

Mobile Video Recorder

Thank you for purchasing our product. Please read this User *s Manual before using the product.

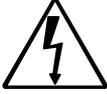
User's Manual



CE FC

V1.0

SAFETY PRECAUTIONS

	CAUTION RISK OF ELECTRIC SHOCK. DO NOT OPEN!
CAUTION : TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT OPEN COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.	

This label may appear on the bottom of the unit due to space limitations.



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



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

WARNING : TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE UNITS NOT SPECIFICALLY DESIGNED FOR OUTDOOR USE TO RAIN OR MOISTURE.



Attention: installation should be performed by qualified service Personnel only in accordance with the National Electrical Code or applicable local codes.



Power Disconnect. Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source ; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all unites.

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1.OVERVIEW

(1)About this Manual

This manual describes the procedures for operating the four-channel digital video recorder (DVR). This manual describes each function using text instruction and Graphic User Interface (GUI). Appendix A contains quick reference guide for front panel controls.

(2)The Menu System

The menu system is used to configure the Mobile Video Recorder and gives control over recording resolution, camera sequencing, timer settings and alarm triggering and alarm triggered recording. There is also access to monitor options and password functions along with many other parameters. A menu can contain the following types of entry:

Sub-menu heading - press the **ENTER** key and the sub-menu is entered.

Function - press the **ENTER** key and the function is performed (e.g. Reset System).

Selection - press the left and right menu keys to cycle through the choices.

Any changes made to the menu system have immediate effect on the operation of the system. Any changes to a menu are stored after 3 seconds of no keys being pressed. The menu is stored on the hard disk. To reset press "PAUSE" button 5 times in the normal view mode. Beware that all the information will be lost. After reset the password will be set as the default value (111111).

All the menus listed are shown in their factory default state.

(3)Features

Your four-channel color DVR provides real-time live playback monitoring, and recording features, with quad-mode processing or each-mode recording. Also offers the following features:

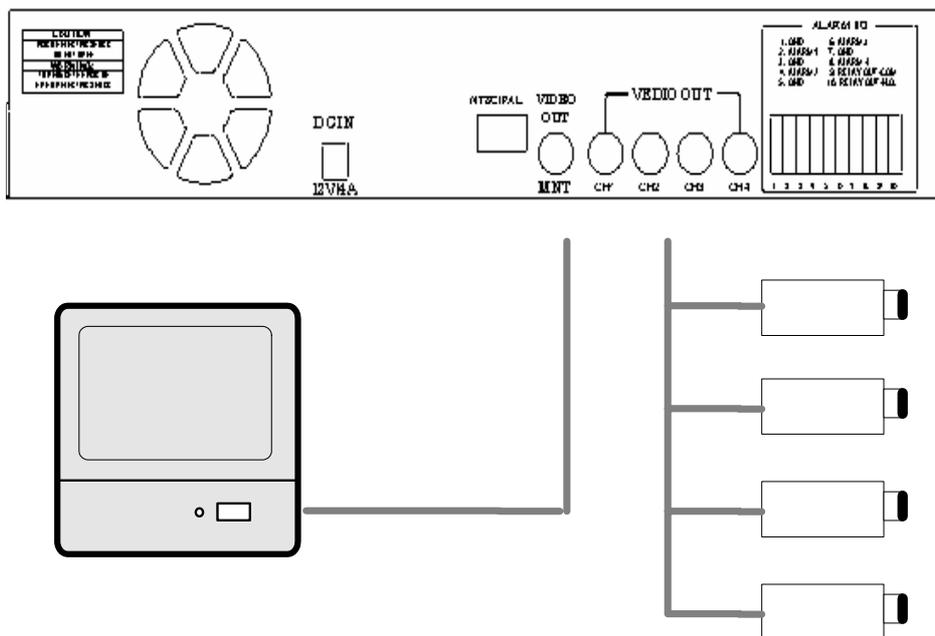
- NTSC/PAL Compatible (Selector Switch).
- Cost effective Digital Video Solution.
- Compact Size.
- User-friendly Menu System.
- Flexible Recording Rate:
 - Quad Mode
Max.: 30fps (NTSC); 25fps (PAL)
 - Each Mode (for 4CH video input)
Max.: 7.5field/ NTSC; 6.25field/ PAL.
- Supporting Function:
Non-stop Auto Recording, Sensor Recording and No Recording Functions.
- Watch-Dog Function:
Auto Returns to the Original Operation when Power Recovers from Failure.
- 4-Channel Alarm Input, 1-channel Alarm output, and an Internal Buzzer.

2.INSTALLATION

You have to DIY four holes and fix the mobile DVR by the screws in the car before Using it. You can refer the file describing the hole size or below.

(1)Camera&Monitor Connection

Connect camera to the CAMERA INPUT(1~4) and Monitor on the rear panel of unit.



(2)Sensor connection

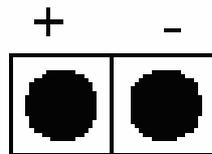
Connect sensors to terminal 10 Pin as specified below.

You can connect dry-contact type sensors. In case of sensors with output(5V system),GND of sensor must be connected to GND of DVR unit and signal line to alarm input from 1 to 10 as shown in following figure.

Short-circuit between any of 1 from 10 and GND is recognized as an alarm.

(3)Power connection

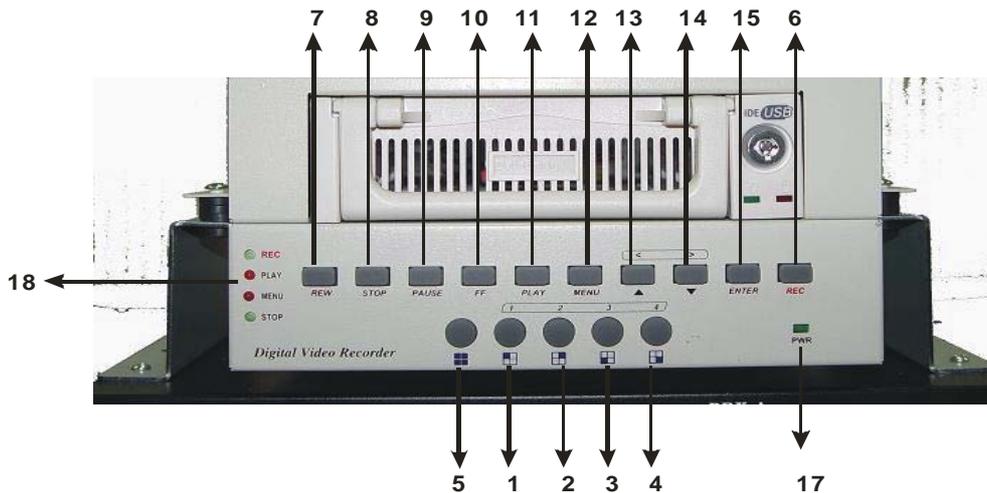
Connect D/C 10V~40V power to the power connection on the rear panel of DVR unit.



10V~40V 4A

3. Unit Description

(1) Front Panel



- **1~5.CAMERA Number Button (1-4)**
Select the camera (1-4) image in live recording and playback mode.
- **6.REC**
 - Press this button to begin Recording (video recording). The recording channel indicator next to CH1,CH2,CH3 and CH4 will appear in the center of the screen notifying the user which camera is running during recording period.
- **7.REV**
Selects the previous image in the playback menu mode (reverse).
- **8.STOP**
Stops recoding in the recording mode or playback in the playback mode.
- **9.PAUSE**
Display screen is pause while playback.
- **10.F.F**
Selects the next image in the playback mode (fast forward speed of 4X).
- **11.PLAY :**
To playback recorded images.
When **Playback** key is pressed, you will be asked to input the time period (time of previous recorded video) for searching purpose, than press the Playback key again to view the playback videos.
- **12.MENU**
 - Displays the Main menu.
 - Begins the menu mode.
 - Exit or closes the current menu.
- **13.Up&Lift Button**
Navigates through menus, direction button of O.S.D.

- **14.Down &Right Button**
Navigates through menus, direction button of O.S.D.
- **15.ENTER**
To Select the item.
To confirm a selection in the menu system.
- **16. H.D.D**
To draw out HDD
- **17.PWR**
Power LED
- **18.LED**
(REC/PLAY/MENU/STOP)

(2) Rear Panel

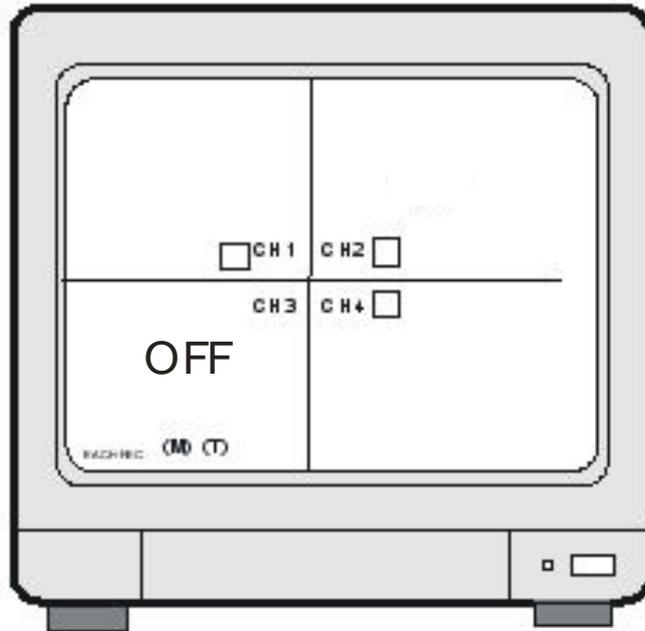


- ①
- ②
- ③
- ④
- ⑤

- **1.NTSC/PAL:NTSC/PAL Compatible (Selector Switch).**
- **2.D/C Power Connection**
The unit is furnished with a DC 10~40V/ 4A power supply.
- **3.VIDEO OUT**
A composite video output is provided on the Video Out BNC for connection to a B/W or color video monitor (also supports VCR connection).
- **4.VIDEO IN**
Four video inputs are provided for video source connections using standard BNC connectors. The video inputs accept monochrome or color composite video signals.
- **5.Alarm IN:ALARM**

NO.	PART	NO.	PART
1	GND	6	ALARM3 INPUT
2	ALARM1 INPUT	7	GND
3	GND	8	ALARM4 INPUT
4	ALARM2 INPUT	9	RELAY OUT-COM.
5	GND	10	RELAY OUT-N.O.

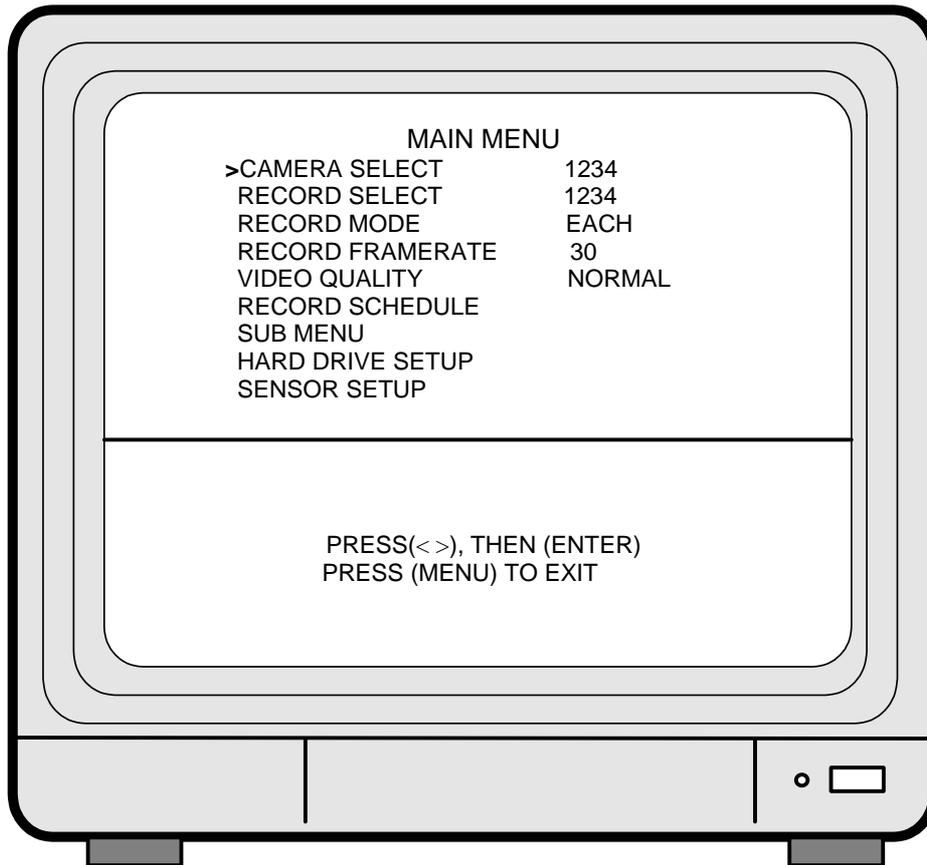
4.MAIN SCREEN



Note: From previous picture, you can understand CH3 not recording

- CH3:Not Recording**
- EACH: Record Mode**
- (S):Slave HDD**
- (T):Record Schedule**
- (□):REC**
- (M):Master HDD**
- (—):NO REC**

5.MAIN MENU



You can see the arrow(>)symbol on screen in front of the current function to be selected.

Press(<) or (>) on the front panel to change the function mode.

Press **(ENTER)** button for executing the selected function.

(1) CAMERA SELECTION

This function is used for setting up camera views. It consists of 16 different optional camera view combinations.

- ❶ Move the cursor to **Camera Select** field, and press **ENTER** to display the system information to change the camera view combinations.
- ❷ After the Camera Select field has been set, the cameras that are selected (during setup) will be displayed (The default setting is “----“).
- ❸ There are 16 optional camera view combination settings.
- ❹ Press **MENU** to exit **Camera Select**.

For example:

- 1) When you choose (- - - -), all cameras will be disabled.
- 2) When you choose (1 2 3 4), all cameras will be operational.
- 3) When you choose (- - - 4), only cameras 4 will be operational.
- 4) When you choose (1 2 - 4), only cameras 1,2 and 4 will be operational.

(2) RECORD SELECT

This menu selects the cameras used in the “Each” mode recording setup.

- ❶ Move the cursor to **Record Select** field, and press **ENTER** to change the combinations of cameras that will recorded.
- ❷ Press **MENU** to exit the **Record Select**.

(3) RECORD MODE

- ❶ The “ENTER” key can be used to select between “Quad” and “Each”
- ❷ When “Quad” is selected pictures from all cameras will be recorded.
- ❸ When “Each” is selected, pictures are recorded from the camera(s) selected.

(4) RECORD FRAME RATE

- ❶ When “RECORD FRAME RATE” is selected, you may choose the following recording speeds for “Quad” mode:
NTSC:30,15,10,7,5,4,3,2,1fps.
PAL :25,12,8,6,4,3,2,1fps.
- ❷ Likewise, you may choose the following recording speeds per channel when using 4 cameras in “EACH” mode:
NTSC:30,15,10,7,5,4,3,2,1fps.
PAL :25,12,8,6,4,3,2,1fps.

Recording Capacity(**80GB** Hard Drive)

Condition			30fps	15fps	7fps	1fps
Video Signal	Display format	Video Quality				
NTSC	QUAD SCREEN	HIGH	36HOURS	72 HOURS	144 HOURS	1080 HOURS
		NORMAL	48 HOURS	96 HOURS	192 HOURS	1440 HOURS
		BASIC	58 HOURS	116HOURS	232 HOURS	1740 HOURS
	FULL SCREEN	HIGH	64 HOURS	128HOURS	256 HOURS	1920 HOURS
		NORMAL	90 HOURS	180 HOURS	360 HOURS	2700 HOURS
		BASIC	112 HOURS	224 HOURS	448 HOURS	3360 HOURS
Condition			25fps	12fps	6fps	1fps
Video Signal	Display format	Video Quality				
PAL	QUAD SCREEN	HIGH	38 HOURS	76 HOURS	152 HOURS	950 HOURS
		NORMAL	48 HOURS	96 HOURS	192 HOURS	1200 HOURS
		BASIC	60 HOURS	120 HOURS	240 HOURS	1500 HOURS
	FULL SCREEN	HIGH	62 HOURS	124 HOURS	248 HOURS	1550 HOURS
		NORMAL	90 HOURS	180 HOURS	320 HOURS	2250 HOURS
		BASIC	118 HOURS	236 HOURS	472 HOURS	2950 HOURS

(5) VIDEO QUALITY

This function provides for the adjustment of the image quality: LOW/ NORMAL / HIGH

- ❶ Move to the **Record Frame Rate** field, and press **ENTER**.
- ❷ Set the recording image quality from the three options.
- ❸ Press **MENU** to exit the **Video Quality**.

NOTE: Higher quality images require more recording (HDD storage) space.

Everything else being equal, HIGH quality will require 30% more storage than NORMAL quality and LOW quality requires up to 30% less than NORMAL.

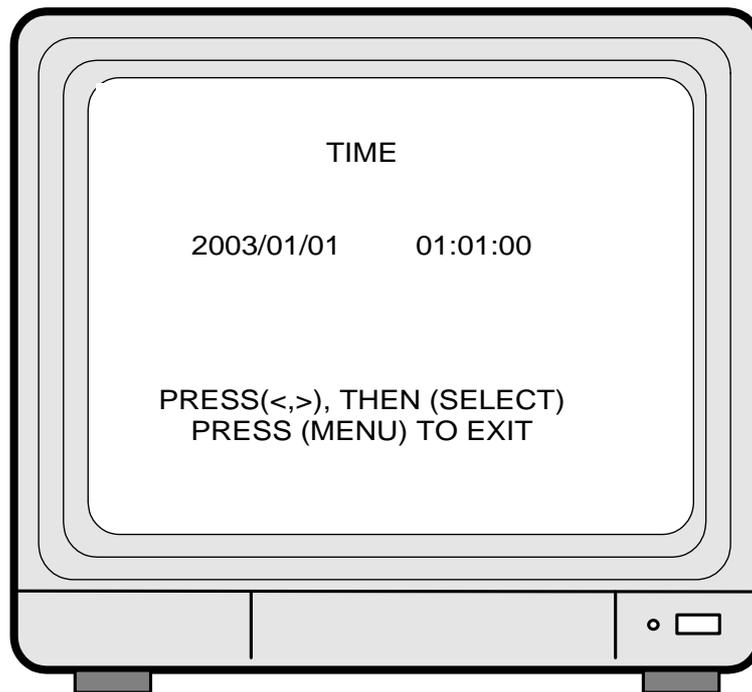
- ① You will, then, be asked to input the following 3 pieces of information:
 CURRENT PASSWORD:-----
 NEW PASSWORD: -----
 PASSWORD CONFIRM: -----
- ② When the new password is accepted, the board will flash the following screen message:

”Password changing !!!”
- ③ The message will blink 5 times.
- ④ Then the “SUB MENU” will return.
 If the password was not accepted, you will receive a message that informs you. and the “SUB MENU” returns. You may try again by repeating the same steps.

ⓄNotice: Use the camera number buttons on the front panel to input your number..

ⓄTIME SET

Below is a screen shot of the “**TIME SET**” screen:

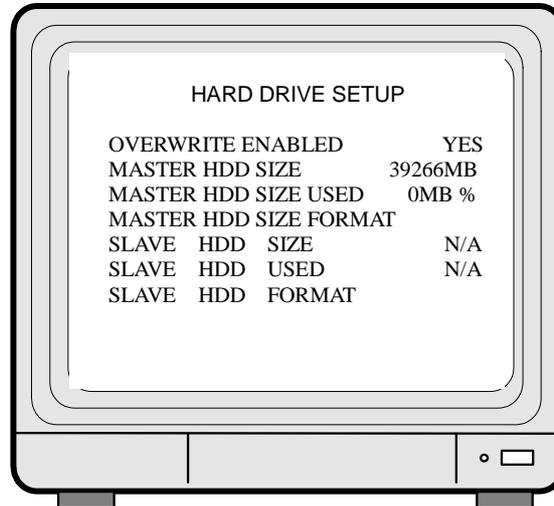


- Please input the “**TIME SET**” When you want change time &date
- Use the”▲ ” and “ ▼“ button on the front panel to move the” ^ “cursor below the number back and forth .Then use the ENTER button to change the numeric values of date & time.

When you press the “Menu” button, your setting are memorized by the board.

(8) HARD DRIVE SETUP

This menu displays the size of the hard disk and the remaining storage space.



❶ Move to the **Hard Drive Setup** Menu and press **ENTER**.

❷ In the **Overwrite Enabled** field, select either **YES** or **NO**.

For example, when the hard drive is full:

YES will continue recording by overwriting the oldest recorded image.

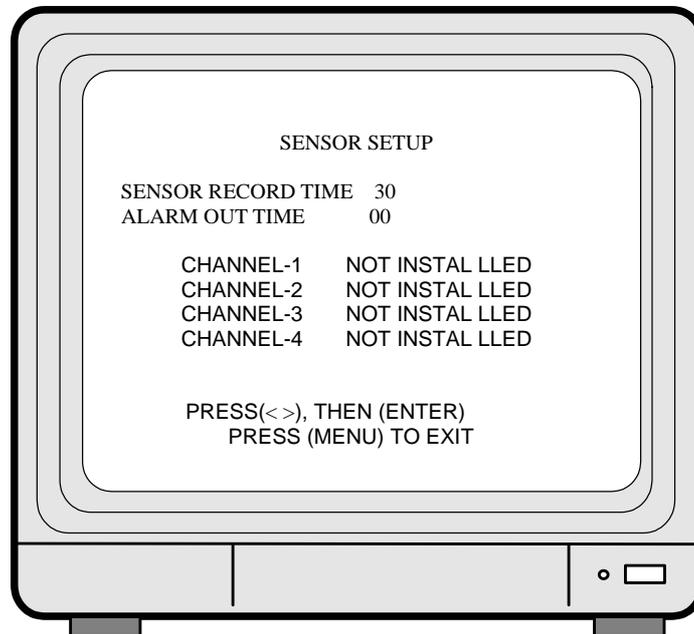
NO will stop recording when the Hard Drive (HDD) is full.

❸ In the **Hard Drive Setup** Menu, select **Hard Drive Format** in order to format (or erase) the hard disk. The correct password must be entered to enable permission to format the hard disk. For example:

PASSWORD INPUT(6): -----

NOTE: Password Correct will be displayed, when the password has been entered correctly or Password Incorrect will be displayed if an incorrect password has been entered.

(9) SENSOR SETUP



❶ Sensor Record Time

This function provides the setup of sensor recording time after a sensor device has been triggered.

- Move the cursor to **SENSOR SETUP** and press **ENTER**.
- Select the **SENSOR RECORD TIME** by pressing **ENTER** again.
- The **Sensor Record Time** is configured at 5-second intervals from 5 Sec. to 30 Sec. by using the front panel arrow buttons. Sensor recording is only active during the time period when the function **S** has been set on the **Record Schedule** menu.

❷ Alarm Out Time

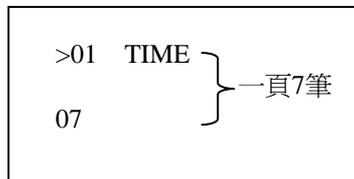
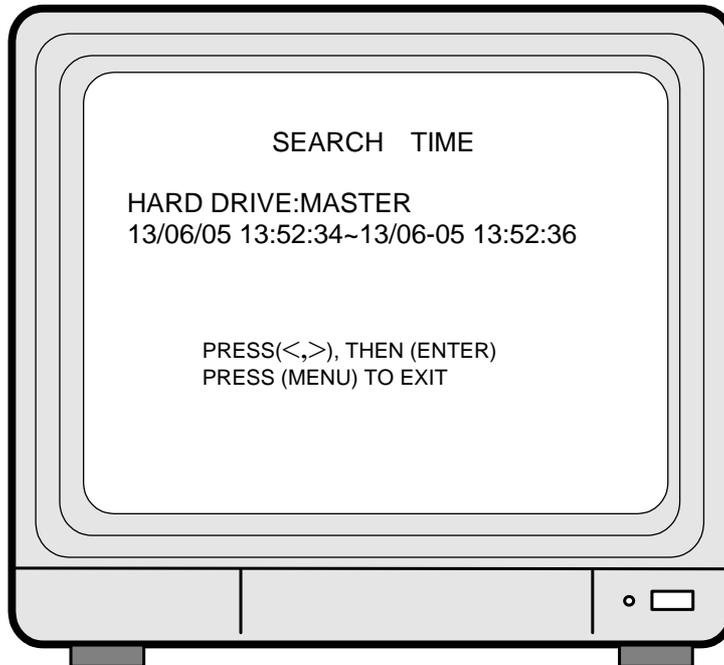
Once a sensor / alarm trigger is received, the duration of the output relay can be set to: 0, 5, 10, 15, 20, 25, 30 seconds, or continuous (CONT). The relay has a normally open contact, and should be limited to circuit loads less than one amp. NOTE: The alarm output will only function during hours that are set to "S" in the RECORD SCHEDULE menu.

❸ Channel 1-4 (Open or Not Installed)

Any channel sensor channel that you wish to be active must be set to "OPEN". A trigger to a particular channel will activate recording of that channel only.

- ❹ Press **MENU** to exit **SENSOR SETUP**.

6.PLAY



- ① Press the **PLAY** button to display the start times of recordings that are available to play.
- ② Press the **PLAY** button again to start playback of your most recent recording. You can play back a recording from a specific event by moving the cursor (>) and pressing the **PLAY** button. When the cursor is in front of an event time, the start and end time of the event is shown at the top of the screen.
- ③ Press the **STOP** button if you want to stop playback.
- ④ During playback, press the **PAUSE** button to pause playback.

NOTE: Pressing the FF button will move the cursor to the top of the screen where a specific time search can be entered using the < > and ENTER buttons.

7.Specification

Item		Description	Remarks
Video Input Format		NTSC/PAL	
Video Input Channel		4CH Composite	
Video Output Channel		1CH Composite	
Display Frame	NTSC	120 fields/s	4*30 fields/s
	PAL	100 fields/s	4*25fields/s
Recording Frame Rate (Quad Mode)	NTSC	Max.30fps(Quad)	
	PAL	Max.25fps(Quad)	
Recording Frame Rate (Each Mode)	NTSC	Max.7.5fields/s(Each Mode) Each Mode=Max fields/s/number of video sources	30 fields/s(per recording channel)
	PAL	Max.6.25fields/s(Each Mode) Each Mode=Max fields/s/number of video sources	25fields/s(per recording channel)
Recording Mode		Continuous,manual,event,progra mmed	
Resolution	Display	NTSC:720*480 PAL:720*576	
	Recording	NTSC:320*136,640*272 PAL:320*136,640*272	Quad:640*224(total) Each hannel:640*224
Compression Format (each channel)		Modified MJPEG (12-20K bytes/frame	Low:12K BYTES/FRAME Normal:15K High:20K
HDD		80GB(Removable)	
Back-up(Archive Device)		HDD,VCR	
Search	Mode	Time,date,camera	
	F/Screen	Yes	
Sensors,Alarm		4Input,1 Output	
EMC		CE/FCC	
Operation temperature	41° f~104°f (5 ~40)		
Operation humidity	LESS THAN90%		
Weight	4KG		
Power supply	DC10~40V /4A		

8. Test report of Vibration

Test No.	Result
1. 5~300HZ 0.9G(peak) Z Direction(up .down) 1 oct/min 2 sweeps	PASS
2. 5~300HZ 1.0G(peak) Z Direction(up. down) 1 oct/min 2 sweeps	PASS
3. 5~300HZ 1.0G(peak) X .Y Direction(plane) 1 oct/min 2 sweeps	PASS
4. 5~300HZ 1.4G(peak) X .Y Direction(plane) 1 oct/min 2 sweeps	FAIL
5. 5~300HZ 1.4G(peak) X .Y Direction(plane) 1 oct/min 2 sweeps	Damper breakdown DATA PASS
6. 5~300HZ 1.4G(peak) X .Y Direction(plane) 1 oct/min 2 sweeps	PASS