SIGHT MARK®

USER MANUAL

SIGHT MARK®

PINNACLE

5-30x50

ABOUT SIGHTMARK®

Sightmark offers a wide range of products that include red dot scopes, reflex sights, rangefinders, riflescopes, laser sights, night vision and award-winning flashlights and boresights. Sightmark products are inspired by military and law enforcement applications. All products are designed to be the most effective weapon accessories possible.

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PINNACLE 5-30x50

Engineered for precision long-range shooting out to 1,000 yards and beyond, the first-focal plane Pinnacle 5-30x50TMD Riflescope is ideal for F-class competition shooting and law enforcement applications. Its zero stop elevation dial allows shooters to easily set a stopping point at the chosen sight in range, guaranteeing an instant return to the original zero every time. The 34mm tube maximizes internal adjustment range and offers improved rigidity compared to 30mm and 1-inch tubes – perfect for long-range, high-caliber rifles. Additionally, its large 50mm objective lens maintains a bright, high resolution image, critical for long-range precision.

Precision machined with high-definition optics and premium Japanese glass, the Pinnacle 5-30x50TMD offers a 6x zoom range, permitting the shooter to adjust the power up to 30x; and a crystal clear resolution from edge to edge. The TMD-HW reticle is designed for range estimation and holdovers for bullet drop, crosswind and moving targets. This first-focal plane reticle remains in the same visual proportion to the target across the riflescope's entire magnification range, allowing shooters to rangefind and shoot with holdovers at any magnification effectively.

Its hard anodized finish protects the housing from harsh elements and the matte black finish provides concealment. Its 5 brightness settings deliver unmatched clarity in bright to lowlight conditions. Shooters have the luxury of a capped or exposed turret option as well as scratch-resistant lenses, helping to further protect the optic from impact.

TECHNICAL SPECIFICATIONS	
Reticle type	TMD-HW
Reticle color	Red / Green
Illuminated reticle (yes/no)	Yes
Reticle brightness settings	5
Magnification (x)	5-30
Objective lens diameter (mm)	50
Exit pupil diameter (mm)	8.8-1.7
Eye relief (mm/in)	97-96 / 3.8 - 3.7
Field of view (m @100m)	6.7-1.1
Field of view (ft @100yd)	2.2-3.4
Diopter adjustment (+/-)	+ 2 to -2
Tube diameter (mm/in)	34
Parallax setting (yds)	30 - ∞
Windage adjustment range (MRAD)	18
Elevation adjustment range (MRAD)	26
MRAD adjustment (one click)	.1
Travel per rotation (MRAD)	10
Maximum recoil (G's)	800
Battery type	CR2032
Battery life (hours)	Red: 50-1000 / Green: 30-800
Battery voltage (V)	3
Waterproof/nitrogen filled (yes/no)	Yes
Fog proof (yes/no)	Yes
Focal plane	First
IP Standard (water rating)	IP67 - Submergible to 1m
Lens coatings	Fully Multicoated
Operating temperature (°F)	-20 to 160
Length (mm/in)	357 / 14
Width (mm/in)	92.9 / 3.65
Height (mm/in)	79.9 / 3.14
Weight (oz)	34.5

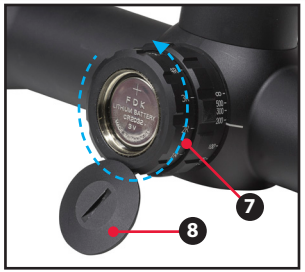
INCLUDED ACCESSORIES
Sunshade
Turret caps (2)
Thread protector (2)
CR2032 Battery
Manual

FEATURES
Premium, high definition optics
Fully multi-coated optics
Zero stop elevation dial
Scratch resistant lenses
Constant eye relief
6:1 Zoom Ratio
First focal plane reticle
Capped or exposed turret option
Red or Green Illuminated reticle
Fast focus eyepiece
Waterproof, fogproof, shockproof
34mm single piece tube
Precision machined
Aircraft grade aluminum
Hard anodized finish

DIAGRAM

1. Objective lens
2. Eyepiece (diopter adjustment)
3. Magnification adjustment ring
4. Elevation adjustment
5. Windage adjustment
6. Side focus dial (parallax adjustment)
7. Illumination dial
8. Battery cap
9. Thread protectors
10. Turret caps

WARNING: Always follow your firearm's instruction manual and warnings. Follow safe firearm practices.



INSTALLING THE BATTERY

The Sightmark Pinnacle 5-30x50 is 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 with a coin or flathead screw driver.
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 Pinnacle 5-30x50 uses an etched reticle. The reticle can be used without illumination and will appear black.

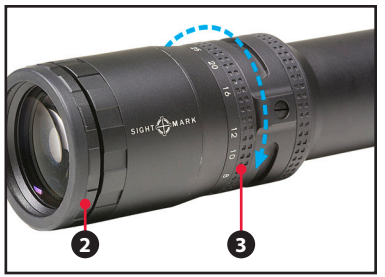
To activate the reticle illumination in red or green:

1. Rotate the illumination dial (7) either clockwise or counterclockwise. The dial is marked with "G" for green or "R" for red followed by the brightness setting ranging from 0 (off) to 5. Setting 5 is best for bright, outdoor environments. Setting 1 is best for low light, indoor environments.
2. Set the dial so the setting indicating desired color and brightness faces the shooter or the white indication mark.
3. To turn off, rotate the dial to the zero setting.

DIOPTER ADJUSTMENT

The Sightmark Pinnacle 5-30x50 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.

TURRET CAPS

The Sightmark Pinnacle 5-30x50 comes with pre-installed turret caps (10) to protect the windage and elevation adjustments from impacts. Also included are two low profile rings (thread protectors) (9),these can be installed instead for an exposed turret style. Install the two thread protectors by screwing them onto the threading where the caps install, rotate until tight. A small amount of blue Loctite® may be applied to the threads prior to install for a semi-permanent fixture and also prevent loosening from vibration.

OPERATING THE WINDAGE AND ELEVATION ADJUSTMENTS

The Sightmark Pinnacle 5-30x50 has finger adjustable elevation and windage adjustments (4, 5) with audible clicks. The Sightmark Pinnacle 5-30x50TMD has 1/10th (.1) MRAD clicks meaning each click moves the point of impact .36" at 100 yards or 1cm at 100 meters. 1 MRAD of movement would require 10 clicks.

In order to make windage and elevation adjustments:

1. Unscrew the dial covers.
2. 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.

OPERATING THE ZERO STOP

The Sightmark Pinnacle 5-30x50 elevation adjustment comes with a pre-installed zero stop mechanism. Zero stop allows shooter's to instantly return the elevation dial to the original zero point quickly without concern of passing below the zero range. The zero stop function includes an internal adjustment ring under the elevation dial. As the dial is rotated to the zero point, the internal ring's stop and the elevation dial's stop will catch preventing the dial from any rotating further. This mechanical function can be removed prior to zeroing the riflescope if so desired.

To adjust the zero stop:

1. Hold the elevation turret firmly in place with your fingers in order to prevent rotation. Use a 1.3mm hex wrench to loosen the 3 hex screws on the turret. Do not remove the screws entirely.
2. Once the 3 hex screws are loosened enough, lift the turret cap straight up and off of the turret being careful not to make any clicks. Now the zero stop ring is exposed.
3. Loosen the hex screw on the zero stop ring until the ring is free to move.
4. At this point, the zero stop ring can be removed or rotated enough to give you enough adjustment range to zero the riflescope during sight in.
5. After zeroing the riflescope, the zero stop ring should be rotated or installed to where the two mechanical stops touch. Hold the zero stop ring in this position and tighten the hex screw. At this point, the elevation dial can be reset to "0".

PARALLAX CORRECTION

The Sightmark Pinnacle 5-30x50 is equipped with a side focus dial that is used to eliminate parallax and finely focus the image. Parallax occurs when the image of the target does not focus at 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 Pinnacle 5-30x50 requires 34mm rings for mounting. For use on AR platforms a cantilever style 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 can be reset to the "0" mark on your elevation and windage dial and the zero stop ring can be set on the elevation turret. ***To do this:***

1. Hold the elevation turret firmly in place with your fingers in order to prevent rotation. Use a 1.3mm hex wrench to loosen the 3 hex screws on the turret. Do not remove the screws entirely.

2. Once the 3 hex screws are loosened enough, lift the turret cap straight up and off of the turret being careful not to make any clicks.
3. If the zero stop was removed prior to zeroing, install the zero stop ring now. If it was not removed, loosen the hex screw on the zero stop ring until the ring is free to move.
4. The zero stop ring should be rotated or installed to where the two mechanical stops touch. Hold the zero stop ring in this position and tighten the hex screw.
5. Re-install the elevation turret cap, so that the "0" mark is aligned with the line indicator on the riflescope. Re-tighten all 3 hex screws. Do not over tighten. The windage adjustment does not have a zero stop, but the dial should be set to "0" as well.

USING THE TMD-HW RETICLE

The Sightmark Pinnacle 5-30x50TMD is equipped with the TMD-HW reticle.
The TMD-HW reticle was designed for long range shooting. The reticle can be used to determine ranges and shot holdovers for wind compensation and moving targets. The vertical and horizontal mil scales are scaled in .5mil increments and can be used for range finding and holdovers. The top and right end of the vertical and horizontal scale are scaled in .2mil increments for precision range estimation. The reticle's drop lines contain a series of reference dots for quick windage holdovers. Finally, the .03 mil crosshair provides an ultra-fine aiming point for precision shooting even at 30x power.

The TMD-HW reticle is based on milliradian (mrad or mil) design. Milliradian is a measurement of angle. A single mil is equal to 3.6" at 100 yards. The adjustments in the Pinnacle 5-30x50TMD are .1mrad, meaning that each click will move the reticle .36" at 100 yards or 1cm at 100 meters. The TMD reticle is a first focal plane reticle. This style of reticle will grow along with the image as magnification is increased. The advantage of a first focal plane reticle is that the dimensions of the reticle will be true at any magnification. Therefore, rangefinding and performing holdovers with the TMD can be done at any point in the magnification range.

Ranging with TMD-HW Reticle

The TMD-HW reticle can be used to range targets at any magnification. To use any of the following formulas, the size of the target must be known.

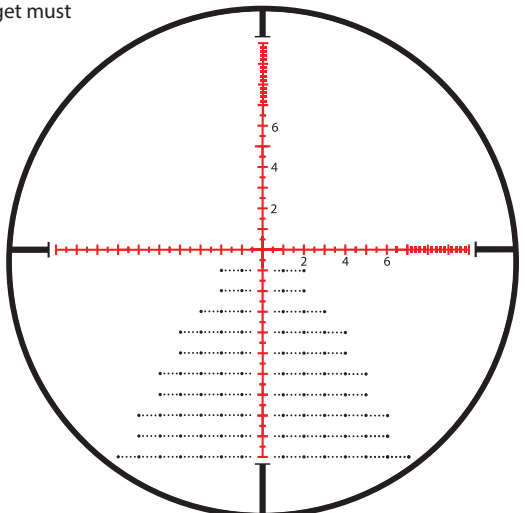
Mil Ranging Formulas:

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

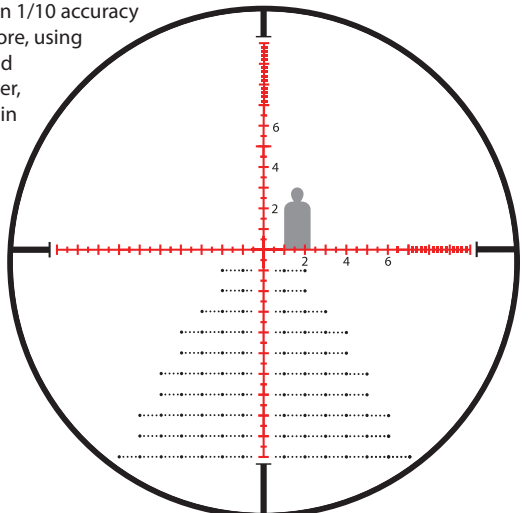
Target Size (cm) x 10 = Range (meters)
Mils Read



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 .2mil increments. The spacing, however, between each .2mil increment can be used to measure in .1mil increments for most accurate range estimations.

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

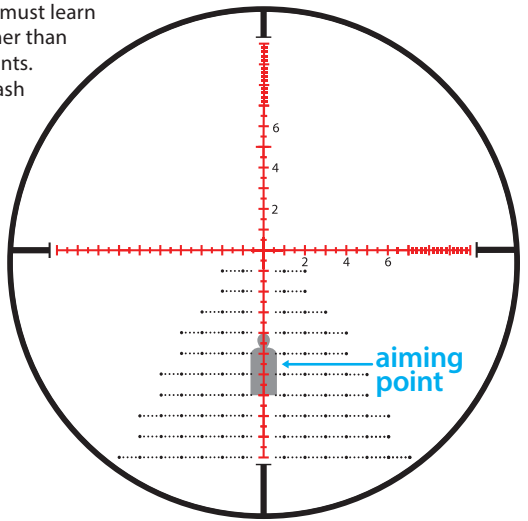
1.25 x 1000 / 3mils = 417 yards



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 scale is marked in .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.



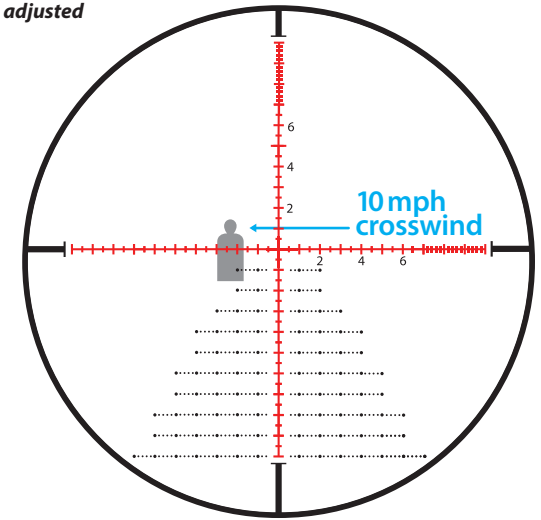
Windage Holdovers and Target Leads

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. 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 and 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.

There are two methods for using a windage holdover. First, prior to setting the reticle for a windage holdover the distance to 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 ballistics 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.

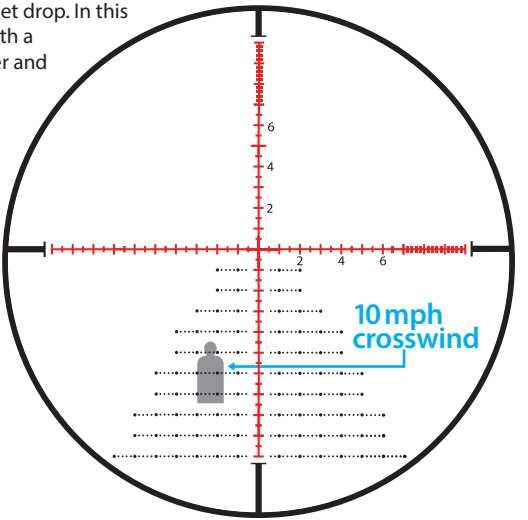
Windage Holdovers and Target Leads (cont.)

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.



The second method for windage holdover is to use the reference dots and the drop lines instead of adjusting the elevation dial for bullet drop. In this method an elevation holdover is used in conjunction with a windage holdover. For some, this method can be quicker and requires less movement if shooting in concealment.

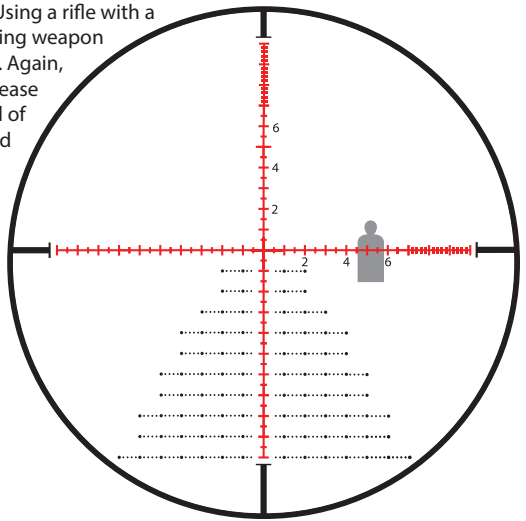
In this example, a 700 yard windage holdover (2.3 mrad) is used for a 10 mph crosswind. Also an elevation holdover of 5.8 mrad is used.



Windage Holdovers and Target Leads (cont.)

Determining a target lead requires knowing target speed, target distance, wind speed, and bullet flight time to target's distance. Using a rifle with a low lock time will minimize room for error. Also, correcting weapon cant is a critical step to ensure accuracy for target leads. Again, it is recommended to utilize a ballistic calculator to increase your shooting effectiveness. Finally, mastering this level of marksmanship takes experience. It is also recommended to further your knowledge and study ballistics manuals and shooting guides.

In this example, a target lead of 5.2 mrad is used on a target moving 8 mph at 600 yards. No crosswinds are present. For simplicity, the elevation dial was adjusted 4.4 mrad to compensate for bullet drop.



MAINTENANCE

Proper maintenance of the Sightmark Pinnacle 5-30x50TMD 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 Pinnacle 5-30x50TMD is securely attached to your rifle before storing, and be sure that the 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 Pinnacle 5-30x50TMD 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 reflex sight 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 rifle scope.
- 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.

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 with a coin or flathead screw driver so the cap is fully seated.

SIGHTMARK WARRANTY

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

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