FIRST **LIGHT**

See an interactive 360° model of this scope at **www.skyatnightmagazine.com/startravel-102**

Sky-Watcher Startravel-102 AZ-GTe

WORDS: PAUL MONEY

Get connected – the smart way to control your mount is with a mobile device

VITAL STATS

- **Price** £379
- **Optics** 102mm, two-element, air-spaced achromatic refractor
- **Focal length** 500mm, f/4.9
- **Mount** AZ-GTe Wi-Fi Go-To altaz mount
- **Ports** Power connector, DSLR shutter release port, hand controller connector, Wi-Fi module
- **Control** Free SynScan app for iOS and Android mobile devices
- **SynScan app database** 10,000+ objects including Messier, NGC, IC, Caldwell, Solar System and more
- **Tripod** Adjustable tripod with accessories tray and vertical extension
- **Power** 8xAA batteries or DC 7.5~14V, 0.75A tip positive
- **Extras:** Red dot finder, 25mm and 10mm 1.25-inch fit eyepieces, star diagonal
- **Weight** 6.65kg
- **Supplier** Optical Vision Ltd
- **Tel** 01359 244200
- **Web** www.opticalvision.co.uk

WWW.THESECRETSTUDIO.NET X4, PAUL MONEY X2

We live in an age of smart phones, tablets, Wi-Fi and the 'internet of things', so Sky-Watcher has been quick to integrate Wi-Fi adaptors in its latest mounts, taking advantage of the technology. Here we check out the company's Startravel 102 AZ-GTe system which consists of a 102mm, short-focus refractor and a variant of its AZ-GTi mounts, the AZ-GTe. The Startravel 102 AZ-GTe is supplied with a red dot finder, a star diagonal and two basic but useful eyepieces, 10mm and 25mm. With the 500mm focal length these eyepieces give magnifications of 50x and 20x respectively. An adjustable aluminium tripod with accessory tray and an extension pier complete the system.

SKY SAYS... An innovative system boasting more than just a Wi-Fi gimmick

It was all very easy to assemble, and we were up and running in no time at all. The AZ-GTe mount differs from the AZ-GTi in that it does not incorporate the Freedom Find dual-axis encoders that allow you to hand-move the mount while retaining Go-To accuracy. In practice, however, if you're careful with the mount then you may not need that feature, and the AZ-GTe works perfectly well as a Go-To mount on its own merits. Power is supplied either by a set of eight AA batteries (not supplied) housed in the side of the mount or via an optional power supply providing DC 7.5~14V, 0.75A tip positive.

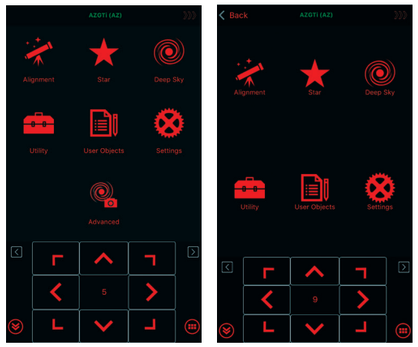
On the optics side, the Startravel 102 is a nice, short-focus refractor with a 102mm, two-element, air-spaced objective with a focal length of 500mm. This makes it a 'fast' system with a focal ratio of f/4.9, which helps with large wide-field views suitable for targets such as the Andromeda Galaxy and the Pleiades star cluster. It is an achromat and works very well for visual use – its primary purpose – although it does display some chromatic aberration (where not all wavelengths come to the same focus) when used for imaging. However, in visual use we didn't notice anything that detracted from using the telescope; Deneb, for example, was pin sharp across almost three quarters of the view in the 25mm eyepiece.

Making a connection

Levelling the tripod and powering up the mount we ensured the tube was pointing north and level. Once ▸

Wi-Fi and SynScan

Startravel 102 AZ-GTe is a great way to explore the heavens using a smartphone or tablet. A red LED light flashes when a mobile device connects to the on-board Wi-Fi adaptor. Download the free SynScan app for iOS or Android to control the system from your device via a simple user interface. The app has up to 10,000 objects in its database covering a wide range of the most popular targets. Alignment is easy and there's an option to align with each object once located in the eyepiece, which helps with greater accuracy for targets nearby. Android users can also connect with the SkySafari Planetarium app but Apple users should note that two devices are needed, the first running the SynScan app, the second running SkySafari; once done, though, we found it worked fine.



▲ SynScan's easy-to-use interface for mobile devices

Optics

The Startravel 102 is a two-element, air-spaced, achromatic 4-inch scope with a focal length of 500m. This gives a focal ratio of f/4.9 and so is considered relatively 'fast'. Visually it gives good colour correction with a little chromatic aberration present towards the field edge.

Tripod, accessories tray and extension

The tripod provides good support for the system and has adjustable legs allowing a height range of 80.5cm to 152cm. The extension tube allows the attached telescope to miss the tripod when aiming vertically and the tray helps make the tripod stable and provides somewhere to store eyepieces and accessories.

Eyepieces

A 1.25-inch star diagonal and two basic but effective 1.25-inch eyepieces are supplied with the Startravel 102, one with 25mm focal length for wide field views and the other 10mm for higher magnification. For this size telescope they are a good match and gave good views of a wide range of objects.

Focuser and finder

The finder is a zero magnification red dot finder with variable brightness, which worked fine for the task at hand. The focuser is basic but quite sturdy with a smooth motion. The supplied adaptor allows standard 1.25-inch eyepieces to be used via the supplied 1.25-inch star diagonal.

FIRST LIGHT

SKY SAYS...
Now add these:

1. 7Ah or 17Ah powertank

2. 1.25-inch lunar and planetary filter set

3. Red LED torch

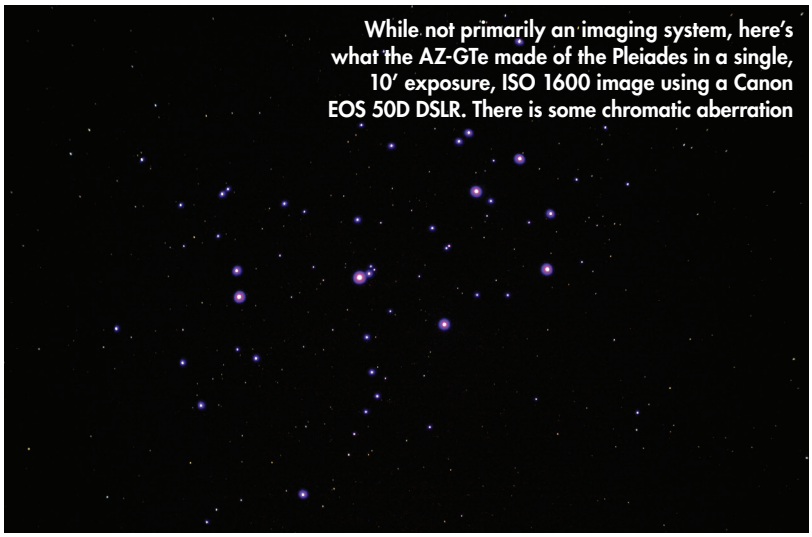
▸ powered, the mount produces its own Wi-Fi network, which you can connect to using your mobile device. Having done that, we opened up the SynScan app and clicked to connect; it found the mount every time and used the smart device's GPS to set the time and date.

We found the 'Brightest Star' alignment worked well using two stars enabling us to place our targets close to the centre of the view of the 25mm eyepiece after it had completed. An interesting option enables you to fine tune each target once centred and accept its position, allowing for greater accuracy for other targets nearby. We did this every time we moved to a new target and could always find our chosen objects close to the centre of the view no matter how much we explored the sky.

The SynScan database covers the main popular targets most people would choose to view, so we went on a tour taking in M57, the Ring Nebula, Albireo (the stunning gold-blue double star in Cygnus) and M27, the Dumbbell Nebula. It was while observing M37 – a lovely triangular star cluster high overhead – that we discovered the virtues of the tripod's extension tube, which prevented the telescope from catching on the top of the tripod mounting.

We then switched to NGC 7331, a galaxy in Pegasus, detecting a nice 'sliver' of light, although it was quite small. The size is an effect of using a wide- or rich-field scope, but swapping to the 10mm eyepiece helped improve its visibility. The galaxy pair of M81 and M82 looked good in the 10mm whilst the Pleiades sparkled at their best in the 25mm eyepiece. Finally, we took in the Andromeda Galaxy and picked out its two fainter companions for an encore.

Overall it was a pleasure to explore the sky with the Startravel 102 AZ-GTe. If you're not familiar with smart devices there's the option of purchasing a SynScan handset, but for those us comfortable with the connected world, this is a smart new system. S



While not primarily an imaging system, here's what the AZ-GTe made of the Pleiades in a single, 10' exposure, ISO 1600 image using a Canon EOS 50D DSLR. There is some chromatic aberration

▲ A single-exposure image of the Sword of Orion imaged using the same setup as the Pleiades image above

▲ A single, 1/60" exposure image of the waning Moon, shot using a Canon EOS 50D DSLR at ISO 100

AZ-GTe motorised base

The AZ-GTe base contains the electronics and gears for altaz operation with a battery compartment for eight AA batteries, a 12V power socket, 'snap' camera plug and an on/off switch. The clutch enables altitude adjustment and tensioning, while on the opposite side the scope is attached with a Vixen-style clamp.

Verdict

Assembly	★★★★★
Build and design	★★★★½
Ease of use	★★★★½
Features	★★★★½
Optics	★★★½☆
OVERALL	★★★★½