

BLASTER'S RANGER 3™ HIGH SPEED CAMERA

Blasts and their effects occur too quickly to be captured with standard speed video cameras. To see what you've been missing - you must record your blasts with high speed video.

If you want to determine the effects of blasts on structures or vehicles or determine the actual firing times of your blastholes and the nature of the rock movement, the digital video camera with the speed and resolution to accurately capture these events is the Blaster's Ranger 3™ High Speed Camera. It is a complete high speed video recording system with a remote screen and easy-to-use operator interface.

EXPLOSIVES CONSUMERS AND MANUFACTURERS

Your delay detonators must provide the correct timing for your specific blasting conditions. Incorrect timing reduces rock fragmentation, affects blast movement, and can increase blast vibrations. The Blaster's Ranger 3™ High Speed Camera with the included ProAnalyst® 2023 Blaster's Custom Toolbox Software can document the actual firing times of blastholes to sub-millisecond accuracy, as well as quantify face velocity, blowouts, stemming ejection, flyrock trajectory, and more.

RESEARCHERS OF BLAST EFFECTS

You are running a sophisticated testing program involving measurement of the effects of energetic materials. The Blaster's Ranger 3™ High Speed Camera is a portable, affordable alternative to expensive high speed digital video cameras traditionally used by corporate, university and government researchers to video record the effects of blasting on structures and vehicles. The use of multiple cameras provide researchers the ability to record events from multiple camera angles for time base correlation and accurate 3-D motion analyses using the optional ProAnalyst® 2023 Professional Analyst 3-D Toolbox Software available from MREL.



**High Speed
VIDEO CAMERAS**

RESOLUTION: UP TO 2560 X 2048 PIXELS
SPEED: UP TO 29,000 FRAMES PER SECOND
MEMORY: 8 GB STANDARD
STORAGE OPTION: 1 TB SOLID STATE DRIVE STANDARD
TRIGGERING: EXTERNAL TRIGGER
FIRING TIMES OF: HOLES, DETONATORS, DELAYS, ETC
BLAST EFFECTS ON: ROCK, STRUCTURES, VEHICLES, ETC

- Integrated design combines the camera and a full PC controller, allowing the user to collect, store, and process videos from a single unit.
- Convenient SSD to save the recorded video.
- Video resolutions of up to 2560 x 2048 pixels.
- Novel, rugged design with attractive pricing.
- Provided fully equipped in a portable carry case.
- Motion analysis software for automatic tracking of targets.
- MREL's 1 Year Comprehensive Parts & Labour Warranty.

MEASURING THE INVISIBLE

Visit our website
www.mrel.com

BLASTER'S RANGER 3™ HIGH SPEED CAMERA

Everything you need is provided and packed into one rugged carry case for convenience and durability. Setting up is quick and easy: mount the Blaster's Ranger 3™ on the included tripod, attach the high-power zoom lens, connect the V-mount battery, and the display for control of the camera. For triggering, use the included Blaster's Ranger 3™ Trigger Switch or opt for remote triggering with the optional PWT™ Portable Wireless Trigger. Once powered on, the camera's field of view can be displayed on the screen, optional Windows® tablet or your computer if you prefer. Control every camera function using intuitive on-screen menus - set triggering, recording parameters, and even automatic video saving to the SSD. After capturing the blast, review and save the footage directly to the SSD, then effortlessly transfer it to your PC at your convenience using the provided network cable or your external USB 3 portable hard drive. With ProAnalyst® Software, you can dive deeper into the footage for precise analysis and valuable insights.

1000 FPS THE SWEET SPOT FOR MINING BLASTS

With the camera recording speed set at 1000 frames per second (1 image per ms) and the video resolution set to 1280 x 1014 pixels, depending on the camera model chosen you can record up to 25 seconds of video to memory or stream video to the SSD for 13 minutes.



BLASTER'S RANGER 3™ HIGH SPEED CAMERA SPECIFICATIONS:

BR3-HS5i-QC081TB: Monochrome or Colour, 2560 x 2048 pixels maximum resolution, maximum record rate of 253 fps at maximum resolution, up to 29,000 fps at reduced resolution, 8 GB standard memory.

BR3-HS5i-QC161TB: Monochrome or Colour, 2560 x 2048 pixels maximum resolution, maximum record rate of 253 fps at maximum resolution, up to 29,000 fps at reduced resolution, 16 GB standard memory.

BR3-HS5i-QC321TB: Monochrome or Colour, 2560 x 2048 pixels maximum resolution, maximum record rate of 253 fps at maximum resolution, up to 29,000 fps at reduced resolution, 32 GB standard memory.

Shutter: minimum 3µsec.

Pixel Size: 12-bit CMOS sensor with 5µm square pixels, supports binning and subsampling colour or monochrome.

Light Sensitivity: 1600 to 12,800 ISO monochrome, 800 to 6400 ISO colour.

Built-in Storage: SSD: 2TB maximum.

Ports: 2x HDMI, 1x USB 3.2 (10G), 1x USB 2.0, 2x USB4 (40G) via Thunderbolt 4 (USB Type-C port), 2.5 Gigabit Ethernet / WiFi 6.

Lens Mount: MFT mount included.

File Formats: Stacks – BMP, PNG, JPEG, TIFF (processed or raw); Video – AVI, CAP (raw), MP4, RDI.

Control Software: FasMotion (PC/Mac application).

Trigger: Externally by trigger switch or TTL trigger signal. Camera I/O either 3.3v LVTTTL or 5v TTL, selectable for each camera via FasMotion Camera Preferences.

Power: External power pack supplied, 110/220 AC adapter and external battery connection cables are provided.

System Components Provided: Blaster's Ranger 3™ High Speed Camera with Zoom Lens, ProAnalyst® 2023 Blaster's Custom Toolbox Software which allows auto-tracking of one feature and/or manual tracking of up to 32 features and exporting to Microsoft® Excel for further analysis and graphing, Tripod and Trigger Switch, Power Adapters and cables for DC and AC operation, V-mount power pack, Blaster's Ranger 3™ Operations Manual, Carry Case.

Environmental: Fully operational at +0 to 40 °C (+32 to +104 °F).

Warranty: MREL's 1 Year Comprehensive Parts and Labour Warranty. **Technical Support:** MREL's Unlimited Technical Support Program by secure customer portal, e-mail, and telephone.

ACCESSORIES:

PROANALYST® 2023 SOFTWARE

(PROFESSIONAL ANALYST TOOLBOX): This edition is the Professional Analyst which includes all available 2-D toolkits: Full Parametric Feature Tracking (includes Adaptive Feature Tracking), Constrained Edge Tracking, Particle Tracking, Contour Tracking, Orthonormal Calibration, Perspective Calibration, Image Processing, Image Stabilization, Advanced Data Graphing, Reports and Presentation.

PROANALYST® 2023 SOFTWARE (PROFESSIONAL

ANALYST 3-D TOOLBOX): Includes all the features of the Professional Edition, plus the 3-D Manager. Analyze events captured by multiple cameras to reconstruct and display motion in 3-D with accuracy.



MREL Group of Companies Limited

5-779 Sir John A MacDonald Blvd., Kingston, Ontario K7L 1H3, Canada

☎ +1.613.545.0466 ✉ sales@mrel.com 🌐 @mrel

Visit our website

www.mrel.com

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