



# Memrecam GX-8

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 1.3million 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 50 fps to 600,000 fps in 1 fps increments
- Electronic shutter: OPEN to 0.6  $\mu$ s (.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



## 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  $\mu$ s (.5 $\mu$ s option)

**Resolution:** Continually adjustable resolution with recording  
rates from 50 fps to 600,000 fps.

**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.

**Stand alone 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 (photoisolation),  
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<sup>3</sup>

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

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

**Power:** 20-32 Vdc

**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++, VisualC++ and Visual Basic.

### Vertrieb:

**MAK**  
BILDTECHNIK

MAK Bildtechnik GmbH  
Hafenstr. 4  
38442 Wolfsburg  
Tel.: 05362 52423  
Fax: 05362 52413  
Email: [info@MAK-Bildtechnik.de](mailto:info@MAK-Bildtechnik.de)  
[www.MAK-Bildtechnik.de](http://www.MAK-Bildtechnik.de)

## GX-8 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	0,5	1	2
6.000	1280	400	0,55	1,1	2,2
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	0,9	1,79
4.000	1024	928	0,45	0,89	1,78
<b>4.800</b>	<b>1024</b>	<b>768</b>	0,45	0,9	1,79
5.000	1024	736	0,45	0,9	1,8
6.000	1024	612	0,45	0,9	1,8
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>	0,5	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	2,1
20.000	512	308	0,54	1,07	2,15
25.000	480	256	0,55	1,1	2,2
30.000	512	200	0,55	1,1	2,2
40.000	384	180	0,61	1,22	2,45
50.000	384	140	0,63	1,26	2,52
60.000	304	132	0,7	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