

GROUP test

Making tracks

Travel in search of dark-sky astrophotography locations with a portable tracking mount

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Astrophotography has become a very popular aspect of astronomy, but not an easy part. The long exposures required for deep-sky imaging means that your equipment has to be able to track the sky very accurately and the need for dark skies can often mean imaging away from your home.

Shorter focal-length telescopes place fewer demands on your mount's tracking abilities and can result in wonderful wide-field images, but even a humble camera lens is capable of capturing breathtaking vistas. If light pollution is a problem where you live and carting all your bulky equipment out to a dark location doesn't appeal to you then the compact and lightweight tracking mounts in this *Group test* should really interest you.

These four mounts all have two things in common: they have been developed with DSLR camera-and-lens photography in mind, and the manufacturers have dispensed with the complexities of Go-To systems to offer an elegant tracking solution that tracks the sky in right ascension (RA) only. If your mount is correctly polar aligned, then tracking in RA is all that is required to follow the movement of the stars across the heavens as Earth rotates about its axis.





How we tested

The four tracking mounts were tested using the same criteria: **assembly, build and design, ease of use, stability** and **tracking accuracy**. These criteria were given a percentage rating and the average was taken to give an overall score. The features we looked at included:



Accuracy

These mounts are designed to enable high-quality, long-exposure images of the night sky, so tracking accuracy is paramount to avoid elongated star shapes. We used a typical DSLR camera and a 200mm lens for this evaluation.



Assembly

With the likelihood of these mounts being used on holiday – when time is even more precious than at home and tools are less readily available – we tested the ease of setting up and balancing the equipment for an imaging session.



Construction

Fine engineering is required to produce a lightweight, portable and accurate tracking platform. We examined the quality of the materials, workmanship and finish of each mount, awarding extra points for innovation.



Polar alignment

An accurate polar alignment is key to success when observing with an RA-only driven mount. We tested the quality of the polar scope, how difficult it was to calibrate and how easy it was to align with the north celestial pole.



Portability

The idea behind these mounts is portability. We checked the size and weight of the mount head and its suitability for taking aboard an aircraft. We also checked how robust the equipment was to assess if it would withstand the rigours of transport.

Losmandy StarLapse

VITAL STATS

- **Price** £649
- **Hand controller** Yes
- **Polarscope** Optional extra (£169), illuminated
- **Load capacity** 13.5kg
- **Tracking rates** Sidereal and solar, plus seven slew rates
- **Weight** 4kg with mounting accessories
- **Extras** A range of camera-mount hardware
- **Supplier** Widescreen Centre
- **Tel** 020 7935 2580
- **www.widescreen-centre.co.uk**

THE STARLAPSE IS essentially a Losmandy GM 8 equatorial mount with the declination (dec.) axis removed and replaced with a well-engineered dovetail clamp. Although various useful mounting accessories were included, no adjustable ball head was supplied, so the camera could not be set to every orientation – we used our own Manfrotto ball head. With the supplied accessories, it would have been possible to attach two cameras to

the mount and retain the correct balance. A tripod wasn't included so we used our own Velbon tripod with a pan and tilt head.

Calibrating the polarscope's reticule so that it is correctly centred is vital to achieve an accurate polar alignment. We were disappointed to discover that the optional polarscope did not come with a suitable Allen key for this purpose, seeing as the reticule is adjusted using tiny grub screws. However, once calibrated, the actual polar alignment was simple to carry out. The design of the reticule allows you to achieve a reasonable polar alignment by adjusting the pointing of the mount to match the polarscope view, using Cassiopeia and the Plough as reference points. A more accurate alignment can be gained by aligning one more star on a further etching on the illuminated reticule.

The simple hand controller provides sidereal and solar tracking rates for both hemispheres, plus seven additional slew



rates ranging from 7.5° to 240° per hour to help with final alignment of the RA axis.

This mount is versatile and well engineered, but a five minute exposure with a 200mm lens revealed the worst star trailing of all the mounts tested.

VERDICT

FOR Excellent engineering quality
AGAINST No camera ball head

ASSEMBLY	87%
BUILD AND DESIGN	89%
EASE OF USE	88%
STABILITY	87%
TRACKING ACCURACY	83%
OVERALL	87%

Vixen GP2 Photo Guider

VITAL STATS

- **Price** £829
- **Hand controller** Yes (Type DD-3)
- **Polarscope** Yes, illuminated
- **Load capacity** 2.5kg
- **Tracking rates** Sidereal, plus three slew rates
- **Weight** 6kg (without counterbalance weight – several available)
- **Extras** Polarscope, tripod, counterbalance weight, carry bag
- **Supplier** Widescreen Centre
- **Tel** 020 7935 2580
- **www.widescreen-centre.co.uk**

THE GP2 PHOTO Guider looks very much like a conventional GP2 equatorial mount – until you realise that the dec. axis has been replaced with a custom head that enables you to attach a camera on one side and a small counterbalance bar on the other.

The two-section, adjustable-height tripod supplied was perfectly adequate for use with a lightweight camera

outfit, resulting in a very portable system. No ball head was supplied with this mount so we used our own. Calibrating the polarscope was simple, following the process adopted by many equatorial mounts. Subsequent polar alignment was straightforward and accurate, using the supplied reticule illuminator and the RA and date scales as a circular slide rule.

The mount itself had a solid feel and assembly was simple to carry out using the Allen keys supplied. The two manuals were detailed enough to help a beginner to prepare the setup for an astrophotography session.

A dual-axis hand controller is supplied but, of course, only the RA section is functional. This had northern and southern hemisphere sidereal tracking as well as 1.5x, 2x and 32x rates for locating celestial objects. There is also an industry-standard ST4 autoguiding port for use with a small telescope.

We were able to easily balance the weight of our Canon 450D camera and 200mm

f2.8 Canon L series telephoto lens using the 1kg counterbalance weight supplied.

The GP2 is a fairly conventional product, well-suited to beginners due to its accurate tracking capabilities.



VERDICT

FOR A good range of extras
AGAINST Basic camera attachment

ASSEMBLY	88%
BUILD AND DESIGN	90%
EASE OF USE	89%
STABILITY	90%
TRACKING ACCURACY	90%
OVERALL	89%

AstroTrac TT320X-AG

VACATION SPECIAL

VITAL STATS

- **Price** £922.80 (£448.24 mount only)
- **Hand controller** Not required
- **Polarscope** Included in Vacation Special version, illuminated
- **Load capacity** 15kg
- **Tracking rates** Sidereal, solar and lunar
- **Weight** 4.15kg including tripod, gear head and ball head (1.1kg without)
- **Extras** Tripod, gear head, ball head
- **Supplier** AstroTrac
- **Tel** 01454 311733
- **www**.astrotrac.com

THE ASTROTRAC supplied was a 'Vacation Special' version, which included everything you could possibly need except batteries. The tracking head is also available as a standalone item, and in this case you would need a suitable tripod, geared ball head and polarscope of your own. Looking unlike any other mount, the TT320X-AG comprises two beautifully sculpted arms and a drive-control module containing a long threaded rod on which one of the

arms rides. This is a well-engineered design, combining form with function.

The illuminated polarscope supplied attaches to a small, fold-out arm. The polarscope has a similar reticule to the Losmandy one and allows you to achieve a very accurate polar alignment, although it is a little tricky to use as it is only lightly held in place by a magnet. Adjusting the alignment of the mount using the geared tripod head supplied was simple, and the Manfrotto quick-release ball head for the camera-lens attachment was excellent.

This was by far the simplest of the four mounts to set up: attach it to the geared tripod head, unclip the arm containing the threaded rod and then turn it anticlockwise for the northern hemisphere or clockwise for the southern hemisphere. Buttons on the built-in motor unit start the mount tracking at sidereal, lunar or solar rate, and it will continue tracking for about two hours before you reach the end of the threaded rod and the arm needs to be reset.

Skyat Night
APRIL 2012
GROUP TEST
WINNER
93%

The mount was the lightest tested, has an autoguider port, tracks well with only minor star trailing and is ideal for holiday use.

VERDICT

FOR Incredibly easy to set up
AGAINST Polarscope mounting a little fragile

ASSEMBLY	95%
BUILD AND DESIGN	96%
EASE OF USE	96%
STABILITY	90%
TRACKING ACCURACY	90%
OVERALL	93%

Fornax 10 LighTrack

VITAL STATS

- **Price** £549
- **Hand controller** Not required
- **Polarscope** Optional extra (£30)
- **Load capacity** 5kg
- **Tracking rates** Sidereal, solar and lunar
- **Weight** 2.9kg
- **Extras** Equatorial wedge, ball head
- **Supplier** 365 Astronomy
- **Tel** 0845 5275813
- **www**.365astronomy.com

HUNGARIAN COMPANY FORNAX are not well known in the UK, but this mount turned out to be the surprise contender in this test. Looking robustly engineered, but a bit like a prototype with little attempt at aesthetics, the Fornax 10 LighTrack is another uniquely designed product. A fixed aluminium arm, which includes a plastic control box and motor, attaches to the top of a standard tripod pan and tilt head or to the optional equatorial wedge. The mount possesses a second aluminium arm for the camera, which is friction

driven by the motor. This unusual design means that there is no worm gear – the system relies solely on the fine engineering of the motor's drive shaft and the smoothness and machining accuracy of the arm's curved edge.

The review unit was supplied with the Fornax 10 equatorial wedge, a Synta EQ3 polarscope and a Fornax ball head. No tripod was included so we used our own Manfrotto 132 tripod with its 9.5mm camera thread, but the equatorial wedge has been designed to attach to an EQ3 mount as well. Assembly was straightforward on both a tripod and an EQ3 mount, and polar alignment was simply arranged using the Cassiopeia and Plough etchings on the reticule.

The mount electronics make an unusual musical rising and falling tone throughout the full cycle of a session, which lasts for two hours and 15 minutes before requiring a reset, and northern and southern

Skyat Night
APRIL 2012
HIGHLY
COMMENDED
92%

hemispheres are catered for. Sidereal, solar and lunar tracking rates are available.

Although a quirky design, this mount provided the most accurate tracking of those on test, with hardly any star trailing.

VERDICT

FOR Most accurate tracking
AGAINST Prototype styling

ASSEMBLY	91%
BUILD AND DESIGN	88%
EASE OF USE	94%
STABILITY	92%
TRACKING ACCURACY	95%
OVERALL	92%

OVERALL WINNER

AstroTrac TT320X-AG

ALL THE MOUNTS tested are suitable for taking wide-field images of the Milky Way, constellations and large nebulous regions – such as Barnard's Loop in the constellation of Orion – using a camera and a typical 50mm focal length lens. However, increasing the focal length to 200mm allowed us to identify which mounts offered the best tracking, as star trailing became more obvious.

The Losmandy StarLapse is versatile and well engineered, but its tracking on the five-minute exposures showed the worst star trailing of the group. The Vixen GP2 Photo Guider was the most conventional of the designs, but it performed well in our tracking tests, had a good manual and was robustly built, making it an excellent choice for beginners.

The Fornax 10 LighTrack was a really pleasant surprise. Its 'prototype' finish was not matched by its performance, which was consistently the best in the group. Simple to set up and easy to use, we really warmed to

it during testing – if tracking accuracy was the only criteria we were judging, this mount would have been the winner.

The AstroTrac TT320X-AG is an elegantly designed and beautifully engineered product, and the company is to be congratulated on developing such an innovative piece of kit. Although the tracking accuracy on our five-minute exposures with the 200mm lens showed some minor star trailing, this is the mount that we would want to take on holiday with us because it is so light and quick to set up, making it our overall winner. **S**

NEXT MONTH

WE REVIEW A QUARTET OF FOCUSERS



At-a-glance guide

MANUFACTURER	LOSMANDY	VIXEN	ASTROTRAC	FORNAX
MODEL	StarLapse	GP2 Photo Guider	TT320X-AG Vacation Special	10 LighTrack
PRICE	£649	£829	£922.80	£549
HAND CONTROLLER	Yes	Yes (Type DD-3)	Not required	Not required
POLARSCOPE	Optional, illuminated	Yes, illuminated	Yes, illuminated	Optional
LOAD CAPACITY	13.5kg	2.5kg	15kg	5kg
TRACKING RATES	Sidereal and solar, plus seven slew rates	Sidereal, plus three slew rates	Sidereal, solar and lunar	Sidereal, solar and lunar
WEIGHT	4kg	6kg	4.15kg (1.1kg)	2.9kg
EXTRAS	A range of camera-mount hardware	Polariscope, tripod, counterbalance weight, carry bag	Tripod, geared head, ball head	Equatorial wedge, ball head
SUPPLIER	Widescreen Centre	Widescreen Centre	AstroTrac	365 Astronomy
VERDICT	87%	89%	93% WINNER	92%