

TeleVue®-102

Operating Guide

880mm f/8.6
2-ELEMENT APO REFRACTOR

Thank you for purchasing the Tele Vue-102. This 4" aperture telescope has an 880mm focal length f/8.6 APO doublet diffraction-limited objective.



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 Tele Vue "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" focuser, and custom hard-shell case. The Complete Package also includes a 2" Everbrite diagonal, 2" to 1 1/4" adapter, Ring Mount, and Plössl eyepiece.

Mounting - The Tele Vue Ring Mount permits mounting to the Tele Vue Gibraltar, heavy duty camera tripods or equatorial mounts using Tele Vue adapters (consult your Tele Vue dealer). You will receive the two 1/4-20 studs, wing knobs, Allen wrench and complete mount assembly instructions with the mount.

Finders - We particularly recommend using the Starbeam reflex sight (part# SFT-2003) to complement the 3° field of the telescope and attaches directly to the Ring Mount. The case has a cutout for the Starbeam. The Quick Release Universal Finder Bracket (QFM-1008) holds a traditional 50mm finderscope and also attaches to the mount ring channels.

Terrestrial Viewing Considerations - The Tele Vue 55mm Plössl in a 2" diagonal will provide 16x with a 3.0° 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.) Also for 2" diagonals only, we highly recommend the 22mm Nagler Type 4, which will provide 40x with over a 2.0° field.

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 correct left-right viewing, use the Tele Vue 45° erector (part# AMI-0011). Barlows, Powermates and Bino Vue are not recommended with the 45° erecting prism. For 1 1/4" diagonals and prisms, the 32mm Plössl, or 24mm Panoptic offers the maximum field, 1.8° at 27.5x and 36.7x respectively.

Getting Acquainted with the Tele Vue-102 (see photos on page 3.)

Note: Complete Packages include the O.T.A. and all other items described below. O.T.A. purchasers must supply eyepieces, eyepiece adapter, diagonal, and mounting device in order for the telescope to function.

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 and Balancing

The Ring Mount permits easy telescope balancing. If you are using a Tele Vue Gibraltar, first unlock the brass vertical motion tension knobs then unlock the "bat handle", on the Ring Mount, reposition the telescope by sliding it fore or aft and re-lock. This permits balancing heavy and light eyepieces, cameras, etc. It may also be helpful to use our Bronze "Equalizer" (BEC-0005) in place of the standard Hi-Hat 2"-1¼" Adapter when using light-weight eyepieces. The extra weight can balance heavier 2" eyepieces so you may not need to shift the tube in the Ring Mount at all, when changing eyepieces.

1.3 Eyepieces

Tele Vue eyepieces offer a range of magnifications from 16x to over 200x, with the Tele Vue-102. 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.

1.4 Photography

For prime focus photography at 880mm f/8.6 using a 35mm SLR, use camera adapter (part# ACM-2000). For flat field astrophotography at 700mm f/6.9, use the Tele Vue 0.8x reducer/flattener, (part# RFL-4087). The RFL-4087 also requires use of the 2" adapter (part# RAD-1074) and T-ring Adapter (Part # TRG-1072). Tele Vue Powermates with optional T-ring adapters provide a variety of options for extending focal length. To reach focus with the Powermates requires our 3.5" extension tube. Afocal photography can be done using our various digital camera to eyepiece adapters. For Piggyback 35mm SLR photography, attach the Piggy-Cam platform, (part# PGC-1001) to the Ring Mount.

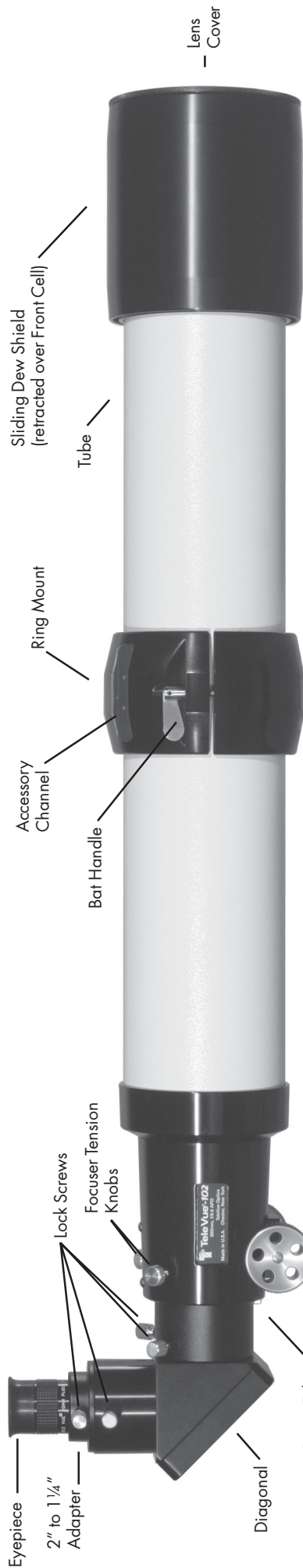
Mounting points are provided on top of the focuser body and draw tube for easy installation of the Digital Micrometer Kits (part#s RMK-2002 or RMF-2003). These kits allow imagers to index focus position to within 0.0001", providing a very convenient way of finding best focus, returning to it, or checking that it hasn't changed. The Focusmate™ dual speed focus accessory (part# TFM-2000) with its 6:1 focus reduction is highly recommended for extraordinarily fine focus adjustment for critical focusing. The Focusmate Driver (part# FDU-2003) adds hands free motorized focusing and the Focusmaster permits remote PC focusing via ASCOM compliant focusing software. For installation, setup and use of the Digital Micrometer Kit, Focusmate™, Focusmate Driver and Focusmaster™, see the instructions included with each.

1.5 Caring for the Tele Vue-102

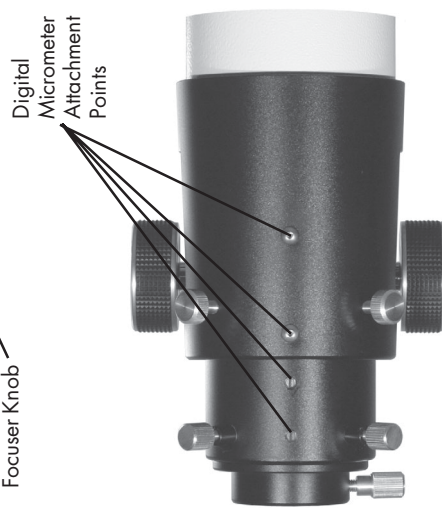
Tele Vue-102 requires no special care. Treat it as you would any fine camera lens. Use the lens cap when the telescope is being stored or not in use. The captive dew shield provides protection from glare, helps protect the lens from dust or spray blown in by the wind and minimizes dew formation on the 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.



Complete Package



Optical Tube Assembly

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-102/102is											
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	16.0	3.00	6.4	4	Y
41	Panoptic	EPO-41.0	68	46.0	27	2.1	21.5	3.00	4.8	6	Y
31	Nagler 5	EN5-31.0	82	42.0	19	2.2	28.4	2.73	3.6	6	Y
35	Panoptic	EPO-35.0	68	38.7	24	1.6	25.1	2.52	4.1	6	Y
21	Ethos	ETH-21.0	100	36.2	15	2.3	41.9	2.36	2.4	-	Y
26	Nagler 5	EN5-26.0	82	35.0	16	1.6	33.8	2.28	3.0	6	Y
22	Nagler 4	EN4-22.0	82	31.1	19	1.5	40.0	2.03	2.6	7	Y
27	Panoptic	EPO-27.0	68	30.5	19	1.0	32.6	1.99	3.1	6	Y
17	Ethos	ETH-17.0	100	29.6	15	1.6	51.8	1.93	2.0	-	Y
20	Nagler 5	EN5-20.0	82	27.4	12	1.0	44.0	1.78	2.3	6	Y*
17	Nagler 4	EN4-17.0	82	24.3	17	1.6	51.8	1.58	2.0	7	Y
1 1/4" Eyepieces for Wide True Fields											
40	Plössl	EPL-40.0	43	27.0	28	0.4	22.0	1.76	4.6	4	Y
32	Plössl	EPL-32.0	50	27.0	22	0.4	27.5	1.76	3.7	4	Y
24	Panoptic	EPO-24.0	68	27.0	15	0.5	36.7	1.76	2.8	6	Y*
13	Ethos	ETH-13.0	100	22.3	15	1.3	67.7	1.45	1.5	-	Y
16	Nagler 5	EN5-16.0	82	22.1	10	0.4	55.0	1.44	1.9	6	N
19	Panoptic	EPO-19.0	68	21.3	13	0.4	46.3	1.39	2.2	6	Y*
25	Plössl	EAP-25.0	50	21.2	17	0.3	35.2	1.38	2.9	4	N
10	Ethos	ETH-10.0	100	17.7	15	1.1	88.0	1.15	1.2	-	Y
13	Nagler 6	EN6-13.0	82	17.6	12	0.4	67.7	1.15	1.5	7	Y*
20	Plössl	EAP-20.0	50	17.1	14	0.2	44.0	1.11	2.3	4	N
12	Nagler 4	EN4-12.0	82	17.1	17	1.0	73.3	1.11	1.4	6	Y
1 1/4" Eyepieces for Medium Powers											
11	Nagler 6	EN6-11.0	82	14.9	12	0.4	80.0	0.97	1.3	7	Y*
14	Radian	ERD-14.0	60	14.4	20	0.5	62.9	0.94	1.6	6	Y
10	Delos	EDL-10.0	72	12.7	20	0.9	88.0	0.83	1.2	-	Y
15	Plössl	EAP-15.0	50	12.6	10	0.2	58.7	0.82	1.7	4	N
9	Nagler 6	EN6-09.0	82	12.4	12	0.4	97.8	0.81	1.0	7	Y*
11	Plössl	EAP-11.0	50	9.1	8	0.1	80.0	0.59	1.3	4	N
1 1/4" Eyepieces for Higher Powers											
8	Ethos	ETH-08.0	100	13.9	15	1.0	110.0	0.91	0.9	-	Y
6	Ethos	ETH-06.0	100	10.4	15	1.0	146.7	0.68	0.7	-	Y
7	Nagler 6	EN6-07.0	82	9.7	12	0.5	125.7	0.63	0.8	7	Y*
6	Delos	EDL-06.0	72	7.6	20	1.0	146.7	0.49	0.7	-	Y
3.7	Ethos	ETH-03.7	110	7.0	15	1.1	237.8	0.46	0.4	-	Y
5	Nagler 6	EN6-05.0	82	7.0	12	0.5	176.0	0.46	0.6	7	Y*
8	Plössl	EAP-08.0	50	6.5	6	0.1	110.0	0.42	0.9	4	N
6	Radian	ERD-06.0	60	6.3	20	0.8	146.7	0.41	0.7	7	Y
5	Radian	ERD-05.0	60	5.3	20	0.8	176.0	0.35	0.6	7	Y
3.5	Nagler 6	EN6-03.5	82	4.8	12	0.5	251.4	0.31	0.4	7	Y*
4	Radian	ERD-04.0	60	4.2	20	0.8	220.0	0.27	0.5	7	Y
2.5	Nagler 6	EN6-02.5	82	3.4	12	0.5	352.0	0.22	0.3	7	Y*
3	Radian	ERD-03.0	60	3.3	20	0.8	293.3	0.21	0.3	7	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	146.7-293.3	0.33-0.17	0.7-0.3	5	N
4-2	Nagler Zoom	ENZ-0204	50	3.3-1.7	10	0.4	220.0-440.0	0.21-0.11	0.5-0.2	5	N

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

*Indicates additional Dioptrx Adapter required

Collimation of your Tele Vue-102 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.

Your star diagonal employs a first-surface mirror. Like all first-surface mirrors, it 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 pure acetone or methanol or Isopropyl alcohol, reagent grade. Clean gently using only the weight of the cotton swab. **Use very light pressure, 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-102, please call Tele Vue at (845) 469-4551 from 9:30 am to 5:00 pm EST.

1.6 Warranty

The Tele Vue-102 is warranted to the original owner, to be free of manufacturing or workmanship defects for 5 (five) years from the date of purchase. Please return the warranty card for easy identification. If your Tele Vue-102 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, coverage for any telescope purchased through an unauthorized Tele Vue dealer, or purchased outside the home country where Tele Vue has representation.

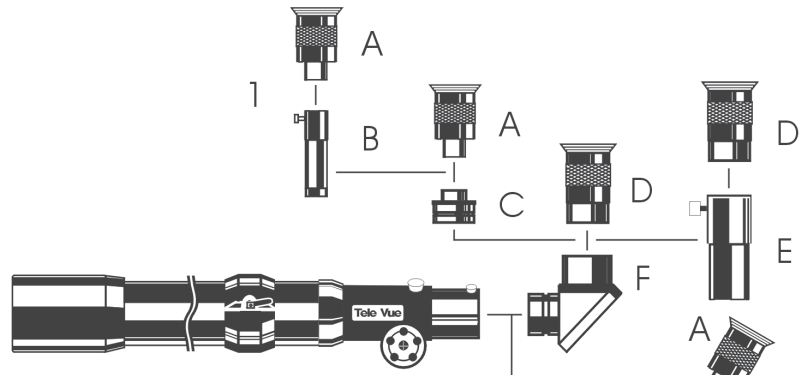
Warranty work will be performed at Tele Vue's discretion and may only be performed by Tele Vue Optics. The telescope must be shipped in its case with proper inner and outer packaging. Return shipping and insurance charges are the purchaser's responsibility.

1.7 Specifications

Type	2-element APO refractor, Fully Multi-Coated
Clear Aperture	4 inches (102mm)
Aperture Gain	212, compared to a 7mm exit pupil
Focal Length	880mm
Focal Ratio	f/8.6
Resolution (visual)	1.1 arc-sec. (Dawes Limit for a 4 inch aperture)
Resolution (photographic)	163 line pairs per mm
Magnification	16x to over 200x using Tele Vue eyepieces
Field, Visual	3° at 16x
Focuser	2-inch, rack and pinion type
Diagonal	2-inch Everbrite 99% broadband mirror type, with 1¼" adapter
Finder	Optional Starbeam or 55mm Plössl for 16x, 3° field
Mounting	Adjustable ring mount with ¼-20 tapped holes for standard photographic tripods or optional Tele Vue mountings
Weight	9 lbs. (tube assembly) 19 lbs. in case, 28 lbs. shipping
Length	30.5-inches (O.T.A. only)
Accessories	custom fitted soft case, screw-on lens cover, sliding dew (glare) shield. Additionally included in the "complete" package: ring mount, 2" diagonal, 2"-1¼" adapter, Plössl eyepiece
Tube	Powder-coated aluminum

Specifications subject to change without notice.

1.8 Photo-visual Configurations



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

- 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
- G. 1 1/4" 45° Erecting Prism
- H. 1 1/4" 60° Everbrite Mirror Diagonal
- I. 2" Camera Adapter
- J. T-Ring
- K. D/SLR
- L. 3.5" Extension Tube
- M. 2" Powermate with T-Ring Adapter
- N. 1 1/4" Powermate with T-Ring Adapter
- O. Digital Camera
- P. Digital Camera Adapter
- Q. 2" to Imaging System Accessory Adapter (RAD-1074)
- R. 0.8x Reducer (RFL-4087)
- S. Imaging System Accessory to T-ring Adapter (TRG-1072)

