HVRM-T1600M / T800M / T400M, T1600Q / T800Q

Install & User’s Guide
Introduction

Thank you for purchasing a HUNT digital video recorder. This manual is for HVRM-T1600Q, HVRM-T800Q, HVRM-T1600M, HVRM-T800M, HVRM-T400M. Before product installation and operation, please become thoroughly familiar with this user manual and other manuals referenced by this manual.

This user manual and the software and hardware described here are protected by copyright law. With the exception of copying for general use within fair use, copying and reprinting the user manual, either partially or in entirety, or translating it into another language without the consent of HUNT Inc. is strictly prohibited.

This specification may change without prior notice for improvement of product performance.

Product Warranty and Limits of Responsibility

The manufacturer does not assume any responsibility concerning the sale of this product and does not delegate any right to any third party to take any responsibility on its behalf. The product warranty does not cover cases of accidents, negligence, alteration, misuse or abuse. No warranty is offered for any attachments or parts not supplied by the manufacturer.

- Malfunctions due to negligence by the user
- Deliberate disassembly and replacement by the user
- Connection of a power source other than a properly rated power source
- Malfunctions caused by natural disasters (fire, flood, tidal wave, etc.)
- Replacement of expendable parts (HDD, FAN, etc.)

※ The warranty period for the HDD and Fan is one year after purchase.

This product is not for exclusive use of crime prevention but for assistance in cases as fire or theft. We take no responsibility for damage from any incident.
Caution
As this equipment undergone EMC registration and suitable for business purpose, distributors and users are aware of this point.

FCC Compliance Statement

Caution: Any changes or modifications in construction of this device which are not expressly approved the party responsible for compliance could void the user's authority to operate the equipment.

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

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
1. Risk of Explosion if Battery is replaced by an Incorrect Type. Dispose of Used Batteries According to the Instructions
2. In case of changing built-in lithium battery, it should be replaced as same or kindred one to prevent a danger of explosion. Since old batteries could be a factor of environment contamination, be cautious to treat them.
3. Do not throw the batteries to fire or heating. Neither short circuiut or disassembly is prohibited.
4. Do not charge the batteries provided with Remote Controller
**Important Notice**

1. Do not place heavy objects on the top of the product.

2. This equipment is indoor use and all the communication wiring are limited to inside of the building

3. Product is for indoor use. It is not weatherproof. Use product with referring to its environmental specifications (Temperature & Humidity). To clean the product, gently wipe the outside with a clean dry cloth.

4. Product uses AC power of 110V ~ 240V. Be cautious not to cause electric damages to product.

5. Be careful not to drop the product. Physical shocks may harm the product including internal HDD. In addition, be sure the product is secured after installation.

6. Product is made of metal. Therefore you can hurt human beings if you throw it to them or hit on them. When installing product, be cautious to locate on safe places where children are unreachable.

7. If Product does not operate properly, please contact the closest HUNT distributor for after sales service. Tampering or disassembling the product will void the warranty.

8. Security surveillance laws may differ for each country. Therefore, please contact the local region first to avoid any surveillance law violations.

9. *Rack Mount Instructions - The following or similar rack-mount instructions are included with the installation instructions:*

A) Elevated Operating Ambient - If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient.
Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.

B) Reduced Air Flow - Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

C) Mechanical Loading - Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

D) Circuit Overloading - Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

E) Reliable Earthing - Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

Experience and technical skills are needed for the installation of this product as an improper installation may cause fire, electric shocks, or defects. Any installation job should be performed by the vendor you purchased this product from.

The content of this manual can differ according to firmware or Software upgrading, and the standard and appearance of products may be changed for the improvement of quality without an advance notice.
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KEY FEATURES

Monitoring Screen
Supprots real live video with high resolution per each channel and variable display mode.
  - Real H.264 Video
  - Variable display mode

  HVRM-T1600M : 1/4/9/10/16 channel mode
  HVRM-T800M : 1/4/9 channel mode
  HVRM-T400M : 1/4 channel mode
  HVRM-T1600Q : 1/4/9/10/16 channel mode
  HVRM-T800Q : 1/4/9 channel mode

  - Auto Switching

  HVRM-T1600M : Composite x 2, DVI x 1
  HVRM-T800M : Composite x 2, DVI x 1
  HVRM-T400M : Composite x 2, DVI x 1
  HVRM-T1600Q : Composite x 2, VGA x 1
  HVRM-T800Q : Composite x 2, VGA x 1

Audio Recording
Supprots real-time audio input and recording
  - Simultaneous 4ch audio input & recording available
  - Input : 4Ch, Output : 1ch (Rear)
  - Simultaneous audio recording and playback available
Recording

It supports max. 480ips/HVRM-T1600M, HVRM-T1600Q, 240ips/HVRM-T800M, HVRM-T800Q, 120ips/HVRM-T400M
recording at High-Resolution (H.264) and available to record max. 5 seconds before triggering an event. Also, convert function is available protecting privacy.

- H.264 Video recording with High-Quality
  
<table>
<thead>
<tr>
<th>Model</th>
<th>Resolution</th>
<th>Frame Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVRM-T1600M</td>
<td>CIF(360x240)</td>
<td>480ips</td>
</tr>
<tr>
<td>HVRM-T800M</td>
<td>HALF(704x240)</td>
<td>240ips</td>
</tr>
<tr>
<td>HVRM-T400M</td>
<td>D1 (704x480)</td>
<td>120ips</td>
</tr>
<tr>
<td>HVRM-T1600Q</td>
<td>CIF(360x240)</td>
<td>480ips</td>
</tr>
<tr>
<td>HVRM-T800Q</td>
<td>HALF(704x240)</td>
<td>240ips</td>
</tr>
</tbody>
</table>

- Supports manual & schedule recording
- Video loss detection
- Supports archiving event list (Sensor, Video Loss, Motion detection, Text)
- Available record Max 5 seconds before triggering an event per each channel

Search/Playback

It supports variable and convenient functions for search & playback

- Play back by time, date, Channel
- Easy and convenient search using mouse
- Pre/post search from a freeze frame
- Play back by Event (Sensor, Video Loss, Motion Detection, Text)
- Easy & convenient search using Remote Controller & Jog/Shuttle (except HVRM-T1600Q, HVRM-T800Q)

Back up device

It is available to backup to DVD-R, CD-R, USB memory by user’s choice.
(HVRM-T1600Q, HVRM-T800Q is available as an option.)

- Supports various back up device: DVD-R, CD-R, USB memory
- Extention HDD Storage (External extention Storage device)

**Network**

It supports variable network like LAN, XDSL and easily control from remote site using PC client viewer.

- E-mail notification thru. TCP/IP, DHCP in case of triggering an event
- Live monitoring from remote site (Whole screen or available to select quad screen
- Available to playback, recording, search and DVR management thru. network viewer in PC
- Available to record, search & playback by time from remote site.
- Supports 10/100Mbps Ethernet/xDSL
- Multiple DVR connection

**Etc.**

- Supports User friendly GUI and mouse function
- Easy and simple firmware upgrade thru. USB memory
- Recorded data back up thru. USB port
- PTZ Control (SPEED DOME), PRESET function
- Available to control up to 16 DVRs with one remote controller
Install Manual

1. Feature

1.1 Supplied Accessories

Unpack and check all the items as below

1.1.1. HVRM-T1600M/ T800M/ T400M

AC Cord, Remocon, Setup CD, DVI Converter, SATA Cable, HDD Fixing Screw, Quick Guide
1.1.2. HVRM-T1600Q/ T800Q

AC Cord, Remocon, Setup CD, SATA Cable, HDD Fixing Screw, Quick Guide
1.2. Description & Function
1.2.1. Front
1.2.1.1. HVRM-T1600M/ T800M/ T400M Front

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DVD-Multi</td>
</tr>
<tr>
<td>2</td>
<td>Channel Button</td>
</tr>
<tr>
<td>3</td>
<td>REC LED</td>
</tr>
<tr>
<td></td>
<td>COPY LED</td>
</tr>
<tr>
<td></td>
<td>HDD LED</td>
</tr>
<tr>
<td></td>
<td>NETWORK LED</td>
</tr>
<tr>
<td></td>
<td>EVENT LED</td>
</tr>
<tr>
<td>4</td>
<td>Power</td>
</tr>
<tr>
<td>5</td>
<td>USB port</td>
</tr>
<tr>
<td>6</td>
<td>REC</td>
</tr>
<tr>
<td>7</td>
<td>Multi</td>
</tr>
<tr>
<td>8</td>
<td>SEQ</td>
</tr>
<tr>
<td>9</td>
<td>Copy</td>
</tr>
<tr>
<td>10</td>
<td>Search</td>
</tr>
<tr>
<td>11</td>
<td>PTZ</td>
</tr>
<tr>
<td>12</td>
<td>Func</td>
</tr>
<tr>
<td>13</td>
<td>Relay</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>14</td>
<td>Mon</td>
</tr>
<tr>
<td>15</td>
<td>Menu</td>
</tr>
<tr>
<td>16</td>
<td>ESC</td>
</tr>
<tr>
<td>17</td>
<td>Enter/Play</td>
</tr>
<tr>
<td>18</td>
<td>◀/REW</td>
</tr>
<tr>
<td>19</td>
<td>▶/FWD</td>
</tr>
<tr>
<td>20</td>
<td>▲/Pause</td>
</tr>
<tr>
<td>21</td>
<td>▼/Stop</td>
</tr>
<tr>
<td>22</td>
<td>Jog/ Shuttle</td>
</tr>
</tbody>
</table>
1.2.1.2. HVRM-T1600Q/ T800Q Front

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DVD-Multi (For Back up) Back up use for recorded data by DVD/CD media</td>
</tr>
<tr>
<td>2</td>
<td>Channel Button To select video input channel</td>
</tr>
<tr>
<td>3</td>
<td>REC LED Displays recording status</td>
</tr>
<tr>
<td></td>
<td>COPY LED Displays copy status</td>
</tr>
<tr>
<td></td>
<td>HDD LED Displays HDD running.</td>
</tr>
<tr>
<td></td>
<td>NETWORK LED Displays network connection</td>
</tr>
<tr>
<td></td>
<td>EVENT LED Displays event detection</td>
</tr>
<tr>
<td>4</td>
<td>Power Turn on/ off power</td>
</tr>
<tr>
<td>5</td>
<td>USB port Use connecting USB memory or Mouse</td>
</tr>
<tr>
<td>6</td>
<td>REC To start or stop manual recording</td>
</tr>
<tr>
<td>7</td>
<td>Multi To change DVISION in live or playback mode</td>
</tr>
<tr>
<td>8</td>
<td>SEQ To run or stop user sequence</td>
</tr>
<tr>
<td>9</td>
<td>Copy To enter copy mode</td>
</tr>
<tr>
<td>10</td>
<td>Search To enter search mode</td>
</tr>
<tr>
<td>11</td>
<td>PTZ To start PTZ function or stop</td>
</tr>
<tr>
<td>12</td>
<td>Func To enter function mode</td>
</tr>
<tr>
<td>13</td>
<td>Relay Manual On/Off button for relay</td>
</tr>
<tr>
<td>14</td>
<td>Mon To change Monitor/ Stop</td>
</tr>
<tr>
<td>15</td>
<td>Menu To enter menu</td>
</tr>
<tr>
<td>16</td>
<td>ESC To escape from menu or close pop-up window</td>
</tr>
<tr>
<td>17</td>
<td>Enter/Play To enter playback mode or select menu</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>18</td>
<td>◀/REW</td>
</tr>
<tr>
<td>19</td>
<td>▶/FWD</td>
</tr>
<tr>
<td>20</td>
<td>▲/Pause</td>
</tr>
<tr>
<td>21</td>
<td>▼/Stop</td>
</tr>
</tbody>
</table>
1.2.2. Rear

1.2.2.1. HVRM-T1600M/ T800M/ T400M REAR

<table>
<thead>
<tr>
<th>번호</th>
<th>Input/ Output name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ground</td>
<td>Ground between DVR &amp; external device</td>
</tr>
</tbody>
</table>
| 2    | CH1~16             | BNC input for camera connection
<p>|      |                    | HVRM-T1600M : 16EA, HVRM-T800M : 8EA, HVRM T400M : 4EA |
| 3    | Loop out           | BNC output(Loop) for camera connection |
| 4    | Monitor/ Spot      | BNC connection for monitor output |
| 5    | Audio Input(RCA)   | RCA connection for Audio input |
| 6    | Audio Output       | Speaker output terminal |
| 7    | Ethernet           | For network connection (RJ-45) |
| 8    | eSATA              | eSATA external storage connection |
| 9    | DVI OUTPUT         | Output for DVI monitor connection |
| 10   | RS-232C D-Sub      | Text equipment, Keyboard connection |
| 11   | Termination Ohm    | Termination Ohm for Com2, Com3 |
| 12   | Relay/Serial       | Connection for Relay and Serial(RS-485) |
| 13   | Sensor IN          | Input for external sensor |
| 14   | FAN                | Cooling system against over heating |</p>
<table>
<thead>
<tr>
<th>번호</th>
<th>Input/ Output name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ground</td>
<td>Ground between DVR &amp; external device</td>
</tr>
<tr>
<td>15</td>
<td>Power connector</td>
<td>Socket for AC100V–AC240V power cord</td>
</tr>
</tbody>
</table>
# 1.2.2.2. HVRM-T1600Q/ T800Q REAR

<table>
<thead>
<tr>
<th>번호</th>
<th>Input/ Output name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ground</td>
<td>Ground between DVR &amp; external device</td>
</tr>
<tr>
<td>2</td>
<td>Power connector</td>
<td>Socket for AC100V~AC240V power cord</td>
</tr>
<tr>
<td>3</td>
<td>CH1~16</td>
<td>BNC input for camera connection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HVRM-T1600Q : 16EA, HVRM-T800Q : 8EA</td>
</tr>
<tr>
<td>4</td>
<td>Monitor/ Spot</td>
<td>BNC connection for monitor output</td>
</tr>
<tr>
<td>5</td>
<td>Audio Input(RCA)</td>
<td>RCA connection for Audio input</td>
</tr>
<tr>
<td>6</td>
<td>Audio Output</td>
<td>Speaker output terminal</td>
</tr>
<tr>
<td>7</td>
<td>Ethernet</td>
<td>For network connection (RJ-45)</td>
</tr>
<tr>
<td>8</td>
<td>RS-232C D-Sub</td>
<td>Text equipment, Keyboard connection</td>
</tr>
<tr>
<td>9</td>
<td>VGA OUTPUT</td>
<td>Output for VGA monitor connection</td>
</tr>
<tr>
<td>10</td>
<td>Termination Ohm</td>
<td>Termination Ohm for Com2, Com3</td>
</tr>
<tr>
<td>11</td>
<td>Relay/Serial</td>
<td>Connection for Relay and Serial(RS-485)</td>
</tr>
<tr>
<td>12</td>
<td>Sensor IN</td>
<td>Input for external sensor</td>
</tr>
</tbody>
</table>
1.2.3. REMOTE CONTROLLER

It is available to use all functions of DVR. If several DVR are set with unique ID numbers, they can be controlled with one remote controller. To use remote controller, it is necessary to set ID first which want use. Keep pressing ID button repeatedly (Up to Max. 16 times) and use it matching DVR & ID.

<table>
<thead>
<tr>
<th>No.</th>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ID</td>
<td>To select Remote Controller ID</td>
</tr>
<tr>
<td>2</td>
<td>LOCK</td>
<td>Not use</td>
</tr>
<tr>
<td>3</td>
<td>COPY</td>
<td>To indicate copy menu, copy recorded data to USB</td>
</tr>
<tr>
<td>4</td>
<td>BACKUP</td>
<td>Not use</td>
</tr>
<tr>
<td>5</td>
<td>RELAY ON</td>
<td>To manually ON</td>
</tr>
<tr>
<td>6</td>
<td>RELAY OFF</td>
<td>To manually OFF</td>
</tr>
<tr>
<td>7</td>
<td>SEQ</td>
<td>Auto sequencing</td>
</tr>
<tr>
<td>8</td>
<td>MULTI</td>
<td>To change division</td>
</tr>
<tr>
<td>9</td>
<td>ZOOM</td>
<td>To run digital zoom</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>10</td>
<td>SEARCH</td>
<td>To indicate search menu</td>
</tr>
<tr>
<td>11</td>
<td>CHANNEL BUTTON</td>
<td>To select channel</td>
</tr>
<tr>
<td>12</td>
<td>SELECT</td>
<td>Not use</td>
</tr>
<tr>
<td>13</td>
<td>+10</td>
<td>In case of selecting over 10 (+10 + 1)</td>
</tr>
<tr>
<td>14</td>
<td>FN1</td>
<td>Not use</td>
</tr>
<tr>
<td>15</td>
<td>FN2</td>
<td>Not use</td>
</tr>
<tr>
<td>16</td>
<td>MENU</td>
<td>Covert to menu screen</td>
</tr>
<tr>
<td>17</td>
<td>HELP</td>
<td>Not use</td>
</tr>
<tr>
<td>18</td>
<td>◀/REW</td>
<td>Move setting menu to left direction/REW</td>
</tr>
<tr>
<td>19</td>
<td>▶/FWD</td>
<td>Move setting menu to right direction/FWD</td>
</tr>
<tr>
<td>20</td>
<td>▲/PAUSE</td>
<td>Move setting menu to top direction/PAUSE</td>
</tr>
<tr>
<td>21</td>
<td>▼</td>
<td>Move setting menu to bottom direction/STOP</td>
</tr>
<tr>
<td>22</td>
<td>ENTER/PLAY</td>
<td>Menu selection/Playback</td>
</tr>
<tr>
<td>23</td>
<td>ENTER</td>
<td>To select menu</td>
</tr>
<tr>
<td>24</td>
<td>EXIT</td>
<td>To cancel setting, escape from menu</td>
</tr>
<tr>
<td>25</td>
<td>FAST REWIND(◀◀)</td>
<td>Speedy replay to reverse direction</td>
</tr>
<tr>
<td>26</td>
<td>REWIND PLAY(◀)</td>
<td>Replay to reverse direction</td>
</tr>
<tr>
<td>27</td>
<td>FORWARD PLAY(▶)</td>
<td>Repleay to forward direction</td>
</tr>
<tr>
<td>28</td>
<td>FAST FORWARD (▶▶)</td>
<td>Speedy replay to forward direction</td>
</tr>
<tr>
<td>29</td>
<td>STOP(■)</td>
<td>To stop replay</td>
</tr>
<tr>
<td>30</td>
<td>STEP REVERSE(◀ⅈ)</td>
<td>Replay to reverse direction by each frame</td>
</tr>
<tr>
<td>31</td>
<td>STEP FORWARD (▶ⅈ)</td>
<td>Replay to forward direction by each frame</td>
</tr>
<tr>
<td>32</td>
<td>PAUSE(Ⅱ)</td>
<td>To freeze playback</td>
</tr>
<tr>
<td>33</td>
<td>P/T</td>
<td>PAN/TILT Control</td>
</tr>
<tr>
<td>34</td>
<td>LOAD PRESET</td>
<td>To read preset</td>
</tr>
<tr>
<td>35</td>
<td>AUX ON</td>
<td>Auxiliary ON</td>
</tr>
</tbody>
</table>
2. Installation

2.1 Installation and Connection

2.1.1 Connecting & Running

2.1.1.1 Connecting camera

Connect CCTV camera to DVR with BNC cable as below:

- The video type for all channels should be either NTSC or PAL, not be combined both.
- DVR sets video signal's impedance (75Ω) automatically. Impedence is set as 75 Ω basically. If connecting a device to video output, impedance will be "Hi-z" status.
- Video Type (NTSC/PAL) should be changed after booting DVR. The order of camera recognition follows ch1 through Ch16 camera and 1st recognized camera type leads other camera type.

2.1.1.2 Connecting monitor

Connect CCTV monitor to DVR with BNC cable as below.

Will be able to connect BNC, DVI and VGA.
2.1.1.3 Connecting Audio
Connect audio signal to DVR with using RCA cable or D-SUB as below;

[HVRM-T1600M/ T800M/ T400M]

2.1.1.4 Supplying Power
Connect power cable as below;

[HVRM-T1600Q/ T800Q]
- When supplying power, DVR starts booting automatically.
- In order to cut off power, press power switch on DVR front during 5 seconds, then select “YES” after appearing a pop-up window.
- For supplying power again, push the Power button.
2.2 Running OSD menu

2.2.1 OSD menu configuration

Press [MENU] in keypad of front to open configuration menu as below;

(1) **Main Menu**: The selected tab is show in bright color and the related sub-menu will be shown left- below the tab. To move to the previous/next tab, use the [◀/▶] arrow buttons. To move to a sub-menu press the [Enter] key.

(2) **Sub-menu**: The selected sub-menu is shown as tab title and the related setting will be shown. To move to the previous/next tab, use the [◀/▶ ▲/▼] arrow buttons. To move to the related setting press [Enter]. To move to upper main menu, press [ESC] button.

(3) **Setting page**: The selected tab is shown as orange, To move to the previous/next tab, use the [◀/▶] or [▲/▼] arrow button and press [Enter] key for value setting. Whn setting value is a word, a dialogue box to edit the word will be open. When setting value is number, it should be set with using [◀/▶] or [▲/▼]. Press [ESC] button when the value is set and also [ESC] button is available to upper sub-menu.

2.2.1.1 Dialogue box to edit a word

Dialogue box to edit a word is image shown as below; It is available to input both word and number.
Keep pressing [▲/▼], [◀/▶] arrow button until the word is looking for and press Enter. In case of deleting input word press [←], spacing words press [→] button. To exit from dialogue box, press [Enter] after finishing word input.

### 2.2.2 Setting remote controller

#### 2.2.2.1 Setting ID of DVR

When controlling several DVRs with one remote controller, set Remote Control ID as follows;

1. Press the [MENU] button
2. [▶] Select “system” with using [▶] arrow button and press [Enter] or [▼] button
3. [▼] Select “Utility” with using [▶] arrow button and press [Enter] button.
4. Select “Remote Control ID” and press [Enter]
5. [◀/▶] Select a value using [◀/▶] arrow buttons and press [ESC]
6. Press the [ESC] button to return to the monitor mode.

<Reference>

Up to 16 DVRs can be controlled with a single remote controller.

When not using remote controller, set the Remote Control ID as “Off”
2.2.2.2 Selecting ID
If several DVRs are with unique ID numbers, they can be controlled with one remote controller. To select a specific DVR, keep pressing the ID button of remote controller until a buzzer sounds during 2 seconds.

2.2.2.3 Operable range of remote controller

2.2.2.4 Loading the batteries into the remote controller
Remote controller required two AAA-type batteries. Please, refer the following installation step.

1. Remove the battery cover
2. Take care the poles (+/-) are correctly positioned
3. Replace the battery cover

2.2.3 Install examples

2.2.3.1 Basic configuration

[HVRM-T1600M/ T800M/ T400M]
2.2.3.2 Advance configuration

[Diagram of HVRM-T1600Q/ T800Q]

[Diagram of HVRM-T1600M/ T800M/ T400M]

[Diagram of HVRM-T1600Q/ T800Q]
2.2.3.3 External storage & Back up configuration

USB Storage for Copy
[HVRM-T1600M/ T800M/ T400M]

USB Storage for Copy
[HVRM-T1600Q/ T800Q]

2.2.3.4 Internet/ Intranet configuration

[HVRM-T1600M/ T800M/ T400M]
2.2.4 Basic Setting

2.2.4.1 Viewing Image

When power is on, eDVR starts automatically and displayed in basic 16ch-split screen after booting.

<Reference>

If user password is set, a prompt for entering the password will be appeared. Factory default is reserved as not responding keypad on DVR front (It is not from factory default).
2.2.4.2 Setting Date & Time

- Press [MENU] button and select “System” when OSD menu is appeared.
- Select “Date/Time” and press [Enter] button.

Time Zone
Use the left or right arrow key on the front or the mouse wheel to select your time zone. Each press of the arrow keys changes the time zone. (To go to the previous menu, press the [ESC] button on the front or right-click. This is the same for all OSD menus.)

Daylight saving
This menu is linked with “time zone” setting. For example, if the countries applied for daylight saving in time zone setting menu then daylight saving will be turn to ON and other counties are not applied for daylight saving then this option will be turn to OFF, and additionally the user can configure the daylight saving option manually for the counties that were not applied, and in this case, you can use “Custom” option to set.

The second is for selecting a month, week, and day to define the start and end times of DST.
NTP
(1) Select NTP Function
(2) Select “Client or Server or Both” using [◀/▶] or [▲/▼] arrow button and press [Enter] button.
(3) Select “Public or Both” using [◀/▶] arrow button and press [ESC] button on ‘Client or Both’ mode.
   (1) Enter ‘Server IP address’ when you set the next server as Local.
   (2) Set Server and Communicate cycle with Interval.

Date Format
(1) Select “Date Format” using [◀/▶] or [▲/▼] arrow button and press [Enter] button. Select a value using [◀/▶] arrow button from YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY.
(2) Press [ESC] after finishing value setting.

Time
(2) Select Date, Time using [◀/▶] arrow button and set value using [▲/▼] arrow button.
(3) Press [ESC] after finishing value setting.

Apply
Most setting values are applied automatically, when exiting from the related menu page. But “Date” & “Time” setting are not applied automatically because they may critically affect the file system of the recorded HDD. To apply Date/ Time settings confirm with [Apply Date/Time] buttons.

   (1) Select “Apply Date/ Time” using [◀/▶] or [▲/▼] arrow button and press [Enter]. Then, a warning message will be appeared as below image;
   (2) Select using [◀/▶] or [▲/▼] arrow button and select “YES”, then, press [ENTER] button.
To cancel, press [ESC] button.

2.2.4.3 Record Setting
Select “Record” pressing menu button in front.

Program Setting
Set resolution, frame rate, quality by each channel that user want record in “Program” of record menu.
Schedule Setting

Set recording mode as “Scheduel & Event” and set by date/ time.

Checking method for recording

<Reference>
If recording setting is finished correctly, “REC LED” in front is flickering. In addition, it is marked [S] indicating that all channels are recording.

2.3 Connecting and configuring DIO ports

2.3.1 Wire Handling
When connecting a wire to a terminal block, follow the instruction below. Not the different types of wire that can be used.
- Standard wire: Peel off the wiring cover 8~10mm and solder it. Wire gage should be AWG 22~26.
- Sold wire: Peel off the wiring cover 8~10mm and solder it. Wire gage should be AWG 20~26.

2.3.2 Inserting & removing wire
To insert & remove wire in Terminal Block, use a screwdriver in the diagram to the below;

2.3.3 Connecting and configuring sensor
2.3.3.1 Specification
In order to run sensor input DVR normally, the following conditions are required.

<table>
<thead>
<tr>
<th>Spec</th>
<th>Input Ch</th>
<th>Transistor input</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>HVRM-T1600M, HVRM-T1600Q: 16EA,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HVRM-T800M, HVRM-T800Q: 8EA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HVRM-T400M: 4EA</td>
</tr>
<tr>
<td>Input type</td>
<td>N.C, N.O supprt</td>
<td></td>
</tr>
<tr>
<td>Supported sensor</td>
<td></td>
<td>Dry contact sensor</td>
</tr>
<tr>
<td>Way of connecting</td>
<td></td>
<td>Connecting the trimmed wire to terminal block</td>
</tr>
<tr>
<td>Performance</td>
<td>Available input pulse range</td>
<td>Minimum 500ms</td>
</tr>
<tr>
<td></td>
<td>Output current</td>
<td>Typical DC 12mA</td>
</tr>
</tbody>
</table>
Connecting sensor input
Connect S1 ~ S16 (S8, S4) with referring the following image. It shows to connect a dry contact (Please refer “Wire Handling”).

Setting Sensor
(1) Press [Menu] button and select “Event” when OSD menu is appeared.
(2) Move to sub menu pressing [Enter] or using [▼] button and select [Enter]
All sensor
It is used when setting for all sensors and set Off, or Normal Open (N.O.) / Normal Close (N.C.) type.
(1) Select All and set type.

Each sensor
It is used when setting for each sensor and set selecting each sensor.
(1) Select sensor and press [Enter] button.
(2) Select sensor that user want set and set type
(3) Press [ESC] after finishing value setting.

2.3.3.2 Connecting relat and setting

Specification
In order to run relay output of DVR normally, the following conditions are required.

<table>
<thead>
<tr>
<th>SPEC</th>
<th>Output Ch.</th>
<th>2EA relay outputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output type</td>
<td></td>
<td>Dry contact</td>
</tr>
<tr>
<td>Connecting type</td>
<td></td>
<td>Connect the trimmed wire to terminal block</td>
</tr>
<tr>
<td>Perfromance</td>
<td>DC</td>
<td>30V 1A</td>
</tr>
<tr>
<td></td>
<td>AC</td>
<td>125V 0.5A</td>
</tr>
</tbody>
</table>

Connecting relay out
Connect R1 ~ R2 with referring to the following images, it shows to connect a warning light. Please refer the “Wire Handling”.
Relay setting

It is available to run relay selecting from sensor, motion detection, Video Loss which is normal event source and Disk error, Disk full, authentication fail, WRS registration fail which is system event source. Also, user can set working condition by schedule. In case of using control center thru. network, realy could be run from remotely.
### 2.3.3.3 Connecting serial port

**Configuring serial ports for Pan/Tilt/Zoom**

If DVR supports thru. COM port, it is available to connect PTZ camera and control it. For a list of supported protocols, please refer to the list on the OSD configuration menu. The following figure shows how to connect PTZ camera to RS485 (COM2/COM3). When using another serial port, connect it with referring to each connection diagram below.

Please refer the “Wire Handling”.

[HVRM-T1600M/ T800M/ T400M]
Serial communication port diagram

**COM1 Connection (RS-232)**

**COM2/COM3 Connection (RS-485)**
Available PTZ is same as below table.

<table>
<thead>
<tr>
<th>Model Name</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyboard KBD300A, WGI SPD1800/2600</td>
<td>Webgate</td>
</tr>
<tr>
<td>WKC-100 Keyboard</td>
<td>Webgate</td>
</tr>
<tr>
<td>BOSCH AutoDome, TC8560X-4</td>
<td>Bosch</td>
</tr>
<tr>
<td>PELCO(P), PELCO(D)</td>
<td>Pelco</td>
</tr>
<tr>
<td>Sony EVI-D3x</td>
<td>Sony</td>
</tr>
<tr>
<td>VT VPT-4x</td>
<td>VT</td>
</tr>
<tr>
<td>AD SpeedDome</td>
<td>AD</td>
</tr>
<tr>
<td>SungJin SJ372R1'</td>
<td>Sungjin</td>
</tr>
<tr>
<td>Samsung SCC641</td>
<td>Samsung Electric</td>
</tr>
<tr>
<td>Panasonic WV-CS850</td>
<td>Panasonic</td>
</tr>
<tr>
<td>SDZ160/330, Samsung SPD,</td>
<td>Samsung Techwin</td>
</tr>
<tr>
<td>Keyboard SCC3000, Samsung SRX-100B</td>
<td></td>
</tr>
<tr>
<td>LG GAC-PT2</td>
<td>LG</td>
</tr>
<tr>
<td>Merit-Lilin FastDome</td>
<td>Merit</td>
</tr>
<tr>
<td>Elmo PTC200C</td>
<td>Elmo</td>
</tr>
<tr>
<td>Canon VC-C4</td>
<td>Canon</td>
</tr>
<tr>
<td>HTC-230S</td>
<td>Dongyang Unitech</td>
</tr>
<tr>
<td>Honeywell 755/655, HRX-2000, ScanDome2</td>
<td>Honeywell</td>
</tr>
<tr>
<td>RVision</td>
<td>RVT</td>
</tr>
<tr>
<td>Elbex</td>
<td>Elbex</td>
</tr>
<tr>
<td>VIDO</td>
<td>VIDO</td>
</tr>
<tr>
<td>VICON</td>
<td>Vicon</td>
</tr>
<tr>
<td>Hunt</td>
<td>Hunt</td>
</tr>
<tr>
<td>ORX-1000</td>
<td>Sysmenia</td>
</tr>
<tr>
<td>Fine CRR-1600</td>
<td>LiveEye</td>
</tr>
<tr>
<td>Tokina</td>
<td>Tokina</td>
</tr>
<tr>
<td>Kodicom KRE</td>
<td>Kodicom</td>
</tr>
<tr>
<td>Nuvico</td>
<td>Nuvico</td>
</tr>
</tbody>
</table>

**Serial Setting**

You can set up both serial port and PTZ from remote menu under network menu.
From serial setting, you can set protocol, port, baudrate, parity bit, stopbit and databit. After completed serial setting, select desired channel from camera menu, and setting up PTZ Home, PTZ Idle Time, PTZ Port, and PTZ address.

### 2.3.3.4 Connection to external device via Serial port

#### Text input device connection (ATM / POS / Access Control)

Using COM1/RS232, TEXT DATA can be recorded with synchronizing POS/ATM.

Like above picture, connect COM1/RS232 (9pin D-Sub) in Device menu and configure Serial and Text.
Serial (COM1) Setup

(1) Select “Device” in OSD menu and move to sub menu.
(2) Selecting COM1 and configure “Text” in Device
(3) Setup the value of Baud Rate/Parity/Stop bit/Data bit with the device.

Text Setup

(1) Select “Device” on OSD, and move to sub menu.
(2) Select “Text” and configure relevant text information

<Reference>
Since external device can not be recognized, before installing, please, ask to the shop.

2.3.3.5 USB Device Connection
USB port is for the simple video copy (within 1 hour) on USB Flash memory. Its recommended specification is same as below.

<table>
<thead>
<tr>
<th>USB Spec.</th>
<th>Ver 2.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device</td>
<td>USB Memory Stick</td>
</tr>
<tr>
<td>Voltage/electric current</td>
<td>Max. 200mA per DC 5V / Port</td>
</tr>
</tbody>
</table>
<Reference>
It should be formatted by FAT32.

In case of normal connection, if executing Copy menu, disk will be recognized same as below and Set copy range → Select Drive → Execute Copy.

[CD/DVD Copy]
Select the channel to copy

[RE4 Copy]

[HVRM-T1600M/ T800M/ T400M/ T1600Q/ T800Q]

[AVI Copy]

<Reference>
A USB Flash memory which should install additional program on Windows OS, can not be recognized.

2.3.3.6 Video In/Out connection
Video Input/Output is Loop through and check the connectivity automatically and set end resistance.
For instance, if connected by Video input, end resistance is configured by 75Ω and if Video in/output is same, it will be Hi-z mode. Therefore, in case that Input/Outut are connected at the same time, end resistance of device receiving output should be configured by 75Ω.
2.3.3.7 Audio In/Out connection
There are 4 RCA Audio Input and 1 RCA output.

2.3.4 HDD
※ Please, refer to Appendix for available HDD list

2.3.4.1 HDD registration and format
After mounting HDD and booting system, “Disk Manager” will execute automatically.
If not, please, check the connectivity of HDD.
(1) Press [Enter] button in “Disk Manager”

(2) Using [▲/▼] Key, select new HDD(Displayed [No] on Enabled item) and press [Enter]

(3) If you see the message for format, select [Yes].

(4) Press [ESC] and escape from “Disk Manager”

### 2.3.4.2 HDD Replacement

(1) Turn Off the DVR and take off the HDD that has a problem and replace it with new HDD.

(2) Turn On the DVR and go to “Disk Manager” menu and select the previous HDD which has a problem, and press “Enter” Key.

(3) “Removed disk will be confirmed” message will be pop-up and select “Yes” to delete it from the list.

(4) Select the new HDD from the list and press “Enter” key.

(5) Select “Yes” when the system asking “do you want to format”

(6) After complete above procedure then Press “ESC” key to exit the “Disk Manager” menu.

---

**<Note>**

1. **HDD Re-using (Add Used)**

You can use HDD that has been used before from DVR, in this case you do not need to do format and delete the data.

How to use it? Please install previous HDD in the DVR, and go to “Disk Manager” menu and select the HDD that you wish to re-use which is you just installed HDD, and press “Enter” key then you will see the pop-up message “This disk can be added without format/Nevertheless, do you want format this disk?” and select “NO” for re-use without
format, and select “YES” for format.

2.3.5 Remote monitor and control
Via Internet/Intranet, in remote site, user can access with PC.

2.3.5.1 Ethernet connection

![Diagram of Ethernet connection](image)

[HVRM-T1600M/ T800M/ T400M]  [HVRM-T1600Q/ T800Q]

(1) Cut Power.
(2) Connect Ethernet cable to DVR and Hub.
(3) Input Power.

<Reference>
To protect DVR damage, after connecting Ethernet cable, input Power.
Please, check Ethernet cable connection firmly.
Input power on DVR and check their connectivity.
2.3.5.2  Network configuration

**Ethernet**
Set type as Ethernet and input IP, Netmask, Gateway, DNS.
The way to input is using directional key or mouse wheel.

**PPPoE**
Set type xDSL, and move to xDSL menu.
First, change Ethernet Port
Please, input ID and Password for PPPoE.

**WRS**
After changing interval over 1 min, register WRS address and product and input Group ID.

2.3.6  External device connection

DVR has external Storage Device Interface and 1 ea of eSATA port. Using eSATA port, user can expand Storage capacity up to 8TB.
Since some of eSATA device can not be compatible with DVR, before the usage, please, contact the seller and check its compatibility in advance.

2.3.6.1 eSATA Device Connection

In case of external eSATA supporting FireWire, using eSATA port on the rear part. And since DVR does not support power to eSATA, eSATA device should be one external power is supported.

<Note>

Basically eSATA is connected to DVR while DVR is running, works properly. However it depends on eSATA manufacturer. Therefore, we recommend below order for making connection.

1. Power on DVR. Connect external HDD to IEEE1394 port.
2. Power on external device
3. Power on eDVR
3 Menu Use

3.1 Menu Structure
The menu structure will be shown like below image, and each menu setting method described from chapter 4 to chapter 6.

![Menu Structure Diagram]

3.2 Function Menu
To execute Function menu, click the right button of mouse or select 'FUNC' button on front panel. The Function menu can be controlled by mouse.

Each function can be executed by clicking right button of mouse and click desired icon.
The Function menu also can be controlled by front part of DVR’s buttons.
Please refer to below picture for the Function menu structure.

Function of Live
Function of Playback

3.3 Factory Reset

In order to reset value to factory value, go to System Setting->System->Setting, and once press Factory Reset then the warning message will be appear, click “Yes” to reset the DVR value to factory.

Default Value from Factory

<table>
<thead>
<tr>
<th>System</th>
<th>Time Zone</th>
<th>UTC 00:00 Dublin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date / Time</td>
<td>Daylight Saving</td>
<td>Off</td>
</tr>
<tr>
<td></td>
<td>NTP Function</td>
<td>Sync With NTP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off</td>
</tr>
<tr>
<td></td>
<td>NTP Mode</td>
<td>Client</td>
</tr>
<tr>
<td></td>
<td>NTP Server Loc.</td>
<td>Public</td>
</tr>
<tr>
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**Sensor**

| Sensor | All, N.O. |

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**Program initial value**

**HVRM-T800Q**

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### HVRM-T800M

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### HVRM-T1600M

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</table>
4 Monitoring

All analog video image channels connected to eDVR is displayed to screen by Power connection. It is to utilize all monitoring mode of DVR.

4.1 Basic Screen
After Power connection, the DVR operates automatically.
It boots with LED on.
After booting, 16 channel screens are displayed.(HVRM-T1600M, HVRM-T1600Q: 16 screens, HVRM-T800M,HVRM-T800Q:9 screens, HVRM-T400M: 4 screens)
※ If there is user password set, Password input window will be displayed.

4.2 Single Fll Screen Mode
Press the channel number wanted or click mouse button.
Press [MULTI] button to return to divisional screen.

4.3 Multi Screen Mode
Press [MULTI] for multi channel display or click “Display” icon from Function menu.
Press [MULTI] button every time, screen mode for HVRM-T1600M, HVRM-T1600Q is changed to 1~4, 5~8, 9~12, 13~16, 4C, 1~9, 8~16, 1~10, 16 screens, and for HVRM-T800M, HVRM-T800Q is 1~4, 5~8, 4C, 9 screens, and for HVRM-T400M is 1~4 screens.
4A, 4B, 4C, 4E, 9A, 9B, 10A, 16 channel division.
4.4 Screen Description
The status bar from monitoring screen, it shows DVR’s current status that included Date/Time, Record, Motion/Sensor Detection, Manual Record, Text input and HDD’s record capacity.

4.5 Auto Switch Mode
There are System Standard modes and User Defined mode in Auto Switch mode. And Users Sequence mode operates by the press [SEQ] button.

4.5.1 System Standard Mode
By [Auto] button, it can monitor auto switching of all channels.
Press [MENU] for the setting switching term or using mouse click menu icon from function menu.
Move to “Device” → “Monitor” from OSD menu.

Select “Seq. Switching(sec)” and set value from 1 sec. to 60 sec. At OFF set, auto switch mode does not operate.

Auto Switch mode can be set in every division mode by the press [Auto] button.
Press [Auto] button once more to leave from Auto Switch mode.
4.5.2 **User Sequence Mode**

Press [AUTO] button or click [Sequence] icon from Function menu with mouse.
- Auto Switch model can be set from "Monitor" main menu.

![User Sequence Mode]

User mode can define max. 16 channels.
As shown above picture, the 16ch DVR can be define between channel 1 ~ 16, the 8ch DVR from 1 ~ 8 and the 4ch DVR from 1 ~ 4.

4.6 **Event Screen**

When there is an event occurred, the green color [M] and red color [S] will be display from status bar. In case of [M] displayed, the camera name will be turned to green color, and it will turn to yellow when Motion Detection event finish.
In case of [S] displayed, the camera name will be turned to red color, and it will turn to yellow when Sensor event finish.

![Event Screen]

It can be set to Pop-up automatically relevant screen when alarming.
Set pop-up period can be set into “Alarm Pop-up (sec)” inferior to “Monitor” menu.
At the simultaneous alarming in several channels, it displays the division as many channel as alarmed. For example, when 3 channels alarm, 4 divisions is displayed on screen. And press any button to return original channel.
1. If Alarm Pop-up Hold (sec) set to Off, Alarm Pop-up will not operate.
2. If Alarm Pop-up Hold (sec) set to Keep, it does not return to previous screen before press any button

4.7 Zoom Screen Mode

- From single full screen mode, press [FUNC] and D-Zoom button then select + button to activate zooming the image.
- Default zoom screen locates to main center when press [ZOOM] button. Zoom image can shift left-right in 18 steps and top-bottom in 12 steps.
- Use directional key button to screen move.
- Press [-] one more to return to original screen.

4.8 Pause Live Screen

- Live screen can pause like Playback.
4.9 PTZ Control

Connect PTZ controller to DVR and set relevant protocol from “Serial Setup” menu, then PTZ can operate while monitoring live images.

The method of operating PTZ, press PTZ button from DVR’s front panel, or click PTZ icon from Function menu.

Below lists are the protocol available in DVR.

<table>
<thead>
<tr>
<th>Model</th>
<th>Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOSCH AutoDome, TC8560X-4</td>
<td>Bosch</td>
</tr>
<tr>
<td>PELCO(P), PELCO(D)</td>
<td>Pelco</td>
</tr>
<tr>
<td>Sony EVI-D3x</td>
<td>Sony</td>
</tr>
<tr>
<td>VT VPT-4x</td>
<td>VT</td>
</tr>
<tr>
<td>AD SpeedDome</td>
<td>AD</td>
</tr>
<tr>
<td>SungJin SJ372R1</td>
<td>SungJin</td>
</tr>
<tr>
<td>Samsung SCC641</td>
<td>Samsung Electric</td>
</tr>
<tr>
<td>Panasonic WV-CS850</td>
<td>Panasonic</td>
</tr>
<tr>
<td>SDZ160/330, Samsung SPD, Keyboard SCC3000A, Samsung SRX-100B</td>
<td>Samsung Techwin</td>
</tr>
<tr>
<td>LG GAC-PT2</td>
<td>LG</td>
</tr>
<tr>
<td>Keyboard KBD300A, WGI SPD1800/2600</td>
<td>Webgate</td>
</tr>
<tr>
<td>WKC-100</td>
<td>Webgate</td>
</tr>
<tr>
<td>Merit-Lilin FastDome</td>
<td>Merit</td>
</tr>
<tr>
<td>Elmo PTC200C</td>
<td>Elmo</td>
</tr>
<tr>
<td>Canon VC-C4</td>
<td>Canon</td>
</tr>
</tbody>
</table>
- Press desired channel button.
- Press PTZ button from front panel or click PTZ icon from function menu with mouse.
- PTZ menu (Pan/Tilt, Zoom/Focus, Load Preset, Save Preset) will be appear.
- Then press [Enter] button or click from mouse.

### 4.9.1 Pan/Tilt

This menu is used to control Pan & Tilt function at real-time monitoring mode.
- Select Pan/Tilt from PTZ mode.
- Control Pan/Tilt through directional key at front part.

### 4.9.2 Zoom/Focus

This menu is used to control Zoom & Focus function at real-time monitoring mode.
- Select Zoom/Focus from PTZ mode.
- Control Pan/Tilt through directional key at front part.

### 4.9.3 Load Preset

This menu is used to shift to Preset Set at real-time monitoring mode.
- Using up / down button or mouse wheel to select the Preset Number.
- Once preset configured then select Load and press Enter or click from mouse.

### 4.9.4 Save Preset

This menu is used to set new Preset at real-time monitoring mode.
- Control camera location using ‘Pan/Tilt’ and ‘Zoom/Focus’ menu.
- Using up / down button or mouse wheel to select the Preset Number.
- Once preset configured then select Save and press Enter or click from mouse.

**4.9.5 Auxiliary On**

This menu is used to utilize specific function in PTZ device at real-time monitoring mode.
- Using up / down button or mouse wheel to select the Aux Number.
- Press relevant Number button of specific function (Aux function is available to max 16 functions.)

**4.9.6 Auxiliary Off**

This menu is used to stop operation of specific function of PTZ device.
- Using up / down button or mouse wheel to select the Aux Number.
- Select Off and press Enter button or click from mouse.

**4.9.7 Menu**

It is to go into connected PTZ’s menu, using up/down/left/right and enter key from front panel for setting the menu, and press ESC button for exit the menu.
5 Playback

5.1 Playback Mode

5.1.1 Playback on Standard monitor (16 / 9 / 4 division)
- Please, push play button in monitoring mode or mouse click play button in Function menu.
- If pushing Play button or FWD button, video playbacks in forward direction at 1× speed.
- If pushing REW button, video playbacks in reverse direction at 1× speed.
- If pushing Playback button in multi-division monitor mode, it playbacks the recorded data as 16 / 9 / 4 division screen.

5.1.2 Playback function

PLAY : Playback 1× speed. If using mouse, click Play button in Function menu.
Multi channel video will play back if pushing [PLAY] button in monitor mode. And it playbacks from the latest played back.
PAUSE : Pause playback temporary. With mouse, click Pause button in Function menu.
STOP : Stop playback. With mouse, click Stop button in Function menu.
FWD : Playback speed will be changed. (x1, x2, x4, x8, x16, x32, x64, x1/2, x1, x2, x4 – in order), If pushing [FWD] button in live view, it plays back video 1 minute ago. Playback speed can be chanbed by pussing [FWD] button.
REW : Reverse playback speed will be changed. (x1, x2, x4, x8, x16, x32, x64, x1/2, x1, x2, x4 in order)
If pushing [REW] button in live view, it plays back video 1 minute ago. Playback speed can be chanbed by pussing [REW] button.
STEP FORWARD : If pushing [FWD] button on Pause mode, playback by each frame to the forward. Push [PLAY] to return normal playback.
STEP REWIND : If pushing [REW] button on Pause mode, playback by each frame to the reverse. Push [PLAY] to return normal playback.
1/2REWIND : Play back at a half speed to forward direction.
1/2FORWARD : Play back at a half speed to reverse direction.
5.2 SEARCH MODE
This menu is to playback specific time data from the time frame and searching log at Playback mode.
There are Time, Calendar, Event, Thumbnail mode.
Please, push Search button on the front panel or click in Function menu.

5.2.1 Time Search
Select date and time to search and playback video will be moved to the selected point.

Start-REC Time : The date and time of start-recording
End-REC Time   : The latest date and time of the recording
Search Time     : Select the range of date and time for Search
Search          : Execution button

5.2.2 Schedule Search
Depends on models, HVRM-T1600M, HVRM-T1600Q shows the status of recording for 1~16ch, HVRM-T800M, HVRM-T800Q for 1~8ch, HVRM-T400M for 1~4ch.

**Year** : Select Year to search. With mouse wheel, user can change it.
**Month** : Select Month to search. With mouse wheel, user can change it.
**Date** : Select Date to search. With mouse, select the date and decide the time by wheel.
**Time** : Select the time and push Enter button to play back.

### 5.2.3 Event Search

User can search by all channels, some of channels, all events, motion detection, sensor in certain range. For change of date and time, with front panel, please use top and down button. In case of using mouse, scroll the mouse wheel after selecting area. Searched result will be displayed on additional event window. Select and push enter or scroll the mouse wheel to move to the wanted date and time area.

![Event Search Window](image)

**Start-REC Time** : Starting date and time of the recording.
**End-REC Time** : The latest date and time of the recording
**Search Start Time** : Input start date and time for search with direction button and push Enter and change the value by Up and Down button. With mouse, click and scroll the wheel.
**Search end Time** : Input end date and time for search with direction button and push Enter and change the value by Up and Down button. With mouse, click and scroll the wheel.
**Event Channel** : Select the channel for search
- HVRM-T1600M, HVRM-T1600Q from Ch1 to Ch16
- HVRM-T800M, HVRM-T800Q from Ch1 to Ch8
- HVRM-T400M from Ch1 to Ch4
**Event Type** : Select the event type for search
There are all events, motion detection, sensor, video loss, text type

5.2.4 Thumbnail Search
Search certain channel by thumbnail type. If select the searched thumbnail, selected date and time video will be played back.

Channel : Select the channel and change the value by direction key or mouse wheel.
Start Time : Input the date and time for starting search and change the value using up-down direction key or mouse wheel.
Interval : Set Interval value by Up-down button or mouse wheel.
View video : If pushing search button, 16 cycles will be shown based on start time. Press [Func] to return to the search or use mouse wheel.
Select video : Play back from the selected video of thumbnail search result.
With pressing Enter or clicking mouse, use can play back.
5.3 Copy
This is for copying recorded video. There are CD/DVD and RE4 and AVI type.
Copy function is supported to be used by user who has the authorization. For authority configuration, please, refer to 6.9.3 Security.
To use copy function, press [COPY] or Click Copy button in Function menu.
In case to copy with RE4 and AVI format, you need to use USB memory stick or USB HDD.
You must do “Fat32” format first from PC before doing copy.

5.3.1 CD/DVD
This is copy function by using CD or DVD. CD or DVD will be automatically searched.

Type : Select CD/DVD using up-down direction key or mouse wheel. Press Enter and scroll wheel to change the value.
Channel : User can select some or all channel among 16channels. Select the channel location and press Enter or use mouse wheel.
**From**: Select start date and time to copy using up-down key or mouse wheel.
**To**: Select end date and time to copy using up-down key or mouse wheel.
**Select Disk**: Select the media to copy using Enter button on Select Disk.
**Start**: Start Copy. Press Start button with Enter or click the left button of the mouse.

Please, refer to the supported media list below.

<table>
<thead>
<tr>
<th>DVD-R manufacturer</th>
<th>CD-R Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitsubishi(×16 recomended)</td>
<td>Mitsubishi(×52 recomended)</td>
</tr>
<tr>
<td>TDK(×16 recomended)</td>
<td>TDK(×52 recomended)</td>
</tr>
<tr>
<td>Imation(×16 recomended)</td>
<td>Imation(×52 recomended)</td>
</tr>
<tr>
<td>Sony(×16 recomended)</td>
<td>Sony(×48 recomended)</td>
</tr>
</tbody>
</table>

**5.3.2 RE4**

User can back up by HDD, USB memory and play back using mini-player or Control Center.
Select channel position and press Enter or use mouse wheel to open the channel list like below.
**Type**: Select RE4 using up-down button or mouse wheel.

**Channel**: To pop up the channel selection window, press Enter or use mouse wheel.

**Select Channel**: use can select some or all channels and after selecting channel, press Enter or click mouse left button.

**Start time**: Set start date or time to copy. After selecting part for change and set the value using up-down key or mouse wheel.

**End time**: Set End date or time to copy. After selecting part for change and set the value using up-down key or mouse wheel.

**Select disk**: Select media to copy. Press Enter on Disk list or click mouse.

**Start**: Start copy. Press Enter or click mouse.

Reference: not perfectly finished backup file will not be played back in PC.

### 5.3.3 AVI

Use USB memory or HDD to copy certain part.

![Copy Interface]

**Type**: Select AVI using up-down key or mouse wheel.

**Channel**: Select the channel to copy by up-down key or mouse wheel.

**From**: Set start date and time to copy. Time and Year by left/right button and date/time by up/down button. With mouse, click left button first and use wheel.

**Duration**: Set copy length. Copy as selected time length from the start using up/down key or mouse wheel.

**Select disk**: Select media to copy. Press Enter and select media or click mouse.

**Start**: Start copy. Press Enter or click mouse.

Caution: If copied file is not played back, please, install integrated codec first.
6. Configuration

6.1 Recording Structure
There are 4 modes in DVR recording. Configuration relation structure is like below. Please, refer to the below each item for detailed recording configuration.

![Diagram of recording structure]

6.2 System Setup
Time and Disk and authority can be configured.

6.2.1 Date/Time
Time set should be configured prior to the recording.

![System setup interface]

Time configuration is very important to protect the recording data. Time change on recording is not recommended. Time zone configuration value of factory default is “UTC 00:00 Dublin”
6.2.1.1 Time Setup

Caution: under recording, if user changes Time, it will affect time change on previously recorded video data in accordance with. Therefore, we recommend backup before time change.

- Press Main Menu of Function or [MENU] button on the front panel.
- Move to “quick setup” menu.
- After selecting “Time” in Quick setup and press [Enter] or click.
- Menu of time configuration 6.2 will be opened
- To move to the sub menu, use directional key or mouse.

Time zone
Use left/right direction key or mouse wheel. To return to previous menu, press [ESC] or click right mouse button. (It is same as OSD menu)

Daylight saving
This menu is synchronized with time zone configuration menu. It means when daylight saving area is set, this function works. Daylight saving applicable area is all the same with Time zone of Micorsoft Windows.

Date format
With using left/right diection key or mouse wheel, configure date among “MM/DD/YYYY”, “YYYY/MM/DD”, “DD/MM/YYYY”.

Time
With left/right direction key, use can move to year,month,day,hour in order and each configuration will be controlled by up/down key or mouse wheel.

Apply
User must push “Appl Date/Time” button. And you will see the below message box.
<Caution>
Except date/time configuration, other configuration records automatically, but “date/time” configuration influences critical effect to HDD recording file system, It doesn’t record automatically. To apply the changed value, user must press [apply] button.

6.2.1.2 NTP Setup
NTP(Network Time Protocol) make time of connected devices synchronized. There are NTP server and client which get time signal from the server.

Sync NTP
Set NTP function on/off.

NTP Mode
Configure NTP mode of DVR – Client / Server / All
NTP Server Loc.
When NTP mode is client, it is on Enable. Configure yes or no whether NTP server is in Local Network or Public.

NTP Local server IP
In NTP local server Enable, configure server ip. Input IP address of NTP server or DVR set by NTP server in local network.

Interval
Configure interval of time sync.

Caution: If use NTP client mode, user must set NTP on.

6.2.2 Disk
It explains how to add or remove or format internal or external HDD.

Over Write(Auto Deletion)
If there is no space in HDD, old data will be deleted automatically.

Block Playback
This function makes recording data seen during the limited area. For instance, if setting block playback by 2 day (Pic 2) among 10 days, Just allowed 2 days data can be played back.

**Block Recording**
This option is to record only the date you selected. For example, if you select 3 days then DVR will record up to 3 days, and keep overwriting 3 days period of data.

**Disk Full Alarm Warning**
If mounted Disk is full, alarm warning to user.

### 6.2.2.1 Disk Manager
This is menu for the management of internal or external HDD. Manage status, bad block, size, Yes or No etc.

![Disk Manager Interface](image)

- **Type**: display location or type of disk. Int A (Internal A HDD), Int B (Internal B HDD), Ext (External HDD)
- **Model**: HDD model name.
- **Bad Blk**: display bad block. In HDD. If no problem, “0” will be displayed. Others are Not shown anything at all.
- **Size**: Display HDD size by MB unit
- **Enabled**: Make HDD enable mode or disable mode. Yes: enable / No: Disable

**In case HDD YES**
- **Enabled** : Press [Enter] in No mode or scroll mouse wheel. Notice window pops up and show user the message like below.
- Caution : This Disk is not available without format. Will you format Disk?
- If selecting **No**, keep previous data and HDD will be **Enable to use**.
- If selecting Yes, delete previous data and HDD will be **Enable to use**.

**In case HDD No**
- **Enabled** : In Yes mode, press [Enter] or scroll mouse wheel and notice window pops up and show user the message like below.
- Caution, will you remove Disk?
- If Yes, user will find the message “Disk is removed” on the bottom and Enable status will be No.
- HDD is not used.
- If No, keep previous HDD without change.

### 6.2.2.2 Disk Status
Temperature and status of HDD will be shown.

![Disk Status Table]

### 6.2.3 User Setup
There are administrator and user and administrator can use all functions. The max. number of user is 10 person. Each user can use the function allowed.

**Check**
If Check item is configured all by X[Check-1], all users can use all functions.
In the other hand, if all are set by O[check-2], all users can use the functions in accordance with Each users authority.

For example, as you can see the below picture, User1 can use PTZ, Relay off, power On, N/mike functions are available, user 2 just can use menu and N/mike functions.

<Reference>
Admin Password is “12345” in factory default and from user 1 to 10 in order “11111”, “22222”,... and user10 is “00000”. In case of 9 channel DVR user, press “0” for figure 0, in case of 16 channel, press button “10”

Password change

Select user ➔ Input password and press change ➔ Press Yes
Password input box is displayed. Password can be input with front figure button or text input window. After inputing 8 digit figure, click “Change” button. After that, message pop up window will be shown and press “Yes”.

**Authority**

User can use only authorized functions.

If user 1 has PTZ use authority, when pushing PTZ button, authority check window will pop up and user should inpt the password and if it is correct, user 1 can use PTZ function. If password is wrong, message box “Wrong password” will be displayed.

![Authority check](image)

6.2.4 **Utility**

Configure the name of DVR, remote controller ID, Language.

![Utility](image)

**DVR Alias**

Set the name of DVR.
**DVR Keyboard ID**
This menu is to set the address of keyboard when using all functions of DVR by keyboard. Factory default is “1”. If user want to control various DVR by one keyboard, its address should be set with the different value.

**Remote Controller ID**
Max 16 remote controller ID can be set and one remote controller can manage 16 DVRs.
Registration order for Remote controller.
- Make remote controller direction to DVR.
- Press ID button and figure in accordance with configured remote controller ID.
- If IDs are matched correctly, DVR buzzes.
- Use Remote controller.

**Language**
Select Language to use.

**Firmware Update**
Can update firmware by USB Memory.
- Insert USB memory to USB port.
- Press Firmware Update button.
- Select [YES] on the pop up window.

- System will reboot.
- Firmware update is done.

**System Log**
System Log shows boot status of system and user and configuration etc.
Factory Reset
Change all configuration value by factory default.

Caution: Only administrator is allowed.

Config Import/Export
This function can allow user to save the configuration DVR by USB, and can export its value to other DVR.

Config Export can save the configuration value of DVR by USB.
Please, run Config Import/Export menu and click Export button.
With the click, all configuration value of DVR is transmitted to USB memory.
If data transmission is done, you will see the message like below.

Config Import menu can import the configuration value of the saved DVR. Please, insert USB memory which containing Export configuration data to USB port of the DVR, click import button on Config Import/Export menu. All relevant configuration value will be updated to the DVR at once.

If Import is done, message box like below will be shown.
System Information
Display recording status and system configuration of DVR

Caution: This function is allowed only for system administrator.

6.3 Network
This is menu for configuring network.
**Type**
Configure type of Network (Ethernet/xDSL). If connected to cable modem or Lan directly to DVR, configure by “Ethernet”.
If DVR connects to xDSL- one of PPPoE type, configure xDSL. But if it is not type of PPPoE, configure ‘Etherent’.

**DHCP**
With DHCP (Dynamic Host Configuration Protocol), all hosts connected to Lan can get Public IP address temporary.
If LAN has DHCP server and it is active, DHCP server allocate IP address to DVR.

Mostly middle and large network use DHCP server in LAN, but in case of small network, NAT(Network Address Translation) of HUB is general.

**IP Addr**
IP Address is for the connection between DVR and Control Center and also for web connection from Webviewer. (But, Net Mask, Gateway should be configured.)

**Net Mask**
Net Mask makes range of IP address available. It should be received from network administrator.

**Gateway**
Gateway is necessary to communicate IP, it should be received from network administrator.

**DNS**
DNS is mandatory item to regist and use SWR and it should be asked to network administrator.

**Port**
Port is necessary for Control Center and Webviewer connection.

**Reference : Basic port is 80 and if using PPPoE modem and AP, be careful typing port number.**

**Bandwidth**
Menu for configuring network data transmission capacity. Without any additional configuration, it works but if user want to set, please, ask for administrator.
6.3.1 xDSL
DVR is connected to xDSL line and use PPPoE type, please change type by xDSL and configure user ID and Password. User ID and Password should be same as xDSL.

User ID/Passwod
Configure user ID and Password.

Status
It shows connection status of DVR.

6.3.2 WRS
If eDVR is connected to Cable modem or xDSL modem, IP address is changed at every connection to ISP. In this case, changed IP address can not be known. If eDVR using static IP register into WRS server, changed IP address can be known easily when it connects to eDVR.

To register Static IP to WRS, please refer the following to set.
**WRS Interval**

For continuous registry, register interval should be set to ‘WRS Interval’. According to set value of static IP address, it renews the information in WRS server regularly. If user registers the interval ‘0’ or eDVR does not transmit any data for 2 days, the data is removed from WRS.

**WRS URL**

This menu is to set server address to register. WRS addresses that WebGate operates now are [www.webgateinc.com](http://www.webgateinc.com) or [mycam.to](http://mycam.to).

**6.3.3 Radius**

It makes to manage account information from several different DVRs to one account using Radius server. Please ask to Administrator before you use it.

![Radius Configuration](image)

To set Radius, Status, IP Address, Port should be set.
Set ‘Enable’ the status to use Radius and enter ‘Radius Server IP’ to IP Address.
Standard port to use is 1812 and specific port number which is from Server is also useable.

‘User ID’, Password’ and ‘Radius Shared Key’ are needed from administrator of Radius server after forwarding DVR account information to him.
Use ‘ID/Password/Shared key’ to register unit to Control Center.
Click the Radius Shared Key and enter ID, Password, Shared Key.
Registration is completed of all information is correct.

6.4 Device Setup
This menu is for configuring each camera connected to DVR.
There are [name][Status][Color/Black or white][Brightness][Contrast][PTZ] etc.

Caution: NTSC and PAL camera can not be used at the same time.
If changing the camera from NTSC to PAL, system should be rebooted.

Configured value will be applied to monitoring and search at the same.

6.4.1 Camera Setup
Select the camera to configure in Channel menu.
6.4.1.1 Title
Configure camera name.
If pressing [Enter] button or click mouse, test menu will be shown.
For text string, text input box will be shown.

- Use directional key for text input.
- With mouse, just click the text.
- Select the text using up/down and left/right button.
- After selecting the text, press [Enter].
- To delete the text, press [←] button.
- To make a space between letters, press [→].

6.4.1.2 Using Channel
Configure wether using camera or not.
After pressing [Enter], select it using left/right key or mouse wheel.
If user wants to enhance the recording or network monitoring speed, please, set the channel disable.

6.4.1.3 AGC (Auto Gain Control)
AGC is the function to control the range of video signal input from camera connected.
Configure Enable/Disable using directional key or mouse wheel.

6.4.1.4 Brightness/Contrast
It can control Brightness and Contrast of video. After press [ENTER], use left/right button or mouse wheel to set the value wanted from each “−9” to “+9”.

6.4.2 Monitor Setup

Main monitor provides all function which DVR supports and with spot monitor can use single channel conversion.

Covert channel
With Covert menu, user can covert the channel in Live/Playback mode
In Covert menu, all channel list will be shown and press [Enter] button and click mouse to tick the channel. Checked channel will not show the video in Live/Playback.

User sequence configuration
User sequence can be edited. There are 16 user sequence mode and its interval is from 1 to 60 seconds.

Multi mode
HVRM-T1600M, HVRM-T1600Q have predefined screen modes. 4E(4channels), 9B(basic 7 channels and additional 2 channels), 10A(10 channels). In case of HVRM-T800M, HVRM-T800Q, it can use only 4E(4channels) and HVRM-T400M doesn’t provide multi mode.

The way to composing
The way to compose screen is selecting the target and after selecting right window and press [Enter] button or use mouse. If channel selection is down, press [ESC] button or click mouse light button.

DVI Resolution
There are nine resolutions – HVRM-T1600M/ T800M/ T400M : 800x600@56Hz, 1024 x 768@60Hz, 1280 x 720@50Hz, 1280 x 720@60Hz, 1920 x 1080p60, 1920 x 1080i50, 1920 x 1080i60, 1920 x 1080RB, HVRM-T1600Q/ T800Q : 800x600@56Hz, 1024x768@60Hz,
1280x1024@60Hz

Display information
Display information is to configure which information will be shown on live view and playback view. In live view, time, channel name, event, recording status, HDD, remote controller ID, text can be set and in playback view, time, command, channel name, event, text can be configured.

Scan Mode
Support Over Scan / Under Scan Monitor.

6.4.3 Audio Setup
With this menu, user can configure Voice Channel, Audio recording, Volume, Synchronization, Mixing.

Voice Channel
Select audio to use

Recording
Configure yes or no of using audio recording. If no, audio will be out only in live view and if yes, Audio will be out in both view modes.

Volume
Configure volume by +, - direction

Synchronize Video Channel
Configure which channel is matched with the input audio. But this function is applied only on recording. Audio out in live view will be covered in Voice Mixing below. Default set is Audio no.1
to channel no.1.

**Voice mixing**

![Voice mixing interface](Image)

Select audio in live view. If setting by “All”, input audio will be out in every channels and if configured certain channel, input audio will be out on the selected channel only.

### 6.4.4 Text Setup

Configure Text in Device menu.

![Text setup interface](Image)

**Recording**

Set On/Off of recording against Text input

**Sync Text with**

Select channel to synchronize with text.

**Header check**

It has the various type of data input from the external device (Access Control, POS, ATM etc).
Like VSI Pro, VSI Pro Hydra, Star Finger 007, it is not needed when the protocol of these devices have implemented on the device. If not, this is the parameter to analyze how the one of data is constructed from the text data that is input continuously.

Namely, all data has the first and the end. Header indicates the information that already inserts to inform its starting. Therefore, Header information is defined here to acknowledge its starting of a data. The reason of 2 Header is to detect maximum 2 data out because each device can output various datas.

**Delimiter**

Delimiter value can be different according to the manufacturer, please, refer to the product manual or seller.

**Time out**

Following lines defined here means maximum number of text line from one data. Even if there is standized data, there can be a short and long data. For example, there are 3 lines to write names on ATM. But some may need only First name & Last name to register. Which it means requires only 1 shorter than other ATM users. It is to decide the last line of the one data register as final complete data to save after an hour’s consideration of register later because eDVR can not recognize it automatically.

**Lines**

Define how many lines will be shown.

Caution: external device can not be recognized, please, ask to the seller.

### 6.4.5 Serial Setup

DVR has 3 serial port. One is RS-232 and the other 2 ports are RS-485.
Serial Port
Select Serial port.

Device
Select the connected device.

Interface
Configure which interface user uses.
COM1 is to RS-232C, COM2, COM3 are to RS-485.

Baud rate/Parity/Stop Bit/Data Bit
In put suitable value according to external device.

6.4.5.1 PTZ Setup
Additional configuration for PTZ Address, PointPTZ

PTZ Home
Shift to Preset assigned if it has no movement in certain time while PTZ control.

PTZ Idle Time
If it has no movement during configured time, shift to PTZ Home.

PTZ Port
Select Port for PTZ

PTZ Address
Configure the address configured in PTZ.
6.5 Event Setup
There are 5 items such as event, Text, Sync Event, Preset, System event.

6.5.1 Event Check
There are 3 items – Always, not apply, Timezon.
In case of Timezone, with similar configuration window like schedule, user can configure event per weekday/time.

- INDEX : Schedule configuration from 1 to 50
- Weekday
- Time
- Delete : delete INDEX

How to configure
If configuring INDEX, weekday, time, they are displayed on the table.
If clicking and selecting start time and end time of recording on the table, Index, weekday, time will be shown on the table.
How to delete
Select INDEX and click Delete button.
If clicking Delete button without selecting INDEX, previously selected INDEX will be deleted and from the latest INDEX, it will be deleted in order.

How to change
After selecting INDEX, change directly weekday, time.

6.5.2 Sync Event
Configuration for Event synchronization.

Event Action
There are 6 actions – relay 1 to 4, buzz, E-Mail.

Action Duration
Action Duration runs if relay and buzz are configured, and goes on during the configured time. E-mail works by configured time interval.

Normal Event Source
User can configure Sensor, motion detection, V-loss, Text.

<table>
<thead>
<tr>
<th>Modle</th>
<th>Sensor</th>
<th>MD</th>
<th>V-Loss</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>HVRM-T1600M</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>HVRM-T1600Q</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HVRM-T800M</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>HVRM-T800Q</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HVRM-T400M</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
System Event source
System Event source can configure Bad block, Disk full, Fan error, authorization failure, WRS registration failure.

E-Mail
E-mail address
Input E-mail address to get event alarm by E-Mail.
USE (SMTP-Auth)
If user selects Authentication in USE, SMTP-Auth function will work.
SMTP-Auth method is the way that E-mail will be authorized by SMTP server and then it will be transmitted to receiver.

E-Mail Address
Input E-mail address of receiver.

Sender Address
Sender’s E-mail account should be SMTP authentication type.
For instance, If SMTP server address is xxx.test.com, e-mail address should be xxxx@test.com.

Authentication
Select USE (SMTP-AUTH).

SMTP Server
SMTP Server address should be available and its formation will be smtp.xxxx.com.
SMTP server address should be same with the SMTP server of Sender.

User ID
Input User ID authorized from SMTP Server.

Password
Input Password authorized from SMTP Server.

SMTP Port
Configure port number of SMTP in between 1~65535.
Including Picture
In general event, when sensor, MD, V-loss events are generated, the event information and channel video will be sent to e-mail together. But system event just send system event information.

NOT USE
This is the way of sending E-mail directly to receiver without SMTP server authentication

E-Mail Address
Input E-mail address of receiver.

Sender Address
Not mandatory but necessary for receiver to find out which DVR sends event.

Authentication
Select NOT USE.

Including Picture
In general event, when sensor, MD, V-loss events are generated, the event information and channel video will be sent to e-mail together. But system event just send system event information.

FTP
With FTP function, user can send the event image to the designated FTP server. Select FTP menu in Event Action menu.
FTP Upload
Configure yes or no of image transmission to FTP server when Event occurs.
If it is configured as On, Event image will be sent to FTP server.

![FTP Upload Configuration](image)

User ID
Input ID information for FTP server

Password
Input Password for FTP server access.

FTP Directory
Please, configure the saving location of FTP server.
If user does not configure any directory value for saving, Image will be saved as default route.
For custom saving, please, input the certain directory.
For instance, if user set Directory like 'Download', actually FTP server should have same folder name according to directory.
and then, if Event occurs, image will be transmitted to 'Download' folder of FTP server.
6.5.3  Motion Detection

Channel
All or certain channel.

Sensitivity
Sensitivity can be configured from min.1 to max 10.

Area
Select detection area.
User can select all or certain channel.

User Area
When selecting per channel, it can be configured.
1 grid size is 22x15 and factory default value is All. If pushing user area, configuration window for detection area.

With direction key, select area and press [Enter] or click mouse. And press “ESC” button or click right mouse button, shift to the previous menu.
6.5.4 Sensor
This menu is to setup the existing sensor input and type of sensor.
HVRM-T1600M, HVRM-T1600Q have 16 inputs and HVRM-T800M, HVRM-T800Q have 8 inputs and HVRM-T400M has 4 inputs.
Sensor has 2 types, Normal Open(N.O.) and Normal Close(N.C.).

6.5.5 Preset
In PTZ function, make configured preset work according to sensor input.
Please, configure preset per PTZ.
After selecting channel in preset menu, select event to work preset.
Event can select sensor, MD, Text, its preset can be configured up to 16.
6.6 Recording setup
There are 3 modes for recording – schedule recording, manual recording, and event recording. Schedule recording records according to the configured schedule. And manual recording records via pushing “REC” button and event recording records when events are on.

6.6.1 Program setup
Using [Program], adjust frame rate and quality and resolution and configure recording program for Manual & Event & Schedule.

[HVRM-TSeries]
In event recording, one channel can record up to its max frame rate and if setting 2 channels as event recording, their recording frame rate will be adjusted automatically.

Program
There are 26 programs from A to Z composing recording quality and resolution per channel. Please, refer to 3.5 program configuration value.

CH (Channel)
Display the channel figure.

R (Resolution)
There are 3 resolutions: D1(704x480), Half D1(704x240), CIF(352x240)

F (FPS)
It means frame per second and can select 1 to 30fps. Max. frame can be changed according to the configuration.

Q (Quality)
There are 5 recording qualities: Q5/Q4/Q3/Q2/Q1. Recommended quality for event recording is Q3.
Max R/F
Max R/F shows the number of frame available according to the selected resolution. For instance, if it is set by 30fps at CIF, it means that the channel can record up to 30 frame at CIF resolution.

Reference: how to calculate recording performance

\[
D1[704x480] = 2 \times \text{Half}\ D1[704x240] = 4 \times \text{CIF}[352x240]
\]

If 480 frame can be recorded at CIF resolution, instead of it, 240 frames at Half D1 and 120 frames at D1 resolution are possible.

- **In case that the channel is configured as disable**
  Configuration method: Menu > camera configuration > channel: “Disable” – (the channel in gray)

For example, all channels can be configured as 30fps at CIF all the same. If one channel is configured as disable, system has resource available as much as 30fps at CIF. And if combining it with other 30fps at CIF, other channel can be configured as 30fps at Half D1.

- **In case that the channel is configured as 0 fps.**
  Another channel can not use resource room as much as CIF 30fps. It is because the channel configured as 0 fps needs 2~3fps at least for network.

Reference: the relation in between general recording and event recording.

When Event is triggered, records event recording according to the configured value. Recording Performance of DVR depends on the product. For example, if MD1600E is set as manual recording at CIF 480fps and event recording at CIF 480fps, it can not be over CIF 480fps. Therefore, it should be configured within CIF at 480fps resource.

- **Event configuration value on CIF 480fps**
  If you configure recording all channels at CIF 30fps, available event recording configuration is CIF 30fps, Half 15fps, D1 7 fps.
  If you want to configure channel no.1 as D1 30fps, you should adjust the other channel recording configuration.

- **On event recording of multi channel**
  With multi channel event recording, if configured recording value is over the system max performance, general recording will keep their recording configuration and event recording will be balanced down equally.
6.6.2 Manual/Schedule recording setup
With the change of recording mode, manual recording or schedule recording can be at one’s
choic.
And their resolution, frame rate, quality will be in accordance with the program.

6.6.2.1 Manual Recording
Only in manual & event recording, manual recording runs and when pressing [REC] button,
recording starts. If you want schedule recording, recording mode should be Schedule & Event.

6.6.2.2 Schedule Setup
It records according to the programmed schedule automatically. Make recording mode Schedule
& Event and configure day and time.
check and select each program default value and select one of 26 program from A to Z or several programs. Below picture show program A.

- **INDEX** : Schedule unit from 1 to 50
- **Weekday** : Set the day applicable
- **Program** : Set recording program(A~Z)
- **Time** : Set time applicable
- **Cancel** : Cancel per INDEX

**Configuration**
Configure INDEX, weekday, program, time.
If selecting recording start time and end time on the table by mouse, its Index, weekday, program will be displayed.

**Deletion**
Select INDEX and click Delete button.
If clicking delete button without INDEX, previously selected INDEX will be deleted first and after that, from the largest INDEX in order.
Edition

Select INDEX to edit and change weekday, program, time directly.
In case that INDEX 50 are all configured, select the time zone to change by mouse click and click the time again, previous configuration will be deleted and new configuration will be shown.

Caution: If selecting the same time twice, “!” will be shown on the chart.
When configuring time sector, previously configured time can not be included.

De-interlace

Set playback deinterlace On/Off.
It works on Full Dq recording. In “On” status, screen vibration of paused Full D1 video will be reduced.

6.6.2.3 Event recording setup

Select resolution and frame rate and quality for event recording.
There are 4 triggers – Sensor, Motion detection, Text, Digital input.
First, select the program and check resolution and frame rate and quality of the channel.
(refer to 6.6.1, program configuration)
Event recording can syncro manual&event, Scheduel&Event.
Select among Manual&Event, Schedule&Event in “Recording mode” of [Record configuration]-[recording]

Reference: Please, check below to configure event recording.

1. Select one of Manual&Event, Schedule&Event.
2. In program configuration, set frame rate by 0 fps in general mode and only configure Event frame rate.

3. Set Event applying time.

**Event Time configuration**

Configure time for event recording and there are 3 mode – Always, no use, Timezone.

In “Always”, event works all the time and in “Timezone”, works during configured time.

Configuration of Timezone is similar with schedule configuration and can configure weekday, time for Event.

- **INDEX** : Set from 1 to 50
- **Weekday** : Set weekday applicable
- **Time** : Set time applicable
- **Deletion** : Delete per INDEX

**Configuration**

Configured INDEX, weekday, time will be shown at once.
Select recording start time and end time in order and its INDEX, weekday, time will be shown.

**Deletion**

Select INDEX and click Delete button
If clicking delete button without INDEX, previously selected INDEX will be deleted first and after that, from the largest INDEX in order.

**Edition**

Select INDEX to edit, and change the values.
In case of being configured by INDEX 50, click and select time to edit and if clicking the time table again, previous configuration will disappear and new configuration will be shown.
7. Web Viewer

WebViewer is Web application program loaded to monitor real-time image or to monitor the images recorded through Web browser to PC located remotely.

WebViewer is divided into Login page and Monitor to do monitoring real-time images, Playback to replay recorded images.

7.1 System requirement

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CPU  Intel Pentium 4 / 3.0GHz</td>
<td>Core2duo E6750 or higher</td>
</tr>
<tr>
<td>Main Memory</td>
<td>1GB</td>
</tr>
<tr>
<td>Video Memory</td>
<td>128MB</td>
</tr>
<tr>
<td>Display</td>
<td>1280 x 1024 (with 32bit color) or higher</td>
</tr>
<tr>
<td>HDD</td>
<td>1GB or higher</td>
</tr>
<tr>
<td>OS Windows XP Professional(over SP2) / Window Vista Business( over SP1)</td>
<td>Others DirectX 9.0 or higher</td>
</tr>
</tbody>
</table>

7.2 Login

After input IP address that set to system, then WebViewer Login page will be connected.

Input the set of User ID & Password, click ‘LOGIN’ to access.
If didn’t change the password in Control Center, ID and Password will be admin/12345. ID can not be changed.

7.3 User Setup
To access WebViewer, user authority and password can be changed in DVR or Control Center configuration.
In account menu, user password can be changed.

Basic admin password is “12345” and user password is like “11111“, “22222” ~~, user10 is “00000”. Valid password is 5 digit.

Authority configuration is almost all the same in DVR and Control Center. But quick recording, backup, audio, yes or no of using channel are only possible in Control Center.

7.4 Browser available
WebViewer is optimized to Windows Internet Explorer 6.0 or higher in PC for smooth use.

Webviewer Installer
Login page provides manual installation program to use WebViewer function. PC that access to WebViewer first installs ActiveX to use WebViewer's function. At this time when installation is not smooth, installation program needs to download from Login Page and install manually.

Caution
When install WebViewer Installer, it must close all program related to Control Center. It might not be efficient to install.

7.5 Monitor

When it is authorized with User ID & Password input at Login page, it moves to Monitor page. At Monitor page, monitor real time image of cameras connected to DVR, or it can control PTZ camera, Relay, and use Microphone function according to user’s authorization.

Study introduction of each Monitor part and functions of the page.

7.5.1 Screen division and changing video position
When access to first Monitor page, it is displayed into 9 division, 16 divisions or 32 divisions according to number of channel.

It can to change to 1, 4, 9, 13, 16, 25, 36 divisions by click number on top of page. Also, it can change to 1 channel mode by click any one of channel image.
Double click on one of the playback screen to convert in 1 channel mode.

After conversion to 1channel mode, double click on screen to return to previous division channels.

At division screen, it can change screen location.

If 3channel image moves to 6ch, drag 3ch image and drop on 6ch location so as to exchange between 3ch and 6ch image

7.5.2 Move to Playback

Move to playback with clicking the above image.
7.5.3 **Channel On/Off**

It is On/Off button for the Channel located to left in page. Click the channel wanted to On or Off. And Default is On.

7.5.4 **Sensor Indication**

The icon indicates when sensor occurs in system

When it sensorsed, relevant sensor icon comes to Red, and indicates sensor number of video.

7.5.5 **Relay Operation**

It can On or Off Relay of the unit. Click the number button to activate Relay On, then the icon changes from Blue to Orange color.

Disabled Relay button refers to do not support and relate to this unit.

Relay is need user’s authority. Refer to user manual in the unit for the setup of User’s authority of Relay.

7.5.6 **Using microphone**

It can On or Off the use microphone. Default is Off and it is changed from the Blue to Red when click the button for the use Mic.
7.5.7 Event data

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Channel</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009.03.31</td>
<td>10:42:13</td>
<td>7</td>
<td>On Motion Detected</td>
</tr>
<tr>
<td>2009.03.31</td>
<td>10:42:13</td>
<td>6</td>
<td>On Motion Detected</td>
</tr>
<tr>
<td>2009.03.31</td>
<td>10:42:13</td>
<td>5</td>
<td>On Motion Detected</td>
</tr>
<tr>
<td>2009.03.31</td>
<td>10:42:13</td>
<td>1</td>
<td>On Motion Detected</td>
</tr>
<tr>
<td>2009.03.31</td>
<td>10:42:13</td>
<td>16</td>
<td>On Motion Detected</td>
</tr>
</tbody>
</table>

It shows real time event data occurred at the bottom of monitoring page.

Indicated Event data list are as follow.

(Table. Event Icon)

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>🔄</td>
<td>Motion Detect On</td>
</tr>
<tr>
<td>🔄, 🔄</td>
<td>Sensor Input</td>
</tr>
<tr>
<td>🔄</td>
<td>Relay Output On</td>
</tr>
<tr>
<td>🔄, 🔄</td>
<td>No Video, Video Detected</td>
</tr>
</tbody>
</table>

1.2.1. Video Recording & Save saving

7.5.7.1 Video Recording

During monitoring, it can record max. 10 minutes of video by click Quick Recording button “REC.

During Quick Recording, recording time is indicated on video.

During video recording, if click Quick Recording button “REC.” to stop recording and open the dialogue box to store recorded files. At this time, user can save it to the directory with any file name by user.

Saved recording file is saved into “*.re4” file format. re4 file can playback through Control Center Playback program or Mini Player program.

7.5.7.2 Saving Video

There are 3 types for saving Video - jpg, bmp, eye, saving means the function to record 1 frame
of current monitoring channel.
To save video, select the channel and click right button of mouse. Ans select “Save As” and point out the location and press Save button.

7.5.8 Using PTZ

Among the icon on top of video on monitoring, click ‘PTZ’ to activate interfacing to control Pan, Tilt, Zoom, and Focus. But, when PTZ camera is connected and ready to set PTZ, the button is activated to use the functions.

Pan, Tilt Control
Mouse is on the image and click right button to pop-up menu for the selection or “PTZ” or button. Then it show Cross line on the middle of screen and click image to operate Pan, Tilt. At the middle click Left/Right direction to control Pan, and Click Up/Down direction to control Tilt. Click as far from the middle to activate Pan/Tilt faster.

Zoom, Focus Control
Move mouse to the edge of left & right to see slide bar for Zoom, Focus.
The unit Area Zoom In available has Zoom Zero operating button. It can Zoom In/Out using slide bar at left of image, left slide bar can control Focus.

Move to Preset
In case of Preset set, Mouse on image press right button for pop-up menu and “Goto Preset” is indicated additionally. When select Preset list, it moves to Preset position selected. Preset should be set up by user in advance.

Activating Auxiliary
In case of Preset set, “Auxiliary” is indicated additionally, and it operates action when select registered menu.
Reference
Supported PTZ camera list can be refereed to ‘4.8 PTZ manipulation.

7.5.9 Using Audio

In case of Channel setup sync with Audio, press right mouse button on the image to activate pop-up menu to “Listen” or activate Audio listen button. First default is Mute. In case of listening Audio, select pop-up menu or button. After cancelling mute, control audio volume. It can mix several channels of audio.

7.5.10 Closing Video Channel

Cancel for disconnection of image monitoring by click ‘Close’ at top right on screen, then it comes to black screen.

To reconnect the channel disconnected, it can reconnect relevant channel using ‘Channel On/Off’ menu.
7.6 Playback

This page is to playback recorded images, and user who has authority of ‘HDD’ among user ID or administrator can use this function.

Playback that is made up 16 divisions can play the images by searching through calander by recording period and moving the period. It can backup recorded image and also print Pause image or save to Bmp file.

1.2.2. Video Division & Changing Channel

Playback supports 1, 4, 9, and 16 divisional screens. It can select division using menu on tip of page as above picture. 32ch DVR can call the channel using Group moving button as follow.

If screen shows 4 divisions CH1~CH4 and look for next CH5~CH8, it can change the channel with click ‘Next’ button. Press ‘Prev’ button to call for previous channel group CH1~CH4.

7.6.1 Image recording

It can save playback image to BMP file.
Click mouse to channel to save. Dotted line will be surrounding to the selected channel, and click ‘Save’ button.
Save Image dialog box appears, then it can input message or select channel name, date, event data. Press ‘OK’ to open dialog box for the saving location, then save bmp file.

7.6.2 Printing
Select image with mouse for the channel to print image saved, and then click ‘Print’ button.

Window comes to input Memo, and click ‘OK’ button to print the image through the printer connected. Print material includes ‘Printing Date’, ‘Channel name’, ‘Recording Date’ ‘Event’, ‘Memo’.

7.6.3 Backup
There are re4(Mulit channel) and avi(single channel) Set From, To time and select the channel for backup
Point out the location for backup. Input in Password/Verify.
7.6.4 Web Monitor

Click ‘Go’ button at top of page, and it can move Web monitor page.

7.6.5 Channel On/Off

It is the same function like Channel On/Off function at Web Monitor.

It is Channel On/Off button located on right of Page, and click On or Off page for wanted channel. Default is On.

Disabled Channel button refers to do not support and relate to this unit.

7.6.6 Saving time & Checking Rec. Capacity

![HDD capacity](image)

It indicates total capacity of HDD & remains and shows Starting date & Last date of recording. Also it shows percentage (%) for HDD capacity.

7.6.7 Searching Calander

![Calendar](image)

Recorded date is abled in black color, and others unrecorded date disabled in grey. Select button after select date & time so as to playback images on the date & time selected.

When click ‘Go To’ button, it indicates for 24hours from the time selected at left bottom. As above picture, it is possible to change the time zone with ‘24h’ button.
7.6.8. Functional function at the bottom of monitor

① Indicates playback range of recorded image.

② Press button as the time set at (5) so as to change the time zone to playback in forwarding and backwarding.

③ From left button, it can 'Move a frame back', 'Play backward', 'Stop', 'Play', 'Move a frame forward'.

④ It is the function to set play speed. After click the button, it can set the play speed '0.5x, 1x, 2x, 4x, 16x, 32x, 64x, and All'.

⑤ It is the function to set play area. After click the button, it can select play area '10min, 30min, 1hour, 3hour, 6hour, 12hour, 24hour'.

⑥ It can select DirectX use or not. If check DirectX mode, it can play image into Direct Draw based on graphic card and performance of PC.

⑦ It is the function to set audio play or not, and volume.
8 JAVA Viewer

Java viewer is a web viewer to use in Java.
Java should be installed in login screen to use Java viewer.

After an installation of Java manually, select “Java” in below of Password window and login. Then single screen of video channel 1 is displayed

Multi screen display, Event, Relay can be used in Java viewer. To change Multi screen display, click 1, 4, 8, 16 in right side.
9 User manual for Mobile Viewer

Mobile viewer is viewer service to monitor video via mobile device.
To access mobile viewer, user uses mobile device supporting Wi-Fi or smart phone or 3G.

9.1 Log-In page
Below picture is Mobile viewer log-in page.
To access log-in page via mobile viewer, please, type the address like http://IP/mvmenu.html.
Below image is accessed login page to http://211.53.133.187/mvmenu.html.
To do log-in, please, enter ID/PW and select Resolution and channel number and cycle and push [0] Start View button.

9.2 Monitoring page
This is the page on Log In.
It shows selected channel video and functions right below the screen.
For functions, please, refer to the below.

[0] MENU : Move to Log In page
[1] CH- : Move to the previous channel.
[2] UP : Move to upside of Pan Tilt movement
[3] WIDE : Zoom Out action
[4] ← : Move to left side of Pan Tilt movement
[6] → : Move to right side of Pan Tilt movement
[7] CH+ : Move to the next channel
[8] DN : Move to downside of Pan Tilt movement
[9] TELE : Zoom In action
Trouble shooting

1. DVR booting failure
   1. Check the power
   2. Check Power cord

2. No video on monitor
   3. Check monitor power
   4. Check cable between DVR and monitor
   5. Check monitor cable port
   6. Check DVR power is off
   7. If monitor video is gray mode, check the camera type (NTSC/PAL) and reboot.

3. No video in some of channel
   8. Check Camera power
   9. Check Camera video input
   10. Check DVR input port
   11. Check On/Off of Activity configuration of Screen
   12. Check Covert configuration of Monitor

4. No recording
   13. Check Disk Manager if HDD is mounted or not
   14. Check recording configuration

5. No playback
   15. Check recording configuration
   16. Check button

6. If video is too much bright or dark
   17. Check Camera configuration
   18. Check and dismantling power calbe near video cable.
   19. Check Brightness, Contrast of screen

7. Remote controller is not working
   20. Check Remote controller battery
   21. Check Remote controller ID
   22. Check Remote Controller manipulation

8. If front button is not working
   23. Check DVR Power
   24. Check Screen Lock

9. If network is not working
25. Check if Network cable is connected
26. Check DVR IP
27. Check Computer IP
28. Ping Test
29. Check PC specification if Webview video is not shown.

10. The cases necessary to contact the shop
    30. In case of extraordinary working (ex: noise, smell or fume)
    31. Connector breakage of power cable
    32. In case that rain or water is in the product
    33. In case that liquid or foreign is in the product
    34. If the product is not working in accordance with the manual.
    35. In case of breakage from product dropping
    36. In case that product performance drop dramatically
#1. The way to check the manufacturing date

It can be checked with its S/N (Serial Number).

#2. S/N : Serial Number

It means composite 12 digit number with product model name and production year, month, and week. It can be found on the attached label attached on the bottom of product or system info of configuration tool or system information 1 of DVR Func menu.

**Serial Number Structure**

- Year/month
- Internal check number
- Internal check number
- Model number

(1) 1~2 digits : Identify Model name of product
(2) 3~8, 8~12 digits : Webgate internal number
(3) 5~6 digits : Manufacturing year
(4) 7 digits: Manufacturing month

Please see the below table for manufacturing month.

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
<td>A</td>
<td>B</td>
<td>C</td>
</tr>
</tbody>
</table>

**The example of verifying manufacturing date using serial number**

The below S/N can be verified as following as:

『 EB0009200707 』

(1) “EB” means “MD1600E”.
(2) “092” means it is produced in “2009 Feb”
(3) “00707” means the serial number.

**Available HDD**

Please ask to seller about HDD available with DVR.
Compatitable CD/DVD list

<table>
<thead>
<tr>
<th>DVD-R manufacturer</th>
<th>CD-R Manufacturer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitsubishi (∙16 recomended)</td>
<td>Mitsubishi (∙52 recomended)</td>
</tr>
<tr>
<td>TDK (∙16 recomended)</td>
<td>TDK (∙52 recomended)</td>
</tr>
<tr>
<td>Imation (∙16 recomended)</td>
<td>Imation (∙52 recomended)</td>
</tr>
<tr>
<td>Sony (∙16 recomended)</td>
<td>Sony (∙48 recomended)</td>
</tr>
</tbody>
</table>

Specification

**HVRM-T1600M, HVRM-T800M, HVRM-T400M**

**Video input**

- **Video input standard**: NTSC or PAL auto detect

- **Connectors**
  - HVRM-T1600M: 16ch
  - HVRM-T800M: 8ch
  - HVRM-T400M: 4ch analog video inputs BNC connector

- **Loop out**: Auto terminated loop out

**Main Video output**

- **Main output**
  - output via BNC & DVI
  - HVRM-T1600M: 1, 4, 9, 10, 16 mode
  - HVRM-T800M: 1.4, 9 mode
  - HVRM-T400M: 1.4 mode
  - User defined sequence / alarm pop-up
  - 1920x1080, 1280x720, 1024x768, 800x600 at DVI port

- **Spot output**
  - output via BNC, 1 division mode only
  - User defined sequence / alarm pop-up

**Recording**

- **Compression**: H.264 / JPEG
- **Resolution**: CIF/1CIF/D1/4CIF
- **Rate**
  - HVRM-T1600M: 480 at CIF
  - HVRM-T800M: 240 at HALF
  - HVRM-T400M: 120 at D1
- **Quality**: 5 levels
<table>
<thead>
<tr>
<th>Mode</th>
<th>Manual &amp; Event / Schedule &amp; Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schedule</td>
<td>24hrs / 7day</td>
</tr>
</tbody>
</table>

**Playback**

<table>
<thead>
<tr>
<th>Mode</th>
<th>Instant playback / Search</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed</td>
<td>120 fps</td>
</tr>
<tr>
<td>Search Type</td>
<td>Time, Calendar, Event, Thumbnail</td>
</tr>
<tr>
<td>Block Playback</td>
<td>1day ~ 31days</td>
</tr>
</tbody>
</table>

**Event & Alarm**

<table>
<thead>
<tr>
<th>Event source</th>
<th>MD, Sensor, Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event check schedule</td>
<td>24hrs / 7day</td>
</tr>
<tr>
<td>Event Action</td>
<td>Recording, Relay, Email, Buzzer, Pop-up, Warning Message, PTZ preset</td>
</tr>
<tr>
<td>MD Area</td>
<td>22x15(NTSC), 22x18(PAL)</td>
</tr>
<tr>
<td>Sensor input</td>
<td>dry contact (N.O. or N.C. selectable)</td>
</tr>
<tr>
<td>Text input</td>
<td>POS/ATM support, AVE VSI Pro/Hydra support</td>
</tr>
</tbody>
</table>

**System Alarm**

<table>
<thead>
<tr>
<th>Alarm source</th>
<th>HDD fail, HDD almost full, Fan fail, Pwd fail, DDNS fail</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alarm action</td>
<td>Warning message, buzzer, e-mail, relay</td>
</tr>
</tbody>
</table>

**Audio**

<table>
<thead>
<tr>
<th>Input/output</th>
<th>4 RCA input, 1R CA output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compression</td>
<td>16KHz, 16bit sampling ADPCM</td>
</tr>
<tr>
<td>Direction</td>
<td>Both</td>
</tr>
</tbody>
</table>

**PTZ**

| Protocols            | 32 models including Bosch, Pelco, Sony, Mert-lin, Honeywell |

**Network**

<table>
<thead>
<tr>
<th>Interface</th>
<th>1 10/100 Ethernet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type</td>
<td>Fixed IP, Floating IP, ADSL</td>
</tr>
<tr>
<td>DDNS</td>
<td>supported</td>
</tr>
<tr>
<td>Bandwidth Limit</td>
<td>supported</td>
</tr>
<tr>
<td>NTP</td>
<td>Server/Client/Both</td>
</tr>
<tr>
<td>Users</td>
<td>10 monitoring, 2 playback</td>
</tr>
<tr>
<td>Streaming</td>
<td>1 H.264 same as recording</td>
</tr>
<tr>
<td></td>
<td>1 additional H.264 smaller than recording</td>
</tr>
<tr>
<td></td>
<td>1 JPEG for e-mail sending or mobile</td>
</tr>
</tbody>
</table>
### Security

<table>
<thead>
<tr>
<th>User Level</th>
<th>1 admin, 10 users</th>
</tr>
</thead>
<tbody>
<tr>
<td>User privilege</td>
<td>Menu, PTZ, Relay, PB, Power on/off, Backup</td>
</tr>
<tr>
<td>IP Filtering</td>
<td>supported</td>
</tr>
</tbody>
</table>

### Storage/Backup

<table>
<thead>
<tr>
<th>Storage Devices</th>
<th>2 internal SATA HDDs, 1 external eSATA I/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>File System</td>
<td>Proprietary file system, data-loss protection against power-failure</td>
</tr>
<tr>
<td>Capacity</td>
<td>Max 8TB</td>
</tr>
<tr>
<td>Backup type</td>
<td>multi-channel or single channel avi file</td>
</tr>
<tr>
<td>Backup device</td>
<td>internal CD/DVD or USB drive(HVRM-T1600Q/ T800Q : Option)</td>
</tr>
</tbody>
</table>

| S.M.A.R.T.      | Temperature and Health                      |

### Serial & I/O

<table>
<thead>
<tr>
<th>Serial port</th>
<th>1 RS-232C, 2 RS-485</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor input</td>
<td>HVRM-T1600M : 16 dry-contact</td>
</tr>
<tr>
<td></td>
<td>HVRM-T800M : 8 dry-contact</td>
</tr>
<tr>
<td></td>
<td>HVRM-T400M : 4 dry-contact</td>
</tr>
<tr>
<td>Relay output</td>
<td>2 relay</td>
</tr>
</tbody>
</table>

### Controller

| Device         | Front panel, IR remote, Joystick KBD, Mouse |

### Software

<table>
<thead>
<tr>
<th>WebViewer</th>
<th>Monitoring / Playback</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mobile Viewer</td>
<td>Monitoring with PTZ, iPhone &amp; BB supported</td>
</tr>
<tr>
<td>CMS</td>
<td>Control Center Standard, max 1000 clients</td>
</tr>
<tr>
<td>SDK</td>
<td>ActiveX(COM) SDK</td>
</tr>
</tbody>
</table>

### Environmental & Physical

<table>
<thead>
<tr>
<th>Dimension</th>
<th>W : 359.0, L : 413.3, H : 88.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>Operating: 41 ~ 113 degrees F.</td>
</tr>
<tr>
<td>Power</td>
<td>AC free volt (100 ~ 240VAC)</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Max. 75W Typical 50W</td>
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</tbody>
</table>

### HVRM-T1600Q/ T 800Q

<table>
<thead>
<tr>
<th>Video input standard</th>
<th>NTSC or PAL auto detect</th>
</tr>
</thead>
</table>
| Connectors       | HVRM-T1600Q: 16ch  
<table>
<thead>
<tr>
<th></th>
<th>HVRM-T800Q: 8ch analog video inputs BNC connector</th>
</tr>
</thead>
</table>
| **Main Video output** | **Main output**  
|                  | output via BNC & VGA  
|                  | HVRM-T1600Q: 1,4,9,10,16 mode  
|                  | HVRM-T800Q: 1.4.9 mode  
|                  | User defined sequence / alarm pop-up  
|                  | 1280x1024, 1024x768, 800x600 at VGA port |
|                  | **Spot output**  
|                  | output via BNC, 1 division mode only  
|                  | User defined sequence / alarm pop-up |
| **Recording**    | **Compression**  
|                  | H.264 / JPEG |
|                  | **Resolution**  
|                  | CIF/Half(2CIF)/D1(4CIF) |
|                  | **Rate**  
|                  | 240 at CIF |
|                  | **Quality**  
|                  | 5 levels |
|                  | **Mode**  
|                  | Manual & Event / Schedule & Event |
|                  | **Schedule**  
|                  | 24hrs / 7day |
| **Playback**     | **Mode**  
|                  | Instant playback / Search |
|                  | **Speed**  
|                  | 240 fps without network playback 30fps with network playback |
|                  | **Search Type**  
|                  | Time, Calendar, Event, Thumbnail |
|                  | **Block Playback**  
|                  | 1 day ~ 31 days |
| **Event & Alarm**| **Event source**  
|                  | MD, Sensor, Text |
|                  | **Event check schedule**  
|                  | 24hrs / 7day |
|                  | **Event Action**  
|                  | Recording, Relay, E-mail, Buzzer, Pop-up, Warning Message, PTZ preset |
|                  | **MD Area**  
|                  | 22x15(NTSC), 22x18(PAL) |
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| **System Alarm** | **Alarm source**  
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|                  | **Alarm action**  
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<tr>
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<tr>
<td>------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td><strong>Software</strong></td>
<td></td>
</tr>
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Product size
HVRM-T1600M/ T800M/ T400M
HUNT ELECTRONIC USA INC.

11790 Jersey Blvd.
Rancho Cucamonga, CA 91730
Tel: (888)993-4868, (909)987-6999
Fax: (909)987-6997

techsupport@huntecctv.com
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