

HW256 · A SINGLE 1X HOUSING THAT COMBINES A RED-DOT AIMING CHANNEL WITH AN UNCOOLED 256 X 192 THERMAL CHANNEL

HW256 1x Thermal Fusion Sight

A single 1x housing that combines a red-dot aiming channel with an uncooled 256 x 192 thermal channel. The HW256 gives rapid day/night target acquisition with three reticle styles, three thermal image modes, 1x/3x/5x digital zoom and a quick-detach Picatinny mount.



THERMAL DETECTOR

256 × 192 · 12 μm

RED-DOT RUNTIME

≥ 10,000 h

FIELD OF VIEW

9° × 6.7°

FUSION RUNTIME

≥ 6 h · IP67

HW256 at a glance

The HW256 is a compact 1× thermal fusion sight that combines a red-dot aiming channel with an uncooled thermal imaging channel in one housing. The red dot gives rapid target acquisition and a precise aiming point; the thermal channel renders target outlines and scene detail in low light, darkness, smoke and dust. The sight therefore remains usable by day and by night without changing hardware.

A 1× optical system is used with both eyes open, so the HW256 can be brought onto a target in the same way as a conventional red-dot sight. Thermal imagery is presented on an OLED display and can be viewed together with the red-dot reticle for fusion observation. The detector resolves 256 × 192 pixels on a 12 µm pitch behind a 19 mm lens, giving a 9° × 6.7° field of view.

The housing is machined from aircraft-grade aluminium with a black hard-anodised finish. A standard Picatinny interface with a quick-release lever allows tool-free fitting and removal, and the 38 mm optical-axis height matches common rail and mount combinations. The supplied document describes intended use for close- to medium-range work on submachine guns, assault rifles and similar platforms, including urban operations and indoor CQB, subject to local law.

Key features

- **Thermal and red dot in one sight** for day and night use.
- **Three reticle styles:** dot, circle, and dot with circle.
- **Three thermal image modes:** black hot, white hot and outline.
- **256 × 192 uncooled vanadium-oxide detector**, 12 µm pixel pitch, 19 mm lens, 9° × 6.7° field of view.
- **OLED display, 1024 × 768 pixels.**
- **1× / 3× / 5× digital zoom**; digital zoom reduces the field of view.
- **15 daylight + 5 night-vision red-dot levels** and **10 thermal brightness levels.**
- **Red-dot-only runtime ≥ 10,000 h; fusion-mode runtime ≥ 6 h.**
- **Full CNC aluminium housing** with black hard-anodised finish for rigidity and stable zero retention.
- **30 × 23 mm viewing window** and a quick-release Picatinny mount with a clamp-adjustment knob.
- **IP67 sealed housing**, stated for –20 °C to +65 °C operation.

Technical specifications

Values are transcribed from the HW256 controlled user manual. Conditions 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 used with both eyes open
Viewing window	30 mm × 23 mm	—
Reticle styles	Dot / Circle / Dot + circle	Selected with the + button per the manual
Dot size	≤ 3 MOA	—
Parallax	≤ 2 MOA	—

Power

PARAMETER	VALUE	CONDITION / NOTE
Battery	1 × CR123A (3 V or 3.7 V)	—

PARAMETER	VALUE	CONDITION / NOTE
Runtime, red dot only	≥ 10,000 h	Stated for red-dot-only operation
Runtime, fusion mode	≥ 6 h	Stated for combined thermal + red-dot operation
Reticle brightness	15 day + 5 night (20 levels)	—
Thermal brightness	10 levels	—
External power	Type-C, 5 V	Does not charge the cell per the manual

Thermal imaging

PARAMETER	VALUE	CONDITION / NOTE
Detector type	Uncooled vanadium oxide	—
Detector resolution	256 × 192 pixels	Detector pixels, not display pixels
Pixel pitch	12 µm	—
Display	OLED, 1024 × 768 pixels	—
Lens focal length	19 mm	—
Field of view	9° × 6.7°	—
Image modes	Black hot / White hot / Outline	—

Adjustment, mounting, physical and environmental

PARAMETER	VALUE	CONDITION / NOTE
Elevation and windage range	± 40 MOA	—
Adjustment increment	0.5 MOA	—
Mount standard	Picatinny rail (MIL-STD-1913)	Quick-release lever with clamp-adjustment knob
Housing	CNC-machined aircraft aluminium; black hard anodised	—
Overall dimensions	≤ 95 × 55 × 90 mm	—
Sight height above bore axis	38 mm	—
Weight	450 g	Battery/accessory inclusion is not stated
Operating temperature	−20 °C to +65 °C	—
Storage temperature	−40 °C to +70 °C	—
Waterproof rating	IP67	Manufacturer-stated rating; see the IP-code note below

How thermal fusion works

Every object above absolute zero emits infrared radiation, and the amount and spectrum depend on its temperature and emissivity. An uncooled thermal detector converts the incoming long-wave infrared radiance into an electrical signal and then into a visible image. Warmer objects can be displayed brighter (white hot) or darker (black hot), or rendered as an outline that emphasises temperature transitions.

The HW256 adds a red-dot aiming channel to that thermal image. The red dot provides a precise, high-contrast aiming point for rapid acquisition, while the thermal channel reveals target outlines that may be difficult to see with a conventional optic in low light, darkness, smoke or dust. Presenting both channels in one 1× sight avoids switching hardware between day and night configurations.

Thermal imagery is not a photograph and is not a calibrated temperature map. Image contrast depends on the temperature difference between the target and its background, atmospheric transmission, distance, focus and the selected palette. The HW256 is an imaging and aiming sight, not a radiometric thermometer.

Performance conditions and limits

- **Thermal contrast** depends on the target-to-background temperature difference and emissivity. A scene with little thermal contrast may show little detail even when the detector is working correctly.
- **Atmospheric transmission** is reduced by fog, heavy rain, dust, smoke and long distance. Thermal imaging can help in smoke or dust, but it does not guarantee seeing through every obscurant.
- **Ordinary glass** blocks much of the long-wave infrared band used by thermal imagers. A thermal sight generally cannot image through a closed window or glass barrier; confirm the optical path.
- **Runtime** depends on mode, brightness, zoom, calibration frequency, battery type and temperature. The quoted red-dot-only and fusion-mode figures are separate operating conditions.
- **Digital zoom** enlarges the central part of the image; it does not add optical resolution or target detail.
- **IP67** is a manufacturer-stated 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.
- **Zero retention** after removal, impact or mount changes must be confirmed on the host; the supplied manual describes the inspection and adjustment process.

Intended use and application scenarios

The supplied document describes the HW256 for close- to medium-range work on submachine guns, assault rifles and similar platforms, including urban operations and indoor CQB. It is an aiming aid: it does not replace safe firearm handling, marksmanship training or compliance with local law.

- **Day/night patrol and security use** where both a rapid red-dot aim point and thermal target detection are useful.
- **Urban and indoor close-quarters scenarios** where target outlines may be obscured by low light, shadow, smoke or dust.
- **Hunting where lawful**, particularly in low-light conditions where thermal contrast reveals animals against vegetation or ground.
- **Sport shooting and professional training** on 1913-rail rifles and carbines.
- **Observation and detection** of heat-emitting targets before positive identification with other sensors or lighting.

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

Mounting, power and configuration

The HW256 fits a MIL-STD-1913 Picatinny rail with its quick-release mount. Confirm that the rail and mount are mechanically sound, that the mount is fully seated and locked, and that the sight cannot move by hand before use. The 38 mm optical-axis height should be checked against the host's stock, cheek weld and any magnifier or clip-on.

Power is supplied by one CR123A cell (3 V or 3.7 V). The Type-C 5 V input can power the sight but does not charge the cell according to the manual. The red dot and thermal channel have separate power and brightness logic; the supplied manual gives the complete button, reticle, zoom, calibration and inspection procedure. This page intentionally does not reproduce operating instructions.

Thermal performance is configuration-dependent. Confirm the image focus, palette, brightness and reticle for the intended environment, and verify zero after mounting or changing the host configuration.

Care, storage and safety

- Wipe outer surfaces with a cloth moistened with water, mild soap solution or alcohol. Blow loose particles off the optics, then clean the glass with a lens tissue and an optical solvent.
- Clean the battery compartment with a suitable solvent and let it dry fully. Check the mount, O-rings and covers periodically.
- If the sight is not used for a long period, remove the cell, store it in a dry, dust-free place below 80 % relative humidity, away from acids, alkalis and corrosive vapours, and check the sight every three months.
- Do not open the housing, modify the sight or attempt repairs. Refer visible damage or unexplained faults to qualified service personnel.
- 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 and hearing protection when shooting.
- Do not point the sight at the Sun, lasers, welding equipment or other high-intensity heat sources. Do not use it as solar-viewing equipment.
- 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	1,999	1–100 pcs: stock basis 100 pcs; dispatch within 7 working days
11–100 pcs	1,899	1–100 pcs: stock basis 100 pcs; dispatch within 7 working days
101–500 pcs	1,799	101–500 pcs: 45 working days
501–1,000 pcs	1,599	501+ pcs: 60 working days
1,001+ pcs	1,299	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

▼ What does “thermal fusion” mean on the HW256?

The sight combines a red-dot aiming channel with an uncooled thermal imaging channel in one 1× housing. The red dot gives a precise aim point; the thermal channel shows target outlines in low light, darkness, smoke and dust. The two channels can be used together for fusion observation.

▼ What are the thermal detector specifications?

Uncooled vanadium-oxide detector, 256 × 192 pixels, 12 µm pixel pitch, 19 mm lens and a 9° × 6.7° field of view. The OLED display is 1024 × 768 pixels.

▼ How many reticles and image modes are available?

Three reticle styles (dot, circle, dot with circle) and three thermal image modes (black hot, white hot, outline).

▼ What battery does it use and how long does it run?

One CR123A cell (3 V or 3.7 V). Stated runtime is at least 10,000 hours in red-dot-only mode and at least 6 hours in fusion mode. Runtime depends on brightness, mode, calibration and temperature.

▼ Does the Type-C port charge the battery?

No. The Type-C 5 V input is an external power input; the manual states that it does not charge the cell. Use a suitable charger for the CR123A cell.

▼ Does it magnify?

The optical system is 1×. The thermal image has 1×, 3× and 5× digital zoom; digital zoom reduces the field of view and does not add optical resolution.

▼ Which mount does it use?

A quick-release Picatinny (MIL-STD-1913) mount with a clamp-adjustment knob. Sight height above the bore axis is 38 mm.

▼ What are the adjustment range and click value?

± 40 MOA elevation and windage, with 0.5 MOA per adjustment increment.

▼ Can a thermal sight see through glass?

Ordinary glass blocks much of the long-wave infrared band used by thermal imagers, so a thermal sight generally cannot image through a closed window or glass barrier. Confirm the optical path in the intended installation.

▼ Does it measure temperature?

No. The HW256 is an imaging and aiming sight, not a calibrated radiometric thermometer. Its palettes display relative thermal contrast, not a certified temperature reading.

▼ What are the weight and dimensions?

450 g and ≤ 95 × 55 × 90 mm. The manual does not state whether the battery and accessories are included in the weight.

▼ What environmental limits apply?

Operating temperature −20 °C to +65 °C, storage temperature −40 °C to +70 °C, and IP67 per the manufacturer's statement. IP67 is not a diving or high-pressure-washing rating.

▼ What is the warranty?

Warranty terms follow the sales contract and the delivery documents supplied with the order. Contact sales@erdicn.com with the model and serial number for service or spare parts.

▼ What is the price and lead time?

Published unit prices are USD 1,999 (1–10), 1,899 (11–100), 1,799 (101–500), 1,599 (501–1,000) and 1,299 (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 thermal-imaging, optical and safety science; they do not test, certify or endorse the HW256.

1. ERDI TECH LTD, *HW256 Thermal Fusion Sight — User Manual*, 2026. 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. M. Vollmer & K.-P. Möllmann, [Infrared Thermal Imaging: Fundamentals, Research and Applications](#), Wiley (2010). General thermal-imaging physics; not a test of this sight.
4. NIST, Lane & Whitenton, [NISTIR 8098 — Calibration and Measurement Procedures for a High Magnification Thermal Camera](#) (2016). Thermography calibration and uncertainty; not a product certification.

5. International Organization for Standardization, ISO 18434-1:2008 — Condition monitoring and diagnostics of machines — Thermography — Part 1: General procedures. General thermography framework; no compliance claim is made.
6. International Electrotechnical Commission, IEC 60529 — Degrees of protection provided by enclosures (IP Code). Defines the IP code; does not certify this product.
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. European Union, Regulation (EU) 2021/821 — dual-use export controls. General export-control framework; not a legal determination for a particular transaction.

Warranty, compliance and contact

Warranty terms are as stated in the sales contract and the delivery documents. Damage caused by failure to observe the manual, unauthorised disassembly or modification, non-approved accessories, accident or improper storage is not covered. Keep the packaging and delivery documents for any claim.

The HW256 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 thermal imaging 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 (HW256) and the serial number marked on the product.