

INSTRUCTION MANUAL

Orion[®] GiantView[™] Binocular Telescopes

#51876 – BT-70mm 45°, #51877 – BT-82mm 45°

#51849 – BT-100mm 45°, #51878 – BT-100mm 90° ED, #51866 BT-120MM 90°



#51876

#51877



#51878



#51849



#51866

**ORION[®]**
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Congratulations on your purchase of a pair of quality Orion® binoculars. The GiantView Binocular Telescopes ('BT' for short) provide the large light grasp you need for astronomical observation, but unlike a telescope, allow you to use both eyes simultaneously for viewing. This results in better image resolution, contrast, and brightness than a similar sized telescope can provide.

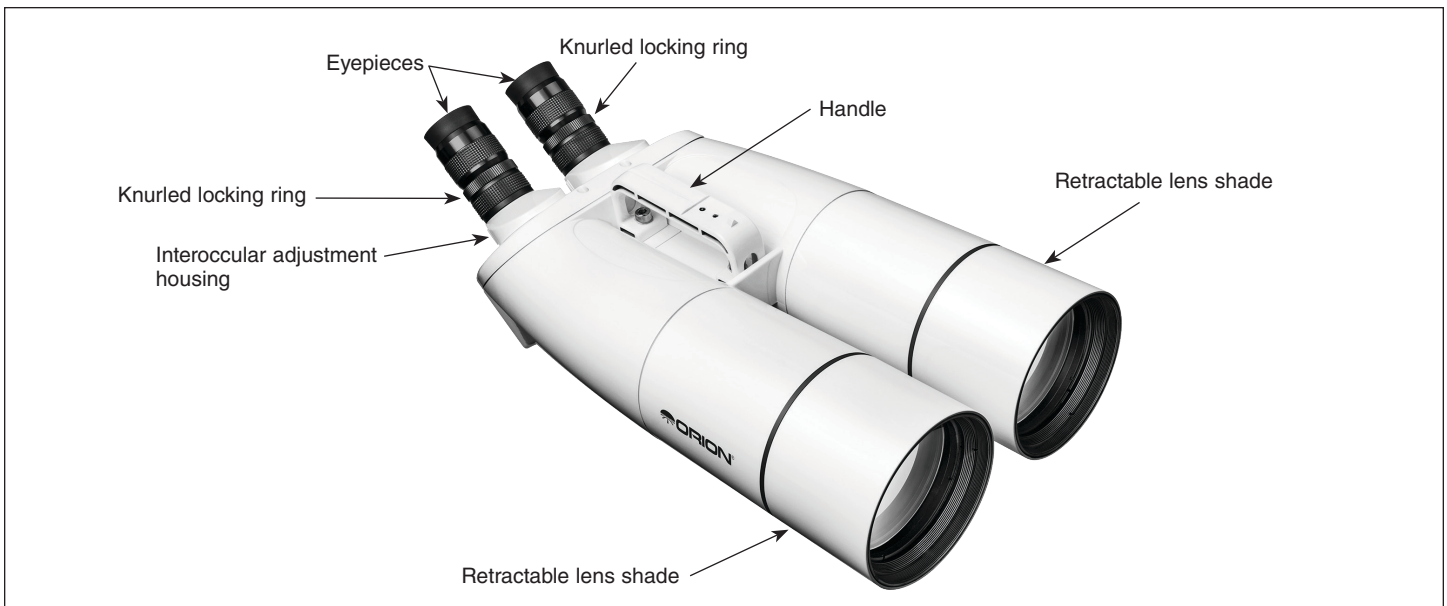


Figure 1. The Orion GiantView BT100 Binocular Telescope (BT-100 45° shown).

Your Orion BT is a true binocular telescope, with optical quality and features you'd expect of a fine astronomical instrument. The included 18mm eyepieces provide a wide field medium magnification, but optional 1.25" interchangeable eyepieces (available from Orion) let you vary the magnification for deep-sky solar system, and terrestrial viewing - with 3D-like depth of field! The 45° eyepiece viewing angle provides a great compromise between daytime spotting and night-time observing, as the binoculars don't need to be positioned above your head when looking upwards. The 90° versions are optimized for astronomical viewing and are the most comfortable. The rugged body construction ensures the BT's will provide viewing enjoyment for years to come.

Please take the time to read this instruction sheet before using your new binoculars.

Using a Tripod

When observing with large-aperture binoculars like the Orion BTs, a sturdy photo tripod or altazimuth mount is required. This is because the weight and magnification of the binoculars make it impossible to hold them steady with your hands.

WARNING Never look directly at the Sun through your binoculars without professionally made solar filters, even for an instant, or permanent eye damage could result. Young children should use these binoculars on sunny days only with adult supervision.

To attach your binocular to a photo tripod, simply thread the tripod's 1/4"-20 mounting stud into the threaded hole on the underside of the BT's mounting plate. The tripod must be able to support the weight of the BT, which can be upward of 16-20 lbs for the larger versions, otherwise it may not be stable enough.

Inserting the Eyepieces

Perhaps the most unique feature of your BT is its ability to utilize standard 1.25" eyepieces. The two supplied Ultra Flat Field 18mm eyepieces provide a magnification of 22-37x (depending on your specific model), but other magnifications can be obtained by purchasing optional eyepieces from Orion. Most standard 1.25" eyepieces will work with the BTs, as long as the eyepieces are capable of seating fully into the eyepiece holders.

To install the eyepieces, first remove the cover caps from the binoculars and eyepieces. Loosen the knurled locking ring (Figure 1) to allow the eyepieces to be inserted. Then, simply insert the eyepieces into the binoculars' eyepiece holders. Push the eyepieces into the holders until they are fully seated. Twist the knurled locking ring clockwise to lock the eyepieces into place. To remove the eyepieces, simply loosen the locking ring and pull the eyepieces out of their holders.

Extending the Lens Shades

Another nice feature of the BT is its extendable lens shades (Figure 1). These increase image contrast by preventing glare (unwanted stray light) from entering the objective lenses of the binoculars. They also slow the formation of dew on the objective lens exteriors.

To use the lens shades, grasp them with your fingers, and pull them outwards. You will need to retract the lens shades to fit the binoculars into the box.

Adjusting the Distance Between Your Eyes (Interocular Distance)

Adjusting the interocular distance of the BT is incredibly easy. Simply grasp the base sections below each eyepiece focuser housing (**Figure 1**) and rotate inwards or outwards with your thumbs. The two housings are connected internally, so they rotate with each other, always insuring the eyepieces stay level and aligned. Pivot the bases while looking through the BT until the distance between the eyepieces matches the distance between your eyes. When properly adjusted, you should see a single, round field of view when looking through the binoculars. Make this adjustment before you attempt to focus the binoculars.

Focusing

The BTs utilize individual focus eyepieces. This makes the binoculars mechanically more rugged than similar center-focus models, and generally maintains optical alignment better. For astronomical observation, individual focus eyepieces are usually preferred.

Pick an object in the distance to view. At night, best focus will be achieved by focusing on a medium bright star. Cover your right eye (or cover the right objective lens of the binocular) and focus the left eyepiece by rotating the rubber grip ring on the eyepiece holder until the image appears sharp. Then cover your left eye (or cover the left objective lens of the binocular) and focus the right eyepiece by rotating the eyepiece holder until the image appears sharp. The binoculars are now focused. If you want to view an object at a different distance, re-focusing of both eyepieces is required. Also, changing eyepieces may require refocusing.

For astronomical observation, all objects will always appear focused at the infinity focus point. This means you only need to focus the binoculars once per observing session per set of eyepieces. Since everyone's eyes focus images slightly differently, different observers will need to refocus the binoculars for their own vision.

Waterproof Binoculars

The Orion BTs are sealed to be waterproof. While they are impervious to rain, wind, splashing, and humidity, do not immerse the binocular in water under any circumstances. If the binocular becomes wet with fresh water, merely blot it dry with a clean cloth and clean the lens surfaces as outlined below. Saltwater should be rinsed off completely and the binocular then blotted dry and its lenses cleaned as outlined below. If the binocular body becomes dirty, it can be cleaned with warm water and a clean cloth. If extremely dirty, or oily, clean the body with a diluted solution of warm water and mild soap on a cloth, then rinse with clean water and blot dry. Do not clean lens surfaces

with soap and water! The BTs are also not meant to be left outside on a permanent basis. Exposure to the elements (especially UV sunlight, and poor weather) will degrade the unit over time. Please bring your BT inside when you are finished with your observing session.

Cleaning and Care of Binocular Lenses

The lens surfaces of Orion binoculars are coated with anti-reflection multi-coatings that can be damaged with careless handling. Avoid touching lens surfaces with fingers or any coarse material. All optics, even if stored, should be cleaned at least once a year or whenever they are dirty. The dust that builds up on coatings promotes mold growth, which etches glass and destroys coatings. Avoid over-cleaning; it can also damage the coatings. Always use lens cleaning tissue and fluid that are specifically designed for multicoated lenses. Do not use fluids or tissues that are for eyeglasses or household use. Never attempt to disassemble the binocular or eyepieces in order to clean them; this can also void the warranty.

To clean the binocular (and eyepiece) lenses, first blow off the lens with a blower bulb or gently wipe the lens with a lens cleaning brush to remove the larger particles. Put a few drops of lens cleaning fluid on a fresh piece of lens cleaning tissue (never on the lens) and gently wipe the lens. Quickly wipe the excess fluid with a new, dry piece of lens cleaning tissue. For larger lenses, clean only a small area at a time, using a new tissue each time. On excessively dirty lenses, wipe across the lens using one stroke for each tissue, alternating wet and dry. Always avoid excessive pressure or rubbing when wiping, as wiping too hard can scratch the lens.

Storage and Transport

Avoid unnecessary shocks to the binocular, whether it is in its box/case or not. Although the BT is designed to be mechanically rugged, excessive impacts may cause the optics to become misaligned. This is not covered by the warranty.

Allow the optics to slowly adjust to cold weather by storing the instrument in a cold area, such as an unheated garage or the trunk of a car, for a few hours before use. When bringing the instrument back inside a warm house, let everything dry out before placing the caps on the objectives or storing it in the box. If there is moisture on the objective lenses when the caps are attached, the moisture will not evaporate, and can end up etching the coatings over a long period of time. The binoculars should be stored in a cool, dry place to prevent mold growth, which can damage the optics. This is also not covered by the warranty.

Specifications

70mm/82mm/100mm/120mm

Objective lenses:	70mm/82mm/100mm/120mm clear aperture, air-spaced doublet. 100mm-90° contains an FK-61 ED (extra-low dispersion) lens.
Focal Length:	400mm/470mm/550mm/660mm
Magnification:	18mm Ultra Flat Field eyepieces included (22x/26x/31x/37x), uses standard 1.25" eyepieces
Field Stop Diameter:	25mm/25mm/28mm
Focusing:	Individual focus eyepieces
Field of view:	2.9°/2.5°/2.1°/1.8° with the included eyepieces
Prisms:	BAK-4, 45° (70mm/82mm/100mm non-ED), 90° (100mm ED/120mm)
Anti-reflection coatings:	Fully multi-coated
Body design:	All metal construction, waterproof and nitrogen purged.
Interior:	Glare threaded, baffled, and blackened
Lens shades:	Retractable
Weight:	6.6 lbs (70mm), 10lbs (82mm), 14.5 lbs (100mm 45°), 16.8 lbs (100mm 90° ED) 20.3 lbs (120mm)
Mounting provision:	¼"-20 mounting plate
Carry handle:	Included, metal
Dust covers:	Thread on covers for objective lenses, rubber caps for eyepieces and eyepiece holder

One-Year Limited Warranty

This Orion product is warranted against defects in materials or workmanship for a period of one year from the date of purchase. This warranty is for the benefit of the original retail purchaser only. During this warranty period Orion Telescopes & Binoculars will repair or replace, at Orion's option, any warranted instrument that proves to be defective, provided it is returned postage paid. Proof of purchase (such as a copy of the original receipt) is required. This warranty is only valid in the country of purchase.

This warranty does not apply if, in Orion's judgment, the instrument has been abused, mishandled, or modified, nor does it apply to normal wear and tear. This warranty gives you specific legal rights. It is not intended to remove or restrict your other legal rights under applicable local consumer law; your state or national statutory consumer rights governing the sale of consumer goods remain fully applicable.

For further warranty information, please visit www.OrionTelescopes.com/warranty.



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