

SOFTWARE MANUAL

MEMOCam[®]

MEMOCam[®] PLUS

MEMOCam[®] DVR

MEMOCam[®] PLUS/S

Version 3.2.001

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INTRODUCTION

This manual is applicable for the following products:

- ❑ MemoCam
- ❑ MemoCam Plus
- ❑ MemoCam DVR
- ❑ MemoCam Plus/S

The MemoCam software is provided on the enclosed CD-ROM. You can also access the software on the MemoCam download page of the Video Domain website at www.vdomain.com.

The software enables configuration of the MemoCam unit by recording the configuration data on a Multimedia card (MMC), which is then used to transfer the data to the MemoCam Unit.

The MemoCam software has the "look and feel" of Microsoft Explorer™.

The software gives you the ability to:

- ❑ Configure MemoCam parameters.
- ❑ Retrieve, view, sort, analyze, copy, and print images recorded with the MemoCam.
- ❑ Export images to AVI format.
- ❑ Perform an integrity check of images.
- ❑ Arm the MemoCam

INSTALLING THE SOFTWARE

In order to use the MemoCam software, you need an appropriate computer onto which the software can be installed.

Software Requirements

Installation of the MemoCam software requires the following resources:

Table 1. PC Requirements

| | |
|------------------------|---|
| CPU | Pentium II 200Mhz or higher. |
| RAM | 16 MB or higher. |
| Graphic adapter | Super VGA or higher |
| Display resolution | 640x480, 16 bit or higher. |
| Operating systems | Windows 95, 98SE, ME, 2000, or XP with Internet Explorer™ 5.0 or higher NT requires that the <i>Active Desktop</i> option in the display properties be <i>ON</i> . |
| Multimedia Card Reader | |

The following are the minimum system requirements for installing the MemoCam Pocket PC viewer application on a Pocket PC.

Table 2. Pocket PC Requirements

| | |
|------------------------|---------------------------|
| CPU | ARM, MIPS, or SH3 |
| RAM | 16 MB or higher |
| Display resolution | 320x240, 16 bit or higher |
| Operating systems | Windows CE 3.0 or higher |
| Multimedia Card Reader | |

Formatting the Multimedia Card

To format the Multimedia card:

1. Ensure that the MemoCam unit is powered.
2. Insert the Multimedia card into the MemoCam unit. The unit will automatically format the card at this time.
3. Wait until the red Multimedia Card Status LED goes off.
4. If you want to configure the settings, remove the Multimedia card and insert the card into the Multimedia Card Reader that is connected to your PC.
5. If you do not want to configure the settings at this point, leave the card inside the MemoCam unit. The unit is now ready to be armed.



Install the Multimedia Card Reader as described in the documentation supplied with the Reader.

Installing the MemoCam Software

To install the MemoCam software:

1. Switch on your computer and start Windows. If you are using Windows NT, ensure that the *Active Desktop* feature is on.
2. Insert the enclosed MemoCam software CD-ROM into the CD-ROM drive. The Install Shield Wizard starts the installation process. The Setup Wizard opening screen appears.



Figure 1. Setup Wizard Opening Screen

3. Click *Next* to proceed. The Setup Wizard installs program files. When the files are installed, the following screen appears:

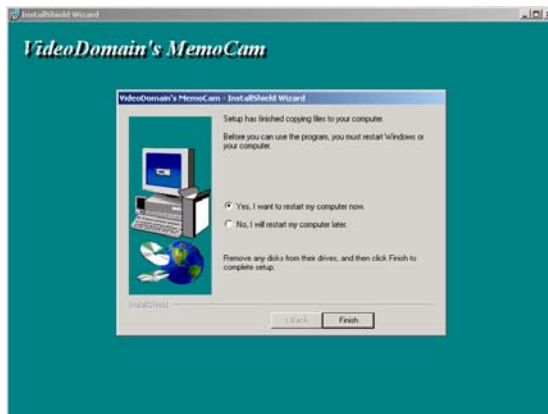


Figure 2. Setup Wizard Finishing Screen

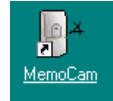
4. Select the *Restart* option and click *Finish* to complete the setup and exit the Setup Wizard. The computer restarts.



When installing the MemoCam software on Windows 98 First Edition, an error message will appear. When you click OK in the message box, Setup Wizard installs an updated version of the OLEAUT32.DLL file and completes the installation.

STARTING THE MEMOCAM SOFTWARE

To access the MemoCam software, double-click on the MemoCam desktop shortcut.



The following message (Figure 3) is displayed while the application reads the MMC data, then the *MemoCam* screen opens. The length of time this message is displayed depends on the size of the MMC you use and the data recorded on the card. The duration may vary from a few seconds to a few minutes on a 64MB or 128MB MMC.

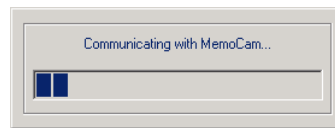


Figure 3. Multimedia Card Reader Communication Message

The *MemoCam* screen (Figure 4) lists the files on the Multimedia card.

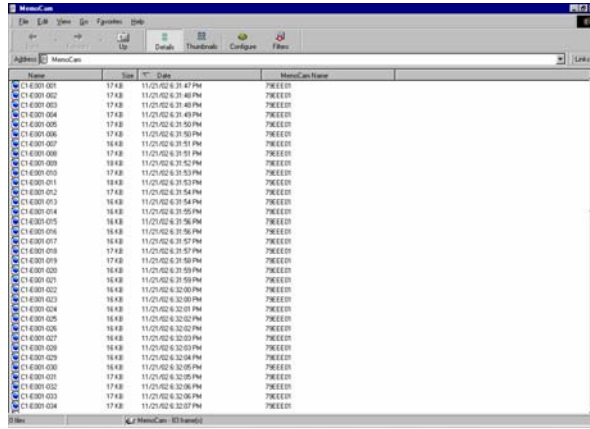


Figure 4. MemoCam Screen

The *MemoCam* screen is similar to the normal *Windows Explorer* screen. However, it contains the following unique buttons:



Details – Displays a list of the pictures (see page 13).



Thumbnails – Displays thumbnails of the pictures (see page 14).



Configure – Opens the *MemoCam Configuration* screens (see page 25).



Filters – Opens the *Filter* screen. Used to filter the pictures shown by date, time, and camera where applicable. (see page 21).

Skip Demo Option

When you start the *MemoCam* software, if there is no Multimedia card in the card reader, a demo event list is displayed and a warning screen appears.



Figure 5. Missing Multimedia Card Warning

To cancel this feature you can use the *Application path*\Memocam.ini, by editing the *SkipDemo* entry:

- ❑ *SkipDemo*=1; skips the demo mode.
- ❑ *SkipDemo*=0; switches to the demo mode if MMC is not present in the reader.

The MemoCam software menu also contains the following options:

- ❑ **File > Rename MemoCam** – Opens the *Rename MemoCam* screen (see page 55).
- ❑ **File > Synchronize MemoCam time** – Opens the *Synchronize Time* screen (see page 55).
- ❑ **File > Clear event files** – Deletes the image files from the Multimedia card (see page 55).
- ❑ **File > Arm MemoCam Unit** – Arms the MemoCam unit upon insertion of the Multimedia card (see page 53).
- ❑ **File > Check Image Integrity** – Opens the *Integrity Check* screen (see page 53).
- ❑ **File > Save to** – Saves all Multimedia card contents into a specified location on the hard drive.
- ❑ **File > Load from** – Loads data into the Multimedia card from a specified location on the hard drive.
- ❑ **Edit > Copy MemoCam Files** – Copies the selected images to the clipboard (see page 19).
- ❑ **Edit > Filter** – Opens the *Filter* screen (see page 21).
- ❑ **Edit > View** – Displays the selected image in default image viewer (see page 16).
- ❑ **Edit > Play** – Plays the images in sequence using the default image player (see page 17).
- ❑ **Edit > Print** – Prints the selected image (see page 22).
- ❑ **Edit > MemoCam Configuration** – Opens the *MemoCam Configuration* screens (see page 25).
- ❑ **Edit > View Details** – Displays a screen providing details about the selected event (see page 17).

- **View > Details** - Displays a list of the pictures (see page 13).
- **View > Thumbnails** - Displays thumbnails of the pictures (see page 14).

VIEWING IMAGES

There are a number of ways in which you can view the MemoCam images:

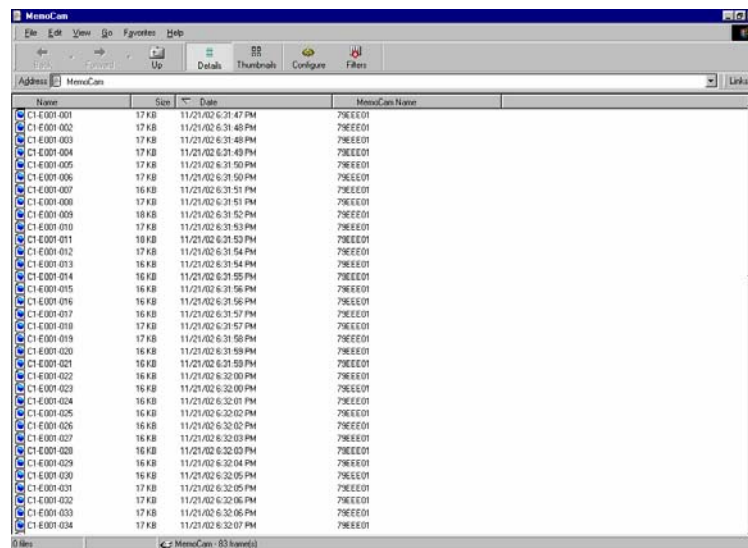
- ❑ As a detailed image list.
- ❑ As thumbnails.
- ❑ Individually using the default image viewer.

Viewing a List of Images

To view a list of images:



Click on the *Details* button. The list of images appears (Figure 6).



| Name | Size | Date | MemoCam Name |
|-------------|-------|---------------------|--------------|
| C1.E001.001 | 17 KB | 11/21/02 6:31:47 PM | 79E0E01 |
| C1.E001.002 | 17 KB | 11/21/02 6:31:48 PM | 79E0E01 |
| C1.E001.003 | 17 KB | 11/21/02 6:31:49 PM | 79E0E01 |
| C1.E001.004 | 17 KB | 11/21/02 6:31:49 PM | 79E0E01 |
| C1.E001.005 | 17 KB | 11/21/02 6:31:50 PM | 79E0E01 |
| C1.E001.006 | 17 KB | 11/21/02 6:31:50 PM | 79E0E01 |
| C1.E001.007 | 16 KB | 11/21/02 6:31:51 PM | 79E0E01 |
| C1.E001.008 | 17 KB | 11/21/02 6:31:51 PM | 79E0E01 |
| C1.E001.009 | 18 KB | 11/21/02 6:31:52 PM | 79E0E01 |
| C1.E001.010 | 17 KB | 11/21/02 6:31:53 PM | 79E0E01 |
| C1.E001.011 | 18 KB | 11/21/02 6:31:53 PM | 79E0E01 |
| C1.E001.012 | 17 KB | 11/21/02 6:31:54 PM | 79E0E01 |
| C1.E001.013 | 16 KB | 11/21/02 6:31:54 PM | 79E0E01 |
| C1.E001.014 | 16 KB | 11/21/02 6:31:55 PM | 79E0E01 |
| C1.E001.015 | 16 KB | 11/21/02 6:31:56 PM | 79E0E01 |
| C1.E001.016 | 16 KB | 11/21/02 6:31:56 PM | 79E0E01 |
| C1.E001.017 | 16 KB | 11/21/02 6:31:57 PM | 79E0E01 |
| C1.E001.018 | 17 KB | 11/21/02 6:31:57 PM | 79E0E01 |
| C1.E001.019 | 17 KB | 11/21/02 6:31:58 PM | 79E0E01 |
| C1.E001.020 | 16 KB | 11/21/02 6:31:58 PM | 79E0E01 |
| C1.E001.021 | 16 KB | 11/21/02 6:31:59 PM | 79E0E01 |
| C1.E001.022 | 16 KB | 11/21/02 6:32:00 PM | 79E0E01 |
| C1.E001.023 | 16 KB | 11/21/02 6:32:00 PM | 79E0E01 |
| C1.E001.024 | 16 KB | 11/21/02 6:32:01 PM | 79E0E01 |
| C1.E001.025 | 16 KB | 11/21/02 6:32:02 PM | 79E0E01 |
| C1.E001.026 | 16 KB | 11/21/02 6:32:02 PM | 79E0E01 |
| C1.E001.027 | 16 KB | 11/21/02 6:32:03 PM | 79E0E01 |
| C1.E001.028 | 16 KB | 11/21/02 6:32:03 PM | 79E0E01 |
| C1.E001.029 | 16 KB | 11/21/02 6:32:04 PM | 79E0E01 |
| C1.E001.030 | 16 KB | 11/21/02 6:32:05 PM | 79E0E01 |
| C1.E001.031 | 17 KB | 11/21/02 6:32:05 PM | 79E0E01 |
| C1.E001.032 | 17 KB | 11/21/02 6:32:06 PM | 79E0E01 |
| C1.E001.033 | 17 KB | 11/21/02 6:32:06 PM | 79E0E01 |
| C1.E001.034 | 17 KB | 11/21/02 6:32:07 PM | 79E0E01 |

Figure 6. MemoCam Image List

When using multiple cameras, you can see the names of the cameras as a part of the event name in the list of images. An image name contains the following components:


- ❑ C1, C2, or C3 – Camera name.
- ❑ E060 – Event number.
- ❑ 007 – Number of frames in the event.

The ICON color indicates the following:

- ❑ BLUE – Correct recorded image.
- ❑ GRAY – No video.

Viewing Thumbnails

To view thumbnails of the images on the Multimedia card:

Click on the *Thumbnails* button . The thumbnail images appear (Figure 7).

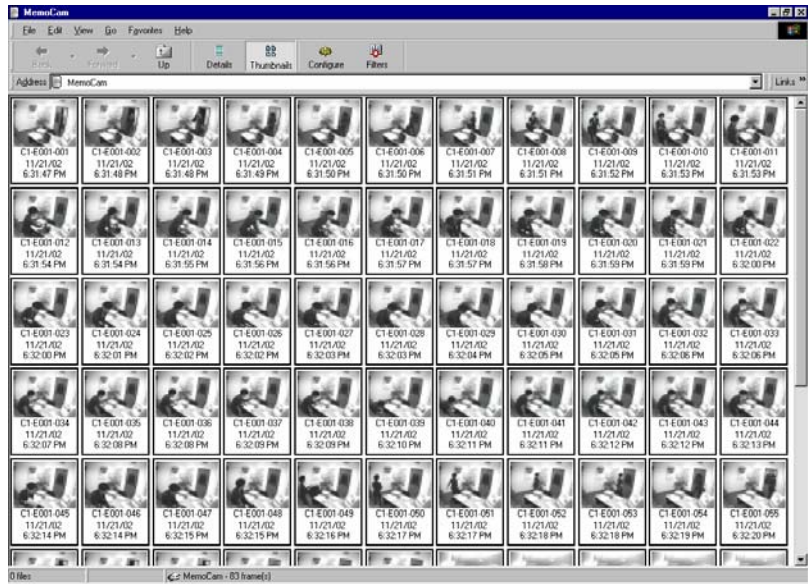


Figure 7. MemoCam Thumbnails

Viewing Individual Images

Individual images can be viewed using the default image viewer or the player. These images include a time-stamp that shows the date and time the image was recorded (see Figure 8).

When using multiple cameras, the image also includes a stamp with the name of the camera.

To view individual images using the default viewer, right click on an image name or thumbnail and select *View* from the popup menu.

Alternatively, you can view images using the player by double-clicking on the image to open the player.



Figure 8. Image with Date, Time, and Camera Name Stamp.

Viewing Event Details

MemoCam can provide you with additional details about an event. These details include:

- ❑ Serial number.
- ❑ Event number.
- ❑ Number of frames.
- ❑ Trigger date and time.
- ❑ Trigger source.
- ❑ Whether or not integrity check is enabled.

To view an event's details:

1. Select an event from the image name list or thumbnail display.
2. Choose *Edit>View Details* in the MemoCam menu. The *Details* screen opens (Figure 9).

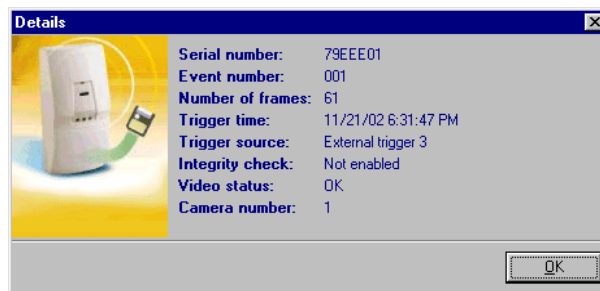


Figure 9. Details Screen

Playing Consecutive Images

Consecutive images in the MemoCam image list can be viewed consecutively using the default viewer.

To view individual images consecutively, do one of the following:

- ❑ Select *Edit>Play* on the MemoCam menu. The default player starts to cycle through the images.
- ❑ Double-click on an image in the list - The player starts to cycle from that image.

You can adjust the cycle speed using the slider in the top right of the viewer.

MANAGING IMAGES

You can perform the following image file manipulations using the MemoCam software:

- ❑ Copy images.
- ❑ Backing up and restoring.
- ❑ Filter images by date, time, or camera.
- ❑ Print images.
- ❑ Exporting to AVI format.

Copying Images

MemoCam images can be copied from the Multimedia card to a directory on your PC.

To copy images to the PC:

1. Verify that the Multimedia card is inserted into the Multimedia Card Reader.
2. Select the files that you want to copy.
3. Select *Edit>Copy MemoCam File(s)*. The files are copied onto the clipboard.
4. Open your target directory using Microsoft Windows Explorer.
5. Select *Edit>Paste*. The image files are pasted into the target directory.



You can also copy files into a new directory using the "drag and drop" technique.

Backing up and Restoring

You can save the image list and MemoCam configuration in a location other than the Multimedia card for later processing.

To save MemoCam data files:

1. Select *File->Save to* in the MemoCam menu. The *Directory* screen appears.

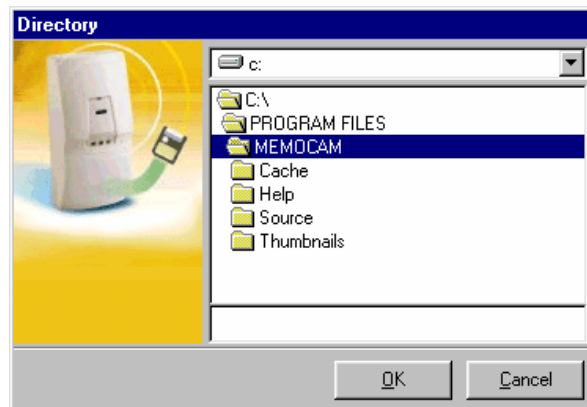


Figure 10. Directory Screen

2. Select drive and directory in which to save the MemoCam data and click *OK*. The data saves to the selected location.

To load MemoCam data from any location:

1. Select *File->Load from* in the MemoCam menu. The *Directory* screen appears.
2. Select the drive and directory from which to load the MemoCam data.
3. Click *OK*. The image list updates.

To return to the default location, press *F5* or select *View>Refresh* in the software menu.

Filtering Images

You can filter images by date and time or by camera number when using multiple cameras.

To filter the images:

1. Click on the *Filter* button . The *Select filter* screen opens (Figure 11).

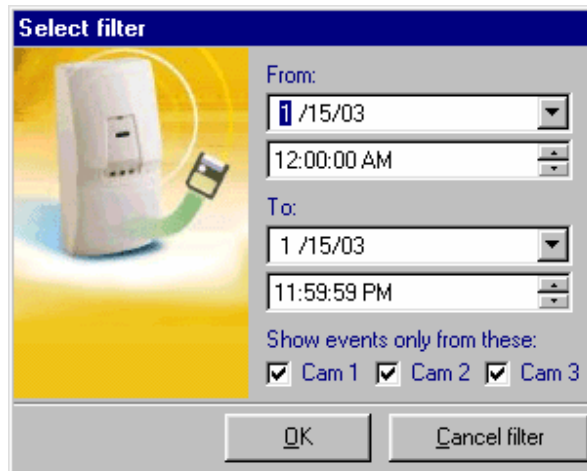


Figure 11. Select Filter Screen

2. Enter the range of dates and/or times of images you wish to view.
3. When using multiple cameras, enter the camera number to view.
4. Click *OK*. The screen closes. The MemoCam software displays images recorded with the selected camera in the time and date interval that you set.



The image list will continue to be filtered until you choose to cancel the filter.

To cancel the filter, open the *Select filter* tab and click the *Cancel filter* button.

Printing Images

You can print images directly from the MemoCam software.

To print an image:

1. Select the image that you want to print.
2. Select *Edit>Print*. The file is printed.

Exporting to AVI

You can export images (from the Multimedia card or Demo files) to an AVI file format.

To export images to an AVI file:

1. Right-click the frames to be exported. The following popup menu appears.

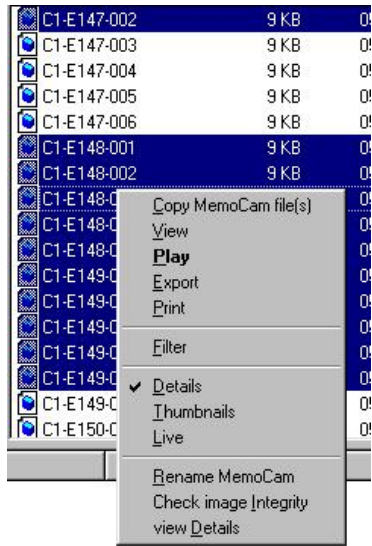


Figure 12. Exporting to AVI

2. Select *Export*. The *Export* screen opens.
3. From *Save In*, select the location to save the AVI file.
4. In *Name*, enter the file name.
5. Click *Save*.

CONFIGURING MEMOCAM PARAMETERS

Configuring the MemoCam unit is accomplished by storing configuration data on the Multimedia card, then inserting the card into the unit so that the unit will read the new settings. You can use the MemoCam software to configure the following MemoCam parameters:

- ❑ Configure the camera recording parameters.
- ❑ Define the MemoCam I/O parameters.
- ❑ Define the disarm code, indicators, default viewer, and enable image integrity verification.
- ❑ Schedule arm and disarm times.
- ❑ Adjust Video Motion Detector (VMD) area and sensitivity (MemoCam Plus and DVR only).

Configuration Screen

You can configure the MemoCam software from the *MemoCam Configuration* screen.

The *Configuration* screen allows you to configure the following MemoCam parameters:

- ❑ Define recording options (see page 27):
 - Recording Configuration
 - Recording Method
 - Camera Settings
- ❑ Define I/O Settings (see page 35).
- ❑ Define Advanced Options:

- Disarm Code
 - Audible Signals
 - Picture Editor
 - Integrity Settings
- ❑ Schedule Events (see page 47).
 - ❑ Adjust VMD area and sensitivity (see page 50).

Before you access the *Configuration* screen, or attempt to configure your MemoCam unit, ensure that the Multimedia card is inserted into the Multimedia Card Reader and that the MemoCam software is opened.

Accessing the Configuration Screen

To access the *MemoCam Configuration* screen:

- ❑ Click on the *Configure* button in the *MemoCam* screen, or
- ❑ Select *Edit > MemoCam Properties* in the MemoCam software menu.

The *MemoCam Configuration* screen opens. It contains the following tabs:

- ❑ Recording – Defines recording parameters (see page 27).
- ❑ I/O – Defines Input/Output parameters (see page 35)
- ❑ Advanced – Defines advanced parameters (see page 43).
- ❑ Schedule – Schedules events (see page 47).
- ❑ VMD (MemoCam Plus/DVR only) – Configures motion detector (see page 50).

Defining Recording Parameters

Recording parameters are configured from the *MemoCam Configuration* screen *Recording* tab (Figure 13).



Before you configure any of the parameters, ensure that the Multimedia card is inserted into the Multimedia Card Reader.

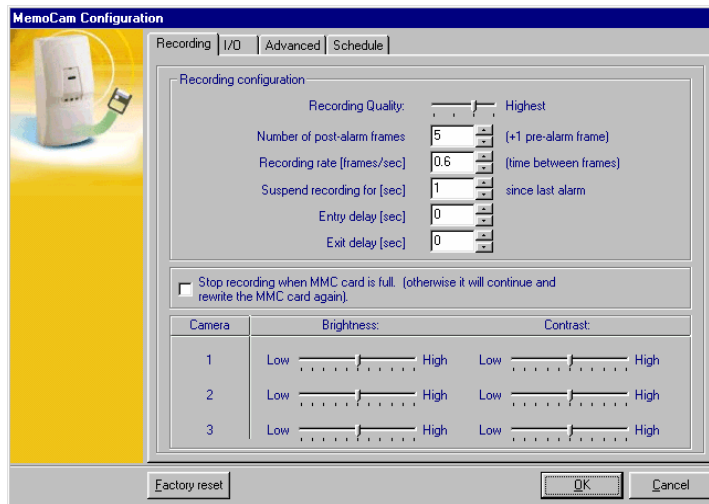


Figure 13. *MemoCam Configuration Screen – Recording Tab*



Camera 2 and 3 configuration controls are for MemoCam Plus and MemoCam DVR only.

Recording configuration parameters are:

- Recording Quality.
- Number of post-alarm frames.
- Recording rate.
- Suspend recording.
- Entry delay.

- ❑ Exit delay.
- ❑ Recording method.
- ❑ Brightness and contrast per camera.

Setting Recording Quality

There are four available picture quality settings listed in increasing quality (resolution) and image size:

- ❑ Good - 6 to 9 KB.
- ❑ Very Good - 9 to 12 KB.
- ❑ Excellent - 12 to 15 KB.
- ❑ Perfect - 15 to 18 KB.

The higher quality settings require more memory per image, and therefore may limit the amount of images that can be recorded on a Multimedia card. The lower quality setting may not provide you with the desired image resolution.

Use the following table to choose a quality setting that is appropriate to your requirements and MMC size.

| Image Capacity (number of images) | | | |
|--|--|--|---|
| Multimedia Card Size | High Quality: 20 KB per frame | Medium Quality: 10 KB per frame | Lowest Quality: 5 KB per frame |
| 8 MB | 350 | 700 | 1400 |
| 16 MB | 750 | 1500 | 3000 |
| 32 MB | 1500 | 3000 | 6000 |
| 64 MB | 3000 | 6000 | 12000 |
| 128 MB | 6000 | 12000 | 24000 |

To set picture quality:

1. Open the *MemoCam Configuration* screen *Recording* tab.
2. Slide the Recording Quality selector to the required setting. A yellow pop-up window indicates the quality level.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.

Setting Post-alarm Frames

Post-alarm frames are the number of image frames recorded upon activation of the alarm by the sensor.

The available range for post-alarm frames is 1–100 frames.

To set the number of post-alarm frames:

1. Open the *MemoCam Configuration* screen *Recording* tab.
2. In the *Post-alarm frames* field, enter the number of post-alarm frames to record.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.



The MemoCam and MemoCam Plus always records one frame prior to alarm activation. The purpose of this pre-alarm image is to make sure you get the recorded event from the exact time the trigger has occurred and not with a delay, because the 3 frames per sec recording performance could cause a 300msec delay. When using the VMD, there is no pre-alarm image feature.

Setting the Recording Rate (Time Between Frames)

You can set the time-lapse delay between frames that are recorded upon MemoCam alarm activation.

The available range for delay between frames is 0.3–300 seconds.

To set the time between frames:

1. Open the *MemoCam Configuration* screen *Recording* tab.
2. Enter the delay time in seconds in the *Recording Rate (time between frames)* field.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.

Suspend Recording

You can enter a time to suspend recording since the last alarm. This is the time frame that passes from the last recorded trigger event. During this time, the unit will ignore any incoming triggers and no recording will take place. After this time passes, new triggers will start the recordings.

Available range to suspend recording is 0–999 seconds.

To set the time between triggers:

1. Open the *MemoCam Configuration* screen *Recording* tab.
2. Enter the time in seconds in the *Suspend recording* field.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.

Defining Entry and Exit Delays

The exit delay is the time delay between arming the MemoCam, and the actual time it is activated. This delay is used to exit the room or detection field when activating the MemoCam sensor. The delay is activated only once after the unit is armed, and is used only for the first trigger that occurs after arming.

The entry delay is the time delay between the first trigger activation and the actual time of image recording. This delay is used for entering the room or detection field and de-activating the MemoCam.

The available range for both the entry and exit delays is 0–60 seconds.

To define the entry and exit delays:

1. Open the *MemoCam Configuration* screen *Recording* tab.
2. Enter the Entry Delay time and Exit Delay time in seconds.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.

Defining the Recording Method

MemoCam can record images on the Multimedia card in one of two ways:

- ❑ Images are recorded until the Multimedia card memory is full.
- ❑ Images are recorded in a cyclic manner – When the Multimedia card memory is full, new images are recorded over the oldest ones in the memory.

To define the recording method:

1. Open the *MemoCam Configuration* screen *Recording* tab.
2. In the *Stop recording when MMC card is full* checkbox, check for stopping of image recording when the card fills up, or uncheck for continuous (cyclic) recording.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.

Setting Camera Brightness and Contrast

Camera brightness and contrast are usually adjusted after you have viewed some test images and determined that you need to improve the image quality.



The number of cameras shown on the window depends on which MemoCam system you are using. MemoCam supports only 1 camera, while MemoCam Plus and DVR support a total of 3 cameras each.

To adjust video source brightness and contrast:

1. Open the *MemoCam Configuration* screen *Recording* tab.
2. For each attached camera, slide the brightness and contrast selectors in the required direction.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.



We recommend that you check a set of test images every time you change the brightness and contrast settings.

Defining I/O Parameters

I/O parameters for MemoCam are configured from the *MemoCam Configuration* screen *I/O* tab. The *I/O* Tab for MemoCam is shown in Figure 14.

For MemoCam Plus and MemoCam DVR, you can connect an external monitor and view the changes while you set the parameters. The *I/O* Tab for MemoCam Plus and DVR is shown in Figure 15.



Before you configure any of the parameters, ensure that the Multimedia card is inserted into the Multimedia Card Reader.

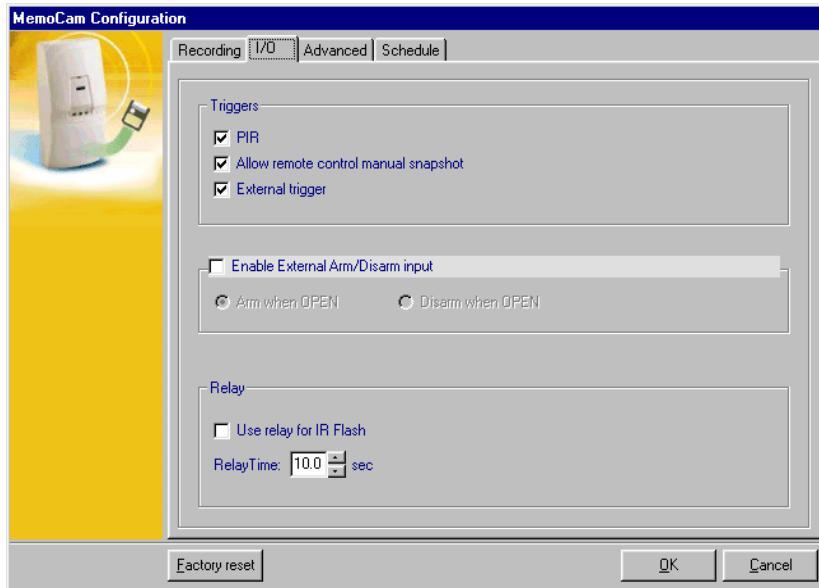


Figure 14. MemoCam Configuration Screen - I/O Tab

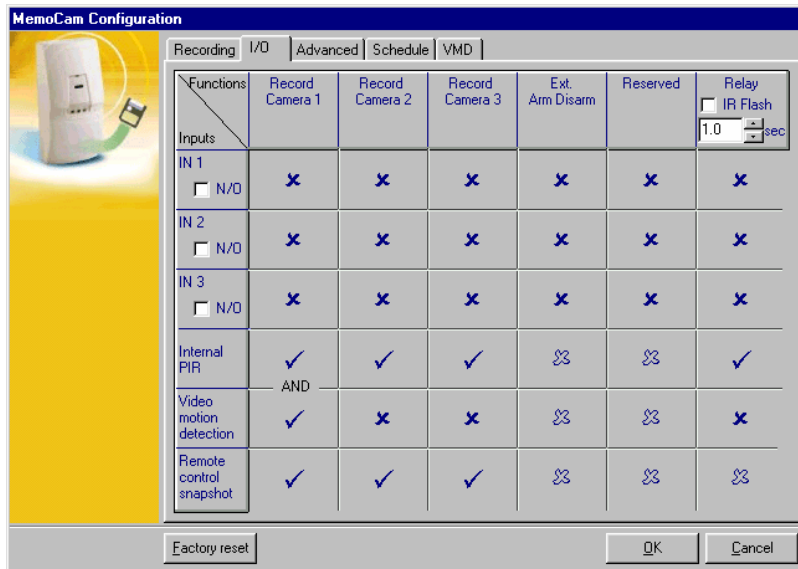


Figure 15. MemoCam Plus/DVR Configuration Screen - I/O Tab

MemoCam Only

The MemoCam I/O Tab is used to define the following options:

- ❑ Triggers.
- ❑ External Arm/Disarm option.
- ❑ Relay settings.

Defining Triggers

MemoCam allows you to define the triggers that activate image recording and the minimum amount of time that lapses between the triggers.

To define the triggers:

1. Open the *MemoCam Configuration* screen *I/O* tab.
2. In the *Triggers* area, check the required triggers from the available options:
 - PIR (internal) – Camera records an image when the PIR is activated.
 - Allow manual snapshots from a control panel – An optional external control panel can be used to control the camera.
 - External trigger – For example: a mechanical switch, door–detector, or window–break detector.
3. Click *OK*. The settings are saved on the Multimedia card and the *Configuration* screen closes.

Enabling External Arm/Disarm Inputs

This option is usually for an alarm control panel, so that the MemoCam can be armed together with the whole installed alarm system.

When enabled, external devices can be used to arm or disarm the MemoCam. The external Arm/Disarm control has priority over inputs from the remote control, Scheduler, and MMC.

To enable the external arm/disarm option:

1. Open the *MemoCam Configuration* screen *I/O* tab.
2. Check the *Enable External Arm/Disarm input* checkbox. The polarity options become active.
3. Set the polarity of the arm/disarm dry contact input:
 - Arm when OPEN or CLOSED.

- Disarm when OPEN or CLOSED (must be the opposite of what was selected for the Arm function).
4. To save the settings, click the *OK* button. The *Configuration* screen closes.

Relay Settings

A relay can control or trigger another device such as an alarm panel. Relay time is the duration of time that the external relay remains active (on) upon sensor activation.

An external IR flashlight device can be connected to the MemoCam relay output in order to capture images at night. The MemoCam will activate the IR flashlight **only** when needed, just before capturing an image. This device lights upon relay activation. When an IR flashlight is connected, you cannot define the relay time.

To set the relay:

1. Open the *MemoCam Configuration* screen *I/O* tab.
2. Enter the relay time in seconds in the *Relay time* field, or check the *Use Relay for IR Flash* checkbox (the IR Flash is now synchronized to flash upon each image capture).
3. Click *OK*. The *Configure* screen closes.

MemoCam Plus and DVR

For the MemoCam Plus and DVR, the *I/O* Tab contains a matrix of functions for each physical input contact. The input contact connections are performed during MemoCam Plus/DVR installation (refer to *Installation Manual* for details).

The following Inputs are available:

- ❑ Inputs 1 through 3 – Can be connected to auxiliary devices for external alarm triggering, such as a door or window switch.
- ❑ Internal PIR – The PIR can activate the recording cameras and the external relay.
- ❑ Video Motion Detector – The VMD can be used independently to trigger snapshot recording on a selected camera. However, the VMD can activate on a single camera only. The pre-alarm feature is disabled when VMD is selected.
- ❑ Remote Control Snapshot – When the Remote Control snapshot input is activated, it enables snapshot recording on all enabled cameras, in sequence from Camera 1 to Camera 3. This option only functions in *Disarm* mode.

To activate a function, click on the cell associated with a specific Input in order to show a checkmark (✓).

A function is de-activated when the cell displays a cross-mark (X).

A function is not available when the cell displays a hollow cross-mark.

The following functions can be activated:

- ❑ Record Camera 1 through 3 – Each input can activate up to 3 cameras in the MemoCam Plus and MemoCam DVR. When several cameras are activated by a single input, recording is performed in sequence for activated cameras from Camera 1 to Camera 3.
- ❑ External Arm/Disarm and contact polarity – When the External Arm/Disarm function is activated for a

particular input, no other functions are available for that input. An external device such as a control panel connected to an input can be used for the External Arm/Disarm function. The External Arm/Disarm contact can be defined as *Open* or *Closed* using the selector in the column title.

- Relay and definition of relay time – Relay activation time can be defined by selecting the desired time in seconds in the column title.
- Relay IR Flash – An optional Infrared flashlight that lights in synchronization with the camera recording time in order to capture images at night. An IR flashlight can be activated by checking the checkbox in the Relay column title. When an IR flashlight is connected to the MemoCam Plus or DVR relay 2 output, the IR flashlight synchronizes with frame capture.

Dual Detection Technology

The Video Motion Detector can be used to prevent false alarms on the PIR. When both the PIR and VMD are activated for the same camera, the *AND* designation is shown between the PIR and VMD lines. Image recording is activated only after the PIR and VMD detect movement. Only a single camera can be activated using the combination of PIR and VMD. Other cameras can remain PIR activated only.

When an event is being recorded, and a new trigger occurs, MemoCam Plus and DVR record at least two frames from all selected cameras, and then switch to the new trigger.



Relay Activation is different for MemoCam and MemoCam Plus. In MemoCam Plus, the relay is activated when the selected input is active.

Defining Advanced Parameters

Advanced parameters are configured from the *MemoCam Configuration* screen *Advanced* tab (Figure 16).



Before you configure any of the parameters, ensure that the Multimedia card is inserted into the Multimedia Card Reader.

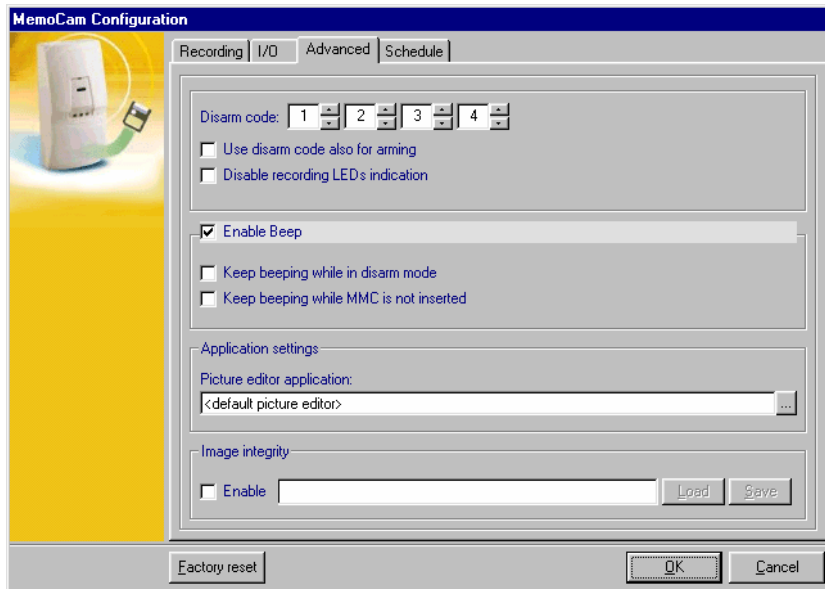


Figure 16. MemoCam Configuration Screen – Advanced Tab

Advanced parameters are:

- Disarm code.
- Use of disarm code for arming.
- Disable recording LED indication.
- Enable Beep.
- Define Picture Editor.

- Image Integrity.

Defining the Disarm Code

The disarm code is used when you de-activate (disarm) the MemoCam with the remote control unit.

The code consists of four digits (1 thru 4).



Consecutive numbers in the disarm code must not be identical to each other. For example: 1234 or 4231 are valid codes; 1123 or 4413 are not valid and cannot be defined in the software.

To define a disarm code:

1. Open the *MemoCam Configuration* screen *Advanced* tab.
2. In the *Disarm Code* field, individually enter a value from 1 to 4 in each of the value fields. These four numbers make-up the disarm code.
3. If desired, check the *Use disarm code also for arming* box to select that option. If checked, the disarm code is used for arming the MemoCam, and prevents arming by unauthorized persons.
4. To save the settings, click the *OK* button. The *Configuration* screen closes.

Defining LED and Beep Indicators

The following indicators can be activated in your MemoCam unit:

- Recording LED indication.
- Beep.
- Continuous beeping while in disarm mode.

- Continuous beeping while MMC is not inserted.

To define indicators:

1. Open the *MemoCam Configuration* screen *Advanced* tab.
2. Select the desired options by checking the appropriate box.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.

Defining Default Picture Editor

To define the default picture editor:

1. Open the *MemoCam Configuration* screen *Advanced* tab.
2. In the *Picture editor application* field, enter the path of the picture editor application that you wish to use. You can also use the *Browse* button to find the picture editor. If you leave the field empty, MemoCam uses the default image editor.
3. To save the settings, click the *OK* button. The *Configuration* screen closes.

Image Integrity

When using the image integrity feature, each recorded image is digitally signed and protected using a secret key that is known only to the person setting the feature. The MemoCam gives you the ability to *stamp* your key to the recorded images on the MemoCam unit, and afterwards check the image integrity on the pictures in the list to verify that they were not modified in any way.

Image integrity guarantees that an image contains original, unaltered data, including creation time and date, and identifies which camera recorded the image using that unit's unique ID.

To enable image integrity:

1. Open the *MemoCam Configuration* screen *Advanced* tab.
2. Check the *Enable* checkbox to enable Image Integrity. Un-checking the checkbox disables the image integrity function.

To set an image integrity key:

1. With image integrity enabled, enter the key using the keyboard, or load the key from a file using the *Load* button. Any character string can be used as a key. You can enter a binary key, representing every byte by two hex symbols (for example: **f303ac639b**).
2. Click the *Save* button to save the key to a file for later loading. This ensures that the key will not be forgotten.
3. Click *OK*. The *Configuration* screen closes. When the Multimedia card is inserted into the unit, the integrity signature is added to newly recorded images.



To change the integrity key, repeat the process by entering a new key.

Scheduling Events

The MemoCam Schedule is a weekly schedule function divided into 10-minute time intervals.

You can use the Schedule function to configure the time at which Arm, Disarm, and Beep operations are performed in a MemoCam Unit.

Events are scheduled from the *MemoCam Configuration* screen *Schedule* tab (Figure 17).

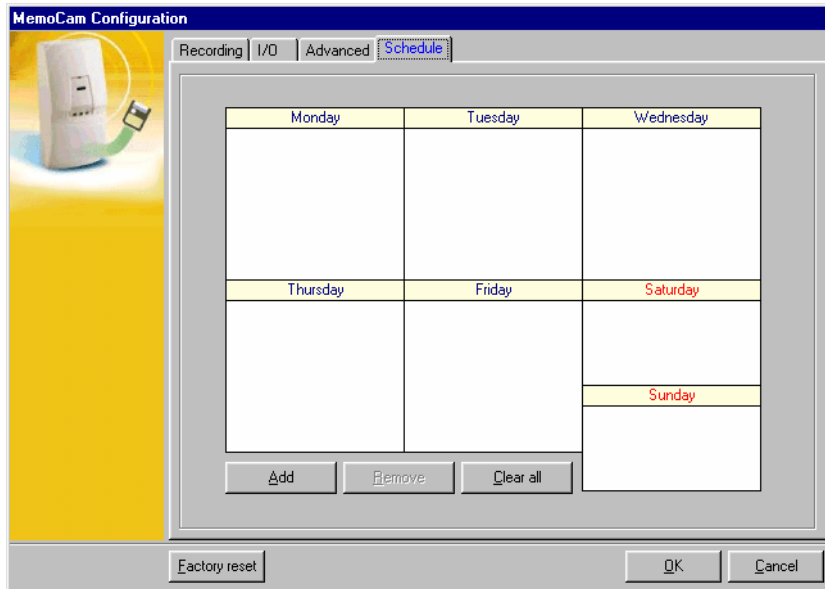


Figure 17. MemoCam Configuration Screen - Schedule Tab



Before you configure any of the parameters, ensure that the Multimedia card is inserted into the Multimedia Card Reader.

Before using the Schedule function, ensure that the time is synchronized (see page 55).

To synchronize the schedule:

1. Ensure that you have the proper Time Zone setting on your PC.
2. Eject the Multimedia card from the MemoCam unit.

3. Run the MemoCam application and open the configuration screen.
4. Ensure that the scheduled configuration is correct, and click *OK*.
5. Re-insert the Multimedia card into the MemoCam unit.



Remember to synchronize the schedule when you change the clock because of daylight savings time. For more information, refer to Synchronizing the Time on page 55

To configure a scheduled event:

1. In the Schedule Tab, click the *Add* button. The *Schedule Event* screen opens.

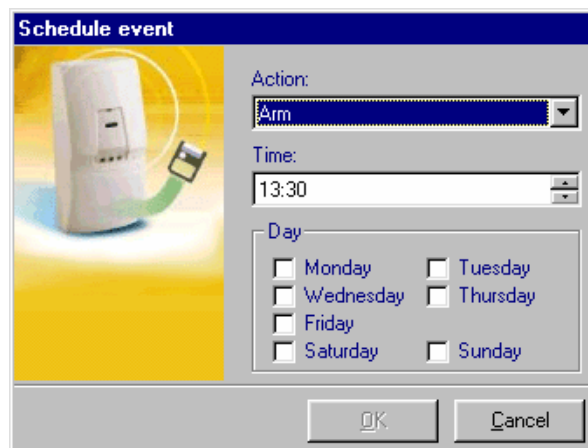


Figure 18. Schedule Event Screen

2. Select an action from the *Action* drop menu.
3. Enter a time in the *Time* field.
4. Check the days to perform the action.

5. Click *OK*. The screen closes and the new item appears on the *Schedule* tab screen.

To remove a schedule item:

1. Select the item in the Schedule tab.
2. Click the *Remove* button. The event is removed from the *Schedule* tab screen.

To remove all items, click the *Clear All* button. All schedule items are removed.



After resetting the power and inserting the Multimedia card, the MemoCam unit ignores all events prior to the current time.

Video Motion Detector (VMD) – MemoCam Plus and MemoCam DVR

The *VMD* screen is used to define the areas and sensitivity of MemoCam's Motion Detection function.

VMD settings are adjusted from the *MemoCam Configuration* screen *VMD* tab (Figure 19).

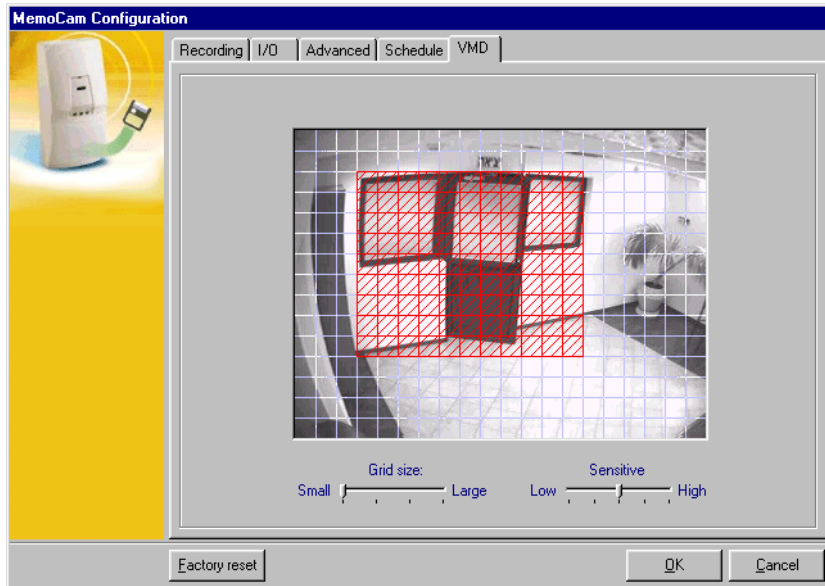


Figure 19. MemoCam Configuration Screen - VMD Tab



Before you configure any of the parameters, ensure that the Multimedia card is inserted into the Multimedia Card Reader.

The VMD Tab contains an image display area, and two sliders used to control grid size and sensitivity.

Before you access the *MemoCam Configuration* screen *VMD* tab, select an image of your area of interest in the MemoCam image list. The image will be shown on the *VMD* tab image display.

To adjust the grid size, slide the Grid Size slider in the appropriate direction until the desired grid is shown in the image display.

To adjust the detection sensitivity, slide the Sensitive slider in the desired direction.

To define detection areas, click on the desired grid squares. Detection squares are marked with a red hatch. Non-detection squares are clear.



Test your detection area and sensitivity settings by arming the MemoCam and entering the VMD field before applying the settings for intrusion detection.

Reverting to Factory Settings

There are cases where you may need to revert to factory settings for the MemoCam configuration.

To revert to factory settings:

1. Verify that the Multimedia card is inserted into the Multimedia Card Reader and the MemoCam software is opened.
2. Click on the *Configure* button in the MemoCam software window. The *Configuration* screen opens.
3. Click on the *Factory reset* button. A confirmation screen opens.
4. Click *OK* to confirm the reset. The screen closes, and the factory default values are saved on the Multimedia card.

ADVANCED FUNCTIONS

Some additional functions of the MemoCam software are:

- ❑ Checking Image Integrity.
- ❑ Arming the MemoCam unit upon insertion of the Multimedia card.
- ❑ Deleting data from the Multimedia card.
- ❑ Synchronizing the time with your computer.
- ❑ Renaming the MemoCam unit.

Checking Image Integrity

The Image Integrity feature ensures that an image was never tampered with from the time of original recording.

To check an image's integrity:

1. In the Image Player panel, select *File>Check Image Integrity* or click on the *Key* icon. The *Integrity check* screen opens.



Figure 20. Player Panel Showing Key Icon

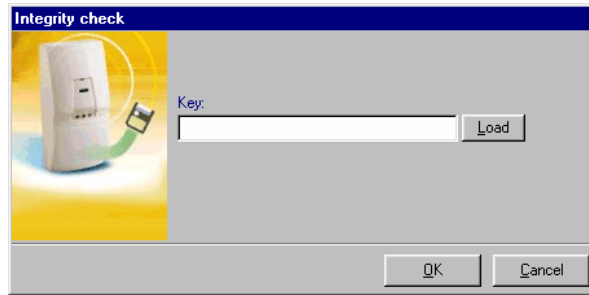


Figure 21. Integrity Check Screen

2. Enter or load the Integrity Key.
3. Click *OK*. A message informs you if the image integrity is successfully verified.

Optionally, you can put the cursor on the image in the list, click the right mouse button, and choose the *check integrity* option.

If the integrity check is not successful, verify that the correct key was entered and that image integrity was enabled.

Arming with the Multimedia Card

You can arm the MemoCam unit upon insertion of the Multimedia card.

To automatically arm the MemoCam Unit:

1. Verify that the Multimedia card is inserted into the Multimedia Card Reader.
2. Select *File>Arm MemoCam Unit* from the MemoCam software menu.
3. Insert the Multimedia card into the MemoCam unit. The unit is armed.

Erasing Data from the Multimedia Card

To erase data from the Multimedia card:

1. Verify that the Multimedia card is inserted into the Multimedia Card Reader.
2. Select *File>Clear Event files*. The following screen opens:

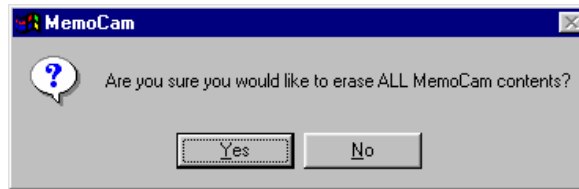


Figure 22. Erase Confirmation Screen

3. Click *Yes* to delete the data from the card. The following message (Figure 23) appears, indicating that the event file entries are erased.

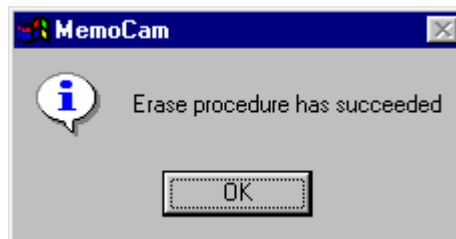


Figure 23. Erase Message

4. Click *OK*. The message box closes.

Synchronizing the Time

You may need to adjust the time used in the time-stamp when you initially set-up the MemoCam, or when your local time changes in the spring or autumn.

To adjust the MemoCam time:

1. Insert the Multimedia card into the MemoCam.
2. Ensure that the MemoCam is not armed.
3. Press the *Rec* button on the Remote Control Unit and note the time on your watch or clock.
4. Remove the Multimedia card from the MemoCam.
5. Verify that the Multimedia card is inserted into the Multimedia Card Reader and that the MemoCam software is opened.
6. Press *F5* or select *View>Refresh* in the MemoCam software menu.
7. Select *File>Synchronize MemoCam Time* in the MemoCam software menu. The *Synchronize time* screen opens (Figure 24).

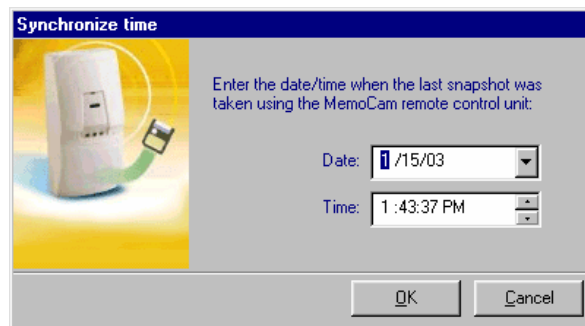


Figure 24. Synchronize Time Screen

8. Enter the date and time when you clicked the Remote Control Unit's *Rec* button (step 3).
9. Click *OK*. The following message appears:

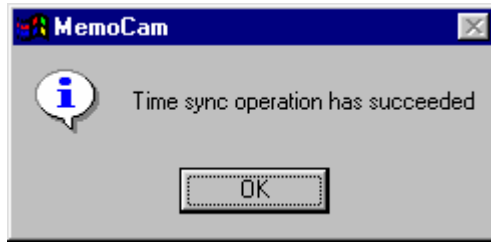


Figure 25. Synchronization Message

10. Click *OK*.
11. Remove the Multimedia card from the Reader and insert it into the MemoCam. The time and date are automatically updated.

Re-naming the MemoCam Unit

You may want to re-name the MemoCam unit to help you track image files. You can add a descriptive name to the image file name to help you identify the MemoCam location, such as lobby or stairs.

To rename the MemoCam:

1. Verify that the Multimedia card is inserted into the Multimedia Card Reader.
2. Select an image file from the list or thumbnail.
3. Select *File>Rename MemoCam* in the MemoCam software menu. The *Rename MemoCam* screen opens (Figure 26).



Figure 26. Rename MemoCam Screen

4. Enter a new name in the *Name Entry* field.
5. Click *OK*. The new MemoCam name is saved and appears in the *MemoCam ID* field of the image file list.

APPENDIX FOR MEMOCAM PLUS/S

The MemoCam Plus/S allows for serial communication. The Plus/S can be connected, together with additional Plus/S units, to a PC.

Concepts

This section describes important MemoCam Plus/S concepts.

Local

When using the MemoCam PC Application in *Local*, the data is accessed using the MMC Reader.

Connection

Communication with the MemoCam software is possible through a connection assigned to the PC serial port, where up to 31 remote units can be connected. The application allows you to connect more than one connection per PC.

The connection settings are the same as settings for a serial communication port: baud rate, parity, and stop bit. Assign a unique port number to each serial bus.

Remote Unit

A remote unit is a MemoCam Plus/S unit connected to the PC via the serial bus. The remote unit has a unique

address within the specific serial bus. The address is set using the dipswitches inside the unit.

Connected Remote Unit

When a remote unit is connected, the following operations can be performed directly from the PC rather than via the Multimedia card:

- Viewing the images.
- Viewing the thumbnails.
- Playing of events.
- Configuring the unit.
- Clearing all events.

You can also perform the following control operations on the connected remote unit:

- Arm or Disarm unit.
- Reset unit.
- Take snapshot.
- Upgrade firmware.
- Grab a video frame from selected camera.
- Get notification.

Notification

A connected remote unit notifies the MemoCam software about all events that occur. There are three types of notification: information, warning, and error. The following notifications are available:

- Trigger has occurred.

- ❑ Recording error has occurred.
- ❑ Unit armed.
- ❑ Unit disarmed.
- ❑ Multimedia card is not available.
- ❑ Multimedia card is full.
- ❑ Multimedia card is ready.
- ❑ Power up.
- ❑ No video.
- ❑ Unit is disconnected.
- ❑ Configuration was updated.

Live Video

You can view a frame currently captured from a selected camera. You can select the camera number, and change the brightness and contrast of the camera online. The monitor video out mode can also be selected, where the currently active camera captures the frame.

Communicating with the MemoCam Plus/S

In order to communicate with a remote unit, you must create a connection, add the remote unit to that connection, and then connect the remote unit.

Creating a Connection

To create a connection:

1. In the MemoCam window, select *File->Add Connection*. The *Connection* screen opens.
2. In each field, select the required data.

3. Click *OK* to save the settings.

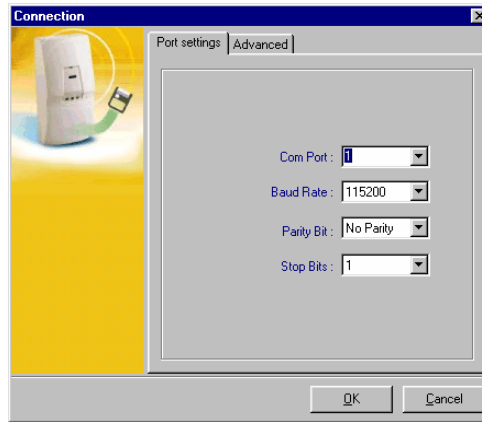


Figure 27. Connection Screen – Port Settings Tab



All remote units connected to the connection must be configured with the same serial settings.

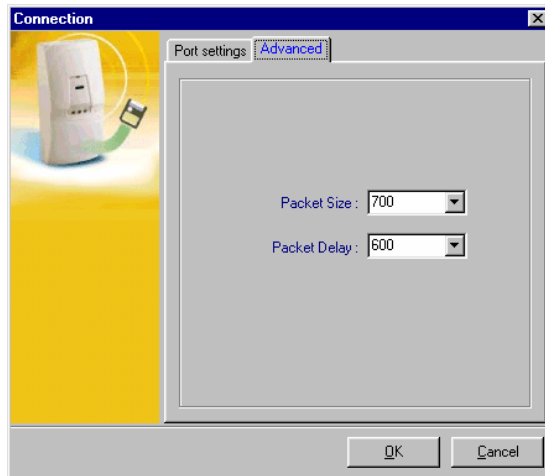


Figure 28. Connection Screen – Advanced Tab

The *Advanced* tab contains two parameters:

- Packet Size – The maximum size of a transmitted packet. The live video frame rate and speed of playback increases when you increase the packet size.
- Packet Delay – The time within which the unit is expected to respond. If packet delay is small, there will be more timeouts and retransmissions.

Another parameter that allows control of the timeout from the application is *Application delay*. You can decrease or increase the timeout on the predefined value. The default value is 0. It can be changed by editing the entry *Timeout* in the *Application path*\Memocam.ini file.

Timeout = Value in milliseconds. This value is the additional application delay that the software waits for packet delivery.

When at least one connection is added, the view of the MemoCam screen changes. The *tree view* and *notification* windows appear, and a *Notification* button and *Live* button are added to the toolbar.

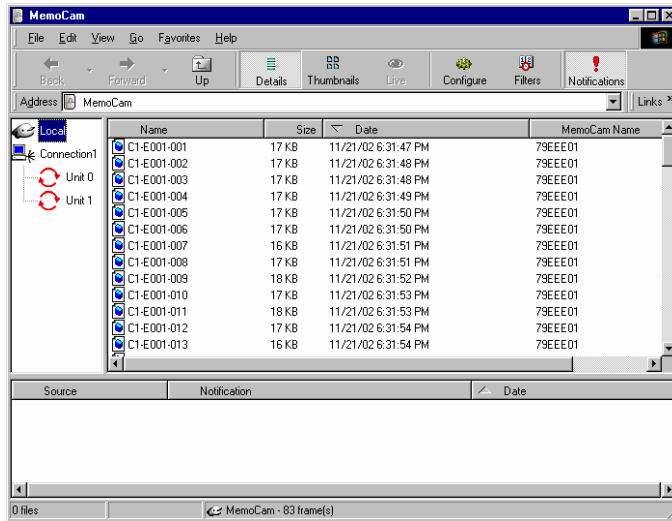


Figure 29. MemoCam Screen with Additional Views and Buttons

Adding a Remote Unit to the Connection

To add a remote unit to the connection:

1. Right-click the connection.
2. In the *Connection* menu, select *Add MemoCam Unit*. The *Connections* screen appears.
3. In the *MemoCam Unit Name* field, enter a unit name.
4. In the *RS 485 Address* field, enter an address.
5. Click *OK* to save the information and close the dialog box.



Figure 30. Connections Screen



The MemoCam unit name cannot contain the backslash (\) or ':' symbols. The RS485 address may be in the range of 0 to 31. The address is determined by hardware. See the MemoCam Installation Manual to set RS485 addresses. Remote units connected to the same connection must have different RS485 addresses.

Connecting a Remote Unit

To connect a remote unit:

1. Right-click the remote unit in the *tree view*.
2. In the Remote Unit menu, select *Connect*. There is an option to connect all remote units within the connection simultaneously.
3. Select the connection in the *tree view* and right-click.
4. Select *Connect All*. When unit is connected, the serial number and firmware version can be obtained from the Connections screen.

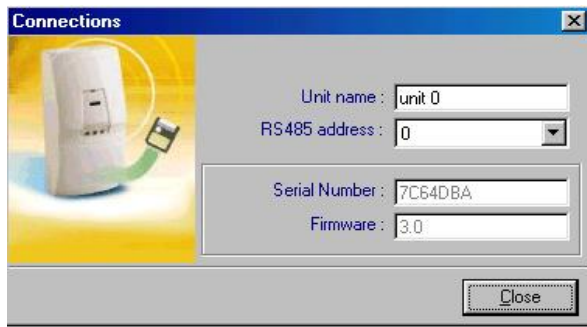


Figure 31. Connections Screen

If the remote unit is armed, the following screen appears.

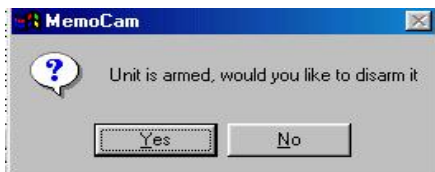


Figure 32. Disarm Message

To disarm the remote unit, click *Yes*. If you decide not to disarm the unit, the software switches to local mode. You can disarm the unit at any time using the control menu function.

The following operations can be processed only when the remote unit is disarmed:

- Viewing the event list.
- Playing events.
- Live Video.
- Setting I/O parameters.
- Upgrade the firmware.
- Clearing all events.

Restoring Connections

If the MemoCam software is closed while several remote units are connected, the connection to the units is restored automatically on application startup if the *restore connections* option is set. You can set this option using *Application path\Memocam.ini*, by editing or modifying the *StoreConnection* entry.

StoreConnection= 1; sets the *Restore Connections* option.

StoreConnection= 0; cancels the *Restore Connections* option.

Using Live Video


To switch to the Live Video Mode, click  on the toolbar or select *View->Live* from the main menu. The *Live Video* screen appears.



Figure 33. Live Video Screen


You can change the time between frame grabbing by moving the speed bar. You can also choose the camera by selecting the radio buttons. To change the brightness and contrast, right-click on the picture. The Brightness and Contrast screen opens. Select required settings and click *OK* to store the new settings.



Figure 34. Brightness and Contrast Screen

Notifications

The application receives notifications from connected remote units, which are logged in the *Notification* screen. Each notification contains the name of a remote unit, the type of notification, and the time the notification was received. When a remote unit notifies the application about an event, the color of the event in the *tree view* screen changes. The records can be sorted by notification time, by remote unit, and by notification type. To open or

close the *Notification* screen, click  on the toolbar.

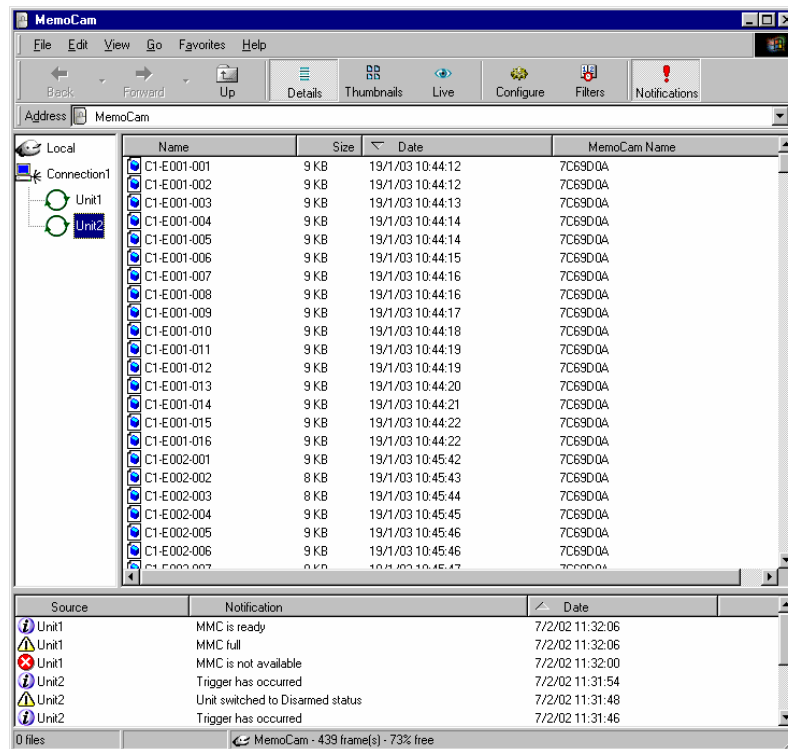


Figure 35. Notification Screen

Notification Log File

All notifications events logged in the Notification screen, are also stored in the log file. The default log file name is *Application path\Memocam.log*. The default size is 1 000 notifications. To change this setting, edit the *Application path\Memocam.ini* file, by adding or modifying the following entries:

- ❑ LogSource - This entry allows you to change the location of the log file. The back slash must be added at the end of value.
- ❑ LogSize - This entry allows you to change the number of notifications in the log file.

To view the log file, right-click in the *Notification* screen, and select *View Log File*. The application opens the notification log file in Notepad.

| Source | Notification | Date |
|--------|----------------------------------|---------------------|
| unit 1 | Unit switched to Disarmed status | 10/10/2002 15:29:43 |
| unit 1 | Unit switched to Armed status | 10/10/2002 15:29:23 |
| unit 1 | MMC is ready | 10/10/2002 15:29:13 |
| unit 1 | MMC is not available | 10/10/2002 15:29:01 |
| unit 1 | Trigger has occurred | 10/10/2002 15:28:58 |

Figure 36. Notification Screen – Viewing the Log File

Performing Control Functions

The following operations can be performed on the remote unit when it is connected:

- ❑ Arm.
- ❑ Disarm.
- ❑ Take Snapshot.
- ❑ Reset.

To perform these operations, right-click the remote unit and select one of the options.

Upgrading the Firmware

To upgrade the firmware:

1. Select *File->Upgrade firmware*. The *Upgrade firmware* screen opens.

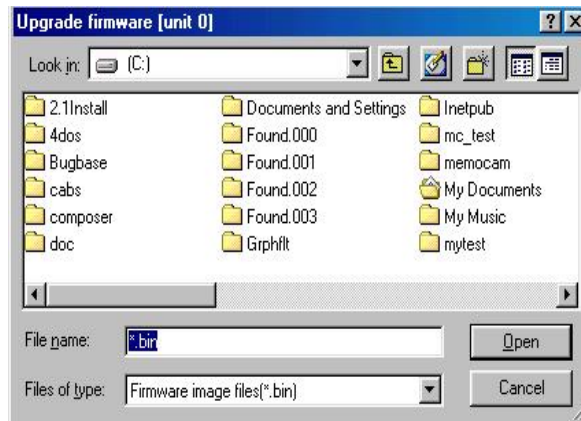


Figure 37. Upgrade Firmware Screen

2. Select the binary file that contains the upgrade data.



If the version of upgrade data is less than the current version, the upgrade will fail.

Disconnecting the Remote Unit

To disconnect a remote unit:

1. Right-click the unit in the *tree view* screen.
2. Select *Disconnect*.

To disconnect all connected remote units:

1. Right-click *Connection* in the *tree view* screen.
2. Select *Disconnect All*.

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