

TeleVue®-76

Operating Guide

480mm f/6.3
2-ELEMENT APO REFRACTOR



Thank you for purchasing the **TeleVue-76**. We hope it brings great enjoyment to your observing experience. The wonderfully versatile hand-built 3" aperture telescope features a diffraction limited, 480mm focal length, f/6.3 APO doublet objective which delivers razor sharp images sure to please you for years to come and wherever your observing interests lead you.



WARNING: NEVER try to look at the sun or point the telescope toward or near the sun without professional solar observing equipment rigidly secured in front of the objective lens. When observing the sun with the proper filters, use only the TeleVue "Sol-Searcher" (SSF-1006) for finding the Sun. Remove any other finding devices such as Starbeam from the telescope. Instant and permanent eye damage may result from viewing the sun directly, even during a solar eclipse, or when viewing through thin clouds, or when the sun is near the horizon.

Standard features of the optical tube assembly (O.T.A.) include: sliding dew shield, screw-on cover, 2" rack and pinion focuser with 10:1 reduction, and custom padded carrying bag.

Accessories

TV-76 Accessory Package - includes a 2" Everbrite diagonal, 2" to 1 1/4" adapter, Ring Mount, Telescope Balance Adapter, and Delite eyepiece.

Mounting - The optional TeleVue Ring Mount (available separately or in the package) permits mounting to the TeleVue Gibraltar, Panoramic, and Tele-Pod mounts, or heavy duty camera tripods. You will receive the two 1/4-20 studs, wing knobs, Allen wrench and complete mount assembly instructions with the mount. TeleVue also has adapter plates to allow attachment on specific equatorial mounts (consult your TeleVue dealer). For use with heavy eyepieces or cameras, we suggest attaching the "Telescope Balance Aid" to allow the scope to move forward.

Finders - For night use, we recommend the Starbeam reflex sight (SFT-2003) to complement the wide field of the telescope. The Starbeam attaches to the Ring Mount and can be left in place when the scope is stored in its case.

Use the Qwik-Point (part # QBT-1006) for daytime spotting. Its beam is bright enough for use in even bright sunlight. However it is not recommended for nighttime use.

Terrestrial Viewing Considerations - The Tele Vue 55mm Plössl in a 2" diagonal will provide 9x with a 5.5° true field. This can serve as a finder, for rich field viewing or for terrestrial use. (Image is upright, but left-right reversed using diagonal mirrors.)

Tele Vue developed the 1 1/4" 60° Everbrite Diagonal (part# DPC-6012) specifically for terrestrial observers who appreciate the highest levels of image performance. The 60° angle is far more comfortable for terrestrial observing than the standard 90°, and the 99% reflective Everbrite dielectric coating gives the truest color rendition of any mirror or prism, and is sharpest at the highest powers.

For 1 1/4" diagonals and prisms, the 32mm Plössl or 24mm Panoptic offer the maximum field. 3.2° at 15x and 20x respectively.

Getting Acquainted with the Tele Vue-76 (see photos on page 3.)

Note: O.T.A. purchasers must supply eyepieces, eyepiece adapter, diagonal, and ring mount in order for the telescope to function. TV-76 Accessory Package includes these items.

1.1 Optical Tube Assembly

The OTA consists of the objective cell, tube and focuser. The front cell houses the carefully aligned objective. Never attempt to loosen the 3 alignment screws in the front lens cell. The tube is aluminum and powder coated, requiring no special care. The rack and pinion focuser is driven by high leverage knobs. The two tension screws on the top of the focuser body can be adjusted to add resistance when using heavy eyepieces. These tension screws tighten against a brass clamp ring, which then cinches down on the teflon sleeve in which the draw tube slides. For photography it is not necessary to tighten beyond the need to keep a camera stationary. Even when sufficiently tight, the focuser knobs can still drive the draw tube. The two lock screws in the end of the draw tube also tighten against a brass clamp ring for extra holding power on the diagonal or other accessories.

1.2 Ring Mount

The Ring Mount included with the TV-76 Accessory Package permits easy telescope balancing. Simply unlock the "bat handle," reposition the telescope by sliding it fore or aft, and re-lock. Slots with 10-32 holes are available for mounting accessories.

1.3 Eyepieces

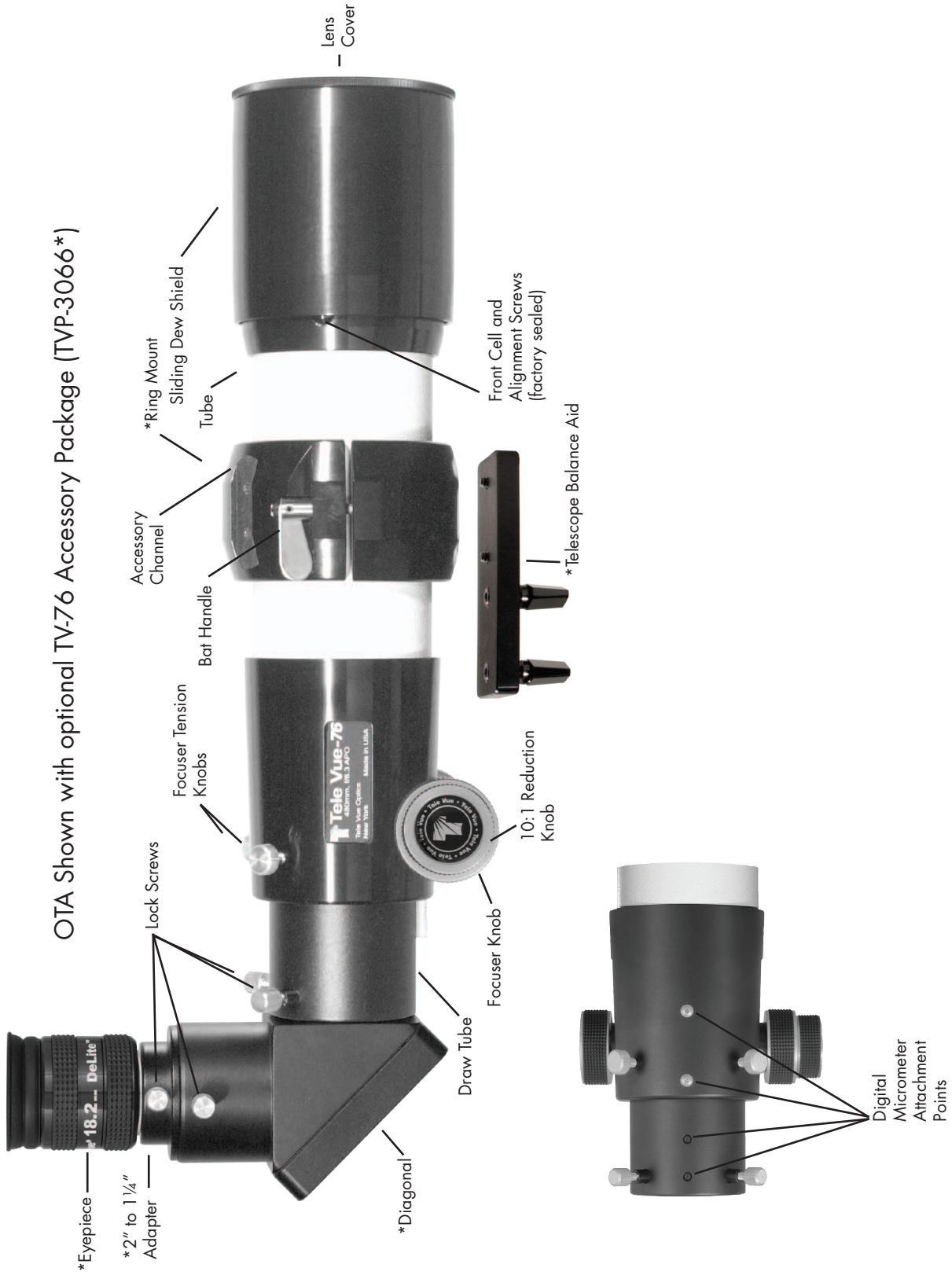
Tele Vue eyepieces offer a range of magnifications from 9x to 200x, with the **Tele Vue-76**. We recommend choosing low and medium power eyepieces in ratios of field stop diameters. For example, factors of 1.4 or 2.0. When choosing higher power eyepieces, use ratios of magnification. (see reference chart in the "Choosing Your Eyepieces" article). The TV-76 Accessory Package includes an 18.2 Delite that offers a 2.3° true field at 26x magnification with 20mm of eye relief.

1.4 Photography

For prime focus photography at 480mm f/6.3 using a DSLR, use camera adapter (part# ACM-2000). For flat field astrophotography at 380mm f/5, use the Tele Vue 0.8x reducer/flattener, (part# TRF-2008). Alternatively, the Tele Vue Powermates with optional T-ring adapters and our 3.5" extension tube provides a variety of focal length options. Afocal photography using your cell phone camera is accomplished with FoneMate™ (part# SFA-001). For Piggyback DSLR photography, attach the Piggy-Cam platform, (part# PGC-1001) to the Ring Mount.

Mounting points are provided on top of the focuser body and draw tube for easy installation of the Digital Micrometer Kits (part#s RMK-2002 or RMF-2003). These kits allow imagers to index focus position to within 0.0001", providing a very convenient way of finding best focus, returning to it, or checking that it hasn't changed. The dual speed focuser with its 10:1 focus reduction provides extraordinarily fine focus adjustment for critical focusing. The Focusmate Driver (part# FDF-2004) adds hands free motorized focusing. For installation, setup and use of the Digital Micrometer Kit and Focusmate Driver, see the instructions included with each.

OTA Shown with optional TV-76 Accessory Package (TVP-3066*)



Tele Vue recommends choosing low and medium power eyepieces in ratios of field stop diameters. For example, factors of 1.4 or 2.0. When choosing higher power eyepieces, use ratios of magnification.

| Tele Vue-76 | | | | | | | | | | | |
|---|-------------|--------------|----------------------|----------------------|-----------------|--------------|------------|------------------|-----------------|------------|---------------|
| Focal Length (mm) | Type | Product Code | Apparent Field (deg) | Field Stop Dia. (mm) | Eye Relief (mm) | Weight (lb.) | Mag. | True Field (deg) | Exit Pupil (mm) | # of Elem. | Dioptrx Ready |
| 2" Eyepieces for Wide True Fields | | | | | | | | | | | |
| 55 | Plössl | EPL-55.0 | 50 | 46.0 | 38 | 1.1 | 8.7 | 5.49 | 8.7 | 4 | Y |
| 41 | Panoptic | EPO-41.0 | 68 | 46.0 | 27 | 2.1 | 11.7 | 5.49 | 6.5 | 6 | Y |
| 31 | Nagler 5 | EN5-31.0 | 82 | 42.0 | 19 | 2.2 | 15.5 | 5.01 | 4.9 | 6 | Y |
| 35 | Panoptic | EPO-35.0 | 68 | 38.7 | 24 | 1.6 | 13.7 | 4.62 | 5.5 | 6 | Y |
| 21 | Ethos | ETH-21.0 | 100 | 36.2 | 15 | 2.3 | 22.9 | 4.32 | 3.3 | - | Y |
| 22 | Nagler 4 | EN4-22.0 | 82 | 31.1 | 19 | 1.5 | 21.8 | 3.71 | 3.5 | 7 | Y |
| 27 | Panoptic | EPO-27.0 | 68 | 30.5 | 19 | 1.0 | 17.8 | 3.64 | 4.3 | 6 | Y |
| 17 | Ethos | ETH-17.0 | 100 | 29.6 | 15 | 1.6 | 28.2 | 3.53 | 2.7 | - | Y |
| 17 | Nagler 4 | EN4-17.0 | 82 | 24.3 | 17 | 1.6 | 28.2 | 2.90 | 2.7 | 7 | Y |
| 1 1/4" Eyepieces for Wide True Fields | | | | | | | | | | | |
| 40 | Plössl | EPL-40.0 | 43 | 27.0 | 28 | 0.4 | 12.0 | 3.22 | 6.3 | 4 | Y |
| 32 | Plössl | EPL-32.0 | 50 | 27.0 | 22 | 0.4 | 15.0 | 3.22 | 5.1 | 4 | Y |
| 24 | Panoptic | EPO-24.0 | 68 | 27.0 | 15 | 0.5 | 20.0 | 3.22 | 3.8 | 6 | Y* |
| 13 | Ethos | ETH-13.0 | 100 | 22.3 | 15 | 1.3 | 36.9 | 2.66 | 2.1 | - | Y |
| 16 | Nagler 5 | EN5-16.0 | 82 | 22.1 | 10 | 0.4 | 30.0 | 2.64 | 2.5 | 6 | N |
| 19 | Panoptic | EPO-19.0 | 68 | 21.3 | 13 | 0.4 | 25.3 | 2.54 | 3.0 | 6 | Y* |
| 25 | Plössl | EAP-25.0 | 50 | 21.2 | 17 | 0.3 | 19.2 | 2.53 | 4.0 | 4 | N |
| 17.3 | Delos | EDL-17.3 | 72 | 21.2 | 20 | 0.9 | 27.7 | 2.53 | 2.7 | - | Y |
| 18.2 | DeLite | EDE-18.2 | 62 | 19.1 | 20 | 0.5 | 26.4 | 2.28 | 2.9 | - | Y |
| 10 | Ethos | ETH-10.0 | 100 | 17.7 | 15 | 1.1 | 48.0 | 2.11 | 1.6 | - | Y |
| 13 | Nagler 6 | EN6-13.0 | 82 | 17.6 | 12 | 0.4 | 36.9 | 2.10 | 2.1 | 7 | Y* |
| 14 | Delos | EDL-14.0 | 72 | 17.3 | 20 | 0.9 | 34.3 | 2.07 | 2.2 | - | Y |
| 20 | Plössl | EAP-20.0 | 50 | 17.1 | 14 | 0.2 | 24.0 | 2.04 | 3.2 | 4 | N |
| 15 | DeLite | EDE-15.0 | 62 | 16.0 | 20 | 0.5 | 32.0 | 1.91 | 2.4 | - | Y |
| 1 1/4" Eyepieces for Medium Powers | | | | | | | | | | | |
| 12 | Delos | EDL-12.0 | 72 | 15.0 | 20 | 0.9 | 40.0 | 1.79 | 1.9 | - | Y |
| 13 | DeLite | EDE-13.0 | 62 | 13.8 | 20 | 0.5 | 36.9 | 1.65 | 2.1 | - | Y |
| 10 | Delos | EDL-10.0 | 72 | 12.7 | 20 | 0.9 | 48.0 | 1.52 | 1.6 | - | Y |
| 15 | Plössl | EAP-15.0 | 50 | 12.6 | 10 | 0.2 | 32.0 | 1.50 | 2.4 | 4 | N |
| 9 | Nagler 6 | EN6-09.0 | 82 | 12.4 | 12 | 0.4 | 53.3 | 1.48 | 1.4 | 7 | Y* |
| 11 | DeLite | EDE-11.0 | 62 | 11.7 | 20 | 0.4 | 43.6 | 1.40 | 1.7 | - | Y |
| 9 | DeLite | EDE-09.0 | 62 | 9.6 | 20 | 0.5 | 53.3 | 1.15 | 1.4 | - | Y |
| 11 | Plössl | EAP-11.0 | 50 | 9.1 | 8 | 0.1 | 43.6 | 1.09 | 1.7 | 4 | N |
| 1 1/4" Eyepieces for Higher Powers | | | | | | | | | | | |
| 8 | Ethos | ETH-08.0 | 100 | 13.9 | 15 | 1.0 | 60.0 | 1.66 | 1.3 | - | Y |
| 6 | Ethos | ETH-06.0 | 100 | 10.4 | 15 | 1.0 | 80.0 | 1.24 | 1.0 | - | Y |
| 8 | Delos | EDL-08.0 | 72 | 9.9 | 20 | 1.0 | 60.0 | 1.18 | 1.3 | - | Y |
| 7 | Nagler 6 | EN6-07.0 | 82 | 9.7 | 12 | 0.5 | 68.6 | 1.16 | 1.1 | 7 | Y* |
| 4.7 | Ethos SX | ETH-04.7 | 110 | 8.9 | 15 | 1.3 | 102.1 | 1.07 | 0.7 | - | Y |
| 6 | Delos | EDL-06.0 | 72 | 7.6 | 20 | 1.0 | 80.0 | 0.91 | 1.0 | - | Y |
| 7 | DeLite | EDE-07.0 | 62 | 7.5 | 20 | 0.5 | 68.6 | 0.90 | 1.1 | - | Y |
| 3.7 | Ethos SX | ETH-03.7 | 110 | 7.0 | 15 | 1.1 | 129.7 | 0.84 | 0.6 | - | Y |
| 5 | Nagler 6 | EN6-05.0 | 82 | 7.0 | 12 | 0.5 | 96.0 | 0.84 | 0.8 | 7 | Y* |
| 8 | Plössl | EAP-08.0 | 50 | 6.5 | 6 | 0.1 | 60.0 | 0.78 | 1.3 | 4 | N |
| 4.5 | Delos | EDL-04.5 | 72 | 5.6 | 20 | 1.1 | 106.7 | 0.67 | 0.7 | - | Y |
| 5 | DeLite | EDE-05.0 | 62 | 5.3 | 20 | 0.5 | 96.0 | 0.63 | 0.8 | - | Y |
| 3.5 | Nagler 6 | EN6-03.5 | 82 | 4.8 | 12 | 0.5 | 137.1 | 0.57 | 0.6 | 7 | Y* |
| 3.5 | Delos | EDL-03.5 | 72 | 4.4 | 20 | 1.1 | 137.1 | 0.53 | 0.6 | - | Y |
| 4 | DeLite | EDE-04.0 | 62 | 4.3 | 20 | 0.5 | 120.0 | 0.51 | 0.6 | - | Y |
| 3 | DeLite | EDE-03.0 | 62 | 3.2 | 20 | 0.5 | 160.0 | 0.38 | 0.5 | - | Y |
| 1 1/4" Zoom Eyepieces for Medium and Higher Powers | | | | | | | | | | | |
| 6-3 | Nagler Zoom | ENZ-0306 | 50 | 5.1-2.6 | 10 | 0.3 | 80.0-160.0 | 0.61-0.31 | 1.0-0.5 | 5 | N |

NOTE: True Field in degrees = (Field Stop dia./Telescope Focal Length) X 57.3°

*Indicates additional Dioptrx Adapter required

1.5 Caring for the Tele Vue-76

Tele Vue-76 requires no special care. Treat it as you would any fine camera lens. Use the lens cap when the telescope is being stored or not in use. The captive dew shield provides protection from glare, helps protect the lens from dust or spray blown in by the wind and minimizes dew formation on the lens.

If dew forms on the lens during cold weather, it is best to use an electric hair dryer (on the lowest setting) to gently warm it away. A few specks of dust will have no effect on the quality of the image, and may be gently blown off with a squeeze bulb. Do not use compressed air cans to blow dust off any optical surfaces.

Fingerprints, however should be cleaned off. Though the anti-reflection coatings are durable, they are easily scratched. The simplest cleaning method is to moisten a very soft, lint-free tissue, cloth, "Q-Tip" or surgical cotton with a lens or glass cleaner and gently whisk away the stain. Do not apply any solutions directly to the glass surfaces. After every cleaning stroke, use a fresh applicator. The fewer strokes the better! Any residual "film" will not affect visual performance.

Collimation of your **Tele Vue-76** has been locked at the factory. With reasonable care it will remain aligned. However, rough handling can cause misalignment. **WARNING:** Do not loosen the button head screws in the front lens cell as this will cause misalignment. If necessary, contact Tele Vue for re-collimation.

Our 90° and 60° star diagonals employ a first-surface mirror. Like all first-surface mirrors, they should be cleaned only when absolutely necessary. First blow loose dust away with a squeeze bulb. **CAUTION:** Do not clean mirror with water or water based cleaners such as Windex or any other commercial lens cleaners; this is not a lens. All contain too much water and will leave a residue. Moisten a "Q-Tip" with methanol or Isopropyl alcohol, reagent grade. Clean gently using only the weight of the cotton swab. Use very light pressure and never rub. Slight residual stains or dust spots will have no visible effects in observing.

The tube and other parts are powder-coated for durability and can be polished with any non-abrasive car wax. Black anodized surfaces can be cleaned with Windex.

If you have any questions about the care, operation or performance of your **Tele Vue-76**, please call Tele Vue at (845) 469-4551 from 9:30 am to 5:00 pm EST.

1.6 Warranty

The **Tele Vue-76** is warranted to be free of manufacturing or workmanship defects for 5 (five) years from the date of purchase, to the original owner. Please return the warranty card for easy identification. If your **Tele Vue-76** requires warranty service, please call Tele Vue to discuss the defect, upon which you will receive a return authorization. **NO RETURNS ARE ACCEPTED WITHOUT PRIOR AUTHORIZATION.**

The warranty does NOT include: collimation, defects caused by mis-handling, defects of subjective nature, and coverage for any telescope purchased through an unauthorized Tele Vue dealer.

Warranty work will be performed at Tele Vue's discretion and may only be performed by Tele Vue Optics or its assigned agents. The telescope must be shipped in its case with proper inner and outer packaging. Return shipping and insurance charges are the purchaser's responsibility.

1.7 Specifications

| | |
|---------------------------|--|
| Type | 2-element APO refractor, Fully Multi-Coated |
| Clear Aperture | 3 inches (76mm) |
| Aperture Gain | 118, compared to a 7mm exit pupil |
| Focal Length | 480mm |
| Focal Ratio | f/6.3 |
| Resolution (visual) | 1.5 arc-sec. (Dawes Limit for a 3-inch aperture) |
| Resolution (photographic) | 222 line pairs per mm |
| Magnification | 9x to 200x using Tele Vue eyepieces |
| Field, Visual | 5.5° at 9x |
| Focuser | 2-inch, rack and pinion type |
| Tube | Powder-coated aluminum |
| Length | 14.5-inches O.T.A. only 17.4-inches with 2" star diagonal |
| Weight | 5.0 lbs. (tube assembly with no caps) 7.1 lbs (tube assembly in case with caps) |
| Accessories | custom fitted soft case, screw-on lens cover, sliding dew (glare) shield |

Specifications subject to change without notice.

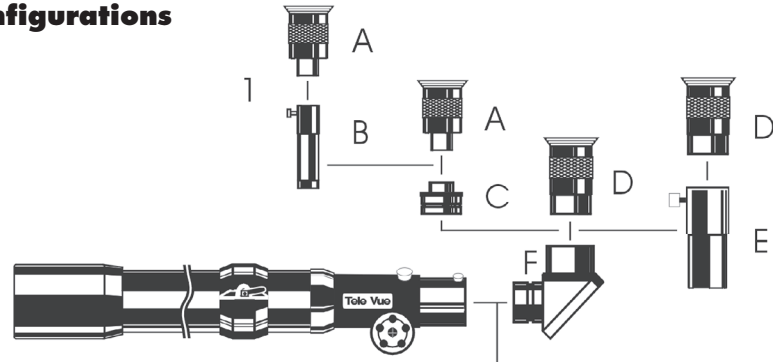
1.8 Recommended Accessories

Finder Starbeam or 55mm Plössl for 9x, 5.5° field

Recommended TV-76 Accessory Package (TVP-3066) includes:

Eyepiece 18.2mm Delite for 26x, 2.3° field
Diagonal 2-inch Everbite 99% broadband mirror type, with 1 1/4" adapter
Mounting Adjustable 3" Ring Mount with 1/4-20 tapped holes for
standard photographic tripods or optional Tele Vue mountings
Telescope Balance Aid (APB-1008)

1.9 Photo-visual Configurations



1. Astronomical Viewing
2. Terrestrial Viewing
3. Prime Focus Photography
4. Prime Focus Photography with 0.8x Reducer/Flattener
5. Prime Focus Photography with Powermates
6. Afocal Photography
7. In-line Afocal Photography

- A. 1 1/4" Eyepiece
- B. 1 1/4" Barlow or Powermate
- C. 2" to 1 1/4" Reducing Adapter
- D. 2" Eyepiece
- E. 2" Barlow or Powermate
- F. 2" Diagonal
- H. 1 1/4" 60° Everbrite Mirror Diagonal
- I. 2" Camera Adapter
- J. T-Ring
- K. D/SLR
- L. 0.8x Reducer/Flattener
- M. 3.5" Extension Tube
- N. 2" Extension Tube
- O. 2" Powermate with T-Ring Adapter
- P. 1 1/4" Powermate with T-Ring Adapter
- Q. Digital Camera
- R. Digital Camera Adapter

