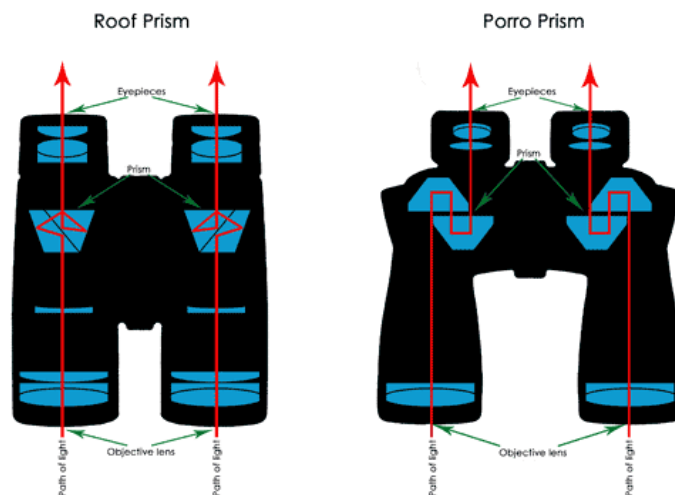


# HOW TO USE BINOCULARS

You're hiking through woodland, or perhaps by a canal, maybe even through a field and you spot something of interest. Is it a heron, a buzzard or just a big crow? You're not sure and it leaves you stumped and annoyed for the rest of the day, vowing to purchase a pair of binoculars ready for the next hiking venture. However, there are so many different styles on the market, so many printed with various numbers on them – 8x42, 7x50 or 10x25 and then there is the type of prism to consider. Well don't worry, we're here to give you some advice and you'll soon be on your way to purchasing your first pair of binoculars and using them correctly!

## PRISMS

You'll find two basic optical designs: roof prism & porro prism (a reverse porro prism sets the prisms in a vertical rather than horizontal manner, reducing the overall width). In addition, binoculars may be full-size or compact. Full-size binoculars may be either porro or roof prism design. Compact binoculars are generally roof prism style.



Porro prisms provide a big, steady platform for observing and offer a nice hand-filling package, especially for people with large hands. They normally include a large front, or objective lens, which, in turn, permits a greater light throughput, giving a brighter image

Roof prism binoculars have a slender profile, with the objective (front) lens, the prism and the eyepiece in a straight line. The compact design permits the binoculars to be held with arms tucked close to the body for maximum steadiness. The narrow profile of a roof prism normally incorporates a smaller objective lens, and also places focusing wheels conveniently under the fingers, which enhances focusing speed and comfort, especially for people with smaller hands.

Compact porro prism binoculars are available – a small, lightweight design, appropriate when full-size binoculars are too large to carry such as while biking or backpacking for example.

# MAGNIFICATION & APERTURE

The numbers indicate the magnification, and the diameter of the objective lens, or aperture; so a 7x50 makes a subject appear 7 times closer than with the naked eye and has a 50mm objective lens, giving that brighter image. A 7x35 has a similar magnification, but a 35mm objective lens. This will be a smaller, lighter, more compact pair of binoculars but with an image less bright than the 50mm lens. Binoculars with an aperture of 50mm gather more than 40% additional light than 35mm binoculars.



For astronomical purposes, go for binoculars with a larger objective lens and a higher magnification (at least 7 times). The highest you'll want for hand-held binoculars is about 10x – anything more and a tripod should ideally be used.

# FIELD OF VIEW

Also found on the binoculars is the field of view expressed in either degrees or a number of feet at 1,000 yards. To convert feet at 1,000 yards into degrees, divide the number of feet by 52.5 (e.g.  $325/52.5 = 6.2^\circ$ ). Most binoculars have a field of view around  $6^\circ$  or  $7^\circ$ . Some high-power models will shrink this to  $3^\circ$  to  $5^\circ$ , while wide-angle models will take in  $8^\circ$  to  $10^\circ$ .



## So here's how you focus binoculars:

- Start by shutting your right eye and leaving your left eye open
- Use the center knob to focus on an object about 8 - 10 meters away
- Open your right eye
- Next, shut your left eye and leave your right eye open
- Using the focus ring (Dioptic / Diopter Adjuster) on the right ocular lens (the one nearest your eye) look at the same object until it is in focus.
- Look through the binoculars with both eyes open, and you should have a clear, crisp view of the object. Done! The binoculars are now calibrated for your vision.
- This will be necessary for each prolonged use of the binoculars; you will need to adjust the focus during use, using only the centre wheel, to compensate for variations in distance to the object(s) being viewed.

This will make a huge difference to the enjoyment of your binoculars. If that all still seems a little complicated, and a demonstration may help, check out the video below showing you just how easy it is to focus binoculars: <http://www.youtube.com/watch?v=3lknRzIVSt0>