



SAI™ 6

1-6 X 24MM FIRST FOCAL PLANE RIFLE TELESCOPE



WARNING

Failure to follow the instructions outlined in this manual could result in the damage or destruction of the optic, its accessories, and/or bodily injury to the user.

WARNING

Under no circumstances should you look through the optic directly at the sun, laser light devices, or any other bright illumination source. Doing so could result in severe and/or permanent eye damage.

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Chapter 1

GENERAL DESCRIPTION & SPECIFICATIONS

1.1 Description

The **SAI Optics model SAI 6™ 1-6x24mm Rifle Telescope** (Fig. 1a) is a variable power telescopic rifle sight that incorporates ballistic and environmental corrections by means of a ballistically calibrated reticle.

The reticle is situated in the first focal plane, allowing reticle subtensions to remain constant over all magnification ranges.

The rifle telescope consists of a single-piece main tube that encloses the optical components. All mechanical adjustments of the sight are controlled by the elevation and windage mechanisms at the top and right side of the tube. Reticle illumination is controlled by the dial on the left side of the telescope tube. Magnification may be adjusted by the fluted ring forward of the eyepiece and diopter settings may be made at the rear of the eyepiece.

The device incorporates a 24mm objective lens and 38mm eyepiece, which provide excellent image quality in low light levels. It also provides for rapid target acquisition and identification at short, intermediate, and long ranges. The sight incorporates an LED for reticle illumination under low light conditions. The reticle consists of a cross hair with Rapid Aiming Feature™, ballistic compensation, and auxiliary stadia lines and dots to assist in shooting at various ranges. The vertical Subtention Optical Rangefinder (VSOR) allows the user to accurately estimate range.

1.1 General Description continued

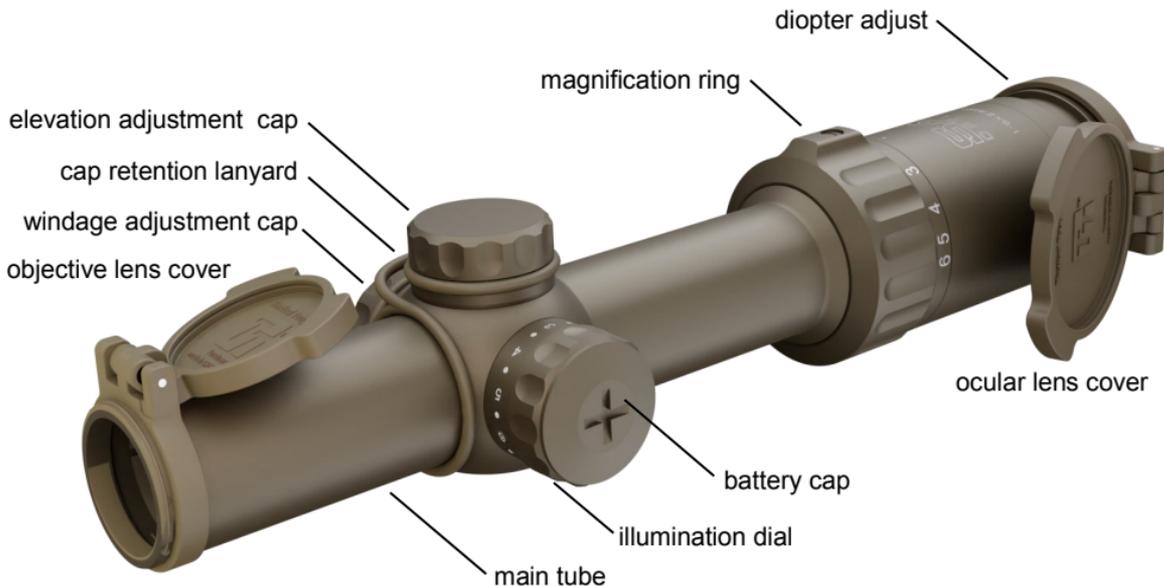


Fig. 1a Overall view with component terminology

1.2 Model SAI™ 6 Technical Specifications*

Magnification	1x-6x
Length	256mm (10.07in)
Width	67mm (2.64in)
Height	53mm (2.09in)
Weight	510g (18.0 oz)
Tube diameter.....	30mm
Objective lens diameter.....	24mm
Eyepiece diameter.....	46mm (1.81in)
Field of View @ 1x	22 degrees (38.8m @ 100m)
Field of View @ 6x	3.7 degrees (6.5m @ 100m)
Diopter range	-3 to +3
Eye relief	90mm (3.54 in) nominal
Exit pupil @ 1x	9.5mm
Exit pupil @ 6x	4.0mm
Re-zero mechanism	Finger adjustable

* specifications subject to change. Current specifications available at www.armament.com

1.2 Technical Specifications*, continued

Internal Adjustment Range

Elevation	35mrad (120 MoA)
Windage	35mrad (120 MoA)
Adjustment resolution	0.1mrad
Adjustment direction	Counter-clockwise up, counter-clockwise right
Fixed focus range.....	110m
Crosshair illumination	LED, red, 10 settings
Battery type	CR2032 3v lithium
Exterior finish	Type II Anodized, matte flat dark earth
Environmental	
Storage temperature	-51C - +85C
Operating temperature ...	-40C - +65C
Waterproof:	2 hour @ 3 meters
Shockproof	1000g's @ 10,000 cycles
Standard accessories	Tenebraex® Tactical Tough® lens covers Tenebraex® KillFlash® Anti-Reflection Device Adjustment Cap retaining lanyard Battery removal disc

* specifications subject to change. Current specifications available at www.armament.com

1.3 Notes on Mounting:

- 1) Before mounting any telescope, be sure the firearm is unloaded!**
- 2) SAI Optics recommends that only high quality rings and bases made from steel or aluminum be used to mount the scope to a rifle and that all manufacturers' instructions should be followed.
- 3) In general, most lever-type quick-detachable rings employing vertical shafts do not retain zero as well as rings that utilize horizontal cross bolts to apply clamping force. Solid rings or ring mounts with cross bolts and hex nuts are recommended.
- 4) Ring cap screws should not be tightened beyond 15 inch-pounds torque.**

CAUTION

Painting or otherwise modifying your SAI™ 6 rifle telescope may jeopardize the ability to disassemble the optic and may therefore void the warranty.

WARNING

When mounting the rifle telescope, be sure to allow for sufficient eye relief.

Mounting the rifle telescope with insufficient eye relief can result in serious bodily harm. Be sure the rear lens of the telescope is a minimum 90mm (3.54 inches) from your eye when the rifle buttstock is held firmly to your shoulder in the prone shooting position. Be aware that wearing light-weight clothing or shooting at elevated targets can significantly reduce eye relief.

Heavy-recoiling rifles, such as those with large or 'magnum' calibers, or those that are especially light in weight pose additional risk. Consult a qualified gunsmith to assist with mounting.

Chapter 2

OPERATION

WARNING

Before your telescope is been mounted on a firearm, be careful to ensure the firearm is unloaded and pointed in a safe direction. Check once again to see that your firearm is unloaded before making setup adjustments to the telescope.

2.1 Adjusting the Diopter:

The diopter adjustment allows the user to adjust the focus of the eyepiece to the individual's eye. To perform this operation, follow these steps:

- 1) **Be sure your firearm is unloaded!** Turn the zoom setting clockwise to the highest magnification (this is described in Section 2.2).
- 2) Look through the telescope toward a plain background. A blank painted wall or a clear spot in the sky (not at the sun!) are usually good choices. The purpose is to find a background without features that might otherwise distract your view of the reticle. **Be sure the background you choose is in a safe direction to be aiming a firearm; even one that is unloaded!**
- 3) While viewing through the telescope at the plain background, adjust the ocular by rotating it clockwise and counter-clockwise until you find a setting whereby the reticle is clearly in focus to your eye (Fig. 2a).
- 4) Now rest your eyes by looking away for a few moments. Look back again through the ocular to be sure the reticle is still crisp and clear from edge to edge. The diopter is now set, and the reticle is in focus with your eye.

2.1 Adjusting the Diopter, continued:



Fig. 2a Adjustment of the diopter setting. The diopter adjustment is made by rotating the ocular.

2.2 Adjusting Magnification:

Grasp the magnification ring and rotate to the desired level of magnification.



Fig. 2b Increase magnification by turning the ring clockwise. Decrease by turning counter-clockwise.

Note: As the magnification increases or decreases the reticle will appear to become thicker or thinner, this is a result of the reticle being in the first focal plane. The reticle does not actually become any thicker or thinner but it maintains its angular subtension relative to the image so that ranging and trajectory compensation using the reticle can be done anywhere along the magnification range.

2.3 Reticle Illumination Function:

To turn on and adjust the reticle illumination, rotate the illumination dial clockwise and select one of the nine intensity settings. The illumination is easiest to observe at high magnification. There will be a tactile detent at each of the illumination settings as well as an additional detent between each setting. The illumination is designed to shut off at the detent between each of the intensity settings. Note that the highest illumination settings are designed for use at 1x magnification and may cause illumination bleed into other reticle features when observed at higher magnification. To reduce this effect, use a lower illumination setting when at high magnification.

To turn off the illumination close to any desired setting, rotate the dial counter-clockwise one 'click' to rest in the detent between numbered settings. To turn the illumination off without 'saving' a setting, rotate the dial counter-clockwise until the dial hits the stop.

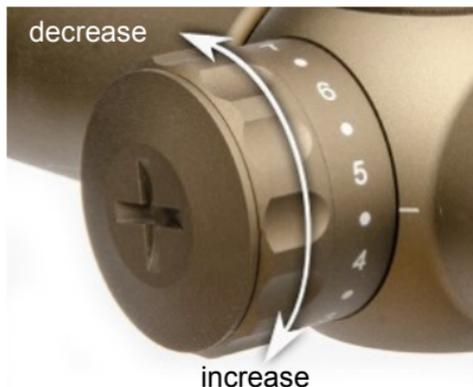


Fig. 2c Adjusting illumination intensity.

2.4 Removing the Elevation and Windage Caps:

The Elevation and Windage adjustment caps are retained by a rubber lanyard. The purpose of this lanyard is to prevent the adjustment caps from becoming lost in the field during zeroing procedures or should they inadvertently loosen off. The lanyard is designed to slip in the mating groove in the adjustment cap as the cap is loosened or tightened. **It is not necessary nor desirable to remove the rubber lanyard from the caps while removing or replacing the caps.**



Fig. 2d Elevation and Windage adjustment caps with retaining lanyard.



Fig. 2e Elevation and Windage adjustment caps removed to make zeroing adjustments.

2.5 Operating the Elevation and Windage Dials, continued

The Elevation and Windage adjustment mechanisms are used to bring the center of the reticle into coincidence with the trajectory of the projectile at the 'zero' range. Once the telescope is zeroed, the reticle is used to compensate for ballistic drop as well as wind and other environmental conditions.

The Elevation and Windage dials are calibrated with 0.1 milliradian clicks, and may be turned by gripping the actuator with your fingertips.



Fig. 2f Elevation zero mechanism.



Fig. 2g Windage zero mechanism.

2.6 Zeroing the Telescope:

The process of zeroing is to adjust the telescope such that the point of aim is coincidental with the point of impact at a chosen distance. The SAI™ 6 incorporates a ballistic reticle that is designed to be zeroed at 100 meters.

The SAI™ 6 is shipped optically centered; meaning that 'out of the box' the elevation dials are adjusted to the middle of their adjustment range. This way, the user has equal elevation and windage travel to aid in zeroing the optic.

To zero the rifle telescope follow these steps:

- 1) **Set the magnification to the highest range.**
- 2) **Establish a bore sight if you are able.** The most expeditious way to zero the telescope is to get a rough zero by bore-sighting the telescope to the rifle. This may be done in one of the following ways:
 - A) Use a barrel-mounted collimator: The barrel-mounted collimator or 'bore sighting collimator' mounts in the bore of the rifle at the muzzle and provides a crosshair target for the rifle telescope to focus on. The user may then adjust the Elevation and Windage dials of the rifle telescope to line up the rifle telescope's reticle with the reticle of the collimator. **Be sure to remove the barrel collimator before firing!**

Alternatively;

2.6 Zeroing the Telescope, continued

- B) Sight directly through the bore to establish a bore sight: If, after removal of the bolt, you are able to see clearly through the bore from the breech end, set the rifle in a stable rest, aimed at the target. While looking through the bore, position the rifle such that the target is centered in the view through the bore. Holding the rifle steady in that position, lift your head and look through the rifle telescope. Adjust the Elevation and Windage dials to bring the crosshairs to be coincidental with the center of the aiming mark.
- 3) **Fire a group:** From a steady rest, fire a three-round group at the target placed at your desired zeroing distance. Use a fairly precise aiming mark that will assist you in keeping consistent aim, and use a rigid rest for the stock of the rifle in an effort to shoot the smallest group possible. Once the initial group is fired, measure (or estimate using your reticle) the horizontal and vertical distances from the center of the group to the center of the aiming mark.
- 4) **Adjust the Elevation and Windage dials:** Adjust the Elevation and Windage dials to bring the point of aim to be coincidental with the center of the group. You may wish to fire additional groups to be sure you are satisfied that the group is centered about the aiming mark.
- 5) **Reset the dials to zero using a screwdriver or pointed tool:** Follow the procedures described in **Section 2.7** to reset your Elevation and Windage dials to read zero.

2.7 Resetting 'Zero' on the adjustment mechanisms:

This procedure, done after scope-to-rifle zeroing procedure is complete, allows the user to adjust the reading of the adjustment mechanisms without changing the point of aim of the telescope; commonly called 're-zeroing'.

Insert the tip of a small screwdriver, knife point, or other instrument, into the small gap in the calibrated plate. slowly rotate the calibrated plate until the 'zero' mark is precisely lined up with the reference arrow on the outer ring of the adjustment mechanism.



Fig. 2h Use a small screwdriver or knife point to re-zero Elevation and Windage adjustment dials.

2.8 Changing the Battery:

SAI™ 6 rifle telescopes use one CR2032 battery to provide reticle illumination. Upon shipment, the telescope will have had a fresh CR2032 battery installed.

To check battery function, turn the telescope to the highest magnification setting and turn the illumination setting to its '5' setting .

Should you require to change the battery, follow the procedure below. Before proceeding with this step, have a fresh CR2032 battery handy.

- 1) Remove the battery cover: Insert the plastic battery cover disk included with your scope into the slot in the battery cover and turn counter-clockwise until the cover can be removed to expose the battery. If the battery cover tool is not at hand, a coin may be used, but be careful not to mar the edges of the slot (Figs. 2i, 2j).
- 2) Remove the battery from the spring loaded battery cage. Because the battery is held snugly, you will probably need to use a pointed tool, such as the tip of a knife to assist the battery removal. To do this, place the tip of the tool between the edge of the battery and the orange tensioning ring and gently pry the battery loose. Take care not to cut the tensioning ring with the pointed tool (Fig. 2k).
- 3) Replace the old battery with the fresh CR2032 battery with the positive (+) side facing outward.
- 4) Replace the battery cover and rotate clockwise until snug, using the same tool and slot you used to loosen the cover.

2.8 Changing the Battery, continued



Fig. 2i Removing and installing the battery cap with the use of the supplied battery tool. This may also be done with a coin. To avoid damage, use the slot that best fits the thickness of the disk or coin.

2.8 Changing the Battery, continued



Fig. 2j View of battery cap removed. Note battery is positioned with positive (+) side out.

2.8 Changing the Battery, continued



Fig. 2k Place the tip of a pointed tool **between** the battery edge and the tensioning ring to gently pry the battery out. Be careful not to cut the tensioning ring.

2.9 Lens Covers and Anti-Reflection Device:

The Objective and Ocular Lens covers are attached by pressing them over the corresponding lip at each end of the telescope body. In use, they may be rotated to the radial position most convenient to the user. When open, the covers can be folded nearly flat back along the tube so as to minimize occlusion of the users surrounding field of view. The Tenebraex® KillFlash® Anti-Reflection Device (ARD) threads into the front of the objective housing and prevents reflected glare from being seen by others. The KillFlash® ARD also acts as a sun shade, but also reduces the light transmission by a small percentage, so it should be only used when needed. At 1x magnification it is normal to see the faint image of the honeycomb cells within the field of view. The flip cover may be installed on the front of the KillFlash® ARD.



Fig. 2l Rotate the lens covers to any convenient position.



Fig. 2m Tenebraex® KillFlash® ARD (Anti-Reflection Device)

2.10 Rapid Aiming Feature™ Reticle

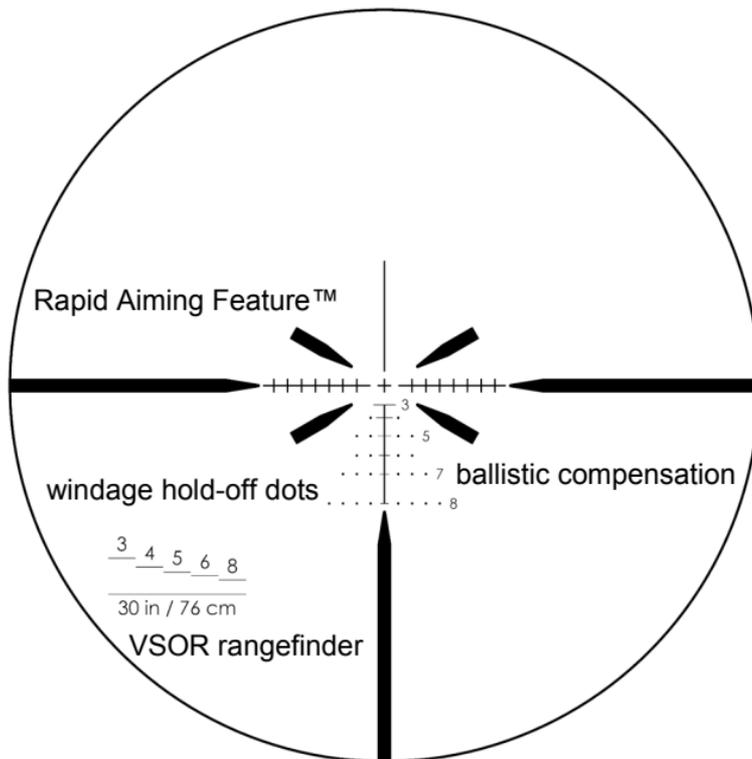


Fig. 2n The SAI™ 6 reticle incorporates the proprietary Rapid Aiming Feature™, ballistic compensation (100m increments, caliber / model specific), windage hold-off reference dots and VSOR rangefinder.

2.10 Rapid Aiming Feature™ Reticle continued

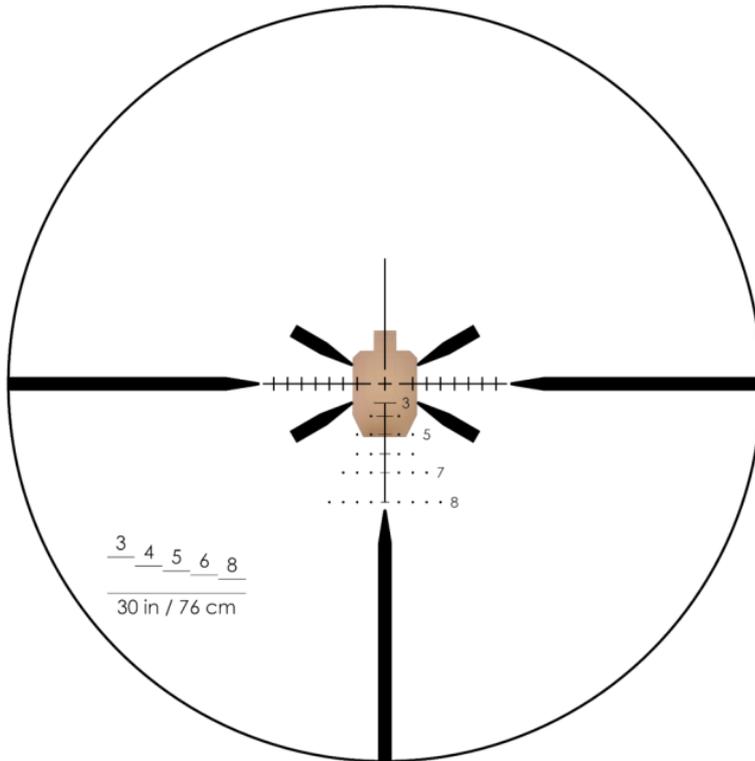


Fig. 20 The Rapid Aiming Feature brackets an 18 inch wide target at 100 meters, and provides a bold visual feature that intuitively directs the eye to the center without disrupting fine aiming or hold-over features at any range to target.

2.11 Vertical Subtension Optical Rangefinder (VSOR)

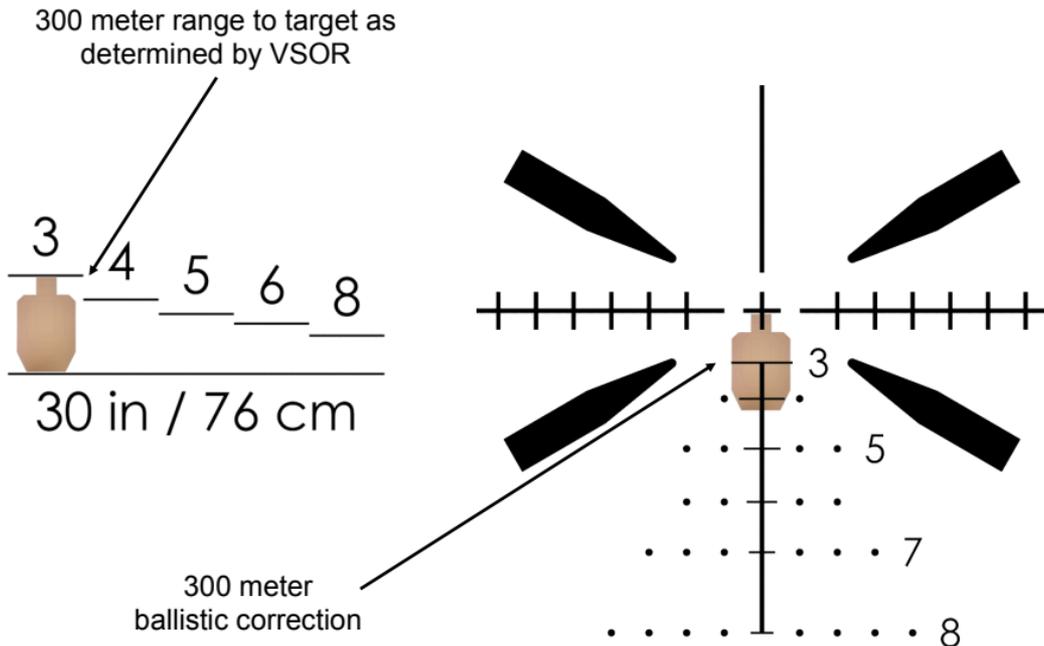


Fig. 2p The Vertical Subtension Optical Rangefinder (VSOR) brackets a 30in (76 cm) vertical distance at various ranges. The appropriate hold-over stadia is then used to engage the target. This example shows a target at 300m.

2.11 Vertical Subtension Optical Rangefinder (VSOR) continued

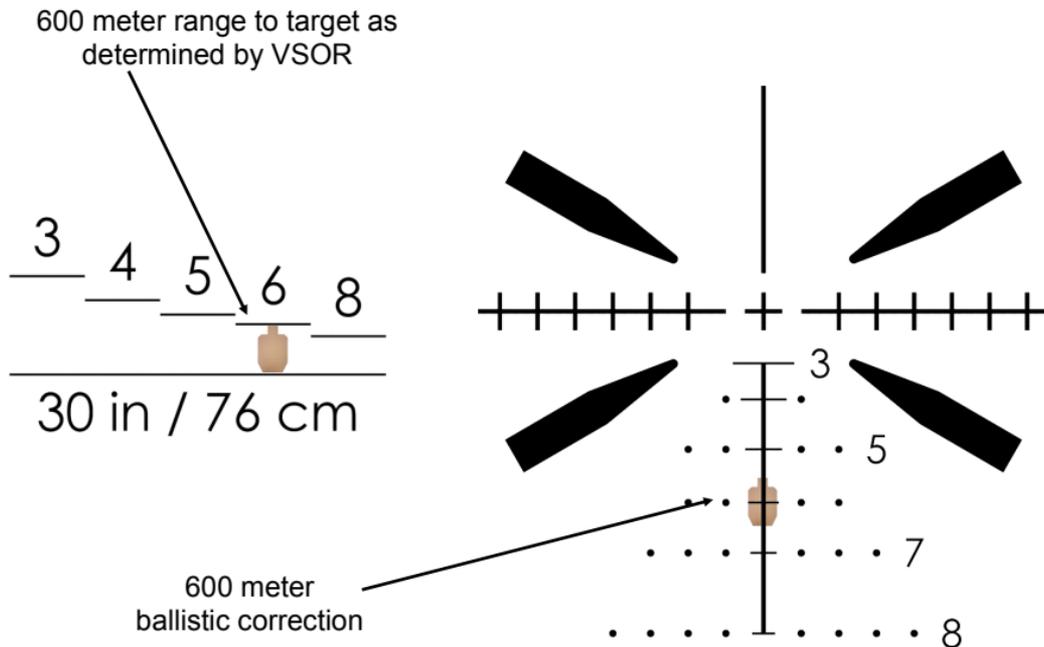


Fig. 2q In this example, the VSOR indicates that the target is at 600m. The 600m hold-over stadia is then used to engage the target.

Chapter 3

MAINTENANCE

Maintaining the rifle telescope: The SAI™ 6 is designed to be a very durable optic built to withstand harsh use, however this does not mean that it is completely maintenance free. Follow the steps below to ensure your instrument will stay in good working order.

3.1 General Maintenance:

- 1) Inspect the main tube for dents, scrapes, and/or gouges that could affect the function of the scope.
- 2) Wipe the main tube down with a soft, lint-free cloth.

3.2 Moving Parts:

- 1) Ensure the fit, form, and function of all moving parts by working them several times to look for any apparent problems.
- 2) Use a soft bristle brush to remove dust and other debris from moving parts.

3.3 Lenses:

- 1) Inspect lenses for scratches or nicks to the lens surface.
- 2) Use a soft bristle, optics-quality lens brush to remove dirt and large particles from the lens surface.

3.3 Maintenance continued..

- 3) Use a Lens Pen or optics-quality lens cleaning solution in addition to quality lens paper to clean the lens surface by using a spiral motion beginning at the center of the lens and moving outward toward the edge of the glass.
- 4) Remove any residue or streaks from the lens surface using the Lens Pen or a clean piece of lens paper.

3.4 Lens Covers

- 1) Inspect the objective and ocular covers for damaged or missing parts.
- 2) If excessively dirty, remove the objective and ocular covers and wash with warm soapy water.
- 3) Rinse with clean water and allow to air dry.

3.5 Anti-Reflection Device (ARD) if equipped

- 1) Remove the ARD from the optic and inspect the honeycomb structure for dirt or other foreign matter.
- 2) Blow through the honeycomb to remove any loose dirt or foreign matter.
- 3) If necessary, run plain water through the device to clear any debris.
- 4) Tap the ARD housing lightly on a sound object to clear any excess water. Blow through the honeycomb structure to dry.

Chapter 4

WARRANTY SERVICE

SAI™ 6 rifle telescopes are manufactured for SAI Optics, a brand of Armament Technology Incorporated who also administers warranty service.

For service requirements, all inquiries must be directed to:

Armament Technology Incorporated
support@armament.com
1-888-670-6384

Do not send your telescope in for service until you have made arrangements and have received instruction from our support personnel.

Armament Technology Incorporated will not take responsibility for telescopes that are returned without the proper Return Material Authorization (RMA) arrangements made in advance.



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