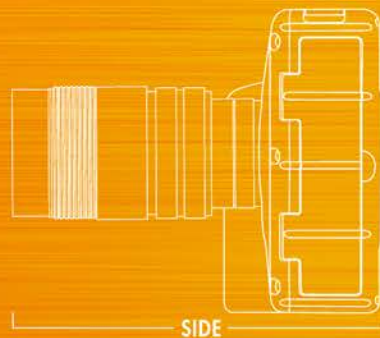


BLASTER'S RANGER II™ HIGH SPEED CAMERA

- RESOLUTION: UP TO 1280 X 1024 PIXELS.
- SPEED: UP TO 20,000 FRAMES PER SECOND.
- MEMORY: UP TO 8 GB.
- MULTIPLE STORAGE OPTIONS: SDHC CARD, USB, OPTIONAL SOLID STATE DRIVE.
- TRIGGERING: EXTERNAL TRIGGER.
- FIRING TIMES OF: HOLES, DETONATORS, DELAYS, ETC.
- BLAST EFFECTS ON: ROCK, STRUCTURES, VEHICLES, ETC.



SIDE



BLASTER'S RANGER II™
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 II™ High Speed Camera. It is a complete high speed video recording system with a built-in LCD 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 II™ High Speed Camera with the included ProAnalyst® TrackOne Edition 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 II™ 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® 3-D Professional Edition software available from MREL.

THIS BROCHURE CONTAINS SOME PRELIMINARY SPECIFICATIONS

Easy to use: built-in buttons, LCD screen, and on-screen menu.

Convenient SDHC card to save the recorded video.

Video resolutions of up to 1280 x 1024 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.

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www.mrel.com



BLASTER'S RANGER II™ HIGH SPEED CAMERA

Mount the camera onto the Blaster's Ranger II™ Tripod. Attach the lens to the camera and insert the SDHC card provided. Power the camera from internal battery or connect to AC or 12 VDC power with the cables provided. Connect the Blaster's Ranger II™ Trigger Switch for triggering by the Operator, or connect the optional PWT™ Portable Wireless Trigger for remote triggering. Turn on the camera and use the built-in 178 mm (7 in.) LCD to display the camera's field of view. Use the push buttons and on-screen menus to control all functions of the camera. Set the camera's triggering and recording parameters. If desired, set automatic saving of the recorded video to the SDHC card. After the blast, push buttons to play back and save all or part of the video to the SDHC card. Transfer the video from the SDHC card to the Operator's PC using the SD Card Reader provided. Analyze the video with the ProAnalyst® Software on the Operator's Windows™ PC.

BLASTER'S RANGER II™ TRIPOD

Collapsible tripod with rugged Grip-Action Ball Head for positioning Camera.

EXAMPLES OF VIDEO RESOLUTIONS, RECORDING SPEEDS AND RECORDING TIMES

Model RAI-L2-O				
Recording Speed (fps)	Video Resolution (H x V pixels)	2 GB Memory Recording Time (s)	4 GB Memory Recording Time (s)	8 GB Memory Recording Time (s)
125	800 x 600	35.8	71.6	143.2
250	800 x 600	17.9	35.8	71.6
500	800 x 600	9.0	18.0	36.0
1000	800 x 600	4.5	9.0	18.0
1250	800 x 600	3.6	7.2	14.4

Model RAI-S4-O			
Recording Speed (fps)	Video Resolution (H x V pixels)	4 GB Memory Recording Time (s)	8 GB Memory Recording Time (s)
125	1,280 x 1,024	26.2	52.4
250	1,280 x 1,024	13.1	26.2
500	1,280 x 1,024	6.5	13.0
1000	800 x 756	7.1	14.2
1000	1280 x 516	6.5	13.0
2000	640 x 448	7.5	15.0
4000 ¹	400 x 304	8.8	17.6
5000 ¹	300 x 286	9.9	19.8
10000 ¹	200 x 166	12.4	24.8
15000 ¹	160 x 120	14.9	29.8
20000 ¹	160 x 86	15.6	31.2

*fps = frames per second.
¹ = to be implemented in Q4 2012.

MREL is committed to product innovation; accordingly product may undergo specification improvements without notice.

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THIS BROCHURE CONTAINS SOME PRELIMINARY SPECIFICATIONS

BLASTER'S RANGER II™ HIGH SPEED CAMERA SPECIFICATIONS:

Model RAI-L2-O: Monochrome or Colour, 800 (H) x 600 (V) pixels maximum resolution, maximum record rate of 1,200 fps at maximum resolution, 2 GB standard memory upgradeable to 4 GB and 8 GB.

Model RAI-S4-O: Monochrome or Colour, 1,280 (H) x 1,024 (V) pixels maximum resolution, maximum record rate of 506 fps at maximum resolution, up to 20,000 fps at reduced resolution, 4 GB standard memory upgradeable to 8 GB.

Settings: The Blaster's Ranger II™ has an integrated LCD color display with an on-screen menu. The menu allows the operator to change all camera settings in the field including: record and playback modes; trigger mode; record rate; resolution; shutter speed; play controls; video save controls with start and stop position select.

System Design: Stand alone, battery powered, portable with multiple PC I/O ports.

Sensor: CMOS sensor. **Pixel Size:** 14 µm square.

Light Sensitivity: 3,200 ISO monochrome, 1,600 ISO colour.

Shutter: Global electronic shutter from 2 µs to 1 second.

Removable Storage: Standard 16 GB SDHC or higher.

Ports: USB, SD, GigE.

Lens Mount: C-Mount.

File Formats: Still = JPG; Stacks = BMP, TIFF and JPG; Video = AVI.

Built-in Monitor: Ultra bright, 178 mm (7 in.) diagonal WVGA LCD.

PC Interface: PC or Mac compatible via Gigabit Ethernet or USB 2.0.

Control Software: MAC, Windows or Linux OS compatible.

Trigger: Externally by trigger switch or TTL trigger signal.

Sync: External sync inputs via BNC. **Video Out:** HDMI.

Construction: Machined Aluminum Housing.

Power: Internal rechargeable battery pack (3 hrs.), 10-26 VDC external power supply, 110/220 AC adapter and external 12 VDC battery connection cables are provided.

System Components Provided: Blaster's Ranger II™ High Speed Camera with Zoom Lens, ProAnalyst® TrackOne Edition 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, Blaster's Ranger™ Tripod and Trigger Switch, high speed SDHC Card and Card Reader, Power Adapters and cables for DC and AC operation, Blaster's Ranger II™ Operations Manual, Carry Case.

Environmental: Fully operational at +5 to 35 °C (+41 to +95 °F).

Warranty: MREL's 1 Year Comprehensive Parts and Labour Warranty.

Technical Support: MREL's Unlimited Technical Support Program by secure customer portal, email, and telephone.

ACCESSORIES:

OTHER LENSES: A wide variety of C-Mount lenses to meet specific requirements.
PWT™ PORTABLE WIRELESS TRIGGER: To trigger the camera wirelessly from up to 500 m (1640 ft.) distance.

PROANALYST® PROFESSIONAL EDITION: Includes all the analysis features and engines for auto-tracking objects in 1-D and 2-D, data reduction and report generation.

PROANALYST® IMAGE STABILIZATION: A recommended toolkit for the ProAnalyst® Professional Editions which removes unwanted jitter and vibration from a video.

PROANALYST® 3-D PROFESSIONAL EDITION: 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.