



PHANTOM FLEX4K FLEX4K-GS

HIGH-SPEED CAMERA



9.4 Mpx Resolution 4096 x 2304
4K at up-to 1000 fps

Rolling Shutter and Global Shutter Models
On-camera Menu System

FEATURES & BENEFITS

ULTIMATE IMAGE PERFORMANCE

Designed for cinematographers, the Phantom Flex4K delivers high-speed footage with the **ultimate in image quality and pixel resolution**. Workflow features include CineMag V for fast storage of Cine Raw files, an integrated menu system, accessory power, battery backs and highly configurable video outputs.

THREE CONFIGURATIONS:

- * **Flex4K:** The original Flex4K operates in rolling shutter mode for the highest dynamic range and overall image quality. This model incorporates a **PL mount and black housing** for cinema production. Additional lens mounts are available.
- * **Flex4K-GS:** Incorporates a **global shutter**, and has the unique ability to switch between global and rolling shutter modes to take advantage of the benefits of each mode. This camera has a **white housing** and default Nikon mount for scientific and defense applications.
- * **Flex4K-GS-PL:** Identical to the Flex4K-GS, with the exception of a black housing and PL mount in its default configuration.

FRAME RATES & EXPOSURE	
Top FPS at Max Resolution	938
FPS at 4096 x 2160	1,000
Maximum FPS	25,000
Minimum FPS	15
CAR Increments	2048 x 16
Minimum Exposure	5 μs
Electronic Shutter	Flex4K is rolling shutter (RS) only, with progressive scan time of 1 ms Flex4K-GS models include both global shutter (GS) and RS modes by default
PIV Features	N/A
Exposure Features	Overexposure indication over video and in PCC

IMAGING	
Sensor Type	CMOS (RS mode uses Correlated Double Sampling)
Maximum Resolution	4096 x 2304
Bit Depth	12-bit
Pixel Size	6.75 μm
Sensor Size	27.6 x 15.6; 31.7 mm diagonal (Super 35)
ISO Daylight (12232 STD)	GS: Mono 2,500; Color 640 RS: Mono 1,000; Color 320
ISO Tungsten (12232 STD)	GS: Mono 5,000; Color 640 RS: Mono 2,000; Color 320
Exposure Index	Recommended EI Range 4,000-8,000 Mono; 800-1000 Color (both Global and Rolling)
Dynamic Range	GS: 54.8 dB (9 stops) RS: 71.6 dB (12 stops)
Readout Noise	GS: 31 e- RS: 9.6 e-

FRAME RATE CHART

Table provides examples of common resolutions and frame rates. The record times shown are for 64GB RAM at the frame rate shown. Duration will be double for 128GB RAM.

Resolution (H x V)	Maximum Frame Rate - FPS; (Record Time - Sec)	Direct Record Max FPS, Run/Stop mode (Record Time - Minutes)	
	64GB RAM	8TB CineMag V	2TB CineMag V
4096 x 2304	938 (5)	145 (72)	96 (35)
4096 x 2160	1,000 (5)	150 (72)	100 (35)
4096 x 2048	1,050 (5)	160 (72)	108 (35)
4096 x 1152	1,850 (5)	290 (72)	190 (35)
4096 x 1080	1,970 (5)	310 (72)	200 (35)
4096 x 720	2,930 (5)	470 (71)	300 (35)
4096 x 360	5,660 (11)	940 (71)	610 (35)
4096 x 16	25,000 (26)	21,300 (71)	13,800 (35)
2048 x 2048	1,050 (10)	330 (72)	210 (35)
2048 x 1152	1,850 (10)	590 (72)	380 (35)
2048 x 1080	1,970 (10)	630 (72)	400 (35)
2048 x 720	2932 (10)	940 (72)	640 (35)
2048 x 240	8,220 (11)	2840 (71)	1840 (35)
2048 x 16	25,000 (50)	25,000 (120)	25,000 (40)



CONNECTIVITY & SIGNALS

Ethernet	Gb Ethernet from camera. 10Gb Ethernet on CineStation IV	
Timecode	IRIG-B and SMPTE input and output	
Port Descriptions	Power Input	1x 3-pin Fischer (+12-28 VDC)
	Battery Mount (optional)	Selectable V-Lock, Gold-mount, and Hawk Woods RP mounts
	Ethernet	8-pin Fischer for software operation & file download. 1Gb only.
	Remote	5-pin Fischer for RS232 & 24 VDC; works with BT-Dongle and remote cables.
	HD-SDI	3x main 3G HD-SDI outputs, 1 additional at front for viewfinder. 1 SDI return (supports Genlock)
	Sync	12-pin Fischer for Mini-BOB. Provides access to F-Sync, AES/EBU Audio in & out, Timecode in & out, strobe, ready and trigger
	Audio Out	3.5mm headphone jack (for monitoring only)
	Lens	12-pin Hirose for ENG style lenses
	Viewfinder	1 Fischer for component video, and 1 BNC for SDI-based viewfinders
I/O Signals	Fsync, Strobe, Ready, Timecode-in and out, Event, Trigger	
Hardware Trigger	via Sync port using the Mini-BOB, and via R/S ports	
Software Trigger	via trigger buttons on camera, or via PCC	
Synchronization	External Sync via FSync or IRIG Timecode	
Recording Features	Direct Recording (run/stop mode) & Auto Save to CineMag	
Video Output	3G-SDI for 1080 up to p60, or dual-link 4K video per SMPTE ST 425-3, up to 2160 p30. Video outputs can be switched between Rec709 and Log mode. Log mode is useful to visualize the full dynamic range of a high-contrast scene in RS mode.	
Accessory Power	12V: 4-pin Hirose, 2-pin Lemo 24V: 2x 3-pin Fischer with R/S (24V is unregulated)	



VE04K-PL (Back)

CONTROL

Software & OS	Phantom PCC (Windows); SDK also available with MatLab and LabView drivers. 3rd party Mac software solutions are also available, including Glue Tools Séance
On-camera Controls	Complete control with integrated menu system when using CineMag
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

MEMORY & STORAGE

RAM Buffer	64GB, 128GB RAM options
Multi-Cine	Up-to 64 Partitions
Non-Volatile Media	CineMag V (CineMag IV* and IV-PRO* are also compatible) *discontinued
Direct Recording at 4096 x 2304	2TB CineMag V = 96 fps 8TB CineMag V = 120 fps

MECHANICAL

Housing Variants	Black housing (Flex4K and Flex4K-GS-PL); White housing (Flex4K-GS)
Size	12 x 6 x 8 in (L x W x H); 30.5 x 35.5 x 20.3 cm
Weight	13 lbs (5.9 kg)
Lens Mounts	PL-mount standard on Flex4K & Flex4K-GS-PL. F-Mount standard on Flex4K-GS. Canon EF mount also available (with electronic focus and iris control). Lens mounts are interchangeable. Color cameras ship standard with OLPF.
Mounting Points	Alternating 1/4 x 20" and 3/8" mounting point pattern on base of camera, top of camera and top handle.
Internal Shutter	Standard, for remote black references
Cooling	Active cooling. Quiet mode disables fans during capture

GLOBAL SUPPORT NETWORK

The Phantom Flex4K product line is 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

POWER

AC Power	100-240 VAC, 280W power supply included
Voltage Range	12-28VDC
Power Consumption	140W typical with CineMag
Battery Options	Battery backs available: V-Lock, Gold mount. Requires high-capacity batteries which supply at least 10 Amps at 14V when charged.

ENVIRONMENTAL

Operating Temperature	-20 – +50°C
Storage Temperature	-20 – +70°C
Regulatory	Made in the USA CE Emissions – CE Compliant EN 61326-1 CE Immunity – CE Compliant EN 55024 FCC – CFR 47, Part 15 Safety: LVD 2014/35/EU ITE



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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