

EYE IN THE SKY

GETTING STARTED WITH AERIAL PHOTOGRAPHY

TEXT & PHOTOS BY JOHN REID

Many drone pilots will begin the process of moving from just flying drones to flying drones with some purpose, and there are two directions you can go. For sports and enjoyment, many will head toward drone racing, while others will want to document their flight through photography or videos. We will save drone racing for another day, so in this article, let's talk about what you will want to look for in a drone to document your adventures from the air.



WHAT IS YOUR PURPOSE?

The first thing you have to decide is exactly what you want to document from the air. Are you looking to have a drone follow you around and document your many adventures? Or are you looking to take some award-winning photos or videos from the air that have a professional feel to them? Maybe you want to make a living by creating aerial videos for commercial projects and advertising.

Because making a living from aerial videography will require the pilot to receive an FAA Part 107 waiver, we will leave that alone for now and talk more about how to create some outstanding images/photos for your own personal use.

THE DRONE

Let's begin by looking at what you will need for aerial photography (still images) as the equipment can be a little different from the camera you need for video. Many multirotors that are designed for video will also work quite well for photography, but there are a few differences of which you should be aware. The drone will not need to have a gimbal system on it to take great photos; the camera can be mounted directly to the rig because the fast shutter speed will eliminate any vibration from the drone. That being said, it is hard to find a ready-to-fly drone that does not have a camera gimbal and that only shoots photos (all of them shoot both video and still images). So plan on getting one with a gimbal, and you will still be able to make good use of this feature.

A drone that is fast and has a good top speed, while not a requirement, will help get the camera from one shot to the other. This is a plus if you are shooting action. Drones that have retractable landing gear are again good to have (especially if you are also doing video), but it's not absolutely necessary. One thing you do want to look for in a drone is one that will lock into position, have a good GPS mode, and not drift. Once



The Typhoon H has a small but powerful video/still camera that can shoot up to 12mp images in RAW and JPEG formats.



Having the ability to add an aerial perspective to your photographic library lets you expand your creative options.

you've established the drone's position for the image you want to make, you don't want to keep tweaking the drone into place while waiting for the shot. A drone that has very little to no drift over the flight time of the battery is good to have for photography.

CAMERA

The camera that is attached to the drone will probably be the most important factor for producing good images. A drone that will allow a variety of selectable payloads by the pilot will be the best choice, but this will come at a much higher cost. Here are some photographic specific features you will want on the camera:

Camera format. Make sure that the camera can shoot in RAW format as well as JPEG. The RAW format will allow more work/corrections to be made in post (working in the computer) to improve the image quality. RAW image format takes all of the information gathered from the photo sensor in the camera and saves it all to the card. JPEG format takes all the information, processes it, reduces the file down to a smaller size by throwing out pixels, and then saves that image to the card.

Larger image size. Look for cameras that can create images that are at least 12 to 16 megapixels as this will create a sharp image when enlarged



The camera on this DJI Phantom 4 will shoot 12.4mp images in RAW and JPEG formats.

to 8x10 or more. The more pixels there are in the sensor, the more image detail will be in the saved file.

Shutter/aperture control. Will the camera allow you to have control over the shutter, aperture, or both? Having control over both is best, but it will, most likely, be manual control over the shutter speed, which is the minimum you should have on the camera.



Capturing events that are high above the ground at about eye level opens up a new world of possibility.



The camera-control menu allows you to adjust the ISO (sensor sensitivity), shutter speed, and exposure compensation.



The image-format menu is where you can change from JPEG (default setting) to RAW or JPEG+RAW.



Change the photographic settings in the menu to achieve the image you want. This is where you can create timed shots for selfies.



The color menu lets you create different looks for the image. For more creative freedom, change the image color in postproduction.



The style menu allows the pilot to fine-tune the final look of the image.



The white-balance menu is used to adjust the sensor's color balance for the type of light the camera is shooting in.



Get the drone in the right position, and start the interval timed shots. Then strike your best selfie pose.

Selfie Tip If you want to get a selfie shot without having the transmitter in the shot, set up the quad camera to take interval images two to three seconds apart. Get the drone in position so that you're where you want to be in the shot. Press the shutter button, and let the camera shoot every two to three seconds. Set down the transmitter within reach but out of the shot. Get in your best selfie pose for 10 to 20 seconds, then land the drone and check out the images. If you have what you want, you're done; if not, reshoot.

The AiRScouter allows the pilot to watch the drone while at the same time see what the camera is focused on.



FPV for Photography

On higher-end aerial productions, a dedicated camera person controls the camera gimbal while watching the screen. In most cases, I find that I am both the cameraman and pilot. This is why I started using the AiRScouter by Brother USA (brother-usa.com). The AiRScouter is a head display; it's like wearing glasses because it hangs out in front of one of your eyes. The display is attached to a headband that secures the unit around your head, and it's easy to adjust the location of the eyepiece display so that it lines up in front of your eye.

A key advantage of using this is that it allows me to see the screen (camera view) but still have both eyes on the drone when I need to position it in the right location. This also allows for better depth perception, which is very much needed when flying. There is never a need for me to take my eyes off of the drone at any time while flying. In addition, I wear glasses but find it easy to see the screen even in bright daylight, which can be a problem with some flat transmitter screens.

Setup is just a matter of plugging in the HDMI cable to the HDMI outlet on the transmitter or video receiver of your drone. This will relay the camera signal to the headset. The unit's onboard battery lasts about four hours, which I found to be more than enough time for all of my flights. It has become second nature for me to look at the drone while flying and getting it into position, then to shift my eye to focus on the eyepiece when composing the shot and while shooting.

Before the AiRScouter, I found myself concentrating on the camera feed and fighting glare from the screen while trying to capture the shot. This would also take my attention away from flying the drone. This is a great accessory to have, and I recommend it to any pilot.



Shooting straight down on action scenes requires good flying skills and good timing.

Filters. Does the camera allow the use of filters, or are filters available for your drone? Although they aren't necessary, filters will enhance many images if used correctly. They can also be used to creatively show movement by blurring the parts of the image that has movement (for this type of image, you will need a good-quality gimbal to keep the camera steady). Filters can also intensify the colors in the photos and add contrast. Filters offer a lot of creative options and are available for a number of drones, so consider getting a drone that offers a good selection of available filters.

ISO range. This determines how sensitive the camera sensor is to light or the amount of light needed to make a proper exposure. Some of the best images are produced in low-light situations, and a camera that has an adjustable range of ISO will allow more creative freedom. A camera with an ISO range of 100 to 3200 is good, but a range of 100 to 12800 is better. When the ISO goes up, we introduce noise into the image, which is where individual pixels in the sensor create data that is erroneous. This, in turn, gives a grainy texture/look to the image and degrades its quality. Higher-quality cameras will help reduce this effect at the higher ISO settings.

Shooting modes. Cameras that will only allow a single shot to be taken each time the shutter button is pressed on the transmitter will work for most shots. But if you are trying to capture something that is moving fast, like a motorcycle making a jump, you will need to time your shot just right. Cameras that have burst-mode settings will allow you to take a number of frames one right after the other. In this mode, you press the button as the motorcycle approaches the jump and the camera shoots a number of images throughout the entire jump. You can then pick the best photo after the jump is complete. This feature is really important if there is any "lag" time in video transmission from the camera, on the drone, to the transmitter screen. Common burst modes are three to five frames per second, but some go up to 14 frames or more.

Another shooting option that is desirable to have is interval mode. This is where the camera is set to shoot an image every two or three seconds and will continue to do so until the pilot gives the command to stop. These images are used most of the time to create time-lapse movies by combining single images in post to create compressed-time videos. For this type of photography, you will need a good gimbal and a drone that does not drift for the entire length of the flight.

Exposure adjustments. Cameras that have a way to manually control the exposure are a big plus. This could be referred to as "exposure compensation" or "exposure value bias." Along a similar line is auto exposure bracketing. With this setting, each time the shutter button is pressed, the camera takes three to five images. When set to three, one image will be at the exposure recommended by the camera meter, another image will be at an exposure lower than recommended, and the final image will be over the recommended exposure. How much over and under will be determined by your settings. Bracketing will go a long way toward guaranteeing that you get the correct exposure.

FLYING TECHNIQUES FOR PHOTOGRAPHY

When shooting for aerial photography, most of your flying will be getting the drone in the right spot and waiting for the shot. Speed will help with that when you have to go from one location to another while tracking

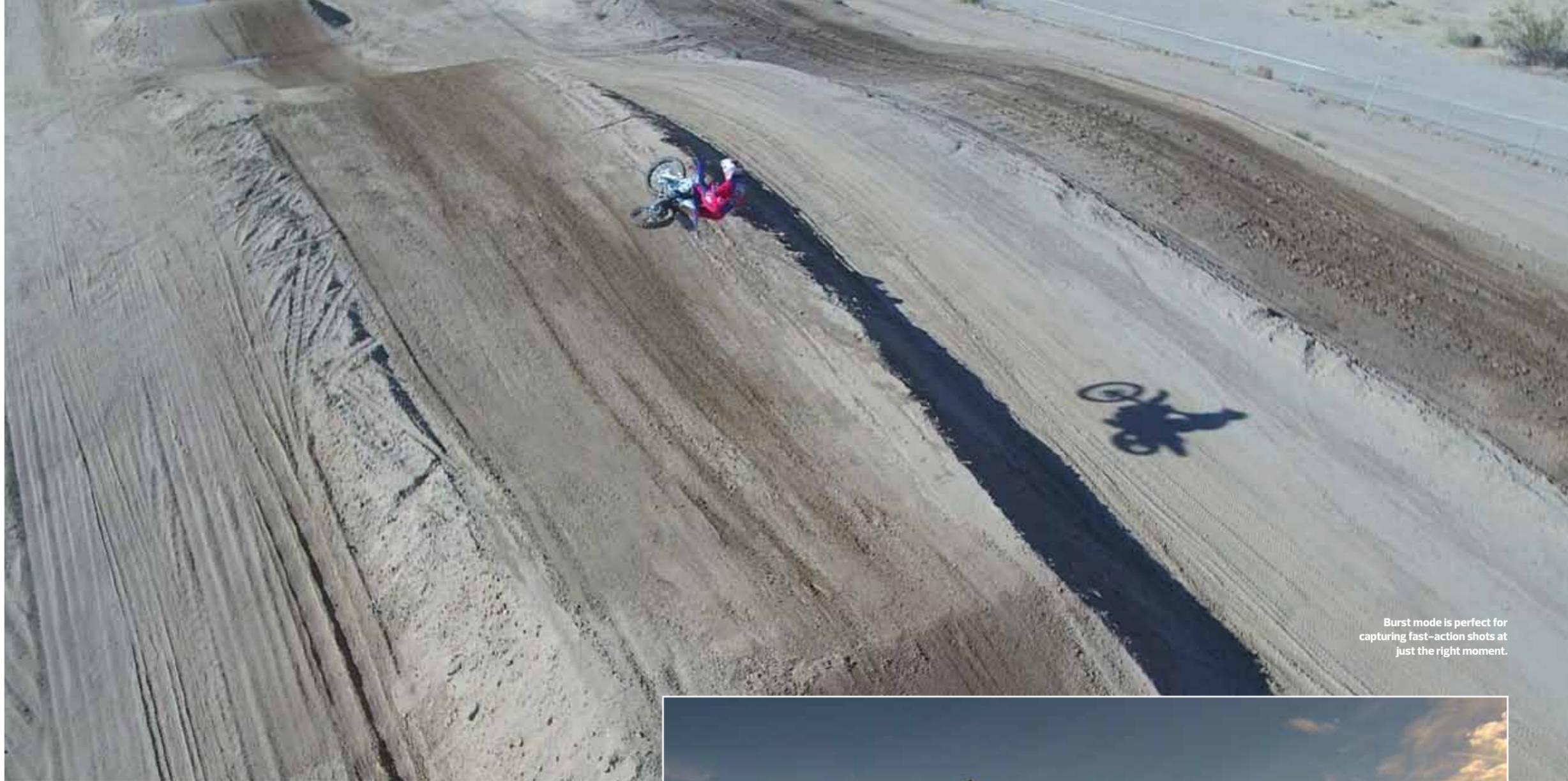
fast-moving action. But as mentioned before, a drone that doesn't drift will be the biggest plus. GPS flight mode will be your friend, and you will most likely be flying in this mode most of the time. Now, that is not to say that when shooting images, you will not need to track your subject. There are times when this will be absolutely necessary. But because you are only capturing brief moments in time, it will not always have to be as smooth a flight as you would need for video.

Maximize the use of the gimbal by changing up the shooting angles on your subject. Take some at a low angle. Move the drone to a higher altitude and shoot from a 45-degree angle. Then, if safe to do so, point the camera straight down and take an image from directly overhead. By maximizing your gimbal movement, each image will have a completely different look to it.

You will find that, with still images, many of your photos will not require the drone to be that far from you. So if you can take the shot with the drone closer to you, do it. It will be easier to control and place in just the right spot. But always be aware of your surroundings, and be sure that you are in a safe spot; this is very important when working around moving subjects.

BOTTOM LINE

Although shooting photos from the air might not require as many flying skills as shooting a complicated flying scene for a video, you still need to have the ability to know where and when to place that drone in just the right spot for that great aerial image. The only way to master it is to get out there and shoot...and shoot...and shoot some more. ✚



Burst mode is perfect for capturing fast-action shots at just the right moment.



When setting up for close-up shots, like this one, be sure to stand close to the drone so that you can see the amount of space between the drone and your subject.