



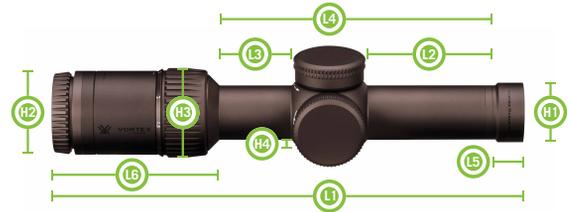
PRODUCT MANUAL

RAZOR[®] HD GEN II-E

1-6x24 SFP RIFLESCOPE

SPECIFICATIONS

CONFIGURATION	1-6x24		
SKU	RZR-16009	RZR-16010	RZR-16008
RETICLE	VMR-2 MRAD	VMR-2 MOA	JM-1 BDC MOA
FOCAL PLANE	Second Focal Plane (SFP)		
ILLUMINATION SETTINGS	11 Daylight		
BATTERY TYPE	CR2032		
EYE RELIEF	4.0"		
LINEAR FIELD OF VIEW @ (100 YDS)	115.2' - 20.5'		
TURRET STYLE	Capped		
TUBE SIZE	30mm		
ADJUSTMENT GRADUATION	0.2 MRAD	1/2 MOA	1/2 MOA
TRAVEL PER PERSON	20 MRAD	50 MOA	50 MOA
MAX ELEVATION ADJUSTMENT	43 MRAD	150 MOA	150 MOA
MAX WINDAGE ADJUSTMENT	43 MRAD	150 MOA	150 MOA
PARALLAX SETTING	100 yds.		
LENGTH	10.1"		
WEIGHT	21.5 oz.		



DIMENSIONS	1-6x24	
OVERALL LENGTH	L1	10.10" (256.5mm)
FRONT MOUNTING SURFACE	L2	2.50" (63.5mm)
REAR MOUNTING SURFACE	L3	1.50" (38.1mm)
OVERALL MOUNTING SURFACE	L4	5.67" (144.0mm)
OBJECTIVE LENGTH	L5	0.85" (21.6mm)
EYEPIECE LENGTH	L6	3.60" (91.4mm)
OUTSIDE DIAMETER OBJECTIVE	H1	1.29" (32.8mm)
OUTSIDE DIAMETER EYEPIECE	H2	1.81" (46.0mm)
MAGNIFICATION RING OUTSIDE DIAMETER	H3	1.93" (49.0mm)
TURRET SADDLE DEPTH	H4	0.12" (3.0mm)

RAZOR® HD GEN II-E 1-6x24 SFP RIFLESCOPE

At Vortex®, the need for high-performance, precision optics is the driving force behind all that we do. We carefully built the Razor® HD Gen II-E riflescope to provide shooters with the ultimate short and medium range tactical riflescope.



Images are for representation only.
Product may vary slightly from what is shown.

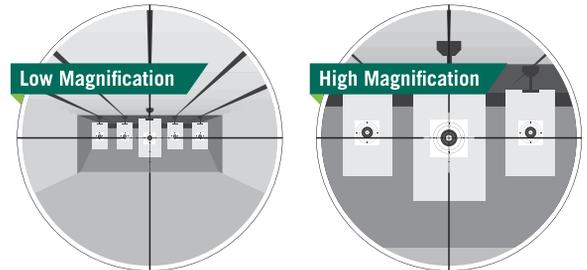
INITIAL SETUP

Reticle Focal Plane (Second Focal Plane vs First Focal Plane)

All riflescope reticles can be termed either first focal plane (FFP) or second focal plane (SFP), with respect to the reticle's internal location within the erector system. An SFP reticle is visually consistent in size and weight across the magnification range; however the subtension values are only accurate on one magnification, typically the highest. In contrast, an FFP reticle will scale with magnification, and their subtensions used for ranging, holdovers, and wind corrections will remain constant. The reticle size will appear larger at higher magnifications, and smaller at low magnification.

Second Focal Plane Reticle

The Razor® HD GEN II-E 1-6x24 riflescope features a second focal plane (SFP) reticle. SFP reticles are located within the riflescope near the magnification ring. This style of reticle will appear consistent throughout the entire magnification range.



Ocular Focus - Fast-Focus Eyepiece

The ocular focus is typically a one-time adjustment used to focus the reticle for maximum sharpness. This adjustment is slightly different for every shooter. A clearly focused reticle is a critical component for accurate shooting. When setting up a riflescope, this should be the first adjustment you make and should only need to be changed from user to user, or if your eyesight changes over time.

Ocular Focus – Fast-Focus Eyepiece Adjustment

The Razor® HD Gen II-E 1-6x24 riflescope uses a Fast-Focus Eyepiece designed to easily adjust the focus on the riflescope's reticle.

WARNING: Looking directly at the sun through a riflescope, or any optical instrument, can cause severe and permanent damage to your eyesight.



Adjusting the reticle focus to your eye:

1. Turn the Magnification Adjustment Ring to the highest power. Looking through the optic, turn the Fast-Focus Eyepiece counterclockwise until the reticle is slightly blurry.
2. While looking at a white wall or a clear blue sky, taking short glances through the optic, turn the Fast-Focus Eyepiece clockwise until the reticle is clear and crisp as soon as you look through the optic. This may take several attempts.

Note: You do not want your eye to focus to the reticle, rather you want the reticle in focus to your eye instantly when looking through the optic. Looking away and letting your eyes refocus is important in getting the Fast-Focus Eyepiece set correctly.

You may notice that on 1x you have to make an additional adjustment to the diopter to achieve a flat field of view. This is specific to all 1x optics.

Adjusting the Fast-Focus Eyepiece for the Flattest Field of View on 1x:

1. Turn the Magnification Adjustment Ring to 1x.
2. While looking at an object about 25 yards away, taking short glances through the optic, turn the Fast-Focus Eyepiece clockwise, until the image is true 1x. The object should appear the same size through the optic as it does to your naked eye. This may take several attempts.

Note: This will be a target-dependent adjustment for close-range shooting and may cause the reticle to appear slightly out of focus on the highest power.

Once this adjustment is complete, it will not be necessary to refocus every time you use the riflescope. However, because your eyesight may change over time, you should recheck this adjustment periodically.

Parallax

Parallax results when the target image is not on the same optical plane as the reticle within the riflescope. This can cause an apparent movement of the reticle in relation to the target if the shooter's eye is off-axis behind the optic.

Fixed Parallax

The Razor® HD Gen II-E 1-6x24 SFP riflescope comes equipped with a fixed parallax setting at 100 yards. With a fixed parallax, the shooter may experience small amounts of parallax error inside and outside of 100 yards, or if the shooter is off-axis behind the optic. If the shooter is perfectly aligned behind the optic, or at 100 yards, there should be no parallax error.

Magnification Adjustment

The Magnification Adjustment Ring is used to change the riflescope's "power." The Razor® HD Gen II-E 1-6x24 SFP riflescope is a variable powered optic with an 6x optical design. This will allow you to change the power from 1x to 6x using the Magnification Adjustment Ring.



To adjust your optic's magnification, rotate the Magnification Adjustment Ring clockwise, or counterclockwise, to increase or decrease the magnification to your desired level.

TURRETS

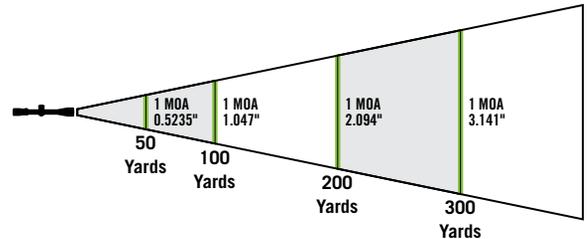
The Razor® HD Gen II-E 1-6x24 SFP riflescope is offered in Minute of Angle (MOA) with a matching reticle/turret configuration.

Note: The top of both the Windage and Elevation Turret will state what unit the riflescope is laid out in.

Minute of Angle (MOA) Adjustment

Minute of Angle is an angular unit of measurement commonly found in riflescopes. It is used to measure bullet drop, wind holdovers, and for measuring targets. Both the reticle and turrets will be laid out in specific MOA values. 1 MOA equates to 1.047" at 100 yards, 2.09" at 200 yards, 3.14" at 300 yards, etc. Being an angular unit of measurement, the value of 1 MOA will increase/decrease proportionally as you increase/decrease the distance you are shooting. For this reason, think about all your adjustments in MOA, rather than a linear unit such as inches. If your turret, reticle, and drop chart are all laid out in MOA, adjusting your riflescope for bullet drop or windage corrections is extremely easy.

1 MOA = 1.047" per 100 yards.



Elevation and Windage Turrets

Use turrets to adjust the bullet's point of impact. The Razor® HD Gen II-E 1-6x24 SFP riflescope uses 1/2 MOA turret adjustment on both the Windage and Elevation Turrets. Each click will move the bullet's point of impact roughly .5" at 100 yards for MOA. The turret on the top of the riflescope is the Elevation Turret, which is used to adjust the bullet's point of impact up and down. The turret on the right-hand side of the riflescope is the Windage Turret and is used to adjust the bullet's point of impact left and right.

Capped Turrets

The Razor® HD Gen II-E 1-6x24 SFP riflescope has capped turrets. This protects the turrets from accidental adjustment while out in the field, in transit, or in storage. You will need to remove the caps prior to making any adjustments on the turrets.

Note: The riflescope is still waterproof with the caps removed.

Adjusting Capped Turrets:

1. Remove the turret caps by spinning counterclockwise.
2. Following the directional arrows, turn the dial in the direction you wish the bullet's point of impact to change. (If you hit high, dial down. If you hit low, dial up. If you hit right, dial left. If you hit left, dial right.)
3. When finished adjusting, replace the turret caps.



Note: The reticle will move in the opposite direction of the turret dials. When you dial up, the reticle will move down, forcing you to aim higher, changing your point of impact upward.

Illumination

The Razor® HD Gen II-E 1-6x24 SFP riflescope uses a variable intensity reticle to aid in low-light performance.

To Turn Illumination On

To activate the illumination, pull the Illumination Control Knob out and then rotate the Illumination Control Knob.

To Adjust Illumination Brightness

Once the illumination is on, continue to rotate the Illumination Control Knob to cycle through 11 levels of brightness.

To Turn Illumination Off

To turn illumination off, dial the Illumination Control Knob to "0".

Note: When the illumination is off, the reticle will appear black.



Battery Installation/Replacement

To install/change the battery, unscrew the Illumination Control Knob's cap and install a new CR2032 battery with the positive (+) facing out.

Replacing the Battery:

1. Unscrew the cap by spinning counterclockwise.
2. Remove the CR2032 battery.
3. Replace with a new CR2032 battery with the positive side (+) facing out.
4. Reinstall the battery cap by spinning clockwise until tight.

**RIFLESCOPE MOUNTING**

To get the best performance from your rifle scope, proper mounting is essential. Although not difficult, the correct steps must be followed. If you are unsure of your abilities, use the services of a qualified gunsmith.

Please take note of the instructions on the following pages. For the proper rifle scope mounting procedure go to VortexOptics.com/vortex-nation-videos for a video tutorial.

Rifle Scope Mounting Checklist

- Gun vise or a solid platform for your rifle
- Rifle scope rings
- Torque wrench
- Reticle leveling tool(s) (such as feeler gauges, bubble levels, and a plumb bob)

Recommendation: Pick up the Vortex Pro Torque Wrench, which comes with the complete set of bits needed to install Vortex® riflescopes and rings and the Vortex Pro Leveling Kit.

**Rings And Bases**

The Razor® HD Gen II-E 1-6x24 SFP rifle scope features a 30mm main tube. Be sure to select a base and matching rings appropriate for your rifle and mount according to manufacturer's instructions.

Tip: Selecting the proper ring height to provide appropriate clearance between the rifle scope and any part of the rifle is paramount. The proper height will also allow for a comfortable head position and aid in establishing a solid and consistent shooting position. The height of a ring will not have an adverse effect on accuracy and overall range or performance.

Eye Relief and Reticle Alignment

After installing the bottom ring halves on the mounting base, place the rifle scope on the bottom ring halves and loosely install the upper ring halves. Before tightening the rifle scope ring screws, adjust for maximum eye relief to avoid injury.

1. Set the rifle scope to its highest magnification.
2. Move the rifle scope fore and aft in the rings until you achieve a full, unobstructed sight picture.
3. Without disturbing the fore-aft placement, rotate the rifle scope until the reticle is level. Use a leveling tool(s) such as feeler gauges or bubble levels and a plumb bob to aid in this process.
4. After leveling the reticle, tighten and torque the ring screws down per manufacturer's instructions. Use caution and do not over tighten ring screws.

Note: We typically suggest 15-18 in.lbs of torque on the ring screws. If the mount/ring manufacturer suggests more or less, contact the Vortex® Technical Department for best instructions. For base clamp screws on the rings/mounts, reference the ring manufacturer's specifications. We do not recommend liquid thread-locking compound on the ring screws.

If you have questions about a specific setup, please call our Technical Department at:

1-800-4VORTEX (1-800-486-7839) Ext. 1

SIGHTING IN YOUR RIFLESCOPE

Bore Sighting

Initial bore sighting of the riflescope will save time and money at the range by roughly aligning the riflescope to the rifle. This can be done several ways, either by using a mechanical or laser bore sighter according to the manufacturer's instructions, or by removing the bolt and sighting through the barrel.



Visually bore sighting a riflescope.

To Visually Bore Sight a Rifle:

1. Place the rifle solidly on a rest and remove the bolt.
2. Sight through the bore at a target approximately 100 yards away.
Note: It will help to have larger, high contrast target to focus on as it can be difficult to pick up smaller targets through the rifle's bore.
3. Move the rifle and rest until the target is visually centered inside the barrel.
4. With the target centered in the bore, make the necessary windage and elevation adjustments until the reticle is also centered on the target. You may notice the reticle travel in the opposite direction as listed on the turrets. This is completely normal.

Final Range Sight-In

After the riflescope has been bore sighted, final sight-in should be done at the range using the exact ammunition you expect to use while hunting or shooting competitively. Sight-in and zero the riflescope at the preferred distance. 50 to 200 yards are the most common zero distances.

1. Following all safe shooting practices, fire a three-shot group as precisely as possible to determine an average point of impact to correct from. This will also help you establish the weapon system's accuracy potential.
2. Adjust the turrets to correct for any offset in your point of impact. Be sure to read pages 9 and 10 prior to adjusting.
3. Fire another three-shot group to establish another average point of impact. This procedure may be repeated as many times as necessary until your point of impact and your point of aim are in the same place, and you have achieved a perfect zero.

Note: Vortex® does not recommend the use of a weighted gun vise, as it can put extreme stress on the gun, stock, riflescope, and mounts. It is best practice to use a combination of sandbags or a bipod and sandbags. Letting your weapon recoil naturally also provides consistency from shot to shot.

Reindexing the Elevation and Windage Turrets

After the rifle and riflescope have been zeroed in, the Elevation and Windage Turrets should be reindexed to their zero indicators. This will allow you to accurately keep track of elevation or windage corrections dialed on the turrets in the field, and quickly return to an original zero-point setting.

To Reindex the Turrets

1. Remove the outer cap. While firmly holding the dial, loosen and remove the center screw.
2. Lift the dial off the riflescope. Orient the dial to align the zero mark on the index line.
3. Install the dial and reinstall and tighten the center screw while firmly holding the dial.



Remove the central screw.



Lift and remove turret cap.



Reinstall the cap, aligning "0" mark.

MAINTENANCE

Cleaning

Your Vortex® riflescope requires very little routine maintenance other than periodically cleaning the exterior lenses. The riflescope's exterior may be cleaned by wiping with a soft cloth. When cleaning the lenses, be sure to use products that are specifically designed for use on coated optical lenses.

- Be sure to blow away any dust or grit on the lenses prior to wiping the surfaces.
- Using your breath, or a very small amount of water or pure alcohol, can help remove stubborn dried water spots.

Lubrication

All components of the riflescope are permanently lubricated, so no additional lubricant should be applied.

Note: Other than removing the Turret Caps and Battery Cap, do not attempt to disassemble any components of the riflescope. Disassembling of riflescope may void warranty.

Storage

If possible, avoid storing your riflescope in direct sunlight or any very hot location for long periods of time.

TROUBLESHOOTING

Please consult the following list prior to returning a riflescope for service. Many times, a problem thought to be with the riflescope is a mounting issue. Be sure the correct rings and bases are being used and that they are properly torqued to the rifle. Be sure there is no free play in the riflescope, base, or rings.

Common Issues

Point of Impact is Inconsistent or Changes Drastically After Turret Adjustment

- Verify that the ring screws are not over-torqued. Ring screws should only be torqued to Vortex® recommendations, and no thread-locking compound or lubricants should be applied. Over-torquing ring screws will cause excess pressure on the tube, which may cause problems when making turret adjustments.
- Remove the riflescope from the rings and visually check the riflescope tube for slide marks, and/or indentations from over-torqued, or out-of-spec rings.
- Ensure the rifle's action screws are tightened to the rifle manufacturer's specification.
- Be sure that the base is tightened using thread-locking compound to the top of the rifle's receiver to manufacturer's specifications.
- If using the riflescope on an AR-style rifle, ensure that the cantilever mount/rings are mounted only to the top of the receiver. The cantilever mount/rings need to be mounted to a single, solid surface. Make sure the forward connection of the cantilever mount, or ring, is not mounted to the fore-end of the rifle.
- Be sure the rifle barrel and action are clean and free of excessive oil, or copper and powder fouling.
- Some rifles and particular ammunition do not work well together. Try different ammunition and see if accuracy improves.

Insufficient Windage and Elevation Adjustment Range

- Be sure you have the proper base and rings for your rifle. If you need assistance, contact a local gunsmith or the Vortex® Technical Department.
- Once you have verified you have the correct base and mounts, and that you have been properly fitted for your gun, make sure you have followed the correct mounting procedure. See Riflescope Mounting Section on pages 12 and 13 for this procedure.
- Insufficient windage or elevation adjustment range usually indicates problems with the mounting, base mount holes drilled in the rifle's receiver, or barrel/receiver misalignment.

Reticle is Blurry/Cannot Focus on the Reticle and Target Simultaneously OR Image is Larger than 1x while on 1x on the Magnification Dial

- Check and reset the ocular focus for the shooter's eye. See Riflescope Adjustment Section, Ocular Focus – Fast-Focus Eyepiece Adjustment on pages 6 and 7.

Reticle is Upside Down

- The Riflescope is likely backwards. Confirm that you are looking through the larger end of the Razor® HD Gen II-E 1-6x24 SFP riflescope.

Reticle is Moving the Wrong Direction

- The reticle will always move opposite of the turrets. Markings on the turrets indicate point of impact change. If you dial down on the turret, the reticle will move upward, forcing you to move the gun down, to change your point of impact downward.

SAFETY AND PRECAUTIONS

The Razor® HD GEN II-E 1-6x24 SFP riflescope contains a 3V CR2032 battery.

⚠️ WARNING

- **INGESTION HAZARD:** this product contains a CR2032, 3V button cell or coin battery.
- **DEATH** or serious injury can occur if ingested.
- A swallowed button cell or coin battery can cause **INTERNAL CHEMICAL BURNS** in as little as **2 HOURS**.
- **KEEP** new and used batteries **OUT OF REACH OF CHILDREN**.
- **SEEK IMMEDIATE MEDICAL ATTENTION** if a battery is suspected to be swallowed or inserted inside any part of the body.



- Remove and immediately recycle or dispose of used batteries according to local regulations and keep away from children. Do NOT dispose of batteries in household trash or incinerate.
- Even used batteries may cause severe injury or death.
- If ingested, call a local poison control center for treatment information.
- Non-rechargeable batteries are not to be recharged.

- Do not force discharge, recharge, disassemble, heat above (manufacturer's specified temperature rating) or incinerate. Doing so may result in injury due to venting, leakage or explosion resulting in chemical burns.
- Ensure the batteries are installed correctly according to polarity (+ and -).
- Do not mix old and new batteries, different brands or types of batteries, such as alkaline, carbon-zinc, or rechargeable batteries.
- Always completely secure the battery compartment. If the battery compartment does not close securely, stop using the product, remove the batteries, and keep them away from children.

NOTICE

Virtual Patent Marking Notice By Vortex Optics

This product may be protected by patents in the U.S. and elsewhere for Vortex Optics. <http://vtx.legal> website is provided to satisfy the virtual patent marking provisions of various jurisdictions including the virtual patent marking provisions of the America Invents Act and provide notice under 35 U.S.C. §287(a). Please visit <http://vtx.legal> to view list of products that may be covered by one or more U.S./Foreign patents or published patent applications.



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- ▶ **Unlimited.**
- ▶ **Unconditional.**
- ▶ **Lifetime Warranty.**

You do not have to register, save the box, or a receipt for the Warranty to be honored.

Learn more at VortexOptics.com

service@VortexOptics.com • 1-800-4VORTEX

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

For the most up to date manual visit
VortexOptics.com



M-00178-2

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