



16-CH DVR CD-RW

PDR-2160A/2160S

INSTRUCTION MANUAL

Executive Summary

The new PDR-2160 is a high performance standalone 16 Channel Digital Video Recorder (DVR) designed to perform multiple features such as recording, playback and remote surveillance simultaneously. Offering unbeatable costs per channel, the network ready PDR-2160 is compact and simple to use. It can be operated through the on-screen menu, front panel and fully operational IR remote controller. The unique portable USB drive and the built-in CD-RW further enhances the DVR, enabling the user download recorded images and upgrade firmware.

Featuring real time display at 480/400 frames per second, the PDR-2160 delivers incredible performance and functionality. There is the option to have two internal hard drives, one of which will is hot swappable, allowing it to be easily changed to increase storage without stopping live monitoring. There are also two external SATA II ports, which are capable of being used in conjunction with SATA II RAID, providing a maximum storage capacity of 4TB.

Providing network connectivity via Internet Explorer or the supplied propriety software, management and security staff can view all live and recorded images from a remote location. Also, the additional benefit of the jog and shuttle feature provides a quick and intuitive way to search the recordings.

Designed to meet the latest security requirements, features such as the extra watchdog timer protection, two level user authentication and spot camera switching display provides piece of mind for the user.

With individual camera setup, users can define features, such as zoneable motion detection, scheduled recording, external alarm control and user authentication. Complete with advanced image compression technology ensuring high quality resolution, the new standalone digital video recorder provides a versatile solution.

Major Features

- Built-in CD-RW for backup
- ISO-9660 compatible CD, with plug and play
- HTTP web-based interface including remote PTZ, playback, and live monitoring
- 16-channel video inputs up to 480(NTSC) / 400(PAL) frames per second
- Up to 120 CIF playback speed
- 7 days, 24hours grid scheduling for alarm/motion, continuous, and stop recording.
- VGA output up to 1280 * 1024 resolution (PDR-2160A)
- 4 matrix spot outputs (PDR-2160A) with OSD support
- 2 main outputs with built-in multiple features for split monitoring
- 1-channel audio input and output for recording
- Simultaneous recording, playback, CD-RW backup, network, and live monitoring
- Two SATA II HDD, one hot swappable SATA II HDD and one internal SATA II HDD
- 2 external SATA II ports for external SATA II RAID up to 4TB recording capability
- 16x12 motion detection grids programmable for each channel
- Portable USB 2.0 flash disk and external USB 2.0 CD-RW backup
- Easy-to-use jog, shuttle, and 3D joystick controlling setup and playback menus

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Caution

- Do not drop or strike this equipment
- Do not install the equipment near any naked flames or heat sources
- Do not expose this unit to rain, moisture, smoke or dust environment
- Do not cover the opening of the cabinet with cloth and plastic or to install this unit in poor ventilated places. Allow 10cm between this unit and its surroundings
- Do not continue to operate the unit under abnormal conditions such as detection of smoke, strange smell or no display on screen while power is turned on
- Do not touch the power connection with wet hands
- Do not damage the power cord or leave it under pressure
- Do not operate this unit near magnet, speaker system, etc., to avoid unnecessary magnetic interference
- Connection cables should be grounded properly

CAUTION

**RISK OF EXPLOSION IF BATTERY IS REPLACED
BY AN INCORRECT TYPE.**

**DISPOSE OF USED BATTERIES ACCORDING
TO THE INSTRUCTIONS**



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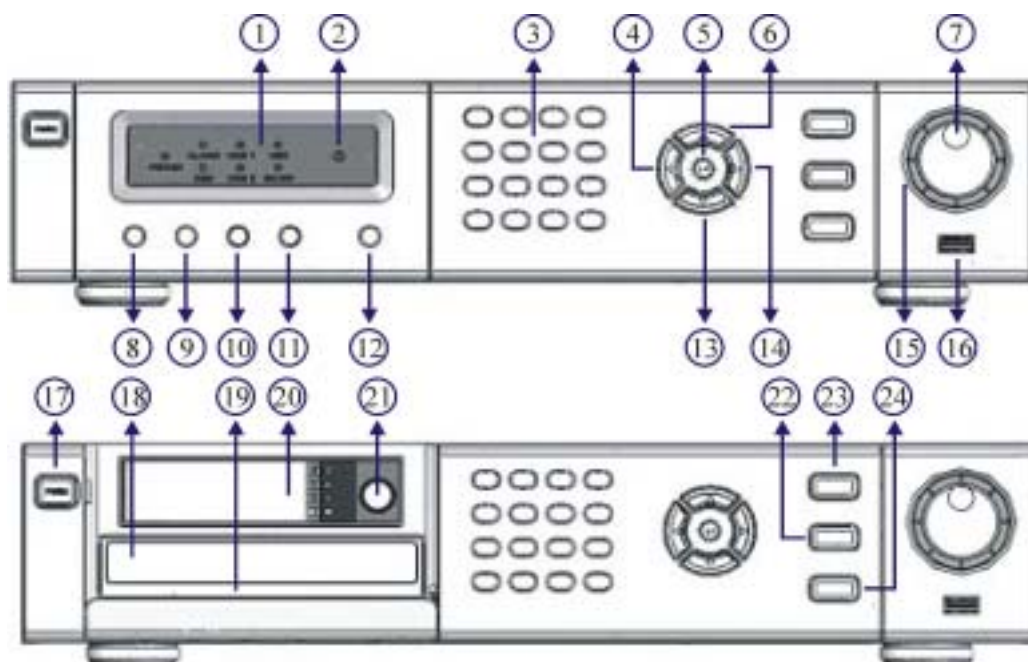
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Chapter 1. Systems Overview

Front View



1. LED status panel

Please see system LED status panel

2. Remote Controller IR receiver

3. Split display & camera buttons

- a. 4, 8, 9, 13, 16 split display when mode switch is on
- b. Camera selection mode.

4. Left button

- a. Move cursor left at menu setup.
- b. Pan left at PTZ control mode.
- c. Decrease a value.

5. Enter/set button

- a. Enter or set operation for menu setup.
- b. Instant PTZ camera selection at live mode.

6. Up button

- a. Enter or set operation for menu setup.
- b. Tilt up at PTZ control mode.

7. Jog dial

- a. Play recorded images frame by frame at playback mode.
- b. Perform zoom in and out for PTZ device live mode.

8. Recording/stop recording button

Start recording operation or stop the recording task.

9. Play button

- a. Invoke playback selection menu.
- b. Replay after FF, FR, Pause, stepping when playing video.

10. Pause button

11. Stop video playback button

12. Mode switch

Split window or camera selection buttons

13. Down button

- a. Move cursor down at menu mode.
- b. Tilt down at PTZ control mode.

14. Right button

- a. Move cursor right at menu mode.
- b. Pan right at PTZ control mode.
- c. Increase a value.

15. Shuttle ring

- a. Fast forward video at playback mode.
- b. Instant video FR or instant event list at live mode.

16. USB 2.0 connector

- a. USB flash disk
- b. External CD-RW or DVD-RW

17. Storage panel opening button

18. Built-in CD-RW drive

19. Emergency CD Eject Hole

20. Removable HDD tray

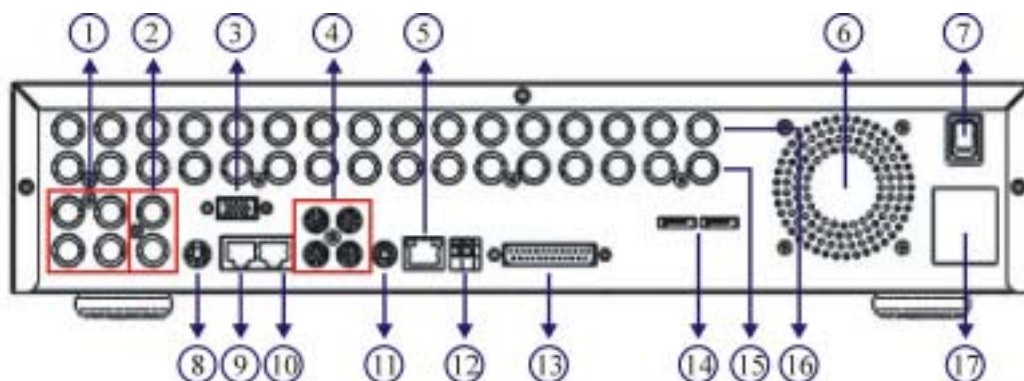
21. Removable HDD lock

22. Menu button

23. Esc button

24. Backup button

Rear View



1. Spot outs (2160A)

- Four spot outs controllable independently by keyboard.
- Each spot out can be programmable for alarmed camera display and sequence display.

2. Main outs

One main out and one looping for main output.

3. VGA connector (optional for 2160S)

4. Audio

Four 4 RCA audio connector, only one audio can be recorded at a given time.

5. Network RJ-45 connector

6. Cooling fan

7. Power switch

8. S-video output

9. RS-485 Keyboard-in

Connected from the previous DVR's keyboard output.
RJ-45 connector

10. RS-485 Keyboard-out

Connect to the next DVR's input.
RJ-45 connector

11. Audio-out

12. RS-485 out — PTZ devices

13. Alarm in/out

Alarm input/output connector, 16 alarm inputs, 1 N/O alarm output, 1 N/C alarm output, and external recording

14. SATA II connectors

Two SATA II connectors for external SATA II RAID

15. Looping — camera looping

16. Video in — 16 channel analog video

17. Power connector

AC 110V/220V power input

System LED Status Panel

System LEDs are meaningful while operating PDR-2160. The status of each LED is described as in the following table:



LED	Description	Color
REC	Recording indicator	Yellow
HDD 1	Master HDD recording indicator	Green (blinking)
HDD 2	Slave HDD recording indicator	Green (blinking)
ALARM	External alarm switches indicators when motioned or alarmed	Red
USB	USB portable disk connected indicator	Green (blinking)
CD-RW	CD writing indicator	Green (blinking)
POWER	PDR-2160 power on/off indicator	Yellow

Remote controller

The button arrangement of the remote controller is designed for easy-to-use purposes.

Buttons are separated in regions based on their features including DVR, PTZ, numerical keys, and hybrid keys. The details are described in the following table.



DVR operational keys (gray area)	
MENU	Setup menu
ESC	Escape/exit/disable alarm buzzer/clear alarm OSD
ZOOM	2X digital video zooming
REC	Record/stop recording
FREEZE	Live video freeze
	Pause
	Playback
	Stop
	Fast forward
	Fast rewind
	Next single channel
	Previous single channel
	4 split display
	8 split display
	9 split display
	13 split display
	16 split display
SEQ	Sequential display
MUTE	Mute
AUDIO	Audio on
BACKUP	Video backup
DVR	Addressable DVR control
NTSC/PAL	Video system
LANGUAGE	Language selection

PTZ features (yellow area)		DVR & PTZ hybrid keys (blue area)	
Auto Pan	Perform auto pan feature		Move up/tilt up
Zoom in	Zoom in of a PTZ camera		Move down/tilt down
Zoom out	Zoom out of a PTZ camera		Move left/pan left
Preset	Call preset of a PTZ camera		Move right/pan right
			Enter/set
Numerical keys (green area)			
0 to 9	Numerical keys		

Remote Controller Status

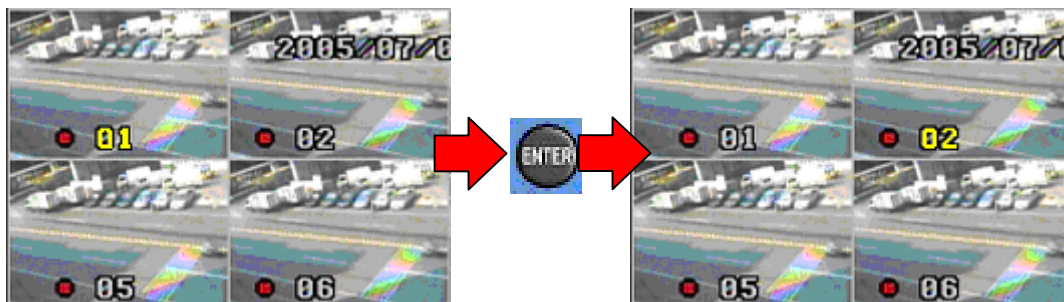
Remote Controller Status	Status
DVR 012:004	Addressable DVR Control — DVR ID of local machine: Current addressed DVR ID
CH 02	Call camera in full screen mode — Call camera#2 in full screen mode
PRESET 04	Call preset — Recall preset #4 of a PTZ device

Chapter 1-1. Before Using PDR-2160

Please read this chapter before operating PDR-2160. Features, terms, and symbols are covered in this chapter.

Chapter 1-2. PTZ Control Mode

Instant controllable PTZ camera is shown in yellow color for the camera name/number in live monitoring mode indicating that the camera can instantly be controlled for PTZ operations. Moving the active camera sequentially, one can simply press the **Enter** button on the remote controller or keypad. Once a camera is in active mode (text in yellow), major PTZ features can be easily performed.



Jog & Shuttle

Jog & shuttle menu--PDR-2160 adopts Jog & Shuttle mainly in menu system and video playback modes. In menu setup mode, rolling Jog is to move the cursor of the menu system up or down. Shuttle can be used to move the cursor of the menu system left and right.

Jog & shuttle during video playback--During video playback mode, Jog & Shuttle acts as conventional VCR for video stepping forward (rewind) and fast forward (rewind).



Instant FR & list modes—Turning shuttle ring left invokes Instant Rewind feature. Instant Rewind rewinds and plays the recorded video from the moment of the operation. It allows the operator quickly review the video few seconds or few minutes ago.

Turning shuttle ring right invokes Event List (Instant Event). Operator can quickly scan through the event list for suspicious events. Instant Rewind and Instant Event features are identical by pressing **FF** or **FR** button on front panel or keyboard.

Jog in live monitoring mode—Dialing jog dial in clockwise for a controlled PTZ camera can perform zooming in for the PTZ device. Dial jog dial in counter clockwise for zooming out of the PTZ camera.

Symbols & Icons

PDR-2160 adopts many symbols and icons for graphical user interface (GUI) design. These symbols and icons contain useful information in operating PDR-2160. All the symbols and icons are discussed in the rest of the chapter.

On-Line Help

Most of the time, the menu systems including menu setup and playback menu contain the operating usage at the bottom of each menu. User can use the menu help to operate PDR-2160 if the user manual is not handy.

↓ SET ←→ SELECT ↑↓ MOVE ESC EXIT

Icons

PDR-2160 provides graphical On Screen Display (OSD) technology to show the operating status on screen. The graphical user interface, icons, are described as in the chart below:

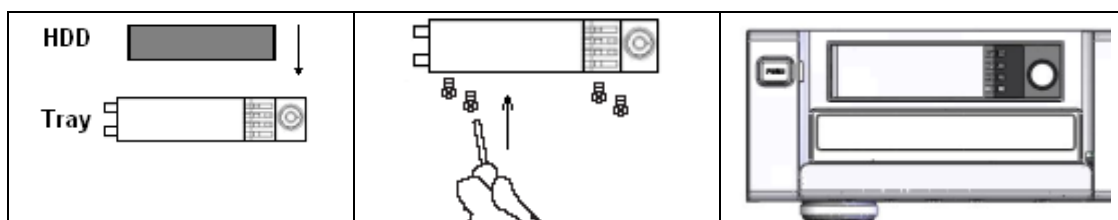
	Freezing screen		Record
	Network connected		Playback
	Motion alarm		Pause
	Sequential display		Fast rewind
	External alarm		Fast forward
	Zooming		

Chapter 1-3. Hot Swappable HDD

PDR-2160 supports one hot swappable SATA II hard disk drive (HDD) and one fixed internal SATA II hard disk. Most of the SATA II HDDs with 137 Giga bytes and above in the market are supportable by PDR-2160.

Placing HDD for recording, follow these steps:

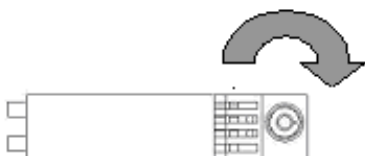
1. Place HDD on HDD tray.
2. Fasten HDD on the HDD tray with supplied screws.
3. Insert HDD tray into PDR-2160.



Caution: Fixing HDD on the HDD tray without tighten supplied screws may cause heating problem of PDR-2160.

To lock PDR-2160 and to perform recording operation, please use the key to lock the HDD tray in counter clockwise and press **REC** button. To remove HDD, please press **REC** button again to stop recording task and unlock the HDD tray.

Lock HDD tray



Unlock HDD tray

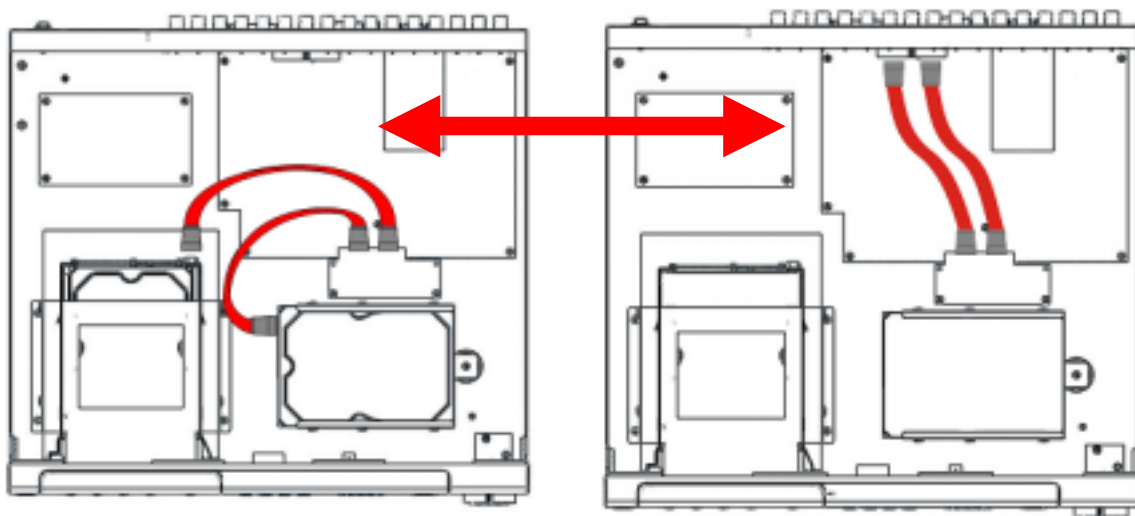


Caution: PDR-2160 provides HDD hot swappable, but it is strongly recommend stopping recording before changing a HDD.

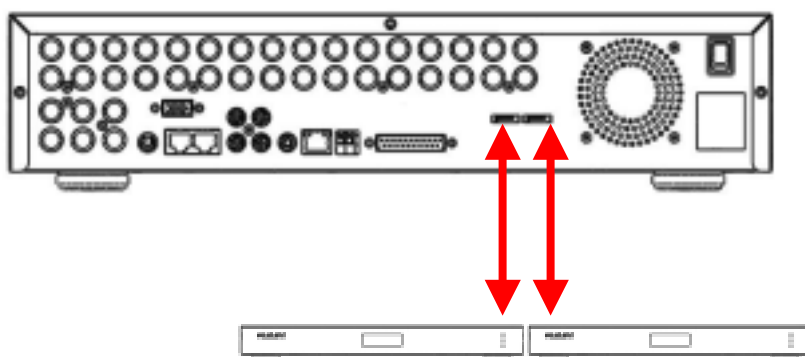
Chapter 1-4. Connect to External SATA II RAID

To connect external SATA II RAID, please follow steps:

1. Power off PDR-2160.
2. Open the case of PDR-2160.
3. Plug SATA cable to external SATA connector.



4. Close the case of PDR-2160.
5. Connect PDR-2160 to external SATA II RAID using SATA cable.
6. Power on PDR-2160. Startup menu shows the HDD size, if the SATA II RAID can be detected.

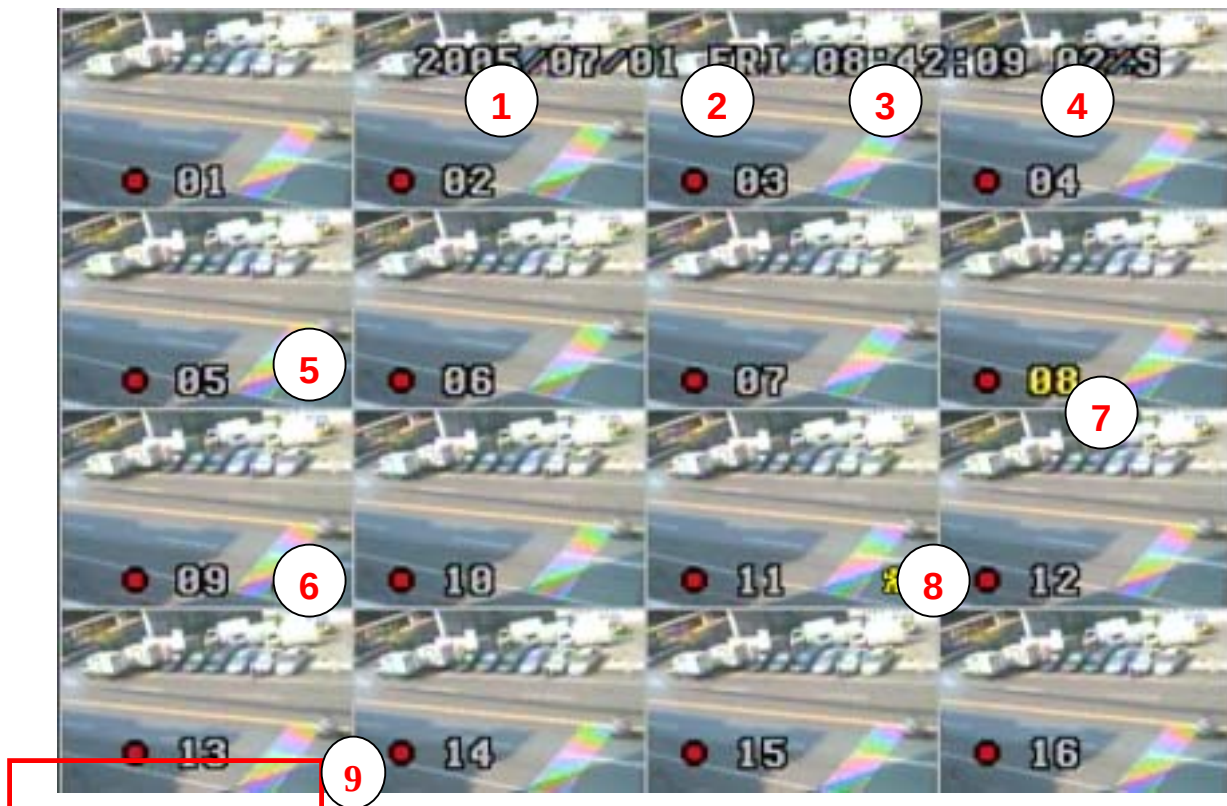


Caution: Please read external SATA II RAID user's manual thoroughly before installation. It is strongly recommended to use same size HDDs for the SATA RAID storage.

Chapter 1-5. Surveillance Mode

Most of the time, PDR-2160 is operated at the surveillance mode. The information of screen layout and symbols are described in this section.

SCREEN LAYOUT



- ① Date
- ② Day of the week
- ③ Time
- ④ HDD recording percentage and master (M)/slave (S) HDD indicator
- ⑤ Recording symbol (circle in red)/scheduling recording (circle in yellow)
- ⑥ Alarm activation indicator (bell in yellow)
- ⑦ Yellow camera ID: controllable PTZ device
- ⑧ Motion detection indicator (little man in yellow)
- ⑨ Remote controller status

Split Display Modes

PDR-2160 can provide various split display modes on live and playback monitoring using remote controller and keypad.

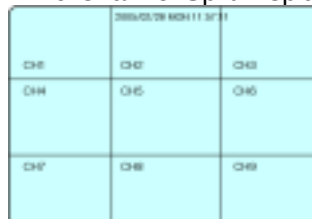
16-Channel Split Display



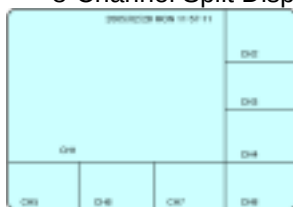
13-Channel Split Display



9-Channel Split Display



8-Channel Split Display



4-Channel Split Display



Full Screen Mode



Sequential Display



PDR-2160 provides the multiplexing feature displaying each camera in full screen in a sequence with specific time period. To perform sequential display, simply press **SEQ** on remote controller. A sequential display symbol shows on top of the screen indicating that PDR-2160 is in sequential status.

Freeze



In monitoring and playback modes, PDR-2160 provides screen-freezing feature in which the suspicious individuals can be determined. To freeze the screen, press **Freeze** button on the remote controller. Press the button again to cancel the freezing screen.

Zoom



PDR-2160 provides 2X digital zooming capability in screen freezing, live monitoring, and video playback modes. Other split windows are all allowed in using this feature. To perform this feature, press **Zoom** button on the remote controller. Once PDR-2160 is in zooming status, press **Up**, **Down**, **Left**, or **Right** buttons to move the zooming window around to view other portion of the channel. Press the **Zoom** button again can cancel the zooming window and return to normal screen.

CH+ & CH-



In case of scanning through each full screen channel, **CH+** & **CH-** can be used to monitor each camera. Press **CH+** button that each camera channel in full screen gets called in ascending sequence. Press **CH-** button that each camera channel gets called in descending sequence.

Audio & Mute



Once the audio channel is properly setup, PDR-2160 can output live audio.

To disable live audio, one can press **Mute** button. To enable live audio, press **Audio** button.

Addressable DVR Control Button



To control one of PDR-2160 DVRs using only one remote controller, please press Addressable **DVR** Control Button followed by the DVR ID and **Enter** key. The rest of the PDR-2160 DVRs other than the one in control are going to stop response to remote controller.

NTSC/PAL



To change video system, press **NTSC/PAL** button.

Language



PDR-2160 provides multi-language on screen display (OSD) support. To change from one language to another, simply press **Language** button.

Chapter 2. PTZ Controls

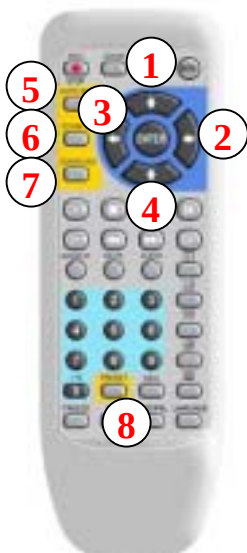
PTZ device can be controlled in live monitoring mode and PTZ setup mode via a keypad and/or a remote controller. The rest of the chapter describes the ways of manipulating PTZ devices using a keypad and a remote controller.

Chapter 2-1. Instant PTZ Controllable Mode

Instant controllable PTZ camera is shown in yellow color for the camera name/number at live monitoring mode indicating that the camera can be instantly controlled for PTZ operations. Moving the active camera sequentially, one can simply press the **Enter** button on the remote controller. Once a camera is in active mode (text in yellow), major PTZ features can be easily performed.

Chapter 2-2. Remote Controller & PTZ

PTZ buttons are framed in yellow that contain auto panning, zooming, and zooming out. Other PTZ and DVR buttons are shown in blue on remote controller. The details are described as follows:



- ① Tilting the PTZ device up
- ② Tilting the PTZ device down
- ③ Panning the PTZ device left
- ④ Panning the PTZ device right
- ⑤ Perform auto panning of the PTZ device
- ⑥ Perform zooming in of the PTZ device
- ⑦ Perform zooming out of the PTZ device
- ⑧ Calling presets

Chapter 2-3. Recall Presets

To call preset, please follow the following instructions:



- Press **Preset** button to enable the calling preset mode. The blinking “Preset” text on live monitoring screen indicates that PDR-2160 is in Preset mode.
- In Preset mode, preset 01 to 16 directly to recall preset points of the PTZ device.

Chapter 3. Recording

Chapter 3-1. Start Recording



To start recording, press **REC** button on the keypad or the remote controller. The red recording icon shows on monitor at each camera's position, and the REC LED goes on.

Chapter 3-2. Stop Recording



To stop recording, press **REC** button again to stop the recording operation. Both REC button and REC LED go off. The recording operation for all the recorded cameras is disabled.

Chapter 3-3. Emergency Recording

Recording operation can be triggered by an external alarm switch. There are up to 16 external alarm switches that can be installed for cameras. External alarm switches can be triggered and inform PDR-2160 for emergency recording. Proper settings such as Alarm Rec Duration and activation type (N/O or N/C) should be configured before this operation. Once one of the alarm switches gets triggered, the alarm icon (yellow bell) shows on monitor at the bottom of each camera channel.

Chapter 3-4. Motion Detection Recording

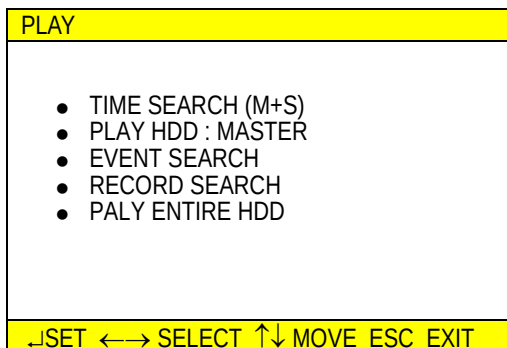
Motion detection is very useful feature of PDR-2160 that the intrusion detection of a camera's view can be detected. Motion detection recording sensors motion variation, and it triggers PDR-2160 to perform recording task. Once motion detection is active, the motioned channel activates an alarm symbol (little man in yellow) on the screen to inform users.

Chapter 3-5. Schedule Recording

Schedule recording table allows a user to define the specific time period for recording on a weekly basis. The specific recording hour can also be set to schedule or motion. One can preview the record scheduling table at Setup → Record → Schedule. PDR-2160 performs recording operation based on the scheduling table in every hour. To set the recording hour, please select Up, Down, Left, or Right button to move cursor. Press enter (toggle mode) to select the schedule recording mode. Press enter for 5 seconds to set this recording mode for the day.

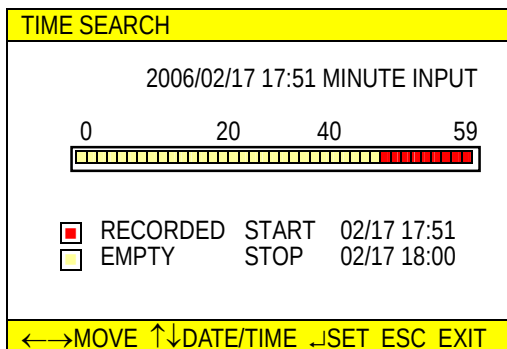
Chapter 4. Playback

To playback, please press **Play** button on remote controller or keypad. A Play message box with four different ways shows up for searching video clips. Playback message box contains time search, event search, REC search, and play entire HDD. These features are described in the following sections:



Chapter 4-1. Time Search (M+S)

Time search (master + slave) feature can perform date and time search for recorded video. This feature is very easy-to-use, and it allows a user to perform video searching task throughout two hard disk drives. The stored video clips are shown in red in the date/time bar. Yellow blocks indicate that there is no video clip stored. On the other hand, the red blocks indicate that there are video clips exist.



- To perform the searching, simply press **Left** or **Right** button and move the cursor above the red block at desired date and time specified.
- Press **Enter** to choose the date and time information
- Press **Up** or **Down** to select year, month, date, hour, and minute.

Chapter 4-2. Event Search

Event search is performed based on individual hard disk drive. Event list contains information including date, time, event type, and camera channel for the event. There are eight different event types available—external alarm (ALARM), schedule, power recovery (POWER), video loss (V.LOSS), stop recording, (STOP REC), motion alarm (MOTION), login/logout (ACCESS), and HDD format (FORMAT).

EVENT SEARCH : SLAVE 0002/0003	
START TIME	EVENT CHANNEL
05/07/04 13:40:48	ALARM CH01
05/07/04 13:40:42	ALARM CH01
05/07/04 13:40:35	ALARM CH01
←→PAGE ↑↓MOVE ↵PLAY ESC EXIT	

- To perform event search, press **Up** or **Down** button to the event.
- Press **Enter** button to play the video clips
- Press **Left** or **Right** button to the next page

Chapter 4-3. REC Search

REC SEARCH contains the list that when a user presses **REC** button to activate recording operation followed by a recording stop. To play the REC Search list, please choose Record Search item. A list of start and end recording shows up accordingly. Press **Up** or **Down** to select the date and time.

RECORD SEARCH : SLAVE 0001/0002	
START TIME	END TIME
05/07/04 13:39:47	05/07/04 13:39:53
05/07/04 13:38:42	05/07/04 13:39:44
←→PAGE ↑↓MOVE ↵PLAY ESC EXIT	

Chapter 4-4. Play Entire HDD

Play Entire HDD allows playing master/slave HDD from the oldest to the most recent recorded video. Once the master HDD gets played to the end, PDR-2160 plays the slave HDD.

Chapter 4-5. Other Playback Features

Once one of above playback features is performed, features such as fast forward (FF), fast rewind (FR), pause, stop, step, and re-play can then be used.

FF: Press **Right** button, shuttle ring right on the front panel, or **FF** key on remote controller to fast forward the playing video. The speed of fast forwarding is range from 2X ~ 64X of the original playback speed.



FR: Press **Left** button, shuttle ring left on the front panel, or **FR** key on remote controller to fast rewind the playing video. The speed of fast rewinding is range from 2X ~ 16X of the original playback speed.



PAUSE & STEPPING: press **Pause** key during playing video can pause the video. Once the video is in pausing stage, one can press **Left** or **Right** on PDR-2160's keypad or remote controller to play the video step-by-step.

Roll the Jog dial to see the slow motion of the recorded video.



STOP: To stop video playback, press **Stop** button on keypad or remote controller. PDR-2160's screen switches back to playback main menu. Press **ESC** button again returning to live monitoring mode.



Chapter 5. System Start-up

There are three start-up stages while booting PDR-2160. System information of PDR-2160 is useful for system troubleshooting.

The start-up stages are described as follows:

1) System Initializing

- First start-up screen
- Specified video system (NTSC/PAL)
- Version number for firmware update

NTSC MODE		KERNEL 2.6	
MERIT LILIN PDR 2160 DVR SYSTEM INITIALIZING *****			
MERIT	LILIN	PDR 2160	V1.2.12

2) Network Initializing

- Network information

SYSTEM CHECK		KERNEL 2.6	
NETWORK INFORMATION			
IP ADDR : 192.168.001.111			
SUBNET : 255.255.255.000			
GATEWAY : 192.168.001.001			
MERIT	LILIN	PDR 2160	V1.2.12

3) HDD Initializing

- HDD model number and size detected
- HDD information shows blank if no HDD detected
- If both HDDs are not present, PDR-2160 can still perform its function except features related to HDD operations.

SYSTEM CHECK			KERNEL 2.6		
HDD DISK CHECKING . . .					
MASTER HDD INFO :					
SLAVE HDD INFO :					
ST380011A 80G					
MERIT			LILIN		
PDR 2160			V1.2.12		

4) Once all above stages are correctly presented, PDR-2160 finishes the booting sequence.

Chapter 6. Menu System

Chapter 6-1. Setup Menu

Setup menu contains selection categories, which are camera, monitor, record, alarm, system, network, PTZ, and backup settings. The details of all the setting categories are described in the rest of the chapters.

SETUP	
▶ CAMERA	
• MONITOR	
• RECORD	
• ALARM	
• SYSTEM	
• NETWORK	
• PTZ	
• BACKUP	
↵SET	↑↓ MOVE ESC EXIT

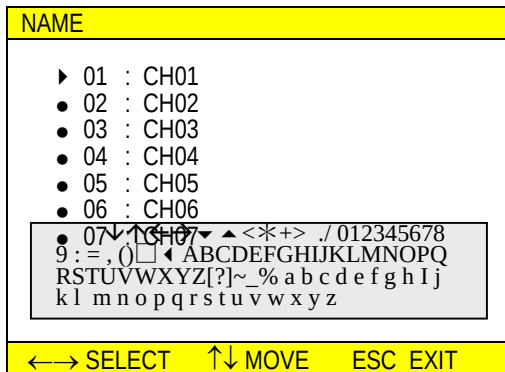
Chapter 6-2. Camera Setup

One can setup individual camera's settings including camera name, camera name display, video attributes, sequential display, boarder color, display mode, and vertical/horizontal adjustment. To setup above, please select Camera menu item in setup main menu.

CAMERA	
• CAMERA NAME	
• ENABLE NAME	: ON
• CHANNEL ENABLE	
• VIDEO SETUP	
• SEQUENCE	
• BOARDER COLOR	: BLACK
• MODE	: MODE 1
• V/H ADJUST	: ←→↑↓
↵SET ←→ SELECT	↑↓ MOVE ESC EXIT

Chapter 6-2-1. Camera Name

A user can edit up to 8 characters for camera name. To setup the camera name, follow the following instructions:



- ① Press **Enter** to enable the screen keyboard.
- ② Roll Jog dial to move cursor to the desired character.
- ③ Press **Left** or **Right** key to choose character.
- ④ Press **Up** or **Down** key to set next character.
- ⑤ Press **Esc** to quit screen keyboard and setup menu.

Cascading Camera Name

In many cases, PDR-2160 DVRs may be connected and accessed by keyboard(s) via RS-485. There are up to 255 DVRs and 4080 cameras that can be addressed by keyboard(s). Editing camera name becomes a time consuming task. PDR-2160 can be automatically renamed to Cascading Camera Name (see System->DVR/485ID section).

Cascading Camera Name can match keyboard's operation or calling convention. For example, calling second DVR's first camera can be done by pressing #2 + DVR + #1 Camera or #17 Camera on the keyboard. Directly calling the camera number is more intuitive. Cascading Camera Name feature translates and modifies the second DVR's camera name to CH17 to CH32.

For large-scale project, devices may include analog matrix, main monitor outputs, and spot monitor outputs. The Cascading Camera Name feature is useful in identifying a camera. However, a user can still use meaningful camera name instead of numerical value.

Chapter 6-2-2. Enable Name

Enable name feature is to enable/disable camera name, HDD recording ratio, date, and time displaying on monitor in live monitoring mode. To disable camera name (caption), set Enable Name to off.

Chapter 6-2-3. Channel Enable

Channel enable feature can close (hide) the live video of a camera and still perform video recording.

CHANNEL ENABLE		
• 04	:	ON
• 05	:	ON
• 06	:	ON
• 07	:	ON
• 08	:	ON
• 09	:	ON
• 10	:	ON
• 11	:	ON
• 12	:	ON
↓SET ←→ SELECT ↑↓ MOVE ESC EXIT		

Note : If channels are not used and installed, set both Channel Enable and Rec Channel Enable to off. These channels are in not installed mode.

Chapter 6-2-4. Video Setup

Video setup can adjust contrast, brightness, hue, and saturation for each camera.

VIDEO SETUP			
CAMERA CON	SELECT BRI	CH01 HUE	SAT
			
50	50	50	50
←→ ADJUST ↑↓ MOVE ESC EXIT			

- ① Press **Left** or **Right** to switch item
- ② Press **Up** or **Down** to change value.
- ③ Press **ESC** to exit this menu.

Chapter 6-2-5. Sequence

Sequence feature can multiplex each camera screen in full screen size in specific time period.

Once the sequence table is set, press **SEQ** button on the remote controller to activate the sequence feature. To disable sequence feature, press **SEQ** button again.



SEQUENCE			
• 04	:	02	SEC
• 05	:	02	SEC
• 06	:	02	SEC
• 07	:	02	SEC
• 08	:	02	SEC
• 09	:	02	SEC
• 10	:	02	SEC
• 11	:	02	SEC
▶ 12	:	02	SEC
JSET ←→ SELECT ↑↓ MOVE ESC EXIT			

- ① Press **Left** or **Right** button to adjust the time period.
- ② Press **Up** or **Down** button to move to the next camera sequence setting.
- ③ Press **ESC** to exit the setup.
- ④ Press **SEQ** button to enable sequence feature.

Chapter 6-2-6. Boarder Color

Boarder color refers to the boarder of each split display's color. This color can be changed at Camera setup menu. There are three different colors, white, gray, and black for a user to choose.

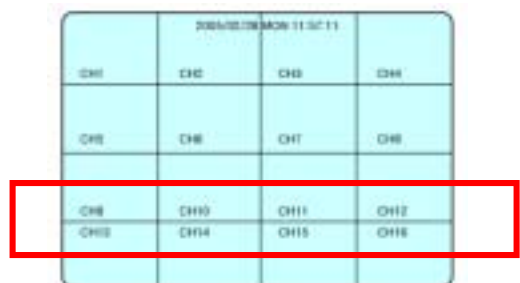
Chapter 6-2-7. Mode

Mode refers to camera channel display mode. There are two modes available. Mode 1 aligns the last row's camera names at the bottom of the camera channels. Mode 2 aligns the last row's camera names at the top of the camera channels. This feature provides the flexibility which allows PDR-2160's output to fit different analog monitor's output.

Mode 1:

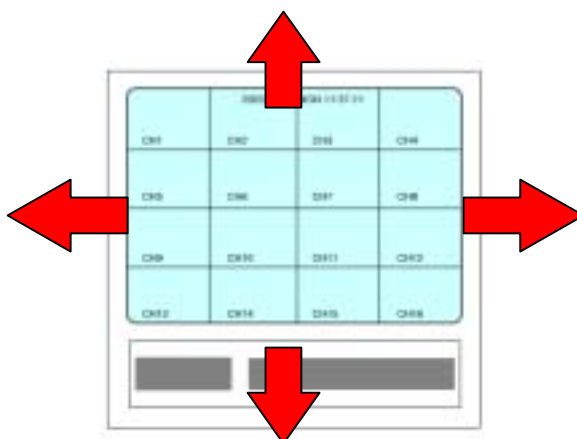


Mode 2:



Chapter 6-2-8. V/H Adjust

V/H ADJUST allows adjusting PDR-2160's video output vertically and/or horizontally. A user can use this feature to adjust video to fit monitor output.



Chapter 6-3. Monitor Setup

PDR-2160A provides spot and matrix output with OSD support. Spot and matrix features are useful in a large-scale project that the system can be operated via keyboard(s). Camera view switching after an external alarm triggering or motion detection triggering can be displayed on a spot or the main monitor. VGA board (optional for PDR-2160A) can support up to 1280 * 1024 resolution. To setup above, please read the following sections:

MONITOR	
▶ VGA SETUP:	1024 * 768
● VGA V/H SYNC	
● MAIN MONITOR ALERT	: OFF
● SPOT MONITOR	: 01
● ALERTED CAMERA	: OFF
● ENABLE SEQUENCE	: ON
● CAPTION ENABLE	: ON
● SET SPOT SEQUENCE	
└SET ←→ SELECT ↑↓ MOVE ESC EXIT	

Chapter 6-3-1. VGA Setup

The resolution of the VGA output can be SVGA (800-by-600), XGA (1024-by-768), and SXGA (1280-by-1024). Press **Left** or **Right** button to change the resolution. If VGA or LCD monitor's does not match the frequency of the setting, keep press **Left** or **Right** button to select proper VGA frequency setting.

Chapter 6-3-2. VGA V/H SYNC

VGA V/H ADJUST allows adjusting PDR-2160's video output vertically and/or horizontally for the VGA output. A user can use this feature to adjust video to fit a LCD monitor.

Chapter 6-3-3. Main Monitor Alert

Main monitor alert feature allows switching to the camera's full screen display when the corresponding alarm switch or motion is triggered, it will then switch back to the 16-channel split display mode after the dwell.

Chapter 6-3-4. Spot Monitor

There are four spot monitors (PDR-2160A only) which has the features of (1) calling a camera's full screen display controlled by keyboard(s), (2) alerted camera full screen switching, and (3) full camera sequential display. To edit above features, please first press **Left** or **Right** button to choose the spot monitor.

Chapter 6-3-5. Alerted Camera

To enable Alerted Camera in full screen switching, set this option to enable. This spot monitor specified above will switch to correspondent camera view when its alarm/motion gets triggered.

Chapter 6-3-6. Enable Sequence

To set one of the spot monitor to full screen sequential display, set this option to enable.

Chapter 6-3-7. Caption Enable

Caption enable feature enables or disables the camera name displayed on a spot output.

Chapter 6-3-8. Set Spot Sequence

Each spot monitor output can be configured in displaying camera's full screen in sequence. To disable this feature, please set the time to zero. To enable, please assign display dwell to the camera.

Chapter 6-4. Record Setup

Record setup menu can setup features related to recording features such as scheduled recording, HDD over written recording, recorded image resolution settings, recorded video speed settings, and audio channel setting.

RECORD	
▶ SCHEDULE	
● OVERWRITE	: YES
● REC SPEED	: 60F / SEC
● REC QUALITY	: VERY HIGH
● REC MODE	: 352 * 240
● PB SPEED	: 60F / SEC
● REC CHANNEL ENABLE	
● AUDIO CHANNEL	
⏮SET ⏭SELECT ⏵MOVE ESC EXIT	

Chapter 6-4-1. Schedule

Once the schedule has been setup, PDR-2160 records camera video based on the scheduling table. PDR-2160's timer detects every second to check if it should start to record.

SCHEDULE																																																		
	0 4 8 12 16 20 23																																																	
▶ MON	<table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																																																	
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■ SCHEDULE																																																		
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⏮SET ⏭SELECT ⏵MOVE ESC EXIT																																																		

- ① Press **Enter** to toggle schedule, motion, or none for recording.
- ② Press **Up**, **Down**, **Left**, or **Right** to move the cursor.
- ③ Press **Enter** button for 5 seconds to set the recording mode for the day.
- ④ Press **ESC** to exit.

Chapter 6-4-2. Recording Mode

PDR-2160 can record video in fields or CIFs resolution for storage consideration. In short, field recording mode records only either even or odd scanned video lines. The total throughput within a second can generate 60/50 fields. CIF recording mode processes each video image and is scaled into 1/4 of the original image size. The total throughput within a second can generate 120/100 CIFs. Due to better image quality (using Fields) and fluent video considerations (using CIFs), one should setup the recording system based on the environment and the monitored targets.

The manufacturing default for recording mode is in field mode. To change the setting to CIF mode, please press **Left** or **Right** button to change.

Chapter 6-4-3. Recording Speed

PDR-2160 provides two recording modes up to 120/100 CIFs/Sec and 60/50 Fields/Sec. The recording speed can be specified for storage consideration—higher recording speed consumes more HDD storage space. To change REC Speed, please switch menu item to Record->REC Speed.

Chapter 6-4-4. Recording Quality

There are four different video qualities, Very High, High, Normal, and Low (long-hour) that a user can set. In general, higher image quality implies lower video compress rate. The details of different image quality settings at different HDD recording medium are documented in appendix.

Chapter 6-4-5. Playback Speed

Playback speed can be used if the recording speed is set differently. Playback speed is highly recommended to match the original recording speed. Incompatible playback speed may occur if the playback speed does not match recording speed. To change playback speed, please switch different speed under Recording->Playback Speed.

Chapter 6-4-6. Recording Channel Enable

Each individual channel can be enabled or disabled for recording purpose. To close the recording channel, please enter REC Channel Enable menu item. Close or open the recording channel accordingly.

Chapter 6-4-7. Audio Channel

To record audio to its video channel, please first define the audio channels. Next, select the REC AUDIO channel.

AUDIO CHANNEL
▶ AUDIO 1 : CH01 ● AUDIO 2 : CH02 ● AUDIO 3 : CH03 ● AUDIO 4 : CH04 ● REC AUDIO : CH02
↓SET ←→ SELECT ↑↓ MOVE ESC EXIT

Note: There are only one audio can be monitored and one audio channel can be recorded at a given moment.

Chapter 6-5. Alarm Setup

Alarm setup menu allows changing the settings of external alarm switches, motion alarm, buzzer, and alarm recording duration. To change these settings, please enter Alarm setup menu and follow the instructions:

ALARM	
▶ CAMERA SELECT	: CH01
● ALARM ENABLE	: OFF
● MOTION ENABLE	: OFF
● SENSITIVITY	: NORMAL
● MOTION AREA SET	
● MOTION BUZZER TIME	: 05 SEC
● ALARM REC TIME	: 05 SEC
● BUZZER ENABLE	: ON

└SET ←→ SELECT ↑↓ MOVE ESC EXIT

Chapter 6-5-1. Camera Select

Press **Left** or **Right** button to switch to different camera channel.

Chapter 6-5-2. Alarm Enable

PDR-2160 has 16 alarm inputs which can be configured as normal open (N/O), normal close (N/C), or disabled. Sixteen alarm inputs numbered from 1 to 16 are one-to-one mapped to camera 1 to 16 respectively. Press **Left** or **Right** button to switch the alarm to N/O, N/C, or None status.

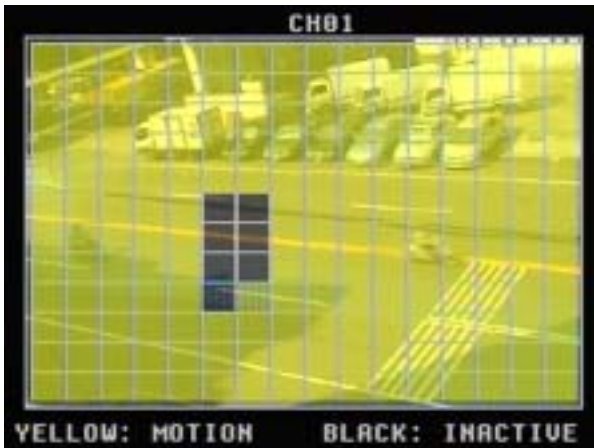
Chapter 6-5-3. Motion Enable

Motion Enable enables motion alarm activation to alarm outputs (N/O and N/C), if the motion area has been set with proper motion sensitivity. Press **Left** or **Right** button at Motion Enable menu item to change the setting.

Chapter 6-5-4. Sensitivity

There are five levels of sensitivity adjustment for motion video alarm triggering range from Very High to Very Low. Press **Left** or **Right** button to change the sensitivity setting.

Chapter 6-5-5. Motion Area Set



- ① Press **Up**, **Down**, **Left**, or **Right** to move the cursor (blinking block).
- ② Press **Enter** to set the motion area block.

Note: To select or deselect entire motioned area, please first press Enter button (toggle select or deselect mode) and press Enter for 5 seconds.

Chapter 6-5-6. Buzzer Time

Motion alarms and external alarm inputs can trigger the buzzer alarm. Buzzer time is adjustable from 0 to 99 sec. Press **Left** or **Right** button on Buzzer Time to adjust the time setting. To disable buzzer of motion alarm and external alarm, set Buzzer Time to 0.

Chapter 6-5-7. Alarm Recording Time

Motion alarms and external alarm inputs can trigger PDR-2160 to record. The recording time is range from 0 (Off) to 99 sec. To setup the recording time, please press **Left** or **Right** button on the Alarm Rec Time menu item.

Chapter 6-5-8. Buzzer Enable

In case, the warning buzzer requires to be turned off. A user can disable the buzzer under System->Buzzer Enable menu item.

Chapter 6-5-9. Alarm Email

Alarm email feature can send an HTTP-based email to a remote computer. Once the user receives the email at remote site, the user can double click on the hyper link and get the live video in a browser. To set the email account and password, please read chapter 8 for detail.

Chapter 6-6. System Setup

PDR-2160 systems related settings such as date/time, HDD settings, restoring manufacturing default, video system, DVR/485 ID, language, password authentication, and firmware update can be configured at system menu. To setup above features, please follow the following instructions:

SYSTEM	
▶ DATE / TIME	
● HDD FORMAT	
● HDD INFO	
● FACTORY RESET	
● VIDEO SYSTEM	: NTSC
● DVR / 485 ID	: OFF
● LANGUAGE	: ENGLISH
● PASSWORD	
● FIRMWARE UPDATE	

⏮ SET ⏪ ⏩ SELECT ⏭ ⏮ MOVE ESC EXIT

Chapter 6-6-1. Date/Time

PDR-2160 has a built-in timer to record time information. One can choose different time displaying format or disable the timer at this menu item.

Time Sync

Time Sync feature allows PDR-2160 to synchronize its timer system with PIH-931 keyboard.

To synchronize with PIH-931 keyboard, please set this option to Keyboard.

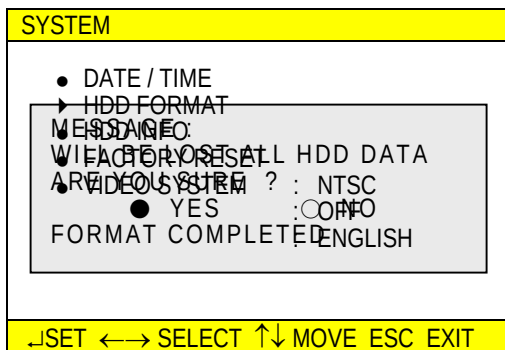
DATE / TIME	
▶ DATE	: 2005 / 06 / 30
● TIME	: 17 : 06 : 01
● FORMAT	: YYYY / MM / DD
● DISPLAY	: ON
● TIME SYNC	: KEYBOARD

⏮ SET ⏪ ⏩ SELECT ⏭ ⏮ MOVE ESC EXIT

- ① Press **Left** or **Right** to adjust date or time.
- ② Press **Up** or **Down** to move to the next item.
- ③ Press **ESC** to exit the menu.

Chapter 6-6-2. HDD Format

To format HDDs, please select HDD Format menu item. Password is required for preventing unauthorized access. A warning message gets prompted for final verification. Please be alerted to this operation. It may erase not only event list data but also recorded video data. Press **Enter** at HDD Format menu item to format the hard disk drives. Formatting hard disk drives may take several seconds based on the number of lists recorded. "FORMAT COMPLETED" message shows up after the process is done.



Caution: To format HDDs, it erases event lists and may damage the stored video data of the HDDs permanently.

Chapter 6-6-3. HDD Information

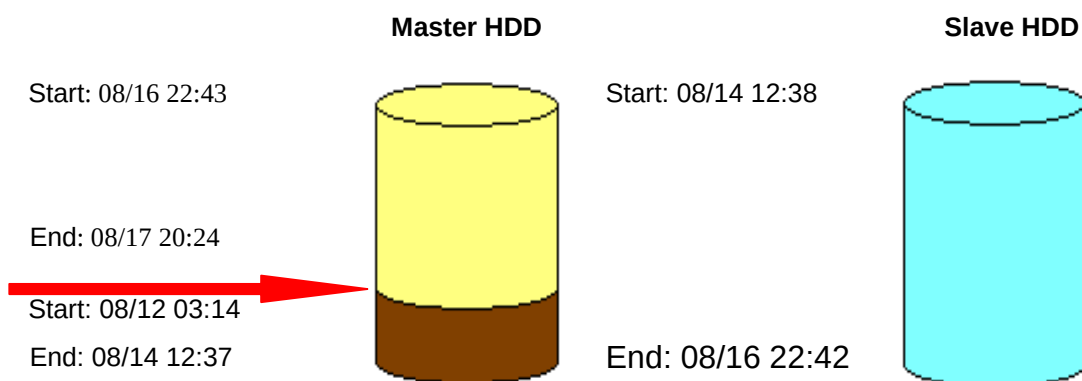
HDD INFO shows the following information:

HDD INFO			
	▶ MASTER		SLAVE
MODEL	ST3120814A		ST3120814A
SIZE	120G		120G
USED	88.0%		100.0%
REC NO	0200		0012
EVENT NO	0000		0000
START	08 / 12 03 : 14		08 / 14 12 : 38
END	08 / 14 12 : 38		
START	08 / 16 22 : 42		
END	08 / 17 20 : 24		08 / 16 22 : 42
ESC EXIT			

1. Model number—The model number of the hard disk drive (arrow: recording HDD)
2. Size—The capacity of the hard disk drive
3. Used--Recorded video percentage rate
4. Rec No.—Record list count
5. Event No.—Event list count
6. Start—Starting time of stored video
7. End—Ending time of stored video

Recorded Video Overwritten

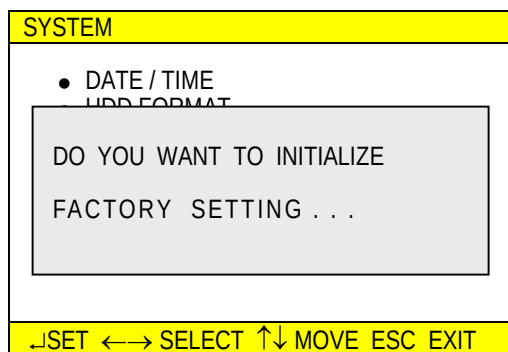
PDR-2160 adopts circular frame-by-frame overwritten technology to save storage space. To explain above figure, please see the following chart.



Above figure illustrates that the oldest recorded video (08/12 03:14) in the master HDD gets overwritten by the most recent recorded video (08/17 20:24).

Chapter 6-6-4. Factory Reset

A user may want to restore manufacturing default settings. A confirm message shows up for final verification. To perform this task, please select Factory Reset at System->Factory Reset and press **Enter**.



Chapter 6-6-5. Video System

PDR-2160 supports both NTSC and PAL video systems. PDR-2160 allows switching from one video system to another without rebooting. To change video system, press **Left** or **Right** button at System->Video System.

Chapter 6-6-6. DVR/485 ID

Each PDR-2160 can be assigned by a unique DVR/485 ID accessed by its remote controller. With a unique DVR/485 ID set, a remote control issues operating commands to particular PDR-2160. The rest of PDR-2160 DVRs do not response to the remote controller. To operate addressable DVR control feature, please refer to chapter 1 Addressable DVR Control Button.

DVR/485ID is also the ID address accessed by PIH-931 keyboard(s). To change DVR/485 ID, press **Left** or **Right** button on the front panel.

Chapter 6-6-7. Language

PDR-2160 provides multi-language OSD support. A user can change his/her preferred language to operate PDR-2160. Press **Left** or **Right** button to change the Language setting.

Chapter 6-6-8. Password

PDR-2160 has one set of password protection preventing unauthorized access. To activate password function, please turn Enable Password on or off at System->Password. The password consists of four digits. The default password setting is "1111". The acceptable characters are from 1 to 10 (0). To change the password setting, press **Enter** at System->Password->Change Password. Please also follow the following to change the password.

1. Enter current password

PASSWORD	
▶ PASSWORD	
● ENABLE PASSWORD	: OFF
CURRENT PASSWORD :	
	- - - -
⏮SET ⬅➡SELECT ⬆⬆MOVE ESC EXIT	

2. Enter new password

PASSWORD
▶ PASSWORD CHANGE ● ENABLE PASSWORD : OFF CHANGE PASSWORD : _ _ _ _
⏮SET ←→ SELECT ↑↓ MOVE ESC EXIT

3. Enter confirmed password

PASSWORD
▶ PASSWORD CHANGE ● ENABLE PASSWORD : OFF CONFIRM PASSWORD : _ _ _ _
⏮SET ←→ SELECT ↑↓ MOVE ESC EXIT

Note: In case of forgetting the password, please contact your local dealer for password.

Chapter 6-6-9. Firmware Update

Firmware update allows one to upgrade PDR-2160's firmware improving system performance.

To perform firmware update, press **Enter** on Setup->System->Firmware Update.

FIRMWARE UPDATE
● START COPY APPLICATION ● EXPORT SETUP ● IMPORT SETUP ● VERSION : V1.2.12 ● KERNEL 2.6
⏮SET ←→ SELECT ↑↓ MOVE ESC EXIT

Prepare Firmware

To prepare firmware update, please create a directory, firmware, at the portable USB disk. The portable USB disk should contain file system FAT-16 or FAT-32. Please visit the web site at www.meritilin.com to download the latest firmware and save the file in the directory mentioned above.

Note: PDR-2160/PDR-3160 uses same version of firmware.

Start Update Firmware

To perform firmware update, please plug in the USB flash disk into PDR-2160. Select Start Update Firmware menu item and press **Enter** button. It will automatically transfer the firmware into PDR-2160. After transferring firmware, wait until “Please Reboot System” message gets prompted and reboot PDR-2160.

Start Copy Application

To copy NetworkViewer application, please plug in USB flash disk into PDR-2160. Select Start Copy Application menu item. Press **Enter** button to start the duplicating process.

Export Setup

Export setup feature allows a user to export internal configuration into a file, dvr16.sys, at USB flash disk's firmware directory. The file dvr16.sys can later be import to other machines. The imported machine's internal configuration gets updated based on the original PDR-2160's configuration. To perform Export Setup, please select Export Setup menu item and press **Enter** button.

Import Setup

To perform Import Setup feature, please select Import Setup menu item and press **Enter** key. The configuration of the PDR-2160 gets updated based on the file, dvr16.sys.

Version

Version menu item indicates the current version number of the PDR-2160.

Chapter 6-7. Network Setup

PDR-2160 allows a user to access the video via Internet or LAN. In order to connect to LAN or Internet, subnet mask, gateway, and IP address should be configured. Please consult your Internet service provider or system administrator for above information.

NETWORK	
▶ SUBNET	: 255 . 255 . 255 . 000
● GATEWAY	: 192 . 168 . 001 . 001
● IP ADDR	: 192 . 168 . 001 . 111
● NETWORK ENABLE	
● VIDEO PORT:	5000
● COMMAND PORT:	5001
● HTTP PORT:	0080
● MAC	

↵SET ←→ SELECT ↑↓ MOVE ESC EXIT

Chapter 6-7-1. Network Enable

Each camera channel can be enabled or disabled for remote access. To enable or disable remote access, follow these instructions.

NETWORK ENABLE		
▶ 01	:	ON
● 02	:	ON
● 03	:	ON
● 04	:	ON
● 05	:	ON
● 06	:	ON
● 07	:	ON
● 08	:	ON
● 09	:	ON

↵SET ←→ SELECT ↑↓ MOVE ESC EXIT

- ① Press **Left** or **Right** to open/close the channel.
- ② Press **Up** or **Down** to move to the next item.
- ③ Press **ESC** to exit the menu

Chapter 6-7-2. HTTP, Command, Video Ports

For Internet connection, port number IP mapping technologies can be used for single IP address shared by multiple devices via a network router. Please consult your network administrator for this advanced network technique.

Note: Default Internet port numbers for PDR-2160/PDR-3160 are port 80 (HTML web pages), port 5000 (video port), and port 5001 (command port).

Chapter 6-8. PTZ Setup

PDR-2160 can control up to 16 PTZ cameras. Using PDR-2160's keypad or remote controller can access all these cameras. To setup PTZ connection, please follow the instructions:

PTZ
▶ CAMERA SELECT : CH01 ● FAST DOME TYPE : PIH 7625 ● PRESET ADJUST ● KEYBOARD DIRECT ACCESS
↓SET ←→ SELECT ↑↓ MOVE ESC EXIT

Chapter 6-8-1. Camera Select

Press **Left** or **Right** button, one can choose the camera to define its presets. PDR-2160 switches the camera to full screen in size for user to adjust PTZ's lens.

Each PTZ camera ID is one-to-one mapped to PDR-2160's camera. For example, one PTZ camera is connected at camera #5 of PDR-2160. Please adjust the PTZ camera's device ID to 5 to response PTZ's protocol sent by PDR-2160.

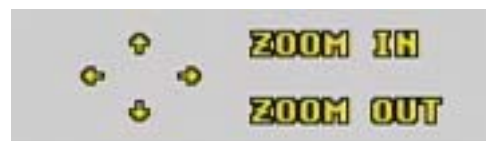
Chapter 6-8-2. Fast Dome Type

One can choose the model of different PTZ device by pressing **Left** or **Right** button. PDR-2160 adopts this PTZ model's protocol and communicates with the PTZ device.

Chapter 6-8-3. Preset Adjust

A preset of a PTZ camera can be configured for manipulation during live monitoring. Panning, tilting, zooming, calling presets, auto panning, and other PTZ features provided by a PTZ camera can also be accessed during live monitoring mode. All the features should be configured before accessing PTZ functions. Please also follow the rest of this chapter:

PRESET
▶ PRESET : 01 ● DWELL : 000 SEC ● SPEED L TO H : 1 ● ADJUST POS ● SAVE ● CLEAR ALL PRESET
↓SET ←→ SELECT ↑↓ MOVE ESC EXIT



Chapter 6-8-4. Preset

To define Preset, press **Left** or **Right** button on front panel or remote controller to change the preset number.

Chapter 6-8-5. Dwell

Define Dwell of presets. The Dwell number ranges from 0 to 255 (the shortest to the longest).

Chapter 6-8-6. Speed

Define speed of previous preset to the next preset. The speed number ranges from 1 to 8 (the slowest to the fastest). The speed might vary based on different PTZ device's settings.

Chapter 6-8-7. Adjust PTZ Position

To adjust PTZ lens position, press **Enter** at Adjust Pos menu item. A PTZ screen keypad shows up as a reminder. Please press **Left**, **Right**, **Up**, or **Down** button on remote controller to move the PTZ lens. To zoom in and/or zoom out of the PTZ device, press **Zoom In** and/or **Out** on the remote controller or the Jog at front panel.

Chapter 6-8-8. Save

Once the above parameters are entered, the lens of the PTZ device should be in place with proper IRIS and focus set. To store the parameters permanently, please press **Up** or **Down** button to choose Save menu item. The position gets stored by each PTZ device programmatically. You can test the stored preset by switching back and forth on Preset menu item. To define other preset point, please repeat chapter 6-8-4.

In live monitoring mode, this preset can be recalled at any time. To recall a preset, please read Call Preset section for detail.

Chapter 6-8-9. Clear All Preset

To clear all the preset points of a PTZ device, please select Clear All Preset menu item. Press **Enter** key on the front panel or remote controller. The operation clears all the preset points.

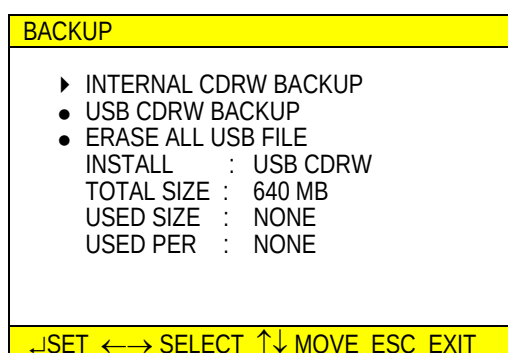
Note: Please make sure that the RS-485 wires are properly installed and connected to PDR-2160. The PTZ device ID is adjusted to PDR-2160's camera number accordingly.

Chapter 6-8-10. Keyboard Direct Access

Keyboard direct access mode allows PDR-2160 to bypass protocol sent by a keyboard to a PTZ device. Protocols and features of PTZ devices supported by a keyboard can be assessed via PDR-2160 at this mode.

Chapter 6-9. Backup

PDR-2160 provides various backup methods for performing backup task of recorded video. Since there are many portable USB devices currently available in the market, Linux OS may not support all the device drivers. Please test the portable backup device before performing backup task.



PDR-2160 can detect the device type in Install field and display backup device information as follows:

INSTALL: USB FLASH/USB CD-RW

TOTAL SIZE: The total size of the portable USB device

USED SIZE: File size used of the portable USB device/NONE

USED PER: The file usage percentage rate of the portable USB device/NONE

Chapter 6-9-1. Internal CD-RW Backup

To perform CD-RW backup, please first select Setup->Backup-Internal CD-RW Backup menu item and follow the steps:

1. Select “Backup” menu item at Main menu.
2. Select “Internal CD-RW Backup” menu item

```

CDRW BACKUP
  ▶ SET BACKUP TIME START
    START                2006/05/22 14:06
  • SET BACKUP SIZE:    600MB
    APPROX. STOP        06/05/22 15:10
  • BACKUP START
  • FORMAT CD
  • EJECT/LOAD CD

↓SET  ←→ SELECT ↑↓ MOVE ESC EXIT

```

3. Enter "Set Backup Time Start" menu item.

TIME SEARCH

2006/02/17 17:51 MINUTE INPUT

0 20 40 59

RECORDED START 02/17 17:51
EMPTY STOP 02/17 18:00

- ① Press **Left** or **Right** button to select time.
- ② Press **Up** or **Down** to select month, date, hour, or minute information.
- ③ Press **Enter** to set backup starting time.

4. Set backup size, by pressing **Left** or **Right** button to specify the backup size.
5. Press "Backup Start" for CD-RW to burn the CD.
6. To format a CD, please select "Format CD" option.

Chapter 6-9-2. External CD-RW Backup

PDR-2160/PDR-3160 can support external CD-RW backup. To perform external CD-RW, please follow previous chapter.

Note: External DVD-RW drive can be recognized, but please use CD for DVD-RW drive backup. DVD media is not supported by PDR-2160/PDR-3160.

Chapter 6-9-3. USB Flash Disk Backup

PDR-2160 allows a user to backup recorded video via USB flash. PDR-2160 adopts video capturing technology. PDR-2160 can convert the captured video into USB flash disk. There is no need to enter date or time values to perform the backup task. The intuitive video backup feature can save time for performing video backup. To backup stored or live video from PDR-2160, please follow the following instructions:

1. Plug in the portable USB disk into PDR-2160's USB port
2. Search the video by **Play** button. Please refer to playback section for details.



3. Once the stored video has been located, press **Backup** button for capturing the video clips into PDR-2160's memory. The message, "VIDEO CAPTURING WAIT...", shows:



4. Continuously monitor the played video till it reaches to the end of the video.
5. Press **Backup** button again for transferring video clips into portable USB disk. The message, "USB DATA TRANSFERING...", shows:



6. If the USB device is full during the backup operation, the message, "USB Full", shows.

Note: Press first **Backup** button. PDR-2160 transfers video into its internal memory. Press second backup button. PDR-2160 transfers video from internal memory into USB flash disk. To erase the USB Full message, please press **ESC** button.

7. If the backup operation is still not finished and the video data inside the USB flash disk is required to be erased, the user can follow the instruction at previous chapter to erase the video data.
8. Once the USB backup has been done, the message, "FINISH USB TRANSFERING", shows up. Press **ESC** to erase the message.
9. Press Stop button to stop playing video. Press **ESC** button again to return to live monitoring mode.
10. For playing the backup video, please read the next chapter.

Warning: Fatal error may occur if the portable USB disk is removed while backup operation is still under way. It may damage the file system of the USB device.

Chapter 7. Playback on PC

NetworkViewer of PDR-2160/PDR-3160 can play recorded video and access network features which include:

- (1) Accessing remote live video
- (2) Retrieving remote event & recording lists
- (3) Capturing PDR-2160's remote video into a local PC
- (4) Exporting video into AVI file format or standard JPEG
- (5) USB portable disk video files or local PC video files playback.
- (6) CD-RW recorded video plug-and-play



Chapter 7-1. NetworkViewer Program

To get NetworkViewer program, please follow one of the following ways:

(1) HTTP Download

- a. Type IP address in the hyper link edit box of Internet Browser. The default value is <http://192.168.1.111>.
- b. Type in user name (Admin) and password (1111) in logon page.
- c. Click on NetworkViewer hyper link to download viewer.exe.
- d. Open the directory where NetworkViewer gets stored.
- e. Execute viewer.exe.

(2) Automatic NetworkViewer (viewer.exe) Application Transferring (Recommended)

- a. Plug in USB flash disk into PDR-2160
- b. Press **Backup** button and viewer.exe gets copied to the root directory of the USB flash disk.
- c. After finishing USB flash disk backup, unplug the USB flash disk from PDR-2160 and plug the USB flash disk into a PC's USB socket.
- d. Open the root folder of the USB flash disk on a PC.
- e. Execute viewer.exe.

(3) System → Firmware Update → Start Copy Application

- a. Plug in USB flash disk into PDR-2160
- b. Select Setup->System->Firmware Update->Start Copy Application
- c. Viewer.exe gets copied to USB flash disk
- d. Open USB flash disk
- e. Execute viewer.exe

(4) Automatic CD-RW Backup Files Transferring

Please see chapter 6.

Note: NetworkViewer application contains program set of viewer.exe, and MER3160.DLL.

These two files are compiled PDR-2160's firmware, and they can be transferred into a USB flash disk. A user does not have to install the software package. However, this technology requires Windows 2000 OS or higher.

Chapter 7-2. Play Recorded PC Files

To play the recorded video files on the USB flash portable disk or a local PC, please follow these steps:



1. Locate viewer.exe in USB flash disk or PC's local drive.
2. Execute viewer.exe.
3. Click on Play PC File button.
4. File dialog box gets shown on the screen.
5. Click on Open button on file dialog box and locate the video file with dvr extension.

Chapter 7-3. Play Recorded CD

To play recorded CD, please insert the CD inside a CD drive of a PC. The auto-run feature of the CD can get launched by Windows. The recorded video can be automatically played.

Chapter 8. Network

There are two ways to access PDR-2160 via network--Internet browser or NetworkViewer application. Major features such as live monitoring, DVR stored video playback, backup file playback, and AVI and JPEG file conversion are provided.

Chapter 8-1-1. Configuration

Make sure that network IP address, subnet mask, and gateway of PDR-2160 are setup correctly. Always, consult your network administrator before installing PDR-2160. You can “ping” PDR-2160 to see if the DVR is accessible in your local network before connecting PDR-2160 in the Internet. The default IP address of PDR-2160 is 192.168.1.111.

Chapter 8-1-2. Internet Ports

To access PDR-2160 via Internet using a router, please make sure that IP Ports of the router (IP sharing device) are set. PDR-2160 adopts the following IP Ports:

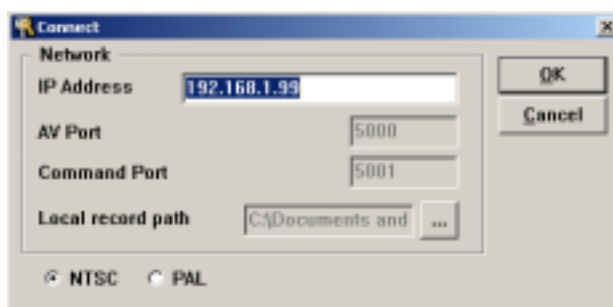
Port 80—HTML web pages

Port 5000—Video port

Port 5001—Command port

Chapter 8-1-3. Network Live Monitoring using NetworkViewer

To connect PDR-2160 using NetworkViewer, please first execute NetworkViewer and click on Connect DVR button. Type IP address at IP Address edit box. Specify local recording path if user would like to record video into PC via network.



Chapter 8-1-4. Disconnect PDR-2160

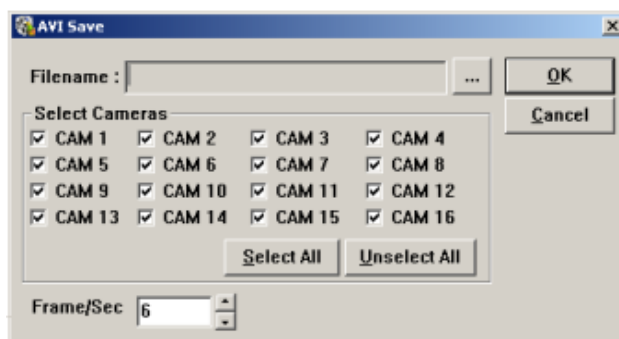
To disconnect PDR-2160 for reconnecting others, please click on Disconnect button. The user can also close the application to disconnect PDR-2160.



Chapter 8-1-5. Capturing Video to AVI Files

For capturing recorded or live video to AVI files, please follow the following steps:

1. Click on Capturing Video Into AVI file button.
2. Please specify the file path and the camera channels for exporting the AVI file(s) in the AVI Save dialog box.
3. Click on Select All button if all camera channels are required.
4. Click on OK button.
5. To stop the capturing process, click on Capturing Video Into AVI file button again.



Chapter 8-1-6. Capturing Video To JPEG Files

To perform JPEG file capturing, please right mouse click on the camera channel of NetworkViewer. Select the menu item to capture the video to JPEG files.

Chapter 8-1-7. Save File To PC

To save remote PDR-2160 video to a local PC, please click on Saving File to Local PC button. It saves the video to the local PC. Click the button again to stop the saving process.

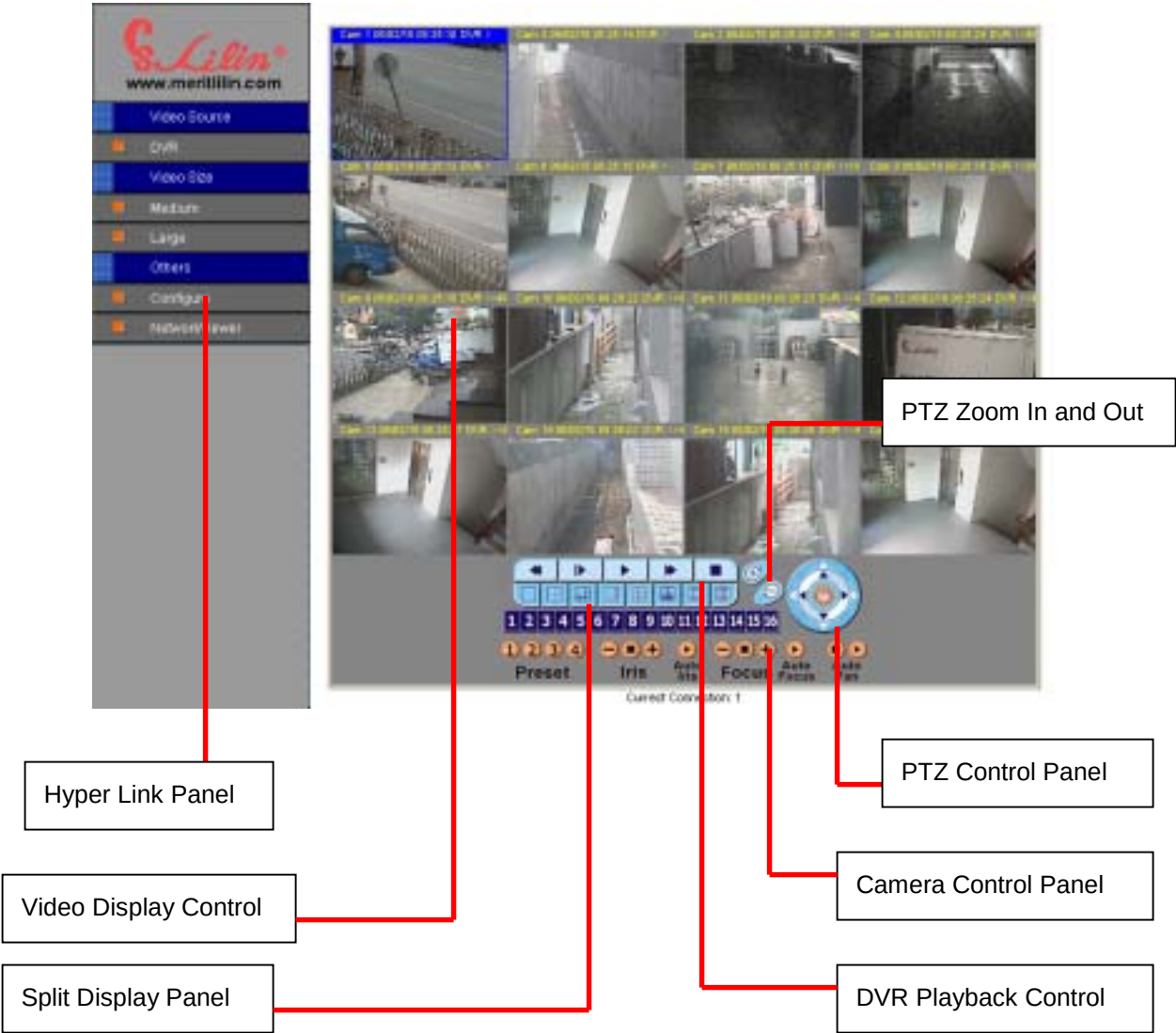


Chapter 8-1-8. Remote Playback

For remote playback using Networkviewer, please first connect to PDR-2160. Click on Playback button on the Networkviewer. For event list, record list, and time search playback, please follow chapter 8-2-6.

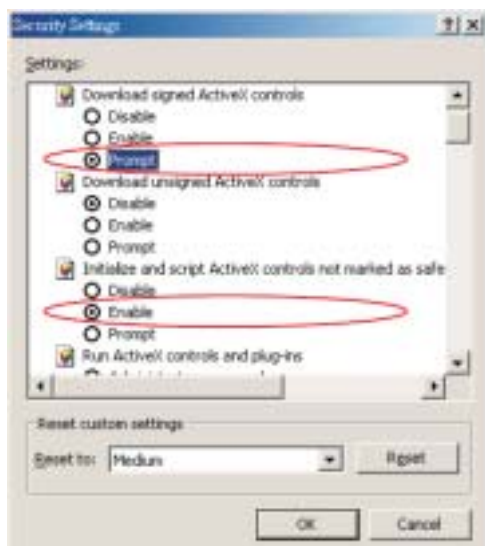
Chapter 8-2. Access PDR-2160 via Internet Browser

To access PDR-2160, a user can use Internet browser to retrieve live and stored video. PDR-2160's web interface provides features of PTZ access, split window display, and system configurations. PDR-2160's web interface is outlined in the following figure:



Chapter 8-2-1. Before Using Internet

Make sure that your Internet Browser Security Settings (Tools->Options) "Download Signed ActiveX controls" is set to "Prompt". The option of "Run ActiveX controls and plug-ins" is set to "Enable".



Chapter 8-2-2. Logon

To logon PDR-2160, please type the IP address in the HTTP address box of Internet browser. By default, type "192.168.1.111" in the HTTP address box to access PDR-2160. Use default password "1111" for Administrator and password "2222" for Guest.



The difference between Administrator and Guest is that Guest can only get live monitoring feature via Internet browser. Other features such as PTZ control, window division display, playback, and system configuration are allowed only by Administrator.

Chapter 8-2-3. Show Frame Size

To show frame size on each camera channel, please perform right mouse click on Video Control Display area. A system menu shows up. Select Show Frame Size menu item. The frame size in Kbytes gets displayed on the right hand side of each camera caption. The frame size is very important information to determine bandwidth required for operating PDR-2160.

Chapter 8-2-4. Split Window Display Buttons

Buttons	Split Display	Buttons	Split Display
	Single display		9 split display
	4 split display		10 split display
	6 split display		13 split display
	8 split display		16 split display

Chapter 8-2-5. Hyper Link Panel

After logon PDR-2160, Hyper Link Panel shows major features allowed in PDR-2160 that it provides features including video source, video size, configuration, and NetworkViewer download page.

Video Size

PDR-2160 provides two different video browsing HTML pages in which a user can view the video in CIF (Medium) or VGA (Large) resolution. CIF resolution shows only one camera video in the HTML page by default. Clicking on “Medium” or “Large” in the hyper link panel can switch different video size.

Configure PDR-2160 via Web page

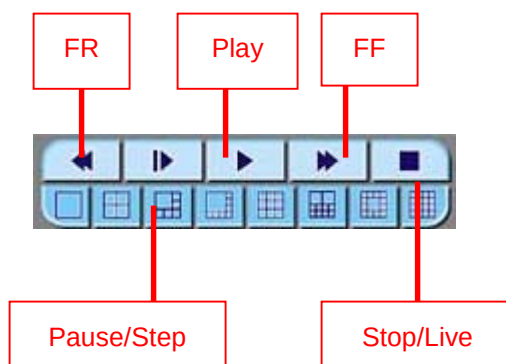
To configure PDR-2160 via web page, please click on “Configure” hyper link. There are internal server setting, general network setting, PTZ device setting, and video system setting allowed. The detail settings are described in the rest of the chapter.

Download NetworkViewer

NetworkViewer hyper link allows a user to download NetworkViewer via Internet. To use NetworkViewer, please refer to chapter 7-1.

Chapter 8-2-6. Playback Over Network

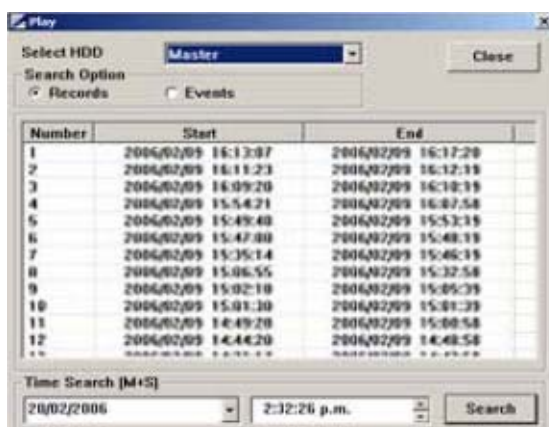
PDR-2160 allows a user to perform Play, FR, FF, Pause/Step, and Stop operations on a remote DVR. The buttons are described in the following figure:



To perform playback operation, please click on Play button. A playback dialog box shows up. Normal record list, event list, and time search are all integrated in the dialog box.

Normal Record and Event Lists

Normal record and event lists are separated by HDD. To perform normal record or event list, please select master or slave HDD. Double click on the record list item or event list item for playback. A user can also click on Search (time search) button to retrieve the video.



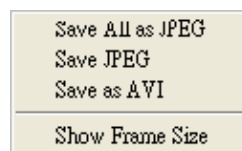
Time Search

Time search feature allows a user to search both master and slave HDDs by date and time. To perform time search function, please specify date and time information in date and time edit boxes. Press Search button to finish this task.

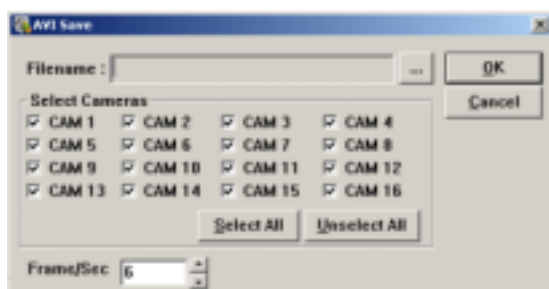
Chapter 8-2-7. Save AVI or JPEG file

To save live or playback video to AVI or JPEG files, please perform right mouse click on Video Display Control area. In system menu, select Save All as JPEG or Save JPEG that live or playback video can be captured and converted into JPEG files.

For saving AVI files, click on Save as AVI menu item. AVI Save dialog box shows up. Please follow the following steps to complete the task:



- Step 1. Click on “...” button to select file saving directory.
- Step 2. Check CAM check boxes for camera channels.
- Step 3. Type frame rate in Frame/Sec edit box.
- Step 4. Click on Start button to start the AVI capturing process.
- Step 5. Click on OK button to finish the AVI saving process.



Chapter 8-2-8. Configure PDR-2160 via Web page

To configure PDR-2160 via Web interface, please click on “Configure” hyper link at the main HTML page.

Chapter 8-2-9. PDR 2160 Internal Server Settings

PDR-2160's internal server settings contain MAC address, Firmware Version, DVR/485 ID, and Language.

The screenshot shows a web browser window with the title 'Server'. The main heading is 'Server Settings'. There are five configuration items, each with a blue square icon to its left: 'Mac Address' with a text input field containing '00:0f:10:05:40'; 'Firmware Version' with a text input field containing 'V1.2.03'; 'DVR/485 ID' with a dropdown menu set to 'OFF'; 'Language' with a dropdown menu set to 'English'; and 'Software Reboot' with a text input field. A 'Submit' button is located at the bottom right of the form.

DVR/485 ID: Addressable DVR ID number for multiple DVRs remote control using the remote controller or RS-485 keyboard system.

Language: PDR-2160 language selection combo box.

Note: The language of PDR-2160's menu system and the language of the HTML pages can be set independently.

Software Reboot: Click on Software Reboot hyper link. PDR-2160 gets restarted remotely.

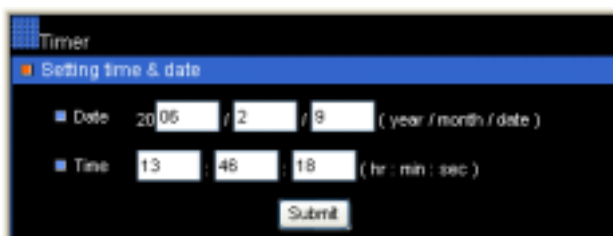
Chapter 8-2-10. User Settings

There are two levels (admin and guest) of user authentication allowed in PDR-2160's web server. To change password, please specify the old password, new password, and confirm password.

The screenshot shows a web browser window with the title 'Server'. The main heading is 'User Settings'. There are two sections: 'Administrator' and 'Guest'. Each section contains three text input fields labeled 'Old Password', 'New Password', and 'Confirm Password'. A 'Submit' button is located at the bottom right of each section.

Chapter 8-2-11 Timer Settings

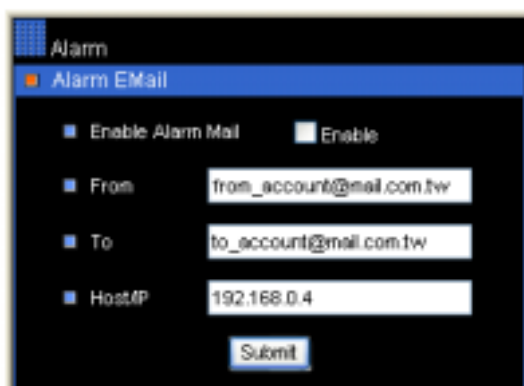
PDR-2160 allows a user to set its timer via HTML web interface. However, once the PDR-2160's system timer gets changed, the consequence may affect the accuracy of searching recorded video.



The screenshot shows a web interface titled "Timer" with a sub-header "Setting time & date". It contains two rows of input fields. The first row is for the "Date" and is pre-filled with "2006 / 2 / 9", with a label "(year / month / date)" to its right. The second row is for the "Time" and is pre-filled with "13 : 46 : 18", with a label "(hr : min : sec)" to its right. Below these fields is a "Submit" button.

Chapter 8-2-12 Alarm Email Notification

When there is an external switch/motion triggering, PDR-2160 can issue an email notification to a remote computer. When the recipient gets the email, double-click on the hyperlink of the email can launch Internet browser to gain remote access of the PDR-2160. To enable this feature, set Enable option. Please also specify the email addresses of mail from and mail to. Host/IP Address is the SMTP server's host name or IP address.



The screenshot shows a web interface titled "Alarm" with a sub-header "Alarm EMail". It contains four rows of settings. The first row is "Enable Alarm Mail" with a checkbox labeled "Enable". The second row is "From" with a text box containing "from_account@mail.com.tw". The third row is "To" with a text box containing "to_account@mail.com.tw". The fourth row is "Host/IP" with a text box containing "192.168.0.4". Below these fields is a "Submit" button.

Chapter 8-2-13 System Status

System status contains information of operating PDR-2160. Recording, HDD, and other DVR status can be found in this report.



The screenshot displays the 'System Status' web page. It features three main sections: 'Recording Status', 'HDD Status', and 'DVR Status'. Each section contains a list of system parameters and their current values.

System Status	
Recording Status	
Recording Status	No Recording
Recording Mode	720*288
Recording Speed	50
Playback Speed	60
Recording Quality	High
HDD Status	
HDD Installed	Master
HDD Recording Start	05/26 14:14
HDD Recording End	05/26 15:10
Current Written HDD	Slave
Overwritten	No
DVR Status	
DVR ID	1
Number of connections	1
Last Reboot Time	05/29 15:43
Kernel	2.6.8
Firmware Version	V1.2.12

Chapter 8-2-14 Network Settings

To change IP setting remotely, please click on Network->General setting hyper link. Type in IP address, subnet mask, and gateway IP address to the edit boxes and press Submit button.



The screenshot shows the 'Network' configuration page, specifically the 'Static Network Settings' section. It contains six input fields for network parameters and a 'Submit' button at the bottom.

Network	
Static Network Settings	
IP Address	192.168.1.166
Subnet Mask	255.255.255.0
Gateway IP Address	192.168.1.1
Video Port	5000
Command Port	5002
Web Port	80
Submit	

Chapter 8-2-15. PTZ Settings

To set PTZ preset of PDR-2160, please follow the following steps:

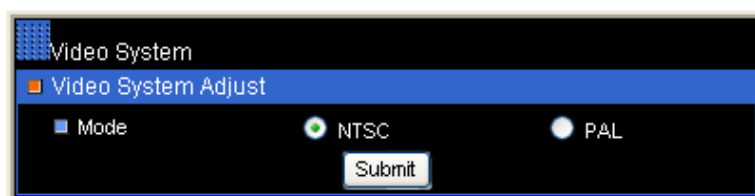
- Step 1. Select a PTZ camera.
- Step 2. Select and define preset of the PTZ device.
- Step 3. Adjust the PTZ camera's position.
- Step 4. Set focus and iris of the PTZ device.
- Step 5. Save the preset in the PTZ device memory.



Chapter 8-2-16. Video System Setting

To set PDR-2160's video system, please click on Video->Video System. Click on either NTSC or PAL to switch from one video system to another.

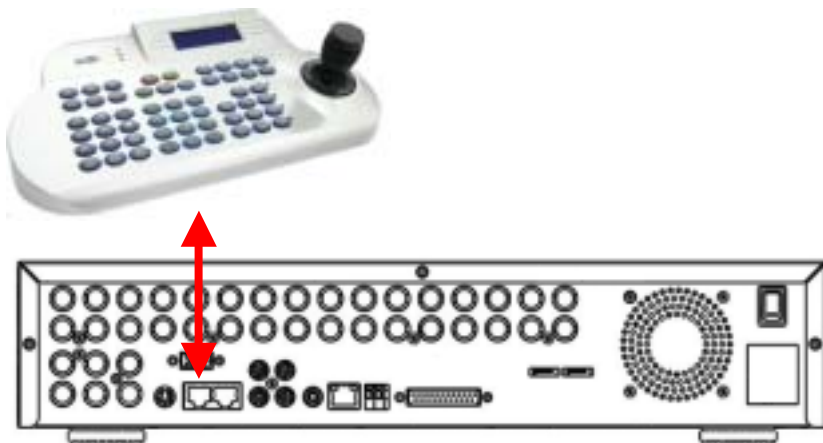
Click on Submit button to update PDR-2160's system.



Chapter 9. Keyboard Connections

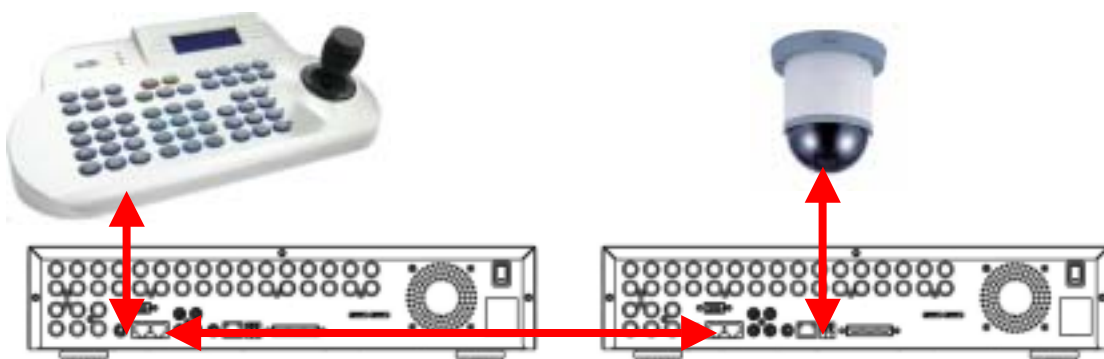
Chapter 9-1. Connection Between PDR-2160 and Keyboard

To operate PDR-2160 using a keyboard, please connect PIH-931 keyboard to PDR-2160 using RJ-45 cable. PDR-2160's Keyboard In connector provides DC 12V for the PIH-931 keyboard. There is no need for connecting the keyboard's power adaptor.

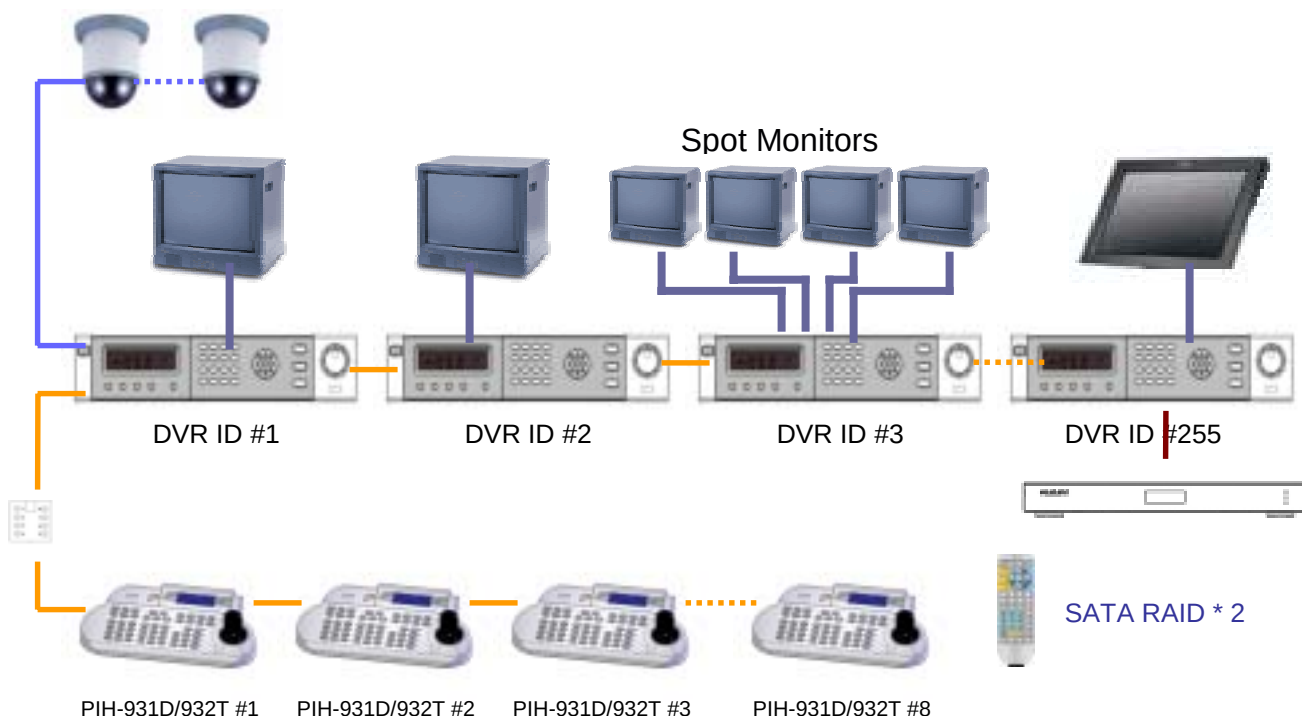


Chapter 9-2. Daisy Connection of multiple PDR-2160 and Keyboard

To connect PIH-931 keyboard with multiple PDR-2160 DVRs, connect RJ-45 from PIH-931 keyboard to PDR-2160's RJ-45 keyboard input. PDR-2160 DVRs are connected in daisy chain from RJ-45's keyboard output to the next PDR-2160's input. There are up to 255 PDR-2160 can be connected and addressed.

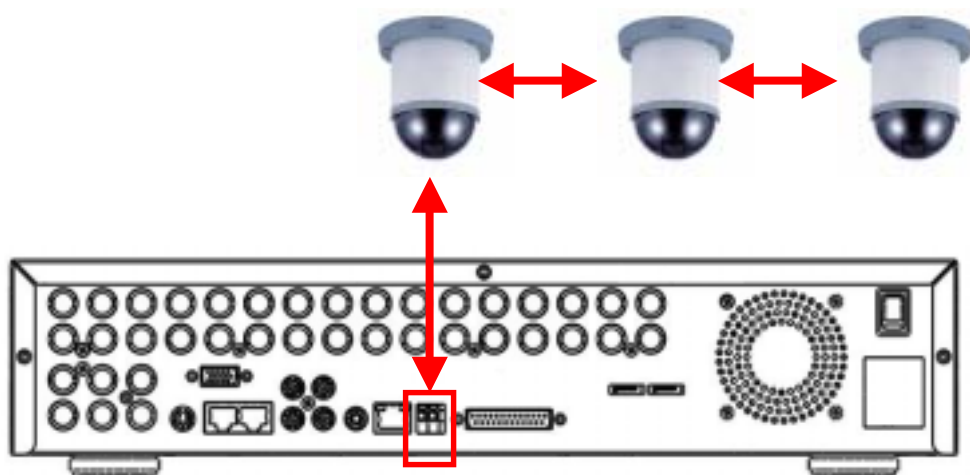


System Example



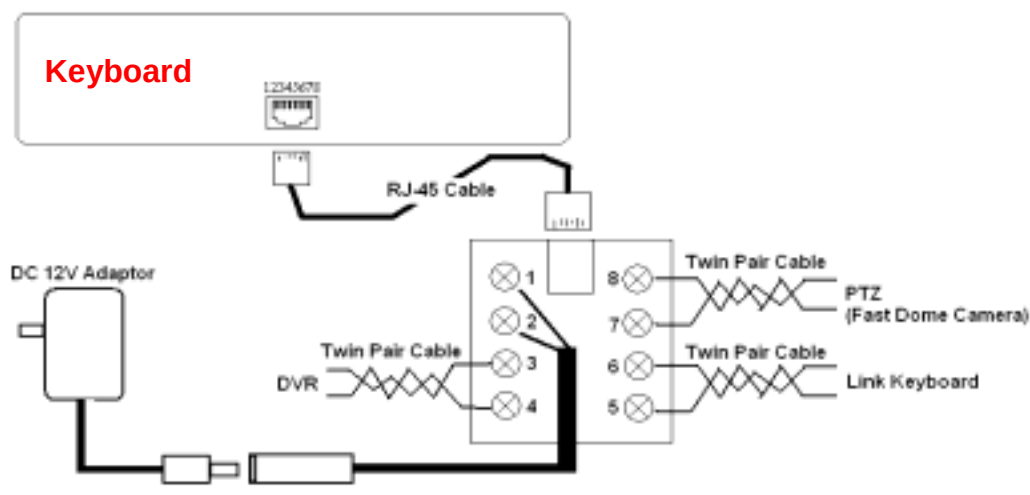
Chapter 9-3. Connection of PDR-2160 and PTZ

Connection between PDR-2160 and PTZ devices, please connect PDR-2160's RS-485 output to the PTZ's RS-485 input. Wiring between PTZ devices, please read PTZ instruction manual for detail setting.

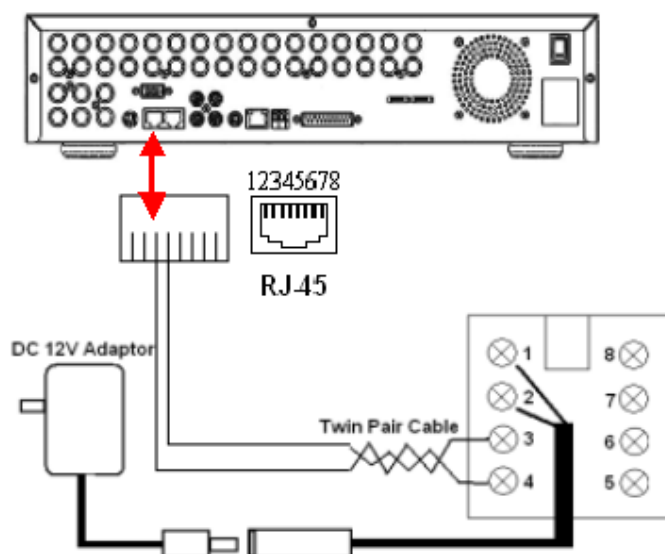


Chapter 9-4. Multiple Keyboards and Multiple PDR-2160 Connection

Connection between keyboards, connect 5th pin (RS-485-) and 6th pin (RS-485+) to the next keyboard. Read keyboard instruction manual before installing keyboards.



Connection between first PDR-2160 and first keyboard, connect PDR-2160's 3rd pin (RS-485+) and 4th pin (RS-485-) of keyboard in connector to keyboard connector box's 3rd pin (RS-485+) and 4th pin (RS-485-). Connections between PDR-2160 DVRs, please follow the instructions described previously.

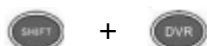


Chapter 9-5. Keyboard Control DVR and PTZ

There are four main DVR features including multiplexer, menu setup, PTZ control, and playback accessible by the keyboard. To operate PDR-2160 by PIH-931 keyboard, please follow:

Chapter 9-5-1. Switch to PDR-2160 DVR Control Mode

Press the **SHIFT** button and the **DVR** button to set the keyboard to DVR control mode.



2006/01/01 12:00:00
DVR MODE ID=000

Chapter 9-5-2. Control DVR Multiplexer Features

1) Control DVR

Enter PDR-2160 DVR/485ID from 1~255 using the number pad and press the **DVR** button to control the DVR.

2006/01/01 12:00:00
DVR MODE ID=xxx

Example: Control DVR #12.

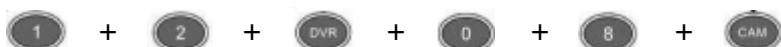


Note: the number entered will be shown on the LCD panel in the format of DVR MODE ID=xxx.

2) Call Camera

After PDR-2160 gets controlled, enter a camera number from 1 to 16 using the number pad and press the **CAM** button to select the camera.

Example: Call camera #8 of DVR #12.



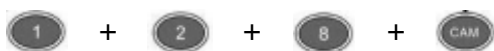
A user can also use Cascading Camera Name (camera direct access mode) to access a camera. Enter the camera's ID (1~4080) and press **CAM** button. The camera ID sent by keyboard gets resolved (divided by 16) to its DVR.

Example #1: Call camera #17 (DVR #2's first camera).



2006/01/01 12:00:00
DVR MODE ID=002
CAM=001

Example #2: Enter camera number 128 and press the CAM button. This calls DVR #8's camera #16.



2006/01/01 12:00:00
DVR MODE ID=008
CAM=016

3) Recall Camera and Display on Spot/Matrix Monitor

To call particular camera and display it on a monitor, please follow the examples below:

Example: Call camera #8 of DVR #12 and display it on DVR #12's monitor #2.



4) Window-Division Mode

To perform window division feature of a PDR-2160, press the following window division buttons.

-  16 window-division
-  9 window-division
-  8 window-division
-  4 window-division

5) DVR Sequential Display

Press **SEQ** button to display cameras' full screen in a sequence with specific time period.

Chapter 9-5-3. Control DVR's Menu Setup

After a PDR-2160 gets controlled. Press the **SET** button to activate the DVR's setup menu.

Menu Setup Using 3D Joystick

	Enter a submenu		ESC/Exit a submenu
	Move cursor up		Move cursor down
	Decrease a digit		Increase a digit
	Enter a submenu		ESC/Exit a submenu

Chapter 9-5-4. Control DVR Playback

To perform DVR playback feature, press **PLAY** button or **SEARCH** button.

PLAY button can invoke playback menu. Use 3D joystick to move menu cursor and perform playback feature.

SEARCH button can invoke time search feature of PDR-2160. Use 3D joystick to move menu cursor for entering date/time information.

	1. Enter a submenu in playback menu 2. Fast forward video in playback mode		1. ESC/Exit a submenu in playback menu 2. Fast reverse video in playback mode
	Move cursor up		Move cursor down
	Decrease a digit		Increase a digit

Other Video Playback Operations

-  Pause: Press **PAUSE** button during playing video can pause the video.
-  Play: Replay the video after Pause, Fast Forward, or Fast Rewind.
-  Fast Forward: Fast Forward the recorded video.
-  Fast rewind: Fast Rewind the recorded video.
-  Stop: Stop the playback video and return to playback menu.
-  Record/Stop Record: Perform PDR-2160 record or stop PDR-2160 recording operation.

Chapter 9-5-5. Control PTZ

To control PTZ camera in live monitoring mode, press **ENTER** button to gain camera control sequentially in window-division mode or perform call camera in full screen mode.

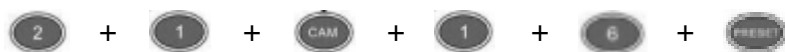
Once a camera of a DVR gets controlled, the following PTZ operations can be performed.

	Zoom in		Zoom out
	Tilt up		Tilt down
	Pan left		Pan right
	Zoom in		Zoom out
	Focus far		Focus near
	IRIS small		IRIS large
	Auto Pan		

Chapter 9-5-6. Recall a Preset

Recall a preset point of a PTZ device via PDR-2160 by a keyboard, after the PDR-2160 gets controlled. Please press number key (preset number) and followed by **PRESET** button.

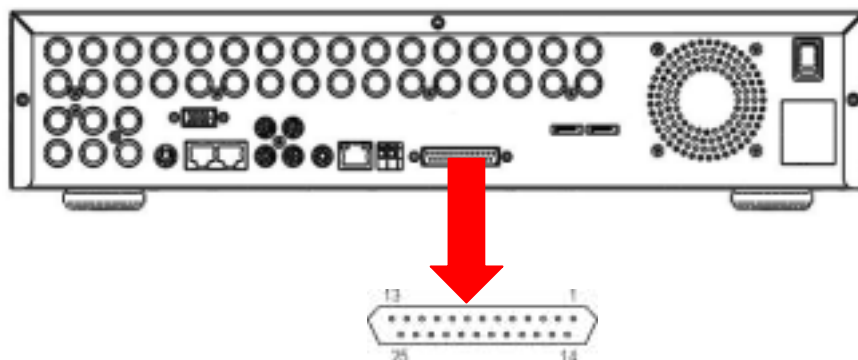
Example #1: Recall 16 preset of camera #21.



Appendix

External Alarm Switches

PDR-2160 has a D-SUB 25 Pins IO connector which contains 16 alarm switch inputs, one RS-485, and two alarm outputs. The detail description of the pin assignment is in the following charts.



Alarm Switch Pin Assignment Table

Pin 1	Alarm input 1	Pin 14	Alarm input 13
Pin 2	Alarm input 2	Pin 15	Alarm input 14
Pin 3	Alarm input 3	Pin 16	Alarm input 15
Pin 4	Alarm input 4	Pin 17	Alarm input 16
Pin 5	Alarm input 5	Pin 18	
Pin 6	Alarm input 6	Pin 19	
Pin 7	Alarm input 7	Pin 20	GND
Pin 8	Alarm input 8	Pin 21	ALARM out--Common
Pin 9	Alarm input 9	Pin 22	ALARM out--NC (normal close)
Pin 10	Alarm input 10	Pin 23	ALARM out --NO (normal open)
Pin 11	Alarm input 11	Pin 24	GND
Pin 12	Alarm input 12	Pin 25	External recording
Pin 13	GND		

- Alarm input--DC 0V or connects to GND is On, Open or disconnected is Off.
- Alarm output—Relay contact.
- To trigger recording, connect Pin 25 to GND. To stop recording, connect Pin 25 to GND again.

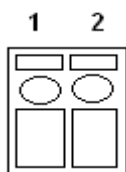
RS-485 Keyboard I/O Assignment



Terminal	Description
1	DC +12V input
2	GND
3	RS-485 + DVR
4	RS-485 - DVR
5	RS-485 + for Keyboard
6	RS-485 – for Keyboard

Baud rate--speed: 9600, parity: none, data width: 8, stop bits: 1

RS-485 PTZ Pin Assignment



Pin	Description
1	RS-485 + for PTZ
2	RS-485 - for PTZ

RS-485+ RS-485-

Baud rate--speed: 9600, parity: none, data width: 8, stop bits: 1

120 GB HARD DISK RECORDING TABLE

Resolution	FPS	Recording Quality			
		PAL			
		Very high	High	Normal	Low
720 * 288	50	17 hrs	21 hrs	41 hrs	64 hrs
	25	35 hrs	41 hrs	82 hrs	127 hrs
	12	73 hrs	86 hrs	171 hrs	265 hrs
	10	87 hrs	103 hrs	206 hrs	318 hrs
	5	175 hrs	206 hrs	411 hrs	636 hrs
	3	291 hrs	343 hrs	685 hrs	1059 hrs
	2	437 hrs	514 hrs	1028 hrs	1589 hrs
	1	874 hrs	1028 hrs	2056 hrs	3178 hrs
		NTSC			
720 * 240	60	15 hrs	17 hrs	34 hrs	53 hrs
	30	29 hrs	34 hrs	69 hrs	106 hrs
	20	44 hrs	51 hrs	103 hrs	159 hrs
	12	73 hrs	86 hrs	171 hrs	265 hrs
	5	175 hrs	206 hrs	411 hrs	636 hrs
	3	291 hrs	343 hrs	685 hrs	1059 hrs
	2	434 hrs	514 hrs	1028 hrs	1589 hrs
	1	874 hrs	1028 hrs	2056 hrs	3178 hrs

PDR-2160 Specifications

	PDR-2160A (Advanced)	PDR-2160S (Standard)
Recording	Swappable SATA (II) HDD x 1, Fix SATA (II) HDD x 1	
Record Type	External DIO triggering recording / motion detection / schedule & manual	
Speed	PAL: 50 Fields/Sec / 100 CIF/Sec NTSC: 60 Fields/Sec / 120 CIF/Sec	
Resolution	720*240 (Fields) / 320*240 (CIF)	
Scheduling	7 * 24 grid array adjustable for motion/record/stop recording	
External Storage	2 external SATA (II) RAID connectors with total 4 TB recording space	
Archiving	USB 2.0 Flash Disk/ USB 2.0 External CD-RW/Built-in CD-RW	
CD-RW	Built-in: 52X (W) 32X (RW) 52X (ROM)	
CD Format	ISO-9660 compatible, plug-and-play	
Playback	Normal Record、Timer Search、Alarm、Motion Detection Triggering、HDD Playback	
Speed	FR: 2x, 4x, 8x, 16x / FF: 2x, 4x, 8x, 16x, 32x, 64x	
Compression	Modified M-JPEG	
Video Input	16-channel BNC Inputs (1Vp-p, 75Ω Terminal)	
Camera Title	Anti-flickering 8 characters OSD	
Looping	16-channel BNC (1Vp-p, 75Ω Terminal)	-
Live	PAL: 400 Frame/Sec NTSC: 480 Frame/Sec	
Video Outputs	BNC 2-channel (1Vp-p, 75Ω)	
S-Video	1-channel	
VGA Output	800 * 600 to 1280 * 1024	(Optional)
Matrix Outputs	4-channel BNC--Alarmed camera switching, keyboard controllable, and sequence with OSD	-
Multiplexer	Sequence, programmable / Digital Zoom 2X / Freeze	
Split display	4, 8, 9, 13, 16 split display	
Alarm	16alarm inputs / 2alarm (NO/NC) outputs	
Motion Detection	16*12 motion grid, 5 sensitivity levels, each channel programmable	
Event Log	Alarm, Video loss, Stop REC, Power recovery, Motion, Schedule, Login, HDD format	
Accessories	IR Remote Controller (255 DVRs addressable)	
P/T/Z Control	Merit Lilin & Pelco D protocols/Remote controller/HTTP web interface controllable	
Keyboard Control	Up to 255 DVRs controllable by PIH-931 keyboard	
RS-485	Two RJ-45 connectors for RS-485 with 12V output, one RS-485 for PTZ	
Jog & Shuttle	Setup & playback menu controllable	
Audio	4-channel RCA inputs / 1-channel output and record (0.7Vp-p, 300 Hz to 3KHz)	
Network	HTTP Web-based / NetworkViewer Application / Multiple User Accessible	
Protocol	HTTP port number adjustable/SMTP Alarm Notification	
Web Features	Live monitoring/remote time and event playback/AVI archiving	
DVR status	HTML DVR statistics	
Others	Authentication: Two levels	
WDT	Extra software Watch Dog Timer protection	
Time Sync.	DVRs Timer synchronization by PIH-931 keyboard	
Language OSD	Chinese, English, Spanish, Italian, Japanese, French, Germany, Polish	
CPU	32-bit RISC Processor, 208MHz	
OS	Linux 2.6	
Consumption	AC 90V~260V Max., 135W	
Operation	Temp: -10°C ~ +60°C / Humidity: 0%~80%	
Dimension	434mm x 411.4mm x 88mm	
Weight	8.5 Kg (HDD not included)	



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