

Glossary of Terms

UAS (Unmanned Aircraft System)

Unmanned aircraft, such as drones, controlled by an operator on the ground. The Federal Aviation Administration (FAA) uses the term UAS to reflect the fact that these systems also includes other elements aside from the actual air vehicles.

UAS (2.4 GHz / 5.8 GHz Drone Frequency)

Drone remote controllers typically switch between these frequencies to provide the strongest signal with the drone and camera system. The primary differences between the two frequencies are the distance and speed. The 2.4 GHz band provides a longer transmission range but at slower speeds. The 5 GHz band provides less range but transmits data at faster speeds. The combination of these two frequencies give drones and remote controllers the power to transmit information quickly even at far distances.

Accelerometer

A device that measures acceleration or fast changes in movement. The flight controller (the drone's central processing unit) uses an accelerometer for the UAVs for flight stabilization.

AGL (Above Ground Level)

Refers to the altitude above the ground immediately under the UAV. For example, a UAV flying 100 feet above a 45-foot hill would have an AGL of 55 feet.

AMA (Academy of Model Aeronautics)

A nonprofit organization that advocates the safe operation of model aircraft, including drones. The AMA is a proponent of the National Model Aircraft Safety Code, a set of guidelines on the safe operation of sUAS that FAA encourages pilots to follow.

ATC (Air Traffic Control)

A service provided by personnel trained and certified by the FAA responsible for monitoring and controlling all air traffic within a specific area.

BVLOS (Beyond Visual Line of Sight)

The ability to operate an unmanned aircraft beyond the pilot's line of sight. Flying UAS beyond visual line of sight requires a special permit from the FAA.

COA (Certificate of Authorization)

A permit/waiver issued by the Federal Aviation Administration (FAA) allowing a public operator to perform specific UAS operations.

Collision/obstacle Avoidance

A vision system that allows UAVs to detect obstacles in its path and avoid collisions.

Commercial Drones

A unmanned aerial system (UAS) designed for heavy use. These flying platforms have a specific purpose in mind such as for infrared inspection, package delivery, or for search and rescue. Typical models of drones include the DJI Matrice 210 and DJI Matrice 600 Pro.

DJI

Acronym for Dà-Jiāng Innovations, a Chinese technology company based in Shenzhen China that is the largest manufacturer of unmanned aerial vehicles (UAV), commonly known as drones.

DJI Drone Flight Modes

DJI's drones have Intelligent Flight Modes that help pilots control and maneuver the aircraft to capture photos and videos safely and efficiently. DJI's commercial and professional drones are packed full of unique Intelligent Flight Modes. These modes help pilots control their aircraft, capture amazing video and images and help keep pilots and their aircraft safe.

S Mode

Also known as Sports Mode, the S Mode allows the DJI drone to fly and maneuver twice as fast (about 40 mph to 65 mph)

P Mode

This is the standard flight mode for most pilots. In the P Mode, all sensors on the drone are active including GPS and infrared sensors. This allows precise hovering of the drone, even if the user stops controlling it with the remote controller.

A Mode

The A Mode or Atti Mode is short for Attitude Mode, where the drone will maintain a certain altitude but not position. This allows the drone to remain at the same height but drift around.

Dronie

A self-portrait photograph (selfie) or video captured using a camera drone.

eBee X

A fixed-wing drone produced from sensFly capable of carrying different payload options for 3D mapping, photogrammetry, infrared, and multispectral agriculture.

Electromagnetic interference

A disruption in the operation of an electronic device caused by proximity to metal, magnets, power lines, or cell towers.

Elios

A collision-tolerant, full HD, and infrared imagery UAV designed for inspection in complex indoor spaces.

ESC (Electronic Speed Control)

An electronic device connected to the drones power supply and flight controller to vary the speed and direction of the drones motors.

FAA (Federal Aviation Administration)

An agency under the US Department of Transportation that regulates and oversees all aspects of civil aviation. Its primary objective is to ensure civil aviation safety.

Field of View (FOV)

Describes the viewing angle from the camera of the drone.

Firmware

The software embedded in the drones flight controller, batteries, or remote controller. Updates to the firmware are often made available by manufacturers to fix bugs, introduce new features, improve existing features, and protect from security vulnerabilities.

Fixed wing drones

UAVs that consist of a rigid wing that generates lift via aerofoil and typically a small push propeller. Fixed wing drones can travel greater distances with less power due to the wing.

Flight Controller

A device that receives the inputs from the sensors (gyroscope, accelerometer, GPS, vision sensors, ultrasonic sensors) and remote controller of the drone which then sends inputs to the electronic speed controls and motors about how the drone should move.

FLIR

Acronym for Forward Looking InfraRed, a company located in The United States. FLIR specializes in infrared technology to detect distant objects in low and zero visibility situations.

FPV (First Person View) Drone

A system in which a drone operator pilots a drone through the camera located on board. The operator wears goggles with screens inside that streams the drones camera footage in real-time.

Geofencing

Technology that uses global positioning system (GPS & GLONASS) to establish a virtual geographic boundary to prevent drones from flying into specific areas.

Gimbal

Two or three axes stabilized with fine tuned motors that allow the camera or other equipment to remain level even when moved about.

GLONASS

Globalnaya Navigazionnaya Sputnikovaya Sistema, or Global Navigation Satellite System is another satellite network drones use to understand where they are in space.

GPS

Global positioning system is a space-based navigation system owned by the US government and operated by the US Air Force that consists of satellites, receivers and other technologies that provide accurate location and time information for civil and military use.

Gyroscope

A device used to measure and maintain level orientation this sensor is connected to the flight controller to maintain stability.

Hexacopter

A multicopter aircraft that has 6 propellers, with 3 that turn clockwise and 3 that turn counterclockwise.

Hobby Drone

An unmanned aerial vehicle (UAV) or drone, that is designed for the mass market.

Inertial Measurement Unit (IMU)

An electronic device that uses accelerometers, gyroscopes, and sometimes magnetometers to measure and report specific force, angular rate, and magnetic field of the drone in flight.

Infrared Drone/UAV

A unmanned remote-controlled aerial vehicle with an infrared imaging camera onboard. An infrared camera sees a region of the electromagnetic radiation spectrum where thermal energy is emitted. Infrared imaging sensors detect incoming infrared energy and software interprets the signals into a digital infrared image or video.

Inspire 1 Drone/UAV

A unmanned remote-controlled aerial vehicle produced from DJI. This drone has interchangeable camera payloads such as the Z3 (optical zoom camera), X5 (large sensor with interchangeable lenses), and Zenmuse XT (infrared camera). The Inspire 1 is famously known for its retracting motorized landing gear which provides an unobstructed 360 degree view for the camera.

IP Rating

A rating system that classifies the degree of protection that an electrical enclosure has against water and dust.

LiDAR

A acronym for Light Detection and Ranging. LiDAR is a method of detecting, measuring and mapping using a laser. LiDAR is typically used in situations where standard survey techniques are difficult.

Low Altitude Authorization and Notification Capability system (LAANC)

A collaboration between the FAA and private companies in support of UAS integration into national airspace. LAANC allows drones access to controlled airspace in near real-time.

mAh (Milliampere Hours)

The unit of measurement used to describe the energy capacity of a battery.

METAR (Aviation Routine Weather Report)

Meteorological Terminal Aviation Routine Weather Report or Meteorological Aerodrome Report. METAR is a specific format for reporting weather information.

MSL (Mean Sea Level)

Refers to the altitude above the average height of the ocean/sea. A UAV flying at 120 feet with a 30-foot hill below would still be at 120 Feet MSL.

Multicopter

A multicopter or multicopter is a rotorcraft with more than two or more propellers.

NOTAM (Notice to Airmen)

A Notice to Airmen (NOTAM) is a notice given to warn aircraft or UAS pilots of any possible hazards or flight restrictions along a flight route or specific location.

Octocopter

A multicopter aircraft that has eight propellers. Four spinning clockwise and 4 spinning counter-clockwise.

Part 107

These are commercial drone operator regulations created by the Federal Aviation Administration to define restrictions and safety standards for commercial drone flights.

Photogrammetry

A method of surveying and mapping through stitching photographs together to make one large image.

PIC (Pilot in Command)

The person directly responsible for the complete drone flight operation and safety of UAS flight.

Pitch

When the front of the drone moves up and down.

Professional Drone

High-end UAVs that are equipped with the latest technologies and imaging sensors. Often times the drone itself and the camera are sold separately.

Propeller

An angled bladed uses to create an area of high and low pressure to provide lift or thrust.

Quadcopter

A multirotor aircraft that uses four rotors (propellers), 2 clockwise and 2 counterclockwise to generate lift.

Racing Drone

A small quadcopter that is designed to participate and compete in FPV (first person view) racing events.

Return to Home (RTH)

When the drone operator triggers the function on the remote control or when a drone is automatically set to return to home if battery power is low or signal from the transmitter is lost.

Roll

When the sides of the drone go up and down.

Selfie Drone

Typically a small portable drone that is used to take photos or videos from an aerial perspective.

sUAS (Small Unmanned Aircraft System)

Unmanned aircraft systems, such as drones or quadcopters that weigh less than 55lbs.

Telemetry

A two-way digital data stream between the UAV and a ground station that is used to communicate flight data and instructions to control the UAV.

TFR (Temporary Flight Restriction)

A temporary notice of restriction on a specific area of airspace because of the presence of government VIPs, special events, natural disasters, and other unusual occurrences.

Trim

Buttons on the remote control that control roll, pitch, yaw, and throttle.

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Ultrasonic sensors

These sensors work in pairs. One sensor sends out the sound pulse while the other receives the pulse. The difference between the sending and receiving is used to calculate height and is used for drone stability.

Uncontrolled Airspace

Airspace where there are no air traffic control (ATC) services necessary or available because of practical reasons. ICAO set airspace F and G as uncontrolled.

VLOS (Visual Line of Sight)

The operation of an unmanned aircraft within the pilot's line of sight at all times and without the aid of any device (binoculars) other than corrective lenses (glasses).

VO (Visual Observer)

An optional crew member trained to monitor and maintain visual contact with a UAV to ensure safety.

Waypoints

A set of coordinates that define a point in space. Waypoints are used to create flight path for drones.

Yaw

Orbiting the drone from right to left.

Zenmuse Camera

DJI's line of high-end cameras designed for enterprise/commercial grade work. These include DJI's infrared(XT2), large sensor(X5S), and zoom cameras(Z30).

Zenmuse XT2

DJI's dual sensor infrared (thermal) and 4K gimbal camera available in different resolutions (336×256 or 640×512 pixels), different lens configurations (9mm,13mm,and 19mm), and different frame rates (9Hz or 30Hz). The DJI Zenmuse XT2 is compatible with the DJI Matrice 200, 210, and 600 Pro

Zenmuse XT

DJI's infrared (thermal) gimbal camera available in different resolutions (336×256 or 640×512 pixels), different lens configurations (7.5mm,9mm,13mm,and 19mm), different frame rates (9Hz or 30Hz), and different temperature reading options (performance or radiometric). The DJI Zenmuse XT is compatible with the DJI Matrice series and the DJI Inspire 1 series.

Zenmuse Z30 Camera

DJI's industrial grade 30x optical and 6x digital zoom camera ideal for inspection and public safety applications. The Z30 is compatible with the DJI Matrice series line of enterprise drones.