

REVIEWED

SKY-WATCHER SOLARQUEST SOLAR GOTO TRACKING MOUNT

Sky-Watcher's Sun-seeker



■ The SolarQuest mount comes with a Sky-Watcher tripod and extendable pier. Image: Sky-Watcher.

At a glance

Mount height: 80.5–152cm
Mount head weight: 1.3kg
Tripod/mount fitting: 3.8-inch screw
Saddle mount: 45mm Sky-Watcher/Vixen dovetail
Payload capacity: 4kg
Tracking: Dual-axis mode
Slew speeds: 1,200× in search mode, 16× fine correction
HelioFind technology: Solar sensor using four photodiodes, with 'auto drift' correction, location/time facility, built-in GPS
Total weight (including tripod): 4.05kg
Power requirement: 12V; either eight AA batteries or an external power supply (tip positive)
Details: opticalvision.co.uk
Price: £339

It may be winter, but that doesn't stop solar observers from coming out to play, and now they have a great new toy to play with, writes **Steve Ringwood**.

Solar observation is a field of study that is really taking off. Freed from the shackles of indirectly viewing the Sun using eyepiece projection, solar observers are Sun-gazing with affordable and safe white-light metallised filters, ceramic Herschel wedges and narrowband solar instruments, all of which reveal immense detail on the Sun's disc.

Setting up a suitably equipped telescope for solar observation is relatively easy, since there's no struggle in finding the target. Tracking the Sun for continuous observation is another matter, for the blue-bleached sky possesses no Polaris for a portable mount to polar align itself with.

This is the problem that Sky-Watcher's new SolarQuest mount addresses so elegantly. The SolarQuest comes with its own Sky-Watcher adjustable tripod and extension pier (the latter to ensure that a solar telescope does not foul the tripod legs when in operation). The mount itself, weighing just 1.3 kilograms, sits securely on the pier-head. Whether choosing to sit or stand, the observer can adjust the mount's height between 80.5 and 152 centimetres. Full assembly took just a few minutes before waiting expectantly for my instrument of choice.

The mount itself, sporting a 45mm Sky-Watcher/Vixen-type dovetail saddle, has a maximum payload capacity of four kilograms, easily handling the 1.4-kilogram Coronado Personal Solar Telescope (PST) that I used for this review. Power for the mount is provided by eight AA batteries, secreted within the mount's base. There's also a swap-in panel to the battery compartment, allowing the alternative of a 12V external supply. However, power consumption is quite low and I found that my fresh batch of AA batteries were more than adequate provision during some quite extensive testing. In passing, it was good to see that the battery leads were secure and of suitable gauge. Too many times have I experienced the breaking of a battery holder's poor-quality leads from their soldered contacts when installing batteries.

Tracking the Sun is a problem that Sky-Watcher's new SolarQuest mount addresses so elegantly

Simple deployment and operation belie the presence of some pretty clever engineering and software within the SolarQuest. Even at my first attempt I was observing the Sun within a minute of setting up the tripod on the lawn.

Powering up

You are directed by the included guide to place the tripod such that your solar telescope is pointing a little to the east (left) of the Sun. Taking care to level the mount using the small bubble-level at the mount's apex, it is simply a matter of pressing the power button on the small control panel and then stepping back.

The mount first brings the telescope to a horizontal position, then spends a moment thinking. During this pregnant pause, the onboard GPS system is discovering its time and place. From this, it calculates the Sun's elevation and raises the telescope's aim accordingly. The mount then slowly rotates in azimuth towards the west and a waiting Sun. This is where the mount's 'HeliFind' system comes in, for keeping an eye on proceedings is the SolarQuest's 'magic eye' – a Sun sensor utilising feedback photodiodes that capture the exact location of the solar disc with unerring accuracy. Aligned with the dovetail saddle gripping the solar telescope, this electronic targeting sensor seeks out the arrival of the Sun in its field of vision and brings the slew to a halt when its prey is centred. That is all there is to it, for once found, the Sun is kept in the eyepiece field by the mount's tracking system.

Of course, the dovetailed attachment of a telescope may not always be in perfect clamped alignment with the sensor, meaning that although the HeliFind will have the Sun centred, your telescope may not. Thoughtfully, the SolarQuest provides adjustment via a sliding eight-directional button on the control panel that allows beautifully smooth 16× fine adjustment. Once the Sun is satisfactorily pinioned in the eyepiece field, the mount is able to store this manual offset to keep its target centred. The 16× slow-motion button also, of course, provides eyepiece field control when observing at higher magnifications.

Challenging SolarQuest

The instructions implore you to initiate power-up (and hence, the search phase) with the telescope pointing a little to the left of the Sun. With pure curious devilment, I thought I might challenge the mount by pointing the telescope to the right of the Sun instead, thinking it might throw a malfunctional fit or something. Yet, after the initial raising of the telescope's aim to the correct altitude, it panned westwards as before, but simply kept going in almost a full circle until it approached the Sun from the east. The HeliFind system alighted on our parent star with the same uncanny accuracy as before. The entreaty to set the telescope to the Sun's left (eastwards) is therefore really nothing more than a measure to save power and the gears.

■ The Sky-Watcher SolarQuest mount, with HeliFind technology. The battery compartment can be seen on the side. Image: Sky-Watcher.



■ Observing the Sun with a Coronado PST, a 12mm Cemax eyepiece and a 2× Barlow lens. Image: Steve Ringwood.



■ The SolarQuest's control panel, showing the eight-way fine adjustment button. Image: Steve Ringwood.

■ The HelioFind Sun detector is aligned to the dovetail saddle. Image: Steve Ringwood.



■ The 46mm dovetail saddle and the rather diminutive bubble-level. Image: Steve Ringwood.



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I do not (and, to be fair, neither do Sky-Watcher) recommend carrying out the initial seek and find, or perhaps even general solar observation, when the Sun is playing peek-a-boo with broken cloud. The initial panning clockwise may reach the Sun when it is obscured, forcing the mount to miss its target before continuing its westward search for the Sun's intensity. Or worse, it could lock onto a proximal mis-identified thinning of the cloud just off-axis. However, on one occasion during review, when HelioFind was battling scudding clouds, the mount passed the Sun's position just as its searing disc was emerging into a patch of blue sky. Impressively, the mount noticed, reversed track and (with only minor back and forth affirmations) 'caught' the Sun unawares from the other direction!

I had only one minor irritation – and it was no fault of the SolarQuest, as such. This was that when using my dovetailed PST, the observing position was blind-sided to the mount's control panel. Thus a touchy-feely familiarisation was required when using a free hand on the fine control during observation, but a little practice soon solved that.

Although there is a three-axis auto-levelling detector within the mount body, I also took great care to level the mount at set-up, since I surmised that this at least assists the mount's search and tracking performance. Sitting at the cusp of the mount, the rather undersized 7.5mm green disc of the bubble level provided for this purpose goes almost unnoticed, let alone the tiny 2mm capsule of air used as its indicator. There seems plenty of room at this location for a larger, higher-resolution bubble level and I urge this improvement be made in the mount's next incarnation.

Having said this, a tracking-duration test I carried out had the Sun still at the centre of an eyepiece field after 40 minutes without my intervention (and that included interludes of cloud cover too!). Whether this is testament to the unsuspected abilities of the undersized bubble level itself, my talent in reading it, or the built-in three-axis self-levelling tilt sensor, it is difficult to say. In any case, so long as there is an untroubled clear sky, SolarQuest's 'auto drift' correction will keep the Sun's disc locked rock steady in its gaze for as long as it has the power to do so. From moment to moment, it simply will not let the Sun go. Even with a 12mm eyepiece and a 2x Barlow at 67x magnification, I could discern no drift or hesitant motions at all. It was very impressive for what is essentially a small, compact mechanism.

This mount scores on portability, accuracy and speed of deployment. As to the last, I can attest that leaving the tripod legs extended and a solar telescope close at hand means that you can be observing solar detail within a minute of the Sun breaking cover. I have no qualms at all in recommending this wonderful little beast to both casual and intense solar observers. In fact, I might even stretch a point to suggest that if the HelioFind technology could be supplied with two sensitivity settings, its principles could be pressed into making it a superb lunar tracking mount too!

■ The SolarQuest and the Coronado PST in action. Image: Steve Ringwood.



Steve Ringwood is a regular contributor to *Astronomy Now*.