

# CARSON®

## INSTRUCTIONS & CARE



**Congratulations on selecting your  
New Carson binoculars!**

In order to achieve optimum performance, please read the instructions carefully on the proper use and care of your binoculars.

 **PDF**

**[www.carson.com/binoguide](http://www.carson.com/binoguide)  
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## Basic Binocular Terminology:

Binoculars are commonly identified using 2 sets of numbers. The most common size is 8x21mm. The “8” is the magnification and the “21” is the diameter of the objective lens in millimeters.

**Magnification:** Typically, binoculars range from 5x to 12x power. A 5x binocular means that the image you see through the binocular is 5 times larger than it would be when viewed with the naked eye. There are larger power binoculars available, and most higher power binoculars are usually the variable type, also known as zoom binoculars. A 20x–80x zoom binocular, for instance, has a magnification range from 20 to 80 power.

**Objective Lens:** The objective lens (front lens) diameter is listed in millimeters. The larger the lens, the more light can enter the binocular and the brighter the image will be. However, binoculars with smaller lenses are more compact and portable.

**Field-of-View:** (Also known as FOV) is the total width of the viewing area through your binoculars from left to right. It is often measured in feet at 1,000 yards. For instance, if you see “358 ft @ 1000 yds”, that means an object that is 358’ wide and a thousand yards away will take up the entire viewing area of the binocular image you see. Sometimes this measurement is listed in degrees and is referred to as Angle of View, i.e. 8°. To convert to feet, multiply the number of degrees by 52.5 and you will get the FOV. Example: If Angle of View is 8°, Field of View is  $8 \times 52.5 = 420'$  @ 1,000 yds.

## Types of Binoculars:

**Fixed focus** and **zoom** binoculars are alternatives to standard binoculars, which traditionally offer magnification in one set power only, with a wheel or knob used to engage the focus mechanism.

**Fixed focus** binoculars cannot be adjusted and are usually fixed at an average distance for use in concerts, opera, or any situation in which variable focusing on objects is not required.

**Zoom** binoculars offer the user a range of magnifications. The zoom function can be operated by hand using a lever, or by switch when driven by a motor. Zoom systems vary by model.

**Waterproof** binoculars and **fog-proof** binoculars should be nitrogen purged and O-ring sealed in order for their internal lenses to be truly resistant to fogging and/or water damage.

**Use of a Tripod Adapter:** Many binoculars can be mounted to a tripod using a standard binocular tripod adapter. Your binocular may contain a thread that can accept a tripod adapter. To expose this thread, look for a tripod socket cover (typically located between the objective lens barrels of your binocular). Twist this cover counterclockwise to remove it. Then attach the threaded portion of the adapter to your binocular, twisting in a clockwise direction until tight. You may then attach the bottom of the adapter to your tripod. **Note: not all binoculars contain a tripod adapter.**



## Style of Binoculars: Porro or Roof Prism Design

Binoculars come in two distinct styles in which the design is dependent upon the type of prism system used. The image that passes through a binocular is upside down (a function of the lens) and needs to be corrected. The prism is the optical glass inside a binocular whose purpose is to “invert the image”.

**Roof Prism Systems:** The prisms overlap closely allowing the objective (front) lens to line up directly with the eyepieces. The result is a slim, streamlined shape in which the lenses and prisms that magnify and correct the image are in a straight line.



**Porro Prism Systems:** The objective lens is offset from the eyepiece. Light is redirected through the binocular internally. The result is a shorter, stockier shaped binocular. In general, porro prism binoculars offers a wider field of view. Most zoom binoculars use the porro prism system.

## Eye Adjustments: How to Adjust for Distance Between the Eyes

The distance between the eyes, called “interpupillary distance,” varies from person to person. To achieve perfect alignment of lens to eye, follow these simple steps:

1. Hold your binoculars in the normal viewing position.
2. Grasp each barrel firmly. Move the barrels closer together or farther apart until you see a single circular field. Always reset your binoculars to this position before using.



## Focusing Your Binoculars:

Most binoculars have a center focus wheel and an independent right diopter eyepiece to account for small differences in the strength of each eye. Please follow the steps below to focus properly:

1. Adjust the interpupillary distance.
2. Rotate the right eyepiece to its index mark and sight on a fixed distant object.
3. Cover the right objective (front) lens with your hand, then rotate the central focusing wheel until the image in the left eyepiece is sharp.
4. Cover the left objective (front) lens with your hand, then rotate the right eyepiece until the image is sharp. (Note this setting for future use.)
5. Image should now be focused to your individual eyestrength.



**Please note that certain binoculars have different focusing systems.** Some may only contain a center focus wheel which will focus both eyepieces simultaneously. Some may employ a central focus wheel with a rotating left eyepiece. Others will not have a center focus wheel, and you must turn each eyepiece independently to focus. Never try and force an eyepiece if it was not designed to turn. This may seriously damage your binocular.

## **Roll-Down Eyecups**

Your binoculars may be fitted with rubber eyecups designed to exclude extraneous light. If you wear eyeglasses, you may be able to roll-down the eyecups. Some binoculars are outfitted with twisting eyecups which raise and lower the eyecups. For eyeglass wearers, lowering or rolling down the eyecups will bring your eyes closer to the binocular lenses, thus providing an improved field of view. Please note that not all binoculars are equipped with roll-down or twisting eyecups.

## **Operation of Zoom Binoculars**

Many binoculars are equipped with a zoom function to allow you to take a closer look at the object you are viewing. In order to operate a zoom binocular, you must first focus on a distant object. To zoom in, simply adjust the zoom lever or switch to the desired magnification setting. Please note that you may need to adjust the center focus wheel slightly when changing the power setting.



## Cleaning and Care

Cleaning must be done carefully to avoid scratching the lenses and permanently damaging your binoculars. Safe cleaning can be accomplished by following the procedure below:

1. Blow away any dust or debris on the lens (or use a soft lens brush).
2. To remove dirt, grease or fingerprints, clean with a soft cotton cloth, rubbing in a circular motion. Use of a coarse cloth may scratch the lens surface and eventually cause permanent damage.
3. For a more thorough cleaning, photographic type lens cleaning fluid may be used. Always apply the fluid to the cleaning cloth, never directly on the lens.
4. **IMPORTANT:** Never attempt to clean your binoculars internally or try to take them apart. This may cause the internal optical components of your binoculars to become misaligned resulting in a double image when looking through them.
5. Keep the lens covers (not included with some models) on the lenses when binoculars are not in use.
6. Non-waterproof models should not be exposed to excessive moisture.

**CAUTION: VIEWING THE SUN CAN CAUSE PERMANENT EYE DAMAGE.**

**DO NOT VIEW THE SUN WITH THIS BINOCULAR OR EVEN WITH THE NAKED EYE.**

**Customer Service:**

If you experience any difficulties, please contact us and we will be happy to help you.



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