



TELESCOPE REVIEW

With more than 5,000 times the light-gathering power of your eye, this monster telescope delivers great views. /// BY MIKE MARCOTTE

Meade's new 14-inch SCT: an instant classic

Twenty-four years ago, Meade entered the Schmidt-Cassegrain telescope market with its Model 2080 8-inch SCT. This marked the start of not only the tremendous growth of Meade but also of the amateur telescope market. Today, Meade offers the LX200GPS-SMT line of fully automated go-to and Global Positioning System (GPS)-equipped tele-

scopes with apertures from 7 to 16 inches. And the LX200GPS-SMT14, with its high-quality optics, mechanical excellence, accurate computer control, and large aperture, has arrived to make a statement.

Think big

The 14-inch LX200GPS-SMT is an f/10 system with a focal length of 3,556 millimeters. The optical-tube assembly is mounted on a heavy-duty, twin-fork mount directed by the AutoStar II hand controller. AutoStar II sports a database of 145,000 objects, a 200-object user-defined library, and a terrestrial landmark library.

The menu features event items such as the times of sunrise, sunset, moonrise, and moonset. You also can find dates of

Moon phases, meteor showers, equinoxes, and solstices.

Other options include standard and user-defined tours of the night sky. AutoStar II also gives you the option of choosing among 200 custom tracking rates, including sidereal, lunar, and seven alignment modes, as well as an integrated GPS.

The system is menu-driven and user-friendly, especially if you take some time to view the menu-options page in the manual Meade supplies with the telescope. In fact, I reviewed that page before every observing session to refresh my memory of the time-saving features available. This makes my observing sessions more efficient.

This telescope comes with Meade's standard optical surface coating. The optional Ultra-High Transmission Coating group (UHTC) costs an additional \$350 for the 14-inch LX200GPS-SMT.

Meade's tests show the UHTC, when averaged over the entire visible spectrum, increases light transmission to the telescope focus by about 15 percent. The telescope I tested came with the UHTC, and although I did not have a non-UHTC 14-inch scope for



THE CONTROL PANEL of the LX200GPS-SMT has inputs for the handbox controller, an external computer, and an autoguider — 12 volt DC power is also supplied. *ASTRONOMY: JAMES FORBES*

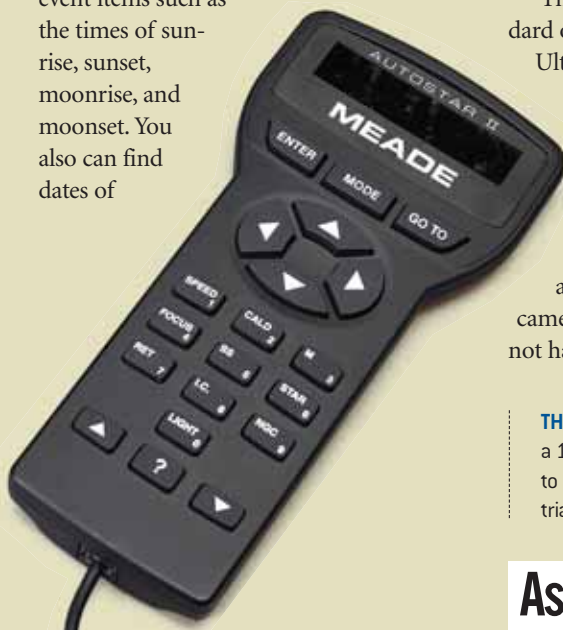
comparison, I did have the opportunity to compare two 8-inch LX90 telescopes, one with the UHTC and the other without. The UHTC showed an increase in brightness across a full range of celestial objects.

First impressions

When I take a telescope out of the box and set it up for the first time, I look closely at the workmanship and detail of the whole instrument to get an idea of its quality. Next, I run the drive motors at several speeds in all directions for a few minutes. This gives me an overall feeling for how consistently the drive system operates.

The mounting fork, body, and tripod of the test 14-inch LX200GPS-SMT were hefty, sturdy, and well-fitted. The motors sounded strong, consistent, and smooth.

I used this telescope for several weeks under many conditions and my first impression was reinforced.



THE AUTOSTAR II HAND CONTROLLER contains a 145,000-object database. It also allows you to input additional celestial objects and terrestrial landmarks. *ASTRONOMY: JAMES FORBES*



MEADE'S LX200GPS-SMT is a large telescope, but it can be transported and set up anywhere. Compare its size to Meade's 5-inch ETX125 (right).

ASTRONOMY: JAMES FORBES



MEADE'S AUTOSTAR SUITE is a software package that helps you both acquire images and process them. *ASTRONOMY: JAMES FORBES*

Several other things indicated this telescope was as tough and solid as it looked. It was in perfect collimation right out of the box and stayed that way even after riding hundreds of miles in my pickup — many of those miles over rough dirt roads.

The performance of the computer and electronics also proved reliable. AutoStar II's Automatic Alignment mode is easy to understand and operate. In this mode, AutoStar performs several operations in addition to locating the telescope's position with the integrated GPS. It automatically

Mike Marcotte is a retired firefighter and dedicated astronomer who observes with his equally dedicated wife, Mary, in El Paso, Texas.

finds “home” position, which tells the system the telescope's limiting positions to avoid cord tangles and over-rotation.

It locates true north by sensing magnetic north and comparing that to the GPS location. AutoStar II then levels the optical tube using a tilt-and-tip method at three different compass points.

While the telescope is performing these operations, it rotates and swings in several directions — an amusing display for an audience at a star party.

Once aligned, the telescope's go-to operation was almost flawless. Only once did the go-to function have trouble placing the selected object in the field of view. At that point, I went into the “train drive” mode in AutoStar II. Training the drive raises the computer-pointing accuracy. After that, I had no problems. Another feature that enhances the go-to drive is “Smart Mount Technology” (SMT). In short, this function is a 40-star alignment process.

This operation is lengthy and involves an illuminated reticle eyepiece. Also, SMT is accurate only for one location. If you perform SMT, however, the pointing will be almost perfect.

Observing with the 14-inch

The 14-inch LX200GPS-SMT's optical performance was outstanding. I observed mostly with 1¼" eyepieces that have focal lengths from 8mm to 40mm, including the 26mm eyepiece that comes with the telescope.

On a couple of occasions, I used 2" eyepieces, including Meade's 14mm. If you plan on owning a telescope bigger than 8 inches, invest in a good set of 2" eyepieces.

Meade's microfocuser took some time to get used to, but once I did, I could sharpen the images better than with the standard focusing knob. Even in a light-polluted area like my backyard, I was impressed with the contrast and

THE 14-INCH LX200GPS-SMT can accommodate the largest eyepieces with no balance problems. *ASTRONOMY: JAMES FORBES*



THE ZERO IMAGE-SHIFT MICROFOCUSER allows precise focusing without annoying mirror shift. *ASTRONOMY: JAMES FORBES*

sharpness of the 14-inch LX200GPS-SMT's images, even to the edge of the field of view.

I observed objects ranging from planets to distant galaxies and was pleased with the image detail and quality. Saturn and Jupiter were excellent targets. Both showed fine detail in their bands and belts.

On a couple of occasions, I observed the shadows of Jupiter's moons — well defined and easily seen — as they crossed the planet's cloud tops. In September, in the early morning, I enjoyed terrific views of Saturn.

The Cassini Division appeared as a strong black line, which was no surprise. What did surprise me was how defined the dark belts on Saturn's surface were.

Saturn's equatorial region even showed a hint of color. Quick looks at Uranus and Neptune revealed good coloration through the 26mm eyepiece in a light-polluted sky.

Moving to the outer reaches of space, I spent some time searching for faint galaxies in Boötes and Canes Venatici. I was surprised I could see structure in 13th-magnitude galaxies.

The NGC 5416 group was faint, but I was able to pick out most members, especially with averted vision. Several galaxy groups in Boötes can be picked up in the field of view of the 26mm eyepiece. My interest was drawn to some of the brighter, more defined galaxies in that area, such as NGC 5248, which has a bright center and spiral arms reaching out into an oval halo.



Two other eye-catchers were 10th-magnitude NGC 4244 and magnitude 8.5 M106 in Canes Venatici. The spindle structure of NGC 4244 and the spiral structure of M106 were easy to discern.

Some other great objects I was able to enjoy with the 14-inch LX200GPS-SMT were planetary nebulae and globular clusters. Planetary nebulas that appear as a smudge in an 8-inch scope jump out in the 14-inch with depth and color. Globulars I viewed through this scope gave a deeper meaning to the familiar description “like diamonds on black velvet.” Of course, no observing session would be complete unless I spent some serious time glued to the eyepiece observing double stars. I viewed a number of close doubles with the magnification pumped up as high as 404x with a Meade 8.8mm UWA eyepiece. It was satisfying to resolve companion stars impossible to see with a smaller telescope.

One other object I observed was the Moon. I mention this because the AutoStar II comes with a special “Moon” menu. Once you have gone into the “Moon-SYNC” mode, the go-to drive is precise enough to point to individual lunar features.

The 14-inch LX200GPS-SMT also comes with the AutoStar Suite, which includes Meade’s Lunar Planetary Imager and a software package. You can use the AutoStar Suite to guide the telescope from a notebook or desktop computer and to perform basic imaging of bright objects.



MEADE'S STAR DIAGONAL (right) accepts 2" eyepieces. With the included adapter (center), you can use 1½" eyepieces like the supplied 26mm (left). *ASTRONOMY: JAMES FORBES*

put a few extra C rings in your tool box, just in case.

And the verdict is . . .

Overall, the 14-inch LX200GPS-SMT earned an excellent rating. My wife and I traveled thousands of miles with this scope, setting it up 15 times for a range of different events including astronomy-club gatherings in West Texas, public star parties in Arizona, short observing runs in our light-polluted city backyard, and several all-nighters on a dark, isolated hill in New Mexico. The loading and unloading and setting up and breaking down became tedious at times, but through it all, the telescope performed as advertised and provided us with views that were nothing less than spectacular. ■

Is it portable?

The 14-inch LX200GPS-SMT is a big telescope. That may seem strange to say, but if you're not accustomed to large SCTs, then “size shock” can be overwhelming.

The box holding the telescope measures 52" by 32" by 24" and weighs more than 175 lbs. The tripod comes in a separate box.

Setting up the 14-inch LX200GPS-SMT is a two-person job. It is heavy and awkward to handle, and trying to place the scope on the tripod without help is inviting disaster.

Although this telescope is portable, it is best suited for a permanent location. I would transport the telescope only with the proper vehicle, such as a pickup or van, and I would make sure I have help handling it.

A few things about the 14-inch LX200GPS-SMT might cause small problems. You mount the telescope to its tripod with a single bolt that passes through the spreader plate and screws into the telescope's base. On several occasions, I had trouble aligning that bolt with the hole. The scope's weight made it difficult to adjust its position with one hand while trying to align the bolt with my other hand. If the bolt is not aligned properly, it can cross-thread.

The mounting-bolt is attached to the tripod with a “C” ring, which allows you to leave both the bolt and spreader plate attached to the tripod. I discovered these parts didn't allow the tripod completely to fold, which made it harder to store and transport.

The simple solution was to remove the bolt each time I stored or transported the tripod, but with so much handling, the C ring could break or be lost. So, it's a good idea to

A LOOK THROUGH the corrector lens of the 14-inch LX200GPS-SMT shows the primary mirror (white in this image) and the secondary mirror support (the black disk). *ASTRONOMY: JAMES FORBES*



/// PRODUCT SPECIFICATIONS

MEADE'S 14-INCH LX200GPS-SMT

Telescope weight: 166 pounds; total with tripod: 225 pounds

Dimensions:
17" by 24" by 44"

Eyepiece:
Series 4000 26mm Super Plössl (137x)

Finder scope:
8x50mm

Mount:
Heavy-duty alt-azimuth fork, double tine

Also included:
AutoStar II control system, Smart Mount, 4-speed Zero Image-Shift Microfocuser, GPS alignment system with 16-channel GPS receiver, 2" star diagonal with 1½" adapter, variable-height field tripod

Price:
\$4,995

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