



## NAC's Memrecam GX-8 — the fastest Memrecam yet!

*The most experienced name in high-speed video introduces the GX-8—  
a rugged, ultra light sensitive, mega pixel camera developed for the  
most demanding application requirements!*



NAC continues to expand its Memrecam GX product family with the addition of the new **GX-8** camera which provides *high light sensitivity, Mega pixel resolution AND high speed frame rates*—all in one camera! NAC's dedication to image quality and light sensitivity is evident in this “flagship” camera 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-8 captures brilliant images at frame rates in excess of 600,000 fps!

The robust **GX-8** is perfect for a variety of applications including: Ballistics, Combustion, Materials Research, Machine Design, Microscopy, PIV, Flow Visualization, Spray Analysis, Automotive Crash and many, many more...

- Superior Light Sensitivity: >20,000 ISO monochrome, > 5,000 ISO color
- High Resolution: 1280 X 1024 pixels up to 2,900 fps.
- Adjustable Frame Rates from 50fps to 600,000fps in 1fps increments
- Electronic shutter: OPEN to 0.6 us (.5 micro second option)
- Supports Nikon's new AF-G Lenses
- 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



Choose NAC to help address your high-speed imaging needs and you'll see *The Visible Difference.*

Visit our website at [www.nacinc.com](http://www.nacinc.com)

## Memrecam GX-8

### Preliminary Specifications:

#### Camera Features

*Auto Exposure Control*  
*Adjustable Frame Rates*  
*Automatic Temperature Calibration*  
*Selectable Bit Density*  
*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*  
*Compact, Rugged Design*

**Sensor:** 1280 X 1024 pixel CMOS up to 2,910 fps.  
**Bit Depth:** 12-bit, 10-bit and 8-bit (customer selectable) - STANDARD  
**Sensitivity:** >20,000 ISO monochrome and >5,000 ISO color  
**Electronic Shutter:** OPEN to 0.6 us (.5 us option)  
**Resolution:** Continually adjustable resolution with recording rates from 50fps to 600,000fps.  
**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 available including G and C-Mounts .  
**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 PC-based 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 240(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

#### 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.



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## GX8 Frame Rate/Resolution Table

### Wide mode

Frame Rate	Maximum Resolution		Record Time sec		
	FPS	Hor.	Vert.	2GB	4GB
100	1280	1024	12.91	25.82	51.64
250	1280	1024	5.16	10.33	20.65
500	1280	1024	2.58	5.16	10.33
1,000	1280	1024	1.29	2.58	5.16
2,000	1280	1024	0.65	1.29	2.58
2,500	1280	1024	0.52	1.03	2.07
<b>2,900</b>	<b>1280</b>	<b>1024</b>	0.45	0.89	1.78
<b>3,000</b>	<b>1280</b>	<b>960</b>	0.46	0.92	1.84
3,600	1280	800	0.46	0.92	1.84
<b>3,900</b>	<b>1280</b>	<b>720</b>	0.47	0.94	1.88
4,000	1280	688	0.48	0.96	1.92
5,000	1280	528	0.50	1.00	2.00
6,000	1280	400	0.55	1.10	2.20
8,000	1280	256	0.65	1.29	2.58

### Speed mode

Frame Rate	Maximum Resolution		Record Time sec		
	FPS	Hor.	Vert.	2GB	4GB
100	1024	1024	16.14	32.27	64.54
250	1024	1024	6.45	12.91	25.82
500	1024	1024	3.23	6.45	12.91
1,000	1024	1024	1.61	3.23	6.45
2,000	1024	1024	0.81	1.61	3.23
2,500	1024	1024	0.65	1.29	2.58
3,000	1024	1024	0.54	1.08	2.15
<b>3,600</b>	<b>1024</b>	<b>1024</b>	0.45	0.90	1.79
4,000	1024	928	0.45	0.89	1.78
<b>4,800</b>	<b>1024</b>	<b>768</b>	0.45	0.90	1.79
5,000	1024	736	0.45	0.90	1.80
6,000	1024	612	0.45	0.90	1.80
7,000	1024	520	0.45	0.91	1.82
<b>7,500</b>	<b>800</b>	<b>600</b>	0.47	0.94	1.88
8,000	800	564	0.47	0.94	1.88
<b>9,000</b>	<b>768</b>	<b>512</b>	0.48	0.96	1.91
10,000	768	460	0.48	0.96	1.92
<b>11,100</b>	<b>640</b>	<b>480</b>	0.50	0.99	1.98
12,400	512	512	0.52	1.04	2.08
<b>16,400</b>	<b>512</b>	<b>384</b>	0.52	1.05	2.10
20,000	512	308	0.54	1.07	2.15
25,000	480	256	0.55	1.10	2.20
30,000	512	200	0.55	1.10	2.20
40,000	384	180	0.61	1.22	2.45
50,000	384	140	0.63	1.26	2.52
60,000	304	132	0.70	1.41	2.81
100,000	256	84	0.79	1.57	3.15
200,000	128	48	1.38	2.75	5.51
336,000	64	16	4.92	9.84	19.67
614,000	16	4	43.06	86.12	172.23