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## **Vision Research Bolsters Advanced Phantom® v-Series With Two New Digital High-Speed Cameras**

***New Phantom® v710 Reaches 1.4 Million Frames-Per-Second Mark,  
Capturing World's Fastest CMOS Digital Camera Title***

***New Phantom® v210 Addresses Budget Constraints  
With Breakthrough Pricing Structure***

**WAYNE, N.J., June 26, 2009** – On track for a record year of new product introductions in 2009, Vision Research, a leading manufacturer of high-speed digital imaging systems, today unveiled the Phantom® v710 and Phantom® v210 -- the latest additions to the company's renowned v-Series of advanced digital high-speed cameras.

The new flagship model of the company's industry-leading v-Series, the Phantom v710 is the world's fastest CMOS-based digital camera, with a maximum recording speed of 1.4 million frames-per-second (fps). With a competitive pricing structure, the new Phantom v210 serves as the entry-point into the Vision Research v-Series, giving industries the ability to utilize high-speed video to maintain a competitive edge, despite existing budget challenges.

### **The Phantom v710**

The Phantom v710 offers an unrivaled throughput of over seven gigapixels-per-second, which allows the camera to record at 7,530 fps at its maximum resolution of 1280x800. At reduced resolutions, the Phantom v710 can reach the 1.4 million fps mark, making the new v-Series flagship the world's fastest CMOS-based digital high-speed camera. The new Phantom v710 is ideally suited for use in a variety of industries for which high-speed and high-resolution imagery is critical, including industrial and R&D applications, military and ballistics testing, PIV, as well as ultra-slow motion replays for 720p high-definition professional sports broadcasts.

Additional high-performance features include:

- Breakthrough sensitivity: increased peak quantum efficiency and reduction in noise-equivalent power
- Active pixel size of 20 microns
- Sub-microsecond shuttering: down to 300 nanoseconds, programmable in 18 nanosecond increments
- High-resolution timing: better than 20 nanosecond resolution
- Precise frame synchronization: BNC cable provides synchronization signal and increased signal integrity
- Range Data input
- 500 nanosecond straddle time and no image lag: ideal for particle image velocimetry (PIV) applications.
- Extreme Dynamic Range (EDR): two exposures within a single frame
- 8GB, 16GB or 32GB of high-performance built-in dynamic RAM
- Phantom CineMag™ and CineStation™ support

In addition to blazing speed, the Phantom v710 offers a full suite of user-convenience features, which further elevate the versatility of the new v-Series digital high-speed camera. Building on the architecture of the award-winning v12.1, the world's first CMOS-based digital camera to break the one million fps mark, the v710 features an internal mechanical shutter as well as Vision Research's Versatile Dual HD-SDI outputs.

The Phantom v710's internal mechanical shutter gives users the ability to perform a session-specific black reference, also known as a CSR, without having to manually cover the lens. Performing a CSR gives users the ability to calibrate their camera's CMOS sensor, setting all pixels to pure black-- an important step in ensuring the highest-performance and most accurate image possible.

The Phantom v710's Versatile Dual HD-SDI outputs can be used in four different configurations. Users can take advantage of two identical 4:2:2 outputs, independent 4:2:2 outputs where one is live and one is playback, one dual HD-SDI 4:4:4 output, or 4:4:4 playback on the dual HD-SDI, while the user has a live image on the component viewfinder. Versatile Dual HD-SDI is an extremely beneficial feature, especially for the professional sports broadcast industry, as it gives camera operators the ability to simultaneously feed replays to the broadcast truck, while still viewing and capturing new

footage with the Phantom v710 at the start of each play. Furthermore, at 720p HD resolution, the Phantom v710 can record events at speeds of 8,360 fps, providing unmatched ultra-slow motion replay.

### **The Phantom v210**

The evolving marketplace has placed significant budget constraints on a number of industries, making it difficult for professionals in these sectors to utilize digital high-speed video to maintain a competitive edge. Whether it is used in R&D, product development, maintenance or testing applications, digital high-speed video is a useful tool that can have a positive and direct impact on one's bottom line.

Offering a range of breakthrough technologies, along with the industry's most competitive pricing structure, the new Vision Research Phantom v210 is the entry-point into the company's revered v-Series and the ideal digital high-speed camera for industries where budgets may be tight. Offering the same megapixel resolution as the Phantom v710, the Phantom v210 offers end-users two gigapixel-per-second throughput with a maximum frame rate of over 2,000 fps at full resolution. At reduced resolution, the Phantom v210 can record at speeds up to 300,000 fps. Additional high-performance features include:

- Active pixel size of 20 microns
- Two microsecond global electronic shutter to help reduce motion blur
- Phantom CineMag and CineStation support
- Internal mechanical shutter for remote CSR (optional)
- Twin HD-SDI outputs
- High-resolution timing system
- Precise frame synchronization: BNC cable provides synchronization signal and increased signal integrity
- 8GB, 16GB or 32GB of high-performance built-in dynamic RAM
- Extreme Dynamic Range (EDR): two exposures within a single frame
- Phantom CineMag and CineStation support

Security and versatility also abound with the Phantom v710 and v210 as the cameras are fully-compatible with Vision Research's Phantom CineMag system, which is quickly becoming the de facto standard for the storage of massive high-speed video

files. CineMag is a non-volatile, hot-swappable memory magazine that mounts to an optional interface directly on the body of the camera, providing added storage and data protection.

Available in 256GB or 512GB, the CineMag gives end-users the ability to record full-resolution video at a maximum frame rate of 700 fps, directly to the magazine, enabling very long record times. To record at higher speeds, users can record to the camera's onboard memory and then manually or automatically transfer those files to the CineMag for immediate storage and maximum data protection.

CineMags are designed to work with Vision Research's new Phantom CineStation, the company's CineMag docking station. Streamlining the high-speed imaging workflow for the end-user, the CineStation allows the high-speed footage - also known as "cines" - stored on a CineMag to be viewed, trimmed, played over video, and saved to hard disk or tape via 10GB Ethernet, dual HD-SDI, or component video outputs. This enhanced workflow ultimately provides uninterrupted use of the Phantom digital high-speed camera as the cines can be downloaded and edited offline, rather than utilizing the valuable camera asset to transfer the data.

The Phantom v710 and v210 are available with either a color or monochrome CMOS sensor, supporting both 8- and 12-bit pixel depths. The color CMOS sensor is rated at ISO (ISO-12232 SAT) 1,600 and the monochrome CMOS sensor is rated at ISO 6,400.

Vision Research is taking orders for both products now with deliveries to begin in July.

Additional information and detailed specifications for the Vision Research Phantom v710 and v210 can be found at [www.visionresearch.com](http://www.visionresearch.com)

### **About Vision Research**

Vision Research designs and manufactures high-speed digital imaging systems used in applications including defense, automotive, engineering, science, medical research, industrial manufacturing and packaging, sports and entertainment, and digital cinematography for television and movie production.

The Wayne, N.J.-based company prides itself on the sensitivity, high-resolution and image quality produced by its systems, robust software interfaces, and reliability and versatility of its camera family – all which continue to stand as benchmarks for the high-speed digital imaging industry.

Vision Research digital high-speed cameras add a new dimension to the sense of sight, allowing the user to see details of an event *when it's too fast to see, and too important not to*<sup>TM</sup>. For additional information regarding Vision Research, please visit [www.visionresearch.com](http://www.visionresearch.com).

Vision Research is a business unit of the Materials Analysis Division of AMETEK Inc., a leading global manufacturer of electronic instruments and electromechanical devices.

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