

Vixen's GPD2 mount tested

This accessory features portability, superb craftsmanship, and high-quality tracking. **by Tony Hallas**

If you've read any of my columns in *Astronomy*, you know that I do a lot of astrophotography and value high-quality equipment. And next to a telescope's optics, the most important piece of equipment is the mount.

I installed a permanent mount in my home observatory. It's large and routinely carries telescopes like my 14.5-inch Cassegrain reflector. But I also like to shoot with smaller wide-field telescopes and camera lenses, especially from ultra-dark sites like Alturas in California, which I wrote about in the April 2012 issue ("The Modoc Plateau beckons amateur astronomers").

For those times, I need a portable mount that's more than just a tracker, one with an accurate polar-alignment scope and a reasonable price tag. After I saw Vixen's GPD2 Equatorial Mount at the 2012 Northeast Astronomy Forum, I decided to buy one.

A long pedigree

Long ago, when I used to image from the summit of Mount Pinos in Ventura County, California, there were always individuals up there with portable Vixen Great Polaris mounts. Those of us with our massive

Schaefer German equatorial mounts would quietly sneer at their lack of substance, and during times when the wind was blowing 25 mph (40 km/h) in the parking lot, only the Schaefer mount owners could still image. But when it was time to pack up on Sunday, the owners of the portable mounts picked them up with one hand, folded their tripods, and were gone in 10 minutes!

So, the Great Polaris mount has a long history. The early Polaris, the Super Polaris, and the Great Polaris have gone through many improvements that have culminated in the current GPD2 model, the sturdiest (and heaviest) of this line of mounts.

"Heavy" is relative — the mount weighs only 18.7 pounds (8.5 kilograms) and can hold up to 35 pounds (16kg). The mount disassembles easily because the declination (Dec.) half attaches to the right ascension (R.A.) component by only two bolts. Users also can remove the Dec. shaft. Doing so will allow splitting up the mount for air travel between two carry-on bags if need be — a handy feature.

Features

Along with the GPD2 mount, Vixen includes as an optional accessory the STARBOOK-S, a planetarium software-

The Dual Axis Motor Drive Set comes with a hand paddle. It lets you slew at three rates that are multiples of the stars' apparent motion: 1.5x, 2x, and 32x.

TONY HALLAS



Vixen's GPD2 Equatorial Mount is the latest in a long line of Polaris mounts the company has produced. VIXEN OPTICS

driven processor that will slew to objects in its internal database. This requires that you set up the mount like those in the Sphinx series (entering time, date, location, etc.). I didn't want to do that because my use was strictly wide-field imaging. I opted, therefore, for the standard hand paddle and the simple stepper-motor drives.

The hand paddle has three slewing speeds: 32x for rapid slewing to get you near your target, and 2x and 1.5x for guiding. I noted some hysteresis (hesitation) in the stepper-motors at 32x. The mount momentarily stopped tracking until the internal gears re-engaged. This didn't happen at the slower rates.

How well this little mount can track really impressed me. As Vixen advertises, technicians hand-inspect each mount to keep the accuracy of the worm-gear assembly within 0.002 millimeter to minimize periodic error. It shows. I took 3-minute unguided shots with a 200mm lens pointed south and had perfectly round stars.

The hand paddle has an input for Santa Barbara Instrument Group-style guiders. This is a huge plus. It means you can use any number of guiders and software that support this popular format. Just make sure when you do anything involving guiding that you have the speed set to 2x or 1.5x. I somehow always forgot to set the speed down from 32x, and the result was chaos and a lot of comments no one should hear.



The GPD2 mount features an internally illuminated polar-alignment scope. TONY HALLAS

The mount comes with setting circles that you can use to move from target to target. This feature, nice as it is, is primarily for old-school observers. I am comfortable with star-hopping because, like many imagers, I already have memorized the locations of the wide-field objects I want to shoot.

Vixen designed a lightweight dedicated tripod for the GPD2, which it calls the HAL 130 Aluminum Tripod (\$249 from Vixen). Make sure you also order the Triangle Accessory Tray (\$34.95 from Vixen) that bolts to the legs. Not only does this provide a handy place to store items in use, but it also stabilizes the legs considerably. And if you want the ultimate in stability, place a reasonable weight in the tray. I use a small bag of sand that weighs 10 pounds (4.5kg).

The GPD2 has an internally illuminated polar-alignment scope that lets you set the day and hour by turning the entire R.A. assembly. I fine-tuned this device by careful drift-aligning and then loosened the appropriate set screws and made sure Polaris (Alpha [α] Ursae Minoris) was where it was supposed to be for that particular time and date.

Now all the dials work as a "computer" to calculate where Polaris should be at any time and date. All I have to do is adjust the mount until Polaris is in the correct place.

I was a little disappointed that Vixen did not include the superior (in my opinion) alignment scope from the Sphinx mount series, which rotates without having to actually turn the R.A. This allows polar aligning with the mount loaded, whereas you have to turn everything attached to the mount upside down with the GPD2, which can be somewhat awkward.

Tony Hallas is a contributing editor of *Astronomy*. He writes the "Cosmic Imaging" column each month.



The author used the GPD2 mount when he took seven 2-minute unguided exposures, which he combined into this image that shows the region around Orion's Belt. He used a Canon 6D with a Canon EF 200mm f/2L IS USM telephoto lens set at f/3.2 and ISO 1600. TONY HALLAS

Clever tech

For the technically minded, the mount uses 144-tooth brass wheel gears on both axes and steel worm gears. Turning the gears by hand reveals that the action is smooth, the mark of a carefully made mount.

For low-power viewing, you don't even need the motors, but for tracking and guiding, I suggest you get the Dual Axis Motor Drive DD-3 Set (\$429 from Vixen), which includes two motors, a hand paddle, and a D-size battery pack that you load with eight batteries to make a 12-volt DC power source. Instead, I attach two alligator clips to the wire and use a small deep-cycle rechargeable battery as my power source because it provides power for a lot longer.

I want to mention one more thing about the DD-3 motor set. To attach the motors to the R.A. and Dec. worm gears, you have to remove the knobs that let you slew the mount manually. But then you can't move it manually because the motors lock both axes until you provide power.

To address this issue, Vixen has created a clever clutch assembly that disengages the motors, letting you physically slew the mount. When a large distance separates two sky objects, I prefer to release the mount clutches, move the scope to the general area, retighten the mount clutches, and fine-tune with the 32x electric slew.

Extras

The mount interfaces to equipment via two styles of plates. One is the small Universal Dovetail Tube Plate (\$18.95 from Vixen), which works well for holding anything like a telescope tube. And to make the small plate even more versatile, you can drill out

its center and recess a 1/4-20 machine bolt to allow fastening a single item like a camera. The other is the SX Large Accessory Plate (\$219) — a massive flat plate that can hold a large variety of items.

Vixen includes two counterweights with the GPD2, one that weighs 4.2 pounds (1.9kg) and a heavier one that tips the scales at 8.15 pounds (3.7kg). If you need more, you can purchase them as accessories. (An extra 4.2-pound counterweight costs \$79, and the 8.1-pound version is \$109.)

A great deal

In sum, I am more than pleased with the GPD2 mount. Its solid construction, high-quality workmanship, and careful assembly and testing represent real value for your money. This is one piece of astro-gear that should give you years of enjoyable service. ➤

PRODUCT INFORMATION

Vixen GPD2 Equatorial Mount

Motor drive: Optional with STARBOOK-S or Dual Axis Motor Drive DD-3 Set

Maximum loading weight: 35 pounds (16 kilograms)

Weight: 18.7 pounds (8.5kg)

Counterweights: 4.2 pounds (1.9kg) and 8.15 pounds (3.7kg)

Price: \$999; \$1,149 with HAL 130 Aluminum Tripod

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This picture shows the GPD2 mount with the author's typical imaging setup. TONY HALLAS

