



# PHANTOM<sup>®</sup>

## Miro C

DATASHEET



# PHANTOM Miro<sup>®</sup> C210J Miro C210

COMPACT  
HIGH-SPEED CAMERAS



Miro C210J/C210 Backs

1,800 fps at 1280 x 1024 resolution  
High image quality, with low noise  
Small and rugged , available in 2 models

## FEATURES & BENEFITS

### THE COMPACT AND FLEXIBLE SOLUTION FOR AUTOMOTIVE CRASH TEST

- 2 body types for specific system needs - the C210J for multi-camera set-ups with the Miro Junction Box, and the C210, for stand-alone use, or connected to the JBox with an adapter. They blend perfectly with Phantom off-board cameras for a full family solution.
- Proven design and independently tested rugged up to 170G. Tough, easy-to-use single cable system to Junction Box.
- Internal, non-removable battery and 240GB of internal Flash keeps data safe in case of power loss.

### PERFECT FOR MICROSCOPY

- 5.6  $\mu\text{m}$  pixel provides detail under magnification
- 1.3 Mpx resolution with very low noise and high dynamic range, for clear images
- 8GB or 16GB of RAM, with up to 63 partitions for multiple shots, packed in a small body for easy mounting

FRAME RATES & EXPOSURE	
Top FPS at Max Resolution	1,800
Maximum FPS	67,140
Minimum FPS	100
CAR Increments	64 x 8
Minimum Exposure	5 μs
Electronic Shutter	Global Shutter
PIV Features	Shutter-off mode straddle time = 425ns
Exposure Features	Auto Exposure

IMAGING	
Sensor Type	CMOS
Maximum Resolution	1280 x 1024
Bit Depth	12-bit
Pixel Size	5.6 μm
Sensor Size	5.73 x 7.16 mm; 9.18 mm diagonal
ISO Daylight (12232 STD)	Mono 2,500; Color 640
ISO Tungsten (12232 STD)	Mono 5,000; Color 640
Exposure Index	2,500 - 12,500 Mono; 640 - 3,200 Color
Dynamic Range	58 dB
Readout Noise	10 e-

## 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; (8GB Record time - Sec)	
Resolution (H x V)	Miro C210J / C210
1280 x 1024	1,800 (2.7)
1280 x 720	2,540 (2.7)
768 x 768	2,385 (4.5)
640 x 480	3,760 (5.5)
512 x 512	3,530 (6.9)
256 x 256	6,811 (14.3)
128 x 128	12,700 (30.75)
64 x 8	67,140 (186.2)





CONNECTIVITY & SIGNALS			
	C210J	C210	
Ethernet	Gb Ethernet accessed through System Cable	Gb Ethernet accessed through Fischer Connector	
Timecode	IRIG In & Out- Unmodulated	IRIG In- Modulated/Unmodulated; IRIG Out - Unmodulated	
Port Descriptions	Fischer 27-pin System port, for Trigger, IRIG In/Out, Strobe, Event, Memgate, FSYNC, READY Out, Power from J-Box	Fischer 12-Pin	Capture
		Fischer 8-pin	Gb Ethernet
		Fischer 6-pin	Power
Hardware Trigger	System cable, to Jbox	Capture port, to MiniBoB (included)	
Software Trigger	via PCC over Ethernet; via Image Based Auto trigger (IBAT)		
Synchronization	External Sync via FSync or IRIG Timecode		
Recording Features	Continuous recording & AutoSave to internal Flash		
Video Output	HD-SDI, through DIN connector on camera front		



Miro C210/C210J with the Miro Junction Box 2.0

CONTROL	
Software & OS	Phantom PCC (Windows); SDK also available for C++ and with MatLab and LabView drivers
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	Auto-Save to Flash, Continuous recording, Advanced Image Tools and Processing

**MEMORY & STORAGE**

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

**POWER**

AC Power	100 - 250 VAC, 40W power supply included with C210 Model
Voltage Range	16-32VDC
Power Consumption	13 W typical, up to 20W when charging battery
Battery Options	Internal battery included for data protection

**MECHANICAL**

Housing Variants	C210J and C210
Size	C210J: 2.9 x 3.1 x 3.4" (73 x 79.5 x 87.2 mm); C210: 2.9 x 2.9 x 3.4" (73 x 73 x 87.2 mm)
Weight	1.2 lbs (0.54 kg)
Lens Mounts	1" C-Mount
Mounting Points	4 x 1/4-20, 10 x M4
Cooling	Active cooling. Quiet mode disables fans during capture.

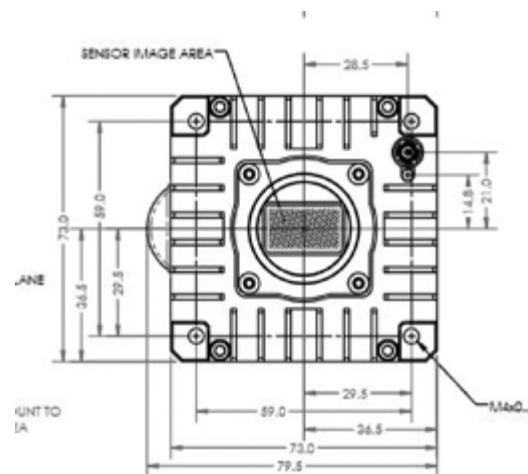
**ENVIRONMENTAL**

Operating Temperature	0 to +50°C
Storage Temperature	-20 to +70°C
Operational Shock	170G IAW MIL-STD-202G Method 213-B; sawtooth wave, 11ms, +/- 10 pulses all axes
Operational Vibration	24 Grms IAW MIL-STD-202G Method 214-A.; Figure 2A-1, Test Condition D, 15 min per axis
Regulatory	Made in the USA CE Emissions – CE Compliant EN 61326-1 CE Immunity – CE Compliant EN 61326-1 FCC – CFR 47, Part 15, Subpart B & ICES-0003, Class A Safety - IEC 60950-1

**GLOBAL SUPPORT NETWORK**

The Phantom Miro C Cameras are supported by Vision Research's Global Service and Support network, offering PhantomCare Performance Services from multiple sites around the globe. Maximize the value of your Phantom camera with a selection of professional services from which to choose.

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