

SLYDR DRIFT 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?)

SLYDR DRIFT ESC SOFTWARE FLOW CHART

The SLYDR Drift ESC features **nine parameters** that can be adjusted. Refer to below flowchart and settings at right.

DEFAULT SETTINGS ARE IN BOLD IN TABLES

TO CHANGE PARAMETER SETTINGS:

Transmitter can be either ON or OFF:

1. IF TRANSMITTER IS OFF, DISCONNECT ESC FROM RECEIVER

Remove input signal harness from the receiver to avoid radio interference.

2. CONNECT ESC TO A CHARGED BATTERY PACK

3. SLIDE ESC'S ON/OFF SWITCH TO 'ON' POSITION

4. WITH ESC AT NEUTRAL PRESS & HOLD ESC'S SET BUTTON

Release ESC's SET button once LED is at desired setting.

To skip a parameter, continue to press and hold ESC's SET button to the desired parameter.

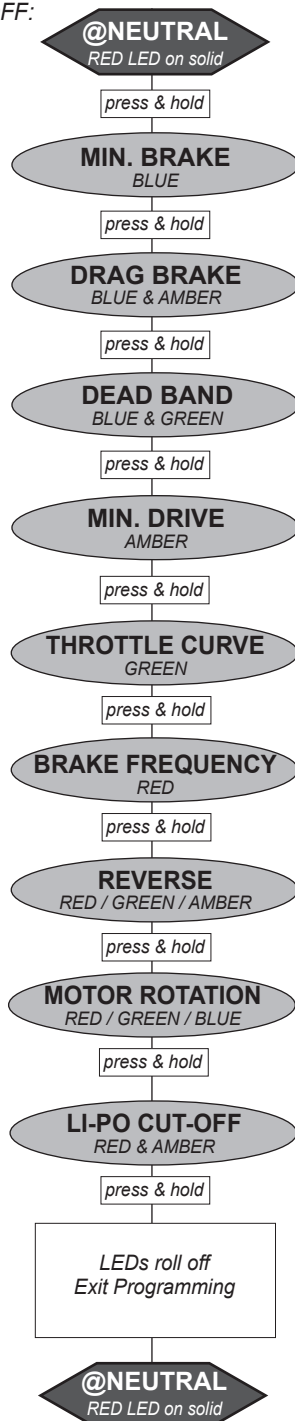
5. SELECT PARAMETER VALUE

LED flashes to indicate active setting (refer to tables at right). Quick press & release SET button to select desired setting.

6. PRESS & HOLD SET BUTTON TO STORE SELECTION

When SET button is pressed and held for about 1 second, the new selection is stored in ESC's memory—The 4 status LEDs will scroll across to indicate ESC is exiting programming and ESC returns to neutral.

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



Parameter	Default	Custom
Minimum Brake	12%	
Drag Brake	12%	
Dead Band	5%	
Minimum Drive	2%	
Throttle Curve	Expo-1	
Brake Freq.	3 KHz	
Reverse	OFF	
Motor Rotation	CCW ↺	
Li-Po Cut-Off	OFF	

RESTORING FACTORY DEFAULTS:

Every time you perform the One-Touch Set-Up, the ESC is defaulted to the factory default parameter settings.

THROTTLE PARAMETER SETTINGS (Defaults in Bold)

1. MINIMUM BRAKE SETTINGS (10) BLUE LED

Amount of braking applied with first pulse of transmitter throttle information.
>>Raising this setting starts the braking at a stronger/higher level.

Setting (# of flashes)	1	2	3	4	5	6	7	8	9	10
Minimum Brake (%):	3	6	9	12	15	18	20	30	40	50

2. DRAG BRAKE SETTINGS (10) BLUE & AMBER LEDs

Amount of braking applied while transmitter is at neutral. 'Coast' brakes.
>>Raising this setting makes the motor slow down more, without pushing the transmitter's trigger into the brake/reverse direction.

Setting (# of flashes)	1	2	3	4	5	6	7	8	9	10
Drag Brake (%):	3	6	9	12	15	18	20	30	40	50

3. DEAD BAND SETTINGS (5) BLUE & GREEN LEDs

Space between Minimum Brake & Minimum Drive, with neutral in middle.
>>Raising this setting will increase the 'free play', or distance your trigger must move before forward drive or braking will begin.

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

4. MINIMUM DRIVE SETTINGS (5) AMBER LED

Amount of forward drive applied with first pulse of transmitter information.
>>Raising this setting makes the motor start at a stronger/higher level so it takes off more aggressively from neutral.

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

5. THROTTLE CURVE SELECTION (3) GREEN LED

>>Changing this setting changes the throttle response and ease of drivability.

Setting (# of flashes)	1	2	3
Throttle Curve:	Linear	Expo-1	Expo-2

6. BRAKE FREQUENCY (7) RED LED

>>Raising this setting makes the brake response smoother and more controllable.

Setting (# of flashes)	1	2	3	4	5	6	7
Brake Frequency (KHz):	1	2	3	4	5	7.5	8

7. REVERSE (2) RED, GREEN & AMBER LEDs

>>Changing this setting activates/deactivates reverse direction.

Setting (# of flashes)	1	2
Reverse (On/Off):	Off (FWD/BRK)	On (FWD/BRK/REV)

8. MOTOR ROTATION (2) RED, GREEN & BLUE LEDs

>>Changing this setting changes direction of motor rotation.

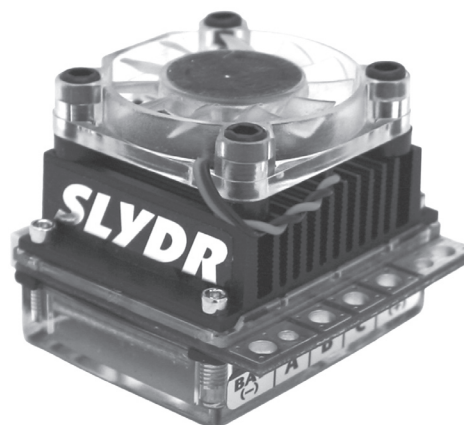
Setting (# of flashes)	1	2
Motor Rotation (CCW/CW):	CCW ↺	CW ↻

9. LI-PO CUT-OFF (2) RED & AMBER LEDs

>>Changing this setting enables/disables Li-Po cutoff (@6.25 volts).

Setting (# of flashes)	1	2
Li-Po Cut-Off (On/Off):	OFF	ON

SLYDR DRIFT ESC INSTRUCTION MANUAL



#55-1712-1
6-2008



THE ESC MADE FOR DRIFTERS

With some influence from the top drifters of the world, Novak has developed the specially designed SLYDR Drift ESC. This unequalled ESC contains new brake adjustments and features to help fine tune brake response, as well as all new Throttle Curve adjustments to further customize the already-smooth throttle response.

To benefit from all of the technical features PLEASE READ ALL INSTRUCTIONS



PRECAUTIONS

WATER & ELECTRONICS DON'T MIX!

Never allow water, moisture, or other foreign materials to get inside ESC, motor, or on the PC Boards. **Water damage will void the warranty!**

DO NOT FREE REV OR OPERATE WITHOUT LOAD

This includes running the motor without a pinion or holding the car in the air and running the motor at or close to full power. **Free revving will void the warranty!**

NO SCHOTTKY DIODE!

Schottky diodes must NOT be used with brushless ESCs. **Using a Schottky diode will damage the ESC & void the warranty.**

DISCONNECT BATTERIES WHEN NOT IN USE

Always disconnect the battery pack from the speed control when not in use to avoid short circuits and possible fire hazard.

4 TO 6 CELLS ONLY, OR 2S LI-PO

Never use fewer than 4 or more than 6 cells (4.8-7.2VDC, 1.2VDC/cell) in the vehicle's main battery pack, or more than 2-Li-Po cells. **For use with 2S Li-Po pack, the Li-Po Cut-Off must be enabled (refer to page 4).**

NOVAK BRUSHLESS MOTORS ONLY

The SLYDR Drift ESC is specially designed for drifting. Use only Novak Drift-Series Brushless Motors for ideal drifting performance.

NO REVERSE VOLTAGE!

Reverse battery polarity can damage ESC & void warranty. Disconnect battery immediately if a reverse connection occurs.

POWER CAPACITOR REQUIRED

An external Power Capacitor Module is installed and MUST be used with your ESC. **Failure to use Power Capacitor will result in higher ESC operating temperatures & possible thermal shut-down.**

TRANSMITTER ON FIRST

Always turn on the power of the transmitter first so that you will have control of the vehicle when you turn it on.

INSULATE WIRES

Always insulate exposed wiring with heat shrink tubing or electrical tape to prevent short circuits, which can damage ESC.

NO CA GLUE

Exposure to CA glue or its fumes can cause damage to internal components of the speed control and result in premature failure.

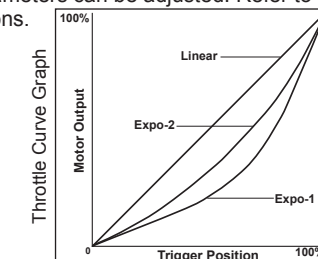
SPECIFICATIONS

Input Voltage.....	4-6 cells (1.2 volts DC/cell) or 2S Li-Po
ESC Footprint.....	1.16"x1.49" [29.5x37.8mm]
ESC Weight (w/o wires).....	1.36 ounce [38.5 grams]
B.E.C. Voltage.....	6.0 volts DC
B.E.C. Current.....	3.0 amps
Power Wire (Battery/Motor).....	14G Super-Flex Silicone
On-Resistance.....	0.00040Ω @25°C trans.temp.
Rated Current (per phase).....	540A [Fwd & Rev.] @25°C trans.temp.
Motor Limit.....	5.5-turn Novak 540-size brushless motor

FULLY PROGRAMMABLE INTERFACE

The Novak's SLYDR Drift Brushless ESC includes a Fully Programmable Interface. Nine parameters can be adjusted. Refer to Page 4 for Customization Instructions.

- Minimum Brake (10 settings)
- Drag Brake (10 settings)
- Dead Band (5 settings)
- Minimum Drive (5 settings)
- Throttle Curve (3 settings)
- Brake Frequency (7 settings)
- Reverse (2 settings)
- Motor Rotation (2 settings)
- Li-Po Cut-off (2 settings)



REPLACEMENT ITEMS

RACING POWER TRANS-CAP MODULE [#5679]

The factory-installed Racing Power Trans-Cap Module **MUST BE USED** for proper operation. For replacement, Novak item #5679 must be used. *Note: We recommend using Novak Power Trans-Caps only. We've done extensive testing & research to find components with the very best quality factors—other capacitors will not provide equal protection.*

SUPER-FLEX SILICONE 14G WIRE [#5514/#5508]

#5514 Includes 3 feet each of Red, Black, and Blue Wire
#5508 Includes 2 each of 9" Red, Black, Blue, Yellow, & Orange Wire

INPUT SIGNAL HARNESSES [#5315/#5320]

Available in either short(#5315, 4.5") or long (#5320, 9.0") lengths.

MOTOR BEARING & END BELL SET [#5919]

After extensive use, the ball bearings in the motor may need replacement. Includes a front end bell with bearing factory-installed & a rear bearing.

MOTOR REPLACEMENT SINTERED ROTOR-13MM [#5909]

After extensive use, the rotor may need replacement due to loss of magnetic strength (normal after extended use). Novak's Drift BL motors use a 13mm rotor.

HIGH-VOLUME COOLING FANS [#5648/#5652]

The 30x30x6 Cooling Fan **should be used** for increased ESC efficiency. Fans include a plug for easy plug-in to SLYDR. Item #5652 is a 2-pack.

REMOTE POWER PROGRAMMING SWITCH [#5602]

Combination Power ON/OFF Switch & One-Touch Programming Button

PRODUCT WARRANTY

The SLYDR Drift ESC is guaranteed to be free from defects in materials or workmanship for a period of 120 days from the original date of purchase (verified by dated, itemized sales receipt). Warranty does not cover incorrect installation, components worn by use, damage to case or exposed circuit boards, damage from using fewer than 4 or more than 6 cells (1.2 volts DC/cell) or more than 2S Li-Poly cells input voltage, cross-connection of battery/motor power wires, damage from cross phase connection, overheating solder tabs, reverse voltage application, damage resulting from thermal overload or short-circuiting motor, damage from incorrect installation of FET servo or receiver battery pack, not using or incorrect installation of a Power Capacitor on the ESC or from using a damaged Power Capacitor, using a Schottky diode, damage from free revving motor, using non-Novak Power Capacitor or motor, splices to input, ON/OFF switch, or sensor harnesses, damage from excessive force when using the One-Touch/SET button or from disassembling case, tampering with internal electronics, allowing water, moisture, or any other foreign material to enter ESC or get onto the PC board, incorrect installation/wiring of input plug plastic, allowing exposed wiring or solder tabs to short-circuit, or any damage caused by a crash, flooding or natural disaster.

Because Novak Electronics, Inc. has no control over the connection & use of the speed control or other related electronics, no liability may be assumed nor will be accepted for any damage resulting from the use of this product. Every Novak speed control & motor is thoroughly tested & cycled before leaving our facility and is, therefore, considered operational. *By the act of connecting/operating speed control, user accepts all resulting liability.* In no case shall our liability exceed the product's original cost. We reserve the right to modify warranty provisions without notice.

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STEP 1—CONNECT INPUT HARNESS

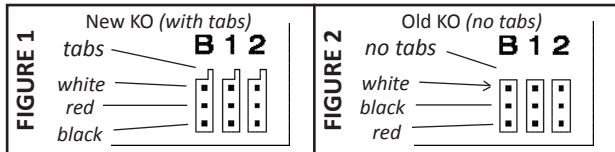
The SLYDR features the industry-standard receiver input connector on a user-replaceable input harness & **works with all major radio brand's new receivers**. However, some very old receivers must have the wiring sequence in the plastic 3-pin connector housing changed. **This is important, because receiver & servo electronics may be damaged if the sequence is incorrect.**

CHANGING WIRING SEQUENCE @ RECEIVER END

JR • Hitec • Futaba • New KO • Airtronics Z

JR, Hitec, Futaba, new KO, & Airtronics Z receivers do not need input harness re-wiring. Airtronics Z receivers have blue plastic cases & new KO cases have tabs on the input harness openings as in Figure 1.

- Plug one end of the input signal harness into the **THROTTLE CHANNEL (#2)** of receiver with the **BLACK wire toward the outside edge** of receiver case.
- Plug the other end of the input harness onto header pins 4-6 from the left on the side of the ESC with the **BLACK wire going onto the 4th pin from the left**.
Note: All pin wiring designations are called out on the label on the ESC's heat sink.



Old-style KO • Old-style Sanwa/Airtronics

If you have an older KO or Sanwa/Airtronics, you must change the sequence of the ESC's input harness wires—Old Sanwa/Airtronics cases are black color & Old KO cases do not have tab openings, as in Figure 2 above.

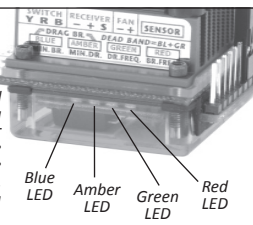
- Using a small flat blade screwdriver, **remove the red & black wires** from the plastic housing at the receiver end of the input harness as in Figure 3 below.
- **Interchange the red and black wires** in the plastic 3-pin connector housing at the receiver end of the input harness.
- Insert modified end of the harness into the **THROTTLE CHANNEL (#2)** of receiver with the **RED wire toward the outside edge** of receiver case.
- Plug the other end of the input harness onto header pins 4-6 from the left on the side of the ESC with the **BLACK wire going onto the 4th pin from the left**.

FIGURE 3 With a small std screwdriver, gently lift plastic prong until wire and metal socket easily slide out of plastic housing.

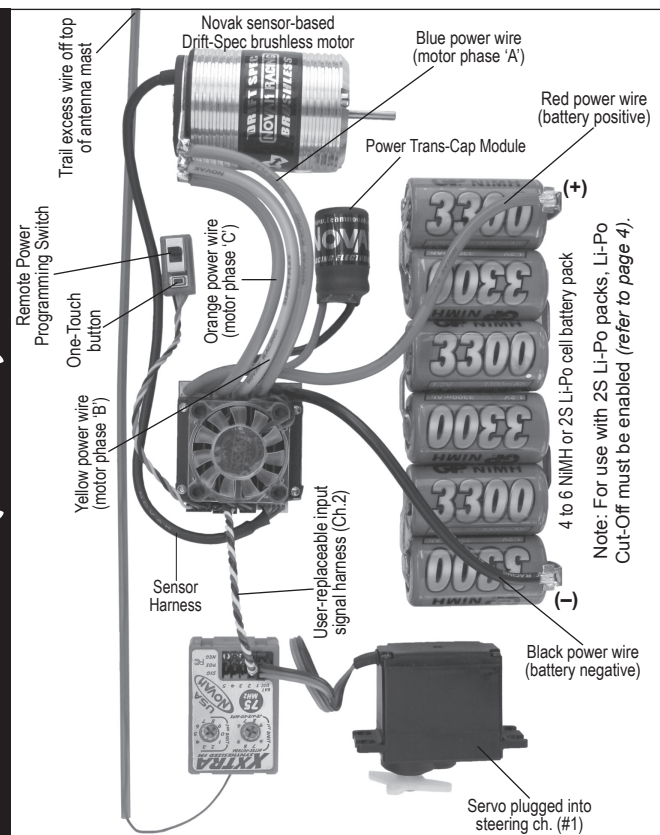


FIGURE 4: LED/Pin-Out Label

Note that LED positions & what they represent is marked on the heat sink label, along with the wiring sequence for the header pins along the side for the user-replaceable Remote Power Programming Switch, receiver input harness, cooling fan, & motor sensor harness.



SLYDR SET-UP PHOTO (FIGURE 5)



STEP 2— WIRING SPEED CONTROL, MOTOR & BATTERY (REFER TO FIG. 5)

1. NO SCHOTTKY OR MOTOR CAPS

DO NOT USE Schottky diodes with the SLYDR—ESC damage will occur & void the product warranty. External motor capacitors are not required when operating the SLYDR.

2. FACTORY-INSTALLED POWER TRANS-CAP REQUIRED

The SLYDR comes with a factory-installed Power Trans-Cap Module, and it MUST be used. **NOTE: If Power Trans-Cap becomes dented or damaged, ESC failure can occur—replace immediately (#5679). Longer wires on the Power Trans-Cap Module will decrease performance.**

3. CHECK FOR PROPER GEARING

Neither the motor (with sintered rotor) nor the ESC should be hotter than 160 to 175°F after a 5 min. run. If either temperature is higher, the gearing should be lowered until both the ESC and the motor are under this temperature. The cooler the ESC runs, the better the performance of the system.

Motor Turns	Touring Car Gearing
6.5	7.5
7.5	7
8.5	6.5

4. SOLDER MOTOR POWER PHASE WIRES TO MOTOR

If you purchased a SLYDR Brushless System, your motor is factory-wired to a Drift Spec Brushless Motor. Skip to STEP 5.

- Cut the SLYDR's **BLUE, YELLOW & ORANGE** silicone motor power wires to the desired length, and strip 1/8-1/4" of insulation from the end of each wire. Tightly twist the exposed strands of wire.
- Place the ESC's **BLUE Phase 'A'** motor wire onto **motor's 'A' solder tab** & solder. Use a soldering iron to apply heat to exposed wire; begin adding solder to tip of soldering iron & to wire. Add just enough solder to form a clean & continuous joint from the plated area of the solder tab up onto the wire. Use side cutters to trim remaining (now soldered) wire extending beyond the solder tab (about 1/16" above PCB).
- Solder the ESC's **YELLOW Phase 'B'** motor wire to the **motor's 'B' solder tab** as described in Step 4B above.
- Solder the ESC's **ORANGE Phase 'C'** motor wire to the motor's **'C' solder tab** as described in Step 4B above.

IMPORTANT NOTE: DO NOT OVERHEAT SOLDER TABS
Prolonged/excessive heating of solder tabs (motor or ESC) will damage PCB.

5. CONNECT MOTOR SENSOR HARNESS TO ESC

Insert the 6-pin connector on the end of the motor's Teflon sensor wires into ESC's sensor harness socket—the connector is keyed and will only go in, in one direction.

6. SOLDER ESC'S RED WIRE TO BATTERY PACK POSITIVE (+)

Cut the speed control's **RED** silicone power wire to the proper length so it will reach the **battery pack's POSITIVE (+)** terminal. Strip 1/8-1/4" of insulation from the end of the wire. Tin and solder the exposed section of wire to battery pack POSITIVE (+).

7. SOLDER ESC'S BLACK WIRE TO BATTERY PACK NEGATIVE (-)

Cut the speed control's **BLACK** silicone power wire to the proper length so it will reach the **battery pack's NEGATIVE (-)** terminal. Strip 1/8-1/4" of insulation from the end of the wire. Tin and solder the exposed section of wire to battery pack NEGATIVE (-).

Note: For use with 2S Li-Po packs, Li-Po Cut-Off must be enabled (refer to page 4).

USING BATTERY & MOTOR CONNECTORS

Battery and motor connectors can be used for making your power wire connections, however they will never have as low of resistance as a good solder joint.

USING BATTERY CONNECTORS: If you are going to use a battery connector, we recommend Deans® Ultra Plug™. Do not use crimp on types as these cannot handle the high currents found in racing systems. Please note the following:

- Use connectors that cannot be plugged in backwards—reverse voltage will damage the SLYDR and void the warranty.
- Use a **female connector on the battery pack** to avoid shorting.
- Use a **male connector on the SLYDR's battery wires**.

USING MOTOR CONNECTORS: If you are going to use motor connectors, we recommend the Novak 3.5mm Low-Loss Connectors (#5731). Please note the following:

- TAKE EXTRA CARE to prevent motor cross-phase connection as this will damage ESC and void warranty.

For additional information on connector usage, visit our Web site.

STEP 3— MOUNTING ESC

Mount ESC with power wires away from other electronics & moving parts. Select a location that allows good airflow through and around the heat sink and cooling fan—**Good air flow allows ESC to run cooler and more efficient!**

- MOUNT ESC IN VEHICLE** using the included double-sided tape. **Be sure the receiver & antenna are mounted as far from ESC, power wires, battery, & servo as possible—these components all emit RF noise when the throttle is applied. On graphite or aluminum chassis vehicles, it may help to place receiver on edge with crystal & antenna as far above chassis as possible.**

Note: Mount the antenna as close to the receiver as possible—trail any excess wire off the top of the antenna mast (cutting or coiling the excess antenna wire will reduce radio range).

2. SECURE POWER TRANS-CAP MODULE IN VEHICLE

Use the included double-sided tape to mount the Power Trans-Cap Module to the chassis with the included double-sided tape. Module can also be tie-wrapped to the power wires or other part of chassis or shock tower with the included tie-wraps.

- INSTALL REMOTE POWER PROGRAMMING SWITCH** with the included double-sided tape where it will be easy to access for turning the electronics on and off, and also for custom programming (page 4).

STEP 4—TRANSMITTER ADJUSTMENTS

For proper ESC operation, adjust transmitter as follows:

- Set **HIGH ATV** or **EPA** to **maximum** setting.
[amount of throw at full throttle]
- Set **LOW ATV, EPA** or **ATL** to **maximum** setting.
[amount of throw at full brakes]
- Set **EXPONENTIAL** to **zero** setting. *[throttle channel linearity]*
- Set **THROTTLE CHANNEL REV. SWITCH** to **either** position.
- Set **THROTTLE CHANNEL TRIM** to **middle** setting.
[adjusts neutral position/increases or decreases coast brakes]
- Set **ELECTRONIC TRIGGER THROW ADJUSTMENT** to **70% throttle and 30% brake throw** (or 7:3) for **Forward & Brake only Profiles**, and **50% throttle and 50% brake throw** (or 5:5) for **Profiles with reverse**.
[adjusts trigger throw electronic/digital pistol-grip transmitters]
- Set **MECHANICAL TRIGGER THROW ADJUSTMENT** (if radio has it) to position with **2/3 throttle and 1/3 brake throw** for **Forward & Brake only Profiles**, and position with **1/2 throttle and 1/2 brake throw** for **Profiles with Reverse**.
[adjusts trigger throw on mechanical/analog pistol-grip transmitters]

*NOT ALL TRANSMITTERS HAVE THESE ADJUSTMENTS.

STEP 5—ONE-TOUCH PROGRAMMING

With ESC connected to (at least) a receiver & a charged battery pack:

- TURN ON THE TRANSMITTER'S POWER**
- PRESS & HOLD ESC'S ONE-TOUCH/PROGRAMMING BUTTON**
Note: The SLYDR's One-Touch/Programming button is combined with the ON/OFF switch on the Remote Power Programming Switch harness.
- TURN ON THE SPEED CONTROL'S POWER**
With transmitter throttle at neutral, and still **pressing the One-Touch button**, slide the ESC's **ON/OFF switch** to **ON position**.
- CONTINUE HOLDING BUTTON UNTIL RED LED COMES ON**
- RELEASE ONE-TOUCH BUTTON AS SOON AS LED TURNS RED**
- PULL TRANSMITTER THROTTLE TO FULL-ON POSITION**
Hold it there until the **green status LED turns solid green**.
Note: Motor will not run during programming even if connected.
- PUSH TRANSMITTER THROTTLE TO FULL-BRAKES**
Hold it there until the **green status LED blinks green**.
- RETURN TRANSMITTER THROTTLE TO NEUTRAL**
Red status LED will turn solid red, indicating that speed control is at neutral and that proper programming has been completed.

NOTE: If transmitter settings are changed, One-Touch Programming must be repeated. If you experience any problems, turn off ESC & repeat One-Touch. Whenever One-Touch set-up is performed, ESC automatically reverts to factory default settings.

USING A RECEIVER BATTERY PACK

If you are planning to use an external receiver battery pack to power the electronics you need to do the following:

- Plug the external 5 cell (1.2VDC/cell) receiver battery pack into the battery slot of the receiver.
- Leave the ESC's ON/OFF switch in the OFF position & use receiver pack's ON/OFF switch to turn system power on and off—Do not use the ESC's switch.

TROUBLE-SHOOTING GUIDE

Steering Channel Works But Motor Will Not Run

- **Red status LED blinking when throttle is applied.** Check motor sensor harness connection at ESC (make sure all metal sockets are fully inserted into the connector's plastic housing)—check for damaged wires.
- **Red status LED on solid & Green LED blinking.** Check input signal harness & motor sensor harness connections at ESC. Check input signal harness wiring sequence & connection at throttle channel of receiver. Check throttle channel operation with servo.
- **Blue & Green status LEDs both blinking.** Possible ESC shut-down due to locked rotor detection—return throttle to neutral position to regain motor control—check vehicle's drive train for free operation.
- **Blue & Red status LEDs blinking.** Possible ESC thermal shut-down—Check gear ratio & free operation of drive train for possible overloading/ESC is being severely over-loaded—allow system to cool & return throttle to neutral position to regain motor control. **LEDs will continue to blink until system is cooled down.**
- **Blue & Amber status LEDs blinking.** Possible motor thermal shut-down—Check gear ratio & free operation of drive train for possible overloading/motor is being over-loaded—allow system to cool & return throttle to neutral position to regain motor control. **LEDs will continue to blink until system is cooled down.**
- **Blue & Green (Locked Rotor Detection), Blue & Red (ESC Thermal Shut-Down), or Blue & Amber (Motor Thermal Shut-Down) status LEDs blinking.** ESC may have shut-down & ESC's neutral point is too far off to sense that transmitter throttle has been returned to neutral—Refer to Steps 4 & 5.
- **Red & Green status LEDs toggling.** Li-Po Safety Cut-Off voltage reached. Change battery.
- Possible receiver damage—Check operation with a different receiver.
- Possible internal damage—Refer to Service Procedures.

Receiver Glitches/Throttle Stutters During Acceleration

- Receiver or antenna too close to ESC, power wires, battery, or motor.
- Bad connections—Check wiring, connectors, & sensor harness.
- External Power Capacitor damaged/not installed—Replace Power Capacitor.

Motor and Steering Servo Do Not Work

- Check wires, receiver signal harness wiring & color sequence, radio system, crystals, battery/motor connectors, & battery pack.
- Possible receiver damage—Check operation with a different receiver.
- Possible internal damage—Refer to Service Procedures.

Speed Control Runs Excessively Hot

- Gear ratio too low—Increase gear ratio (see Steps 2 & 3).

Model Runs Slowly/Slow Acceleration

- Gear ratio too high—Reduce gear ratio (see Steps 2 & 3).
- Check battery connectors—Replace if needed.
- Incorrect transmitter/ESC adjustment—Refer to Steps 4 & 5.
- External Power Trans Cap Module damaged/not installed—Replace with #5679.

ESC Is Melted Or Burnt/ESC Runs With Switch Off

- Internal damage—Refer to Service Procedures.

*For more assistance call our Customer Service Department or check our Web site.

SERVICE PROCEDURES

Before sending your speed control or brushless motor system in for service, review **Trouble-Shooting Guide** and all instructions. System may appear to have failed when other problems exist.

After reviewing instructions, if you feel that your ESC/system requires service, please obtain the most current product service options and pricing by the following ways:

WEB SITE: Print a copy of the **PRODUCT SERVICE FORM** from the CUSTOMER SERVICE section of the Web site. Fill out the needed information on this form and return it with the Novak product that requires servicing.

PHONE/FAX: If you do not have access to the internet, please contact our customer service department by phone or fax as listed below.

WARRANTY SERVICE: For warranty work, you **MUST CLAIM WARRANTY** on **PRODUCT SERVICE FORM** & include a valid cash register receipt with purchase date and dealer name & phone# on it, or an invoice from previous service. If warranty provisions have been voided, there will be service charges.

ESCs returned without a serial number will not be serviced under warranty

ADDITIONAL NOTES:

- Units that operate normally will have a service charge.
- Dealers/distributors are not authorized to replace Novak products thought to be defective.
- If a hobby dealer returns your brushless system for service, submit a completed **PRODUCT SERVICE FORM** to the dealer and make sure it is included with the product.
- Novak does not make any internal electronic components available for sale.



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