

# **USER MANUAL**

## **9/16 CHANNELS**

### **DIGITAL VIDEO RECORDER**

#### **INSTRUCTION MANUAL**

To obtain the best performance and ensure device function correctly, please read this instruction manual carefully and completely.

## **FCC Compliance**

**USER-INSTALLER CAUTION:** YOUR AUTHORITY TO OPERATE THIS FCC VERIFIED EQUIPMENT COULD BE VOIDED IF YOU MAKE CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE TO PART 15 OF THE FCC RULES.

**NOTE:** THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE IN WHICH CASE THE USER WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT HIS OWN EXPENSE.

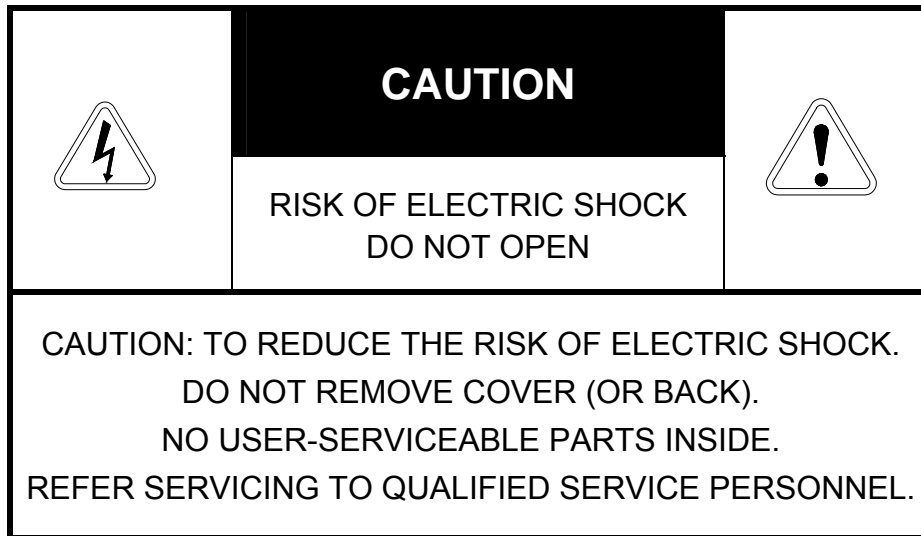
THIS CLASS A DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

## Warnings and Cautions

### WARNINGS

TO PREVENT THE RISK OF FIRE OR ELECTRIC SHOCK. DO NOT EXPOSE THIS PRODUCT TO RAIN OR MISTURE.  
DO NOT INSERT ANY METALLIC OBJECT THROUGH VENTILATION GRILLS.

### CAUTION



### Explanation of Graphical Symbols



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



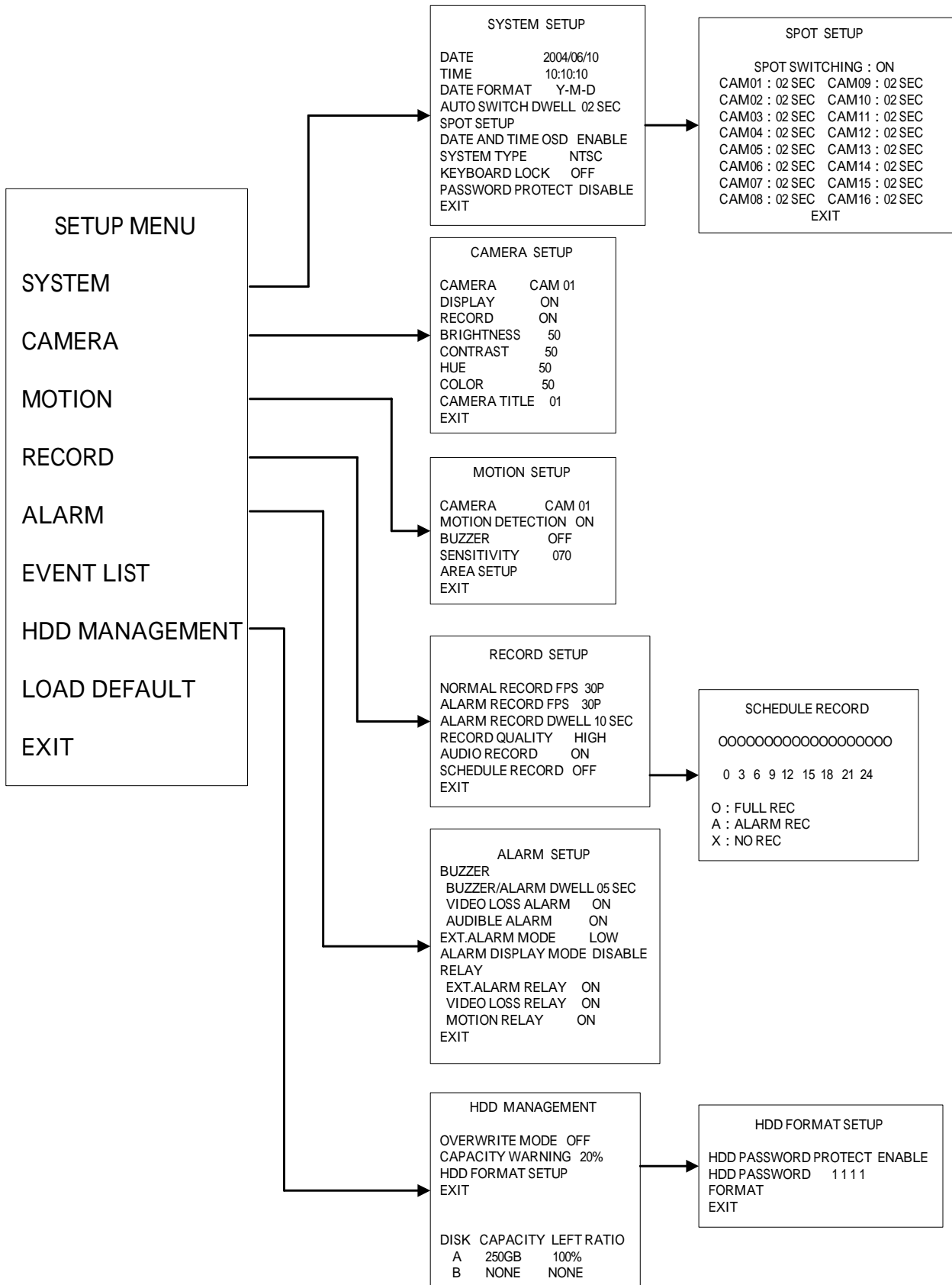
The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instruction in the literature accompanying the product.

USERS OF THE SYSTEM ARE RESPONSIBLE FOR CHECKING AND COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND STATUTES CONCERNING THE MONITORING AND RECORDING OF VIDEO AND AUDIO SIGNALS. ULTRAK SHALL NOT BE HELD RESPONSIBLE FOR THE USE OF THIS SYSTEM IN VIOLATION OF CURRENT LAWS AND STATUTES.

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# MENU SETUP LIST



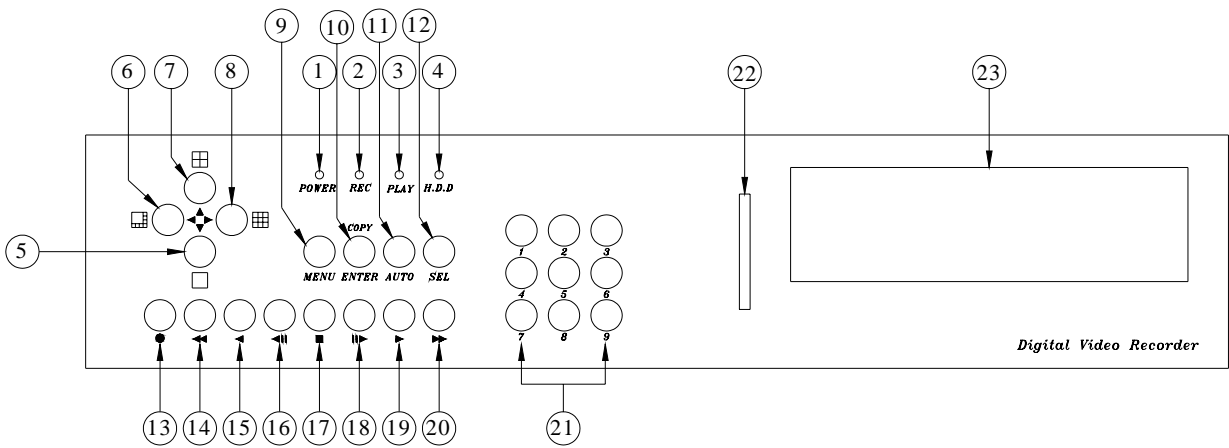
# CHAPTER 1

## INTRODUCTION

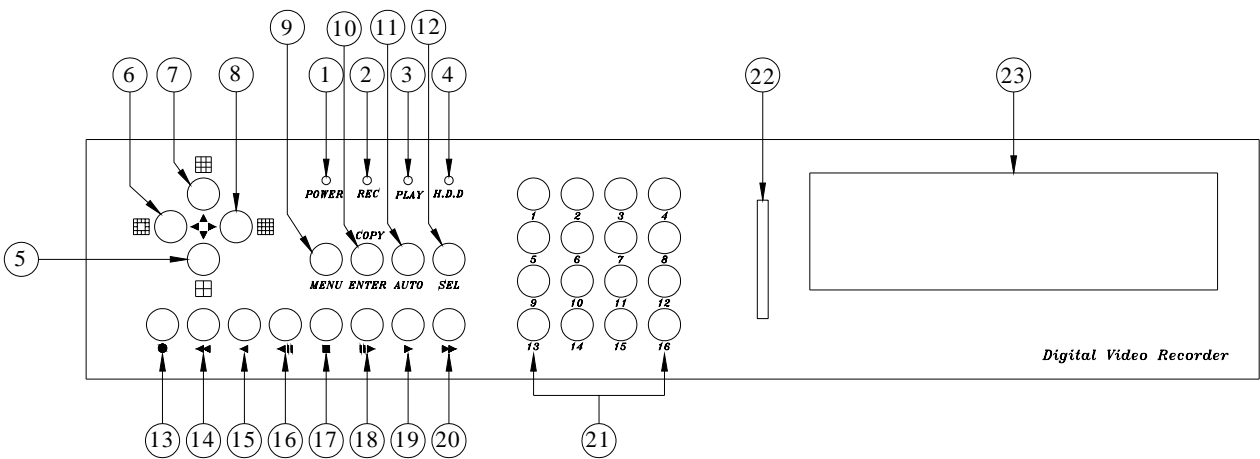
9ch & 16ch DVR are 9 (16) cameras input appliance with multiple function which will bring you following features:

- Digitize data storage with wavelet compression technology will give you organized video data management without using mess huge traditional video tape.
- Device operates in hardware base with no OS (operating system) necessary for more reliability and stability.
- All 9 / 16 channels are duplex.
- Support various type of camera with real-time, live mode display.
- Multi-speed recording selection on normal recording mode or alarm recording mode, the highest speed of recording is 60/50 (NTSC/PAL) fields on both mode.
- All 9 / 16 channels can be setting up for display and recording individually.
- All 9 / 16 channels can be setting up for motion detection individually and each channel is divided by 48 motion detection areas with 100 levels adjustable sensitivity.
- Contrast, hue and brightness are adjustable for each camera individually.
- Support up to 2 hard disks (HDD) from 40GB to 250GB compatible and one of those drives can be set as removable.
- When external alarm is triggered , correspond cameras will show up on the monitor with red texts.
- Selectable recording qualities (best/high/medium/low).
- Recording can operate manually or gets activated automatically when alarm is triggered.
- Schedule recording
- You can search for a video record by time or by checking event log.
- Play back mode could not be easier then ever for you to review the video that gets recorded on fast reverse and fast forward (×2, ×4, ×6, ×8).
- Play back mode with pause (field by field) for both forward and backward.
- Easy operation, setting can be easily modified OSD (on screen display) menu.
- The video losing will be log up on event list and the operator will receives the warning notification automatically.
- Device will overwrites data and notice operator on monitor when the HDD is going full.
- HDD capacity status can be display on the screen for better storage management.
- Audio input support up to 1 channel.
- Network support enhance the ability of truly remote surveillance monitoring (optional).
- Support composite video, Y/C video signal output and full screen spot monitor output.
- Support compact flash (CF) card (network model only) for random backup and VCR for fully backup.
- Provide key lock function and two sets of password protection.
- Up to 3000 event lists can be recorded (PWR/REC/EXT/LOS).
- Build-in RS-232 and RS-485 port are ready for sub-control panels add on in the future.
- System will restore the previous setting and continue camera activity after restart.
- No need to interrupt the video recording while changes setting.




## CHAPTER 2 HARDWARE OVERVIEW

















**Front Panel of 9-ch DVR**



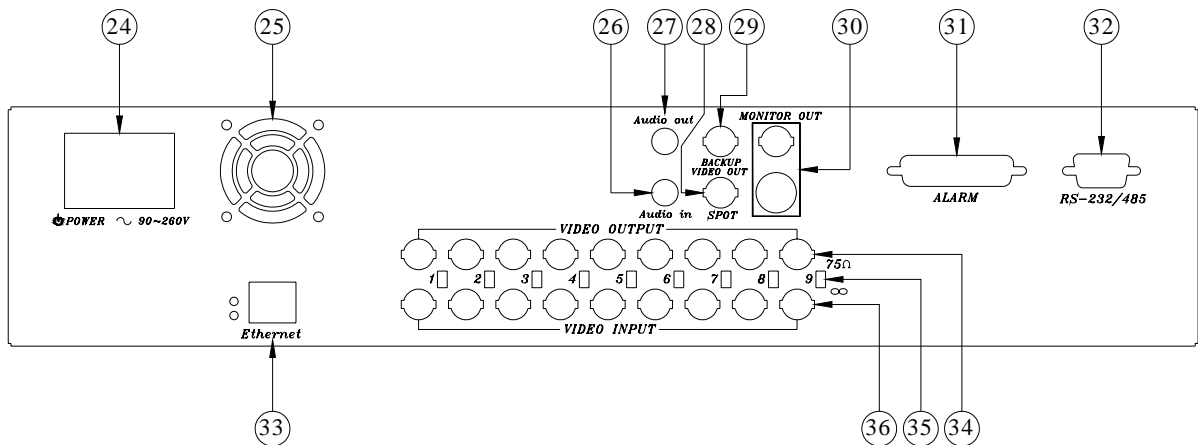
**Front Panel of 16-ch DVR**

Part	Label	Function
1	<b>POWER</b>	Power LED
2	<b>REC</b>	Recording LED
3	<b>PLAY</b>	Play LED
4	<b>H.D.D</b>	H.D.D LED
5	 9	Select full screen of camera at <b>9-ch DVR</b> model.
	 16	Select quad formats at <b>16-ch DVR</b> model.
		Move downward or decrease the number.

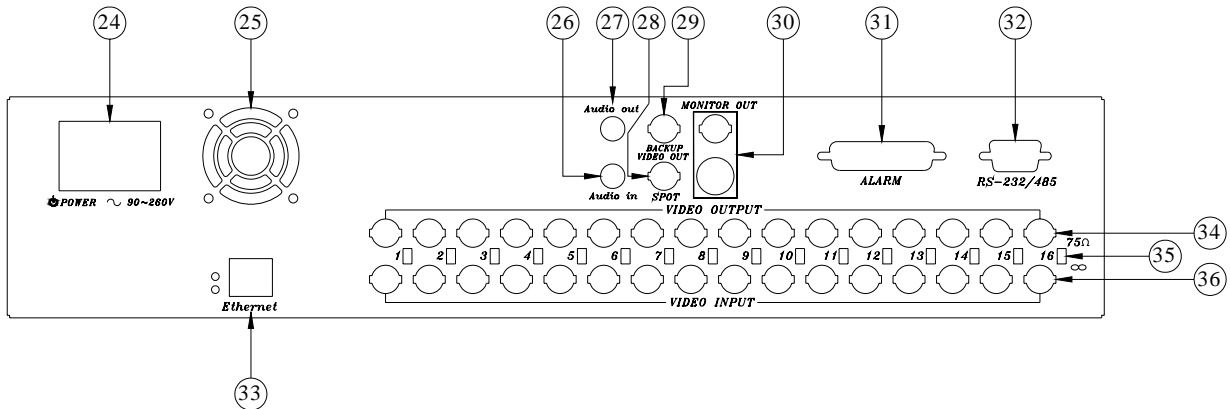
6	 9	Select 8 camera formats at <b>9-ch DVR</b> model.
	 16	Select 13 camera formats at <b>16-ch DVR</b> model.
	◀	Move leftward or decrease the number
7	 9	Select quad formats at <b>9-ch DVR</b> model.
	 16	Select 9 camera formats at <b>16-ch DVR</b> model.
	▲	Move upward or increase the number.
8	 9	Select 9 camera formats at <b>9-ch DVR</b> model.
	 16	Select 16 camera formats at <b>16-ch DVR</b> model.
	▶	Move rightward or increase the number
9	MENU	Press MENU to <u>go into</u> or <u>exit</u> main menu
10	COPY	Use this button to make video backup for CF card under play back mode.
	ENTER	Press ENTER button to make choose or move cursor forward or make confirm in MENU system
11	AUTO	Press AUTO SW to switch channel by channel automatically.
12	SEL	Press this button to select the different assembled of camera formats.
13		Press REC to start recording. Press again to stop.
14		From ×2,×4,×6, to the highest ×8 speed fast rewind mode, speed and rewind sign will be indicated in top left corner on the screen.
15		Press the Rew button to play video backward, press the button again to circulative change from normal speed to 1/2 speed and 1/4 speed
16		Press Field Rew to pause video backward
17		Press Stop to stop playback
18		Press Field Fwd to pause video forward
19		Press the Play button to play video forward, press the button again to

		circulative change from normal speed to 1/2 speed and 1/4 speed
20		Press F. Fwd to play video forward at high speed. Press the button again the speed will be change circulative from ×2,×4,×6, to the highest ×8.
21	1 - 9 (1 - 16)	Press the button <b>9-ch DVR (16-ch DVR)</b> to display correspond channel.
22	CF Card	Slot for compact flash (CF) card.
23	HDD FRAME	Location of installation for removable HDD.

**Table of the button description**



**Back panel of 9-ch DVR**



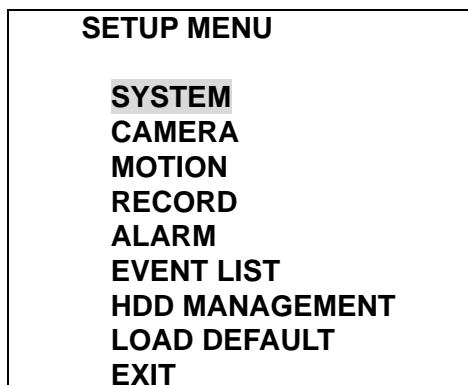
**Back panel of 16-ch DVR**

Part	Label	Function
24	POWER SW / POWER	Power ON/OFF switcher. AC90V~AC260V input.
25	FAN	Fan

26	AUDIO IN	Audio input for 1 channel
27	AUDIO OUT	Audio output for 1 channel
28	SPOT	SPOT Video output
29	BACKUP VIDEO OUT	Backup video output with BNC connector.
30	MONITOR OUT	Video output with BNC connector. Y/C signal output with Din connector.
31	ALARM	25 pin D-Sub connector. Alarm input connector.
32	RS-232 / RS-485	9 pin D-Sub connector. For external control of unit.
33	Ethernet	RJ-45 connector for networking.
34	Video output 1 - 9 Video output 1 - 16	<b>9-ch DVR</b> Camera 1 - 9 video output with BNC connector. <b>16-ch DVR</b> Camera 1 - 16 video output with BNC connector.
35	75 ohm	Switch between 75 ohm and high resistance.
36	Video input 1 - 9 Video input 1 - 16	<b>9-ch DVR</b> Camera 1 - 9 video input with BNC connector. <b>16-ch DVR</b> Camera 1 - 16 video input with BNC connector.

## CHAPTER 3 SETUP PROCEDURES

### 1. MAIN MENU SETUP



Press the **MENU** button to go into the main menu.

Use the **▲** and **▼** button to select items.

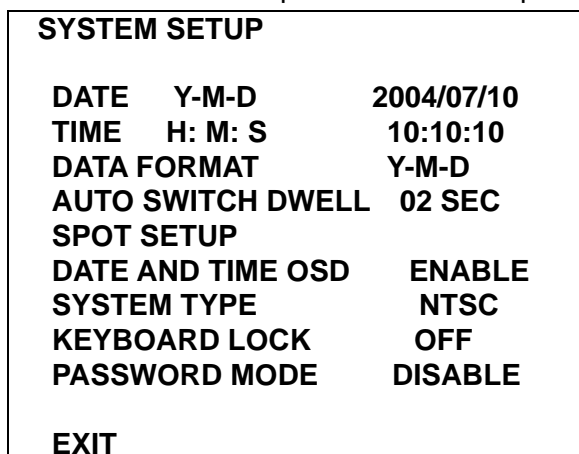
Press the **ENTER** button to confirm the selection.

#### Contents:

- |   |  |
|---|--|
| ① <b>SYSTEM</b><br>System set up                | ② <b>CAMERA</b><br>Camera set up                   |
| ③ <b>MOTION</b><br>Motion detection set up      | ④ <b>RECORD</b><br>Recording set up                |
| ⑤ <b>ALARM</b><br>Alarm set up                  | ⑥ <b>EVENT LIST</b><br>Browse event records        |
| ⑦ <b>HDD MANAGEMENT</b><br>Hard disk management | ⑧ <b>LOAD DEFAULT</b><br>Return to factory setting |
| ⑨ <b>EXIT</b><br>Escape from the setup menu     |  |

### 2. SYSTEM SETUP

Press **MENU** to escape to exit the set up mode.



Press the **MENU** button to go into the main menu.

Use the **▲** and **▼** button to select items.

Press the **ENTER** button to confirm the selection.

#### Contents:

- ① **DATE Y-M-D 2004/07/10**  
Use **◀** or **▶** button to set up date.  
Press **ENTER** to move cursor forward.
- ② **TIME H:M:S 10:10:10**  
Use **◀** or **▶** button to set up time.  
Press **ENTER** to move cursor forward.
- ③ **DATA FORMAT Y-M-D (M-D-Y / D-M-Y)**

Use ◀ or ▶ button to select the date format.

④ **AUTO SWITCH DWELL 02 SEC ( 01 – 99 )**

Use ◀ or ▶ button to set up dwell time for auto switch.

Range from 01sec to 99 sec.

⑤ **SPOT SETUP**

Press the **ENTER** button to confirm the selection.

Each camera is able to be set spot display interval time from 0 to 99 seconds individually. If no camera is attached to the corresponding channel then spot channel display will skip that channel and jump to the next one with camera is actually hooked on. When

<b>SPOT SETUP</b>	
<b>SPOT SWITCHING : ON</b>	
<b>CAM01 : 02 SEC</b>	<b>CAM09 : 02 SEC</b>
<b>CAM02 : 02 SEC</b>	<b>CAM10 : 02 SEC</b>
<b>CAM03 : 02 SEC</b>	<b>CAM11 : 02 SEC</b>
<b>CAM04 : 02 SEC</b>	<b>CAM12 : 02 SEC</b>
<b>CAM05 : 02 SEC</b>	<b>CAM13 : 02 SEC</b>
<b>CAM06 : 02 SEC</b>	<b>CAM14 : 02 SEC</b>
<b>CAM07 : 02 SEC</b>	<b>CAM15 : 02 SEC</b>
<b>CAM08 : 02 SEC</b>	<b>CAM16 : 02 SEC</b>
<b>EXIT</b>	

motion or alarm are triggered, spot monitor will display corresponding triggered motion/alarm channel and will jump back to spot monitoring mode when motion/alarm period is over.

⑥ **DATE AND TIME OSD      ENABLE ( DISABLE )**

Use ◀ or ▶ button to turn on or off the **DATE AND TIME** display. Where **ENABLE** means display and **DISABLE** means no display.

⑦ **SYSTEM TYPE      NTSC ( PAL )**

Use ◀ or ▶ button to select video system in NTSC or PAL mode.

⑧ **KEYBOARD LOCK      OFF ( TYPE1 / TYPE2 )**

Use ◀ or ▶ button to enable or disable the keyboard lock. Totally have 3 modes as following: OFF / TYPE1 / TYPE2.

OFF : Disable the function.

TYPE1 : Only lock buttons for recording and playback, will not lock buttons for switching display mode.

TYPE2 : Will lock all buttons except menu key.

⑨ **PASSWORD MODE      DISABLE ( ENABLE )**

Use ◀ or ▶ button to enable or disable password protection for the keyboard.

When password mode is **ENABLE**, there will be four blank fields for filling in the password, use ◀ or ▶ button and **ENTER** button to select the password numbers.

⑩ **EXIT**

Escape from the SYSTEM SETUP menu

3. **CAMERA SETUP**

<b>CAMERA SETUP</b>	
<b>CAMERA</b>	<b>CAM 01</b>

Press the **MENU** button to go into the main menu.

DISPLAY	ON
RECORD	ON
BRIGHTNESS	50
CONTRAST	50
HUE	50
COLOR	50
CAMERA TITLE	01
EXIT	

Use the ▲ and ▼ button to select items.

Press the **ENTER** button to confirm the selection.

**Contents:**

① **CAMERA CAM 01 (CAM 01 – CAM 09/16)**

Use ◀ or ▶ button to select the camera from CAM 1 – CAM 9/16 to be adjusted or press the button 1 – 9/16 directly.

② **DISPLAY ON ( OFF )**

Use ◀ or ▶ buttons to select enable to disable camera live video on screen display.

③ **RECORD ON ( OFF )**

Use ◀ or ▶ buttons to select enable or disable camera recording for the channel.

④ **BRIGHTNESS 50 ( 00-99 )**

Use ◀ or ▶ button to adjust the brightness of the selected camera.

⑤ **CONTRAST 50 ( 00-99 )**

Use ◀ or ▶ button to adjust the contrast of the selected camera.

⑥ **HUE 01 ( 00-99 )**

Use ◀ or ▶ button to adjust the hue of the selected camera.

⑦ **COLOR 01 ( 00-99 )**

Use ◀ or ▶ button to adjust the color of the selected camera.

⑧ **CAMERA TITLE 01**

Use ◀ or ▶ button to edit the title for the selected camera. The **ENTER** button move the cursor forward.

⑨ **EXIT**

Escape from the **CAMERA SETUP** menu

**4. MOTION SETUP**

<b>MOTION SETUP</b>	
CAMERA	CAM 01
MOTION DETECTION	ON
BUZZER	OFF
SENSITIVITY	080
AREA SETUP	
EXIT	

Press the **MENU** button to go into the main menu.

Use the ▲ and ▼ button to select items.

Press the **ENTER** button to confirm the selection.

**Contents:**

① **CAMERA CAM 01 (CAM 01 – CAM 09/CAM 16)**

Use ◀ or ▶ button to select a camera for motion detection setup. Each camera has its own motion zone settings so they have to be setup individually.

② **MOTION DETECTION OFF ( ON )**

Use ◀ or ▶ button to select **ON** or **OFF** for the Motion Alarm.

Options below will show up when MOTION is set to **ON** for a selected camera.

③ **BUZZER OFF ( ON )**

Use ◀ or ▶ button to select ON or OFF for buzzer on motion detection. The buzzer will start buzzing when switch on. .

④ **SENSITIVITY 080 (001-100)**

Use ◀ or ▶ button to adjust the level of sensitivity.

⑤ **AREA SETUP**

Motion detection area status could be condition described as below:

The text “M” indicates motion detection for this block is activated.

Empty space indicates motion detection for this block is not activated.

Green flash block indicates current cursor position.

Use ▲ ▼ ◀ ▶ keys to move and “ENTER” key to change the setting.

“AUTO” key : enable 1 row, “SEL” key : disable 1 row, and green flash block will jump to next row.

There are 6 rows and 8 columns on the screen that made up a total of 48 zones which can be selected individually for each camera for motion detection.

⑥ **EXIT**

Escape from the **MOTION SETUP** menu

5. **RECORD SETUP**

RECORD SETUP			
NORMAL RECORD	FPS		30P
ALARM RECORD	FPS		30P
ALARM RECORD	DWELL		10 SEC
RECORD QUALITY			HIGH
AUDIO RECORD			OFF
SCHEDULE RECORD			ON
EXIT			

Press the **MENU** button to go into the main menu.

Use the ▲ and ▼ button to select items.

Press the **ENTER** button to confirm the selection.

**Contents:**

① **NORMAL RECORD FPS 30P (60P/30P/15P/10P/5P/1P/0.5P/0P)**

Use ◀ or ▶ button to select recording speed.

60P means 60 fields per second, which is the highest speed, and 0.2P is the lowest. Select 0P for no recording. There is a total of 8 speeds you can choose from. (FPS: Field per second)

Note: PAL: 25P(50P/25P/12P/5P/1P/0.5P/0P)

② **ALARM RECORD FPS 30P(60P/30P/15P/10P/5P/1P/0.5P)**

Use ◀ or ▶ button to select alarm recording speed when external alarm or motion detection is triggered.

Note: PAL: 25P(50P/25P/12P/5P/1P/0.5P)

③ **ALARM RECORD DWELL 10 SEC ( 5 - 99 )**

Use ◀ or ▶ button to set the dwell time for alarm recording when external alarm or

motion detection alarm is triggered.

④ **RECORD QUALITY BEST ( HIGH / MEDIUM / LOW )**

Use ◀ or ▶ button to select the BEST, HIGH, MEDIUM or LOW setting so there is a total of four levels of recording quality that can be chosen from. The higher the quality, the higher the amount of storage will be consumed. Thus, this setting should be carefully chosen as it will affect the usage of hard disk storage.

A table of relationship between quality, record speed and hard disks is attached for reference.

⑤ **AUDIO RECORD ON ( OFF )**

Use ◀ or ▶ button to select ON/OFF audio recording

⑥ **SCHEDULE RECORD ON ( OFF )**

Use ◀ or ▶ button to select ON/OFF. Press the **ENTER** button to confirm the selection.

Schedule recording has highest priority in recording process. When schedule recording is in process, stop recording can not be performed by pressing "REC" button. You must manually enter the DVR system menu to stop schedule recording before pressing "REC" button for manually stop recording.

"REC" button force recording can be performed only when schedule recording set "X" for no recording on its schedule.

Totally divided by 24 hours.

O : Full recording      A : Alarm recording      X : No recording

<b>SCHEDULE RECORD</b>																							
O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	1
↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑
0	3	6	9	12	15	18	21	24															
O : FULL REC																							
A : ALARM REC																							
X : NO REC																							

⑦ **EXIT**

Escape from the **RECORD SETUP** menu

**6. ALARM SETUP**

<b>ALARM SETUP</b>	
<b>BUZZER</b>	
BUZZER/ALARM DWELL	05 SEC
VIDEO LOSS ALARM	ON
AUDIBLE ALARM	ON
EXT. ALARM MODE	LOW
ALARM DISPLAY MODE	DISABLE
<b>RELAY</b>	
EXT. ALARM RELAY	ON
VIDEO LOSS RELAY	ON
MOTION RELAY	ON
<b>EXIT</b>	

Press the **MENU** button to go into the main menu.

Use the ▲ and ▼ button to select items.

Press the **ENTER** button to confirm the selection.

**Contents:**

- ① **BUZZER/ALARM DWELL 05 SEC ( 5 - 99 )**  
Use ◀ or ▶ button to adjust the duration time of the buzzer action.
- ② **VIDEO LOSS ALARM ON ( OFF )**  
Use ◀ or ▶ button to set up video loss alarm enable or disable..  
When video signal is lost, the buzzer will act immediately and the screen will be switched to 9/16 format, also at the same time a record with LOS ID will be added to the event list but no video will be storage.
- ③ **AUDIBLE ALARM ON ( OFF )**  
Use ◀ or ▶ button to enable or disable the buzzer.
- ④ **EXT. ALARM MODE LOW ( HIGH )**  
Use ◀ or ▶ button to select what kind of input signal to trigger the alarm.  
( HIGH - input signal changes from LOW to HIGH  
LOW – input signal changes from HIGH to LOW).
- ⑤ **ALARM DISPLAY MODE DISABLE ( ENABLE )**  
Use ◀ key or ▶ to select disable or enable. Channel display will jump to corresponding motion or alarm triggered channel when turning enable. No action will be taken when turning disable.
- ⑥ **EXT. ALARM RELAY ON ( OFF )**  
Use ◀ key or ▶ key to select on or off. Relays will take action on external alarm when turning on, no action on relays when turning off.
- ⑦ **VIDEO LOSS RELAY ON ( OFF )**  
Use ◀ key or ▶ to select on or off. Relays will take action on video loss when turning on, no action on relays when turning off.
- ⑧ **MOTION RELAY ON ( OFF )**  
Use ◀ key or ▶ to select on or off. Relays will take action on motion detection when turning on, no action on relays when turning off.
- ⑨ **EXIT**  
Escape from the **ALARM SETUP** menu

**7. EVENT LIST**

EVENT LIST		PAGE 1		
NO	YY / MM / DD	HH : MM : SS	CH	ALM
01	04 / 07 / 10	11 : 11 : 25	05	LOS
02	04 / 07 / 10	11 : 11 : 15	02	LOS
03	04 / 07 / 09	22 : 22 : 10	15	EXT
03	04 / 07 / 09	10 : 10 : 10	--	REC
03	04 / 07 / 09	08 : 00 : 55	--	PWR

Use ▲ or ▼ button to select the item. It can display 10 records in a page.

Use ► button to go into next page. Use ◀ button to go into front page.

Press the **ENTER** button to execute the event's playback.

**NO** : the number of event list, maximum 3000 records.

**YY / MM / DD** : Year / Month / Date

**HH : MM : SS** : Hour / Minute / Second

**CH** : Correspond with camera.

**ALM**: Alarm type.

There are four alarm types including **image lost (LOS)**, **external alarm (EXT)**, **record start (REC)** and **power on (PWR)**.

## 8. HDD MANAGEMENT

HDD MANAGEMENT		
<b>OVERWRITE MODE</b>		<b>OFF</b>
<b>CAPACITY WARNING</b>		<b>20%</b>
<b>HDD FORMAT SETUP</b>		
<b>EXIT</b>		
<b>DISK</b>	<b>CAPACITY</b>	<b>LEFT RATIO</b>
<b>A</b>	<b>250GB</b>	<b>100%</b>
<b>B</b>	<b>NONE</b>	<b>NONE</b>

Press the **MENU** button to go into the main menu.

Use the ▲ and ▼ button to select items.

Press the **ENTER** button to confirm the selection.

### Contents:

#### ① **OVERWRITE MODE OFF ( ON )**

Use ◀ or ► button to enable or disable overwriting when HDD is full. When HDD overwrite is enabled, the oldest partition on the HDD will automatically be reused, that means the oldest images will be overwritten by the current images. There are a total of 10 partitions automatically created on every HDD during the HDD format process. When overwrite mode is disabled, the Full Warning percentage selection will be appeared and need to be configured.

#### ② **CAPACITY WARNING 20% (15% / 10% / 5%)**

Use ◀ or ► button to select one of the four settings (20%, 15%, 10%, 5%). The default is 20%. The buzzer will turn on when free space left in the HDD go below the set value and it will on again when the total free space left go below 5%. The value of percentage of total free space in the system will be displayed on the top left corner of the screen when HDD free spaces go the set value.

#### ③ **HDD FORMAT SETUP**

Use **ENTER** button to enter the **HDD FORMAT SETUP** menu.

<b>HDD FORMAT SETUP</b>		
<b>HDD PASSWORD PROTECT</b>		<b>DISABLE</b>
<b>FORMAT</b>		
<b>EXIT</b>		

A password can be setup to protect the hard disk content. When the **HDD PASSWORD PROTECT** set to **ENABLE**, a password needs to be entered in order

to perform a hard disk format. Of course this password you can setting same as the “system’s password” or different. Initial number is 1111.

<b>HDD FORMAT SETUP</b>	
<b>HDD PASSWORD PROTECT</b>	<b>ENABLE</b>
<b>HDD PASSWORD</b>	<b>1 1 1 1</b>
<b>FORMAT</b>	
<b>EXIT</b>	

When you choose **HDD FORMAT** and press the **ENTER** button, following screen will be displayed:

<b>DATA WILL BE LOST</b>
<b>PROCEED WITH FORMAT? ( NO)</b>

Use ◀ or ▶ button to choose (YES) proceeded to the HDD format or (NO) to return to the previous manual. If the HDD would not go on proceeding with format, choice (NO) and press **ENTER** or **MENU** to exit. To confirm and go ahead with HDD format, choose (YES) and press **ENTER**. It has to wait a short period of time in order for the HDD to format. Then screen will return to the **MAIN MENU** when finished.

#### ④ **EXIT**

Escape from the **HDD MANAGEMENT** menu.

#### ⑤ **DISK CAPACITY LEFT RATIO**

To display the situation for all HDD.

DISK	CAPACITY	LEFT RATIO
A	250GB	100%
B	NONE	NONE

DISK A/B : Maximum for 2 HDD.

CAPACITY : Capacity for each HDD NONE is with no HDD.

LEFT RATIO : Ratio for each HDD. NONE is with no HDD.

## 9. **LOAD DEFAULT**

Use the **ENTER** button to return to the factory default. This will clear all the user settings and replace it with the original default parameters.

## 10. **EXIT**

Exit from the **SETUP MENU**.

# CHAPTER 4

## OPERATION PROCEDURES

### 1 Getting Started with your machine

Please assure the following instructions before you switch on the machine:

- 1.1 Voltage check: Before power cable is connected, please check the voltage of this appliance against the supply. Two Voltages options, 115V or 230V, can be selected at the back of the machine.

**CAUTION** - Damage would be caused if incorrect power voltage applied.

- 1.2 Hard Disk connection: Make sure the 40-Pin Hard Disk Data cable and the 4-Pin power connectors are properly connected.

### 2 Recording

#### Manual operation

Press the **● REC** key to enter the Recording Mode and the red indicator on front panel will be lit which indicate the system is currently in Recording Mode. To stop recording, press the **●** **REC** key again.

- For more information on Setting up Recording Mode, refer to Chapter 3 Recording Setup
- In Recording Mode, if there is a power failure or power lost for any reasons that cause a shut down of this machine, it will be back to the Recording Mode automatically when power restored.
- The color of the camera title indicates the camera channel current status, red color indicates recording is in process for the camera and white color indicates no recording.
- When schedule recording is performed, recording process will follow its own schedule to start or stop recording.

Attention: When schedule recording is in process, the recording process will not be able to stop by pressing **● REC** button. You must manually enter the system menu to stop the recording.

### 3 Playback

#### 3.1 Time search

Press **▶ Play** button to play video forward and **◀ Rew** button to play video reverse. After you press the either **▶ Play** or **◀ Rew** button, a message “**PLAY BACK START TIME SETUP**” will be displayed on the screen.

You can press (**▶**) or (**◀**) button to select the item that you wanted to set up and press (**▲/▼**) button to increase or decrease the numbers. After playback start time has been set up, press the ENTER key to start.

Press **■ Stop** button to resume the Live Mode.



#### 3.2 Events search

A maximum of 3000 events can be stored in the Event List. For more information about



events search, Please refer to Chapter 3 Event List. (Page 10)

### 3.3 High-Speed Forward and Reverse Search





#### High-Speed Forward Search

In playback mode, after pressed the  button to play video forward. For high-speed forward, presses the  button will double the forwarding speed. The fastest speed is 8 times than normal.

#### Reverse Search

Press the  button to reverse playback video. For high-speed reverse, presses the  button to double the reversing speed. The fastest reverse speed is 2 times than normal.

### 3.4 Still Playback (field by field)

This function can only be used in full screen mode, which is not available in Quad Mode or other Multiple Frames Mode. The  and  buttons are used to enter the Still Playback mode and press them again to advance or record the picture field by field. The  or  sign will be displayed on the top left corner of the screen.

### 3.5 Stop Playback

Press the  button to leave playback mode and resume the Live Mode.

## 4. Audio recording and playback

When audio recording setting is on under video recording setting, audio recording will be start automatically. Audio replay will only available under video replay in normal speed. In video recording speed of 15P (12P), 30P (25P) and 60P (50P), you will get continuous audio playback. If video recording speed is under 5P, then poor audio recording quality may occur.

## 5. Network function

Network function is an optional for this DVR. Please make sure that your DVR does come with this network function. The network setting can only be configured through network remote computer. Please refer to network setting instruction for detail information. DVR network function provides real time surveillance, PTZ control and recording remotely under network basis.

## 6. Hard disk and CF Card recommend

Maximum 4 pieces and at lease one hard disk should be connect, the capacity of hard disk from 10GB to 250GB for each.

When you restart the power of this appliance after install or replace new hard disk it will be format automatically, we been tested the follow model of hard disk and recommend you use when you install by yourself.

Brand	Model	Capacity	Speed (rpm)
Seagate	ST3120023A	120GB	7200 rpm
Seagate	ST380020A	80GB	7200 rpm

Maxtor	6Y120L0	120GB	7200 rpm
Maxtor	6Y160P0	160GB	7200 rpm
Seagate	ST3160023A	160GB	7200 rpm
Maxtor	7Y250P0-A	250GB	7200 rpm
We <b>DO NOT</b> suggest Samsung hard drive base on technical examination			

CF Card Brand	Capacity
San Disk	128M
San Disk	256M
Transcend	128M

## 7. Backup

The DVR support 2 methods for backing up:

### 1. VCR Backup

**9ch & 16ch DVR** provide composite signal output for back -up use. You can keep the Image data, by selecting a particular channel, and simply just connected **BNC** connector, at the Back Panel of **9ch & 16ch DVR**, with **VCR** Connector. Press VCR REC button, after decided which channel and what recording data need to keep, during Play-Back Mode.

### 2. Compact Flash (CF) Card Backup

CF card backup is attached function of DVR network adapter; please ensure your DVR comes with network function before using CF card backup.

It could be 2 file formats for CF card backup ① Single picture JPEG file ② Video clip AVI file

It takes awhile on DVR system to be ready after CF card insertion. A **CF** mark will show up on top right screen under playback mode which indicates DVR system is ready for CF backup.

You will only able to make CF card backup under single channel full screen playback mode

#### ①. Single picture JPEG file

Run the DVR under playback mode and switch to the channel you are going to backup

Press "PAUSE" button then press "COPY" key to back a single image into JPEG file on a CF card.

The screen will first shows up **CF CARD TESTING PLEASE WAIT** which indicates the DVR is initializing and perform CF card testing for CF card backup and It takes around 1 second.

Message **BACKUP TO CF CARD PLAESE STOP ANY UNNECESSARY JOBS** will appear next

in the middle of the screen and message example **23MB/121MB 81%** will appear in the bottom of the screen which indicates 23M mage byte out of 121 mage byte are used and about 81% free space left in the CF card. The single image CF card backup has been done successfully when all messages are disappeared.

#### ②. Video clip AVI file

Run the DVR under playback mode and switch to the channel you are going to backup (you are not allowed to perform CF card backup on single channel mode if your DVR recoding in quad mode) If you press "COPY" key under multiplexer recording mode with quad playback the screen will shows up **PLEASE TURN TO FULL SCREEN MODE** to remind you to switch to

single channel mode.

Press “COPY” key to start backup a video clip images into AVI file under full screen normal speed playback mode. The screen will start showing **BACKUP TO CF CARD AVI FILE** on top of the screen for around 1 second and then appear **AVI** message in the left bottom screen which is indicating DVR system is currently backing up video into buffer. Press “COPY” key again to terminated video backup on your ideal period, the screen will show up **CF CARD PROCESSING PLEASE WAIT ..** . It takes around 1 min to save AVI file into CF card, it depend on how big the file will be.

If the backup procedure has been done successfully, the message “**CF CARD PROCESSING PLEASE WAIT ...**” will disappear and the message **SAVE OK** showing up.

If the backup action is failed, screen will show **SAVE FAIL PLEASE CHECK CF CARD** It could be 2 possibilities.

- a. DVR causes internal error on buffer, please wait for 30 seconds and redo backup procedure again.
- b. Improper CF card insertion or connection shortage, please unplug your CF card and put it back into CF card slot again.

Any CF card removal will trigger internal buzzer and message **CF CARD REMOVED** will shows up on the screen.

When insufficient capacity occurred then message **WARNING CF CARD INSUFFICIENT CAPACITY** will shows up, please busing your PC to free up some space on the CF card before backup.

Using CF card reader to read images backup on a CF card as procedure below:

Hook up CF card USB adapter to the USB port on PC.

Follow the on CD instruction and install necessary driver files into your PC.

Insert the CF card into the card reader.

## 8. Alarm control

There are three types of alarms that the system can be configured to handle. They are Motion detection Alarm, External Alarm and Video Loss Alarm.

### 1. Motion detection Alarm and External Alarm :

When motion detection or External Alarm was triggered, there are 5 possible actions will be taken.

- a. Changes recording speed as alarm recording speed. please refer to Chapter 3 Function 5, Recording Setup
- b. Monitor will display corresponding full screen alarm channel, it will switch automatic mode to manual mode if buttons pressing activity occurred within 5 seconds.
- c. Relays can be activated by motion detection or external alarm when turning on.
- d. External alarm will be recorded in event list.
- e. The camera title will be transformed into color of yellow when motion is happening,

“ALARM” text will show up when external alarm is triggered.

## 2. Video Loss Alarm

Video Loss alarm is enabled as default and cannot be changed. Although buzzer action can be disabled, an ALM record will still be added to the Event List that indicates the exact time of video loss. For setting up video loss alarm, please refer to Chapter 3 Function 6 Alarm Setup.

## 9. External alarm connector

A DB-25 connector is used for external alarm input. It will accept TTL/CMOS type trigger signals where the **9ch & 16ch DVR** alarm inputs will be set by signal polarity. It also accepts contact type devices. For example, N.O. relay input, the Alarm Polarity should set to LOW in the ALARM SETUP menu. For N.C. relay input, the Alarm Polarity should set to HIGH in the ALARM SETUP menu.

Connector pins 1-16 are for TTL/CMOS compatible alarm signals or for connect one side of the contact type devices. Connector pins 20-21 are for input signal grounding or the remaining side of the contract type devices.

The alarm hold input accept TTL/COMS alarm signal as well as contract device. The connector pin 22 connected to Alarm Reset. The Alarm Reset signal return connects to ground pin (pin 20-21).

Alarm output is Relay Type, Pin 23 is Normal Close and Pin 25 is Normal Open. These outputs can be used to control external devices.

DB-25	Pin 1-9, (1-16)	Alarm 1-Alarm 9 (16) Camera alarm input
	Pin 9-19, (17-19)	N/A
	Pin 20, 21	GND (connecting to ground)
	Pin 22	Alarm Reset
	Pin 23	Alarm output, N.C.
	Pin 24	Relay COM
	Pin 25	Alarm output, N.O.

## 10. RS-232/RS-485 connector

DB-9: RS232	Pin 2	-----RXD
	Pin 3	-----TXD
	Pin 5	-----GND
RS-485	Pin 6	-----RXDA
	Pin 7	-----RXDB
	Pin 8	-----TXDZ
	Pin 9	-----TXDY

## 11 RS-232/RS-485 control protocol

Data format: Data : 8 bits









Parity: None

Start bit: 1

Baud : 9600

Totally 3 bytes in data frame:

1. Byte=0x10 :command of initialize
2. Byte=Refer to below table :command for each key string
3. Byte=first byte plus second byte :command for confirm checksum

9-ch DVR	16-ch DVR	Command	9-ch DVR	16-ch DVR	Command
F.Rew	F.Rew	0x38	Rew	Rew	0x3a
Field Rew	Field Rew	0x3b	STOP	STOP	0x3c
Field Fwd	Field Fwd	0x3d	PLAY	PLAY	0x39
F.Fwd	F.Fwd	0x3e			
		0x32			0x31
		0x33			0x34
ENTER	ENTER	0x35	AUTO	AUTO	0x37
SEL	SEL	0x36			
1	1	0x11	2	2	0x12
3	3	0x13	4	4	0x14
5	5	0x15	6	6	0x16
7	7	0x17	8	8	0x18
9	9	0x19		10	0x1a
	11	0x1b		12	0x1c
	13	0x1d		14	0x1e
	15	0x1f		16	0x30

PS : REC & MENU : No control command

## SPECIFICATIONS of 9-ch & 16-ch DVR

Image System	NTSC	PAL
Resolution (LIVE)	720×480	720×576
Resolution (Play Back)	720×240	720×288
Video Input	BNC × 9, BNC × 16	
Video Output	BNC × 1	
Storage Media	Max 4 IDE Hard Disks ( One Removable )	
Image Format	Wavelet	
Recording Rate	Up to 60 fields/sec	Up to 50 fields/sec
Recording Mode	Manual / Alarm	
Playback Speed	Fast Forward & Fast Backward ×2 ×4 ×6 ×8 Slow Forward & Fast Backward x1/2, x1/4 Field By Field Playback	
Title	6 Characters for each camera	
On Screen Display & Setup	Title/Time/Date/Setup Menu	
Alarm Input	×9 or ×16 NO or NC Programmable	
Relay Output	NO or NC Programmable Contact ×1	
RS-232 & RS-485 Port	Yes	
Password Control	Yes	
Key Lock	Yes	
Looping	Yes	
Power Input	AC 90 - 260V Input ( 47 - 63 Hz )	
Dimensions mm	430(W) × 88(H) × 380(D)	
Rack Mountable	EIA 19" 2U Standard Mounting Rack	
Audio Input	RCA x 1	
Audio output	RCA x 1	
Ethernet	Option	

## TIME LAPSE RECORD TIME

The record time is different based on record speed and record quality. Please refer to the following table.

80GB Hard Disk								
FPS (field per sec.)		60 / 50	30 / 25	15 / 12	10	5	1	0.5
Record Quality	Best	8 hr	16 hr	32 hr	48 hr	96 hr	480 hr	960 hr
	High	14 hr	28 hr	56 hr	84 hr	168 hr	840 hr	1680 hr
	Middle	20 hr	40 hr	80 hr	120 hr	240 hr	1200 hr	2400 hr
	Low	25 hr	50 hr	100 hr	150 hr	300 hr	1500 hr	3000 hr

160GB Hard Disk								
FPS (field per sec.)		60 / 50	30 / 25	15 / 12	10	5	1	0.5
Record Quality	Best	16 hr	32 hr	64 hr	96 hr	192 hr	960 hr	1920 hr
	High	28 hr	56 hr	112 hr	168 hr	336 hr	1680 hr	3360 hr
	Middle	40 hr	80 hr	160 hr	240 hr	480 hr	2400 hr	4800 hr
	Low	50 hr	100 hr	200 hr	300 hr	600 hr	3000 hr	6000 hr

240GB Hard Disk								
FPS (field per sec.)		60 / 50	30 / 25	15 / 12	10	5	1	0.5
Record Quality	Best	24 hr	48 hr	96 hr	144 hr	288 hr	1440 hr	2880 hr
	High	42 hr	84 hr	168 hr	252 hr	504 hr	2520 hr	5040 hr
	Middle	60 hr	120 hr	240 hr	360 hr	720 hr	3600 hr	7200 hr
	Low	75 hr	150 hr	300 hr	450 hr	900 hr	4500 hr	9000 hr

500GB Hard Disk								
FPS (field per sec.)		60 / 50	30 / 25	15 / 12	10	5	1	0.5
Record Quality	Best	50 hr	100 hr	200 hr	300 hr	600 hr	3000 hr	6000 hr
	High	88 hr	176 hr	352 hr	528 hr	1056 hr	5280 hr	10560 hr
	Middle	125 hr	250 hr	500 hr	750 hr	1500 hr	7500 hr	15000 hr
	Low	156 hr	312 hr	624 hr	936 hr	1872 hr	9360 hr	18720 hr

CF Card Backup time

Capacity=128M

Single Image file size	Single picture JPEG file	Video clip AVI file
40K	3100 fields	25 minute
50K	2500 fields	20 minute
60K	2000 fields	16 minute