

S I G H T  M A R K [®]

USER MANUAL



PINNACLE
1-6x24

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.

SIGHTMARK® - MAKE YOUR MARK®

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PINNACLE

1-6x24

Designed in the U.S.A. and manufactured in Japan, the Pinnacle™ 1-6x24 Riflescope Series delivers unparalleled optical superiority for every shooting application. Engineered with Sightmark's Triple Duty™ concept, the 1-6x24TMD features a Tactical Mil-Dash reticle for precision rangefinding and quick target acquisition in competition, tactical or hunting scenarios. The 1-6x24AAC yields an advanced ballistically-matched CDC-300 reticle for subsonic and supersonic 300 Blackout with holdovers from 100-800 yards. Both models have a first-focal plane reticle, which remains in the same visual proportion to the target across the riflescope's entire magnification range. The true 1x provides both-eyes-open usage for increased situational awareness at close range, while the 6x optical system hones in on far-away targets with ease. Precision-machined with high definition optics and premium Japanese glass, the Pinnacle scopes offer crystal clear resolution from edge to edge, free from distortions at any magnification.

SM13028TMD**SM13028AAC****INCLUDED:**

Reticle type	TMD	CDC-300
Reticle color	Red/green	Red/green
Reticle brightness settings	5	5
Magnification	1-6x	1-6x
Objective lens diameter	24mm	24mm
Eye relief	103-103mm	103-103mm
Field of view (m@100m)	29.7-5.2	29.7-5.2
Diopter adjustment	+3.5~-3.5	+3.5~-3.5
Parallax settings	100yds	100yds
Windage/elevation max.	40 MRAD	144 MOA
MOA adjustment (1 click)	.1 MRAD	1/2 MOA
IP Standard	IP67-submergible to 1m	IP67-submergible to 1m
Body material	aluminum-6061	aluminum-6061
Lens coatings	fully multi-coated AR green	fully multi-coated AR green
Battery type/life	CR2032/50-900hrs	CR2032/50-900hrs
Operating temperature	-20 to 160°F	-20 to 160°F
Dimensions	260x73.5x56mm	260x73.5x56mm
Weight	20.4oz	20.4oz

- 300 AAC Blackout 125gr and 220gr BDC dials
*SM13028AAC only
- 5.56x45 55gr and 7.62x51 180gr BDC dials
*SM13028TMD only
- (2) Turret caps
- (2) Thread protectors
- CR2032 battery

DIAGRAM

1. Diopter Adjustment
2. Magnification Adjustment Ring
3. Illumination Dial
4. Elevation Adjustment
5. Windage Adjustment
6. Objective Lens
7. Thread Protector
8. Turret Caps
9. BDC Dials



BATTERY INSTALLATION

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

The Sightmark Pinnacle 1-6x24 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 on the illumination dial (3) counterclockwise with a coin or flathead screwdriver.
2. Insert the new battery with the positive (+) side facing up.
3. Screw the battery cap on the clockwise until firmly secure. Do not over tighten.

ILLUMINATION CONTROL

The Sightmark Pinnacle 1-6x24 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 (3) 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 1-6x24 eyepiece (1) is designed to rotate to adjust for diopter. The diopter is the measurement of the eye's curvature. People's eyes are all curved differently. 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 rifle's operator changes.



TURRET CAPS

The Sightmark Pinnacle 1-6x24 comes with pre-installed turret caps (8) to protect the windage and elevation adjustments from impact. Also included are two low profile rings, thread protectors (7), that 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 1-6x24 has finger adjustable elevation and windage adjustments (4,5) with audible clicks. The Sightmark Pinnacle 1-6x24TMD 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. The Sightmark Pinnacle 1-6x24AAC has 1/2 MOA clicks meaning each click moves the point of impact .5" at 100 yards. 1 MOA movement would require 2 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 point-of-impact as indicated by the "UP" and "R" (right) arrows marked on the adjustments.

VARIABLE POWER ADJUSTMENT

To change magnification, turn the magnification ring (2) to the desired level of power.

MOUNTING

WARNING: Always follow your firearm's instruction manual and warnings. Follow safe firearm practices. Make sure your weapon is unloaded before mounting the riflescope. The Sightmark Pinnacle 1-6x24 requires 30mm rings for mounting. It is recommended a cantilever style mount be used for use on AR platforms. Mount the scope rings per the



manufacturer's instructions. Do not perform a final tightening of the rings prior to checking 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 and as slowly as you can 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 overtighten.

BDC ADJUSTMENT DIALS

The Sightmark Pinnacle 1-6x24TMD includes two BDC dials (9) that are ballistic matched for 5.56x45 55gr and 7.62x51 180gr. Dials for 5.56x45 62gr and 7.62x51 175gr may be purchased separately. The Sightmark Pinnacle 1-6x24AAC includes two BDC dials that are ballistic matched for 300 Blackout 125gr and 220gr. One of the BDC dials will come pre-installed. Dials for 5.56x45 and 7.62x51 are designed for a 200 yard zero. The dial for the 300 Blackout 125gr is designed for a 100 yard zero and the 220gr dial is designed for a 50 yard zero.

Prior to sighting in the riflescope it is recommended to install the desired BDC dial. To do this:

1. Use a 1.3mm hex wrench to loosen the 3 hex screws on the turret.
2. Once the 3 hex screws are loosened enough, carefully lift the turret cap straight up and off of the turret.
3. Re-install the 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.



BORESIGHTING & SIGHTING IN

Boresighting and test firing should be performed safely on a firing range. **WARNING:** Always follow your firearm's instruction manual and warnings. Follow safe firearm practices. Laser boresights are a quick and accurate method for sighting in. Below is listed the traditional method of boresighting.

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 at 100 yards preferably using the same ammo manufacturer, grain, and lot number.
4. After firing a group use the center of this grouping and make the necessary amount of adjustments to move your firearm's grouping to the center of the target.
5. Again fire a three-shot test group to confirm the adjustments. Use the center of the new group to determine final adjustments.

Once 100 yard sight-in is complete, the turret can be reset to the "100" yard mark on your BDC elevation dial. The windage adjustments should be reset to zero. To do this:

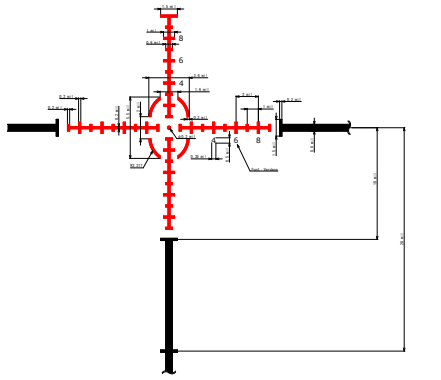
1. Hold the elevation turret firmly in place with your fingers in order to prevent rotation. Use a 1.3mm hex wrench to loosen the hex screws on the turret.
2. Once the hex screws are loosened enough, carefully lift the turret cap straight up and off of the turret.
3. Re-install the elevation turret cap, so that the "100" mark is aligned with the line indicator on the riflescope. Re-tighten all 3 hex screws. Do not over tighten. Repeat these steps for the windage adjustment, but align the "0" mark with the line indicator on the riflescope.

The 200 yard zero should then be accurate, but should be confirmed by test firing on a 200 yard range because some fine adjustments may be needed to elevation and windage.

USING THE TMD RETICLE

The Sightmark Pinnacle 1-6x24TMD is equipped with the TMD reticle. The TMD reticle was designed for close range and long range shooting. At 1x, the black subtensions will lead the shooter's eye to the center of the reticle. When illuminated the central oval will enhance quick target acquisition as well. The vertical and horizontal mil scales can be used for range finding and holdovers. At high magnification, the .3 mil central aiming dot is precise for long range engagements.

The TMD 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 1-6x24TMD are .1mrad, meaning that each click will move the reticle .36" at 100 yards or 1 cm 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 handovers with the TMD can be done at any point in the magnification range.



RANGING WITH TMD RETICLE

The TMD 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

$$\frac{\text{Target Size (yards)} \times 1000}{\text{Mils Read}} = \text{Range (yards)}$$

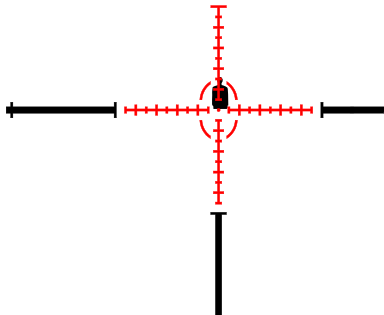
$$\frac{\text{Target Size (inches)} \times 27.8}{\text{Mils Read}} = \text{Range (yards)}$$

$$\frac{\text{Target Size (meters)} \times 1000}{\text{Mils Read}} = \text{Range (meters)}$$

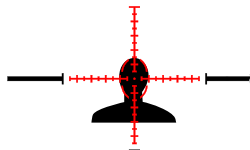
$$\frac{\text{Target Size (cm)} \times 10}{\text{Mils Read}} = \text{Range (meters)}$$

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. For example in the image below a silhouette target is 1.25 yards tall and reads 3 mils tall.

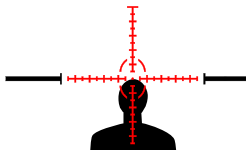
$$1.25 \times 1000 / 3 \text{ mils} = 417 \text{ yards}$$



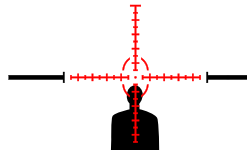
The central oval for the TMD reticle can be used as a quick reference to range a silhouette target for 50, 100, and 200 yards. At 50 yards the head portion of a silhouette target will fill the full height of the central oval. At 100 yards half the height of the central oval will be filled and at 200 yards a quarter of the central oval will be filled.



50 yards



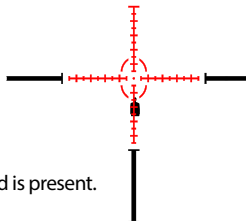
100 yards



200 yards

ELEVATION HOLDOVERS

The vertical mil scale can be used for holdovers to compensate for bullet drop. First, find the range to the target by using the mil scale or a laser rangefinder. Next the shooter must learn their caliber's specific bullet drop numbers in mils rather than MOA. The vertical mil scale is marked in 1 mil increments. Once the shooter knows the bullet drop, the correct hashmark can be used for holdover.



In this example, a 600 yard holdover is used. No wind is present.

WINDAGE HOLDOVERS

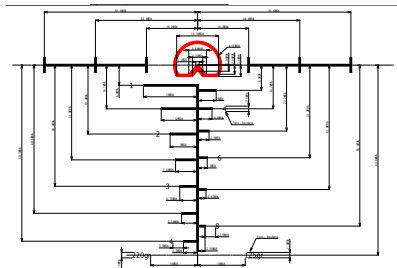
To master windage holdover it is recommended to study your weapon's ballistic performance under varying wind and environmental conditions. It is also recommended to learn your caliber's specific bullet drop and windage holdovers in mils rather than MOA. Finally remember with windage holdovers to always hold the reticle into the wind.

The horizontal mils scale is marked in 1 mil increments. Prior to windage holdovers, bullet drop should be compensated by adjusting the elevation dial so that the horizontal crosshair is used. Next, the correct amount of mil should be determined for the present wind speed. For experienced and well-trained shooters, the horizontal scale can also be used for holdover on moving targets.

USING THE CDC-300 RETICLE (SM13028AAC)

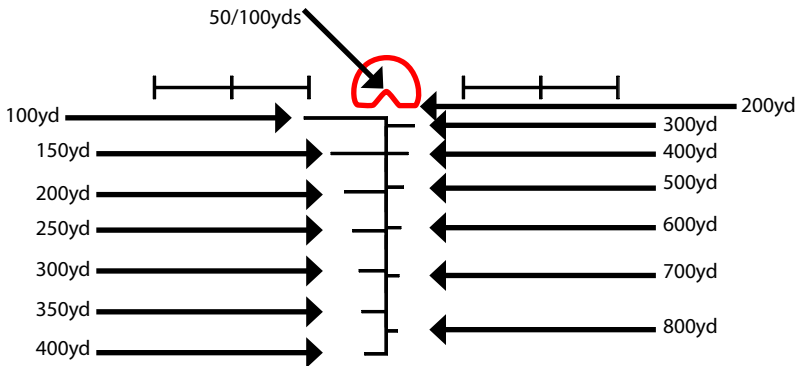
The Sightmark Pinnacle 1-6x24AAC is equipped with the CDC-300 reticle. The CDC-300 reticle was designed for both subsonic and supersonic 300 Blackout for use at close and long range. At 1x, the 15 MOA outer circle of the circle dot chevron design is easy to pick up when illuminated providing quick target acquisition similar to a red dot. At high magnification, the 1 MOA tip of the chevron is precise for long range engagements. The remaining horizontal lines below provide holdover and rangefinding capability from 100 to 800 yards.

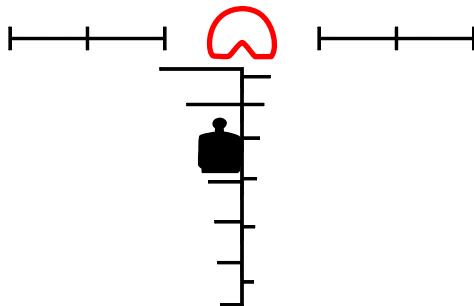
The CDC-300 is based on MOA design. The CDC-300 reticle is a first focal plane reticle. This style of reticle will grow along with the image as magnification is increased. The advantage of a first focal plane reticle is that the dimensions of the reticle will be true at any magnification. Therefore, rangefinding and performing holdovers with the TMD can be done at any point in the magnification range. The CDC-300 is intended to use a 50 yard zero for 220 grain subsonic ammunition, and a 100 yard zero for 125 grain supersonic ammunition.



RANGING WITH THE CDC-300 RETICLE

Ranging with the CDC-300 reticle is simple by matching a horizontal subtension to the shoulder width of a target. For example, by matching the shoulder width of a silhouette target at the number "4" mark the target is approximately 400 yards away. Each single digit number corresponds to its yardage mark, 4 - 400yds, 5 - 500yds, etc. Note that a 50 yard zero is intended for 220 grain ammo and thus holdovers are designed in 50 yard increments out to 400 yards. The same horizontal mark corresponds to the holdover reference for bullet drop compensation with 220 grain holdovers located on the left side and 125 grain holdovers located on the right side of the reticle. For shot placement, aim with the intersection of the vertical subtension and the target's corresponding range mark.





Example: Silhouette target matches 200 yard mark. Aiming point is marked.

MAINTENANCE

Proper maintenance of the Sightmark Pinnacle 1-6x24 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 is securely attached to your rifle before storing, and be sure that the unit is turned off. Remove the batteries if the unit will be stored for an extended period of time.

WARNING

Before handling the Sightmark Pinnacle 1-6x24, read and understand the contents of your firearm's manual and the Sightmark Pinnacle 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 sight.
- 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

Never ship back a product without getting proper authorization beforehand. Doing so could result in losing the

product due to a multitude of reasons, i.e. sending it to the wrong address and other problems associated with unexpected packages.

If the riflescope does not hold zero:

1. Verify the sight is mounted securely to the rifle. If the sight can be shifted in any direction, retighten the hex nuts according to the mounting instructions but do not overtighten. The sight will need to be re-zeroed afterwards.
2. Be sure to use factory-loaded ammunition of the same bullet type, weight and preferably lot number when sighting in.

The reticle does not illuminate:

1. Check that the battery is working. Also, check the polarity of the battery.
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. Decrease the brightness level of the reticle. The halo or fuzzy appearance is caused by excess illumination than is required for the current environment the sight is being used in.

The reticle illumination turns off while firing:

1. Tighten the battery cap with a coin or flathead screwdriver so the cap is fully seated.

SIGHTMARK LIMITED LIFETIME WARRANTY

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



www.sightmark.com