VISION RESEARCH

PHANTOM®

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

Phantom® Miro® M & LC320S Digital High-Speed Cameras

The Ultimate Compact Solution for Production and Digital Media Applications

Phantom Miro LC320S with PL Mount (front) and Miro M320S with EOS Mount (rear)

Key Benefits:

The **Phantom® Miro® 320S** takes high speed imaging to the next level by combining the compact design of our latest Miro family with the resolution, speed and workflow possibilities of professional HD camera systems.
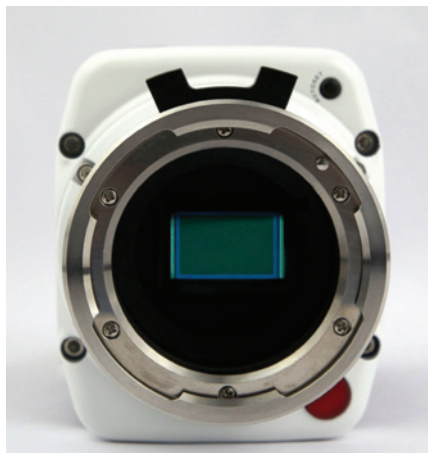
The Miro 320S is available in two models, the original M320S and the newer LC320S, which includes a **flip-out LCD touchscreen** for on-camera monitoring and controls. Both models are capable of recording at resolutions **beyond HD** at speeds up to 1380 frames-per-second (fps), and also include a single **HD-SDI output** for alternate monitoring and workflow possibilities.

All Miro-M and LC cameras ship standard with a rechargable battery and our powerful **CineFlash®** system. When used together with the **Phantom RCU**, the camera can be mounted remotely and all recording remains conveniently self-contained.

Key Features:

12 bit, 2 Megapixel CMOS sensor

1920 x1080 @ 1540 FPS

35mm depth of field

ISO (ISO 12232 SAT method): 8900T mono, 1100T color

Compact, rugged design

PL, Nikon F, and Canon EOS lens mounts

Phantom RCU compatible

LC320S includes flip-out LCD touchscreen for on-camera image monitoring and control

HD-SDI output

Rechargeable battery

Phantom CineFlash storage system
   CineFlash modules up to 240GB
   CineFlash Dock
   eSATA connectivity

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Miro® M320S and LC320S

Based on the **award-winning** technology of Phantom cinema cameras, Miro M and LC320S cameras take quality, portability and performance to the next level.

Versatility

The Miro product family follows the Phantom tradition in versatility by adapting to several imaging applications, and the Miro 320S is no exception. With precise control over resolution, frame rate, exposure time and trigger point, this camera is ideal for applications ranging from industrial & scientific, to new media and TV production.

The Miro 320S is available with a variety of lens mounts, including Canon EOS, 35mm PL, Nikon-F, and C. Optical low-pass filters are also available for applications where image quality is key. The EOS mount enables the use of Canon's EF and EF-S lenses, which can be controlled from the RCU, Phantom PCC software, or an aperture ring on the mount

Phantom Miro LC320S with Canon EOS Mount

itself. Remote control of aperture and focus is a huge benefit when cameras are remotely located and/or difficult to reach.

Workflow & Phantom CineFlash Storage Solution

Directly record to up-to 12 Gigabytes of internal memory and preview the shot immediately by playing back over HD-SDI, or Gb Ethernet. Save your shot by

editing the clip and quickly transfer to an installed Phantom CineFlash drive. Alternatively, record the HD-SDI playback to a separate device. Re-arm the camera and you're ready for the next shot.

CineFlash drives are available in sizes **up to 240 Gigabytes**, and offer write speeds of 4GB/minute. A full 12 GB Cine will save in less than 3 minutes.

At the end of the day, or once the drive is full, simply remove it from the

Phantom CineFlash Drive & CineFlash Dock

camera and download Cine Raw files via the CineFlash Dock or over the camera's Ethernet. The CineFlash Dock connects to your computer via eSATA for speedy downloads.

Phantom Cine Raw files can then be processed using Phantom PCC to take further advantage of the Miro M & LC-Series advanced color processing, which includes user-defined **color matrices, color temperature settings and tone curves**.

Specifications

The Miro 320S is based on a >2Mpx sensor with 3.2 Gpx/s throughput. This means frame rates of approximately 1380 fps at 1920 x1200, with higher frame rates at lower resolutions. This camera has 12-bit pixel depth, and uses micro-lenses on its custom-designed CMOS sensor to achieve exceptional light sensitivity.

Phantom Miro M320S

The Phantom Miro 320S is available with 3GB, 6GB or 12GB of internal RAM Memory. Expected record times and maximum frame rates per resolution can be found in the tables to the right.

Enhance your workflow with Phantom Accessories

RCU-Miro Kit, Includes Phantom RCU, Mounting Bracket and Cables

The Phantom Remote Control Unit (RCU), is a valuable accessory for both the Miro M320S and LC320S, offering complete control when the camera is mounted remotely. When paired with the M320S specifically, it enables remote operation and monitoring, creating a fully portable high speed imaging solution.

Record Time: M320S w/ 12GB Ram		
Resolution	**FPS**	**Seconds**
1920 x 1200	1,380	2.5
1920 x 1200	1,000	3.2
1920 x 1080	1,530	2.6
1920 x 1080	1,000	3.5
1920 x 1080	500	6.9
1920 x 1080	24	144.4
1152 x 1152	2,240	2.8
1152 x 1152	1,000	6.0
1024 x 1024	2,770	2.9
1280 x 720	3,200	2.7
1280 x 720	1,000	8.6
1280 x 720	60	144.4
640 x 480	8,300	3.3
640 x 480	1,000	26.0

Maximum Frame Rates	
Resolution	**FPS**
1920 x 1200	1,380
1920 x 1080	1,530
1152 x 1152	2,240
1024 x 1024	2,770
1280 x 800	2,940
1280 x 720	3,200
896 x 720	4,300
640 x 480	8,300
512 x 512	9,200
384 x 288	19,000
256 x 256	26,400
128 x 128	62,000
128 x 64	102,000
64 x 8	240,000

DATA SHEET

Phantom® Miro® 320S Digital High-Speed Cameras

Vision Research offers a variety of standard and cinema-style accessories for mounting, power, handling and monitoring. Ask your Phantom sales rep for more details.

Accessibility

The advanced features and small, lightweight form factor makes the Miro M and LC320S the **most accessible Phantom high speed cameras** available today.

Compatible with a vast array of applications, the Miro can be used for scientific research, as a creative storytelling tool, and anywhere in between. The possibilities are endless with the Phantom Miro 320S at your fingertips.

Phantom Miro 320S, Shown with Optional PL Mount and OLPF Filter

Additional Features:

Image-based Auto Trigger

Continuous Recording

Auto-Exposure

Multi-cine Acquisition

Internal Mechanical Shutter

Gb Ethernet

Rechargeable Battery (Sony BP-U30 or BP-U60)

Size and Weight: 3.0 lbs, 1.4 kg; 7.5 x 3.5 x 4 inches, 19 x 19 x 10 cm (L, W, H)

Operating Temperature and Humidity:
    0º C to 40º C @ 8% to 80% relative humidity,
    non-condensing

Tiered Service Contracts to protect your investment

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.

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