

<b>HIGH SPEED VIDEO CAMERASPECIFICATIONS</b>	
<b>Sensor</b>	Color CMOS Sensor
<b>Pixel Resolution</b>	2560 x 2048 maximum record rate of 253 fps at maximum resolution, up to 18,000 fps at reduced resolution
<b>Frames per seconds (fps)</b>	Maximum up to 18,000 frame per second
<b>Lens Mount</b>	C-Mount. F-Mount Adapter and Other latest Lenses
<b>Lens</b>	80-200 mm, F-mount Zoom Lens or better
<b>Shutter</b>	Electronic shutter (3μsec to 41.654ms)
<b>Synchronization</b>	Multiple Cameras sync facility (External sync inputs via BNC)
<b>Memory on-board/internal</b>	Minimum 8 GB and extendable storage options
<b>Solid State Data Storage</b>	Built in Solid State Data Storage Drive of minimum 512GB or more for field application
<b>Display</b>	Ultra-bright, LCD of minimum 170 mm for live view, for review display and play back.
<b>Camera Control on Board</b>	Camera should include on board control facility for controlling all camera functions and display camera field view.
<b>Camera Control, Remote Access</b>	Camera should have Web-Control Interface for remote control through internet browser from any computer connected to the internet.
<b>I/O connectors</b>	Ethernet connection, Video out HDMI, USB power adapter cables for DC and AC Power operation.
<b>Ports</b>	USB, SD, GigE
<b>Power supply</b>	220 VAC adapter & provision for battery operation. System must include Battery charger with portable battery pack (for extended in-field monitoring)
<b>Trigger</b>	Externally by trigger switch or TTL trigger signal. External essentially wireless for rock blasting where wires are not permitted to lay and internal using camera controller (Portable wireless Trigger system must be included which must work upto 500 meters or more).
<b>Rugged Housing for field work</b>	All electronics and lens etc. should be fully concealed. Camera housing should be rugged for opencast mining operations with accessories.
<b>Essential Accessories</b>	Portable wireless trigger including Transmitter and receiver with Tripods & Case minimum 500 meter range distance for safety, Battery charger with portable battery pack (for extended in-field monitoring) , suitable camera tripod with carrying case, high speed rock blasting operation at minimum Safe Distance of 500 m. Suitable Data Collection on notebook hardware and software may also be included for extended video files management in the field during projects Software Package suitable for rock blasting data analysis, storage and management. Additional battery 1Nos

#### A compatible Software Details (Pro Analyst 3-D Professional Edition)

- Software should allow the users to import virtually any digital video quickly measure and track time. Position distance velocity of blasted rock mass and any other rock characteristics within that video event.
- The output of software should be instantly graphed reviewed compared against external data and even be exported to power point presentation printer friendly reports and \html web pages to compare the results.
- Software should have the facility of point tracking velocity versus time graph import and export of multiple file types. State of the art digital image processing tools. The software should also be capable of tracking blast event movement without having to use special markers. Auto track or manually track rock blasting movement.

#### **Note:**

- Demonstration of camera in the actual mining field condition by the manufacturer /representative.
- The quoting firm must submit the user list of camera in the mining research organization/industries.
- Quoting firm may be required to provide technical presentation and reference from the users especially from the mining Rock Blasting operations.
- **In case of further technical clarification, please contact Mr. G. Gopinath, Scientist II OR Mr. G.C. Naveen, Scientist II Email ID:rbeenirm@gmail.com**