

Radio Terminology

Here are some terms and function that may come across with various R/C systems.

Mode 1

The control stick configuration with the rudder and elevator being controlled by the left stick while the right stick controls the throttle and ailerons.

Mode 2

The control stick configuration with the ailerons and elevator being controlled by the right stick while the left stick controls the rudder and throttle.

Mode 3

The control stick configuration with the rudder and elevator being controlled by the right stick while the left stick controls the ailerons and throttle.

Servo Reversing

This feature allows the modeller to reverse a servo's rotation direction at the flick of a switch. Servos can be mounted in the most convenient way without worrying about their rotation direction. The proper movement can then be selected when the installation in the model is completed.

Dual Rates (D/R)

Dual Rate allows the modeller to choose between two different control sensitivities. With the dual rate switch in the "OFF" position, 100% servo throw is available for maximum control response. In some more sophisticated systems this "OFF" position may be adjusted to provide anywhere from 30% to 120% of normal full throw. In the "ON" position, servo throw is reduced and the control response is effectively reduced. The amount of movement in the Dual Rate "ON" position is usually adjustable from 30% to 100% of total servo travel. The modeller can adjust the sensitivity of his model to his own preferences.

Exponential Rate

Exponential Rate is where the servo movement is not directly proportional to the amount of control stick movement. Over the first half of the stick travel, the servo moves less than the stick. This makes control response softer and smooths out level flight and normal flight manoeuvres. Over the second half of the stick travel, the servo gradually catches up with the stick throw, achieving 100% servo travel at full stick deflection for aerobatics or troublesome situations.

Fail Safe (FS)

An Electronically programmed mechanism in most PCM radios which automatically returns a servo or servos to neutral or a pre-set position in case of radio malfunction or interference.

Adjustable Travel Volume (ATV)

Frequently referred to as End Point Adjustment, ATV lets you independently pre-set the maximum travel of a servo either side of neutral.

Adjustable Function Rate (AFR)

Similar to ATV, AFR allows end point adjustment independent of Dual Rate or Exponential settings.

Sub Trim

A radio function which allows very precise electronic centring of servos.

Direct Servo Controller (DSC)

Allows full function of an aircraft's servos via an umbilical cord. This permits adjustment of radio functions without switching on the RF portion of a transmitter.

Variable Trace Rate (VTR)

This radio function is similar to exponential except it uses two linear responses to determine the servo sensitivity on the first and second half of the control stick movements.

Programmable Mixing

Electronic coupling of one channel to another. One control input will output to two different servos and can be set up to move at different rates..

Aileron/Rudder Mixing

Adds rudder control when aileron is input from the transmitter aileron stick. This is usually fully adjustable.

V-Tail Mixing

Used when there is a V-Tail on the aircraft rather than the conventional elevator and rudder. Each control surface of the V is connected to a separate servo. Operating the elevator control stick will move both surfaces up for back stick or both surfaces down for forward stick. Moving the rudder control stick left will move the left surface of the V down and the right surface up giving the left rudder response. Moving the rudder control stick to the right will move the left surface of the V up and the right surface down, giving the right rudder response.

Flaperon Mixing

Mixes the Flap and Aileron functions so that when each aileron is connected to a separate servo (one servo plugged into the aileron channel and the other plugged into the flap channel), the surfaces will act as both ailerons and flaps, depending on the position of the controls.

Elevon Mixing

Mixes the Elevator and Aileron functions, especially useful for delta-wing models where the elevator and ailerons are the same control surfaces. Each surface is connected to a separate servo (one servo plugged into the aileron channel and the other plugged into the elevator channel), the surfaces will act as both ailerons and elevator, depending on the position of the controls.

Flap/Elevator Mixing

Couples the Flaps and Elevators such that when the flaps are lowered, the elevator will be automatically adjusted to prevent pitching of the model.

Elevator/Flap Mixing

Couples the Elevators and Flaps such that when control is input to the elevators, the flaps will move in the opposite direction. This permits the model to perform tighter manoeuvres in the pitch attitude.

Crow Brake Mixing

Primarily used in gliders for spoiler action by mixing the flaps and ailerons. It is necessary for the ailerons to be using separate servos, plugged into separate channels and the flap servo to be independent of both aileron channels. Upon applying Crow Brake Mixing, the flaps go down while both ailerons go up.

Differential Ailerons

This type of mixing is accomplished by having separate servos on each aileron, plugging one into the aileron channel and the other into another unused channel. The two channels can be programmed to both operate from the aileron control stick, however the travel for each aileron may be adjusted separately giving more deflection in one direction (usually up) than in the other.

Dual Conversion

Dual Conversion refers to the method in which the receiver processes the incoming signal.

Generally a Dual Conversion receiver is less prone to outside interference and is the preferred type of receiver.

Trainer System

The trainer system sometimes referred to as the 'Buddy Box' system allows two transmitters of similar design to be connected together via a cord (trainer cord) so that one transmitter may be used by an instructor and the second one by a student when teaching to fly. The instructor simply has to hold a switch on his transmitter to give the student's transmitter full control. If the student gets into trouble, the instructor can release the switch and he has full control of the model.

Snap Roll Button

This feature is found on more complex radios and is used to perform a snap roll manoeuvres by simply pressing one button. The function is usually programmable to give a combination of rudder, elevator and aileron control.