H.264 Digital Video Recorder

Stand-alone DVR

- 4 / 8 / 16 Channel Models

User's Manual

Ver 1.400

Guarantees higher stability and reliability with hardware codec.

INSTALLATION & SAFEGUARDS

All the safety and operating instructions should be read before operation.

Environment Condition for Installation

1. To prevent electric shock or other hazard, do not expose this unit to rain, moisture, or dust.
2. Place this unit in a well-ventilated place and do not place heat-generating objects on this unit.
3. This unit should not be located in an area where it is likely to be subjected to mechanical shocks.

Before You Start

1. Ensure the power switch is in the OFF position prior to installation.
2. Opening or removing the cover may expose you to dangerous voltage or other hazards.
3. Operate this unit within the range of room temperature and humidity.
4. Supply power through the type of power source indicated on the manufacturer's label and with the power supply included in this unit.
5. Keep this unit out of direct sunlight and heat .
6. Make sure conductive material does not go into the fan hole.

Notice

1. Before initial configuration or operation, first set TIME/DATE, and then set this unit to the FACTORY DEFAULT setting, and lastly HDD clear. Follow these steps in order. Otherwise it may cause non-recording on the HDD or non saving setting value. Or it may record, but you will not be able to search recorded data.
2. This unit is compatible with large sized HDD.
3. When setting RECORDING SETUP after installation, set not only RECORD CONFIGURATION, but also SCHEDULE SETUP. Setting Schedule setup is necessary as this unit records according to Record type & Schedule setup. Default setting value for Schedule setup is Continuous mode.
4. Stop recording before powering off this unit by entering setup menu. Powering off while recording may cause critical malfunctions such as Recording Error, Playback Error, or System Error.

FCC Information

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operated the equipment under FCC rules.

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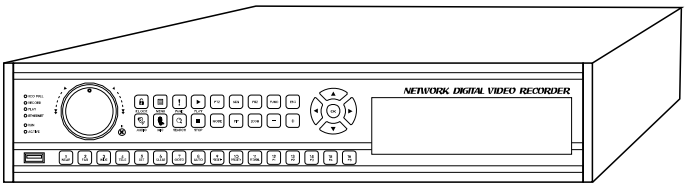
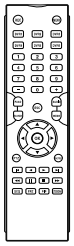
1. General Information

1-1. Package Contents & Description

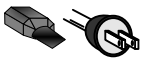
1. DVR Main Unit



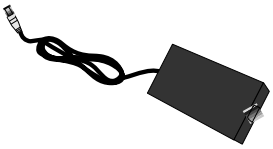
2. Remote Control



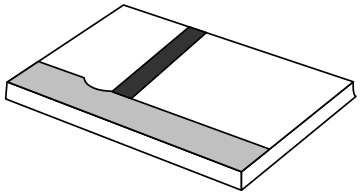
3. Power Cable



4. Power Adapter

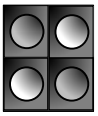


5. User's Manual

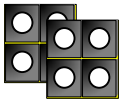


6. Software CD

7. Rubber Pad

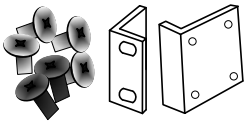


8. HDD Absorber



8. Batteries

9. Rack Mount Bracket HDD Bolts

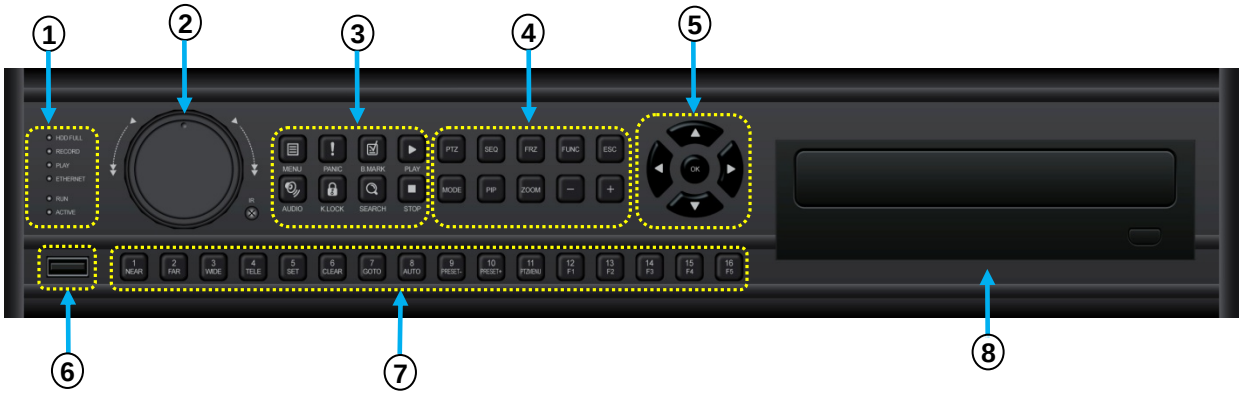


10. Mouse

Contents	Description
1. DVR Main Unit	Stand-Alone DIGITAL VIDEO RECORDER
2. Remote Control	Remote Control
3. Power Cable	AC power supply to adapter
4. Power Adapter	DC power supply
5. User's Manual	User's Manual
6. Software CD	Remote Viewer SOFTWARE
7. Rubber Pad	Prevent DVR from slipping by attaching on the bottom of the unit
8. HDD Absorber	Absorbing the mechanical shock of HDD against the case bottom
9. Batteries	Batteries for Remote Control
10. Rack Mount Bracket / Bolts	Rack Mount Bracket / 6 Bolts for fixing Rack Mount Bracket to DVR / 4 Bolts for fixing DVR with Rack Mount Bracket to 19" Rack / 8 Bolts for fixing HDD into DVR
11. Mouse	DVR function control

2. Function of Buttons

2-1. Front

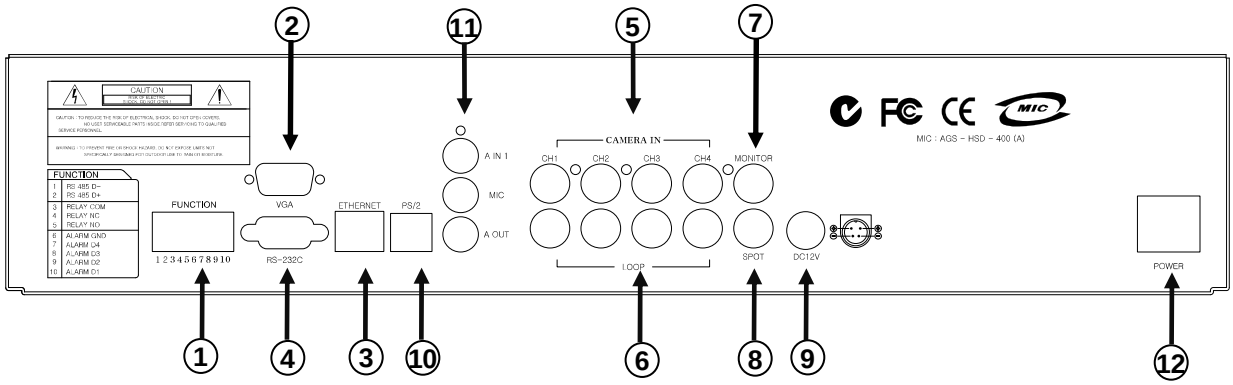


Name	Function	
1.LED Lamps	Status of operation	
2.Jog Shuttle	Jog shuttle activate only when in Pause: Pressing Jog Shuttle button will pause playback. Rotating clockwise causes it to move into ever-faster forward speed, and counter-clockwise causes it to move into ever-faster reverse speed. In Setup Menu, its rotation Increases or Decreases value.	
3.Function Key	MENU	Enter SYSTEM MENU
	PANIC	Panic recording at continuous mode at highest quality (120ips, Highest, 1/1x)
	BOOKMARK	Check the bookmark while playback for bookmark search.
	PLAY	Playback recorded data on HDD
	AUDIO	Select audio channel. Turn volume up/down
	K.LOCK	Locking the key. To unlock, keep pressing the button for a few seconds and input password (Same password for Setup Menu)
	SEARCH	Search recorded data on HDD
	STOP	Stop Playback.
4.LIVE View Control Key	PTZ	Shift LIVE mode to PTZ control mode
	MODE	Switch screen division from full screen to 16 split screen (in 1, 4, 9, 13, 16 sequence)
	SEQ	Auto camera image sequence in full screen mode
	PIP	Picture In Picture mode
	FRZ	Freeze Live display
	ZOOM	Zoom image

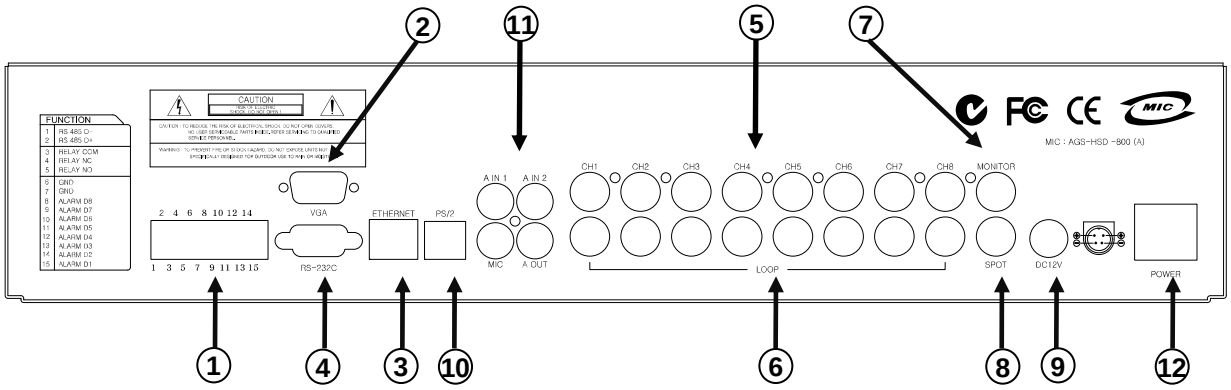
Name	Function	
4-1.Control Key	FUNC	Main menu panel On/Off
	ESC	Cancel selected menu panel
	+	Increase setting value, page shift
	-	Decrease setting value, page shift
5.Arrow key	Navigate in the menu	
6. USB Device	For Firmware upgrade and USB backup	
7.Camera Selection / PTZ Control	1~16 Button : Select camera channel in full screen mode	
	NEAR : FOCUS NEAR	PRESET + : Increase PRESET NO.
	FAR : FOCUS FAR	PRESET - : Decrease PRESET NO.
	WIDE : ZOOM IN	PTZMENU : PTZ MENU POPUP
	TELE : ZOOM OUT	F1 : USER 1
	SET : PRESET SET	F2 : USER 2
	CLEAR : PRESET CLEAR	F3 : USER 3
	GOTO : PRESET GOTO	F4 : USER 4
	AUTO : AUTO SCAN	F5 : USER 5
8.CD/DVD-ROM	For Firmware upgrade and CD/DVD backup	

2-2. Rear

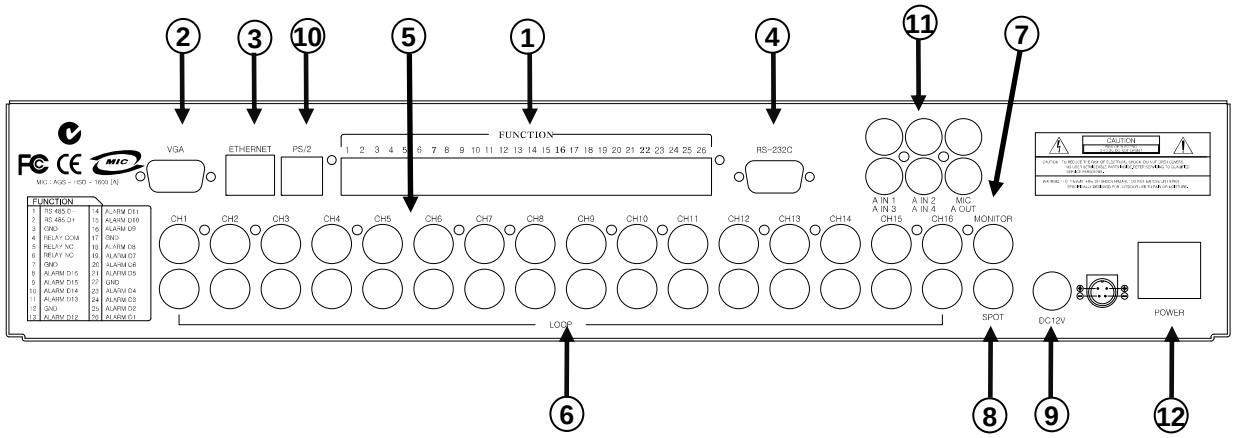
[Rear Panel for 4ch DVR]



[Rear Panel for 8ch DVR]



[Rear Panel for 16ch DVR]

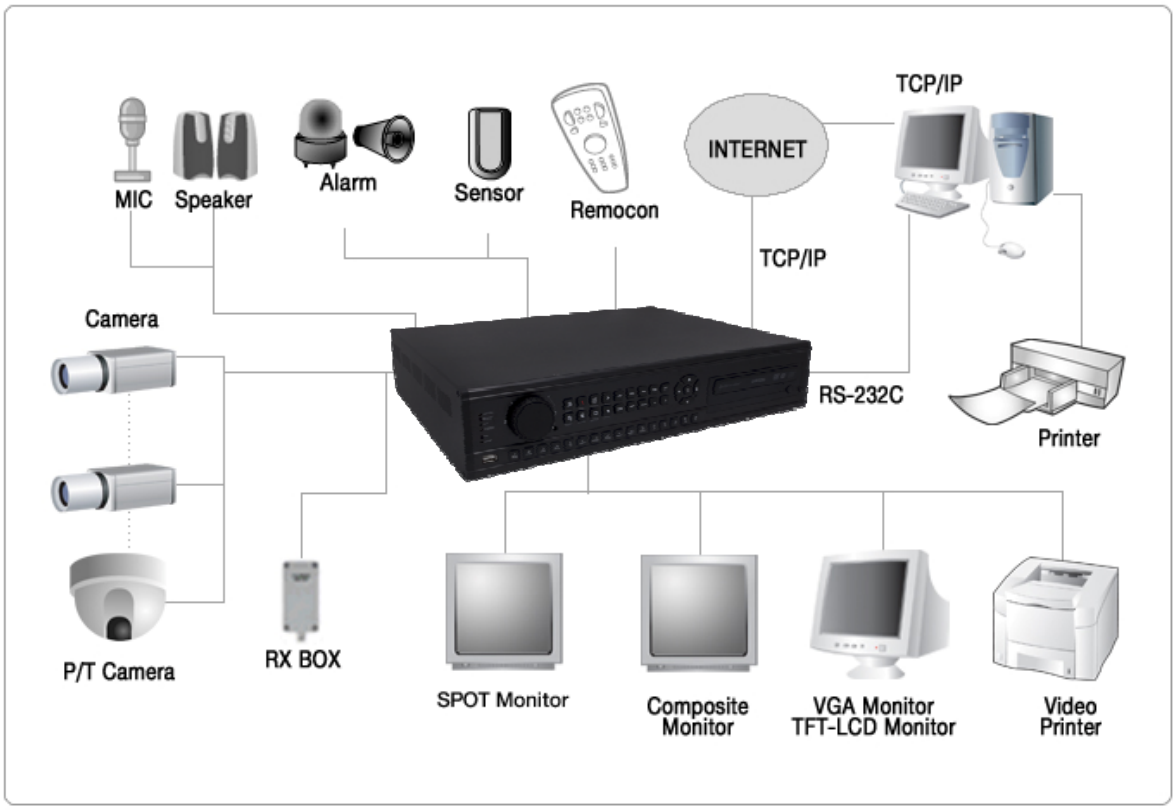


	Name	Function
1	RS 485	Connection with PTZ Camera or other external devices using RS 485
	RELAY Output	Relay Output terminal
	SENSOR Input	Sensor Input terminal
2	VGA	VGA Output to CRT or TFT LCD Monitors
3	ETHERNET	Connection to Ethernet devices
4	RS-232C	Connection to external devices such as PC using RS-232C to control DVR
5	Camera Input	Connection with NTSC/PAL Cameras
6	Loop Out	Camera Loop out
7	Monitor Output	Connection with NTSC/PAL Composite Monitor
8	SPOT Output	Connection from Analog backup output to external devices
9	DC Power	DC 12V 6.67A Adaptor
10	PS2 Mouse	Connection to PS2 Mouse
11	Audio	Microphone input and Audio output
12	POWER SWITCH	Power ON/OFF Switch To avoid accidental deletion of HDD data, please make sure to press MENU button and enter into setup menu before powering off the unit. This takes the unit out of recording mode for safe shutdown.

NOTE : You can not mix PAL and NTSC equipment. For example, you cannot use a PAL camera and NTSC monitor.

3. Installation

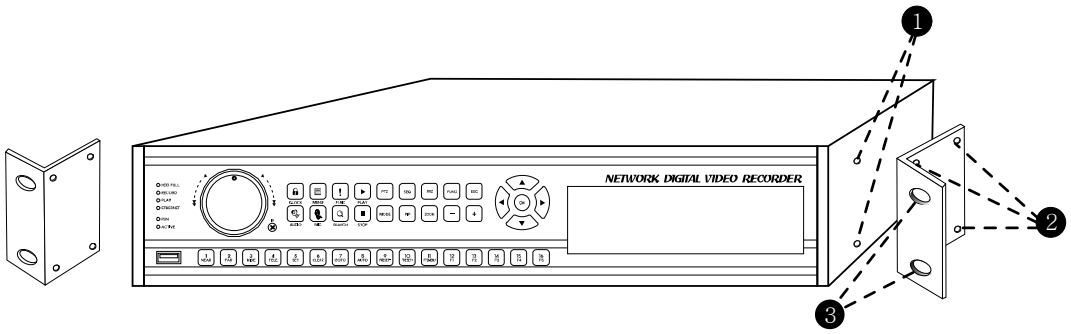
3-1. Configuration



[Typical Digital Video Recorder Installation]

3-2. Detailed Configuration

1) Rack mount



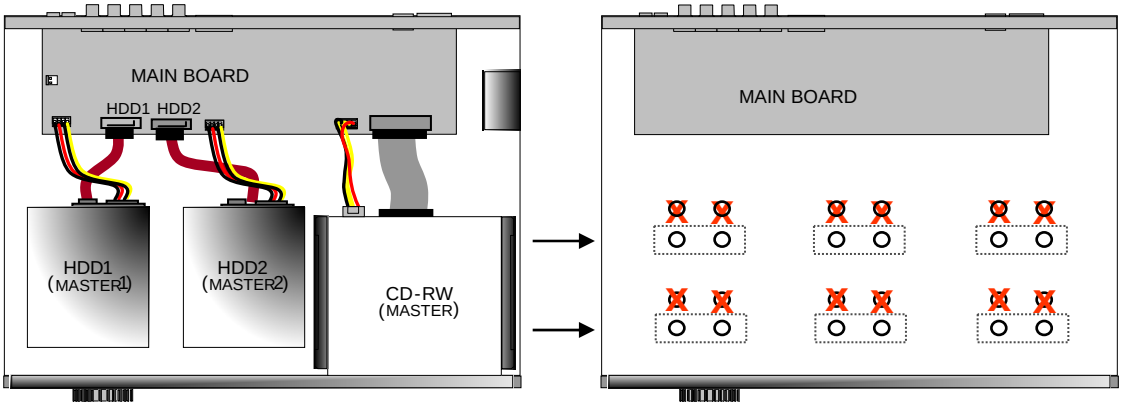
1. Remove all 4 bolts on side caps.
2. Attach Rack mount bracket to DVR.
3. Attach DVR with rack mount bracket to 19” Rack.

2) HDD (Hard Disk Drive) Connection

1. Connect Main Board and HDD1 using IDE cable and HDD power cable.
2. When you use just 1 HDD, install the HDD onto HDD1 location.
3. When you use 2 HDDs, install the first HDD onto HDD1 location and then install the second HDD onto HDD2 location in order.
4. Stick the HDD absorber (included in package) on the bottom of case and then install the HDD on top of them by using the bolts (included in package).
5. Screws must be inserted from outside of the case bottom.

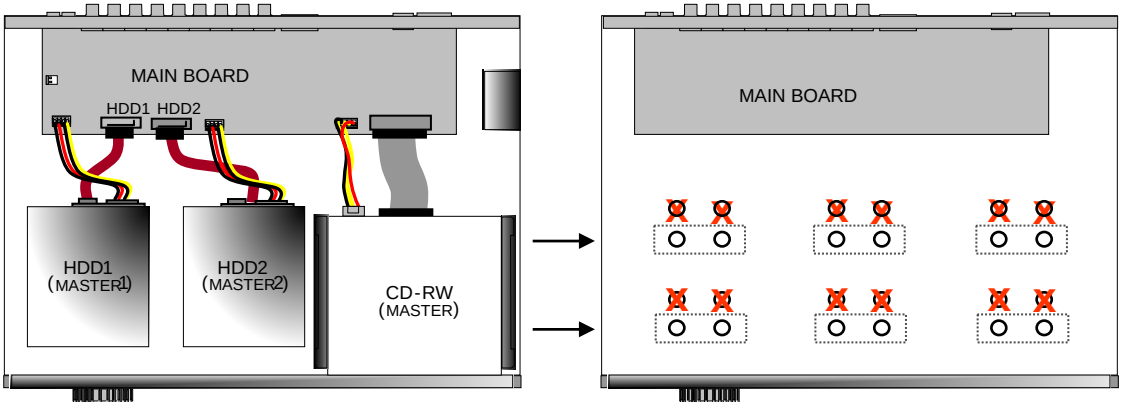
[4ch]

HDD Cable Connection **HDD Fix**



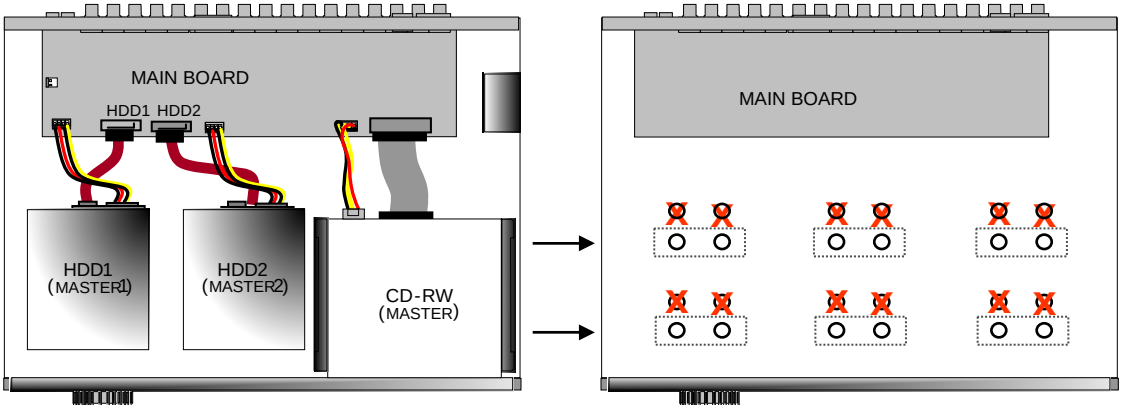
[8ch]

HDD Cable Connection **HDD Fix**

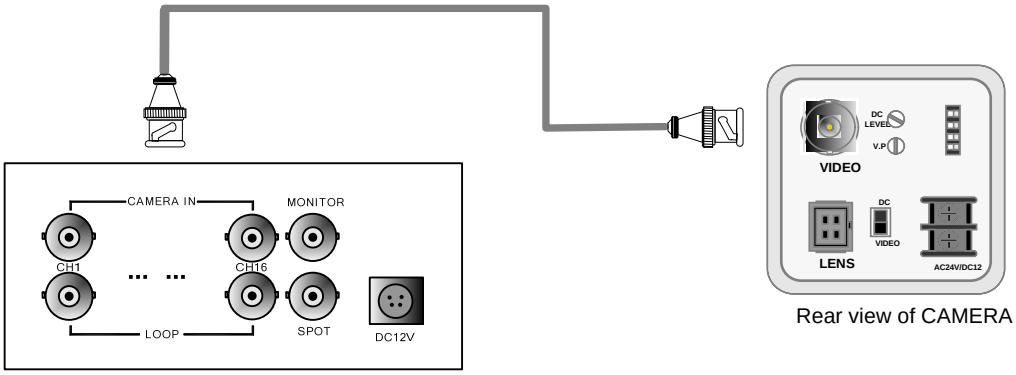


[16ch]

HDD Cable Connection **HDD Fix**



3) Camera



Rear view of CAMERA

Connect cameras to the camera input on rear panel of DVR marked CAMERA IN.

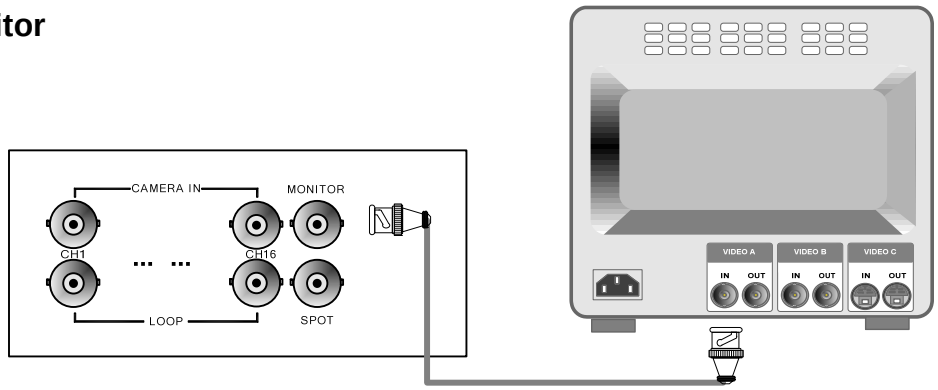
4) Audio

- Audio Input
  1. 4ch Audio Input is available for MSD-1600, 2ch for MSD-800, 1ch for MSD-400.
  2. Connect Audio Input as needed for camera channels.
  3. Audio channel 1 is assigned for camera channel 1~4, audio channel 2 for camera channel 5~8, audio channel 3 for camera channel 9~12 and audio channel 4 for camera channel 13~16.
  4. Audio input should be connected according to assigned camera channels for audio recording.

- Microphone Input
  1. 1 Microphone Input is available. It does not record microphone input..
  2. Microphone is to support TWO-WAY Audio, for communication with remote user.

- Audio Output
  1. 1ch Audio Output is available.
  2. Selected Audio channel at DVR will be output.

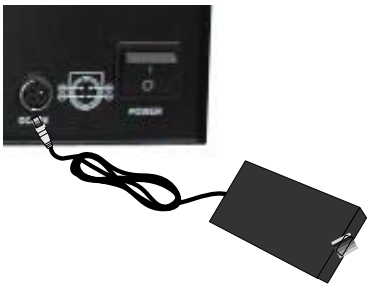
5) Monitor



Connect the video output marked MONITOR to VIDEO-IN of Main Monitor.

6) Power Cable

Connect DC 12V, 6.67A Adaptor to the back side of Power Jack for right operation of 2HDDs and CD Recorder.

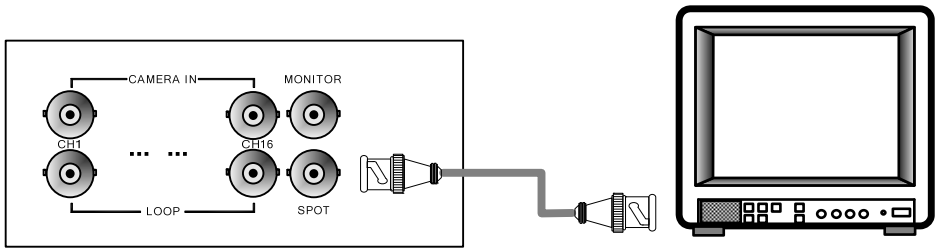


Before turning on, be sure all necessary devices such as Power adaptor, cameras and Monitor are connected properly to DVR!

Notice

To avoid accidental deletion of HDD data, please make sure to press MENU button before powering off the unit. This takes the unit out of recording mode for safe shutdown.

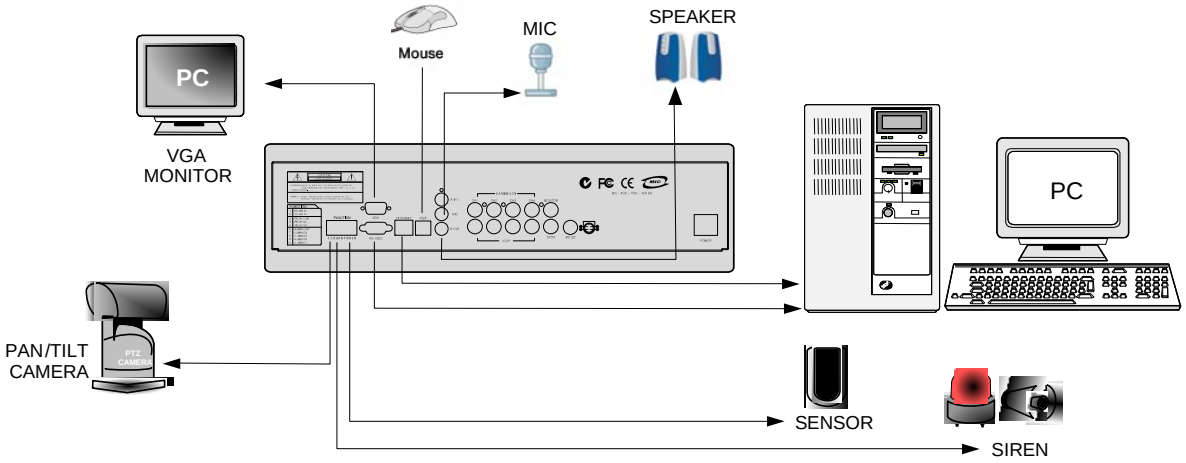
7) SPOT



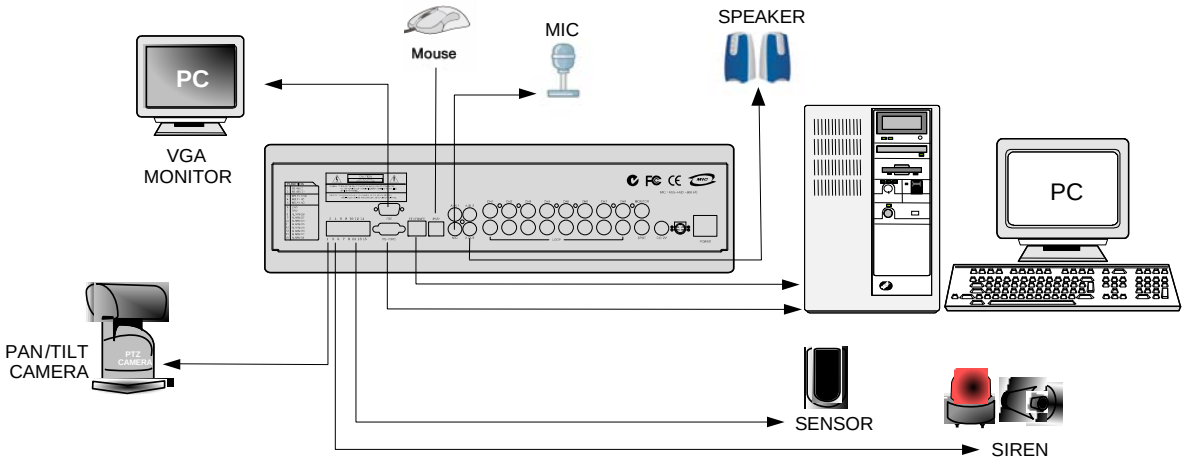
Connection with the spot monitor as needed.

8) Others

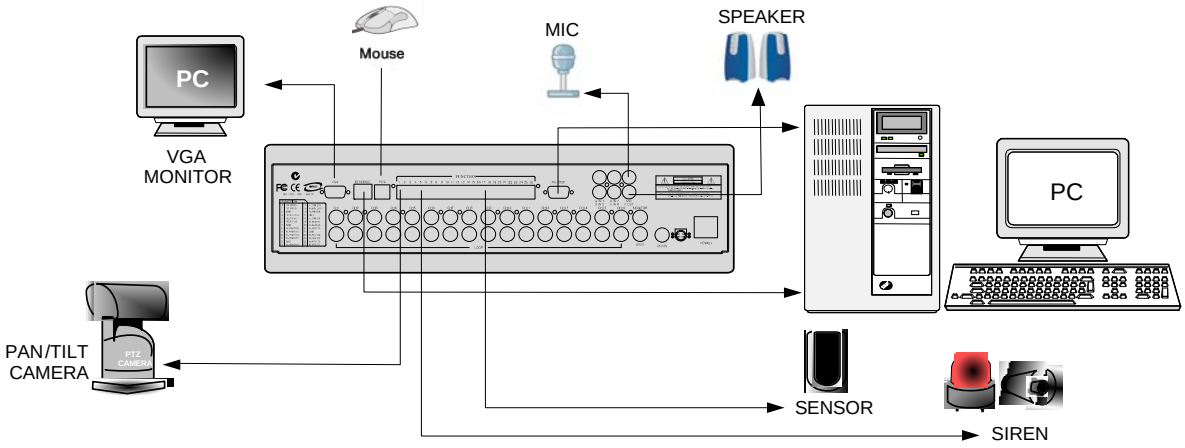
[4CH]



[8CH]



[16CH]



RS-232C : Control DVR through RS-232C port by using PC.

RS-485 : Control external device such as PTZ Cameras.
(Pin No.1 ~ 2 at Terminal Block).

RELAY Output : (Pin No.4 ~6 at Terminal Block).

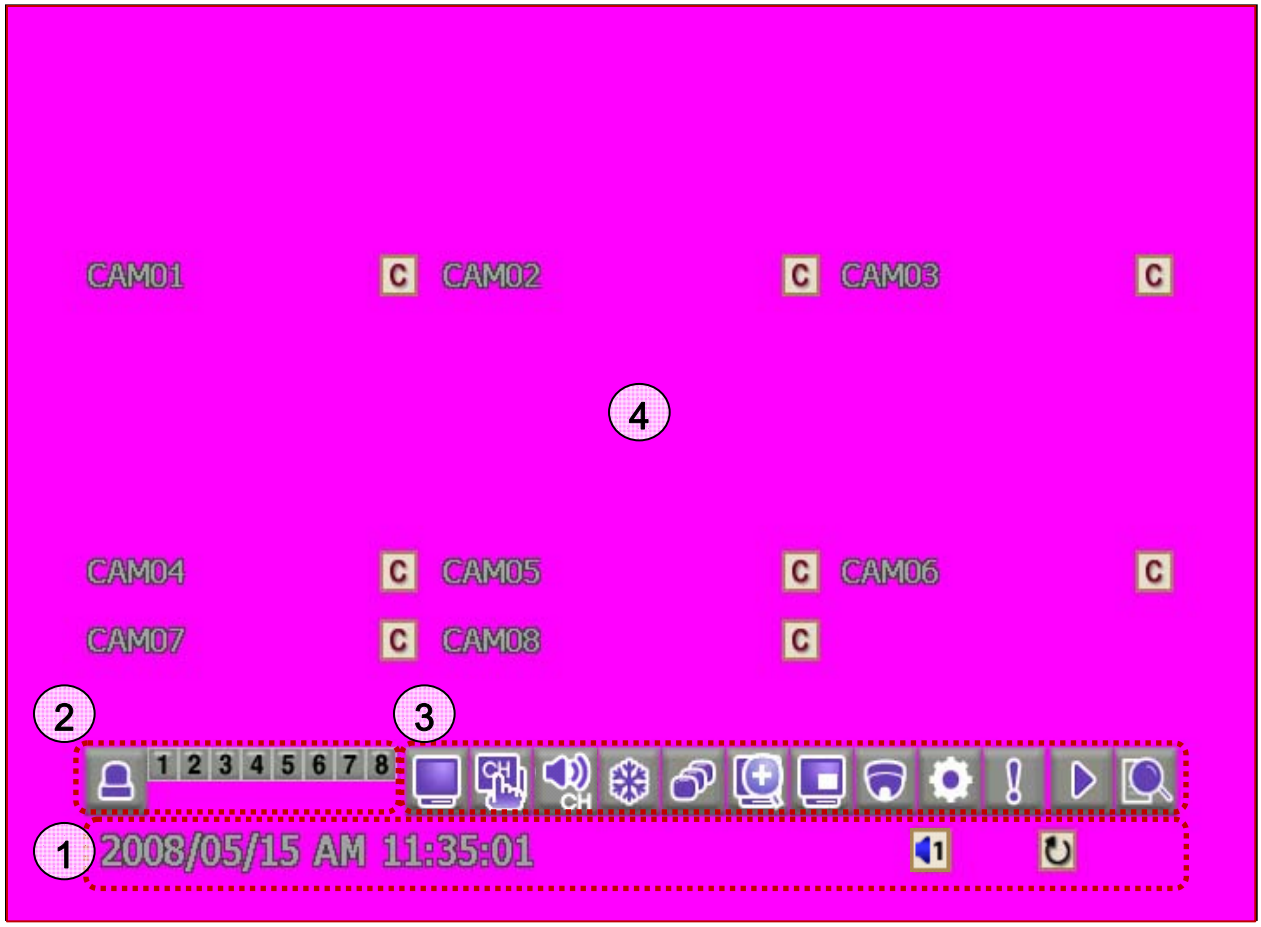
SENSOR Input : (Pin No.8 ~ 11 / No.13 ~ 16 **/** No.18 ~ 21 **/** No.23 ~ 26 at Terminal Block).

GND : Ground (Pin No.3 / No.7 / No.12 **/** No.17 **/** No.22 at Terminal Block).

ETHERNET : Connection to LAN, WAN and Internet.

VGA : Connection to VGA Monitor (CRT, TFT LCD Monitor) is available if optional VGA board is fixed on the main board.
Resolution is set to 800x600 60 Hz
User can change resolution in MONITOR SETUP / VGA SETUP / VGA RESOLUTION.

4. Display Configuration



1	Display	Display Date/Time, Network status, HDD status, HDD recorded space and available remaining days.
2	Channel	Display ALARM, CAM LOSS, MOTION status for each channel.
3	Menu	Click with mouse : SPLIT, CHANNEL, AUDIO, FRZ, SEQ, ZOOM, PIP, PTZ, SETUP, EM-REC, PLAY, SEARCH.
4	Live	Live screen of each channel. Camera Title & Status.

4-1. Display

1) Date/Time

Live mode : show current date & time
Playback mode : show recorded date & time of the playback image

2) Audio Icon

Number in the icon indicate Audio ON channel.
In case Audio channel 1 is ON, appears.

3) Record Icon

Display current recording mode.
In case of Continuous Recording Mode, pears.

4) HDD Overwrite

appears when HDD overwrite mode is selected.

5) HDD Space

HDD recorded space is marked red on the time bar.
Available remaining days/time at current record mode is shown.

4-2. Channel

1) Channel Information

In case of LARM, AMLOSS, TION,
relevant channel number lights orange.

Ex)

It is set to CAMLOSS notice mode,
and orange light on 6 and 11 indicate that no cameras are connected on channel 6 and 11.

4-3. Menu

1) Split Screen

Screen division panel pops up for various screen split display mode.

Full screen mode :
Channel Bar pops up

4 Split

9 Split

16 Split

2) Display Channel Selection

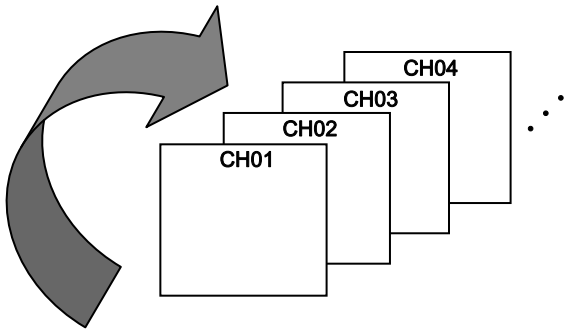
Display Channel Selection Panel pops up, and selected channel displays in full screen mode.
(Channels are also selectable in ZOOM, PTZ, FREEZE mode.)

3) Audio Channel Selection

Audio Channel Selection Panel pops up, and audio of selected channels turns on.
(1ch output for 4CH DVR, 2ch output for 8CH DVR, 4ch output for 16CH DVR)

4) SEQ (Sequence)

Displays full screen mode image in sequence.



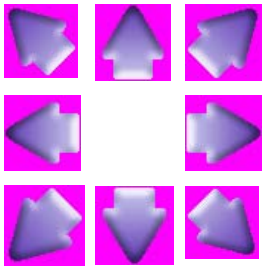
5) FRZ (Freeze)

Freeze live display and show the Images on the screen with n.

6) PTZ (PAN/TILT/ZOOM)

Click PTZ button, and PTZ Controller panel pops up as below:

OPEN	IRIS OPEN	SET	PRESET SET
CLOSE	IRIS CLOSE	CLEAR	PRESET CLEAR
WIDE	ZOOM IN	GOTO	PRESET GOTO
TELE	ZOOM OUT	AUTO	AUTO SCAN
NEAR	FOCUS NEAR	Arrow	PAN / TILT
FAR	FOCUS FAR	No.	PRESET No.



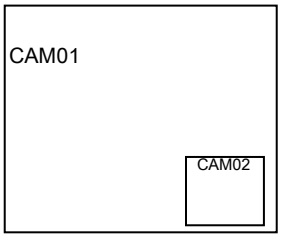
Control PAN/TILT with mouse drag and click.

Control ZOOM IN, ZOOM OUT with mouse scroll in the middle of screen.

7) Zoom

In LIVE mode, image Zooms in x2.
Move selected frame by mouse control.
Click ESC to exit zoom mode.

8) PIP



One channel displays on the full monitor screen while another small screen displays in inset window.

-Small screen displays in sequence according to preset interval.
- Full screen can be shifted to next channel by clicking the full screen or by clicking the channel number.

9) Setup

Click SETUP button to go to setup menu.
(See Chapter 6 for details)

10) Search

Its function is to search recorded data easily and playback.
Search by Time/Date, Percentage of HDD & Event, Bookmark list search available.

(See Chapter 4-6 for detailed instruction)

11) Play

While in LIVE mode, click PLAY button and it will playback recorded images.
Control Panel pops up and support flexible playback operation:
play forward/reverse, previous/next, fast forward/reverse, pause.

(See Chapter 4-4 for detailed instruction)

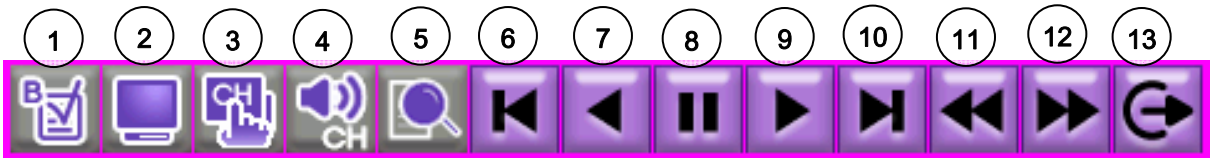
12) Panic Recording

In case of emergency, click the Panic Record icon to activate the panic recording.

appears and it starts recording at continuous mode at highest quality.

(See Chapter 4-5 for details)

4-4. Record, Playback Toolbar



No.	Function	Details	No.	Function	Details
1	Bookmark	Check and save bookmark point while playback	8	Pause	Pause Playback
2	Split Screen	Screen Split in 1, 9, 16ch Screen Mode	9	Playback	Begin Playback
3	Channel	Display Channel Selection in Full Screen Mode	10	Move to End	Move to the end of recording and stop
4	Audio	Audio Channel Selection	11	Backward	Decrease Backward Playback Speed
5	Search	Search Recorded Data for Playback	12	Fast Playback	Increase Playback Speed
6	Move to Beginning	Move to Beginning of Recording and Playback	13	EXIT	Exit Playback Mode
7	Reverse Playback	Playback in Reverse Direction			

4-5. Panic Recording

1) Schedule recording & Emergency recording

Default setting is Schedule recording: continuous recording mode.
In case of emergency, click Emergency Record button and it starts recording at highest quality.
(Record LED lights on DVR)

Panic Recording : Records at the highest quality on continuous recording mode.

Schedule Mode : Records according to the recording settings in the RECORD SETUP & SCHEDULE SETUP menu.

To return to Schedule Recording mode, click ‘STOP’ button.

2) When the system does not record:

- when no cameras are connected.
- when HDD is full and overwrite mode is not selected.
- when factory default and HDD clear was not run before recording.
- when in Schedule recording mode, and it is set not to record at the time.

4-6. Search

Searching is available in 3 different methods.

Click button, and search window will popup as below:

1) Search by Date/Time & by Percentage of HDD

- Search by Time and Date as entered. You can change the target Date/Time values by clicking “+” and “-”.

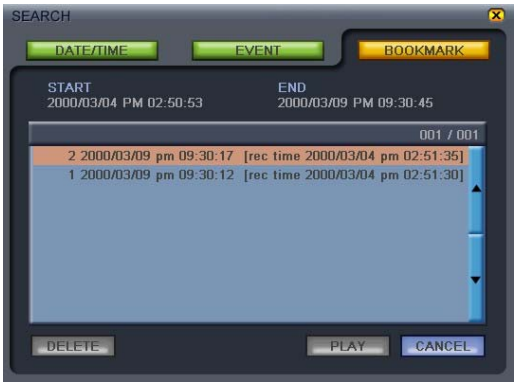
- Search by Percentage of HDD
Search by Percentage of total recorded data on HDD. You can change the target Date/Time values by clicking “+” and “-” or anywhere in the percent search bar.
It starts playback from the selected Date/Time or from the point marked on the percent search bar

2) Search by Event List

- Search by event list made in case of Motion, Alarm or Video Loss.

Select any event shown on the list first and click “PLAY” button to play it. And then it starts playback from the beginning of the selected event.

3) Search by BOOKMARK List



- Search by bookmark list.

While in playback mode, if you want to remember a certain point of the recorded data, press “BOOKMARK” icon and the time and date will be added bookmark list.

Select any recorded data on the bookmark list and click “PLAY” button to play.

4-7. PTZ Control

Push [PTZ] button on DVR to activate PTZ mode.

Button	Description	Button	Description
1 / NEAR	FOCUS NEAR	10 / PRESET+	PRESET No. +
2 / FAR	FLCUS FAR	11 / PTZ MENU	PTZ MENU
3 / WIDE	ZOOM OUT	12 / F1 ~ 13 / F5	Function
4 / TELE	ZOOM IN	UP	TILT UP
5 / SET	PRESET SET	DOWN	TILT DOWN
6 / CLEAR	PRESET CLEAR	LEFT	PAN LEFT
7 / GOTO	PRESET GOTO	RIGHT	PAN RIGHT
8 / AUTO	AUTO SCAN	+ -	Select Channel
9 / PRESET-	PRESET No. -		

4-8. CD/DVD Backup

Please Login and click “BACKUP/UPGRADE” icon and click “USB BACKUP” button.

1. Insert an empty CD-R media into CD writer and select time and date you want to begin backup.
(* Start & End time and date in HDD sub-menu is not editable.
It only shows the start and end time and date of total recorded data.)

2. After selecting Start time and date, select BACKUP SIZE, and it will show end time.
End time and date will be calculated automatically as per start time and the selected backup data size.
(* To backup in several CDs, set size in SPLIT TO FILE)

3. Click BACKUP START to start backup.

4. When burning process is completed, CD-RW will open automatically, and start time will be set automatically to the end time of burned data for continuous backup process. End time will be calculated automatically as per selected backup data size in previous backup.
To continue backup, insert new CD-R media and repeat above procedure.
To stop backup, click MENU button or close the window.

5. Install BACKUP CD PLAYER with the CD included in the accessory pack.
Playback of the recorded data is available now.
(See Chapter 6-7 for more information)

4-9. USB Backup

Please Login and click “BACKUP/UPGRADE” icon and click “USB BACKUP” button.

1. Insert USB memory stick on USB port of DVR and select time and date you want to begin backup.
(* Start & End time and date in HDD sub-menu is not editable.
It only shows the start and end time and date of total recorded data.)

2. After selecting Start time and date, select BACKUP SIZE, and it will show end time.
End time and date will be calculated automatically as per start time and the selected backup data size.

3. Click BACKUP START to start backup.

4. When backup process is completed, start time will be set automatically to the end time of backup data for continuous backup process. End time will be calculated automatically as per selected backup data size in previous backup.

5. Install BACKUP CD PLAYER with the CD included in the accessory pack.
Playback of the recorded data is available now.
(See Chapter 6-7 for more information)

[USB list as below is highly recommended.]

Manufacturer	Model Name	Capacity
LG	LG Mini Slide (UBHS4GNKLI)	1GB
LG	Xtick Slide	1GB
Transcend	JetFlash®V90C	2GB
SanDisk	SanDisk Extreme® Cruzer® Contour™ USB Flash Drive	4GB
SanDisk	SanDisk Extreme® Cruzer® Contour™ USB Flash Drive	8GB

5. Operation

5-1. System Login

1) To enter the setup menu, click the Menu icon the bottom of the main screen or press “Menu” button on the front.

2) Select the user name, input the password and click the OK button.
To exit, click the CANCEL button.

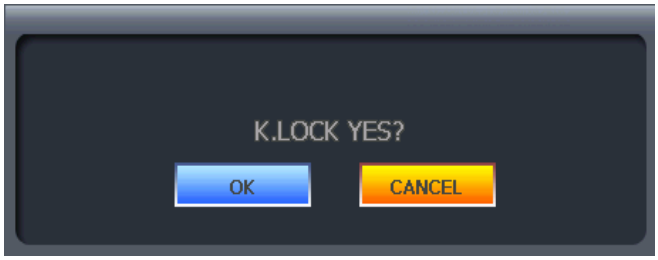
5-2. Factory Default

* Check if all channels are being displayed properly before the first operation, and log into the Main Menu and set Time/Date and run factory default and clear HDD.
** Starting recording without factory default and clear HDD may cause a malfunction.

5-3. Access Authority

User must log in to access system menu.
Login is also needed for accessing menus as below:
- SEARCH
- PTZ
- HDD CLEAR
- BACKUP
- PLAY

5-4. Key Lock



Press K.LOCK button for several second and then the message appears to confirm. If you click “OK”, it will lock all the key function of DVR.

appears on the screen while DVR is under Key Lock mode.

To unlock, press K.LOCK button for several second and then input the password (same as system password)

5-4. Playback (Search)

1) Playback

Click Playback icon, and then the recorded data on HDD will begin playback at X1 speed.

During the playback mode, move the mouse cursor at bottom edge of the screen, and then playback control panel will pop up as shown below. Now you can control the playback by clicking the icons below. (For more details, please refer to Chapter. 4-4)

<Playback control panel>

You may also control the playback by pressing buttons on the front.

<Navigation button on the front>

Nr.	Icon	Description
1		x1 Playback.
2		Backward Playback.
3		1/4, 1/8, 1/16, 1/32 Lower speed playback available
4		x2, x4, x8, x16, x32 Higher speed playback available
5		Pause

BOOKMARK Function

While in playback mode, if you want to remember a certain point of the recorded data, press “BOOKMARK” Button or click the icon. And then the time and date will be added bookmark list.
(For more details, please refer to Chapter. 4-6.

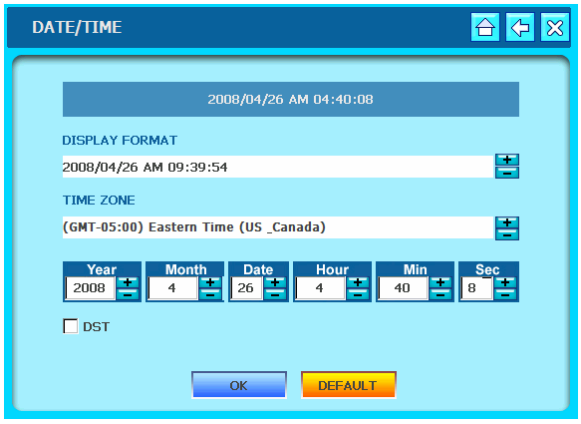
6. DVR Setup

6-1. General Operation

ICON	FUNCTION
CONFIGURATION	Time/Date, Buzzer, Password, User Authority ,RS-232 Remote control, Sound, System Information, Factory Default
DISPLAY	Display, Interval, DID, Resolution
HDD MANAGEMENT	Clear HDD, HDD Information Display
CAMERA	Title, Camera Color, Camera Activate, Alarm, Motion, PTZ Operation speed, PTZ , EVENT Pop Up
RECORD	Recording Quality And Method, Schedule, Holiday
BACKUP/UPDATE	CD/DVD Backup, USB Backup, Firmware Update
NETWORK	IP, CONNECTION, WEB GUARD, DDNS
LANGUAGE	Language Selection

6-2. Configuration

1) Date / Time



- Set time and date of DVR system.

- Set time and date by selecting your TIME ZONE.
- Set Time Display Format.
- Check checkbox DAYLIGHT for Saving Time mode. (DST)

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

2) Buzzer

- Set parameters for buzzer (On/Off). Check checkbox of contents for buzzer ON.

-KEY BEEP : when button on mouse of key panel is clicked or pressed.
- VIDEO LOSS : when video signal is lost.
- ALARM ACTIVE : when alarm is activated.
- MOTION DETECT : motion is detected.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

3) Password Setup

- Set Password for each user grade.

- Select user grade, and set USER PASSWORD.
- Set different passwords for different user grades.

- Click OK to save setting.
- Click CANCEL to cancel.

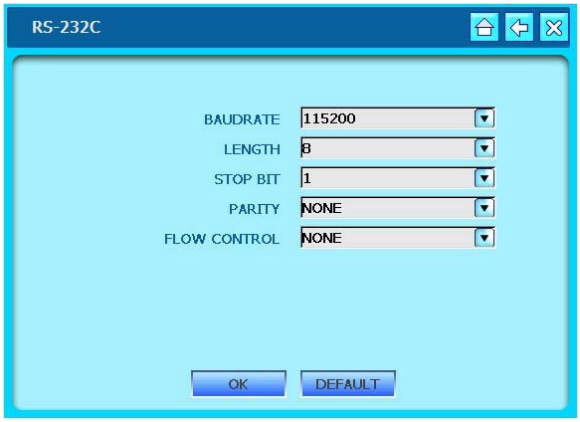
4) USER Authority

- Set authority to access for each user grade.

- Check checkbox of contents for MANAGER & USER menu. Corresponding user grade will have authority to access setting Menu as checked.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

5) RS-232

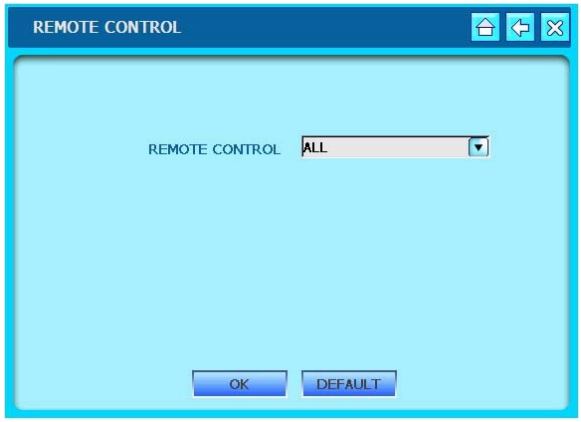


- Set settings for RS-232C port.

- BAUDRATE : 2400 ~ 115200
- LENGTH : 5 ~ 8
- STOP BIT : 1 ~ 2
- PARITY : NONE, ODD OVEN
- FLOW CONTROL : NONE, SOFTWARE, HARDWARE

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

6) Remote Control



- Set Remote Controller for DVR.

-DVR can be controlled remotely with remote controller.
- Setup for its remote control range available.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

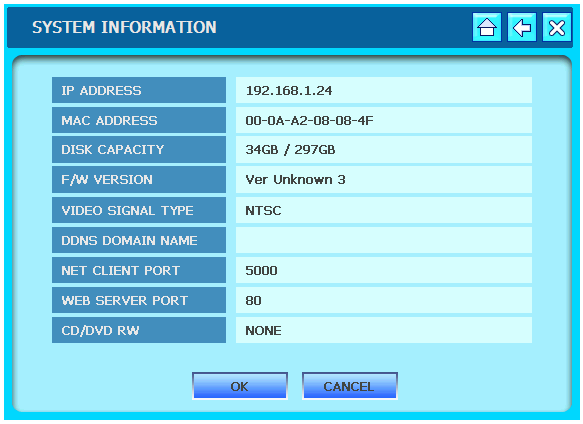
7) Audio

- Set audio output volume.

-AUDIO VOLUME : Set output volume for each channel.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

8) System Information



- Display System Information.

- Click OK or CANCEL to exit.

9) Factory Default

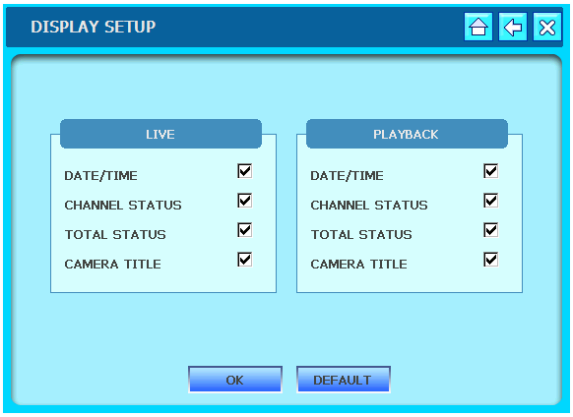
- Reset settings as initial setting before delivery.

- Check checkbox of contents to reset.

- Click OK to run factory default.
- Click CANCEL to return to initial setting.

6-3 Display

1) Display Setup



- Check checkbox of contents to be displayed on Live and Playback screen.

- DATE/TIME : Current time / Record time
- ICON STATUS : LIVE status icon
- DVR STATUS : DVR status icon
- REC/PLAY BAR : HDD Bar
- CAMERA TITLE : Camera Title

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

2) Interval

- Set interval for shifting channel.

- Sequence : Camera channel shifting interval
- PIP SCREEN : PIP channel shifting interval
-SPOT MONITOR : Spot Monitor shifting interval
- TIMEOUT : Menu display dwell time
- EVENT UPDATE TIME : Event update interval

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

3) VGA

- Set VGA OUT.

- VGA : Connection ON/OFF.
- RESOLUTION : Set Resolution
- FREQUENCY : 60Hz, 75Hz

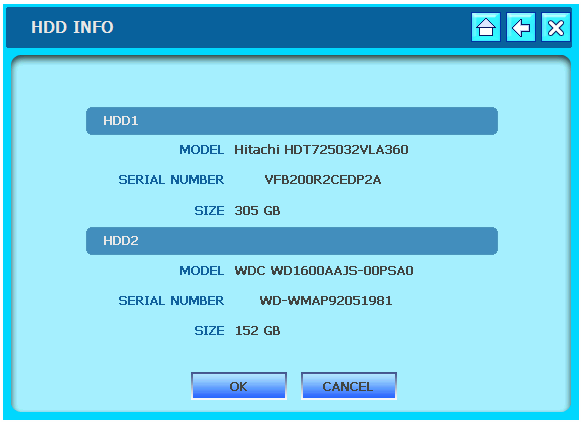
- Click OK to save setting.
- Click DEFAULT to return to initial setting.

6-4. HDD Management

1) HDD Setup

- Menu for Clear HDD.
-Displays start and end time of data on HDD.
-After pressing 'START' button account and password of DVR input window pop ups.
Then, after input number check HDD becomes Clear Status. And start saving recording data of HDD.
-OVERWRITE : When HDD is full, overwrites from the beginning of HDD.
-Click OK or CANCEL to EXIT.

2) HDD Information



- Displays current HDD Information.

- Installation up to 2 HDDs available.

- Click OK or CANCEL to exit.

6-5 Camera

1) Title

- Input title of each camera.

-Left click any place one the screen.
Then, the virtual keyboard panel pops up.
- Enter title and click ENTER.

- Click OK to save setting.
- Click DEFAULT to cancel.

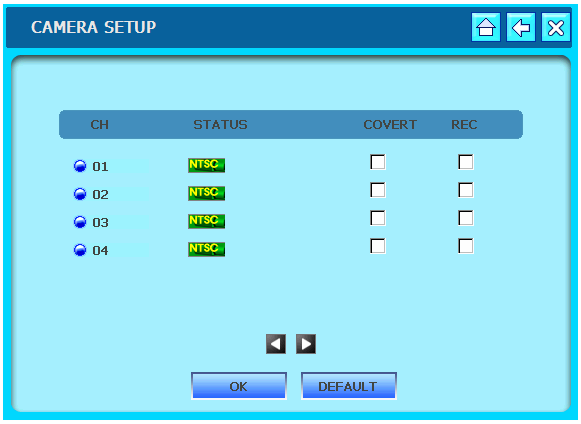
2) Color Adjustment

- Adjust image color.

- BRIGHTNESS : 1 ~ 255
- CONTRAST : 1 ~ 255
- SATURATION : 1 ~ 255
- HUE : 1 ~ 255

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

3) Camera Setup

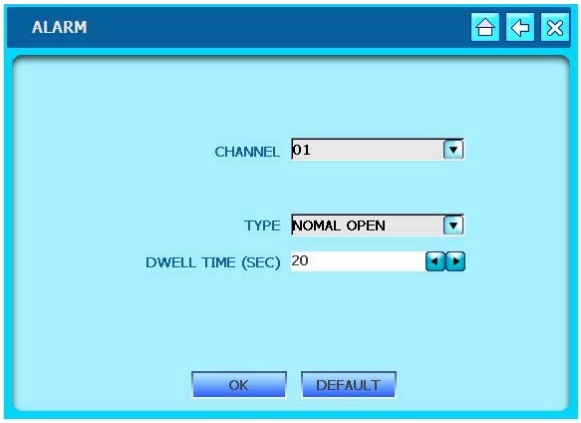


- Set camera activation.

- STATUS : Camera type: NTSC/PAL/LOSS.
- COVERT : Check the checkbox of camera channel not to display.
- REC : Check checkbox of camera channel to Record.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

4) Alarm

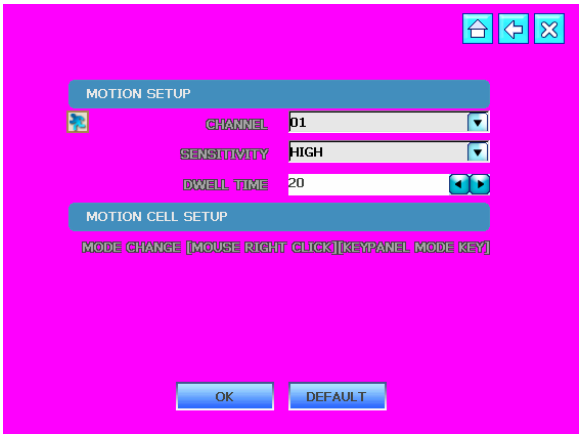


- Set alarm sensor connected to DVR.

- Set input type and dwell time for each channel.
- Select between N.O. and N.C.
  (Normal Open : NO, Normal Close : N.C.)

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

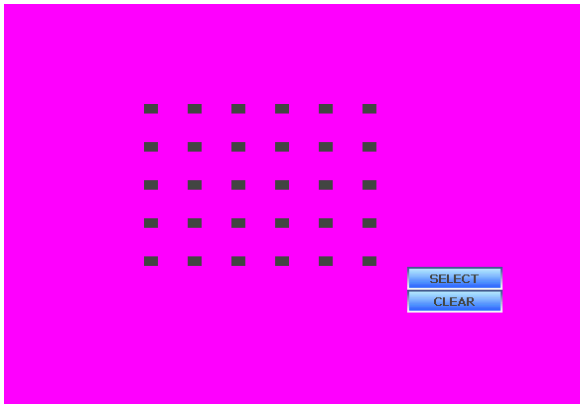
5) Motion



- Menu for DVR Motion Detection.

- Selection Channel
- SENSITIVITY : Sensitivity ‘Low ~Very High’.
- DWELL TIME : Time duration of motion detection.
- Click right button of mouse, motion cell area can set.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.



-Cell Setup
Click left button of mouse to set Motion Mask Zone by selecting or clearing blocks.

- Block Setup
Click selected cell and drag it to desired position. And then “SELECT”,”CLEAR” buttons appear.

SELECT – Activates blocks to detect motion.
CLEAR – Deactivate blocks so that they will not detect motion.

6) PTZ

- Set PTZ Camera control speed.

- CHANNEL : Selection connected PTZ
- PROTOCOL : Selection Camera Model
- ID : ID Value for PTZ Camera
- BAUDRATE : PTZ SIGNAL Transmit rate

- PAN : Horizontal movement Speed
- TILT : Vertical movement Speed
- ZOOM : Zoom In/Out Speed
-FOCUS : Focus Near/Far Speed

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

7) Event POPUP

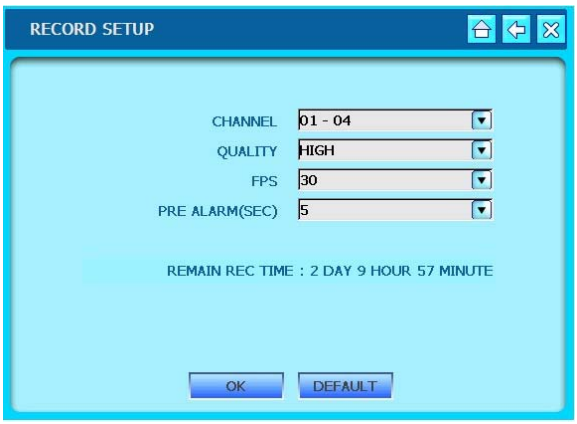
-Set Event Popup.

-Select camera channel
- Select POPUP On or Off
- EVENT : Check checkbox of MOTION and/or ALARM
- Dwell Time : Period of time of popup in case of Event.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

6-6. Record

1) Record Setup

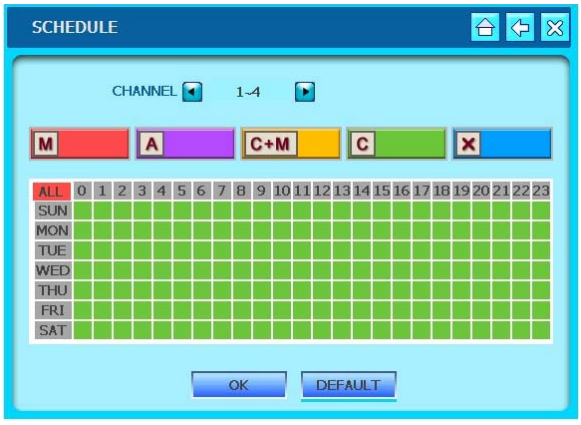


-Set Recorder configuration.

- CHANNEL : Channels of 4-camera groups.
-QUALITY : Recording quality of selected channels of 4-camera group.
- FPS : Frames per second
- Pre Alarm : Record data 0~5 seconds before alarm occurs
*Notice : In case of sudden power off while in Pre-Alarm mode, up to 5 seconds of data loss may occur.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

2) Schedule



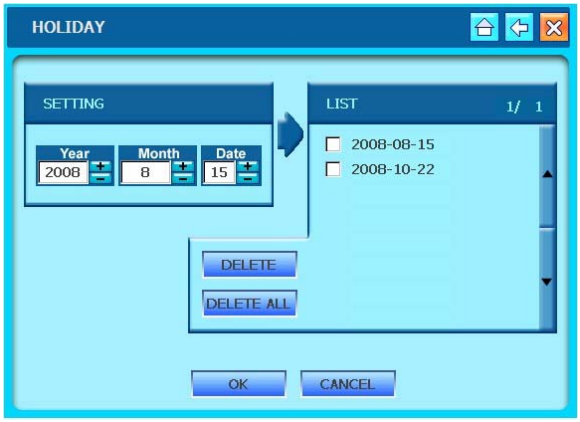
- Set Schedule Recording Mode.

- Appoint Schedule recording by Day and Hour.
- MOTION, ALARM, MOTION+ALARM or CONTINUOUS recording mode selectable.

* In case of emergency, click Panic button, and it will start recording at CONTINUOUS MODE at highest resolution. Unless otherwise specified, it records according to this Schedule Record Setup.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

3) Holiday



- Set national holidays or holidays on calendar to record as setting for Sunday in Schedule Record Setup.

- Set date on SET HOLIDAY and click ⇒, and set date will be listed on HOLIDAY LIST.
- It will record as setting for Sunday in Schedule Record Setup.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

6-7. Backup/Upgrade

1) CD/DVD Backup

- Backup via CD/DVD-RW.

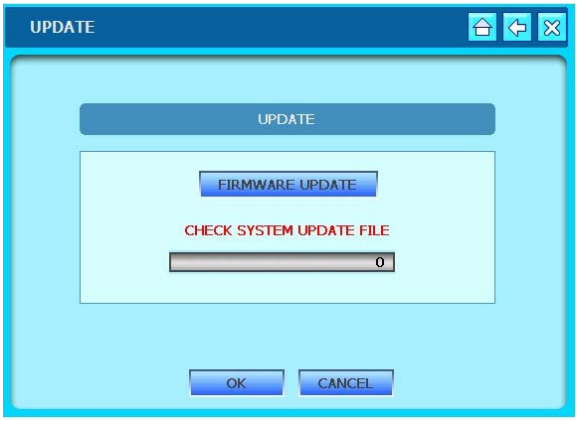
-Start & End time of total recorded data on HDD shows on top.
-Input date/time of data to backup and click SELECT button to check total backup data size.
-If total backup data size is bigger than CD/DVD storage, End time will be determined automatically.
-Click START to start backup.

2) USB Backup

- Backup via USB.

-Start & End time of total recorded data on HDD shows on top.
-Input date/time of data to backup and click SELECT button to check total backup data size.
-If total backup data size is bigger than USB memory , End time will be determined automatically.
-Backup data size is adjustable to USB size.
-Click START to start backup.

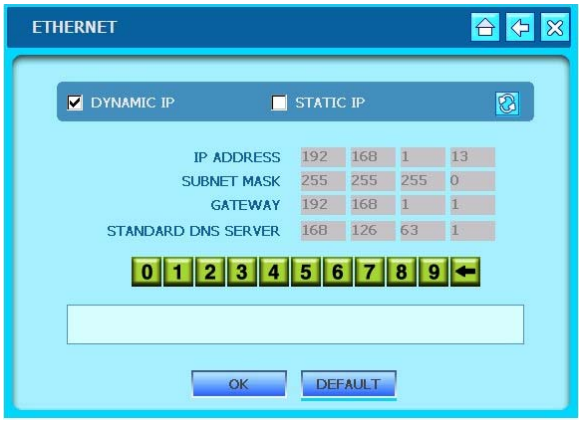
3) Upgrade



- Insert an USB memory stick which has the firmware (to be upgraded) into the USB port on the front.
- Go to “UPGRADE” and then it will automatically detect the USB memory stick.
- Click “START” to start upgrading.

6-8. Network

1) Ethernet



- Setup DVR Network.

- DYNAMIC IP : Check checkbox to enable connection via Cable Modem with Dynamic IP.
- STATIC IP : Check checkbox to enable connection via Stable IP

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

(See Chapter 6-1 for details)

2) Connection

- Set Connection value.

- TIME OUT : Limitation of Time Out maximum value.
  Recommendation:
  Increased Time Out in slow network environment
  decreased Time Out in fast network environment
- RETRY COUNT : The number of times of retrial.
- PORT : Set IP Port (50000 recommended)

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

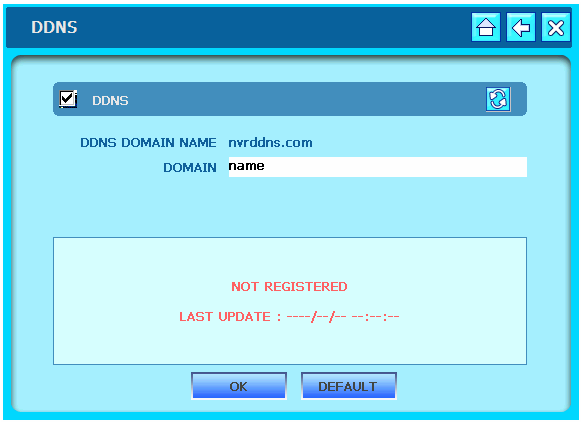
3) Web Guard

- Used for changing port of DVR.

- Select the usage of WEB GUARD or not
- WEB PORT : 4000~5000 or 80

- Click OK to save setting.
- Click DEFAULT to cancel.

4) DDNS



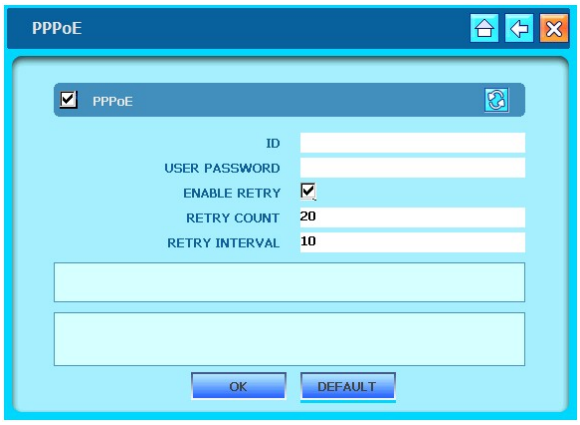
- Set DDNS Server Connection.

- DDNS SERVER : DDNS Server address.
- DVR NAME : DVR name to be registered to server.

- Click OK to save setting.
- Click DEFAULT to return to initial setting.

(See Chapter 6-2 for details)

5) PPPoE

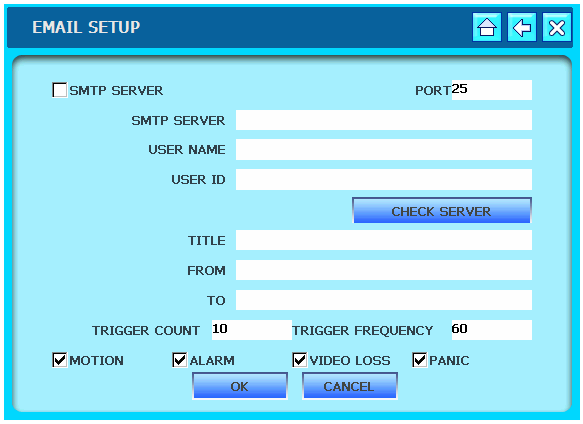


- Set PPPoE Connection.

- ID : Please enter the ID which you received from xDSL service company
-User Password : Please enter the PW which you received from xDSL service company
- Retry Count
-Retry Interval

• **It will take about 4min. to confirm the ID/PW and activate the connection.**
- Click OK to save setting.
- Click DEFAULT to return to initial setting.

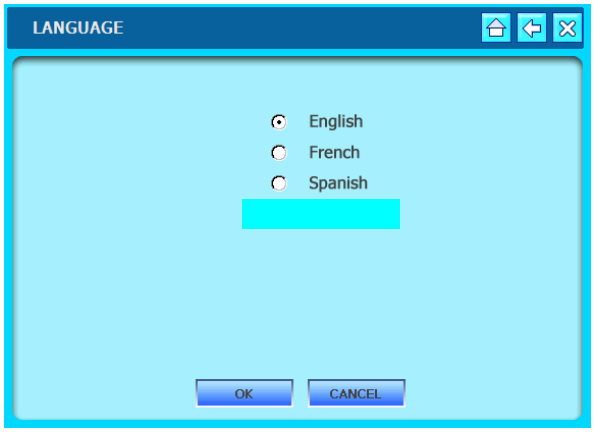
6) EMAIL



-Please fill the information of SMTP SERVER, USER NAME, USER PW, PORTMAIL SERVER.
-CHECK SERVER : Check the status of mail server.
-TITLE : Input the title of mail which will be sent.
-FROM, TO : Input the sender and receiver information
-TRIGGER COUNT, TRIGGER FREQUENCEY
: Set number of times of retry and interval
-MOTION, ALARM, VIDEOLOSS, PAINC
: Click the event which you want to send e-mail.

6-9. Language

1) Language



- Select language.

- Click “OK” to save setting.

7. Network Setup

7-1. DVR Network Setup

Please contact your local network service provider for information below:

- Upload Speed : to predict frame rate via network.
- Download Speed : to predict frame rate via network.
- Addressing : to determine which scenario to follow.
- Router ON Site or Just Modem : to determine which scenario to follow.

* NOTE : If the provider is using PPPoE (usually DL providers), you MUST have a IP Share installed on site, and follow 3) Dynamic IP of PPPoE (DSL) for DVR setup and access.
* Verify if Internet accessible after installing any new equipment (routers, switches, modems, etc.)

PC's TCP/IP Setup

Fill out the information below before configuring DVR if applicable:
Choose PC connected to the network and determine its TCP/IP setting.

IP address : _____ ex) 192.168.1.5
Subnet Mask : _____ ex) 255.255.255.0
Default Gateway : _____ ex) 192.168.1.1

Refer to following scenarios 1) ~ 3), and identify which scenario your current network falls within and follow instructions for configuring and accessing your DVR via TCP/IP.

1) Static IP

User input IP address assigned from ISP company in IP CONFIG SETUP.

1) Verify if IP address is OK with your PC before connecting DVR.
2) Connect static IP LAN cable to DVR after verification.
3) Enter into [MENU]-[NETWORK SETUP]-[IP CONFIG].
4) Select STABLE IP and set assigned IP address.
5) Input GATEWAY assigned from ISP company.
6) Input SUBNET MASK.
7) Exit MENU.
8) Verify if MAC address starts with 00-0A-A2….
9) Set IP port in CONNECTION SETUP. (50000 recommended)
10) Turn off Modem or Router provided by ISP company, and turn on again.
(This process is to reset client's MAC from ISP company. Wait for 30 sec after turning on.)
11) Access DVR with Transmitter Program.

* If access via Transmitter fails, check 1), 5), 6) & 9) again.

2) Dynamic IP

Select DYNAMIC IP from DVR's TCP/IP SETUP and IP address will be assigned from ISP's DHCP server.

1) Verify if IP address is OK with your PC before connecting DVR.
2) Connect dynamic IP LAN cable to DVR after verification.
3) Turn off Modem provided by ISP company, and turn on again.
   (This process is to reset client's MAC from ISP company. Wait for 30 sec after turning on.)
4) When modem functions good, turn off DVR and turn on again.
5) Enter into [MENU]-[NETWORK SETUP]-[IP CONFIG].
6) Select DYNAMIC IP and click refresh button.
7) Exit MENU.
8) Verify if MAC address starts with 00-0A-A2….
9) Set IP port in CONNECTION SETUP. (50000 recommended)
10) Access DVR with Transmitter Program.

* If access via Transmitter fails, check 1), 3) & 4) again.

7-2. DDNS

1. Go into [Menu] -> [NETWORK] -> [DDNS].
2. Click the check box of DDNS and Input the domain which you want to Register to DDNS.

3. Click OK to request the registration.

NOTE : When entering a domain name already registered on DDNS server, an error massage displays

7-3. Web Application

Entering the IP address of DVR or the Domain you registered on DDNS server, you can connect to the web application which support IRS (Remote Software) function.

Notice : When you firstly use web application, please click “yes” for ActiveX control installation.

DVR SETUP Change DVR setting remotely over network.
BACKUP Backup Recorded Images from DVR to PC.
PLAYER Playback backup data on PC.
TRANSMITER Control DVR remotely as if controlling the local unit DVR.

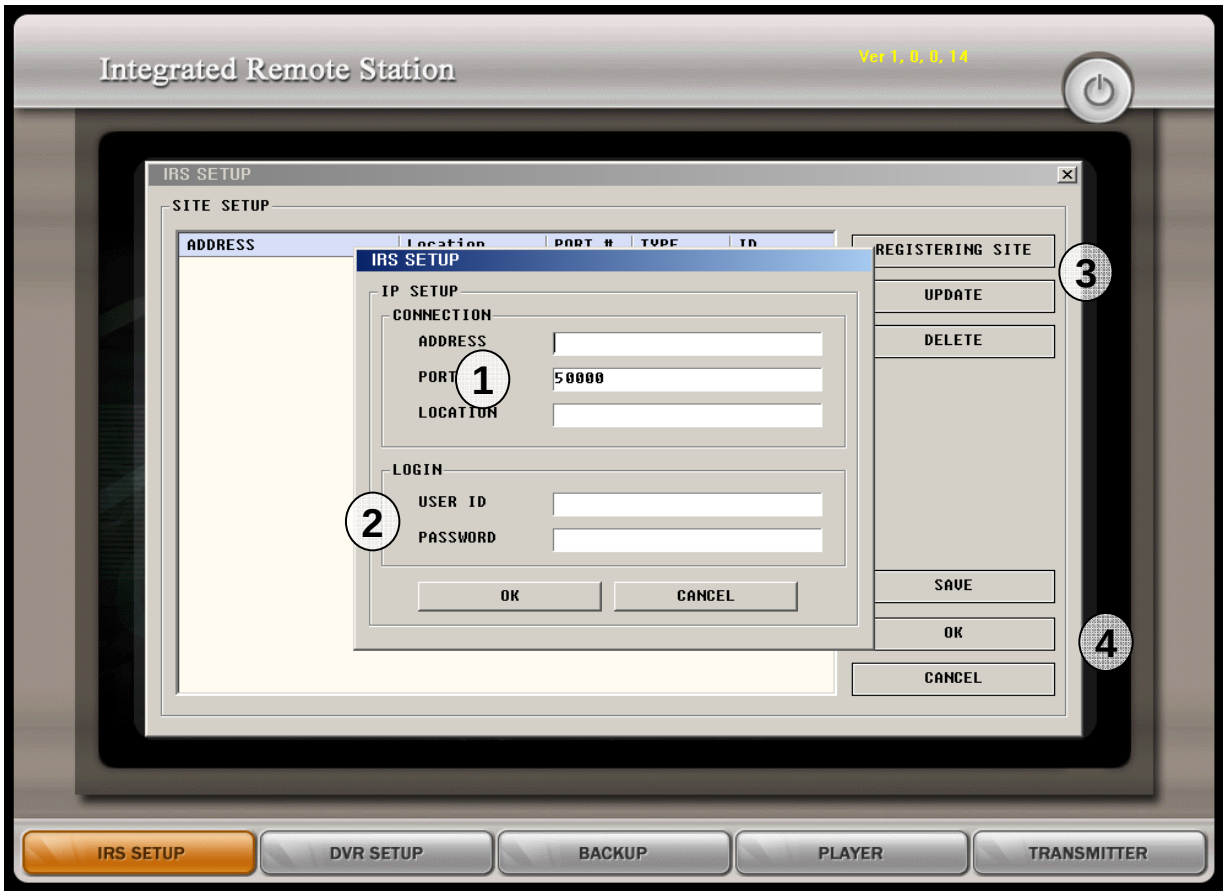
8. Remote Viewer Program

8-1. IRS Operation

1) IRS (Integrated Remote Station) Display

No.	Button	Function
1	IRS Setup	Input Information for IRS network connection.
2	DVR Setup	Change DVR setting remotely over network.
3	BACKUP	Backup Recorded Images from DVR to PC.
4	PLAYER	Playback backup data on PC.
5	TRANSMITTER	Control DVR remotely as if controlling the local unit DVR.

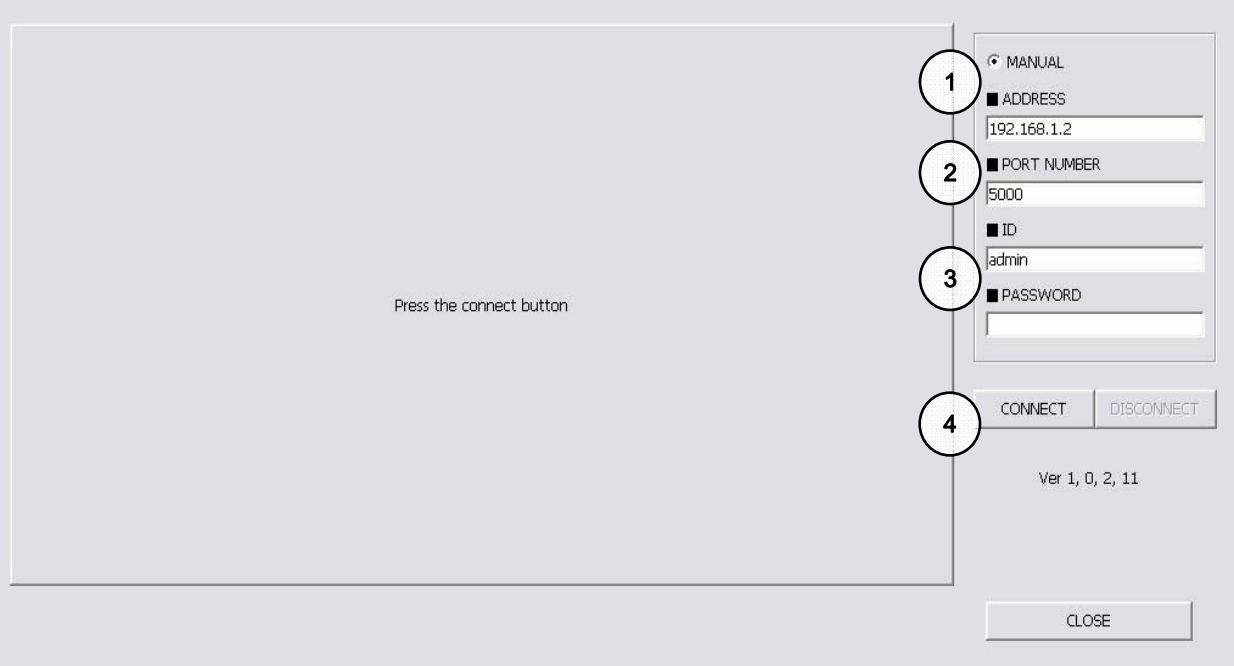
2) IRS Setup



No.	Button	Function
1	ADD / PORT / LOCATION	Input IP address and port number manually. Input the location of DVR
2	ID / PASS	Input ID and Password of DVR.
3	UPDATE / DELETE	Update the new setup, Delete the selected setup.
4	SAVE / OK	Save and select the sight information from the list.

3) DVR Setup

- User can change some settings of DVR remotely over network.
(Active, Camera, Alarm, Buzzer, Interval, Password, Record Configuration, Record Schedule)

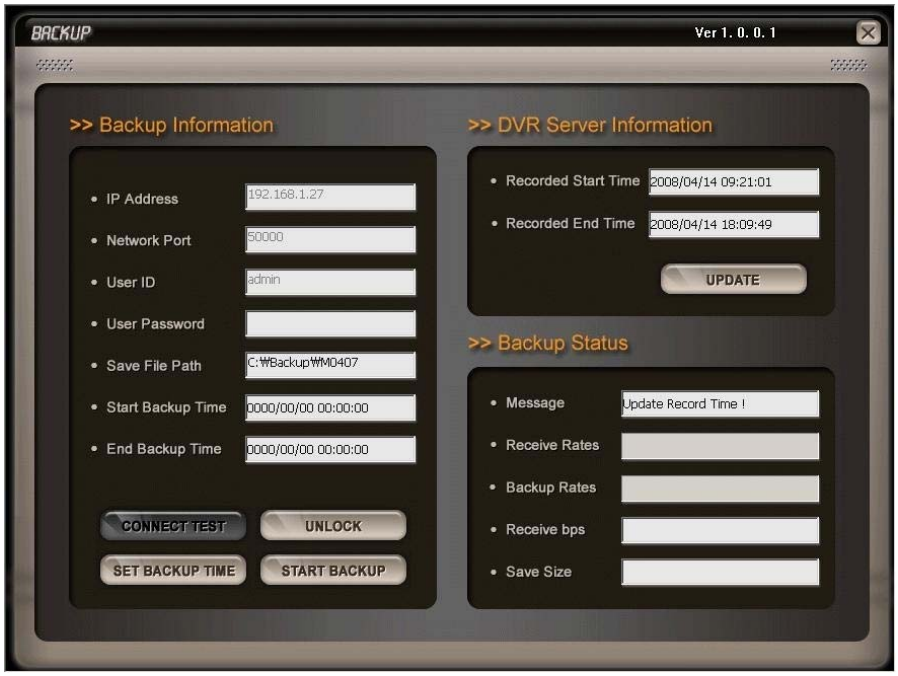


No.	Button	Function
1	MANUAL	Select to input IP address and port number manually
2	DDNS / PORT	Input IP address and port number of DVR
3	ID / PASS	Input ID and password of DVR
4	CONNECT	Click to connect to DVR.

8-2. Backup Operation

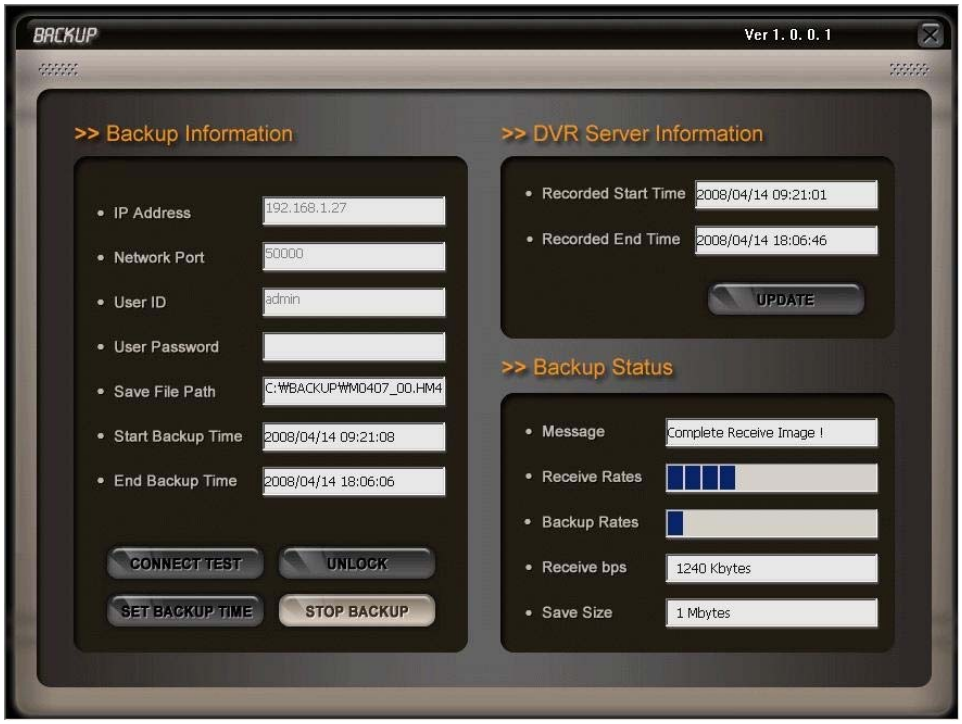
1) To execute Backup, input IP Address & Port and click ‘Connect Test’ Button.

2) After Connect Test is done, you can see ‘Success Connect Test!’ message. Then, click ‘Lock’ button and click ‘Set Backup Time’ Button.



3) Now you set ‘Start Time’, ‘End Time’, ‘Save File Path’, ‘File Size’ and click ‘Apply.

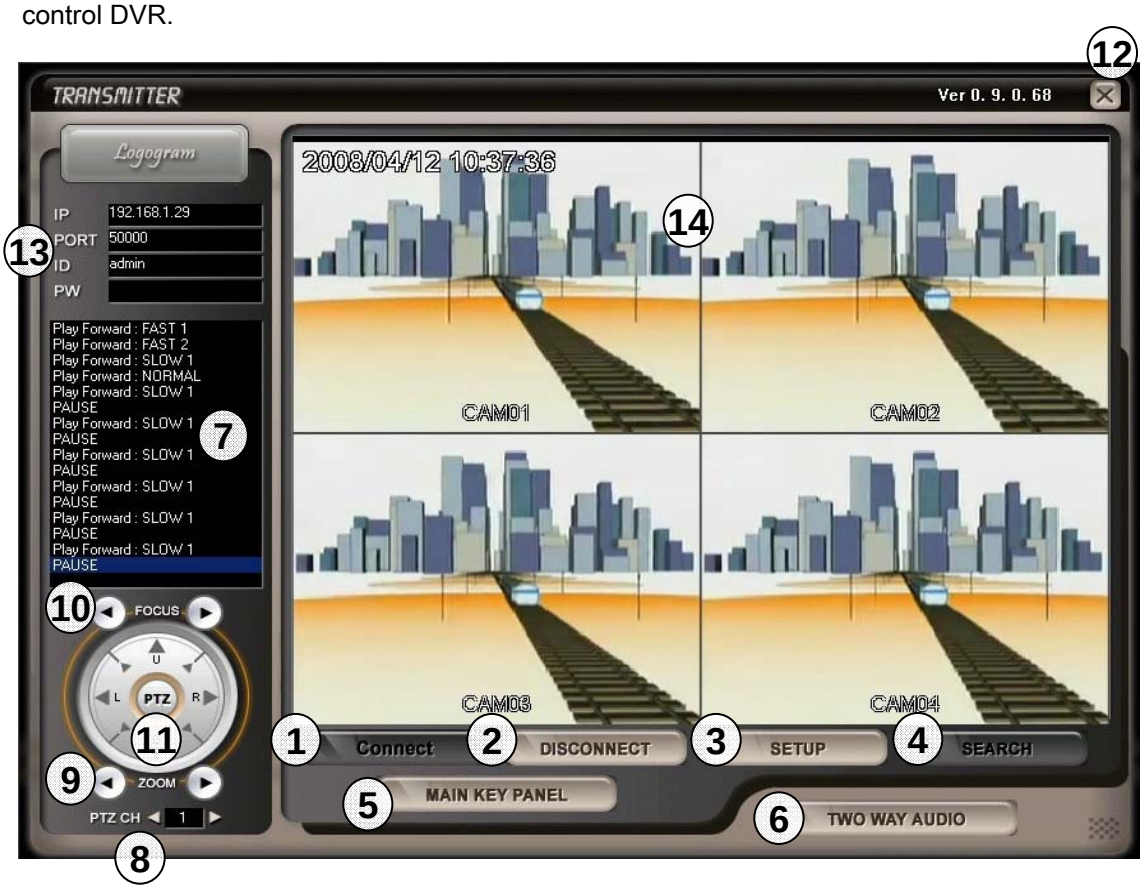
4) After finishing time setting, click ‘Start Backup’ to start Backup. Then, you can see the Backup on the Path that you chose.



8-3. Transmitter Operation

1) Transmitter Display

- TRANSMITTER : Program that enables connection to DVR via TCP/IP to see live screen and to control DVR.

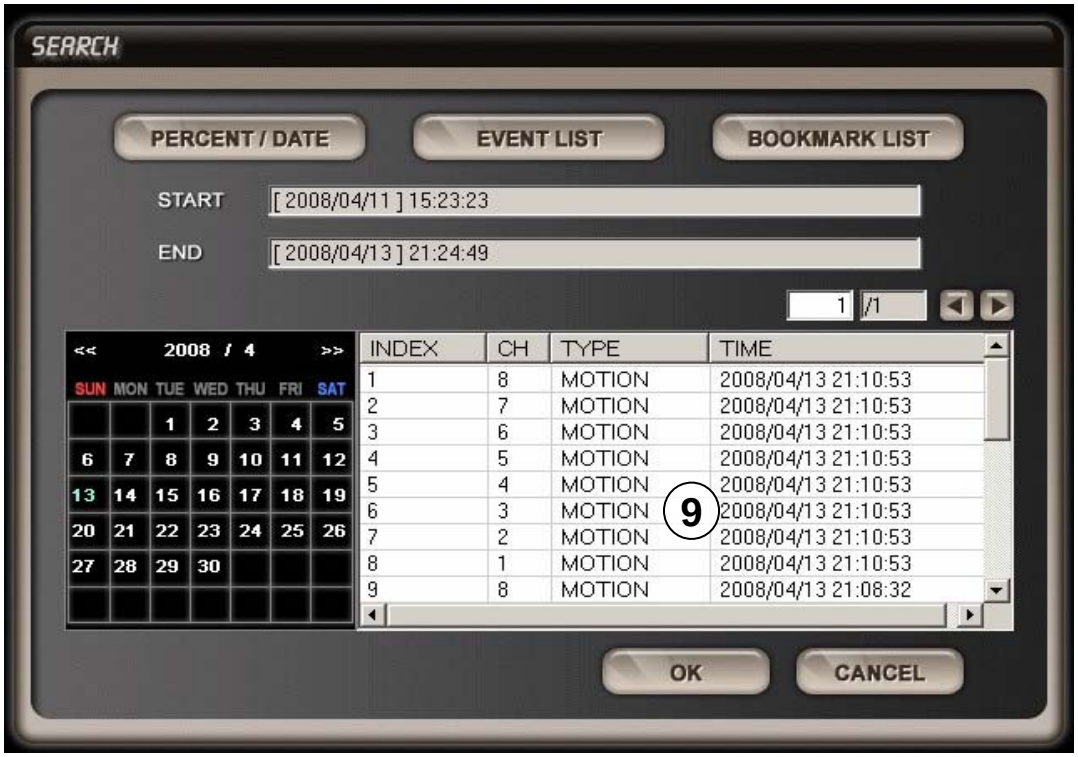


No.	Button	Function
1	**Connect**	Connect DVR via network
2	**Disconnect**	Disconnect DVR connection via network.
3	**Setup**	Change or set DVR system menu.
4	**Search**	Search recorded data from HDD of DVR. (Date/Time Search, Event List)
5	**Main Key Panel**	Pop up panel to control CH, REC, PLAY, STOP.
6	**Two Way Audio**	Enable Two Way Audio between DVR and Transmitter.

No.	Button	Function
7	System Information	Display DVR connection and System operation information.
8	PTZ CH	Select the channel number connected to PTZ Camera.
9	ZOOM	Zoom In/Out operation of PTZ Camera.
10	FOCUS	Focus Near/Far operation of PTZ Camera.
11	PTZ	PTZ ON : Pan/Tilt control of PTZ Camera. OFF: Function as arrow keys.
12	EXIT	EXIT the transmitter.
13	User	Input IP, PORT, ID, PASSWORD of remote DVR.
14	Date/Time	Display Date/Time of DVR.

2) Transmitter – Search

[Search – Percent/Date]



[Search –Event List]

[Search –Bookmark List]

No.	Button	Function
1	Percent / Date	Open window for Percent/Date search.
2	Event List	Open window for Event List search.
3	Bookmark list	Open window for Bookmark list searech.
4	Start / End	Display Start and End time of recorded data on DVR.
5	Search by Time/Date	Search by Time and Date as entered.
6	Search by percentage of HDD	Search by Percentage of total recorded data on HDD.
7	OK	Start playback.
8	CANCEL	Close Search window.
9	Event List Index	Show Event Lists received from DVR. Double click a list to start playback or click OK.
10	Bookmark List Index	Show Bookmark Lists received from DVR. Double click a list to start playback or click OK.

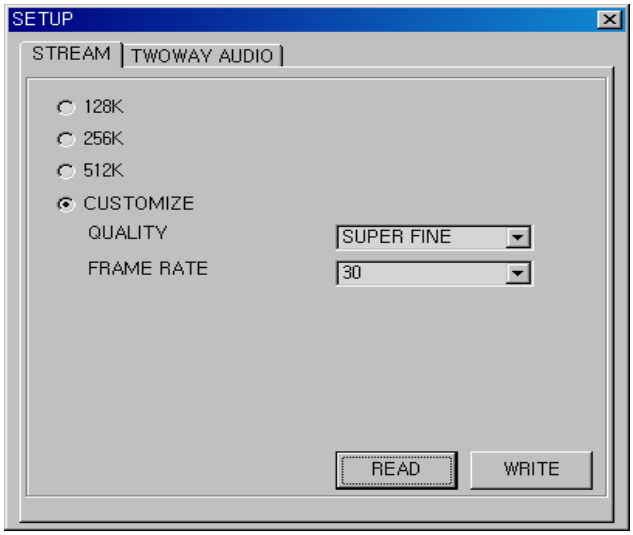
3) Transmitter – Main Key

No.	Button	Function
1	Channel	Select the channel number of camera to be displayed.
2	Division	4ch, 9ch, 16ch Division.
3	Record	Force Emergency Record.
4	Play	Playback recorded image on HDD.
5	Stop	Stop Emergency Record or stop playback.
6	Mode	Screen division mode in 1ch, 6ch, 8ch, 9ch, 13ch, 16ch.
7	Sequence	Full screen image displays in sequence.
8	PIP	Picture In Picture.
9	Un FRZ	Continue playback from FREEZE.
10	Zoom	Zoom In image.
11	Pause	Stop playback for a short period of time.
12	- / +	Up/Down button for volume, channel, page.
13	Exit	Exit Main Key Panel

4) Transmitter – PLAY Panel

Button	Function
|<	Move to the beginning of recording
<<	Increase reverse playback speed
<|	Decrease reverse playback speed
<	Reverse playback x1
||	Pause
>	Playback x1
|>	Decrease playback speed
>>	Increase playback speed
>|	Move to the end of recording
EXIT	Exit Playback Mode

5) Transmitter – Setup Page



SETUP - STREAM

Choose pre-setting for some specific network condition(128K, 256K, 512K)
Or choose “CUSTOMISE” for setting as you want.

Twoway Audio

Choose the audio input from DVR for when Twoway Audio activated.

8-4. Player Operation

1) Player Select

Please click “HIGH SPEED PC” or “LOW SPEED PC” according to your PC’s specification.
“HIGH SPEED PC” supports all channel Playback simultaneously.
“LOW SPEED PC” supports up to 4channel playback simultaneously.

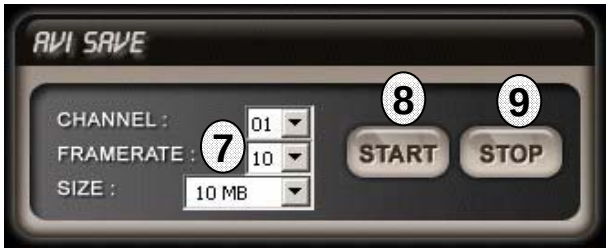
NOTE

Recommended PC specification for “HIGH SPEED PC” is as below:
Processor Type : Pentium Core2 DUO or better
Memory : 1GB minimum

2) Player Setup

No.	Button	Function
1	OPEN	Open backup data for playback.
2	EDIT	Edit still image in full screen mode.
3	AVI SAVE	Save data in .avi file format in full screen mode.
4	CHANNEL	Popup channel panel.
5	DIVISION	Select 1ch, 4ch, 9ch, 16ch Division display.
6	Audio	Check checkbox Audio On and choose channel to sound on.
7	DISPLAY	Playback backup data.
8	TIME	Indicate Start time, End time, Play time of backup data.
9	CONTROL	Play panel for Fast/normal, Reverse/Forward, Move to beginning/end, Pause.
10	Speed/Delay	Control playback speed of backup data.
11	EXIT	Exit Player.

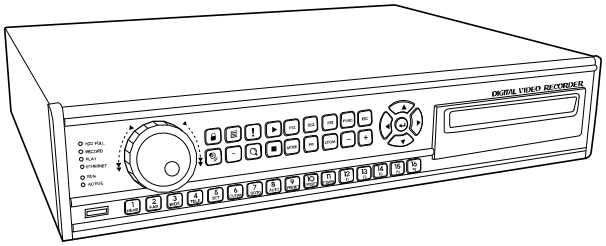
2) Player – Channel, Edit, AVI Save Panel



No.	Button	Function
1	1Ch ~ 16Ch	In full screen mode, select 1 channel to be displayed. In 4 split screen mode, select 4-channel group to be displayed.
2	Contrast	Adjust contrast of still image in full screen mode.
3	Bright	Adjust brightness of still image in full screen mode.
4	Sharp	Adjust sharpness of still image in full screen mode.
5	Image Save	Save still image in image file in full screen mode.
6	Image Print	Print still image in full screen mode.
7	AVI Save Option	Select channel, frame rate & size to convert into .avi file.
8	Start	Start saving data in .avi file format.
9	Stop	Stop saving data in .avi file format.

9. Specification and Dimension

- H.264 Hardwqre Codec
- Real-Time Live Display in all Channel
- Pentaplex (Playback/Recording/Ethernet)
- Multi Language
- Remote monitoring and Download through Network
- Convenient Search Function with Jog/Shuttle
- VGA Option (Supporting TFT LCD Monitor)
- Firmware Upgrade via USB Port
- Easy PTZ Camera Control with Mouse
- Password Protection
- Remote Controller
- User Friendly Environment by Mouse
- Power 110-240 VAC, 1.5A, 60/50Hz

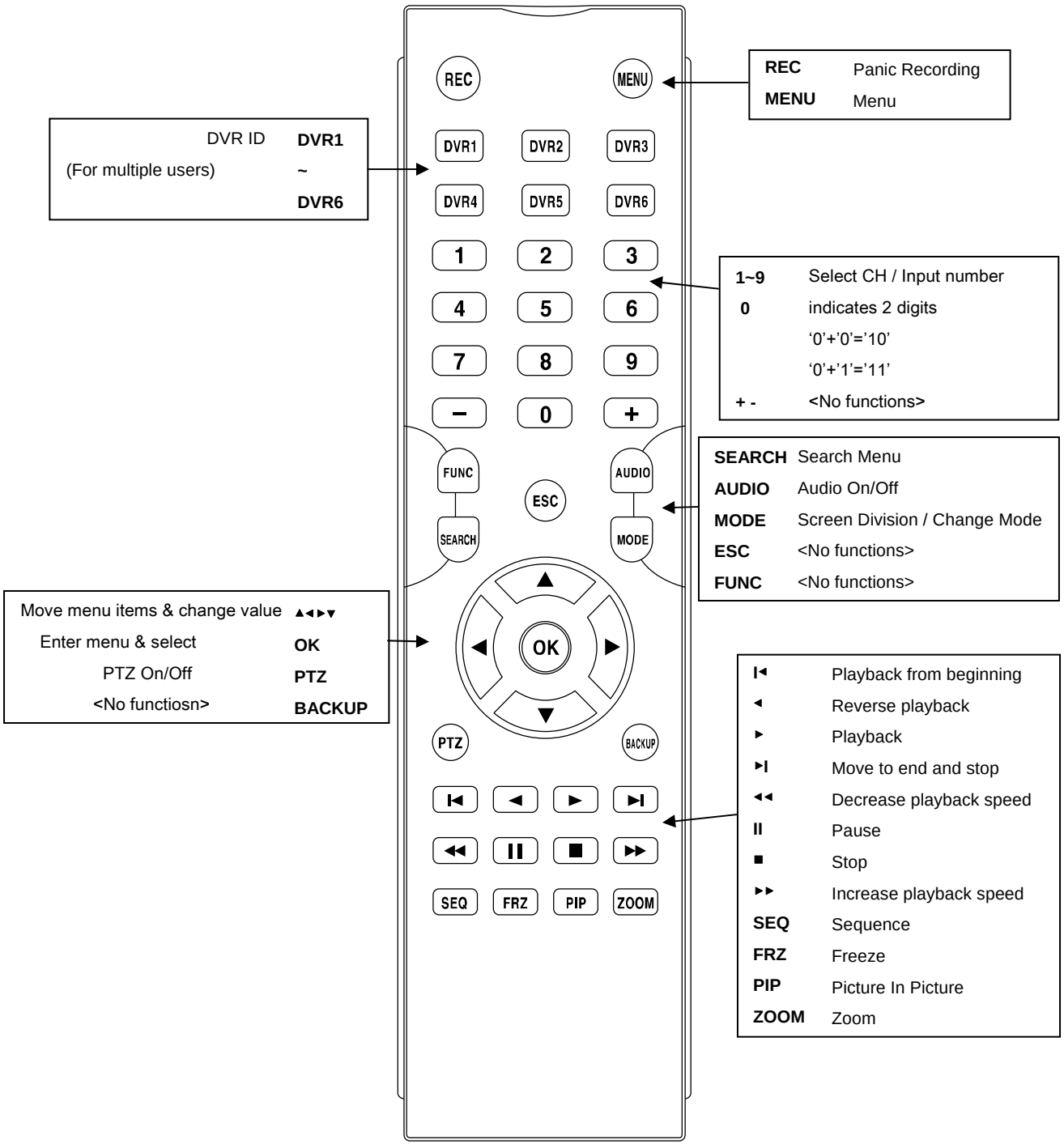


Contents		**HSD-400**	**HSD-800**	**HSD-1600**
Compression Algorithm		H.264 Dual Codec		
Audio		G.726 or mp2		
General Feature				
Signal Format		NTSC or PAL (Auto Detect)		
Video	In	4CH	8CH	16CH
	Out	Main, Spot, VGA		
	Loop Out	4CH	8CH	16CH
Video Compression Rate		3 Steps Selectable		
Audio	In	1CH	2CH	4CH
	Out	1CH		
Alarm	In	4EA	8EA	16EA
	Out	1 NO/NC		
Storage		2EA S-ATA HDD		
Recording Speed (NTSC / PAL)	704x480 (704x576)	-		
	704x240 (704x288)	-		
	352x240 (352x288)	120 (100) ips	240 (200) ips	480 (400) ips
	352x120 (352x144)	-		
Resolution of Motion Detection Area		Area division : 16x12 Detection Division : 32x24		
Search Mode		Date/Time, HDD%, Event, Bookmark		
Recording Mode		Schedule (Time, Motion, Alarm) Holiday, Panic, Pre-Event		
Display Speed		Real-Time		
Multi Language		English, Spanish, French etc.		

Contents	HSD-400	HSD-800	HSD-1600
PIP	1, 4, 9, 16, PIP		
Zoom	Digital Zoom x2		
Security	Key Lock		
Recording & Playback			
Multi-tasking	Quadplex (Live, Playback, Recording, Ethernet)		
Multi Channel Playback	Available		
Event Log Information	Available		
Pre-Alarm	Available		
Alarm / Relay			
Video Loss Alarm	Available		
Motion detection Alarm	Available		
Network			
Remote S/W : Monitoring, Search & Playback, Back-up	Integrated Romote Station		
Internet Explorer support	Available (No need to register)		
DDNS Support	Yes		
CMS (Central Management Software)	Yes		
Simultaneous remote user access	4 persons or more		
Network Speed Value	Selectable		
Remote Setup	Available		
Data Export	Own File Format		
Back-Up & Archiving			
CD-RW	Option		
DVD-RW	Yes		
USB Port	USB 2.0		
Others			
Operation	Mouse / Remote controller / Key Button		
PTZ Control	RS-485		
Menu	GUI		

Specifications are subject to change without notice.

10. Remote Controller



Digital Video Recorder

Stand-alone DVR

Real-time playback / USB backup

H.264 Hardware Codec