xDVR

Excellent Digital Video Recorder

User Guide

FCC NOTICE

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES.
OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS:
(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND
(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED,
INCLUDING INTERFERENCE THAT MAY CAUSE UNDERSIRED
OPERATION.

This equipment has been tested and found to comply with the limits
for a Class B digital device, pursuant to part 15 of the FCC Rules.
These limits are designed to provide reasonable protection against
harmful interference in a residential installation. This equipment
generates, uses and can radiate radio frequency energy and, if not
installed and used in accordance with the instructions, may cause
harmful interference to radio communication. However, there is no
guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or
television reception, which can be determined by turning the
equipment off and on, the user is encouraged to try to correct the
interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit difference from
  that to which the receiver is connected.
- Consult the dealer of an experienced radio/TV technician for help.

CAUTION:
Changes or modifications not expressly approved by the party
responsible for compliance could void the user's authority to
operate the equipment.

CONTENTS

1. INTRODUCTION TO USING xDVR 430B

■ How to load xDVR system

Turn your computer on. After the xDVR hardware and software installation, you can see the two new icons* for xDVR, server and client icons on your Windows screen. If you want to run a surveillance server system on your PC, you can click the xDVR server icon. The server system, in this case your PC, should have direct connections to cameras. Otherwise, if you are far from your xDVR server but wan to see the surveillance video captured from that xDVR server through LAN or PSTN (phone connection), you can do it by click on the xDVR client icon.

Now, start the xDVR system by clicking the xDVR icon on your computer screen. The main display screen (Main Mode) appears.

* The xDVR server icon is ◯. And the client icon is ◯. .

■ Four Operation Modes: Main, Setup, Search, Capture

xDVR-430 has three major operation modes: Main, Setup, and Search Modes. Of these, the Search Mode has its secondary mode, Capture Mode for capturing images.
In the Main Mode, xDVR plays as a monitoring system for up to four surveillance camera inputs.

Figure 1. xDVR's four modes : Main, Setup, Search, and Capture modes

2. HOW TO USE xDVR SERVER

A. Major Surveillance Functions in Main Mode

You can execute major important functions of Digital Surveillance System in Main Mode screen. There are several view modes for efficient monitoring : single screen, quad screen, and auto switching modes. For each camera connected, if it is capable, its Pan-Tilt-Zoom-Focus can be directed directly. Furthermore, you can check the network connection status to clients on the same screen by viewing the color of Network Connection Status button. If it is connected to a client, its color changes from green to red.

Any one who travels abroad can see remote surveillance video by installing the xDVR client program on his portable laptops and using the product number as a password to get a connection to his/her server at home or any other place he chose.

B. Main Mode Functions At a Glance

1	Date and Time Indicator	**7**	Channel Select Buttons
2	Used / Free Storage Indicator	**8**	Recording Start/Stop Button (for Each Channel)
3	Setup Button	**9**	Camera Select Button
4	Search Button	**10**	Pan/Tilt/Zoom/Focus Control Buttons
5	Screen Division Button	**11**	System Shutdown Button
6	Screen Switching Button	**12**	Network Connection Status

C. Main Mode Buttons and Their Functions

1 - Date and Time Indicator shows present date and time.

2 - Used/Free Storage Indicator displays the hard disk space information.

> xDVR records the images on the configured hard disk directory. We strongly recommend for you to divide your hard disk into at least two partitions – one for OS and the other for recording digital video clips.

3 - Setup Button brings you to Setup Mode screen for you to adjust the settings of xDVR operation when clicked.

> In Setup Mode screen, you can change camera settings, customize recording schedules, and motion detect and sensor-related configuration. Default password for Setup is '1111'.

4 - Search Button brings you to search mode screen through and find the wanted settings of xDVR operation when clicked.

> You can seek a certain video records by camera number, date and time.

5 - Screen Division Button is a toggle switch between four-channel display and one-channel display modes.
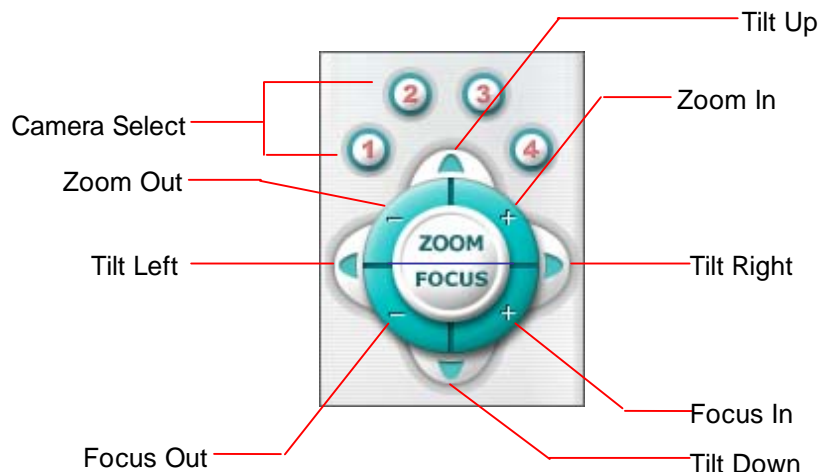
6 - Screen Switching Button is also a toggle between auto-switched display and four-channel display modes.

7 - Channel Select Buttons directs you to a designated channel display when clicked.

8 - Recording Start/Stop Button (for Each Channel) enables you to toggle between recording and view-only modes.

9 - Camera Select Button directs which camera is controlled for Pan/Tilt/Zoom/Focus.

10 - Pan/Tilt/Zoom/Focus Control Buttons enables you to control the camera you selected to move and get the scene according to your direction dynamically.
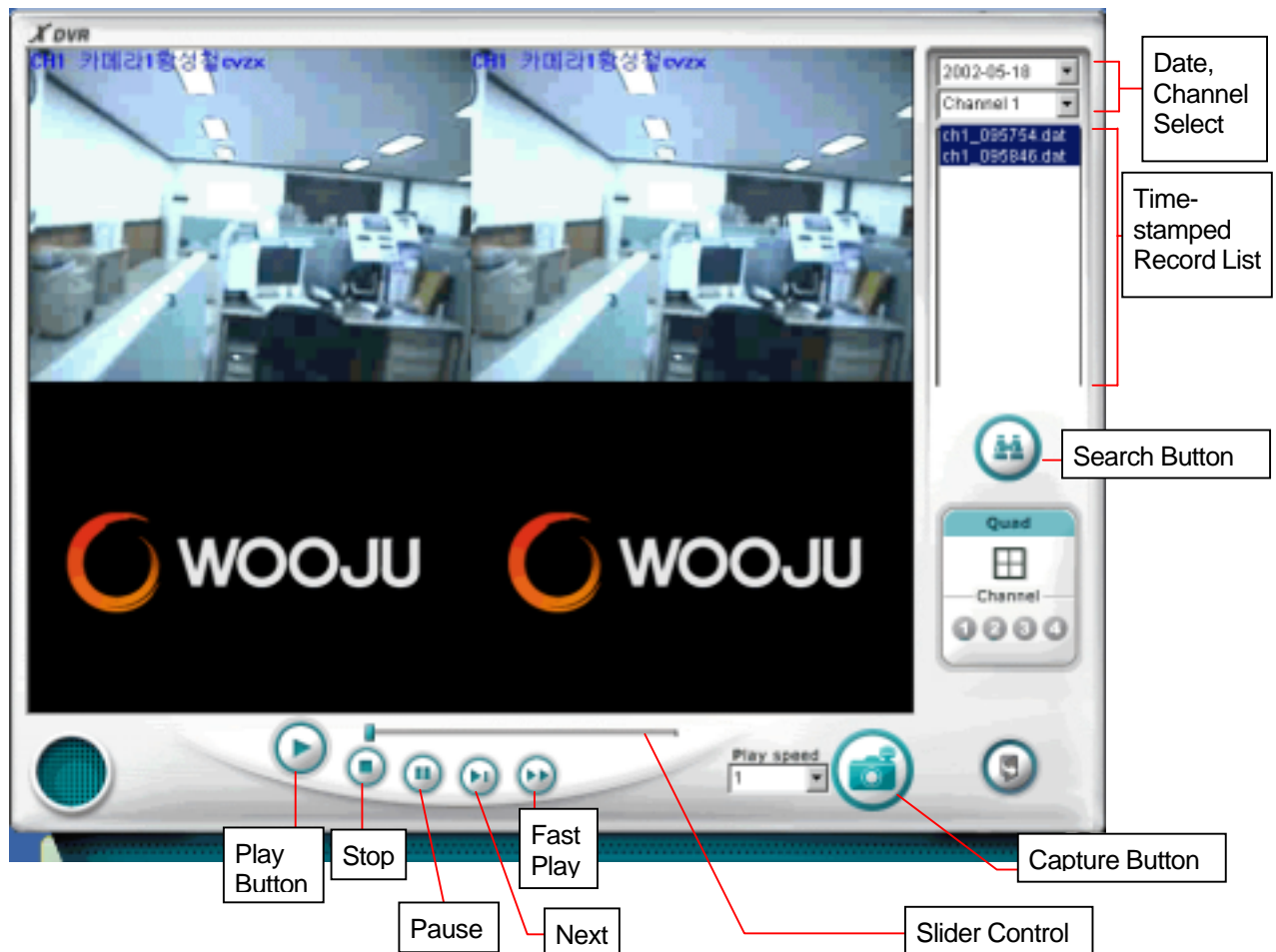
11 - System Shutdown Button enables you to stop the execution of the xDVR system.

12 - Network Connection Status changes its color to red when it indicates that the system is connected to at least a client through a network.

2.2 SEARCH MODE

A. Major Functions

In this mode, you can search and find whether there is any recorded surveillance video clips for a specific scene. The video clips are searched by date, specific channel number, and time. This mode also enables you to capture the video image when clicking the Capture button(   ).

B. Search Procedure

(1)   You select the date and channel number from the pull-down list.

(2)　Click the search button.
(3)　The list of the video clip file names appears. Now you can know what time each video clip file began to be recorded at from its file name.
* The file name format is *hhmmss*.dat. In the file name, hh means for the hour, mm for the minute, ss for the second to represent the exact time the recording began for that specific file.
(4)　You choose the file or files by mouse clicking. The white-on-dark blue file name signifies that it was chosen to look at. Remember that any choice can be cancelled by unclicking it.
* If you click one file name from the file list, its color is reversed. If you click the same file once more, the color changes to its original.
(5)　You click the Play button (　). The video clips are played on your computer screen.

C. Viewing the Chosen Surveillance Video Clips

(1)　Single and four-channel displays are both possible. You can choose 4-channel display by clicking "Quad" button. One-channel display is possible by clicking any button named from 1 to 4 on "Channel" section.
(2)　Various replay speed are supported. The speeds available are 1, 2, 3, and 5-fold speed to review the chosen DVR video clips.
(3)　There are various controls for useful viewing functions.
■ Play button : Plays the chosen video clips.
■ Stop button : Stops the current playing video and goes to the beginning.
■ Pause button : Pauses on the scene shown when you clicked this button.
■ Next button : Next image frame will be shown by clicking this button.
■ Fast Play button : The video will be played very fast (25 times faster than normal).
■ Slider control
　　- It consists of a slider bar and the scale line.
　　- The scale line denotes the full range of the video clip played.
　　- As a indicator, it moves along with the progress of playing the video file.
　　 - As a control, when you click and drag the bar on the scale line, the current video scene will move accordingly.

D. Capturing a Scene

To get a capture of a certain image from Search Mode display,

you click the Capture button (　) in Search Mode.

E. Returning to Main Mode

The close (　) button when clicked returns you to the Main Mode screen.

2.3 CAPTURE MODE

A. Major Functions

From Search Mode by pressing Capture button, new dialog window pops up and the window shows you the captured image and several options to process it. This is Capture Mode.

B. Display and Buttons

The captured scene a still picture in 480 X 360 size. It can be chosen to be saved as a file in bitmap (.bmp) or jpeg (.jpg) format. And it can also be printed out.

- ■ Print button : Clicking this button makes the captured scene to be printed out.
- ■ Save button : By pressing this, you can choose between file formats, .bmp or .jpeg.
- ■ Undo button : By pressing this, the previous image (if any) before present image shown are restored. But this restoration is limited up to 100 times.
- ■ Default button: The present image is restored to original image.

C. Saving Formats

Both bitmap (.bmp) and JPEG (.jpg) file formats are supported.

D. Image Adjustment

Brightness, Contrast, Hue, and Saturation can be increased/decreased on the fly.

E. Returning to Search Mode

When the close (🖼) button is clicked, this Capture window disappears and control is returned to the Search Mode from which you came.
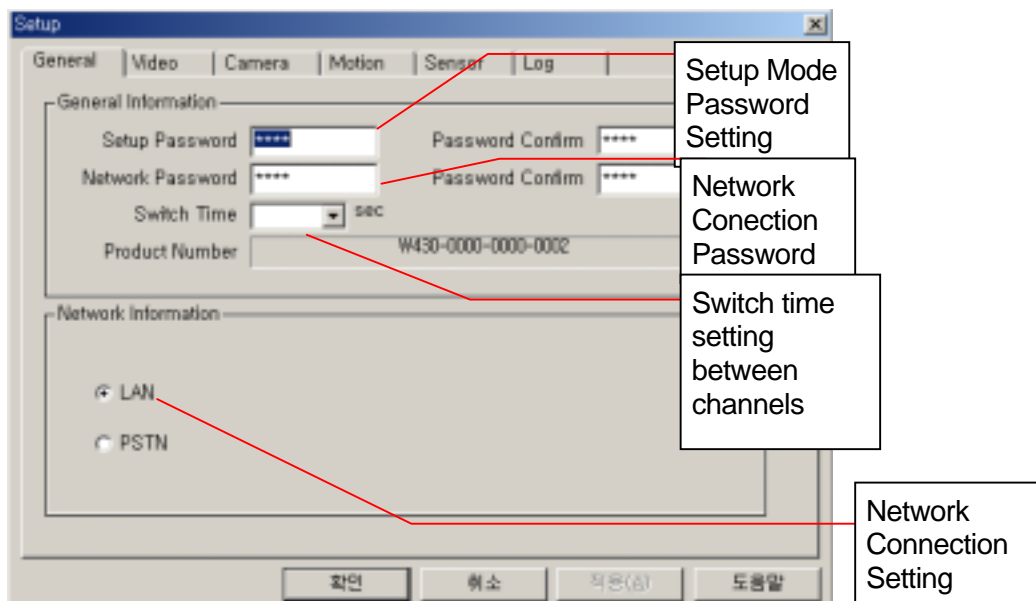
2.4 SETUP MODE

A. Major Functions

You enter this mode by clicking Setup button (🖼) from Main Mode. This Setup Mode enables you to do most configuration of xDVR system. The objects to set up here are many and various. For example , there are settings for viewing image adjustment result, motion-detected auto-recording and alarm, sensor-detected auto-recording and alarm, and many other settings. Thus for user's convenience, the settings are grouped into six categories: General, Video, Camera, Motion, Sensor Setups. Additionally, Log View is here to view xDVR's operation time log. Only Log View do not set any value in this mode. Log View is for viewing, printing, clearing xDVR operation time logs.

You can choose any one group of the Setups by clicking any one tab title (among General, Video, Camera, Motion, Sensor) from Setup Mode window.

Any new change in the settings can be applied to the image or tested on the fly on Video and Motion Setups. The rest of all the Setup changes cannot be checked until user returns to Main Mode.

B. General Setup

Below window is the dialog window for General Setup part. From Main Mode by pressing Setup button, new dialog window pops up and this window firstly shows you General Setup part of Setup Mode. This Setup dialog window is for setting up basic operation environment for your xDVR system. .

■ In this Setup window, you can specify basic settings for your xDVR system. .

■ General Information part
○ Setup Password : The password to enter the Setup window is set.
○ Network Password : The password to establish network connection is set.
○ Switch Time
- Used when single channel display is used.
- The duration time for each alternate channel video is set up here.
- Default duration is two seconds.
- The selectable discrete range is from 1, 2, 5, 7 to 10 seconds.
○ Product Number : This will be used for mobile IP connection to server.
- The Product Number is the unique number given to each xDVR server product.
- This is registered automatically when xDVR server starts to mobile IP server together with its corresponding IP number.
- By this value, authentication to decide whether the requesting xDVR client is truly the right client for a specific xDVR sever takes place.
- When it is the proper product number of that xDVR system, the xDVR IP server on Internet gives the client the server's current IP number.
- Therefore, every xDVR client can connect to its xDVR server when the client do not know the server's IP number or wants to know the current IP given to the xDVR server at the moment.

■ Client to mobile IP Server Connection Procedure

A. Server's Product Number is registered into xDVR server during installation.
B. After this, when server starts, the product number and its current IP address is always registered into a mobile IP server operated by Wooju Communications Co..
C. Any remote xDVR client can connect to its xDVR server directly when it knows the current IP address of the server.
D. If the xDVR client does not know IP address of the server, it can supply the Product Number of that server to a mobile IP server in order to get the server's current IP address.
E. The mobile IP server respons to the requested client with the server's IP number if it knows the corresponding IP address.
F. Now the client gets to know the server's IP address and establishes direct IP network connection to its server.

   * If an xDVR client is connected to Internet, no matter wherever it is, it can watch its server's real-time surveillance video remotely.

■ Network Information part
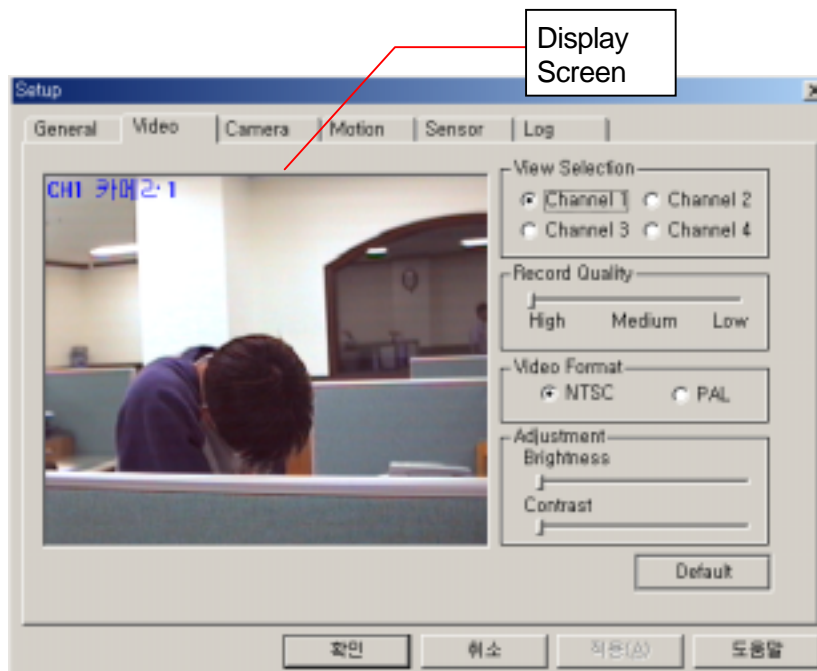   In this mode you can select the networking type you want to make, LAN or PSTN (phone line) networking.
○ LAN : Default selection is LAN networking.

○ PSTN connection select : You can select alternate PSTN networking by checking.
(Then, the default setting for LAN is removed.)

* After user's clicking PSTN radio button, next connection attempts to server is made through phone lines.

C. Video Setup

User can set the envirement related with the video image input from the xDVR capture board here.

■ Display Screen
- The result of changing settings (Record Quality, Video Format, Brightness, and Contrast) are directly reflected on this screen.

■ View Selection part
- You can select the reference video channel among four channels here.
- The chosen channel's dynamic image is changed directly by reflecting the adjustment done below.
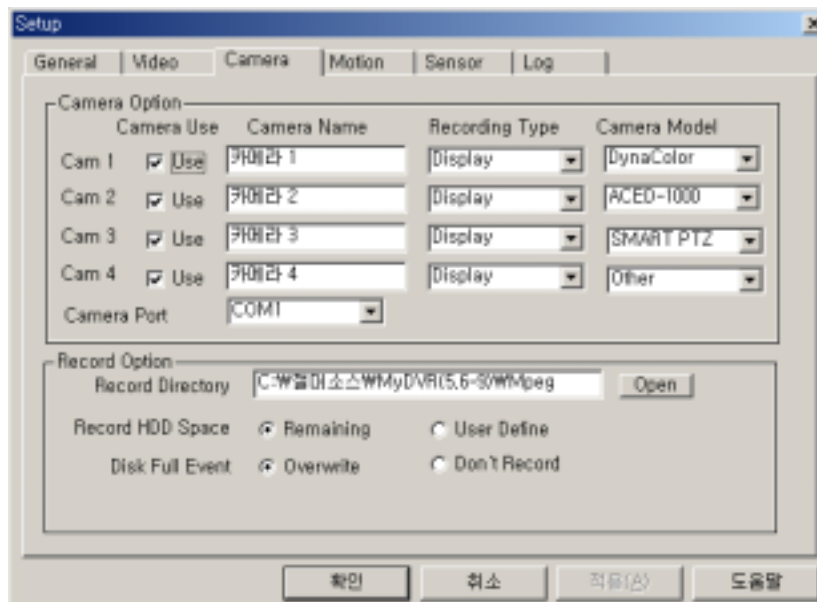
■ Record Quality (Bit Rate) part

■ Video Format (NTSC 또는 PAL) part
- You should set xDVR-connected camera type.
- All cameras should be of the same kind: NTSC or PAL.

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■Record Quality (Bit Rate) part : Encoding bit rate (for MPEG4) is set here.
   - Low : Low bit rate is used in image compaction. Thus the storage requirement
          becomes less severe in quantity, but the clarity of images becomes less good.
   - High: High bit rate is used in image compaction. Thus the storage requirement
          becomes more severe in quantity, but the clarity of images becomes better.
   - Medium : For this setting, you can expect relatively medium compaction ratio and
          clarity of saved images.

■Video Adjustment : Brightness and Contrast can be adjusted by mouse drags.

■Default button
      - All the settings here are reset to the preset values.
      - The preset values are : Channel1 selected, Low Record Quality Low, and NTSC
      Video Format.
      - Brightness and Contrast goes to the middle values.

D. Camera Setup

   In this control sheet, you can specify various information related with the cameras
connected to the xDVR system. .

■ Camera Option
   - Camera Use : Checked cameras only will be available to xDVR system.
   - Camera Name : On each channel's video image (coming from its camera), any
informative banner (e.g. location) described here can be written on.
     (* Notice: The length is limited as 20 characters for English and 10 characters for
Hangul.)
   - Recording Type : User can choose from following three options.
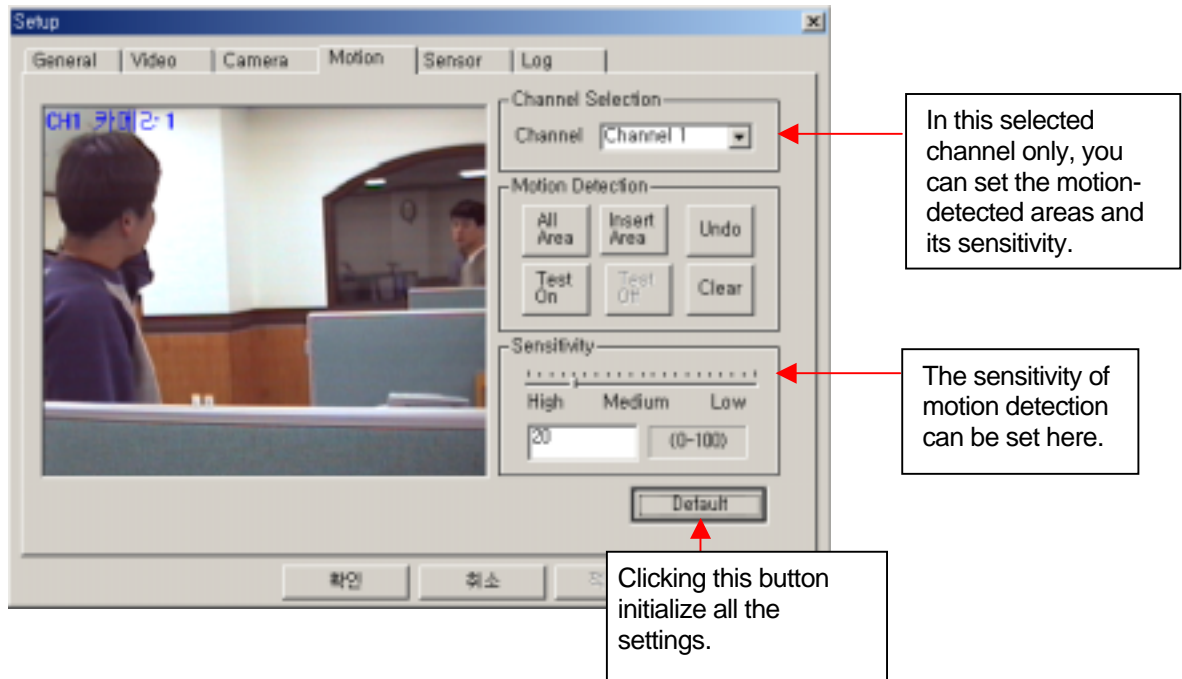
a. Display : Just showing, not recording
b. Full   : Showing and recording always at the same time.
c. Motion : Recording begins when any motion is detected in the specified area.
   - Camera Model : For Pan/Tilt/Zoom camera, the specific camera User can choose
from following three options.

■ Record Option
   - Record Directory : This directory is used as recording directory.
   - Record HDD Space options
      a. Available : Recording continues until all the available hard disk space runs out.
      b. User Define : Recording generates Disk Full Event when it reaches the amount of
mega bytes defined here by user.
   - Disk Full Event : When the recording cannot proceed because of the limited hard
disk space, one of following options are applied. The default value is 'Overwrite'.
      a. Overwrite : Deletes The oldest file is deleted and the recording continues.
      b. Don't Record : Recording is stopped.

E. Motion Setup

In this control sheet, you can set motion-detection area for each channel.

By mouse dragging, you can designate red small boxes to appear on this sheet's
display. The area will be the motion-detection area.

■ Motion Detection buttons
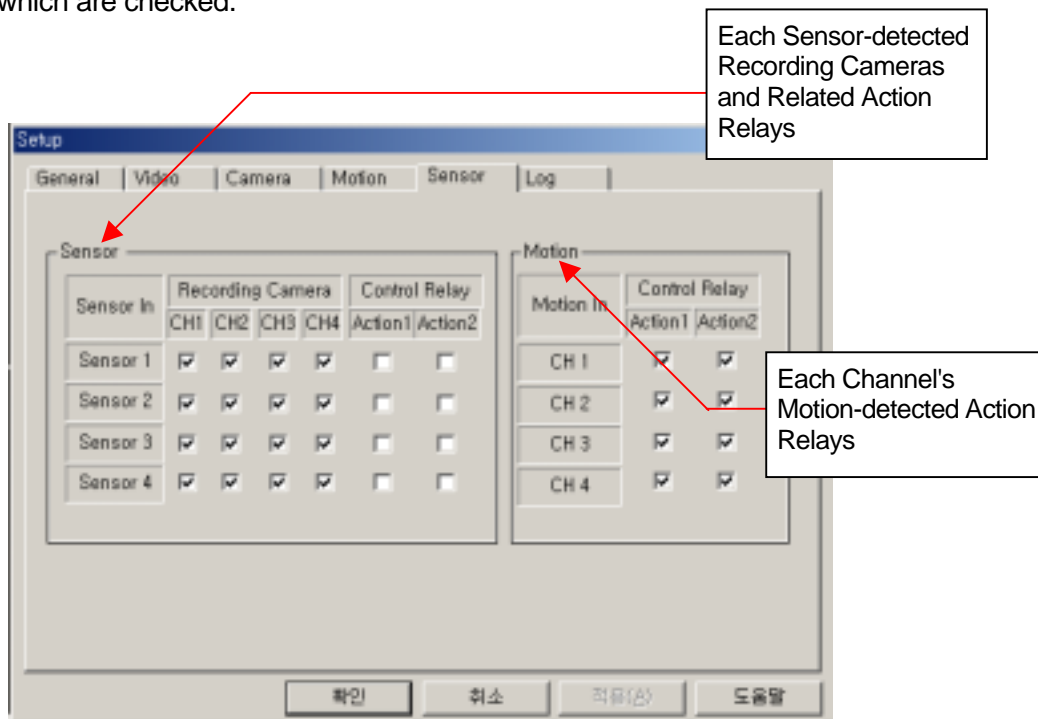   ○ All Area : All the area of the channel becomes motion-detected..

○ Insert Area : By mouse dragging, user specifies certain areas as motion-detected.
○ Test Start : After the motion-detected area specification, user can test on the fly.
  (Notice: Real recording does not occur.)
○ Undo : Remove just the last motion-detected area designated.
○ Clear : All the motion-detected areas are removed from the channel.

■ Sensitivity : Motion-detection sensitivity ranges from 0 to 100.

F. Sensor Setup

This group can set functioning sensors and their corresponding actions (including auto-recording and relay actions).

■ Motion-detected actions (e.g. alarm, siren, etc.) can also take place by action relay which are checked.

Each Sensor-detected Recording Cameras and Related Action Relays

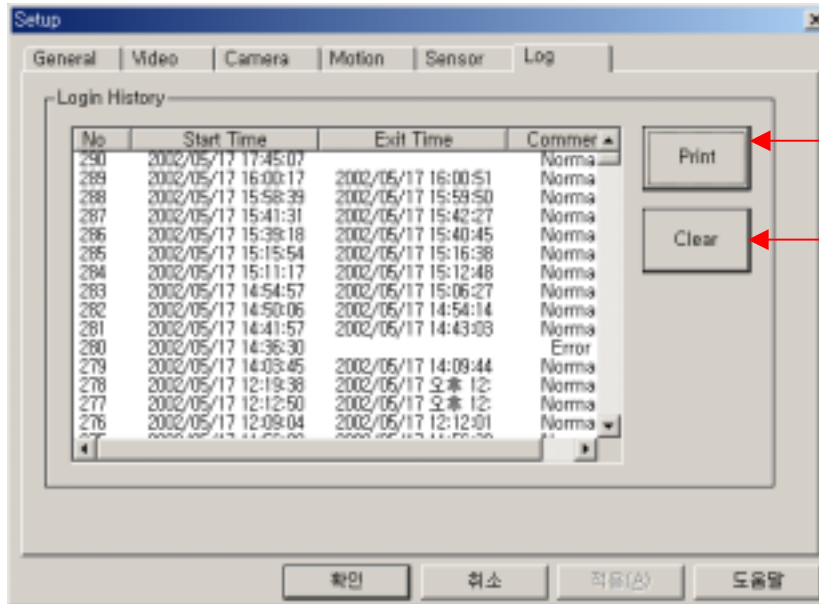Each Channel's Motion-detected Action Relays

■ Up to four sensors are attached to xDVR server system to record the surveillance images or to invoke proper actions by up to two connected relays.

■ In this setting group, up to two relays can be triggered by their related channels' motion detection.

G. Log View

The log on/log off time record for xDVR server system is maintained here.

■ The normal starting, normal ending, abnormal (abrubt) exit times are recorded in their event sequence accumulatively.

Clicking this button makes the log list printed out.

When you click this, the whole list is cleared.

3. HOW TO USE xDVR CLIENT

3.1 SETUP MODE

Any one who travels abroad can see remote surveillance video with LAN connection or PSTN (phone) connection. This is possible by installing the xDVR client program on your portable laptops and using the product number as a password to get a authenticated connection to your server at home or any other place you chose.

■ User's xDVR client can connect to a remote xDVR server through LAN or PSTN.

■ How to connect to your xDVR server

- Firstly, you should turn on your xDVR client by clicking the xDVR client icon on your computer screen.
- After this you click the Setup button on your xDVR client Main Mode screen.
- From now, you can select one from 1) LAN (or Internet) connection and 2) PSTN (= phone line) connection.
-

1) LAN connection

a. Turn on DVR Server system.
b. Select LAN radio button of 'Network Information' part in Setup Mode on DVR Server system.
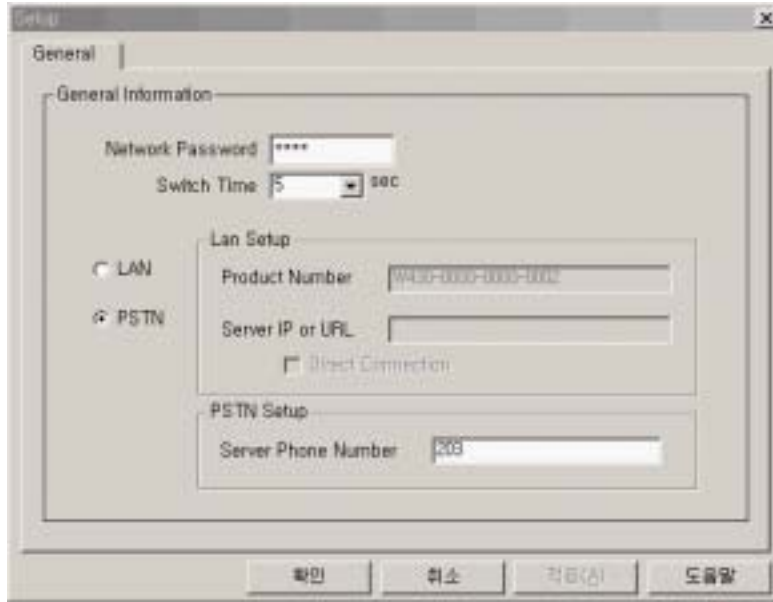(* We will assume that your Client DVR system is turned on already.)
c. Select LAN radio button from the xDVR client's Setup Mode.
d. If you know the xDVR server's IP number or URL address, just type in that to "Server IP or URL" field and go to step g. Or if you do not know the exact IP number of the xDVR server or URL address, you can just input your xDVR server's Product Number. This Number will be available to you already when you purchased your xDVR system.
e. Click "Confirm" button.
f. The floating IP Server operated by Wooju will give you back the exact IP number of the xDVR server (only if it is connected to Internet already) in "Server IP or URL" field.

g. Now just click "Ok" button.

h. The Main Mode becomes available again. Click the Connection Button.

i. The connection between your xDVR client and its server will be established in a minute.

j. Immediately after the connection is made, you can see the xDVR server's real-time surveillance video directly. Enjoy it!

2) PSTN (Modem to modem) connection procedure

a. Modem H/W and S/W driver installment to your DVR server and client systems.

b. Turn on DVR Server system.

c. Select PSTN radio button of 'Network Information' part in Setup Mode on DVR Server system.

d. Turn on Client DVR program.

e. Select PSTN radio button from the xDVR client's Setup Mode.

f. Set Server Phone Number (as when you dial up to it) in PSTN Setup part from the xDVR client's Setup Mode.

g. Click "Confirm" button from the xDVR client's Setup Mode.

h. Select Connect button – You can hear the sound of "modem trying to connect" you're your xDVR client system. Normally your xDVR client would be connected to Server after 5-10 sec. (When you fail to connect to server due to telephone line's traffic circumstance, please try this step again.)

i. Immediately after the connection is made, you can see the xDVR server's real-time surveillance video directly. Enjoy it!

3.2 DISPLAY MODE

You can see the real-time monitored surveillance video images sent from you remote xDVR server immediately after when your client's connection to its server succeeded.

■ In this client's window, you can the connection button's color is changed from green to red. This indicates that the client is connected to its server now.

■ All the buttons' functions are the same as in a xDVR server system except of Setup button.

■ Setup button-related operations are explained fully in Section 3.1 already.

| **Thank you for using xDVR system.** | **Wooju Communications Co., Ltd.** |

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