# User's Guide

## MEMOCAM® D-V56

PN: V7138566

## Disclaimer

The information in this manual was accurate and reliable at the time of its release. However, Video Domain Technologies Ltd. reserves the right to change the specifications of the product described in this manual without notice at any time. As such, the descriptions and data included in this document may not be current. Video Domain Technologies Ltd. assumes no responsibility for any inconsistencies between the actual product and this manual's description of it. Any party electing to use this manual does so with the full knowledge of the possibility of such inconsistencies and takes full responsibility for any consequences that may arise while installing and/or using this product.

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### Video Domain Technologies Ltd.

Manufacturer: Video Domain Technologies Ltd.
Model: MemoCam D-V56
Rated voltage: 5-35VDV (nominal 12VDC)
Power Consumption: 180mA @ 12VDC <2.3W

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

CE 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.

# Contents

# 1 Introduction

Congratulations on choosing the MemoCam D-V56 standalone palm-sized DVR

Your new D-V56 from Video Domain technologies is a single channel, miniature solid state DVR that does not have any moving parts. This means there is no more day-to-day interventions or any need for maintenance.

The D-V56 uses Video Motion Detection (VMD) technology enabling you to define specific areas of interest within the picture frame.

Removable memory cards are used to store the images and the unit configuration.
You are able to choose between multiple levels of video quality and compression.

It is possible to analyze images taken before and after the event and stored on the Memory card.

To analyze the recorded events from the D-V56 on a PC, first remove the Memory card from the unit. The images can then be viewed from the Memory card or downloaded onto a PC, using a Memory card reader together with the MemoCam software application.

A Remote Control unit enables you to Arm and Disarm the event recording process or to record snapshots manually.

Installation is simple with step-by-step explanations.

Each unit leaves the factory with a default pre-configured memory card already installed.

When the units are powered on the unit configuration is read automatically from the Memory card. You are now able to activate the D-V56 using the remote control unit.

The Memory card LED indicates whether there are any new images recorded on the card since it was last inserted into the unit. Removing and re-inserting the Memory card resets the LED.

The MemoCam D-V56 is specially designed to integrate seamlessly with existing CCTV systems.

The recorded events can be viewed on a PC running Windows 98 SE, 2000 or XP using Internet Explorer™ 5.0 (or higher). You can also use a Pocket PC.

## 1.1 D-V56 Features

- ❑ Simple installation
- ❑ Solid-state device needing no intervention
- ❑ No moving parts therefore no maintenance
- ❑ Eight selectable levels of video quality
- ❑ Smart alarm activation
- ❑ Integrated new advanced Video Motion Detection (VMD) Technology
- ❑ Data storage uses MMC/SD removable Memory cards
- ❑ Communication ports
- ❑ Remote control for easy operation
- ❑ External Arm/Disarm
- ❑ Entry/Exit Delay
- ❑ Programmable relay
- ❑ Pre-event image recording
- ❑ View images as thumbnails or in a detailed list view, frame by frame or as a slide show
- ❑ Image integrity protection
- ❑ User defined image quality, frame rate, and recording time per trigger, delay between events, and more
- ❑ Built-in Scheduler
- ❑ Video out (monitor)
- ❑ IR Remote control
- ❑ Export to avi
- ❑ Fixed or cyclic recording modes
- ❑ Memory card new image indication

## 1.2 Referenced Documents

***MemoCam Software Manual***
This manual explains how to configure the D-V56 and use the software functions.

***MemoCam Pocket PC Manual***
When using a Pocket PC please refer to this manual.

## 1.3 Scope of this Guide

This guide describes how to install and use the MemoCam D-V56.

# 2 Installing the D-V56 Hardware

This section describes how to install the MemoCam D-V56 hardware unit.

## 2.1 Unpacking the Unit

### Shipping List

The MemoCam Kit includes the following items:

- ❑ MemoCam D-V56 unit
- ❑ Memory card (MMC/SD 64MB or more) already installed in the unit
- ❑ Power adapter
- ❑ IR remote control and 2 AAA batteries
- ❑ MemoCam D-V56 User's Guide (this document)
- ❑ CD containing the MemoCam Software

If any items are missing, please contact your local dealer.

## 2.2 Basic Unit Setup

These simple steps will have the unit up and running.

### Placing the Unit

It is recommended to install the D-V56 in an indoor, dry, cool location.

### STEP 1 - Connect the Power Cable

♦ **To connect the power cable:**

1. At the rear of the unit, connect the factory supplied power adaptor to the Power connector. See Figure 2 on page 8.

*Only use the MemoCam supplied power adaptor for the D-V56.*

2. Plug the power adaptor into a working wall socket. As soon as power is applied the three LEDs turn **ON** together accompanied by a long beep. After a short time the two right-hand LEDs turn **OFF** with the left-hand green Power LED remaining **ON**.

## STEP 2 - Accessing the Memory Card

The D-V56 stores all the recorded images on a removable Memory card. To view the images stored on the card and analyze the recorded events on a PC, the Memory card is first removed from the unit. The images can then be viewed from the Memory card on a PC, using a Memory card reader together with the MemoCam software application.

*The unit leaves the factory with the Memory card already installed.*

### *If a Memory Card is Not Installed*

*When the Memory card is not installed or not recognized the Status LED is RED*

1. The D-V56 has a Sliding Door Cover over the Memory Card. Slide it left.

   *If the cover is locked, loosen the cover locking screw on the base of the unit, shown in Figure 1 below.*

2. Insert the Memory card into the slot with the cut corner on the right-hand side, as shown in Figure 1.
3. Push in the card gently until you hear a click. Then, slowly release your finger from the card.
   When a virgin card is inserted into the unit the Memory card LED turns **OFF**.
   If the unit cannot recognize the card the LED turns **RED**.

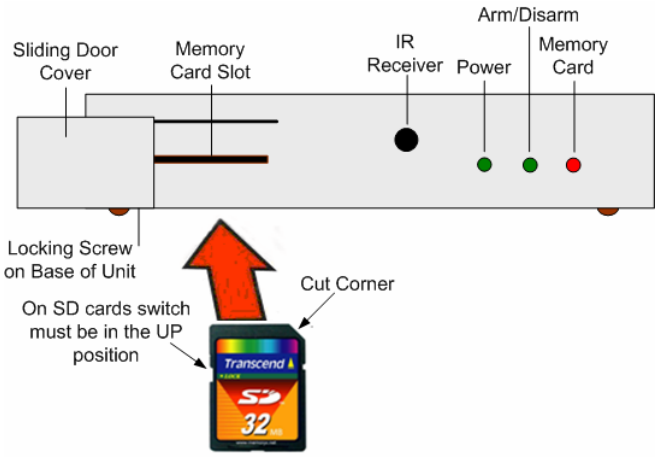



**Figure 1 Inserting the Memory card - Front View**

## Step 3 - Connecting the Cables

### *Connecting the Video Cables*

The D-V56 automatically recognizes the following types of camera: CCIR/EIA and PAL/NTSC. The Video connectors (RCA) are located on the rear of the unit as shown in Figure 2 below.

- **To connect the Video IN cable:**
  - ❑ Connect the camera cable to the **Video IN** plug (RCA).
- **To connect the Video OUT cable (optional):**
  - ❑ Connect the Monitor cable to the **Video OUT** plug (RCA).

### *Connecting the Terminal Block Cables (Optional)*

Connect the remaining external cables to the 12-Position terminal block.
See Figure 2 below.

### *Alternative Power Connection*

At the rear of the unit there is an alternative power input connection. It is located next to the power adaptor socket and marked + and -.

### *RS-232 Interface*

For factory use only.

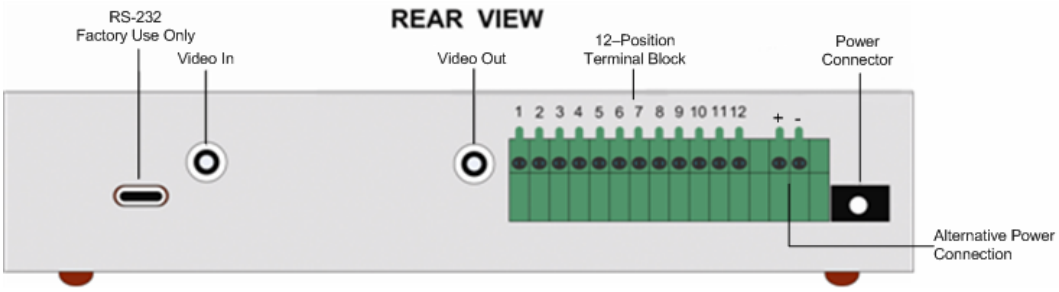



**Figure 2 MemoCam D-V56 Unit - Rear View**

**Table 1 12-Position Terminal Block**

| Conn. | Description | Logic Level | Conn. | Description | Logic Level |
|---|---|---|---|---|---|
| **1** | **INPUT I** (IN 1) | TTL input High 3-15V | **7** | Illuminator Output | 12VDC 700mA max |
| **2** | | Low GND | **8** | | GND |
| **3** | **INPUT II** (IN 2) | TTL input High 3-15V | **9** | T+ | RS-485 communications port connections |
| **4** | | Low GND | **10** | T - | |
| **5** | **Relay Out (N/O or N/C)** | 28VDC 0.1A protected with a 20 Ohm resistor | **11** | R+ | |
| **6** | | | **12** | R - | |

# 3 MemoCam Software Installation

Before beginning this MemoCam software installation, it is recommended you close all Windows programs you have running on your computer.

♦ **To install MemoCam software:**

1. Insert the MemoCam Software CD into the CD-ROM drive.

   The *CD Browser* screen is displayed automatically. If the *CD Browser* screen does not display automatically, open Windows Explorer, browse to the CD-ROM drive, and double-click the setup file icon  .

2. Continue with the installation by simply following the on-screen prompts.

*To read and write Memory cards you require a Memory card reader installed on your computer.*

# 4 Quick Start

This section describes how to capture and view snapshots.

## 4.1 Taking Snapshots

Using the Remote Control:

1. Ensure that the unit is powered ON and there is a Memory card inserted in the unit.
2. Point the remote control unit at the front of the D-V56 and disarm the unit. For help in disarming the unit, see *Disarming the D-V56* on page 16.

   When the unit disarms, it makes two short and one long beep and the Middle (Arm/Disarm) LED turns **OFF**.
3. Press the Snapshot key three or more times to record a series of snapshots.

   The Memory card LED should blink **GREEN** while recording the images.

## 4.2 Viewing the Snapshots

♦ **To view the recorded snapshots:**

1. Ensure the MemoCam is disarmed.
2. Remove the Memory card from the unit
3. Ensure you have a card reader installed on your PC.
4. Insert the Memory card into the card reader attached to your PC.
5. Click the  icon on your desktop to open the MemoCam software. The MemoCam window opens, displaying list of the images stored on the Memory card.

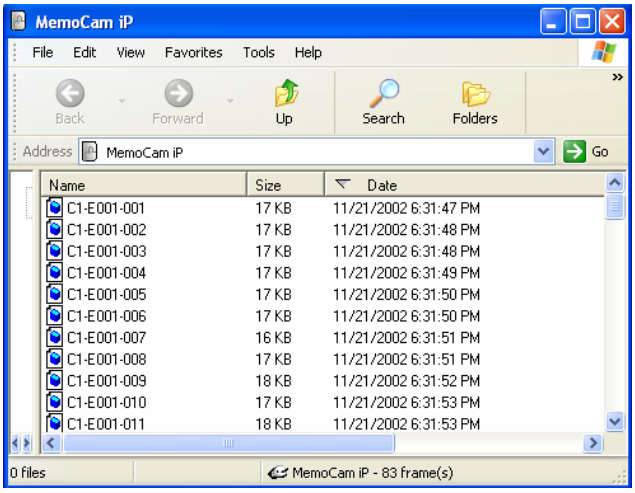



**Figure 3 Detailed List View**

6. Double-click an image in the list.

   The viewer displays the images in sequence starting from the selected image.

*If the computer cannot find the Memory card, or a Memory card reader is not installed, sample images are displayed.*


**Figure 4 Example of a Viewed Image**

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

The MemoCam D-V56 is controlled by the remote control.

## 5.1 IR Remote Control

The remote control can be used to arm (activate) and disarm (deactivate) the D-V56 unit and manually record image snapshots. In an emergency it can also be used as a panic button.

*Before using the remote control unit, ensure that new AAA batteries are installed.*

This section describes the function keys used when the D-V56 is not connected to the serial interface.
For a full description of all the possible key combinations, see section 6.5 on page 27.

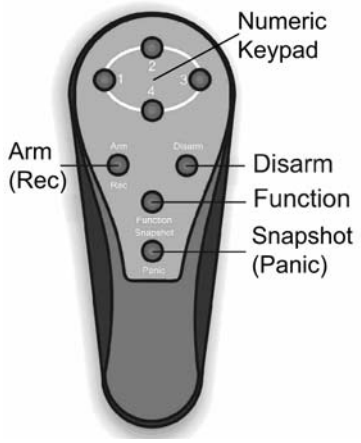



**Figure 5 IR Remote Control**

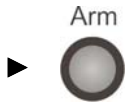
The remote control unit works best when pointed directly at the front of the D-V56 unit.

### Key Description

The Remote Control keys are shown in Figure 5.

**Numeric Keypad -** These four keys are used to enter the arm and disarm codes.

**Arm -** Press the **Arm** key.
The unit is armed (activated).




**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).


**Snapshot -** Press the **Snapshot** key.
A single image is recorded on the Memory card.


## 5.2 D-V56 LED Indicators

There are three LEDs on the front of the unit that show the unit status. They are: Power, Arm/Disarm and Memory Card status.

**Table 2 Front Panel LEDs**

| LED | Color | Description |
|---|---|---|
| Power (left LED) | **GREEN** | Power connected |
| | **OFF** | No input power connected to the unit. |
| Arm/Disarm (middle LED) | **ORANGE** | Armed |
| | OFF | Disarmed |
| Memory Card (right LED) | **RED** | NO card installed or card not recognized |
| | **OFF** | Card installed and recognized by the unit as operational |
| | **GREEN** | New images have been recorded on the Memory card since the card was last inserted into the unit. |
| | | **Blinks** - when recording images |
| | **ORANGE** | **W**hen "Stop on Full" mode is active and Memory card is FULL |

## 5.3 Audible Signals (Beeps)

The MemoCam D-V56 unit can be configured to emit audible signals (beep).
See the *MemoCam Software Manual.*

**Table 3 Audible Signals**

| Beep | Description |
|---|---|
| **Long** | The unit is armed |
| **Two short and one long** | The unit is disabled |
| **Short** | Remote Control key pressed |
| **Medium** | Firmware upgraded successfully |
| **Short Continuous beeps** | No Memory card installed or the unit is disarmed |
| **Three short beeps** | Configuration is returned to the backup configuration |

## 5.4 Arming and Disarming the D-V56

You can control the arming and disarming of the D-V56 using the:

- ❑ Remote control
- ❑ External trigger
- ❑ Scheduler

### Arming the D-V56

♦ **To Arm the D-V56 using the remote control:**

1. Ensure that the D-V56 unit is powered **ON** and a Memory card is inserted in the D-V56 unit.
2. Point the remote control at the front of the unit and press the *Arm* key.
3. Enter the arm code if one is required.

   The unit emits one long beep and the Arm/Disarm LED turns orange.

### Disarming the D-V56

♦ **To Disarm the D-V56 using the remote control:**

1. Ensure that the D-V56 unit is powered **ON**.
2. Point the remote control at the front of the D-V56 unit and enter the *Disarm* code using the keypad keys numbered 1 to 4.
3. Press the *Disarm* key.
   The unit emits two short and one long beep, and the Arm/Disarm LED turns **OFF**

*The default disarm code is 1234.*
*To change the disarm code refer to the MemoCam Software Manual.*

♦ **To Arm/Disarm the unit using the external control:**

❑ Connect a dry relay contact to one of the two trigger inputs (IN 1 or IN 2).

The external control arm/disarm function must be configured using the MemoCam software.

For detailed information please refer to the *MemoCam Software Manual*

♦ **To Arm/Disarm the unit using the scheduler:**

❑ The D-V56 has a built-in scheduler that is able to arm and disarm the unit using a schedule. When the scheduler is active the remote control unit is disabled. Refer to the *MemoCam Software Manual*

## 5.5 Recording Images

With a camera connected to the unit, images can be recorded in one of the following ways:

**1 - Using the remote control unit**

The remote control unit enables you take a single snapshot manually. This is explained in section 5.1 on page 13.

**2 - External contact**

You can connect an external contact, such as a magnetic door contact, a panic button, or an external PIR, as a trigger.

**3 - Internal VMD (Video Motion Detection)**

The detection of any moving object in the defined area of interest can be used as a trigger.

## 5.6 Operating the D-V56 in the Dark

If you configure the D-V56 to record video images in the dark you will need some form of illumination.

The D-V56 has a special output supplying +12VDC for connecting an infra-red LED Illumination Array (LED Flash). To save power, you can program the Illumination output to only turn on the LED illumination Array during the image grabbing time.

Before using the IR LED Illumination Array, you must ensure that the **IR Flash** check box is selected in the MemoCam D-V56 software application. Refer to the *MemoCam Software Manual*.

## 5.7 Image Integrity

Images can be digitally verified for integrity. This could ensure their admissibility in a court of law. This is explained in the *MemoCam Software Manual*.

## 5.8 Changing the D-V56 Config.

Each unit leaves the factory with a default pre-configured memory card already installed in the unit. To change the configuration you need to remove the Memory card from the unit (ensure that the unit is disarmed) and insert it into a card reader installed on a PC that is running the MemoCam software application. For an explanation on how to build a configuration on the Memory card please refer to the *MemoCam Software Manual*.

## 5.9 Changing the Unit Date/Time

Each unit leaves the factory with the unit clock set to GMT and the correct date. To change the unit date and time, please refer to the *MemoCam Software Manual*.

# 6 Serial Communications, Internal Switches and Jumpers

## 6.1 Opening the D-V56 covers

You need to open the D-V56 cover in order to change the DIP switches or the HighZ jumper settings.

- **To open the D-V56 cover:**
  1. Unscrew the five screws on the underside of the unit.

     Four screws secure the unit cover and the fifth screw locks the Memory card cover.
  2. Slide the top cover and sides off the base of the unit.

*All the screws are the same type.*

- **To close the D-V56 cover:**
  1. Slide the top cover and sides onto the base of the unit.
  2. Replace the four corner screws on the underside of the unit.
  3. Replace the Memory card cover and replace the locking screw.

## 6.2 HighZ Jumper

When connecting more than one device to the video input, only the last device on the line must be terminated with the HighZ jumper. All other connected devices must be placed in HighZ mode (jumper removed). The location of the HighZ jumper is shown in Figure 8 on page 29 (jumper is installed as default).

## 6.3 Internal DIP Switches (1 and 2)

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

### Dip Switch 1

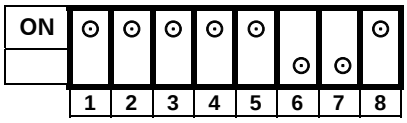
**Table 4 DIP SW 1**

| Switch No. | Description |
|---|---|
| 1 | **RS-485 DIP switch address settings**<br>You can connect up to 32 units (0 -31)<br>Factory default address is "00" (zero) switches 1 to 5 are in the **ON** position |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | Reserved |
| 7 | |
| 8 | **Power LED control**<br>**Switch ON** LED operates normally (default)<br>Refer to Table 2 on page 14<br>**Switch OFF** LED always **OFF** |

### *Factory Default DIP Switch 1 Settings*

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

DIP switch 1 is shipped with the following configuration:



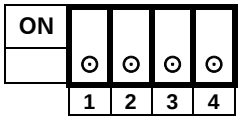
### DIP Switch 2

**Table 5 DIP SW 2**

| Switch No. | Description |
|---|---|
| 1 | Both **ON** RS-485 2 wire |
| 2 | Both **OFF** RS-485 4 wire (default) |
| 3 | **Switch ON** RS-485 receive line terminated with 120 Ohms<br>**Switch OFF** NO RS-485 termination |
| 4 | Reserved |

### *Factory Default DIP Switch 2 Settings*

DIP switch 2 is shipped with the following configuration:




### Setting the Termination DIP Switch

DIP SW 2 position 3 is used for termination. If more than one unit is installed on the interface, this switch must be **ON** in the last unit only. In all other units this switch must be **OFF**. When a single unit is installed on the interface this switch must be **ON**.

## 6.4 Connecting the RS-485

### RS-485 Network Settings

The MemoCam D-V56 software uses the following default serial interface settings:

**Baud rate:** 115200

**Parity:** NONE

**Stop bits:** 1

## Full Duplex Connection

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

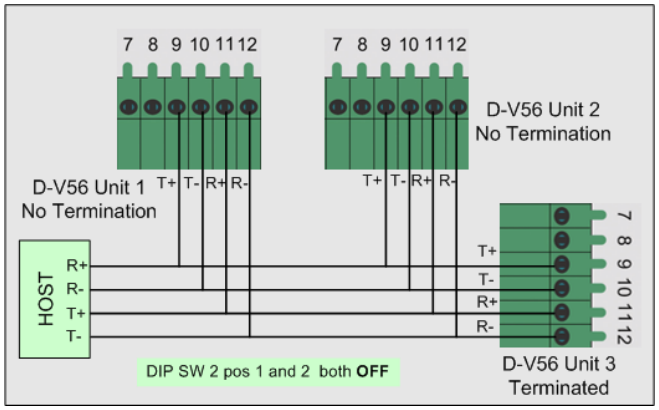



**Figure 6 Connecting the RS-485 as Full Duplex**

## Half Duplex Connection

- **To connect a Half Duplex RS-485 interface:**
  1. Using Figure 2 on page 8 and Figure 7 below as a guide, connect the RS-485 interfaces wires as shown between the units.

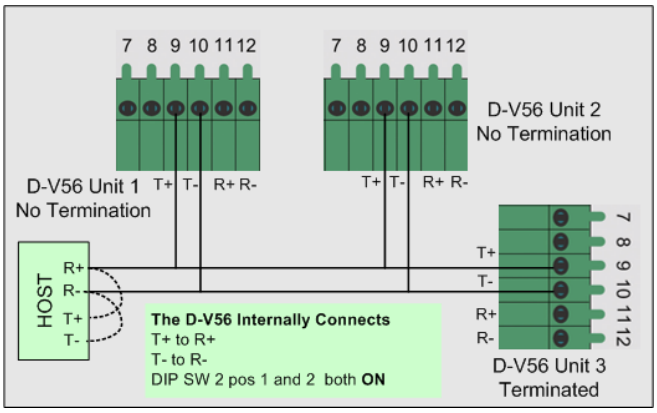



**Figure 7 Connecting the RS-485 as Half Duplex**

2. Ensure that the D-V56 DIP SW 2 positions 1 and 2 are set to **ON** (default **ON**).

   When these DIP switches are ON the interface lines are automatically connected as shown in Figure 7. This connects R - to T - and R + to T + enabling the interface to work in half-duplex mode.

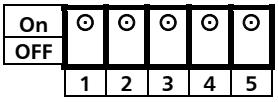
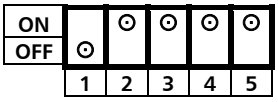
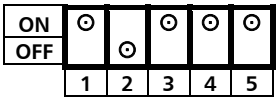
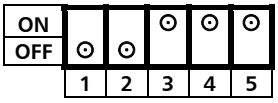
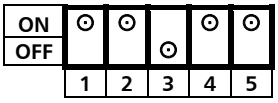
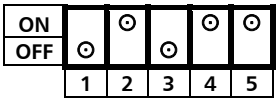
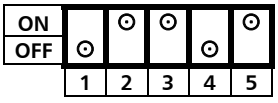
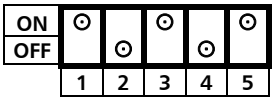
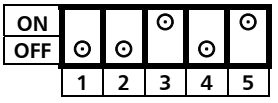
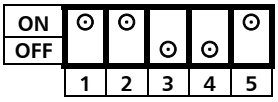
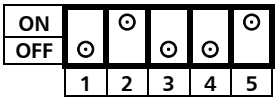
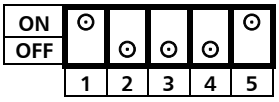
3. Jumper the RS-485 output terminals on the Host as shown in Figure 7 above if required.

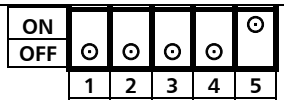
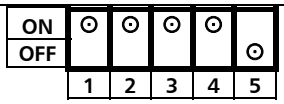
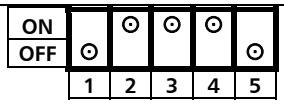
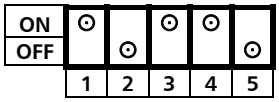
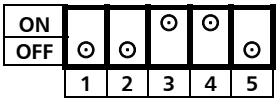
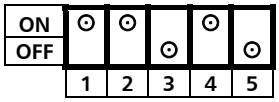
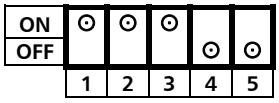
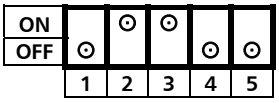
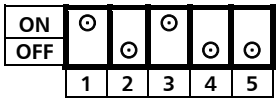
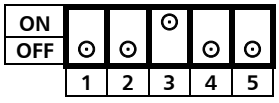
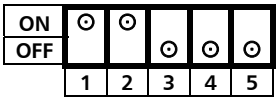
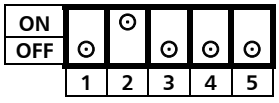
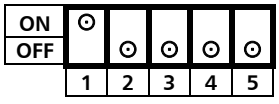
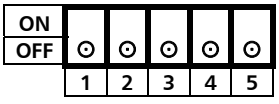
## Setting the RS-485 Address

It is possible to connect up to 32 (0-31) units on the RS-485 interface. Use Table 6 as a guide to give each unit a unique address.

It is important that the last unit be terminated. For line termination see the Setting the Termination DIP Switch on page 21.

**Table 6 RS-485 Address Table**

| Unit ID | DIP Switch Settings | Unit ID | DIP Switch Settings | Unit ID | DIP Switch Settings |
|---|---|---|---|---|---|
| 0 Factory Default |  | 1 |  | 2 |  |
| 3 |  | 4 |  | 5 |  |
| 9 |  | 10 |  | 11 |  |
| 12 |  | 13 |  | 14 |  |
| 15 | | 16 | | 17 | |

| Unit ID | DIP Switch Settings | Unit ID | DIP Switch Settings | Unit ID | DIP Switch Settings |
|---|---|---|---|---|---|
| |  | |  | |  |
| 18 |  | 19 |  | 20 |  |
| 24 |  | 25 |  | 26 |  |
| 27 |  | 28 |  | 29 |  |
| 30 |  | 31 |  | | |

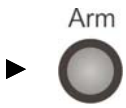
## 6.5 Using the Remote Control When Connected to the Interface

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**.

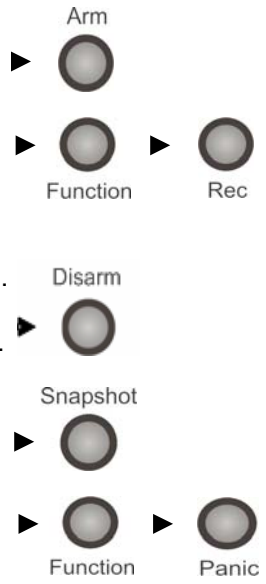
These function keys are usually only used when the RS-485 interface and NOA are enabled.

- **To use the upper and lower key functions:**

| Upper Key Function | Lower Key Function |
|---|---|
| Press the key once.<br>For example: | Press the **Function** key, release it, and then press the desired key.<br>For example: |




### *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 Notification On Alarm (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 Notification On Alarm (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.

## 6.6 Board Layout

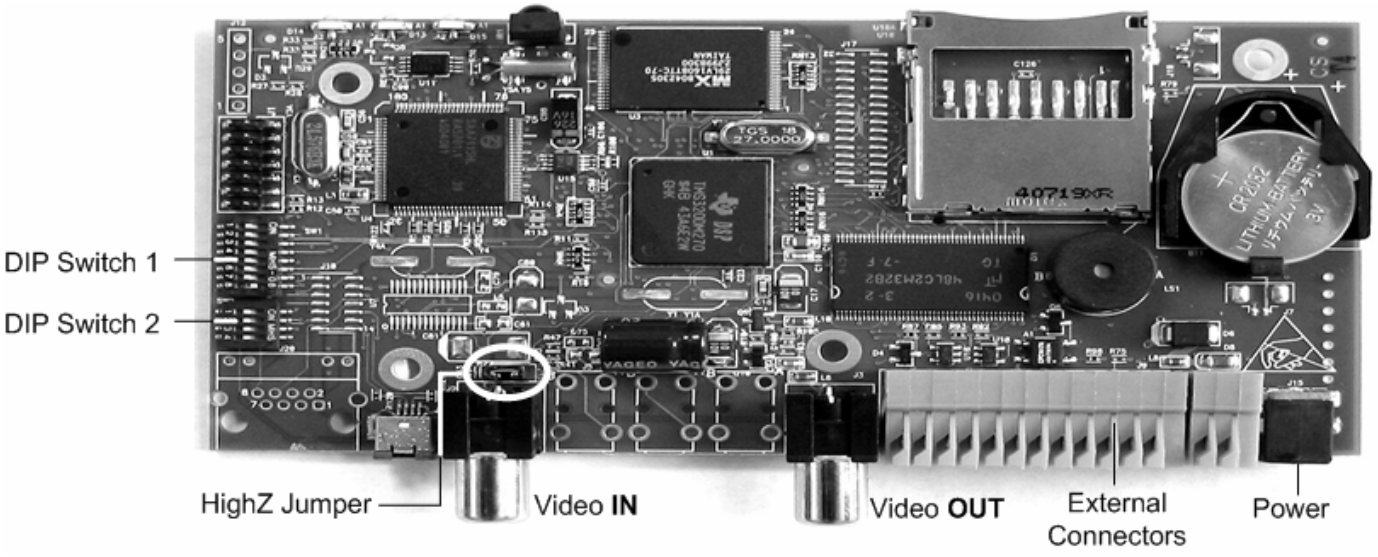



**Figure 8 D-V56 Board Layout**

# 7 Trouble Shooting

Use the table below to troubleshoot the D-V56. Should you require further assistance or support for the D-V56 please contact your local dealer.

| Problem | Symptom | Solution |
|---|---|---|
| Unit does not work. | Impossible to operate unit. The left Power LED is not lit. | 1. Check the power supply and power cable.<br>2. Check that DIP SW 1 position 8 is NOT OFF. This DIP switch disables the Power LED for security reasons. |

| Problem | Symptom | Solution |
|---|---|---|
| The MemoCam unit does not record even though a Memory card is inserted in the unit. | Red LED remains illuminated when Memory card is inserted into the unit. The unit does not recognize the Memory card **OR** The Memory card is an SD type and the side switch is **NOT** in the **UP** position (see Figure 1 on page 7). | 1. Remove the Memory card from the MemoCam unit.<br>2. Ensure the SD card is not Read-Only.<br>3. Re-power the MemoCam unit.<br>4. Insert the card back into the MemoCam unit. After a few seconds, the red LED should go OFF.<br>5. Arm the unit and make sure the right LED flashes green when new images are recorded on the Memory card. |
| | | OR<br>1. Remove the Memory card from the MemoCam unit.<br>2. Insert the card into the Memory card reader attached to your PC.<br>3. Open the MemoCam software.<br>4. Configure the Memory card.<br>5. Re-insert the Memory card in the D-V56. |
| Remote control does not work. | Unit does not arm and other remote control functions do not work. There is no beeping. | Check the remote control batteries. |
| Cannot arm unit using remote control. | | Unit may already be armed. Try to disarm the unit first. |

| Problem | Symptom | Solution |
|---|---|---|
| Cannot disarm unit using remote control. | | When an input is configured for arm/disarm control and is in the armed state it is not possible to disarm the unit using the remote control.<br><br>Unit may already be disarmed, or you may not be disarming the unit properly. Enter the disarm code and then press the disarm key. Ensure that the code is correct. |
| Cannot record an image using the remote control unit. | | When an input is configured for arm/disarm control and is in the armed state it is not possible to disarm the unit using the remote control.<br><br>Ensure that the unit is disarmed – You cannot use snapshot recording when the system is armed. |
| The MemoCam application does not correctly read the Memory card. | You receive error messages. | Check that the Memory card is inserted correctly in the reader.<br>Try restarting the MemoCam application or replace the card. |
| The MemoCam application does not start correctly. | | Check that you installed the application as described in the manual. If not, reinstall the application. |

| Problem | Symptom | Solution |
|---|---|---|
| You receive error messages while working with the MemoCam application. | | Restart the application. |
| Poor picture quality | Poor quality images recorded on the Memory card | If more than one camera is connected to Video In, remove the HighZ jumper on the D-V56 board. |
| | Poor quality images when using the RS-485 interface | Ensure the last unit is terminated. |
| Reader is not installed as an additional drive. | You see the Memory card as A: or B: drive. MemoCam Application is working in demo mode. | Edit the **memocam.ini** file to force the reader drive as follows: [Source] MMC-Source=a:\ |
| Image is black | The Memory card player displays a black picture. | Check the video cable connecting the unit to the camera. |
| | | Check that the camera is powered and the lens is unobstructed. |

# 8 Technical Specifications

| | |
|---|---|
| **Video Format** | NTSC/EIA and PAL/CCIE |
| **Video Input** | Single channel-composite 1 Vpp<br>High Z or 75 Ohm (RCA) |
| **Video Output** | Single channel-composite 1 Vpp (RCA) |
| **Video Resolution** | 640 x 480 (VGA), 640 x (240 x 2) or<br>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 bytes |
| **Storage Type** | Removable Memory cards:<br>64, 128, 256, 512 and 1024 MB |

| | |
|---|---|
| **Recording Modes** | **Fixed -** Records events until the memory card is full<br>**Cyclic -** Records events continuously overwriting old data |
| **Start Recording Modes** | External alarm |
| | Video Motion Detection |
| | Panic button using the IR Remote Control |
| **Pre-alarm Recording** | YES |
| **Image Protection** | Each image is digitally signed for integrity and can be authenticated |
| **Titles** | Time/Date/Unit Name |
| **Scheduler** | Daily and Weekly |
| **Alarm Input** | TTL input: High 3-15V Low GND |
| **Arm/Disarm Input** | TTL input: High 3-15V Low GND |

| | |
|---|---|
| **Alarm Output** | N/O or N/C relay contacts (28VDC @ 100mA) through a 20 Ohm resistor |
| **IR Illumination Output** | Triggers an IR LED Illumination Array (12VDC @ 700 mA max) |
| **IR Remote Control** | Used for arming and disarming the unit and in an emergency a panic button |
| **Security** | Password protected |
| **Power Source** | 5-35VDC (nom. 12VDC) @ 180mA |
| **Power Consumption** | <2.3W |
| **Recovery** | Automatically recovers after source power interruption |
| **Audio Indicator** | Buzzer |
| **Operation Status LEDs** | Two multiple color LEDs and a Power ON LED indicator |
| **RS-232 Port** | YES |
| **RS-485 Port** | YES |
| **Software Upgradeable** | YES |

## 8.1 Unit Physical Characteristics

| | |
|---|---|
| **External dimensions W x D x H** | 140 x 75 x 300 (mm) |
| **Weight** | 300 grams |
| **Operating Temperature** | 0° to 50° C |

## 8.2 Available Memory Card Capacity

The tables below show the maximum number of images/*recording times (Hours)* for each selected recording quality and installed memory size. **Assumed:** A recording rate of 1 fps, and with VMD active 20% of the recording time.

**Table 7 Recording Capacity for 320 x 240 Resolution**

| Recording Quality | Memory Card Size | | | | |
|---|---|---|---|---|---|
| | 64M | 128M | 256M | 512M | 1024 (1G) |
| Excellent 40K | 1600/*2H* | 3200/*4H* | 6400/*8H* | 12800/*16H* | 25600/*32H* |
| Very Good 22K | 2920/*4H* | 5840/*8H* | 11680/*16H* | 23360/*32H* | 46720/*64H* |
| Good 15K | 4000/*6H* | 8000/*12H* | 16000/*24H* | 32000/*48H* | 64000/*96H* |
| Standard 10K | 6400/*8H* | 12800/*16H* | 25600/*32H* | 51200/*64H* | 102400/*192H* |

**Table 8 Recording Capacity for 640 x 480 Resolution**

| Recording Quality | Memory Card Size | | | | |
|---|---|---|---|---|---|
| | 64M | 128M | 256M | 512M | 1024 (1G) |
| Excellent 40K | 400/*0.5H* | 800/*1H* | 1600/*2H* | 6200/*4H* | 12400/*8H* |
| Very Good 22K | 750/*1H* | 1500/*2H* | 3000/*4H* | 6000/*8H* | 12000/*16H* |
| Good 15K | 1000/*1.5H* | 2000/*3H* | 4000/*6H* | 8000/*12H* | 16000/*24H* |
| Standard 10K | 1600/*2H* | 3200/*4H* | 6400/*8H* | 12800/*16H* | 25600/*32H* |

# 9 Glossary

| | |
|---|---|
| **Arm** | Enables automatic detection and recording function. |
| **Cyclic Recording** | Continuous recording. The unit records over older images at the beginning of the recorded area when the Memory card is full. |
| **Disarm** | Disables the automatic detection and recording function. |
| **Event** | The recording of one or more images as a result of a trigger. |
| **IR Flash** | Infra-red LED Illumination Array |
| **LED** | Light Emitting Diode. An electric component that emits visible light. |
| **Memory card** | Also called MMC (Multi-media Card) and SD (Secure Digital) |
| **MMC (Memory card)** | Multi-Media Card. A stamp-sized plastic card containing read/write non-volatile memory. In this document it is described as the Memory card |
| **PIR** | Passive Infrared motion detector. |
| **Snapshot** | Recording of a single picture. |
| **Trigger** | A signal that activates the recording process. Usually generated by an alarm contact. |
| **VMD** | Video Motion Detection. A feature that detects changes in video frames. |

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The Product, including the media on which the Software is delivered, is warranted to be free of defects in material and workmanship and shall comply with VDT specifications, for a period of 12 months of normal use from the date of purchase ('the Warranty Period').

The Warranty is void if VDT's instructions of operation, checking and maintenance are ignored, if attempts to repair the Product have been done before the Product is returned to the place where you obtained it. Responsibility for normal wear and tear is excluded.

The Product is provided 'As Is' and without Warranty, by VDT and/or the distributor and/or the importer, if the importer is not a distributor (each hereinafter the '**Distributor**') of the Product, in the country where the product was purchased, or our suppliers, express or implied, including without limitation implied warranty of merchantability of fitness any particular purpose.

During the Warranty Period, VDT's and/or VDT's Distributor sole obligation, in tort, contract, or otherwise, shall be to repair or replace the defective Product, at VDT's option. The repair or replacement of the defective Product during the Warranty Period will not extend the Warranty Period. The Warranty does not cover failures resulting from improper operation, connection, or installation.

For your convenience, VDT's obligations in connection to Warranty claims, repairs service and instructions have been transferred to VDT's Distributor in your country. The Distributor is responsible for providing you with all necessary services (If you need the details of the Distributor in your country, please contact VDT).

However, if according to law, by law EC directive etc. prevailing in the country/state in which the product was purchased you are entitled a longer warranty period and/or to better minimum undertaking from VDT and/or from the distributor than

those granted to you herein, then this document is changed to reflect the said minimum/s.

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Except as otherwise restricted by law, this Agreement shall be governed only by, and interpreted, in accordance with the laws of the State of Israel and the exclusive jurisdiction shall be vested to the local courts of Tel Aviv.

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This Agreement sets forth the entire understanding and rights and duties between you and VDT. This Agreement may be amended only in writing signed by both parties. No person or entity is authorized to modify this Agreement or to make any warranty, representation or promise which is different than, or in addition to, the representation or promises of this agreement.

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No waiver of any right under this Agreement shall be effective unless in writing, signed by a duly authorized representative of the party to be bound. No waiver of any past or present right arising from any breach or failure to perform shall be deemed to be a waiver of any future right arising under this Agreement.

**Severability**

If any provision in this Agreement is invalid or unenforceable, that provision shall be construed, limited, modified or, if necessary, severed, to the extent necessary, to eliminate its invalidity or unenforceability, and the other provisions of this Agreement shall remain unaffected.

D-V56