



CF400 TELESCOPE

70 mm Telescope w/ Pan Handle AZ Mount
Instruction Manual

Specifications

Optical Design	Achromatic Refractor
Magnification	20 - 67x
Front Lens (clear aperture)	70 mm
Focal Length	400 mm
Standard Eyepieces	1.25" K6 mm & K20 mm
Finish	Blue Carbon Fiber
Tripod	Alt-azimuth Tripod



WARNING:
SUN HAZARD – Never look directly at the sun with this device.

WARNING:
CHOKING HAZARD – Small parts.
Not for children under 3 years.

WARNING:
Contains button or coin cell battery.
Hazardous if swallowed – see instructions.

SUN WARNING

WARNING: NEVER ATTEMPT TO OBSERVE THE SUN WITH THIS DEVICE! OBSERVING THE SUN – EVEN FOR A MOMENT – WILL CAUSE INSTANT AND IRREVERSIBLE DAMAGE TO YOUR EYE OR EVEN BLINDNESS. Eye damage is often painless, so there is no warning to the observer that the damage has occurred until it is too late. Do not point the device at or near the Sun. Do not look through the device as it is moving. Children should always have adult supervision while observing.

SAFETY WARNINGS

Read and follow the instructions, safety rules, and first aid information.

- RESPECT PRIVACY: WHEN USING THIS DEVICE, RESPECT THE PRIVACY OF OTHER PEOPLE. FOR EXAMPLE, DO NOT USE THEM TO LOOK INTO PEOPLE'S HOMES.
- CHOKING HAZARD: CHILDREN SHOULD ONLY USE DEVICE UNDER ADULT SUPERVISION. KEEP PACKAGING MATERIALS LIKE PLASTIC BAGS AND RUBBER BANDS OUT OF THE REACH OF CHILDREN AS THESE MATERIALS POSE A CHOKING HAZARD.
- RISK OF BLINDNESS: NEVER USE THIS DEVICE TO LOOK DIRECTLY AT THE SUN OR IN THE DIRECT PROXIMITY OF THE SUN. DOING SO MAY RESULT IN A PERMANENT LOSS OF VISION.
- RISK OF FIRE: DO NOT PLACE DEVICE, PARTICULARLY THE LENSES, IN DIRECT SUNLIGHT. THE CONCENTRATION OF LIGHT RAYS COULD CAUSE A FIRE.
- DO NOT DISASSEMBLE THIS DEVICE. IN THE EVENT OF A DEFECT, PLEASE CONTACT YOUR DEALER. THE DEALER WILL CONTACT THE CUSTOMER SERVICE DEPARTMENT AND CAN SEND THE DEVICE IN TO BE REPAIRED IF NECESSARY.
- DO NOT SUBJECT THE DEVICE TO TEMPERATURES EXCEEDING 60° C (140° F).



- DISPOSAL: KEEP PACKAGING MATERIALS, LIKE PLASTIC BAGS AND RUBBER BANDS, AWAY FROM CHILDREN AS THEY A POSE A RISK OF SUFFOCATION. DISPOSE OF PACKAGING MATERIALS AS LEGALLY REQUIRED. CONSULT THE LOCAL AUTHORITY ON THE MATTER IF NECESSARY AND RECYCLE MATERIALS WHEN POSSIBLE.

BUTTON/COIN BATTERY WARNING



WARNING:

This product contains a Button or Coin Cell Battery. A swallowed Button or Coin Cell Battery can cause internal chemical burns in as little as two hours and lead to death. Dispose of used batteries immediately. Keep new and used batteries away from children. If you think batteries might have been swallowed or placed inside any part of the body, seek immediate medical attention.

Instruction Manual, &
Downloadable Planisphere Visit:

www.exploreone.com/pages/product-manuals





Parts Overview

1. 70mm Objective Lens
2. Pan- Tilt Alt-Azimuth Mount
3. Tripod with Accessory Tray
4. Optical Tube Assembly with Dew Shield
5. Focus Wheel
6. 45° Erecting Prism Diagonal
7. 1.25" Eyepieces (K6 mm & K20 mm)
8. Red Dot Viewfinder



How To Set Up

Assembly:

Note: We recommend assembling your telescope for the first time in the daylight or in a lit room so that you can familiarize yourself with assembly steps and all components.

1. Open the tripod until the tripod spreaders are fully extended. Put the accessory tray in place and turn it clockwise until stable. To set the tripod height, turn the pressure fitting on each leg counterclockwise until loose. Extend or retract the leg to the desired setting, then tighten the pressure fitting until snug.
2. Thread the panhandle clockwise onto the tripod head.
3. Set the optical tube assembly on the tripod head and align the tab on the bottom of the telescope tube with the slot in the tripod head. Thread the front tension wheel until snug, then tighten the side tension thumbscrew. Be careful not to over-tighten either thumbscrew.
4. Insert the diagonal into the focuser and secure it by tightening the thumbscrews.
5. To install the bracket for the red dot viewfinder, remove the two metal thumbscrews on the top of the telescope tube. Place the bracket in position over the holes, replace the thumbscrews and tighten until secure. Be careful not to over-tighten either thumbscrew.
6. After installing the bracket, slide the red dot viewfinder into the bracket and secure it by tightening the three screws around the ring.
7. Place your chosen eyepiece into the diagonal. We recommend starting with the 20mm because it will provide the widest field of view.

Telescope Terms To Know:

Diagonal: A mirror that deflects the ray of light 90 degrees.

With a horizontal telescope tube, this device deflects the light upwards so that you can comfortably observe by looking downwards into the eyepiece. The image in a diagonal mirror appears upright, but rotated around its vertical axis (mirror image).

Focal length: Everything that magnifies an object via an optic lens has a certain focal length. The focal length is the length of the path the light travels from the surface of the lens to its focal point. The focal point is also referred to as the focus. In focus, the image is clear. In the case of a telescope, the focal length of the telescope tube and the eyepieces are used to determine magnification.

Lens: The lens turns the light that falls on it around in such a way so that the light gives a clear image in the focal point after it has traveled a certain distance (focal length).

Eyepiece: An eyepiece is a system made for your eye and comprised of one or more lenses. In an eyepiece, the clear image that is generated in the focal point of a lens is captured and magnified still more.

Magnification: The magnification corresponds to the difference between observation with the naked eye and observation through a magnifying device like a telescope. If a telescope configuration has a

magnification of 30x, then an object viewed through the telescope will appear 30 times larger than it would with the naked eye. To calculate the magnification of your telescope setup, divide the focal length of the telescope tube by the focal length of the eyepiece.

NOTE:

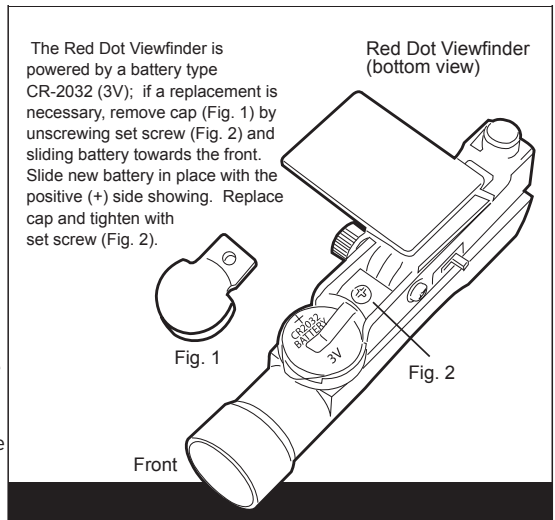
The magnifying power of a telescope is determined by dividing the focal length of the telescope by the focal length of the eyepiece. This means that as the focal length of your eyepiece increases, the magnifying power decreases.

Using/Aligning the Red Dot Viewfinder:

The viewfinder is powered by a CR-2032 battery that is included. Before using the viewfinder for the first time, remember to remove the plastic insulator that is blocking the battery from connecting. When it is time to replace the battery, remove the battery cap by loosening the set screw. Take out the old battery and slide a new battery in place with the positive side showing. Replace the cap, and tighten the set screw.

For The Viewfinder To Be Effective, It Must Be Aligned. To do this:

- Insert the 20 mm eyepiece into the diagonal and power on the viewfinder by sliding the switch on its right side to an "On" position.
- Point the eyepiece at an easy to identify target like a telephone pole that is approximately 200 yards away. Center the object in the eyepiece. Lock the telescope into place by tightening the panhandle.
- Without moving the telescope, position the red dot using the two adjustment screws so that it shares the same view as the one in your eyepiece. The front screw will move the viewfinder up and down, and the other will move it side to side. Your viewfinder is now aligned.



Note: To preserve battery life, don't forget to turn off the viewfinder after use.

Using Your Telescope:

After you have assembled your telescope, you are ready to start observing. Put the 20mm eyepiece into the diagonal to get the widest field of view. This wider field of view will make it easier to locate and track objects.

To move the scope up, down and side to side, loosen the locking screws slightly and grip the telescope near where the tube meets the focuser and steadily move the tube until your target comes into view in the eyepiece. Once you have found and focused on your desired target, you can lock the telescope into position by tightening the two locating screws.

It is important to remember that the rotation of the Earth means objects will move out of your eyepiece fairly quickly.

For a closer look at an object, you can insert the K6 mm eyepiece. The magnification will increase from 20x to 67x.

Cleaning:

Your telescope is a precision optical device and keeping the optics free of dust and dirt is crucial for optimal performance. To clean the lenses (objective and eyepiece) use only a photo-grade soft brush or a lint-free cloth, like a microfiber cloth. Do not press down too hard while cleaning, as this might scratch the lens. Ask your parents to help if your telescope is really dirty. If necessary, the cleaning cloth can be moistened with an optical glass cleaning fluid and the lens wiped clean using very little pressure. Do not use harsh detergents!

Make sure your telescope is always protected against dust and dirt. After use, leave it in a warm room to dry off before storing.

Possible Objects For Observation:

Terrestrial Objects

Take note of the examples below, including Mount Rushmore and the golf course. Start with the K20 mm eyepiece and focus until the image is clear. After mastering the K20 mm eyepiece, switch to the K6 mm eyepiece and practice scanning and focusing until the image is clear. Choose several terrestrial objects to practice focusing on, but never point your telescope at or near the sun, or you risk blindness.

The Moon

Diameter: 3,476 km

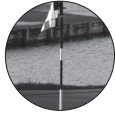
Distance: Approximately 384,401 km

The Moon is the Earth's only natural satellite, and it is the second brightest object in the sky (after the Sun). Although it is our closest neighbor, a lot of people have never really taken a good long look at the Moon. With your telescope, you should be able to see several interesting lunar features. These include lunar maria, which appear as vast plains, and some of the larger craters. The best views will be found along the terminator, which is the edge where the visible and cloaked portions of the Moon meet.

Terrestrial Images

f=K20 mm

f=K6 mm



The Moon

f=K20 mm

f=K6 mm



Orion Nebula:

Right ascension: 05: 35.4 (hours: minutes)

Declination: -05: 27 (degrees: minutes)

Distance: Approximately 1,344 light years

The Orion Nebula is a vast star-forming region located in the “sword” branching off of the famous Orion’s Belt. Also known as Messier 42, this diffuse nebula is bright enough to see with the unaided eye — although it will only appear as a slightly foggy star. However, with your telescope, you can see many of the beautiful details, such as the billowing clouds of gas and dust where new stars are being born.

Pleiades Star Cluster:

Right ascension: 03: 47.0 (hours: minutes)

Declination: +24: 07 (degrees: minutes)

Distance: Approximately 444 light years

The Pleiades Star Cluster is a group of brilliant blue stars located in the Taurus Constellation. Also known as Messier 45 or “Seven Sisters”, this open star cluster consists of more than 1,000 confirmed stars, although an average of only six are visible to the unaided eye. With your telescope, you can quickly reveal some of the more elusive members of this legendary and beautiful cluster.

Andromeda Galaxy:

Right ascension: 00: 42.7 (hours: minutes)

Declination: +41: 16 (degrees: minutes)

Distance: Approximately 2.54 million light years

The Andromeda Galaxy is the closest major galaxy to our own Milky Way. Also known as Messier 31, this famous spiral galaxy is part of the Local Group of galaxies. Although it is technically bright enough to see with the unaided eye under a very dark sky, your telescope may show its bright center, hints of its spiral structure and its much smaller companion galaxies known as M32 and M110.

Troubleshooting Guide:

Problem	Solution
No picture	Remove dust protection cap and sun-shield from the objective opening.
Blurred picture	Adjust focus using focus ring.
No focus possible	Wait for temperature to balance out.
Bad quality	Never observe through a glass surface such as a window.
Viewing object visible in the finder, but not through the telescope	Align finder to telescope [see instructions]
Despite using star diagonal prism the picture is “crooked”	The star diagonal prism should be vertical in the eyepiece connection.



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