

BD500A1 · A TRUE 1X OPTICAL WAVEGUIDE SIGHT WITH ZERO FORWARD RETICLE EMISSION, UNLIMITED EYE RELIEF AND A PARALLAX-FREE 32 X 26 MM WINDOW

BD500A1 1x Optical Waveguide Sight

A true 1x optical waveguide sight with zero forward reticle emission, unlimited eye relief and a parallax-free 32 x 26 mm window. Seven reticles, 20 daylight plus 10 night-vision brightness levels, 1,500 h runtime and a 1,200 G recoil rating for MIL-STD-1913 and STANAG 2324 platforms.



MAGNIFICATION

1x

RUNTIME

≥ 1,500 h at 22 °C

WINDOW

32 x 26 mm

RECOIL RATING

1,200 G · IP67

BD500A1 at a glance

The BD500A1 is a true 1× optical waveguide sight built for rapid, both-eyes-open target acquisition. A laser diode and a collimating lens generate the reticle inside the housing; an internal waveguide lens routes the reticle image to the shooter’s eye. Because the reticle is never projected onto the outward-facing window, the sight has **zero forward reticle emission** — there is no visible reticle glow toward the target.

The 32 × 26 mm waveguide window is parallax-free and gives unlimited eye relief. Seven selectable reticles, 20 daylight brightness levels with automatic brightness, 10 night-vision levels and motion-activated wake-up cover a wide range of light conditions. A single rechargeable CR123A cell provides at least 1,500 hours of operation at 22 °C. The AL7075-T6 aluminium housing is stated as IP67 and rated for 1,200 G recoil, and the quick-detach mount provides a lower 1/3 co-witness on MIL-STD-1913 Picatinny and STANAG 2324 rails.

The BD500A1 is an aiming aid for close- to medium-range use on rifles, carbines, shotguns and other 1913-rail platforms. It does not magnify the target and does not replace safe firearm handling, marksmanship training or the user’s responsibility to comply with local law.

Key features

- **Optical waveguide with zero forward emission.** The reticle is routed internally to the eye, so no reticle light leaves the front of the sight.
- **Parallax-free, unlimited eye relief.** The reticle remains aligned with the point of aim as the eye moves within the window.
- **Seven reticles, retained after power-off.**
- **20 daylight levels plus Auto, and 10 night-vision levels.**
- **Motion wake-up** from standby and automatic power-off after 8 hours in standby.
- **At least 1,500 hours** of runtime at 22 °C from one CR123A cell (brightness- and temperature-dependent).
- **AL7075-T6 aluminium housing**, stated IP67, rated for 1,200 G recoil.
- **Quick-detach lower 1/3 co-witness mount** for MIL-STD-1913 and STANAG 2324 rails (1.65 in).
- **High colour fidelity and astigmatism-friendly reticle** compared with a projected red dot, because the window does not tint the scene.
- **Compatible with night-vision devices, thermal optics and magnifiers** according to the supplied model document.

Technical specifications

Values are transcribed from the BD500A1 controlled user manual, revision v5 dated 18 October 2026. Conditions and footnotes are retained. This page is a product reference, not an independent test report or certification.

Optical

PARAMETER	VALUE	CONDITION / NOTE
Magnification	1×	True 1× optical system; no target magnification
Window size	32 × 26 mm (1.26 × 1.0 in)	Waveguide window
Parallax	Parallax-free	As stated in the supplied manual
Eye relief	Unlimited	Both-eyes-open aiming
Reticle	Red; 7 selectable types	Last reticle retained after power-off
Forward emission	Zero	Reticle routed internally; no forward reticle glow

Power and electronics

PARAMETER	VALUE	CONDITION / NOTE
Battery	1 × CR123A (3.7 V, rechargeable)	Use only the supplied charger with the supplied rechargeable cells
Runtime	≥ 1,500 h at 22 °C	Actual runtime depends on brightness setting and ambient temperature
Daylight brightness	20 levels (manual) + Auto	Auto sets brightness to ambient light
Night-vision brightness	10 levels (manual)	For use with compatible night-vision equipment
Motion wake	Yes — motion sensor; 10-minute standby	Auto power-off after 8 h in standby
Low-battery alert	Reticle flashes every 2 s below 1 %	Replace or recharge promptly

Mechanical

PARAMETER	VALUE	CONDITION / NOTE
Housing material	AL7075-T6 aluminium	—
Click value	0.5 MOA	Windage and elevation
Adjustment range	± 50 MOA windage and elevation	—
Mount	Quick-detach; lower 1/3 co-witness (1.65 in)	—
Rail standard	MIL-STD-1913 Picatinny / STANAG 2324	—

Physical and environmental

PARAMETER	VALUE	CONDITION / NOTE
Dimensions	85 × 50 × 65 mm (3.3 × 2.0 × 2.6 in)	Axis order and measurement boundary are not stated in the source
Weight	280 g (9.9 oz)	Battery/accessory inclusion is not stated
Operating temperature	−30 °C to +60 °C (−22 °F to +140 °F)	—
Waterproof rating	IP67	Manufacturer-stated rating; see the IP-code note below
Recoil rating	1,200 G	Recoil tested with .338 Win Mag, .300 WM and 12 gauge per the manual

How the optical waveguide works

A conventional red-dot sight projects an LED reticle onto a semi-reflective lens, so part of the reticle light leaves the front of the sight. A holographic sight reconstructs a hologram in front of the window. The BD500A1 uses a third approach: the reticle is generated inside the housing and routed to the eye through an optical waveguide.

The internal path runs from the laser diode through the collimating lens to the waveguide lens, which directs the reticle image to the eye. The waveguide keeps the reticle aligned with the eye across the window and produces a flat, high-contrast image. Because no reticle light is projected forward from the objective, the sight has no forward light signature. The window itself does not tint the scene, which helps preserve natural target colours.

These are descriptions of the product’s stated optical architecture. They are not a measurement of parallax, distortion, transmission or aiming accuracy beyond the values in the model document.

Performance conditions and limits

- **Runtime** is quoted at 22 °C and depends on brightness setting and ambient temperature. Cold conditions and high brightness reduce runtime.
- **Parallax-free** is the model's stated optical behaviour. It does not remove the need to confirm zero on the host platform.
- **IP67** is a manufacturer-stated ingress rating. IEC 60529 defines the IP code; citing the standard does not certify this product. IP67 is not a diving or high-pressure-washing rating.
- **1,200 G recoil** is a stated rating with the listed test calibres. It is not a guarantee for every host, mount, ammunition load or installation.
- **Zero retention** after removal, impact or mount changes must be confirmed on the host; the supplied manual describes the inspection and adjustment process.
- **Night-vision compatibility** depends on the night-vision device, its gain and the selected brightness level. Confirm compatibility in the intended configuration.
- **No forward reticle emission** is a property of the reticle path. It does not make the sight invisible to all detectors and does not replace tactical light discipline.

Intended use and application scenarios

The BD500A1 is intended for close- to medium-range aiming on rifles, carbines, shotguns and other platforms fitted with a MIL-STD-1913 / Picatinny or STANAG 2324 rail. It is an aiming aid only: it does not magnify, it does not illuminate the target and it does not replace safe firearm handling.

- **Both-eyes-open close-range aiming.** The unlimited eye relief and parallax-free window support fast target acquisition with both eyes open.
- **Day and night-vision use.** Twenty daylight levels plus Auto and ten night-vision levels allow the reticle to be matched to ambient light and compatible night-vision equipment.
- **Rifle, carbine and shotgun platforms.** The quick-detach lower 1/3 co-witness mount suits 1913-pattern hosts and supports use with magnifiers and thermal clip-ons according to the supplied document.
- **Sport shooting, hunting where lawful, training and professional use.** The product is a firearm accessory; the buyer and user are responsible for compliance with all applicable laws governing purchase, possession, transport and use.
- **Low-signature observation of the aiming point.** Because the reticle is not projected forward, the sight does not create a visible reticle glow toward the target.

Application examples describe configuration possibilities, not a guarantee of hit probability, legality in a particular jurisdiction or suitability for a specific host. Confirm local law and range rules before use.

Mounting, power and configuration

The sight installs on a MIL-STD-1913 / Picatinny or STANAG 2324 rail with its quick-detach mount. Confirm that the rail, mount and host are mechanically sound, that the mount is fully seated and locked, and that the sight cannot move by hand before use. The lower 1/3 co-witness height is 1.65 in; confirm compatibility with the host's iron sights and any magnifier or clip-on.

Power is supplied by one rechargeable CR123A cell. Charge only the supplied rechargeable cells in the supplied charger; never place a primary (non-rechargeable) CR123A cell in the charger. The sight retains its last reticle and brightness setting after power-off. The supplied manual gives the complete button, reticle, zeroing and inspection procedure; this page intentionally does not reproduce operating instructions.

Night-vision devices, thermal optics and magnifiers are listed as compatible in the supplied document. Optical stacking can change eye relief, image brightness and zero; test the complete configuration before relying on it.

Care, storage and safety

- Clean exterior dust and dirt with a clean, soft, dry cotton cloth. Do not use chemical solvents or thinners on the housing.
- Avoid rubbing loose dust or sand across the glass. Use non-abrasive optical care materials; confirm coating compatibility before using any cleaning solvent.
- Store in a dry, well-ventilated place and remove the battery before a long period without use. A separate storage-temperature or humidity limit is not established by the supplied table.
- Do not disassemble, modify or attempt unauthorised repairs. Stop using a unit with visible cracks or damage and seek qualified service assessment.
- Before installing, adjusting or servicing the sight, make sure the firearm is unloaded, the chamber is empty and the muzzle is pointed in a safe direction. Wear eye protection when shooting.
- Do not use the sight to observe the Sun. NASA describes serious eye hazards when optics lack purpose-designed solar-viewing protection.
- Do not dispose of lithium cells with household waste; follow local recycling and disposal rules.

Ordering, stock and dispatch

Prices below are published B2B unit prices in USD, shipping included to the address entered at checkout. Insurance, import duties, taxes and clearance fees are excluded. The server reconfirms the selected quantity tier before PayPal approval; no prior quotation or PI is required for eligible online orders.

QUANTITY	UNIT PRICE (USD)	DISPATCH AFTER VERIFIED PAYMENT
1–10 pcs	599	1–100 pcs: stock basis 100 pcs; dispatch within 7 working days
11–100 pcs	539	1–100 pcs: stock basis 100 pcs; dispatch within 7 working days
101–300 pcs	499	101–500 pcs: 45 working days
301–1,000 pcs	439	501+ pcs: 60 working days
1,001+ pcs	339	501+ pcs: 60 working days

Dispatch days are working days counted from verified payment. The stock basis is 100 pcs for the in-stock band. Larger quantities are produced to order. Shipping is included to the shipping address entered at checkout; the terms shown in the cart and order confirmation govern the accepted order.

Frequently asked questions

▼ Is the BD500A1 really parallax-free?

The supplied manual states that the sight is parallax-free with unlimited eye relief, and that the reticle stays on the point of aim as the eye moves within the window. This is the model's stated optical behaviour; confirm zero on your host and mount.

▼ Does the sight project any light toward the target?

No. The reticle is generated inside the housing and routed to the eye through the waveguide. The manual states zero forward emission, so there is no visible reticle glow in front of the sight.

▼ Does it magnify the target?

No. The BD500A1 is a true 1× sight. It can be used with a magnifier according to the supplied document, but the sight itself does not magnify.

▼ What battery does it use, and can I use a normal CR123A?

One CR123A cell. The manual specifies the 3.7 V rechargeable type and says to use only the supplied charger with the supplied rechargeable cells. Never put a primary (non-rechargeable) CR123A cell in the charger.

▼ How long does the battery last?

At least 1,500 hours at 22 °C. Actual runtime depends on brightness setting and ambient temperature; cold conditions and higher brightness reduce runtime.

▼ How many reticles and brightness levels are available?

Seven red reticles, 20 daylight brightness levels with Auto, and 10 night-vision levels. The last reticle and brightness setting are retained after power-off.

▼ Is it compatible with night vision?

The supplied document lists compatibility with night-vision devices and provides ten night-vision brightness levels. Compatibility depends on the specific night-vision device and configuration; confirm it in the intended set-up.

▼ Which rail and mount does it use?

A quick-detach lower 1/3 co-witness mount (1.65 in) for MIL-STD-1913 Picatinny and STANAG 2324 rails.

▼ What is the adjustment range and click value?

± 50 MOA windage and elevation, with 0.5 MOA per click.

▼ How much recoil can it take?

The stated rating is 1,200 G, with testing listed for .338 Win Mag, .300 WM and 12 gauge. The rating is not a guarantee for every host, mount, ammunition load or installation.

▼ What does IP67 mean here?

IP67 is the manufacturer-stated ingress rating in the model document. IEC 60529 defines the IP code, but citing the standard does not certify this product. IP67 is not a diving or high-pressure-washing rating.

▼ What are the operating and storage limits?

Operating temperature is –30 °C to +60 °C. The manual recommends dry, well-ventilated storage and removing the battery for long storage; a separate storage-temperature or humidity limit is not established by the supplied table.

▼ How much does it weigh and how big is it?

280 g and 85 × 50 × 65 mm. The manual does not state the measurement boundary or whether the battery and accessories are included in the weight.

▼ What is the warranty?

ERDI TECH LTD warrants the BD500A1 against defects in materials and workmanship for the period stated on the warranty card supplied with the product. The warranty excludes normal wear, accident, misuse, improper storage, unauthorised disassembly or repair, non-approved charger or battery, and transport damage. Contact sales@erdicn.com with the model and serial number.

▼ What is the price and lead time?

Published unit prices are USD 599 (1–10), 539 (11–100), 499 (101–300), 439 (301–1,000) and 339 (1,001+), shipping included. In-stock quantities (1–100 pcs, stock basis 100 pcs) dispatch within 7 working days after verified payment; 101–500 pcs dispatch in 45 working days and 501+ pcs in 60 working days.

▼ Can I download the user manual?

The product datasheet on this page summarises the controlled model data. The complete user manual is supplied with the product; contact sales@erdicn.com for a configuration-matched copy or service documentation.

References and evidence boundaries

The model-specific values on this page come from the ERDI controlled product document. The external references below explain general optical, thermal, environmental or safety science; they do not test, certify or endorse the BD500A1.

1. ERDI TECH LTD, *BD500A1 Optical Waveguide Sight — User Manual*, revision v5, 18 October 2026, 14 pp. Model-specific source for the values and care statements on this page (not a public download).
2. NASA Science, [Infrared Waves](#). General background on infrared radiation; not a product specification.
3. RP Photonics Encyclopedia, R. Paschotta, [Waveguides](#). General optical-waveguide terminology; not an assessment of this sight.

4. Rolland & Goodsell, "[Waveguide-based augmented reality displays: a highlight](#)", *Light: Science & Applications* 13, 22 (2024). General waveguide-display context; not a test of the BD500A1.
5. International Electrotechnical Commission, [IEC 60529 — Degrees of protection provided by enclosures \(IP Code\)](#). Defines the IP code; does not certify this product.
6. International Organization for Standardization, [ISO 9022-1:2016 — Optics and photonics — Environmental test methods — Part 1: Definitions, extent of testing](#). General environmental-test framework; no compliance claim is made.
7. U.S. Department of Defense, [MIL-STD-810H — Environmental Engineering Considerations and Laboratory Tests](#). General environmental-test methods; no compliance claim is made.
8. International Commission on Non-Ionizing Radiation Protection, [ICNIRP Guidelines on Limits of Exposure to Incoherent Visible and Infrared Radiation](#), *Health Physics* 105(1), 2013. General optical-radiation safety guidance; not a product classification.
9. NASA Science, [Eclipse Viewing Safety](#). General solar-viewing hazard guidance; this sight is not solar-viewing equipment.
10. European Union, [Regulation \(EU\) 2021/821 — dual-use export controls](#). General export-control framework; it is not a legal determination for a particular transaction.

Warranty, compliance and contact

ERDI TECH LTD warrants the BD500A1 against defects in materials and workmanship under normal use and maintenance for the period stated on the warranty card. The warranty does not cover normal wear and tear, accident, misuse, improper storage, unauthorised disassembly or repair, non-approved charger or battery, or transport damage. Keep the packaging and warranty card for any claim.

The BD500A1 is a firearm accessory. The buyer and user are responsible for compliance with all applicable laws governing purchase, possession, transport and use. Firearm accessories and some optical products may be subject to export-control or dual-use rules; confirm the destination, end user and end use before export, re-export or transfer, and obtain any required licence. This page is not legal advice.

Technical support, spare parts and warranty service: sales@erdicn.com. Quote the model (BD500A1) and the serial number marked on the bottom of the sight.