



Astronomy tests Vixen's compact astroimaging mount

The Polarie Star Tracker makes it easy to take long-exposure wide-field images. **by Tom Trusock**

With increasing light pollution and gas prices, astroimaging seems to be the up-and-coming trend in the hobby over the past few years. Sites that simply aren't good enough for visual astronomy will still let you produce some great photos with the right combination of gear and know-how. That's because software now allows you to subtract the part of your image that comes from light pollution. Still, there always have been barriers to getting started in astrophotography. The deeper you get into it, the more it's going to cost you.

A mount is the most crucial (and expensive) piece of hardware for an astroimager. When you're picking one, you have to choose between stability (which, for the uninitiated, means large, heavy, and expensive) and portability. You can make

things a little easier by choosing to go with a less demanding (but equally stunning) form of celestial photography — wide-field — but the mounts can still be rather bulky.

Finish and features

It was to meet this market that Vixen Optics introduced the Polarie Star Tracker — an ultraportable tracking mount designed for wide-field photography and recommended for lenses with focal lengths up to 100 millimeters. You can buy the Polarie separately, but for this review it came bundled as a package with a robust portable tripod designed with imaging in mind, along with two ball heads.

The critical piece of gear, the Polarie, is reminiscent of a DSLR camera body in both size and shape, and it's quite attractive. Vixen placed a sighting hole (with an 8.9° field of view) in the upper corner to help align the unit with the North or South Celestial Pole. As someone used to lying on the ground when using a German equatorial mount (GEM) to observe, I was grateful that the included tripod was tall enough to make polar alignment fairly painless.

On the unit's side, you'll find a tilt meter/inclinometer (with 5° resolution) to get you started with polar alignment. The top has a "mode" dial (more on that in a bit), and even a shoe where you can attach additional accessories. The "front" of the unit sports a removable mounting plate, behind which you'll find a slot designed to attach to the optional polar scope — for those who need a more exact alignment.

The Polarie can run via two AA batteries or by an external 4.4- to 5.25-volt source, and it takes that juice via a mini-USB plug. Vixen states that two AA batteries can run the mount for about four hours

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The Polarie compensates for Earth's rotation by driving a standard ball head mount, which attaches to a camera. An optional tripod from Vixen is available. It costs \$249 and comes with two ball heads. All product images: Astronomy; William Zuback

Product information

Vixen Polarie Star Tracker

Usable: Anywhere on Earth

Tracking rates: Wide-Field Astrophotography, Lunar, Solar, and Star-Scape

Maximum load: 4.4 pounds (2 kilograms)

Power: Two AA batteries or external power supply via mini-USB

Battery life: About 4 hours at 68° Fahrenheit (20° Celsius)

Dimensions: 3.7 by 5.4 by 2.3 inches (9.5 by 13.7 by 5.8 centimeters)

Weight: 1.4 pounds (0.64 kilogram) without batteries

Price: \$429

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► **The Milky Way** near Antares (Alpha [α] Scorpii) is a favorite wide-field sky target. For this shot, the imager attached his Nikon D700 DSLR with a 105mm Nikon lens to Vixen's Polarie mount. This version combines twelve 5-minute exposures. *John A. Davis*



Vixen Optics' Polarie Star Tracker is a compact mount ideal for wide-field astroimaging with a digital camera.

with the maximum load of 4.4 pounds (2 kilograms). In practice, I found the time varied between 90 minutes and six hours depending on the temperature and the quality of the batteries used. Imagers need not fear suddenly running out of juice because the power indicator will begin blinking when the batteries get low.

The Polarie has a mounting socket (1/4"-20 thread) that will let you attach it to any standard photography tripod. A stepper motor with two bearings drives it, and the Polarie is usable in either the Northern or Southern Hemisphere.

The tripod has four-section legs, a maximum load bearing capacity of 6.6 pounds (3kg), and adjusts from 21.2 to 70 inches (54 to 178 centimeters) high. Collapsed, it measures 22 inches long (56cm) and weighs around 4.3 pounds (2kg) without the (included) pan head. The tripod has a geared center column and attaches using a setup similar to a GEM. This is a great idea as it's a feature that allows you to easily adjust the inclination. It will look familiar to astroimagers but somewhat less so to standard photographers.

Tracking options

The Polarie offers several different tracking modes you select with the mode dial: "Wide-Field Astrophotography" (whose symbol is a star); "Lunar" (symbol is a crescent Moon); "Solar" (a stylized Sun); and

"Star-Scape" (the fraction 1/2). The other setting (Vixen calls it "Preparation" and its symbol is a light bulb) is to assist in polar alignment. Use "Wide-Field Astrophotography" for deep-sky shots where you either won't have a foreground or where the foreground is blurred.

The length of an unguided exposure before you see star trails depends on the focal length of the lens and the declination of your target object. For a DSLR with a 24mm lens imaging a target with a declination of 45°, you can expose for roughly six minutes before star trails begin to show up. The shorter the lens' focal length, or the greater the declination, the longer you can shoot before you run into star-trailing. Alternatively, shooting an object on the celestial equator with a 100mm lens limits you to about a minute of unguided exposure time before star-trailing appears.

"Lunar" and "Solar" modes envision the lengths of their respective eclipses and allow you to track for up to four hours. The "Star-Scape" mode offers something of a compromise setting for folks who wish to



Change the tracking mode by rotating this dial on the top of the Polarie Star Tracker.

shoot the sky and also include the foreground in the frame. If you shoot with your camera still, the foreground will be sharp, but the stars will appear as trails.

In the "Wide-Field Astrophotography" tracking mode, you'll see sharp stars but a blurry foreground. "Star-Scape" tracks at a slower rate, so it splits the difference between the (apparently) moving stars and the ground beneath them.

The Polarie fits well in my camera bag, taking up no more room than an SLR body. In addition, Vixen's tripod can double as a photographic tripod, further reducing the amount of gear you have to carry. Given the limited amount of packing space on any trip, this is a useful feature.

Wrap one up

The Polarie doesn't have the load-bearing capacity to use as a tracking mount for visual observing, as some might want. What works well for a camera doesn't work so well for a larger telescope with a longer focal length. However, it's not designed for that, and it works superbly for its intended use. The build quality on the Polarie is first-rate, and the functionality is excellent. It weighs little, runs on AA batteries, and will conveniently pack into your luggage.

Vixen has long been known for providing high-quality products at good prices. If you're interested in wide-field astroimaging — say using a lens of focal length 24mm to 85mm — and want an extremely portable setup, the Polarie Star Tracker fits the bill without breaking the bank. ☺