

Thank you for purchasing our product.
Please read this User's Manual before
using the product.

STAND-ALONE DVMR

 4 Channel Digital Video Multiplex Recorder

User's Manual VER 2.0



Stand-alone DVMR

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



ALL ABOUT IMAGE RECOGNITION & PROCESSING

DIGITAL VIDEO RECORDER
DIGITAL VIDEO RECORDER

STAND-ALONE DVMR

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.

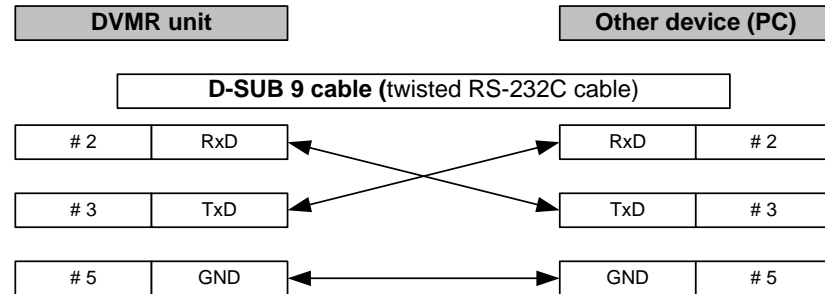
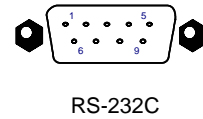


Power Disconnect. Units with or without ON-OFF switches have power supplied to the unit whenever the power cord is inserted into the power source ; however, the unit is operational only when the ON-OFF switch is in the ON position. The power cord is the main power disconnect for all unites.

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



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 equivalent.

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

1.About this document	2
2. Before reading this document	2
3. Unit Description	3
1) Front Panel	3
2) Rear Panel	4
4. Installation	5
5. Operation	9
1) Log-in	9
2) Record	10
3) Play	13
4) Setting	15
① Basic Operation	15
② DISPLAY SETUP	16
③ CAMERA SETUP	17
④ TIME/DATE SETUP	19
⑤ ALARM/MOTION SETUP	20
⑥ RECORD SETUP	23
⑦ TCP/IP SETUP	24
⑧ MISCELLANEOUS SETUP	25
6. Specification & Configuration	29
1) SPECIFICATIONS	29
2) Stand alone DVMR	30
3) RS-232C Hex-codes table	30
4) Arrangement RS-232C pin	31

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	QUAD SCREEN RECORDING 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
MECHANICAL	CD-RW BACK UP	DRIVE : CD-RW MEDIA : CD-R
	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)	

1. About this document

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

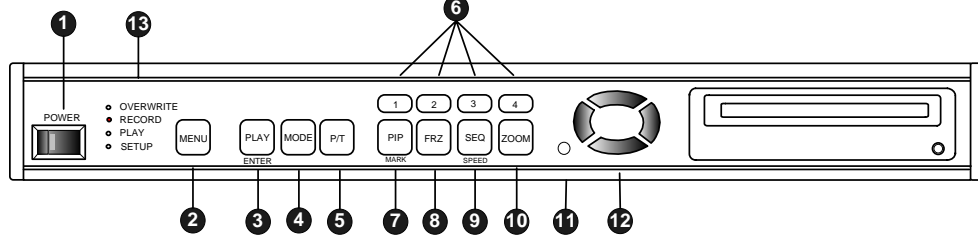
1. This document is intended for both the administrator and users of stand alone DVMR Model.
2. This manual contains information for configuring, managing and using stand alone DVMR Model.
3. To prevent fire or electrical shock, do not expose the product to heat or moisture
4. Be sure to read this manual 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

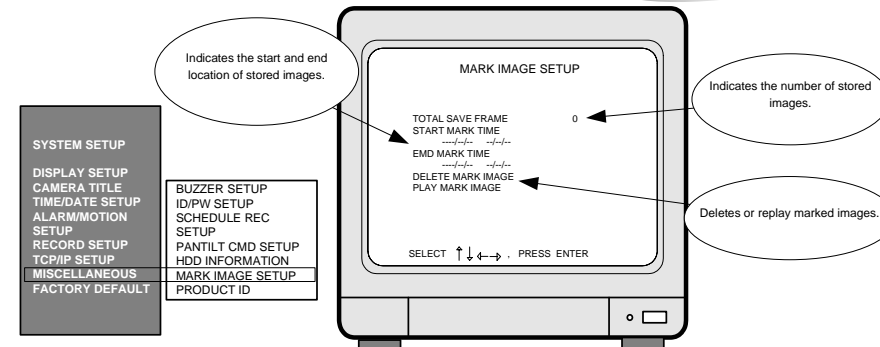
1. Front Panel



- 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
- 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.

5. Operation

6 MARK IMAGE SETUP (Internal backup)



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 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 button once more to complete MARK IMAGE SETUP for images you selected.
- 4) Therefore all images in between 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 button.
That is, press button, and search images replayed in actual speed.
Then press again to complete MARK IMAGE SETUP.
- 6) If the MARK IMAGE space given in the HDD gets to be full, "FULL" message appears and 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

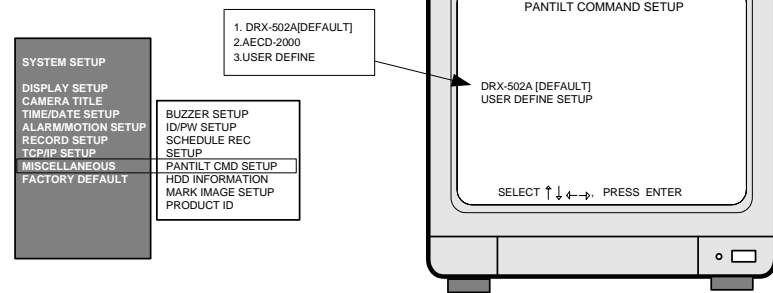
Not record from 1 to 3 and from 4 to 5, and records for the rest hours.

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.

4 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.



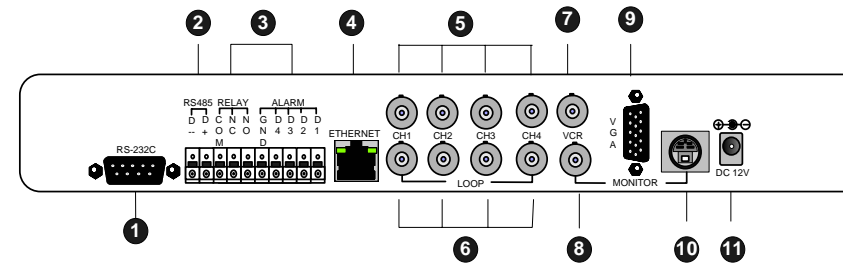
- Procedure to control PTZ camera while you see live picture
- Display of PANTILT COMMAND
1. Default PTZ camera : First select PTZ camera model connected to DVMR unit in the PANTILT COMMAND SETUP menu. In live view mode, press [P/T] button and set CAM (Starts from 000) at camera ID which is set on PTZ 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.

5 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 function.

3. Unit Description

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

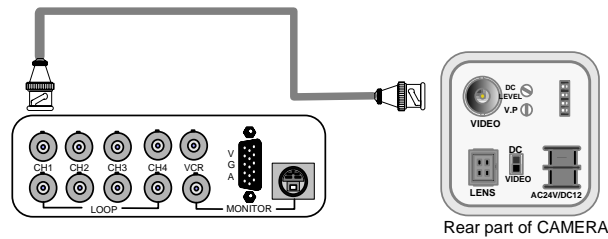
NOTICE : When connecting with other applications, be sure to turn off the system.

4. Installation

Procedure

1) Camera Connection

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

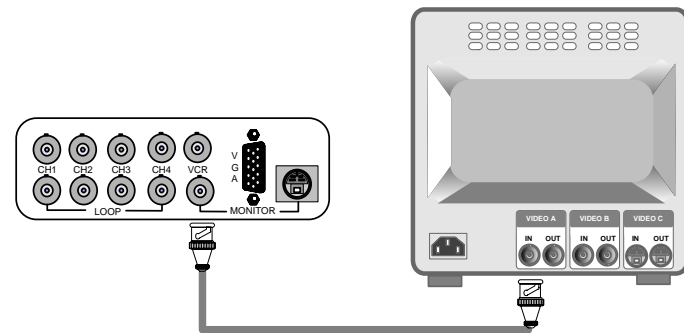


Rear part of CAMERA

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)

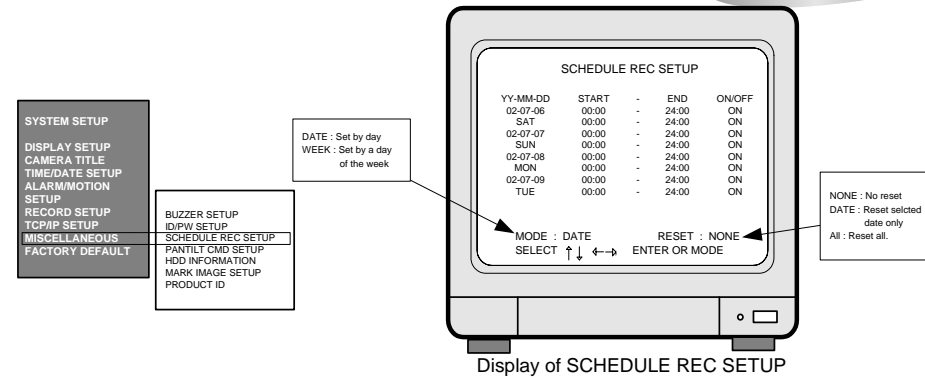
Connect the monitor to the MONITOR OUT on the Rear Panel of the system



Notice : Connect camera or monitor to DVMR unit while DC power switch on the front panel is off.

5. Operation

3) SCHEDULE REC SETUP :



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:

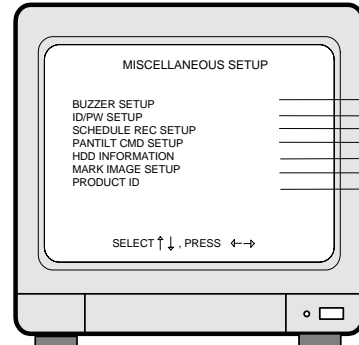
- 1) Press ENTER button to enter into SCHEDULE REC SETUP menu. In the sub-menu, you are requested to select MODE or RESET. To first set up, select DATE or WEEK by pressing button.
- 2) Press button to be ready for editing. Then move to the location for change using direction button.
- 3) Set recording time for START and END with button. Recording time increases by 30 minutes whenever button is pressed.
- 4) After set START and END time for a day and set ON/OFF using button.
- 5) After set all data, press 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 button, and press 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 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 :

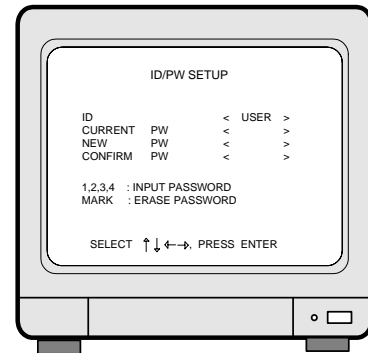
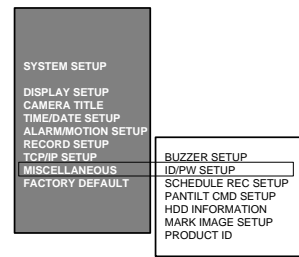
Recording is activated on a day of the week at the time set in advance. To set schedule for a day of the week, first select WEEK in MODE of SCHEDULE REC SETUP by pressing button. Set recording time for each day of the week as the procedure for Scheduled Recording for a day.

8. MISCELLANEOUS SETUP



Display of MISCELLANEOUS SETUP

- 1 BUZZER SETUP : Sets different kinds of BUZZER ON/OFF.
- 2 ID/PW SETUP : Sets User ID and PASSWORD.



Display of ID/PW SETUP

- 1) With [UP]/[DOWN] button, select item to be changed, and press button to edit.
- 2) With [LEFT]/[RIGHT] button, move to wanted location and use [UP]/[DOWN] button to make Selection.
- 3) Press 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.

5. Operation

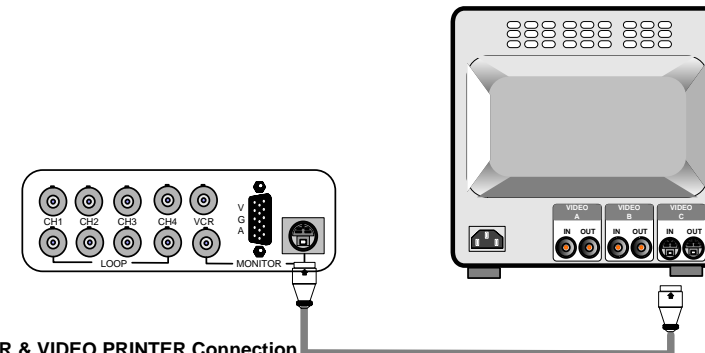
BUZZER SETUP is available for each group as follows.
 SYSTEM BUZZER
 BUTTON BUZZER
 ALARM BUZZER
 MOTION BUZZER
 LOSS BUZZER

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.

4. Installation

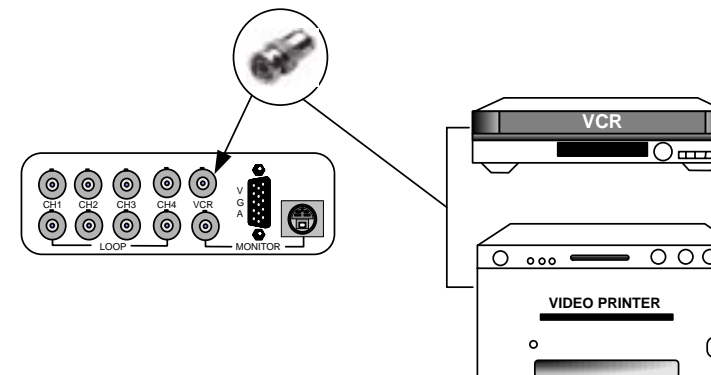
3) Monitor (S-VHS) Connection

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



4) VCR & VIDEO PRINTER Connection

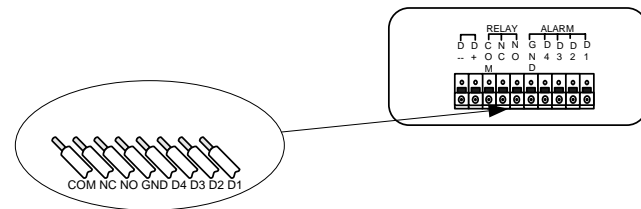
Connect VCR or VIDEO PRINTER to VCR OUT on the Rear Panel of the system.



4. Installation

5) Sensor Connection

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



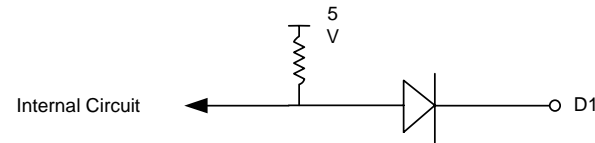
Terminal block

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.



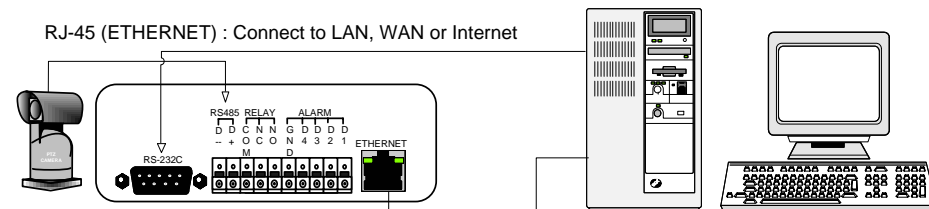
Thus, there is a danger of damage, when the sensor input goes to a Negative level or voltage higher than 5V.

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



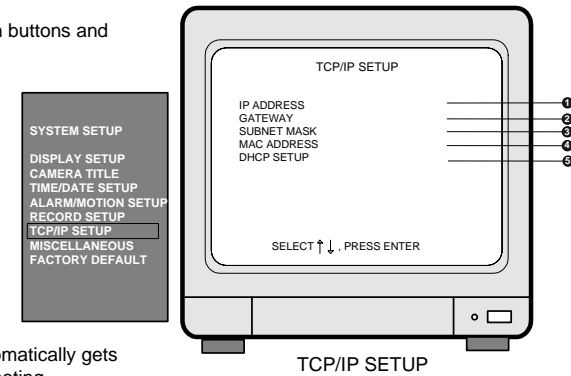
▶ For more details, refer to arrangements RS-232c pins in page 32.

5. Operation

7. TCP/IP SETUP

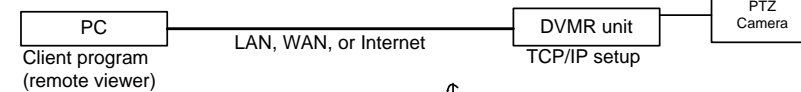
TCP/IP option of this DVMR system enables user to see live pictures and recorded pictures via internet line, far apart from DVMR unit. To see live pictures or recorded pictures of DVMR, users must input IP address, Gateway, and Subnet mask in TCP/IP SETUP in DVMR first, and then input IP, PORT number 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.

- 1 IP ADDRESS : Enter numbers using direction buttons and press [MENU] button.
- 2 GATEWAY : Enter numbers using direction buttons and press [MENU] button.
- 3 SUBNET MASK : Enter numbers using direction buttons and press [MENU] button.
- 4 MAC ADDRESS : It is unique ID number provided by the manufacturer, and the user should not change under any condition.
- 5 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.

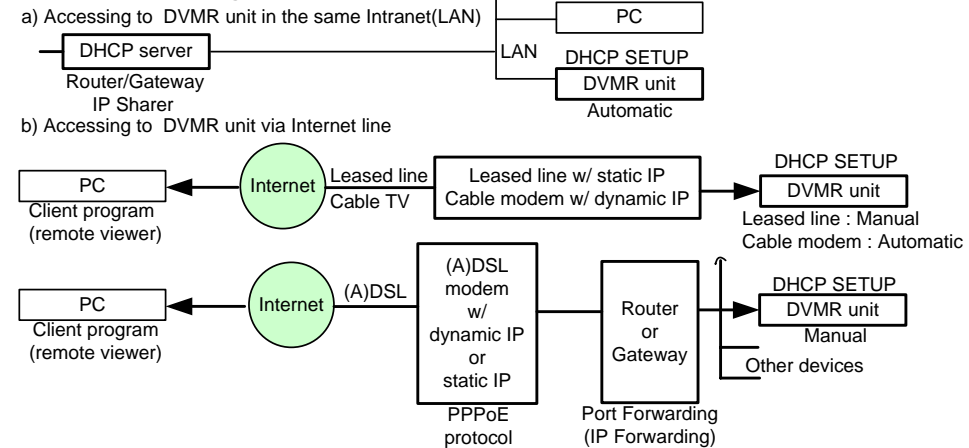


In case you connect DVMR unit to leased line with static IP or Router/Gateway connected (A)DSL line (with static IP or dynamic IP), you are requested to set DHCP at MANUAL and input IP data manually. For details, refer to Remote Viewer manual.

1) Concept of accessing to DVMR unit via IP network



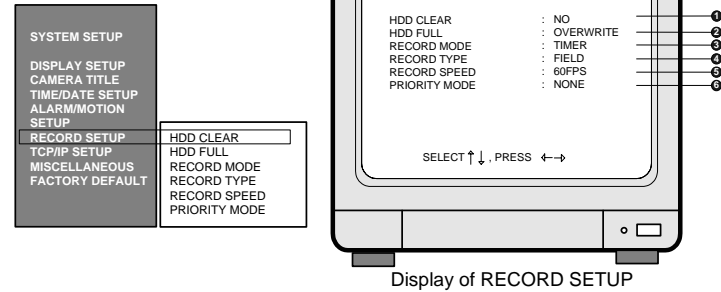
2) DHCP SETUP according to condition of IP network



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

6. RECORD SETUP

5. Operation

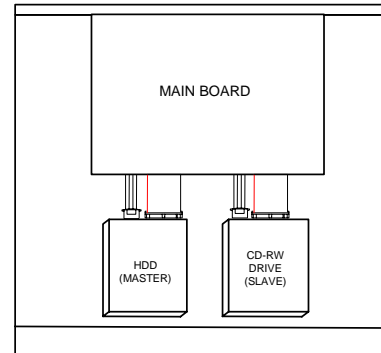


- 1 HDD CLEAR : If YES is selected, it deletes content of the HDD.
Notice : All contents of the HDD is deleted and cannot be restored.
 As times go by, HDDs in a DVMR unit will have bad sectors one after the other. Pictures to be recorded in bad sectors shall be damaged, and you will see incomplete pictures whenever you replay. However, our DVMR unit operates normally even though there is some bad sectors in hard disk drives.
- 2 HDD FULL : Select OVERWRITE or STOP RECORD. If OVERWRITE is selected, it delete previous contents on HDD to overwrite when HDD is full.
- 3 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.
- 4 RECORD TYPE

FIELD : Records images from each camera in rotation. 60 fields/sec at 720X240 resolution.
- 5 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)
- 6 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.

7) HDD connection

4. Installation

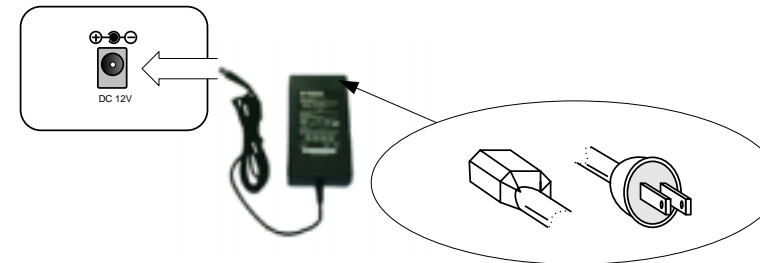


Connect main board and HDD using IDE HDD cable and power cable included in the package. The jumper setting of HDD must be on Master, as specified by HDD manufacturer. The jumper setting must be done properly as specified by HDD manufacturer. Fix HDD on the bottom of DVMR case using screws included in 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.



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

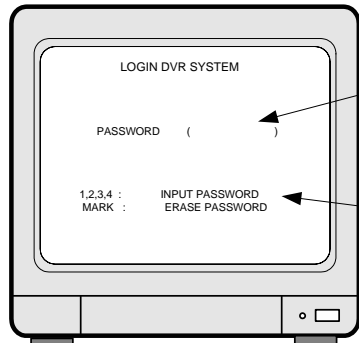
Follow direction in the Log-in part of this manual to input the PASSWORD and start the system. Factory default password for account manager is "1", for user "2"

10) Detail setup in SYSTEM SETUP

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

5. Operation

1. Log-in



Display of Login DVR SYSTEM

- 1) Press button to enter the system menu after starting the system.
- 2) LOGIN DVR SYSTEM window appears as shown on the left.
- 3) Use button to enter password that has 1 to 8 numbers.
- 4) Use button to change.

5) After entering the password, press 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 "CURRENT PW INPUT ERROR" message appears.

▷ Factory default password set by manufacturer is as below.

The system is equipped with two passwords.

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

NOTICE : To protect hard drive from damaged, turn off the power switch of DVMR unit after you first press [MENU] button. If you press [MENU] button, DVMR unit stops recording, and HDD head is not in the process of writing.

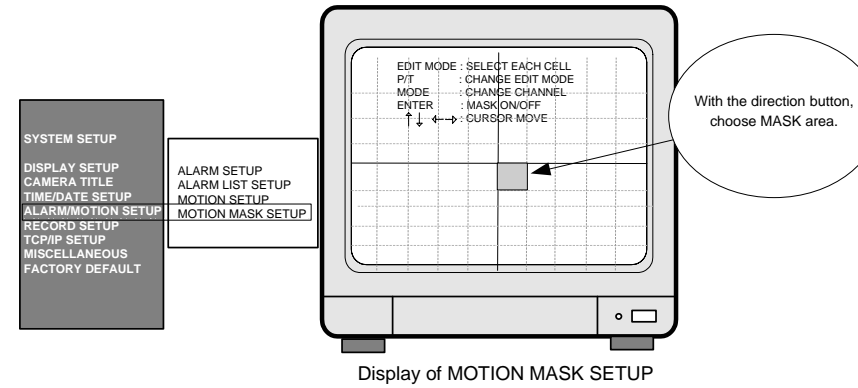
NOTICE : We recommend you to enter your own password as per procedure in 5-4)-⑧-② (page.25) to change the password.

NOTICE : Be sure to memorize the changed password.

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

5. Operation

4 MOTION MASK SETUP : Set detection area.



Display of MOTION MASK SETUP

1. Press button to choose desired EDIT mode.
2. Use [LEFT]/[RIGHT] button to assign BLOCK, and press 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 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 button is pressed, [START] is displayed.
 - ▷ CLEAR BLOCK : Clear the BLOCK. Then select blocks using direction button.
 - ▷ SELECT ALL CELLS : Select all. And press button to set.
 - ▷ CLEAR ALL CELLS : Clear all.

5. Operation

2) PAGE : Deletes current PAGE.

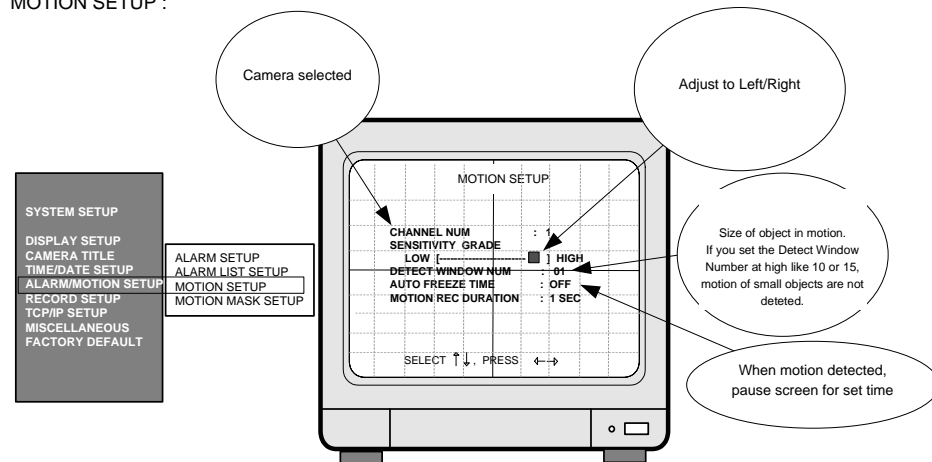
3) ALL : Deletes ALL.

▶ 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.

3 MOTION SETUP :



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

2. RECORD

1. PLAY

Changes to Playback Mode from Recording.

Refer to Playback part(PAGE.13)of this

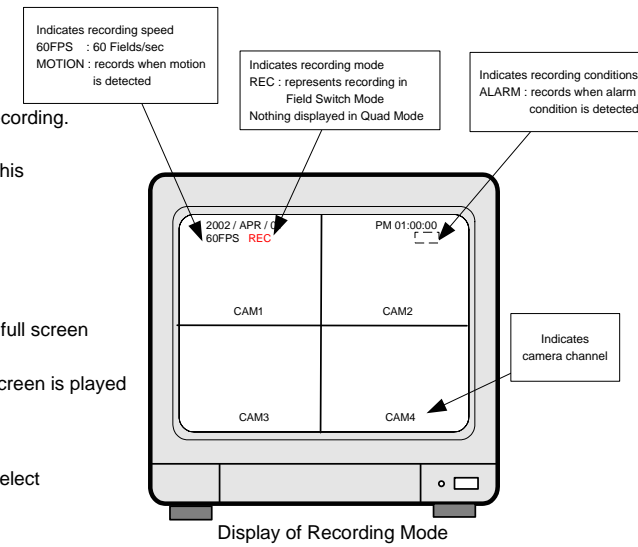
manual.

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.



Display of Recording Mode

3. P/T

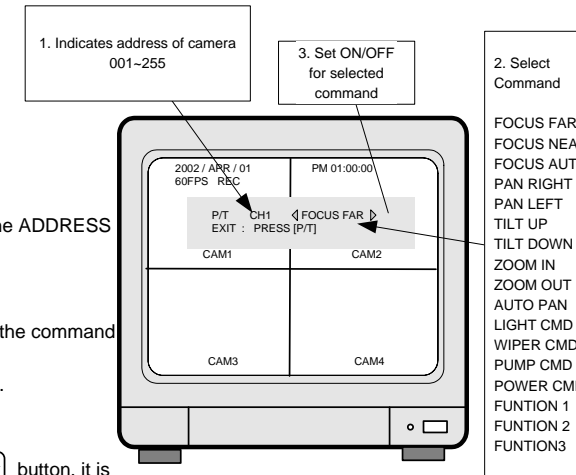
1. Press **P/T** button.

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 ENTER** button, it is ON, and OFF while not pressed.

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



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

5. Operation

4. PICTURE IN PICTURE (PIP)

1. Use [1] [2] [3] [4] button to select a camera and set a full screen.

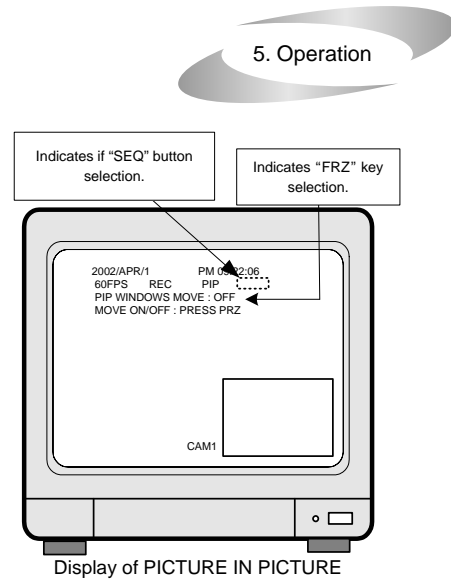
NOTICE : PIP is not available in quarterly split screen.

2. Press [PIP] button.

3. With [UP]/[DOWN] or [1] [2] [3] [4] button, select the camera channel in full screen, and with [LEFT]/[RIGHT] button select the channel of smaller screen.

4. Press [SEC] 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.



5. FRZ

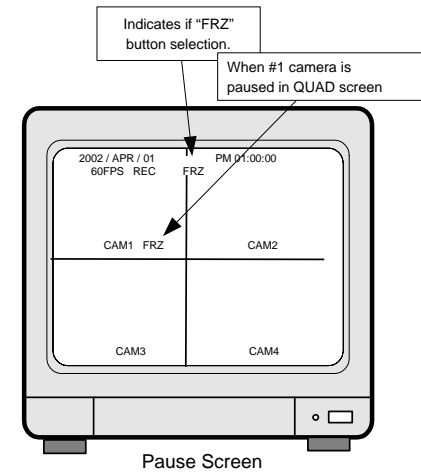
1. Live full screen pauses when [FRZ] button is pressed.

2. To pause quarterly split screen, press [FRZ] button, and with [1] [2] [3] [4] 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,

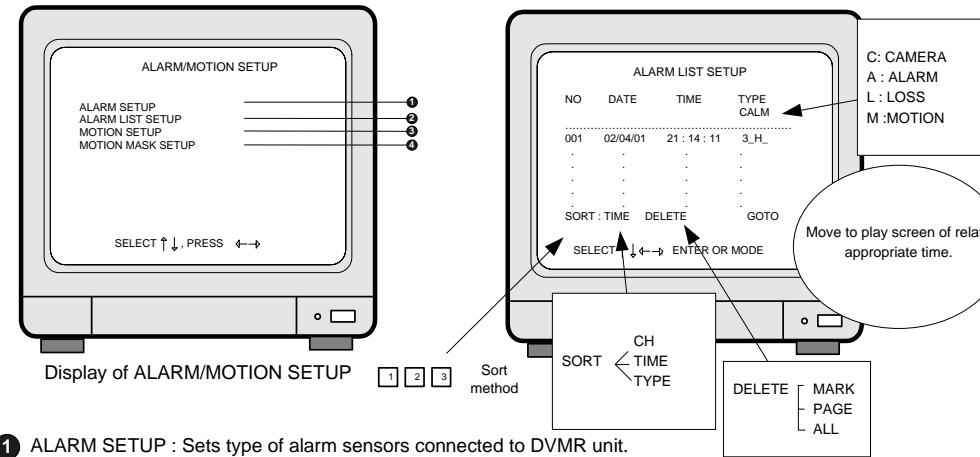
[1] [2] [3] [4] button or [MODE] button do not work.

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



5. Operation

5. ALARM/MOTION SETUP



1 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.

2 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] 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

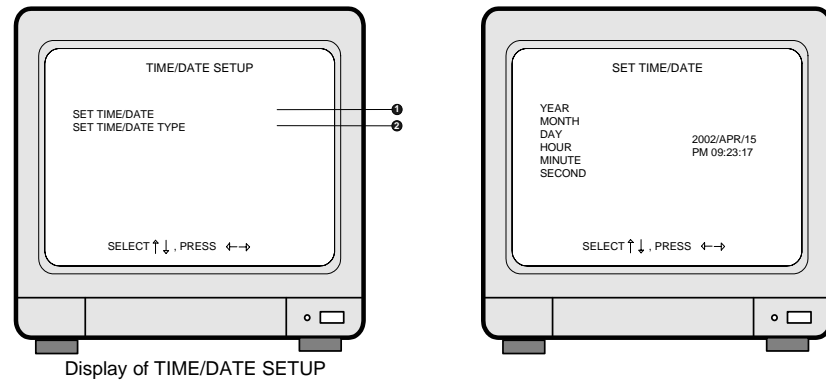
3. DELETE

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

1) MARK : Deletes marked item in the list.

5. Operation

4. TIME/DATE SETUP

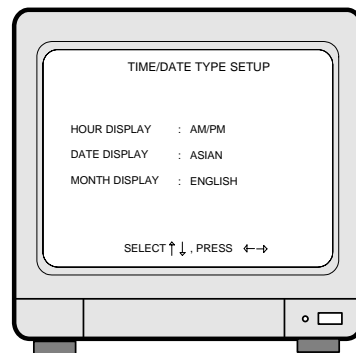


Display of TIME/DATE SETUP

- ① 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.

- ② 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



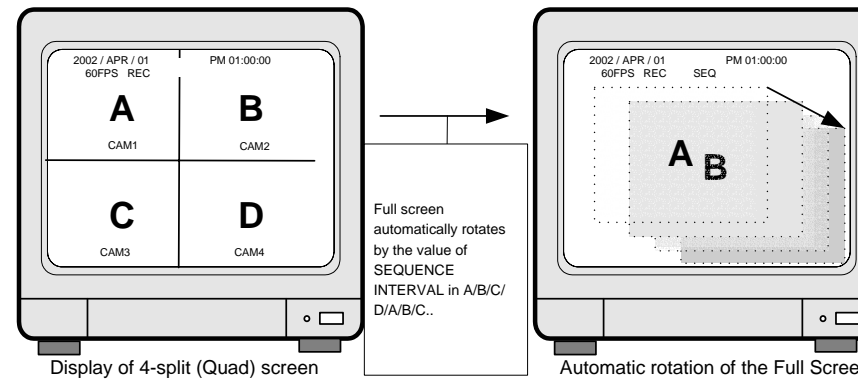
Display of Time/Date TYPE

5. Operation

6. SEQ

- 1. In LIVE full screen, press button to make picture from each channel rotate.
- 2. It does not operate in quarterly split screen.
- 3. During automatic rotation, press button to stop automatic rotation.
- 4. During automatic rotation, press 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 - ⑦ (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

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 - ③ (PAGE.23) for TIME+ALARM and MOTION+ALARM and ALARM SETUP: ALARM DURATION in 5-4)- ⑤ - ① (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 - ③ (PAGE.26) for detail setup.

9. Recording by MOTION DETECTION





- Refer to ALARM/MOTION SETUP in 5-4)- ⑤ (PAGE.20-22).

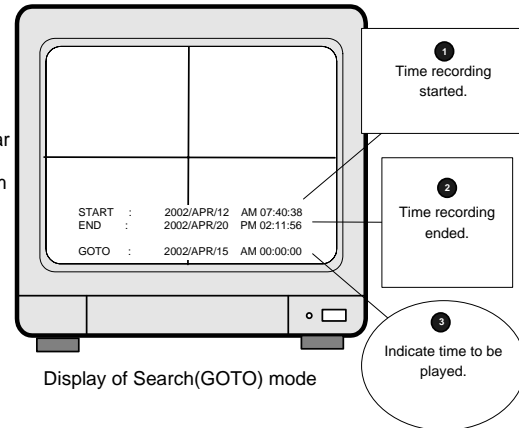
10. NOTICE

- 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  button to begin playback.
- 2) Display screen as shown on the right will appear
- 3) Press  button again to start playback from START picture.
(To start from a specific time, first set the GO TO time before press  button.)
- 4) To come back to recording mode. press  button.



2. GOTO time setting




- 1) At , use [LEFT]/[RIGHT] button to choose the date or time of GO TO.
- 2) Use [UP]/[DOWN] button, set desired time.
- 3) Press  button to replay from the GO TO time.

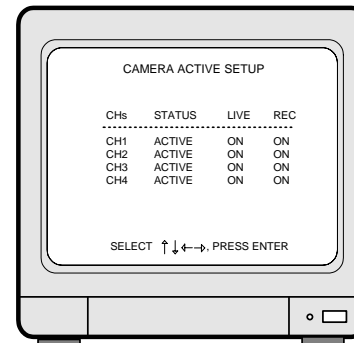
NOTICE : During playback or setting GO TO time, recording is stopped

NOTICE : When value that is out of the range of start and end is entered, it starts from START time

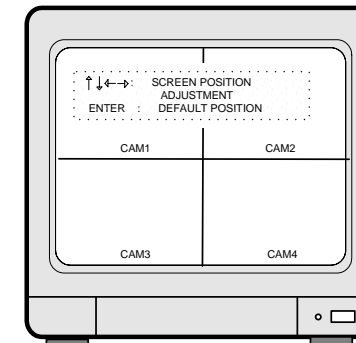
NOTICE : When value is in the range of START and END, but there is no recorded pictures at the set time, it moves to the closest time of the recorded pictures.

3. Pausing and single frame advanced

- 1) During playback, press  button to pause. (Will replay when pressed once more)
- 2) After pressing , press  button and use [LEFT]/[RIGHT] button to advance single frame to the right or left.




Display of CAMERA ACTIVE Setup



Display of Screen Position Adjustment

3 ACTIVE CH SETUP :

With direction button, move to item to be changed, and press  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.

4 SCREEN POSITION SETUP

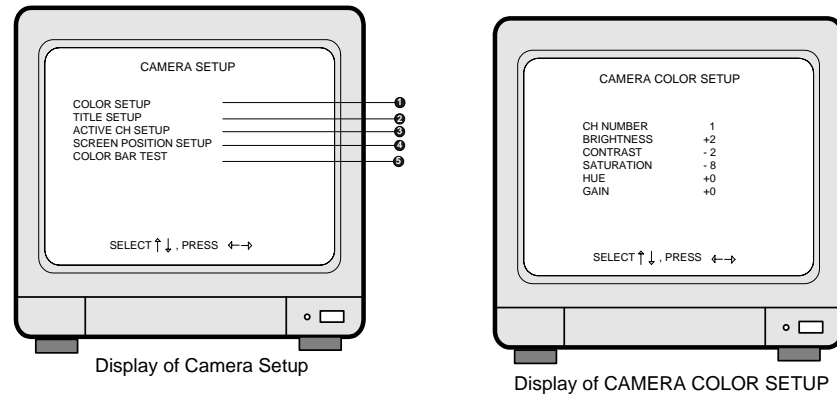
Use direction button to move the full screen according to the user's needs.

5 COLOR BAR TEST : COLOR BAR CHART is generated.

Used for adjusting the monitor

5. Operation

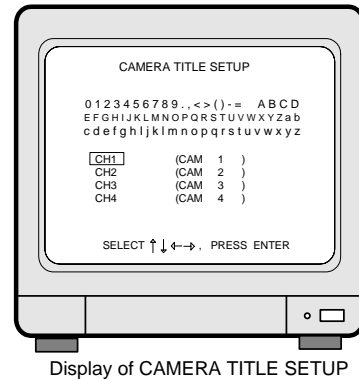
3. CAMERA SETUP



- 1) 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.

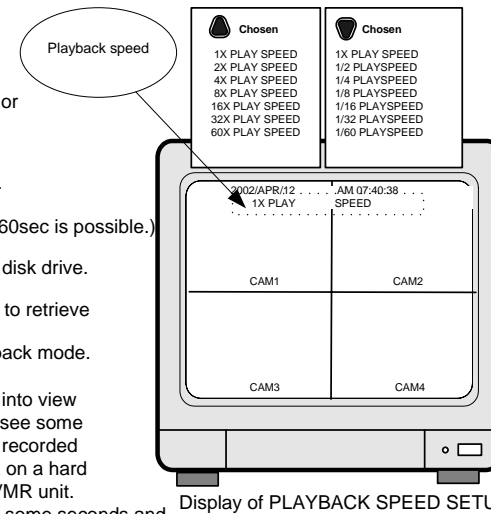
- 2) TITLE SETUP : Input TITLE of each camera
- 1) Use [LEFT]/[RIGHT] button to select CHANNEL and press **PLAY** button
 - 2) Go into CHANNEL content and use [LEFT]/[RIGHT] button to move to item to be changed and use [UP]/[DOWN] button to change the letters.
- When modification is finished, press **MENU** button to come back to the MAIN MENU.



5. Operation

4. Playback Speed Setup

- 1) During playback , press **SEQ** 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.

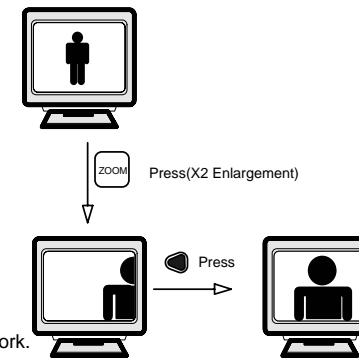


5. Display Enlargement.

- 1) Choose camera by pressing **1** **2** **3** **4** 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** button is pressed, ZOOM does not work.



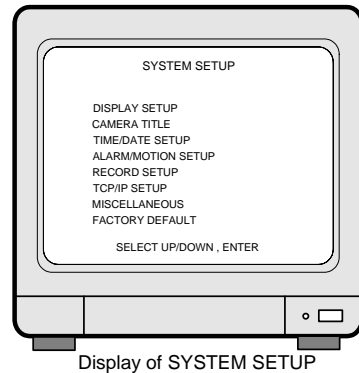
6. MARK IMAGE (Internal backup) SETUP

During Playback, press **PIP** 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** - **6** (PAGE.28) for details.

4. System Setup

1. Basic Operation



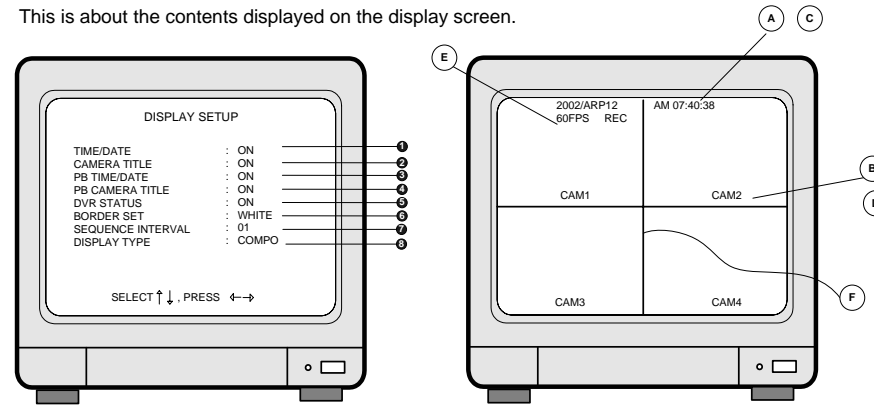
Display of SYSTEM SETUP

- 1) Press button.
- 2) Log into the system by entering the password with button and press button to enter SETUP MENU.
- 2) Use [UP]/[DOWN] button to select setup item.
- 3) Press 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 button to forward button to go backward.
 button enables to enter and 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.

2. DISPLAY SETUP

This is about the contents displayed on the display screen.



Display of DISPLAY SETUP

- 1 TIME/DATE : **A** Date and time is indicated on LIVE screen.
- 2 CAMERA TITLE : Camera TITLE **B** is indicated on LIVE screen.
- 3 PB TIME/DATE : On Playback screen, **C** Date and Time is indicated.
- 4 PB CAMERA TITLE : Camera TITLE **D** is indicated on the Replay SCREEN.
- 5 DVR STATUS : **E** indicates status of operation, such as REC/REPLAY.
- 6 BORDER SET : Changes the color of the border **F**
- WHITE/ BLACK
- 7 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 button, and SEQUENCE INTERVAL is for it.
(Time interval from 1 second to 99 seconds)
- 8 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.