




INSTALLATION & OPERATING MANUAL



Digital Video Recorder
DVR-3016 & DVR-3016D











APPRO[®]

Before trying to connect or operate this product, please read this manual complete

SAFETY PRECAUTIONS



All the following safety and operation instructions for the prevention of harm or damage to the operator or other persons should be read before the unit is operated.

WARNING

-  To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.
-  Do not block ventilation openings.
-  Do not place anything on top of the unit that might spill or fall into it.
-  Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Please refer all servicing to qualified service personnel.
-  Do not use liquid cleaners or aerosols for cleaning.
-  This installation should be done by a qualified service person and should conform to all local codes.
-  To prevent fire or electric shock, do not overload wall outlets or extension cord.
-  This unit must be grounded to reduce the risk of electric shock hazard.

CAUTION

Danger of explosion if the Lithium battery (RTC Battery) is incorrectly replaced.

-  Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
-  Risk of explosion if replaced by an incorrect type. Dispose of used batteries according to the instructions.

INFORMATION

This equipment has been tested and found to comply with the limits for a Class B 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.

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1. PRODUCT FEATURES

1.1 Product Introduction

This 16CH DVR is a triplex digital recorder with a 16ch multiplexer, capable of Triplex simultaneous recording, playback and live multi-screen viewing; it uses two hard disks and a CD-RW drive instead of VCR tapes to store video (**FOR CD-ROM MODEL ONLY**). It enables you to enjoy the extreme flexibility of digital image archiving instead of clumsy tape management. Equipped with a range of comprehensive features, such as playback picture-by-picture, quick access video recording by time and event, the upgradeable software of the system, the expandable capacities of hard drive, and much more, the 16CH DVR will make your applications far more flexible and effective than ever before. For all purposes the 16CH DVR is going to prove the timely substitute for time-lapse VCR.

1.2 Product Features

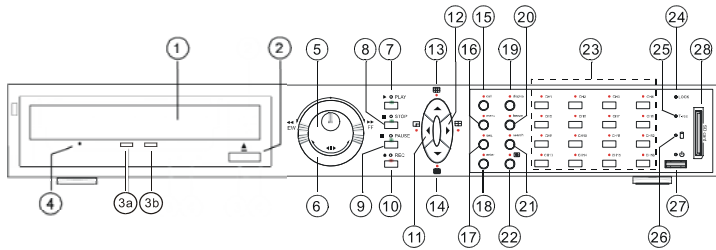
- * Non-PC based DSP hardware with proprietary system firmware.
- * Main recording media: two fixed HDDs plus a CD/RW. (**FOR CD-ROM MODEL ONLY**)
- * Main recording media: two fixed HDDs & one removable HDD. (**FOR REMOVABLE HDD MODEL ONLY**)
- * Maximum 3 hard-disk drive capability (one removable). (**FOR REMOVABLE HDD MODEL ONLY**)
- * Full triplex operation with simultaneous Live, Play, Record and remote Network operations.
- * Pre-alarm image recording: 10 seconds in advance.
- * Every camera can be assigned to any channel location under a multi-screen display mode in both live viewing and playback mode (16-way, 13-way, 10-way, 9-way, 8-way, 6-way, 4-way, 3-way, 2-way).
- * Refresh rate up to 60 field/sec for 720X240 (NTSC) or 50 field/sec for 720X288 (PAL).
- * Compression: Motion JPEG.
- * Quick setup menu.
- * Live viewing modes: freeze, 2X electronic zoom, custom sequencing.
- * Recording and live status display of all the hard disks, CD-RW and SD memory card.
- * Four user-selectable recording image qualities per channel (best / high / standard / basic).
- * Individual channel setups for alarm recording rates: normal, double, interleave, and exclusive.
- * Multiple recording modes: Manual/ Alarm/ Schedule recording.
- * Multiple search modes: Event list/ Time/ Alarm list/ Filter/ Thumbnail/ SD card/ CD.
- * Search condition options: time/date, sensor alarm, video loss alarm, motion alarm, and channel specification.
- * Thumbnail search display intervals: 8 different intervals (year/ month/ day/ hour/ 10 minutes/ 1 minute/ 10 seconds/ 1 second).
- * Fast and slow playback of recorded video at various speeds.
Fast forward and reverse (2x, 4x, 8x, 16x, 30x, 100x).
Slow forward and reverse (1/2x, 1/4x, 1/8x, 1/16x, 1/30x, 1/100x).
- * Adjustable individual camera images (noise filter ON/OFF, brightness, contrast, color, and hue for

each camera).

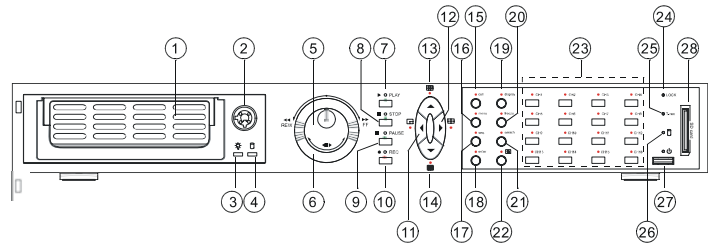
- * Selectable display position and color of title/time/date OSD text in both MAIN and CALL monitors.
- * Covert camera recording.
- * Schedule setting: total 8 schedules.
Individual record and alarm condition setting can be assigned by designated schedule.
- * Disk-full warning and operation status LEDs.
- * Remote control via RS-232 and RS-485 ports.
- * Alarm trigger source selection: alarm sensor/motion detection/video loss alarm can be programmed to trigger three different alarm out replays.
- * Adjustable motion detection conditions: sensitivity, target area, target size, motion duration, and track direction.
- * Individual alarm sensor, video loss alarm & motion detection alarm for each channel.
- * Power interruption recovery.
- * Operation-status record log.
- * Multi-lock out functions: front key lock, RS-232 lock, play back lock, and recording lock.
- * Three audio quality levels (8/ 22/ 44 kHz sampling, μ -law).
- * Audio recording modes: stereo/ left/ right/ off.
- * Built-in SD memory card slot to save JPEG/AVI image(s) for individual channel to an SD memory card.
- * Easy field firmware update via SD memory card can be performed by end user.
- * Factory default menu setting and installer menu setting can be restored.
- * Use both client software and Internet Explorer for remote viewing and access from a remote desktop or a laptop via Ethernet connection.
- * Daylight saving setting.
- * Pan/Tilt/Zoom camera setting and control through Ethernet port.

2. DESCRIPTION OF THE FRONT/REAR VIEW

2.1 Front View FOR CD-ROM MODEL









FOR REMOVABLE HDD MODEL



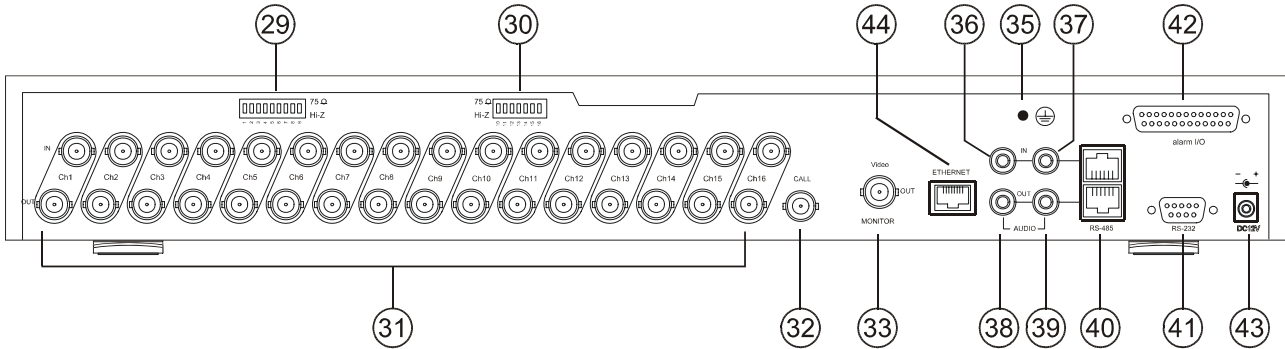
- ① **CD-RW device compartment:**
The compartment allows you to burn the data mostly for backup purposes. This tray is for loading the CD disc. It will accept 120 mm and 80 mm discs. Please place the discs in the exact center of the tray.
- ② **Eject button:**
Pressing this controls the insertion and ejection of the tray.
- ③a **Writing Display Light:**
When a disc is being burnt, the display light will be a red flash.
- ③b **Power Supply / Reading Light:**
When a disc has been ejected, the display light will be green. When a disc is unable to be read, or the device is being repaired, the display light will flash.
- ④ **Emergency Eject Button:**
When the power supply has been interrupted, or it is impossible to eject a disc, please use a pin to press the emergency eject button so that the caddy will eject the disc.

- ① **Hard-disk drive compartment.**
The compartment allows you to install a hard disk drive mostly for backup purposes. Make sure the drive is well secured with the mounting screws in the mobile rack before you put the rack into the compartment. And remember to turn on the power of the compartment by locking it.
- ② **Hard disk compartment lock:**
The key lock secures a hard disk in place. Unlock the compartment before you remove the hard disk from the slot without turning off the device.
- ③ **Mobile Rack Power LED:**
Indicates the power status of the Mobile Rack. The green light indicates the Mobile Rack is activating.
- ④ **Mobile Rack HDD LED:**
Indicates the HDD status of the Mobile Rack. The orange light indicates the HDD is storing or retrieving data.

- ⑤ **Jog Dial:**
This dial can act in both a forward and a backward direction, as well as step by step. Turn this left to play a recorded video in the reverse direction. Turn this right to play a recorded video in the forward direction. Moreover, the dial can be rotated so you can move the focus to any item or function.
- ⑥ **Shuttle Ring:**
The shuttle can be moved forward and backward for playback in either direction. Turn this left to play a recorded video in the reverse direction at faster or slower speeds than the recorded speed. Turn this right to play a recorded video in the forward direction at faster or slower speeds than the recorded speed. Additionally, the shuttle can also be rotated to change or adjust values in your settings.
- ⑦ **PLAY** button:
Press to play back a recorded video from the hard disk.
- ⑧ **STOP** button:
Press to stop playing back a recorded video from a hard disk.
- ⑨ **PAUSE** button:
In a playback display, press this to freeze the display. During the freeze, press to display one frame of a picture at a time in the forward direction. Additionally, if you press "Enter" during freeze, you can open the "SD CARD Menu" to save the image(s).
- ⑩ **REC** button:
Push to start recording video into a hard disk while in the live display mode. Press again for at least 3 seconds to stop the recording.
NOTE: The monitor will display a message "STOP RECORD" if you power off the device in case of recording.
- ⑪ **Left** /  button:
Press to move the focus to desired items in the menu setup mode. In the live and play modes, press the left button to enter a single channel, with an inset of the next channel which passes through three modes with successive button pushes.
- ⑫ **Right** /  button:
Press to move the focus to desired items in the menu setup mode. In both the live and play modes, press thrice successively to get three multi - channel modes on the main monitor, the first two times in a 3-way vision, and the last in a 4-way mode.
- ⑬ **Up** /  buttons:
Press to move the focus in the setup mode in the upward direction. In the live and play modes, you can press thrice to get three multi - channel modes, in a 9-way, 8-way, and 6-way channel mode on the main monitor, respectively.
- ⑭ **Down** /  buttons:
Press to move the focus in the setup mode in the downward direction. In the live and play modes, you can press thrice to get three multi - channel visions, in a 16-way, 13-way, and 10-way channel mode on the main monitor, respectively.

- ⑮ **call** button:
If you connect to the call monitor, the "Call" button enables you to select channels on this monitor. Press the "Call" button and any particular channel button on the front panel simultaneously to display that channel.
- ⑯ **menu** button:
Press this to enter the setup menu.
- ⑰ **seq.** button:
Press to enter the sequential jumping mode, each multi-screen, and one sequential; the picture would sequentially switch to different channels according to the sequencer setting in the setup menu.
- ⑱ **enter** button:
Press to enter a selected item and save the setting in the menu setup mode.
- ⑲ **display** button:
Press to display the status of the hard disks and SD card in your device.
- ⑳ **freeze** button:
Press to freeze an image in the live or play mode.
- NOTE: During the play mode, pressing the “freeze” and the “pause” buttons have different effects. Push “freeze” to capture a particular image, while the image record continues running in the device. When you press the “pause” button, both the particular image and the entire image record are halted.**
- ㉑ **search** button:
Press to enter the search mode to access recorded video.
- ㉒  **(zoom)** button:
Press to double the size of an image. Use the "▲" (up), "▼" (down) , "<" (left) and ">" (right) buttons to shift your zoom focus . Press the zoom button again to return to the original image size.
- ㉓ **channel** button:
All channel buttons from 1 to 16 are sited here. Press each to display its channel in the live and play modes.
- ㉔ **LOCK Indicator:**
The red signal denotes an operation lock.
- ㉕ **T-rec Indicator:**
This indicator of the timer recording mode lights up to signal the scheduled record setting is on.
- ㉖  **(DISK) Indicator:**
The indicator shows the operation status of the unit's hard-disk drives. The green light indicates the hard-disk drive is storing or retrieving data. The red light signals the hard-disk drive is filling up. The orange light indicates the hard-disk is retrieving at disk-full status.
- ㉗ **POWER** button:
Press this button for at least 3 seconds to power off. Press again to activate the device.
- ㉘ **SD CARD** Slot:
This is used for system software updating, and archiving/accessing critical images, and to save the whole setting.

2.2 Rear View



29 30 **75Ω/Hi-Z Individual termination:**

These 16 switches are used to set the impedance of each loop through output connectors (31) between 75Ω and Hi-Z. Toggle the corresponding impedance termination to the Hi-Z position, if another device is connected to the video loop through video connector. Set the impedance to the 75Ω position if no other device is connected to the corresponding loop through the connector. The default setting is 75 Ω.

31 **Video in connectors (Ch1~Ch16) & Video loop through connectors (Ch1~Ch16):**

These 16 BNC connectors are used to connect to the video output from the cameras. 16 cameras can be connected to these connectors.

These 16 BNC connectors are used to loop video signals from each camera out to other devices.

32 **Call monitor connector:**

This BNC connector provides video signal to call monitor to display any selected camera in full-screen call up, sequential display and alarm call up operations.

33 **Main monitor connector:**

This BNC connector provides a video signal controlled by the control buttons in the front panel to the main monitor. This connector transmits the video display in full-screen format, multi-screen format and sequential format.

35 **Ground Screw's:** The ground screw is for the chassis terminal.

36 37 **Left & Right AUDIO IN Connector:**

These two connectors are used to connect the audio output from a camera or other devices to the 16CH DVR.

38 39 **Left & Right AUDIO OUT:**

These two connectors provide the unit's audio signal to a speaker or stereo.

40 **RS-485 Port:** The RS-485 communication ports function as connectors when two or more units are serially connected to an external control device.

41 **RS-232 Port:**

The RS-232 communication port functions as a connector to an external control device. Please refer to the **RS-232 & RS-485 Protocol** for more details.

42 **ALARM I/O:** This is a 25-PIN D-SUB connector including **16Pin ALARM IN, GROUND, 3Pin ALARM OUT, DISK FULL, RECORD IN, ALARM RESET, and RESERVED** for connecting with external devices. Please refer to the next section (ALARM In/Out) for details.

43 **Plug Inlet:**

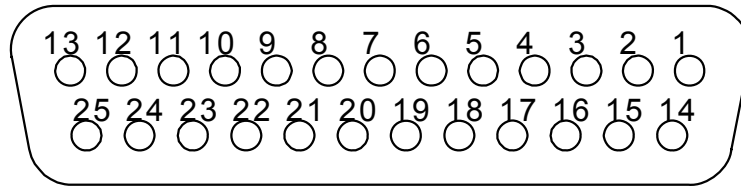
The inlet connects to an external power supply. Connect with the 12 V DC UL Listed Class 2 Power Supply.

44 **ETHERNET 10/100 Connector:**

This is one standard RJ-45 connector for 10/100 Mbps Ethernet networks.

2.3 ALARM In/Out

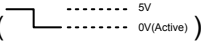
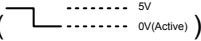
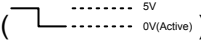
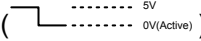
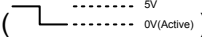
The pin assignment of the female DB-25 alarm I/O connector is listed as follows.



alarm I/O

Pin#	Pin Assignment	Pin#	Pin Assignment
1	GROUND	14	RESERVED
2	DISK FULL (OUTPUT)	15	ALARM1 OUT (OUTPUT)
3	ALARM2 OUT (OUTPUT)	16	ALARM3 OUT (OUTPUT)
4	RECORD IN (INPUT)	17	ALARM RESET (INPUT)
5	ALARM1 IN (INPUT)	18	ALARM2 IN (INPUT)
6	ALARM3 IN (INPUT)	19	ALARM4IN (INPUT)
7	ALARM5 IN (INPUT)	20	ALARM6 IN (INPUT)
8	ALARM7 IN (INPUT)	21	ALARM8 IN (INPUT)
9	ALARM9 IN (INPUT)	22	ALARM10 IN (INPUT)
10	ALARM11 IN (INPUT)	23	ALARM12 IN (INPUT)
11	ALARM13 IN (INPUT)	24	ALARM14 IN (INPUT)
12	ALARM15 IN (INPUT)	25	ALARM16 IN (INPUT)
13	NO CONNECTION		

NOTE: THIS FIGURE IS SEEN FROM THE REAR VIEW

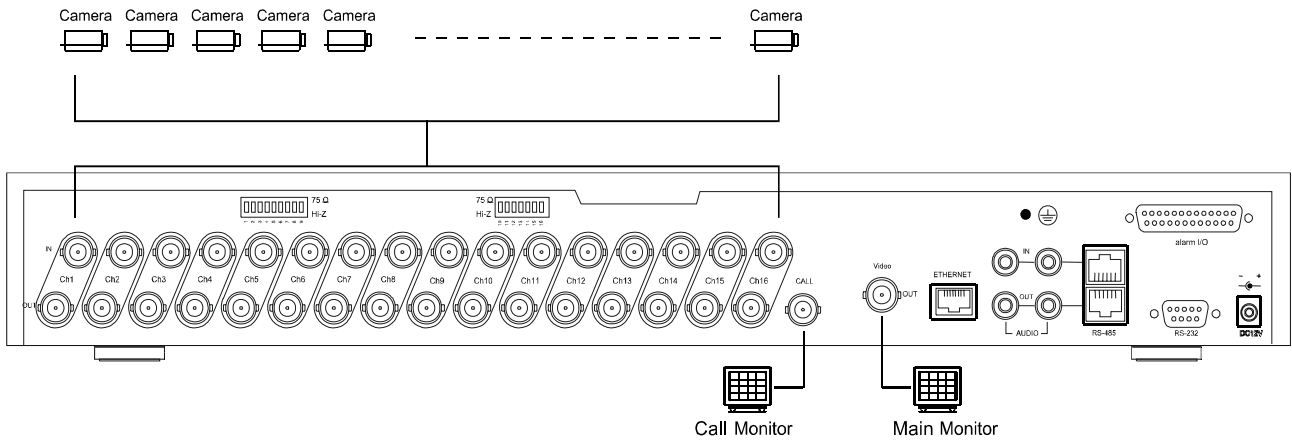
- **GROUND:** Ground Contact.
- **DISK FULL (OUTPUT):** This is a disk full output trigger. Connect this to external devices such as buzzers or lights. ()
- **ALARM OUT (OUTPUT):** This is an alarm output trigger. Connect this to external devices such as buzzers or lights. ()
- **RECORD IN (INPUT):** This pin connects to a record trigger device for starting a record. ()
- **ALARM RESET (INPUT):** This pin connects to an alarm-clear device for clearing an alarm. ()
- **ALARM IN (INPUT):** This is an alarm input (for each channel) that can be programmed in the menu system to Normally Open or Normally Closed. ()

3. INSTALLATION

Please follow the instructions and the diagram below to set up the system.

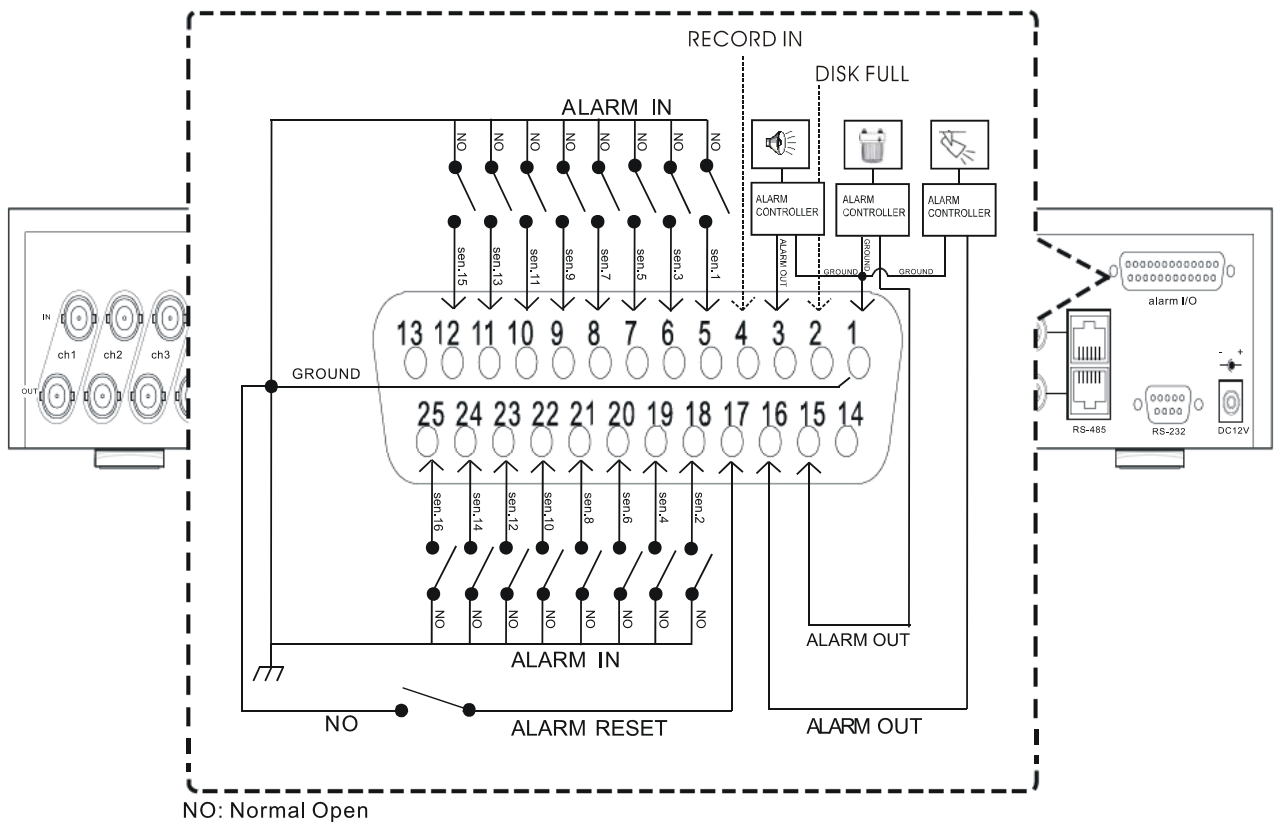
3.1 Basic Connection

CONNECTING WITH 1 to 16 CAMERAS



ATTACHING AN EXTERNAL DEVICE TO DVR

Connect an alarm out, alarm input, and a peripheral device as shown in the diagram below.



3.2 Hard-Disk Drive Installation

The **16CH DVR** is equipped with two compartments of hard-disk drives and a CD-RW drive (**FOR CD-ROM MODEL ONLY**). The unit usually comes with one hard-disk drive installed in the compartment HD1, which is default-configured as a master. If you need a second hard-disk drive to be installed in the compartment HD2, please contact your distributors or installers for specific instructions on how to install it. Please don't try this before consulting your installers. The jumper-settings arrangement of installed hard-disk drives for the system (Table 3.2 A) and the compatible hard-disk drives (Table 3.2 B), which can be used with the unit, are shown in the tables below.

NOTE: There are three compartments of hard-disk drives in the **REMOVABLE HDD MODEL**. If there is only one hard-disk drive in the mobile compartment, please set the **HDD3 USAGE** option to **REC** (please refer to section 4.4) before proceed recording function.

Table 3.2 A. The jumper settings of hard disk drives in the system

	Location	Jumper
IDE 1	Compartment HD 1	Master
IDE 1	Compartment HD 2	Slave
IDE 2	Compartment CD	Master

Table 3.2 B. Compatible hard-disk drives

Manufacturer	Model	Capacity	Rotation
Seagate	ST380020A/P	80GB	5400 RPM
	ST340810A/P	40GB	5400 RPM
	ST320014A	20GB	5400 RPM
	ST340015A	40GB	5400 RPM
	ST380012ACE	80GB	5400 RPM
	ST3120025ACE	120GB	5400 RPM
Maxtor	4A160J0-1A	160GB	5400 RPM
	4R080L0-1	80GB	5400 RPM
	6Y120L0-1	120GB	7200 RPM
	6Y200P0-1A	200GB	7200 RPM
	6Y250P0-1A	250GB	7200 RPM
SAMSUNG	SV0802N	80GB	5400 RPM
	SV1203N	120GB	5400 RPM

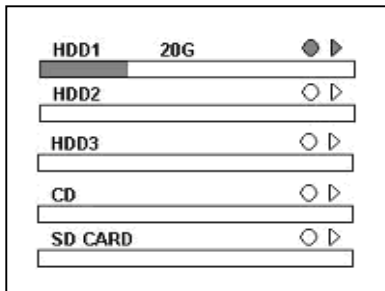
NOTE: Hard-disk drives not shown on this list have not been tested by the engineering team and are not recommended for use with this product. For the latest updated list on the recommended hard disk drives, please contact your dealers or distributors.

3.3 HDD Information and channel selection

3.3.1 HDD information

You can display the HDD information as shown on **Figure 3.3 A** below at any time by pressing the **Display** button **(19)**. In the playback mode, the recorded video information is displayed. In the live or recording mode, the Manual Recording information is displayed. The unit displays status on a monitor as shown next.

Figure 3.3 A.



Description of Figure 3.3 A

(20G): The capacity of installed hard disk, 20 GB

(HDD): Hard disk Compartment (**HDD3 IS FOR REMOVABLE HDD MODEL ONLY**)

(●): Recording; **(○):** No recording

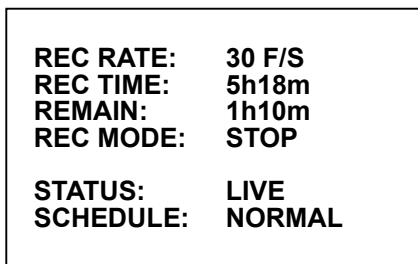
(▶): Playback; **(▷):** No Playback

(CD): CD-RW Compartment (**FOR CD-ROM MODEL ONLY**)

(SD CARD): SD CARD Compartment

Press the **Display** button **(19)** again; the unit will display the information as shown in **Figure 3.3 B** below.

Figure 3.3 B.



Description of Figure 3.3 B

(30 F/S): Record speed setting, 30 frames/sec.

(5h18m): Total 5 hours and 18 minutes recording time available.

(1h10m): Total 1 hours and 10 minutes remaining time available.

(REC MODE): STOP; MANUAL.

(STATUS): Indicates the device status.

PLAY: The device is in the playback mode.

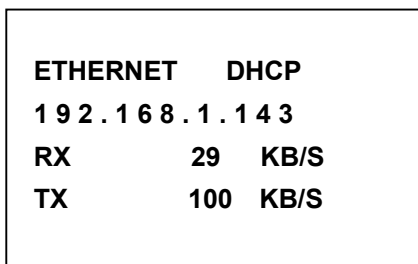
LIVE: The device is in the live display mode.

MANU: The device is in the search mode.

(SCHEDULE): NORMAL, and 1~8.

Press the **Display** button **(19)** again; the unit will display the information as shown in **Figure 3.3 C** below.

Figure 3.3 C.



Description of Figure 3.3 C

(DHCP): Enables the DHCP communication function.

(192.168.1.143): Every DVR has to own an IP address to be identified on the network.

(RX 29 KB/S): Receives the data from network every per second.

(TX 100 KB/S): Transmits the data to network every per second.

3.3.2 Channel Selection

The , , , and **CH1/ CH2/ CH3/ .../CH16** buttons are used to select video modes and video channels in factor. The following table show the functions under different modes.

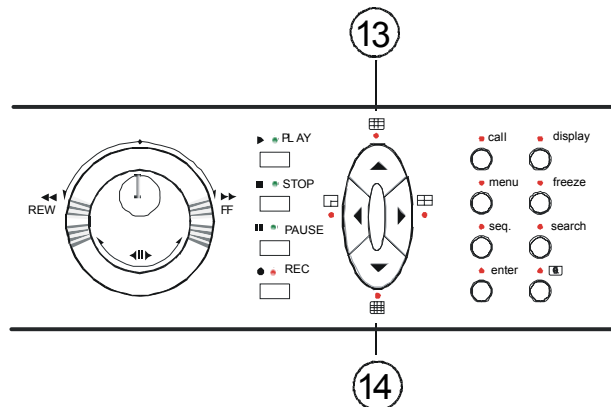
Mode	Key	Result Display
Live / Record / Playback		→ → then loop back
		→ → then loop back
		→ → then loop back
		→ → then loop back
	CH1/ CH2/ CH3/ .../CH16	(Single channel)

3.4 Updating System Software

If the system software of the 16CH DVR needs to be upgraded, please take the following steps to safely update it.

Important: Before carrying out the following procedures, please ensure the SD card is working and the system software file is intact.

1. Create a directory named **DVRVIDEO** in the SD Card; if you already have a directory, move to Step2.
2. Copy the file of **UPDATE.BIN** to the **DVRVIDEO**-directory.
3. If 16CH DVR is running, please power it off first.
4. Insert the SD card into the built-in SD slot of the unit.
5. Hold down the ⑬ Up and ⑭ Down buttons simultaneously, and then turn on the unit while still holding down the buttons.
6. Keep holding down the buttons until the 16CH DVR sounds a note and displays the message “ **LOAD PROGRAM . . .**” Now the 16CH DVR is updating the system software, taking approximately 150 seconds to complete.
7. Restart the unit by turning off the DVR when the device displays the message “ **PLEASE POWER OFF RESTART**”. Then turn on the DVR again. The process is complete.
(If you have already followed procedures 1~6, and the unit is still unable to turn on, then please first check if the SD card you are using is functioning and the file is intact. And then repeat procedures 1 ~ 6.)
8. Verify the version information of the system software. (Please refer to the section 5.7 DEFAULT SETTING option)



Warning: Don't interrupt the process or use an SD card lacking the proper system software, as this could damage the unit.

4. BASIC OPERATIONS

This section shows you how to operate and manage the DVR.

4.1 Recording Operations

This section details the way to record video into hard-disk drives. Before commencing with the recording function, please configure the recording setting properly according to your needs.

4.1.1 Manual Recording

When the DVR is in the live display mode, take the following steps to start recording:

- (1) In live display, press the **REC** button **10** to record video into a hard disk drive with the corresponding programmed recording settings. At once the device will emit a “beeping” sound signal and the **REC** button **10** will light up indicating the DVR is in the recording status.
- (2) Press the **REC** button **10** for at least 3 seconds to stop recording any time.
- (3) To access just recorded video, please refer to section **5.6.2 RECORD SETTING** for more details.

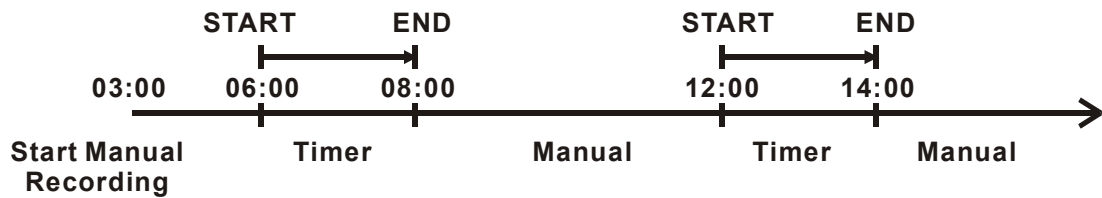
4.1.2 Timer Recording

Timer recording provides two periods of time each day in a weekly table which programs the DVR to turn on and off at specified times. This way the DVR will start and stop recording according to the programmed schedule. Please take the following steps to program the scheduled recording.

- (1) Press the **menu** button **16** to enter the **MAIN MENU**.
 - (2) Select the **ADVANCED SETTING** and press the **Enter** button **18** to enter the **ADVANCED SETTING** page.
 - (3) Select **SCHEDULE** and press the **Enter** button **18** to enter the **SCHEDULE SETTING** page.
 - (4) Choose a schedule and enable it by turning the shuttle ring clockwise.
 - (5) ● Press or use jog dial and then press ENTER to enter the schedule's settings.
 - Then you can choose to record for a single day, the standard business week (M-F) or the entire week.
 - Set the time to begin a recording. Set the time to end a recording.
- NOTE: The time is displayed in a 24-hour clock format.**
- (6) Set alarm, record, and motion preferences to override normal alarm, record and motion settings during this scheduled record period.
 - (7) After scheduling is completed, leave the page and save the settings. This device will operate automatically during the specific time period you have scheduled, set and saved for it.
 - (8) If you want to stop recording in a scheduled recording session or at anytime, you can press the **REC** button #10 for at least 3 seconds.

NOTE: You can proceed to start the scheduled recording from the current time if it is in the scheduled interlude as soon as the setting is complete, and come out from the menu to start recording.

NOTE: If you activate the recording function before the scheduled recording, the unit will operate recording as shown in the diagram below and keep those Images in different files.



MAIN MENU

1 QUICK SETTING:	ENTER
2 DISPLAY OPTION:	ENTER
3 SEQUENCE SETTING:	ENTER
4 PICTURE ADJUST:	ENTER
5 OPERATION LOG:	ENTER
6 ADVANCED SETTING:	ENTER
7 DEFAULT SETTING:	ENTER
8 PASSWORD SETTING:	ENTER
9 EXIT MENU:	ENTER

enter: select
▲/▼/jog/ch1~9: item



ADVANCED SETTING

1 ALARM SETTING:	ENTER
2 RECORD SETTING:	ENTER
3 MOTION SETTING:	ENTER
4 CAMERA COVERT:	ENTER
5 OPERATION LOCK:	ENTER
6 COMMUNICATION:	ENTER
7 DISK SETUP:	ENTER
8 SCHEDULE:	ENTER
RETURN	

menu: exit
enter: select
▲/▼/jog/ch1~8: item



ADVANCED SETTING

1 ALARM SETTING:	ENTER
2 RECORD SETTING:	ENTER
3 MOTION SETTING:	ENTER
4 CAMERA COVERT:	ENTER
5 OPERATION LOCK:	ENTER
6 COMMUNICATION:	ENTER
7 DISK SETUP:	ENTER
8 SCHEDULE:	ENTER
RETURN	

menu: exit
enter: select
▲/▼/jog/ch1~8: item



SCHEDULE SETTING

1 SCHEDULE1:	DISABLE	ENTER
2 SCHEDULE2:	DISABLE	ENTER
3 SCHEDULE3:	DISABLE	ENTER
4 SCHEDULE4:	DISABLE	ENTER
5 SCHEDULE5:	DISABLE	ENTER
6 SCHEDULE6:	DISABLE	ENTER
7 SCHEDULE7:	DISABLE	ENTER
8 SCHEDULE8:	DISABLE	ENTER
RETURN		

enter: select
▲/▼/jog/ch1~8: item



SCHEDULE SETTING

1 SCHEDULE1:	DISABLE	ENTER
2 SCHEDULE2:	DISABLE	ENTER
3 SCHEDULE3:	DISABLE	ENTER
4 SCHEDULE4:	DISABLE	ENTER
5 SCHEDULE5:	DISABLE	ENTER
6 SCHEDULE6:	DISABLE	ENTER
7 SCHEDULE7:	DISABLE	ENTER
8 SCHEDULE8:	DISABLE	ENTER
RETURN		

menu: exit
enter: select
shuttle: value
▲/▼/jog/ch1~8: item



SCHEDULE SETTING

1 DATE:	WEEKLY	
2 START TIME:	12:00	
3 END TIME:	12:00	
4 START RECORD:	YES	
5 ALARM SETTING:	DISABLE	ENTER
6 RECORD SETTING:	DISABLE	ENTER
7 MOTION SETTING:	DISABLE	ENTER
RETURN		

menu: exit
enter: select
shuttle: value
▲/▼/jog/ch1~7: item

4.1.3 Alarm Recording

Take the following steps to activate the programmed alarm recording. For **ALARM** settings, please refer to section 5.6.1 for more details.

- (1) Press the **menu** button **16** to enter the **MAIN MENU**.
- (2) Select the **ADVANCED SETTING** and press the **Enter** button **18** to enter the **ADVANCED SETTING** page.
- (3) Select the **ALARM SETTING** and press the **Enter** button **18** to enter the **ALARM SETTING** page.
- (4) Set the desired time period. The options range from "**TRANSPARENT**" to "**NONSTOP**", from one second to 60 minutes.
- (5) Set the alarm record rate.
- (6) Set the alarm record mode.
- (7) Set the alarm record quality.
(Please refer to section 5.6.1 for more information.)
- (8) Set to a "**SENSITIVITY**" of from 0.1 to 0.8 seconds
- (9) Enter and set each channel to activate or deactivate the three modes of "**SENSOR**", "**V LOSS**", and "**ACTIVE**" in the **ALARM TYPE LINK** and **ALARM OUT LINK** items.

NOTE: The "**ALARM OUT LINK**" page has an item, namely "**START RECORD**". Change it to "**ON**" under "**ACTIVE**" to start alarm recording.

MAIN MENU	
1 QUICK SETTING:	ENTER
2 DISPLAY OPTION:	ENTER
3 SEQUENCE SETTING:	ENTER
4 PICTURE ADJUST:	ENTER
5 OPERATION LOG:	ENTER
6 ADVANCED SETTING:	ENTER
7 DEFAULT SETTING:	ENTER
8 PASSWORD SETTING:	ENTER
9 EXIT MENU:	ENTER

enter: select
▲/▼/jog/ch1~9: item



ADVANCED SETTING	
1 ALARM SETTING:	ENTER
2 RECORD SETTING:	ENTER
3 MOTION SETTING:	ENTER
4 CAMERA COVERT:	ENTER
5 OPERATION LOCK:	ENTER
6 COMMUNICATION:	ENTER
7 DISK SETUP:	ENTER
8 SCHEDULE:	ENTER
RETURN	

menu: exit
enter: select
▲/▼/jog/ch1~8: item

ADVANCED SETTING	
1 ALARM SETTING:	ENTER
2 RECORD SETTING:	ENTER
3 MOTION SETTING:	ENTER
4 CAMERA COVERT:	ENTER
5 OPERATION LOCK:	ENTER
6 COMMUNICATION:	ENTER
7 DISK SETUP:	ENTER
8 SCHEDULE:	ENTER
RETURN	

menu: exit
enter: select
▲/▼/jog/ch1~8: item



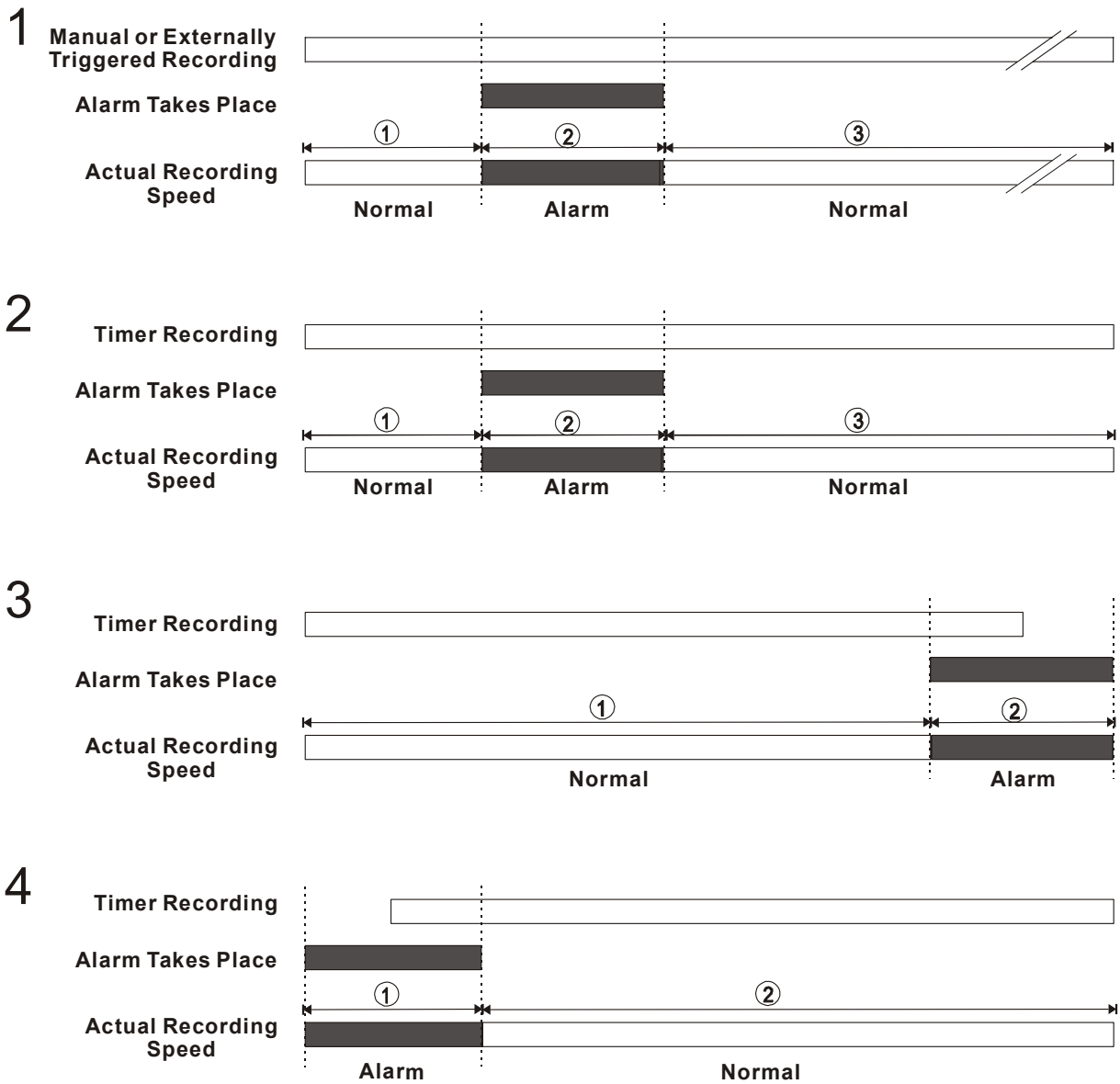
ALARM SETTING	
1 ALARM DURATION:	30 SEC
2 DISK FULL ALERT:	ON
3 PREALARM:	OFF
4 ALARM RECORD RATE:	60 F/S
5 ALARM RECORD MODE:	ENTER
6 ALARM RECORD QUALITY:	ENTER
7 SENSOR TYPE:	ENTER
8 ALARM INPUT LINK:	ENTER
9 ALARM OUT LINK:	ENTER
RETURN	

menu: exit
enter: select
shuttle: value
▲/▼/jog/ch1~9: item

4.1.4 Externally triggered Recording





By connecting the **RECORD IN** of ALARM I/O on the rear panel of the DVR, you can activate/deactivate the recording function of a DVR.

NOTE: The status of recording operations when an alarm takes place is shown in the diagrams below.



4.2 Playback Operations

This section shows you how to operate the fast, slow, and single-picture playback functions, and details how the unit is to playback a file in a different operation status. Please refer to the following paragraphs specifying the relevant details. When playing a file, the **PLAY** button ⑦ will light up indicating that the DVR is in the playback status.

During playback, to view individual channels press the CH1-CH16 buttons respectively. To view the playback of multiple channels simultaneously, press the appropriate , , ,  buttons. Besides switching between keys, the **zoom** button ②② can also be used to zoom the picture to a 2X2 full-screen view.

4.2.1 Fast Forward/Reverse

There are 6 speeds available for playback: **2x, 4x, 8x, 16x, 30x and 100x**

While playing back recorded video at recorded speed:

Forward: Turn the **Shuttle** dial ⑥ to the right to view the recorded video in the forward direction at a speed faster than the recorded speed. Each subsequent turn of the shuttle to the right increases the forward rate, as 2x, 4x, 8x, 16x, 30x and 100x.

Reverse: Turn the **Shuttle** dial ⑥ to the left to view the recorded video in the reverse direction at a speed faster than the recorded speed. Each subsequent turn of the shuttle to the left increases the reverse rate, as -2x, -4x, -8x, -16x, -30x and -100x.

Normal: Release the **Shuttle** dial ⑥ to return to the normal speed of playback.

4.2.2 Slow Forward/ Reverse

There are 6 speeds available for a slow playback: **1/2x, 1/4x, 1/8x, 1/16x, 1/30x and 1/100x**

While playing back recorded video at the recorded speed:

(1) Press the **PAUSE** button ⑨ for the slow playback mode.

(2) **Forward:** Turn the **Shuttle** dial ⑥ to the right to view the recorded video in the forward direction at a speed slower than the recorded speed. Each subsequent turn of the shuttle to the right increases the forward rate, as 1/2x, 1/4x, 1/8x, 1/16x, 1/30x and 1/100x.

(3) **Reverse:** Turn the **Shuttle** dial ⑥ to the left to view the recorded video in the reverse direction at a speed slower than the recorded speed. Each subsequent turn of the shuttle to the left increases the reverse rate, as -1/2, -1/4, -1/8, -1/16, -1/30x and -1/100x.

(4) **Normal:** Release the **Shuttle** dial ⑥ and then press the **PLAY** button ⑦ to return to the normal speed of playback.

4.2.3 Playback Picture-by-picture

While playing back recorded video at the recorded speed:

- (1) Press the **PAUSE** button ⑨ for the picture-by-picture mode.
- (2) There are two ways, by PAUSE button or by JOG, to play in the picture-by-picture mode, but the **PAUSE** button ⑨ can only function in a forward direction; the other, the **JOG** dial ⑤, can act in both a forward and a backward direction, as well as picture-by-picture.

By **PAUSE** button ⑨ :

Press the **PAUSE** button ⑨ to display one frame of a picture at a time in the forward direction.

By **JOG** dial ⑤ :

Turn the **JOG** dial ⑤ clockwise to display one frame of a picture at a time in the forward direction. Turn the **JOG** dial ⑤ counterclockwise to display one frame of a picture at a time in the backward direction.

- (3) Press the **PLAY** button ⑦ to return to the normal speed of playback.

4.2.4 Play Back Recorded Video from a HDD of the mobile rack (FOR REMOVABLE HDD MODEL ONLY)

To play back a recorded video from a HD3, take the following steps:

- (1) Press the **Search** button ⑳ to enter the search mode.
- (2) Select the **FULL LIST** and press the **Enter** button ⑱ to access the complete list of recorded video.
- (3) Press the ⑬ “▲” and ⑭ “▼” buttons, to select a video; press the ⑪ “<” and ⑫ “>” buttons, to flip over a page.
- (4) Use the search function to access desired recorded video from HD3 in the mobile rack. For specific operation details please refer to the next section 4.3 (Search Operations).

4.3 Search Operations

This section shows you how to access recorded video.

4.3.1 Full List Search

Take the following steps to proceed with the full-list search function.

- (1) Press the **Search** button (21) to enter the search mode.
- (2) Select **FULL LIST** and press the **Enter** button (18) to access the complete list of recorded video.
- (3) Highlight the specific recorded video of your requirement and press the **Enter** button (18) to display the selected video.

(Key Operation: Press the (12) “^” and (13) “v” buttons to select a video; press the (11) “<” and (14) “>” buttons to turn a page.)

SEARCH

1	FULL LIST	ENTER
2	ALARM LIST	ENTER
3	SEARCH FILTER	ENTER
4	THUMBNAIL	ENTER
5	SD CARD	ENTER
6	CD (BACKUP)	ENTER
7	EXIT	ENTER

enter: select
▲/▼/jog/ch1~7: item

➔

HD NO.	DATE	TIME	DURATION
HD1 0004	05/11/2004	12:20:23PM	00:01:24
0005		14:30:43PM	00:56:05
0006	05/12/2004	13:20:23PM	00:19:14
0007		15:20:23PM	00:18:23
0008		16:20:23PM	00:16:25
0009		18:20:23PM	00:08:13
0010	05/14/2004	03:20:23PM	00:01:05
0011		07:20:23PM	00:33:05
0012		08:20:23PM	00:01:12
0013	05/15/2004	12:20:23PM	00:01:11

HDD1	20G	● ▶
HDD2		○ ▶
HDD3		○ ▶
SD CARD		○ ▶

(“CD” IS FOR THE CD-ROM MODEL AND “BACKUP” IS FOR THE REMOVABLE HDD MODEL ONLY IN THE ITEM 6.)

NOTE: The maximum number of lists for an HDD is 2000.

4.3.2 Alarm list Search

Take the following steps to proceed with the alarm-list search function.

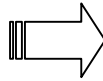
- (1) Press the **Search** button (21) to enter the search mode.
- (2) Select the **ALARM LIST** and press the **Enter** button (18) to access the complete list of alarm-event recorded video.
- (3) Highlight the specific recorded video of your requirement and press the **Enter** button (18) to display the selected video.

(Key Operation: Press the (12) “^” and (13) “v” buttons to select a video; press the (11) “<” and (14) “>” buttons to turn a page.)

SEARCH

1	FULL LIST	ENTER
2	ALARM LIST	ENTER
3	SEARCH FILTER	ENTER
4	THUMBNAIL	ENTER
5	SD CARD	ENTER
6	CD (BACKUP)	ENTER
7	EXIT	ENTER

enter: select
▲/▼/jog/ch1~7: item



HD NO.	DATE	TIME	ALARM
HD1 0001	05/11/2004	12:15:03PM	CH3 VLOS
0002		14:30:43PM	CH4 VLOS
0003	05/16/2004	11:14:23PM	CH5 VLOS
0004		12:20:25PM	CH3 VLOS
0005		16:37:13PM	CH3 VLOS
0006		19:25:53PM	CH6 VLOS
0007	05/17/2004	03:20:23PM	CH3 VLOS
0008		07:34:26PM	CH3 VLOS
0009		08:36:23PM	CH6 VLOS
0010	05/18/2004	12:20:43PM	CH3 VLOS

HDD1 20G ●▶

HDD2 ○▶

HDD3 ○▶

SD CARD ○▶

(“CD” IS FOR THE CD-ROM MODEL AND “BACKUP” IS FOR THE REMOVABLE HDD MODEL ONLY IN THE ITEM 6.)

4.3.3 SEARCH FILTER

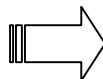
Take the following steps to proceed with the time-list search function.

- (1) Press the **Search** button (21) to enter the search mode.
- (2) Select the **SEARCH FILTER** and press the **Enter** button (18) to access the **SEARCH FILTER** page.
- (3) The “ALARM FILTER” can search four modes, namely “DISABLE”, “SENSOR”, “V-LOSS”, and “MOTION”.
- (4) Set the channel number you wish to search for the recorded video.
- (5) Set the date period you wish to search for the recorded video.
- (6) Set the time period you wish to search for the recorded video.
- (7) Select the **SEARCH LIST** on the **SEARCH FILTER** page and press the **Enter** button (18) to start searching and displaying the concerned image.
- (8) If no video is found, please return to the **SEARCH FILTER** page and repeat steps (3) and (6) again for another search.

SEARCH

1	FULL LIST	ENTER
2	ALARM LIST	ENTER
3	SEARCH FILTER	ENTER
4	THUMBNAIL	ENTER
5	SD CARD	ENTER
6	CD (BACKUP)	ENTER
7	EXIT	ENTER

enter: select
▲/▼/jog/ch1~7: item



SEARCH FILTER

1	ALARM FILTER:	DISABLE
	CH:	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
2	DATE FILTER:	DISABLE
	DATE:	05/19/2004
3	TIME FILTER:	DISABLE
	TIME:	02:06:27 PM
4	SEARCH LIST:	ENTER

▲/▼/◀/▶: item
shuttle: value
search: return

(“CD” IS FOR THE CD-ROM MODEL AND “BACKUP” IS FOR THE REMOVABLE HDD MODEL ONLY IN THE ITEM 6.)

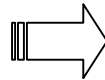
4.3.4 THUMBNAIL Search

Take the following steps to proceed with the thumbnail search function.

- (1) Press the **Search** button (21) to enter the search mode.
- (2) Select the **THUMBNAIL** and press the **Enter** button (18) to access the thumbnail page.
 - You can set up by using the “<” button (11) and the “>” button (12) to move eye focus and select the image you wish to search for the recorded video.
 - You can also use the **Shuttle Ring** to start playback.
- (3) There are 8 levels of recording range modes, Press the “^” button (13) and the “v” button (14) or use the **Jog Dial** (15) to choose the **Year, Month, Day, 1 Hour, 10 Minutes, 1 Minute, 10 Seconds** or **1 Second**. Select the specific frame of your requirement to enter the previous or next level.
- (4) On reaching the critical point at any level, the user can start playback by just clicking the **PLAY** button (7) or the **Enter** button (18).

SEARCH		
1	FULL LIST	ENTER
2	ALARM LIST	ENTER
3	SEARCH FILTER	ENTER
4	THUMBNAIL	ENTER
5	SD CARD	ENTER
6	CD (BACKUP)	ENTER
7	EXIT	ENTER

enter: select
▲/▼/jog/ch1~7: item



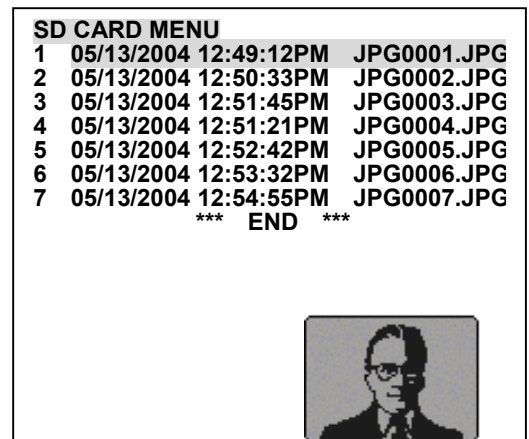
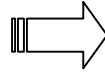
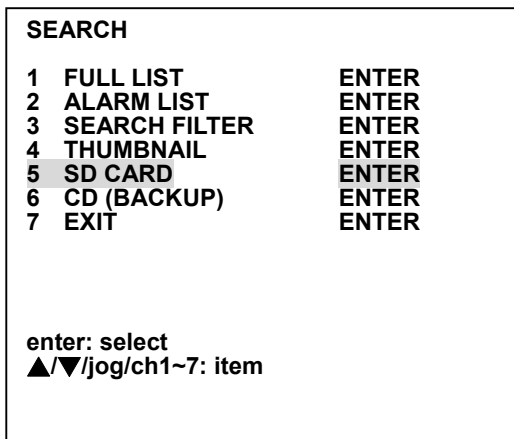
SUN	MON	TUE	WED	THU	FRI	SAT	
						1	
2	3	4	5	6	7	8	
9	10	11	12	13	14	15	
16	17	18	19	20	21	22	
23	24	25	26	27	28	29	
30	31	MAY 2004				LEVEL3	

(“CD” IS FOR THE CD-ROM MODEL AND “BACKUP” IS FOR THE REMOVABLE HDD MODEL ONLY IN THE ITEM 6.)

4.3.5 SD CARD Menu

Take the following steps to proceed with the SD card search function.

- (1) Insert an SD Card into the SD card slot of the front unit.
- (2) Press the **Search** button (21) to enter the search mode.
- (3) Select the **SD CARD** and press the **Enter** button (18) to access the complete list of JPEG files.
- (4) Highlight the specific JPEG file of your requirement and press the **Enter** button (18) to display the image.
- (5) If you need another, please press the **Enter** button (18) to return to the **SD CARD MENU** page and repeat step (4) again for another search.
- (6) If you would like to delete a JPEG file in the SD card, please highlight the specific JPEG file of your requirement and press the **Enter** button (18) to display the image, then press the **Down** button (14) and select “**yes**” to delete the image.







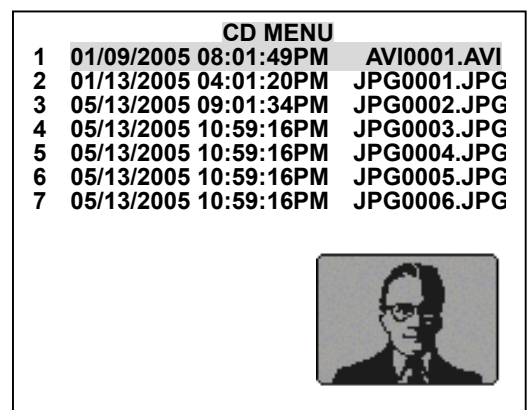
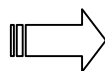
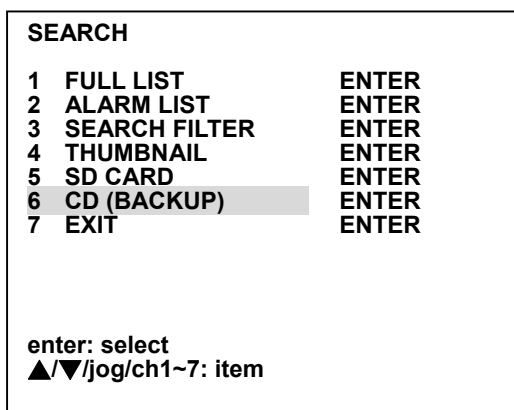
(“CD” IS FOR THE CD-ROM MODEL AND “BACKUP” IS FOR THE REMOVABLE HDD MODEL ONLY IN THE ITEM 6.)

4.3.6 CD (BACKUP) Menu

4.3.6.1 CD Menu (FOR CD-ROM MODEL ONLY)

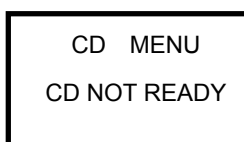
Take the following steps to proceed with the CD search function.

- (1) Place the disc in the tray.
- (2) Press the **Search** button  to enter the search mode.
- (3) Select the **CD** option and press the **Enter** button  to access the complete list of JPEG files.
- (4) Highlight the specific JPEG file of your requirement and press the **Enter** button  to display the image.
- (5) If you need another, please press the **Enter** button  to return to the **CD MENU** page and repeat step (4) again for another search.



(“CD” IS FOR THE CD-ROM MODEL AND “BACKUP” IS FOR THE REMOVABLE HDD MODEL ONLY IN THE ITEM 6.)

NOTE: If by accident one selects a CD item and forgets to insert it: See the picture below for this status and please insert a CD or press the search button to exit the CD menu



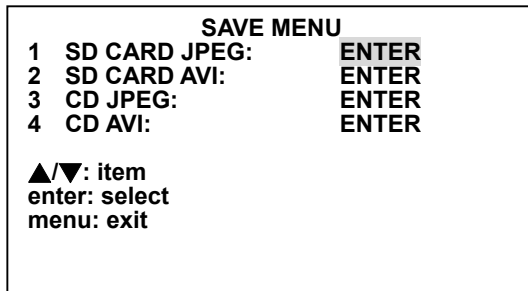
4.3.6.2 BACKUP Menu (FOR HARD-DISK MODEL ONLY)

Please refer to section 4.4.2 "Mobile Rack HD Backup Operations" for more details.

4.4 Backup Operations

4.4.1 CD ReWritable unit Backup Operations (FOR CD-ROM MODEL ONLY)

This device now includes a CD-RW unit.



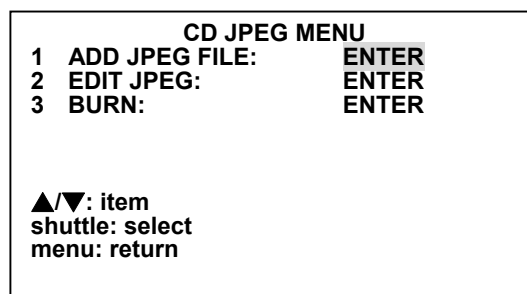
1. **SD CARD JPEG:** Archive single image clips into an SD card. (Please refer to section 4.4.2)

2. **SD CARD AVI:** Archive video of AVI clips into an SD card. (Please refer to section 4.4.2)

3. **CD JPEG:** You can archive a lot of single images in a CD disc by entering this item.

Please follow the steps given below.

- i) Please insert the CD disc in its tray. You'll hear a signaling beep to tell you the disc is ready.
- ii) Play the video back to find your desired item. Press **PAUSE** when you find it.
- iii) Press the **Menu** button and select # 3 ("**CD JPEG**") and enter.
- iv) You've entered the **CD JPEG MENU**.
- v)



Select item 1: Add your image to the buffer. The message "**ADD OK**" is a confirmation. If you wish to add more images to the buffer, press any key to return to the **CD JPEG MENU**.

- vi) Turn the jog dial to find the next image you want. Now repeat the last step again to add this image to the buffer. You can continue in this way indefinitely.
- vii) If you now wish to edit your buffer, select item 2 ("**EDIT JPEG**") in the **CD JPEG MENU**. Now in the **EDIT JPEG** page, turn the jog dial to review your selected images. As the dial is turned, the images move. You can now decide to delete or not delete any image you find unnecessary or not by pressing the "**^**" (up) or "**v**" (down) buttons to "**NO**" (meaning no deletions) or "**YES**" (meaning you're deleting a particular image). Press the "**Menu**" button to exit this page.
- viii) If your selection is complete, enter item 3 ("**BURN**") in the **CD JPEG MENU**. Give the device some time to complete this process.
- ix) Press the eject button to open the CD tray, take out the CD disc, and enter it in a PC

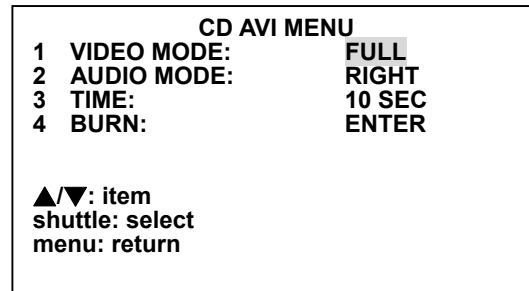
to view your selections.

4. CD AVI: You can archive a video in the CD disc by entering this item.

Please follow the steps given below.

- i) Please insert the CD disc in its tray. Hear that beeping signal to confirm your disc is ready.
- ii) Play the video back to find your desired item. Press **PAUSE** when you want to start.
- iii) Press the **Menu** button and select # 4 ("**CD AVI**") and enter.
- iv) You're in the **CD AVI MENU** now.

v)



Item 1: Turn the shuttle to choose your video mode: either "**FULL**" or "**CIF**".

Item 2: Turn the shuttle to select "**RIGHT**", "**LEFT**" or "**DISABLE**" as your audio mode.

Item 3: Turn the shuttle to select the time length of your saved recording anywhere between 10 seconds and 10 minutes.

Item 4: Enter this item to start burning your video in the CD disc.

- vi) Press the eject button to open the CD tray, take out the CD disc, and enter it in a PC to view your video.

4.4.2 Mobile Rack HD Backup Operations (FOR REMOVABLE HDD MODEL ONLY)

There are three ways available to duplicate the recorded video from HDD1 and HDD2 (Fixed HDs) in HDD3 (the Mobile Rack HD). Please take the following steps to proceed.

(1) Set HDD3 to BACKUP first. Take the following steps.

- Press the **menu** button **(16)** to enter the **MAIN MENU** page.
- Highlight **ADVANCED SETTING** and press the **Enter** button **(18)** to enter the **ADVANCED SETTING** page.
- Select the **DISK SETUP** and press the **Enter** button **(18)** to enter the **DISK SETUP** page
- Then set **HD 3 USAGE** to **BACKUP HD**.

ADVANCED SETTING

1 ALARM SETTING: ENTER
 2 RECORD SETTING: ENTER
 3 MOTION SETTING: ENTER
 4 CAMERA COVERT: ENTER
 5 OPERATION LOCK: ENTER
 6 COMMUNICATION: ENTER
 7 DISK SETUP: ENTER
 8 SCHEDULE: ENTER
 RETURN

menu: exit
 enter: select
 ▲/▼/jog/ch1~8: item



DISK SETUP

1 DISK FULL: REWRITE
 2 HDD1 REFORMAT: ENTER
 3 HDD2 REFORMAT: ENTER
 4 HDD3 (REMOVEABLE) REFORMAT: ENTER
 5 SD CARD REFORMAT: ENTER
 6 HDD3 (REMOVEABLE) USAGE: BACKUP HD
 7 RETURN

HD1 MODEL: ST320014A
 HD2 MODEL:
 HD3 MODEL:

menu: exit
 shuttle: value
 ▲/▼/jog/ch1~7: item

(2) Backup to HD3.

- Press the “Search” button and enter the **SEARCH** page.
- Move the focus to **BACKUP** and enter the **BACKUP MENU** page.
- Set the **DATE**, **TIME** and **DURATION** in the menu. Adjust the shuttle to set the desired values in the entries; the maximum value for **DURATION** is 72 hours 59 minutes.
- After you set the **DATE**, **TIME** and **DURATION**, select **START BACKUP**.
- Commence the backup function; the red signal on the screen shows the HDD3 is functioning.
- Press the **STOP** button to end the backup function.
- Press the **search** button to exit the mode (to survey the live images) and press the **search** button again to return to the **BACKUP MENU** mode (to check the **BACKUP** mode information). This process can continue until you finish the backup function or push the **STOP** button.

SEARCH

1 FULL LIST ENTER
 2 ALARM LIST ENTER
 3 SEARCH FILTER ENTER
 4 THUMBNAIL ENTER
 5 SD CARD ENTER
 6 CD (BACKUP) ENTER
 7 EXIT ENTER

enter: select
 ▲/▼/jog/ch1~7: item



BACKUP MENU

1 DATE: 05/24/2004
 2 TIME: 12:00 AM
 3 DURATION: 24:00
 4 START BACKUP: ENTER

HDD1	20G	○▶
HDD2		○▶
HDD3	20G	○▶
SD CARD		○▶

BACKUP MENU

1 DATE: 05/24/2004
 2 TIME: 12:00 AM
 3 DURATION: 24:00
 4 START BACKUP: ENTER

HDD1	20G	○▶
HDD2		○▶
HDD3	20G	○▶
SD CARD		○▶



BACKUP MENU

NO.	DATE	TIME	DURATION
0001	05/24/2004	09:10:16AM	00:00:25
0002	05/24/2004	09:57:11AM	00:01:19
0003	05/24/2004	09:59:18AM	00:07:56

stop: end backup
 search: return to live view

HDD1	20G	○▶
HDD2		○▶
HDD3	20G	●▶
SD CARD		○▶

4.4.3 Security Digital Card (SD Card) Backup Operations

The SD card slot of the front unit has four functions as shown below:

1. Archive Single image Clips into the SD Card

Please take the following steps to archive a critical image in an SD card.

- (1) Insert an SD Card into the SD card slot of the front unit.
- (2) Start playing back the recorded video and select a desired channel.
- (3) Press the **PAUSE** button **9** to freeze the desired pictures.
- (4) Press the **menu** button **16** to enter the **SAVE MENU** page.

●SD CARD JPEG:

The quantity of pictures that can be stored depends on the SD card capacity. It depends on the SD card capacity how many pictures can be stored. You can have the saved images printed out in any computer. The image is stored in the JPEG compressed format. If more than one clip is stored in an SD card, file names will be assigned in sequence as shown below.

SAVE JPG0001.JPG TO SD CARD

SAVE JPG0002.JPG TO SD CARD

...

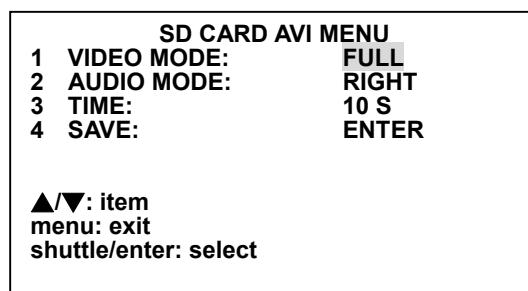
SAVE JPG000N.JPG TO SD CARD

2. Archive video of AVI Clips into an SD Card

Please take the following steps to archive a critical video in an SD card.

- (1) Insert an SD Card into the SD card slot of the front unit.
- (2) Start playing back the recorded video and select a desired channel.
- (3) Press the **PAUSE** button **9** to freeze the desired pictures.
- (4) Press the **menu** button **16** to enter the **SAVE MENU** page.
- (5) Select the **SD CARD AVI** and press the **Enter** button **18** to enter the **SD CARD AVI MENU** page.
- (6) Set desired settings in the AVI save file setup mode.

●SD CARD AVI MENU:



The quantity of video that can be stored depends on the SD card capacity. The image is stored in the AVI compressed format. If more than one clip is stored in an SD card, file names will be assigned in sequence as shown below.

SAVE AVI0001.AVI TO SD CARD

SAVE AVI0002.AVI TO SD CARD

...

SAVE AVI000N.AVI TO SD CARD

- NOTE:**
- The JPEG file format can be played and deleted in the DVR. Please refer to section 4.3.5.
 - The AVI file format cannot be played and deleted in the DVR. It can only be played in a card reader connected to a computer.
 - The file format can be selected on the **SAVE MENU**.

3. Backup system settings onto a SD Card.

16CH DVR offers a quick setup method by using an SD card. You can use this feature to tell the 16CH DVR to save all of its settings onto the SD card, so that it can be loaded into another 16CH DVR.

Save the whole setting into the SD card:

- Insert an SD card into the SD card slot.
- Press the **menu** button (16) to enter the **MAIN MENU** page.
- Highlight **DEFAULT SETTING** and press the **Enter** button (18) to enter the **DEFAULT SETTING** page.
- Select the **SAVE SD CARD SETTING** and press the **Enter** button (18) to enter the saving mode.
- Set **SAVE SD CARD SETTING** to **YES**. Then the system setting info will auto save into the SD card.

Transfer the system setting info of a DVR to another:

- Insert the SD card which has stored the system setting info into the DVR.
- Press the **menu** button (16) to enter the **MAIN MENU** page.
- Highlight **DEFAULT SETTING** and press the **Enter** button (18) to enter the **DEFAULT SETTING** page.
- Select the **LOAD SD CARD SETTING** and press the **Enter** button (18) to enter the loading mode.
- Then set **LOAD SD CARD SETTING** to **YES** and press enter.

MAIN MENU	
1 QUICK SETTING:	ENTER
2 DISPLAY OPTION:	ENTER
3 SEQUENCE SETTING:	ENTER
4 PICTURE ADJUST:	ENTER
5 OPERATION LOG:	ENTER
6 ADVANCED SETTING:	ENTER
7 DEFAULT SETTING:	ENTER
8 PASSWORD SETTING:	ENTER
9 EXIT MENU:	ENTER

enter: select
▲/▼/jog/ch1~9: item



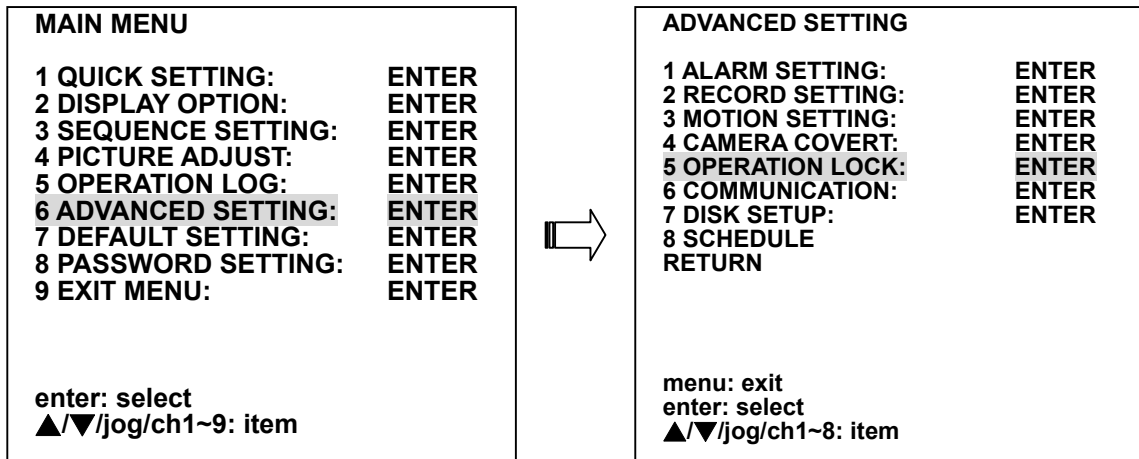
DEFAULT SETTING	
1 SAVE INSTALLER SETTING:	ENTER
2 LOAD INSTALLER SETTING:	ENTER
3 SAVE SD CARD SETTING:	ENTER
4 LOAD SD CARD SETTING:	ENTER
5 LOAD FACTORY SETTING:	ENTER
6 VERSION INFORMATION:	ENTER
RETURN	

menu: exit
enter: select
▲/▼/jog/ch1~6: item

4. Updating System Software (please refer to section 3.4 for more details.)

4.5 Key Lock Operations

- To activate the key lock function.
 - (1) Press the **Menu** button to enter the **MAIN MENU** page.
 - (2) Select **ADVANCE SETTING** to enter the **ADVANCE SETTING** page.
 - (3) Select **OPERATION LOCK** to enter the **OPERATION LOCK** mode.
 - (4) Select **FRONT KEY LOCK** to enable its function.
 - (5) Exit and save, activating the key lock function.
- To deactivate the key lock function, turn the **FRONT KEY LOCK** to **OFF**.



4.6 Triplex Operations

4.6.1 Live mode:

- **Simultaneous live viewings of any one channel in multiple channels.**

- (1) Use the **enter** button to show a red-framed Channel 1.
- (2) Press the **enter** button to move the red-framed rectangle to Channel 2, and so on to the other channels consecutively until you arrive at your chosen channel.
- (3) Click any specific channel button to show that channel's live images in the particular space you've arrived at.

4.6.2 Play mode:

- **Simultaneous viewing of a particular channel in the play mode in any number of channels.**

- (1) Press the **search** button to enter the **SEARCH** page to select a recorded video. Play the record.
- (2) Use the **enter** button to show a red-framed Channel 1.
- (3) Press the **enter** button to move the red-framed rectangle to Channel 2, and so on to the other channels consecutively until you arrive at your chosen channel.
- (4) Click any specific channel button to show that channel's recorded images in the play mode in the particular space you've arrived at.

- **Simultaneous Live – and – Play on-Screen functions.**

- (1) Press the **search** button to enter the **SEARCH** page to select a recorded video. Play the record.
- (2) Press the **PAUSE** button to halt the images.
- (3) Use the **enter** button to show a red-framed Channel 1.
- (4) Press the **enter** button to move the red-framed rectangle to Channel 2, and so on to the other channels consecutively until you arrive at your chosen channel.
- (5) Click any specific channel button to show that channel's live images in the particular space you've arrived at.
- (6) Press the **PLAY** button to resume playing the playback record of any channel.

NOTE: You can press the “REC” button to simultaneously show the “LIVE”, “PLAY” and “RECORD” functions. The three modes played together comprise the “Triplex” function.

5. MENU SETUP

There are 9 functional items for operation setting in the setup menu system as shown below. The following sections will instruct you step by step to configure the operation setting and will state each item's purpose and options. To enter any particular item, press the corresponding channel number from CH 1~9 on the front panel. You can also use the “^” (up) and “v” (down) buttons, or rotate the jog dial, to select any of the items. Once inside the item's system, the on-screen menu allows you to set up the key features of the unit. The functions of the various buttons within the menu-setup mode are described in the paragraphs below.

MAIN MENU	
1 QUICK SETTING:	ENTER
2 DISPLAY OPTION:	ENTER
3 SEQUENCE SETTING:	ENTER
4 PICTURE ADJUST:	ENTER
5 OPERATION LOG:	ENTER
6 ADVANCED SETTING:	ENTER
7 DEFAULT SETTING:	ENTER
8 PASSWORD SETTING:	ENTER
9 EXIT MENU:	ENTER

enter: select
▲/▼/jog/ch1~9: item

KEY FUNCTIONS

menu button ⑯ :

Press to enter the **MAIN MENU** page. You can also use this button to return directly to the **MAIN MENU** page from any other page. After returning to the **MAIN MENU** page, you can push the menu button again and then enter to exit the menu system page.

“^” ⑬ and “v” ⑭ buttons :

Press to select a desired item.

“<” ⑪ and “>” ⑫ buttons :

Press to move within a desired option or value.

Enter button ⑱ :

Press to enter a selected item.

Shuttle Ring ⑥ :

Turn to change the value of any desired option.

Jog Dial ⑤ :

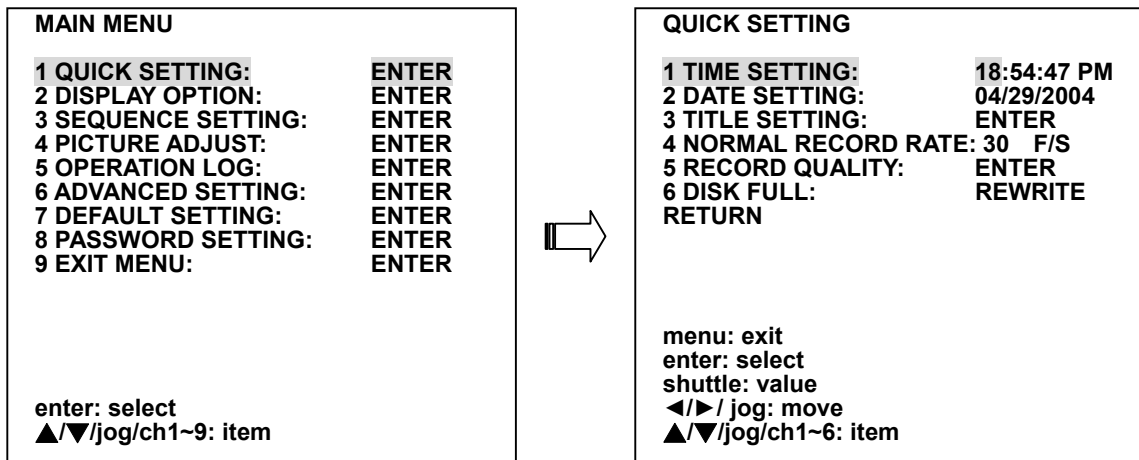
Turn to move the focus in any direction you want.

CH 1~16 ⑳ :

Press a channel number to enter a functional item of the same number on any page.

5.1 QUICK SETTING

This page enables you to rapidly install your desired setting. For more detailed changes, enter each item page.



1. TIME SETTING:

You can set the system time here.

2. DATE SETTING:

Records the system date.

3. TITLE SETTING:

Fixes a desired title. After entering this page you can choose any particular channel's title and use the shuttle to make any changes.

4. NORMAL RECORD RATE:

Select this item and use the shuttle to adjust your recording rate out of our available rate range from 0 to 60(NTSC), or 0 to 50(PAL). If you choose a speed rate, your selected recording rate will be divided proportionally between the number of channels you use.

5. RECORD QUALITY:

Enter and choose each channel's quality out of a quality range from "BEST", "HIGH", and "STANDARD" to "BASIC".

6. DISK FULL:

This option determines the way to utilize storage media in case of a full disk.

REWRITE: When the hard disk is full, the device continues recording by displacing the old data.

STOP: When the hard disk is full, the device will stop recording.

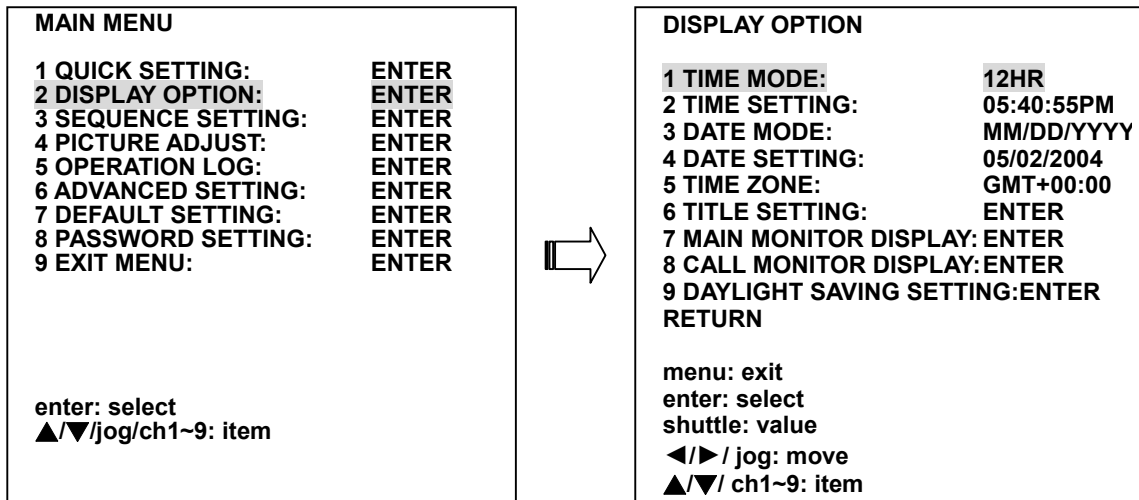
NOTE: Please press the " STOP" or "DISPLAY" buttons to erase the beeping sound.

7. RETURN:

Choose this item and press **Enter** button to go back to the previous page.

5.2 DISPLAY OPTION

This item enables you to fix the display labels on your screen.



1. TIME MODE:

You have a choice between using a **12 HR** or a **24 HR** mode.

12 HR: Shows the time in the a.m. and p.m. mode in the setting.

24 HR: Gives a 24 - hour reading.

2. TIME SETTING:

Change the system time here.

3. DATE MODE:

Gives a date in terms of months, days, or years in changeable positions.

4. DATE SETTING:

Change the system date here.

5. TIME ZONE:

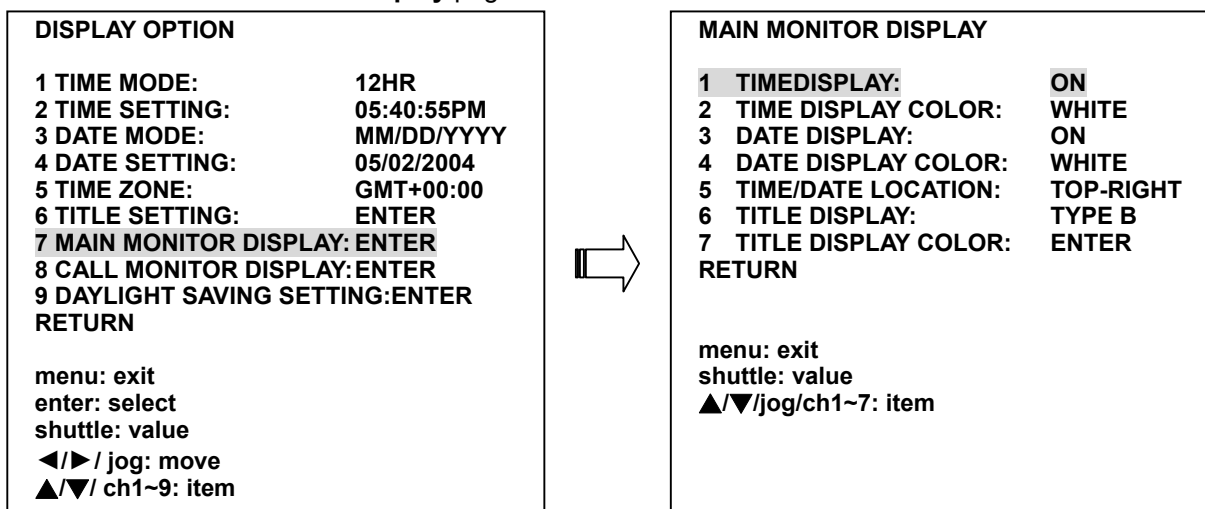
Please choose a correct time zone.

6. TITLE SETTING:

Fixes a desired title for each channel. You can use the shuttle ring to change the titles.

7. MAIN MONITOR DISPLAY:

Enter the **Main Monitor Display** page.



1. TIME DISPLAY:

Activate to **ON** (enable) or **OFF** (disable).

2. TIME DISPLAY COLOR:

You can choose between **red, yellow, blue, green, black, and white.**

3. DATE DISPLAY:

Select to **ON** or **OFF** as desired.

4. DATE DISPLAY COLOR:

Select any of the six colors, namely **red, yellow, green, blue, black, and white.**

5. TIME / DATE LOCATION:

You can locate / change time / date labels in any of six positions: **top - left, top - mid, and top - right, and bottom - left, bottom - mid, and bottom - right.**

6. TITLE DISPLAY:

This item has 3 options: **TYPE A, TYPE B** and **OFF.**

7. TITLE DISPLAY COLOR:

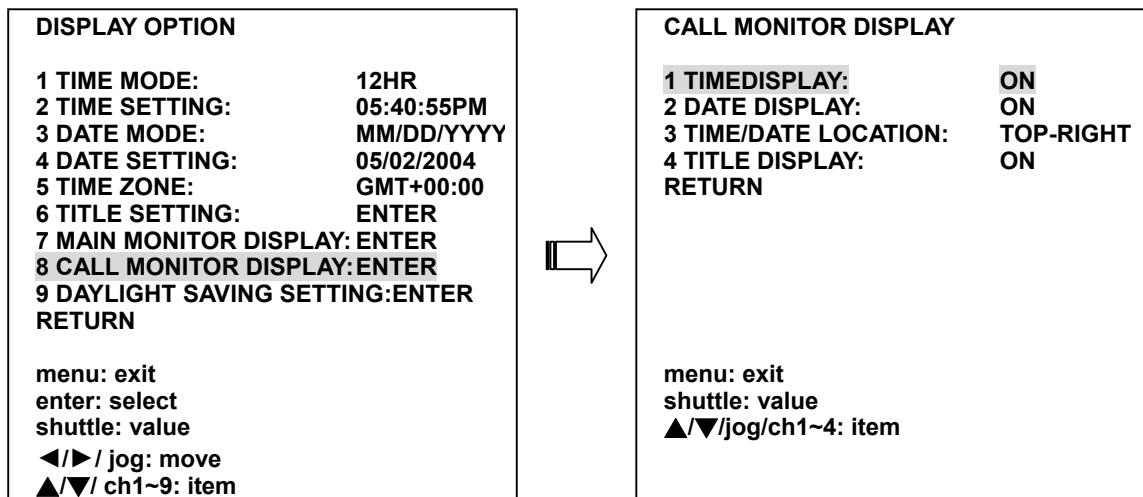
Again, you have the six colors to choose from: **red, yellow, blue, green, black, and white.**

8. RETURN:

Go back to the previous, **DISPLAY OPTION** page.

8. CALL MONITOR DISPLAY:

Enter the **CALL MONITOR DISPLAY** page.



1. TIME DISPLAY:

Enable to **ON** to activate the call monitor, and disable to **OFF.**

2. DATE DISPLAY:

The option once more is **ON** to enable and **OFF** to disable.

3. TIME / DATE LOCATION:

The time and date labels can be placed at or changed to any of six positions: **top - left, top - mid, and top - right, and bottom - left, bottom - mid, and bottom - right.**

4. TITLE DISPLAY:

Once again, turn **ON** to activate and **OFF** to deactivate.

5. RETURN:

Go back to the previous, **DISPLAY OPTION** page.

9. DAYLIGHT SAVING SETTING:

This entry allows users to set the daylight saving time.

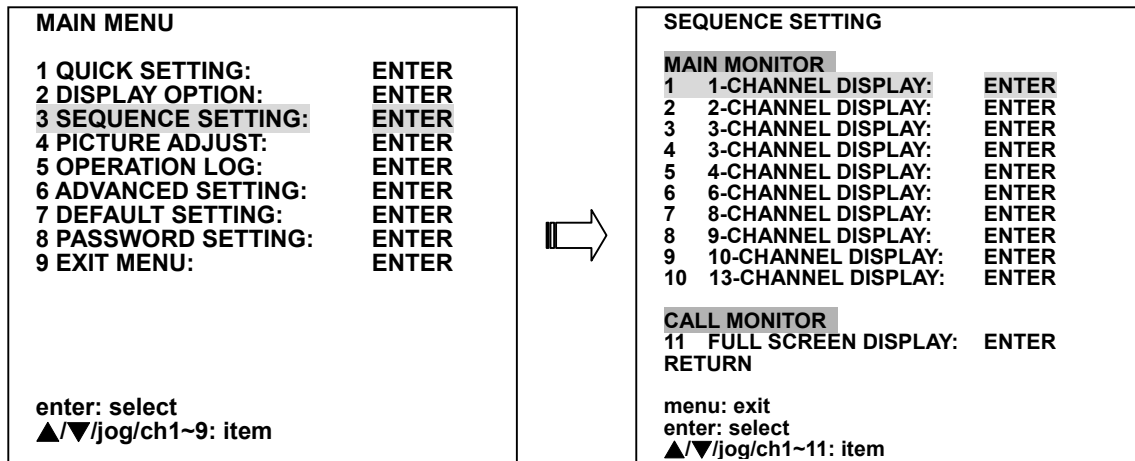
1. **NONE:**
Disables the daylight saving time.
2. **EUROPE GMT +00:00:**
Daylight saving time begins at 1:00 a.m. on the last Sunday of March. Time reverts to standard time at 2:00 a.m. on the last Sunday of October.
3. **EUROPE GMT +01:00:**
Daylight saving time begins at 2:00 a.m. on the last Sunday of March. Time reverts to standard time at 3:00 a.m. on the last Sunday of October.
4. **EUROPE GMT +02:00:**
Daylight saving time begins at 3:00 a.m. on the last Sunday of March. Time reverts to standard time at 4:00 a.m. on the last Sunday of October.
5. **RUSSIA:**
Daylight saving time begins at 2:00 a.m. on the last Sunday of March. Time reverts to standard time at 3:00 a.m. on the last Sunday of October.
6. **NORTH AMERICA:**
Daylight saving time begins at 1:00 a.m. on the first Sunday of April. Time reverts to standard time at 2:00 a.m. on the last Sunday of October.
7. **AUSTRALIA:**
Daylight saving time begins at 2:00 a.m. on the last Sunday of October. Time reverts to standard time at 2:00 a.m. on the last Sunday of March.











10. RETURN:

Choose this item and press the **Enter** button to go back to the previous page.

5.3 SEQUENCE SETTING

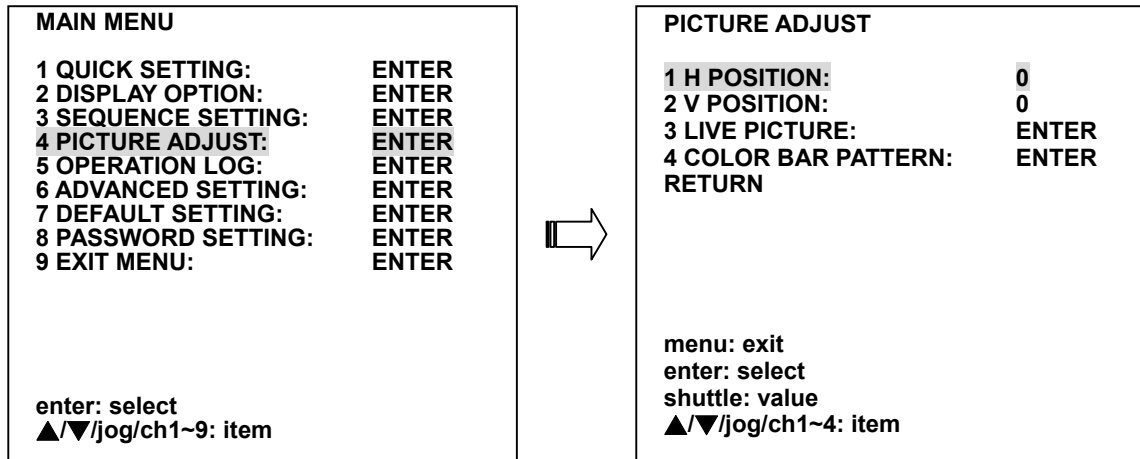
This page enables you to use ten modes to set the sequence of displays you want for the main monitor, and a single mode for the call monitor. The dwell time for displays in each channel can be set at your own preference anywhere between 0 (no - show) and 99 seconds when you press the **Sequence** button.



1.  **1-CHANNEL DISPLAY:** You can set a full - screen sequence.
2.  **2-CHANNEL DISPLAY:** A fullscreen with an inset, either of which can be in the sequence mode.
3.  **3-CHANNEL DISPLAY:** A triple - window mode, with any one of them in sequence status.
4.  **3-CHANNEL DISPLAY:** A different arrangement of three windows, with any one of them being sequential.
5.  **4-CHANNEL DISPLAY:** 4 windows, one sequential.
6.  **6-CHANNEL DISPLAY:** 6 windows, one sequential.
7.  **8-CHANNEL DISPLAY:** 8 windows, one sequential.
8.  **9-CHANNEL DISPLAY:** 9 windows, one sequential.
9.  **10-CHANNEL DISPLAY:** 10 windows, one sequential.
10.  **13-CHANNEL DISPLAY:** 13 windows, one sequential.
11. **FULL SCREEN DISPLAY:** Set the call monitor's sequence mode, with the preferred dwell time for each channel.
12. **RETURN:** Choose this item and press the **Enter** button to go back to the previous page.

5.4 PICTURE ADJUST

This page enables you to position your images the way you desire.



1. **H POSITION:** Horizontal position.

2. **V POSITION:** Vertical position.

3. **LIVE PICTURE:** You can change or adjust, in each channel, the **NOISE FILTER** function, **BRIGHT**, **CONTRAST**, **COLOR** and **HUE** of the images.

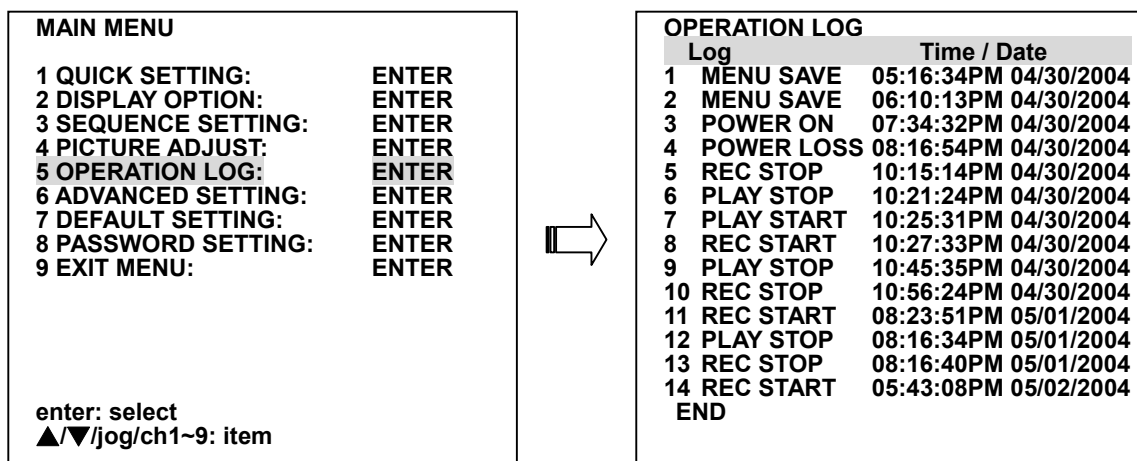
4 **COLOR BAR PATTERN:** Refer to if and when necessary.

5 **RETURN:** Go back to the previous page.

5.5 OPERATION LOG

This page displays the contents of the operation log for you.

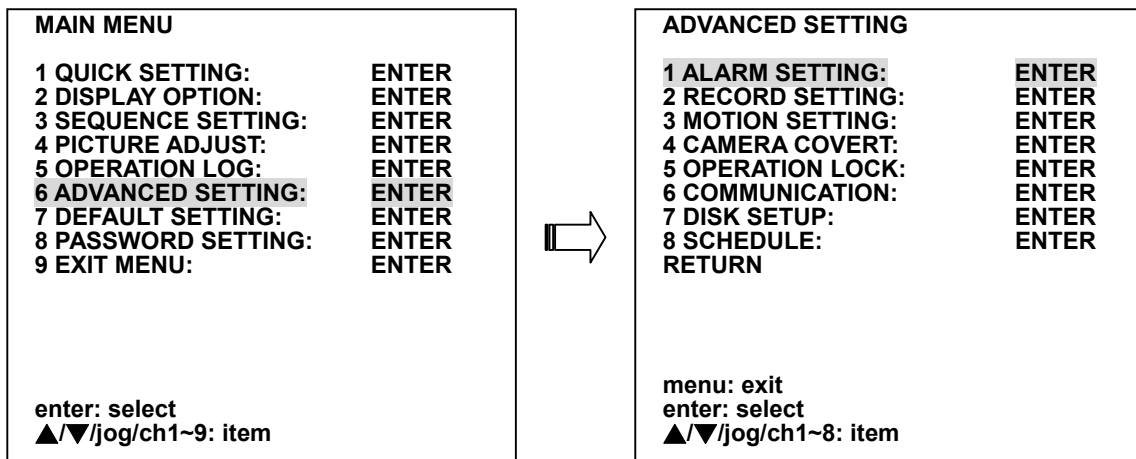
The following are the critical steps of the operation log: Menu saving, power on, power off, power loss, recording stop, play stop, play start, recording start, alarm, and hard - disk full signal.



Note: The log keeps an operation history on a revolving basis because of its limit of 2000. When the log is full, the newly registered record of an operation will replace the existing records from the oldest one.

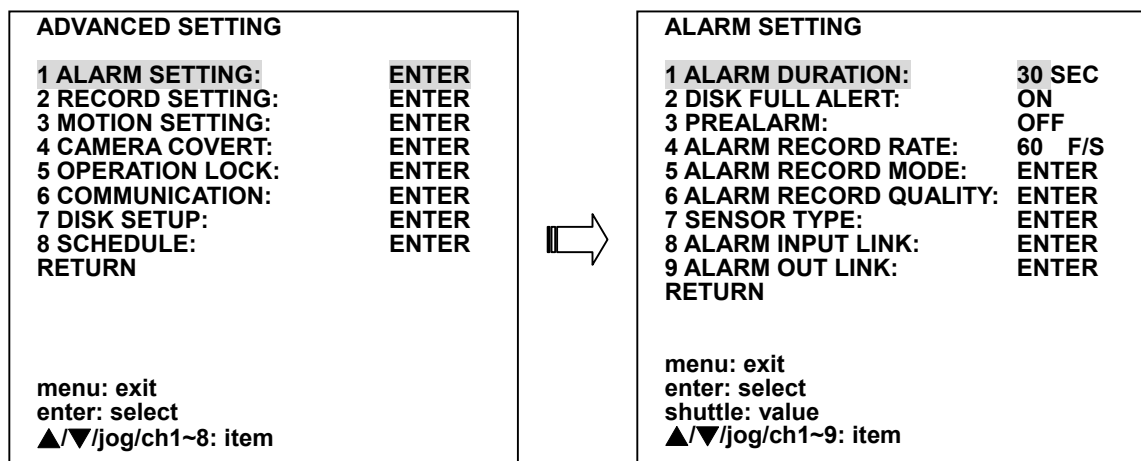
5.6 AVANCED SETTING

This page includes multiple special functions.



5.6.1 ALARM SETTING

This page enables you to set all the various alarm - related functions. The device will record as long as the alarm is activating.



1. ALARM DURATION:

Set the desired time period. The options range from "TRANSPARENT" to "NONSTOP", from one second to 60 minutes.

NOTE: You can't set a time frame of so many seconds and minutes at the same time.

2. DISK - FULL ALERT:

This signals a disk is fully recorded. The options are "ON" and "OFF".

ON: Enables the function.

OFF: Disables the function.

3. PREALARM:

This option determines that images prior to an alarm will be recorded in the hard- disk drive. When an alarm is triggered the device will record the images prior to the alarm for 10 seconds.

ON: Enables the function.

OFF: Disables the function.

4. ALARM RECORD RATE:

For an NTSC unit we provide many different speeds from **0** to **60** fields per second, and for a PAL unit the figures are from **0** to **50 F/S**.

5. ALARM RECORD MODE:

Each channel is provided with four categories of alarm record rates: **NORMAL**, **DOUBLE**, **INTERLEAVED**, and **EXCLUSIVE**.

6. ALARM RECORD QUALITY:

Similarly enter and set each channel to record an alarm at qualities ranging from **BEST**, **HIGH**, and **STANDARD** to **BASIC**.

7. SENSOR TYPE:

Again, the alarm input in each channel can be set to a "**SENSITIVITY**" of from 0.1 to 0.8 seconds.

8. ALARM INPUT LINK:

Enter and set each channel to activate (**ON**) or deactivate (**OFF**) the three modes of "**SENSOR**", "**V (VIDEO)-LOSS**", and "**ACTIVE**".

9. ALARM OUT LINK:

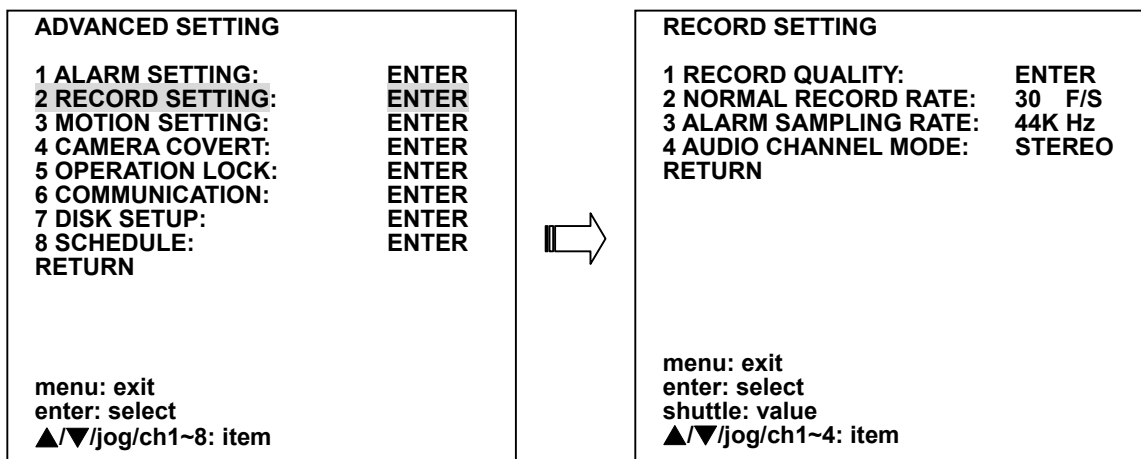
Enter and activate (**YES**) or deactivate (**NO**) the three alarm output modes of "**SENSOR**", "**V-LOSS**" and "**ACTIVE**" for the following : ALARM OUT 1, 2, and 3, BUZZER, MAIN and CALL DISPLAYs, START RECORDING, and CALL FULL SCREEN.

10. RETURN

Go back to the previous page.

5.6.2 RECORD SETTING

This page enables you to set the recording rate and recording quality, and enables you to continue recording if you set the "**RECORD MODE**" to "**NONSTOP**".



1. RECORD QUALITY:

You can enter and set each channel's record quality at 4 different levels of image recording from "BEST", "HIGH", and "STANDARD" to "BASIC".

2. NORMAL RECORD RATE:

The rate range is from 1 field per second (F/S) to 60 F/S.

3. AUDIO SAMPLING RATE:

This item has 4 options: "44K Hz", "22K Hz", "8K Hz", and "DISABLE".

4. AUDIO CHANNEL MODE

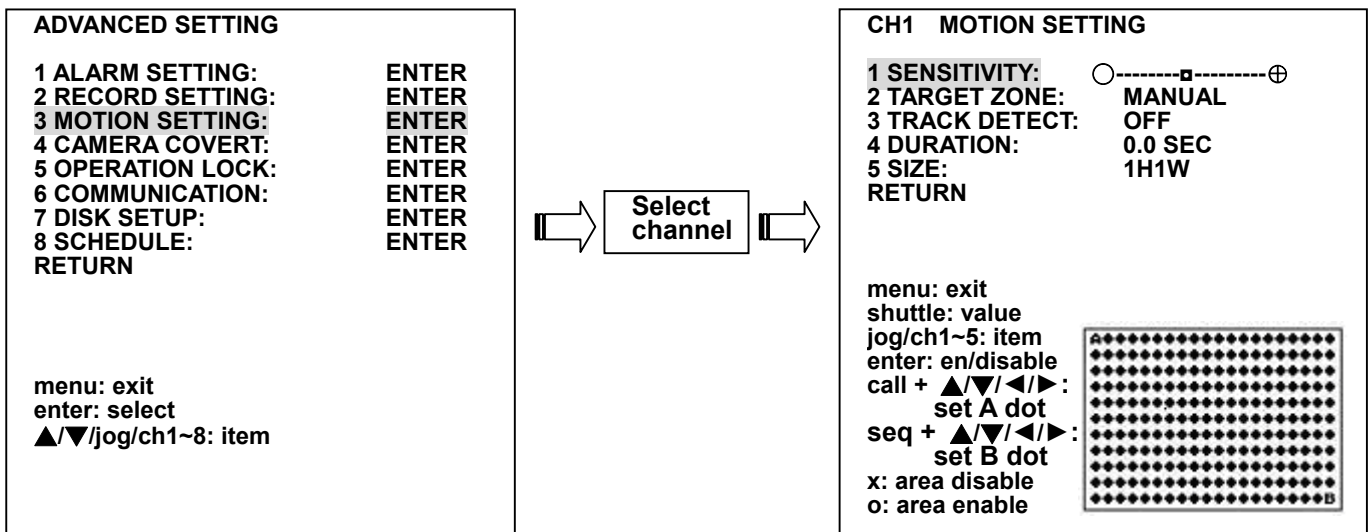
The options here are "STEREO" (two channels with the same input), and "LEFT INPUT" and "RIGHT INPUT" (two channels that work separately).

5. RETURN

Go back to the previous page.

5.6.3 MOTION SETTING

Here you can set the motion detection area of each channel.



1. SENSITIVITY:

Use the shuttle to move the sensitivity bar and change the focus left to right.

2. TARGET ZONE:

With "AUTO" or "MANUAL" setting.

3. TRACK DETECT:

Ranging from "UP" and "DOWN" to "LEFT" and "RIGHT".

4. DURATION:

The rate of recorded image movements, ranging from 0.0 to 5.0 seconds.

5. SIZE:

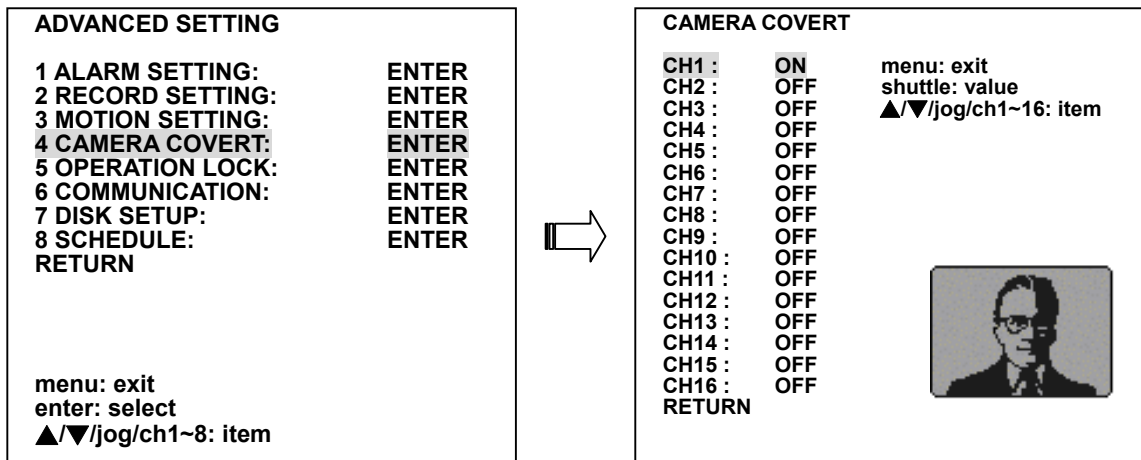
Determine which size targets you want detected, ranging from 1H1W to 9H9W.

6. RETURN:

Go back to the previous page.

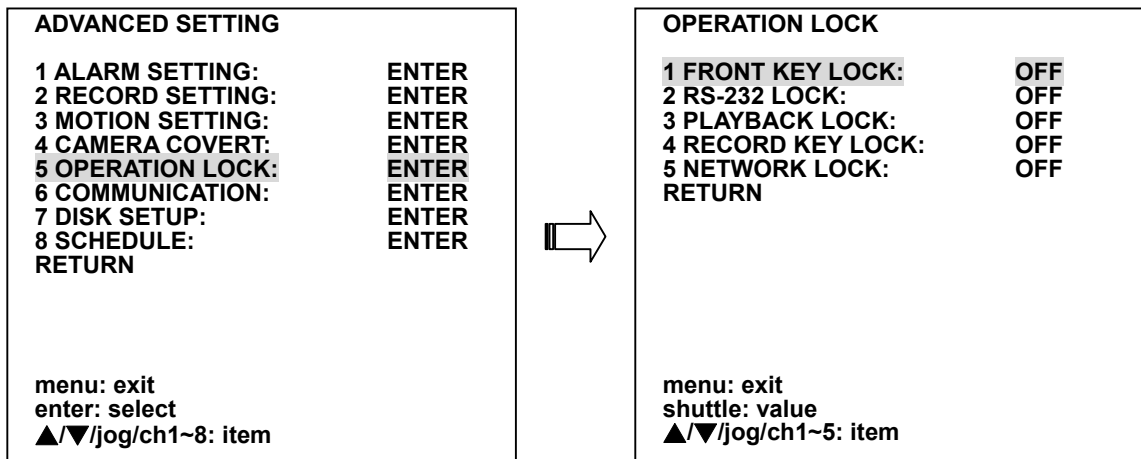
5.6.4 COVERT CAMERA

Enter and activate each channel to **ON** or deactivate to **OFF** for hidden or exposed recording respectively.



5.6.5 OPERATION LOCK

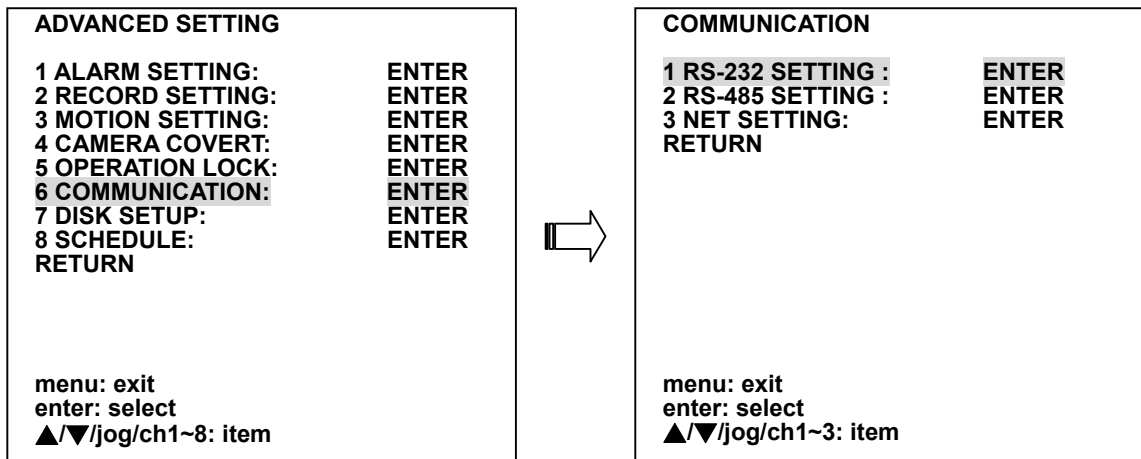
We provide you with 4 kinds of locks:



1. **FRONT KEY LOCK:** Turn **ON** to lock, and to deactivate the key lock function, turn the **FRONT KEY LOCK** to **OFF**.
2. **RS-232 LOCK:** Turn **ON** to lock and **OFF** to unlock.
3. **PLAYBACK LOCK:** Turn **ON** to lock and **OFF** to unlock, when you wish to enter the various playback functions.
4. **RECORD KEY LOCK:** Turn **ON** to lock and **OFF** to unlock.
5. **NETWORK LOCK:** Turn **ON** to lock and **OFF** to unlock the Ethernet communication port.
6. **RETURN:** Go back to the previous page.

5.6.6 COMMUNICATION

We provide you with two settings: the RS 232 and RS 485.



1. RS-232 SETTING:

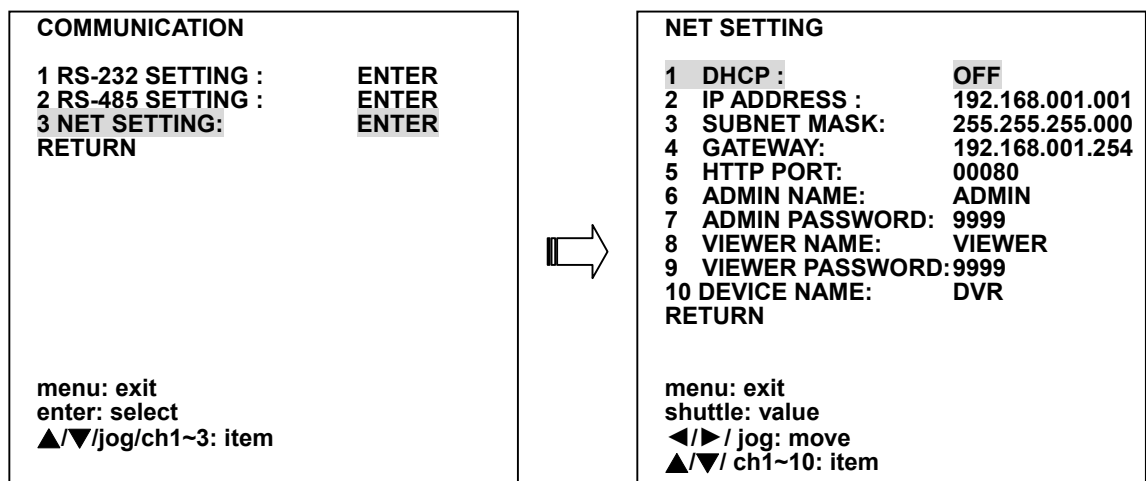
You have the option of using an ID code (any number between **0** and **9999**) or a Baud rate (at 5 different levels : **1200, 2400, 4800, 9600, and 19200**).

2. RS-485 SETTING: The options are:

1. **ID CODE:** Use any number between **0** and **9999**.
2. **BAUD RATE:** At the rates of **1200, 2400, 4800, 9600, and 19200**.
3. **MASTER CLOCK:** Activate **ON** or **OFF**
4. **RETURN:** Go back to the previous page.

3. NET SETTING:

This option is used to configure the Ethernet communication settings. This is required for the purpose of making a network connection. Please consult with a qualified MIS professional to configure it.

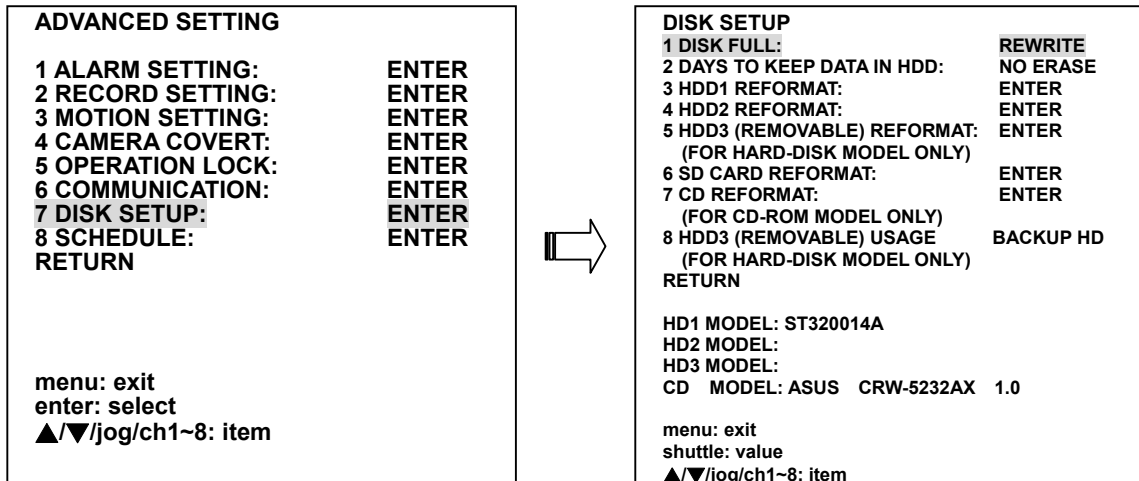


NOTE: If provided with a DHCP server, the 16CH DVR can get an IP automatically by setting the DHCP item to **ON**.

4. **RETURN:** Go back to the previous page.

5.6.7 DISK SETUP

Enter the disk mode to select your desired setting.



1. DISK FULL:

This option determines the way to utilize storage media in case of a full disk.

REWRITE: When the hard-disk is full, the device continues recording by displacing the old data.

STOP: When the hard-disk is full, the device will stop recording.

2. DAYS TO KEEP DATA IN HDD:

You have the option of using DAYS (any number between **07** and **99 DAYS**) or **NO ERASE**.

3. HDD1 REFORMAT:

This option allows you to clear out all the data in the HDD1. You will be required to enter the pre-set password before proceeding with clearing out the data. Enter the standard password "9999".

4. HDD2 REFORMAT:

This option allows you to clear out all the data in the HDD2. You will be required to enter the pre-set password before proceeding with clearing out the data. Enter the standard password "9999".

5. HDD3 (REMOVABLE) REFORMAT (FOR REMOVABLE HDD MODEL ONLY):

This option allows you to clear out all the data in the HDD3. You will be required to enter the pre-set password before proceeding with clearing out the data. Enter the standard password "9999".

6. SD CARD REFORMAT:

This option allows you to clear out all the data in the SD card. You will be required to re - check your selection before proceeding with clearing out the data, and set and enter the **SD CARD FORMAT MENU** to activate (**YES**) or, alternatively, deactivate (**NO**).

7. CD REFORMAT (FOR CD-ROM MODEL ONLY):

This item helps you erase your CD disc if it's rewritable.

8. HDD3 (REMOVABLE) USAGE: (FOR REMOVABLE HDD MODEL ONLY)

There are two options here for the removable and mobile HD, "**REC**" (record) and "**BACKUP HD**".

This option determines the way to utilize the hard-disk drive in the mobile compartment.

BACKUP HD: Used for data backup only, which will not be part of regular recording in a hard-disk drive.

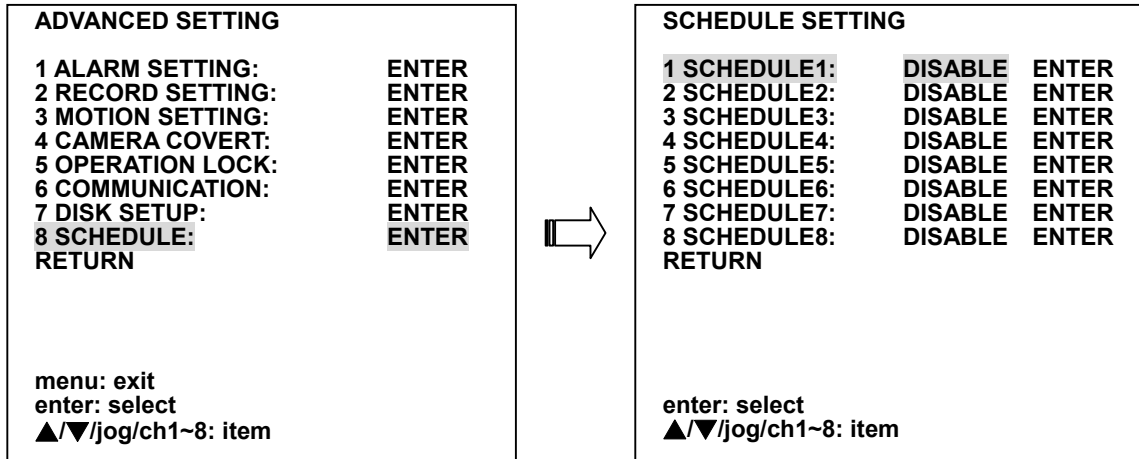
REC: Used for the regular recording hard-disk drive.

9. RETURN:

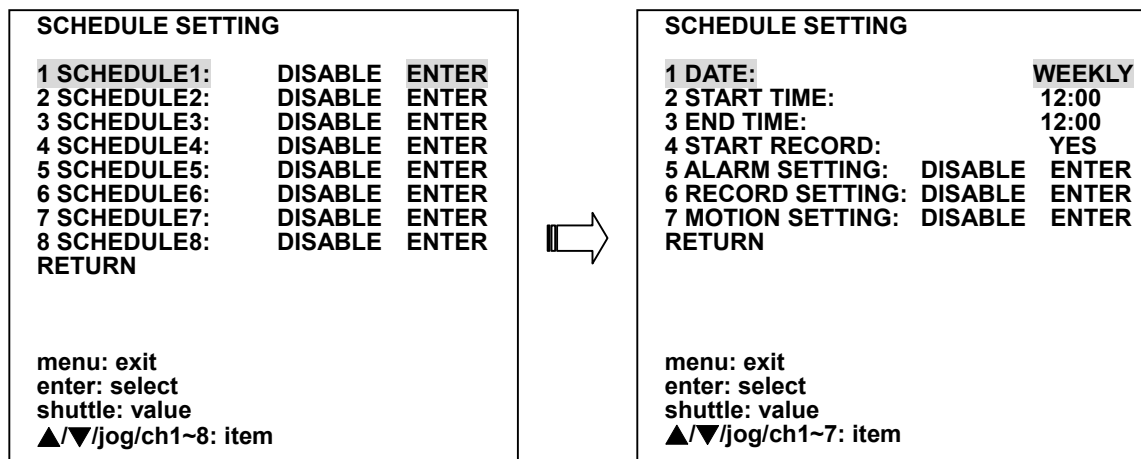
Go back to the previous page.

5.6.8 SCHEDULE

Enter the setting to set up 8 forms of schedule. A schedule can change the record setting as well as the alarm setting at designated times. You can directly "ENABLE" or "DISABLE" each schedule.



Enter the "SCHEDULE" setting to adjust the following items:



1. **DATE:** You can choose a single or several days, or a week.

2. **START TIME:** The time a schedule commences.

3. **END TIME:** The concluding time of a schedule.

4. **START RECORD:** Options are simply **YES** or **NO**.

5. **ALARM SETTING:** During the scheduled time, you can set another alarm setting.

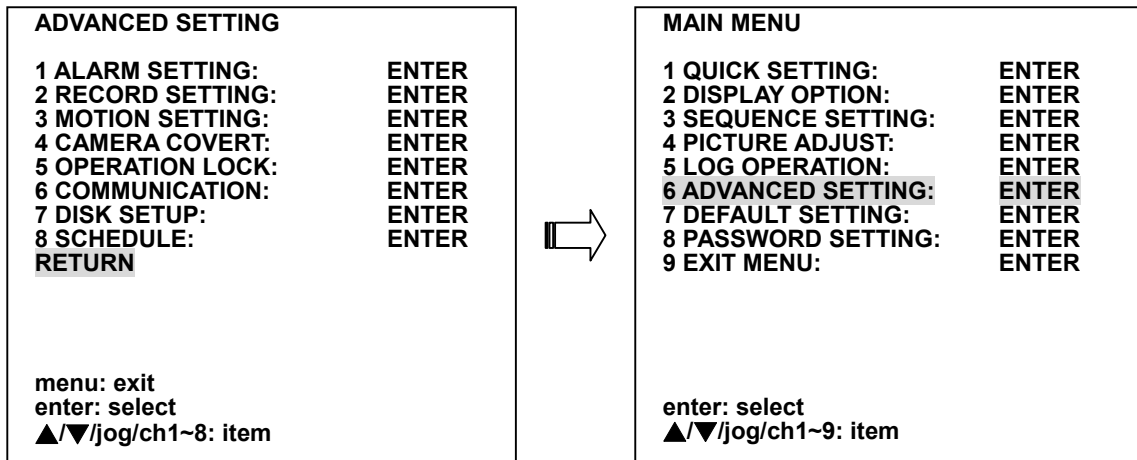
6. **RECORD SETTING:** During the scheduled time, you can set the schedule record quality and rate.

7. **MOTION SETTING:** For each channel, you can set another scheduled motion detection setting during the scheduled time.

8. **RETURN:** Go back to the previous page.

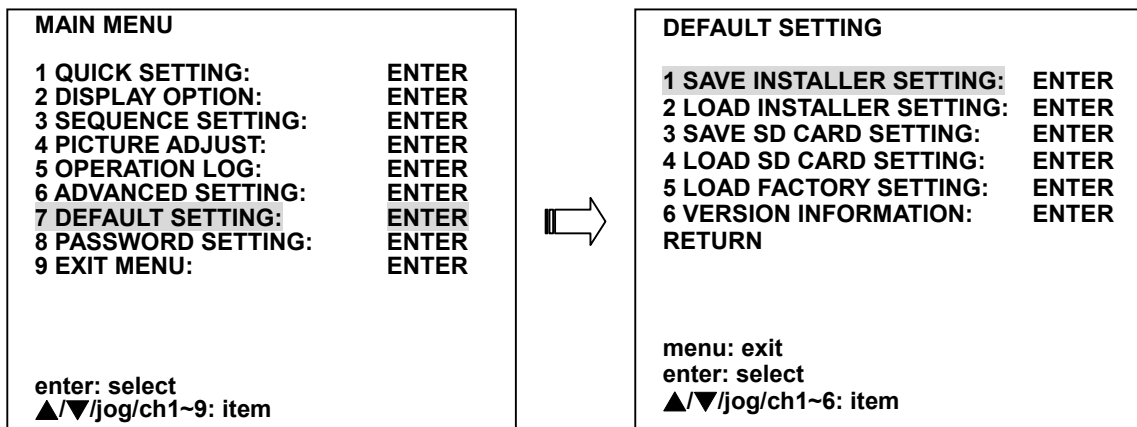
5.6.9 RETURN

To exit the “**ADVANCED SETTING**” page choose “**RETURN**” and go back to the “**MAIN MENU**” page.



5.7 DEFAULT SETTING

This page enables you to save and reload the default settings.



1. SAVE THE INSTALLER SETTING:

This item enables you to save the setting in the buffer of the device.

2. LOAD INSTALLER SETTING:

In case of alien tampering or its possibility, this item allows you to return to your selected settings without wasting any time.

3. SAVE SD CARD SETTINGS:

If you wish to quickly set up many DVR units with the same settings, you can save all the settings to an SD card.

4. LOAD SD CARD SETTING:

This item allows you to load your entire settings and transfer them to another DVR by using an SD card.

5. LOAD FACTORY SETTING:

This page enables you to reload the factory default setting.

6. VERSION INFORMATION:

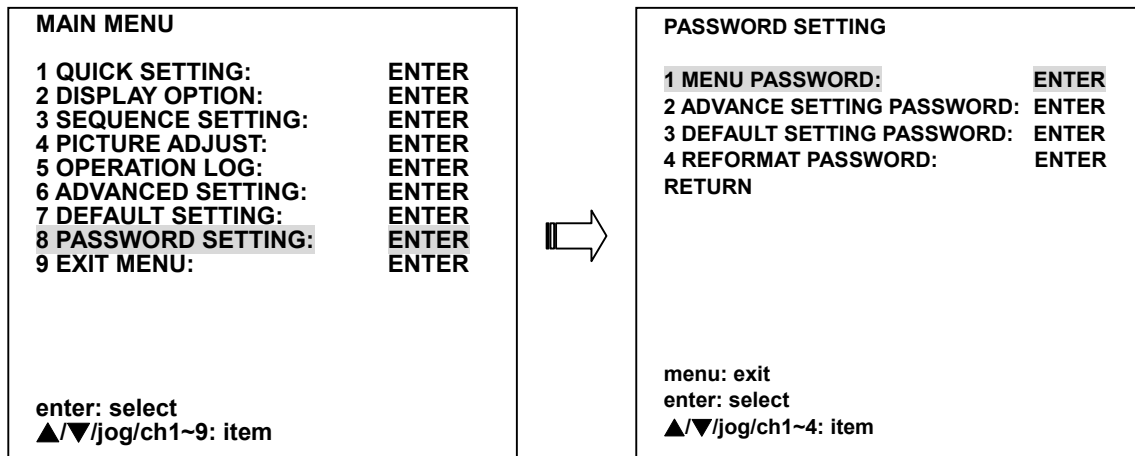
This item is in the “**DEFAULT SETTING**” page, where you can find the model number, the software version, and the date of the latest firmware improvement.

7. RETURN:

Go back to the previous page.

5.8 PASSWORD SETTING

This page enables you to set the password.



1. MENU PASSWORD.

This option lets you set a password to block any unauthorized entry.

ENTER NEW MENU PASSWORD:

Type in a 4 - digit number password of your choice to replace the previous one.

RE - ENTER MENU PASSWORD:

Type in the pre - set password to access the password setting system.

2. ADVANCE SETTING PASSWORD:

To enter an advanced setting, you have to first shift the focus to this item. Instantly the screen shows the following entry:

ENTER NEW ADVANCE PASSWORD:

Type in the 4 -digit number password you choose.

RE - ENTER ADVANCE PASSWORD:

Re - type your advance password in order to check it.

3. DEFAULT SETTING PASSWORD:

If you want to execute the default setting, shift the focus to this item and enter. Instantly the screen shows the following entry:

ENTER NEW DEFAULT PASSWORD:

Type in your selected new default password in a 4 - digit number.

RE - ENTER DEFAULT PASSWORD:

Re - type your new default password in order to check it.

4. REFORMAT PASSWORD:

This option allows you to set a password to block any unauthorized entry in formatting Hard disk, CD or SD card.

ENTER NEW REFORMAT PASSWORD:

Type in the 4 -digit number password you choose.

RE - ENTER REFORMAT PASSWORD:

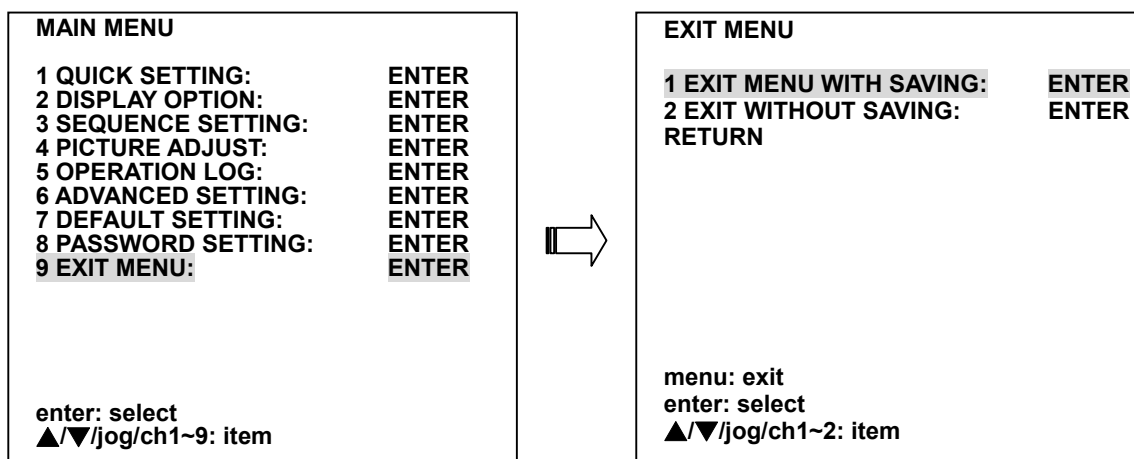
Re - type your advance password in order to check it.

5. RETURN:

Go back to the previous page.

5.9 EXIT MENU

If you wish to exit the menu, focus on this item and enter.



1. EXIT MENU WITHOUT SAVING:

Enter to exit at once without saving any settings.

2. EXIT AFTER SAVING:

Save your settings and exit.

3. RETURN:

Go back to the previous page.

6. NETGUARD SYSTEM: Introduction

NETGUARD SYSTEM : This version of the NETGUARD SYSTEM uses the Microsoft .Net Framework version. The .Net Framework performs the XML Web Services which applies this operation system. The .Net Framework provides a very high performance environment to solve the network program. Therefore, please use our NETGUARD software to connect the 16CH DVR. It will satisfy our users as being safer, faster, and more stable and reliable than other software. See below for the chief features of this NETGUARD.

- This software supports the multiple functions of the network.
- It can search any number of DVRs as necessary.
- It can support eight display modes and help you control your favorite screen sizes.
- It has an extremely powerful search mode to help you search recorded data for the event / time you want.
- It supports your local PC simultaneously with the DVR backup data.



The programs can be operated by a selected PC equipped with the following requirements :

1. Intel Pentium III 750MHz (at least).
2. 128 MB RAM
3. Windows 98, NT, ME, 2000 and XP.
4. 4 MB Video card capable of 24-bit true color display.
5. 160 MB free hard-disk space for software installation.
6. 10-base T network for LAN operation.

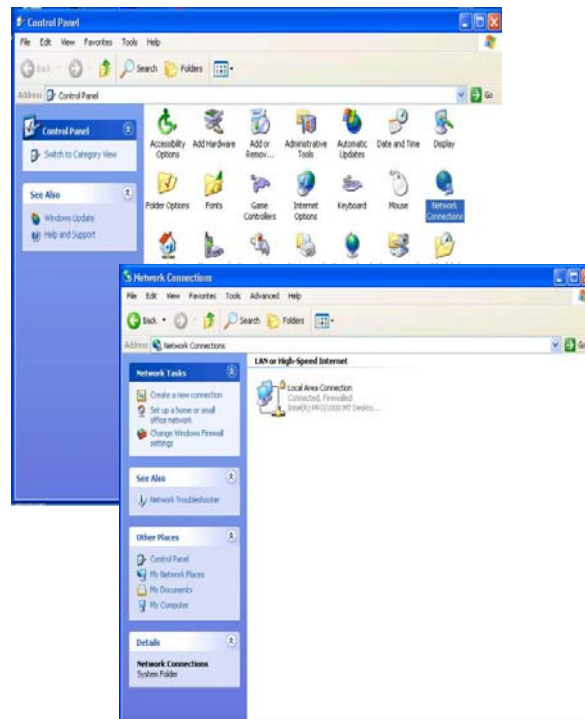
6.1 TCP/IP Communication Setup

Follow the instructions below to install the TCP/IP communication program into your computer.

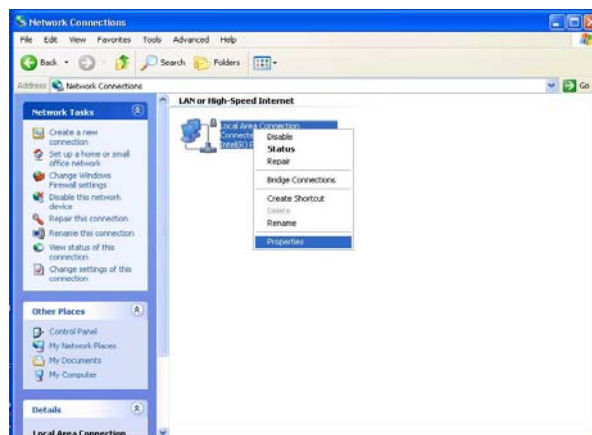
1. Click the **Start** Menu from your computer, and point to the **Control panel**.



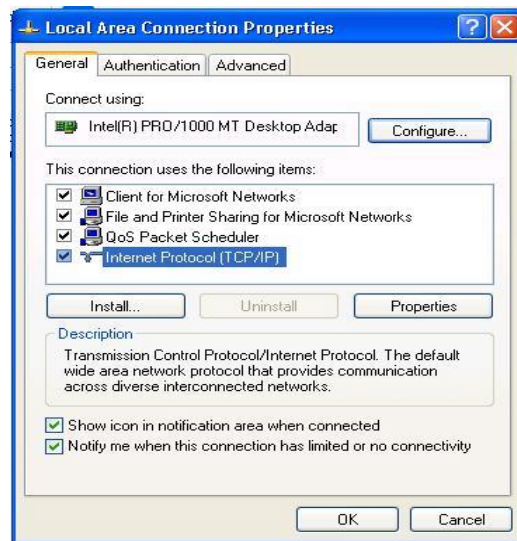
2. Click the **Network Connections** icon twice to enter the Network setting windows.



Point to the **Local Area Connection** and click the right bottom of the mouse. Click the **Properties** to enter the **Local Area Connection**.

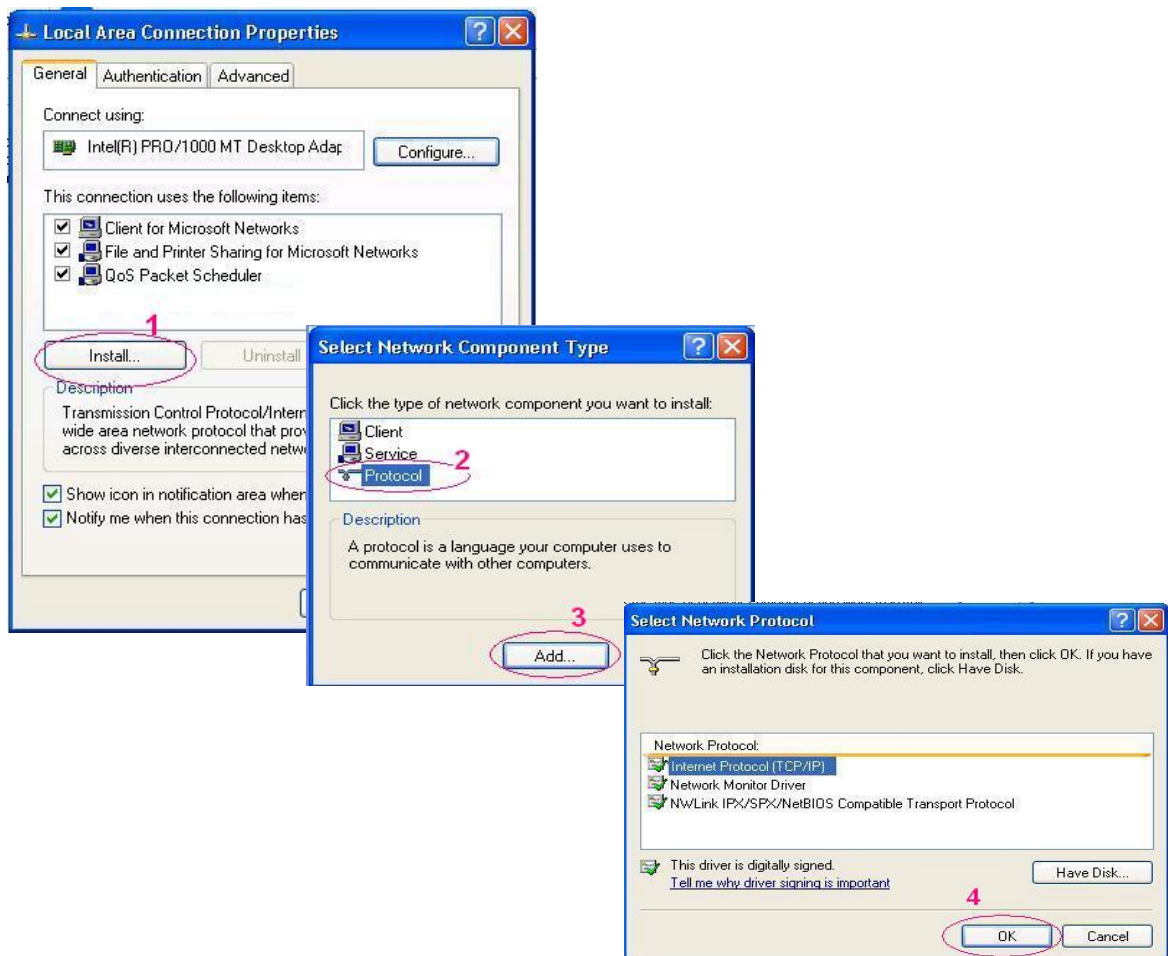


3. Click on the **Configuration** tag; check if the TCP/IP is included among the network components list. If the TCP/IP is included, please process step 5. If it is not included, please follow step 4 to install the TCP/IP.



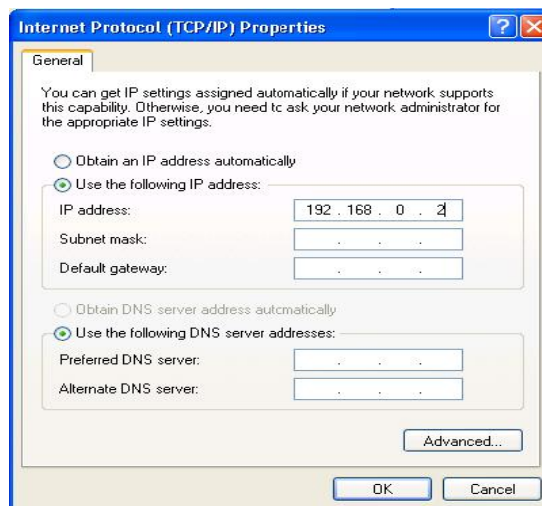
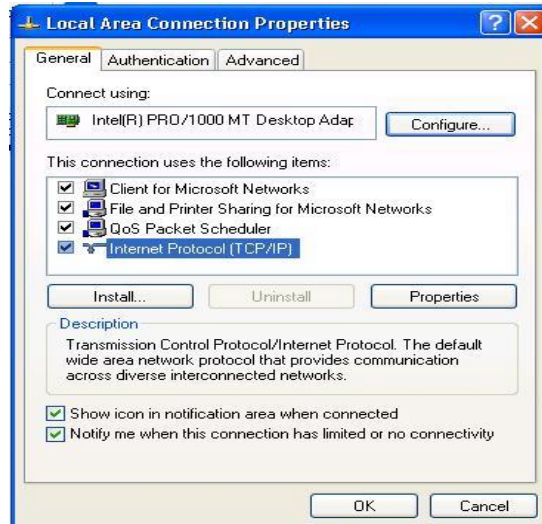
4. TCP/IP installation

During the installation, you will be requested to insert the windows XP CD ROM. After installation, the PC will be restarted.



5 TCP/IP Configuration setting

- Click **Start → Control Panel → Network Connections → Local Area Connection**
- Select **Internet Protocol (TCP/IP)**, and then click **Properties**.
- Before processing the DVR installation in a WAN, please make sure the Internet connection works properly. If not, please contact your ISP provider.



If you are using a DHCP server, please select Obtain an IP address automatically. Any assigned IP address for the connected DVRs must be in the same class type as the server. If there is no DHCP server, please select specify an IP address and type in the IP address of your PC. This IP address must be different from the DVR IP but in the same class type.

NOTE: The IP address of a DVR in a network must be unique to itself as opposed to those of the other chosen PCs, but in the same class type

6.2 Connection Testing

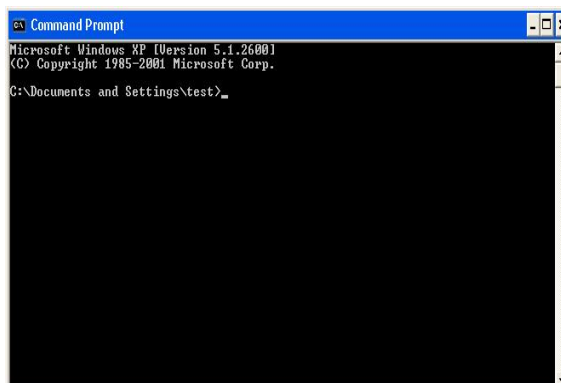
With the previous settings, follow the instructions below to ensure whether you have established the connection successfully.

1. Click **Start → Command Programs**

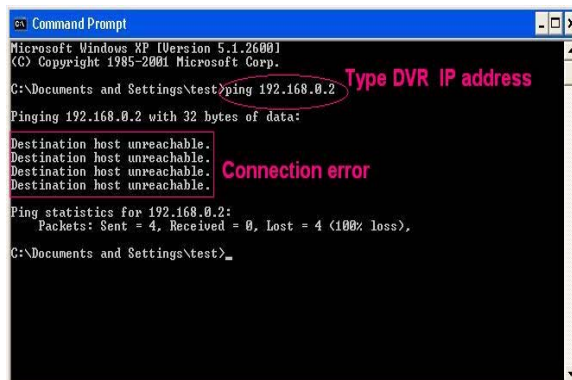


2. Type in **ping 192.168.1.1** then Enter. (See the sample screen below)

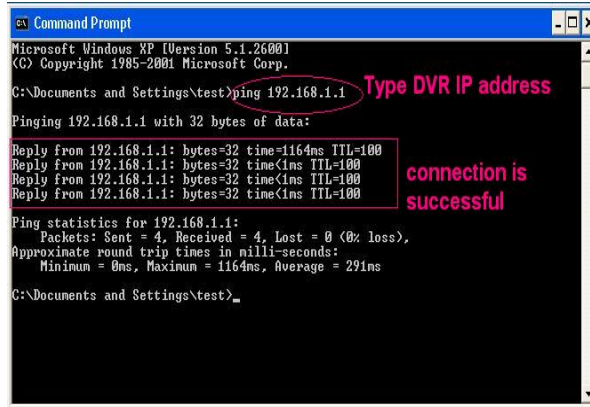
** This IP is the DVR IP address that is assigned for the connected DVR.



3. If you receive a response as in the sample screen below, the connection hasn't been successfully established. Please re-check all the hardware and software installation by repeating steps 1 to 5. If you still can't establish the connection after rechecking, please contact your dealer.



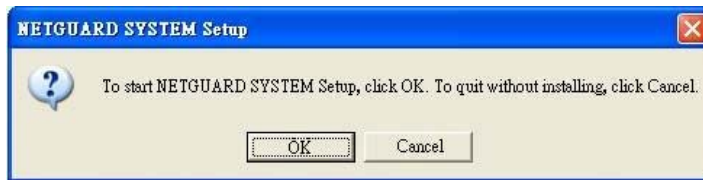
4. If you receive a response as in the sample screen below, you have successfully made the connection.



6.3 Software installation.

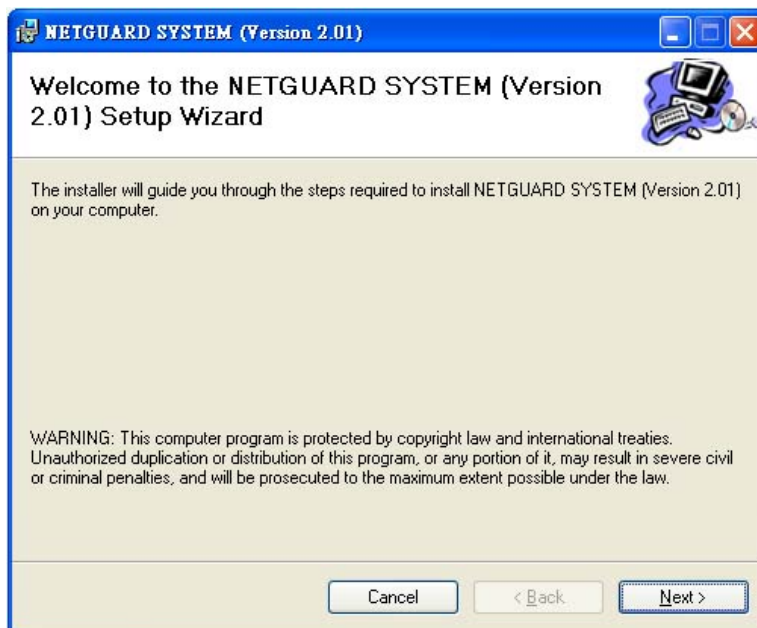
Step 1: Exit all applications currently running in the selected PC.

Step 2: Insert the supported PC in the CD - ROM device. The program will execute the installation of the .Net Framework automatically after you click the "**Setup.exe**" file.



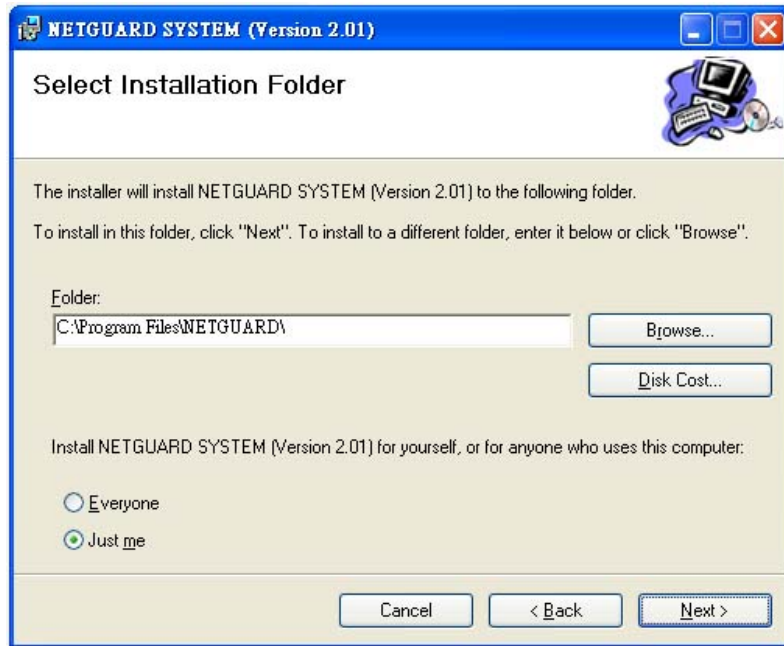
※ **Note:** If you choose "Yes" in the above window, the installation will be completed automatically. You may need to wait 3 - 5 minutes during the installation.

Step 3: After you have completed installing the ".Net 1.22 Framework Viewer", you'll automatically enter the "NETGUARD SYSTEM" installation screen. Please see the screen below.



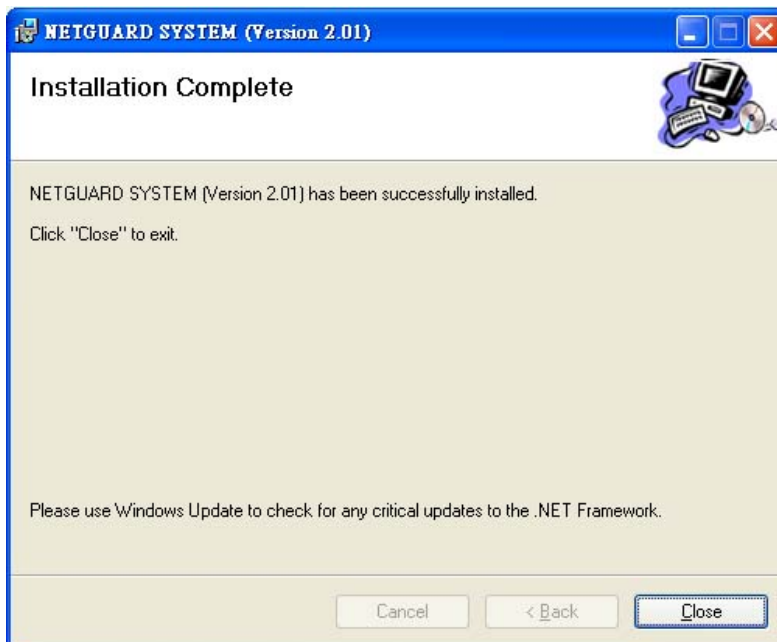
※ **Note:** Please choose the "Next" button to continue.

Step 4: The installation screen will show the message "**C :\ Program Files \ NETGUARD **". Or you can select the path you want.



※ **Note:** Click "**Next**" to continue the installation.

Step 5 : The window below tells you the process is complete.



※ **Note:** Click the "**Close**" button to complete the installation process.

Step 6 : After completing installation, you can double - click the file shown below. Or click the "**Start Menu**" in the computer and select "**Programs**" to open the "**Program Selection**" page. Then click the "**NETGURD SYSTEM**" tag to start the program.



NOTE: Please make sure the TCP/IP communication software has been properly set and configured in your computer.

NOTE: "Auto Uninstall": It's not necessary to remove the exit program when you are going to install a new version of NETGUARD. Every time you update the NETGUARD, the original version will be removed automatically.

6.4 Short introduction

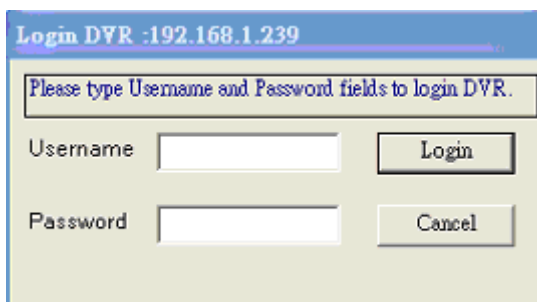
Once the NETGUARD is executed, a log in window will appear. Please type the appropriate user name and password to log into the DVR, ie "Admin" and "9999", and click the "Login" button.



6.4.1 Program introduction



- 1** **【Available Devices】**: Here the whole DVR list is shown. You can connect with your selection. Double click any of them to open the screen below. Please enter the correct "Username" and "Password" to log into this DVR. The default "Username" and "Password" are "admin" and "9999" respectively.



- 2** **【Working Device】**: After you enter the DVR, the section in the upper left margin will show the information in all the cameras.

3 **【Multiscreen】** : Here all the videos of the cameras will show.

4 **【Multiscreen Buttons】** : You can interchange between three buttons here : the "Video Panel", "Web Page" and the "Viewer Settings" buttons.



5 **【Function Key】** : Click each of these buttons to execute its functions.



6.5 Operation

6.5.1 Remote Control

※ **Step 1:** After entering the "NETGUARD",

please click the  button to select "16

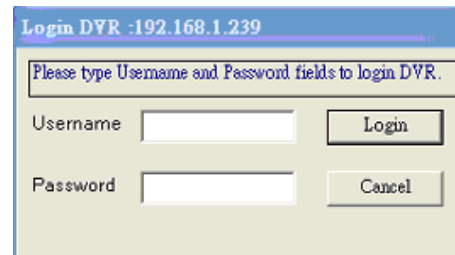
Channels DVR" and then click the 

"Available Devices" button. The software will automatically search the whole local LAN 16 - channel DVR device to see a list.



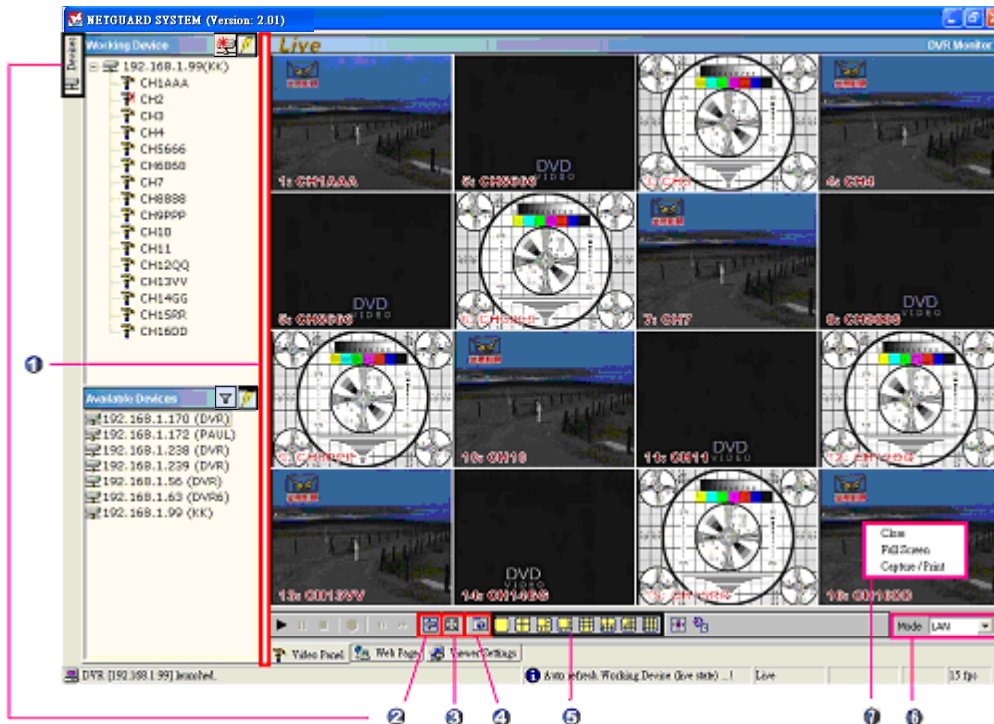
※ **Step 2:** Double click your selected device to see a window as on the right. Enter the


"Username" and "Password" -- the default name and password are "admin" and "9999".



※ **Step 3:** The default multi-screen is the 16 - channel mode you see now.

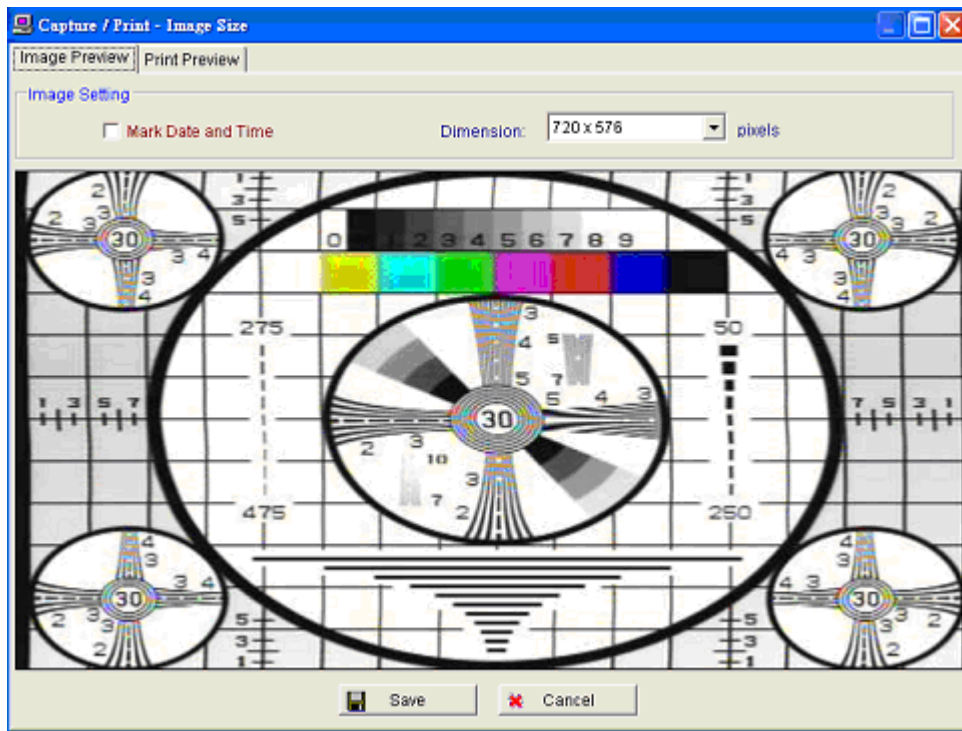
※ **Step 4 :** The NETGUARD helps you see any display mode you want.



1. **Adjust the screen size:** Move the mouse to the vertical bar on the right side of the "Working Devices" / "Available Devices" box on the left margin of the screen. This bar runs from the top to the bottom of the screen, and when you move the mouse to this bar, it shows like this: . You can move this bar to the left to narrow the "Working Devices" / "Available Devices" box and to the right to widen it.
2. **Hide Device Panel:** Click this button to hide the "Available Devices / Working Devices" box from view behind the video display screen.
3. **Full Screen:** Click this button to show the full screen for surveillance. All the setting buttons will be hidden in this mode. If you want to return to the previous mode, use the mouse to click the right key, and choose "Close".
4. **Re-arrange the divisions:** Click this button to see the following channels.
5. **Screen divisions:** Choose any of the buttons you want.
6. **LAN or Internet mode:** Click this button to enter the "LAN" and "Internet" modes alternately.
7. **Pop-menu:** You can use the mouse to move to each channel. Click the right key of the mouse to show a window. You can select "Close", "Full Screen", or "Capture / Print".
 - ※ **Close:** Stops the channel's display.
 - ※ **Full Screen:** Enlarges the display to "Full Screen".
 - ※ **Capture / Print:**

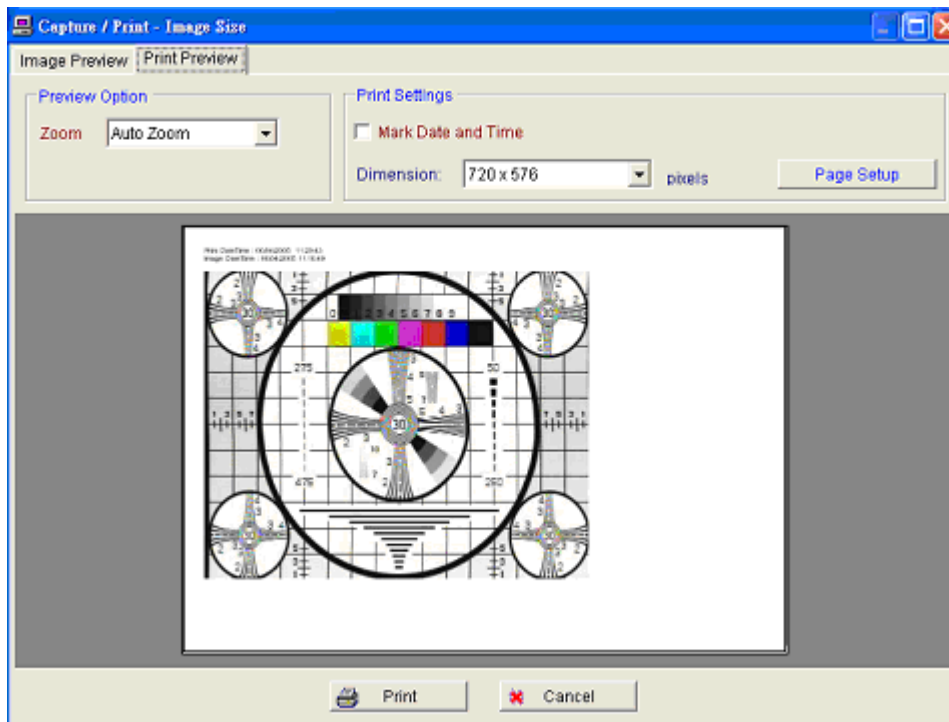
"Capture":

See the "Image Preview" page for the "Preview Setting" which has two choices : "Mark Date and Time" and "Dimension". Mark the item "Mark Date and Time" to set the date and time stamp on a chosen picture. Choose an appropriate dimension before saving the image. To save the image, click "Save" at the bottom to enter the "Save Page" window. Give the file name. If you want to exit, click "Cancel".



"Print":

Click the **"Print Preview"** button and go to the **"Preview"** option to adjust the image size. Go to the **"Print Settings"** area and then to **"Mark Date and Time"** if you wish to stamp the date and time of the image on the image itself. Select **"Dimension"** to scroll the appropriate pixels from the drop - down list. Click **"Print"** to start the printing. Click **"Cancel"** to exit.










6.5.2 Remote play and PTZ control.

This device has the full triplex so you can use the NETGUARD in the remote without affecting the performance of the 16 - channel DVR. You can also use the NETGUARD to play and back up. If you have a PTZ camera, the NETGUARD can also control it.

6.5.2.1 Remote play

See the following panel which enables you to play, pause, stop, record, fast backward, and so on.



-  **"Play"**: Click it to see the DVR play window. Use the **"Previous page"** and **"Next page"** buttons to find the record you want from the record list. Click the **"Time Search"** page to use the time and date search entries to help your search.
-  **"Pause"**: Click to freeze the image.
-  **"Stop"**: Click to stop playing back the recorded video.
-  **"Step Forward"**: Click to view images picture-by-picture in the forward direction.
-  **"Step Backward"**: Click to view images picture-by-picture in the reverse direction.
-  **"FWD"**: Click to play a recorded video in the forward direction at speeds which are faster than the recorded speed.
-  **"REV"**: Click to play a recorded video in the reverse direction at speeds which are faster than the recorded speed.

6.5.2.2 Change Pan/Tilt/Zoom Setting

Click the  button on the home page to open the Speed Dome Controller.




1. Click the  button to control the Zoom setting on the Speed Dome Controller.



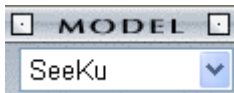
2. The right-hand set, , has four buttons, each of which, upon being clicked, will turn the camera all

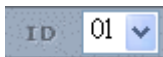
the way, without stopping, in one of the four designated directions. The fifth button, in the center, will stop the camera at any point you prefer.




- The left-hand set of buttons, , has four buttons, each of which, upon being clicked, will move one short step only in any of the four designated directions.



- Select a Speed Dome device Model  from the drop-down list on the Speed Dome Controller. The Controller will display the corresponding Model.



- Select a Speed Dome device ID  from the drop-down list on the Speed Dome Controller. The Controller will display the corresponding ID .

6.

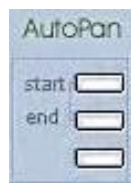


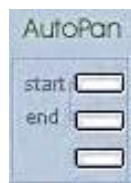
Each of the ten buttons under 'Set' is connected with a specific position and angle of either panning or tilting of the camera. Click each button to activate its particular position and angle. Press the button under 'Preset' to turn the camera angle by angle in the set positions.

Each of the ten buttons under 'Clear' can be clicked to delete the corresponding 'Set' button above it. For example, if you wish to de-activate 'Set' button #4, please click 'Clear' button #4 to delete its corresponding 'Set' counterpart.

Each of the ten buttons designated 'Go to' can be clicked to view the particular corresponding angle of the position in which it is set.

7.



The 'AutoPan' section  has three buttons. The 'Start' and 'End' buttons fix the two points of any panning movement you select. The third or bottom button sets the chosen movement in the play mode.

6.5.3 Backup and video edit

Use the  button to see the "Backup to the AVI file" window.

【Backup】:

Backup Settings :

- **File Path** : To set the backup file path and the file name, click the "**Browser**" button on the right.
- **Frame Rate** : Sets the backup record file speed.
- **Maximum File Size** : Sets the maximum file size.

Note: The unit of "Maximum File Size" in the windows XP system is "Mb", but the unit of "Maximum File Size" in windows 98 or Win me is frame.

- **Frame dimension** : Sets the resolution.
- **Mark Day and Time** : Sets the date and time stamp.

Play Options :

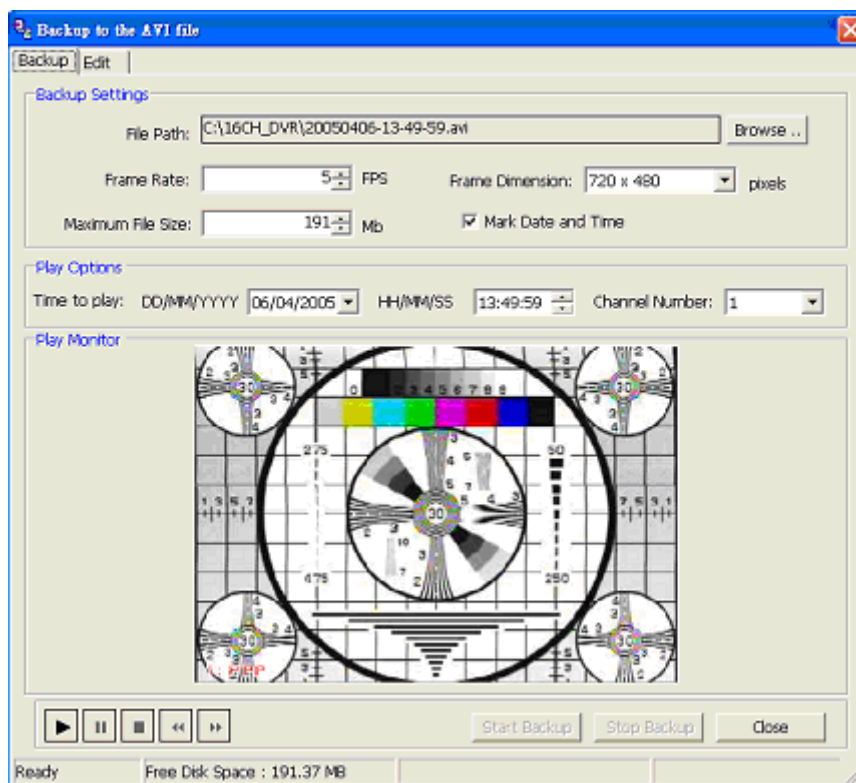
- **Time to play** : To search the date and time you want.
- **Channel Number** : To choose a camera.

Play Monitor :

- Use the panel below to play or stop, etc.

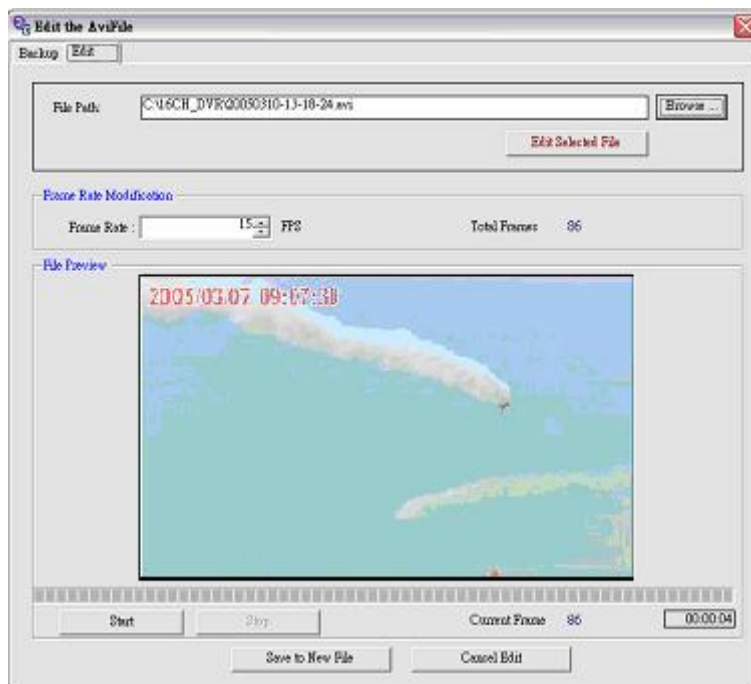


- If you already want to back up, click the **"Start backup"** button. If you want to stop, click the **"Stop backup"** button.



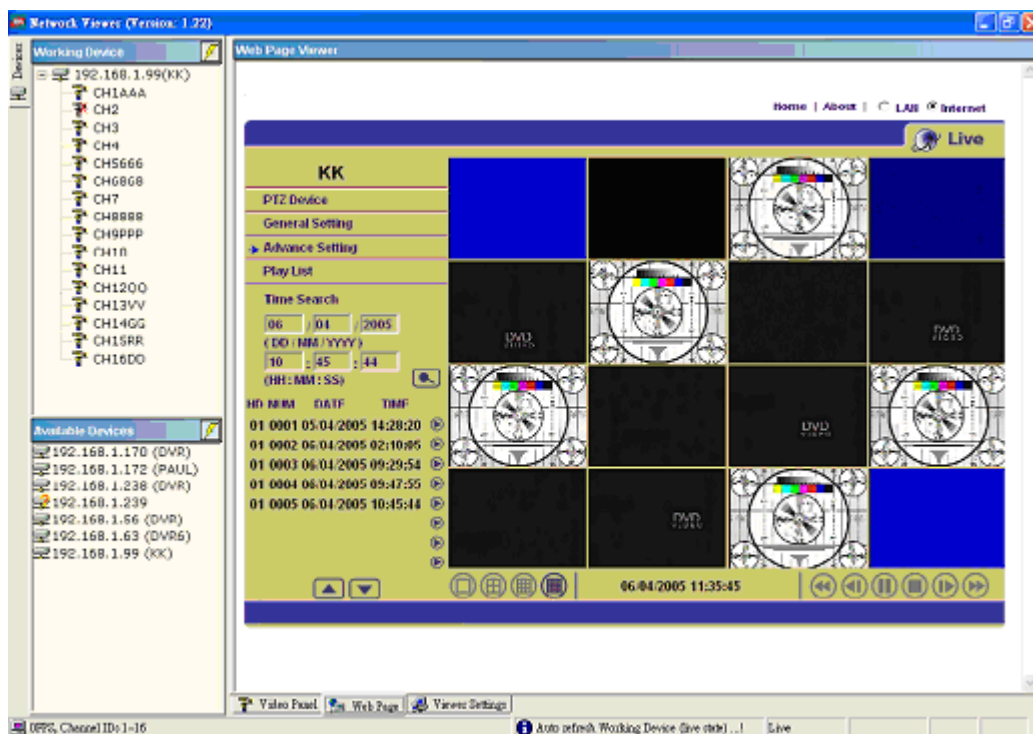
[Edit] :

- **File Path**: To set the backup file and the file name, check the **"Browser"** button on the right. Click **"Edit Selected File"** to start editing.
- **Frame Rate Modification**: To see the total number of frames, modify your frame rate.
- **File Preview**: Click the **"Start"** button to start your setting component. You can also use the **"Start"** button to interrupt the code. You can click the **"Save to new file"** button to save a new file after the edit code.



6.5.4 Web Page Viewer

This section provides instructions for using the NETGUARD's web page viewer feature.



1. Click **"PTZ Device"** to open the control panel and remote control the pan/tilt/zoom function camera live over a local area network or the Internet.
2. Enter the **"General Setting"** page to set the title, the date and time modes, and the date and time of the device. Click **"Submit"** after each setting.
3. Click **"Advance Setting"** to enter four pages: the **"Image"**, **"Alarm"**, **"Record"**, and **"User"** pages.

● **Image:**

Click "Image" to enter the "Image " page to set each channel's "Channel Title", "Quality", "Noise Filter", "Brightness", "Contrast", "Color" and "Hue". Click "Submit" after each setting.

● **Alarm:**

The upper part of the window enables you to set the "Duration", "Disk Full", "PreAlarm", and "Frame Rate" of the alarm for the device. The bottom part of the window helps you set each channel's settings in the event of an alarm. Set the "Select Channel", "Record Mode", "Quality", "Sensor Type", "Sensor Sensitivity", "Sensor Output", "Video Loss Output", and "Motion Output" for each channel. Click "Submit" to set your changes.

● **Record:**

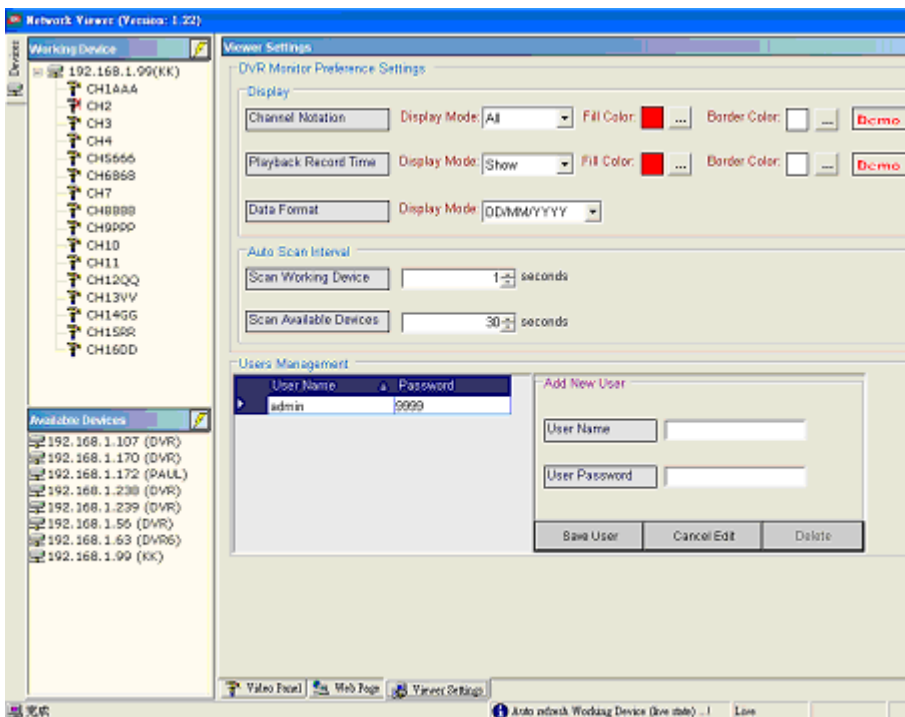
Click "Record" to enter the "Record Setting" page. In the upper part of the window you can set the device's "Disk Full", "Frame Rate", "Audio Rate" and "Audio Channel" entries. In the lower part of the window set each channel's "Select Channel" and "Quality". Click "Submit" after each setting.

● **User:**

Click "User" to enter the "User Setting" page and set the device's "User Name", "Password", "New Password" and "Confirm". Click "Submit" to set.

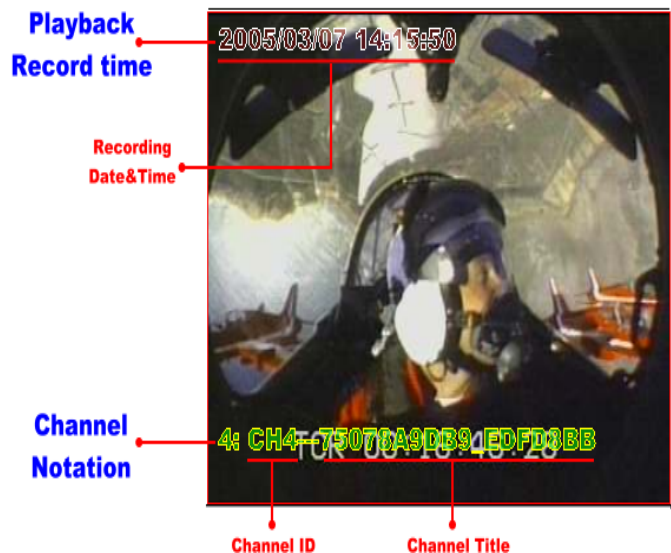
NOTE: This device also provides remote control and viewing capabilities via the IE Browser. Please refer to section 7, Microsoft Internet Explorer, for more details.

6.5.5 Viewer setting



1. **"Channel Notation".**

If you wish to change the "Display Mode", open its drop - down list and select any of the four items there. Your choice will automatically appear in the relevant blank space. Similarly you can enter the "Fill Color" and "Border Color" entries to open their respective color tables. Click "OK" in each case to set your choice.



2. "Playback Record Time".

Click the "**Display Mode**" to select from a drop - down list of two choices, "**Hide**" and "**Show**". Your choice will decide whether the images will display the date and time or not.

3."Data Format".

Click the "Display Mode" to select from a drop-down list of two choices, "**DD/MM/YYYY**" and "**MM/DD/YYYY**".

4. "Auto Scan Interval".

Here you have two entries, "**Scan Working Devices**" and "**Scan Available Devices**". Set the time in seconds for both entries as per your requirements. The "**Scan Working Devices**" entry has a time span of 1 to 5 seconds only. The "**Scan Available Devices** " time range covers 30 to 1000 seconds.

5."Users Management".

Click the "**Save User**" button to add the new user's name and password under "**Add New User**": Enter the "**User Name**" and "**Password**" and click "**Save User** " again. Your new user and his password will appear on the "**User Name & Password** " list to the left. If you proceed to enter a new user and then click "**Cancel Edit**", no new name will be added to your list. If you wish to delete any user, click his name and click "**Delete**" to effect the change.

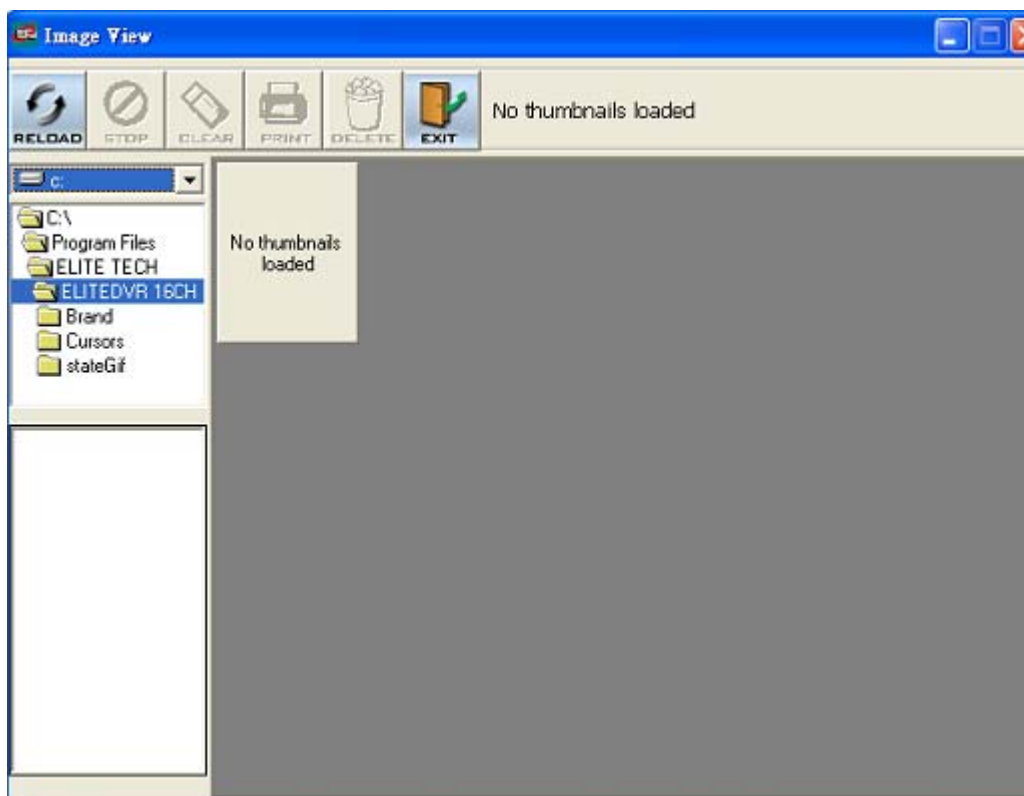
6.6 The Image Viewer

The **16CH DVR** is equipped with a digital watermark. It's a check software which protects archived images and informs you whether the images have been modified or not. Follow the instructions below to open an archived image from an SD card or an HDD.

Pop up the **START** menu in your computer, and point to **Programs / NETGUARD SYSTEM** to open up the program selection page. Click the **Image Viewer** tag to start the **Image View** program. (See a sample screen below.)

This is image integrity-protection software. It not only allows you to view an archived image from the SD card or HDD of a computer, but also protects an archived image from reproduction or interpolation. If an image isn't in the original format form of our **16CH DVR**, the Image Viewer will not display the image and instead will send a warning message "**Not Correct Image**" right away. Close this message to enable you to see the image now.

1. Click the **RELOAD** tag to load the images from a path.
2. Click the **PRINT** tag to get a displayed image printed out from a printer.



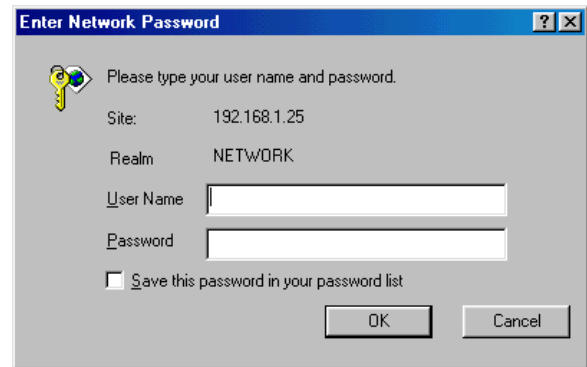
7. Microsoft Internet Explorer

This section provides instructions for accessing the 16CH DVR via Microsoft Internet Explorer.

Connecting the 16CH DVR

Start up the Microsoft Internet Explorer, and then follow the steps given below to connect the 16CH DVR:

1. Click the URL block at the top of the screen.
2. Type in the URL address of the 16CH DVR into the URL block and press the “Enter” button to enter the login page. The default User Name and password is **admin** and **9999** respectively.
3. Enter the user name (Login Name).
4. Fill in the password (Password).
5. Click the “OK” button and enter the home page of the 16CH DVR: both the user name and password must be provided correctly.



Description of functional keys:

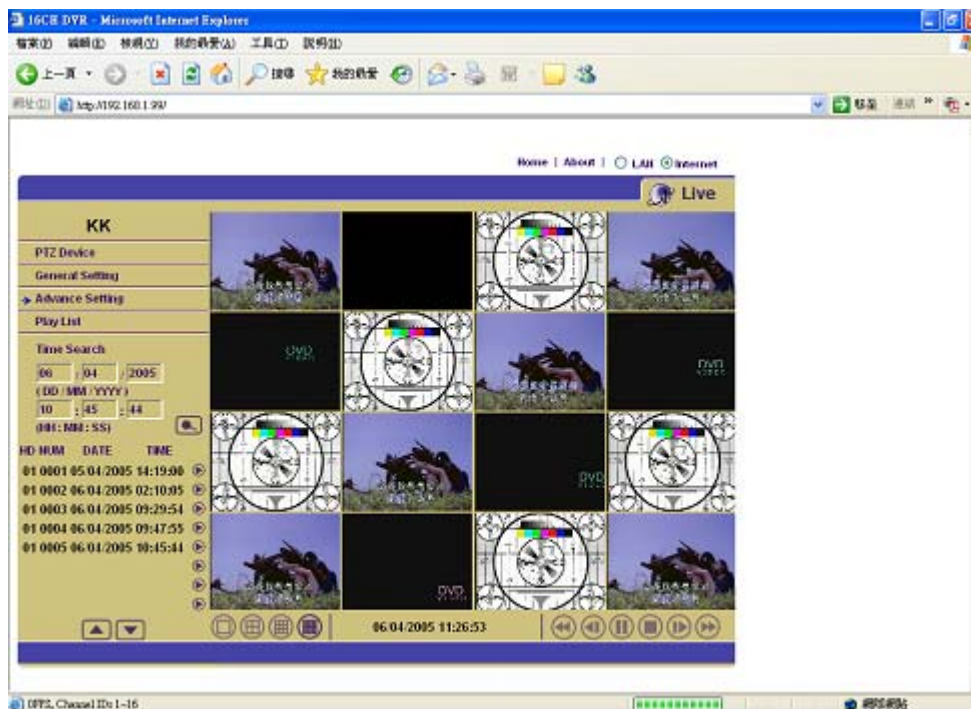
User Name: Enter the user name in the blank space.

Password: Fill in the password in the blank space.

OK button: Click to enter the home page of the 16CH DVR.

Browsing images from the 16CH DVR:

The images from the 16CH DVR will be displayed on the home page while going online with the 16CH DVR. There are some buttons provided on the bottom of the home page for further setting:










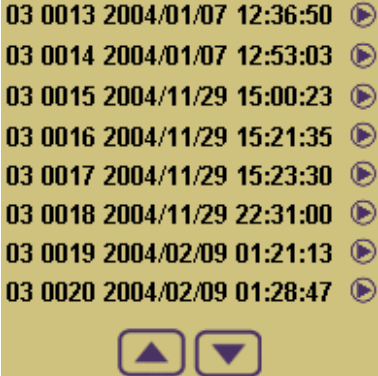

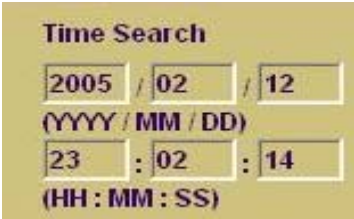



Function Buttons	Description
	Stop- Click to stop playing back the recorded video or to cease recording.
	Pause / Play- Click to a recorded video from the PLAY LIST.
	Step- Click to view images in the reverse direction picture-by-picture.
	Step- Click to view images in the forward direction picture-by-picture.
	REV- Click to play a recorded video in the reverse direction at speeds which are faster than the recorded speed.
	FWD- Click to play a recorded video in the forward direction at speeds which are faster than the recorded speed.
	The Split-Screen display function bar: This allows you to display the connected device in the multi-format screens of 1, 2x2, 3x3 and 4x4.
	Recorded video list box: This box allows you to access all recorded video which are stored in the HDD of the connected devices. To review a recorded video, simply select an entry from the list and click the  button. PgUp / PgDn: Enables you to scroll up and down the list.
	This allows you to search a recorded video stored in the HDD of the device. Enter the YEAR/MONTH/DAY HOUR: MINUTE: SECOND you wish to search and click the GO button to proceed.
	Time Search play: This allows you to play a recorded video stored in the HDD of the device.
	16CH DVR date & time.
	This box indicates the selected device status. PLAY: The device is in the playback mode. LIVE: The device enters the live display mode.



Image display area. Displays images from the 16ch cameras.

PTZ Device

" Click **"PTZ Device"** to open the control panel and remote control the pan/tilt/zoom function camera live over a local area network or the Internet. **Please refer to section 6.3.2.2 for more details.**

General Setting

The **"General Setting"** page is used to set the title, the date and time modes, and the time.

▶ Advance Setting

Click **"Advanced Settings"** to enter four pages: the **"Image"**, **"Alarm"**, **"Record"**, and **"User"** pages.

● Image:

Click "Image" to enter the "Image " page to set each channel's "Channel Title", "Quality", "Noise Filter", "Brightness", "Contrast", "Color" and "Hue". Click "Submit" after each setting.

● Alarm:

The upper part of the window enables you to set the "Duration", "Disk Full", "PreAlarm", and "Frame Rate" of the alarm for the device. The bottom part of the window helps you set each channel's settings in the event of an alarm. Set "Select Channel", "Record Mode", "Quality", "Sensor Type", "Sensor Sensitivity", "Sensor Output", "Video Loss Output", and "Motion Output" for each channel. Click "Submit" to set your changes.

● Record:

Click "Record" to enter the "Record Setting" page. In the upper part of the window you can set the device's "Disk Full", "Frame Rate", "Audio Rate" and "Audio Channel" entries. In the lower part of the window set each channel's "Select Channel" and "Quality". Click "Submit" after each setting.

● User:

Click "User" to enter the "User Setting" page and set the admin and viewer's "User Name", "Password", "New Password" and "Confirm". Click "Submit" to set.

8. SPECIFICATIONS

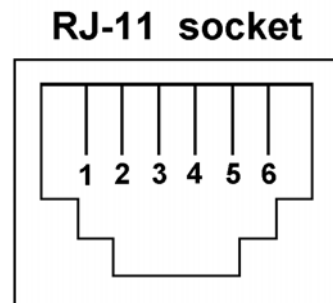
Model	DVR 3016	DVR 3016D
Resolution	NTSC 720x240 pixels; PAL 720x288 pixels	
Operation Mode	Triplex (Live, Play, Record and Network Simultaneous)	
Video Input	BNC x 16 (termination: DIP SW)	
Video Output	Main (BNC), Spot (BNC), Looping(BNC) x 16	
Audio In/Out	Stereo, Line In/ Out (RCAx4), 8/ 22/ 44 kHz sampling, μ -law	
Compression	MJPEG	
Storage Media	>900Gb / 2 Fixed HDD, 1 Removable HDD	>600GB 2 Fixed HDD
Archive	Hot Swappable Removable HDD / SD Card	CD-RW / SD Card
Watermark	Embedded Digital Signature	
Recording Rate	NTSC:60 ips ; PAL: 50 ips	
Image Size	Best (40KB)/ High (32KB)/ Standard (24KB)/ Basic (16KB)	
Recording Mode	Schedule/ Manual/ Alarm/ Circular/ External Control	
Alarm Recording	Pre-Alarm/ Post-Alarm	
Pre-alarm Recording	10 Sec	
Playback Speeds	Jog/ Shuttle Dial access Fast Forward/ Reverse: 1X, 2X, 4X, 8X, 16X, 30X, 100X Slow Forward/ Reverse: 1/2X, 1/4X, 1/8X, 1/16X, 1/30X, 1/100 and pause	
Search	Event List/ Time/ Alarm List/ Filter/ Thumbnail/ SD Card	Event List/ Time/ Alarm List/ Filter/ Thumbnail/ SD Card/ CD
Zoom	X2	
Motion Detection	Advanced MD (Zone, Position, Sensitivity)	
OSD	Cam Title/ Time & Date/ Mode/ Error Message	
Set-up Menu	Advanced/ Quick/ Network setting	
Log List	2048-Record Operation Log	
Alarm In/Out	16 Alarm Inputs/ 3 Alarm Outputs	
Built in Buzzer	Yes	
Camera title	9 char.	
Communication Port	RS-232, RS-485, and Ethernet Ports	
Network Interface	Ethernet (RJ-45 10/100 base-Tx)	
Network Protocol	TCP/IP, DHCP, HTTP	
Software Upgrade	Upgradeable via Memory Card (SD Card)	
Password Protection	Yes	
Power input	Input: 100-230V, 50/60 Hz; Output: DC12V max 5A: (AC Adapter)	
Weight	Approx. 5.9 kg/ 13 lb (w/o HDD)	
Dimensions	430 x 55 x 405 mm EIA 19" 1 1/2U H Mountable	
Operating Temperature	5 - 40 °C (41 -104 °F)	
Regulation	FCC, CE	

****Design and specifications subject to change without notice.**

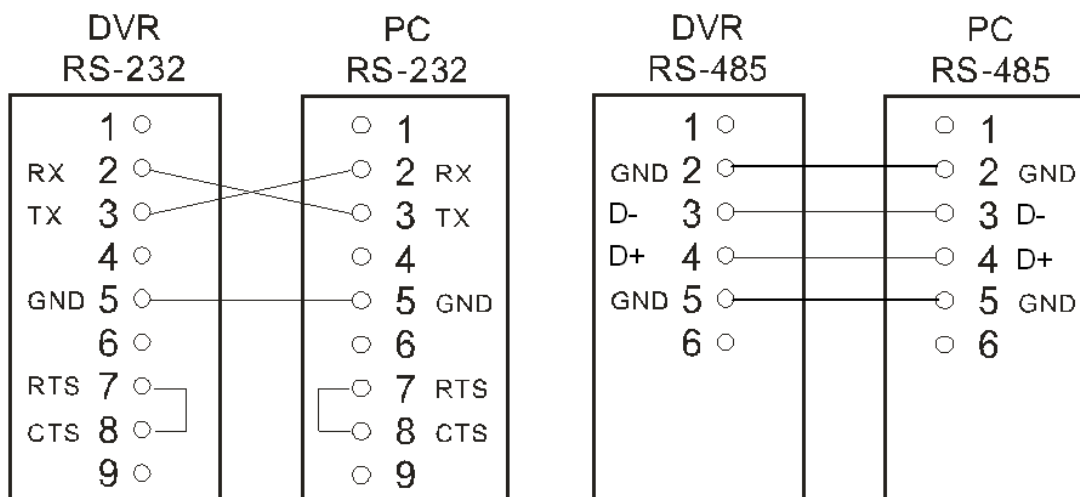
APPENDIX 1. – RS-232 & RS-485 Codes

RJ-11 PIN configuration for RS-485

PIN NO.	PIN Assignment
1.	Not Connected
2.	Ground
3.	D -
4.	D +
5.	Ground
6.	Not Connected



CONNECTION



More than one device can be controlled via the RS-232 & RS-485 port from a host computer. Three kinds of RS-232 & RS-485 command codes are used in the command set: Separation code, Key code, and Control Command code. All the command codes are in ASCII code format as listed in the table below. The transmission protocol is 8 data bit; 1 start bit, 1 stop bit and no parity. Four different speeds can be used, 1200 baud per second, 2400 baud, 4800 baud, and 9600 baud. The default setting is 2400 baud per second.

When only one device is controlled via RS-232 & RS-485 port from a host computer, the control command codes should contain an "L0" to instruct the device to enter operation mode. Other command codes starting with "L" are not necessary.

When a computer controls more than one device, use "LA" to instruct all devices to enter into stand-by mode. Use "Lnnnn" to instruct a specific unit to enter into operation mode. "nnnn" represents the ID number of the specific unit. Set the ID number for the device in the menu setup mode. (0 cannot be used for ID numbers)

Separation Code





A separation code is used to insert between two control command codes to ensure a proper operation. They do not have any explicit function themselves. The following codes can be used as separation code:






Code	Hexadecimal code
"TAB"	(09h)
"LF"	(0Ah)
"CR"	(0Dh)
"SP"	(20h)
"/"	(2Fh)

Key Codes--

These codes are used to operate all the functions performed by the buttons on the front panel. These Key codes are usually in a single code format. For non-capitalized Key Codes, no Separation code is needed. They can be issued continuously. All Capitalized character Key codes will clear the alarm.

1/	Same as CH1 Selection button
2	Same as CH2 Selection button
3	Same as CH3 Selection button
4	Same as CH4 Selection button
5	Same as CH5 Selection button
6	Same as CH6 Selection button
7	Same as CH7 Selection button
8	Same as CH8 Selection button
9	Same as CH9 Selection button
10	Same as CH10 Selection button
11	Same as CH11 Selection button
12	Same as CH12 Selection button
13	Same as CH13 Selection button
14	Same as CH14 Selection button
15	Same as CH15 Selection button
16	Same as CH16 Selection button
e	Same as Call button
g	Same as enter button
m	Same as menu button
s	Same as seq. button
v	Same as play button
p	Same as stop button
u	Same as pause button
o	Same as record button

d	Same as display button
f	Same as freeze button
b	Same as search button
z	Same as zoom button
j	Same as jog+ button
k	Same as jog- button
k	Same as jog- button
+	Same as shuttle + button
-	Same as shuttle - button
0	Same as shuttle button homing
i	Same as  button
q	Same as  button
n	Same as  button
h	Same as  button
C1/	Displays “CH1” in full screen format
C2	Displays “CH2” in full screen format
C3	Displays “CH3” in full screen format
C4	Displays “CH4” in full screen format
C5	Displays “CH5” in full screen format
C6	Displays “CH6” in full screen format
C7	Displays “CH7” in full screen format
C8	Displays “CH8” in full screen format
C9	Displays “CH9” in full screen format
C10	Displays “CH10” in full screen format
C11	Displays “CH11” in full screen format
C12	Displays “CH12” in full screen format
C13	Displays “CH13” in full screen format
C14	Displays “CH14” in full screen format
C15	Displays “CH15” in full screen format
C16	Displays “CH16” in full screen format
R1/	Selects “CH1” to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R2/	Selects “CH2” to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R3/	Selects “CH3” to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R4/	Selects “CH4” to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R5/	Selects “CH5” to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R6/	Selects “CH6” to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R7/	Selects “CH7” to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R8/	Selects “CH8” to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R9/	Selects “CH9” to display under PIP, Quad, 2x2, 3x3, or 4x4 format

R10/	Selects "CH10" to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R11/	Selects "CH11" to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R12/	Selects "CH12" to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R13/	Selects "CH13" to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R14/	Selects "CH14" to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R15/	Selects "CH15" to display under PIP, Quad, 2x2, 3x3, or 4x4 format
R16/	Selects "CH16" to display under PIP, Quad, 2x2, 3x3, or 4x4 format
E1/	Displays "CH1" on the Call monitor
E2	Displays "CH2" on the Call monitor
E3	Displays "CH3" on the Call monitor
E4	Displays "CH4" on the Call monitor
E5	Displays "CH5" on the Call monitor
E6	Displays "CH6" on the Call monitor
E7	Displays "CH7" on the Call monitor
E8	Displays "CH8" on the Call monitor
E9	Displays "CH9" on the Call monitor
E10	Displays "CH10" on the Call monitor
E11	Displays "CH11" on the Call monitor
E12	Displays "CH12" on the Call monitor
E13	Displays "CH13" on the Call monitor
E14	Displays "CH14" on the Call monitor
E15	Displays "CH15" on the Call monitor
E16	Displays "CH16" on the Call monitor
ES	Same as "Call" + "Seq." buttons
ESQ	Auto-sequencing on the Call monitor
SQ	Auto-sequencing on the Main monitor
VR	Enters into playback mode
PX	Enters into Live display (Exit playback mode)
FL	Displays  full screen format
ZM	Displays Zoom mode
IP	Displays  format
QD	Displays  format
NE	Displays  format
HX	Displays  format

Control Command Codes

These Control Command codes are used to perform specific functions to control one or more than one unit via the RS-232 & RS-485 ports from a host computer.

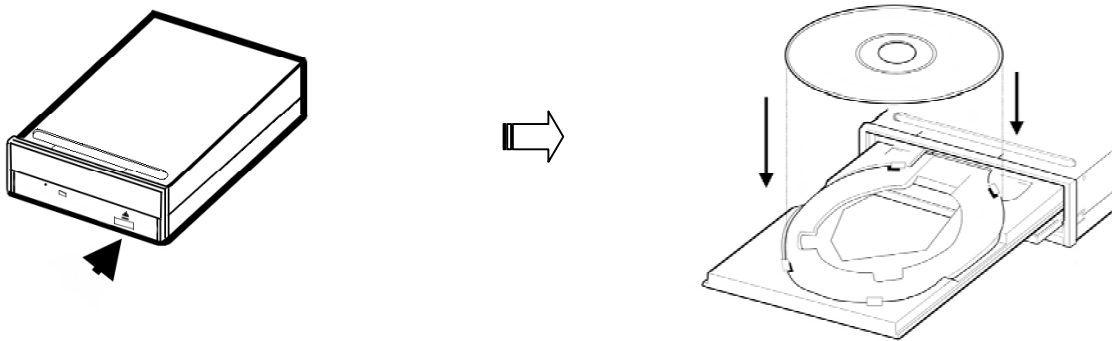
?	<p>Status inquiry: This code is used to inquire the operating status of a specific unit in the system. The addressed unit will response with a message code as follow: “ < SP > : < MODE > < STATUS > < CR > < LF > ” “ :SQ_2 S=0000000000000000 V=0000000000000000 < CR > < LF > ” “ :VR_PIP S=0000000000000000 V=0000000000000000 < CR > < LF > ”</p> <p>< MODE > There are 8 different modes.</p> <ul style="list-style-type: none"> VR VCR playback mode SQ Sequencer mode 4x4 4x4 display mode 3x3 3x3 display mode QD QUAD display mode PIP PIP display mode ZOOM 2XZoom display mode 1-16 Full screen mode displaying corresponding channel from 1 to 16 <p>< STATUS > : THERE ARE TWO KINDS OF STATUS. THEY CAN BE DISPLAYED THROUGH FOLLOWING MESSAGE CODES: S=0000000000000000 Alarm sensor status of each input channel V=0000000000000000 Video loss status of each input channel THERE ARE 16 DIGITS FOLLOWING EACH DIFFERENT ALARM. EACH DIGIT REPRESENTS THE STATUS OF THE CORRESPONDING CHANNEL FROM 1 TO 16 ACCORDINGLY. A “0” MEANS NORMAL OPERATING STATUS. A “1” MEANS AN ACTIVATED/TRIGGERED STATUS.</p>
A?	<p>Alarm Records inquiry: This code is used to instruct a specific unit to display its alarm records. The device will feed back a following message: “CH1 SENSOR 04-02-1997 SUN 08:10:15 AM < CR > < LF > ” “CH3 V-LOSS 04-02-1997 SUN 10:56:47 AM < CR > < LF > ” “CH4 V-LOSS 04-02-1997 SUN 10:57:02 AM < CR > < LF > ” “CH1 V-LOSS 04-02-1997 SUN 11:03:34 AM < CR > < LF > ”</p> <p>If the ID number of the unit is 0082, the device will response a following message. “0082-CH1 V-LOSS 04-02-1997 SUN 08:10:15 AM < CR > < LF > ”</p>
T?	<p>TIME INQUIRY: THIS COMMAND IS USED TO OBTAIN THE TIME/CLOCK INFORMATION OF A SPECIFIC DEVICE. THE RESPONSE MESSAGE FROM THE DEVICE IS AS FOLLOWS: “ < SP > =mm-dd-yy hr:min:sec < TAB > ”</p> <p>For example: “ =04-10-1999 SUN 08:00:00 PM < TAB > ”</p> <p>Date information will be displayed in “mm-dd-yy” format for EIA/NTSC system and in “dd:mm:yy” format for CCIR/APL system. Every item is displayed in 2 digital decimal numbers.</p>
T=	<p>Clock setting: This command is used to set the time/clock device. Please enter the information according to above-mentioned format.</p> <ul style="list-style-type: none"> “T=mm-dd-yyyy hh:mm:ss” “T=dd-mm-yyyy hh:mm:ss” “T=yyyy-mm-dd hh:mm:ss” “T=mm-dd-yyyy hh:mm:ssA (P) M” “T=dd-mm-yyyy hh:mm:ssA (P) M” “T=yyyy-mm-dd hh:mm:ssA (P) M” <p>For example: “T=07-04-1997 08:00:00AM”</p>
L?	<p>ID number inquiry: This instruction is used to obtain the ID number of the unit, which can only be assigned and programmed into any unit individually through the menu setup during installation. ID number code can be a 1 to 4 decimal digits except 0 for every digit :</p> <p>For example: “ < SP > =nnnn < SP > ” “= 0082”</p>
Lnnnn/	<p>This instruction is used to instruct a specific device, which is specified by the ID number. ID number code can be a 1 to 4 decimal digits except 0 for every digit :</p> <p>For example: “L082/” or “L82/”</p>

APPENDIX 2. – Using CD Discs (FOR CD-ROM MODEL ONLY)

Please note that when using CD-ROM, CD-R and CD-RW discs, do not write or stick anything on the surface as this could cause an error in recording or the data on the disc may be damaged.

Inserting Disc

1. Please press the eject button.
2. Please place the disc in the tray.



NOTE: When using a 12 cm disc please place it in the center of the caddy where you are able to see the larger position specifically for the 12 cm disc. When using an 8 cm disc please place it in the center of the caddy where you can see the position for the 8 cm disc. Please place the printed side up. Never place two discs in the caddy at the same time.

3. Please do not touch the surface of the disc where it has been recorded.
4. To insert the caddy please press the insert / eject button and hold the caddy lightly at the middle of its front and push gently to insert.

Ejecting The Disc

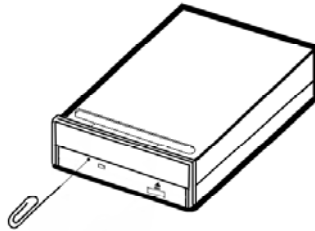
1. Press the eject button.
2. Carefully lift out the disc.
3. Press the eject button, or lightly touch the center of the tray and the tray will automatically reenter its position within the CD - RW recorder.

Caution: After the tray has been ejected and the disc has been retrieved from the caddy or put in the caddy, insert the tray in its original position to avoid the accumulation of dust or miscellaneous items inside the caddy, or else the pick up head may be affected when it needs to remain clean for effective reading of the data.

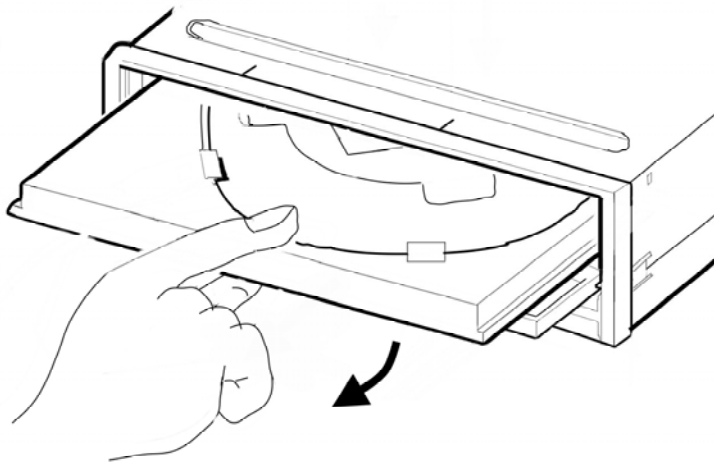
Emergency Eject Button

The device has an emergency eject button, which allows for manual retrieval of the disc in case the machine needs repair, or there is a cut in the power supply. In the above circumstances use the following method to eject the disc.

1. The power supply has been cut.
2. Press the emergency eject button with a needle (a paper clip, etc. can also be used) and the tray will immediately eject.



3. Press the front of the tray or lightly and gently pull the tray out with two fingers.



Others

When you use either a CD-RW or a CD-ROM, please pay heed to the following.

1. At the time of installation: As suggested in your specifications, please do not install in an unstable position or in one that causes vibrations.
2. Do not install in high humidity, direct sunlight, or damp conditions.
3. Do not use near magnetic fields, or place near a television or a radio signal as the performance of the device may be affected.
4. Do not open to try to repair, as the laser may be harmful.

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