Sky-Watcher EQ3 Pro SynScan GO

Nick Howes investigates what could be the ultimate compact imaging rig to take to a star party, and falls in love with portability.

If like me you love the appeal of a star party but loath the prospect of stripping down your carefully polar aligned home observatory set-up to take it to what is usually a cold field in the middle of nowhere, then the thought of getting a second set of kit specifically for star parties will have crossed your mind. The problem then usually becomes one of cost and portability. Owning a second complete imaging rig, and trying to replicate what you have at home, can run up to thousands of pounds, and for what is usually only a few weeks each year at the Kellings and Kielders dotted around the country.

I wanted something that could replicate the level of functionality and ease of use of my EQ6 Pro mount, but packaged in an ultra portable form, one that could take a small pair of refractors for imaging deep sky objects, and my Solarscope/Modified PST set-up for daytime imaging of our nearest star. Bring on the EQ3 Pro SynScan.

The mount itself comes pretty much ready to go out of the box, with aluminium tripod legs and a spreader/storage space for your eyepieces that fixes onto the main mount, using the same bolt and lock mechanism that users of an EQ6 or HEQ5 will be familiar with. In fact, so much of this mount is the same that it's like some Lilliputian version of its larger siblings, and one that covers all the same bases.

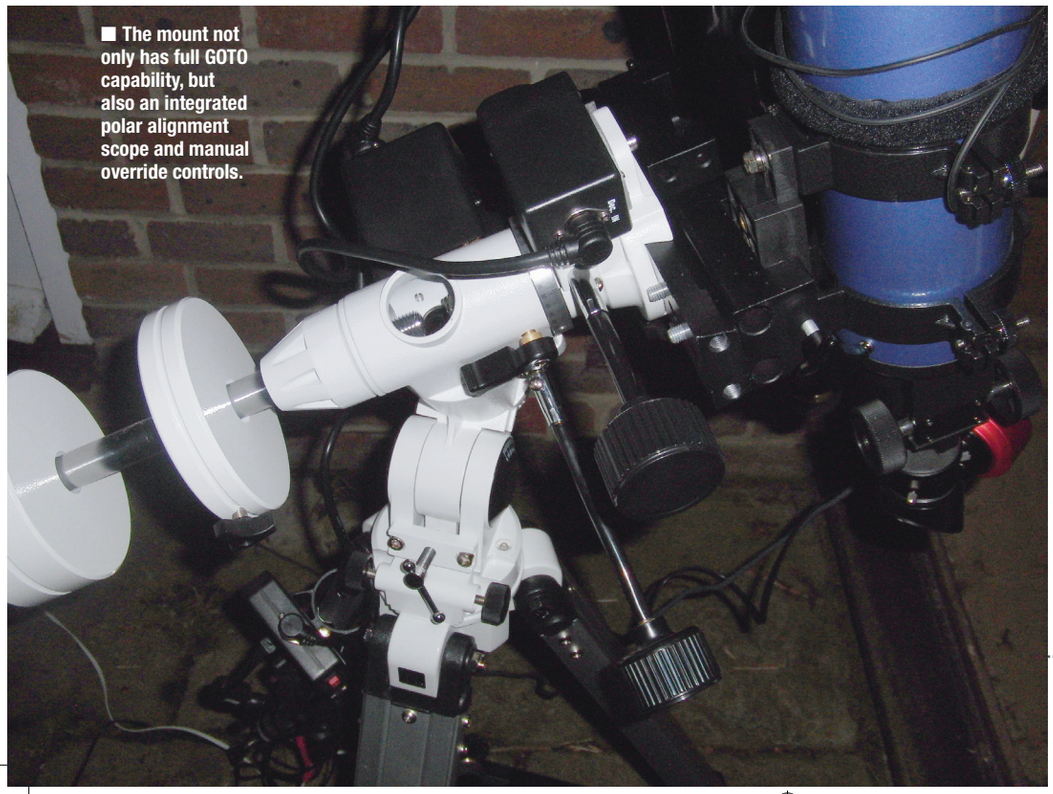
An integrated polarscope, marked up in the same way as the EQ6 one, shows the level of thought that has gone into this mount. The polarscope alignment is almost identical to the EQ6 and, once set, the mount will track objects all night long even without the use of computers, keeping them firmly in the middle of a 9mm eyepiece for hours on end. The latitude adjustment bolts may be smaller than those on the EQ6, but work surprisingly well and allow you to easily set your latitude with the graded figure on the side of the mount.

The mount is fully GOTO compatible, using the same SynScan handbox that accompanies the HEQ5 and EQ6 (although the cable connection is not the same as the EQ6) and featuring an upgradeable firmware operating system that allows such niceties as periodic error record and playback, pointing accuracy of one arcminute and an in-built 43,000-object database.

The mount is supplied with all the Allen keys and tools needed to put it together, and once set up I found it to be incredibly sturdy given its size. Two counterweights are provided, which will balance telescopes up to around a four-inch f/8 refractor. This in practice pans out to around seven-kilogram load capacity for visual work. If one were imaging deep sky objects, I would recommend aiming lower than this. The aluminium legs don't provide a sturdy platform for the mount's control unit, as it is designed to be clipped onto tubular steel legs, but some Velcro soon resolves that issue.

Familiar feel

Once you have connected the control unit cables (two clearly marked RA and Dec ports) and then linked up the handbox (or not – more later) the mount fires up with the reassuring familiarity of an old friend. All of the standard SynScan options for location/date/time and up to three-star alignment are there, and I found that whilst not as quiet as the EQ6, it was not in the same noise league as some other mounts when it comes to slewing to alignment stars. With a rough polar alignment, it placed all of my three alignment stars in the field-of-view of a 26mm eyepiece, some almost dead centre, and thereafter GOTO accuracy was simply amazing for a mount of this size and cost. It hit every one of the ten or so targets with the aforementioned 26mm eyepiece.



■ The mount not only has full GOTO capability, but also an integrated polar alignment scope and manual override controls.

■ The brains of the EQ3 mount, including the handbox and standard ST4 autoguider ports. All images: Nick Howes.

OTO mount

■ The author's star party rig consisting of a side-by-side 66mm and 80mm refractor imaging system, and the guide camera connected directly to the mount.

My 'pocket' imaging rig consists of a William Optics ZS66 mounted on an Ambermile MM3D short Vixen bar, side by side with a Sky-Watcher ST80 guidescope. This has a QHY5 guide camera fitted (eliminating some cables and the need for a separate autoguider interface), alongside my Atik 314L mono camera/DSI-III OSC camera/EOS10D wide-field camera or Meade LPI used for spectroscopy, all of which drop onto the WO66 telescope. Adjusting the mount balance for each set-up is a two-minute job, and the clutches hold everything solidly into place.

Sky-Watcher also provide manual slow motion controls alongside the GOTO, so if you fancy a night of completely un-powered observing the mount will do this, a neat touch for those occasions when the battery pack runs out.

What sealed the deal for me with this mount though, was that I bought it without the handbox (I have one already with the EQ6). Why? Well, for a mount that in my case came in at under £300 (without the handbox), I have the ability to completely control the mount from a netbook using the free EQMOD software platform (see *Gear heads*, *AN*, December 2009) and the equally free *Cartes Du Ciel* planetarium application alongside the ASCOM drivers. I ran the handbox as a relay system to EQMOD in the absence of a suitable EQDIR interface to connect to the PC, but it worked from the start.

Now, this sub £300 mount had become a guideable (and looking at the guide graphs, whilst not quite as smooth as the EQ6, they were peak to peak within limits for good deep sky imaging), 0.144-arsecond accurate pointing behemoth that I could set up for multiple alignment points and do all of the other fantastic things that EQMOD allows. Combine it with a netbook and you have something that really does punch well above its weight, and that I can lift in and out of the observatory with one hand. If you treat the weight limits with respect (and in my set-up's case, it's about four kilograms in total), then this tiny set-up, which can break down to fit easily into a suitcase for travelling (eclipses and special events), has the potential to revolutionise the portable astronomy market. Whilst other products exist for the travelling astronomer, this one seems to have it all.

Nick Howes is the Equipment Consultant for Astronomy Now and Technical consultant for the GEO Observatory in Spain and Wiltshire Astronomical Society.

■ From this extreme close-up on a star in the globular cluster M3, and the cluster itself, we can see that the autoguiding on the EQ3 works perfectly. Imaged with a W066 telescope and QHY5 on an ST80 as a guide camera.