



## Leatherwood® / Hi-Lux™ Optics



### MICRO-MAX **b-DOT** ELECTRONIC SIGHT MBD1-20 INSTRUCTIONS MANUAL

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**CONGRATULATIONS!** You have just purchased our Micro-Max **b-Dot** (Model No.: MBD1-20) electronic red-dot sight, one of the toughest electronic sights built today, featuring a rugged machined aluminum housing. The Micro-Max **b-Dot** sight comes standard with a solid, low-profile mount. It can be quickly and easily attached to any Weaver-style one-piece base or MIL-STD 1913 Picatinny rail. The torx (star) head screw and clamp ensures that this sight stays solidly mounted until the shooter is ready to remove it.

Drawing upon the considerable advances of reflex sight technology, the 1x Micro-Max red-dot sight delivers outstanding precision and performance to the shooter. Thanks to our new **b-Dot** LED technology, the Micro-Max red dot is much brighter than conventional red dot sights even under sunny daylight conditions. Furthermore, under normal use, a single battery powers this sight upwards of 55,000 hours (6.2 years). The **b-Dot** just might be the most reliable electronic device you will ever own!

The Micro-Max **b-Dot** is compatible with just about any firearm from handguns and rifles to muzzleloaders and shotguns. Satisfying the needs of all shooters from the recreational hunter to law enforcement, the Micro-Max **b-Dot** is a versatile optic, suitable for recreational shooting, sport shooting and tactical operations.

Measuring 2.5 inches long by 1.4 inches wide by 1.4 inches tall, the Micro-Max is extremely compact and comes with flip-up lens covers and kill flash filter. The battery compartment can also store one extra CR2032 battery. Without the included flip-up lens covers, this sight with the low mount weighs in at only 3.8 ounces. The full package is just right for most shooting and hunting needs. An AR riser mount can be purchased separately to make Micro-Max sight suitable for AR type rifles.

Inside the high-strength extruded aluminum housing of the Micro-Max is the most advanced electronic reflex red-dot sight technology now possible. In order to protect the solidly mounted circuitry, the sight is fully waterproof. Like all Hi-Lux rifle optics, this sight has been built for use in the real world and can handle anything that Mother Nature can dish out.

The advanced efficiency of the ultra-modern **b-Dot** electronics not only ensures much longer battery life, but also produces a much brighter dot than previously available. The 12-setting digital switch on the top of the Micro-Max **b-Dot** sight allows the intensity of the 2 MOA red dot to be easily and quickly adjusted to the ambient light, for the best possible sight picture and shot placement. **The Micro-Max b-Dot sight is also night vision compatible.**

Every lens surface of this sight has been fully multi-coated to produce maximum light transmission for

the brightest possible sight picture. As a parallax free zero-magnification sight (1x), the shooter can acquire a target and take the shot without having to center the **b-Dot** in the lens. Properly sighted, the point of impact is where the dot is on the target - making the Micro-Max **b-Dot** ideal for those shots at running or flying game - or when a tense tactical situation escalates.

Want to stay connected? Follow us @HiLuxOptics on Twitter, and like our Facebook page at <http://www.facebook.com/LeatherwoodHiLuxOptics> for the latest product news and updates.

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## SECTION 1: SPECIFICATIONS, BASIC DEFINITIONS, AND ACCESSORIES

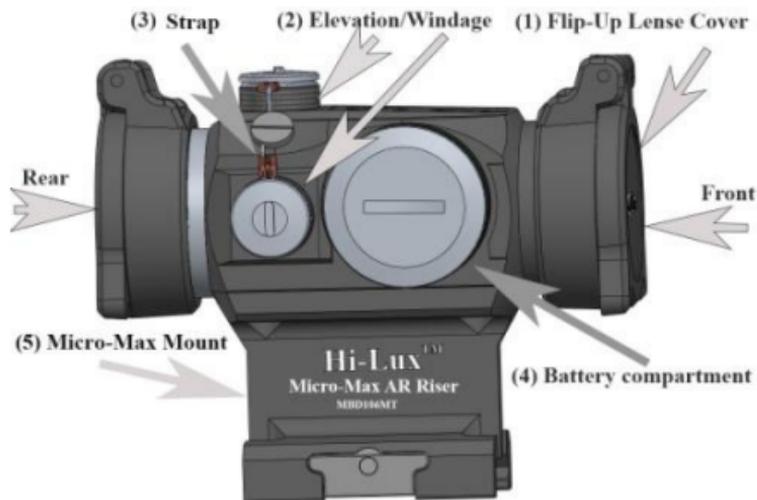
### (1) SPECIFICATIONS:

Model	Power	Obj. (mm)	Eye Relief (Inch)	Length (Inch)	WGT. (o.z.)	W/E Adj. (moa)
MBD1-20	1X	20	Unlimited	2.5	3.8	1/2

#### Remarks:

Each click is 1/2 MOA. Both Elevation and Windage adjustments have 40 clicks (20 MOA) per revolution. The total adjustments for both Elevation and Windage are minimum 100 MOA. A special illumination circuit is designed to control the illuminated dot size in a consistent shape and size. The dot size is 2 MOA. However the dot size may change slightly, depending on the brightness of the dot. The red dot brightness can be controlled by pressing the “+” or “-” button to adjust for the appropriate dot brightness. There are 12 brightness settings, which are enumerated sequentially from 1 to 12, 1 being the lowest and 12 being the highest.

## (2) BASIC DEFINITIONS:



(1) Flip-Up lens Cover; (2) Elevation / Windage Adjustment Knob; (3) Strap to hold the Elevation and Windage covers; (4) Battery compartment. The battery compartment can store a spare C2032 battery; (5) Micro-Max Mount, the high AR riser mount is the optional accessory. The low Micro-Max Mount comes with the standard package;

## (3) ACCESSORIES:

The Micro-Max B-Dot sight has the following accessories:

- (1) One screw-in honeycombed kill flash filter accessory is included in the standard package.



- (2) One set of the Flip-Up lens covers is included in the standard package.

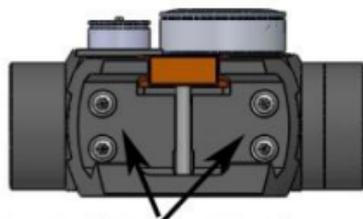


- (3) Micro-Max AR Riser Mount is not included in the standard package. The Micro-Max **b-Dot**



sight only comes with a low profile mount. This AR Riser Mount is a separately purchased mount that raises the Micro-Max

Dot 1.6 inch from the rail. You can loosen the four No. 10 Torx head screws located at the bottom of the sight to change to the high or low mount.

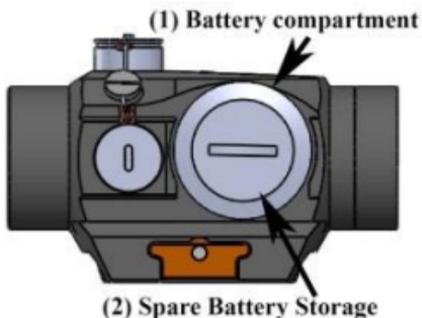


Four No. 10 Torx(Star)Head Screw

Please securely retighten the 4 screws and apply **blue LOCTITE** on the 4 screws prior to mounting on a gun. The Micro-Max **b-Dot** sight is compatible with most of the popular micro red-dot sight mounts available in today's market.

## SECTION 2: INSTALLING BATTERY

When your Micro-Max **b-Dot** sight becomes dim or does not light up at all, you need to replace the battery. The Micro-Max **b-Dot** electronic sight is powered by a 3V "coin style" CR2032 lithium battery. Unscrew the battery compartment (1) cover, and insert the battery positive ("+" side up and retighten the battery compartment cover. Once you have installed the new battery, the **b-Dot** Sight will go on automatically. The default auto-shut off timer is 8 hours. Spare battery storage is located in the center of the cover. You can always keep one spare battery with the sight as needed. The **b-Dot** sight can also be shut off



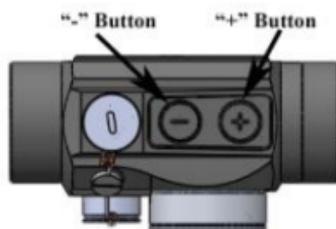
manually if you press “+” and “-” buttons simultaneously.

## SECTION 3: MOUNTING YOUR SIGHT

As there is no set eye relief for the Micro-Max **b-Dot** sight, you can install the sight at any position on the gun you feel comfortable. Set the mount onto the rail. Align and seat the cross-bolt of the mount into the crosscut groove of the rail. Tighten the hardened No. 15 torx (star) head screw. You can apply a maximum of 40 inch-pounds of torque on the head. For AR type rifles, we also offer a high mount for this sight as an optional accessory. Our Micro-Max **b-Dot** sight is compatible with most of the mounts in the market for this type of micro red-dot sight.

**WARNING:** PRIOR TO MOUNTING YOUR **b-DOT**, PLEASE CHECK THAT ALL FOUR TORX SCREWS ARE SECURELY TIGHTENED. WE RECOMMEND THAT YOU APPLY **BLUE LOCTITE** TO PREVENT THE MOUNT FROM LOOSENING DUE TO RECOIL.

## SECTION 4: DIGITAL SWITCH INSTRUCTIONS



The Micro-Max **b-Dot** offers a programmable auto-shut off timer. The functions of the digital switch are as follows:

**(1) Normal Key Operation:**

Touch either the “+” or “-“ key. The sight will turn on. There are 12 total brightness settings. Pressing the “+” key will brighten the red dot. Pressing the “-” key will dim the red dot. You can adjust the brightness to an appropriate setting based on your current lighting conditions. Once the LED reaches the highest or lowest brightness of the 12 settings, the LED brightness will not change any more even if you continue pressing the “+” or “-” key, respectively.

**(2) Powering Off the Sight:**

Holding the “+” and “-” keys simultaneously will power off the Micro-Max **b-Dot** sight. The sight can also be powered off automatically based on the auto-shut off time setting. The default auto-shut off time is 8 hours. You can program the auto-shut off time from 1 hour to 12 hours. See the instruction how to program

the shut off time. Please see the following details.

**(3) Programming the Auto-Shut Off Time Setting:**

- a. To enter programming mode, hold the “+” key for 3 seconds until you see the red dot flashing. The number of flashes represents the hours of the current auto-shut off setting. If the red dot rapidly blinks 5 times, the b-Dot is currently in manual mode. When the flashing stops, the sight enters programming mode. **After 10 seconds the Micro-Max b-Dot sight will automatically revert to the normal operation mode.**
- b. Once the sight enters programming mode, you can adjust the auto-shut off time by 1 hour each time you press the “+” or “-” key. The default auto-shut off time setting is 8 hours. The auto-shut off time setting can only be adjusted within the range of 1 to 12 hours. Each time you press a key, you will see the red dot flash one time. Each flash means one hour has been

adjusted up or down from the current position. After you finish programming, you can confirm the auto-shut off timer by holding down the “+” button for 3 seconds again until it flashes. The number of times the dot flashes is the number of hours for the new auto-shut off. To clarify, the first time you program the auto-shut off timer, you can adjust the time from factory default 8 hours up to 12 hours or down to 1 hour respectively. If you press the “-” key one time, you would reduce the auto-shut off time to 7 hours. If you press the “+” key one time, you would increase the auto-shut off time to 9 hours and so forth. The minimum auto-shut off time is 1 hour and the maximum auto-shut off time is 12 hours.

- c. To bypass the auto-shutoff timer, you have to continue to press and release the “-” button in programming mode until the red dot stops flashing. At this moment, the b-Dot’s auto-shutoff timer is set to 0 and the auto-shutoff is disabled. To verify

that you are in manual mode, you should see that the red dot rapidly blinks 5 times after holding the “+” button for 3 seconds. The b-Dot will not automatically shut off in manual mode; it will continue to stay on until you manually power off the sight.

- d. Every time you change the battery, the auto-shut off time reverts to the default 8 hours. Every time the scope is powered off, the brightness setting is reset to 7.

There is a special illumination circuit that is specifically designed to display the illuminated dot in a consistent size and shape. The dot size is 2 MOA. However the dot size may vary slightly, depending on the brightness of the dot. **The Micro-Max b-Dot battery life is exceptionally long, and that battery life can be extended by powering off the sight when not in use.** The sight will also shut off once the auto-shut off timer has elapsed.

## SECTION 5: ZEROING THE SIGHT

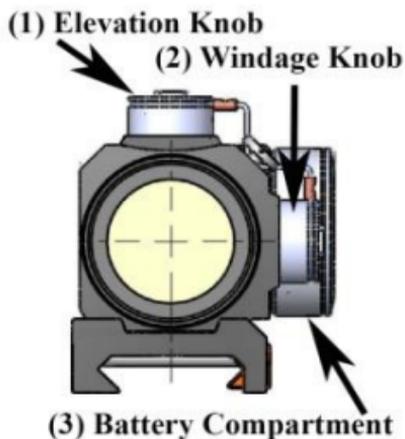
Once you touch any button, the Micro-Max **b-Dot** sight will be turned on. You will see the dot in the center of the sight. Then you need to follow the instructions stated in

section 4.1 to adjust the brightness of the dot to suit your eye. The adjustments for both Elevation and Windage are 20 MOA per revolution. The total adjustments for both Elevation and Windage are minimum 100 MOA.

With the sight mounted, rest the gun on a solid surface. Sight along the barrel and aim at a target 25 to 50 yards away. Sight through your red dot sight and use the windage and elevation adjustments to align the lighted dot with the target as seen

along the barrel. You should fire a test shot to determine the point of impact of your gun. If you did not hit the center of the target, then you can make the adjustments to either elevation or windage in the direction you want to move the point of impact. Both

**Elevation (1) and Windage (2)** adjustments have 1/2 MOA per click and 40 clicks (20 MOA) per revolution. Adjust the **Elevation** turret counterclockwise to move the point of impact **UP**. Adjust the **Windage** turret counterclockwise to move the point of impact to the **RIGHT**. Turning



either turret clockwise moves shot impact in the opposite direction.

### **Elevation and Windage Adjustment Chart:**

<b>Range</b>	<b>1 Hash Mark on the elevation</b>	<b>1 Hash Mark on the Windage</b>
25 Yards	0.125 Inch	0.125 Inch
50 Yards	0.25 Inch	0.25 Inch
100 Yards	0.5 Inch	0.5 Inch

The elevation and windage adjustment chart will help you understand how to calculate the correct amount of adjustments. Each MOA adjustment will have a different inch drop at different ranges. One minute of angle is very close to 1 inch at 100 yards. At 50 yards one MOA is close to half an inch. At 25 yards, one MOA is close to 0.25 inch.

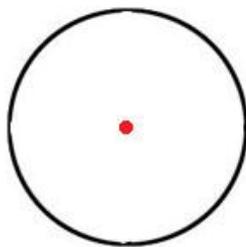
**WARNING:** ALL SHOOTING SHOULD BE DONE AT AN APPROVED RANGE, OR SAFE AREA. EYE AND EAR PROTECTION IS RECOMMENDED.

## **SECTION 6: RETICLE IN USE**

### **Micro-Max **b-Dot** Reticle:**

There is a red dot in the center of the reticle. The dot size roughly measures 2 MOA. The Micro-Max **b-Dot** Sight

does not have any magnification, so there is no set eye relief for this sight. You can mount the sight on the rifle at any distance from your eye that is comfortable for you to shoot. The red dot size is not controllable.



## **SECTION 7: MAINTAINING YOUR SIGHT**

This sight, 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 sight internally.
- B. The external optical surfaces should occasionally be wiped clear with the lens cloth provided or an optical quality lens paper.
- C. Keep the protective lens cover in place when the sight 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 sight with a damp cloth, followed by a dry cloth.
- F. Then go over the metal portions of the sight with a silicon treated cloth in order to protect the sight against corrosion.

- G. Store the sight in a moisture-free environment.
- H. Avoid storing the sight in a hot place, such as the passenger compartments 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 sight 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.**

## **SECTION 8: DIAMONDTUFF LIFETIME WARRANTY**

**Hi-Lux, Inc.** warrants its products against defects arising from faulty workmanship, or materials, for the lifetime of the **original purchaser**. **Normal wear and tear is not covered by this limited lifetime warranty.** 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 including all international sales, and applies

only to the products purchased through our authorized distributors or dealers. The international warranty is subject to approval from our authorized distributor or us directly. Warranty obligation is limited to the repair or replacement of any product returned to **Hi-Lux, Inc.**, which 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 that the occasional appearance of some small particles is common and not a warrantable repair. **We only have a one-year warranty for the electronic components that are contained on or within the products.** **Hi-Lux, Inc.** reserves the right to request proof of purchase and purchase date. To guarantee warranty service, the enclosed warranty form must be completed and returned or register online at [www.hi-luxoptics.com](http://www.hi-luxoptics.com) within 90 days of purchase to establish all warranty rights between you, the original purchaser, and **Hi-Lux, Inc.** We assume no liability for any incidental or consequential damages, 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 to you. 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 \$21 to cover postage and handling regardless of purchase date.

**Attn.:** Warranty & Service Dept.

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Website: [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.



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