



Phantom v5.1

Provides 8-bit image depth, and 1,200 frames per second at a full resolution of 1,024 x 1,024 pixels.

LEGACY PHANTOM CAMERA GETS EVEN BETTER

When the Phantom v5.0 began to ship in January of 2001, it was the first commercially produced high-speed digital camera to employ a mega-pixel CMOS imaging sensor. Using an array of 1024x1024 real and active pixels, the v5.0 produced unrivaled image quality and resolution along with excellent sensitivity.

The lighter and smaller v5.1 retains all of the features of its predecessor and adds new capabilities as well. Fast and reliable Gigabit Ethernet communication speeds and simplifies camera setup and file transfers. Consider operating and downloading files from a v5.1 located on another continent via the internet! The Range Data Input gives you the ability to append image files with other test data such as azimuth and elevation data from a host tracking platform.



- *8-bit CMOS sensor composed of 1024 x 1024 pixels; color or monochrome*
- *1,200 frames per second full resolution, up to 95,000 fps maximum*
- *“CAR” (Continuously Adjustable Resolution) in 64 x 4 pixel increments*
- *2400 ISO/ASA monochrome, 600 ISO/ASA color sensitivity equivalency*
- *Global (snap-shot) on-chip shuttering to 2 microseconds*
- *“EDR” Extreme Dynamic Range™ and Auto exposure control*
- *PIV - Particle Image Velocimetry (standard)*
- *Up to 8 Gigabytes DRAM, 6 Gigabytes non-volatile flash memory (optional)*
- *IRIG-B timing capture, modulated or unmodulated, IRIG lock w/phase shift*
- *Continuous video output: RS-170 (NTSC, PAL)*
- *Rugged HI-G configuration (optional)*
- *Range data input*
- *Automated multiple session recording for remote unmanned operation*
- *Gigabit Ethernet or RS232 control*



V5.1 Specifications

FEATURES

Auto Exposure

"EDR" Extreme Dynamic Range™

HI-G configuration (optional)

Range Data Input

Continuous recording

PIV (Particle Image Velocimetry)

Pre-trigger recording

Post-trigger recording

On chip global shuttering

Strobe sync

Segmented image memory

Continuous color video output

IRIG-B timing capture with phase shift

10/100/Gigabit Ethernet

Sensor: 1024 x 1024 pixel CMOS sensor.

Image Bit Depth: 8-bit

Sensitivity: 2400 ISO/ASA mono-chrome, 600 ISO/ASA color

Frames per second (FPS): Full sensor; to 1,200 fps

Exposure Time: Variable, independent of sample rate, to 2 microseconds,

Trigger: Continuously variable pre/post

Imager Control: 10/100/Gigabit Ethernet, or RS232 serial interface

Preview and Focusing: Via computer monitor or continuous video out

Lens Mounts: Nikon mount standard. Many other lens mounts available, including C-mount

INPUTS/OUTPUTS: via integrated quick-release connector:

Trigger: Rising/falling TTL pulse w/filter, or switch closure

Sync Image: TTL pulse

Event Marker: TTL pulse or switch closure

Ready Signal: TTL pulse

IRIG-B Timing: IRIG-B code, modulated or unmodulated input, with IRIG-B output, lock, and variable phase shift

Strobe Sync: TTL Pulse

Range Data Input

RS232

Network: 10/100/Gigabit Ethernet

Video out: RS-170 (NTSC, PAL)

Power: 24VDC/1.5 Amp

MEMORY

1024 Megabytes integral image memory. Records 1,000 images for 1 second of continuous recording at 1,000 fps, full format. Longer recording times for lower sample rates and allocated formats (example: 10 seconds at 100 fps).

Optional:

(times based on 1,000 fps full frame)

2048MB= 2 seconds, 2,000 images

4096MB= 4 seconds, 4,000 images

8192MB= 8 seconds, 8,000 images

Optional: Non-Volatile Flash Memory, up to 6 gigabytes

ENVIRONMENTAL

Ambient Temperature

32°F and 104°F (0°C and 40°C)

Maximum humidity: 80%, non-condensing, at 5°C

SOFTWARE

Phantom® operates in Windows XP Pro or Vista environments with familiar commands found in familiar places. Standard functions include:

Acquisition: Image capture, IRIG-B timing capture & standard time annotation. Field of view & focus. Sample rate & aspect ratio selection. Shutter speed. Histogram. Brightness, contrast, & gamma adjust. Trigger modes. Continuous record. Save & recall setups.

Analytical playback: Immediate playback of cine. Variable playback speed in forward or reverse, including freeze frame & endless loop. Random Go-to-Image. View single images at random from any cine. Tile/cascade multiple images on one screen. Timing data displayed with each image. Cine editor. Multi Cine Viewer.

Measurements: Linear or angular measurements. English and metric units. Generate Velocity, RPM, or 100 data points per measurement reports. Report files & images are compatible with Phantom, TEMA Starter Software or any spread-sheet software, and image analysis software such as TrackEye®, Image Express®, or Falcon®.

Image processing: Smooth, sharpen, pseudocolor, negative image, and edge detection. Brightness, contrast & gamma adjust. 3x3 and 5x5 filter matrix for custom image processing.

File management: Organize, save, compress and export cines, or single images. File formats are compatible with most word processing, desktop, publishing, and presentation software.

DIMENSIONS

Size: 4.3 x 4.0 x 9.5 inch (HWD)
(12.5 x 11 x 25 cm) (HWD)

Weight: 7 lbs (3.2kg)

Power: 24VDC/1.5 Amp

Mounting: 1/4-20 inch and four 10-32 threaded hole pattern in base and top

Mounting Axis: Any position

Country of Origin: The United States of America

STANDARD ACCESSORIES

Phantom® software, Single user license*

1024 Megabyte integral image memory

Ethernet, Sync output pulse, trigger, pretrigger, video out, and IRIG-B

110/220VAC -24VDC International Power Adapter, 12 foot (3.7 m) power cord

One year service contract included

QUESTIONS?

For technical assistance, systems integration, custom options, or information on imaging techniques or training please call us toll free:

1.800.RESOLUTION

(US & Canada 1.800.737.6588)

For the most up-to-date information, specifications and options, please visit our website:

www.visionresearch.com

VISION RESEARCH

All specifications are subject to change. (Oct-07)

Phantom v5.1 Maximum Recording Speed vs. Image Size

The Phantom v5.1 camera system can record up to 1,200 pictures per second using the full 1024 x 1024 pixel CMOS imaging sensor array. The operator may also specify other aspect ratios to increase speeds or extend recording times.

The chart below details the Phantom v5.1 aspect ratio choices available in the setup screen pull down menu. Using the CAR (Continuous Adjustable Resolution) feature, speeds between these values are continuously adjustable in 64 x 4 pixel increments.

RESOLUTION	RATE
1024 x 1024	1,200
1024 x 768	1,680
1024 x 512	2,500
768 x 768	2,140
768 x 512	3,190
768 x 256	6,200
512 x 512	4,380
512 x 256	8,550
512 x 128	16,200
256 x 256	13,400
256 x 128	24,900
256 x 64	43,300
128 x 128	33,900
128 x 64	56,300
64 x 64	66,300
64 x 32	95,000



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