

# Quick Start Guide



## fxLink



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**MEMRECAM fxLink**  
**SP-614-1 Quick Start Guide**

**January 2005**

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**2004.09.17**

## SAFETY PRECAUTIONS

Please read the following safety precautions before operating fxLink and the MEMRECAM system. Some of the equipment in the MEMRECAM system may indicate the following symbols where special attention is necessary for safe and proper operation.

- DANGER** DANGER indicates a imminently hazardous situation, which, if not avoided, will result in death or serious injury.
- WARNING** WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.
- CAUTION** CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.  
CAUTION is also an alert against unsafe behavior and/or possible damage to the Unit or connected equipment.

## OPERATING PRECAUTIONS

### Safety Alert Symbol



This is the industry standard “Safety Alert Symbol” that gives an alarm against possible hazard to the operator or others while operating the Unit. Important information on the operation is also provided under this symbol. Carefully read and follow such instructions for safe and proper operation.

### Ground Terminal Symbol



Indicated near the protective grounding terminal. If not properly grounded, it may cause electrical shock from metal components or others. Always make sure the Unit is properly grounded to avoid such hazard. When a 3P-2P conversion plug is used to connect to an electrical outlet, ensure that the grounding wire of the plug is connected to the external grounding terminal.

## **Warning**



Power switch must be turned off before connecting or disconnecting the power cable. If the cable is connected or disconnected leaving the power switch ON, it may cause electrical shock as well as damage on the equipment.

## **High Voltage Warning Symbol**



Remove the power cable from the outlet before replacing a fuse or similar. In addition, do not open the cover during such operations to prevent electrical shock as high voltage is present inside some of the equipment.

As always, there are instances where some unforeseen condition may exist which may have not been taken to account. As a result, operate the system only after thorough understanding of the contents written in this manual. Contact your retail outlet if there are any questions regarding the operation of this system.

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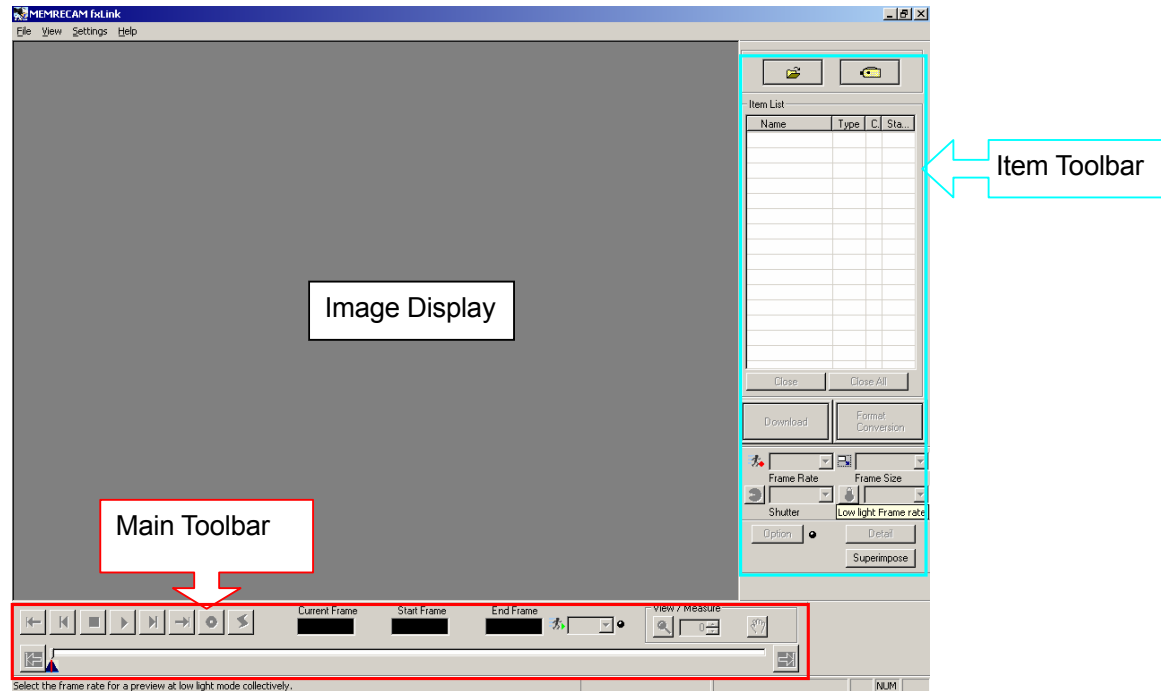
# Basic Functions

fxLink performs the following functions for the operation of MEMRECAM fx Cameras.

- Either single or multiple MEMRECAM fx camera control (Preview, Record, Playback, and Download)
- Playback of downloaded images (MCFF), Image quality adjustment, Format conversion (AVI, TIFF, BMP and JPEG)
- Playback of image files (AVI, TIFF, BMP and JPEG)
- Single or Synchronized display of Live View and Recorded Images
- Coordinate measurement (Camera preview images, Downloaded images, and Image files)
- Images can be zoomed in/out and scrolled

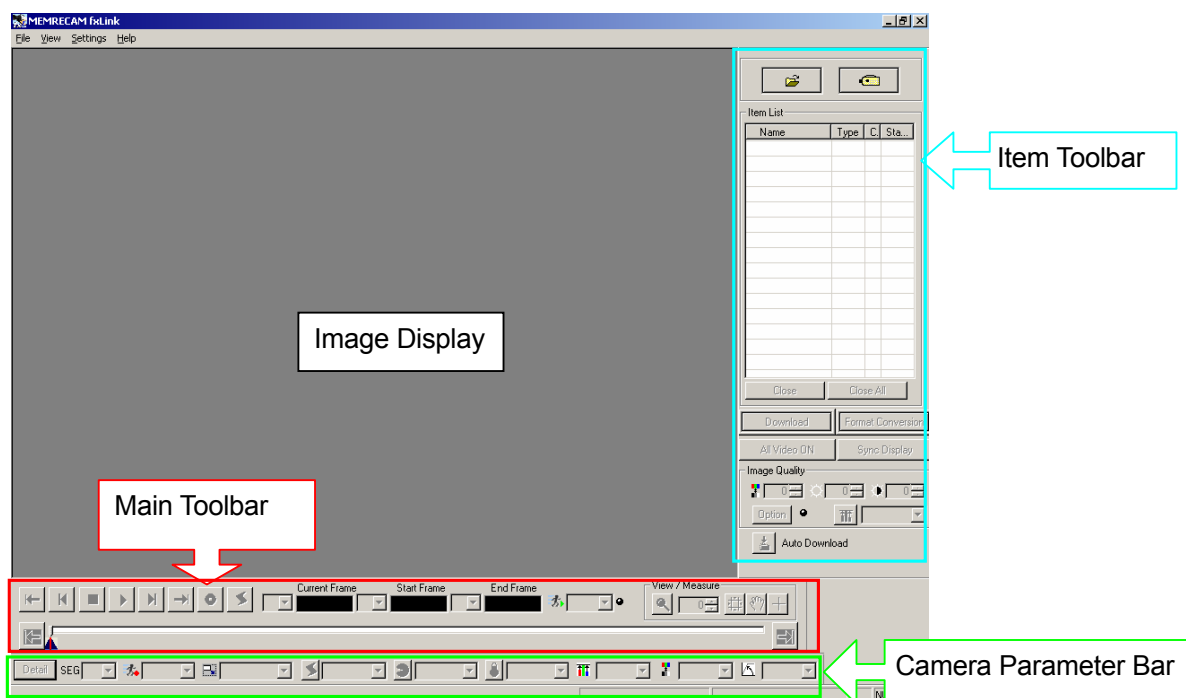
# Startup

A new “Basic Mode” GUI has been added to fxLink Ver.2.00. In this mode, only the minimum buttons and functions needed to control the camera appear on toolbars. Additional functions not covered by the buttons displayed on screen can be accessed using the drop down menus.



(Startup Screen: Basic Mode)

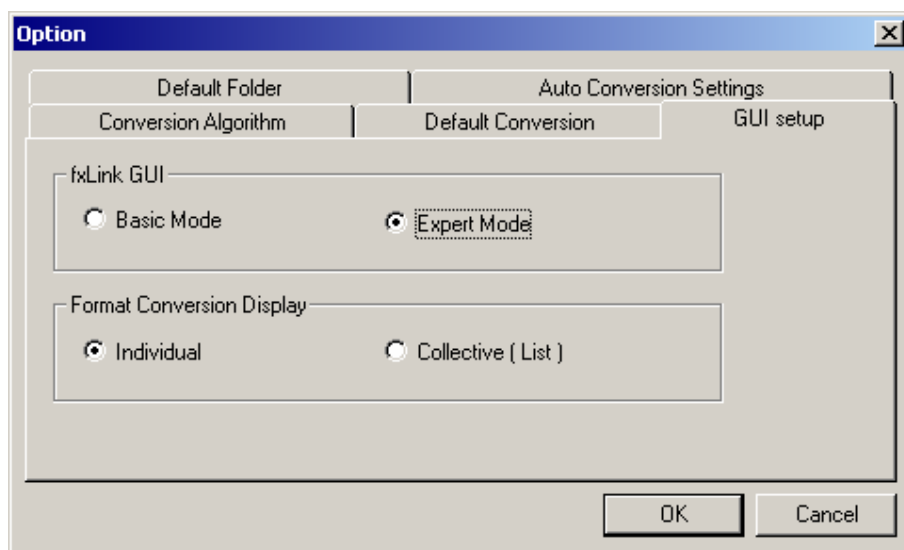
The “Expert Mode” GUI includes on-screen access to most of the Pre and Post-Recording functions available. In addition the Camera Parameter Bar is added to the bottom of the screen.



(Startup Screen: Expert Mode)

. To switch to the “Expert Mode” GUI go to the “GUI Setup” tab located in the “Option” dialogue window. From the **Settings** drop down menu select **Option**. Select the **GUI setup** tab and click the **Expert Mode** radio button. Click **OK**.

**Settings → Option → GUI setup → Expert Mode → OK**

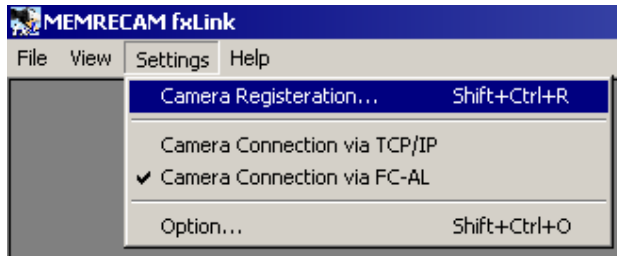


(Option Dialogue Window - GUI setup Tab)



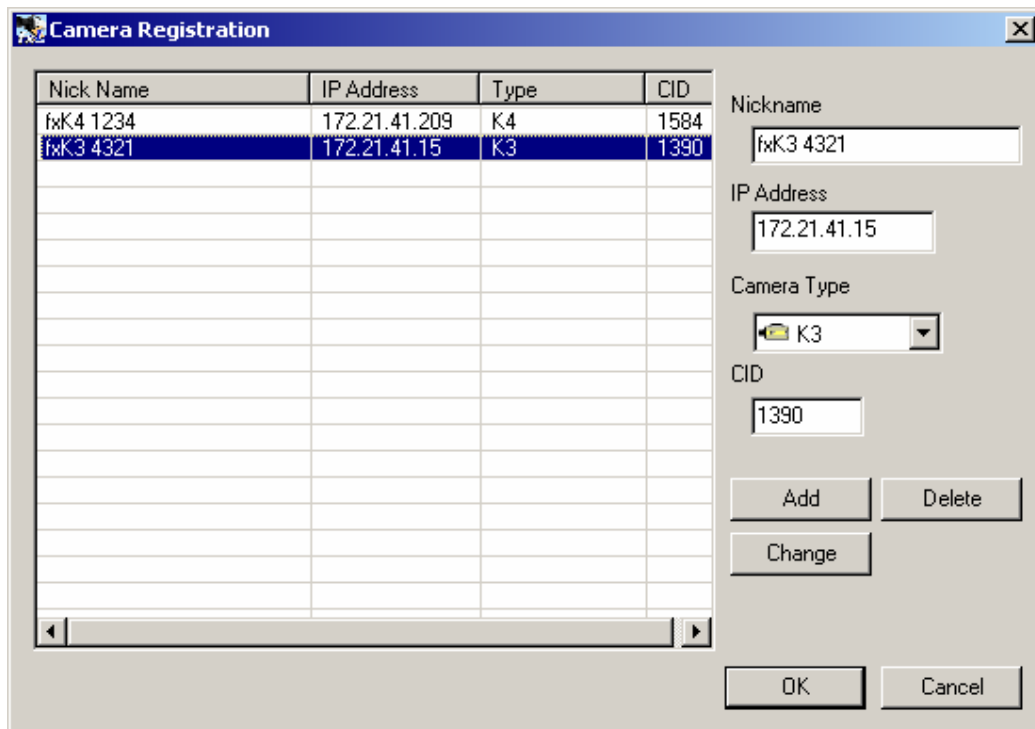
# Camera Registration

Registration of all (MEMRECAM fx) cameras must be done before using fxLink to operate them. The camera registration data is saved in a file to be retrieved in the future during camera connection. To register the cameras select **Camera Registration...** on the **Settings** drop down menu.



In the “Camera Registration” dialogue window enter the “Nickname”, “IP address”, “Camera Type” and “CID” and then click on “Add” button for each camera. All fields are required to be filled for proper operation. Existing camera entries can be deleted and edited using the “Add” and “Change” buttons. Click “OK” to close the Camera Registration window when registration of all the cameras is finished.

- Nicknames can be entered for each camera as desired (e.g. Type and Serial Number)
- The MEMRECAM camera IP Address and CID are set at the factory. CID is a unique number used to identify the camera. The IP Address and CID can be found in the camera's "INFORMATION" submenu (**TOP MENU** → **SYSTEM MENU** → **INFORMATION** - refer to the User Manual Chapter 3)

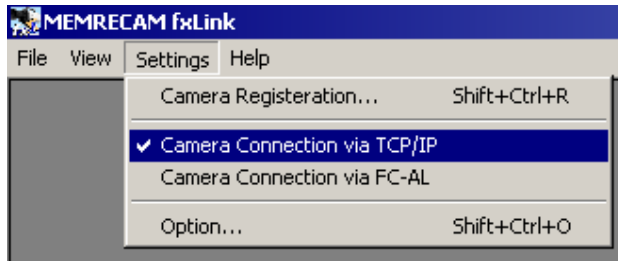


**(Camera Registration Dialogue Window)**

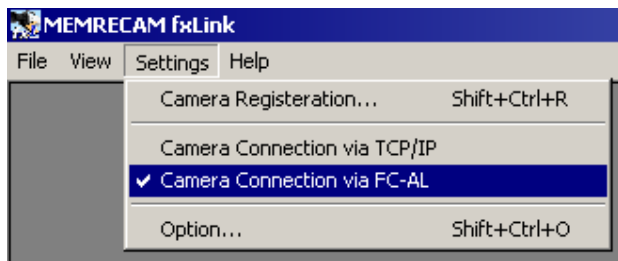
# Camera Connection


Choose the connection type from the **Settings** drop down menu.

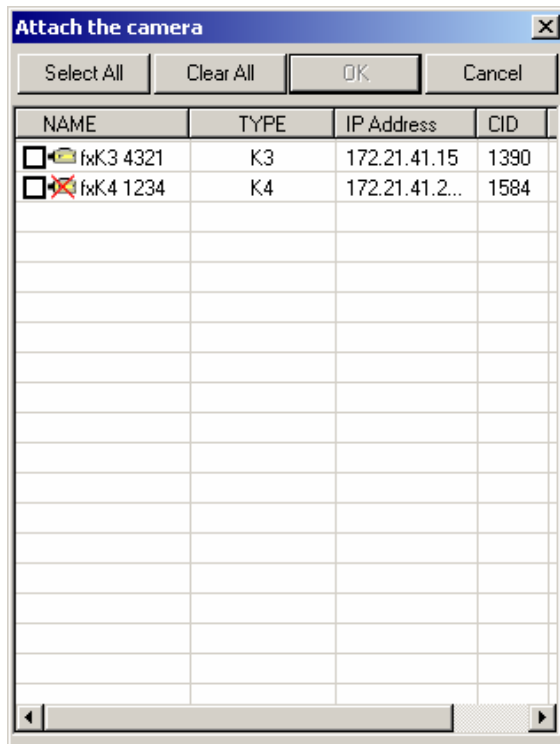
Choose “Camera Connection via TCP/IP” for Ethernet connection (100BASE-TX).



Or select “Camera Connection via FC-AL” for Fibre Channel connection (1Gbps).



To establish a connection, click the camera selection button  located on the “Item Toolbar”. If only one camera has been registered, fxLink will immediately establish a connection to that camera. If multiple cameras have been registered, the “Select Camera” dialog will appear instead.

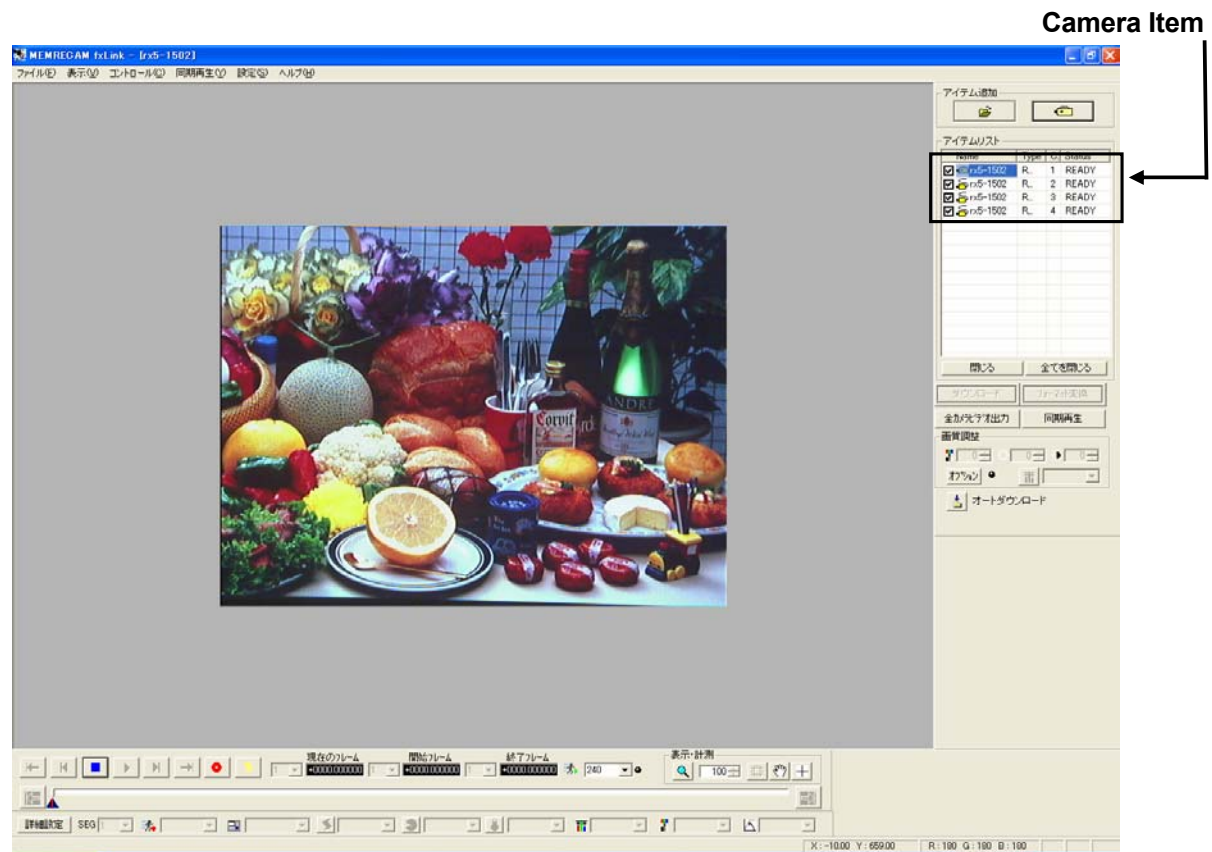


Cameras not available (which are not connected to the system) will show a red X mark on the camera icon in front of the nickname.

fxLink can only connect to available cameras. Click the check box of the desired cameras, as long as they do not have an X mark. Then click “OK” to start connection to the cameras.

(Select Camera Dialogue)

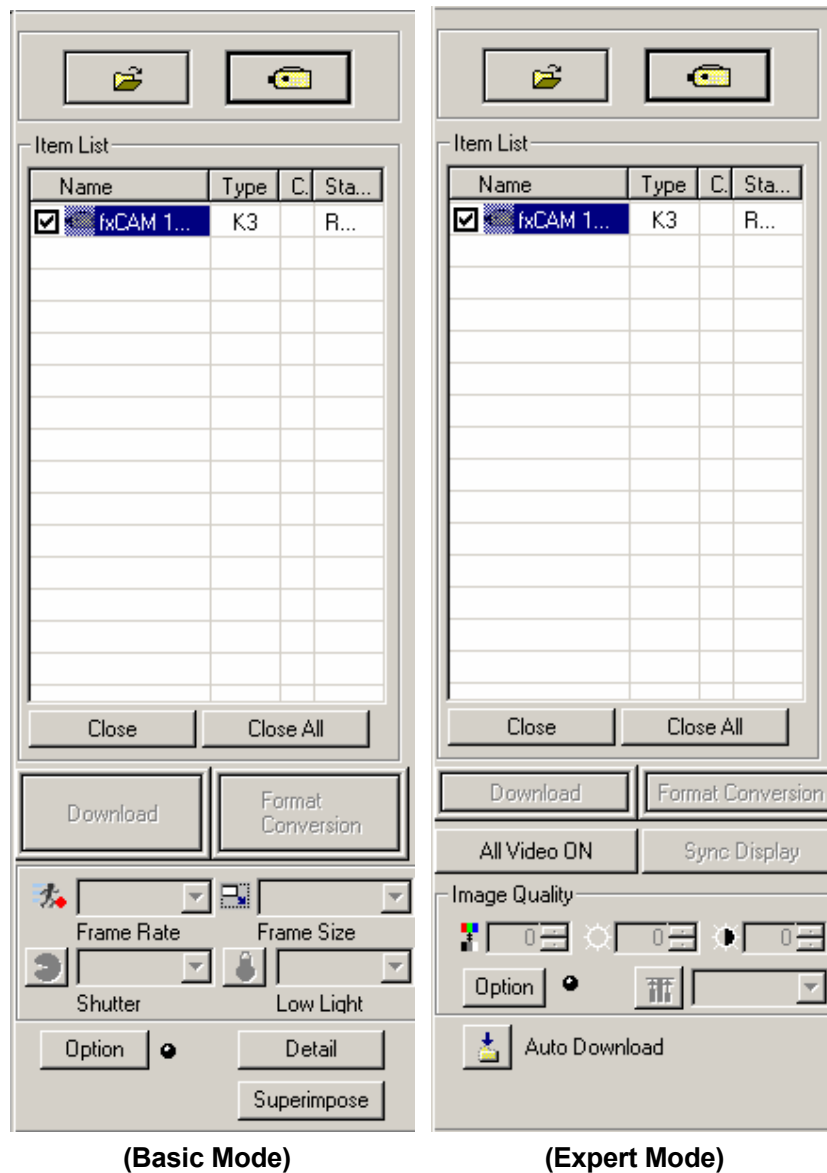
After fxLink connects to the cameras, they are added to the “Item List”. The camera nickname, type and status will be listed. The status display is updated when changes to the camera status occur. When camera connection finishes, either an existing image in memory is displayed or a new snapshot is taken.



(fx Link Main Screen – Item List detail)

# Item Toolbar

Here the **Item toolbar** is shown in Basic Mode and Expert Mode.



#### Add item



Open image file

Open image file and add the file item to the item list



Connect Camera

Connect to camera and add the camera item to the item list

#### Item List

Shows items (connected cameras, opened image files)



Thumbnail setting checkbox



Item mark



#### Camera Item

Name

Camera Nickname

Type

Camera Type or Memory Segment (MEM)

CAMERA

Camera Port Number (for multi camera head DRP)

Status

Camera Status or Memory Segment Number



#### File Item

Name

Image file base name

Type

Image file type ( mcf, avi, tif, bmp, jpg )

Close

Close items from Item List.

If camera item is closed, the camera is automatically disconnected.

Close All

Close all items from Item List.

Download

Downloads image data (MCFF) from camera.

Downloads image data recorded in the camera to a PC in MCFF format.

Format Conversion

Format conversion of image data (MCFF)

Converts MCFF files to AVI/BMP/TIFF/JPEG format and saves.

If "MCFF" is selected, save a particular range of image data

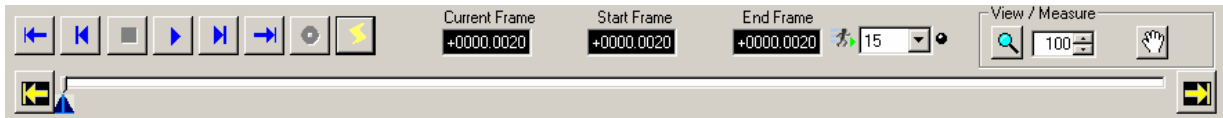


Set up Auto download

Set up (set for file name and range for saving) auto download function, which automatically download image after camera recording finishes.

## Main Toolbar

Tools for recording and playback of images are located at the Main Toolbar. While in basic mode, it includes image zoom/scroll function. Expert mode adds the coordinated measurement function and the MCFF image quality adjustment function.



(Main Toolbar – Basic Mode)

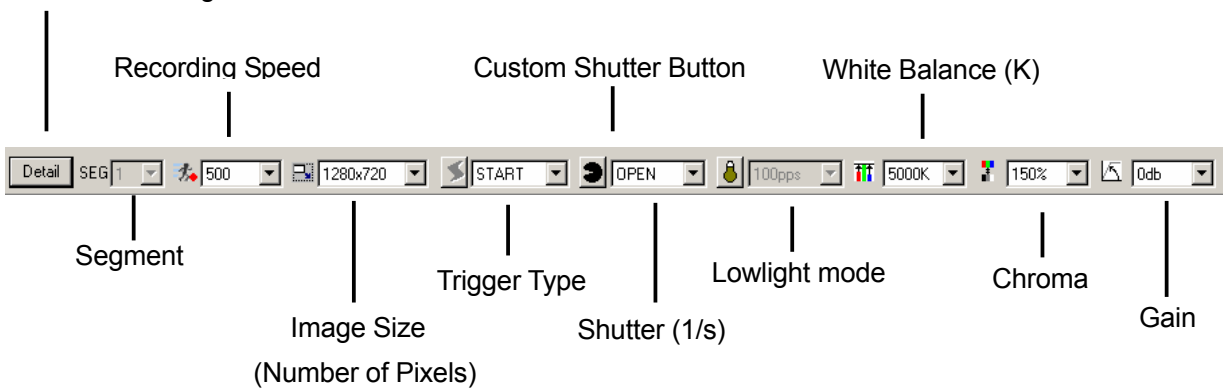


(Main Toolbar – Expert Mode)

## Camera Parameters Bar

Displays current and allows for the setting of new recording and playback control parameters for all selected cameras in the **Item List**. All settings made at the **Camera Parameters Bar** will be applied to all the cameras for which parameters are the same.

Open “Camera Setting Details” or  
“Camera Setting List”



(Camera Parameters Bar – Expert Mode Only)











# Setting Recording & Playback Parameters

Once the PC and camera connection has been established, the “Main Toolbar” and “Camera Parameter Bar” are activated.

## Name and Application of Buttons displayed

Buttons shown and their applications are provided below.

Use the mouse to click on the buttons to control the camera.

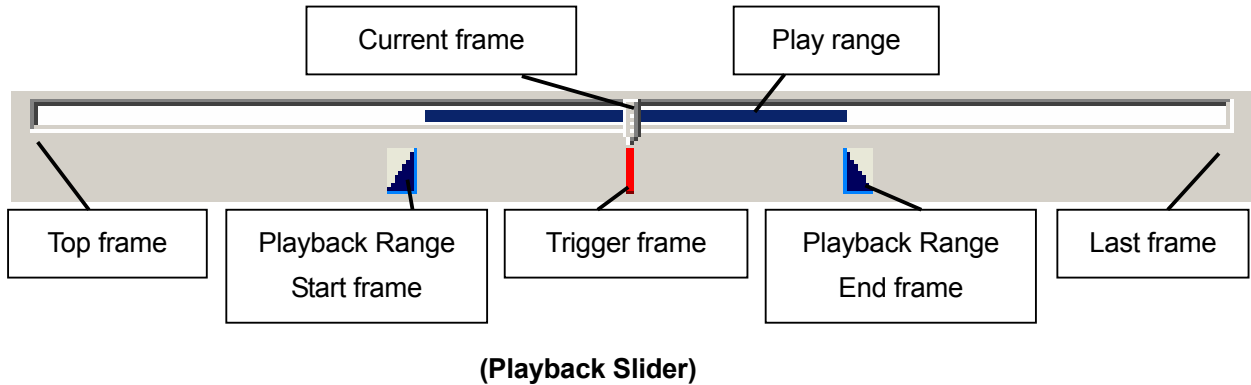
	<b>GO TO START</b>	Shows the playback start frame
	<b>REV STEP</b>	Back 1 frame
	<b>STOP</b>	Stops PLAY, VIEW, ARM mode and switches to READY mode
	<b>PLAY</b>	Play / Loop play
	<b>FWD STEP</b>	Forward 1 frame
	<b>GO TO END</b>	Shows the playback end frame
	<b>VIEW / ARM</b>	In READY mode: Switch to VIEW mode In VIEW mode: Switch to ARM (record) mode
	<b>TRIG</b>	In ARM mode: Manual Trigger In READY mode: Trigger frame display
		Set a current frame as the playback range start frame
		Set a current frame as the playback range end frame

For Loop play, Click “PLAY” button again during forward play.

For changing the play speed, Click “REV STEP” and “FWD STEP” during play.

### **Playback Slider**

The Playback Slider is a graphical representation of the camera memory and Trigger frames. The frame captured where the first Trigger signal (T0) was received is marked by a vertical red line. The Playback Range sliders can be used to select a portion of the recording for playback and download.



### **Setting Recording Parameters**

When the camera and PC are connected the camera status is set to "READY". Click the VIEW/ARM button on the "Main Toolbar" to set the camera to "VIEW" mode and the item list Status will show "VIEW". A live image captured by the camera will appear on the image display. The image shown in the "image display" is the same as that shown in the optional viewfinder.

NOTE: The "Camera Parameter Bar" is updated to display the current parameters set in the camera. Recording parameters can only be set when the camera is in "VIEW" mode. Playback parameters can only be set when the camera is in "READY" mode.



## Single-Camera Setting

When only one camera is connected, the “Detail settings” dialog window can be accessed clicking “Detail” button. Both Recording and Playback parameters can be set in this window.

Detail

Detail settings

Recording parameters

ID

1

Blocks

1

Scene No.

2608

Knee

ON

Recording Rate

500

Gain

0db

Screen Size

1280x720

Gamma

LOW

Trigger

START

White Balance

5000K

Shutter

OPEN

Enhance

NORMAL

Low Light

100pps

Chroma

150%

EST Mode

Event Frame

OFF

Comment

Playback Parameters

Segment No

Knee

Scene No.

---

Gain

0db

Recording Rate

---

Gamma

LOW

Screen Size

---

White Balance

5000K

Trigger

---

Enhance

NORMAL

Shutter

---

Chroma

150%

EST Mode

---

Comment

Block

Frame

Current

0

Block

Frame

First

---

---

End

0

Last

---

---

Trigger Time

05/01/05 13:45:56.560385

Apply

Close

(Detail Settings dialogue window)

## Image Downloads

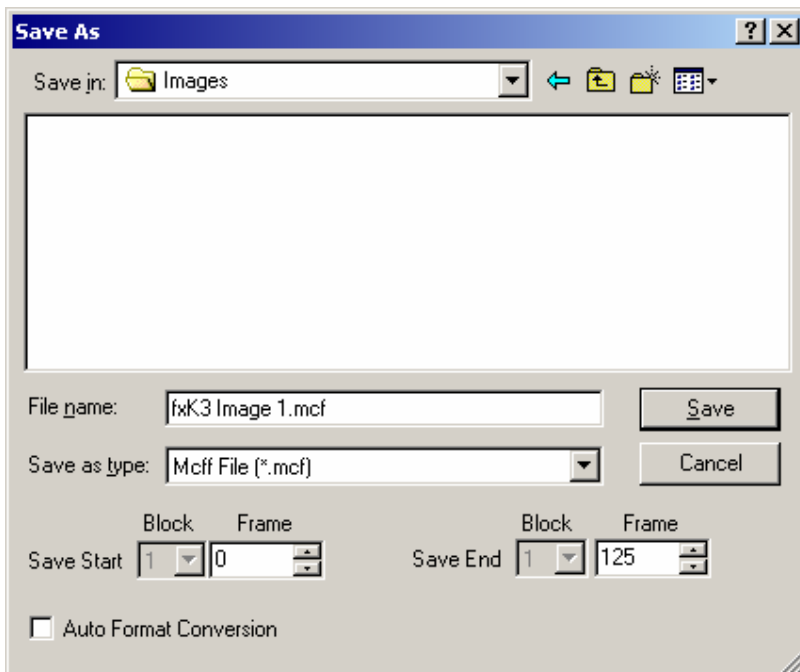
It is recommended that before downloading, the Playback Range sliders are used to select the portion of the recording which is of interest. This will reduce the size of the file making the download process faster than downloading the entire memory. To begin the download process, open the **Save As** dialogue window by clicking the **Download** button on the **Item Toolbar**.



### Single-Camera Downloads

In the **Save As** dialogue window, select the location where the file will be saved and enter a file name. The image stored in memory can be downloaded only as a MCFF (Raw Data) file. The MCFF file contains the image as it was captured by the camera. These MCFF files can later be converted to AVI and sequential JPEG, TIFF, BMP images.

The range of frames to be downloaded can also be specified now in the **Save As** dialogue window if it was not previously set in the Playback Slider. Click the **Save** button to start downloading.



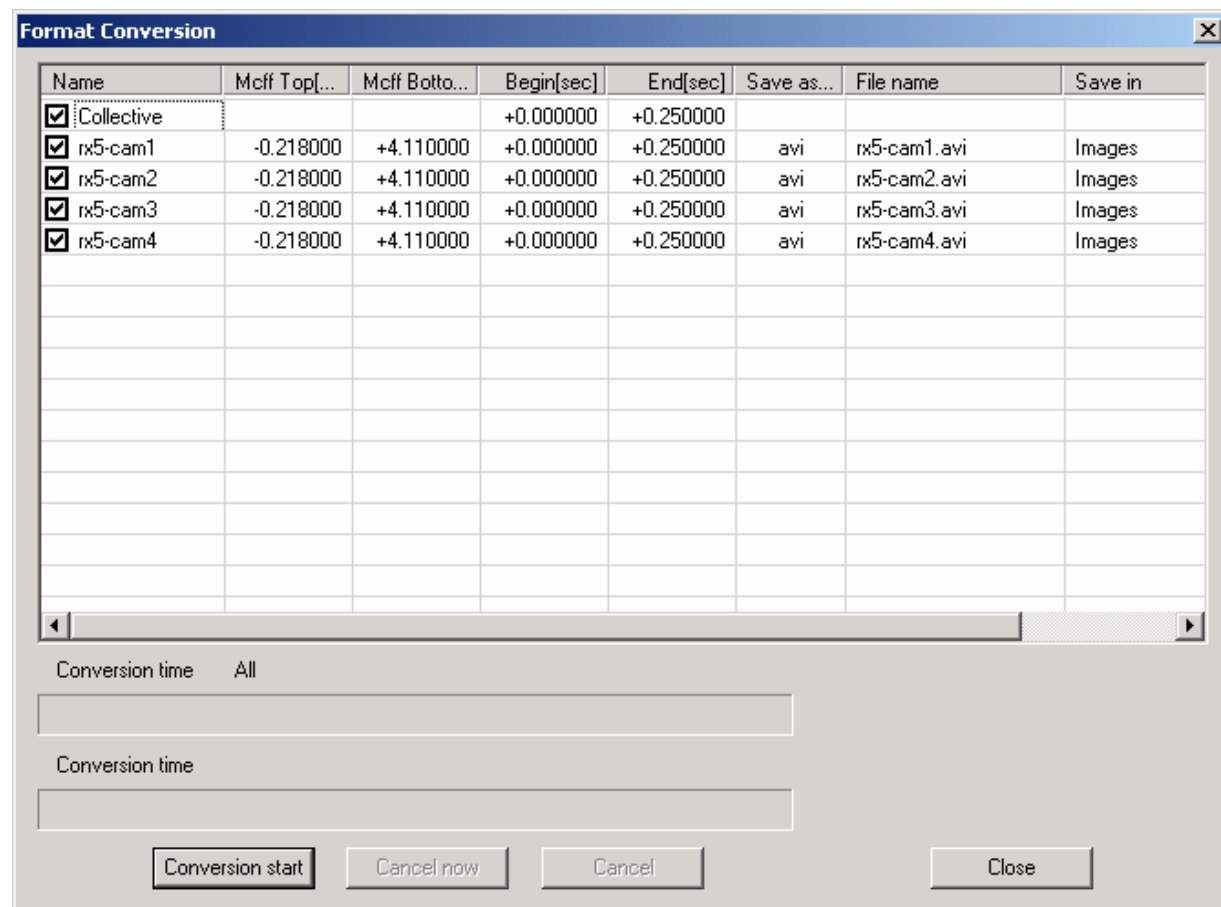
(Save As dialogue window)

# Format Conversion

Use the **Format Conversion** function to convert MCFF (Raw Data) formatted images to AVI and sequential JPEG, TIFF, BMP images. Select the MCFF file to be converted from the item list. If the file is not listed in the item list, use **Open** from the **File** menu to add it. To begin the Format Conversion process, open the **Format Conversion** dialogue window by clicking the **Format Conversion** button on the **Item Toolbar**.



In the **Format Conversion** dialogue window, double click each parameter to change its settings. To set parameters for multiple MCFF files, double click the parameters in the **Collective** row.

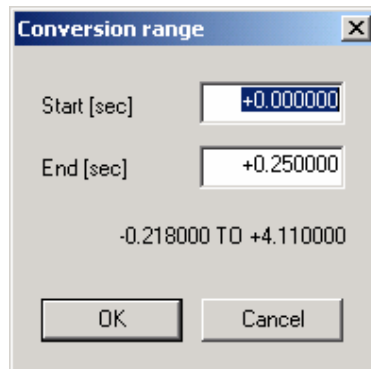


**(Format Conversion dialogue window)**

The following six parameters can be set at the **Format Conversion** dialogue window

☒ Only MCFF files with check marks will be converted. The check mark should be taken off, in case the file is not required to be converted.

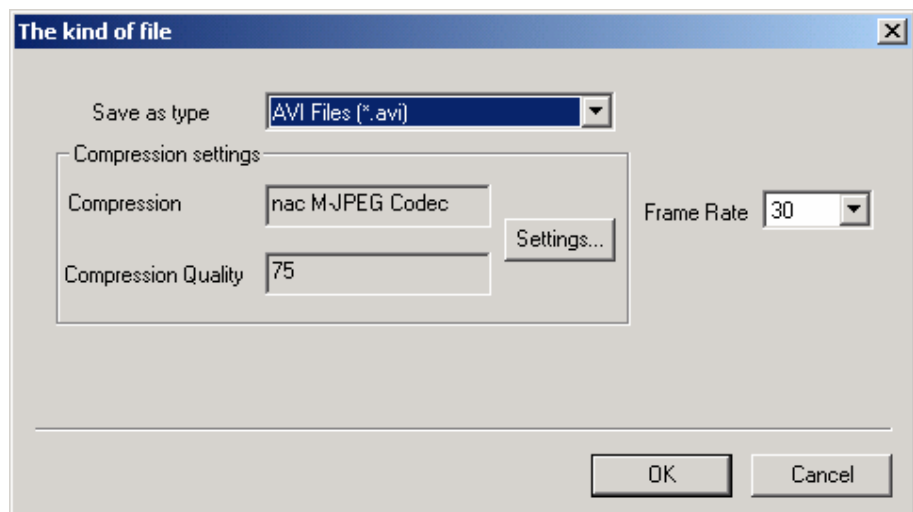
**Begin (sec) / End (sec)** Double click the **Begin (sec)** and **End (sec)** parameters to open the **Conversion Range** dialogue window. Set the start and end times (decimal units to one micro sec) of the range to be converted. The start and end times can be set for all the blocks of data even when the data was taken by multiple triggers.



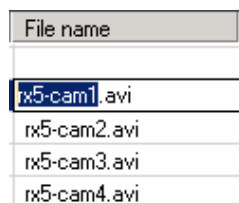
## File Type

Double click the **Save as...** parameter to open **The kind of file** dialogue window. Click the drop down menu to select the conversion format from AVI or sequential TIFF, JPEG and BMP. Click the **Settings...** button to change the Compression settings. The playback speed can be set by selecting the desired setting in the **Frame Rate** drop down menu. These Format Conversion settings can be made a default by selecting **Settings / Option** from the main drop down menu and select the **Format Conversion** tab.

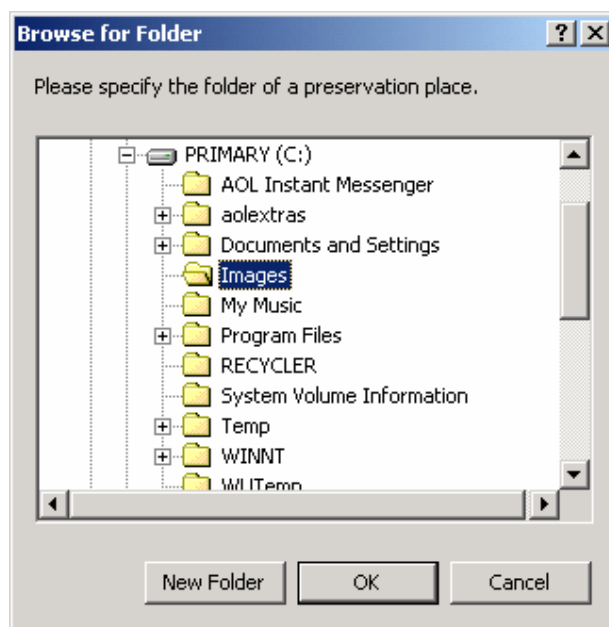
**Settings → Option → Format Conversion**





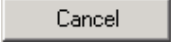
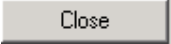
**File name** File name for the converted file



**Folder Name** Folder name for the converted file

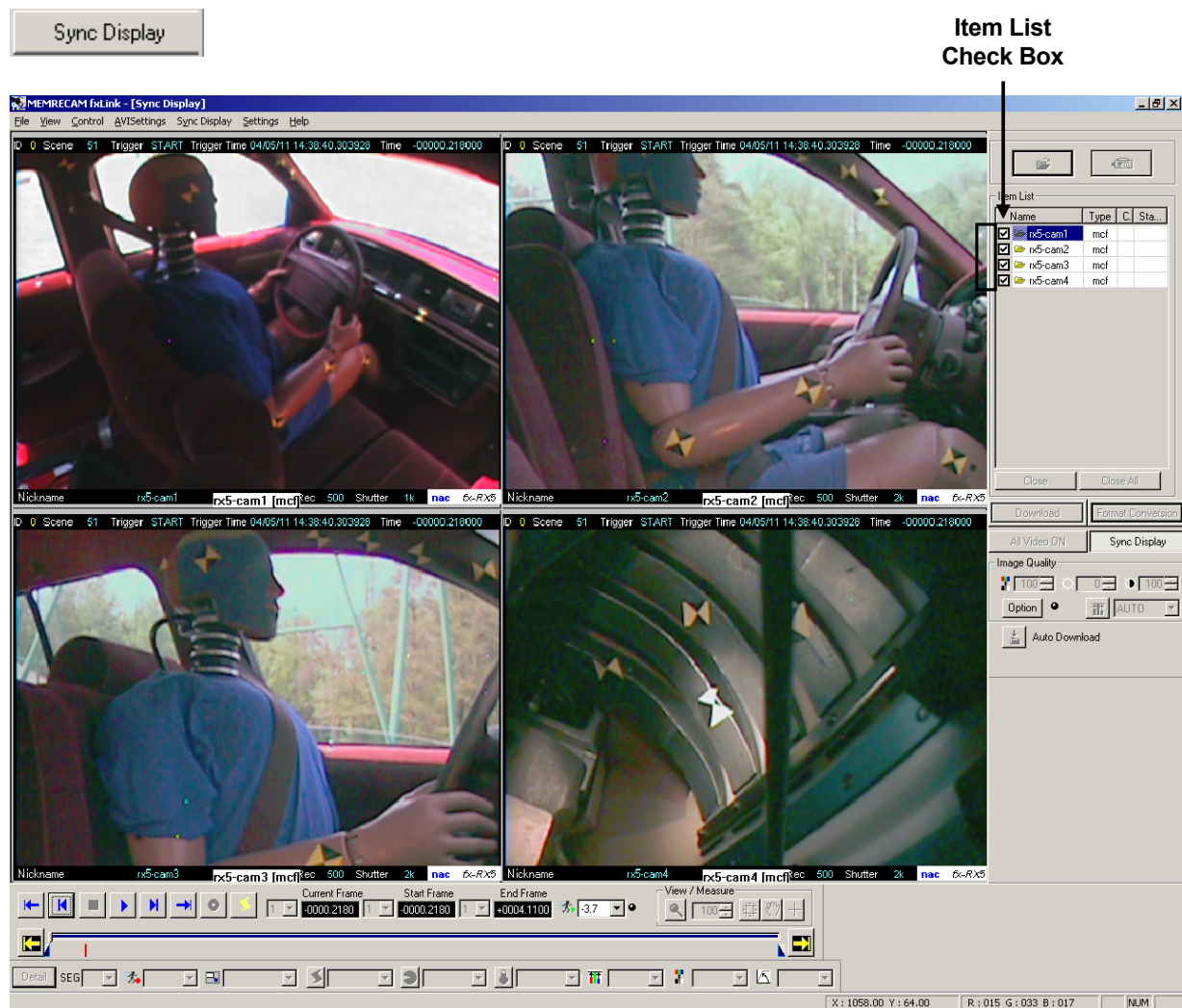


**Format Conversion** dialogue window action buttons.

	Starts converting selected MCFF files with check marks.
	Stops converting the MCFF files immediately. All the remaining tasks of conversion will be cancelled by the operation.
	Completes the ongoing task and cancels all the remaining tasks of conversion.
	Close <b>Format Conversion</b> dialogue window

# Sync Display

Images recorded by multiple cameras can be displayed simultaneously and synchronously. Select the **Item List** check box of the images to be displayed and click the **Sync Display** button.



(Save As dialogue window)

New recordings can be played back from the camera memory along with previously saved image files. All the images are synchronized at the same time frame. When the camera is set to VIEW, ARM or REC mode, all previously saved image files are still. To exit, click the **Sync Display** button and return to **Single Display** mode.

# Basic Operation

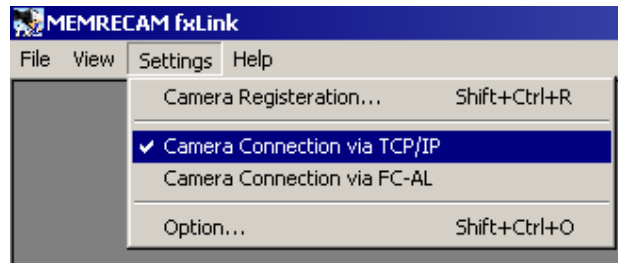
The following is an overview of operation in Basic Mode. All cameras must be registered as per the **Camera Registration** instructions described in Page 4 before the operation.

1. Camera Connection
2. VIEW
3. Setting Recording Parameters
4. ARM
5. TRIGGER
6. Playback
7. Image Download
8. Format Conversion

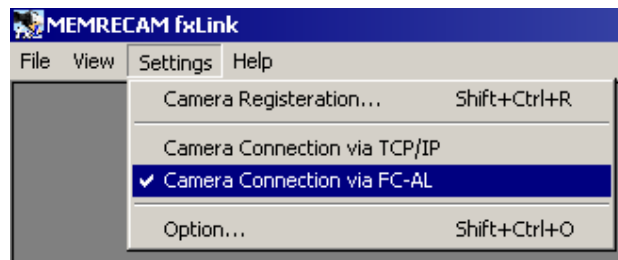
## 1. Camera Connection


- 1.1) Choose the connection type from the **Settings** drop down menu.

Choose “Camera Connection via TCP/IP” for Ethernet connection (100BASE-TX).

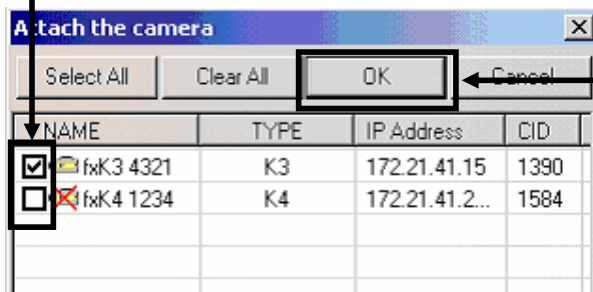


Or select “Camera Connection via FC-AL” for Fibre Channel connection (1Gbps).

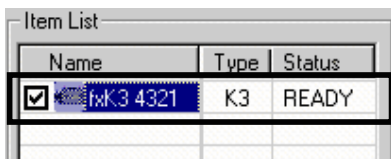


- 1.2) Click a camera selection button in the **Item Toolbar** to select the cameras to be connected. 

- 1.3) fxLink can only connect to available cameras. Click the check box of the desired cameras, as long as they do not have an X mark.



- 1.3.1) Click **OK** to connect to the selected camera.



- 1.3.2) After connection is complete the camera is added to the **Item List**. The camera status is **READY**.



## 2. VIEW

- 2.1) While in **READY** mode click the **VIEW / ARM** button to start Live View. 

Item List		
Name	Type	Status
<input checked="" type="checkbox"/> fxK3 4321	K3	VIEW

- 2.1.1) The camera is switched to **VIEW** mode and the **Item List** status is updated to **VIEW**.

## 3. Setting Recording Parameters

- 3.1) Click **Details** button to open the Detail Settings Dialogue window. Record settings for each camera such as Recording Rate, Shutter and Trigger can be set at this dialogue window.

**Detail**

**Detail settings**

Recording parameters

ID	1	Blocks	1
Scene No.	2612	Knee	ON
Recording Rate	500	Gain	0db
Screen Size	1280x720	Gamma	LOW
Trigger	START	White Balance	5000K
Shutter	OPEN	Enhance	NORMAL
Low Light	100pps	Chroma	150%
EST Mode		Event Frame	OFF
Comment			

Playback Parameters

Segment No		Knee	
Scene No.	---	Gain	0db
Recording Rate	---	Gamma	LOW
Screen Size	---	White Balance	5000K
Trigger	---	Enhance	NORMAL
Shutter	---	Chroma	150%
EST Mode	---		
Comment			

Block	Frame	Block	Frame
Current	0	First	---
Start	0	Last	---
End	0		

Trigger Time 05/01/06 13:42:28.286257

**Apply** **Close**

## 4. ARM

- 4.1) While in **VIEW** mode click the **VIEW / ARM** button to ARM the camera. 

Item List		
Name	Type	Status
<input checked="" type="checkbox"/> fxK3 4321	K3	ARM

- 4.1.1) The camera is switched to **ARM** mode and the **Item List** status is updated to **ARM**.


## 5. TRIGGER

- 5.1) While in **ARM** mode click the **TRIGGER** button to start recording. 

Item List		
Name	Type	Status
<input checked="" type="checkbox"/> fxK3 4321	K3	REC

- 5.1.1) The camera is triggered and begins recording. The **Item List** status is updated to **REC**.

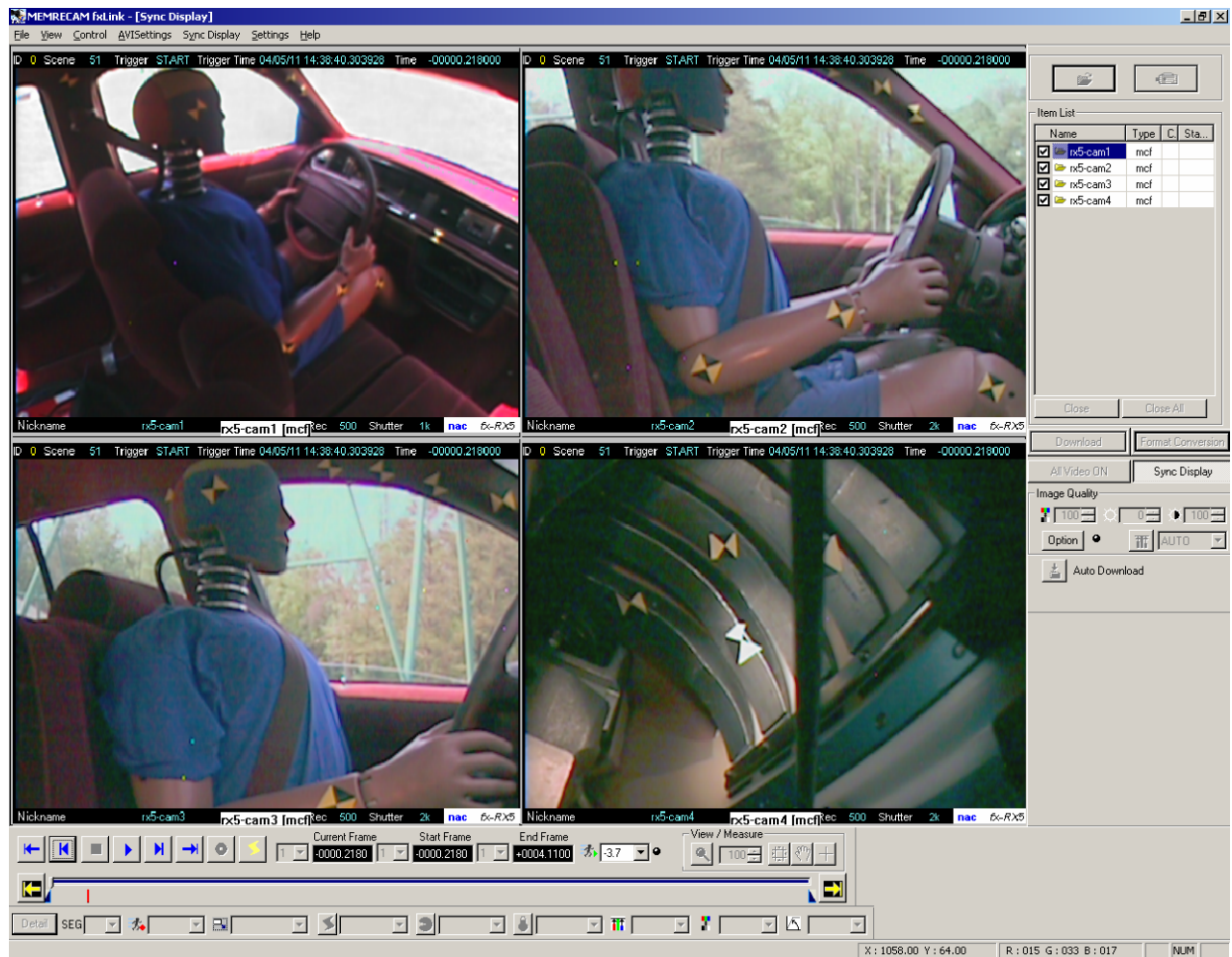
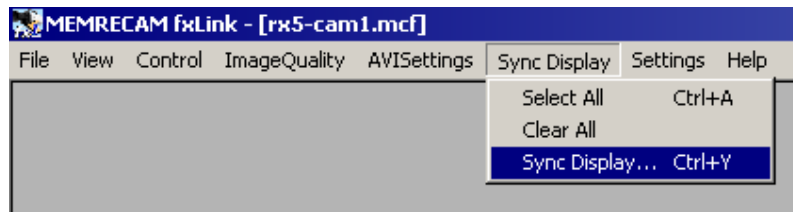
## 6. PLAYBACK

- 6.1) The images can be played back once the camera completes the recording and the **Item List** status returns to **READY** mode. Click **PLAY** button in the Main Toolbar. 

Item List		
Name	Type	Status
<input checked="" type="checkbox"/> fxK3 4321	K3	PLAY

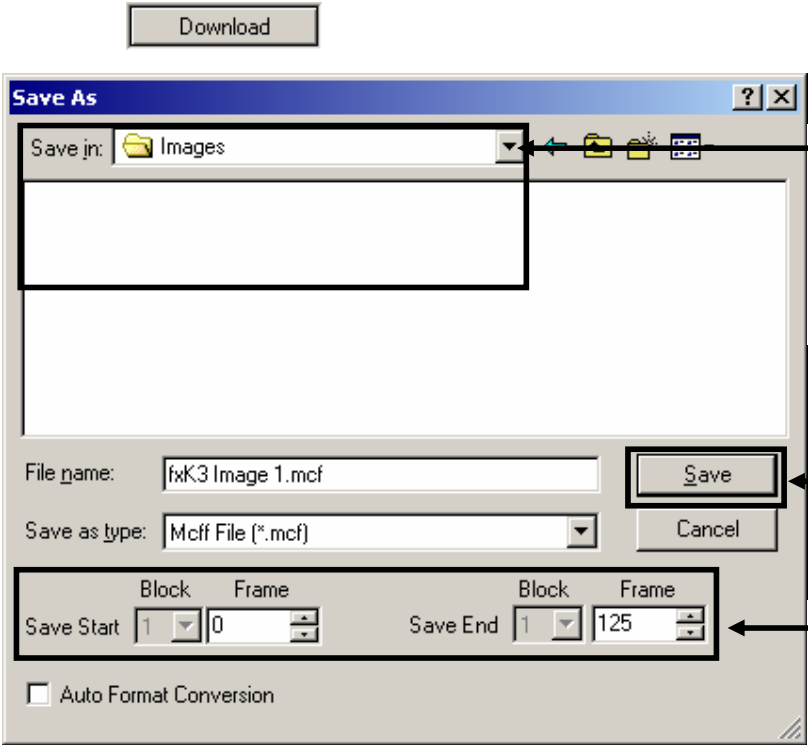
- 6.1.1) The camera is switched to **PLAY** mode and the **Item List** status is updated to **PLAY**.

- 6.2) To display the recorded images from multiple cameras synchronized select **Sync Display** from the drop down menu. **Before downloading the images return to standard mode by unselecting Sync Display.**



## 7. Image Download

- 7.1) To begin the download process, open the **Save As** dialogue window by clicking the **Download** button on the **Item Toolbar**.



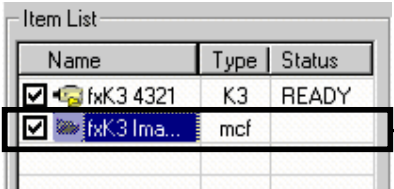
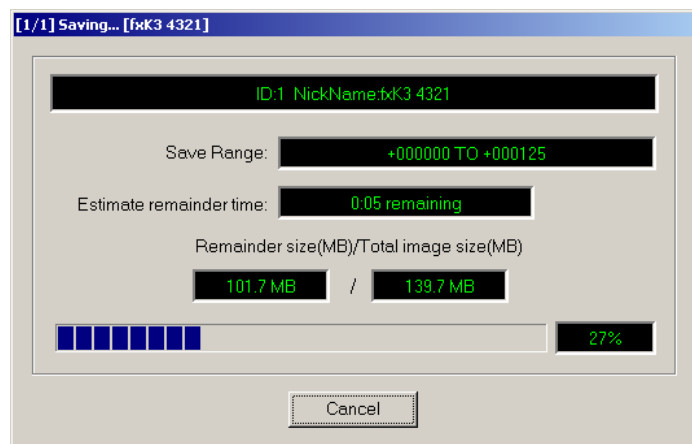
The 'Save As' dialog box is shown with the following elements:

- Download** button (top left).
- Save in:** Images (location dropdown).
- File name:** fxK3 Image 1.mcf (text field).
- Save as type:** Mcff File (\*.mcf) (dropdown).
- Save** and **Cancel** buttons.
- Save Start** and **Save End** range selectors (Block/Frame).
- Auto Format Conversion** checkbox.

Annotations:

- 7.1.1) In the **Save As** dialogue window, select the location where the file will be saved and enter a file name.
- 7.1.2) Click the **Save** button to start downloading.
- 7.1.3) The range of frames to be downloaded can also be specified now if it was not previously set in the Playback Slider.

- 7.2) After clicking the **Save** button the Download Status window appears. Click the **Cancel** button to stop downloading.



Name	Type	Status
fxK3 4321	K3	READY
fxK3 Ima...	mcff	

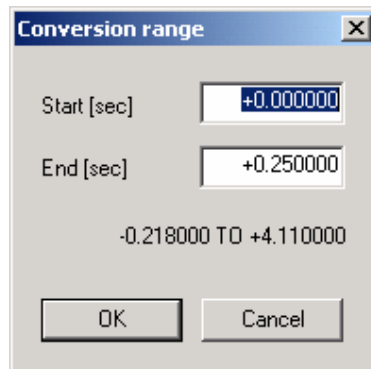
- 7.2.1) Once the MCFF file is downloaded it is added to the **Item List**.



The following six parameters can be set at the **Format Conversion** dialogue window

☒ Only MCFF files with check marks will be converted. The check mark should be taken off, in case the file is not required to be converted.

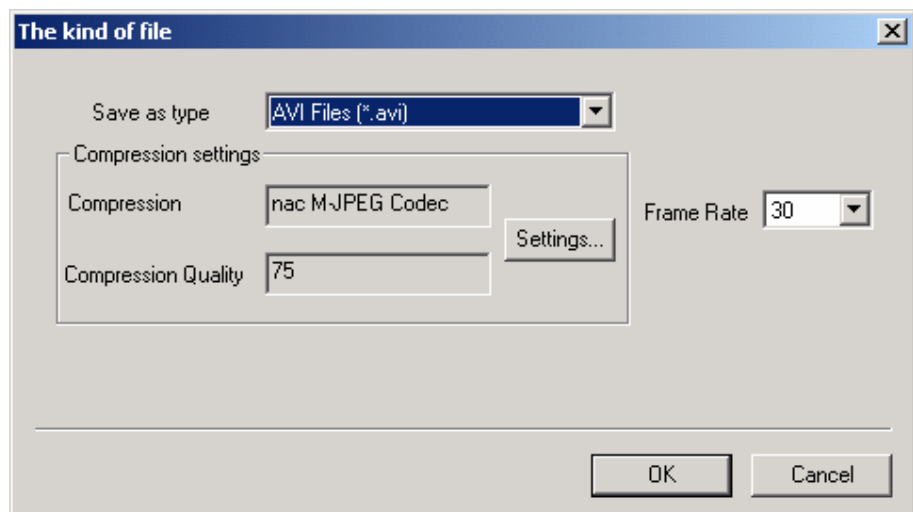
**Begin (sec) / End (sec)** Double click the **Begin (sec)** and **End (sec)** parameters to open the **Conversion Range** dialogue window. Set the start and end times (decimal units to one micro sec) of the range to be converted. The start and end times can be set for all the blocks of data even when the data was taken by multiple triggers.



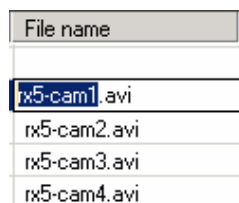
## File Type

Double click the **Save as...** parameter to open **The kind of file** dialogue window. Click the drop down menu to select the conversion format from AVI or sequential TIFF, JPEG and BMP. Click the **Settings...** button to change the Compression settings. The playback speed can be set by selecting the desired setting in the **Frame Rate** drop down menu. These Format Conversion settings can be made a default by selecting **Settings / Option** from the main drop down menu and select the **Format Conversion** tab.

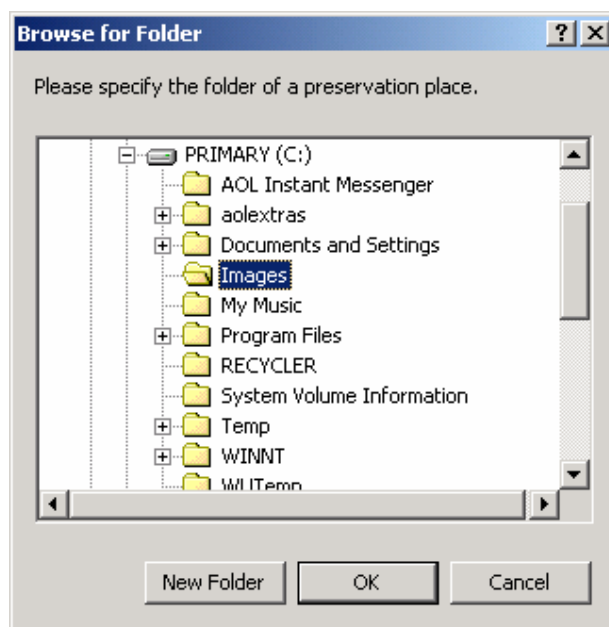
**Settings → Option → Format Conversion**





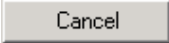
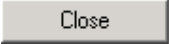
**File name** File name for the converted file



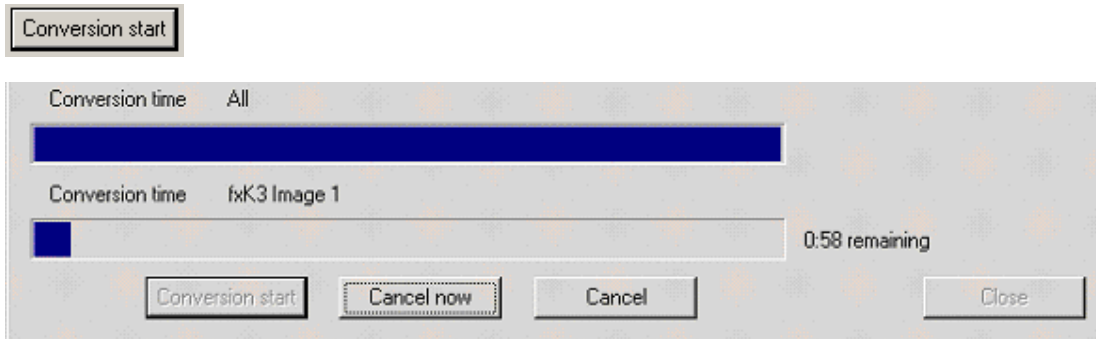
**Folder Name** Folder name for the converted file



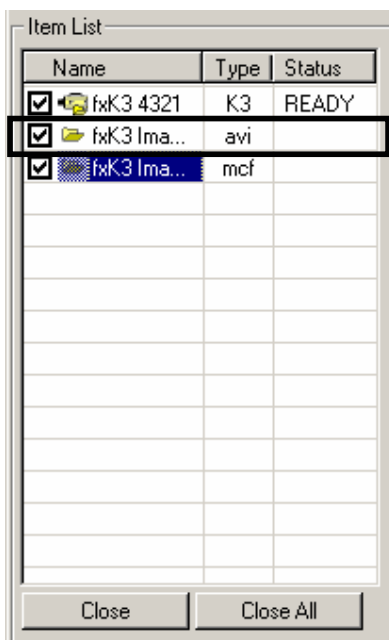
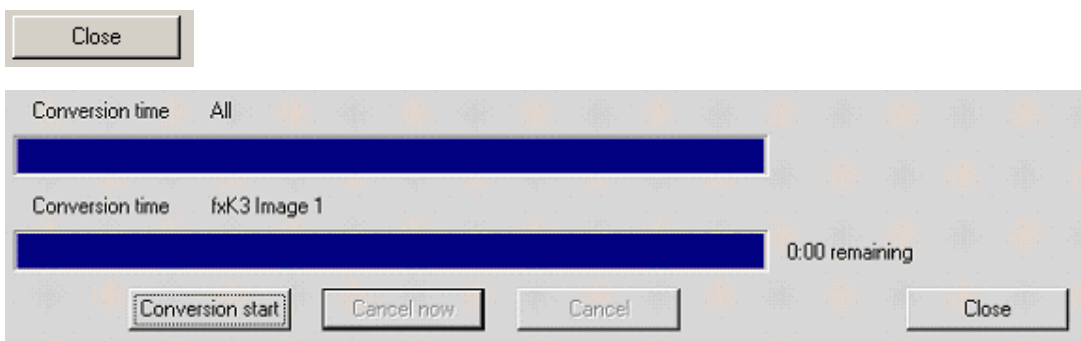
**Format Conversion** dialogue window action buttons.

	Starts converting selected MCFF files with check marks.
	Stops converting the MCFF files immediately. All the remaining tasks of conversion will be cancelled by the operation.
	Completes the ongoing task and cancels all the remaining tasks of conversion.
	Close <b>Format Conversion</b> dialogue window

8.2) Click the **Conversion Start** button to start the format conversion.



8.3) When all Format Conversion tasks are completed, click the **Close** button to close the dialogue window.



← 8.3.1) The new file is added to the **Item List**.