16CH Digital Video Recorder

User's Manual

SAFETY PRECAUTIONS

⚡ (lightning flash symbol)	**CAUTION**	⚠ (exclamation symbol)
	RISK OF ELECTRIC SHOCK DO NOT OPEN	

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

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

The lightning flash with arrow point symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

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

Warning
To reduce the risk of fire or electric shock, Do not expose this product to rain or moisture.
Do not insert any metallic object through ventilation grills.

Power disconnect : Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the main source; However, the unit is operational only when the ON-OFF switch is in the ON position. To disconnect it from the main source, you have to disconnect the Power cord.

FCC COMPLIANCE STATEMENT

A CLASS A computing device subject to certification by the Commission shall be identified pursuant to Par 2.925 et Seq of the chapter. In addition, the label shall include the following statement:

This device complies with Part 15 of 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 undesired operation.

Where a device is constructed in two or more sections connected by wires and marked together, the statement specified in this Section is required to be affixed only to the main control unit.

The users manual or instruction manual for the EUT shall contain the following statement or equivalent.

Caution : Changes or Modifications not expressly approved by the party responsible for compliance could void the users authority to operate the equipment.

If the EUT requires accessories such as special shield cables and/or connectors to enable compliance with emission limits, the instruction manual for the EUT shall include appropriate instruction on the first page of the text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

For a CLASS A digital device or peripheral, the instruction furnished the user shall include the following or Similar statement placed in a prominent location in the text of the manual.

Note : This equipment has been tested and found to comply with the limits for a CLASS a digital device, pursuant to Part 15 of 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 in stalled and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the this equipment in a residential area is likely to cause harmful interference in which cause the user will be required to correct the interference at his own expense.

Before Starting Your DVR Operation

This document is a basic manual for the DVR users.
This manual describes the appearance and name of products, how to configure the system program, and how to use the system.
Before using DVR, a user should read the contents of user manual, and then deal with the product considering the precautions defined in the manual.
To open the system case and touch the inner parts for corrective maintenance, a user should contact the place where he/she purchased the products to get the help from expert.
In addition, if there is any question for use or any damage on the product, please contact call the place where he/she purchased the products.

Precautions for safety (User should observe)

1. Precautions for installation

- Install the product on a flat floor not closed and retain the distance of more than 15 cm from the rear panel to the wall.

- Install the product on a well-ventilated place.

- Keep it away from strong magnetism or electromagnetic wave.

- Installing it near radio equipment such as TV and radio may cause a fault.

- Do not install it on a place that is exposed directly to the sun or contains lots of heat such as near a heating apparatus.

- Do not install it on a cold place.

- Place the equipment or tools in the site remote from a busy road so that people are not hurt.

- Do not install it on a place where there is severe vibration, much humidity or soot.

- Should use the product in the rated voltage (The equipment is used as both 110V and 220V, but it is set to 220V for delivery. It is possible to adjust it with the changeover switch on the rear panel.)

- Connect it to the outlet with the ground terminal.

- Discard the vinyl bag well. (It is dangerous to put it on the head.)

2. Precautions for use

- For the repair, contact the company or the place where you purchased the product.

- Read the user manual before using the product.

- Do not open the cover at your discretion because there are parts sensitive to the environment within the equipment.

- Arrange the power cord safely and do not touch it with wet hands.

- Do not use a loose outlet or a damaged power cable.

- Do not use benzene, thinner and alcohol for cleaning. They may deform the product.

- Do not touch the exposed terminal.

- For the power-off of system, normally turn off the power of the program and then, power off the peripherals. (Do not power it off with the power button on the front panel of body.)

- Be careful to prevent a conductive object from falling into a hole that was punched for ventilation.

- Do not dissemble and remodel the product.

- Do not place a heavy thing on the body.

- Do not give a shock during the movement of equipment.

- If you use the product in the state of smoke or smell emitted, it may cause a fire or an electric shock. For this case, immediately block the power switch and contact the company or the place where you purchased the product to consult it with a special technician.

This user's manual is subject to change without any notice by function upgrade and so on.

Table of Contents

I.   Introduction

1. Package Content
When purchasing this product, unpack it at first and unload it on a flat
floor or a place where it is to be located. Then, verify that the following contents are
contained.

- 16CH DVR
- Adapter (12V/5A)
- Rack Mount Bracket
- User's manual
- Remote controller (Optional)
- Install CD
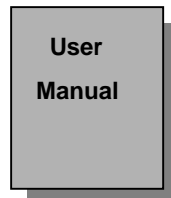- 8CH BNC cable harness for loop through video output. 2EA (Optional)

16CH DVR

Adapter

Rack Mount Bracket

User's Manual

Install CD

Remote controller
(Optional)

BNC cable harness
 for loop (Optional)

2. Features

This DVR provides recording capabilities for 16 camera inputs. It provides playback or live display and network function while in recording mode. And also it offers the following features:

◆ **16 Composite Input Connectors/ 16 Loop-Through Video Connectors**
   - Compatible with Color (NTSC or PAL) and B&W (CCIR and EIA-170) Video

◆ **Display and Record Video Resolution**
   - Display Resolution: NTSC (720x240), PAL (720x288) real time display
   - Display mode: Full, QUAD, 8/9/10/16 picture display mode and
                   Sequential Image Display

◆ **Compression: M-JPEG**
   - Standard image, high quality; 16KB / field

◆ **Multiple Search Categories (Date/Time, Event, Manual, Schedule)**

◆ **Records up to 60 NTSC IPS (50 PAL Images per Second)**
   - Normal Recording: 16CH multiplexing recording with 720x240 (NTSC), 720x288 (PAL) at field mode.
   - Alarm, Motion recording: 1CH recording at 1 alarm, 1 motion, 16CH multiplexing
     recording at other conditions.

◆ **Continuous Recording in Disk Overwrite Mode**

◆ **Simultaneously Record, Playback and Network**

◆ **Archiving using USB Memory Drive**
   - USB 1.1 Storage Class support

◆ **User-friendly Graphical User Interface (GUI)**

◆ **Manual/ Schedule and alarm/ motion recording Modes (Time and Event)**

◆ **16 Alarm input Connections, 4 relay output connection**

◆ **Network Function**
   - Dynamic IP (DHCP, Floating IP) support
   - Live or Recorded Video Access via Ethernet
   - Remote Configuration
   - DDNS client support

◆ **Audio Recording and Playback**
   - 1ch audio support

3. Front Panel and Rear Panel Connection

Remote controller

USB Memory Drive

Cameras

Microphone

Sensor Input

Alarm Output

Adaptor (12V/ 5A)

Video Out (16CH) for Loop Through

Pan / Tilt / Zoom

Monitor & Spot

Speaker

Ethernet

75 Ohm Terminator

II. INSTALLATION

Front Panel
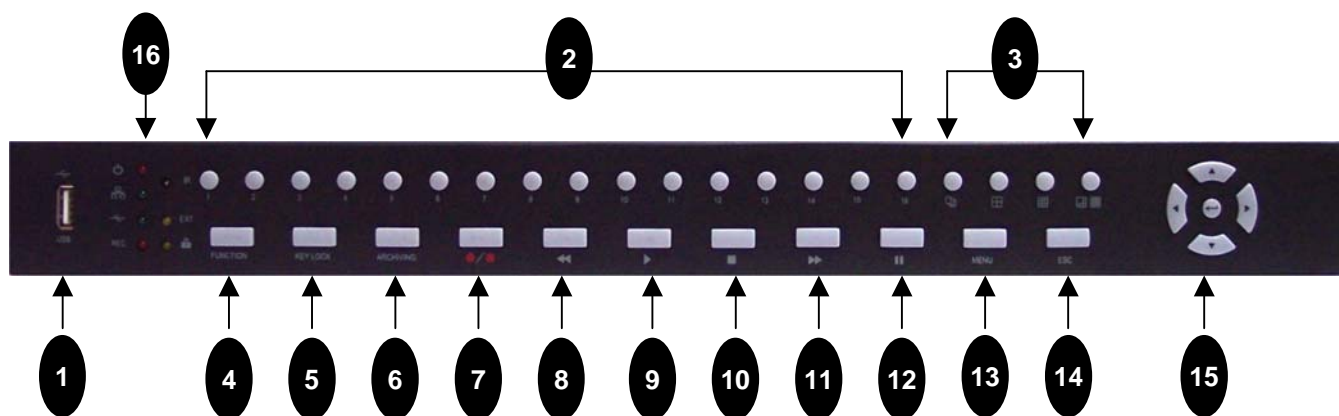
1. USB port
A USB port is provided to connect external USB memory drive for archiving video.

2. Video Display Channel Selection buttons
Channel button from CH1 to CH16 is to select video channel displayed on monitor.

3. Video Display mode selection buttons
There are four kinds of video display modes which consists of sequential display, QUAD, 9CH, 16CH display mode.
Full Picture Display mode: Full picture can be selected by channel selection button from CH1 to CH16.

Sequential Display mode ⧉
If this button is pressed under given video display mode, each video display mode is switched sequentially. For example, if this button is pressed in QUAD mode, QUAD picture is switched sequentially from CH1-4, CH5-8 to CH13-16.

QUAD Display mode ⊞
If QUAD button is pressed, QUAD picture will be displayed. Whenever this button is pressed, QUAD picture including CH1 to CH4, CH5 to CH8, CH9 to CH12 and CH13 to Ch16 will be changed in turn.

9 Picture Display mode ⊞
If 9 picture display button is pressed initially, 9 picture with CH1 to CH9 will be displayed. The coming 9 picture with CH8 to CH16 will be displayed by pressing this button one more. Whenever this button is pressed, 9 picture is switched in turn from (to) CH1 – CH9 to (from) CH8 - CH16.

16 Picture Display mode ⊞
Whenever 16 picture display button is pressed, picture display mode will be changed from 16 picture display to 1+7 display mode, 2+8 display mode.

4. FUNCTION

The main picture in 1+7, 2+8 display of 16 picture display mode can be changed by the combination of FUNCTION and channel selection button. Main picture can be changed by channel selection button from CH1 to CH16 after pressing FUNCTION button.

5. KEY LOCK

In order for only authorized person to operate buttons in front panel, this LOCK button can be utilized. If this button is pressed, all of buttons in front panel are not operated with yellow LOCK LED. To release buttons LOCK, password will be requested just after pressing LOCK button. If correct password is input, button LOCK will be released.

6. Archiving button

Whenever **ARCHIVE** button is pressed, archiving will be started.

7. REC/ STOP button 🔴

Press REC **(Red circle)** to begin record. Press REC to stop recording again. This is toggle button.

8. REW (◀◀)

Press REW to perform high speed backward playback. It support 2 to 16 times playback speed.

9. PLAY button (▶) and 10. STOP button

If **PLAY (▶)** is pressed, search lists will be displayed on monitor. After selecting one recorded file among lists, playback will be started by **PLAY** button. To stop playback, **STOP** button is used. While DVR is in high speed playback mode like FF or REW, it return to playback by **PLAY** button.

11. FF (▶▶)

Press FF to perform high speed forward playback. It support 2 to 32 times playback speed.

12. PAUSE ❚❚

Press PAUSE to pause playback. This PAUSE button can be used for backward or forward movement by one field. The direction of field movement is decided by pressing FF or REW previously.

13. MENU

Press **MENU** button to enter menu system.

14. ESC

ESC button is used to return upper menu and to save set-up parameter at the same time .

15. Direction button and Enter Button

Direction buttons are used to move LEFT, RIGHT, UP and DOWN in menu. They also can be used to input password. ENTER button is used to save parameter, to select parameter in the menu. And also in playback it is used to select one of listed file for playback after searching recorded files by all, time, alarm, motion, manual and so on.

16 LED Indicators
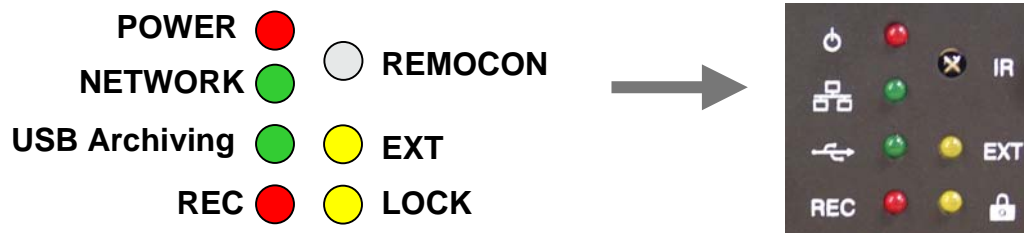
1) POWER LED
   This red LED turns "ON" when Power is "ON".

2) NETWORK indication LED
   This green LED will turn "ON", while data communication is working through network.

3) Archiving LED
   This green LED will turn "ON", while data archiving is working through USB Memory driver.

4) REC
   This red LED will turn "ON" during recording.

5) EXT:
   This yellow LED will turn "ON", when external alarms are triggered or motions are detected.

6) LOCK
   This yellow LED will turn "ON" while LOCK button is working.

7) Remote Controller receiver.
   Remote controller sensor input window

Rear Panel
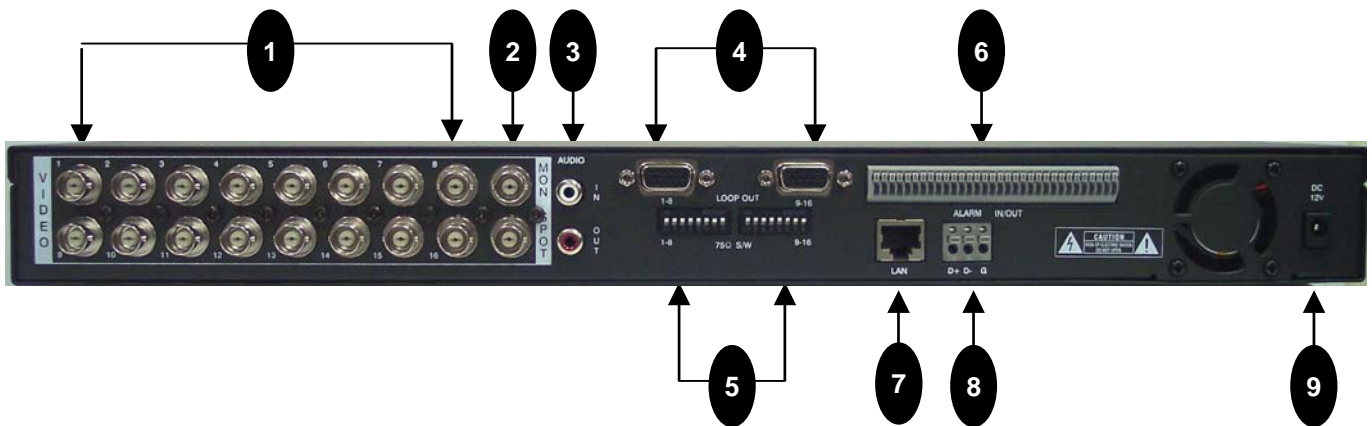
1. 16CH Video Input: 16 channel composite video inputs with BNC connectors
Since this DVR automatically detects video format (NTSC or PAL) as soon as power is
ON, NTSC or PAL video sources can be connected in DVR. But NTSC and PAL video
sources for 16CH video inputs can not be mixed. If they are mixed, DVR can' not be
operated properly.

2. 2CH Video Output
One video output (Upper BNC) is used to monitor live, playback pictures. The other
(lower BNC) is used to monitor SPOT monitoring which displays all of connected video
channels sequentially.

3. Audio input (upper RCA) and Output (Lower RCA)
Unbalanced audio signal input and output with RCA jack. Connect the audio source to
audio input, audio output to your amplifier because the DVR does not have amplified
audio output. A speaker with an amplifier will be needed for audio playback.. The audio
input can be from an amplified source or directly from a microphone.

4. 16CH Loop through outputs: 16 channel composite video outputs with D-SUB
connectors. If the connection of loop-through video outputs into another video
equipments is requested, 16CH Loop-Through outputs can be utilized for it. If loop-
through video outputs will be connected to another video equipments, 75 Ohm
termination switch should be "OFF". Then, another video equipments should be 75 ohm
terminated.

5. 75 Ohm Termination Switch
If you want to connect loop-through video outputs into another video equipments,
75 Ohm termination switch should be "OFF". Then, another video equipments should
be 75 ohm terminated. If loop through video outputs are not connected to another
video equipments, it should be "ON".
If 75 Ohm termination switch "ON" or "OFF" is changed, it will cause poor video quality.

6. Alarm input and relay output: (16 alarm inputs and 4 relay output with NO, NC)
To make secure connections on the Alarm Connector Strip, press and hold the button and insert the wire in the hole below of connector pin. After releasing the pin, pull gently on the wire to make certain it is connected. To disconnect a wire, press and hold the connector pin above the wire and pull out the wire.

16 Alarm Inputs: 1,2,3,4,…, 16,G(Ground)
You can use external devices to signal the DVR responding to events. Mechanical or electrical switches can be wired to the Alarm Inputs and GND (Ground) connectors. The threshold voltage is 4.3V and should be stable at least 0.5 seconds to be detected.

G (Ground), **COM** (common): G is same as common.
Connect the ground side of the Alarm input to G (Ground). Connect the ground side of relay output to COM connector.

4 Relay output:
4 relay output with NO or NC can be sent to external device. You can select NO or NC , according to characteristic of mechanical or electrical switch.

7. Ethernet Port: RJ45 jack
Connect a Cat5 cable with an RJ-45 jack to the DVR connector. Remote PC viewer software via network enable you to live viewing or searching.

8. RS232C serial port
An RS232 port is provided to connect other external equipments. Use DB-9S (female) connector to connect to the DVR.

9. Power Input (from Adapter)
Connect the adaptor to the DVR for DC power supply. (DC 12V/ 5A).

Remote Controller

< Remote Controller buttons >
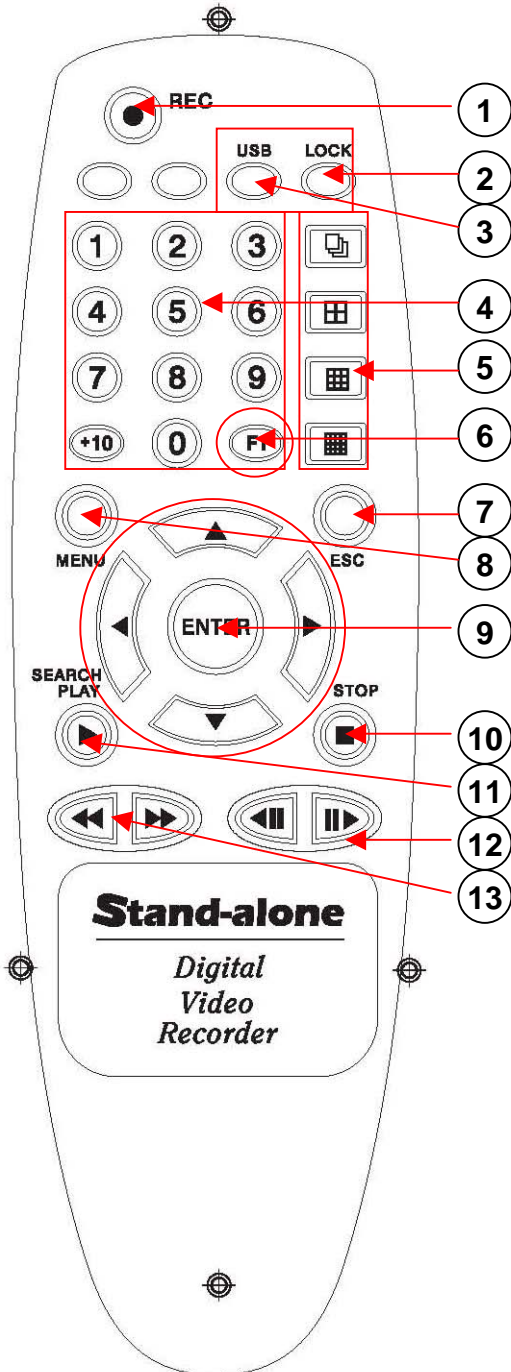
< Button Description >

No	Description	Button Name
1	Recording Start/ Stop button	REC
2	Button LOCK Enable/Disable	LOCK
3	Archiving Start button	USB
4	Video CH selection buttons	1,2,3,…,0, +10
5	1) Sequential display button 2) QUAD display button 3) 9 picture display button 4) 16/ 8/ 10 picture display button	Video Picture Display mode
6	Main picture selection button in 8. 10 picture display mode	Function
7	Movement to upper menu	ESC
8	Movement to menu mode	MENU
9	1) UP (▲) 2) DOWN (▼) 3) LEFT (◄) 4) RIGHT (►) 5) ENTER	Direction (Password Number Input) and ENTER buttons
10	Playback Stop button	STOP
11	Playback Start button	Search/ PLAY
12	PAUSE/ 1 field movement backward. PAUSE/ 1 field movement forward.	Movement forward or backward by 1 Field.
13	Fast Playback buttons	FF, REW

Menu Tree

MAIN MENU
1	SYSTEM SETUP
2	DISPLAY SETUP
3	RECORDING SETUP
4	ALARM SETUP
5	MOTION SETUP
6	WEEKLY SCHEDULE
7	NETWORK SETUP
8	ARCHIVING
9	HDD INFORMATION

SYSTEM SETUP
1	LANGUAGE
2	VIDEO FORMAT
3	PASSWORD
4	ADMIN LOCK
5	TIME FORMAT
6	DATE FORMAT
7	DATE/TIME SET
8	DEFAULT
9	REV STATUS

DISPLAY SETUP
1	ADJUST CHANNEL
	BRIGHTNESS
	CONTRAST
	PTZ TYPE
2	SEQ DWELL TIME
3	SPOT DWELL
4	TIME/DATE OSD
5	CAM NUMBER OSD
6	VIDEO LOSS OSD
7	POP-UP DISPLAY
8	POSITION

ALARM SETUP
1	FRAME RATE
2	DURATION
3	SENSOR TYPE
4	ALARM INPUT
	TRIGGER OUT
5	BUZZER ALERT

RECORDING SETUP
1	QUALITY
2	FRAME RATE
3	AUDIO
4	STOP KEY
5	CAMERA NUM RECORD

MOTION SETUP
1	SENSITIVITY
2	FRAME RATE
3	DURATION
4	CAM NUM
	AREA SETTING
	TRIGGER OUT
5	BUZZER ALERT

WEEKLY SCHEDULE
WEEK	START	DURATION
SUN	00: 00	00: 00
MON	00: 00	00: 00
TUE	00: 00	00: 00
WED	00: 00	00: 00
THU	00: 00	00: 00
FRI	00: 00	00: 00
SAT	00: 00	00: 00
HOLIDAY	NONE	NONE

NETWORK SETUP
1	CONNECT
2	IP ADD
3	SUB NET
4	GATE WAY
5	DNS
6	PORT
7	NTP TIME
8	TIME ZONE
9	DDNS STATUS

ARCHIVING
1	ARCHIVING TYPE
2	ARCHIVING TIME
3	ARCHIVE INFO
	NAME: / TOTAL:
4	ARCHIVE LOG

HDD INFORMATION
1	HARD DISK
	TOTAL
	FREE
2	FORMAT HDD
3	OVERWRITE

III. Main Menu Programming

1. Overview Main Menu

Before using your DVR for the first time, you will want to establish the initial settings.
This includes items such as time and date, password, display, record mode, network
and so on.
In order to program Main Menu, first press **MENU** button of front panel in DVR.
If ADMIN LOCK is set as YES (factory default is YES), below figure will be appeared.

PASSWORD LOGIN
PASSWORD
****
ENTER ▲ ▼ ◄ ► EXIT

Then input password number using 1, 2, 3,
4 Channel Buttons (Factory default is to
press "1" button 4 times), and press
ENTER button. **MAIN MENU** will be
appeared.

NOTE:

To access the DVR Main Menu, press **MENU**. To escape MENU, **ESC** button is also
used. Buttons for movement in Menu are ◄ or ►. Button for selection is **ENTER**,
Buttons for increasing or decreasing parameter are ▲ or ▼. Press **ESC** to return to the
previous MENU after setting and to save the values of setup.

← ◄(**LEFT**), ►(**RIGHT**), ▲(**UP**), ▼(**DOWN**) and **ENTER** buttons.

< MAIN MENU >

MAIN MENU	
1	**SYSTEM SETUP**
2	**DISPLAY SETUP**
3	**RECORDING SETUP**
4	**ALARM SETUP**
5	**MOTION SETUP**
6	**WEEKLY SCHEDULE**
7	**NETWORK SETUP**
8	**ARCHIVING**
9	**HDD INFORMATION**
ENTER ▲ ▼ ◄ ► EXIT	
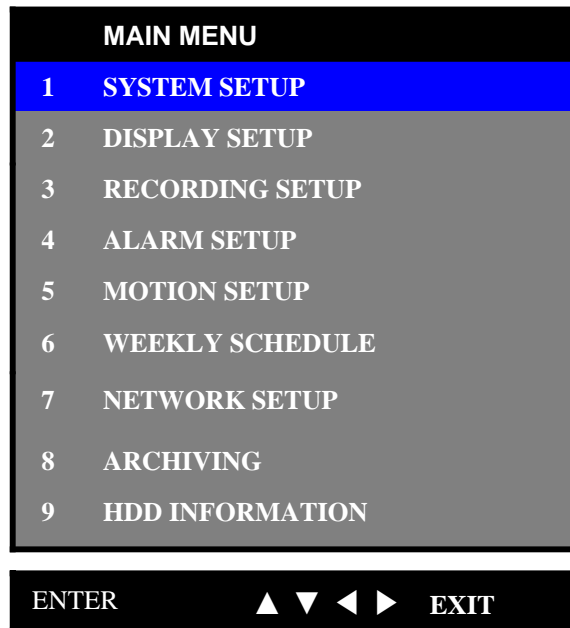
2. SYSTEM SETUP

To access SYSTEM SETUP, press **ENTER** button after moving highlight bar to SYSTEM SETUP in MAIN MENU. Below menu will appear on monitor.

```
┌─────────────────────────────────────┐
│ ①   SYSTEM SETUP                     │
├─────────────────────────────────────┤
│ 1   LANGUAGE          : ENG/CHN      │
│ 2   VIDEO FORMAT      : NTSC         │
│ 3   PASSWORD          : ****         │
│ 4   ADMIN LOCK        : YES          │
│ 5   TIME FORMAT       : 24HOURS      │
│ 6   DATE FORMAT       : MM-DD-YY     │
│ 7   DATE/TIME SET     :              │
│        05: 20: 2005      10:50:11    │
│ 8   DEFAULT           : YES / NO     │
│ 9   REV STATUS        : VERSION      │
│                          1 : 1 : 2   │
├─────────────────────────────────────┤
│ ENTER        ▲ ▼ ◄ ►     EXIT        │
└─────────────────────────────────────┘
```
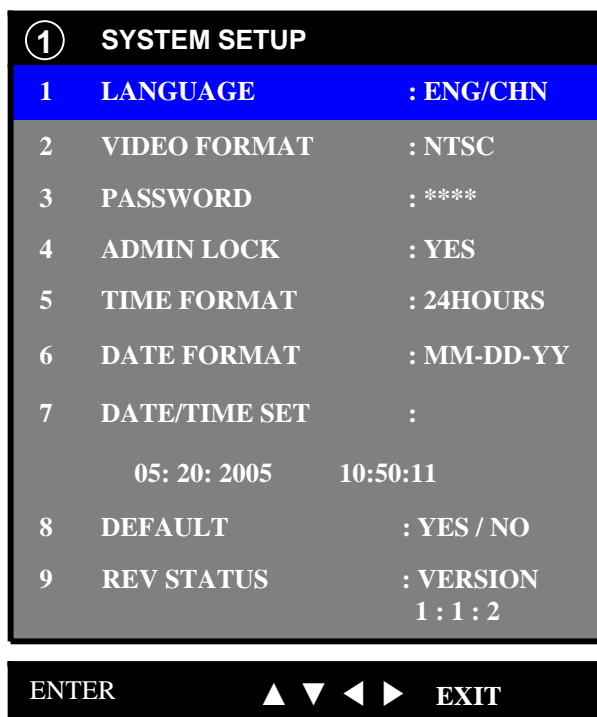
1) LANG : Language Selection
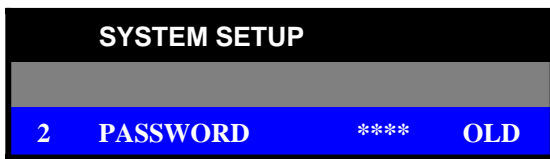The languages supported are English, Chinese, Japanese.

2) VIDEO FORMAT: NTSC/ PAL
Video format is automatically detected after power ON. The detected video information will be displayed on VIDEO FORMAT. User don't need to change video format.
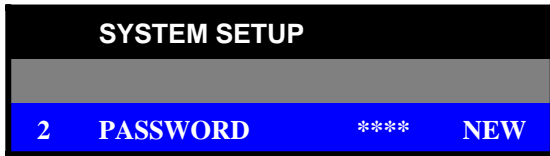
3) PASSWORD:
Move Highlight bar to PASSWORD in the SYSTEM Menu using **DOWN** or **UP** button . And then press **ENTER** to change password. For four digit password input, "1", "2", "3" **and** "4" buttons can be used.
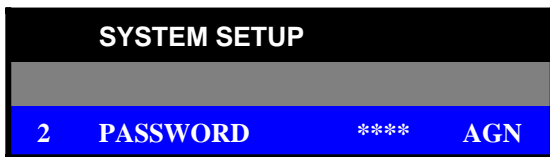
NOTE: **Factory Default is "Pressing 1 channel button four times".**

```
┌─────────────────────────────────────┐
│  SYSTEM SETUP                        │
│                                      │
├─────────────────────────────────────┤
│  2    PASSWORD        ****    OLD    │
└─────────────────────────────────────┘
```
←Input old password. (Factory Default is "Pressing "1" button four times".)

```
┌─────────────────────────────────────┐
│  SYSTEM SETUP                        │
│                                      │
├─────────────────────────────────────┤
│  2    PASSWORD        ****    NEW    │
└─────────────────────────────────────┘
```
←Input new password. Enter the password by pressing the appropriate combination of four number, "1", "2", "3", "4" buttons.

```
┌─────────────────────────────────────┐
│  SYSTEM SETUP                        │
│                                      │
├─────────────────────────────────────┤
│  2    PASSWORD        ****    AGN    │
└─────────────────────────────────────┘
```
←Input new password again to confirm new password.

4) ADMIN LOCK: YES/ NO

Move Highlight bar to ADMIN LOCK in the SYSTEM Menu using **DOWN** or **UP** button . If ADMIN LOCK is selected as YES by **LEFT** or **RIGHT**, password is requested whenever entering menu. If NO, password isn't requested.

5) TIME FORMAT: 24/ 12 HOURS

Move Highlight bar to TIME FORMAT in the SYSTEM Menu using **DOWN** or **UP** button and press the **LEFT** or **RIGHT** button to select 24 HOURS (military time) or 12 HOURS (AM/PM). Whenever Time Format is changed, clock information on monitor and file information in search list will be changed together.

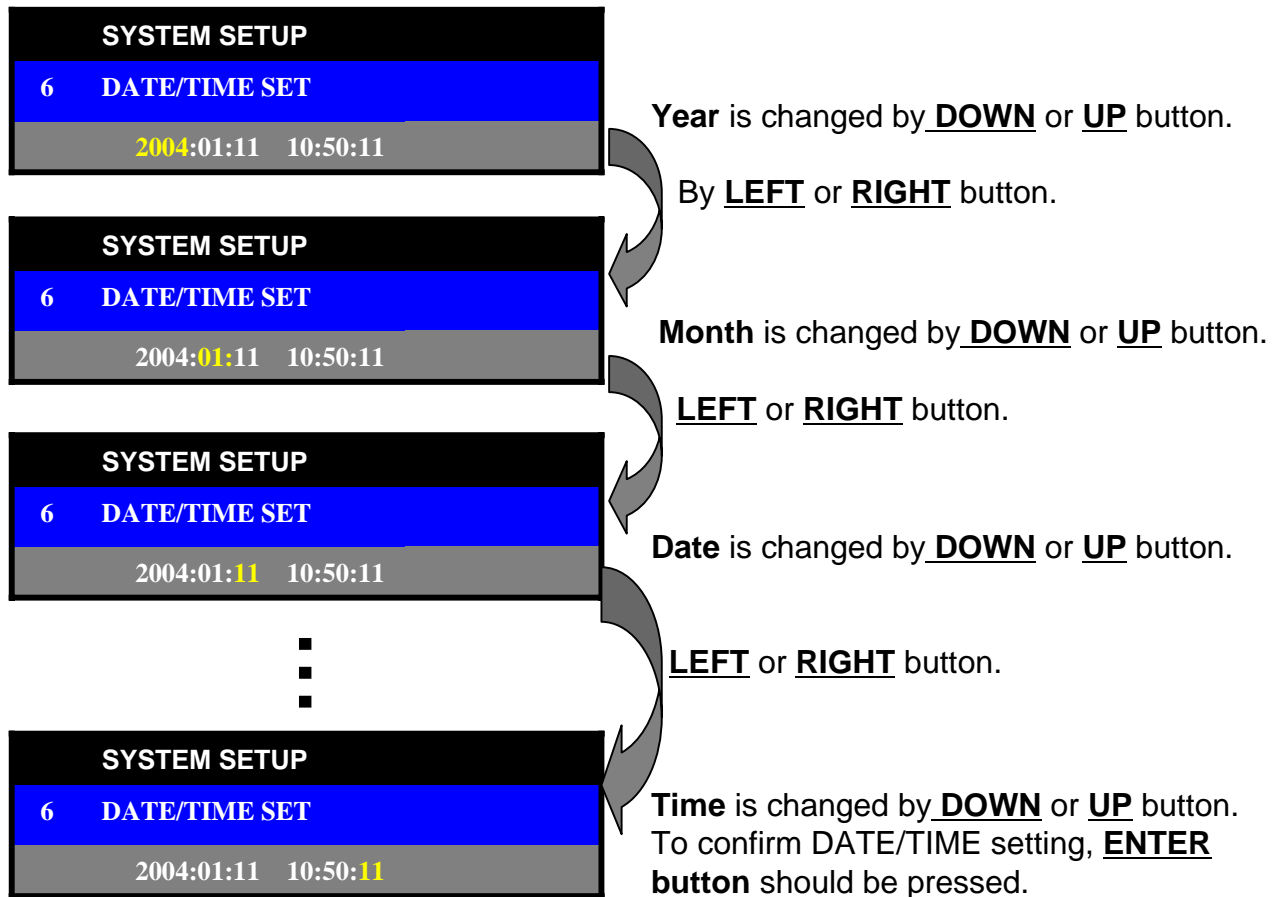## 6) DATE FORMAT: MM-DD-YY/ DD-MM-YY/ MM-DD-YY

Move Highlight bar to DATE FORMAT in the SYSTEM Menu using **DOWN** or **UP** button. Date format can be changed using **LEFT** or **RIGHT** button.

7) DATE/ TIME SET:

Move Highlight bar to DATE/TIME SET in the SYSTEM Menu using **DOWN** or **UP** button. And then press **ENTER** to set the time.

NOTE:
1. If you set a date and time that is older than some of your recorded images, it is not easy to manage recorded files.
2. Before starting your DVR, DATE/ TIME should be setting properly.

SYSTEM SETUP	
6 DATE/TIME SET	**Year** is changed by **DOWN** or **UP** button.
2004:01:11 10:50:11	By **LEFT** or **RIGHT** button.

SYSTEM SETUP	
6 DATE/TIME SET	**Month** is changed by **DOWN** or **UP** button.
2004:01:11 10:50:11	**LEFT** or **RIGHT** button.

SYSTEM SETUP	
6 DATE/TIME SET	**Date** is changed by **DOWN** or **UP** button.
2004:01:11 10:50:11	**LEFT** or **RIGHT** button.

SYSTEM SETUP	
6 DATE/TIME SET	**Time** is changed by **DOWN** or **UP** button. To confirm DATE/TIME setting, **ENTER button** should be pressed.
2004:01:11 10:50:11	

After setting DATE/ TIME, **ESC** or **ENTER** button can be used in order to return upper Menu.

8) DEFAULT: Return to factory default mode.

9)REVISION STATUS
It shows DVR software version. Whenever upgrading software, upgraded version will be displayed.

3. DISPLAY SETUP

②	DISPLAY SETUP	
1	ADJUST CHANNEL	CH1, CH2, …, CH16
	BRIGHTNESS	1-99 %
	CONTRAST	1-99 %
	PTZ TYPE	
2	SEQ DWELL TIME	NONE, 1-60 SEC
3	SPOT DWELL	1-60 SEC
4	TIME/ DATE OSD	ON/ OFF
5	CAM NUMBER OSD	ON/ OFF
6	VIDEO LOSS OSD	ON/ OFF
7	POP-UP DISPLAY	ON/ OFF
8	POSITION	

ENTER   ▲ ▼ ◄ ►   EXIT

To access DISPLAY SETUP, press **ENTER** button after moving highlight bar to DISPLAY SETUP in MAIN MENU. Above menu will appear on monitor.

1) ADJUST CHANNEL: CH1, CH2, CH3, CH4
The camera channel to adjust brightness, contrast can be selected by ADJUST CHANNEL using **LEFT** or **RIGHT** button.

BRIGHTNESS: 1 to 99 %
BRIGHTNESS can be changed using **LEFT** or **RIGHT** button.
- NOTE: Minimum value is 1 (very dark), maximum value is 99 (very bright).

CONTRAST: 1 to 99 %
CONTRAST can be changed using **LEFT** or **RIGHT** button.

PTZ TYPE (Pan, Tilt and zooming protocol selection)
The high end camera(s) with panning, tilting and zooming function would be connected with some of video inputs. The camera(s) has(have) its own control protocol to control panning, tilting and zooming, according to PTZ camera manufacturer.

In order to control PTZ of the camera from remote area by network viewer software, proper PTZ TYPE should be selected in here. Your DVR supports over ten PTZ cameras. According to customer requirements, PTZ control will be added in it.

* NOTE: PTZ stands for pan, tilt and zooming.
* PTZ protocols: Panasonic/ Pelco-D/ PelcoP/ Techwin/ Niko/ DRX502A_DSC230s
     /KRE_301_302/ GC_755_NP/ TOA_CC554/ RAS716LS and so on.

2) SEQ DEWLL TIME: NONE/ 1 to 60 seconds.
   SEQ DWELL TIME can be changed using **LEFT** or **RIGHT** button.
- NOTE: It is just reflected in sequential display mode.

3) SPOT DWELL: 1 to 60 seconds.
   SPOT DWELL TIME can be changed using **LEFT** or **RIGHT** button. All of video channels connected with video inputs of DVR are sequentially switched for video output for SPOT monitoring.

4) TIME/DATE OSD: ON/ OFF
   When it is set as OFF, characters which indicates time/ date will be disappeared on monitor. But time and date information still are added into recording files.

5) CAM NUMBER OSD: ON/ OFF
   When it is set as OFF, characters which indicates camera number will be disappeared on monitor.

6) VIDEO LOSS OSD: ON/ OFF
   When it is set as OFF, black pictures will be displayed in the cameo with video loss. When it is set as ON, "VIDEO LOSS" character with white color will be displayed in blue screen.
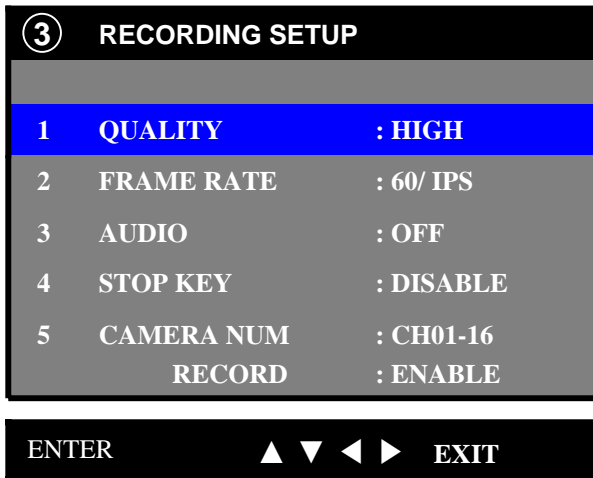
7) POP-UP DISPLAY: ON/ OFF
   When it is set as OFF, pop-up image of camera which motion detection or alarm triggering is occurred will not displayed. When it is set as ON, the channel (s) which motion is (are) detected or external alarm is (are) triggered will be POP-UP in monitor during maximum 30 seconds. In case that motion detection or alarm event is occurred more than two channels, POP-UP picture will be appeared in monitor turn by turn during 3 seconds for each channels. Total period of POP-UP display is 30 seconds.

8) POSITION: According to monitor, even same Video signal can be displayed on different position of monitor by the deflection characteristic of it. In this case, vertical and horizontal display position can be adjusted by "VERTICAL" and "HORIZONTAL" of POSITION.

POSITION		
1	VERTICAL	: 52
2	HORIZONTAL	: 205
3	DEFAULT	: NO

4. RECORDING SETUP

```
③  RECORDING SETUP

1   QUALITY          : HIGH
2   FRAME RATE       : 60/ IPS
3   AUDIO            : OFF
4   STOP KEY         : DISABLE
5   CAMERA NUM       : CH01-16
        RECORD       : ENABLE

ENTER        ▲ ▼ ◄ ►    EXIT
```

To access RECORDING SETUP, press **ENTER** when RECORDING SETUP in MAIN MENU using **DOWN** or **UP** is highlighted with blue color. The menu above will appear on monitor.

1) QUALITY: LOW, STANDARD, STANDARD PLUS, HIGH
Your DVR support four recording quality from low to high. It can be selected using **LEFT** or **RIGHT** button.

2) FRAME RATE: 60, 30, 15, 10, 5, 1, 0.5 IPS.(NTSC)
Your DVR support several frame rates from 0.5 to 60 Image per seconds for NTSC from 0.5 to 50 IPS for PAL. It can be selected using **LEFT** or **RIGHT** button.
NOTE: **when your DVR is in recording mode, some of parameters related to RECORDING can't be changed.**

3) AUDIO: ON/ OFF
Your DVR can select whether to record audio signal with video signal together or not. It can be selected using **LEFT** or **RIGHT** button.

4) STOP KEY: DISABLE/ ENABLE
In case of manual recording, manual recording is started and stop by the **REC/ STOP button** 🔴 **.** This STOP KEY **ENABLE** can protect the **"recording stop"** which is not intended.
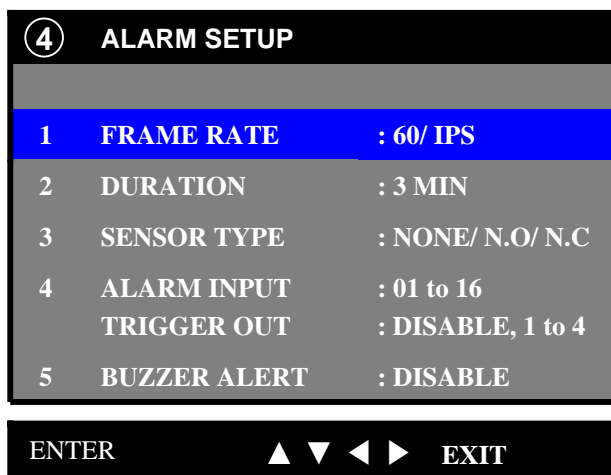
NOTE: **While your DVR is on recording mode, it doesn't support the setup related to the recording including recording quality, frame rate, audio ON/ OFF and date/ time setup in SYSTEM SETUP.**

5) CAMERA NUM: CH01-16
        RECORD: ENABLE/ DISABLE
Recording channel from CH1 to CH16 can be selected separately. The video channel which don't need to record can be set **"DISABLE"** after selecting channel in CAMERA NUM.

5. ALARM SETUP

```
④  ALARM SETUP

1    FRAME RATE        : 60/ IPS

2    DURATION          : 3 MIN

3    SENSOR TYPE       : NONE/ N.O/ N.C

4    ALARM INPUT       : 01 to 16
     TRIGGER OUT       : DISABLE, 1 to 4

5    BUZZER ALERT      : DISABLE


ENTER              ▲ ▼ ◄ ►   EXIT
```

To access ALARM SETUP, press **ENTER** when ALARM SETUP in MAIN MENU using **DOWN** or **UP** is highlighted with blue color. The menu above will appear on monitor.

1) FRAME RATE: 60, 30, 15, 10, 5, 1, 0.5 IPS.(NTSC)
  Your DVR support several frame rates from 0.5 to 60 Image per seconds for NTSC from 0.5 to 50 IPS for PAL. It can be selected using **LEFT** or **RIGHT** button.

2) DURATION:
  It define recording duration after motion is detected. This DVR support 10 sec, 30 sec, 1,2,3,4,5,6,7,8,9,10,20,30,40,50,60 minutes. It can be selected using **LEFT** or **RIGHT** button.

3) SENSOR TYPE: NONE/ N.O/ N.C
  Your DVR can select the input type for external alarm inputs which usually has normal open or normal close using **LEFT** or **RIGHT** button.

4) ALARM INPUT (Relay TRIGGER Out):
  Your DVR support both dry open and dry contact through relay output port 1 to port 4. It can be selected using **LEFT** or **RIGHT** button. Trigger Output 1 to 4 corresponding to alarm input from 01 to 16 can separately be designated. For example, trigger output for alarm input 01 can be designated as " DISABLE"(when trigger output isn't needed). Trigger output for alarm input 02 can be designated as "trigger output 1". Trigger output for alarm input 10 can be designated as "trigger output 3". Trigger output for alarm input 16 can be designated as "trigger output 4".

5) BUZZER ALERT: DISABLE/ ENABLE
  If external alarm sensor(s) be triggered, beep sound from buzzer by **BUZZER ALERT** with **ENABLE** would be occurred during two seconds.

6. MOTION SETUP

```
┌─────────────────────────────────────────────────────┐
│  ⑤      MOTION SETUP                                 │
├─────────────────────────────────────────────────────┤
│                                                     │
│  1    SENSITIVITY            : Normal               │
│  2    FRAME RATE             : 60/ IPS              │
│  3    DURATION               :  1 MIN               │
│  4    CAM NUM                : CH1 – CH16           │
│         AREA SETTING         : DISABLE, ALL, SETUP  │
│         TRIGGER OUT          : DISABLE,  1 to 4     │
│  5    BUZZER ALERT           : DISABLE              │
├─────────────────────────────────────────────────────┤
│  ENTER              ▲ ▼ ◀ ▶   EXIT                  │
└─────────────────────────────────────────────────────┘
```

Your DVR has built-in video motion detection function. Motion detection Enable/ Disable, motion area can be selected separately for each camera. When your DVR detects motion, it begin to record multiplexed video signals from the camera or cameras which motion is detected and display only the camera with motion during 30 seconds. Recoding duration can be selected in MOTION SETUP menu. To access MOTION SETUP, press **ENTER** when MOTION SETUP in MAIN MENU using **DOWN** or **UP** button is highlighted with blue color. The menu above will appear on monitor.

1) SENSITIVITY: 5 steps (very low, low , normal, high, very high)
   Your DVR support 5 sensitivity levels. It can be selected using **LEFT** or **RIGHT** button.

2) FRAME RATE:
   Your DVR support 60, 30, 15, 10, 5, 1, 0.5 IPS for NTSC. 50, 25,16, 10, 5, 1, 0.5 IPS for PAL. It can be selected using **LEFT** or **RIGHT** button.

3) DURATION:
   It define recording duration after motion is detected. This DVR support 10 sec, 30sec, 1,2,3,4,5,6,7,8,9,10,20,30,40,50,60 minutes. It can be selected using **LEFT** or **RIGHT** button.

4) CAM NUM: CH1 – CH16
   AREA SETTING : DISABLE/ ALL/ SETUP
   Motion Enable/Disable, Motion zone can be selected separately for each of sixteen cameras using **LEFT** or **RIGHT** button.

   DISABLE means that function of motion detection isn't utilized.
   ALL means that entire image area is selected for motion detection.
   SETUP can be selected in order to select given image area which want to monitor motion detection. Total motion area consists of 14x10 blocks. To select arbitrary motion zone, select **SETUP** using **LEFT** or **RIGHT** button. And then press **ENTER** button to designate motion areas in 14x10 blocks. You can use **LEFT** or **RIGHT** button for horizontal movement **UP** or **DOWN** button for vertical movement, **ENTER** button for selection. You can define the area of the image where you don't want to detect motion. Selected blocks in 14x10 blocks will be blinking. To remove previously defined image block for motion detection, press **ENTER** button again at that block. After defining motion zone, press **ESC** button to return upper Menu. Motion detection zone is the area which edge of the motion blocks is not flickering.

   < The example of motion area setup >

   TRIGGER OUT: DISABLE/ 1 to 4
   It is supported to output alarm output (relay output) when motion is detected.
   In case that relay output isn't requested, it can be set "DISABLE". When motion is detected in some of video channels, relay output 1 to 4 can be selected to support relay output. Trigger output for motion detection in CH02 can be designated as "trigger output 1". Trigger output for motion detection in CH10 can be designated as "trigger output 3".

5) BUZZER ALERT: DISABLE/ ENABLE
   If motion be detected in motion area, beep sound from buzzer by **BUZZER ALERT** with **ENABLE** would be occurred during two seconds.

7. WEEKLY SCHEDULE

⑥ WEEKLY SCHEDULE			
WEEK	START	DURATION	
SUN	00: 00	00: 00	OFF
MON	00: 00	00: 00	OFF
TUE	00: 00	00: 00	OFF
WED	00: 00	00: 00	OFF
THU	00: 00	00: 00	OFF
FRI	00: 00	00: 00	OFF
SAT	00: 00	00: 00	OFF
HOLIDAY	NONE	NONE	OFF

ENTER	▲ ▼ ◄ ► EXIT

To setup WEEKLY SCHEDULE, press **ENTER** when WEEKLY SCHEDULE in MAIN MENU using **DOWN** or **UP** button is highlighted with blue color. The menu above will appear on monitor.

WEEKLY SCHEDULE			
WEEK	START	DURATION	
SUN	00: 00	00: 00	OFF
MON	00: 00	00: 00	OFF
WEEK	NONE	NONE	OFF

ENTER	▲ ▼ ◄ ► EXIT

When blue bar is on SUN, blue bar movement from SUN to SAT and HOLIDAY can be selected by **DOWN** or **UP** button. To return Main Menu, **ESC** button is used.
To move START, DURATION and OFF/ ON, **LEFT** or **RIGHT** Button is used. To decide the time for START time, DURATION and OFF/ ON, time with bold character or OFF/ ON at that position can be changed by **DOWN** or **UP** button .

For example, the blue bar movement by **LEFT** or **RIGHT** Button like this;

WEEKLY SCHEDULE			
	START	DURATION	
SUN	00: 00	00: 00	OFF

➡

WEEKLY SCHEDULE			
	START	DURATION	
SUN	00: 00	00: 00	OFF

WEEKLY SCHEDULE			
	START	DURATION	
SUN	00: 00	00: 00	OFF

➡

WEEKLY SCHEDULE			
	START	DURATION	
SUN	00: 00	00: 00	OFF

WEEKLY SCHEDULE			
	START	DURATION	
SUN	00: 00	00: 00	OFF
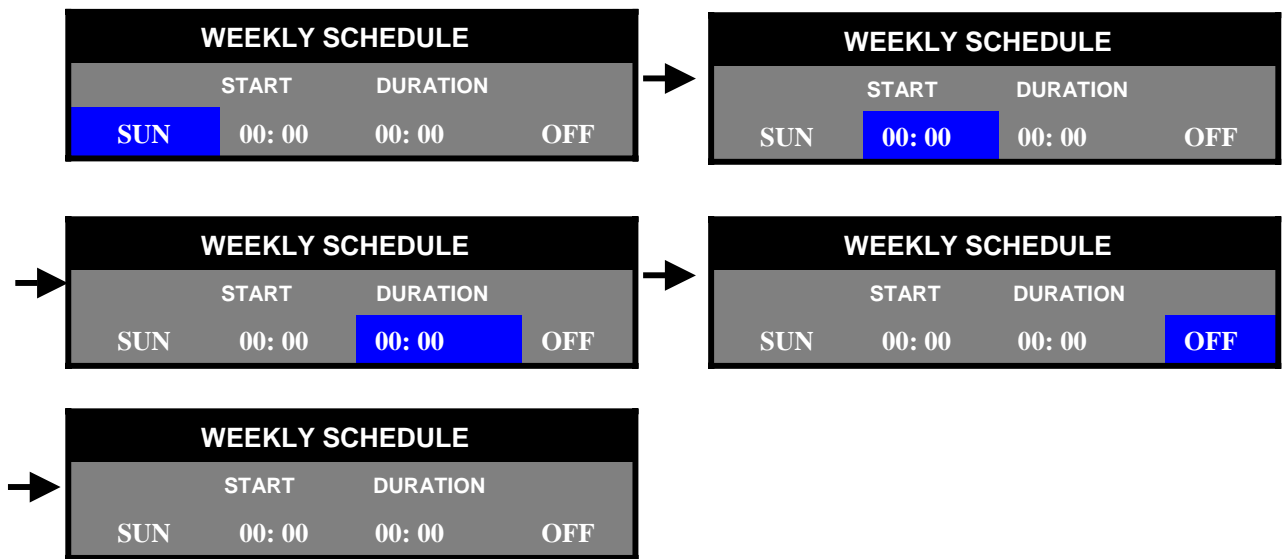
When blue bar is placed on START, DURATION and OFF/ ON, you can change value like time or ON/ OFF. When there is no bold character, blue bar can move from SUN to SAT and HOLIDAY. START means recording starting time. It can be changed from 00:00 to 23:59. DURATION means total recording time duration. HOLIDAY is for holiday recording setup. It can be adjusted from SUN to SAT.

8. NETWORK SETUP

```
  ⑦   NETWORK SETUP

  1    CONNECT        : STATIC/ DHCP

  2    IP ADD           192. 168. 123. 171
  3    SUB NET         255. 255. 255.  000
  4    GATE WAY      192. 168. 123. 254
  5    DNS               168.126.063.001
  6    PORT              5000
  7    NTP TIME        OFF/ON
  8    TIME ZONE      GMT + 08:00
  9    DDNS STATUS   NONE/OK/ERR


  ENTER          ▲ ▼ ◄ ►   EXIT
```

To access NETWORK SETUP, press ENTER when NETWORK SETUP in MAIN MENU using **DOWN** or **UP** is highlighted with blue color. The menu above will appear on monitor.

1) CONNECT: STATIC or DHCP
  You DVR can select STATIC IP or DHCP using **LEFT** or **RIGHT** Button.

2) IP ADDRESS, 3) SUB NET MASK, 4) GATE WAY:
  If static IP be selected, IP address, SUB NET, and GATEWAY should be written on it manually, according to network environment. **LEFT** or **RIGHT** button is used for movement, **DOWN** or **UP** button is used for changing the value of parameter.
  If DHCP be selected, your DVR would read network parameters automatically from network equipment, display them on IP ADD, SUB NET and GATEWAY.

5) DNS:
  DNS : Server IP setting to change Domain Name into IP address.
        Default value is KT's Domain Name Server IP.

6) PORT : Port number for TCP/IP connection in DVR
   Net-Viewer should have same port Number to access remote DVR through network.

   (Ex. 80 TCP www-http World Wide Web HTTP)
   (Ex 123 UDP NTP Network Time Protocol)
   Default Port No. is 5000. If Port is set as 5000, port number of from 5000 to 5002 is
   used in DVR. Therefore, If DVR is used in network environment with firewall, port
   number of from 5000 to 5002 should be opened for DVR's external access.
   If IP sharing machine is used with DVR, "port forwarding" should be done.

7) NTP TIME: OFF/ON
   DVR can synchronize "standard time" with Time Server using Network Time Protocol.

   NOTE: If DNS server is not set properly in fixed IP address, this function will not be
         operated.

8) TIME ZONE : **GMT + 08:00**
   Time information can be synchronized with time server. For example to synchronize
   time, GMT + 8 for Taiwan.

9) DDNS STATUS: Dynamic DNS status display (This DDNS status is just readable.)
   It is recommended not to use this DDNS service for fixed IP or IP sharing machine.
         NONE – It indicate that DDNS is not used.
          ERR   - DDNS IP update failure
          OK   - Normal operation

   < How to use DDNS service >
   1. Create User ID, password and domain Name in the company which support DDNS
      service with free of charge.
       (Ex. www.dyndns.org)
   2. Access to your DVR using any PC installed Net-Viewer.
   3. Input User ID, password, site and "DDNS enable" received from company which
      support DDNS service in DDNS setting of remote setup of Net-Viewer.
      DVR will be upgraded as soon as DDNS setting by remote setup of Net-Viewer
      is finished.
   4. Check the status of 8. DDNS STATUS of NETWORK SEYUP.

9. ARCHIVING

⑧	ARCHIVING	
1	ARCHIVING TYPE	: SINGLE/ MOTION
2	ARCHIVING TIME	: 1 to 60 SEC
3	ARCHIVE INFO NAME: TOTAL: FREE:	
4	ARCHIVE LOG	: NONE

ENTER   ▲ ▼ ◀ ▶   EXIT
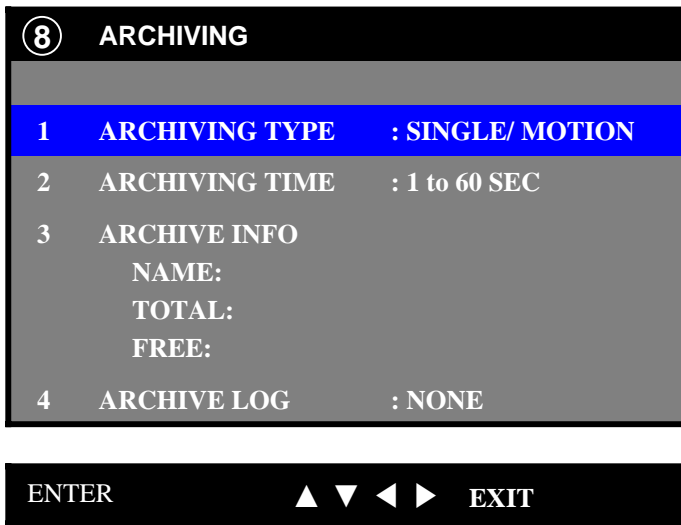
1) ARCHIVE TYPE: SINGLE or MOTION
For archiving data via USB port, first set-up ARCHIVING TYPE and ARCHIVING TIME which you want to have using **LEFT** or **RIGHT** Button. And then insert USB memory drive in USB port of DVR front panel.
Press **ARCHIVE** button in playback or live mode.

SINGLE in ARCHIVE TYPE means that field by field image can be captured in USB memory drive. MOTION means that it can be captured during the time duration when you set in ARCHIVE TIME.

Note: Archiving operation through USB Memory Drive can be executed only in live mode or playback mode.

2) ARCHIVE TIME: 1 to 60 seconds and 30 minutes.
ARCHIVE TIME is time duration which you want to archive in MOTION.

3) ARCHIVE INFO:
First, connect USB memory drive in USB port of DVR front panel. And then enter menu mode. You can see the information of USB Memory Drive inserted in DVR like USB memory drive manufacturer, total memory size, available memory size.

4) ARCHIVE LOG: NONE or ENTER
All of log information including DVR power ON/ OFF, recording time, event time and so on can be backup through USB Memory drive. After backup log file, you can see backup log information using WORD-PAD of PC. For ARCHIVE LOG, first select ENTER using **LEFT** or **RIGHT** Button. And the press **ENTER** button.

NOTE: Don't keep to connect USB Memory drive in USB port of DVR after finishing DVR power up. And don't plug out USB Memory drive when it is working. Please plug out USB memory drive after "Archive LED" turn off. When playback pictures is archived, archived speed is followed by playback speed.

5) The archived image playback
To play archived image, it needs NetViewer program. For the installation of NetViewer program in PC, Setup.exe in NetViewer S/W CD can be executed.
To playback archived image file in USB memory driver, First connect USB memory drive to PC, then execute Netviewer program.

NOTE: For more detail information about NetViewer program, confer the user's manual of NetViewer program.

< The procedure of archived file playback using NetViewer program >

A) Install NetViewer program as executing Setup.exe in NetViewer S/W CD.
   After finishing installation, next icon will be appeared in PC.

B) Double-click the icon to execute NetViewer Program. Main Window of NetViewer program will be appeared. (Confer next page figure.)
C) Connect USB Memory drive to USB port of PC.
D) Search archived files using searching icon of NetViewer program.
E) Playback the archived file as double-clicking the file.

NOTE: USB Memory driver usually will be recognized as removable disk in most of PC. Confer example of recognizing USB Memory drive in PC.
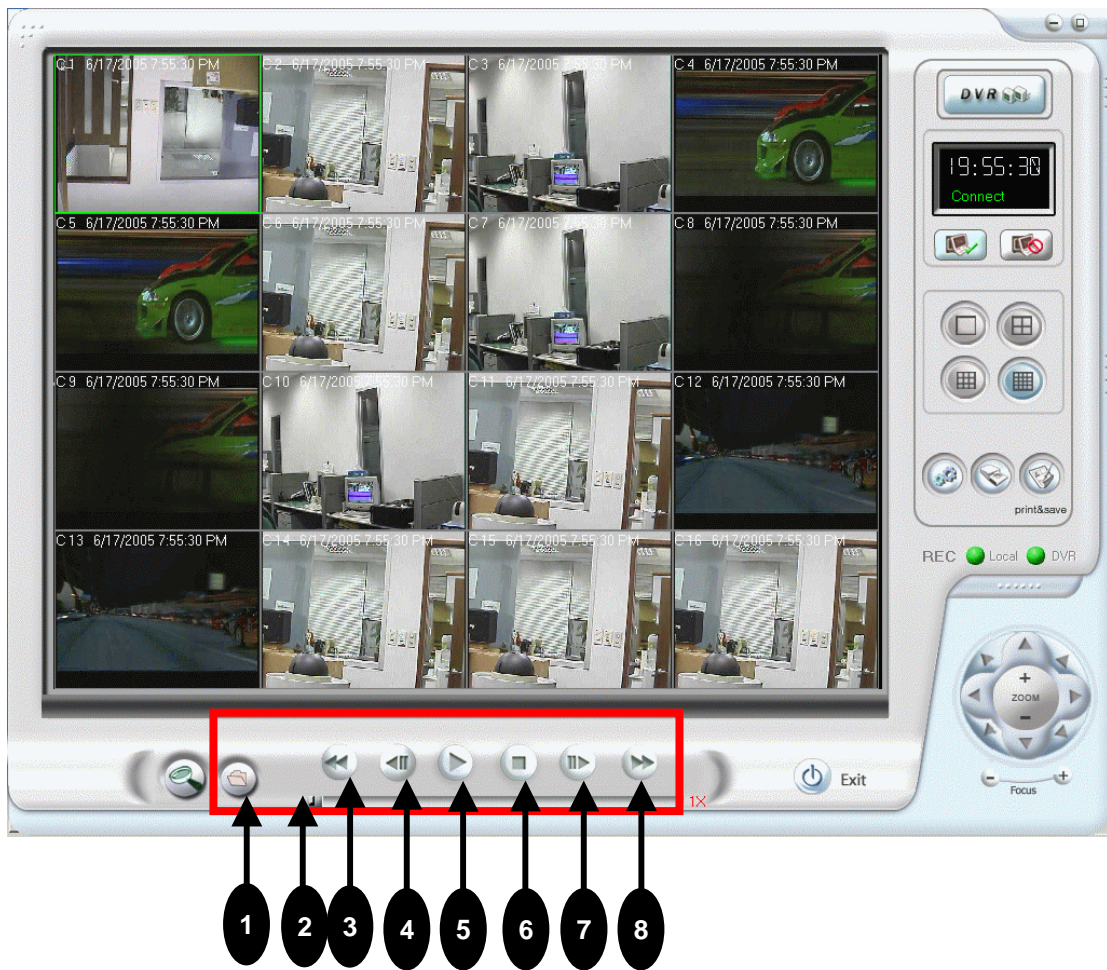
< NetViewer Program >

NOTE: On the viewer program buttons in Viewer GUI

1. Search Button:
   This **Search Button** can be used to find archived image in USB Memory drive. After searching the image files, double-click the file. And then it will be playbacked.

2. Slide bar;
   In order to move much faster the archived image where you want to see, just drag this slice bar forward or backward.

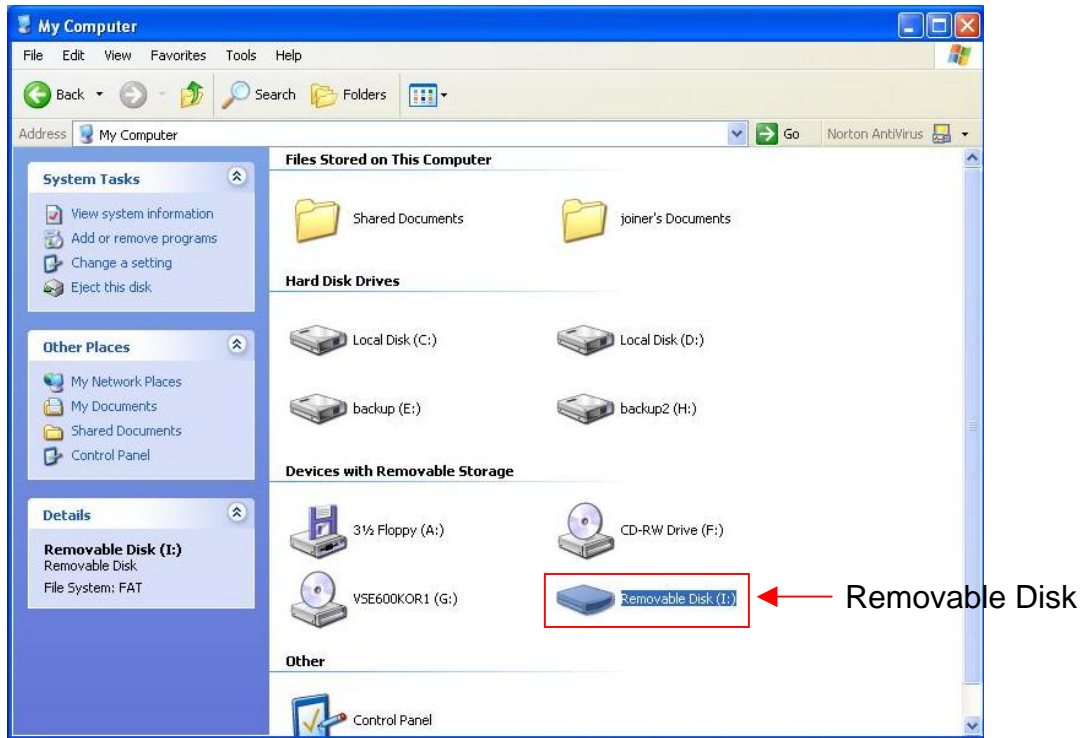**3. Move to beginning of archived images**
4. Move single frame backward
5. Playback button
6. Stop/ PAUSE button
7. Move single frame forward
8. Move to end of archived images

< Example; USB Memory Drive will usually be recognized as removable Disk in PC >

Removable Disk

10. HDD INFORMATION

```
⑨    HDD INFORMATION

 1    HARD DISK        : WDC WD1200
         TOTAL         : 111GB
         FREE          : 111GB
 2    FORMAT HDD       : NO
 3    OVERWRITE        : OFF

ENTER        ▲ ▼ ◄ ►    EXIT
```

1) HARD DISK:
  This machine automatically detects HDD, display HDD information in menu like total HDD capacity and available memory space.

2) FORMAT HDD:
  This support quick HDD format function. To format HDD in FORMAT HDD, first select **YES** using **LEFT** or **RIGHT** Button, and then press **ENTER** button. Press **ENTER** button again after **MASTER** is displayed. Then quick format is implemented with **CONFIRM**.

3) OVERWRITE: Your DVR can be enable or disable HDD overwrite, when HDD is full.

11. Search List

SEARCH LIST		10/ 10	← The number of recorded files
LIST TYPE	ALL	10-15-2004	
1	10-15-2004 10:20	10-15-2004 11:20	
2	10-15-2004 12:20	10-15-2004 13:20	
3	10-15-2004 13:20	10-15-2004 14:20	
4	10-15-2004 14:20	10-15-2004 15:20	
5	10-15-2004 16:20	10-15-2004 17:20	
6	10-15-2004 18:20	10-15-2004 18:50	
7	10-15-2004 19:20	10-15-2004 19:25	
8	10-15-2004 20:20	10-15-2004 20:25	
9	10-15-2004 21:20	10-15-2004 21:50	
10	10-15-2004 22:00	10-15-2004 23:10	← Latest recorded file

ENTER ▲ ▼ ◄ ► EXIT

Search list can be sorted all the recorded file as **ALL/ TIME/ MANUAL/ ALARM/ MOTION/ SCHEDULE** using **DOWN** or **UP** button for fast file searching.

SEARCH LIST		10/ 10
LIST TYPE	ALL	10-15-2004
1	10-15-2004 10:20	10-15-2004 11:20

→

SEARCH LIST		10/ 10
LIST TYPE	ALL	10-15-2004
1	10-15-2004 10:20	10-15-2004 11:20

Change the numbers by highlighting them and using the **DOWN** or **UP** button to increase or decrease the number for year/ month/ date after moving from ALL to 2004-10-** using **LEFT** or **RIGHT** Button.

SEARCH LIST		10/ 10
LIST TYPE	ALL	10-15-2004
1	10-15-2004 10:20	10-15-2004 11:20
10	10-15-2004 22:00	10-15-2004 23:10

SEARCH LIST		10/ 10
LIST TYPE	ALL	10-15-2004
1	10-15-2004 10:20	10-15-2004 11:20
10	**10-15-2004 22:00**	**10-15-2004 23:10**

To select recorded file for playback, **DOWN** or **UP** button is used after pressing ENTER button. .
Playback will be started by pressing **PLAY button (►)** button.

NOTE:

1. If **PLAY** button be pressed two times successively, latest recorded file could be playbacked soon.
2. The example for searching recorded files by **TIME.**
   Search list by **TIME** can be selected from **ALL/ TIME/ MANUAL/ ALARM/ MOTION/ SCHEDULE** using <u>DOWN</u> or <u>UP</u> button.
   After moving 11-20-2004 date area using <u>LEFT</u> or <u>RIGHT</u> Button (and then related date character would be turned into bold character), the date which want to search can be selected by using **DOWN** or **UP** button. Then recorded files just after selected date, time (ex, **11-20-2004   10:33)** would be listed as bellows. To playback a recorded file from listed files, press <u>ENTER</u> button to move listed files. And then press **PLAY button (▶)** for playback after selecting the recorded file using **DOWN** or **UP** button.

SEARCH LIST		2/ 2	
LIST TYPE	**TIME**	**11-20-2004**	**10:33**
1 11-20-2004 10:33	11-20-2004	11:20	
2 11-20-2004 22:00	11-20-2004	23:10	

12. DISPLAY Mode

There are three kind of display modes such as single (as full), QUAD, sequential mode regardless recording mode. When there are motion detection or alarm triggering, the video channel which motion is detected or alarm is triggered would be display on monitor during 30 Seconds. After it pass 30 Seconds, your DVR would display previous display mode such as full, QUAD or sequential picture.
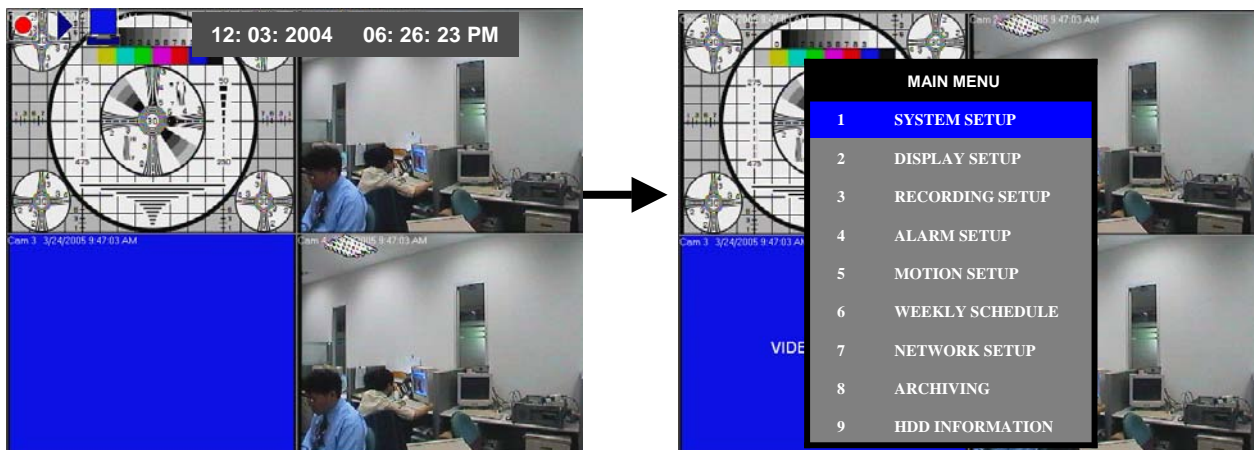
When your DVR is in recording, playback and network mode, 🔴 ▶ 🖥 are displayed on left top corner of monitor. But it is on MENU Mode, 🔴 ▶ 🖥 are temporarily disappeared as upper figure.

12-1. Picture Display Mode

A) Full Picture

If each video channel selection is pressed, the channel will be displayed as full screen. The video channel from CH11 to CH16 in remote controller can be selected with "10 digit" button and "1 digit" button together.

Ex) For selecting CH15, press "10 digit" (10+) and then press No.5 for "1 digit" number.

B) QUAD picture

If QUAD picture button is pressed first time, QUAD picture with CH1 to CH4 will be displayed on monitor. Whenever it is pressed, QUAD picture displayed on monitor will be changed from CH1-CH4, CH5-CH8, CH9-CH12 to CH13-CH16 on and on. The QUAD picture mode for monitoring can be selected by pressing this button repeatedly.

C) 9 picture Display

If 9 picture button is pressed first time, 9 picture with CH1 to CH9 will be displayed on monitor. Whenever it is pressed, 9 picture displayed on monitor will be changed from CH1-CH9 to CH8-CH16 on and on. The 9 picture mode for monitoring can be selected by pressing this button repeatedly.

D) 16/ 8/ 10 picture Display

If 16 picture button is pressed first time, 4x4 (16) picture will be displayed on monitor. Whenever it is pressed, two 8 (1+7) picture with CH1-CH8 and CH9-CH16 and two 10 (2+8) picture with CH1-CH10 and CH7-CH16 will be displayed on monitor repeatedly. If changing main picture (bigger picture) is requested in 8(1+7) picture mode and 10 (2+8) picture mode, it can be done by pressing channel selection button, just after pressing FUNCTION button.

< 16 picture Display >   < 8 picture Display >   < 10 picture Display >

E) Sequential Picture Display Mode:

All of video channels connected with video inputs of DVR are sequentially displayed on monitor.

13. RECORDING Mode

There are several kinds of recording modes such as Manual, Schedule, Alarm event, Motion. Recording quality including high, standard plus, standard, low for all of recording is decided by the QUALITY setting in **RECORDING SETUP Menu.** Frame rate, recording time can be separately selected in each of **RECORDING SETUP Menu.**

**It is recorded on HDD that 16CH video input signals are multiplexed with field by field.**

1) Manual recording is started by REC/STOP button of front panel.

2) WEEKLY RECORDING can be started by s**etting in WEEKLY SETUP.**

3) Motion Recording can be started when any motions in image are detected.

4) Alarm recording is started by external alarm trigger input.
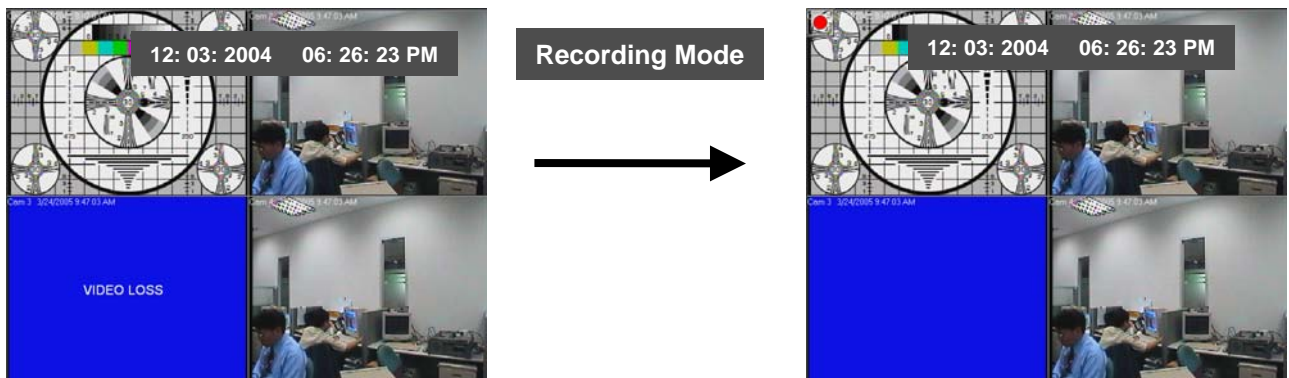
14. PLAYBACK Mode

Normal playback can be started PLAY button (▶) after recorded file selection in search list. While your DVR is in playback mode, the camera channel which want to watch could be selected by **UP**, **RIGHT**, **DOWN**, **LEFT** button. Fast forward (**FF, ▶**) or fast backward playback (**REW ◀◀**) can be done by **FF (▶▶)** and **REW** (**◀◀**) button. In order to freeze picture in playback, **PAUSE ❚❚** button is used. The movement of single field in still picture mode can be fulfilled by **PAUSE ❚❚** button. For selecting the forward or backward playback of single field, **FF (▶▶)** and **REW (◀◀)** button would be needed to press before using **PAUSE ❚❚** button.

Your DVR supports x2,x4,x8,x16,x32 playback for Fast Forward, x2,x4,x8,x16 play back for Fast Backward.

Note: When motion in image is detected or external alarm is triggered, there is pop-up image display of the channel during 30 seconds. But your DVR doesn't display pop-up image display of the channel when your DVR is in playback mode or search list Menu to minimize user's inconvenience.
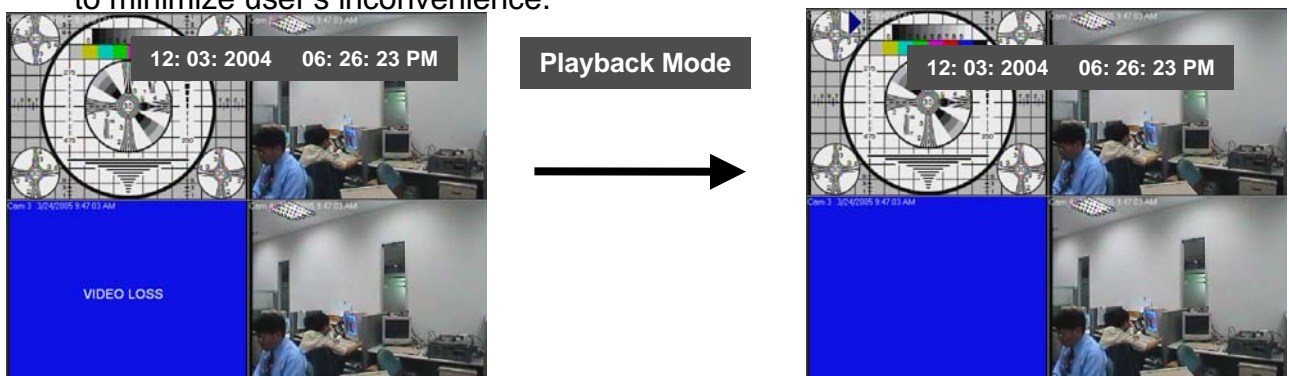
15. PTZ Control Procedure

a) Select the camera (which PTZ camera is connected) to control PTZ using **UP(▲)**, **RIGHT(▶)**, **DOWN(▼)**, **LEFT(◀)** buttons of front panel in your DVR.

b) Press **ENTER** button to select PTZ mode. PTZ MODE OSD will be displayed on upper right corner of monitor.

c) Use **UP**(1), **DOWN**(3) button for **up and down** movement of PTZ camera, **LEFT**(4), **RIGHT**(2) for **left and right** movement and **FF (▶▶)**, **REW (◀◀)** buttons for **zoom IN and OUT.**

d) To escape PTZ control mode, press **ENTER** button or any button. Then the PTZ MODE OSD on upper right corner of monitor will be disappeared.

NOTE:
  Before using PTZ control mode, please check that correct selection of PTZ protocol in PTZ TYPE of DISPLAY SETUP is done.

IV. Software Upgrade Procedure

1. S/W Upgrade procedure

1) Copy files including - **hqd1600.tar** into USB Memory Drive using PC in advance.

2) Turn off power of your DVR.

3) Turn on power of your DVR.

4) Insert USB Memory Drive into USB port in front panel of DVR.

5) Press MENU button.

6) Input password and then press ENTER button.

7) Select SYSTEM SETUP menu in main menu.

   * It takes several seconds for your DVR to display SYSTEM SETUP menu because upgrade files like - **hqd1600.tar** has been read into your DVR.

| SYSTEM SETUP		
1	LANGUAGE	: ENG/CHN
2	VIDEO FORMAT	: NTSC
3	PASSWORD	: ****
4	ADMIN LOCK	: YES
5	TIME FORMAT	: 24HOURS
6	DATE FORMAT	: MM-DD-YY
7	DATE/TIME SET	:
	05: 20: 2005 10:50:11	
8	DEFAULT	: YES / NO
9	REV STATUS	: VERSION 1 : 1 : 1

ENTER   ▲ ▼ ◄ ► EXIT

  * NOTE:

The terminology of 9. REV STATUS of SYSTEM SETUP in version 0.0.3 (current version) is changed into 9. REV STATUS in version 0.0.4 (new version). After finishing S/W upgrade, terminology will be changed.
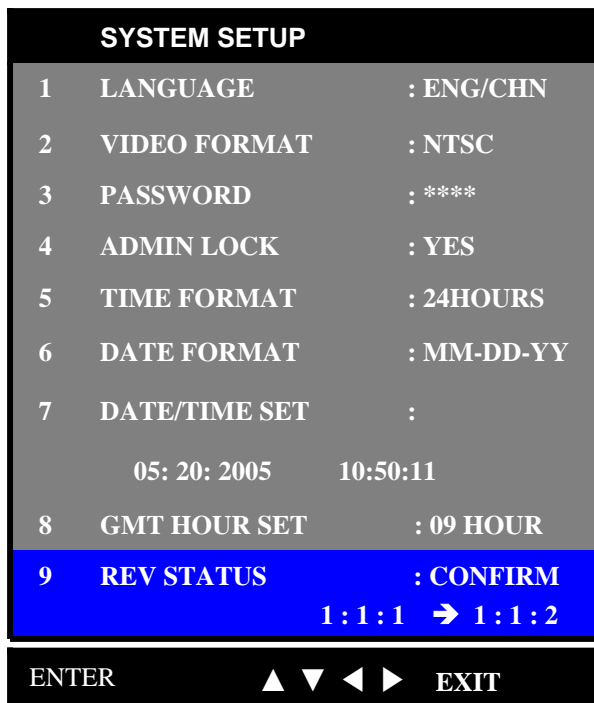
8) Move to 9. REV STATUS of SYSTEM SETUP.
   The SYSTEM MENU shows UPGRADE version from 0.0.3 (current) to 0.0.4 (new).

SYSTEM SETUP	
1 LANGUAGE	: ENG/CHN
2 VIDEO FORMAT	: NTSC
3 PASSWORD	: ****
4 ADMIN LOCK	: YES
5 TIME FORMAT	: 24HOURS
6 DATE FORMAT	: MM-DD-YY
7 DATE/TIME SET	:
05: 20: 2005 10:50:11	
8 DEFAULT	: YES / NO
9 REV STATUS	: UPGRADE
1 : 1 : 1 ➜ 1 : 1 : 2	
ENTER ▲ ▼ ◄ ► EXIT	
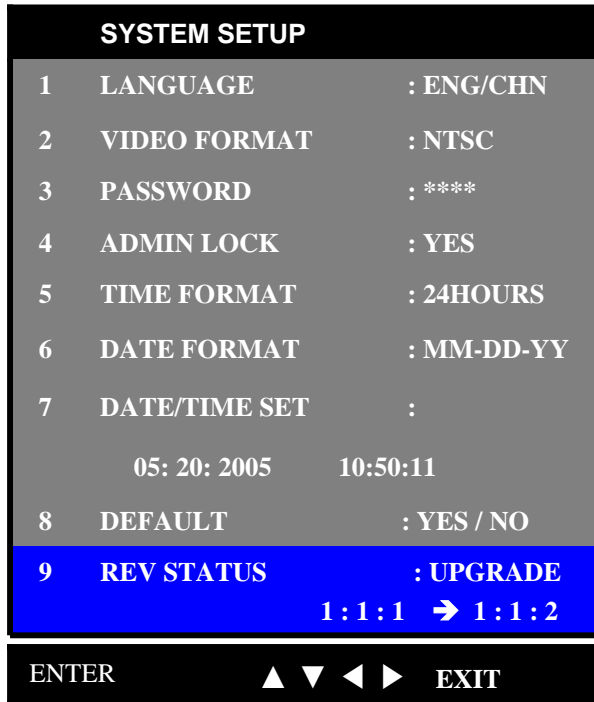
9) Press **RIGHT**(2) button of front panel in your DVR.
   "9. REV STATUS : UPGRADE" will be changed into "9. REV STATUS : CONFIRM"

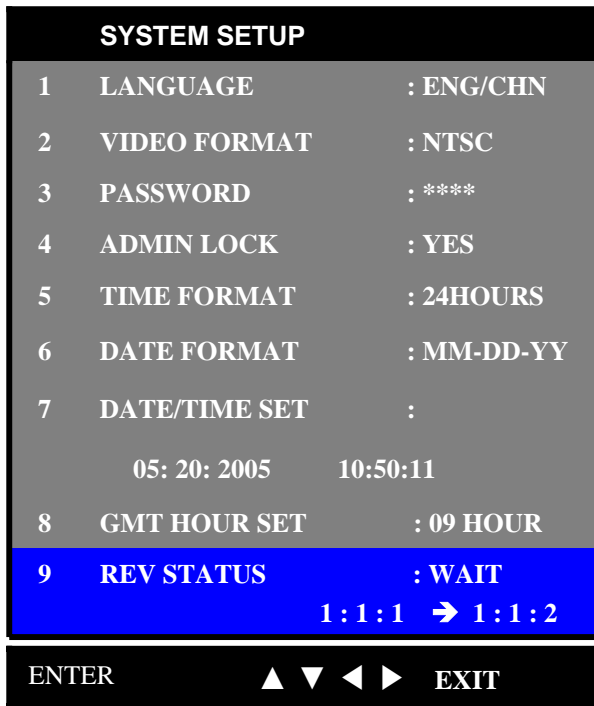| SYSTEM SETUP	
1 LANGUAGE	: ENG/CHN
2 VIDEO FORMAT	: NTSC
3 PASSWORD	: ****
4 ADMIN LOCK	: YES
5 TIME FORMAT	: 24HOURS
6 DATE FORMAT	: MM-DD-YY
7 DATE/TIME SET	:
05: 20: 2005 10:50:11	
8 GMT HOUR SET	: 09 HOUR
9 REV STATUS	: CONFIRM
1 : 1 : 1 ➜ 1 : 1 : 2	
ENTER ▲ ▼ ◄ ► EXIT	

10) Press **ENTER** button of front panel in your DVR.
   While "9. REV STATUS : WAIT" is appearing, S/W upgrade will be executed. It
   takes around 20 seconds. After completing S/W upgrade, your DVR will be re-booted.
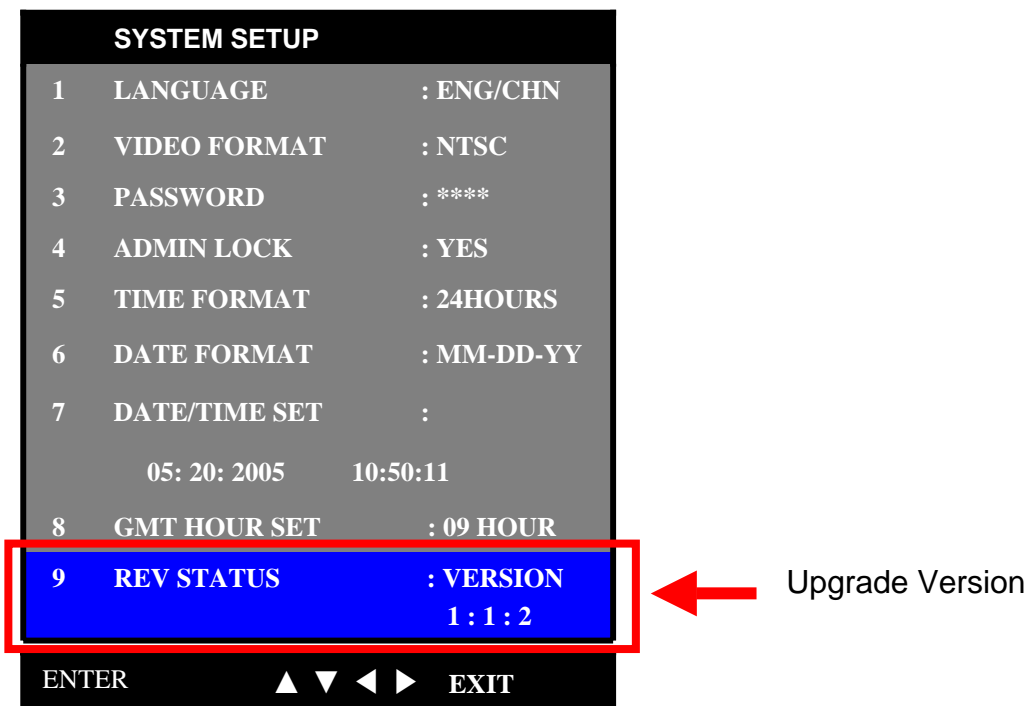
NOTE:
1. After pressing **ENTER** button for upgrading, USB Memory Driver should not be plugged out before displaying "INITIALIZING" message in your DVR.
2. Please remove USB Memory Drive from front panel of your DVR, when "INITIALIZING" character is displayed on monitor.

SYSTEM SETUP		
1	LANGUAGE	: ENG/CHN
2	VIDEO FORMAT	: NTSC
3	PASSWORD	: ****
4	ADMIN LOCK	: YES
5	TIME FORMAT	: 24HOURS
6	DATE FORMAT	: MM-DD-YY
7	DATE/TIME SET	:
	05: 20: 2005	10:50:11
8	GMT HOUR SET	: 09 HOUR
9	REV STATUS	: WAIT
	1 : 1 : 1 ➜ 1 : 1 : 2	
ENTER	▲ ▼ ◄ ►	EXIT

11) **S/W Upgrade Completion !!!**
    S/W upgrade version will be seen on 9. REV STATUS of SYSTEM SETUP.

SYSTEM SETUP		
1	LANGUAGE	: ENG/CHN
2	VIDEO FORMAT	: NTSC
3	PASSWORD	: ****
4	ADMIN LOCK	: YES
5	TIME FORMAT	: 24HOURS
6	DATE FORMAT	: MM-DD-YY
7	DATE/TIME SET	:
	05: 20: 2005	10:50:11
8	GMT HOUR SET	: 09 HOUR
9	REV STATUS	: VERSION
	1 : 1 : 2	
ENTER	▲ ▼ ◄ ►	EXIT

← Upgrade Version

APPENDIX 1. Specification (1/2)

|	
Video Input	16 Ch, NTSC/PAL, 1V peak-to-peak, 75 Ohm, BNC
Audio Input/ Output	1 Ch Input/ 1 Ch Output
Video Output	1CH for Monitor, 1CH for Spot, 16Ch loop-through Output
Display Resolution	Display Resolution (NTSC: 720x480, PAL: 720x576)
Display Mode	Single, QUAD, Octal, Hex and Sequential image
Recording Resolution	Full Mode, 16Ch Multiplexing Recording,(NTSC: 720x480, PAL: 720x576)
Compression Algorithm	M-JPEG (modified)
OS	Embedded Linux
Triplex	Record / Playback / Network at the same time
Unit processing Speed	1/60 Sec for 720x240(NTSC), 1/50 Sec for 720x288(PAL)
Compression Rate (KB/ image) (NTSC: 720x240, PAL: 720x288)	Normal image: 13~17KB/Image (NTSC) 15~19KB/Image (PAL) Complex image: 20~25KB/Image (NTSC), 22~27KB/Image (PAL)
Frame Rate : Recording (IPS)	16CH video real time multiplexing recording Total number of Images/sec: 60 IPS (720x240:NTSC), 50 IPS (720x288:PAL) Recoding Mode (Images/sec) 60/30/15/10/5/1/0.5 (NTSC), 50/25/12/6/5/1/0.5 (PAL) / Manual, Schedule, Motion, Event
Display	Real Time
Schedule Recording	Choose recording section at 1min time intervals during days of week
	Full-time recording, Holiday Recording option
Password Protection	Front Panel Password Protection Permits those allowed to access the system
Status Indicator (LED)	Power, Network, Archive, Record, EXT, Key Lock

Alarm (Event, Motion)	Selectable recording CH, Pop up Display
	Duration: 30sec/1,2,3,4,5,6,7,8,9,10,20,30,40,50,60 min
Alarm In(4)/ Relay Out(1)	NONE/ NO or NC selectable. Both NO and NC support in rear panel for Relay Out
Playback	Normal: x1 speed
	Fast Forward: x2,x4,x8,(NTSC, PAL) Fast Backward: x2,x4,x8(NTSC, PAL)
	Move 1 page movement by Left or Right button.
	Search list sorting support : All, Event, Schedule and Time
Network (GUI or Internet Explorer)	Protocol: TCP/IP, PPP, and DHCP GUI or Internet Explorer viewing and configuration support.

APPENDIX 1. Specification (1/2)

|	
HDD Management	One or Two (EIDE, ATA-6, 3.5 inch, 7200rpm)
Back-up	Archiving : USB Storage Class Key for data backup
USB	Firmware upgrade, System log file
Pan/Tilt/Zoom	RS485 (Controlled by button, Viewer S/W)
Power	12V DC/ 5A Adaptor
Mechanical	Unit dimension 44(W) x31.5(D) x4.4(H) (17.3 in. x12.4In. x 1.73 In.) (19" rack mountable, 1U)
	Unit Weight 11lb (5kg)
Ambient Temperature	40° to 104 °F(5 ° to 40 °)
Approval	FCC Class A, CE and MIC

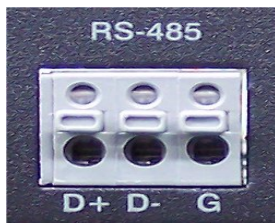## APPENDIX 2. Pin Description of connectors

1. USB Pin Descriptions
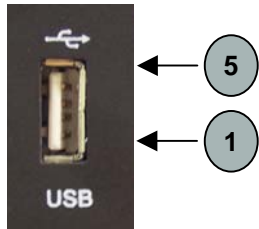
Pin NO.	Pin description
1	VCC
2	D- (TX-)
3	D+(TX+)
4	GND
5	SHIELD

2. LAN port (RJ-45) Pin Descriptions
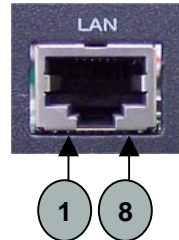
Pin NO.	Pin description
1	TXD+
2	TXD-
3	RXD+
4	No connected
5	No connected
6	RXD-
7	No connected
8	No connected

3. RS485 Pin Descriptions

DVR

Pin NO.	Pin description
1	RS485 D+ (TX +)
2	RS485 D- (TX -)
3	GND

Slave Unit like PTZ Camera

Pin NO.	Pin description
?	RS485 D+ (RX +)
?	RS485 D- (RX -)
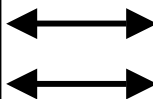
4. Alarm Input & Outputs Pin Descriptions

< Alarm Input Pin >

Pin NO.	Pin description
1	Ground (Common)
2	Ground (Common)
3	Sensor input 01
4	Sensor input 02
5	Sensor input 03
6	Sensor input 04
7	Sensor input 05
8	Sensor input 06
9	Sensor input 07
10	Sensor input 08
11	Sensor input 09
12	Sensor input 10
13	Sensor input 11
14	Sensor input 12
15	Sensor input 13
16	Sensor input 14
17	Sensor input 15
18	Sensor input 16
19	Ground (Common)
20	Ground (Common)

< Alarm Output Pin >

Pin NO.	Pin description
21	Relay output NO1
22	Relay output NC1
23	Ground (Common)
24	Relay output NO2
25	Relay output NC2
26	Ground (Common)
27	Relay output NO3
28	Relay output NC3
29	Ground (Common)
30	Relay output NO4
31	Relay output NC4
32	Ground (Common)

Warranty Guide

The quality of this product is guaranteed by strict quality control process and tests. If the Product is damaged despite following the instructions provided in the manual, this Warranty will be in effect, provided the product is damaged within 1 year of purchase.

Warranty Guide

- Check the Product Warranty Sheet to make sure it is still in effect.

- Check the problem again and contact your dealer you purchased from.

- About product repair, exchange, or refund, we follow the "compensation regulation for customer's loss" announced by "the Economic Planning Board".

Warranty

- If the product is damaged despite following the instructions provided in the manual, this warranty will be in effect, provided the product is damaged within 1 year of purchase.

- Service fee and replacement parts will be charged in below cases:
  1. Damaged the user's carelessness.
  2. Damaged due to a natural disaster.
  3. Damaged due to the user not following the instructions and cautions written in the user's guide
  4. Damaged due to incorrect power voltage, and/or frequency being used.
  5. If the Product Warranty sheet is expired.
  6. Damaged due to an engineer not employed by Sole-Vision modifying the system.

- If your system is damaged after the warranty period, free repair service will not be available. If you wish the system to be repaired, service fee and replacement parts will be charged.

Warranty

Product/ Model Name	
Serial Number	
Purchasing Dealer	
Purchasing Date	
Warranty Period	1 year from the purchasing date
Customer	

- The product Warranty Sheet will not be issued again.
- The Product Warranty Sheet must be filled on the same day of the product's purchase.
- It will be requested to show this warranty to receive free repair service.