

Performance Digital Video Recorder

Built on H.264 Technology

Operations Manual



IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions - All the safety, operating and installation instructions should be read before operating the unit.
2. Keep these instructions - The safety, operating and installation instructions should be retained for future reference.
3. Heed all warnings - All warnings on the unit and in the operating instructions should be adhered to.
4. Follow all instructions - All operating and use instructions should be followed.
5. Do not use this apparatus near water - for example, in an unprotected outdoor installation; or any area which is classified as a wet location.
6. Clean only with a dry cloth - Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners.
7. Do not block cooling fans and install in a well ventilated area.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Ensure horizontal mounting.
10. Avoid excess vibrations to the unit.
11. Do not stack the DVR unit(s).
12. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
13. Only use attachments/accessories specified by the manufacturer.
14. Plug unit into a reliable power source.

15. A UPS (Uninterrupted Power Supply) with power surge protection is strongly recommended.

Performance DVR

Operations Manual

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1. Introduction

Embedded Digital recorder for security applications

The Embedded E-Series DVR is video recording device that can record multiple cameras, while simultaneously providing Real Time Viewing, Recording, Playback, Backup and Remote Transmission.

The DVR has comprehensive recording and playback facilities for viewing stored video at extremely high quality resolution/compression. Once set up, all recording takes place in the background with no operator intervention. Maximum recording rates of 30 fps (NTSC) and 25 fps (PAL) per channel are guaranteed with all cameras. The recording rate and image resolution are also selectable per camera.

All models have sensor inputs and relay outputs to integrate the DVR with security handling and telemetry control. Sensor functions include motion detection in user-definable areas of the image on any camera input. The unit can be easily operated and programmed via the front panel control keys with on screen display menu or remote control. One monitor output provides full-screen, quad and multi-screen viewing, another additional output is for a spot/alarm monitor. An optional CD/DVD writer or USB key can be connected for archiving data.

Operations over network using Microsoft Internet Explorer (IE) or using the Remote Client Software installed on the PC, one can view, playback and configuration. Five simultaneous users can control multiple dvr's. The E series includes an authenticity check for both local and remote playback.

The E-Series DVR has ATM/POS integration.

Versions

There are three "Real-Time" models; 4-channel, 8-channel and 16-channel, each with various storage capacities and Real-Time Viewing/Recording.

Setup

An administrator configures the DVR, initially. Access to the configuration functions is normally password protected. Setup options can either allow or restrict the functions available to the operator (i.e. the number of multi-screen views can be limited).

Search and playback functions can also be password protected, allowing the system to be configured in different ways for multiple operators. All possible operator facilities are described in this manual but some of these may not be available to you.

2. Specifications and Features Overview

2.1. DVR Specifications

Parameter	4 Channel	8 Channel	16 Channel
Processor	AMD ELANSC520/133 embedded microprocessor		
Operation system	Real-time operation system - RTOS		
Video input	4 Channel (NTSC/PAL) BNC 1.0V _{P-P} 75?	8 Channel (NTSC/PAL) BNC 1.0V _{P-P} 75?	16 Channel (NTSC/PAL) BNC 1.0V _{P-P} 75?
Video output	1 Channel PAL/NTSC BNC 1.0V _{P-P} 75? video signal		
Audio input	4 Channel 200-1000mv10K? (BNC)	8 Channel 200-1000mv10K? (BNC)	8 Channel 200-1000mv10K? (BNC)
Audio output	1 Channel 2000mv 1K? (BNC)		
Video display	1(Full Screen) & 4(Quad) window displays	1(Full Screen), 4(Quad), 9 (3x3) window displays	1(Full Screen), 4(Quad), 9 (3x3), 16 (4x4) window displays
Video standard	NTSC 525 line, 60f/s – PAL 625 line, 50f/s		
System resource	Real-time recording, multi channel playback and network operation simultaneous (Triplex)		
Image resolution	Real-time monitor 704x576, playback 352x288, VGA output 720x576		
Motion detection	Area setting: multiple detection areas on the screen; detection sense setting: 3 levels detection sense for each area		
Video compression	H.264 CBR (fixed frame rate); H.264 VBR (variable frame rate)		
Audio compression	Audio - ADPCM 28.8 Mb/hour G.729 - 3.6 Mb/hour Video - 40-460 Mb/hour		

Image compression rate	352x288CIF format - 176x144QCIF format - 704x576 4CIF format.		
Video recording speed	Real-time mode: NTSC 1f/s - 30f/s for each channel adjustable. PAL 1f/s - 25f/s for each channel adjustable;		
Image quality	6 selectable levels		
Hard Disk Expansion	Contains 4 IDE ports, able to install 6 Hard Drives with one CD-RW / DVR-RW		
HDD space used	Audio - ADPCM 28.8Mb/hour G.729 - 3.6Mb/hour Video - 40-460Mb/hour		
Sensor input	8 channel voltage sensor input – 5 to 15V DC necessary for the sensor input.		
Sensor output	3 channels output, - output in open/close contact or controllable - 12V output -		
Alarm relay	30VDC 1A, 125VAC 0.5A - relay output.		
Network connection	RJ45 10M/100M Ethernet connection		
Pan-tilt control	RS485		
Power	110VAC/220VAC		
Power consumption	60W	75W	90W
Working temperature	10°C – 55°C		
Working humidity	10% - 90% Relative		
Barometric pressure	86kpa - 106kpa		
Size	2U standard industrial case 441mm (Wide) x 430mm (Deep) x 89mm (High)		
Weight	11KG in Box		

2.2. DVR Features

- Real-time Monitor (Video Displays)
 - 1 VGA port for video output to PC Type Monitor and 2 Video output port to Video Monitor.
 - Single window (Full Screen) /4 windows (Quad) /9 windows (3x3)/16 window (4x4) monitor displays.
- Compression Method
 - Multiple video compression modes: H.264 fixed frame variable frame.
 - 4/8/16-channel audio/video real-time compression, independent hardware compression for each channel, stable synchronization of sound and image.
- Storage
 - Internally can hold 6 IDE-compatible large capacity Harddisk (HDD)
 - Alternative HDD operations that will reduce the power consumption and heat emission.
 - Overwrite (FIFO) and Stop (HDD Full) modes for DVR HDD recording.
- Back-up
 - Built-in CD-RW driver to back up records onto CD-R disks, upgradeable to DVR-RW drive.
 - USB port for external back up of records.
 - Download the files on DVR to local PC through network.
- Play and Record
 - Supports multiplexed operation: live monitor, record, search for downloading, one channel playback and remote transmission simultaneously.
 - Multiple recording modes: Manual –Schedule – Alarm - Motion Detection.
Note: Alarm Recording and Motion Detection Recording have Pre-recording function.
 - Playback: With PIP or Multi-Channel Real-Time Monitor. Playback also available using Network Connection.
 - Fast search for reviewing manual recording and alarmed recording.
 - Multiple playback modes: X2, X4 & X8 fast play, pause, 15F/S, 5F/S slow play and frame by frame playback.
 - Displays Time/Date during playback.
- Alarm relay
 - 8 channels external alarm input, video lost alarm and motion detection alarm.
 - Multi channel relay switch alarm output activates alarm relay and on-site light control.
 - Circuit Protection for Alarm inputs and outputs.
- Pan-tilt Control
 - Supports Camera Pan-Tilt-Zoom (PTZ) Functions using RS485 Communication Protocol.
 - Integrates multiple protocols to control various PTZ speed domes.
- Communication connection port
 - DB-25- (25 pin) connection for alarm inputs and PTZ control.
 - RS232 port for the connection with keyboard for central control, or with the computer serial port for system upgrade and debugging.
 - Standard Ethernet port for remote viewing and control.
 - Remote real-time monitor through network.
 - Pan-tilt-zoom control.
 - Record search and real-time playback. Note: playback quality depends on network conditions. Download records through network.
 - System programming, settings & modification and system software upgrade available online.
 - Remote alarm processing and system log review remotely.
 - Embedded TCP/IP protocol and RTOS (Real Time Operating System) supports Web server direct connection to operate and control all the above functions.
 - Administration mode: Three USER levels for logging in remotely. Each user login is password protected.

2.3. Storage Calculations

The HDD Capacities and Recording lengths are determined by capacity of the installed HDDs and the selected image level.

The following storage time is based on the average use for HDD space for single channel recording.

Mode	Image level	Resolution	Frames	Transmission Speed	Average HDD space (/hour)
CBR	1	352 * 288	30	128 Kb/s	40 MB
	2	352 * 288	30	256 Kb/s	80 MB
	3	352 * 288	30	384 Kb/s	120 MB
	4	352 * 288	30	512 Kb/s	160 MB
	5	352 * 288	30	768 Kb/s	240 MB
	6	352 * 288	30	1 Mb/s	320 MB

Note: Adjustable frame rates, from 1fs to 30f/s can be selected. User can choose based on own needs.

Using other than 30f/s (Real time), HDD (Hard Disk) space can be greatly increased.

Following are storage calculation guidelines (in the number of Days):

	Image Quality	30 Fps	1 Ch	4 Ch	8 Ch
80Gb HDD using CBR (constant bit rate)	1(128 Kb/s)	128 Kb/s	61	15	8
	2(256 Kb/s)	256 Kb/s	30	8	4
	3(384 Kb/s)	384 Kb/s	20	5	3
	4(512 Kb/s)	512 Kb/s	15	4	2
	5(768 Kb/s)	768 Kb/s	10	3	1
	6(1024 Kb/s)	1024 Kb/s	8	2	1

	Image Quality	30 Fps	1Ch	4Ch	8Ch	1 Fps	1Ch	4Ch	8Ch
80Gb HDD using VBR (variable bit rate)	1	116kb/s	67	17	9	12.5kb/s	621	155	78
	2	160kb/s	49	12	6	25kb/s	312	78	39
	3	212kb/s	37	9	5	44kb/s	176	44	22
	4	330kb/s	24	6	3	50kb/s	156	39	20
	5	447kb/s	17	4	2	62kb/s	124	31	16
	6	825kb/s	9	2	1	88kb/s	88	22	11

	Image Quality	2 Fps	1Ch	4Ch	8Ch	3 Fps	1Ch	4Ch	8Ch
80Gb HDD using VBR (variable bit rate)	1	25kb/s	311	78	39	44kb/s	176	44	22
	2	44kb/s	176	44	22	45kb/s	172	43	21
	3	50kb/s	156	39	20	55kb/s	140	35	18
	4	63kb/s	124	31	15	84kb/s	92	23	11
	5	78kb/s	100	25	12	100kb/s	76	19	10
	6	92kb/s	84	21	10	122kb/s	64	16	8

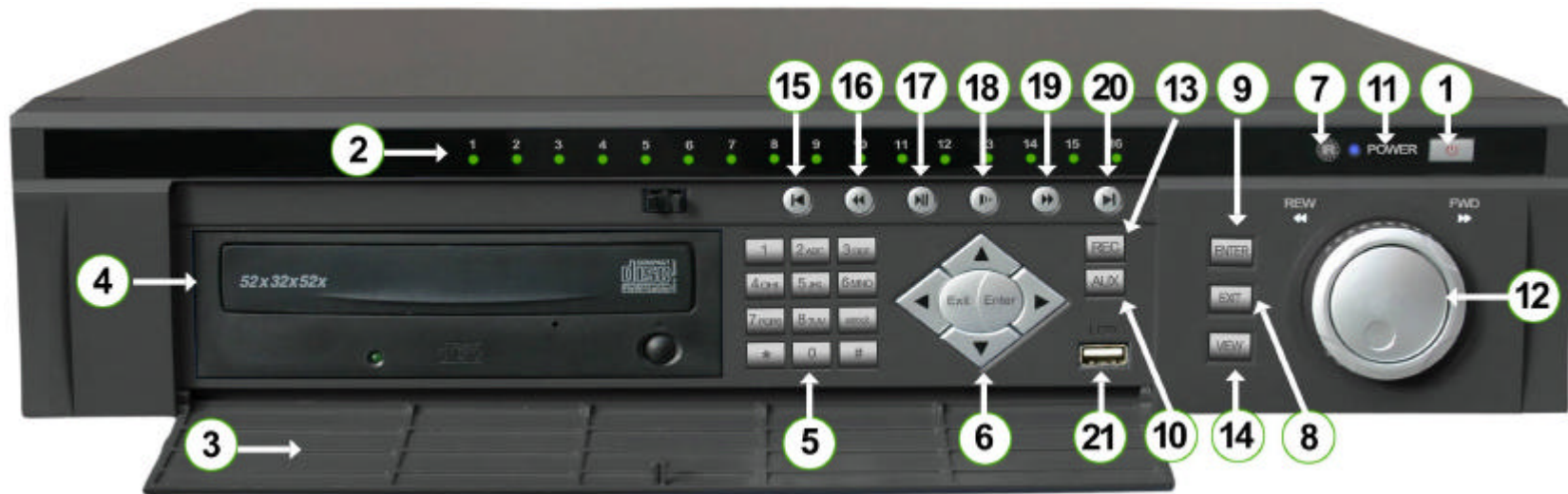
	Image Quality	10 Fps	1Ch	4Ch	8Ch	12 Fps	1Ch	4Ch	8Ch
80Gb HDD using VBR (variable bit rate)	1	71kb/s	108	27	14	80kb/s	96	24	12
	2	109kb/s	72	18	9	130kb/s	60	15	7
	3	133kb/s	60	15	7	149kb/s	52	13	6
	4	175kb/s	44	11	6	210kb/s	36	9	5
	5	258kb/s	32	8	4	275kb/s	28	7	4
	6	443kb/s	16	4	2	525kb/s	16	4	2

3. Front Panel

3.1. Front Panel Controls

1. Power Switch	2. Recording Light	3. Control Cover
4. CD-RW / DVR-RW	5. Onscreen Address Entry	6. Cursor/Direction Keys
7. IR Remote Receiver	8. EXIT (Cancel)	9. Enter
10. AUX	11. Power Light	12. Jog Shuttle
13. Rec (Recording Control)	14. Switch View Mode	15. Replay Last Selection
16. Rewind	17. Slow Play	18. Play/Pause
19. Fast Forward	20. Jump to Next Section	21. USB Connector

Note: Outside Ring of the jog shuttle when turning clockwise is equal to right direction arrow, turning counter clockwise is equal to left direction arrow; inner circle turning clockwise equal to down direction and counter clockwise equal to up direction.



3.2. Function Details

Order	Key name	Logo	Function
1	Power switch and indication light	POWER	Power switch - Power off by pressing the key 4 seconds.
2	Recording light	LED (Green) on numbers	If the LED light is Green, it means the recording is on
3	Plastic Cover		Dust-proof Cover
4	CD-RW / DVD-RW		Used to Back-up records
6	Left & Right Arrows	◀ ▶	L & R On screen Cursor Control; shifting level 1 and level 2 menus; Left and Right Camera Pan control.
	Up & Down Arrows	▲ ▼	Up and Down Onscreen Cursor Control; change setup; change number; Camera Tilt control.
7	IR Remote receiver		Used to receive the remote signal.
8	Cancel	EXIT	Cancels cursor selection.
			During playback, restore to real-time monitor.
9	Enter	ENTER	Enter Cursor Selection.
			Enter main menu.
10	Function Key	AUX	In the Full Screen Mode: Press the key to display the menu of the Camera PTZ.
			When setting Motion Detection fields, Fn1 Enables Cursor field selection.
			During playback, display the playback status bar
			During playback work with number key to realize PIP for the playback and real-time monitor.
11	Indication light		Indication light

12	Jog shuttle		Direction control: outer Ring for Left and Right direction, inner Ring for up and down; When in playback, outer circle can control reverse and multi-speed play.
13	Record	REC	Start/stop recording, use with arrow keys
14	Switch View Mode	VIEW	Select for Multi-Screen; During playback, shift between Playback and Real time display.
15	Play last section	◀◀	Play the previous recording file.
17	Slow play	?	3 levels of slow play speed adjustments: (15f/S - 5f/S & frame by frame)
18	Play/stop	▶/	Play/stop
			When in real time mode, press to enter record search menu
19	Fast Forward	▶▶	3 levels of fast play speed - X2 - X4 - X8.
20	Play next section	▶▶▶	Play the next recording file after the current file.

4. Basic System Operations

4.1. Turn on/off the recorder

4.1.1. Turn on the recorder

Plug in the power line; switch on the power button at the back of the recorder; power indicator light on; DVR on; default single window for the video output displays; press Enter the Log-in screen appears on Monitor; If the starting time is within the programmed recording time, the system will start recording function automatically. Channel indicator lights will indicate the cameras in record mode. The system will work in a normal manner.

Note: if the system stops during HDD Boot detection, the HDD may not be installed properly. Check the HDD connections (Ribbon and Power Connections) to fix this problem. ***Please unplug the 120VAC power supply during HDD installation***

4.1.2. Enter the setting menu

Before you enter the menu, you must input the password. There are two levels of password—User password and Administrator password.

Administrator password 236461(admin1)

General user password 483781(guest1)

With user password you are not allowed to enter system setting and admin setting.

4.1.3. Turn off the DVR

Press the POWER key on the front panel for 4 seconds to stop the current operations. Then switch

off the power button at the DVR rear to turn off the power.

4.1.4. Power off recovery

When the power is cut off abnormally, the recorder will recall its last state and continue where it left off. The state indicator light is the same as it was before the power off.

4.2. Recording

The default recording mode after startup of the DVR is 24 hr continuous recording for each channel. The User can program customized recording times for each camera. Instructions for the different recording modes are as follows:

a) Schedule Recording:

- Enter the menu, and set the timing period for the recording. See details at Menu>Config>Camera>Schedule

b) Manual Record Selection

- Press "Record" button on the remote controller or "Rec" on the front panel.
- Check the status of each channel in the recording menu; The Highlighted channels are in record mode.
- To select the channel to be recorded, press the related number key. Selected camera # will highlight on your screen. When all cameras that need to be recorded are selected, press Enter to begin the recording.
- Repeat above steps and remove the highlight to stop the camera from recording.
- Press Cancel or EXIT to return without changes.

c) Sensor recording

- Connect the sensor input according to the device connection and the instructions.
- Program the related settings in the menu to start Sensor recording. See details at Menu>Config>Camera>Sensor input

- d) Motion detection recording
- Record the channel only in need of motion detection. First confirm whether this channel is programmed in Timing Recording; if it is, please turn off Schedule Recording for the selected Camera...
 - Program the related settings in the menu to start Motion detection recording. See details at Menu> Config>Camera>Motion detection.

4.3. Sensor connection

- Connect the sensor input according to the device connection and the instructions.
- Connect the related alarm output relay on the DVR to associated alarm device. Example: warning lights, siren, etc.
- Program the associated information in the menu. See details at Menu> Config>Camera>Sensor input

4.4. PTZ control

- Confirm the proper connection of the pan-tilt-zoom and Communication Protocol. Set the Camera address.
- Confirm the proper wiring connection between the PTZ and RS-485 A & B lines and DVR's 25-pin port's A & B lines.
- Set up the programming. See details at Menu> Config>Camera>PTZ Control
- Select full screen call-up of associated PTZ Camera.
- Press and hold "AUX" on the remote controller or the front panel to select
- Use direction arrow keys to move and control the selections on the screen

4.5. Network connection

- Confirm correct network connections between DVR and computer
- Set the IP address, subnet mask and gateway of the computer and DVR separately. If there is no router in the network, only the IP address is needed. If there are routers in the network, please enter the related gateway and subnet mask.
- Ping *.*.*.* the IP address of the DVR to check the link of the network. A successful reply shall look like (TTL value less than 64 ms is normal):
Reply from 68.153.205.130: bytes=32 time=31ms TTL=57
- Open IE browser and input the IP address of the DVR you want to log in to.

5. DVR Menu and Operations

NOTE: All the numbers in the menu screens can be changed using up and down arrow, as well as the number keys .

5.1. Enter/Exit the Operation Menu

To enter the main menu of the embedded DVR press **Enter** button. The system will then prompt for a password. Default Administrator password is “**236461**” (admin1). Default User password is “**483781**” (guest1).

To exit from the menu press the **Exit** button.

If you want to log out from the dvr to prevent access without re-entering the password, select the “EXIT” option from the menu screen. Also the system will automatically log you out after 5 minutes of idle time.

5.2. Main Menu

The main menu has the following options on it.

```

SETUP:
    DISK INFO
    CONFIG
    SEARCH
    BACKUP
    ADMIN
    EXIT
  
```

5.3. DISK INFO

The option will open the menu to see information about the hard drives and the CD burner. It also will allow you to see the disk usage and recording volume information. The screen will have the following options on it.

```

DISK INFO:
    DISK INFO
    VOLUME INFO
    HDD USE RATE
    VERSION
  
```

5.3.1. DISK INFORMATION

This screen allows you to check the Hard drive status.

- The “HDD INFO” indicates the number of channels for hard drives, and the Master and Slave indication below identifies the channels in use. The “W” marks the location where the hard drives are installed and the “-” indicates empty slots.
- “CDRW PROPERTIES” displays a “NO” when no drive is present otherwise it will show the location of the drive (example “Index 4 Master”).
- “USB PROPERTIES” indicates the presence of a USB device.
- “MAIN MENU” takes you back to the initial menu screen.

```

DISK INFORMATION:
HDD INFO:          1 2 3 4 A B C D E F
HDD MASTER:       W - - - - -
HDD SLAVE:        - - - - -
CDRW PROPERTIES:  NO
USB PROPERTIES:   NO
MAIN MENU
  
```

5.3.2. VOLUME INFO

This screen allows you to check the number of hard drives available, their combined capacity, the space reserved for non-recording, the start and end time of the recording available on the drives.

VOLUME INFO:

HDD NUMBER: 01
 HDD CAPACITY: 0038166M
 DISK FREE SPACE: 0000000M
 START TIME: 02-06-2005 12:38AM
 END TIME: 02-07-2005 04:39PM

5.3.3. HDD USE RATE

This screen allows you to check the disk consumption per channel. It shows the data received in Kilobits per channel and the hard drive usage in Megabytes per hour.

DISK RATE:

CH.1	CH.2	CH.3	CH.4
0000Kb	0000Kb	0000Kb	0000Kb
000M/H	000M/H	000M/H	000M/H
CH.5	CH.6	CH.7	CH.8
0000Kb	0000Kb	0000Kb	0000Kb
000M/H	000M/H	000M/H	000M/H

MAIN MENU

5.3.4. VERSION INFO

This screen allows you to check the system date, and the version numbers for the system and the web access software.

VERSION INFO:

BIOS VER: 1.00.001
 DATE: 01-05-2005
 WEB VER: 1.71.010

5.4. CONFIGURATION

The option will open the menu to modify the system configurations. The screen will have the following options on it.

CONFIGURATION:

SYSTEM
 CAMERA
 NETWORK SETUP
 ADVANCED

5.4.1. SYSTEM

This screen allows you to change the date, date format, time and time format.

- "INTERVAL" allows you to select switching time of the external monitor.
- "ACTION ON HDD FULL" allows you to set the option for automatic over writing of the recorded video or to stop recording after the hard drives are full.
- "RECORD LENGTH" sets the size of the stored files in minutes/file.
- "REMOTE ADDRESS" Set address for IR Remote Control
- "SERIAL PORT OPT" can activate the communication control protocols. The existing protocols are:
 - MODEM – Dial-up connection through modem
 - AB – matrix control
 - DH – Keyboard control
 - NONE – upgrading system through serial port

SYSTEM:

DATE: 02-07-2005
 DATE FORMAT: MM-DD-YYYY
 TIME: 04:40:01PM
 TIME FORMAT: AM/PM SAVETIME
 INTERVAL: 000 SEC
 ACTION ON HDD FULL: OVERWRITE
 RECORDLENGTH: 60 MIN
 REMOTEADDRESS: 008
 SERIAL PORT OPT: NONE
 SAVE CANCEL MAIN MENU

Note: Changing the system time may cause the loss or corruption of previously recorded video.

5.4.2. CAMERA

This screen allows you to change the setting and schedule for camera, PTZ and sensors.

```

CAMERA:
  IMAGE SETTINGS
  SCHEDULE
  MOTION DETECTION
  PTZ CONTROL
  SENSOR INPUT
  
```

5.4.2.1. CAMERA > IMAGE SETTINGS

This screen allows you to change the individual setting for each camera.

- "CHANNEL" allows you to select the camera.
- "MODE" there are 2 recording modes CBR (Constant Bit Rate) and VBR (Variable Bit Rate). The "AV" represents audio and video for recording with sound. If you are not using sound change the setting to "VIDEO" to save hard drive usage.
- The "FPS" (frames per seconds) can be modified in the VBR setting to be between 1 to 25 frames per second.
- The "BPS" (Bites per second) is the disk usage for the setting.
- "VIDEO LOSS" set to ON will sound an alarm in case of the loss of video on the camera.
- "HIDE CAMERA" allows you to block cameras from the monitor's display.
- "COLOUR" allows you to set the Hue, Saturation, Colour and Brightness of each camera.
- "CYCLE" when set to "OFF" will remove the camera from the external monitor's display during the sequential cycle through the cameras.

CAMERA > IMAGE SETTINGS:

```

CHANNEL:      1      PTZ Camera
MODE:         CBR    AV
FPS:          REAL
BPS:          6
VIDEO LOSS:   OFF
HIDE CAMERA:  OFF
COLOR:        SET    DEFAULT
NAME:         01     ON
CYCLE :       OFF
              SAVE   CANCEL   MAIN MENU
  
```

5.4.2.2. CAMERA > SCHEDULE

This screen allows you to change the individual recording schedule for each camera.

The current day setting is highlighted in week. You can set up to 2 recording schedules.

Note: If you want to record 24 hours then set TIME1 as 00:00-24:00 in ON status and TIME2 as OFF.

CAMERA > SCHEDULE:

```

CHANNEL:      1
WEEK:         S M T W T F S
TIME1:        12:00AM - 12:00AM
ON/OFF:       ON
TIME2:        12:00AM - 12:00AM
ON/OFF:       OFF
              SAVE   CANCEL   MAIN MENU
  
```

5.4.2.3. CAMERA > MOTION DETECTION

This screen allows you to change the individual motion detection setting for each camera.

- Use to "POST REC" to set the seconds of video to be recorded after detecting motion. Pre Recording is fixed at 15 seconds.
- Use "RELAY" to trigger a relay upon motion detection.
- The "RECORDING" can be used to adjust the motion sensitivity to "LOW", "NORMAL" and "HIGH".
- Use "AREA" to define the motion detection region.

To define a region select "SET" and the channel's video will enlarge to full screen with 192 sections. The section is blue are the current motion detection regions. And the cursor is the red block. Press the "AUX" button in the front to change the cursor to white. The white cursor flips the squares from selected to deselected and vice versa. Once the desired settings are made press the "EXIT" button in the front to get back to the previous screen.

CAMERA > MOTION DETECTION:	
CHANNEL:	1
POST REC:	30 SEC
RELAY:	OFF
RECORDING:	NORMAL
AREA:	SET
TIME1:	12:00AM-12:00AM OFF
TIME2:	12:00AM-12:00AM OFF
SAVE CANCEL MAIN MENU	

5.4.2.4. CAMERA > PTZ CONTROL

This screen allows you to set the PTZ settings if there is PTZ camera installed.

- Select the channel then the "PROTOCOL", "BAUDRATE" and "CAM ID" for the specific camera.

CAMERA > PTZ CONTROL:	
CHANNEL:	1
PROTOCOL:	NONE
BAUDRATE:	4800
CAM ID:	000
SAVE CANCEL MAIN MENU	

5.4.2.5. CAMERA > SENSOR INPUT

This screen allows you to adjust the recording to be triggered by sensor input.

- The "TYPE" is used to set the sensor to be open or closed under normal conditions.
- The "RECORDING CH" indicates the number of sensors in the system.
- The "RELAY" indicates the number of relays in the system.
- Use "POST REC" to set the number of seconds to continue recording after the sensor is received. Pre Recording is fixed at 15 seconds.
- Use "TIME1" and "TIME2" to set recording by sensor input. The time1 must be earlier than time 2.

CAMERA > SENSOR INPUT :	
CHANNEL:	1
TYPE:	NORMAL OPEN
RECORDING CH:	1 2 3 4 5 6 7 8
RELAY:	1 2 3
POST REC:	60 SEC
TIME1:	12:00AM-12:00AM ON
TIME2:	12:00AM-12:00AM OFF
SAVE CANCEL MAIN MENU	

5.4.3. NETWORK SETUP

This screen allows you to enter the network information including the designated IP address and access ports.

- The "MONITOR" and "PLAYBACK" is set to TCP ports.

NETWORK SETUP:	
IP:	192.168.001.100
SUBNETMASK:	255.255.255.000
GATEWAY:	192.169.001.001
WEB PORT:	00080
TCP PORT:	04000
MONITOR:	TCP
PLAYBACK:	TCP
SAVE CANCEL MAIN MENU	

5.4.4. ADVANCE SETUP

This screen allows you to change various advanced settings.

- The "SENSOR (ON/OFF)" when turned on will display a popup if a sensor information is received.
- The "SHUT DOWN" when turned on will require the user to enter the admin password before the system shuts down, other wise the system shuts down directly.
- The "OUTPUT X/Y POINT" and "PLAYBACK HEIGHT" allows the user to set the play back location and height on the screen.
- Use "AUDIO MODE" to set the quality of recorded audio.
- Use "OSD COLOUR" to set the colour of the on screen display.
- "MULTIPLE PLAYBACK" allows multiple channels to be played simultaneously during search.
- "VGA MODE" allows you to switch between "Interlace" and "Non Interlace" mode of video. (the "interlace" mode gives a more crisp video but has lines and less smooth edges. The "non interlace" mode has smooth edges with no lines but the image is not as crisp)

ADVANCE SETUP:

```

SENSOR (ON/OFF):      OFF
SHUT DOWN:           ON
OUTPUT X/Y POINT:    000/000
PLAYBACK HEIGHT:     480
AUDIO MODE:          ADPCM 8KHz
OSD COLOUR:         WHITE
MULTIPLEPLAYBACK:    ON
VGA MODE:           INTERLACE
SAVE  CANCEL  MAIN MENU
  
```

5.5. SEARCH

The option will open the menu that allows you to search the recorded video.

SEARCH:

```

NORMAL(BY TIME & CAMERA)
SHOW ALL(AVAILABLE LIST)
ALARMS (MOTION & SENSORS)
  
```

5.5.1. NORMAL (BY TIME & CAMERA)

This screen allows you to search all the recorded video by channels.

- To search first set the channel, starting date and time and select "START". This plays back all recorded video after the selected date and time on the selected channel.

NORMAL (BY TIME & CAMERA):

```

CHANNEL:      1
DATE:        02-07-2005
TIME:        04:41PM
PLAY:        START
  
```

MAIN MENU

5.5.2. SHOW ALL (AVAILABLE LIST)

This screen allows you to search specific video by channel, date and time.

- To search select the channel, date and time. After that select "SEARCH" and a list of available recording will appear at the bottom for you to select from. In the list "R" represents Normal recording, "M" represents Motion Detection recording and "A" represents alarm/sensor recording.

SHOW ALL (AVAILABLE LIST):

```

CHANNEL:      1
DATE:        02-07-2005
TIME:        04:41PM
LIST:        SEARCH
  
```

MAIN MENU

5.5.3. ALARMS (MOTION & SENSOR)

This screen allows jump to video from a specific date and time.

ALARMS (MOTION & SENSOR):	
CHANNEL:	1
TYPE:	SENSOR
DATE:	02-07-2005
TIME:	04:41PM
SEARCH:	START
MAIN MENU	

the device you will have an option for normal or fast speed. If the fast speed is selected the recording will be stopped during the back up process.

START NEW BACKUP:	
DEVICE:	CDR/DVDR
CHANNEL:	1
BACKUP SPEED:	NORMAL
START DATE:	02-07-2005
START TIME:	04:41PM
END DATE:	02-07-2005
END TIME:	04:41PM
BACK UP:	ADD START
MAIN MENU	

5.6. BACK UP

The option will open the menu to create a new back up or delete an existing one.

BACK UP:
START NEW BACKUP
DELETE OLD BACKUP

5.6.2. DELETE OLD BACK UP

This screen allows you to delete the old back up files. Select the device and then confirm delete decision by selecting "YES".

DELETE OLD BACKUP:	
DEVICE:	CDR
ARE YOU SURE:	YES/NO
MAIN MENU	

5.6.1. START NEW BACK UP

This screen allows you to back up the recorded video.

- Select the back up device, channel, backup speed, start date, start time, end date and end time. Then select "ADD" to append to the back up or "START" to create a new back up. The status of the backup progress will be displayed.

Note: If the disk is not present "NO back disk" will be displayed. If there is not enough space on the disk "Disk is full" error will be displayed. If "HDD" is chosen as

5.7. ADMIN

The option will open the menu to change passwords, clear volume and to reset the system to factory defaults.

ADMIN:
USER PASSWORDS
CLEAR VOLUME
RESET TO DEFAULT

5.7.1. USER PASSWORDS

This screen allows you to change the passwords. The Password must be entered twice to perform changes.

USER PASSWORDS:	
ADMIN:	*****
CONFIRM PASSWORD:	*****
GUEST:	*****
CONFIRM PASSWORD:	*****
SAVE CANCEL MAIN MENU	

5.7.2. CLEAR VOLUME

This will delete all recorded video. The Admin must enter their password to confirm the delete.

CLEAR VOLUME:	
PASSWORD	-----

5.7.3. RESET TO DEFAULT

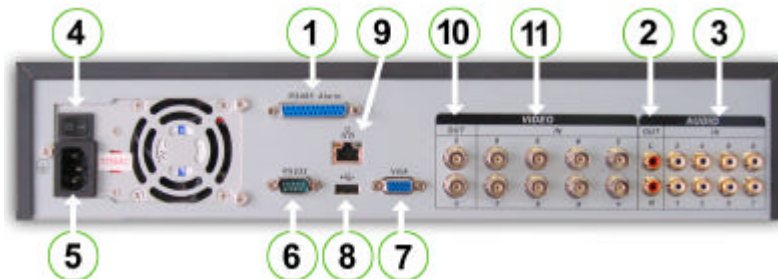
This screen allows you restore factory default setting for the system.

- "LOAD DEFAULT CONFIGURATION" restores the default settings for all the system configurations.
- "RESET NETWORK USER TO DEFAULT" restores the default settings for the remote access user.

RESET TO DEFAULT:		
LOAD DEFAULT CONFIGURATION?		
YES	NO	
RESET NETWORK USER TO DEFAULT?		
YES	NO	MAIN MENU

6. System Connections

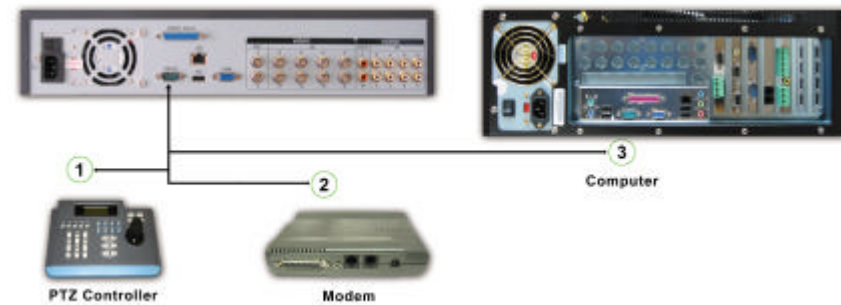
6.1. Rear View



1- Alarm – RS485 (DB -25)	2- Audio Out	3- Audio In
4- Power Switch	5- Power Plug-in	6- RS232
7- VGA out (PC Monitor)	8- USB port	9- RJ45 (Network)
10- Video Out	11- Video In	

Network connection note: When connecting directly to the network card of a computer, please use CAT-5 Crossover Cable; when connecting to a LAN or Router use CAT-5e cable.

6.2. RS232 Connection



The RS232 Connection can be used to connect external PTZ controller key board, Modem for dial-up access. And the computer for Upgrading the firmware and the software of the DVR.

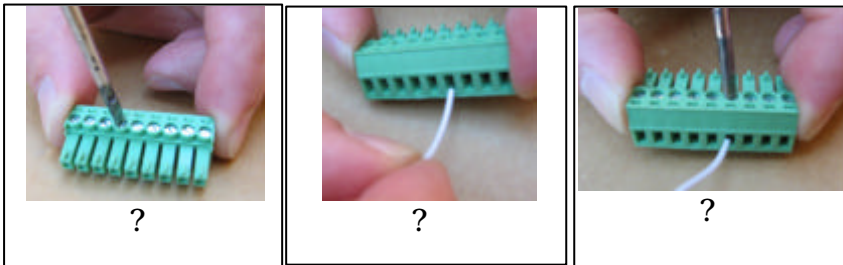
6.3. PTZ and Sensor Connections

Connect 25 pins of the transfer box directly with the 25 pins alarm input output connection of the DVR

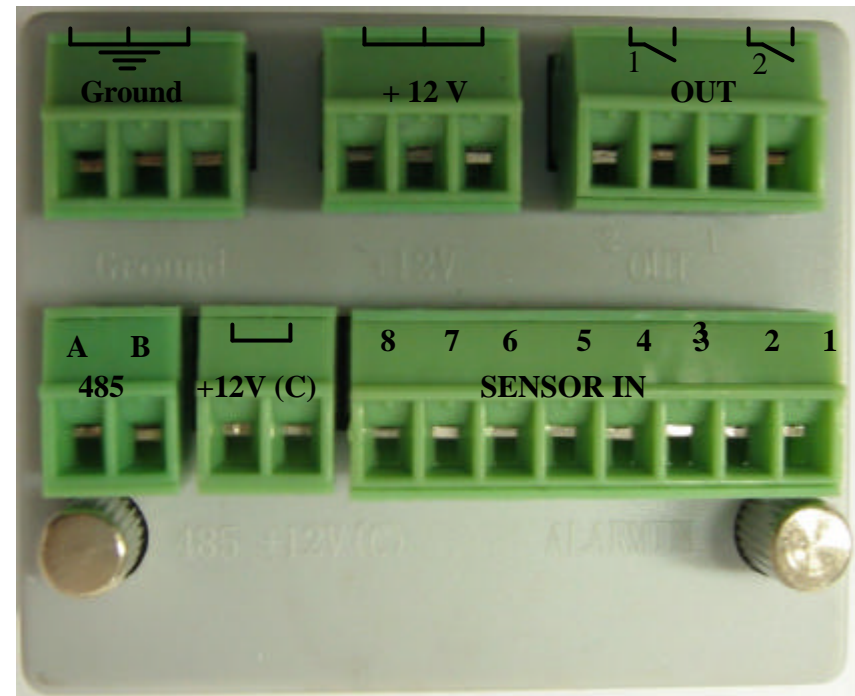
Fasten the transfer box on the back panel of DVR with two screws

Pull out 6 connection terminals of the transfer box, corresponding connection marks can be clearly noticed.

Connect function line according to labels.



- ? Loosen the screws on the connection terminal
- ? Insert wire into the corresponding terminals
- ? Tighten the screws



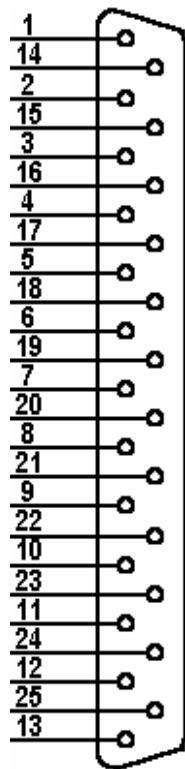
- “Ground”: ground line.
- “+12v”: provides power to PTZ/sensor device with current less than 2A
- “OUT 1, 2” are two relay outputs switches. The relay is open by default.
- “485 A, B” are communication connection. Used to connect devices like the PTZ camera.
- “+12(C) ” is control power output. It is used for devices requiring standby power like smoke sensor, etc.
- “Sensor IN 1...8) ” These are the sensor input to the DVR system.

6.4. RS-485 port connection

If you want to control pan-tilt-zoom (PTZ) Camera or activate the DVR Output relay, the 25-pin RS485 connection must be used. See detail below.

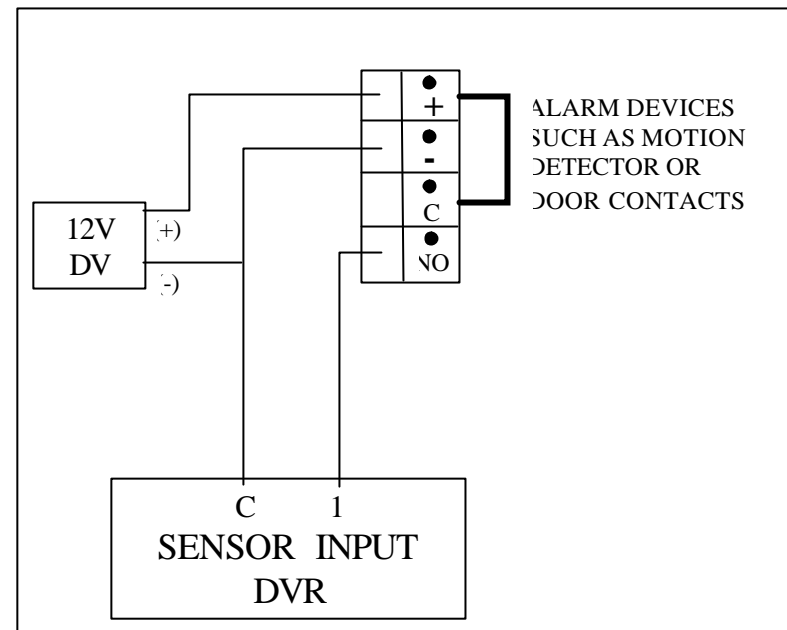
The RS485 port connection can control various PTZ Cameras, and the specific model or protocol can be selected from the Control Menu in System settings.

The DB25 pin outs are marked below. The definition of the pin outs are as follows: The broken line in the graph indicates inside connection)



- a) Pins 1,14,2,15,3,16,4,17 connects to alarm input: ALARM1~ALARM8
- b) Pins 5 & 18 = OUTPUT Relay 1 - 6 & 19 = OUTPUT Relay 2 Each Relay (normally open):
- c) Pins 7&20 = OUTPUT 3 is a controllable +12V output .
- d) Pins 8, 9 & 21 are +12V power output, Use for Low current items only such as Relays and Sensor Devices.
- e) Pins 10 & 22 are the B line of RS485, Pins 11 & 23 are the A line of RS485;
- f) Pins 12, 13, 24 & 25 are Ground (Gnd).

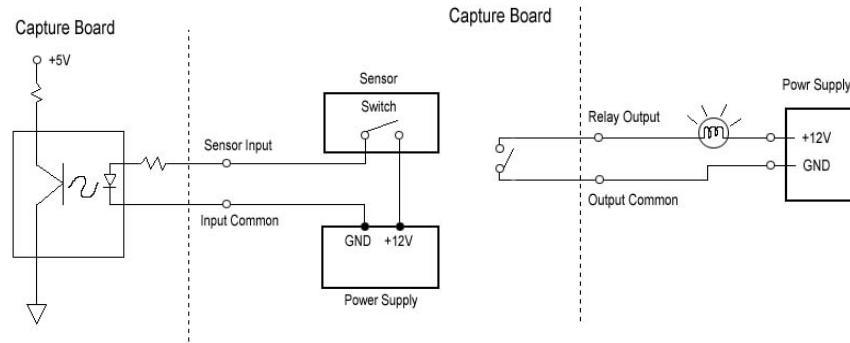
- Connection of the Sensor input:



- Instruction of the sensor input end:
8 channel sensor inputs with NO or NC sensors(normally open or normally close type). The power out of the alarm sensor can be provided by the DVR(Low current only) or (External alarm power supply)
- Instructions for alarm device power from DVR:
N/O or NC alarm outputs refer to information below..
- Instruction of the controllable +12V
Available for Low Current Power to Alarm devices.
- Instruction of RS485 A & B line:
Used to connect the A and B line of the PTZ units.

Alarm input end

-Alarm output end



-Relays' parameter of the alarm output end

Model: G6H		
Relay Material	Silver	
Rating, resistance & load.	Rated switch capacity	30VDC 1A, 125VAC 0.5A
	Maximum switch power	62.5VA 33W
	Maximum switch voltage	125VAC, 110VDC
	Maximum switch Current	1A
Insulation	Pins with same polarity	750VAC 1minute 50/60Hz
	pins with different polarity	1000VAC 1minute 50/60Hz
	between relay and loop	1000VAC 1minute 50/60Hz
Surge voltage	between relays with same polarity	1500V (10x160us)
Length of open time	3ms max	
Length of close time	3ms max	
Longevity	Mechanical	100x106 (10Hz)
	Electric	200x103 (0.5Hz)
Temperature	-40~+70?	

6.5. Serial Port Connection Settings

The system's operation can also be controlled through the RS232 port. The specific operation is as follows: First, copy "Terminal" and new DVR system software to the computer. Connect the computer with the DVR via the RS232 port. Run "Terminal" program and create the connection between the computer and the DVR.

The settings information for the connection is:

- Baud rate— 115200bps
- Data bit— 8 bits
- Stop bit— 1 stop
- Check — no parity
- Control on data flow— no

You can log in by username **admin** (default user with administrative access) for the serial port login.

Login steps:

Press any key to enter the login interface which displays the following:

Username: admin

Input the name; press the "enter" key. Then, input the password as follows:

Password: admin

If the username and password are correct, the system will allow entry via the serial port. The detailed functions are the same as the menu setting.

6.6. Serial Port Upgrade

After connecting is already established using steps in previous section proceed with the instruction below:

Press any key to enter login interface as following:

Username - **admin**

Enter username and press Enter. Enter the password as follows:

Password - **admin**

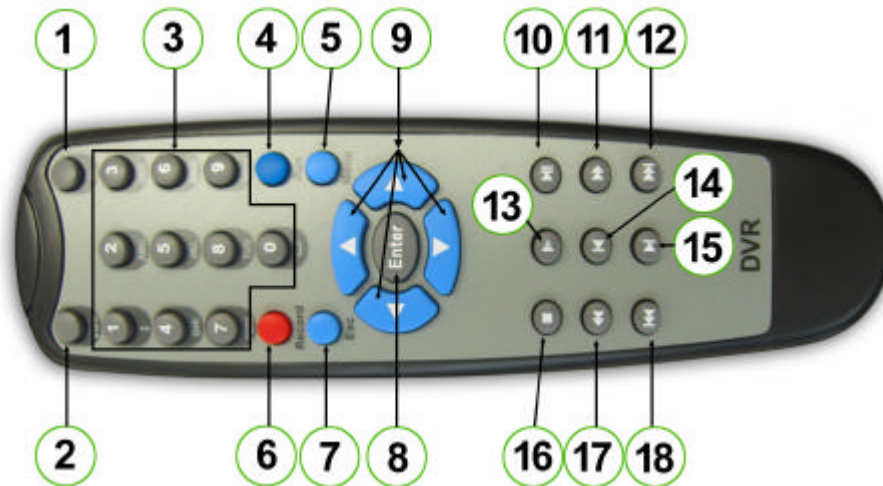
System enters into **DEBUG** state, and input BIOS. Press Enter.

Click Communication in the menu Field—Send file, and open upgrading program file (please complete this operation within 20 seconds, otherwise a Time out occurs). System begins to upgrade automatically and after the upgrading is completed, a system reboot will occur.

7. Appendix

7.1. Remote Control

Remote controller – Operates like On-Screen Buttons



1. ID	2. View	3. Number keys	4. Aux
5. Menu	6. Record	7. Esc	8. Enter
9. Cursor Keys	10. Skip to next	11. Forward	12. Fast Forward
13. Play	14. Back	15. Next	16. Stop
17. Rewind	18. Fast Rewind		

7.2. Frequently Asked Questions

- 1. What does the sound of the buzzer mean when normally starting the machine**
 When the machine is started successfully, it will give a short beep.
 When the HD can not be identified, it give a longer beep.
 When communication with the controller panel is abnormal, it creates a long beep followed by two short ones.
- 2. Can I control the recording time?**
 The recording time unit is per day. Besides timing recording, there are other recording methods such as motion detection recording, manual recording, external event triggering recording. Confirm that each of the settings is correct.
- 3. The indicator light is flashing while recording?**
 Check the camera feed first since this symptom is caused by an error in the video input to the DVR. If the video input is fine then check the hard drive speed as a slow/malfunctioning hard drive will also cause this symptom. If there is a problem with the hard drive, it must be replaced.
- 4. How does DVR handle bad sectors of a hard disk?**
 If there is a bad sector of HD and it is small, the dvr will ignore and jump over it. If the damage area is too large for the DVR to safely store information on it, the system will not be able to use this HD and output corresponding information.
- 5. What kind of external equipment could be connected to the Recorder?**
 It can work together with various matrix units, multiplexers, switchers, quads and PTZ Domes.

7.3. Hard Disk Installation

Hard disk installation

In total, a maximum of 6 large capacity hard disks can be installed inside the machine. User can decide the number of hard disks according to required image quality, recording time and recording length.

Installation steps:



Dismantle and Open the top cover



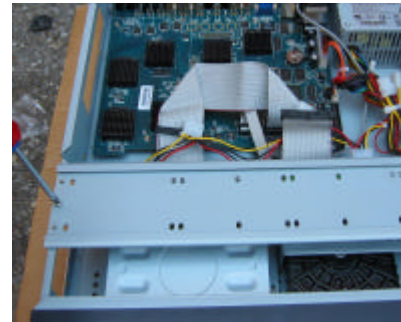
Dismantle the Hard Drive bracket



or



Install Hard Drive on the bottom level or the bracket.



Connect Hard Drive bracket



Connect Hard Drive data cable.



Connect Hard Drive power cable



Close the cover and install the screws

***NOTE:** Make sure you set the Master and Slave jumper settings according to the hard drive.

8. Limited WARRANTY

What Does This Warranty Cover?

The Manufacturer warrants to the Original Purchaser that the Company's hardware is free from defects in workmanship or material under normal use and service. This warranty commences on the date of delivery of the hardware to the Original Purchaser.

What are the Manufacturer's Obligations Under This Warranty?

During the warranty period, the Manufacturer agrees to repair or replace, as its sole option, without charge to Original Purchaser, any defective component part of the hardware. To obtain service, Original Purchaser must return the hardware to the Company in an adequate container for shipping. All defective products must be returned to the Company within 30 days of failure. Products must be returned with a description of the failure and Return Merchandise Authorization (RMA) number supplied by the Manufacturer. The postage, shipping and insurance charges incurred in shipping to the Manufacturer will be paid by Original Purchaser and all risk for the hardware shall remain with the Original Purchaser until such time as Manufacturer takes receipt of the hardware. Upon receipt, the Manufacturer will promptly repair or replace the defective unit, and then return said unit to Original Purchaser, postage and shipping prepaid. The Manufacturer may use unconditioned or like new parts or units, at its sole option, when repairing any hardware. Repaired products shall carry the same amount of outstanding warranty as from original purchaser, or ninety (90) which ever is greater. Any claim under the warranty must include dated proof of purchase or invoice. In any event, the Manufacturer's liability for defective hardware is limited to repairing or replacing the hardware.

What Does This Warranty Not Cover?

This warranty is contingent upon proper use of the hardware by Original Purchaser and does not cover if damage is due to accident, unusual physical, electrical or electromechanical stress, modification, neglect, misuse, failure of electric power, air conditioning, humidity control, transportation, operation with media not approved by the Manufacturer, or tampering with or altering of the hardware.

What is the Length of the Warranty?

The warranties given herein, together with any implied warranties covering the hardware, including any warranties of merchantability or fitness for a

particular purpose, are limited in duration to one year from the date of delivery to Original Purchaser. Jurisdictions vary with regard to the enforceability of warranty limitations, and you should check the provisions of your local jurisdiction to find out whether the above limitation applies to you.

What are the Limits on the Manufacturer's Liability?

The Manufacturer shall not be liable to you for loss of data, loss of profits, lost savings, special, incidental, consequential, indirect or other similar damages arising from breach of warranty, breach of contract, negligence, or other legal action even if the Manufacturer or its agent has been advised of the possibility of such damages, or for any claim brought against you by another party. Jurisdictions vary with regard to the enforceability of provisions excluding or limiting liability for incidental or consequential damages. You should check the provisions of your local jurisdiction to find out whether the above exclusion applies to you.

This warranty allocates risks of product failure between Original Purchaser and the Manufacturer. The Manufacturer's hardware pricing reflects this allocation of risks and the limitations of liability contained in this warranty. The warranty set forth above is in lieu of all other express warranties, whether oral or written. The agents, employees, distributors, and dealers of the Manufacturer are not authorized to make modifications to this warranty, or additional warranties binding on the Manufacturer. Accordingly, additional statements such as dealer advertising or presentations, whether oral or written, do not constitute warranties by the Manufacturer and should not be relied upon.

This warranty gives you specific legal rights. You may also have other rights, which vary from one jurisdiction to another.

Date of Purchase: