

QUANTUM TELESCOPES – FOR SERIOUS AMATEUR ASTRONOMERS ONLY?



QUANTUM FOUR at \$895.00

QUANTUM SIX at \$1,450.00

The mechanical and optical quality of our instruments equals or surpasses that of the best examples of commercially produced catadioptric Cassegrain telescopes available today. We do not employ any compromise in optical or mechanical design, and you obtain all the advantages of a true $f/15$ system. For additional information, please write for our descriptive literature.

Not really!

While it is true that we designed the Quantum Series of Maksutov Cassegrain telescopes with the demanding requirements of the serious amateur astronomer in mind, it is also true that its resulting valuable attributes must make such an instrument just as desirable to the terrestrial observer, nature enthusiast, or general hobbyist. The same superb diffraction-limited optical system which provides unsurpassed high-contrast exquisitely sharp images for the sophisticated amateur will also yield unequalled aesthetic pleasure to the most innocent of observers.

This may seem surprising to someone who contemplates the purchase of his or her first telescope. Nevertheless, the beginner especially deserves the utmost in optical and mechanical workmanship; to proceed otherwise is to invite possible disappointment which can dampen enthusiasm and cause diminished interest in the entire endeavor. On the contrary, a really fine instrument, such as the Quantum Four or Six, will lead its user to look forward to every observing opportunity with a pervasive sense of anticipation because each previous occasion will have remained memorable.

The fundamental advantage of having elected to own the best also makes itself felt as the user's experience and skill increase. By adding the appropriate accessories, the inherent versatility of the design can develop along with the aspirations of the observer to the degree that an instrument of narrow concept cannot equal. For example, the simple addition of our T-Mount Swivel Camera Coupling and appropriate T Adapter will bring the worlds of high-power visual observation and 35-mm. SLR photography together in a way that will challenge and absorb a receptive person for a lifetime.

In a discernible sense, the decision to own a Quantum Four or Six opens the prospect of a lifelong interaction between the observer and his telescope that could yield a synergy exceeding the sum of its parts. We invite you to order one now and commence upon a fabulous journey made possible by owning the very best, a Quantum.

OPTICAL TECHNIQUES, INC.

205 Pheasant Run, Dept. ST, Newtown, Pa. 18940

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This Month –

THE "BIGGER IS BETTER" SYNDROME

"The larger the telescope, the less the probability that the air mass over it will be homogeneous within a quarter wavelength path difference at any given time. Thus follows the hard fact that smaller telescopes may frequently give better resolution than larger ones even though their theoretical resolving power is not nearly so great."

"The designer who knows that seeing conditions limit the performance of a telescope more than does the theoretical resolving power will not specify aperture on the basis of theoretical resolution without first considering the actual conditions of use."

Both of the foregoing quotations come from the authoritative Military Handbook 141 in its section devoted to atmospheric optics. In addition to discussion of the advantages in resolution yielded by smaller telescopes over larger ones due to limitations of the atmosphere, this publication contains information on other topics valuable to instrument and observatory designers. One item which should have special meaning to all prospective telescope users is the fact that the "seeing disk" (the Airy disk as modified by air turbulence) produced by the 36-inch Lick refractor ranges from 2 to 5 arc seconds under average conditions, which places this classic giant at the same resolution level as a 2-inch instrument much of the time!

Over the greater area of the world's land masses, the diameters of the air "cells" or waves above the observer are typically 4 to 6 inches. This means that an instrument of the same aperture will be "in tune" with them, thus enabling its user to attain the theoretical resolving power of a really fine system far more frequently than an observer employing a larger telescope.

The wise purchaser will select his or her telescope not on the basis of aperture for its own sake, but from the knowledge that it should fit the average atmospheric conditions under which it will be used. The Quantum series of Maksutov Cassegrain telescopes, which come in apertures of 4 and 6 inches, was conceived from the start to take advantage of the conditions imposed by the atmosphere on telescopic performance. Their modest size and incomparable optical and mechanical quality make them by far the best choice for those who value exquisite performance.



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GOOD NEWS – BAD NEWS

THE GOOD NEWS! We received the following letter from David H. Hibner, Colchester, Connecticut.

Gentlemen:

As an owner of your Quantum 4 telescope and an amateur astronomer of many years experience, I am writing to express my satisfaction in using an instrument of such superb optical and mechanical design and engineering. The performance of the diffraction-limited optics, which are the key to the sharp, crisp, high-contrast images of the Quantum, is extraordinary. Never before have I seen such a perfect example of the Airy disk and its surrounding ring pattern.

I have a special appreciation for the mechanical excellence of your design because of my experience as a professional engineer and as a designer and builder of several telescopes. I have mounted my Quantum 4 on a rigid cemented pier to take full advantage of the inherent rigidity of your unique single-strut design. While it has been suggested that two struts are necessary to provide a vibration-free design, it can be shown that it is the stiffness of the oversized, preloaded thrust bearings in the Quantum 4 and not the strut that establishes the stiffness of the system. Thus a second strut is not only superfluous but limits the versatility of the instrument. With my Quantum 4 I have enjoyed vibration-free viewing and have been able to engage in precise astrophotography. The smooth backlash-free right ascension and declination controls allow precise positioning and tracking with no perceptible vibration of the image even under high power. The focusing system is completely free of the image shift which I have observed on other catadioptric systems, and the side-mounted control knob is especially convenient.

The stability and optical excellence achieved in an instrument of such portability and convenience are remarkable. You have produced a well-engineered, high-performance instrument sure to be in demand by those who recognize and appreciate quality.

Sincerely,
David H. Hibner



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THE BAD NEWS

PRICE INCREASE
EFFECTIVE OCTOBER 1, 1978

QUANTUM FOUR at \$990.00
QUANTUM SIX at \$1,795.00

Orders received postmarked on or before September 30th, 1978, will be accepted at the current price. However, we urge you to place your order as soon as possible to ensure a reasonable delivery time.

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"... THE PERFORMANCE OF THIS BEAUTIFUL INSTRUMENT WAS TRULY AMAZING."

We have received many letters from Quantum telescope owners concerning the performance of their instruments. The following letter is from Jose Olivarez, Director, Omnisphere Earth-Space Center, Wichita, Kansas. Mr. Olivarez is a member and past Asst. Jupiter Recorder of the Association of Lunar and Planetary Observers (ALPO).

Gentlemen:

Just a note to inform you that I had the opportunity to test the O.T.I. Quantum 4 last night under very good seeing conditions and the performance of this beautiful instrument was truly amazing. I spent a good 45 minutes checking the moon and I have nothing but praise for the superfine images I enjoyed at 147x and 294x! (I used a 10-mm orthoscopic eyepiece.) Indeed the detail in the walls of craters under both low and high lighting was remarkable. I had never seen such fine detailing of the walls of the crater Theophilus under a high sun before! Also, the sharp and highly detailed relief of the gradually sloping walls of the crater Aristoteles was most impressive! In fact, the lunar views I obtained with the Quantum 4 at 294x compared remarkably well with the high-resolution photographs made with the Pic du Midi Observatory reflector and published in Zdenek Kopal's "A New Photographic Atlas of the Moon" (plates 72 and 94). I had to remind myself that I was observing with a 4-inch aperture and not an 8- or a 10-inch!

After 45 minutes of being dazzled by the lunar details exquisitely presented by the Quantum 4, I took advantage of the good seeing and checked out some double stars. Again, I was really tickled to be able to easily resolve Zeta Bootis (1.1 arc seconds separation), Nu Scorpii (1".0), and Delta Cygni (a light test for a 4-inch), one right after the other! Also, my view of Epsilon Lyrae was the sharpest, most striking view of this double-double that I have ever had!

Needless to say, I am now very eagerly awaiting the arrival of my O.T.I. Quantum 6.

Sincerely,

Jose Olivarez
Omnisphere Director
ALPO



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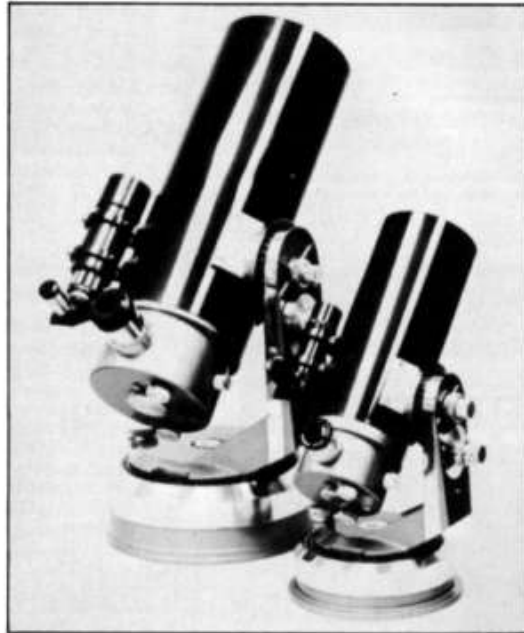
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QUALITY DEFINED

The Quantum series of Maksutov Cassegrain telescopes embodies the superb union of an exquisite perfectly baffled f/15 optical system with a rigid, well-damped mounting, to provide perfect images plus the ultimate in smooth precise mechanical control.

Used on the moon and planets, a Quantum reveals delicate low-contrast detail to a degree never attained through other instruments of like aperture, regardless of price. Views of our moon, with its wide range of contrasts and constantly changing illumination, present the limitless prospect that has kept intelligent observers busy for generations. Applied to deep-sky objects, the Four can reach more than 800 galaxies. The core of M13 appears as a stellar bee swarm, and M42 fills the field in a manner that some have declared to be better than a long exposure photograph. It follows that optical quality at this high level yields star images like tiny jewels, and classic test doubles, such as Delta Cygni, often cause exclamations of wonder and delight.

The overall design of the Quantum makes it easy for anyone to set up and operate, and its breathtaking performance will match anyone's developing skill and sophistication for a lifetime. We would be pleased to send you literature on these superb instruments.



OPTICAL TECHNIQUES, INC.

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Introducing —

The Quantum 100 Series

At all times throughout the development of the Quantum Series of Maksutov Cassegrain telescopes, we have felt that a segment of the astronomical community would welcome an instrument that provides the ultimate in optical quality and performance at the lowest possible cost. Therefore, we take pleasure in introducing Quantum "100" Series of Maksutov Cassegrain telescopes.

The "100" Series models, with the number denoting the aperture in millimeters, embody a no frills concept, letting the owner start with the essential and augment his observing equipment to match his developing aspirations. They incorporate the same superb $f/15$ optical system as our elegant Quantum Four and Six instruments but in plain basic barrels without built-in Barlow lens, internal diagonals, or mountings.

Shown below is the Quantum "100" mounted directly on our modified Davis and Sanford Model B tripod with star diagonal and 27-mm Kellner eyepiece for casual astronomical observing. Substitution of the star diagonal with a Porro prism converts it to a super spotting



telescope for everything from scoring bench rest rifle targets to detailed examination of distant songbirds down to their finest feather barbels. Attachment of a 35-mm camera body allows the user to photograph objects from as close as 12 feet to infinity in superb detail as exemplified by the adjacent photograph of the lunar terminator taken with a Quantum Four.



Initially, the Quantum "100" Series includes two telescopes to choose from; the 100 and the 150, with a complete line of accessories available for each instrument.

Make no mistake; these systems don't embody any compromise in optical or mechanical quality, and they will carry the same 10-year guarantee against defects of materials and workmanship (5 years on the enhanced coatings) as our Quantum Four and Six. The opportunity to acquire the very finest, a Maksutov Cassegrain of transcendent superiority, at the lowest price, appears to us as the nearest thing to having your cake and eating it too!

Prices start at \$460.00.

For more information on this fascinating new telescope, you are invited to write or telephone us. All of our knowledge and experience will be at your disposal.

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O.T.I. Presents —

THE PERFORMERS

THE QUANTUM FOUR AND SIX



Classical in quality and workmanship yet modern in design, the Quantum Four and Six represent the finest in personal optical instrumentation. A unique blend of optical perfection and mechanical refinements provides perfect images plus the ultimate in smooth precise mechanical control.

As lunar and planetary instruments, the Quantum Four and Six are without peer, revealing delicate low-contrast detail which totally escapes other telescopes of comparable aperture. Applied to deep-sky objects, they reveal countless galaxies, clusters, and nebulae with a clarity of detail and brightness never before possible with instruments of their size and class. At this high level of optical quality, star images appear like tiny jewels, and classic test doubles often cause exclamations of wonder and delight.

The Quantum's overall design makes it easy for anyone to set up and operate and its breathtaking performance will match anyone's developing skill and sophistication for a lifetime. Fully mounted instruments are realistically priced from \$990. We would be pleased to send you descriptive literature on these superb instruments.

THE QUANTUM 100 SERIES



The Quantum Four and Six Maksutov Cassegrain telescopes are recognized the world over as the finest in personal optical instrumentation. Their performance has become legendary in nearly every segment of the astronomical community. Now, this same performance is available in a new line of popularly priced telescopes — the Quantum "100" Series.

The "100" Series models, with the number denoting the aperture in millimeters, embody a no-frills concept letting the owner start with the essential and augment his observing equipment to match his developing aspirations. They incorporate the same superb f/15 optical system as the Quantum Four and Six but in plain basic barrels without built-in Barlows, internal diagonals, or elaborate mountings.

Initially, the Quantum "100" Series includes two telescopes to choose from, the 100 and 150, with a complete line of accessories available for each instrument. Priced from \$460, these instruments are manufactured to the same high standards of optical and mechanical quality as the elegant Quantum Four and Six. Complete descriptive literature on these fascinating new telescopes is available upon request.

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