QSNDVR4R
Digital Video Recorder
User’s Manual
Precautions & Safety Instructions

Power Source

This Digital-Video-Recorder uses an AC90-240 V power source. This recorder should only be operated using the specified power supply. Please check the voltage of the power supply before using.

If you are not going to use the recorder for a long period of time, be sure to disconnect the power supply from the wall outlet. To disconnect the power supply, grasp the plug itself; never pull the cord.

On Placement

• This recording unit is to be used and installed indoors. It must not be exposed to rain or moisture.

• Place the recorder in a location with adequate ventilation to prevent heat build-up in the recorder. Slots and openings in the cabinet are provided for ventilation to ensure reliable operation of the recorder and to protect from overheating. These openings must not be blocked or covered. Do not place the recorder on a soft surface such as a rug that might block the ventilation holes. Do not place the recorder in a confined space such as a bookshelf or similar type unit.

• Do not place the recorder in a location near heat sources such as a radiator or heat register.

• Do not place the recorder in a location subject to direct sunlight, excessive dust or mechanical shock.

Object and Liquid Entry

Should any solid object fall into, or liquid spill into the cabinet, unplug the recorder and have it checked by qualified service technicians before operating it any further.

Servicing

This Digital-Video-Recorder is a precision instrument. In case of damage or malfunction of the recorder have it repaired by qualified service technicians or contact the dealers in your area. Do not attempt to make the repairs yourself.

Copyrights

Television programs, films, video tapes, discs, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provisions of the copyright laws.
Features

- Video input: 4 channels; video output: 2
- Audio input: 4 channels; audio output: 1
- Four optional levels of image quality: very high, high, normal and low. Record and playback frame rate changeable for recording.
- Compression standard: MJEPG
- NTSC / PAL compatible.
- Supports alarm recording and set times recording.
- Multi-function searches: Identifies and sorts various alarm records and time records from routine recording; search by time, by segment or by event.
- Playback modes: pause, variable fast forward and reverse play modes.
- Zoom, auto function and PIP function.
- USB device backup and update enabled.
- Remote control and PTZ control enabled.
- Loss and motion detection functions.
- Triplex operation, play back and search while recording. Simultaneous display of live and playback video.
- Supports network viewing.
- Supports on-screen watermark security.
- Independent from a PC platform. Will not be prone to shutdown and virus infection.
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1. Rear Panel and Connection Terminals

Power cord, input and output signal terminals are all located on the rear panel of the DVR. The connections to monitor(s), video cameras, and all external peripherals are also through the terminals and sockets on the rear panel. The rear view of the DVR is illustrated below.

The rear panel:

1: POWER INPUT (DC12V)  2: VIDEO INPUT 1-4  3: VIDEO OUTPUT  
4: AUDIO INPUT 1-4  5: AUDIO OUTPUT  6: USB PORT  
7: NET INTERFACE  8: ALARM INPUT  9: ALARM OUTPUT  
10: +5V  11: GROUND  12: RS485 PORT
2. Video and Audio Connection

The DVR can support up to 4 cameras video input simultaneously. The monitor must be installed as shown in the diagram below. Install the monitor for system setup, which is described in the next section.

There are two steps for camera installation:

1. Connect the Video Signal Line to the DVR channel input.

2. Connect the power adaptor jack to the camera.

The DVR can connect up to four channels for audio input, but only one can be selected for output and recording at any given time.

To display the DVR image, the video output signal should be displayed to the TV set or monitor connected to the rear panel. Any TV set that has a “video input” terminal is suitable for displaying the image. The figure above shows the video and audio signal line connection.

Note: Only one audio input can be connected at any time. If audio is connected CAM1, audio to CAM2 to CAM4 must be unplugged.
3. **Alarm and Sensors Connection** (Requires professional installer)

The DVR can support up to 4 alarms input and 3 alarms output.

**Alarm input:** There are two types of alarm input.

1. Voltage output  \(5V\) and \(0V\)
   
   A: In case the sensor output is high voltage (5V) normally and output is low voltage (0V) when triggered, then users must set the DVR for low voltage alarm.
   
   B: In case the sensor output is low voltage (0V) normally and output is high voltage (5V) when triggered, then users must set the DVR for high voltage alarm.
   
   Refer to the diagram below; Ch 2 to Ch 4 connectivity is similar to that for channel 1.

![Diagram of alarm input connections](image)

2. Open/Close output

   A: N.O. Normal Open; closes when triggered. DVR must be set as low voltage alarm.
   
   B: N.C. Normal Close; opens when triggered. DVR must set as high voltage alarm.
   
   Please refer to the diagram below; Channel 2 to Channel 4 are similar to Channel 1.
**Alarm output**

There are three alarm output pins, the status of these pins are illustrated below:

**Before alarm**

- N.O.
- COM
- N.C.

**After alarm**

- N.O.
- COM
- N.C.

Example for alarm output connection:

- **N.O.**
- **COM**
- **N.C.**
- **5V**
4. Hard Disk (HDD) Connection

To install the Hard Disk follow the installation sequence illustrated below.

**Note:** If the DVR comes with a HDD, skip the following steps.

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Pull out the hard drive rack from the DVR side panel.</td>
</tr>
<tr>
<td>2.</td>
<td>Open the top cover of the drawer.</td>
</tr>
<tr>
<td>3.</td>
<td>Set jumper on HDD to Master</td>
</tr>
<tr>
<td>4.</td>
<td>Connect the ribbon (IDE) cable &amp; power cable.</td>
</tr>
<tr>
<td>5.</td>
<td>Close the top cover of the drawer and put the hard drive drawer back into the DVR. (Make sure the cables are firmly pressed onto the HDD interface)</td>
</tr>
<tr>
<td>6.</td>
<td>Lock the hard drive drawer by turning the key clockwise.</td>
</tr>
</tbody>
</table>

If you have another HDD, set the jumper on that HDD to SLAVE, open the DVR cover, put the HDD to a second HDD shelf, and then connect the power and ribbon cables.
Prior to use, program the DVR with your desired settings, otherwise the DVR will run in the default settings.

1. Accessing Menus

To access the menus just press the Menu button in the front panel or the remote and the password input window will display as shown below.

The password is a random combination of 4 digits, “0-9”. The default is “0000”. For security, as you input your password, “*” will display. If you input an incorrect password, the PASSWORD CHECK screen will automatically return. If you don’t want to input the password and cancel the operation, exit the system. To exit the system, it is not necessary to input your password, just press the menu button. To change the password, refer to “password change”.

After you enter the correct password, the Top Main Menu will display “SETUP MODE” as shown below.
2. Setup Options

When in SETUP MODE, press on either the UP or DOWN arrow buttons on the remote or front panel to scroll through the selection of settings. The selection will be highlighted in yellow.

When choosing digital fields such as year, month, day, hour, minute, second, etc, press the left or right arrow buttons on the remote or front panel.

Press the “+” or “-” buttons to change the value where the cursor stands, press the ENTER button to enter the sub menu and press the MENU button to return to a previous menu.

3. System Setup

To access System Setup, select SYSTEM SET and click on ENTER. The SYSTEM SETUP window will appear. This is illustrated below:
The following options are available:

1. TIME/DATE SET: (See below)
2. HDD FORMAT SET: (See below)
3. AUTOSEQUENCE SET: (See below)
4. FACTORY RESET: (See below)
5. PASSWORD SET: (See below)
6. MENU LANGUAGE: Use “+” or “-” to modify this option.
7. PLAY REPEAT: If set to YES, when playing stored video on the HDD to the end, it will automatically replay video from the beginning, otherwise stops at the end.
8. VIDEO SOURCE: To set up the video format, NTSC or PAL
9. BUZZER SOUND: Buzzer switcher. If set to “OFF”, the buzzer will not work.

4. Password Set

Move the cursor to Password Set, press the ENTER button and the PASSWORD SETUP window will appear as illustrated below:
PASSWORD CHANGE: Press the ENTER button to change the password. The user must enter the CURRENT PASSWORD first. If the current password is correct, the system will prompt to input the new password with CHANGE PASSWORD and then input again with CONFIRM PASSWORD. If the password is changed successfully, the screen will display PASSWORD CHANGED.

SETUP PASSWORD: If set to ON means that the user must input the password before entering the SETUP MODE Top Menu. If set to OFF means that the user can enter the Setup Menu without a password. Use “+” or “-” to modify this option.

SYSTEM PASSWORD: If set to ON means that the user must input the password before entering the SYSTEM SETUP menu. If set to OFF means that the user can enter this menu without a password. Use “+” or “-” to modify this option.

SCHEDULE PASSWORD: If set to ON means that the user must input the password to stop Schedule Recording when pressing the Schedule button in the front panel or remote. If set to OFF means that the user can stop schedule recording without a password. Use “+” or “-” to modify this option.

RECORD PASSWORD: If set to ON means that the user must input the password to stop recording when pressing the REC button in the front panel or the remote. If set to OFF means that the user can stop recording without a password. Use “+” or “-” to modify this option.

Note: If you forget the assigned password, or enter a wrong password, press the Stop button in the front panel 12 times. This operation will change the password to the default value “0000”.

5. Time/Date Set

Move the cursor to TIME/DATE SET, press ENTER and the TIME/DATE SETUP window will appear as shown below. Note that if the DVR is in recording mode you cannot access this menu unless you stop recording first.
Press UP, DOWN, LEFT, and RIGHT arrow buttons to move the cursor. Press “+” or “-” buttons in the front panel or the remote to set up the DATE and TIME values.

- **FORMAT**: The time display format, which is different for USA, Europe and Asia users.
- **DISPLAY**: If set to “OFF”, time will not display on the screen.
- **LOCAL**: Time display position in the cameras’ video output.

### 6. HDD Format Set

Move the cursor to HDD FORMAT SET, press ENTER and the HDD Format Setup window will appear. This is illustrated below:

If YES is selected and ENTER is pressed to confirm, all video files on the HDD will be lost in the reformatting process. Select NO to skip this operation.
7. Auto Sequence Setup

Auto Sequence will display one camera at a time at specific intervals. Move the cursor to AUTOSEQ SET in the SYSTEM SETUP menu, press the ENTER button and the AUTO SETUP window will appear. This is illustrated below:

Press the UP or DOWN arrows buttons to select each channel separately. Press the “+” or “−” buttons to change the Auto Sequence time for each channel.

8. Factory Reset

In the SYSTEM SETUP menu window, select FACTORY RESET then ENTER and a window to confirm will appear as illustrated below:
If YES is selected and the ENTER button is pressed, the DVR will reset to default factory settings. To skip this operation, select NO and hit enter.

**9. Video Setup**

Move the cursor to VIDEO SET in the top SETUP MODE menu, press the ENTER button and the VIDEO SETUP menu window will appear. This is illustrated below. The BOUNDARY (Boundary Color) and BACK GROUND settings define colors for border lines between split screens and inactive screens.

**10. Camera Names Setup**

Move the cursor to NAME SETUP in the VIDEO SETUP window, press the ENTER button and the cameras NAME SETUP window will appear. This is illustrated below:
Pressing the UP or DOWN arrow buttons will select the channels separately. Press the ENTER button to change each channel’s name. Each channel’s name is the combination of up to eight characters. Pressing the LEFT or RIGHT arrow buttons will select each character. Pressing the “+” or “-” button modifies characters for the name. When the name setup for each channel is complete press the ENTER button to save the name.

**DISPLAY:** If set to OFF, the channel’s name will not display on the screen.

**11. Brightness/Contrast Setup**

Move the cursor to BRI/CON SETUP in the VIDEO SETUP window, press the ENTER button and the BRIGHT/CONTRAST SETUP window will appear. This is illustrated below.

**BRI:** Picture Brightness  
**CON:** Picture Contrast

Press the UP, DOWN, LEFT, and RIGHT arrow buttons in the front panel or remote to move the cursor around to set BRI and CON for each channel. Press the “+” or “-” buttons to modify the intensity values.
12. Recording Setup

Move the cursor to RECORD SET in the main SETUP MODE menu, pressing the ENTER button will result in the RECORD SETUP window appearing. This is illustrated below. Press the up or down arrow buttons to move the cursor. Press the “+” or “-” buttons on the remote, or in the front panel, to change the values.

Note: While the DVR is in recording or playback mode, you cannot access this menu unless you stop recording or playback first.

OVER WRITE: If set to YES, the DVR will automatically overwrite the HDD when the HDD is full. If set to NO, the DVR will automatically stop recording when the HDD is full.
**REC SPEED:** The DVR factory default setting for the recording frame rate is 30F/SEC (frames/second) under video standard NTSC (25F/SEC default under video standard PAL). This means the DVR records events at the speed of 30 frames per second. The higher the recording speed rate, the more natural look is displayed on the screen during playback. The lower the recording frame rate, the more space is saved on the hard disk. The highest frame rate is 120F/SEC for NTSC (for PAL is 100F/SEC) when the resolution is set as 360.

**REC QUALITY:** There are four different video quality settings: LOW, NORMAL, HIGH and VERY HIGH. The higher the video quality is set, the clearer the images that are obtained during playback. The lower the video quality is set, the more space is saved on the hard disk drive.

**RESOLUTION:** The recording picture size of the DVR has two modes: 360 and 720. The default value is 360. In 720 mode, the recorded picture is twice as large as in 360 mode. In 360 mode the REC speed is fixed at 120F/SEC for NTSC (100F/SEC for PAL) and the maximum REC SPEED in 720 mode is 60F/SEC for NTSC (50F/SEC for PAL).

**PB SPEED:** The default playback frame rate is shown as NO USE, which means that it is the same as REC SPEED.

**AUDIO ENABLE:** When set to ON, the DVR will record in one channel. This channel has to be selected among the four available channels. The default is CH1. The audio signal playback is only possible through the DVR.

**13. Network Setup** (May require IT expertise)

Move the cursor to NETWORK SET in the SETUP MODE Top Main Menu, pressing the ENTER button results in the NETWORK SETUP menu window appearing. This is illustrated below. **Note:** If the Netviewer software is accessing the DVR, this menu cannot be accessed unless the Netviewer software is closed.
**NETWORK STATE**: Network Speed switch, if within a local network, select LOCAL_LAN; otherwise, for internet use, select EXTER_LAN.

**NET DATA PORT**: The video transmit port number for the computer.

**NET CMD PORT**: The command transmit port number for the computer.

*Note*: If you change the VIDEO PORT, COMMAND PORT or MAC address, you have to restart the DVR to use the Netviewer software provided.

**14. MAC (Media Access Control) Set**

Move the cursor to MAC SET in the NETWORK SETUP menu, pressing the ENTER button results in the MAC SETUP window appearing. This is illustrated below:

If there is more than one DVR in a local area network, each DVR must be set to have an exclusive MAC Address. There is only one chance to modify the MAC Address. Once the MAC ADDRESS is changed, this menu will not appear again. If you want to change the MAC ADDRESS again, the factory default settings have to be reloaded with Factory Reset. Move the cursor to FACTORY RESET in the SYSTEM SETUP menu, press ENTER and you will be prompted to INITIALIZE. Entering YES, DVR settings revert to default.

MAC addresses are 12-digit hexadecimal numbers (48 bits in length). For MAC ADDRESS, set the first two byte sets to 00.00, and change the other bytes.

**15. Alarm and Sensors Setup**

Move the cursor to SENSOR SET in the SETUP MODE Top Main Menu, pressing the ENTER button results in the SENSOR SETUP menu window appearing. This is illustrated below. Press the up or down arrow buttons to move the cursor. Press the up or down arrow buttons to move the cursor. Press the “+” or “-” buttons on the remote, or in the front panel, to change the values.
The following Options are available in the SENSOR SETUP menu:

(1) **CHANNEL SELECT**: Select the channel to set up.

(2) **ALARM ENABLE**: Alarm trigger switch that can be set to OFF, LOW LEVEL or HIGH LEVEL; if set to OFF, the DVR will ignore the alarm input. The default is OFF.

(3) **MOTION ENABLE**: Motion alarm switch can be set to ON or OFF; if set to OFF the motion alarm will be ignored.

(4) **MOTION LEVEL**: Motion sensitivity level. There are 5 options to choose from: VERY LOW, LOW, NORMAL, HIGH, and VERY HIGH. If the moving (alarm triggering) object in the picture is small relative to the monitor screen, set to HIGH or VERY HIGH. The default level is NORMAL.

(5) **EVENT REC TIME**: For how long the DVR records after the motion or sensor alarm is triggered. The default value is 30 seconds.

(6) **BUZZER SOUND**: Buzzer sound duration when there is a sensor or motion alarm triggered. The default value is one second.

(7) **SCREEN SWITCH**: If set to ON, when there is an alarm on any one channel, the screen will automatically switch to full screen mode from that video channel. To deactivate this option, set to OFF.

(8) **AREA SET**: To set the picture area for each channel that can be motion detect enabled.

Note: Users should activate Schedule Set (explained below) after setting up these parameters to activate the settings.
16. Motion Detection Settings

1) When surveying nearby objects (2-10 meters)

For daytime hours, set the MOTION LEVEL detection sensitivity to NORMAL; at night set to LOW.

2) When surveying objects in 50-100 meters distance

The objects 50-100 meters away will appear quite small on the screen. For daytime hours, set the motion detection sensitivity to HIGH level.

During nighttime hours (see below), set to NORMAL level.

Note: The above suggestions are the result of extensive testing. The user can select the best settings for the actual operational environment.
17. Area Set

Move the cursor to AREA SET in the SENSOR SETUP menu, pressing the ENTER button will result in the image for AREA SETUP appearing. This is illustrated below. Pressing the up, down, left, right arrow buttons moves the cursor throughout the sub areas in the screen. Pressing the ENTER button toggles the sub areas between yellow (enabled) and gray (disabled). To copy the sub areas condition to adjacent sub areas press ENTER continuously.

![Image of area setup]

The sub areas set to `yellow` are motion detection `enabled`; the ones set to `gray` are motion detection `disabled`.

**START RECORDING:** To start motion recording after setting up areas on all cameras hit ENTER and then hit the “Schedule” button on the remote control or the front panel of the DVR.

18. USB Set

Move the cursor to USB SET in the SETUP MODE Top Main Menu, pressing the ENTER button results in the USB UPDATE SETUP window appearing. When the USB device is plugged into the DVR, the window will show information on the capacity of the device.
There are two types of USBBACKUP SAVE: PICTURE and FILM.

PICTURE mode will backup still pictures; MOVIE mode will backup real video.

Press the “+” or “-” buttons in the front panel or remote to set the backup mode. Backup only works in playback mode. The USB device max storage size supported is 4GB.

**Note:** To backup to the USB Port on the DVR a USB Flash Memory Card is normally used. To backup with USB Flash, plug the device to the USB port in the back of the DVR. The USB Flash should be detected. As mentioned above, still pictures or video can be backed up. Search and playback the video files or set the frames to watch. This is further explained in the User Guideline. The images are backed up to the USB Flash device.

To Playback the files, connect the USB Flash to a PC and run the Netviewer program. On the PC do a HDD scan, click on Local Search and click on Open Folder and select the Flash Drive. Select the files and click on PLAY in Netviewer.

**USB FIRMWARE UPDATE:** To update the DVR firmware create a new folder named “firmware” in the USB device’s root directory, copy the update file to the folder, plug in the USB device to the DVR, enter this menu and select UPDATE START and press the ENTER button. The system will start updating. When updating is completed, the window will display information that the process is complete. Manually reboot the DVR. To reboot the system simply unplug the power cable and then plug it back.
19. Schedule Set

Move the cursor to SCHEDULE SET in the SETUP MODE Top Main Menu, pressing the ENTER button results in the SCHEDULE SETUP menu window appearing. This is illustrated below:

The weekly recording schedule is setup for a period of time each day, from Monday to Sunday.

- **START**: Start recording time
- **STOP**: Stop recording time

**START RECORDING**: To start recording according to your schedule hit ENTER and then hit the “Schedule” button on the remote control or the front panel of the DVR.

*Note: Manual record mode (activate recording at any time) and Schedule record mode (including motion detection record mode, sensor record mode and time schedule record mode) are not active simultaneously. Once users select a Schedule record mode, manual record mode will invalid; once users select manual record mode, schedule record mode will be invalid.*

20. Protocol Set (Requires IT expertise)

For “speed dome cameras”, pan, tilt, zoom, etc. functions must be set up. If the protocol is set correctly, the speed dome parameters for each camera can be controlled by the DVR or by a computer (See Netviewer Software Installation and Operation in the User Guideline section).

Move the cursor to PROTOCOL SET in the SETUP MODE Top Main Menu, pressing the ENTER button results in the PROTOCOL SET window appearing. This is illustrated below. Press up or down arrow buttons to move the cursor, and press “+” or “-” to set the values for each channel.
**CHANNEL SEL:** Channel which is connected to the speed dome camera to control

**BAUD RATE:** Changeable from 2400bps to 38400bps. The default value is 2400bps.

**DOME ADDR:** Address of the speed dome, changeable from 0x00 to 0xff.

**PROTOCOL SEL:** Protocol of speed dome; includes PELCO-P, PELCO-D, NEON, and LILIN. The default is PELCO-P.

**DVRPROTOCOL:** Protocol suitable for computer/keyboard control of the DVR. See App. B.

**DVRADDR:** Address of the DVR for DVRPROTOCOL: From 0x00 to 0xff.

**DVRBAUDRATE:** Changeable from 2400bps to 38400bps. The default value is 4800bps.
FRONT PANEL BUTTONS

The front panel of the video-recorder is illustrated below.

1. Recording/Playback Control Buttons

1. **REC**: This is the manual recording button. Press this button to record, re-press this button, it will stop recording. This function may require a password (if setup). This button is the toggle control for manual recording and stop recording operations. Recording and Stop will be simultaneous for all 4 channels. This button will not work when Schedule Mode is active.

2. **PLAY**: Press this button to start playing the video stored in the HDD, press this button again and it will stop playing. This button is the toggle control for playing and stopping playback operations. Play and Stop will be simultaneous for all active channels. This button will not work during Time Recording setup by Schedule Set and during Alarm triggered recording.

3. **PAUSE**: Press this button to stop playing temporarily; press PLAY to continue play.

4. **REW**: Fast rewind button. Press this button to start fast backward search playing until the PLAY button is pressed to start normal playing.

5. **FORWARD**: Fast forward button. Press this button to start fast forward playing until the PLAY button is pressed to start normal playing. The fast forward function has five speeds; each time the FORWARD button is pressed changes the forward speed to the next faster level.
2. Function Controls Area

1. **Auto/1**: Auto key. Pressing this button puts the DVR in auto sequence mode. Sequences each channel image for the duration set in the Auto Sequence Set menu. Press any Channel Select button to quit this mode (see section below). When inputting numbers this button is used to key in number “1”.

2. **PIP/2**: PIP key. Pressing this button puts the DVR in PIP mode. Refer to PIP Operation in the User Guideline for details. Press any Channel Select button to quit PIP mode. When inputting numbers this button is used to key in number “2”.

3. **Zoom/3**: Zoom key. Pressing this button puts the DVR in zoom mode. Refer to Zoom Operation in the User Guideline section for details. Press this button again to cancel the zoom operation. When inputting numbers this button is used to key in number “3”.

4. **Trip/4**: Trip key. Pressing this button puts the DVR in trip mode. Refer to Trip Operation on page 33 for details. When inputting numbers this button is used to key in number “4”.

5. **Stop/5**: Stop key. While recording or playing video, pressing this button will stop recording or playing. This button will not work during Time Recording setup by Schedule Set and during Alarm triggered recording. When inputting numbers this button is used to key in number “5”.

6. **Search/6**: Search key. Press this key to enter the Search Mode menu. See sections Play Search, Time Search, Event Search and Start/Stop Search in the User Guideline for further details. When inputting numbers this button is used to key in number “6”.

7. **WM/7/+**: Watermark key. If the DVR is playing video, press this button to see the watermark symbol (WM) of the picture. If the video was recorded by this DVR and has not changed there will be the watermark symbol (WM) in the picture. Pressing the watermark key again clears the display. When inputting numbers this button is used to key in number “7”. When in System Setup menus, this is an “increase” button.

8. **Display/8/-**: Display key. Press this button to display current information on the screen (see page 39), press again to clear the information display. When inputting numbers this button is used to key in number “8”. When in System Setup menus, this is a “decrease” button.
9. **PTZ/9**: Press this button to access the PTZ Control operations for speed domes. See the section Pan-tilt-Zoom (PTZ) Operation in the User Guideline. Press once to access controls for the first speed dome camera, press again to control the second speed dome, then the third, and finally the fourth speed dome. Pressing again will exit PTZ Control. When inputting numbers this button is used to key in number “9”.

10. **USB/0**: USB key. Pressing this button starts USB video backup during playback. Refer to USB Device Backup in the User Guideline section for details. When inputting numbers this button is used to key in “0”.

11. **Menu**: Menu access key. Press this button to enter the SETUP MODE Top Main Menu (a password is needed). Press this key again to save settings and quit any current menu on the screen.

12. **Schedule**: Schedule key. Press this button to enter the Schedule Set state, set up in the SCHEDULE SETUP menu. If the DVR is in schedule state, there will be an “S” on the screen. Press this button again to quit schedule mode.

3. **Channel Selection Controls Area**

1. **First Channel/UP**: Press this button to see Channel 1 full screen. When selecting menu items, press this button to move the cursor UP.

2. **Second Channel/DOWN**: Press this button to see Channel 2 full screen. When selecting menu items, press this button to move the cursor DOWN.

3. **Third Channel/LEFT**: Press this button to see Channel 3 full screen. When selecting menu items, press this button to move the cursor to the LEFT.

4. **Fourth Channel/RIGHT**: Press this button to see Channel 4 full screen. When selecting menu items, press this button to move the cursor to the RIGHT.

5. **Quad/ENTER**: Press this button to see all channels 4 video. When selecting menu items, press this button to select the item.
1. Screen Display While Running

- : Means DVR Schedule is on.
- : Means there is an Alarm input.
- : Channel 1 has an Alarm input.
- : Channel 1 Audio is on.
- : DVR is Recording Video now.

2. Screen Display While Playing
4 Channel Digital Video Recorder

: DVR is playing video. : Live picture is off. PB: Playback

3. TRIP Display

A sample screen is shown below:

In TRIP Mode, there will be eight pictures on the screen: PB CH1 to PB CH4 are playing back video, CAM 1 to CAM4 are live pictures, in this case OFF.

Press the Trip button or any Channel Control button to exit TRIP Mode.
USER GUIDELINE

1. Turning the DVR ON
   • The contents in the “Precautions and Safety Instructions” at the beginning of this manual must be understood and always complied with. Read this section carefully.
   • Before turning the DVR ON, check the system connections. All input and output peripherals and devices must be properly and securely connected.
   • Ensure that the DVR’s video format (NTSC/PAL) and the monitor(s) video format (NTSC/PAL) meet the technical requirements of each and are properly installed.
   • Turn on all exterior equipment after checking their connectivity and settings not controlled by the DVR.
   • If required, insert and connect the removable hard disk to the DVR and lock it in (turn the hard disk lock to the right-clockwise).
   • Plug the power cord to an AC90-240 outlet and press the power switch to ON in the front panel.

2. Turning the DVR OFF
   • Normally turn the DVR OFF when the system shuts down according to schedule or is idle (not recording or playing). Do not turn off the DVR while playing, during playback or at any stage of System Setup taking place. Do not turn off the DVR while recording.
   • Press the recording (REC) button to stop recording or press the PLAY button to stop playing or exit from the System Setup menu before turning the power OFF.
   • If the DVR will not be used for a long time, also disconnect the power cord from the electrical outlet.

3. Normal Recording Process
   • Turn power ON to DVR and all related peripheral devices (cameras, monitor). Ensure that there is video input.
   • Press the DISPLAY button to check the amount of spare space on the hard disk. If there appears to be insufficient space on the hard disk, consider whether to change hard disk first or select overwriting mode via System Setup.
   • Check all recording parameters set up before recording. Video quality and frame rate must be defined. Recording settings cannot be modified during the recording process.
   • Manual recording is part of a normal recording process. Under the manual recording mode
(non-schedule status), pressing the REC button will record video on ALL active channels.

- Press the REC button to begin recording; four channels will start simultaneous recording. While in normal recording mode, press the REC button again or the Stop button, enter the correct password (if RECORD PASSWORD is set to ON) and it will stop recording.

- During the recording process, if the hard disk is full, and the system is set to automatic overwrite, then the recording will not be interrupted, and it will begin to overwrite the earliest recorded segment; if the system is set to overwrite disabled, it will stop recording.

4. Alarm Recording

- Alarm recording will not start by manually pressing the REC button.

- Alarm recording can only be activated by an alarm input signal or a sensed motion, so it is very important to check whether the connection of the alarm input equipment is correct (for all its physical components), stable, reliable, and the alarm and sensors are properly setup. Refer to Alarm and Sensors Connection in the SYSTEM CONNECTION section, and Alarm and Sensors Setup and Motion Detection Settings in the SYSTEM SETUP section of this manual.

- The precondition of whether the alarm recording can be activated by an exterior input signal or by motion is that the system must be set via the SCHEDULE SET. Also, in the menu of Alarm Setup, for alarm triggering, the Alarm Enable of the channel(s) must set to “ON”. And finally, for motion alarm triggering, the Motion Enable of the respective channels must set to “ON”. The Area Set for each channel must be defined for motion detection. Refer to the SYSTEM SETUP sections of this manual.

- Under an “off-schedule” status, the system will not start alarm recording. Setting the Schedule ON or OFF is achieved by pressing the Schedule key on the front panel, not through a System Setup menu and screen windows. Under a Schedule-ON situation, “S” will display on the screen.

- Alarm video recording cannot stop by simply pressing the REC button, but will stop by removing the set Schedule. Once the system is set on schedule, the schedule may not be removed randomly, there is a password protection (if set up that way) to remove Schedule. In that case, only after inputting the correct password, can the schedule settings be turned off (cancelled).

- Check the Alarm recording setup before recording; confirm video quality and frame rate, remember that the record settings cannot be modified during the recording process.

- As long as the alarm triggering input signal is effective (active), the alarm recording continues. After the alarm input signal becomes ineffective, the duration set up by “Alarm/Motion Recording Time” (defined in the SENSOR SETUP menu for SENSOR RECTIME) becomes effective, and when that extra time has expired, the alarm recording automatically stops. Again, to manually stop the alarm recording, the only way possible is by removing the setup Schedule as explained above.
5. Time Recording

- Time recording will begin and end automatically according to pre-determined time periods. Recording is associated to a fixed timetable, for example, working hours or after hours recording with fixed start/stop times. It is setup via the SCHEDULE SETUP menu for a weekly schedule. See Schedule Set in the SYSTEM SETUP section of this manual.

- To start the Time Recording function, prepare a recording schedule beforehand and set it up as explained above. Press down the Schedule key on the front panel to set Schedule ON. The schedule symbol “S” will display on the screen. Without pressing the Schedule button, the Time Recording parameter setup will not work.

- Time Recording is effective if the system is set up according to a Schedule.

- During Time Recording, pressing the Schedule button in the front panel again and entering a password (if set up that way) will stop time recording.

- Because Time Recording is correlated with real time, before using this function adjust the Time/Date settings. See the corresponding section in the SYSTEM SETUP section of this manual.

6. Playback

- Press the PLAY button and the DVR starts the playback of recorded images. In the process of playing, press the PAUSE button to freeze playing, pressing PLAY again continues playback. Pressing PLAY on the front panel or remote will start and stop playback.

- During FORWARD (fast forward) playing or REW (fast rewind), pressing PLAY will resume normal playing from the current location.

- Continuously pressing the FORWARD button will cycle the fast-forward speed among five levels: x2, x4, x8, x16 and x32. Continuously pressing the REW button will cycle the fast-rewind speed among four levels: x2, x4, x8 and x16.

- Pressing the PLAY button a second time will stop playing.

7. Play Search

Press the SEARCH button (front panel or remote) and the SEARCH MODE menu displays on the screen as shown below:
**TIME SEARCH:** Search play by input time.

**EVENT SEARCH:** Search play by event list.

**START STOP SEARCH:** Search play by segment.

Press up and down arrow buttons to move the cursor, then press the ENTER button to enter the respective sub menu selected. To quit from the Search Menu press the Menu key in the front panel or remote.

**8. Time Search**

Move the cursor to TIME SEARCH in the SEARCH MODE menu, pressing the ENTER button will result in the TIME SEARCH window appearing. This is illustrated below. If there are two HDDs, and both have video data, press the Search button (front panel or remote) to change the HDD (Master or Slave).
Press the left and right arrow buttons to move the cursor to define a date and a time. Press the “+” and “-” buttons to modify the time fields. The START and END times will appear for the segment that contains the time entered. Press the ENTER button to start playback from the time entered. If the time entered has no recorded video, the DVR will automatically play the video closest to the time entered.

**START:** Beginning of the recorded segment; **END:** End time of recording. A “right” time is between START and END. If the HDD has been overwritten, the START time maybe not correct.

Press the Menu button (front panel or remote) to go back to the SEARCH MODE Menu.

**9. Event Search**

Move the cursor to EVENT SEARCH in the SEARCH MODE menu, pressing the ENTER button will result in the EVENT SEARCH window appearing. A sample screen is illustrated below.

There are four possible types of events that can be listed: MOTION, ALARM, SCHEDULE and NETWORK. The listing is for ALL channels.

MOTION refers to motion alarm recording, ALARM refers to sensor alarm recording, SCHEDULE refers to time recording, and NETWORK refers to network recording.

Press the up and down arrow buttons to move the cursor to highlight the event, press the left and right arrow buttons to see the previous or next page. Press the ENTER button to play the segment selected. Press the MENU button to go back to the SEARCH MODE Search Play menu.

If you have two HDD, and both have video data, press the Search button to change the HDD (toggle from Master to Slave).

**10. Start/Stop Search**

Move the cursor to START STOP SEARCH in the SEARCH MODE menu, pressing the ENTER button will result in the RECORD SEARCH window appearing. A sample screen is illustrated below.
All recorded segments are displayed here. Press the up and down arrows button to move the cursor among the segment list, press left and right buttons to see the previous or next page, select the segment and press the ENTER button to play the segment. Press the MENU button to go back to the SEARCH MODE Search Play menu.

If you have two HDD, and both have video data, press the Search button to change the HDD (toggle from Master to Slave).

**11. Zoom Operation**

Press the ZOOM button in the front panel (or press the ZOOM key on the remote) and the DVR will be in Zoom Mode. This is illustrated below. Press the up, down, left or right arrow buttons to move the Zoom Area. Press the ENTER button to zoom in. Press the “+” or “−” buttons in the front panel or remote to zoom in and out at different levels. Press the ZOOM button again to cancel the zoom operation.
12. PIP (Picture in a Picture) Operation

Press the PIP button (front panel or remote) and the DVR will be in PIP mode. The PIP window appears. This is illustrated below:

![PIP Window]

Pressing the PIP button again will change the PIP mode. Pressing and holding the PIP button can set each PIP picture. When one channel name is in yellow, push the left and right buttons to change the selected channel. Pressing the “+” or “-” button changes this channel’s picture from full screen to PIP. Press the ENTER button to cancel this mode. Press any Channel Selection button to exit the PIP mode.

13. Information Display

Press the DISPLAY button in the front panel (or simply press the DISP key on the remote) and information on the DVR will appear on the screen. This is illustrated below. For HDD, information both for the MASTER and SLAVE disks is displayed.

![Information Display]

01/02/2006 10:23:40MON

0000  MASTER  SLAVE

**HDD MODEL:** Maxtor 6L0

**HDD MAX:** NO DETECT 40G

**HDD USED:** 80.7%

**HDD READ:** 00.0%

**PB REPEAT:** OFF

**OVERWRITE:** ON

**REC SPEED:** 50F/1S

**REC QUALITY:** VERY HIGH

**V FORMAT:** PAL

**IP ADDR:** 192.168.001.124

**S/W Ver.:** 2042005121211
HDD MODEL: HDD type  
HDD MAX: Capacity of hard disk(s) inserted in the DVR.

HDD USED: Hard Disk used (%).  
HDD READ: During playback, Hard Disk viewed (%).

OVERWRITE: Overwrite enabling, ON or OFF.

REC SPEED: Frame rate speed for recording (fps).  
REC QUALITY: Recording quality.

RESOLUTION: Recording resolution.   
IP ADDRESS: IP address of the DVR.

V FORMAT: NTSC or PAL   
S/W: Software Version

14. USB Device Backup

- Press the Menu key (front panel of the DVR or remote) to enter the SETUP MODE Top Main Menu (a password is needed). Move the cursor to USB SET in the SETUP MODE Top Main Menu, pressing the ENTER button results in the USB UPDATE SETUP window appearing. Plug in the USB device and, in the USB UPDATE SETUP window, information on the capacity of the device will appear. There are two types of USBBACKUP SAVE: PICTURE and FILM. PICTURE mode will backup still pictures; FILM mode will backup real video. Press the “+” or “-” buttons in the front panel or the remote to set the mode.

- To backup, USB Flash Memory Card is normally used. To backup with USB Flash, plug the device to the USB port in the back of the DVR. After plugging the USB device check whether the USB device was detected (information appears, in the menu window of USB UPDATE SETUP), and that the available space of the USB device is enough. Select the backup mode (PICTURE or FILM), then EXIT the menu setup pressing the Menu key.

- If the USB Flash is detected as mentioned above, still pictures or movie segments can be backed up. Search and playback the video files or set the frames to watch. Remember that backup is available only in the playback mode. The images will be backed up to the USB Flash device as explained below.

- If you selected PICTURE for the USB BACKUP SAVE mode in the USB UPDATE SETUP menu, press the USB button on the DVR front panel (or USB on the remote) to begin backup of the main out picture to the USB device. During backup there will be an “S” on the screen, when it disappears the backup of the picture is complete. The USB device can be unplugged and the picture can be seen on a computer with the Netviewer software. Choose full screen display for still pictures.

- If you selected FILM for the USBBACKUP SAVE mode in the USB UPDATE SETUP menu, press the USB button in the front panel (or USB on the remote) to mark the beginning of the main out video to the USB device. Press the USB button again to select the end of the backup video and begin backup. There will be an “A” on the screen. This operation may take some time. Always make sure that the USB device has enough free space before backing up. When the “A” disappears, the backup is complete. The video can be seen on a computer with the Netviewer software.
• To Playback the files, connect the USB Flash to a PC and run the Netviewer program. On the PC do a scan, click on Local Search and click on Open Folder and select the Flash Drive. Select the files and click on PLAY in Netviewer.

15. **Pan-Tilt-Zoom (PTZ) Operation** (Requires technical expertise for initial setup)

• The DVR can control all the “speed dome” cameras that are connected to the DVR.

• To control the speed domes, ensure that all the lines are properly connected and that the correct protocol, baud rate, and speed dome’s address for each speed dome camera has been input. Refer to Protocol Set in the SYSTEM SETUP section of this manual. For example, if the first speed dome camera is connected to channel one, you should make sure that the baud rate, the protocol, and speed dome’s address is the same as that of the speed dome camera connected to the channel. Also refer to the setup and operations manual of the speed dome cameras.

• To start controlling the speed dome cameras, press the PTZ button in the front panel or remote. The characters “PTZ CAM 1” will appear on the screen, which means you are now controlling the speed dome connected to Channel 01. Press the button again to control the speed dome that connects to Channel 02, the character “PTZ CAM 2” will appear on the screen. The same operation will access Channels 03 and 04. Press the PTZ button one more time to exit the PTZ control operations.

• During the PTZ control operation, press the UP, DOWN, LEFT and RIGHT buttons in the front panel or remote to move the speed domes. Press the ENTER button to stop.

• If you press the Iris button on the remote, “IRIS” will appear on the screen. The Iris is an adjustable opening (aperture), which controls the amount of light coming through the lens (i.e. the "exposure"). Pressing the “+” and “-” buttons will change the Iris. A similar operation will control the FOCUS, ZOOM and SPEED. Press the ENTER button to stop adjustments for each.

• Other DVR functions will not respond until the PTZ Control Operation is cancelled. Press the PTZ button one more time to exit from PTZ Control.
16. Default Settings

“Defaults” are the initial setup by the manufacturer. The user can change the setup according to the actual environment and demands. If there is any confusion or unexpected effects or results, choose “Default Settings” and readjust. One can choose “FACTORY RESET” in the “SYSTEM SET” menu, and reset all settings to Default Settings. Default (factory) settings and the range of selection for the DVR are listed in the chart below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Setup items</th>
<th>Default Setup</th>
<th>Selectable Setup</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General Settings</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year/Month/Day/</td>
<td>2005/01//01</td>
<td>2000~2099/Common sense rules</td>
<td></td>
</tr>
<tr>
<td>Hour/Minute</td>
<td>12/00/00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auto Time</td>
<td>1 second</td>
<td>0~99second</td>
<td></td>
</tr>
<tr>
<td>Buzzer Sound</td>
<td>ON</td>
<td>ON/OFF</td>
<td></td>
</tr>
<tr>
<td>Password</td>
<td>0000</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Play Repeat</td>
<td>YES</td>
<td>YES/NO</td>
<td></td>
</tr>
<tr>
<td>Video Input</td>
<td>NTSC format</td>
<td>NTSC/PAL</td>
<td></td>
</tr>
<tr>
<td><strong>Recording Parameters</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quality</td>
<td>Normal</td>
<td>Very High/High/Normal/Low</td>
<td></td>
</tr>
<tr>
<td>Overwrite Enable</td>
<td>YES</td>
<td>YES/NO</td>
<td></td>
</tr>
<tr>
<td>Rec Speed</td>
<td>30f/s(NTSC)</td>
<td>60f/s~1f/2s (NTSC)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>25f/s(PAL)</td>
<td>50f/s~1f/2s (PAL)</td>
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<tr>
<td>Resolution</td>
<td>360</td>
<td>360/720</td>
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<tr>
<td>PB Speed</td>
<td>NO use</td>
<td>60f/s~no use(NTSC)</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>50f/s~no use(PAL)</td>
<td></td>
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<tr>
<td>Audio Enable</td>
<td>CAM 1</td>
<td>CAM1~CAM4/OFF</td>
<td></td>
</tr>
<tr>
<td>A/M REC Time</td>
<td>1 Minute</td>
<td>0~99minute</td>
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<td><strong>Network Settings</strong></td>
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<td>Sub Net</td>
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<td>Gate Way</td>
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<td>IP Address</td>
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<td>Net Work State</td>
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<td>LOCAL_LAN / EXTER_LAN</td>
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<td>N/W Enable</td>
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<td>ON/OFF</td>
<td></td>
</tr>
<tr>
<td>Mac Address</td>
<td>0a0b0c0d0e0f</td>
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<td></td>
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<tr>
<td><strong>Alarm Settings</strong></td>
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<tr>
<td>Alarm Enable</td>
<td>OFF</td>
<td>ON/OFF</td>
<td></td>
</tr>
<tr>
<td>Motion Enable</td>
<td>OFF</td>
<td>ON/OFF</td>
<td></td>
</tr>
<tr>
<td>Motion Level</td>
<td>Normal</td>
<td>Very Low/Low/Normal/High/Very high</td>
<td></td>
</tr>
<tr>
<td>Buzzer Sound</td>
<td>No Use</td>
<td>0~99 second</td>
<td></td>
</tr>
<tr>
<td><strong>Protocol Setting</strong></td>
<td></td>
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</tr>
<tr>
<td>Baud Rate</td>
<td>2400</td>
<td>2400/4800/9600/19200/38400</td>
<td></td>
</tr>
<tr>
<td>Protocol</td>
<td>PTC1</td>
<td>PTC1/ PTC2/ PTC3/ PTC4</td>
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<tr>
<td>Address</td>
<td>01</td>
<td>0~0xff</td>
<td></td>
</tr>
</tbody>
</table>
17. Remote Control

All the functions of the DVR can be operated by the remote.

18. Serial Port Control

To control the DVR through the RS485 port or to control the speed domes, make sure the protocol and baud rate are correct. Refer to Appendix B.
19. Netviewer Software Installation And Operation

Use the Netviewer software to view the DVR through the Internet and also view and backup video files on the HDD through a PC. The DVR is normally connected to a Router using an Ethernet CAT5 Cable.

Open the software and the main control window below opens:

Click the “Setting” button to open the window below. Enter the IP address and click “OK” button.
Enter the IP address, factory default is 192.168.1.167, the first 3 numbers have to match your computer’s IP, change them if they do not. Make sure the Subnet and Gateway in the network settings on the DVR are the same as on your computer, if not, change the settings in the DVR to match your computer. You can find your computer’s IP, Subnet, and Gateway by going to the start button on your computer, clicking on “Run”, type CMD, click OK, and type IPCONFIG at the prompt. Check default set or input values for AV Port, Command Port, Channel Enable, Video, etc. and click OK.

Click the “Connect” button in the main window. The Logon window appears. Enter the password and click OK. The password is the same as the DVR password which is “0000” by default.

If the connection to the DVR is established the Connect OK window appears. Click the “OK” button, and then click on the “Play” button (the clipboard image in the upper right hand corner of the program).

**Remote Access:** When users access the DVR on a remote computer through the Internet, they need to open ports 5000-5001 (default which can be changed on the DVR) on the router the DVR is connected to. Refer to the router manual, or go to [http://www.portforward.com](http://www.portforward.com), click on the “Routers” link, click on the model number of your router, and on the page for that model click on the “Default Guide” link to get instructions on how to forward ports for your router. To access the DVR remotely you will also need to put the IP address of the network the DVR is attached to into Netviewer. You can get this by going to the website [http://myipaddress.com](http://myipaddress.com) from a computer that is attached to the same router as the DVR. Enter this address into the IP window in Netviewer and enter the default password for the DVR which is “0000” by default.
4 Channel Digital Video Recorder

The control buttons in the main Network Viewer window are:

1. **PLAY**: Click to start playing video in the DVR
2. **STOP**: Click to stop playing video.
3. **AVI**: Click to save the video in AVI format on the computer.
4. **LOCAL**: Video is saved in the computer by clicking LOCAL.
5. **Live**: Select this tab button to see video in real time. Click the PLAY button.
6. **PlayBack**: To view playback video in the DVR. Refer to Net Search operation below.
7. **ScanDisk**: To set for viewing the video in the HDD or CD-RW recorded in the DVR when connected to the computer.
8. **FilePlay**: To set for playing video files on the computer.
9. **PTZ Control**: To control the Fast Speed Dome Camera through the PC.
   - **AVI Save**: When playing video, click the AVI button and the video will save as AVI format on the computer. The file can be played back with any media player that supports this format.
   - **Local**: When playing video, click the LOCAL button and the video will be saved in the computer. To play files with this software refer to File Play.
   - **Live Operation**: If the software is in live mode (click Live) and then clicking PLAY will connect to the DVR. Live pictures will be transmitted to the channels display area on the main window. Click STOP to quit live transmission.
   - **Net Search operation**: if the software is in net search mode (click PlayBack), net search window will display. First select the HDD (Master or slave) of the DVR. The menu icons are activated.
Click the “Get Event List” button then click on “Select Event List”. If the DVR has an Event List, the list can be seen in the ListDlg window shown below:

Double click the Event to see the playback video.

**Note:** The Select Record List operation is similar to the Event List operation.

- **ScanDisk:** Connect the HDD in the DVR to the PC as Slave and then select the ScanDisk tab. The ScanDisk window will display. Click and select the device to play the video. Play control buttons and time location indicator are available.

- **FilePlay:** If the software is in File Play mode (click FilePlay), the File Play window will display. It can play video stored in the HDD of the computer. Click Open, select one video file then click PLAY. The video file plays from the beginning. Moving the slide bar locates different times and dates.
• **PTZ Control**: The Fast Speed Dome cameras (selected via Protocol Set in the SETUP MODE Top Main Menu) can be controlled through the following buttons:

1. **Up**: Camera swings up
2. **Down**: Camera swings down
3. **Left**: Camera swings left
4. **Right**: Camera swings right
5. **Stop**: To fix the camera position
6. **Focus Add**: Lengthen focus
7. **Focus Dec**: Shorten focus
8. **Iris Add**: Increase light amount for exposure
9. **Iris Dec**: Decrease light amount for exposure
10. **Zoom Add**: ZOOM-IN
11. **Zoom Dec**: ZOOM-OUT
12. **Speed**: Speed controller of Fast Speed Dome
# STANDARD AND PRODUCT SPECIFICATIONS

<table>
<thead>
<tr>
<th>ITEM</th>
<th>SPECIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video Signal</td>
<td>NTSC/PAL</td>
</tr>
<tr>
<td>Video Input</td>
<td>Composite 1.0V p-p/75 Ω BNC×4</td>
</tr>
<tr>
<td>Video Output</td>
<td>Composite 1.0V p-p/75 Ω BNC×2</td>
</tr>
<tr>
<td>Audio Input</td>
<td>-8Db 22K, RCA connector×4</td>
</tr>
<tr>
<td>Audio Output</td>
<td>-8Db 3K, RCA connector×1</td>
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<td>Alarm Input</td>
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<td>Compression Standard</td>
<td>Modified MJPEG</td>
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<tr>
<td>Recording Time</td>
<td>18-1680 hours/40G</td>
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<tr>
<td>Electronic Clock</td>
<td>Year/Month/Day Hour/Minute/Second</td>
</tr>
<tr>
<td>Confidential Function</td>
<td>Password protection</td>
</tr>
<tr>
<td>Power Source IN</td>
<td>DC12V via Adapter</td>
</tr>
<tr>
<td>Power</td>
<td>25W</td>
</tr>
<tr>
<td>Ambient Temperature</td>
<td>Work Temperature +5°C~+50°C humidity &lt; 90%</td>
</tr>
<tr>
<td></td>
<td>Store Temperature -20°C~+70°C humidity &lt; 95%</td>
</tr>
<tr>
<td>Exterior Size</td>
<td>432×55×286mm</td>
</tr>
<tr>
<td>Weight</td>
<td>About 3.2Kg</td>
</tr>
</tbody>
</table>
4 Channel Digital Video Recorder

**Exterior size**

- Exterior size: 432mm x 286mm
- Dimensions: 70mm x 55mm x 45mm

**EQUIPMENT AND ACCESSORIES SUPPLIED**

<table>
<thead>
<tr>
<th>Name</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-channel hard disk video recorder</td>
<td>1</td>
</tr>
<tr>
<td>Remote</td>
<td>1</td>
</tr>
<tr>
<td>Power Cord</td>
<td>1</td>
</tr>
<tr>
<td>Keys to removable hard disk control lock</td>
<td>2</td>
</tr>
<tr>
<td>User Guideline</td>
<td>1</td>
</tr>
</tbody>
</table>

If you have any questions, please do not hesitate to contact the dealer directly.
APPENDIX A: Q&A TROUBLESHOOTING GUIDE

Q. What kind of cameras should I buy for this DVR?
A. Any BNC or RCA interface indoor/outdoor/infrared camera will work with the DVR. It doesn’t matter whether it’s a color or black/white camera. However, web cameras that require a USB interface are not compatible with the DVR.

Q. What kind of alarm devices should I buy for this DVR?
A. Most sound alarm systems are compatible with our DVR.

Q. I can’t turn the DVR on.
A. Make sure that the power cord is plugged in correctly and the power light on DVR front panel is on.

Q. I see nothing but a blue screen after I turn on the DVR.
A. Check the camera input and video output connection on DVR back panel. If you can’t any find problem with these connections, check whether the camera power cable is firmly connected. Make sure the system format for NTSC and PAL is set up correctly.

Q. I see a fatal error message on the screen.
A. If you see an error message such as “System fatal error has occurred”, disconnect, pull out and re-install the hard disk drive. Also make sure that hard disk rack is firmly locked. If this does not correct the problem, replace the hard disk.

Q. Can I prevent other people from stopping the recording while I am gone?
A. If the DVR is in Schedule or Recording mode, and the password requirement is set to “on” in menu setup, no one can change the set parameters without the right password.

Q. How can I erase all data on the hard disk drive?
A. Select “HDD Format Set” option in the menu to do so.

Q. I forgot my password. What should I do?
A. You can reset the DVR’s password to the factory default (0000). How you would do this depends on the firmware version that is on your DVR. You can find this by pushing the “Display” button on your DVR and looking at the bottom line that says “S/W Ver”.
If the number ends in 2005123015 you would enter 2005 on the remote control and hit enter, or enter 3005 on the front panel buttons and hit enter.
If the number ends in 2006010417 through 2006032011 you would enter 2005 on the remote control or the buttons on the front panel.
If the number ends in 2006041314 or higher you would press “pause” on the front panel 12 times.
Q. Can my desktop PC read the video data on hard disk drive in DVR?
A. Yes, you can use the Netviewer software to read all the video data on the hard disk.

Q. What happens if I install my PC hard disk drive into the DVR?
A. You can use a PC hard disk drive in the DVR. However, once it runs in the DVR, it will delete any PC operation system information and existing files on the hard disk drive.

Q. What kind of hard disk drive should I purchase to make the DVR run?
A. Any PC compatible IDE, ATA hard disk drive will work.

Q. Does this DVR kit come with sensors, cameras, or hard disk drive?
A. No. You have to buy each accessory separately.

Q. What is the maximum capacity to record?
A. Up to a year with two 120 GB HDDs at the lowest quality setting when set at 1 frame per second.

Q. Does this DVR come with a remote control either hardwire or wireless?
A. Yes, there is a wireless remote control that comes with the DVR.

Q. Why am I unable to access the Time/Date Set, HDD Format Set and Record Set setup menus?
A. You need to stop record or play before you can access these menus.

Q. Why can’t I access the Network Set menu?
A. You need to stop the connection of the Netviewer software from the internet or network before you access Network Set menu.

Q. I press the Record button, but the DVR does not start recording, why?
A. Press the Display button to see if there is a hard disk detected, also check to see if the DVR is in Schedule mode (there is a “S” on the screen in yellow in this mode). One cannot start recording by pressing the Record button in Schedule mode. Press the Schedule button again to cancel Schedule mode. If the hard disk is not detected, check its installation.

Q. I press the Stop button, but the DVR does not stop recording, why?
A. If the DVR is recording in Schedule mode (there is an “S” on the screen), you cannot stop recording unless you quit the Schedule mode first. Press the Schedule button to cancel Schedule Mode.

Q. There is movement that should have been detected, but the DVR does not start recording.
A. Make sure the Motion Enable of that channel is on, the Area Set is setup properly, the Alarm/Motion Rec Time is not set to off, and the DVR is in Schedule mode. Otherwise, set the motion level sensitivity to HIGH or VERY HIGH.
Q. When the network connection between DVR and client computer is cut off, why does the DVR and the clock stop?
A: In case the network is disconnected inadvertently, the DVR will temporarily stop for 20 seconds without response to any pressing of the front panel buttons. 20 seconds later, it will restore itself to normal, but the icon that shows network status will not disappear for 10 minutes. During this period the client computer cannot connect to the DVR or enter the network menus.

Q. What HDD capacity does this DVR support?
A. Any capacity size of HDD is supported by the DVR, but if the size is larger than 300G, it may display only 300G on the DVR monitor, but this does not affect the real HDD capacity installed in the DVR.

Q. How can I monitor the cameras on a Remote Computer?
A. IT expertise may be required for this setup. Plug an RJ45 cable from the back of the DVR to the Switch/Hub or Router. The default network settings on this DVR are as follows:
  IP Address: 192.168.1.167; Subnet: 255.255.255.0; Gateway: 192.168.1.1; Video Port: 5000; Command Port: 5001.

  From a PC connected to the same router as the DVR find out the IP Address of the router by going to the Start button, click on Run-type in CMD and click OK, then type in IPCONFIG at the cursor to list the IP, Gateway and Subnet. If the IP is 192.168.1.xxx, then nothing else is needed. But if the IP is something like this: 192.168.0.xxx and Gateway: 192.168.0.1, then the IP of the DVR must be changed. Go to the SETUP MODE menu and then to NETWORK SETUP and change the IP to 192.168.000.167 and Gateway to 192.168.000.001. Refer to the Router Manual under Router Setup on how to do port forwarding, to forward ports 5000 and 5001, to the IP Address of the DVR. To access the DVR remotely you will also need to put the IP address of the network the DVR is attached to into Netviewer. You can get this by going to the website http://myipaddress.com from a computer attached to the same router as the DVR. Enter this address into the IP window in Netviewer and enter the password for the DVR which is 0000 by default. Also refer to pages 44-48, Netviewer software installation.
# APPENDIX B: SERIAL PORT PROTOCOL

Serial port setting: BAUD, n, 8, 1 (BAUD = 2400, 4800, 9600, 19200, 38400)

**PTCI**: (three byte)

<table>
<thead>
<tr>
<th>Command (CHAR)</th>
<th>Hexadecimal Number</th>
<th>Function Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>/RE</td>
<td>0x2F 0x52 0x45</td>
<td>Record</td>
</tr>
<tr>
<td>/TP</td>
<td>0x2F 0x54 0x50</td>
<td>Play</td>
</tr>
<tr>
<td>/PE</td>
<td>0x2F 0x50 0x45</td>
<td>Pause</td>
</tr>
<tr>
<td>/RT</td>
<td>0x2F 0x52 0x54</td>
<td>Rewind</td>
</tr>
<tr>
<td>/FT</td>
<td>0x2F 0x46 0x54</td>
<td>Forward</td>
</tr>
<tr>
<td>/FS</td>
<td>0x2F 0x46 0x53</td>
<td>Auto/1</td>
</tr>
<tr>
<td>/FS</td>
<td>0x2F 0x5A 0x4D</td>
<td>Zoom/2</td>
</tr>
<tr>
<td>/ZM</td>
<td>0x2F 0x50 0x50</td>
<td>PIP/3</td>
</tr>
<tr>
<td>/RS</td>
<td>0x2F 0x52 0x53</td>
<td>Trip/4</td>
</tr>
<tr>
<td>/SP</td>
<td>0x2F 0x53 0x50</td>
<td>Stop/5</td>
</tr>
<tr>
<td>/SH</td>
<td>0x2F 0x53 0x48</td>
<td>Search/6</td>
</tr>
<tr>
<td>/QY</td>
<td>0x2F 0x51 0x59</td>
<td>Water mark/7/+</td>
</tr>
<tr>
<td>/DY</td>
<td>0x2F 0x44 0x59</td>
<td>Display/8/-</td>
</tr>
<tr>
<td>/SE</td>
<td>0x2F 0x53 0x45</td>
<td>PTZ/9</td>
</tr>
<tr>
<td>/FF</td>
<td>0x2F 0x46 0x46</td>
<td>USB/0</td>
</tr>
<tr>
<td>/AF</td>
<td>0x2F 0x41 0x46</td>
<td>Menu</td>
</tr>
<tr>
<td>/SC</td>
<td>0x2F 0x53 0x43</td>
<td>Schedule</td>
</tr>
<tr>
<td>/01</td>
<td>0x2F 0x30 0x31</td>
<td>Ch1/up</td>
</tr>
<tr>
<td>/02</td>
<td>0x2F 0x30 0x32</td>
<td>Ch2/down</td>
</tr>
<tr>
<td>/03</td>
<td>0x2F 0x30 0x33</td>
<td>Ch3/left</td>
</tr>
<tr>
<td>/04</td>
<td>0x2F 0x30 0x34</td>
<td>Ch4/right</td>
</tr>
<tr>
<td>/22</td>
<td>0x2F 0x32 0x32</td>
<td>ChAll/enter</td>
</tr>
</tbody>
</table>
**PTC2**: (seven byte)

<table>
<thead>
<tr>
<th>Transmitting S.N.</th>
<th>Specs for Transmitting</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Byte1</td>
<td>0x03</td>
<td>Fixed byte</td>
</tr>
<tr>
<td>Byte2</td>
<td>0xaa</td>
<td>DVR identifier word</td>
</tr>
<tr>
<td>Byte3</td>
<td>0x01</td>
<td>Fixed byte</td>
</tr>
<tr>
<td>Byte4</td>
<td>Device id</td>
<td>DVR device address</td>
</tr>
<tr>
<td>Byte5–7</td>
<td>Refer to PTC 1</td>
<td>Same command as PTC 1</td>
</tr>
</tbody>
</table>

**PTC3**: (seven byte)

<table>
<thead>
<tr>
<th>Byte1</th>
<th>Byte2</th>
<th>Byte3</th>
<th>Byte4</th>
<th>Byte5</th>
<th>Byte6</th>
<th>Byte7</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xFF</td>
<td>Addr</td>
<td>Var1</td>
<td>Var2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Check sum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Var1</th>
<th>Var2</th>
<th>Function</th>
<th>PELCO-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x00</td>
<td>0x08</td>
<td>Ch1/up</td>
<td>Up</td>
</tr>
<tr>
<td>0x00</td>
<td>0x10</td>
<td>Ch2/down</td>
<td>Down</td>
</tr>
<tr>
<td>0x00</td>
<td>0x04</td>
<td>Ch3/left</td>
<td>Left</td>
</tr>
<tr>
<td>0x00</td>
<td>0x02</td>
<td>Ch4/right</td>
<td>Right</td>
</tr>
<tr>
<td>0x04</td>
<td>0x00</td>
<td>Chall/enter</td>
<td>Iris close</td>
</tr>
<tr>
<td>0x00</td>
<td>0x40</td>
<td>Record</td>
<td>Zoom wide</td>
</tr>
<tr>
<td>0x00</td>
<td>0x20</td>
<td>Play</td>
<td>Zoom tele</td>
</tr>
<tr>
<td>0x02</td>
<td>0x00</td>
<td>Search</td>
<td>Iris open</td>
</tr>
<tr>
<td>0x00</td>
<td>0x80</td>
<td>WM/+</td>
<td>Focus far</td>
</tr>
<tr>
<td>0x01</td>
<td>0x00</td>
<td>Display/-</td>
<td>Focus near</td>
</tr>
</tbody>
</table>

Byte 5 and byte 6 have random values from 0x00 to 0xff.

Byte 7 = mod [(byte2 + byte3 + byte4 + byte5 + byte6)/100]

**Note**: This protocol is the same as PELCO-D, which is used to control the speed domes. If PELCO-D is used to control speed domes via a keyboard, the keyboard can be used to control the DVR through this protocol. Different addresses can be used to distinguish the DVR and the speed domes.
PTC4: (eight byte)

<table>
<thead>
<tr>
<th>Byte1</th>
<th>Byte2</th>
<th>Byte3</th>
<th>Byte4</th>
<th>Byte5</th>
<th>Byte6</th>
<th>Byte7</th>
<th>Byte8</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xa0</td>
<td>Addr</td>
<td>0x00</td>
<td>0x07</td>
<td>0x00</td>
<td>Var</td>
<td>0xAF</td>
<td>Checksum</td>
</tr>
</tbody>
</table>

Byte8 = byte1 xor byte2 xor byte3 xor byte4 xor byte5 xor byte6 xor byte7

<table>
<thead>
<tr>
<th>Var</th>
<th>Function</th>
<th>Var</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x01</td>
<td>Ch1/Up</td>
<td>0x0C</td>
<td>Schedule</td>
</tr>
<tr>
<td>0x02</td>
<td>Ch2/Down</td>
<td>0x0D</td>
<td>0/USB</td>
</tr>
<tr>
<td>0x03</td>
<td>Ch3/Left</td>
<td>0x0E</td>
<td>1/Auto</td>
</tr>
<tr>
<td>0x04</td>
<td>Ch4/Right</td>
<td>0x0F</td>
<td>2/Zoom</td>
</tr>
<tr>
<td>0x05</td>
<td>Chall/Enter</td>
<td>0x10</td>
<td>3/PIP</td>
</tr>
<tr>
<td>0x06</td>
<td>Record</td>
<td>0x11</td>
<td>4/Trip</td>
</tr>
<tr>
<td>0x07</td>
<td>Play</td>
<td>0x12</td>
<td>5/Stop</td>
</tr>
<tr>
<td>0x08</td>
<td>Pause</td>
<td>0x13</td>
<td>6/Search</td>
</tr>
<tr>
<td>0x09</td>
<td>Reward</td>
<td>0x14</td>
<td>7/WM/Add</td>
</tr>
<tr>
<td>0x0A</td>
<td>Forward</td>
<td>0x15</td>
<td>8/display/Dec</td>
</tr>
<tr>
<td>0x0B</td>
<td>Menu</td>
<td>0x16</td>
<td>9/PTZ</td>
</tr>
</tbody>
</table>

Note: This protocol is the same as PELCO-P’s call function; the PELCO-P’s call function can be used to control the DVR. First, the correct protocol must be set, including baud rate and address; second, press the call button on the keypad, then press the number according to Var above. Press the ENTER button to set.

**APPENDIX C:**

**RECORDING CAPACITY FOR 120GB HDD**

<table>
<thead>
<tr>
<th>Rec Rate frames/sec</th>
<th>Picture Quality</th>
<th>Resolution</th>
<th>Recording Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 fps</td>
<td>Very high</td>
<td>720</td>
<td>22.5 hours</td>
</tr>
<tr>
<td>60 fps</td>
<td>Low</td>
<td>720</td>
<td>60 hours</td>
</tr>
<tr>
<td>120 fps</td>
<td>Normal</td>
<td>360</td>
<td>22.5 hours</td>
</tr>
<tr>
<td>1 fps</td>
<td>Normal</td>
<td>720</td>
<td>2160 hours</td>
</tr>
</tbody>
</table>

Note: The above values are from test results and presented just for users’ reference. Different definition and stabilization (objects’ movement) of images will give different results.
APPENDIX D:

INTERNET VIEW/PLAYBACK CONFIGURATION

1. About the Network

Users can select the following types of Network:

1): Local Area Network (LAN): Telecom companies offer Internet connection, e.g. optical fiber, and users of a community/building set up with the Internet server. Cables installed in the end user’s office/home via HUB.

2): ADSL: User applies for ADSL from Internet services supplier and connect an ADSL MODEM. Connect the computer to the ADSL MODEM. Input user name and password in the dialing software so that users can connect to the Internet.

3): Close Circuit Television Broadband: Users apply for CCTV connection from a CCTV services supplier. Connect the computer to a CABLE MODEM to access internet services.

4): In companies or Internet cafes: Network administrators utilize routers or a proxy server to connect all the computers to one Internet cable. All the computers will use the same Internet IP address. Corporations are currently using this type of network connection.
2. Network Configuration

After connecting to the Internet, DVR users should configure for remote view/playback.

1. **LAN:** When in LAN, network administrators should open the following ports for specific computers: 5000-5001. Please make sure that other services do not use the same ports.

2. **PROXY SERVER:** If the connection to the Internet is by proxy server, users should utilize port mapping software and open ports 5000–5001 for the surveillance DVR.

3. **ROUTER:** If users connect to the Internet by router, users should add the IP address of the surveillance DVR and open the above mentioned ports in DMZ setup or via Virtual Server setup of the router (the names may be different for different types of routers) To do this, from a PC connected to the same router as the DVR find out the IP Address of the router by going to the Start button, click on Run-type in CMD and click OK, then type in IPCONFIG at the curser to list the IP, Gateway and Subnet. If the IP is 192.168.1.xxx, then nothing else is needed. But if the IP is something like this: 192.168.0.xxx and Gateway: 192.168.0.1, then the IP of the DVR must be changed. Go to the SETUP MODE menu and then to NETWORK SETUP and change the IP to 192.168.000.167 and Gateway to 192.168.000.001. Refer to your Router Manual under Router Setup on how to do port forwarding, to forward ports 5000 and 5001 to the IP Address of the DVR. To access the DVR remotely you will also need to put the IP address of the network the DVR is attached to into Netviewer. You can get this by going to the website [http://myipaddress.com](http://myipaddress.com) from a computer attached to the same router as the DVR. Enter this address into the IP window in Netviewer and enter the password for the DVR which is 0000 by default, a sample router setup for port forwarding is shown below:
Under Protocol Type select Both, if there is no Both option then you have to create an entry for TCP, and then create another entry for UDP so that the ports are forwarded for both protocols.
You may also need to modify the firewall on the router to allow the ports to be forwarded. Below is a sample of what that program may look like on your router:

![Firewall Rules](image)

**4. CABLE and ADSL MODEM:** For CABLE MODEM and ADSL MODEM types, the configuration is somewhat similar. If users use a CABLE/ADSL network connection and the surveillance system computer connects to the CABLE/ADSL MODEM, then the ports should all open by default. If not, close the Firewall per the MODEM user’s manual. Since CABLE and ADSL MODEM network users usually use dynamic IP addresses, once the MODEM restarts, the IP addresses will change. In this case, users should contact their Internet Service Provider for a static IP address for the DVR.