LG
Life's Good

DIGITAL VIDEO RECORDER

OWNER'S MANUAL

MODEL: LE2104
LE2104D

Before connecting, operating or adjusting this product, please read this owner's manual carefully and completely.

BZ03

CAUTION

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 lightning flash with arrowhead 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 important operating and maintenance (servicing) instructions in the literature accompanying the product.

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.

REGULATORY INFORMATION: FCC Part 15

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.

- A suitable conduit entries, knock-outs or glands shall be provided in the cable entries of this product in the end user.
- Caution: Danger of explosion if battery is incorrectly replaced. Replaced only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
- Holes in metal, through which insulated wires pass, shall have smooth well rounded surfaces or shall be provided with brushings.

This Class A digital apparatus complies with Canadian ICES-003.

Warning: Do not install this equipment in a confined space such as a bookcase or similar unit.

Warning: Wiring methods shall be in accordance with the National Electric Code, ANSI/NFPA 70.

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

Warning: To reduce a risk of fire or electric shock, do not expose this product to rain or moisture.

Caution: This installation should be made by a qualified service person and should conform to all local codes.

Caution: To avoid electrical shock, do not open the cabinet. Refer servicing to qualified personnel only.

Caution: The apparatus should not be exposed to water (dripping or splashing) and no objects filled with liquids, such as vases, should be placed on the apparatus.

Caution:

This product employs a Laser System. To ensure proper use of this product, please read this owner's manual carefully and retain it for future reference. Should the unit require maintenance, contact an authorized service center. Performing controls, adjustments, or carrying out procedures other than those specified herein may result in hazardous radiation exposure. To prevent direct exposure to laser beam, do not try to open the enclosure. Visible laser radiation when open. DO NOT STARE INTO BEAM.

To disconnect power from mains, pull out the mains cord plug. When installing the product, ensure that the plug is easily accessible.

This product is manufactured to comply with EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC.

European representative :

LG Electronics Service Europe B.V.
Veluwezoom 15, 1327 AE Almere,
The Netherlands (Tel : +31-036-547-8940)

Disposal of your old appliance

1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or the shop where you purchased the product.

IMPORTANT SAFETY INSTRUCTIONS

1. **Read these instructions.**
2. **Keep these instructions.**
3. **Heed all warnings.**
4. **Follow all instructions.**
5. **Do not use this apparatus near water.**
6. **Clean only with dry cloth.**
7. **Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.**
8. **Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.**
9. **Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.**
10. **Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.**
11. **Only use attachments/accessories specified by the manufacturer.**
12. **Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.**

13. **Unplug this apparatus during lightning storms or when unused for long periods of time.**
14. **Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.**

Safety warnings and Cautions

The following are warnings and cautions for the safety of the users and for the prevention of any property damage. Please read the following carefully.

WARNING

- Turn off the system before installation. Do not plug in several electric devices to the same outlet.
  - This may cause heating, fire, or electric shock.
- Do not place any liquid container on the system, such as water, coffee, or other beverage.
  - If liquid is poured onto the system, it can cause a system breakdown or fire.
- Prevent the power cable from being severely bent or having pressure exerted on it by a heavy object.
  - This may cause fire.
- Clean the dust around the system on a regular basis. When cleaning the system, always use a dry cloth. Do not use a wet cloth or other organic
  solvents.
  - This may damage the surface of the system and can cause a system breakdown or electric shock.
- Avoid any place with moisture, dust, or soot.
  - This can cause fire or electric shock.
- When pulling the power cable from the plug, do so gently. Do not touch the plug with wet hands and avoid using the plug if the holes in the outlet are too loose.
  - This may cause fire or electric shock.
- Do not attempt to disassemble, repair, or modify the system on your own. It is extremely dangerous due to the high voltage running through the system.
  - This may cause fire, electric shock, or serious injury.
- Check for any danger signs such as a moist floor, a loosened or damaged power cable, or an unstable surface. If you encounter any problems, ask your dealer for assistance.
  - This may cause fire or electric shock.
- Keep a distance of at least 15cm between the back of the system and the wall for the cables connected to the system otherwise, they may be bent, damaged, or cut.
  - This may cause fire, electric shock, or injury.
- Install the system in a cool place without direct sunlight and always maintain room temperature. Avoid candlelight and heat generating devices such as heaters. Keep the system away from places where many people pass.
  - This may cause fire.
- Install the system on a plain surface with sufficient air ventilation. Do not place the system on an elevated surface.
  - This may cause system breakdown or serious injury.
- The power outlet must be placed on the ground, and the voltage range must be within 10% of the voltage rate. Do not use the same outlet with a hair dryer, iron, refrigerator, or any heating appliances.
  - This may cause fire, over heating or electric shock.
- When the system's battery is depleted, replace it with the same or equivalent type of battery specified by the manufacturer. Depleted batteries should be discarded according to the manufacturer's instructions.
  - This may cause an explosion.
- If the system's HDD exceeds its life span, you may not be able to recover any data stored inside the HDD. If the video on the system screen appears 'damaged' while playing a recording stored inside the system's HDD, it must be replaced with a new one. Ask for an engineer's assistance for HDD replacement from your dealer.
  - LG Electronics is not responsible for deleted data caused by user mishandling.

CAUTION

Please beware of the following precautions before installing the DVR.

- Avoid positioning the product in any place where the unit may come into contact with moisture, dust, or soot.
- Avoid placing in direct sunlight or near heating appliances.
- Keep the product away from electric sparks or magnetic substances.
- Avoid temperature extremes (recommended operating temperature is between 0°C - 40°C).
- Do not place any conductive material through the ventilation grills.
- Keep the system turned off before installation.
- Ensure enough space is left for cable connections.
- Place the system on a solid surface with sufficient air ventilation. Avoid any surface that vibrates.
- Placing the system near electronic devices such as a radio or a TV may cause the product to breakdown.
- Do not disassemble the product without seeking assistance from LG Electronics.
- Do not place any heavy object on the system.
- Prevent any substances from being inserted into the system.
  - This may cause system breakdown.
- Install the system in a place with sufficient air ventilation.
  - Keep at least 15cm distance between the back of the system and the wall, and at least 5cm distance between the side of the system and the wall.
- Do not install the system in a place with high magnetic, electric wave, or wireless devices such as a radio or a TV.
  - Do not install the system in a place with magnetic objects, electric frequencies, or vibration.
- Do not place any heavy object on the system.
  - This may cause system breakdown.
- Install the system on a stable, level surface.
  - The system may not operate properly.
- Install the system in a place with appropriate moisture and temperature levels.
  - Avoid installing the system in a place with high (over 40°C) or low (under 0°C) temperature.
- The system can be damaged from a strong impact or vibration. Avoid throwing objects within the vicinity of the system.
- Avoid direct sunlight or any heating appliances.
  - Recommended operating temperature is over 0°C (32°F).
- Ventilate the air inside the system operation room, and tighten the system cover firmly.
  - System breakdown may be caused by an inappropriate environment.
    It is recommended to use AVR (Automatic Voltage Regulator) for a stable power supply.
    It is recommended to coil the core-ferrite around the connector of the system to avoid electromagnetic interference.
- The outlet must be placed on the ground.
- If there is strange sound or smell, unplug the power cable immediately and contact the service center.
  - This may cause fire or electric shock.
- In order to maintain stable system performance, have your system checked regularly by the service center.
  - LG Electronics is not held responsible for system breakdown caused by user mishandling.
  - There is a risk of explosion if a battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.
- Do not overturn the product during use.

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Introduction

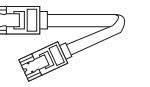
Features

- Stable embedded Linux operating system.
- Journal filing system for HDD file recovery following power recovery.
- Small file sizes with H.264 compression.
- Internal storage expandable to 1TB. (Expandable if new high capacity HDD is launched)
- NTSC and PAL selectable video format.
- Full real-time recording.

NTSC	Up to 120 IPS @ 352x240, Up to 60 IPS @ 704x240, Up to 30 IPS @ 704x480
PAL	Up to 100 IPS @ 352x288, Up to 50 IPS @ 704x288, Up to 25 IPS @ 704x576

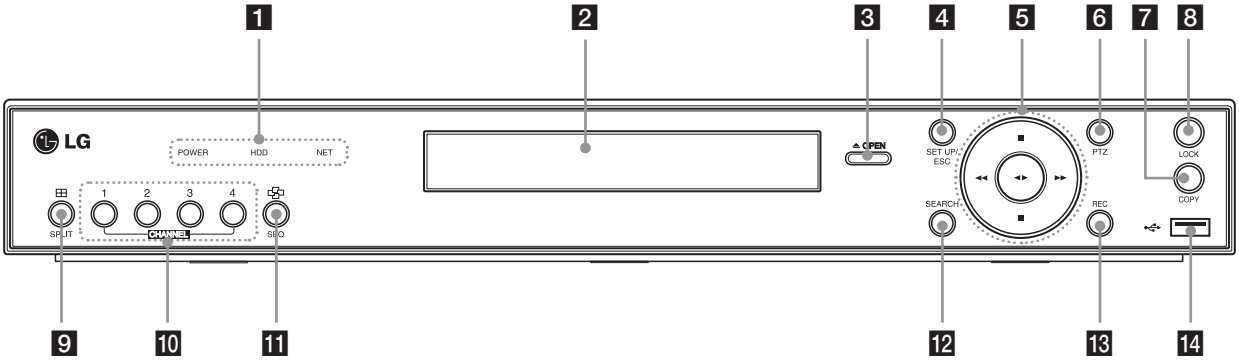
- Various recording resolutions and quality levels.
  - D1(704x480), Half D1(704x240), CIF(352x240) : NTSC
  - D1(704x576), Half D1(704x288), CIF(352x288) : PAL.
  - 5 step quality level (Highest, High, Standard, Low, Lowest).
- Easy operation using various user interface & user friendly GUI.
  - Optical mouse, Full function IR remote controller
- Powerful multiplex function.
  - Simultaneous live display, recording, playback, network transmission, back-up.
- Various search function.
  - Date/time search (calender search), event search, bookmark search.
- Event data protection by event partition recording.
- Pre-alarm recording (Up to 1 minute).
- Motion event recording.
- Recording image rate & quality adjustment per individual camera.
- Powerful record scheduling.
- Instant playback in surveillance mode.
- Perfect audio/video synchronization.
- Automatic backup by schedule.
- Image authentication (Watermark).
- Three USB 2.0 ports for backup interface.
- Setup configuration export/import with USB memory stick.
- Easy system S/W update with USB memory stick or network.
- Clients S/W can manage max 100 DVR servers.
- Max five clients can access one DVR server simultaneously.
- Network bandwidth throttle.
  - Automatically adjust a bandwidth according to network speed status of unit.
- Remote alarm notification via client software or E-mail.
- Time and date sync from NTP server.
- Daylight saving mode.
- Covert camera protection.
- Back-up CD auto run.
- User management (User level control).
- PTZ Control.
  - For more details see page 63.
  - Dome camera telemetry control (Dome OSD control).

Accessories

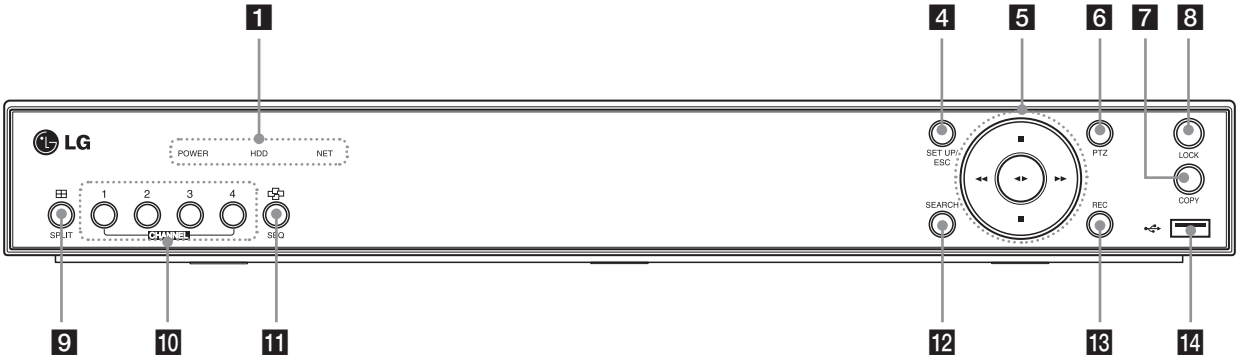
Software Install CD	
Mouse (PS2 type)	
Remote Control	
AAA type batteries	
Power Plug	
DC adaptor	
SATA cable(s)	
SATA power cable	
HDD fixing screws	

Front Panel

LE2104D model



LE2104 model



1 POWER Indicator: Lights when the DVR is powered.

HDD Indicator: Blinks when the HDD is accessed.

NET Indicator: Lights when a network cable is connected.

2 Disc Tray (LE2104D model only): Insert a disc here.

3 OPEN (LE2104D model only): Opens or closes the disc tray.

4 SETUP/ESC: Displays the setup menu or cancels operation on the setup menus.

5 Playback Control Buttons

- ❚❚: Pauses playback.
- ◄◄: Search the recorded images in reverse.
- ◄►: Playback or reverse playback of recorded images.
- ►►: Forward search the recorded images.
- ■: Stops playback.

6 PTZ: Switches this unit to PTZ mode to control the PTZ camera connected.

7 COPY: Copies the recording data to an external device.

8 LOCK: Displays the lock menu to change the user type or disable the system operation.

9 SPLIT: Press to see different multi screen modes.

10 CHANNEL: Selects the respective camera.

11 SEQ: View all channels in sequence.

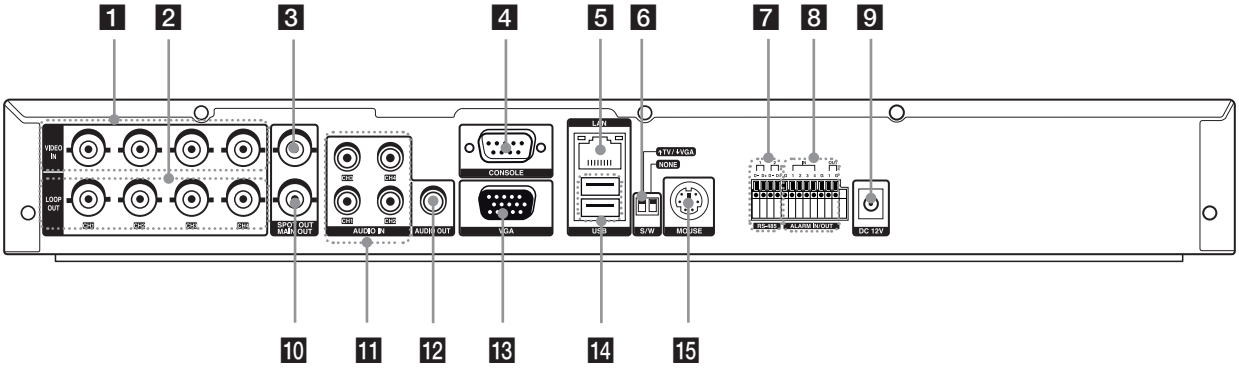
12 SEARCH: Displays the search menu.

13 REC: Starts or stops instant recording.

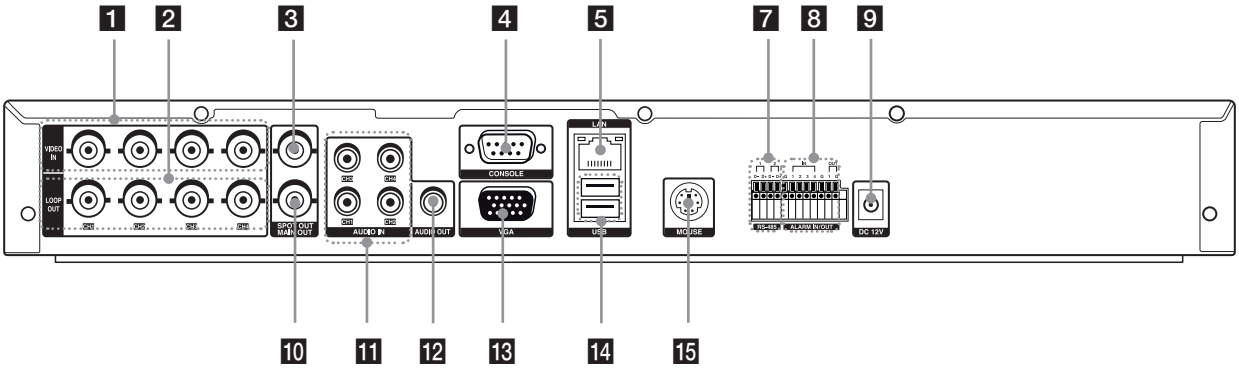
14 USB Port: Connect an external USB device for backup or playback. (The USB type mouse is not supported.)

Rear Panel

Rear panel with the TV or VGA output select switch.



Rear panel without the TV or VGA output select switch.



1 VIDEO INPUT
Connect the camera's video output to these BNC connectors.

2 LOOP OUT
The signal from VIDEO INPUT connector is looped out to this connector.

3 SPOT-OUT (BNC Type Connector)
Connect to spot monitor or display device.

4 CONSOLE (RS-232C Connector)
Used to connect to a host device equipped with RS-232C connector (such as a personal computer). This unit can be controlled from other devices via this connector.

5 LAN Port
Connect the ethernet 10/100Mbps network cable for controlling this unit via a PC network.

6 TV or VGA output select switch. (This switch is optional by models.)

7 RS-485 Terminals
Connect RS-485 compatible cameras.
Connect the LKD1000 controller to D2 terminal.

8 ALARM IN/OUT Terminals

- IN: Input terminals for alarm(relay) signal.
- OUT: Output terminals for alarm(relay) signal.

9 Power Cord Inlet (DC 12V)
Connect the power plug.

10 MAIN-OUT (BNC Type Connector)
Connect to main monitor or display device.

11 AUDIO INPUT
Connect the audio output of an external device.

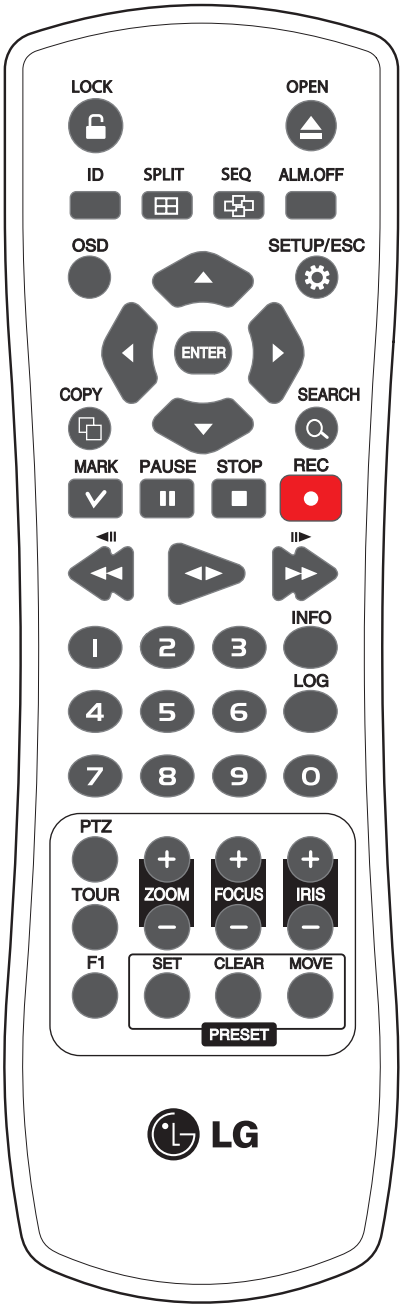
12 AUDIO OUT
Connect the audio input signal of an external device.

13 VGA
Connect a VGA monitor.

14 USB Ports
Connect an optional extension USB device.

15 MOUSE
Connect an mouse device (PS2 Type).

Remote Control



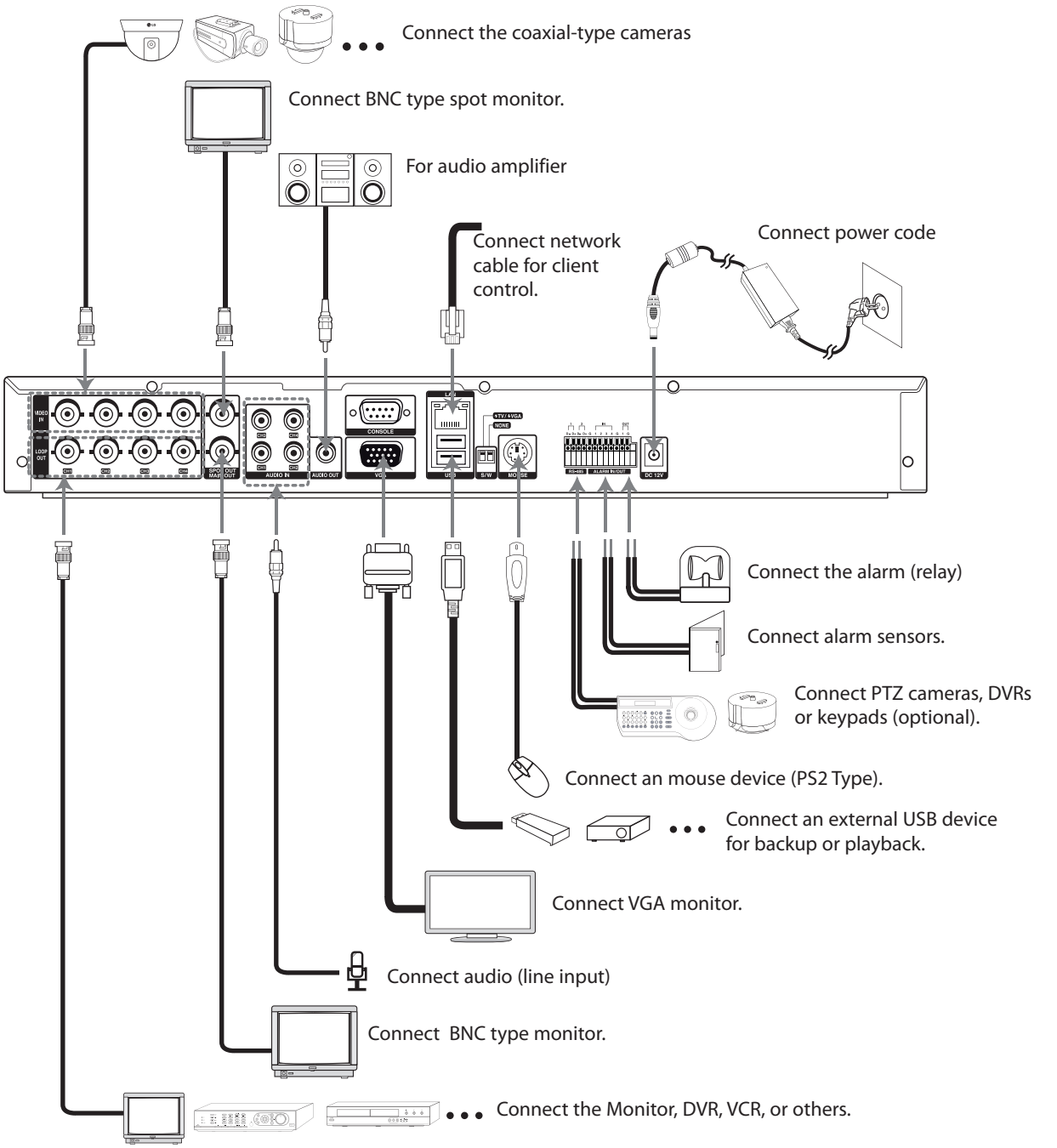
- **LOCK:** Displays the lock menu to change user type or disable system operation.
- **OPEN:** Opens or closes the disc tray. This button is only used for LE2104D models.
- **ID:** Set the appropriate DVR system ID to operate via the IR Remote Controller when using the multiple DVR. Press the ID button then press the number button within 2 seconds to select the system ID of the DVR. If you set the system ID to "0", you can control multiple DVR at the same time.
- **SPLIT:** Press to see different multiscreen modes.
- **SEQ:** Views the all channels in sequence on the full screen display mode. You cannot use sequence mode with the 4 split.
- **ALM.OFF:** Cancels alarm activation and returns the system to the condition before the alarm was activated.
- **OSD:** Displays the submenu.
- **SETUP/ESC:** Displays the setup menu or cancels operation of the setup menu.
- **Arrow Buttons (◄ ► ▲ ▼):** Selects or moves between the menu options.
- **ENTER:** Confirms menu selections.
- **COPY:** Copies the recording data to an external device.
- **SEARCH:** Displays the search menu.
- **MARK:** Sets the mark point for recording search. You can set the mark point during the single or multi channel playback of recorded data.
- **PAUSE (❚❚):** Pauses playback.
- **STOP(■):** Stops playback.
- **REC (●):** Starts or stops recording.
- **◄◄/◄II** : Searches the recorded images in reverse or skips the recorded images.
- **◄►**: Playback or reverse playback of recorded images.
- **►►/II►** : Forward searches the recorded images or skips the recorded images.
- **Number Buttons (0,1-9):** To select the PTZ preset number, ID, or channel.
- **INFO:** Displays the system information window.
- **LOG:** Displays the System Log List window.
- **PTZ:** Switches this unit to PTZ mode to control the connected PTZ camera.
- **TOUR:** Tours all registered preset positions in the camera.
- **ZOOM + / -:** Zooms in/out on the playback window.
- **FOCUS + / -:** Adjusts the focus of a camera.
- **IRIS + / -:** Adjusts the iris of a camera.
- **F1:** This button is not available.
- **PRESET**
  - **SET:** Registers the PTZ camera's preset positions.
  - **CLEAR:** Deletes a memorized preset position.
  - **MOVE:** Moves the camera to the preset position.

Connections and settings

Precautions

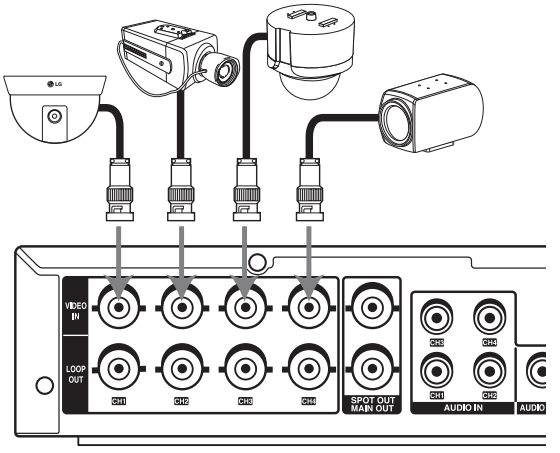
- Depending on the camera and other equipment there are various ways to connect the unit. Please refer to the camera manual or manuals for other devices as necessary for additional connection information.
- Be sure to switch off the camera before installation and connection.

Basic Connection Overview



Connecting Camera

Connect cameras to the unit using 75-ohm video coaxial cables with BNC connectors. There are two BNC connectors for each camera. Either connector can receive a camera's signal. This signal is looped-through (directly connected) to the other connector, so that you can send the camera's signal to other equipment.



Connecting Display device

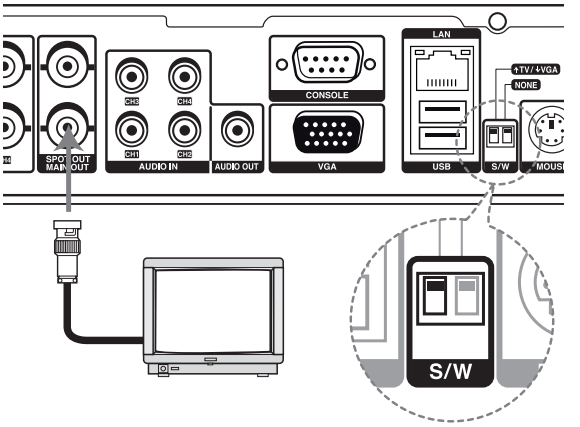
Make one of the following connections, depending on the capabilities of your existing equipment.

The LE2104/LE2104D models without TV/VGA output select switch can be outputted simultaneously from the VGA and MAIN OUT jack. On other LE2104/LE2104D models with TV/VGA output select switch, main monitor type should be selected to display the main screen.

CCTV(Composite Video Type) Monitor connection

When using the analog TV monitor, set the Video Output mode select switch to TV position.

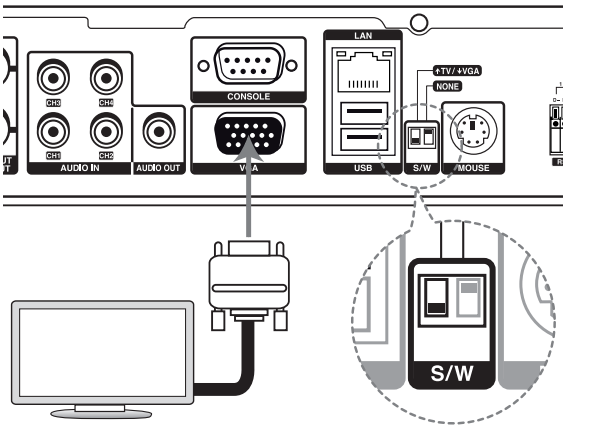
Connect the unit to the monitors via 75-ohm video coaxial cables with BNC connectors.



VGA Monitor connection

When using the VGA monitor, set the Video Output mode select switch to VGA position.

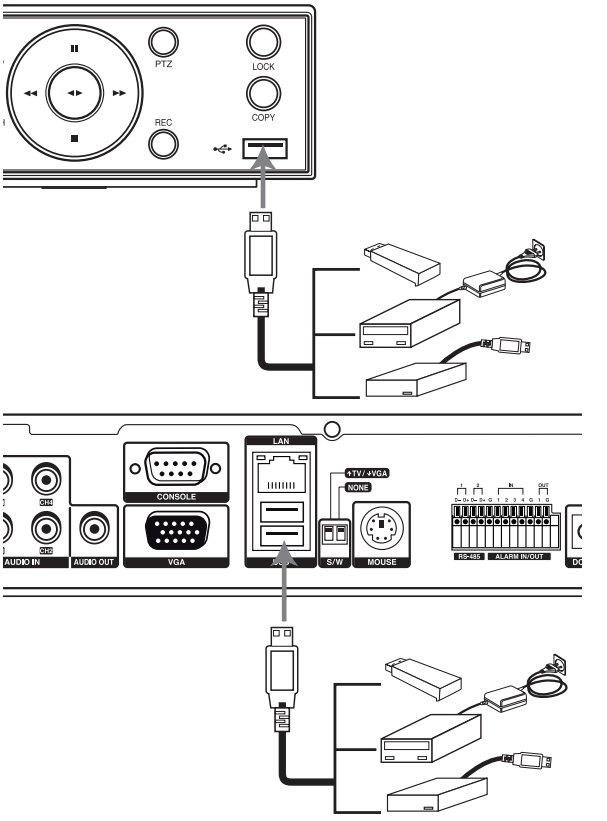
Connect the VGA jacks on the rear of the unit to the corresponding input jacks on the TV or monitor using the VGA cable.



Connecting Audio device

Connect the AUDIO OUT jacks on the unit to the mono audio in jacks on your audio device.

Connecting USB device



USB memory device

Insert the memory device into the USB port. The system automatically recognizes the device.

Using a USB memory device the system software can be easily upgraded.

USB backup device

Connect the USB cable of the USB backup device to the USB port.

(Example: HDD or other external storage).

Note:

Do not connect USB type mouse.

Connecting CONSOLE (RS-232C) Port

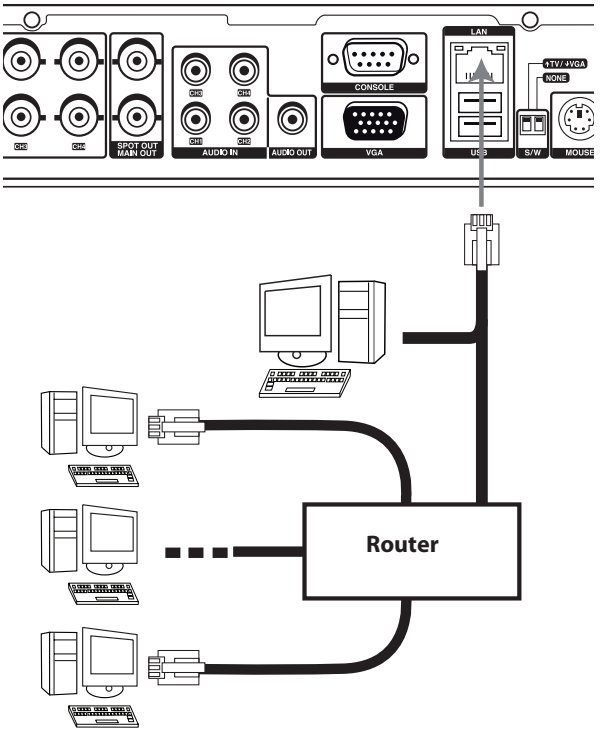
The serial RS232 console port connector is used to connect a PC to the unit for service purposes. Use a null-modem cable to connect the serial port of the PC to the unit. This terminal is compliant with the RS-232C standard.

Mouse

Connect the mouse for function control of the unit.

Connecting Network

You can control and monitor the system via network. With the remote control (monitoring), you can change the system configuration or monitors the image via network (LAN). After the installation, the network on the system setup menu should be set to make the remote control and monitoring work**.**



LAN connection

Connect the LAN port to an available 10/100 base-T port with a straight ethernet cable (not supplied). The NET indicator on the front panel will be lit.

Automatic network configuration

The DVR can automatically obtain and configure the network interface via DHCP.

Manually configure network

The DVR may be manually configured by assigning an IP address, subnet mask, gateway and DNS.

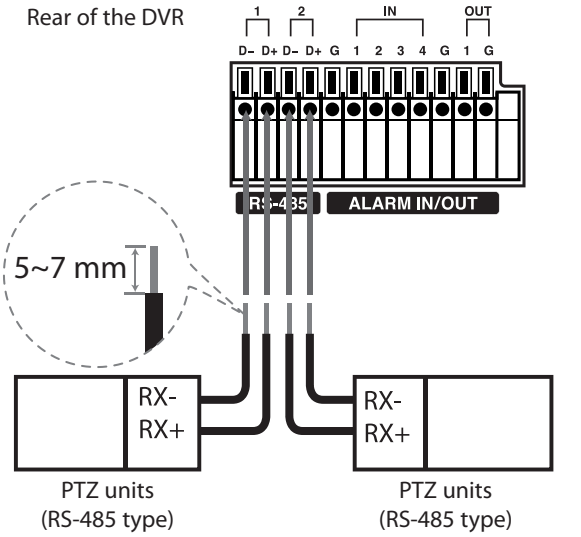
Connecting RS-485 Device

This DVR has two data terminals.
Use this port to connect PTZ cameras, DVRs or keypads (optional).

RS-485 Terminal	Description
D - (DATA -)	Data Transmission/Reception
D + (DATA +)	Data Transmission/Reception
GND	Shield

Connecting the PTZ camera

Connecting the PTZ serial communication lines to the RS-485 terminal.

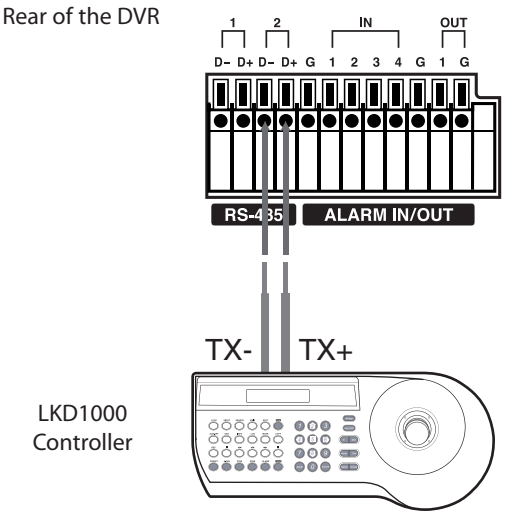


Notes:

- When connecting lines, connect the **D -** of the DVR to **RX -** of the PTZ unit and **D +** of the DVR to **RX +** of the PTZ unit correctly.
- Recommended initial data are 9600 Baud Rate, 8 Data bits, 1 Stop bit and No parity.
- When connecting PTZ cameras to DVRs it is necessary to set the setup menu for this unit according to the RS-485 settings of the camera and DVRs.

Connecting LKD1000 controller

Connecting the LKD1000 controller to control the DVR. (Refer to the manuals of the LKD1000 controller for more details.).



Notes:

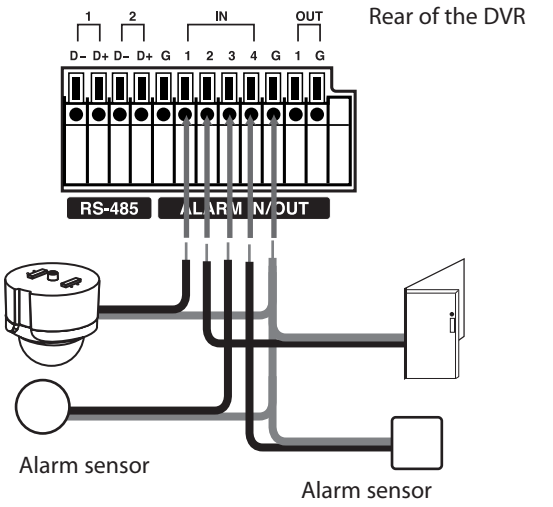
- Do not connect a PTZ camera with LKD1000 controller to the D1 or D2 port. It may cause a malfunction.
- The MAIN and SPOT buttons of the LKD1000 controller are not activated for LE2104/LE2104D models.

Connecting Alarm Input and Alarm Output

Alarm terminals are used to connect the alarm devices such as sensors, door switches, etc.

Alarm Input

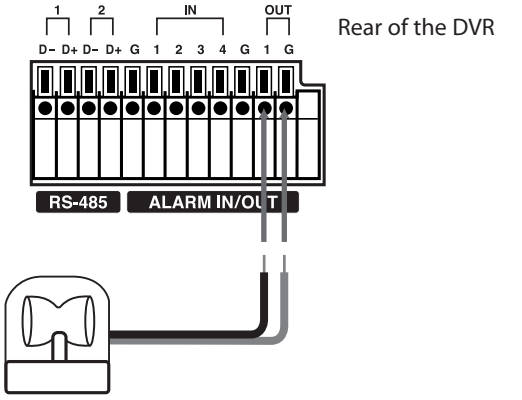
You can connect up to 4 alarm sensors.
Each alarm sensor should be connected with G (GND). The signal state is adjustable to N/O (Normal Open) or N/C (Normal Close) through the setup menu.



Terminal No.	Description
1	Alarm Input 1
2	Alarm Input 2
3	Alarm Input 3
4	Alarm Input 4
G	Ground

Alarm Output

Connect the alarm device to the alarm output. Alarm signal output at an event occurrence.



Terminal No.	Description
1	Alarm Output 1
G	Ground

Note:

The internal switching relays are rated for 0.3A at 125V AC or 1A at 30V DC. If the electric current is higher than that the unit can be damaged.

HDD INSTALLATION

Note for Hard Disk Drive

The internal hard disk drive (HDD) is a fragile piece of equipment. Please follow the guidelines below when using the DVR to protect against possible HDD failure.
We recommend that you back up your important recordings onto an external backup device in order to prevent accidental loss.

Make sure that the power is turned OFF when attaching or removing the HDD.

- Do not move the DVR while the power is on.
- Do not use the DVR in excessively hot or humid places, or in places that may be subject to sudden changes in temperature. Sudden changes in temperature can cause condensation to form inside the DVR. This can be a cause of HDD failure.
- While the DVR is switched on, do not unplug from the wall socket or switch the electricity off from the breaker switch.
- If there's a power failure while the DVR is on there is a chance that some data on the HDD will be lost.
- Do not drop the HDD. Also do not put the metallic object such as coins or screwdrivers into the HDD tray.
- When a power failure occurs during recording, avoid adding, replacing or transporting the HDD as the recorded data may be erased. In this case, turn the power back on to boot up the unit normally with the HDD that was being used at the time of the power failure attached. Then add, replace, or transport the HDD.
- The HDD is very delicate. Handle the HDD with care and follow the precautions below because even a small shock may damage the internal components of the HDD.
  - Do not place the HDD on a desk or a table directly. Put a thick cushion under the HDD because even a small shock may damage the internal components of the HDD.
  - Do not use an electric screwdriver. Vibrations and shocks caused by an electric screwdriver may damage the internal components of the HDD.
  - When replacing the HDD, do not knock the HDD with other components such as another HDD and the HDD tray.
  - Do not knock the HDD with tools such as a driver when replacing the HDD.
- Protect the hard disk drives from static electricity.

Installing or Replacing the Hard Disk Drive

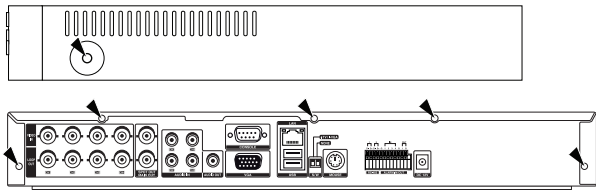
Installing the Hard Disk Drive

You can install up to 2 HDDs. (LE2104 model only)

However, since the product contains many parts which may incur electric shocks, accidents or product breakdown, and because improper installation or setup may disturb HDD recognition or normal product operation, you should consult with an expert from the store where the product was purchased.

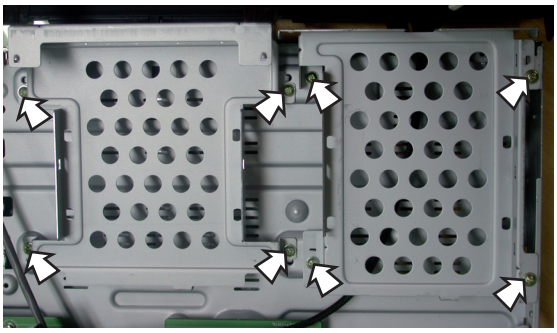
Turn the power of the unit off and detach the power plug from the outlet.

1. Remove the fixing screws on the left/right side and rear panel.

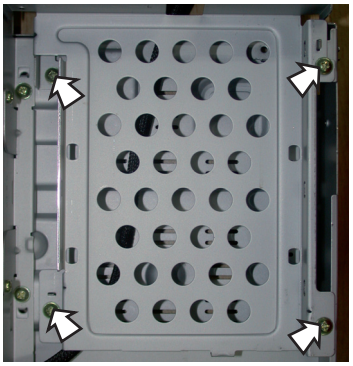


2. Detach the top case by sliding it after removing the screws.
3. Detach the front panel.
4. Remove the screws and detach the hard disk mounting brackets from the unit.

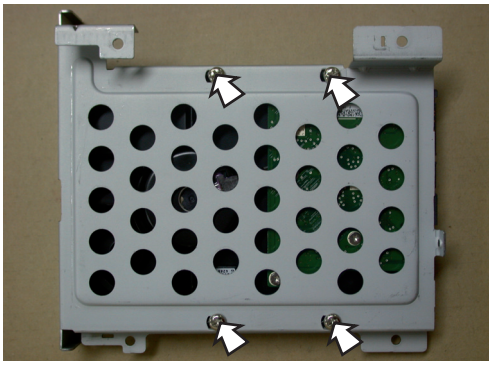
- **In case of LE2104 model**



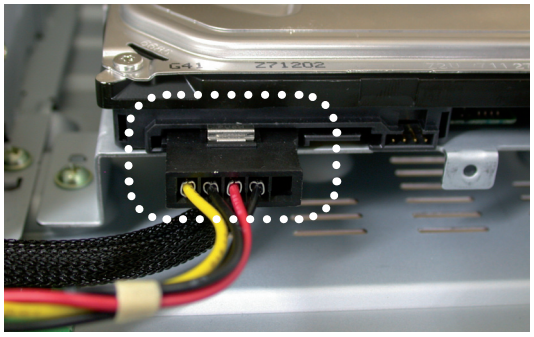
- **In case of LE2104D model**



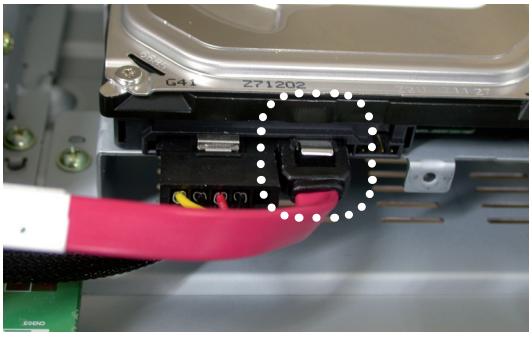
5. Attach the HDD onto the hard disk mounting brackets with four screws.



6. Attach the hard disk mounting brackets with the screws.
7. Connect the HDD power cable. You must use the supplied SATA power cable. The SATA power cable that used for normal PC is not compatible with this unit.



8. Connect the Serial SATA cable.



9. Connect the SATA cable to the SATA connector on the main board.
   - **When installing 1 HDD.**

     Connect the SATA cable of the HDD to the SATA connector of the main board.
   - **When installing 2 HDDs.**

     9-1. Connect the SATA cable of the first HDD to the first SATA connector of the main board.

     9-2. Connect the SATA cable of the second HDD to the second SATA connector of the main board.
10. Assemble the front panel and top case.
11. Fix the screws.
12. After installing the HDD, you must format the HDD using the setup menu (See page 37).

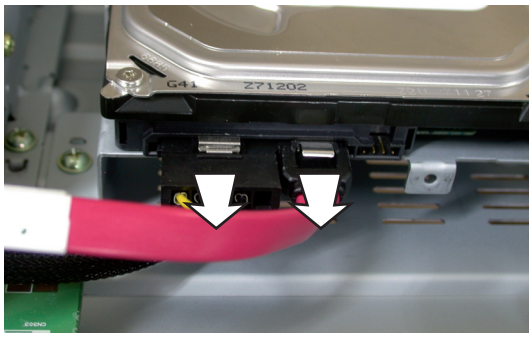
Note:

When you add the new HDD, do not change the position of the HDD. It may delete the current data and cause a malfunction.

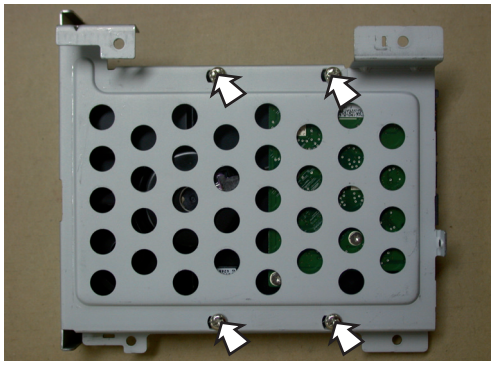
Replacing the Hard Disk Drive

Turn the power of the unit off and detach the power plug from the outlet.

1. Follow steps 1-4 described in "Installing the Hard Disk Drive".
2. Remove the connector from the HDD.



3. Remove the screws from the hard disk drive on the bottom of the hard disk mounting bracket.



4. Remove the HDD from the hard disk mounting bracket.
5. Install the new HDD in the reverse order to when replacing the hard disk drive.
6. After replacing the hard disk drive, insert the power plug into the outlet and turn the power of the unit on.

Notes:

- Make sure that each of the SATA cables is connected to the connector housing through its holes.
- Do not stack them nor keep them upright.
- Do not use an electric screwdriver to fix them.

The HDD should be formatted after installation

When installing or adding the HDD, it should be formatted before use. You can set the event or normal partition space of the HDD. (See page 37). The HDD which has been used in another device should be formatted to make sure normal storage.

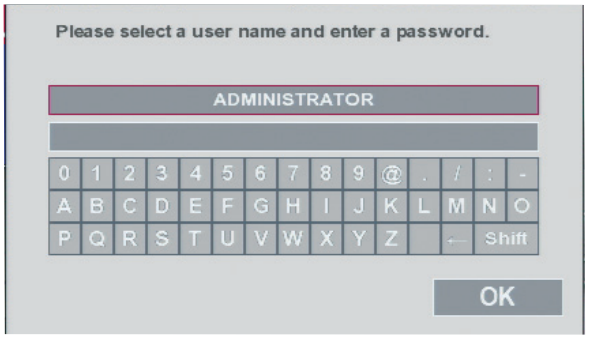
Recommended HDD

The following HDD has been tested and compatibility is ensured. When you attach multiple HDDs use the recommended HDDs.

Maker	RPM	Capacity	Interface	Model No.
Seagate	7,200	500GB	SATA	ST3500320SV
	7,200	250GB		ST3250310SV

System Operation

1. Turn on the unit. System booting will commence. The LG logo image will be displayed on the main monitor during the system booting.
2. When the booting is complete, the login window will be displayed. Select a user name by using the mouse or arrow, then the ENTER button on the remote control or front panel.



   - ADMINISTRATOR: Unlimited operation of the unit.
   - Power User: Use of the limited functions of the system. (The setup configuration is not allowed to change.)
   - Normal User: Use of the limited functions of the system. (Multiscreen monitor and live image view are available.)
3. Enter the password by using the virtual keyboard. (Initial password is "000000".)
4. Select [OK] button and press ENTER.
   You can see the live screen and operate the system.

Notes:

- The LE2104/LE2104D series models with TV/VGA output select switch can not be outputted simultaneously from the VGA and MAIN OUT jack. Consequently, the user is obliged to choose either the composite monitor or the VGA monitor. When set to composite monitor there is no VGA output. When set to VGA monitor there is no composite output. SPOT-OUT is unaffected by the monitor setting.
- This DVR is based on a VGA monitor using OSD. We recommend to using the VGA monitor with this unit. If you use a composite monitor, the OSD quality may lower to read it.
- User access rights

User Level	Administrator	Power User	Normal User
View Live Video	YES	YES	YES
Alarm Off	YES	YES	NO
PTZ	YES	YES	NO
Instant Record	YES	YES	NO
Export	YES	YES	NO
Search/Play	YES	YES	NO
Setup	YES	NO	NO

- If the DVR is turned off accidently and then turned on again, the DVR may take a long time to be rebooted.

General Explanation of the Live Screen on the Main Monitor

Main Monitor Screen

1 01 **Channel Number**

Displays the channel number.

2 CH 01 **Channel Name**

Displays the edited channel name.

3 Camera Status Icon

- PTZ camera icon
  Displays the PTZ camera status.
- Input audio icon
  Displays the input audio status.
- Recording status icon
  Displays the recording status.
  - Green "C" indicates continuous recording.
  - Green "I" indicates Instant recording.
  - Red "S" indicates sensor triggered recording.
  - Blue "M" indicates motion detection recording.
  - White "N" indicates the channel is not being recorded.

4 Selected Channel

Displays the selected channel with white box.

5 Live Screen

Displays the current surveillance live screen.

6 System Control Bar

2008 / 08 / 12 AM 09:35:37	Displays the current date and time.
	Displays the setup menu.
	Displays the search menu.
	Displays the PTZ remote control window.
	Displays in the full screen display mode to return to the 4 division screen windows.
	Views the all channels in sequence on the full screen display mode. You cannot use sequence mode with the 4 split. **Note:** The covert channel(s) or video loss channel(s) is(are) not displayed with power and normal user.
	Displays the lock menu to change the user type or disable system operation.
	Turns the alarm off.
	Displays the system log list window.
	Displays the system information window.
	Click at a desired point to be marked during playback. Up to 15 points can be marked.
	Display copy (export) menu.
	Select the required scanning speed.
	Starts instant playback in selected recording channel. If the recorded data is empty, a warning message is displayed.
	Pause playback.
	Stop playback.

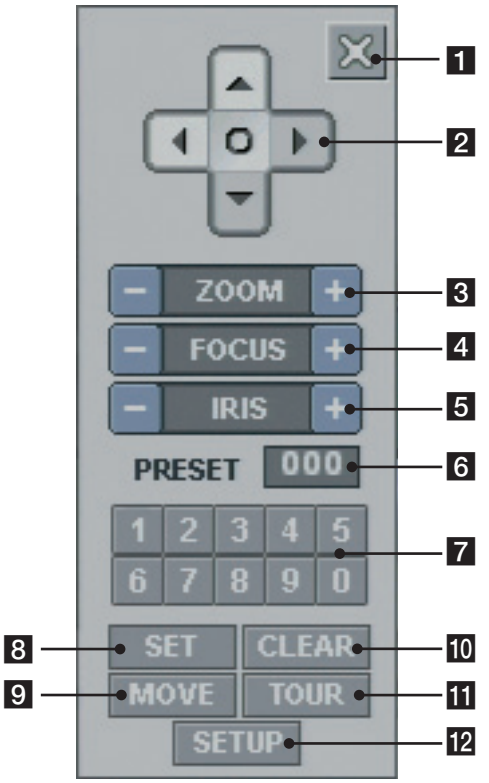
To display / remove the system control bar

1. Press OSD or click the right mouse button in live screen mode and select [Control bar On/Off] option.
2. Press ENTER or click the [Control bar On/Off] option and then the system control bar will be displayed or removed.

PTZ Camera Control

You can control the cameras connected via the data port of RS-485 terminal. You must set the configuration between the PTZ camera and the DVR.

1. Select the PTZ camera channel on the main monitor you want to control.
2. Press PTZ or Click the icon in the system control bar.
   Virtual PTZ remote control is displayed on the main monitor.
3. Use each item to control the PTZ camera.



	Button	Function
1		Remove the PTZ virtual remote control.
2		Use to pan/tilt the camera.
		Confirm the preset position.
3	ZOOM	To adjust the camera zoom.
4	FOCUS	To manually adjust the focus of a camera.
5	IRIS	To manually adjust the iris of a camera.
6	PRESET 000	Displays the Selected Preset Number
7	1 2 3 4 5 6 7 8 9 0	Number Buttons To input the preset number.
8	SET	To register preset positions.
9	MOVE	To move the camera to the preset position.
10	CLEAR	To delete a memorized preset position.
11	TOUR	To start a preset tour.
12	SETUP	To displays the setup menu of the PTZ camera.

Preset Settings

Preset position is the function to register camera monitoring positions (preset positions) associated with position numbers.

By entering the position numbers, you can move cameras to the preset positions.

Note:

To activate this function, you need to register the preset positions of the PTZ cameras.

To Register Preset Positions

1. Move the camera to a point you wish by using the /// .
2. Press SET or click the SET icon.
3. Select the preset number you wish to register.
4. Press ENTER or click the icon.
   The position and its number are memorized.
5. Repeat steps 1-4 to add additional positions.

Note:

Preset numbers from 0 to 255 are available on this unit but the actual preset range differs depending on PTZ cameras.

Changing to a Picture in a Preset Position

The following function is available only with cameras provided with the preset function. The preset function makes the combination camera move to the programmed preset position. It is necessary to program preset positions for the combination camera beforehand.

1. Press the MOVE button or click the MOVE icon.

2. Use number buttons to enter the memorized preset position's index number then press ENTER or click the icon. The camera moves to the preset position and the picture of the camera in that position appears on the monitor.

To Clear the Preset Position

You can clear a memorized preset position.

1. Press the CLEAR button or Click the CLEAR icon.
2. Use number buttons to enter the memorized preset index number then press ENTER or Click the icon to clear the preset positions.

Note:

This function may not be available depending on PTZ cameras.

To Tour The Preset Positions

You can tour all preset positions.

1. Press the TOUR button or Click the TOUR icon.
   All registered preset positions in the camera will be selected and the camera position image will be switched on the active monitor.
2. You can stop the tour by pressing the TOUR button or clicking the TOUR icon.

Setup for PTZ Cameras

You can adapt the camera to your requirements by setting up the respective items in menus.

1. Click the SETUP icon.
   The setup menu appears in the selected window of the main monitor.
2. Use / / / , ZOOM and buttons to set the options.

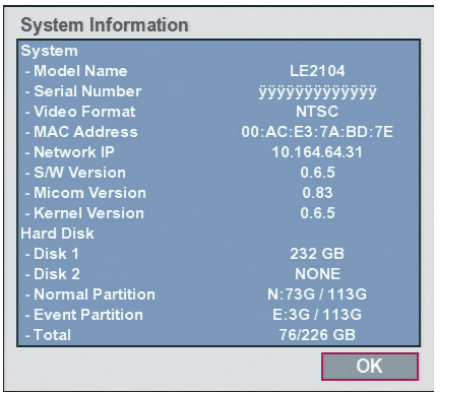
Notes:

- Refer to the manuals of the PTZ camera for more details.
- Some PTZ cameras may not operated correctly with this unit.
- You cannot control the other functions when the PTZ virtual remote control is displayed.

Viewing System Information

To view system information:

1. Press INFO or click the icon in the system control bar.
   The system information window is displayed on the main monitor.

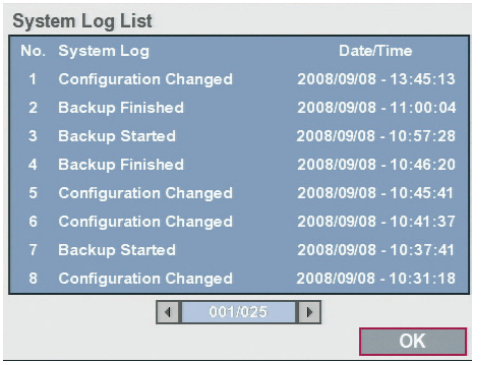


2. Select [OK] and press ENTER or click the [OK] button to exit the window.

Viewing the System Log List

To view the system log list:

1. Press LOG or click the icon in the system control bar.
   The system log list window is displayed on the main monitor.



2. Use ◄ / ► to see the previous or next log list.
3. Select [OK] and press ENTER or click the [OK] button to exit the window.

Note:

The system log list.

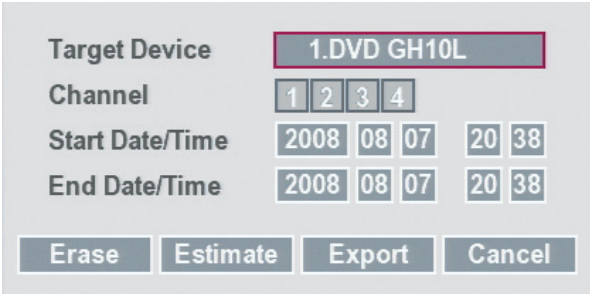
No.	Log Message
1	Power On
2	Power Off
3	Power Recovery
4	Admin Login (Remote)
5	Admin Logout (Remote)
6	Power User Login (Remote)
7	Power User Logout (Remote)
8	Normal User Login (Remote)
9	Normal User Logout (Remote)
10	Admin Login (Local)
11	Admin Logout (Local)
12	Power User Login (Local)
13	Power User Logout (Local)

14	Normal User Login (Local)
15	Normal User Logout (Local)
16	Configuration Changed
17	Configuration Imported
18	Factory Default Set
19	Backup Started
20	Backup Finished
21	Backup Failed
22	Export Started
23	Export Finished
24	Export Failed
25	S/W Updated
26	HDD Added (HDD1)
27	HDD Added (HDD2)
28	HDD Removed (HDD1)
29	HDD Removed (HDD2)
30	HDD Formatted (HDD1)
31	HDD Formatted (HDD2)
32	HDD Changed (HDD1)
33	HDD Changed (HDD2)
34	HDD Damaged (HDD1)
35	HDD Damaged (HDD2)

Export the recorded data

This unit can manually copy recorded images and audio from built-in HDD to the external recording devices.

1. Press COPY or click the icon in the system control bar.
   The export menu window appears.



2. Select [Target Device] then press ENTER.
3. Use ◀/▶ to select a target device to export.
4. Press ENTER to confirm it.
5. Select the channel number and press ENTER. Repeat this step to select multi channels.
6. Set the [Start Date/Time] and [End Date/Time] to copy.
   - ◀/▶/▲/▼: Moves to the options.
   - ◀/▶: Sets the selected option.
   - ENTER: Selects option or confirms the setting.
7. Select [Export] and press ENTER or click [Export] icon to start exporting. The exported data will be authorized by the unit before saving and it can only be played back with the exclusive player.

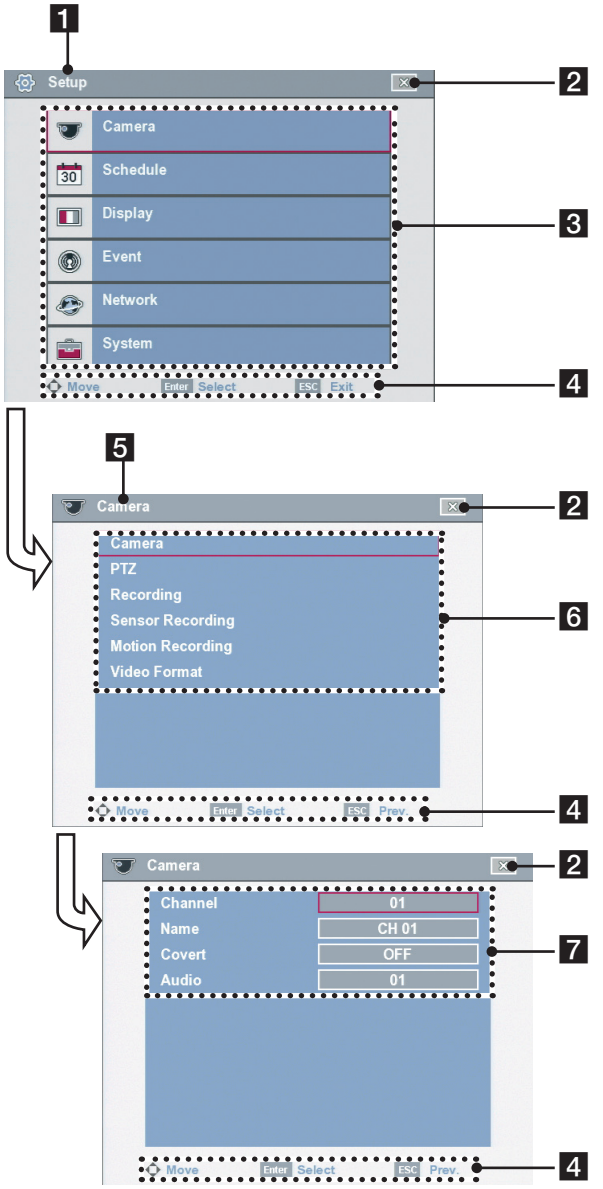
Notes:

- You can also use the COPY button on the front panel for export function.
- Check the export device before you proceed.
- You can export the recorded data only in the live mode.
- If you use the external USB memory device, the external USB memory device has to be formatted on this unit.
  1. Connect the USB memory device to the USB port on the front or the rear of the DVR.
  2. Select the [Erase] icon then press ENTER.
     Confirm window is displayed after format is completed.
  3. Select [OK] and press ENTER to close the window.
- Check the size of the selected data and free space of the external device. If the device has not enough space, create space on the device or erase the previously stored data.
  1. Select the [Estimate] icon and press ENTER.
     The size of the selected data and free space is displayed.
  2. Select [OK] and press ENTER to close the window.
- Export can not be executed while the backup is in progress.
- You can search the exported data with the supplied viewer software.
- When you export the recorded data, the audio data will also be exported.
- When you export the recorded data the export viewer program will also be exported in the [ExportViewer] folder of the device. The exported data file name is made automatically as the [Channel name_export date_export time.exp] type.
- Do not remove the USB device while the export is in progress, it may cause a malfunction. If you reuse the removed device, you must format the media by using erase options.
- The warning message appears for the conditions listed below.
  - When the start date/time and end date/time are the same value.
  - When the start date/time is later than the end date/time.
  - The export media does not have enough space.
  - When you set the time for data that does not exist.
- An external media has to be formatted on this unit to prevent a malfunction.
- DVD+RW and DVD-RW discs have to be initialized before using.
- You can format the external media with the [Erase] option.

Configuration menu

The features and options of the DVR are configured through the menu. The operations of this unit can be set via a menu displayed on the main monitor. You can select and set the operational conditions by using the buttons on the front panel and the remote control or using a Mouse connected to the unit.

Only administrator-level users have permission to access the Setup menu and configure the DVR.



1 Displays the main menu title.
2 Returns to the previous menu or exits the setup menu.
3 Displays the main menu.
4 Displays the help menu.
5 Displays the selected submenu title.
6 Displays the submenu options.
7 Displays the detail options for selected submenu.

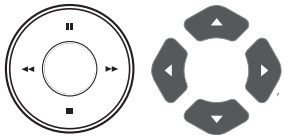
Using a mouse to set a menu

Use the left or right mouse buttons to set the menu.

Button		Function
	Left button	• Use to select a required item or decrease the options value. • If you double click the button, you can see the selected channel on the full screen.
	Right button	• Use to increase the options value. • Displays the sub-setup menu in the live screen mode.

1. Click the icon on the bottom of the on-screen display with the left mouse button to display a setup menu.
2. Click the desired option with the left mouse button to move to the second or third menu level.
3. Click the desired option with the left mouse button.
4. Set the selected options value.
5. Click the icon repeatedly to exit setup menu. If the save message appears, click button with the left mouse button to save the settings.

Setting the Menu Using the Front Panel Buttons or Remote Control Buttons

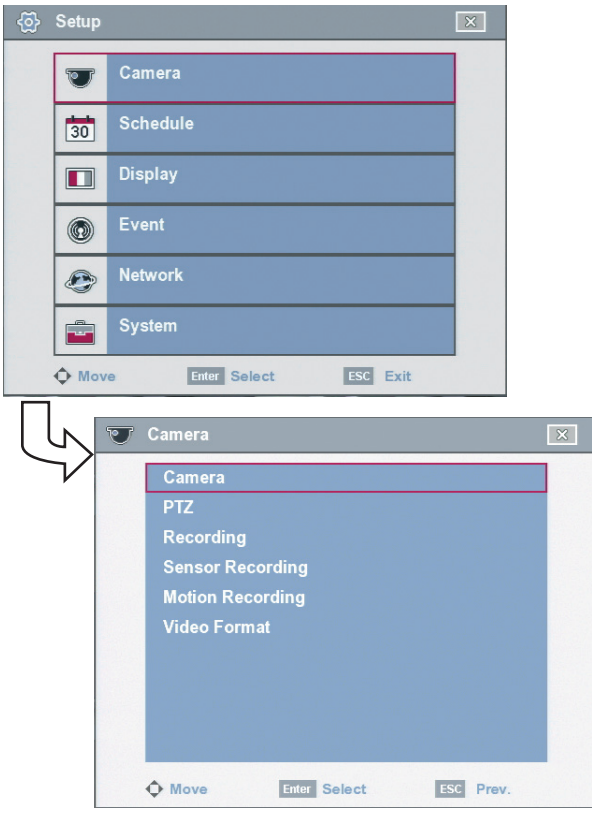
	Use these buttons to select the menu options or adjust the options value.
	Select the option or confirm the setting.
	Return to the previous menu or level.

1. Press SETUP/ESC to display the setup menu.
2. Use ▲ / ▼ to select the desired menu item , then press ENTER to display the submenu.
3. Use ▲ / ▼ to select the desired submenu item, then press ENTER to display the setting options.
4. Use ▲ / ▼ to select the desired option then press ENTER to set the value.
5. Use ◄ / ► to select the desired setting then press ENTER to confirm your selection.
6. Press SETUP/ESC repeatedly to exit the Setup menu. If the save message appears, select [OK] and press ENTER to save the settings.

Notes:

- When you operate the function menu by using the remote control and front panel buttons, both buttons are operated in the same way to control the function menu.
- **All the operation explanations are based on using the remote control.**

Camera settings



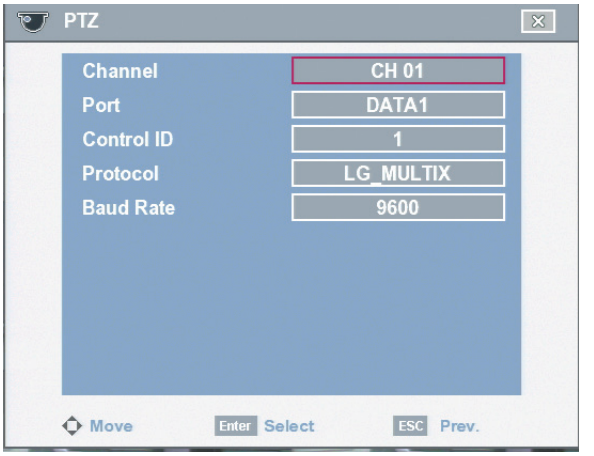
Camera

The channel name, covert and input audio channel settings are configured.

- Channel: Selects the desired channel to set the options.
- Name: Enter the channel name using up to 12 characters.
  - ◀/▶/▲/▼: Use to move the columns, [OK] or [Cancel] button. Select a character.
  - ENTER: Confirms your selection.
  - Select [OK] and press ENTER to save the channel name.
  - Select [Cancel] and press ENTER to exit the virtual keyboard menu.
- Covert: You can set the camera conditions to prevent operation by other users. If the covert option is set to ON, "LG logo" is displayed on the live window with POWER or NORMAL user.
- Audio: You can connect the audio input with a specified camera input.

PTZ

Settings for the PTZ cameras connected via the data port of the RS-485 terminal.



- Channel: Selects the desired channel to set the connected PTZ camera.
- Port: Selects the connected data port of the RS-485 terminal on the rear panel. The **D2 (DATA 2)** port is used to control the PTZ camera connected to DVR or to control by using the LKD1000 controller. If you want to use the PTZ camera via **D2 (DATA 2)** port, you should set the DVR ID to "NONE" on the system setup menu. If you use the LKD1000 controller to control the DVR via **D2 (DATA 2)** port, you should set the DVR ID number (01~16) on the system setup menu.
- Control ID: Selects the PTZ camera ID from 0 to 255. Make the same settings as the PTZ camera.
- Protocol: Selects the protocol supported by PTZ camera. The supported PTZ camera list is on page 63 for reference.
- Baud Rate: Selects the communication speed. (1200, 2400,4800,9600 or 19200)

Recording

Settings concerning normal recording.

- Channel: Selects the desired channel to set the options.
- Resolution: Selects the recording resolution.
- Quality: Selects the recording picture quality (LOWEST, LOW, STANDARD, HIGH or HIGHEST).
- Frame Rate: Selects the frame rate. The frame rate is the number of recorded frames per second. According to resolution, the frame rate is set automatically. If you wish to set manually, refer to the below.

Resolution		Frame Rate
NTSC	352*240	1, 3, 5, 7.5, 15, 20, 30
	704*240	1, 3, 5, 7.5, 15
	704*480	1, 3, 5, 7.5
PAL	352*288	1, 3, 5, 6, 12.5, 20, 25
	704*288	1, 3, 5, 6, 12.5
	704*576	1, 3, 5, 6

- Prealarm: Specify the pre-event recording time that records the situation until the sensor alarm signal has input or motion has been detected. (OFF, 5, 10, 20, 30, 40, 50 or 60 SEC)
- Postalarm: Specify the post-event recording time that records the situation from when the sensor alarm signal has input or motion has been detected. (10, 20, 30, 40, 50 SEC or 1, 2, 3, 5, 10 MIN)

Note:

The setting values of Prealarm and Postalarm options are also used as the same ones for Sensor Recording and Motion Recording function.

Sensor Recording

Settings concerning sensor recording.

- Channel: Selects the desired channel to set the options.
- Resolution: Selects the recording resolution.
- Quality: Selects the recording picture quality (LOWEST, LOW, STANDARD, HIGH or HIGHEST).
- Frame Rate: Selects the frame rate. The frame rate is the number of recorded frames per second. According to resolution, the frame rate is set automatically. If you wish to set manually, refer to the below.

Resolution		Frame Rate
NTSC	352*240	1, 3, 5, 7.5, 15, 20, 30
	704*240	1, 3, 5, 7.5, 15
	704*480	1, 3, 5, 7.5
PAL	352*288	1, 3, 5, 6, 12.5, 20, 25
	704*288	1, 3, 5, 6, 12.5
	704*576	1, 3, 5, 6

Motion Recording

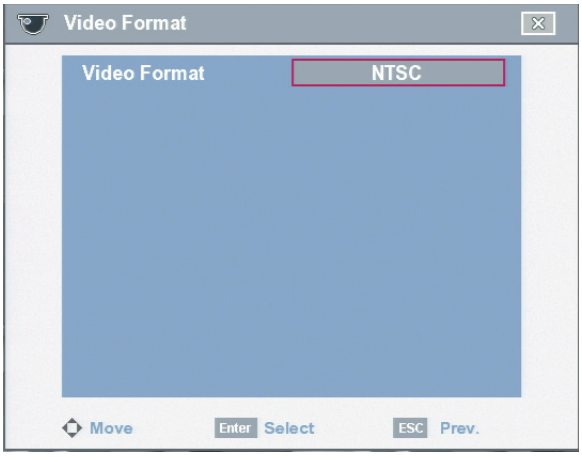
Settings concerning motion recording.

- Channel: Selects the desired channel to set the options.
- Resolution: Selects the recording resolution.
- Quality: Selects the recording picture quality (LOWEST, LOW, STANDARD, HIGH or HIGHEST).
- Frame Rate: Selects the frame rate. The frame rate is the number of recorded frames per second. According to resolution, the frame rate is set automatically. If you wish to set manually, refer to the below.

Resolution		Frame Rate
NTSC	352*240	1, 3, 5, 7.5, 15, 20, 30
	704*240	1, 3, 5, 7.5, 15
	704*480	1, 3, 5, 7.5
PAL	352*288	1, 3, 5, 6, 12.5, 20, 25
	704*288	1, 3, 5, 6, 12.5
	704*576	1, 3, 5, 6

Video Format

Selects the video format to NTSC or PAL according to your video system format.



1. Select the video format.
   The confirmation message is displayed.
2. Select [OK] and press ENTER.
   After the HDD has been formatted, the system will reboot.

Note:

All cameras must be disconnected before you change the video format to prevent malfunction.

Video Adjustment

Adjust the brightness, contrast and color settings of each camera channel.

1. Select the desired channel in live screen mode to adjust the options.
2. Press OSD or click the right mouse button to display the sub-setup menu.
3. Select [Video Adjustment] option and press ENTER.
   Video Adjustment menu is displayed.

4. Selects the desired option and press ENTER.
5. Use ◀/▶ to adjust the value.
   - Brightness: Adjust the brightness value from 01 to 100 for the selected channel.
   - Contrast: Adjust the contrast value from 01 to 100 for the selected channel.
   - Color: Adjust the color value from 01 to 100 for the selected channel.
6. Select [OK] icon and press ENTER to confirm your settings.
7. Select [Exit] and press ENTER to exit the sub-setup menu.

Note:

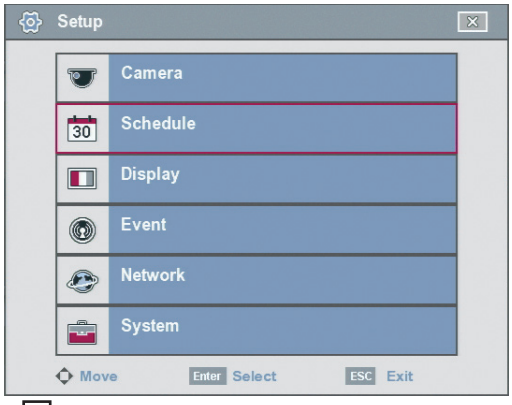
This function is not activated for spot out channel.

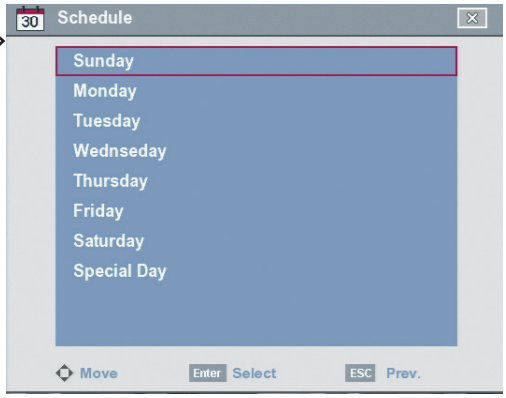
Schedule settings

The DVR can record according to a schedule set by the user. It can also record manually regardless of date and time. The recording can be made either continuously or triggered by events (alarm and motion detection).

The recording schedule screen displays the selected day showing the schedule of all channels over a 24-hour period.

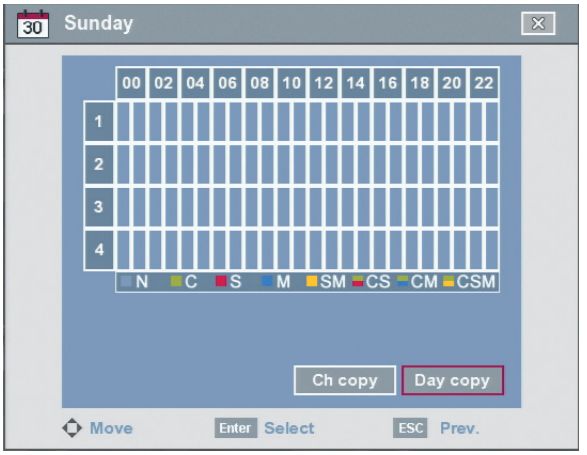
For each 1-hour cell block the recording method can be specified. The recording method for each block is shown in color for easy viewing.



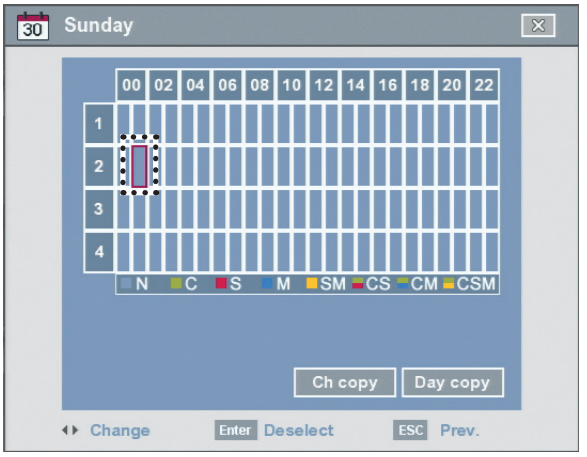


To Set the Recording Schedule for a Typical Day of the Week

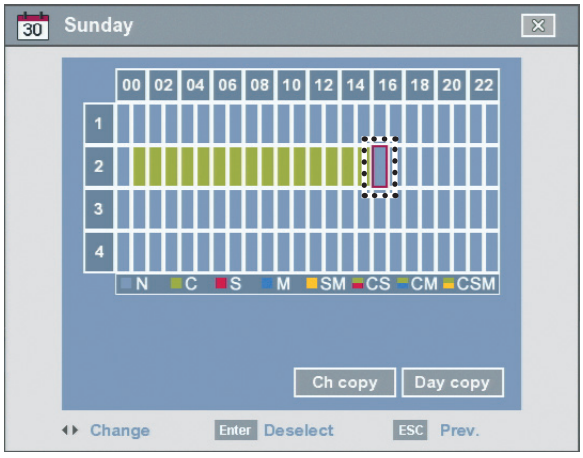
1. Select a day of the week.
   The recording schedule screen is displayed.



2. Select the desired channel to schedule recording.
3. Select the time cell block for the start time and press ENTER.



4. Use ◀/▶ or click the left mouse button to select a recording mode. The color of the cell blocks will change automatically.
   - Gray: No scheduled recording.
   - Green (Continuous recording): Recording starts automatically from the preset time.
   - Red (Sensor event recording): Recording starts automatically when the sensor alarm is occurs within a designated time.
   - Blue (Motion event recording): Recording starts automatically when motion is detected within a designated time.
   - Yellow (Sensor+Motion recording): Recording starts automatically when the sensor alarm signal has input or motion has been detected.
   - Green+Red (Continuous+Sensor event recording): Recording starts automatically from the preset time. When the sensor alarm occurs within a designated time, change the continuous recording mode to sensor event recording mode and recording starts automatically.
   - Green+Blue (Continuous+Motion event recording): Recording starts automatically from the preset time. When the motion is detected within a designated time, change the continuous recording mode to motion event recording mode and recording starts automatically.
   - Green+Yellow (Continuous+Sensor+Motion event recording): Recording starts automatically from the preset time. When the sensor alarm signal has input or motion has been detected, change the continuous recording mode to motion event recording mode and recording starts automatically.
5. Select the next time cell block of schedule time cell blocks to confirm the schedule time and press ENTER.
6. Use ◀/▶ or click the left mouse button repeatedly to select gray to set the time for the end of the schedule. The settings cell block is highlighted.



7. Press SETUP/ESC to move to the previous menu.
   If the save message appears, select [OK] and press ENTER to save the settings.
8. Press SETUP/ESC repeatedly to exit the Setup menu.

To Set a Recording Schedule for a Special Day

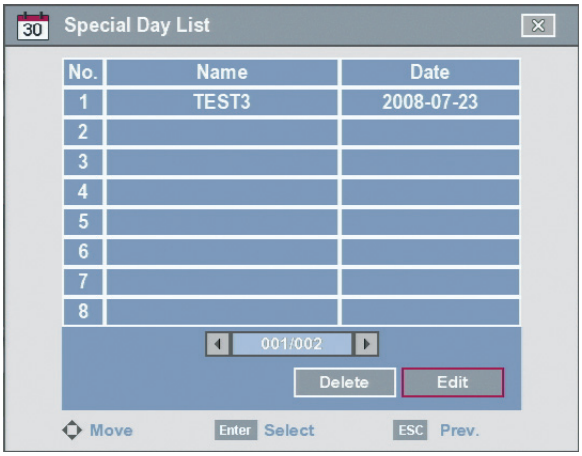
In addition to the weekly schedule, up to 10 specific date/time periods can be defined. To configure the specific recording schedule select Specific Dates.

1. Select the [Special Day] option.
2. Select the [Add] icon.
   The specific date selection menu appears.

3. Enter the necessary information for year, month and date.
   - ◄/►/▲/▼: Press to move the columns.
   - ◄ / ► (or left/right mouse button): Changes the value at the current position.
   - ENTER: Confirms your selection.
4. Use ◄/►/▲/▼ to select [OK] button and press ENTER. The virtual keyboard menu appears.
5. Enter the name of the special day. Use ▲/▼/◄/► to select a character then press ENTER to confirm your selection.
6. Use ▲ / ▼ to select the [OK] button then press ENTER to fix the date of the special day and return to the special day recording schedule screen.
7. Select the schedule time and set the recording method for each channel.
8. Press SETUP/ESC to move to the previous menu. If the save message appears, select [OK] and press ENTER to save the settings.
9. Press SETUP/ESC repeatedly to exit the Setup menu.

Checking the Special Day Schedule List

1. Select the [Special Day] option.
2. Select the [List] icon. The special day scheduled list appears.



3. Select a special day title on the list and press ENTER. The title color turns red.
4. Select the [Edit] icon then press ENTER to edit the special day or select the [Delete] icon to delete the special day schedule.
5. Press SETUP/ESC to exit the special day schedule list.

Note:

If the special day recording schedule is duplicated with the other recordings, only the special day recording is possible.

Copying the Recording Schedule

Copying from the Scheduled Data of the Channel

You can copy the schedule data of the channel to the other channel(s) within the selected day of the week.

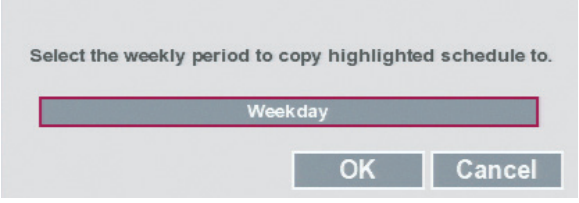
1. Select the day of the week and press ENTER.
2. Select channel that you want to copy and press ENTER.
3. Select the [Ch copy] icon then press ENTER. The channel selection menu appears.

4. Use ◄ / ► to move to the left or right column then press ENTER to select the target channel(s). You can cancel the selected channel by pressing ENTER.
5. Use ▲ / ▼ to select [OK] then press ENTER to confirm your selection.

Copying from the Scheduled Data of the Day

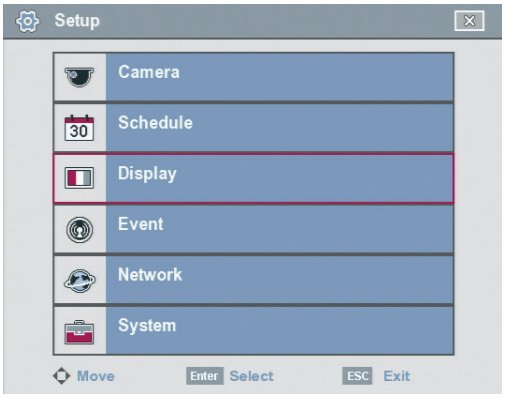
You can copy the scheduled day of the week to another day of the week, weekday and weekend.

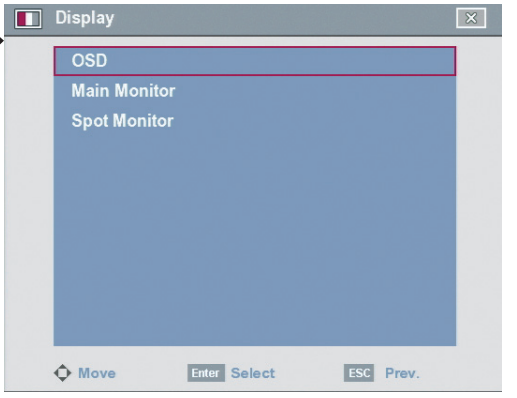
1. Select the day of week that you want to copy and press ENTER.
2. Select the [Day copy] icon then press ENTER. The select date(s) menu appears.



3. Use ◄ / ► to select the target date(s).
4. Use ▲ / ▼ to select [OK] then press ENTER to confirm your selection.

Display settings

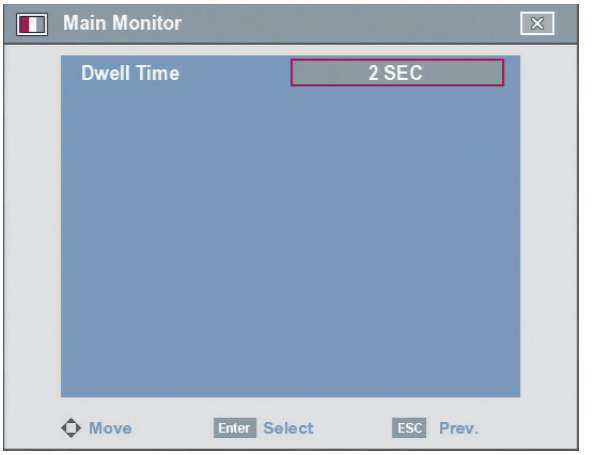




OSD

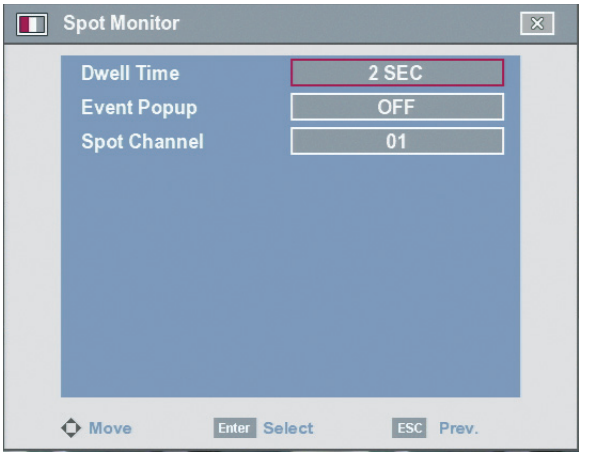
- Language: Select a language for the setup menu and information display.
- Channel Name
  - ON: Displays the title of the channel.
  - OFF: Displays the live picture without the title of the channel.
- Channel Status
  - ON: The current channel recording status is displayed.
  - OFF: Remove the current channel recording status.

Main Monitor



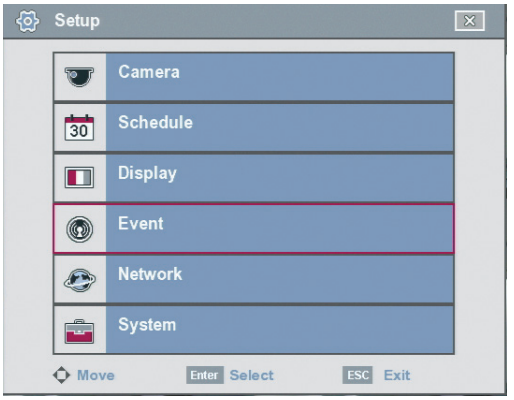
- Dwell Time: You can set the channel sequence time to 2 SEC, 5 SEC, 10 SEC, 20 SEC, 30 SEC, 40 SEC, 50 SEC, 60 SEC, 70 SEC, 80 SEC or 90 SEC.

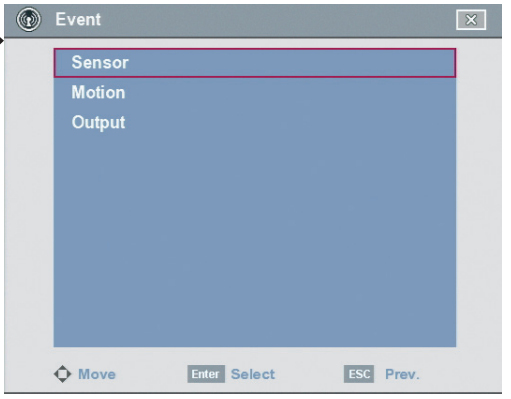
Spot Monitor



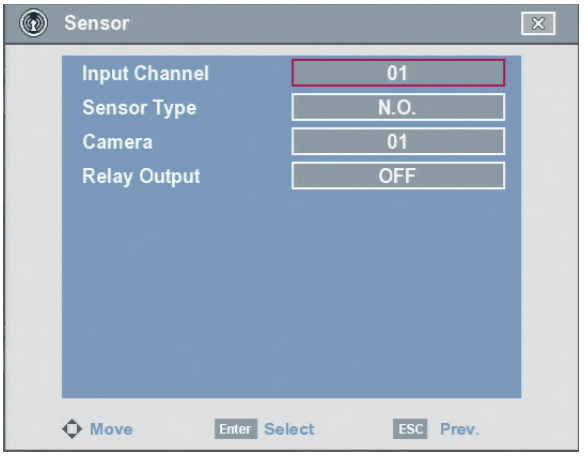
- Dwell Time: You can set the channel sequence time to 2 SEC, 5 SEC, 10 SEC, 20 SEC, 30 SEC, 40 SEC, 50 SEC, 60 SEC, 70 SEC, 80 SEC or 90 SEC.
- Event Popup: Displays an event popup on the spot monitor if motion, sensor or all (motion or sensor) occur.
- Spot Channel: Selects the desired spot channel.
  - 01~04: Views the selected channel's surveillance image on the spot monitor.
  - SEQUENCE 1: Views the all channels in sequence. The covert channel(s) or video loss channel(s) is(are) not displayed with power and normal user.
  - SEQUENCE 2: Views the all channels in sequence except the covert channel(s) and video loss channel(s).

Event Settings



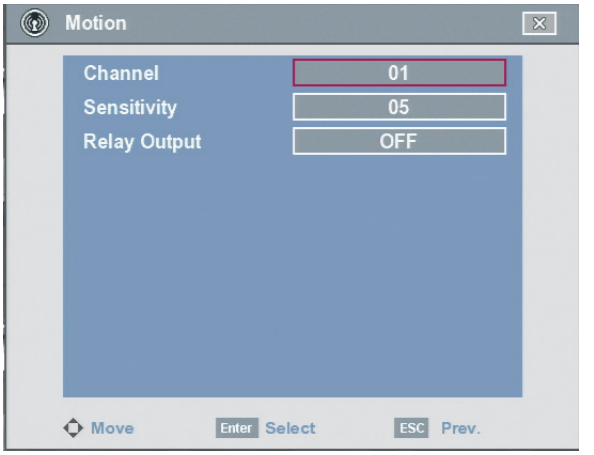


Sensor



- Input Channel: Select the number of the ALARM-IN terminal.
- Sensor Type: The sensor state can be set to either N.O. (Normally Open) or N.C. (Normally Closed).
- Camera: Select the connected camera channel to the ALARM-IN terminal.
- Relay Output:
  - ON: Outputs the alarm (relay) signal via the ALARM-OUT terminal.
  - OFF: Not used.

Motion



- Channel: Select the channel to set motion detection.
- Sensitivity: Set the level of sensitivity for the created motion detection area. Sensitivity can be set from level 01 to 10 or NONE.
- Relay Output:
  - ON: Outputs the alarm (relay) signal via the ALARM-OUT terminal.
  - OFF: Not used.

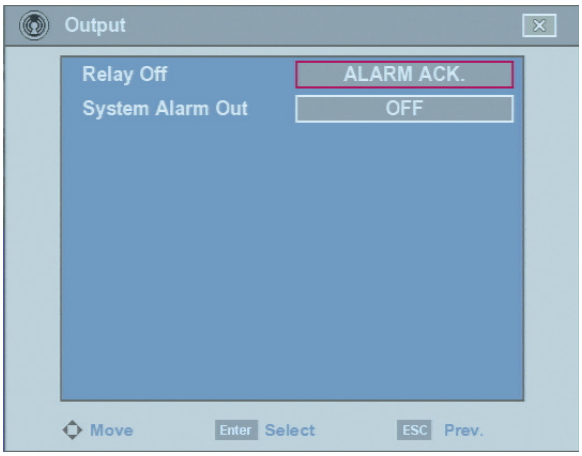
Notes:

- In the condition that illumination is low and the outline of object is not clear enough to see, regardless of sensitivity, Motion Event could be possible not to happen. You must check Motion Event before setting.
- Motion area setting
  1. Select the desired channel in live screen mode.
  2. Press OSD or click the right mouse button to display the sub-setup menu.
  3. Select [Motion] option and press ENTER.

  4. Select the desired motion detection area on the selected channel window screen.
     - **Using the Remote control**
       - ◄ / ► / ▲ / ▼: Move the cell box to another cell zone.
       - ENTER: Selects or cancels the motion detection area at the current cell position.
     - **Using the Mouse**
       - To select the area: Drag & drop a cell to the right to select the motion detection area.
       - To cancel area: Drag & drop a cell point of a selected cell area to the left to cancel the motion detection area.

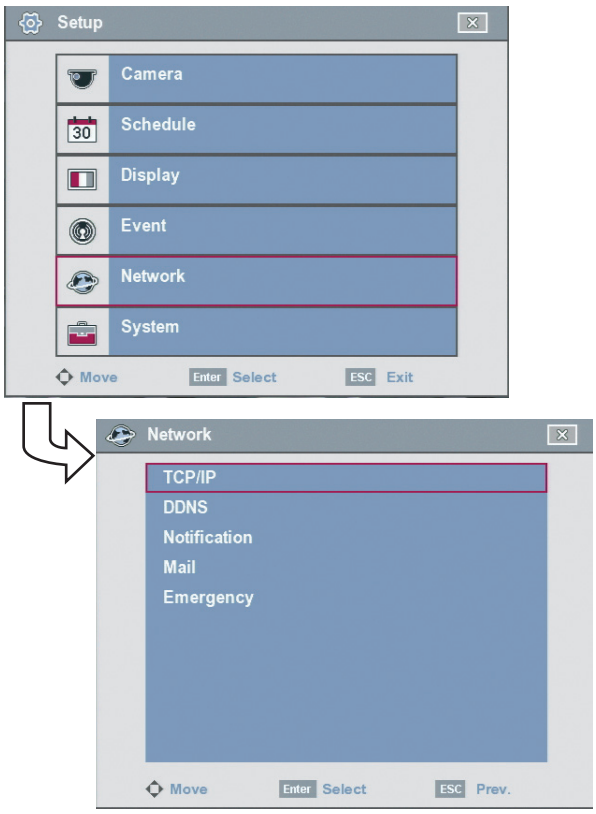
5. Click the right mouse button to exit the settings.
6. Select [Exit] and press ENTER to exit the sub-setup menu.

Output

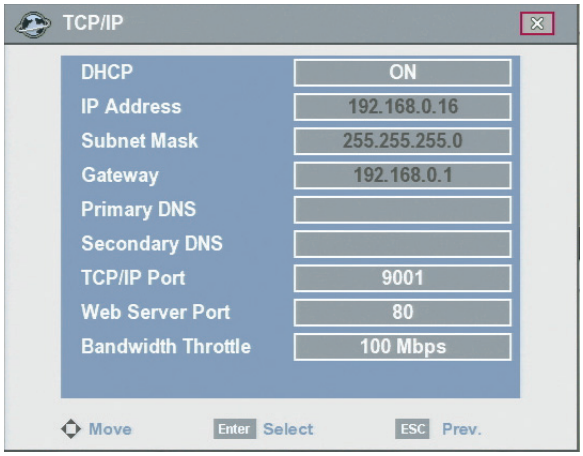


- Relay Off
  - ALARM ACK.: Use the ALM.OFF button to stop alarm.
  - POST-ALARM TIME: The alarm is stopped after post-alarm time.
- System Alarm Out:
  - ON: Outputs the alarm (relay) signal via the ALARM-OUT terminal below cases.
    - > When the HDD has bad sector.
    - > When a video signal from the camera has stopped because of a cable disconnection or malfunction of a camera.
  - OFF: Not used.

Network Settings



TCP/IP



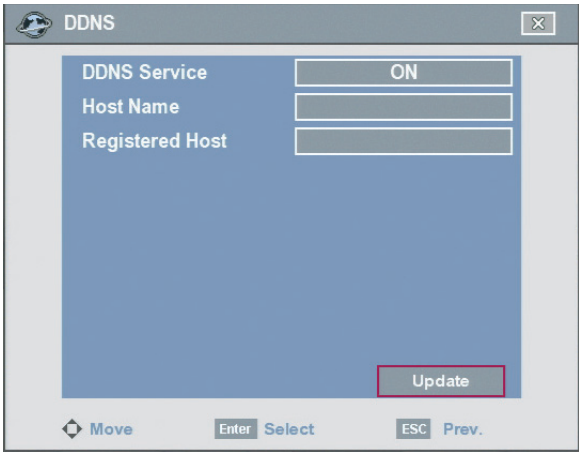
- DHCP: DHCP stands for Dynamic Host Configuration Protocol.
  - ON: Network settings of this unit are configured automatically by the DHCP server. You can use the DDNS function instead of the dynamic IP address. (For more details refer to the DDNS settings). If you set to ON, the [IP Address], [Subnet Mask], [Gateway], [Primary DNS] and [Secondary DNS] options are not set.
  - OFF: Enter the network settings manually.

- IP Address: Enter an IP address using the virtual keyboard.
- Subnet Mask: Enter a subnet mask address using the virtual keyboard.
- Gateway: Enter the gateway address using the virtual keyboard.
- Primary DNS: Enter the Main DNS server address using the virtual keyboard.
- Secondary DNS: Enter the Sub DNS server address using the virtual keyboard.
- TCP/IP Port: Enter the TCP/IP Port number using the virtual keyboard. You can watch the live surveillance image over the network with the PC Client program. The factory default port for transmission of video and audio data is 9001. However in some cases it is better to change this port number for added flexibility or security. If desired change the port number(1025 ~ 65535).
- Web Server Port: Enter the Web Sever Port number using the virtual keyboard. You can watch the live surveillance image over the network with a web browser. Typically the TCP port used by HTTP is 80. However in some cases it is better to change this port number for added flexibility or security. If desired change the port number (80 or 1025~ 65535).
- Bandwidth Throttle: Select the Bandwidth to adjust the data traffic.

Note:

When you change the TCP/IP port or web sever port number, all connections with the PC Client programs or web browser will be disconnected.

DDNS (Dynamic Domain Name System)



- DDNS Service:
  - ON: Select to enable DDNS function.
    This free service is very useful when combined with the LG DDNS Server. It allows Internet users to connect the LG DDNS Server using a Host Name, rather than an IP Address. This also solves the problem of having a dynamic IP address. With a dynamic IP address, your IP address may change whenever you connect, which makes it difficult to connect to you.
  - OFF: The DDNS function is not used.
- Host Name: Using the virtual keyboard, enter the host name you want to use.
- Registered Host: The registered host name appears.
- Update: Register the host name you typed in [Host Name] to LG DDNS server.

Note:

Check the network settings before using this function. You might have to properly configure your network settings to use this function.

How to register DDNS host name

With the DDNS function, you can easily use LG DVR.

When you use the DDNS function for the first time after you purchased LG DVR

1. Displays the DVR setup menu.
2. Select [Network] > [DDNS] option.
3. Set the [DDNS Service] to [ON].
4. Enter the host name in [Host Name] option.
5. Select the [Update] icon and press ENTER.
   If host registration is properly completed, the host name will be displayed in [Registered Host] option.

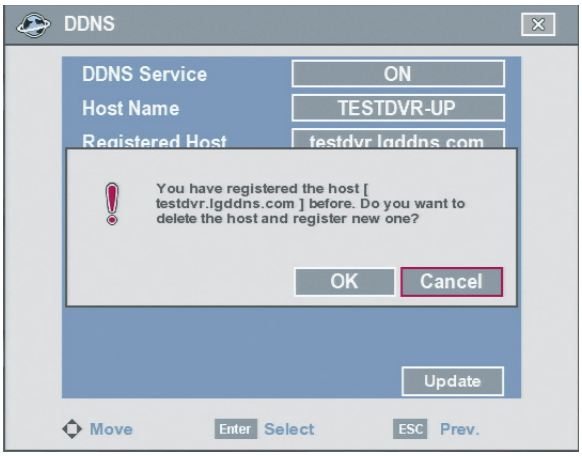
Note:

If the host name is not registered after updating, please check network connection.

When you want to change DDNS host name

If you want to change the registered host name to new one, follow as shown below.

1. Enter a new host name in [Host Name] option.
2. Select the [Update] icon and press ENTER.
   The confirmation window will be displayed to change your host name.

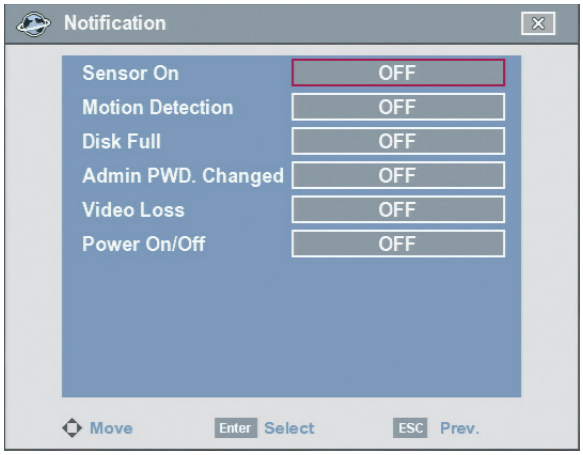


3. Select the [OK] and press ENTER.
   When host name is properly changed, the changed host name will be displayed in [Registered Host].

Note:

If host name is not changed after updating, please check network connection.

Notification



- Sensor On:
  - ON: Sends an e-mail when a sensor has occurred.
  - OFF: Not used.
- Motion Detection:
  - ON: Sends an e-mail when an motion detection has occurred.
  - OFF: Not used.
- Disk Full:
  - ON: Sends an e-mail when the HDD has fully recorded.
  - OFF: Not used.
- Admin PWD. Changed:
  - ON: Sends an e-mail when the administrator password has changed.
  - OFF: Not used.
- Video Loss:
  - ON: Sends an e-mail when a video signal from the camera has stopped because of a cable disconnection or malfunction of a camera.
  - OFF: Not used.
- Power On/Off:
  - ON: Sends an e-mail when power is on.
  - OFF: Not used.

Mail

- Notification
  - ON: Notifies the user of unit operating information by e-mail according to notification settings.
  - OFF: The notification function is not used. The mail options are not set.
- SMTP Server: Enter the SMTP Server address using the virtual keyboard.
  If notification is set to ON and the SMTP server option is empty, the SMTP Port, User Name, Password and TLS options are not set.
- SMTP Port: Enter the SMTP Port Number using the virtual keyboard. Typically the port used for SMTP is 25. However in some cases it is better to change this port number for added flexibility or security. If desired change the port number (1 ~ 65535).
- User Name: Enter the user name using the virtual keyboard.
- Password: Enter the password using the virtual keyboard.
- TLS: Set to ON when using the TLS (Transport Layer Security) function. By default, TLS is OFF.
- Mail Address (1-3): Enter the mail address using the virtual keyboard.
  You can input up to 3 e-mail addresses.
- E-mail Test: Select [E-mail Test] to test send an e-mail.

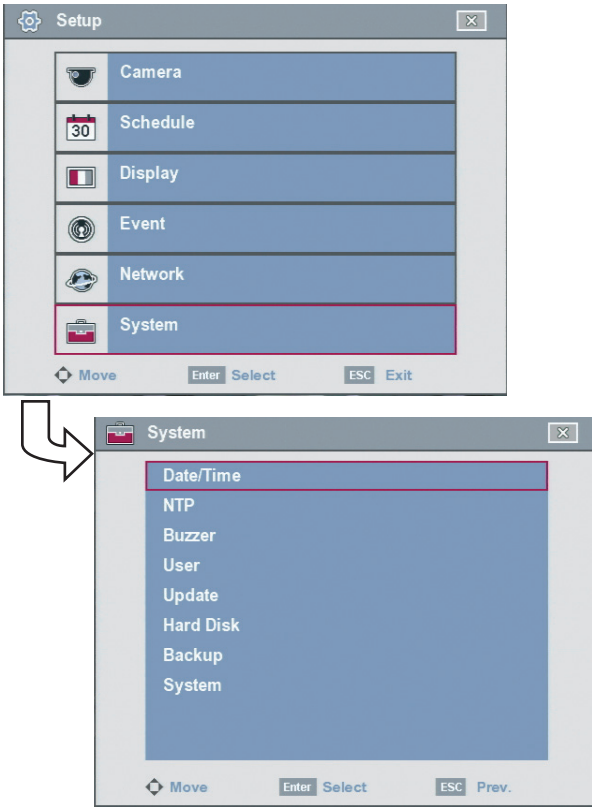
Note:

The SMTP server, SMTP port no., user name or password settings are optional. The DVR can send e-mail directly without the use of an SMTP server or MTA (message transfer agent). In certain cases all e-mail should be forwarded to a specific SMTP server. Specify the server host name or IP address in such a case. For more detail on SMTP setup, ask your network administrator and/or mail service provider.

Emergency

- Notification:
  - ON: Notifies the emergency agent about unit operating information according to your notification settings.
  - OFF: Notification function is not used.
    If you set to OFF, the Emergency ID, IP Address and Port options are not set.
- Emergency ID: Select the emergency ID of the emergency agent program.
- IP Address: Enter the IP address of the emergency agent program using the virtual keyboard.
- Port: Enter the port number of the emergency agent program using the virtual keyboard. The factory default port for this function is 9002. However in some cases it is better to change this port number for added flexibility or security. If desired change the port number (1025 ~ 65535). You can set up to 9 IP/port numbers.

System Settings



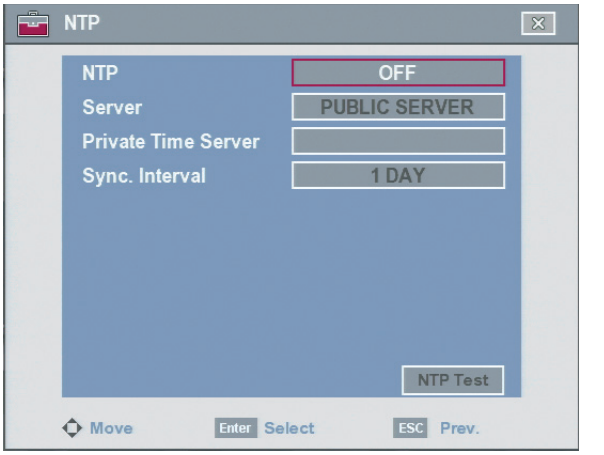
Date/Time

- Date: Enter the current date.
- Time: Enter the current time. (24 HR or 12 HR)
- Date Format: Select the date display format.
- Time Format: Select the time display format.
- Time Zone: Select your Time Zone.
  (For more details refer to Timezone table on page 64)
- Daylight Saving: Set to ON to you use the daylight saving function.
- Daylight Saving Start: Select the Daylight Saving start time.
- Daylight Saving End: Select the Daylight Saving end time.

Caution:

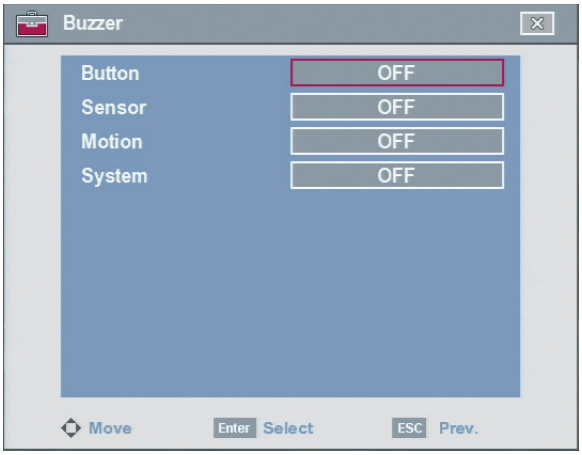
If you change the time setup, warning message will be displayed. For example, if you delay the time by 10 minutes, the overlapped 10minutes data can be deleted.

NTP



- NTP: Set to ON when using the NTP (Network Time Protocol) server for time adjustment. If the NTP is set to OFF, the time settings should be entered manually and the [Server], [Private Time Server], [Sync. Interval] and [NTP Test] options are not set.
- Server: Select your time server. For most cases select public. The DVR will obtain the average time among 5 public servers (time.nist.gov, time-a.nist.gov, time-b.nist.gov, ntp.nasa.gov, clock.isc.org).
- Private Time Server: Enter the private time server's IP address or host name using the virtual keyboard.
- Sync. Interval: You can set synchronized intervals with the NTP time server to 1 day, 1 hour, 1 month and 1 week.
- NTP Test: Select [NTP Test] to test the NTP server.

Buzzer



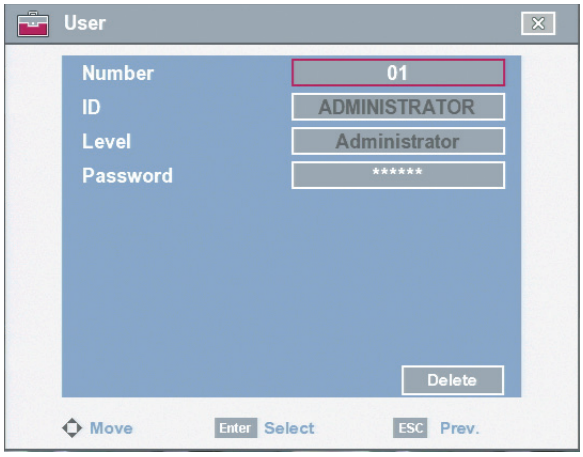
- Button
  - ON: Makes a sound when using the buttons.
  - OFF: Turns off the button beep.
- Sensor
  - ON: Makes a sound when a sensor occurs.
  - OFF: Turns off the sensor buzzer.
- Motion
  - ON: Makes a sound when a motion is detected.
  - OFF: Turns off the motion buzzer.
- System
  - ON: Makes a sound when the HDD has a bad sector.
  - OFF: Turns off the system buzzer.

Note:

The sensor and motion buzzer have low sound on this unit. If you want to make a loud sound, connect an external alarming device to the ALARM-OUT terminals (ex. Siren).

User

You can register a new user with various access rights to the DVR or client program.



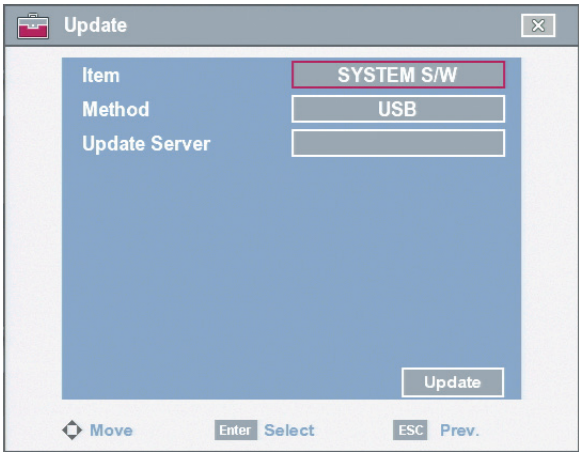
- Number: Select the number to add new user ID or change the user ID, user level or password.
- ID: Enter the new user ID using the virtual keyboard.
- Level: Select the level of the new user.
- Password: Enter or change the password for the user using the virtual keyboard. You can use the password with number, special character or characters. (Minimum 4 length, Maximum 8 length).

Note:

Remember the password. If you forget the password please contact an authorized service center or the store where you purchased the system.

Update

The update feature allows you to upgrade DVR software and add/upgrade PTZ protocols. In this case, the current DVR settings are not deleted or replaced during the update process.



1. Select one of the following:
   - Select SYSTEM S/W to upgrade DVR system software.
   - Select PTZ PROTOCOL to update the DVR protocols.
2. Choose the media from which to perform the update:
   - USB: Select USB, and then insert the USB drive into the DVR. All USB devices must be disconnected before you can use the USB drive.
   - NETWORK: Select NETWORK, and then do following:
     1) Select the update server settings box. The virtual keyboard is displayed.
     2) Enter the update server IP address. The DVR network settings must be configured and you must know the update server's IP address.
3. Select [Update] and press ENTER to start the update process.
4. Select [OK] and press ENTER to begin the update process or select [Cancel] to stop and exit. After the update process is completed, the system displays the dialogue box for system restarting.
5. Select [OK] and press ENTER to restart the DVR.

Note:

You should install one of the formatted HDD for update. If you do not install the HDD, the update will not work properly.

Hard Disk

- Format: Initializes the HDD (Hard Disk Drive). All data on the selected HDD will be erased.

  How to format the HDD

  1. Select the [Event Partition] option and set the event partition rate of the HDD. If you set the event partition to 60%, the remaining space of 40% is set to normal partition automatically.
     - Event Partition: To save space of the HDD for motion and sensor recording data.
     - Normal Partition: To save space of the HDD for instant or normal recording data.
  2. Select the [Format] icon and press ENTER.
  3. Select [OK] and press ENTER to start format.
- Overwrite:
  - ALL: Overwrite recording is possible when the normal partition and event partition of HDD have fully recorded.
  - NORMAL PARTITION: Overwrite recording is possible for normal partition of HDD when the normal partition of HDD has fully recorded.
  - EVENT PARTITION: Overwrite recording is possible for event partition of HDD when the event partition of HDD has fully recorded.
  - OFF: Do not use overwriting.
- Full Warning: When the HDD has overflowed a warning message is displayed.
- Event Partition: Set the space of event partition for event recording.

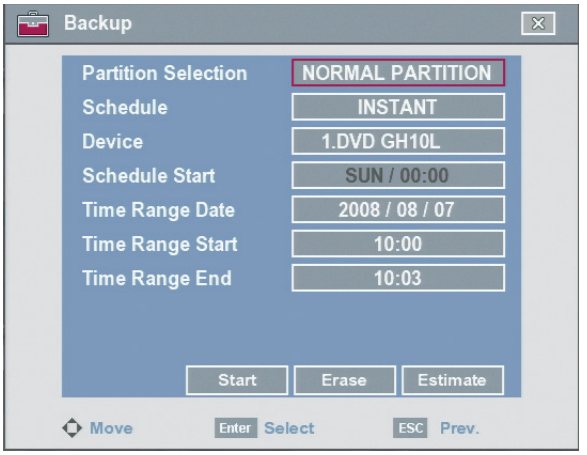
  Note

  The motion and sensor recording data are saved in the event partition area of the HDD. You should set the space of event partition before event recording.
- Auto Delete: Set the auto delete date (OFF, 1 DAY, 2 DAYS, 5 DAYS, 10 DAYS, 20 DAYS, 30 DAYS, 40 DAYS, 50 DAYS or 60 DAYS). If you set the auto delete date, the recorded data will be deleted except the data within the selected date period of time. The Auto Delete function is activated every 35 minutes.

Note:

If you change the value of event partition, the current recorded data of HDD is deleted and the partition is reset. The partitions will be formatted automatically and the system will be restarted.

Backup



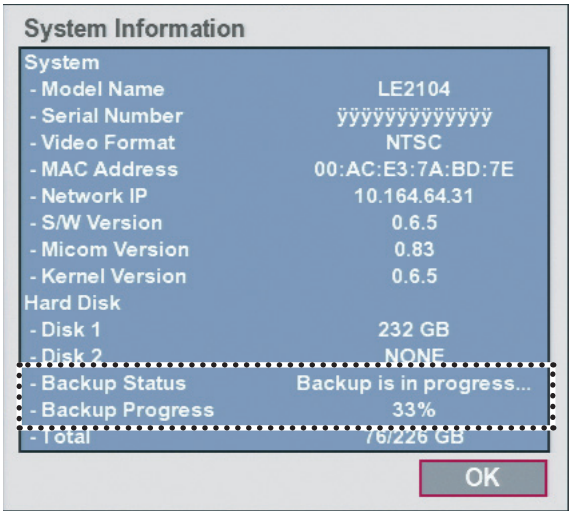
- Partition Selection: Select a backup partition.
- Schedule: You can set the backup schedule.
  - OFF: If the schedule is set to OFF, the Schedule Start, Time Range Date, Time Range Start and Time Range End options are disabled.
  - INSTANT: The backup data is saved manually.
  - WEEKLY or DAILY: The backup data will be automatically saved according to the setting.
- Device: Select a backup device.
- Schedule Start: Set the schedule start date (A day of the week and time).
- Time Range Date: Enter the date you want to backup.
- Time Range Start: Enter the start day of the week or time.
- Time Range End: Enter the end day of the week or time.
- Start: To start backup.
- Erase: To erase the media.
- Estimate: Displays the size of backup data and the free space of external USB devices.

Notes:

- The LE2104D model does not support the backup function using the external USB CD-ROM driver.
- The external USB HDD is supported with maximum 250 GB.
- Use the recommended external USB devices for preventing malfunction (See page 63).
- The CD-R, DVD-R or DVD+R discs cannot be formatted.
- An external media has to be formatted on this unit to prevent malfunction.
- DVD+RW and DVD-RW discs have to be initialized before using.
- You cannot use the [Estimate], [Start] and [Erase] options in backup progressing.
- Do not remove the USB device while the backup is in progress, it may cause a malfunction. If you reuse the removed device, you must format the media by using erase media options.
- If you format the external media by using a PC, the media may not be used on this unit.
- You can playback the backup data using this DVR only. The backup data does not play back on the PC.

Instant Backup

1. Connect the backup USB device or insert a recordable disk to the disc driver for backup.
2. Select the partition you want to backup.
3. Select [INSTANT] from the schedule options.
4. Select the backup device.
5. Set the [Time Range Date], [Time Range Start] , and [Time Range End] option for backup.
6. Select the [Estimate] icon and press ENTER.
7. Check the size of the selected data and free space. If the device has not enough space, create space on the device or erase the previously stored data.
8. Select the [Start] icon and press ENTER to start backup.
9. Exit the setup menu.
   You can check the backup status on the system information window.



Notes:

- You cannot stop the backup in backup progress.
- The warning message will appear for the conditions listed below.
  - When the start time and end time are the same value.
  - When the start time is later than the end time.
  - A media has not enough space.
  - When you set the time for data that does not exist.
- The disc burning is carried out by a single session closed format.

- If you use the CD/DVD writer device for backup, the backup status will be displayed as shown below.

  - 1st. Status of making ISO image

  - 2nd. Status of writing

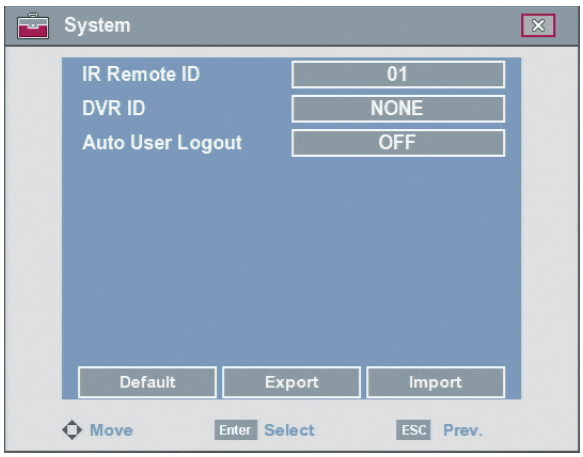
Daily/Weekly backup

1. Connect the USB device for backup.
   You cannot use the CD or DVD writer for daily or weekly backup.
2. Select [WEEKLY] or [DAILY] on the schedule options.
3. Select the backup device.
4. Enter the date and/or time to start backup on the schedule start option.
5. Enter the day of week and/or time on the Time Range Start option.
6. Enter the day of week and/or time on the Time Range End option.
7. Select [Estimate] icon and press ENTER.
8. Check the size of selected data and free space of USB device. If the USB device has not enough space, change the USB device of enough space or erase the connected USB device.

Notes:

- You cannot stop the backup in backup progress.
- The warning message will appear for the conditions listed below.
  - When the start time and end time setting are wrong.
  - A media does not have enough space.
  - When you set the time for data that does not exist.
  - When the selected USB device is disconnected.
- The estimated size of backup data is only the approximate size. So you must prepare sufficient space on the media to prevent lack of space.
- When the backup process starts, you can check the backup status on the system information window.
- While export is in progress or searching the backup data from the external USB device, the scheduled backup will not be started.
  After the export or backup search is finished, scheduled backup will be restarted.
- When you set the schedule backup, the backup data size is estimated from the recording settings of the Setup menu. If the real recorded data size are over the estimated recording data size, the schedule backup may not be activated.

System



- IR Remote ID: Select the IR Remote ID for this unit (01~09). If you use multi systems set the IR Remote ID for each DVR unit.
- DVR ID: Select the DVR ID for this unit (NONE, 01~16). If you use multi systems set the DVR ID for each DVR unit. You can control the DVR by using the LKD1000 controller. (For more details refer to the LKD1000 owner's manual).
- Auto User Logout: Logout is automatically at fixed intervals. You can set auto logout time to 5 MIN, 10 MIN, 30 MIN, 60 MIN or OFF.
- Default: You can reset the DVR to its original factory settings. Some options cannot be reset (date, time, daylight saving, time zone and user password settings).
- Export: Export the configuration data from this DVR to the USB memory stick.
- Import: Import the DVRs configuration data from the USB memory stick.

Notes:

- Configuration data import is available when the configuration data of a DVR is the same kind as this unit's data.
- If you use a USB memory stick for configuration export, you must disconnect the other external USB devices.

Recording

Images from a camera will be recorded on the built-in hard disk.

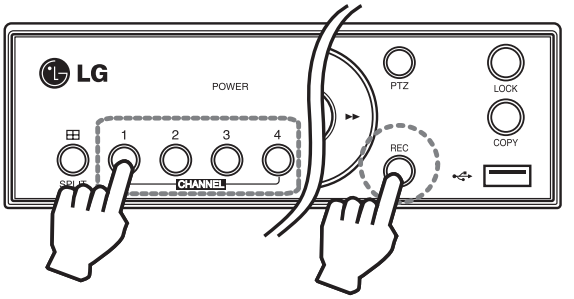
Note:

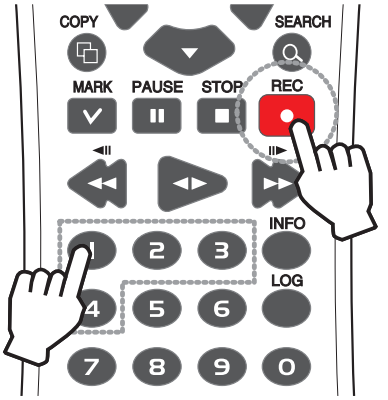
External recording devices can be used as copy areas for images recorded on the hard disk. It is impossible to record images on the external recording devices directly.

Instant recording

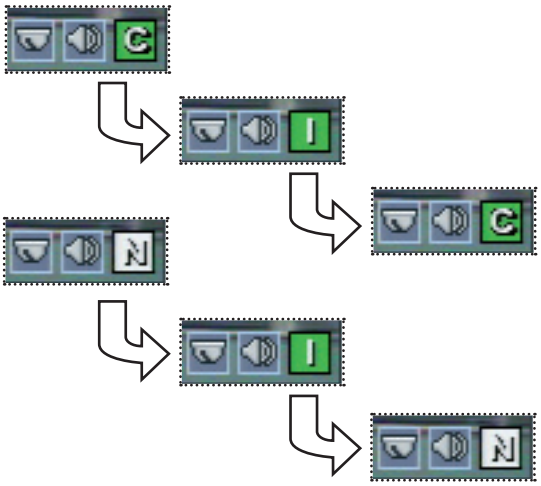
Ensure all the cameras are connected and that time and date have been set correctly. Before you start recording, first check the repeat recording settings in the recording menu of the system setup, and then make the recording settings.

1. Press the REC button and then press the channel button you want to record. The recording type indicator turns green "I" on the selected channel screen of the main monitor.





2. Press the REC button and then press the channel button you want to stop recording. If you stop instant recording, the recording mode will be changed into the scheduled recording mode (Continuous/ Alarm/ Motion records). If the schedule is not set, the button indicator turns off and the recording type indicator turns white "N" on the selected channel screen of the main monitor.



Notes:

- You can instant record that the channels scheduled such as alarm, motion or continuous.
- Once you stop instant recording, the recording type indicator will be changed to the scheduled recording mode.
- You can not record the Instant and Continuous recording in following conditions.
  - A HDD is not attached.
  - A HDD is not formatted.
  - The channel has no video input for display.
  - Overwrite sets to "OFF" or "EVENT PARTITION", and normal partition is full.
  - On the HDD setting, the event partition is set to 100%.
- You can not record the Sensor and Motion recording in following conditions.
  - A HDD is not attached.
  - A HDD is not formatted.
  - The channel has no video input for display.
  - Overwrite sets to "OFF" or "NORMAL PARTITION", and event partition is full.
  - On the HDD setting, the event partition is set to 0%.
  - The schedule (Sensor/Motion) record is not set.
- HDD partition according to a recording type.
  - Normal Partition: It is the space in the HDD that stores the continuous and instant recorded data. Once the normal partition is set to 0% (the event partition is 100%), you can not record the continuous or instant recordings.
  - Event Partition: It is the space in the HDD that stores the alarm and motion recorded data. Once the event partition is set to 0%, you can not record the alarm and motion recording.
- Priority of record.
  Instant record > Sensor record > Motion record > Continuous record.
- You can not do instant recording with the mouse.

Search and Playback

Playback

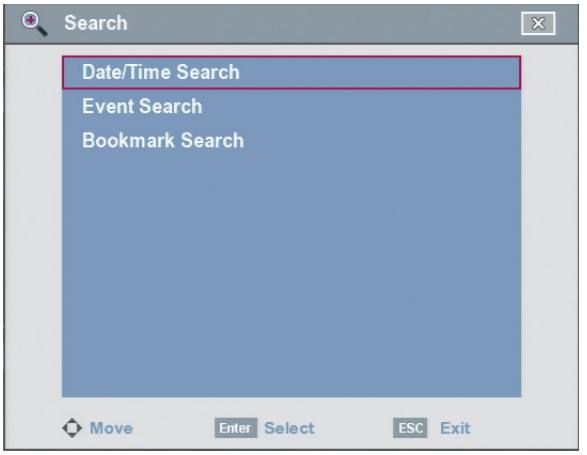
It is possible to play a recorded image without stopping recording.

1. Select a channel you want to playback.
2. Press ◀▶ to play a recorded image of the previous 1 or 2 minutes of recording.
   The playback image will be displayed on the full screen window.
3. Press ■ (STOP) to stop the playback.

Search

The various search functions of this unit can be used to go to the beginning of the desired picture. This unit is equipped with 3 search functions.

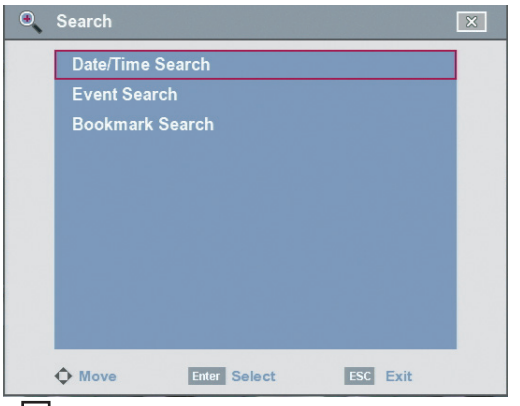
When the SEARCH button is pressed the search menu is displayed.



Date/Time Search

Use to search recorded pictures by specifying date and time.

1. Use ▲/▼ to select the [Date/Time Search] option then press ENTER.



2. Select [Target Device] then press ENTER.
3. Use ◀/▶ to select the desired source device.
   - INTERNAL HDD: Plays back or searches recorded contents of the internal HDD device.
   - Source Device: Plays back or searches backup contents of the source device.
4. Press ENTER to confirm it.
5. Select year or month option then press ENTER.
6. Use ◀/▶ to input the year or month.
7. Press ENTER to confirm it.
8. Use ◀/▶/▲/▼ to select the day then press ENTER.
9. Select the [Search] icon then press ENTER.
   The search result is displayed.

10. Use ▲/▼ to select the channel you want to playback and press ENTER. Repeat this step to select the other channels.
11. Select the [Time] option and select the start time of the recorded image to playback.
12. Press ◄► (PLAY) or click the [Play] icon to start playback.
    The picture(s) is (are) displayed in the main monitor.
13. Press STOP (■) to stop playback and return to the previous menu.
14. Press SETUP/ESC repeatedly to exit the search menu.

Notes:

- Recorded data shown on the time graph will be displayed in different colors depending on the recording type.
  - Green: Continuous recording.
  - Red: Sensor recording.
  - Blue: Motion-detection recording.
  - No color: No recording.
- Select [Zoom In] option and press ENTER to view the detailed time by 6 hour intervals. Select the [Zoom Out] option to return to the normal time.

Event Search

Search a recorded picture by date and type of event.

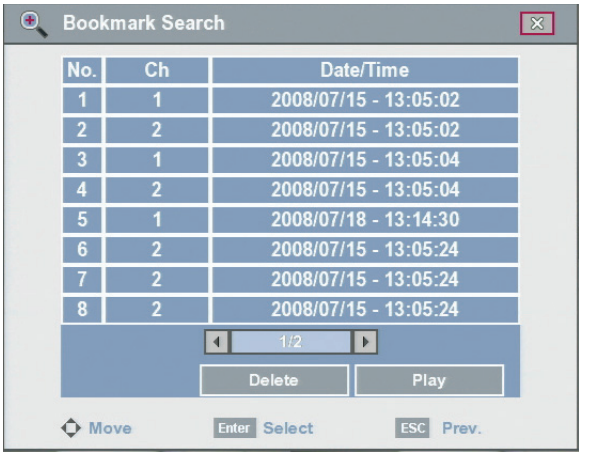
1. Use ▲/▼ to select the [Event Search] option then press ENTER. The event search menu is displayed.

2. Select [Target Device] then press ENTER.
3. Use ◄/► to select the desired source device.
4. Press ENTER to confirm it.
5. Select [Date] option then press ENTER.
6. Set the year, month or day.
   6-1. Use ◄/► to select a column and press ENTER.
   6-2. Use ◄/► to select the year, month or day.
   6-3. Press ENTER to confirm it.
   6-4. Select [OK] and press ENTER to confirm the settings and exit the date setup menu.
7. Select [Time] option then press ENTER.
8. Set the time.
   8-1. Use ◄/► to select a column and press ENTER.
   8-2. Use ◄/► to select the hours or minutes.
   8-3. Press ENTER to confirm it.
   8-4. Select [OK] and press ENTER to confirm the settings and exit the time setup menu.
9. Select the channel for event search using ENTER. If you select [A], all channels are selected.
10. Use ▲/▼ to select the [Event Type] then press ENTER.
11. Use ◄/► to select the event type then press ENTER.
12. Select the [Search] icon then press ENTER.
    The event list menu appears.
13. Select the recording data on the event list then press ◄► (PLAY) or select the [Play] icon then press ENTER to start playback.
    The picture is displayed in the main monitor.
14. Press STOP (■) to stop playback and return to the event list menu.
15. Press SETUP/ESC repeatedly to exit the search menu.

Bookmark Search

Search the desired picture with a bookmark registered by the bookmark function.

1. Use ▲/▼ to select [Bookmark Search] then press ENTER. The bookmark list menu is displayed.



2. Select the recording data on the list then press ◀▶ (PLAY) or select the [Play] icon then press ENTER to start playback. The picture is displayed in the main monitor.

   Note:

   If you delete the bookmark on the list, select the [Delete] icon then press ENTER .

3. Press STOP (■) to stop playback and return to the bookmark list menu.
4. Press SETUP/ESC repeatedly to exit the search menu.

Notes:

- Backup data can not be played back by a bookmark search.
- You can register a bookmark in the multi channel playback.
- If the storage spaces for bookmark is in full, you can not register a bookmark. You can register a bookmark after deleting the previously stored bookmark on the list.

Functions available during playback

Button			Function
System Control Bar	Remote Control	Front panel	
	STOP		Stop playback.
	PAUSE		Pause playback.
			Press repeatedly to select the required scan speed. (▶▶, ▶▶▶, ▶▶▶▶, ▶▶▶▶▶ or ◀◀, ◀◀◀, ◀◀◀◀, ◀◀◀◀◀)
			Press repeatedly to play frame-by-frame in pause mode.
			Press to play reverse or normal playback.
	MARK	-	Press MARK at a desired point to be marked during playback. Up to 15 points can be marked.

Notes:

- You can playback the backup or export data in normal speed only.
- If you use the reverse frame skip function, a frame may be skipped.
- Multi channel play works only in the date/time search function.
- During the multiple channel palyback, just one specific channel cannot be played on a full screen.

Client program

Client Program is the network program of the LE2104 series LG DVR. The description pictures may differ from your OS (Operating System) type. The pictures used in this manual are based on Windows XP.

Note:

Do not use other applications with this client program. This can cause memory shortage and client program malfunction.

PC Requirements

- OS (Operating System): Windows 2000 or above, DirectX 8.1 or above.
- CPU: Intel Pentium III or above, AMD Athlon with 800 MHz or above.
- RAM: 512 MB or above.
- Graphics Card: AGP VGA with 64 MB Video RAM or above.

Recommended PC Requirements

- OS: Windows XP
- CPU: Intel Pentium IV
- RAM: 512 MB
- Graphics Card: AGP VGA with 128 MB Video RAM

Client Program Installation

1. Insert the Client Program CD which will be started automatically.
   If the disc does not run automatically on your PC, open the Client Program CD and install the program manually.
2. Run the install file and install the programs to your computer following the InstallShield Wizard displayed.
3. After installation finished you will find the programs in the start menu of the computer.

Note:

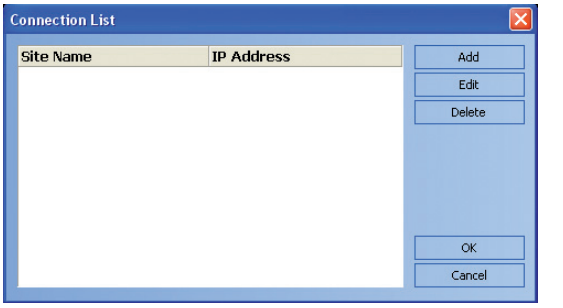
The [LG Emergency Agent] and [LG Export viewer] programs will be installed with the client program installation.

Connecting to the DVR

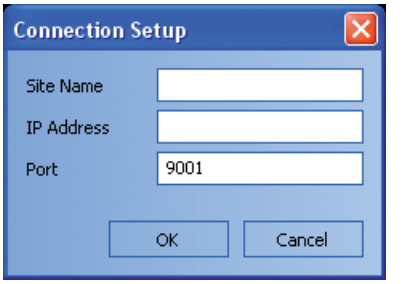
Register the Site Name

You should register a site name to control DVR by the Client Program.

1. Double-Click the [LG Network Client] icon to start the Client Program. The [Network Client] menu is displayed.
2. Select [Tools] > [Connection Information].
   The connection list menu is displayed.



3. Select [Add] and the connection setup menu is displayed.



4. Enter the site name, IP address and port.
   - Site Name: Enter the description of the site.
   - IP Address: Enter the IP Address or the Host Name that you entered in the DDNS setup menu of the DVR (See page 32).
   - Port: Enter the TCP/IP port number of the DVR. If it isn't entered, the port number is set by default. (See page 31)
5. Select [OK].
6. Select [OK] to confirm the settings.
   The registered site name is displayed.

Note:

In case of entering the server name instead of the IP Address. You should set up the DDNS configuration properly in the server. Please refer to the server manual to set up the DDNS function.

How to find the IP Address

In case of using the Static IP Address

Check the IP Address in the TCP/IP option of the DVR setup menu.

In case of using the Dynamic IP Address

1. Press INFO to display the System Information window.
2. Check the "Network IP" options value.

Note:

If you use Dynamic IP Address, you should set the DHCP option to ON.

In case of using the DDNS function

Check the registered Host Name of the DDNS setup menu (See page 32).

In case that the DVR is connected to the network through the Broadband Router

You must set the port forwarding according to the settings of the broadband router. Refer to the manual of Broadband router for more detailed settings.

Note:

If you use the multi DVR with Broadband router, you must set the TCP/IP port number for each DVR.

User Log-In

1. Select the registered site name and right click the mouse.
2. Select [User Log-In].
3. Enter the user ID and enter the password.
   - ADMINISTRATOR: To operate the unit without limitations.
   - Power User: To use the live and search mode functions.
   - Normal User: Show the live image only.

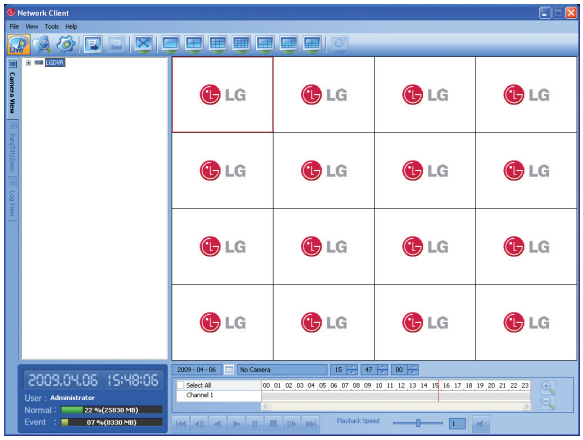
4. Select [OK] and the [Network Client] main window is displayed.

Notes:

- If someone logged in the DVR using the Admin ID, you can not log-in using the Admin ID.
- If you want to log-out, right click the mouse on the site name and select [User Log-Out].
- Up to 5 users can connect to the DVR system using the client program as shown below.

User	User 1	User2	User3	User4	User5
Case 1	Admin	Power	Normal	Normal	Normal
Case 2	Power	Power	Normal	Normal	Normal
Case 3	Normal	Normal	Normal	Normal	Normal
Case 4	Admin	Normal	Normal	Normal	Normal
Case 5	Power	Normal	Normal	Normal	Normal

Main Screen of DVR Client Program



1. Program Menu
   - File
     - Exit: Exit the program.
     - Save to JPEG: You can capture and save the current image in JPEG file format while the play back recorded data of the selected channel. The save folder is “C:\LG Exported Files”.
   - View
     - OSD
       > Channel Number: Displays or removes the channel number in the channel window.
       > Site Name: Displays or removes the site name in the channel window.
       > Camera Name: Displays or removes the camera name in the channel window.
       > Playback Time: Displays or removes the date/time of playback data in the channel window.
       > PTZ: Displays PTZ camera icon in the channel window.
       > Audio: Displays audio icon in the channel window.
       > Select All: Displays all OSD options in the channel window.
     - Sequence (Dwell Time): Select the sequence to 5 seconds, 10 seconds, 15 seconds or 20 seconds.

- Sequence mode
  - > Channel Sequence: Each channel of the selected site in the sequence mode will be displayed in sequence.
  - > Site Sequence: Each channel of the logged site in the sequence mode will be displayed in sequence.
- Language: Select the language for client program.

• Tools
- Connection Information: To register a site name.

• Help
- Client Information: Displays Network Client Version Information.

2. Mode selection icons

• Live Mode
- Camera View: You can see the surveillance camera's images in the window(s) and the camera information.
- Pan/Tilt/Zoom: You can control the PTZ cameras.
- Log View: Displays system log list.

• Search Mode
You can search the recorded data as shown below.
- Date/Time Search (See page 49)
- Event Search (See page 49)
- Bookmark Search (See page 49)

• Remote Setup Mode
You can set the configuration of the unit.
- Camera / Display (See page 50-51)
- Schedule (See page 51-52)
- Event (See page 52)
- Network (See page 52-53)
- System (See page 53-54)

3. Remote Export Icon
Click to display the Remote Export pop-up windows. (See page 54-55)

4. Print Icon
When you click the PAUSE button to pause the playing the recorded data of the selected channel, the Print Icon is activated. You can print the paused picture of the recorded data of the selected channel.

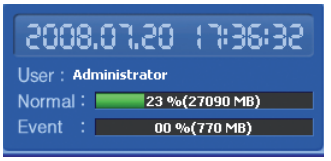
5. Screen Mode Selection Icons

• Full screen mode
You can view the live window(s) in full screen mode.
To return to the normal screen right click the mouse.

• Split mode
When the icon is clicked, the screen will be changed to split mode and if the icon is clicked again, the screen will be changed by sequence. Choose the display window mode.

6. Sequence Icon
View all the channels in sequence. You cannot use sequence mode with the 4 split.

7. Information Display Window

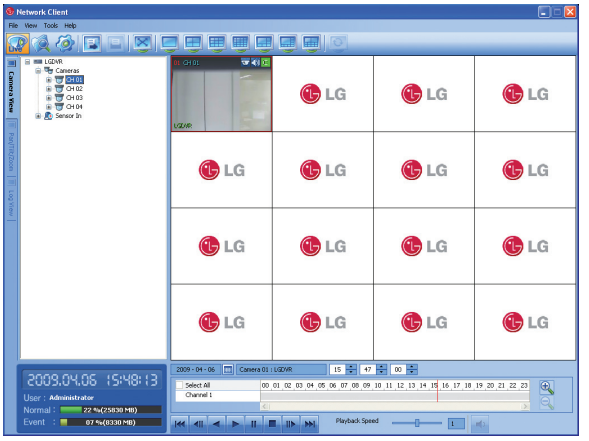


Displays current date and time, user information, and the remaining HDD status of the selected site name.

Live Mode

Using the Camera View

1. Select the [Camera View] tab in the live mode.
2. Select the registered site name and double click the left mouse button or click the plus mark of the registered site name.
3. Select [Cameras] and double click the left mouse button or click the plus mark.
4. Select the channel number you want to view.
5. Click the channel number and drag and drop to live window position.
   If you select [Cameras] and drag and drop to a live window then all channels are displayed.
6. Live image is displayed in the selected window.



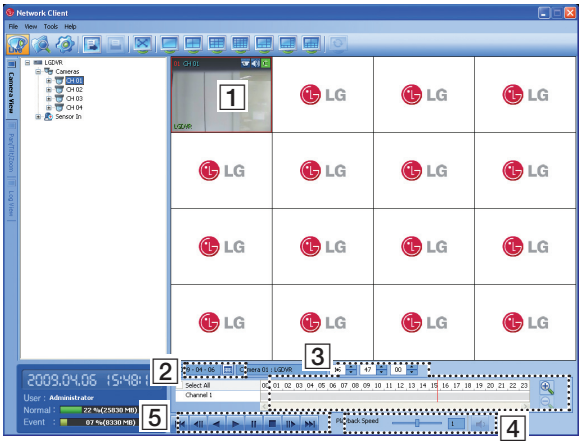
7. Repeat steps 3-5 to set the other live windows.

Note:

Configuration of camera view is set the first time only. This configuration setup is memorized for the next time and displayed as it is.

Using the live window

You can play back the recorded data and monitor via network.



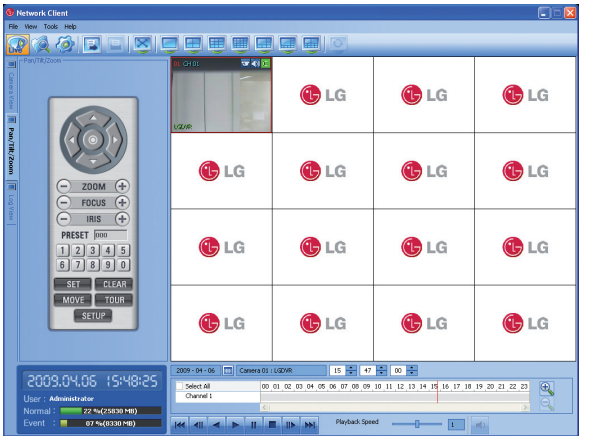
1. Select the camera's display window. (1)
2. Click the date icon and select the date. (2)
   The day is displayed in a blue text when recorded data exists.
3. Select playback start time. (3)
   When using timeline to search a start time, use the zoom in/out icons for more detailed searches (4 step).
4. Select playback speed. (4)
5. Start playback using these control buttons. (5)

Notes:

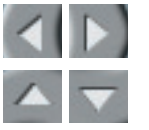
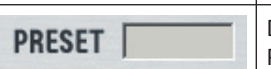
- If you don't want to play with sound click the speaker icon to mute.
- You can not use the playback function when you log in with the Normal User ID.

Using the Pan/Tilt/Zoom Function

You can control the PTZ cameras via the network.



1. Select the PTZ camera channel window.
2. Select Pan/Tilt/Zoom tab.
3. Use virtual remote control buttons to control the PTZ camera.

	Button	Function
1		Use to pan/tilt the camera.
		Confirm the preset position.
2		To adjust the camera zoom.
3		To manually adjust the focus of a camera.
4		To manually adjust the iris of a camera.
5		Displays the Selected Preset Number
6		Number Buttons To input the preset number.

7	SET	To register preset positions.
8	MOVE	To move the camera to the preset position.
9	CLEAR	To delete a memorized preset position.
10	TOUR	To start a preset tour.
11	SETUP	To displays the setup menu of the PTZ camera.

Notes:

- If someone is controlling a PTZ camera using the DVR, you cannot use the PTZ function and vice versa.
- You can not use the PTZ function when you log in with a normal user ID.

To Register Preset Positions

1. Move the camera to the point you wish by using the /// .
2. Click the SET icon.
3. Select preset the number you wish to register.
4. Click the icon.
   The position and its numbers are memorized.
5. Repeat steps 1-4 to add additional positions.

Note:

The preset range is available from 0 to 255 on this unit but the actual preset range differs depending on the PTZ cameras.

Changing to a Picture in a Preset Position

The following function is available only with cameras equipped with the preset function. The preset function makes the combination camera move to the programmed preset position. It is necessary to program preset positions for the combination camera beforehand.

1. Click the MOVE icon.
2. Use number icons to enter the memorized preset position's index number then Click the icon. The camera moves to the preset position and the picture of the camera in that position appears on the monitor.

To Clear the Preset Position

You can delete a memorized preset position.

1. Click the CLEAR icon.
2. Use number icons to enter the memorized preset index number then Click the icon.
   The preset position will be deleted.

To Tour the Preset Positions

You can tour all preset positions.

1. Click the TOUR icon.
   All registered preset positions in the camera will be selected and the camera position image will be switched on to the active window.
2. You can stop the tour by clicking the TOUR icon.

Setup for PTZ camera

You can change the setting of PTZ camera using each item in the menu.

1. Click the SETUP icon.
   MENU appears in the windows.
2. Use the arrow and icons to set the options.

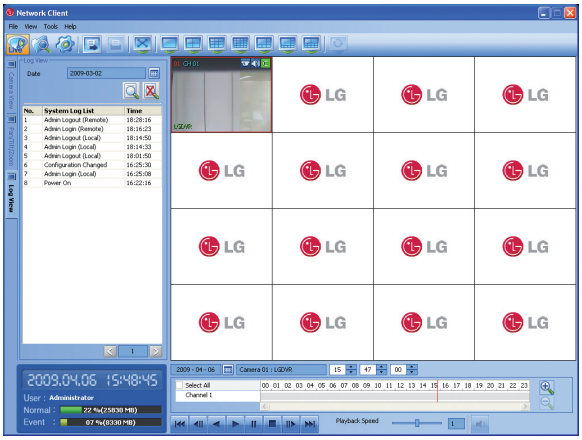
Note:

Refer to the manuals of the PTZ camera for more details.

Using the Log View Function

You can see the system log list of selected site names in the remote setup tab via the network.

1. Select the log view tab. Log search menu appears.
2. Click the icon and select the day for the log search.
   (The selectable days are displayed in blue text color.)
3. Click the icon.
   The system log is displayed in the list.



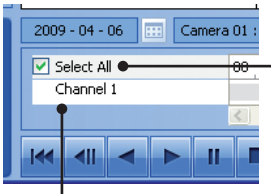
Search Mode

You can search the data of a selected site name in the remote setup tab via the network.

Using the Date/Time Search function

Use to search a recorded picture by specifying date, hour and minute.

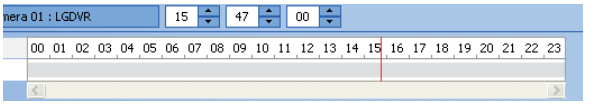
1. Select the date/time search tab.
2. Click the date icon and select the day.
   (The selectable days are displayed in blue color.)
3. Select the channel window you want to view.



Mark up when you want to view from all camera channel windows.

Displays selected camera number.

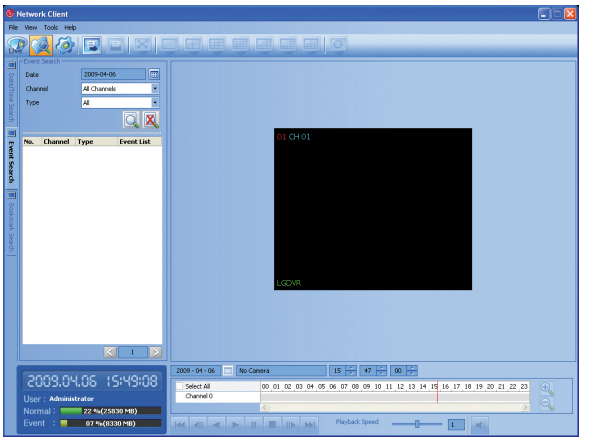
4. Use the timeline and time input column to search recorded data.



5. Playback the searched data using the playback control buttons.

Using the Event Search function

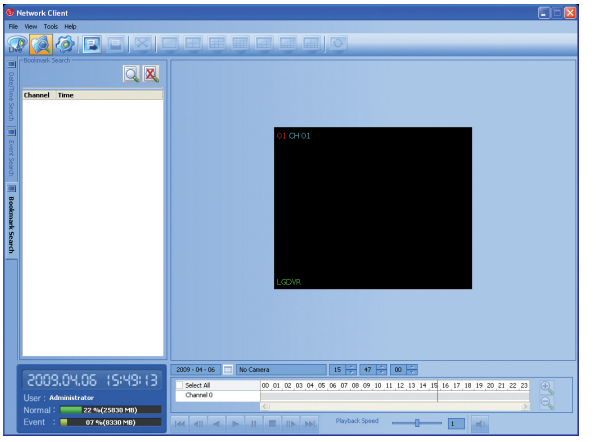
Search a recorded picture by date and event type.



1. Select the event search tab.
2. Click the date icon and select the day.
   (The selectable days are displayed in blue color.)
3. Select the camera channel for event search.
4. Select the event type.
5. Select the start time using the timeline.
6. Click the search icon.
   The event list is displayed.
7. Select the event from the event list.
8. You can play the searched data using the playback control buttons.

Using the Bookmark Search Function

Search the desired picture with a registered bookmark using the bookmark function.

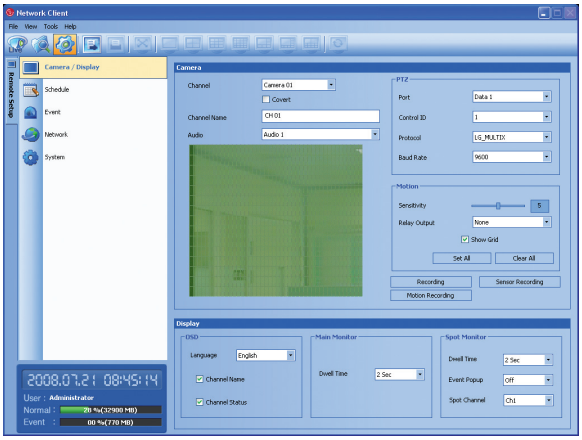


1. Select the bookmark search tab.
2. Click the search icon.
   All bookmark data is displayed in the list.
3. Select the data in the list.
4. Play the searched data using the playback control buttons.

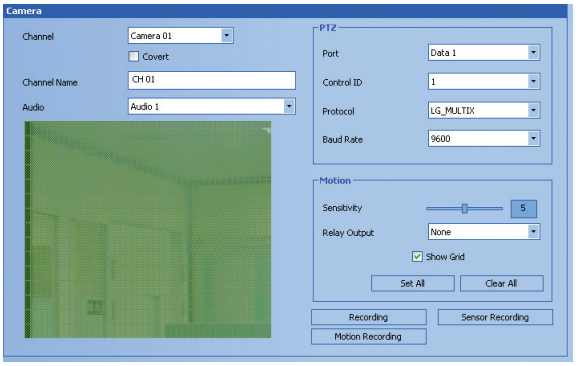
Remote Setup Mode

You can set the DVR of a selected site name in the remote setup tab via the network.

Camera / Display Setup



Camera Setting



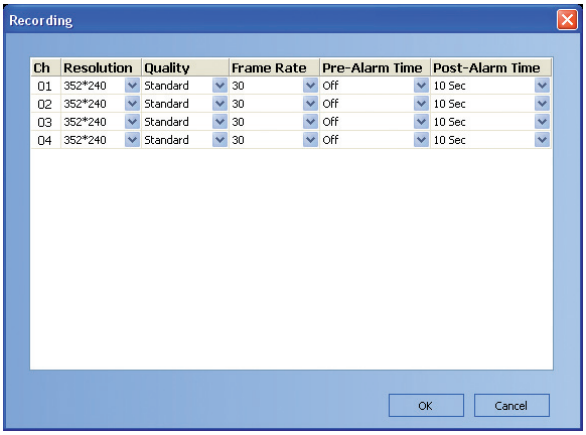
1. Select a channel for settings.
   If you want to block a channel from other users, mark up the convert option. The marked up channels are displayed "LG logo" on the live windows for POWER or NORMAL user.
2. Enter the new channel name.
3. Select input audio channel.
4. Set the PTZ control options.
   - Port: Select the connected data port of the RS-485 terminal on the rear panel.
   - Control ID: Select the PTZ camera ID from 0 to 255. Make the same settings as the PTZ camera.
   - Protocol: Select the protocol supported by PTZ camera.
   - Baud Rate: Select the communication speed. (1200, 2400, 4800, 9600 or 19200)
5. Set the motion options.
   - Sensitivity: Set the sensitivity level for the created motion detection area. Sensitivity can be set from 0 to 10.
   - Relay Output: Select the number of the ALARM-OUT terminal for the output alarm signal when motion is detected.
   - Area: The factory default of the Motion detection area is set as the whole area. You can change the area by using mouse on the preview window screen.
     - Select area: Click one point with the left mouse button and drag & drop to the end point.
     - Clear area : Click the start point with the right mouse button and drag & drop to the end point.

Notes:

- If you want to display the grid, mark up the [Show Grid] option.
- If you want to select the entire area, click the [Set All] button or click the [Clear All] button to cancel the selected area.

Recording Settings

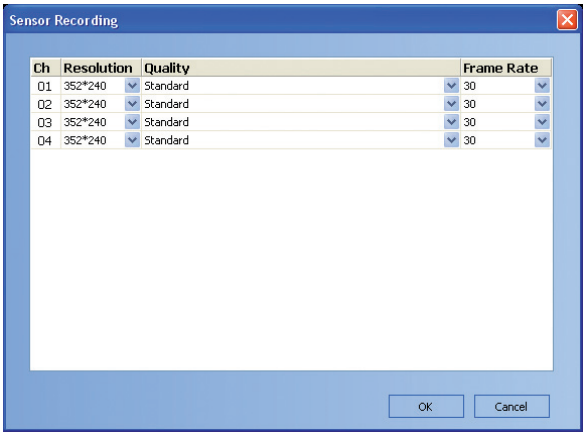
1. Click the [Recording] button.
   The recording setting window appears.



2. Set each option using the mouse (See page 24).
3. Click the [OK] button to confirm the settings.

Sensor Recording Settings

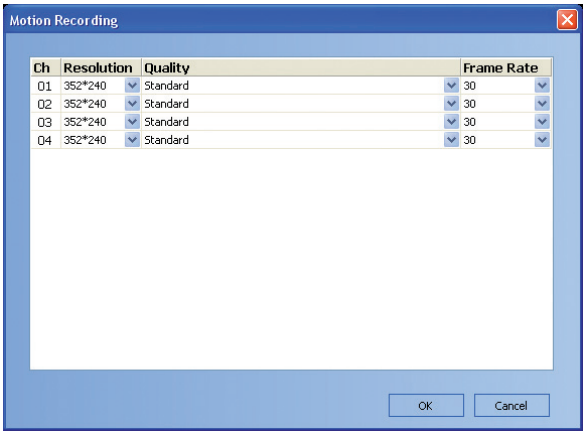
1. Click the [Sensor Recording] button.
   The sensor recording setting window appears.



2. Set each option using the mouse (see page 25).
3. Click the [OK] button to confirm the settings.

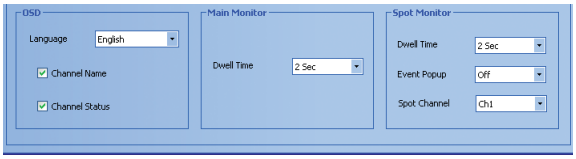
Motion Recording Settings

1. Click the [Motion Recording] button.
   The motion recording setting window appears.



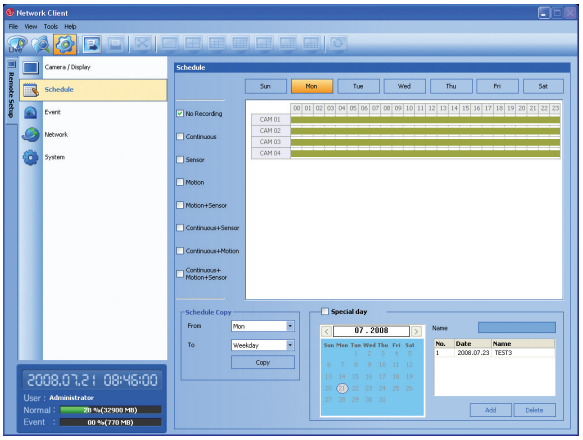
2. Set each option using the mouse (see page 25).
3. Click the [OK] button to confirm the settings.

Display Settings



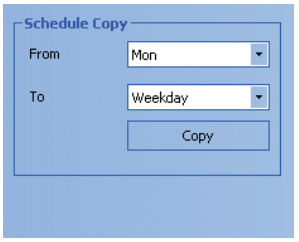
1. Set the OSD options.
2. Set the main monitor option.
3. Set the spot monitor options.

Schedule setup



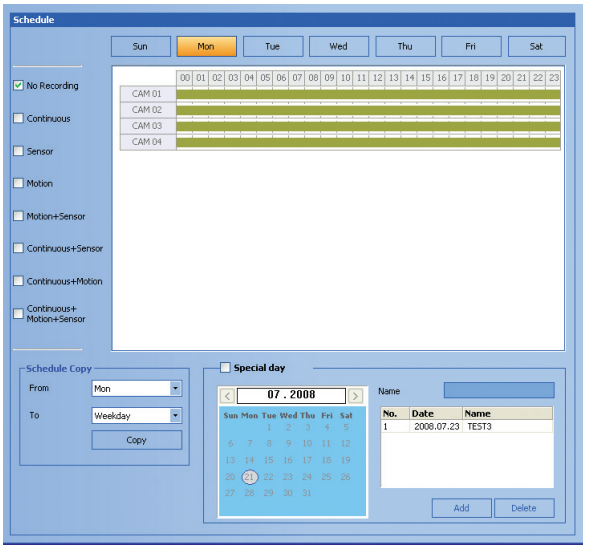
1. Select a day of the week.
2. Mark up the desired recording option.
   - No record: Do not schedule recording.
   - Continuous: Recording starts automatically at the preset time.
   - Sensor: Recording starts automatically when sensor occurs within a designated time.
   - Motion: Recording starts automatically when motion is detected within a designated time.
   - Motion+Sensor: Recording starts automatically when sensor and motion detection occur within a designated time.
   - Continuous+Sensor: Recording starts automatically from the preset time. When the sensor alarm occurs within a designated time, change the continuous recording mode to sensor event recording mode and recording starts automatically.
   - Continuous+Motion: Recording starts automatically from the preset time. When the motion is detected within a designated time, change the continuous recording mode to motion event recording mode and recording starts automatically.
   - Continuous+Motion +Sensor: Recording starts automatically from the preset time. When the sensor alarm signal has input or motion has been detected, change the continuous recording mode to motion event recording mode and recording starts automatically.
3. Select the channel to set the schedule.
4. Click the start time cell block and drag & drop to select a time period cell block.
   or
   Click the start time cell block of a channel and drag & drop across the channels to select the time period block for multi-channel setting at the same time.
   The color of the cell blocks will change.

Schedule Copy Settings



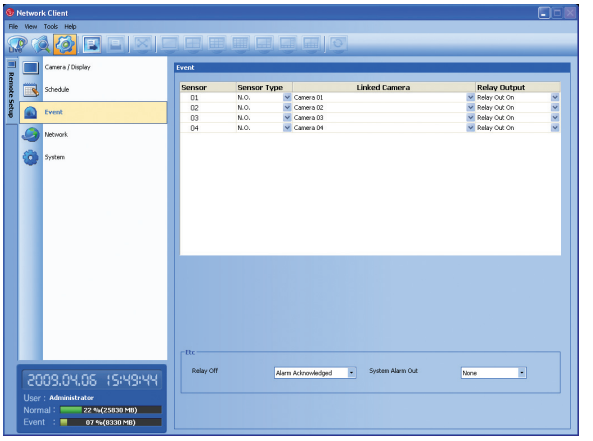
1. Select the source day to copy.
2. Select the destination day from the day of the week, weekday or weekend options.
3. Click the copy button to copy the schedule data.

Special day Settings



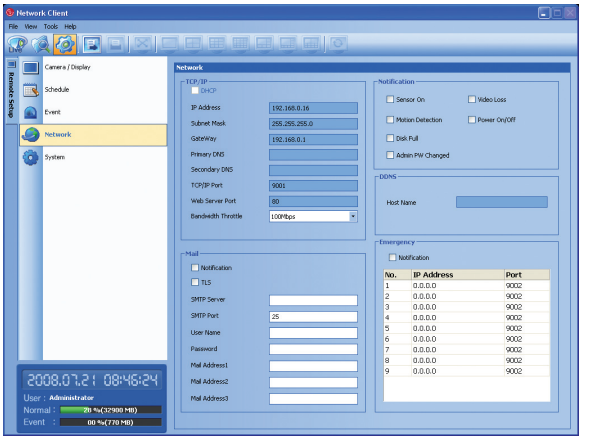
1. Mark up the special day option.
2. Select the date to set the special day schedule.
3. Mark up the desired recording option.
4. Select the channel to set the schedule.
5. Click the start time cell block and drag & drop to select a time period cell block.
   or
   Click the start time cell block of a channel and drag & drop across the channels to select the time period block for multi channel setting at the same time.
   The color of the cell block will change.
6. Enter the name of the special day.
7. Click the add button to add the special day settings.
   The special day is added to the list.
   If you want to cancel the registered special day, select the special day in the list and click the delete button.

Event setup



1. Set the event options.
   - Sensor: Displays the number of the ALARM-IN terminal.
   - Sensor Type: The alarm state can be set to either N.O. (Normally Open) or N.C. (Normally Closed).
   - Linked Camera: Select the connected camera channel with the ALARM-IN terminal.
   - Relay Output: Select the alarm output number of the ALARM-OUT terminal for the output alarm signal.
2. Setting [Etc] options.
   - Relay Off: Set the "Alarm Acknowledged" or "Post Alarm Time" option to off.
   - System Alarm Out:
     - ON: Outputs the alarm (relay) signal via the ALARM-OUT terminal below cases.
       > When the HDD has bad sector.
       > When a video signal from the camera has stopped because of a cable disconnection or malfunction of a camera.
     - OFF: Not used.

Network setup



TCP/IP Settings

The [DHCP], [IP Address], [Subnet Mask], [Gateway], [Primary DNS], [Secondary DNS], [TCP/IP Port] and [Web Server Port] option settings are not available in the client program. You can set these options in the system menu of the DVR.

- Bandwidth Throttle: Selects the bandwidth to adjust the data traffic.

Mail Settings

Set the mail options.

- Notification: When you mark up the notification option, notify the user about unit operating information by E-mail according to your notification settings.
- TLS: Mark up when using the TLS (Transport Layer Security) function.
- SMTP Server: Enter the SMTP Server address.
- SMTP Port: Enter the SMTP Port Number. Typically the TCP port used for SMTP is 25. However in some cases it is better to change this port number for added flexibility or security. If desired change the port number (1 ~ 65535).
- User Name: Enter the user name.
- Password: Enter the password.
- Mail Address (1~3): Enter the mail address.
  You can input up to 3 E-mail addresses.

Note:

The [SMTP Server], [SMTP Port], [User Name] or [Password] settings are optional. The DVR can send e-mail directly without the use of an SMTP server or an MTA (message transfer agent). In certain cases all e-mail should be forwarded to a specific SMTP server. Specify the server host name or IP address in such cases. For more detail on SMTP setup, ask your network administrator and/or mail service provider.

Notification

Set the notification options.

- Sensor On: Sends an E-mail when a sensor has been detected.
- Video Loss: Sends an E-mail when a video signal from the camera has stopped because of a cable disconnection or malfunction of a camera.
- Motion Detection: Sends an E-mail when motion detection has occurred.
- Power On/Off: Sends an E-mail when power is on or off.
- Disk Full: Sends an E-mail when the HDD has fully recorded.
- Admin PW Changed: Sends an E-mail when the administrator password has changed.

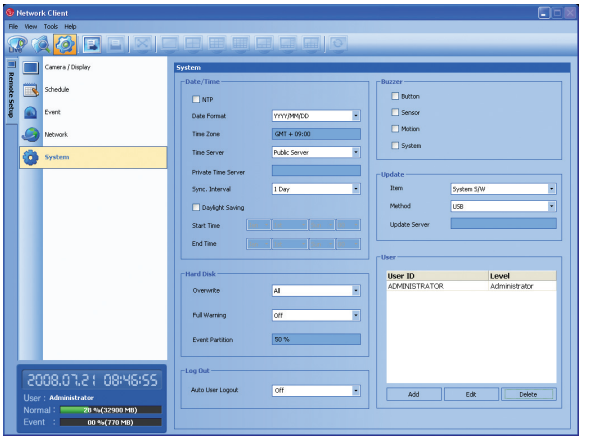
DDNS

- Host Name: The registered host name is displayed.

Emergency

- Notification: Notify the emergency agent about unit operating information according to your notification settings.
- IP Address, Port: Enter the IP Address and port number of the emergency agent program installed in the PC. The factory default port for this function is 9002. However in some cases it is better to change this port number for added flexibility or security. If desired change the port number (1025 ~ 65535).
  You can set up to 9 IP address and port numbers.

System setup



Date/Time settings

Set the date/time options.

- NTP: Mark up when using the NTP (Network Time Protocol) server for time adjustment.
- Date Format: Select the date display format.
- Time Zone: This option setting is not available in the client program.
- Time Server: Select your time server.
  The DVR will obtain the average time among 5 public servers (time.nist.gov, time-a.nist.gov, time-b.nist.gov, ntp.nasa.gov, clock.isc.org).
- Private Time Server: Enter the private time server's IP address or host name.
- Sync. Interval: You can set synchronized interval with the NTP time server to 1 day, 1 hour, 1 week and 1 month.
- Daylight Saving: Mark up when you use the daylight saving function.
  - Start Time: Select the Daylight Saving start time.
  - End Time: Select the Daylight Saving end time.

Hard disk

- Overwrite: Select the overwrite recording type (Off, Normal Partition, Event Partition or All). This function is possible when the selected HDD type has fully recorded.
- Full Warning: When the HDD has overflowed the warning message is displayed.
- Event Partition: Sets the space of event partitions for event recording.

Log Out

- Auto User Logout: Setting the logout time. You can set the auto logout time to Off, 5 minutes, 10 minutes, 30 minutes or 60 minutes.

Buzzer settings

Select the buzzer options.

- Button: Makes a sound when using the buttons.
- Sensor: Makes a sound when an sensor occurs.
- Motion: Makes a sound when motion is detected.
- System: Makes a sound when a HDD has bed sector.

Update settings

Set the update options.

- Item: Select the items for updating.
  - PTZ Protocol: Set to PTZ Protocol update.
  - System S/W: Set to System S/W update.
- Method: Select the update method.
  - USB: Update from USB memory stick.
  - Network: Update from the update server.
- Update Server: Enter the IP address of the update server.

Note:

If you can not update from the update server, check the TCP/IP options and the IP address of the update server.

User settings

Add the User

You can add the user.

1. Click the "Add" button. User Setting window is displayed.
2. Enter the User ID and Password.
3. Enter the password again to verify.
4. Select the user level and then click "OK" to confirm your selection.

Edit the registered User

You can change the User ID, password or user level.

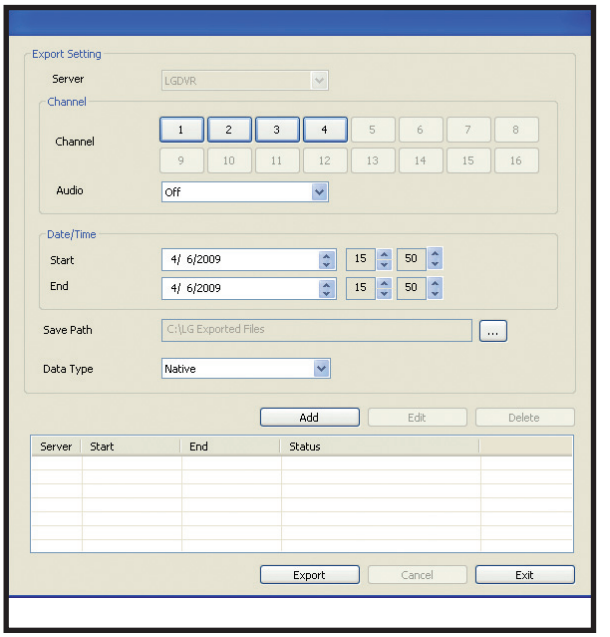
1. Choose the user ID and then click the "Edit" button.
2. Change the ID, Password or User level then click "OK" to confirm your selection.

Delete the registered User

1. Choose the user ID you want to delete
2. Click the "Delete" button.

Remote Export Settings

You can copy the recorded images and audio data from the DVR unit to the PC. This function is permitted for Administrator and Power user.



Export setting

- Server: Displays the selected server name.
- Channel
  - Channel: Select a channel(s) to export the data. You should select more than one channel.
  - Audio: Set to On or Off to export the audio data.
- Date / Time
  - Start: Set the start date/time to copy.
  - End: Set the end date/time to copy.
- Save Path: Displays the current exported data save folder. You can select (or make) the folder on the computer to save the exported data. The initial save folder is "C:\LE Exported Files". If you want to change the exported data save folder, click the [...] icon and select the new folder.
- Data Type: You can select the saving file format between “Native [*.exp]” and “AVI”. The Native file is saved with the extension of "*.exp" and the AVI file is saved with the extension of "*.avi". The saved "*.exp" file can playback using the Export Viewer program and "*.avi" file can playback using the Windows Media Player or the other ".avi" file player.
- Add: Add the export setting schedule to the list.
- Edit: Edit the selected export setting on the list.
- Delete: Delete the selected export setting schedule from the list.
- Export: Click to start export the data of the selected export setting.
- Cancel: Click it to cancel data exporting.
- Exit: Click to exit the window.

How to export the data

1. Set the Exprot Channel options. You should select more than one channels.
2. Set the Date/Time options.
3. Select the folder on the computer to save the exported data.
4. Set the export saving capacity.
5. Select the data type.
6. Click [Add] button. Listing the configured server, start time, end time and Status.
7. Select the registered export setting schedule in the list.
8. Click the Export button to begin the export.
   The export status will be displayed on the Status column.

Note:

- The exported data file name is made automatically as the [Server name_Channel number_export start time. exp(or "avi")] type.
- If you do not assign the export directory, the export directory will be set to default directory and sub directory will be created with start date.
- If you log-out from the network client, the export sequence will be terminated.
- If you set the time for data that does not exist, the export function is not activated.
- The warning message appears for the conditions listed below.
  - When the start date/time and end date/time are the same.
  - When the start date/time is later than the end date/time.

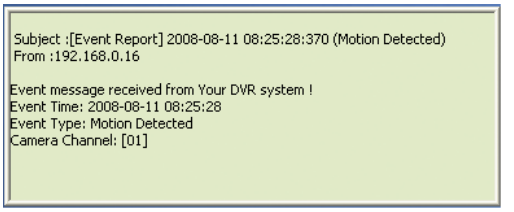
Additional programs

Emergency Agent Program

If you set the notification in the emergency option to ON, the system sends a message according to the settings of the notification options in the setup menu. (See page 33-34).

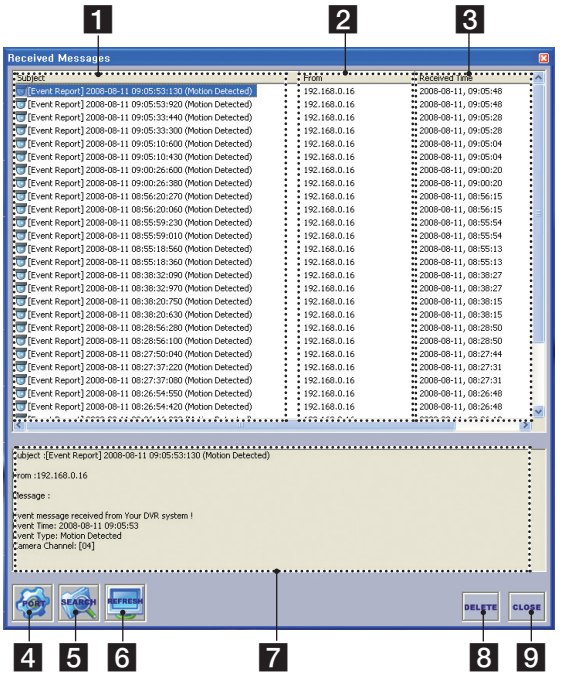
1. Double-click the [LG Emergency Agent] icon to start the emergency agent program.
   The Emergency icon is displayed in the system tray on the bottom right of the screen.

2. Whenever a notification function occurs, a message box is displayed on the bottom right of the screen.
   The message box is displayed for 5 seconds.



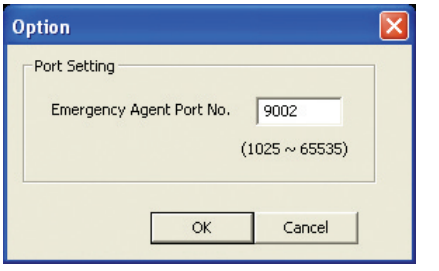
3. Check the message.
4. Click the message box within 5 seconds to display the [Received Messages] window.
   or
   Right click the mouse on the program icon in the system tray and select the [Check Message Box] option to display the [Received Messages] window.
5. You can check all the subjects of received messages.
6. Click the [CLOSE] button to close the [Received Messages] window.

Main Screen of Emergency Agent



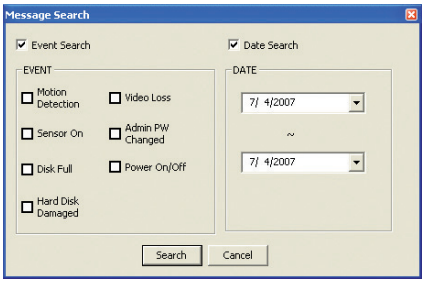
1. Displays message type.
2. Displays IP Address.
3. Displays received time.
4. Displays the port change window.
5. Displays the search window.
6. Refreshes the received message on the list.
7. Detailed view of the received message.
8. Deletes the selected message from the list.
9. Closes the [Received Messages] window.

Port Setting



1. Click the PORT button.
   The option window is displayed.
2. Enter the port number of the emergency agent listening port. The factory default port is 9002. However in some cases it is better to change this port number for added flexibility or security. If desired change the port number (1025 ~ 65535).
3. Click the OK button to exit.

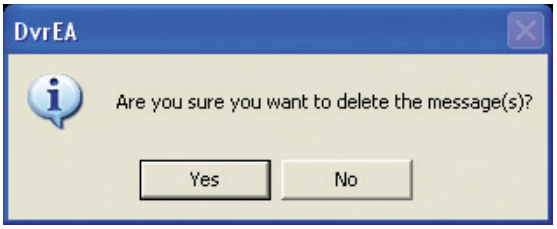
Message Search



1. Click the SEARCH button.
   The message search window is displayed.
2. Select the search method.
   - Event Search: Search by selected type of event for the message.
   - Date Search: Search by selected date.
3. Click the Search button.
   The search message is displayed on the [Received Messages] window.

Delete the Message from the List

1. Select the message(s) you want to delete.
2. Click the DELETE button.
   The confirmation window is displayed.

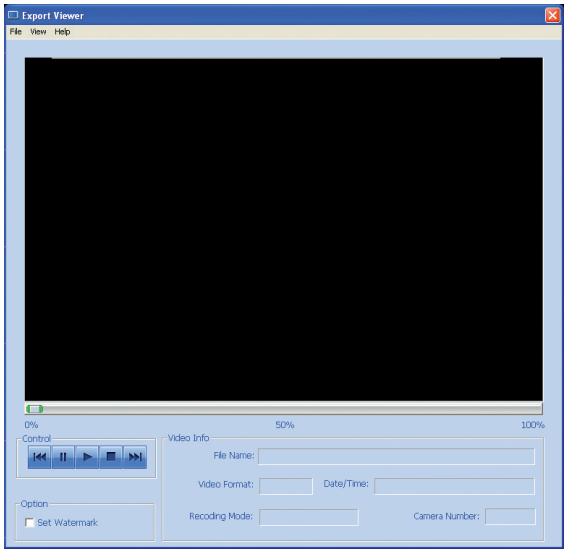


3. Click [Yes] to delete the message.

Export Viewer Program

You can playback from the export data on the PC using this program. The export viewer program is saved automatically when you install the client program or export the data.

Main Screen of Export Viewer



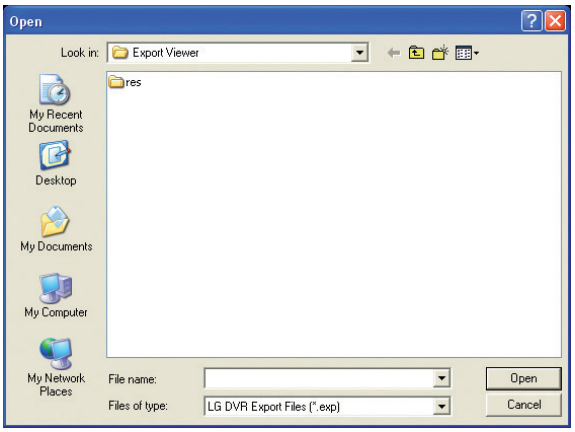
- Program Menu.
  - File
    > Open: Open the data file.
    > Print: Prints the current playback image.
    > Save to JPEG: You can capture and save the current image in JPEG file format while the play back recorded data of the selected channel. The save folder is “C:\LG Exported Files”.
    > Exit: Exit the program.
  - View
    > Language: Select the language for Export Viewer program.
    > Video size: Select the video size of the current playback data.
  - Help
    > About Export Viewer: Displays Export Viewer information.
- Control Icons
  - ⏮: Jumps to the beginning of the file.
  - ⏸: Pauses playback.
  - ▶: Starts playback.
  - ■: Stops playback.
  - ⏭: Jumps to the end of the file.
- Watermark Setting

  The warning window will appear with watermark option, if the file which is in playback differs from the file that is originally recorded.
- Video Information
  - File Name: Displays the file name.
  - Video Format: Displays the video type of the data.
  - Date/Time: Displays the recorded date and time of data.
  - Recording Mode: Displays the save mode of the data. (continuous, motion or other).

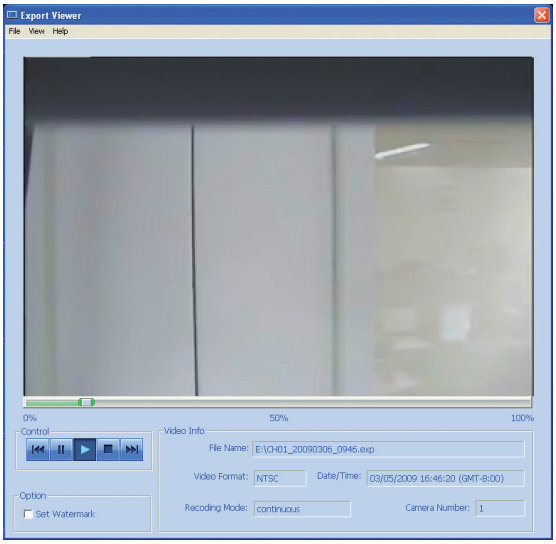
- Camera Number: Displays the camera channel number of recorded data.

Playing Data

1. Double click the [LG Export Viewer] icon on the PC or run the [LG Export Viewer.exe] file in the Export Viewer folder of the external USB device. If you insert the exported data CD or DVD disc, the export viewer program run automatically.
   The Export Viewer window is displayed.
2. Select [File] > [Open].
   The open window is displayed.
3. Select the root directory of the USB device and search&select the desired file.
   An example of playable file format is “Channel name_ date_time.exp”.



4. Click the [Open] button.
   The selected data is played back automatically.

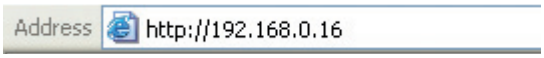


5. Click the ■ (STOP) button to stop playback.

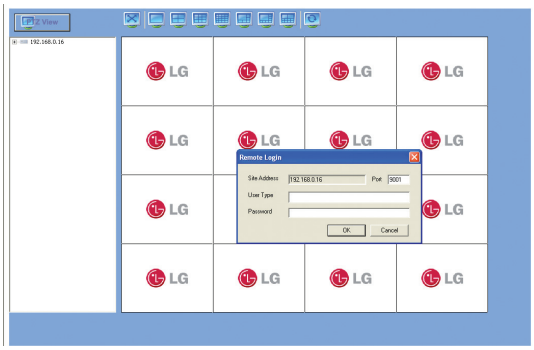
Web Viewer Program

Logging in the Web Viewer

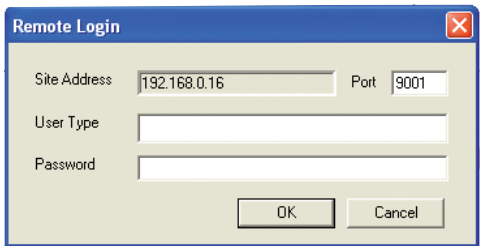
1. Start the web browser.
2. In the Address Box, enter "HTTP://" and the IP Address of the DVR. You can use the Host Name that you entered in the DDNS setup menu of the DVR.



3. Press ENTER and then the Web viewer and the Remote Login menu will be displayed.



4. Enter the User Type and Password.



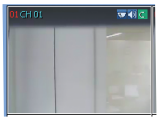
5. Click [OK].

Note:

- If the web viewer is not displayed, check the TCP/IP settings of the DVR.
- If you connect the DVR for the first time, the Security Warning window is displayed. You must click [Install] on the Security Warning window to install the program for use the Web Viewer. If you click [Don’t Install], the Web Viewer program is not available.

Using the Web Viewer

You can control the live image using the Web Viewer.

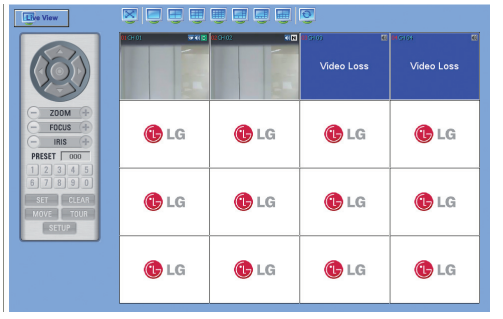
	Mode select icon. Click to change the PTZ View mode or Live View mode.
	Screen Mode selection icons. (See page 46)
	Live screen display window (See page 18)

Live screen control

- Left mouse button: Select the channel. If you want to set the 1 split mode, double click the selected channel. To return to the normal screen double click again.
- Right mouse button: If you want to exit the full screen mode, right click the mouse to return to the normal screen.

PTZ View control

1. Click the PTZ View icon to change the PTZ view mode. The PTZ virtual remote control is displayed.



2. Use virtual remote control buttons to control the PTZ camera. For more details, refer to "Using the Pan/Tilt/Zoom Function" on page 47-48.

Reference

Troubleshooting

Check the following guide for the possible cause of a problem before contacting service.

Symptoms	Resolutions
The system power does not turn on.	Check the power cable is connected correctly.
	Check the input voltage is correct.
	If the system power does not turn on even if the power cable is connected correctly, please contact the service center.
The system power is turned on but no video data is displayed on the monitor.	Check the monitor power cable is connected properly.
	Make sure the monitor is turned on.
	Check the video output cable of the LG DVR is properly connected to the monitor.
	Check the selected monitor type (see page 12).
	Unplug the power cable and plug in again.
The camera numbers are displayed on the screen but the camera images are not displayed.	Check the camera video output is connected to the DVR system correctly.
	Check the power cable on the camera is connected correctly.
	Check there is no problem with the video cable connection from the camera to the LG DVR system.
	Turn off the DVR system and turn it on again.
The camera video is shown on the screen but the system does not record the video.	Check the recording mode in the record setting menu.
	Check the HDD detection status in the System Information window. If the HDD detection status is abnormal, check the HDD formatting and the connection of the HDD.
	Check the recordable disk space in the HDD.
	Check the overwrite option in the setup menu for overwrite recording.
It is impossible to search through the recorded video.	Check if there is recorded video data at the time that you are trying to search on the table.
	If there is no recorded video data, check the recording mode in the record setting menu.
	Check the HDD detection status in the system information window. If the HDD detection status is abnormal, check the HDD formatting and the connection of the HDD.
	Check the user type. The search function is not available for a normal user.

Symptoms	Resolutions
Audio data recorded with video data is not playing.	Check the audio recording option is correctly set for the camera you wish to record audio.
	Check the speaker and audio (line input) on the rear of system are connected correctly.
	Check the connected speaker is working properly.
The colors of some camera videos are strange or videos are displayed abnormally.	If the camera connected to the system has a problem, make sure that the camera is not damaged by trying another camera into a working video output.
	Check the video format setting of the unit is the same as the connected camera's video format. Depending on your region, the camera's video format can support either PAL or NTSC. Depending on the camera's video format, the video process can differ greatly, therefore it can be difficult to recognize the video data if the video format setting is different from the camera's video format.
There is a lot of (screen) noise accompanying the image.	Check if the video signal output from the camera has a problem. Ensure the camera is not damaged by trying another camera with a working video output.
	Check if the video cable connection between the camera and the DVR is cut, cross-wired or shorted.
	Check if there is a high voltage wire around the video cable connection between camera and DVR system. It can cause interference and affect video quality.
	Check the video cable connection between the camera and the DVR system is the correct video cable. When a normal power-supplying cable is used instead of the video cable, screen noise can be generated.
The connected sensor is not operating.	Check the type of sensor in the camera setting is the same as with the connected sensor.
	Check the system is set to use the sensor in the recording schedule window in the recording setting menu.
	Check the sensor is properly connected to the ALARM-IN.
The connected PTZ camera is not operating.	Check the system is set to use the PTZ camera in the camera setting menu.
	Check the power cable of the PTZ camera is properly connected.
	Check the signal cable of the PTZ camera is properly connected.
	Check the selected channel to control the PTZ camera.
	Check the user type. The PTZ camera control is not available for a normal user.

Symptoms	Resolutions
An E-mail sent from this product was not received.	E-mail reception failed without SMTP server setting. • Make sure the network is correctly set. • Make sure the mail address is input correctly. • Check the spam mail setting of the inputted mail address. (If you set the spam mail, some mails are deleted automatically or classified in the spam mail box) • Some of SMTP mail services do not support an E-mails from private SMTP servers. In this case use the public SMTP server.
	E-mail reception failed even if the SMTP server was set. • When the [Please check the SMTP information or internet cable] message is displayed. - Check the SMTP server address. - Check the SMTP port number. (Default setting is 25). - Check the network settings. • When the [Please check the authentication information] message is displayed. - Check the user name. - Check the password. • The mail reception failed without error message. - Check the receiver's mail address. - Check your E-mail is not classified as a spam mail on the receiver's mail setting.
The remote control does not work properly.	Check the batteries in the remote control.
	Check the ID setting for the remote control (See page 39).

Recommended Devices

Supported USB Memory list

No.	Maker	Model Name	Capacity
1	LG Electronics	XTICK Mini Slide / Slide	1G/2G/4G
2	IOCELL	CellDisk Swing	1G/2G/4G/8G
3	Sony	MicroVault	1G/2G/4G
4	HP	S100 / M100 / V210W	1G/2G/4G
5	SANDISK	Cruzer Micro	512M/1G
6	TRANSCEND	JF	1G/2G
7	IMATION	Flash Drive Nano / Icon	1G/2G
8	Samsung Electronics	Classic&Simple	1G/2G/4G/8G

Notes:

- Some USB memory devices other than the ones on the above table may not work properly, even if this DVR reads them.
- This DVR supports external USB HDD driver with capacity of 250GB or less. External USB SATA type HDD driver is not supported.
- USB memory for **Ver. 1.1** is not supported.

Supported CD/DVD Media list

Maker	CD-R	CD-RW	DVD-R	DVD-RW	DVD+R	DVD+RW
Imation	O	O	O	O	O	O
Memorex	O	O	O	O	O	O
MITSUBISHI	O	O	O	O	O	O
PHILIPS	O	O	O	O	O	O
SONY	O	O	O	O	O	O
Verbatim	O	O	O	O	O	O

Note:

8 cm (1.4GB) Mini CD/DVD and the Dual Layer type media (DVD) are not supported.

Supported function list for device

Device	Instant backup	Schedule backup	Export	Configuration Import/Export
CD/DVD	O	X	O	X
USB memory	O	O	O	O
USB HDD	O	O	O	O

Note:

If you use a USB memory stick or USB HDD for configuration import/export you must disconnect the other external USB devices.

Supported PTZ Camera list

Protocol Name	Maker	Pan/Tilt	Zoom	Focus	Iris	Preset	Tour	Setup
LG_MULTIX	LG	YES	YES	YES	YES	YES	YES	YES
LG_SD168	LG	YES	YES	YES	YES	YES	YES	YES
LG_ZOOM	LG	No	YES	YES	YES	No	No	YES
LPT_A100L	LG	YES	No	No	No	No	No	No
PELCO D	PELCO	YES	YES	YES	YES	YES	YES	YES
PELCO P	PELCO	YES	YES	YES	YES	YES	YES	YES
GANZ_DSCP	CBC	YES	YES	YES	YES	YES	YES	YES
GANZ_P360V1	CBC	YES	YES	YES	YES	YES	YES	NO
KALATEL_CYBERDOM	KALATEL	YES	YES	YES	YES	YES	YES	NO
PANASONIC_CS850	PANASONIC	YES	YES	YES	YES	YES	YES	YES
SAMSUNG_SCC	SAMSUNG	YES	YES	YES	YES	YES	YES	YES
BOSCH_AUTODOME	BOSCH	YES	YES	YES	YES	YES	YES	YES
ELMO	ELMO	YES	YES	YES	YES	YES	YES	YES
MULTIX EXTENTION	LG	NO	YES	YES	YES	NO	NO	YES
LTC 903	LG	NO	NO	NO	NO	NO	NO	YES

Time zones

Timezone name	Timezone Abbreviation	Timezone	DST
Eniwetok, Kwajalein	EK	-12:00	
Midway Island, Samoa	MIS	-11:00	
Hawaii	HAW	-10:00	
Alaska	ALA	-09:00	-08:00
Pacific Time (US and Canada); Tajuana	PST	-08:00	-07:00
Mountain Time (US and Canada), Chihuahua, La Paz, Mazatlan, Arizona	MST	-07:00	-06:00
Central Time (US and Canada), Saskatchewan, Guadalajara, Mexico City, Monterrey, Central America	CST	-06:00	-05:00
Eastern Time (US and Canada), Indiana (East), Bogota, Lima, Quito	EST	-05:00	-04:00
Atlantic Time (Canada), Caracas, La Paz, Santiago	AST	-04:00	
Newfoundland	NWF	-03:30	-02:30
Brasilia, Buenos Aires, Georgetown, Greenland	BBA	-03:00	
Mid-Atlantic	MAT	-02:00	
Azores, Cape Verde Islands	AZO	-01:00	
Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London, Casablanca, Monrovia	GMT	0	+01:00
Amsterdam, Belgrade, Bratislava, Budapest, Ljubljana, Prague, Sarajevo, Skopje, Warsaw, Zagreb, Brussels, Copenhagen, Madrid, Paris, Berlin, Bern, Rome, Stockholm, Vienna, West Central Africa	AMS	+01:00	+02:00
Athens, Istanbul, Minsk	AIM	+02:00	+03:00
Bucharest, Cairo, Pretoria, Jerusalem, Harare, Pretoria	BCP	+02:00	+03:00
Helsinki, Riga, Israel, Kyiv, Sofia, Tallinn, Vilnius	HRI	+02:00	+03:00
Baghdad, Kuwait, Riyadh, Nairobi	BKR	+03:00	+04:00
Moscow, St.Petersburg, Volgograd	MSV	+03:00	+04:00
Tehran	THE	+03:30	+04:30
Abu Dhabi, Muscat, Baku, Tbilisi, Yerevan	ABT	+04:00	
Kabul	KAB	+04:30	
Ekaterinburg, Islamabad, Karachi, Tashkent	EIK	+05:00	
Bombay, Calcutta, Madras, New Delhi, Chennai, Kolkata	BCD	+05:30	
Almaty, Dhaka, Colombo, Astana, Sri Jayawardenepura, Novosibirsk	ADC	+06:00	
Bangkok, Hanoi, Jakarta, Krasnoyarsk	BHJ	+07:00	
Beijing, Changqing, Hong Kong, Uramqi	BHU	+08:00	
Perth, Singapore, Taipei, Beijing, Chongqing, Hong Kong SAR, Urumqi, Kuala Lumpur, Irkutsk, Ulaan Bataar	SST	+08:00	
Osaka, Sapporo, Tokyo	OST	+09:00	
Seoul, Yakutks	SYA	+09:00	
Adlaide, Darwin	ADA	+09:30	
Brisbane, Guam, Port Moresby	BGP	+10:00	
Canberra, Melbourne, Sydney	CMS	+10:00	
Hobart, Vladivostok	HVL	+10:00	
Magadan, Solomon Islands, New Caledonia	MSN	+11:00	+12:00
Auckland, Wellington	AWE	+12:00	
Fiji Islands, Kamchatka, Marshall Islands	FKM	+12:00	

Factory Default Configuration Settings

Classification	Detailed Items		Default Setting
1st level	2nd level	3rd level	
Camera	Camera	Channel	01~04
		Name	CH 01~CH 04
		Covert	OFF
		Audio	NONE, 01 ~ 04
	PTZ	Channel	CH 01~CH 04
		Port	NONE
		Control ID	0
		Protocol	LG_MULTIX
		Baud Rate	9600
	Recording	Channel	CH 01~CH 04
		Resolution	352X240 (NTSC) / 352X288 (PAL)
		Quality	STANDARD
		Frame rate	30 (NTSC) / 25 (PAL)
		Prealarm	OFF
		Postalarm	10SEC
	Sensor Recording	Channel	CH 01~CH 04
		Resolution	352X240 (NTSC) / 352X288 (PAL)
		Quality	STANDARD
		Frame rate	30 (NTSC) / 25 (PAL)
	Motion Recording	Channel	CH 01~CH 04
		Resolution	352X240 (NTSC) / 352X288 (PAL)
		Quality	STANDARD
		Frame rate	30 (NTSC) / 25 (PAL)
	Video Format	Video Format	NTSC or PAL
Schedule	Sunday		Sensor + Motion
	Monday		Sensor + Motion
	Tuesday		Sensor + Motion
	Wednesday		Sensor + Motion
	Thursday		Sensor + Motion
	Friday		Sensor + Motion
	Saturday		Sensor + Motion
	Special Day		Sensor + Motion
Display	OSD	Language	ENGLISH
		Channel Name	ON
		Channel Status	ON
	Main Monitor	Dwell Time	2 SEC
	Spot Monitor	Dwell Time	2 SEC
		Event Popup	OFF
		Spot Channel	01

Classification	Detailed Items		Default Setting
1st level	2nd level	3rd level	
Event	Sensor	Input Channel	01~04
		Sensor Type	N.O.
		Camera	01~04
		Relay Output	OFF
	Motion	Channel	01~04
		Sensitivity	05
		Relay Output	OFF
	Output	Relay Off	ALARM ACK.
		System Alarm Out	OFF
Network	TCP/IP	DHCP	ON
		IP Address	NULL
		Subnet Mask	NULL
		Gateway	NULL
		Primary DNS	NULL
		Secondary DNS	NULL
		TCP/IP Port	9001
		Web Server Port	80
		Bandwidth Throttle	100 Mbps
	DDNS	DDNS Service	OFF
		Host Name	NULL
		Registered Host	NULL
		Update	-
	Notification	Sensor On	OFF
		Motion Detection	OFF
		Disk Full	OFF
		Admin PWD.Changed	OFF
		Video Loss	OFF
		Power On/Off	OFF
	Mail	Notification	OFF
		SMTP Server	NULL
		SMTP Port	25
		User Name	NULL
		Password	NULL
		TLS	OFF
		Mail Address 1	NULL
		Mail Address 2	NULL
		Mail Address 3	NULL
		E-mail Test	-
	Emergency	Notification	OFF
		Emergency ID	01
		IP Address	NULL
		Port	9002

Classification	Detailed Items		Default Setting
1st level	2nd level	3rd level	
System	Date/Time	Date	(2009.01.01)
		Time	Current Time
		Date Format	(YYYY/MM/DD)
		Time Format	24 HR (12 HR)
		Time Zone	(GMT)
		Daylight Saving	OFF
		Daylight Saving Start	Current Time
		Daylight Saving End	Current Time
	NTP	NTP	OFF
		Server	PUBLIC SERVER
		Private Time Server	NULL
		Sync. Interval	1 DAY
		NTP Test	-
	Buzzer	Button	OFF
		Sensor	OFF
		Motion	OFF
		System	OFF
	User	Number	01
		ID	ADMINISTRATOR
		Level	Administrator
		Password	000000
	Update	Item	SYSTEM S/W
		Method	USB
		Update Server	NULL
		Update	-
	Hard Disk	Format	ALL
		Overwrite	ALL
		Full Warning	70%
		Event Partition	50%
		Auto Delete	OFF
		Format	-
	Backup	Partition Selection	ALL
		Schedule	OFF
		Device	-
		Schedule Start	Current Time
		Time Range Date	Current Time
		Time Range Start	Current Time
		Time Range End	Current Time
		Start	-
		Erase	-
		Estimate	-
	System	IR Remote ID	1
		DVR ID	NONE
		Auto User Logout	OFF
		Default	-
		Export	-
		Import	-

Recording Time Table (250GB HDD)

Resolution (NTSC/PAL)	Quality	NTSC			PAL		
		FPS	Recording Time (Hr)		FPS	Recording Time (Hr)	
			Video	Video+Audio		Video	Video+Audio
352x240 / 352x288	LOWEST	30	1589	1090	25	1123	849
		20	1895	1226	20	1187	884
		15	1992	1266	12.5	1386	991
		7.5	2703	1520	6	2014	1275
		5	2784	1545	5	2226	1356
		3	3036	1620	3	2297	1383
		1	3202	1666	1	2665	1508
	LOW	30	1280	935	25	964	754
		20	1489	1042	20	966	756
		15	1493	1044	12.5	1123	848
		7.5	1975	1259	6	1577	1084
		5	1960	1253	5	1846	1205
		3	2064	1295	3	1938	1244
		1	2196	1345	1	2011	1274
	STANDARD	30	1038	799	25	703	585
		20	1182	882	20	686	573
		15	1131	853	12.5	768	629
		7.5	1496	1045	6	1175	878
		5	1458	1027	5	1256	922
		3	1529	1061	3	1262	926
		1	1604	1097	1	1374	984
	HIGH	30	780	637	25	517	450
		20	916	725	20	495	434
		15	897	713	12.5	560	482
		7.5	1211	898	6	949	746
		5	1191	887	5	1028	793
		3	1254	922	3	1043	802
		1	1335	964	1	1135	856
	HIGHEST	30	702	584	25	383	345
		20	818	662	20	393	353
		15	799	650	12.5	424	378
		7.5	1079	823	6	774	633
		5	1064	814	5	847	681
		3	1136	856	3	871	697
		1	1212	898	1	943	741

Resolution (NTSC/PAL)	Quality	NTSC			PAL		
		FPS	Recording Time (Hr)		FPS	Recording Time (Hr)	
			Video	Video+Audio		Video	Video+Audio
704x240 / 704x288	LOWEST	15	1160	869	12.5	855	686
		7.5	1528	1061	6	1021	789
		5	1625	1107	5	1155	867
		3	1790	1181	3	1258	924
		1	2020	1277	1	1907	1231
	LOW	15	939	739	12.5	734	606
		7.5	1164	872	6	934	736
		5	1186	884	5	1080	824
		3	1414	1005	3	1213	899
		1	1355	975	1	1233	910
	STANDARD	15	770	630	12.5	584	500
		7.5	913	723	6	607	517
		5	911	721	5	654	550
		3	930	734	3	692	577
		1	993	772	1	927	732
	HIGH	15	627	531	12.5	454	401
		7.5	754	620	6	474	417
		5	755	620	5	523	455
		3	775	634	3	571	490
		1	825	667	1	767	628
	HIGHEST	15	574	493	12.5	381	344
		7.5	683	571	6	401	359
		5	681	569	5	440	390
		3	698	581	3	486	426
		1	746	614	1	670	561

Resolution (NTSC/PAL)	Quality	NTSC			PAL		
		FPS	Recording Time (Hr)		FPS	Recording Time (Hr)	
			Video	Video+Audio		Video	Video+Audio
704x480 / 704x576	LOWEST	7.5	774	633	6	535	464
		5	831	670	5	726	600
		3	944	742	3	799	650
		1	1093	831	1	1072	819
	LOW	7.5	651	548	6	473	417
		5	672	563	5	607	516
		3	737	608	3	655	551
		1	833	672	1	811	658
	STANDARD	7.5	598	511	6	407	365
		5	605	515	5	551	476
		3	655	551	3	589	504
		1	712	591	1	675	565
	HIGH	7.5	518	450	6	349	317
		5	518	451	5	477	419
		3	557	480	3	506	442
		1	606	516	1	568	488
	HIGHEST	7.5	476	419	6	279	258
		5	477	419	5	410	366
		3	509	444	3	437	388
		1	552	477	1	494	432

Specifications

Item			Specification
Video	Video Format		NTSC/PAL (Selectable)
	Input		4 x Composite 1.0Vp-p, 75Ω BNC
	Output	Loop Through	4 x Composite 1.0Vp-p, 75Ω BNC
		Composite	1 x Composite 1.0Vp-p, 75Ω BNC
		VGA	1 x RGB, 15-pin D-sub
		Spot	1 x Composite 1.0Vp-p, 75Ω BNC
Audio	Input		4 x Mono, RCA Line in
	Output		1 x Mono, 0dB RCA
Alarm	Input		4 (NC/NO selectable)
	Output		1
	Alarm Notification to e-mail		Yes
Recording	Frame Rate (/Sec)	NTSC	Up to 120 IPS @ 352x240, Up to 60 IPS @ 704x240, Up to 30 IPS @ 704x480
		PAL	Up to 100 IPS @ 352x288, Up to 50 IPS @ 704x288, Up to 25 IPS @ 704x576
	Quality Level		5 Levels
	Recording Mode		Continuous, Alarm, Motion, Instant
	Schedule Recording		Yes
	Event Partition Recording		Yes
	Pre-Event Recording Time		Up to 60 sec
Search	Playback Function		FF, FB, Frame Advance
	Playback Speed		x1, x2, x4, x8, x16 -x1, -x2, -x4, -x8, -x16
	Search Mode		Date/Time, Event (Motion, Alarm), Bookmark
	Instant Playback		Yes
Display & User I/F	Screen Division Mode		1, 4
	OSD type		GUI
	User Interface		Mouse, IR Remote, Keyboard Controller (LKD1000)
Storage	Internal HDD	Interface Type	SATA
		Max Capacity	1TB (Up to 2 HDDs) – LE2104 series 500GB (Up to 1 HDD) – LE2104D series
	Internal ODD		Yes (LE2104D model only)
Backup / Export	Backup/Export Device Interface		3 x USB 2.0, Network
	Schedule Backup (Automatic Backup)		Yes
	Backup Time Estimation		Yes
	Backup/Export File Format		AVI, Native DVR Format
Serial I/F	PTZ Control	Interface	2 x Half-duplex RS-485
		Control Function	Pan, Tilt, Zoom, Focus, Iris, Preset, Tour, Camera OSD Control
	RS232 Interface		1 x RS-232C, 9-pin D-sub (Consol)
	RS485 Interface		2 x Terminal block (PTZ or Remtote Control Keyboard)

Network	Network Connection		Ethernet 10/100M, RJ-45
	Bandwidth Control		Yes
	NTP (Network Time Protocol)		Yes
	Application SW		PC Client, WEB Client, Emergency Agent, Export Viewer
Security	Button Lock		Yes
	Covert Camera Protection		Yes
	User Level Management		Yes
	Data Integrity Check (Watermark)		Yes
System	Multiplex		Triplex
	Setup Configuration Export/Import		USB Memory Stick, Network
	Daylight Saving		Yes
	Auto Delete (Data Retention)		Yes
	Dome Camera Telemetry Control		Yes
	S/W Update	Interface	USB Memory
		Update Item	PTZ, Firmware
General	Video Codec		H.264
	Power Source		DC 12V, 5A (Adaptor: AC100-240V 50/60 Hz)
	Power Consumption		40W Max (with HDD x 2)
	Dimension (WxDxH mm)		430 x 316.8 x 54
	Weight (without HDD)		2.7Kg
	Operation Temp. / Humidity		0 ºC ~ 40 ºC / 0%RH ~ 80%RH