PRODUCT MANUAL

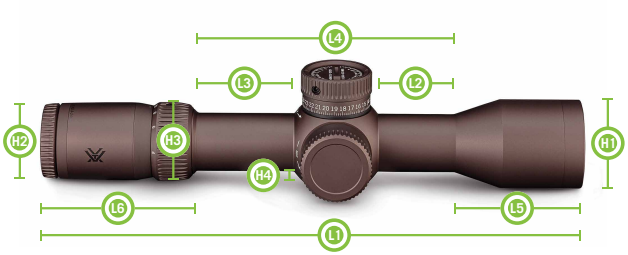
RAZOR® HD GEN III

4-24x44 & 6-36x56 FFP RIFLESCOPES

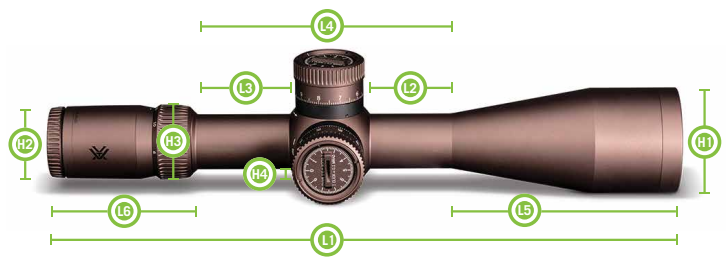
SPECIFICATIONS

CONFIGURATION	4-24x44		6-36x56	
SKU	RZR-42401	RZR-42402	RZR-63601	RZR-63602
RETICLE	EBR-7D MOA	EBR-7D MRAD	EBR-7D MOA	EBR-7D MRAD
FOCAL PLANE	FFP		FFP	
ILLUMINATION	Yes		Yes	
BATTERY TYPE	CR2032		CR2032	
EYE RELIEF	3.3"		3.5"	
LINEAR FIELD OF VIEW (100 YDS)	30.9' - 5.3'		20.5' - 3.5'	
ZERO SYSTEM	L-Tec+™		L-Tec+™	
TURRET STYLE	Elevation - Exposed Windage - Capped		Exposed	
TUBE SIZE	34mm		34mm	
ADJUSTMENT GRADUATION	1/4 MOA	0.1 MRAD	1/4 MOA	0.1 MRAD
TRAVEL PER ROTATION	25 MOA	10 MRAD	25 MOA	10 MRAD
MAX ELEVATION ADJUSTMENT	158 MOA	46 MRAD	120 MOA	36.1 MRAD
MAX ELEVATION WITH ZERO SYSTEM	95 MOA	38.5 MRAD	95 MOA	36.1 MRAD
MAX WINDAGE ADJUSTMENT	86 MOA	25 MRAD	52.5 MOA	15.5 MRAD
MAX WINDAGE WITH ZERO SYSTEM	N/A		32 MOA	13 MRAD
PARALLAX SETTING	15 yds. - ∞		10 yds. - ∞	
LENGTH	12.5"		15.3"	
WEIGHT	32.3 oz.		45.1 oz.	

4-24x44



6-36x56



DIMENSIONS		4-24x44	6-36x56
OVERALL LENGTH	L1	12.5"	15.3"
FRONT MOUNTING SURFACE	L2	1.75"	1.95"
REAR MOUNTING SURFACE	L3	2.23"	2.25"
OVERALL MOUNTING SURFACE	L4	5.95"	6.20"
OBJECTIVE LENGTH	L5	2.96"	5.51"
EYEPIECE LENGTH	L6	3.57"	3.57"
OUTSIDE DIAMETER OBJECTIVE	H1	2.05"	1.77"
OUTSIDE DIAMETER EYEPIECE	H2	1.80"	2.56"
MAGNIFICATION RING OUTSIDE DIAMETER	H3	1.81"	1.81"
TURRET SADDLE DEPTH	H4	.185"	.185"

RAZOR® HD GEN III RIFLESCOPES

Get into the long-distance game faster with an optic packed full of shooter-friendly features. A 34mm tube gives ample turret travel, and our exclusive L-Tec+™ Zero System which provides a fast setup and a reliable return to the original zero when long-distance shots have been dialed.

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

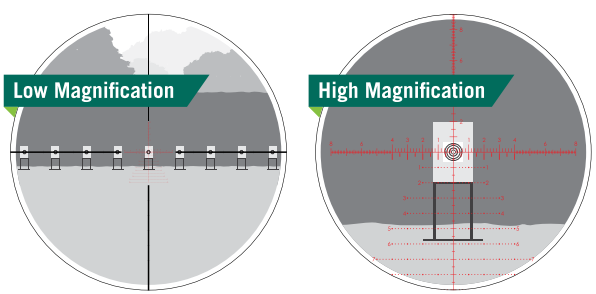
INITIAL SETUP

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.

First Focal Plane Reticle

The Razor® HD Gen III riflescopes feature a first focal plane (FFP) reticle. FFP reticles are located within the riflescope near the windage and elevation turrets. This style of reticle will appear to grow and shrink as you change the magnification.



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 III riflescopes use 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 and the Parallax Adjustment Knob to infinity. 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.

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.

Adjustable Parallax

The Razor® HD Gen III riflescopes come equipped with a Parallax Adjustment Knob located on the left-hand side of the turret housing. When the parallax is properly adjusted, the shooter should experience no parallax error.

Parallax Adjustment Knob

Dial the Parallax Adjustment Knob until the target image is as sharp as possible. The yardage numbers on the knob should be used as general reference points only. Check for parallax error by moving your head up, down, left, and right without influencing the gun. The parallax is correct if there is no apparent shift between the reticle and the target image. If you notice any shift, adjust the focus knob slightly until all shift is eliminated.

Note: If the reticle and the image are not both simultaneously in focus, readjust your Fast-Focus Eyepiece. See Ocular Focus – Fast-Focus Eyepiece section.

Magnification Adjustment

The Magnification Adjustment Ring is used to change the riflescope's "power." The Razor® HD Gen III riflescopes are variable powered optics with a 6x optical design. (E.g. 4-24x, 6-36x)

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

Throw Lever Installation

Make magnification adjustments smooth and easy by attaching the included Throw Lever.

1. Set the Magnification Adjustment Ring to the middle of the magnification range.
2. Slide the Throw Lever over the Eyepiece and Magnification Adjustment Ring with the Throw Lever in the upright position.
3. Thread the screw into the Throw Lever and tighten the 2mm hex head screw until snug using the provided multi tool. Tighten to 5-7 in-lbs.
4. Using the Throw Lever, rotate the magnification ring through its entire range of motion to verify the throw lever's position.

5. If needed, loosen the screw and adjust the Throw Lever's position to your desired position.

TURRETS

The Razor® HD Gen III riflescopes are offered in either Minute of Angle (MOA) or Milliradian (MRAD). All Razor® HD Gen III riflescopes will have a matching reticle/turret configuration.

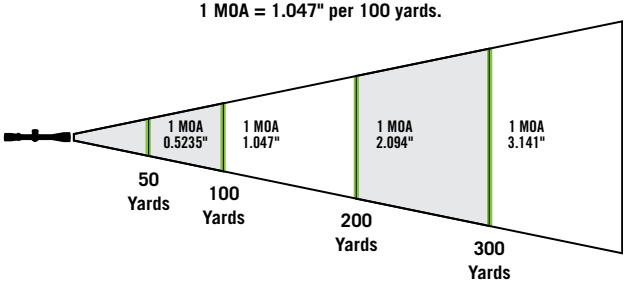
Note: The top of both the windage and elevation turret will state what unit the riflescope is laid out in.

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 of 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.

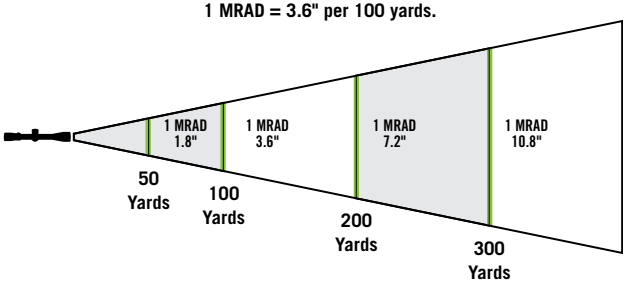
1 MOA = 1.047" per 100 yards.



Milliradian (MRAD) Adjustment

Milliradian 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 MRAD values. 1 MRAD equates to 3.6" at 100 yards, 7.2" at 200 yards, 10.8" at 300 yards, etc. Being an angular unit of measurement, the values of 1 MRAD will increase/decrease proportionally as you increase/decrease the distance you are shooting. For this reason, think about all of your adjustments in MRAD, rather than a linear unit such as inches. If your turret, reticle, and drop chart are all laid out in MRAD, adjusting your riflescope for bullet drop or windage corrections is extremely easy.

1 MRAD = 3.6" per 100 yards.



Elevation and Windage Turrets

Use turrets to adjust the bullet's point of impact. The Razor® HD Gen III riflescopes use either 1/4 MOA or .1 MRAD turret adjustments on both the Windage and Elevation Turrets. Each click will move the bullet's point of impact roughly .25" at 100 yards for MOA, and .36" at 100 yards for MRAD. 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 III 4-24x44 FFP comes equipped with a capped Windage Turret. This protects the turret from accidental adjustments while out in the field, in transit, or in storage. You will need to remove the cap 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 them counterclockwise.
2. Following the directional arrows, turn the dials in the direction you wish the bullet's point of impact to change. (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 left, the reticle will move right, forcing you to aim right, changing your point of impact.

Exposed Elevation Turrets

The Razor® HD Gen III 4-24x44 FFP riflescopes come equipped with an exposed Locking Elevation Turret. The Razor® HD Gen III 6-36x56 features exposed Locking Elevation and Windage Turrets. This allows the shooter to quickly dial in their elevation adjustment while still having protection from accidental adjustments on both turrets. The exposed Locking Elevation turrets feature the L-Tec+™ Zero System which provides fast setup and reliable return to zero when long distance shots have been dialed.

Note: The L-Tec+™ Zero System will allow a slight over travel past the sign-in zero (1.25 MOA or .5 MRAD).

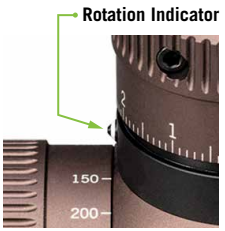
Adjusting Exposed Elevation Turrets:

1. Pull up on the turret so that it is no longer in the locked position.
2. Following the direction 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, push down to lock the turret in place.

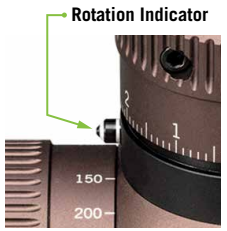
External Rotation Indicator (Razor® HD Gen III 6-36x56 FFP Riflescope Only)

The external indicator on the elevation turret provides quick visual and tactile reference of the elevation turret's rotational position. As the turret enters the second turn of rotation, the indicator will extend outward from the turret. On the fourth turn of rotation, the indicator will be fully extended.

Turret in first turn of rotation (not visible)



Turret in second turn of rotation (partially extended)



Turret in third turn of rotation (fully extended)

Illumination

The Razor® HD Gen III riflescopes use a variable intensity illuminated reticle to aid in low-light performance over time.

To Turn Illumination On

Pull out the Locking Illumination Control Knob on the left-hand side of the riflescope. Rotate the knob in either direction.

To Adjust Illumination Brightness

Once the illumination is on, rotate the Illumination Control Knob to adjust through the 10 levels of brightness.

Pull out to unlock and adjust

To Turn Illumination Off

To turn off the illumination, there is an off click between each of the 10 levels of brightness. Turn to this off click to turn off the illumination with just one click.

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

Push in to lock

Once you've adjusted to your preferred setting, push in the Locking Illumination Control Knob to lock in your illumination setting and prevent accidental adjustments.

Battery Installation/Replacement

To install/change the battery, unscrew the Locking Illumination Control Knob's cap using the included tool. Install a new CR2032 battery with the positive side (+) facing out.

Replacing The Battery

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

RIFLESCOPE MOUNTING

To get the best performance from your riflescope, 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 riflescope mounting procedure go to **VortexOptics.com/vortex-nation-videos** for a video tutorial.

Riflescope Mounting Checklist

- Gun vise or a solid platform for your rifle
- Riflescope rings
- Torque wrench
- Reticle leveling tool(s) (such as feeler gauges or 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 III riflescopes feature a 34mm 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 riflescope 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. A ring's height 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 riflescope on the bottom ring halves and loosely install the upper ring halves. Before tightening the riflescope ring screws, adjust for maximum eye relief to avoid injury.

1. Set the riflescope to its highest magnification.
2. Move the riflescope fore and aft in the rings until you achieve a full, unobstructed sight picture.
3. Without disturbing the fore-aft placement, rotate the riflescope until the reticle is level. Using 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

Adjusting the Turrets for Bore Sighting

Prior to making any zero adjustments, be sure the turret caps are correctly positioned with the "0" mark on the turret cap indexed to the reference line on the turret body.

Align the "0" on the turret cap with indicator line on turret body.

Note: If the Windage Turret is capped, remove the cap prior to making turret adjustments.

1. Rotate the Elevation Turret clockwise until its on the bottom revolution. The External Rotation Indicator (if applicable) should be fully retracted into the riflescope body (not showing).
2. Ensure the turrets are positioned with the "0" mark aligned with the indicator mark on the turret body and are pushed down in the locked position.
3. Loosen the 2.5mm hex screw with the provided tool.
4. Adjust the elevation/windage micro-adjustment dial to establish your zero. When adjusting, use the reference line and circular scale on the micro-adjustment dial to measure the desired adjustments. Turn the dial in the desired direction.
5. Once the zero has been achieved, retighten the 2.5mm hex screw.

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.

To Visually Bore Sight a Rifle

1. Place the rifle on a solid 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 accuracy potential of the weapon system.
2. Turn the micro adjustment dials to correct for any offset in your point of impact. Be sure to read pages 14 and 15 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.

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, Throw Levers, 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-torqueing 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 specs.
- 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 page 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.

Cannot Focus on the Reticle and Target

- Check and reset the ocular focus for the shooter's eye. See Ocular Focus – Fast-Focus Eyepiece Adjustment on page 6.

Reticle is Moving in 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 III riflescopes contain 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.

VIP® WARRANTY

OUR UNCONDITIONAL PROMISE TO YOU.

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

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

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

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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
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