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Introduction to Digital Video Recorder (DVR)

The digital video recorder (DVR) is for recording video streams up to 4 channels at the same time. It adopts a digital image compression technology to compress the input channel video streams, and uses HDD to record the compressed video stream.

The following operation guide explains how to operate and manage the DVR, and the following installation guide explains how to install the DVR at your home and install the hard drive into the DVR.

1.1 DVR Features:
- 4 Channel BNC Camera Input
- 2 Channel BNC Monitor/VCR Output
- NTSC / PAL
- HOT RESTART
- Video Loss Alarm
- Motion Detection
- Connect to PC With USB 2.0 Port
- 4 Sets NO/NC Sensor Input
- 1 Alarm Output (2A 28VDC / 2A 125 VAC)
- One ATA-100 Hard Disk Interface, Support Over 200G Byte
- Time Schedule Record / Sensor Triggered Record / Motion Triggered Record

1.2 Package Includes:
- DVR-04, 4 Channel Digital Video Recorder
- Power Cable and 12V DC adapter
- USB Cable
- CD and User Manual

2.1 Front Panel

2.2 Rear Panel
3.1 Install Hard Disk (For DVR model without HDD installed)
Connect power cord and data cable to hard disk, use screws to mount hard disk and tighten well to the iron of the DVR housing.

CAUTION: Do not open the cover while DVR is on!!!!

3.2 Connect Camera and Monitor
There are 4 camera input and 2 monitor output with BNC connector.

3.3 Connect Power Cord

Please use the power adapter supplied with DVR.
4.1 Detect Installed Hard Disk

Connect the power cord and turn the DVR switch on. The system will boot-up and detect installed hard disk. The monitor display will show Master and Slave hard-disk information. Please refer to the hard disk section of the manual to configure hard disk sequence. (Master or Slave)

4.2 Recover Lost Data

Power-Error will cause data lost and system will ask to ‘recover data’. Please press “Select” to proceed with data recovery.

4.3 Restore Recording Process

When a power-error occurs during a recording process, the system will automatically restore the recording process after power is reconnected.
4.4 Main Screen

When the DVR is turned on for the first time all camera will be OFF by default. Please refer to section 5.2 to switch on all cameras.

• Upper left -> Percentage of Hard Disk Space Used

• Middle -> Channel Number (CH1 _ CH4)

• Bottom right -> Date and Time
At any time press the “Menu” button to enter the DVR setup menu.
5.1 Setup Menu

Press “Menu” to enter setup menu
Use “Up” and “Down” to browse
Press “Select” to modify setting
Press “Menu” to confirm and exit

5.2 Camera Select

The DVR system can display 4 camera video pictures in one screen (Quad Mode). User can configure which camera to display.
Press “Select” to modify the setting when programming, and press

“CH1”, “CH2”, “CH3”, “CH4”

to view each camera separately. When the menu channel space has a “_”, the DVR will display “OFF” on that corresponding channel.

5.3 Record Select

Configure which channel is allowed to record by pressing “Select” to display channel number or “_”, to disable recording for the corresponding channel.
5.4 Record Mode
There are two modes for video recording.

Each Mode
Compress and record each channel video separately, therefore, user can enlarge single channel video to full screen display. For example, user can turn off record function of CH1 and CH2 to have the system only record CH3 and CH4 video.

Press “CH1”, “CH2”, “CH3”, “CH4”, “Quad” to switch channel display when viewing recorded video.

Quad Mode
Compress and record all 4 channel video into one file, therefore user can not enlarge single channel to full screen. User cannot use the each mode record in this mode.

5.5 Record Frame Rate
The record frame rate will affect the movement of an object in the recorded video. More frames means more smooth movement and uses more hard disk space. System default value is 30 fps, that means the system will record 30 frames per second. The frame rate value can be set to 30, 15, 10, 7, 5, 4, 3, 2, 1 frames per second.

5.6 Video Quality
There are three levels of video quality for recording, High, Normal and Low. Higher quality uses more hard disk space.
The record frame rate, record quality, and hard disk space will affect the total recording time of the DVR system.

5.7 Record Schedule
Setup video record method by time, sensor triggered and motion triggered.

- “-“ No Record
- “T” Continuous (System Default)
- “S” Sensor Triggered
- “M” Motion Triggered
The DVR cooperates with many kinds of external sensor equipment like PIR and gas sensor. The DVR will not record video until the sensor is triggered and the output signal notifies the DVR during this specified period of time.

Button function:
“▲Up”, “▼Down”: Move the prompt
“← Select”: Select method
5.8 Sub Menu—Password Change
System default password: Press six times the “CH1” button

All keys can be used to set the password except the “Menu” key, which is used for confirming and exit.

If you forget the password, please do not worry. Just press the PAUSE key 10 times, it will return to the system default configuration. So, the password remains six times the “CH1” button.

5.9 Sub Menu—Time Set

Configure DVR system time:
Press “Up” and “Down” to move prompt.
Press “Select” modify.
Press “Menu” to confirm and exit.

5.10 Sub Menu—Picture Set

Press “Up” and “Down” to move prompt.
Press “Select” to modify the value.
5.11 Sub Menu ----- Password Set
When password set is “ON”, to stop recording or to enter the menu will require a password. If password set is “OFF”, the password feature will be cancelled.

5.12 Sub Menu ----- Buzzer Time
Buzzer time set (05,10,15,20,25,30 seconds and CONT), press [← Select] to set the time. When Buzzer Time is to “OFF”, the buzzer will be shut off. When “Buzzer Time” is “CONT”, the buzzer will work continuously.
Note: The buzzer time will act as line of integrity (camera signal loss) and produce alarm output.

5.13 Hard Drive Setup

OVERWRITE ENABLED
If you choose YES, recording continues and overwrite previous recording when hard disk drive space is full.
If you choose NO, the recording session stops when the hard disk drive is full.

MASTER HDD SIZE
It shows the size of the primary hard disk drive installed in the DVR.

NOTE: If the DVR overwrite function is set to “YES” and when the hard disk is full, the overwrite function will start to overwrite the oldest recorded file by the minute.

MASTER HDD USED
It shows the space used on the first hard disk drive for recording and the percentage used on the hard disk.

MASTER HDD FORMAT
If you format the hard drive, it will erase all the data recorded on the first hard disk drive.
Notice: Please use this function to format the HDD at the time of installation, otherwise a PC will not recognize the DVR's HDD when connecting to it through the USB cable.

SLAVE HDD SIZE (For DVR-04 Pro Series)
It shows the space of the secondary hard disk drive installed in the DVR.

SLAVE HDD USED (For DVR-04 Pro Series)
It shows the space used on the secondary hard disk drive for recording.

SLAVE HDD FORMAT (For DVR-04 Pro Series)
If you format the hard drive, it will erase all the data recorded on the secondary hard disk drive.
5.14 Sensor Setup

 SENSOR SETUP

SENSOR RECORD TIME
This number indicates the recording duration after
the sensor is triggered.

ALARM OUT TIME
It controls how long (in seconds) the alarm sound
lasts after it is set off.
Value “00” will turn off the alarm output.
Select “Cont” will turn on alarm output until any key
on the DVR is pressed.

- Push the UNLOCK BUTTON to insert or pull out the wire
- There are 3 different modes for sensor setting:
  NOT INSTALLED, NORMAL-CLOSE and NORMAL-OPEN.
It depends on what type of external sensor you use. If sensor’s output is NORMAL-OPEN then
select NORMAL-OPEN mode in DVR sensor setup.
If the sensor is triggered by an intruder then the cable line is connected to the DVR input terminal
will notify the system to start recording.
There are four pairs of input terminal.

Install example diagram:

DVR

Connect PIR
sensor NO/NC
output to DVR
input terminal.
(Max. 5V DC)

PIR Sensor

Power

Alarm

Unlock button

Sensor Input 1

Sensor Input 2

Sensor Input 3

Sensor Input 4
5.15 Motion setup
The first step is to setup video record method by Motion Triggered. Please refer back to 5.7 Record Schedule.

After the “MOTION SET” step is completed, press “Menu” to exit, and press [Record] to start the Motion Record feature.

5.16 NTSC/PAL Output Select

Before turning on the DVR, make sure the J10 jumper is on the NTSC setting (for U.S.A) or PAL setting (for Europe).

5.17 Restart
There are two restart modes. First, use the Power Switch to restart the DVR; second, press the PAUSE key continuously for 12 seconds, it will be hot restarted.
6.1 Start Recording
Press “Record” to start recording. System will display some information on screen. Only EACH MODE can enlarge single channel to full screen display

- ① Hard Disk Percentage Used
- ② “R” Recording Symbol
- ③ Channel Numbers
- ④ Mode (QUAD or EACH)
- ⑤ Status (REC, Play, FF1, FF2, FF3, REW, PAUSE)
- ⑥ HDD Info. ([M] Master disk [S] Slave disk)
- ⑦ (M) Motion Triggered, (T) Continuous, (S) Sensor, ( ) No Record
- ⑧ When “*” show up beside date & time, it indicates system HDD overwrite.

6.2 Stop Recording
Press “Stop” and system will prompt to input password. Only the correct password can stop the recording process.
6.3 Recording Length

Estimated record time based on 80GB/200GB/250GB HDD  
Unit: Hour

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<th>Quality</th>
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<th>30</th>
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<td>12</td>
<td>243</td>
<td>506</td>
<td>1011</td>
<td>6068</td>
</tr>
</tbody>
</table>

Record Time (hrs) Formula = \[
\frac{(\text{#GB})(1024\text{MB})(1024\text{KB})}{(\text{#frame rate})(\text{#KB Quality})(60\text{sec})(60\text{min})}
\]
Press “► Play” and the system will list all the recorded video files from the HDD. The newest video file will appear as 01 on the list, press “▲ Move Up” and “▼ Move Down” to select the start time and press “► Play” again to start the video file.

Another way to search for specified video is to directly input the date and time period. Press “►► Forward” and then press “▲ Up” and “▼ Down” to move the prompt. Press “◄ Select” to edit the date and time value and press “► Play” to begin playback.
8.1 Install
1. Put the USB Driver Program CD in your CD-ROM
2. Go to the CD-ROM and execute “setup.exe”
3. Use default destination folder
4. Execute: start>Program>DVR Play

Note: This software currently supports Windows 2000 and Windows XP!

8.2 Program Interface

Run the program (double click “ ” icon on desktop). Your computer system will detect the HDD automatically when it recognizes the USB cable from the DVR to its USB port.

*Notice: if the HDD cannot be detected because of unsuitable operation, please try the following steps:
(1) close the USB program window, and remove the USB cable from the DVR.
(2) reconnect the USB cable to the DVR, wait for 5 seconds, and open the DVR Play software again.
if step 1 and step 2 do not work,
(3) restart the computer and repeat step 2.
Button Function

1  Save Frame
2  Save Video Clip
3  Config
4  Print (print the screen)
5  Event List
6  Channel 2
7  Channel 1
8  Quad Mode
9  Channel 3
10 Channel 4
11 Rewind
12 Step backward (frame by frame)
13 Backward play
14 Pause
15 Play
16 Step forward (frame by frame)
17 Fast forward
18 Status Bar
19 Play DVR video file
20 Play PC video file
21 Minimize the window
22 Close the window
23 Software version
Press  to open the event video list.

Press  to change the recorded video location, directory, and other software settings.
Press 🎬 to play the video
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<th>Item</th>
<th>Description</th>
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<td>Video Input Format</td>
<td>NTSC/PAL</td>
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<td>Operating System</td>
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<td>Video Output Channel</td>
<td>2Ch Composite BNC, USB 2.0 Port</td>
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<td>NTSC 120 frames/second, 4x30fps</td>
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<td></td>
<td>PAL 100 frames/second, 4x25fps</td>
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<tr>
<td>Recording Frame Rate (NTSC)</td>
<td>Max 30fps (quad)</td>
<td>Quad Mode</td>
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<td>Max 25fps (quad)</td>
<td>Quad Mode</td>
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<td>Recording Frame Rate (PAL)</td>
<td>Each Channel = 30fps/number of Source</td>
<td>Max. 30 frames/s (Each Channel)</td>
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<td></td>
<td>Each Channel = 35fps/number of Source</td>
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<td>Quad: 640x224 (total) Each 640x224</td>
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<td>Video Compression Format (Each Channel)</td>
<td>Modified Motion-MJPEG, Each Recording</td>
<td>Low: 12K/frame Normal: 15Kb/frame High: 20Kb/frame</td>
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<td>HDD Support</td>
<td>Over 200G Byte</td>
<td>ATA-100 Interface</td>
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<td>Estimated Record Length</td>
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<td>(250<em>1024</em>1024K byte) / (7<em>15</em>60*60) = 694 Hour</td>
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<td>Sensor, Alarm</td>
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