

SIM160 User's manual

NOTE

1. This unit must be located in a position away from water, moisture or other liquids. Avoid placing this unit where it will be subject to vibration or excessive temperatures. This unit does not contain user serviceable parts.
2. To ensure sound operation of this unit, it should be located in an environment where the temperature is between $5^{\circ}\text{C} \sim +40^{\circ}\text{C}$ ($+41^{\circ}\text{F}$ to $+104^{\circ}\text{F}$) . Humidity should be less than 90%.
3. The ventilation holes must remain free from obstruction. Failure to comply may result in damage to the appliance.



CAUTION - REFER TO ACCOMPANYING DOCUMENTS

Note - This equipment has been certified to comply with the limits for a class B digital device, pursuant to subpart J of Part 15 of FCC Rules. Only peripherals certified to comply with the class B limits may be attached to this equipment. Operation with non-certified peripherals is likely to result in interference to radio and TV reception..

FCC & CE APPROVED

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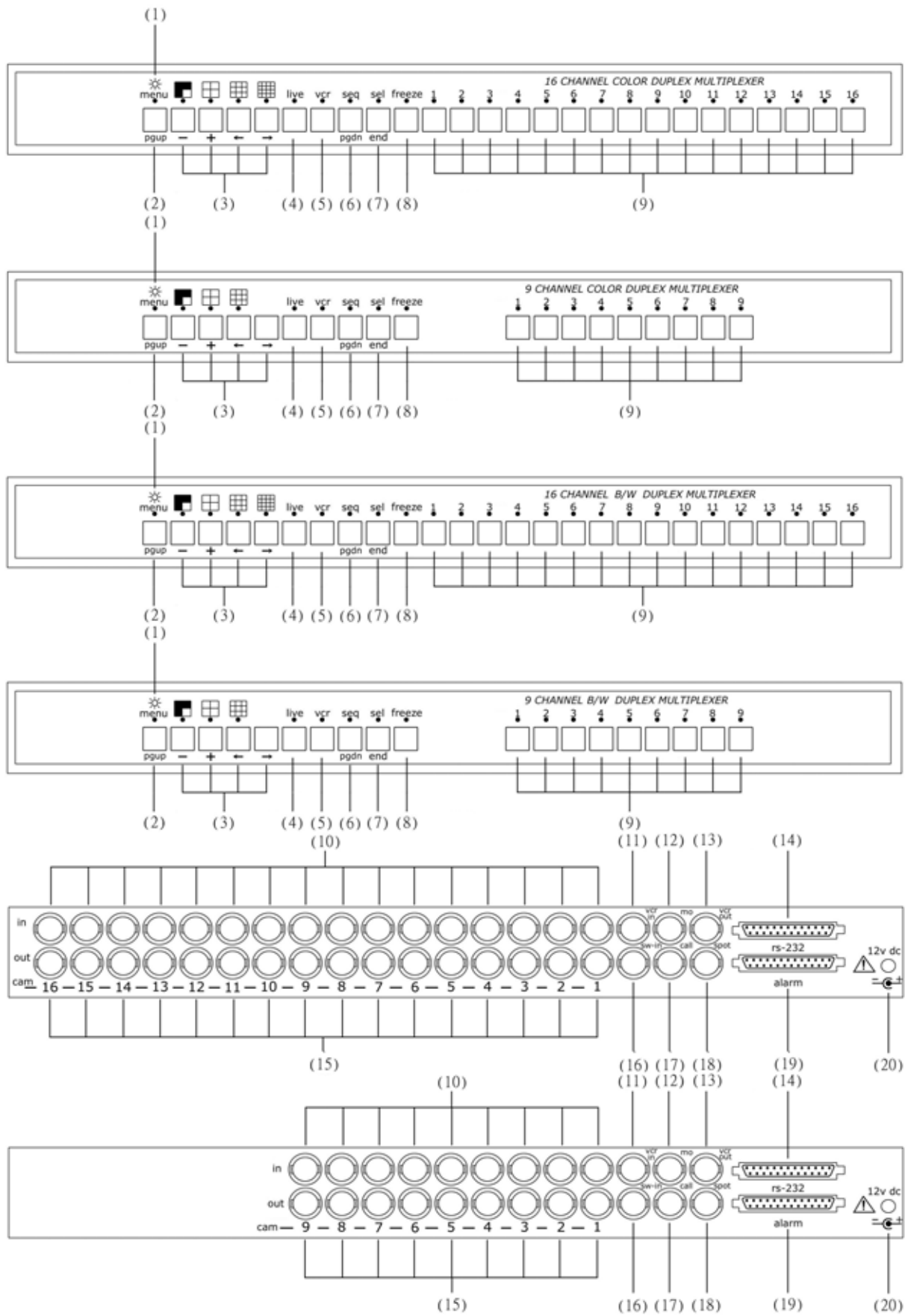
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■ Product Features

- With the latest advanced technology design, a brand-new 9 and 16 channel color & B/W duplex multiplexers will give you the best quality in live monitoring and tape playing.
- Full duplex operation allows recording and playing up to (9) 16 cameras simultaneously via 2 VCRs.
- Available for full frame pictures recording from up to (9) 16 different image sources via a single VCR while simultaneously monitoring them on a monitor.
- Perfectly synchronous recording that can be set on the menu or via the Switch Input jack to trigger. No specific VCR is required when recording.
- Adjustable impedance, brightness, contrast, color and tint for each camera inputs. Please note there will be no color and tint adjustable for each camera inputs in the B/W units.
- Option available to watch 16, 9 and 4 split pictures, or PIP, or any camera full screen. In the PIP view, the insert picture in the PIP view can be enlarged as a quarter screen sized picture or be lessened, even can be shifted to the desired location. Note: The 9 channel multiplexers are not available to watch 16 pictures.
- During VCR playback, option available to watch the pictures in the formats of the full screen, 16, 9, 4 split pictures, PIP and still, etc. Note: There is no the 4 x 4 view in the 9 channel multiplexer.
- Available to connect 3 individual monitors for surveillance, no any of the pictures is missed.
- The looping camera outputs can be set to be suitable for high impedance or 75 ohms.
- Built-in time/date generator, plus 8 character camera title function.
- Provides on-screen set-up menus for ease of operation.
- Control by computer via RS-232 port greatly enhances product application. 100 alarm records available to automatically record the sensor alarm and video loss channel with time/date stamp.
- Provides automatic video loss and alarm detection, products two different alarm sounds.



DESCRIPTION OF FRONT PANEL

1. POWER INDICATOR:

LED light indicates power on.

2. MENU/PAGE UP BUTTON:





Hold this button down for approx. 2 seconds to select the different menu options or settings.

This LED is on when the MENU function has been selected.

- a. To view the next menu, just press this button again.
- b. In PIP mode, hold down this button and press < - >, < + >, < ← > and < → > buttons that allow moving the PIP insert camera to the desired location .

3. MULTI-FUNCTION BUTTON:

- a. In function setting: The buttons can be used to move the cursor and alter the contents in the cursor location.
- b. In picture monitoring: The buttons can be used for options of the PIP view, the Quad view, and the 3 x 3 view and the 4 x 4 view.

	 / -	 / +	 / ←	 / →
Function Setting	Alter the content backward	Alter the content forward	Move the cursor leftward	Move the cursor rightward
Picture Monitoring	The PIP view	A quadrant picture view	A 9 picture view	A 16 picture view ※ Only available for 16 channel multiplexer

4. LIVE MONITORING BUTTON:

When the LED on, this indicates it is in live monitoring for all cameras.

5. VCR BUTTON:

Press this button and the LED comes on, to view the recordings from tape playing.

6. SEQUENCE/PAGE DOWN BUTTON:

- a. In full screen mode:
This button is used to switch the AUTO sequential feature on/off. By pressing this button the unit will switch between the cameras at predetermined time intervals (The time between switching is set up via the MENU screen.)
- b. In the PIP picture mode:
Cameras in the insert can be sequenced.
- c. In Quad screen mode:
Cameras not yet displayed can be sequenced in the lower right window.
- d. In the 3 x 3 view mode:
Cameras not yet displayed can be sequenced in the lower right window.
- e. In the 4 x 4 view mode:
Cameras not yet displayed can be sequenced in the lower right window. Please note that this is only available for the 16 channel multiplexer.
- f. In menu option mode, press this button that allows switching to the next page.

7. SELECT/END BUTTON:

- a. Cameras can be selected for display in any window by pressing this button.
- b. to end the menus.

8. FREEZE BUTTON:

- a. In the full screen view when playback, press this button and LED light on that will be able to freeze the current picture.
- b. In the PIP view when playback, press this button and LED light on, then option available to freeze the desired camera. That is to press the channel one button and the background picture is frozen, and press the channel two button, then the insert picture is frozen.
- c. In the quad screen view when playback, press this button and LED light on, at this time option available to freeze the desired camera. That is to press the channel one button and the first camera is frozen; Press the channel two button, then the second camera is frozen, the rest can be deduced accordingly.
- d. In the 3 x 3 view or in the 4 x 4 view when playback, operate the same procedures as the item C. Please note the 4 x 4 view mode is only available for the 16 channel multiplexer.
- e. Press this button again and LED light off, that can release the frozen picture.

9. CAMERA BUTTONS:

Press any of the numbered buttons and LED light at the corresponding camera will illuminate, this indicates to select a full screen view of the currently selected camera either in live monitoring or in tape playback.

DESCRIPTION OF REAR PANEL

10. CAMERA INPUTS: These are the connectors where the camera's Video Out should be inserted.

11. VCR IN: Connect VCR's Video Output to this jack for videotape monitoring.

12. MONITOR OUT: Connect the monitor's Video In to this jack for live monitoring.

13. VCR OUT: Connect the VCR's Video In to this jack for recording.

14. RS-232 CONNECTOR: This connector is a D-SUB 25 pin female type and is used for connecting with computer to control the unit. Please refer to DESCRIPTION OF RS-232 CONNECTOR & THE ASCII COMMAND SETS.

15. LOOPING CAMERA OUTPUTS: These connectors are used for extending the camera inputs to other accessories.

16. SWITCH IN: This connector accepts an external trigger signal from the Switch Out of the Time Lapse VCR for a synchronous recording.

17. CALL OUT: This connector is used for connecting to an additional monitor to view the alarmed channel while an alarm occurs.

18. SPOT OUT: Connect this connector to a monitor that allows a full screen view of the camera selected on the menu.

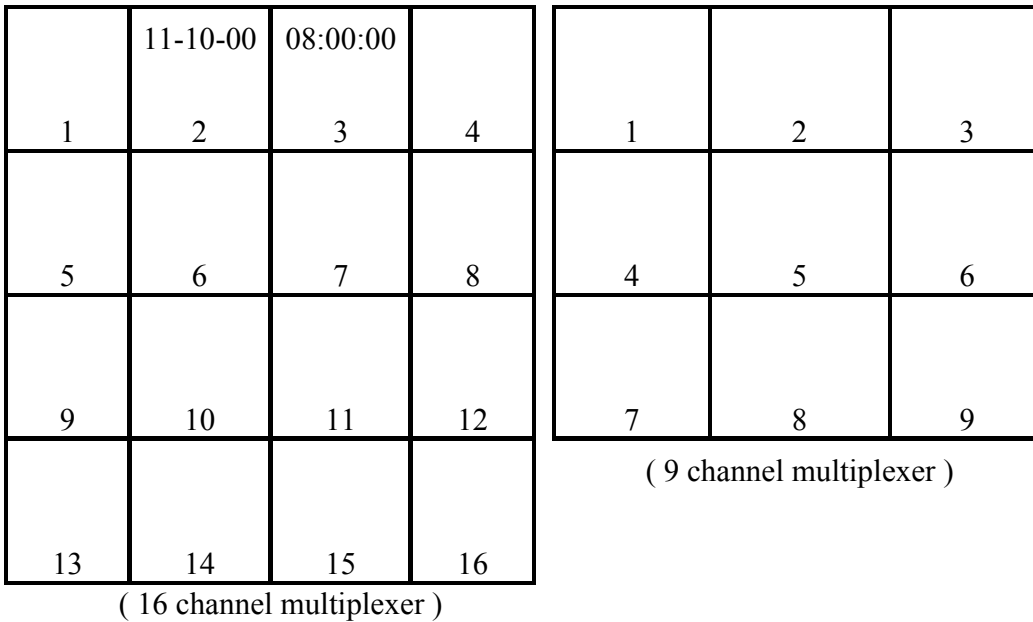
19. ALARM CONNECTOR: This connector is used for connecting with the alarm signal input/output and also alarm reset. Please refer to the ALARM CONNECTOR PIN ASSIGNMENTS.

20. POWER IN: DC 12V, 1.2 amp adapter input.

HOW TO OPERATE

I. MONITORING FUNCTIONS

A. After plugged in for approx. 1 second the monitor displays as below.

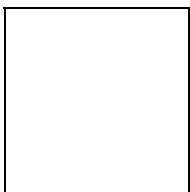


B. LIVE/TAPE MONITORING: Press the VCR button (LED light on) to view playback video. During playback, cameras can be displayed in any order, e.g. the PIP view ∙ the 2 x 2 view ∙ the 3 x 3 view, etc. To press LIVE button to return to the live monitoring mode.

C. AUTOMATIC SEQUENTIAL SWITCHING MODE:

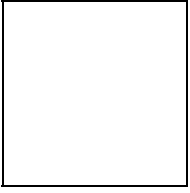
Press the SEQUENCE button (LED light on), the unit will enter into automatic sequential switching mode.

- (a). When in full screen mode, all the cameras will be automatically switched in sequence. The sequence rate is determined by the dwell time setting on the MENU (Please refer to How to Program the Menu B). The sequence is as below: Please note the 9 channel multiplexers only have up to 9 cameras that can be switched.

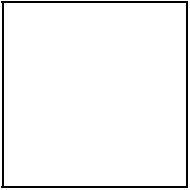


NOTE: If one of the channels has not been connected to a camera output, then the unit will skip automatically to the next connected channel.

(b). When in the PIP view, pressing the SEQUENCE button that cameras in the insert will sequence automatically.





(c). When in the Quad screen mode, press the SEQUENCE button, cameras not yet displayed will sequence in the lower right window.



(d). When in the 3 x 3 view or in the 4 x 4 view, press the SEQUENCE button, cameras not yet displayed will sequence in the lower right window. Please note the 9 channel multiplexers have not the 4 x 4 view.

D. PICTURE IN PICTURE :


There are two functions available to be used, when the  button is pressed.

- a. To enlarge or lessen the insert picture, just hold the  button down.
- b. It will be able to move the insert picture to the desired location as illustrated below.

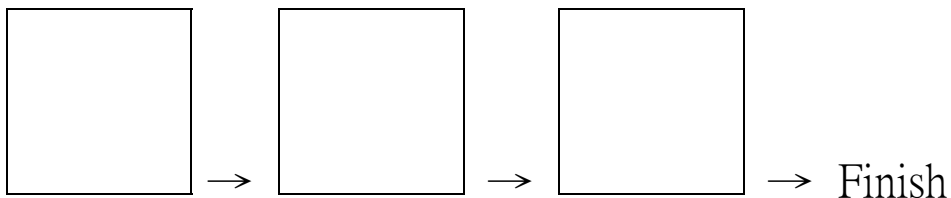
Buttons Function	menu + (-)	menu + (+)	menu + (←)	menu + (→)
Moving direction	Down	Up	Left	Right

E. CAMERA SELECTION FOR DISPLAY IN ANY LOCATION :


1. For the PIP view.

- a. Press the  button and the camera 1 will appear both on the background and on the insert as factory default.
- b. Press the SELECT button and the LED will illuminate, and press the CAMERA button for PIP cameras. The first selected camera is the background picture and the second one will be the insert picture. For example: The desired background picture is the camera 2 and the desired insert picture is the camera 9

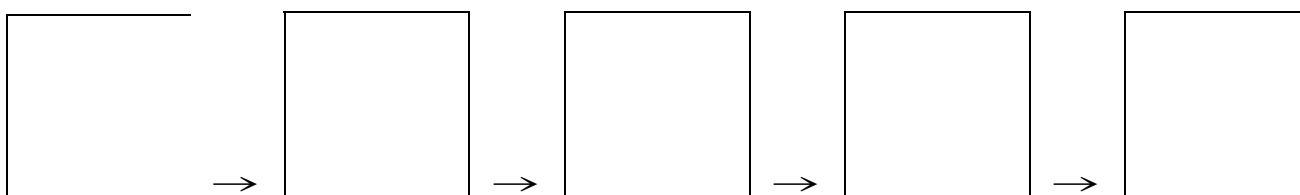
SELECT light on → Press CAMERA button 2 → Again press CAMERA button 9



2. For a Quad screen view.

- a. When press the  button and the LED will illuminate. The unit will display a Quad view with factory default, that is the camera 1、2、3 and 4 will display in order in window # 1、# 2、# 3 and # 4.
- b. Press the SELECT button and LED light on, and press the CAMERA buttons in order for the cameras desired for window # 1, # 2, # 3 and # 4.
- c. The SELECT light will automatically put out after each window contains the desired camera. Please see illustration below.


SELECT light on → Press CAMERA button 2 → Press CAMERA button 4 → Press CAMERA button 8 → Press CAMERA button 9 → SELECT light off → Finish



→ Finish


When power up next time, the unit will recall the last selected cameras and display in each window.

3. For the 3 x 3 view.

- a. When press the  button and LED light on. The unit will display the 3 x 3 view with factory default, that is the camera 1 ~ 9 will display in order in each window.
- b. Press the SELECT button and the LED will illuminate.
- c. Press the CAMERA buttons in order for the cameras desired for each window.
- d The SELECT light will automatically put out after each window contains the desired camera.

When power up next time, the unit will recall the last selected cameras and display in each window.

4. For the 4 x 4 view.

- a. When press the  button and LED light on. The unit will display the 4 x 4 view with factory default, that is the camera 1 ~ 16 will display in order in each window.
- b. Press the SELECT button and the LED will illuminate.
- c. Press the CAMERA buttons in order for the cameras desired for each window.
- d The SELECT light will automatically put out after each window contains the desired camera.

When power up next time, the unit will recall the last selected cameras and display in each window.

Note: The 9 channel multiplexers have not this function.

F. FREEZE FUNCTION:

- a. While tape playback in the full screen view, press the FREEZE button and LED light on, then press any one of the CAMERA buttons and the selected camera full screen will be frozen, and in the meantime a “FREEZE” will appear on the bottom left side of the picture. To release the frozen picture just press the corresponding CAMERA button again.

- b. While tape playback in the PIP view or the 3 x 3 view or the 4 x 4 view, press the FREEZE button and LED light on, then press the CAMERA button to freeze the desired camera. To release the frozen picture press the corresponding button again.

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G. TO END THE SETUP MENU SYSTEM:

Just press the SELECT button, the unit will return to live monitoring immediately.

H. DEFAULTS CLEARING:

Turn the unit off first and hold the most right CAMERA button down, then power up again, the unit will return to factory default.

Note: please do not use this function again after the setting is completed; otherwise, all information previously set will be deleted.

II. Factory Defaults are listed below:

1.

DATE	Unchanged - Not effected
TIME	Unchanged - Not effected
FORMAT OF DATE	M - D - Y

2.

TITLE	Channel 1 : 1	Channel 2 : 2
	Channel 3 : 3	Channel 4 : 4
	Channel 5 : 5	Channel 6 : 6
	Channel 7 : 7	Channel 8 : 8
	Channel 9 : 9	Channel 10 : 10
	Channel 11 : 11	Channel 12 : 12
	Channel 13 : 13	Channel 14 : 14
	Channel 15 : 15	Channel 16 : 16

3.

INTERVAL (Dwell Time)	Channel 1 : 03	Channel 2 : 03
	Channel 3 : 03	Channel 4 : 03
	Channel 5 : 03	Channel 6 : 03
	Channel 7 : 03	Channel 8 : 03
	Channel 9 : 03	Channel 10 : 03
	Channel 11 : 03	Channel 12 : 03
	Channel 13 : 03	Channel 14 : 03
	Channel 15 : 03	Channel 16 : 03

4.

SENSOR TYPE	It is determined by what the sensor type the unit detects while powering up. Set to "NO" when the alarm input is a Normally Open type. Set to "NC" when the alarm input is a Normally Closed type.
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SENSOR SWITCH	Channel 1 : ON Channel 2 : ON Channel 3 : ON Channel 4 : ON Channel 5 : ON Channel 6 : ON Channel 7 : ON Channel 8 : ON Channel 9 : ON Channel 10 : ON Channel 11 : ON Channel 12 : ON Channel 13 : ON Channel 14 : ON Channel 15 : ON Channel 16 : ON
SENSITIVITY	300 ms
AUTO-RESET	030 Seconds

5.

VIDEO LOSS ALARM SWITCH	Channel 1 : ON Channel 2 : ON Channel 3 : ON Channel 4 : ON Channel 5 : ON Channel 6 : ON Channel 7 : ON Channel 8 : ON Channel 9 : ON Channel 10 : ON Channel 11 : ON Channel 12 : ON Channel 13 : ON Channel 14 : ON Channel 15 : ON Channel 16 : ON
SENSITIVITY	300 ms

6.

LIVE monitoring	Date : ON Time : ON Title : ON
PLAYBACK monitoring	Date : ON Time : ON Title : ON
BLACK Background	ON

7.

SOUND ALARM	ON
SOUND VIDEO LOSS	ON
BORDER LINE	GRAY

VCR BYPASS	AUTO
SCRT BYPASS	1 (Camera)
ALARM CH DISPLAY ON MAIN MONITOR	OFF

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8.

CHANNEL	1
GAIN	32
BRIGHTNESS	32
CONTRAST	32

(* B/W units have not the color & tint adjustments)

COLOR	32
TINT	32

9.

TRIGGER	OFF	
NORMAL	DELAY	INTERVAL
	024	0.400 ms
ALARM	DELAY	INTERVAL
	002	33.33 ms

10.

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11.

INPUT IMPEDANCE	75 OHMS
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12.

ALARM RECORD	BLANK
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13.

SECURITY LOCK	OFF
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III. HOW TO PROGRAM THE MENUS

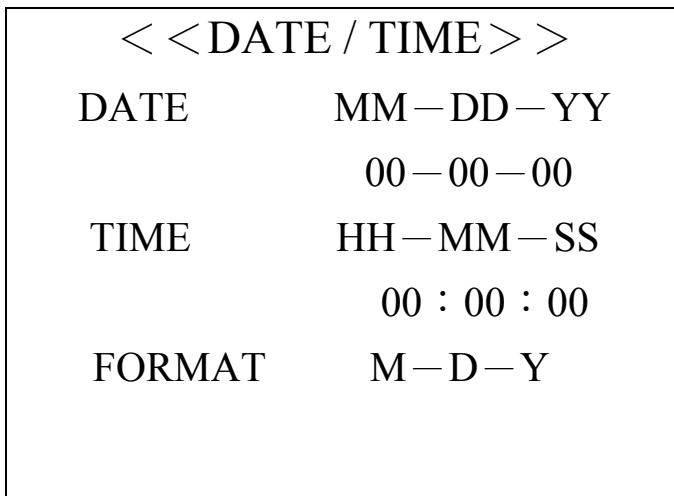
Hold the MENU button down for 2 seconds, the unit will enter into menu setting mode.

Use the ← 、 → 、 - 、 + buttons to move the cursor to where the contents need to be changed.

To view the next menu just press the MENU/PAGE UP button again and the unit also allows to view the previous menu by pressing the SEQUENCE/PAGE DOWN button.

A. TIME & DATE PROGRAMMING:

Press the MENU button and the menu screen will appear on the screen as illustrated below.

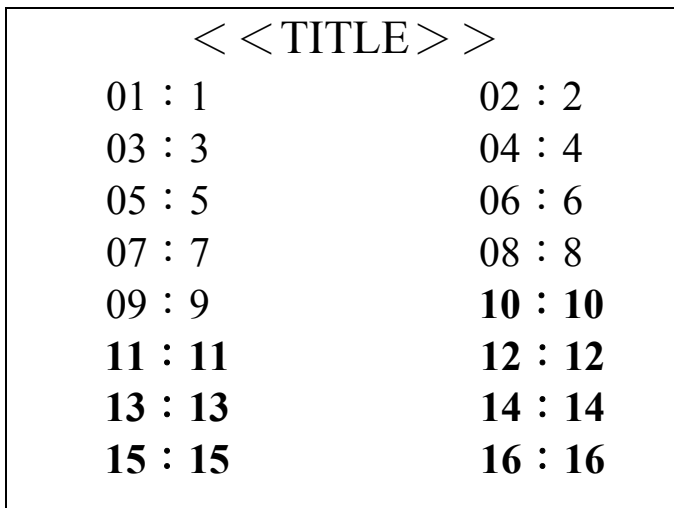


There are 3 formats of date available to be selected:

- Month - Date - Year (M-D-Y)
- Date - Month - Year (D-M-Y)
- Year - Month - Date (Y-M-D)

B. CAMERA TITLING PROGRAMMING:

Press the MENU button again and a menu appears on the monitor as illustrated below. The site of the flashing cursor is the location of TITLE. This menu is used for setting the camera title.



8 characters are available to be set on each camera title. The available characters are shown below.

0 1 2 3 4 5 6 7 8 9
A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z
: < > - . , ; x / SPACE

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C. DWELL TIME PROGRAMMING:

Press the MENU button again and a menu appears on the monitor as illustrated below. This menu is used for setting the dwell time of each camera.

< < INTERVAL > >	
01 : 03	02 : 03
03 : 03	04 : 03
05 : 03	06 : 03
07 : 03	08 : 03
09 : 03	10 : 03
11 : 03	12 : 03
13 : 03	14 : 03
15 : 03	16 : 03

The dwell time between two cameras is available from 00 to 99 seconds. Please note that the channel will be skipped to the next one if 0 second is set.

D. SENSOR TYPE/SWITCH, SENSITIVITY, AND AUTO-RESET PROGRAMMING:

Press the MENU button again and a menu appears on the screen as illustrated.

< < SENSOR TYPE / SW > >	
01 : NO,ON	02 : NO,ON
03 : NO,ON	04 : NO,ON
05 : NO,ON	06 : NO,ON
07 : NO,ON	08 : NO,ON
09 : NO,ON	10 : NO,ON
11 : NO,ON	12 : NO,ON
13 : NO,ON	14 : NO,ON
15 : NO,ON	16 : NO,ON
SENSITIVITY	0.3S
AUTO-RESET	030S

There are two types of NC (normally close) and NO (normally open) in the alarm sensor. When the sensor type setting on the screen doesn't correspond with current sensor status, a " ? " mark will appear between sensor status and sensor type, which means an error.

Camera 1 : ? NC, ON

When the sensor switch is set in the 'ON ' position and the corresponding alarm sensor is triggered, then the unit will enter into an alarm status. If the sensor switch is set to the 'OFF ' position, the unit will not have any response even if the corresponding alarm sensor is triggered.

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By using this function it is possible to control all of the alarm sensors. For example: In normal condition, the sensor switch should be set to 'ON ', however if one of the alarm sensors is no longer required temporarily or is extra. Then this particular sensor switch should be selected to the 'OFF ' position and therefore there is no need to dismantle the alarm sensor or to cut the wire connected to the sensor.

The sensitivity is available to be set from 0.1 second to 2.0 seconds. This allows you to select an appropriate sensitivity for each sensor used to ensure that an alarm status is entered when triggered.

NOTE. An alarm signal input can only be sensed if the triggering pulse is longer than the time set for the sensitivity, because of this false triggering is reduced.

E. VIDEO LOSS ALARM PROGRAMMING:

Press the MENU button again and the menu appears on the screen as illustrated below. This menu is a ON/OFF switch used for video loss detection and the sensitivity adjustment.

<< VIDEO LOSS ALARM >>	
01 : ON	02 : ON
03 : ON	04 : ON
05 : ON	06 : ON
07 : ON	08 : ON
09 : ON	10 : ON
11 : ON	12 : ON
13 : ON	14 : ON
15 : ON	16 : ON
SENSITIVITY	0.5S

When this function is set to ' ON ', the unit will respond to a loss of camera video as an alarm status, and a " LOSS " will display on the bottom of the picture. If it is set to ' OFF ', then the unit will not detect the loss of the cameras image and will not appear a " LOSS " on the picture.

The sensitivity is available to be set from 0.1 second to 2.0 seconds.

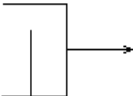

NOTE. The video loss alarm will only be activated, if length of time that the video signal is lost is greater than 0.1 second.

F. ON SCREEN DISPLAY PROGRAMMING:

Press the MENU button again and the menu appears on the screen as illustrated below.

<< ON SCREEN DISPLAY >>		
LIVE	DATE	ON
	TIME	ON
	TITLE	ON
PLAY	DATE	ON
	TIME	ON
	TITLE	ON
BLACK	Background	ON

All the functions settings in this menu are described as follows:

LIVE	DATE	ON/OFF		Via	" MONITOR Output 12 "
	TIME	ON/OFF			
	TITLE	ON/OFF			
PLAY	DATE	ON/OFF		Via	" VCR Input 11 "
	TIME	ON/OFF			
	TITLE	ON/OFF			

It is an ON/OFF switch for display or not display of DATE, TIME and TITLE on the screen while in live monitoring or in tape playing.

BLACK Background ON/OFF : For a better view to characters of DATE, TIME and camera TITLES, when this mode is set to "ON", the characters will be framed with black background.

G. OPTIONS PROGRAMMING:

Press the MENU button again and the menu appears on the screen as illustrated below.

< OPTIONS >		
SOUND	ALARM	ON
	LOSS	ON
BORDER	LINE	GRAY
VCR	BYPASS	AUTO
SPOT	OUT	1
ALARMD CH DISPLAY		
ON	MAIN	MONITOR OFF

SOUND ALARM ON/OFF: When the alarm buzzer is set to " OFF ", the unit will not sound even if the sensor alarm is triggered.
LOSS ON/OFF: When the video loss buzzer is set to " OFF ", the unit will not sound even if video loss occurs.

BORDER LINE — GRAY/BLACK/WHITE: There are 3 colors of gray 、 black and white that allow to be selected as the color for the splitting line.

VCR BYPASS — AUTO/ON/OFF: It allows to let the VCR menus pass through the VCR Input jack of the unit displaying on the monitor. This is used for a change of the VCR menus after the connection between the unit and the VCR is completed and there is no extra wire using for the VCR menu setting is necessary.

- ON : It only displays the BYPASS picture and will not display the decoded picture.
- OFF : It only displays the picture after decoded on the screen and will not display the BYPASS picture.
- AUTO: When decoding is correct it will display the decoded picture, but when playback if there is a wrong decoding or no code passing through the VCR Input exceeding 4 seconds then it will display the BYPASS picture automatically.

SPOT OUT — 1 ~ 16 : This is used for a particular camera monitoring if the connection between the SPOT Output and the monitor have completed.

ALARMED CHANNEL DISPLAY ON MAIN MONITOR: If this function is set to 'ON', the alarmed channel will be displayed in full screen on the main monitor when an alarm occurs. This is an additional choice where you also will be able to watch the alarmed channel full screen displaying on the main monitor, except that you can watch the alarmed channel on the monitor which is connected with Call Output.

H. PICTURE PROGRAMMING:

Press the MENU button again and the menu appears on the screen as illustrated below.

<< PICTURE >>	
CHANNEL	: 1
BRIGHTNESS	: 32
GAIN	: 32
CONTRAST	: 32
COLOR	: 32
TINT	: 32

CHANNEL: Each camera can be selected for individual adjustment.

This menu is used for adjusting Gain, Brightness, Contrast, Color and Tint that are ranged from 01 to 63.

Note: There is no the color and tint adjustments for the B/W multiplexers.

I. VCR RECORDING INTERVAL PROGRAMMING:

This MENU is used for the recording interval setting.

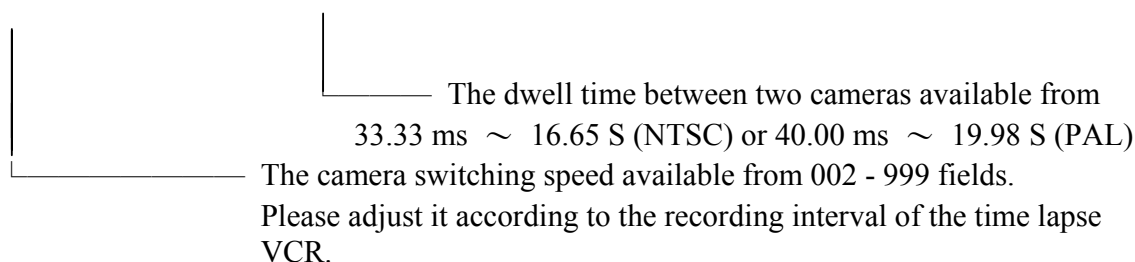
<< VCR RECORD INTERVAL >>		
TRIGGER	OFF	
	DELAY	INTERV.
NORMAL :	024	0.400 S
ALARM :	002	33.33ms

Each function setting in this menu described as below:

TRIGGER — OFF / HIGH / LOW: This jack is used to connect to the Switch Output of the time lapse VCR for synchronous recording. This trigger can be only activated by setting to either the raising edge (HIGH) or the falling edge (LOW) of the triggering wave. Please refer to the instruction manual of the time lapse VCR before connection. If it is set to 'OFF', then the unit will be recording in the way of what programmed in the VCR recording interval as below.

Camera switching speed in normal condition:

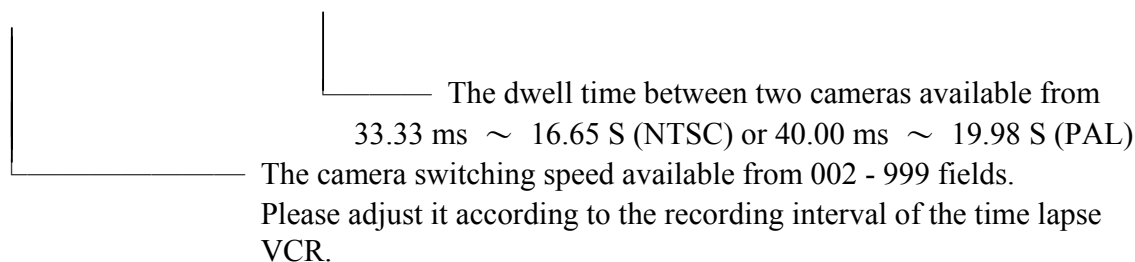
	DELAY	INTERVAL
NORMAL:	024 (fields)	0.400 S (seconds)



Camera switching speed in the alarm status:

This is used for setting the speed of the video output when an alarm is triggered. if the VCR used has the related menu, please set it accordingly.

	DELAY	INTERVAL
ALARM:	024 (fields)	0.400 S (seconds)



Note: To ensure that all cameras can be correctly recorded with the standard VCR or the time lapse VCR, when connecting with the VCR, and if there is no Switch Output in the VCR, this menu must be set in accordance with the recording interval shown on the instruction manual of the VCR.

J. RECORDING RATIO PROGRAMMING:

Press the MENU button again and a menu will appear on the monitor as illustrated below. This menu is used

for camera weighted recording setting when the alarm sensor is triggered.

<< RECORDING RATIO >>	
01 : 1	02 : 1
03 : 1	04 : 1
05 : 1	06 : 1
07 : 1	08 : 1
09 : 1	10 : 1
11 : 1	12 : 1
13 : 1	14 : 1
15 : 1	16 : 1

Each channel can be set for weighted recording that is ranged from 0 to 5. Note: the channel will not be recorded if '0' is set.

K. IMPEDANCE PROGRAMMING:

Press the MENU button again and a menu will appear on the monitor as illustrated below. This menu is used to set the termination status of all camera inputs. Note: when use the loop camera outputs for connecting with other device, please set to HI-Z to avoid the video signal weakened.

< IMPEDANCE >	
01 : 75 OHMS	02 : 75 OHMS
03 : 75 OHMS	04 : 75 OHMS
05 : 75 OHMS	06 : 75 OHMS
07 : 75 OHMS	08 : 75 OHMS
09 : 75 OHMS	10 : 75 OHMS
11 : 75 OHMS	12 : 75 OHMS
13 : 75 OHMS	14 : 75 OHMS
15 : 75 OHMS	16 : 75 OHMS

L. ALARM RECORDS CHECKOUT:

Press the MENU button again and a menu will appear on the monitor as illustrated below. This menu is where you can find out when the alarm sensors and the loss of camera images were activated. The last

hundred alarm events are recorded, with the oldest then being delete when triggered again.

<<ALARM RECORD>>P.01			
A	CH3	06-03-00	20 : 27 : 16
V	CH1	06-03-00	08 : 20 : 33
A	CH2	06-02-00	08 : 01 : 16
A	CH4	06-02-00	04 : 30 : 45
V	CH4	06-01-00	17 : 05 : 52
↑	↑	↑	↑
【1】	【2】	【3】	【4】

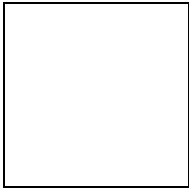
- 【1】 : A: Sensor alarm. V: Video loss alarm ◦
- 【2】 : The alarmed channel ◦
- 【3】 : The date that the alarm happened ◦
- 【4】 : The time that the alarm triggered ◦

M. SECURITY LOCK PROGRAMMING:

When this function is set to ON, the unit will lock out all the front panel buttons except the MENU button.
Please note, do not set this to the ON setting before you are finished setting all of the programming features.

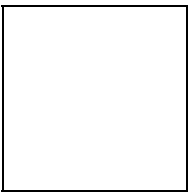
SECURITY OFF

1. BASIC CONNECTION:



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2. ALARM SENSOR CONNECTION:



3. ALARM CONNECTOR PIN ASSIGNMENTS:

Pin No.	Pin Assignment	Pin No	Pin Assignment
1	Camera 1 (Alarm Input 1)	14	Camera 14 (Alarm Input 14)
2	Camera 2 (Alarm Input 2)	15	Camera 15 (Alarm Input 15)
3	Camera 3 (Alarm Input 3)	16	Camera 16 (Alarm Input 16)
4	Camera 4 (Alarm Input 4)	17	Ground
5	Camera 5 (Alarm Input 5)	18	Ground
6	Camera 6 (Alarm Input 6)	19	Ground
7	Camera 7 (Alarm Input 7)	20	Ground
8	Camera 8 (Alarm Input 8)	21	Ground
9	Camera 9 (Alarm Input 9)	22	Recovery Input (RESET)
10	Camera 10 (Alarm Input 10)	23	Alarm Output NC
11	Camera 11 (Alarm Input 11)	24	Alarm Output Common
12	Camera 12 (Alarm Input 12)	25	Alarm Output NO
13	Camera 13 (Alarm Input 13)		

*** Please note Pin 10 to Pin 16 will be Ground pin for the 9 channel multiplexers.**

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HOW TO ACKNOWLEDGE AN ALARM

■ VIDEO LOSS ALARM

After powering up the unit detects the video inputs automatically and if the video loss alarm is set to "ON", when video loss the unit will enter into an alarm status.

A. Live monitoring:

1. When entering into the loss of the cameras image, the unit will produce the following warnings.
 - a. In the PIP mode a "LOSS" and the titling will flash alternatively displaying on the bottom left side of the alarmed channel. If the alarmed channel is not in the current PIP pictures, then the unit will display the (3 x 3) 4 x 4 pictures automatically and a "LOSS" will flash on the alarmed channel.
 - b. In the Quad mode a "LOSS" and the titling will flash alternatively displaying on the bottom left side of the alarmed channel. If the alarmed channel is not in the current quadrant pictures, then the unit will display the (3 x 3) 4 x 4 pictures automatically and a "LOSS" will flash on the alarmed channel.
 - c. In the 3 x 3 mode a "LOSS" and the titling will flash alternatively displaying on the bottom left side of the alarmed channel. For the 16 channel multiplexer, if the alarmed channel is not in the current 3 x 3 pictures, then the unit will display the 4 x 4 pictures automatically and a "LOSS" will flash on the alarmed channel.
 - d. In the 4 x 4 mode a "LOSS" and the titling will flash alternatively displaying on the bottom left side of the alarmed channel. Note: The 9 channel multiplexer has not this function mode.
2. The alarmed channel indicator will illuminate and buzzer will sound (if selected).
3. If the alarm output is having connection with the external alarm device, it then will be activated.
4. The unit will record automatically the time and date of the channel that has an alarm occurred.

Note. While the unit is in video loss alarm status, to release the alarm just press any button on the front panel.

B. Tape monitoring:

- If the loss of the cameras image occurs while tape monitoring, the unit will produce the following warnings.
- a. A "LOSS" will flash displaying on the upper left side of the monitor.
 - b. The external alarm device will be activated if the alarm output is having connection.
 - c. To release the video loss alarm, just press any button on the front panel.

■ SENSOR ALARM

If the sensor switch on the menu is selected to "ON" and an alarm sensor is triggered the unit will enter into an alarm status.

A. Live monitoring:

1. When entering into a sensor alarm status, the unit will produce the following warnings.
 - a. In the PIP mode an "ALARM" and the titling will flash alternatively displaying on the bottom left side of the alarmed channel. If the alarmed channel is not in the current PIP pictures, then the unit will display the (3 x 3) 4 x 4 pictures automatically and an "ALARM" will flash on the alarmed channel.
 - b. In the Quad mode an "ALARM" and the titling will flash alternatively displaying on the bottom left side of the alarmed channel. If the alarmed channel is not in the current quadrant pictures, then the unit will display the (3 x 3) 4 x 4 pictures automatically and an "ALARM" will flash on the alarmed channel.
 - c. In the 3 x 3 mode an "ALARM" and the titling will flash alternatively displaying on the bottom left side of the alarmed channel. For the 16 channel multiplexer, if the alarmed channel is not in the current 3 x 3 pictures, then the unit will display the 4 x 4 pictures automatically and an "ALARM" will flash on the alarmed channel.
 - d. In the 4 x 4 mode an "ALARM" and the titling will flash alternatively displaying on the bottom left side of the alarmed channel. Note: The 9 channel multiplexer has not this function mode.
2. The alarmed channel indicator will illuminate and buzzer will sound (if selected).
3. If the alarm output is having connection with the external alarm device, it then will be activated.
4. The unit will record automatically the time and date of the channel that has an alarm occurred.

NOTE. 1. While in the alarm status, start counting the time since the last alarm is triggered, and when the time of AUTO-RESET preset in the menu is reached, the unit will automatically stop the alarm sound and recover to live monitoring.

2. The alarm can also be released by using an external controller even if the time of AUTO-RESET is not yet reached or the time of AUTO-RESET is set to "000".

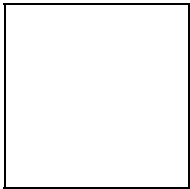
B. Tape monitoring:

if the sensor alarm is set to "ON" when the alarm is triggered the unit will produce the following warnings.

- a. An "ALARM" will flash displaying on the upper left side of the monitor.
- b. The external alarm device will be activated if the alarm output is having connection.
- c. To release the sensor alarm, just press any button on the front panel.

■ Description of RS-232 Connector and the ASCII Command Sets

A. RS-232 CONNECTOR PIN ASSIGNMENTS.



RS – 232

Pin No.	Pin Assignment	Pin No	Pin Assignment
1	Ground	14	NC
2	RS – 232 TX	15	NC
3	RS – 232 RX	16	NC
4	NC	17	NC
5	NC	18	NC
6	NC	19	NC
7	Ground	20	NC
8	NC	21	NC
9	NC	22	NC
10	NC	23	NC
11	NC	24	NC
12	NC	25	NC
13	NC		

RS-232 Transmission Protocol

Baud Rate : 1200

Data Bits : 8

Start Bit : 1

Stop Bit : 1

Parity Bit : none

B. The ASCII command sets supplied is used to enable the computer to control each function on the control panel

of the unit. Each command code consists of three ASCII characters, the first character goes with the forward slash '/' and the second \ third characters follow-up the slash represent its function. Please refer to The ASCII Command Sets as listed below.

MONITORING FUNCTION				
ASCII CODE	FUNCTION		ASCII CODE	FUNCTION
/ PP	PIP		/ 22	2 x 2
/ 33	3 x 3		/ 44	4 x 4
/ 01 – / 16	CAMERA 1 – 16		/ PL	PLAYBACK
/ LV	LIVE		/ SQ	SEQUENCE
/ SL	SELECT		/ FZ	FREEZE
/ ME	MENU		/ IU	The insert UP
/ ID	The insert DOWN		/ IL	The insert LEFT
/ IR	The insert RIGHT		/ AR	ALARM – RESET

SETTING FUNCTION				
ASCII CODE	FUNCTION		ASCII CODE	FUNCTION
/ PU	PAGE UP		/ PD	PAGE DOWN
/ UA	UP ARROW		/ DA	DOWN ARROW
/ LA	LEFT ARROW		/ RA	RIGHT ARROW
/ EN	END			

■ SPECIFICATIONS :

Camera inputs :

9 Channel	BNC × 9, composite video 1.0 V p-p, 75 ohms.
16 Channel	BNC × 16, composite video 1.0 V p-p, 75 ohms.

Looping Camera Outputs :

9 Channel	BNC × 9, composite video 1.0 V p-p, 75 ohms.
16 Channel	BNC × 16, composite video 1.0 V p-p, 75 ohms.

Monitor Output :

9 Channel	BNC × 3, composite video 1.0 V p-p, 75 ohms.
16 Channel	BNC × 3, composite video 1.0 V p-p, 75 ohms.

VCR Output :

9 Channel	BNC × 1, composite video 1.0 V p-p, 75 ohms.
16 Channel	BNC × 1, composite video 1.0 V p-p, 75 ohms.

Playback Input :

9 Channel	BNC × 1, composite video 1.0 V p-p, 75 ohms.
16 Channel	BNC × 1, composite video 1.0 V p-p, 75 ohms.

Switch Input :

9 Channel	BNC × 1, composite video 1.0 V p-p, 75 ohms.
16 Channel	BNC × 1, composite video 1.0 V p-p, 75 ohms.

Digital Memory :

Color	NTSC 720 x 480 pixels. PAL 720 x 576 pixels. Y = 8 bit. C = 8 bit.
B/W	EIA 720 x 480 pixels. CCIR 720 × 576 pixels.

Alarm Inputs :

9 Channel	9, (TTL Level)
16 Channel	16, (TTL Level)

Alarm Output :

9 Channel	1, Normally open or closed (relay output) contacts with shared common (24V DC, 1A)
16 Channel	1, Normally open or closed (relay output) contacts with shared common (24V DC, 1A)

Recovery Input :

9 Channel	1, (TTL active low)
16 Channel	1, (TTL active low)

RS-232 Interface :

9 Channel	D-SUB 25 pin female connector
16 Channel	D-SUB 25 pin female connector

Power Source :

9 Channel	DC 12V, 1.2 Amp
16 Channel	DC 12V, 1.2 Amp
Power Consumption : 9 Channel	Max. 8.5Watts
16 Channel	Max. 9 Watts

Weight :

9 Channel	2.32 Kgs, (5 lbs 2 oz) Net
16 Channel	2.50 Kgs, (5 lbs 8 oz) Net

Dimensions :

9 Channel	430mm × 248mm × 50mm (17" W × 9 3/4" D × 2" H)
16 Channel	430mm × 248mm × 50mm (17" W × 9 3/4" D × 2" H)