



**CMR 1-8X24 RIFLESCOPE**  
**INSTRUCTIONAL MANUAL**

## HI-LUX CMR1-8X24 SFP



When the situation demands up-close speed and precision, you require a scope purpose-built for such shooting scenarios, be it a tactical engagement or a big game safari. Settling for anything less could prove to be life threatening.

The CMR8 utilizes our b-Dot™ Fiber Optic Illumination, ensuring a vivid daylight-bright center dot. This quickly draws the operator's focus to the reticle's center, facilitating swift target acquisition and allowing for target focus. For smooth

# RIFLESCOPE MANUAL

transitions, the CMR8's lower magnification is meticulously calibrated to achieve true 1X. This unique feature empowers the operator to shoot with both eyes open, thus enhancing situational awareness.

True to modern Hi-Lux standards, the CMR8 is meticulously crafted from a rugged, single-piece aircraft-grade aluminum tube. Its construction is further fortified with a type III hardcoat anodized finish, providing exceptional wear resistance. The optics are designed with fully multicoated lenses, maximizing light transmission and delivering unparalleled clarity.

The low-profile turrets are thoughtfully designed to keep the operator's focus on the reticle while aligning sights. Moreover,

these turrets are equipped with protective caps to prevent inadvertent adjustments.

The b-Dot™ BDC reticle is calibrated for 5.56 NATO, offering precise reference marks up to 600 yards with a 50/200 yard zero. Whether you're aiming at targets within close proximity or at a distance, the CMR8 proves to be an adaptable, all-purpose rifle scope that seamlessly integrates with your firearm.

# HI-LUX CMR1-8X24 SFP

## TABLE OF CONTENTS

SECTION 1	: SPECIFICATIONS AND BASIC DEFINITIONS	4
SECTION 2	: ADJUSTING THE DIOPTER AND RHEOSTAT	6
SECTION 3	: ELEVATION AND WINDAGE TURRETS	9
SECTION 4	: MOUNTING	11
SECTION 5	: RESETTING THE SCOPE TO OPTICAL CENTER	13
SECTION 6	: BORESIGHTING YOUR SCOPE	15
SECTION 7	: ZEROING	17
SECTION 8	: b-Dot™ BDC RETICLE OVERVIEW	19
SECTION 9	: MAINTAINING YOUR RIFLESCOPE	24
SECTION 10	: DIAMONDTUFF GUARANTEE	26

# RIFLESCOPE MANUAL

## SECTION 1

### SPECIFICATIONS AND BASIC DEFINITIONS

(1) SPECIFICATIONS:

<b>Model</b>	<b>Power</b>	<b>Obj. (mm)</b>	<b>F.O.V.@ 100 Yds (Feet)</b>	<b>Eye Relief (Inch)</b>	<b>Length (Inch)</b>	<b>Weight (O.Z.)</b>	<b>Exit Pupil Range In Variable (mm)</b>	<b>Tube (mm)</b>
CMR8	1x – 8x	24	119.3' - 15.7'	3.8"	10.4"	18.7	10.5 - 3.2	30mm

All air-glass surfaces are fully multi-coated with DiamondTuff14 for optimal light transmission. The Elevation and Windage click adjustment value is 1/2 MOA.

There is at least 120 MOA of Elevation and Windage Adjustment from the center of the tube.

# HI-LUX CMR1-8X24 SFP



## (2) BASIC DEFINITIONS:

A) Eyepiece; B) Fast Focus Diopter; C) Magnification Ring; D) Throw Lever; E) Rheostat; F) Elevation Turret; G) Windage Turret; H) Objective Lens

# RIFLESCOPE MANUAL

## SECTION 2

### ADJUSTING THE FAST FOCUS EYEPIECE AND RHEOSTAT

Fine-tuning the eyepiece of a low-power variable optic is a crucial procedure that can significantly optimize the optic's performance.

#### DIOPTER ADJUSTMENT

The diopter, often referred to as the fast focus eyepiece, serves to bring the reticle into focus. Altering the diopter setting causes marginal movement in the eyepiece lens, which can subtly influence the optic's magnification. Keep in mind that the



## HI-LUX CMR1-8X24 SFP

diopter offers an overall adjustment range of  $\pm 3$ . If you require strong corrective lenses, this might impact the reticle's sharpness when viewed through your eye.

To calibrate the diopter for your vision, hold the scope approximately 3.5 inches from your eye and gaze through the eyepiece at a plain, evenly illuminated surface such as a wall or the sky. Adjust the diopter inward or outward until the reticle appears crisply focused.

Now, you can fine-tune the magnification of the scope. Set the power to 1X and observe a target situated around 50 yards away with both eyes open. Adjust the diopter until the reticle aligns precisely over the target without any distortion.

Lastly, point the scope towards the sky or a uniform surface to confirm that the reticle remains in sharp focus.



# RIFLESCOPE MANUAL

## ADJUSTING THE RHEOSTAT

The rheostat is used to control the brightness settings for the reticle. For the best results, we recommend setting the brightness to the lowest possible setting while still maintaining visibility of the center dot. For the majority of outdoor lighting conditions, setting 6 is a good starting point and provides daylight bright illumination without any undesired dispersion of stray light or bleed from the fiber optic illuminated center dot.

There are two off settings which are denoted by the "0". Settings 1 and 2 are specifically designed to be compatible with night vision devices. The "Max" setting represents the highest level of reticle illumination brightness.

The rheostat is powered by a CR2032 lithium battery. To replace the battery, begin by removing the cover of the battery compartment located on the upper part of the rheostat. Place the battery + side up and replace the threaded battery cover.

# HI-LUX CMR1-8X24 SFP

## SECTION 3

### ELEVATION AND WINDAGE TURRETS



# RIFLESCOPE MANUAL

The CMR 1-8X24's turrets are calibrated in MOA units. For reference, 1 MOA corresponds to 1.047 inches at a distance of 100 yards. Each click moves the point of impact  $\frac{1}{2}$  MOA in the direction specified on the turret.

Within a single revolution, there are 100 clicks, translating to a total adjustment of 50 MOA per complete turn.

## TURRET RE-INDEXING

After zeroing your rifle, you can reindex the turrets to align the "0" mark on the turret with your rifle's zero. First, back out the 2mm allen screw located on the top of the elevation or windage turret. Gently pull the turret away from the scope body and align the "0" mark on the turret with the line positioned on the turret block. Lastly, tighten the set screw to "finger-tight" or to a torque setting of 5 inch-pounds.

## SECTION 4

### MOUNTING YOUR SCOPE

To achieve the best accuracy from your rifle, the scope must be mounted properly. You should use a high-quality mount with bases designed to fit your particular rifle.

To mount the scope:

- A. The scope should be mounted as low as possible without touching either the barrel or the receiver.
- B. Prior to tightening your scope rings, look through the scope in your normal shooting position. Adjust the scope (either forward or backward) until you find the farthest point forward (to ensure maximum eye relief) that allows you to see a full field of view.
- C. Rotate the scope in the rings until the reticle is plumb and the elevation turret is on top.
- D. Tighten the mounting screws to 15 inch-pounds of torque.

# RIFLESCOPE MANUAL

**WARNING:** AVOID OVER-TIGHTENING THE RINGS. WE RECOMMEND TIGHTENING SCOPE RINGS TO NO MORE THAN 15 INCH LBS OF TORQUE.

OVER TIGHTENING THE RINGS WILL DAMAGE THE SCOPE, AFFECTING PERFORMANCE OR RENDERING IT INOPERABLE.

THERE SHOULD BE A SLIGHT EVEN GAP BETWEEN THE SHOULDERS OF THE RING HALVES.

BE SURE THAT THE SCOPE IS MOUNTED FAR ENOUGH FORWARD. ITS REARWARD MOTION WHEN THE RIFLE RECOILS MAY INJURE THE SHOOTER.

## SECTION 5

### RESETTING THE SCOPE TO OPTICAL CENTER

The elevation and windage adjustments on the Hi-Lux CMR 1-8X24 are preset to the optical/mechanical center at the factory. For all new scopes, you do not need to reset the erector unit to optical and physical center for the scope. However, if you are mounting a scope that was previously zeroed on another rifle, you should reset the scope's internal adjustment prior to zeroing on the new rifle.

Centering the Elevation and Windage adjustments to optical center will maximize the total range of internal adjustment. If the erector unit inside the scope is not centered, the Elevation and Windage adjustments will not give equal travel in all directions.

# RIFLESCOPE MANUAL

To regain the full adjustment range, you need to recenter the adjustments as following:

- (1) Turn the Windage adjustment all the way clockwise until the turret stops turning. **DO NOT FORCE ANY CLICKS!**
- (2) Turn the Elevation adjustment all the way clockwise until the turret stops turning. **DO NOT FORCE ANY CLICKS!**
- (3) Turn the Windage and Elevation Turrets 120 clicks counter clockwise. We recommend splitting the clicks evenly. IE, 20 clicks Windage CCW, 20 clicks Elevation CCW and so forth until 120 clicks have been made for EACH TURRET.
- (4) Now the scope should be approximately in the optical/mechanical center. At optical center, there is about 120 MOA of total adjustment for elevation and windage.

## SECTION 6

### BORESIGHTING YOUR RIFLE SCOPE

Pre-zero sighting can be done either manually, or with a bore-sighting device.

To bore sight manually:

- A. It is necessary to be able to see through the bore from the breech end. In the case of a bolt action, this usually means removing the bolt.
- B. Place the firearm on sandbags or a sturdy rest.
- C. Look through the bore and center the target.
- D. Without disturbing the rifle, look through the eyepiece of the CMR8 scope. Adjust the Windage and Elevation turrets to position the reticle on the center of the target. Remember, the reticle will move in the opposite of the direction of the point of impact.
- E. Turn the Windage adjustment turret clockwise to move the reticle right and counter-clockwise to move the reticle left.



# RIFLESCOPE MANUAL

- F. Turning the Elevation adjustment turret clockwise raises the reticle, while turning the turret counter-clockwise lowers the reticle.

If a large amount of adjustment is required to align the reticle, make approximately one-half of the Windage correction, then approximately one-half of the required Elevation correction. Finish by applying the balance of Windage and Elevation correction.

If you can't see through the bore then it will be necessary to use some type of bore-sighting device. When using a bore-sighting device, follow the instructions provided with the bore-sighting device.

**NOTE:** If your mounting system allows for external adjustments of the scope, the gross adjustments should be made in the mount and then the final adjustments will be made with the scope's internal adjustment.

## SECTION 7

### ZEROING YOUR CMR8

**DANGER: IF A BORE SIGHTING COLLIMATOR OR ANY OTHER BORE OBSTRUCTING DEVICE WAS USED; IT MUST BE REMOVED BEFORE PROCEEDING. ANY OBSTRUCTION CAN CAUSE SERIOUS DAMAGE TO THE GUN AND PERSONAL INJURY TO YOU AND OTHERS NEARBY.**

The b-Dot™ BDC Reticle of the CMR8 is calibrated for a 50/200 yard zero.

- A. We recommend sighting in at 50 yards for ease of sighting and spotting. For most 5.56 NATO bullet weights, you can approximate the 200 yard zero at 50 yards.
- B. From a rested position, fire three rounds at the target.
- C. Observe the center of the group on the target and adjust the Windage and Elevation turrets as needed to bring the point of aim to point of impact.
- D. Repeat Step B & C until you are satisfied with the zero setting.
- E. If you have access to a 200 yard range, you can repeat the process at 200 yards.
- F. Once the scope has been zeroed, you can re-index the MOA index mark ring

# RIFLESCOPE MANUAL

to line up with the zero marker on the turret block. You can reference Section 3 for more details.

The CMR8 adjustments are calibrated in Minutes of Angle (MOA). Each click of the adjustment changes bullet impact at 100 yards by 1/2 MOA (approximately 1/2" @ 100 yards).

To calculate the exact value each click moves the point of impact at distances, use the following formula:

**Adjustment Click Value (in.) = ((Distance to Target in Yards /100) \* 1.047)/2**

Example: You are shooting at a 200 yard range.

Divide 200 by 100 which equals 2.

Multiply the result by 1.047 and you get 2.094 inches. Thus at 200 yards, each click will move the point of impact 1.047".

**WARNING:** ALL SHOOTING SHOULD BE DONE AT AN APPROVED RANGE, OR SAFE AREA. EYE AND EAR PROTECTION IS RECOMMENDED.

# HI-LUX CMR1-8X24 SFP

## SECTION 8

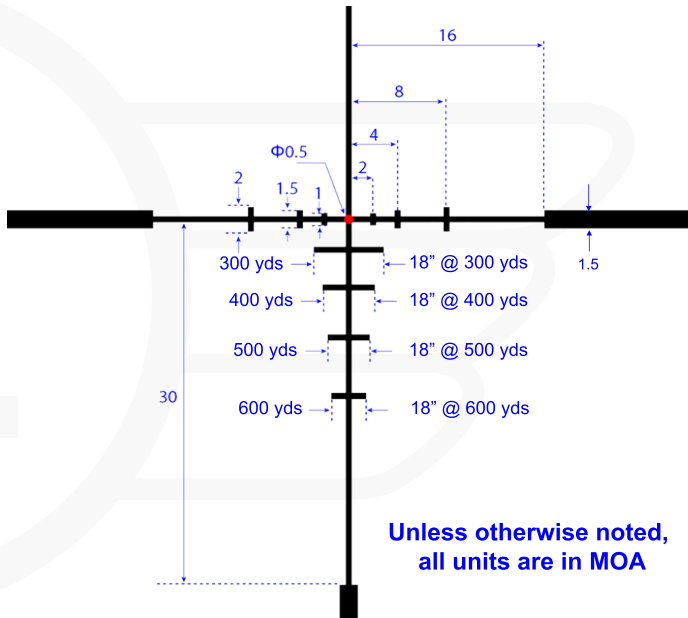
### b-Dot™ BDC RETICLE

The CMR8's b-Dot™ BDC reticle is specifically calibrated for 5.56 NATO. The holdovers will also work at the respective distances for 223 Remington and 308 Winchester.

### BDC MARKER SUBTENSIONS

Marker	Distance	MOA Subtended
Center Dot	50/200 Yards	$\Phi = 1/2$ MOA
1st Mark	300 Yards	2.5 MOA
2nd Mark	400 Yards	5.6 MOA
3rd Mark	500 Yards	9.7 MOA
4th Mark	600 Yards	14.5 MOA

# RIFLESCOPE MANUAL



## HI-LUX CMR1-8X24 SFP

You will need to sight the scope using a 50/200 zero. 50 yards can be used for the zero, however, for best results, we recommend fine tuning the zero at 200 yards.

### **USING THE b-Dot™ BDC RETICLE**

This reticle is positioned in the second focal plane. In order for the BDC markers to hold true you will need to set the magnification at 8X. The center dot is true at the zeroing distance for all magnification settings.

The first line under the center dot is the hold for 300 Yards.

The second line is the hold for 400 yards.

The third line is the hold for 500 yards.

The fourth line is the hold for 600 yards.

The top of the thick post on the vertical crosshair subtends 30 MOA.

## WIND HOLDS & LEADS

There are 3 hashmarks on each side of the vertical crosshair that can be used to lead moving target from 100 yards to 300 yards. These markers can also be used for wind holds.

1st Mark - 2 MOA – lead for 1mph target

2nd Mark – 4 MOA – lead for 2mph target (walking)

3rd Mark – 8 MOA – lead for 4.5 mph target (brisk walk)

Edge of Thick Post – 16 MOA – lead for 9mph target (running)

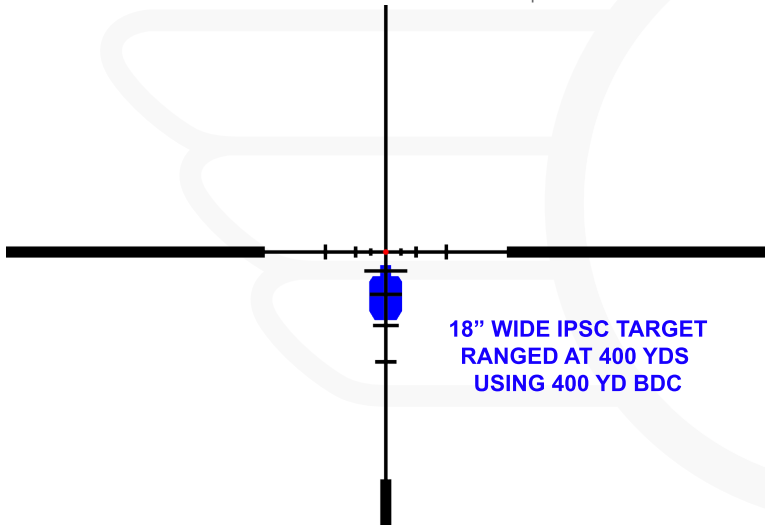
If your target is moving from right to left or if the wind is blowing right to left, use the leads on the right side of the vertical crosshair.

If your target is moving from left to right or if the wind is blowing left to right, use the leads on the left side of the vertical crosshair.

# HI-LUX CMR1-8X24 SFP

## RANGEFINDING

The width of the BDC markers subtend 18" at their respective BDC distances.





# RIFLESCOPE MANUAL

## SECTION 9

### MAINTAINING YOUR RIFLESCOPE

Your scope, though amazingly tough, is a precision instrument that deserves reasonable and cautious care. For normal maintenance:

- A. Do not attempt to disassemble or clean the scope internally.
- B. The external optical surfaces should occasionally be wiped with the microfiber lens cloth provided or an optical quality lens wipe.
- C. Keep the protective lens covers in place when the scope is not in use.
- D. Remove any external dirt or sand with a soft brush so as to avoid scratching the finish.
- E. Wipe the scope with a damp cloth, followed by a dry cloth.
- F. Then go over the metal portions of the scope with a silicon threaded cloth in order to protect the scope against corrosion.

## HI-LUX CMR1-8X24 SFP

- G. Store the scope in a moisture-free environment.
- H. Avoid storing the scope in a hot place, such as the passenger compartment of a vehicle on hot days. The high temperatures could adversely affect the lubricants and sealants. A vehicle's trunk, a gun cabinet or a closet is the preferred storage locations.
- I. Never leave the scope where direct sunlight can enter either the objective or the eyepiece lens. Damage may result from the concentration of the sun's rays (burning glass effect).

**WARNING: UNNECESSARY RUBBING OR USE OF A COARSE CLOTH MAY CAUSE PERMANENT DAMAGE TO LENS COATINGS.**

# RIFLESCOPE MANUAL

## SECTION 10

### DIAMONDTUFF GUARANTEE

Hi-Lux, Inc. warrants its products against defects arising from faulty workmanship or materials, for the lifetime of the product. Normal wear and tear, accidental or intentional misuse, and theft are not covered under this warranty policy. After one year, optical components may need to be serviced as part of general optic care. Such services are not warrantable. Any attempt to alter, dismantle or change the standard specifications of the products, will make this warranty null and void. This warranty is made to the original purchaser of the goods, and applies only to the products purchased in the United States. The warranty is transferable. Warranty obligation is limited to the repair or replacement of any product returned to Hi-Lux, Inc. that is determined by the manufacturer to have defects arising from faulty workmanship or materials that adversely affect the satisfactory operation of the product. It should be noted that on items containing an etched glass reticle, which the occasional appearance of some small particles is common and not a warrantable repair. Hi Lux provides a two-year warranty for the electronic components that

## HI-LUX CMR1-8X24 SFP

are contained on the products. Hi-Lux, Inc. reserves the right to request proof of purchase and purchase date. Hi Lux assumes no liability for any incidental or consequential damages, theft, or incidental expenses. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusion may not apply. No warranties are made, or are authorized to be made, other than those expressly contained herein.

To file a claim under this warranty, please contact the Customer Service Department of Hi-Lux, Inc. at (310)257-8142 to obtain a Return Authorization number (RA number). After receiving your RA number, please mark the number on the outside of the package; enclose the defective item with a brief explanation of the problem. Please be sure to include your name, address and phone number. Failure to obtain a RA number may result in either refusal upon delivery, or lengthy delays for warranty repairs and service required for the item returned to us. All returns are to be shipped prepaid direct to Hi-Lux, Inc. including a check or money order in the amount of \$25 to cover postage and handling. Additional fees will be applied to all returns from outside of the United States.

# RIFLESCOPE MANUAL

Attn.: Warranty & Service Dept.

Hi-Lux, Inc.

3135 Kashiwa Street

Torrance, CA 90505

Tel: (310) 257-8142, Fax: (310) 257-8096

E-Mail: [techservice@hi-luxoptics.com](mailto:techservice@hi-luxoptics.com)

[www.hi-luxoptics.com](http://www.hi-luxoptics.com)

In the event of a non-warranty repair, you will receive an estimate prior to any work being done. This warranty gives you specific legal rights and you may have other rights, which vary from state to state. As defined by federal law, this is a limited warranty.

**For the Latest Hi-Lux Videos and Tutorials**



**[www.hi-luxoptics.com](http://www.hi-luxoptics.com)**