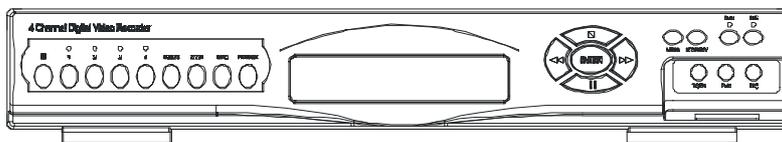


Thank you for purchasing our product.
Please read this User's Manual before
using the product.
Change without Notice

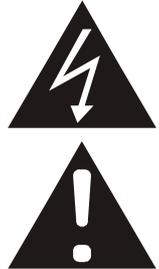
4 Channel Digital Video Recorder **User's Manual**



Safety Precautions

	CAUTION RISK OF ELECTRICAL SHOCK. DO NOT OPEN!
CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER (OR BACK), NO USER SERVICEABLE PARTS REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.	

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



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of insulated dangerous Voltage within the product's enclosure that may be sufficient magnitude to constitute risk of electrical shock to persons.

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

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



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



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



“CAUTION: 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 instruction.”

Warranty and Service

During the warranty period (one year for Hard Disk), we will repair or replace the hard disk free of charge. Be sure to have the model number, serial number and vendor stick on hard disk for service representative.

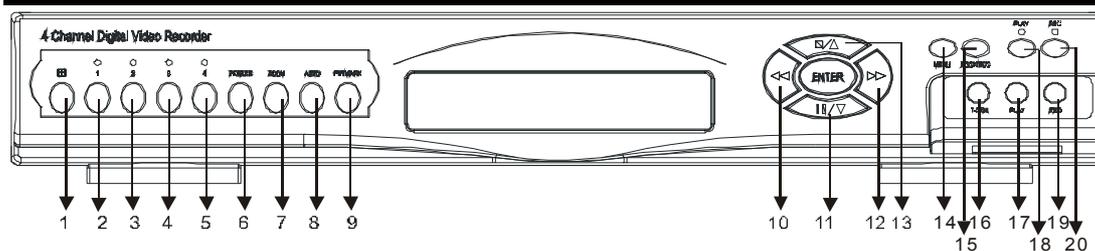
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1. Hardware

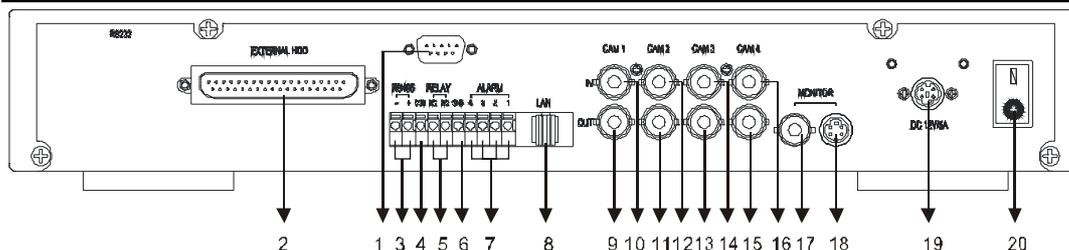
- 1 X DVR Machine
- 1 X Power Core (Power core type depends on your order)
- 1 X Adaptor
- 1 X User Manual
- 8 X Screw (Without Hard Disk)
- 4 X Screw (Within one Hard Disk)

2. Unit Description of Front Panel

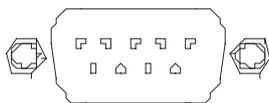


1.  : 4 quarterly split screen mode button
2. **CHANNEL 1** : Channel 1 full screen button
3. **CHANNEL 2** : Channel 2 full screen button
4. **CHANNEL 3** : Channel 3 full screen button
5. **CHANNEL 4** : Channel 4 full screen button
6. **FREEZE** : Picture freeze mode button
7. **ZOOM** : Picture zoom in mode button
8. **AUTO** : Auto sequence mode.
9. **PIP** : Picture in picture mode button
10. **REW** : Reverse button
11. **STEP/DOWN** : Playback pause/Direction button down
12. **FF** : Forward button
13. **STOP/UP** : Press this button to stop playback/ Direction button up
14. **MENU BUTTON** : Press this button to display the menu setup
15. **LOCK/ESC** : Press this button to Lock function
16. **T-SRH** : Press this button to playback time search
17. **PLAY BUTTON** : Press this button to playback
18. **DIRECTION BUTTON** : Reverse playback
19. **REC BUTTON** : Press this button to record image
20. **DIRECTION BUTTON** : Forward playback.

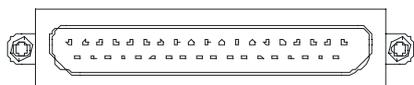
3. Unit Description of Rear Panel



1. RS-232 IN :



2. EXTERNAL HDD : External IDE HDD box connector



3. **RS-485** : RS485 Connector + / -
4. **COM**
5. **RELAY** : Sensor. Relay output.
6. **GND**
7. **ALARM** : Alarm I/O input
8. **LAN** : Network connector
9. **CAMERA OUTPUT** : CAMERA 1 video image output
10. **CAMERA INPUT** : CAMERA 1 video image input
11. **CAMERA OUTPUT** : CAMERA 2 video image output
12. **CAMERA INPUT** : CAMERA 2 video image input
13. **CAMERA OUTPUT** : CAMERA 3 video image output
14. **CAMERA INPUT** : CAMERA 3 video image input
15. **CAMERA OUTPUT** : CAMERA 4 video image output
16. **CAMERA INPUT** : CAMERA 4 video image input
17. **MONITOR BNC** : Monitor video BNC connector
18. **MONITOR S-VIDEO** : Monitor S-VIDEO connector
19. **DC 12V / 5A** : Power input
20. **POWER** : Power switcher on/off

NOTICE : When connecting with other applications, be sure to turn off the system.

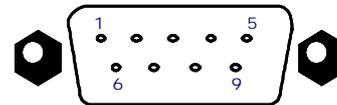
4. Configuration

1. System Architecture



Notice. RS-232C (This item port is for R&D testing)

PIN No.	Definition
1	DCD
2	RXD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	NC



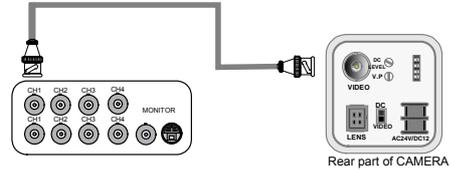
RS-232C

5. Installation

1. Procedure

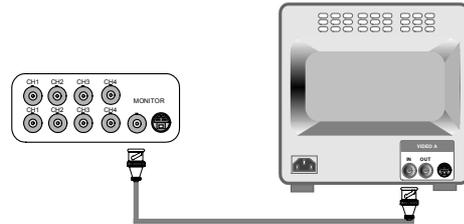
1) Camera Connection

Connect the camera to the CAMERA INPUT on the Rear Panel of the system.



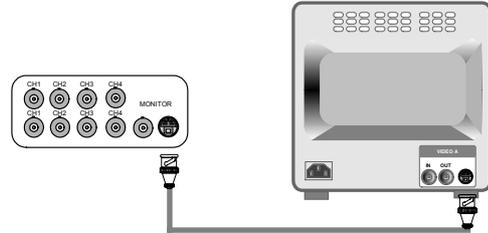
2) Monitor Connection (Composite Connection Method)

Connect the monitor to the MONITOR OUT on the Rear Panel of the system



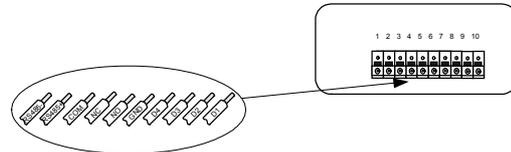
3) Monitor (S-VHS) Connection

Connect S-VIDEO Monitor to MONITOR OUT (S-VHS) on the Rear Panel of the system.



4) Sensor Connection

Connect the Sensor to the SENSOR INPUT/ OUTPUT on the Rear Panel of the system



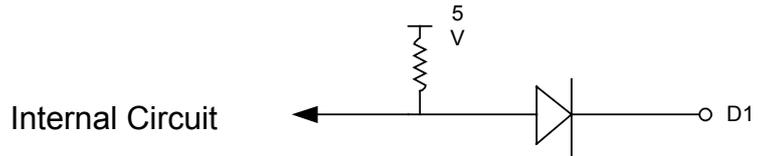
Terminal block

Pin 1	RS485 -	Pin 6	GND
Pin 2	RS485 +	Pin 7	Alarm 1
Pin 3	COM	Pin 8	Alarm 2
Pin 4	NC(Normal Close)	Pin 9	Alarm 3
Pin 5	NO(Normal Open)	Pin 10	Alarm 4

◆Relay output : COM+NC, COM+NO OR COM+NC+NO

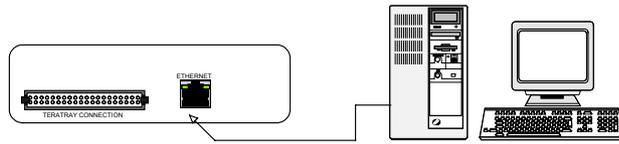
◆Alarm input : Short-circuit between Alarm1, Alarm2, Alarm3 or Alarm4 and GND is recognized as alarm.

NOTICE: Sensor input is RECOGNIZED as LOW when alarm signal is on a level with GND, and it is recognized as HIGH when alarm signal is FLOATING or 5V. Following is internal circuit.



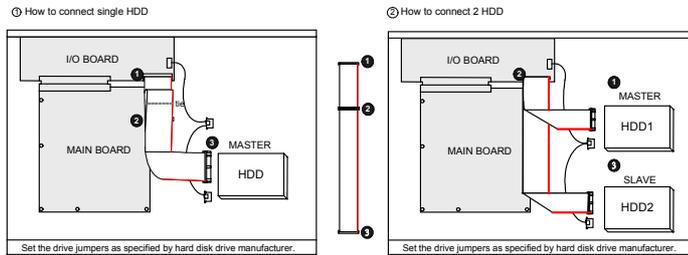
Thus, there is a danger of damage, when the sensor input goes to a Negative level or voltage higher than 5V.

5) Network Connection
DVR connects to LAN



◆ To view video image on the computer through internet with DVR view software.

6) HDD connection



1. Make sure the HDD is MASTER.
2. Make sure the cable connector is correct.
3. MASTER set up, please check the HDD panel.

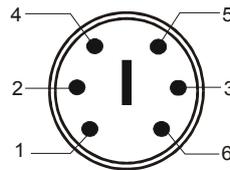
1. Make sure the HDD is MASTER and SLAVE.
2. Make sure the cable connector is correct.
3. MASTER and SLAVE set up, please check the HDD panel.

7) Power Connection

Connect the power to the POWER CONNECTION on the Rear Panel of the system, and turn on the switch.

8) Turn on the POWER.

Make sure the adaptor is 12V/5A.



1. +12VDC
2. +12VDC
3. +12VDC
4. RTN
5. RTN
6. RTN

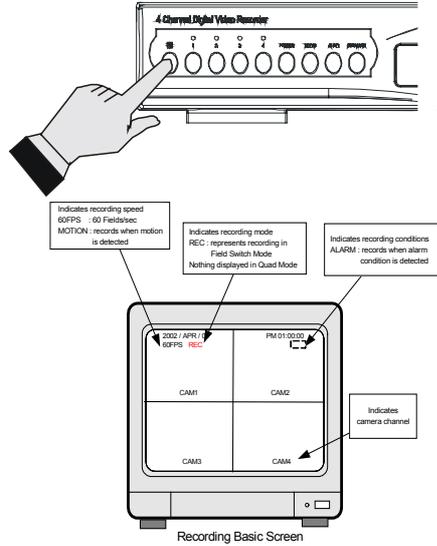
9) Detail setup in SYSTEM SETUP

For detail setup, refer to the instruction of SYSTEM SETUP.

2. Record

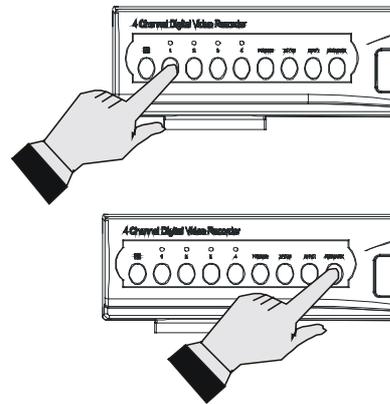
1. Split screen

When  button is pressed, the quarterly split screen is showed.



2. Full screen

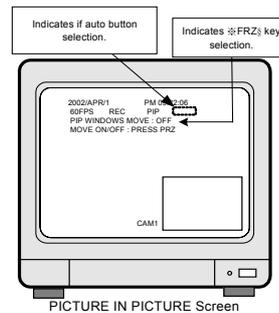
With     button, select full screen of each camera.



3. PICTURE IN PICTURE (PIP)

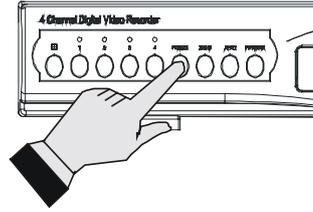
- 1) Press  button.
- 2) With  button and     button, select the main channel screen, and with button  , change the each camera channel of smaller screen.

- ◆ To change the location of smaller screen, press  button and use  button move to desired location.

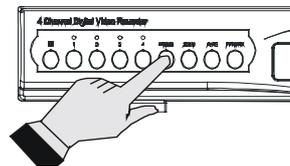
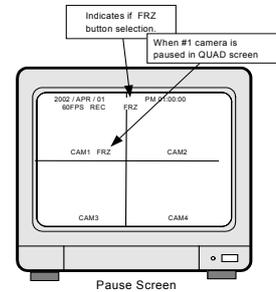


4. FREZZE

1) Live full screen pauses when  button is pressed.



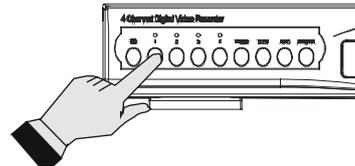
2) To pause quarterly split screen, press  button, and with  button select channel. On the right of the camera name, ※ FRZ message appears and the LIVE screen of that channel will pause. When pressed once more, it will come back to LIVE screen.



5. Zoom in mode. (Display Enlargement.)

Go to full screen mode with numeric buttons, then press ZOOM button to display screen Enlargement.

Use  button to move position.



6. Auto mode

Press AUTO button begins to screen auto sequence.

7. Sensor Recording

See the recording setup page

8. Scheduled Recording

See the recording setup page

9. Recording by MOTION DETECTION

See the recording setup page

10. Lock key function

Press lock key to lock record/play function.

Only , numeric, freeze, auto, pip, and zoom buttons could work.

Press lock key again to enter the login-in window. Enter admin or user password to unlock.

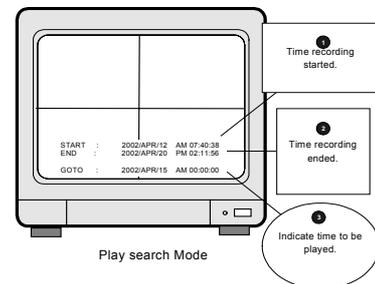
11. NOTICE

- 1) Recording is stopped during SYSTEM SETUP.
- 2) Recording is stopped during playback, or search in playback mode.
- 3) Recording is not possible if no camera is connected.
- 4) All recording set up , please see the recording setup page

3. Playback

1. Playback setup

- 1) Press PLAY button to begin playback backward.

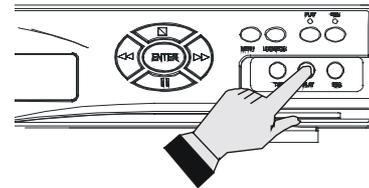


2. Press T-SRH button

1. START display the recording start time.
2. END display the recording end time.

3. The GO TO setup: use   button to choose

the begin date and time, press   button to change value, then press ENTER to playback forward.



NOTICE : During playback or setting GO TO time, recording is stopped

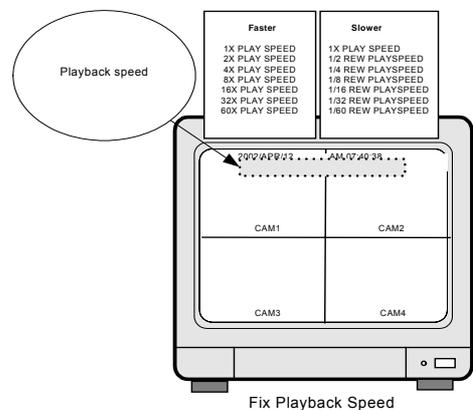
NOTICE : When value that is out of the range of start time and end time is entered, it starts from START time

NOTICE : When value is in the range of START and END, but there is no recorded pictures at the set time, it moves to the closest time of the recorded pictures.

NOTICE : Can not change the channel on pause mode.

3. Pausing and single frame advanced

- 1) During playback, press PAUSE button to pause.
- 2) Press   button on the right-top of DVR front panel to advance single frame forward/backward.
- 3) Press pause button again to play image.



4. Playback Speed Setup

- 1) During playback
Use   button to move forward (FF) or backward (REW).
- 2) Speed type
NTSC: 1x,2x,4x,8x,16x,32x,60x
1/2x,1/4x,1/8x,1/16x,1/32x,1/60x
PAL: 1x,2x,5x,10x,15x,25x,50x
1/2x,1/5x,1/10x,1/15x,1/25x,1/50x

3) Press ◀▶ button on the right-top of DVR front panel to return 1x speed.

◆ We recommend you to install 7200rpm EIDE hard disk drive.

5400rpm EIDE hard disk drive is not good enough to retrieve recorded data in high speed and slow speed playback mode. During playback at 60x speed, blue screen comes into view instantaneously once in a while and you could not see some pictures at that moment even though all they were recorded correctly, due to limitation in speed of reading data on a hard drive, and it is not a critical error in operation of DVR unit. To see pictures you could not see, just go back for same seconds and replay at a little lower speed than before.

5. MARK IMAGE (Internal backup) SETUP

During Playback, press  button and choose pictures using  button to protect selected pictures. Then press MARK button again to finish.
Refer to SYSTEM SETUP : MARK IMAGE SETUP for details.

Notice: Mark image will not be deleted when hard disk is full or hard disk format.

6. Zoom in mode. (Display Enlargement.)

Go to full screen mode with numeric buttons, then press ZOOM button to display screen

Enlargement. Use  button to move position.

7. Lock key function

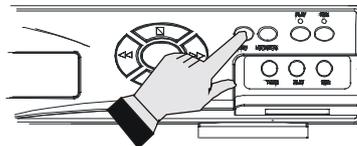
Press lock key to lock record/play function. Only , numeric, freeze, auto, pip, and zoom buttons could work.

Press lock key again to enter the login-in window. Enter admin or user password to unlock.

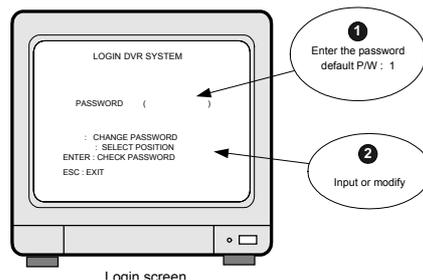
6. System Setup

1. Log-in

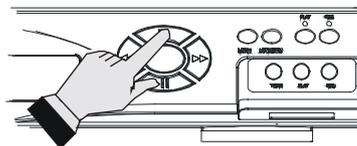
- 1) Press MENU button to enter the system menu after starting the system.



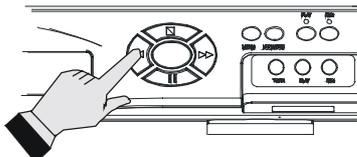
- 2) LOGIN DVR SYSTEM window appears as shown on the right.
 1. Enter password.
 2. Confirm or exit



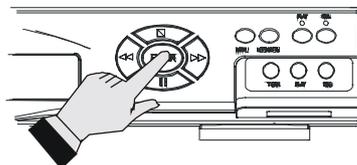
- 3) Use up and down button to enter password that has 0 to 9 numbers.



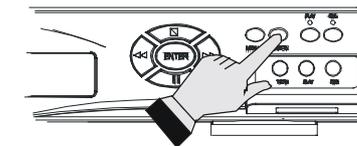
- 4) Use the left and right button to change the position.



- 5) And press the enter key to check the password.



- 6) Press ESC button to quit.



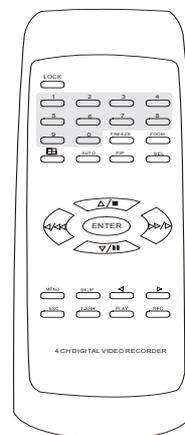
NOTICE:

When logged into USER mode, only DISPLAY SETUP and TIME-DATE SETUP is possible.

- 7) Remote controller can be direct use the number button to enter

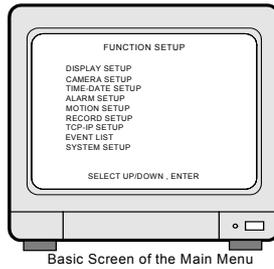
- ◆ If password entered matches previously set number, ※ADMIN GRADE LOGIN OK※ message appears.
- ◆ If password entered does not match previously set number ※CURENT PW INPUT ERROR※ message appears.
- ◆ Factory default password is as below.
The system is equipped with two passwords.

ADMIN (Administrator) : ※1§ USER : ※2§

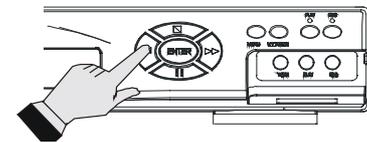
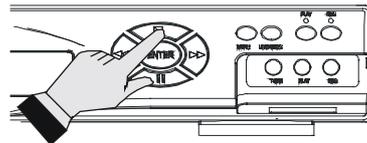
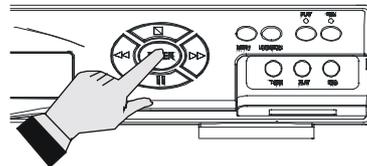
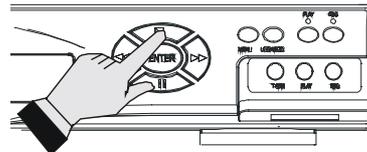


Administrator password is "1"
User password is "2"

2. Basic Operation



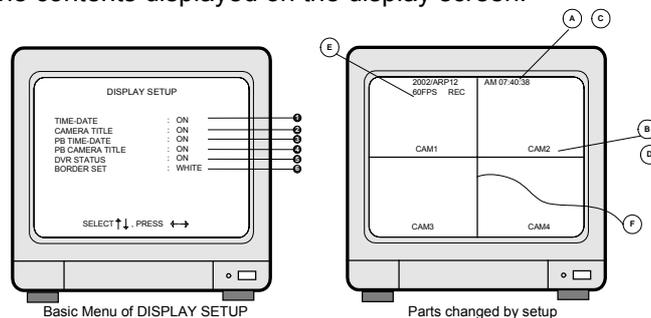
- 1) Use  button to select setup item.
- 2) Press  button to enter sub-menu of selected SETUP.
- 3) Press sub-menu item with  button, and change the value with  button.
- 4) Press ESC to go back menu or exit.



◆We recommend users to set FACTORY DEFAULT in the first operation.

1. DISPLAY SETUP

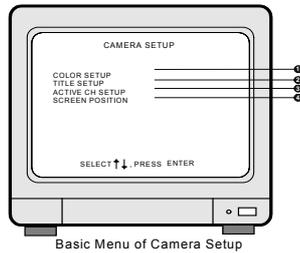
This is about the contents displayed on the display screen.



- 1 TIME/DATE : **(A)** Date and time is indicated on LIVE screen.
- 2 CAMERA TITLE : Camera TITLE **(B)** is indicated on LIVE screen.
- 3 PB TIME/DATE : On Playback screen, **(C)** Date and Time is indicated.
- 4 PB CAMERA TITLE : Camera TITLE **(D)** is indicated on the Replay SCREEN.
- 5 DVR STATUS : **(E)** indicates DVR condition, such as REC/REPLAY.

- ⑥ BORDER SET : Changes the color of the border (F)
- WHITE/ BLACK

2. CAMERA SETUP



Basic Menu of Camera Setup

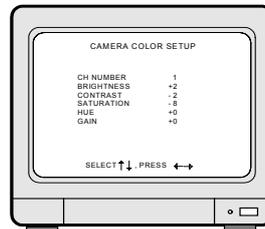


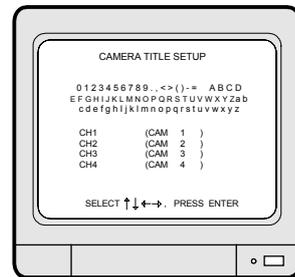
Image Setup Screen of Camera

- ① COLOR SETUP : Adjust Camera Image
- CH NUMBER : Select camera
- BRIGHTNESS : Adjust screen brightness (-31~ +32)
- CONTRAST : Adjust color contrast (-31~ +32)
- SATURATION : Adjust color saturation (-20~ +32)
- HUE : Adjust color hue (-31~ +32)
- GAIN : Adjust image signal level (-31~ +32)

Right adjustment of each element in COLOR setup will increase picture quarterly displayed. We recommend you to adjust each element of COLOR SETUP for cameras and monitor to be connected to the DVR unit.

- ② TITLE SETUP : Input TITLE of each camera. 8 characters can be input.

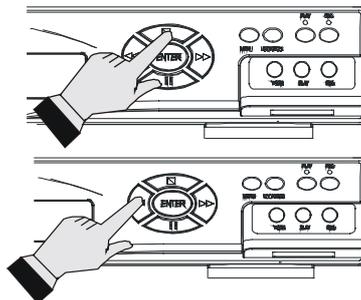
- 1) Use button to select CHANNEL and press button to entry channel content



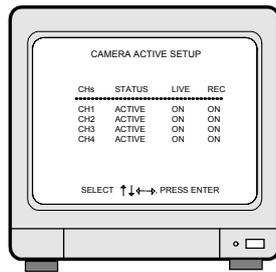
Basic Screen for Entering Camera Name

- 2) Use button to move to item to be changed and use button to change the letters.

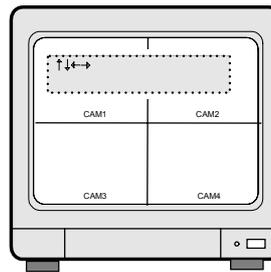
When modification is finished, press ESC button to come back to the MAIN MENU.



3 ACTIVE CH SETUP :



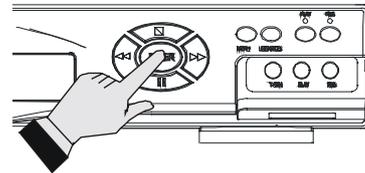
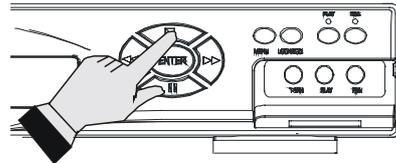
Basic Screen of ACTIVE Setup



Basic Screen of Screen Position Adjustment

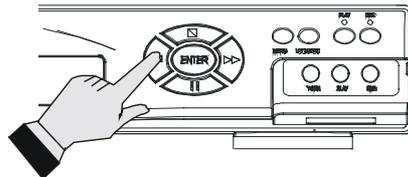
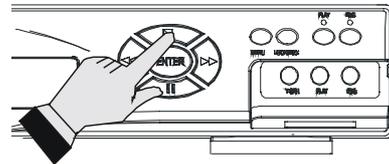
With  button, move to item to be changed, and press  button to select ON/OFF.

1. STATUS: In normal cable condition it is indicated as ACTIVE, and when the cable is disconnected or has problems, it is indicated as LOSS.
2. LIVE : Decides whether to show LIVE screen image or not.
3. REC : Decides whether to record relevant channel or not.

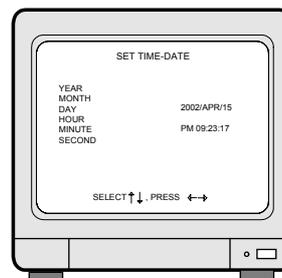
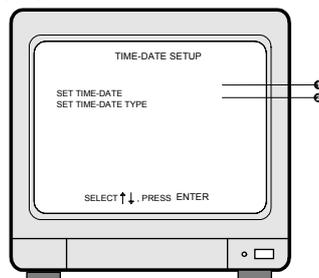


4 SCREEN POSITION SETUP

Use  button to move the full screen according to the users needs.

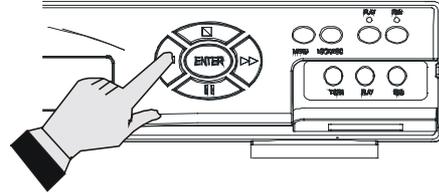
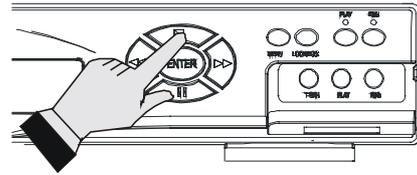


3. TIME-DATE SETUP

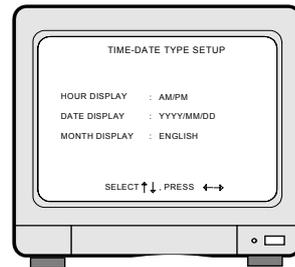


1 SET TIME-DATE : Can set year/month/day/hour/minute/second.

Use  button to assign Year/Month/Day/ Hour/Minute/Second and use  button to change the value.

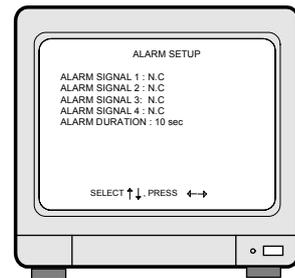


- 2** SET the notation of TIME/DATE :
1. HOUR DISPLAY : Changes to AM/PM or 24hour time indication
 2. DATE DISPLAY : Converts into YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY
 3. MONTH DISPLAY : MONTH Indication is changed to English or Numeric



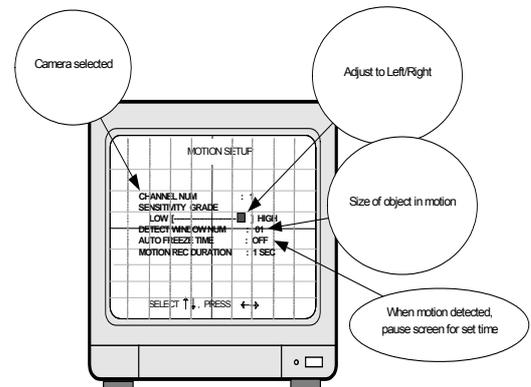
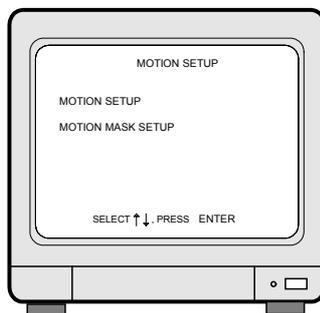
4. ALARM SETUP

- 1** ALARM SETUP : Matches the polarity of sensors externally installed.
- OFF : Not in use.
- NC : Normal Closed. When an event happens, Contact is opened.
- NO : Normal Open. When an event happens, Contact is closed.
- ALARM DURATION : Duration of recording, when an ALARM is activated. 10,20,30,40,50(sec), 1,3,5(min)



ALARM POP-UP : When an alarm is activated, display screen is switch to full screen of image from relevant channel, and a color of camera number is changed to red. If an alarm is activated from 2 channels, display screen is changed to quarterly split screen (Quad screen), and a color of camera number of relevant channel is change to red.

5. MOTION SETUP



1 MOTION SETUP :

CHANNEL NUM : Selected camera number

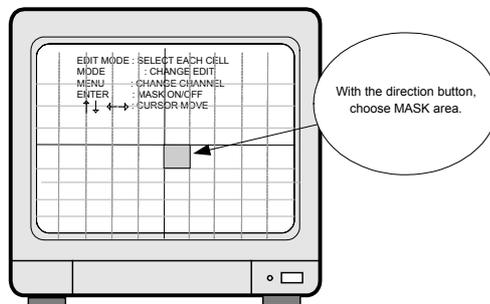
SENSITIVITY : Adjusts motion Detection Sensitivity.

DETECT WINDOW NUM : Detects moving objects bigger than DETECT WINDOW NUM. Can choose from 1 to 20. If DETECT WINDOW NUM value is 5, motion detections is activated only in case 5 cells are simultaneously detected.

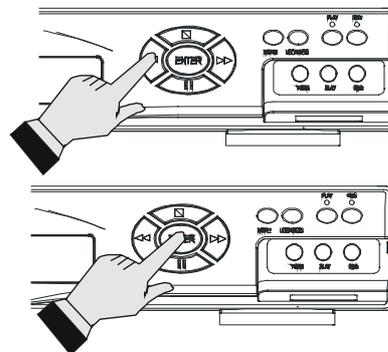
AUTO FREEZE TIME : When MOTION is detected, the screen freezes for set time automatically. Not to use this functionality, choose OFF [DEFAULT]. Setup Time : 1,2,3,5,10,15 SEC

MOTION REC DURATION : Sets duration of recording when a motion is detected. Set value from 1 sec to 3 minutes according to frequency of motion, and factory default value is 1 sec.(1,2,3,5,10,30 sec/1,3 min)

2 MOTION MASK SETUP : Set detection area.



1. Press  button to choose desired EDIT mode.
2. Use  button to assign BLOCK, and press  button to set.



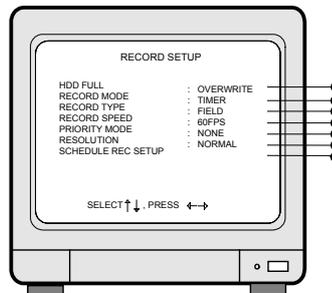
3. MASK area in green color is detection area, and the rest is no detection area.
4. Detected area is indicated in Green, and not detected area is indicated as colorless.

5. With MENU button, select channel (1,2,3,4,quad) to set for each camera.
Setup is possible only on the Full screen.

- ▶ SELECT VER LINE : Select all in a vertical line.
- ▶ CLEAR VER LINE : Clear all in a vertical line.
- ▶ SELECT HOR LINE : Select all in a horizontal line.
- ▶ CLEAR HOR LINE : Clear all in a horizontal line.
- ▶ SELECT BLOCK : Select by BLOCK.
- ▶ CLEAR BLOCK : Clear the BLOCK.
- ▶ SELECT ALL CELLS : Select all.
- ▶ CLEAR ALL CELLS : Clear all.

When  button is pressed, [START] is displayed. Then select blocks using  button. And press  button to set.

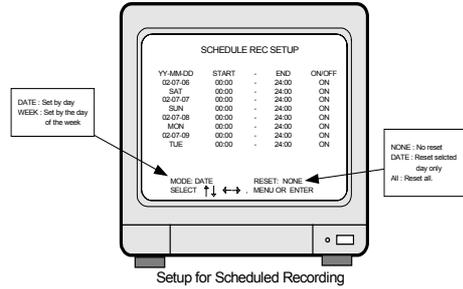
6. RECORD SETUP



- 1 HDD FULL : Select OVERWRITE or STOP RECORD. If OVERWRITE is selected, it delete previous contents on HDD to overwrite when HDD is full.
- 2 RECORD MODE
 - 1 TIMER : Records by schedule.
 - 2 TIMER+ALARM : Records by schedule and when the ALARM comes in. (POST-ALARM Functionality)
 - 3 MOTION : Records only when MOTION is detected.
 - 4 MOTION+ALARM : Records by MOTION or when the ALARM comes in.
- 3 RECORD TYPE
 - 1 FIELD : Records images from each camera in rotation
60 fields/sec at 720X240 resolution
Selected for higher resolution recording.
 - 2 QUAD :Records 4 images of 360X120 resolution from each camera simultaneously at 720X240 resolution In total 60 fields/sec.
Select for moving picture level recording. No any captions display on the screen on quad mode.
- 4 RECORD SPEED : Adjusts recording frame rate : 0.1 indicates 1 field per 10 seconds. (60/30/15/10/5/2/1/0.5/0.2/0.1 FPS)
- 5 PRIORITY MODE : Assigns recording priority of a specific channel.
 - 1 NONE : Each of 1,2,3,4 does not have priority.
 - 2 1 : Gives priority to #1 camera, and records in the sequence of 1-2-1-3-1-4-1-2....
 - 3 1,2 : Gives priority to #1 and #2 cameras, and records in the sequence of

1-2-3-1-2-4-1-2-3.

- 6 RESOLUTION : SUPER, HIGH, FINE, NORMAL, LOW
- 7 SCHEDULE REC SETUP



Schedule rec can set up date and week recording. 2 different time can be set.

2 items choose on the schedule setup.

1. MODE: choose the record mode.
DATE: the current day/time to a week recording
WEEK: every week time and date recording

Press ENTER button to change the DATE or WEEK mode, then press MENU to do time, date and schedule record on or off. Setup. Press left/right to change time position, up/down to setup value.

Every time change is 30 mins. After finish time setup, press MENU back to item function.

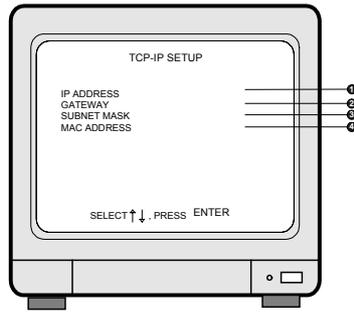
2. RESET: Reset data to factory default.
ALL: Reset all data
DATE: only reset data that user chosen.
NONE: Only on NONE item, user can setup time.

User chooses ALL, press MENU into any time item, then press ENTER. All data will back to factory default. User chooses DATE, press MENU into time item that wants to change, then press ENTER. This time item will back to factory default.

7. TCP-IP SETUP

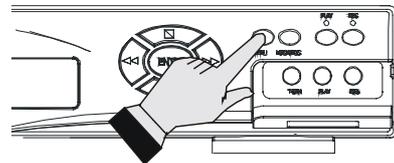
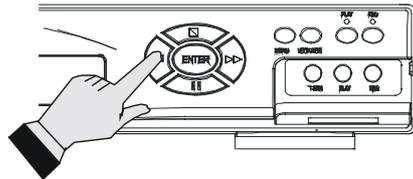
TCP-IP option of Stand-alone DVR enables user to see live pictures and recorded pictures via internet line, far apart from DVR. To see live pictures or recorded pictures of DVR, users must assign static IP address into DVR together with Gateway and Subnet mask first, and then install Remote Viewer Software in client PC.

For detail procedure for installing Remote Viewer Software, refer to Remote Viewer Software installation procedure on CD included in the package.



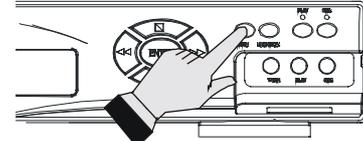
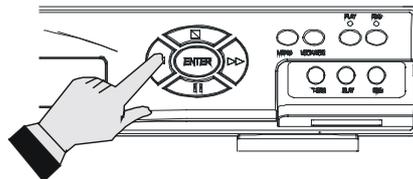
1 IP ADDRESS : Enter numbers

using  button and press 



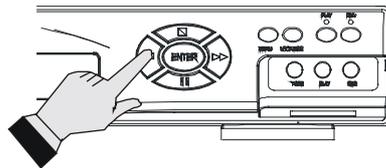
2 GATEWAY : Enter numbers

using  button and press 



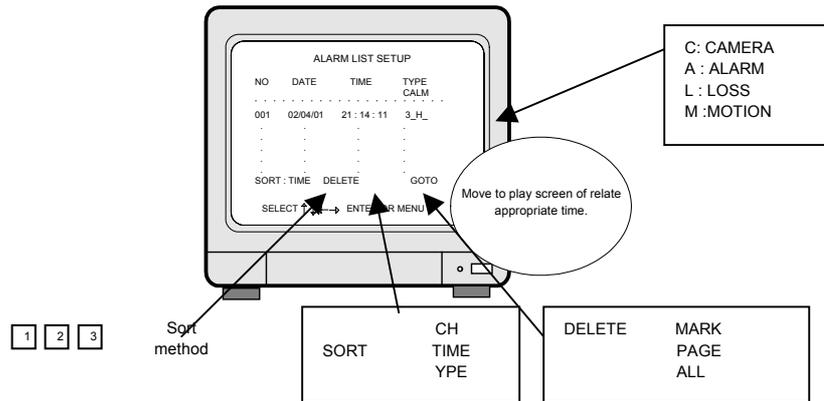
3 SUBNET MASK : Enter numbers

using  button and press 



4 MAC ADDRESS : It is unique ID number provided by the manufacturer, and the user should not change under any condition. When modified, it can collide with other systems in the Internet line and cause problem in operation.

8. EVENT LIST



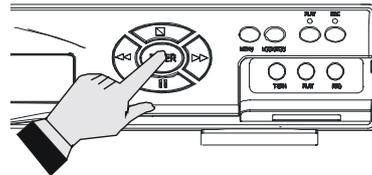
- ① **EVENT LIST SETUP** : Shows list of alarms up to 400. If total alarm exceeds 400, it overwrites from the beginning.
Alarm list is very helpful to manage DVR system.

1. With ◀▶ button, select SORT, DELETE or GO TO.

2. SORT

Press button to select submenu of SORT, that are CH, TIME and TYPE.

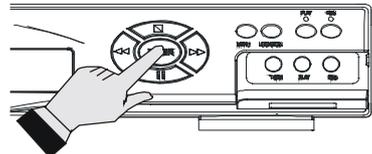
- 1) CH : Sort by CHANNEL
- 2) TIME : Sort by TIME
- 3) TYPE : Sort by TYPE



3. DELETE

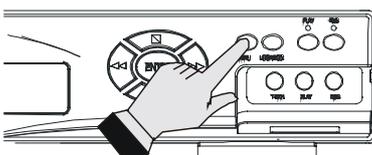
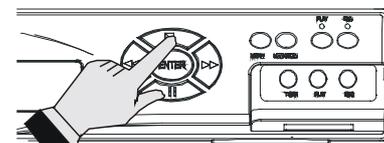
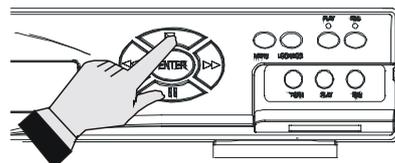
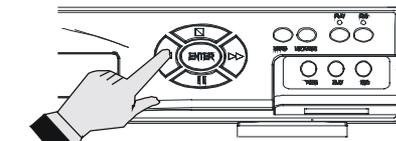
Press button when DELETE is highlighted, and select MARK, PAGE or ALL using ◀▶ button and press button.

- 1) MARK : Deletes marked item in the list.
- 2) PAGE : Deletes current PAGE.
- 3) ALL : Deletes ALL.

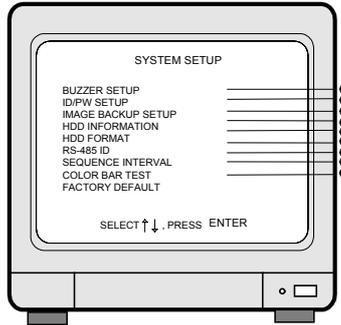


4. **GOTO** : Starts playback from the marked item in the list.

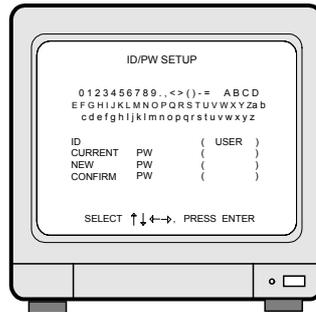
- ◆ Move to an item in the list using ◀▶ button, and press MENU button to mark.



9. SYSTEM SETUP

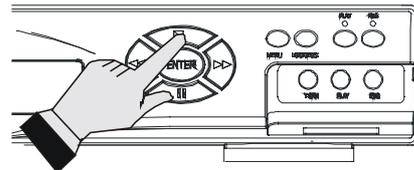


- 1 BUZZER SETUP : Sets different kinds of BUZZER ON/OFF.
 1. SYSTEM BUZZER: ON/OFF. Change all buzzers to on or off.
 2. BUTTON BUZZER: ON/OFF. Change panel button buzzer to on or off.
 3. ALARM BUZZER: ON/OFF. Change alarm buzzer to on or off.
 4. MOTION BUZZER: ON/OFF. Change motion detect buzzer to on or off.
 5. LOSS BUZZER: ON/OFF. Change video loss buzzer to on or off.
- 2 ID/PW SETUP : Sets Admin/User ID and PASSWORD. 8 characters can be input.

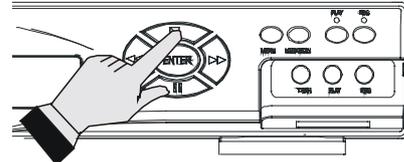
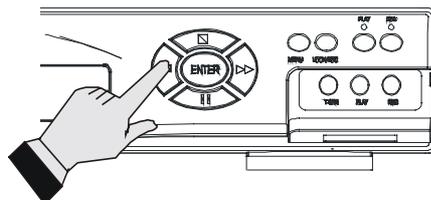
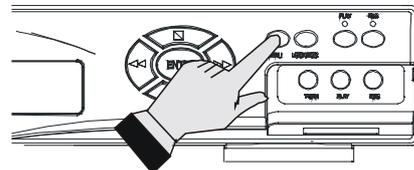


ID/PW SETUP

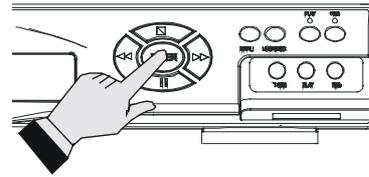
- 1) With  button, select item to be changed, and press  button to edit.



- 2) With  button, move to wanted location and use  button to make Selection.



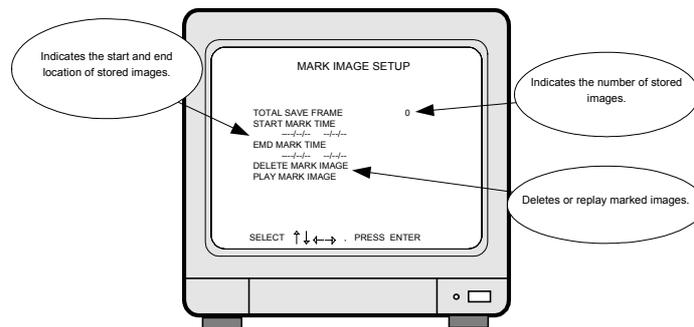
- 3) Press  button after every SETUP and to be ready for next SETUP item.



- 4) After entering current password, Enter new password and enter new password once more to verify.

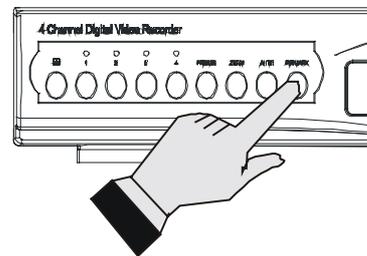
Notice : In the very first setup stage, the ADMIN PASSWORD is ※1§, and USER PASSWORD is ※2§. Change PASSWORD as soon as this product is purchased.

3 IMAGE BACK SETUP (Internal backup):

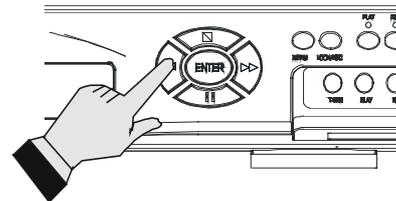


MARK IMAGE is very useful function, because it protects marked images from being overwritten. During playback, you can mark images to store them on HDD even after HDD starts to overwrite.

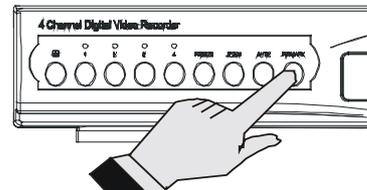
- 1) While replaying, press MARK button to select images.



- 2) At paused mode, press  button to select frames you want to mark as many as wanted.



- 3) Press MARK button once more to complete MARK IMAGE SETUP for images you selected.



- 4) Therefore all images in between MARK button remain not deleted unless you delete marked image on purpose.
- 5) If the MARK IMAGE space given in the HDD gets to be full, ※FULL§ message appears and MARK button does not work any more.
(HDD space for MARK IMAGE : stores about 10 minutes in normal picture taking-condition.)
- 6) To replay marked image, select PLAY MARK IMAGE, and to delete select DELETE MARK IMAGE.

NOTICE : Marked images stored on specific part of HDD, allocated for MARK IMAGE, is not deleted when ※HDD CLEAR§ is activated. It can be erased only by DELETE MARK IMAGE.

- ④ HDD INFORMATION:
 - ① HDD DATA LIST : Shows general information of HDD.
 - ② HDD AUTO DETECT : Allows to detect HDD just in case first HDD search after purchase failed.
- ⑤ HDD FORMAT: NO/YES/EMPTY
- ⑥ RS-485-ID :01~16. This item is setting up for machine ID.
- ⑦ SEQUENCE INTERNAL: 01~99 sec
- ⑧ COLOR BAR TEST: Color bar chart is generated. Used for adjusting the monitor
- ⑨ FACTORY DEFAULT: To reset system values.

7. HDD BAY

1. HDD EXTENSION

Default HDD included in DVR unit.

- 1) 1,2,3,or4 HDD as per customer requirement.
- 2) EIDE, 3.5 inch, 7200 rpm.
- 3) HDD capacity up to 160GB/unit.
Compatibility with up to 160GB confirmed.

2. HDD BAY

HDD Bay (Tera-Tray)

In case 2 HDDs installed in a DVR unit is not sufficient and needs to increase storage capacity, connect HDD Bay to DVR unit.

- 1) Configuration of Bay connection to DVR unit.

Example:



DVR unit(x2 hard disk inside) and HDD Bay(x4 hard disk inside), total is 6 HDDs.

- 2) Very economical way to expand storage capacity

If each of 12 HDD is 120GB in capacity, total HDD capacity connected to a unit of DVR is 1440GB.

We can add huge capacity of HDD storage to a unit of DVR just at the price level of normal EIDE HDD.

8. Specification and configuration

1. SPECIFICATIONS

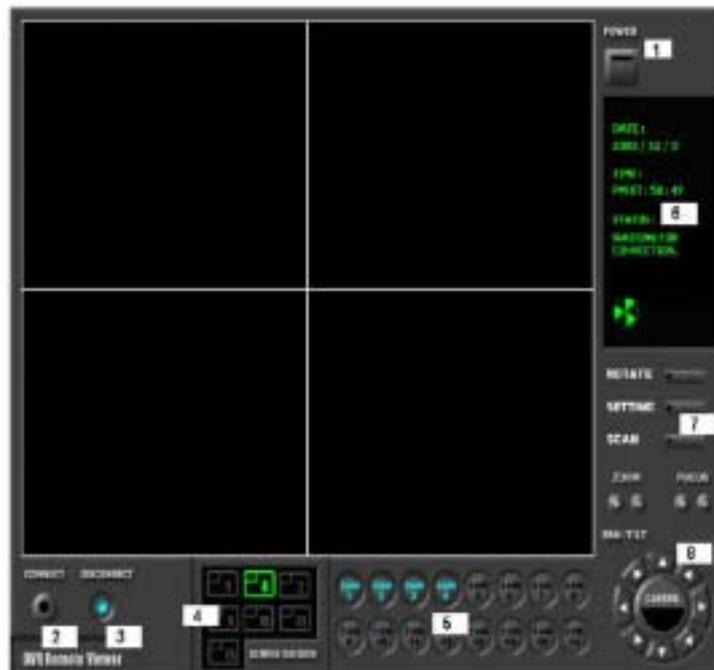
Input	BNC x 4(VIDEO IN), BNC/S-VIDEO x 1 (MONITOR)
Output	BNC x 4(VIDEO OUT), BNC/S-VIDEO x 1 (MONITOR)
Horizontal Resolution	480TV Lines
S/N Ratio	More than 40dB
Color	16.7 Million
Split Screen	1,4
Zoom	Live & PB Available, x 2 zoom
PIP	Available
Sequence	Available
Screen Quality	Full: 720(H)x 480(V) Active Pixels(NTSC); 720(H) x 576(V) Active Pixel (PAL) 1/4 Screen: 360(H) x 240(V) Active Pixels(NTSC); 360(H) x 288(V) Active Pixels(PAL)
Recording (Max) NTSC	0.1~60 Fields/Sec. (720 x240)
Material	HDD
Compressed Picture	JPEG
Picture Recording Method	Quad Screen Recording Field Switcher Method Full Screen Recording
REC. Mode	Real-Time / Time-Lapse / Event
Track Play	Search, Still
Simplex/ Duplex	Simplex
Motion Detect	Area division: 16 x12, on/off sector selectable sensitivity adjustment in 10 steps
WEB Interface	TCP/IP with client software
Post Alarm Function	1~59 seconds selectable. Continuous Timing establishment Possibility
Back-Up	Remote Back-Up Using TCP/IP Internal Back-Up (Mark Image)
Alarm	Max 4 Alarm Input / 1 output
RS485	For Remote Controller (HS-CK101)
Storage	Internal 1 Or 2 HDD Optional HDD Bay Support 4 HDD / 1 Unit, Max. 5 Units
Operation Temperature	41F~104F (5C~+40C)
Operation Humidity	Less than 90%
IR Remote Controller	Build-In
Dimension	19" Rack Size 1U, 44 x 434 x 360mm
Weight	Approx. 5KG (HDD 1EA)
Power Supply	DC Adapter (12V DC 5A)

9. Manual for Remote Viewer Software (TCP/IP) Client PC

General description : TCP/IP option of DVR and enables users to view live pictures, search recorded pictures, far apart from the DVR unit, and users can store selected recorded pictures on HDD of client PC. DVR does not adopted web browser method for access to DVR unit via Internet line, and you must install Remote Viewer software included in the package on client PC before you try to access to DVR unit over IP network.

1. Live view via IP network

Click Remote Viewer icon to view live picture via IP network. You will see then following window.



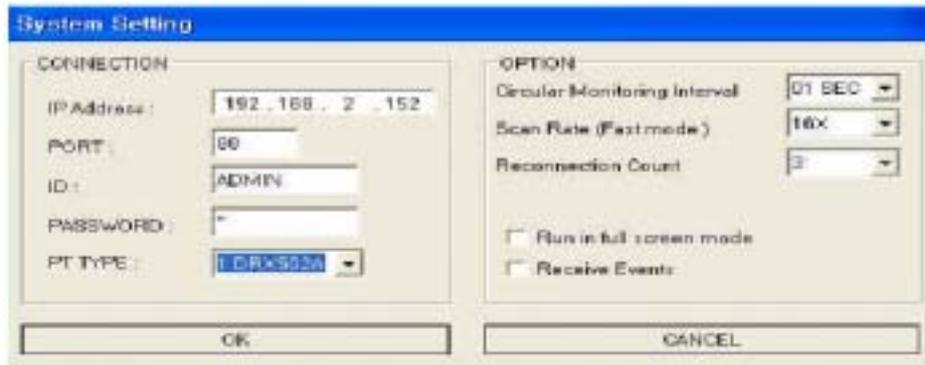
Function of each button in live-view window :

- 1 Power switch. Press power switch to quit. Before press power switch button, press disconnect button first.
- 2 Connect button. Press connect to connect to DVR unit via IP network to see live pictures of DVR unit. You will see the same live pictures, which are displayed on monitor of DVR unit with a certain time delay depending on transfer rate of IP network.
- 3 Disconnect button. Press disconnect button to cut connection to DVR unit via IP network.
- 4 Screen division button. You can select to see pictures of any single channel or 4 channels at the same time. You can select channel number from 1 to 4 to see pictures of selected channel. If you selected 4, you will see channel number from 1 to 4 are all activated. channel.
- 5 Channel number button. You can select channel number to see live pictures from selected channel.

6] **Status window.** It shows Date and Time. Further it displays “connection established” and a circular fan on the left bottom is rotating when connection button is activated, or “Waiting for connection” when disconnection button is activated.

7] **Set button.** 3 different set buttons

a) **Setting :** It is in the middle of 3 buttons. Press this button to input IP Address and others and to set circular monitoring interval and scan rate, as following dialog box.



- Input IP Address you already input into DVR unit(TCP/IP SETUP) in **IP ADDRESS**.
- Input Port number you already input into DVR unit in **PORT**. Just input 80, which is default port number.
- Input “ADMIN” in **ID**.
- Input the same password you set into DVR unit in **PASSWORD**.
Default password of DVR unit is “1”.
- ID and PASSWORD are not supported at this time, users do not have to care about it.**
- PT TYPE: This function is not available.
- Select **circular monitoring interval** ranging from 0.1 sec to 10 sec. The smaller it is, the faster picture of each channel rotates. The absolute circulation interval is a little different from set value depending on data transfer rate of IP network.
- Select **scan rate** ranging from 1x to 64x. The larger it is, the faster search speed is. The absolute search speed is a little different from set value depending on data transfer rate of IP network.

b) **Scan. :** Press scan button to enter into search window. Using various operation buttons, you can search recorded pictures, save selected pictures on client PC, or print pictures. Refer to following paragraph “3. Search recorded pictures over IP network” for details.

c) **Rotate :** Press rotate button to see live pictures from channel 1 to 4 in rotation. Screen division must be set at 1 to see live pictures one after another in rotation. Speed of rotation shall be as per settings of circular monitoring interval.

- ◆ Run in full screen mode: Full screen monitor display.
- ◆ Receive events: When alarm and motion and video loss, the DVR status will display.

8] **PTZ control.** This function is not available.

Speed of playback in DVR unit according to scan rate set in 3-7-a).

Scan rate set in 3-7-a)	◀ or ▶	◀◀ or ▶▶
1x	1x	1x
2x	1x	2x
4x	1x	4x
8x	1x	8x
16x	1x	16x
32x	1x	30x
64x	1x	60x

9 : Command button. We have 3 different buttons, that are, save, print, and event.

a) Save

During searching recorded pictures, you can save pictures one by one in the folder in client PC by pressing save button. Before press save button, press yellow stop button first. The system will ask you to assign file name and folder to save.

b) Print

During searching recorded pictures, you can print picture, one by one, you see. Press yellow stop button before you press print button.

c) Event

Press event button to see alarm list saved in DVR unit, and you can search recorded pictures based on event list by clicking any one of list.

10 : Calendar. You can select date and time to search pictures recorded at selected time and date. You can refer to start and end of recording in 7.

Notice : We recommend you to click operation buttons one after the other with enough time interval to give long enough time for DVR unit to execute commands from client PC. Too short time interval between two clicks may cause system hang-up in client PC.

Notice : From time to time, connection shall be cut unexpectedly due to conditions of network line. Whenever it is cut, quit search window by pressing power switch(1), and then press connect button in live-view window and scan button to enter into search window again, to continue searching.

Notice : Compatibility of Remote Viewer Software with different kinds of operating systems and PC hardware may not be simply specified due to the characteristics of network that it is much related with not only PC hardware and operating system but also other software installed on the client PC and conditions of network(internet) line. Basically, DVR' Remote Viewer Software is compatible with typical Windows operating system from Windows 98 to Windows XP.

Notice : To see continuous live view, we recommend not to select motion recording in RECORD SETUP menu of DVR. If it is set at motion recording in SETUP menu of DVR, image transmission is done only there is motions detected.

Notice : While you search recorded data using client software in client PC, DVR unit to which you access via IP network is in playback mode, and no recording is done as far as you search recorded data. However, while you are in connection with DVR unit via IP network for live view, DVR unit continues to record but at a little low recording rate.

Notice : At this DVR unit networking display, only one user can view the image through Internet.

10. Configuration Chart

1. Hardware Status

Site Name		Technician	
DVR Serial#		Installation Date	
Hard Disk Serial#			
Password			
Item	Verify	Date	Comments/Status
1.Power Core			
2.Remote Controller			
3.Hard Disk			
4.LED Indicators			
Power			
HDD			
5.RS232			
6.Alarm			
7.Video Input			
CAM 1/ LOOPING			
CAM 2/ LOOPING			
CAM 3/ LOOPING			
CAM 4/ LOOPING			
8.LAN			
9.MONITOR OUT			
10.POWER BUTTON			
11.External Interface			

2.System Configuration

Site Name		Hard Disk Model	
Model Name		Hard Disk Number	
DVR Serial#		Hard Disk Serial#	
Password		Technician	

Configuration Check List

ITEM	Setting 1	Setting 2	Setting 3	Setting 4
Date				
1.Display Setup				
Time/Date				
Camera Title				
PB Time/Date				
PB Camera Tile				
DVR Status				
Border Set				
Interval				
2.Camera Setup				
Color Setup				
Title Setup				
Active CH Setup				
Screen Position				
Setup				
Color Bar Test				
3.Time/Date Setup				
Set Time/Date				
Set Time/Date Type				
4.Alarm/Motion Setup				
Alarm Setup				
Alarm List Setup				
Motion Setup				
Motion Mask Setup				
5.Record Setup				
HDD Clear				
HDD Full				
Record Mode				
Record Type				
Record Speed				

Priority Mode				
6.TCP/IP Setup				
IP Address				
Gateway				
Subnet Mask				
MAC Address				
7.Miscellaneous Setup				
Buzzer Setup				
ID/PW Setup				
Schedule REC Setup				
Pantilt CMD Setup				
HDD Information				
Mask Image Setup				
Product ID				
8.Factory Default				