



NAC Image Technology, the most experienced name in high-speed video, introduces the Memrecam fx RX5, a flexible, lightweight, high-speed, HyGe mega pixel imaging system that simultaneously captures up to four views.

NAC's Memrecam fx RX5 Digital High-Speed Color Video System



NAC's Memrecam fx RX5 sets new standards for high-speed imaging flexibility and performance in on-board automotive testing. These cameras provide the ideal solution for image capture in confined spaces such as foot wells or engine compartments.

The Memrecam fx RX5 is a mega pixel camera system that can be modified to accept multiple cameras, thereby providing the user with alternative systems that help reduce the added weight of instrumentation systems in an on-board impact test environment.

The Memrecam fx RX5 System Features

- **Single Camera Operation**—The Memrecam fx RX camera head records images at 1,000 pps with 1280 X 1024 pixel resolution (optional recording rates up to 10,000 pps). Alternatively, the Memrecam fx RX5 uses the Memrecam Micro camera head (21mm X 21mm X 99mm, 0.3kg), recording at up to 500 pps in extremely confined spaces.
- **Multi-Camera Head Configuration**—The Memrecam fx RX5 may be configured with up to four fx RX camera heads, providing 640 X 512 pixel resolution at 1,000 pps and providing 640 X 256 resolution at 2,000 pps.
- **Multi-Micro Camera Head Configuration**—The Memrecam fx RX5 may be configured with up to four Memrecam Micro camera heads providing 508 X 434 pixel resolution at 500 pps.
- **Remote Head Operation**—The Memrecam fx RX5 camera heads utilize a variety of camera cable lengths (3m, 5m and 9m) and cameras can be mounted up to 18m from the RX5's Digital Recording Processor (DRP).
- **Memrecam fx Product Family**—The Memrecam fx RX5 is a member of NAC's Memrecam fx Product Family and is therefore compatible with the complete range of Memrecam fx products, including: communications, synchronization and multi-camera controls.

The Memrecam fx family of products is easily networked and synchronized using NAC's complete line of accessory items including 2D and 3D Motion Analysis Systems. Choose NAC to help address your high-speed imaging needs and you'll see *The Visible Difference*.

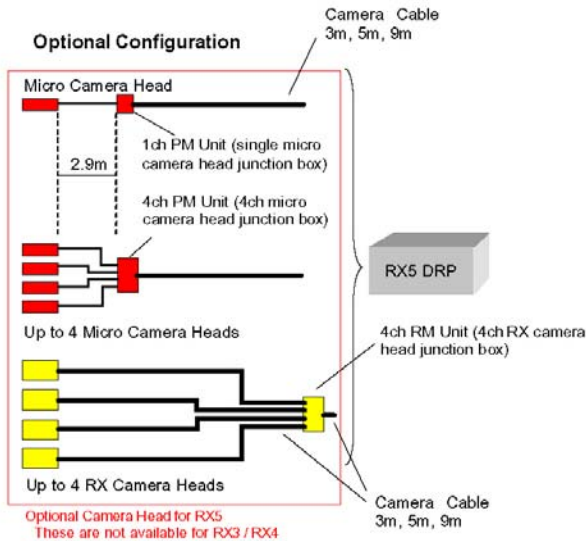


Visit our web site at www.nacinc.com

Standard Configuration



Optional Configuration



Optional Camera Head for RX5
These are not available for RX3 /RX4

The **Memrecam fx RX5** is a new concept high-speed camera system based upon the existing **Memrecam fx Product Family**. It is an ideal solution for on-board multi-camera applications because it features a remote compact camera head and is capable of attaching up to four (4) cameras to a single Digital Recording Processor (DRP). This multiple small camera head solution allows for the flexible placement of camera heads while reducing the total space and weight of on-board instrumentation equipment.

Memrecam fx RX5 System Features:

- Flexible Configuration
 - ⇒ Single Camera Head Configuration—1280 X 1024 up to 1,000 pps
 - ⇒ Multi-RX Camera Head Configuration—640 X 512 up to 1,000 pps
 - ⇒ Up to four fx RX Camera Heads can be used with Junction Box
 - ⇒ Multi-Micro Head Configuration—508 X 384 up to 500 pps
 - ⇒ Up to four Micro Camera Heads can be used with Junction Box
- Ruggedized for HyGe applications
- Giga-bit Data Transfer using Fibre Channel
- Compatible with all Memrecam fx products

Camera Comparison Table		
Item	fx RX Camera Head	Micro Camera Head
Sensor Type	CMOS	CCD
Pixel Format	1280 X 1024	510 X 484
Sensor Size	15.36mm X 12.29mm	4.89mm X 3.63mm
Lens Mount	C-Mount	NF Mount
Shutter Speed	Max. 1/200,000 sec	Max. 1/20,000 sec
Size (mm)	80(H) X 80(W) X 94(D)	21(H) X 21(W) X 99(D)
Weight (lbs)	1.5	0.6



Contact Us:

NAC Image Technology
 15 McCoy Place
 Simi Valley, CA 93065
 Tel: (800) 969-2711
 E-mail: sales@nacinc.com

Visit our web site at www.nacinc.com

Memrecam fx Family Common Features

- **High Resolution, High-Speed Sensor:** The Memrecam fx cameras use state-of-the-art CMOS sensors.
- **Electronic Shutter:** OPEN to 1/200,000
- **Bit Density:** 10 Bits
- **Standard Lens Mount:** C-Mount or F-Mount available
- **Live Image:** A live image is generated by the Digital Signal Processor (DSP) and can be displayed on an optional LCD viewfinder or on the monitor of a PC.
- **Standalone Operation:** The Memrecam fx cameras do not require a PC for setup and operation.
- **Operation and Control:** All functions from the camera setup to the recording and slow playback can be controlled using the panel on the back of the camera. Alternatively, the camera can be controlled remotely using NAC's J-Pad II hand-held controller or via a PC-based control system.
- **Trigger Mode:** The Memrecam fx cameras use a START, CENTER, END or CUSTOM trigger. In the CUSTOM mode, the trigger point can be programmed and positioned by the customer (i.e. -100% to +100%).
- **Synchronous Data Recording:** Scene number, date and time of trigger, shutter speed, video process data, comments.
- **Back Panel Connectors:** TRIG IN (Trigger In), Control (J-Pad II connection), AUX (recording synchronous signal and serial operation signal for external products), 100Base-TX (Ethernet connection), FC-AL (Fibre Channel connection), Remote In (M-Hub connection), D-VGA Out (VGA Viewfinder), CF (Compact Flash).
- **Recording Video Monitor:** In VIEW mode, live images captured by the camera but not saved in memory are reviewed. Images are displayed at a rate of 30 pps. In ARM/REC mode, the images captured by the camera and stored in memory can be reviewed. Image playback speed is adjustable.
- **Video Playback Unit:** Recorded images can be played back and viewed, immediately after image capture, on an optional LCD viewfinder (or NAC's View Box), on a VGA monitor or on the monitor of a control PC. The video playback unit allows for "step" fashion image review, allows the user to set the start and end points for image review, allows the user to "jump" to the trigger point, the START point or the END point of the image area. Image playback can be in a single segment or in a loop.
- **Memory Configuration:** 1.3GB, 4.0GB, 8.0GB and 16.0GB
- **Backup Option:** The memory backup option maintains power to the camera's DRAM in the event of power loss, thereby saving the customer's images. The images will be saved for approximately 1 hour.
- **Image Download:** The recorded images, having been captured to DRAM, can be downloaded directly to a PC via Fibre Channel or Ethernet. Alternatively, images can be saved locally to a Compact Flash.
- **Multi-Camera Control:** Up to a maximum of 48 Memrecam fx cameras can be connected and fully synchronized using NAC's M-Hub system. Alternatively, a similar number of cameras can be linked using commercial off-the-shelf (COTS) Fibre Channel or Ethernet network hubs.
- **PC Communications:** The customer has the option of selecting from three different modes of PC communications.
- **Control Software:** Control software is provided with each camera system. Alternatively, the customer can develop his own control software. NAC will provide the customer with a Software Development Kit (based upon an ActiveX component). The SDK will support C++, Visual C++ and Visual Basic.
- **IRIG-B:** Memrecam fx cameras support real time IRIG-B time insertion and can be synchronized to IRIG-B.



Contact Us:

NAC Image Technology

15 McCoy Place

Simi Valley, CA 93065

Tel: (800) 969-2711

E-mail: sales@nacinc.com

Visit our web site at www.nacinc.com

Single Camera Head Memrecam fx RX5—Full Resolution						
Resolution		Frame Rate (fps)	Recording Time/Memory Configuration			
Horizontal	Vertical		1.3GB	4.0GB	8.0GB	16.0GB
1280	1024	100	8.1 sec	24 sec	48 sec	96 sec
1280	1024	250	3.2 sec	9.8 sec	19.6 sec	39.2 sec
1280	1024	500	1.6 sec	4.9 sec	9.8 sec	19.6 sec
1280	1024	1000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
1280	512	2000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
1280	344	3000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
1280	256	4000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
1280	200	5000	0.8 sec	2.5 sec	5.0 sec	10.0 sec
1280	168	6000	0.8 sec	2.5 sec	5.0 sec	10.0 sec
1280	120	8000	0.8 sec	2.6 sec	5.2 sec	10.4 sec
1280	96	10000	0.8 sec	2.6 sec	5.2 sec	10.4 sec

Multi Camera Head Memrecam fx RX5—4 Camera Configuration						
Resolution		Frame Rate (fps)	Recording Time/Memory Configuration			
Horizontal	Vertical		1.3GB	4.0GB	8.0GB	16.0GB
640	512	100	8.1 sec	24 sec	48 sec	96 sec
640	512	250	3.2 sec	9.8 sec	19.6 sec	39.2 sec
640	512	500	1.6 sec	4.9 sec	9.8 sec	19.6 sec
640	512	1000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
640	256	2000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
640	172	3000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
640	128	4000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
640	100	5000	0.8 sec	2.5 sec	5.0 sec	10.0 sec
640	84	6000	0.8 sec	2.5 sec	5.0 sec	10.0 sec
640	60	8000	0.8 sec	2.6 sec	5.2 sec	10.4 sec
640	48	10000	0.8 sec	2.6 sec	5.2 sec	10.4 sec



NAC Image Technology
Toll Free: 800-969-2711
Telephone: +1-805-584-8862
E-mail: sales@nacinc.com

Visit our web site at www.nacinc.com

Single Camera Head Memrecam fx RX5—HDTV Resolution						
Resolution		Frame Rate (fps)	Recording Time/Memory Configuration			
Horizontal	Vertical		1.3GB	4.0GB	8.0GB	16.0GB
1280	720	100	11 sec	33 sec	65 sec	131 sec
1280	720	250	4.4 sec	13.2 sec	26.0 sec	52.4 sec
1280	720	500	2.2 sec	6.6 sec	13.1 sec	26.2 sec
1280	720	1000	1.1 sec	3.3 sec	6.5 sec	13.1 sec
1280	512	2000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
1280	344	3000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
1280	256	4000	0.8 sec	2.4 sec	4.8 sec	9.6 sec
1280	200	5000	0.8 sec	2.5 sec	5.0 sec	10.0 sec
1280	168	6000	0.8 sec	2.5 sec	5.0 sec	10.0 sec
1280	120	8000	0.8 sec	2.6 sec	5.2 sec	10.4 sec
1280	96	10000	0.8 sec	2.6 sec	5.2 sec	10.4 sec

Single Camera Head Memrecam fx RX5—Reduced Resolution						
Resolution		Frame Rate (fps)	Recording Time/Memory Configuration			
Horizontal	Vertical		1.3GB	4.0GB	8.0GB	16.0GB
640	512	100	33 sec	98 sec	196 sec	392 sec
640	512	250	13.2 sec	39.2 sec	78.4 sec	156.8 sec
640	512	500	6.6 sec	19.6 sec	39.2 sec	78.4 sec
640	512	1000	3.3 sec	9.8 sec	19.6 sec	39.2 sec
640	512	2000	1.6 sec	4.9 sec	9.8 sec	19.6 sec
640	344	3000	1.6 sec	4.9 sec	9.8 sec	19.6 sec
640	256	4000	1.6 sec	4.9 sec	9.8 sec	19.6 sec
640	200	5000	1.7 sec	5.0 sec	10.0 sec	20.0 sec
640	168	6000	1.7 sec	5.0 sec	10.0 sec	20.0 sec
640	120	8000	1.7 sec	5.2 sec	10.4 sec	20.8 sec
640	96	10000	1.7 sec	5.2 sec	10.4 sec	20.8 sec



NAC Image Technology
Toll Free: 800-969-2711
Telephone: +1-805-584-8862
E-mail: sales@nacinc.com

Visit our web site at www.nacinc.com

Micro Camera Head Memrecam fx RX5						
Resolution		Frame Rate (fps)	Recording Time/Memory Configuration			
Horizontal	Vertical		1.3GB	4.0GB	8.0GB	16.0GB
508	384	100	21.6 sec	65 sec	130 sec	260 sec
508	384	250	8.6 sec	26 sec	52 sec	104 sec
508	384	500	4.3 sec	13 sec	26 sec	52 sec

Note: The recording time is the same regardless of number of micro cameras used (i.e. 1, 2, 3 or 4)

Memrecam fx RX5 Camera Head Comparison		
	RX Camera Head	Micro Camera Head
Sensor Type	CMOS	CCD
Pixel Format	1280 X 1024 pixels	510 X 484 pixels
Sensor Size	15.36mm X 12.29mm	4.89mm X 3.63mm
Lens Mount	C Mount	NF Mount
Shutter Speed	Max. 1/200,000 sec	Max. 1/20,000 sec
Size (mm)	80(H) X 80(W) X 94(D)	21(H) X 21(W) X 99(D)
Weight	1.5 lbs (0.7kg)	0.6 lbs (0.3kg)

Size and Weight

- **RX5 DRP:** 142mm (H) X 145mm (W) X 297mm (D), 15.4lbs (7.0 kg)
- **4ch PM Unit:** 65mm (H) X 310mm (W) X 120mm (D), 5.5lbs (2.5kg)
- **4ch RM Unit:** 30mm (H) X 265mm (W) X 200mm (D), 5.5lbs (2.5kg)
- **RX Camera Head:** 80mm (H) X 80mm (W) X 94mm (D), 1.5lbs (0.7kg)
- **Micro Camera Head:** 21mm (H) X 21mm (W) X 99mm (D), 0.6lbs (0.3kg)

Camera Cable Variations

- **Between RX Camera/RM Unit/PM Unit and DRP:** 3m, 5m, 9m
- **Between RX Camera and RM Unit:** 3m, 5m, 9m
- **Between Micro Camera and PM Unit:** 2.9m (camera is permanently connected to cable)

Shock Specifications

- **RX Camera Head:** Half Sine, 11ms, 150G, 1000 impact
- **Micro Camera Head:** Half Sine, 11ms, 150G, 1000 impact
- **RX5 DRP:** Half Sine, 11ms, 100G, 1000 impact



NAC Image Technology
Toll Free: 800-969-2711
Telephone: +1-805-584-8862
E-mail: sales@nacinc.com

Visit our web site at www.nacinc.com