

VMD-2008

Operation Manual

DIGI-SPEC®
CORPORATION

**Digi-Spec Corporation
16118 Runnymede Street
Van Nuys, CA 91406**



A new way of looking at things...

RAC011192

VMD-2008

Operation Manual

Digital Video Motion Detector

Version 1.08
VMD-2008

Digi-Spec Corporation

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*Digi-Spec Corporation
16118 Runnymede St.
Van Nuys, CA 91406*

*Inside U.S.A. (800) 222-9510
Outside U.S.A. (818) 989-9033
Fax (818) 989-5822*

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CONNECTING THE VIDEO:

TYPES OF CAMERAS:

PRECAUTIONS: The VMD-2000 Series functions best with high-quality video cameras. The cameras must be securely locked down so the picture is stable and jitter free. If the picture jitters at all or the VMD's character display jitters on the picture, the VMD may false trigger regardless of its settings. If the camera has any sync or phase adjustments, you might try adjusting these. To select the right camera for your application (ie. indoor, outdoor, low light, no light), you should know the advantages and disadvantages of each type of camera.

TUBE TYPE: The VMD-2000 Series operates well with all high quality tube type cameras. A tube type camera may be preferable in environments with a lot of fluorescent light. Tube type cameras should primarily be used in indoor applications.

CCD: As with tube type, all high quality CCD cameras will work with the DS-Series. The higher the resolution, the more precise the motion detection will be. CCD cameras work well in both indoor and outdoor applications. It is recommended that B&W CCD cameras be used in outdoor applications due to the increased resolution of the cameras. B&W low light level CCD cameras should be used in low light conditions. CCD cameras are sensitive to Infrared (IR) light and can be used in the dark for night vision with the aid of an Infrared Illuminator.

IR: Infrared cameras should be used for no light applications or very sensitive night vision applications. IR cameras are better equipped for night vision than CCD cameras.

VIDEO I/O

The video inputs and outputs for the VMD-2008 are located on the rear of the device. Their configuration can be seen in Figure 1. Up to eight cameras may be connected to the inputs of the VMD. The video inputs are found on the bottom row of BNC connectors. The video outputs may be found on the top row of BNC connectors. Each video output corresponds to the video input beneath it. The video outputs are passively looped through.

VMD-2008

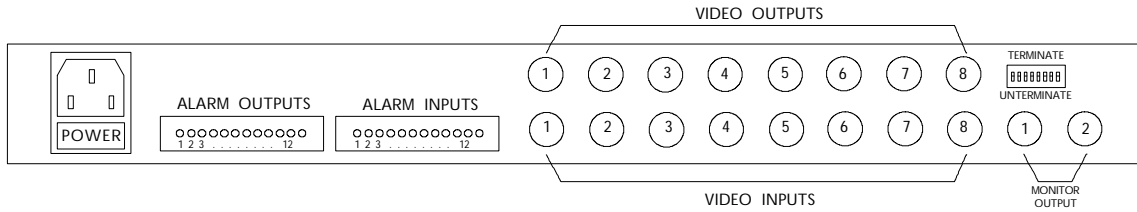


Figure 1

ALARMINPUTS

PIN #	ALARM#
1	ALARM 1
2	ALARM 2
3	ALARM 3
4	ALARM 4
5	GROUND
6	ALARM 5
7	ALARM 6
8	ALARM 7
9	ALARM 8
10	GROUND
11	DAY/NIGHT
12	NOT USED

Table 1

ALARMOUTPUTS

PIN #	ALARM#
1	ALARM 1
2	ALARM 2
3	ALARM 3
4	ALARM 4
5	COMMON
6	ALARM 5
7	ALARM 6
8	ALARM 7
9	ALARM 8
10	COMMON
11	UNIVERSAL
12	UNIVERSAL

Table 2

MONITOR OUTPUTS/SEQUENCING

The VMD is equipped with two monitor outputs. On the VMD-2008, these are the two right connectors on the bottom row of video connectors.

These two monitor outputs are the sequencing outputs for the built-in alarming, bridging, looping sequential switcher. Each monitor output provides a completely separate function.

Monitor Output 1, the bridging output, is located on the bottom row second from the right for the VMD-2008. Monitor Output 1 has three specific functions: 1) Viewing setups, 2) Bridging or manually selecting a camera for display. This can be done by pressing the button number on the front panel of the VMD corresponding to the desired camera. To un-select the bridged cameras, press the same button again. 3) Normal switching through all cameras that have been enabled for switching. It will continuously sequence through all such enabled cameras regardless of alarms.

Monitor Output 2, the alarming output, is located on the bottom row right for the VMD-2008. Monitor Output 2 has one function, which is to sequence through alarmed cameras only. It will continue to do so until all alarms cease. This output would most commonly be used with an event recorder.

VIDEO LOOPING/TERMINATION

There is a set of dip switches on the back of the VMD unit to independently provide the correct 75 OHM termination for each video channel. All eight dip switches are used on the VMD-2008, each numerically corresponding to the same numerical channel.

The motion detector provides a passive video looping output for each video input. If the intention is to loop the video through the VMD, then the looped channels must be unterminated at the VMD and terminated at the last piece of equipment in line. Be careful not to double terminate the video. This will cause signal degradation.

When using the monitor outputs and the sequencing capability of the VMD, the video should be terminated for those channels enabled for switching.

The dip switch box terminates and unterminates the channels in increasing numerical order from left to right when looking at the rear of the VMD unit with top-side up. To terminate a channel, the dip switch should be in the up position.

Switch ON (up position): Terminated
Switch OFF (down position): Unterminated

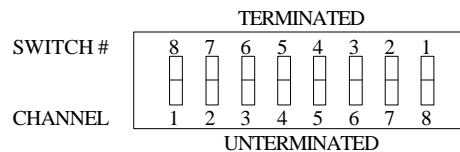


Figure 2

CONNECTING THE I/O'S:

ALARM INPUTS

The only feature difference between the VMD-2004 and the VMD-2008 is the VMD-2008's ability to receive and pass alarms from other devices such as a door contact, window foil, etc. These alarms are connected to the alarm inputs of the VMD. The recognized alarm input is a closure or short between the respective alarm input and ground.

In addition to passing the alarm, if an alarm input is noted by the VMD, it will switch (if enabled) the corresponding channel to the alarming output (monitor output) as if motion were detected. This allows the user two ways of switching a video channel to Monitor Output 2. --Motion detection or alarm input.

DAY/NIGHT INPUT

The Day/Night input is used to switch the VMD between two separate sets of settings. We term it Day and Night for convenience. In many circumstances we would want different configurations for Day and Night such as different sensitivities, zone patterns, etc.

The Day/Night feature can be switched either manually via the On screen prompts (which is discussed later), or externally via the Day/Night input. Switching the Day/Night feature externally requires a closure or short between the Day/Night input and ground the PIN numbers for the VMD-2008 are shown below:

MODEL	D/N	GND
VMD - 2008	PIN 11	PIN 10

When switching from Day to Night externally, make sure the unit starts off in Day mode. Otherwise it will not work properly. Check by pressing the **SELECT** button on the VMD and look in the upper right hand corner of the menu. If it is not, press button **8** to toggle.

ALARM OUTPUTS

Each of the VMD-2000 Series units has an individual alarm output for each video channel and 1 universal or common alarm output which will produce an alarm as long as there are alarms on any channel. Thus, the VMD-2008 has eight individual camera alarms and one universal alarm. Each of the alarm outputs is in a N/O configuration and will produce a closure to indicate an alarm. The duration of alarm output can be specified from 1 to 99 seconds.

The VMD will produce an alarm when the criteria for valid motion have been satisfied (sensitivity, size, zone pattern). Additionally, the VMD-2008 will produce an alarm if it receives an alarm from an external device.

The VMD's alarm outputs can be used as the control inputs for a matrix switcher, to pull up full screen the alarmed channel of a quad or duo quad, to initiate a slow scan transmission, or provide the alarm for a framestore or archiving device. The VMD's universal output's most common use is to begin the recording of an event or time-lapse recorder.

Alarms will only be provided for channels that are enabled to do so. Therefore, don't forget to enable your alarm outputs.

CONNECTING THE POWER:

RATINGS:

The power requirements of the VMD-2008 are 110 VAC , 60 Hz and 7 Watts for NTSC and 220 VAC, 50 Hz and 5 Watts for PAL. The unit will come configured for NTSC or PAL and does not need to be configured by the user.

POWER CORD:

A three prong power cable is provided with the unit; make sure you also use a three prong wall socket with a ground. The unit must be grounded! Do not remove the ground prong!

PRECAUTIONS:

To reduce the risk of fire or electric shock, do not expose this product to rain or moisture, for example, do not use near a bath, swimming pool, or in a wet basement. Dangerous high voltages are present inside the enclosure. Do not open the cabinet. Refer servicing to qualified personnel only.



(FIGURE 3)



The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying this appliance.

VMD-2008 SETUPS:

The VMD-2000 Series unit is programmed via on-screen prompts. The front panel buttons are used to select the various setup menus and channel configurations.

In order to view the on-screen prompts while programming the VMD, a monitor must be connected to the Monitor 1 Output (MON 1) on the back of the unit.

This section discusses the VMD-2008 setups. Make sure you read the entire section first; then step through the procedure to configure your VMD.

The VMD-2008 has one main menu with various different prompts. The following instructions will chronologically step through each of the menus and their respective prompts.

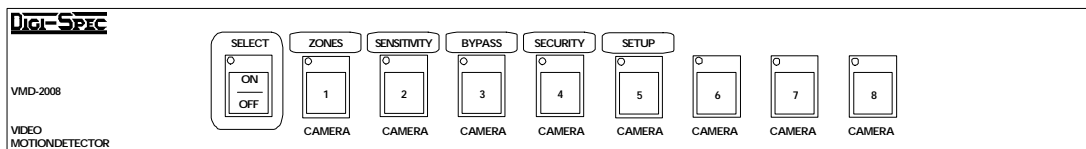


Figure 4

BUTTON DESCRIPTION

- 1) The SELECT button enters the program mode, accesses the programming menus, and exits programming.
- 2) Buttons 1 through 4 select prompts and cameras for configuration and change their values, move the cursor during zone pattern configuration, and manually select and un-select a camera for display on Monitor Output 1.

MAIN MENU

MAINMENU

```
MAIN MENU      --(DAY)

1:  ZONE PATTERN
2:  SENSITIVITY
3:  BYPASS ADD CAMERA
4:  SECURITY LOCK
5:  SETUP
8:  DAY<->NIGHT
PRESS SELECT TO EXIT
```

To access the Main Menu - Press the **SELECT** button on the front panel of the VMD. All sub menus may be accessed by pressing the following buttons on the front panel of the VMD.

- 1** Accesses prompts to change zone patterns
- 2** Accesses prompts to change sensitivity settings
- 3** Accesses prompts to change camera switching status
- 4** Accesses the security lock feature
- 5** Accesses the Alarm Setup menus
- 8** Changes settings from day to night settings

ZONE PATTERN

ZONE PATTERN - SCREEN 1

```

ZONE   PATTERN   SETUP
-----
SELECT A CAMERA   1-8

PRESS 1-8

PRESS SELECT TO EXIT

```

The zone pattern setups can be accessed by pressing **SELECT 1**. Select specific camera for configuration by pressing the camera number **1, 2, 3, 4, 5, 6, 7, 8**.

ZONE PATTERN - SCREEN 2

```

ZONE   PATTERN   SETUP
-----
CAMERA #         --(DAY)

1: ON           7
2: OFF          5 ←→ 6
3: SKIP         8
4: ALL OFF

PRESS SELECT TO EXIT

```

BACKGROUNDSCREEN

```

■ ■ ■ ■ ■ ■ ■ . . .
■ ■ ■ ■ ■ ■ . . .
■ ■ ■ . . .
■ ■ . . .
■ . . . * .

```

Once a specific camera has been selected, it's zone pattern can be adjusted. The default zone pattern configuration is a completely active screen which will appear as small white dots. All active areas will appear as a small white dot. To alter the zone pattern, press buttons **1, 2, 3, 4, 5, 6, 7, 8**.

The zone pattern is used to mask or block out certain areas of the video image from being detected for motion. Usually these areas are problem areas such as outside windows, fans, moving trees, flashing lights, busy streets, etc.

- 1 To activate or enable a zone (Dot)
- 2 To inactivate or disable a zone (Block)
- 3 To skip a zone (Does not affect ZP)
- 4 To turn all zones on or off
- 5 To move cursor to the left
- 6 To move cursor to the right
- 7 To move cursor up
- 8 To move cursor down

All active areas will appear as a dot. Inactive areas will appear as a flashing block. Active areas with cursor over them will appear as an asterisk, inactive areas with cursor over them will appear as a dash.

- . Zone on
- * CSR over Zone on
- Zone off
- CSR over Zone off

There are a total of 98 NTSC zones (14 x 7) and 126 PAL zones (14 x 9) that can be individually enabled or disabled by the user.

SENSITIVITY**SENSITIVITY - SCREEN 1**

```

SENSITIVITY  SETUP
                -- (DAY)

SELECT A CAMERA  1-8

PRESS 1-8
OR
PRESS SELECT TO EXIT

```

The VMD has two adjustments that are used to sensitize the device for different degrees of motion. These two adjustments are sensitivity and size. The sensitivity setting sensitizes the device for gray scale variance and differentiates the moving target from the background image. The size setting adjusts the relative size of the district within the field of view needed to trigger an alarm.

Initially, the VMD comes with factory default settings for sensitivity and size. But, you may want to adjust the sensitivity settings to fit your particular needs.

The sensitivity adjustments may be accessed by pressing **SELECT 2**. Select the specific channel for adjustment by pressing the camera number **1, 2, 3, 4, 5, 6, 7, 8**.

SENSITIVITY - SCREEN 2

```

CAMERA #      -- (DAY)

1<   SENSITIVITY   >2
|||||
3<   SIZE          >4
|||||

PRESS SELECT TO EXIT

```

Both the sensitivity and size have 16 levels of adjustment. To adjust the sensitivities, press the following buttons:

- 1 To decrease sensitivity (Gray scale)
- 2 To increase sensitivity (Gray scale)
- 3 To decrease size (Smaller objects)
- 4 To increase size (Larger objects)

Configuration Hints: There is a motion arrow which moves proportional to the amount of motion registered by the VMD. The arrow must move past the limit set by the size setting to trigger a valid alarm. Use the motion indicator as a gauge to set the sensitivity settings.

To make the unit more sensitive, increase the sensitivity setting and / or decrease the size. To make the unit less sensitive, decrease the sensitivity setting and / or increase the size setting.

BYPASS/ADD CAMERA

BYPASS/ADD CAMERA

```
BYPASS/ADD CAMERA
                -- (DAY)

1: ON          5: ON
2: OFF         6: OFF
3: ON          7: ON
4: OFF         8: OFF
PRESS 1-8 TO TOGGLE
PRESS SELECT TO EXIT
```

The VMD has a built -in sequential switcher. Each camera can be individually enabled or disabled for switching to the two monitor outputs. If a camera is bypassed or turned off, it can still produce alarms. It will just not appear on the sequential monitor outputs. And, adding or turning on a camera adds the camera to the list of possible camera inputs to be sequenced. It does not enable the camera for motion detection. This is done by the motion alarms.

The bypass / add camera settings may be accessed by pressing **SELECT 3**. To toggle between on and off, press the camera numbers **1, 2, 3, 4, 5, 6, 7, 8**.

SECURITY LOCK

SECURITYLOCK

```
SECURITY  LOCK

ENTER 4  DIGIT  CODE
****
-
TO  UN/LOCK  UNIT

PRESS  SELECT  TO  EXIT
```

The VMD comes equipped with a security lock feature which allows the programmer to block tampering with the program. The VMD comes without a security code and you must program one to lock the unit.

Once a security code has been programmed, you will have to enter the code to change the unit's configurations. After completing any changes to the program, you must re-enter the security code to again lock the unit.

To access the security lock, press **SELECT 4**. To program a security code, enter a 4 digit code using a combination of buttons **1, 2, 3, 4, 5, 6, 7, 8**. You will be asked to re-enter the code to make sure there was no mistake. Remember your security code; you will be asked to enter it when you access the set-ups.

ALARM SETUPS

ALARMSETUPS

```
SETUPS          -- (DAY)

1:  MOTION  ALARMS
2:  ALARM  INPUTS
3:  ALARM  OUTPUTS
4:  NORMAL DWELL MON1
5:  ALARM  DWELL MON2
6:  BUZZER
PRESS SELECT TO EXIT
```

To access the Alarm Setups menu, press **SELECT 5** from the front panel of the VMD. All sub-menus may be accessed by pressing the following buttons.

- 1** Accesses prompt to configure motion alarms
- 2** Accesses prompts to configure alarm input times
- 3** Accesses prompts to configure alarm output times
- 4** Accesses prompts to set normal dwell times
- 5** Accesses prompts to set alarm dwell times
- 6** Accesses prompts to set buzzer modes

MOTION ALARMS

MOTIONALARMS

```
ENABLE/DISABLE
MOTION  ALARMS--(DAY)

1:  ENA      5:  ENA
2:  DISA     6:  DISA
3:  ENA      7:  ENA
4:  DISA     8:  DISA
PRESS 1-4 TO TOGGLE
PRESS SELECT TO EXIT
```

Each channel of the VMD can be individually enabled or disabled to produce an alarm. If the motion alarm for a channel is disabled, the VMD will not detect motion on that channel. This has two effects: 1) It will not produce an alarm output; 2) If there is activity within the video image, it will not be switched to Monitor Output 2.

Although the motion alarm for a channel may be disabled, it will still be sequenced to Monitor Output 1.

Thus, if you want to detect motion, produce alarms, and view alarms on the alarm monitor output (Mon 2), make sure you enable your motion alarms.

To access the motion alarm setups, press **SELECT - 5 - 1**. To toggle between enable and disable, press the camera numbers **1, 2, 3, 4, 5, 6, 7, 8**.

Configuration Hints: Many times you may want certain cameras disabled during certain hours of the day, especially areas with heavy traffic during the normal work day. This can be easily accomplished by disabling those cameras in the day mode and enabling them in the night mode. At the end of the day, you toggle from day to night. Now you're ready to detect motion.

ALARM INPUTS

ALARMINPUTS

```
ENABLE/DISABLE
MOTION  ALARMS--(DAY)

1:  ENA          5:  ENA
2:  DISA         6:  DISA
3:  ENA          7:  ENA
4:  DISA         8:  DISA
PRESS 1-4 TO TOGGLE
PRESS SELECT TO EXIT
```

Each channel of the VMD can be individually enabled or disabled for alarm inputs. The Alarm Input allows the VMD to handle inputs from external devices. If the alarm input for a channel is disabled, the VMD will not pass alarms produced by external devices. It will still produce a motion alarm (if enabled) when motion is detected on a particular channel.

To access the motion alarm setups, press **SELECT - 5 - 2**. To toggle between enable and disable, press the camera numbers **1, 2, 3, 4, 5, 6, 7, 8**.

Configuration Hints: Many times you may want certain alarm inputs disabled during certain hours of the day, ie. a door contact on the front door of an office. This can be easily accomplished by disabling those alarm inputs in the day mode and enabling them in the night mode. At the end of the day, you toggle from day to night.

ALARM RELAY OUTPUT TIME

ALARMRELAYOUTPUTTIME

```
ALARM RELAY OUTOUT
TIME          --(DAY)

## SECONDS
1: <- DECREASE TIME
2: -> INCREASE TIME
   0=OFF  99=LATCH

PRESS SELECT TO EXIT
```

The alarm relay output time is the length of time, in seconds, that the VMD will output an alarm. This alarm is a relay closure, as previously discussed, which can be set to remain closed for 0 to 99 seconds.

If set to 0, it will disable all channels for motion detection which will obviously not allow it to produce an alarm. If set to 99, it will latch the alarm until manually cleared by pressing the select button 4 times until the red LED on the select button turns off again. If set between 0 to 99, it will alarm for that length of time.

Usually the desired output will be 1 second since most equipment only requires a momentary alarm.

To access the alarm relay output time, press **SELECT - 5 - 3**. To adjust the alarm relay output time press:

- 1 To decrease output time
- 2 To increase output time

NORMAL DWELL TIME

NORMAL DWELL TIME-SCREEN 1

```
NORMAL  DWELL  TIME
          --(DAY)

SELECT  CAMERA  1-8

1-#   2-#   3-#   4-#
5-#   6-#   7-#   8-#

PRESS  SELECT  TO  EXIT
```

The normal dwell time is the length of time a camera will be viewed on Monitor Output 1 before being switched. Monitor output 1 will display each camera for the individual time specified regardless of which camera has alarmed. Each camera can be individually set from 1 to 99 seconds.

To set the normal dwell time, press **SELECT - 5 - 4**. To select the normal dwell time for a specific camera, press the camera number **1, 2, 3, 4, 5, 6, 7, 8**.

NORMAL DWELL TIME-SCREEN 2

```
NORMAL  DWELL  TIME
CAMERA  #      --(DAY)

##  SECONDS
1:  <-  DECREASE  TIME
2:  ->  INCREASE  TIME

PRESS  SELECT  TO  EXIT
```

To adjust the dwell time press:

1 To decrease dwell time

2 To increase dwell time

ALARMDWELL TIME

ALARMDWELL TIME

```
VIDEO DWELL DURING
MULTIPLE ALARMS
                -- (DAY)

## SECONDS
1: <- DECREASE TIME
2: -> INCREASE TIME

PRESS SELECT TO EXIT
```

The alarm dwell time is the length of time a camera will be viewed on Monitor Output 2. Monitor Output 2 will display each alarmed camera for the time specified when it goes into alarm and continue to sequence through alarmed cameras for the specified dwell time as long as alarms persist. A single alarm dwell time between 1 and 99 seconds can be set for all cameras.

To set the alarm dwell time, press **SELECT - 5- 5**. To adjust the dwell time for all cameras, press:

- 1** To decrease dwell time
- 2** To increase dwell time

BUZZER SETUPS

ALARMBUZZER

```
BUZZER SETUPS

DURING ALARMS
 1: BUZZER ON
 2: BUZZER OFF
DURING VIDEO LOSS
 3: BUZZER ON
 4: BUZZER OFF
PRESS SELECT TO EXIT
```

The VMD's audio alarm buzzer can be manually turned off if desired. It does not, in any way inhibit the VMD from detecting motion or from producing alarm on the relay outputs. It only inhibits the unit's audio capabilities.

To access the alarm buzzer prompt, press **SELECT - 5 - 6**. To toggle the buzzer between on and off, press:

1 To turn buzzer on

2 To turn buzzer off

The VMD is equipped with video loss detection on all channels. If video is lost on any channel, the buzzer will sound, if enabled, until video regained or until the buzzer is manually turned off. To toggle the buzzer between on and off, press:

3 To turn buzzer on

4 To turn buzzer off

DAY/NIGHT

To toggle the unit from day to night, press **SELECT 8**. All channels will toggle simultaneously. The mode will appear in the upper right hand corner of the screen.

The Day/Night feature is used to pre program two different sets of settings for each channel (i.e. different sensitivities, zone patterns, etc.). First program the day settings. Then toggle the mode to night and program the night settings.

You can manually toggle between day and night at any time, but if you are using the external Day/Night input, make sure the unit is first in day mode before you begin to toggle externally.

TYPICAL VMD CONFIGURATIONS:

VMD-2000 UNIT WITH ALL INPUTS AND OUTPUTS

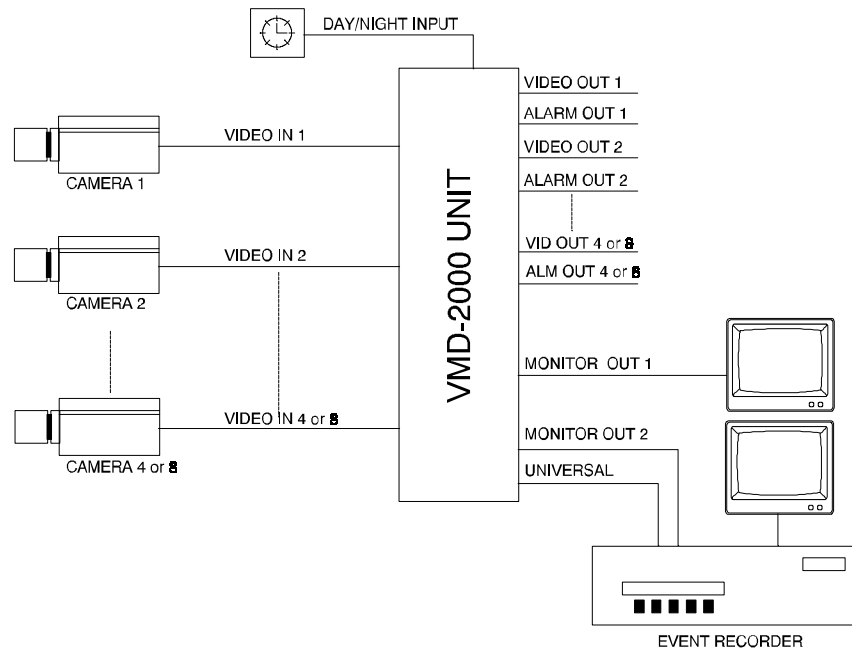
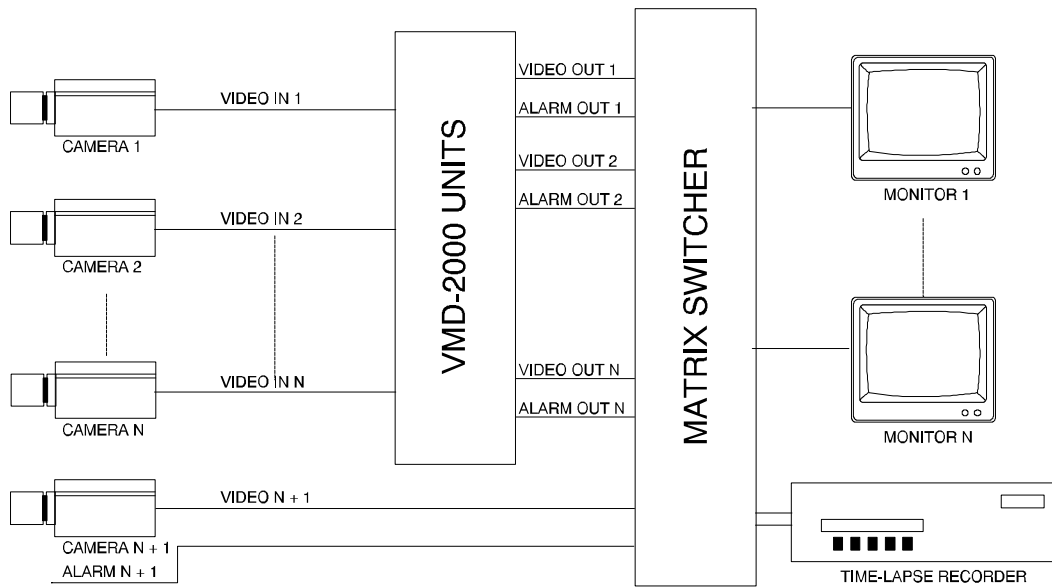
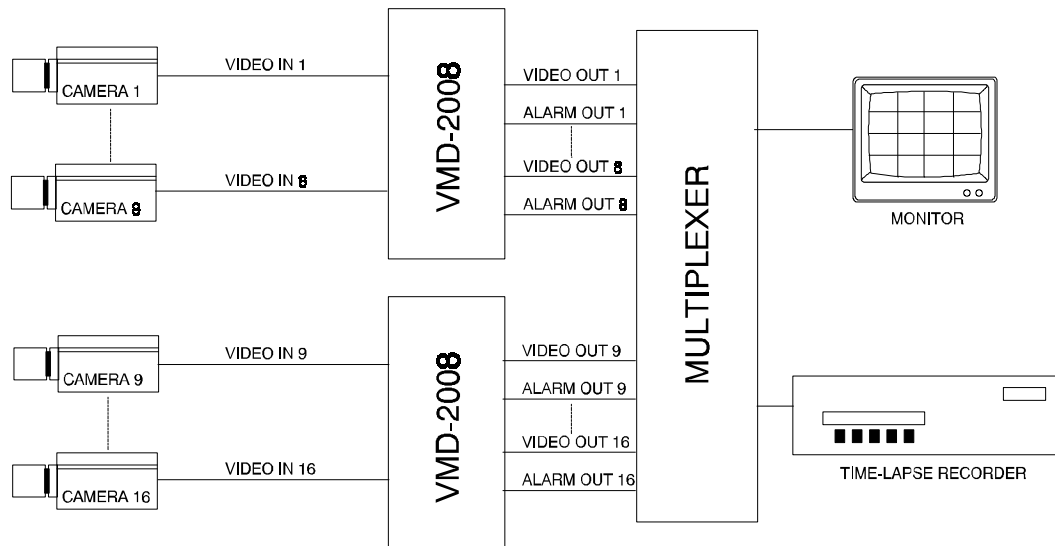


Figure 5

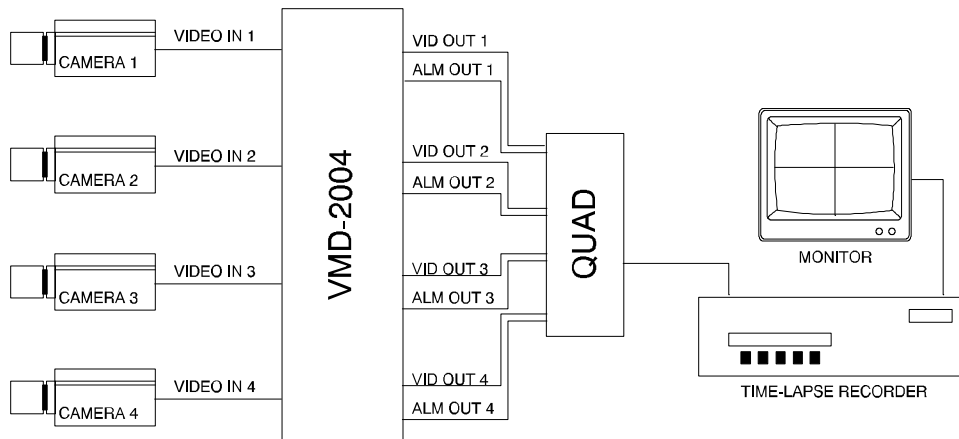
DESCRIPTION: The VMD-2004 and VMD-2008 have four and eight video inputs and outputs respectively. They also have four and eight individual alarm outputs respectively. In addition to having alarm outputs, the VMD-2008 has eight individual alarm inputs. Both units have a Day/Night input and a universal alarm output. A unique feature of the VMD-2000 series is that it has a built-in two output sequential switcher. Monitor Output 1 sequences through all cameras and is used for viewing setups. Monitor Output 2 only sequences through alarmed locations. Thus Monitor Output 2 might be connected to an event recorder.

VMD-2000 UNITS WITH MATRIX SWITCHER**Figure 6**

DESCRIPTION: Although the VMD-2000 units have built-in sequential switchers, they are commonly used with external matrix switchers in large installations. The video is looped through the VMD to the matrix switcher. The alarm outputs of the VMD is connected to the alarm inputs of the matrix switcher to provide matrix control. The monitors and recording devices would then be connected to the outputs of the matrix switcher.

VMD-2008 WITH MULTIPLEXER**Figure 7**

DESCRIPTION: Two VMD-2008 units or four VMD-2004 units can be used as the front end and triggering mechanism for a multiplexer device. The video would be looped through the VMDs to the multiplexer. The alarm outputs of the VMD would connect to the alarm inputs of the multiplexer to provide control. The monitors and recording devices would then be connected to the outputs of the multiplexer.

VMD-2000 UNIT WITH QUAD**Figure 8**

DESCRIPTION: A VMD-2004 can be used as the front end and triggering mechanism for a quad device, or a VMD-2008 can be used as the front end and triggering mechanism for a duo-quad device. The video would be looped through the VMD to the quad or duo-quad. The alarm outputs of the VMD would connect to the alarm inputs of the quad or duo-quad to pull up alarmed cameras full screen. The monitors and recording devices would then be connected to the outputs of the quad or duo-quad. The VMD/QUAD combination is one of the most frequently used combinations.

VMD-2000 UNIT WITH LONG RANGE VIDEO TRANSMISSION

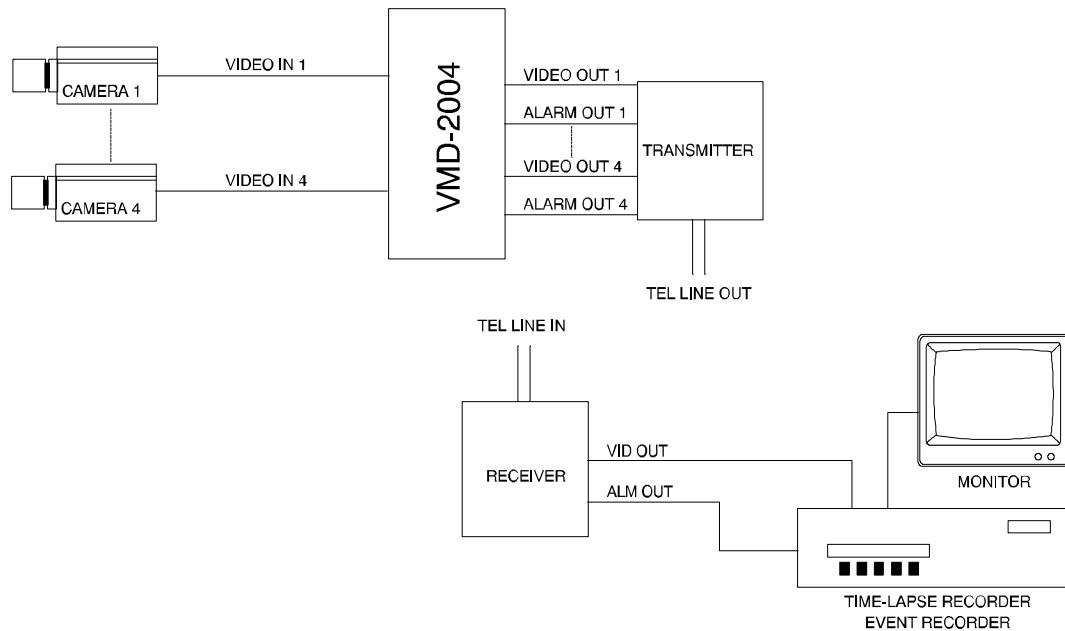


Figure 9

DESCRIPTION: A VMD-2004 or VMD-2008 can be used as the front end and triggering mechanism for a long range video transmission device such as slow scan. The video would be looped through the VMD to the transmitting end of the video transmission device. The alarm outputs of the VMD would be used as the trigger to initiate the sending process. The monitors and recording devices would then be connected to the receiving end of the system.

TROUBLE-SHOOTING GUIDE:

PROBLEM	CAUSE	REMEDY
False Triggering	Small objects falsely triggering alarms	Increase Size Setting
	Shadows and noise falsely triggering alarms	Decrease Sensitivity Setting
	Fluorescent lighting causing false triggering	Use linelock camera
	Vibration causing false triggering	Mount camera properly
Input Alarms	Objects too large or small	Use proper lens
	Not receiving alarms from external devices	Make sure Alarm leads are connected properly
	Receiving wrong type of alarm input	Alarm input is N/O and must receive a closure to register as an alarm

PROBLEM	CAUSE	REMEDY
No Output Alarms	Required object not triggering alarms	Decrease Size Setting
	Insufficient contrast between the required object and its background may not trigger alarms	Increase Sensitivity setting
	No alarms being triggered or output at all	Set Relay Output Time above zero or Make sure Motion Alarms are enabled
	Motion not triggering in required zones of camera image	Turn zones on in those areas of camera image
	Alarms being output opposite of when they should	Alarm output type is N/O. Make sure your external equipment is configured for the same.

PROBLEM	CAUSE	REMEDY
No sequencing on Monitor Outputs (Mon 1 or Mon 2)	Cameras not enabled for this function	Add cameras to sequencing list by enabling (turn ON) them in the Bypass/Add Camera prompt
No Video Outputs (Video Loss)	Video inputs not connected properly	Connect video inputs to top row of BNC connectors
	Cameras not receiving power	Make sure power is connected to cameras
	Video not looping through unit	Cable severed or disconnected.
Alarming Monitor Output (Mon 2) not sequencing to all alarms during multiple alarms.	Alarm Dwell too long	Decrease Alarm Dwell Time

SPECIFICATIONS:

UNIT SIZE	8.5"(w) x 1.75"(h) x 10"(d) {VMD-2004} 17.3"(w) x 1.75"(h) x 10"(d){VMD-2008}
UNIT WEIGHT	6 lbs. (2.73 kg) {VMD-2004}, 10 lbs. (4.55 kg) {VMD-2008}
CHASSIS	Heavy-duty steel with black-baked enamel finish
VIDEO FORMAT	NTSC/RS-170A or PAL/CCIR, 0.5-2Vpp, 75 ohm termination
VIDEO INPUTS	4 BNC {VMD-2004}, 8 BNC {VMD-2008}
VIDEO OUTPUTS	4 BNC {VMD-2004}, 8 BNC {VMD-2008}
ALARM OUTPUTS	5 N/O {VMD-2004}, 9 N/O {VMD-2008}
ALARM OUTPUT TIME	0-99 seconds
ALARM INPUTS	8 {VMD-2008 only}
SWITCHER OUTPUTS	2 BNC
SWITCHER TYPE	Alarming, Bridging, Looping
DWELL TIME	0-99 seconds
CONTACT RATING	250 V DC @ 1.5A
DETECTION METHOD	Proprietary pipeline processing of full digitized image
DIGITIZATION	64 gray scale
DETECTION POINTS	32,768 per channel
ZONE PATTERN MATRIX	14 horizontal x 7 vertical (NTSC), 14 horizontal x 9 vertical (PAL)
SYSTEM CONTROL & SETUP	Manually programmable via front panel with on-screen prompts
MICROPROCESSOR	8-bit embedded
MICROPROCESSOR FREQUENCY	11.059 MHz
BACKUP MEMORY	EEPROM (non-volatile)
POWER REQUIREMENTS	110V AC & 60 Hz, 7W (NTSC), 220V AC & 50 Hz, 7W (PAL) (12V DC optional)
FACTORY WARRANTY	1 year parts & labor

WARRANTY INFORMATION:

Digi-Spec Corporation offers a limited one year parts and labor warranty on all VMD-2000 Series equipment. Digi-Spec will repair or replace, at our option, any unit covered by this warranty at no cost to you (excluding shipping charges). This warranty pertains to defects in workmanship or parts in the VMD-2000 Series unit, as determined by Digi-Spec Corporation. This warranty applies to the original end-user purchaser and is applicable from the date of purchase. Service performed after this period will be billed at our standard shop rates.

This warranty does not cover defects that result from abuse, misuse, or negligence, including, but not limited to: (1) improper operation; (2) failure to follow instructions or heed cautions included with this unit; (3) exposure to hazardous environments or submersion; (4) service or modification by an unauthorized party; (5) connection of excessive voltages to the inputs.

The customer is responsible for providing cameras which are compatible with the VMD. Digi-Spec cannot be responsible for problems caused by cameras which, in our opinion, do not produce a steady enough output or have non-standard sync.

Contact your local sales agent for warranty service. If it is unavailable through your sales agent, the purchaser should contact the factory for instructions on receiving factory service. Digi-Spec does not provide and will not authorize on-site field service. All factory warranty work will require the customer to provide a detailed description of the problem, the original sales agent's name, and a copy of the original sales receipt or invoice.

We will return your VMD-2000 Series product at no charge by UPS surface freight. Faster shipment is available, at the purchaser's request, at additional cost. We recommend that you insure the unit(s) for their full value when returning merchandise for repair.

Digi-Spec will honor repair or replacement only. This warranty has been drafted to comply with the federal law applicable to electronic products manufactured after July 4, 1975. This warranty gives you specific legal rights which may vary from state to state.

DISCLAIMER OF WARRANTY:

Digi-Spec offers no other express warranty written or implied, including warranties of merchantability or fitness for a particular purpose. In no case shall Digi-Spec Corporation, or any of our agents, be held liable for incidental or consequential damages resulting from the use, failure of, or the compromising of any VMD-2000 Series products.

THANK YOU:

Thank you once again for purchasing our Digi-Spec Video Motion Detector. Please send your Registration Card so we can keep you informed of any upgrades we may make to the VMD. If you have any questions or problems with the VMD, please feel free to contact us (800) 222-9510. May all your motion be good motion!