PHANTOM®
Miro® N

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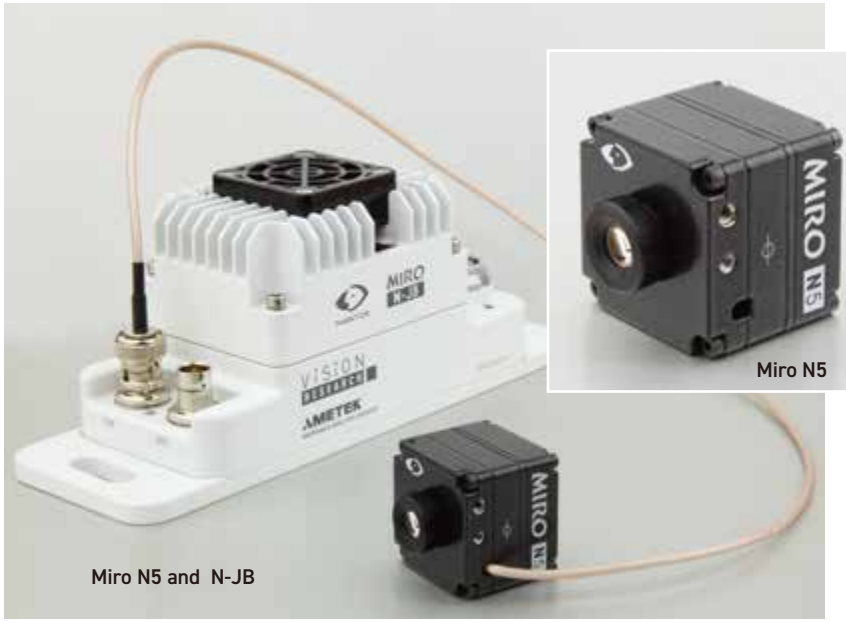

Miro N5 and N-JB

Miro N5

PHANTOM Miro® N5 and Base

TINY HIGH-SPEED CAMERA

Tiny, rugged camera head
Ultimate data protection with CXP cable
Flexible, with 2 base models

FEATURES & BENEFITS

TINY HI-G CAMERA GIVES BIG IMPACT

- 3 components work together to offer maximum flexibility and image safety
- Rugged camera head is purchased separately and measures 32 x 32 x 28 mm (1.25 x 1.25 x 1.1 inches) perfect for tight placements and dangerous operations
- Images flow instantaneously through a CXP cable to a rugged base. Bases have 2 body types for specific system needs - the N-JB Base for multi-camera set-ups with the Miro Junction Box, and the N-B Base, for stand-alone use, or connected to the JBox with an adapter
- Reach 560 FPS at full 768 x 600 resolution or up to 9,000 FPS at 128 x 32

FOCUS ON DATA PROTECTION AND MANAGEMENT

- CXP technology transfers even partial images instantaneously
- Internal, non-removable battery for data protection in case of power loss
- 240GB of internal Flash keeps data safe
- 8GB of RAM, with up to 63 partitions for multiple shots

VISION RESEARCH

AMETEK® MATERIALS ANALYSIS DIVISION

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FRAME RATES & EXPOSURE	
Top FPS at Max Resolution	560
Maximum FPS	9,000
Minimum FPS	30
CAR Increments	128 x 32
Minimum Exposure	30 µs
Electronic Shutter	Global Shutter
Exposure Features	Extreme Dynamic Range (EDR)

IMAGING	
Sensor Type	CMOS, Color only
Maximum Resolution	768 x 600
Bit Depth	10-bit
Pixel Size	4.8 µm
Sensor Size	3.6 x 2.8 mm; 4.68 mm diagonal
ISO Daylight (12232 STD)	Color 400
ISO Tungsten (12232 STD)	Color 400
Exposure Index	Color 400 - 2,000
Dynamic Range	59.8 dB
Readout Noise	9.1 e-

FRAME RATE CHART

Table provides examples of common resolutions and frame rates.

Maximum Frame Rate - FPS; (8GB Record time - Sec)			
Resolution (H x V)	Miro N5 and Base	Resolution (H x V)	Miro N5 and Base
768 x 600	560 (24.8)	256 x 128	3565 (54.7)
640 x 480	810 (25.5)	128 x 64	4865 (2 min. 40.4)
512 x 512	930 (26.2)	128 x 32	9000 (2min. 53.6)
256 x 256	2325 (42.0)		

Resolutions providing 1000 FPS	
480 x 480	1040 (26.7)
512 x 450	1045 (26.5)
512 x 472	1000 (26.4)

Miro N5 camera head connects to either Base model

CONNECTIVITY & SIGNALS

	N-JB Base		N-B Base	
Ethernet	Accessed through System cable		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, Ethernet, Power from J-Box	Fischer 12-Pin	Capture port, for Trigger, IRIG In/Out, Strobe, Event, Memgate, FYSYNC, Ready Out through MiniBoB
	Fischer 6-pin	Remote port, Not used	Fischer 8-pin	Gb Ethernet
			Fischer 6-pin	Power
	BNC	BNC connector for CXP cable	BNC	BNC connector for CXP cable
	Capped BNC	BNC connector for HD-SDI	Capped BNC	BNC connector for HD-SDI
Hardware Trigger	System cable, to Jbox		Capture port, to MiniBoB	
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 BNC connector on base			

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	Auto-Save to Flash, Continuous recording, Advanced Image Tools and Processing

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MEMORY & STORAGE

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

POWER

AC Power	100-240 VAC, 40W power supply included with N-B Base
Voltage Range	N5 Head and Bases: 16-32VDC
Power Consumption	N5 Head: 2.5W; Bases: 10 W typical, up to 18W when charging battery
Battery Options	Internal battery included for data protection

MECHANICAL

Housing Variants	N-JB Base and N-B Base
Size	N5 Head: 1.25 x 1.25 x 1.1" (32 x 32 x 28 mm); CXP Cable: 3M (included with N5 Head); Bases: 2.9 x 2.1 x 7.3" (75 x 53.5 x 187 mm)
Weight	N5 Head: 0.2lb, 0.09kg; Bases: 1.4lb, 0.64kg
Lens Mounts	S-Mount /M12 Mount
Mounting Points	N5 Head: 7 x M3x0.5 mounting points; Bases: 2 x 8.5 x 23.5 mm slots
Cooling	Active cooling. Quiet mode disables fans during capture.

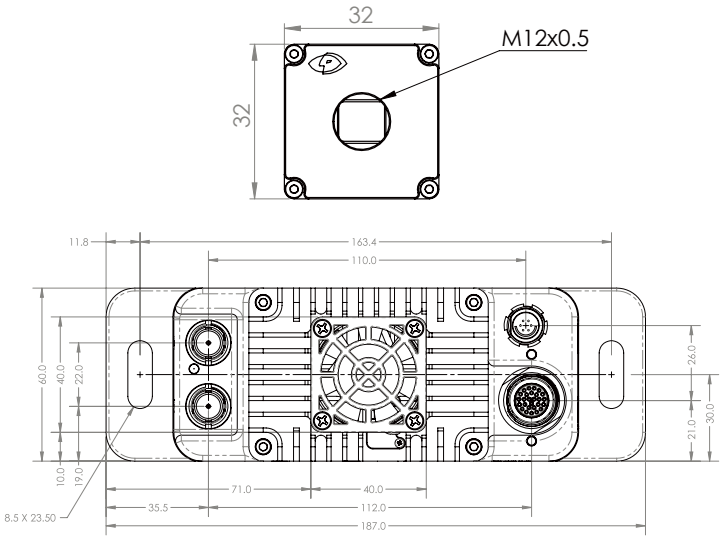
ENVIRONMENTAL

Operating Temperature	0 to +50°C
Storage Temperature	-20 to +70°C
Operational Shock	150G 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 N5 Camera and bases 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



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