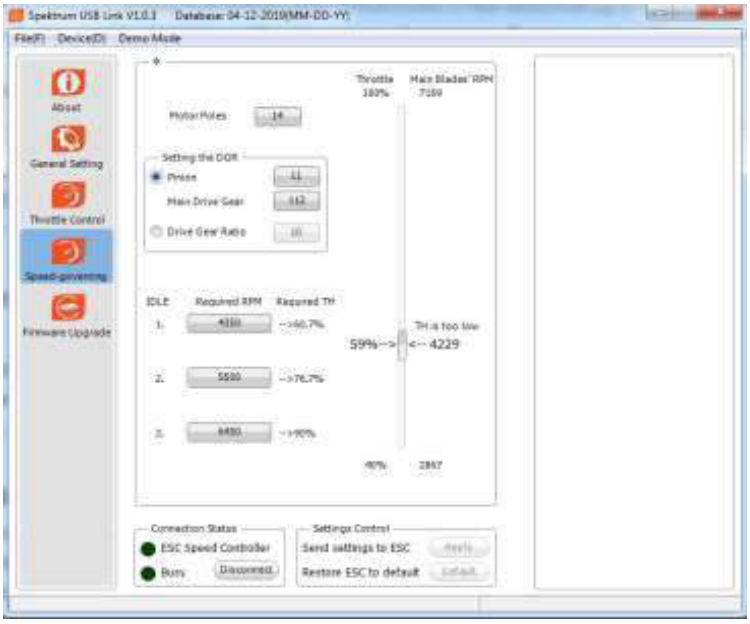
THROTTLE – CONTROL

- **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.
  - **Please Note** - 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.
- **Thrust Rev** – Use this option to select the channel used to activate motor reversing. Reverse must set in the Brake Type menu
- **Governor Gain** (Heli Mode only) - Controls how aggressively the governor maintains the set RPM - Level 1 (less) to Level 3 (more)
- **Auto Restart Time** (Heli Mode only) - Set the auto-rotation bailout timing
  - **Restart Accel** (Heli Mode only) - Controls how aggressively RPMs are recovered when performing Auto-rotation bailout

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. 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.



www.modellmarkt24.ch