Orion® 2x 3-Element Barlow Lens, 2"

#8743

A barlow lens is one of the most valuable accessories you can buy. In simplest terms, it doubles the magnification of any eyepiece placed into it. This essentially doubles the number of magnifications available to you without the purchase of more eyepieces. It helps obtain high powers with longer focal length eyepieces which have comfortable eye relief – no more jamming your eye into the tiny lens of a short focal length eyepiece! A barlow lens also improves many eyepieces' performance when used with short-focal length telescopes, since most eyepiece designs work better when the incoming light is more parallel.

The 2" barlow lens is especially versatile since it can be used with either 2" or 1.25" eyepieces. Its three-element design will give you superior color correction to two-element designs, a clear advantage for higher-power observing. It will work with any telescope that has a 2" focuser.

Figure 1. The Orion 2x 3-element barlow lens, 2".

How to Use the Barlow

First, observe the outer end of the barlow that contains the thumbscrews (Figure 1). Notice there is a 1.25" opening. This opening will accommodate any 1.25" eyepiece. If you loosen the shorter thumbscrew, you will be able to remove the 2"-to-1.25" adapter to reveal a 2" opening that will accommodate any 2" eyepiece (Figure 2).

Figure 2. Removing the 2"-to-1.25" adapter reveals the opening for a 2" eyepiece.

When inserting an eyepiece into the barlow lens, simply place the eyepiece's barrel into the barlow's opening (2" or 1.25") and tighten the barlow or adapter thumbscrew until the eyepiece is securely connected (it should not slip if you gently tug it outward). You may notice as you tighten the thumbscrew a brass compression ring encircles the eyepiece barrel with an even grip; this compression ring design prevents the thumbscrew tip from marring the eyepiece barrel.

Now you are ready to connect the barlow to your telescope. If your telescope is a Newtonian, insert the barlow into the focuser drawtube, and tighten the thumbscrews of your focuser onto the barlow's barrel. If your telescope is a refractor or Cassegrain, insert the barlow into the 2" star diagonal and make sure it does not "bottom out" or otherwise hit the surface of your star diagonal's mirror or prism.

A barlow lens can be placed before the star diagonal, (directly in the visual back of your telescope) giving you a higher than 2X magnification factor. This configuration requires several inches of outward focus travel, and may not reach focus without the use of extension tubes.

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Focusing

Point your telescope at an object, placing it in the eyepiece's field of view. It is most convenient to use a wide-field eyepiece (typically a 25mm or 32mm Plössl) to do this. If you are focused on a celestial object and your telescope is equatorially mounted (and polar aligned), you may engage your tracking motor to keep the object in the field of view. Once you have found and centered your intended target, add the barlow to your eyepiece, insert the combination into your focuser or diagonal, and re-focus with your telescope focuser. If you are re-focusing with a 2" eyepiece, the barlow will not require much inward or outward focus travel relative to the eyepiece's focus unless the barlow cannot be fully inserted into the drawtube or diagonal. If this is the case, some inward focus travel will be necessary. For 1.25" eyepieces, the barlow requires approximately 1" of outward focus travel relative to the eyepiece's focus.

Useful Magnifications

The barlow combined with your eyepieces can provide many useful magnifications. The upper limit will be 50-60x per inch of telescope aperture. For example, if you have a 4-inch telescope (102mm), you will get a clear image up to approximately 200-240x.

No matter what telescope you use, its view will be limited by the stability of the air in the upper atmosphere. If this air is steady ("good seeing") you can support the highest power. If the air is unsteady ("bad seeing"), and you use high power, it will appear as if you are looking at your target through a mirage on a desert highway—wavy and smeared. In that case it is best to use low to medium power (30-120x). Seeing can vary through the course of a night, minute by minute, so high-power observing can take some patience.

Keep in mind that when the barlow is inserted, magnification will be doubled, but the image will be four times dimmer. This is an inherent principle of physics that cannot be avoided.

Use of Filters

A 2" filter can be threaded onto the bottom of the 2"-to-1.25"adapter. This prevents having to move the filter from eyepiece to eyepiece if using 1.25" eyepieces. If using a 2" eyepiece, thread the filter directly onto the barrel of the eyepiece itself.

Care and Maintenance

Leave the barlow lens out to dry after use. If it is capped with moisture on the surface of the glass, fungus may grow on the optical coatings. Therefore, place the endcaps on the barlow only when you are sure it is completely dry. For storage, leave the caps on and place it in an appropriate enclosure, preferably a dedicated eyepiece case with foam padding.

The lens elements of the barlow are coated with anti-reflection multi-coatings, which can be damaged with careless handling. Avoid touching lens surfaces with your fingers or any coarse material. Clean the lenses if they get noticeably dirty. Always use lens cleaning tissue and fluid specifically designed for telescope optical coatings. Do not use regular tissue or fluids made for eyeglasses or household use. Do not disassemble the barlow to clean it, with the exception of the barrel, which may be unthreaded to better access the lens surfaces.

To clean the lens surfaces, first blow air on them with a blower bulb or compressed air to remove any large particles. Then brush the lens surfaces with a soft lens brush and blow air on them again to remove any dislodged particles. Put a couple of drops of lens cleaning fluid on a sheet of lens tissue (never directly on the lenses). Wipe the lenses gently with a circular motion, taking care to avoid undue pressure or rubbing, which can scratch the coatings. Quickly remove the excess fluid by wiping with a clean, dry lens tissue.

Specifications

Lens design:	Triplet (three lens elements)
Magnification factor:	2x
Lens coatings:	Fully multi-coated
Eyepiece compatibility:	Accepts 2" eyepieces or 1.25" eyepieces with included adapter
2"-to-1.25" Eyepiece adapter:	Threaded for Orion 2" filters
Weight:	13 oz.

One-Year Limited Warranty

This Orion 2x 3-Element Barlow, 2" 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 to: Orion Warranty Repair, 89 Hangar Way, Watsonville, CA 95076. If the product is not registered, proof of purchase (such as a copy of the original invoice) is required.

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, and you may also have other rights, which vary from state to state. For further warranty service information, contact: Customer Service Department, Orion Telescopes & Binoculars, 89 Hangar Way, Watsonville, CA 95076; (800)-676-1343.