

"Total Capability—39 Questions on Dynamax 8 Answered"

DYNAMAX[®] 8



THE "WHY" BEHIND THE CRITERION UNCONDITIONAL GUARANTEE OF SATISFACTION

We guarantee unsurpassed optical quality. The extreme resolution that for many years has delighted thousands of Criterion telescope owners stems from our position in the optical industry, as one of the most outstanding telescope making organizations in the entire world. Mirror and Lens-making techniques are so advanced that we compete to advantage on superb quality optics with any other manufacturer, here or abroad. We are constantly engaged in design and production of a vast variety of optical instruments and optical components requiring the highest precision standards.

In addition, Criterion many years ago began revolutionizing telescope manufacture by improving and simplifying mechanical design. The result has been sturdier, more "fool-proof," easier to use, more practical instruments than "cut and fit" methods produced—and at far less cost! Thousands of our Dynascopes[®] have proved our engineering leadership.

A quarter century of meeting the demands of serious astronomers enables us to know the features needed for most satisfying results in use. These are incorporated in initial design—as in this new Dynamax 8—rather than being "compromised in" later.

This is why we can guarantee your Dynamax 8 to give you unsurpassed performance, or we will take it back and refund every cent. We believe, however, that you will agree there has never been, at any price, a portable, compact telescope with the quality and features of the Dynamax 8... and that you will find it a joy to use, a lifetime investment in observing and telephotographic pleasure.

Amazing Features In An Instrument You Can Carry In One Hand!

■ 8" Schmidt-Cassegrain Type

Full 8" aperture, compound catadioptric optical system, balanced and locked in alignment, guaranteed to perform to limits of aperture with sharpest images possible. Silken-smooth internal focus.

■ Better than 2,000 mm. Focal Length

Tube only 17" long, but internal "folding" optical system gives effective focal ratio of f/10. Sealed tube insures dustfree optics.

■ Constant and variable drive—both!

Extremely smooth electric drive, plus variable drive AT NO EXTRA COST. Manual controls, plus handheld, push-button box—push a button and center electrically... a feature generally limited to complex large telescopes.

■ Large field of view

View or take pictures of the entire surface of the moon in sharp detail—or star fields, clusters, nebulae.

■ AC, DC, or Manual Drive

Use regular 110v AC, or 12v DC. Manual controls override electrical instantly without adjustment or wear.

■ Highly stable mount

Rock-solid in use, permitting long-exposure photography. Simple, stable latitude adjuster, Equatorial position for astronomical use, altazimuth for terrestrial viewing and telephotography.

DYNAMAX[®] 8

Complete with

- Electric plus Variable Drive (AC, DC, Manual)
- Setting Circles
- 8 x 50 Finderscope
- 3 Hi-acuity Eyepieces
 - Star Diagonal
 - Latitude Adjuster
- Photo and Telextender Adapters

\$875⁰⁰

FOB Hartford, Conn. Shipping Wt. 48 lbs.

Criterion Manufacturing Company

620 Oakwood Ave., West Hartford, Conn. 06110

Phone: 203-247-1696



AN EXTRAORDINARY DEVELOPMENT IN THE ART OF TELESCOPE MAKING NATURALLY PROMPTS SOME QUESTIONS.

HERE ARE THE ANSWERS.

Ever since Criterion announced the sensational Dynamax 8, questions have flooded in from potential users interested in astronomical, photographic, nature study, technical and other applications. Can a compact, 24-pound instrument *really* offer such superb optics? Such precision and ease of operation? So many features—even a built-in variable drive? And can all this be available at a most modest price?

The answer to these questions is a simple and gratifying “Yes!” Replies follow to many other specific questions we have been asked. If any query you may have is not answered here, please don’t hesitate to write us.

1.

QUESTION:

How does the Dynamax 8, when used as a super long range telephoto lens, compare with telephoto lenses sold for cameras?

ANSWER:

Dynamax performance is superior, for very good reasons. First, the Dynamax super-precise optical system achieves and exceeds the theoretical limits of perfection of definition; and the physical limit of resolution on the basis of the Airy disc is easily met. Second, with camera lenses (because they are not as fault-free as the Dynamax lens system) sharper images are obtained by “stopping down”, using reduced apertures. With Dynamax no “stop down” is needed to achieve needle-sharp resolution and image with the huge 8” aperture and 2110 mm. F/L. Result - fantastic light grasp. This means such sharp negatives that those of usual camera lenses are fuzzy by comparison. (The Dynamax system is a direct descendant of the famous 48” Schmidt camera on Mt. Palomar, invented for widest distortion-free field.)

It is a known fact among the astro community that a telescope objective lens requires precision far greater than is necessary for ordinary terrestrial photography. This is obvious when one thinks of the telescope as having to “see” something trillions of miles into the universe. The resolution required for such an undertaking is much greater. Astronomical telescopes therefore must be super-perfect to define the extremely critical invisible celestial objects without defects. In fact, the definition and resolution of the Dynamax 8 greatly surpasses the ability of present day photo films. Dynamax 8 thus functions as a telephoto lens of extraordinary quality. The cost of making a regular camera telephoto lens of this size (8”, 2110 mm.F/L) would be many times that of the Dynamax.

2.

QUESTION:

How does the Dynamax 8” compare in light grasp with other size telescopes?

ANSWER:

The Dynamax 8 collects 7 times more light than a 3” telescope, 2½ times more light than a 5” telescope, 1.78 times more than a 6”. This means that more magnification is possible as is greater resolution and contrast required for objects such as faint nebulae and galaxies. In photographic and nature use, the subject need not be brightly illuminated as is necessary with small aperture

instruments. Resolving power increases with aperture and the 8” aperture of the Dynamax gives the owner capability to resolve planets, nebulae, celestial objects, and all manner of terrestrial subjects photographically and visually under both high and low levels of light.

3.

QUESTION:

Using the Dynamax 8 as a telephoto lens, what is a typical exposure time?

ANSWER:

You can take a 1/500 second exposure at 70X on High Speed Ektachrome or Plus-X in daylight.

4.

QUESTION:

What is the faintest magnitude and resolution of the Dynamax 8?

ANSWER:

Limiting visual magnitude of the Dynamax 8 is 13.3. The faintest magnitude photographically depends on exposure time and film rating. Magnitudes of 14.5 are possible with good photographic techniques. The resolution is .5 sec of arc, (theoretical limit).

5.

QUESTION:

I expect to take long exposure astrophotos with the Dynamax. I understand this takes special drive. Does this mean extra costs?

ANSWER:

No. Unlike any other telescope on the market the Dynamax comes complete with a variable drive. All commercially made telescopes of other makes have drives that operate at the solar rate. Long time exposures require a highly accurate means of guiding superior to solar drive only. The Dynamax is equipped at *no extra cost* with Vari-Tracking. This enables the user to change the drive rate instantly for lunar, solar, sidereal, planetary or any rate in between and constantly maintain that rate. The Dynamax is the *only* telescope on the market able to take long time exposures without the owner buying an extra piece of expensive equipment. In addition, the Dynamax drive can be “jogged” in fast or slow motions for precise centering of the object under study.

6.

QUESTION:

I want a drive to be sturdy and smooth running. Does the Dynamax 8 have bearings in the drive?

ANSWER:

The Dynamax drive incorporates tapered roller bearings and ball bearings in the polar axle, insuring complete freedom from play, while still retaining absolute smoothness. This precision grade engineering and manufacturing is the same used on critical scientific equipment.

7.

QUESTION:

What size are the RA circle and declination circle?

ANSWER:

The RA circle is 8" in diameter with increments reading to 4 minutes. Vernier produces finer readings to the order of 2 minutes. Degrees can also be read directly. The declination circle reads in 1 degree and is 4" in diameter. It is precision engraved, highly accurate and can be read from the observer's position.

8.

QUESTION:

Does the RA circle continue to read the RA of object while the drive turns?

ANSWER:

Yes. Once you have the object located and in correct RA setting as determined from the star chart, the drive continues to read that RA as long as observing continues. It becomes a simple matter to locate another object on the star chart by simply turning the telescope to the new RA. No computing is necessary. The RA circle can still be re-set at will.

9.

QUESTION:

Can I attach the Dynamax 8 to a camera tripod?

ANSWER:

Yes. There is a standard camera adapting socket in the base of the Dynamax for this purpose. It is recommended that the tripod be of the heavy duty type.

10.

QUESTION:

Is there a pier type tripod available?

ANSWER:

A pier with three removable legs is available for the Dynamax. It stands 5 feet high, is adjustable to latitude. Our model No. SC-45 is available for \$189.00 FOB Hartford, Conn.

11.

QUESTION:

What is the telextender?

ANSWER:

An extension tube, fitted with Praktina mount on one end. It is used for projection photography. With eyepiece of your choice in the telescope, the extender covers it and positions the camera body at the other end. Any other single lens reflex camera can be attached by means of a "T" mount available at any local camera store for under \$4.00.

12.

QUESTION:

How about Cassegrain focus photography?

ANSWER:

You can use the Dynamax for Cassegrain focus or amplified (with CP4 Barlow lens) prime focus.

13.

QUESTION:

What is the focal length of the Dynamax 8?

ANSWER:

The total focal length of the Dynamax Schmidt Cassegrain system is 2110 mm. or 83 inches. This is accomplished by the "folding" back of the light in this catadioptric lens system.

14.

QUESTION:

What is the range of focus?

ANSWER:

30 feet to infinity.

15.

QUESTION:

How is the Dynamax 8 focused? Is there an external "rack and pinion" arrangement or an internal focusing arrangement?

ANSWER:

The Dynamax 8 utilizes the internal focusing method. The mirror slides on an extreme precision thimble for focusing. In this way there is no "racking in" or "out". The camera and eyepiece remain stationary throughout focusing, keeping a balanced condition at all times.

16.

QUESTION:

Using the 30 mm. ocular and telextender, what does the focal length become?

ANSWER:

This means using the projection method of photography, with the Dynamax becoming the camera lens. The focal length would increase to approximately 5700 mm.

17.

QUESTION:

Can I frame the whole moon on 35 mm. film with the Dynamax 8?

ANSWER:

Yes, easily.

18.

QUESTION:

Can I focus onto small segments of the moon for close-up study?

ANSWER:

By all means, you can be using the higher power eyepieces and concentrate on small areas at extremely high magnifications.

19.

QUESTION:

What is the Schmidt-Cassegrain system?

ANSWER:

This system utilizes, for compactness, a primary, secondary and thin aspheric corrector plate. Designed for flatness of field, the corrections on the corrector plate are extremely sensitive and must be balanced into the other optics. Delicate correcting operations are required and when properly done, flat wide field and diffraction limited performance result. The Dynamax optics are so meticulously computed that the total system is capable of unsurpassed sharp images, and wide field. Criterion has nearly a quarter century of experience in optical correction. Latest techniques are well known to us. The baffle system itself is of high order to utilize all the optical rays.

20.

QUESTION:

Does the Dynamax have a flat field? I understand past Schmidt cameras have had curved fields.

ANSWER:

One of the features of this new telescope is its truly flat field. The Schmidt Cassegrain system of the Dynamax has a carefully computed aspheric correcting lens, as well as primary and secondary optics to accomplish full flat field. There will be no question of this after you first observe with your Dynamax 8!

21.

QUESTION:

Is the corrector plate smaller than the primary?

ANSWER:

No. It is a full 8 inch clear aperture plate.

22.

QUESTION:

What is the f/ratio? What is Cassegrain focal length?

ANSWER:

f/10.3. Cassegrain focal length is 83".

23.

QUESTION:

Are images inverted or erect?

ANSWER:

The Dynamax 8 is equipped with a star diagonal (right angle prism) for more comfortable observation of the skies above. Without this, the images are inverted. The star diagonal erects the image, but right and left are reversed. For terrestrial use, accurate erect images can be obtained with the Erector (porro-prism) Assembly, which is optional at \$29.00.

24.

QUESTION:

Can I use standard eyepieces in the Dynamax 8?

ANSWER:

Any eyepiece that is 1¼" diameter can be used. It stands to reason, however, that only those of high quality should be used if you are to enjoy the full capability of this superb optical system, and we recommend the use of Criterion eyepieces in preference to all others.

25.

QUESTION:

How easy is it to set up the telescope and align it on Polaris for astronomical use? Does this require using wrenches, screwdrivers, etc.?

ANSWER:

The Dynamax 8 is ready to use in all adjustments *without* the use of any wrench whatsoever. All adjustments are made by precision *hand* adjustment screws and fittings, each carefully designed for light finger pressures. To set up on Polaris a set of latitude adjusters are provided that make positioning more accurate and easier than on any other telescope.

26.

QUESTION:

How about the Dynamax 8 for nature studies, photographic, and visual use?

ANSWER:

The Dynamax 8 has total capability in these respects. For those whose experience in nature study has been confined to binoculars, the Dynamax will offer sheer astonishment in viewing pleasure. Unquestionably it is the most capable telescope ever made to study or photograph the bird, animal, flower, or human hundreds of yards away. Definition is so perfect that every detail of a bee's wing at 1,000 feet is incredibly clear. In the country landscape, astonishing wealth of detail invisible to the naked eye will continually thrill the owner. City dwellers have any number of fascinating views to explore. And the Dynamax 8 can swing into action at a moment's notice, catching transient events, because it is an instrument that requires no setting up or take-down. You will find your always-ready Dynamax gives you experiences you'll never tire of.

27.

QUESTION:

How about the Dynamax 8 for student observing programs?

ANSWER:

Ideal, because it has all the features required: a drive system coupled with variable tracking enables objects under study to be kept motionless in the field; an accurate set of easily-read setting circles reading directly into the sky, an accurate easily set up method of orienting the telescope in astronomical use. The short tube facilitates storage of the instrument.

28.

QUESTION:

How about target spotting?

ANSWER:

Bullet holes in the black at 300 yards (using the 12.7 mm. eyepiece) would appear to be only 65 inches distant from the user! Every detail of any hit, even a "double", can be studied.

29.

QUESTION:

Does the Dynamax come in a case?

ANSWER:

Yes, a handsome, reinforced foam lined case to protect your instrument and make it easy to transport — with one hand! Or choose the optional African mahogany case, \$90.00 additional.

30.

QUESTION:

Do I need to carry a heavy table on location to stand the Dynamax 8 on?

ANSWER:

No! The strong case (see answer 29) has been specially designed to serve as a stand. Bring an ordinary chair, and you have a comfortable viewing or photo station. All accessories are easily accessible in the shelves of the case.

31.

QUESTION:

How long does it take to set up the Dynamax 8 if I take it out to a location and observe, using the car battery?

ANSWER:

You'll find the Dynamax set-up time is about 5 minutes, because of simplified new design requiring only quick hand adjustments. Connect clips to the battery, or plug into cigarette lighter of car (plug provided without cost), and you're ready to go!

32.

QUESTION:

Can I use the Dynamax 8 without electricity?

ANSWER:

By all means! A manual adjustment instantly overrides the electric, and manual precision "panning" is simply done. Design provides for safe, damage-free overriding.

33.

QUESTION:

How about dust and maintenance of the mirrors?

ANSWER:

The Dynamax 8 is a sealed system with all the delicate aluminized surfaces inside the closed tube, protected from dust and other environmental harm. The outer surface of the front lens need only be given the attention you would give any fine optical surface, taking care not to scratch the glass by cleaning with anything other than soft, clean tissue.

34.

QUESTION:

What about counterweights for camera?

ANSWER:

The declination clamp of the Dynamax 8 is positive-acting, slip-free. For unusual applications that may call for additional counterweighting, a bar is built into the instrument, and the weights can be bought for \$10.00, if found to be needed.

35.

QUESTION:

What about optional accessories for the Dynamax?

ANSWER:

The Dynamax 8 comes complete, ready to use visually and photographically, with all basic accessories. There are no "hidden" charges for "extra" items you need to do your program. You get the complete Dynamax exactly as described in the enclosed literature—every feature, without any additional expense. Variable drive, telextender, latitude adjuster are all included.

While the Dynamax as supplied is a complete observatory, telephoto, and terrestrial telescope, there are optional accessories an owner can add at any time if desired. Included are pier type tripod, and various high acuity eyepieces, as follows:

4 mm. (527X) orthoscopic eyepiece — \$24.00

6 mm. (351X) orthoscopic eyepiece — \$24.00

7 mm. (301X) achromatic Kellner eyepiece — \$17.50

9 mm. (235X) achromatic Kellner eyepiece — \$17.50

16.3 mm. (129X) wide angle Erfle eyepiece — \$19.95

50 mm. (42X) Ramsden eyepiece — \$20.00

50 mm. (42X) Hastings eyepiece — \$22.50

CP-4 achromatic precision Barlow — \$17.50

Porro Prism Erector — \$29.00

Also available is an 8x50 right angle finder in place of regular 8x50 — \$28.50. If ordered extra — \$42.00

36.

QUESTION:

How is it possible that the Dynamax 8 costs only \$875.00?

ANSWER:

To make the Dynamax 8 available at this price, with accessories to give it total capability, required completely new design and some modern miracles of manufacturing technology. So that every superfine optic system would be of absolutely highest precision, procedures and test equipment of highest reliability had to be devised and certified. Classical methods of optics manufacture were not good enough, so advanced optical techniques learned from space optics programs were adopted. Dynamax optics are triple tested, individually and in sets. Our standards of acceptance are so high they may exceed military specifications, which we have been working to for years. Ingenious methods of metal fabrication devised by our master machinists and engineers produce the mountings and drive. While effecting savings these techniques actually attain superior precision. Only a firm pioneering improvements in telescope making for a quarter century could offer this value. As in the past, Criterion passes the savings along to users.

37.

QUESTION:

How do I order the Dynamax 8?

ANSWER:

The Dynamax 8 is sold only directly from the plant. Please send with your order full payment by check or money order for \$875.00. Express charges are collect on arrival. These will vary by distance shipped but will average about \$12.00.

38.

QUESTION:

Is there a payment plan on this model?

ANSWER:

We regret that there is no time payment plan direct at this time. If necessary, you can likely arrange financing at your local bank, finance company, or credit union, or by savings bank "book loan". We do not finance. You may if you wish pay 25% with your order, balance on notice that we are ready to ship.

39.

QUESTION:

How about delivery time?

ANSWER:

Orders for Dynamax 8 are filled in order of receipt. While every effort is made to get your order to you as quickly as possible, we have no control over the influx of orders, and you must remember that the Dynamax is an extremely precise instrument requiring unhurried manufacture. When demand exceeds our limits, we must ask your patience. However, we're positive the Dynamax is well worth waiting for, and your patience will be rewarded with years of delight in its use.

YOU ASKED US FOR IT! You and other demanding amateurs and professionals have wanted a compact, precision, optically superb telescope designed for your needs. Now it's here...

The Magnificent New Criterion

A major advance in telescope design and engineering, offering:

TOTAL PORTABILITY An 8" telescope with unique features that weighs only 24 pounds... may be used on tabletop or tripod... operated on AC, DC, or manually... set up virtually anywhere for observation or photography.

TOTAL PERFORMANCE Exquisite optics with the extreme resolution and characteristics required for observation and photography of faint astronomical objects, with advanced, complete, built-in guidance system... providing new standards of precision, flexibility, and operating ease. Unexcelled results!

TOTAL VERSATILITY Designed to meet fully the needs of the observer and astrophotographer without compromise... to be practical and convenient for all telephotography techniques—even exotic scientific applications.

An 8" Schmidt-Cassegrain designed from the outset for exacting performance... with all these new, exclusive features—all at no extra cost!

We began with a clean sheet of paper on the drafting table, to develop a wholly new concept of a totally portable telescope able to satisfy the precision requirements of the demanding observer. For example:

1. Variable-frequency drive. No telescope represented as fully astrophotographic should be without a variable drive to compensate precisely for the motion of any celestial object. The new Dynamax 8 includes a completely variable drive—not just solar. Here is the easily controlled drive essential for top-quality long exposures.

2. Positive latitude adjustment. To avoid frustrations, a latitude adjuster must be accurate, simple to set up, and highly stable. Any error or wobble can prove a severe handicap. Criterion design, recognizing the astronomer's needs, solves this problem by giving the advanced guidance system exact accuracy and stability.

3. Electric and manual slow motion. This Dynamax 8 feature permits simple, extremely accurate electric centering of objects. For terrestrial photography or observing, the same pinpoint centering can be obtained easily by manual slow motion.

4. Setting circles readable from observing position. No need with this unique design to get up and check declination circles on the other side of the instrument! All settings can be plainly read from the observer's end of the telescope—a feature of enormous convenience. Large RA circle reads in both time and degrees.

5. Pilot light and toggle switch. With an electric drive so smooth you cannot tell if it is running, this exclusive design becomes a necessity as well as a valuable aid! Now even in the dark you can tell instantly if the drive is running. This feature helps prevent error and spoiled pictures... adds to reliability and enjoyment of your instrument.

6. AC, DC, Manual drive—all three! Portability becomes meaningful when you have DC drive as well as AC and manual, for still photography. The Dynamax 8 DC drive is included, not extra, and operates from a 12-volt car battery or other 12-volt source.

7. Hand-held controls. All variable drive controls are on a small box you can hold easily in one hand, operate in the dark. Instant override.

8. Three eyepieces. 30 mm. (70X), 18 mm. (117X), 12.7 mm. (165X) included at no extra cost; others available optionally.

9. 8 x 50 finder. Large achromatic, coated, wide-field finder scope with cross hair, more than adequate for this superb 8" instrument.

10. Modern exterior design. You will constantly enjoy the sleek configuration of the Dynamax 8, expressing beautifully the precision built in, and thoroughly functional in providing convenience and ease of handling, along with typical Criterion sturdiness. Weather-resistant polished metal and baked enamel finish.

Because we designed "from scratch" to meet the demands of discriminating observers and telephotographers, we believe you will find the new Dynamax 8 an instrument of outstanding performance capability—splendidly efficient, completely equipped.

TOTAL TELEPHOTOGRAPHY CAPABILITY!

We believe this is the first portable instrument with fully engineered, "designed in" capability for both astro and terrestrial telephotography—enabling the competent amateur to produce "professional" quality pictures with ease and reliability. The variable drive features alone put it into a class by itself, fully capable of long, "locked on" exposures.

A Scientific Instrument, A Scientific Education

On Earth, the magnificent optical qualities permit an almost unlimited variety of applications, including television, laser, scientific measurements, and industrial applications; and breathtaking "close-up" insect, nature, and wildlife observation and photography the entire family will enjoy.

For teaching, the small size, light weight, sturdiness, and easy operation of the Dynamax 8 make it an ideal instrument for astronomy, geology, natural sciences, ecology, and photography applications.