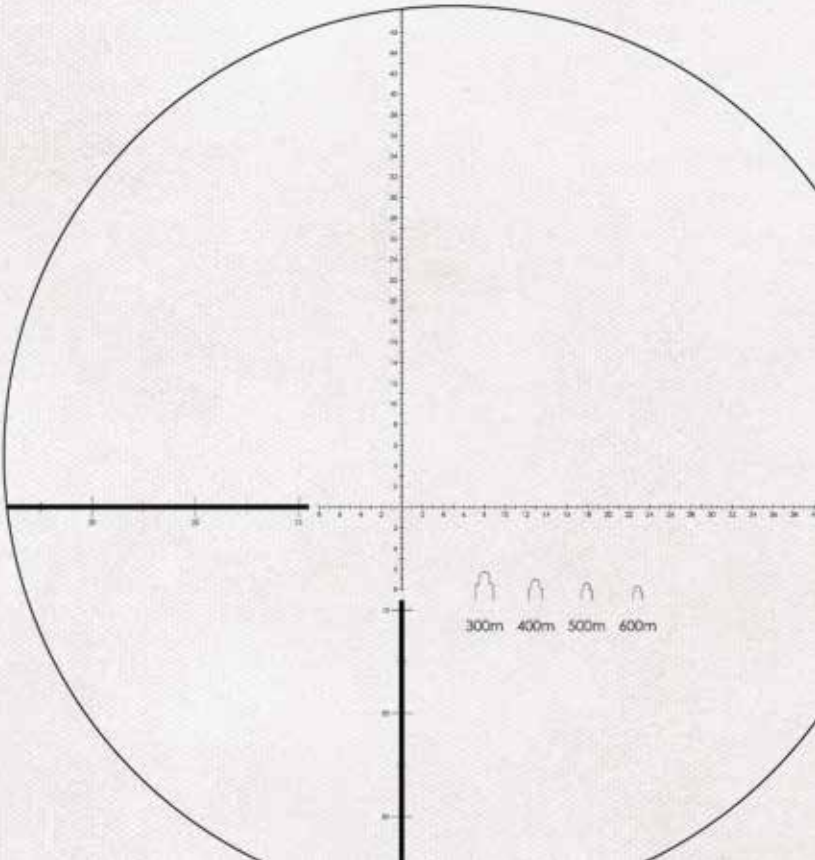
RANGER® HD R/T

10 x 50 BINOCULAR



VORTEX® RANGER® HD R/T BINOCULAR

Built on a tough, durable roof prism design, the 50 mm Ranger® HD R/T binocular has brilliant optics that can be relied upon in demanding conditions. This tactical binocular features the Vortex® R/T ranging reticle—designed to assist the user in calculating distances.

Ranger® HD Binocular with
R/T Ranging Reticle

CAUTION: Binoculars are not intended for looking at the sun, or any other intense light source. Such viewing could damage the retina and cornea of your eyes—even to the point of causing blindness.

BASIC OPERATION

Adjust the Eyecups

The eyecups on a Ranger® HD R/T binocular feature winged design that blocks out stray light and rotates for a custom fit. The eyecups fold up and down so any viewer can see the full field and enjoy comfortable viewing—with or without eyeglasses.

When not using eyeglasses or sunglasses, keep the eyecups fully extended. For the best viewing when viewing through eyeglasses, fold the eyecups down.

Adjust the Interpupillary Distance

The interpupillary distance (IPD) is the distance between the centers of the left and right eye pupils. Match the IPD of your eyes to that of the binocular so that you see a single image that is free of shading.

IPD
Distance between the centers of the ocular lenses.

Rotate the binocular barrels inward or outward to line your eyes up with ocular lenses.

Properly Focus the Binocular

For the best views, follow this two-step process to properly adjust the center focus and diopter. Choose an object that is about 20 yards away from you and stay in the same spot until you have adjusted the binocular for your eyes.

1. **Adjust the center focus:** Start by closing your right eye or covering the right objective lens with your hand. Focus your left eye on the object and adjust the center focus wheel until the image is in focus. Leave the center focus in this position as you adjust the diopter.

2. **Adjust the diopter:** Start by closing your left eye or covering the left objective lens with your hand. Look through your right eye and adjust the diopter ring (found on the right eyepiece) until the object is in focus. Make note of this diopter setting in case you need to set it again. From this point on, you will only need to use the center focus wheel.

Adjust the Reticle Focus

When you hold the binocular, the reticle focus is on the left ocular. This focus is used to adjust the reticle image so that it is clear and sharp.

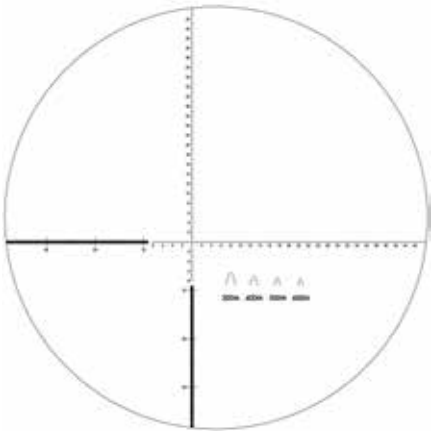
Focusing the reticle is most easily done with the right eye closed while setting the focus. While looking at a white wall or the sky, adjust the reticle focus until you see a clear, sharp image.

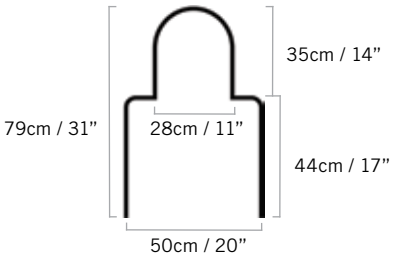
Once set for a particular user, the reticle focus can be left in place.

USING THE R/T RANGING RETICLE

Reading the R/T Reticle

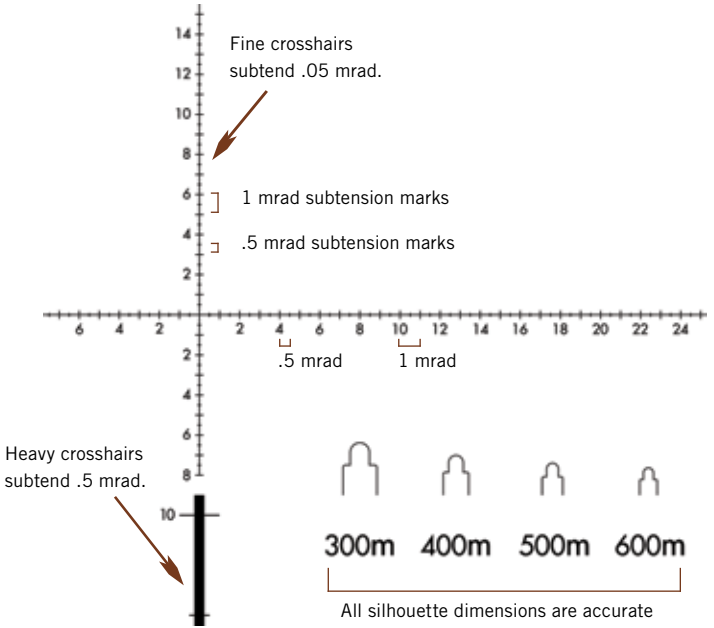
The R/T reticle is based on a form of angular measurement called the milliradian (mrad for short). The angular measurements allow a user to calculate ranges when comparing the reticle to objects of known dimensions. The key to effective ranging, using this reticle, is knowing the measurements of objects that are commonly seen in the vicinity.





The R/T reticle features a secondary system of silhouettes for quick ranging (see page 12).

Subtensions



Precision Ranging with Mrads

Mrad measurements are very effective for ranging using simple formulas. Knowing the size of the target, or a nearby object, is essential to using these formulas.

$$\frac{\text{Target Size (Yards) x 1000}}{\text{Measured mrads}} = \text{Range (Yards)}$$

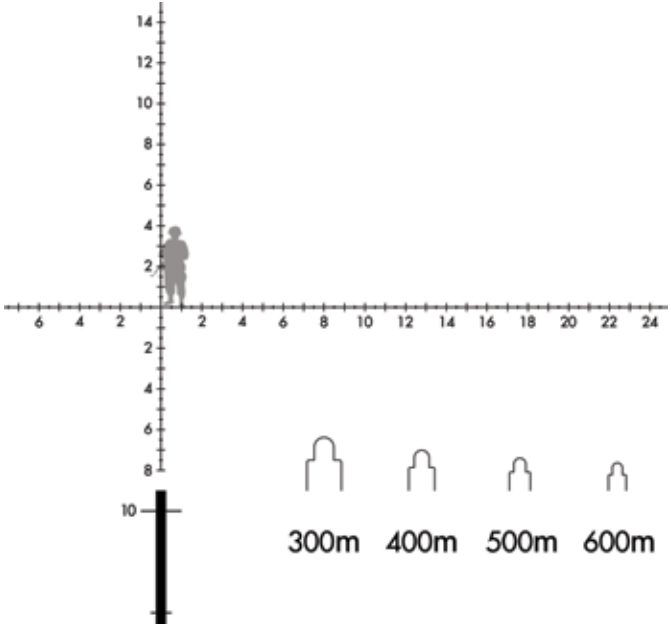
$$\frac{\text{Target Size (Inches) x 27.8}}{\text{Measured mrads}} = \text{Range (Yards)}$$

$$\frac{\text{Target Size (Meters) x 1000}}{\text{Measured mrads}} = \text{Range (Meters)}$$

Before ranging, be sure the reticle is in focus (see page 6). Using either the vertical or horizontal mrad scale, place the reticle on the target of known dimensions and read the number of mrads spanned.

You'll obtain the maximum accuracy in ranging by calculating exact mrad measurements—try to estimate the mrad measurement in 1/10s if possible. To help calculate fractions of mrads, the R/T reticle uses both 1 mrad and .5 mrad graduations on the crosshair. Fine crosshairs subtend .05 mrads.

Accurate measuring will depend on having a very steady hold. Be sure to solidly brace the arms when measuring—or use a tripod mount for maximum accuracy. Once you have an accurate mrad reading, use one of the formulas to calculate the distance.

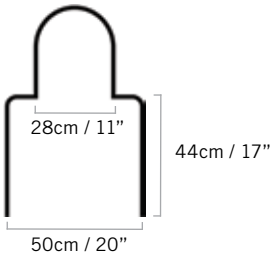


Ranging a 6-foot man (2 yards) at 4 mrads yields 500 yards.

$$\frac{\text{2 x 1000}}{\text{4 mrads}} = \text{500 Yards}$$

Quick Ranging with Silhouettes

To use the reticle, simply match the person or object being ranged to the silhouette that is closest in shape and read the indicated yardage. **Note:** The best accuracy will be obtained by bracing the arms or using a tripod mount.

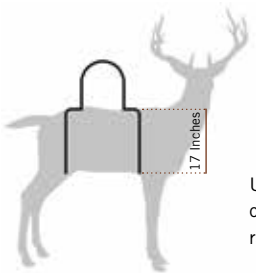


Examples

Using silhouette widths: The silhouettes used in the R/T reticle are based on an average 20-inch shoulder width and 11-inch head width. Take your range reading from the silhouette that most closely matches the size of the person.

Using silhouette heights: Heights of the silhouette may also be used to quickly estimate range when comparing objects of known dimensions. For example, assuming a typical back-to-brisket dimension of 17 inches, a deer can be ranged using the 17-inch shoulder height on any of the silhouettes.

Ranging with Silhouette Width



Ranging with Silhouette Height

Use the width or height of the silhouette for quick ranging of a target.

ACCESSORIES

Carry Case

The Ranger® HD R/T’s protective case provides safe storage between viewing sessions. The carry strap is already attached to the case.

Lens Covers

The Ranger® HD tactical binocular comes with tethered objective lens covers plus a soft, waterproof piece that completely covers the eyepieces. For convenient use, simply snap the eyepiece cover around the neckstrap.

Neckstrap

Securely attach your binocular to the binocular strap:

1. Thread the end of the strap from the bottom up through the strap attachment loop.

2. Hold the buckle and thread the end of the strap inside the buckle.

3. Adjust the overall length and pull the strap webbing tight so it is secure within the buckle.

Note: Please **do not** thread a metal ring directly onto the strap attachment loop when attaching rings or clips for other after-market equipment. Instead, use nylon zip ties according to the manufacturer’s instructions.

LENS CARE

Maintain the optical brilliance of the Ranger® HD tactical binocular by keeping lens surfaces free of dirt, oils, and dust.

Protect Lenses While Out in the Field

Make use of the provided eyepiece and tethered objective lens covers to protect the lenses when not viewing. If the optics are exposed to moisture, keep the caps off and allow the optics to dry out completely before putting them in the case for storage.

Keep Lenses Clean

In order to enjoy the best views through your binocular, take time to regularly clean the exterior lenses:

1. **Remove any dust or grit from lenses before wiping.** Use a can of pressurized air, soft camel hair brush, or an acrylic optical brush.
2. **Clear lenses of smudges, fingerprints, or eyelash oil.** Fog the lenses with your own breath, then use a non-abrasive lens cloth to clean the lenses.

Note: Use lens cleaning fluid and optical paper to clean lenses. Never use facial tissue, heavy cotton, or flannel clothing on lenses—these materials can scratch the surface of a lens.

VIP WARRANTY™

VIP WARRANTY

OUR UNCONDITIONAL PROMISE TO YOU.

We promise to repair or replace the product. Absolutely free.

- **Unlimited**
- **Unconditional**
- **Lifetime Warranty**

Learn more at www.VortexOptics.com

service@VortexOptics.com • 800-426-0048

Note: The VIP Warranty does not cover loss, theft, deliberate damage, or cosmetic damage not affecting product performance.

WWW.VORTEXOPTICS.COM

M-00177-0