

# 2.4 Ghz Radio Systems

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General

Use of "Park Flyer" RC systems can be questionable at fields such as WingMasters since their intended use is satisfactory only for small planes and helicopters operated at short range, maybe 500 feet max. Improper placement and orientation of the receiver antenna can reduce the range even more.

## **Antenna design**

Receiver antenna placement and orientation is very important with 2.4 GHz systems, whether Park Flyer or Full Range to ensure reliable control and is particularly important with Park Flyer systems operating near their range limits. Antenna configurations vary between manufacturers and within manufacturer. The low cost receivers use a single short antenna extending about 2 inches and are the most prone to signal loss. Better receivers use two antennas. This allows for separation of them so that if one antenna is momentarily blocked by components within the aircraft from the transmitter signal the other receives the signal. It also allows them to be oriented at right angles for best continuous signal reception under various flight conditions to minimize the potential for signal loss.

## **Fail Safe Mode (standard with most 2.4 systems)**

If your plane gets beyond its reliable operating range where the receiver senses momentary loss of transmitter signal, the receiver can go into "Fail Safe" mode where it will attempt to reestablish the RF link with the transmitter. During Fail Safe mode, most systems will turn the motor off and freeze the controls in their last position. (Some systems allow the owner to preset throttle and servo positions). Once in fail safe mode, reestablishing the link between receiver and transmitter, and therefore possibly allowing the pilot to regain control is automatically done by the system but may take several seconds. We have measured as much as nine seconds, a long time when your plane is headed towards earth with the controls frozen. Refer to the owners' manual to determine if it's included in your system and the procedure for setup.

## **Range Check**

Regardless of the type of radio system, it is important to always range check the system when it is installed in a new airplane, after any major repairs, or when there is any question as to its satisfactory operation.

## 2.4 GHz Receiver “Brown Out”

2.4 GHz receivers have a minimum input voltage around 3.5 to 4.0 volts. If the supply voltage drops below this, the receiver will quit working. When the voltage returns to a satisfactory level, the receiver will take up to several seconds to “re-boot” and operate normally again.

## ESC – BEC’s

Most receivers and servos obtain their power from the BEC (Battery Eliminator Circuit) that is built into many ESC’s. The output voltage of most BEC’s is about 5 volts. “Linear” BEC’s are the least efficient and generate considerable heat. They are also more likely to intermittently put out a lower voltage as servos are actuated or when they become very warm. “Switching” BEC’s are more efficient, run cooler, and do a better job of maintaining their output voltage.

It is also possible to purchase a stand-alone BEC that is often called a UBEC.

Questions?

See Jerry