80mm Refractor Telescope (#8710)

Instruction Manual

WARNING!

NEVER USE A TELESCOPE TO LOOK AT THE SUN!
Looking at or near the Sun will cause instant and irreversible damage to your eye.
Children should always have adult supervision while observing.

1. Description

The iOptron® 80mm refractor (R80) is a fantastic astronomy telescope that is portable enough to take anywhere. With fully multi-coated optics, the R80 reveals brighter and sharper images. The 80mm objective lens and short 400mm (f/5.0) focal length are perfect for taking in wide swaths of the heavens, making it ideal for larger deep-sky objects. You'll see spectacular star clusters, wispy nebulas, and expansive galaxies with this telescope, but it also excels at viewing objects in our solar system. Enjoy experiencing the phases of the Moon and tracking the motions of the planets with crisp views of Saturn's rings and Jupiter's moons, as well as the birds and other land objects.

iOptron R80 is a great candidate for a guidescope. It can be easily attached to a larger primary telescope tube assembly with the proper mounting rings and dovetail. The scope will accept digital SLR, small CCD camera, or a stand-alone autoguider with a proper adapter.

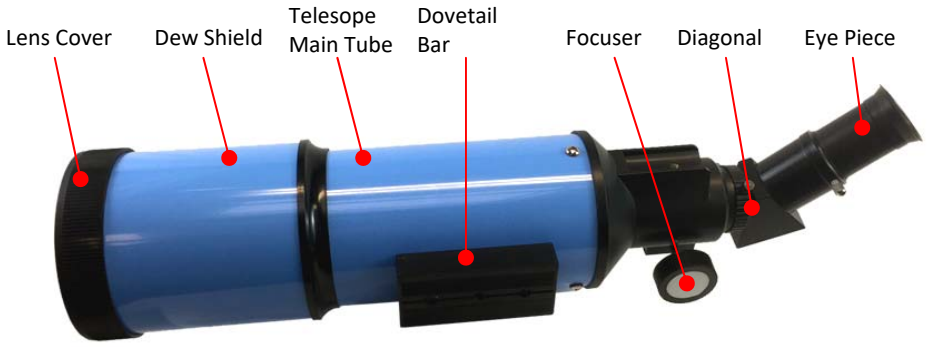

Figure 1. 80mm refractor

2. Telescope Setup

The R80 telescope comes with a Vixen-type dovetail. It can be mounted onto any telescope mount that accepts a Vixen-type dovetail. Just simply release the dovetail locking knob on the dovetail saddle. Slide the telescope dovetail bar in and lock the dovetail locking knob.

Figure 2. Install the R80 telescope onto a telescope mount

If you only have a camera tripod, you can mount the telescope onto it via a ball head, which will provide needed telescope movement. There is a ¼" threaded hole on R80 dovetail

bar. Install the quick release plate of the ball head onto the dovetail bar and insert the quick release plate to the ball head and secure it.

Figure 3. Mount a R80 telescope onto a camera tripod

Insert the diagonal into the eyepiece side of the telescope. Tighten the thumbscrews to a firm feel only. Slide the eyepiece into the open end of the diagonal. Tighten the. Remove the dust cover from the other end of telescope before observation.

Figure 4

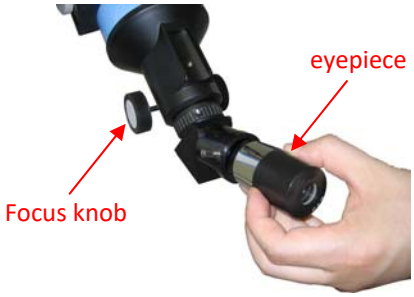

Figure 5

3. Telescope Operation

3.1. Imaging Orientation

The image orientation changes depending on how the eyepiece is inserted into the telescope. When using the star diagonal (the included 90º mirror diagonal), the image is right-side-up, but reversed from left-to-right (i.e., mirror image). If inserting the eyepiece directly into the visual back (i.e., without the star diagonal), the image is upside-down and reversed from left-to-right (i.e., inverted). This is normal for the refractor design.

Actual image orientation as seen with the unaided eye

Reversed from left to right, as viewed with a Star Diagonal

Inverted image, as viewed with the eyepiece directly in telescope

Corrected image, as viewed with a Erect Lens or Erect Diagonal

For terrestrial observation, such as land mark or bird viewing, you can buy an optional 45º Erect Diagonal to have a correct image from your eyepiece.

3.2. Selecting an Eyepiece

The magnification of a telescope is defined by the focal lengths of the telescope and the eyepiece. A formula can be used to determine the power of each eyepiece: Telescope focal length divided by eyepiece focal length equals magnification.

For example, a R80 telescope has a focal length of 400mm. With a 25mm eyepiece, the magnification will be

400mm ÷ 25mm = 16X (magnification)

If you want more magnification, you may order higher power eyepieces. Note: a 25 mm focal length eyepiece has a lower power than a 10 mm one. Always start with the lowest power eyepiece for easy locating the objects.

3.3. Focusing Telescope

Practice telescope focusing during the daytime to get familiar with the scope.

(1) After selecting the desired eyepiece aim the telescope tube at a land-based target at least 200 yards away (e.g. A telephone pole or building). Fully retract focusing tube by turning the focus knob.

(2) While looking through selected eyepiece, slowly extend focusing tube by turning focusing knob until object comes into focus.

4. Specifications:

Product Name	iOptron 80mm OTA (#8710)
Optical Design	Air-Spaced Doublet Achromatic Refractor
Optical Coatings	Fully Multi-Coated
Clear Aperture	3.15" (80mm)
Focal Length	15.7" (400mm)
Focal Ratio	f/5
Resolving Power	1.4 arcsec
Limiting Visual Magnitude	11.3
Highest Useful Magnification	189
Focuser	1.25" rack-and-pinion
Eyepiece adapter	1.25 inch
Eyepiece 1	25 mm
Eyepiece 2	10mm
Diagonal	40º erect glass prism
Weight (OTA)	2.2 lbs
Warranty	One year limited