

Triplex MPEG-4 DVR

OSD Setup Guide

79100A03

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Menu System Overview

The detailed functions and settings of **Triplex MPEG-4 DVR** can be set using the hierarchical OSD menu. This chapter particularizes the 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, **DVRRemote**.

Administrator Password	User Password
1234	4321

It is strongly suggested 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. Shutdown

<Key Usage>

The key usage differs under the OSD Setup Menu and in the Virtual keyboard (Next Page), which can be seen while setting some items, such as Unit Name and IP Address in the OSD Setup Menu.

■ *Key Usage in OSD Menu*

Below introduce some keys used frequently to set up the unit via the OSD Setup 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.

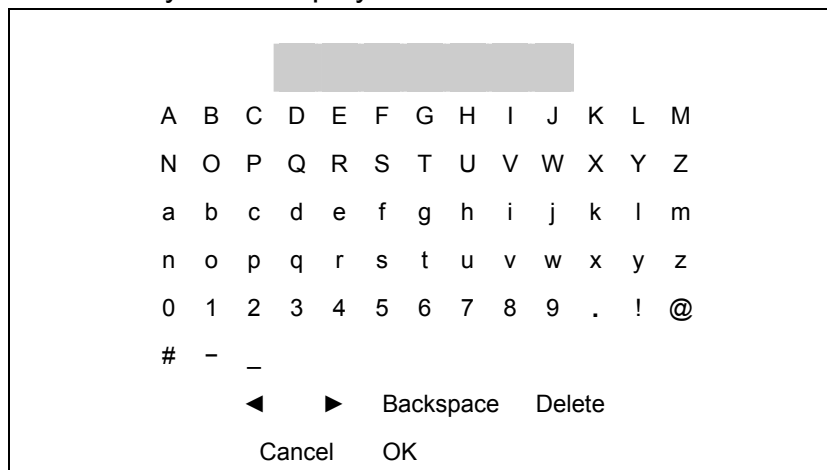
<ESC>

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, 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>

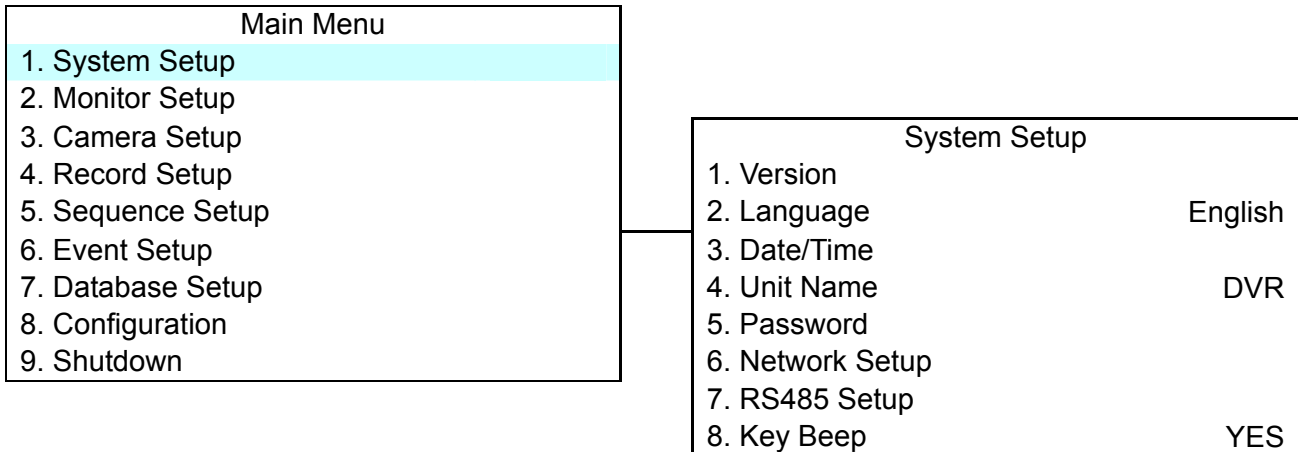
Select <Delete> and press ENTER, or press MODE and DOWN simultaneously.

<To exit the virtual keyboard>

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

System Setup

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



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

<Version>

The Version menu allows user to view system information such as hardware and software version. From the System Setup menu, select <Version> and press ENTER. The following menu is displayed. The first three items, including <Model Name>, <Hardware> and <Software>, are for read only, which CANNOT be changed.

Version	
Model Name	*****
Hardware	** ** *
Software	*** ** ** ** *
Software Upgrade via Local Device	

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

■ **Hardware Version**

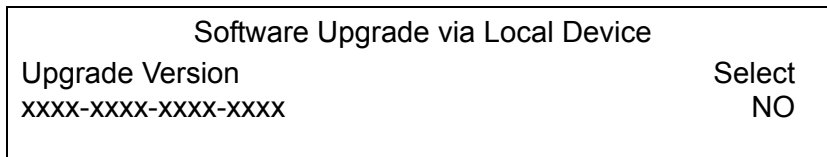
The item identifies the hardware version for this unit.

■ **Software Version**

The item identifies the software version installed on this unit.

■ **Software Upgrade via Local Device**

This item is used for updating the **Triplex MPEG-4 DVR** software by local device. The menu is displayed as follows.



Connect an USB drive contains upgrade software to the unit; the available upgrade files will 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 **Triplex MPEG-4 DVR** uploads the software, updates the system files, and reboots automatically.

The upgrade may take several minutes to save the changes in the memory of the system. After reboot the unit, please check the software version again.



NOTE: No power interruption is allowed during the software update. Ensure that no power interruption can occur until the unit is completely rebooted.



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

<Language>

The Language item allows 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 listed languages and press ENTER to confirm.

<Date / Time>

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 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		PM10:39:26
3. Date/Time Display		1 Row
4. Date Display Mode		Y/M/D
5. Time Display Mode		24 HR
6. Date/Time Order		Date First
7. Daylight Saving Time		OFF
8. DST Start	Apr, 1 st Sun,	02:00
9. DST End	Apr, Last Sun,	02:00
10. DST Bias		60 Min



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



NOTE: To avoid record database corruption, after changed Date/Time setting, clear the database is recommended.

■ ***Date / Time Setting***

Select <Date> or <Time> and press ENTER for adjusting 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.

■ ***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”.

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

■ ***Time Display Mode***

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 <24 hour>.

■ ***Date/Time Order***

The 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.

■ ***Daylight Saving Time***

The item is for people who live in certain regions to observe 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***

The 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***

The item allows 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.

<Unit Name>

Users are allowed to assign a unit name, up to 11 characters, to the **Triplex MPEG-4 DVR**.

Follow the steps to edit the unit name.

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

Unit Name													
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 wanted 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.

<Password>

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

Password	
1. Admin Password	
2. User Password	
3. Enable Password	NO
4. Load Factory Password	None

■ **Admin / User Password**

Only the administrator is allowed to change the user and administrator password to any 4~8 digit number. Use the UP / DOWN Direction keys to select 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.

■ **Enable Password**

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

■ **Load Factory Password**

This item allows the administrator to reload the factory password in case that 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) and <None>. The factory password is 1234 for administrator and 4321 for user.

<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.

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

Network Setup	
1. LAN Setup	
2. Trigger Port	80
3. DDNS Setup	

Items in this menu are described in the following sections.

■ **LAN Setup**

The network related settings in the LAN Setup menu should be associated with the network service type.

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

LAN Setup			
1. DHCP			ON
2. IP	0	.0	.0 .0
3. Netmask	0	.0	.0 .0
4. Gateway	0	.0	.0 .0
5. DNS		192.168.10.1	
6. Connect At Booting			YES
7. Network Restart			NO

- DHCP

This item allows user to obtain a dynamic IP address from DHCP (Dynamic Host Configuration Protocol) server during 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 item is enabled (ON), a dynamic IP will be assigned to **Triplex MPEG-4 DVR**. In this case, user does not need to configure a static IP and 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 administrators or IT personnel for appropriate values for these settings.

- IP

The 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 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

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 Server", which is an Internet service that translates domain names into IP addresses. Because domain names are easier to remember.

The item allows 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 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.

- **Connect At Booting**

The unit is allowed to connect to the internet automatically when powered up. Select <YES> to connect at booting, otherwise select <NO>. The default setting is <YES>.

- **Network Restart**

Network restart is required after changing network settings. Select <YES> to restart the network device.

■ ***Trigger Port***

To avoid the default service port (port 80) to be blocked, the item enables user to change port 80 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.

■ ***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 to a static domain name so others can connect to it by name.

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

<http://yourhostname.ddns.iview-ddns.com>

For example, if the chosen Host name is "*****", then the address will be:

http://*****.ddns.iview-ddns.com

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

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

- Enable DDNS

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

- Host Name

The item allows user to setup a domain name, which is used when entering the **MPEG-4 DVR** series unit through the net 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 the figure below.

Host Name														
[REDACTED]														
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 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.



NOTE: No any two **MPEG-4 DVR** series units should be set the same Host Name.

- DDNS Port

The item allows 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 **MPEG-4 DVRs** series units set the same domain name, the later setting will not be submit successfully.

- ezDDNS

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

ezDDNS Submit/update ok!
Host name is XXXX_XXXXXX
Press any key to return



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 one that is assigned to you by your ISP.

**A "Virtual IP" is one 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.

■ **<RS485 Setup>**

This menu allows setting up 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

■ **Unit ID**

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

■ **Baud Rate**

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

■ **Bits**

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.

■ **Stop**

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

■ **Parity**

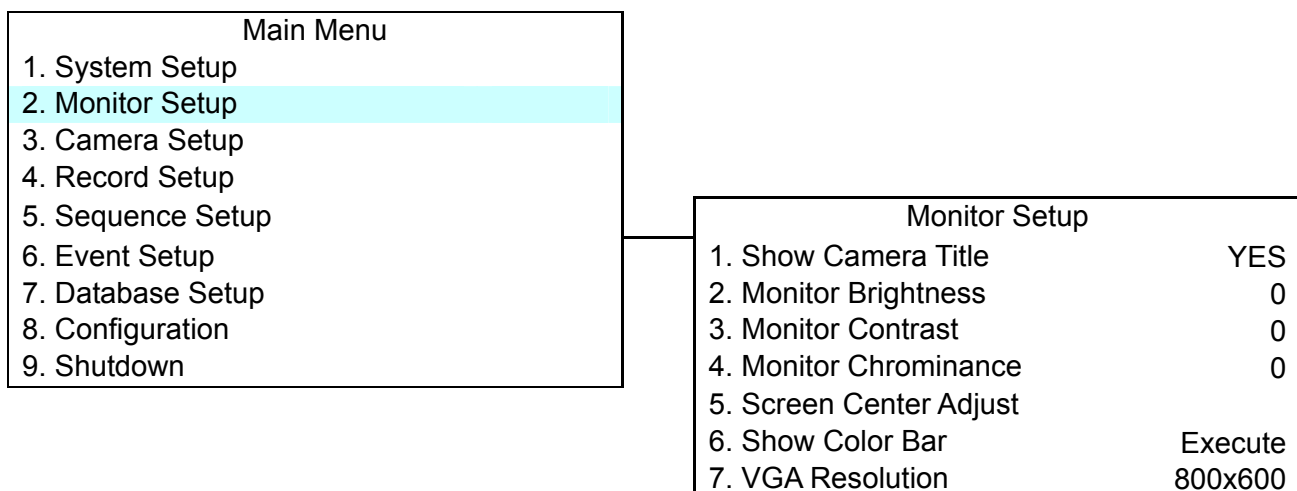
This item is used to specify the parity associated with this protocol. Options are <ODD>, <EVEN>, and <NONE>. The default is <NONE>.

<Key Beep>

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

Monitor Setup

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



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

<Show Camera Title>

This item allows 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.

<Monitor Brightness>

The function allows user to adjust the brightness of 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 <-128> to <127>. The default setting is <0>.

<Monitor Contrast>

The item is used to adjust the color contrast of image. The range of contrast values is <-128> to <127>; the default setting is <0>.

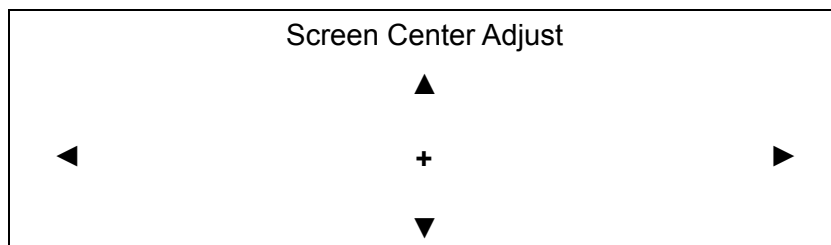
<Monitor Chrominance>

Move the cursor over the item and press ENTER for adjusting the chrominance of image displayed on the monitor. Use UP / DOWN keys to adjust the numeric value. The range of chrominance values is <-128> to <127>; the default setting is <0>.

<Screen Center Adjust>

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

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



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

<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.

<VGA Resolution>

The item allows user to select appropriate VGA resolution for the VGA monitor connected to the unit. The options are <800x600> (default), <1024x768> and <1280x 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.

Camera Setup >

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

Main Menu		Camera Setup	
1. System Setup		1. Camera Select	CH3
2. Monitor Setup		2. Dome Protocol	None
3. Camera Setup		3. Dome ID	0
4. Record Setup		4. Camera Title	CH3
5. Sequence Setup		5. Covert	No
6. Event Setup		6. Termination	Yes
7. Database Setup		7. Brightness	0
8. Configuration		8. Contrast	0
9. Shutdown		9. Saturation	0
		10. Hue	0

Items in this menu are described in the following subsections.

<Camera Select>

The item is used to select a camera for setting the parameters. The related settings will follow the selected 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.

<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> and <None> (default).

<Dome ID>

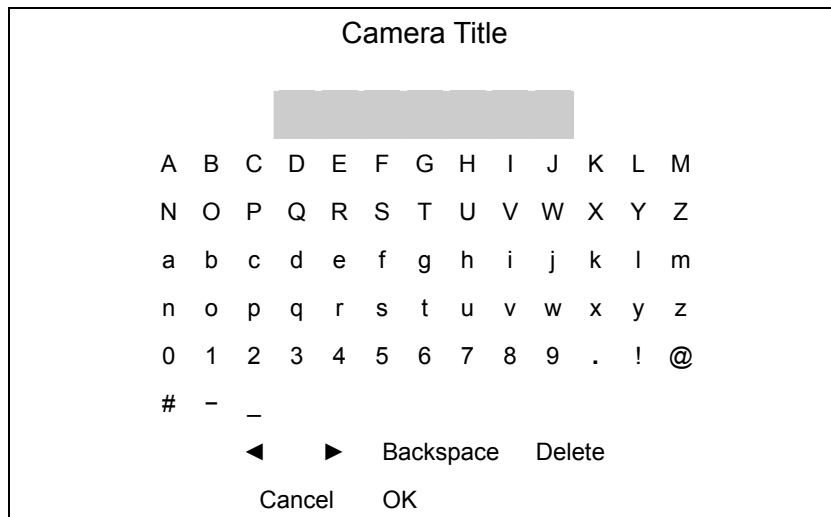
This item is used to assign an ID number to the selected dome camera. Note that ID number must match the ID address set by the dome.

<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 changes of the titles 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 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.

<Covert>

This function allows user to choose certain camera to be covert while the unit is continuing recording video. Choosing <YES> means to cover the selected camera; and <NO> to remain the selected camera non-covert. The default setting is <NO>.

To make a camera be covert, follow these steps:

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

<Termination>

This item is used to enable / disable the 75-termination resistor inside the unit to adjust 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.

<Brightness>

Move the cursor to the item and press ENTER for adjusting 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>.

<Contrast>

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

<Saturation>

Move the cursor to the 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>.

<Hue>

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

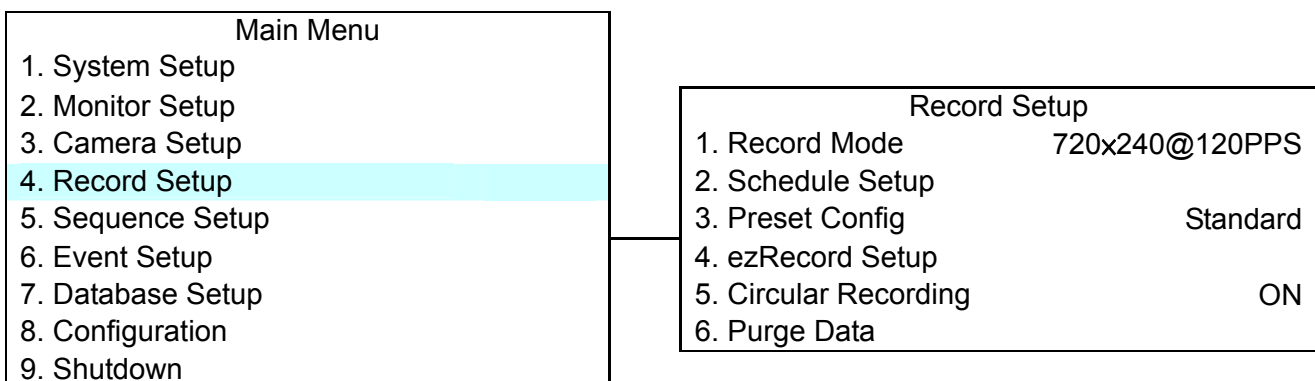
Record Setup

The following three factors will effect the total record time of **Triplex MPEG-4 DVR**:

- 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 Mode>

The item is for selecting resolution and recording rate. The relative record settings, such as preset configuration, will follow the record mode setting. The options are <720 x 480@30PPS>, <720 x 240@60PPS> and <360 x 240@120PPS> in NTSC (<720 x 576@25PPS>, <720x288@50PPS>, <360x288@100PPS>in PAL).

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 HARDDISKS and LOAD THE FACTORY DEFAULT CONFIG!” will be shown on the screen. Press ENTER to confirm the selection, then the unit starts to format the hard disks and load the factory default settings, or press ESC to abort.

We strongly recommend to backup your programmed configuration before making any changes on Record Mode settings.

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

■ **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 Weekend recording begins.

<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 user to choose: <Best Quality>, <Standard>, <Extended Record>, <ezRecord>, <Event Only>, <512Kbps DSL>, <256Kbps DSL> and <128Kbps DSL>.

According to various Record modes, the preset configuration options for normal and event status are described in terms of relative recording rate (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>.

Record Mode: Full-D1 mode (NTSC: 720x480@30PPS) (PAL: 720x576@25PPS)					
Preset Configuration	Normal PPS	Normal Size	Event PPS	Event Size	Event Active
Best Quality	3.75 NTSC (3.125 PAL)	20 KB	15 NTSC (12.5 PAL)	20 KB	Both (Alarm+Motion)
Standard (Default)	3.75 NTSC (3.125 PAL)	14 KB	15 NTSC (12.5 PAL)	20 KB	Both
ezRecord	Auto	Auto	Auto	Auto	Auto
Extended Record	3.75 NTSC (3.125 PAL)	8 KB	15 NTSC (12.5 PAL)	20 KB	Both
Event Only	N/A	N/A	30 NTSC (25 PAL)	20 KB	Both
512Kbps DSL	3 NTSC (3 PAL)	3 KB	3 NTSC (3 PAL)	3 KB	Both
256Kbps DSL	3 NTSC (3 PAL)	2 KB	3 NTSC (3 PAL)	2 KB	Both
128Kbps DSL	3 NTSC (3 PAL)	1 KB	3 NTSC (3 PAL)	1 KB	Both

Record Mode: Half-D1 mode (NTSC: 720x240@60PPS) (PAL: 720x288@50PPS)					
Preset Configuration	Normal PPS	Normal Size	Event PPS	Event Size	Event Active
Best Quality	3.75 NTSC (3.125 PAL)	17 KB	15 NTSC (12.5 PAL)	17 KB	Both (Alarm+Motion)

Standard (Default)	3.75 NTSC (3.125 PAL)	11 KB	15 NTSC (12.5 PAL)	17 KB	Both
Extended Record	3.75 NTSC (3.125 PAL)	5 KB	15 NTSC (12.5 PAL)	17 KB	Both
ezRecord	Auto	Auto	Auto	Auto	Auto
Event Only	N/A	N/A	30 NTSC (25 PAL)	17 KB	Both
512Kbps DSL	3 NTSC (3 PAL)	3 KB	3 NTSC (3 PAL)	3 KB	Both
256Kbps DSL	3 NTSC (3 PAL)	2 KB	3 NTSC (3 PAL)	2 KB	Both
128Kbps DSL	3 NTSC (3 PAL)	1 KB	3 NTSC (3 PAL)	1 KB	Both

Record Mode: CIF mode (NTSC: 360x240@120PPS) (PAL: 360x288@100PPS)					
Preset Configuration	Normal PPS	Normal Size	Event PPS	Event Size	Event Active
Best Quality	7.5 NTSC (6.25 PAL)	14 KB	15 NTSC (12.5 PAL)	14 KB	Both (Alarm+Motion)
Standard (Default)	7.5 NTSC (6.25 PAL)	8 KB	15 NTSC (12.5 PAL)	14 KB	Both
Extended Record	7.5 NTSC (6.25 PAL)	2 KB	15 NTSC (12.5 PAL)	14 KB	Both
ezRecord	Auto	Auto	Auto	Auto	Auto
Event Only	N/A	N/A	30 NTSC (25 PAL)	14 KB	Both
512Kbps DSL	3 NTSC (3 PAL)	3 KB	3 NTSC (3 PAL)	3 KB	Both
256Kbps DSL	3 NTSC (3 PAL)	2 KB	3 NTSC (3 PAL)	2 KB	Both
128Kbps DSL	3 NTSC (3 PAL)	1 KB	3 NTSC (3 PAL)	1 KB	Both



NOTE: The total PPS is shared by 16 viewing windows, which means, even one window hasn't connected with a camera and displays no video, that window still wastes pps. But if you select <ezRecord> for setting the unit, those windows with no cameras connected to them will not be recorded, in other words, the pps will not be wasted.

<ezRecord Setup>

This item aims to avoid the complicated record settings, and to make the setup much easier. Note that the item can be reached only when you select <ezRecord> as the option for <Preset Config>.

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

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

To have the ezRecord Setup done, follow these steps:

- 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 yes, using UP/DOWN to select <Yes> as 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 automatically calculated through the <ezRecord Setup>. Therefore, once you disconnect cameras or connect more cameras to the unit, you should reset the <ezRecord Setup>.

<Circular Recording>

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 in stead, the unit stops recording, and the internal buzzer starts beeping 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.

<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

■ **Purge All Data**

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

■ **Purge All Event Data**

The 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>.

■ **Purge Event Before**

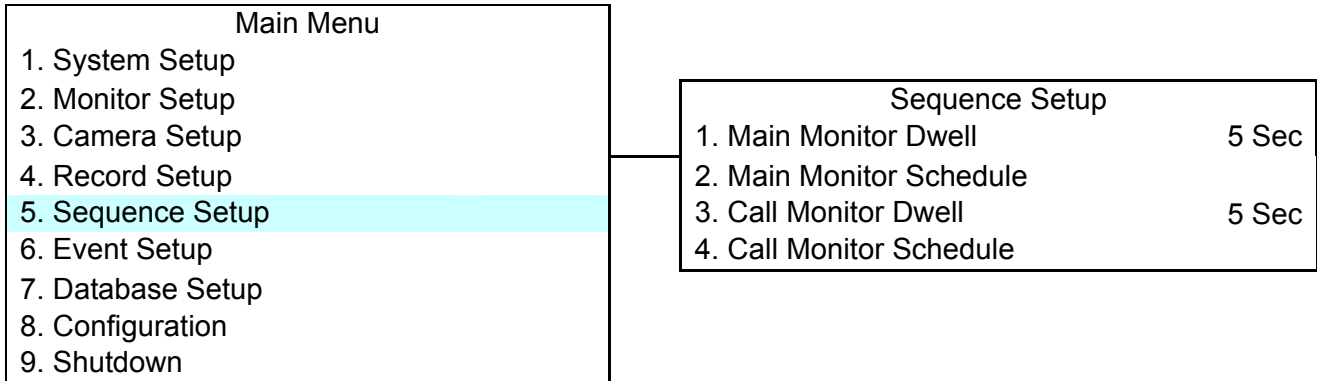
The item is used to delete event video before a specific date. Use LEFT / RIGHT keys to move the cursor to next or previous field, ENTER to select the item and UP / DOWN to adjust the value.

■ **Start to Purge**

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

Sequence Setup

The Sequence Setup menu allows setting 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.



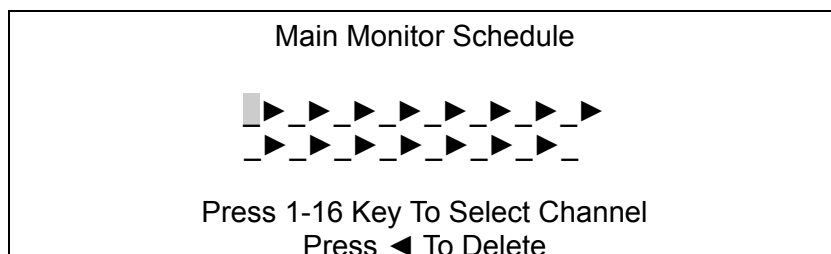
Items in the Sequence Setup menu are described in the following subsections.

<Main / Call Monitor Dwell>

The Main / Call Monitor can be set to display full screen video of 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 is in the range of 1 to 120 seconds. The default value is 5 seconds.

<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:

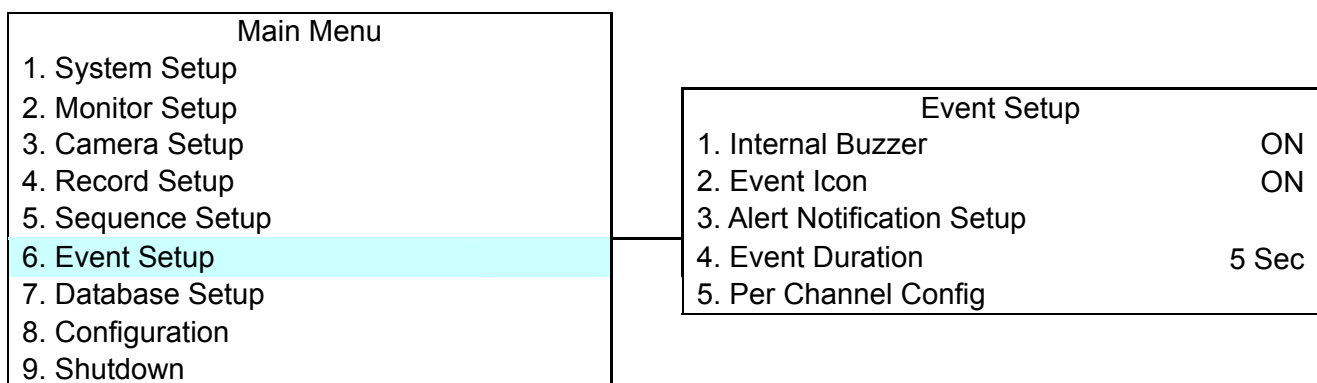
- Press LEFT direction key to delete the original setting.
- Press the desired Channel keys to assign a camera to that location in the sequence.

- Continue the steps until the sequence is completed.

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

Event Setup

This menu allows user to determine **Triplex MPEG-4 DVR** 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.



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

<Internal Buzzer>

This item allows user to enable / disable the **Triplex MPEG-4 DVR** 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>.

<Event Icon>

The item enables (ON) / disables (OFF) the display of 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 as below table.

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

<Alert Notification Setup>

This function allows the user to send alert notifications through the CMS program. For detailed setup instruction, please refer to the CMS user's manual.

Alert Notification Setup	
1. Alert Configuration Set	1
2. Alert Notification	OFF
3. Alert IP	0.0.0.0
4. Alert Port	80

- **Alert Configuration Set**

Alert Configuration Set provides 3 combinations of Alert Notification, IP, and Port.

- **Alert Notification**

4 options are included in this item; OFF, Event, Alive, and Both.

<OFF>: The Alert Notification is OFF.

<Event>: When the alarm is triggered, the DVR will send an alert message to the CMS.

<Alive>: The DVR will send an alert message to the CMS every 2 minutes which also indicates that the connections between the DVR and CMS is in effect.

<Both>: This enables the DVR to send both Event and Alive alert package to the CMS.

- **Alert IP**

The Alert IP must match the IP address of the computer.

- **Alert Port**

The ports for both DVR and the CMS Alert **must be the same**.

<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 1 second to 100 seconds. The default setting is 20 seconds.

<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

■ **Channel Select**

The 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.

■ **Video Loss Detect**

This item allows 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 <ON>.

■ **Motion Detect**

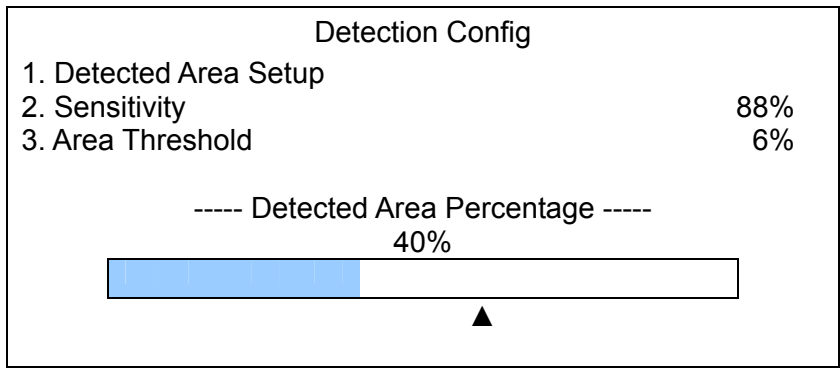
To detect motions, the users can choose from these options: <OFF>, <ALL>, <Night & Weekend>, <Day & Weekend>, <Weekend>, <Day & Night>, <Night>, and <Day>.

The Day, Night, and Weekend is defined in <Schedule Setup> section.

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

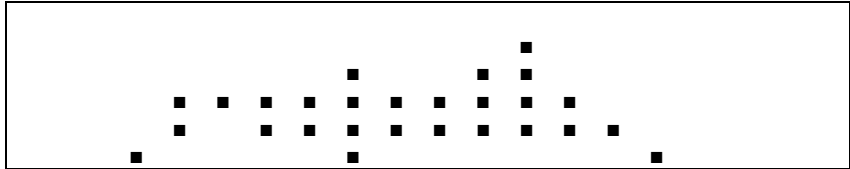
■ **Detection Configuration**

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

The 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, and then use UP / DOWN keys to adjust the value. The value is indicated in 4% increment.

- **Detected Area Percentage**

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

■ **Alarm In**

This item allows 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 the detection. The default setting is <OFF>.

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 displayed continually until this item is changed to <N/O>, <OFF> or install a device to the unit.

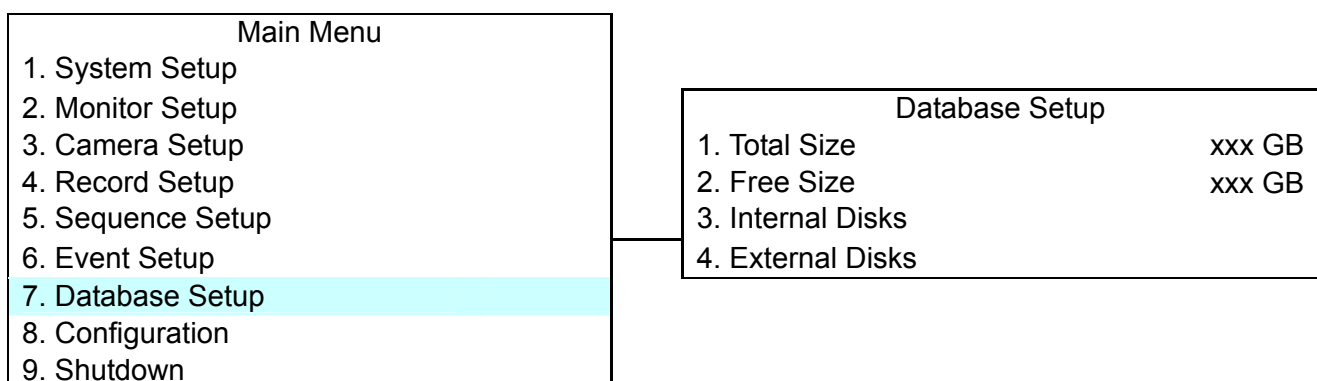
■ **Alarm Out**

This item allows user to assign an alarm on 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>.

Database Setup

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





NOTE: If the hard disk cannot be detected , the message “HDD fail” will display.

<Total / Free Size of HDD>

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

<Internal / External Disks>

Select <Internal Disks> or <External Disks> to see information on 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 of built-in HDD and external storage device 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

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

Action

The item allows user to add storage device into database or remove device from 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).

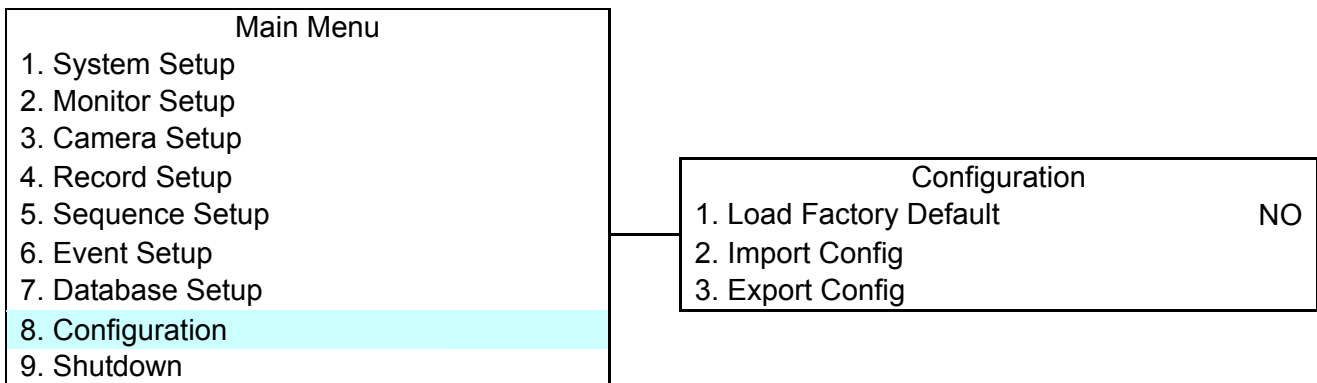


NOTE: Before removing external devices from the unit, remember to remove the device from database.

Configuration

The Configuration menu can be used to restore the default factory settings, import and export configuration.

Select <Configuration> from the Main menu and press ENTER. The following menu is displayed.



Items in this menu are described in the following subsections.

<Load Factory Default>

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

<Import Configuration>

This item allows user to load a unit configuration that was saved in 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 listed available configuration files, and choose <YES> to start import.



NOTE: If the imported configuration has 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.

<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 appropriately. 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.

■ **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.

■ **Configuration Name**

This item allows 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.

■ **Begin Export**

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



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

Shutdown

The item is used to shut down or reboot the unit. If you must shut down the **Triplex MPEG-4 DVR** for any reason, please use the proper shut down and power up procedures to avoid damage to your unit.

To restart/ shutdown the unit, you have to enter the OSD setup menu with correct Administrator Password, otherwise, the <Shutdown> menu will be unable to access.

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.

Specifications		8CH Triplex MPEG-4 DVR	16CH Triplex MPEG-4 DVR
Video			
Operation System		Embedded (Linux)	
Video Stand		NTSC/PAL switch selectable	
Video Operation		Triplex+ (Live, Record, Playback, Remote, and Internet access)	
Resolution- Live Video		NTSC: 720x480 pixels; PAL: 720x576 pixels	
Input		BNCx16, 1.0Vp-p/75 ohm	
Outputs	Main Monitor	BNCx1, S-Videox1, 1.0Vp-p/75 ohm	
	Call Monitor	BNCx1, 1.0Vp-p/75 ohm	
	Loop	BNCx8, 1.0Vp-p/75 ohm	BNCx16, 1.0Vp-p/75 ohm
VGA Output		800x600, 1024x768, 1280x1024 pixels @ 60Hz (Optional)	
Picture Refresh Rate		NTSC: 480PPS (16 CH); PAL: 400PPS (16CH)	
Digital Zoom		2x2	
Camera Installation		Plug & Play	
Audio			
Input		RCAX1, Line-In	
Output		RCAX1, 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	
Recording Mode		Schedule, Alarm, Motion Detection	
Resolution & Rate		NTSC: 30PPS@720x480 pixels; PAL: 25PPS@720x576 pixels NTSC: 60PPS@720x240 pixels; PAL: 50PPS@720x288 pixels NTSC: 120PPS@360x240 pixels; PAL: 100PPS@360x288 pixels	
Recording Quality		5 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
Storage	
Build-in Storage	X2 ATA 133/ UDMA 133 IDE, HDD/CD-RW
Built-in HDD	Up to 2 built-in HDDs
Export	X3 USB2.0 ports, support ThumbDrive® and CD-RW
Alarm	
Alarm Input	X16, Terminal Block
Alarm Detection	N.C./N.O., Programmable
Auditory Alert	Built-in Buzzer
Motion Detection	21x13 (NTSC), 21x16 (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
Remote Control Software	DVRRemote
Access Control	2 Level Password
Remote Operation	Monitoring, Instant Recording, Dome Camera Control
RS485	Terminal Block
Dome Control Protocol	DynaColor, Pelco P, Pelco D, AD422
General	
Unit Dimension (WxHxD)	440x90x345mm (17.3x3.45x13.58 inches)
Unit Weight	5.7Kg (12.56 lbs) w/ CD-RW
Package Dimension (WxHxD)	590x210x460 mm (23.2x8.27x18.1 inches)
Package Weight	8.2Kg (18.06 lbs)
Operation Temperature	0°C - 40°C (32°F - 104°F)
Relative Humidity	5% - 85% Non-condensing
Power Consumption & Input	AC 100 ~ 240V, 50-60Hz, 80W

Appendix B: 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.

Number of Days of Recording @30PPS (without Audio)

Recording Rate		Recording Picture Quality Mode									
Total	Total	Low		Fair		Mid		High		Best	
Images Per Second NTSC	Images Per Second PAL	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 @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 @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											
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											
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											
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