



C211, side views

# PHANTOM Miro® C211

COMPACT  
HIGH-SPEED CAMERA

1,800 fps at 1280 x 1024 resolution  
2,540 fps at 1280 x 720  
High image quality, with low noise

## FEATURES & BENEFITS

### POWERFUL, YET ECONOMICAL

The Phantom Miro C211 has high frame rates, 240GB internal SSD and Phantom image quality, bringing more capability and flexibility to many common applications from motion analysis to industrial troubleshooting - small economical, and easy to use.

Designed for budget conscious and 1st time users, the C211 has standard Ethernet and BNC cables for convenient connections. Plus, it's small and sturdy enough for tough environments.

### PACKED WITH PHANTOM QUALITY

- 5.6 µm pixel and a C-mount is perfect for Microscopy.
- 1.3Mpx resolution with very low noise and high dynamic range, for clear images.
- Many Phantom Features, such as Image Based Auto Trigger, FSync, and Image Processing tools, are included.

## IMAGE & SENSITIVITY

|   |                                  |
|---|----------------------------------|
| Sensor Type                               | CMOS, with Global Shutter        |
| Maximum Resolution                        | 1280 x 1024                      |
| CAR Increments                            | 64 x 8                           |
| Pixel Size                                | 5.6 $\mu\text{m}$                |
| Sensor Size                               | 5.73 x 7.16 mm; 9.18 mm Diagonal |
| Bit Depth                                 | 12 bit                           |
| <b>EMVA 1288 Measurements (at 532 nm)</b> |                                  |
| Quantum Efficiency %                      | 54.2% mono<br>41.7% color        |
| Max. SNR (dB)                             | 38.7                             |
| Absolute Sensitivity Threshold (p)        | 17.75 mono<br>22.46 color        |
| Saturation Capacity (e <sup>-</sup> )     | 7411 mono<br>6972 color          |
| Temporal Dark Noise (e <sup>-</sup> )     | 9.08                             |
| Dynamic Range (dB)                        | 57.7                             |

- Reported measurements were taken at 532 nm with both monochrome and color cameras

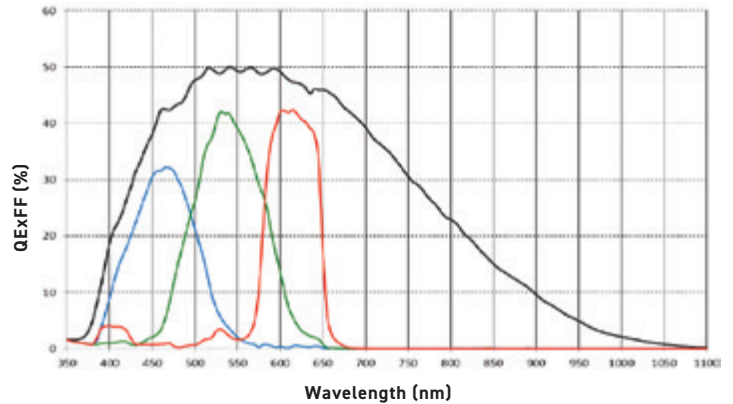
- Visit: [www.phantomhighspeed.com/emva](http://www.phantomhighspeed.com/emva) for more information on EMVA 1288



Miro C211 Connectors

## SPECTRAL RESPONSE

Quantum Efficiency Monochrome and Color



## CONNECTIVITY & SIGNALS

|                    |   |
|--------------------|---|
| Ethernet           | Gb Ethernet accessed through RJ45 connector   |
| Timecode           | IRIG Out, Un-modulated;   |
| Port Descriptions  | Dedicated BNC's: Trigger, SDI<br>Aux 1 BNC: Programmable I/O, default is Strobe<br>Aux 2 BNC: Programmable I/O, default is Ready<br>Mini-XLR: Power |
| Hardware Trigger   | Trigger BNC   |
| Software Trigger   | via PCC over Ethernet; via Image Based Auto Trigger (IBAT)  |
| Synchronization    | External Sync via FSYNC (IRIG not available)  |
| Recording Features | Multi-Cine, Auto-save to Flash, Continuous recording  |
| Video Output       | HD-SDI, through BNC connector   |



| MEMORY & STORAGE   |                                  |
|--------------------|----------------------------------|
| RAM Buffer         | 8GB, 16GB RAM                    |
| Multi-Cine         | Up to 63 Partitions              |
| Non-Volatile Media | 240GB of internal Flash included |

| FRAME RATES & EXPOSURE    |               |
|---------------------------|---------------|
| Top FPS at Max Resolution | 1,800         |
| 1 Megapixel FPS           | 2,290         |
| Maximum FPS               | 67,140        |
| Minimum FPS               | 50            |
| Minimum Exposure          | 5 µs          |
| Straddle Time             | 2.12 µs       |
| Exposure Features         | Auto-Exposure |

### FRAME RATE CHART

Table provides examples of common resolutions and frame rates. The record times shown are for 8GB RAM at the frame rate shown. Duration will be double for 16GB.

| Maximum Frame Rate - FPS;<br>(8GB Record time - Sec) |               |
|--|---------------|
| Resolution<br>(H x V)                                | Miro C211     |
| 1280 x 1024  | 1,800 (2.2)   |
| 1280 x 800   | 2,290 (2.2)   |
| 1280 x 720   | 2,540 (2.2)   |
| 768 x 768  | 2,380 (3.6)   |
| 768 x 576  | 3,150 (3.7)   |
| 640 x 480  | 3,760 (4.4)   |
| 512 x 512  | 3,530 (5.3)   |
| 512 x 384  | 4,650 (6.9)   |
| 384 x 288  | 6,100 (7)     |
| 256 x 256  | 6,810 (9.9)   |
| 128 x 64   | 22,380 (19.2) |
| 64 x 8   | 67,140 (48.8) |



Miro C211

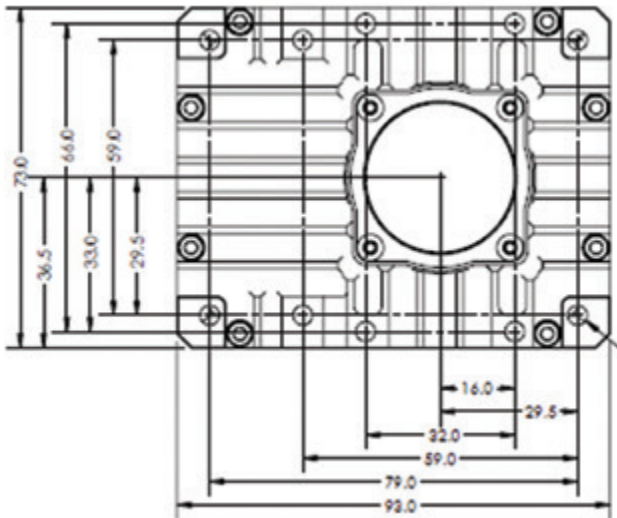
\*Certain Phantom cameras are held to export licensing standards. Details available at: [www.phantomhighspeed.com/export](http://www.phantomhighspeed.com/export)

## CONTROL

|                               |  |
|-------------------------------|--|
| Software & OS                 | Phantom PCC (Windows x64); SDK available for C/C++, C#, Python, MatLab and LabView   |
| Primary File Format           | Phantom Cine RAW (.cine)   |
| Alternative File Formats      | Easily convert to formats including .mp4, Apple ProRes .mov, .avi, Tiff, JPG, DNG and many more using PCC. Cine files are directly compatible with many major video editing and motion analysis programs |
| Highlighted Software Features | Multi-Cine recording, Continuous recording, Advanced Image Tools and Processing  |

## MECHANICAL

|                 |  |
|-----------------|--|
| Size            | 2.9 x 3.65 x 3.25" (73 x 93 x 82.5 mm)                   |
| Weight          | 1.2 lbs (0.54 kg)  |
| Lens Mounts     | 1" C-Mount   |
| Mounting Points | 4 x 1/4-20, 10 x M4 mounting points                      |
| Cooling         | Active cooling. Quiet mode disables fans during capture. |



## POWER

|                   |  |
|-------------------|--|
| AC Power          | 100-250 VAC, 40W power supply included |
| Voltage Range     | 16-28VDC                               |
| Power Consumption | 13W typical                            |

## ENVIRONMENTAL

|                       |   |
|-----------------------|---|
| Operating Temperature | 0 to +50°C  |
| Storage Temperature   | -20 to +70°C  |
| Relative Humidity     | 5% to 95% Relative Humidity   |
| Operational Shock     | 30G, 11msec, sawtooth, 10+/-10- pulses in each of 3 axes (60 total)   |
| Operational Vibration | MIL-STD-202H, 7.5Grms, Figure 214-I, Test Condition B, 3 axis, 15 min/axis  |
| Regulatory            | Made in the USA<br><b>Emissions</b> - CE & UKCA Compliant EN 61326-1, Class A<br><b>Immunity</b> - CE & UKCA Compliant, Class A<br><b>FCC</b> - CFR 47, Part 15, Subpart B & ICES-0003, Class A<br><b>KC Emissions</b> - KC Compliant - KS C 9832<br><b>KC Immunity</b> - KC Compliant - KS C 9835<br><b>Safety</b> - IEC 60950-1 |

## GLOBAL SUPPORT NETWORK

The Phantom Miro C cameras are supported by Vision Research's Global Service and Support network, offering PhantomCare service from multiple sites around the globe. Maximize the value of your Phantom camera with professional support services designed to meet your needs.

Learn more about our service offering at [www.phantomhighspeed.com/Support](http://www.phantomhighspeed.com/Support)

### ABOUT VISION RESEARCH

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



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