TELESCOPES

& ACCESSORIES CATALOG NO. 78

OPTICA

ORDER INFORMATION

PLEASE READ CAREFULLY BEFORE ORDERING

CONFIDENCE You can purchase OPTICA b/c equipment and supplies with confidence. You are dealing with a U.S. company that has an established reputation of quality, precision and service since 1939. Our products are used by educational institutions, governments, the military, observatories, planetariums and research institutions as well as amateurs the world over. Absolutely no rejects, seconds or toy quality products are merchandized by the OPTICA b/c Company or its subsidiaries. OPTICA b/c adheres strictly to the ethical standards for advertising as set forth by the Better Business Bureau (B.B.B.) and the Federal Trade Commission.

GUARANTEE All OPTICA b/c products are guaranteed against defective materials and/or workmanship as stated in our catalogs and on guarantee cards. No other warranty or liability is given or implied. Please read instructions which accompany our products.

SAFE DELIVERY Assured by careful packaging, and all major items are insured.

SERVICE Replacement parts, down to tiny screws, are available, no matter which of the OPTICA b/c factories throughout the world produced the instrument. A Sales-Service Division stands ready to supply information and technical expertise relative to all products. We invite you to make use of these services.

FAST Most orders are shipped the same day as received. For special orders, custom work, heavy equipment and out-of-stock items, you are advised of the expected shipping date. Avoid delays; print your name and address clearly, including zip code number. Order by item, description, stock number and price. When ordering publications, include title, author and price as well as stock number. Also, please specify the catalog from which you are ordering.

PRICES are subject to change without notice. Check the latest OPTICA b/c News Letter to see if any changes from catalog prices have been listed. The latest edition of the News Letter will be sent to you free of charge. Simply request same, and include a self-addressed, legal #10 size, stamped envelope. Minor price increases on prepaid orders will normally be shipped C.O.D. for the increase to avoid delay, with the option for merchandise to be returned for full refund.

MINIMUM ORDER Prepaid orders received totaling less than $10.00 will be subject to a service charge of $1.00. Please note that products may be ordered from any of the catalogs to make the $10.00 total.

CHARGE BY PHONE, MAIL OR IN PERSON For the convenience of our customers, OPTICA b/c honors both Master Charge and Bank Americard. Include both card number and expiration date. Charge orders received for less than $25.00 will be subject to a $3.00 service charge. Shipping and insurance charges will be added to all M/C and B/A orders. F.O.B. Oakland, Calif.

OPEN ACCOUNT Governments and educational institutions may order on open account. Terms: Net E.O.M. Due to the high cost of accounting, orders received for less than $25.00 are subject to a $3.00 open account service charge. Shipping and insurance charges will be added to all open account orders. F.O.B. Oakland, Calif. Orders must be submitted on your official purchase order form. No telephone open account orders can be accepted.

TAXES California residents add current sales tax.

SHIPPING AND CRATING Shipping charges for prepaid book orders in the U.S.A. are paid by OPTICA b/c. All other prepaid orders which can be shipped for less than $1.50 are sent with shipping charges paid by OPTICA b/c. Prepaid orders costing more than $1.50 to ship are sent C.O.D. for shipping costs. Customer pays shipping costs on all charge account orders regardless of amount.

ORDERS FROM FOREIGN COUNTRIES — All orders are subject to a $5.00 service charge to cover special handling required for export and extra surface shipping costs. If you require air mail, please state on your order. Should shipping costs exceed $2.50 you will be advised of the additional cost. When ordering films and plates see "ORDERING INFORMATION — Astrophoto Catalog Price List" and add the amount listed for shipping to the $5.00 service charge. Payment must be made by an International Postal Money Order or a check (draft) drawn in U.S. dollars on any bank in the U.S.A.

LOSS OR DAMAGE IN TRANSIT CLAIMS Damage claims must be made by you directly to carrier. Save packing and original container for their inspection. Claims for shortages in shipment must be made to OPTICA b/c within five days of receipt. If any item has been backordered, a notice will be enclosed in the package.

LATEST MODELS We reserve the right to supply our latest models, which may include new developments not illustrated in our catalog. Consult the latest edition of the OPTICA b/c News Letter in which we make every effort to keep you informed of any product changes. One will be sent to you free if you enclose a legal #10 size, self-addressed, stamped envelope with your request.

IMPORTANT NOTICE TO EDUCATORS OPTICA b/c equipment and materials have been approved over the years for purchase with National Defense Education Funds, and other aid grants. Qualification is dependent upon use. We recommend that you consult your state department of education for information and approval.

REQUESTS FOR ADDITIONAL INFORMATION Address correspondence to our Sales-Service Division.

TELEPHONE (415) 530-1234. Switchboard is open 10 a.m. to 5:30 p.m., including Saturday, Pacific time. Collect calls cannot be accepted.

NEW CATALOGS, EVENTS CALENDAR AND NEWS LETTER OPTICA b/c catalogs are updated and revised periodically. They contain a wealth of useful information and are liberally illustrated with diagrams and photographs. There is a minimal charge for handling and postage which may be paid in cash, check or U.S. postage stamps. When you order catalogs you will receive **FREE** the latest copy of the OPTICA b/c News Letter and a current Astronomical Events Calendar.

Amateur Telescope Maker's Catalog Now you can satisfy all your telescope making needs from one source, over 400 items. Includes: standard parts, difficult-to-find items, and the many exclusive products available only from OPTICA b/c — from "A" (Abrasives) to "Z" (Zone Testing Masks). The "All Together" concept also includes complete units, components, supplies, and services ..... **50¢**

Astrophotography Catalog Camera-telescope couplers, films and plates, regular and specialized emulsions (such as spectroscopic), camera brackets, paper, chemicals, processing equipment, etc., over 550 items. ..... **50¢**

Publications and AVA Catalog Our largest selection of astronomically related materials. Over 300 different publications, atlases, maps, charts, planispheres, slides, posters, recorded lectures on records, standard tapes and tape cassettes, celestial, lunar and Mars globes, orreries, teaching aids, . . . and there's more ..... **50¢**

Telescopes & Accessories Catalog Terrestrial, celestial, refractors and reflectors, drives, diagonals, spectroscopes, erectors, solar observation system, eyepieces, variable density polarizing system, adapters, cleaning supplies, filters, etc., over 250 items. ..... **50¢**







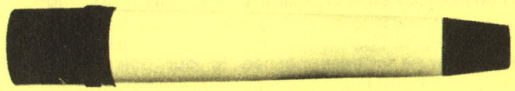




When you see this trade-mark, you know it is the finest that Photo-Optical Instrumentation Engineering can produce.

TERRESTRIAL

OPTICA b/c terrestrial telescopes are carefully engineered to give you the utmost performance in general observation. They are easy to use and constructed to the world famous OPTICA b/c standards of excellence. All telescopes are of multi-element optical formulae for increased clarity and sharpness. All air-to-glass surfaces are coated with a durable, antireflection coating that results in brighter images and protection of the optical surfaces.



10x30 Telescope

This compact telescope weighs only 9 oz. and delivers 42% more power than the average binoculars. Rugged build, ideal for hunting, boating, back-packing and general terrestrial observation. Only 10¼" long.

..... **Stock No. TA-030**

Optional Accessories for your 10x Telescope:

Cleaning supplies, car window clamp, tripods — see ACCESSORY section of this catalog.



8-25x30 Zoom Telescope

Our economical, smartly-styled zoom telescope. Easy to hand-hold or mount on a tripod. Enjoy low power, wide angle views; then zoom in for crisp close-ups. Bright images. Sharp optics. Finger tip fast zoom. Comparable to binoculars at low power but zooms up to 357% more power! Compact — 12¼" long and only 17 oz. ..... **Stock No. TB-030**

Optional Accessories for your 8-25x30 Telescope:

Cleaning supplies, car window clamp, tripod — see ACCESSORY section of this catalog.

Dual Purpose Telescopes

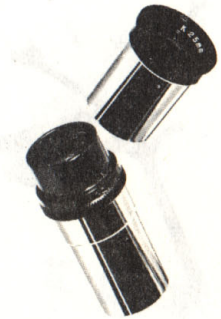
If you have a healthy interest in astronomy and wish to observe terrestrially only on occasion, you should seriously consider selecting one of our astronomical models. The superior engineering of the OPTICA b/c brand astronomical telescopes, **including reflectors,** makes them useful for ground observation with the addition of either a terrestrial zoom eyepiece or an erector (see "Accessory" section).

Before you place an order, be sure to read **ORDERING INFORMATION** on pages 1 and 2 of this catalog.

REFLECTORS

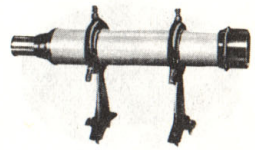
REFLECTOR TELESCOPE PROFILE

Basic features and equipment shared by all OPTICA b/c reflector telescopes.



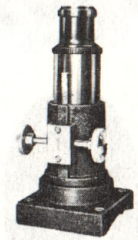
1. **EYEPIECES:** High quality eyepieces are supplied with each telescope; all air to glass surfaces are hard-coated producing sharper and brighter images; barrels are threaded to eliminate unwanted reflections and for filter and other accessory use. Marked with true focal length and design type. Durable finish: Hard, chrome-plated brass and black anodized aluminum.

2. **STARFINDERS:** All finder telescopes have hard-coated, achromatic lenses with crosshairs; tubes are rotatable inside rigid mounts. For perfect and permanent alignment, three-point micro-adjustment screws are incorporated with locking nuts. Fine adjustment lock ring permits exact and permanent focus for individual eyesight.



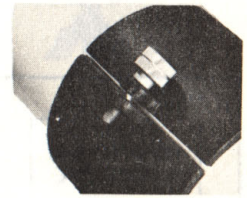
3. **TELESCOPE TUBE:** Rigid, non-flexing construction; finished in hard, porcelain-like scratch resistant white with optical flat black interior. Black end rings add strength and give it that professional touch.

4. **FOCUSER:** The OPTICA b/c focusing device provides deluxe, micro-smooth focusing with the unique, helical-type rack and pinion system. Tension is adjustable and assembly is rotatable (360°) in its base. Never an awkward position. The eyepiece holder is of standard diameter, accepts a wide variety of accessories, and is removable, permitting the addition of extension tubes, short eyepiece holders, etc. Won't wobble, jump or bind-ultrasmooth over entire travel. A special camera supporting bracket is offered to fit these focusers that does not require drilling a single hole. See the current OPTICA b/c Astrophotography Catalog.



5. **EQUATORIAL MOUNT:** All mounts are precision machined. They are the conventional German design with numerous updated features, such as quick release clamps for bypass on both axes, solid latitude adjustment and 360° rotation in azimuth for easy polar alignment, adjustable counterweights, and silk-smooth bearings. For increased stability, each rugged mount and stand is specifically engineered for the size and weight of the tube assembly. Also, each equatorial mount can be set up as an alt-azimuth for easy terrestrial viewing and transit-type measurements with setting circle models.

6. **QUICK RELEASE BYPASS:** This is a highly desirable feature which makes it possible to bypass the geared slow motion and drive system without disconnecting them. It also facilitates moving to a new object immediately.



7. **QUICK RELEASE TUBE CLAMPS:** Allows one to remove or attach the tube assembly in seconds, or reposition for a better balance.

8. **ROTATABLE TUBE ASSEMBLY:** A full 360° has many advantages. With reflectors it permits convenient positioning of the eyepiece. Side positioning is a must for proper terrestrial viewing and also allows line of sight viewing with a star diagonal. With refractors, guide and finder scopes can be repositioned with ease. With either type of telescope positioning on true north is facilitated, and taking the strain and the "backache" out of observing is welcomed by all.

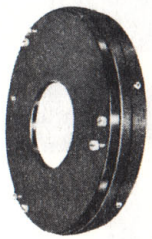
9. **PERPETUAL BALANCE:** Smooth mechanical functioning requires perfect telescope balance in both axes. Therefore, OPTICA b/c telescopes utilize a unique design that permits perpetual equilibrium in any orientation after the telescope is balanced once. Most accessories can be compensated for by slight re-adjustment. Heavy cameras can be balanced by adjustable tube weights available from OPTICA b/c.

10. **UNITIZED ENGINEERING:** The entire telescope is designed in self-contained units providing easy assembly and disassembly as well as solid performance when in use. The tube assembly detaches from the equatorial head and this unit in turn from the stand, pedestal or pier. Such professional engineering eliminates the laborious procedures required by most telescopes.









11. **MATERIALS:** Only first quality materials are utilized. Absolutely no plastic or carboard parts are used in the construction of any of these models. We believe in engineered excellance, not engineered obsolescence!

12. **FINISH:** Practical and durable protection for components is used throughout. External parts are finished with attractive, corrosion resistant coatings: hard chrome-plated brass, anodized aluminum and black, crinkle finish steel.

13. **REPLACEMENT PARTS:** The Optica Parts Department maintains a large selection of replacement parts down to the tiniest screws for your convenience.

14. **PHOTOGRAPHY:** Photography of celestial phenomena as well as terrestrial subjects is possible with thousands of camera combinations on all models.

15. **TERRESTRIAL VIEWING:** Every model reflector and refractor is so designed that by using an OPTICA b/c terrestrial zoom eyepiece or erecting system, images will be erect and corrected left and right for proper ground level viewing.

16. **GUARANTEE:** All OPTICA b/c equipment is guaranteed against any faulty workmanship or materials as fully outlined on guarantee cards and various advertisements.

17. **MIRRORS:** The secondary mirror is elliptical, not rectangular or prismatic, for increased light efficiency and sharpness. Both high resolution primary and secondary mirrors are accurate to 1/10 wave sodium light or better. Also, both are overcoated for increased life of the aluminized surface, and the thickness of the overcoating is strictly monitored to produce maximum reflectance. These facts plus the OPTICA b/c know-how result in an optical system capable of producing images up to 50% brighter than other telescopes!

18. **MIRROR MOUNTS:** The primary mirror mount assembly produces a dust-tight fit, diminishes internal convection currents that can destroy image quality, and is fully adjustable from the outside. The secondary mount is a spider assembly with minimum diffraction. It is fully adjustable at 7 different points, including three, micro-adjustment screws with locking system on the mirror itself. These adjustments are crucial if best imaging is to be accomplished.

19. **DUST CAP:** The metal dust cap protects the valuable optical surfaces against corrosive weathering, dust, and foreign objects inadvertantly dropped into the tube. Each one is fitted with an off-axis solar stop.

20. **SOLAR STOP:** Each dust cap is fitted with an off-axis solar stop.

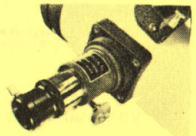
These features are shared by all OPTICA b/c reflector telescopes. On the following pages are listed additional, special features characteristic of individual models. Each model is complete, ready to use the day you buy it.



A Consumer's Guide to HOW TO BUY A TELESCOPE, Barbera

How can you avoid spending $100-$200 and still get a toy telescope? How might advertising mislead? Where do you look for hidden quality or concealed corner-cutting? This dynamite exposé reveals information that some telescope merchandisers wish had never been written! If you are interested in a telescope, investing in this book will be the best insurance you ever bought. Eliminates confusion about price, claims, terminology, etc. Compares terrestrial, celestial, reflector, refractor, and catadioptric telescopes. Discusses light gathering power, resolving power, magnifying power, mounts, accessories, and performance (what you can expect to see). Plus the vital sections on merchandising techniques, pitfalls to avoid, and a quality rating checklist. Fully illustrated with charts, tables, diagrams. 38pp ..... **Stock No. PG-084**

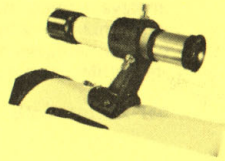
The OPTICA b/c 3¼" (84mm) Reflector, 760mm f.l.



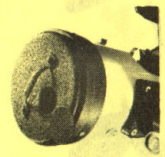
Consult **Reflector Telescope Profile** for the 20 basic features shared by all OPTICA b/c reflectors.

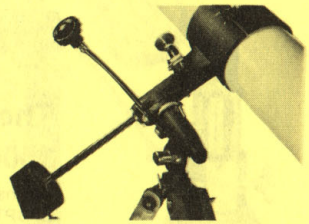
ADDITIONAL FEATURES (See Glossary for details on starred features.)
21. Adjustable, heardwood tripod
*22. Stabilizer tripod brace
23. Accessory tray
24. Standard focuser

OPTICA b/c 3¼" Reflector ..... **Stock No. LB-084**



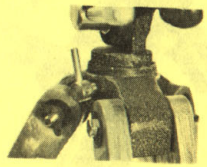






LC-084

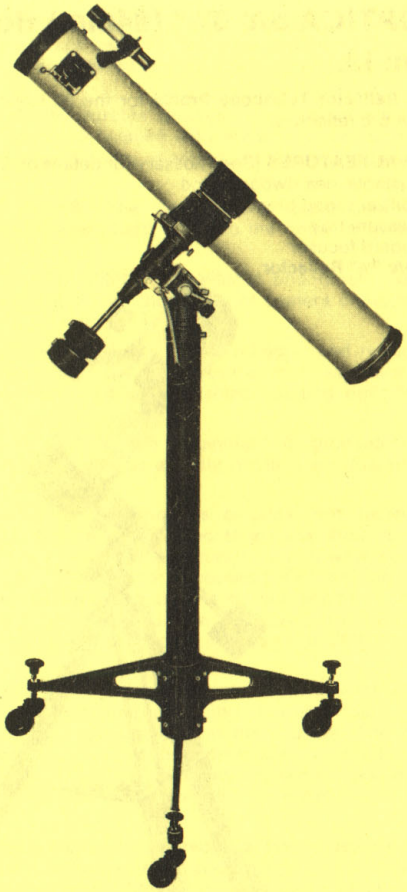
The OPTICA b/c 3¼" (84mm) Reflector with Slow Motions, 760mm f.l.



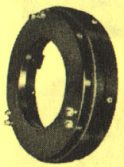
Consult **Reflector Telescope Profile** for the 20 basic features shared by all OPTICA b/c reflectors.

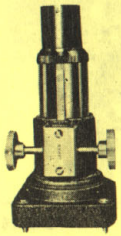
ADDITIONAL FEATURES (See Glossary for details on starred features.)
21. Adjustable, hardwood tripod
*22. Stabilizer tripod brace
*23. Slow motion gears, on both axes
*24. Flex arm on RA axis
25. Accessory tray
26. Standard focuser

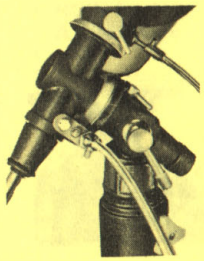
OPTICA b/c 3¼" Reflector with Slow Motions ..... **Stock No. LC-084**











The OPTICA b/c 4" (100mm) Reflector, 1000mm f.l.

Consult **Reflector Telescope Profile** for the 20 basic features shared all OPTICA b/c reflectors.

ADDITIONAL FEATURES (See Glossary for details on starred features.)

21. Heavy duty, steel pedestal & legs
*22. Threaded mount levelers
*23. Ball bearing casters
*24. Threaded pedestal construction
*25. Larger slow motion gears on Dec. and R.A. axes
*26. Flex arms
*27. Siderial drive available
*28. Setting circles
*29. Triple pointer system
30. Double clamp tube saddle
*31. Removable tube clamps
32. Standard focuser

OPTICA b/c 4" Reflector ..... **Stock No. LA-100**

4" Reflector — Same as LA-100 above but with hardwood field tripod instead of pedestal..... **Stock No. LB-100**

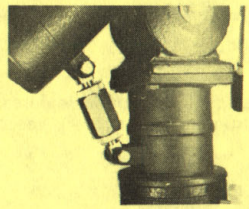
The OPTICA b/c 6" (150mm) Reflector, 1300mm f.l.

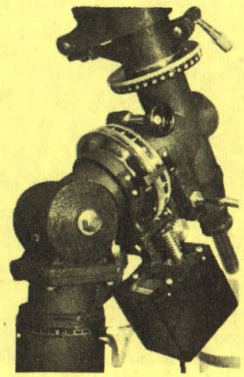
Consult **Reflector Telescope Profile** for the 20 basic features shared by all OPTICA b/c reflectors.

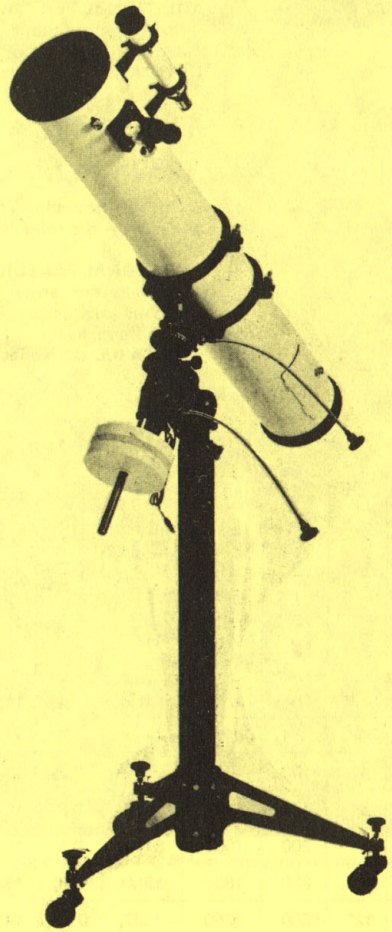
ADDITIONAL FEATURES (See Glossary for details on starred features.)

Heavy duty steel pedestal & legs, *Threaded mount levelers, *Ball bearing casters, *Slow motion gears for Dec. & R.A., *Flex arms, *Siderial drive available, *Third gear drive corrector, *Setting circles, *Triple pointer system, *Threaded pedestal construction, *Steel roller bearings—Timkin type, *Trunnion for altitude adjustment, *Threaded counterweights, Double clamp tube saddle, *Removable tube clamps, *Deluxe focuser, *Mirror inspection port.

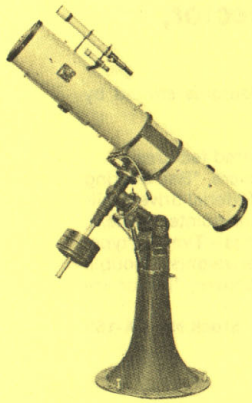
OPTICA b/c 6" Reflector ..... **Stock No. LA-150**







Before you place an order, be sure to read **ORDERING INFORMATION** on pages 1 and 2 of this catalog.



The OPTICA b/c 8" (200mm) Reflector, 1600mm f.l.

Consult **Reflector Telescope Profile** for the 20 basic features shared by all OPTICA b/c reflectors.

ADDITIONAL FEATURES:
Studded with a multitude of deluxe features and precision workmanship that sets this instrument in a class all by itself. Permanent observatory mount only.
OPTICA b/c 8" Reflector ..... **Stock No. LA-200**

The OPTICA b/c 10" (250mm) Reflector, 1800mm f.l.

Consult **Reflector Telescope Profile** for the 20 basic features shared by all OPTICA b/c reflectors.

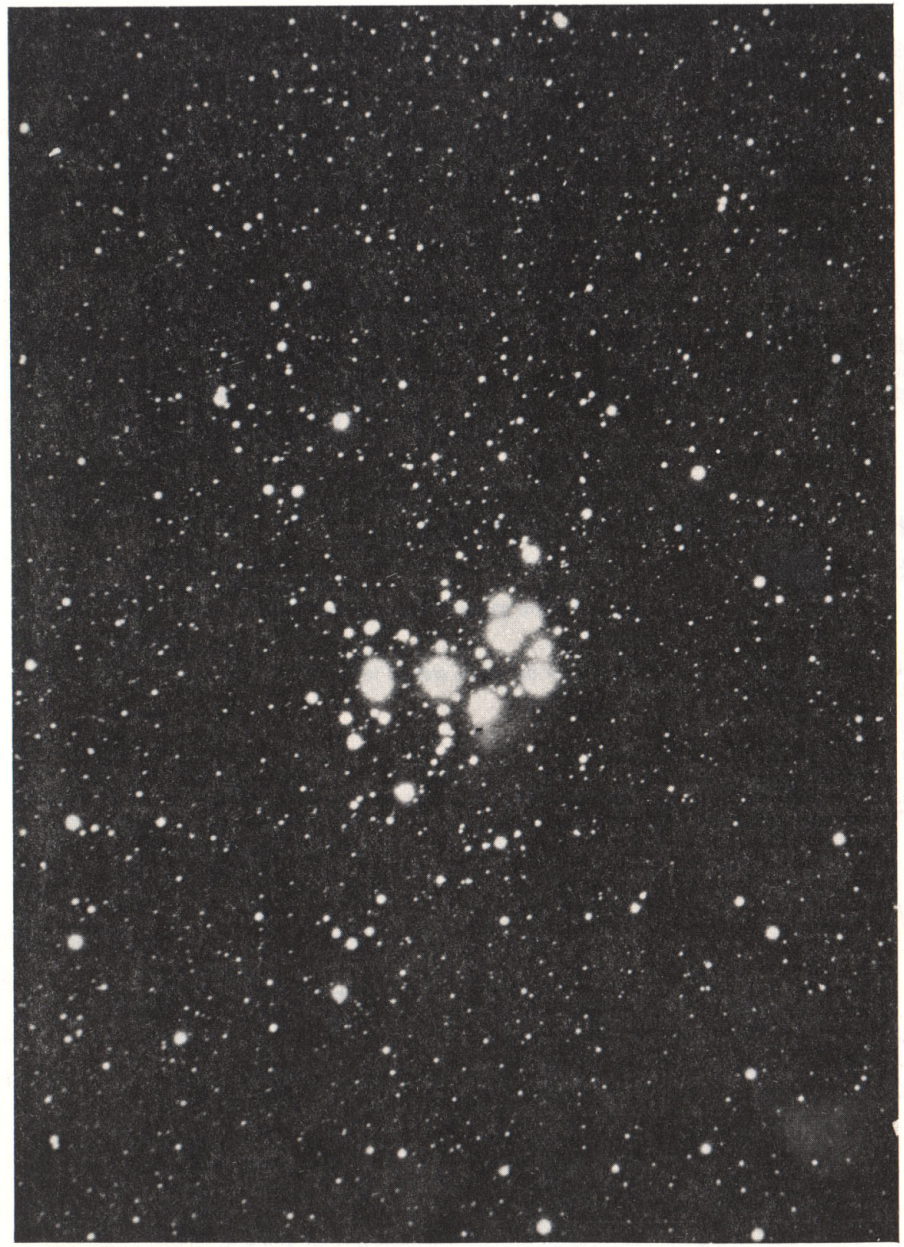
ADDITIONAL FEATURES
Massive observatory permanent mounting. Deluxe finish and precision machining throughout.
OPTICA b/c 10" Reflector ..... **Stock No. LA-250**

The OPTICA b/c 12" (300mm) Reflector, 2250mm f.l.

Consult **Reflector Telescope Profile** for the 20 basic features shared by all OPTICA b/c reflectors.

ADDITIONAL FEATURES
An extensive array of professionally designed features and accessories complement this precision instrument — truly a 12" as only OPTICA b/c makes them.
OPTICA b/c 12" Reflector ..... **Stock No. LA-300**

Stock No.	Aperture in inches	Aperture in mm.	Focal Length in millimeters	Light Collecting Power compared to the naked eye	Resolving Power in seconds of arc	Faintest Discernible Star in magnitudes	Star Finder	Eyepieces	Magnification
LB-084	3¼"	84	760	144x	1.4	11.4	5x	2	61x, 127x
LC-084	3¼"	84	760	144x	1.4	11.4	5x	2	61x, 127x
LA-100	4"	100	1000	204x	1.2	11.8	5x	3	40x, 80x, 162x
LA-150	6"	152	1300	460x	0.8	12.7	12x	4	52x, 108x, 217x, 325x
LA-200	8"	200	1600	817x	0.6	13.3	5x, 12x	5	44x, 128x, 178x, 267x, 400x
LA-254	10"	250	1800	1380	0.45	13.8	6x, 25x	6	72x, 100x, 144x, 200x, 300x, 450x
LA-300	12"	300	2250	1837	0.39	14.2	6x, 25x, +80mm guide	7	45x, 90x, 125x, 180x, 250x, 375x, 563x



Pleiades — Superior accuracy in the OPTICA b/c equatorial mount and drive insure pinpoint astrophotos free of trailing.

REFRACTORS



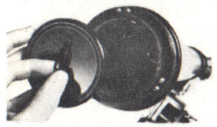
REFRACTOR TELESCOPE PROFILE

1-16. The OPTICA b/c refractors share all these outstanding advantages as presented in the Reflector Telescope Profile.

17. **OBJECTIVES:** Fraunhofer type, achromatic, 2 element, air-spaced. All surfaces are hard-coated for increased transmission and clarity.

18. **OBJECTIVE MOUNTS:** Fully adjustable objective mounts for accurate collimation. Many refractors do not have this important feature.

19. **OBJECTIVE HOODS:** Specifically designed for each objective to prevent glare, inhibit dew formation, and shade against unwanted sky illumination to increase image contrast.



20. **DEW CAPS:** Snug fitting caps protect objective from accidental damage in storage, corrosive dust & dirt, and dew formation.

These features are shared in common by all OPTICA b/c refractors. Following are the individual models with special features described. Each telescope is professionally finished, complete, and ready to use immediately.

The OPTICA b/c 50mm (2") Refractor, 750mm f.l.



Consult Refractor Telescope Profile for the 19 basic features shared by all OPTICA b/c refractors.

ADDITIONAL FEATURES (See Glossary for details on starred features.)
- 20. Adjustable hardwood field tripod
- *21. Stabilizer tripod brace
- 22. Accessory tray
- *23. Slow motion gears on Dec. and R.A.
- *24. Flex arm
- 25. Printed altitude angle adjustment

OPTICA b/c 50mm x 750mm Refractor ..... **Stock No. RA-050**



The OPTICA b/c 60mm (2.4") Refractor, 910mm f.l.

Consult Refractor Telescope Profile for the 19 basic features shared by all OPTICA b/c refractors.

ADDITIONAL FEATURES (See Glossary for details on starred features.)
- 20. Adjustable hardwood medium duty field tripod
- *21. Stabilizer tripod brace
- 22. Accessory tray
- *23. Metal tripod leg caps.
- *24. Larger slow motion gears on Dec. and R.A.
- *25. Flex arms
- *26. Siderial drive available
- *27. Setting circles

OPTICA b/c 60mm x 910mm Refractor ..... **Stock No. RB-060**

Are refractors more powerful than reflectors? See the book **How to Buy a Telescope,** available from OPTICA b/c.

The OPTICA b/c 76mm (3") Refractor, 910mm f.l.



Consult Refractor Telescope Profile for the 19 basic features shared by all OPTICA b/c refractors.

ADDITIONAL FEATURES (See Glossary for details on starred features.)
- 20. Adjustable hardwood extra sturdy field tripod
- *21. Stabilizer tripod brace
- 22. Accessory tray
- *23. Metal tripod leg caps
- *24. Slow motion gears on Dec. and R.A.
- *25. Flex arms
- *25. Setting circles, larger R.A. circle
- *27. Siderial drive available
- 28. Fine adjustment altitude screws

OPTICA b/c 76mm x 910mm Refractor ..... **Stock No. RA-076**

The OPTICA b/c 76mm (3") Refractor, 1200mm f.l.



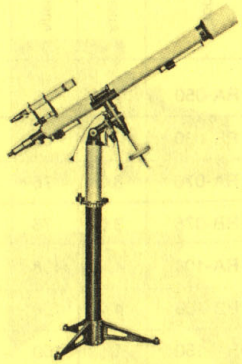
Consult Refractor Telescope Profile for the 19 basic features shared by all OPTICA b/c refractors.

ADDITIONAL FEATURES (See Glossary for details on starred features.)
- 20. Adjustable hardwood extra field tripod
- *21. Stabilizer tripod brace
- 22. Accessory tray
- *23. Metal tripod leg caps
- *24. Slow motion gears on Dec. and R.A.
- *25. Flex arms
- *26. Siderial drive available
- *27. Larger setting circles
- *28. Triple pointer system
- 29. Fine adjustment altitude screws

OPTICA b/c 76mm x 1200mm Refractor ..... **Stock No. RB-076**

How much light gathering power do you need . . . see **How to Buy a Telescope,** available from OPTICA b/c.

The OPTICA b/c 108mm (4¼") Portable Refractor, 1600mm f.l.

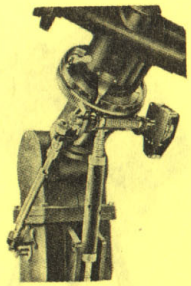


Consult Refractor Telescope Profile for the 19 basic features shared by all OPTICA b/c refractors.

ADDITIONAL FEATURES (See Glossary for details on starred features.)
- 20. Portable metal pedestal w/metal toes
- *21. Ball bearing casters
- *22. Threaded mount levelers
- 23. Accessory tray
- *24. Large slow motion gears on Dec. and R.A.
- *25. Flex arms
- *26. Siderial drive available
- *27. Large setting circles
- *28. Triple pointer system
- *29. Tunnion for altitude adjustment
- *30. Threaded counterweights

OPTICA b/c 108mm x 1600mm Portable Refractor ..... **Stock No. RA-108**

Before you place an order, be sure to read **ORDERING INFORMATION** on pages 1 and 2 of this catalog.



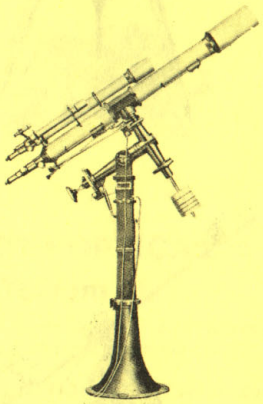
The OPTICA b/c 108mm (4¼") Permanent Refractor, 1600mm f.l.

Consult Refractor Telescope Profile for the 19 basic features shared by all OPTICA b/c refractors.

ADDITIONAL FEATURES (See Glossary for starred features.)

*20. Massive, permanent pier
21. Leveling and alignment screws
22. Accessory tray
*23. Large slow motion gears
*24. Flex arms
*25. Siderial drive included, heavy duty
*26. Large setting circles
*27. Trunnion for altitude adjustment
*28. Multiple tube counterweights

OPTICA b/c 108mm x 1600mm Permanent Refractor .... Stock No. RB-108



The OPTICA b/c 150mm (6") Refractor, 2250mm f.l.

Consult Refractor Telescope Profile for the 19 basic features shared by all OPTICA b/c refractors.

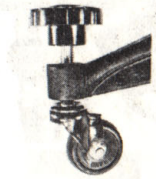
ADDITIONAL FEATURES

Massive observatory pier mounting, same design as the OPTICA b/c 4" refractor only larger. Fully equipped with the latest siderial drive, larger setting circles, etc. Special high power guide scope included.

OPTICA b/c 150mm x 2250mm Refractor ..... Stock No. RA-150

Stock No.	Aperture in Inches	Aperture in mm	Focal Length in millimeters	Light Collecting Power compared to the naked eye	Resolving Power in seconds of arc	Faintest Discernible Star in magnitudes	Star Finder	Eyepieces	Magnification
RA-050	1.9	50	750	51x	2.4	10.3	4x	3	60x, 83x, 125x
RB-060	2.4	60	900	73x	2	10.7	6x	3	45x, 72x, 150x
RA-076	3.0	76	910	118x	1.6	11.2	6x	3	35x, 73x, 152x
RB-076	3.0	76	1200	118x	1.6	11.2	6x	3	66x, 96x, 200x
RA-108	4¼	108	1600	238x	1.0	12.0	6x, 25x	4	40x, 64x, 133x, 267x
RB-108	4¼	108	1600	238x	1.0	12.0	6x, 25x	4	40x, 64x, 133x, 267x
RA-150	6"	150	2250	460x	0.8	12.7	12x, 35x	5	45x, 90x, 187x, 250x, 375x

Glossary

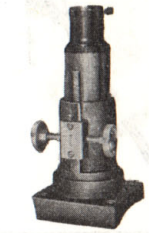


BALL BEARING CASTERS

Move telescope to and from observing site with ease. Reduces the grunts and groans!

DELUXE FOCUSER

Telescope focusers often have insufficient travel to utilize most accessories and even some eyepieces. The only way to use them is to move the mirror forward in the tube and recollimate — a procedure which is frustrating to say the least. The OPTICA b/c Deluxe Focuser eliminates the problem — plenty of travel, no slip, and controlled tension with adjustable pressure pads. As an extra bonus, a special helical-type rack and pinion gear insures microsmooth focusing.



FLEX ARMS

These control cables facilitate guiding, correcting and locating objects with greater ease. Their flexibility reduces vibrations that would otherwise be transferred to the telescope. They are used to control both right ascension and declination axes, even when electric drive is in operation on some models — a very important feature.

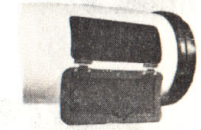
MASSIVE PERMANENT PIER

Piers are cast and tailor-made for the larger instruments. Designed for observatory stability and convenience, full provisions are made for accurate and permanent polar alignment.



METAL TRIPOD LEG CAPS

These metal caps are designed to protect hardwood tripod legs and give increased stability.



MIRROR INSPECTION PORT

Hinged doorway with lock, dust-tight, for cleaning and inspection of mirror without removing from tube. Also facilitates rapid temperature stabilization of telescope.

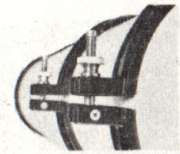
MULTIPLE TUBE COUNTERWEIGHTS

To maintain critical balance when adding heavier accessories, sliding tube counterweights are a must. They are also available as accessories for most smaller models.



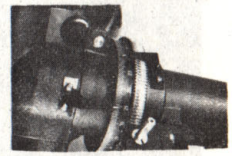
REMOVABLE TUBE CLAMPS

Removing the telescope tube clamps exposes a clear mounting plate on which large astrographs, other telescopes, etc. can be conveniently mounted. Very advantageous for large press or view cameras, 35mm cameras, with heavy telephoto lenses, etc. This feature multiplies the usefulness of the mount.



SETTING CIRCLES

Setting circles are the only method of accurately and efficiently locating the majority of celestial objects, as well as photographing those that are below the visual threshold of your instrument. When mastered it is almost as easy as dialing a telephone number. All metal, finely divided. Extensive mathematical computations are unnecessary.



SIDERIAL DRIVES

All OPTICA b/c drives are accurate and set for siderial time. They are an absolute must for successful astrophotography of all celestial objects except sun and moon.

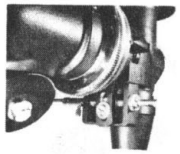
SLOW MOTION GEARS

Slow motion gears are accurately machined, lapped and chrome-plated for smoother operation either when driven with electric motors, or when using manual slow motion.



STABILIZER TRIPOD BRACE

Rigidity is essential to profitable observation, and this extra brace feature makes all the difference in the world.

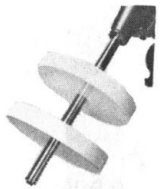


STEEL ROLLER BEARINGS

The increased size and weight of larger instruments necessitate greater precision in the equatorial mount. Amazing smoothness and tracking accuracy is accomplished with carefully matched roller bearings.

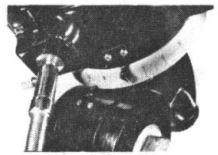
THIRD GEAR DRIVE CORRECTOR

Most reflector telescopes have no gears at all, and only a few have one or two. But on a number of OPTICA b/c telescopes there is a third gear to allow full correction in R. A. while the drive is in operation! This is a real joy when using high powers visually, or when making corrections in the drive rate for astrophotography.



THREADED COUNTERWEIGHTS

A much-appreciated, deluxe feature making it possible to critically balance around the polar axis in any position. Both weights and shaft are threaded with extra large helical threads so that balance can be established quickly with fingertip ease. No more muscling large counterweights for fine adjustment. As the scope changes attitude, or any accessories are added, any change in balance can be instantly restored without disturbing the setup.

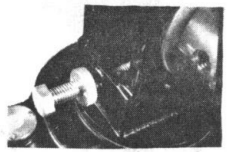


THREADED MOUNT LEVELERS

Mounts must be accurately leveled if one expects to accomplish perfect polar alignment. These levelers make it possible to do this quickly and easily.

THREADED PEDESTAL CONSTRUCTION

A threaded pedestal permits easy removal and adaptation of the equatorial head to a permanent pier and back again. Perfect for someone who wants a "concrete pier" site in the back yard but also wishes to take the scope to other observing locations.



TRIPLE POINTER SYSTEM

Reading the right ascension circle is no longer complicated with three pointers. They greatly simplify the use of setting circles.

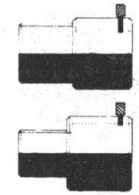
TRUNNION FOR ALTITUDE ADJUSTMENT

This feature provides for extremely fine and accurate adjustment of polar axis altitude. Careful polar alignment is necessary for using the equatorial mount, and this trunnion will help you obtain and keep exact alignment. Once locked, this will eliminate the need for continual readjustment.



ACCESSORIES

Adapters, Eyepiece

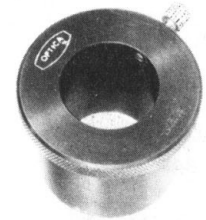


You can use oculars with tube diameters other than those supplied with your telescope. The eyepiece holder is made of black anodized aluminum with a set screw to secure the eyepiece. The tube is chrome plated brass which is threaded to accept filters as well as other devices.

If your telescope currently accepts 1¼" eyepieces and you wish to use the smaller 24.5mm size—order: **Stock No. AE-001**

Telescopes with 24.5mm eyepiece holders will accept the larger 1¼" eyepieces with the following adapter: **Stock No. AE-002**

ADAPTERS, EYEPIECE POPULAR



Black anodized aluminum with eyepiece locking screw, not threaded for filters.

2" to 1-1/4"

Permits use of 1-1/4" (31.7mm) eyepieces in focusers designed to accept 2" (50.8mm) eyepieces ..... **Stock No. AEP2-1**

1-1/4" To 24.5mm

Permits use of 24.5mm (0.965") eyepieces in focusers designed to accept 1-1/4" (31.7mm) eyepieces ..... **Stock No. AEP-01**

ASTRONOMICAL EVENTS CALENDAR

The complete pocket calendar for astronomical events. Meteor showers, planetary positions, data charts, a chronicle of important astronomical events for the current year. A storehouse of fascinating information that slips neatly into pocket or wallet. Used by schools, colleges, planetaria and enthusiasts around the world. Over a million printed and supplied at a small fraction of their cost.

Open Account Orders
Schools & Planetaria only; must submit written Purchase Order. (**Save** by sending payment with order!)
Stock No. . .VAEC-0

Prepaid Orders
Individuals (and schools & planetaria wishing to save money) must send payment with order
Stock No. . .VAEC-P

Single copies of the Astronomical Events Calendar are sent free to anyone who requests one **and includes a stamped, self-addressed return envelope with the request.**

This Free Astronomical EVENTS CALENDAR
Available at most Planetariums
courtesy of . . .

OPTICA

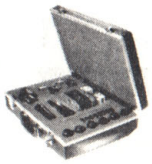
Optica b/c Company
4100 MacArthur Blvd.
Oakland, California 94619, U.S.A.
A member PACIFIC PLANETARIUM ASSOCIATION
TELESCOPES • BINOCULARS • MICROSCOPES

Astrophotography Equipment and Supplies

Camera-telescope couplers, camera systems for astrophotography, films, plates, regular and specialized emulsions (such as spectroscopic), camera brackets, processing chemicals, paper supplies, and equipment, etc., see the current Astrophotography Catalog.

ATM Equipment and Supplies

Beeswax, Brackets, Setting Circles, Compounds, Weights, Drives, Tubes, Finders, Focusers, Holders, Mirror Making Kits, Objectives, Levels, Mirrors, Tools, Mounts, Molds, Paint, Pitch, Pointers, Prisms, Screens, Gears, Stones, Weights, etc., see the current ATM Catalog

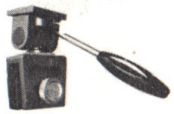


Cases

ACCESSORY CASE

Protect accessories against shock, dust, and scratches with an OPTICA b/c molded, lightweight attache case. It's easy and inexpensive—outline items on foam pad and cut out with knife.

5" x 13" x 18" ..... **Stock No. CA-001**



Clamp, Car Window

Clamps safely on your car window producing a steady rest for terrestrial viewing in the comfort of your auto. Fully adjustable head makes it possible to tilt at any angle or pan in any direction. ..... **Stock No. CCW-01**



Cleaning Supplies

	Stock No.
OPTICAL CLEANING FLUID (FOR LENSES)	M1029
OPTICAL CLEANING BRUSH	M1027
OPTICAL CLEANING TISSUE, Packet 4"x6"	M1028
OPTICAL CLEANING DETERGENT (FOR MIRRORS, etc.)	M1100

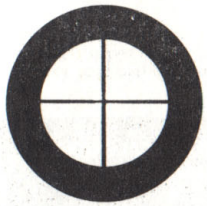


Converters

CONVERTER, BATTERY - 12V TO 110AC

With this high efficiency converter you can operate your 110AC telescope drive and other electric accessories anywhere by using a regular 12 volt car battery. **Compact:** 1½ lb. 2½" x 2½" x 4". Supplied with cord and alligator-clamps. Output is 110 Volts AC.

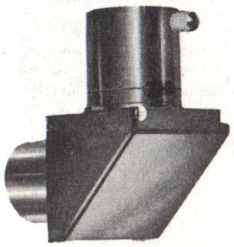
Stock No. CB-012



Crosshairs, Screw-in

Custom-made, chromel wire crosshairs screw into OPTICA b/c eyepieces or any other eyepiece with standard threads. Eyepiece must have a 12.5mm or longer focal length and an **external** focal plane. Simple to install or remove when you don't want the crosshairs in place. Crosshair mount replaces field stop diaphram in eyepiece. Measure the external field stop in your eyepiece and order the closest size below.

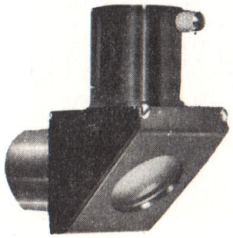
Diameter of Crosshair Aperture		Stock No.
12mm	Thickness .001"	CS-012
15mm	" "	CS-015
21mm	" "	CS-021



Diagonals

STAR DIAGONAL Eliminates awkward and uncomfortable positions when viewing near the zenith. Full 33mm clear aperture prism.

SUN DIAGONAL Eliminates 95% of the sun's heat and light for safe observation. Use in conjunction with our low transmission neutral density filters. Far superior to single sun filters.



	For 24.5mm eyepiece holders	For 1¼" eyepiece holders
	Stock No.	Stock No.
Star	DSR-02	DSR-01
Sun	DSN-02	DSN-01

OPTICA b/c, 4100 MacArthur Blvd., Oakland, California 94619, USA

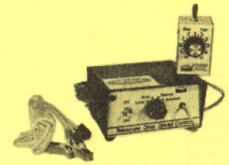
Drive Corrector System

An astrophotographer's dream come true! A professional system within the budget of an amateur. Avoid disappointments! This unit allows you to add decination drive and/or an automatic tracking unit without additional costly components, or conversions. Here is space technology applied to make critical deep sky astrophotography much easier.

DRIVE CORRECTOR, PROFESSIONAL

1. Both right ascension and declination can be controlled from one omni-directional stick. Operates like an aircraft joy stick! Just move the stick in the direction you want the scope to correct.
2. Save time and effort with the Lunar, Solar and Sidereal Rate Selector.
3. "Fine tune" speed control adjustment with large knob clearly marked settings.
4. Declination circuit reversing switch produces proper orientation when a star diagonal is used.
5. Circuitry is designed to let you operate your own declination motor or our Declination Drive.
6. Another extremely important feature is the additional circuitry that make it possible to utilize the Automatic Tracking Unit.
7. Operates on 110AC or 12VDC — no converters are needed.
8. Includes control box, remote hand unit, battery cable, electrical cords and complete instructions.

Drive Corrector. ..... **Stock No. DCP-01**



AUTOMATIC TRACKING UNIT, PROFESSIONAL

Use in starfinders accepting 1 1/4" eyepieces, Celestron's off-axis guider and similar devices.

Professional quality, photoelectric tracking unit makes guiding corrections automatically in R.A., quicker and more accurately than is possible manually. Plugs directly into our Professional Drive Corrector above. Automatically compensates for atmospheric refraction, R.A. periodicy, etc. Integrated circuitry is extremely rugged & reliable. Very easy to set up and use. Illuminated crosshair and focusing eyepiece for parallax-free alignment; also permits manual declination adjustment if necessary. Can automatically track a bright or dim star, planet, asteroid or comet. Typical magnitude limit: +4.5 for 2.4" telescope, + 6 for 6", +7 for 8", + 8.5 for 14". Complete with tracking unit, 10' cable, 9V. battery and instructions.

Automatic Tracking Unit, Professional. ..... **Stock No. DCAT-1**



Declination Drive

Electronic declination control greatly facilitates astrophotography and observing at high power. The Declination Drive motor cord plugs right into our Professional Drive Corrector, and the remote hand unit on that corrector then controls both RA and Dec.

The Declination Drive includes 12VDC motor, bracket, 2 drive belts, all hardware and instructions to rigidly mount it to a Celestron 8 fork arm in minutes. Specify your C-8 serial number for correct bracket. If you own a C-5 or other brand telescope you will need to modify the bracket or fabricate a new one. A different drive belt, available at hardware stores, may also be required for telescopes other than the Celestron 8 ..... **Stock No. DDC8-1**

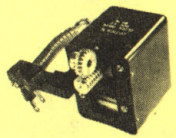


OPTICA b/c

OPTICA b/c 4100 MacArthur Blvd., Oakland, California 94619 U.S.A.

Drives, Electric Clock

Follow the stars effortlessly. OPTICA b/c supplies a variety of drives for both reflectors and refractors. We utilize the finest synchronous motors and the proper gear combinations to give superb tracking accuracy.



DRIVES FOR OPTICA b/c EQUATORIAL MOUNTS

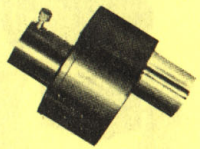
Instrument Size Reflector	Refractor	Stock No.
4"	60 and 76 mm	DEC-04
6"		DEC-06
8 - 16"		DEC-08

DRIVES FOR YOUR OWN MOUNT

For reflectors up to 6": Manual compensating lever for correction. Incorporates a quick clutch for instant, non-slip tracking. We bore for any diameter shaft from ½" to 1¼" at no charge. **Stock No. DOM-06.**

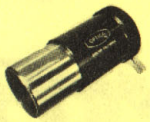
Erectors

ERECTING PRISM Make your telescope more versatile by converting it into a Terrestrial scope (image right side up).



	For 24.5mm eyepiece holders	For 1¼" eyepiece holders
	Stock No.	Stock No.
Standard	ES-002	ES-001
Variable Power	EZ84-2	EZ84-1

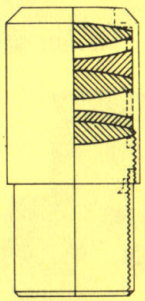
Extension, Focuser



This handy accessory solves many problems:

1. Makes it possible to use OPTICA b/c filters with eyepieces that have no threads or non-standard threads.
2. Serves as a focuser extension to permit use of longer focal length eyepieces or to look at close terrestrial objects.
3. If telescope must be modified to accept sun or star diagonals, cameras, etc., this unit solves focusing problem when eyepieces are used alone.

Extension Length	For 24.5mm Eyepiece Holders	For 1-1/4" Eyepiece Holders	For 2" Eyepiece Holders
1 1/4"	Stock No. EF-002	.....	.....
1 7/8"	.....	Stock No. EF-001	.....
2 3/8"	.....	.....	Stock No. EF-003



Er

Eyepieces

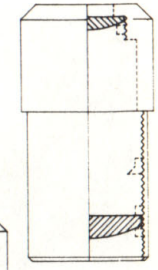
Also see "Lenses, Barlow" and "Adapters, Eyepiece."

ERFLES

For those desiring an extremely wide angle (65°) eyepiece, an Erfle is the answer. The highly corrected, five element design will yield striking panoramic views of the universe around us. Ideal for: richest field telescopes, comet searching, star fields, etc.

HUYGENS

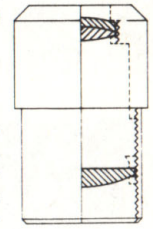
This formula produces good eye relief and very little chromatic aberration. Generally their rated angle of acceptance is 40° with best resolving power falling within a 25° field. The benefits of these eyepieces, coupled with their economy, have made them the world's most popular eyepieces.



H

KELLNERS

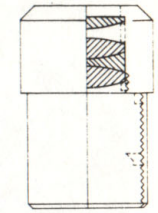
These eyepieces offer the advantage of a greater angle of acceptance than the Huygens—about 50°. Eye relief is also improved making them easier to observe through, particularly if the observer uses eyeglasses.



K

ORTHOS

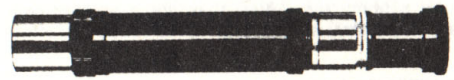
The most demanding observer will find these famous eyepieces superbly corrected. Their four element design yields the finest images obtainable. When compared to the Huygens, they provide a brighter image and better eye-relief, and they produce a highly corrected, flat image over the entire field of about 45°. The fact that chromatic aberration is almost completely eliminated in the Orthos makes them a favorite with the astrophotographer.

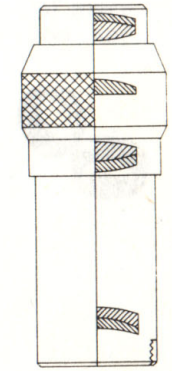


Or

TERRESTRIAL

Astronomical telescopes show the image upside-down; this is why moon maps, etc. are printed with south at the top. If you wish to produce an erect (natural) image for views on earth, you need a terrestrial eyepiece. This unique lens is also a Zoom with an effective focal length from 8.3mm to 21mm. **Note:** Another method of erecting the image is with an erecting system, q.v.



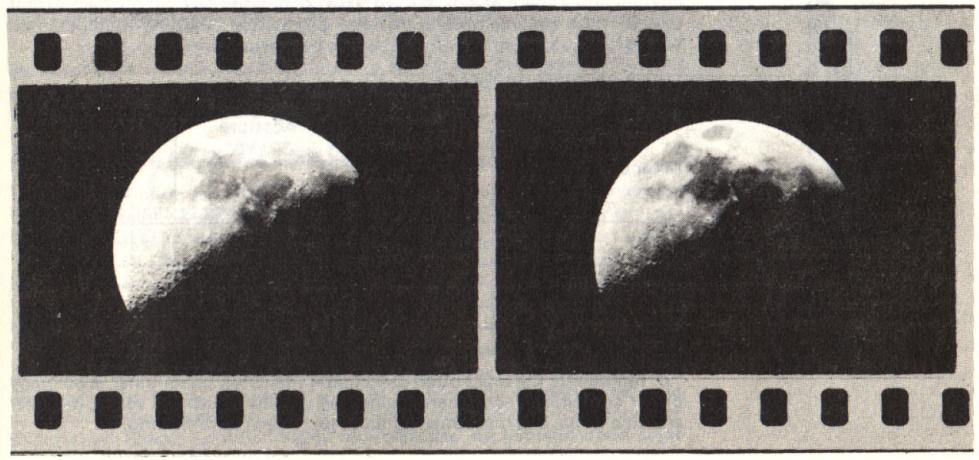


ZOOMS

Thrill to the ease and usefulness of this ortho-quality, seven element ocular. With this amazing lens you can zoom from wide-angle views to high magnification for concentrated study without changing the eyepiece or losing the object. Effective focal length—8.4mm to 21mm.

Note: If you wish to use an eyepiece of 24.5mm eyepiece tube diameter in a 1¼" U.S.A. standard eyepiece holder or vice-versa, see: "Adapters, Eyepiece."

See Price List for the focal lengths available in each design.



Filters For Observation and Astrophotography

WHAT OPTICA b/c FILTERS DO FOR YOU

Join over a million filter users around the world — eliminate glare — penetrate the atmosphere — increase contrast — resolve finer detail — produce better astrophotographs.

IT'S HISTORY NOW

In the early days all an astronomer (professional or amateur) had to work with were regular films and filters that left much to be desired. There remained an unquestionable need for astronomical films and spectrally balanced filters specifically designed for placement within the converging rays of a telescope. Kodak solved the film problem with many special, scientific films including the famous spectroscopic types. OPTICA b/c solved the filter requirement with an entire line of filters balanced for the astronomer and manufactured to the demanding requirement of telescopy.

THE LARGEST SELECTION

Over the past 29 years OPTICA b/c has taken great pride in marketing the largest selection of screw-in eyepiece filters specifically designed for astronomical application. Both standard and professional filters are available to fit your specific requirements.

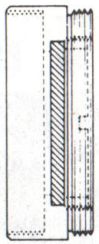
FILTERS, STANDARD COLOR

The standard series offers many advantages over competitive brands. They are of course!, dyed-in-the-mass, plane parallel and supplied in machined black anodized filter holders that can be used in combination. They are threaded to screw into 1-1/4″ eyepieces. They also can be used on our: spectroscopes, astrophoto couplers, solar observation system, variable density polarizing system, etc. Also they are a scientifically balanced series — a very important feature. No other supplier offers all these advantages.



FILTERS, PROFESSIONAL BANDPASS COLOR

Unquestionably the finest available. Researched by astronomy instructors and photo-optical instrumentation engineers and tested by professional astronomers at leading observatories in several countries. Professional as well as knowledgeable amateurs around the world use and recommend them. Filters are: sharper cutting, dyed-in-the-mass, plane parallel and antireflection coated. OPTICA b/c originated the "Piggyback" filter holder for astronomical eyepieces which make it possible to use a wide variety of filters in combination. They can be utilized with many desirable accessories such as the Variable Density Polarizing System, Astrophotography Couplers, Solar Observation System, etc. In the past, many of the filters in this line were only supplied on a special order basis from our custom department at $25.00 each. Their popularity grew to such an extent that OPTICA b/c was able to increase production resulting in substantial savings. Now anyone can afford the very best available.

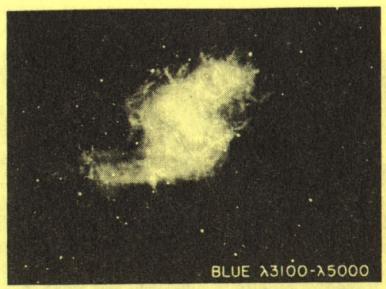


LIGHT, MEDIUM OR DARK?

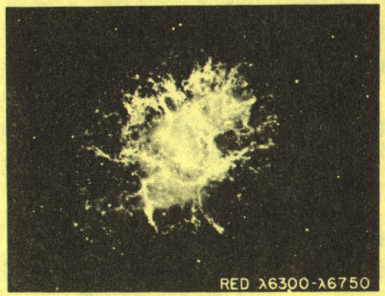
FILTER DENSITY SELECTOR

Filter Density		Aperture Less than 3″			Aperture 3″ to 6″			Aperture over 6″		
		Object			Object			Object		
		dim	avg.	bright	dim	avg.	bright	dim	avg.	bright
LIGHT	Visual	X	X		X					
	Astrophoto	X	X		X					
MEDIUM	Visual			X		X		X		
	Astrophoto			X		X		X		
DARK	Visual						X		X	X
	Astrophoto						X		X	X

"X" represents the most often used under the listed conditions. Also many of our customers recommend using one density greater at very low power and vice versa, and one density greater for richest field viewing.

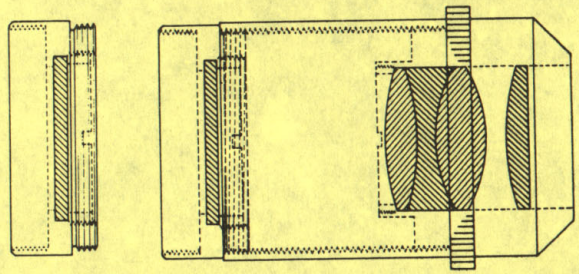








Crab Nebula in Taurus — an excellent example of much hidden detail revealed by filters. Mount Wilson and Palomar Observatories.



INFRARED FILTERS, PROFESSIONAL

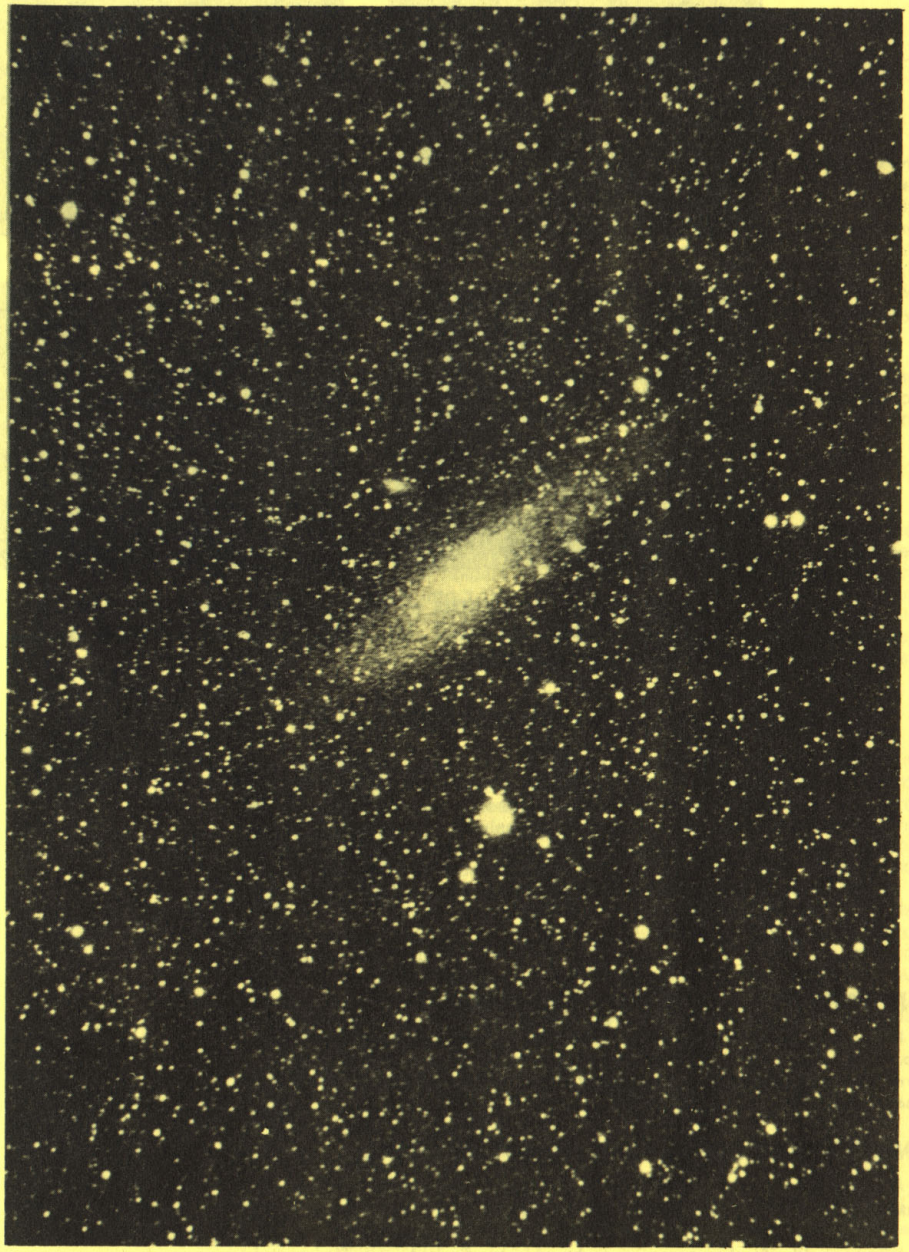
Now you can extend your astrophotographic limits as the professionals do. Photos are entirely different. Record a wealth of detail invisible to the eye. Maximum penetration of atmospheric haze and interstellar medium. Useful on all celestial objects.

INTERFERENCE FILTERS, PROFESSIONAL

Millions of observers have experienced the phenomenal improvement resulting from using our regular filters. Now all their dividends are increased many, many times wtih these monochromatic filters.

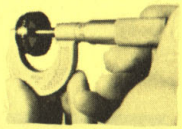
What would city observers give to be able to eliminate the detrimental effects of city lights? These filters create a window that fantastically penetrates sky glow. In many cases, you would think the city lights were turned off!

Imagine an average band width of 7.7 mu at one-half peak. This can be reduced even further by appropriate combinations with band-pass filters. High transmission too, averaging 34% at peak—bright enough to be used with the smallest apertures. With these filters, you are in for striking new views never before possible—highly recommended for planetary and solar



Andromeda Galaxy — Every OPTICA b/c telescope is suitable for exciting astrophotography.

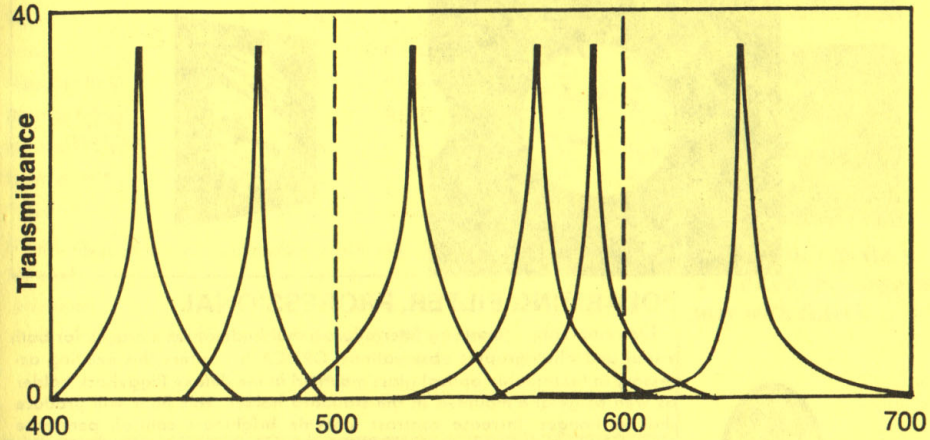
observation, tremendous increase in color contrast—can be combined with our band-pass filters, **SOS**, VDPS, spectroscopes and astrophoto adapters. The sharp spike transmission curves of these filters tell the whole story.



Most interference filters can be ruined by normal cleaning methods, but not these! A special "sealed sandwich" design protects the delicate coating and lets you clean them as easily as any other filter.

Here is another application: Monochromatic light sources, such as those used in various optical measurements and in testing optical flats, cost from $50 to $100 per lamp. Now, just by placing one of these filters in front of almost any kind of light, you have a versatile monochromatic light source!

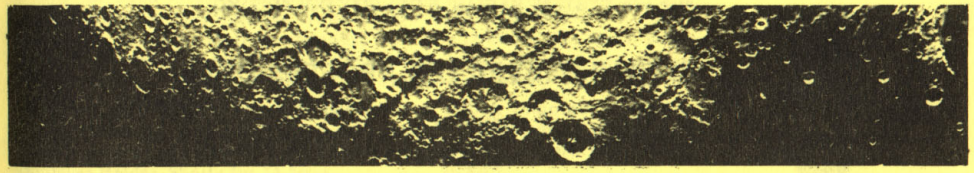
You'll really appreciate this too: Our P.I. Engineers have made an important breakthrough; we can now offer **SIX** of these filters for almost the price you would expect to pay for one.



MOON FILTER, PROFESSIONAL

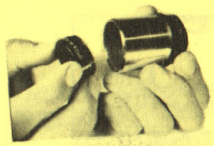
Optical glass, reduces glare and increases contrast for best observation; excellent at full moon phase. For an even better view of the moon, use this filter with the Variable Density Polarizing System.

Are you stuck with non-standard eyepieces that have odd-ball threads or no threads at all? See "Extension, Focuser", for the solution to your problem.



NEUTRAL DENSITY FILTERS, PROFESSIONAL

When you wish to reduce the intensity of celestial objects without changing their color, these filters are the answer. They have many applications and are particularly useful when observing the brighter planets where it is usually mandatory to reduce the surplus intensity before planetary detail may be perceived. The homogeneity of these filters is carefully controlled, resulting in even reduction of all light in the field of view.



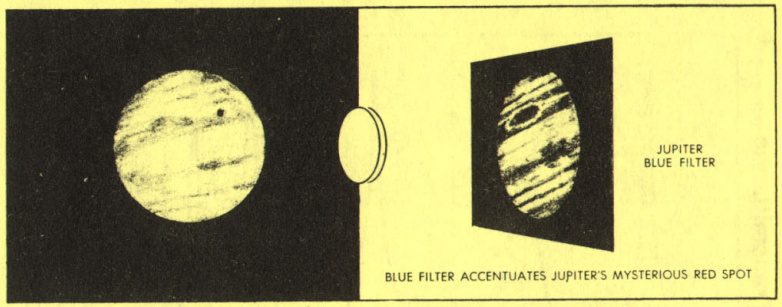
OPTICAL GLASS NEUTRAL DENSITY FILTERS

Filters in this group last indefinitely and offer maximum utility. They are, of course, plane-parallel and are supplied with the Piggyback holders that make it possible to use them in combination with other filters, such as Color, Polaroid, U.V., Infrared, etc. Using these Neutral Density filters in combination with themselves makes it possible to produce the just-right intensity

even though power is changed or different aperatures are employed. With the 10, 20, 40 & 80% transmission set, for instance, a total of 14 different transmission levels are possible! The set of 1.0, 0.1 and 0.01% transmission filters offer combinations that will produce a total of 7 different transmissions. Both complete sets together, totaling seven filters, offer a tremendous variety of transmission levels! The purchase of these filters in sets reflects substantial savings.

HIGH DENSITY, LOW TRANSMISSION FILTERS

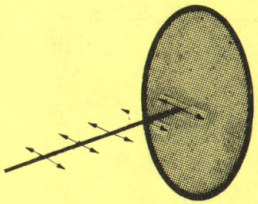
Use these neutral density filters wherever drastic light reductions are mandatory. They may be used in conjunction with a Sun Diagonal resulting in a solar observation system which is not only safe and reasonably priced, but also most functional. In fact all three of these filters are component parts of the OPTICA b/c Solar Observation System.



JUPITER
BLUE FILTER

BLUE FILTER ACCENTUATES JUPITER'S MYSTERIOUS RED SPOT

POLARIZING FILTER, PROFESSIONAL



The remarkable Polarizing filter offers a multitude of advantages for both visual and photographic observations. OPTICA b/c offers this exciting accessory in first-quality optical glass mounted in the deluxe Piggyback holder as well as gelatin mounted in the standard holder. This filter will produce sharper images, increase contrast, provide brightness control, penetrate ultraviolet and atmospheric haze, improve the dark sky effect and minimize the detriments of both external glare and reflections within the telescope. Visually, its accentuation of color is amazing, and, photographically, the color saturation is also enriched. Many customers inform us that when this filter is utilized, they can easily split a great number of doubles that were impossible to split without it. A highly effective procedure is to utilize this filter in combination with OPTICA b/c color filters, a very simple operation with our Piggyback mount. This multi-purpose filter is a valuable addition for any telescope owner.

Also see: SYSTEM, VARIABLE DENSITY POLARIZING

ULTRAVIOLET FILTER, PROFESSIONAL

Astrophotographic studies in ultraviolet offer you a new dimension. Indispensable for the studies of Stars, Nebulae, Atmospheres of planets, etc. Can be used with regular Panchromatic films.

Before you place an order, be sure to read **ORDERING INFORMATION** on pages 1 and 2 of this catalog.



ASTROFILTERS FOR OBSERVATION AND ASTROPHOTOGRAPHY

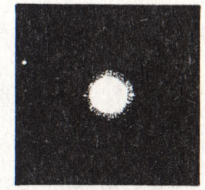
New, greatly expanded second edition. Written by experts: Steeg, Capen, Carvalho, and Barbera. Profusely illustrated with charts, photos, diagrams. A complete reference book for OPTICA b/c filters including data curves and graphs, plus down-to-earth suggestions on how to use filters to get the most out of your telescope. You'll prize this most comprehensive and useful publication. Expressly written for the amateur to give the how and why ..... **Stock No. PA-002**

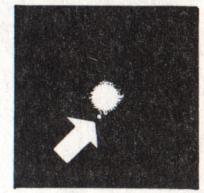
FILTER SELECTOR

FILTER	Sun	Mercury	Venus	Moon	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto	Stars	Nebulae	Comets
Violet	A	B	A	C	A	A	A	B	B	C	A	A	B
Blue	A	A	A	C	A	A	A	B	B	C	A	A	B
Green	A	B	B	A	A	A	B	B	B	C	B	B	B
Yellow	A	A	A	A	A	A	A	A	A	A	A	A	A
Orange	A	B	B	A	A	B	B	B	B	B	B	B	B
Red	A	A	A	A	A	A	A	A	A	A	A	A	A
Moon	C	C	C	A	C	C	C	C	C	C	C	C	C
Sun	A	C	C	C	C	C	C	C	C	C	C	C	C
Neutral (10%)	A	A	A	A	A	B	B	C	C	C	C	C	C
Neutral (20%)	A	B	A	A	A	B	B	C	C	C	C	C	C
Neutral (40%)	A	C	A	A	B	B	C	C	C	C	C	C	C
Neutral (80%)	A	C	B	A	C	C	C	C	C	C	C	C	C
Polarizer	A	A	A	A	A	A	A	B	B	B	B	B	B
Minus UV	A	A	A	A	A	A	A	B	B	B	B	B	B
Infrared	A	B	A	A	A	B	B	B	B	B	A	A	A
Ultraviolet	A	C	A	B	A	B	B	B	B	C	A	A	B

Colors indicate both interference and bandpass filters.

A. Used a great
B. Used occasionally
C. Used rarely





Close multiple stars can often be separated only with filters.

The above "Filter Selector" represents only a few of the recommended uses of the popular OPTICA b/c filters. For more value from your filters, read ASTROFILTERS FOR OBSERVATION AND ASTROPHOTOGRAPHY, Second Edition.

Holders

HOLDERS, EYEPIECE

The threaded focusing tubes of all OPTICA b/c deluxe rack-and-pinions accept either of two eyepiece holders. Now both 24.5mm and 1¼" eyepieces can be used simply by changing from one holder to the other. Each holder is supplied in two lengths, standard or "shorty." The shorty allows about one inch additional in-travel of eyepieces or accessories when required to accomplish focus.





	Stock No.
Eyepiece Holder, Standard for 24.5mm	**HE-002**
Eyepiece Holder, Shorty for 24.5mm	**HES-02**
Eyepiece Holder, Standard for 1¼"	**HE-001**
Eyepiece Holder, Shorty for 1¼"	**HES-01**

Lenses, Barlow

BEGINNERS BEWARE! Single element and second quality barlows have excessive spherical distortions, chromatic abberations, and curvature of field. Don't make a costly mistake. You can purchase an OPTICA b/c Barlow with confidence. These multiple lens barlows will produce a distortion-free image with increased clarity and brilliance. **PLUS** a barlow will increase eye relief, produce higher powers with a richest field telescope, extend the range of your focusing device and permit astrophotography on many small telescopes.



	For 24.5mm Eyepiece Holders	For 1¼" Eyepiece Holders
2x Barlow	**Stock No. 545B2**	**Stock No. 545B1**

Publications,

Publications, maps, globes, charts, records, tapes . . . hundreds of items related to astronomy, see current PAVA Catalog.

Repair Service

OPTICA b/c maintains complete repair facilities for telescopes of all brands as well as other optical equipment such as binoculars, microscopes, etc. Quotations on request.



Reticles, see Crosshairs, Screw-in

Screens

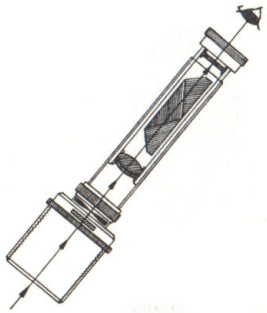
SCREEN, SUN PROJECTION

View the sun safely by projection method. Large 5" white, matte screen. Long 7½" projection rod varies sun diameter. All metal, rigid construction. Clamps on 1½" O.D. focusing tube. **Stock No. SSP-01**

Services

Aluminizing, crosshair installation, eyepiece tube threading, see ATM Catalog. Collimation, cleaning, custom work on telescopes, binoculars, and microscopes, quotation on request.

Spectroscopes for Astronomy



The spectroscope has been one of the most useful tools in the advancement of astronomy. Six years of extensive research finally culminated in the production of these new, bright, precision, astronomical spectroscopes. They are fully laboratory and field tested.

With one of these instruments you can embark on new adventures. The light from celestial objects is spread out into a rainbow of color, sharply cut by light and dark Fraunhofer lines. Obtain valuable information concerning the sun, planets, stars, nebulae, comets and meteors . . . literally thousands of celestial objects.

SPECTROSCOPE FEATURES

Compact, lightweight, high resolution, bright, 3 element prism, 2 element collimating lens, focusable, externally adjustable jaws for slit-width control, threaded to accept filters, adaptable to spectrography. Miniaturized design, high resolution, easily separates the D1/D2 lines of sodium, generous dispersion (apparent length of spectrum, IR through UV, is approximately 32mm), shows spectra through telescopes as small as 40mm in diameter reaches 6th magnitude with 4" to 6" telescope, and fainter stars can be recorded photographically. Ready for immediate use, instruction included.

STANDARD MODEL

Weights less than 5 oz., measures 5¼" long, 1-15/16" diameter.

	For 24.5mm Holders	For 1¼" Holders
STANDARD MODEL	**Stock No. SAS-02**	**Stock No. SAS-01**

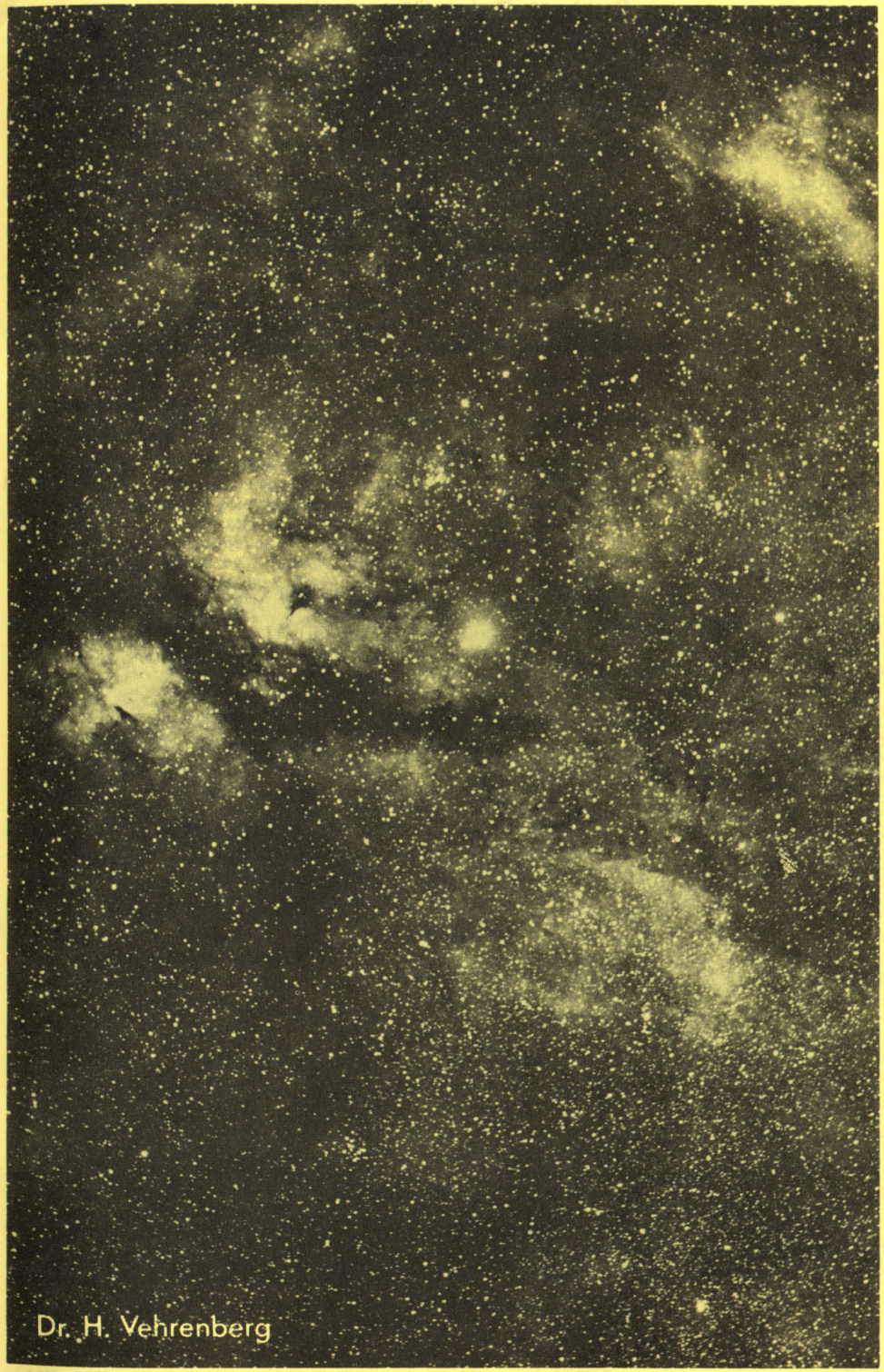
CAMERA SYSTEMS FOR ASTRO-SPECTROGRAPHY — See current Astrophotography Catalog for complete camera and coupler systems as well as specialized emulsions for astro-spectrography. For books on astronomical spectroscopy see current Publications and AVA catalog.

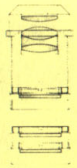


INTERESTED IN ASTROPHOTOGRAPHY?

All OPTICA b/c telescopes may be used for astrophotography. We highly recommend you consult our "Astrophotography Systems Catalogue" containing our largest selection of such equipment and supplies.

OPTICA b/c, 4100 MacArthur Blvd., Oakland, California 94619, USA

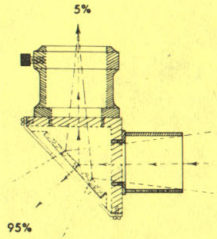




System, Solar Observation

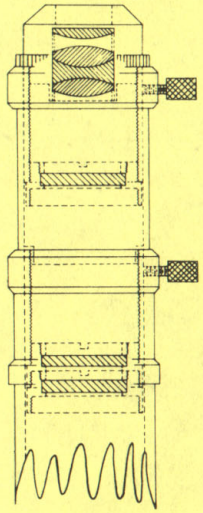
Avoid the problems encountered with many methods of observing the sun. Eliminate serious eye and equipment damage—95% of the heat and light is ejected by the sun diagonal. The supplied filters produce seven different levels of transmission for the just right image intensity. Resolving power is retained. This amazing system:

1. Eliminates trapped heat and light from the telescope tube.
2. Is easy to use.
3. Produces a wide variety of transmission levels for use with different apertures and power.
4. Accepts various attachments such as spectroscopes, micrometers, cameras, the Variable Density Polarizing System, etc.
5. Permits use of various kinds of filters independently or in combination.
6. Is totally safe for both eyes and equipment.



	For 24.5mm Eyepiece Holders	For 1¼" Eyepiece Holders
Solar Observation System	**Stock No. S0S0-2**	**Stock No. S0S0-1**

System, Variable Density Polarizing



A unique system that improves many aspects of astrophotography. Increases contrast, color saturation, atmospheric penetration and dark sky effect. In addition by simply turning your eyepiece you have a continuous control of intensity with reduction to more than 380 times. This system can be combined with OPTICA b/c filters, astrophotography systems, diagonals etc. System include: Unity Adapter, two special high efficiency polarizing filters and instructions. A large number of outstanding astronomers around the world recommend its use.

1. Free of detrimental color distortion.
2. The continuously variable, neutral density effect is the largest we know of in the world.
3. Surface quality & plane parallelism are exactly maintained.
4. Each filter has hard, antireflection coating.
5. Each filter has its own machined, piggyback holder. You can combine this system with all standard color filters and accessories.

Charles F. Capen, internationally known planetary astronomer, currently at the Planetary Research Center of Lowell Observatory, has thoroughly tested the OPTICA b/c Variable Density Polarizing System and found that the filters appear colorless and function surprisingly well. Capen states, "There does not seem to be any visual problem when using this system with color filters. The system improves definition of low contrast details on Mars and I found its use a necessity when observing the bright disk during Great Yellow Storm of 1971. It also helps to control one of the greatest problems in observational planetary astronomy - Irradiation! I will highly recommend this system's use by all interested persons."

Polarizing System Complete, 24.5mm **VDPS-2**

Polarizing System Complete, 1¼" **VDPS-1**



Tripods



Lightweight, 3 section, steady tripods to fit cameras, terrestrial telescopes or binoculars with built-in socket or clamps. Adjustable height for lying, sitting or standing. An extra dividend: If you are over 6 feet, you don't need to get a kink in your back from bending over! The Extra Sturdy model has an exceptionally fine height advantage to permit easy viewing of astronomical objects with a terrestrial telescope.

	Height	Stock No.
Standard Tripod	**2' to 5'**	**TC-330**
Extra Sturdy	**2 ½' to 6 ½'**	**TC-430**

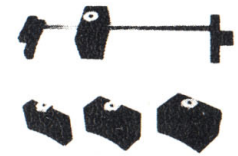
WHAT AND WHERE?

Consult our "Publications and Audio Visual Aids Catalogue" for atlases, maps, globes, charts, star guides and books which will be found helpful in the location and descriptions of celestial phenomena. Over three-hundred of the most popular publications, recorded lectures, slides, visuals etc. are included.

WEIGHTS, TELESCOPE TUBE

Versatile tube counterweight system to meet your changing requirements. If you add a camera or spectroscope, for instance, you need to rebalance your tube. Assembly includes 2 brackets, rod, nuts, and screws—ready to attach. You select the weight you want to meet your individual requirements. Brackets are machined to standard aluminum tube sizes (5", 7", 10" O.D.) and all OPTICA b/c fiberglass tube sizes. (Brackets may be machined for any other diameter tube upon request for $7.50 machining charge.) Specify tube diameter when ordering.

	Stock No.
BRACKET ASSEMBLY (less weight)	
with 12" rod	**WTTA-0**
with 18" rod	**WTTA-1**
with 24" rod	**WTTA-2**
1 lb. weight	**WTT-01**
2 lb. weight	**WTT-02**
3 lb. weight	**WTT-03**





Comet Bennett — closeup of head and coma features photographed with the OPTICA b/c 6" Reflector.

Page No.	Description	For 24.5mm Eyepieces		For 1-1/4" Eyepieces	
22 to 25		Stock No.	Price	Stock No.	Price
	INFRARED FILTER, PROFESSIONAL				
	Infrared - Optical Glass	FIR-02	$11.50	FIR-01	$12.50
	INTERFERENCE FILTERS, PROFESSIONAL				
	Violet - Optical Glass	FOIV-2	$46.40	FOIV-1	$47.40
	Blue - Optical Glass	FOIB-2	46.40	FOIB-1	47.40
	Green - Optical Glass	FOIG-2	46.40	FOIG-1	47.40
	Yellow - Optical Glass	FOIY-2	46.40	FOIY-1	47.40
	Orange - Optical Glass	FOIO-2	46.40	FOIO-1	47.40
	Red - Optical Glass	FOIR-2	46.40	FOIR-1	47.40
	SAVE ON COMPLETE SET All 6 Interference Optical Glass Filters:	FOIS-2	$250.56 (A $278.40 value)	FOIS-1	$255.96 (A $284.40 value)
	MOON FILTER, PROFESSIONAL				
	Moon - Optical Glass	FMO-02	$ 7.50	FMO-01	$ 8.50
	NEUTRAL DENSITY FILTERS, PROFESSIONAL				
	Transmission 10% - Optical Glass	FO1O-2	$ 8.50	FO1O-1	$ 9.50
	20% - Optical Glass	FO2O-2	8.50	FO2O-1	9.50
	40% - Optical Glass	FO4O-2	8.50	FO4O-1	9.50
	80% - Optical Glass	FO8O-2	8.50	FO8O-1	9.50
	Save on set of 4	FOS-02	30.60 (A 34.00 value)	FOS-01	34.20 (A 36.00 value)
	1.00% - Optical Glass	F1.0-2	$ 9.50	F1.0-1	$10.50
	0.10% - Optical Glass	F0.1-2	9.50	F0.1-1	10.50
	0.01% - Optical Glass	F.01-2	9.50	F.01-1	10.50
	Save on set of 3	FSOS-2	25.65 (A 28.50 value)	FSOS-1	28.35 (A 31.50 value)
	SAVE ON COMPLETE NEUTRAL DENSITY FILTER SET Includes both N.D. Optical Glass sets above. All seven filters	FSC-02	$51.63 (A $62.50 value)	FSC-01	$56.30 (A $69.50 value)
	POLARIZING FILTER, PROFESSIONAL				
	Optical Glass	FPOG-2	$ 9.50	FPOG-1	$10.50
	ULTRAVIOLET FILTER, PROFESSIONAL				
	Ultraviolet - Optical Glass	FUV-02	$11.50	FUV-01	$12.50

25	PA-002	4.95		SOSO-2	30.53
				SOSO-1	37.78
	HE-002	6.74	29	VDPS-2	27.84
26	HES-02	6.74		VDPS-1	31.91
	HE-001	8.24		TC-330	63.95
	HES-01	8.24		TC-430	Regular 122.45
					Special 97.96
	545B2	14.95			
	545B1	18.50		WTTA-0	17.80
				WTTA-1	18.04
	SSP-01	17.11	30	WTTA-2	18.27
27	SAS-02	84.28		WTT-01	5.70
	SAS-01	86.32		WTT-02	7.40
				WTT-03	9.40



TELESCOPES AND ACCESSORIES CATALOG NO. TA-78 PRICE LIST

#TA-78-A -- EFFECTIVE NOV. 1977

Page No.	Stock No.	Price
3	TA-030	$ 19.95
	TB-030	59.95
5	PG-084	1.95
6	LB-084	268.95
	LC-084	310.95
7	LA-100	522.95
	LB-100	469.95
8	LA-150	1130.95
9	LA-200	6248.95
	LA-250	6369.00
	LA-300	Quotation on Request
11	RA-050	302.95
	RB-060	417.95
12	RA-076	507.95
	RB-076	572.95
	RA-108	1712.50
13	RB-108	4506.50
	RA-150	Quotation on Request
16	AE-001	16.95
	AE-002	13.95
	AEP2-1	8.50
	AEP-01	4.75
	VAEC-0	$4 for the first 100. Additional quantities $1 per 100
	VAEC-P	$1 per 100

Page No.	Stock No.	Price
17	CA-001	$ 29.88
	CCW-01	26.95
	M1029	1.37
	M1027	1.71
	M1028	.40
	M1100	1.37
	CB-012	32.95
	CS-012	11.95
	CS-015	11.95
	CS-021	11.95
	DSR-02	9.66
	DSR-01	17.88
	DSN-02	9.66
	DSN-01	15.72
18	DCP-01	130.00
	DCAT-1	125.00
	DDC8-1	40.00
19	DEC-04	88.12
	DEC-06	119.95
	DEC-08	Quotation on Request
	DOM-06	Quotation on Request
	ES-002	21.10
	ES-001	26.05
	EZ84-2	59.95
	EZ84-1	72.50
	EF-002	8.84
	EF-001	10.91
	EF-003	19.50

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Eyepieces

Stock No.		Focal Length	Price (24.5mm)	Price (1-1/4")
EE20-2	Erfle	20mm fl	$ 33.95	
EE20-1	"	20mm fl		$ 38.50
EE25-1	"	25mm fl		51.50
EE32-1	"	32mm fl		81.50
EH04-2	Huygens	4mm fl	9.95	
EH04-1	"	4mm fl		14.50
EH06-2	"	6mm fl	8.95	
EH06-1	"	6mm fl		13.50
EH09-2	"	9mm fl	8.95	
EH09-1	"	9mm fl		13.50
EH12-2	"	12mm fl	8.95	
EH12-1	"	12mm fl		13.50
EH18-2	"	18mm fl	8.95	
EH18-1	"	18mm fl		15.50
EH20-2	"	20mm fl	8.95	
EH20-1	"	20mm fl		15.50
EH25-2	"	25mm fl	11.95	
EH25-1	"	25mm fl		15.50
EH30-2	"	30mm fl	11.95	
EH30-1	"	30mm fl		15.50
EH50-1	"	50mm fl		23.50
EK06-2	Kellner	6mm fl	17.95	
EK06-1	"	6mm fl		20.50
EK09-2	"	9mm fl	15.95	
EK09-1	"	9mm fl		18.50
EK12-2	"	12mm fl	15.95	
EK12-1	"	12mm fl		18.50
EK18-2	"	18mm fl	15.95	
EK18-1	"	18mm fl		18.50
EK20-2	"	20mm fl	15.95	
EK20-1	"	20mm fl		18.50
EK25-2	"	25mm fl	17.95	
EK25-1	"	25mm fl		20.50
EK40-2	"	40mm fl	19.95	
EK40-1	"	40mm fl		22.50
EO04-2	Orthos	4mm fl	25.95	
EO04-1	"	4mm fl		27.50
EO05-2	"	5mm fl	24.95	
EO05-1	"	5mm fl		27.50
EO06-2	"	6mm fl	22.95	
EO06-1	"	6mm fl		27.50
EO07-2	"	7mm fl	22.95	
EO07-1	"	7mm fl		24.50
EO09-2	"	9mm fl	22.95	
EO09-1	"	9mm fl		24.50
EO12-2	"	12mm fl	22.95	
EO12-1	"	12mm fl		27.50
EO18-2	"	18mm fl	23.95	
EO18-1	"	18mm fl		27.50
EO25-2	"	25mm fl	25.95	
EO25-1	"	25mm fl		29.50
EO32-1	"	32mm fl		48.50
EO40-1	"	40mm fl		69.50
EZ83-2	Terrestrial		59.95	
EZ83-1	"			72.50
EZ84-2	Zoom		41.95	
EZ84-1	"			51.50

Celebrate our 39th anniversary. All prices listed on this page have been reduced 20% to 30% below our regular prices.

2" O.D. EYEPIECES		PRICE
EE32-2	Erfle 32mm fl	$58.50
EO40-3	Ortho 40mm fl	$70.50

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FILTERS, STANDARD COLOR FOR 1-1/4" EYEPIECES $4.95 EACH

	Light Stock No.	Medium Stock No.	Dark Stock No.
Violet	FSLV-1	FSMV-1	FSDV-1
Blue	FSLB-1	FSMB-1	FSDB-1
Green	FSLG-1	FSMG-1	FSDG-1
Yellow	FSLY-1	FSMY-1	FSDY-1
Orange	FSLO-1	FSMO-1	FSDO-1
Red	FSLR-1	FSMR-1	FSDR-1

SAVE ON STANDARD FILTER SET

	Stock No	Price
Light (all 6 filters)	FSSL-1	$28.20
Medium (all 6 filters)	FSSM-1	28.20
Dark (all 6 filters)	FSSD-1	28.20

SAVE ON COMPLETE STANDARD SET
Includes all three filter sets above: Light Medium and Dark (all 18 filters)

FSCO-1 $80.10

FILTERS, PROFESSIONAL BANDPASS COLOR

Description	For 24.5mm Eyepieces Stock No.	Price	For 1-1/4" Eyepieces Stock No.	Price
Violet-Optical Glass				
Light	FOLV-2	$ 8.50	FOLV-1	$ 9.50
Medium	FOMV-2	8.50	FOMV-1	9.50
Dark	FODV-2	8.50	FODV-1	9.50
Blue -Optical Glass				
Light	FOLB-2	$ 8.50	FOLB-1	$ 9.50
Medium	FOMB-2	8.50	FOMB-1	9.50
Dark	FODB-2	8.50	FODB-1	9.50
Green -Optical Glass				
Light	FOLG-2	$ 8.50	FOLG-1	$ 9.50
Medium	FOMG-2	8.50	FOMG-1	9.50
Dark	FODG-2	8.50	FODG-1	9.50
Yellow-Optical Glass				
Light	FOLY-2	$ 8.50	FOLY-1	$ 9.50
Medium	FOMY-2	8.50	FOMY-1	9.50
Dark	FODY-2	8.50	FODY-1	9.50
Orange-Optical Glass				
Light	FOLO-2	$ 8.50	FOLO-1	$ 9.50
Medium	FOMO-2	8.50	FOMO-1	9.50
Dark	FODO-2	8.50	FODO-1	9.50
Red -Optical Glass				
Light	FOLR-2	$ 8.50	FOLR-1	$ 9.50
Medium	FOMR-2	8.50	FOMR-1	9.50
Dark	FODR-2	8.50	FODR-1	9.50

SAVE ON PROFESSIONAL FILTER SETS

Light (All 6 Filters)	FSOL-2	$42.50 (A $51.00 Value)	FSOL-1	$47.50 (A $57.00 Value)
Medium(All 6 Filters)	FSOM-2	$42.50 (A $51.00 Value)	FSOM-1	$47.50 (A $57.00 Value)
Dark (All 6 Filters	FSOD-2	$42.50 (A $51.00 Value)	FSOD-1	$47.50 (A $57.00 Value)

Savings amounts to 1 FREE FILTER

SAVE ON COMPLETE PROFESSIONAL FILTER SETS
Includes all three filter sets above: Light, Medium and Dark

Savings amounts to 4 FREE FILTERS	FSOC-2	$119.00 (A $153.00 Value)	FSOC-1	$133.00 (A $171.00 Value)