



# Memrecam GX-1

The most experienced name in high-speed video introduces the GX-1...  
the first member of the GX family of high-speed digital cameras.

The Memrecam GX-1 is a rugged, light sensitive, mega pixel camera developed for demanding Testing Environments!



NAC's **Memrecam GX-1** provides superior light sensitivity, Mega pixel resolution and high frame rates all in one camera – capable of withstanding Hi-G environments.

The **GX-1** is a fully self-contained, digital, highspeed video system that records brilliant color images or crisp monochrome images with **over 1.3 million pixels!** Using the very latest CMOS sensor technology, the **Memrecam GX-1** captures brilliant images at frame rates up to 200,000 fps.

The robust **GX-1** is perfect for a variety of applications including: Automotive Crash, Ballistics, Combustion, Materials Research, Machine Design, Microscopy, PIV, Flow Visualization, Spray Analysis, and many, many more...

- Superior Light Sensitivity: >20,000 ISO monochrome, > 5,000 ISO color
- High Resolution: 1280 X 1024 pixels
- Adjustable Frame Rates from 50fps to 200,000fps in 1 fps increments
- Ultra Fast Shutter Speeds to 1-micro second exposure time
- 1:1 aspect ratio at 3,000 fps
- Selectable Bit Density: 12 bits / 10 bits / 8 bits (extends recording) STANDARD
- Variable Region of Interest with Continuously adjustable resolution in 16 x 4 pixel increments
- Gigabit Ethernet Laptop Friendly Interface
- Continuous Live Video Output (NTSC / PAL) during setup and recording
- Auto Exposure Control
- Dynamic Range Expansion Shutter (pixel level shuttering)
- Versatile Recording: Burst-Trigger, Multi-Trigger and Event-Trigger Modes
- Memory Segment with automatic segment change capability
- External Sync Recording
- IRIG-B Timing Capture and Synchronization with Phase Shift
- Built-in Memory Backup
- USB2 for direct download to external storage (HDD, Flash Memory Card, etc.)
- Convenient functions for FOV setting: Low Light Mode, Fiducial Mark
- Compact and Ruggedized Body (able to withstand >100G)



## Memrecam GX-1 Specifications:

### Camera Features

*Auto Exposure Control*  
*Adjustable Frame Rates*  
*Automatic Temperature Calibration*  
*Selectable Bit Density*  
*Ultra Fast Exposure*  
*Variable Region of Interest*  
*Continuously Adjustable Resolution*  
*Gigabit Ethernet Interface*  
*Continuous Live Video Output*  
*Dynamic Range Expansion Shutter*  
*Multiple Trigger Modes*  
*Memory Segmentation*  
*External Sync Recording*  
*IRIG-B Timing Capture and Sync with Phase Shift*  
*Built-in Memory Backup*  
*USB2 Direct Download to non-volatile storage media*  
*Hi-G Rated*  
*Compact, Rugged Design*

**Sensor:** 1280 X 1024 pixel CMOS

**Bit Depth:** 12-bit, 10-bit and 8-bit (customer selectable) - STANDARD

**Sensitivity:** >20,000 ISO monochrome and >5,000 ISO color

**Electronic Shutter:** Exposure speeds as fast as 1-micro second and adjustable in single micro second increments  
**Resolution:** Continually adjustable resolution with recording rates from 50fps to 200,000fps.

**Formats:** Image formats supported include 5:4, 4:3, 16:9, SXGA, XGA, VGA, QVGA and customer selectable.

**Lens Mount:** F-Mount is standard, other mounts, including C-mount are available.

**Memory Backup:** Memory backup comes standard.

**Standalone Operation:** Cameras do not require a PC for setup and operation.

**Camera Control:** 1000Base-T/100Base-TX

**Operation Control:** The camera can be controlled using NAC's optional J-Pad III hand-held controller or via a Pcbased control system.

**IRIG-B:** Cameras support real time IRIG-B time insertion and can be synchronized to IRIG-B.

**Data Storage:** Recorded images can be downloaded directly to a PC via Gigabit Ethernet or to a non-volatile storage medium (e.g. HDD, Flash Memory Card, etc.) via USB2.

### I/O Connectors and LED Indicators:

**J1:** Supports power input, trigger input (TTL/contact closure), ARM status output (hardware), Fault status output and External Synchronous Trigger input.

**J2:** Supports video output (NTSC and PAL), viewfinder power, RS232 control input (for J-Pad III), USB2 and ARM command in.

**J3:** Supports Gigabit Ethernet, trigger input (photo isolation),

IRIG-B input (modulated) EST/EVENT input and exposure pulse output (strobe output pulse).

**Status Indicators:** Power, Ethernet, USB, Memory Backup and Camera Status.

### Mechanical and Environmental

**Size:** 100(W) X 100(H) X 230(D) mm

**Weight:** <4kg (approximately 7.5lbs).

**Connectors:** Integrated, quick-release.

**Power:** 20-32Vdc

**Operating Temperature:** 0°C to 40°C

**Storage Temperature:** -10°C to 60°C

**Hi-G Operation - The Memrecam GX-1** is specifically designed to function effectively in Hi-G and other hazardous environmental conditions (>100G)

### Software

**Camera Control:** Camera connection, VIEW, set recording parameters, ARM, Trigger, playback, image download, modify image settings and format conversion.

**Synchronous Data Recording:** Scene number, date and time of trigger (including IRIG time), shutter speed, date and time of test (including IRIG time), camera settings, video process data and comments.

**Image Processing:** Image quality adjustment (e.g. white balancing, adjustments for gain, knee, gamma, and edge enhance), select region of interest, display of stored image information and format conversion.

**Playback:** Variable playback speed in forward and reverse, including freeze frame and endless loop. Single images can be reviewed or multiple images in split screen. Zoom function is available for image playback.

**Measurement:** XY Coordinate information is exportable to a CSV file and is therefore compatible with a variety of spreadsheet packages. Linear or angular measurements are available including displacement, velocity and acceleration.

**Software Developers' Kit:** NAC provides a standard SDK based upon an ActiveX component. The SDK will support C++, Visual C++ and Visual Basic.

## Vertrieb:

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### GX1 Frame Rate / Resolution Table

Frame Rate	Maximum Resolution	Record Time in Seconds	
		2GB	4GB
FPS	Pixels		
100	1280 x 1024	12,91	25,82
250	1280 x 1024	5,16	10,33
500	1280 x 1024	2,58	5,16
1.000	1280 x 1024	1,29	2,58
2.000	1280 x 1024	0,65	1,29
2.500	1024 x 1024	0,65	1,29
2.500	1280 x 800	0,66	1,32
2.700	1280 x 720	0,68	1,36
3.000	1024 x 768	0,72	1,43
4.000	1024 x 576	0,72	1,43
4.000	800 x 800	0,66	1,32
5.000	800 x 608	0,70	1,39
5.000	704 x 704	0,68	1,37
6.000	640 x 480	0,92	1,84
8.000	512 x 512	0,81	1,61
10.000	512 x 384	0,86	1,72
20.000	304 x 304	0,92	1,83
30.000	224 x 224	1,12	2,25
40.000	192 x 180	1,22	2,45
50.000	176 x 124	1,55	3,10
60.000	144 x 116	1,69	3,38
80.000	112 x 80	2,36	4,72
100.000	80 x 76	2,78	5,57
150.000	32 x 64	5,51	11,02
200.000	8 x 64	16,52	33,05

Preliminary, subject to change 7/09