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Sky-Watcher Star Adventurer Astro Package

Accurate, Capable, Versatile

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SKY-WATCHER
Star Adventurer Astro Package
Accurate, Capable, Versatile

By Gary Parkerson

Since we were first introduced to the Sky-Watcher Star Adventurer at NEAF 2014, *ATT* has received more requests for coverage of it – and offers to contribute that coverage – than for any other recent product. That's saying a lot. I'd made an early request for a sample, so had an opportunity to test one personally.

I'll break from tradition and start with the conclusion: Big thumbs-up! I recommend the Sky-Watcher Star Adventurer. It is surprisingly refined for a first version – elegant, functional and eminently versatile. Plus, affordable.

The Star Adventurer Astro Package includes a Latitude Base (equatorial wedge) and a Declination Bracket. This basic package is currently priced at $339US. The kit I tested also included a matching Counterweight Kit ($30US) and Ball Head Adapter ($15US). Total cost: $384US. Not bad for such a versatile bit of gear. What wasn't provided was a tripod. I mounted the one I tested on a Manfrotto 3021BN, which proved a perfect match.

What Attracted Me To the Star Adventurer

From May through December of 2014, I pedaled a bicycle from 25 to 50 miles each clear day. Training. I had visions of a cross-country ride, during which I'd stop here and there to share views of the Sun, Moon and brighter night-sky jewels. Such was my vanity. Of course, pulling that off would have required more than pedaling 50-plus miles per day – it would have required a highly-portable mounting solution for the 60-mm solar scope, 80-mm refractor, the Canon 60Da and the few camera lenses I planned to carry. Thus my interest in the Star Adventurer.

I've used mounts for wide-field astrophotography that were even more portable, including the Vixen Polarie and iOptron SkyTracker. Both are excellent, and I also recommend them without reservation. At roughly 10 pounds, including the declination assembly, equatorial wedge and counterweight kit, the Star Adventurer is significantly heavier than those ultra-portable solutions. At 16 inches from the top of the declination head to the end of the counterweight shaft, 10.5 inches from the rear of the mount to the front of the declination head, and 3.75 inches at its widest point, the Star Adventurer is also significantly larger when assembled, although it breaks down into a compact package. In trade, it offers a couple of aspects I thought would be particularly useful on that bicycle adventure.

First, it's configured like a conventional German equatorial mount. Indeed, it is a conventional GEQ, just smaller and more modular than most. I like to explain to those who are experiencing their first telescope views that equatorial mounts are just big clocks with the RA axis aligned parallel to Earth's polar axis. I can do that with a Polarie or SkyTracker, but the longer physical RA assembly of the Star Adventurer provides a more obvious visual representation of the RA axis. Even when sharing views of the Sun, my standard narrative includes: "You can't see it in daylight, but the star Polaris is right about there. Earth's pole is aligned to a point very close to Polaris, so the main axis of this mount is also pointed to that point." Some guests even pretend interest in such things, when what they're probably thinking is, "Let me see the Sun, already!"

Image 1 - The Star Adventurer is a surprisingly refined mount for a first version – elegant, functional and eminently versatile.

Second, the Declination Bracket has an internal worm/wheel assembly driven by a slow-motion knob for tweaking Dec alignment. I rarely achieve close polar alignment when setting a mount up in daylight to view the Sun. The slow-motion control of the Star Adventurer made it easy to correct for the in-

Image 2 - Green arrows indicate the RA and Dec clutch-adjustment rings.

Image 3 - The Star Adventurer equatorial wedge.

Image 4 - The Star Adventurer declination assembly disassembled.

evitable drift, however slight – much easier and more accurate than the course movements of a standard camera ball head.

Of course, when I could see Polaris, I used the Star Adventurer's included polar-alignment scope to get alignment very close, then a standard drift-alignment routine to get it even closer. The included equatorial wedge made fine tuning altitude and azimuth alignment quite easy.

Key Features of the Star Adventurer

Both axes sport clutches controlled by large, lobed rings (**Image 2**). I locked them down for imaging. For visual work, I tensioned them just enough to allow the RA drive and Dec knob to move whatever the payload, while still allowing me to hand slew the scope from target to target. Both clutches were smooth. Achieving suitable tension was never a problem.

The equatorial wedge is topped by a standard Vixen-style saddle that accepts the short

Image 5 - Removing a press-in cap reveals the front of the built-in polar-alignment scope.

Image 6 - Removing a coned-shaped cover from the rear of the scope exposes the eye end of the polar-alignment scope.

Image 7 - The kit includes a red-LED reticle illuminator, which presses into the front opening of the built-in polar-alignment scope

dovetail on the bottom of the mount (**Image 3**). A large thumb knob adjusts altitude via a worm section, and a lever locks altitude down once set. Twin thumb screws push on a post in the wedge base for fine adjustment of azimuth, and two cap screws lock the azimuth assembly down. A built-in bubble level aids in set up. The wedge attaches to any tripod that has a 3/8-16 mounting screw and accommodates an altitude range of zero-to-75 degrees.

The declination assembly (**Image 4**) is simply a specialized dovetail rail that attaches to the RA axis of the mount via another Vixen-style saddle, which accepts any compatible dovetail rail. The Dec drive head attaches to one end of the Dec dovetail with two stainless-steel cap screws. The counterweight bar screws into the other end. The Dec dovetail has a slot milled along enough of its length for clear viewing through the mount's built-in polar scope. The Dec dovetail also has two 3/8-16 mounting screws near each end for mounting ball heads, making the assembly capable of carrying two cameras.

Removing a press-in cap revealed the front of the polar-alignment scope centered in the RA axis (**Image 5**). Removing a cone-shaped cover from the rear of the mount exposed the eye end of the polar-alignment scope (**Image 6**). The engraved reticle focused sharply. There's even a free, third-party *Polaris Finder* mobile application to assist with polar alignment. The kit I received included a red-LED reticle illuminator that featured adjustable brightness (**Image 7**). It worked well.

The mount can be powered internally by four AA batteries accessed by removing the snap-on cover from the top of the mount (**Image 8**), or by a 5-volt DC mini-USB port located on the bottom left side of the mount (**Image 9**). I did not record how long a set of four AAs lasted, but it was a long time. The left side of the mount also hosts an auto-guider port (which I did not use), a function switch for setting the mount to southern-hemisphere and northern-hemisphere modes, as well as to its time-lapse mode. There is a "snap" port for camera-shutter control and left and right buttons for motorized slewing of the RA axis at ap-

Image 8 - Four internal AA batteries are accessed by removing the snap-on cover from the top of the mount.

Image 9 - The left side of the mount features a mini-USB power port, and auto-guider port, a "snap" port for camera-shutter control, a switch for setting the mount to southern-hemisphere versus northern-hemisphere mode or for time-lapse mode, and left and right buttons.

Image 10 - A mode dial is located on Star Adventurer's right side.

Image 11 - The top of the Star Adventurer includes handy charts that summarize the mode-dial versus function-switch settings.

proximately 12 times the celestial-tracking speed.

The mount's mode dial is located on its right side (**Image 10**). Settings include OFF, celestial tracking indicated by a star symbol, solar tracking indicated by a stylized solar symbol, and lunar tracking, indicated by a crescent Moon. There is also a 48-hour tracking rate indicted by a "0.5X" symbol. Those four tracking rates enable full 360-degree tracking, as distinguished from the "2X," "6X" and "12X" settings that pan to and fro across a 60-degree span.

When the mode dial is set to celestial tracking and the function switch is set to "time lapse," the snap port controls camera-shutter interval at 50 seconds. When the dial is set to celestrial and the switch to north or south, the shutter interval is 100 seconds. The time-lapse versus north or south switch settings also set shutter intervals at 7.0 versus 14 seconds for the solar-tracking rate, 10 versus 20 seconds for the lunar tracking rate, 15 versus 30 seconds for the 48-hour tracking rate, 3.0 versus 6.0 seconds for the 2X (60-degree) rate, 2.0 versus 4.0 seconds for the 6X rate, and 1.0 versus 2.0 seconds for the 12X rate. That's a lot to remember, so the top of the mount includes handy charts that summarize it all (**Image 11**).

Image 12 - The included ball-head adapter allows replacement of the declination assembly with a standard camera ball-head mount.

The kit I received also included a ball-head adapter (**Image 12**), a short section of dovetail rail topped with a 3/8-16 mount screw for replacing the declination assembly with a standard camera ball-head mount. For panning time-lapse sequences along the horizon, I replaced the 3/8-16 screw of the ball-head adapter with a 1/4-20 camera-mount screw so I could attach a DSLR directly to the RA axis. Although the equatorial wedge tops out at an altitude of 75 degrees, I cheated by extending the northern tripod leg until the RA axis pointed directly at zenith (**Image 13**). I loaded the extended leg with a sandbag weight to keep the mount from tipping over. I could have as easily put a ball-head between the camera and adapter, but preferred eliminating that source of flexure when panning time-lapses along the horizon. This arrangement gave me the option of panning horizon time lapses of either 60 degrees or a full 360 degrees. Very cool!

Using the Star Adventurer

My first actual use of the Star Adventurer for was carrying a Coronado SolarMax 60 for sharing views of the Sun at a local festival (**Image 14**). The setup proved admirably sta-

Image 13 - Although the equatorial wedge tops out at an altitude of 75 degrees, the northern tripod leg can be extended until the RA axis pointed directly at zenith for panning of time lapses along the horizon (Image 13). Weight the northern leg to keep the mount from tipping over.

Image 14 - Star Adventurer shown carrying a Coronado SolarMax 60 for visual observing.

ble, even at higher magnifications. I also used the mount for visual observing with an 80-mm refractor of modest focal length. Both applications were delightfully intuitive. I set the tension of the clutches just so and hand-

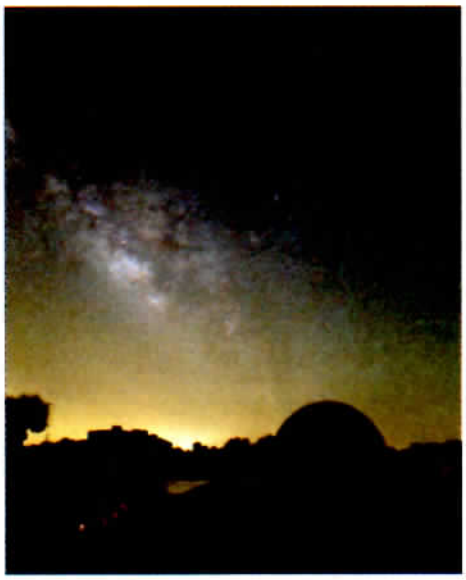

Image 15 - This ultra-wide field image of the Milky Way, a single 30-second exposure, was captured by Richard Wright using his Star Adventurer.

Image 16 -The collection of components that comprise the Star Adventurer Astro Package (plus counterweight kit).

slewed the mount to whatever was my desired target, then let go and let it track while I enjoyed the views. Repeat, enjoy, repeat, enjoy – I could spend whole nights (and days) enjoying views provided by those simple observing setups.

ATT reports of imaging accessories – and the Star Adventurer is very much an imaging accessory – normally include some of the better images captured with that accessory. Unfortunately, I shot time lapses before symptoms of a recent health issue included vision anomalies that made wide-field imaging too tedious to enjoy, and these print pages are a poor place for displaying time lapses. Never fear, I had lots of fun exploring the time-lapse capabilities of the little mount! It's worth the price of admission for that functionality alone.

Fortunately, frequent ATT contributor, Richard Wright, had also ordered one of the mounts, which says a lot for the Star Adventurer. Richard works for Software Bisque and has one of each of its incredibly-capable mounts, but even the smallest of Bisque's mounts is overkill for the ultra-wide field imaging for which the Star Adventurer was designed (not that Richard doesn't use them for that on occasion).

Richard sent along a couple of the earliest images he captured using the Star Advanturer, one of which is shown here (**Image 15**). Richard's accompanying note included: "What can I say about it? For one thing, you need a sturdy tripod. I had a lightweight tripod and heavy-duty tripod, and the lightweight just can't do it. My heavy-duty tripod is really big and not very portable, so I ended up buying an in-between tripod that is still portable enough, but beefy enough to keep the head still after I did the polar alignment. The image is only 30 seconds of data, but it was captured on the Star Adventurer, and it does make a difference, even at only 30 seconds."

Back to the Conclusion

Someday soon, I hope to have access to a daily blog in which I can post time lapses, videos and such, and to which I'll also post any static wide-field images I manage to capture with the Star Adventurer as improving circumstances allow. I've only begun to test its capabilities. Meanwhile, I consider the collection of components I received from Sky-Watcher USA (**Image 16**) a lot of kit for $384US.

Its graceful lines make for an elegant little contraption and, not to belabor its affordability, I'm impressed with its fit and finish given its price point. Although I did not test it to the limits of its claimed 11-pound payload capacity, I'm satisfied it is capable of every bit of that, subject, of course, to the capabilities of the tripod that carries it. Something in the class of the Manfrotto 3021BN I used should also serve you well. Set it up properly, and it's the perfect companion for minimalist visual observing, wide-field astrophotography and time-lapse capture.