INSTRUCTION MANUAL

Orion® GoScope III 70mm Refractor Travel Telescope

#10276

Francais

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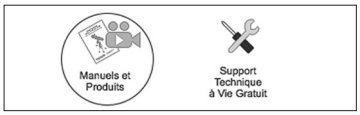

Deutsche

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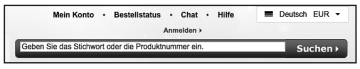

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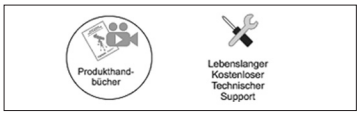

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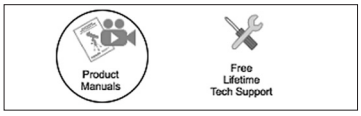

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Congratulations on your purchase of an Orion telescope. Your new GoScope III 70mm Refractor Travel telescope is a terrific starter instrument for exploring the world by day and countless celestial wonders at night. Designed to be compact and easy to take with you wherever you go, it will provide many hours of enjoyment for the whole family.

These instructions will help you set up, properly use, and care for your telescope. Please read them over thoroughly before getting started.

Table of Contents

1. Parts List

Open the backpack (A) and remove and identify all parts, using the list below and **Figure 1** for reference.

Included Parts

A – Backpack

B – Tripod and pan head

C –Clear plastic strip

D – Finder scope bracket

E – 5x24 finder scope tube

F – Optical tube

G – 45-Degree correct-image diagonal, 1.25"

H – 20mm Kellner eyepiece

I – 9mm Kellner eyepiece

J – Dust cap

SOLAR WARNING: ***Never Use the GoScope III, or its finder scope, to look at the Sun without a proper, safe solar filter. Using an unfiltered telescope to observe the Sun can cause instant eye damage or blindness. Kids should use only under appropriate adult supervision.***

Figure 1. The included components of the GoScope III 70mm Travel Refractor.

2. Assembly

1. After removing and identifying all the parts from the backpack (A), spread the legs of the tripod (B) and then tighten the center post lock collar at the bottom of the post by turning the collar clockwise (**Figure 3**).
2. Extend the tripod legs to the desired length by flipping open the leg lock clamps, extending the leg section, then closing the leg lock clamps. The tripod should now appear as in **Figure 4**.
3. To attach the optical tube (F) to the pan head, first you will need to remove the pan head's quick-release plate (**Figure 5**). To do that, push the lock lever outward 90 degrees. That unlocks the plate, which can then be lifted out.
4. Attach the quick-release plate to the dovetail mounting plate on the bottom of the optical tube (F), by screwing the threaded post of the quick-release plate into the socket on the optical tube mounting plate (**Figure 6a**). Use the small, hinged D-ring on the underside of the quick-release plate to turn the threaded post until tight.
5. Now with the quick-release plate installed on the telescope optical tube, insert the plate into the pan head, making sure the lock lever is in the unlocked, or open, position. You may have to tilt the plate as shown in **Figure 6b** while inserting it into the pan head, in order to seat it properly. Once the plate is fully seated, the lock lever can be pressed back to the closed position, as shown in 6c.
6. Now you'll assemble the finder scope. First locate the clear plastic strip (C). Curl it and insert it into the finder scope bracket (D), as shown in **Figure 7**. Then slide the finder scope tube (E) eyepiece end first, into the bracket and inside the curled plastic strip. (Note that you should make sure the three thumbscrews on the bracket are loosened enough to allow the finder scope tube to pass through freely.) When it is correctly inserted, the tube should appear as in **Figure 8**, with the edge of the clear plastic strip just showing. The plastic strip encircling the finder scope tube stabilizes the front portion of the finder scope in the bracket. Without the strip, the finder scope would move around inside the bracket, which is not desirable.
7. Now remove the two thumbnuts on the telescope tube to expose the two threaded posts. Then place the finder scope bracket over the posts as shown in **Figure 9**. Then thread on the thumbnuts and lightly tighten them to secure the finder scope bracket in place.
8. Next, insert the 45-degree correct-image diagonal accessory (G) into the focuser drawtube, making sure the two thumbscrews are loosened enough to allow the diagonal's barrel to be fully inserted (**Figure 10**). Then tighten the two thumbscrews.
9. Now insert the 20mm Kellner eyepiece (H) into the diagonal and tighten the thumbscrew to lock the eyepiece in place (**Figure 11**).

The telescope is now completely assembled! Before it can be effectively used, however, there are a couple of things to do to prepare the telescope for operation.

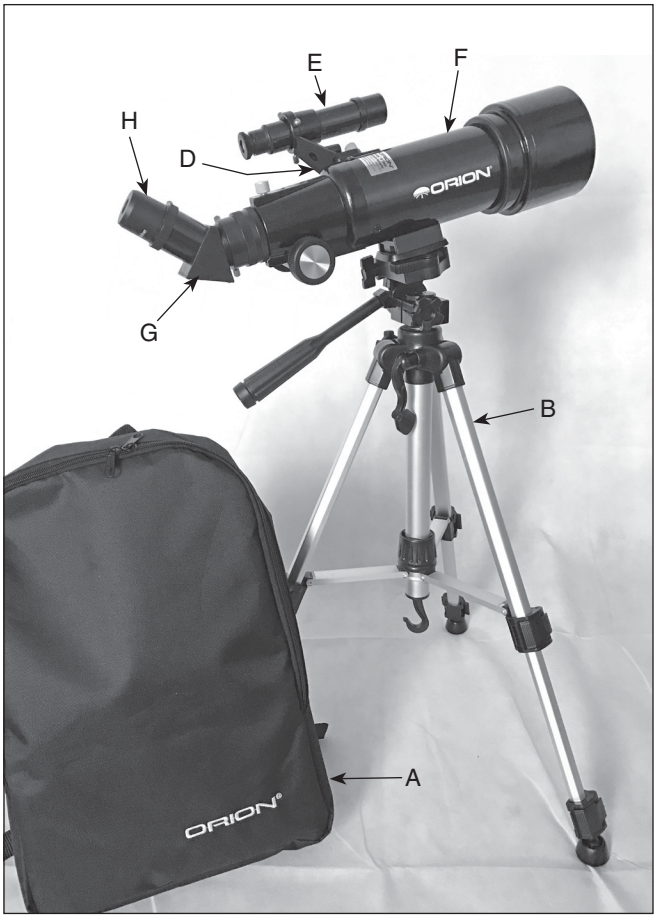

Figure 2. The GoScope III 70mm Travel Refractor telescope fully assembled, with key parts identified.

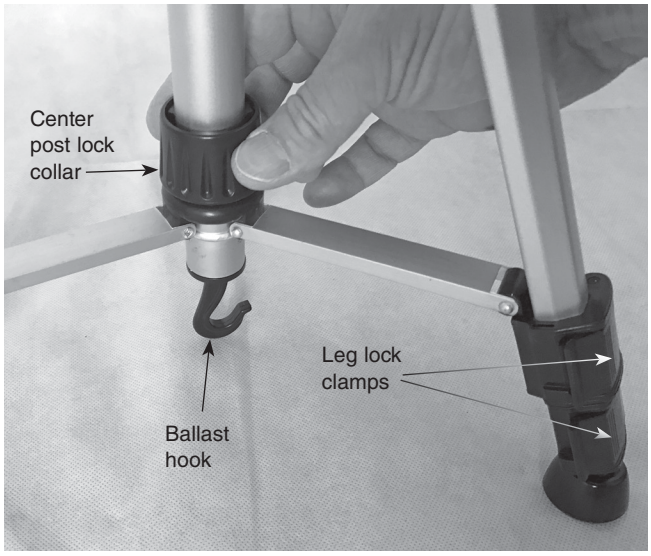

Figure 3. Setting up the tripod.

Figure 4. The assembled tripod with pan head.

3. Preparing the Telescope for Operation

Aligning and Using the Finder Scope

The included 5x24 finder scope provides a wide field of view at 5x magnification (the "24" in 5x24 is the diameter of the finder's front lens in millimeters). This makes it easier to find your observing target and center it for viewing in the main telescope.

Before you can use the finder scope, it must be aligned with the main telescope.

1. First, remove the dust cap (J) from the front of the telescope.
2. Then, with the 20mm eyepiece (H) already in the focuser from step 9 above, point the telescope at a well-defined land target (e.g., the top of a telephone pole) that's at least a quarter mile away. When pointing the telescope, be sure to loosen the azimuth lock knob and twist the pan handle counterclockwise to allow the telescope to rotate freely about both axes horizontal and vertical axes (see **Figure 12**).

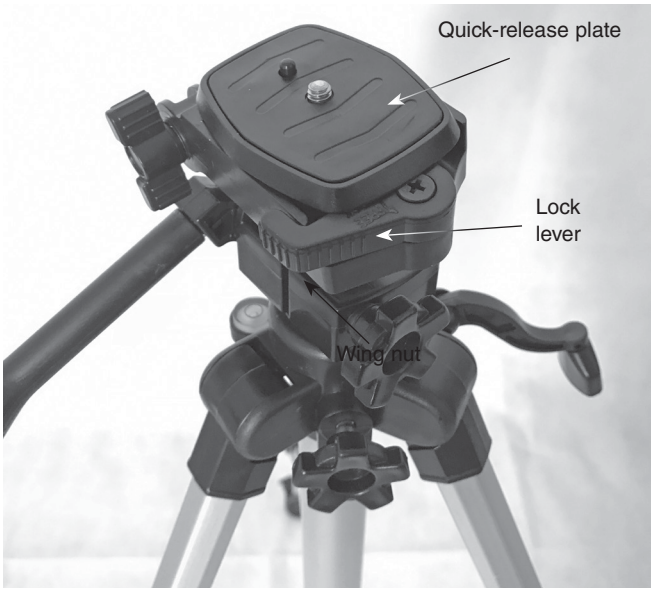

Figure 5. Remove the quick-release plate from the pan head by rotating the lock lever to the open position.

3. Center the target in the main telescope's eyepiece. (You can get even a more precise alignment by switching to the 9mm eyepiece and centering the target object in it.)
4. Now look in the finder scope. Use the three thumbscrews on the finder scope bracket to center the target object on the intersection of the crosshairs in the finder's field of view. Start by loosening one thumbscrew a half turn or so, then lightly tightening one or both of the others and see of the target object moves closer to the crosshairs, or farther away. Keep adjusting the thumbscrews accordingly until the target object is centered.
5. Now make sure the object is still centered in the telescope's eyepiece. If it isn't, re-center it then adjust the finder scope's alignment again. When the object is centered in the telescope eyepiece and in the finder scope, the finder scope is properly aligned with the telescope. The finder scope's alignment should be checked before every observing session.

Operating the Tripod and Pan Head

The GoScope III 70mm refractor features a standard, "altazimuth" pan head mount, which permits motion along two perpendicular axes: **alt**itude (up/down) and **azimuth** (left/right). This makes pointing the telescope easy and intuitive. To move the telescope in the azimuth direction, loosen the azimuth lock knob a turn or so (**Figure 12**), then take hold of the pan handle and gently move it left or right. To move the telescope in altitude, twist the pan handle counterclockwise then move the tube up or down to the desired position. You can then re-tighten the azimuth lock knob and the pan handle, or you can leave them slightly loose so that you can freely move the tube in any direction when desired.

The top plate of the pan head can also be tilted 90-degrees laterally by loosening the tilt lock knob (see **Figure 12**). While this feature may not be particularly useful when viewing with the telescope, it can come in handy if you replaced the telescope

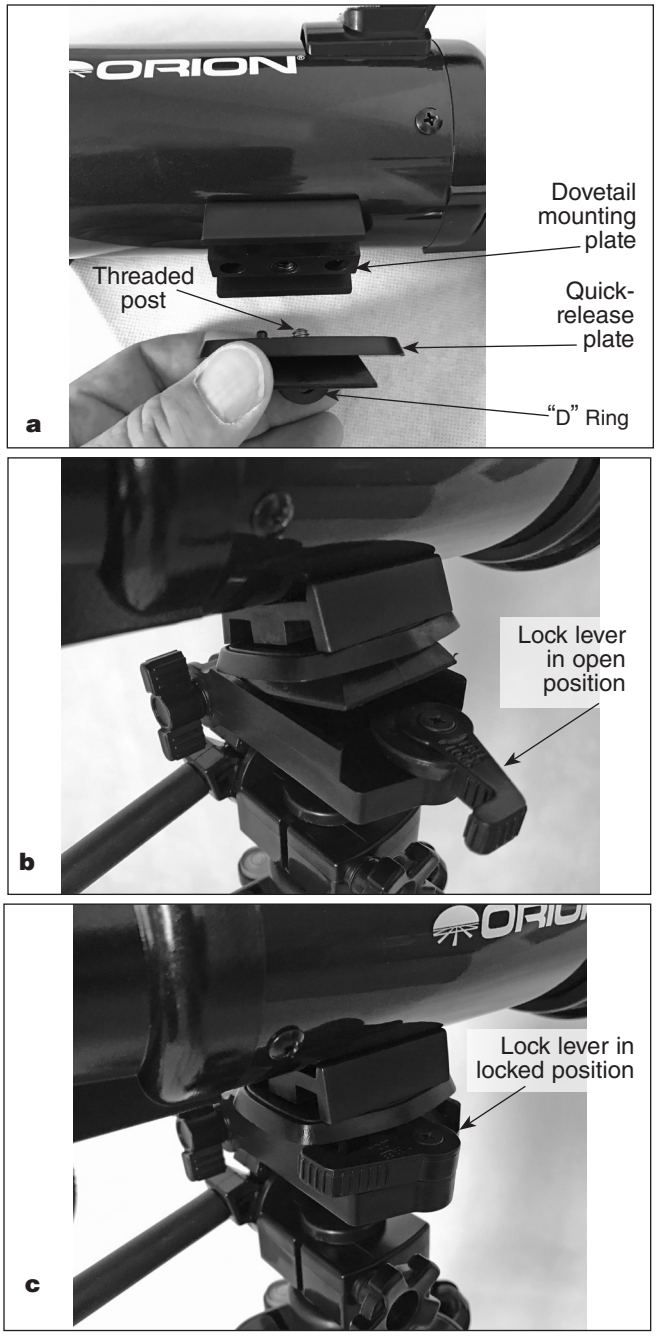

Figure 6. a) Attach the quick-release plate to the dovetail mounting plate on the telescope. **b)** Slide the quick-release plate into the pan head's saddle by tilting it and then pressing downward. **c)** Finally, close the lock lever to secure the telescope on the pan head.

on the pan head with a DSLR camera, allowing quick switching between landscape (horizontal) and portrait (vertical) camera orientations.

The tripod also comes equipped with a geared center column, which provides additional height for the scope when needed. (See **Figure 13**.) To extend the column, first loosen the center column lock knob a half turn or so. Then pull the crank handle outward and rotate it clockwise. When you reach the desired height, retighten the lock knob. To lower the center column, loosen the lock knob then rotate the crank handle counterclockwise.

Eyepiece Selection

Magnification, or power, is determined by the focal length of the telescope and the focal length of the eyepiece being used. Therefore, by using eyepieces of different focal lengths, the resultant magnification can be varied. It is quite common for an observer to own five or more eyepieces to access a wide range of magnifications. This allows the observer to choose the best eyepiece to use depending on the object being viewed and viewing conditions. Your GoScope III 70mm refractor comes with 20mm and 9mm Kellner eyepieces, which will suffice nicely to begin with. You can purchase additional eyepieces later if you wish to have more magnification options.

Magnification is calculated as follows:

$$\frac{\textbf{Telescope Focal Length (mm)}}{\textbf{Eyepiece Focal Length (mm)}} = \textbf{Magnification}$$

For example, the GoScope III 70mm has a focal length of 400mm, which when used with the supplied 20mm eyepiece yield:

$$\frac{\textbf{400 mm}}{\textbf{20 mm}} = \textbf{20x}$$

The magnification provided by the 10mm eyepiece is:

$$\frac{\textbf{400 mm}}{\textbf{9 mm}} = \textbf{44x}$$

The maximum attainable magnification for a telescope is directly related to how much light it can gather. The larger the aperture, the more magnification is possible. In general, a figure of 50x per inch of aperture is the maximum attainable for most telescopes. Going beyond that will yield simply blurry, unsatisfactory views. Your GoScope III 70mm has an aperture of 70mm, or 2.8 inches, so the maximum magnification would be about 140x (2.8 x 50).

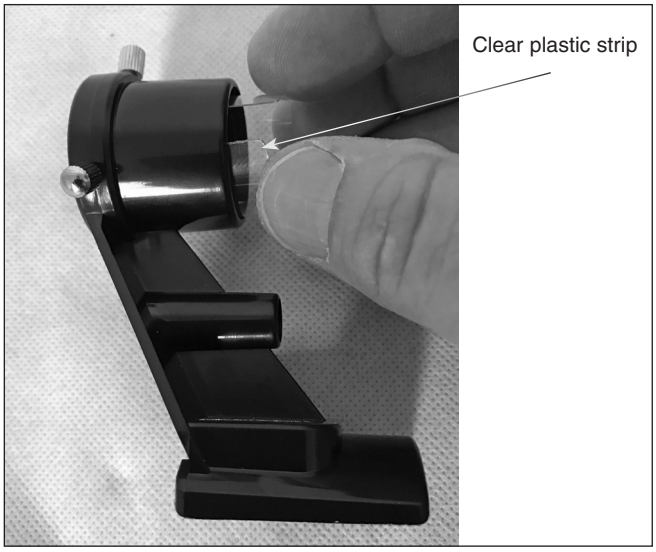

Figure 7. Curl the plastic strip and slide it into the open tube of the finder scope bracket.

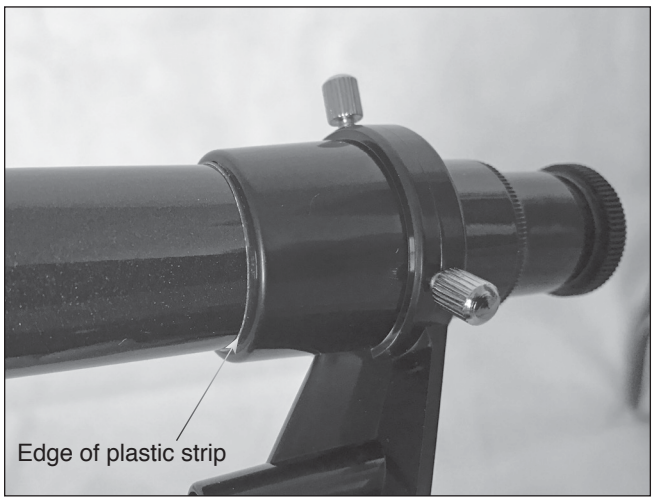

Figure 8. Slide the finder scope tube, eyepiece end first, into the bracket, making sure the plastic strip surrounds the tube. The strip should be just barely visible when the finder scope is fully inserted, as shown.

This level of magnification assumes you have ideal atmospheric conditions for observing (which is seldom the case).

Keep in mind that as you increase magnification, the brightness of the object viewed will decrease; this is an inherent principle of the laws of physics and cannot be avoided. If magnification is doubled, an image appears four times dimmer. If magnification is tripled, image brightness is reduced by a factor of nine!

So start by using the lower-power 20mm eyepiece, then try switching to the 10mm eyepiece later if you want to boost the magnification.

Focusing the Telescope

To focus the telescope, turn the focus wheels (**Figure 12**) forward or back until you see your target object in the eyepiece. Then make finer adjustments until the image is sharp. If you're having trouble achieving initial focus, rack the focuser drawtube all the way in using the focus wheels, then while looking into the eyepiece slowly turn the focus wheels so that the drawtube extends outward. Keep going until you see your target object come into focus. Note that when you change eyepieces you may have to adjust the focus a bit to get a sharp image with the newly inserted eyepiece.

Figure 9. To install the finder scope bracket, remove the two thumb nuts on the optical tube to expose the threaded posts, then place the bracket over the posts. Replace the two thumbnuts to secure it.

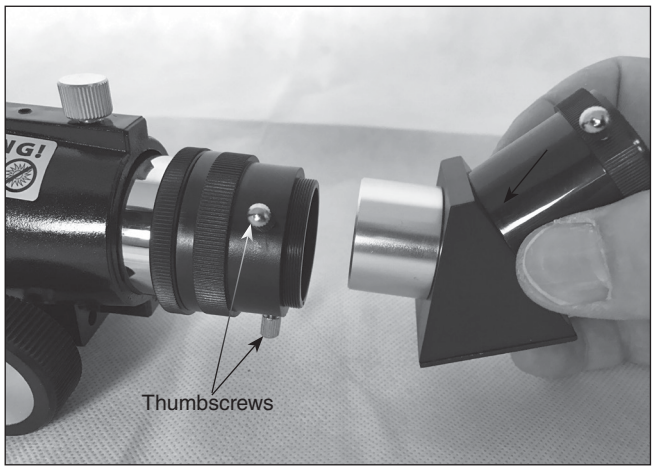

Figure 10. Insert the 45-degree correct-image diagonal into the focuser drawtube and secure it with the two thumbscrews.

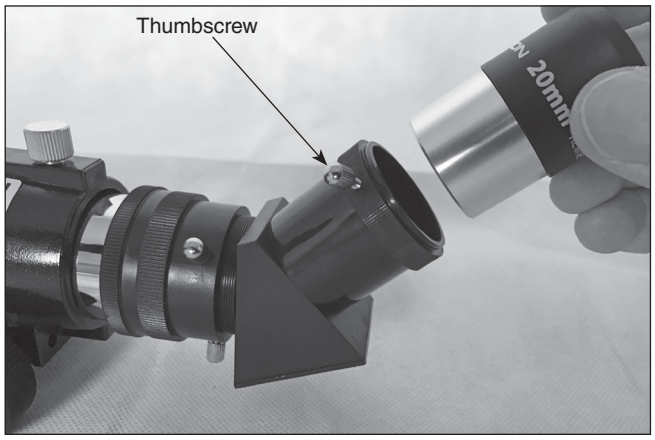

Figure 11. Insert the eyepiece into the diagonal and secure it with the thumbscrew.

What's That Hook?

You may have noticed a hook at the bottom of the tripod's center post (see **Figure 3**). That's called a ballast hook, and it allows you to hang a weight on the tripod to help stabilize it if, say, it's windy outside. Carry a plastic bag with you and fill it with whatever is at hand, such as rocks or sand. Then hang the bag from the hook.

4. Viewing with the GoScope III 70mm

The Orion GoScope III 70mm is equipped with the optics to give you a "correct-image" view, similar to what you can see with binoculars. Because of this, the GoScope III is an excellent terrestrial telescope for viewing terrestrial scenes during daylight hours. But it also excels for nighttime viewing, enabling you to see hundreds of craters on the Moon, the four major moons of Jupiter, the major cloud bands on Jupiter and

Figure 12. Use the pan handle to smoothly move the telescope horizontally and vertically.

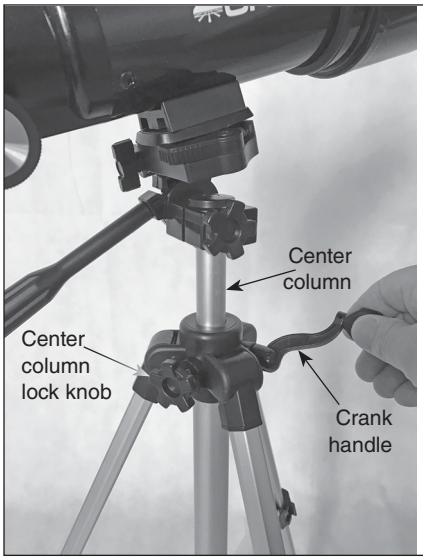

Figure 13. Use the crank handle to move the geared center column up or down, making sure to first loosen the center column lock knob a bit.

Figure 14. The GoScope optical tube, tripod, and accessories all fit conveniently and securely in the rugged backpack, ready to travel to your next adventure.

the rings of Saturn. When Mars is in the sky, you'll be able to see its form, but surface details are likely too faint and small to see in this telescope. If you take the GoScope III to a location away from city lights (the darker, the better) a telescope of this size can show you a lot! For example, most of the famous "M objects," or Messier objects, can be found with this telescope. You'll need a star map and patience, but this scope can show you open star clusters, globular star clusters, gaseous nebulas, and even galaxies outside our own Milky Way galaxy.

Best Targets

Best targets for city users:

- Daytime, terrestrial views
- The Moon
- Venus
- Jupiter
- Saturn

Best targets for rural users (everything above, plus):

- The Great Nebula in Orion – a spectacular glowing cloud of gas in Orion's sword; this is a "stellar maternity ward," a place where new stars are forming.
- The Summer Milky Way – the GoScope is well suited to scanning the Milky Way to "discover" dozens of star clusters.
- The Pleiades (M45) – a bright open star cluster
- The Andromeda Galaxy (M31) – the brightest external galaxy
- The Double Cluster in Perseus
- M11, M6 & M7 – three bright, summer star clusters
- The Beehive Cluster – A big, open star cluster in the spring sky
- The Great Cluster in Hercules M13 – a wonderful globular star cluster, spring & summer
- M22 – another grand globular star cluster in Sagittarius, a summer constellation

Where Can I Use My GoScope?

Terrestrial viewing: Anywhere you can take it! The 70mm GoScope III is a powerful "spotting" scope or terrestrial telescope that is more powerful than binoculars to give you real close-ups. For best results, DO NOT VIEW OUT WINDOWS. The glass in a window is approximately 1000 times less accurate than the optics of your GoScope – so it will soften your views, and things will seem to be slightly out of focus. If you must view through a window, use the lowest power available.

For nighttime, astronomical viewing: Again, use the GoScope anywhere, but if you want to see objects outside our solar system ("deep sky objects") you'll need to get away from city lights. We know this isn't practical for many people most of the time, but that's why the GoScope is made to be so portable – take it with you on vacation or to a remote "star party."

You wouldn't be able to find a new city without a map, so how do you find a new object in the sky? Use a planisphere and/or a star map; Orion offers several. To find an object, first locate it on the map and note its position relative to several bright stars. Then find the bright star with your unaided eye and "hop" from star to star to where the object should be located. We also recommend you check out Orion's Community webpage for videos and articles on how to find objects in the sky and how to use star charts and planispheres.

The GoScope III 70mm includes a rugged backpack for taking the telescope, tripod, and all accessories with you wherever you go (**Figure 14**). So get out there and enjoy the views!

5. Useful Optional Accessories

- **Moon Filter** – A 1.25" Moon filter will cut down the strong glare of sunlight reflected from the Moon, making Moon viewing more comfortable and revealing more surface detail. The filter threads into the bottom of the Kellner eyepieces that came with your telescope.
- **Barlow Lens –** A 2x Barlow lens doubles the magnifying power of any eyepiece it's used with, giving you a big power boost to get in closer to your target object. You just insert it between the diagonal and the eyepiece.
- **Planisphere** – A nifty "star wheel" that shows what stars and constellations are visible in the sky at any time of any night. Just set the date and time see a mini representation of your local night sky. Great for identifying what you see and planning an evening's observing session.
- **Star Map** – More detailed than a planisphere, a star map is essential for locating interesting celestial objects to observe with your telescope. Nowadays many mobile astronomy apps feature customizable star maps that you can access on your smartphone or tablet while you're at the telescope.

6. Telescope Care and Maintenance

If you give your telescope reasonable care, it will last a lifetime. Store it in a clean, dry, dust-free place, safe from rapid changes in temperature and humidity. Do not store the telescope outdoors, although storage in a garage or shed is OK. Small components like eyepieces and other accessories should be kept in a protective box or storage case. Keep the dust cover on the front of the telescope when it is not in use.

Your refractor telescope requires very little mechanical maintenance. The optical tube has a smooth painted finish that is fairly scratch-resistant. If a scratch does appear on the tube, it will not harm the telescope. If you wish, you may apply some auto touch-up paint to the scratch. Smudges on the tube can be wiped off with a soft cloth and household cleaning fluid.

Cleaning Optics

Any quality optical lens cleaning tissue and optical lens cleaning fluid specifically designed for multi-coated optics can be used to clean the lenses of your telescope and eyepieces. Never use regular glass cleaner or cleaning fluid designed for eyeglasses. Before cleaning, remove any loose particles or dust from the lens with a blower bulb or soft brush. Then apply some cleaning fluid to a tissue, never directly on the optics. Wipe the lens gently in a circular motion, then remove any excess fluid with a fresh lens tissue. Oily fingerprints and smudges may be removed using this method. Use caution; rubbing too hard may scratch the lens. On larger lenses, clean only a small area at a time, using a fresh lens tissue on each area. Never reuse tissues.

When bringing the telescope inside after an evening's viewing it is normal for moisture to accumulate on the lenses due to the change in temperature. We suggest leaving the telescope and eyepieces uncovered overnight to allow the condensation to evaporate.

7. Specifications

Objective lens: 70mm (2.8") diameter, achromatic

Effective focal length: 400mm

Focal ratio: f/5.7

Lens coatings: Antireflection coated

Focuser: Rack-and-pinion, accepts 1.25" accessories

Eyepieces: 20mm and 9mm Kellner, antireflection coated, 1.25" barrel diameter, threaded for Orion filters

Eyepiece magnification: 20x (with 20mm eyepiece) and 44x (with 9mm eyepiece)

Finder scope: 5x24 achromatic

Mount: Altazimuth, pan head

Tripod: Aluminum

Telescope tube length: 14"

Tripod length, collapsed: 18"

Tripod height, minimum: 17-3/4"

Tripod height, maximum: 43-1/2"

Backpack dimensions: 17" high x 11" wide x 6" deep

Total weight, including backpack: 4 lbs., 4 oz.

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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