
Digital Video Recorder

User's Manual

**960H Realtime
8 / 16 / 16R / 20R / 32R**

Thank you for using our product.

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1. This is user's manual for H.264 960H 8/16/20/32CH Realtime DVR (Digital Video Recorder).
2. This manual contains product specification and introduction, installation guide, operating guide and other necessary matters for easy understanding. Users should read this user's manual carefully for proper use.
3. Contents in this manual may be changed according to the specification change and feature improvement without any notification.
4. This user's manual shall never be copied without prior agreement and violating this may be a reason for legal punishment on piracy.
5. If there is any incorrect or insufficient content in this user's manual, notify it to Customer Support Center.

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CH1. Product Introduction

1-1. Product Contents (8 CH, 16CH)

After removing packing materials of this product, check whether all following contents are included.



Main Body (DVR):

This converts the analog video and audio signal to the digital signal and saves on HDD.



Adapter:

This 12V adapter supplies power to the product.



Power Cable:

This connect the adapter and the power source.



MOUSE:

This is an controller for convenience.



Program CD:

This contains the User's manual and Client Program for DVR.



Remote Controller:

This is an IR remote controller for convenience.



Battery:

These are 2(two) battery for the remote controller.

1-1. Product Contents(16R CH, 20R CH, 32R CH)

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These are 2(two) battery for the remote controller.

1-2. Specifications

| Model | | | 960H Realtime series | | | | |
|------------------|--------------------|--|---|----------------------------|----------------------------|----------------------------|-------------------------------|
| | | | 8 CH | 16 CH | 16R CH | 20R CH | 32R CH |
| | | | Compact case | | 19" rack type | | |
| Video | Camera input | 8 BNC | 16 BNC | 16 BNC (loop out) | 20 BNC (loop out) | 32 BNC | |
| | Available source | Composite/960H/Mixed | | | | | |
| | Output | 1 HDMI+1 VGA (simultaneously) / 1 Programmable SPOT with OSD | | | | | |
| Audio | Audio input | 4 RCA | | 16 RCA | | | |
| | Output | 1 RCA | | 1 RCA | | | |
| Sensor In | | 4 (NC, NO selectable) | | 16 (NC, NO selectable) | | | |
| Alarm out | | 1 relay | | 14 TTL/ 2 relay | | | |
| Operating System | | Embedded Linux OS | | | | | |
| Display | Speed | | Real Time | | | | |
| | Resolution (Pixel) | | 1280X1024, 1280X720, 1920X1080 | | | | |
| | Split screen | | 1,4,6,8 | 1,4,6,8,9,13,16 | 1,4,6,8,9,13,16 | 1,4,5,6,8,9,12,16,17,20 | 1,4,5,6,8,9,12,16,17,20,25,32 |
| Recording | CODEC | | H.264 / JPEG for 3G, Dual CODEC | | | | |
| | Resolution (Pixel) | | 960H(960H), D1, WCIF, CIF, Mixed | | | | |
| | Picture quality | | 4 steps (Super, High, Medium, Low) | | | | |
| | Speed | NTSC area PAL area | 240fps@960H 200fps@960H | 480fps@960H 400fps@960H | 480fps@960H 400fps@960H | 600fps@960H 500fps@960H | 960fps@960H 800fps@960H |
| Playback | Display | | 1,4,6,8,9,13,16 | 1,4,5,6,8,9,12,16 | 1,4,6,8,9,13,16 | 1,4,5,6,8,9,12,16,17,20 | 1,4,5,6,8,9,12,16,17,20,25,32 |
| | Search mode | | Calendar, Event ,POS , Panorama, Thumbnail | | | | |
| | Speed | NTSC PAL | 240fps@960H 200fps@960H | 120fps@960H 100fps@960H | 480fps@960H 400fps@960H | 300fps@960H 250fps@960H | 480fps@960H 400fps@960H |
| | Fast/Slow speed | | Normal, REW & FF [recorded speed x2, x4, x8, x16,x32,x64,x1/2,x1/4], Frame to frame, Pause | | | | |

1-2. Specifications

| Model | | 960H Realtime series | | | | |
|-----------------------|--|--|------------|---|-------------|-------------|
| | | 8 CH | 16 CH | 16R CH | 20R CH | 32R CH |
| | | Compact case | | 19" rack type | | |
| Network | Network Interface | Gigabit Ethernet | | | | |
| | Speed | 100fps@720H | 50fps@720H | 100fps@720H | 125fps@720H | 200fps@720H |
| | Protocol | TCP/IP, HTTP, DHCP | | | | |
| | Application | Windows XP / 7 / 8 (PC Client system& IE)/MAC | | | | |
| | Web Browser | Internet Explorer, Safari, FireFox, Chrome | | | | |
| | Smart phone App | CatchEye : Android, iPhone for live and search | | | | |
| Backup | Interface | USB 2.0 X 2 | | USB 2.0 X 3 | | |
| | Backup device | External HDD, CD&DVD-RW, Network, Thumb Drive | | | | |
| The number of HDD | | 2 SATA(No capacity limit ; 4TB of more) | | 4 SATA + 1 eSATA(upto 12 bays, No capacity limit ; 4TB or more) | | |
| Function | •Full GUI with alpha blending | | | | | |
| | •Individual setting of resolution, frame rates and picture quality | | | | | |
| | •Instant Replay | | | | | |
| | •Digital Zoom | | | | | |
| | •Mouse Control | | | | | |
| | •Weekly scheduler with holiday by 10 minutes setting | | | | | |
| | •Covert, Disable and Private function of cameras | | | | | |
| | •Motion Detection with 352 area setting | | | | | |
| | •Relay alarm output | | | | | |
| | •PTZ control by RS-485 | | | | | |
| | •Daylight Saving Time and Network Time Setting | | | | | |
| | •Multi User Authority up to 8 Users | | | | | |
| | •Deinterlacer upon live and playback | | | | | |
| | •22 languages with full graphic | | | | | |
| | •Individual Network port setting | | | | | |
| | •Auto Deletion | | | | | |
| | •Import and Export the configuration | | | | | |
| | •Mirroring | | | | | |
| | •POS Interface | | | | | |
| | Others | Power Consumption | 60W | | 96W | |
| Operating Temperature | | 5 ~40℃(41~104F) | | | | |
| Relative Humidity | | Maximum 80% non-condensing | | | | |
| Dimension | | 340(W)×250(D)×60(H) mm | | 430(W)×420(D)×88(H) | | |

1-3. Product Characteristics

1) New Video Configuration optimized 16:9 widescreen

This is the revolutionary 8/16/20/32CH D1 real time DVR for 16:9 widescreen even use the 4:3 video source. Also it displays real HD(1920X1080) resolution, and therefore it provides the most clear image quality and the best security level.

2) High reliability

With Embedded hardware and software design, this maintains higher product reliability.

3) Simple usage

This allows users to use it conveniently by placing control buttons similar to existing ones on VCR, and users can easily learn the usage.

4) Pentaplex System

Pentaplex System allows live, recording, backup, networking and playback simultaneously.

5) Selectable recording setup

For recording methods, users can select the frame rate, resolution and video quality individually in order to be appropriate for user's environment.

6) Remote monitoring

With using exclusive line or Internet network, you can search or monitor recorded images remotely by installing exclusive client program on Windows PC or Mac.

7) Backup

You can backup with a versatile external USB devices.

8) Audio recording

You can record 4 sound inputs simultaneously. Moreover, you can listen to the sound in search and live monitoring and play mode.

9) Various recording methods

This provides convenient use with manual recording, recording by dates and days, hourly schedule recording, sensor and motion detection event recording and others to enable unmanned monitoring.

10) Various total monitoring features

You can cover any security scenario through various sensor inputs and contact output control.

11) Display information in easy-to-understand information method

This enhanced convenience of user by displaying information (date, time, recording method, recording frame number, HDD capacity and others) in monitoring, recording and playing mode in easy-to-understand way.

12) P/T/Z control

By built in RS485, various P/T/Z cameras can be used.

13) Dual CODEC for video transmission

DVR can send 120 fps (based on CIF) regardless of the local recording and viewing setup regardless with recording setup.

14) Web browser support

You can monitor and playback the video and control the PTZ camera by internet explorer.

15) Built in S.M.A.R.T.

You can automatically check the health of the hard disk drives.

16) Language pack

Basically DVR has multiple language set, furthermore you can choose the language set if you want.

17) Mirroring by internal HDD

If you install two HDDs, you can use the second HDD for backup for maximum fault tolerance.

18) Spot monitoring

Spot out can be enable to monitor sequentially in other place.

19) Touch LED Switch

You can operate with touch LED switch in front panel.

20) Text inserter(POS Interface)

You can operate with the POS and ATM.

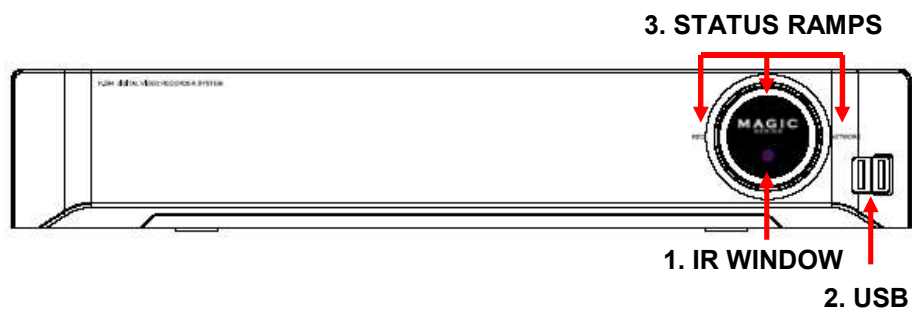
21) HD Spot out

You can use one of VGA and HDMI to the HD spot.

1-4. Name of Each Part

[Front Panel]

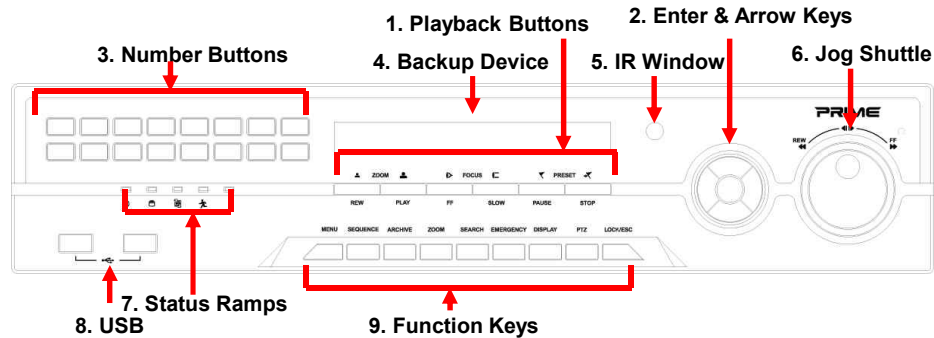
<8CH, 16CH>



1. IR Window : the window for remote controller
2. USB ports : These USB ports are for mouse and USB devices. You should connect correctly the USB devices and mouse as picture directed.
3. Status lamps
POWER : Blue color back light. Power indicator.
RECORD : Red. Indicate the recording.
NETWORK : Green. Lit on connecting the network

[Front Panel]

<16R/20R/32R>



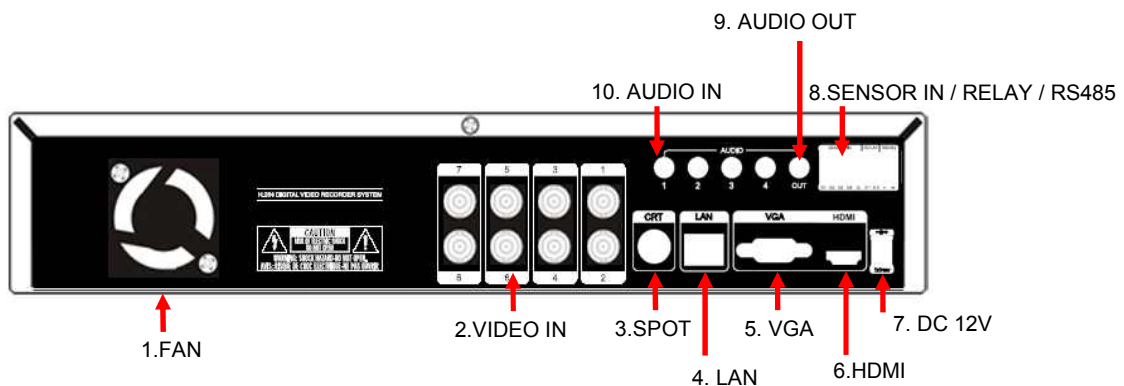
- 1. Playback buttons** : It will be used on playback. If you press these buttons in live mode, it will be automatically changed to the Instant Play mode. 'Stop' button changes from the play mode to the live mode.
- 2. ARROW, ENTER** : This button is used to change settings for the product in MENU Mode or used in Search Mode. Also right arrow button is used for 'Hold' while Jog Shuttle action.
- 3. Number buttons** : If you press this button, it will be changed to full screen in live viewing or playback. If you want to go to 20ch, push the 10+ button twice. (* In menu and password setting, it is automatically converted to number buttons)
- 4. Backup device** : You can use the versatile backup devices such as CD-RW and DVD-RW.
- 5. IR Window** : the window for remote controller
- 6. Jog Shuttle** : You can use this wheel for fast retrieving and playback back and pro. If you hold the shuttle, push the right arrow button while grabbing the shuttle.
- 7. Status lamps**
 - POWER : Blue color back light. Power indicator.
 - RECORD : Red. Indicate the recording.
 - NETWORK : Green. Lit on connecting the network
 - ALARM : Red. It will be lit on when the events happen
- 8. USB ports** : These USB ports are for mouse and USB devices.
- 9. Function keys**
 - 1) MENU : It will move to the setup screen from the live mode.
 - 2) SEARCH : It will change to the playback mode from the live mode.
 - 3) BACKUP : It will move to the backup screen from the live or play mode.
 - 4) DISPLAY : It will change the screen splitting sequentially from 1 to 20. It can be adapted both live and play mode.
 - 5) SWITCHING : It will change to switching mode except 20 splitting.

- 6) ZOOM : It will go to the digital zoom directly.
- 7) PTZ : It will change to the pan, tilt and zoom control mode from the live mode.
- 8) LOCK/EXIT : If you want move to the upper menu or exit without saving, press this button. On playback, it will disappear the search list for the better viewing. On live viewing, it performs the system lock.
- 9) PANIC : This button is used in emergency status. If you push this button, the DVR starts to record with maximum speed regardless of setting value.

※ For more details, refer to [CH 3. How to Use]

[Rear Panel]

<8 CH>

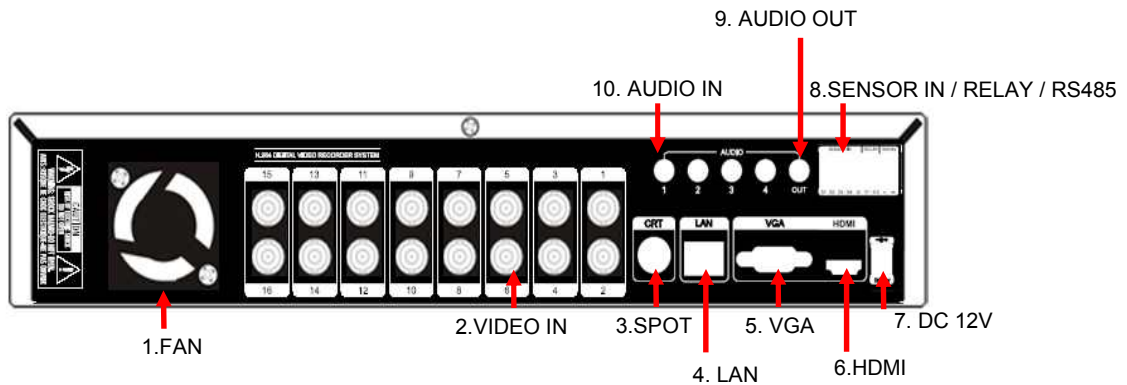


- 1. **Fan** : Cooling Fan
- 2. **VIDEO IN** : This receives images from SDI cameras or any camera.
- 3. **SPOT** : For spot CRT monitor, composite signal comes out.
- 4. **LAN** : This is the Gigabit Ethernet LAN cable connection terminal.
- 5. **VGA** : video output for VGA display.
- 6. **HDMI** : Real HD(1920X1080) output for high resolution monitor.
- 7. **DC 12V** : DC12V 4.16A or up
- 8. **SENSOR IN** : This terminals can be connected to external sensors.
RELAY : This terminal blocks connect external electric devices to the product (Warning Lamp and others).
RS485 : For control the pan and tile cameras. Make sure that the polarity.
- 9. **AUDIO OUT** : RCA audio out terminal.
- 10. **AUDIO IN** : RCA audio in terminals. You can record 4 channels at the same time.

❖ For more details, refer to [CH 2. Installation Method and Cautions].

[Rear Panel]

<16 CH>

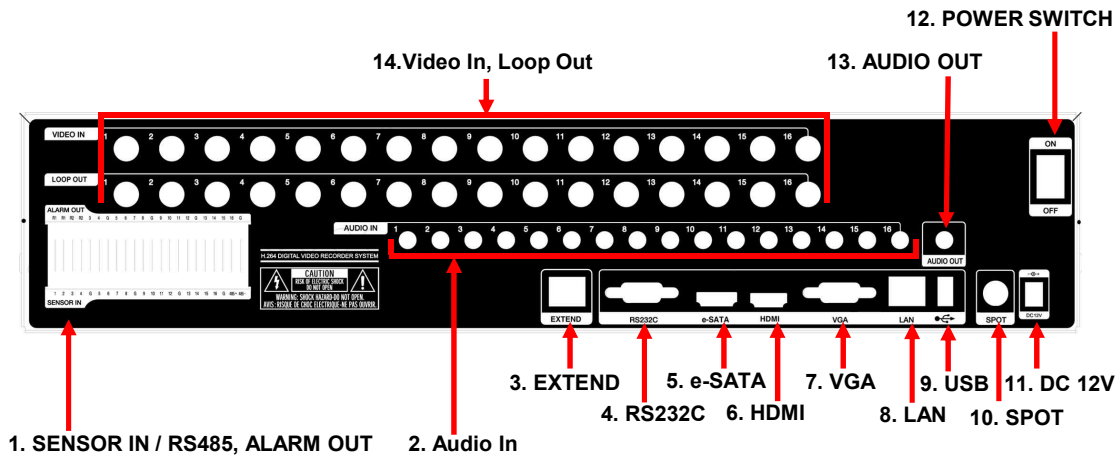


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<16R CH>

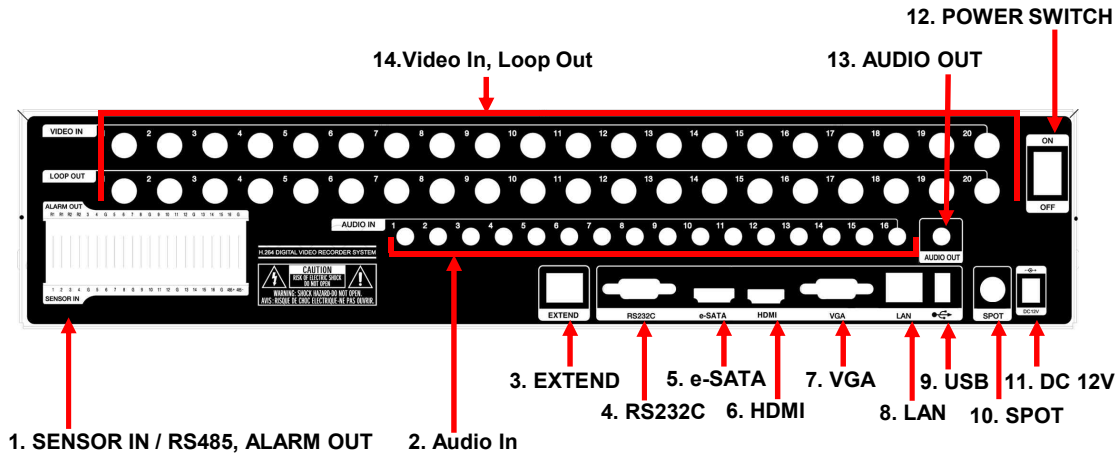


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RS485 : For control the pan and tile cameras. Make sure that the polarity.
2. **AUDIO IN** : RCA audio in terminals. You can record 16 channels at the same time.
3. **EXTEND (option)** : Connect EXTEND FTP cable to VGA or HDMI Receiver
4. **RS232C** : This is Serial communication(RS232C) cable connection terminal.
5. **e-SATA**
6. **HDMI** : Real HD(1920X1080) output for high resolution monitor
7. **VGA** : video output for VGA display
8. **LAN** : This is the Gigabit Ethernet LAN cable connection terminal.
9. **USB** : This USB port is for mouse and USB devices.
10. **SPOT** : For spot CRT monitor, composite signal comes out.
11. **DC 12V** : DC12V 12.5A or up
12. **Power Switch(ON/OFF)**
13. **AUDIO OUT** : RCA audio out terminal.
14. **VIDEO IN** : This receives images from cameras and sends them to monitors.
Loop Out : This sends the images from the cameras to the other devices.

❖ For more details, refer to [CH 2. Installation Method and Cautions].

[Rear Panel]

<20R CH>

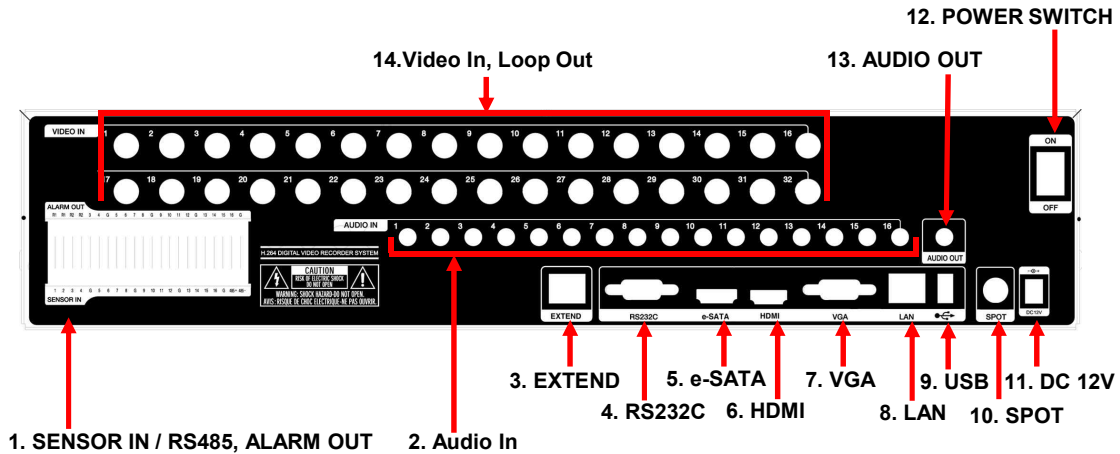


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Loop Out : This sends the images from the cameras to the other devices.

❖ For more details, refer to [CH 2. Installation Method and Cautions].

[Rear Panel]

<32R CH>



1. **SENSOR IN** : This terminals can be connected to external sensors.
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Loop Out : This sends the images from the cameras to the other devices.

❖ For more details, refer to [CH 2. Installation Method and Cautions].

CH2. Installation Method and Cautions

2-1. Cautions

WARNING

Risk of electric shock.

Do not open the cover of the product.

Servicing of this product by unauthorized personnel is prohibited and will result in a void of warranty.



In order to ensure the most stable conditions for power, the use of a UPS (Uninterrupted Power Supply) is recommended.

- Avoid installing the product where there are direct rays or it is hot by locating near from heat generator. (May cause fire)
- Do not put vase, flowerpot, cup, cosmetics, drug, and anything the contain water on product. (May cause fire or electric shock, and it may injure people by falling)
- Do not insert or drop any metal object (coin, hair pin) or flammable object (match, paper) into air hole. (May cause fire or electric shock)
- Do not put any heavy object on it. (May injure people by being fell or destroyed.)
- Put power plug surely not to be moved. (If not, this may cause fire.)
- Unplug power plug and antenna when there are thunders and lightening. (May cause fire.)
- For cleaning the product, wipe surface with dry towel. Using chemical agent or cleaner may change the color and unpeel paint. Do not put several plugs at same time. (May cause electric shock.) If there is smoke or strange smell, stop operation. In this case, turn the power off and unplug it, and then contact our service center. (If you keep using it, this may cause fire or electric shock.)
- Do not unplug by pulling cord. (If cord is damaged, it may cause fire or electric shock.)
- Do not plug or unplug with wet hands. (May cause electric shock.)

- Keep the power cord untwisted. (May cause fire or electric shock.)
- Use proper adapter. (Using too much electric power may cause fire or electric shock.)
- Do not install it at where exposed to rain and wind and water drop. (May cause fire, electric shock and transformation.)
- Keep away from fire. (May cause fire.)
- Do not disassemble or remodel on your own. (May cause malfunction or electric shock.)
- Do not put next to flammable materials like flammable spray. (May cause fire.)
- Do not install it at a place with too much dirt. (May cause fire.)
- Do not install it on unstable places like shaking table and inclined place or shaking place. (May injure users by falling down or being upside down.)
- Do not put an heavy object on power cord or avoid it from being pressed by the device. (May cause fire or electric shock.)
- In case of using extension cord, do not use several devices at same time. (May cause fire with abnormal heating of extension.)
- When there are dirt on power plug pin or power outlet, clean it nicely. (May cause fire.)
- Do not damage on power cord or plug, and bend or twist or pull too much, and put it between other objects or heat. If power outlet insertion part is not tight, do not use it. (May cause fire or electric shock.)
- Do not drop or give a shock to the product. (May injure people or cause malfunction.)
- Do not touch power adaptor or signal controller. (May cause electric shock.)
- Do not put any object too close to block cooling fan. (May cause fire.)
- In case of exchanging batteries with improper type, there might be danger of explosion.
- For used batteries, throw away separately from other garbage.
- When you take out batteries, avoid children from eating them by mistake. Keep them away from children. (If a child ate them, contact a doctor right away.)

Note :

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 to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

This device complies with the 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 undesired operations.

FCC Warning :

This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

CE Warning : This is a Class A product. In a domestic environment this may cause radio interference in which case the user may be required to take adequate measures.

This product has obtained EMI registration.

2-2 Product Installation

This product may be composed of camera and monitor in default, and additionally the sensor, microphone, speaker and PC for network can be connected if necessary.

2-2-1. Power Connection

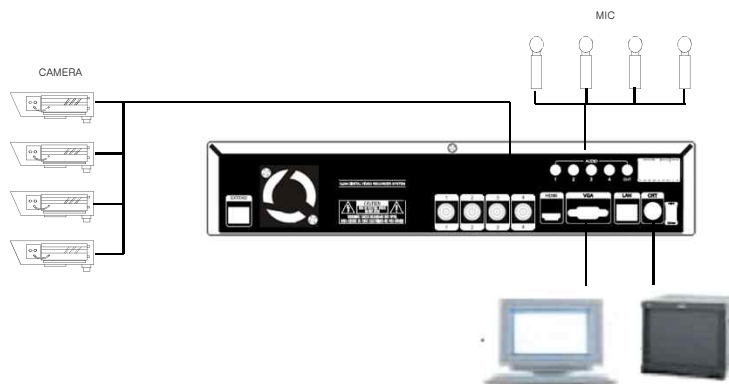
- 1) Connect adapter cable to power connection terminal at rear side.
- 2) Input AC power to the adapter. (free voltage from 100V to 240V, 50/60Hz)

※ You must operate it at the rated voltage instructed on the user's manual. In case power higher than the rated voltage is supplied, it may cause damages on product.

2-2-2. Connecting External Device

- ※ Connect it when power of the product is off.
- ※ Read through user's manual for the device you are connecting carefully.

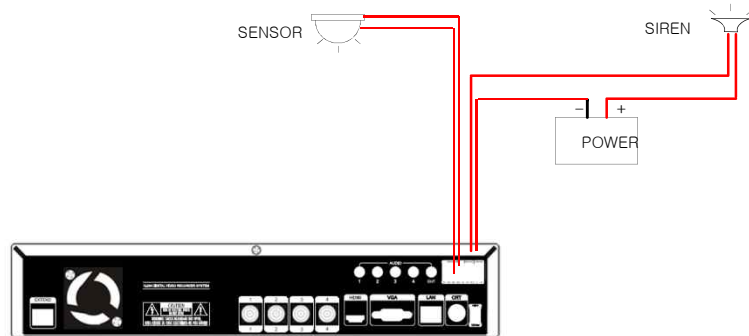
1) How to Connect External Video/Audio Device



- Connect cameras to VIDEO IN by channels.
- Connect microphone (AMP) to AUDIO IN by channels.
- Connect VIDEO OUT to VIDEO IN of monitor.
- Connect HD output to HD Monitor.
- Connect AUDIO OUT to AUDIO IN of monitor (or speaker).
- Connect Spot output to Composite Monitor.

2) How to connect external sensor

Sensor terminal is composed of 1 input channel and 1 output channel. Sensor out terminal is relay output with 1A, 24V or 0.5A, 125V.



Sensor In : Connect the sensors. The sensor are composed of both signal and ground terminals, with a voltage difference of 5V. In the case that the sensor used for input is of the N/O (Normal Open) type, when the voltage difference between the signal and ground falls to 0V (short), the DVR can use this as a trigger to start alarm/sensor based recording.

Sensor Out : Connecting external electrical devices

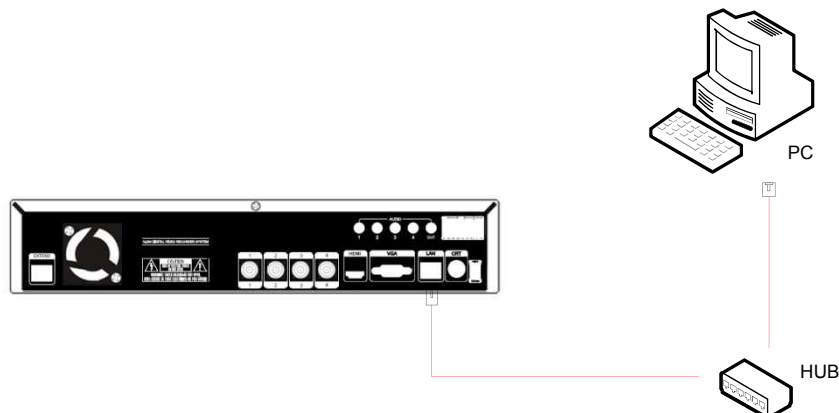
The relay output terminal does not provide power, and functions only on an ON/OFF basis via a relay. Normally, the signal and ground should be on an OPEN basis, and the DVR will complete the relay connection.

3) Connecting with PC using LAN cable

If you want to connect DVR to PC directly, use LAN cable, and if you want to use HUB, connect cable via hub.

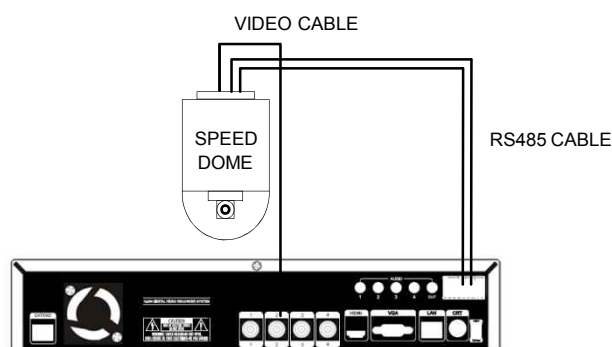
*Hub : This is a device connecting one office to devices located near with using cable when you organize LAN

*Cable : This is standard UTP cable used for communication among devices through Hub and others when you organize LAN



4) Connection Using PTZ camera

In case of using pan and tilt cameras, connect PAN/TILT DRIVE to product as shown at following figure.

**5) Installing Hard disk drive**

In case of installing the hard disk drive, open the upper case and install the hard disk drive on the hard bracket. Remember that the main power should be off to install the hard disk drive. If you have any trouble, please contact the technical support.

CH3. How to Use

3-1. General Usage Information

The DVR system can be operated with a mouse or remote controller under the four main modes listed below:

Live Mode – This is the “main or default” mode. From this mode you can view in real time all currently operating cameras, information regarding camera status, and have access to Pan/Tilt camera controls. In addition, system status information will be shown during live mode, and other modes can be entered from Live mode.

Setup Mode – The user will be able to customize settings for Live viewing, Recording, Backup, and Camera related devices under the Setup Mode.

Search Mode – In Search Mode, the user will be able to review all recorded footage in the case that an event must be reviewed using a calendar or event based search.

Backup Mode – In Backup Mode, the user will be able to archive the desired data to the preferred supported media of their choice (ex. CD, DVD, USB Backup, Remote Client Software, etc.)

Password Protection – The DVR system will utilize a user ID and password system to prevent unauthorized usage of this product. Control of the system will only be possible after entering a proper ID and password as illustrated below. (Factory Default settings are blank for these fields).

IDs and passwords should be managed by a system administrator, as different users may be given different levels of access to the DVR.



3-2. LIVE Mode






In this section you will know how to split the video mode into 1, 4, 6, 8, 9, 12, 16, as well as auto sequencing, PTZ Control, Mouse control, Setup configurations, Backup.



3-2-1. LIVE Mode Control

1) Live View Status











You may use the Live Menu Bar located at the bottom for quick shortcuts and view status of certain items.

| | |
|---|-----------------------------|
|  | Recording indicator |
|  | Event recording indicator |
|  | Motion detection indicator |
|  | Sensor activation indicator |
|  | POS indicator |

2) Live Menu Bar

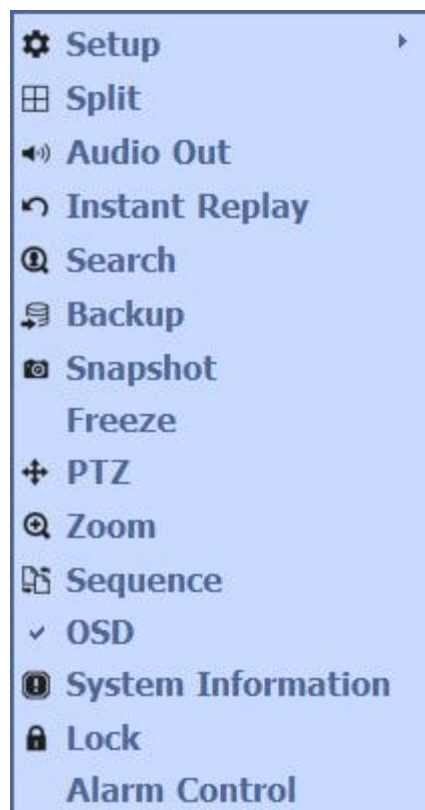
You may use the Live Menu Bar located at the bottom for quick shortcuts and view status of certain items.



| | |
|---|--------------------------------|
|  | Date |
|  | Time |
|  | Screen Split mode change |
|  | Sequence activation |
|  | Hard drive usage |
|  | Lock/ Unlock indicator |
|  | Scheduler activation indicator |
|  | Network connection indicator |
|  | Audio out channel indicator |
|  | Audio Mute indicator |

3) Live Popup Menu

By Right-Clicking anywhere on Live Screen, you may view the Live Popup Menu. By using the Live Popup Menu, you can quickly jump to the necessary configuration and settings.



3-2-2. LIVE Mode Feature

1) Setup : refer to 3-4

2) Split

Change video split mode for Live View.



3) Audio Out

You can choose the audio out from this menu.



4) Instant Replay

This is very convenient function to catch the abrupt accident. During live viewing, you can go directly to the playback screen.

If you choose the 'Instant Replay', the DVR goes to the 'PLAY' with the present time screen. And you can use the functions related playback.



5) Search : refer to 3-3

6) Backup

There are two ways to enter the backup. The first one is that right click on the live screen, and the second one is that enter directly from 'Search' upon playback. If you choose the 'backup' from the live menu, below backup screen appears.

- You can set the backup device, time and channel from the backup screen.



The screenshot shows a 'Backup' configuration window with the following fields and controls:

- Device:** A dropdown menu set to 'USB'.
- Type:** A dropdown menu set to 'exe'.
- From:** A time selection field set to '00:00:00'.
- To:** A time selection field set to '00:00:00'.
- Camera:** Four checkboxes labeled 1, 2, 3, and 4, all of which are checked.
- Audio:** A checked checkbox.
- Buttons:** 'Estimation' (highlighted with an orange border), 'All On', and 'All Off'.
- Status:** A text field displaying 'No Space (More Than 50MB)'.
- Buttons:** 'Start' and 'Stop'.
- Exit:** A button at the bottom center.

- After that, if you push the 'Estimation' button, it will show the estimated backup file size.



The screenshot shows the 'Backup' configuration window after the 'Estimation' button has been clicked. The 'Status' field now displays '[0 MB/ 537MB]'. The 'Estimation' button remains highlighted with an orange border.

- Then click the 'Start' button.



7) Snapshot

You can save the live snapshot by this menu. All channel will be saved individually to the USB memory by JPG format . You should put in USB memory before saving.

8) Freeze

You can freeze the current live video channels.

9) PTZ (Pan, Tilt and Zoom)

It is possible to control the pan and tilt camera by itself. Press the 'PTZ' button to enter the PTZ mode. For Menu setting, you can set it by pressing button as displayed at bottom of window.

- You can set the direction of camera by using the arrow buttons.



| | |
|---------------|--|
| Preset[Enter] | Preset setup |
| Zoom -/+ | You can zoom out/in with mouse or [1]/[2] buttons on the remote controller. |
| Focus -/+ | You can adjust the focus with mouse or [3]/[4] buttons on the remote controller. |
| IRIS -/+ | You can adjust the iris with mouse or [5]/[6] buttons on the remote controller. |

❖ For more details, refer to [CH 2-2. Connection Using PTZ camera] and [CH 3-4-3. Device]

- **Preset[Enter]** : You can enter the preset number using the keypad appearing the preset button or 'Enter' button on the remote controller.



| | |
|--------------------|--|
| Run[Enter] | Move to preset number |
| Set[PTZ/SEARCH] | Set a position and name of a preset number |
| Clear[Stop/BACKUP] | Clear a preset set |
| Exit | Exit preset mode |

❖ How to use Preset

1. Make sure that PTZ camera is connected to DVR.
2. Click the right mouse button and choose PTZ from a live pop-up menu.
3. After you move the screen, click the set button and set the position and name.

- ※ If you choose not a specified preset, UNDEFINED is displayed on the screen.
- ※ You can set up to 32. If you choose out of valid range, there is no action.

- **Camera[0]** : You can choose the PTZ camera with mouse or [0] buttons on the remote controller
- **Setup[9]** : If you press Setup using mouse (or [9] button on the remote controller) in PTZ Menu, PTZ setup window will appear. You can set the pan and tilt speed, 32 preset name and tour sequence as well as dwelling time.

The PTZ Setup window is titled "PTZ Setup". It contains the following elements:

- Pan Speed**: A dropdown menu set to "4".
- Tilt Speed**: A dropdown menu set to "4".
- Preset dwell time**: A dropdown menu set to "2sec".
- Tour**: A checkbox that is currently unchecked.
- Preset List**: A table with 8 rows and 3 columns. The first column lists "Preset 1" through "Preset 8". The second column contains checkboxes, all of which are unchecked. The third column contains "Clear" buttons. To the right of this table is a "Clear All" button.
- Preset Selection**: On the left side of the preset list, there are four buttons: "Preset 1", "Preset 9", "Preset 17", and "Preset 25".
- Grid**: Below the preset list is a 4x8 grid of buttons. Each button contains an "X" and a dropdown arrow.
- Buttons**: At the bottom are "OK" and "CANCEL" buttons.

| | |
|-------------------|---|
| Pan Speed | Set pan speed 1~7 |
| Tilt Speed | Set tilt speed 1~7 |
| Preset dwell time | Set preset dwell time 2~6 sec |
| Tour | When you check the tour box, the preset tour starts in the order specified by the user. |

❖ How to use Tour

Choose a preset from upper left to right.

※ If you use not specified presets, it automatically skip the tour.

10) Zoom

Digital zoom of live screen for selected channel. It can be 8x zoom and also control the position by mouse dragging.



- **Camera[0]** : You can choose the camera for zoom with mouse or [0] buttons on the remote controller.
- **Zoom[9]** : You can zoom with mouse or [9] buttons on the remote controller.

| |
|---------|
| Zoom x2 |
| Zoom x3 |
| Zoom x4 |
| Zoom x5 |
| Zoom x6 |
| Zoom x7 |
| Zoom x8 |

11) Sequence

Sequence Mode On /Off: Switches screens as set on Dwell time under Screen Setup

12) OSD

This feature shows current settings of product through GUI (Graphic User Interface) and INFO button at front side is used for this feature. When you turn on power, this will show current date and time, System Lock Setting, HDD usage, Video Loss Check, Sensor ON/OFF, Motion Detection Check, Recording Status and Schedule Feature Usage. As you press INFO button once more, GUI disappear->OSD disappear->GUI appear->OSD appear will happen sequentially.

- ❖ GUI (Graphic User Interface): displaying current status on monitor as images
- ❖ OSD (On Screen Display): displaying current status on monitor as character

13) System Information

It shows the system information.



The screenshot displays a 'System Information' window with a light blue background and a dark blue border. It contains a list of system parameters, each with a label and a corresponding value in a text box. At the bottom, there is an 'OK' button.

| System Information | |
|--------------------|----------------------|
| Firmware version | 1.0.4.4 |
| HDD | 0/160 GB |
| MAC Address | 00:09:1B:00:01:02 |
| IP | 192.168.1.10 |
| Connected IP | <input type="text"/> |
| Watch User | 0 |
| Search User | 0 |
| Setup User | 0 |
| Oldest Date | 2012/07/27 00:00:00 |

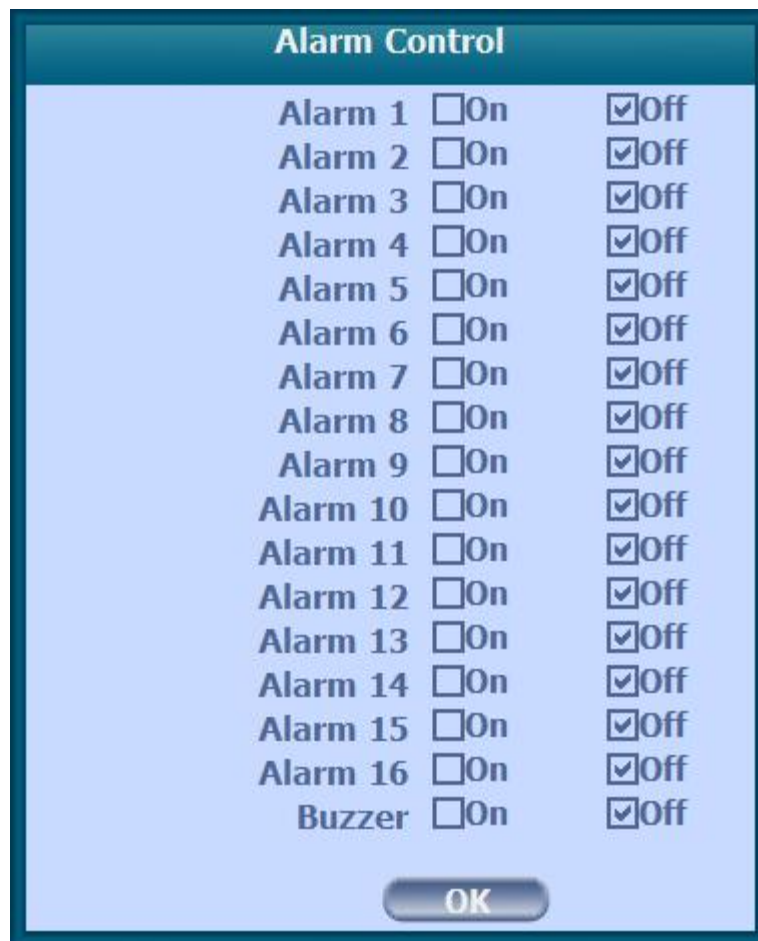
OK

14) Lock/Log In

Logs off current user and locks DVR from any further configuration and screen setup until next Administrator logs in.

15) Alarm Control

You can control all alarms connected and the DVR system buzzer.

A screenshot of a software dialog box titled "Alarm Control". The dialog has a light blue background and a dark blue border. It contains a list of 16 items, each with two checkboxes. The first checkbox is labeled "On" and the second is labeled "Off". The "Off" checkbox is checked for all items. At the bottom center, there is an "OK" button.

| Item | On | Off |
|----------|--------------------------|-------------------------------------|
| Alarm 1 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 2 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 3 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 4 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 6 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 7 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 8 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 9 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 10 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 11 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 12 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 13 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 14 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 15 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Alarm 16 | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| Buzzer | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

OK

3-3. Search Mode

Search mode consists of two different modes of searching. The video data can be selected by 5 modes.

| | |
|-----------|---|
| Time | Search by Month / Day / Time selection. |
| Event | Select from Event Log. |
| POS | Search by POS transaction data. |
| Thumbnail | Play the specific channel by user defined interval. |
| Panorama | Play the specific channel continuously. |

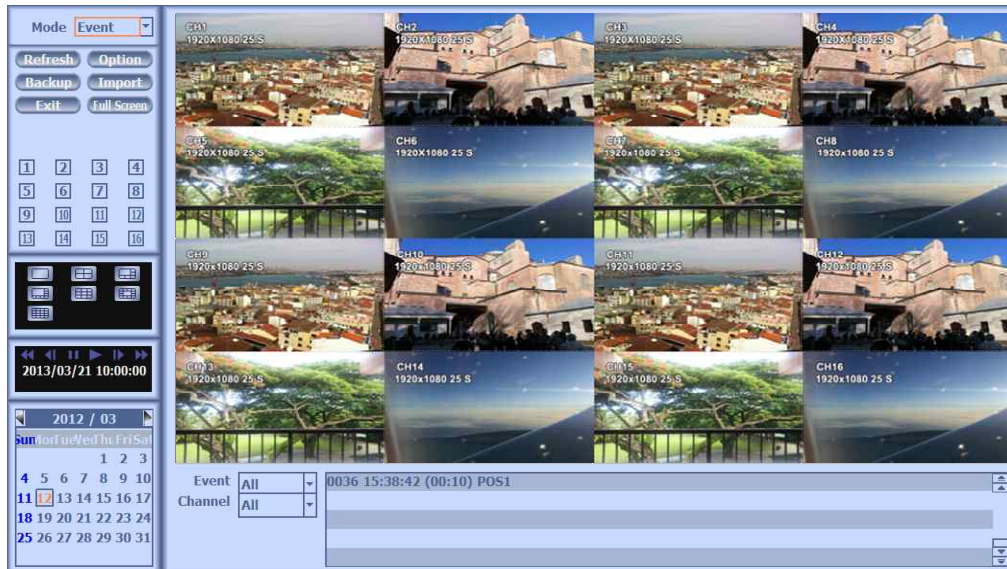
3-3-1. Search Selection Type

1) Time Based search selection



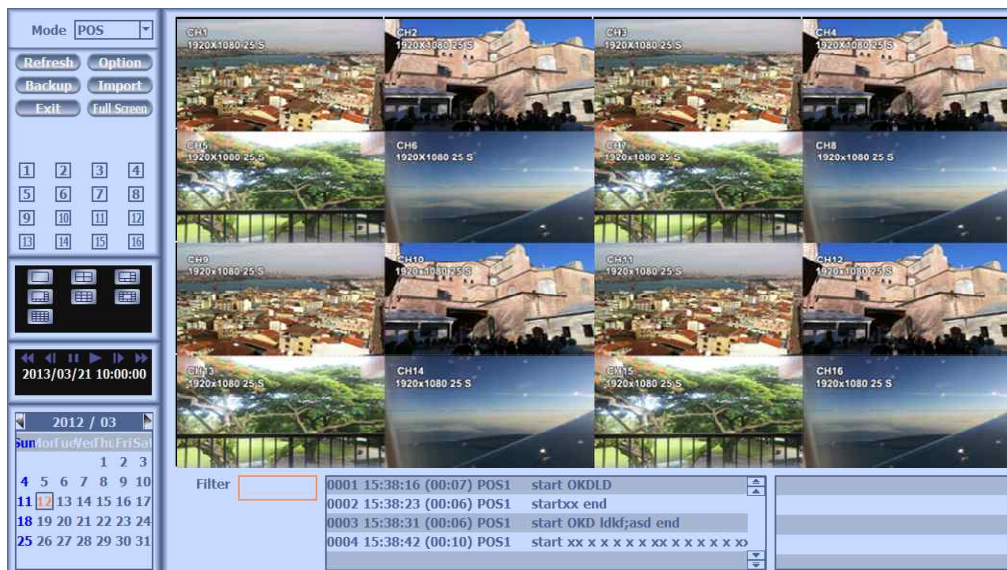
- Select the Date you wish to view by selecting a Date from Calendar.
- Select time you wish to view by selecting a time from Time Line.
- You may click on Refresh, Option, Backup, Import, Exit , Full Screen for additional features and options.

2) Event Based Search Selection



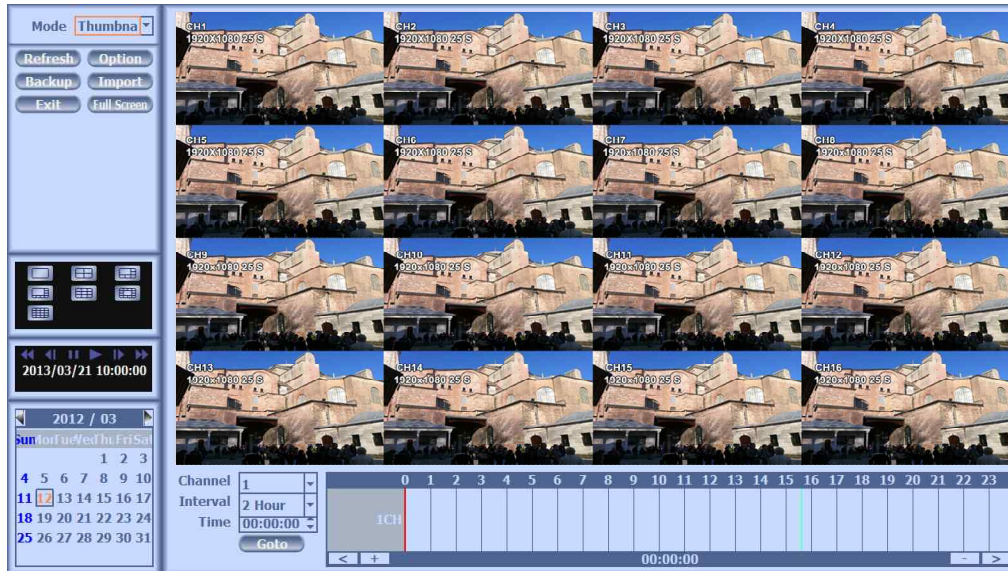
- Select search date from calendar
- Event log will be displayed according to the chosen date
- Preview pane above the Event Log will show preview of currently selected video

3) POS Search



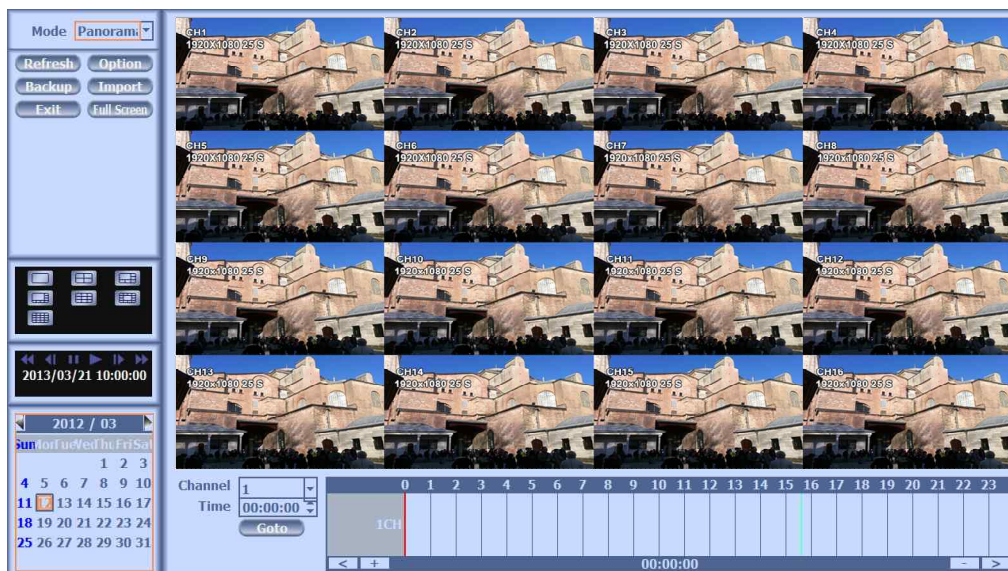
- Select search date from calendar
- POS transaction data will be displayed according to the chosen date
- You can search detail by filter.

4) Thumbnail Search



- Select search date from calendar
- Choose the channel and interval, then select the time from bar or typing
- The selected channel will be played individually by interval time difference


5) Panorama Search



- Select search date from calendar
- Choose the channel and time from bar or typing
- The selected channel will be played continuously. If you want to play faster, use the FF button.

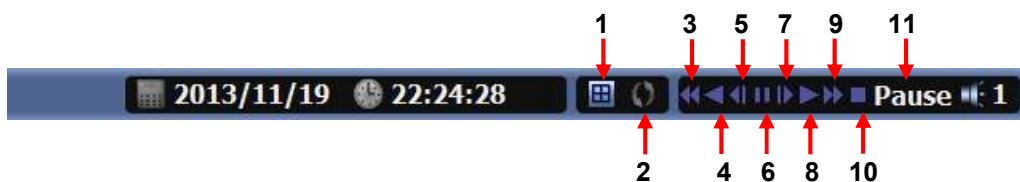
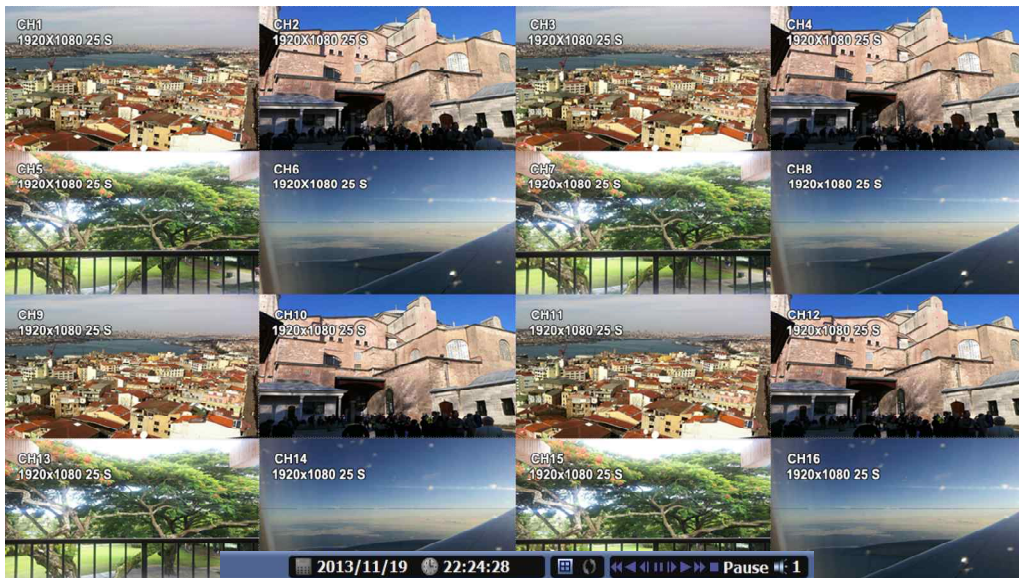
6) Search Related buttons

- You may click on Refresh, Option, Backup, Import, Exit , Full Screen for additional features and options

| | |
|--------------------|---|
| Refresh | Reload all data list. |
| Option | <p>Search option.</p>  |
| Backup | Backup recorded data to external USB device. |
| Import | Playback recorded data from external USB device. |
| Exit | Move to Live video mode. |
| Full Screen | Load playback data to full screen mode. |

3-3-2. Play Mode

If you choose 'Full Screen', the full screen appear. You can control the play speed in here.



► Play Screen GUI

1. Split Screen
2. Sequence
3. FB (Fast Backward): FB×2, 4, 8, 16, 32, 64 times faster
4. Playback : Backward normal speed
5. SB (Slow Backward):SBx1/2, SBx1/4
6. STILL (Pause) / Frame advance
7. SF (Slow Forward):SFx1/2, SFx1/4
8. Play : Forward normal speed
9. FF (Fast Forward): FF×2, 4, 8, 16, 32, 64 times faster
10. STOP : Stops playing and returns to LIVE Screen.
11. Status information

3-4. SETUP Mode

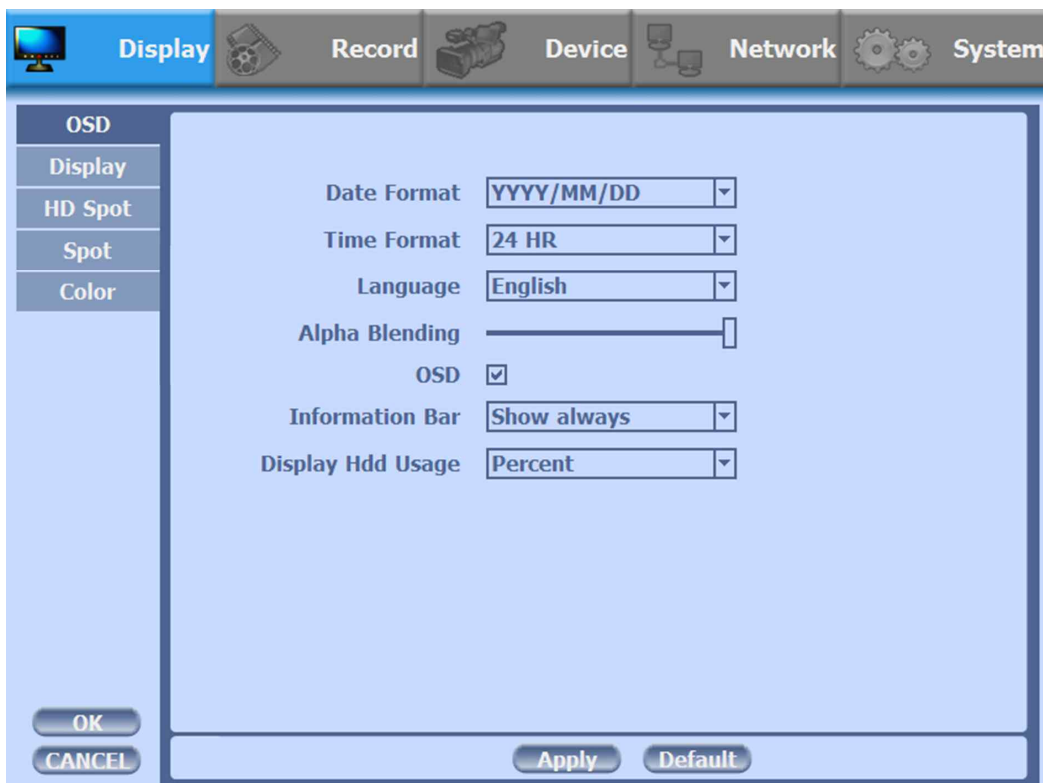
Access Setup menu from Right Clicking mouse button to Popup Menu.
Configure Display, Record, Device, Network, System which is navigated by clicking on corresponding tab menu at the top of the screen.

| | |
|---------|-------------------------------------|
| Apply | Apply changes |
| Default | Return to factory default settings. |

3-4-1. Display

Configure OSD, Main Display, Color Control setting.

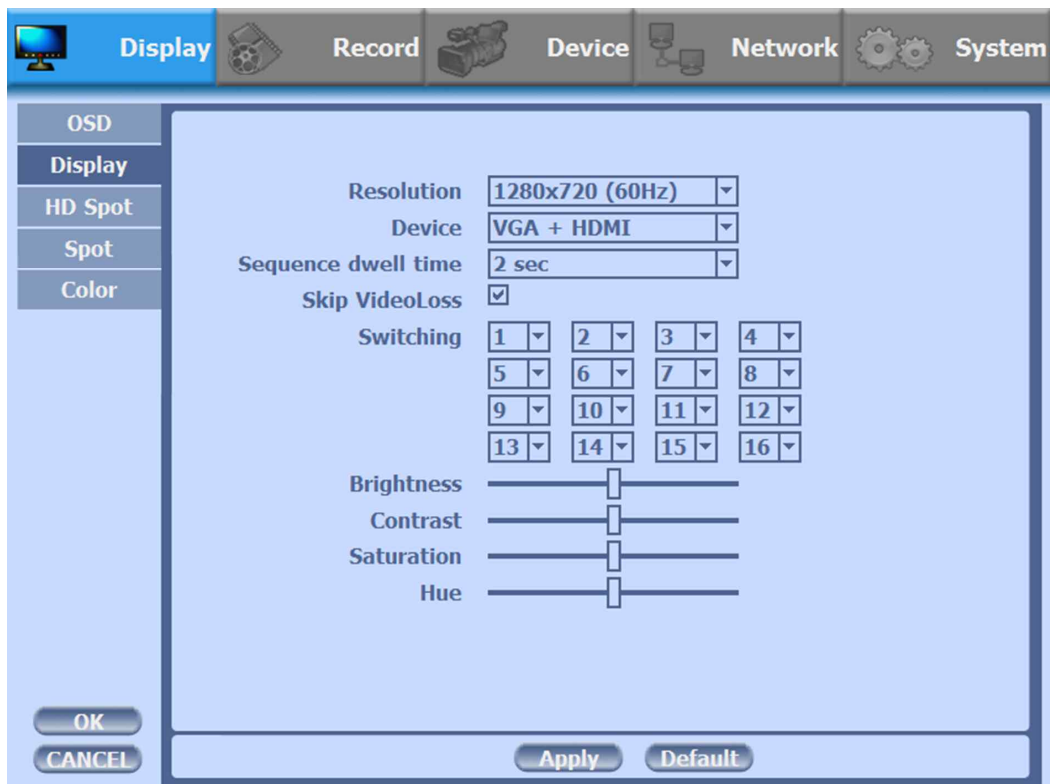
1) OSD



| | |
|-------------------|--|
| Date Format | YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY |
| Time Format | 24HR, 12H(AM/PM) |
| Language | Select system language. |
| Alpha Blending | Adjust transparency of System Menus. |
| OSD | OSD On/Off |
| Information Bar | Information Menu Bar Hide always /Auto hide/ Show always |
| Display HDD Usage | Percent/Oldest Date |

2) Display

- You can use dual monitors that show same image by setting VGA+HDMI.
- Configure and view Resolution, Sequence Dwell Time and Display control settings.



| | |
|---------------------|---|
| Resolution | 1280x720(60Hz), 1280x720(50Hz), 1280x1024(60Hz), 1920x1080(60Hz), 1920x1080(50Hz) |
| Device | VGA+HDMI, VGA, HDMI |
| Sequence dwell time | 1 sec ~ 60 sec |
| Skip Video Loss | Skip a video loss channel when you set the sequence of the live screen. |
| Switching | Set a display for the live screen. |
| Brightness | Adjust brightness. |
| Contrast | Adjust contrast. |
| Saturation | Adjust saturation. |
| Hue | Adjust hue. |

3) HD Spot

- If you are not using VGA+HDMI for display, you can use HD Spot.

The screenshot shows the 'HD Spot' configuration window. The left sidebar has buttons for 'OSD', 'Display', 'HD Spot' (highlighted), 'Spot', and 'Color'. The main area contains the following settings:

- Resolution:** 1280x720 (60Hz)
- Device:** None
- Mode:** 16 Screen
- Sequence dwell time:** 2 sec
- Skip VideoLoss:** ☒
- Switching:** A 4x4 grid of 16 dropdown menus, numbered 1 to 16.

At the bottom left are 'OK' and 'CANCEL' buttons. At the bottom right are 'Apply' and 'Default' buttons.

| | |
|----------------------|---|
| Resolution | 1280x720(60Hz), 1280x720(50Hz), 1280x1024(60Hz), 1920x1080(60Hz), 1920x1080(50Hz) |
| Device | VGA, HDMI, None |
| Mode (Split Screen) | 1, 4, 9, 16 Screen |
| Sequence dwell time | 1 ~ 60 sec |
| Skip Video Loss | Skip a video loss channel for the sequence of the HD Spot. |
| Switching | You can program the sequence channels. If you want to just see ch1, you set all box to '1'. You can make any useful sequence by this map. |

4) SPOT Control

- Set the SPOT output .

The screenshot shows the 'Spot' control menu. The top bar has tabs for Display, Record, Device, Network, and System. The left sidebar has buttons for OSD, Display, HD Spot, Spot (selected), and Color. The main area contains the following settings:

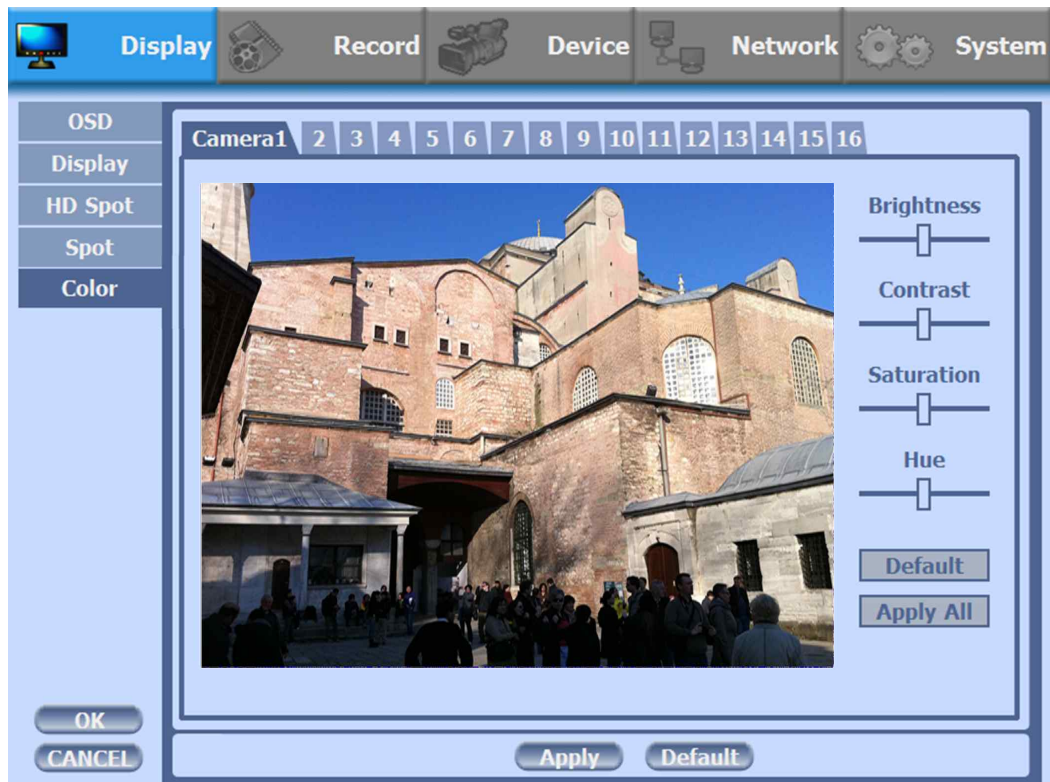
- CVBS: NTSC
- Mode: 16 Screen
- Sequence dwell time: 2 sec
- Skip VideoLoss: ☒
- Switching: A 4x4 grid of buttons numbered 1 to 16.

At the bottom, there are buttons for OK, CANCEL, Apply, and Default.

| | |
|---------------------|---|
| CVBS | Choose NTSC or PAL |
| Mode | 1, 4, 9, 16 Screen |
| Sequence dwell time | 1 ~ 60 sec |
| Skip Video Loss | Skip a video loss channel for the sequence of the Spot. |
| Switching | You can program the sequence time. If you want to just see ch1, you set all box to '1'. You can make any useful sequence by this map. |

5) Color

- Adjust color of analog cameras.



| | |
|------------|-------------------------------------|
| Brightness | Adjust brightness |
| Contrast | Adjust contrast |
| Saturation | Adjust saturation |
| Hue | Adjust hue |
| Default | Return to factory default settings. |
| Apply All | Apply changes to all channels. |

3-4-2. Record

Configure and view Event In, Record, Group, Holiday settings

1) Record

| | | |
|----------------------------|------------|---|
| Rec type | | None, Conti, Event, C/E |
| Audio Rec | | To select audio recording or not. |
| ❖ ALL Apply | | Apply the setting to whole channel. |
| Continuous | Resolution | 1920x1080, 1280x720, 960x540 |
| | FPS | 30, 15, 10, 7, 6, 5, 4, 3, 2, 1 fps |
| | Quality | Super, High, Med, Low |
| ❖ Event | Resolution | 1920x1080, 1280x720, 960x540 |
| | FPS | 30, 15, 10, 7, 6, 5, 4, 3, 2, 1 fps |
| | Quality | Super, High, Med, Low |
| | ❖ Duration | 5 ~ 60 sec |
| | ❖ PreAlarm | 0 ~ 4 sec |
| ❖ Total | | It shows the total fps. |
| ❖ Estimated Recording Days | | This is an automatic calculator of the recoding days. |

- ❖ Event recording has priority in recording. In C/E recording, the recording will follow conti recording setup in normal condition while it would follow event recording setup in event generation.
- ❖ For convenience, you can use the 'Apply All' menu to change with the same preference. You don't have to setup each channel if you using the 'Apply All' function.
- ❖ Duration is to set post event recording time.
- ❖ Pre alarm is to set pre event recording time.
- ❖ Total shows total fps of all channels. If total fps is more than supported, it turns red. If it turns red, you need to set a lower resolution or FPS.
- ❖ Event recording has priority in recording. In C/E recording, the recording will follow conti recording setup in normal condition while it would follow event recording setup in event generation.

2) Group

- With this menu, you can set the group using the scheduler. If you choose 'Group' tab, you can see the similar screen with 'Record'. The setting is similar

The screenshot displays the 'Record' configuration window. The top navigation bar includes 'Display', 'Record' (highlighted), 'Device', 'Network', and 'System'. The left sidebar contains 'Record', 'Group' (selected), 'Schedule', 'Holiday', and 'Event In'. The main panel shows settings for 'Group A' across 16 camera channels. 'Camera 1' is selected. The settings are as follows:

- Timestamp: ☐
- Group: A
- Rec Type: Event
- Audio Rec: ☒
- Continuous Recording:
 - Resolution: 480x240
 - FPS: 15.0
 - Quality: Super
- Event Recording:
 - Resolution: 480x240
 - FPS: 4.0
 - Quality: Super
 - Duration: 15 sec
 - PreAlarm: 0 sec
- Total: 36 (480) (WD1)
- Estimated Recording Days: 4.58 Day

Buttons at the bottom include 'OK', 'CANCEL', 'Apply', and 'Default'.



* Timestamp

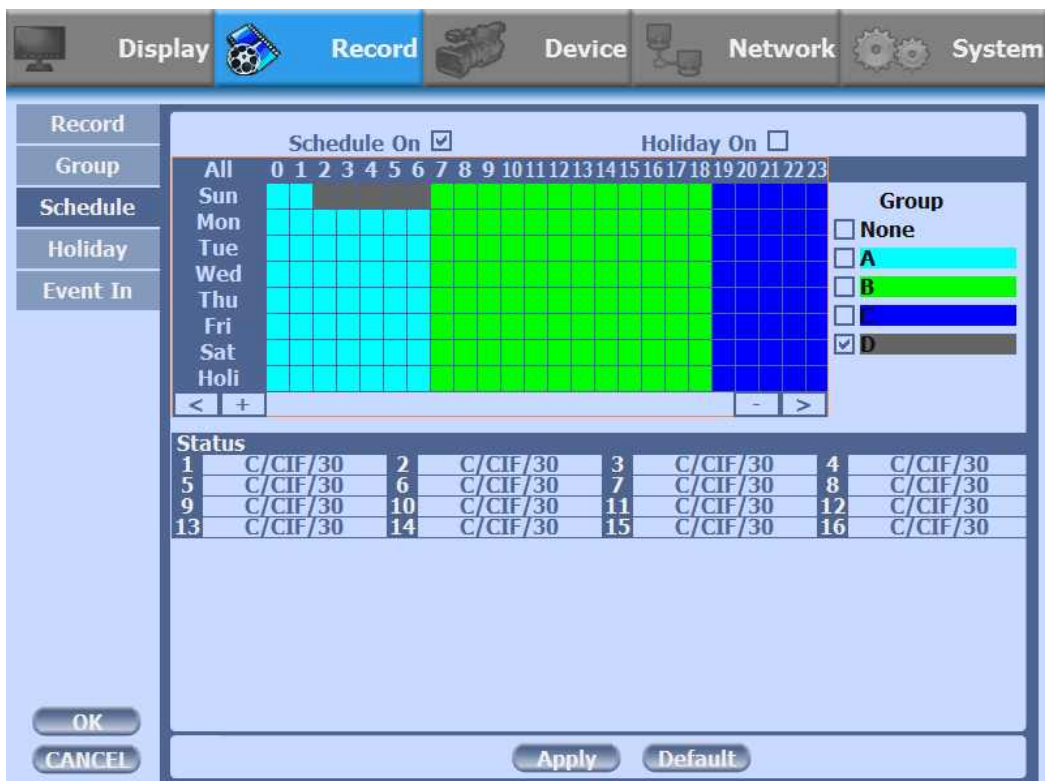
With 'Record' and 'Group' menu, you can check the 'Timestamp' to mark the time on your recording files.

3) Schedule

- In recording, Schedule recording setting is most preferred. So if you activate the weekly scheduler, you cannot record manually.
- Schedule On : The weekly scheduler is activated.
- Holiday On : The holiday that set by user is activated.
- Since you can set recording weekly, you can reduce recording of unnecessary time period. In Scheduler window, days and channels are displayed, and recording information for each channel is displayed at bottom of window.

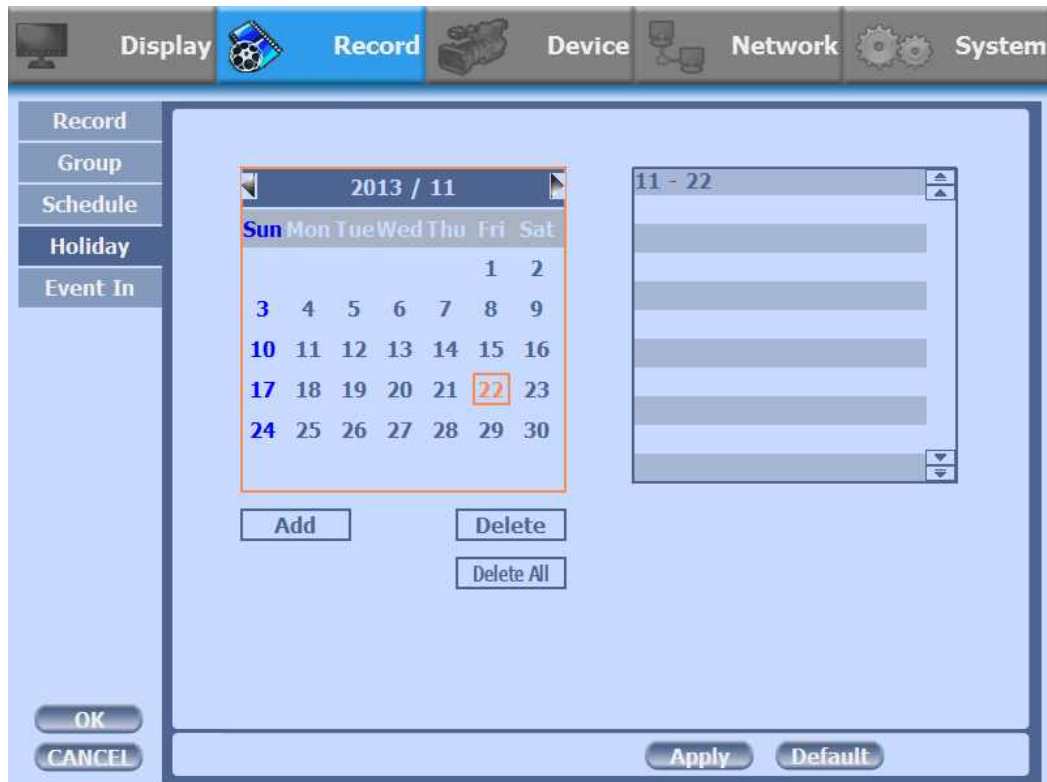
❖ How to set the weekly scheduler

1. Choose 'Scheduler' to 'On'.
2. Choose group and drag to wanted time.
3. Press the time bar  , if you want to set the detailed time.
4. Press 'Enter' button to change the group of the selected area.
5. If you activate 'Holiday' scheduler, choose 'holiday'.



4) Holiday





With this menu, you can add the holidays. Use the 'Add' button for adding the holiday and use the 'Delete' or 'Delete All' buttons for removing the existing holidays.

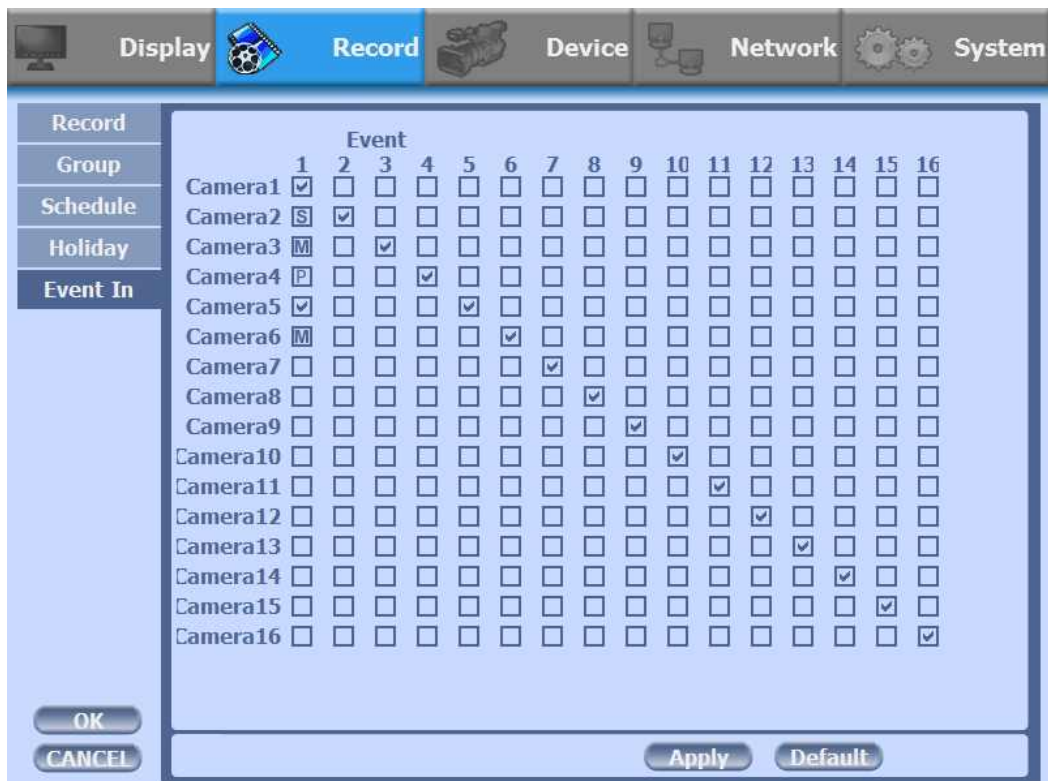


5) Event In

- With this menu, you can set sensor input, motion detection setup. You can also set each channel individually.
- Although you set Motion Detection and Sensor Setting to On in Event menu, if Event Input in Rec Menu is set to None, it only detects and does not record.

❖ Summary regarding as Event Recording

| Event In | OSD | Sensor | Motion Detection | POS |
|------------------|---|--------|------------------|-----|
| Sensor |  | ON | OFF | OFF |
| Motion Detection |  | OFF | ON | OFF |
| POS |  | OFF | OFF | ON |
| All Event |  | ON | ON | ON |
| None | | OFF | OFF | OFF |



The screenshot shows the 'Event In' menu in a DVR interface. The menu is divided into several sections: 'Record', 'Group', 'Schedule', 'Holiday', and 'Event In'. The 'Event In' section is currently selected, displaying a grid of checkboxes for 16 cameras (Camera1 to Camera16) and 16 event channels (1 to 16). The checkboxes are arranged in a grid where each row represents a camera and each column represents an event channel. The 'Record' menu is also visible on the left, showing a grid of checkboxes for 16 cameras and 16 event channels. The 'Record' menu is currently selected, showing a grid of checkboxes for 16 cameras (Camera1 to Camera16) and 16 event channels (1 to 16). The checkboxes are arranged in a grid where each row represents a camera and each column represents an event channel. The 'Record' menu is currently selected, showing a grid of checkboxes for 16 cameras (Camera1 to Camera16) and 16 event channels (1 to 16). The checkboxes are arranged in a grid where each row represents a camera and each column represents an event channel.

3-4-3. Device

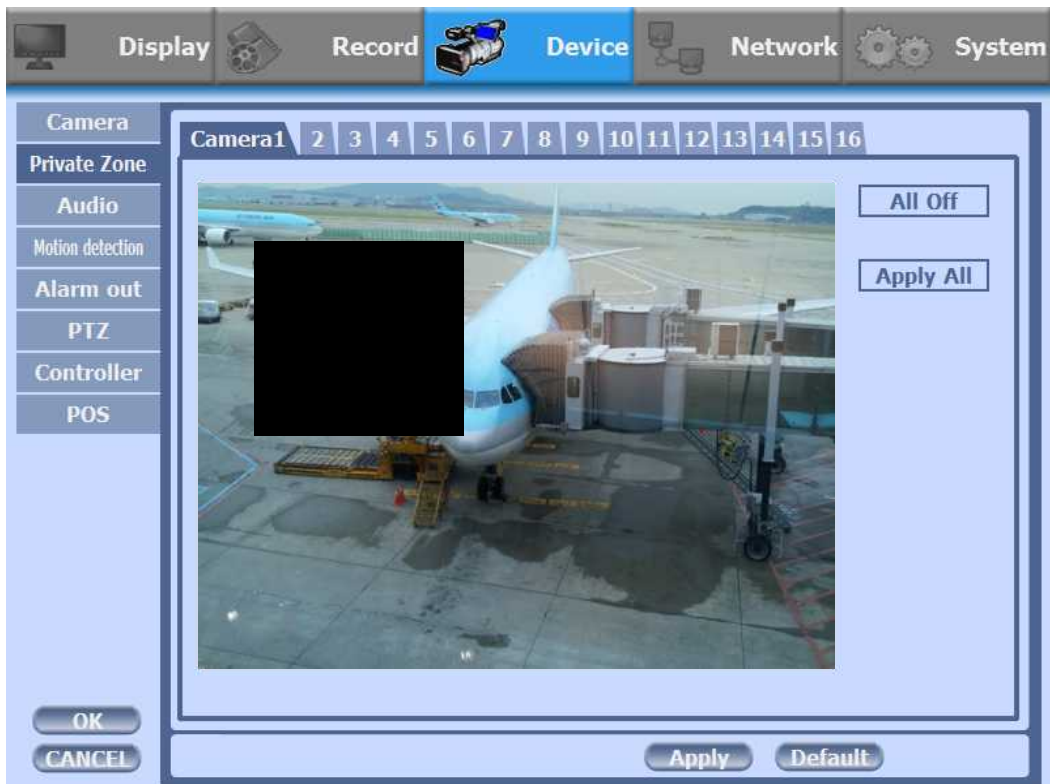
- Configure and view Camera, Private Zone, Audio, Motion Detection, Alarm Out, PTZ settings and Controller.

1) Camera

| | |
|-------------|--|
| Signal type | All video input is detected automatically |
| Detected | Detected camera video type |
| Name | You can set the camera name. |
| Disable | Disable current camera. It is useful when the signal is bad. |
| Convert | Hide current camera from Live view but Record for future searching option. |
| 4:3 Display | 4:3 display of analog camera |

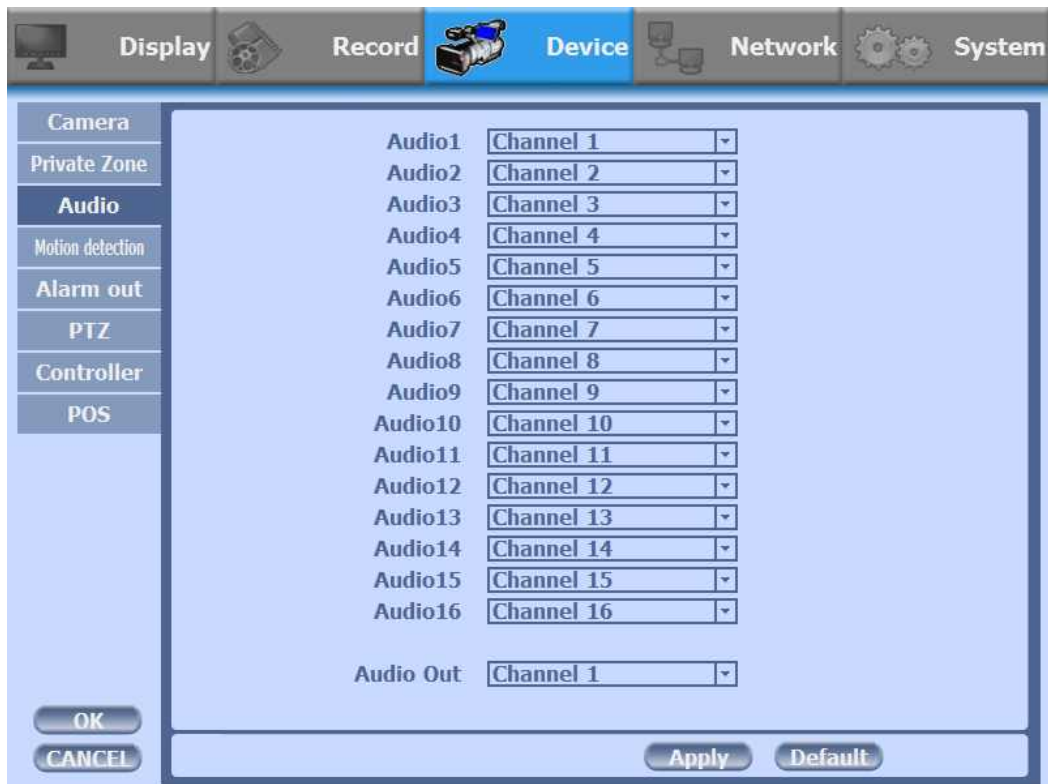
2) Private Zone

If you want to hide some part of the picture for privacy, you can choose the area by dragging the mouse. The selected area will be changed to black screen.



| | |
|-----------|------------------------------------|
| All Off | All off the private zone |
| Apply All | Apply the setting to whole channel |

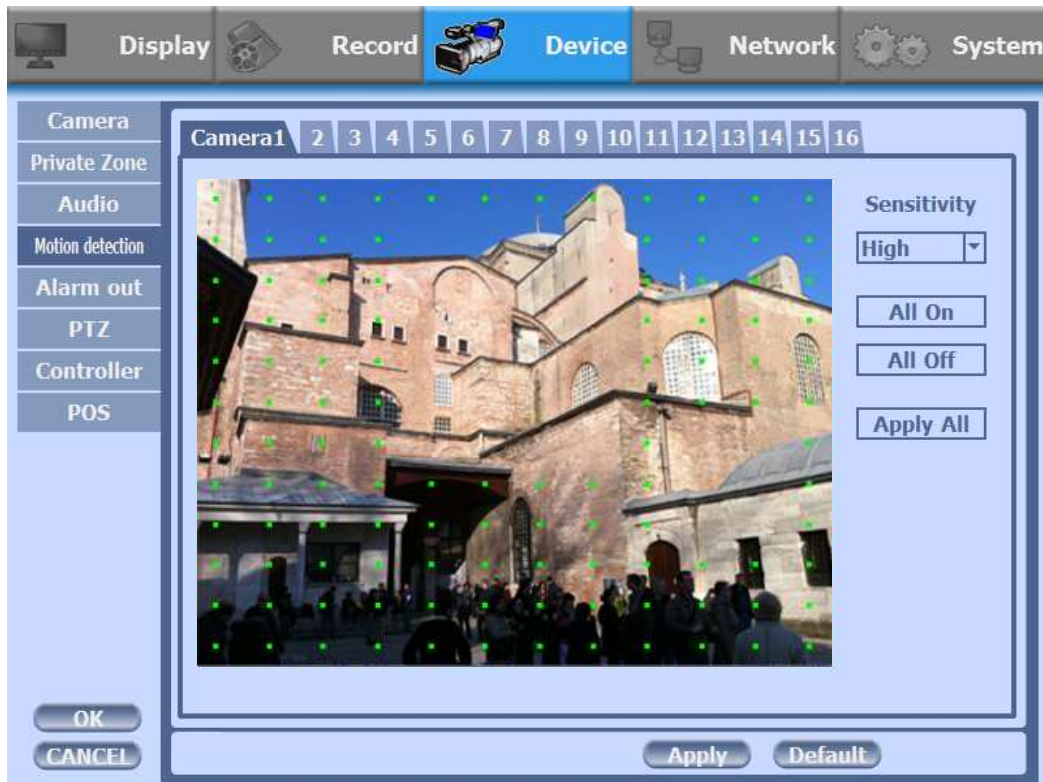
3) Audio



| | |
|------------|--|
| Audio 1~4 | Assign audio input to a video channel. |
| Audio 1~8 | |
| Audio 1~16 | |
| Audio Out | Select which channel will be heard during Live View. |

4) Motion Detection

- Change settings for Motion Grid selection and Sensitivity Level. You can set multiple area.



| | |
|-------------|--|
| Sensitivity | Low, Mid, High |
| All On | This will activate the motion detection of the all area. |
| All Off | This will deactivate the motion detection of the all area. |
| Apply All | Apply the setting to whole channel |

5) Alarm Out

- There are 4 types trigger such as sensor input, motion detection, POS and video loss. This setting is related that which trigger will be activate the action such as Relay, Popup, and Buzzer Alarm Out. Each type can have separate Duration value and also linked to selected camera.

| Sensor Type | Sensor In | Motion detection | POS | VideoLoss | Duration | Name |
|-------------|-----------|------------------|-----|-----------|----------|------|
| 1 | N.O | | | | | |
| 2 | N.O | | | | | |
| 3 | N.O | | | | | |
| 4 | N.O | | | | | |
| 5 | N.O | | | | | |
| 6 | N.O | | | | | |
| 7 | N.O | | | | | |
| 8 | N.O | | | | | |
| 9 | N.O | | | | | |
| 10 | N.O | | | | | |
| 11 | N.O | | | | | |
| 12 | N.O | | | | | |
| 13 | N.O | | | | | |
| 14 | N.O | | | | | |
| 15 | N.O | | | | | |
| 16 | N.O | | | | | |

5-1) Sensor Type

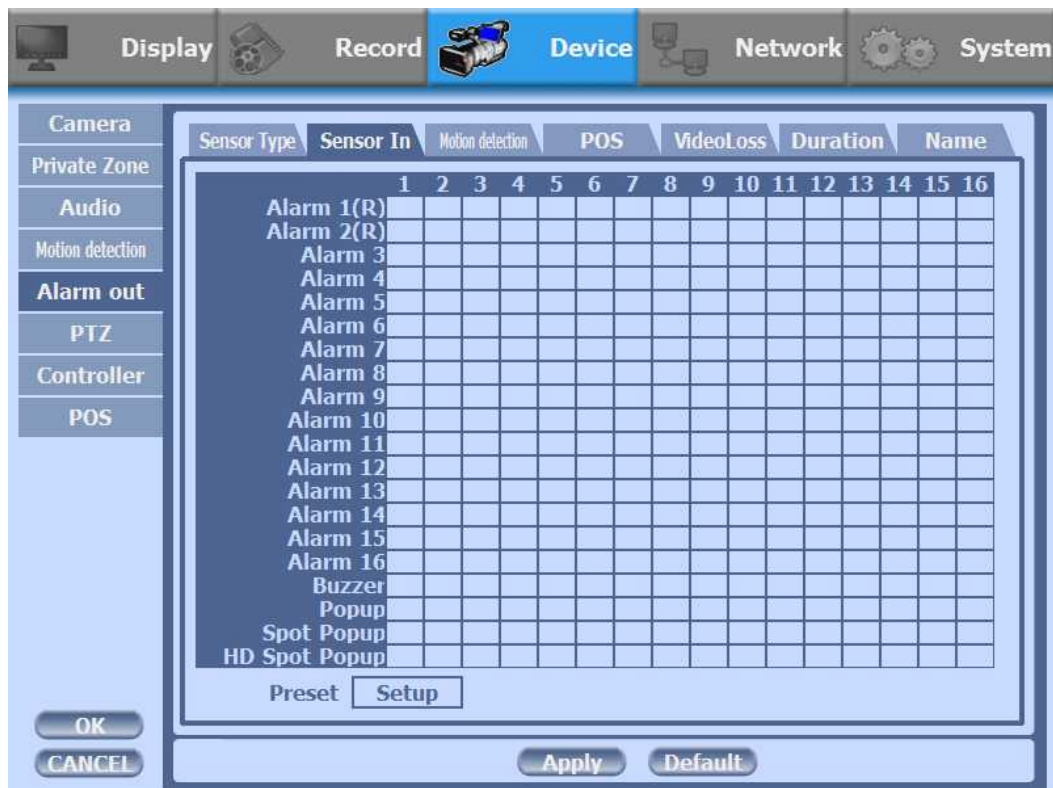
Selectable option is N.O. (Normally Open) / N.C. (Normally Close)

| | |
|------|--------------------------------------|
| 1~4 | N.O(Normal Open) / N.C(Normal Close) |
| 1~8 | |
| 1~16 | |

❖ For more details, refer to [CH 2. Installation Method and Cautions].

5-2) Sensor In

- You can choose the action after sensor in between relay, buzzer sound, pop up, spot pop up and HD spot pop up. Also you can choose more than one action.



- Choose a sensor connected to a channel.
- If the sensor does not work, please check again the sensor type.
- Alarm 1 and 2 are relay out.
- Alarm 3 ~ 16 are TTL out(High, Low).

❖ For more details, refer to [CH 2. Installation Method and Cautions].

- Also you can choose more than one action. Furthermore you can set the preset position number by motion detection. If you push the 'setup' you can see the preset screen.

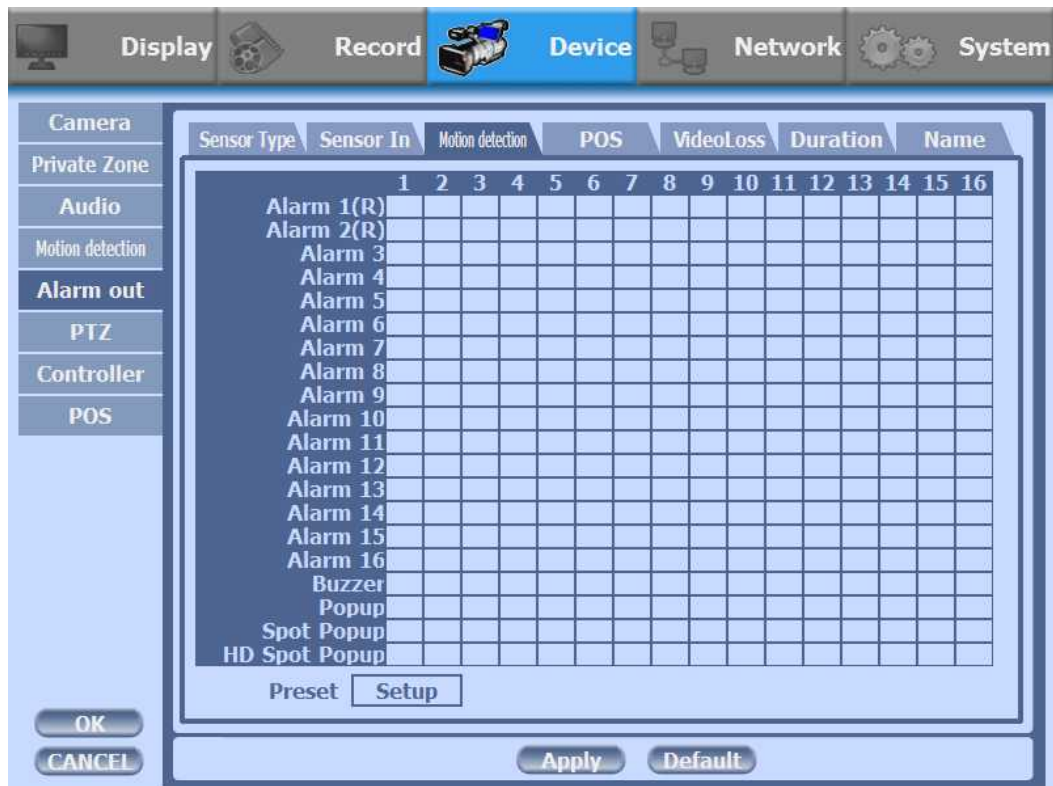
| Sensor1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|----------|------|---|---|---|---|---|---|----------|------|----|----|----|----|----|----|
| Camera1 | None | | | | | | | Camera2 | None | | | | | | |
| Camera3 | None | | | | | | | Camera4 | None | | | | | | |
| Camera5 | None | | | | | | | Camera6 | None | | | | | | |
| Camera7 | None | | | | | | | Camera8 | None | | | | | | |
| Camera9 | None | | | | | | | Camera10 | None | | | | | | |
| Camera11 | None | | | | | | | Camera12 | None | | | | | | |
| Camera13 | None | | | | | | | Camera14 | None | | | | | | |
| Camera15 | None | | | | | | | Camera16 | None | | | | | | |

OK CANCEL

- You can assign the preset position individually by specific motion.

5-3) Motion Detection

- You can choose the action after motion detection between relay, buzzer sound, pop up, spot pop up, and HD spot pop up.



- Also you can choose more than one action. Furthermore you can set the preset position number by motion detection. If you push the 'setup' you can see the preset screen.



- You can assign the preset position individually by specific motion.

5-4) POS

- You can choose the action after POS transaction or video loss between relay, buzzer sound, pop up, spot pop up and HD spot pop up.

The screenshot shows a software interface for configuring a device. The top navigation bar includes icons and labels for Display, Record, Device (selected), Network, and System. On the left, a sidebar lists configuration categories: Camera, Private Zone, Audio, Motion detection, Alarm out, PTZ, Controller, and POS (selected). The main area displays the 'Motion detection' configuration for the 'POS' tab. It features a table with columns for Sensor Type, Sensor In, Motion detection (sub-columns 1-5), POS, VideoLoss, Duration, and Name. The table lists 16 alarm types: Alarm 1(R), Alarm 2(R), Alarm 3, Alarm 4, Alarm 5, Alarm 6, Alarm 7, Alarm 8, Alarm 9, Alarm 10, Alarm 11, Alarm 12, Alarm 13, Alarm 14, Alarm 15, and Alarm 16. Below these are Buzzer, Popup, Spot Popup, and HD Spot Popup. Each row has checkboxes in the Motion detection and POS columns. At the bottom, there are buttons for OK, CANCEL, Apply, and Default.

| Sensor Type | Sensor In | Motion detection | | | | | POS | VideoLoss | Duration | Name |
|---------------|-----------|------------------|---|---|---|---|-----|-----------|----------|------|
| | | 1 | 2 | 3 | 4 | 5 | | | | |
| Alarm 1(R) | | | | | | | | | | |
| Alarm 2(R) | | | | | | | | | | |
| Alarm 3 | | | | | | | | | | |
| Alarm 4 | | | | | | | | | | |
| Alarm 5 | | | | | | | | | | |
| Alarm 6 | | | | | | | | | | |
| Alarm 7 | | | | | | | | | | |
| Alarm 8 | | | | | | | | | | |
| Alarm 9 | | | | | | | | | | |
| Alarm 10 | | | | | | | | | | |
| Alarm 11 | | | | | | | | | | |
| Alarm 12 | | | | | | | | | | |
| Alarm 13 | | | | | | | | | | |
| Alarm 14 | | | | | | | | | | |
| Alarm 15 | | | | | | | | | | |
| Alarm 16 | | | | | | | | | | |
| Buzzer | | | | | | | | | | |
| Popup | | | | | | | | | | |
| Spot Popup | | | | | | | | | | |
| HD Spot Popup | | | | | | | | | | |

- Also you can choose more than one action.

5-6) Duration

- You can choose the duration time from 5 to 60 seconds after motion detection between relay, buzzer sound, pop up, spot pop up, HD spot pop up, and preset.

| Sensor Type | Sensor In | Motion detection | POS | VideoLoss | Duration | Name |
|-------------|-----------|------------------|-----|-----------|----------|---------------|
| | | | | | 5 sec | Alarm 1(R) |
| | | | | | 5 sec | Alarm 2(R) |
| | | | | | 5 sec | Alarm 3 |
| | | | | | 5 sec | Alarm 4 |
| | | | | | 5 sec | Alarm 5 |
| | | | | | 5 sec | Alarm 6 |
| | | | | | 5 sec | Alarm 7 |
| | | | | | 5 sec | Alarm 8 |
| | | | | | 5 sec | Alarm 9 |
| | | | | | 5 sec | Alarm 10 |
| | | | | | 5 sec | Alarm 11 |
| | | | | | 5 sec | Alarm 12 |
| | | | | | 5 sec | Alarm 13 |
| | | | | | 5 sec | Alarm 14 |
| | | | | | 5 sec | Alarm 15 |
| | | | | | 5 sec | Alarm 16 |
| | | | | | 5 sec | Buzzer |
| | | | | | 5 sec | Popup |
| | | | | | 5 sec | Spot Popup |
| | | | | | 5 sec | HD Spot Popup |
| | | | | | 5 sec | Preset |

5-7) Name

- You can set a name of the alarms.

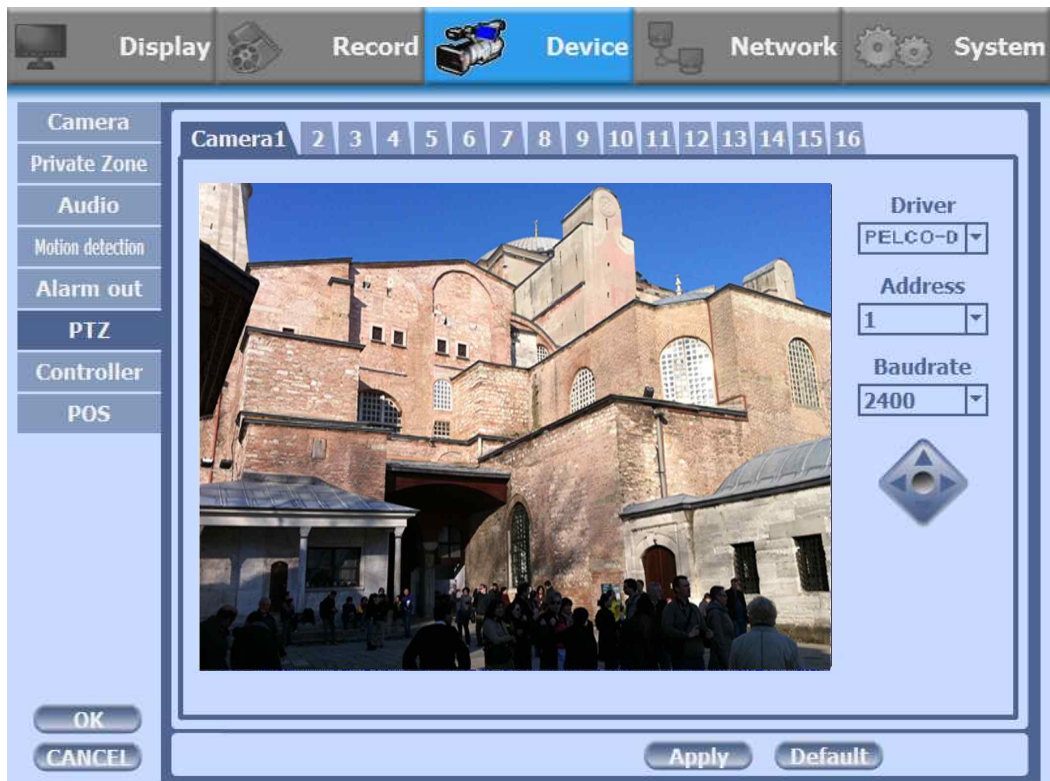
The screenshot shows a software interface for configuring a device. At the top, there is a navigation bar with icons and labels for Display, Record, Device (selected), Network, and System. On the left side, there is a vertical menu with options: Camera, Private Zone, Audio, Motion detection, Alarm out (selected), PTZ, Controller, and POS. The main area displays the 'Name' tab for alarm configuration. It features a table with columns for Sensor Type, Sensor In, Motion detection, POS, VideoLoss, Duration, and Name. The table lists 16 alarms, each with a name field. The first two alarms are labeled 'Alarm 1(R)' and 'Alarm 2(R)'. The bottom of the window has buttons for OK, CANCEL, Apply, and Default.

| Sensor Type | Sensor In | Motion detection | POS | VideoLoss | Duration | Name |
|-------------|-----------|------------------|-----|-----------|----------|----------|
| Alarm 1(R) | Alarm 1 | | | | | Alarm 12 |
| Alarm 2(R) | Alarm 2 | | | | | Alarm 13 |
| Alarm 3 | Alarm 3 | | | | | Alarm 14 |
| Alarm 4 | Alarm 4 | | | | | Alarm 15 |
| Alarm 5 | Alarm 5 | | | | | Alarm 16 |
| Alarm 6 | Alarm 6 | | | | | |
| Alarm 7 | Alarm 7 | | | | | |
| Alarm 8 | Alarm 8 | | | | | |
| Alarm 9 | Alarm 9 | | | | | |
| Alarm 10 | Alarm 10 | | | | | |
| Alarm 11 | Alarm 11 | | | | | |

OK CANCEL Apply Default

6) PTZ

Configure Pan/Tilt/Zoom camera for control via DVR System and Remote client.



| | |
|----------|--|
| Driver | Choose Driver to be suitable for PAN/TILT Camera manufacturer. |
| Address | Choose address to be suitable for PAN/TILT Camera manufacturer. |
| Baudrate | Choose baudrate to be suitable for PAN/TILT Camera manufacturer. |

- You have to set Comport value according to the connected camera.
- ❖ For connection of PAN/TILT Camera Receiver part, refer to user's manual of the related PAN/TILT Camera.

- ❖ There are more kinds of camera which can be supported. Please contact the tech support to want to know the other cameras.

| Driver | Baudrate |
|--------------|-------------|
| PELCO D type | 2400~9600 |
| PELCO P type | 2400 |
| PANASONIC | 2400~19200 |
| ORIENTAL | 2400(Fixed) |
| LPT-A100L | 9600(Fixed) |
| LG-SD110 | 2400~19200 |

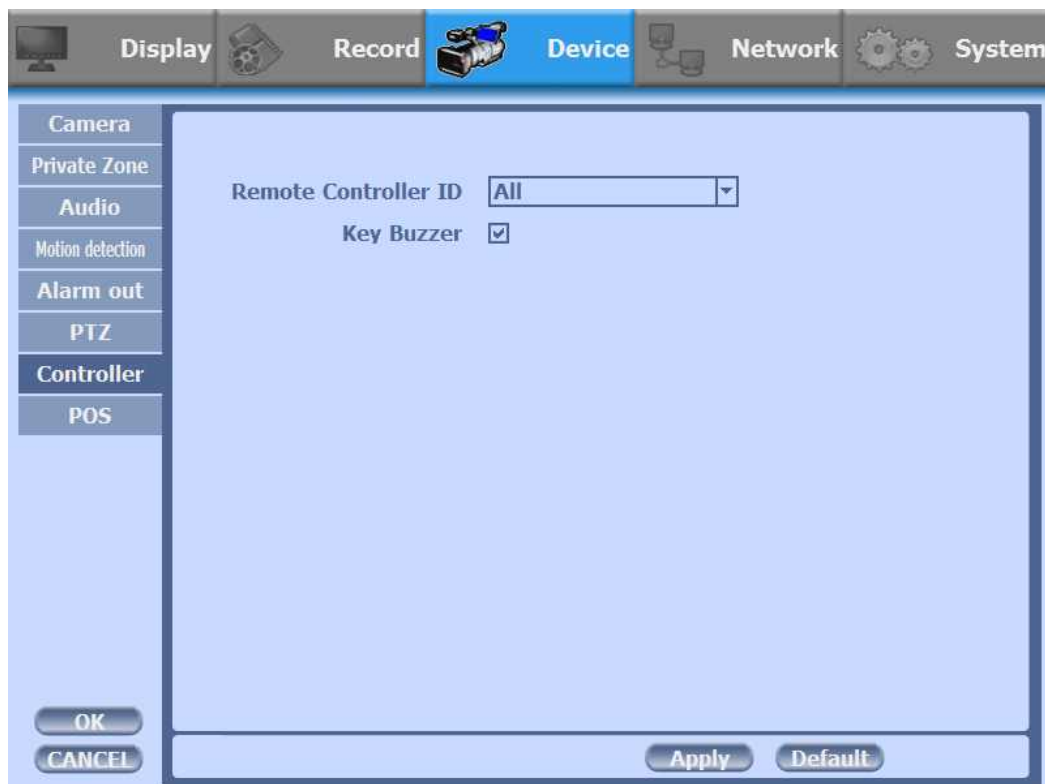
7) Controller

This sets the ID of remote control and system keyboard. If you have many DVRs in the same place, you can control separately the DVR by different remote control ID.

❖ Remote controller ID setup

Use the ID setup and number key to set the ID of remote control on the remote controller. You may check the ID by pressing the remote control key. The ID should be the same between the DVR and remote control.

And you can turn it on/off the key sound.



| | |
|----------------------|-------------|
| Remote Controller ID | All, 00 ~99 |
| Key Buzzer | ON / OFF |

8) POS

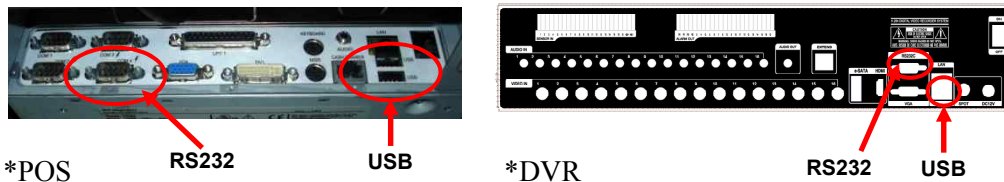
This sets the POS interface(text inserter) with the DVR and cash register.

※ If you are using a USB hub, you can use up to 4 USB POS.

| | |
|--------------------------|---|
| Channel | Select a Channel of POS |
| Baudrate | Select a baudrate of POS |
| Start Word | Type a start word of transaction |
| End Word | Type a end word of transaction. Text will be embedded into the picture between start word and end word. |
| Ignore Word | Type a word which you want ignore during text insertion. |
| Number of add line | This will determine the adding line after end word. (0~4) |
| Overlay Position | This will determine the text position. |
| Text Overlaying Duration | This will determine how long display the text up to 120 seconds. (60~120 sec) |

❖ How to Connect POS

1. Connect the RS-232 cable or USB to RS232 serial cable between POS and DVR.

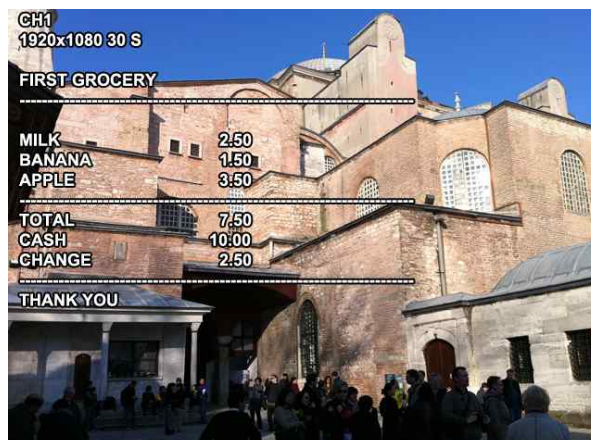


2. To set manually, at first you should know the setting values of the POS. You can get the information from the POS setting screen.

| Register | Info | Condition | Setting | | | | | | ETC |
|----------|---------|-----------|---------|--|--|--|--|--|-----|
| Counter | POS | Place | Receipt | | | | | | |
| Setting | Setting | Setting | Setting | | | | | | |

| Device Setup | | | | |
|-----------------|-----|-------|------|------------|
| Device | Use | Part | Port | Protocol |
| Barcode Scanner | No | | | |
| Receipt Printer | Yes | PR4RT | COM1 | 4800,8,n,1 |
| Cashbox | No | | | |
| Information | No | | | |
| Printer1 | No | | | |
| Printer2 | No | | | |
| Printer3 | No | | | |
| Printer4 | No | | | |
| Barcode Printer | No | | | |
| Terminal1 | No | | | |
| Terminal2 | No | | | |
| Terminal3 | No | | | |
| Terminal4 | No | | | |
| Telephone | No | | | |
| Save | | Close | | |

3. If your setting is correct, you can see the below DVR screen on transaction. (This is the popup screen. You can set popup in the 'Event In' setup.)



3-4-4. NETWORK

Configure and view Address, Port, DDNS, E-mail, Control and Status settings.

1) Address

Configure Network information for Remote client connection.

The screenshot shows the 'Network' configuration window with the 'Address' tab selected. The fields are as follows:

- DVR Name: DVR 1
- Type: Ethernet
- DHCP: ☒
- IP: 192.168.1.10
- Subnet Mask: 255.255.255.0
- Gateway: 192.168.1.1
- DNS Auto: ☐
- DNS IP: 168.126.63.1

Buttons at the bottom: OK, CANCEL, Apply, Default.

| | |
|---|--|
| DVR Name | Type the URL of DVR using virtual keyboard. |
| Type | It can be supported only Ethernet. |
| DHCP (Dynamic Host Configuration Protocol) | Set whether you want to use DHCP or not (On/Off). If you connect LAN after setting it to On, IP is allocated automatically. If you set it to Off, you have to input IP. DHCP is a protocol that allows managers to manage and allocate IP address centrally. |
| IP | Type the IP address. |
| Subnet Mask | Type the subnet mask. |
| Gateway | Type a gateway. |
| DNS Auto | If you connect LAN after setting it to On, DNS IP is allocated automatically. If you set it to Off, you have to input DNS IP. |
| DNS IP | Type the DNS IP. |

2) Port

There are 4 kinds of ports for the case such as watch, search, setup and web. You can individually set the port number of the DVR. The default is 8000. You can choose from 8000 to 9999.

If you activate 'uPNP (Universal plug and play)' box, DVR connects the router automatically with these port number. You don't have to setup the router.

The screenshot shows the 'Network' configuration window. The 'Port' sub-tab is active. The settings are as follows:

| Function | Port Number | Range |
|----------|-------------|----------------|
| Watch | 8000 | (8000-9999) |
| Search | 8000 | (8000-9999) |
| Setup | 8000 | (8000-9999) |
| Web | 80 | (80,8000-9999) |

Below the port settings, the 'uPNP' checkbox is checked. There is a 'uPNP Test' button. At the bottom, there is a 'Status' field and buttons for 'OK', 'CANCEL', 'Apply', and 'Default'.

| | |
|-----------|-----------------------------------|
| Watch | Type the port. (8000~9999) |
| Search | Type the port. (8000~9999) |
| Setup | Type the port. (8000~9999) |
| Web | Type the port. (8000~9999) |
| uPNP | ON / OFF |
| uPNP Test | Test uPNP |
| Status | It shows the test result of uPNP. |

3) DDNS

This is the function to automatically change the IP of DVR to URL. This product supports the automatic DDNS service using manufacture's internal server. Also you can choose Dyndns.

| | |
|---------------|---|
| DDNS Type | Choose a DDNS type. |
| DDNS Server | Defend on the DDNS type, it will be auto-typed or disable. |
| Port | Defend on the DDNS type, it will be auto-typed or disable |
| Domain name | Type the port of the email account. |
| ID | Defend on the DDNS type, it will be auto-typed or type the ID of your DDNS. |
| DDNS Password | type the DDNS password. |
| Duration | choose the time sync frequency with DDNS server. |
| DDNS Test | Test your DDNS. |

4) E-mail

You can send a notification of events by email. Fill all the information correctly and push the 'Email Test'. Also you can select each event individually by 'Event Set'.

| | |
|----------------|---|
| Receptior | Type the email address of the receptor. |
| Sender | Type the name of the sender. |
| SMTP Server | Type the SMTP server of the email account. |
| Port | Type the port of the email account. |
| Authentication | Set whether you want to use authentication or not (On/Off). |
| SSL | Set whether you want to use SSL or not (On/Off). |
| Account | Type the email account of the sender. |
| Password | Type the password of the send's email account. |
| Duration | Set the duration time to send continuous mails. |
| E-mail Test | Test the email account. |
| ❖ Event Set | Set events |

❖ **Event Set**

Set events to send the email.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | All |
|------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Sensor | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Motion | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| VideoLoss | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| POS | <input type="checkbox"/> | | | | | | | | | | | | | | | | <input type="checkbox"/> |
| S.M.A.R.T. | <input type="checkbox"/> | | | | | | | | | | | | | | | | |
| System log | <input type="checkbox"/> | | | | | | | | | | | | | | | | |
| Add Image | <input type="checkbox"/> | | | | | | | | | | | | | | | | |

OK CANCEL

| | |
|------------|---|
| Sensor | Detect a sensor input. |
| Motion | Detect a motion detection. |
| Video Loss | Detect a video loss. |
| POS | Send inserted text of POS to the email. |
| S.M.A.R.T. | Send checked HDD S.M.A.R.T result to the email. |
| System log | Send system log to the email. |
| Add Image | Send a snapshot of events to the email. |

5) Streaming

CMS can use the 'High resolution' setting in the case of full screen or quad screen, and use the 'Low resolution' setting in the case of more than 4 split. You can adjust the number of split to switch from High to Low resolution.

| | |
|-----------------|---|
| On | Set whether you want to use the channel on CMS or not (On/Off). |
| High Resolution | You can choose the resolution of transmission. (1920x1080, 1280x720, 960x540, 640x352) |
| FPS | You can adjust the frame rate. |
| Quality | Set picture quality.(Super, High, Med, Low) |
| Bandwidth | It shows the video transmission of the high resolution. |
| Low Resolution | It is using the fixed resolution of transmission.(480x256) |
| FPS | You can adjust the frame rate. |
| Quality | Set picture quality.(Super, High, Med, Low) |
| Bandwidth | It shows the video transmission of the low resolution. |
| Total | Total shows total fps of all channels. If total fps is more than supported, it turns red. If it turns red, you need to set a lower resolution or FPS. |

6) Status

This shows the information how many connections and what is the action of each connection.

The screenshot shows a web-based interface for a DVR. At the top, there is a navigation bar with tabs: Display, Record, Device, Network (selected), and System. Below the navigation bar, on the left, is a sidebar menu with options: Address, Port, DDNS, E-mail, Streaming, and Status (selected). The main content area displays network status information:

- MAC Address: 00:09:1b:00:01:02
- Connected IP: [Dropdown menu]
- Watch User: 0
- Search User: 0
- Setup User: 0

At the bottom left of the main area are buttons for OK and CANCEL. At the bottom right is a Refresh button.

| | |
|--------------|---|
| MAC Address | This displays MAC address of DVR. |
| Connected IP | This displays all the connected IP. |
| Watch User | This displays how many connection for live viewing. |
| Search User | This displays how many connection for playback. |
| Setup User | This displays how many connection for DVR setting. |

3-4-5. SYSTEM

Configure and view system Date/Time, User Authority, Storage, System Log and Configuration settings

1) Date/Time

| | |
|------------------------------------|---|
| Timezone | Choose the time zone of your site. If you using the NTP function, it must be set correctly to your zone. |
| Daylight Saving Time | It enables to adapt the day light saving time automatically. |
| Date / Time | This sets product time. Input time by pressing number buttons after moving cursor with direction buttons. Be careful to move to backward. The overlapped data will be deleted with warning message. |
| NTP (Network Time Protocol) Server | This function is to change the time of DVR automatically via network. Press the 'Enter' button and using the virtual keyboard, type the address of NTP server. |
| NTP Check | choose the time sync frequency with NTP server. |
| Sync | Sync the time and NTP. |

2) User Authority

This sets User authority individually. You can give to each users the authorities such as setup, search, backup, PTZ, network and camera control.

| | |
|----------------------------|---|
| ID | Type an ID. |
| Password | Type a password. |
| Setup | Authorizes the setting of the system. |
| Search | Authorizing the search of the system. |
| Backup | Authorizing backup of the system. |
| PTZ | Authorizing PTZ of the system. |
| Network | Authorizing network of the system. |
| Network Event Notification | Authorizing a network event notification. |
| Camera | Authorizing a camera. |
| Lock | select the auto-lock time.(Off, 1~10 min) |

3) Storage

Display the information and usage of the hard disk drives.

The screenshot shows the 'Storage' configuration menu. It includes a table for drive status and several configuration options.

| DVR | | | eSATA | | |
|-----|----------|--------|-------|--|--------|
| 1 | 0/160 GB | Format | 1 | | Format |
| 2 | | Format | 2 | | Format |
| 3 | | Format | 3 | | Format |
| 4 | | Format | 4 | | Format |
| | | | 5 | | Format |
| | | | 6 | | Format |
| | | | 7 | | Format |
| | | | 8 | | Format |
| | | | 9 | | Format |
| | | | 10 | | Format |
| | | | 11 | | Format |
| | | | 12 | | Format |

Below the table, the following settings are visible:

- Total: HDD 0/160 GB, Format
- HDD Check: Run
- HDD Overwrite: ☒
- Disk Mirroring: ☐
- Auto Deletion: Off
- Alarm Check HDD: 1 ☐ 2 ☐ 3 ☐ 4 ☐
- Alarm Check HDD (eSATA): 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12 ☐
- Alarm out: Off

Buttons at the bottom: Shutdown, OK, CANCEL, Apply, Default.

| | |
|-------------------------|---|
| Total | Display all the HDD usage being used for the product. If you press the 'Enter' button on here, all the hard disk drives will be formatted. |
| HDD Check | Check all the HDD. |
| HDD Overwrite | Determine whether you want to continue recording if there is no spare saving space at hard disk drives. |
| Disk Mirroring | If you install two hard disk drives, you can set the second drive as a backup drive by mirroring. The mirrored disk size will be the same or greater than master HDD. |
| Auto Deletion | You can select the holding period of the data. If you choose 'OFF', the DVR keep the maximum data regarding the HDD capacity. |
| Alarm Check HDD | There is an alarm if there is no HDD or no format. It is useful to check the HDD absence. |
| Alarm Check HDD (eSATA) | There is an alarm if there is no eSATA or no format. It is useful to check the eSATA absence. |
| Alarm out | You can choose Buzzer or Relay. |

4) S.M.A.R.T :Self-Monitoring Analysis and Reporting Technology

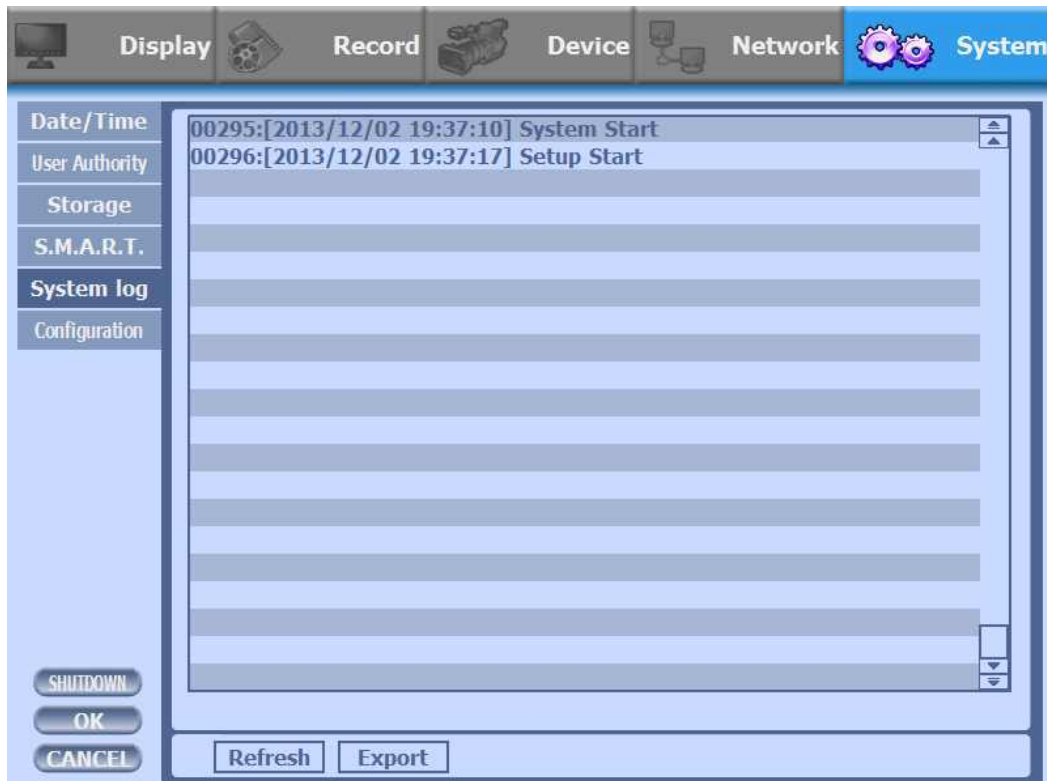
This function lets you probe the hard disk drives and investigate the status of the drivers automatically.

The screenshot shows the S.M.A.R.T. configuration window. The top bar includes icons for Display, Record, Device, Network, and System. The left sidebar has a menu with 'Date/Time', 'User Authority', 'Storage', 'S.M.A.R.T.', 'System log', and 'Configuration'. The main panel is titled 'S.M.A.R.T. On' with a checked checkbox. Below it are settings for 'Check Day' (Sunday), 'Boot Message' (2 Errors), 'Check Time' (30 min), 'Limit' (55°C (131°F)), and 'Alarm out' (Buzzer). A table shows 'Error/Test', 'Temperature', 'Reallocation(Sector)', and 'Used(Day)' for four drives. At the bottom are buttons for 'Shutdown', 'OK', 'CANCEL', 'Apply', and 'Default'.

| S.M.A.R.T. | |
|---------------|---|
| S.M.A.R.T. On | Set whether you want to use S.M.A.R.T. or not (On/Off). |
| Check Day | Determine the date to perform the S.M.A.R.T. The check time is at 00:00 AM of the day and it shows the result at 01:00 AM. |
| Boot Message | The number of message of showing the errors. |
| Temperature | |
| Check Time | Temperature check period. |
| Limit | The upper tolerance of the hard disk drive temperature. |
| Alarm out | You can choose the alarms or the system buzzer. |
| eSATA | Check eSATA HDD. |

5) System Log

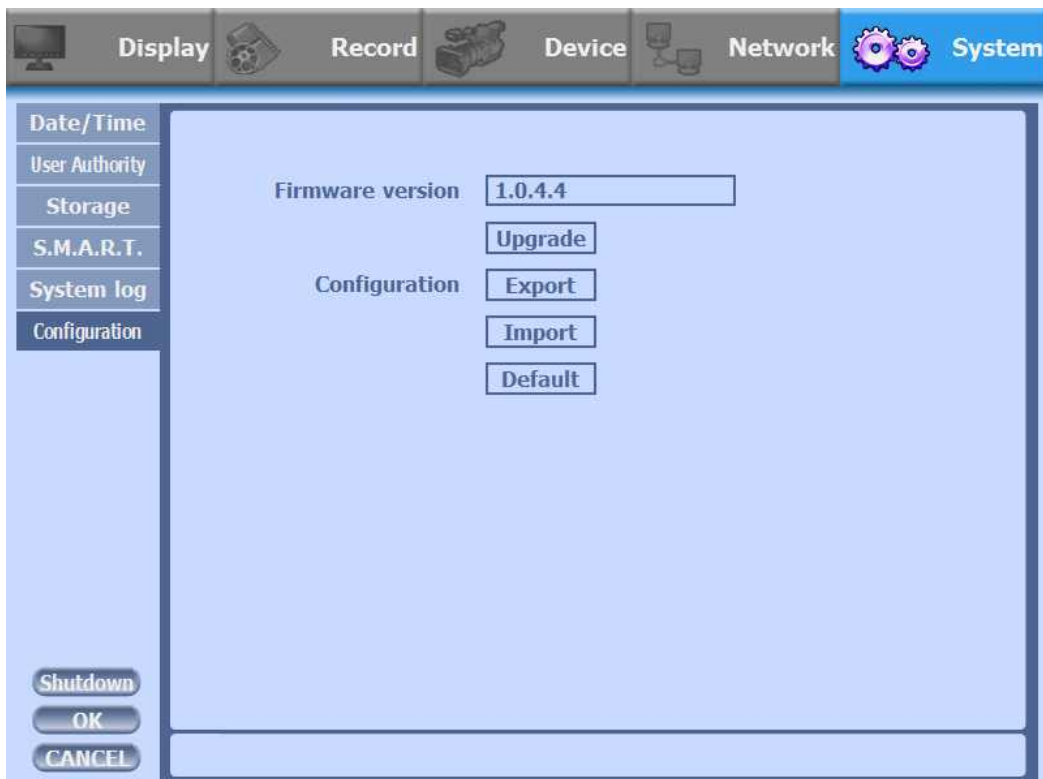
You may view all System administration log from Setup → System → System Log. Also you can export the system log and easily send it to technical support for trouble shooting.



| | |
|---------|-------------------------|
| Refresh | Refresh the system log. |
| Export | Export the system log. |

6) Configuration

Shown at the following screen, from Setup → System → Firmware, you may view the current firmware version as well as Upgrade the firmware and additionally, Export, Import, and Default DVR Configuration.



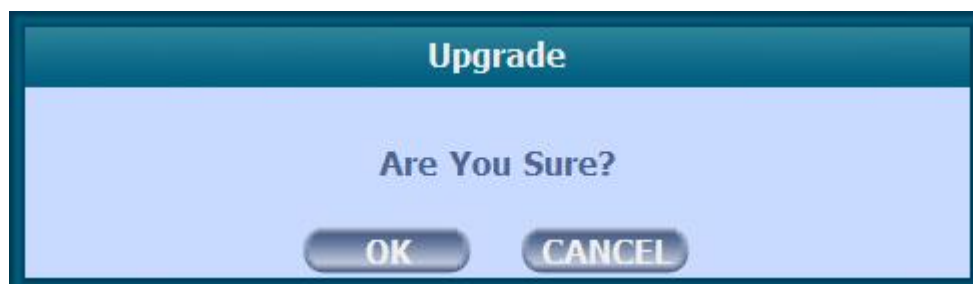
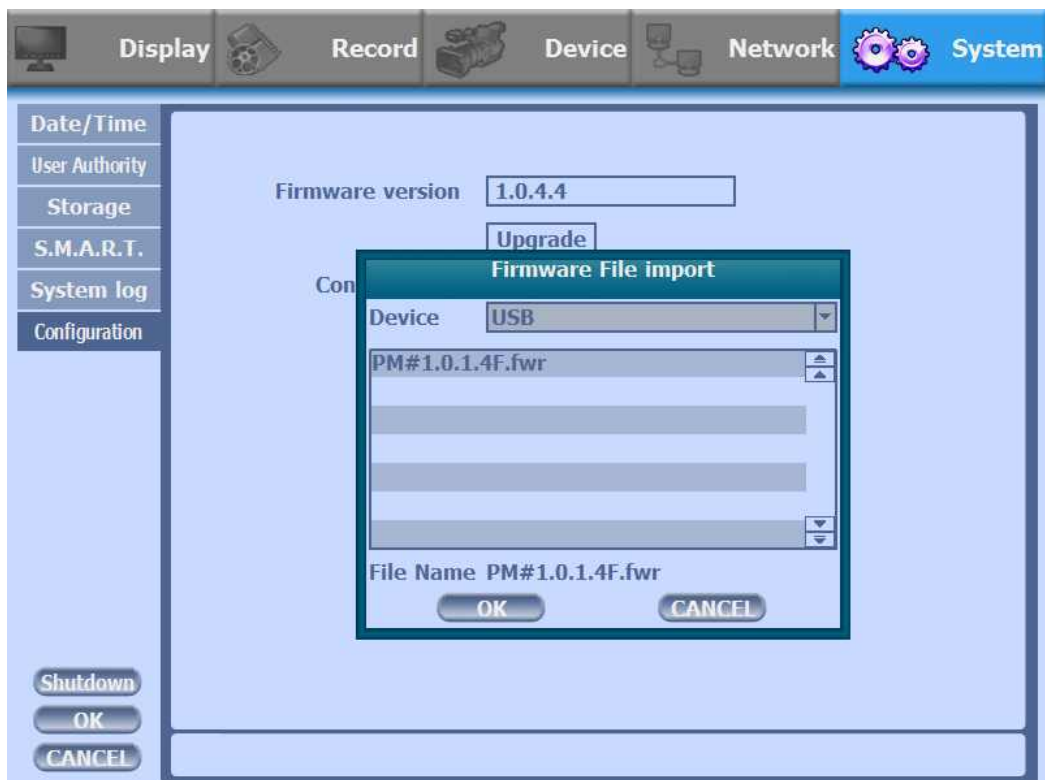
| | |
|------------------|-------------------------------------|
| Firmware version | It shows the firmware version. |
| Upgrade | Upgrade the firmware. |
| Export | Export system settings. |
| Import | Import system settings. |
| Default | Return to factory default settings. |

You should connect correctly the USB devices, before you use firmware upgrade, export and import.

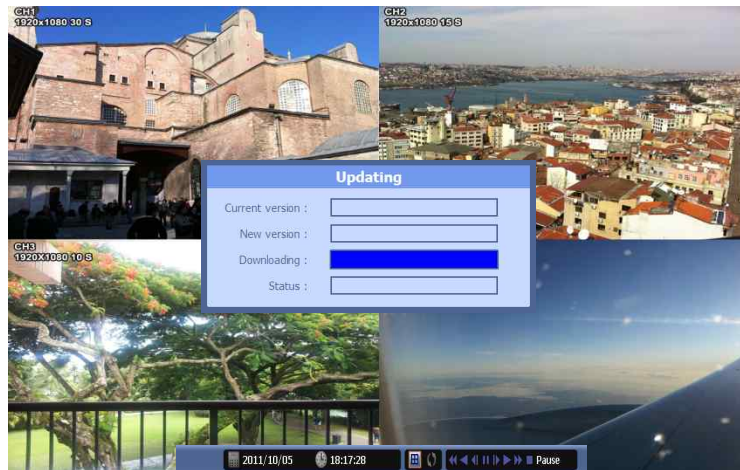
3-5. Firmware Upgrade

If you want to upgrade, please follow that;

1. Download the latest firmware to USB memory root directory.
2. Put this memory to USB slot of DVR.
3. Choose 'Upgrade' and you can see the below screen will appear.
4. Select the desired file, then choose 'OK'.



If you choose OK, you can see the below download window on the DVR screen.



WARNING!!!

Do not turn off the power during download procedure. If you power off manually, all memory will be deleted !

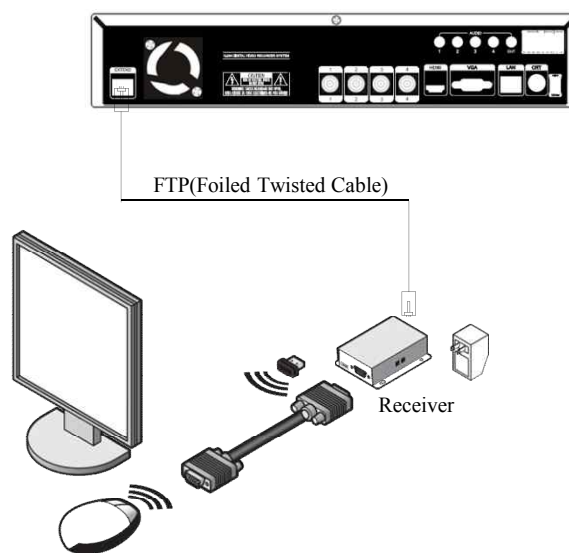
※ After upgrading, DVR will reboot automatically. Before rebooting, do not operate manually !

Trouble Shooting

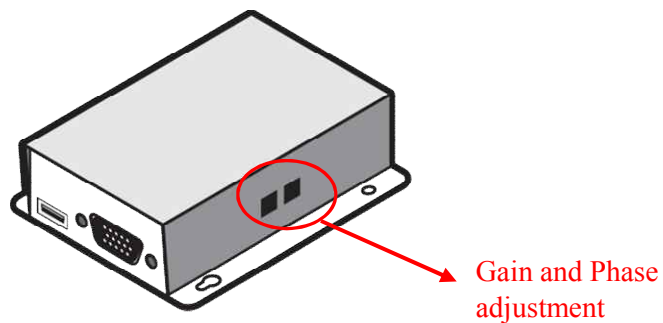
| Symptom | Checkpoint | Countermeasure |
|---|--|---|
| <ul style="list-style-type: none"> ● Can't turn on power. | <ul style="list-style-type: none"> ● Is DVR connected to power supply cable? | <ul style="list-style-type: none"> ● Connect power cable |
| <ul style="list-style-type: none"> ● There is no image on monitor | <ul style="list-style-type: none"> ● Are DVR and monitor turned on? ● Are cables of DVR connected? | <ul style="list-style-type: none"> ● Turn on power. ● Connect DVR cable. |
| <ul style="list-style-type: none"> ● Only INFO OSD is on monitor and no image | <ul style="list-style-type: none"> ● Is camera turned on? ● Are cables of DVR and monitor connected? | <ul style="list-style-type: none"> ● Turn on camera. ● Connect cables of DVR and monitor. |
| <ul style="list-style-type: none"> ● There is Video Loss message. | <ul style="list-style-type: none"> ● Is NTSC/PAL setting normal? ● Is connection between DVR and camera normal? | <ul style="list-style-type: none"> ● Check whether NTSC/PAL setting is SETUP properly ● Check whether DVR and camera are connected properly |
| <ul style="list-style-type: none"> ● Can't search with Client Program. | <ul style="list-style-type: none"> ● Isn't another user using same IP? | <ul style="list-style-type: none"> ● Use it after another use finishes using it. If another user is searching DVR remotely with same IP, you can not search. |
| <ul style="list-style-type: none"> ● Motion Detection doesn't work well | <ul style="list-style-type: none"> ● Isn't it too bright or too dark? | <ul style="list-style-type: none"> ● Increase Motion Detection sensitivity. ● Install camera closer. |
| <ul style="list-style-type: none"> ● There are differences between Live screen and actual condition during remote monitoring | <ul style="list-style-type: none"> ● Isn't camera installed too far away? | <ul style="list-style-type: none"> ● Since it buffers Live images, there might be changes with actual condition. (1~2 sec) |
| <ul style="list-style-type: none"> ● Live doesn't work well in remote monitoring | <ul style="list-style-type: none"> ● Is it set to True Color? ● Are PC specifications and VGA Card specifications are appropriate? | <ul style="list-style-type: none"> ● Refer to recommended Client PC specifications in 4-1 Installing Client Program? |

How to Connect xbox 1

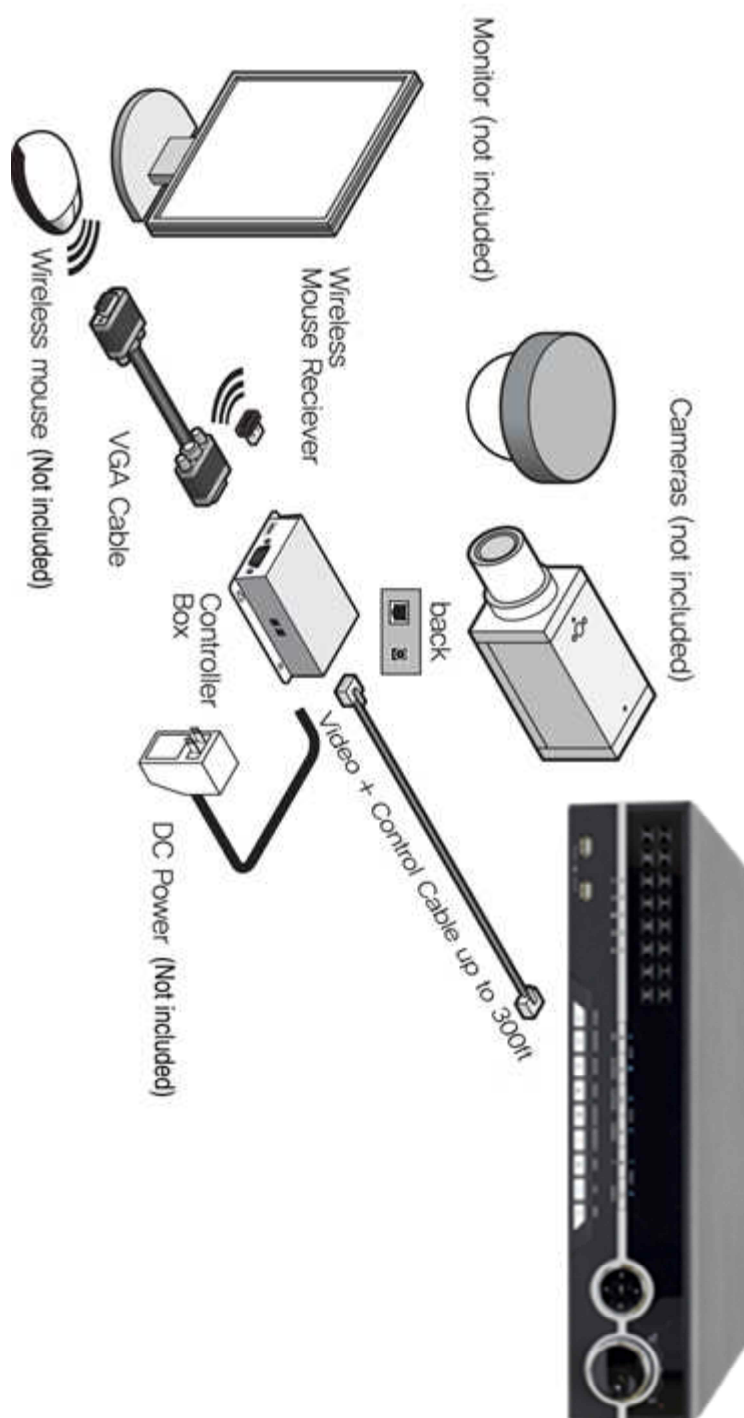
1. Connect EXTEND FTP cable to Receiver (upto 350ft/100m).
Refer to http://en.wikipedia.org/wiki/Twisted_pair about the FTP cable.
Connect Monitor and Wired/Wireless Mouse to the Receiver



2. Because all the case has different cable length, you should adjust the GAIN and PHASE in Receiver to get a most proper VGA output. You can use the small cross screw driver for adjusting at the edge of Receiver.



3.This is the whole diagram.



❖ DC POWER : 12V 1A