

Millennium

Multiplexers

Operation Manual

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Caution !!

In cases where the unit is subject to high voltage the potential exists for the unit not to operate properly. MS Series products are designed to provide the maximum degree of protection from high voltage spikes, however not all situations can be accounted for.

Warning

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limit for a Class A computing device pursuant to subpart J of part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

CE
Compliant

Rear Panel Descriptions

1) Terminations

Proper terminations must be set for each camera. If the signal is “looped through” set the termination Off (down): if the signal is not looped through, set the termination On (up).

2) Digital View

The monitor connected here is referred to in this manual as the Digital Display. This monitor is required for viewing multiple camera images, VCR playback, and some programming functions.

3) Analog Monitors

The monitor connection for Monitor A is the primary alarm output monitor, and is required for programming and for displaying sequences.

4) VCR In

Be sure to connect the proper type of cabling, S-VHS or Composite, according to the type of equipment to be used. Do not connect both VCR inputs.

5) VCR Out

Be sure to connect the proper type of cabling, S-VHS or Composite, according to the type of equipment to be used.

6) Data Port

This port accepts data from cash registers or ATM machines and overlays the data on the video image. (see VSI-Pro / VSSI-Pro manual for functions)

7) Serial

This connector accepts RS-232 inputs for external functional control or downloading programming from a computer or sending the image to a modem for slow scan remote image viewing.

8) Alarm I/O

This connector contains:

1) The Alarm Inputs which can be programmed N/O (normally open) or N/C (normally closed)

2) The Alarm Output (N/O)

3) The Frame Gate Pulse Input or Camera Switcner Pulse which allows the VCR to automatically change the rate of the multiplexer's frame switching.

9) Printer

Standard Centronics parallel printer output. A PCL-5 printer is required to print video images. The Event Log will print to almost any standard printer, including dot matrix and inkjet printers.

10) Power

Accepts power from the included power supply.

11) Camera Inputs and Outputs

Without input for Camera 1 at power up, the unit will not function properly. At power up, the unit automatically configures itself for NTSC or PAL based on the input of Camera 1. Camera inputs must be composite 1V P-P.

Equipment Compatibility and Requirements

Cameras

Without Camera 1 input at power up, the unit will not operate properly. Although the unit need not have all camera inputs to function, if cameras are added later, the unit must be re-scanned (see Programming, "Language / Format menu")

The inputs to all Millennium multiplexers are fully time base corrected and can be used with non-synchronous cameras such as 12VDC cameras. The use of non-line lock cameras will not affect general performance, but may affect the recording and update rates of the frame switcher. For best results, use 24 VAC line-lock cameras.

Monochrome units accept color camera inputs; the Analog Monitors will pass the color signal, but the Digital Display will remain monochrome.

Camera sync that does not conform to EIA, NTSC, CCIR or PAL standards will result in poor quality and may not be compatible with the operation of the equipment.

Pan/Tilt/Zoom (PTZ) cameras are not compatible with Video Motion Detection. If you have PTZ cameras connected to the unit, be sure to turn off the Motion Detection for each PTZ camera. (see Programming, "Camera Settings")

Monitors

Millennium multiplexers require two monitors for full featured operation, a Digital monitor and an Analog monitor. The Digital monitor can display various multiple camera views, and can freeze an image, zoom, then pan and tilt within the zoomed image. Analog monitors display camera sequences, alarm images, and programming menus.

VCRs

Multiplexers require a stable video signal to recover images from tape. Video tape recorders, by their nature, reproduce video with time base errors. As recorders age, this time base error increases and can adversely affect the ability to recover images from tape. Therefore, it is important that your recorder be properly maintained. Please refer to the maintenance schedule usually found in your recorder's operation manual.

Millennium multiplexers are designed to recover images played back in the same speed that they were recorded in and at the standard playback speed. This is 2 hours for EIA/NTSC versions and 3 hours for CCIR/PAL versions. While playback in time lapse speeds other than the recording speed is possible, it can result in missed images.

Some time lapse recorders insert an artificial sync pulse in playback speeds higher than real time. These pulses can cause distortion or loss of ability to recover images from tape. If this occurs adjust the tracking control on your VCR or some VCRs have a vphase adjustment on the rear of the unit that might need adjusting for a stable picture. Also, be sure to turn off any titling or annotation functions your VCR may have as not to degrade the multiplexer performance.

Terminations

Millennium multiplexers allow termination to be set for each camera. Incorrect termination will degrade the quality of the signal and impair the unit's ability to record and recover images from tape. Make certain all video inputs not "looped through" are set to the 75 ohm termination position. The termination switches are located on the rear panel. (see Diagrams on pages 4,5,6)

Format: NTSC / PAL

During power up the unit will scan the Camera 1 input and automatically determine the format, NTSC or PAL. To change the format, power down the unit, replace Camera 1 input with the desired format camera, and power up the unit.

Printer

Printing images requires a PCL-5 compatible printer. The Event Log may be printed on almost any standard parallel printer, including dot matrix and inkjet printers. Please check that the printer is properly connected and powered, and is turned on. Also check the ink supply, toner, etc.

Connections

Carefully read “Before Getting Started” before proceeding.

All units require at start up:

- 1) Input to Camera 1
- 2) A monitor connection to Mon A output
(for most Programming, and for viewing camera sequences)
- 3) A monitor connection to the Digital Display output
(for viewing multiple camera images, and for programming some features)

Connecting Components

First, connect all cameras, monitors, and VCR(s). Be sure each of these is properly connected, powered, and turned on. Be sure you have read the “Before Getting Started” section of this manual for compatibility and other requirements.

Note: Without video input into Camera 1 at power up, the unit will not function properly.

Connecting Power

Now, power up the unit. To ensure optimal performance, follow the instructions below the first time the unit is powered up.

- 1) Press and hold the **Zoom** and **Program buttons** simultaneously:
- 2) While holding these buttons, connect the power.
The unit will beep three times. (Four times if the PAL format is detected)
- 3) Release the buttons
The Initialization Screen will appear briefly, then the following should occur:
Maximum camera Digital Display (X4, X9, X16, depending on the unit)
Sequence 1 on Analog Monitor A (sequencing serially, 1-max., e.g. 9 channel 1-9)
Camera 1 on all other Analog Monitors
Lit LEDs indicating the status of the Digital Display and Cameras.

Following the above procedure completely resets the unit.

Note: If the unit does not beep, or it issues a continuous tone, the unit will not function properly. Power the unit down, wait a minute or so, then try again. If the unit still does not power up properly, contact your dealer or distributor.

Program the Date, Time, and VCR Record Speed

Enter the Program Mode

- 1) Press the **Program** and **Zoom** buttons simultaneously.
You will see the Access Code Menu on the Analog Monitor A:
(Defaults are **underlined and bold**)

Enter Access Code

00 00 00 00

EXIT

Note: If you wish, you may now enter an Access Code. To do so, simply follow the steps below in **2a**. You may enter the programming menus without creating a new Access Code, also shown below in **2b**.

- 2a)** To enter a new Access Code:

Use the **Left** and **Right Arrow buttons** to move the cursor from one field to another, and the **Up** and **Down buttons** to enter values into these fields. You may also use the **Camera buttons** to enter values into these fields.

- 2b)** To enter the programming menus without creating a new Access Code:

Use the **Right Arrow button** to move the cursor to EXIT *without changing the values shown* (00, 00, 00, 00).

IMPORTANT! Be sure to write down your access code and put it in a secure place! The program menu cannot be accessed without it!

- 3)** Move the cursor to EXIT, then press the **Program button**
(This will program the Access Code, if changed)

Page One of the Main Menu will now appear on Analog Monitor A.

Main Menu Page 1

Language / Format
Date / Time
Digital Alarm Display
Sequence Setup
Digital Display

Next Page

Set the Date and Time

- 1) Use the **Direction buttons** to move the cursor to DATE TIME.
- 2) Press the **Program button**

The Date / Time Menu will appear on Analog Monitor A
(Defaults are **underlined and bold**)

| | |
|-------------|--|
| Format | USA , EUROPE |
| Style | AM/PM , MILITARY |
| Time | 00:00 (default is last time set) |
| Day of Week | SUN , MON, TUES, WED, THU, FRI, SAT |
| Day | 01 (01-31) |
| Month | 01 (01-12) |
| Year | 97 (00-99) |

Exit

- 4) Use the **Direction buttons** to move the cursor to FORMAT.
- 5) Move the cursor to the right-hand column. The **Up** and **Down Arrow buttons** will select the following format options: USA or EUROPE. ***The default is USA.***
The USA format is: mm/dd/yy (month/day/year)
The EUROPE format is: dd/mm/yy (day/month/year)
- 6) Select the desired format, then move the cursor back into the left-hand column.
- 7) Move the cursor to STYLE, then into the right hand column.
- 8) Use the **UP** and **Down Arrow buttons** to select AM/PM or 24-HR
The default is AM/PM
The AM/PM setting displays the time in hours and minutes, up to 12:00 with notation for AM or PM.
The 24-HR setting displays the time in hours and minutes, up to 24:00 with no AM or PM notation.
- 9) After selecting the Style, return the cursor to the left-hand column.

Continue, as above. Move the cursor to the other Functions-TIME, DAY OF WK, MONTH, and YEAR and make the appropriate settings.

Note: The time will not update while programming. To ensure greater accuracy, you may wish to program the Time just before exiting the Programming Menu.

After all settings have been made in the Date / Time Menu, return to the Main Menu. Position the cursor anywhere in the right-hand column or at Main Menu, then press the **Program button**.

Set the VCR Record Speed

1) In the Main Menu, move the cursor to NEXT PAGE, then press the **Program button**.

Page 2 of the Main Menu will be displayed

Main Menu Page 2

Camera Settings
Record Mode
Sequence Timers
FST Times
Log / Printout
Salvo Setup (if available)
Exit

2) Move the cursor to RECORD MODE and press the **Program button**.

The RECORD MODE Menu will be displayed:
(Defaults are **underlined and bold**)

Record Mode Menu

| | |
|-----------|--|
| Rate Type | HOURL , FIELD |
| Normal | 24HR (0-65,334HR) 1 FLD (0-65,344FLD) |
| Alarm | 2HR (NTC) 3HR (PAL) 0 FLD (no delay) |
| VCR Type | COMP , S-VHS |
| Main Menu | |

Note: If connected, the VCR Gate Pulse will control the Record Rate. Consult you VCR's Owner's Manual.

1) Select the Rate type, HOUR or FIELD DELAY. Consult your VCR's Operation Manual, if needed.

2) Select Normal and Alarm record speeds, if needed.

3) Select the VCR type.

4) Move the cursor to Main Menu, then press the **Program button**

5) Move the cursor to Next Page, then press the **Program button**

6) Move the cursor to Exit, then press the **Program button**

The unit will take a few moments to process the new programming.

Millennium multiplexers are normally controlled by the front panel buttons and internal timers. Most functions require only the push of a button. However, some require that a sequence of buttons be pushed, and a few functions require simultaneously pressing two buttons. The following sections will explain how to operate Millennium multiplexers.

Digital Display

Single Camera Display / Multiple Camera Display / Freeze / Zoom / Pan and Tilt

Note: On start up the unit will display a maximum camera view on the Digital Display.
On multiple camera views, cameras without input will be displayed as black.

Single Camera Displays

To view a single camera on the Digital Display, simply press the **Full button**, then the desired camera's button. The Digital Display will show that camera in Full view.

Note: The currently active Analog Monitor will also change: any sequencing on that monitor will be interrupted.

The number and type of views available depend on the unit:

4 channel units: One Full and One Quad view

9 channel units: One Full, Two Quad views, and One 9 camera view

16 channel units: One Full, Four Quad views, Two 9 camera view, and One 16 camera view.

The information below applies to 4, 9, 16 channel units within the above specifications.

Multiple Camera Displays

Quad Displays

All units

Press the **X4 button**. The Digital Display will show a quad view (Cameras 1-4)

9 Channel Units

Press **X4 button**. The Digital Display will show a quad view (Cameras 1-4)

Press **X4 button** again to show a second quad view (Cameras 5-8)

Press **X4 button** again to show a third quad view (Cameras 9, 1, 2 and 3)

Press **X4 button** again. The Digital Display will sequence through it quad views.

Press **X4 button** again. The Digital Display will return to the first quad view.

Note: These views can be configured to show any four cameras on any quad view.

16 Channel Units

Press **X4 button**. The Digital Display will show a quad view (Cameras 1-4)

Press **X4 button** again to show a second quad view (Cameras 5-8)

Press **X4 button** again to show a third quad view (Cameras 9 -12)

Press **X4 button** again to show a fourth quad view (Cameras 13-16)

Press **X4 button** again. The Digital Display will sequence through it quad views.

Press **X4 button** again. The Digital Display will return to the first quad view.

Note: These views can be configured to show any four cameras on any quad view.

Nine Camera Displays

9 Channel Units

Press **X9 button**. The Digital Display will show a 9 camera view (Camera 1-9)

16 Channel Units

Press **X9 button** to show a 9 camera view (Camera 1-9)

Press **X9 button** again to show a second 9 camera view (Cameras 10-16, 1, 2)

Press **X9 button** again. The Digital Display will sequence the 9 camera views.

Press **X9 button** again. The Digital Display will return to the first 9 camera view.

Note: These views can be configured to show any nine cameras on any 9 camera view.

Sixteen Camera Display

16 Channel Units

Press the **X16 button**. The Digital Display will show a 16 camera view (Cameras 1-16)

Freeze, Zoom, and Pan and Tilt

You may freeze an image on the Digital Display in Live Mode or VCR Playback. You may Pan and Tilt within any 2X image in Freeze Mode, VCR Playback, or Live.

Freeze

To Freeze the Digital Display, press the **Zoom button** once. The image on the Digital Display will “freeze”. This is the same for both Live and VCR Playback.

To “unfreeze” the image, press the **Full button**. Again, this is the same for both Live and VCR Playback.

Zoom

While in Freeze Mode, pressing the **Zoom button** a second time will digitally Zoom the image 2X. Then press the **Arrow buttons** to Pan and Tilt within the zoomed image. Also, pushing any of the Arrow buttons while in Freeze Mode or Live results in the Digital Display changing to a 2X view.

While in Freeze Mode, the **Zoom button** will toggle between full sized and 2X “frozen” images.

Pan and Tilt

To Zoom and Pan and Tilt while viewing a Live “unfrozen” images, simply press any of the arrow buttons. The image will automatically Zoom to 2X and allow you to Pan and Tilt within the image by using the arrow buttons. To return to Full view, press the **Full button**.

Analog Monitors

“spot” operation / sequencing

Millennium multiplexers’ programmable Analog Monitors can display any camera at any time, and feature user programmable sequencing. Analog Monitor A is the “Call Monitor”; it displays alarm images when an alarm is triggered. On some units, Salvos may also be displayed; these allow the monitors to act in concert, sequencing sets of images on several monitors at one time.

On start up, the unit will show Sequence 1 (Camera 1-max., serially) on Monitor A; all other Monitors will display Camera 1.

Single Camera Display

To select a Camera to an Analog Monitor:

- 1) Press the **Monitor A** or **Monitor B** button
- 2) Next, press the desired **Camera** button

This will “spot” the selected Camera to the Monitor selected in the previous step.

Note: Any sequences will pause. To resume the sequence, press the same camera button again.

Sequences

To select a Sequence to an Analog Monitor:

- 1) Press the **Monitor A** or **Monitor B** button.
- 2) Next, simultaneously press the **Program** and **Sequence** buttons.
Camera buttons will light, representing the available Sequences, 1-6
- 3) Press a lit **Camera** button

This will assign the represented Sequence to the Monitor selected in the previous step.

For units that allow for six Analog Monitors:

- 1) Press the **Monitor** button
Camera buttons 1-6 will light, which represent Monitors A-F.
- 2) Select a Monitor by pressing the associated **Camera** button.
(Buttons 1-6 correspond directly to Monitors A-F)
- 3) Next, simultaneously press the **Program** and **Sequence** buttons.
Camera buttons will light, representing the available Sequences, 1-6.
- 4) Press a lit **Camera** button.

This will assign the represented Sequence to the Monitor selected in the previous step.

Event Log

Viewing / Printing / Clearing

The Millennium multiplexers can print the Event Log at any time, to nearly any standard parallel printer. The unit can also be programmed to print the Event Log once every 24 hours at a user selected time. (see Programming, "Log / Printer Menu" for more)

The Event Log stores up to 100 entries. When full, the Event Log will begin eliminating the oldest entries to make room for the most recent ones.

Viewing the Event Log

1) Press the **Program** and **Camera 1** buttons simultaneously.
The Event Log will appear on Analog Monitor A

2) The following codes are used in the Event Log:

C01 = Camera 1 (C05 = Camera 5; C12 = Camera 12; and so on)

PL = Power Loss

PR = Power Recovery

VL = Video Loss (Followed by the Camera number)

VR = Video Recovery (Followed by the Camera number)

Each entry also includes the Date and Time

3) Scroll through the Event Log by using the **Up** and **Down Arrow** buttons

4) To exit the Event Log, press the **VCR / Live** button.

Note: The Log cannot be printed while it is being viewed. (see directions below)

Printing the Event Log

Printing On Demand

1) Press the **Program** and **Camera 2** buttons simultaneously.
The entire Event Log will print

Note: The Event Log can also be printed automatically every 24 hours at a pre-selected time. (See Programming, "Log / Printer Menu" for more).

Clearing the Event Log

1) Press the **Program** and **Camera 4** buttons simultaneously.
The Security Code screen will appear on Analog Monitor A. This is the same Security Code used to enter the Programming Menu.

2) Enter the Security Code and select EXIT to clear the Event Log.
The unit will resume normal operation.

Printing Images

Images on the Digital Display may be printed in any view. Full, X4, X9 or X16 (depending on the unit). Images may be printed in Live Mode or during VCR playback.

Images may be printed at almost anytime, except during programming, or before a prior image is finished printing. Digitally “zoomed” images will not print; if selected the image will print as a normal, full screen view.

1) To print the Digital Display, press the **Program** and **Camera 3 buttons** simultaneously. ***The Digital Display will print.***

Note: While printing is in progress, the Digital Display will be blank for approximately 90 seconds.

VCR Playback

To view VCR playback, press the **Live / VCR button**; when lit, the unit is displaying images from the VCR.

During VCR playback, any Digital Display may be selected; an individual camera or any multiple camera view may be displayed. The digital pan, tilt, zoom, and print functions all operated as in Live Mode.

Note: VCRs vary widely in specifications, operation, and features. Be sure to carefully review your VCR Owners Manual before recording or playing back. Also review the compatibility issues in “Before Getting Started”.

Alarms

Intrusion / Video Loss / Video Recovery / Power Loss / Power Recovery

Intrusion

When an alarm occurs:

- 1)** The associated camera buttons’ LED will flash rapidly
- 2)** The video from the alarmed camera will appear on Analog Monitor A
- 3)** The alarm will be recorded in the Event Log
- 4)** The Alarm Output will “close” for the programmed Alarm Duration

In addition, depending on the configuration of the unit, any or all of the following may occur:

- 1)** An alarm message may appear on Analog Monitor A (the message will be recorded to tape)
- 2)** An audible alarm may sound
- 3)** The Digital Display will change to the setting in the Alarm Digital Display menu
- 4)** The alarm image will print
- 5)** Alarm Annotation will appear on all monitors displaying the alarmed camera.

To acknowledge the alarm, simply press the **Camera button** that is flashing.

Acknowledging the alarm when Manual is selected in the Alarm Display Menu.

- 1) Ends the audible alarm
- 2) Removes the alarm annotation from the Digital Display, and ends the camera LED's flashing.

Note: The camera will still be recorded to tape for the entire Alarm Duration set in Camera Settings Menu.

Acknowledging the alarm when Automatic is selected in the Alarm Display Menu:

- 1) Ends the audible alarm
- 2) Ends the camera LED's flashing

Note: The camera will still be recorded to tape and the alarm annotation will be displayed for the entire Alarm Duration set in Camera Setting Menu.

Video Loss

If the video signal from a camera is lost:

- 1) The unit will sound an audible alarm for the time set in Alarm Duration.
- 2) The Digital Display will show a "Video Loss" message for that camera.
- 3) The Analog Monitor will show a "Video Loss" message.
- 4) A Video Loss entry will be entered in the Event Log.

Video Recovery

When a video signal is recovered, the picture will reappear in its proper place on all monitors, and an entry will be made in the Event Log.

Power Loss and Power Recovery

Power Loss and Power Recovery are entered in the Event Log. The unit's internal clock will maintain all programming, including date and time, for approximately 36 hours.

In General

Millennium multiplexers are ready to use with only minimal set up required. The settings in “Getting Started” are sufficient for basic operation.

If you have not set up the unit following the guidelines in “Getting Started” please do so before continuing in this section. It is also important to familiarize yourself with the operation of the unit before attempting any programming. (see “Operation”) Then, please be sure to carefully preview the information that follows before accessing the Program Mode.

Entering Program Mode temporarily suspends normal operation of the unit

The Digital Display will “freeze”, and all functions not related to Program mode will cease - including recording - until the Program Mode is exited. When Program Mode is exited, changes may take a few moments to download; during this time, the unit will remain “frozen”. When this download is complete, the unit will resume normal operation; recording will resume according to the new programming, the Digital Display will show its maximum camera view, and the Analog Monitors will follow new programming or resume the programming assigned to them prior to programming.

Understanding Menus

The information in the Program Mode is presented in a series of Menus and Submenus. Most of these appear as text on a single screen. However, in some cases a single Menu or Submenu may continue for two or more screens.

Note: All Programming Menus as shown in the Programming Tree Diagram on Page 47.

In general, Menus are displayed as two columns of text in which the left hand column contains programmable functions, and the right hand column contains settings. The **Arrow buttons** will move the cursor to enable selection of menus, functions, and their associated settings. The **Program button** is used to make selections.

Note: Here and throughout this manual, defaults are shown **underlined and bold**: special notes and ranges for settings are in parenthesis.

Example: ***The Date/Time Menu***

| | |
|-------------|---|
| Format | USA , Europe |
| Style | AM/PM , Military |
| Time | 00:00 (defaults is last time set) |
| Day of Week | SUN , MON, TUE, WED, THU, FRI, SAT |
| Day | 01 (01-31) |
| Month | 01 (01-12) |
| Year | 97 , (00-99) |
| Main Menu | |

Selecting Programming Functions

When the cursor is in the left hand column, use the **Up** and **Down Arrow buttons** to select a function. Once the desired function is selected, use the **Right Arrow button** to move the cursor into the right hand column. When the cursor is in the right hand column, use the **Up** and **Down Arrow buttons** to change the settings. Once the desired settings are achieved, use the **Left Arrow Button** to move the cursor back into the left hand column. Any number of functions can be set while in a Menu.

Some functions are followed by a right arrow. In these instances, there is no visible “right hand column.” For some function, pressing the **Right Arrow button** will display another screen, as in setting Activity or Motion Detection Zones. For others, this will accomplish the function being programmed, as in resetting a Default.

For menus that have a camera number at the top of the screen, the camera number can be changed by pressing any other **Camera button** when the cursor is in the left hand column. The programming “page” will then become the page for the newly selected camera. Because each camera has many options, it is often easier to program all cameras for a given page rather than go through all menus for one camera, then go through them again for another.

After all desired functions in a particular menu have been programmed, there are two ways to exit the menu and put the settings into effect:

- 1) Move the cursor to the left hand column and press the **Program button**: this will save the settings and return to the Main Menu. However, the new programming will not take effect until EXIT is selected from the Main Menu.
- 2) Move the cursor to the bottom of the screen and select NEXT PAGE or MAIN MENU (depending on the menu).

Again, please preview carefully the information in this manual before accessing Program Mode.

Main Menu Settings

The Main Menu Pages

This menu has 2 screens, as shown below:

Main Menu Page 1

Language
Date / Time
Alarm Display
Sequence Setup
Digital Display

Next Page

Main Menu Page 2

Camera Settings
Record Mode
Sequence Timers
FST Timers
Log / Printout

Exit

To access a particular menu, move the cursor to the desired menu, then press the **Program button**.

Language and Format Settings

THE LANGUAGE / FORMAT MENU

| | |
|-----------|---------------------------------|
| Language | ENGLISH (French, German) |
| Format | NTSC (PAL) |
| System | Set Dflt> |
| Rescan> | |
| Main Menu | |

Language

The language selected here affects all programming menus.

Format

This displays the format detected by the unit at start up. The format can not be changed. To change the format, the unit must detect the desired format at the input of Camera 1 at start up.

System

Select Set Dflt resets the unit to factory defaults. All programming will be reset.

Rescan

Select Rescan if cameras are added after power up. Cameras added after power up will only be acknowledged if this function is selected.

Note: Any time the unit is powered up, it will scan all camera inputs. If cameras are added after power up, re-powering the unit will ensure that the new cameras are accepted.

Date and Time Settings

THE DATE / TIME MENU

Please refer to "Getting Started" for setting the Date and Time.

Configuring the Alarm Display

THE ALARM DISPLAY MENU

| | |
|----------------|---------------------|
| Display | ON, OFF |
| Number of Pix | 1, 4, 9, 16 |
| Annotate Alarm | YES, NO |
| Clear Alarm | MANUAL, AUTO |
| Position Alarm | > |
| Main Menu | |

Alarm Display

This function determines whether an alarm will display on the Digital Display. If YES is selected, the Digital Display will show the alarm in the configuration selected in Number of Pix.

Note: Alarms will always show on Analog Monitor A (the “Call Monitor”)

Number of Pix

This sets the number of images shown on the Digital Display when an alarm has been triggered. On all multiple camera views, the first image (the upper left hand corner) will be the alarm image. All images following will be one second update images of the alarm camera. The Number of Pix can be set to 1, 4, 9, or 16 on any unit , **regardless of the number of camera inputs.**

Annotate Alarm

Selecting YES will display, Alarm Annotation on-screen and to tape when an alarm is triggered. Selecting NO will cause the unit to only audibly alarm (if enabled) and flash the triggered camera’s LED. All alarms are noted on the Event Log, regardless of the setting chosen for Annotate Alarm.

Clear Alarm

If MANUAL is selected, the unit will display Alarm Annotation until the alarm is manually acknowledged (by pressing the triggered camera’s button) If Auto is selected, the unit will display Alarm Annotation for the duration of the alarm dwell time, whether it is manually acknowledged or not. Annotation on-screen and to tape will follow the duration of the alarm according to the Clear Alarm Setting.

Position Alarm

If selected, the alarm message will appear on Analog Monitor A. Using the Arrow buttons, the message can be positioned anywhere on the screen. The positioning is global, and will be the same for all cameras. Once the desired position is achieved, to save the alarm message position and return to the Alarm Display Menu, press the Program Button.

Notes:

- 1)** When enabled, the Alarm Digital Display will show alarm images on the Digital Display in place of Live or VCR Playback images. Until cleared, only the first alarm in a sequence of alarms will be displayed.
- 2)** To clear the Alarm Display, press any digital View (e.g., Full, X4, X9, etc)
- 3)** If Number of Pix is greater than 1, the Digital Display will show the alarm image at 1 second updates of the same camera, until the screen is filled with the programmed number of images.
- 4)** The unit will automatically reset to maximum camera view if an Alarm Image is automatically printed.

Programming Sequences

THE SEQUENCE SETUP MENU

This menu is used to program up to 6 different camera sequences. Once programmed, each sequence can be assigned at any time to any Analog Monitor. Sequences can be assigned on demand by front panel buttons or set to run automatically by programming the Sequence Timers Menu.

Sequence **01** (01-04) Setup

Cameras Section

| | | | | | |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 00 | 00 | 00 | 00 | 00 | 00 |
| 00 | 00 | 00 | 00 | 00 | 00 |
| 00 | 00 | 00 | | | |

Main Menu

Notes:

- 1) The number of cameras available for a given sequence is equal to the number of camera inputs for each unit. For example, 4 channel units allow four cameras per sequence; 16 channel units, sixteen per sequence.
- 2) Cameras may be repeated within a sequence, and not all positions within a sequence need be assigned.

Programming Sequences

- 1) Assign the sequence a number, 1-6 in the field following SEQUENCE.
Use either the Direction buttons or the Camera buttons to enter a number.
- 2) Assign cameras, in any order desired, to the sequence.
The fields following CAMERAS SECTION can be assigned using either the Direction buttons or the Camera buttons.

Notes:

- 1) A field with 00 will have no camera assigned to it and will be ignored, the unit will show only assigned cameras.
- 2) Cameras not connected will not display any screen during sequences.

Setting and Adjusting the Digital Displays

THE DIGITAL DISPLAY MENU

This menu programs various views available on the Digital Display, the dwell time between these views, and some adjustments. This menu requires both a Digital Display and an Analog Monitor A.

| | | |
|--------------|--------------|-----------------|
| Dwell Time | 00:05 | (00:00 - 10:59) |
| Set Display> | | |
| Default> | | |
| Contrast | 216 | (0-255) |
| Brightness | 128 | (0-255) |
| Saturation | 320 | (0-512) |
| Hue | 128 | (0-255) |
| Main Menu | | |

Setting the Digital Display Dwell Time

- 1) Move the cursor to DWELL TIME, then to the right hand column.
- 2) Use the Arrow buttons to set the desired dwell time.

This dwell time affects only the rate of the Digital Displays when they are sequencing (e.g. quad switching and 3x3 switching) The Analog Monitors are unaffected by the settings in this menu.

Descriptions of the Digital Displays

4 channel units have one quad display that can be programmed. 9 channel units have three 4 camera displays and one 9 camera display that can be programmed. 16 channel units have four 4 camera displays, two 9 camera displays, and one 16 camera display all of which can be programmed.

The defaults for 9 Channel units are:

- First 4 camera display - cameras 1-4
- Second 4 camera display - 5-8
- Third 4 camera view - 9, 1-3
- The 9 camera display is set to 1-9, and is also programmable

The defaults for the 16 Channel units are:

- First 4 camera display - cameras 1-4
- Second 4 camera display - 5-8
- Third 4 camera view - 9-12
- Fourth 4 camera view - 13-16
- First 9 camera view - 1-9
- Second 9 camera view - 10-16, 1, 2
- The 16 camera view is set to 1-16, and is programmable

Setting the Digital Displays

First, move the cursor to SET DISPLAY, then press the **Right Arrow button**.
You will now use the Digital Display buttons, X4, X9, and X16 (as available) and the Camera buttons.

Quad Views

Note: When programming any Digital Display, press the **Program button** to program the settings and return to the Digital Display Menu.

All units

- 1) Press the **X4 button**. The Digital Display will show a 4 camera view
- 2) Use the **Arrow button** to highlight the quadrant to be changed.
- 3) Press any **Camera button** to assign it to the selected quadrant.
- 4) Repeat these steps for the remaining quadrants.
- 5) Press the **Program button** to return to the Digital Display Menu.

This concludes programming Digital Displays for 4 channel units.

For 9 and 16 Channel Units

- 1) Follow the above steps, 1-4
- 2) Press the **X4 button** again
The Digital Display will show a second 4 camera view.
- 3) Quadrants may be changed as described above.
- 4) Press the **X4 button** again.
- 5) The Digital Display will show a third 4 camera view
- 6) Quadrants may be changed as described above

This finishes programming this menu for 9 channel units.

To return to the Digital Display Menu, press the **Program button**.

For 16 Channel Units

Continue the above steps to assign cameras to the fourth 4 camera views. After the fourth 4 camera view is programmed, press the **X4 button** again or press the **Program button** to return to Digital Display to the first 4 camera view.

9 Camera Views

9 and 16 Channel Units

- 1) After entering the Set Display mode as described above.
- 2) Program the 9 camera views by pressing the **X9 button**.
The Digital Display will show the first 9 camera view
- 3) Move the cursor to the desired section, then press a **Camera button** to assign that camera to the section.
- 4) Repeat until all desired sections are assigned.
- 5) Press the Program button to finish and return to the Digital Display Menu.

This concludes programming Digital Display for 9 Channel Units

16 Channel Units

1) Press the **X9 button** again.

The Digital Display will show the second 9 Camera View

2) Repeat the steps above to assign cameras to the sections in this view.

3) Pressing the **X9 button** again returns the Digital Display to the first 9 camera view.

To return to the Digital Display Menu, press the **Program button**.

Defaults

This returns the unit to the default Contrast, Brightness, Saturation, and Hue settings.

1) Position the cursor on Defaults

2) Press the Right Arrow button

The values for Contrast, Brightness, Saturation, and Hue will return to their factory defaults.

Contrast, Brightness, Saturation, and Hue Settings

To compensate for special lighting conditions and other situations, the unit offers global adjustments for Contrast, Brightness, Hue and Saturation. All of these adjustments are made as follows:

1) Select the desired adjustment, then press the **Right Arrow button**.

The Digital Display will change to a quad view.

2) Use the **Up** and **Down Arrow buttons** to change the values for the adjustment.

3) When the adjustment is finished, press the **Program button**.

The Main Menu will be displayed.

Note:

1) Analog Monitors are unaffected by these settings

2) These settings affect recording to the tape and the Digital Display. Be sure to change values incrementally, and check in VCR mode after exiting Programming.

3) On Monochrome units, the Digital Display will not be affected by the Hue and Saturation settings.

4) In the PAL mode, the Hue control has no effect.

Camera Settings

THE CAMERA SETTING PAGE

The Camera Settings Menu is actually a series of menus. Because the Millennium multiplexers are designed to offer maximum flexibility and control, each camera has many programming options. It is important to plan the configuration of your system before setting up these menus. Also, please carefully preview the information below before accessing the Camera Settings Menu.

Note: At the top of each “page” of the Camera Menu, the Camera Number is displayed. Move the cursor to the left hand column and press any Camera button to change that camera’s settings. It is sometimes easier to program each camera for a given page, before moving to another page in the Camera Menu.

Camera Alarm Settings Page

Note: This menu will display VIDEO PRESENT or VIDEO NOT PRESENT, to identify the condition of the camera selected for programming. This condition is based on the camera connections at the time the unit is powered up . If a camera displays VIDEO NOT PRESENT, it **can not** be selected at PRESENT. Cameras added after power up will display NOT PRESENT until the unit is re-scanned (See Language / Format Menu)

Cameras that display NOT PRESENT will not appear on monitors and will not be recorded to tape.

| | | |
|----------------|----------------|--------------------|
| Camera | 01 | Settings |
| Video | PRESENT | (Not Present) |
| Alarm Input | OFF | (MD, HC, BOTH, OR) |
| Alarm Type | N/O | (N/C) |
| Buzzer | OFF | (ON) |
| Alarm Duration | 00:04 | (00:00 - 04:59) |
| Dwell Time | 00:04 | (00:00 - 04:59) |
| Next Page | | |

Setting The Alarm Input

This setting determines the conditions necessary for the camera to alarm. If OFF is selected, neither motion detection nor contact can trigger an alarm for that camera. MD will alarm only from motion detection, HC will alarm only from a hard contact alarm. OR will alarm if *either* motion or hard contact alarm is detected.

Notes:

- 1) Units without Video Motion Detection: Only HC and OFF are valid settings.
- 2) BOTH will only alarm if both types of alarms are triggered simultaneously.

Setting the Alarm Type

This setting determines how each camera responds to an alarm input. For example, a door contact that alarms on opening should be set in this menu to N/C (Normally Closed).

Setting the Buzzer

The audible alarm can be set ON or OFF. If set to OFF, the unit may still alarm, but no audible alarm will result. If set to ON, an audible tone will sound for the Alarm Duration each time alarm criteria are met for the selected camera. The buzzer will sound on Video Loss, regardless of the settings here. ON/OFF and Duration are set for each camera.

Setting the Alarm Duration

This setting determines the length of time an alarm will be recorded to tape, regardless of when it is acknowledged. For example, if the alarm duration is 10 seconds, but the alarm is acknowledged after only 5 seconds, the audible alarm will cease, yet the alarmed camera will continue to be recorded to tape for the full 10 seconds.

The duration of the Alarm Annotation is determined in part by the setting for "Annotation", in the Alarm Settings Menu. If Manual is selected, the on-screen annotation will cease whenever the alarm is manually acknowledged. If Automatic is selected, the annotation will continue for the Alarm Duration programmed here, regardless whether it is manually acknowledged.

Setting the Dwell Time

The Dwell Time is the amount of time each alarm will appear on the Analog Monitor A (the "Call Monitor") during multiple alarms.

This setting is independent for each camera, and also determines:

- 1) How long the camera is displayed during sequences. Each camera can be configured differently.
- 2) How long the camera is displayed on the "Call Monitor" during multiple alarms.

Note: When the desired Dwell Time is set, use the Left Arrow button to move the cursor into the left hand column. Do not press the Program button while the cursor is in the right hand column.

Configuring the Time and Title

TIME/TITLE PAGE

This portion of the Camera Menu programs the display and positioning of each camera's time, date, and title. In this menu, "Time" refers to time and date.

| | |
|-----------------|---|
| Camera | 01 (1-4, 1-9, or 1-16, as available) |
| Display Time | YES , (NO) |
| Position time> | |
| Display Title | YES , (NO) |
| Edit Title> | |
| Position Title> | |
| Next Page | |

Note: The defaults on all cameras are: Display Time, YES; Display Title, YES; The default position for each is the lower right hand corner of the screen.

Note the Camera number at the top of the screen. Make sure the camera being programmed is the desired camera. To change the camera being programmed, position the cursor in the left hand column, and press the desired **Camera button**.

Positioning Time / Date and Titles

- 1) Select whether the time/date or title will be displayed by selecting YES or NO in the appropriate position.
- 2) Move the Cursor to POSITION TIME, then press the **Right Arrow button**. The screen will change to show video from the camera being programmed.
- 3) Use the **Arrow buttons** to position the Time/Date.
- 4) When the text is in the desired position, press the **Program button** to program the new positioning.

To position Titles, repeat the above steps, beginning with the cursor positioned at POSITION TITLE.

Editing Titles

Note the Camera number at the top of the screen. Be sure that the camera being programmed is the desired camera.

- 1) Move the cursor to EDIT TITLE, then press the **Right Arrow button**.
The screen will change to show video from the camera being programmed.
- 2) Use the **Left and Right Buttons** to move the cursor from space to space within the text field. Use the **Up and Down Arrow** buttons to change the character in each position.
The default title for each camera is the word "Camera" followed by the camera number.

The following characters are available for each position in the title text field. Starting from "A" using the Up Arrow button shows the following characters in this order.

ABCDEFGHIJKLMNOPQRSTUVWXYZabcdefghijklmnopqrstuvwxyz[space].-/_
0123456789:<*>_

Notes: When selecting a space, the cursor "disappears"
The tile may contain a total of twenty characters.

Programming Activity Detection

THE ACTIVITY DETECTION PAGE

This menu programs the Activity Detector. When enabled, priority in the frame-switcher output sequence will be given to cameras with activity, recording these camera to tape more frequently.

For example, on a 9 channel unit with valid camera input on all cameras, the normal recording sequence is Cameras, 1,2,3,4,5,6,7,8,9. If activity were detected on Camera 3, the sequence would change to 1,3,2,3,4,3,5,3,6,3 etc., until activity is no longer detected. All cameras with activity are given this level of priority.

Note the Camera number at the top of the screen. Make sure the camera being programmed is the desired camera. To change the camera being programmed, position the cursor in the left hand column, and press the desired **Camera button**.

Note: This menu is not available on units without Video Motion Detection.

| | |
|----------------------|--------------------------------|
| Camera | 01 |
| Activity Det | ON (OFF, REC OFF, ONLY) |
| Activity Set Zone> | |
| Activity Sensitivity | 50 (0-99) |
| Next Page | |

Setting the Activity Detection

- 1) Move the cursor to ACTIVITY DET, then into the right hand column
- 2) Use the **Up** and **Down Arrow buttons** to select ON, OFF, REC OFF, or ONLY
ON enables the Activity Detection. It will function as described above.
OFF allows the camera to be recorded to tape in the normal recording sequence.
Activity will not effect the rate at which the camera is recorded to tape.
REC OFF removes the camera from all recording sequences. The camera will not be recorded to tape.
ONLY will cause the camera to be recorded only when activity is detected.

Note: At least one Camera must be set to either ON or OFF.

Setting the Activity Detection Zones

- 1) Move the cursor to ACTIVITY SET ZONE, then press the **Right Arrow button**.
The screen will change to show video from the camera being programmed, and the Zone Pattern will be overlaid on the view.
- 2) Use the Direction buttons to position the cursor and the **VCR/Live button** to change Zones from Active to Inactive.
- 3) *Active Zones appear as normal video. Inactive Zones are overlaid in white.*

When all Zones have been programmed, press the **Program button** to return to the Menu.

Note: The default is all Zones active.

Programming Motion Detection

THE MOTION DETECTION PAGE

This menu programs the Video Motion Detection settings independently for each camera.

Notes:

- 1) Note the Camera number at the top of the screen. Make sure the camera being programmed is the desired camera. To change the camera being programmed, position the cursor on the number following "Camera" and press the desired **Camera button**.
- 2) Units without Motion Detection will not have this Menu.
- 3) This menu allows each camera to have optimal motion detection zones. Be sure that any unwanted movement is blocked out, including potential movement, such as trees which may only move when there is wind. Also note that changes in lighting may trigger the motion detection; signs or phones with flashing lights may need to be blocked out.
- 4) For Motion Detection to function, the INPUT ALARM setting in "Camera Settings Menu" must be set to MD, BOTH, or OR.

IMPORTANT !!!

Because each application is unique, some experimentation is normally required to find the proper settings for Zones, Sensitivity, and Trigger Level. It is best to perform a "walk through" test - create various conditions within the camera view to adjust the settings to ensure that they: 1) trigger the alarm when desired
2) do not trigger false alarms.

Note: The default for each camera is all Zones active; this will display as a clear screen.

| | | |
|---------------------|------------|------------|
| Camera | 01 | |
| Motion Set Zones> | | |
| Day Motion Settings | | |
| Sensitivity | 50 | (0-99) |
| Trigger Level | 500 | (0-65,535) |
| Next Page | | |

Setting the Motion Detection Zones

- 1) Move the cursor to MOTION SET ZONE, then press the Right Arrow button.
*The screen will change to show video from the camera being programmed.
The zone Pattern will be overlaid on the view.*
- 2) Use the Arrow buttons to position the cursor and the VCR/Live button to change Zones from Active to Inactive.
Active Zones appear as normal video. Inactive Zones are overlaid in white.
- 3) When all Zones have been programmed, press the Program button to return to the Menu.

Setting Motion Detection Sensitivity And Trigger Level

- 1) Move the cursor to SENSITIVITY
- 2) Move the cursor to the right hand column
- 3) Use the **Up** and **Down Arrow buttons** to select the desired Sensitivity, 0-99.
The default SENSITIVITY is 50. 99 is the most sensitive; 0 is the least.
- 4) After the desired Sensitivity is selected, move the cursor back into the left hand column.
- 5) Move the cursor to TRIGGER LEVEL, then into the right hand column.
The Trigger Level determines the size of the object necessary to trigger an alarm. The larger the number, the larger the object must be to trigger an alarm.
- 6) Use the **Up** and **Down Arrow buttons** to select the desired Trigger Level.
The default TRIGGER LEVEL is 500
- 7) After the desired Trigger Level has been selected, use the **Left Arrow button** to return the cursor to the left hand column.

Program other cameras by changing the Camera number at the top of the screen, or leave this Menu by moving the cursor to NEXT PAGE and pressing the **Program button**.

Programming Night Motion Detection Settings

THE NIGHT MOTION SETTINGS PAGE

This Menu programs another set of Motion Detection criteria for each camera. When used with the Motion Detection Timers, these can be used to compensate for the low light level conditions at night. These settings can also be used as “after hours” or weekend settings.

Notes: Units without Motion Detection will not have this Menu.

- 1) The Night Motion Zones are identical to those set in the Motion Detection Zones: they can not be programmed separately.
- 2) Note the Camera number at the top of the screen. Make sure the camera being programmed is the desired camera. To change the camera being programmed, position the cursor in the left hand column, and press the desired Camera button.

The separate Sensitivity and Trigger Levels in the Night Motion Settings are programmed as in the Motion Detection Menu (see above).

Programming the Alarm Timers

THE ALARM TIMERS PAGE

This Menu programs each camera for Motion Detection, Hard Contact Inputs, and Night Motion on and off times.

Camera 01 Settings

| | | | Start | Stop |
|---|----------|------------|---------|---------|
| 1 | D | D | 12:00AM | 11:59PM |
| 2 | D | OFF | 12:00AM | 11:59PM |
| 3 | D | OFF | 12:00AM | 11:59PM |

Main Menu

Notes:

- 1) Each Camera can have up to three timer settings.
- 2) In units without Motion Detection, this menu affects only Hard Contact Alarms.

Note the Camera number at the top of the screen. Make sure the camera being programmed is the desired camera. To change the camera being programmed, position the cursor in the left hand column, and press the desired **Camera button**.

Each Timer is divided into 5 columns: Timer number; Day/Night; OFF/Days; Start; and Stop.

- 1) Timer number: Each of the timers is numbered 1 to 3.
- 2) Day / Night This setting determines whether the Motion Detection operates according to its Day or Night configuration.
- 3) OFF / Days If OFF is selected, the timers will be inactive. The following selections are available for the days of the week the timer will be active.
 - D-every day (daily, Sun-Mon)
 - M-F Weekdays (Mon-Fri)
 - S-S-Saturday and Sunday
 - SU, M, TU, W, TH, FR, SA
- 4) Start time: Determines the timer Start Time.
- 5) Stop time: Determines the timer Stop Time.

Setting the Alarm Timers

- 1) Use the **Up** and **Down Arrow buttons** to select the desired timer.
- 2) Use the **Left** and **Right buttons** to move the cursor from column to column.
- 3) Use the **Up** and **Down Arrow buttons** to select D (day) or N (night). This sets whether the following timer programming applies to Motion Detection Settings or to Night Motion Settings.
- 4) Move the cursor to the right. Use the **Up** and **Down Arrow buttons** to select the Day(s) for the timer to be active.

- 5) Move the cursor to the right again. Use the **Up** and **Down Arrow buttons** to select the Start Time.
- 6) Move the cursor to the right again. Use the **Up** and **Down Arrow buttons** to select the Stop Time.
- 7) Move the cursor to the far left hand column. Be careful not to change any of the settings made earlier.
- 8) If desired, set the other timers, as above.

Notes:

- 1) The default for all cameras is:
 Timer 1: D D 12AM 1:59PM
 Timers 2 and 3 OFF
- 2) Timers that conflict or overlap will default to the earliest Start Time and the Latest Stop Time of all times programmed: timers set ON will override timers set OFF.

Programming the Record Mode

THE RECORD MODE MENU

This menu programs the recording rate of the frame switcher, for both normal recording and alarm recording. The duration of the alarm recording time for each camera is determined by that camera's Alarm Duration setting in the Camera Settings Menu.

| | |
|-----------|--|
| Rate Type | HOUR , FIELD |
| Normal | 24HR (0-65,334HR) 11FLD (0-65,344FLD) |
| Alarm | 2HR (NTC) 3HR (PAL) 0FLD (no delays) |
| VCR Type | COMP , S-VHS |
| Main Menu | |

Notes:

- 1) If connected, the VCR Gate Pulse will control the unit's VCR output rates. **If connected, it will override any Frame Rate settings.**
- 2) The options in this Menu are limited by the format, NTSC or PAL. Only those options compatible with the current format will be shown.
- 3) If the Alarm Rate differs from the Normal Rate, the VCR's Alarm In must be connected to the unit's Alarm Out.
- 4) Be sure that the VCR's Alarm Rate and Duration matches the unit's Alarm Rate and Duration.

Setting the Type

This function permits the system to set the VCR record rate by either HOUR or, if known, by the FIELD DELAY made available by the VCR manufacturer.

Selecting HOUR or FIELD format affects all the options in this Menu. The HOUR format allows for all settings to be made in one hour increments. The FIELD format allows for all settings to be made in field delay increments. If in doubt, consult your VCR manual to determine the correct format.

Setting the Normal Record Rate

Select the VCR record rate for normal daily record operation.

- 1) Move the cursor to NORMAL, then into the right hand column.
- 2) Use the **Up** and **Down Arrow buttons** to select the desired Normal Record Rate; 0-65,534HR or 0-65,535FLD.
- 3) When the desired setting is reached, move the cursor back into the left hand column.

Setting the Alarm Record Rate

Select the VCR record rate that matches the VCR programmed rate for recording during an alarm.

- 1) Move the cursor to ALARM, then into the right hand column
- 2) Use the **Up** and **Down Arrow buttons** to select the desired Alarm Record Rate; 0-65,534HR or 0-65,535FLD.
- 3) When the desired setting is reached, move the cursor back into the left hand column

Setting the VCR Type

Select whether the VCR is connected with standard coax BNC cables (COMPOSITE) or by special cables to the S-VHS connectors. This setting tells the unit which source to read from on VCR playback.

- 1) Move the cursor to VCR Type, then into the right hand column
- 2) Use the **Up** and **Down Arrow buttons** to make the appropriate selection, COMP or S-VIDEO.
- 3) Return the cursor to the left hand column.
- 4) Select Main Menu to exit.

Note: Do not select S-VHS as a programming option on monochrome units.

Programming Timers for Sequences

THE SEQUENCE TIMER MENU

This menu programs the timers to assign sequences to particular monitors. If enabled, the sequence will over ride front panel operation. If OFF is selected for either TIMER or DAY timer functions will be suspended.

Timer **01** (2,3,4) **OFF** (ON)

| | | |
|-----------|--------------|--|
| Day | OFF | M-F, S-S, DAILY, M, T, W, TH, F, SA, SU) |
| On Time | 00:00 | (AM, PM) |
| Off Time | 00:00 | (AM, PM) |
| Monitor | A | (B) or (B, C, D, E, F) |
| Sequence | 1 | (2, 3, 4) |
| Main Menu | | |

Notes:

- 1) An alarm will over ride timer functions.
- 2) The defaults are:
 - TIMER - OFF
 - DAY - MON
 - ON and OFF TIMES - 12AM NTSC (00:00, PAL)
 - MONITOR - A
 - SEQUENCE - 1.
- 3) Unit will run in Normal Mode if no timer is active.

Programming the Frame Switcher Timer

THE FRAME SWITCHER TIMER MENU

This Menu programs timed changes in the rate of the Frame Switcher. This enables the unit to match any changes that may occur when using a time lapse recorder with programmed timers for changing the recorders frame rate. Before programming this Menu, review the settings for the frame rate timer of the time lapse recorder. Make sure that the timers match in both time and rate.

| | |
|-----------------|--|
| Timer 01 | OFF , ON |
| Days | OFF , SU, M, TU, W, TH, FR, SA, D, M-F, S-S |
| On Time | 12:00AM |
| Off Time | 11:59PM |
| Rate | 24HR (0-65,334HR) 11FLD (0-65,334FLD) |
| Main Menu | |

Programming the Frame Switcher Timer

- 1) Timer number: Set the desired Timer number, 1-4
- 2) OFF / Days: If OFF is selected, the timer will be inactive. The following selections are available for the days of the week the timer will be active.
 - D - every day (daily, Sun - Mon)
 - M-F - Weekdays (Mon - Fri)
 - S-S - Saturday and Sunday
 - M, T, W, TH, F, SA, SU
- 3) On Time: Set the desired time for the Timer to start.
- 4) Off Time: Set the desired time for the Timer to stop.
- 5) Rate: Set the desired Rate for the frame switcher output for the duration of the timer.

Setting the Print Options

LOG / PRINTER MENU

This Menu Programs the time and type of alarm that will be sent to the printer.

| | |
|--------------|---------------------|
| 24 Hour | NO (YES) |
| Print Pix | NO (YES) |
| Time | 12:00AM |
| Printer Type | TEXT PICTURE |
| Main Menu | |

Notes:

- 1) A PCL-5 compatible printer** must be correctly connected to allow pictures to be printed; however, the Event Log will print on virtually any standard printer, including dot-matrix and inkjet types.
- 2) While the unit is printing an image, the Digital Display will be black for approximately 90 seconds.**
- 3) If "24 Hour" is selected, the Event Log will print automatically every 24 hours, at the time set in "Time".**
- 4) Select TEXT if printer is not PCL-5 compatible. Select PICTURE if printer is PCL-5 compatible.**

Programming Salvos

THE SALVO SETTING MENU

Salvo **01** (01-04)

| A | B | C | D | E | F |
|-----------|-----------|-----------|-----------|-----------|-----------|
| 00 | 00 | 00 | 00 | 00 | 00 |
| 00 | 00 | 00 | 00 | 00 | 00 |
| 00 | 00 | 00 | 00 | 00 | 00 |
| 00 | 00 | 00 | 00 | 00 | 00 |

DWELL TIME **00:04**

Salvos are groups of cameras that sequence simultaneously on all monitors. It is possible to program four salvos. The letters above each column refer to the Analog Monitors, A-F; each column can have up to four cameras. Each row of the Salvo Menu sequences simultaneously. Therefore, all the cameras selected in the top row will appear on Analog Monitors A-F at the same time. Then, after Dwell Time, all monitors will show the cameras selected in the second row, and so on.

In this menu, each Salvo, 1-4, has its own programming screen. On each screen, the letters A-F represent the six Analog Monitors. The letter "X" indicates no camera programmed in that position. Once a camera is selected, the letter "C" precedes the camera numbers. The Dwell time is the time each row of cameras will remain on-screen.

Appendix One

Pin Outs:

The following is a listing of all I/O by connector by pin number.

DB9 RS-232 Female

| | | |
|-----|---|---|
| Pin | 1 | Gnd for +12 volt power supply |
| | 2 | RXD |
| | 3 | TXD |
| | 4 | DTR |
| | 5 | Gnd |
| | 6 | N/C |
| | 7 | RTS |
| | 8 | N/C |
| | 9 | +12 Volt power supply for external controller |

DB25 Printer Port Connector Female (Standard Centronics Printer)

| | | |
|-----|-------|---------|
| Pin | 1 | STB |
| | 2 - 9 | D0 - D7 |
| | 10 | ACK |
| | 11 | Busy |
| | 12 | PE |
| | 13 | Select |
| | 14-17 | N/C |
| | 18-25 | Gnd |

DB15 Alarm I/O Male MS4 Only

| | | |
|-----|----|--|
| Pin | 1 | Frame Gate Pulse (Camera Switcher Pulse) |
| | 2 | TXA |
| | 3 | Alarm 1 |
| | 4 | Alarm 3 |
| | 5 | Alarm Out B |
| | 6 | Rec B |
| | 7 | Gnd |
| | 8 | Gnd |
| | 9 | Alarm Out A |
| | 10 | TXB |
| | 11 | Alarm 2 |
| | 12 | Alarm 4 |
| | 13 | Rec A |
| | 14 | Gnd |
| | 15 | Gnd |

DB25 Alarm I/O Male (MS-9, MS-16, MS-3Q)

| | | |
|-----|----|--|
| Pin | 1 | Frame Gate Pulse (Camera Switcher Pulse) |
| | 2 | Alarm Out A |
| | 3 | Gnd |
| | 4 | Gnd |
| | 5 | Alarm 1 |
| | 6 | Alarm 3 |
| | 7 | Alarm 5 |
| | 8 | Alarm 6 |
| | 9 | Alarm 8 |
| | 10 | Alarm 10 |
| | 11 | Alarm 12 |
| | 12 | Alarm 14 |
| | 13 | Alarm 16 |
| | 14 | Gnd |
| | 15 | Alarm Out B |
| | 16 | Gnd |
| | 17 | Gnd |
| | 18 | Alarm 2 |
| | 19 | Alarm 4 |
| | 20 | Alarm 7 |
| | 21 | Alarm 8 |
| | 22 | Alarm 11 |
| | 23 | Alarm 13 |
| | 24 | Alarm 15 |
| | 25 | Gnd |

Appendix Two

Listing of all ASCII commands for controlling the system. The Unit can be controlled via RS-232 using the following command set. The following communications setups are required: 9600, 1 start bit, 8 data bits, 1 stop bit and no parity.

(**Note:** The equal symbol = must be entered)

| | |
|--------------|-----------------------|
| =C01 to =C16 | Camera 1 to Camera 16 |
| =MA | Monitor A |
| =MB | Monitor B |
| =VL | VCR / Live (toggle) |
| =ZM | Zoom |
| =X1 | X1 |
| =X4 | X4 |
| =X9 | X9 |
| =X16 | X16 |
| =UA | Up Arrow |
| =DA | Down Arrow |
| =LA | Left Arrow |
| =RA | Right Arrow |

The following commands represent multiple key strokes:

| | |
|-------|------------------|
| =PL | Print Log |
| =DL | Display Log |
| =FL | Flush Log |
| =PSEQ | Program Sequence |
| =PSAL | Program Salvo |