

Meade® 8" and 10" LX200GPS Schmidt-Cassegrain Telescopes

A new world standard in telescopes.

Building on the legendary reputation of their predecessor LX200 telescopes and the result of a two-year design effort at the Meade Irvine facility, Meade LX200GPS models take previous telescope technology to a level heretofore unimagined. Announced in September, 2001, few telescopes in the thirty-year history of Meade Instruments have aroused such intense interest, or been so quickly accepted, among both beginning and experienced amateur astronomers.

New Heavy-Duty Fork Mounts: All-new LX200GPS fork mounts are the strongest, most rigid mountings ever made available for telescopes of these apertures. DC-servo-motor-controlled (12v DC) worm gear drives with almost *two hundred* selectable drive speeds, combined with the Meade Smart Drive (p. 24) on *both* telescope axes, permit observatory-level precision in tracking, guiding, and slewing.

Photo-guide speeds are selectable from 0.01x to 1.0x sidereal, in increments of 0.01x; fast-slew speeds are selectable from 1°/sec. to 8°/sec. in 0.1°/sec. increments. Use the 8°/sec. speed for rapid motion of the telescope across the skies; once near the target, switch instantly to a speed of 1.5°/sec. or 3°/sec. for centering in the viewfinder. Observing in the main telescope, use the 16x or 64x sidereal speed to place the object in the center of the field.

Meade 8" (shown) and 10" LX200GPS telescopes include 145,000-object onboard databases. The standard-equipment Zero Image-Shift Microfocuser, powered from the telescope's control panel and operated from the Autostar II handbox, is shown immediately in front of the eyepiece and diagonal prism. The GPS receiver can be seen atop the telescope's fork arm.



Precision GPS Alignment: Telescope alignment is accomplished *automatically* using signals from the Global Positioning System (GPS), a satellite system that enables extremely precise communication to the telescope of the observer's latitude and longitude, as well as local time. Integrated true-level and North electronic sensors in combination with a 16-channel GPS receiver located in the

*"... Viewing a 2nd-magnitude star at high power [the 8" LX200] showed a nearly textbook-perfect image...I do indeed rank these optics as diffraction limited...Jupiter and Saturn exhibited riveting detail... During the November 10, 1997, triple shadow transit on Jupiter, the LX200 was my telescope of choice. It showed all three moon shadows as plainly different in size and shading, a rare and remarkable sight. Under the automatic GO TO command, the LX200 routinely placed objects, including the Moon and planets, within 1 to 4 arc-minutes of the center of the field. Not only was it accurate — it was fast. The LX200 usually took no longer than 10 to 25 seconds to slew to and center an object...The latest major feature added to the system is what Meade calls High Precision Pointing. When this is activated...Meade promises a pointing accuracy of 1 arc-minute. I can confirm this amazing figure. Objects consistently ended up within 1 to 2 arc-minutes of the field's center, a great aid to CCD imaging of faint targets...if you know what you want to look at, the LX200 will find it with astonishing speed and accuracy...the telescope I tested provided excellent performance in all critical areas while adding a level of technical luxury that is truly powerful and impressive...I have absolutely no hesitation in recommending the LX200 series...After having used the LX200 for several months, I can attest to the wonderful hands-off convenience and sheer fun of the motorized GO TO." — from the review in *Sky & Telescope*, April, 1998.*

left-hand fork arm result in accurate telescope alignment to the sky at the touch of a button: Just press the *ENTER* button on the Autostar II hand controller and watch as the telescope measures level, points North, and slews at 8°/sec. to its first alignment star. Magnetic declination compensation designed into the telescope software automatically engages during the alignment process.

Autostar II Control System: Completely redesigned and updated for the LX200GPS series, the Meade Autostar II control system includes the widest array of telescope capabilities ever offered in a commercial telescope:

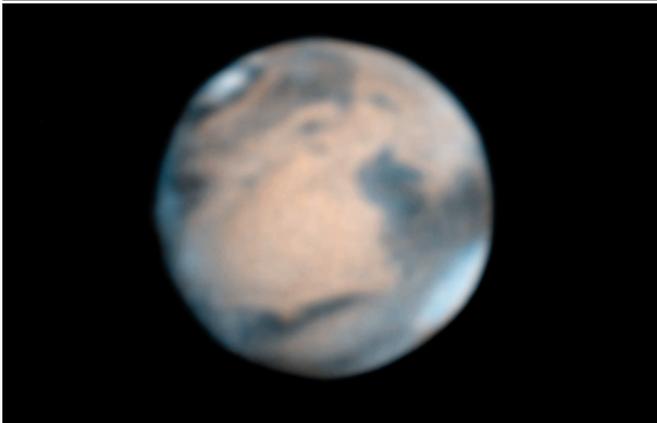
Built-in 145,000-Object Library Included as Standard Equipment: Enter into the Autostar II handbox any of the 145,000 celestial objects stored in the LX200GPS onboard database, press GO TO, and the telescope automatically slews (moves) to the object at 8°/sec., centering it precisely in the main telescope field. Additionally, the display reads out for each selected object its magnitude, size, object-type, visual quality rating, RA and Dec. Or, let the telescope take you on an automatic guided tour of *TONIGHT'S BEST*.

Stored in an expanded 3.5-Megabyte flash memory, Autostar II's database is immediately accessible on the Autostar II display and includes an incredible array of phenomena — virtually a lifetime of deep-space study, even for the advanced observer. A partial listing includes:

Object List	No. of Objects
New General Catalog (NGC)	7840
Index Catalog (IC)	5386
Uppsala Galaxy Catalog	12,940
Morphological Catalog of Galaxies	12,939
General Catalog of Variable Stars	28,484
SAO and Hipparcos Star Catalogs	42,277
Draper Star Catalog (HD)	21,127
Yale Bright Star Catalog (BSC5)	6150
Large Bright Quasars Survey (LBQS)	1055
Messier Catalog (M)	110
Caldwell Catalog	109
Named Objects	227
Herschel Catalog	400
Abell Catalog of Galaxy Clusters	2712
Arp Catalog of Irregular Galaxies	645
Major planets from Mercury to Pluto	8
Lunar features	1870
Asteroids and Comets	120
Earth orbiting satellites	50
Centroids of the constellations	88

Additional Autostar II Functions: Dozens of additional handbox functions, all easily and immediately accessible, make Autostar II the most powerful electronic tool ever developed for the serious amateur. A partial listing of fewer

High-resolution CCD images of Jupiter and Mars (shown not to scale), taken by António Cidadão of Oeiras, Portugal, with his Meade 10" LX200 Schmidt-Cassegrain. These images first appeared in an article by Mr. Cidadão entitled *Thoughts on Super-Resolution Planetary Imaging* in the December, 2001, issue of *Sky & Telescope*. (See also p. 19.)



than half of these functions includes: GO TO capability to any input RA and Dec. coordinates; a 200-object user-defined library; event menus displaying the times and/or dates of Sunrise/Sunset, Moonrise/Moonset, Moon phases, meteor showers, minimum of Algol, equinoxes and



Spiral Galaxy (M83) in Hydra. Nik Szymanek and Ian King combined two 10-minute CCD exposures through the Meade 10" LX200 Schmidt-Cassegrain telescope to obtain this final result.

solstices; custom-guided tours defined by the user; standard tours including Tonight's Best; 24-hour timer with beeper; alarm function with beeper sounds at selected times; 16-level display brightness adjust; 16-level display contrast adjust; red-LED utility light; battery alarm for low-battery warning; 7 alignment modes; sidereal, lunar, or any of 2000 custom tracking rates; factory-trained Smart Drive (see p. 24) periodic error correction on both telescope axes

"As an amateur astronomer I had the opportunity to contribute images of Comet 19P Borrelly to JPL during the month leading up to the Deep Space I fly-by of the comet on September 22, 2001. The images were used to estimate cometary dust production for the encounter. My Meade equipment, consisting of a 10" LX200, Pictor 1616XTE Imager, dichroic color filters, and Pictor 201 Autoguider, performed flawlessly. My data compared very favorably to that acquired by professional observatories prior to my imaging. Data processing by JPL showed very similar results and error ranges equal to or better than other data collected. The culmination of the effort was nearly simultaneous images acquired with the 200" Palomar telescope and with my system. The feedback from JPL was that these two datasets agreed completely. My "all Meade" system is reported to be the only source of data available to JPL between August 15 and September 15. I cannot express the high level of satisfaction I had being able to contribute scientifically meaningful data with my Meade equipment." — Dr. Ralph P. Pass III, Andover, MA.

with field-training capability.

Primary Mirror Lock: This revolutionary new rear-cell system is designed for the advanced visual observer, astrophotographer, and CCD imager. Turn a knob located just above the manual coarse-focus knob, and lock the telescope's primary mirror rigidly in place. Used in conjunction with the Zero Image-Shift Microfocuser (below) the progressive-tension primary mirror lock completely cancels any residual image shift while focusing during

visual, photographic, or CCD imaging applications.

Zero Image-Shift Microfocuser: Now you can obtain the most precise image focus possible — truly to a microscopic level — during visual and astrophotographic applications, and, during CCD applications, simultaneously maintain precise image centration on even the smallest CCD chips. Included as standard equipment on all LX200GPS Schmidt-Cassegrain models, the Meade Zero Image-Shift Microfocuser operates at 4 speeds from extremely slow to fast; the entire microfocusing operation is actuated through the Autostar II handbox and powered from the telescope's control panel. Coarse manual focusing is effected through the telescope's manual focus knob.

High-Precision Pointing™ (HP) Capability: Meade LX200GPS models permit the most accurate pointing capability ever offered in a commercial telescope. Now you can command the telescope to GO TO an object located on the opposite side of the sky (for example, a distance of 120 degrees in sky-angle) and, in conjunction with the telescope's unique SYNC command, *the LX200GPS locates and centers the desired object to within a precision of about one arc-minute.* HP capability is accessible in either the altazimuth or equatorial orientations.

For casual observing such high precision in pointing is not generally required, since even without HP-mode pointing, the LX200 is capable of locating objects to within a pointing precision of about 2 arc minutes or better. But consider some of the situations where High-Precision Pointing means the difference between seeing, or imaging, an object, and not:

Suppose you wish to CCD-image a supernova in a 16th-magnitude galaxy — a galaxy invisible *except* through the process of CCD imaging. With the LX200GPS in HP-mode, the galaxy can be placed on the chip of every available CCD unit. An LX200GPS in the HP-mode places *every* object on *every* CCD chip *every* time.

Photographing faint objects such as the planet Pluto, or asteroids or comets near the photographic limit of the telescope, and plotting the motion of these objects night-to-night, now becomes practical, since

the photograph may be taken *without the observer ever having seen the object visually*, knowing that the LX200GPS in HP-mode operation will precisely center the object in the telescopic field.

The Autostar II hand controller in its LX200GPS mounting bracket.



Control Panel Functions: Use the telescope's control panel for direct connection of CCD imagers and auto-guiders (*pp. 82 - 97*); plug in an illuminated reticle eyepiece for photo-guiding, adjusting reticle brightness from the Autostar II handbox; or power the standard-equipment Zero Image-Shift Microfocuser. Two RS-232



The Moon, photographed by Christian Arsidi through a Meade 10" Schmidt-Cassegrain telescope. The two adjoined craters at center of the photo are Theophilus (*upper-right-center*) and Cyrillus.

serial interface connectors are provided. The telescope's 3.5-Megabyte flash memory may be upgraded through one of the RS-232 ports with new software or data as they become available on the Meade website (www.meade.com) in the future.

Altazimuth Operation: For all visual observing applications, for lunar and planetary photography, and for most CCD imaging applications, Meade LX200GPS models may

"I have purchased few things in my life that have so vastly exceeded my expectations as the Meade 10" LX200....I have owned several telescopes and spent countless hours enjoying the heavens. But [my first evening with the LX200] was by far the most incredible experience of them all. I am looking forward to many more. Thank you for developing this truly extraordinary instrument."

— Richard Hammar, Springfield, MO.

be set up in the altazimuth mode — just attach the telescope's drive base directly to the tripod, use the GPS alignment procedure, and the telescope's computer actuates 2-axis tracking that keeps objects precisely centered in the field, even at high powers, during the entire observing session. For long-exposure astrophotography (longer than about 5 minutes) altazimuth-induced field rotation requires an equatorial wedge or the #1220 Field De-rotator (*p. 24*), either of which may be purchased separately.

Field Operation: LX200GPS telescopes operate for over 20 hours from eight C-cells neatly stored inside the fork arms. Alternately, telescope powering may be effected from an automobile cigarette lighter plug (using the optional #607 Power Cord) or from a standard home outlet (using



"I recently purchased one of your 10" f/10 LX200 Schmidt-Cassegrains. After owning many telescopes, and I do mean many, I have finally found the telescope of a lifetime. The Meade optics are the best I have ever seen. The sturdiness of the mount with its incredible pointing accuracy, combined with all the excellent features make this the Ultimate Telescope. I could go on and on..."

— Bobby Lindsey, Sequin, TX.

Meade 10" LX200GPS
Schmidt-Cassegrain
Telescope.

Meade 8" LX200GPS
Schmidt-Cassegrain
Telescope.

Specifications: 8" Model LX200GPS—Includes 8" Schmidt-Cassegrain optical tube assembly (D = 203mm, F = 2000mm f/10) with MgF₂ coatings on the correcting lens and standard aluminum coatings on the primary and secondary mirrors (Ultra-High Transmission Coatings, p. 26, available optionally); primary mirror lock; 4-speed Zero Image-Shift Microfocuser; heavy-duty fork mount, with 4"-diameter sealed polar ball bearing, quartz-microprocessor-controlled 5.75" LX worm gears on both axes, and multi-function control panel; manual and electric slow-motion controls on both axes; setting circles in RA and Dec; Autostar II control system with 3.5-Megabyte flash memory, digital readout display, permanently-programmable Smart Drive and 185-speed drive controls on both axes, High-Precision Pointing, and 145,000-object onboard celestial software library; GPS alignment system with 16-channel GPS receiver, magnetic declination compensation, and true-level and North electronic sensors; 12v DC telescope power supplied from internal battery compartments accepting 8 (user-supplied) C-cells (optional 25 ft. cords are available for powering from auto cigarette lighter plug or from 115v AC); 8 x 50mm viewfinder; eyepiece-holder and diagonal prism (1.25"); Series 4000 Super Plössl 26mm eyepiece; variable-height standard field tripod; operating instructions.

Specifications: 10" Model LX200GPS—Includes 10" Schmidt-Cassegrain optical tube assembly (D = 254mm, F = 2500mm f/10) with MgF₂ coatings on the correcting lens and standard aluminum coatings on the primary and secondary mirrors (Ultra-High Transmission Coatings, p. 26, available optionally); primary mirror lock; 4-speed Zero Image-Shift Microfocuser; heavy-duty fork mount, with 4"-diameter sealed polar ball bearing, quartz-microprocessor-controlled 5.75" LX worm gears on both axes, and multi-function control panel; manual and electric slow-motion controls on both axes; setting circles in RA and Dec; Autostar II control system with 3.5-Megabyte flash memory, digital readout display, permanently-programmable Smart Drive and 185-speed drive controls on both axes, High-Precision Pointing, and 145,000-object onboard celestial software library; GPS alignment system with 16-channel GPS receiver, magnetic declination compensation, and true-level and North electronic sensors; 12v DC telescope power supplied from internal battery compartments accepting 8 (user-supplied) C-cells (optional 25 ft. cords are available for powering from auto cigarette lighter plug or from 115v AC); 8 x 50mm viewfinder; eyepiece-holder and diagonal prism (1.25"); Series 4000 Super Plössl 26mm eyepiece; variable-height standard field tripod; operating instructions.