SIGHT MARK®

CORE 2.0 TX

1-4x24
TX series
SM13120AR556

4-16x44
TX series
SM13121MR2

USER MANUAL

ABOUT SIGHTMARK®

Founded to meet the changing needs of the outdoor industry and its customers, Sightmark® was introduced at SHOT Show 2007 in response to the growing popularity of the modern shooting market. The goal was to provide state-of-the-art optics and accessories to make the modern sporting rifle, shotgun and pistol as accurate as possible. In addition, each product is designed for the core market, enabling shooters to purchase more high quality items to accessorize their firearm for hunting, home defense and competition shooting.

In 2011, the new 33,000 square-foot headquarters was completed in Mansfield, Texas, combining the company's corporate offices and a large warehouse to handle the increase in sensitive material and technology being produced. The new facility provides more space for research and development, production, and distribution of defense-related products.

Best-selling products include red dot sights, riflescopes and chamber laser bore sights. More than one million Sightmark bore sights are in use since first released to the market. Sightmark has earned several patents and awards from industry associations and publications including Field & Stream, Optics Planet, Outdoor Life and Predator Xtreme. Numerous optics and accessories have been field tested and approved by prominent outdoor organizations such as the North American Hunting Club and the National Tactical Officers Association.

Currently, Sightmark represents leading markets growing in more than 40 countries and many quality retailers in every state. Products are sold by top retailers and national specialty chains such as: Academy Sports & Outdoors, Bass Pro Shops, Cabela's, Frankonia and many more.

SIGHTMARK®

CORE 2.0 TX SERIES RIFLESCOPES

Designed to enhance the performance of the modern sporting rifle, the Sightmark CORE 2.0 TX Riflescope Series has been designed for accuracy and reliability. Each scope in this tactical series has been carefully crafted to overcome the challenges shooters encounter in the field.

Sightmark CORE 2.0 TX riflescopes use fully multi-coated optics to provide optimal light transmission in a variety of conditions. Etched glass reticles are illuminated to deliver optimal shot placement and are durable enough to withstand hours of shooting. The CORE 2.0 TX riflescopes feature exposed, lockable turrets which help maintain a consistent zero. Turrets are quick and easy to adjust to compensate for bullet drop and windage on the fly.

FEATURES:

SM13120AR556/13121MR2 Models

- Exposed, Locking Turrets
- Fast-Focus Eyepiece
- Red Illuminated Reticle
- Single-piece, 30mm Tube
- Aircraft Grade Aluminum
- Hard Anodized Finish
- IPX7 - Waterproof, Fogproof, Shockproof
- Fully Multi-coated Optics

INCLUDES

- Scope Rings
- Lens Flip-up Caps
- Lens Cloth
- CR2032 Battery

TECHNICAL SPECIFICATIONS	SM13120AR556	SM13121MR2
Reticle type	AR556 Ballistic Drop Reticle	MR2 Medium Range
Reticle color	Red	Red
Illuminated reticle (yes/no)	Yes	Yes
Reticle brightness settings	0-6	0-6
Magnification (x)	1-4	4-16
Objective lens diameter (mm)	24	44
Eye relief (in/mm)	3.7 / 94	3.7 / 94
Field of view (m @100m)	32.25 - 7.99	7.99 - 2
Field of view (ft @100yd)	105.8 - 26.2	26.2 - 6.55
Diopter adjustment (+/-)	+2/-2	+2/-2
Tube diameter (in/mm)	1.18 / 30	1.18 / 30
Parallax setting (yds)	100	20 - ∞
Windage adjustment range	140 MOA	24 MRAD
Elevation adjustment range	140 MOA	24 MRAD
Adjustment value (one click =)	½ MOA	.1 MRAD
Maximum Recoil (G's)	1000	1000
Battery type	CR2032	CR2032
Battery life (hours)	80 (Highest) - 1000 (Lowest)	80 (Highest) - 1000 (Lowest)
Focal plane	Second	Second
IP Standard (water rating	IPX7 - Water & Dustproof	IPX7 - Water & Dustproof
Lens coatings	Fully Multi-coated	Fully Multi-coated
Operating temperature	-4° to 149°F / -20° to 65°C	-4° to 149°F / -20° to 65°C
Length (in/mm)	10 / 254	14.2 / 360.7
Width (in/mm)	2.75 / 70	3.25 / 82.6
Height (in/mm)	2.15 / 54.5	2.25 / 54.6
Weight (oz)	18.8	24.8

The new Core 2.0 TX Series of riflescopes from Sightmark is an improvement on the previous Core, offering upgraded glass, finer click adjustments, and improved low light performance. Its finely etched reticles and exact adjustments make taking shots simple and easy.

The Core 2.0 TX promises to be a dependable tool in any tactical environment.

DIAGRAM

1. Objective Lens
2. Eyepiece (Diopter Adjustment)
3. Magnification Adjustment Ring
4. Elevation Adjustment
5. Windage Adjustment
6. Side Focus Dial (Parallax Adjustment)
   (Excludes 1-4x24)
7. Illumination Dial
8. Battery Cap

INSTALLING THE BATTERY

The Sightmark CORE 2.0 riflescopes are powered by a CR2032 battery. Should the reticle illumination grow dim or not illuminate, the battery needs to be replaced.

TO INSTALL A NEW BATTERY:

1. Unscrew the battery cap (8) on the illumination dial (7) counterclockwise.
2. Insert the new battery with the positive (+) side facing up.
3. Screw the battery cap on clockwise until firmly secure. **Do not over tighten.**

ILLUMINATION CONTROL

The Sightmark CORE 2.0 riflescope uses an etched reticle.
The reticle can be used without illumination and will appear black.

TO ACTIVATE THE RETICLE ILLUMINATION:

1. Rotate the illumination dial (7) either clockwise or counterclockwise. The dial is marked with the brightness setting ranging from 0 (off) to 6 with an OFF function between each illumination setting. Setting 6 is best for bright, outdoor environments. Setting 1 is best for low light environments.
2. Set the dial so the setting indicating desired brightness faces the shooter or the white indication mark on the housing.
3. To turn off, rotate the dial to the zero setting between each illumination setting.

DIOPTER ADJUSTMENT

The Sightmark CORE 2.0 riflescope eyepiece (2) is designed to rotate to adjust for diopter. Diopter is the measurement of the eye's curvature. By rotating the eyepiece, the diopter is adjusted to properly match each person's vision. If the reticle does not appear clear, crisp, nor sharp, rotate the eyepiece until the reticle becomes clear and sharp. This adjustment should stay the same unless the riflescope's operator changes.

VARIABLE POWER ADJUSTMENT

To change magnification, turn the magnification ring (3) to the desired level of power.

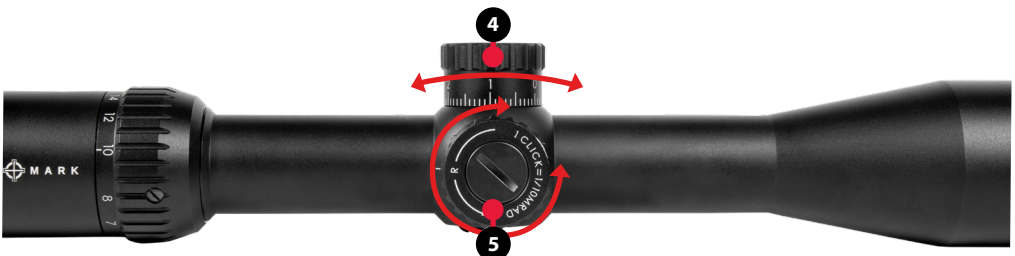
OPERATING THE WINDAGE AND ELEVATION ADJUSTMENTS

The Sightmark CORE 2.0 riflescope has finger-adjustable elevation and windage adjustments (4, 5) with audible clicks. The CORE 2.0 TX series offers exposed turrets for quick and easy adjustments.

TO MAKE WINDAGE AND ELEVATION ADJUSTMENTS:

1. Turn the adjustments in the appropriate direction needed to change the bullet's point-of-impact as indicated by the "UP" and "R" (right) arrows marked on the adjustments.

Each scope is marked with its click value on the scope. For example, a ¼ MOA click moves the point of impact ~0.25" at 100 yards. 1 MOA of movement (~1" at 100 yards) would require 4 clicks. For a 50 yard zero, the MOA value would be divided by 2. So a ¼ MOA click would move the point of impact ~0.125" at 50 yards. Similarly, a 0.1 MRAD click moves the point of impact 1cm at 100 meters (~0.36" at 100 yards). So 1 MRAD of movement, or 10 clicks, would move your point of impact 10 cm at 100 meters (~3.6" at 100 yards). For a 50 meter zero, the MRAD value would be divided by 2. So a 0.1 MRAD click would move the point of impact 0.05cm at 50 meters (~0.18" at 50 yards).



PARALLAX CORRECTION

The Sightmark CORE 2.0 riflescope is equipped with a side focus dial that is used to eliminate parallax and finely focus the image (not included with the 1-4x24 model). Parallax occurs when the image of the target does not focus on the same optical plane as the reticle inside the riflescope. When parallax is present, the reticle appears to move over the target when the shooter's eye is not centered to the eyepiece. Adjusting the side focus dial properly will eliminate parallax.

TO ADJUST THE SIDE FOCUS DIAL:

1. Turn the side focus dial (6) until the image of the target is as sharp as possible. If you know the distance to your target, use the yardage marks on the dial as a starting reference.
2. Check for parallax by moving your head back and forth while looking through the scope. If the reticle appears to shift, slightly adjust the focus dial until all shifting has been eliminated. Parallax is eliminated when there is no apparent shifting of the reticle.

MOUNTING

The Sightmark CORE 2.0 riflescope requires 30mm rings for mounting. For use on AR platforms, a cantilever style mount is recommended. For use on bolt platforms, a split mount is recommended. Mount the scope rings per the manufacturer's instructions. Do not perform a final tightening of the rings until you have thoroughly checked eye relief and reticle alignment. The riflescope should still be able to move fore and aft and rotate.

TO ACHIEVE MAXIMUM EYE RELIEF:

1. Set the riflescope to its highest magnification.
2. Set the riflescope as far forward in the rings as possible, then slowly move the riflescope closer to your eye. Stop moving the riflescope once a full field of view is visible.
3. Next rotate the riflescope to vertically align the crosshair. Use a reticle leveling tool if available.
4. Once alignment is complete, tighten the mounting ring's screws per the manufacturer's instructions. **Do not over tighten.**

BORESIGHTING and SIGHTING IN

Boresighting and test firing should be performed safely on a firing range. Laser boresights are a quick and accurate method for sighting in. The traditional method of boresighting is listed below.

1. When mounting the riflescope on a bolt action rifle, remove the bolt; or when mounting to a semi-automatic rifle, disassemble the rifle until there is a straight line of sight through the bore.
2. Use a target at least twenty yards to fifty yards away when sighting in the riflescope. Look through the bore of the weapon and locate the bull's-eye of the target.
3. Sight in the target through the bore and then make windage and elevation adjustments, (see "Operating Windage and Elevation Adjustments" for instructions) to the riflescope until the reticle is centered on the bull's-eye.

To verify the riflescope is accurately sighted in, always fire a three-shot test group preferably using the same ammo manufacturer, grain, and lot number. 100 yards is the most common zero distance. For long range shooting, a 200 yard zero is generally preferred. Before firing, make sure the image is properly focused and no parallax is present.

4. After firing a group, use the center of this grouping to make adjustments to the elevation and windage, these adjustments will move your firearm's grouping to the center of the target.
5. Fire another three-shot test group to confirm adjustments and use the center of the new grouping to determine any final adjustments.

Once the riflescope is zeroed, the turrets on the Sightmark CORE 2.0 TX riflescope can be reset (using the provided tool) to the "0" mark on your elevation and windage dial.

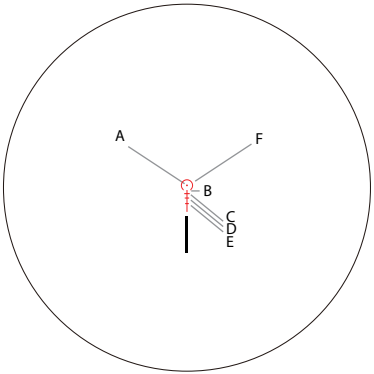
To do this:

1. Use the provided tool or coin to loosen and then remove the screw top of the turret.
2. Lift turret cap straight up to remove.
3. Re-install the turret cap, so that the "0" mark is aligned with the line indicator on the riflescope. Place the screw back in and tighten while holding the turret.
   Do not over tighten.

USING THE AR-556 RETICLE

The Sightmark CORE 2.0 TX 1-4x24 riflescope was designed for 3-gun competitions and shooting close- to medium-range targets. The AR-556 reticle is a second focal plane, minute of angle (MOA) reticle. This reticle is calibrated for 5.56x45 55gr FMJ ammo. The reticle was designed for a 100 yard zero. At 4x magnification, the 1 MOA aiming dot is used to engage targets from 0 to 200 yards. The reticle consists of a circle dot design for quick target acquisition in close range engagements. At 1x magnification, the outer circle will cover approximately 15 inches of a target at 25 yards. This is nearly equivalent to shoulder width of IPSC targets.

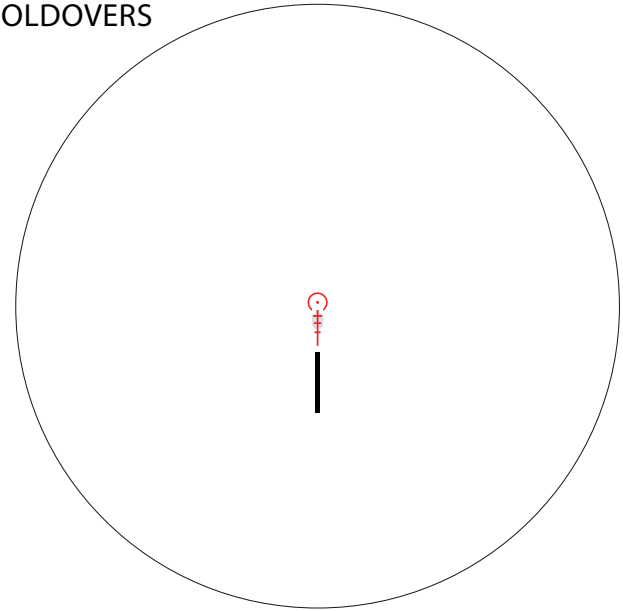
Below the aiming dot, holdovers can be used to determine range of IPSC targets and perform ballistic holdovers out to 600 yards.



HOLDOVER YARDAGE (@ MAX MAGNIFICATION)	
A	100-200 yd Holdover
B	300 yd Holdover
C	400 yd Holdover
D	500 yd Holdover
E	600 yd Holdover
F	10 MOA Circle

RANGING AND ELEVATION HOLDOVERS WITH THE AR-556 RETICLE

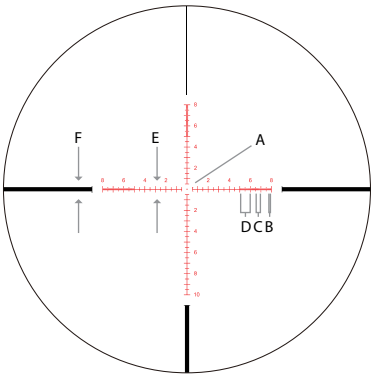
The AR-556 reticle can be used to estimate the range of IPSC targets based on the shoulder width of the target. Ranging is simple by matching the width of the IPSC target to the length of the horizontal holdover points of the reticle. The following image shows approximately the size ratio for the distance of 400 yards. Note for a 300-yard target, the open base of the circle is used for ranging. By knowing the distance to your target, the holdover can then be used to compensate for bullet drop. Range estimation and holdovers must be done at 4x magnification. Note that for 300-yard holdover, the tip of the vertical sub tension is used.



USING THE MR2 RETICLE

The Sightmark MR2 is designed for medium range shooting applications. The MR2 reticle is a second focal plane, milliradian reticle. This reticle can be used to determine target range and shot holdovers for wind/drop compensation and moving targets. The vertical and horizontal mil scales are scaled in .5 MIL increments and can be used for range finding and holdovers. The top, left, and right end of the vertical and horizontal scale are scaled in .1 MIL increments for precision range estimation. The ultra-fine .1 MIL center dot provides a perfect aiming point for precision shooting. The floating dot increases the visibility of the target around the aim point.

The MR2 reticle is based on milliradian (MRAD or MIL) design which is a measurement of angle. One MRAD is 10cm at 100 meters or roughly 3.6" at 100 yards. The CORE 2.0 TX click adjustments are 0.1 MRAD, so each click will move the POI 1cm at 100 meters. This scope is second focal plane, so the holdovers and range-finding capabilities are only accurate at 10x magnification.



RETICLE DIMENSIONS (10x MAGNIFICATION)	
A	0.1 MIL
B	0.1 MIL
C	0.5 MIL
D	1 MIL
E	0.05 MIL
F	.4 MIL

RANGING AND ELEVATION HOLDOVERS WITH THE MR2 RETICLE

The MR2 can be used for ranging and holdovers at 10x magnification. To use any of the following formulas, the size of the target must be known.

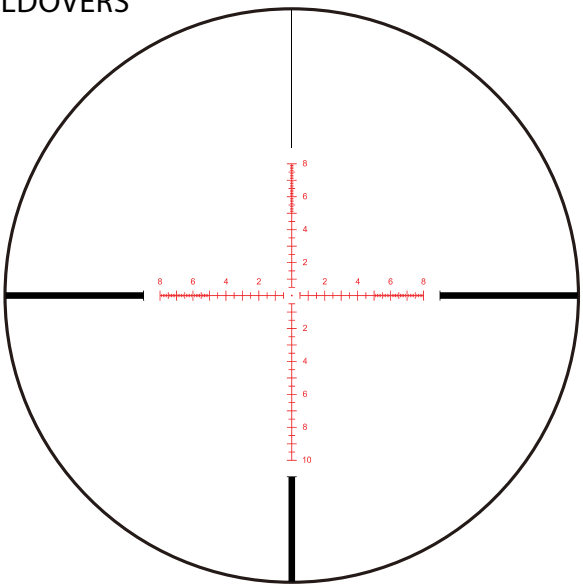
MIL Ranging Formulas:

Target Size (yards) x 1000 = Range (yards)
MILs Read

Target Size (inches) x 27.8 = Range (yards)
MILs Read

Target Size (meters) x 1000 = Range (meters)
MILs Read

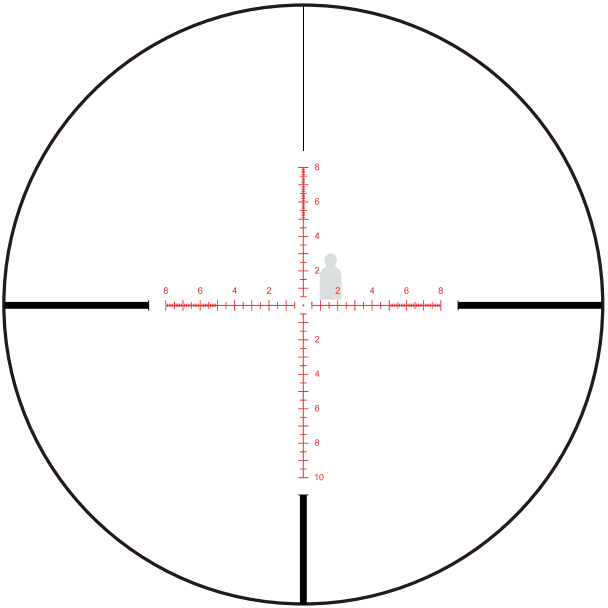
Target Size (cm) x 10 = Range (meters)
MILs Read



Either the vertical or horizontal MIL scale can be used to range for your target. Try to read MILs as accurately as possible. Reading MILs in 1/10 accuracy will provide a more accurate range to the target; therefore, using the end of either the horizontal or vertical scale will yield measurements in 0.1 MIL increments.

For example, in the image (at right) a silhouette target is 1.25 yards tall and reads 3 MILs tall.

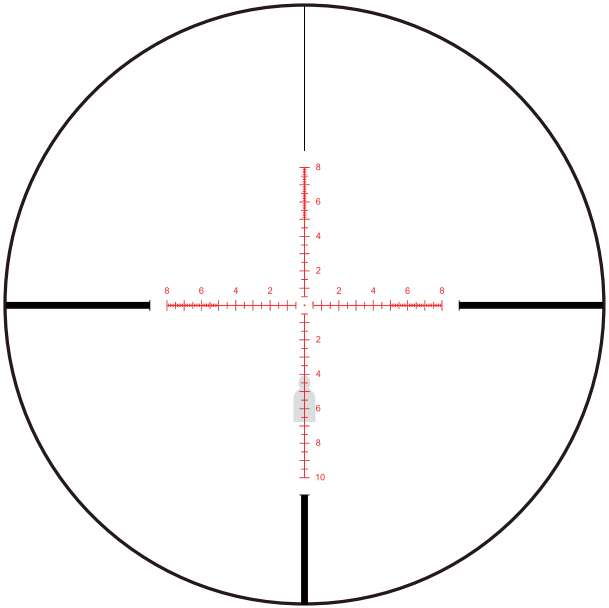
1.25 x 1000 / 3 MILs = 417 yards



ELEVATION HOLDOVERS

Once the distance is measured, the vertical MIL scale can be used for holdovers to compensate for bullet drop. The shooter must learn their caliber's specific bullet drop numbers in MILs rather than MOA. The vertical MIL is marked in 0.5 MIL increments. Once the shooter knows the bullet drop, the correct hash mark can be used for holdover.

In this example, a 600 yard holdover (5.5 mrad) is used. No wind is present.



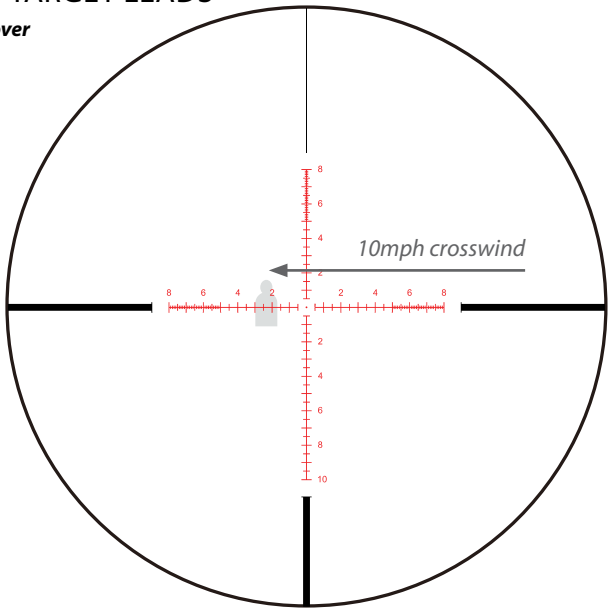
WINDAGE HOLDOVERS AND TARGET LEADS

To master windage holdovers and target leads, it is recommended to study your weapon's ballistic performance under varying wind and environmental conditions. It is also recommended to learn your caliber's specific windage holdovers and moving target holdovers in MILs rather than MOA for this reticle. Wind holdovers are done by holding the reticle directly into the wind, however holdover amount can vary with the angle of direction of the crosswind. Estimating a target lead requires knowing speed, target speed, wind speed, target distance, and bullet flight time. It is recommended to keep handy a ballistics calculator or dope chart (specifically marking time of flight) for holdovers and target leads. Overall, windage holdovers and leads for moving targets take experience in reading wind and target speeds to achieve this level of superior marksmanship.

First, prior to setting the reticle for a windage holdover the distance to the target must be known. Once known, the bullet drop can be compensated by adjusting the elevation dial so that the horizontal crosshair is used. Next, the correct amount of holdover should be determined for the present wind speed. Reference your ballistic chart by checking the wind drift in MILs for the same range. Finally, remember to hold the reticle into the wind and use the windage holdover mark as your aiming point.

WINDAGE HOLDOVERS AND TARGET LEADS

In this example, a 700 yard windage holdover (2.3 mrad) is used for a 10 mph crosswind. Elevation dial has already been adjusted 5.8 mrad for 700 yards target distance.



TROUBLESHOOTING

Proper authorization is required before shipping any product back to Sightmark. Failure to obtain authorization could result in your product being returned to the wrong address, lost, or damaged. Sightmark is not liable for products returned without authorization.

If the riflescope does not hold zero:

1. Verify the sight is mounted securely to the rifle. If the riflescope can be shifted in any direction, retighten the mount according to the mounting instructions but do not over tighten. The sight will need to be re-zeroed afterwards.
2. Check that all screws on the mount are securely tightened.
3. When sighting in, be sure to use factory-loaded ammunition of the same bullet type, weight, and preferably lot number.

The reticle does not illuminate:

1. Check that the battery is in working order and that the polarity of the battery is correct.
2. Check that there is no residue, film, or corrosion on the battery contacts that may be preventing the reticle from illuminating.

The reticle is blurry and not in focus:

1. Rotate the eyepiece to adjust the diopter adjustment until the reticle becomes clear and sharp.

The reticle has a halo or is fuzzy:

1. The halo or fuzzy appearance is caused by greater illumination than is required for the current environment the riflescope is being used in. Decrease the brightness level of the reticle until clear.

The reticle illumination turns off while firing:

1. Tighten the battery cap by hand until the cap is fully seated.
   Do not over tighten.

MAINTENANCE

Proper maintenance of the Sightmark CORE 2.0 riflescope is recommended to ensure longevity. It is recommended that when the sight becomes dirty that it is wiped down with a dry or slightly damp cloth. Blow dirt and debris off all optics, and then clean lenses with a lens cleaning cloth. To remove oils or dried water spots, apply a small amount of denature alcohol to a lens cloth or cotton swab. Clean the surface of the lens and let dry. Finally use your breath to clean the lens once more. No further maintenance is required. **Do not attempt to disassemble any components of the scope.**

STORAGE

Make sure that your Sightmark CORE 2.0 riflescope is securely attached to your rifle before storing. Ensure reticle illumination is turned off. Cover with the included lens covers. Remove the batteries if the unit will be stored for an extended period of time.

WARNING

Before handling the Sightmark CORE 2.0 riflescope read and understand the contents of your firearm's manual, and the Sightmark manual. Follow all standard safety precautions and procedures during firearm operation, even when the riflescope is not in use.

- Avoid hitting or dropping the unit.
- ALWAYS check that the chamber of your weapon is clear before mounting or dismounting the riflescope.
- The reticle illumination should be tested during periods of non-use to make sure it is still operating properly. Failure to follow standard firearm safety precautions and procedures, as well as the above warnings, is dangerous and may result in serious injury, damage to property, or death.

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SIGHTMARK WARRANTY

Please visit **www.sightmark.com** for warranty details and information.