VISION RESEARCH
An AMETEK® Company

PHANTOM®
when it's too fast to see, and too important not to.®

DATA SHEET

Miro eX-Series

eXplore your world.

eXciting new features.

eXtraordinary value.

Introducing the compact, lightweight, untethered Phantom Miro eX-Series. The world's first "point and shoot" high-speed cameras just got better.

Key Benefits:

WHEN IT'S TOO FAST TO SEE, AND TOO IMPORTANT NOT TO®

A compact, lightweight and rugged point-and-shoot digital high-speed camera that is as familiar in your hand as a digital SLR. This revolutionary, self-contained, portable high-speed camera leverages over 50 years of Vision Research's legendary high-speed video capture expertise.

The Phantom Miro eX-Series provides the perfect balance of resolution, speed, and light-sensitivity in a self-contained solution enabling anyone to capture high quality, slow-motion movies. A built-in touch screen display is used to set up the camera as well as immediately view results. Battery power means freedom from power cords. Flexible triggering helps you capture even the most challenging events. Removable CompactFlash™ memory provides safe, secure and portable storage for valuable slow-motion content.

The Phantom Miro eX has everything you need in a digital high-speed imaging system. Whether you are researching the flight of a bumble bee, troubleshooting the fill/seal step of your packaging process, analyzing a golf swing, or drop-testing mobile appliances, there is a Phantom Miro camera that can help you explore your world.

Key Features:

Resolution (Pixels): 640 x 480, 800 x 600*

Maximum full-resolution frame rates of 500 fps to 1,260 fps.

Maximum frame rates at reduced resolutions are as high as 111,100 fps

CMOS active-pixel sensor

Exposure time (shutter speed) as low as 2 microseconds (1/500,000 second)

Built-in LCD touch screen display

ISO (ISO-12232 standard): 4800 Mono, 1200 Color

Ethernet connectivity

** Very short focal-length lenses may vignette at maximum resolution.*

On most Phantom cameras, as you decrease the resolution in increments defined by the Continuously Adjustable Resolution (CAR) specification, you will see an increase in the maximum frame rate that is available to you. This is true on the Phantom Miro cameras with the exception of the Miro eX1.

The Miro eX1 has two fixed resolutions, either 640 x 480 pixels or 480 x 360 pixels. Its maximum frame rate at 640 x 480 is 500 frames-per-second (fps). At 480 x 360, the maximum frame rate is 1,000 fps.

Here are some example frame rates for the rest of the Miro eX line.

Resolution/Speed Miro eX2:

H	V	FPS
640	480	1,240
512	480	1,540
512	384	1,920
512	256	2,860
512	128	5,610
512	64	10,700
320	240	4,710
256	480	2,940
256	256	5,420
256	192	7,130
256	128	10,400
256	64	19,400
128	128	18,200
128	64	32,200
64	64	48,100
32	32	86,900
32	16	105,200

With a variety of image sizes (640 x 480, 800 x 600) and maximum full-resolution frame rates of **500 fps to over 1,200 fps**, you will find a model that matches your need. (Maximum frame rates at reduced resolutions are as high as 111,100 fps!)

Exposure times as low as 2 microseconds (1/500,000 second), allow you to **freeze objects in motion**, eliminate blur, and bring out the detail you need for successful motion analysis.

The custom-designed CMOS active-pixel sensors have an ISO-12232 rating of 4800 (monochrome) ensuring the **light-sensitivity** required in high-speed imaging applications and come in color or monochrome versions.

Point-and-shoot, review and edit – all from the built-in LCD touch screen which also provides **immediate feedback** on the results of your test or experiment. You can play and rewind the slow-motion movie in normal or fast mode or step through your movie one frame at a time. Trimming the movie is as easy as setting in-points and out-points prior to saving. With the new Miro eX2 and Miro eX4, you can also **control multi-cine setups** and even program our new **Image-Based Auto-Trigger** feature with the LCD interface.

Take advantage of our **flexible triggering**. When you start recording on the camera, it begins taking images at the programmed settings and stores them in a circular buffer in internal memory. Change a setting, and see the impact of the change on the built-in LCD or external monitor immediately. Set up the camera where a trigger starts your recording, stops your recording, or records a selectable number of frames before and after the trigger. You can supply a trigger from external hardware, an on-camera trigger button, or software on a connected PC. You can even set some cameras to **trigger on motion** that occurs within the image.

Connect your Phantom Miro eX camera to a PC using Ethernet for additional camera programming and control, and to retrieve your test images in our efficient cine format for later analysis and processing using motion analysis software.

Using the Phantom Software you can also **save movies in popular formats** such as Quicktime or AVI, or you can save frames as JPEG or TIFF images. Easily email movies or frames to colleagues.

All models can be connected to a standard analog video monitor (PAL or NTSC) for real-time monitoring of the camera image or for playback of images stored in the camera's memory.

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Use any 1" C-mount lens, or attach your Phantom Miro eX camera to a microscope or borescope. An F-mount adapter allows the use of standard 35mm lenses. Battery power allows you to take shots completely **untethered** from a power source. Field use for animal studies, for example, is now practical. Carry multiple batteries with you for field replacement. Store images onto removable non-volatile CompactFlash memory. A wide variety of Miro-compatible accessories are available in our online store.

Mounting plates on two sides of the camera give you plenty of options whether using a tripod, boom, or custom mount.

The Phantom Miro family extends beyond the eX-Series. We also have the Phantom Miro 3, a high-g rated camera without an LCD screen and removable battery for use in the harshest environments. And, the Phantom Miro Airborne is ideal for airborne applications which require a small camera that meets the rigorous requirements for in-flight use.

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Focused

Since 1950, Vision Research has been shooting, designing, and manufacturing high-speed cameras. Our single focus is to invent, build, and support the most advanced cameras possible.

100 Dey Road
Wayne, NJ 07470 USA
+1.973.696.4500
phantom@visionresearch.com

www.**vision**research.com

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