STAND-ALONE DVMR

∞ **4 Channel Digital Video Multiplex Recorder**

User Manual VER 2.0

DIGITAL VIDEO RECORDER

Stand-alone DVMR

The most stable and reliable real stand-alone Digital Video Multiplex Recorder

STAND-ALONE DVMR

ALL ABOUT IMAGE RECOGNITION & PROCESSING

ALL ABOUT IMAGE RECOGNITION & PROCESSING

SAFETY PRECAUTIONS

	CAUTION	
⚡	RISK OF ELECTRIC SHOCK. DO NOT OPEN!	!

CAUTION : TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT OPEN COVERS. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This label may appear on the bottom of the unit due to space limitations.

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

The exclamation point within an equilateral triangle is intended to alert the user to presence of important operating and maintenance (Servicing) instructions in the literature accompanying the appliance.
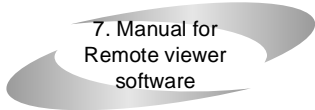
WARNING : TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE UNITS NOT SPECIFICALLY DESIGNED FOR OUTDOOR USE TO RAIN OR MOISTURE.

Attention: installation should be performed by qualified service Personnel only in accordance with the National Electrical Code or applicable local codes.

Power Disconnect. Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source ; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all unites.

7. Manual for
Remote viewer
software

⑨ **Command button :** We have 3 different buttons that are, save, print, and event.
   a) Save
      During searching recorded pictures, you can save pictures one by one in the folder in
      client PC by pressing save button. File name automatically designated shall be date
      and time when selected picture was recorded.
   b) Print
      During searching recorded pictures, you can print picture, one by one, you see.
   c) Event
      Press event button to see alarm list saved in DVMR unit, and you can search recorded
      pictures based on event list by clicking any one of list.
   d) Record
      This button enables you to download pictures while you search recorded pictures for a
      time duration (Record Duration) you already set in SYSTEM SETTING. While you
      search recorded pictures, press Record button and you can save series of pictures for
      Record Duration in avi format. If you set Record Duration at 30 sec, our client program
      download pictures in avi format for 30 sec and save in the file name of Year-Month-Day-
      Hour-Minute-Second, and continue to download and save again after 30 seconds, and
      so on. Every 30 seconds, it creates file in the name of Year-Month-Day-Hour-Minute-
      Second until you press Stop button or Record button again. Then you can see using
      Media Player later or you can put those pictures on CD or on other type of storage media
      to show somebody who are in other place.
      Size of file downloaded for 30 sec, for example, shall be 100MB, more or less,
      depending on pictures taken, and we recommend you to download and save on your
      computer whenever it is necessary, and delete those files if it is not necessary to save
      for a long time, to take care of storage space of hard disk drive in your computer.
⑩ **Calendar :** You can select date and time to search pictures recorded at selected time
   and date. You can refer to start and end of recording in ⑦.

Notice : From time to time, connection shall be cut unexpectedly due to conditions of network line. Whenever it is cut, quit search window by pressing power switch(①), and then press connect button in live-view window and scan button to enter into search window again, to continue searching.
Notice : Compatibility of Remote Viewer Software with different kinds of operating systems and PC hardware may not be simply specified due to the characteristics of network that it is much related with not only PC hardware and operating system but also other software installed on the client PC and conditions of network(internet) line. Basically, Argus﹑ Remote Viewer Software is compatible with typical Windows operating system from Windows 98 to Windows XP.
Notice : To see continuous live view, we recommend not to select motion recording in RECORD SETUP menu of DVMR. If it is set at motion recording in SETUP menu of DVMR, image transmission is done only there is motions detected.
Notice : While you search recorded data using client software in client PC, DVMR unit to which you access via IP network is in playback mode, and no recording is done as far as you search recorded data. However, while you are in connection with DVMR unit via IP network for live view, DVMR unit continues to record but at a little lowered recording rate.
Therefore we recommend you to DVMR unit only when it is necessary.

FCC INFORMATION

A CLASS A computing device subject to certification by the Commission shall be identified pursuant to par.2.925 et Seq of the chapter. In addition, the label shall include the following statement:

> **This device complies with Part 15 of the FCC Rules.**
> **Operation is subject to the following two conditions:**
> **(1)This device may not cause harmful interference, and**
> **(2)This device must accept any interference received,**
> **including interference that may cause undesired operation.**

Where a device is constructed in two or more sections connected by wires and marketed together, the statement specified in this Section is required to be affixed only to the main control unit.

The users manual or instruction manual for the EUT shall contain the following statement or eqivalent.

Caution : Changes or Modifications not expressly approved by the party responsible for compliance could void the users authority to operate the equipment.

If the EUT requires accessories such as special shielded cables and/or connectors to enable compliance with emission limits, the instruction manual for the EUT shall include appropriate instructions on the first page of the text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

For a CLASS A digital device or peripheral, the instructions furnished the user shall include the following or similar statement placed in a prominent location in the text of the manual.

Note : This equipment has been tested and found to comply with the limits for a CLASS a digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of the this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
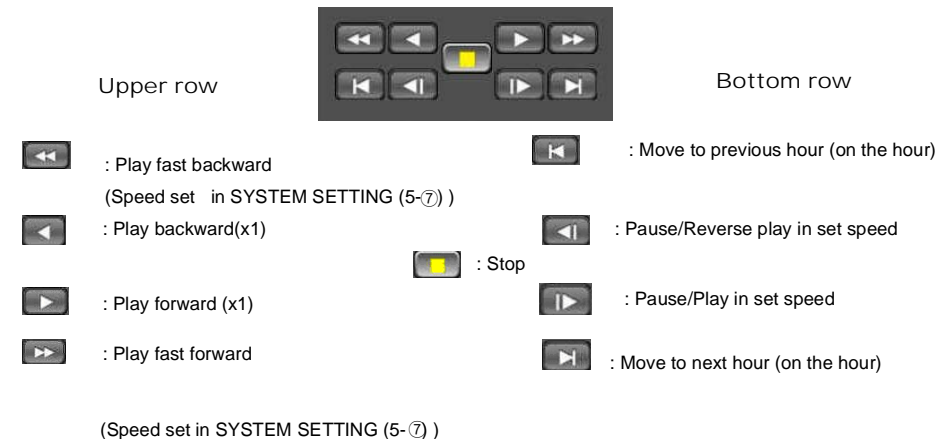
Table of Contents

---

7. Manual for Remote viewer software

Function of each button in search window :

① **Power switch** : Press power switch to quit.
② **Full screen button :** Press full screen button to search recorded picture channel by channel in full screen.
③ **Quad button** : Press Quad button to search recorded pictures in quad screen, 4 pictures from 4 channels at the same time.
④ **Enlargement scale :** You can adjust size by pressing $\oplus$ or $\ominus$ button and you will see separate picture to be shown in enlargement window(⑦). By increasing or decreasing size of enlargement scale, you will see picture to be shown in enlargement window shall be increased or decreased.
Further you can drag enlargement scale you adjusted to the position to see enlarged picture of corresponding part.
⑤ **Channel selection button :** Press any one from 1 to 4 to see picture of corresponding channel, if you first chose full screen button(②).
Time displayed in green color is the time picture recorded.
⑥ **Time selection button** : You can set time to search pictures recorded at set time by dragging vertical line to the left or right. See time to be displayed on the left(⑤) in green color and find an exact location for the time from which you want to search.

⑦ **Start and end of recording** : It shows time from which recording started and recording ended. Further it show time from which search will start.
⑧ **Search operation button** : You can search recorded data using various buttons useful for searching effectively as follows.

Upper row   **Bottom row**

◄◄ : Play fast backward
(Speed set in SYSTEM SETTING (5-⑦))

◄ : Play backward(x1)

► : Play forward (x1)

►► : Play fast forward

▕◄ : Move to previous hour (on the hour)

◄▏ : Pause/Reverse play in set speed

▪ : Stop

▏► : Pause/Play in set speed

►▏ : Move to next hour (on the hour)

(Speed set in SYSTEM SETTING (5-⑦))

Speed of playback according to scan rate set in 5-⑦-b).

Scan rate set in 5-⑦-b)	◄ or ►	◄◄ or ►►
1x	1x	1x
2x	1x	2x
4x	1x	4x
8x	1x	8x
16x	1x	16x
32x	1x	32x
64x	1x	60x

Maximum playback speed of DVMR is 60x.

7. Manual for Remote viewer software

1. About this document

Speed of playback in DVMR unit according to scan rate set in 4-7-b).
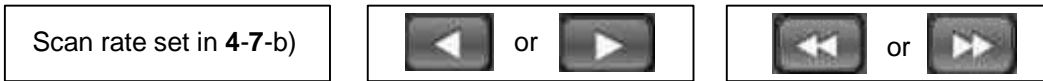
Scan rate set in **4-7**-b)	◄ or ►	◄◄ or ►►
1x	1x	1x
2x	1x	2x
4x	1x	4x
8x	1x	8x
16x	1x	16x
32x	1x	30x
64x	1x	60x

Maximum playback speed of DVMR is 60x.

10 : Command button.

We have 3 different buttons, that are, save, print, and event, and those buttons work only when stop button is pressed.

a)Save

During searching recorded pictures, you can save pictures one by one in the folder in client PC by pressing save button. Press Save button while you see recorded picture, and picture you selected by pressing Save button shall be save on the folder you already assigned under the file name of year-month-day-hour-minute-second in jpg format.

b)Print

During searching recorded pictures, you can print picture, one by one, you see, by pressing Print button.

c)Event

Press event button to see alarm list saved in DVMR unit, and you can search recorded pictures based on event list by clicking any one of list.

11 : **Calendar**.

You can select date and time to search pictures recorded at selected time and date. You can refer to start and end of recording in **7**.

Notice : From time to time, connection shall be cut unexpectedly due to conditions of network line. Whenever it is cut, quit search window by pressing power switch(**1**), and then press connect button in live-view window and scan button to enter into search window again, to continue searching.

Notice : Compatibility of Remote Viewer Software with different kinds of operating systems and PC hardware may not be simply specified due to the characteristics of network that it is much related with not only PC hardware and operating system but also other software installed on the client PC and conditions of network(internet) line. Basically, Remote Viewer Software is compatible with typical Windows operating system from Windows 98 to Windows XP.

Notice : To see continuous live view, we recommend not to select motion recording in RECORD SETUP menu of DVMR. If it is set at motion recording in SETUP menu of DVMR, image transmission is done only there is motions detected.

Notice : While you search recorded data using client software in client PC, DVMR unit to which you access via IP network is in playback mode, and no recording is done as far as you search recorded data. However, while you are in connection with DVMR unit via IP network for live view, DVMR unit continues to record but at a little lowered recording rate. Therefore we recommend you to access to DVMR unit only when it is necessary.

Before installing stand alone DVMR, be sure to thoroughly review and follow the instructions in this User's Manual. Pay particular attention to the parts those are marked **NOTICE**.

Also, when connecting with external application, first turn the power OFF and follow manual instruction for appropriate installation.

2. Before reading this document

1. This document is intended for both the administrator and users of stand alone DVMR Model.

2. This manual contains information for configuring, managing and using stand alone DVMR Model.

3. To prevent fire or electrical shock, do not expose the product to heat or moisture

4. Be sure to read this manual before using stand alone DVMR Model.

5. For questions and technical assistance of this product, contact your local dealer.

▷   Strong recommendation on installation of the DVMR unit

1. Check electricity at the place you want to install the DVMR unit is stable and meets our electricity requirements.
   Unstable electricity will cause malfunction of the unit or give critical damage to the unit.

2. Several chips on the main board of the DVMR unit and hard disk drive inside the unit generate heat, and it must be properly discharged.
   Do not put any objects just beside exhaust port(fan) on the left side of the unit and do not close up an opening (fresh air in-take) on the right side of the unit..

3. Put the DVMR unit at well-ventilated place and do not put heat-generating objects on the unit. When it is installed inside 19 inch mounting rack together with other devices, please check built-in ventilation fan of the rack is properly running.

3. Unit Description

1. Front Panel
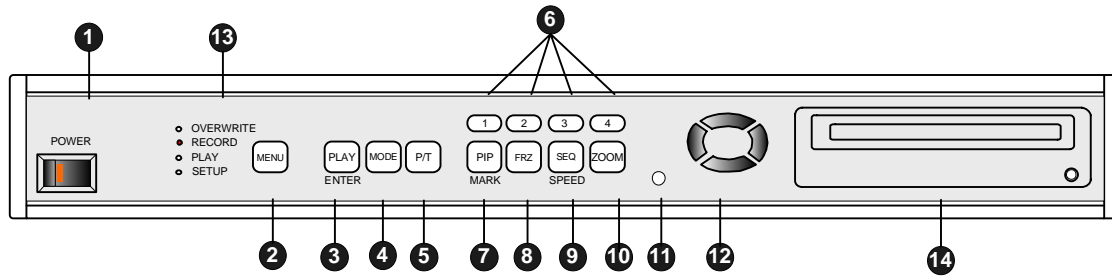
1. POWER SWITCH WITH LED : DC power switch with LED

Before you turn off DC power switch off, we strongly recommend you to press [MENU] button first to make HDD not in writing process.
Generally speaking, cutting power to system may cause trouble in DVMR system or damage to HDD if HDD is in writing process, and we ask you to press [MENU] button first to protect HDD from being damaged or system failure before you press DC power switch off in practical operation.

2. MENU : Used when changing the menu of SYSTEM SETUP. If you press [MENU] button, recording is stopped.

3. PLAY/ENTER : Starts playback, and in some functions, it is used as the SELECT key.

4. MODE : Changes to quarterly split screen or Full display screen.

5. P/T : Manages PAN/TILT CONTROLLER.

6. 1,2,3,4 : Chooses each indicated camera.

7. PIP/MARK : Assigns PIP (Picture in picture) or MARK IMAGE to protect selected image from being overwritten.

8. FRZ : : Display screen is paused.

9. SEQ/SPEED : The display screen automatically rotates, and assigns playback speed and direction.

10. ZOOM : Enlarges the display screen by 200%

11. Remote Controller Sensor Input Window

12. Direction button

13. LED Lamps : Represent status of operation

14. CD-RW DRIVE

   NOTICE : If the Input window (IR receiver) is covered, the remote controller may not work.

   NOTICE : If several buttons are simultaneously or incorrectly pressed, the system may not function properly.

---

7. Manual for Remote viewer software

③ **Disconnect button** : Press disconnect button to cut connection to DVMR unit via IP network.

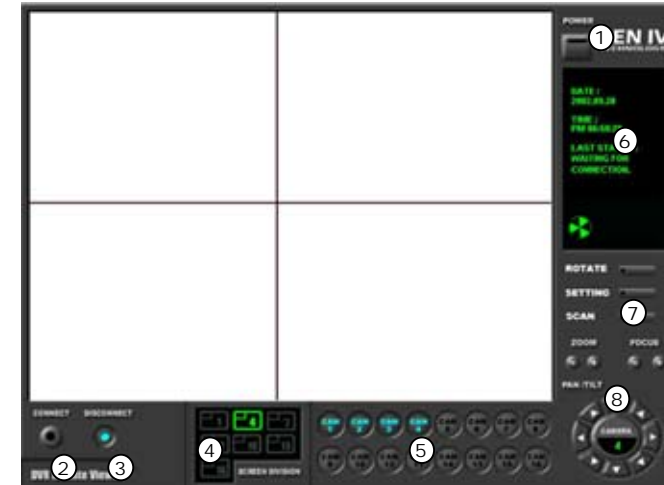④ **Screen division button** : You can select to see pictures of any single channel or 4channels at the same time. You can select channel number from 1 to 4 to see pictures of selected channel.
   If you selected 4, you swill see channel number from 1 to 4 are all activated.

⑤ **Channel number button** : You can select channel number to see live pictures from selected channel.

⑥ **Status window** : It shows Date and Time. Further it displays "Connection established" and a circular fan on the left bottom is rotating when connection button is activated, or "Waiting for connection" when disconnection button is activated

⑦ **Set button** : 3 different set buttons

 a) Rotate : Press rotate button to see live pictures from channel 1 to 4 in rotation.
    Screen division must be set at 1 to see live pictures one after another in rotation. Speed of rotation shall be as per settings of circular monitoring interval.

 b) Setting : It is in the middle of 3 buttons. Press this button to input IP Address and others and to set circular monitoring interval and scan rate, as following dialog box.

CONNECTION :
- On the LABE column, you are requested to input name of 4 ch DVMR units, in case you want to access to any one DVMR unit among more than a unit. You can save many IP information in Configurations Window and select name of DVMR unit to which you want to access.

7. Manual for Remote viewer software

3.Unit Description
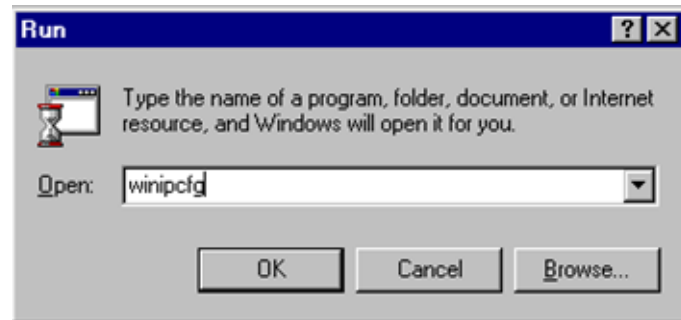
When **winipcfg** launches, you'll get a window like this one.
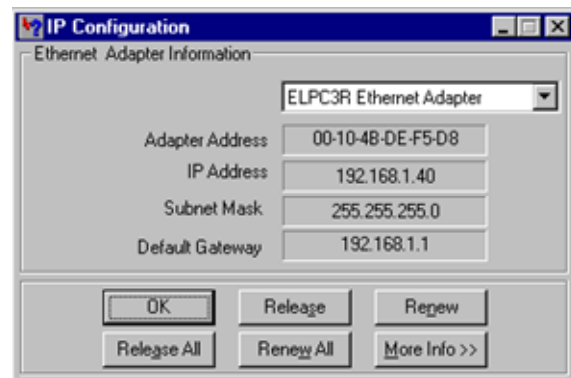
Now, hit the "Release" button and then hit "Renew". If all goes well, you'll get new information, and it is for your DVMR unit. Write down this information on separate paper   and input IP Address, Subnet Mask, and Default Gateway into your DVMR to which you want to access via IP network.

b) Confirm if IP Address is working by executing pingtest
   Execute pingtest with IP Address which you assigned to DVMR unit, check if it is successful before you try to access to DVMR unit via IP network. If it is not successful, you may not be able to access to DVMR unit via IP network, and we recommend you to get help from your network administrator.

4. Insertion of logo in live window and scan window

You can insert logo of your company in live window and scan window, if you want.
When you install our client program, it automatically create folder named logo under DVMRRemoteViewer folder. Prepare logo to be inserted in live window in the resolution of 85x55 in bmp format and in resolution of 165x65 in bmp format, respectively, and put them in logo folder under DVMRRemoteViewer folder with name of blogo (to be shown in live window) and slogo (to be shown in scan window).These logos will be shown on the right side of POWER switch in live window and scan window, respectively. if you do not assign blogo and slogo, no logo will be shown on the right side of POWER switch.

5. Live view via IP network
Click Remote Viewer icon to view live pictures via IP network. You will see then following window.

Function of each button in live-view window :
① **Power switch** : Press power switch to quit. Before press power switch button, press disconnect button first.
② **Connect button** : Press connect button to connect to DVMR unit via IP network to see live pictures of DVMR unit. You will see the same live pictures, which are displayed on monitor of DVMR unit with a certain time delay depending on transfer rate of IP network.

---

2. Rear Panel
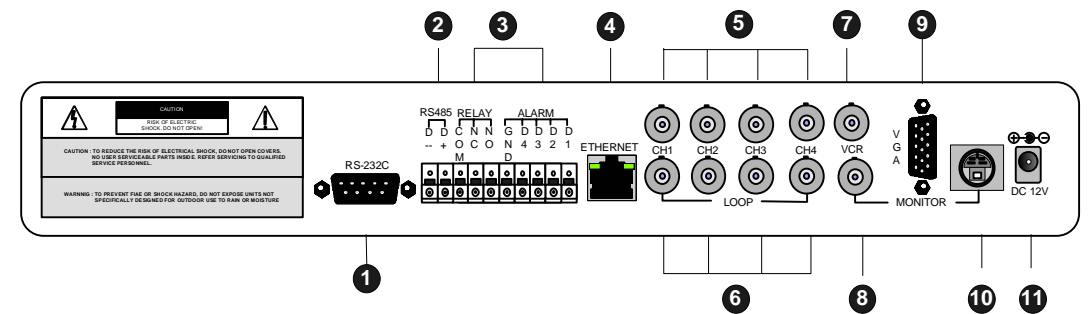
1. RS-232C Port Connection

2. PAN/TILT Controller

3. Sensor Input/Output

4. LAN (TCP/IP)

5. Camera Connection

6. LOOP Output

7. VCR Connection

8. MONITOR Connection

9. VGA Connection

10. S-VHS Connection

11. D/C Power Connection

NOTICE : When connecting with other applications, be sure to turn off the system.

4. Installation

▶ Procedure

1) Camera Connection

Connect the camera to the CAMERA INPUT on the Rear Panel of the system.

Rear part of CAMERA
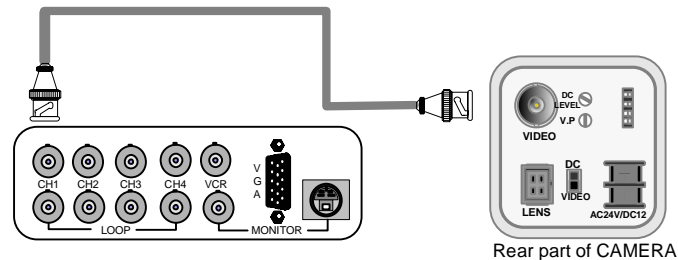
> Notice : This DVMR system automatically detects video system of camera you connected to the unit when you boot DVMR system first. It is not necessary to set video system separately, and DVMR system set at NTSC or PAL system automatically when you boot the system.

2) Monitor Connection (Composite Connection Method)

Connect the monitor to the MONITOR OUT on the Rear Panel of the system
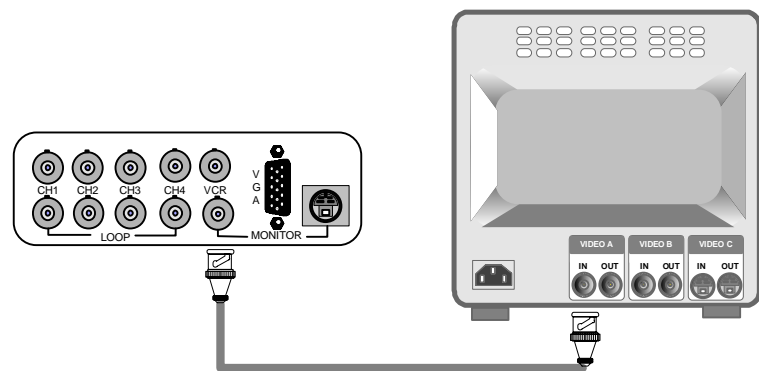
> Notice : Connect camera or monitor to DVMR unit while DC power switch on the front panel is off.

c) When it arrives at DHCP SETUP, it first display "SEARCHING" until DVMR unit gets IP information and connects to the network, and then finally changes to "OK". If DHCP SETUP is completed and "OK" is displayed, DVMR unit successfully connected to the network. Then enter into SYSTEM SETUP/ TCPIP SETUP/IP ADDRESS. You will see DVMR unit already got IP ADDRESS automatically assigned by DHCP server, Cable modem, IP sharer of ADSL modem. Write down this IP address and port number, and enter them into System Setting of Remote viewer program to be installed into client PC. Port number is set at 80 automatically by DVMR system. If your network is protected by firewall, and port number 80 is protected by firewall, change port number from 80 to other number not protected by firewall

> Notice : If IP DETECT MODE is set at MANUAL, DVMR unit does not get IP information automatically during the process of booting, and you have to get IP information manually as descried in following process.
> If you set at Factory default in SETUP menu, IP DETECT MODE is MANUAL.

2) Manual assignment
If automatic assignment is not done successfully or if you set IP DETECT MODE at MANUAL in the DHCP SETUP, you have to get IP information of DVMR unit as following process in the client PC from which you want to access to DVMR unit via IP network. If you connect DVMR unit to leased line with static IP already known, it is not necessary to follow following process to get IP informaiton.

a) "ipconfig" or "winipcfg"
Execute "ipconfig" command in the client PC with Windows 2000 and Windows XP, and "winicfg" command in the client PC with Windows 98 and ME, and you will get IP information, that are IP Address, Gateway, Subnet Mask. Write down those numbers and input into DVMR unit to which you are going to access via IP network. As far as DVMR is in operation without turning off, it is considered that this IP Address is assigned just to this DVMR unit.

Then, restart client PC to get different dynamic IP address for client PC after you get IP information for DVMR unit.
Detail procedure to get IP information in different Windows is as follows.

7. Manual for Remote viewer software

1) Conditions of IP (network) assigned to our DVMR unit
   ⓐ Accessing to DVMR unit via Internet line

Internet — Leased line with static IP or Cable modem w/ dynamic IP — Direct Connection — DVMR

Client PC

ⓑ Accessing to DVMR unit via internet line

Internet — ADSL modem with dynamic IP or static IP — Router or Gateway — DVMR

Client PC

Settings in website of router or Gateway
: IP Forwarding (IP Bounding, Port
  Forwarding, Port Bounding, or Port Routing)
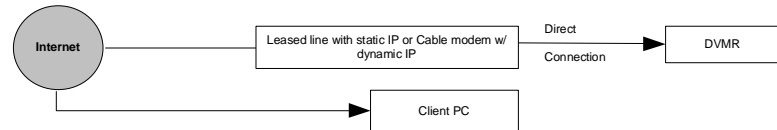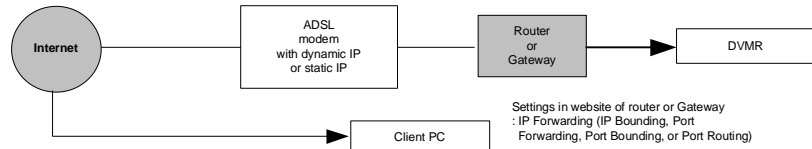
Example of IP Forwarding in website of Router or Gateway

PC — Client program

211.100.16.8

ADSL Modem — Router/Gateway

DVMR-16   192.168.1.165 : 8015
DVMR-2   192.168.1.151 : 8001
DVMR-1   192.168.1.150 : 8000
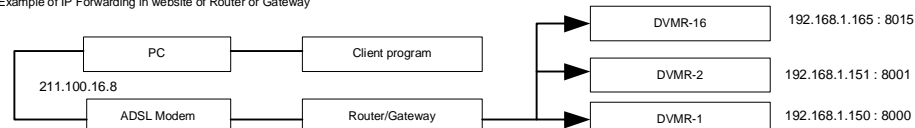
IP forwarding is what we have to set in website of Router or Gateway to connect external Port to internal IP address assigned by Router of Gateway.

ⓒ Accessing to DVMR unit in the same Intranet.

Internet — ADSL — IP sharer or DHCP server — LAN network — Client PC / DVMR unit
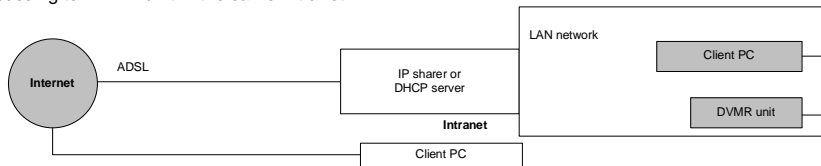
Intranet

Client PC

In this configuration, accessing to DVMR unit via Internet line form client PC not in the same intranet is not possible, and it is just possible in the same Intranet.

ⓓ Direct connection between DVMR unit and client PC using cross over cable

DVMR ←— Cross over cable —→ Client PC
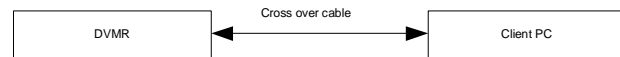
3. How to get IP for DVMR unit

1) Automatic assignment
   If IP DETECT MODE in SETUP menu of DVMR unit is set at DHCP, DVMR unit automatically connects to the network in the process of booting and shows IP information. FACTORY DEFAULT mode is MANUAL, not DHCP, and you have to change setting of IP DETECTION MODE in the SETUP menu to get IP information automatically.

a) During the process of booting, DVMR with latest version of EPROM program automatically connect to the network and get IP information, if it is connected to the network specified if from ⓐ to ⓓ of 1)-b).
b) When booting process is started, DVMR unit displays followings one by one and enter into display and recording mode.

VER 3.8
    DVMR BOOTING --------------------------------------OK
    CODEC/AD/DA SETUP --------------------------------OK
    HDD INFO INITIALIZE -------------------------------OK
        IN-DVMR   HDD DETECTED
        HDD-20   HDD DETECTED
        TOTAL   HDD DETECTED

    DVMR HDD DETECTION ------------------------------OK
    SETUP MENU LOADING ------------------------------OK
    MOTION FILTER SETUP -----------------------------OK
    DHCP SETUP ---------------------------------------OK
    CHANGE LOSS CHECK ------------------------------OK

---

4. Installation

3) Monitor (S-VHS) Connection

Connect S-VIDEO Monitor to MONITOR OUT(S-VHS) on the Rear Panel of the system.

CH1 CH2 CH3 CH4 VCR   V G A   MONITOR   VIDEO A IN OUT   VIDEO B IN OUT   VIDEO C IN OUT
LOOP
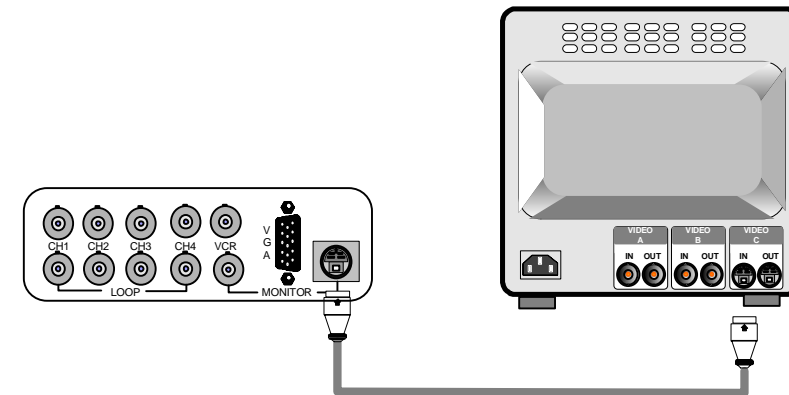
4) VCR & VIDEO PRINTER Connection

Connect VCR or VIDEO PRINTER to VCR OUT on the Rear Panel of the system.

CH1 CH2 CH3 CH4 VCR   V G A   MONITOR
LOOP

VCR

VIDEO PRINTER
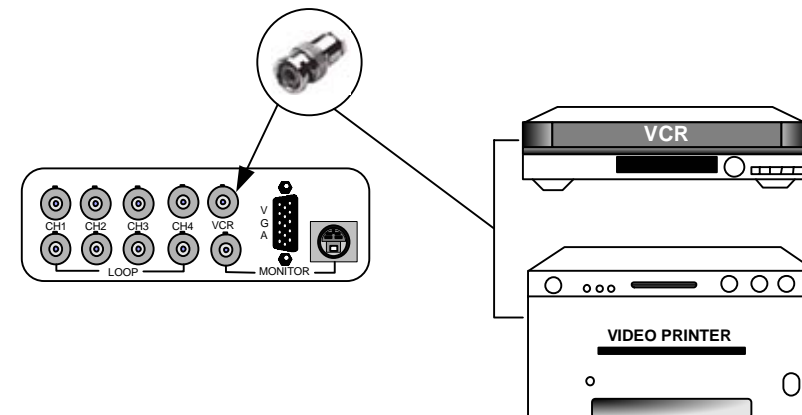
5) Sensor Connection

Connect the Sensor to the SENSOR INPUT/OUTPUT on the Rear Panel of the system

Terminal block


```
      RELAY    ALARM
    D D C N N G D D D D
    - + O C O N 4 3 2 1
        M     D
```

COM NC NO GND D4 D3 D2 D1

Pin 1	Alarm1
Pin 2	Alarm2
Pin 3	Alarm3
Pin 4	Alarm4
Pin 5	GND
Pin 6	NO(Normal Open)
Pin 7	NC(Normal Close)
Pin 8	COM

▷ Relay output : COM+NC, COM+NO OR COM+NC+NO

▷ Alarm input : Short-circuit between Alarm1, Alarm2, Alarm3 or Alarm4 and GND is recognized as alarm.

NOTICE : Sensor input is RECOGNIZED as LOW when alarm signal is on a level with GND,

and it is recognized as HIGH when alarm signal is FLOATING or 5V. Following is internal circuit.

5 V

Internal Circuit ◄─────── ──o D1
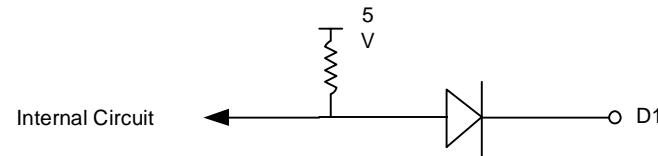
Thus, there is a danger of damage, when the sensor input goes to a Negative level or voltage higher than 5V.

6) Network Connection

RS-232C : Connect to PC to operate DVMR

RS 485 : Connect to PTZ camera

RJ-45 (ETHERNET) : Connect to LAN, WAN or Internet
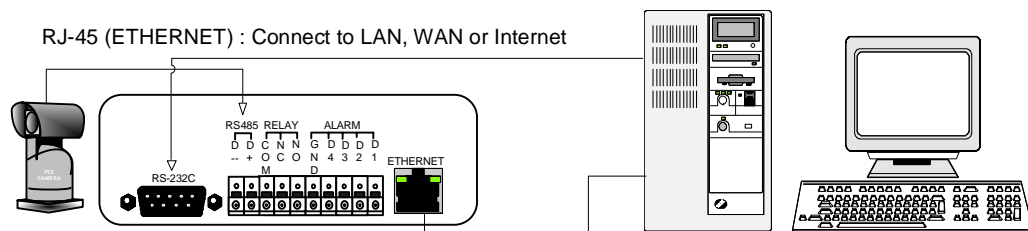
▷ For more details, refer to arrangements RS-232c pins in page 32.

---

7. Manual for Remote Viewer Software (TCP/IP)

General description : TCP/IP option of 1 channel , 4channel and 16channel DVMR enables users to view live pictures, search recorded pictures, or control PTZ camera via Internet line, far apart from the DVMR unit, and users can store selected recorded pictures on HDD of client PC. Our stand-alone DVMR does not include web server for access to DVMR unit via Internet line, and you must install Remote Viewer software included in the package on client PC before you try to access to DVMR unit over IP network.

 We provide purchasers of our stand-alone DVMRs, 1channel, 4channel and 16channel, including TCP/IP option with Remote Viewer Software free of charge, and even open source program for professional customers who want to upgrade our remote viewer program to include special functions for own use in addition to basic functions of live viewing, searching, storing selected pictures on client PC, and PTZ control.

1. TCP/IP SETUP in DVMR unit
  Before you install Remote Viewer software, be sure to input IP address and others in TCP/ IP SETUP of DVMR unit. Then, execute **SETUP.exe** on Remote Viewer software CD
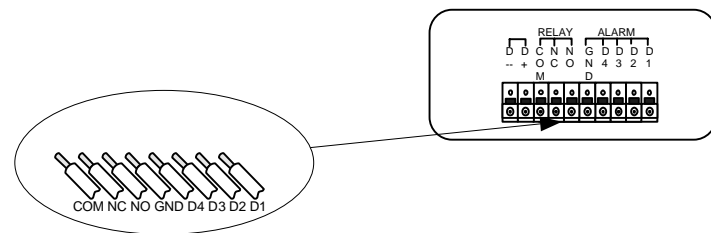 included in the package of stand-alone DVMR with TCP/IP option.

PTZ

LAN, Internet

DVMR

Install client software(Remote viewer) to DVMR unit via internet line!

Client PC
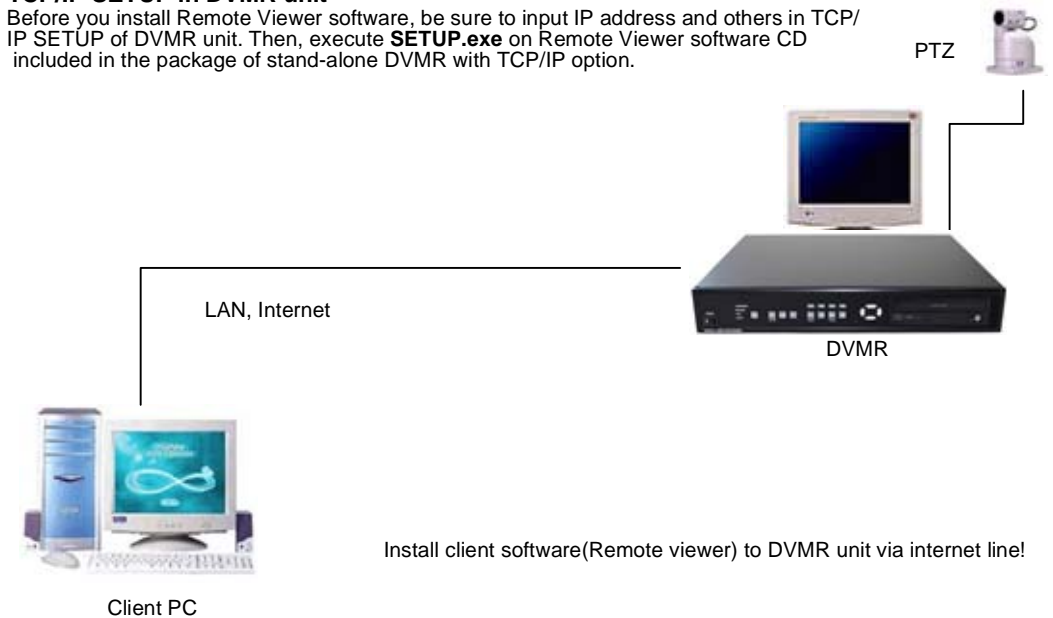
2. Conditions of IP network

To access to our DVMR unit via IP network, you have to connect DVMR unit to IP network as one of followings and assign IP address, Subnet mask, and Gateway to our DVMR unit. Our DVMR unit accepts static IP and also supports dynamic IP with restrictive conditions,
but accessing to our DVMR unit is more stale when static IP is assigned to DVMR unit than
dynamic IP. We recommend our users to connect both DVMR unit and client PC in the same LAN network under DHCP server of IP sharer (Intranet) for better performance.

7. Manual for Remote viewer software

4. Arrangement RS-232C pin

◁ **RS-232C**

Pin No.	Definition
1	NC
2	RxD
3	TxD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

RS-232C

DVMR unit			Other device (PC)	

D-SUB 9 cable (twisted RS-232C cable)

# 2	RxD		RxD	# 2
# 3	TxD		TxD	# 3
# 5	GND		GND	# 5

7) HDD connection

4. Installation

Main Board

HDD (MASTER)   CD-RW
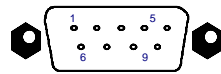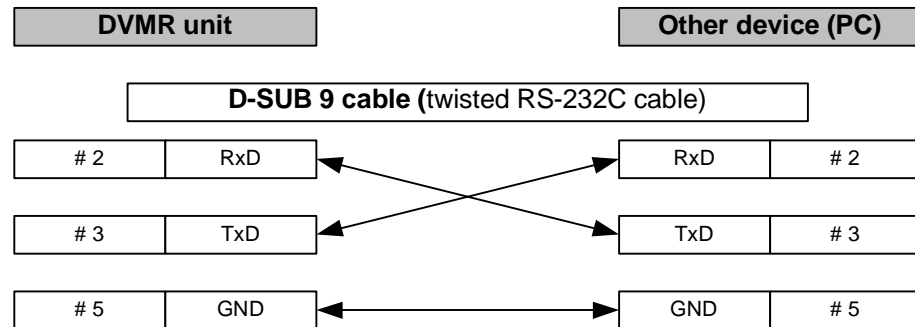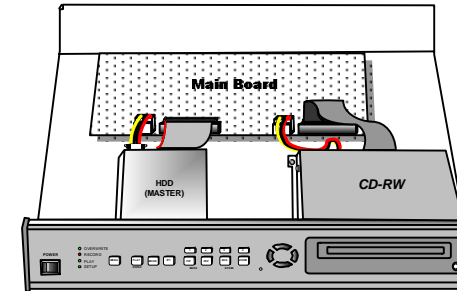
Connect main board and HDD using IDE HDD cable and power cable included in the package.The jumper setting of HDD must be on Master, as specified by HDD manufacturer. The jumper setting must be done properly as specified by HDD manufacturer. Fix HDD on the bottom of DVMR case using screws included in the package. Screws must be inserted from outside of the bottom. And jumper setting of CD-RW DRIVE must be on Slave.

Notice : Formatting before installation is not required, because DVMR system automatically detects HDD and formats. In the first operation after installation of HDD, first set at FACTORY DEFAULT in setup menu and then do HDD CLEAR in SETUP menu of DVMR system.

8) Power Connection

Connect the power to the POWER CONNECTION on the Rear Panel of the system, and turn on the switch.

DC 12V
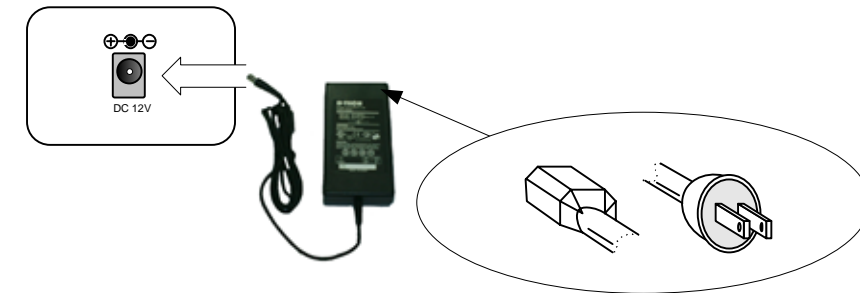
Notice : To turn off DC power switch on the front panel of DVMR case, be sure to press [MENU] button first. If you press [MENU] button, DVMR system stops recording, and you can cut power to DVMR unit while HDD head is not in writing mode. It is necessary to press [MENU] button first and turn DC power switch off to protect HDD head from being damaged and eliminate possibility of mal-function of DVMR unit.

9) Turn on the POWER and Log-in to the system

Follow direction in the Log-in part of this manual to input the PASSWORD and start the system. Factory default password for account manager is "1", for user "2"

10) Detail setup in SYSTEM SETUP

For detail setup, refer to the instruction of SYSTEM SETUP.

5. Operation

1. Log-in

LOGIN DVR SYSTEM

PASSWORD   (   )

1,2,3,4 :   INPUT PASSWORD
MARK   :   ERASE PASSWORD
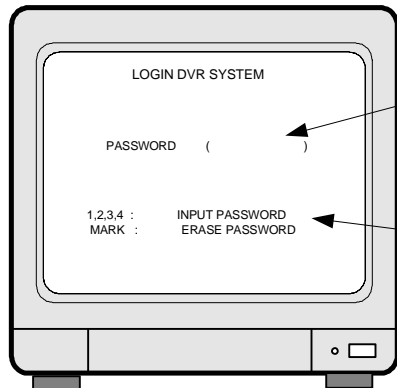
Display of Login DVR SYSTEM

1 Enter the password default P/W : 1

2 Input or modify

1) Press [MENU] button to enter the

system menu after starting the system.

2) LOGIN DVR SYSTEM window appears as

shown on the left.

3) Use (1)(2)(3)(4) button to enter

password that has 1 to 8 numbers.

4) Use [PIP / MARK] button to change.

5) After entering the password, press [MENU] button to go back to the system menu.

▷ If password entered matches previously set number, "ADMIN GRADE LOGIN OK" message appears.

If password entered does not match previously set number "CURENT PW INPUT ERROR" message

appears.

▷ Factory default password set by manufaturer is as below.

The system is equipped with two passwords.

ADMIN (Administrator) : "1"   USER (User) : "2"

NOTICE : We recommend you to enter your own password as per procedure in 5-4)-(8) - **2** (page.25)
            to change the password.

NOTICE : Be sure to memorize the changed password.

NOTICE : When logged into USER MODE, only DISPLAY SETUP and TIME/DATE TYPE SETUP is possible.

6. Specification and Configuration

2. Configuration
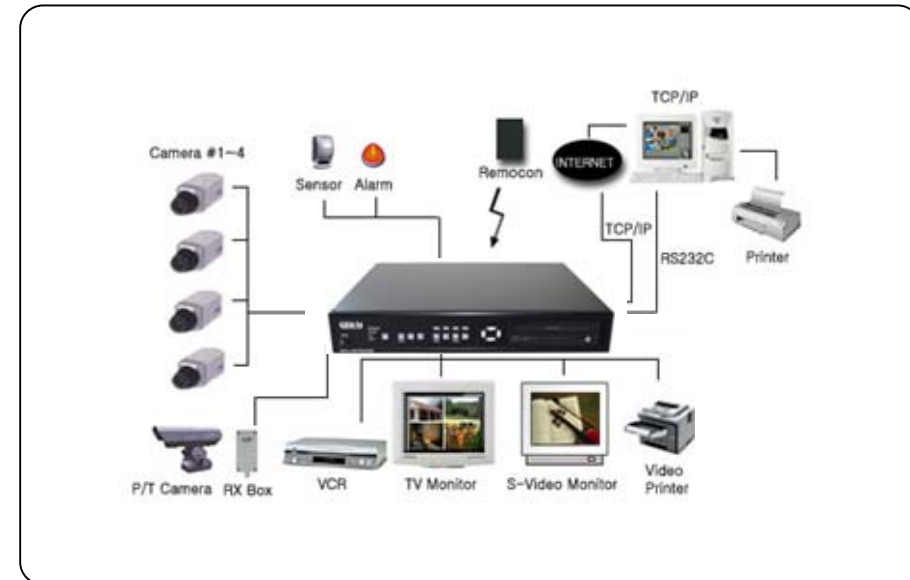
3. RS-232C Hex-codes table

Following ASCII-codes are for programmers who want to control the DVMR via RS-232C port.
RS-232C specification (baud rate/parity/data length/stop bit) : 19200, N, 8, 1

1 Byte ASCII-code.

MENU	'M'	PIP/ MARK	'I'	CH1	'1'	UP	'U'
PLAY	'P'	FRZ	'F'	CH2	'2'	DN	'J'
MODE	'D'	SEQ/ SPEED	'Q'	CH3	'3'	LEFT	'H'
PANTILT	'T'	ZOOM	'Z'	CH4	'4'	RIGHT	'K'
DEFAULT KEY '0' (Default setup: Displays and records on Quad mode)							

6. Specification and configuration

1. SPECIFICATIONS

MODEL NO		Stand alone DVMR
VIDEO I/F	INPUT	4 CH INPUT 1.0 VP-P, 75 OHM UNBALANCED (BNC TYPE)
	OUTPUT	3 OUTPUT VBS : 1.0VP~P.75 OHM UNBALANCED (BNC TYPE)
	HORIZONTAL RESOLUTION	480TV LINES
	S/N RATIO	MORE THAN 4dB
	COLOR	16.7 MILLION
MONITORING METHOD	SPLIT SCREEN	FULL, QUAD DISPLAY
	ZOOM	LIVE & PB AVAILABLE
	PIP	AVAILABLE
	SEQUENCE	AVAILABLE
	SCREEN QUALITY	FULL : 720(H)X480(V) ACTIVE PIXELS 1/4 SCREEN : 360(H)X240(V) ACTIVE PIXELS
RECORDING /PLAY FUNCTION	SPEED	0.1~30 FRAME/SEC (EACH CHANNEL)
	MATERIAL	HDD
	COMPRESSED PICTURE	JPEG
	PICTURE RECORDING METHOD	FIELD SWITCHER METHOD FULL SCREEN RECORDING
	REC, MODE	REAL-TIME/ TIME-LAPSE / EVENT
	TRACK PLAY	SEARCH, STILL
OTHER FUNCTION	WEB INTERFACE	TCP/IP with client software
	POST ALARM FUNCTION	1~59SEC, CONTINUOUS TIMING ESTABLISHMENT POSSIBILITY
	BACK-UP	CONVENTIONAL VCR, TIME LAPS VCR (VCR OUTPUT PROVIDED) REMOTE BACK-UP USING TCP/IP INTERNAL BACK-UP(MARK IMAGE)
	OTHERS	RS232C, RS485, MAX 4 ALARM INPUT
	CAMERA CONTROL	PAN/TILT/ZOOM AND FOCUS REMOTE CONTROL : EXTERNAL EQUIPMENT, WIPER,PUMP,FAN AND HEATER
	HDD	INTERNAL 1 HDD, 7200RPM
	CD-RW BACK UP	DRIVE : CD-RW MEDIA : CD-R
MECHANICAL	OPERATION TEMPERATURE	41F~ 104F (5C~ +40C)
	OPERATION HUMIDITY	LESS THAN 90%
	IR REMOTE CONTROLLER	BUILT-IN
	DIMENSION	19" RACK SIZE 1.5U , 66X434X360 mm
	WEIGHT	APPROX. 6.5KG (WITHOUT HDD)
	POWER SUPPLY	DC ADAPTER (12V DC 5A)

---

5. Operation

2. RECORD

1. PLAY

Changes to Playback Mode from Recording.

Refer to Playback part(PAGE.13)of this manual.

Indicates recording speed
60FPS : 60 Fields/sec
MOTION : records when motion is detected

Indicates recording mode
REC : represents recording in Field Switch Mode
Nothing displayed in Quad Mode

Indicates recording conditions
ALARM : records when alarm condition is detected

2. MODE

When [MODE] button is pressed, the full screen of each channel and quarterly split screen is played by turns.

With [1] [2] [3] [4] button, select full screen of each camera.

Indicates camera channel

Display of Recording Mode

3. P/T
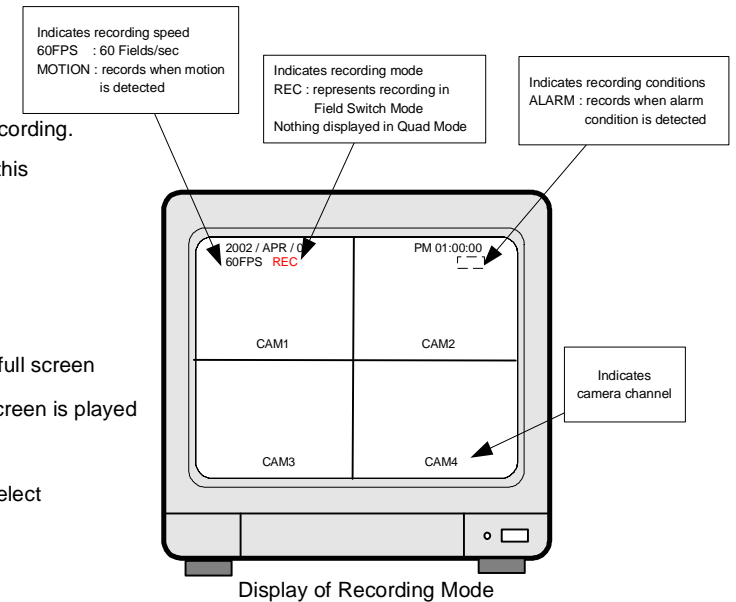
1. Press [P/T] button.

2.Use [UP]/[DOWN] button to choose the ADDRESS of the P/T camera.

3. Use [LEFT]/[RIGHT] button to select the command for P/T camera you want to transmit.

4. With [PLAY ENTER] button, select ON/OFF. In most of cases, while you press [PLAY] button, it is ON, and OFF while not pressed. ENTER

5. Press [P/T] button to come back to recording screen

1. Indicates address of camera 001~255

3. Set ON/OFF for selected command

2. Select Command

FOCUS FAR
FOCUS NEAR
FOCUS AUTO
PAN RIGHT
PAN LEFT
TILT UP
TILT DOWN
ZOOM IN
ZOOM OUT
AUTO PAN
LIGHT CMD
WIPER CMD
PUMP CMD
POWER CMD
FUNTION 1
FUNTION 2
FUNTION3

Display of PAN/TILT Control (Ex: DRX-502A model)
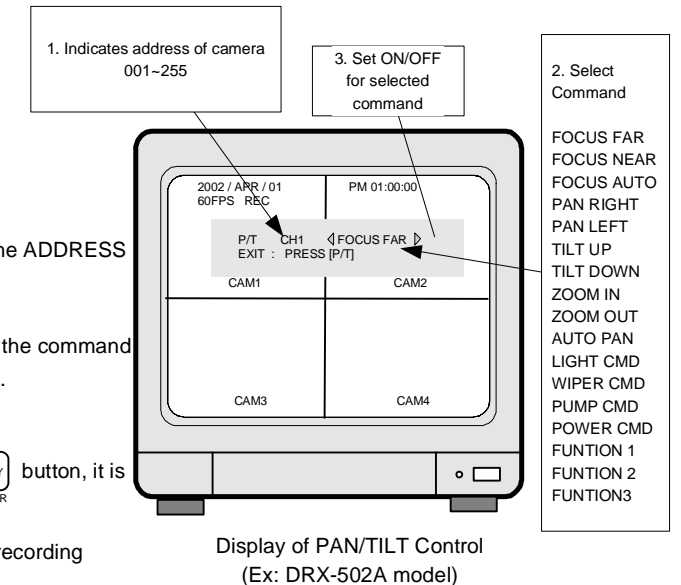
5. Operation

4. PICTURE IN PICTURE (PIP)

1. Use ①②③④ button to select a camera
   and set a full screen.

   NOTICE : PIP is not available in quarterly split screen.

2. Press [PIP MARK] button.

3. With [UP]/[DOWN] or ①②③④ button, select the
   camera channel in full screen, and with [LEFT]/[RIGHT]
   button select the channel of smaller screen.

4. Press [SEQ SPEED] button to make the image in smaller
   screen rotate.

▷ To change the location of smaller screen, press [FRZ] button and use direction button to move to desired
   location.

Indicates if "SEQ" button selection.

Indicates "FRZ" key selection.

2002/APR/1   PM 05:02:06
60FPS REC   PIP
PIP WINDOWS MOVE : OFF
MOVE ON/OFF : PRESS PRZ

CAM1

Display of PICTURE IN PICTURE

5. FRZ

1. Live full screen pauses when [FRZ] button is pressed.

2. To pause quarterly split screen,

   press [FRZ] button, and with ①②③④ button

   select channel. On the right of the camera name, "FRZ"

   message appears and the LIVE screen of that channel

   will pause. When pressed once more, it will come back to

   LIVE screen.

NOTICE : When [FRZ] selected,

   ①②③④ button or [MODE] button do not work.

   To move to full screen of each camera, press [FRZ] button once more to end Freeze mode.

Indicates if "FRZ" button selection.

When #1 camera is paused in QUAD screen

2002 / APR / 01   PM 01:00:00
60FPS REC   FRZ

CAM1 FRZ   CAM2

CAM3   CAM4

Pause Screen

---

5. Operation

6 MARK IMAGE SETUP (Internal backup)

Indicates the start and end location of stored images.

MARK IMAGE SETUP

TOTAL SAVE FRAME   0
START MARK TIME
--/--/--   --:--/--
EMD MARK TIME
--/--/--   --:--/--
DELETE MARK IMAGE
PLAY MARK IMAGE

SELECT ↑↓←→ , PRESS ENTER
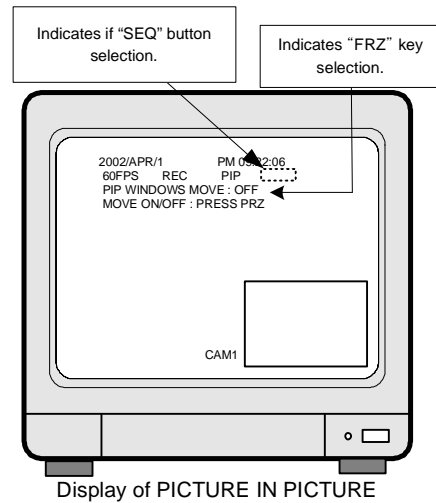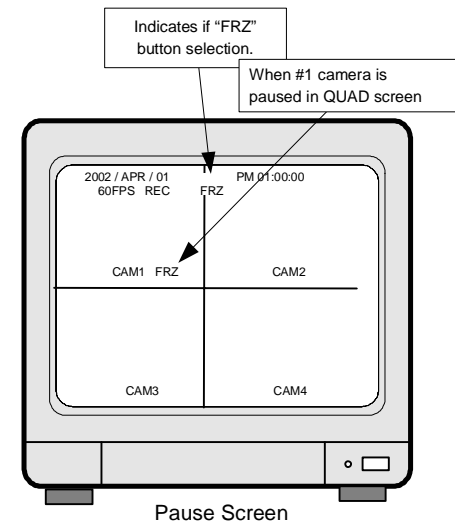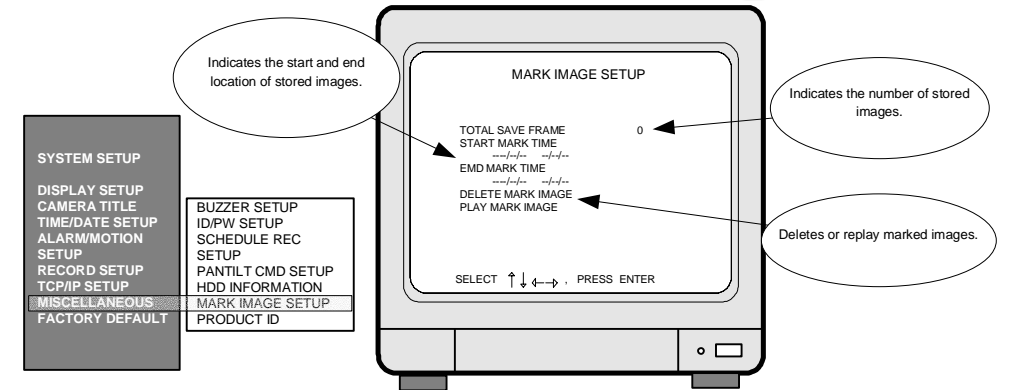
Indicates the number of stored images.

Deletes or replay marked images.

SYSTEM SETUP

DISPLAY SETUP
CAMERA TITLE   BUZZER SETUP
TIME/DATE SETUP   ID/PW SETUP
ALARM/MOTION   SCHEDULE REC
SETUP   SETUP
RECORD SETUP   PANTILT CMD SETUP
TCP/IP SETUP   HDD INFORMATION
MISCELLANEOUS   MARK IMAGE SETUP
FACTORY DEFAULT   PRODUCT ID

MARK IMAGE is very useful function, because it protects marked images from being overwritten.
During playback, you can mark images to store them on HDD separately from normal pictures. Those
marked pictures are not deleted even though you clear data on HDD or even after HDD starts to overwrite.

1) While replaying, press [PIP MARK] button to select images.

   Then "PAUSE", "SPEED" and "MARK" are displayed on top of the screen.

2) At paused mode, press [LEFT]/[RIGHT] button to select frames you want to mark as many as wanted.

3) Press [PIP MARK] button once more to complete MARK IMAGE SETUP for images you selected.

4) Therefore all images in between [PIP MARK] button remain not deleted unless you delete marked image on purpose.

5) When you want to mark large amount of images, cancel PAUSE by pressing [FRZ] button.

   That is, press [FRZ] button, and search images replayed in actual speed.

   Then press [PIP MARK] again to complete MARK IMAGE SETUP.

6) If the MARK IMAGE space given in the HDD gets to be full, "FULL" message appears and

   [PIP MARK] button does not work any more.

   (HDD space for MARK IMAGE : stores about 10 minutes in normal picture taking-condition.)

7) To replay marked image, select PLAY MARK IMAGE, and to delete select DELETE MARK IMAGE.

NOTICE : Marked images stored on specific part of HDD, allocated for MARK IMAGE, is not deleted

   when "HDD CLEAR" is activated. It can be erased only by DELETE MARK IMAGE.

7 PRODUCT ID

   Serial number of products. Necessary for manufacturer to know manufacturing date, program version
   number, and others.

5. Operation

| 1 | **01:00-03:00 ON**
04:00-05:00 ON |

Just record from 1 to 3 and from 4 to 5, and does not record for the rest hours.

| 2 | **01:00-03:00 OFF**
04:00-05:00 OFF |

Not record from 1 to 3 and from 4 to 5, and records for the rest hours.

| 3 | **01:00-03:00 ON**
04:00-05:00 OFF |

Just record from 1 to 3 (When both ON and OFF are set, priority is on ON.)

3. NOTE for scheduled recording :
When scheduled recording is set, DVMR unit does not record before the set time. It only starts recording at START time and ends at END time.

❹ PANTILT COMMAND SETUP : When PTZ camera whose protocol is already incorporated into this DVMR system (Default PTZ camera) is connected to this DVMR, just select model of PTZ camera in PANTILT COMMAND SETUP. If user want to connect PTZ camera which is not one of Default PTZ camera, users must input protocols of PTZ camera or speed dome camera by themselves in USER DEFINE SETUP. For detail procedure, refer to manual for incorporating protocol of PTZ camera into DVMR system.
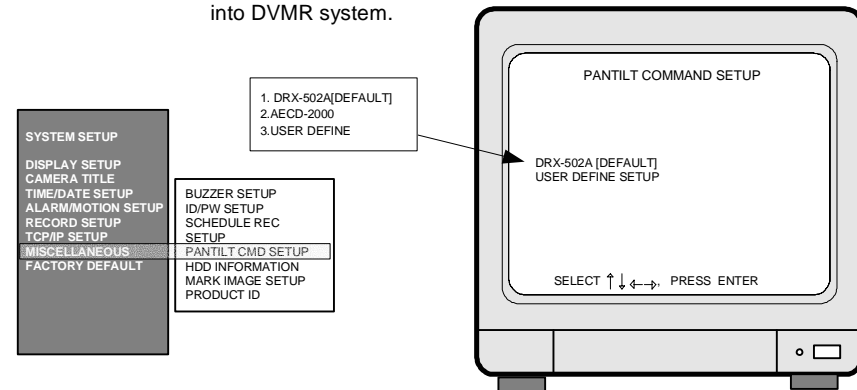
Procedure to control PTZ camera while you see live picture   Display of PANTILT COMMAND
1. Default PTZ camera : First select PTZ camera model connected to DVMR unit in the PANTILT COMMAND SETUP menu. In live view mode, press [P/T] button and set CAM (Starts from 000) at camera ID which is set on PTZ camera (DIP switch on PTZ camera) before you connect it to DVMR unit. Then select command you want to execute using [LEFT] and [RIGHT] buttons. While you press [PLAY] button, command you selected is executed.
2. USER DEFINE : In case you input protocols of PTZ camera which is not one of Default cameras, select USER DEFINE in PANTILT COMMAND SETUP. Then press [P/T] button and set CAM (Ranges from 001 to 004) at any one from 001 to 004. CAM number must be the same as CH number which you set when you input protocol of PTZ camera in USER DEFINE. Using [LEFT] and [RIGHT] button, select command you want to execute and press [PLAY] button to execute selected command. While you press [PLAY] button, command you selected is executed.

❺ HDD INFORMATION

| 1 | HDD DATA LIST : Shows general information of HDD. |

| 2 | HDD AUTO DETECT : Allows to detect HDD just in case first HDD search failed. |

| 3 | CD-R Backup : You can backup the recorded data into CD-R media. Please refer to the attached GuideLine for this functioon. |

---

5. Operation

6. SEQ

1.In LIVE full screen, press [SEQ/SPEED] button to make picture from each channel rotate.

2. It does not operate in quarterly split screen.

3. During automatic rotation, press [SEQ/SPEED] button to stop automatic rotation.

4.During automatic rotation, press [MODE] button to stop automatic rotation and move to quarterly split screen.

▷ To change the time interval of the automatic rotation, change the value of SEQUENCE INTERVAL as per procedure

in 5-4)- ② - ❼ (PAGE.16). It is possible to select between 1 second to 99 seconds.
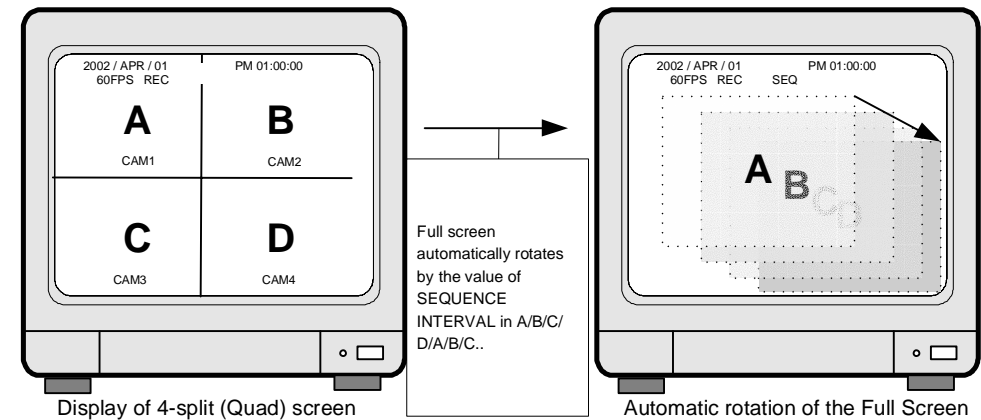
Display of 4-split (Quad) screen   Automatic rotation of the Full Screen

Full screen automatically rotates by the value of SEQUENCE INTERVAL in A/B/C/ D/A/B/C..

7. Sensor Recording

1) When there is sensor input, the recording starts.

2) It records for preset period of time
For detail setup, refer to RECORD SETUP : REC MODE SETUP in 5-4)- ⑥ - ❸ (PAGE.23) for TIME+ALARM and MOTION+ALARM and ALARM SETUP: ALARM DURATION in 5-4)- ⑤ - ❶ (PAGE.20) for Time setup.

8. Scheduled Recording
Records by date and by day of the week.
Refer to MISCELLANEOUS SETUP ; SCHEDULE REC SETUP in 5-4)- ⑧ - ❸ (PAGE.26) for detail setup.

9. Recording by MOTION DETECTION
Refer to ALARM/MOTION SETUP in 5-4)- ⑤ (PAGE.20~22).

10. NOTICE
1) Recording is stopped during SYSTEM SETUP.
2) Recording is stopped during playback, or search in playback mode.
3) Recording is not possible if no camera is connected.

3. Play

1. Playback setup

1) Press [PLAY/ENTER] button to begin playback.
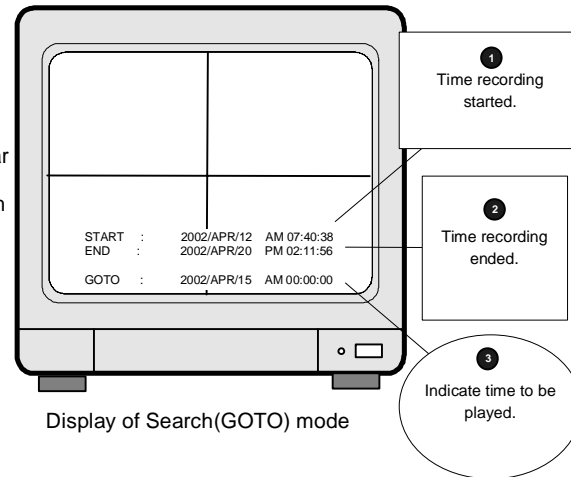
2) Display screen as shown on the right will appear

3) Press [PLAY/ENTER] button again to start playback from

   START picture.

   (To start from a specific time, first set the
   GO TO time before press [PLAY/ENTER] button.)

4) To come back to recording mode.

   press [PLAY] button.

2. GOTO time setting

1) At ❸, use [LEFT]/[RIGHT] button to choose the date or time of GO TO.

2) Use [UP]/[DOWN] button, set desired time.

3) Press [PLAY/ENTER] button to replay from the GO TO time.

   NOTICE : During playback or setting GO TO time, recording is stopped

   NOTICE : When value that is out of the range of start and end is entered, it starts from START time
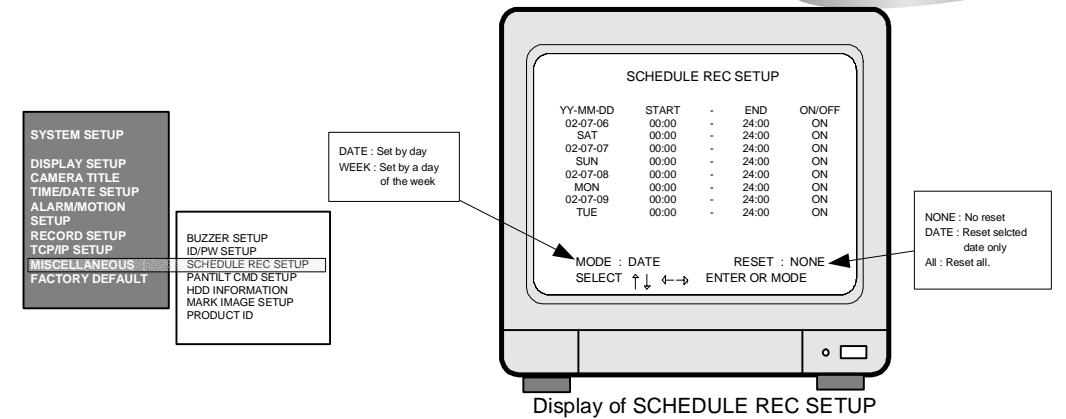
   NOTICE : When value is in the range of START and END, but there is no recorded pictures at the set time,

   it moves to the closest time of the recorded pictures.

3. Pausing and single frame advanced

1) During playback, press [FRZ] button to pause. (Will replay when pressed once more)

2) After pressing [FRZ] , press [SEQ/SPEED] button and use [LEFT]/[RIGHT] button to advance single frame to the right
   or left.

❶ Time recording started.

❷ Time recording ended.

START : 2002/APR/12 AM 07:40:38
END : 2002/APR/20 PM 02:11:56

GOTO : 2002/APR/15 AM 00:00:00

❸ Indicate time to be played.

Display of Search(GOTO) mode

---

❸ SCHEDULE REC SETUP :

SYSTEM SETUP
DISPLAY SETUP
CAMERA TITLE
TIME/DATE SETUP
ALARM/MOTION SETUP
RECORD SETUP
TCP/IP SETUP
MISCELLANEOUS
FACTORY DEFAULT

BUZZER SETUP
ID/PW SETUP
SCHEDULE REC SETUP
PANTILT CMD SETUP
HDD INFORMATION
MARK IMAGE SETUP
PRODUCT ID

DATE : Set by day
WEEK : Set by a day of the week

SCHEDULE REC SETUP

YY-MM-DD	START	-	END	ON/OFF
02-07-06	00:00	-	24:00	ON
SAT	00:00	-	24:00	ON
02-07-07	00:00	-	24:00	ON
SUN	00:00	-	24:00	ON
02-07-08	00:00	-	24:00	ON
MON	00:00	-	24:00	ON
02-07-09	00:00	-	24:00	ON
TUE	00:00	-	24:00	ON

MODE : DATE   RESET : NONE
SELECT ↑↓ ←→   ENTER OR MODE

NONE : No reset
DATE : Reset selcted date only
All : Reset all.

Display of SCHEDULE REC SETUP

Records according to schedule by day or a day of the week. Two recording time spans can be set for a day and a day of the week respectively. In total, 4 recording time spans can be set in a day. DVMR system records just as you set if you set SCHEDULE REC SETUP, and DVMR system records 24 hours a day if you do not set SCHEDULE REC SETUP.

1. Scheduled Recording for a day:

   1) Press ENTER button to enter into SCHEDULE REC SETUP menu. In the sub-menu, you are requested to select MODE or RESET. To first set up, select DATE or WEEK by pressing [PLAY/ENTER] button.

   2) Press [MODE] button to be ready for editing. Then move to the location for change using direction button.

   3) Set recording time for START and END with [PLAY/ENTER] button. Recording time increases by 30 minutes

      whenever [PLAY/ENTER] button is pressed.

   4) After set START and END time for a day and set ON/OFF using [PLAY/ENTER] button.

   5) After set all data, press [MODE] button once more to memorize settings you set in the system.

   6) RESET is used to delete previously set recording schedule.

      Select DATE, and move to the date by pressing [MODE] button, and press [PLAY/ENTER] to delete.

      ALL deletes all recording schedule.

      (NONE : Does not reset   DATE : deletes only selected date   ALL : deletes all)

   7) When all input is ended, press [MENU] button to come back to SCHEDULE REC SETUP.

      NOTICE : To move the cursor in SCHEDULE RECORD SETUP menu , RESET should be set at NONE.

2. Scheduled recording by a day of the week :

   Recording is activated on a day of the week at the time set in advance. To set schedule for a day of the week, first select WEEK in MODE of SCHEDULE REC SETUP by pressing [PLAY/ENTER] button.

   Set recording time for each day of the week as the procedure for Scheduled Recording for a day.

8. MISCELLANEOUS SETUP

MISCELLANEOUS SETUP

BUZZER SETUP ❶
ID/PW SETUP ❷
SCHEDULE REC SETUP ❸
PANTILT CMD SETUP ❹
HDD INFORMATION ❺
MARK IMAGE SETUP ❻
PRODUCT ID ❼
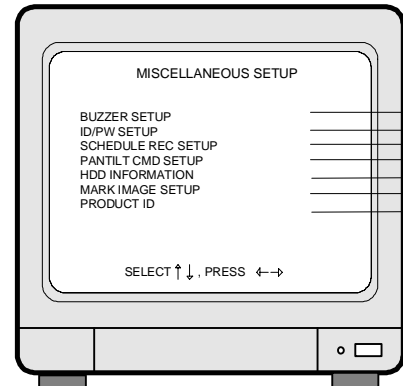
SELECT ↑↓ , PRESS ←→

Display of MISCELLANEOUS SETUP

BUZZER SETUP is available for each group as follows.
 SYSTEM BUZZER
 BUTTON BUZZER
 ALARM BUZZER
 MOTION BUZZER
 LOSS BUZZER

You can set each group of BUZZER independently and BUZZER is activated just in case you set at ON in corresponding group of BUZZER SETUP.

❶ BUZZER SETUP : Sets different kinds of BUZZER ON/OFF.

❷ ID/PW SETUP : Sets User ID and PASSWORD.

SYSTEM SETUP
DISPLAY SETUP
CAMERA TITLE
TIME/DATE SETUP
ALARM/MOTION SETUP
RECORD SETUP
TCP/IP SETUP
MISCELLANEOUS
FACTORY DEFAULT

BUZZER SETUP
ID/PW SETUP
SCHEDULE REC SETUP
PANTILT CMD SETUP
HDD INFORMATION
MARK IMAGE SETUP
PRODUCT ID

ID/PW SETUP

ID   < USER >
CURRENT   PW   <   >
NEW   PW   <   >
CONFIRM   PW   <   >

1,2,3,4 : INPUT PASSWORD
MARK   : ERASE PASSWORD

SELECT ↑↓ ←→, PRESS ENTER

Display of ID/PW SETUP

1) With [UP]/[DOWN] button, select item to be changed, and press [PLAY] ENTER button to edit.

2) With [LEFT]/[RIGHT] button, move to wanted location and use [UP]/[DOWN] button to make Selection.

3) Press [PLAY] ENTER button after every SETUP and to be ready for next SETUP item.

4) After entering current password, enter new password and enter new password once more to verify.

Notice : In the very first setup stage, the ADMIN PASSWORD is "1", and USER PASSWORD is "2".

Change PASSWORD as soon as this product is purchased.

---

4. Playback Speed Setup

1) During playback , press [SEQ] SPEED button.

2) Display screen will appear as on the right.

3) Use [LEFT]/[RIGHT] button to move forward (FF) or backward (REW).

4) Use [UP]/[DOWN] button to select the speed rate.

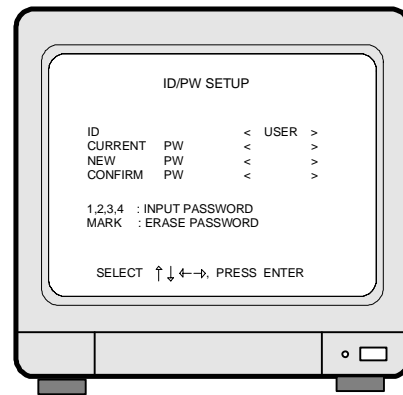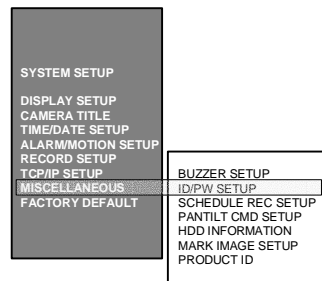 (High speed up to x60 and slow speed up to 1field/60sec is possible.)

▷ We recommend you to install 7200rpm EIDE hard disk drive.

 5400rpm EIDE hard disk drive is not good enough to retrieve

 recorded data in high speed and slow speed playback mode.

▷ During playback at 60x speed, blue screen comes into view instantaneously once in a while and you could not see some pictures at that moment even though all they were recorded correctly, due to limitation in speed of reading data on a hard drive, and it is not a critical error in operation of DVMR unit. To see pictures you could not see, just go back for some seconds and replay at a little lower speed than before.

Playback speed

Chosen	Chosen
1X PLAY SPEED	1X PLAY SPEED
2X PLAY SPEED	1/2 PLAYSPEED
4X PLAY SPEED	1/4 PLAYSPEED
8X PLAY SPEED	1/8 PLAYSPEED
16X PLAY SPEED	1/16 PLAYSPEED
32X PLAY SPEED	1/32 PLAYSPEED
60X PLAY SPEED	1/60 PLAYSPEED

2002/APR/12   AM 07:40:38
1X PLAY   SPEED

CAM1   CAM2

CAM3   CAM4
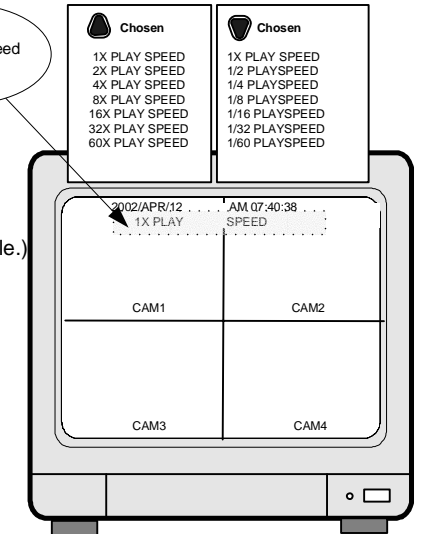
Display of PLAYBACK SPEED SETUP

5. Display Enlargement.

1) Choose camera by pressing ①②③④ button.

2) Press [ZOOM] button, during Playback or PAUSE mode.

3) The display will enlarge by 200%

4) Use direction button to move the area enlarged.

5) Press [ZOOM] to go back to Playback or FRZ mode.

 NOTICE : Execute in FULL SCREEN of each channel.

 When [SEQ] SPEED button is pressed, ZOOM does not work.

[ZOOM] Press(X2 Enlargement)
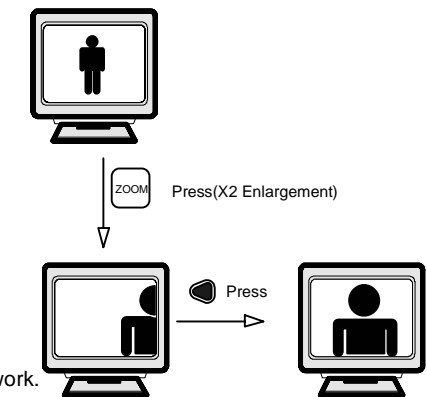
Press

6. MARK IMAGE (Internal backup) SETUP

During Playback, press [PIP] MARK button and choose pictures using [LEFT]/[RIGHT] button to protect selected

pictures from being overwritten when hard disk is full

Refer to MISCELLANEOUS SETUP : MARK IMAGE SETUP in 5-4)- ⑧ - ❻ (PAGE.28) for details.

5. Operation

4. System Setup

1. Basic Operation

SYSTEM SETUP

DISPLAY SETUP
CAMERA TITLE
TIME/DATE SETUP
ALARM/MOTION SETUP
RECORD SETUP
TCP/IP SETUP
MISCELLANEOUS
FACTORY DEFAULT

SELECT UP/DOWN , ENTER

Display of SYSTEM SETUP

1) Press [MENU] button.

2) Log into the system by entering the password with ①②③④ button and press [MENU] button to enter SETUP MENU.

2) Use [UP]/[DOWN] button to select setup item.

3) Press [PLAY/ENTER] button to enter sub-menu of selected SETUP.

4) Press sub-menu item with [UP]/[DOWN] button, and change the value with [LEFT]/[RIGHT] button.

5) Press [PLAY/ENTER] button to forward [MENU] button to go backward.
[PLAY/ENTER] button enables to enter and [MENU] button to go back.

6) To go back to the very first SETUP condition recommended by manufacturer, set at FACTORY DEFAULT. You can set at FACTORY DEFAULT all in one (as a whole) or group by group. When cursor is at ALL SETUP, you can set at ON or OFF by pressing [ENTER] button. If you set ALL SETUP at ON, all groups of settings are SET as per FACTORY DEFAULT recommended by manufacturer. If you set ALL SETUP at OFF, then you are requested to set each group of settings separately one by one, ON or OFF, and groups of settings set at ON shall be reset whenever you set at FACTORY DEFAULT. To reset, you have to select ALL SET or each group of settings (ON or OFF), and then move to RESET NOW and press [ENTER].

▷ Items remain unchanged when FACTORY DEFAULT is selected.

1. value of TIME/DATE SETUP   2. Date stored on HDD

3. Marked image (Internal backup)   4. ADMIN password

5. ALARM LIST SETUP

▷ We recommend users to set at FACTORY DEFAULT in the first operation, and when you replaced EEPROM for updating DVMR program or replaced HDD.

15

5. Operation

7. TCP/IP SETUP

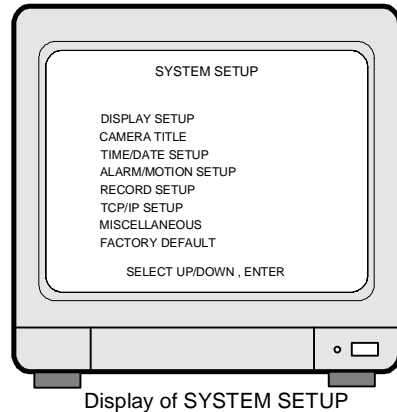TCP/IP option of this DVMR system enables user to see live pictures and recorded pictures via internet line, far apart from DVMR unit. To see live pictures or recorded pictures of DVMR, users must input IP address, Gateway, and Subnet mask in TCP/IP SETUP in DVMR first, and then input IP, PORT number and PASSWOR(ADMIN password in DVMR unit) in Remote Viewer Program installed on client PC. For detail procedure for installing Remote Viewer Program and setting up, refer to manual for Remote Viewer program included in the package.

❶ IP ADDRESS : Enter numbers using direction buttons and press [MENU] button.

❷ GATEWAY : Enter numbers using direction buttons and press [MENU] button.

❸ SUBNET MASK : Enter numbers using direction buttons and press [MENU] button.

❹ MAC ADDRESS : It is unique ID number provided by the manufacturer, and the user should not change under any condition.

❺ DHCP SETUP : In case you connect DVMR unit to LAN network under router/Gateway/IP sharer which has DHCP server function, set DHCP SETUP at DHCP, and DVMR unit automatically gets IP data automatically during the process of booting.

SYSTEM SETUP

DISPLAY SETUP
CAMERA TITLE
TIME/DATE SETUP
ALARM/MOTION SETUP
RECORD SETUP
TCP/IP SETUP
MISCELLANEOUS
FACTORY DEFAULT

TCP/IP SETUP

IP ADDRESS
GATEWAY
SUBNET MASK
MAC ADDRESS
DHCP SETUP

SELECT ↑↓ , PRESS ENTER

TCP/IP SETUP

In case you connect DVMR unit to leased line with static IP or Router/Gateway connected (A)DSL line (with static IP or dynamic IP), you are requested to set DHCP at MANUAL and input IP data manually. For details, refer to Remote Viewer manual.
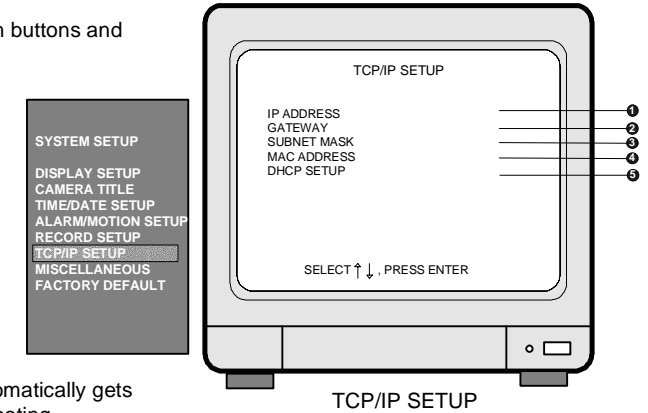
1) Concept of accessing to DVMR unit via IP network

PC
Client program
(remote viewer)

LAN, WAN, or Internet

DVMR unit
TCP/IP setup

PTZ Camera
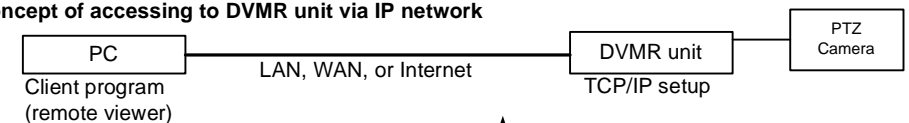
2) DHCP SETUP according to condition of IP network

a) Accessing to DVMR unit in the same Intranet(LAN)

DHCP server
Router/Gateway
IP Sharer

LAN

PC

DHCP SETUP
DVMR unit
Automatic

b) Accessing to DVMR unit via Internet line

PC
Client program
(remote viewer)

Internet

Leased line
Cable TV

Leased line w/ static IP
Cable modem w/ dynamic IP

DHCP SETUP
DVMR unit
Leased line : Manual
Cable modem : Automatic

PC
Client program
(remote viewer)

Internet

(A)DSL

(A)DSL modem w/ dynamic IP or static IP
PPPoE protocol

Router or Gateway
Port Forwarding
(IP Forwarding)

DHCP SETUP
DVMR unit
Manual
Other devices

For details of TCP/IP SETUP in DVMR unit and PC, refer to "Remote Viewer manual" included in the package.

24

6. RECORD SETUP

5. Operation

RECORD SETUP

HDD CLEAR	:	NO	❶
HDD FULL	:	OVERWRITE	❷
RECORD MODE	:	TIMER	❸
RECORD TYPE	:	FIELD	❹
RECORD SPEED	:	60FPS	❺
PRIORITY MODE	:	NONE	❻

SELECT ↑↓ , PRESS ←→

SYSTEM SETUP

DISPLAY SETUP
CAMERA TITLE
TIME/DATE SETUP
ALARM/MOTION
SETUP
RECORD SETUP
TCP/IP SETUP
MISCELLANEOUS
FACTORY DEFAULT

HDD CLEAR
HDD FULL
RECORD MODE
RECORD TYPE
RECORD SPEED
PRIORITY MODE
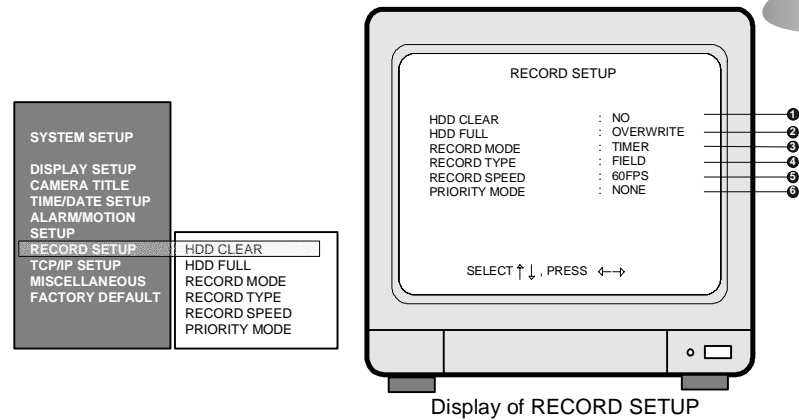
Display of RECORD SETUP

❶ HDD CLEAR : If YES is selected, it deletes content of the HDD.

Notice : All contents of the HDD is deleted and cannot be restored.
As times go by, HDDs in a DVMR unit will have bad sectors one after the other.
Pictures to be recorded in bad sectors shall be damaged, and you will see incomplete pictures
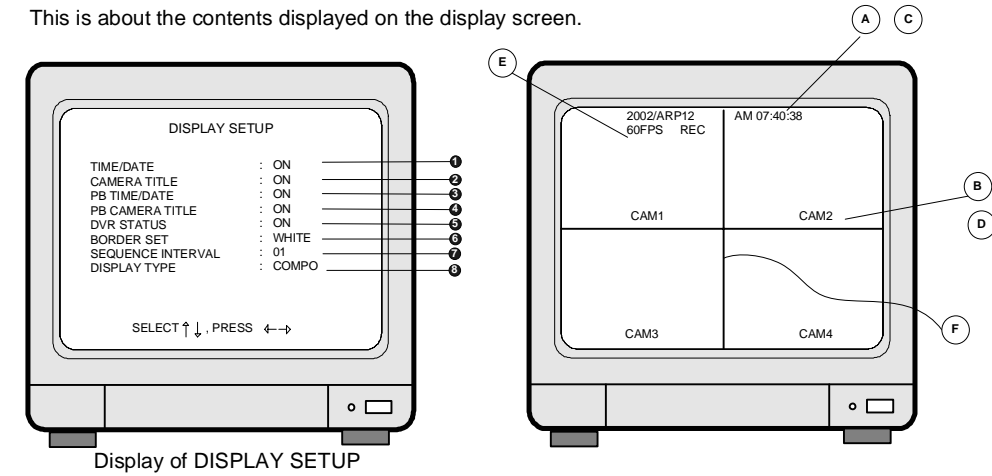whenever you replay. However, our DVMR unit operates normally even though there is some bad
sectors in hard disk drives.

❷ HDD FULL : Select OVERWRITE or STOP RECORD. If OVERWRITE is selected, it delete previous contents
on HDD to overwrite when HDD is full.

❸ RECORD MODE

[1] TIMER : Records by time.
[2] TIMER+ALARM : Records by time or when the ALARM comes in. (POST-ALARM Functionality)
[3] MOTION : Records only when MOTION is detected.
[4] MOTION+ALARM : Records by MOTION or when the ALARM comes in.

❹ RECORD TYPE

FIELD : Records images from each camera in rotation. 60 fields/sec at 720X240 resolution.

❺ RECORD SPEED : Adjusts recording frame rate : 0.1 indicates 1 field per 10 seconds.
(60/30/15/10/5/2/1/0.5/0.2/0.1 FPS)

❻ PRIORITY MODE : Assigns recording priority of a specific channel.

[1] NONE : Each of 1,2,3,4 does not have priority.

[2] 1 : Gives priority to #1 camera, and records in the sequence of 1-2-1-3-1-4-1-2….

[3] 1,2 : Gives priority to #1 and #2 cameras, and records in the sequence of 1-2-3-1-2-4-1-2-3.

---

2. DISPLAY SETUP

5. Operation

This is about the contents displayed on the display screen.

DISPLAY SETUP

TIME/DATE	:	ON	❶
CAMERA TITLE	:	ON	❷
PB TIME/DATE	:	ON	❸
PB CAMERA TITLE	:	ON	❹
DVR STATUS	:	ON	❺
BORDER SET	:	WHITE	❻
SEQUENCE INTERVAL	:	01	❼
DISPLAY TYPE	:	COMPO	❽

SELECT ↑↓ , PRESS ←→

Ⓐ Ⓒ
Ⓔ
2002/ARP12   AM 07:40:38
60FPS   REC
Ⓑ
CAM1   CAM2   Ⓓ

CAM3   CAM4   Ⓕ

Display of DISPLAY SETUP

❶ TIME/DATE : Ⓐ Date and time is indicated on LIVE screen.

❷ CAMERA TITLE : Camera TITLE Ⓑ is indicated on LIVE screen.

❸ PB TIME/DATE : On Playback screen, Ⓒ Date and Time is indicated.

❹ PB CAMERA TITLE : Camera TITLE Ⓓ is indicated on the Replay SCREEN.

❺ DVR STATUS : Ⓔ indicates status of operation, such as REC/REPLAY.

❻ BORDER SET : Changes the color of the border Ⓕ

- WHITE/ BLACK

❼ SEQUENCE INTERVAL : Sets rotating time interval of pictures . In full screen in live mode or

playback mode, pictures are rotating in a certain time interval

when you press [SEQ] button, and SEQUENCE INTERVAL is for it.
SPEED

(Time interval from 1 second to 99 seconds)

❽ DISPLAY TYPE : Set at COMPO if you connected Composite monitor to DVMR unit, and set
at VGA if you connected VGA monitor (CRT type PC monitor) to DVMR unit, by
pressing [LEFT] and [RIGHT] buttons. VGA option of DVMR unit enables
users to connect CRT type PC monitor to DVMR unit, and it looks better in picture
quality and also we can save cost for monitor. PC monitor must support 800 x 600
resolution and multi-sink type. Our VGA option supports just part of TCT LCD monitor.

5. Operation

5. Operation

3. CAMERA SETUP

CAMERA SETUP

COLOR SETUP — ①
TITLE SETUP — ②
ACTIVE CH SETUP — ③
SCREEN POSITION SETUP — ④
COLOR BAR TEST — ⑤

SELECT ↑↓ , PRESS ←→

Display of Camera Setup

CAMERA COLOR SETUP

CH NUMBER   1
BRIGHTNESS   +2
CONTRAST   - 2
SATURATION   - 8
HUE   +0
GAIN   +0

SELECT ↑↓ , PRESS ←→
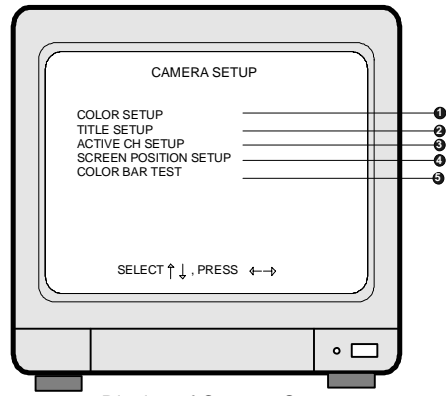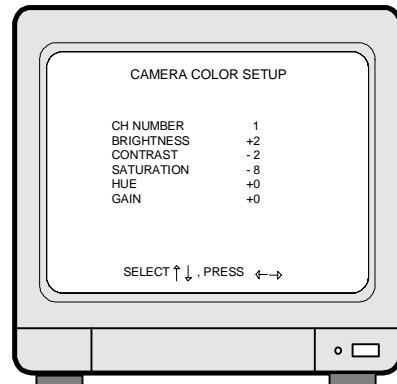
Display of CAMERA COLOR SETUP

❶   COLOR SETUP : Adjust Camera Image

CH NUMBER   : Select camera
BRIGHTNESS   : Adjust screen brightness   (-31~ +32)
CONTRAST   : Adjust color contrast   (-31~ +32)
SATURATION   : Adjust color saturation   (-20~ +32)
HUE   : Adjust color hue   (-31~ +32)
GAIN   : Adjust image signal level   (-31~ +32)

▷ Right adjustment of each element in COLOR setup will increase picture quarterly displayed.

We recommend you to adjust each element of COLOR SETUP for cameras and monitor to be connected
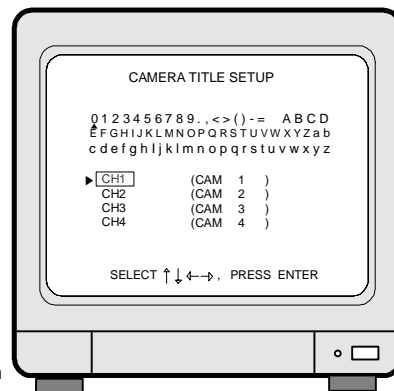
to the DVMR unit, for better appearance.

CAMERA TITLE SETUP

0 1 2 3 4 5 6 7 8 9 . , < > ( ) - =   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

▶ CH1   (CAM 1   )
  CH2   (CAM 2   )
  CH3   (CAM 3   )
  CH4   (CAM 4   )

SELECT ↑↓←→ , PRESS ENTER

Display of CAMERA TITLE SETUP

❷   TITLE SETUP : Input TITLE of each camera

1) Use [LEFT]/[RIGHT] button to select CHANNEL and press

[PLAY/ENTER] button

2) Go into CHANNEL content and use [LEFT]/[RIGHT] button
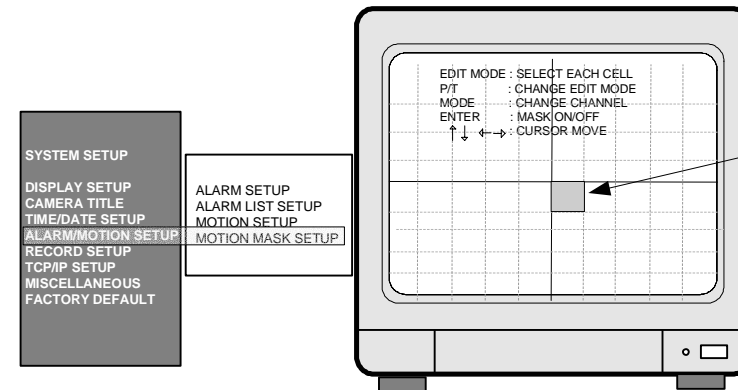   to move to item to be changed and use [UP]/[DOWN] button
   to change the letters.

When modification is finished, press [MENU] button to come back to the MAIN MENU.

❹   MOTION MASK SETUP : Set detection area.

SYSTEM SETUP

DISPLAY SETUP
CAMERA TITLE
TIME/DATE SETUP
ALARM/MOTION SETUP
RECORD SETUP
TCP/IP SETUP
MISCELLANEOUS
FACTORY DEFAULT

ALARM SETUP
ALARM LIST SETUP
MOTION SETUP
MOTION MASK SETUP

EDIT MODE : SELECT EACH CELL
P/T   : CHANGE EDIT MODE
MODE   : CHANGE CHANNEL
ENTER   : MASK ON/OFF
↑↓ ←→   : CURSOR MOVE

With the direction button,
choose MASK area.

Display of MOTION MASK SETUP

1. Press [P/T] button to choose desired EDIT mode.

2. Use [LEFT]/[RIGHT] button to assign BLOCK, and press [PLAY/ENTER] button to set.

3. MASK area in green color is detection area, and the rest is no detection area.

4. Detected area is indicated in Green, and not detected area is indicated as colorless.

5. With [MODE] button, select channel (1,2,3,4,quad) to set for each camera.

Setup is possible only on the Full screen.

▷ SELECT VER LINE   : Select all in a vertical line.

▷ CLEAR VER LINE   : Clear all in a vertical line.

▷ SELECT HOR LINE   : Select all in a horizontal line.

▷ CLEAR HOR LINE   : Clear all in a horizontal line.

▷ SELECT BLOCK   : Select by BLOCK. ─┐ When [PLAY/ENTER] button is pressed, [START] is displayed.

▷ CLEAR BLOCK   : Clear the BLOCK. ─┘ Then select blocks using direction button.

And press [PLAY/ENTER] button to set.

▷ SELECT ALL CELLS   : Select all.

▷ CLEAR ALL CELLS   : Clear all.
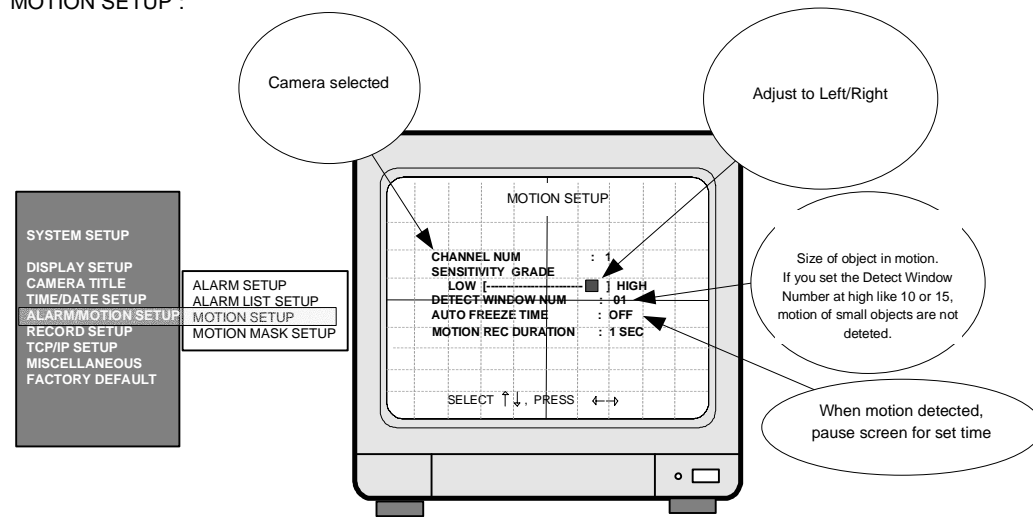
5. Operation

2) PAGE : Deletes current PAGE.

3) ALL : Deletes ALL.

▷ Move to alarm number in the list using [UP]/[DOWN] button, and press [MODE] button to mark "*".

4. GOTO : Starts playback from the marked item in the list.

▷ Move to an item in the list using [UP]/[DOWN] button, and press [MODE] button to mark.

❸ MOTION SETUP :

Camera selected

Adjust to Left/Right

SYSTEM SETUP

DISPLAY SETUP
CAMERA TITLE
TIME/DATE SETUP
ALARM/MOTION SETUP
RECORD SETUP
TCP/IP SETUP
MISCELLANEOUS
FACTORY DEFAULT

ALARM SETUP
ALARM LIST SETUP
MOTION SETUP
MOTION MASK SETUP

MOTION SETUP

CHANNEL NUM   : 1
SENSITIVITY GRADE
    LOW [————————■————] HIGH
DETECT WINDOW NUM   : 01
AUTO FREEZE TIME   : OFF
MOTION REC DURATION : 1 SEC

SELECT ↑↓, PRESS ←→

Size of object in motion.
If you set the Detect Window
Number at high like 10 or 15,
motion of small objects are not
deteted.

When motion detected,
pause screen for set time

CHANNEL NUM : Selected camera number

SENSITIVITY : Adjusts motion Detection Sensitivity. (Not Sensitive ◄——————► Sensitive)

DETECT WINDOW NUM : Detects moving objects bigger than DETECT WINDOW NUM.

Can choose from 1 to 20. If DETECT WINDOW NUM value is 5, motion detections

is activated only in case 5 cells are simultaneously detected.

AUTO FREEZE TIME : When MOTION is detected, the screen freezes for set time automatically.
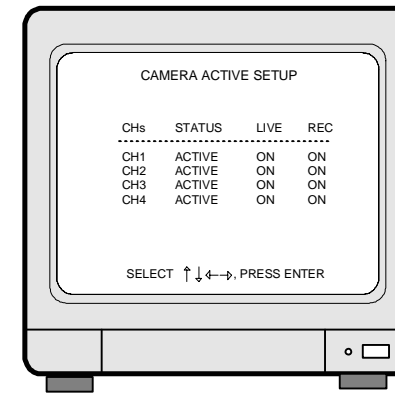
Not to use this functionality, set at OFF.
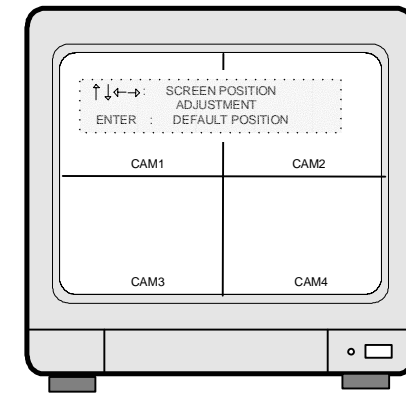
Setup Time : 1,2,3,5,10 SEC

MOTION REC DURATION : Sets duration of recording when a motion is detected.

Set value from 1 sec to 3 minutes according to frequency of motion,

and FACTORY DEFAULT value is 1 sec.

5. Operation

CAMERA ACTIVE SETUP

CHs	STATUS	LIVE	REC
CH1	ACTIVE	ON	ON
CH2	ACTIVE	ON	ON
CH3	ACTIVE	ON	ON
CH4	ACTIVE	ON	ON

SELECT ↑↓←→, PRESS ENTER

↑↓←→ :   SCREEN POSITION
              ADJUSTMENT
ENTER :   DEFAULT POSITION

CAM1   CAM2

CAM3   CAM4

Display of CAMERA ACTIVE Setup

Display of Screen Position Adjustment

❸ ACTIVE CH SETUP :

With direction button, move to item to be changed, and press [PLAY ENTER] button to select ON/OFF.

1. STATUS : In normal cable condition it is indicated as ACTIVE, and when the cable is disconnected or

has problem, it is indicated as LOSS.

2. LIVE : Decides whether to show LIVE screen image or not.

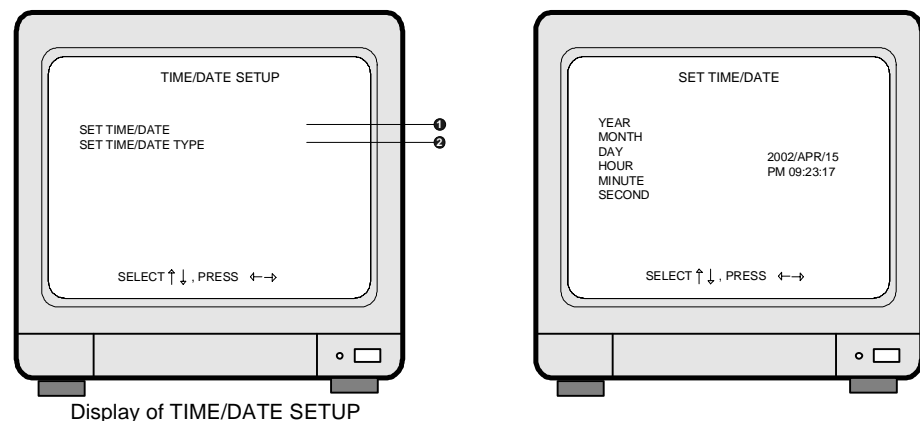3. REC : Decides whether to record relevant channel or not.

❹ SCREEN POSITION SETUP

Use direction button to move the full screen according to the user's needs.

❺ COLOR BAR TEST : COLOR BAR CHART is generated.

Used for adjusting the monitor

5. Operation

4. TIME/DATE SETUP

Display of TIME/DATE SETUP

❶ SET TIME/DATE : Can set year/month/time/minute/second.

Use [UP]/[DOWN] button to assign Year/Month/Time/Minute/Second and use [LEFT]/[RIGHT] button to change the value.

❷ SET the notation of TIME/DATE :
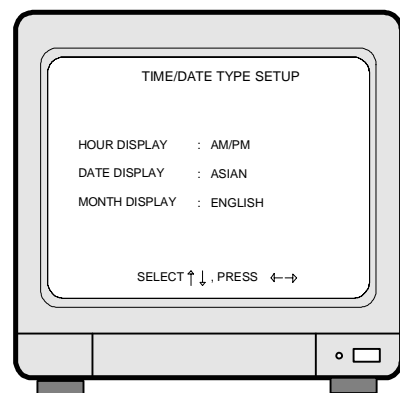
1. HOUR DISPLAY :

Changes to AM/PM or 24hour time indication

2. DATE DISPLAY :
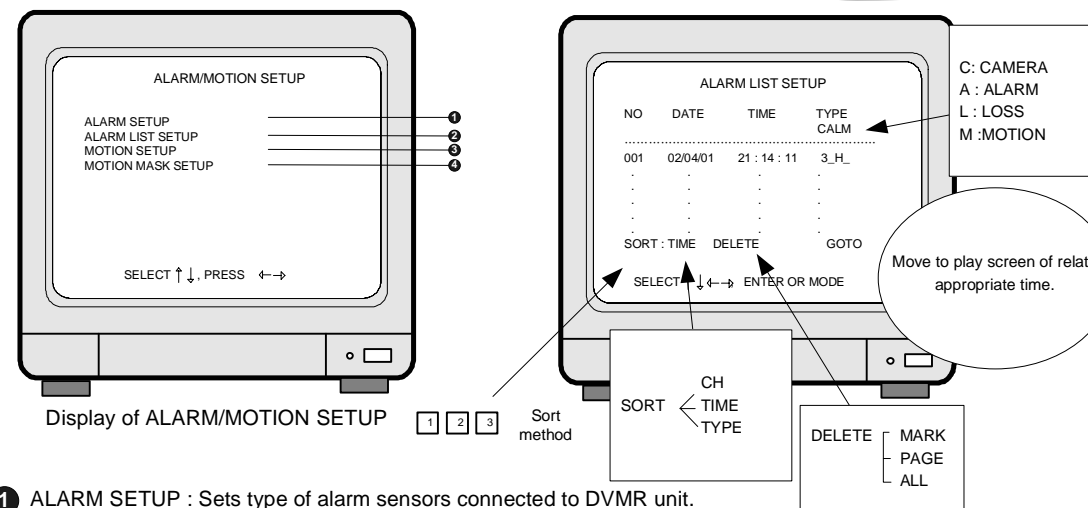
Converts into Asian type/American type/European type

3. MONTH DISPLAY :

Month indication is changed to English or Number

Display of Time/Date TYPE

5. Operation

5. ALARM/MOTION SETUP

Display of ALARM/MOTION SETUP

❶ ALARM SETUP : Sets type of alarm sensors connected to DVMR unit.

OFF : No alarm sensor is connected.

NC : Normal Closed alarm sensor. When an event happens, Contact is opened.

NO : Normal Open alarm sensor. When an event happens, Contact is closed.

ALARM DURATION : Duration of recording, when an ALARM is activated.

SELECT LIST TYPE : Select type of event to be enlisted in the event list. "A" indicates Alarm, "L" indicates Loss, and "M" indicates Motion. You can select NONE if you do not want to have event list, and ALM if you want all of Alarm, Loss and Motion are enlisted in event list, by pressing [LEFT] and [RIGHT] button.

▷ ALARM POP-UP : When an alarm is activated, display screen is switch to full screen of image from relevant channel, and a color of camera number is changed to red. If an alarm is activated from 2 channels, display screen is changed to quarterly split screen (Quad screen), and a color of camera number of relevant channel is change to red.

❷ ALARM LIST SETUP : Shows list of alarms up to 400. If total alarm exceeds 400, it overwrites from the beginning. Alarm list is very helpful to manage DVMR system.

1. With [LEFT]/[RIGHT] button, select SORT, DELETE or GO TO.

2. SORT

Press [PLAY ENTER] button to select submenu of SORT ,that are CH ,TIME and TYPE.

1) CH : Sort by CHANNEL   2) TIME : Sort by TIME   3) TYPE : Sort by TYPE

3. DELETE

Press [PLAY ENTER] button when DELETE is highlighted, and select MARK, PAGE or ALL using [LEFT]/ [RIGHT] button and press [PLAY ENTER] button.

1) MARK : Deletes marked item in the list.