



PACOM PDR16-RMT Series



16 Channel Rack Mount Digital Video Recorder



**Pacific
Communications**
CLOSED CIRCUIT VIDEO SYSTEMS

	<div style="background-color: black; color: white; padding: 5px; font-weight: bold; font-size: 1.2em;">WARNING</div> <div style="border: 1px solid black; padding: 5px; text-align: center;">RISK OF ELECTRIC SHOCK DO NOT OPEN</div>	
<p>WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.</p>		



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

COMPLIANCE NOTICE OF FCC:

THIS EQUIPMENT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A DIGITAL DEVICE, PURSUANT TO PART 15 OF THE FCC RULES. THESE LIMITS ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST HARMFUL INTERFERENCE WHEN THE EQUIPMENT IS OPERATED IN A COMMERCIAL ENVIRONMENT. THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTION MANUAL, MAY CAUSE HARMFUL INTERFERENCE TO RADIO COMMUNICATIONS. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE HARMFUL INTERFERENCE, IN WHICH CASE USERS WILL BE REQUIRED TO CORRECT THE INTERFERENCE AT THEIR OWN EXPENSE.

WARNING: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS CLASS OF DIGITAL APPARATUS MEETS ALL REQUIREMENTS OF THE CANADIAN INTERFERENCE-CAUSING EQUIPMENT REGULATIONS.

The information in this manual is believed to be accurate as of the date of publication. Pacific Communications is not responsible for any problems resulting from the use thereof. The information contained herein is subject to change without notice. Revisions or new editions to this publication may be issued to incorporate such changes.

Important Safeguards


<p>1. Read Instructions All the safety and operating instructions should be read before the appliance is operated.</p> <p>2. Keep Instructions The safety and operating instructions should be kept for future reference.</p> <p>3. Cleaning Unplug this equipment from the wall outlet before cleaning it. Do not use liquid aerosol cleaners. Use a damp soft cloth for cleaning.</p> <p>4. Attachments Never add any attachments and/or equipment without the approval of the manufacturer as such additions may result in the risk of fire, electric shock or other personal injury.</p> <p>5. Water and/or Moisture Do not use this equipment near water or in contact with water.</p> <p>6. Accessories Do not place this equipment on an unstable cart, stand or table. The equipment may fall, causing serious injury to a child or adult, and serious damage to the equipment. Wall or shelf mounting should follow the manufacturer's instructions, and should use a mounting kit approved by the manufacturer.</p>  <p>This equipment and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the equipment and cart combination to overturn.</p> <p>7. Ventilation Slots and openings in the cabinet and the back or bottom are provided for ventilation, and to ensure reliable operation of the equipment and to protect it from overheating. These openings must not be blocked or covered. Do not block these openings or allow them to be blocked by placing the equipment on a bed, sofa, rug, or bookcase. Ensure that there is adequate ventilation and that the manufacturer's instructions have been adhered to.</p> <p>8. Power Sources This equipment should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power, please consult your equipment dealer or local power company.</p> <p>9. Power Cords Operator or installer must remove power and other connections before handling the equipment.</p>	<p>10. Lightning For added protection for this equipment during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the equipment due to lightning and power-line surges.</p> <p>11. Overloading Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.</p> <p>12. Objects and Liquids Never push objects of any kind through openings of this equipment as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the equipment.</p> <p>13. Servicing Do not attempt to service this equipment yourself. Refer all servicing to qualified service personnel.</p> <p>14. Damage requiring Service Unplug this equipment from the wall outlet and refer servicing to qualified service personnel under the following conditions: A. When the power-supply cord or the plug has been damaged. B. If liquid is spilled, or objects have fallen into the equipment. C. If the equipment has been exposed to rain or water. D. If the equipment does not operate normally by following the operating instructions, adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the equipment to its normal operation. E. If the equipment has been dropped, or the cabinet damaged. F. When the equipment exhibits a distinct change in performance — this indicates a need for service.</p> <p>15. Replacement Parts When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock or other hazards.</p> <p>16. Safety Check Upon completion of any service or repairs to this equipment, ask the service technician to perform safety checks to determine that the equipment is in proper operating condition.</p> <p>17. Field Installation This installation should be made by a qualified service person and should conform to all local codes.</p> <p>18. Telnet Communication Cable Caution: To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.</p> <p>19. Danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by manufacturer. Discard used batteries according to the manufacturer's instruction.</p>
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Chapter 1 — Product Information

Features

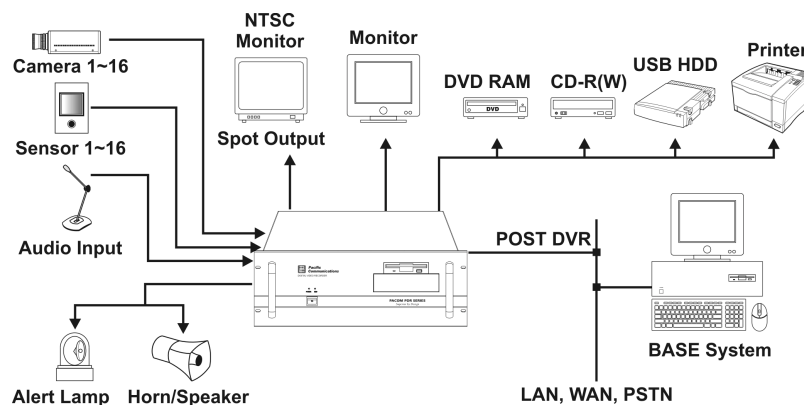
- Compatible with color cameras and other standard video sources
- Video synchronization not required
- Pentaplex operation for simultaneous recording, multi-screen viewing, playback, remote monitoring and archiving
- Versatile display formats for convenient user interface; single-screen, full-screen, quad, 3x3, 4x4, 3+4 and 2+8
- Main and Spot monitor outputs
- On-screen graphic display including camera title, location, recording status and mode display
- Sequence mode available in all screen formats
- Hardware watchdog timer function
- Programmable motion detection for each camera input using graphic user interface
- Various image enhancement functions including zoom in/out, brightness, interpolation, blur and sharpness
- Remote monitoring, playback and control through LAN, PSTN and ISDN
- User-friendly interface
- Proprietary encryption scheme preventing video from alteration
- 16-channel alarm input and 16-channel alarm output (Not included in all models)

NOTE: See *Appendix 9 – Specifications* for the system specifications.

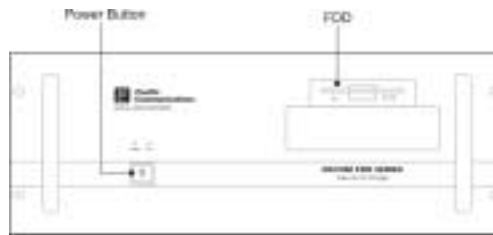
System Types

There are two system types: POST DVR system and BASE system. The POST is a complete DVR system with cameras, and the BASE is a computer with software to access the POST DVR. The BASE can view live or previously recorded video from the POST DVR. The POST DVR can access another POST DVR, however, it can only review previously recorded video and cannot view live video from the other POST DVR.

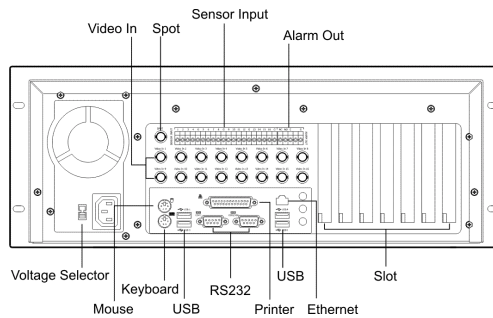
System Diagram



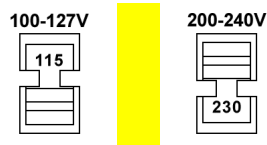
Front Panel



Rear Panel



NOTE: Check the voltage selector switch is set to an appropriate position.



Turning On the DVR

Press the power button located on the front panel to turn the system on. The system goes into the SmartGuard mode as soon as it finishes its boot process.

CAUTION: The system will lock up if the monitor does not have high enough resolution. The DVR requires 1024x768 resolution.

Turning Off the DVR

Click the Close button in the SmartGuard mode or press the power button on the front panel to turn the system off.

NOTE: When turning off the system, you must confirm that you want to turn off the unit. You will also be asked for a user ID and password, or system quit procedure if the *Shut Down* option was selected for the user's authorization during SmartGuard setup.

CAUTION: The system can be shut down by force by pressing the power button on the front panel over 10 seconds. However, follow the normal shutdown procedures as mentioned above when the system is operating normally. Turning off the DVR without shutdown procedures can cause damage to the system.

Chapter 2 — Tools

SmartGuard

Overview

SmartGuard is powerful surveillance software. It provides multiplexer functions, digital time-lapse recording and event-driven recording. SmartGuard also provides motion detection, PTZ control and various image enhancement functions.

NOTE: The first time you turn on the system, it will immediately begin recording. If you have less than 16 cameras, you must enter the setup screen and deactivate any inputs to which cameras are not connected; otherwise, the recording speed might be decreased somewhat.

Features

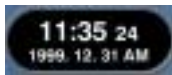
- 16 channels
- Max.240 images/sec recording (200 images/sec PAL) (PDR16-RMT-X and PDR16-RMT-LIVE-X models)
- User-friendly interface
- Scheduling by camera and time
- Time-lapse or event-driven recording
- Motion detection function
- Audio recording
- PTZ control

NOTE: See *Appendix 9 – Specifications* for the maximum recording speed of each model.

Main GUI



System Status

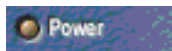


Clock Mode: Click the left mouse button on the clock area to set date display (MM-DD-YYYY/...) and time display (12 Hours/24 Hours) formats. Click the right mouse button on the clock area to set date, time and time zone.

CAUTION: If you change the time, images dated later than the new date/time are deleted. Back up the images if you want to save them.

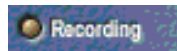


HDD Indicator: Shows the remaining hard disk space.



Power LED: The Power LED is lit when the DVR is On.

Mode



Status: The Recording LED is lit when the DVR is in the recording mode.



Alarm LED: The Sensor Detect LED is lit when the sensor has been detected.



HDD Usage: The Repeat Recording LED is lit when the DVR is set to repeat recording in case of recording space shortage.

Image Adjust

You can adjust the brightness, contrast, hue and saturation by clicking the designated buttons. Click the Default button to reset them to the default settings.



NOTE: These adjustments should not be used to correct improperly set cameras or monitors.

Monitor



Display Format: Various display formats (single-screen, full-screen, quad, 3+4, 3x3, 2+8, and 4x4) are provided for convenient user interface. Each format can be selected by clicking the screen buttons shown below. The camera groups for multi-screen formats are composed of cameras 1 to 16 in order. The following camera groups are displayed on the monitor one at a time according to each display format: 1-4, 5-8, 9-12 or 13-16 in quad mode; 1-7 or 8-16 in 3+4 mode; 1-9 or 10-16 in 3x3 mode; 1-10 or 11-16 in 2+8 mode. The user can select which camera group is displayed by clicking any camera button in a group from camera buttons shown below.



OSD: Information including camera title, recording mode, and recording status can be displayed on the image. Go to Setting Up the System in the SmartGuard Setup section, and place a check in the Show OSD box to display the OSD information.

Camera

Selects camera button to display. Click the A or B buttons to select the range of cameras (A for cameras 1-8, B for cameras 9-16) and then click the number button.



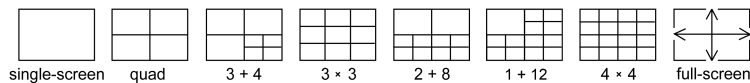
PTZ

Displays PTZ control buttons. The DVR provides transmission functions, and you can control popular PTZ devices and dome cameras.



Screen Mode

To select the desired screen mode, click of the buttons shown below.



- To view a specific image in the single-screen mode, move the cursor to that image and double click the left mouse button.
- To return to the previous screen mode from the single-screen mode, click the left mouse button in the window.
- To enter the full-screen, click the far right button. All of the control buttons disappear, and the monitoring window takes up the full screen in the full-screen display mode.
- To return from full-screen mode, click the left mouse button anywhere on the monitor.

Event Logs

18_15:24:12 Sensor 1

Event Logging: To scroll up and down the list, hold down the left mouse button on the list and move the cursor up and down.

Utility Buttons



Auto Sequencing: When the Sequence button is clicked, the SmartGuard sequences the cameras in order. Whenever you click the button, it toggles between On and Off. The switching interval can be set during the system setup.



Mode Selection: The record mode is selected when the Record button is clicked. SmartGuard returns to view only mode automatically when it is unable to record (for example, when the hard disk is full).

NOTE: The DVR records only in accordance with the recording schedule, which can be set during the system setup. Before you install the DVR, you need to fully understand the recording schedule. Note also that clicking the *Record* button only prepares the DVR for recording. In this state, the DVR will follow the recording schedule.



Manual Alarm Output: In general, the alarm is activated automatically when any related sensor is activated. However, the user can activate alarm output manually by clicking the button while it is released or deactivate an alarm output by clicking the button when it is pressed.



Setup: When the Setup button is clicked, a dialog box appears. The dialog box has nine tabs. See the following SmartGuard Setup section.



Accessing SmartSearch: Click the Search button to run the SmartSearch.



Close: Click the Close button to close or log out the system.

NOTE: If you click the *Close* button, the *Quit* dialog box appears. Select *System quit* to quit the program or select *logout* to log out the system.

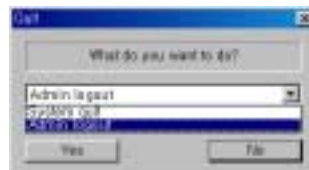
Logging In/Out the System

Click any function button on the main GUI of SmartGuard after logging out, the following User Login dialog box appears. Enter the User ID and Password and then click the OK button if you want to log in the system.

NOTE: When *No local login* is selected during SmartGuard – Authority setup, the DVR does not ask login procedure.

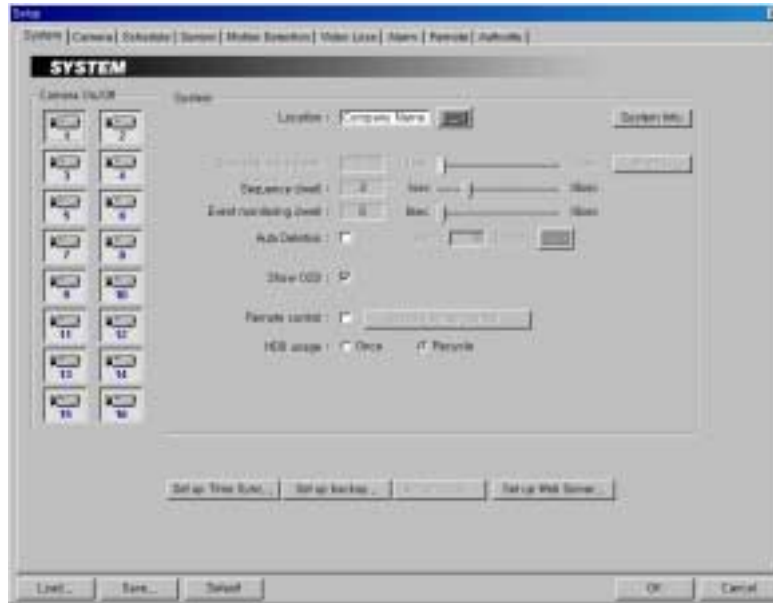



Click the Close button on the main GUI of SmartGuard under login, the following Quit dialog box appears. Select logout and then click the Yes button if you want to log out the system.



SmartGuard Setup

Setting Up the System



1. Click the Camera icon to enable the camera. 
2. Click the System Info... button, and the System Information dialog box appears. The dialog box displays the information of the installed card, driver, software and hard disk drive on the system.



3. Click the text field beside Location. If you have a keyboard attached to your unit, enter a location name such as "Main Office". If you do not have a keyboard connected to the unit, clicking the keyboard icon will display a virtual keyboard on which you can type by clicking the letters.
4. Move to Spot sequence dwell, and set the sequence dwell time for the Spot monitor by holding down and dragging the pointer. You can set the dwell time from 1 to 10 seconds. If you set the value to 3 seconds, the camera display will sequence every three seconds on the Spot monitor. (PDR16-RMT, PDR16-RMT-X models only)
5. Click the More... button, and set up the spot sequence in detail.



6. Move to each number (1-32) and select the camera number to sequence from a drop-down list (from Camera 1 to Camera 16 and Not used).

7. Move to Hold spot during single-screen mode, and check the box if you do not want the cameras sequence on the Spot monitor while the main monitor is set to the single-screen display mode.

8. Move to Include event display, and check the box if you want to display the event-detected video during spot sequence.

9. Move to Show video loss, and check the box if you want to show the video loss image during spot sequence.

10. Move to Sequence dwell, and set the sequence dwell time (from 1 to 10 seconds) for the main monitor by holding down and dragging the pointer. If you set the value to 3 seconds for the Sequence dwell, the camera display will sequence every three seconds on the Main monitor.

11. Move to Event monitoring dwell, and set the monitoring dwell time (from 0 to 10 seconds) for the event-driven image by holding down and dragging the pointer. If you set the value to 3 seconds for the Event monitoring dwell, the camera with an event will display in the one-screen mode for three seconds on the main monitor any time an event (alarm input or motion detection) occurs. Set the value to 0 seconds if you do not want the event-driven camera to be displayed in the one-screen mode.

12. Move to Auto deletion, and check the box if you want to delete the video recorded earlier than user-defined period.

13. If you check the Auto deletion box, move to Period and set the period to keep the recorded video. e.g. If you check the Auto deletion box, and set 30 days in the Period box, the DVR will automatically delete the video which is older than 30 days from the current day.

14. Move to Show OSD, and check the box if you want to display OSD information on the image. OSD information includes camera title, recording mode and recording status.

NOTE: An *R* indicates the target camera is in the *Time-lapse* recording schedule mode. An *S* indicates it is in the *Event-driven* recording mode. An *RS* indicates it is in the *Time & Event* recording mode. An *R* located at the bottom-right corner indicates the DVR is recording video, and the blink rate of the *R* relates to the recording speed.

15. Move to Remote control, and check the box when the DVR is controlled remotely using RS232C or RS485 communications signals. See **Appendix 6 – Protocol for Remote Controlling DVR for details.**

16. If you check the Remote control box, click the Set up Remote control... button. Select the DVR's COM port to use from the drop-down list. Click the Set up port... button, and set the Baud rate from 300 to 256,000. Select Parity from None, Even or Odd parity. Select Data bit from 7 bit or 8 bit format. Select Stop bit from 1 bit or 2 bits from the drop-down list. Move to Device ID, and set the device ID number from 0 to 127 using the slide bar. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

17. Move to HDD usage, and select either Once or Recycle. When Once is selected, the DVR stops recording when the hard disk drive is full. When Recycle is selected, the DVR continues recording when the hard disk drive is full by overwriting the oldest video.

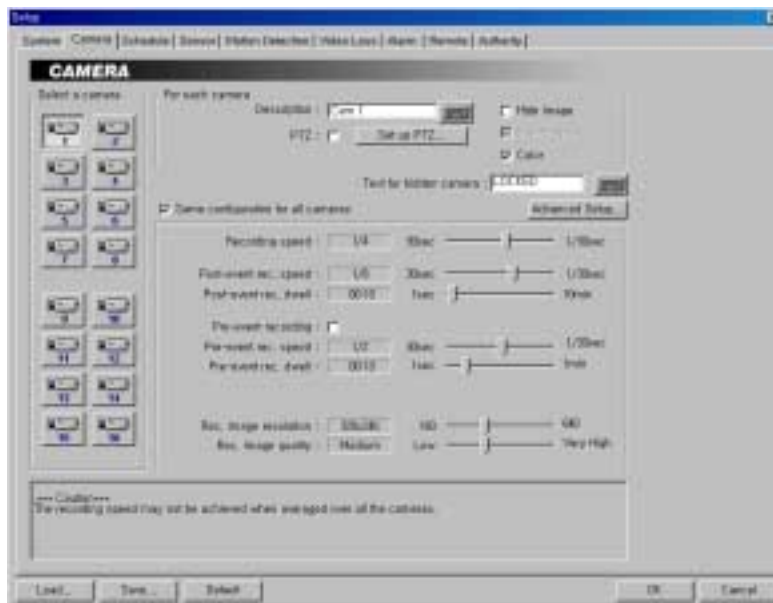
18. Click the Set up Time Sync... button, and set up the time synchronization if required. See Appendix 7 – Time Synchronization for details.
19. Click the Set up backup... button, and set up backup information. See the SmartBackup section.
20. Click the Set up pager... button, and set up pager information. See the SmartPager section.

NOTE: The *Set up pager...* button will be activated if you set up SmartPager to start in the SmartGuard setup.


21. Click the Set up Web Server... button, and set up an IIS(Internet Information Services) for the WebGuard program.
22. Click the Load... button if you want to load typical settings. Click the Save... button if you want to save settings. Click the Default button if you want to load default settings. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

NOTE: Only the administrator level user can use the Load, Save and Default buttons.

Setting Up Cameras



CAUTION: The recording speed may not be achieved when averaged over all the cameras.

1. Click the Camera icon. 
2. Click the text field beside Description, and enter a camera title such as "Front Door". You can use either the actual keyboard or the virtual keyboard.
3. Move to PTZ, and check the box to enable pan, tilt and zoom functions.

NOTE: To control camera pan, tilt and zoom, you must attach a compatible RX device or dome camera to the DVR. A list of supported RX devices and dome camera models can be found in the *Set up PTZ* dialog box. When controlling a PTZ camera via RS485, an additional RS232 to RS485 converter is required.

4. Click the Set up PTZ... button to display the Set up PTZ dialog box. Select the model of the installed RX device or dome camera from the Model list, and the COM port to use from the drop-down list. Click the Set up port... button to display the Set up COM port dialog box. Set the Baud rate from 300 to 256,000, select the Parity from None, Even or Odd parity, select the Data bit from 7 bit or 8 bit format, select the Stop bit from 1 bit or 2 bits from the drop-down list. Move to Device ID, and set the device ID number from 0 to 31 using the slide bar. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.
5. Move to Hide image, and check the box to hide the image of the selected camera on the monitor. If this box is checked, the selected camera will not be displayed on the monitor, however, the images from the camera will be recorded while in the record mode.
6. Click the text field beside Text for hidden camera, and enter the text to be displayed on the hidden camera using the actual keyboard or the virtual keyboard. If you leave this box empty, the gray screen without any text will be displayed for the hidden camera.
7. Move to SmartCapture, and check the box to use the SmartCapture technique.

NOTE: The DVR captures the images very quickly using a unique technique called SmartCapture. However, it is possible that some PAL cameras will have shaky images when using this program. Do not check this box if your cameras have shaky images.

8. Move to Color, and check the box when using a color camera. When using a B&W camera, make certain the box is not checked. This will reduce noise, giving better recorded image quality.
9. Move to Same configuration for all cameras, and check the box to set all cameras with same configuration. If this box is checked, the same configurations from the Recording speed to Rec. image quality will be set for all cameras at one time.
10. Move to Recording speed, and set the recording speed for the time-lapse mode by holding down and dragging the pointer. You can set the speed from 30 to 1/30 seconds. The value of the recording speed is the time to record one image. Therefore the lower the value, the more images are recorded during the same time. For example: 30 means one image per 30 seconds will be recorded, 1 means one image per second, and 1/30 means that 30 images per second.

NOTE: The PDR16-RMT-X and PDR16-RMT-LIVE-X models have a maximum recording speed of 240 images per second (200 images for PAL) that will be applied globally depending on the number of cameras recorded. However, this maximum recording speed can be decreased when using more than eight cameras. The PDR16-RMT and PDR16-RMT-LIVE models have a maximum recording speed of 120 images per second (100 images for PAL), and this maximum recording speed can be decreased when using more than four cameras. See *Appendix 9 – Specifications* for the maximum recording speed of each model.

11. Move to Post-event rec. speed, and set the recording speed (from 30 to 1/30 seconds) for the event-driven mode by holding down and dragging the pointer.
12. Move to Post-event rec. dwell, and set the duration (from 1 second to 10 minutes) of event-driven recording by holding down and dragging the pointer.
13. Move to Pre-event recording, and check the box to enable the pre-alarm recording.
14. Move to Pre-event rec. speed, and set the recording speed (from 30 to 1/30 seconds) for the pre-alarm mode by holding down and dragging the pointer.
15. Move to Pre-event rec. dwell, and set the duration (from 1 second to 1 minute) of pre-alarm recording by holding down and dragging the pointer.
16. Move to Rec. image resolution, and set the record image size by holding down and dragging the pointer. You can select the resolution from 160x120, 320x240, 640x240 or 640x480.

NOTE: Higher resolution images require more storage space and will reduce the recording capacity of the hard disk drive. When set to 640x480, video with lots of motion may have some artifacts.

17. Move to Rec. image quality, and set the record image quality by holding down and dragging the pointer. You can select the resolution from Low, Medium, High or Very High.

NOTE: Higher quality images require more storage space and will reduce the recording capacity of the hard disk drive.

NOTE: The maximum record image size and quality of pre-alarm recording will be restricted to 320x240 and *Medium* regardless of setting values of *Rec. image resolution* and *Rec. image quality* in order to maximize the amount of pre-alarm video to be stored.

18. Click Advanced Setup... to select an advanced camera setup. In addition to the normal camera setup established in steps 10 to 17, the DVR provides additional camera configurations for the following situations: After hour, On alarm, and On Priority alarm.

NOTE: *After hour* – The DVR follows an advanced setup during the time outside the hours established as the Work hours. *On alarm* – The DVR follows an advanced setup during alarm activation. *On Priority alarm* – The DVR follows an advanced setup during high-priority alarm activation. High priority alarms are configured in the sensor/motion detection setup. See the *Setting Up Sensors* and *Setting Up Motion Detection* sections for setting up the priority alarm.



19. Move to From under Work hour, and set the start time of working hours by holding down and dragging the pointer.

20. Move to To under Work hour, and set the end time of working hours by holding down and dragging the pointer.

NOTE: *Work hour* set in this menu is applied to the normal camera setup established in steps 10 to 17, and all hours except the Work hours will be *After hour*.

21. Move to After hour, and check the box if you want to use an advanced setup during the hours outside hours established in Work hour. Then, set the Recording speed, Rec. image resolution and Rec. image quality by holding down and dragging the pointer. Refer to the steps 10 to 17 for the available values for each setting.

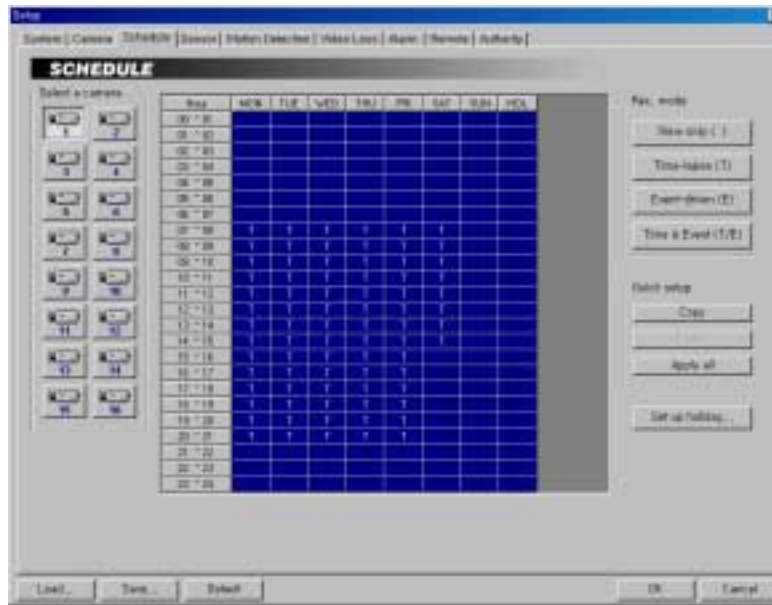
22. Move to On alarm, and check the box if you want to use an advanced setup during alarm activation. Then, set the Rec. image resolution and Rec. image quality by holding down and dragging the pointer. Refer to the steps 10 to 17 for the available values for each setting.


23. Move to On Priority alarm, and check the box if you want to use an advanced setup during high-priority alarm activation. Then, set the Recording speed, Rec. image resolution and Rec. image quality by holding down and dragging the pointer. Refer to the steps 10 to 17 for the available values for each setting.

24. You can save your changes by clicking the OK button. Selecting Cancel exits the Advanced camera setup dialog box without saving the changes.

NOTE: The configuration of the Advanced camera setup is also set for all cameras when the *Same configuration for all cameras* is selected.

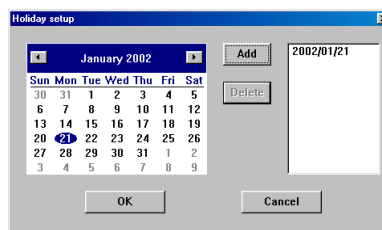
Setting Up Schedules



1. Click the Camera icon. 
2. Move to the hour table, and set the recording schedule for each day (MON to SUN) and holidays (HOL). Select the hours to record by holding down on the recording start time and dragging to recording finish time. The hour selection will be made through both hours and days. The cells you select will be filled in blue.
3. Click the desired recording mode button under the Rec. mode. The recording modes are: View only (blank), Time-lapse (T), Event-driven (E) or Time & Event (T/E). If you click the Time-lapse button, a T will display in the selected cells. Nothing displays when selecting View only.

NOTE: The DVR provides four different recording modes. *View only mode* — No recording will be made during selected hours. *Time-lapse mode* — Time-lapse recording will be made during selected hours. *Event mode* — Event-driven recording will be made during selected hours. *Time & Event mode* — Time-lapse recording will be made during selected hours and the DVR will go into the event-driven recording mode during selected hours when an event occurs.


4. Use the Quick setup to adjust the current settings of the selected camera to another camera. Click the Copy button, and select another camera to be scheduled by clicking the camera icon in the same dialog box, and then click the Paste button.
5. Click the Apply all button if you want to adjust the current settings to all cameras.
6. Click the Set up holiday... button to set up holidays. This function compensates for different holidays in different countries.



7. Click the date in the calendar you want as a holiday, and click the Add button. The selected date will be displayed in the list next to the calendar. If you want to delete a holiday, click the Delete button after selecting the date in the list. Move to other months using the arrow buttons located at the top of the calendar. You can save your changes by clicking the OK button. Selecting Cancel exits the Holiday setup dialog box without saving the changes.

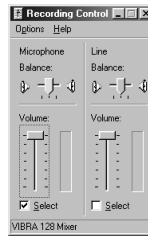
Setting Up Sensors



1. Click the Sensor icon. 
2. Move to Enable, and check the box to enable the selected sensor.
3. Move to Normally closed, and set the sensor type to Normally closed (NC) or Normally open (NO). If this box is checked, it is in the normally closed mode. If it is not checked, it is in the normally open mode.
4. Click the text field beside Description, and enter a sensor title such as "Front Door". You can use either the actual keyboard or the virtual keyboard.
5. Click the text field beside Sensor type, and enter a sensor type such as "magnet". You can use either the actual keyboard or the virtual keyboard.
6. Move to High priority, and check the box to give high priority to the target sensor so the DVR will follow the advanced camera setup when the target sensor is activated. See the Setting Up Cameras for configuring advanced camera setup.
7. Move to Record Audio, and check the box to record audio when a selected sensor is activated. Recording audio will be activated when at least one camera is associated with the sensor and the DVR is recording video.
8. Click the Set up Audio... button. Select an audio input type from Microphone or Line-in, and set its balance and volume in the Recording Control dialog box.

NOTE: The sound card provides two types of audio input, Microphone and Line-in. Microphone is for an unamplified source while Line-in is for an amplified source. You must manually select the type of input.

NOTE: The voltages generated by microphones are very much smaller than those used in line level devices. If you were to plug a Microphone into the soundcard Line in, you would never record anything.

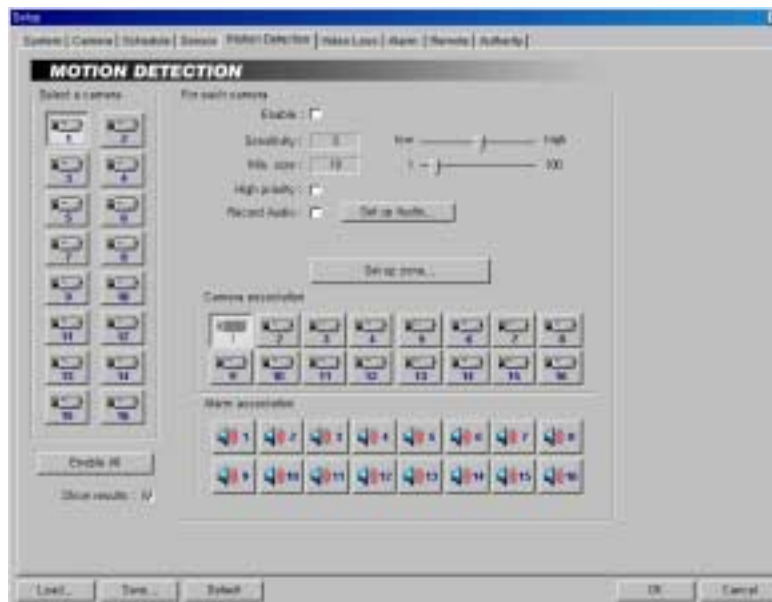


9. Move to Move to preset, and check the box to move the target camera to the preset location when a selected sensor is activated. Select the camera and preset ID from a drop-down list.

10. Move to Camera association, and click the camera icon to associate it with a selected sensor. Up to 16 cameras can be selected. Video from associated camera(s) will be recorded when a related sensor is activated.

11. Move to Alarm association, and click the alarm icon to be associated with a selected sensor. The alarm will go off when a related sensor is activated.

Setting Up Motion Detection



1. Click the Camera icon. 

NOTE: Clicking the *Enable All* button under camera icons selects all the cameras.

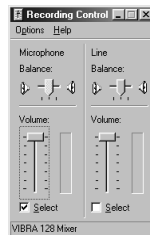
2. Move to Enable, and check the box to enable motion detection for the selected camera.

3. Move to Sensitivity, and set the motion detection sensitivity (1 to 5) by holding down and dragging the pointer.

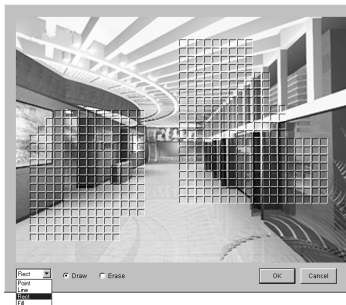
NOTE: The higher the number, the more sensitive it is. You can check that the sensitivity is set correctly by watching detection results on the images. See the step 10.

4. Move to Min. size, and set the minimum number of blocks (1 to 100). If you set the Min. size value to 10, the DVR will only react to motion when it detects changes (activity) in at least 10 connected blocks within the selected zone established in step 8.
5. Move to High priority, and check the box to give high priority to the target camera. The DVR will follow the advanced camera setup when the target camera detects motion. See the Setting Up Cameras for configuring advanced camera setup.
6. Move to Record Audio, and check the box to record audio when a selected camera detects motion. Recording audio will be activated when the DVR is recording video.
7. Click the Set up Audio... button. Select an audio input type from Microphone or Line-in, and set its balance and volume in the Recording Control dialog box.

NOTE: The sound card provides two types of audio input, Microphone and Line-in. Microphone is for an unamplified source while Line-in is for an amplified source. You must manually select the recording input type.



8. Click the Set up zone... button, and a zone setup window appears.



9. The setup screen is made up of a 30x40 grid. First, click the Draw radio button and select a tool to use from the drop-down list, and then set up the detection zone on the image. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes. Use the tools as follows:

Point — Place the cursor on the image and click the left mouse button. A single box appears where the cursor is.

Line — This tool can be used to draw irregular shapes. Place the cursor where you want to start the line. Hold down the left mouse button and drag the cursor to where you want the end of the line.

Release the mouse button and a group of boxes appears along the line you drew. You can draw lines around shapes by repeating this process.

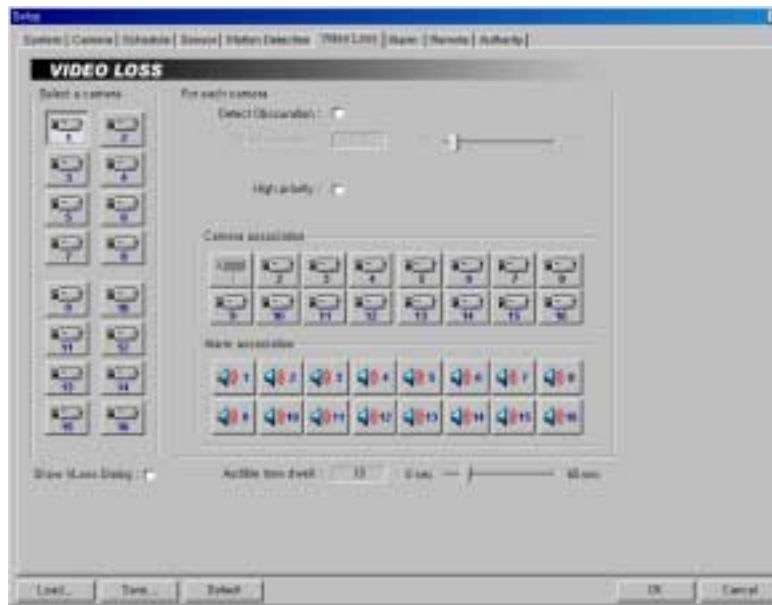
Rectangle — Hold down the left mouse button and drag the cursor in any direction. A rectangle appears. Once the rectangle is the size you want, release the mouse button and the rectangle fills with boxes.


Fill — When using the fill tool, clicking the mouse will fill that area of the image with boxes. If a shape has been drawn with the line tool, clicking inside will fill the area with boxes. Clicking outside the area will fill the outer area with boxes. If no shapes have been drawn, the entire screen will fill with boxes.

NOTE: When you select the *Erase*, you can use the tools as described above to delete boxes.

10. Move to Show results, and check the box to show detection results on the monitoring image. You can also check that sensitivity and minimum size are set correctly using this feature.
11. Move to Camera association, and click the camera icon to associate it with the camera selected step 1. If motion is detected by one camera, other cameras can be associated with it so that video will also be recorded from the associated cameras.
12. Move to Alarm association, and click the alarm icon to associate it with a selected sensor. The alarm will go off when an associated sensor is activated.

Setting Up the Video Loss



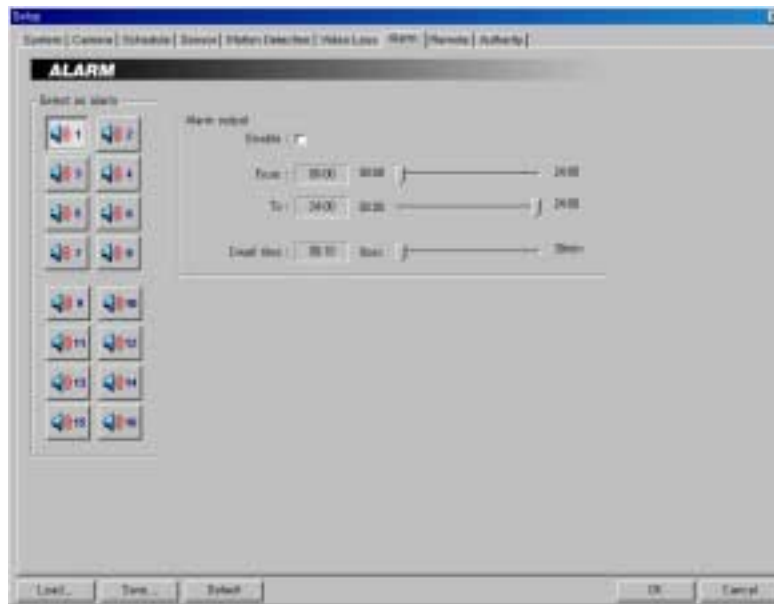
1. Click the Camera icon. 
2. Move to the Detect obscuration, and check the box to use the obscuration detection. If this box is checked, the DVR will check the brightness of the target camera, and consider video obscuration as video loss.
3. If you check the Detect obscuration box, move to the Video loss level and set the obscuration level from 0% to 50% by holding down and dragging the pointer. The higher the percentage, the more sensitive it is.
4. Move to High priority, and check the box to give high priority to the target camera. The DVR will follow the advanced camera setup when the target camera detects motion. See the Setting Up Cameras for configuring advanced camera setup.
5. Move to Camera association, and click the camera icon to associate it with the camera selected step 1. If video loss is detected by one camera, other cameras can be associated with it so that video will also be recorded from the associated cameras.
6. Move to Alarm association, and click the alarm icon to associate it with a selected sensor. The alarm will go off when an associated sensor is activated.


7. Move to Show video loss dialog, and check the box if you want to show the following Video Signal Failure dialog box on the screen when the video loss or obscuration is detected. Click the Acknowledge or Acknowledge All button to close the dialog box.



8. Move to Audible tone dwell, and set the dwell time of alarm output from 0 to 60 seconds. The alarm output will be activated during the preset dwell time when the video loss or obscuration is detected.
NOTE: The alarm output can be reset during alarm activation only by clicking the **Acknowledge** or **Acknowledge All** button in the **Video Signal Failure** dialog box.

Setting Up the Alarm



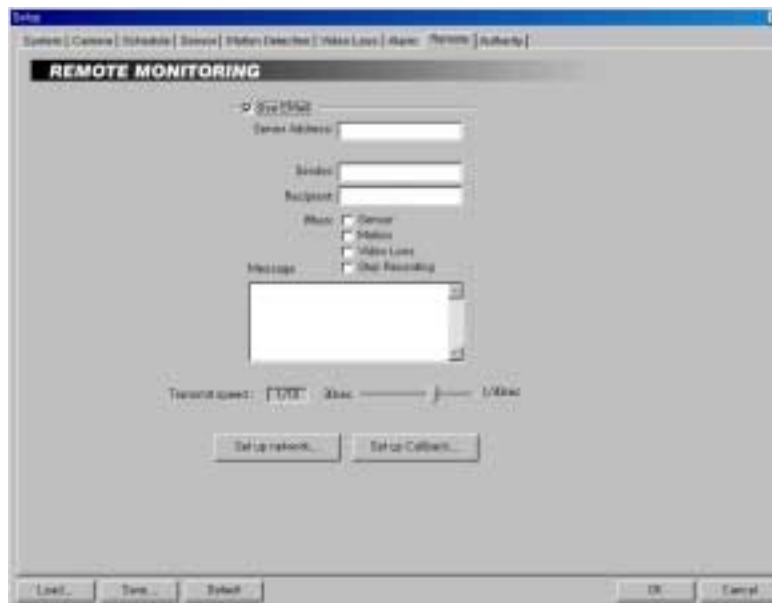
1. Click the Alarm icon. 
2. Move to Enable, and check the box to enable the selected alarm.
3. Move to From, and set the beginning time (00:00 to 24:00) of alarm activation by holding down and dragging the pointer.
4. Move to To, and set the ending time (00:00 to 24:00) of alarm activation by holding down and dragging the pointer.

NOTE: In cases where the *From* hour is later than the *To* hour, the alarm will be activated at the *From* time of the current date until next day's *To* time. If you set *To: 08:00* and *From: 18:00*, this means the alarm will be active over night from 6:00 p.m. until 8:00 a.m. the following day.

5. Move to Dwell time, and set the alarm output duration (0 seconds to 30 minutes) by holding down and dragging the pointer.

NOTE: The 16-channel alarm outputs are provided in the PDR16-RMT-LIVE, and PDR16-RMT-LIVE-X models.

Setting Up the Remote Access



1. Move to Use Email, and check the box to enable e-mail transmission function.
2. Click the text field beside Server Address, and enter an e-mail server address.
3. Click the text field beside Sender, and enter a sender's e-mail address.
4. Click the text field beside Recipient, and enter a recipient's e-mail address.

NOTE: If you want send the e-mail to multiple recipients, enter a “,” or “;” between e-mail addresses in the *Recipient* box.

5. Move to When, and select the target event. The DVR will send an e-mail when the selected events occur. Multiple selection is available.
6. Click the text field under Message, and type in the e-mail message.

7. Move to Transmit speed, and set the transmit speed (30 to 1/30 seconds) by holding down and dragging the pointer.

NOTE: The transmit speed is the number of images that can be transmitted for each camera. Therefore the lower the value, the more images are transferred during the same time. For example, when using one camera, the value 30 means one image per 30 seconds will be transmitted. 1 means one image per second, and 1/30 means that 30 images per second. The maximum transmit speed users can expect over a LAN is 120 images per second. This means that if you have four cameras, they can all be set at 1/30 (30 images per second), and you will not exceed the system's capability. However, even if the total image rate settings for all cameras exceed 120 images per second, the system cannot transmit more than 120 images per second. When this happens, the cameras will share the 120 images per second capacity.

NOTE: Maximum transmit speed users can expect over a LAN is 120 images per second, and average transmit speed over PSTN is 1 to 2 images per second.

NOTE: If the VGA card of a BASE system does not support the overlay function, the transmit speed can slow down somewhat.

8. Click the Set up network... button, and set up the network. See Appendix 3 – Network Setup (LAN) or Appendix 4 – Network Setup (Modem) for details.

9. Click the Set up Callback... button, and set up the callback function. The DVR can be set up to notify the target server running the SmartBase when certain events occur.



10. Move to Use Callback, and check the box to enable the callback function.

NOTE: When using the callback function with modem connections, check the *Use Modem* box and then select the installed modem to use. Also, the dial-up server should be running on the target server to be notified, and the IP address of the server should be set as 10.10.10.10. See Appendix 4 – Network Setup (Modem) for details.

11. Move to Center, and enter the IP address of each server. A maximum of three servers can be set.

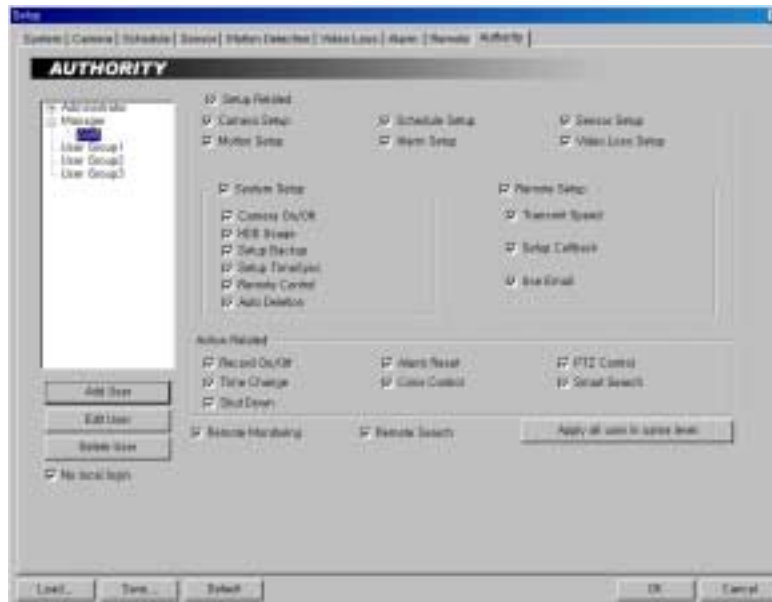
NOTE: When selecting the *Use Modem*, enter the telephone number of the target sever instead of the IP address.

12. Move to Retry Counts, and enter the number of times you would like to DVR try contacting the server if the connection fails.

13. Move to When, and select the target event. The DVR will call when the selected events occur. Multiple selections are available. You can save your changes by clicking the OK button. Selecting Cancel exits the Set up Callback dialog box without saving the changes.

NOTE: Callback messages will be displayed on the system status window of the target server. They include event type, event detection time, and system location entered during the *System* setup.

Setting Up the Authority



1. Click the Add User button, and the User Information dialog box appears. Set up the user information to register a new user.

NOTE: Up to 256 users can be registered.



2. Click the text field beside User ID, and enter the user ID using either the actual keyboard or the virtual keyboard.

3. Move to Authority level, and select the authority level from a drop-down list: User Group (1-3), Manager, or Administrator.

NOTE: Only the administrator level user can edit the users information and their authority setup.

NOTE: The authority setup of the Administrator cannot be edited.

4. Click the Change... button beside Password, and the Change password dialog box appears. Set up the password for a newly registered user.



5. Click the text field beside New password and Confirm new password, and enter the password using either the actual keyboard or the virtual keyboard. The Old password may not be used when entering a password for a newly registered user. After you have set up the password, you can save your settings by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

NOTE: Up to eight characters may be used for a password.

NOTE: The password will not be saved when *New password* and *Confirm new password* do not match.

6. After you have set up the user information, you can save your settings by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

7. Click the Edit User button to edit the established user information.

NOTE: The password will not be changed when the *Old password* does not match, or the *New password* and *Confirm new password* do not match.

8. Select a registered user in the list, and click the Delete User button to delete the user.

9. Select a registered user in the list, and check the desirable option boxes to set the user's authorization.

NOTE: For the remote access from the BASE system, the *Remote Monitoring* option should be selected for the user's authorization. And, select the *Remote Search* if you want to review recorded video on the POST system

10. Click the Apply all user in same level button if you want to adjust the current authority settings to all users in the same authority level.

11. Move to No local login, and check the box if you do not want the login procedure. Otherwise, the User Login dialog box will appear when clicking any function button and asks entering User ID and Password.

SmartSearch

Overview

SmartSearch is a powerful tool for SmartGuard. It features playback and search functions for recorded data and consists of Playback Window, Timetable, Status Window and Utility Buttons. Each area displays or controls recorded information. Click the Search button in the SmartGuard mode to get into the SmartSearch mode. To return to the SmartGuard mode, click the Close button on the remote control in the SmartSearch mode.

NOTE: The playback speed can be slow when the DVR is recording 240 images per second (maximum recording speed). For the normal playback speed, stop recording by clicking the *Rec* button in the SmartGuard mode.

Features

- Searches by camera and time
- Provides recording status table
- Various search functions
- Zoom in/out function
- Image enhancement functions
- Print function
- Remote playback function
- Bookmark function
- Saves to AVI file
- Audio playback

Main GUI



SmartSearch Environment Setup

Click the Setup button on the Remote Control.

General



1. Move to Local Drive, and select the location of the local drive from the drop-down list. In most cases, the local drive is C:. Even if the software is installed on more than one hard disk drive, the local drive will be C:, assuming that the operating system (Windows) and the DVR program have been installed on the C: drive.

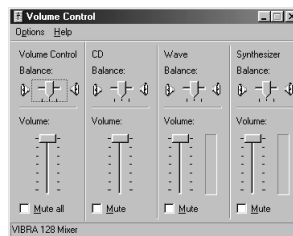
NOTE: It is recommended that you keep the C: drive as the default unless you are using the DVR for the test purposes.

2. Move to Backup Drive, and select the backup path from the drop-down list.

3. Move to Automatic Data Loading, and check the box to automatically load recorded data from the local hard disk when SmartSearch is initiated. If this box is not checked, you will need to select the data loading path manually by clicking the Local, Remote or Backup buttons whenever initiating SmartSearch. See the Data Loading section for selecting a data loading path.

4. Move to Audio Play, and check the box to listen to recorded audio in the playback mode.

5. Click the speaker icon, and adjust the volume under Wave if you want to set the volume of an installed speaker.

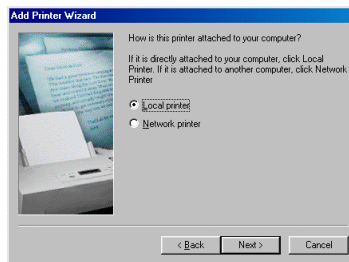


6. Move to Overlay text-in data, and check the box to display the text-in information on the image. If this box is not checked, the text-in information will be displayed on another dialog box.

7. Move to OSD, and select the OSD information to be displayed on the playback image by checking the box next to desired options; Location and Time.

8. Move to CD Burner, and click the [...] button to register the location where the CD burning program is. Recorded data can be saved on the CD-R or CD-RW drive using the CD burning program.

9. Click the Add Printer... button, and set up the printer. First, check that the printer attached to the DVR properly. When you click the button, the Add Printer wizard window appears. Follow the instructions to install and set up the printer.



10. Click the Default button to reset the system to default values.

NOTE: After you have changed all the settings, you can save your changes by clicking the **OK** Button. Selecting **Cancel** exits the dialog box without saving the changes.

Network

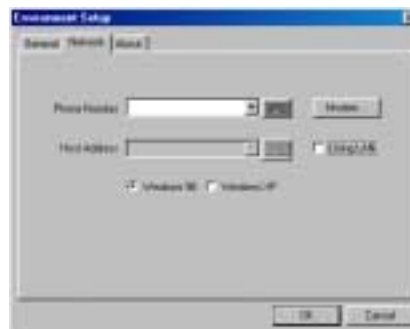
Set up network information for remote playback function.

When Using LAN



1. Move to Using LAN, and check the box when searching recorded images of other DVRs using a LAN.
2. Click the text field beside Host Address. Obtain the IP address of the DVR you want to connect to from the network administrator. Enter the IP address using either the actual keyboard or the virtual keyboard.

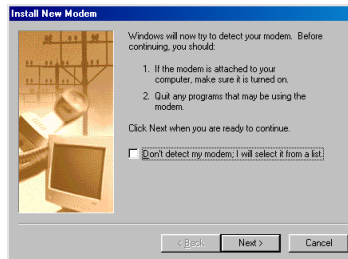
When Using a Modem



1. Move to Using LAN, and remove the check from the box if networking the DVR is done via the modem.

NOTE: The system's default is *Using LAN*. When using a modem for remote connection, remove the check from the *Using LAN* box, and then select the operating system on the remote system; either *Windows 98* or *Windows XP*.

2. Click the text field beside Phone Number. Enter the telephone number to use. You can use either the actual keyboard or the virtual keyboard.
3. Click the Modem... button to set up the modem. First, check that the modem is attached to the DVR properly. When you click the button, the Install New Modem window appears. Follow the instructions to install and set up the modem.



About

- Program displays software version information.
- Copyright Information displays copyright information.

Playback Window



In the SmartSearch mode, the playback window shows the current playback image.

Data Loading



- Local: Click the Local button to load recorded data from the local hard disk drive.
- Remote: Click the Remote button to load recorded data from the remote DVR via a modem or LAN. The following Remote Site dialog box appears, and the remote site(s) you registered for remote monitoring is (are) displayed in the list box.



- Connecting a remote site...

Click the site where you want to connect in the list box, and then click the Con. button.

Double click the site where you want to connect in the list box.

Or, hit the enter key after entering the site name or address in the text field located under Select a site. (Quick Search)

- Disconnecting a remote site...

Click the site where you want to disconnect in the list box, and then click the Discon. button.


NOTE: If you want to arrange the site list in the descending orders, click the *Site* or *Address* headings on the list box.

NOTE: The DVR can only view recorded, not live video on another DVR.




- Backup: Click the Backup button to load backup data from the extra backup device (e.g. DVD-RAM, CD-R(W), USB hard disk drive).
- Refresh: Click the Refresh button to reload recorded data from the local hard disk drive.
- Setup: Click the Setup button to set up the SmartSearch. See the SmartSearch Environment Setup section.
- Close: Click the Close button to quit SmartSearch and return to SmartGuard.

Screen Mode



- Screen Mode: Every time this icon is clicked, the screen mode switches (single-screen → quad → 3x3 → 4x4). For multi-screen playback, select a camera button from the timetable, and select a desired screen mode by clicking . Then click any playback-related button.











NOTE: 1-4, 5-8, 9-12, or 13-16 camera groups are displayed on the screen in quad mode, and 1-9 or 10-16 camera groups in 3x3 mode. The user can select which camera group is displayed by clicking any camera button in a group from the timetable.

- Panoramic: Displays images from one camera image by image. For series display, select a camera button and a desired screen mode, and click . Then, click any playback-related button.
- Full Screen: Display the recorded images in full-screen mode by clicking  during playback. To exit from full-screen mode, click the left mouse button anywhere on the screen.
- Text-In: Displays the text-in information by clicking . To remove the information, click the icon again. (Text-In version only)

NOTE: Full-screen display cannot be supported if the VGA card of the system does not support the overlay function.

Image Adjust

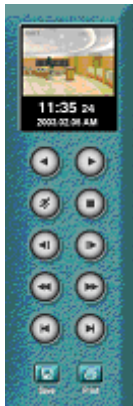


- Zoom : Enlarges or shrinks the current image. To enlarge the image, click . To shrink the image, click . This button works only in the single-screen mode.
- Brightness : Changes the brightness of the current image. Click  to make the image brighter, click  to make the image darker and click  to set the brightness to the default setting.
- Image Manipulation : Blurs or sharpens the current image. Click the  button to sharpen the image to reduce noise. Click the  button to blur an image.
- Intpl. (Interpolation): Click the Intpl button to reduce the alias effect that occurs when using the zoom function.
- Undo: Click the Undo button to cancel the last image processing operation.
- Revert: Click the Revert button to cancel the image processing operation and reload the original image.

NOTE: Make certain that the cameras and monitor are adjusted properly before recording because this adjustment should not be used to correct improperly recorded video.

NOTE: The recorded video will be displayed on the playback window with 640x480 as default even though their resolution is 160x120 or 320x240. At this time, the DVR will interpolate the enlarged video automatically.

Remote Control



The Remote Control window plays back and processes images. It has a small playback window, playback control buttons, and additional buttons. Its features are similar to VCR remote control.

Small Playback Window: Displays the current playback image. When zooming in, a rectangle appears; move it by clicking the left mouse button and then moving the rectangle.

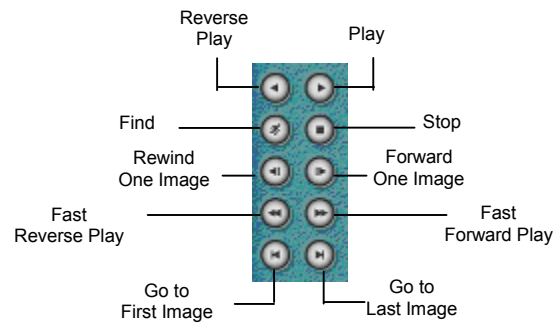
Playback Control Buttons: Controls the current playback image.

Save: Saves the current playback image.

Print: Prints the current playback image.

Playback Control Buttons

There are 10 playback control buttons.



NOTE: Pressing the *Fast Forward Play* button and *Fast Reverse Play* button toggles the 2x, 4x and 8x forward and backward speed.

NOTE: In the full-screen mode, the following *Floating Playback Panel* window will appear with right mouse button clicking. The window can be moved at any place on the screen by dragging the mouse.



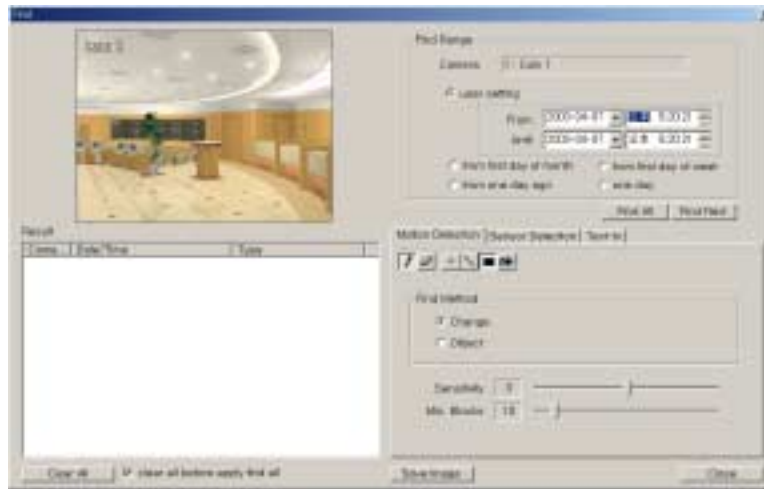
NOTE: The *Find* button will be disabled in the *Floating Play Panel* window.

Find

Click the Find button from the playback buttons to find images of motion detection, sensor detection, and text-in.

NOTE: Find function for the text-in is available only in the Text-In version.

Finding Motion Detection



1. Move to Find Range to set the find parameters.

- user setting: Finds event logs between user-defined periods. Set the desired find beginning and ending date/time in the From and Until boxes.
- from first day of month: Finds event logs from the first day of this month.
- from first day of week: Finds event logs from the first day of this month.
- from one day ago: Finds event logs from one day ago.
- one day: Finds event logs for one day.

2. Click the Motion Detection tab.

3. Set up the detection zone using the area setup icons. First, select the Draw mode and then select one of four tools by clicking the target icon. Move the cursor on the image of the selected camera displayed in a small window, and set up the detection area using the selected tool.

Use the tools as follows:

Point — Place the cursor on the image and click the left mouse button. A single box appears where the cursor is.

Line — This tool can be used to draw irregular shapes. Place the cursor where you want to start the line. Hold down the left mouse button and drag the cursor to where you want the end of the line. Release the mouse button and a group of boxes appears along the line you drew. You can draw lines around shapes by repeating this process.

Rectangle — Hold down the left mouse button and drag the cursor in any direction. A rectangle appears. Once the rectangle is the size you want, release the mouse button and the rectangle fills with boxes.

Fill — When using the fill tool, clicking the mouse will fill that area of the image with boxes. If a shape has been drawn with the line tool, clicking inside will fill the area with boxes. Clicking outside the area will fill the outer area with boxes. If no shapes have been drawn, the entire screen will fill with boxes.

NOTE: When you select the *Erase mode* , you can use the tools as described above to delete boxes.

4. Move to Find Method, and select either Change or Object.

NOTE: *Change* will detect changes in a scene which is usually motion. For example, if you want to detect if anyone passes through a door, you can draw a *change* detection around the door. The system will search through recorded data for any motion in the doorway. *Object* can be used to detect when an object is removed or moved in an area where there is normally motion. For example, you can draw a box around a painting hanging in a hallway. People walking by the painting will not be listed as an event. However, if the painting is removed, this will be listed as an event.

5. Move to Sensitivity, and set the sensitivity of the motion detection (1 to 5) by holding down and dragging the pointer.

6. Move to Min. Blocks, and set the minimum number of blocks (1 to 100).

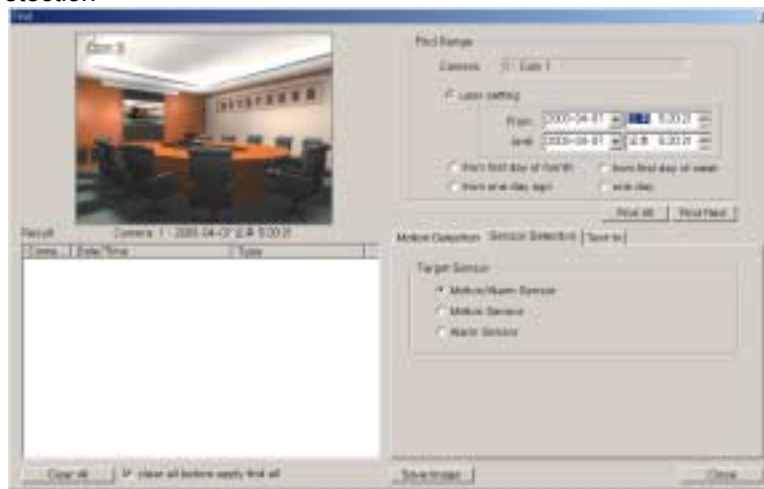
NOTE: The number of minimum blocks should be set less than the number of blocks within the motion detection zone. If the user draws a rectangle with 25 blocks and sets the minimum blocks to 30, nothing will be detected even though there is motion.

7. Click the Find All button to find all event results within established find conditions and then display them in the Result list box. The image of the result can be displayed by double clicking the target event in the Result list. Remove all entries listed in the box by clicking the Clear All button. If the clear all before apply find all box is checked, the results before applying Find All will be removed.

NOTE: If you want to find one event at a time, click the Find Next button.

8. Click the Save Image button to save the current find image as a bitmap or JPEG file to the local hard disk drive or floppy disk.

Finding Sensor Detection



1. Move to Find Range to set the find parameters.

- user setting: Finds event logs between user-defined periods. Set the desired find beginning and ending date/time in the From and Until boxes.
- from first day of month: Finds event logs from the first day of this month.
- from first day of week: Finds event logs from the first day of this month.
- from one day ago: Finds event logs from one day ago.
- one day: Finds event logs for one day.

2. Click the Sensor Detection tab.

3. Move to Target Sensor, and select from Motion/Alarm Sensor, Motion Sensor or Alarm Sensor.

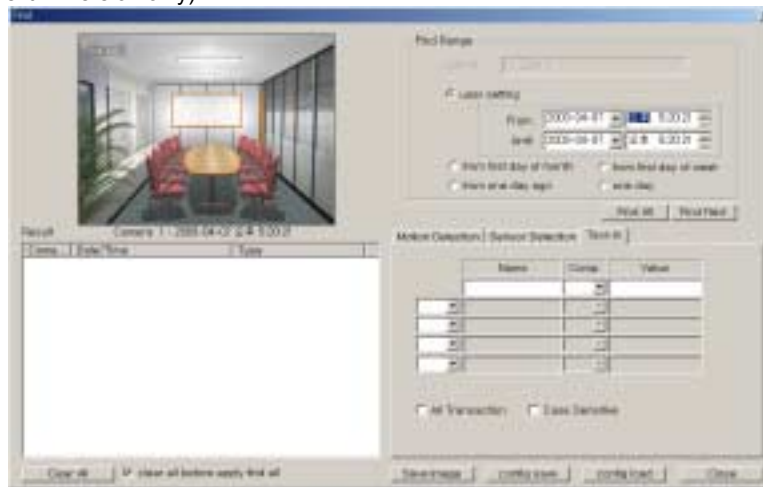
NOTE: Selecting *Motion/Alarm Sensor* will find event-recorded data by both motion detection and alarm input, selecting *Motion Sensor* will find event-recorded data by motion detection, and selecting *Alarm Sensor* will find event-recorded data by alarm input within established find parameters.

4. Click the Find All button to find all event logs within established find parameters and then display the results in the Result list box. The image of the results can be displayed by double clicking the target event in the Result list. Remove all entries listed in the box by clicking the Clear All button. If the clear all before apply find all box is checked, the results before applying Find All will be removed.

NOTE: If you want to find one event at a time, click the *Find Next* button.

5. Click the Save Image button to save the current find image as a bitmap or JPEG file to the local hard disk drive or floppy disk.

Finding Text-In (Text-In version only)



1. Move to Find Range to set the find parameters.

- user setting: Finds event logs between user-defined periods. Set the desired find beginning and ending date/time in the From and Until boxes.
- from first day of month: Finds event logs from the first day of this month.
- from first day of week: Finds event logs from the first day of this month.
- from one day ago: Finds event logs from one day ago.
- one day: Finds event logs for one day.

2. Click the Text-In tab, and set up the find condition of text-in.


- Name: Enter the text to find.
- Comp: Enter the comparison operator.
- Value: Enter the comparison value.
- All Transaction: Check this box to find all transaction results within established find conditions.
- Case Sensitive: Check this box to distinguish between capital letter and small letters entered in the Name box.

3. Click the Find All button to find all event logs within established find parameters and then display the results in the Result list box. The image of the results can be displayed by double clicking the target event in the Result list. Remove all entries listed in the box by clicking the Clear All button below the Result list box. If the clear all before apply find all box is checked, the results before applying Find All will be removed.

NOTE: If you want to find one event at a time, click the *Find Next* button.

4. Click the Save Image button to save the current find image as a bitmap or JPEG file to the local hard disk drive or floppy disk.
5. Click the Config Save button to save the current settings.
6. Click the Config Load button to load the saved settings.

Save

Click the  button to save recorded video.



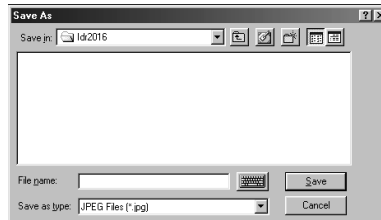
- Save Current Image: Saves the current image as a bitmap or JPEG file to the local hard disk drive or floppy disk.
- Save As Video File: Saves any video clip as an AVI file.
- Save As MiniBank File: Saves any video clip as an ".exe" file.
- Run CD Burner: Saves the recorded data on the CD-R or CD-RW drive using the CD burning program.

NOTE: Refer to the *SmartBackup – CD Burner* section for the instructions on CD burning.

NOTE: CD burning might not be successful if the SmartGuard is recording video during CD burning. Please stop recording for safe CD burning.

Save Current Image

1. Click the Save Current Image radio button in the Save Type dialog box, and click the OK button.



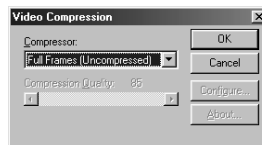
2. Move to Save in, and select the save location from the drop-down list.
3. Move to File name, and enter the file name using either the actual keyboard or the virtual keyboard.
4. Move to Save as type, and select the file format from the drop-down list. The available formats are bitmap and JPEG files.
5. Click the Save button to save the current image. Selecting Cancel cancels the saving operation and closes the dialog box without saving the settings.

Save As Video File

1. Click the Save As Video File radio button in the Save Type dialog box, and click the OK button.



2. Move to Camera, and select the camera number to save from the drop-down list.
3. Move to AUDIO, and check the box to save audio with video.
4. Move to Save Range, and set the range using the arrow buttons.
5. Move to Frame, and set the frame rate by holding down and dragging the pointer. You can set the frame from 1 to 30. When the AUDIO box is checked, you cannot set the frame rate. It will be fixed at 30 frames in order to synchronize the video and audio.
6. Click the Start button to display the Save As dialog box. Selecting Close cancels the saving operation and closes the dialog box.
7. In the Save As dialog box, select the save location from the drop-down list in the Save in, and enter the file name in the File name box using either the actual keyboard or the virtual keyboard. Click the Save button to save the settings and display the Video Compression dialog box. Selecting Cancel closes the dialog box without saving the settings and returns to the Save As Video File dialog box.



8. Move to Compressor, and select the compressor to use from the drop-down list.

NOTE: Depending on the DVR, there are many different compressors available. If you select *Full Frames (Uncompressed)*, the AVI file size may be large but the image quality will be good.

9. Click the OK button to return to the Save As Video File dialog box and start saving the video clip with established parameters. Selecting Close returns to the Save As Video File dialog box without saving the settings.

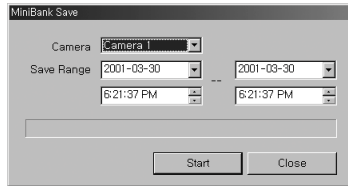
NOTE: The *Configure...* button for configuring a selected compressor and the *About...* button displaying the compressor information might be inactive depending on the selected compressor.

10. In the Save As Video File dialog box, click the Start button to save the video. Selecting Cancel cancels the saving operation and closes the dialog box without saving the settings.

NOTE: The target disk for saving AVI files must have at least 150 MBytes free space.

MiniBank Save

1. Click the MiniBank Save radio button in the Save Type dialog box, and click the OK button.



2. Move to Camera, and select the camera number to save from the drop-down list.
3. Move to Save Range, and set the saving range using the arrow buttons.
4. Click the Start button to display the Save As dialog box. Selecting Cancel cancels the saving operation and closes the dialog box without saving the settings.
5. In the Save As dialog box, select the save location from the drop-down list. In Save in, enter the file name using either the actual keyboard or the virtual keyboard in the File name.

NOTE: When you creating the file name for the video you are saving, you must enter "/" between the directory name and file name. For example, if you enter "abank/test", a directory named "abank" with an '.exe' file named "test.exe" will be created.

6. Click the Save button to save the video, Selecting Cancel returns to the MiniBank Save dialog box without saving the settings.

NOTE: When saving a minibank file on a floppy disk or zip disk, it can be saved on multiple disks if the file size is larger than the disk capacity. Split files can be merged using the provided MiniBank Wizard. Double-clicking the *MiniBankWizard.exe* file starts the MiniBank Wizard. Move to the *File Merge* tab in the MiniBank Wizard dialog box, and select the folder where the split files are located. The first file among split files will be displayed in the box next to the Folder. Click the displayed file and then click the *Merge Files* button. Double-clicking the merged file starts the *Player* program.

NOTE: See the following *MiniBank Self Player* section for the reviewing the saved MiniBank video.

MiniBank Self Player

You do not need to install any special software on your PC to review the MiniBank video since each MiniBank file contains the self player program. Double-click the target file to start the Player program.


NOTE: It is suggested that the computer used for the Player program has at least an 800MHz Pentium III. If your CPU is slower than this, minibank files recorded at maximum speed with very high image quality will be played back slowly.

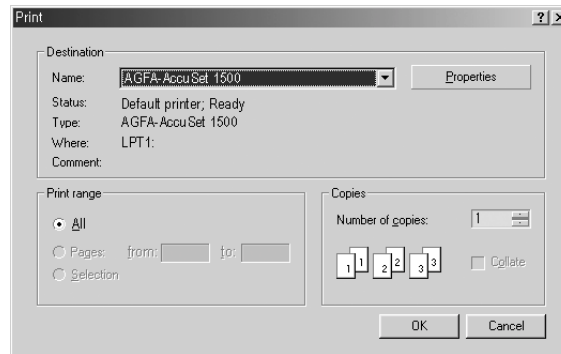


- The Monitoring Screen displays the backed up images. Clicking the right mouse button on the images switches the screen size between 320x240 and 640x480.
- Click the Save Button to save the current image in a bitmap file format to the local hard disk drive or floppy disk.
- Click the Print Button to print the current image on the printer connected to your computer.
- The Backup File Information window displays information regarding the backup file. Location displays the site description of the DVR where the backup was made. Record displays the time span of the video backup file. Encryption displays whether the backup file has been tampered with. Normal means the file has not been tampered with, Wrong means the system has detected tampering, and no mark means the user cancelled the encryption check.
- The Current Image Information window displays information about the current image. Camera Title displays the camera name of the current image, and Time displays the date and time the image was recorded.
- The Playback Function Buttons include fast backward, backward, play, pause, fast forward, go to the first image, go to the previous image, go to the next image, and go to the last image buttons.

- The Image Search Slide Bar displays the current playback position. The user can move to another image by clicking the mouse and dragging along the slide bar.
- The Brightness Revert Button reloads to the original image.
- The Brightness Control Slide Bar adjusts the brightness of the backup images by clicking the mouse and dragging along the slider bar. Minute brightness changes can be made by using the arrow buttons located at each end of the bar.
- Clicking the OSD (On-Screen Display) Button switches the OSD option. The OSD information includes camera location and date/time.
- Clicking the Mute Button mutes the recorded audio.
- Clicking the Quit Button exits the Player program.

Print

Click the  button to print the current image.



1. Move to Name, and select an installed printer to use from the drop-down list.
2. Do not change the setting for the Print range.
3. Move to Copies, and set the number of copies using arrow buttons.
4. Move to Print Image Only, and check the box if you want to print the image without text information.
5. Click the OK button to print the current image. Selecting Cancel cancels printing operations and closes the dialog box without saving the settings.

Timetable Window

The timetable window consists of a record timetable, camera label and a calendar/bookmark. You will see the bank file recording information. Various functions of the timetable window enable fast searches.



Camera Label Buttons



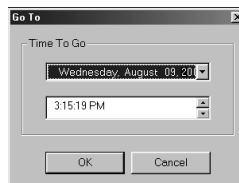
Camera label buttons show camera information. Change the current playback camera by clicking the camera label button. The camera label buttons that do not have recorded data cannot be selected. Only four camera labels are shown at a time. Use the up and down arrows to scroll through the list of cameras.

Recording Status Bar

Recorded information is shown on the recording status bar. Search specific video by clicking the mouse on the desired segment or scroll by moving the scroll key from left to right. The color of the bar indicates different types of recording: Yellow for Pre-alarm, Cyan for Motion Detection, Red for Sensor, Blue for Time-lapse.



- Click the Go To button to go to the specific dates and times directly.



1. Move to Time To Go, select a date from the drop-down list, and set the time using the arrow buttons.
2. If you click the OK button after setting the conditions, the image meeting the established conditions will be displayed on the playback window. Selecting Cancel cancels the Go To operation and exits the dialog box without saving the changes.

Calendar



Select recorded data from the calendar. The calendar provides access to single day recorded data. Click the date you want to search. Scroll through the months by clicking ◀ and ▶.

- Bookmark: Accesses the bookmark feature.

Bookmark



Add or delete bookmarks for recorded images. A bookmark lists the camera number, date and time. This feature can be used for reviewing the specific image fast and easily. Click the Add button to bookmark the currently displayed image. If you want to delete the bookmark, select the target information and then click the Del button.

- Add: Adds the current image to bookmark table.
- Del: Deletes the selected bookmark.
- Calendar: Accesses the calendar feature.

Audio Playback

Checking Audio Recording Configuration

1. Click the GUARD button to access to the SmartGuard mode.

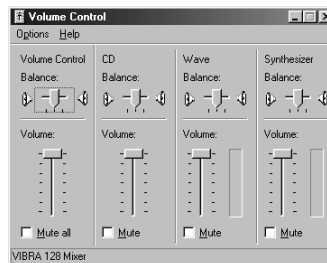
2. Click the SETUP button on the main GUI of SmartGuard.
3. Move to the Sensor tab and/or Motion Detection tab.
4. Check that Record Audio is selected.
5. Click the Setup Audio... button, and check that the audio input type is properly set.

Checking Audio Playback Configuration

1. Click the SEARCH button on the main GUI of SmartGuard to return to the SmartSearch mode.
2. Click the SETUP button on the main GUI of SmartSearch.

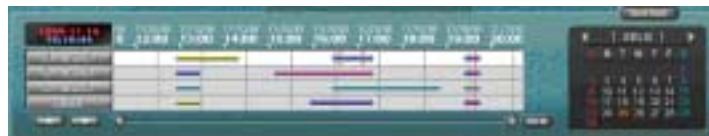


3. Move to the General tab.
4. Check that Audio Play is selected.
5. Click the speaker icon, and check that the volume under Wave is set properly.



Playing Recorded Audio

Click a playback button on the main GUI of SmartSearch. An Audio-play icon in the shape of a speaker will display at the top left in the small playback window if the target camera has recorded audio information. The recorded audio time bar is located below camera 16, and its information is shown on the recording status bar in pink.



NOTE: Audio is played only in the single-screen mode and forward playback mode.

SmartBackup

To initiate the SmartBackup program, click the Setup button in the SmartGuard mode. Move to the System tab, and click the Set up backup... button. The following SmartBackup dialog box appears.



Stored Image Information

- Drive Status
 - Drive: Shows all attached hard disk(s).
 - Recording Period: Shows the recording period contained on each (source or target) drive.
 - Status: Shows the drive's status (Working: source drive; Backup: backup target drive).
- Recording: Shows the recording period contained on the source drive.
- Latest Backup: Shows the date and time of the latest backup of the target drive.

Backup Drive Information

- Period: Shows the recording period contained on the backup drive.
- Remain: Calculates and shows the remaining space on the backup drive.

Status

Shows backup drive status and a progress bar for the auto/manual backup.

Manual

Click the Manual... button to start the manual backup mode. If the DVR is set to Auto Backup mode, selecting this button will release the auto backup mode. See the following Manual Backup section for setting up the manual backup.

Update

Click the Update button to update the values in the SmartBackup dialog box. Recording Period, Latest Backup and Backup Drive Information will be updated any time this button is selected.


Setup

Click the Setup... button to set up the backup information. See the SmartBackup Setup section.

CD Burner

Click the CD Burner button to save the backup data on the CD-R or CD-RW drive using the CD burning program.

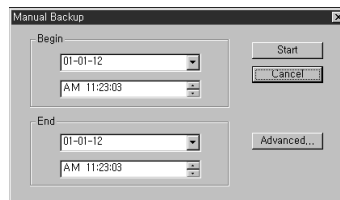
Hide

Click the Hide button to hide the SmartBackup dialog box. To close the dialog box and exit from the SmartBackup, click  at the top-right hand corner.

Manual Backup

Click the Manual... button in the SmartBackup dialog box to start the manual backup mode. The following Manual Backup dialog box appears. There are two ways to back up data manually; backup by time and backup by list.

CAUTION: During the manual backup, SmartGuard will stop recording.



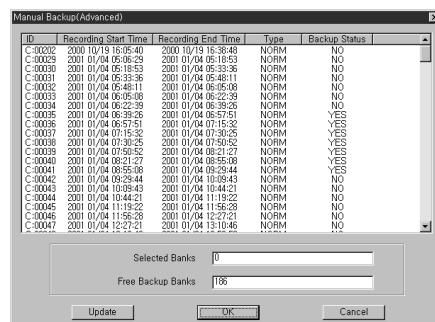
Manual Backup by Time

1. Move to Begin, and set the backup beginning date and time. Select the beginning date from the drop-down list, and set the beginning time using the arrow buttons.
2. Move to End, and set the backup ending date and time. Select the ending date from the drop-down list, and set the ending time using the arrow buttons.
3. Click the Start button to start the manual backup by time. The DVR backs up the recorded data from the established beginning date and time to the established ending date and time. Only time-lapse mode recorded data will be backed up. Selecting Cancel exits the dialog box without saving the settings.

NOTE: Backup of audio data and pre-alarm images can only be done by using the Manual Backup by List. See the following *Manual Backup by List* section.

Manual Backup by List

1. Click the Advanced... button. The following Manual Backup (Advanced) dialog box appears.



2. ID displays the serial number of the record banks.

NOTE: The BANK is the basic unit for the database used by the DVR system.

3. Recording Start Time and Recording End Time display the recording beginning date/time and ending date/time of each bank.
4. Type displays the type of record bank. Normal means time-lapse recording, and PRExx means the pre-event recording.
5. Backup Status displays whether a target bank has already been backed up or not.
6. Select the bank to back up by clicking the target bank in the list box. Multiple banks can be selected by using the Ctrl or Shift keys on the actual keyboard. Click each bank to be backed up while pressing and holding the Ctrl key. If you want to select all banks in a specific range, click the first and last banks to be backed up within the range while pressing and holding the Shift key.
7. The number of selected banks will be displayed in the Selected Banks box. The Free Backup Banks box displays the number of banks that are available for backup.
8. Click the Update button to update the record bank information. After you have set up the Manual Backup by List, click the OK button. Selecting Cancel exits the dialog box without saving the settings.

Setup

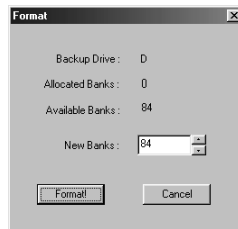
Click the Setup... button in the SmartBackup dialog box to set up the backup information. The following Setup dialog box appears.




1. Move to Auto-backup, and check the box to set up auto backup. If this box is checked, the DVR will back up automatically according to the established auto backup settings. If Auto-backup is not selected, the DVR is in the manual backup mode and follows the established manual backup settings. See the Manual Backup section for setting up the manual backup.
2. Latest Backup Time shows the latest backup date and time.
3. Move to Period (time), and set the backup beginning time in Start, and ending time in Finish using the arrow buttons. If you set the value to 0 for the Start and to 24 for the Finish, the DVR will back up from 0:00 to 24:00 on that day.
4. Move to Destination under the Backup Drive, and select a backup drive from the drop-down list.

NOTE: Active menus under the Backup Drive will vary depending on the type of media used.

5. Move to Repeat, and check the box to recycle the backup drive. If the Repeat is not selected, the DVR stops backing up when the drive is full.
6. Move to Auto Eject, and check the box to use the auto eject feature of backup drive if the drive is so equipped.
7. Click the Initialize... button to initialize the backup space. The backup drive should be initialized before backing up. Any bank contents stored on the drive will be deleted when you initialize the backup drive.



8. Backup Drive displays the drive location. Available Banks displays the number of available banks for backup. After initializing, Allocated Banks will display the number of allocated banks for backup.
9. Move to New Bank, and set the number of banks to be used for backup by using the arrow buttons.
10. Click the Format button to start initializing the backup space. Selecting Cancel exits the dialog box without saving the changes.
11. Move to CD Burner, and click the  button. Register the program location to use. Generally, select nero.exe from the C:\Program Files\Ahead\Nero folder.

CD Burner

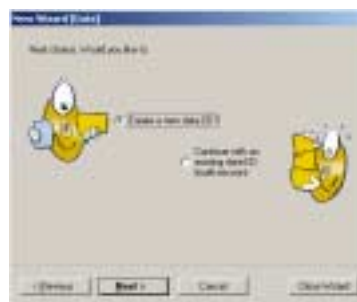
Click the CD Burner button in the SmartBackup dialog box to initiate the CD burning program registered during SmartBackup setup (Nero-Burning Rom). If the following Nero Wizard dialog box does not appear, go to pull-down menu File and select New.



1. Select Compile a new CD, and click the Next button.



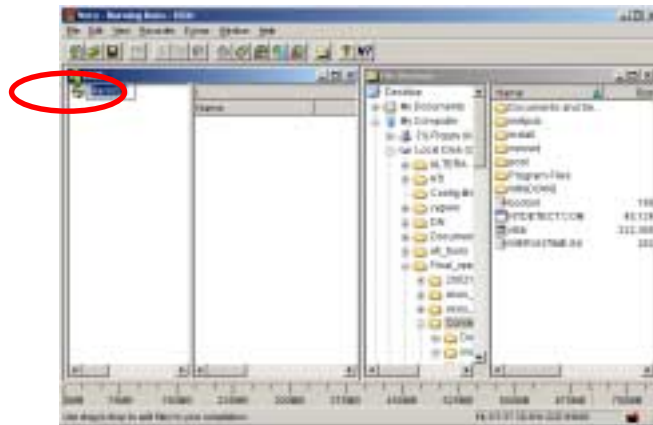
2. CD format is required. Select Data CD, and click the Next button.



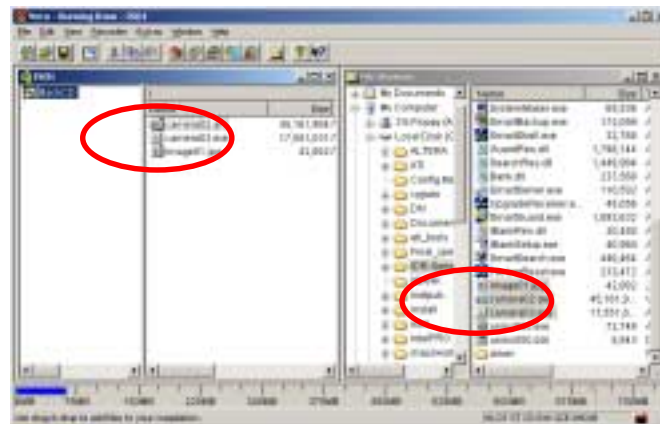
3. Select Create a new data-CD, and click the Next button.



4. Clicking the Finish button.



5. Go to the pull-down menu File, and to New CD Project, then to Data CD. And then name the CD to make. If you do not name the CD, the CD will be named automatically by the CD burning program.



6. Select files to copy on the CD from the right browser, and move them to the left window by dragging the mouse.

7. Go to the pull-down menu File, and to Write CD. And the following Nero Wizard dialog box appears.



8. Click the Burn button.



9. The Writing to disc dialog box shows the CD burning process.



10. Click the OK button when the burn process is completed.



11. Clicking the Discard button in the Done dialog box complete the CD burning.

NOTE: CD burning is not available during the automatic backup.

Target files for CD burning

- Image files saved in SmartSearch mode.
- Video files saved in SmartSearch mode.
- MiniBank files saved in SmartSearch mode.
- Whole ibbank directory on the drive used for backup

NOTE: The size of the ibbank directory should be smaller than the capacity of the CD drive. When using the 650MB CDR or CDRW media, you must not exceed nine backup banks.

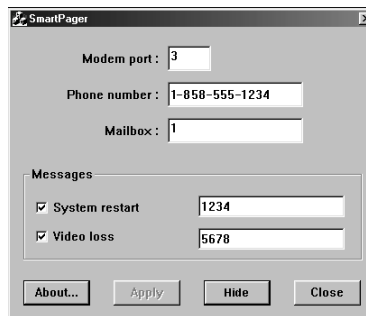
Safeguards on Installing and Using the CD Burning Program

- Select the Buffer underrun prevention option when initiating the CD burning program. Selecting this option can be different depending on the installing program.

SmartPager

SmartPager pages the system manager when something happens to video input, such as a video signal loss or system reboot. SmartServer and SmartPager cannot be run at the same time because they both use the modem. If you want to run SmartServer and SmartPager at the same time, a second modem must be installed. To set up SmartPager, click the Setup button in the SmartGuard mode. Move to the System tab, and click the Set up Pager... button. The following SmartPager dialog box appears.

NOTE: SmartServer is invisible software that prepares images to send to remote sites via a modem or LAN.



1. Click the text field beside Modem port, and enter the COM port number of the modem.
2. Click the text field beside Phone number, and enter in the pager number. Make certain to enter the number exactly as it must be dialed including any numbers such as 9 to get an outside line or area codes.
3. Click the text field beside Mailbox, and enter the number for paging when the pager uses a voice mailbox.
4. Move to Messages, and select the paging condition. Check the box beside the events that should cause the DVR to call the pager and enter the user-specified number in the text field. Multiple conditions can be selected. When selecting System restart, the DVR pages whenever the system is restarted. When selecting Video loss, the DVR pages whenever the system loses video input from a camera.
5. Click the About... button to see the software version information.
6. Click the Apply button to save the changes. This button is enabled when certain values are changed. The changes are saved only when you click this button.
7. Click the Hide button to hide the SmartPager dialog box.
8. Click the Close button to end SmartPager.

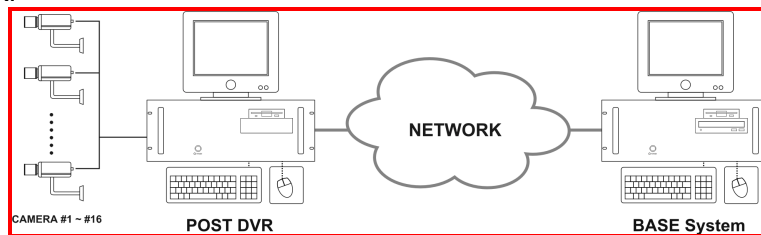
Chapter 3 — Remote Access

You can view video or control the DVR remotely via modem or LAN. For remote access, we provide the SmartBase program. It has three major functions; remote monitoring, remote playback and remote control. Remote monitoring makes it possible to do real-time monitoring remotely, and remote playback makes it possible to play recorded video from the DVR remotely. Remote control allows controlling the DVR remotely including changing the setup.

NOTE: The POST system can only review recorded video on other POST systems. A BASE system can view live video or review recorded video on POST systems.

Installation

At least one POST DVR and a system for BASE are needed for using the remote access function. The POST is the system to which the camera cables connect directly, and the BASE is the system which is installed at another site for remote access. Install the BASE software at the remote site after installing the DVR.



POST System Setup

Click the Setup button in the SmartGuard mode, and the following Setup dialog box appears. Move to the Authority tab, and check the Remote Monitoring box for the user's authorization if you want to access to the remote POST system from the BASE system.



BASE System Setup

SmartBase — Remote Monitoring and Recording Software

NOTE: When selecting the *Remote Monitoring* for the user's authorization during the POST system setup, you can access to the remote POST system from the BASE system.

After installing the BASE software on your PC, click the Start button from the task bar. Move the cursor to Programs, then to IDR Series BASE to open the program list. Select SmartBase.

NOTE: If you do not use the overlay display mode on the SmartBase system, you can move the SmartBase window at any place on the monitor by dragging the mouse.



Monitor

- **Display Format:** Various display formats (single-screen, full-screen, quad, 3+4, 3x3, 2+8, and 4x4) are provided for convenient user interface, and each format can be selected by clicking screen buttons described below. The camera groups for multi-screen formats are composed of cameras 1 to 16 in order. The following camera groups are displayed on the monitor one at a time according to each display format: 1-4, 5-8, 9-12, or 13-16 in quad mode; 1-7 or 8-16 in 3+4 mode; 1-9 or 10-16 in 3x3 mode; 1-10 or 11-16 in 2+8 mode. The user can select which camera group is displayed by clicking any camera button in a group from camera buttons below.
- **OSD:** OSD information including camera description, recording status, and sensor detection can be displayed on the image. Click the Setup button and move to the System tab in the Setup dialog box. Check the Show OSD box to display the OSD information.

System Status

- **Clock Mode:** Click the left mouse button on the clock area, and set date display (MM-DD-YYYY/...) and time display (12 Hours/24 Hours) formats. Click the right mouse button on the clock area, and set date, time, and time zone.

CAUTION: If you change the time, images dated later than the new date/time are deleted. Back up the images if you want to save them.

- **Time Synchronization:** On the clock area click the left mouse button after pressing and holding the Ctrl key on the actual keyboard to synchronize the time between POST system and BASE system when they are networked. See Appendix 7 – Time Synchronization for details.

- HDD Indicator: Shows the remaining hard disk space.
- Power LED: The Power LED is lit when the DVR is On.
- Mode Status: The Recording LED is lit when the DVR is in the recording mode.
- Alarm LED: The Sensor Detect LED is lit when the sensor has been detected.
- HDD Usage: The Repeat Recording LED is lit when the DVR is set to repeat recording in case of recording space shortage.

Image Adjust

You can adjust the brightness, contrast, hue and saturation by clicking the designated buttons. Click the Default button to reset them to the default settings. Only the administrator can adjust the image.

NOTE: These adjustments should not be used to correct improperly set cameras or monitors. Adjust the brightness, contrast, hue, and saturation by clicking the designated buttons.

NOTE: It is important that images are properly adjusted. These adjustments cannot make up for improperly adjusted images when the images are recorded.

Camera

Selects camera button to display. Click the A or B buttons to select the range of cameras (A for cameras 1-8, B for cameras 9-16), and then click the number button.

PTZ

Controlling PTZ from the SmartBase mode changes the PTZ setup of the remote DVR. Only the administrator can change PTZ setup from a remote site.

Screen Mode

- To select the screen mode, click one of the screen buttons; single-screen, quad, 3+4, 3x3, 2+8, 4x4, or full-screen.
- To view a specific image in the single-screen mode, move the cursor to that image and double click the left mouse button. Click the left mouse button in the window to return to the previous screen mode.
- To enter the full-screen mode, click the far right button. Click the left mouse button anywhere on the monitor to exit the full-screen mode.

Event Logs

- Event Logging: Shows event logs and callback messages of the remote system. For this function, the remote system should be in the event-driven recording mode. Scroll up and down the list by holding down the left mouse button on the list while moving the cursor up and down. The display information of the event log and callback message is shown below:

Event Log – Date_Time (Site Name)
[Camera No. of the BASE system] Alarm Type Alarm No.
Callback Message – Date_Time (callback)
Site Name : Alarm Type Alarm No.

Utility Buttons

- Sequence: When the Sequence button is clicked, SmartBase sequences the cameras in order. Whenever the user clicks the button, it toggles between On and Off. The switching interval can be set during the system setup.
- Record: When the Record button is clicked, the record mode is selected. SmartBase goes to view only mode automatically when it is unable to record (for example, when the hard disk is full). The BASE system records only in accordance with the recording schedule, which is set manually during the system setup. Note also that clicking Record prepares the BASE system for recording. In this state, the BASE system will follow the recording schedule.

- **Connect:** When the Connect button is clicked, the following Connecting Window appears. If you want to search the site quickly from the site list, enter the site name or address in the text field and then hit the enter key. Entering the ID and password of the remote system to connect is required.

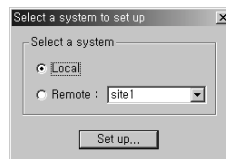


NOTE: If you want to arrange the site list in the descending orders, click the *Site* or *Address* headings on the list box.

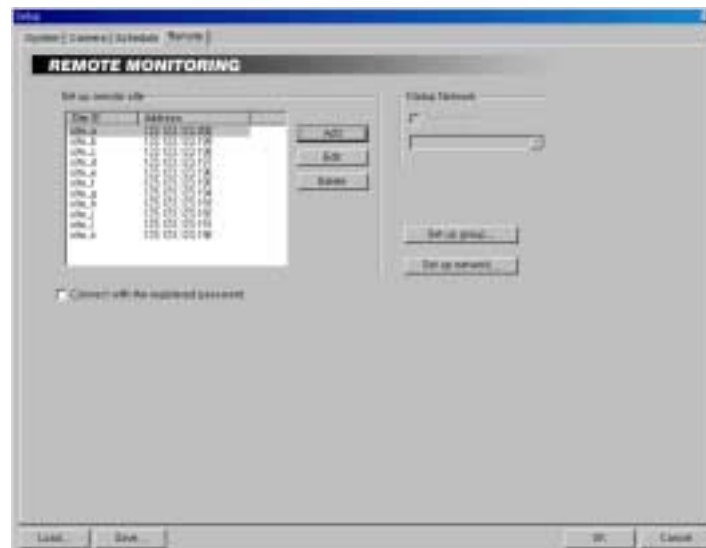
- **Setup:** When the Setup button is clicked, the Setup dialog box appears. Set the values for remote monitoring and remote system control.
- **Search:** Click the Search button to run the SmartSearch program.
- **Close:** Click the Close button to quit the program.

Remote Monitoring Setup

1. Click the Setup button on the main GUI of SmartBase.



2. Click the Local radio button and then click the Set up... button.



3. Click the Add button, and register the remote site. Up to 256 sites can be registered.



4. Click the text field beside Site ID, and enter the site name to register using either the actual keyboard or the virtual keyboard.
 5. Click the text field beside Network address, and enter the IP address of the remote DVR, acquired from your network administrator. Move to Use modem, and check the box when using a modem for remote access, and then select the operating system on the remote system; either *Windows 98* or *Windows XP*. For the remote connection via a modem, the dial-up networking must be installed on the remote DVR. See Appendix 4 – Network Setup (Modem) for setting up the dial-up networking.
 6. Click the text field beside User ID, and enter the user ID.
 7. Click the text field beside Password, and enter the user password. Then click the text field beside Confirm Password, and enter the user password again to confirm the password. Move to No Password, and check the box when using a User ID without a password.
- NOTE:** Up to 16 characters maybe used for a user ID, and eight characters for a password.

8. Clicking the OK button saves the changes and returns to the Setup dialog box. Selecting Cancel exits the dialog box without saving the changes.
9. In the Remote tab, move to Connect with the registered password. If this box is checked, the remote DVR will be connected automatically with registered user ID and password. If there is no registered password, the login dialog box will appear. The connection fails when an incorrect password is entered.
10. Move to Dialup Network, and check the Use modem box when using a modem for remote access, and then select a modem to use from the drop-down list.
11. Click the Set up group..., and set up the group management. The BASE system can monitor up to 16 remote DVRs simultaneously. For the effective management of the remote DVRs, the user can register multiple remote DVRs in one group. Up to 64 groups can be registered.



12. Move to Group, and set up the group information. Click the Add button to register a new group.



13. Enter the name of the group to register, and click the OK button.

14. Move to Camera assignment, and select the target remote site and camera number from the drop-down list.

15. Clicking the OK button saves the changes and returns to the Setup dialog box. Selecting Cancel exits the dialog box without saving the changes.

NOTE: If you want to edit the established group information, click the *Edit* button after selecting a registered group from the list. Then, edit the group information. If you want to delete a registered group, click the *Delete* button after selecting a registered group from the list.

16. Click the Set up network..., and set up the network. See Appendix 3 – Network Setup (LAN) or Appendix 4 – Network Setup (Modem).

17. After you have changed the settings, you can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

SmartSearch — Remote and Local Playback Software

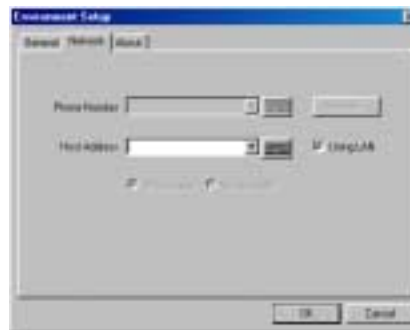
The user can access the SmartSearch mode by clicking the Search button on the main GUI of SmartBase.



Remote Playback Setup

CAUTION: The user can play back the video recorded on the remote DVR when the user has an authority with Remote Search. The *Remote Search* option should be selected during SmartGuard – Authority setup of the remote DVR you want to connect.

Click the Setup button to display the Environment Setup dialog box. And then set up the network information for remote playback.



NOTE: The system's default is *Using LAN*. When using a modem for remote connection, remove the check from the *Using LAN* box, and then select the operating system on the remote system; either *Windows 98* or *Windows XP*.

NOTE: See *Chapter 2 – Tools: SmartSearch* section for setting up and using the SmartSearch.

Appendix 1 — Accessing Windows

Since the DVR is new technology, it might be unfamiliar to many users. Many problems can occur from incorrect Windows settings. The DVR requires specific Windows settings for optimal performance. That is why the Windows mode has been blocked. This section describes the steps to get into the Windows mode.

The Relationship Between "Accessing Windows" and "SmartShell"

The SmartShell is the only way to get into the Windows mode. See Appendix 2 – SmartShell. To access Windows, you must be in the SmartShell mode because the DVR will shut down when you click the Close button in the SmartGuard mode. Use the following instructions to change the Automatic Shutdown mode so that you will be able to access Windows.

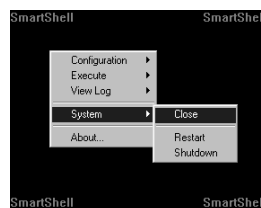
How to Access the Automatic Shutdown Hidden Dialog Box

1. Double click the logo (or empty space) located above the Rec button in the SmartGuard mode. The splash window appears.
2. Type idisman and press the Enter key on the keyboard. A small dialog box appears.
3. Move to Automatic Shutdown, and check the box to shutdown the DVR when you end SmartGuard. If this box is not checked, the DVR will enter the Windows mode via the SmartShell when shutting down SmartGuard.
4. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

CAUTION: Do NOT change other options and keep the factory default setting. Ask your system administrator about other options in the hidden dialog box.

How to Access Windows

If you release the Automatic Shutdown mode in the hidden dialog box, clicking the Close button in the SmartGuard mode causes the DVR to enter the SmartShell mode. Click the right mouse button in the SmartShell mode. The following Menu dialog box appears.



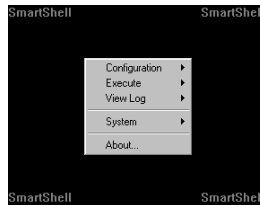
Click System to open options, and select Close. The DVR will enter the Windows mode. To return to the DVR programs, click the Start button on the Task Bar, move the cursor to Programs, and then to DVR to open the program list. Select SmartShell. The DVR will enter the SmartGuard mode via the SmartShell.

Appendix 2 — SmartShell

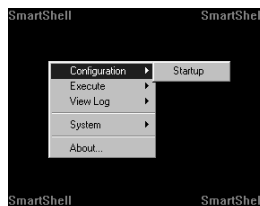
SmartShell is very easy and dependable software for maintaining your DVR. The software will help the DVR recover from unexpected system failures. SmartShell is also the only way to access Windows.

How to Access SmartShell

If you release the automatic shutdown mode in the hidden dialog box, clicking the Close button in the SmartGuard mode enters the SmartShell mode. Click the right mouse button in the SmartShell mode. The following Menu dialog box appears.

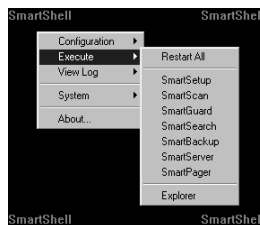


Configuration Menu



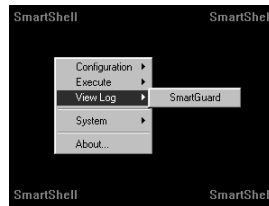
- Startup: Configures the startup programs of the DVR.

Execute Menu



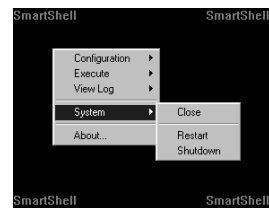
- Restart All: Restarts the programs.
- SmartSetup: Enters the SmartSetup program to set up the IBank, the database of the DVR. Ask your system administrator for details about the IBanks setup.
- SmartScan: This is invisible software that scans the hard disk drive for recording.
- SmartGuard: Enters the SmartGuard program.
- SmartSearch: Enters the SmartSearch program.
- SmartBackup: Enters the SmartSearch program.
- SmartServer: This is invisible software that prepares images for transmitting to remote sites via modem or LAN.
- SmartPager: Enters the SmartPager program to set up the pager function.
- Explorer: Initiates Explorer without accessing Windows.

View Log Menu



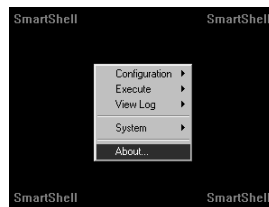
- SmartGuard: Displays the log file that logs every operation of the DVR.

System Menu



- Close: Closes SmartShell and accesses Windows.
- Restart: Restarts the DVR.
- Shutdown: Shuts down the DVR.

About... Menu

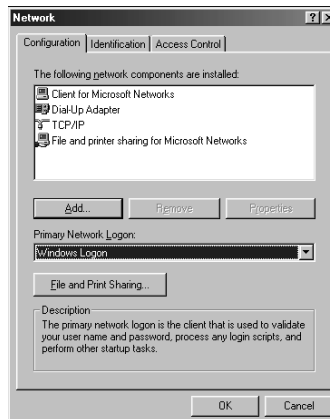


- About...: Displays the software version information.

Appendix 3 — Network Setup (LAN)

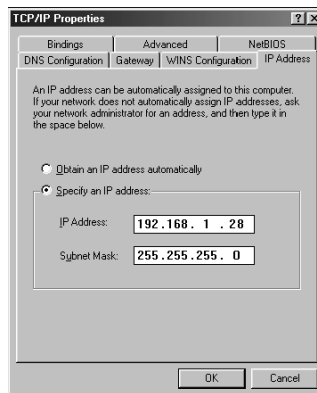
LAN Setup for Windows 98 System

1. In the Windows mode, click Start on the Task Bar, move to Control Panel, and then to Network.

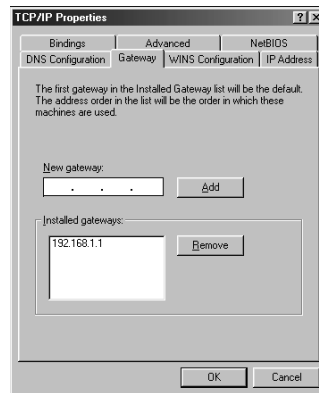


2. Under the Configuration tab in the Network dialog box, move to Primary Network Logon and select Windows Logon from the drop-down list. click TCP/IP in the list of network components, and then click the Properties button below.

NOTE: If *TCP/IP* is not listed, click the *Add...* button. In *Select Network Component Type* dialog box, select *Protocol* from the list of network component types and click the *Add...* button. In the *Select Network Protocol* dialog box, select *Microsoft* for the Manufacturer and *TCP/IP* for the Network Protocols. You can save your changes by clicking the *OK* button. Selecting *Cancel* exits the dialog box without saving the changes.



3. Under the IP Address tab, click the Specify an IP address radio button. And enter the IP Address and Subnet Mask acquired from your network administrator.



4. Move to the Gateway tab, and enter the gateway address acquired from your network administrator in the text field under New gateway, and then click the Add button. You can save your changes by clicking the OK button. If you select OK, you might need to allow the DVR to reboot. Selecting Cancel exits the dialog box without saving the changes.

LAN Setup for Windows XP System

1. In the Windows mode, go to Start on the Task Bar, and to the Control Panel. Then, open the Network Connection.
2. Click the LAN card information under the LAN or High-Speed Internet. Then, click the right mouse button, and select Properties from the menu.



3. Check the Internet Protocol (TCP/IP) box, and click the Properties button.



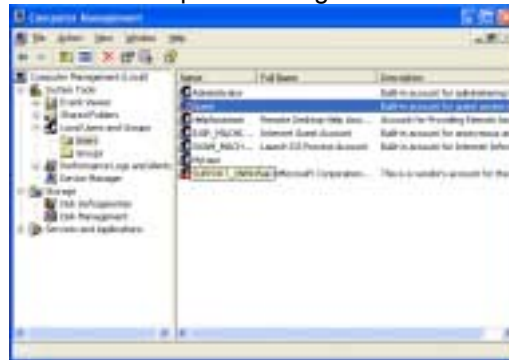
4. Click the Use the following IP address radio button. Enter the IP address, Subnet mask, and Default gateway acquired from your network administrator. You can save your changes by clicking the OK button. Selecting Cancel exits the dialog box without saving the changes.

Appendix 4 — Network Setup (Modem)

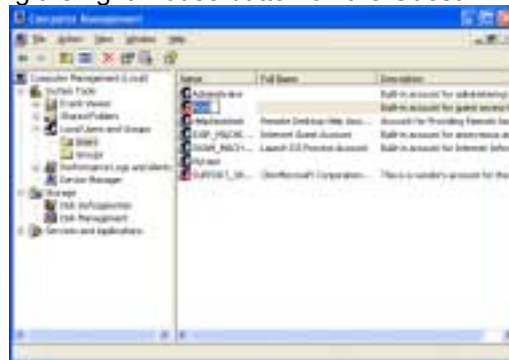
Dial-up Networking Setup for Windows XP POST System

1. Dial-up Networking Setup for Remote Access

1.1 In the Windows mode, go to Start on the Task Bar, and to Control panel. Then, open Administrative Tools, and double click Computer Manager.



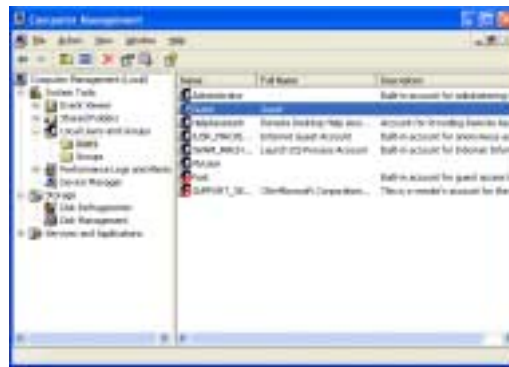
1.2 Under Computer Management (Local), select System Tools, and Local Users and Groups and then Users. Move to Guest described as Built-in account for guest access to the computer/domain, and select Rename by clicking the right mouse button on the Guest.



1.3 Enter "Post". Then go to the pull-down menu Action, and select the New User.



1.4 Enter "Guest" for the User name, and "1" for the Password and Confirm password. Check the User cannot change password box and Password never expires box, and then click the Create button.



1.5 Make sure that Guest user is created.

1.6 In the Windows mode, go to Start on the Task Bar, and to Control panel. Then, open Network Connection. Double click Create a new connection. The Location Information dialog box can appear when you set up dial-up networking first after installing the modem. If the following dialog box does not appear, move to step 1.8.



1.7 Complete the information about your current location, and click the OK button.



1.8 Select the location from which you are dialing, and click the OK button. The New Connection Wizard dialog box appears.



1.9 Click the OK button.



1.10 Select Set up an advanced connection, and click the Next button.



1.11 Select Accept incoming connections, and click the Next button.



1.12 Select the modem you want to use, and click the Next button.



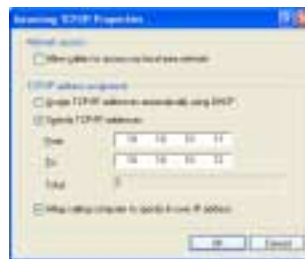
1.13 Select Do not allow virtual private connections, and click the Next button.



1.14 Check the Guest box for the user permission, and click the Next button.



1.15 Check the Internet Protocol (TCP/IP) box, and click the Properties button.



1.16 Under the Network access, remove the check from the Allow callers to access my local area network box. Under the TCP/IP address assignment, click the Specify TCP/IP addresses radio box, and enter the From as "10.10.10.11", and the To as "10.10.10.12". And then check the Allow calling computer to specify its own IP address box. Click the OK button to save the changes and return to the previous dialog box. Click the Next button in the New Connection Wizard dialog box.



1.17 Finish the network connection wizard by clicking the Finish button.



1.18 Make sure that Incoming Connections has been registered.

2. Dial-up Networking Setup for Callback Function

2.1 In the Windows mode, go to Start on the Task Bar, and to the Control panel. Then, open Network Connection. Double click Create a new connection.



2.2 Click the Next button.





2.7 Finish the network connection wizard by clicking the Finish button.

2.8 Select My Network in the Network Connections dialog box.



2.9 Click the Properties button.



2.10 Move to the Security tab, and click the Advanced [custom settings] radio button under Security options. Then click the Settings button.



2.11 Check the Allow older MS-CHAP version for Windows 95 servers box, and click the OK button.



2.12 Move to the Networking tab, and select PPP: Windows 95/NT4/2000 Internet for the dial-up server type. Then, check the Internet Protocol (TCP/IP) box, and click the Properties button.



2.13 Click the Use the following IP address radio box, and enter "10.10.10.12". Then, click the OK button.

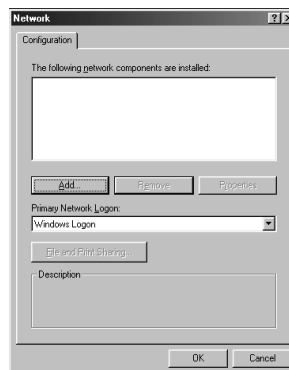
Dial-up Networking Setup for Windows 98 BASE System

1. Dial-up Networking Setup for Remote Access

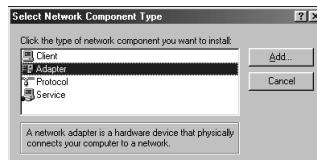
1.1 In the Windows mode, go to Start on the Task Bar, to Programs, to Accessories, and to Communications. If Dial-up Networking is listed, go to step 1.2.

NOTE: If Dial-up Networking is not listed, go to Start on the Task Bar, to Control Panel, to Add/Remove Programs and to *Windows Setup*. Check the *Communications* box and then click the *Details...* button below. In the Communications dialog box, check the *Dial-Up Networking* box and the *Dial-Up Server* box, and then click the *OK* button. Follow the Windows instructions for installing the necessary software. You can save your changes by clicking the *OK* button. Selecting *Cancel* exits the dialog box without saving the changes.

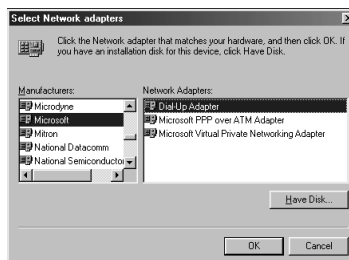
1.2 In the Windows mode, go to Start on the Task Bar, to Control Panel, and to Network.



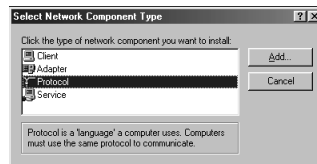
1.3 Under the Configuration tab in the Network dialog box, move to Primary Network Logon and select Windows Logon from the drop-down list. Then, click the Add... button to set up the adapter and protocol.



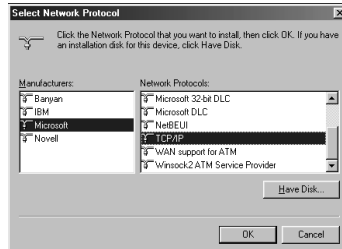
1.4 Click Adapter and then click the Add... button.



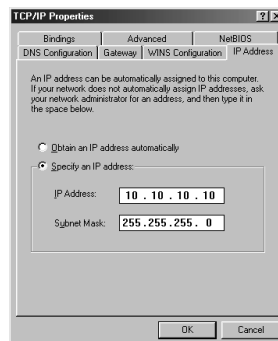
1.5 Click Microsoft from the Manufacturers and Dial-Up Adaptor for the Network Adaptors. Click the OK button to save the changes and return to the previous dialog box.



1.6 Click Protocol and click the Add... button.

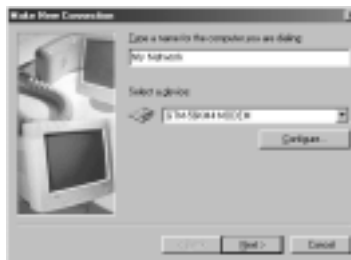


1.7 Select Microsoft from the Manufacturers and TCP/IP for the Network Protocols. Click the OK button to save the changes and return to the Network dialog box. In the Network dialog box, click TCP/IP in the list of network components, and then click the Properties button below.



1.8 Under the IP Address tab, click the Specify an IP address radio button. Enter the IP address as “10.10.10.10” and the subnet mask as “255.255.255.0” in the text field beside IP Address and Subnet Mask. You can save your changes by clicking the OK button. If you select OK, you might need to allow the system to reboot. Selecting Cancel exits the dialog box without saving the changes.

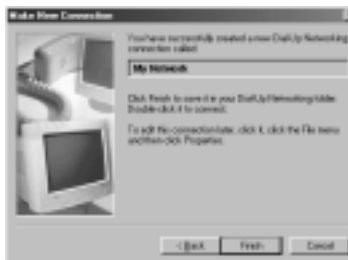
1.9 Open My computer on the desktop, and select Dial-Up Networking. Then, click Make New Connection. If Dial-Up Networking is not listed, return to step 1.1.



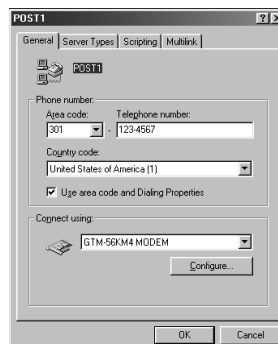
1.10 Enter “My Network” for the name of the POST DVR you are dialing, and select an installed modem from the drop-down list. Then, click the Next button.



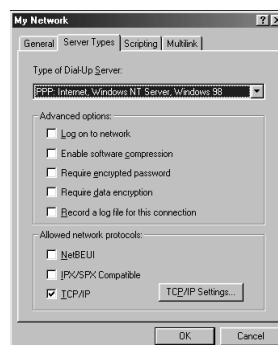
1.11 Enter the telephone number of the POST DVR you want to call, and click the Next button. Make sure to enter any extra numbers such as 9 or area code that are necessary to dial out.



1.12 Click the Finish button. Then, click the newly created connection icon in the Dial-Up Networking window. Click the right mouse button, and move the cursor to Properties on the menu and click it.



1.13 Under the General tab, remove the check from the Use area code and Dialing Properties box when using an extension.



Dial-up Networking Setup for Windows XP BASE System

1. Dial-up Networking Setup for Remote Access

1.1 In the Windows mode, go to Start on the Task Bar, and to the Control panel. Then, open Network Connection. Double click Create a new connection.



1.2 Click the Next button.



1.3 Click the Connect to the network at my workplace radio button, and click the Next button.



1.4 Click the Dial-up connection radio button, and click the Next button.



1.5 Enter “My Network” for the Connection Name, and click the Next button.



1.6 Do not enter any telephone number for the Phone number, and click the Next button.



1.7 Click the Finish button. Double click the newly created connection icon after finishing the new connection wizard. The Connect Dial-up Connection dialog box appears. The instructions after this step are almost identical to Windows 2000. Go to step 1.7 in the Dial-up Networking Setup for Windows 2000 BASE system section, and follow the instructions.

2. Dial-up Networking Setup for Callback Function

2.1 In the Windows mode, go to Start on the Task Bar, and to the Control panel. Then, open Network Connection. Double click Create a new connection.



2.2 Click the Next button.



2.3 Click the Set up an advanced connection radio box, and click the Next button.



2.4 Click Accept incoming connections, and click the Next button. The instructions after this step are almost identical to Windows 2000. Go to step 2.3 in the Dial-up Networking Setup for Windows 2000 BASE system section, and follow the instructions.

3. Account Permission in Windows XP

3.1 In the Windows mode, go to Start on the Task Bar, and to the Control panel. Then, open the User Accounts.



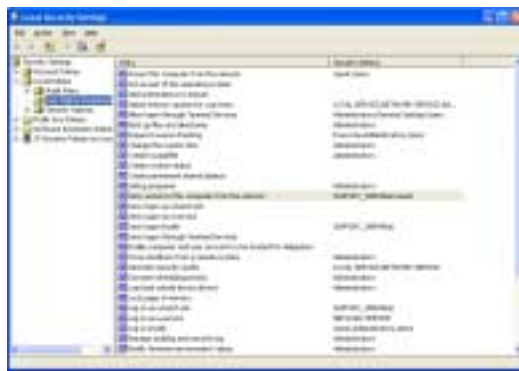
3.2 Click the Guest account icon if it displays Guest account is off.



3.3 Turn on the guest account by clicking the Turn On the Guest Account button.

NOTE: Following steps are for the Windows XP Professional.

3.4 Go to the Control Panel, and to the Administrative Tools. Then, open the Local Security Policy.



3.5 Go to the Security Settings, then to the Local Policies, and then to the User Rights Assignment. If there is "Guest" under the Deny access to this Computer from the network item, select the Properties after clicking the right mouse button on the target string to open its properties dialog box.



3.6 Permit the guest access by selecting the Guest and then clicking the Remove button.

Dial-up Networking Setup for Windows NT BASE System

1. Dial-up Networking Setup for Remote Access

1.1 In the Windows mode, open My computer on the desktop and select Dial-Up Networking.



1.2 Click the New... button to add a phonebook entry to dial.



1.3 Enter "My Network" under Name the new phonebook entry, and click the Next button.



1.4 Check the third box, and click the Next button.



1.5 Do not enter any telephone number for the Phone number, and click the Next button.



1.6 Click the Point-to-Point Protocol (PPP) radio box for the serial line protocol, and click the Next button.



1.7 Do not change the default setting value (None). Click the Next button.



1.8 Enter "10.10.10.12" as My IP address, and click the Next button.



1.9 Do not change the default setting values for the Name Server Addresses, and click the Next button.



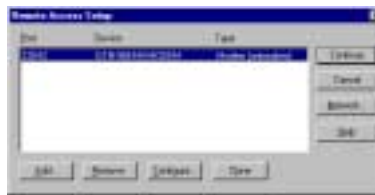
1.10 Finish the new phonebook entry, and close the dialog box by clicking the Finish button.

2. Dial-up Networking Setup for Callback Function

2.1 In the Windows mode, move the cursor on Network Neighborhood and click the right mouse button. Select Properties from the menu.



2.2 Move to the Services tab, and click Remote Access Service. Then, click the Properties... button. If there is no Remote Access Service, add it by clicking the Add... button.



2.3 Select an installed modem to use for dial-up connection, and click the Configure... button.

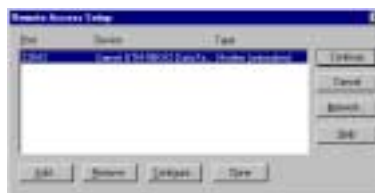


2.4 Click the Dial out only radio button for the port usage, and click the OK button.

2.5 In the Windows mode, move the cursor to Network Neighborhood and click the right mouse button. Select Properties from the menu. If there is no Remote Access Service, add it by clicking the Add... button.



2.6 Move to the Services tab, and click Remote Access Service. Then, click the Properties... button.



2.7 Select an installed modem to use for dial-up connection, and click the Configure... button.



2.8 Click the Dial out and Receive calls radio button for the port usage, and click the OK button to save the change and return to the Remote Access Setup dialog box. Then, click the Network... button in the Remote Access Setup dialog box.



2.9 Check the TCP/IP box for Dial out Protocols, and check TCP/IP for Allow remote clients running. Then, click the Configure... button.

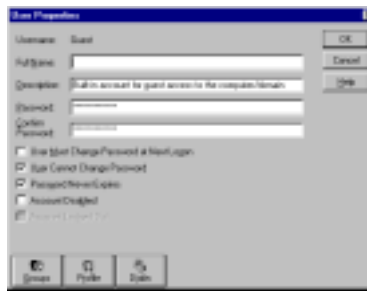


2.10 Click the Use static address pool radio button, and enter "10.10.10.10" in the Begin box and "10.10.10.12" in the End box. Check the Allow remote client to request a predetermined IP address box, and then click the OK button.

2.11 In the Windows mode, go to Start on the Task Bar, to Programs, to Administrative Tools (common) and to User Manager.

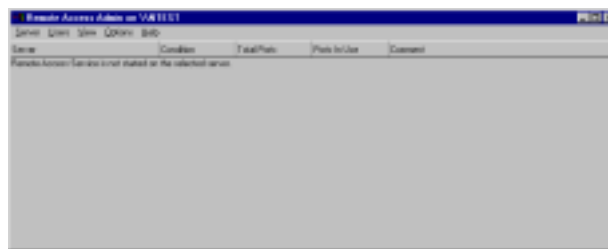


2.12 Double click Guest under the Username.



2.13 Remove the check from the Account Disabled box, and then click the OK button.

2.14 In the Windows mode, go to Start on the Task Bar, to Programs, to Administrative Tools (common) and to Remote Access Admin.



2.15 Click the Users pull-down menu, and select Permissions from the menu.



2.16 Select Guest for the Users, and check the Grant dialin permission to user box. Then, click the OK button to save the changes and return to the previous dialog box. Select Cancel to exit the dialog box without saving the changes.

2.17 Click the Server pull-down menu in the Remote Access Admin dialog box, and select Start Remote Access Server from the menu.



2.18 Enter the server name, and then click the OK button.



2.19 Make sure that the Remote Access Server is running.



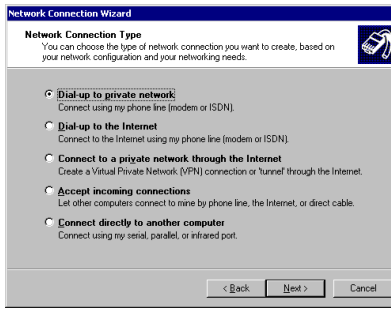
Dial-up Networking Setup for Windows 2000 BASE System

1. Dial-up Networking Setup for Remote Access

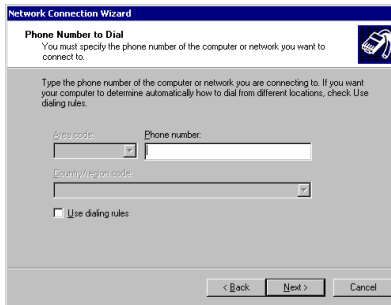
1.1 In the Windows mode, go to Start on the Task Bar, to Settings, and to Control panel. Then open the Network and Dial-up Connection. Double click Make New Connection.



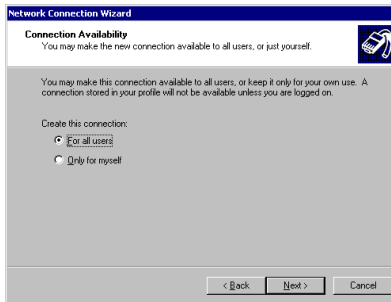
1.2 Click the Next button.



1.3 Click the Dial-up to private network radio button, and click the Next button.



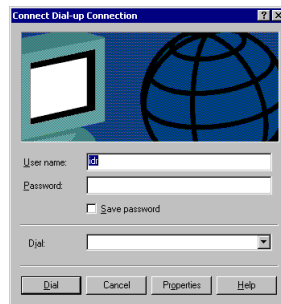
1.4 Do not enter any telephone number for the Phone number, and click the Next button.



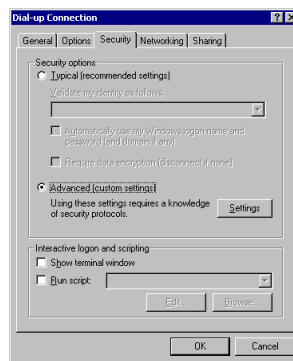
1.5 You may make the dial-up connection available to all users, or keep it for your own use only. Click For all users or Only for myself, and click the Next button.



1.6 Enter “My Network” as the name for this connection, and click the Finish button. Double click the newly created connection icon after finishing the network connection wizard.



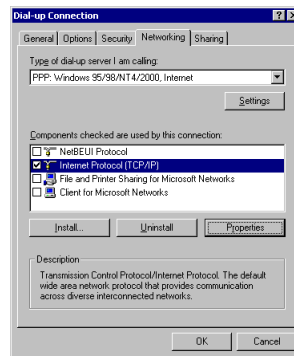
1.7 Click the Properties button.



1.8 Move to the Security tab, and click the Advanced [custom settings] radio button for the Security options. Then, click the Settings button.



1.9 Check the Allow older MS-CHAP version for Windows 95 servers box, and click the OK button.



1.10 Select PPP: Windows 95/98/NT4/2000, Internet from a drop-down list for the type of dial-up server, and click the Settings button. Remove the check from the Enable software compression box, and click the OK button to save the change and return to the Dial-up Connection dialog box.

1.11 Check the Internet Protocol(TCP/IP) box for the connection components, and click the Properties button.



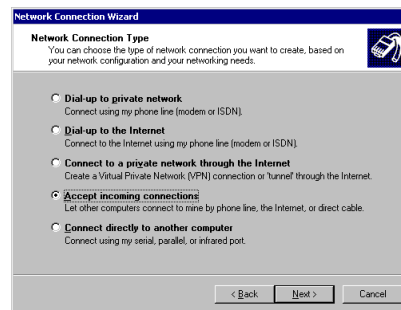
1.12 Click the Use the following IP address radio button, and enter “10.10.10.12” as the IP address. Then click the OK button. After finishing all settings, open Connect Dial-up Connection by double clicking it. Enter “guest” for the User name, and click the Dial button to connect to the remote system.

2. Dial-up Networking Setup for Callback Function

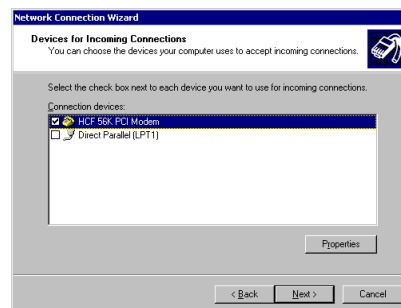
2.1 In the Windows mode, go to Start on the Task Bar, to Settings, and to Control panel. Then, open Network and Dial-up Connection. Double click Make New Connection.



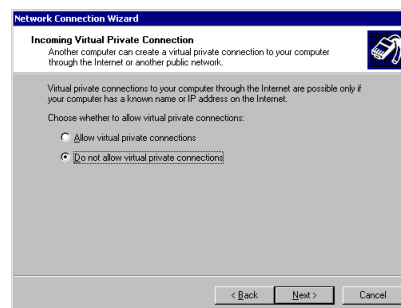
2.2 Click the Next button.



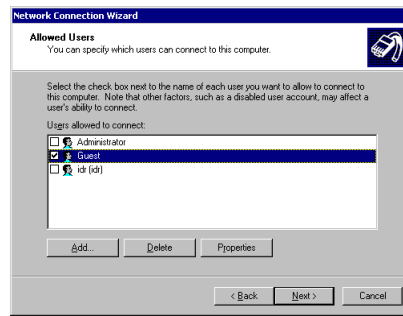
2.3 Click the Accept incoming connections radio box, and click the Next button.



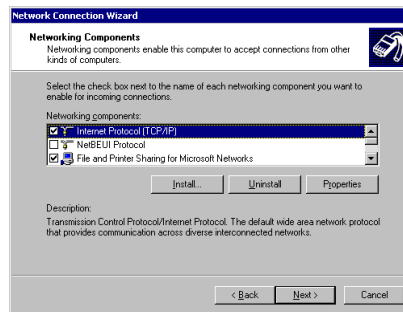
2.4 Select an installed modem to use, and click the Next button.



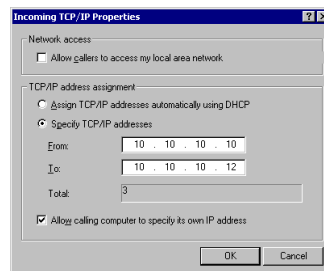
2.5 Click the Do not allow virtual private connections radio box, and click the Next button.



2.6 Check the Guest box for the users allowed to connect, and click the Next button.



2.7 Check only the Internet Protocol (TCP/IP) box. Do not check other boxes for the networking components. Then click the Properties button. If there is no Internet Protocol (TCP/IP) option, click the Install... button, and add it by selecting Protocol and clicking the Add button.



2.8 Click the Specify TCP/IP addresses radio box, and enter “10.10.10.10” in the From box and “10.10.10.12” in the To box. Check the Allow calling computer to specify its own IP address box, and then click the OK button.



2.9 Enter the name for the connection, and finish the network connection wizard by clicking the Finish button.

Dial-Up Networking Troubleshooting

Problem: Dial-up networking disconnects in SmartGuard or in SmartSearch.

Solution: Sometimes dial-up networking disconnects because of the condition of the modem or telephone lines. Close the DVR, access the Windows mode, and follow these instructions to test dial-up networking.

1. Go to My Network under Windows Explorer/Dial-Up Networking. Click the right mouse button and select Properties.
2. Under the General tab, make sure the correct modem is selected under Connect using.
3. Under the Server Types tab, make sure that PPP: Internet, Windows NT Server, Windows 98 is selected under Type of Dial-Up server box, and that the box next to TCP/IP is checked under Allowed network protocols. Then, click OK if everything is correct.
4. Double click My Network to open the dialog box. Enter the telephone number for the POST system and check if it is connected.
5. If the POST system is connected properly, try to access the remote site using SmartGuard or SmartSearch.

NOTE: Check the instructions again in Appendix 4 – Network Setup (Modem) if the POST system is not connected.

Problem: The error message *The line is busy* has appeared even though the POST system is not using the telephone.

Solution: Sometimes Windows refuses the remote connection even when the telephone line is not busy. Try to connect again.

Problem: I cannot hear dial tone.

Solution: Sometimes the modem cannot access a dial tone if your telephone is an extension. Follow the instructions below and then try to connect again.

1. Go to My Network under Windows Explorer/Dial-Up Networking, click the right mouse button and select Properties.
2. Click General/Configure/Connection tab.
3. Uncheck the box next to Wait for dial tone before dialing.

Problem: The POST system does not answer a telephone call.

Solution: Under Windows Explorer/Dial-Up Networking, go to the pull-down menu Connection and then to Dial-Up Server. Check Allow caller access.

Problem: After the POST system receives calls, the network disconnects.

Solution: Under Windows Explorer/Dial-Up Networking, go to the pull-down menu Connection and then to Dial-Up Server. Click Server Types... and check if PPP: Internet, Windows NT Server, Windows 98 is selected under Type of dial-Up Sever.

Problem: The POST system calls back the BASE system, however the connection fails.

Solution: Make sure that the dial-up networking is installed on the BASE system. If it is not installed, refer to the Appendix 4 – Network Setup (Modem) for the instructions on setting up the dial-up networking. If the connection fails although it is installed, make sure the IP address for dial-up connection of the BASE system is "10.10.10.10".

Appendix 5 — WebGuard

Overview

The WebGuard, remote web monitoring program, allows users to access the remote systems and monitor live video images on it through an Internet web browser any time from virtually anywhere.

Features

- Remote monitoring live video images by using a web browser
- Accessing up to 16 remote systems
- 16-channel live monitoring
- Safe program with VeriSign authentication
- PTZ control and various image enhancement functions

WebGuard Browser



- Monitor: Displays live video images transmitted in real-time from the remote site.
- Power Button: Quits the program
- Title Bar: Displays the ID or the title of the location where the remote system is installed.
- Camera Button: Selects a camera and displays the image of a target camera.

NOTE: The camera button illuminates when that camera is displayed on the screen.

- Screen Button: Every time this button is clicked, the screen mode switches (single-screen, quad, 3x3, and 4x4 modes).

NOTE: 1-4, 5-8, 9-12 or 13-16 camera groups are displayed on the screen in quad mode, and 1-9 or 10-16 camera groups in 3x3 mode. The user can select which camera group is displayed by clicking any camera button in a group.

- PTZ Control Button: Controls pan, tilt, zoom, iris and focus.
- Screen Adjust Button: Adjust brightness, contrast, hue and saturation.

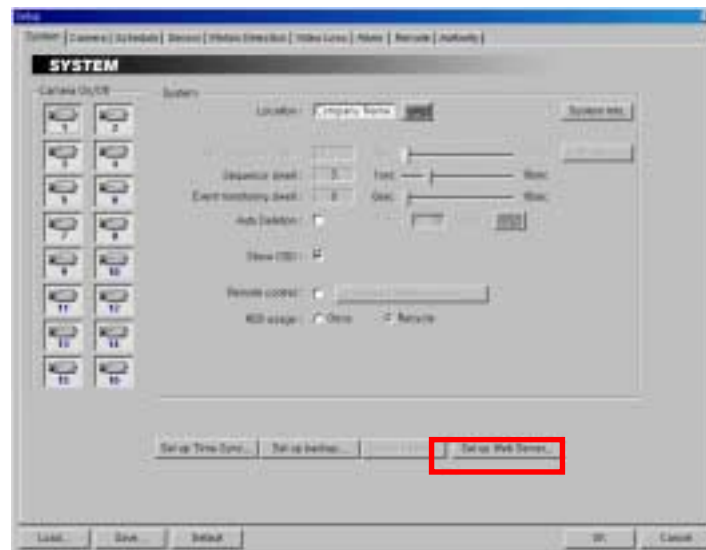
How to connect WebGuard

Start the Web browser (Internet Explorer) in your local PC and enter the IP address of the DVR in the location/address field. Get the IP address from the network administrator. WebGuard runs automatically.

NOTE: WebGuard only works with Microsoft Internet Explorer and will NOT work with Netscape.

Web Sever Setup

The DVR includes a personal web sever. If you do not want to run a web sever, turn it off by clicking the Set up Web Sever... button under the System tab of the Setup dialog box in the SmartGuard mode and follow the instructions.



Appendix 6 — Protocol for Remote Controlling DVR

Message Format

<BOM><ID>:<Class>:<Code>[:Operands]:<Checksum>[EOM]

where

Symbl ol	/alue	Description
:	:	Field delimiter
<BOM>	@	Beginning of message (for command)
	<	Beginning of message (for reply)
<ID>	00~99	Device ID
<Class>	DR	Device Class (DR for DVR systems)
<Code>	AA~zz	Op-code (see below)
<Operands>		Optional operands defined for each operation
<Checksum>	00~99	Checksum (sum of ASCII codes before checksum discarding overflow)
	*	No checksum
[EOM]	^J^M	End of message (optional: only for convenience of users using general terminal)

*All digits are used in decimal format.

*Letters are case sensitive.

Control Flow

- Every transaction consists of one command and one reply.
- Characters transmitted before <BOM> are ignored.
- The format of operands is defined independently for each op-code.
- The <BOM> received before <Checksum> of the previous message resets interpretation: i.e., discards the previous message. EXCEPTION: in case of text input, none of characters within specified length has special interpretation.

Common Reply

Re ply code	Reply ata	Description
ok		
er	0000~9999	Error: return error number

General Functions

Fun tion	Code	Operands	Reply	eply data
Power Off	PO			
Time Setting	TM	YYYYMMDDHHMMSS"		

Cursor Control

Fun tion	Code	Operands	Reply	eply data
Cursor Up	UP			
Cursor Down	DN			
Cursor Right	RI			
Cursor Left	LE			
Tab	TB	F/B(direction)		
Enter	EN			
Text Input	TI	01~99(length): string ⁱⁱⁱ		

Multiplexer (Display/Audio) Functions

Fun tion	Code	Operands	Reply	eply data
Screen Format	SF	0~9 ^v		
Full Screen	FS	Y/N/T(on/off/toggle)		
Camera Selection	CS	00~99(camera)		
Spot Camera	SC	0~9(spot): 00~99(camera)		
Spot Sequence	SS	0~9(spot): Y/N/T(on/off/toggle)		
Sequence	SQ	Y/N/T(on/off/toggle)		
Freeze	FZ	Y/N/T(on/off/toggle)		
Digital Zoom	DZ	0~9(scale-1) ^v		
Change OSD mode	OS	0~9(mode)		
Image Brightness	IB	+/-/-(direction): Y/N(step)		
Image Contrast	IC	+/-/-(direction): Y/N(step)		
Image Hue	IH	+/-/-(direction): Y/N(step)		
Image Saturation	IS	+/-/-(direction): Y/N(step)		
Image Default	ID			
Audio Selection	AS	00~99(audio channel)		
Audio Mute	AM	Y/N/T(on/off/toggle)		

Recorder (Player) Functions

Fun tion	Code	Operands	Reply	eply data
Recording On/Off	RO	Y/N/T(on/off/toggle)		
Panic	PN	Y/N/T(on/off/toggle)		
Review	RV	Y/N/T(on/off/toggle)		
Playback	PL	F/B(direction): 1~9(speed)		
Playback (Still)	PS	A/Z/F/B/P/S ^{vi}		
Triplex	TR	Y/N/T(on/off/toggle)		

Alarm Functions

Fun tion	Code	Operands	Reply	eply data
Alarm Mute ^{vii}	AU	00~99/AA(id) ^{viii} : Y/N/T(on/off/toggle)		
Alarm Out ^{ix}	AO	00~99/AA(id)		
Alarm Reset ^x	AR	00~99/AA(id)		
Alarm In	AI	00~99/AA(id)		
Reset Event-Recording	RR	00~99/AA(id) ^{xi}		

Telemetry Functions

Fun tion	Code	Operands	Reply	Reply data
Pan & Tilt	PT	+/0/- (Pan dir.): +/0/- (Tilt): Y/N(step)		
PTZ Preset	PP	00~99(preset number)		
PTZ Goto Preset	PG	00~99(preset number)		
PTZ Zoom	PZ	+/0/- (direction): Y/N(step)		
PTZ Focus	PF	+/0/- (direction): Y/N(step)		
PTZ Iris	PI	+/0/- (direction): Y/N(step)		

Getting Information from DVR

Fun tion	Code	Ope ands	Reply	Reply ata
Read Version	vs		vs	0000~9999
Read Time	tm		tm	YYYYMMDDHHMMSS
Read Alarm In	ai		ai	01~99:00...~FF... (alarm data)
Read Disk Usage	du		du	000~100 ^{xii}
Read Recording	ro		ro	Y/N
Read Playback mode	pm		pm	S/P/</>/R/F ^{xiii}
Read Screen Format	sf		sf	0~9
Read Freeze	fz		fz	Y/N
Read Sequence	sq		sq	Y/N
Read Triplex	tr		tr	Y/N
Read Digital Zoom	dz		dz	0~9

Error code

Error	Code
Unclassified error	0000
Unsupported command	0001

- i. Notation
 - (...): explanation only: do not include in the message.
 - /: single selection from list of possible symbols.
 - ~: for interval.
 - *: the length is not fixed but determined by preceding operand
- ii. Only 24hour format is supported: ex) 20000603135030
- iii. The text can include special characters.
- iv. Next(0), Full(1), 2x2(2), 3+4(3), 3x3(4), 2+8(5), 1+12(6), 4x4(7), PIP(8)
- v. 0 for turning off digital zoom, others for 2x~16x zoom
- vi. A/Z/F/B/P/S: first, last, forward, backward, pause, stop
- vii. Alarm Mute: alarm out is off while Alarm Mute is on regardless of alarm status
- viii. 00~99/AA(id): 00~99 for each alarm, or AA for all alarms
- ix. Alarm Out: generate alarm out, which is automatically turned off after the programmed dwell time
- x. Alarm Reset: clear alarm out
- xi. Reset Event-Recording: resets event-driven recording associated with alarm-in of the given id.
- xii. Percentage
- xiii. S/P/</>/R/F: stop/pause/backward playback/forward playback/rewind/fast forward

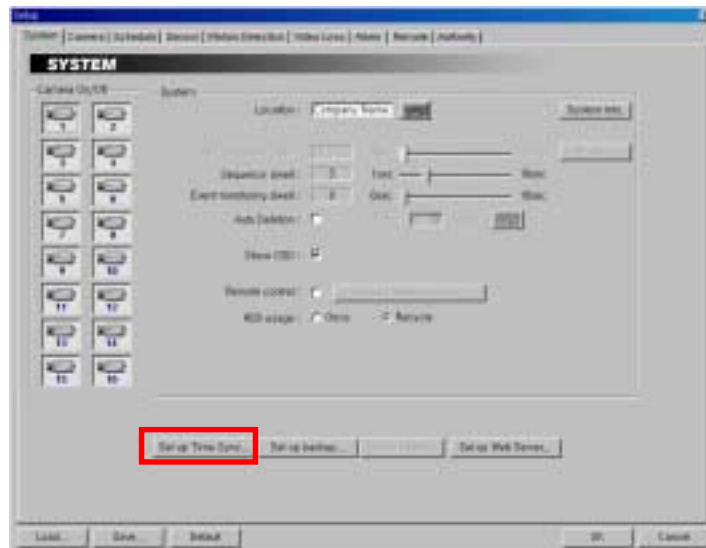
Appendix 7 — Time Synchronization

In general, each DVR system may have a different time because of the accuracy of its internal clock. The Time Synchronization function synchronizes the time between POST systems and any time server when they are networked. Any POST system or BASE system can run as a time server. Also you can use a standard time server provided by each country.

NOTE: Visit <http://www.eecis.udel.edu/~mills/ntp/clock1.htm> for finding a standard time server.

Time Synchronization between POST System and Time Server

SmartGuard Setup – System



Click the Set up Time Sync... button.



Move to Server, and enter the IP address of target time server. If you want to synchronize the time between the POST system and a time server automatically, check the Automatic box; otherwise, synchronize the time manually by clicking the Sync now... button. The user can set up the synchronization interval from 1 to 300 minutes.

NOTE: When selecting *Automatic* (automatic time synchronization), the system time will synchronize with the server time at a fixed time every hour. If there is more than a 0.5 second gap between the system and the server, the system time will be changed, and the event will be recorded on the system log if there is more than a 1.0 second gap.

Check the Run as a server box when you want the DVR to run as a time server.



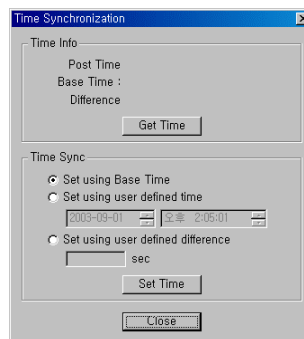
Click the Get Time button to display the time information of the target server, and click the Fix Now button to change the system time to the server time. If the server time is earlier than the current DVR time, you must delete images dated later than the server time. If you do not delete images, the time cannot be reset.

NOTE: When setting up time synchronization for the first time, set the time between the system and the time server manually because the system and the server might have wide time gap.

Time Synchronization between POST System and BASE System

SmartBase Main GUI

On the clock area click the left mouse button after pressing and holding the Ctrl key on the actual keyboard. The following Time Synchronization dialog box appears.



Click the Get Time button to load the time information of POST and BASE systems.

Select the option, and click the Set Time button to change the time of the POST system.

- Set using Base Time: Changes the time of the POST system to the one of the BASE system.
- Set using user defined time: Changes the time of the POST system to the user-defined time.
- Set using user defined difference: Changes the time of the POST system by adding the user-defined time (second).

NOTE: Ask the dealer or installer to change the time of unmanned POST systems.

Appendix 8 — Troubleshooting

Following are some frequent problems and solutions related to the DVR. Read this section before calling the dealer or installer.

Problem: There is no image on the screen.

Solution: Check the camera cables. If the background of the DVR system is blue, something is wrong with the camera cable or power.

Problem: How do I access Windows?

Solution: To protect unnecessary system crashes, Windows is blocked. See Appendix 1 – Accessing Windows.

Problem: I have upgraded the software. How do I reinstall it?

Solution: There are three steps to reinstall the software.

1. Uninstall the old version.
 - Go to My Computer. Select Control Panels and the Add/Delete program, and then select the DVR model.
 - The Delete button will be activated. Click Delete.
2. Scan the hard disk with the System tools under Programs/Accessories in Windows.
3. Install the new software.

Problem: The IDIS logo appears and then freezes. Sometimes the screen is black.

Solution: There is a problem with the Main Board. Reboot the DVR. If it happens often, call your dealer or installer.

Problem: The *Display setup is not correct* error message appears and opens up in the Windows mode when OK is clicked.

Solution: The DVR requires 1024x768 resolution and true color. This message will be printed on the screen when the requirements are not met. Access Display Setup and change the values for the DVR and then reboot the system.

Problem: I am trying to change the display setup, but I cannot choose True color. The resolution keeps jumping to a lower value.

Solution: Some VGA cards require a few steps. Set up the resolution first. Do not worry about the color palette. Then access Display Setup and choose True color. If it happens again, the VGA card does not support the 1024x768 resolution and True color. Change the VGA card.

Appendix 9 — Specifications

VIDEO	
Signal Format	NTSC or PAL (programmable)
Video Input	Composite: 16 inputs, 1 Vp-p, selectable 75 Ohms or high-z termination
Monitor Outputs	Composite: One, 1 Vp-p, 75 Ohms VGA: One
Recording Resolution	640x480, 640x240, 320x240, 160x120
Display / Record Speed (images per second)	PDR2100: max. 30ips / 30ips (25ips / 25ips for PAL) PDR16-RMT: max. 120ips / 120ips (100ips / 100ips for PAL) PDR16-RMT-X: max. 240ips / 240ips (200ips / 200ips for PAL) PDR16-RMT-LIVE: max. 480ips / 120ips (400ips / 100ips for PAL) PDR16-RMT-LIVE-X: max. 480ips / 240ips (400ips / 200ips for PAL)
INPUTS/OUTPUTS	
Alarm Input	16 switch closure or TTL open-collector
Alarm Output	1 relay 16 TTL (PDR16-RMT-LIVE and PDR16-RMT-LIVE-X models only)
Audio Input	One, "line in" or "mic" programmable
Audio Output	One, "line"
CONNECTORS	
Video Input	Composite: 16 BNC
Monitor Output	Composite: 1 BNC VGA: 1 VGA
Audio In	Line in or microphone in
Audio Out	Line out
Alarms	Terminal block
Ethernet Port	RJ-45
Modem Port	RJ-11
RS232 Serial Port	DB9 (P)
USB Port	USB connector
Parallel Port	25 (P) D-Sub
SCSI	Standard 68 (P) SCSI II
STORAGE	
Primary Storage	EIDE hard disk drives
Secondary Storage	Internal: DVD-RAM, External: SCSI hard disk drives, USB hard disk drives
GENERAL	
Dimensions (W x H x D)	19.1" x 7.0" x 15.8" (485mm x 177mm x 400mm)
Unit Weight	24.5 lbs. (11.1kg)
Shipping Weight	33.1 lbs. (15.0kg)
Shipping Dimensions (W x H x D)	23.6" x 11.7" x 21.7" (600mm x 296mm x 550mm)
Power	100 to 220 VAC, 50/60Hz
MISCELLANEOUS	
Approvals	FCC, CE, UL
Options	Audio, Ethernet, Modem, SCSI, Secondary storage devices

Specifications are subject to change without notice.