AOPA Article April 2013 Issue
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Portable ADS-B traffic

SkyVision Xtreme lets you take it with you

A common refrain among pilots fortunate enough to fly with traffic warning systems is that they suddenly feel vulnerable in aircraft without them. Now, with SkyVision Xtreme, pilots can bring their traffic systems with them. SkyVision is a portable, self-contained ADS-B In system that provides a full traffic picture showing aircraft equipped with transponders, as well as ADS-B equipment. It's an uncertified system designed for aircraft renters and pilots who fly multiple aircraft, and its components are upgradeable in the future as a permanent, installed solution that can comply with the FAA's coming mandate.

This iPad screen shot shows all airborne traffic including headings, altitudes, and airspeeds. Aircraft with ADS-B Out (such as the DHL jet) also show flight numbers.

I recently flew with a SkyVision portable unit at AOPA's home base in Frederick, Maryland, and the hour-long flight showed the system's promise—and the capabilities we can expect in 2020 and beyond when ADS-B will be required nationwide. SkyVision ($3,595) also shows subscription-free ADS-B weather.

SkyVision comes in a rugged, 7-pound plastic case. The box is sturdy and substantial to protect the electronics inside: a Navworx universal access transceiver (UAT), Wi-Fi station, and internal battery. Three external cables connect these components to a GPS antenna, power cord, and UAT antenna. I strapped the box in the rear seat of my Vans RV–4, attached the UAT antenna to the canopy with a suction cup, placed the GPS antenna where it had a good view of the sky, and plugged in the power cord (and audio cable).

After starting the engine, I turned on my iPad and launched the SkyVision app, which quickly connected to the WiFi station in the rear seat. Then I flew in the busy airspace between Washington, D.C., and Baltimore, Maryland, in search of aerial targets, and there were many of them. Airliners on approach to Dulles International Airport formed a long line at about 8,000 feet as they descended heading south; others flew east at about 7,000 feet on their way to Baltimore-Washington International Airport. A trio of general aviation trainers practiced ground reference maneuvers at much lower altitudes just north of the Potomac River.

All were plainly visible on the iPad long before I could see them through the canopy. An icon showing an airliner or light GA aircraft provided a strong hint about the type, and detailed data about each one told its relative distance, height above or below, heading, groundspeed, and whether it was climbing or descending.

SkyVision collects the information by pinging ADS-B ground stations and receiving information from them about nearby aircraft, regardless of whether those aircraft are carrying transponders or transmitting ADS-B Out signals. (Aircraft with ADS-B Out show even more information, such as N numbers or airline flight codes.)

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SkyVision has a battery backup so that it won't shut down in flight if a power source (typically a cigarette-lighter adaptor) becomes disconnected, or there's a pause in electric current. If a connection is lost, a big red X covers the iPad screen, and an automated voice chimes in to alert the pilot.

My RV–4 is equipped with a Traffic Information System (TIS) that operates through a Mode S transponder and displays on a Garmin 696, and comparing the two traffic systems highlighted their differences. SkyVision's main advantage is that it shows traffic all the way to the ground at my home airport, because there's an ADS-B station on the field. Airplanes in and near the airport traffic pattern appear prominently, and it's good to know they're there since most midair collisions take place on VFR days near airports. (At Frederick, TIS typically cuts out about 1,200 feet agl because transponders lose signal coverage at that altitude.)

One aspect of the TIS system that I like, however, is the good job it does of prioritizing threats. It shows fewer of them, but those that appear on the screen tend to be relevant. SkyVision shows you the entire traffic picture, including distant airplanes that are highly unlikely to affect your flight path. Also, the SkyVision airplane symbols appear absolutely huge in proportion to their actual size, so the system gives a somewhat skewed impression that the air in all directions is densely packed with aluminum. (SkyVision lets you customize the settings to cut down the clutter.)

The SkyVision display can be viewed in a top-down, two-dimensional plan view; as seen looking forward through the windscreen in three dimensions; or both, in a split-screen orientation. It can be displayed on a broad array of Apple and Android devices and fit in just about any GA cockpit. The box can be stowed and the antenna wires routed unobtrusively.

SkyVision's founders have been designing ADS-B systems for GA aircraft since 2009 and this concept for a portable ADS-B system that is both useful now
and can comply with the FAA mandate in the future has great promise for ferry pilots, flight instructors, renters, or just about any pilot who flies more than one airplane.

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