

transmitter command. If the toggle switch On/Off position is not the direction you would prefer, use the channel reverse to change this. The following table gives some help on tracking down problems.

Symptom	Suggestion
Status LED on fiber-optic transmitter does not turn on.	a) Check to make sure the Cutoff transmitter is plugged into the right channel for the toggle switch on the transmitter. b) Check the ATV for the channel the Cutoff is plugged into. It should be set at least at 100% for the unit to operate correctly.
Status LED on fiber-optic transmitter blinks on a dual-receiver setup.	a) Check both receivers are on. b) Check both batteries are good. c) Check for bad connectors.
Status LED on fiber-optic receiver does not come on.	a) Check to be sure the ignition is on. b) Check the LED is plugged in securely to connector. c) Check that the connector is in the correct orientation, red wire to "Red" and black wire to "Blk". d) Check that the fiber-optic cable is seated all the way back in the ferrule. Check that the ends of the fiber-optic cable are clean-cut and clear.

Additional information, technical help, set-up hints and FAQs can also be found at www.Smart-Fly.com

Quest Engineering & Development
 1328 East Cottonwood Lane
 Phoenix, AZ 85048-4765
Info@Smart-Fly.com
 Tel: (480) 460-2652
 Fax: (480) 460-2653



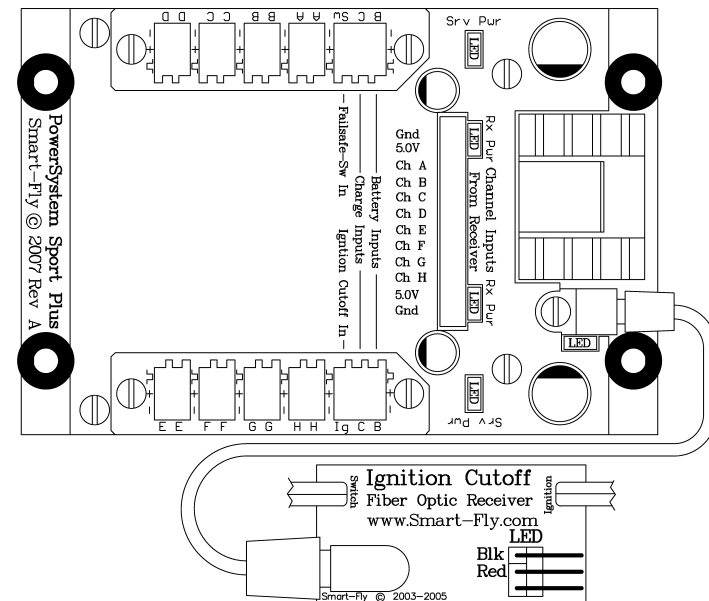
PowerExpander Sport Plus

Ignition Cutoff

User Guide

Thank you for purchasing the Smart-Fly Ignition Cutoff!

This manual takes you through the installation and operation of the Smart-Fly Ignition Cutoff receiver with the PowerExpander Sport Plus. The receiver is connected with a fiber-optic cable to the PowerExpander Sport Plus. The connection is represented below:



The fiber-optic transmitter is on the PowerExpander Sport Plus and the fiber-optic receiver connects to your ignition system. The fiber-optic transmitter has a status LED on it to help with testing and the fiber-optic receiver has a detachable LED on it to indicate the status of the ignition switch.

How it all works

The Ignition Cutoff works by sending light from the fiber-optic transmitter over the fiber-optic cable to the fiber-optic receiver. When the fiber-optic transmitter is sending, the fiber-optic receiver turns on its electronic power switch allowing the ignition unit to receive power from the ignition battery. When the fiber-optic transmitter is off, the electronic power switch in the fiber-optic receiver is off and does not allow power from the ignition battery to get to the ignition unit.

Why use an ignition cutoff?

The main reason for installing an ignition cutoff device is safety. The unit provides several levels of safety to both the pilot and the spectators. First, if the radio system is not turned on but the ignition system is turned on the Ignition Cutoff prevents the engine from starting. This prevents an engine from starting at a high throttle position, which could possibly allow the plane to get away and into a crowd or other planes in the pit area. The second reason is safety while in the air. If you were to lose power to the receiver because of a dead battery or a broken wire, your plane is going to go where it wants at the throttle setting that you had just before the power loss. This could be any direction. It could just fly off into the sunset until it runs out of gas or, worse, it could be headed towards other pilots and spectators. With the Ignition Cutoff in the plane the engine will be cut when power is lost. This means the propeller will not be spinning when the plane hits, what ever it hits, and the speed is reduced. Lastly, the Ignition Cutoff provides a means of cutting the engine if anything happens to the throttle servo or linkage. Rather than fly until your tank runs out you can now bring the plane in quickly and safely.

Installation

The channel that controls the Ignition Cutoff is selected by connecting the supplied jumper to the "Ig" port (use the Futaba end here) on the servo output block and then to one of the servo outputs or directly to the receiver. The channel on your transmitter you want to use for the Ignition Cutoff should be assigned to a two-position toggle switch.

The Ignition Cutoff receiver should be mounted near the ignition unit. The Ignition Cutoff receiver must go between the ignition on/off switch and the ignition module. Another way to set this up is to have no mechanical switch and just connect the Ignition Cutoff to the battery and its output to the ignition. *If you do this, disconnect the battery when you are done flying as the Ignition Cutoff does draw a small amount of current when off.* It draws a small enough amount of current that it will hardly be noticed during a day of flying. The lead marked "Switch" goes to the ignition switch (or battery if you want to eliminate the mechanical switch). The lead marked "Ignition" goes to the ignition module. The LED on the Ignition Cutoff receiver will mount in a 1/4" hole. If you want to mount the LED in this way, the easiest way to get the LED into the hole is to remove the pins from the plastic connector housing and feed the leads through the 1/4" hold you made. Then re-insert the pins in the plastic housing. The LED may be extended using a standard Futaba or JR extension 3-lead extension. The LED black wire goes to the pin marked "Blk" and the LED red wire goes to the pin marked "Red". If you do not want to use the LED it is not necessary for the unit to operate and may be left off

The fiber-optic cable should be prepared for your length of installation and to get clean ends to promote efficient light transmission. Both ends of the fiber-optic cable should be cut with a very sharp razor blade or Xacto knife. The cut should be as square as possible providing a clear, flat face to the Ignition Cutoff transmitter and receiver. The ferrules on the Ignition Cutoff transmitter and receiver should be unscrewed until they have disengaged from the threads (do not force off the unit). The fiber-optic cable should then be inserted as far as it will go (approximately 5/8"). The ferrules should then be tightened down snugly, but do not over tighten.

Operation

The status LED next to the fiber-optic transmitter will indicate the status of the Ignition Cutoff. When it is OFF, the ignition should be off. Check that when this LED is OFF the LED connected to the Ignition Cutoff receiver is also OFF. When the status LED on the Ignition Cutoff transmitter is ON, the LED connected to the Ignition Cutoff receiver should also be ON.

Testing the installation

The Ignition Cutoff installation is tested by observing the LEDs by the fiber-optic transmitter and Ignition Cutoff receiver in the ON and OFF modes. They should both be ON and both be OFF with the given