Thank you for purchasing our product. Please read this User's Manual before using the product.
SAFETY PRECAUTIONS

CAUTION

RISK OF ELECTRIC SHOCK. DO NOT OPEN!

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT OPEN COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

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

The lightning flash with an 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 presence of important operating and maintenance (Servicing) instructions in the literature accompanying the appliance.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE UNITS NOT SPECIFICALLY DESIGNED FOR OUTDOOR USE TO RAIN OR MOISTURE.

Attention: installation should be performed by qualified service Personnel only in accordance with the National Electrical Code or applicable local codes.

Power Disconnect. Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all units.
4. Arrangement RS-232C pin

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>NC</td>
</tr>
<tr>
<td>2</td>
<td>RxD</td>
</tr>
<tr>
<td>3</td>
<td>TxD</td>
</tr>
<tr>
<td>4</td>
<td>NC</td>
</tr>
<tr>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>6</td>
<td>NC</td>
</tr>
<tr>
<td>7</td>
<td>NC</td>
</tr>
<tr>
<td>8</td>
<td>NC</td>
</tr>
<tr>
<td>9</td>
<td>NC</td>
</tr>
</tbody>
</table>

**FCC INFORMATION**

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

- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
  1. This device may not cause harmful interference, and
  2. This device must accept any interference received, including interference that may cause undesired operation.

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

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

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

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

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

Note : This equipment has been tested and found to comply with the limits for a CLASS A digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td># 2</td>
<td>RxD</td>
</tr>
<tr>
<td># 3</td>
<td>TxD</td>
</tr>
<tr>
<td># 5</td>
<td>GND</td>
</tr>
</tbody>
</table>

D-SUB 9 cable (twisted RS-232C cable)
2. Configuration

3. RS-232C Hex-codes table

Following ASCII-codes are for programmers who want to control the DVMR via RS-232C port.

RS-232C specification (baud rate/parity/data length/stop bit) : 19200, N, 8, 1

1 Byte ASCII-code.

<table>
<thead>
<tr>
<th>MENU</th>
<th>'M'</th>
<th>PIP/</th>
<th>MARK</th>
<th>'Y'</th>
<th>CH1</th>
<th>'1'</th>
<th>UP</th>
<th>'3'</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLAY</td>
<td>'P'</td>
<td>FRZ</td>
<td>'P'</td>
<td>CH2</td>
<td>'2'</td>
<td>DN</td>
<td>'J'</td>
<td></td>
</tr>
<tr>
<td>MODE</td>
<td>'D'</td>
<td>SEQ/</td>
<td>SPEED</td>
<td>'Q'</td>
<td>CH3</td>
<td>'3'</td>
<td>LEFT</td>
<td>'H'</td>
</tr>
<tr>
<td>PANTILT</td>
<td>'T'</td>
<td>ZOOM</td>
<td>'Z'</td>
<td>CH4</td>
<td>'4'</td>
<td>RIGHT</td>
<td>'K'</td>
<td></td>
</tr>
</tbody>
</table>

DEFAULT KEY '0' (Default setup: Displays and records on Quad mode)
Before installing stand alone DVMR, be sure to thoroughly review and follow the instructions in this User’s Manual. Pay particular attention to the parts that are marked NOTICE.

1. This document is intended for both the administrator and users of stand alone DVMR Model.

2. This manual contains information for configuring, managing and using stand alone DVMR Model.

3. To prevent fire or electrical shock, do not expose the product to heat or moisture.

4. Be sure to read this manual before using stand alone DVMR Model.

5. For questions and technical assistance of this product, contact your local dealer.

### 6. Specification and configuration

#### 1. SPECIFICATIONS

<table>
<thead>
<tr>
<th>MODEL NO</th>
<th>Stand alone DVMR</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>VIDEO IF</strong></td>
<td></td>
</tr>
<tr>
<td>INPUT</td>
<td>4 CH INPUT 1.0 VP-P, 75 OHM UNBALANCED (BNC TYPE)</td>
</tr>
<tr>
<td>OUTPUT</td>
<td>2 OUTPUT VBS : 1.0VP~P, 75 OHM UNBALANCED (BNC TYPE)</td>
</tr>
<tr>
<td>HORIZONTAL RESOLUTION</td>
<td>480TV LINES</td>
</tr>
<tr>
<td>S/N RATIO</td>
<td>MORE THAN 48dB</td>
</tr>
<tr>
<td><strong>MONITORING METHOD</strong></td>
<td></td>
</tr>
<tr>
<td>SPLIT SCREEN</td>
<td>FULL QUAD DISPLAY</td>
</tr>
<tr>
<td>ZOOM</td>
<td>LIVE &amp; PB AVAILABLE</td>
</tr>
<tr>
<td>IP</td>
<td>AVAILABLE</td>
</tr>
<tr>
<td>REC. METHOD</td>
<td>AVAILABLE</td>
</tr>
<tr>
<td><strong>SCREEN QUALITY</strong></td>
<td>FULL : 720(H)X480(V) ACTIVE PIXELS</td>
</tr>
<tr>
<td></td>
<td>1/4 SCREEN : 360(H)X240(V) ACTIVE PIXELS</td>
</tr>
<tr>
<td>S/PEN</td>
<td>0.1~30 FRAMES/SEC (EACH CHANNEL)</td>
</tr>
<tr>
<td><strong>RECORDING/PPLAY FUNCTION</strong></td>
<td></td>
</tr>
<tr>
<td>MATERIAL</td>
<td>HDD</td>
</tr>
<tr>
<td>COMPRESSION</td>
<td>JPEG</td>
</tr>
<tr>
<td>PICTURE RECORDING METHOD</td>
<td>QUAD SCREEN RECORDING</td>
</tr>
<tr>
<td>FIELD SWITCHER METHOD</td>
<td>FULL SCREEN RECORDING</td>
</tr>
<tr>
<td>REC. MODE</td>
<td>REAL-TIME, TIME-LAPSE, EVENT</td>
</tr>
<tr>
<td>TRACK PLAY</td>
<td>SEARCH, STILL</td>
</tr>
<tr>
<td>FST ALARM FUNCTION</td>
<td>1-99SEC, CONTINUOUS TIMING ESTABLISHMENT POSSIBILITY</td>
</tr>
<tr>
<td>BACK-UP</td>
<td>CONDITIONED CODE TRIGGER</td>
</tr>
<tr>
<td></td>
<td>REMOTE BACK-UP USING TCP/IP</td>
</tr>
<tr>
<td>OTHERS</td>
<td>WIFI, DIRECT, REMOTE CONTROL</td>
</tr>
<tr>
<td><strong>OTHER FUNCTION</strong></td>
<td></td>
</tr>
<tr>
<td>CAMERA CONTROL</td>
<td>PANTILT/ZOOM AND FOCUS, REMOTE CONTROL, EXTERNAL EQUIPMENT: WIPER, PUMP, FAN AND HEATER</td>
</tr>
<tr>
<td>HDD</td>
<td>INTERNAL 1 HDD, 7200RPM</td>
</tr>
<tr>
<td>CD-RW BACK-UP</td>
<td>DRIVE : CD-R</td>
</tr>
<tr>
<td></td>
<td>MEDIA : CD-R</td>
</tr>
<tr>
<td><strong>OPERATION TEMPERATURE</strong></td>
<td>41F~ 104F (5C~ +40C)</td>
</tr>
<tr>
<td><strong>OPERATION HUMIDITY</strong></td>
<td>LESS THAN 90%</td>
</tr>
<tr>
<td><strong>MECHANICAL</strong></td>
<td></td>
</tr>
<tr>
<td>DIMENSION</td>
<td>19&quot; RACK SIZE 1.5U, 66X434X360 mm</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>APPROX. 6.5KG (WITHOUT HDD)</td>
</tr>
<tr>
<td>POWER SUPPLY</td>
<td>DC ADAPTER (12V DC 5A)</td>
</tr>
</tbody>
</table>
MARK IMAGE SETUP (Internal backup)

1. When replaying, press \[MARK IMAGE\] button to select images.
2. At paused mode, press \[LEFT\]/\[RIGHT\] button to select frames you want to mark as many as wanted.
3. Press \[ENTER\] button once more to complete MARK IMAGE SETUP for images you selected.
4. Therefore all images in between \[MARK IMAGE\] button remain not deleted unless you delete marked image on purpose.
5. If the MARK IMAGE space given in the HDD gets to be full, °FULL message appears and \[MARK IMAGE\] is activated. It can be erased only by DELETE MARK IMAGE.
6. To replay marked image, select PLAY MARK IMAGE, and to delete select DELETE MARK IMAGE. Then \[PAUSE\], \[SPEED\] and \[MARK\] are displayed on top of the screen.
7. When you want to mark large amount of images, cancel PAUSE by pressing \[FRZ\] button.

MARK IMAGE is very useful function, because it protects marked images from being overwritten. During playback, you can mark images to store them on HDD separately from normal pictures. Those marked pictures are not deleted even though you clear data on HDD or even after HDD starts to overwrite.

1) While replaying, press \[MARK IMAGE\] button to select images.
2) At paused mode, press \[LEFT\]/\[RIGHT\] button to select frames you want to mark as many as wanted.
3) Press \[ENTER\] button once more to complete MARK IMAGE SETUP for images you selected.
4) Therefore all images in between \[MARK IMAGE\] button remain not deleted unless you delete marked image on purpose.
5) When you want to mark large amount of images, cancel PAUSE by pressing \[FRZ\] button.

NOTICE: Marked images stored on specific part of HDD, allocated for MARK IMAGE, is not deleted when °HDD CLEAR" is activated. It can be erased only by DELETE MARK IMAGE.

PRODUCT ID: Serial number of products. Necessary for manufacturer to know manufacturing date, program version number, and others.

<table>
<thead>
<tr>
<th>System Setup</th>
<th>Display Setup</th>
<th>Camera Title</th>
<th>Time/Date Setup</th>
<th>Alarm/Motion Setup</th>
<th>Record Setup</th>
<th>TCP/IP Setup</th>
<th>Miscellaneous</th>
<th>Factory Default</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYSTEM SETUP</td>
<td>DISPLAY SETUP</td>
<td>CAMERA TITLE</td>
<td>TIME/DATE SETUP</td>
<td>ALARM/MOTION SETUP</td>
<td>RECORD SETUP</td>
<td>TCP/IP SETUP</td>
<td>MISCELLANEOUS</td>
<td>FACTORY DEFAULT</td>
</tr>
</tbody>
</table>

3. Unit Description

1. POWER SWITCH WITH LED: DC power switch with LED. Before you turn off DC power switch off, we strongly recommend you to press \[MENU\] button first to make HDD not in writing process. Generally speaking, cutting power to system may cause trouble in DVR or system damage to HDD if HDD is in writing process, and we ask you to press \[MENU\] button first to protect HDD from being damaged or system failure before you press DC power switch off in practical operation.
2. \[MENU\]: Used when changing the menu of SYSTEM SETUP. If you press \[MENU\] button, recording is stopped.
3. \[PLAY/ENTER\]: Starts playback, and in some functions, it is used as the SELECT key.
4. \[MODE\]: Changes to quarterly split screen or Full display screen.
5. \[P/T\]: Manages PAN/TILT CONTROLLER.
6. \[1,2,3,4\]: Chooses each indicated camera.
7. \[PIP/MARK\]: Assigns PIP (Picture in picture) or MARK IMAGE to protect selected image from being overwritten.
8. \[FRZ\]: Display screen is paused.
9. \[SEQ/SPEED\]: The display screen automatically rotates, and assigns playback speed and direction.
10. \[ZOOM\]: Enlarges the display screen by 200%.
11. Remote Controller Sensor Input Window
12. Direction button
13. LED Lamps: Represent status of operation

NOTICE: If the Input window (IR receiver) is covered, the remote controller may not work.
NOTICE: If several buttons are simultaneously or incorrectly pressed, the system may not function properly.
PANTILT COMMAND SETUP: When PTZ camera whose protocol is already incorporated into this DVMR system (Default PTZ camera) is connected to this DVMR, just select model of PTZ camera in PANTILT COMMAND SETUP. If user want to connect PTZ camera which is not one of Default PTZ camera, users must input protocols of PTZ camera or speed dome camera by themselves in USER DEFINE SETUP. For detail procedure, refer to manual for incorporating protocol of PTZ camera into DVMR system.

HDD INFORMATION

HDD DATA LIST: Shows general information of HDD.
HDD AUTO DETECT: Allows to detect HDD just in case first HDD search failed.
CD-R Backup: You can backup the recorded data into CD-R media. Please refer to the attached Guideline for this function.

NOTICE: When connecting with other applications, be sure to turn off the system.

2. Rear Panel

1. RS-232C Port Connection
2. PANTILT Controller
3. Sensor Input/Output
4. LAN (TCP/IP)
5. Camera Connection
6. LOOP Output
7. VCR Connection
8. MONITOR Connection
9. VGA Connection
10. S-VHS Connection
11. D/C Power Connection

Procedure to control PTZ camera while you see live picture
1. Default PTZ camera: First select PTZ camera model connected to DVMR unit in the PANTILT COMMAND SETUP menu. In live view mode, press [P/T] button and set CAM (Starts from 000) at camera ID which is set on PTZ camera (DIP switch on PTZ camera) before you connect it to DVMR unit. Then select command you want to execute using [LEFT] and [RIGHT] buttons. While you press [PLAY] button, command you selected is executed.
2. USER DEFINE: In case you input protocols of PTZ camera which is not one of Default cameras, select USER DEFINE in PANTILT COMMAND SETUP. Then press [P/T] button and set CAM (Ranges from 001 to 004) at any one from 001 to 004. CAM number must be the same as CH number which you set when you input protocol of PTZ camera in USER DEFINE. Using [LEFT] and [RIGHT] button, select command you want to execute and press [PLAY] button to execute selected command. While you press [PLAY] button, command you selected is executed.
3. HDD INFORMATION: Shows general information of HDD.

Procedure to control PTZ camera while you see live picture
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3. HDD INFORMATION: Shows general information of HDD.

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1. Default PTZ camera: First select PTZ camera model connected to DVMR unit in the PANTILT COMMAND SETUP menu. In live view mode, press [P/T] button and set CAM (Starts from 000) at camera ID which is set on PTZ camera (DIP switch on PTZ camera) before you connect it to DVMR unit. Then select command you want to execute using [LEFT] and [RIGHT] buttons. While you press [PLAY] button, command you selected is executed.
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Procedure to control PTZ camera while you see live picture
1. Default PTZ camera: First select PTZ camera model connected to DVMR unit in the PANTILT COMMAND SETUP menu. In live view mode, press [P/T] button and set CAM (Starts from 000) at camera ID which is set on PTZ camera (DIP switch on PTZ camera) before you connect it to DVMR unit. Then select command you want to execute using [LEFT] and [RIGHT] buttons. While you press [PLAY] button, command you selected is executed.
2. USER DEFINE: In case you input protocols of PTZ camera which is not one of Default cameras, select USER DEFINE in PANTILT COMMAND SETUP. Then press [P/T] button and set CAM (Ranges from 001 to 004) at any one from 001 to 004. CAM number must be the same as CH number which you set when you input protocol of PTZ camera in USER DEFINE. Using [LEFT] and [RIGHT] button, select command you want to execute and press [PLAY] button to execute selected command. While you press [PLAY] button, command you selected is executed.
3. HDD INFORMATION: Shows general information of HDD.

NOTICE: When connecting with other applications, be sure to turn off the system.
4. Installation

1) Camera Connection
Connect the camera to the CAMERA INPUT on the Rear Panel of the system.

2) Monitor Connection (Composite Connection Method)
Connect the monitor to the MONITOR OUT on the Rear Panel of the system.

Notice: This DVMR system automatically detects video system of camera you connected to the unit when you boot DVMR system first. It is not necessary to set video system separately, and DVMR system set at NTSC or PAL system automatically when you boot the system.

2. Monitor Connection (Composite Connection Method)
Connect the monitor to the MONITOR OUT on the Rear Panel of the system.

Notice: Connect camera or monitor to DVMR unit while DC power switch on the front panel is off.

5. Operation

5.1 SCHEDULE REC SETUP:
Records according to schedule by day or a day of the week. Two recording time spans can be set for a day and a day of the week respectively. In total, 4 recording time spans can be set in a day. DVMR system records just as you set if you set SCHEDULE REC SETUP, and DVMR system records 24 hours a day if you do not set SCHEDULE REC SETUP.

1. Scheduled Recording for a day:
   1) Press ENTER button to enter into SCHEDULE REC SETUP menu. In the sub-menu, you are requested to select MODE or RESET. To first set up, select DATE or WEEK by pressing button.
   2) Press button to be ready for editing. Then move to the location for change using direction button.
   3) Set recording time for START and END with button. Recording time increases by 30 minutes whenever button is pressed.
   4) After set START and END time for a day and set ON/OFF using button.
   5) After set all data, press button once more to memorize settings you set in the system.
   6) RESET is used to delete previously set recording schedule.
      Select DATE, and move to the date by pressing button, and press button to delete. ALL deletes all recording schedule.
      (NONE : Does not reset DATE : deletes only selected data ALL : deletes all)
   7) When all input is ended, press button to come back to SCHEDULE REC SETUP.

NOTICE: To move the cursor in SCHEDULE RECORD SETUP menu, RESET should be set at NONE.

2. Scheduled recording by a day of the week:
   Recording is activated on a day of the week at the time set in advance. To set schedule for a day of the week, first select WEEK in MODE of SCHEDULE REC SETUP by pressing button.
   Set recording time for each day of the week as the procedure for Scheduled Recording for a day.
5. Operation

2) ID/PW SETUP : Sets User ID and PASSWORD.

Display of ID/PW SETUP

1) With [UP]/[DOWN] button, select item to be changed, and press "ENTER" button to edit.
2) With [LEFT]/[RIGHT] button, move to wanted location and use [UP]/[DOWN] button to make Selection.
3) Press "ENTER" button after every SETUP and to be ready for next SETUP item.
4) After entering current password, enter new password and enter new password once more to verify.

Notice : In the very first setup stage, the ADMIN PASSWORD is "1", and USER PASSWORD is "2".
Change PASSWORD as soon as this product is purchased.

4. Installation

3) Monitor (S-VHS) Connection

Connect S-VIDEO Monitor to MONITOR OUT(S-VHS) on the Rear Panel of the system.

4) VCR & VIDEO PRINTER Connection

Connect VCR or VIDEO PRINTER to VCR OUT on the Rear Panel of the system.
5) Sensor Connection

Connect the Sensor to the SENSOR INPUT/OUTPUT on the Rear Panel of the system.

- Relay output: COM+NC, COM+NO OR COM+NC+NO
- Alarm input: Short-circuit between Alarm1, Alarm2, Alarm3 or Alarm4 and GND is recognized as alarm.

**NOTICE:** Sensor input is RECOGNIZED as LOW when alarm signal is on a level with GND, and it is recognized as HIGH when alarm signal is FLOATING or 5V. Following is internal circuit.

![Internal Circuit Diagram]

Thus, there is a danger of damage, when the sensor input goes to a Negative level or voltage higher than 5V.

6) Network Connection

- RS-232C: Connect to PC to operate DVMR
- RS-485: Connect to PTZ camera
- RJ-45 (ETHERNET): Connect to LAN, WAN or Internet

For more details, refer to arrangements RS-232c pins in page 32.

7. TCP/IP SETUP

TCP/IP option of this DVMR system enables user to see live pictures and recorded pictures via internet line, far apart from DVMR unit. To see live pictures or recorded pictures of DVMR, users must input IP address, Gateway, and Subnet mask in TCP/IP SETUP in DVMR first, and then input IP, PORT number and PASSWORD/ADMIN password in DVMR unit in Remote Viewer Program installed on client PC.

For detailed procedure for installing Remote Viewer Program and setting up, refer to manual for Remote Viewer program included in the package.

1) IP ADDRESS: Enter numbers using direction buttons and press [MENU] button.

2) GATEWAY: Enter numbers using direction buttons and press [MENU] button.

3) SUBNET MASK: Enter numbers using direction buttons and press [MENU] button.

4) MAC ADDRESS: It is unique ID number provided by the manufacturer, and the user should not change under any condition.

5) DHCP SETUP: In case you connect DVMR unit to LAN network under router/Gateway/IP sharer which has DHCP server function, set DHCP SETUP at DHCP, and DVMR unit automatically gets IP data automatically during the process of booting. In case you connect DVMR unit to leased line with static IP or Router/Gateway connected (A)DSL line (with static IP or dynamic IP), you are requested to set DHCP at MANUAL and input IP data manually.

For details, refer to Remote Viewer manual.

1) Concept of accessing to DVMR unit via IP network

![Network Diagram]
6. RECORD SETUP

HDD CLEAR: If YES is selected, it deletes content of the HDD.
Notice: All contents of the HDD is deleted and cannot be restored.
As times go by, HDDs in a DVMR unit will have bad sectors one after the other.
Pictures to be recorded in bad sectors shall be damaged, and you will see incomplete pictures
whenever you replay. However, our DVMR unit operates normally even though there is some bad
sectors in hard disk drives.

HDD FULL: Select OVERWRITE or STOP RECORD. If OVERWRITE is selected, it delete previous contents
on HDD to overwrite when HDD is full.

RECORD MODE
TIMER: Records by time.
TIMER+ALARM: Records by time or when the ALARM comes in. (POST-ALARM Functionality)
MOTION: Records only when MOTION is detected.
MOTION+ALARM: Records by MOTION or when the ALARM comes in.

RECORD TYPE
FIELD: Records images from each camera in rotation. 60 fields/sec at 720X240 resolution.
RECORD SPEED: Adjusts recording frame rate. 0.1 indicates 1 field per 10 seconds.
(60/30/15/10/5/3/1.5/0.5/0.2/0.1 FPS)
PRIORITY MODE: Assigns recording priority of a specific channel.
NONE: Each of 1,2,3,4 does not have priority.
1: Gives priority to #1 camera, and records in the sequence of 1-2-1-3-4-1-2-...
1,2: Gives priority to #1 and #2 cameras, and records in the sequence of 1-2-3-1-2-4-1-2-3.

7) HDD connection

Connect main board and HDD using IDE HDD cable and power cable included in the package. The jumper setting of HDD must be on Master, as specified by HDD manufacturer. The jumper setting must be done properly as specified by HDD manufacturer. Fix HDD on the bottom of DVMR case using screws included in the package. Screws must be inserted from outside of the bottom. And jumper setting of CD-RW DRIVE must be on Slave.

Notice: Formatting before installation is not required, because DVMR system automatically detects HDD and formats. In the first operation after installation of HDD, first set at FACTORY DEFAULT in setup menu and then do
HDD CLEAR in SETUP menu of DVMR system.

8) Power Connection

Connect the power to the POWER CONNECTION on the Rear Panel of the system,
and turn on the switch.

Notice: To turn off DC power switch on the front panel of DVMR case, be sure to press [MENU] button first. If you press [MENU] button, DVMR system stops recording, and you can cut power to DVMR unit while HDD head is not in writing mode. It is necessary to press [MENU] button first and turn DC power switch off to protect HDD head from being damaged and eliminate possibility of mal-function of DVMR unit.

9) Turn on the POWER and Log-in to the system

Follow direction in the Log-in part of this manual to input the PASSWORD and start the system.
Factory default password for account manager is “*”, for user “*”

10) Detail setup in SYSTEM SETUP

For detail setup, refer to the instruction of SYSTEM SETUP.
5. Operation

1. Log-in

Display of Login DVR SYSTEM

1) Press button to enter the system menu after starting the system.
2) LOGIN DVR SYSTEM window appears as shown on the left.
3) Use button to enter password that has 1 to 8 numbers.
4) Use button to change.
5) After entering the password, press button to go back to the system menu.
   If password entered matches previously set number, “ADMIN GRADE LOGIN OK” message appears.
   If password entered does not match previously set number “CURRENT PW INPUT ERROR” message appears.
   Factory default password set by manufacturer is as below.
   The system is equipped with two passwords.
   ADMIN (Administrator) : "1" USER (User) : "2"

NOTICE : To protect hard drive from damaged, turn off the power switch of DVR unit after you first press [MENU] button. If you press [MENU] button, DVR unit stops recording, and HDD head is not in the process of writing.

NOTICE : We recommend you to enter your own password as per procedure in 5-4) (page 25) to change the password.

NOTICE : Be sure to memorize the changed password.

NOTICE : When logged into USER MODE, only DISPLAY SETUP and TIME/DATA TYPE SETUP is possible.

2. Use [LEFT]/[RIGHT] button to assign BLOCK, and press button to set.

3. DETECTED area is indicated in Green, and not detected area is indicated as colorless.

Setup is possible only on the Full screen.

With [UP]/[DOWN] button, choose DETECTED area.

And press button to set.

1. Press button to choose desired EDIT mode.
2. Use [LEFT]/[RIGHT] button to assign BLOCK, and press button to set.
3. MASK area in green color is detection area, and the rest is no detection area.
4. Detected area is indicated in Green, and not detected area is indicated as colorless.
5. With button, select channel (1,2,3,4,quad) to set for each camera.

Setup is possible only on the Full screen.

SELECT VER LINE : Select all in a vertical line.
SELECT HOR LINE : Select all in a horizontal line.
SELECT BLOCK : Select by BLOCK. When button is pressed, [START] is displayed.
CLEAR BLOCK : Clear the BLOCK. Then select blocks using direction button.
SELECT ALL CELLS : Select all.
CLEAR ALL CELLS : Clear all.
5. Operation

2) PAGE: Deletes current PAGE.
3) ALL: Deletes ALL.
   - Move to alarm number in the list using [UP]/[DOWN] button, and press [ ] button to mark "*".

4. GOTO: Starts playback from the marked item in the list.
   - Move to an item in the list using [UP]/[DOWN] button, and press [ ] button to mark.

2) PAGE : Deletes current PAGE.
3) ALL : Deletes ALL.

MOTION SETUP:

- CHANNEL NUM: Selected camera number
- SENSITIVITY: Adjusts motion Detection Sensitivity. (Not Sensitive Sensitive)
- DETECT WINDOW NUM: Detects moving objects bigger than DETECT WINDOW NUM.
  Can choose from 1 to 20. If DETECT WINDOW NUM value is 5, motion detections is activated only in case 5 cells are simultaneously detected.
- AUTO FREEZE TIME: When MOTION is detected, the screen freezes for set time automatically.
  Not to use this functionality, set at OFF.
- Setup Time: 1, 2, 3, 5, 10 SEC

3) ALL: Deletes ALL.
4) GOTO: Starts playback from the marked item in the list.

2) PAGE : Deletes current PAGE.
3) ALL : Deletes ALL.

MOTION SETUP:

- CHANNEL NUM: Selected camera number
- SENSITIVITY: Adjusts motion Detection Sensitivity. (Not Sensitive Sensitive)
- DETECT WINDOW NUM: Detects moving objects bigger than DETECT WINDOW NUM.
  Can choose from 1 to 20. If DETECT WINDOW NUM value is 5, motion detections is activated only in case 5 cells are simultaneously detected.
- AUTO FREEZE TIME: When MOTION is detected, the screen freezes for set time automatically.
  Not to use this functionality, set at OFF.
- Setup Time: 1, 2, 3, 5, 10 SEC
- MOTION REC DURATION: Sets duration of recording when a motion is detected.
  Set value from 1 sec to 3 minutes according to frequency of motion, and FACTORY DEFAULT value is 1 sec.
5. ALARM/MOTION SETUP

1. ALARM SETUP : Sets type of alarm sensors connected to DVMR unit.
   - OFF : No alarm sensor is connected.
   - NC : Normal Closed alarm sensor. When an event happens, Contact is opened.
   - NO : Normal Open alarm sensor. When an event happens, Contact is closed.
   - ALARM DURATION : Duration of recording, when an ALARM is activated.

2. ALARM LIST SETUP : Shows list of alarms up to 400. If total alarm exceeds 400, it overwrites from the beginning.
   - Alarm list is very helpful to manage DVMR system.

3. SELECT LIST TYPE : Select type of event to be enlisted in the event list. “A” indicates Alarm, “L” indicates Loss, and “M” indicates Motion. You can select NONE if you do not want to have event list, and ALM if you want all of Alarm, Loss and Motion are enlisted in event list, by pressing [LEFT] and [RIGHT] button.
   - ALARM POP-UP : When an alarm is activated, display screen is switch to full screen of image from relevant channel, and a color of camera number is changed to red.
   - If an alarm is activated from 2 channels, display screen is changed to quarterly split screen (Quad screen), and a color of camera number of relevant channel is change to red.

4. ALARM/MOTION MASK SETUP : Select list type of event to be enlisted in the event list. "A" indicates Alarm, "L" indicates Loss, and "M" indicates Motion. You can select NONE if you do not want to have event list, and ALM if you want all of Alarm, Loss and Motion are enlisted in event list, by pressing [LEFT] and [RIGHT] button.

   - ALARM POP-UP : When an alarm is activated, display screen is switch to full screen of image from relevant channel, and a color of camera number is changed to red.
   - If an alarm is activated from 2 channels, display screen is changed to quarterly split screen (Quad screen), and a color of camera number of relevant channel is change to red.

5. Operation

1. Use button to select a camera and set a full screen.
   - NOTICE : PIP is not available in quarterly split screen.

2. Press button.

3. With [UP]/[DOWN] or button, select the camera channel in full screen, and with [LEFT]/[RIGHT] button select the channel of smaller screen.

4. Press button to make the image in smaller screen rotate.

   - To change the location of smaller screen, press button and use direction button to move to desired location.

5. FRZ

   1. Live full screen pauses when button is pressed.
   2. To pause quarterly split screen, press button, and with button select channel. On the right of the camera name, “FRZ” message appears and the LIVE screen of that channel will pause. When pressed once more, it will come back to LIVE screen.
   - NOTICE : When selected, button or button do not work.

   To move to full screen of each camera, press button once more to end Freeze mode.
4. TIME/DATE SETUP

1. SET TIME/DATE : Can set year/month/time/minute/second.
   Use [UP]/[DOWN] button to assign Year/Month/Time/Minute/Second and use [LEFT]/[RIGHT] button to change the value.

2. SET the notation of TIME/DATE :

1. HOUR DISPLAY :
   Changes to AM/PM or 24hour time indication

2. DATE DISPLAY :
   Converts into Asian type/American type/European type

3. MONTH DISPLAY :
   Month indication is changed to English or Number

5. Operation

6. SEQ

1. In LIVE full screen, press button to make picture from each channel rotate.

2. It does not operate in quarterly split screen.

3. During automatic rotation, press button to stop automatic rotation.

4. During automatic rotation, press button to stop automatic rotation and move to quarterly split screen.

5. To change the time interval of the automatic rotation, change the value of SEQUENCE INTERVAL as per procedure in 5-4). (PAGE.16). It is possible to select between 1 second to 99 seconds.

7. Sensor Recording

1) When there is sensor input, the recording starts.

2) It records for preset period of time
   For detail setup, refer to RECORD SETUP : REC MODE SETUP in 5-4)- (PAGE.23) for TIME+ALARM
   and MOTION+ALARM and ALARM SETUP : ALARM DURATION in 5-4)- (PAGE.20) for Time setup.

8. Scheduled Recording
   Records by date and by day of the week.
   Refer to MISCELLANEOUS SETUP : SCHEDULE REC SETUP in 5-4)- (PAGE.26) for detail setup.

9. Recording by MOTION DETECTION
   Refer to ALARM/MOTION SETUP in 5-4). (PAGE.20-22).

10. NOTICE

1) Recording is stopped during SYSTEM SETUP.

2) Recording is stopped during playback, or search in playback mode.

3) Recording is not possible if no camera is connected.
3. Play

1. Playback setup
   1) Press \[ENTER\] button to begin playback.

2) Display screen as shown on the right will appear

3) Press \[PLAY\] button again to start playback from
   START picture.
   (To start from a specific time, first set the
   GO TO time before press \[PLAY\] button.)

4) To come back to recording mode,
   press \[STOP\] button.

2. GOTO time setting
   1) At \[SELECT\], use \[LEFT\]/\[RIGHT\] button to choose the date or time of GO TO.

2) Use \[UP\]/\[DOWN\] button, set desired time.

3) Press \[SELECT\] button to replay from the GO TO time.
   \[NOTE\]: During playback or setting GO TO time, recording is stopped

CH
   STATUS
   ACTIVE
   ACTIVE
   ACTIVE
   ACTIVE
   REC
   ON
   ON
   ON
   ON

   Display of Search(GOTO) mode

   \[SELECT\] \[ENTER\]
   \[SELECT\]

   Indicate time to be played

   Time recording started.

   Time recording ended.

   \[SELECT\] \[ENTER\]

   \[SELECT\]

   \[SELECT\]

   \[SELECT\]

   \[SELECT\]

3. Pausing and single frame advanced
   1) During playback, press \[FRZ\] button to pause. (Will replay when pressed once more)

   2) After pressing \[FRZ\], press \[LEFT\] \[RIGHT\] button and use \[LEFT\]/\[RIGHT\] button to advance single frame to the right
   or left.

   \[NOTE\]: When value that is out of the range of start and end is entered, it starts from START time
   it moves to the closest time of the recorded pictures.

   \[NOTE\]: When value is in the range of START and END, but there is no recorded pictures at the set time,
   \[NOTE\]: When value in the range of START and END, but there is no recorded pictures at the set time,
   \[NOTE\]: When value that is out of the range of start and end is entered, it starts from START time
   \[NOTE\]: When value is in the range of START and END, but there is no recorded pictures at the set time,
3. CAMERA SETUP

COLOR SETUP : Adjust Camera Image

CH NUMBER : Select camera
BRIGHTNESS : Adjust screen brightness (-31~ +32)
CONTRAST : Adjust color contrast (-31~ +32)
SATURATION : Adjust color saturation (-20~ +32)
HUE : Adjust color hue (-31~ +32)
GAIN : Adjust image signal level (-31~ +32)

Right adjustment of each element in COLOR setup will increase picture quarterly displayed.

We recommend you to adjust each element of COLOR SETUP for cameras and monitor to be connected to the DVMR unit, for better appearance.

TITLE SETUP : Input TITLE of each camera

1) Use [LEFT]/[RIGHT] button to select CHANNEL and press [ENTER] button.
2) Go into CHANNEL content and use [LEFT]/[RIGHT] button to move to item to be changed and use [UP]/[DOWN] button to change the letters.

When modification is finished, press [PLAY] button to come back to the MAIN MENU.

4. Playback Speed Setup

1) During playback, press [ZOOM] button.
2) Display screen will appear as on the right.
3) Use [LEFT]/[RIGHT] button to move forward (FF) or backward (REW).
4) Use [UP]/[DOWN] button to select the speed rate.
(High speed up to x60 and slow speed up to 1field/60sec is possible.)

We recommend you to install 7200rpm EIDE hard disk drive.
5400rpm EIDE hard disk drive is not good enough to retrieve recorded data in high speed and slow speed playback mode.

During playback at 60x speed, blue screen comes into view instantaneously once in a while and you could not see some pictures at that moment even though all they were recorded correctly, due to limitation in speed of reading data on a hard drive, and it is not a critical error in operation of DVMR unit.
To see pictures you could not see, just go back for some seconds and replay at a little lower speed than before.

5. Display Enlargement.

1) Choose camera by pressing [PIP] button.
2) Press [MARK] button, during Playback or PAUSE mode.
3) The display will enlarge by 200%
4) Use direction button to move the area enlarged.
5) Press [MARK] to go back to Playback or FRZ mode.

NOTICE: Execute in FULL SCREEN of each channel.
When [SEQ] button is pressed, ZOOM does not work.

6. MARK IMAGE (Internal backup) SETUP

During Playback, press [SEQ] button and choose pictures using [LEFT]/[RIGHT] button to protect selected pictures from being overwritten when hard disk is full.
Refer to MISCELLANEOUS SETUP: MARK IMAGE SETUP in §4) (PAGE 28) for details.
4. System Setup

1. Basic Operation

1) Press the button.
2) Use [UP]/[DOWN] button to select setup item.
3) Press the button to enter sub-menu of selected SETUP.
4) Press sub-menu item with [UP]/[DOWN] button, and change the value with [LEFT]/[RIGHT] button.
5) Press the button to forward or the button to go backward.
6) To go back to the very first SETUP condition recommended by manufacturer, set at FACTORY DEFAULT.

- Items remain unchanged when FACTORY DEFAULT is selected.
  1. value of TIME/DATE SETUP
  2. Date stored on HDD
  3. Marked image (Internal backup)
  4. ADMIN password
  5. ALARM LIST SETUP

- We recommend users to set at FACTORY DEFAULT in the first operation, and when you replaced EEPROM for updating DVMR program or replaced HDD.

2. DISPLAY SETUP

This is about the contents displayed on the display screen.

- TIME/DATE: Date and time is indicated on LIVE screen.
- CAMERA TITLE: Camera TITLE is indicated on LIVE screen.
- PB TIME/DATE: On Playback screen, Date and Time is indicated.
- PB CAMERA TITLE: Camera TITLE is indicated on the Replay SCREEN.
- DVR STATUS: Indicates status of operation, such as REC/REPLAY.
- BORDER SET: Changes the color of the border - WHITE/BLACK
- SEQUENCE INTERVAL: Sets rotating time interval of pictures. In full screen in live mode or playback mode, pictures are rotating in a certain time interval when you press button, and SEQUENCE INTERVAL is for it. (Time interval from 1 second to 99 seconds)
- DISPLAY TYPE: Set at COMPO if you connected Composite monitor to DVMR unit, and set at VGA if you connected VGA monitor (CRT type PC monitor) to DVMR unit by pressing [LEFT] and [RIGHT] buttons. VGA option of DVMR unit enables users to connect CRT type PC monitor to DVMR unit, and it looks better in picture quality and also we can save cost for monitor. PC monitor must support 800 x 600 resolution and multi-sink type. Our VGA option supports just part of TCT LCD monitor.