

Free FPV Buying Guide

A Product of Air to Ground Solutions, LLC

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This is not a full guide. It exists to educate people who are trying to make a quick buying decision and avoid getting tricked or buying something they'll regret.

Essentials to Fly

Here's what anyone needs to use an FPV drone:

Drone

There are countless types of drones on the market no two are exactly alike, just as no two goals are alike. Choose based on what you actually want to do with it.

Radio (Controller)

Radios vary widely in protocol, frequency, and power output. The most common setup is ELRS at 2.4GHz, 250mW.

- **ELRS** is the protocol, or “language,” the radio uses to talk to the drone.
- **2.4GHz** is the frequency the radio uses to communicate. 900MHz is another common option.
- **250mW** is the output power of the drone's transmitter.

Lower frequency (900MHz) with higher power (1W) generally means longer range but a lower response rate. Higher frequency (2.4GHz) means a higher response rate but shorter range.

Goggles

Goggles are how you see what the drone sees. Your choice depends on the video system you use and your budget.

Batteries

Batteries power the drone covered in more detail below.

Charger

Chargers are a dime a dozen, but a good one should do three things: charge the battery, balance the battery, and discharge the battery for storage.

Understanding Drone Parts

Size

You'll often see drones labeled “10in drone” or “10” drone.” This refers to the diameter of the propeller.

Video Systems

- **Analog:** Best for long range, penetration, and customization but at the cost of video quality (think grainy CCTV footage).
- **Digital:** Less range and penetration than analog, but typically delivers a minimum of 720p, up to 4K.

Radio Receiver

This is how the drone receives control signals from the radio. Receivers use different protocols and frequencies that must match your radio for example, you cannot use a 900MHz FrSky radio with a 900MHz ELRS system.

Batteries — The Details

When evaluating batteries, you need to know three things: S (series), mAh, and type.

- **S (series):** You'll see drones listed as 4S, 6S, or 8S. This refers to the type of battery used and is built from individual cells. Think of each cell as a separate gas tank a 4S drone has 4 “gas tanks,” a 6S drone has 6, and so on. Each cell connects to a single line that feeds into the drone.
- **mAh:** This is the size of the “gas tank.” A larger mAh rating means a bigger tank, but also more weight.
- **Type:** Li-Po batteries deliver more punch and instant power. Li-ion batteries provide more drawn-out, longer-lasting power.

Compliance

Remote ID

To be FAA compliant, any drone over 0.55 lbs and under 55 lbs needs a Remote ID module. This tells the FAA and other aircraft where the drone is in the airspace.

NDAA

NDAA refers to the National Defense Authorization Act, a U.S. federal law that, among other things, restricts government agencies from purchasing or using certain foreign-made drone and surveillance technologies.

Do you have to care? If you're a civilian flying recreationally, usually no — you can generally buy any drone that is legal to operate.

The tricky part: there is no certification body or government agency that verifies whether a product is NDAA compliant. As the buyer, you have to ask for proof yourself.

Questions to Ask Before You Buy

- **Does everything come updated?** Do the goggles, VTX, radio, and RX all come with up-to-date firmware?
- **Does everything come bound (RTF)?** Out of the box on a Ready-to-Fly kit, do the radio and goggles come pre-bound?
- **Does the radio come with batteries?**
- **Does it come with a get-started guide?**
- **Does it come waterproofed?** If so, how?
- **What is the DOA policy?** If the drone arrives and something doesn't work, or fails within the first few flights, what is the return policy?

- **Does it come tuned?** Drones are complex computers with a lot of sensors. Tuned and un-tuned drones fly very differently, and an un-tuned drone can be far less efficient.
- **Is there support?** If you need help, will the seller or builder actually respond?
- **(NDAA) Where does your builder get their parts?** Ask them to show the paper trail.

Questions? Want a Quote?

Reach out to Air to Ground Solutions, LLC — we're happy to help.

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