

HV PRO ESC PROFILE SELECTION, ADJUSTMENTS & GEARING INSTRUCTIONS

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These instructions replace the "THROTTLE PROFILE SELECTION" section in the main ESC instruction manual.

The Novak HV Pro High-Voltage Brushless ESC that is included has been updated, and now includes **5 Throttle Profiles** (2 with Reverse and 3 w/Forward & Brake only), and **Full Programmability**. The on-board programming provides extreme versatility, and allows fine-tuning of **Minimum Brake**, **Drag Brake**, **Dead Band**, and **Minimum Drive** (refer to back side of this sheet for programming instructions).

This ESC is compatible with 6-14 NiMH or 2-4S LiPo cells. The **Novak #5471 Novak Smart Stop 4S LiPo Module** is included.

IMPORTANT! If using dual battery packs, and upgrading/changing the connectors, it is critical that you replace one connector at a time to avoid cross-connection--which can damage the ESC and void the warranty. (Novak offers #5741 Low-Loss 4mm Connectors.)

If you purchased a brushless system, the HV Brushless Motor included has been updated to include a **rugged, 5mm output shaft**. This size output shaft is recommended for use in Novak's **1/8-Scale Brushless Conversion Kits (#5010-#5019)**. The HV motors feature a high-strength **Sintered Rotor** for optimum performance. Novak also offers **Mod 1 Gears for 5mm output shafts (#5100-#5105)**.

THROTTLE PROFILE SELECTION

The HV Pro High-Voltage Brushless ESC is equipped with 5 user-selectable Throttle Profiles, as shown below.

HV PRO ESC THROTTLE PROFILES:

Throttle Profile>	#1	#2	#3	#4	#5
w/Reverse	NO	YES	NO	NO	YES
Reverse %	0	100	0	0	25
Programmable?	YES	YES	YES	YES	NO
Minimum Brake %	9%	9%	9%	21%	9%
Drag Brake %	9%	9%	9%	21%	N/A
Dead Band %	5	5	5	5	5
Minimum Drive %	1	1	3	3	1

NOTE: The HV Pro ESC is factory set to Profile #1 which does not have reverse. For Reverse, change to Profile #2.

SELECTING THROTTLE PROFILES:



NOTE: The HV Pro ESC will always revert back to Profile #1 when the One-Touch set-up is performed.

With ESC on & connected to a charged battery (transmitter ON or OFF):

- IF TRANSMITTER IS OFF, DISCONNECT ESC FROM RECEIVER**
To avoid possible radio interference, remove ESC's input signal harness from the receiver--Green & Red LED will stay on to indicate no signal from receiver.
- PRESS & HOLD THE ESC'S ONE-TOUCH SET BUTTON**
Continue to hold SET button on ESC until all 4 LEDs turns on.
Note: You will continue holding past all the LED programming indicators in the ESC's software as shown in the flow chart on back side of this sheet.
- RELEASE SET BUTTON AS SOON AS ALL 4 LEDs COMES ON**
Once released, the 4 status LEDs will flash to indicate what Throttle Profile is currently selected. The number of times the LEDs flash indicates the Throttle Profile selection (1 of 5).
- QUICK PRESS (& release) SET BUTTON TO CHANGE SELECTION**
Each press will change to the next consecutive Throttle Profile. (After Profile 5, the sequence begins again at Profile 1)
Note: There is a time constraint during this selection process.
- ESC STORES SELECTION & BEGINS TO EXIT PROGRAMMING**
If SET button is not pressed for 3 seconds, ESC stores selected Throttle Profile in its memory, exits to neutral, and is ready to go. (LEDs turn off in a rolling motion left to right, then the Red LED turns on solid--Green LED will be on if no transmitter signal present & Blue or Blue & Amber LEDs on if Drag or Minimum Brakes are above 0%).

PROPER GEAR SELECTION

Motor operating temperature is the ONLY way to set vehicle gearing

The Motor and Speed Control should not exceed **160-170°F MAX** at end of the run!

Change the gearing to avoid overheating!

DO NOT FREE-REV MOTOR!

Free-running your brushless motor in a no-load condition can cause rotor failure & ESC transistor damage and will void the product's warranty.

Recommended Gearing for Traxxas® E-Maxx™:

NOVAK MOTOR	New Version Traxxas E-Maxx™ Motor Heat Sink Must be Trimmed				Original Traxxas® E-Maxx™ Use First Gear for Shaded Areas			
	12-cell NiMH / 4S LiPo		14 cell NiMH		12-cell NiMH / 4S LiPo		14 cell NiMH	
	Spur	Pinion	Spur	Pinion	Spur	Pinion	Spur	Pinion
HV4.5	68	13	68	12	66-68	18	66-68	16
HV5.5	68	14	68	13	74-76	14	66-68	18
HV6.5	68	15	68	14	70-72 74-76	14 15	64-66	18
HV7.5	68	16	68	15	70-72 74-76	15 16	64-66	20

See www.teamnovak.com for updated gearing recommendations and final drive ratios

PROFILE ADJUSTMENTS

The following parameters are adjustable in the ESC's software:

MINIMUM BRAKE (1 of 10 settings from 0 to 27%)--The amount of braking applied with the first pulse of transmitter throttle information.

>>Raising this setting starts the braking at a stronger/higher level
>>Setting the Minimum Brake will turn off the Drag Brake.

DRAG BRAKE (1 of 10 settings from 0% (off) to 27%)--Amount of braking applied while transmitter is at neutral. Known as 'coast' or 'auto' brakes.

>>Raising this setting makes the motor slow down more, without pushing the transmitter's trigger into the brake/reverse direction.

Note: With Drag Brakes on settings 2-10, Min. Brake value is same as Drag Brake value.

DEAD BAND (1 of 5 settings from 2 to 6%)--The space between Minimum Brake and Minimum Drive, with neutral in the middle. This can be helpful to resolve minor "glitching" when the vehicle is in neutral.

>>Raising this setting will increase the 'free play', or distance your trigger must move before forward drive or braking will begin.

MINIMUM DRIVE (1 of 5 settings from 1 to 12%)--The amount of forward drive applied with the first pulse of transmitter throttle information.

>>Raising this setting makes the motor start at a stronger/higher level so it takes off more aggressively from neutral.

HV PRO ESC CUSTOM PROGRAMMING

PLEASE NOTE: This page contains optional Advanced Programming items! No further adjustments are required.
(but don't worry, you can always reset factory defaults by performing the One-Touch programming again, so go ahead & experiment--that's why the programming is in there, right?)

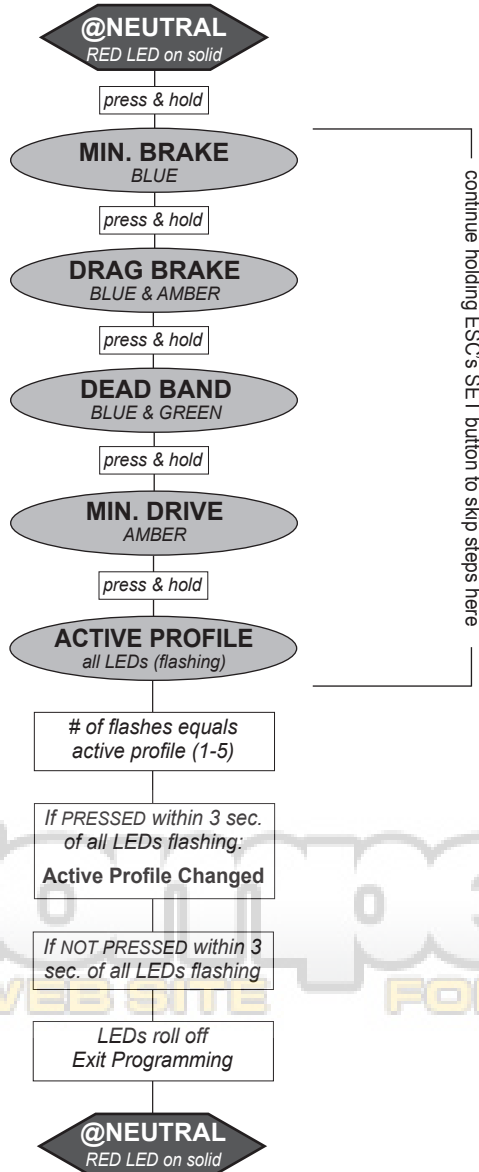
TO CUSTOM PROGRAM PROFILES 1-4:

Your transmitter can be either ON or OFF:

- IF TRANSMITTER IS OFF, DISCONNECT ESC FROM RECEIVER**
Remove input signal harness from receiver to avoid radio interference.
- CONNECT SPEED CONTROL TO CHARGED BATTERY PACKS**
- SLIDE ESC's ON/OFF SWITCH TO 'ON' POSITION**
- MAKE SURE THE THROTTLE PROFILE 1-4 IS ACTIVE**
If you are not sure what profile is selected, follow the procedures in 'THROTTLE PROFILE SELECTION' to check or select the desired profile.
- FOLLOW THE STEPS ON RIGHT SIDE OF THIS PAGE TO CUSTOMIZE THE THROTTLE PROFILE SETTINGS**
You can adjust different parameters (described on back side of this sheet) for Throttle Profiles 1-4 to fine tune the ESC to perform & feel the way you like it.

Note: there is no time constraint during selection process of custom parameters.

HV PRO ESC SOFTWARE FLOW CHART



RESTORING FACTORY DEFAULTS:

Every time you perform the One-Touch Set-Up, the factory default settings are restored for each of the throttle profiles and the Speed Control reverts to Profile #1.

To Adjust Minimum Brake (using this turns off drag brakes)

A. PRESS & HOLD SPEED CONTROL'S SET BUTTON

With ESC at neutral, press & hold SET button until the **BLUE status LED turns on solid**--Release ESC's SET button once LED is on solid.

B. SELECT MINIMUM BRAKE PERCENTAGE

Blue LED

Blue status LED flashes to indicate active Minimum Brake setting. Quick press & release SET button to select desired setting.

Setting (# of flashes)	1	2	3	4	5	6	7	8	9	10
Minimum Brake (%):	0	3	6	9	12	15	18	21	24	27

C. PRESS & HOLD SET BUTTON TO STORE SELECTION

When SET button is pressed & held for about 1 second, the **new selection is stored** in ESC's memory--The 4 status LEDs will scroll back & forth to indicate ESC is exiting programming & the Red (Blue may also be on) LED will turn on solid--ESC is at neutral & ready to go.

To Activate & Adjust Drag Brake:

A. PRESS & HOLD SPEED CONTROL'S SET BUTTON

With ESC at neutral, press & hold SET button until **BLUE & AMBER status LEDs turn on solid**--Release SET button once LEDs are on solid.

B. SELECT DRAG BRAKE PERCENTAGE

Blue & Amber LEDs

Blue & Amber status LEDs flash to indicate Drag Brake setting (Minimum Brake setting will be the same as Drag Brakes). Quick press & release SET button to change Drag Brake setting.

Setting (# of flashes)	1	2	3	4	5	6	7	8	9	10
Drag Brake (%):	off	3	6	9	12	15	18	21	24	27

C. PRESS & HOLD SET BUTTON TO STORE SELECTION

Selection is stored in memory--Status LEDs scroll back & forth and ESC exits programming. Red LED turns on solid (Green & Blue LEDs may also be on)--ESC is at neutral and ready to go.

Notes: When Drag Brakes are active, the Blue & Amber LEDs will also stay on during normal operation. To re-activate the standard style of braking (no drag brakes during neutral), repeat Minimum Brake adjustment as described above.

To Adjust Dead Band:

A. PRESS & HOLD SPEED CONTROL'S SET BUTTON

With ESC at neutral, press & hold SET button until **BLUE & GREEN status LEDs turn on solid**--Release SET button once LEDs are on solid.

B. SELECT DEAD BAND PERCENTAGE

Blue & Green LEDs

Blue & Green status LEDs flash to indicate active Dead Band setting. Quick press & release SET button to change setting.

Setting (# of flashes)	1	2	3	4	5
Dead Band (%):	2	3	4	5	6

C. PRESS & HOLD SET BUTTON TO STORE SELECTION

Selection is stored in memory--Status LEDs scroll back & forth and ESC exits programming. Red LED turns on solid (Green & Blue LEDs may also be on)--ESC is at neutral and ready to go.

To Adjust Minimum Drive:

A. PRESS & HOLD SPEED CONTROL'S SET BUTTON

With ESC at neutral, press & hold SET button until **AMBER status LED turns on solid**--Release SET button once LED is on solid.

B. SELECT MINIMUM DRIVE PERCENTAGE

Amber LED

Amber status LED flashes to indicate active Minimum Drive setting. Quick press & release SET button to change setting.

Setting (# of flashes)	1	2	3	4	5
Minimum Drive (%):	1	3	5	8	12

C. PRESS & HOLD SET BUTTON TO STORE SELECTION

Selection is stored in memory--Status LEDs scroll back & forth and ESC exits programming. Red LED turns on solid (Green & Blue LEDs may also be on)--ESC is at neutral and ready to go.