



# NAC's Memrecam fx K4 The Most Light Sensitive Digital High-Speed Color Video System Available... & it's Mega Pixel!

***NAC Image Technology Revolutionizes the High-Speed Imaging Industry, combining the Highest Light Sensitivity, Mega Pixel Resolution and Ultra High Framing Rates in a single camera system....***



- **Ultra High Light Sensitivity**  
**ISO 5000 (Color)**  
**ISO 32000 (Monochrome)**  
*(See Chart Below)*
- **ATC Circuit for Auto Image Balancing**
- **Ultra High Framing Rates (>165,000 fps)**
- **High Resolution 1280 X 1024 pixels**
- **Extra Long Record Times**
- **Easy to Use**
- **Ruggedized for Harsh Environments**
- **Remote Operation**
- **Self Contained**

NAC's Memrecam fx K4 provides ultra high light sensitivity, ultra high speed and mega pixel resolution. The Memrecam fx K4 is a fully self-contained, digital, high-speed video system that records brilliant color images or crisp monochrome images with resolutions up to 1280 X 1024 pixels at 1000 pps. Using an advanced CMOS sensor, the Memrecam fx K4 captures images at frame rates up to 168,000 pps.

The robust Memrecam fx K4 is perfect for military range applications, automotive crash safety applications and any other high-speed imaging application being performed in a hazardous environment. The Memrecam fx K4 is designed for a variety of research, design and testing applications where a combination of high sensitivity, high image resolution and high recording rates are a must. NAC's ATC Circuit allows the Memrecam fx K4 to automatically adjust both black balance and white balance without any manual intervention. The ATC Circuit sets industry standards by automatically optimizing image quality during prolonged camera operation.

Available with onboard memory of up to 16GB, the Memrecam fx mega pixel cameras are the only camera systems available in the industry which allow the user to record and store mega pixel images of more than 10 seconds at 1000 fps. This makes the Memrecam fx K4 an excellent choice for those high-speed imaging applications requiring extra long recording times.

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

Camera Light Sensitivity		
<i>Please contact NAC directly for a copy of an independent, 3rd party test report on the Memrecam fx K4</i>	<b>K4 Color</b>	<b>K4 Mono</b>
<b>ISO 12232 standard SNR:40</b>	ISO 5000	ISO 32000
<b>SMPTE Television Standard</b>	ISO 2400	ISO 10000
<b>CIPA DC-004</b>	ISO 2000	ISO 8000



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## Memrecam fx K4 Product Features

- **High Resolution, High-Speed Sensor:** The Memrecam fx cameras use state-of-the-art CMOS sensors.
- **Sensor Array:** 1280 X 1024 pixels
- **Light Sensitivity:** ISO2400 for color (2400 Lux @ 1000 fps F4), ISO10000 monochrome (~576 Lux @ 1000 fps F4)
- **Electronic Shutter:** OPEN to 3 Micro seconds
- **Bit Density:** 10 Bits
- **Standard Lens Mount:** F-Mount
- **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) or Gigabit Ethernet, 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:** 2.0GB, 4.0GB, 8.0GB and 16.0GB
- **Memory Backup:** Memory backup comes standard with the Memrecam fx K4. It 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 Gigabit Ethernet, Fibre Channel or 100Base-TX Ethernet. (Gigabit Ethernet or Fibre Channel must be specified at time of equipment order.) Images can also 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.



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<b>Memrecam fx K4—Full Resolution</b>						
<b>Resolution</b>		<b>Frame Rate (fps)</b>	<b>Recording Time/Memory Configuration</b>			
<b>Horizontal</b>	<b>Vertical</b>		<b>2.0GB</b>	<b>4.0GB</b>	<b>8.0GB</b>	<b>16.0GB</b>
1280	1024	100	12 sec	24 sec	48 sec	96 sec
1280	1024	250	4.9 sec	9.8 sec	19.6 sec	39.2 sec
1280	1024	500	2.4 sec	4.9 sec	9.8 sec	19.6 sec
1280	1024	1000	1.2 sec	2.4 sec	4.9 sec	9.8 sec
1088	880	2000	0.8 sec	1.6 sec	3.3 sec	6.7 sec
864	720	3000	0.8 sec	1.7 sec	3.4 sec	6.9 sec
768	592	4000	0.8 sec	1.7 sec	3.5 sec	7.0 sec
640	560	5000	0.9 sec	1.8 sec	3.5 sec	7.1 sec
672	432	6000	0.9 sec	1.8 sec	3.6 sec	7.3 sec
512	400	8000	0.9 sec	1.9 sec	3.9 sec	7.8 sec
448	368	10000	0.9 sec	1.9 sec	3.9 sec	7.8 sec
288	240	20000	1.1 sec	2.3 sec	4.6 sec	9.3 sec
244	176	30000	1.3 sec	2.7 sec	5.4 sec	10.8 sec
192	144	40000	1.4 sec	2.9 sec	5.8 sec	11.0 sec
160	80	60000	2.0 sec	4.1 sec	8.3 sec	16.0 sec
96	80	80000	2.7 sec	5.2 sec	10.4 sec	20.0 sec
64	64	105000	3.7 sec	7.4 sec	14.9 sec	29.0 sec
64	48	120000	4.3 sec	8.7 sec	17.0 sec	34.0 sec
32	48	168000	6.2 sec	12.4 sec	24.0 sec	49.0 sec



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