

DATA SHEET

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

Phantom® Miro® 320S Digital High-Speed Cameras

The Compact, Flexible Frame Rate Solution for Production and Digital Media Applications

Key Benefits:

The **Phantom® Miro® 320S** takes high speed imaging to the next level by combining the compact design of our Miro camera family with the resolution, speed and workflow possibilities of professional HD camera systems.

The Miro 320S is available in three models: the original M320S, the rugged R320S, and the full-featured 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, R and LC cameras ship standard with a rechargeable 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 35mm CMOS sensor

1920 x 1080 @ 1540 FPS

ISO (ISO 12232 SAT method):

Color: 1600 T; 1250 D

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

R320S model includes all-metal rugged body for tough environments

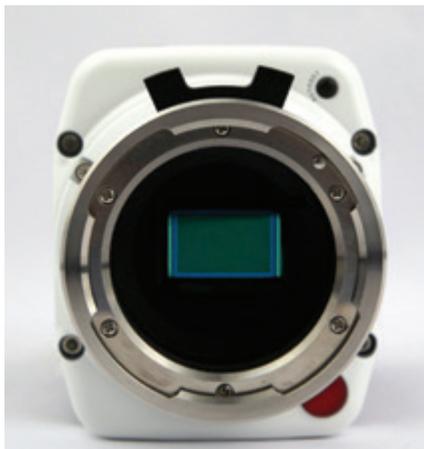
HD-SDI output

Phantom CineFlash storage system

CineFlash modules up to 240GB

CineFlash Dock with eSATA and USB 3.0 connectivity

Miro® M320S, R320S and LC320S



Based on the
award-winning
 technology of
 Phantom cinema
 cameras, Miro
 320S 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 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 itself. Remote control of aperture and focus is a huge benefit when cameras are remotely located and/or difficult to reach.



Phantom Miro LC320S with Canon EOS Mount

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.



Phantom CineFlash Drive & CineFlash Dock

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 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 or USB 3.0 for speedy downloads.

Phantom Cine Raw files can then be processed using Phantom PCC to take further advantage of the Miro M, R & LC series 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 x 1200, 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.

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.



Phantom Miro M320S

Enhance your workflow with Phantom Accessories

The Phantom Remote Control Unit (RCU), is a valuable accessory for both the Miro M, R and LC series cameras, 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.



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

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

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

ISO SAT			
Mono		Color	
ISO SAT T	ISO SAT D	ISO SAT T	ISO SAT D
12,500	5000	1600	1250

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Phantom® Miro® 320S Digital High-Speed Cameras

Additional Features:

- Image-based Auto Trigger
- Continuous Recording
- Auto-Exposure
- Multi-cine Acquisition
- Internal Mechanical Shutter
- 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:
0° C to 40° 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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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, Phantom Miro 320S cameras can be used for scientific research, as a creative storytelling tool, and anywhere in between.



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

AMETEK Vision Research's digital high-speed cameras are subject to the export licensing jurisdiction of the Export Administration Regulations. As a result, the export, transfer, or re-export of these cameras to a country embargoed by the United States is strictly prohibited. Likewise, it is prohibited under the Export Administration Regulations to export, transfer, or re-export AMETEK Vision Research's digital high-speed cameras to certain buyers and/or end users.

Customers are also advised that some models of AMETEK Vision Research's digital high-speed cameras may require a license from the U.S. Department of Commerce to be: (1) exported from the United States; (2) transferred to a foreign person in the United States; or (3) re-exported to a third country. Interested parties should contact the U.S. Department of Commerce to determine if an export or a re-export license is required for their specific transaction.