



John@Z-Bolt.com
503-867-1617

Field Utility Lasers - Infrared

- Non-Verbal Communications
- Safe & Precise
- Training
- Air Crew Signaling
- Target Marking Lasers for Rotary Wing Aircraft





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Field Utility Lasers – Infrared

Field Use, Capabilities, Features

- CONUS Training Without Restriction – Increase Operational Efficiencies
- Eye Safety – Train Without LEP in Laser Restricted Air Spaces / NOHD = 0
- Target Handovers - Target Talk Ons – Precise & Immediate Air Crew Comms
- Mark LZ's – Point Out Obstacles, Terrain Features – Rotors to Insure Clearance
- Nylon Carry Pouch – Retractable Cable Tether or Paracord for Vest Retention
- Personal, Portable, Adaptable, & Affordable -- Outfit Entire Air Crew, Team, Detachment, Fleet Squadron – Army Aviation Companies, Battalions, CAB's
- Safe, Precise, Visual, & Non-Verbal Communication:
 1. Between Pilots, Air Crewmen, Guns
 2. Crew to Ground Teams, "Squirter" Control
 3. Reduce Radio Chatter with Precise Silent Signaling
 4. Reduce Operational Errors – Improve Situational Awareness



Field Utility Lasers – Infrared

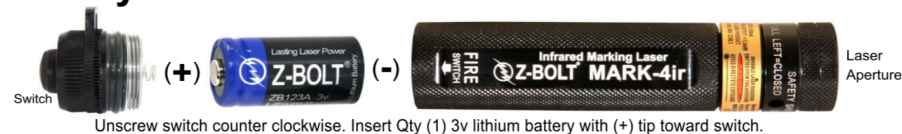
Simple Laser Operation – Safety First

- Laser is “Armed” When Battery Installed. “Firing” When LED Lit.
- Always Point Laser Toward Ground to Check Batteries or Switches.

Stowage & Transport:

- Always ENGAGE Power Lockout After Use – Prevents Battery Drain.
- Deploy Mechanical Laser Aperture Safety Shutter, Turn Full Left CLOSED.

Battery Installation



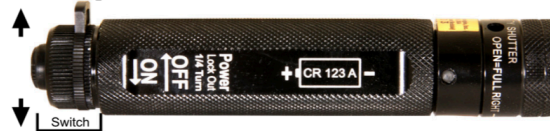
Battery Power Lockout Operation

Battery POWER OFF:

Switch 1/4 turn counter clockwise from stop.
On/Off switch disabled.

Battery POWER ON:

Switch installed turned clockwise until it stops.



SAFETY Components





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Field Utility Lasers – Infrared

Mark-1ir 1,000 Meter Range



Low Power – Training

830nm Infrared Laser Dot

Laser Power: FDA Class 1, < 0.7mW

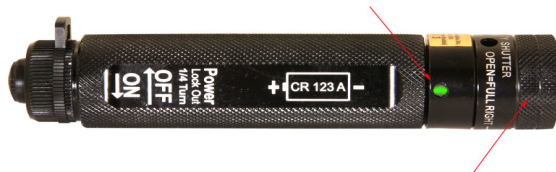
Dot Visible Only, Less Visible Laser Beam

Limited Range - Less Bright Than MARK-4ir

NOHD = 0, Civilian Legal, FDA Certified EYE-SAFE



Mark-4ir 5,000 Meter Range



Signaling & Target Marking

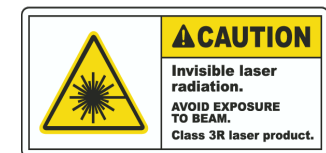
830nm Infrared Laser Dot & Beam

Laser Power: ANSI Class 3R, < 3.5mW

Brighter - Visible IR Beam – Targeting “Hand Offs”

Improve Situational Awareness, Tactical Comms

NOHD = 13.7m, Restricted Sales – Military & LE



LED Fire Indicator – Mechanical Safety Shutter



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Field Utility Lasers – Infrared

Air Crew Kits

- Nylon Soft Pack or Hard Case – Build to Order.
- Special Builds – Detachment, Squadron, Company, Battalion.
- 4, 8, or 12 pcs. MARK-1ir & MARK-4ir Infrared. Also Green or Red.
- Kits Include Laser & Modular Pouch, CR123A Batteries, User Guides.





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Field Utility Lasers – Infrared

Accessories – Mix & Match

All Z-Bolt® MARK-1ir & MARK-4ir Lasers include lanyard loops for vest retention, via retractable cable tether or paracord. Available accessories include gear cable tethers, detachable rubber hoods for lasing through glass canopies; nylon carry pouches.



Flexible Rubber Hood -
Lasing Through
Windows



BOLT-GK Cable Tether for Pilots & Aircrewmen
Retractable Laser Tether, Stainless Steel Spring & Hardware
MOLLE Strap System Compatible - Cable Break Strength 60 lbs.
Velcro Strap Mount – Berry Compliant Weight 9 oz.

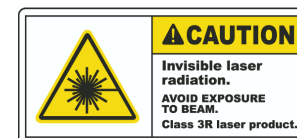


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Field Utility Lasers – Infrared

MARK-1ir & MARK-4ir Specifications

Tactical Infrared Laser (MARK-1ir MARK-4ir), Wavelength 830 nm
Output Power - MARK-1ir: <0.7 mW, FDA Class 1, NOHD = 0m (Visual Range – 1,000m)
Output Power - MARK-4ir: <3.5 mW, ANSI Class 3R, NOHD = 13.7m (Visual Range - 5,000m)
Output Mode - Constant Wave, Operating Current | MARK-1ir < 20 mA | MARK-4ir < 25mA
Runtime MARK-1ir: 75 Hours, 1pc CR123A Lithium, 1,500 mAh
Runtime MARK-4ir: 60 Hours, 1pc CR123A Lithium, 1,500 mAh
Switch (1) Constant On/Off Tactile Switch, Power Lockout, Lanyard Loop
Laser Aperture: Mechanical Safety Shutter – Twist Full Open / Closed
Weight - 118 grams, 4.1 oz. (Switch and 1 pc CR123A Lithium Battery Installed)
Body Tube Material - T6061 Aluminum Alloy
Surface - Anodized Black Matte Finish, 1" Knurled Power Tube
Overall Dimensions - Length 130mm x Diameter 25.4mm
Warranty - 2 Years from Date of Purchase



Resources – Links & Documents:

MARK-1ir & MARK-4ir Lasers – Web Page: <https://www.z-bolt-laser-systems.com/infrared-eye-safe-training-lasers>
Z-Bolt IR Lasers – New Products 2019: <https://z-bolt-laser.box.com/s/a5zl2pp96l3ym9vthrn1ic8yabpkdd0w>
MARK-1ir, FDA Class 1 – User Guide & Specs: <https://z-bolt-laser.box.com/s/4tnsjo3ajfu776agidwvtei5p2l3yk89>
MARK-4ir, ANSI Class 3R – User Guide & Specs : <https://z-bolt-laser.box.com/s/cgxp38dzioehjntdgnmqwowqjgm1zzbn>