

# Installation Manual

MemoCam<sup>®</sup>

MemoCam<sup>®</sup> Plus

MemoCam<sup>®</sup> DVR

MemoCam<sup>®</sup> M-C56

MemoCam<sup>®</sup> M-C720



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**Version 5.2.004**

**November 2004**

Part number: V7140561

**Video Domain Technologies Ltd.**

Manufacturer: Video Domain Technologies Ltd.  
Model: MemoCam  
Rated voltage(s): 12VDC  
Current(s) (or power): 0.5 A

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This Class A/B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A/B est conforme à la norme NMB-003 du Canada.



FCC

Changes or modifications not expressly approved by Video Domain could void the user's authority to operate the equipment.

**NOTE:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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# Introduction

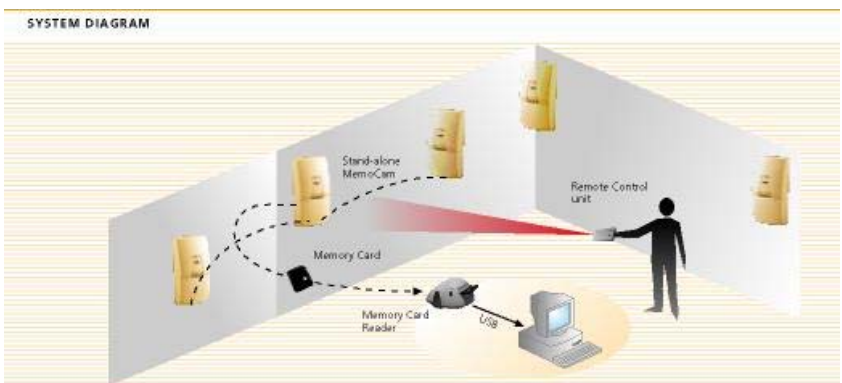
Congratulations! You have chosen the MemoCam modular security solution. MemoCam replaces the classic combination of Time Lapse VCR, PIR detector and camera equipment with a fully integrated system, packaged in a standard PIR detector case.

MemoCam is a modular solution that allows for economical system expansion and optimized use of existing equipment. With MemoCam, you can expand from a single unit to multiple sites and cameras.

MemoCam is a configurable system solution for PIR and Video detection, CCTV monitoring, snapshot recording, and alarm triggering.

MemoCam stores all images in a Memory Card. To analyze the recorded events on a PC, the Memory Card is removed from the MemoCam unit and images are downloaded using a Memory Card reader and the MemoCam software.

One or more stand-alone units can be placed at different locations. The units are configured using the Memory Card. The MemoCam is activated using the remote control unit.



**Figure 1. The MemoCam System**

The MemoCam unit has the following features:

- ❑ Automatic setup using the Memory Card.
- ❑ User defined image quality, frame rate, and recording time per event, delay between frames, and more.
- ❑ Fixed or cyclic recording modes.
- ❑ Pre-alarm recording.
- ❑ Image integrity protection.
- ❑ Arm/Disarm Scheduler.
- ❑ Video motion detection (MemoCam Plus, DVR, M-C56, M-C720).
- ❑ Multi camera support (MemoCam Plus, DVR).
- ❑ Video out.
- ❑ Remote Control unit.

## Models and Features

This manual describes how to implement and install each of the following MemoCam series models:

- ❑ **MemoCam** — includes a B/W video camera, a video compression engine, a removable Memory Card, a Passive Infrared (PIR) detector, and the option to connect an external monitor and external alarm devices.
- ❑ **MemoCam Plus** — provides the same features as the MemoCam and built-in Video Motion Detection (VMD), and the option of connecting two external cameras.
- ❑ **MemoCam DVR** — provides the same features as the MemoCam as well as built-in Video Motion Detection (VMD), and the option of connecting three external cameras. MemoCam DVR does not contain a built-in camera or a built-in PIR.
- ❑ **MemoCam M-C56** — provides the same features as the MemoCam as well as built-in Video Motion Detection (VMD), Color or B/W CCD camera, support for CIF and full VGA image recording resolutions, recording speed up to

10 images/sec, and a built-in communication port (RS 485).

- ❑ **MemoCam M-C720** — provides the same features as the MemoCam M-C56 but has a Mega pixel CMOS camera (can record images with up to 1.2 Mega pixels) instead of the CCD camera.

Table 1 shows a comparison of the main features of each model in the MemoCam series.

**Table 1. MemoCam Models and Features**

<b>Function</b>	<b>MemoCam</b>	<b>MemoCam Plus</b>	<b>MemoCam DVR</b>	<b>MemoCam M-C56, MemoCam M-C720</b>
Input Interfaces	2	3 (programmable)	3 (programmable)	3 (programmable)
Programmable Output Relay Interface	1	1	1	1
PIR Detection Output Relay Interfaces	1	1	-	1
Internal Pin Hole Camera	Yes B&W	Yes B&W	No	B&W or color
External Video Input Interfaces	-	2	3	—
Video Output Interface	1	1	1	1
Video Motion Detection	No	Yes	Yes	Yes
Buzzer	Yes	Yes	Yes	Yes
LEDs	3	3	3	3
Power Source	EXT 12VDC 350 mA	EXT 12VDC 350 mA	EXT 12V DC 250 mA	EXT 12VDC 300 mA
Tamper Detection Switch	Yes	Yes	No	Yes
External Control Panel Input	Yes	Yes	Yes	Yes
Infra Red Remote Control	Yes	Yes	Yes	Yes
Multimedia Card (MMC)	Yes	Yes	Yes	Yes
SD Card	No	No	No	Yes
RS-485 port	No	No	No	Yes

# Physical Description

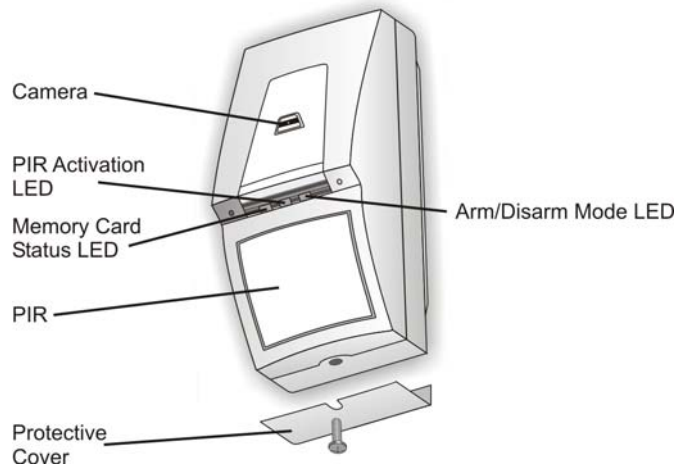
The figures below show the physical components of the MemoCam unit and remote control unit. Consult Table 2 to see which figures are relevant to your model.



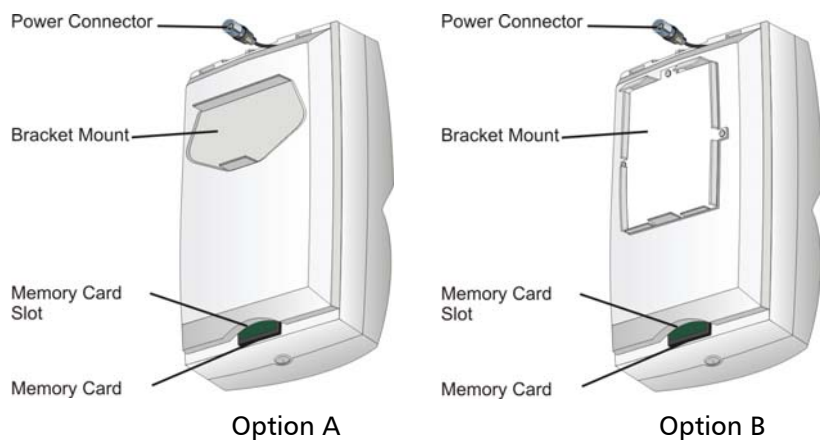
*Your MemoCam unit has one of the mount bracket options displayed in Figure 3.*

**Table 2. Physical Description Figure Guide**

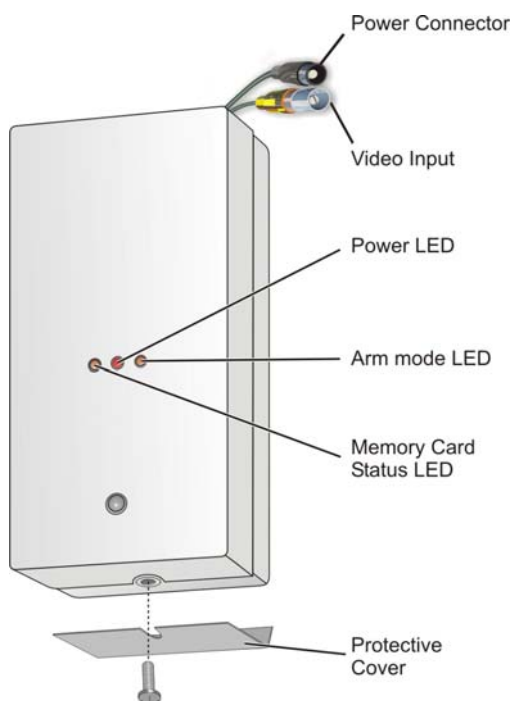
Figure	Description	Models
Figure 2	Front View	MemoCam, MemoCam Plus, MemoCam M-C56, MemoCam M-C720
Figure 3	Rear View	MemoCam, MemoCam Plus, MemoCam M-C56, MemoCam M-C720
Figure 4	Front View	MemoCam DVR
Figure 5	Rear View	MemoCam DVR
Figure 6	Remote Control Unit	All



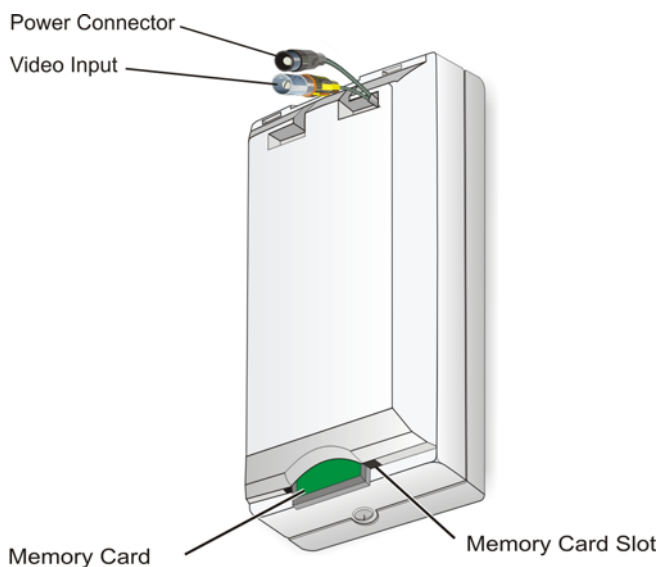
**Figure 2. MemoCam, MemoCam Plus, MemoCam M-C56, MemoCam M-C72 – Front View**



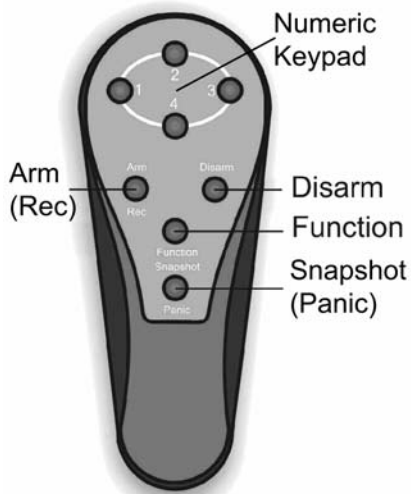
**Figure 3. MemoCam, MemoCam Plus, MemoCam M-C56, MemoCam M-C720 – Rear View**



**Figure 4. DVR**



**Figure 5. DVR, Rear View**



**Figure 6. Remote Control Unit**





# Installing the MemoCam® Unit

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◆ **To install your MemoCam unit, follow this workflow:**

1. Connect any external equipment you may want to use in conjunction with the MemoCam.  
Refer to *MemoCam® Applications* on page 9.
2. Mount the unit on the wall, if necessary. Refer to *Mounting the MemoCam® Unit* on page 35.
3. Connect the power supply.  
Refer to *Connecting the Power Supply* on page 40.

You will need:

- ❑ A screwdriver.
- ❑ Two screws suitable for the type of wall.

You may also need a drill and two screw anchors.

## MemoCam® Applications

MemoCam is a versatile security solution that supports many different applications. You can connect your MemoCam unit to various external devices, depending on your security needs. This section includes the following:

- ❑ **Connecting External Equipment** — describes a range of possible MemoCam applications. Use this section to get an idea of how you can maximize the use of your MemoCam.
- ❑ **Connecting an External Device** — describes how to connect any external device. Read this section before connecting any external equipment.
- ❑ **MemoCam® Series Circuit Boards** — describes the interfaces and other key elements on the circuit board of each model in the MemoCam series.
- ❑ **Connecting the Power Source** — describes options for connecting the MemoCam power source.

- ❑ **Connecting External Cameras** — describes how to connect external cameras (MemoCam Plus and MemoCam DVR).
- ❑ **Connecting an External Monitor** — describes how to connect an external monitor.
- ❑ **Connecting an External Contact** — describes how to connect an external contact.
- ❑ **Connecting an Arm/Disarm Control** — describes how to connect an arm/disarm control.
- ❑ **Connecting a Light, Siren, or IR Illuminator** — describes how to connect a light, siren or IR illuminator.
- ❑ **Connecting Multiple MemoCam® M-C56 or MemoCam® M-C720 Units to a Host** — describes how to connect one or more MemoCam M-C56 or MemoCam M-C720 to a host.

## Connecting External Equipment

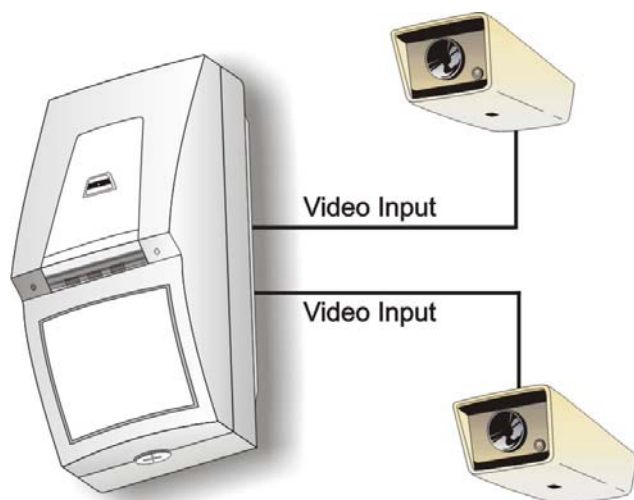
The sections below describe various applications in which MemoCam is integrated with other security devices.

### Connecting External Cameras (MemoCam Plus and MemoCam DVR)

Connecting to external cameras enables you to leverage the surveillance features of the MemoCam solution for more than one camera. External cameras allow for multiple angle snapshots.

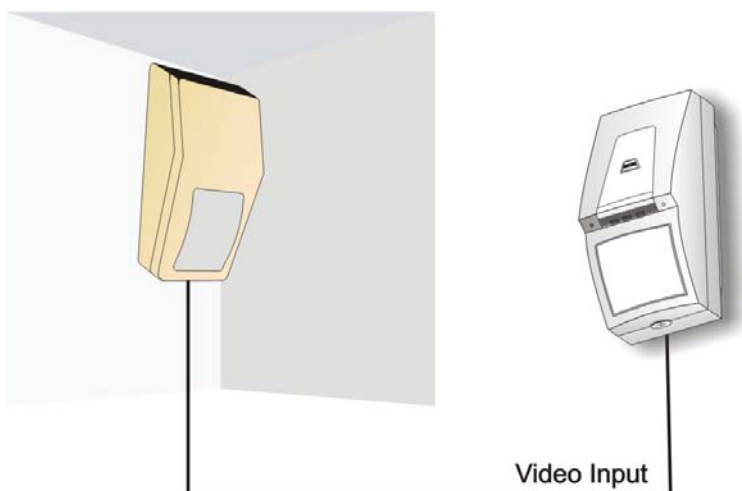
The MemoCam DVR model does not contain internal cameras and is designed to be used with at least one external camera. One video input cable comes pre-connected for this purpose.

The MemoCam Plus model also supports up to two external cameras. Figure 7 shows a MemoCam Plus connected to two external cameras.



**Figure 7. Using External Cameras**

The D-CAM 500 and D-CAM 600 are Video Domain cameras that feature a PIR, a camera, and optional audio, ideal for taking snapshots from the same position as the detection mechanism. Figure 8 shows the MemoCam deployed in conjunction with a D-CAM 500 camera.



**Figure 8. Using the D-CAM 500 as an External Camera**

## Communicating with a Host

The MemoCam M-C56 and the MemoCam M-C720 models feature a serial communication port for connection to a host. Figure 9 shows four MemoCam M-C56 and MemoCam M-C720 units communicating with a host PC to connect and control a network of twelve external cameras.

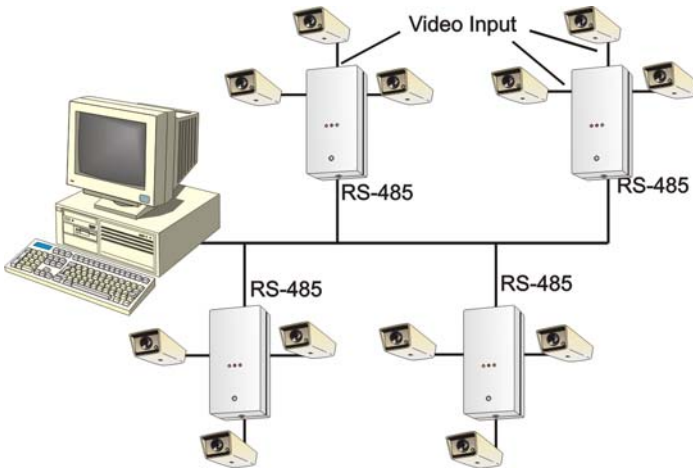


Figure 9. Communicating with a Host

## External Monitoring

All MemoCam models feature a video output interface for external monitoring. Figure 10 shows a MemoCam connected to an external monitor.

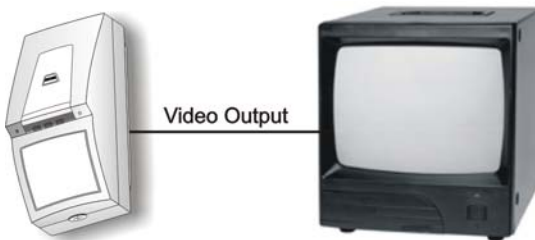
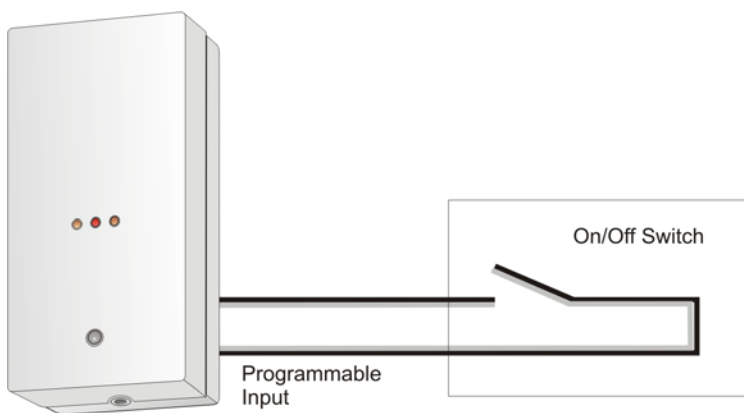


Figure 10. Using an External Monitor

## Arming and Disarming MemoCam

You can control the arming and disarming of your MemoCam in any of the following ways:

- ❑ **By remote control:** you can arm or disarm the MemoCam unit manually, using the remote control unit.
- ❑ **By external control:** you can connect an on/off switch or an alarm control panel to one of your MemoCam's programmable input interfaces (Figure 11).
- ❑ **By internal schedule timing.**

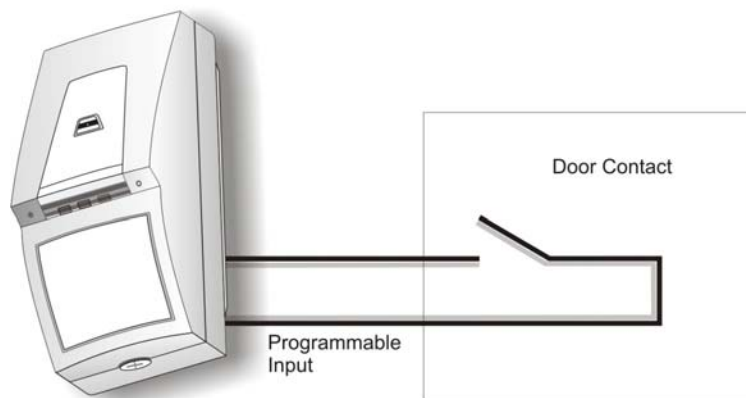


**Figure 11. Arming and Disarming by External Control**

## Triggering Snapshots

Whether you are using MemoCam's internal camera, or connecting external cameras, there are various options for controlling when snapshots are taken. Snapshots can be triggered by:

- ❑ The remote control unit. This lets you take a single snapshot manually.
- ❑ Internal Video Motion Detection (except MemoCam).
- ❑ Internal PIR (except MemoCam DVR).
- ❑ An external trigger, such as a panic button or a magnetic contact.
- ❑ An external PIR.



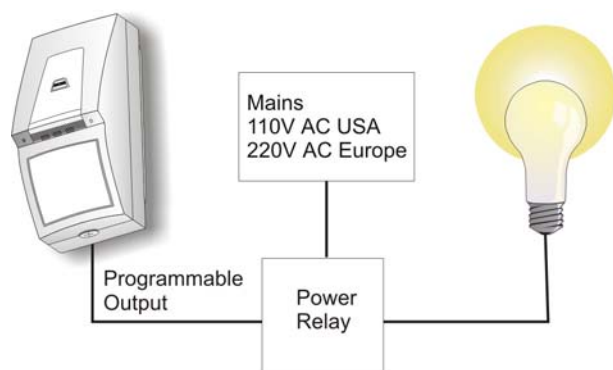
**Figure 12. Triggering Snapshots with a Door Contact**

### **Working in the Dark**

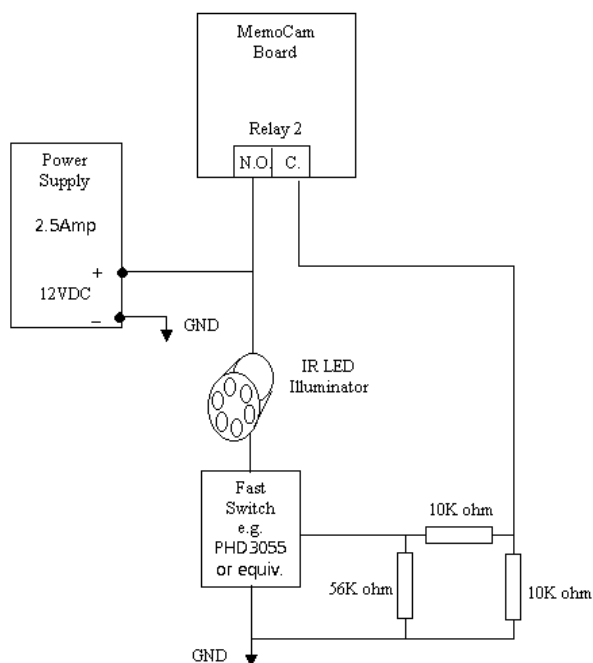
If you will be configuring your MemoCam to take snapshots in the dark, you will need to illuminate the space with a flash.

There are two ways of working in the dark:

- ❑ **Illuminating with a light bulb** – The MemoCam features a programmable output relay (relay 2) to which you can connect a step-up power relay that can feed a light bulb from the mains (refer to Figure 13). You program the output relay to turn on the light for the duration of the recording event, normally several seconds.
- ❑ **Illuminating with an Infra-red LED illuminator** – To save power, you program the output relay to turn on the LED illuminator only for the image grabbing time. The output relay should be connected to a fast switch (12V, 2.5 A and less than 2ms activation delay) that will feed the infra-red LED illuminator (refer to Figure 14). Verify that the IR Flash check box is selected in the MemoCam software application (refer to the *MemoCam Software Manual*).



**Figure 13. Switching on a Light when the Camera Takes a Snapshot**



**Figure 14. Activating an IR LED Illuminator**

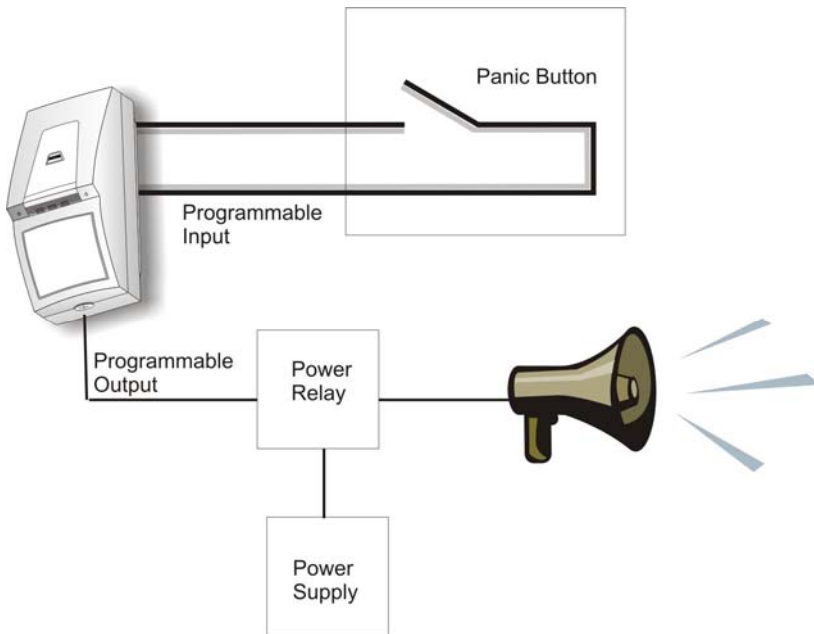
The MemoCam software enables you to configure the output relay interval appropriately for the device you connect.

## Tamper Detection

The MemoCam unit features a tamper detection switch that can be connected to an external device.

## Sounding an Alarm

You can connect a MemoCam to a siren via the programmable output relay. Figure 15 shows a MemoCam connected to a siren. In this example, the MemoCam can be configured to sound the siren whenever the MemoCam is triggered.



**Figure 15. Triggering a Siren**

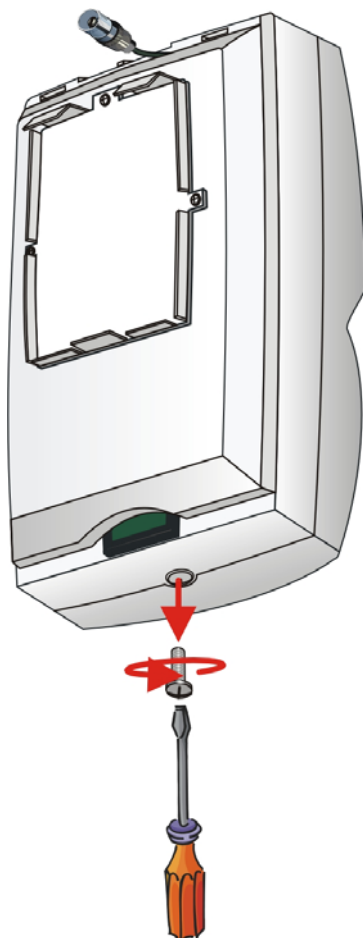


## Connecting an External Device

You connect an external device by connecting each component wire of the device's connection cable to the appropriate interface on your MemoCam unit's circuit board.

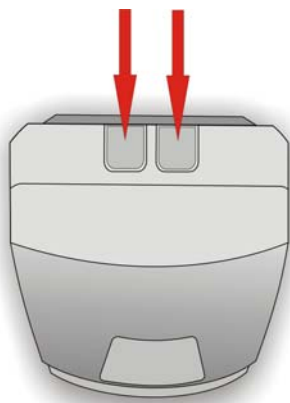
◆ **To connect an external device to the MemoCam unit:**

1. Open the MemoCam unit's front cover by unscrewing the holding screw on the bottom end of the device, as shown in Figure 16.



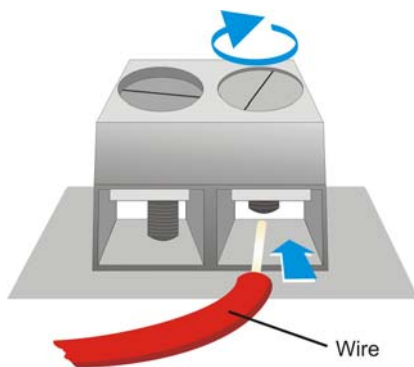
**Figure 16. Removing the MemoCam Front Cover**

2. Knock out a hole in one of the locations marked in Figure 17.



**Figure 17. MemoCam Wire Access Knockout Holes**

3. Thread the device's connection cable through the hole.
4. Identify the correct interface to which to connect each wire from the cable. For a description of all interfaces and their general uses, refer to *MemoCam® Series Circuit Boards* on page 19. For instructions for connecting a specific device, refer to the sections below.
5. To connect each wire, unscrew the interface screw, insert the wire into the hole below the screw, and tighten the interface screw to secure the wire position (Figure 18).



**Figure 18. Connecting the Wires**

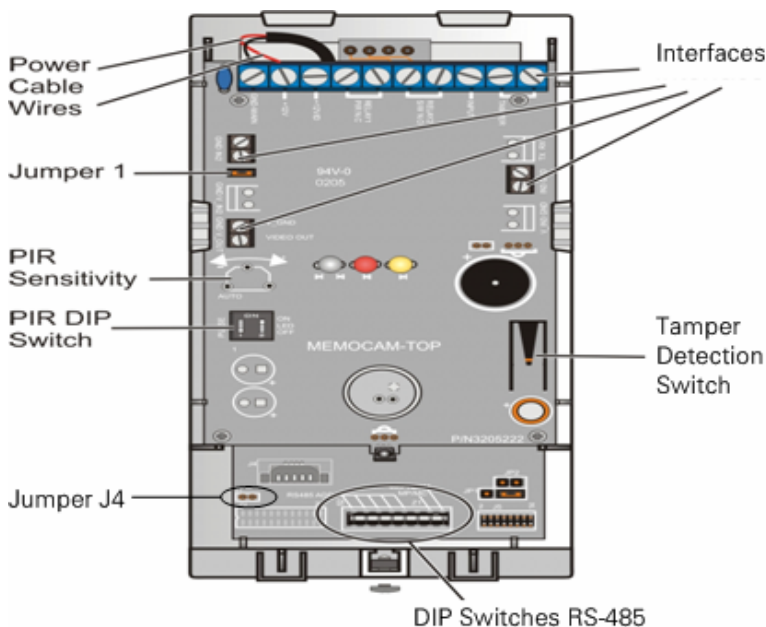


*If you are connecting a backup power device, ensure that jumper 1 on the circuit board is not connected. Refer to Connecting the Power Source on page 25.*

Reposition the unit's cover and tighten the holding screw (Figure 16).

## MemoCam<sup>®</sup> Series Circuit Boards

Figure 19 shows key components of the MemoCam circuit board.



**Figure 19. MemoCam Circuit Board**

### PIR DIP Switch

Table 3 describes the PIR DIP switch settings

**Table 3. PIR DIP Switch**

Switch No.	Description
1	Pulse count settings, provides PIR control for normal to high risk operating environments. Default setting is <b>OFF</b> .
2	LED On/Off settings. Refer to Table 1.

### Jumper 1

Refer to +12VID in Table 4.

### PIR Sensitivity

Use the potentiometer to adjust the detection sensitivity between 40% and 100%. To increase sensitivity, rotate the potentiometer clockwise increases sensitivity. To decrease sensitivity, rotate the potentiometer counter-clockwise. The default setting is 70%.

### MemoCam Interface

Figure 20 to Figure 23 show the interfaces (or external connections) for each MemoCam model. Table 4 describes how each interface is connected.

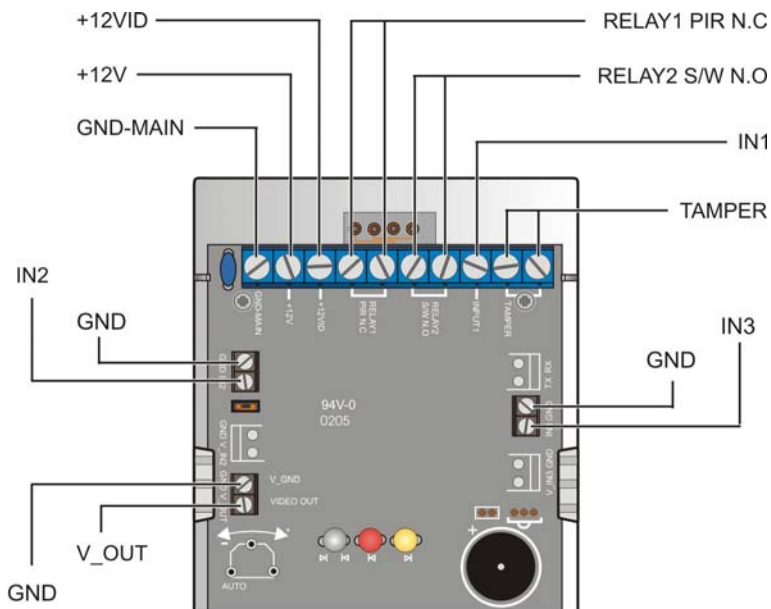


Figure 20. MemoCam Interfaces

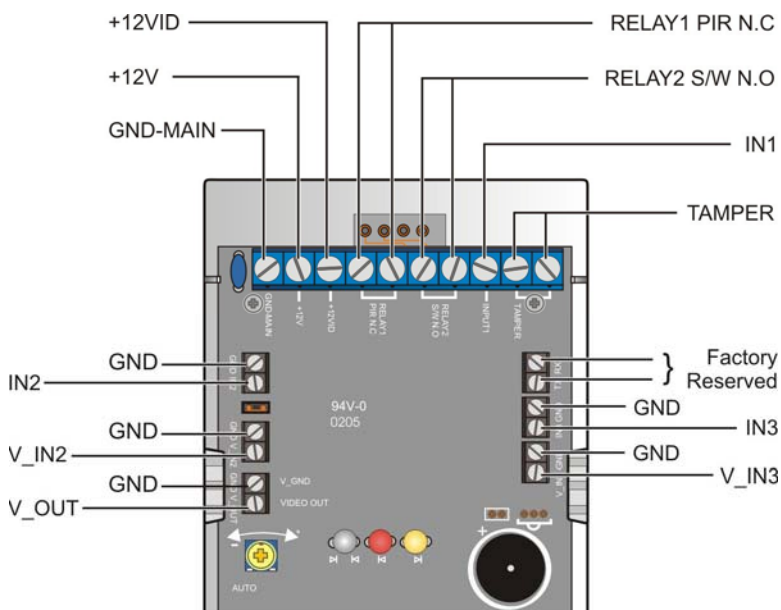
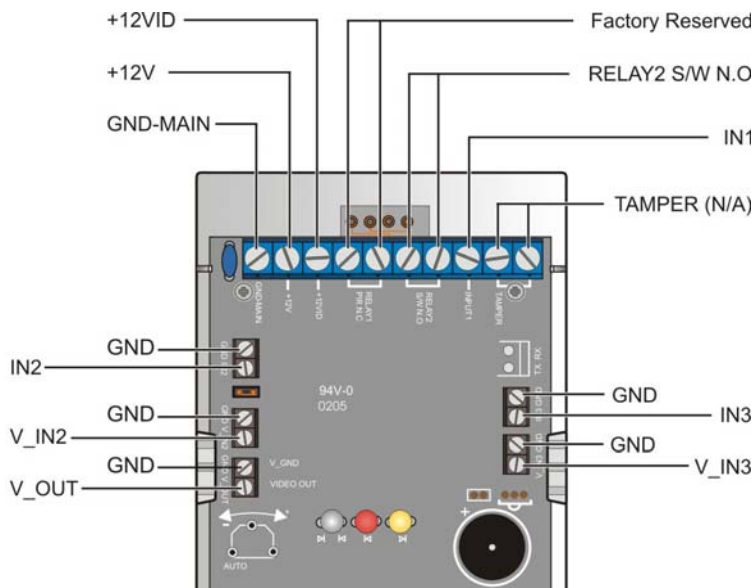
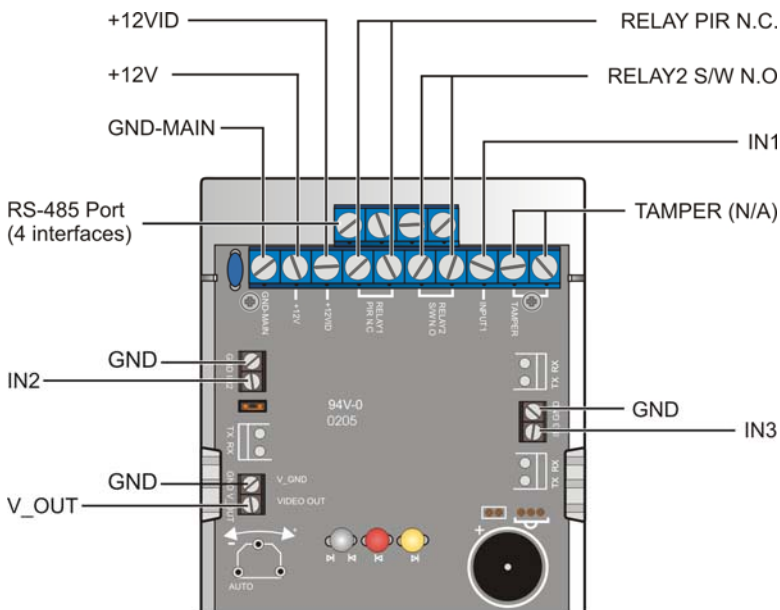


Figure 21. MemoCam Plus Interfaces



**Figure 22. MemoCam DVR Interfaces**



**Figure 23. MemoCam M-C56 & M-C720 Interfaces**

**Table 4. Circuit Board Interfaces**

<b>Interface</b>	<b>Description</b>	<b>Applicability</b>
<b>GND-MAIN</b>	Common power supply ground.	
<b>+12V</b>	Connects to the positive output of the ordinary power supply when jumper 1 is installed or to the backup power supply when jumper 1 is not installed (open), to power the PIR only.	
<b>+12VID</b>	Connects to the positive output of the ordinary power supply when Jumper 1 is not installed (OPEN). When Jumper 1 is not installed (OPEN), it separates the power feeds for PIR and for the Video module. This enables the use of the Alarm system as the power source to power the PIR only.	
<b>RELAY 1 PIR N.C</b>	<b>PIR Detector Output Relay.</b> This relay is activated by the PIR, and can be used to activate an external alarm device. When triggered by detected movement, the relay N.C. contact opens for 1.6 seconds (standard).	Not applicable for MemoCam DVR.
<b>RELAY 2 S/W N.O</b>	<b>Programmable Output Relay.</b> This relay is software-activated. When tripped, the N.O. relay contact closes for a pre-defined period (0-999 s) that is user selectable.  Used to switch on an external device such as a video recorder, light or siren.	

Interface	Description	Applicability
IN1	<p><b>Programmable Input.</b> (All models except MemoCam)</p> <p>Connects to an auxiliary device for external alarm triggers or arm/disarm control.</p> <p><b>External Alarm Input.</b> (MemoCam only)</p> <p>Connects to an auxiliary device for external alarm triggers.</p> <p>Use with GND-MAIN</p>	
TAMPER	<p><b>Tamper Detection Switch</b></p> <p>The Tamper detection switch terminals are N.C. contacts that open when the MemoCam cover is removed. They can be connected to an external alarm or other device.</p>	Not applicable for MemoCam DVR.
IN2 and GND	<p><b>Programmable Input</b> (All models except MemoCam)</p> <p>Connects to an auxiliary device for external alarm triggers or arm/disarm control.</p> <p><b>Arm/Disarm Input.</b> (MemoCam only)</p> <p>Connects to an auxiliary device, such as control panel for arm/disarm control.</p>	
IN3 and GND	<p><b>Programmable Input.</b></p> <p>Connects to an auxiliary device for external alarm triggers or arm/disarm control.</p>	All models except MemoCam.
V_IN2 and GND	<p><b>Video Input.</b></p> <p>Connects to an external camera.</p>	All models except MemoCam.
V_IN3 and GND	<p><b>Video Input.</b></p> <p>Connects to an external camera.</p>	All models except MemoCam.
V_GND and VIDEO OUT	<p><b>Video Output.</b></p> <p>Connects to an external video monitor.</p>	
RS-485 Port	<p><b>Serial Communication Port.</b></p> <p>Connects to a host.</p>	MemoCam M-C56 and MemoCam M-C720 only



## Connecting the Power Source

The circuit board can be used to connect the MemoCam power sources as follows:

- ❑ **Single Power Source** – The MemoCam unit is powered by a 12VDC, 350mA power supply that feeds both the PIR and the video circuits. The MemoCam DVR is powered by a 12 VDC, 250mA power supply.
- ❑ **Separated Power Sources** – The MemoCam unit can be connected to a normal power supply and a backup power supply. In this configuration, when the normal power supply is not available, the backup battery feeds only the PIR, and thus can still activate an alarm. The MemoCam cannot record images in backup power mode.

Jumper 1 on the circuit board (refer to Figure 19 on page 19) is used as follows:

- ❑ **Installed (Default)** – The MemoCam unit is powered by a single DC power supply connected between **GND MAIN** and **+12V**.
- ❑ **Not Installed** – In this mode, the PIR module of the MemoCam unit should be connected to a backup power supply such as UPS or a battery from an alarm panel, in addition to the main power supply. The backup power supply is connected between **GND MAIN** and **+12V**, feeding the PIR, while the video circuits can be fed by an ordinary power supply via **GND MAIN** and **+12VID**.

## Connecting External Cameras

You can connect external cameras to any of the following MemoCam models:

- ❑ MemoCam Plus – up to two external cameras.
- ❑ MemoCam DVR – up to three external cameras.

The MemoCam DVR model comes with one video input cable already connected, with an external connector ready for connection to a camera (refer to Figure 4 on page 6).

You can use this video connector to connect one external camera.

◆ **To connect a second or third external camera to a MemoCam DVR, or to connect an external camera to a MemoCam Plus:**

- ❑ Use one of the additional video input cables provided.
- ❑ Connect the loose wires at one end of the cable to **V\_IN2 and GND** or **V\_IN3 and GND**.
- ❑ Plug the external camera into the connector at the other end of the cable.



*The same video standard CCIR or EIA must be used for all cameras (internal and external in MemoCam Plus, and all external cameras in MemoCam DVR).*

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## Connecting an External Monitor

You can connect an external monitor to any MemoCam model.

To connect an external monitor:

- ❑ Use the Video Output cable provided.
- ❑ Connect the open wires at one end of the cable to **V\_GND and VIDEO OUT**.
- ❑ Plug the external monitor into the connector at the other end of the cable.

## Connecting an External Contact

You can connect an external contact, such as a magnetic door contact, a panic button, or an External PIR, as a snapshot trigger, to any model.

For all models except MemoCam, connect the contact directly to one of the programmable input interfaces: **IN1**, **IN2** or **IN3** and one of the **GND** interfaces.

For MemoCam, connect the contact directly to **IN1** and **GND-MAIN**.

## Connecting an Arm/Disarm Control

You can connect an arm/disarm control to any MemoCam model either directly to an input interface, or to an input interface via an alarm control panel.

For all models except MemoCam, you can designate one of the programmable input interfaces as an arm/disarm control. The programmable input interfaces are marked **IN1**, **IN2**, and **IN3** on the circuit board.

For MemoCam, **IN2** is a fixed, non-programmable arm/disarm input interface.

## Connecting a Light, Siren, or IR Illuminator

You can connect a light, siren, or IR illuminator to any model.

To connect a light, siren, or IR illuminator:

- ❑ Connect the device via a power relay to the programmable output relay interface, marked **RELAY 2 N.O** on the circuit board.

## Connecting Multiple MemoCam® M-C56 or MemoCam® M-C720 Units to a Host

The MemoCam M-C56 and the MemoCam M-C720 support serial communication with a host. This section describes how to implement serial communication of one or more MemoCam units to a host.

### Setting up an RS-485 Connection

#### ◆ To set up an RS-485 connection:

1. Allocate an RS-485 address to the MemoCam unit. Each MemoCam on a parallel RS-485 line must be allocated a different address. Refer to Allocating an RS-485 Address on page 28.

2. Set the termination jumper. See *Setting the Termination Jumper* on page 29.
3. Connect the RS-485. Refer to *Connecting the RS-485* on page 29.

### Allocating an RS-485 Address

The RS-485 address range is 0-31. You can install up to 32 MemoCam units on the same line. On the MemoCam board, there are five DIP switches to define the RS-485 address of the unit. Refer to Figure 19 on page 19 for the location of the DIP switches.



*For MemoCam, MemoCam Plus and MemoCam DVR:  
Do not change the position of DIP switches 6 and 7. They  
should always be in the **down** position.*

### Factory Default Interface Settings

- ☐ Address switches all **OFF** (0).
- ☐ Full duplex (DIP SW 2 pos 2 and 3 **OFF**).
- ☐ Line termination disabled (Jumper J4 removed)  
See Figure 19 on page 19.

## Internal DIP Switches

**Table 5. Internal DIP Switches RS-485**

Switch No.	Description	
1		
2	RS-485 DIP switch address settings	
3	You can connect up to 32 units (0 -31)	
4	Factory default address is "00" (zero)	
5	and the switches 1 to 5 are in the <b>ON</b> position	
6	Reserved	
7	Both <b>ON</b>	RS-485 2 wire (half duplex)
8	Both <b>OFF</b>	RS-485 4 wire (full duplex)

## Factory Default DIP Switch Settings

The DIP switches are located on the bottom of the board with only the **ON** position marked on the DIP switch assembly.



*The DIP switches are shown below in the **ON** position, therefore the address in switch positions 1 to 5 is **00** (zero).*

The unit is shipped with the following configuration:

ON								
	1	2	3	4	5	6	7	8

## Connecting the RS-485

This section contains the following information:

- ☐ Setting the Termination Jumper
- ☐ Full Duplex Connection
- ☐ Half Duplex Connection

### Setting the Termination Jumper

Jumper J4 is used for terminating the interface and must be installed in the last unit on the interface. When a single unit is installed on the interface, this jumper must be installed. In all other units, this jumper must be removed. For the location of the J4 jumper see Figure 19 on page 19.

## Full Duplex Connection

◆ To connect a Full Duplex RS-485 interface:

1. Set the interface address. See Table 6 below.
2. Using Figure 24 as a guide, connect the RS-485 interface wires between the units.
3. Ensure that DIP SW positions 7 and 8 inside the unit are set to **OFF** (default **OFF**).

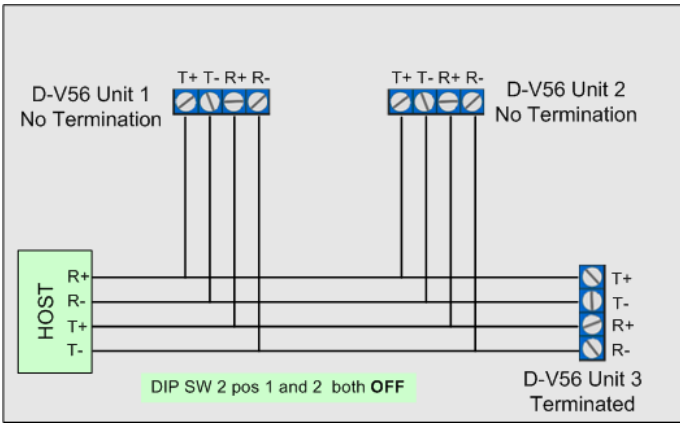
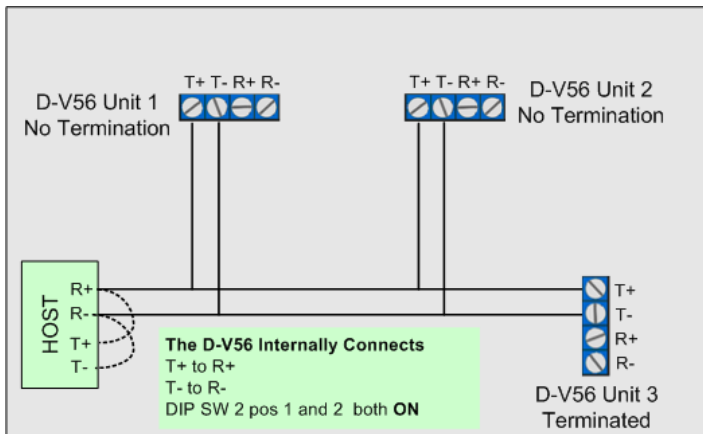


Figure 24. Connecting the RS-485 as Full Duplex

## Half Duplex Connection

### ◆ To connect a Half Duplex RS-485 interface:

1. Using Figure 25 as a guide, connect the RS-485 interface wires as shown between the units.



**Figure 25. Connecting the RS-485 as Half Duplex**

2. Ensure that the M-C56 or M-C720 DIP SW positions 7 and 8 are set to **ON** (default **ON**).  
When these DIP switches are ON, the interface lines are automatically connected as shown in Figure 25. This connects R - to T - and R + to T +, enabling the interface to work in half-duplex mode.
3. Jumper the RS-485 output terminals at the Host as shown in Figure 25, if required.

**Table 6. RS-485 Address Table**

Unit ID	DIP Switch Settings (OFF is Active)	Unit ID	DIP Switch Settings (OFF is Active)																																				
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# Using the Remote Control When Connected to the Interface

Your remote control has two keys with dual functionality. These keys are labeled with an upper and lower function label. For example: **Arm/Rec** and **Snapshot/Panic**.

These function keys are usually only used when the RS-485 interface and Notification On Alarm (NOA) are enabled.

To use the upper and lower key functions:

Upper Key Function	Lower Key Function
<p>Press the key once.</p> <p>For example:</p> <p>Arm</p> 	<p>Press the Function key, release it, and then press the desired key. For example:</p> 

## Remote Control Key Description

### **Arm - Press Arm.**

The unit enters record mode.  
The Notification On Alarm (NOA)  
function is enabled.



### **Record (Rec) - Press Function -> Rec.**

The unit enters Record only mode.  
The NOA function is disabled.



### **Disarm - Enter the disarm code using the keypad keys (1 to 4).**

#### **(Default code - 1234)**

Press the **Disarm** key. The unit is now  
disarmed (de-activated).

The NOA function is disabled.



### **Snapshot - Press Snapshot.**

A single image is recorded on the  
Memory Card.



### **Panic - Press Function -> Panic.**

An image is recorded on the Memory  
Card. An alarm notification is then  
sent via the RS-485 interface.



## Mounting the MemoCam® Unit

A MemoCam mounting bracket is included with the MemoCam unit. It is not necessary to mount the MemoCam DVR model, since it does not contain an internal camera or PIR. Begin by selecting a mounting location on the wall. Choose a location most likely to intercept an intruder. Make sure that the MemoCam unit's power cord can reach a nearby power receptacle. If necessary, an extension cord can be used.

The PIR is most sensitive in detecting sideways motion.

The MemoCam unit performs best in steady light and stable temperature.

Avoid the following locations:

- ❑ Facing direct sunlight or light sources.
- ❑ Facing areas subject to quick temperature changes.
- ❑ Areas with air ducts or substantial air flows.
- ❑ Facing areas with high light contrast.



*Before mounting your MemoCam Unit, determine which mount bracket you have (refer to Figure 3 on page 6).*

*If you have Option A mount bracket, follow the instructions in Mounting the MemoCam® Unit (Option A) on page 36.*

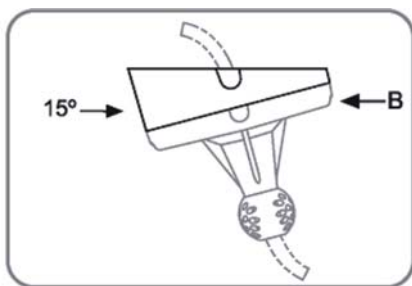
*If you have Option B mount bracket, follow the instructions in Mounting the MemoCam® Unit (Option B) on page 38.*

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## Mounting the MemoCam® Unit (Option A)

### ◆ To mount the MemoCam unit:

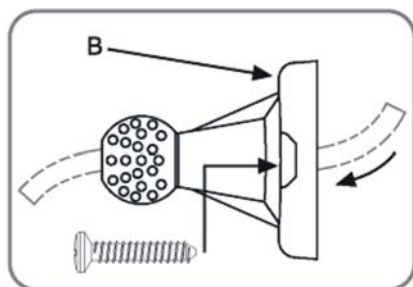
1. For corner mounting, fasten the 15° prop to the back of component B.



**Figure 26. Fasten 15° Prop to Component B**

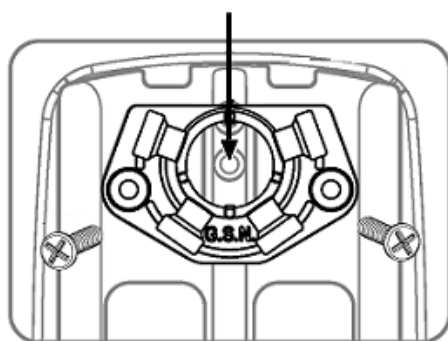
2. Optionally, run the installation wire through component B.
3. Place the wall-mount section of the bracket (component B) on the desired location on the wall, and mark the drill points through the two fastener holes.

4. Drill the holes (if necessary) and attach the bracket to the wall with two screws.



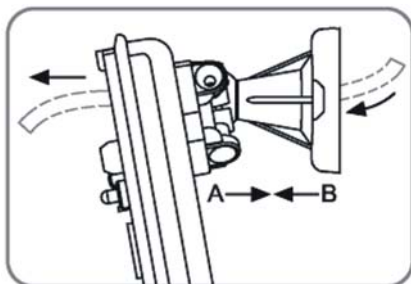
**Figure 27. Fasten Component B to the Wall**

5. Optionally, punch a hole in the detector's rear cover as indicated in Figure 28, and run the installation I/O wire through component A and the detector's rear cover.



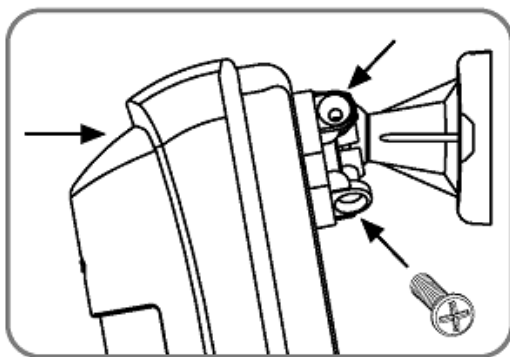
**Figure 28. Fasten Component B to the Wall**

6. Clip components A and B together.



**Figure 29. Connect Components A and B**

7. Optionally, connect the wires to the terminal blocks of the PCB.
8. Close the detector's covers.
9. Adjust the angle of the detector and stabilize it with a single screw in one of the available holes.



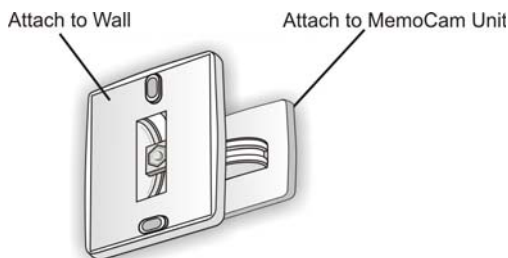
**Figure 30. Stabilize the Angle of the Detector**

## **Mounting the MemoCam<sup>®</sup> Unit (Option B)**

### **◆ To mount the MemoCam unit:**

1. Loosen the two pieces of the mounting bracket without separating them. The two sections of the bracket should swing freely.

2. Place the wall-mount section of the bracket (refer to Figure 31) on the desired location on the wall, and mark the drill points through the two fastener holes.



**Figure 31. Mounting Bracket**

3. Drill the holes (if necessary) and attach the bracket to the wall with screws.
4. Retighten the two mounting bracket pieces so that the MemoCam Mount section can still be rotated with slight pressure.
5. Clip the upper part of the MemoCam unit's holder (1) to the bracket and rotate, until the MemoCam unit snaps into place.
6. Adjust the position of the MemoCam unit by moving it slowly up/down and left/right to the desired position.
7. Remove the MemoCam unit carefully from the bracket without changing the bracket position.
8. Tightly screw the two mounting bracket pieces.
9. Re-attach the MemoCam unit to the bracket as indicated in step 5 above.
10. For robust fixture, twist slightly part 2 of bracket mount with pliers.

## Connecting the Power Supply

Connect the power adapter to the power connector coming out of the MemoCam unit. Refer to *Physical Description* on page 5 to identify the power connector on your model.

Plug the power supply unit into a wall socket. The MemoCam status LED indicators illuminate (refer to Table 7 on page 41 for details).



*The MemoCam unit works only with the original, supplied, power adaptor.*

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# Operating the MemoCam®

Once the MemoCam unit is installed, the unit operates according to a default configuration. You can change the configuration using the Memory Card. Refer to *Configuring the MemoCam®* on page 47 for configuration information.

## Understanding LED Indicators and Audible Signals

The MemoCam unit indicates activities and errors via LED indicators on the front panel and by emitting audible signals.

### LED Indicators

The MemoCam unit has three LED status indicators on the front of the unit. Refer to *Physical Description* on page 5.

**Table 7. LED Indications**

LED	Color	Description
Left (Memory Card Status)	Red	Memory Card is faulty or not inserted correctly
	Blinking Green	Data is being written to the Memory Card
	Orange	Memory Card is full
Middle (For MemoCam, MemoCam Plus, MemoCam M-C56 and MemoCam M-C720 PIR Activation) (For MemoCam DVR Power Indication)	Flashing Red	Movement detected
	Red	Power is connected
Right (Arm Mode)	Orange	ARM mode
	None	DISARM mode

## Audible Signals

The MemoCam emits the following audible signals when you use the remote control unit to perform the following actions:

- ❑ Arm the unit – Long beep.
- ❑ Enter a disarm code – Short beep after each button is pressed.
- ❑ Disarm the unit – Two short beeps and one long beep.

The MemoCam emits the following signals in the following scenarios:

- ❑ In Disarm mode – a recurring short beep.
- ❑ The Memory Card is not inserted – a recurring short beep.
- ❑ The configuration is upgraded by inserting a Memory Card carrying an upgraded configuration – one short beep.
- ❑ The registry becomes corrupted and the MemoCam unit returns to default configuration – three short beeps.

## Performing Remote Control Operations

You can use the remote control unit provided with the MemoCam to:

- ❑ Arm the MemoCam
- ❑ Disarm the MemoCam
- ❑ Record a snapshot
- ❑ Control the video output

## Using the Remote Control

You can use the remote control unit provided with your MemoCam to arm, disarm, and record snapshots. You can also use the remote control unit to control the image displayed on a connected video monitor for MemoCam Plus and DVR.

The remote control unit has the following buttons (refer to Figure 6 on page 7):

- ❑ Rec – Triggers a snapshot to be taken.
- ❑ Arm – Activates the MemoCam for operation.
- ❑ Disarm – Deactivates the MemoCam.
- ❑ Function – Not in use.
- ❑ Four digit buttons numbered 1, 2, 3, 4 – Allows for Disarm Code entry. Selects from multiple cameras in MemoCam Plus and MemoCam DVR only.



*Insert batteries into the Remote Control unit before use.*

---

## Arming the MemoCam®

### ◆ To arm the MemoCam using the remote control unit:

1. Make sure the MemoCam unit is powered, and the Memory Card is inserted.
2. Point the remote control unit at the MemoCam and press the *Arm* button. The MemoCam unit beeps once and the Arm Mode (right) LED illuminates orange to inform you that the unit is armed.

A user-defined exit delay allows you several seconds to exit the room before the MemoCam detector arms the system.

You can also automatically arm the MemoCam unit upon Memory Card insertion, or schedule MemoCam to arm itself at particular times. Refer to the *MemoCam Software Manual* for details.

## Disarming the MemoCam®

### ◆ To disarm the MemoCam using the remote control unit:

1. Point the Remote Control unit at the MemoCam and enter the Disarm Code using the four digit buttons. To define a Disarm Code, refer to the *MemoCam Software Manual*.
2. Press the *Disarm* button. The MemoCam unit beeps three times and the Arm Mode (right) LED turns off to inform you that the unit is disarmed.

You have a few seconds to enter the room before the MemoCam detector records an image in the system. Refer to the *MemoCam Software Manual* for information on how to define the Entry Delay.

## Recording a Snapshot

You can use the remote control to record a snapshot at any given moment.

◆ **To record a snapshot using the remote control unit:**

1. Make sure that the MemoCam is in disarm mode, and the Memory Card is inserted.
2. Point the Remote Control unit at the MemoCam and press the Rec button. The Memory Card Status (left) LED blinks green informing you that an image is being recorded.

The Snapshot function should also be used to check the MemoCam after initial installation.



*In MemoCam Plus and DVR, all connected cameras record snapshots according to the configuration programmed with the software.*

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## Controlling the Video Output

This function is available in all MemoCam Plus and MemoCam DVR models. It is available only when the unit is in Disarm mode.

The Video Output function can be used for fine adjustment of the MemoCam unit's position while in disarm mode, and for live video monitoring.

Use the numbered buttons on the remote control unit to select which camera's image is displayed on the video monitor as follows:

- ❑ Button 1 – Displays the image from Camera 1.
- ❑ Button 2 – Displays the image from Camera 2.
- ❑ Button 3 – Displays the image from Camera 3.
- ❑ Button 4 – Cycles the image between all selected cameras.

Refer to the *MemoCam Software Manual* for details.



# Configuring the MemoCam<sup>®</sup>

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The MemoCam has default configuration settings that allow for immediate use upon initial installation.

You can also customize the MemoCam configuration using the Memory Card and MemoCam software provided with your MemoCam Unit.

## Using the Memory Card

- ◆ **To use the Memory Card to configure your MemoCam, you will need:**

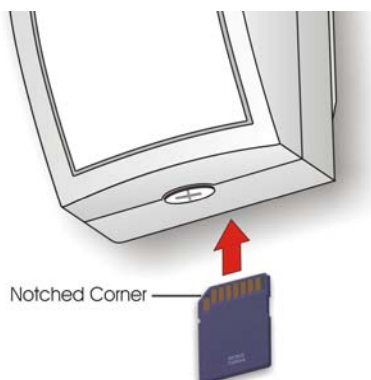
- ❑ A PC, with the MemoCam software installed.
- ❑ An off-the-shelf Memory Card reader.

## Formatting the Memory Card

Before you can use the Memory Card to configure your MemoCam unit, you must format the card.

- ◆ **To format the card:**

1. Ensure that the MemoCam unit is powered.
2. If the protective cover is covering the Memory Card slot, remove the protective cover from the Memory Card slot.
3. Insert the Memory Card into the card slot on the bottom of the MemoCam unit, so that the notched corner is on the top left, as shown in Figure 32. Lock the card securely into the slot.



**Figure 32. Inserting the Memory Card**

4. Wait until the Memory Card Status (left) LED turns off.
5. Gently push the Memory Card further into the card slot and release your finger. The card is unlocked from the slot and removable.



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*The MemoCam must be in disarm mode before you remove the Memory Card. Refer to **Disarming the MemoCam®** on page 43.*

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## Changing the Configuration Settings on the Memory Card

### ◆ To configure the MemoCam unit:

1. Connect your Memory Card reader to the USB port of your PC.
2. Insert the Memory Card into the card reader.
3. Use the MemoCam software to set the configuration parameters on the Memory Card. Refer to the *MemoCam Software Manual* for information about how to use the software.



## Updating the Configuration of the MemoCam<sup>®</sup> Unit

When you have changed the configuration settings on the Memory Card using the MemoCam software, you update the configuration of the MemoCam unit by inserting the Memory Card into the card slot on the bottom of the MemoCam unit, as shown in Figure 32. Lock the card securely into the slot. If the configuration on the card is different from the previous configuration of the MemoCam unit, the unit beeps. The configuration is automatically updated.

For detailed configuration information, refer to the *MemoCam Software Manual*.



*The MemoCam unit has an internal clock. To configure the date and time, refer to the MemoCam Software Manual.*

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# Testing the Installation

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## Testing System Functionality

- ◆ **To check that MemoCam was installed successfully and is operational:**
  1. Make sure the Memory Card is inserted in the MemoCam unit (refer to Figure 32 on page 48).
  2. Disarm the MemoCam (refer to *Disarming the MemoCam®* on page 43).
  3. Point the remote control unit at the MemoCam unit and press Rec. The Memory Card Status (left) LED blinks green.
  4. Remove the Memory Card from the MemoCam by gently pushing the Memory Card further into the card slot and releasing your finger.
  5. Insert the Memory Card into the Memory Card reader attached to your computer or Pocket PC.
  6. View the images using the MemoCam software. Refer to the *MemoCam Software Manual* for information about using the software.

## Troubleshooting

Use the following table to troubleshoot your MemoCam. Should you require further assistance or support in using your MemoCam, contact your local dealer.

Problem	Symptom	Solution
Unit does not work.	Impossible to operate unit, left LED does not glow, and PIR LED does not blink.	Check power supply and power cable.
The MemoCam unit does not record even though a Memory Card is inserted in the unit.	Left red LED remains illuminated when the Memory Card is inserted into the unit. The unit does not recognize the Memory Card.	<ol style="list-style-type: none"><li>1. Remove the Memory Card from the MemoCam unit.</li><li>2. Ensure the Memory Card is not Read Only</li><li>3. Re-power the MemoCam unit.</li><li>4. Insert the card back into the MemoCam unit. After a few seconds, the left red LED should go off.</li><li>5. Arm the unit and make sure the left LED flashes green when new images are recorded on the Memory Card.</li></ol>
Remote control does not work.	Unit does not arm and other remote control functions do not work. No beeping.	<p>Check remote control batteries.</p> <p>Make sure the Memory card is in the MemoCam unit.</p>
Cannot arm unit using remote control.		<p>Unit may already be armed. Try to disarm the unit first.</p> <p>Make sure the Memory card is in the MemoCam unit.</p>

Problem	Symptom	Solution
` Cannot disarm unit using remote control.		<p>Unit may already be disarmed, or you may not be disarming the unit properly. Enter the disarm code and then click the disarm button. Check that the code is correct.</p> <p>When an input is configured for arm/disarm control and is in the armed state, you cannot disarm the unit using the remote control.</p>
Cannot record an image using the remote control unit.		<p>Ensure that the unit is disarmed. You cannot use snapshot recording when system is armed.</p> <p>When an input is configured for arm/disarm control and is in the armed state, you cannot disarm the unit using the remote control.</p>
MemoCam application does not correctly read the Memory Card.	You receive error messages.	<p>Check that the Memory Card is inserted correctly into reader.</p> <p>Try restarting the MemoCam application.</p>
MemoCam application does not start correctly.		Check that you installed the application as described in the manual. If not, reinstall the application.
You receive error messages while working with MemoCam application.		Restart the application.
Reader is not installed as additional drive.	You see the Memory Card as A: or B: drive. MemoCam Application works in demo mode.	<p>Edit the memocam.ini file to force the reader drive as follows:</p> <p>[Source] MMC-Source=a:\</p>

<b>Problem</b>	<b>Symptom</b>	<b>Solution</b>
Image is black	The Memory Card player displays a black picture.	<p>Check the video cable connecting the unit to the camera.</p> <p>Check that the camera is powered and the lens is unobstructed.</p>

# Technical Specifications

Following are the specifications for the various MemoCam systems.

## MemoCam®

<b>Camera Type</b>	B&W, CCIR or EIA 0.1 Lux 4.3 mm lens
<b>Video Format</b>	B&W CCIR or EIA
<b>Video Input</b>	Internal camera
<b>Video Output</b>	Composite video 1 Vpp
<b>Video Resolution</b>	320 x 240 (CIF)
<b>Recording Quality</b>	4 levels
<b>Video Compression</b>	JPEG
<b>Recording Rate</b>	From 3 images/sec to 1 image/5 min
<b>Image Size</b>	From 5K to 20K byte
<b>Storage Type</b>	Removable Memory Card sizes: 16, 32, 64, and 128 MB
<b>Recording Modes</b>	Fixed – Records events until the memory card is full Cyclic – Records events continuously overwriting old data when the memory card is full
<b>Start Recording Modes</b>	External alarm Video Motion and/or PIR Detection Snapshot button using the IR remote control
<b>Pre-Alarm Recording</b>	Yes
<b>Image Protection (Integrity)</b>	Each image is differentially signed and can be authenticated
<b>Titles</b>	Time/Date/Unit-Name

<b>Scheduler</b>	Daily & Weekly
<b>Alarm/Arm/Disarm Input</b>	1 input
<b>Alarm Output</b>	N/C 28Vdc 0.1A protected with a 20 Ohm resister
<b>Programmable Output</b>	N/O 28Vdc 0.1A protected with a 20 Ohm resister
<b>IR Remote Control</b>	Used for: <input type="checkbox"/> Arming and disarming the unit <input type="checkbox"/> Emergencies as a panic button
<b>Security</b>	Password protected
<b>Internal PIR</b>	Dual element, hard spherical lens. Angle 90°
<b>Power Source</b>	12 VDC 250mA
<b>Power Consumption</b>	<3.0W
<b>Recovery</b>	Automatic recovery after source power failure
<b>Audio Indicator</b>	Buzzer
<b>Operation Status LED's</b>	Two status color LEDs and one power ON LED indicators
<b>Software Upgradeable</b>	Yes
<b>Dimensions (WxDxH)</b>	67 x 60 x 135 mm
<b>Weight</b>	250 grams
<b>Operating Temperature</b>	0° to 50°C



## MemoCam® Plus

<b>Camera Type</b>	B&W pinhole lens 0.1 Lux 4.3 mm lens
<b>Video Format</b>	B&W CCIR or EIA
<b>Video Inputs</b>	1 internal camera + 2 external video signals
<b>Video Output</b>	Composite video 1 Vpp
<b>Video Resolution</b>	320 x 240 (CIF)
<b>Recording Quality</b>	4 levels
<b>Video Compression</b>	JPEG
<b>Recording Rate</b>	From 3 images/sec to 1 image/5 min
<b>Image Size</b>	From 5K to 20K byte
<b>Storage Type</b>	Removable Memory Card sizes: 16, 32, 64, and 128 MB
<b>Recording Modes</b>	Fixed – Records events until the memory card is full
	Cyclic – Records events continuously overwriting old data when the memory card is full
<b>Start Recording Modes</b>	External alarm
	Video Motion and/or PIR Detection
	Snapshot button using the IR remote control
<b>Pre-Alarm Recording</b>	Yes
<b>Image Protection (Integrity)</b>	Each image is differentially signed and can be authenticated
<b>Titles</b>	Time/Date/Unit-Name
<b>Scheduler</b>	Daily & Weekly
<b>Alarm /Arm/Disarm Input</b>	3 inputs
<b>Alarm Output</b>	N/C 28Vdc 0.1A protected with a 20 Ohm resistor
<b>Programmable Output</b>	N/O 28Vdc 0.1A protected with a 20 Ohm resistor

<b>IR Remote Control</b>	Used for: <input type="checkbox"/> Arming and disarming the unit <input type="checkbox"/> Emergencies as a panic button
<b>Security</b>	Password protected
<b>Internal PIR</b>	Dual element, hard spherical lens. Angle 90°
<b>Power Source</b>	12 VDC 250mA
<b>Power Consumption</b>	<3.0W
<b>Recovery</b>	Automatic recovery after source power failure
<b>Audio Indicator</b>	Buzzer
<b>Operation Status LED's</b>	Two status color LEDs and one power ON LED indicators
<b>Software Upgradeable</b>	Yes
<b>Dimensions (WxDxH)</b>	67 x 60 x 135 mm
<b>Weight</b>	250 grams
<b>Operating Temperature</b>	0° to 50°C

## MemoCam® DVR

<b>Video Format</b>	B&W CCIR or EIA
<b>Video Inputs</b>	3 channels composite – 1Vpp CCIR or EIA
<b>Video Output</b>	1 channel CCIR or EIA
<b>Video Resolution</b>	320 x 240 (CIF)
<b>Recording Quality</b>	4 levels
<b>Video Compression</b>	JPEG
<b>Recording Rate</b>	From 3 images/sec to 1 image/5 min
<b>Image Size</b>	From 5 K to 20K byte
<b>Storage Type</b>	Removable Memory Card sizes: 16, 32, 64, and 128 MB
<b>Recording Modes</b>	Fixed – Records events until the memory card is full
	Cyclic – Records events continuously overwriting old data when the memory card is full
<b>Start Recording Modes</b>	External alarm
	Video Motion and/or PIR Detection
	Snapshot button using the IR remote control
<b>Pre-Alarm Recording</b>	Yes
<b>Image Protection (Integrity)</b>	Each image is differentially signed and can be authenticated
<b>Titles</b>	Time/Date/Unit-Name
<b>Scheduler</b>	Daily & Weekly
<b>Alarm/Arm/Disarm Input</b>	3 inputs
<b>Alarm Output</b>	N/O 28Vdc 0.1A protected with a 20 Ohm resister
<b>IR Remote Control</b>	Used for:
	<input type="checkbox"/> Arming and disarming the unit <input type="checkbox"/> Emergencies as a panic button
<b>Security</b>	Password protected
<b>Power Source</b>	5-20VDC (nominal 12 VDC) 150mA @ 12VDC

<b>Power Consumption</b>	< 2.0W
<b>Recovery</b>	Automatic recovery after source power failure
<b>Audio Indicator</b>	Buzzer
<b>Operation Status LED's</b>	Two status color LEDs and one power ON LED indicators
<b>Software Upgradeable</b>	Yes
<b>Dimensions (WxDxH)</b>	135 x 67 x 56 mm
<b>Weight</b>	250 grams
<b>Operating Temperature</b>	0° to 50°C

## MemoCam® M-C56

Model	M-C56/C	M-C56/B
Camera Type	Color pinhole lens 0.5 Lux 4.3mm lens	B/W pinhole lens 0.1 Lux 4.3mm lens or 0.003 Lux 4.3mm lens (optional)
Video Format	NTSC/EIA and PAL/CCIR	
Video Input	Internal camera	
Video Output	Composite video 1 Vpp	
Video Resolution	640 x 480 (VGA) or 640 x (240 x 2) 320 x 240 (CIF)	
Recording Quality	8 levels	
Video Compression	JPEG	
Recording Rate	From 10 images/sec to 1 image/5 min	
Image Size	From 10K to 150K byte	
Storage Type	Removable Memory Card sizes: 64, 128, 256, 512, and 1024 MB	
Recording Modes	Fixed – Records events until the memory card is full  Cyclic – Records events continuously overwriting old data when the memory card is full	
Start Recording Modes	External alarm  Video Motion and/or PIR Detection  Panic button using the IR remote control	
Pre-Alarm Recording	Yes	
Image Protection (Integrity)	Each image is differentially signed and can be authenticated	
Titles	Time/Date/Unit-Name	
Scheduler	Daily & Weekly	
Alarm/Arm/Disarm Input	3 inputs	
Alarm Output	N/C 28Vdc 0.1A protected with a 20 Ohm resistor	

<b>Programmable Output</b>	N/O 28Vdc 0.1A protected with a 20 Ohm resistor	
<b>IR Remote Control</b>	Used for: <input type="checkbox"/> Arming and disarming the unit <input type="checkbox"/> Emergencies as a panic button	
<b>Security</b>	Password protected	
<b>Internal PIR</b>	Dual element, hard spherical lens. Angle 90°	
<b>Power Source</b>	12 VDC 280mA	12VDC 260mA
<b>Power Consumption</b>	< 3.4W	< 3.1W
<b>Recovery</b>	Automatic recovery after source power failure	
<b>Audio Indicator</b>	Buzzer	
<b>Operation Status LED's</b>	Two status color LEDs and one power ON LED indicators	
<b>RS-485 Port</b>	Yes	
<b>Software Upgradeable</b>	Yes	
<b>Dimensions (WxDxH)</b>	67 x 60 x 135 (mm)	
<b>Weight</b>	250 grams	
<b>Operating Temperature</b>	0° to 50°C	

## MemoCam® M-C720

<b>Camera Type</b>	Color pinhole lens 4.3mm lens
<b>Video Format</b>	Digital 10 bits
<b>Video Input</b>	Internal digital CMOS camera
<b>Video Output</b>	NTSC/PAL
<b>Video Resolution</b>	1280 x 960 or 640 x 480 (VGA) 320 x 240 (CIF)
<b>Recording Quality</b>	8 levels
<b>Video Compression</b>	JPEG
<b>Recording Rate</b>	From 10 images/sec to 1 image/5 min
<b>Image Size</b>	From 10K to 500K byte
<b>Storage Type</b>	Removable Memory Card sizes: 64, 128, 256, 512, and 1024 MB
<b>Recording Modes</b>	Fixed – Records events until the memory card is full  Cyclic – Records events continuously overwriting old data when the memory card is full
<b>Start Recording Modes</b>	External alarm Video Motion and/or PIR Detection Panic button using the IR remote control
<b>Pre-Alarm Recording</b>	Yes
<b>Image Protection (Integrity)</b>	Each image is differentially signed and can be authenticated
<b>Titles</b>	Time/Date/Unit-Name
<b>Scheduler</b>	Daily & Weekly
<b>Alarm/Arm/Disarm Input</b>	3 inputs
<b>Alarm Output</b>	N/C 28Vdc 0.1A protected with a 20 Ohm resister
<b>Programmable Output</b>	N/O 28Vdc 0.1A protected with a 20 Ohm resister

<b>IR Remote Control</b>	Used for: <input type="checkbox"/> Arming and disarming the unit <input type="checkbox"/> Emergencies as a panic button
<b>Security</b>	Password protected
<b>Internal PIR</b>	Dual element, hard spherical lens. Angle 90°
<b>Power Source</b>	12VDC 250mA
<b>Power Consumption</b>	<3W
<b>Recovery</b>	Automatic recovery after source power failure
<b>Audio Indicator</b>	Buzzer
<b>Operation Status LED's</b>	Two status color LEDs and one power ON LED indicators
<b>RS-485 Port</b>	Yes
<b>Software Upgradeable</b>	Yes
<b>Dimensions (WxDxH)</b>	67 x 60 x 135 (mm)
<b>Weight</b>	250 grams
<b>Operating Temperature</b>	0° to 50°C



# Glossary

<b>Arm</b>	Enables automatic detection and recording function.
<b>Cyclic Recording</b>	Continuous recording. The MemoCam records over older images from start of the cycle when Memory Card is full.
<b>Disarm</b>	Disables the automatic detection and recording function.
<b>Entry Delay</b>	Time between first trigger and actual recording (unit is armed).  Entry delay can be used when entering a room to avoid event recording until the unit is disarmed.
<b>Event</b>	The recording of one or more images as a result of a trigger.
<b>Exit Delay</b>	Once the operator arms the unit, a delay can be used to avoid event recording when exiting the room.
<b>LED</b>	Light Emitting Diode. An electric component that lights up.
<b>Memory Card</b>	A stamp-sized plastic card containing read/write non-volatile memory. Can be an MMC (Multimedia Card) or SD (Secure Digital).
<b>PIR</b>	Passive Infrared motion detector.
<b>Snapshot</b>	Recording of a single picture.
<b>Trigger</b>	A signal that activates the recording process. Usually generated by an alarm contact.
<b>VMD</b>	Video Motion Detection. A feature that detects changes in video frames.