



Operator Manual for the
4x32 BROWE Sport Optic (BSO)



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WARNING SUMMARY

This section contains general safety warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in serious injury or death.

Warning: Before installing the 4x32 BSO, ensure the weapon is CLEAR. Start by pointing the muzzle in a designated SAFE DIRECTION. Place the selector lever on SAFE. Visually inspect the receiver and chamber to ensure these areas contain no ammunition, failure to do so may result in injury or death.

INTRODUCTION

4x32 BROWE Sport Optic (BSO)

The BROWE SPORT Optic (BSO) is based on the idea of putting high quality optical components found in the BROWE Combat Optic in to a simple, but rugged 34mm design housing.

The BSO is a purpose designed and built optic ideal for AR style rifles and well suited for sportsmen, police, and military. It's designed and built from high quality precision grade materials and features a billet aluminum housing, SCHOTT Glass, and FLIR etched mirror reticle. The BSO is designed to be a light weight and versatile optic. It's waterproof, fog proof, and military tough enhancing its ability to survive the rigors of field abuse under the most severe environmental conditions.

SPECIFICATIONS

Magnification: 4x

Entrance Pupil: 32mm

Exit Pupil: 8mm

Eye Relief: 37mm

Length: 132mm

Width: 67mm

Weight: 300g without mount (415g with ARMS #22-34 mount)

Field of view: 7° (36.8 ft. @ 100yds)

Adjustment: .5 MOA

Reticles: 5.56mm Chevron, 7.62mm Chevron, 5.56mm Crosshair, or AAC .300

Blackout Ring & Dot

Day time reticle: Black Etched Mirror

Low light illumination: Rechargeable Illumination Technology

Housing Material: Aluminum 6061-T6

Housing coating: Hard Anodized

Mounting Surface: 34mm

Water proof: 42m / 130ft

Lens Coatings: Broad Band Anti-Reflective

Origin: Made in the USA

FEATURES

The BSO features an evolutionary, battery free, Rechargeable Illumination Technology (RIT), which is **Environmentally Friendly and Non Toxic**. Simply charge the RIT illumination with ANY light source and get hours of low light reticle illumination. A brief 15 second charge from a high intense flashlight provides hours of reticle illumination, ideal for those low light situations. The BSO can be charged by focusing light into either the eyepiece or the objective lens, but for best charging performance the eyepiece is recommended.



daytime



Low light RIT activated

Housing designed to accept Accessories

When designing the BSO housing, we kept the front and rear end of the housing the same as the 4x32 BSO, so accessories could be interchanged. The OD of the eye-housing is a machined 30mm diameter surface with a 2mm groove for locking on dust covers or an assortment of other accessories. On the objective end, we added a 42mm x 3mm OD groove and threaded the ID for added versatility for accessories, such as anti-reflection devices, dust covers, and/or laser filters.

Installation

The 4x32 BSO has an optional A.R.M.S® #22-34 throw lever II flattop mount designed to easily attach to any MIL-Std 1913 rail system. To install, simply fully open the lever and insure the buffer pad is located in the open position. The mount has a small magnet to keep the buffer pad in the open position, but to insure the buffer pad remains in the open position, it is best to install the 4x32 BSO with the buffer pad at the bottom and roll the optic onto your preferred location on the rail. The 4x32 BSO can be placed in any of the slots located on top of the receiver. The eye relief of the BSO optical system is 38mm / 1.5 inches, so it is recommended to lock the mount into one of the slots towards the rear of the receiver. The eye relief can be stretched to 2" or 50mm for larger caliber weapons. Be sure to align the interface stud located on the bottom of the mount with the groove in the rail system.

A.R.M.S.[®] Lever II adjustment Instructions

The A.R.M.S.[®] Lever II has an adjustment for undersized or oversized rails. To make adjustments follow these instructions:



1. Open lever to unlock from rail.
2. Unscrew the adjustment lock screw until it stops.
3. Turn adjustment wheel clockwise to tighten or counter clockwise to loosen.
Note: Each click is .002" of adjustment.
4. Tighten adjustment lock screw to secure the adjustment wheel in place.
5. Close the lever to lock mount onto rail surface and check fit. Repeat as necessary.

Adjuster Caps

The adjuster caps must be finger tightened until the adjuster cap makes contact with the main housing. This will insure a good waterproof seal and prevent possible damage to the cap or threads. No tools should be used to tighten or loosen the caps.

Elevation and Windage Adjustment

The elevation and windage adjustments are located beneath the adjuster caps. The elevation adjustment is located on top of the BSO, while the windage adjustment is located on the right side. The adjusters are designed to position the internal prism assembly against a shock absorbing spring. The arrow is pointing clockwise on both adjusters, rotating the adjuster clockwise will move the bullet strike in the direction noted on the adjuster. The elevation adjuster is marked with a "U" for UP and the windage adjuster is marked with an "R" for RIGHT. Of course the opposite effect on the bullet strike will occur if turned counter clockwise.

Zeroing Procedures

The 4x32 BSO is shipped with a factory zero. This means that only small adjustments should be required to zero the optic. Follow these simple instructions to zero the BSO:

1. Install the 4x32 BSO onto the weapon.
2. Remove the adjuster caps to access the windage and elevation knobs.
3. Set a target at 25 meters and fire 3 rounds using the 300m crosshair.
4. As required, rotate the adjuster to move the bullet strike to the desired position. A screwdriver, coin, or an empty shell can be inserted in the slot to make the adjustment.
5. Confirm zero by firing at least three shots after each adjustment. Confirm accuracy and repeat above procedure as required.
6. Once zeroed at 25m, move the target out to 100m and repeat the steps above using the zero point for that distance.
7. Fine tune the adjustment as required.
8. Replace the adjuster caps.

CAUTION: Do not continue to adjust windage and elevation mechanisms if resistance is encountered.

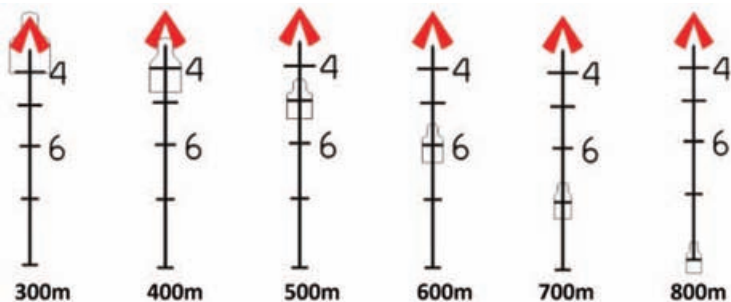
Zeroing Tips

The BSO has an internally adjustable prism, which uses the ball and socket design principal. The prism is held in location by the tension between the adjuster assemblies and the springs on the opposite sides. When adjusters are turned clockwise, they have an absolute positive connection with the prism and the leverage of the adjustment screw to align the prism. For this reason, it is recommended to zero the optic by moving adjusters clockwise; this moves the bullet strike UP or RIGHT. When the adjusters are turned counter clockwise, they move away from the internal prism housing and the alignment relies on the spring tension to properly relocate the prism. This precise movement may be effected by the equal tension from the opposite adjuster. The tensions from the opposite adjuster can be released by turning it counter clockwise a few clicks and then returning it back to its original location. Alternatively, when adjusting the bullet strike DOWN or LEFT, allow the recoil from the first round to align the prism properly. To insure proper alignment, it is recommended to fire three rounds per adjustment and use the average bullet strike to make adjustment corrections.

Ranging Ballistic Reticle

The BSO reticles are designed to compensate for the trajectory of the bullet and are parallax free along the vertical axis. This allows ranging capabilities from 100-900 meters depending on the reticle.

Using the chevron reticle as an example, the tip of the BSO chevron is designed to be zeroed at 100 meters. At 200m, the crotch of the chevron should be used. The width of the BSO chevron represents a 19" silhouette at 300m, which is the average width of a man's shoulders. Also, the tip of the stadia tree is designed to be the 300m aiming point. For quick target acquisition, use the BSO chevron center mass from zero to 300m. If the silhouette is smaller than the width of the BSO chevron, it means the target is beyond 300m. The width of the 19" silhouette at the 400m, 500m, 600m, and 700m are represented by the corresponding stadia line below the BSO chevron. To range, raise the point of aim until the silhouette best fits the proper stadia line as noted in the figure below. As a rule, the other BSO reticles use these same general principles.



MAINTENANCE

Cleaning and General Care

The 4x32 BSO requires very little maintenance. If the optics get dirty, wash the unit with fresh water and dry with a clean cloth. Be careful to wash thoroughly before wiping. If dirt or debris is pulled across the lens they could be scratched or damaged. If transitioning from cold weather, fog may cover the outside lenses. If so, lenses may be wiped clean with a clean cloth.

To help reduce this, anti-fog solutions can be applied to the exterior of the lenses to help prevent fogging during rapid temperature changes.

LensPen

The LensPen is a superior lens cleaning system for all fine optics. The LensPen cleaning tip is has a revolutionary non-liquid cleaning compound that absorbs oily residues and contaminates safer, easier and more effectively than any other method. The unique cap replenishes the cleaning compound and keeps the tip protected when not in use. A pocket clip lets you attach it to anything and it is compact enough to throw in a pocket or bag. The retractable brush lets you safely remove dust or hard particles from the lens surface.

LensPen Operation Instructions

1. Remove all foreign material from the lenses before cleaning.
2. Extend the retractable brush and wipe away any dust or grit particles.
3. Remove the cap to expose the cleaning tip. Wipe away any smudges with a smooth, circular motion. In cases of hardened deposits, breathe lightly on the lens, then wipe again with LensPen.
4. Replace the cap and turn half way to replenish the non-liquid cleaning compound.

Notice: Anti-fog solutions or cloths work by applying a special thin film on the lens surface to which they are applied. If you have applied an anti-fog material to the lens, be sure to wipe off the film using a soft dry cloth before using a LensPen.

TROUBLE SHOOTING

Why is the reticle not illuminated?

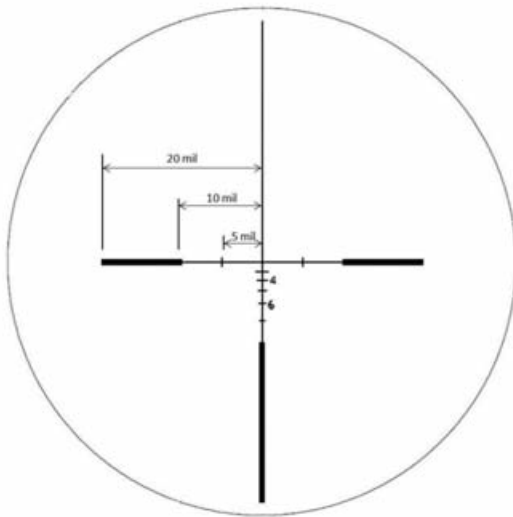
- The BSO features a rechargeable Illumination Technology (RIT), to illuminate the BSO requires external light source. Charging the BSO with a high intensity flash light for as little as 15 seconds will allow for several hours of low light illumination. If the BSO has been stored for a long period of time, the system may require a longer charge to activate the RIT illumination. The RIT illumination was design to be used in low light situations, but a high intensity flash light will give the reticle a very intense glow that will settle down after approximately 5 minutes.

Why is the BSO impossible to zero?

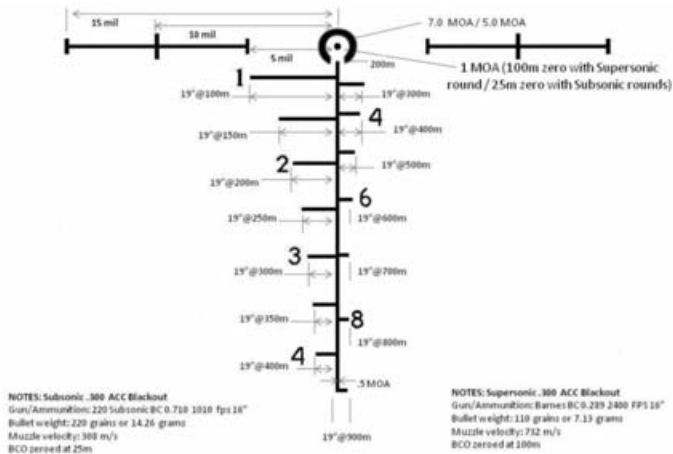
- The adjustment screw is at its limit: Check alignment of rail to barrel
- Impact point is moving: Check mount and weapon rail stability

Note: If an issue cannot be resolved, contact the factory for additional support or request a return merchandise authorization number.

**ADDITIONAL RETICLE CHOICES:
5.56mm NATO Crosshair Reticle (BCO-003)**



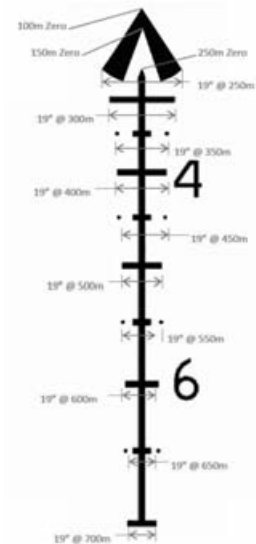
AAC .300 Blackout – Horseshoe and Dot Reticle (BCO-004)



SUBSONIC

SUPERSONIC

7.62mm x 39mm – Chevron Reticle (BCO-005)



LIMITED LIFETIME WARRANTY

BROWE, Inc. warrants every product, to the original registered owner, for a lifetime against defects in material and workmanship. We will repair, replace, or refund your original purchase price of these products at our discretion. Normal wear and tear is not covered by this warranty. Before returning any product, you **MUST** obtain a Return Merchandise Authorization number. To obtain a Return Merchandise Authorization number, please contact a customer service representative or visit our website for product return instructions. This warranty does not cover defects caused by unauthorized repair, improper handling, installation or maintenance, abnormal use or unapproved alterations. This warranty gives the registered owner certain legal rights, which vary from state to state.

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