



DVR-4TN

DVR-8TN

DVR-16TN

DVR-16TS

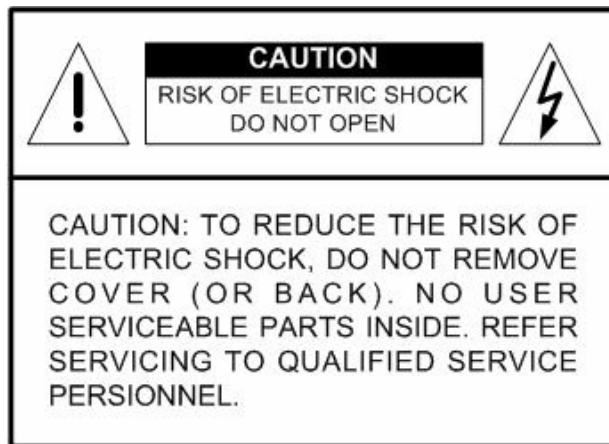
DVR-16TT

**Triplex+ Digital Video Recorder Family
With Network/DDNS Video Server**

www.specotech.com

Caution and Preventive Tips

- Take care not to drop the unit or subject the unit to major shocks or jolts.
- Do not place this unit on an unstable stand, bracket or mount.
- This unit is designed for indoor use only. Do not place the unit near water or in other extremely humid conditions.
- This unit should not be placed in a built-in installation unless proper ventilation is provided.
- Please check the type of power source available before you plug and operate the unit.
- If the clearing is necessary, note to plug the unit from the outlet before uncovering the top cover. Do not use liquid cleaners or aerosol cleaners. Use only a damp cloth for cleaning.
- Always power down the system prior to connecting and disconnecting accessories, with the exception of USB devices.
- **Lithium battery: Danger of explosion if battery is incorrectly replaced.** Replace with the same type of battery or equivalent type recommended by the battery manufacturer. Dispose of used batteries according to the battery manufacturer's instructions.



This symbol intends to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



This symbol intends to alert the user to the presence of unprotected "Dangerous Voltage" within the product's enclosure that may be strong enough to cause a risk of electric shock.

Important Information

Before proceeding, please read and observe all instructions and warnings in this manual. Retain this manual with the original bill of sale for future reference and, if necessary, warranty service. When unpacking your unit, check for missing or damaged items. If any item is missing, or if damage is evident, **DO NOT INSTALL OR OPERATE THIS PRODUCT.** Contact your dealer for assistance.

Rack Mounting

Consult with the supplier or manufacturer of your equipment rack for the proper procedure and hardware for mounting this product in a safe fashion. Avoid uneven loading or mechanical instability when rack-mounting units. Make sure the units are installed to get enough airflow for safe operation. The maximum temperature for rack-mounted units is 104 °F/40 °C. Check product label for power supply requirements to assure that no overloading of supply circuits or over current protection occurs. Main grounding must be reliable and uncompromised by any connections.

Table of Contents

1. Overview	11
1.1 Product Key Features	12
1.2 Product Application Diagram.....	13
2. System Setup.....	13
2.1 Position the Unit.....	14
2.2 Selecting Video Format.....	14
2.3 Connecting Devices to the Unit.....	14
2.4 Rear Panel Connections	15
3. General System Setup	18
3.1 Front Panel Introduction	19
3.1.1 LED Definition	19
3.1.2 Functional Keys	20
3.2 Configuring the HDD in the unit	23
3.3 Power Up/ Down the Unit	24
3.4 Entering OSD Setup Menu	25
3.5 System Date/ Time Setting	26
3.5.1 Set Date/ Time	26
3.5.2 Daylight Saving Time Setup	27
3.6 Network Time Protocol Setup	28
3.7 Record Schedule/ Quality Setting	29
3.6.1 Record Mode	29
3.6.2 Schedule Setup.....	30
Day/ Night Time Start.....	30
Day/ Night Time End	30
Weekend Schedule	30
Weekend Start/ End	31
3.6.3 Preset Record Configuration.....	31
3.6.4 Per Camera Configuration	32
3.6.5 To Record Event Video Only	32
4. Basic Operation.....	33
4.1 Viewing Live/ Playback Video	33
4.1.1 Viewing Modes.....	33
4.1.2 Digital Zoom.....	34
4.1.3 Viewing Live Cameras	34
To Freeze Live Image.....	34
4.1.4 Viewing Recorded Video	34

Key Usage in Playback	35
Pause Playback and Single Step Forward	35
Viewing Live Image in Playback Mode	36
4.1.5 Dual Main Output (For DVR-16TT Only)	36
4.2 Sequence Setup	37
4.2.1 Sequence on Main Monitor	37
4.2.2 Call Monitor Control	37
4.3 Searching Recorded Video	38
4.3.1 Searching by Time	38
4.3.2 Searching by Event	39
4.4 Video Export	40
4.4.1 Export from OSD Setup Menu	40
4.4.1.1 Select the External Device	40
4.4.1.2 Select Video for Exporting	41
4.4.1.3 Digital Signature	42
4.4.1.4 Erase Disc	42
4.4.2 Quick Video Export through Front Panel	42
4.4.2.1 ezBurn Introduction	43
4.4.2.2 To Export Normal Video	44
4.4.2.3 To Export Event Video	44
4.5 Deleting Recorded Video	45
4.6 Dome Control	46
4.6.1 Dome Connection	46
4.6.2 Dome Protocol Setup	46
4.6.3 RS485 Setup	47
4.6.4 Dome Controlling Key	48
4.6.5 Setting Preset Points	49
4.6.6 Calling Preset Points	50
5. Advanced System Configuration	51
Key Usage in OSD Menu	51
Key Usage in Virtual Keyboard	52
5.1 System Setup	53
5.1.1 Version	53
5.1.1.1 Model Name & Version	53
5.1.1.2 Software Upgrade via Local Device	54
5.1.1.3 Software Upgrade via Internet	54
5.1.2 Language	55
5.1.3 Date / Time	55
5.1.3.1 Date / Time Setting(s)	55
5.1.3.2 Time Zone	56

5.1.3.3	Date / Time Display	56
5.1.3.4	Date Display Mode.....	56
5.1.3.5	Time Display Mode	57
5.1.3.6	Date/Time Order	57
5.1.3.7	Daylight Saving Time Setup	57
	Daylight Saving Time	57
	DST Start / End	57
	DST Bias.....	57
5.1.3.8	Network Time Protocol Setup.....	57
	NTP Server	58
	Automatically Time Sync.....	58
	Manually Time Sync.....	58
5.1.4	Unit Name	58
5.1.5	Password	59
5.1.5.1	Admin / User Password(s)	59
5.1.5.2	Enable Password	59
5.1.5.3	Load Factory Password	60
5.1.6	Network Setup	60
5.1.6.1	LAN Select.....	61
5.1.6.2	LAN Setup.....	61
	DHCP.....	61
	IP	62
	Netmask.....	62
	Gateway.....	62
	DNS	62
	PPPoE Account.....	63
	PPPoE Password.....	63
	PPPoE Max Idle.....	64
	Router Setting	64
	Connect At Booting	65
	Network Restart	65
5.1.6.3	Dial-in Setup	67
	Dial-in Service.....	68
	Dial-in Account	68
	Dial-in Password.....	69
	Server IP	69
	Client IP	69
	Dial-in Idle Time	70
	Dial-in Max Time	70
5.1.6.4	Dial-out Setup	70

	Dial-out DHCP	71
	Dial-out DHCP	71
	Dial-out IP	71
	Dial-out Netmask	71
	Dial-out Gateway	71
	Dial-out DNS	71
	Phone Number	72
	Dial-out Account	72
	Dial-out Password	73
	Dial-out Idle Time	73
	Dial-out Max Time	73
	Connect	73
5.1.6.5	Trigger Port	73
5.1.6.6	Email Address	74
5.1.6.7	SMTP Setup	74
	Email via SMTP	74
	SMTP Server	75
	SMTP Port	75
	SMTP Account	75
	SMTP Password	76
5.1.6.8	DDNS Setup	76
	Enable DDNS	76
	Host Name	77
	DDNS Port	77
	Submit/ Update	77
	ezDDNS	78
5.1.7	RS485 Setup	78
5.1.7.1	Unit ID	78
5.1.7.2	Baud Rate	78
5.1.7.3	Bits	78
5.1.7.4	Stop	79
5.1.7.5	Parity	79
5.1.8	Audio Output	79
5.1.9	Key Beep	79
5.2	Monitor Setup	80
5.2.1	Show Camera Title	80
5.2.2	Title Position	80
5.2.3	Monitor Brightness	81
5.2.4	Monitor Contrast	81
5.2.5	Monitor Chrominance	81

5.2.6	Screen Center Adjust	81
5.2.7	Show Color Bar	82
5.2.8	VGA Resolution.....	82
5.3	Camera Setup.....	82
5.3.1	Camera Select	83
5.3.2	Dome Protocol	83
5.3.3	Dome ID.....	83
5.3.4	Camera Title.....	83
5.3.5	Covert	84
5.3.6	Termination	84
5.3.7	Brightness	84
5.3.8	Contrast	85
5.3.9	Saturation.....	85
5.3.10	Hue.....	85
5.3.11	Audio Association.....	85
5.4	Record Setup.....	85
5.4.1	Record Mode	86
5.4.2	Schedule Setup.....	87
5.4.2.1	Day / Night Time Start / End.....	87
5.4.2.2	Weekend Schedule.....	87
5.4.2.3	Weekend Start / End	87
5.4.3	Preset Record Configuration.....	88
5.4.4	Per Camera Configuration	88
5.4.4.1	Camera Select	88
5.4.4.2	Normal PPS	89
5.4.4.3	Normal Qlty	89
5.4.4.4	Event Max PPS.....	89
5.4.4.5	Event Qlty	89
5.4.4.6	Event Active	89
5.4.5	ezRecord Setup	89
5.4.6	Data Lifetime	91
5.4.7	Pre-Alarm Recording	91
5.4.8	Circular Recording	91
5.4.9	Audio Recording	92
5.4.10	Purge Data	92
5.4.10.1	Purge All Data	92
5.4.10.2	Purge All Event Data.....	92
5.4.10.3	Purge Event Before.....	92
5.4.10.4	Start to Purge	92
5.5	Sequence Setup	93

5.5.1	Main / Call Monitor Dwell	93
5.5.2	Main / Call Monitor Schedule	93
5.6	Event Setup	94
5.6.1	Internal Buzzer	94
5.6.2	Event Icon	94
5.6.3	Email Notice	95
5.6.4	Email Attachment	95
5.6.5	Event Full Screen	95
5.6.6	Event Duration	95
5.6.7	Per Channel Config.....	96
5.6.7.1	Channel Select.....	96
5.6.7.2	Video Loss Detect.....	96
5.6.7.3	Motion Detect.....	96
5.6.7.4	Detection Config	97
	Detected Area Setup	97
	Sensitivity	97
	Area Threshold	98
	Detected Area Percentage	98
5.6.7.5	Alarm In	98
5.6.7.6	Alarm Out.....	98
5.6.7.7	Digital Deterrent	98
5.7	Database Setup	100
5.7.1	Total / Free Size of HDD	100
5.7.2	Avail. REC Time	101
5.7.3	Internal / External Disks	101
5.8	Configuration	102
5.8.1	Load Factory Default.....	102
5.8.2	Import Configuration	102
5.8.3	Export Configuration	103
5.8.3.1	Copy Destination.....	103
5.8.3.2	Configuration Name	103
5.8.3.3	Begin Export	103
5.9	Video Export	104
5.9.1	Select Device	104
5.9.2	Select Channel.....	105
5.9.3	From / To Time	105
5.9.4	Select Events	106
5.9.5	Data Type.....	106
5.9.6	Digital Signature.....	106
5.9.7	Erase Disc.....	107

5.9.8	Begin Export	107
5.10	Text Setup.....	107
5.10.1	Text Function.....	107
5.10.2	Text Overlay	108
5.10.3	Exception Text Setup.....	108
5.10.3.1	Exception No.....	108
5.10.3.2	Trigger.....	108
5.10.3.3	Exception String	108
5.10.3.4	By Numerals	108
5.10.4	Input Setup.....	109
5.10.4.1	Port Selection.....	110
5.10.4.2	Input source	110
5.10.4.3	Camera Selection	110
5.10.4.4	Text Filter	110
5.10.4.5	Manual Filter Setup.....	111
5.10.4.6	Input Process	111
5.10.4.7	Text Baud Rate	111
5.10.4.8	Text Bit	111
5.10.4.9	Text Stop	111
5.10.4.10	Text Parity	111
5.11	Shutdown.....	112
Appendix A: Technical Specifications		113
Appendix B: Record Configuration.....		115
Appendix C: Record Duration.....		119
Appendix D: Dial-up Connections via Modem		122
	Establishing Dial-in Connection	122
	Establishing Dial-out Connection	126
Appendix E: Verifying Digital Signature		132
Appendix F: Alarm I/O Pin Definition		135
Appendix G: HDD PC Player Tool Introduction		137
	Using EXT2IFS on Your PC.....	137
	Start Playing the *.drv file.....	139
Appendix H: IR Remote.....		141
Appendix I: ezRecord Diagram Sample		143
Appendix J: Connect to External Storage Device.....		146
Appendix K: Recording in MPEG-4/ MJPEG Format.....		147

1. Overview

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit is an integrated digital video recorder that combines the features of a time-lapse audio/ video recorder, a multiplexer, and a video server to create a single security CCTV solution.

Its outstanding triplex+ operation enables users to view live or playback recorded video, have remote access through network simultaneously while recording other video, and to view previously recorded video instantly by entering the time and date or selecting recorded video from the event list.

The total number of PPS (Pictures per Second) makes the main difference among these models, shown as below table:

	DVR-4TN/ 8TN/ 16TN	DVR-16TS	DVR-16TT
NTSC	120 pps	240 pps	480 pps
PAL	100 pps	200 pps	400 pps

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series includes **SpecoRemote™**, the remote viewing and configuration software that is a Web-browser plug-in, which allows the user to view live, or recorded video images, and enables remote configuration. The remote software is stored in the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit and deployed over a LAN, WAN or Internet connection to remote Windows-based computers. This simplifies the installation and maintenance of the software components so all remote users are kept up to date.

DVR-4TN



DVR-8TN



DVR-16TN/ 16TS/ 16TT

1.1 Product Key Features

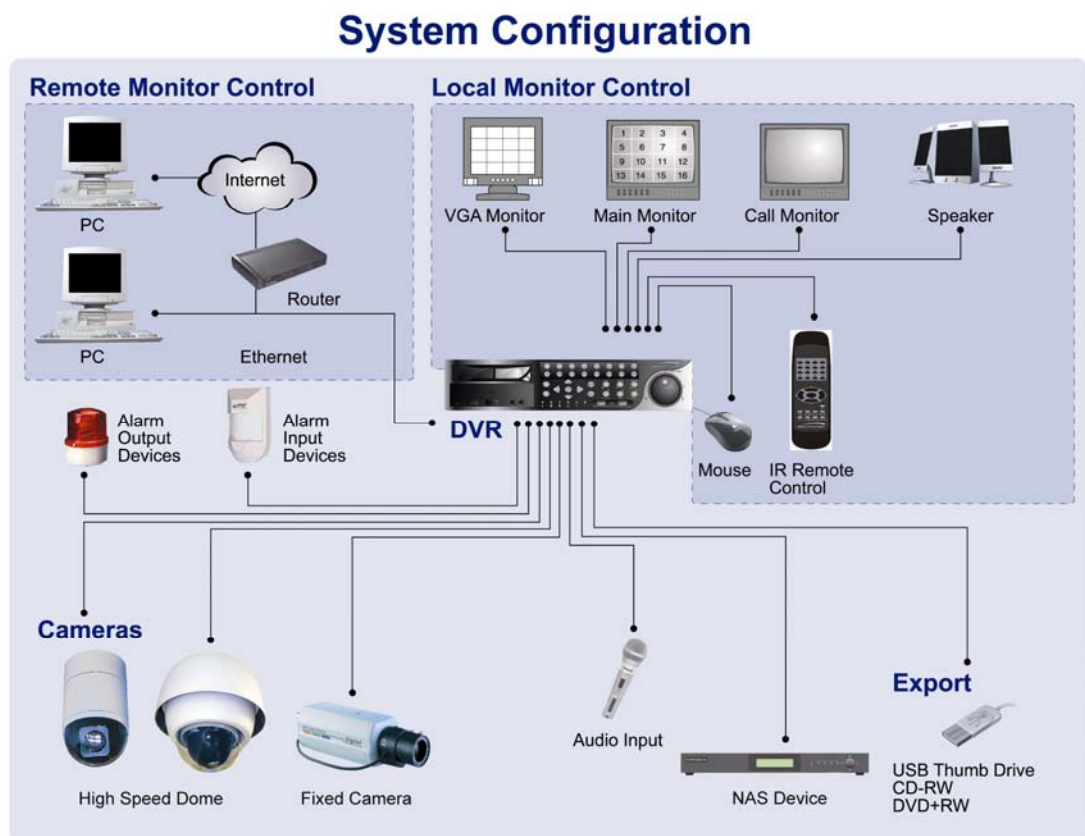
The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series offers advanced features not typically found in standard multiplexers; it integrates the full features of a DVR, multiplexer and video server (by using the software **SpecoRemote™**). The key features of the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series are listed as follows.

- MPEG-4 high quality compression and MJPEG
- 4/8/16 channels for video input
- Triplex+ operation enabling simultaneous viewing live or playback while continuing to record
- **SpecoRemote™** web-based software for remote monitoring and control via LAN or Internet including CMS
- Embedded Linux operating system
- Real-time “live display” for each channel
- Recording frame rate up to 480 pps(NTSC)/ 400 pps(PAL)
- 2 Channels of audio recording/ playback
- 4 USB2.0 ports for video clip export and/or backup
- Easy software upgrade via USB ThumbDrive®, CD/RW or Internet Remote Application
- Up to 4 internal hard drives support up to 3TB capacity
- POS Support
- IEEE 1394 for external storage and NAS for TS/TT
- 2X Digital Zoom available in LIVE mode
- Automatic camera detection (Plug & Play)
- Covert camera operation provides enhanced security and administrator control
- Per camera configuration for camera settings, frame rate, picture bit rate, alarms, motion detection.
- Programmable day/ night/ weekend scheduling
- Programmable main monitor/ call-monitor switching sequence

- Powerful alarm processor allows flexible alarm trigger and responses, including alarm, motion, and camera failure
- Dome control protocols: Speco, Pelco D, Pelco P, Fastrax 2 and AD422
- Two levels of password security

1.2 Product Application Diagram

Connect the unit with other devices as shown in the system diagram below to complete a video surveillance solution. The figure also displays the expandability and flexibility of this digital recording system.



2. System Setup

Priority notices and an introduction on system installation will be described in this chapter. Please follow the instructions to operate the unit.

In order to prevent the unit from data loss and system damage that can be caused by a sudden power fluctuation, use of an Uninterruptible Power Supply (UPS) is highly recommended.

2.1 Position the Unit

Position/ mount the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit in an appropriate, steady location and make sure the power is off before making any connections. The area should avoid hindering or blocking the unit from airflow. **Enough airflow is needed to protect the unit from overheating.** The maximum allowable temperature of operating environment is 104°F/ 40°C.

The unit utilizes heat-conducting techniques to transfer internal heat to the case, especially to the bottom side of the unit.



NOTE: Be sure not to remove the rubber feet, and always leave a space for air ventilation on the unit's bottom side.

2.2 Selecting Video Format

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit is designed to operate under either NTSC or PAL video formats. Please contact a qualified service person to perform the installation procedure.

2.3 Connecting Devices to the Unit

This section lists some **important notices that should be read before making any connections** to the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit.



NOTE: Connect short-term external devices, such as USB ThumbDrive®, USB CD-RW, USB Hard Disk Drive, etc., only after the unit is successfully powered up.

Connecting Required Devices

Before powering up, you should connect cameras and a main monitor to the unit for basic operation. If needed, connect a call monitor for displaying full screen video of all installed cameras in sequence.

Connecting Short-term Device

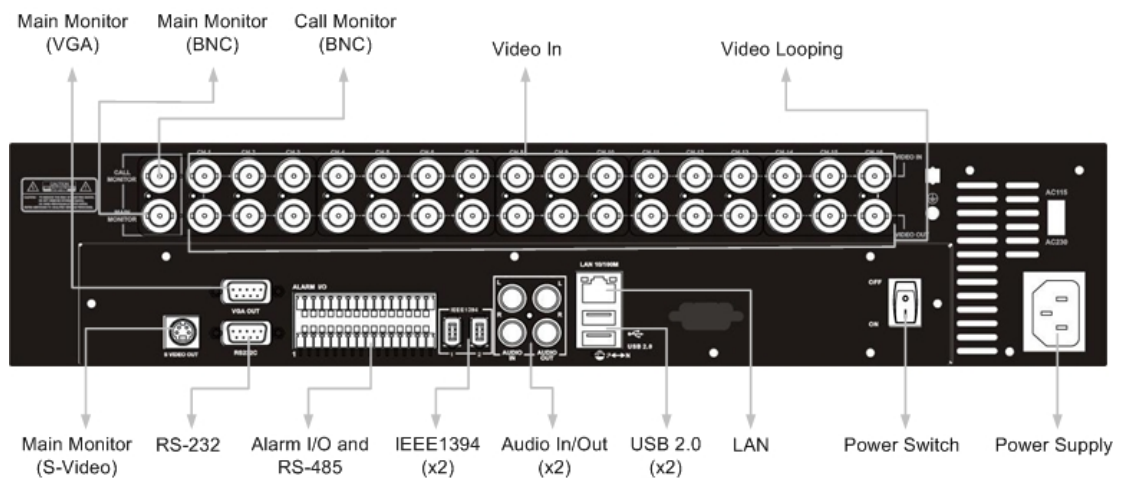
If you plan to install any short-term external devices, such as USB CD-RW, USB Hard Disk Drive, etc, to the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series and want to use them as part of the unit system, **make sure those devices are connected only after the DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT is powered up.** The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit can only recognize the external devices after the power-up process is completed.

2.4 Rear Panel Connections

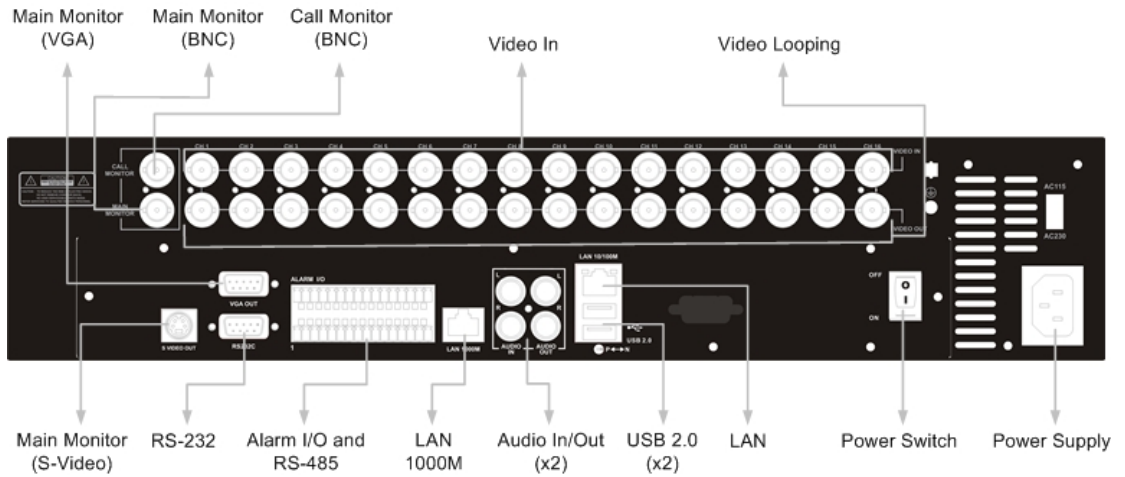
There are several connectors on the rear panel of the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit available for installations. The following figure shows the connectors by name and a detailed description of each connector follows.

There is one difference between the rear panels of different models; **DVR-4TN/ 8TN/ 16TN** has two IEEE 1394 connectors and **DVR-16TS/ TT** has one 1000M LAN Port instead, shown as below figures.

Rear Panel of DVR-4TN/ 8TN/ 16TN:



Rear panel of DVR-16TS/ 16-TT:



Main Monitor (S-Video/ BNC/ VGA)

S-Video, BNC and VGA output connectors are available for connecting to a main monitor. The main monitor displays live image and playback recorded video in full-screen or multiple window format.

Call Monitor (BNC)

The call monitor is used to display full screen video of all installed cameras in sequence. The BNC call monitor connector allows the user to connect an optional call monitor to the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. Reference to dual monitor support on TS/TT (refer to section 4.1.5)

Video Input

A group of BNC connectors is available for video input streams from installed cameras. The number of connectors is equal to the number of channels; the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit has 4/ 8/ 16 BNC connectors on the rear panel, respectively.

Video Looping

The other group of BNC connectors positioned on the rear panel is for looping out video input.

RS-232C

The unit provides a RS-232C communication port for sending and receiving signals.

Alarm I/O & RS485 Port

The unit provides an Alarm I/O and RS485 port that offers user the flexibility required to connect the unit to other devices.

Refer to [Appendix F: Alarm I/O Pin Definition](#) for detailed pin information on the Alarm I/O for the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT**.

IEEE1394 (for DVR-4TN/ 8TN/ 16TN only)

DVR-4TN/ 8TN/ 16TN series unit is equipped with two IEEE1394 (FireWire®) ports for extended connections.

LAN 1000M (for DVR-16TS/ 16-TT only)

This port is for **DVR-16TS/ 16-TT** to connect to a NAS device.

Audio In/ Out

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit provides two channels of audio recording and playback. The Audio In RCA connector is offered for connecting an audio source device (e.g. external amplified microphone) to the unit. The Audio Out RCA connector is available for connecting an audio output device (e.g. amplified speakers) to the unit.

USB 2.0 (x4)

There are two USB2.0 ports in the rear panel and two in the front panel to allow users to connect external USB devices to the unit, such as a ThumbDrive®.

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit allows the user to preset the OSD settings using a USB mouse.

LAN (RJ-45)

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit is capable of networking. The LAN port allows the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit to access the network/ Internet through an Ethernet connection.

Power Supply

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit includes an AC power connection jack. Please use the power supply cord that ships with the unit.



NOTE: Use of other power supply may cause overloading.

Power Switch

The power switch is used to power up or shut down the unit.

3. General System Setup

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series DVR allows the user to easily access some general operations through the front panel. The following subsections introduce general operation of the unit.

The regularly displayed OSD information and its positions are shown in the following figure. The channel title is displayed on the top-left side of the window, either in full screen mode or in multiple channel mode. The current operating mode, including Call mode, Dome-Control mode, Playback mode, Freeze mode and Sequence mode, is displayed on the bottom-left side of the screen. The date/ time information is displayed on the bottom-right side.

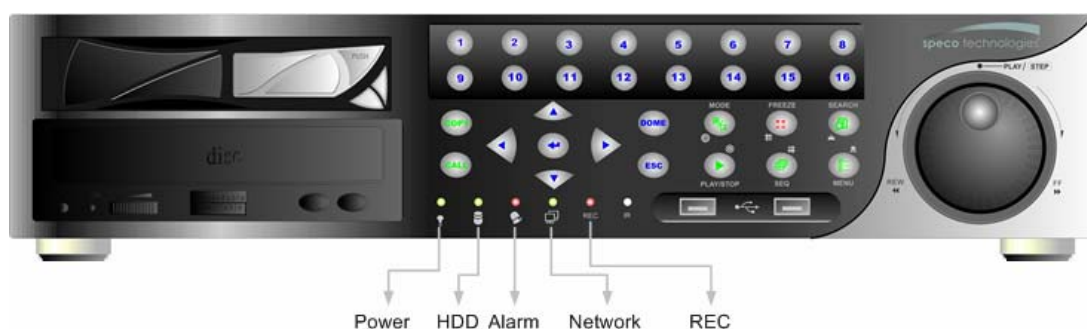


3.1 Front Panel Introduction

The unit's front panel controls enable the user to control the unit and preset programmable functions.

3.1.1 LED Definition

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit's LEDs on the front panel are described as follows.



Power LED (Green)

The LED should be lit when the power is connected.

HDD LED (Green)

The LED will be lit while the HDD is processing data to or from the connected HDD(s).

Alarm LED (Red)

The LED should be lit when an alarm is triggered.

Network LED (Green)

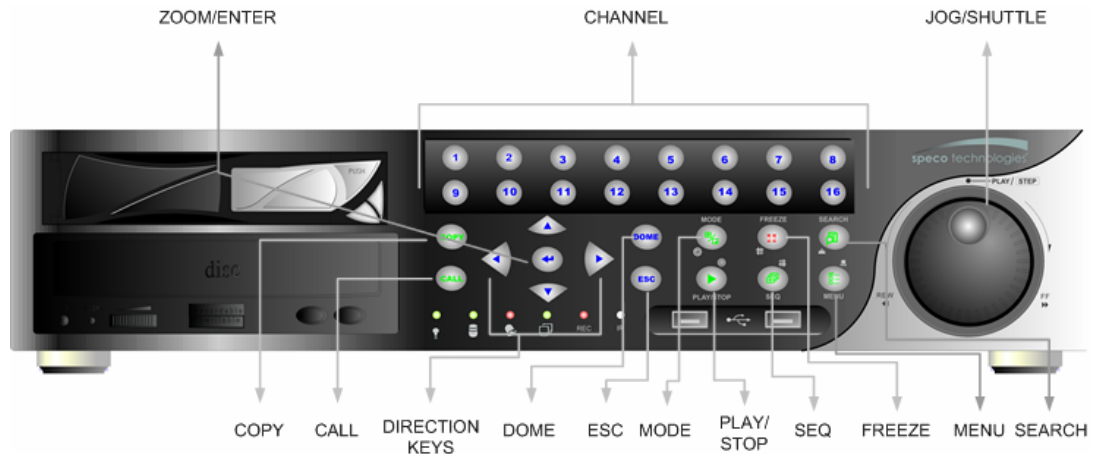
The LED should be lit when the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit is connected to a network and blink when any data is being transferred.

REC LED (Red)

The LED should blink while the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit is recording.

3.1.2 Functional Keys

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit's function keys on the front panel are described below for normal operation.



COPY

This is used to quick export video to an external device, including USB CD-RW and ThumbDrive®, etc. For more detailed operating instructions, refer to section [4.4.2 Quick Video Export through Front Panel](#)

CALL

Press to enter call monitor control mode; press ESC to exit.



NOTE: TS/TT supports Dual Monitor (refer to section 4.1.5).

Direction Keys

- In Zoom mode, these keys function as Direction keys.
- In the OSD setup menu, the Direction keys are used to move the cursor to previous or next fields. To change the value in the selected field, press UP / DOWN keys.

DOME

Press this key to enter dome control mode. Please refer to section [4.6 Dome Control](#) for more details about controlling operation.

ESC

Press to cancel or exit from certain mode or OSD menu without changing the settings made previously.

MODE

Press repeatedly to select desired main monitor display format. There are four view modes available: full screen, 4-window (2×2), 9-window (3×3), and 16-window (4×4). Refer to section [4.1.1 Viewing Modes](#) for more detailed information.

PLAY/ STOP

Press this key to switch between live image and playback video.



NOTE: Video taken within the latest 5 ~ 10 minutes cannot be played back because the video is still saved in the buffer.

SEQ (Sequence)

Press to start automatic sequencing of the video coming in from the installed cameras.

FREEZE

- Press FREEZE while viewing live image, the live video will be frozen, but the date/ time information shown on the monitor will continue updating. Press FREEZE again to return to live mode.
- Press FREEZE while playing recorded video, the playback video will be paused. Press LEFT/ RIGHT to move the recorded video reverse/ forward by a single step. Press FREEZE again to continue playing video.

MENU

Press this key to call up the OSD setup menu.

SEARCH

In both Playback and Live mode, the user can press SEARCH to call up the Search menu for searching and playing back recorded video by date and time or events.

ZOOM/ ENTER

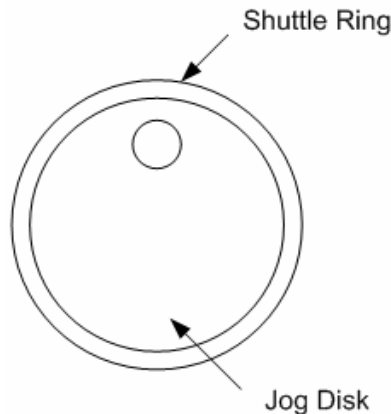
- In OSD menu or selection interface, press this key to make the selection or save settings.
- In live full screen view mode, press this key to view a 2× zoom image; press it again to return.

CHANNEL

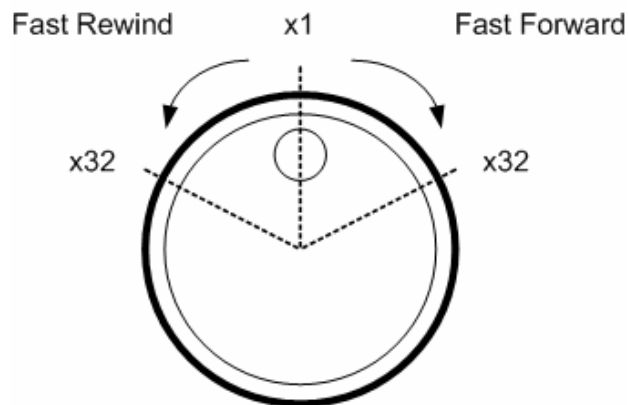
- In both Live and Playback modes, press the CHANNEL key to view the corresponding video in full screen. The number of the CHANNEL keys corresponds to the number of cameras supported by the unit.
- In dome control mode, the key “1” is used to access the Set/ Go preset menu; the key “2” is used to hide or display the dome setting parameters.

JOG/ SHUTTLE

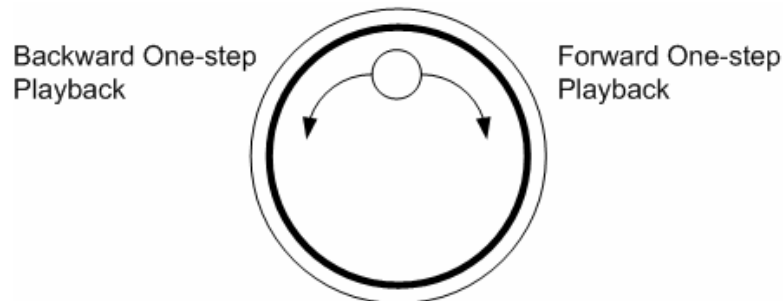
The jog/ shuttle knob, shown in the figure below, is a combination of a shuttle ring with an embedded jog disk, which is used to provide wide range in playback control. Note that the jog/ shuttle knob is active only when the DVR unit is in Playback mode.



- While playing back video, you can use the shuttle ring to select different speeds of forward and backward playing. Rotating the shuttle ring causes the unit to playback in fast forward/ backward playing speed. According to the angle you rotate the shuttle ring, you can choose the playing speed from 1×, 2×, 4×, 8×, 16×, and 32×, in both forward and reverse directions, shown in the figure below:



- Inside the shuttle ring is the jog disk, shown in the illustration below, it can be turned completely in either direction. Once you freeze the video, you can use the jog disk to go to single-step play back. Clockwise rotation causes forward one-step playback; and counterclockwise rotation causes backward one-step playback. This is for JPEG recoding only.



3.2 Configuring the HDD in the unit

There is an empty cartridge positioned on the front panel where the user can install a swappable HDD. There are two possible situations when you install a HDD into your DVR.

- If you install a new HDD, the DVR will format it and add it into your database automatically.
- If you install a used HDD that does not have the DVR format, the DVR will show, “1 disk(s) with wrong data format! Please format then add to the database manually”. Then please follow the steps described below:
 - Enter the menu with the administrator privilege and access the <Database Setup> submenu
 - Access the <Internal (or external) Disks>
 - When you see the available disk/s, select <format> to format it
 - After formatting is OK, select <Add> to add the HDD(s) into your database.

The recommended HDDs are listed as below:

Maxtor	Diamond Max Plus 9	80G/ 160G/ 300G
	Diamond Max Plus 16	80G/ 160G/ 300G
Seagate	Barracuda 7200.7	200G
	Barracuda 7200.8	250G/ 300G/ 400G
	Barracuda 7200.10	750G
Hitachi	Deskstar 7200rpm	60G/ 300G/ 400G/ 500G

3.3 Power Up/ Down the Unit

If you must shut down the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit for any reason, use the proper shut down and power up procedures to avoid damage to your DVR unit..

To Power Up the Unit

First check if the type of power source available is compatible before plugging in your DVR. Then turn on the unit using the power switch on the rear panel.

The color bar and system checking information will be shown on the monitor. It will disappear when the unit has been completely powered up.

To Restart / Shutdown the Unit

Press MENU and input the administrator password to access the OSD Main menu. Select <Shutdown> in Main Menu and press ENTER to enter the Shutdown menu, which displays as follows.

Shutdown		
1. Power Off		Execute
2. Reboot		Execute

<Power Off>

Select this item to shut down the unit. Do not disconnect the power during shut down until the message “You can safely turn off DVR now!” displays.

<Reboot>

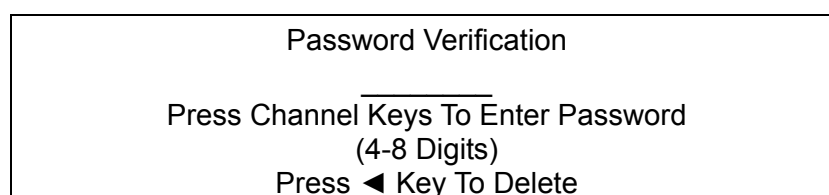
Select this item to reboot the unit. The color bar and system checking information are displayed on the monitor until the unit is completely restarted.

3.4 Entering OSD Setup Menu

The OSD Main menu contains a list of items that are used to configure the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. To enter the Main menu, correct Administrator or User password is required.

Three sets of passwords are offered for different Administrators and Users – if there is more than one.

To enter OSD Main menu, press MENU and then enter either Administrator or User password. The Password Verification screen will display as follows.



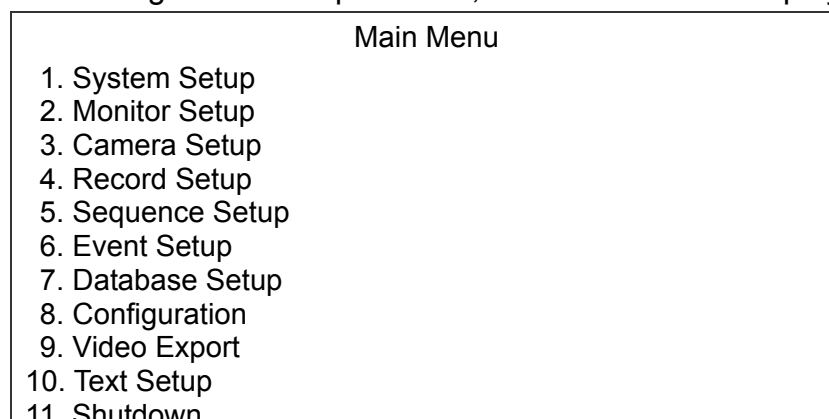
NOTE: If entering wrong password for 3 times, the system will be locked out, and you will not be able to enter OSD menu within 2 minutes.

The default passwords are shown in the following table. The same passwords are used for entering the remote viewing software **SpecoRemote™**.

Administrator Passwords	User Passwords
1234	4321

It is strongly recommended that you change the passwords to prevent unauthorized access to the unit.

After entering the correct password, the Main menu is displayed.



Move the cursor up/ down over the OSD items using the Direction keys and press ENTER to enter the selected sub-menu.

3.5 System Date/ Time Setting

The user can set the current date, time and other OSD parameters in the Date/ Time menu. The administrator's privileges are required for entering the submenu. In the OSD Main menu, select <System Setup> and press ENTER, then select <Date/ Time> to access the Date/ Time menu; the menu displays as follows.

Date/ Time	
1. Date	2005/02/21
2. Time	PM10:39:26
3. Time Zone	OFF
4. Date/ Time Display	1 Row
5. Date Display Mode	Y/M/D
6. Time Display Mode	24 HR
7. Date/ Time Order	Date First
8. Daylight Saving Time Setup	
9. Network Time Protocol Setup	

3.5.1 Set Date/ Time

Set Date/ Time

Select <Date>/ <Time> and press ENTER to adjust the settings. LEFT/ RIGHT keys are used to move the cursor to previous or next field, ENTER is for selecting, and UP/ DOWN are used to change the value in the selected field.



NOTE: The reset date/ time setting applies for recording new video, the date and time of previously recorded video will not be changed.



NOTE: To avoid record database corruption, after changing the date/ time setting, it is recommended to clear the database.

Date/ Time Display

Users are allowed to choose to set the date/ time OSD displays in 1 or 2 rows. Use the UP/ DOWN keys to change the setting. The default is to display the date/ time OSD in one row.

Date Display Mode

This function allows user to set the OSD display type of the date/ time. There are three options to select from: <Y/M/D>, <M/D/Y> or <D/M/Y>. “Y” represents “Year”, “M” represents “Month” and “D” represents “Day”.

Move to the desired item and press ENTER, the option starts blinking. Use UP / DOWN keys to change the setting. The default setting is <Y/M/D> in both NTSC/ PAL formats.

Time Display Mode

The user can choose to set the time format to <12 hour> or <24 hour>. Use the UP/ DOWN keys to change the format. The default setting is <12 hour>.

Date/ Time Order

This item is used to set the order of the date/ time display to <Date First> or <Time First>. Use UP/ DOWN keys to change the setting.

3.5.2 Daylight Saving Time Setup

The items in this sub-menu are for those people whom live in certain regions to observe Daylight Saving Time.

Daylight Saving Time

Select <ON> to enable, or <OFF> to disable the function.

If the function is disabled, the DST Start/ End time and DST Bias will be grayed out and cannot be accessed.



NOTE: If this function is enabled, the date/ time information will be shown on the screen with a DST icon when playing back recorded video or searching video in the event list. “S” indicates summer time and “W” indicates wintertime.

DST Start/ End

This is used to program the daylight saving duration. Use Direction keys to move the cursor to the next or previous field, use UP/ DOWN to change the settings in the selected field.

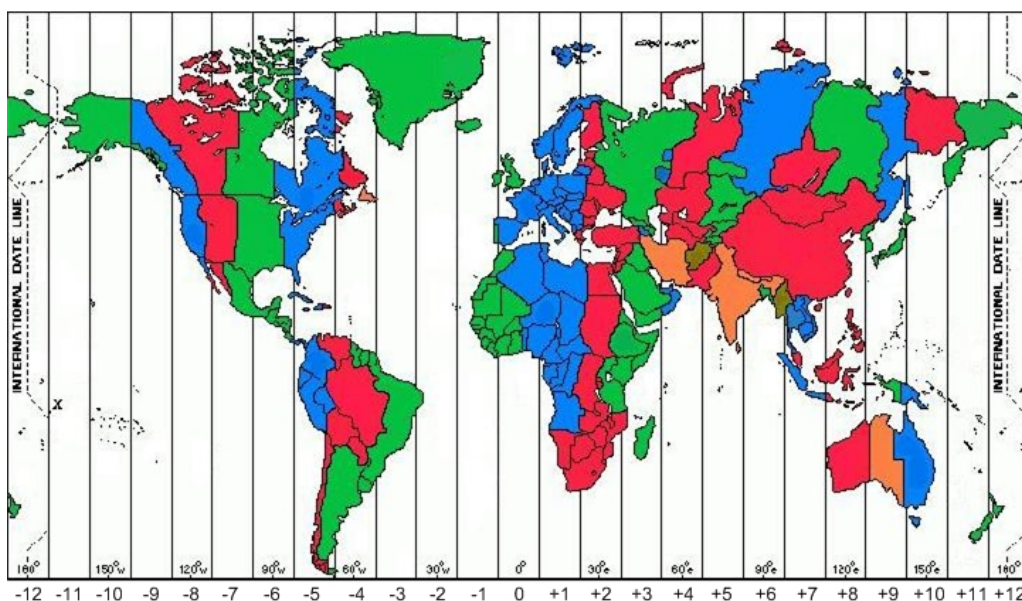
DST Bias

<DST Bias> allows the user to set the amount of time to move forward from the standard time for daylight saving time. The available options are <30>, <60>, <90> and <120> minutes.

3.6 Network Time Protocol Setup

This section guides you to synchronize your unit to fit the local time.

Go the <System Setup> → <Date/ Time> → <Time Zone>. Refer to below figure and select your time zone from the options.



Then go to <System Setup> → <Date/ Time> → <Network Time Protocol Setup> and select <ON> for the item <Automatically Time Sync>. When this function is ON, time sync will be performed every hour in order to observe correct time of your local zone.



NOTE: If you want the unit to automatically synchronize the local time, the <Time Zone> item **MUST NOT** be set to <OFF>, or the function cannot be activated.

3.7 Record Schedule/ Quality Setting

The Record Setup menu allows the user to set recording quality, recording schedules and other recording parameters. This menu will not be able to access if you enter the OSD Setup Menu with User's password. In the Main menu, move the cursor to <Record Setup> and press ENTER; the following menu is displayed.

Record Setup	
1. Record Mode	720x240@60PPS
2. Schedule Setup	
3. Preset Config	Standard
4. Per Camera Config	
5. ezRecord Setup	
6. Data Lifetime	0 Days
7. Pre-Alarm Recording	15 Sec
8. Circular Recording	ON
9. Audio Recording	ON
10. Purge Data	

3.6.1 Record Mode

The Record Mode is for selecting resolution and recording rate. The relative record settings, such as preset configuration, will follow the record mode setting. In normal circumstance, we recommend you to select <720x240@60PPS> in NTSC format; or <720x288@50PPS> in PAL format.

Move the cursor to <Record Mode> and press ENTER, then select a Record mode using the UP/ DOWN keys.



NOTE: After changing the Record Mode setting, this warning message "This will FORMAT ALL HARDDISKS and LOAD THE FACTORY DEFAULT CONFIG!" will appear on the screen. Press ENTER to confirm the selection. The unit will then start to format the hard disks and load the factory default settings, or press ESC to abort.

We strongly recommend that you back up your programmed configuration before making any changes to Record Mode settings.

3.6.2 Schedule Setup

This submenu is used to set the day and night time, or weekend recording schedule. The Night and Day schedules are used to define daytime and nighttime; the Weekend schedule is tailored for weekends and holidays. Select <Schedule Setup> from the Record Setup menu and press ENTER; the following menu is displayed.

Schedule Setup		
1. Day Time Start		06:00
2. Day Time End		18:00
3. Night Time Start		18:00
4. Night Time End		06:00
5. Weekend Schedule		YES
6. Weekend Start	Fri	PM18:00
7. Weekend End	Mon	AM 06:00

- Make appropriate changes for the start time of the Day Time and Night Time schedule using the Direction keys.
- Press ENTER to confirm the settings or ESC to cancel.
- If you want to record over the weekend, choose <YES> to enable the Weekend Schedule in advance and then set the Weekend Start/ End time.
- Press ESC to back to previous page.

Day/ Night Time Start

The Day/ Night Start Time determines the beginning of day/ night recording time. The time is indicated in 1-minute increments. The time display format in this menu is based on the setting of Time Display Mode.

Day/ Night Time End

The Day/ Night End Time determines the end point of day/ night recording time. The time is indicated in 1-minute increments. The time display format in this menu is based on the setting of Time Display Mode.

Weekend Schedule

The Weekend Schedule determines whether a weekend schedule is in effect. Choose <YES> to take effect the related weekend settings.

Weekend Start/ End

The Weekend Start Time indicates the specific day and time that a weekend begins, for example, FRI 18:00. The Weekend End Time indicates the specific time and day that a weekend ends, for example, MON 06:00. Time is indicated in 1-minute increments.

Note that the value you have set indicates when the regular Day and Night scheduling ends, and when the Weekend recording begins.

3.6.3 Preset Record Configuration

The <Preset Config> is used to preset recording quality and frame rate for normal record and event record. In normal circumstances, we strongly suggest you set the item to <Standard>, the default. Below tables show the PPS and picture size under <Standard> in Half-D1 mode. Please refer to section [5.4.3 Preset Record Configuration](#) for more detailed information.

DVR-4TN/ 8TN/ 16TN

Half-D1 mode (NTSC: 720x240@60PPS / JPEG; PAL: 720x288@50PPS / JPEG)				
	Normal PPS	Normal Quality	Event PPS	Event Quality
4CH	NTSC:15 PAL:12.5	12 / 18 KB	NTSC:30 PAL:25	20 / 28 KB
8CH	NTSC:7.5 PAL:6.25			
16CH	NTSC:3.75 PAL:3.12	15 / 21 KB		25 / 33 KB

DVR-16TS

Half-D1 mode (NTSC: 720x240@120PPS / JPEG; PAL: 720x288@100PPS / JPEG)				
	Normal PPS	Normal Quality	Event PPS	Event Quality
16CH	NTSC:7.5 PAL:6.25	12 / 18 KB	NTSC:30 PAL:25	20 / 28 KB

DVR-16TT

Half-D1 mode (NTSC: 720x240@240PPS / JPEG; PAL: 720x288@200PPS / JPEG)				
	Normal PPS	Normal Quality	Event PPS	Event Quality
16CH	NTSC:15 PAL:12.5	6 / 9 KB	NTSC:30 PAL:25	10 / 15 KB

3.6.4 Per Camera Configuration

This function is used to set the Day/ Night/ Weekend PPS (Picture per Second) and Quality for each channel. The Preset Configuration must be set to <OFF> for accessing these schedules. The menu displays as follows: (Record Mode: 720×240@60PPS in NTSC/ 720×288@50PPS in PAL).

Per Camera Config			
Camera Select	Day	Night	CH1 Weekend
Normal PPS	7.5	7.5	7.5
Normal Qlty	Best	Best	Best
Event Max PPS	30	30	30
Event Qlty	Best	Best	Best
Event Act	Both	Both	Both

- First, select a Camera to set its record configuration. The image and record settings from the selected camera will be displayed on the screen.
- Move the cursor using the Direction keys and press ENTER to select an item.
- Change the value using UP/ DOWN keys.
- Press ENTER to confirm the settings or ESC to abort.
- Press ESC to return to Record Setup menu.

Please note that the total normal pps for all channels cannot exceed 60 NTSC (720×240@60PPS)/ 50 PAL (720×288@50PPS). To increase one channel's pps, you may have to reduce other's first. Event pps is not restricted to this rule, since a smart event schedule will correct the total pps automatically..

3.6.5 To Record Event Video Only

If you want your DVR unit to start recording only under the alarm is triggered, follow the steps:

- Enter the OSD setup menu with correct password.
- In the OSD setup menu, select <Record Setup> menu. Move the cursor to the item <Preset Config>, and select <Event only>.

Refer to section [5.4.3 Preset Record Configuration](#) for more detailed information.

4. Basic Operation

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series allows the user to easily access some general operations through the front panel. The following sections introduce the general operation of the unit.

4.1 Viewing Live/ Playback Video

The general functions in live and playback mode are described in the sections that follow.

4.1.1 Viewing Modes

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit supplies the user several ways of viewing both live and recorded video. The following descriptions describe the view formats that are available.

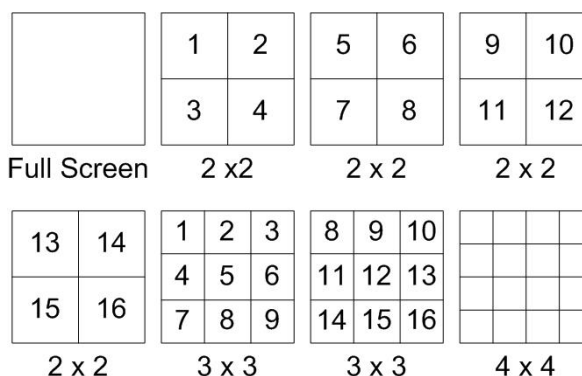
Viewing in Full Screen

Press any CHANNEL key directly to view the corresponding camera image in full view format.

Viewing in Multi-window

Various multi-window view formats are available for selection. To switch between these viewing formats, press MODE repeatedly.

The available view formats are illustrated in the following figure. Note that 3x3 and 4x4 viewing modes are for **DVR-16TN/ 16TS/ 16TT** models only.



4.1.2 Digital Zoom

Users are able to view a 2× full screen in live mode. To view the 2× full screen, follow these steps:

- Press the CHANNEL key to view the corresponding camera in full screen.
- Press ZOOM to enter a 2× full screen zoom mode of the selected camera.
- If you need to view a specific area of the 2× zoomed screen, use Direction keys to pan/ tilt the zoomed area around the original image.
- Either press ZOOM again or ESC to leave the zoom mode.

4.1.3 Viewing Live Cameras

Users are allowed to view live cameras in several view modes, including full-screen, 2×2, 3×3 and 4×4. General operation under live mode is described as follows.

To Freeze Live Image

Press FREEZE while viewing a live image, the image then pauses, but the date/ time information does not, and the system clock continues running..

Press FREEZE to pause the live image; press FREEZE again to resume the live camera view.

4.1.4 Viewing Recorded Video

To view recorded video, the user can press the PLAY/ STOP key directly. When the PLAY/ STOP key is pressed, the unit starts to continue playing back the recorded video from the suspended point of record. If the PLAY/ STOP key is being used for the first time, the unit will playback from the very beginning of the record. Alternatively, a user can select records from the Search menu to play specific video. Refer to section [4.3 Searching Recorded Video](#) for more information.

The Forward or Reverse speed indicator will be shown on the bottom-left of the screen when in the playback mode.

General operation for playback mode is described as follows.

Key Usage in Playback

Key usage changes slightly in playback mode as follows.

<LEFT> (Reverse Playback)

This key is used to reverse recorded video while the unit is playing back.

Press the key repeatedly to increase the speed of reverse playback by 1×, 2×, 4×, 8×, 16×, or 32×.

<RIGHT> (Forward Playback)

This key is used to play recorded video on fast forward. Press the key repeatedly to increase the speed of forward playback by 1×, 2×, 4×, 8×, 16×, or 32×.

<FREEZE>

Press FREEZE to pause the playback video. When the recorded video is paused, press LEFT/ RIGHT to resume playback video as single step reverse / forward, respectively. Press FREEZE again to continue playing video.

<PLAY/ STOP>

Press to start playing back video, to exit current mode, or stop playing back video and go back to live mode.

Pause Playback and Single Step Forward

To pause and resume recorded video, follow these steps.

- Press one of the CHANNEL keys to display the corresponding camera in full screen.
- Press PAUSE to pause the current playback image.
- Press LEFT/ RIGHT Direction keys to move the video as single step reverse/ forward. Press and hold LEFT/ RIGHT keys to reverse/ forward the video single step continuously.
- Press PAUSE again to resume the playback operation.



NOTE: Reverse frameskip available in JPEG recording only.

Viewing Live Image in Playback Mode

Press the MODE key repeatedly in playback mode, the 16-window viewing mode contains both live and playback image views. This view mode is illustrated below.

1	2	3	4
5	6	7	8
1	2	3	4
5	6	7	8

- Live Image
- Playback


The eight windows on the top side of the screen play back the Live video from channel 1 to channel 8 respectively. The other windows allow the user to view Playback images from channel 1 to channel 8.

4.1.5 Dual Main Output (For DVR-16TT Only)

For **DVR-16TT** users, they can use the Call Monitor as the second Main Monitor, and access lots of functions, such as setup OSD menu, and viewing in different mode, through the second Main Monitor. To perform this function, you have to reset a jumper positioned on the Turbo Module inside the unit.

To use this function, the VGA and BNC connectors, positioned on the rear panel, have to be connected with monitors, respectively. The VGA monitor is treated as the Main Monitor, and BNC monitor the second Main Monitor.

Press CALL key for 3 seconds, the BNC Monitor will be given the same function as the VGA Monitor, except Playback and Search function. You can use the BNC Monitor to take over the **DVR-16TT** unit at the same time, as if the two monitors are connected to two individual **DVR-16TT** units.

When using this function, a small figure () appears in the mid-button side of the two monitors—the yellow one represents the monitor is now accessed.



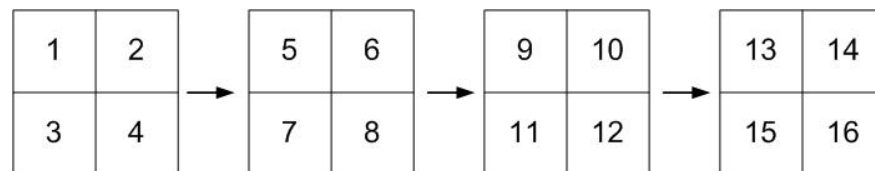
NOTE: When the VGA monitor is now under Dome Control Mode' or the OSD setup mode, or hasn't exit the OSD menu, the BNC monitor cannot access the OSD setup menu.

4.2 Sequence Setup

This section introduce you how to view in sequence mode with both Main Monitor and Call Monitor, if connected. Sequence function can avoid manually backtracking and give more flexibility while surveillance.

4.2.1 Sequence on Main Monitor

The automatic sequence function can be used in any view mode. Select certain view format and press SEQ to toggle the automatic sequential sequence, press ESC to stop sequencing. The figure below displays the 4-camera sequencing view modes.

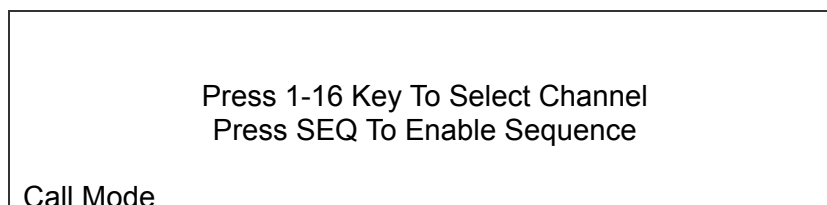


4.2.2 Call Monitor Control

Users can use the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit front panel to control a call monitor display without having to access the Main menu. Two viewing modes can be displayed on call monitor: Sequence display and Single camera display. To program the call monitor sequence, see section [5.5 Sequence Setup](#).

Follow the steps below to control the call monitor.

- Press the CALL key on the front panel to enter call monitor control mode, the message “Call Mode” will then be shown on the bottom-left of the screen.

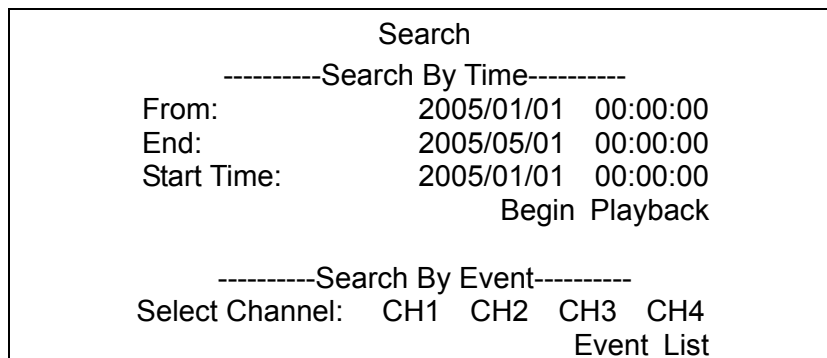


- Press CHANNEL key to display the associated camera on the call monitor.
- Alternatively, press SEQ repeatedly to display the sequence of cameras previously programmed in Call Monitor Schedule menu.
- Press ESC to return to the front panel to the Main monitor control mode.

4.3 Searching Recorded Video

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit is capable of searching and playing back recorded video by date and time or events. By entering the specific date and time of the desired video, the unit will then search for the matched video and play it on the monitor. Alternatively, a user can search event video by selecting the channel as well.

In live or playback mode, press **SEARCH** to enter the Search menu, which is shown as follows.



4.3.1 Searching by Time

Follow these steps to search video by date and time.

- Press **SEARCH** key to enter the Search menu; the From Time and End Time of the available video is listed on top of the screen. The value is unchangeable.
- Use Direction keys to move the cursor for setting the Start Time; adjusting the date and time values by **UP/ DOWN** keys.
- Press **ENTER** to confirm the settings or **ESC** to abort.
- Move the cursor to <Begin Playback> and press **ENTER** to start playing back the selected video.
- Either press **PLAY/ STOP** again or **ESC** to return to live video.



NOTE: If there is no available recorded video that matches your specified time and date, the unit starts playback from the next available video.



NOTE: The date/ time information will be shown on the screen with a DST icon if the Daylight Saving Time function is enabled. “S” indicates summer time and “W” indicates wintertime.

4.3.2 Searching by Event

“Event List” allows you to search for desired video by event. The Event List is displayed below:

Event List			
Date	Time	Ch.	Type
2005/03/17	11:26:50	2	Motion
2005/03/17	09:53:03	5	Alarm
2005/03/16	16:14:42	3	Alarm
2005/03/15	03:45:31	1	Motion
2005/03/12	22:27:56	1	Alarm
2005/03/12	10:09:29	7	Motion
2005/03/11	12:18:20	6	Motion
2005/03/10	05:16:00	4	Alarm
2005/03/08	17:11:37	2	Motion
2005/03/08	16:29:10	8	Motion
2005/03/08	03:22:17	2	Alarm

The list displays the first 9999 events by date, time, triggered camera and alarm type. As some events are deleted, others are displayed. The latest recorded event video will be listed on the top.

Follow these steps to search event video through the Event List:

- Press SEARCH to enter the Search menu.
- To search event video that has been recorded on a specific camera, use LEFT/ RIGHT to move the cursor and press ENTER to select or de-select a channel.
- Move the cursor to <Event List> and press ENTER to list the event video from the selected channels. The Event List displays.
- To exit the event list, press ESC.

Follow these steps to playback video from the Event List.

- Press and hold UP/ DOWN to scroll through the Event List.
- Press ENTER to play back the selected event record.
- Press PLAY/ STOP to return to live mode.

4.4 Video Export

The following sections will guide you how to export video through the OSD Setup menu and through the hot keys positioned on the front panel, respectively.



NOTE: The **Central Management System (CMS)** software can also remotely execute video export function. Please refer to the CMS user's manual for more details.

4.4.1 Export from OSD Setup Menu

The Video Export menu enables the administrator to export recorded video with a digital signature to a USB ThumbDrive®, a CD-RW or to DVD+RW drive. Administrator's password is required to export video.

The exported video will be identified by the exporting date and time, and classified by event type. Each recorded video will be exported into four files if exported with digital signature, including *.gpg, *.drv, *.sig and readme.txt.

Make sure an external storage device is available and connected to the appropriate port for video export.

From the Main menu, select <Video Export> and press ENTER. The menu is displayed below.

Video Export				
1. Select Device				
2. Select Ch:		CH1	CH2	CH3 CH4
3. From		2005/03/19	AM	07:50:05
4. To		2005/03/28	PM	03:09:18
5. Select Events				
6. Data Type				Normal
7. Digital Signature				NO
9. Erase Disc				NO
10. Begin Export				NO

4.4.1.1 Select the External Device

The available external devices for exporting video will be listed by name and free size in Select Device menu. The Select Device menu displays as follows:

Select Device			
Device Name	Available	Sel	
xxx-xxx-x-x-xx	256 MB	NO	
xx-xxx-xx-xxxx	1.5 GB	NO	

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit only supports EXT3 file system. If you connect an external HDD to the unit, make sure the format of the HDD is EXT3. If not, please format this HDD to EXT3 first.

<Device Name>

This item shows the name of the available device.

<Available>

This item shows the free space of the available device.

<Select>

Set the item to <YES> to start the export or <NO> to cancel.

4.4.1.2 Select Video for Exporting

After selecting video clips, set the item <Begin Export> to <YES> and press ENTER to start exporting. Following are the menu items for selecting video.

Select Channel

Select the channel that the administrator wants to export. Move the cursor to the desired channel using LEFT/ RIGHT keys, select or de-select a channel by pressing ENTER.

From/ To Time

These items are used to set the time in which data export begins and ends. Move the cursor using Direction keys, and press ENTER to select the date/ time items; adjust the selected date and time value by UP / DOWN keys.



NOTE: The exported data between the Start Time and End Time includes both normal and event video.

Select Events

Select the item to display the event list for exporting event video. Move the cursor to scroll through the event list and press ENTER to select the event you want to export.

Data Type

This item is used to select export video type. The options are <Normal> (export normal video only), <Event> (export event video only) and <Both> (export both normal and event video).



NOTE: If you want to export event video only, then set the “From” and “To” items at the same date and time. Otherwise, not only the event video but also the normal video included between the “From” date/ time and “To” date/time will be exported.

The *.drv file can only be played back with **SpecoRemote™** and **SpecoPlayer™** and multiple camera video can be played from one file. Note that if multiple channels are exported, each channel is exported to a separate file.

4.4.1.3 Digital Signature

The user can export a video clip with or without a digital signature. Set the item to <YES> to export with the signature file, or <NO> to export without the signature file.

Each recorded video with a digital signature will be exported automatically into four files, including *.gpg, *.drv, *.sig and readme.txt. The *.gpg file name is the same as the last eight MAC (Media Access Control) address digits of the unit.

Make sure that you have an external storage device, such as a USB Hard Drive or USB ThumbDrive®, available and connected to the appropriate port for export.

For more information about verifying a digital signature, see [Appendix E: Verifying Digital Signature](#).

4.4.1.4 Erase Disc

This function is used to remove information found on a CD-RW or DVD+RW disk prior to exporting new information to the drive. Select <YES> and press ENTER to start deleting data.

4.4.2 Quick Video Export through Front Panel

The unit provides a quick way to export video files to the built-in CD-RW or an external device, such as a USB thumb Drive, and save the video to *.drv file.

If you want to export video to an external device, make sure the external storage unit has been connected to the DVR unit and the port has been set appropriately for video export.



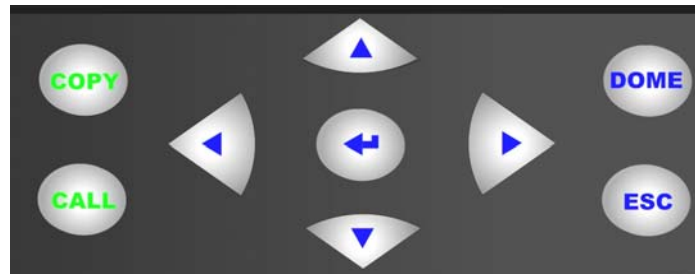
NOTE: Once an external device has been connected to the DVR unit, the device has priority over the built-in CD-RW; which means that the desired video will be exported to the external device instead of the built-in CD-RW.

Export may take you about 10 minutes to 1 hour depending on the file size of the video.

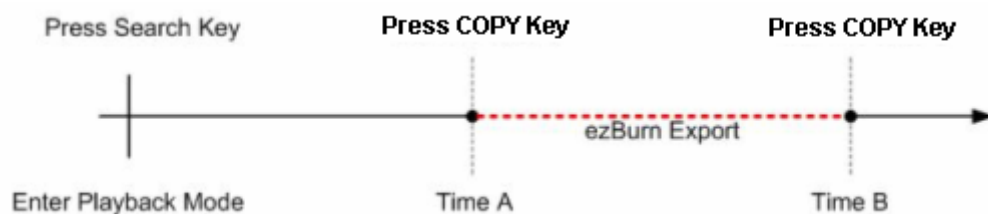
4.4.2.1 ezBurn Introduction

Built with the ezBurn technology, ezBurn function provides users the easier way to export desired video with CD-RW built in or to an external device connected, such as a USB ThumbDrive®.

TWO keys (SEARCH and COPY) and THREE touches are all you need for completing the export. The whole exporting process will be done through the front panel, but no need to enter the OSD setup menu.



The ezBurn export process is illustrated on the next page:



The whole process is described step by step in the following sections.

4.4.2.2 To Export Normal Video

To Export normal video to an external device, follow these steps:

- Press SEARCH and play desired normal video by entering date and time.
Note: if you are viewing in multiple channel mode, please make sure there is no window displaying in Live mode. Otherwise, the export will not work.
- After entering playback mode, play the video and press COPY on the point that you want to set the start point of the export. The playback continues.
- Press COPY again on the point that you want to set the end point of the export. Now, the “ezBurn” window displays as shown below. The information shown on the window is for read only.

```

ezBurn confirmation
Selected Device: Built-in-CD-RW
All data on the disc will be erased.
Exported Required Size = 11 MB
Real Export Range:
From: 2005/11/07 AM10:41:13
To: 2005/11/07 AM10:41:21
Enter: YES ESC: NO
or
CH1: Define Digital Deterrent File

```



NOTE: For more information about Digital Deterrent function, please refer to section [5.6.7.7 Digital Deterrent](#).

- Press ENTER to start the export; or, press ESC to abort.
- If there is not any exportable external device connected to the DVR unit, then a warning message will be shown on the screen, as illustrated below:

```

No exportable device detected.
Please install the target device/media
to the DVR.
Enter: Retry ESC: Exit
or
CH1: Define Digital Deterrent File

```

4.4.2.3 To Export Event Video

To export event video, follow these steps:

- Press SEARCH and play desired event video. To play event video, refer to section [4.3 Searching Recorded Video](#).
- After entering the playback mode, press COPY. The “ezBurn” window displays as shown below . The information displayed is for “read only.”

ezBurn confirmation			
Selected Device: Built-in-CD-RW			
All data on the disc will be erased.			
Exported Required Size = 11 MB			
Export Event Info:			
Data	Time	Ch	Type
205/11/07	AM10:42:35	13	Motion
Enter: YES		ESC: NO	

- If there is not any exportable external device connected to the DVR unit, a warning message will be shown on the screen
- Press ENTER to start to export the event video to the connected external device; or, press ESC to abort.



NOTE: The inserted CD will be ejected when its capacity is 99% full.

4.5 Deleting Recorded Video

The user can delete recorded video in the Purge Data menu. The administrator password is required to access the function. Select <Record Setup> from Main menu, once in the Record Setup menu, move the cursor to <Purge Data> and press ENTER; the Purge Data menu is displayed.

Purge Data			
1. Purge All Data			NO
2. Purge All Event Data			NO
3. Purge Event Before		2000/01/01	
4. Start to Purge			NO

The first three items are used to select the data that you want to purge. After selecting the data you want to delete, set the fourth item <Start to Purge> to <YES> and press ENTER to start the deleting process. The menu items are described below.

Purge All Data

Select this item to delete all normal recorded video from the database.

Purge All Event Data

Select this item to delete all event video from the database.

Purge Event Before

This item is used to delete event video that was recorded before a specific date.

4.6 Dome Control

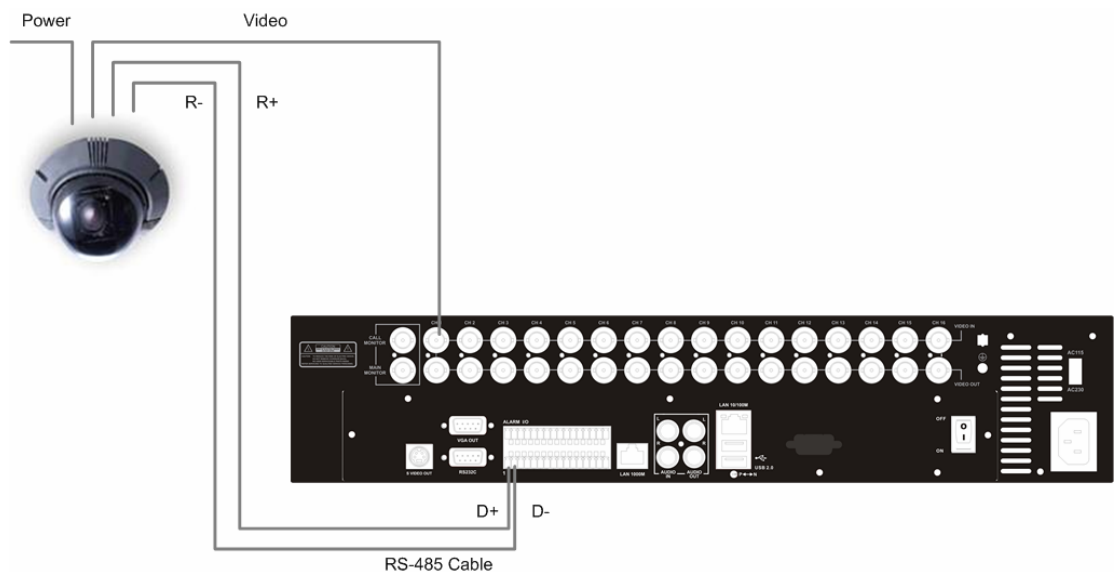
The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit allows the user to control a dome camera at the front panel.

In Live mode, the user can press the CHANNEL key to display the appropriate dome camera in full view. To enter Dome Control mode, press the DOME key and press channel key 2 to display the hint screen. To exit the Dome Control mode and go back to live mode, press ESC or DOME. To configure the dome control settings, see the following sections.

4.6.1 Dome Connection

Follow the steps below to install a dome camera.

- See section [2.4 Rear Panel Connections](#) for RS-485 port pin definition.
- Using a RS-485 cable, connect the R+, R- terminals from the dome camera to the D+, D- terminals on the RS-485 port respectively. Refer to the following illustration.



4.6.2 Dome Protocol Setup

The Dome Protocol item lists the dome protocols available for communicating with dome cameras connected to the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. From the Main menu, select <Camera Setup> and press ENTER. The following menu is displayed.

Camera Setup		
1. Camera Select		CH1
2. Dome Protocol		None
3. Dome ID		0
4. Camera Title		
5. Covert		NO
6. Termination		NO
7. Brightness		0
8. Contrast		0
9. Saturation		0
10. Hue		0
11. Audio Association		Both

To configure dome protocol, first select a camera then set the communications protocol associated with that dome camera using the Direction keys and press ENTER. The available protocols include <DynaColor>, <Pelco D>, <Pelco P>, <AD422>, <Fastrax 2> and <None> (default).



NOTE: The settings become effective after saving the changes and exiting from the menu.

4.6.3 RS485 Setup

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit controls the domes via RS-485 communication protocol. The RS-485 parameters in the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit must be set to the same parameters as the protocol used in the RS-422 setup for the dome.

Users are allowed to change the RS-485 settings of the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. Select <System Setup> in the Main menu, then select <RS485 Setup> from the System Setup menu and press ENTER. The following menu is displayed.

RS485 Setup		
1 Unit ID		224
2 Baud Rate		9600
3 Bits		8
4 Stop		1
5 Parity		None

The ID number must match the ID address set by the dome. The Unit ID is within the range of 1 to 255. The default ID is 224. Note that no two devices on the same bus should be given the same ID address, or a conflict may occur.

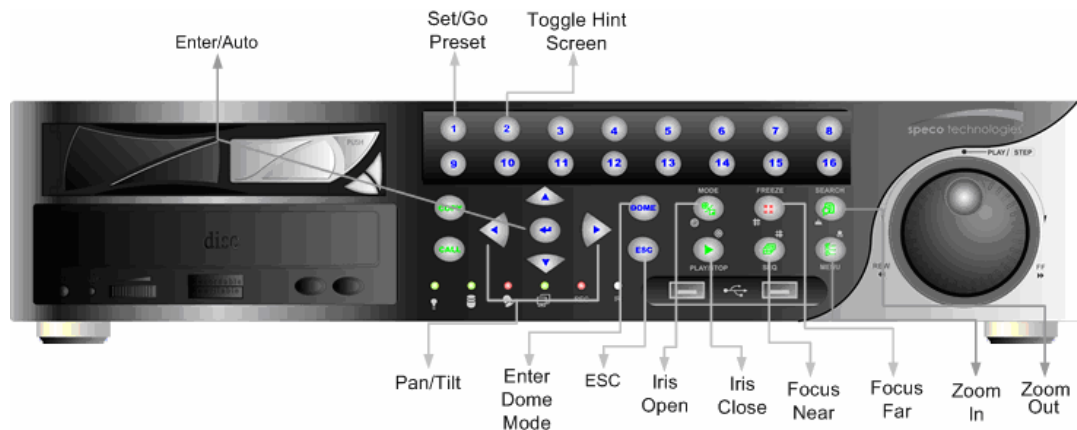
The default **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series RS-485 settings are 9600 Baud, 8 Data Bits, 1 Stop Bit and No Parity.



NOTE: The settings become effective after saving the changes and exiting from the menu.

4.6.4 Dome Controlling Key

The function keys used in Dome Control are illustrated below.



Set / Go Preset

This key is used to enter the Dome Preset menu to enable the set up of a specific position as a preset and to go to the predetermined preset positions.

Toggle Hint Screen

This function is used to avoid viewing the dome parameter information while controlling the dome camera. Press this key to hide the screen. Press it again to redisplay the screen.

Iris Open

Use this function to open the Iris on the dome camera.

Focus Near

Use this function to focus the dome camera near.

Zoom In

Use this function to zoom the dome camera in. This enables the user to move closer to the viewing area.

ESC

Use this function to leave dome control mode and return to live and full screen viewing mode.

Auto / Enter

- In OSD Menu mode, this key is used to make selection.
- In dome control mode, this key is used to activate automatic focus and iris function.

Iris Close

Use this function to close the Iris on the dome camera.

Focus Far

Use this function to focus the selected dome camera far.

Zoom Out

Use this function to zoom the dome camera out. This enables the user to move away from the viewing area

Pan / Tilt

Use this function to pan and tilt dome camera.

4.6.5 Setting Preset Points

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit allows user to set preset positions; the amount of preset points allowed depends on the dome manufacturer.

Follow these steps to set preset points..

- Press a Channel key to view the corresponding camera in full screen.
- Then press DOME to enter dome control mode.
- Use Direction keys to position the dome camera to desired position.
- Press 2 to view the dome control Hint Screen; press 2 again to toggle the Hint Screen.

<p>Hint Screen</p> <p>DOME / ESC: Exit</p> <p>MODE / PLAY: Iris Open / Close</p> <p>SEQ / FREEZE: Focus Near / Far</p> <p>MENU / SEARCH: Zoom In / Out</p> <p>ENTER: Auto Focus / Iris</p> <p>◀▲▼▶: Pan / Tilt</p> <p>CH1: Set / Go Preset</p> <p>CH2: Hint Screen On / Off</p> <p>Dome Control</p>

- Press 1 to access the Set/Go Preset function. The Dome Preset menu is then displayed.

Dome Preset		
Index	Set Preset	Go Preset
1	NO	NO
2	NO	NO
3	NO	NO
4	NO	NO
5	NO	NO
6	NO	NO
7	NO	NO
8	NO	NO
9	NO	NO

- Use UP / DOWN keys to select the desired preset number from the menu.
- Change the <Set Preset> of the selected preset number to <YES>, and press ENTER to save the position. Now the preset is set and ready to call.

4.6.6 Calling Preset Points

Follow these steps to call preset points.

- Press a Channel key to view the corresponding camera in full screen.
- Then press DOME to enter dome control mode.
- Press 2 to view the dome control Hint Screen; press 2 again to toggle the Hint Screen.
- Press 1 to access the Set/Go Preset function.

Dome Preset		
Index	Set Preset	Go Preset
1	NO	NO
2	NO	NO
3	NO	NO
4	NO	NO
5	NO	NO
6	NO	NO
7	NO	NO
8	NO	NO
9	NO	NO

- Use UP / DOWN keys to select the desired preset number from the menu.
- Change the <Go Preset> of the selected preset number to <YES>, and press ENTER to call the preset point.
- Now the selected dome camera rotates to the preset position automatically.

5. Advanced System Configuration

The detailed functions and settings of the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series can be set by using the hierarchical OSD menu. This chapter describes the menu items and options in the OSD menu.

To enter the Main menu, press MENU and then enter Administrator or User password. The default passwords are shown in the following table. The same default passwords are used for entering the remote viewing software **SpecoRemote™**.

Administrator Password	User Password
1234	4321

It is strongly recommended to change the passwords to prevent unauthorized access to the unit.

After entering the correct password, the Main menu is displayed.

Main Menu
1. System Setup
2. Monitor Setup
3. Camera Setup
4. Record Setup
5. Sequence Setup
6. Event Setup
7. Database Setup
8. Configuration
9. Video Export
10. Text Setup
11. Shutdown

Key Usage in OSD Menu

<Direction Keys>

In the OSD menu, Direction keys are used to move the cursor to previous or next fields. UP / DOWN are used to change the value in the selected field.

<ENTER>

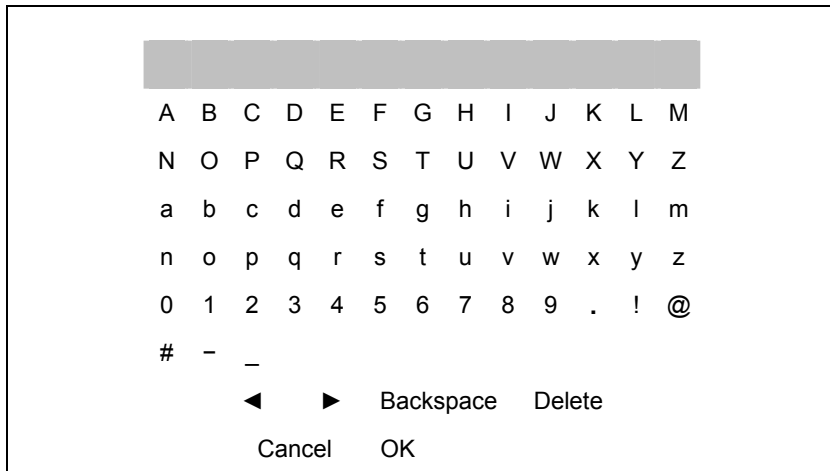
In OSD menu or selection interface, press the key to make selection or save settings.

<ESC>

Press to cancel or exit from certain OSD menu without saving any changes.

Key Usage in Virtual Keyboard

A virtual keyboard shows when edit the settings, such as camera title, e-mail address, etc. The virtual keyboard displays as follows.



<To input characters>

Move the cursor by pressing Direction keys and press ENTER to select characters.

<To move the cursor in title entry>

Press MODE and LEFT / RIGHT simultaneously to move the cursor to left / right in the title entry.

<To delete previous character>

Select <Backspace> and press ENTER, or press MODE and UP simultaneously.

<To delete current character>

Select <Delete> and press ENTER, or press MODE and DOWN simultaneously.

<To exit the virtual keyboard>

Select <OK> and press ENTER to save the settings and exit, or press ESC to exit without saving changes

5.1 System Setup

Select <System Setup> from the Main Menu and press ENTER to enter the System Setup menu.

System Setup	
1. Version	
2. Language	English
3. Date/Time	
4. Unit Name	DVR
5. Password	
6. Network Setup	
7. RS485 Setup	
8. Audio Output	Live/Playback
9. Key Beep	YES

The items found in the System Setup menu are described in the following sections.

5.1.1 Version

The Version menu allows the user to view system information such as hardware and software versions. From the System Setup menu, select <Version> and press ENTER. The following menu is displayed.

Version	
Model Name	xxxxxxx
Hardware	V1.0
Software	xxxx-xxxx-xxxx-xxxx
Software Upgrade via Local Device	
Software Upgrade via Internet	

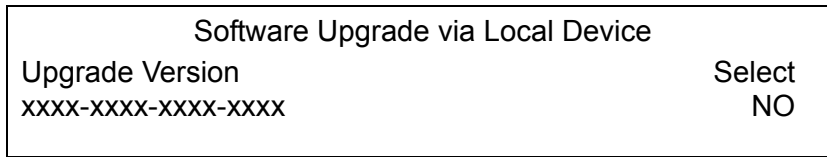
The items in this menu are described in the following subsections.

5.1.1.1 Model Name & Version

The first three items tell the model name and identify the hardware and software version for this unit.

5.1.1.2 Software Upgrade via Local Device

This item is used for updating the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit software by local device. The menu is displayed as follows.



Connect a USB drive that contains the upgrade software to the unit; the upgrade files that are available will then be listed in the menu. To update the system, select a file and use UP / DOWN keys to choose <YES>. Press ENTER to confirm the selection and start the upgrade process. The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit uploads the software, updates the system files, and reboots automatically.

The upgrade process may take several minutes to complete. After rebooting the unit, please check the software version again.



NOTE: If you want to upgrade your unit with a USB ThumbDrive[®] contains the newest software, make sure the software you want to use to update the unit should be fold into a folder named “upd_200s”, otherwise, the unit cannot recognize it.



NOTE: Power interruption cannot occur during the software upgrade process. Ensure that no power interruption can happen until the unit is completely rebooted.



NOTE: Do not remove the external USB ThumbDrive[®]/CD-ROM before the unit has completely shut down (hard drive and fan are off). Removing the external USB ThumbDrive[®]/CD-ROM before shut down can cause the system to update improperly.

5.1.1.3 Software Upgrade via Internet

This item is used to upgrade the unit’s software via the internet. Select one of the listed software versions and choose <YES>. The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit uploads the software, updates the system files and reboots automatically.

5.1.2 Language

The Language item allows the user to select the language for the OSD menu and screen messages. Language selection takes effect immediately when the selection is done. Press UP / DOWN to select from languages listed and press ENTER to confirm.

5.1.3 Date / Time

The user can set the current date, time and other OSD parameters in this menu. The Administrator's privileges are required for entering the submenu. In the System Setup menu, select <Date/Time> and press ENTER; the Date/Time menu displays as follows.

Date/Time	
1. Date	2005/02/21
2. Time	10:39:26
3. Time Zone	OFF
4. Date/Time Display	1 Row
5. Date Display Mode	Y/M/D
6. Time Display Mode	24 HR
7. Date/Time Order	Date First
8. Daylight Saving Time Setup	
9. Network Time Protocol Setup	



NOTE: The reset date/ time setting applies only to future recorded video, the date and time of previously recorded video will not be changed.



NOTE: After the Date/Time setting is changed, clearing the database is recommended for avoiding record database corruption.

5.1.3.1 Date / Time Setting(s)

Select <Date> or <Time> and press ENTER to adjust the settings. LEFT / RIGHT keys are used to move the cursor to previous or next field, ENTER is for selecting, and UP / DOWN are used to change the value in the selected field.

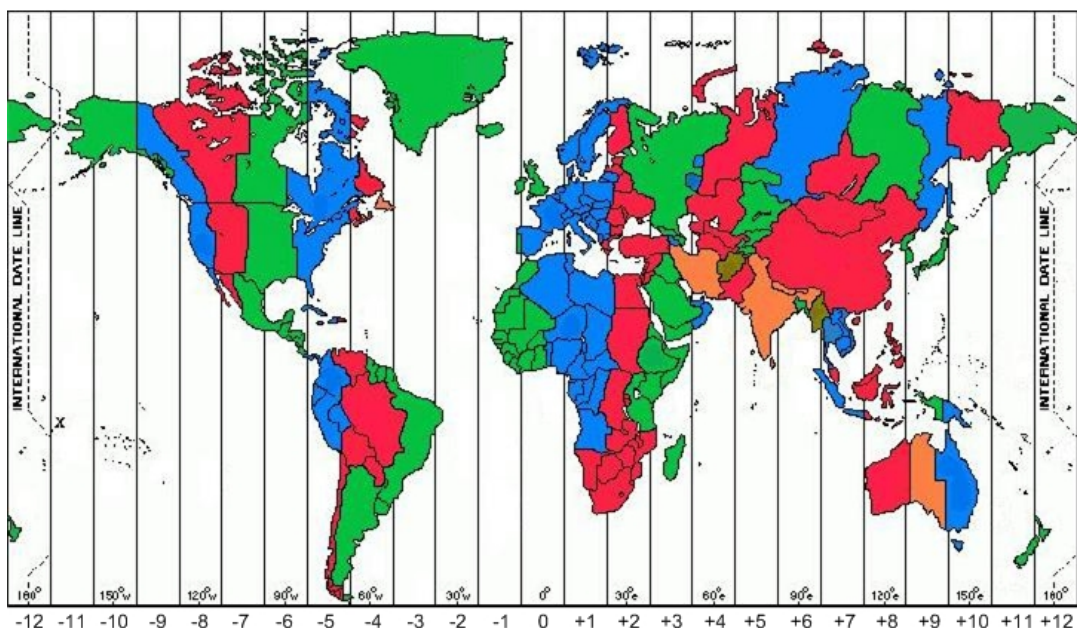
5.1.3.2 Time Zone

You can adjust the unit to the local time either by manually setting the date/time and day light saving time, or by setting this item and let unit automatically adjusts the two items mentioned above according to the time zone you select.

The default time zone is set to the “+8” area, please refer to the figure below and select you local time zone.



NOTE: After selecting the time zone, you **MUST** go to <Network Time Protocol Setup> → <Manually Time Sync> and synchronize the local time once, or the time zone setting will not be activated.



5.1.3.3 Date / Time Display

Users are allowed to choose to set the Date / Time OSD displays in 1 or 2 rows. Use the UP / DOWN keys to change the setting. The default is to display the date / time OSD in one row.

5.1.3.4 Date Display Mode

This function allows the user to set the OSD display type for the date / time. There are three options to select from: <Y/M/D>, <M/D/Y> or <D/M/Y>. “Y” represents “Year”, “M” represents “Month” and “D” represents “Day”.

Use UP / DOWN keys to change the setting. The default setting is <Y/M/D> in both NTSC / PAL formats.

5.1.3.5 Time Display Mode

The user can choose to set the time format to <12 hour> or <24 hour>. Use the UP / DOWN keys to change the format. The default setting is <12 hour>.

5.1.3.6 Date/Time Order

This item is used to set the order of Date/Time display to <Date First> or <Time First>. Select this item and press ENTER, then use UP / DOWN keys to change the setting.

5.1.3.7 Daylight Saving Time Setup

This menu is for people who live in certain regions to observe Daylight Saving Time (DST).

Daylight Saving Time

Select <ON> to enable, or <OFF> to disable the function.

If the function is disabled, the DST Start/ End time and DST Bias will be grayed out and cannot be accessed. If this function is enabled, the date/time information will be shown on the screen with a DST icon when playing back recorded video or searching video in the event list. "S" indicates summer time and "W" indicates wintertime.

DST Start / End

These items are used to set the daylight saving duration. Use LEFT / RIGHT to move the cursor to the next or previous field, UP / DOWN to change the settings.

DST Bias

This item allows the user to set the amount of time to move forward from the standard time for daylight saving time. Available options are <30>, <60>, <90> and <120> minutes.

5.1.3.8 Network Time Protocol Setup

The submenu allows you to setup the Network Time Protocol (NTP) server, to automatically synchronize your unit to fit the local time per hour, and to manually synchronize the local time.

Network Time Protocol Setup	
1. NTP Server	Time.nist.gov
2. Automatically Time Sync	OFF
3. Manually Time Sync	OFF

NTP Server

The item shows IP address of the NTP server. If you want to change to another NTP server, press ENTER and fix it through a virtual keyboard.

Automatically Time Sync

Select <ON> to synchronize the local time automatically every hour.



NOTE: If you want the unit to automatically synchronize the local time, the <Time Zone> item **MUST NOT** be set to <OFF>, or the function cannot be activated.

Manually Time Sync

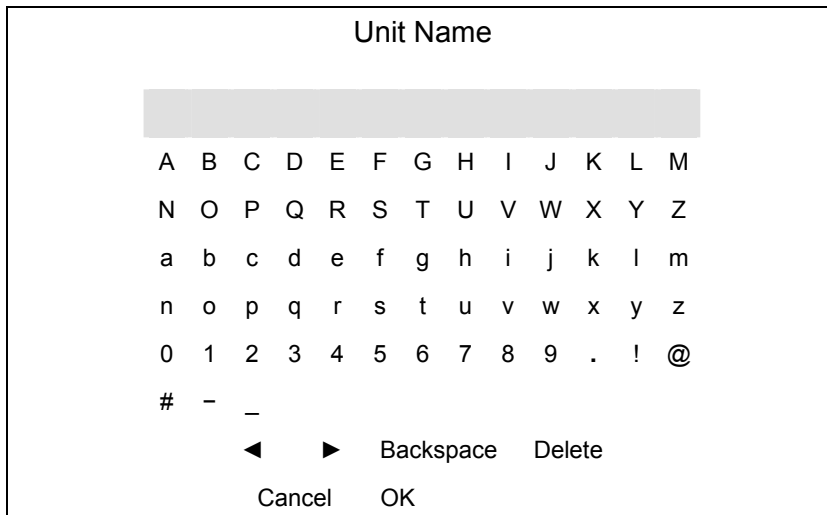
Select <ON> to instantly synchronize the local time.

5.1.4 Unit Name

Users are allowed to assign a name, up to 11 characters, to the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit.

Follow the steps below to edit the unit name.

- Select <Unit Name> from System Setup menu and press ENTER. A virtual keyboard displays.



- Use Direction keys to move the cursor to the desired character.
- Press ENTER to add the character to the entry field (up to 11 characters).
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

5.1.5 Password

The Password menu allows administrator to change the password settings for accessing the unit. Select <Password> in the System Setup menu and press ENTER; the menu displays as follows. Three account/password are offered for setting.

Password	
1. Admin1 Password	
2. User1 Password	
3. Admin2 Password	
4. User2 Password	
5. Admin3 Password	
6. User3 Password	
7. Enable Password	No
8. Load Factory Password	None

5.1.5.1 Admin / User Password(s)

Only who entering with the administrator password is allowed to change the user and administrator passwords (to any 4~8 digit number). Use the UP / DOWN Direction keys to enter the desired account and press ENTER, the following menu is displayed.

Admin Password

Press Channel Keys To Enter Password (4-8 Digits) Press ◀ To Delete

Use CHANNEL keys to input the new password and confirm the new password. After setting the new password, press ENTER to save the settings and exit.

5.1.5.2 Enable Password

This item is used to determine if a password is required for accessing the OSD menu. Select <YES> to demand entering password when accessing the OSD menu; if not, select <NO>.

5.1.5.3 Load Factory Password

This item allows the administrator to reload the factory password in case the administrator cannot remember the password. There are three options to select from: <Admin> (reload the Admin password only), <User> (reload the User password only), and <All> (reload the Admin and User passwords). The factory password is 1234 for administrator and 4321 for user.

5.1.6 Network Setup

The Network Setup menu allows the administrator to configure the network by specifying the network related settings, such as IP address and Netmask, etc.

See your network administrator and/or network service provider for more specific information.

Some settings under the Network Setup menu, such as IP and PPPoE Account, need to be configured through the virtual keyboard. The function key usage pattern is slightly modified, please refer to section [Key Usage in Virtual Keyboard](#).

From the System Setup menu, select <Network Setup> and press ENTER. The following menu displays.

Network Setup	
1. LAN Select	LAN
2. LAN Setup	
3. Dial-in Setup	
4. Dial-out Setup	
5. Trigger Port	
6. Email Address	100
7. SMTP Setup	
8. DDNS Setup	

Items in this menu are described in the following sections.

5.1.6.1 LAN Select

PPPoE stands for Point-to-Point Protocol over Ethernet, which is a specification for connecting the users by Ethernet to the Internet through a common broadband medium.

This item allows you to select your service type between <LAN>, <PPPoE> or <None>; if you are using an intranet for communication, please select <LAN>, if you are using a broadband medium, such as DSL Line or cable modem, please select <PPPoE>.

If <None> is selected, then there is no need to set further LAN setting, therefore, the second item <LAN Setup> will not be accessible.

5.1.6.2 LAN Setup

The network related settings in the LAN Setup menu should be associated with the network service type. If you select <LAN> for <LAN Select>, then 6th to 8th item will not be available.

Select <LAN Setup> in Network Setup menu and press ENTER for setting the parameters; the menu displays as follows.

LAN Setup		
1. DHCP		OFF
2. IP	192.168.1.150	
3. Netmask	255.255.255.0	
4. Gateway	192.168.1.1	
5. DNS	0.0.0.0	
6. PPPoE Account		
7. PPPoE Password		
8. PPPoE Max Idle	35min	
9. Router Setting		
10. Connect At Booting		YES
11. Network Restart		NO

DHCP

This item allows the user to obtain a dynamic IP address from a DHCP (Dynamic Host Configuration Protocol) server while the unit boots up. When using DHCP, the settings are dynamic and they will change every time you power up and power off the unit, depending on your network's setup.

If the DHCP is enabled (ON), a dynamic IP will be assigned to the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. In this case, the user does not need to configure a static IP or the Ethernet settings including IP address, Netmask, Gateway, and DNS settings will be "read only". The default setting is <ON>.

If you are using permanent addressing, set DHCP to <OFF> for setting the IP Address, Netmask, Gateway, and DNS. See your network system administrator or IT personnel for appropriate values for these setting.

IP

This item is used to configure the IP (Internet Protocol) address of the unit. The IP address is the identifier for your computer or device on a TCP/IP LAN or WAN. Please note that to set a static IP address, DHCP must be set to <OFF>.

Netmask

A netmask is a 32-bit mask used to divide an IP address into subnets and specify the networks available hosts. Its value is defined by your network administrator. It takes the form as `***.***.***.***`, for example, 255.255.255.255.

This item allows the user to enter the value of the Netmask for the unit. Please note that to configure the item, DHCP must be set to <OFF>.

Gateway

A Gateway is a node on a network that serves as an entrance to another network.

Users are allowed to specify the IP address of the gateway or router associated with this unit. To configure this item, DHCP must be set to <OFF>.

DNS

DNS is the abbreviation for “Domain Name System”, which is an Internet service that translates domain names into IP addresses because domain names are easier to remember.

This item allows the user to specify the IP address of the Domain Name System associated with the unit. To configure this item, DHCP must be set to <OFF>.

If the network server is unavailable when using DHCP, the unit searches for the network server and boots up more slowly. This network search continues until it times out.

PPPoE Account

This item allows the user to setup the PPPoE login username.



NOTE: For accessing the PPPoE settings, select <PPPoE> as the Network Type in Network Setup menu.

To setup the login username, follow the steps below:

- Select <PPPoE Account> from the LAN Setup menu and press ENTER. A virtual keyboard displays.

PPPoE Account

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
a	b	c	d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w	x	y	z
0	1	2	3	4	5	6	7	8	9	.	!	@
#	-	_										

◀
▶
Backspace
Delete

Cancel
OK

- Use Direction keys to move the cursor to the desired character.
- Press ENTER to add the character to the username entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

PPPoE Password

This item allows the user to setup the PPPoE password. Follow these steps to setup the login password.

- Select <PPPoE Password> from LAN Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to select character.
- Press ENTER to add the selected character to the password entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

PPPoE Max Idle

This item indicates the time that the modem connection remains active if there is no acknowledgement from the remote PC. You can select the idle time from 0 to 600 minutes. The default is 35 minutes.

Router Setting

The ezRouter function saves the user time and trouble to go through the complex router settings. What you need to know in advance in order to setup the router are the name, username, password, and management port of the router.

Router Setting		
1. Enable Router		ON
2. Current Router	D-Link(DI604_US)	
3. Router Username		xxxx
4. Router Password		xxxx
5. Management Port		100
6. Update Router		No

<Enable Router>: Select ON/OFF to enable or disable the ezRouter function.

<Current Router>: Five models of the most popular routers are supported by the DVR.

LINKSYS (WRT54G): Linksys® WRT54G Wireless-G™ Router

NETGEAR (WPN824): NETGEAR® RangeMax™ Wireless Router WPN824

D-Link (DI624): D-Link® DI-624 AirPlus Xtreme G™ Wireless Router

D-Link (DI604_US) & D-Link (DI604_TW):

D-Link® Express EtherNetwork™ DI604. US stands for DI604 which are purchased in the USA, and TW stands for DI604 which are purchased in Taiwan.

<Router Username>: The default username of the router can be found in the router's user's manual

<Router Password>: The default password of the router can be found in the router's user's manual

<Management Port>: The management port is the default port of the router, different routers may have different management ports. Please contact the manufacturer of your router for assistance if you cannot find the information of default port for your router.

<Update Router>: After you have filled in the items above, enter “Yes” to update the Router. After pressing ENTER, a message “Router port updating! Please stand by” will be shown on the screen. A message box will be displayed within 30 seconds.

ezRouter setting.....	√
DDNS submitted.....	√
WAN connection.....	√

Please refer to the Network Restart section for definitions of the messages.

Connect At Booting

The unit can connect to the Internet automatically when powered up. Select <YES> to connect at booting, otherwise select <NO>.

Network Restart

Network restart is required after changing network settings. Select <YES> to restart the network connection. After pressing ENTER, a message “Network restarting Please stand by” will be shown on the screen. A message box will be displayed within 30 seconds.

Network restart.....	√
ezRouter setting.....	X
DDNS submitted.....	√
WAN connection.....	√

The “√” symbol indicates that the device is working properly whereas the “X” symbol indicates that the device is NOT working properly. The definitions of the items on the message box are described below.

<**Network restart**>: This message shows the user if the DVR 1 was able or NOT able to:

1. Either use the IP address that the user entered manually
2. Or to see if the DVR 1 can be assigned a dynamic IP address from the router using DHCP

The flowchart is illustrated in Fig. 5.1.

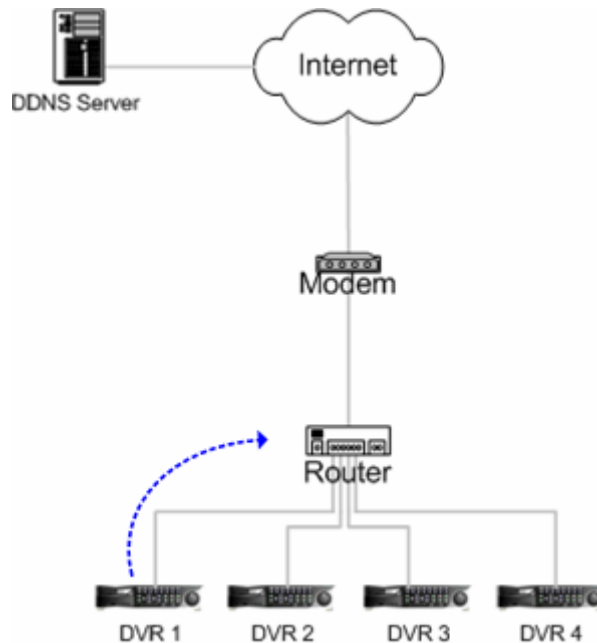


Figure 5.1

<**ezRouter setting**>: When the IP address is obtained and assuming that you have set the ezRouter correctly (Please refer to [Router Setting](#) section to setup the ezRouter), the DVR 1 will then connect to the router to see if the DVR can *automatically* setup the router. The flowchart for this message (Fig. 5.1) is the same as <Network restart>, the only difference is that the DVR 1 will connect to the router to see if the DVR 1 can change the settings of router.



Note: Sometimes the “X” symbol may be displayed for ezRouter setting because there are too many ports opened in the router. Close the redundant ports and re-do the ezRouter setting. The average ports that can be opened in a router are about 10 to 30 ports depending on the router that you use.

<DDNS submitted>: This message tells the user if the DVR 1 has registered for the host name successfully or unsuccessfully (illustrated in Fig. 5.2).

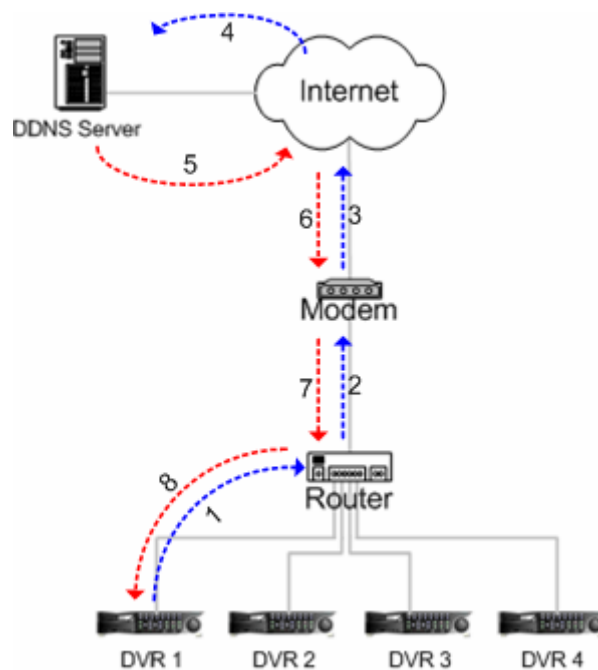


Figure 5.2

The DVR 1 connects to the DDNS server through the router, modem, and the Internet to check if the host name of the DDNS can be registered in your DDNS server.

<WAN connection>: This message shows the user if the DVR 1 is connected to the WAN (Wide Area Network) or the Internet (illustrated in Fig. 5.2). The DVR 1 connects to the WAN or the Internet through the router, and modem to check if the connection is valid.

5.1.6.3 Dial-in Setup

The Dial-in function enables the user to establish dial-up modem communication to and from the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit for remote software use. The user is allowed to connect only one modem to a **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit.

For more information on dial-up setting on PC, see [Appendix D: Dial-up Connections via Modem](#).



NOTE: The Dial-in Service is not available if there is no modem connected to the unit.

In Network Setup menu, select <Dial-in Setup> and press ENTER to enter the Dial-in menu. The menu displays as follows.

Dial-in Setup			
1. Dial-in Service			OFF
2. Dial-in Account			User
3. Dial-in Password			XXXX
4. Server IP	192.	168.	0. 1
5. Client IP	192.	168.	0. 2
6. Dial-in Idle Time			0 Min
7. Dial-in Max Time			0 Min

Dial-in Service

If the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit does not connect to the Internet, the user can communicate to the unit from a remote PC through a modem as well. Select <ON> to enable the Dial-in function, or <OFF> to disable.

Dial-in Account

This item enables user to protect access to the unit by establishing or changing a dial-in user name for modem connection.

To setup the Dial-in Account, follow these steps.

- Select <Dial-in Account> from Dial-in Setup menu and press ENTER. A virtual keyboard displays.

Dial-in Account															
[Greyed out input field]															
A	B	C	D	E	F	G	H	I	J	K	L	M			
N	O	P	Q	R	S	T	U	V	W	X	Y	Z			
a	b	c	d	e	f	g	h	i	j	k	l	m			
n	o	p	q	r	s	t	u	v	w	x	y	z			
0	1	2	3	4	5	6	7	8	9	.	!	@			
#	-	_													
		◀	▶	Backspace		Delete									
		Cancel		OK											

- Use Direction keys to move the cursor to the desired character.
- Press ENTER to add the selected character to the username entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.



NOTE: The Server IP and the Client IP must not be identified as the same IP address; but they have to be set in the same domain.

For example: Server IP: 192.168.0.1

Client IP: 192.168.0.2

Dial-in Password

This item allows the user to setup the Dial-in password. Follow these steps to setup the login password.

- Select <Dial-in password> from Dial-in Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to select character.
- Press ENTER to add the selected character to the password entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

Server IP

This item is for setting the IP address that identifies the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit over a modem connection. To set the server IP, follow these steps:

- Select <Server IP>.
- Using LEFT/ RIGHT to move the cursor over the IP, and stop where you want to make the change.
- Press ENTER, and then use UP/ DOWN to change the value.
- When done, press ENTER again to exit.
- Repeat the procedure until the IP is completely set.

Client IP

This item determines the remote PC's IP address for connecting with the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. To set the Client IP, follow these steps:

- Select <Client IP>.
- Using LEFT/ RIGHT to move the cursor over the IP, and stop where you want to make the change.
- Press ENTER, then use UP/ DOWN to change the value.
- When done, press ENTER again to exit.
- Repeat the procedure until the IP is set completely.

Dial-in Idle Time

This item indicates the longest amount of time that the modem connection remains active if there is no acknowledgement from the remote pc. The value can be set from 0 min to 600 min.

Dial-in Max Time

The item indicates the longest amount of time that the connection via modem remains active. The value can be set from 0 min to 600 min.

5.1.6.4 Dial-out Setup

The Dial-out function enables the user to establish dial-up modem communication to and from the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit for remote notification use. The user can connect one modem to the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. For more information for dial-up setting on PC, see [Appendix D: Dial-up Connections via Modem](#).



NOTE: The Dial-out Service is not available if there is no modem connected to the unit.

In the Network Setup menu, select <Dial-out Setup> and press ENTER to enter the Dial-out menu. The menu displays as follows.

Dial-out Setup			
1. Dial-out DHCP			OFF
2. Dial-out IP	0.	0.	0. 0
3. Dial-out Netmask	0.	0.	0. 0
4. Dial-out Gateway	0.	0.	0. 0
5. Dial-out DNS	0.	0.	0. 0
6. Phone Number			
7. Dial-out Account			
8. Dial-out Password			
9. Dial-out Idle Time			0 Min
10. Dial-out Max Time			0 Min
11. Connect			No

Dial-out DHCP

This item allows the user to obtain a dynamic IP address from a DHCP (Dynamic Host Configuration Protocol) server over a modem connection. If the item is enabled (ON), a dynamic IP will be assigned to the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. In this case, the user does not need to configure a static IP and the following settings will be “read only.”

Select <ON> to enable the DHCP function, or <OFF> to set the dial-out IP address, Netmask, Gateway and DNS manually. The default setting is <ON>.

Dial-out IP

This item is for setting a static IP address that identifies the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit over a modem connection. Set the <Dial-out DHCP> to <OFF> for accessing this item.

Move the cursor over <Dial-out IP> and press ENTER, then press UP / DOWN keys to change the values in the selected field.

Dial-out Netmask

This item is for setting the Netmask that identifies the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT T** series unit over a modem connection. To configure the item, DHCP must be set to <OFF>.

Move the cursor over <Dial-out Netmask> and press ENTER, and then press UP / DOWN keys to change the values in the selected field.

Dial-out Gateway

Users are allowed to specify the IP address of the gateway or router associated with this unit. To configure this item, DHCP must be set to <OFF>.

Move the cursor over <Dial-out Gateway> and press ENTER, and then press UP / DOWN keys to change the values in the selected field.

Dial-out DNS

This item allows the user to specify the IP address of the Domain Name System (DNS) associated with the unit. To configure this item, DHCP must be set to <OFF>.

Move the cursor over <Dial-out DNS> and press ENTER, and then press UP / DOWN keys to change the values in the selected field.

Phone Number

This item is used to set the dial-out phone number. Follow these steps to setup the phone number.

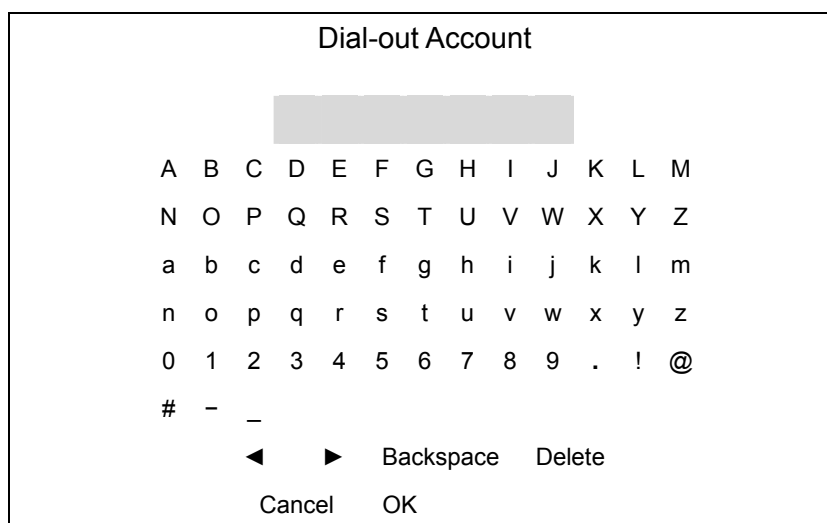
- Select <Phone Number> from Dial-out Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to move the cursor for selecting a number.
- Press ENTER to add the selected number to the phone number entry field.
- When done, press ENTER to save the settings and exit.

Dial-out Account

This item enables the user to set the Dial-out user name, which is needed for dialing out to Internet Service Provider server. Contact your network service provider for more specific information.

To setup the Dial-out Account, follow these steps.

- Select <Dial-out Account> from the Dial-out Setup menu and press ENTER. A virtual keyboard displays.



- Use the Direction keys to move the cursor to the desired character.
- Press ENTER to add the selected character to the username entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit..

Dial-out Password

This item allows user to setup the Dial-out password. Follow these steps to setup the login password.

- Select <Dial-out password> from Dial-out Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to move the cursor for selecting a character.
- Press ENTER to add the selected character to the password entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

Dial-out Idle Time

This item indicates the longest amount of time that the modem connection remains active if there is no acknowledgement from the remote pc. The value can be set from 1 min to 600 min. If selecting <0>, the modem connection keeps active continuously.

Dial-out Max Time

This item indicates the longest amount of time that the connection via modem remains active. The value can be set from 1 min to 600 min, or <0> to keep the connection indefinitely.

Connect

When the Dial-out related settings are configured, set this item to <YES> to starting dial-out or select <NO> to disconnect.

5.1.6.5 Trigger Port

To avoid the possibility of the default service port (port 100)being blocked, this item enables the user to change port 100 into another port. To change the trigger port, move the cursor over <Trigger Port> and press ENTER, then adjust the setting by UP / DOWN keys. After you have entered a different port and pressed ENTER, a message "Network restarting Please stand by" will be shown on the screen. A message box will be displayed in approximately 30 seconds.

Port allocated.....	√
ezRouter setting.....	X
DDNS submitted.....	√
WAN connection.....	X

When the trigger port that you have just modified can be allocated, the 1st item “Port allocated” will be followed by a “√” symbol indicating that the designated port is allocated. “X” indicates that the port cannot be allocated. Note that the DDNS port will be automatically changed to the same port as the trigger port. For instance, when you have set the trigger to 123, the DDNS port will be automatically changed to port 123. Therefore, when the ports are allocated, “Port allocated” and “DDNS submitted” will both be followed by the “√” symbol. The 2nd to 4th item will be discussed in Network Restart section.

5.1.6.6 Email Address

This item is used to edit the e-mail address where alarm event information will be sent. Follow these steps to setup the e-mail address.

- Select <Email Address> from Network Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to move the cursor for selecting character.
- Press ENTER to add the selected character to the password entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

5.1.6.7 SMTP Setup

Simple Mail Transfer Protocol (SMTP) is a protocol for sending e-mail messages between servers. SMTP is a relatively simple, text-based protocol, where one or more recipients of a message are specified and the message text is transferred.

Select < SMTP Setup> from Network Setup menu and press ENTER; the menu displays as follows.

SMTP Setup	
1. Email via SMTP	No
2. SMTP Server	
3. SMTP Port	25
4. SMTP Account	
5. SMTP Password	

Email via SMTP

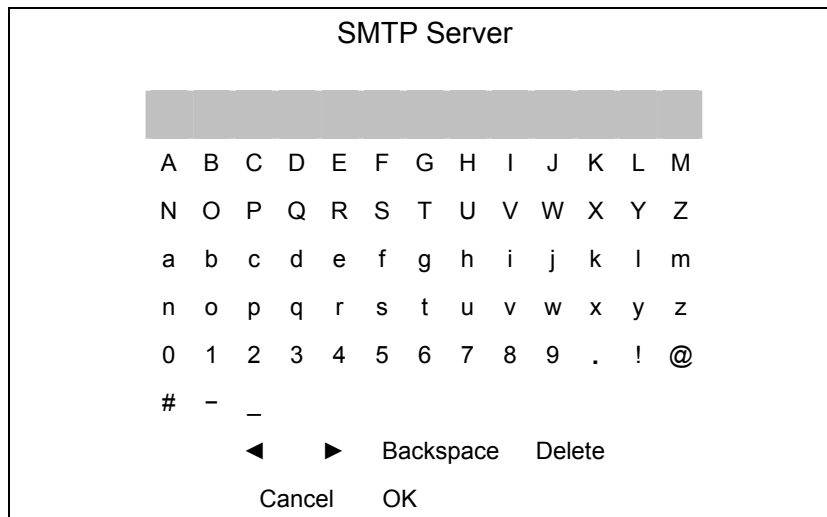
This item enables the user to determine if the unit sends e-mail via SMTP. Select <YES> to send e-mail via SMTP using direction keys; if not, select <NO>.

SMTP Server

This item enables the user to set the SMTP server. Contact your network service provider for more specific information.

Follow these steps to setup the SMTP Server.

- Select <SMTP Server> from SMTP Setup menu and press ENTER. A virtual keyboard displays.



- Use Direction keys to move the cursor to the desired character.
- Press ENTER to add the selected character to the username entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

SMTP Port

This item is used to change the SMTP port to another port, if necessary. SMTP is usually assigned to operate over Internet port 25.

To change the SMTP port, move the cursor to <SMTP Port> in SMTP Setup menu and press ENTER. Use UP / DOWN keys to change the values in the selected field.

SMTP Account

This item allows user to setup the SMTP username. Follow these steps to setup the login password.

- Select <SMTP Account> from SMTP Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to move the cursor for selecting character.
- Press ENTER to add the selected character to the SMTP Account entry field.

- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

SMTP Password

This item allows the user to setup the SMTP password. Follow these steps to setup the password.

- Select <SMTP password> from SMTP Setup menu and press ENTER. A virtual keyboard displays.
- Use Direction keys to move the cursor for selecting a character.
- Press ENTER to add the selected character to the password entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.

5.1.6.8 DDNS Setup

Dynamic Domain Name System (DDNS) allows a DNS name to be constantly synchronized with a dynamic IP address. In other words, it allows those using a dynamic IP address to be associated with a static domain name so others can connect to it by the static name.

Once the setting is completed, the DDNS address will be:

<http://yourhostname.ddns.specoddns.net>

Fore example, if the chosen Host name is "SPECO", then the address will be:

<http://speco.ddns.specoddns.net>

Select <DDNS Setup> from Network Setup and press ENTER. The menu displays as below figure.

DDNS Setup		
1. Enable DDNS		ON
2. Host Name	XXXX_XXXXXX	
3. DDNS Port		80
4. Submit/Update		No
5. ezDDNS		No

Enable DDNS

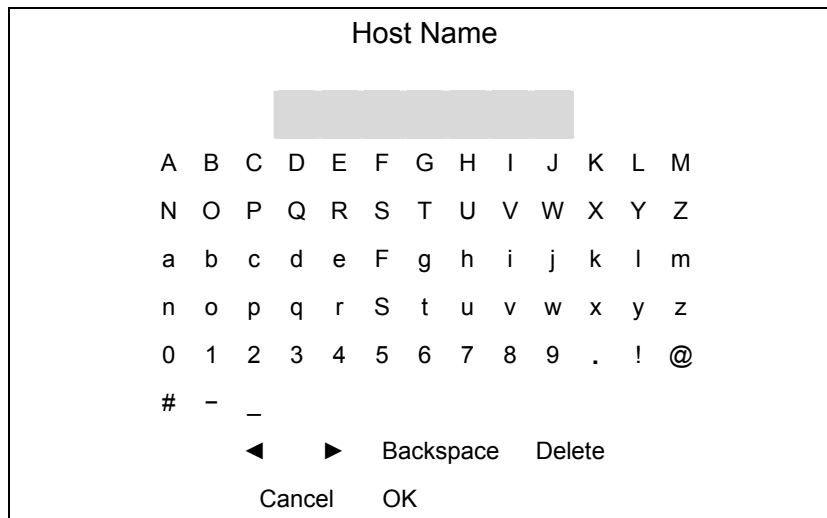
This item is used to enable or disable the Dynamic Domain Name Service. Select <YES> to enable the service, or <NO> to disable.

Host Name

This item allows the user to setup a domain name, which is used when entering the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit through the Internet on your remote PC.

To setup the Host Name of the unit, follow the steps.

- Select <Host Name> from DDNS Setup menu and press ENTER. A virtual keyboard displays as shown.



- Use Direction keys to select a character.
- Press ENTER to add the selected character to the Host Name entry field.
- When done, move the cursor to <OK> and press ENTER to save the settings and exit.



NOTE: No any two **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series units should be set to the same Host Name.

DDNS Port

This item allows the user to setup the port for DDNS. Press UP / DOWN Direction keys to change the port.

Submit/ Update

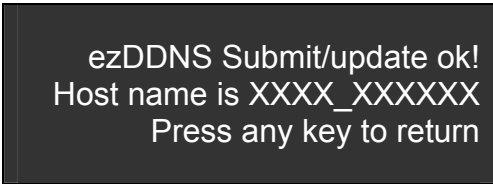
When done, move the cursor to this item and press ENTER to submit the settings.



NOTE: If there are two **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series units set with the same domain name, the later setting will not be submit successfully.

ezDDNS

ezDDNS enables the users to register for the host name automatically. Press ENTER and select YES. The following screen will be displayed:



NOTE: The DVR must be connected to the *Real IP address, or be assigned a specific port using **Port Forwarding technique.

*A "Real IP" is the IP address that is assigned to you by your ISP.

A "Virtual IP" is the IP address assigned either manually or through DHCP. When the user is assigned a Virtual IP, the user must use **Port Forwarding technique to assign a specific port to the DVR.

5.1.7 RS485 Setup

This menu allows the user to setup the parameters of the unit's RS-485 communications port. From the Main menu, select <RS485 Setup> and press ENTER. The following menu is displayed.

RS485 Setup	
1. Unit ID	224
2. Baud Rate	9600
3. Bits	8
4. Stop	1
5. Parity	None

5.1.7.1 Unit ID

This item is used to change the RS-485 ID address of the unit. The ID is with the range of <1> to <255>. The default is <224>.

5.1.7.2 Baud Rate

The Baud rate options for association with the protocol are <2400>, <4800>, <9600>, <19200>, <38400> and <57600>. The default is <9600> baud.

5.1.7.3 Bits

The user can specify the bits in a word that are associated with this protocol. The available options are <6>, <7> and <8> bits. The default is <8> bits.

5.1.7.4 Stop

The user can specify the stop bit associated with this protocol. Options are <1> and <2> stop bits. The default is <1> stop bit.

5.1.7.5 Parity

This item is used to specify the parity associated with this protocol. Options are <ODD>, <EVEN>, and <NONE>. The default is <NONE>.

5.1.8 Audio Output

The item is used to set the audio output mode. The available options are as listed as follows.

<Live/Playback>

Select this item to play the recording sounds of live image in live mode, and sounds of recorded video in playback mode respectively.

<Always Live>

Select this item to play live sounds in both live mode and playback mode.

<OFF>

Select this item to disable the audio output function.

5.1.9 Key Beep

This item is used to enable or disable the key tone. Select <YES> to enable the key tone, or <NO> to disable.

5.2 Monitor Setup

The Monitor Setup menu allows user to set the quality of the displayed image. Select <Monitor Setup> from the Main menu and press ENTER. The following menu is displayed.

Monitor Setup	
1. Show Camera Title	YES
2. Title Position	Fit VGA
3. Monitor Brightness	0
4. Monitor Contrast	0
5. Monitor Chrominance	0
6. Screen Center Adjust	
7. Show Color Bar	Execute
8. VGA Resolution	800x600

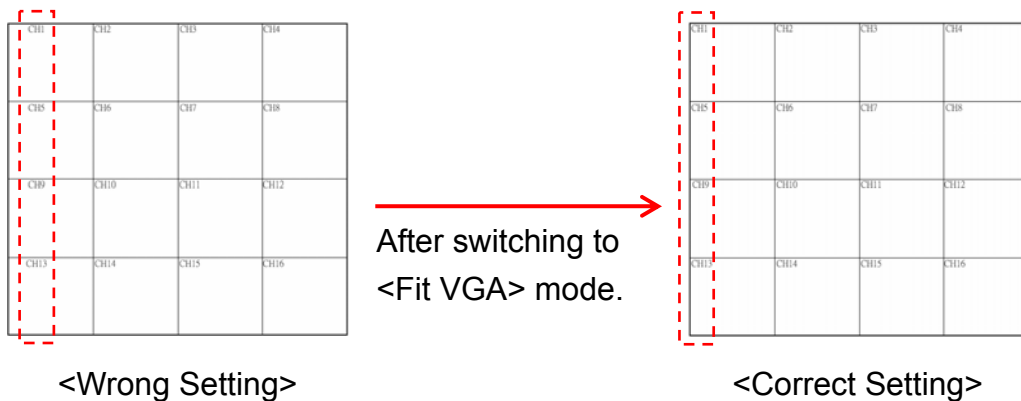
The following sections describe the items found in the Monitor Setup menu.

5.2.1 Show Camera Title

This item allows the user to choose whether to display the camera title on the screen or not. The default is <YES>, which displays the camera titles with the video.

5.2.2 Title Position

This item sets the DVR to display the proper screen size either on a PC Monitor (VGA) or a CRT CCTV Monitor (BNC). For instance, if you are using a CRT CCTV monitor, set this item to <Fit BNC>; or set this item to <Fit VGA> for PC monitor.



PC Monitor was used in the example above. In the <Wrong Setting>, the Title Position was set to <Fit BNC>, which was supposed to be set to <Fit VGA>. Since it was not the right setting, the titles of CH1, CH5, CH9, and CH13 were shifted slightly toward the middle of each channel. After switching to <Fit VGA>, the titles have been shifted back to the proper position as shown in the <Correct Setting>.

5.2.3 Monitor Brightness

This function allows the user to adjust the brightness of the image displayed on the monitor. Move the cursor to the item then press ENTER, and use UP / DOWN keys to adjust the numeric value. The range of brightness values is <-32> to <31>. The default setting is <0>.

5.2.4 Monitor Contrast

This item is used to adjust the color contrast of image. The range of contrast values is <-32> to <31>; the default setting is <0>.

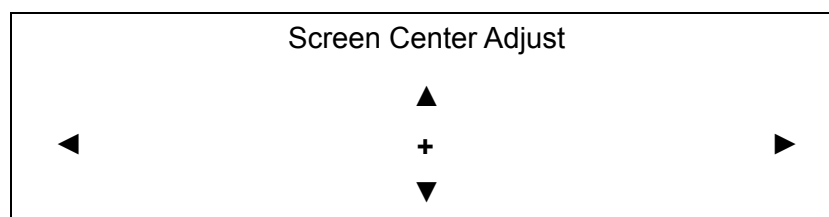
5.2.5 Monitor Chrominance

Move the cursor over this item and press ENTER for adjusting the chrominance of the image displayed on the monitor. Use UP / DOWN keys to adjust the numeric value. The range of chrominance values is <-32> to <31>; the default setting is <0>.

5.2.6 Screen Center Adjust

This item is used to adjust the screen center of the main monitor display area. Follow these steps to set the center point.

- Select <Screen Center Adjust> from the Monitor Setup menu and press ENTER. The adjusting screen displays as follows.



- Position the screen center position using the Direction keys.
- Press ENTER to exit when finished.

5.2.7 Show Color Bar

Choose this item to display a color bar pattern on the screen. The color bar helps to adjust the monitor hue, saturation, text color, and display options. Press ESC to exit the color bar pattern and return to the OSD menu.

5.2.8 VGA Resolution

This item allows the user to select appropriate VGA resolution for the VGA monitor connected to the unit. The options are <800×600> (default), <1024×768> and <1280× 1024>.



NOTE: If the selected VGA resolution is too high for the monitor, the message “No Signal” will be shown on screen. Then please press ESC on the front panel to restore the original setting.

5.3 Camera Setup

The items in the Camera Setup menu enable the user to set camera parameters, including camera title, dome protocol and ID for each connected camera. The menu is shown below..

Camera Setup	
1. Camera Select	CH1
2. Dome Protocol	None
3. Dome ID	0
4. Camera Title	CH1
5. Covert	No
6. Termination	Yes
7. Brightness	0
8. Contrast	0
9. Saturation	0
10. Hue	0
11. Audio Association	Both

Items in this menu are described in the following subsections.

5.3.1 Camera Select

This item is used to select a camera for setting parameters. The settings can then be set for the related camera, such as dome protocol and camera title.

Move the cursor to <Camera Select> and press ENTER, then select a channel using UP / DOWN keys.

5.3.2 Dome Protocol

Select the communications protocol associated with your dome camera using the ENTER and Direction keys. The available protocol includes <DynaColor>, <Pelco D>, <Pelco P>, <AD422>, <Fastrax 2> and <None> (default).

5.3.3 Dome ID

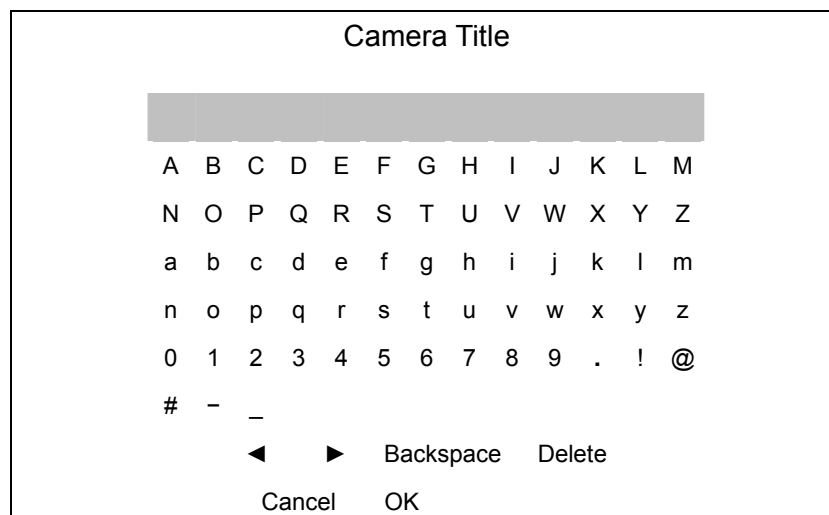
This item is used to assign an ID number to the selected dome camera. Note that ID number must match the ID address set by the dome.

5.3.4 Camera Title

This item allows the user to change the title of each camera connected to the unit. By default, the titles of cameras are numbered from 1 through 16 respectively. The title is displayed on screen after the title changes are set.

Follow these steps to enter a new title for a camera.

- In the Camera setup Menu, move the cursor to Camera Title and press ENTER. A virtual keyboard with alphanumeric characters is displayed.



- Use Direction keys to position the cursor in the title entry field above the virtual keyboard.
- Use Direction keys to move the cursor through the lists of characters to the one you need. Press ENTER to select a character. Continue until the name is established. Each title can contain up to 11 characters in it.
- After the title entry is finished, move the cursor to <OK> and press ENTER; otherwise, either press ESC, or move the cursor to <Cancel> and press ENTER to abort.

5.3.5 Covert

This function allows the user to choose a specific camera to be covert while the unit is continuing to record video. Choosing <YES> means to covert the selected camera; and <NO> the selected camera remains non-covert. The default setting is <NO>.

To set a camera to be covert, follow these steps:

- Select the channel that you want to be covert from the <Channel Select> item.
- After selecting the channel, move the cursor to <Covert> item and select <YES>.

5.3.6 Termination

This item is used to enable / disable the 75-termination resistor inside the unit .that adjusts the image quality of each camera. <YES>= termination resistor enabled (default), <NO> = termination resistor disabled.



NOTE: If the camera loop-out connectors have not been used, the termination resistor should be enabled for appropriate signal termination.

5.3.7 Brightness

Move the cursor to this item and press ENTER to adjust the brightness of the camera. Use UP / DOWN keys to adjust the numeric value. The range of brightness values is <-128> to <127>. The default setting is <0>.

5.3.8 Contrast

Move the cursor to this item and press ENTER to adjust the contrast of the camera. Use UP / DOWN keys to adjust the value.

5.3.9 Saturation

Move the cursor to this item and press ENTER to adjust the color saturation of the camera using UP / DOWN keys. This value will be ignored on monochrome monitors. The range of saturation values is <-128> to <127>. The default setting is <0>.

5.3.10 Hue

Move the cursor to this item and press ENTER to adjust the hue of the camera. Use UP / DOWN keys to adjust the value.

5.3.11 Audio Association

This item is used to establish the connection between the selected camera and the two audio-in channels. Move the cursor to <Audio Association> in the Camera Setup menu and press ENTER, then select <Both>, <Left Only>, <Right Only> or <None> by UP / DOWN keys to set up the connection.

5.4 Record Setup

The following three factors will effect the total record time of the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit:

- HDD capacity
- Recording rate (Picture per Second)
- Image quality settings

The greater the recording rate and the higher the quality setting, the shorter the recording time. Most of the related factors can be set here in this submenu.

The Record Setup menu allows user to set recording quality, recording schedules, and other recording parameters. Administrator's password is required to access Record Setup menu. In the Main menu, move the cursor to <Record Setup> and press ENTER. The following menu is displayed.

Record Setup	
1. Record Mode	720x240@60PPS
2. Schedule Setup	
3. Preset Config	Standard
4. Per Camera Config	
5. ezRecord Setup	
6. Data Lifetime	0 Days
7. Pre-Alarm Recording	15 Sec
8. Circular Recording	ON
9. Audio Recording	ON
10. Purge Data	

5.4.1 Record Mode

This item is for you to preset the resolution and recording rate of normal record and event record. The relative record settings, such as duration, will follow the record mode setting. The offered options are <720x480@30PPS>, <720x240@60PPS>, <360x240@120PPS>, <720x480@30JPG>, <720x240@60JPG> and <360x240@120JPG> in NTSC (<720x576@25PPS>, <720x288@50PPS>, <360x288@100PPS>, <720x576@25JPG>, <720x288@50JPG>, <360x288@100JPG> in PAL).



NOTE: If you choose the item with “PPS” as the last 3 letters, then you choose to record in MPEG-4 compression; if you choose the item with “JPG” as the last 3 letters, then you choose to record in MJPEG compression.

Move the cursor to this item and press ENTER, then select a Record mode using UP / DOWN keys.



NOTE: After changing the Record Mode setting, the warning message “This will FORMAT ALL HARD DISKS and LOAD THE FACTORY DEFAULT CONFIG!” will be shown on the screen. Press ENTER to confirm the selection, then the unit will start to format the hard disks and load the factory default settings, or press ESC to abort.

We strongly recommend backing up your programmed configuration before making any changes on Record Mode settings.

5.4.2 Schedule Setup

This submenu is used to set the day and night time, or weekend recording schedule. The Night and Day schedules are used to define daytime and nighttime; the Weekend schedule is tailored for weekends and holidays. Select <Schedule Setup> from the Record Setup menu and press ENTER; the following menu is displayed.

Schedule Setup	
1. Day Time Start	06:00
2. Day Time End	18:00
3. Night Time Start	18:00
4. Night Time End	06:00
5. Weekend Schedule	YES
6. Weekend Start	Fri 18:00
7. Weekend End	Mon 06:00

- Make appropriate changes for the start time of the Day Time and Night Time schedule using the Direction keys.
- Press ENTER to confirm the settings or ESC to cancel.
- If you want to record over the weekend, choose <YES> to enable the Weekend Schedule in advance and then set the Weekend Start/End time.
- Press ESC to back to previous page.

5.4.2.1 Day / Night Time Start / End

The Day/Night Start Time determines the duration of day/ night recording time. Time is indicated in 1-minute increments. The time display format in this menu is based on the setting of Time Display Mode.

5.4.2.2 Weekend Schedule

The Weekend Schedule determines whether a weekend schedule is in effect. Choose <YES> to take effect the related weekend settings.

5.4.2.3 Weekend Start / End

The Weekend Start Time indicates the specific day and time that a weekend begins, for example, FRI 18:00. The Weekend End Time indicates the specific time and day that a weekend ends, for example, MON 06:00. Time is indicated in 1-minute increments.

Note that the value you have set indicates when the regular Day and Night scheduling ends, and Weekend recording begins.

5.4.3 Preset Record Configuration

The <Preset Config> is used to select the preset recording quality and frame rate. Different default recording quality levels are offered for the user to choose: <Best Quality>, <Standard>, <Extended Record>, <Event Only>, <ezRecord> and <OFF>.

According to various Record modes, the preset configuration options for normal and event status are described in terms of relative recording rate (Picture per Second; PPS) and recording size for each channel in the table below.

These preset conditions override any other quality and rate settings. The default Preset Configuration setting is <Standard>.

You can refer to [Appendix B: Record Configuration](#) for detailed information.

5.4.4 Per Camera Configuration

This submenu is used to set the Day / Night / Weekend PPS (Picture per Second) and recording quality for each channel. The <Preset Configuration> must be set to <OFF> for accessing these schedules.

The menu is displayed below is in Record mode: 720×240@30PPS in NTSC / 720×288@25PPS in PAL).

Per Camera Config			
Cameral Select	CH1		
	Day	Night	Weekend
Normal PPS	7.5	7.5	7.5
Normal Qlty	Mld	Mid	Mid
Event Max PPS	30	30	30
Event Qlty	Best	Best	Best
Event Act	Both	Both	Both

5.4.4.1 Camera Select

This item is used to select a desired channel for setting the associated parameters. Move the cursor to <Camera Select> and press ENTER, then select a channel using UP / DOWN keys. Press ENTER again to confirm the setting.

5.4.4.2 Normal PPS

Normal PPS (Picture per Second) is used to set the recording rate for normal status.

Please note that the total normal pps for all channels is limited under the maximum PPS for each Record mode. To increase one channel's pps, you may have to reduce other's first. Event pps is not restricted to this rule, since a smart event scheduler will handle the total pps automatically.

5.4.4.3 Normal Qlty

This item is used to set the picture size for normal status recording. The available options are listed as follow: <Low>, <Fair>, <Mid>, <High> and <Best>.

5.4.4.4 Event Max PPS

Event Max PPS is used to set the event recording rate for Event status. Normally, the Event PPS is set to be equal to or greater than Normal PPS; the setting depends on your application. If the Event PPS is set to <0>, the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit stops recording event video during alarms.

5.4.4.5 Event Qlty

This item is used to set the picture size for event status recording. Refer to section [5.4.4.3 Normal Qlty](#) for the available options.

5.4.4.6 Event Active

Users are allowed to choose which alarm type needs to be recorded. The available options are <Alarm> (alarm events), <Motion> (motion detection events), <Both> (alarm event + motion detection), and <None> (no events active). The default setting is <Both>, which includes Alarm and Motion event recording.

5.4.5 ezRecord Setup

This item aims to avoid the complicated record settings and to make the setup much easier. Note that this item can be reached only when you select <ezRecord> as the option for <Preset Config>. For more information, please refer to the [Appendix J: ezRecord Diagram Sample](#).

Select <ezRecord Setup> from <Record Setup> and press ENTER, the sub-menu appears as shown below:

ezRecord Setup	
How Many Days To Record	2 Days
Daytime Record	Yes
Night Record	Yes
Weekend Record	Yes
Record Info	
Average Normal PPS	3.75
Average Normal Quality	Best

Follow these steps to Setup ezRecord:

- Select <How Many Days To Record> and press ENTER, then press UP/DOWN to choose an option. The average normal PPS & Quality will be adjusted automatically. The maximum of days depends of the size of your HDD, in the other words, the larger the HDD installed, the more days the unit can record.
- Move to <Daytime Record> and press ENTER. This item is for you to select whether you want the DVR to record during daytime. If so, use UP/DOWN to select <Yes> as an option; or, select <No> for not recording during daytime.
- Repeat the same procedures through the 3rd and 4th item, respectively. Note that <Weekend Record> will be not accessible if you select <NO> for the item <Weekend Schedule> in <Schedule Setup>.
- Select <Average Normal PPS> and press ENTER, then press UP/DOWN to choose an option. The <How Many Days To Record> will be computed automatically.
- Select <Average Normal Quality> and press ENTER, then press UP/DOWN to choose an option. The <How Many Days To Record> will be computed automatically.



NOTE: The current number of connected cameras will affect the recording quality which will be automatically calculated through the <ezRecord Setup>. Therefore, once you disconnect cameras or connect more cameras to the unit, you should reset the <ezRecord Setup>.

5.4.6 Data Lifetime

Data Lifetime indicates the time that a recording is saved and remains in the HDD, between the creation and deletion of a record. Only those video files recorded during Data Lifetime will be displayed on the screen and can be played back; those video files recorded outside the duration time will be hidden.

Press ENTER to select this item in Record Setup menu, and then use UP / DOWN keys to set the data lifetime. The value ranges from <1> to <365> days, or select <0> to disable the function.



NOTE: If you want to play back the video, which is outside the data duration of lifetime, please extend the duration till the recording data/time of the video is included.

5.4.7 Pre-Alarm Recording

This item is used to set the duration time of pre-alarm recording video. The pre-alarm recording function aims to give the user the opportunity to view a more complete event video. The user can see the video recorded after the alarm is triggered, **and** the video recorded ahead the alarm.

When an event is triggered while normal recording is in effect, the unit will start copying the pre-alarm and the post-alarm video to the event video. The pre-alarm duration can be set from 0~30 seconds. The default setting is 15 seconds.

The quality of the pre-alarm video is the same as the quality setting for normal record video; and the quality of the post-alarm video is the same as the quality setting for event record video.

5.4.8 Circular Recording

The user can choose to record video in circular mode or in linear mode. If you choose to record in circular mode, then the unit begins to overwrite the oldest recorded video and stores new video over the HDD spaces. If you choose to record in linear mode instead, the unit stops recording when the HDD is full.

From the Record Setup menu, move the cursor to <Circular Recording> and press ENTER, then select <ON> / <OFF> using UP / DOWN keys.

5.4.9 Audio Recording

This item allows the user to enable / disable the Audio recording function of the unit. When set to <ON>, audio input is recorded and saved with the video. When set to <OFF>, audio is ignored. The default setting is <ON>.

5.4.10 Purge Data

This item is used to delete the Normal or Event recording video. In Record Setup menu, move the cursor to <Purge Data> and press ENTER; the Purge Data menu is displayed.

Purge Data		
1. Purge All Data		NO
2. Purge All Event Data		NO
3. Purge Event Before	2000/01/01	
4. Start to Purge		NO

5.4.10.1 Purge All Data

This item is used to delete all video from database(s). Using UP / DOWN buttons to select <YES> and start the deleting by setting the <Start to Purge> to <YES>.

5.4.10.2 Purge All Event Data

This item is used to delete all event video from database(s). Using UP / DOWN keys to select <YES> and start the deleting by setting the <Start to Purge> to <YES>.

5.4.10.3 Purge Event Before

This item is used to delete event video before a specific date. Use LEFT / RIGHT keys to move the cursor to next or previous field, ENTER to select the item and UP / DOWN to adjust the value.

5.4.10.4 Start to Purge

After selecting the video you want to delete, or setting the date for deletion, set this item to <YES> to start the deleting process or choose <NO> to cancel.

5.5 Sequence Setup

The Sequence Setup menu allows the user to set the camera sequence schedule and dwell time for main and call monitor. Select <Sequence Setup> in Main menu and press ENTER; the menu displays as follows.

Sequence Setup	
1. Main Monitor Dwell	5 Sec
2. Main Monitor Schedule	
3. Call Monitor Dwell	5 Sec
4. Call Monitor Schedule	

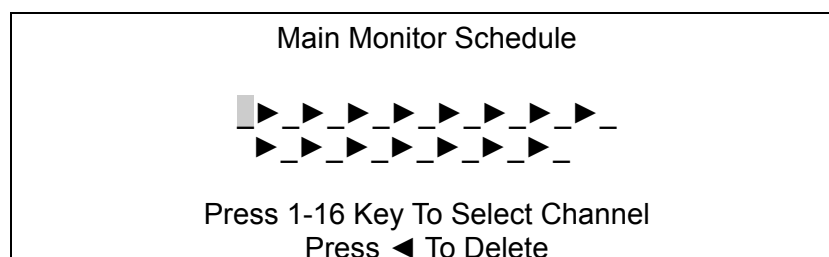
Items in the Sequence Setup menu are described in the following subsections.

5.5.1 Main / Call Monitor Dwell

The Main / Call Monitor can be set to display full screen video for all installed cameras in sequence. This item is used to set the Main / Call Monitor dwell time, which is the amount of time elapsed between switching images. The dwell time has an available range of 1 to 120 seconds. The default value is 5 seconds.

5.5.2 Main / Call Monitor Schedule

This item is used to set the Main / Call Monitor camera sequence in full screen format. Move the cursor to <Main Monitor Schedule> and press ENTER; the menu is displayed as follows.



Follow these steps to set a sequence:

- Press LEFT direction key to delete the original setting.
- Press the desired Channel keys to assign a camera to that location in the sequence.
- Continue the steps until the sequence is completed.

A sequence can have up to 16 entries. The user can select fewer than 16 entries for a camera sequence and leave the remaining entries blank. The sequence can include a specific camera or cameras multiple times.

5.6 Event Setup

This menu allows the user to determine **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series behavior in response to an alarm event. In the Main menu, move the cursor to <Event Setup> and press ENTER. The following menu is displayed.

Event Setup	
1. Internal Buzzer	ON
2. Event Icon	ON
3. Email Notice	OFF
4. Email Attachment	OFF
5. Event Full Screen	
6. Event Duration	
7. Per Channel Config	

Items in the Event Setup menu are described in the following subsections.

5.6.1 Internal Buzzer

This item allows user to enable / disable the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series internal buzzer. If set to <ON>, the buzzer is activated in response to an alarm. If set to <OFF>, the buzzer is not activated. The default setting is <ON>.

5.6.2 Event Icon

This item enables (ON) / disables (OFF) the display of an Event Icon on the main monitor when an alarm event occurs. The default setting is <ON> (enable).

The event types are represented by a character respectively; the descriptions are listed in the table below.

Event type	Description
A	Alarm in event
M	Motion detection event
L	Video loss event

5.6.3 Email Notice

The item enables (ON) / disables (OFF) the Email notification of an event. When an alarm event is triggered and <Email Notice> is enabled, an e-mail concerning the alarm event will be sent. The default setting is <OFF>.



NOTE: In order to send an event notification e-mail successfully, ensure that the unit connects to the Internet.

5.6.4 Email Attachment

The function allows the unit to send out brief AVI video regarding the event. The number of the attached AVI video will be equal to the number of cameras you connect to the unit. For example, if the unit has been connected with 8 cameras, then 8 video will be attached with the notice email. The total size of the video will be about 1 Megabyte.

Select <ON> to enable this function; and <OFF> to disable it. The default is <OFF>.



NOTE: The video clips of the Email Attachment will ONLY be in *.avi format. Please download the Divx Player from www.divx.com to play the *.avi files.

5.6.5 Event Full Screen

This function allows the unit to display the alarm channel in full screen size when an alarm is triggered.

Select <None> to enable this function; select <Main> to display the alarm channel on Main Monitor when an alarm is triggered; select <Call> to display the alarm channel on Call Monitor; and select <Both> to display the alarm channel on both Main Monitor and Call Monitor.

5.6.6 Event Duration

This item determines the duration of the buzzer and Alarm Out relay function after an alarm is triggered. The available event duration range is from 5 second to 999 seconds. The default setting is 5 seconds.

5.6.7 Per Channel Config

This menu is used to set the Video Loss Detect, Motion Detect and Alarm In / Out function for each channel. The menu is displayed as below.

Per Channel Config	
1. Channel Select	CH1
2. Video Loss Detect	OFF
3. Motion Detect	OFF
4. Detection Config	
5. Alarm In	OFF
6. Alarm Out	None
7. Digital Deterrent	OFF

5.6.7.1 Channel Select

This item is used to select a desired channel for setting the parameters. Move the cursor to <Channel Select> and press ENTER, then select a channel using UP / DOWN keys. Press ENTER again to confirm the setting.

5.6.7.2 Video Loss Detect

This item allows the user to enable / disable Video Loss as an alarm event. Select <ON> to enable Video Loss alarm events, <OFF> to disable. The default setting is <OFF>.

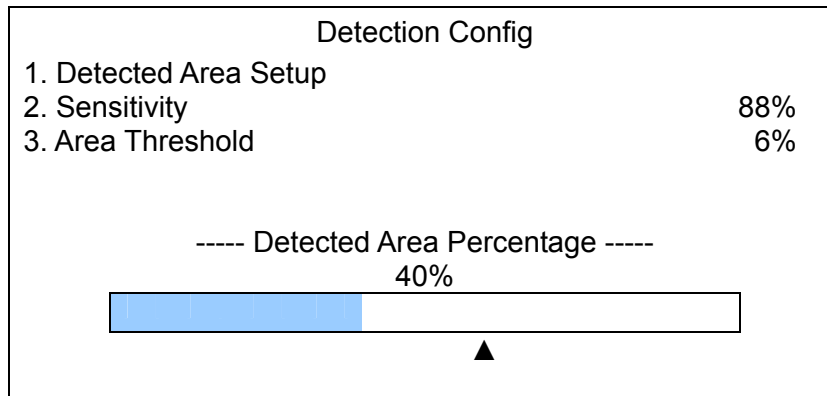
5.6.7.3 Motion Detect

To detect motions, the users can choose from these options: <OFF>, <ALL>, <Night & Weekend>, <Day & Weekend>, <Weekend>, <Day & Night>, <Night>, and <Day>. The Day, Night, and Weekend is defined in section [3.6.2 Schedule Setup](#) or [5.4.2 Schedule Setup](#).

If motion detection function is enabled, it is required to define the motion detection parameters such as detection area and sensitivity settings.

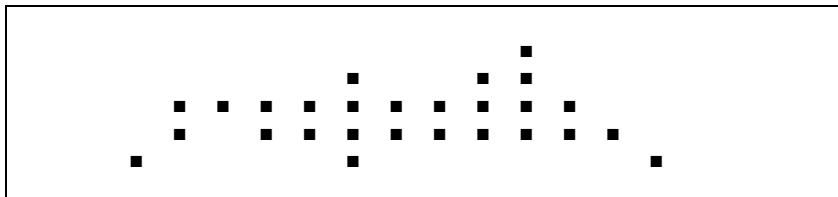
5.6.7.4 Detection Config

If motion detection function is enabled, it is required to define the motion detection parameters such as detection area and sensitivity settings. Select a channel for setting the parameters, move the cursor to <Detection Config>, and press ENTER. The Detection Configuration menu displays as follows.



Detected Area Setup

The Detect Area is displayed as follows after selecting this item. The detection area consists of 273 (21×13) detection grids in NTSC video format or 336 (21×16) grids in PAL format.



Use the Direction keys to move the cursor and press ENTER to enable or disable a grid. Press MODE to select all of the grids for detection; press MODE again to de-select all of the grids.

Sensitivity

This item is used to set the sensitivity of detection grids for the camera. A greater value indicates more sensitive motion detection. A motion alarm will be triggered, once the amount of motion detected exceeds the Threshold value

Move the cursor to <Sensitivity> and press ENTER, and then use UP / DOWN keys to adjust the value. The value is indicated in 4% increment.

Area Threshold

<Area Threshold> means the motion alarm triggered level; if the percentage of triggered grids to total detection area is greater than the set value, the motion alarm will be triggered.

For example, if 10 grids are selected and the < Area Threshold > value is 70%, the motion alarm will be triggered when 7 grids are motion detected.

Move the cursor to < Area Threshold > and press ENTER, then use UP / DOWN keys to adjust the value. The value is indicated in 4% increments.

Detected Area Percentage

This part shows the percentage and variation of the detected volume.

5.6.7.5 Alarm In

This item allows the user to enable / disable alarm input detection. According to your application, select <N/O> (Normal Open) or <N/C> (Normal Close) to enable the alarm input detection or select <OFF> to disable detection. The default setting is <OFF>.

NOTE: If you set this item to <N/C> but did not install any device to the unit, the alarm will be triggered and the Event Icon will be displayed continually until this item is changed to <N/O>, <OFF> or, install a device to the unit.

5.6.7.6 Alarm Out

This item allows the user to assign an alarm on a certain channel to activate the relays. These signals can be used to drive a light or siren to caution an alarm event.

Select from the options: <A Only> indicates "Alarm Out A", <B Only> indicates "Alarm Out B", <A+B> indicates "A and B Alarm Out" and <None> indicates "No Alarm Out". The default setting is <None>.

5.6.7.7 Digital Deterrent

If an alarm is triggered while Digital Deterrent is enabled, a pre-recorded audio warning will be sent to the speaker installed nearby the location where the alarm was triggered. For instance, if the alarm of Channel 2 is triggered and there is a speaker installed to the DVR nearby, the speaker will play the audio warning.

The available options are <OFF>, <Default>, and <UserDefined>. Select <OFF> to disable this function. Selecting <Default> will apply audio warning pre-stored in the DVR. <UserDefined> allows the user to apply user-defined audio warning. Note that the user-defined audio has to be set before choose <UserDefined> option, or the following message will be shown:

Warning!!
 No user-defined file is in the DVR!
 Please create customized file first!
 The steps are similar to ezBurn
 Note: Cannot exceed 5 seconds
 Press any key to return

Follow the steps below to record your own audio warning.

- Use any camera to record the preferred audio. Please note that <Audio Recording> under <Record Setting> menu should be set to <ON>.
- Press SEARCH and play the normal video of the recorded date and time.
- View full screen of the channel that the preferred audio was recorded.
- Press COPY at the point you want to set as the start point of the audio. The playback continues.
- Press COPY again at the point you want to set the end point of the audio. Now, the “ezBurn Confirmation” window displays as shown below. The information shown on the window is for read only.

ezBurn Confirmation
 Selected Device: Built-in-CD-RW
 All data on the disc will be erased.
 Exported Required Size = 11 MB
 Real Export Range:
 From: 2005/11/07 AM10:41:13
 To: 2005/11/07 AM10:41:21
 Enter: YES ESC: NO
 or
 CH1: Define Digital Deterrent File

- If there is no exportable external device connected to the DVR unit, then a warning message will be shown on the screen, as illustrated below:

No exportable device detected.
 Please install the target device/media
 to the DVR.
 Enter: Retry ESC: Exit
 or
 CH1: Define Digital Deterrent File

- Press channel key 1 to set the audio of the selected time as the Digital Deterrent file.
- If the duration exceeds 5 seconds, the following warning message will be shown:

<p>Warning!! Exceed the limitation (5 seconds)! Only the first 5 seconds data is used to create digital deterrent file ENTER: Yes ESC: No</p>
--

- Press ENTER to set the first 5 seconds audio as the Digital Deterrent file; or press ESC to abort.

5.7 Database Setup

The menu displays information regarding internal and external disks. In the Main menu, move the cursor to <Database Setup> and press ENTER. The following menu is displayed.

Database Setup	
1. Total Size	xxx GB
2. Free Size	xxx GB
3. Avail. REC Time	3Days 7Hrs
4. Internal Disks	
5. External Disks	
6. NAS Device	



NOTE: If the hard disk detected has failed, the message “HDD fail” will display.



NOTE: The information of the internal / external HDD can be retrieved with the <Health> function when the DVR is monitored via the **Central Management System (CMS)** software. Please refer to the CMS user’s manual for more details.

5.7.1 Total / Free Size of HDD

The Total Size of HDD shows the total capacity of the HDD that has been added into database. The Free Size of HDD indicates the free space left for recording onto the HDD in database. The information is ” read-only.”

5.7.2 Avail. REC Time

The Avail REC Time indicates the available duration for recording. If the unit is set to record in circular mode, the item will show "Circular". The information is read-only.

5.7.3 Internal / External Disks

Select <Internal Disks> or <External Disks> to see information about the storage devices connected to the unit. The submenu is displayed as below.

Internal Disks			
Name		Active	Action
xxx xxxxxxxx-xxxxxx		YES	None

The information about any built-in HDD and external storage devices will be listed by model name and status. If no storage device connects to the unit, the message "No Available Items!" will show on screen.



NOTE: If the file system of the internal HDD is not compatible for the DVR, the system will format the internal HDD automatically without notice.

<Active>

This item indicates if a storage device is added into the database or not. <YES> means the device has been added into database.

<Action>

This item allows the user to add a storage device to the database or to remove a device from the database.

The options are <None> (no action), <Add> (add the selected device into database), <Remove> (remove the selected device from database), <Format> (format the selected device).



NOTE: Before removing external devices from the unit, remember to remove the device from database.

5.8 Configuration

The Configuration menu can be used to restore the default factory settings, import and export configurations. Select <Configuration> from the Main menu and press ENTER. The following menu is displayed.

Configuration	
1. Load Factory Default	NO
2. Import Config	
3. Export Config	

Items in this menu are described in the following subsections.

5.8.1 Load Factory Default

This item is used to load the factory default setting; select <YES> to recall the factory default setup configuration from the “read-only” memory, or <NO> to cancel.

5.8.2 Import Configuration

This item allows the user to load a unit configuration that was saved on an external drive. To import a configuration that was previously exported, make sure the device that saved the configuration is connected to the unit. Select <Import Config> from the Configuration menu and press ENTER. The following menu is displayed.

Import Config	
Config Name	Select
XXXX-XXXX	NO
XXX-XX	NO

Press UP / DOWN to select one of the available listed configuration files, and choose <YES> to start to import.



NOTE: If the imported configuration has a different record mode from the unit's, the warning message “This config has different record mode. This will FORMAT ALL HARDDISKS.” will show.



NOTE: Remove the ThumbDrive® used for importing configuration after the unit restarts, or it will be formatted as well.

5.8.3 Export Configuration

The Administrator is allowed to save a unit configuration by exporting it to an external drive, such as a USB Flash Drive. Before exporting the configuration, make sure the device in which the configuration will be saved is attached to the unit properly. Select <Export Config> from the Configuration menu and press ENTER. The following menu is displayed.

Export Config	
1. Copy Destination	
2. Config Name	
3. Begin Export	NO

Items in this menu are described in the following sections.

5.8.3.1 Copy Destination

Select this item to list available destinations (external memory devices) to which the configuration can be exported. Press UP / DOWN to set a destination. Please note that saving a different configuration to the same copy destination with the same file name will overwrite the previous configuration file without warning.



NOTE: Users are not allowed to select any CD-R/W or DVD+RW as a copy destination, including built-in CD-R/W and DVD+RW.

5.8.3.2 Configuration Name

This item allows the user to assign the exported configuration file a name. Use the virtual keyboard to enter the configuration file name.

Note that the file name can contain up to 15 characters, with no spaces.

5.8.3.3 Begin Export

Select <YES> to begin exporting the configuration file, or <NO> to abort the export.



NOTE: We strongly recommend users to export configurations before upgrading your system, and back it up routinely, just in case an unexpected situation occurs.

5.9 Video Export

The Video Export menu enables the administrator to export recorded video with a digital signature to a USB Thumb drive, a CD-RW or to DVD+RW drive. Make sure an external storage device is available and connected to the appropriate port for video export. The Administrator's password is required to export video.

If the <Pre-Alarm Recording> function is enabled, the event video will be exported into two files, including pre-alarm video and video recorded after the alarm is triggered.

Each recorded video will be exported automatically into four files when exporting with a digital signature, including *.pgp, *.drv, *.sig and readme.txt. To export a 1GB file with a digital signature, it may take you about 30 minutes.

From the Main menu, select <Video Export> and press ENTER. The following menu is displayed.



NOTE: The inserted CD will be ejected when its capacity is 99% full.

Video Export				
1. Select Device				
2. Select Ch:		CH1	CH2	CH3 CH4
3. From		2005/03/19	AM	07:50:05
4. To		2005/03/28	PM	03:09:18
5. Select Events				
6. Data Type				Normal
7. Digital Signature				NO
8. Erase Disc				NO
9. Begin Export				NO

Items in the menu will be described in the following section.

5.9.1 Select Device

The external devices that are available for exporting video will be listed by name and free space size in Select Device menu. The Select Device menu displays as follows.

Select Device		
Device Name	Available	Sel
XXX-XXX-X-X-XX	256 MB	NO
XX-XXX-XX-XXXX	1.5 GB	NO

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit only supports EXT3 file system. If you connect an external HDD to the unit, ensure that the format of HDD is EXT3.

<Device Name>

This item shows the name of the available device.

<Available>

This item shows how much free space is available on the device.

<Sel>

Set this item to <YES> to set it as an exporting destination; or <NO> to cancel.



NOTE: This last menu item <Erase Disk> will be grayed out when selected device is not a CD/ DVD recorder or not select yet.

5.9.2 Select Channel

The item is used to select channels for export. Move the cursor to the desired channel using LEFT / RIGHT keys, then select or de-select a channel by pressing ENTER.

5.9.3 From / To Time

The items are used to set the time which data export begins and ends. Move the cursor using Direction keys, and press ENTER to select the date / time items; adjust the selected date and time value by UP / DOWN keys.



NOTE: When the Start / End Time are set, remember to select the exporting Data Type.

5.9.4 Select Events

Select this item to display the available event video list for exporting. Move the cursor to scroll down the event list and press ENTER to select the event you want to export.

5.9.5 Data Type

The item is used to select export video type. The options are <Normal> (export normal video only), <Event> (export event video only) and <Both> (export both normal and event video).



NOTE: If you want to export selected event video using the item <Select Event>, you have to set <From> and <To> for the same day and time; otherwise, not only the selected event video will be exported to the selected destination, but also any other event video recorded during the period between <From> and <To>.



NOTE: You will not be allowed to access the <Select Events> if the Data Type is set to <Normal>.

5.9.6 Digital Signature

The Digital Signature function enables the user to export a video clip with the unit's unique signature key. It aims to authenticate a video clip exported from the unit and prove it has not been modified. The user can export a video clip with or without a digital signature file (*.sig). Set the item to <YES> to export with the signature file, or <NO> to export without the signature file.

Make sure that you have an external storage device, such as a USB Hard Drive or USB ThumbDrive[®], available and connected to the appropriate port for export.

For more information on verifying digital signature, see [Appendix E: Verifying Digital Signature](#).

5.9.7 Erase Disc

This function is used to remove information found on a CD-RW or DVD+RW disk prior to exporting new information to the drive. Select <YES> and press ENTER to start deleting data.



NOTE: This menu item will be grayed out when selected device is not a CD/ DVD recorder or not select yet.

5.9.8 Begin Export

Select <YES> and press ENTER to start exporting.

5.10 Text Setup

The <Text Setup> function provides a connection between the DVR and one Point-of-Sale device such as cash registers. With this function, the financial transaction data can be linked to specific camera images and recorded to your DVR.

If there is need to connect two or more Point-of-Sale devices, Data Converter is required. For detailed information about how Data Converter works, please refer to “**POS Solution Guide**” provided within the Data Converter package.

To enable this function, enter OSD Setup menu with correct administrator password, and then select <Text Setup>. Press Enter and the following OSD setup menu will show up.

Text Setup	
1. Text Function	ON
2. Text Overlay	Live & PB
3. Exception Text Setup	
4. Input Setup	

Items in this menu are described in the following subsections.

5.10.1 Text Function

This item is used to enable/ disable this function. Select <ON>, the text database will be created on the hard disk.

5.10.2 Text Overlay

This item is for you to choose which mode you want to display the text overlay on the monitor. Select <Only Live> to display the text overlay in Live mode; select <Only PB> to display the text overlay in Playback mode; and select <Live/PB> to display in both modes.



NOTE: Text overlay only shown in full screen mode.



NOTE: PB overlay is available only under x1 PB speed.

5.10.3 Exception Text Setup

This sub-menu is used to define the conditions that are to be treated as an “Exception” and thus trigger an action (the function will be implemented later).

Exception Text Setup	
Exception No.	1
Trigger	ON
Exception String	NO SALE
By Numerals	OFF
Value	
Value (Upper Limit)	

5.10.3.1 Exception No.

To select an exception for further settings; you can select from <1> to <16>.

5.10.3.2 Trigger

Select <ON>, those transactions which contain “Exception Strings” and which meet the “Numerals” conditions will be marked as exceptions in the text database and will trigger preset actions such as alarm output.

5.10.3.3 Exception String

The user can enter this item to define Exception String. The “Exception String” is case-sensitive. Only exactly matched ones will be marked as exceptions.

5.10.3.4 By Numerals

“Exception String” must be defined before By Numerals” takes effect. If “By Numerals” is enabled, only transactions which meet both “Exception String” and “By Numerals” condition will be marked as exceptions and trigger and action.

You can select from below options:

<OFF>: The function is disabled.

<Specific>: That the value of transaction meets a specific value will be marked as an exception. That specific value need to be configured through the following sub-setting <Value>,

<Greater Equal Than>: That the value of transaction is greater then or equal to certain value will be marked as an exception. That specific value need to be configured through the following sub-setting <Value>,

<Less Equal Than>: That the value of transaction is less than or equal to certain value will be marked as an exception. That specific value need to be configured through the following sub-setting <Value>.

<Inside The Range>: That the price of transaction is within certain range will be marked as an exception. The range need to be configured through the following sub-settings <Value> and <Value (Upper Limit)>.

<Outside the Range>: That the price of transaction is outside certain range, will be marked as an exception. The range need to be configured through the following sub-settings <Value> and <Value (Upper Limit)>.



NOTE: Only transactions (1) after “Exception Strings” and “By Numerals” are set and (2) after “Trigger” is <ON> will be marked as exceptions in text database. The data stored before won't be marked as exceptions.

5.10.4 Input Setup

This item is used to choose the connection method that is between your Text Device and DVR, and setup some relative settings of the connection method.

Input Setup		
1.	Port Selection	Serial Port
2.	Input Source	Direct Connected
3.	Camera Selection	1
4.	Text Filter	ASCII
5.	Manual Filter Setup	
6.	Input Process	Canonical
7.	Text Baud Rate	9600
8.	Text Bits	8
9.	Text Stop	1
10.	Text Parity	None

5.10.4.1 Port Selection

It is essential to select a port for either the POS/cash register or modem when the text function is set on. Meanwhile, also check whether the device is connected to the port selected.

Port Selection	
1. Serial Port	Text
2. USB Port-Front	None
3. USB Port-Rear Top	None
4. USB Port-Rear Bottom	None

5.10.4.2 Input source

Select whether the input source is direct connected or connected with the Data Converter. If the input source is direct connected, users may need to go to the next item: Camera Selection to select a corresponding camera number.

5.10.4.3 Camera Selection

Select a camera to display the text overlay.

5.10.4.4 Text Filter

This item is used to choose the text filter. The supported models for pole display and printer are listed below.

Pole Display	Printer
Cache Technology VFD-202T	Citizen CBM-1000 II
Citizen C2202	Citizen CT-S300
Digipos CD5220	Dell T200
Emax Pole Display	Epson TM-T88II/ TM-T88III/ TM-T88IV
Epson DM-D Series	Epson TM-T90
Logic Controls LD9000	Epson TM-930 II
Logic Controls PD3000	Epson RP-U420
Logic Controls PD6000	IBM SureMark TF6
Logic Controls TD3000	IBM SureMark TM6
Magellan	Ithaca iTherm 280
Partnertech CD5220	Ithaca POSJet 1000
Posiflex ICD-2002	POS-X Xr500
Posiflex PD 302	Samsung SRP350
Posiflex PD 303	Sensor TP-288
Posiflex PD-2100	Star TSP100 futurePRNT
Posiflex PD-2200	Star TSP600
POS-X Xp8000	Star TSP700
Scales	Star TSP800
Sibnet	TPG (Axiohm) A794
STAR SCD400-PD	WP-520(ESC/POS)
Soteke VFD2025	
Soteke VFD2029	
TEC	
Toledo 8217	
TYSSO VFD Series	
Ultimate Technology PD1100XL	
Wedderburn DS-770	

5.10.4.5 Manual Filter Setup

Once enter the Manual Filter Setup menu, users should key in hexadecimal digits. The menu of the item is shown as follows.

Manual Filter Setup		
1.	Header 1	30
2.	Header 2	30

5.10.4.6 Input Process

If you will be using a Pole Display from a PC based POS, select <Canonical>. <Non-Canonical> is to be selected when using a Pole Display from a Standalone POS.

5.10.4.7 Text Baud Rate

To setup the baud rate of RS232 via which to connect your Text Device and DVR.

5.10.4.8 Text Bit

To setup the bits of RS232.

5.10.4.9 Text Stop

To setup the stop of RS232.

5.10.4.10 Text Parity

To setup the parity of RS232

5.11 Shutdown

This item is used to shut down or reboot the unit. If you must shut down the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit for any reason, please use the proper shut down and power up procedures to avoid damage to your unit.

Select <Shutdown> in Main menu and press ENTER to access the Shutdown menu, which displays as follows.

Shutdown	
1. Power Off	Execute
2. Reboot	Execute

Power Off

Select this item to shut down the unit. **Do not remove the power** during shut down until the message "You can safely turn off DVR now!" displays.

Reboot

Select this item to reboot the unit. The color bar and system checking information are displayed on the monitor until the unit is completely restarted.

Appendix A: Technical Specifications

All specifications are subject to change without notice.

Function		4CH	8CH	16CH	
Video	Operation System	Embedded (Linux)			
	Video Standard	NTSC/PAL switch selectable			
	Video Operation	Triplex+(Live, Record, Playback , Remote, and Internet access)			
	Resolution – Live Video	NTSC: 720 x 480 pixels PAL: 720 x 576 pixels			
	Input	BNC x 4, 1.0Vp-p/75 ohm	BNC x 8, 1.0Vp-p/75 ohm	BNC x 16, 1.0Vp-p/75 ohm	
	Outputs	Main Monitor	BNC x 1, S-Video x 1, 1.0Vp-p/75 ohm		
		Call monitor	BNC x 1, 1.0Vp-p/75 ohm		
		Loop	BNC x 4, 1.0Vp-p/75 ohm	BNC x 8, 1.0Vp-p/75 ohm	BNC x 16, 1.0Vp-p/75 ohm
	VGA Output	800 x 600, 1024 x 768, 1280 x 1024 pixels @ 60Hz			
	Picture Refresh Rate	NTSC: 480 PPS(16CH) PAL: 400 PPS(16CH)			
Digital Zoom	2 x 2				
Camera Installation	Plug & Play				
Audio	Input	RCA x 2, Line-In			
	Output	RCA x 2, Line-Out			
	Recording Mode	Always Real Time Record, Synchronized w/ Video			
	Compression Method	ADPCM, G.726			
	File Size	8KB/Sec			
	Operation	Remote + VCR mode			
	Playback	Only for Video Original Speed			
Recording	Compression Method	MPEG-4 Advanced Simple Profile and MJPEG			
	Recording Mode	Schedule, Alarm, Motion Detection			
	Pre-Alarm	0~30 sec			
	Resolution & Rate	NTSC	720x480: 30 pps		
			720x240: 60 pps		
			360x240: 120 pps		
		PAL	720x576: 25 pps		
			720x288: 50 pps		
360x288: 100 pps					
Recording Quality	8 levels presets, adjustable				
Image Size	2K to 20K Byte/picture				
Storage Mode	Linear/Circular				
Playback	Playback	Play, Stop, Pause, Rewind, Forward, Search			
	Playback Speed Adjustment	Yes 1X, 2X...32X			
	Retrieve	Date/Time, Event			
	Data Life Time	Yes(Programmable)			
Storage	Build-in Storage	X2 ATA 133 / UDMA 133 IDE, HDD/CD-RW/DVD+RW			
	Built-in HDD	Up to 3 built-in HDDs			
	External Storage	X2 IEEE 1394 ports and NAS via GB and NIC			
	Export	X3 USB2.0 ports, support ThumbDrive®, CD-RW, or DVD+RW			
Alarm	Alarm Input	X4, Terminal Block	X8, Terminal Block	X16, Terminal Block	
	Alarm Detection	N.C./N.O., Programmable			
	Auditory Alert	Built-in Buzzer			
	Motion Detection	21 X 13(NTSC), 21 X 16(PAL) Grid Array, Sensitivity, Trig Level Adjustable			
	Video Loss Detection	Programmable			
	Alarm Relay Output	X2, Terminal Block, 1.0A/24V (Programmable)			

Communication	Network Connectivity	Ethernet RJ-45 connector, 10/100Mbps, supports DHCP/PPPoE/DDNS
	Remote Control Software	SpecoRemote™
	Access Control	2 Level Password
	Remote Operation	Monitoring, Playback, Recording, System Setup, Dome Camera Control
	RS232C	D-sub 9 pin female
	RS485	Terminal Block
	Dome Control Protocol	DynaColor, Pelco P, Pelco D, AD422

Appendix B: Record Configuration

1. The following three tables are offered for users who use DVR-4TN/ 8TN/ 16TN unit.

Record Mode: Full-D1 mode (NTSC: 720×480@30PPS / JPEG) (PAL: 720×576@25PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	4ch	NTSC:7.5 PAL:6.25	28 / 36 KB	NTSC:30 PAL:25	28 / 36 KB	Both (Alarm + Motion)
	8ch	NTSC:3.75 PAL:3.12				
	16ch	1~8ch NTSC:2.75 PAL:2.12	30 / 38 KB			
		9~16ch NTSC:1 PAL:1				
Standard	4ch	NTSC:7.5 PAL:6.25	16 / 22 KB	NTSC:30 PAL:25	28 / 36 KB	Both
	8ch	NTSC:3.75 PAL:3.12				
	16ch	1~8ch NTSC:2.75 PAL:2.12	18 / 24 KB			
		9~16ch NTSC:1 PAL:1				
Extended Record	4ch	NTSC:7.5 PAL:6.25	4 / 8 KB	NTSC:30 PAL:25	28 / 36 KB	Both
	8ch	NTSC:3.75 PAL:3.12				
	16ch	1~8ch NTSC:2.75 PAL:2.12	6 / 10 KB			
		9~16ch NTSC:1 PAL:1				
Event Only	0 NTSC 0 PAL	–	NTSC:30 PAL:25	30 / 38 KB	Both	
OFF	User selected		User selected	User selected	User selected	User selected

Record Mode: Half-D1 mode (NTSC: 720×240@60PPS / JPEG) (PAL: 720×288@50PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	4ch	NTSC:15 PAL:12.5	20 / 28 KB	30 NTSC 25 PAL	20 / 28 KB	Both (Alarm + Motion)
	8ch	NTSC:7.5 PAL:6.25				
	16ch	NTSC:3.75 PAL:3.12	25 / 33 KB		25 / 33 KB	
Standard	4ch	NTSC:15 PAL:12.5	12 / 18 KB	30 NTSC 25 PAL	20 / 28 KB	Both
	8ch	NTSC:7.5 PAL:6.25				
	16ch	NTSC:3.75 PAL:3.12	15 / 21 KB		25 / 33 KB	
Extended Record	4ch	NTSC:15 PAL:12.5	4 / 8 KB	NTSC: 30 PAL: 25	20 / 28 KB	Both
	8ch	NTSC:7.5 PAL:6.25				
	16ch	NTSC:3.75 PAL:3.12	5 / 9 KB		25 / 33 KB	
Event Only	NTSC: 0 PAL: 0		–	NTSC: 30 PAL: 25	25 / 33 KB	Both
OFF	User selected		User selected	User selected	User selected	User selected

Record Mode: CIF mode (NTSC: 360×240@120PPS / JPEG) (PAL: 360×288@100PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	4ch	NTSC:30 PAL:25	10 / 14 KB	NTSC: 30 PAL: 25	10 / 14 KB	Both (Alarm + Motion)
	8ch	NTSC:15 PAL:12.5				
	16ch	NTSC:7.5 PAL:6.25	15 / 23 KB		15 / 23 KB	
Standard	4ch	NTSC:30 PAL:25	6 / 10 KB	NTSC: 30 PAL: 25	10 / 14 KB	Both
	8ch	NTSC:15 PAL:12.5				
	16ch	NTSC:7.5 PAL:6.25	9 / 15 KB		15 / 23 KB	
Extended Record	4ch	NTSC:30 PAL:25	2 / 6 KB	NTSC: 30 PAL: 25	10 / 14 KB	Both
	8ch	NTSC:15 PAL:12.5				
	16ch	NTSC:7.5 PAL:6.25	3 / 7 KB		15 / 23 KB	
Event Only	NTSC: 0 PAL: 0		–	NTSC: 30 PAL: 25	15 / 23 KB	Both
OFF	User selected		User selected	User selected	User selected	User selected

2. The following three tables are offered for users who use DVR-16TS unit.

Record Mode: Full-D1 mode (NTSC: 720×480@60PPS / JPEG) (PAL: 720×576@50PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	16ch	NTSC:3.75 PAL:3.12	28 / 36 K	NTSC:30 PAL:25	28 / 36 KB	Both (Alarm + Motion)
Standard	16ch	NTSC:3.75 PAL:3.12	16 / 22 K	NTSC:30 PAL:25	28 / 36 KB	Both
Extended Record	16ch	NTSC:3.75 PAL:3.12	4 / 8 K	NTSC:30 PAL:25	28 / 36 KB	Both
Event Only	0 NTSC 0 PAL		–	30 NTSC: 25 PAL:	28 / 36 KB	Both
OFF	User selected		User selected	User selected	User selected	User selected

Record Mode: Half-D1 mode (NTSC: 720×240@120PPS / JPEG) (PAL: 720×288@100PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	16ch	NTSC:7.5 PAL:6.25	20 / 28 KB	NTSC:30 PAL:25	20 / 28 KB	Both (Alarm + Motion)
Standard	16ch	NTSC:7.5 PAL:6.25	12 / 18 KB	NTSC:30 PAL:25	20 / 28 KB	Both
Extended Record	16ch	NTSC:7.5 PAL:6.25	4 / 8 KB	NTSC:30 PAL:25	20 / 28 KB	Both
Event Only	NTSC: 0 PAL: 0		–	30 NTSC: 25 PA:	20 / 28 KB	Both
OFF	User selected		User selected	User selected	User selected	User selected

Record Mode: CIF mode (NTSC: 360×240@240PPS / JPEG) (PAL: 360×288@200PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	16ch	NTSC:15 PAL:12.5	10 / 14 KB	NTSC: 30 PAL: 25	10 / 14 KB	Both (Alarm + Motion)
Standard	16ch	NTSC:15 PAL:12.5	6 / 10 KB	NTSC: 30 PAL: 25	10 / 14 KB	Both
Extended Record	16ch	NTSC:15 PAL:12.5	2 / 6 KB	NTSC: 30 PAL: 25	10 / 14 KB	Both
Event Only	NTSC: 0 PAL: 0		–	NTSC: 30 PAL: 25	10 / 14 KB	Both
OFF	User selected		User selected	User selected	User selected	User selected

3. The following three tables are offered for users who use DVR-16TT unit.

Record Mode: Full-D1 mode (NTSC: 720×480@120PPS / JPEG) (PAL: 720×576@100PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	16ch	NTSC:7.5 PAL:6.25	19 / 16 KB	NTSC:30 PAL:25	19 / 16 KB	Both (Alarm + Motion)
Standard	16ch	NTSC:7.5 PAL:6.25	11 / 10 KB	NTSC:30 PAL:25	19 / 16 KB	Both
Extended Record	16ch	NTSC:7.5 PAL:6.25	3 / 4 KB	NTSC:30 PAL:25	19 / 16 KB	Both
Event Only	NTSC:0 PAL:0		–	NTSC:30 PAL:25	19 / 16 KB	Both
OFF	User selected		User selected	User selected	User selected	User selected

Record Mode: Half-D1 mode (NTSC: 720×240@240PPS / JPEG) (PAL: 720×288@200PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	16ch	NTSC:15 PAL:12.5	10 / 15 KB	NTSC:30 PAL:25	10 / 15 KB	Both (Alarm + Motion)
Standard	16ch	NTSC:15 PAL:12.5	6 / 9 KB	NTSC:30 PAL:25	10 / 15 KB	Both
Extended Record	16ch	NTSC:15 PAL:12.5	2 / 3 KB	NTSC:30 PAL:25	10 / 15 KB	Both
Event Only	NTSC:0 PAL:0		–	NTSC:30 PAL:25	10 / 15 KB	Both
OFF	User selected		User selected	User selected	User selected	User selected

Record Mode: CIF mode (NTSC: 360×240@480PPS / JPEG) (PAL: 360×288@400PPS / JPEG)						
Preset Item	Normal PPS		Normal Size	Event PPS	Event Size	Event Active
Best Quality	16ch	NTSC:30 PAL:25	5 / 10 KB	NTSC:30 PAL:25	5 / 10 KB	Both (Alarm + Motion)
Standard	16ch	NTSC:30 PAL:25	3 / 6 KB	NTSC:30 PAL:25	5 / 10 KB	Both
Extended Record	16ch	NTSC:30 PAL:25	1 / 2 KB	NTSC:30 PAL:25	5 / 10 KB	Both
Event Only	NTSC:0 PAL:0		–	NTSC:30 PAL:25	5 / 10 KB	Both
OFF	User selected		User selected	User selected	User selected	User selected

Appendix C: Record Duration

The record duration relates to recording rate, image quality and HDD capacity. Refer to the following table.



NOTE: Record duration times are based on actual tests and represent average file sizes. Performance may vary depending on specific installations and use. Audio recording requires 8 KB per second (or 0.7 GB per day) for data storage.

Please refer to our recording time calculator on the Speco website for other possible calculations. <http://www.Specotech.com> → Support → Tools

Number of Days of Recording 720 x 480 @ 30PPS (without Audio)

Recording Rate		Recording Quality Mode									
Total Images Per Second NTSC	Total Images Per Second PAL	Low		Fair		Mid		High		Best	
		NTSC (8 KB)	PAL (8 KB)	NTSC (11 KB)	PAL (11 KB)	NTSC (14 KB)	PAL (14 KB)	NTSC (17 KB)	PAL (17 KB)	NTSC (20 KB)	PAL (20 KB)
160 GB Internal Storage											
30	25	7.5	9.0	5.5	6.6	4.3	5.2	3.6	4.3	3.0	3.7
15	12.5	15.0	18.0	11.0	13.2	8.7	10.4	7.2	8.6	6.1	7.3
7.5	6.25	29.9	35.9	21.9	26.3	17.3	20.8	14.3	17.2	12.2	14.6
300 GB Internal Storage											
30	25	14.0	16.8	10.3	12.3	8.1	9.7	6.7	8.1	5.7	6.9
15	12.5	28.1	33.7	20.6	24.7	16.2	19.5	13.4	16.1	11.4	13.7
7.5	6.25	56.1	67.3	41.2	49.4	32.5	39.0	26.8	32.2	22.9	27.4
600 GB Internal Storage											
30	25	28.1	33.7	20.6	24.7	16.2	19.5	13.4	16.1	11.4	13.7
15	12.5	56.1	67.3	41.2	49.4	32.5	39.0	26.8	32.2	22.9	27.4
7.5	6.25	112.2	134.7	82.3	98.8	65.0	78.0	53.7	64.4	45.7	54.9

Number of Days of Recording 720 X 240 @ 60PPS (without Audio)

Recording Rate		Recording Picture Quality Mode									
Total Images Per Second NTSC	Total Images Per Second PAL	Low		Fair		Mid		High		Best	
		NTSC (5 KB)	PAL (5 KB)	NTSC (8 KB)	PAL (8 KB)	NTSC (11 KB)	PAL (11 KB)	NTSC (14 KB)	PAL (14 KB)	NTSC (17 KB)	PAL (17 KB)
160 GB Internal Storage											
60	50	5.9	7.1	3.7	4.5	2.7	3.3	2.2	2.6	1.8	2.1
30	25	11.8	14.1	7.5	9.0	5.5	6.6	4.3	5.2	3.6	4.3
15	12.5	23.5	28.2	15.0	18.0	11.0	13.2	8.7	10.4	7.2	8.6
7.5	6.25	47.0	56.4	29.9	35.9	21.9	26.3	17.3	20.8	14.3	17.2
300 GB Internal Storage											
60	50	11.0	13.2	7.0	8.4	5.1	6.2	4.1	4.9	3.4	4.0
30	25	22.0	26.5	14.0	16.8	10.3	12.3	8.1	9.7	6.7	8.1
15	12.5	44.1	52.9	28.1	33.7	20.6	24.7	16.2	19.5	13.4	16.1
7.5	6.25	88.2	105.8	56.1	67.3	41.2	49.4	32.5	39.0	26.8	32.2
600 GB Internal Storage											
60	50	22.0	26.5	14.0	16.8	10.3	12.3	8.1	9.7	6.7	8.1
30	25	44.1	52.9	28.1	33.7	20.6	24.7	16.2	19.5	13.4	16.1
15	12.5	88.2	105.8	56.1	67.3	41.2	49.4	32.5	39.0	26.8	32.2
7.5	6.25	176.4	211.6	112.2	134.7	82.3	98.8	65.0	78.0	53.7	64.4

Number of Days of Recording 360 X 240 @ 120PPS (without Audio)

Recording Rate		Recording Picture Quality Mode									
Total Images Per Second NTSC	Total Images Per Second PAL	Low		Fair		Mid		High		Best	
		NTSC (2 KB)	PAL (2 KB)	NTSC (5 KB)	PAL (5 KB)	NTSC (8 KB)	PAL (8 KB)	NTSC (11 KB)	PAL (11 KB)	NTSC (14 KB)	PAL (14 KB)
160 GB Internal Storage											
120	100	7.18	8.62	2.87	3.45	1.8	2.15	1.31	1.57	1.03	1.23
60	50	13.7	16.5	5.9	7.1	3.7	4.5	2.7	3.3	2.2	2.6
30	25	27.4	32.9	11.8	14.1	7.5	9.0	5.5	6.6	4.3	5.2
15	12.5	54.9	65.8	23.5	28.2	15.0	18.0	11.0	13.2	8.7	10.4
7.5	6.25	109.7	131.7	47.0	56.4	29.9	35.9	21.9	26.3	17.3	20.8
300 GB Internal Storage											
120	100	13.8	16.5	5.5	6.6	3.4	4.1	2.5	3.0	2.0	2.4
60	50	25.7	30.9	11.0	13.2	7.0	8.4	5.1	6.2	4.1	4.9
30	25	51.4	61.7	22.0	26.5	14.0	16.8	10.3	12.3	8.1	9.7
15	12.5	102.9	123.5	44.1	52.9	28.1	33.7	20.6	24.7	16.2	19.5
7.5	6.25	205.8	246.9	88.2	105.8	56.1	67.3	41.2	49.4	32.5	39.0

600 GB Internal Storage											
120	100	27.9	33.5	11.2	13.4	7.0	8.4	5.1	6.1	4.0	4.8
60	50	51.4	61.7	22.0	26.5	14.0	16.8	10.3	12.3	8.1	9.7
30	25	102.9	123.5	44.1	52.9	28.1	33.7	20.6	24.7	16.2	19.5
15	12.5	205.8	246.9	88.2	105.8	56.1	67.3	41.2	49.4	32.5	39.0
7.5	6.25	411.5	493.8	176.4	211.6	112.2	134.7	82.3	98.8	65.0	78.0

Appendix D: Dial-up Connections via Modem

A dial-up modem connection allows the user to use the remote software and receive alarm notice without a direct Internet connection. Following are the steps for establishing the connection between a **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit and a PC.

Establishing Dial-in Connection

The Dial-in function enables the user to establish dial-up modem communication to and from the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit for the remote software use. Follow the description to set up your DVR and PC.

DVR Configuration:

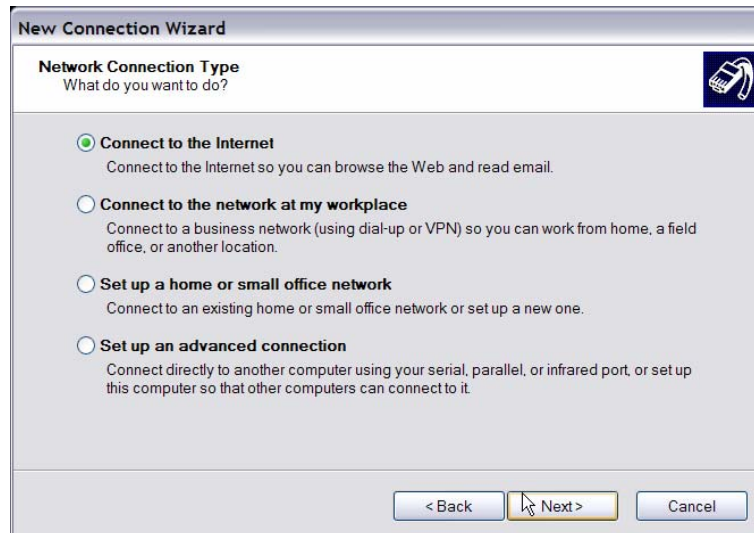
- Connect a USB modem to the USB socket and connect a working phone line to the modem.
- Press MENU and input the Administrator password to access the OSD Main menu. Select <Network Setup> and then <Dial-in Setup> to set up the Dial-In settings, including Dial-in Account and password, etc.
- For more information on dial-in settings, see section [5.1.6.3 Dial-in Setup](#).

PC Configuration:

- Click <Start>, <My Network Places>, <View Network Connections> and then select <Create New Connection>. The New Connection Wizard is displayed. Click <Next> to continue.



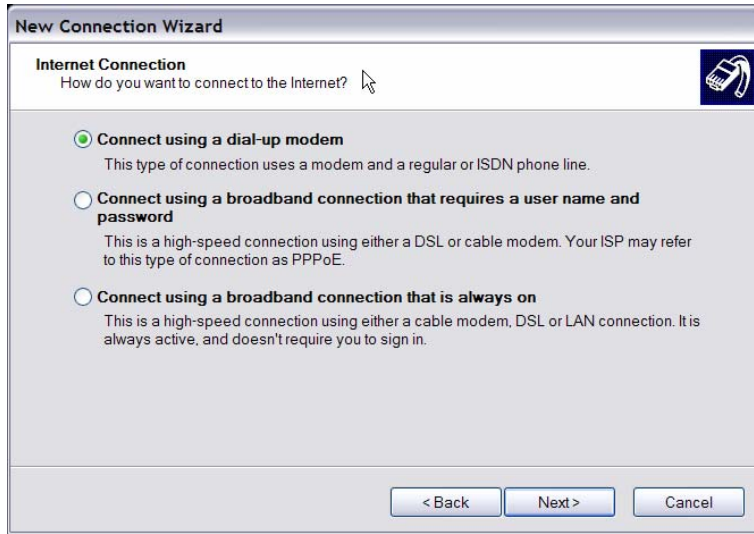
- Set up the network connection type. Select <Connect to the Internet> and click <Next> to continue.



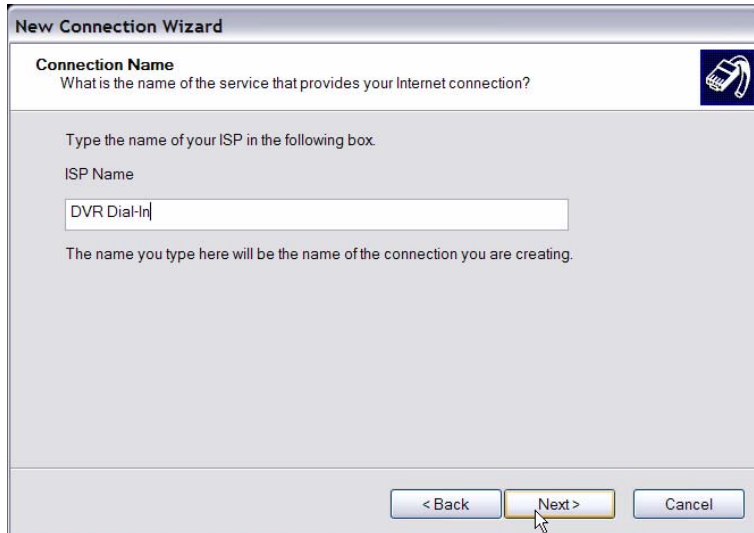
- Select <Set up my connection manually> and click <Next> to continue.



- Select <Connect using a dial-up modem> to connect to the Internet through a phone line and a modem. Click <Next> to continue.



- Type the name of the connection you are creating.



- Enter the phone number of the modem that is connected to the unit.



- Enter the Username and Password that is set up in the Dial-in Setup menu.



New Connection Wizard

Internet Account Information
You will need an account name and password to sign in to your Internet account.

Type an ISP account name and password, then write down this information and store it in a safe place. (If you have forgotten an existing account name or password, contact your ISP.)

User name:

Password:

Confirm password:

Use this account name and password when anyone connects to the Internet from this computer

Make this the default Internet connection

< Back Next > Cancel

- Click <Finish> to complete the dial-in connection.



New Connection Wizard

Completing the New Connection Wizard

You have successfully completed the steps needed to create the following connection:

DVR Dial-In

- Share with all users of this computer

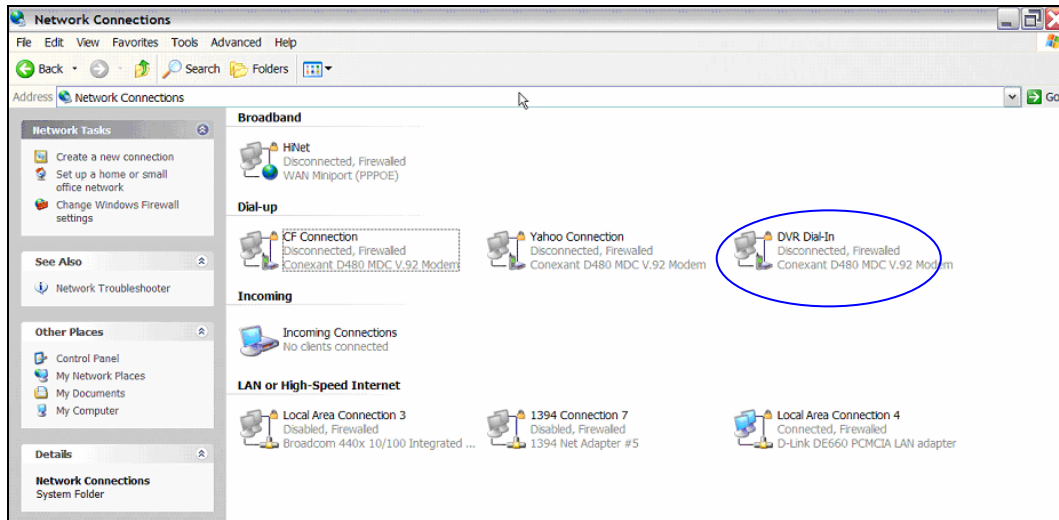
The connection will be saved in the Network Connections folder.

Add a shortcut to this connection to my desktop

To create the connection and close this wizard, click Finish.

< Back Finish Cancel

- Now the dial-in connection is established.



Establishing Dial-out Connection

The Dial-out function enables the user to establish dial-up modem communication to and from the **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit for remote notification use. Follow the instructions that follow to set up your DVR and PC.

DVR Configuration:

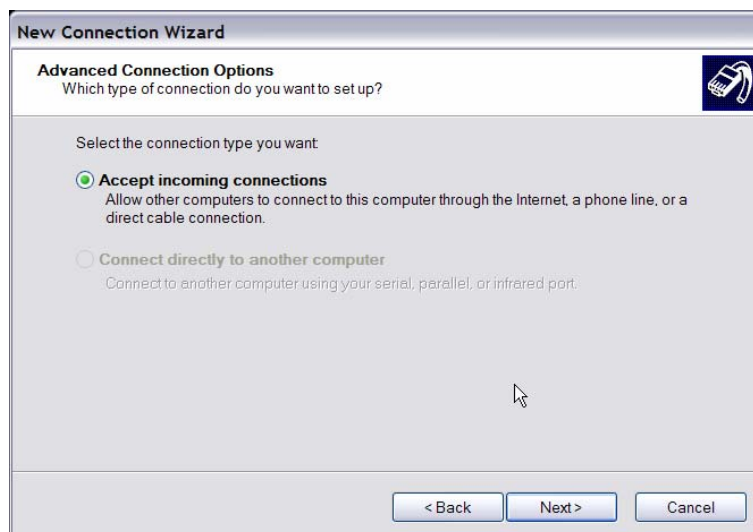
- Connect a USB modem to the USB port and connect a working phone line to the modem.
- Press MENU and input the Administrator password to access the OSD Main menu. Select <Network Setup> and then <Dial-out Setup> to set up the Dial-out settings.
- Select the <Email Address> in the Network Setup menu to edit an e-mail address for alarm notification.
- Select <Event Setup> in the Main menu and set the Email Notice function to <ON> (enabled).
- Exit the OSD menu and save the configuration.
- For more information on dial-out settings, see section [5.1.6.4 Dial-out Setup](#).

PC Configuration:

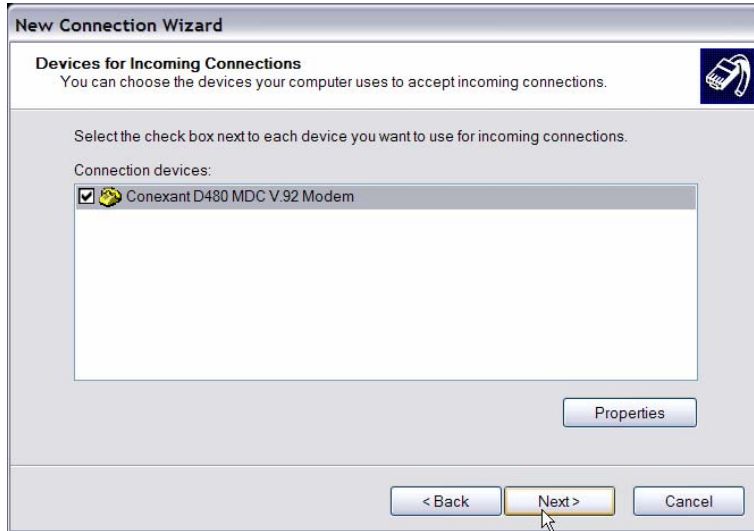
- Click <Start>, <My Network Places>, <View Network Connections> and then select <Create New Connection>. The New Connection Wizard is displayed. Click <Next> to continue.



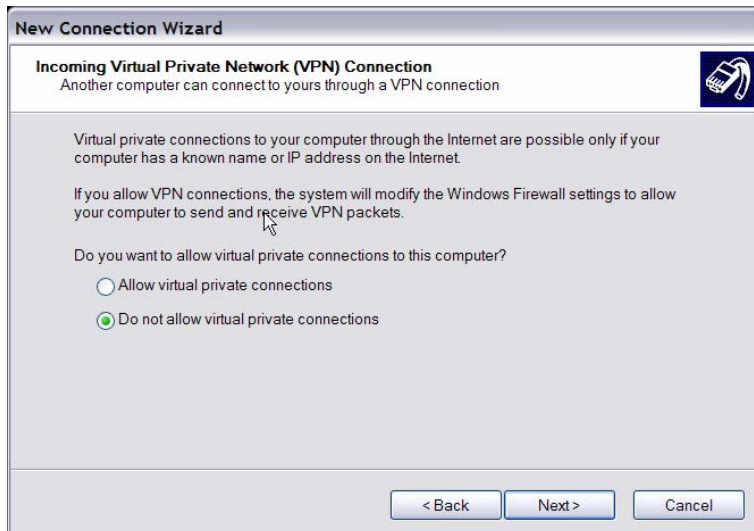
- Set up the network connection type. Select <Set up an advanced connection> and then <Accept incoming connections>. Click <Next> to continue.



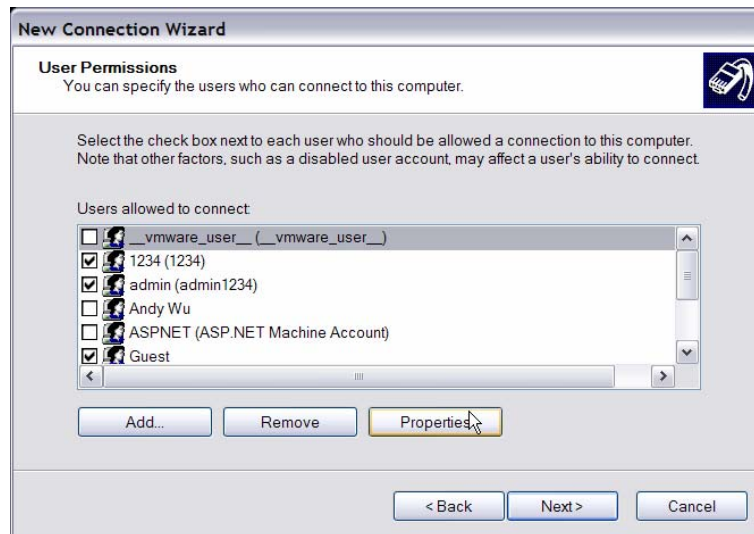
- Choose the modem device that will be used by the PC and click <Next>.



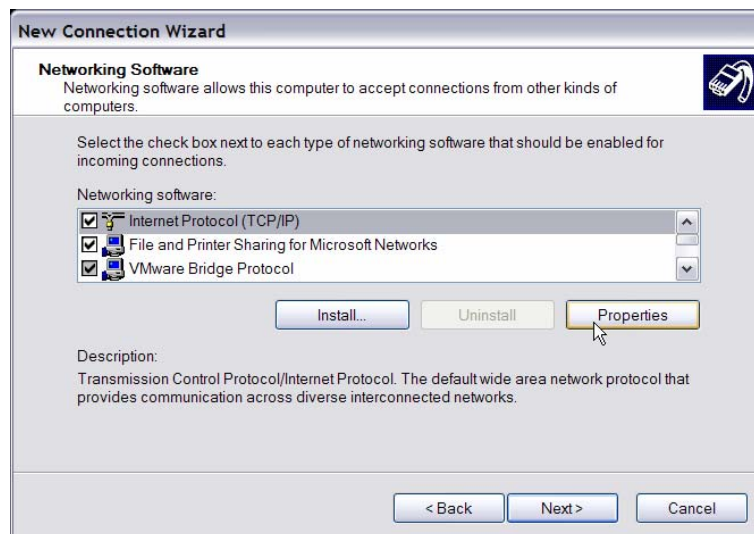
- In Incoming VPN Connection menu, choose <Do Not allow virtual private connections> and click on <Next>.



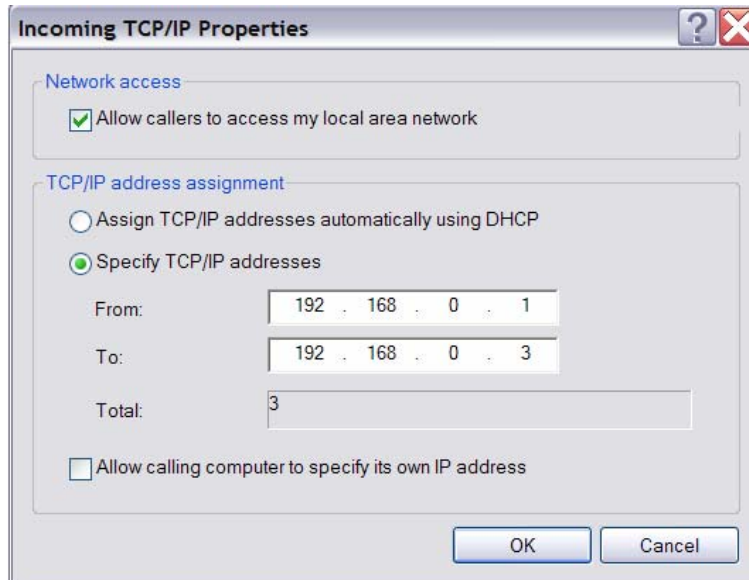
- In User Permission menu, select the users that will be using this connection. If needed, add a new user with the same user password that is set up in the Dial-out Setup menu in local DVR. When done, click <Next> to continue.



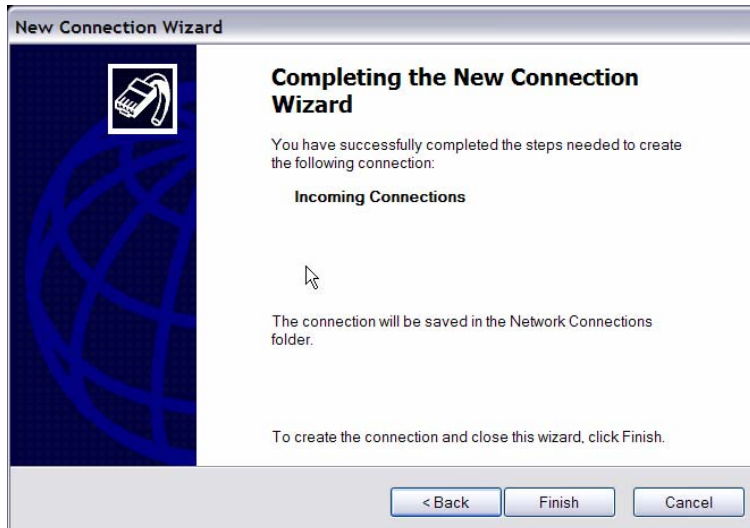
- In Networking Software menu, select <TCP/IP> and click on <Properties>.



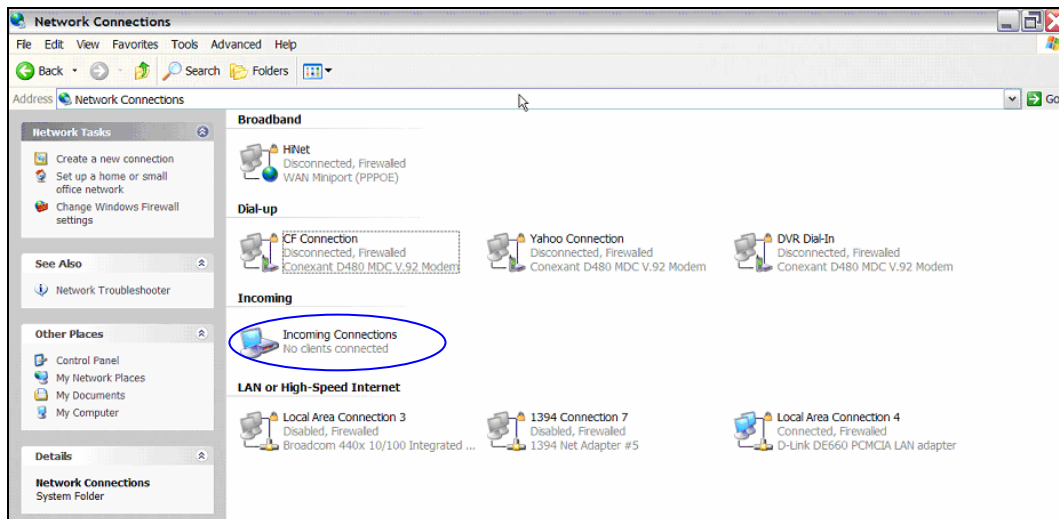
- In TCP/IP address assignment, if the PC has DHCP server, then choose <Assign TCP/IP addresses automatically using DHCP>, or choose <Specify TCP/IP addresses> and enter the range of IP addresses that you wish to use. Once done, click <OK> to confirm then back to Networking Software menu. Click on <Next> to continue.



- Click <Finish> to complete the process.



- The Incoming connection is established.



Appendix E: Verifying Digital Signature

The digital signature aims to authenticate a video file exported from the unit. Follow the instructions to export video with a digital signature and to verify the digital signature.

To export recorded video with digital signature:

To export recorded video with a digital signature to a USB hard drive or CD-RW drive / DVD+RW drive, follow these steps.

- In <Video Export> menu, select copy device, data type, expected channel and start/end time, or event video clips.
- Set the <Digital Signature> function to <YES>.
- Start the exporting process by setting <Begin Export> to <YES>.

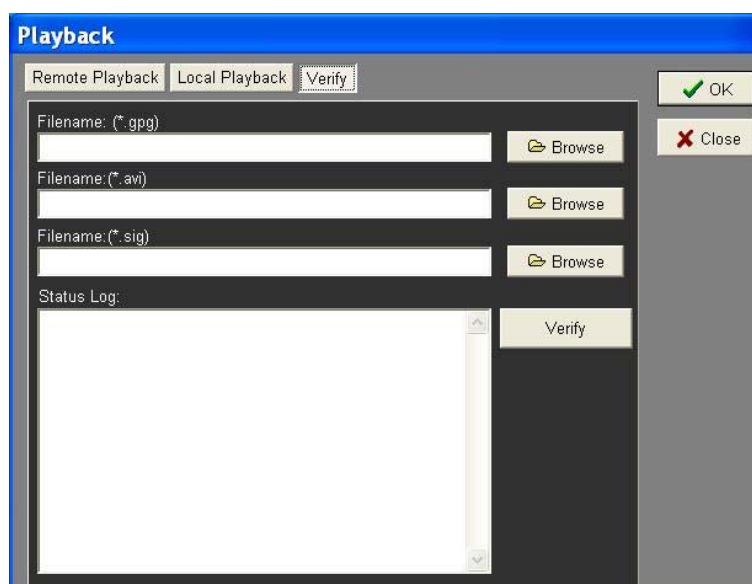
Video Export			
1. Select Device			
2. Select Ch:		CH1	CH2 CH3 CH4
3. Start Time		2005/03/19	AM 07:50:05
4. End Time		2005/03/28	PM 03:09:18
5. Select Events			
6. Data Type			Normal
7. Digital Signature			NO
8. Erase Disc			NO
9. Begin Export			NO

Each recorded video will be exported into four files with different filenames, including *.gpg, *.drv, *.sig and readme.txt.

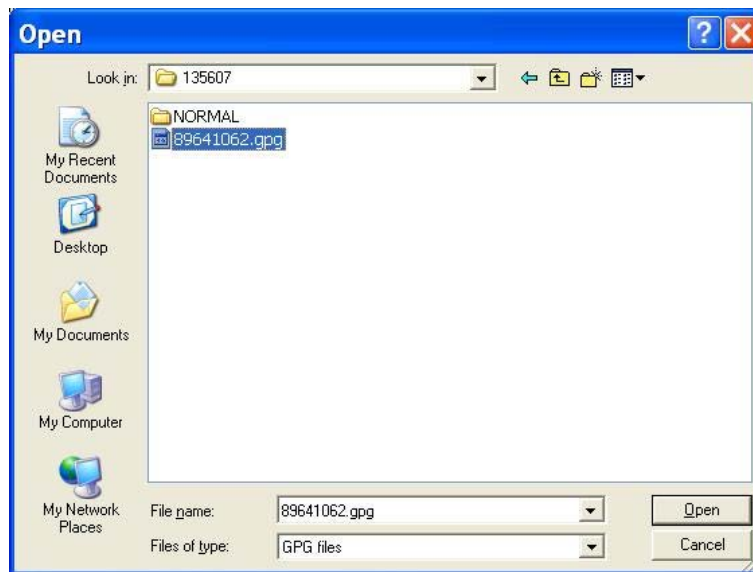
To verify the exported recorded video:

Following are the procedures for digital signature verification.

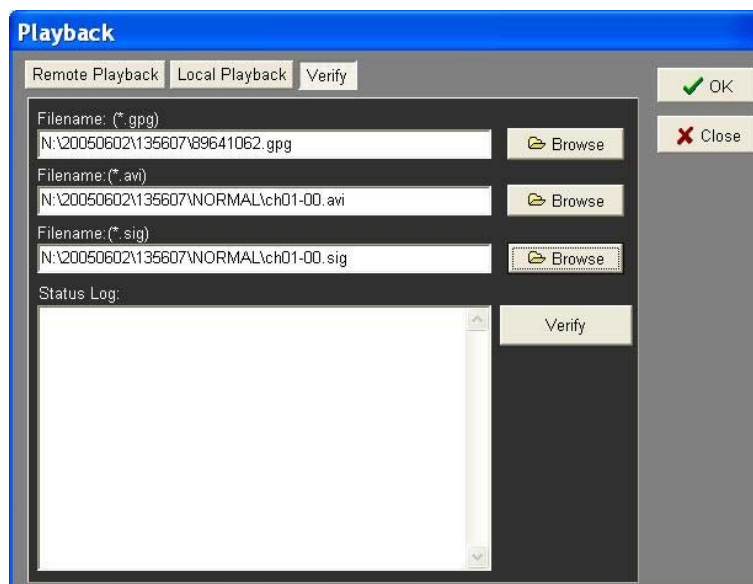
- Start your **SpecoRemote™** and click <Play> on the main window tool bar.
- Click <Verify> tab to display the Verify window.



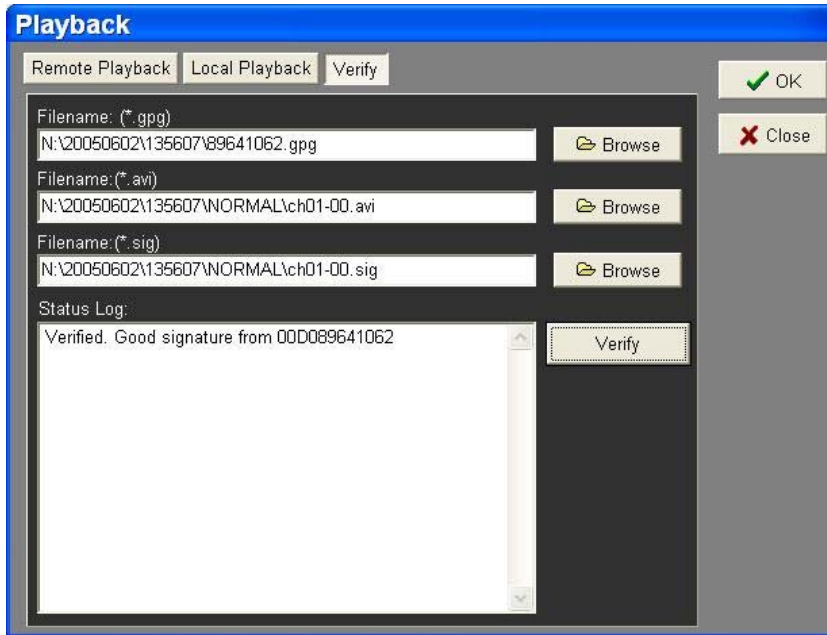
- Click <Browse> to select the *.gpg, *.drv, *.sig files respectively, which belong to the exported video you want to authenticate.



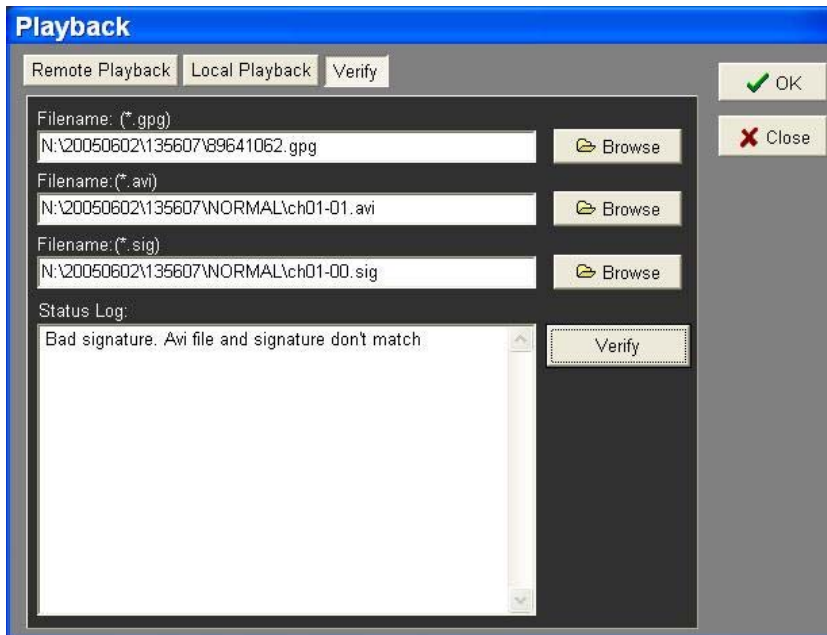
- Click <Verify> to start verifying the digital signature.



- The result of verification shows in the <Status Log> field. It returns a GOOD or BAD signature result. A GOOD signature indicates the exported clip has not been altered.



<GOOD> Signature



<BAD> Signature

Appendix F: Alarm I/O Pin Definition

The tables below list the pin definitions of alarm I/O located on the rear panel of the DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT series unit.

DVR-4TN Alarm I/O



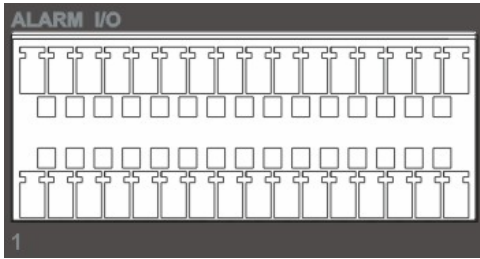
Pin	Definition	Pin	Definition	Pin	Definition
1	RS485 D+	8	Normal Close B	15	Reserved
2	RS485 D-	9	Common Node B	16	Reserved
3	Ground	10	Normal Open B	17	Reserved
4	Normal Close A	11	Alarm In 1	18	Reserved
5	Common Node A	12	Alarm In 2	19	Reserved
6	Normal Open A	13	Alarm In 3	20	Reserved
7	Ground	14	Alarm In 4		

DVR-8TN Alarm I/O



Pin	Definition	Pin	Definition	Pin	Definition
1	RS485 D+	8	Normal Close B	15	Alarm In 5
2	RS485 D-	9	Common Node B	16	Alarm In 6
3	Ground	10	Normal Open B	17	Alarm In 7
4	Normal Close A	11	Alarm In 1	18	Alarm In 8
5	Common Node A	12	Alarm In 2	19	Reserved
6	Normal Open A	13	Alarm In 3	20	Reserved
7	Ground	14	Alarm In 4		

DVR-16TN/16TS/16TT Alarm I/O



Pin	Definition	Pin	Definition	Pin	Definition
1	RS485 D+	12	N/A	23	Alarm In 7
2	RS485 D-	13	N/A	24	Alarm In 8
3	Ground	14	N/A	25	Alarm In 9
4	Normal Close A	15	N/A	26	Alarm In 10
5	Common Node A	16	N/A	27	Alarm In 11
6	Normal Open A	17	Alarm In 1	28	Alarm In 12
7	Ground	18	Alarm In 2	29	Alarm In 13
8	Normal Close B	19	Alarm In 3	30	Alarm In 14
9	Common Node B	20	Alarm In 4	31	Alarm In 15
10	Normal Open B	21	Alarm In 5	32	Alarm In 16
11	Ground	22	Alarm In 6		

Appendix G: HDD PC Player Tool Introduction

For some specific reasons, users may need to view the stored data in the HDD on Personal Computer; this document guides you how to do that step by step.

Using EXT2IFS on Your PC

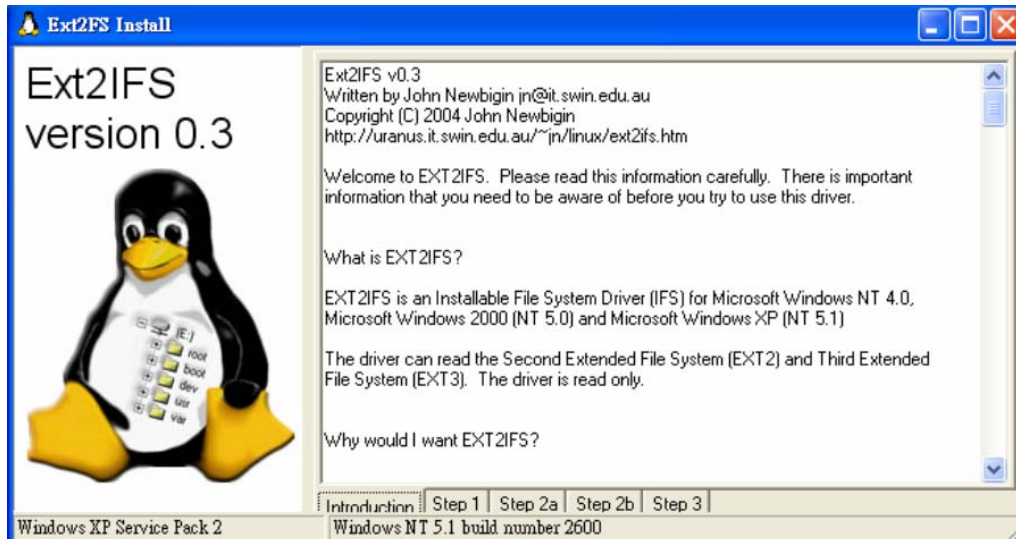
EXT2IFS, an installed File System Driver, allows you to run a Linux System on Windows System. If you are a Windows user, then you need to install EXT2IFS to your PC before you start using SpecoPlayer to see the *drv file . To get the software EXT2IFS, you can visit <http://uranus.it.swin.edu.au/~jn/linux/ext2ifs.htm> and download EXT2IFS. A detailed description about the software also can be found on the website.

The following steps guide you how to use the EXT2IFS software .

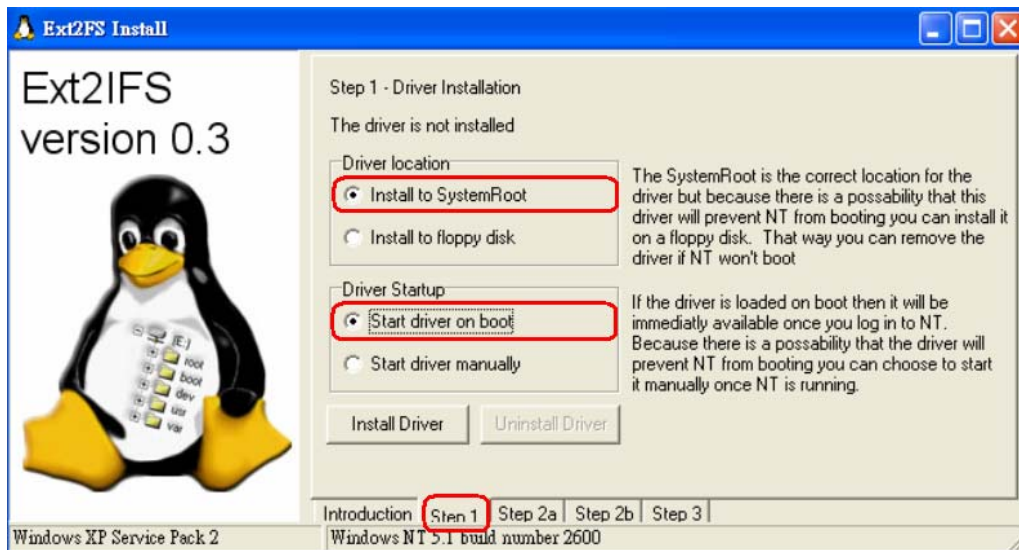
Step 1. Download EXT2IFS to your PC through above website address.

Step 2. Remove the HDD from your **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series and install the removed HDD into your PC. When done, reboot the PC.

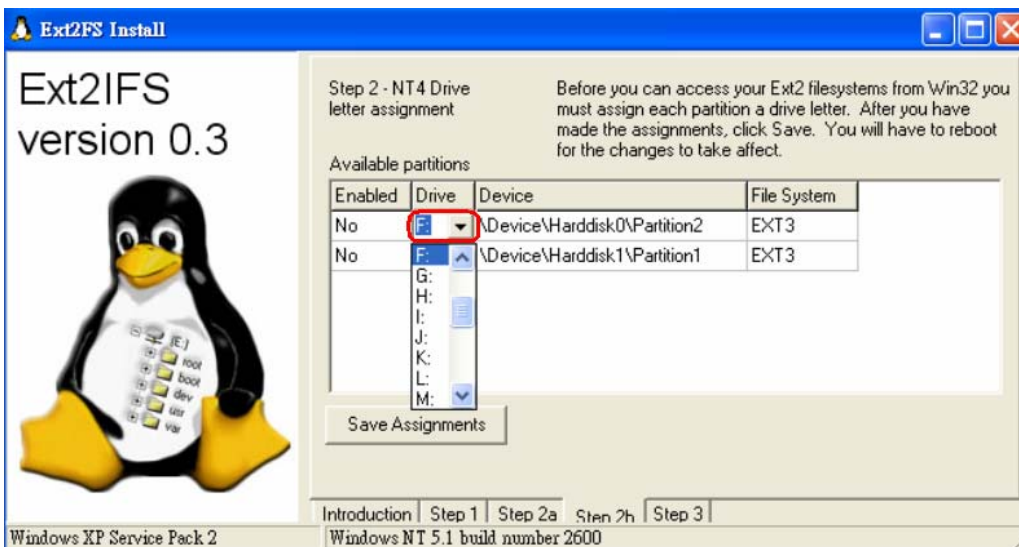
Step 3. Extract and Launch EXT2IFS Setup Wizard.



Step 4. Click <Step1> sheet, and then choose <Install to System Root> and <Start drive on boot> options. When done, click <Install Drive> button.



Step 5. Click <Step2b> sheet. Click <Drive> to assign each partition a drive.



Step 6. Click <Step1> sheet, and then choose <Install to System Root> and <Start drive on boot> options. When done, click <Install Drive> button. After the assignments are made, click <Save Assignments> button.

Step 7. Click <Step1> sheet, and then choose <Install to System Root> and <Start drive on boot> options. When done, click <Install Drive> button. Click <Step3> sheet. Then click <Start Drive> button.

Step 8. Click <Step1> sheet, and then choose <Install to System Root> and <Start drive on boot> options. When done, click <Install Drive> button. After last step is done, reboot the PC for the changes to take effect. The HDD will be added into your PC's database after rebooting.

Start Playing the *.drv file

After the HDD being added into your PC's database , you can now use the SpecoPlayer to play the *.drv file in your HDD. Please referring to the steps below:

Step 1. You can find the SpecoPlayer in the CD that ship with the package, start it and push the "PLAY" button on the upside of the frame.

Step 2. Click the "Open Device" button (as below picture), then choose the HDD Drive that you just assigned.

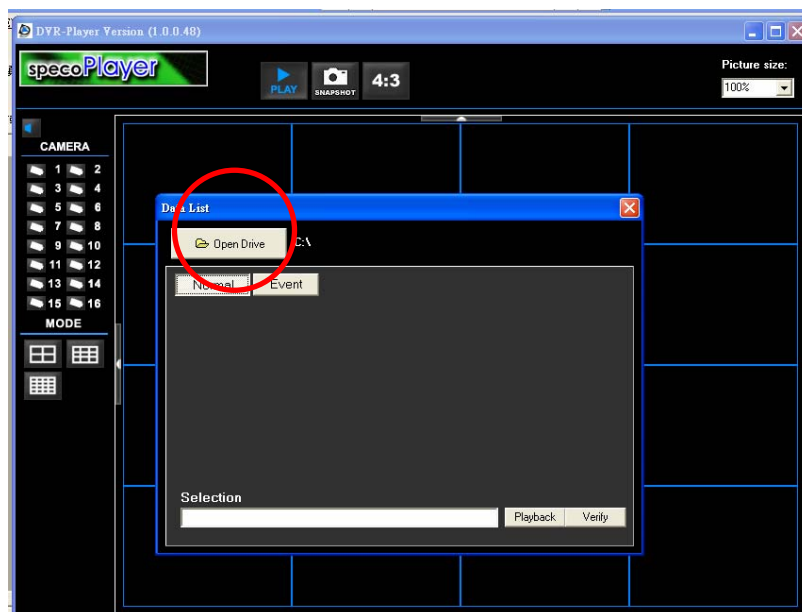


Figure 1: Select the Drive

Step 3. After choosing the HDD Drive , choose the video file that you want to use.

Step 4. Click the “Playback” to play the video directly or “Export” if you want to save the *.drv file into your PC.

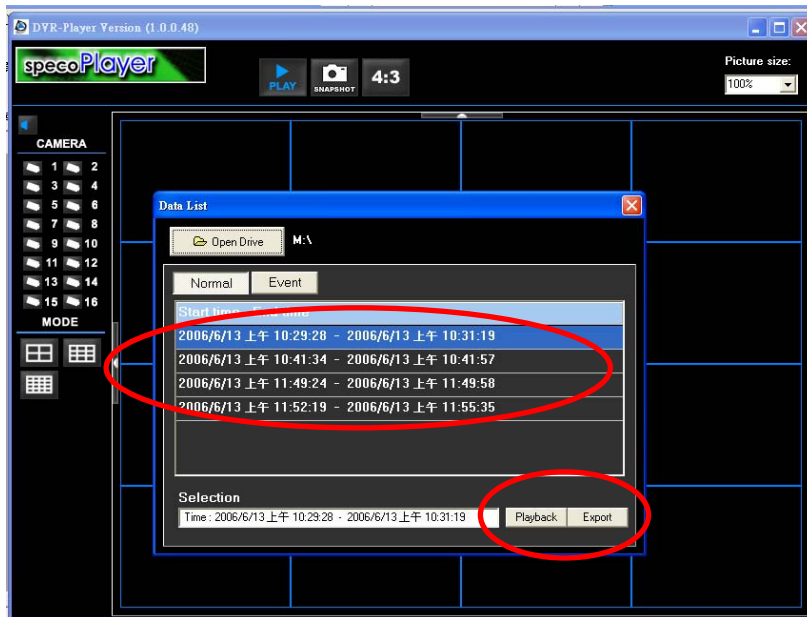
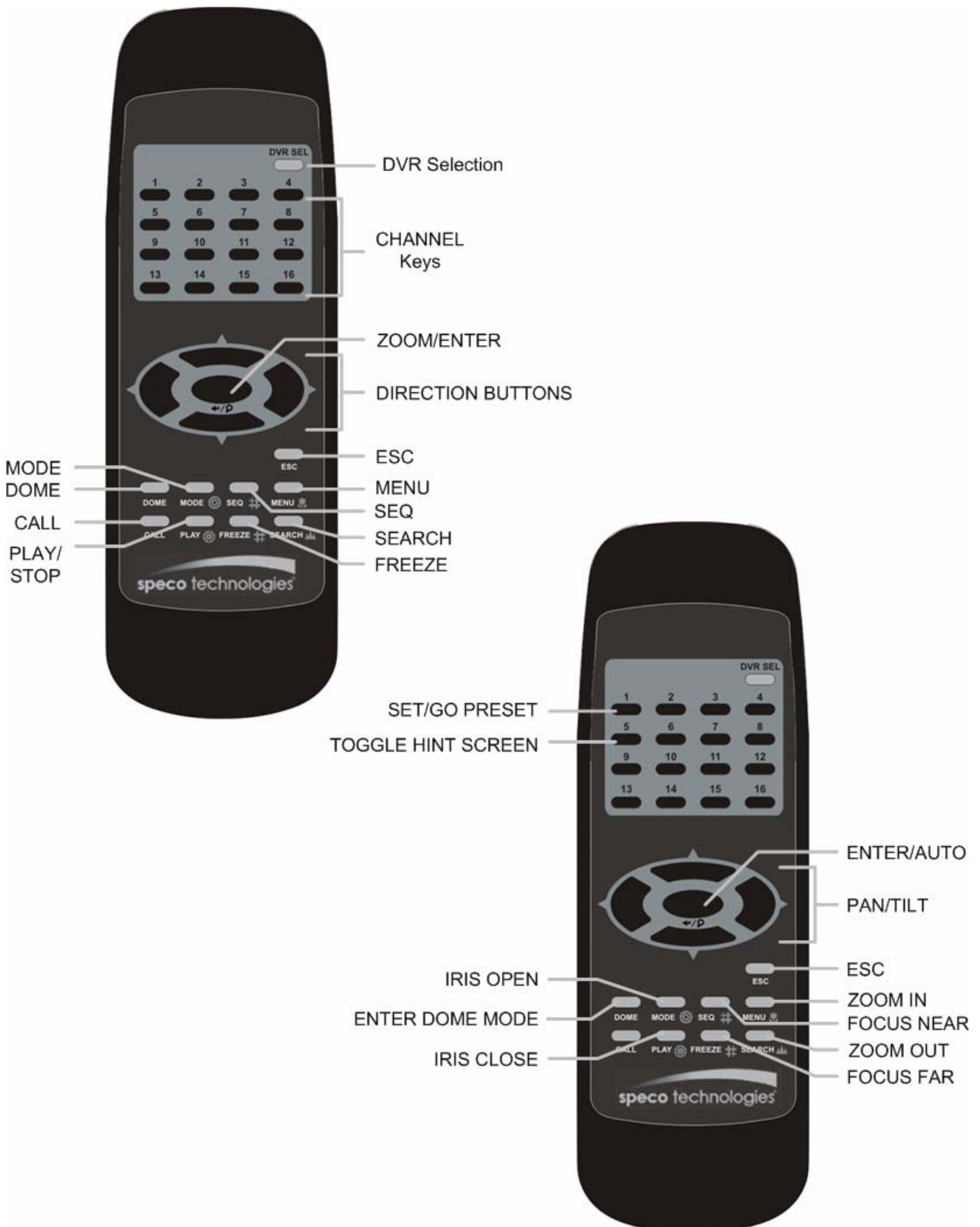


Figure 2: Select the file you want to use

Appendix H: IR Remote

An IR Remote will be included in the content box and deliver to you with your **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series unit. The keys on the IR Remote are listed as below figure:



The keys of the remote control function as the keys of the front panel of the DVR. The only difference between the remote control and the front panel keys is the “DVR SEL” key. The DVR Selection key is used to switch control between each DVR.

The remote control can be used to control up to 16 DVRs. To setup the remote control, the first thing you need to do is to assign a unique DVR Unit ID to each DVR.

Use the front panel of the DVR, and follow this path to change the DVR Unit ID, <Main Menu> → <System Setup> → <RS485 Setup> → <Unit ID>

Change the DVR Unit ID to any number between 224 and 239, and exit the menu.

After the DVR Unit ID is changed, you will need to setup the “DVR SEL” of the remote control. Press “DVR SEL”, and then press the Remote Control # immediately to select the DVR. For example, assuming that you have set the DVR Unit ID to 225, then you should press “DVR SEL”, and then press “2” immediately. Now, the remote control will only be able to control the specified DVR. Press “DVR SEL”, and then press the Remote control # to switch between DVRs.

The ID Table is listed below for your reference.

DVR Unit ID	224	225	226	227	228	229	230	231
Remote Control #	1	2	3	4	5	6	7	8

DVR Unit ID	232	233	234	235	236	237	238	239
Remote Control #	9	10	11	12	13	14	15	16

However, if you would like to escape the single DVR control mode, press “DVR SEL”, and then press “ESC” to do so.

Appendix I: ezRecord Diagram Sample

Diagram Sample(Full-D1)

NTSC:720x480@30PPS

PAL:720x576@25PPS

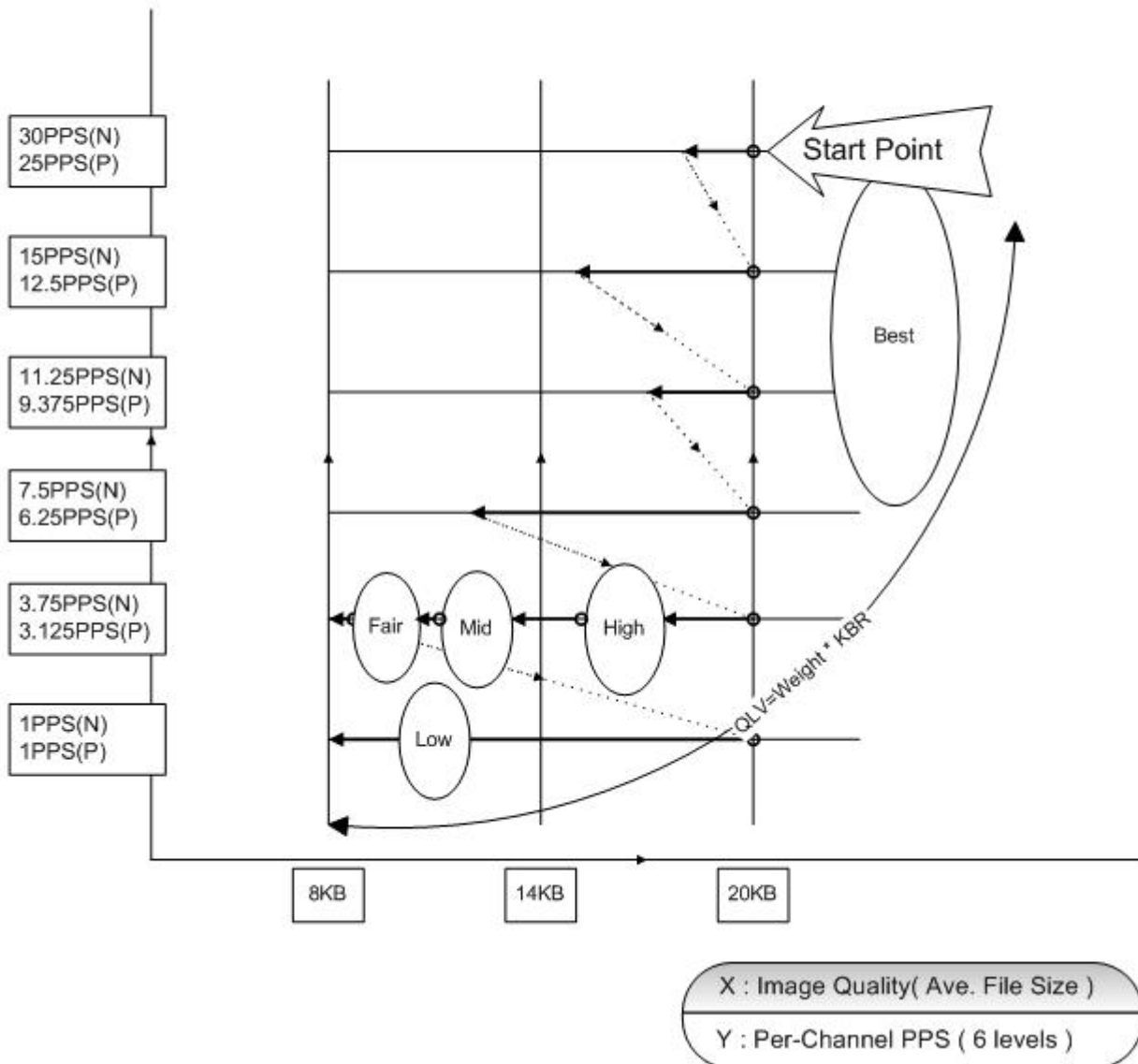


Diagram Sample(Half-D1)

NTSC:720x240@60PPS

PAL:720x288@50PPS

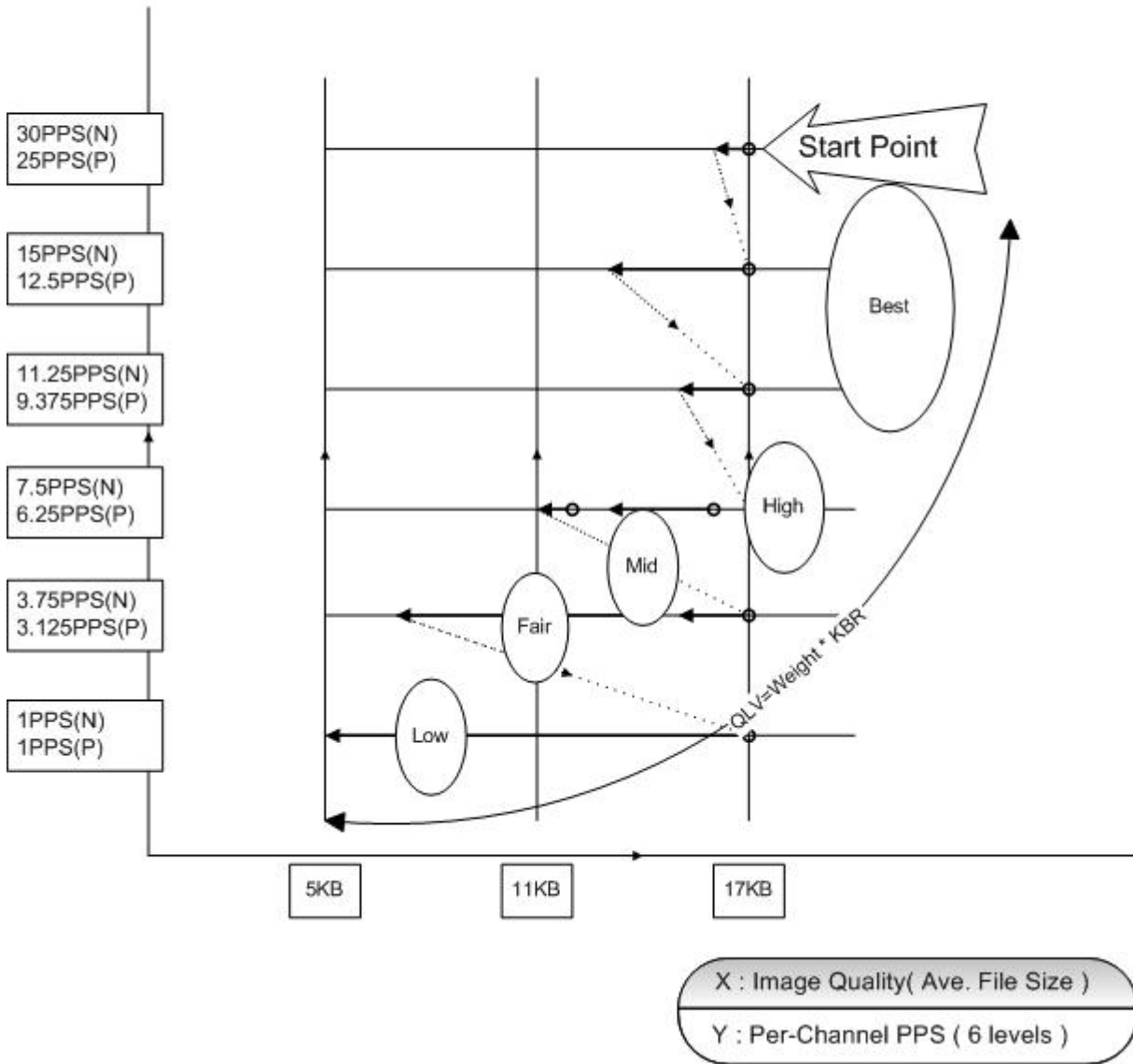
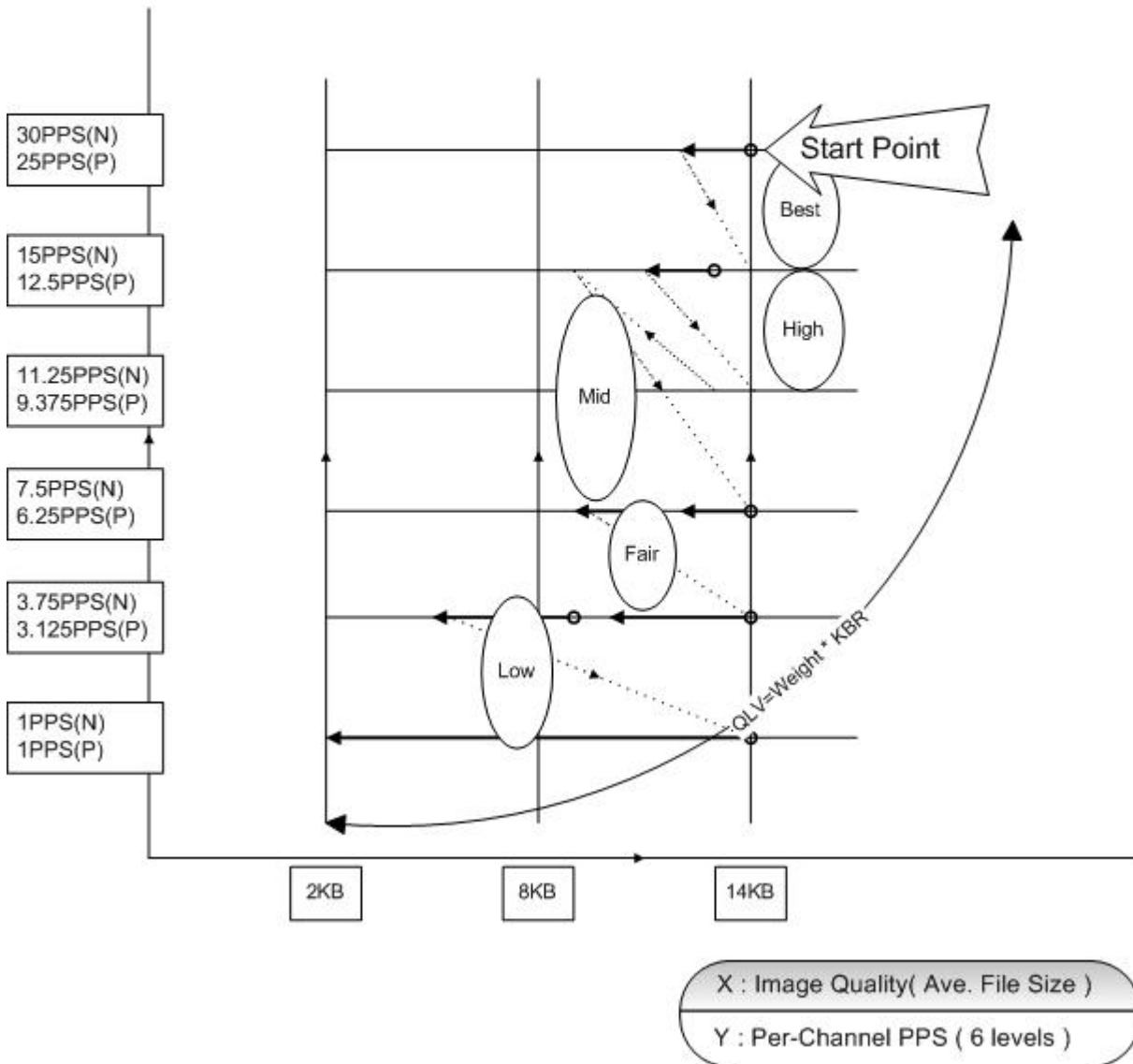


Diagram Sample(CIF)

NTSC:360x240@120PPS

PAL:360x288@100PPS



Appendix J: Connect to External Storage Device

DVR-DS4TST, with the JBOD (Linear) functionality built-in, is a Network Attached Storage System (NAS) which is specially designed for **DVR-16TS/TT**.

You **SHOULD NOT** remove DVR's internal HDD or shut down the **DVR-DS4TST** while the connection is working. Below lists situations that may happen and the consequences if you do so.

- Situation:** Remove the DVR's internal HDD while the DVR is currently saving image data to the **DVR-DS4TST**.

Result: Disk error happens, and the DVR will not reboot. If you reboot the unit, the DVR keeps saving image data to the **DVR-DS4TST**.
- Situation:** Remove the DVR's internal HDD while the DVR is currently saving image data to the internal HDD.

Result: Disk error happens. The recording stops. After rebooting, the DVR starts saving image data to the **DVR-DS4TST**.

Appendix K: Recording in MPEG-4/ MJPEG Format

The **DVR-4TN/ 8TN/ 16TN/ 16TS/ 16TT** series DVR provides Dual-Codec function that allows users to select MPEG-4 or MJPEG compression for their specific applications.

To choose recording in MPEG-4 format or MJPEG format, go to <Record Setup> → <Record Mode>, and select from the options.

You can choose from <720×480@30PPS>, <720×240@60PPS>, <360×240@120PPS>, <720×480@30JPG>, <720×240@60JPG> and <360×240@120JPG> in NTSC; and <720×576@25PPS>, <720×288@50PPS>, <360×288@100PPS>, <720×576@25JPG>, <720×288@50JPG>, <360×288@100JPG> in PAL.

If you choose the item with “PPS” as the last 3 letters, then you choose to record in MPEG-4 compression; if you choose the item with “JPG” as the last 3 letters, then you choose to record in MJPEG compression.

For example, if you choose <720×240@60JPG>, then you choose to record in MJPEG compression; or, if you choose <720×240@60PPS>, then you choose to record in MPEG-4 compression.