



Basic 3-axis Stabilization and Flight Modes

All of today's multirotors feature onboard gyro stabilization that returns them to an upright level attitude when the transmitter controls are centered. As a rule, basic entry level multirotors feature 3-axis stabilization of "Pitch" (forward and backward tilt); "Bank/Roll" (right and left tilt); and "Yaw" (the direction the heli is pointed). The stabilization technology also sets mode limits on how far the heli will tilt and thus how fast it is capable of moving left or right, forward or backward.

For example, in the milder "beginner" flight mode, the degree of tilt is typically limited to 10-15 degrees and thus an approx. airspeed of 10-15 mph. Switching to the more agile "experienced pilot" flight mode typically allows 20-30 degrees of tilt and thus airspeeds in excess of 20+ mph. The milder beginner mode is obviously ideal when learning to fly, as well as helping to provide a more stable platform for filming smoother video. Flying on the experienced mode causes the heli to be more nimble and therefore adds a bit more excitement. Note that the handling characteristics of your specific heli may vary somewhat from the stock examples provided here, but typically not more than 5 degrees or 5 mph. Similarly, different manufacturers use slightly different terminology, but the end functions are all basically the same.

Each lesson presented in this manual presumes that the reader is initially practicing in the milder beginner mode. When you later switch to the experienced mode, the heli will become generally 30-50% more agile.

Some multirotors also offer additional flight modes that alter or deactivate the stabilization characteristics to enable more extreme maneuvers. Frankly, multirotor helis are great for fun flying, indoor flying, maneuvering through obstacle courses and spot landings, and obviously as platforms for filming. However, unless it's an autonomous (button/switch) stunt, forcing a multirotor with fixed-pitch-propellers to do stunts is often risky and full of surprises. Hence, if you want to do stunts, you would be wise to learn to fly a variable-pitch single rotor helicopter or airplane actually designed for aerobatics.



On average, beginner mode limits tilt angle to approx. 10 degrees and thus milder movements, whereas experienced mode allows approx. 20 degrees of tilt and faster speeds.

