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Smaller, Lighter but Not Limited: SkyWatcher Star Adventurer Mini Tracker Review

By: Alan Dyer

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The SkyWatcher Star Adventurer Mini is a capable tracking mount for all but the largest lenses. Credit: Alan Dyer

After its success with their popular Star Adventurer sky tracker, Sky-Watcher brought out the Mini version, to serve those looking for a lighter, smaller travel tracker, and with unique time-lapse capabilities lacking in the original Star Adventurer.

Here I test a late-model Mini, sporting the current white and green Sky-Watcher livery. While the cosmetics have changed since its introduction, the Mini has always been an excellent tracker for anyone who values portability. The Mini is roughly the size, shape and weight (at 800 grams) of a camera lens.

Note: Orion Telescope's Starshoot Compact Astro Tracker appears similar to the Mini, but I have not tested an Orion CAT.

Extreme blow-ups of two frames with an 85mm lens showing the tracking accuracy extremes out of 100 frames.. Credit: Alan Dyer

Testing Tracking Accuracy

The smaller the tracker, the smaller the tracking gears, with the potential for decreased tracking accuracy. If the gears wobble back and forth, stars will be trailed, just what a tracker is supposed to eliminate.

In testing a unit I bought from Amazon in May 2021, I was delighted to find superb

tracking accuracy. Shooting with an 85mm telephoto lens, out of 100 one-minute exposures all but four were perfectly tracked with pinpoint stars. The four with errors showed only the slightest degree of trailing (one is shown above) that takes pixel peeping to reveal.

While the Mini will be usable for lenses up to 135mm to 200mm focal length, the longer the lens the more frames will show some trailing. Unlike the larger Star Adventurer 2i, the Mini has no auto-guider port. If you are serious about deep-sky shooting, use the 2i that I tested here or better yet, a full-sized equatorial mount like the Sky-Watcher EQM-35 I tested here.

The Mini is best suited for wide-angle images and nightscapes, applications where I've found the Mini to be entirely reliable. Every shot worked and was a keeper.

The basic Star Adventurer Mini is mounted on a tripod head (left) but using a three-axis head is a good option for ease of precise polar alignment. The Pro Pack comes with the solid EQ Base (right), which has its own fine adjustments for polar alignment. Credit: Alan Dyer

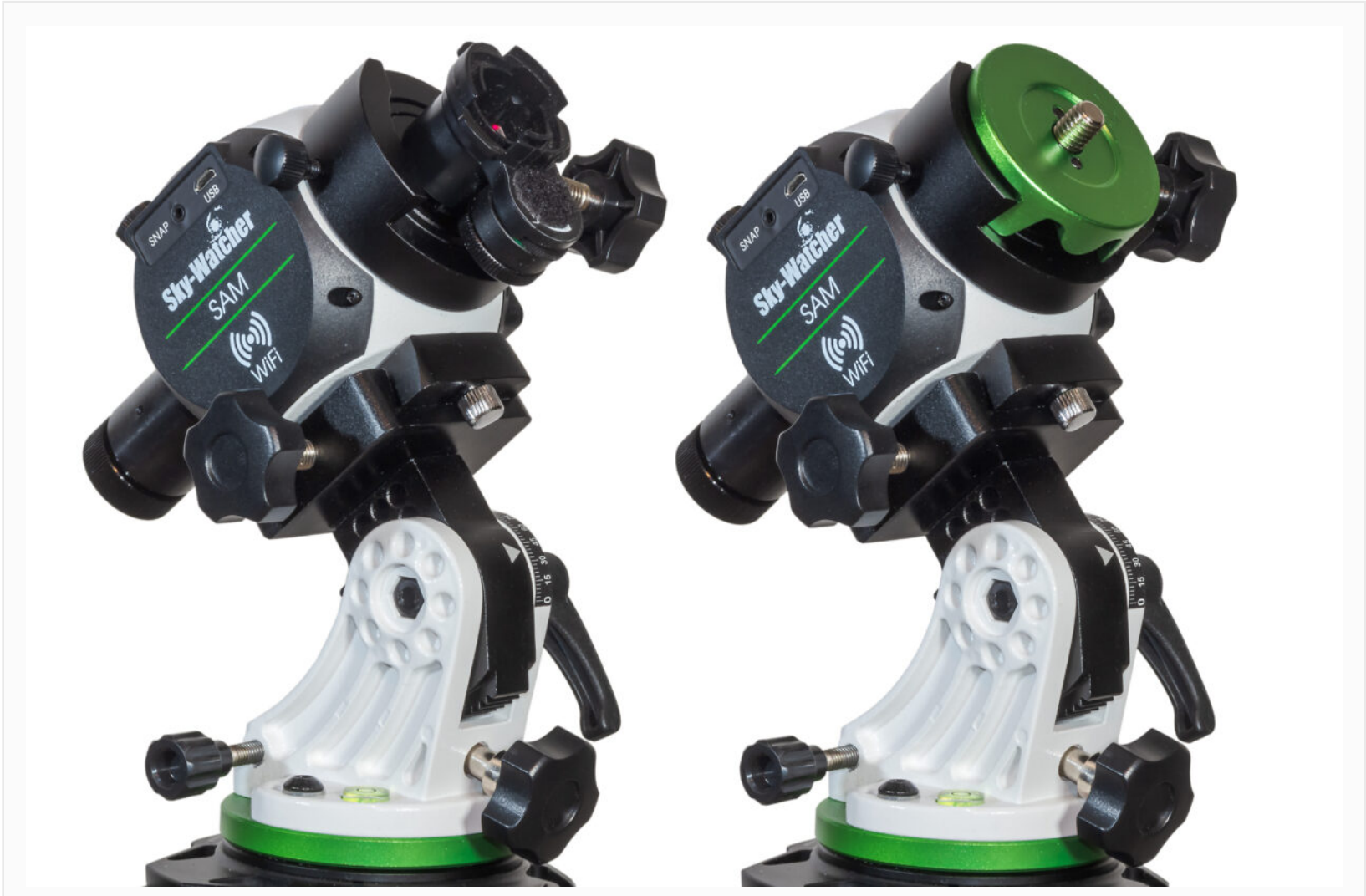
Aligning the Mini

The Mini comes with an excellent optical polar alignment scope that clamps securely into the polar axis, but can be removed when using the Mini for time-lapse shooting, or for transport. Unlike other trackers that use polar scopes mounted "outrigger" fashion, the Mini's scope aims straight up the polar axis, so there is no concern for it not being "orthogonal" to the actual mechanical rotation axis.

Polar alignment accuracy proved to be spot on, provided I put Polaris at the right place on the reticle as indicated by the app. The polar scope's reticle has a circle for placement of Polaris, and a pattern for placement of the circlet of stars near the Southern Hemisphere pole star, Sigma Octantis.

Hemisphere pole star, Sigma Octantis.

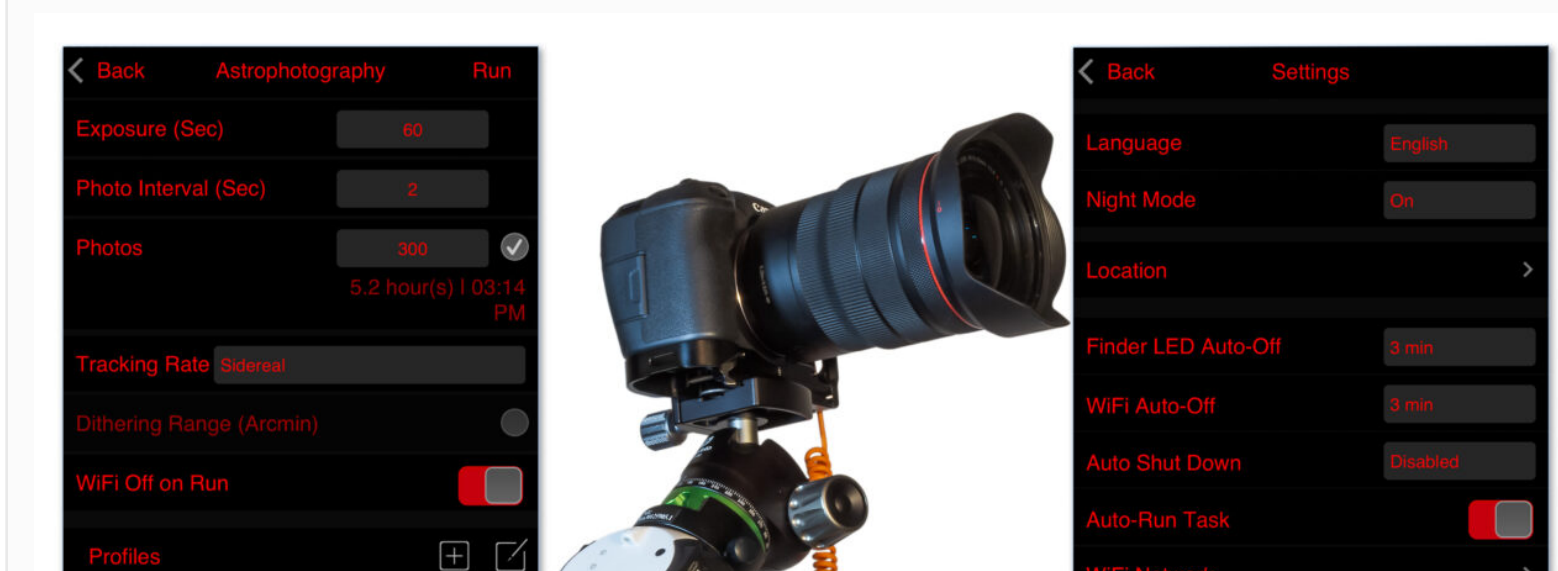
My complaint, shared by many, is that the polar scope has no built-in illuminator. As with the bigger Star Adventurer, the illuminator is a separate plastic device the clips onto the front of the tracker's polar axis to light the field, not the reticle. It works fine, but is an item easily lost and a nuisance to pack.



Seeing the polar alignment reticle requires the included illuminator (left), which has to be removed before the ball-head adapter plate goes on (right), blocking the polar scope's view of the sky. A ball head, as shown in other photos, is user-supplied. Credit: Alan Dyer

The co-axial polar scope, while accurate, has the disadvantage that polar alignment can't be done with the camera in place. Mounting the camera after alignment risks jogging the position of the Mini.

Buying the Pro Pack bundle gives you a Declination Bracket which does allow sighting thru the polar scope with a camera attached. But it's more weight to pack and for the Mini to move, and risks potential imbalance unless the optional $30 Counterweight Kit is also added. I prefer to keep the Mini basic and light, to retain its forte.



The SA Console app's various modes (Astrophotography is at left) allows setting exposure time, interval and frame count, plus saving combinations as user presets. The Settings page (right) has the option for Auto-Run Task, avoiding app use each night. Credit: Alan Dyer

Programming the Mini

The Mini has one control – an on-off button – plus two indicator lights, for power and WiFi. All adjustments to settings have to made via the wireless SA Console app for iOS and Android.

When turned on the Mini generates a WiFi signal you connect your device to. I found it connected without issue every time. Launch the app and you can now program settings for each of the various tracking and time-lapse modes, which are explained in the thorough manual. Once a sequence is running your phone is no longer needed. In fact, the WiFi can be set to turn off once a sequence starts, saving battery power.

The Mini can trigger a camera shutter via its SNAP port. That's essential for time-lapse shooting at night where the motion from frame to frame should occur only between exposures when the shutter is closed, in a move-shoot-move sequence.

When set up vertically in time-lapse mode using the included base

plate, the Mini can be programmed to turn left or right (left screen) as it takes a set of time-lapse frames. Astro Time-Lapse (right) tracks, then resets to the start point for the next image. Credit: Alan Dyer

I tested the time-lapse functions of the bigger 2i model in my previous review, and a sampling of movies can be viewed here. Because the Mini offers all the same functions, I won't dwell on them further here, other than to say for time-lapse work the Mini is the better choice than the 2i, as the Mini can be mounted vertically more easily for panning time-lapses, and is more compact for trekking to remote scenic sites.

Auto-Run Task Trick

As a conventional tracker the Mini is subject to criticism by some reviewers because of the apparent need to program an app just to get the tracking going. But you don't have to do that every night.

All that needs to be done is to program in a preset sequence of several hours worth of exposures. Select Auto-Run Task in the Settings menu, then tell the Mini to Run that sequence. From then on, every time the Mini turns on it will automatically start that sequence going. It will track for as long as you've told it to, with no app required.

The two AA batteries (right) last a couple of nights, or the Mini can be powered from an external 5-volt battery via the micro USB port (left). The SNAP port accepts a 2.5mm plug, a standard for intervalometer cables. A camera cable specific for your camera's remote shutter port must be purchased separately. Credit: Alan Dyer

To control the camera, you can connect it to the SNAP port if you wish, and that works very well. But for just sky tracking, I find it easier to use a separate intervalometer. That way exposure times and intervals can be changed on the fly without having to deal with the WiFi connection and app. Used with Auto-Run, the Mini is just as easy to use as any non-WiFi tracker.

The exception is traveling to another hemisphere, as the Mini gets its direction of rotation via the location information from your phone. There's no hard-wired N-S switch. But even there, a sequence need be entered only once, with Auto-Run taking care of the rest from that point on.

A Mini (left) accepts the same accessories as the larger Star Adventurer 2i (right). The Mini's Pro Pack includes the Latitude EQ Base and Declination Bracket, but not the Counterweight kit shown. For most uses the Declination Bracket will not be needed. Credit: Alan Dyer

For deep-sky shooting with bigger lenses I prefer the bigger Star Adventurer 2i. For nightscape use with wide-angle and short telephoto lenses I prefer the Mini, just because it is easier to cart around in the field.

If you are looking for a small, low-cost star tracker I can recommend the Star Adventurer Mini.

Plus: Accurate tracking in a compact unit
Minus: Separate easily-lost polar scope illuminator

MSRP: $300 ($380 with Pro Pack accessories: EQ Base & Declination Bracket)
Website: https://www.skywatcherusa.com

About Alan Dyer

http://www.amazingsky.com

Alan Dyer is an astrophotographer and astronomy author based in Alberta, Canada. His website at www.amazingsky.com has galleries of his images, plus links to his product review blog posts, video tutorials, and ebooks on astrophotography.

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