Phantom v10

Provides 14-bit image depth, and 480 frames per second at a full resolution of 2400 x 1800 pixels

INSTRUMENTATION OR CINEMATOGRAPHY? IT'S YOUR CHOICE

The Phantom v10's CMOS sensor, offers 480 frames per second at its full resolution of 2,400 x 1,800 active pixels. At the HD resolution of 1920 x 1080 the v10 records 978 fps (standard mode), or 519 fps (enhanced mode).
While continuing the feature rich tradition, sensitivity and "ease-of-use" offered in previous Phantom camera models, the Phantom v10 offers new features such as an HD-SDI interface, Gigabit Ethernet, 14-bit depth, and larger DRAM image memory optioning to record more images over a longer record time.

- ***Full frame 4:3 aspect ratio CMOS sensor composed of 2,400 x 1,800 pixels***
- ***14-bit image depth (standard)***
- ***481 frames per second (standard mode), 252 fps (enhanced mode), full resolution, up to 153,846 fps (standard mode), 148,148 fps (enhanced mode) "CAR" (Continuously Adjustable Resolution) in 96 x 8 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 ™ exposure control***
- ***Auto Exposure control***
- ***Up to 24 Gigabytes DRAM, 24 Gigabytes Flash memory (optional)***
- ***IRIG-B timing capture, modulated or unmodulated, IRIG lock w/phase shift***
- ***Continuous video output; NTSC, PAL, multiple HD-SDI output formats available***
- ***Optional continuous data streaming up to 275 fps (8-bits) 175 fps (12-bits)***
- ***Automated multiple session recording for remote unmanned operation***
- ***Gigabit Ethernet or RS232 control***

V10
Specifications

FEATURES

Auto Exposure
"EDR" Extreme Dynamic Range™
Continuous data streaming (optional)
Continuous recording
Pre-trigger recording
On chip global shuttering
Strobe sync
Segmented image memory
Continuous color HD-SDI video output
IRIG-B timing capture with phase shift
10/100/Gigabit Ethernet

Sensor: 2400 x 1800 pixel CMOS sensor.

Image Bit Depth: 14-bit (standard)

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

Frames per second (FPS): Full sensor; to 480 fps maximum; (standard mode), or 250 fps (enhanced mode)

Exposure Time: Variable, independent of sample rate (fps), 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

Continuous Data Streaming: Up to 275 fps (8-bits), 175 fps (12-bits)

Strobe Sync: TTL Pulse

RS232

Network: 10/100/Gigabit Ethernet

Video out: NTSC, PAL, and HD-SDI (720p, 1080p, 1080i, or 1080pfs at 24, 25, 59.9, and 60 fps)

Power: 20-36VDC/50W

MEMORY

Standard: 6 Gigabytes integral image memory records 1,422 images for 2.96 sec of continuous recording at 480 fps, full format (8-bits) or 813 images for 1.69 sec of continuous recording at 480 fps, full format (14-bits). Longer recording times for lower sample rates and allocated formats.

Optional: 12 Gigabytes integral image memory continuously records 2,890 images for 6.0 sec. (8-bits) or 1,651 images for 3.43 sec (14-bits) at 480 fps full frame, and 24 Gigabytes will record 5,825 images for 12.1 sec (8-bits) or 3,329 images for 6.92 sec (14-bits) at 480 fps full frame.

Optional: Non-Volatile Flash Memory, up to 24Gigabytes.

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, psuedocolor, 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)
(10.9 x 10.16 x 24.13 cm) (HWD)

Weight: 7 lbs (3.18kg)

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*

6 Gigabyte 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 tool 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. (May-08)

Phantom v10 Maximum Recording Speed vs. Image Size

The Phantom v10 camera system can record up to 480 frames per second using the full 2400 x 1800 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 v10 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 96 x 8 pixel increments.

STANDARD MODE	
RESOLUTION	RATE
2400 x1800	480
1600 x 1200	1,016
1920 x 1080	978
1440 x 1440	943
1280 x720	1,992
1152 x 1152	1,419
960 x 720	2,619
960 x 480	3,902
768 x 768	2,919
768 x 576	3,872
576 x 576	4,756
576 x 288	9,280
480 x 480	6,420
192 x 192	24,242
96 x 96	51,282
96 x 8	153,846

ENHANCED MODE	
RESOLUTION	RATE
2400 x1800	252
1600 x 1200	544
1920 x 1080	519
1440 x 1440	509
1280 x720	1,082
1152 x 1152	779
960 x 720	1,464
960 x 480	2,188
768 x 768	1,667
768 x 576	2,216
576 x 576	2,818
576 x 288	5,555
480 x 480	3,902
192 x 192	17,391
96 x 96	43,010
96 x 8	148,148

VISION RESEARCH

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