INSTRUCTION MANUAL

# EDSR-900
9 Channel Duplex Digital Video Recorder

# EDSR-1600
16 Channel Duplex Digital Video Recorder

**V1.09**

**EverFocus®**

⚠ **CAUTION**
DO NOT REMOVE COVER.  NO USER SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

⚠ **WARNING**
TO REDUCE RISK OF FIRE OR ELECTRIC SHOCK,
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

**Safety Precautions**

⚠ Refer all work related to the installation of this product to qualified service
personnel or system installers.

⚠ Do not block the ventilation opening or slots on the cover.

⚠ Do not drop metallic parts through slots.This could permanently damage
the appliance.  Turn the power off immediately and contact qualified service
personnel for service.

⚠ Do not attempt to disassemble the appliance.To prevent electric shock,
do not remove screws or covers.  There are no user-serviceable parts
inside.  Contact qualified service personnel for maintenance. Handle the
appliance with care. Do not strike or shake, as this may damage the
appliance.

⚠ Do not expose the appliance to water or moisture, nor try to operate it in
wet areas. Do take immediate action if the appliance becomes wet.
Turn the power off and refer servicing to qualified service personnel.
Moisture may damage the appliance and also cause electric shock.

⚠ Do not use strong or abrasive detergents when cleaning the appliance
body. Use a dry cloth to clean the appliance when it is dirty.  When the
dirt is hard to remove,use a mild detergent and wipe gently.

⚠ Do not overload outlets and extension cords as this may result in a risk of
fire or electric shock.

⚠ Do not operate the appliance beyond its specified temperature, humidity
or power source ratings. Do not use the appliance in an extreme
environment where high temperature or high humidity exists. Use the
appliance at temperature within $0^oC \sim +40^oC$ and a humidity below 90%.
The input power source for this appliance is AC100~240V

**Safety Precautions**

⚠

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 code 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 units.

⚠

**AC100~240V Power Cords**

⚠

**Warning:**
Electrostatic-sensitive device. Use proper CMOS/MOSFET handing precautions to avoid electrostatic discharge.

**UNPACKING**
Unpack carefully.
This is electronic equipment and should be handled carefully.
Check to ensure that the following items are included;

- •1.    Digital Video Recorder unit
- •2.    User's manual
- •3.    Power Cord
- •4.    HDD tray key and screws
- •5     Alarm I/O board
- •6     2 x HDD tray without HDD

If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper.

⚠

Do not place on uneven or unstable work surfaces. Seek servicing if the casing.

$C\epsilon$

**Note:**
This is a class A product. In a domestic environment this product may cause radio interference In which case the user may be required to take adequate measures.

**Note:**
Before installing and using this unit, please read this manual carefully. Be sure to keep it handy for later reference.
The information in this manual was current when published.  The manufacturer reserves the right to revise and improve its products.  All specifications are therefore subject to change without notice.

**Important Safeguards**

⚠

**Read Instruction**---All the safety and operating instructions should be read before the init is operated

⚠

**Retain Instructions**---The safety and operating instructions should be retained for future reference.

⚠

**Heed Warnings**—All warnings on the unit and in the operating instructions should be adhered to.

⚠

**Follow Instructions**—All operating and use instructions should be followed

⚠

**Cleaning**—Unplug the unit from the outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning

⚠

**Attachments**—Do not use attachment not recommended by the product manufacturer as they may cause hazards.

⚠

**Water and Moisture**—Do not use this unit near water-for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, near a swimming pool, in an unprotected outdoor installation, or any area which is classified as a wet location.

⚠

**Servicing**—Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

⚠

**Power Cord Protection**—Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, playing particular attention to cords and plugs, convenience receptacles, and the point where they exit from the appliance.

⚠

**Object and Liquid Entry**—Never push objects of any kind into this unit through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock, Never spill liquid of any kind on the unit.

# Table of Contents

## 1. Product Overview

The EDSR-900 / EDSR1600 Duplex Digital Video Recorder (DVR) a full-featured DVR designed specifically for use in security industry.
The DVR incorporates all the benefits of digital video recording, is simple to install,  and operates just like a VCR.
Highly efficient compression technology and superior resolution of recorded images make the DVR stand out from the competition as the best choice for security surveillance.
The 16 (in) x 5 (out) Matrix Outputs make it powerful for 5 call monitor outputs to be set as you wish.
The real time audio recording at any video recording speed that makes it as perfect as your security demand.

## 1.1 Main Features

- ? Easy-to-use control panel with common VCR and Multiplexer functions
- ? Shuttle/Jog dial for picture-by-picture or fast/slow viewing
- ? No tapes to manage, clean or replace
- ? Instant retrieval of stored video
- ? On-screen setup menu and system timer
- ? Ethernet TCP/IP connectivity for remote viewing and controlling
- ? Pre-Alarm recording
- ? Built-in M-JPEG compression/decompression with configurable video quality
- ? Programmed with various time-lapse speeds
- ? Two 3.5" IDE Type Hard Disks for storage with Hot-Swap trays
- ? RS232 and RS485 for Remote Control
- ?? IR remote control (optional)
- ? Real-Time Live Display for all cameras
- ? Variable recording speeds up to 60/50 fields per second for NTSC/PAL
- ? Alarm- and motion activated recording
- ? Data export to compact flash card
- ? 2 channel real time audio recording capabilities

## 1.2 Specifications

| | |
|---|---|
| **Video Format** | NTSC/PAL |
| **Video Input** | 9 (EDSR900) / 16 (EDSR1600) camera inputs (BNC),1Vp-p/75ohm |
| **Video Output** | 1 BNC video out (1Vp-p/75 ohm) for Main Monitor<br>1 S-Video out Mini DIN for Main Monitor<br>5 BNC video out (1Vp-p/75 ohm) for Matrix / CALL Monitor output<br>9 (EDSR900) / 16 (EDSR1600) video out (1Vp-p/ 75 Ohm)for looping |
| **Video Compression** | M-JPEG |
| **Recording Resolution** | 720x484 (NTSC); 720x576 (PAL) |
| **Compact Flash Memory** | built-in Compact Flash card slot |
| **Alarm Input** | 9 (EDSR900) / 16 (EDSR1600) alarm inputs, 25 pin Sub-D |
| **Alarm Output** | 1 alarm output |
| **Video Display modes** | EDSR-900: Full, 4, 6, 7, 8, 9, PIP and 2x zoom for Live and Playback<br>EDSR-1600: Full, 4, 6, 7, 9, 10, 13, 16, PIP and 2x zoom for Live and Playback |
| **Video Loss Detection** | Yes |
| **Ethernet** | 10BaseT Ethernet, RJ45 connector |
| **Event Log** | Yes |
| **Hard Disk Storage** | Two 3.5" IDE type, hot- swappable |
| **Recording Mode** | Continuous, Timer Schedule, Alarm- or Motion Recording |
| **Recording Rate** | Up to 60/50 fields per second for NTSC/PAL |
| **Playback Rate** | Up to 60/50 fields per second for NTSC/PAL |
| **Playback Search** | By Date/Time, Event, Segment |
| **Setup** | On screen display setup (OSD) |
| **User Interface** | Menu Driven |
| **User Input Device** | Front Panel Keypad |
| **Timer** | Built-in real time clock |
| **Watch Dog Timer** | Yes |
| **RS-232** | 9-pin female D-Sub |
| **RS485** | 2 x RJ45 Socket |
| **Audio** | 2 x Audio In / Out Cinch 500mV max., 10K Ohm impedance |
| **Dimension** | 430mm (W) x 88mm (H) x 300 (D) |
| **Power Consumption** | 40W max. |
| **Power Source** | AC100~240V |
| **Environ. Temperature** | 0℃ ~ 40℃ |

## 2. Back Panel Connections



EDSR-900



EDSR-1600
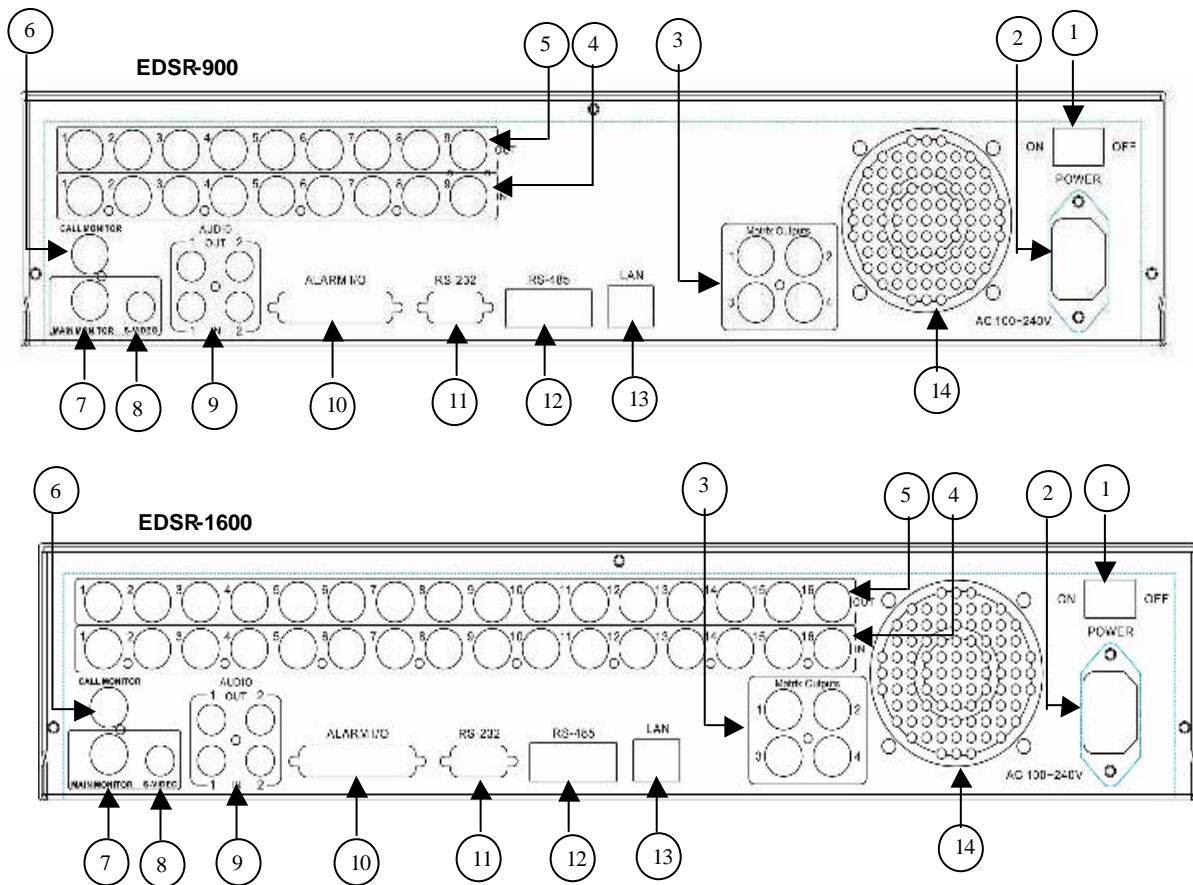
| | | |
|---|---|---|
| ① | **ON/OFF:** | Main on/off switch. |
| ② | **AC100~240V** | power socket. |
| ③ | **Matrix Outputs:** | These connectors are used for additional 4 programmable Call monitors. With these outputs, there are totally 4 Matrix out monitors. These monitors can only display full screen as regular call monitor. |
| ④ | **VIDEO IN:** | BNC-sockets for composite signal video inputs, automatic 75 Ohm termination (EDSR-900: 1 ~ 9, EDSR-1600: 1 ~ 16). |
| ⑤ | **VIDEO OUT:** | Loop through video outputs for each input channel. (EDSR-900: 1 ~ 9, EDSR-1600: 1 ~ 16) |
| ⑥ | **CALL MONITOR:** | BNC-socket Call (Spot) Monitor, composite signal. (Full screen display only) |
| ⑦ | **MAIN MONITOR:** | BNC-socket main monitor, composite signal. Main monitor provides Full screen, Multi-screen, Setup. |
| ⑧ | **S-VIDEO:** | Mini-DIN socket main monitor, S-Video signal. Main monitor provides Full screen, Multi-screen, Setup. |
| ⑨ | **AUDIO IN :** | 2 x Cinch socket audio input 500 mV max., 10K Ohm impedance. |
| | **AUDIO OUT:** | 2 x Cinch socket audio output 500 mV max. at 10K Ohm |

( 10 )  **ALARM I/O: (Refer pin assignment in Appendix-C, Page 44)**

   **ALM-INPUT :** Normally Open (N.O) or Normally Close (N.C) type alarm sensor input.
        The Alarm Input can be selected as N.O or N.C input in the setup
        menu. When an alarm occurs, alarm recording will automatically start.

   **ALM-OUTPUT :** Two-way contact relay alarm output. In normal condition, this N.C. contact
         shorted to  ALM-COM. In alarm status, it is open between ALM-NC and
         ALM-COM, N.O. is shorted to ALM-COM.

( 11 )  **RS232 connector :** D-Sub 9 pins connector to RS232 ports for remote control.

( 12 )  **RS485 connector :** 2 x RJ-45 connectors for RS-485 remote control, high impedance
        Supported are  keyboards KS-KBK,  KS-KBJ.
        Maximum units in RS-485  network  are 32.
        Following EverFocus products  are compatible in RS-485 network:
        - DVR's  EDSR100H, EDSR100M, EDSR400, EDSR400H,
             EDSR400M, EDSR900, EDSR1600
        - Keyboards KS-KBJ (with 3 -  axis Joystick, DVR and  telemetry control)
            KS-KBK (only DVR control)
       - alternative (not combined with keyboard remote control) connection of speed
       dome - telemetry control over IP

( 13 )  **LAN Connector** : RJ-45 LAN connector for internal  10MBit LAN interface.

( 14 )  **FAN:** Cooling fan,  do not cover.

# 3. System Connection

The installations described below should be made by **qualified service personnel or system installers.**

### Before Installation

Please refer to the following diagram for the system connections.

EDSR 900: Camera 1~9 / EDSR-1600: Camera 1 ~ 16



Alarm In/Out

Audio Input
(camera Audio Out)   Audio Out
(To Speaker)        RS232          Ethernet

RS485

MAIN Monitor    CALL Monitor    Remote Keyboard(s)      Matrix Outputs
                                KS-KBJ / KS-KBK         4 CALL Monitors
                                (optional)              (Optional)
                                or
                        Speed dome / telemetry receiver
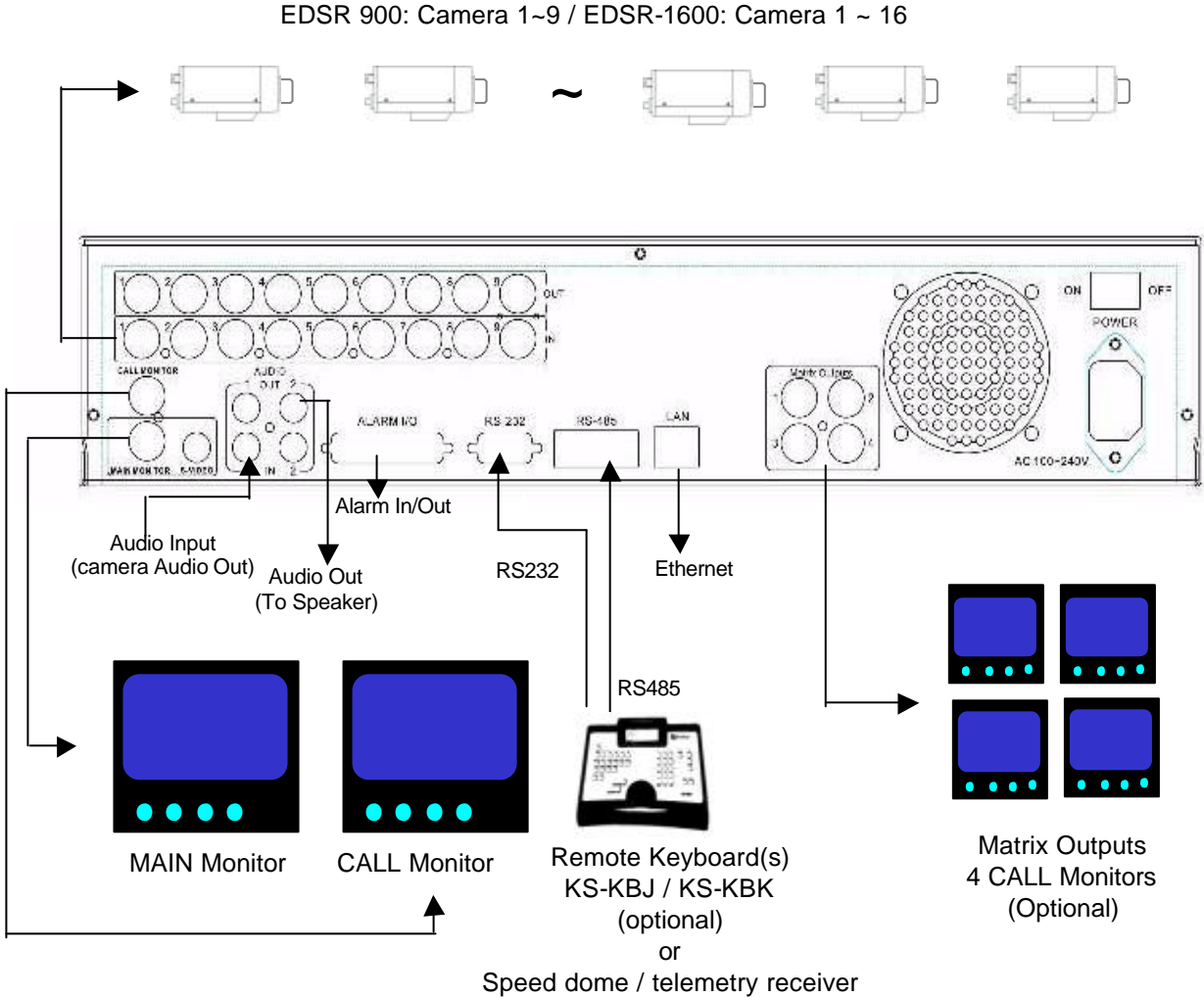
## 4. Front Panel Keypads



EDSR-900

EDSR-1600
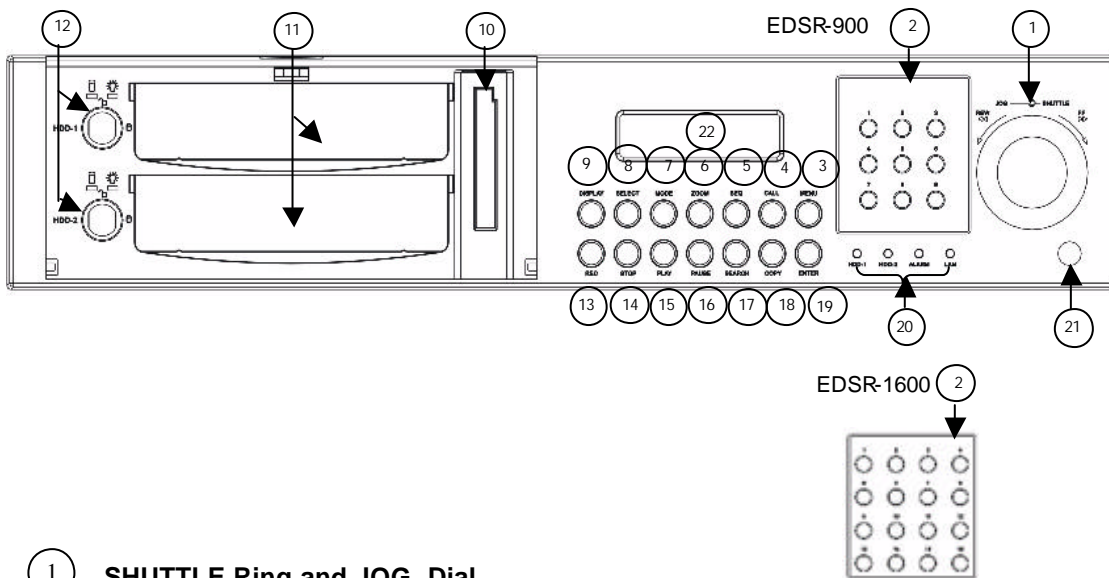
(1) **SHUTTLE Ring and JOG Dial**
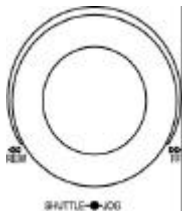
**SHUTTLE :** In Playback mode, turn the shuttle ring to fast forward/rewind the picture (600X maximum). In Pause mode, turn the shuttle dial to slow forward/rewind the picture (1/32 maximum).

**JOG :** In Pause mode, turn the jog dial to step forward/rewind the Picture. In Menu mode turn the jog dial to select options.

(2) **CHANEL KEYS:.**

Press these keys (EDSR-900: 1 ~ 9, EDSR-1600: 1 ~ 16) to display video image in full screen format, the picture of the corresponding camera will fill the whole screen of the monitor display.

(3) **MENU:** Press this key to enter Setup Menu (Please refer to page 9~25 for details).

(4) **CALL:** Press this key to show picture of assigned camera to desired call monitor.

(5) **SEQ :** Press this key to enter the auto sequential switching mode for main monitor.

(6) **ZOOM**: Press this key while viewing the full screen image to display X2 zoom-in picture. To move the zooming area, use **JOG** to move from left to right. Press **ENTER** for changing vertical / horizontal movement.

(7) **MODE:** Switch Full, 4, 6, 7, 8, 9, (10, 13 and 16 for EDSR-1600 only), PIP (picture in picture) multi-screen for Live and Playback.

(8) **SELECT: In Full screen mode:** press this key to pop-up dialog as below:

```
┌─────────────────────────────────────┐
│      DISPLAY SETTING MENU            │
│          CHANNEL 01                  │
│  BRIGHTNESS   [████████      ]       │
│  CONTRAST     [              ]       │
│  COLOR        [              ]       │
│                                      │
│  HIT SELECT TO DISCARD CHANGE        │
│  HIT MENU TO SAVE AND EXIT           │
└─────────────────────────────────────┘
```
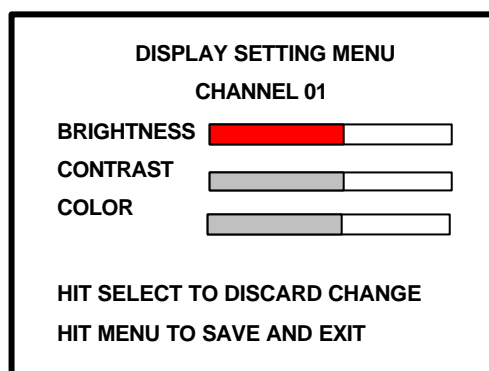
In Full screen mode this menu allows color adjustment for each video channel, all channels are separately adjustable.

The selected item will show in red color bar. Use **JOG** to increase or decrease the value. Press **ENTER** to confirm and move to next item. After finished setting, press **SELECT** key to discard change or press **MENU** key to save and exit the dialog.

In Multi-screen mode:

In Multi-screen mode the **SELECT** key allows to define cameras in  all multi-screen views.

Press **SELECT**. At  the upper left camera  in multi-screen appears "SELECT".

Use the numeric camera keys to select a camera.

Press **ENTER** to switch in the multi-screen.

Press **SELECT** to exit this setting.

**Note**:  Every camera can be selected only once for a multi-screen view.

**LOGOUT** (with activated password protection): If password protection is active, the "SELECT" key is used for logout. If the key is pressed > 1 sec. the system will switch to password level 1

(9)  **Display:** Press this key to switch ON/OFF for camera title, date/time and  HDD status. Hold this key longer than 2 seconds for displaying the event log list.

(10)  **Compact Flash Card Slot:** Insert a Compact Flash Card for archiving video.

(11)  **Hard Disk Trays: 2 x** Hard Disk holder for 3.5" HDD.

(12)  **HDD locks:** Turn on HDD power and protection from taking out the HDD without authority.

(13)  **REC:** Press this key to start recording.

(14)  **STOP:** Press this key to stop recording or playing back.

(15)  **PLAY:** Press this key to stat playing back recoded picture (Please refer to page 27 for details).

(16)  **PAUSE:** Press this key to pause the playback picture.

(17)  **SEARCH:** Press this key to enter the Search Menu (Please refer page 28~30 for details).

(18)  **COPY:** Under PAUSE or PLAYBACK**,** Press this key to start copying still picture or video stream into Compact Flash card (Please refer page 31~33 for details).

(19)  **ENTER**: Press this key to enter sub-menu or confirm setup. When there is Alarm, Motion or Video Loss occurs, press this key for alarm reset. The Event Log Dialog will show on the display, then follow the instruction to continue.

(20)  **LEDs:** LEDs for HDD1, HDD2 , ALARM and LAN access (from left to right).

(21)  **IR Remote Controller receiver**

(22)  **LCD Panel**: To display Date/Time, Recording/Playback and HDD status.

## 5. Operation

### (1) Insert a HDD (IDE) for Video Storage

Insert one or two HDD (3.5" IDE) for Video Storage.
The HDD should be set as Cable Select or MASTER. Both HDD need equal setting.
(Normally the default setting of HDD is Master)

**Note:** After hard disk case is inserted into the hard disk tray, be sure to turn the tray key in lock position.Otherwise, HDD will not be detected.

**ATTENTION:** Changing HDD's and switching on HDD's is not allowed in record mode!

### (2) Connect cable for video/audio input and video/audio out,

The detail connection is described in SYSTEM CONNECTION**.**

### (3) Switch Power On

The LCD panel in the front panel will light when you switch on the power**.**

### (4) Press MENU key to enter SET UP MENU.

Once inside the main menu you will find there are 17 set up pages as below:
Selected item will be surrounded by a white block.

**MENU**

```
MAIN MENU


CLOCK
DAYLIGHT SAVING
TIMER
SEQUENCE
TITLE
COVERT
ALARM
MOTION
RECORD
NETWORK
CONTROL
BUZZER
ARCHIVE
MATRIX
DISK
PTZ
SYSTEM
```
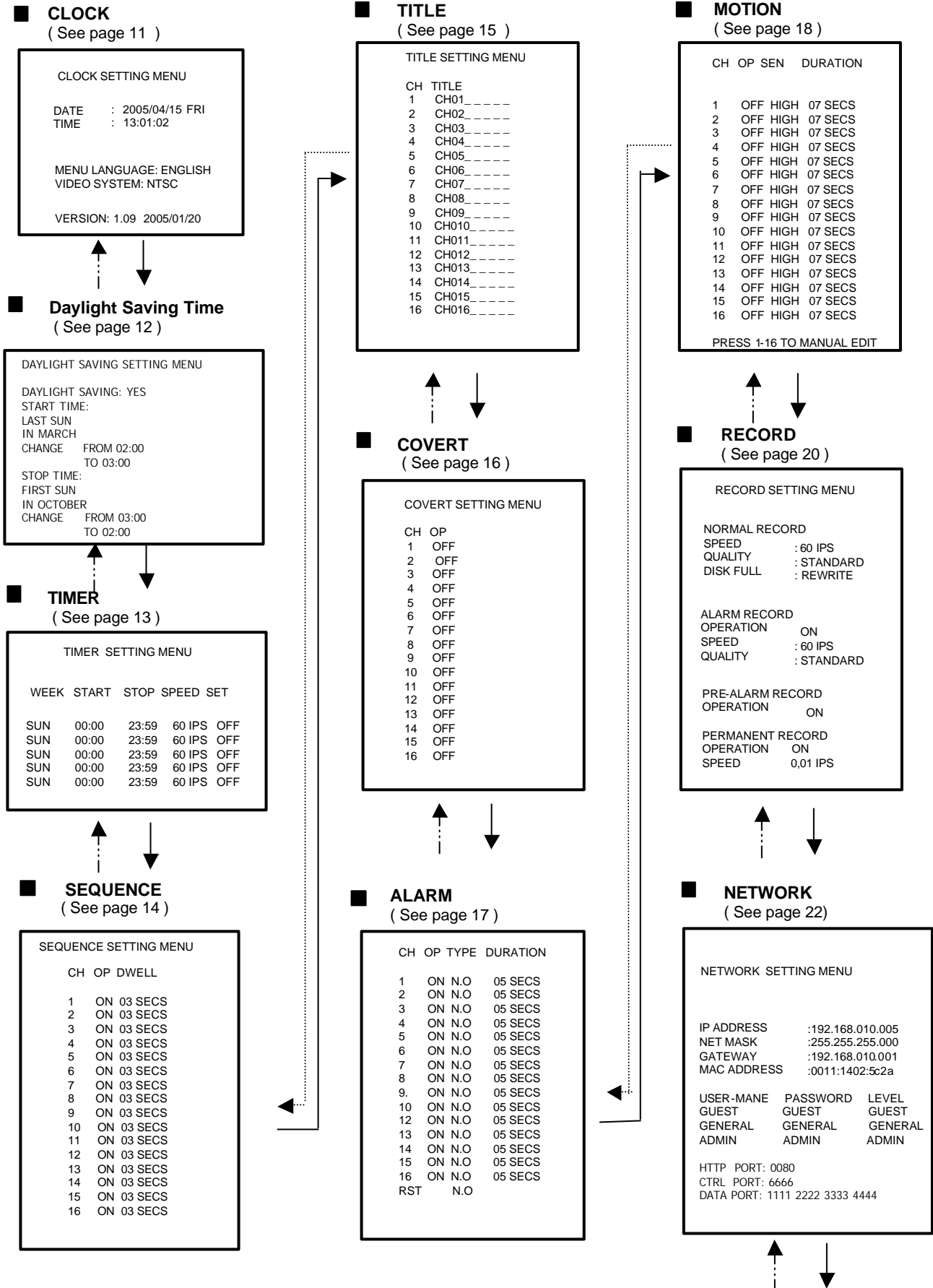
**(5)**  Turn the **JOG** dial clockwise or counter-clockwise to select the item, press **ENTER** key for detail set up for each item.

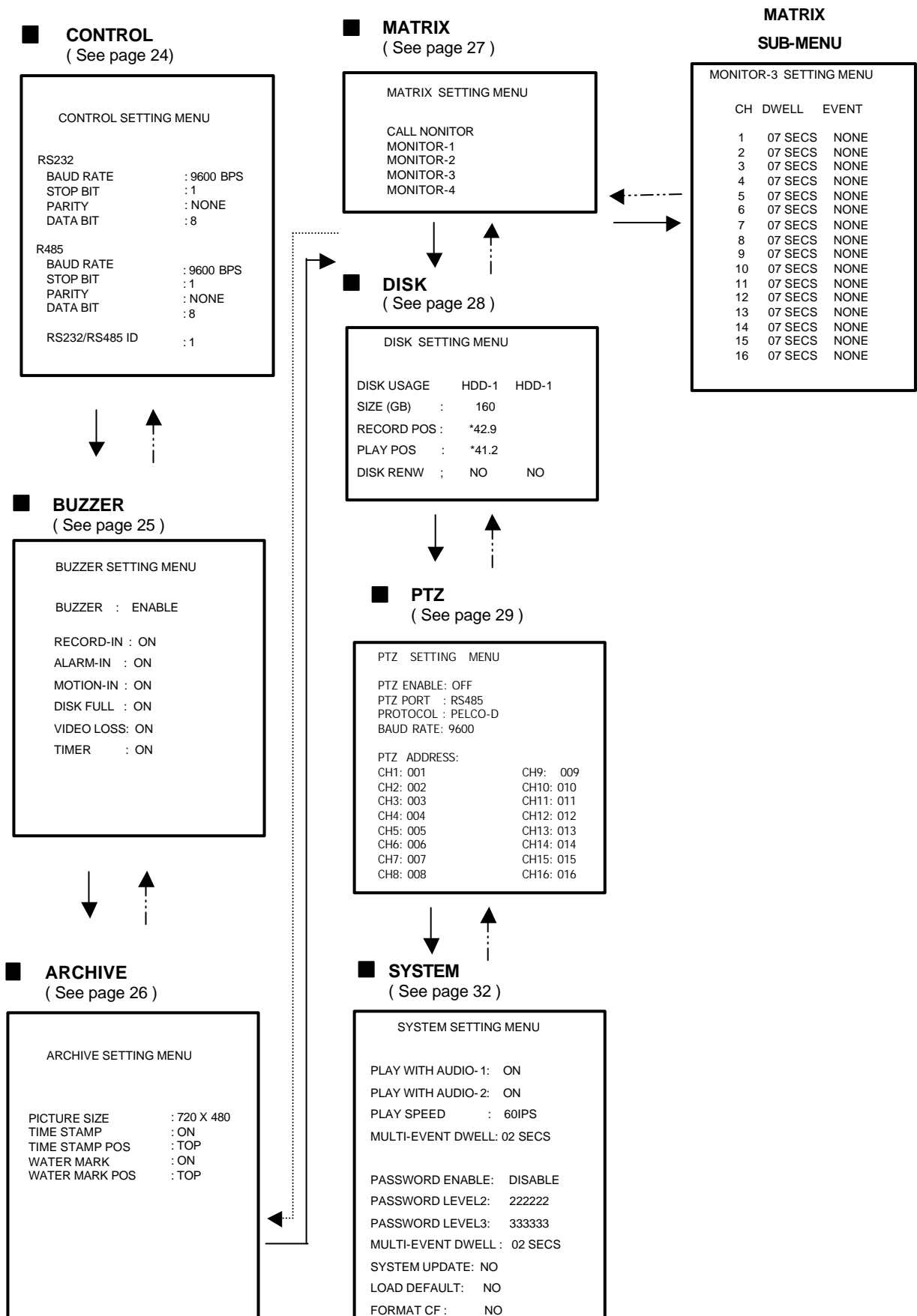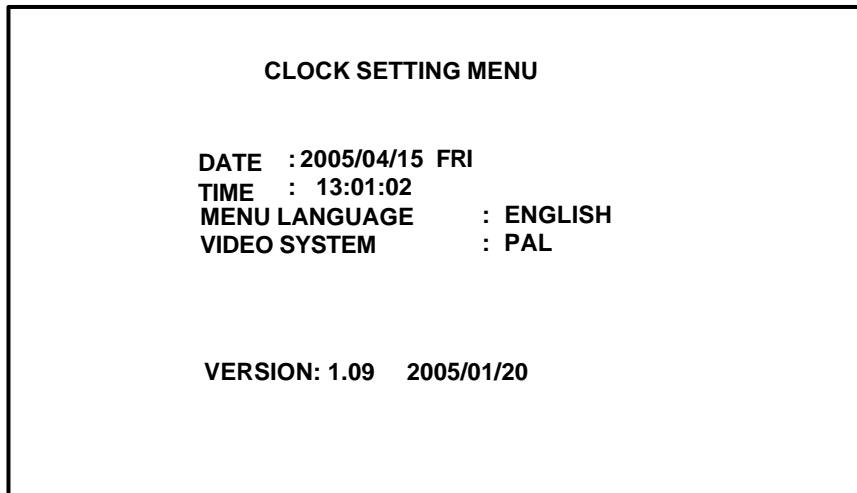**(6)** Press **MENU** again to leave the set up menu.

## 6. MENU FLOW

Columns in brackets () only valid for EDSR-1600

### ■ CLOCK
( See page 11 )

```
CLOCK SETTING MENU

DATE    : 2005/04/15 FRI
TIME    : 13:01:02


MENU LANGUAGE: ENGLISH
VIDEO SYSTEM: NTSC


VERSION: 1.09  2005/01/20
```

### ■ Daylight Saving Time
( See page 12 )

```
DAYLIGHT SAVING SETTING MENU

DAYLIGHT SAVING: YES
START TIME:
LAST SUN
IN MARCH
CHANGE     FROM 02:00
           TO 03:00
STOP TIME:
FIRST SUN
IN OCTOBER
CHANGE     FROM 03:00
           TO 02:00
```

### ■ TIMER
( See page 13 )

```
TIMER  SETTING MENU


WEEK  START  STOP SPEED SET

SUN   00:00  23:59  60 IPS  OFF
SUN   00:00  23:59  60 IPS  OFF
SUN   00:00  23:59  60 IPS  OFF
SUN   00:00  23:59  60 IPS  OFF
SUN   00:00  23:59  60 IPS  OFF
```

### ■ SEQUENCE
( See page 14 )

```
SEQUENCE SETTING MENU

CH  OP  DWELL

1   ON  03 SECS
2   ON  03 SECS
3   ON  03 SECS
4   ON  03 SECS
5   ON  03 SECS
6   ON  03 SECS
7   ON  03 SECS
8   ON  03 SECS
9   ON  03 SECS
10  ON  03 SECS
11  ON  03 SECS
12  ON  03 SECS
13  ON  03 SECS
14  ON  03 SECS
15  ON  03 SECS
16  ON  03 SECS
```

### ■ TITLE
( See page 15 )

```
TITLE SETTING MENU

CH  TITLE
1   CH01_ _ _ _ _
2   CH02_ _ _ _ _
3   CH03_ _ _ _ _
4   CH04_ _ _ _ _
5   CH05_ _ _ _ _
6   CH06_ _ _ _ _
7   CH07_ _ _ _ _
8   CH08_ _ _ _ _
9   CH09_ _ _ _ _
10  CH010_ _ _ _ _
11  CH011_ _ _ _ _
12  CH012_ _ _ _ _
13  CH013_ _ _ _ _
14  CH014_ _ _ _ _
15  CH015_ _ _ _ _
16  CH016_ _ _ _ _
```

### ■ COVERT
( See page 16 )

```
COVERT SETTING MENU

CH  OP
1   OFF
2   OFF
3   OFF
4   OFF
5   OFF
6   OFF
7   OFF
8   OFF
9   OFF
10  OFF
11  OFF
12  OFF
13  OFF
14  OFF
15  OFF
16  OFF
```

### ■ ALARM
( See page 17 )

```
CH  OP  TYPE  DURATION

1   ON  N.O   05 SECS
2   ON  N.O   05 SECS
3   ON  N.O   05 SECS
4   ON  N.O   05 SECS
5   ON  N.O   05 SECS
6   ON  N.O   05 SECS
7   ON  N.O   05 SECS
8   ON  N.O   05 SECS
9.  ON  N.O   05 SECS
10  ON  N.O   05 SECS
12  ON  N.O   05 SECS
13  ON  N.O   05 SECS
14  ON  N.O   05 SECS
15  ON  N.O   05 SECS
16  ON  N.O   05 SECS
RST     N.O
```

### ■ MOTION
( See page 18 )

```
CH  OP  SEN   DURATION

1   OFF  HIGH  07 SECS
2   OFF  HIGH  07 SECS
3   OFF  HIGH  07 SECS
4   OFF  HIGH  07 SECS
5   OFF  HIGH  07 SECS
6   OFF  HIGH  07 SECS
7   OFF  HIGH  07 SECS
8   OFF  HIGH  07 SECS
9   OFF  HIGH  07 SECS
10  OFF  HIGH  07 SECS
11  OFF  HIGH  07 SECS
12  OFF  HIGH  07 SECS
13  OFF  HIGH  07 SECS
14  OFF  HIGH  07 SECS
15  OFF  HIGH  07 SECS
16  OFF  HIGH  07 SECS

PRESS 1-16 TO MANUAL EDIT
```

### ■ RECORD
( See page 20 )

```
RECORD SETTING MENU


NORMAL RECORD
SPEED         : 60 IPS
QUALITY       : STANDARD
DISK FULL     : REWRITE


ALARM RECORD
OPERATION       ON
SPEED         : 60 IPS
QUALITY       : STANDARD


PRE-ALARM RECORD
OPERATION       ON

PERMANENT RECORD
OPERATION     ON
SPEED         0,01 IPS
```

### ■ NETWORK
( See page 22)

```
NETWORK  SETTING MENU


IP ADDRESS      :192.168.010.005
NET MASK        :255.255.255.000
GATEWAY         :192.168.010.001
MAC ADDRESS     :0011:1402:5c2a


USER-MANE    PASSWORD     LEVEL
GUEST        GUEST        GUEST
GENERAL      GENERAL      GENERAL
ADMIN        ADMIN        ADMIN

HTTP  PORT: 0080
CTRL  PORT: 6666
DATA PORT: 1111 2222 3333 4444
```

Columns in brackets () only valid for EDSR-1600

**MATRIX**
**SUB-MENU**

### ■ CONTROL
( See page 24)

```
CONTROL SETTING MENU

RS232
  BAUD RATE        : 9600 BPS
  STOP BIT         : 1
  PARITY           : NONE
  DATA BIT         : 8

R485
  BAUD RATE        : 9600 BPS
  STOP BIT         : 1
  PARITY           : NONE
  DATA BIT         : 8

  RS232/RS485 ID   : 1
```

### ■ MATRIX
( See page 27 )

```
MATRIX  SETTING MENU

CALL NONITOR
MONITOR-1
MONITOR-2
MONITOR-3
MONITOR-4
```

```
MONITOR-3  SETTING MENU

CH  DWELL    EVENT

 1   07 SECS   NONE
 2   07 SECS   NONE
 3   07 SECS   NONE
 4   07 SECS   NONE
 5   07 SECS   NONE
 6   07 SECS   NONE
 7   07 SECS   NONE
 8   07 SECS   NONE
 9   07 SECS   NONE
10   07 SECS   NONE
11   07 SECS   NONE
12   07 SECS   NONE
13   07 SECS   NONE
14   07 SECS   NONE
15   07 SECS   NONE
16   07 SECS   NONE
```

### ■ DISK
( See page 28 )

```
DISK  SETTING MENU

DISK USAGE     HDD-1   HDD-1
SIZE (GB)    :    160
RECORD POS :    *42.9
PLAY POS     :    *41.2
DISK RENW  ;    NO      NO
```

### ■ BUZZER
( See page 25 )

```
BUZZER SETTING MENU

BUZZER  :  ENABLE

RECORD-IN : ON
ALARM-IN  : ON
MOTION-IN : ON
DISK FULL : ON
VIDEO LOSS: ON
TIMER     : ON
```

### ■ PTZ
( See page 29 )

```
PTZ  SETTING  MENU

PTZ ENABLE: OFF
PTZ PORT  : RS485
PROTOCOL  : PELCO-D
BAUD RATE: 9600

PTZ  ADDRESS:
CH1: 001        CH9:  009
CH2: 002        CH10: 010
CH3: 003        CH11: 011
CH4: 004        CH12: 012
CH5: 005        CH13: 013
CH6: 006        CH14: 014
CH7: 007        CH15: 015
CH8: 008        CH16: 016
```

### ■ ARCHIVE
( See page 26 )

```
ARCHIVE SETTING MENU

PICTURE SIZE     : 720 X 480
TIME STAMP       : ON
TIME STAMP POS   : TOP
WATER MARK       : ON
WATER MARK POS   : TOP
```

### ■ SYSTEM
( See page 32 )

```
SYSTEM SETTING MENU

PLAY WITH AUDIO-1:  ON
PLAY WITH AUDIO-2:  ON
PLAY SPEED       :  60IPS
MULTI-EVENT DWELL: 02 SECS

PASSWORD ENABLE:   DISABLE
PASSWORD LEVEL2:   222222
PASSWORD LEVEL3:   333333
MULTI-EVENT DWELL : 02 SECS
SYSTEM UPDATE:  NO
LOAD DEFAULT:   NO
FORMAT CF :     NO
```

## 6.1 CLOCK SETTING MENU

```
                    CLOCK SETTING MENU


        DATE  : 2005/04/15  FRI
        TIME   :  13:01:02
        MENU LANGUAGE        :  ENGLISH
        VIDEO SYSTEM         :  PAL



         VERSION: 1.09    2005/01/20
```

**In CLOCK/LANGUAGE SETTING MENU , we define:**

**(1) DATE :** Current date, format: YYYY/MM/DD
Year: 2000 ~ 2099,  Month: 01~ 12,   Date: 01~31, Week: Sunday~Saturday

**(2) TIME :** Current time,  format: HH:MM:SS
Hour: 00 ~ 23,  Minute : 00 ~ 59,  Second: 00 ~ 59

**(3) MENU LANGUAGE:**  ENGLISH

**(4) VIDEO SYSTEM**:  Factory default setting depend on machine "NTSC" or  "PAL" .

**(5) VERSION:** Current S/W revision and release date.

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**   Press **ENTER** key to confirm the option and move to next column.

**MENU**   Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

## 6.2 DAYLIGHT SAVING TIME

```
DAYLIGHT SAVING SETTING MENU

DAYLIGHT SAVING: YES
START TIME:
  LAST SUN
  IN MARCH
  CHANGE     FROM 02:00
                 TO 03:00
  STOP TIME:
  FIRST SUN
  IN OCTOBER
  CHANGE     FROM 03:00
                 TO 02:00
```
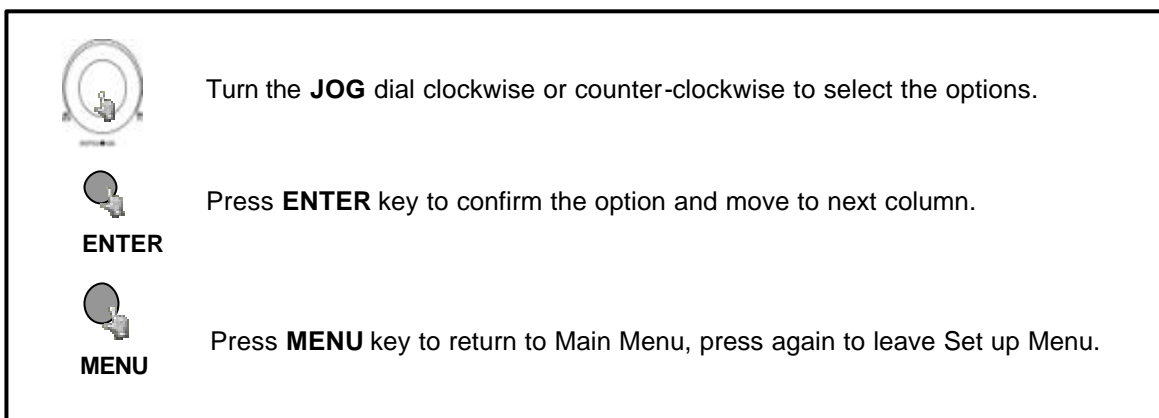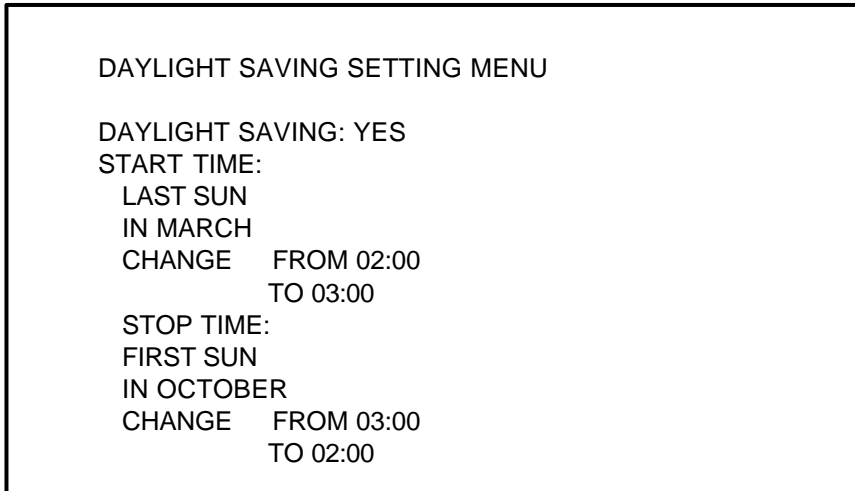
This menu provides automatically switching to Daylight Saving Time and back to Normal
        Time.

Standard start and end times in Middle Europe:
Last Sunday in March - change from 02:00 + 1 hour
Last Sunday in October- change from 03:00 - 1 hour

Settings:
**START TIME:**   Set date and time for switching from Normal to Daylight Saving Time
**END TIME:**   Set date and time for switching from Daylight Saving Time to Normal Time

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**

Press **ENTER** key to confirm the option and move to next column.

**MENU**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

## 6.3 TIMER SETTING MENU

```
                    TIMER  SETTING MENU

            WEEK   START    STOP   SPEED  SET
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
            SUN    00:00    23:59  50 IPS  OFF
```

In TIMER SETTING MENU we define automatic, timer-controlled records.

Timer records can be defined for 16 individual start and end times.

**(1) WEEK:** Select the week day for the timer to record on schedule.
**DLY** means daily record.
**(2) START:** Enter the start time for timer recording.
**(3) STOP:** Enter the end time for timer recording.
**NOTE:** The recorder records until the end of the minute which is set here.
**EXAMPLE:** START 07:00  END 08:00
The recorder records from 07:00:00 until 08:00:59
Each day has to be set separately:
**EXAMPLE:** Daily record from 20:00 till next day 07:00
**WRONG:**   DLY   START  20:00   STOP 07:00
**CORRECT:**  DLY   START  20:00   STOP 23:59
              DLY   START  00:00   STOP 06:59
**(4) SPEED :** Select recording speed. Maximum 60 (NTSC) / 50 (PAL).
**(5) SET:** Select "ON" when using timer recording.
Select "OFF" when not using timer recording.

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

Press **ENTER** key to confirm the option and move to next column.

**ENTER**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

**MENU**

## 6.4 SEQUENCE SETTING MENU

```
        SEQUENCE SETTING MENU

          CH   OP    DWELL

          1    ON   03 SECS
          2    ON   03 SECS
          3    ON   03 SECS
          4    ON   03 SECS
          5    ON   03 SECS
          6    ON   03 SECS
          7    ON   03 SECS
          8    ON   03 SECS
          9    ON   03 SECS
          10   ON   03 SECS
          11   ON   03 SECS
          12   ON   03 SECS
          13   ON   03 SECS
          14   ON   03 SECS
          15   ON   03 SECS
          16   ON   03 SECS
```

10 to 16 only valid for EDSR-1600

**In the SEQUENCE SETTING MENU, we define for MAIN Monitor**

**(1) CH (Channel):**   Input channels. 1~9 for EDSR-900, 1~16 for EDSR-1600.

**(2) OP (Operation):** ON includes the camera in the sequence, OFF skips the camera in the sequence.

**(3) DWELL (DWELL TIME) :** Dwell Time is individually adjustable for each channel. The dwelling time for the sequencer can be set between 0-99 seconds.

**Note: Sequences for Call monitors are defined in MATRIX menu.**

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**

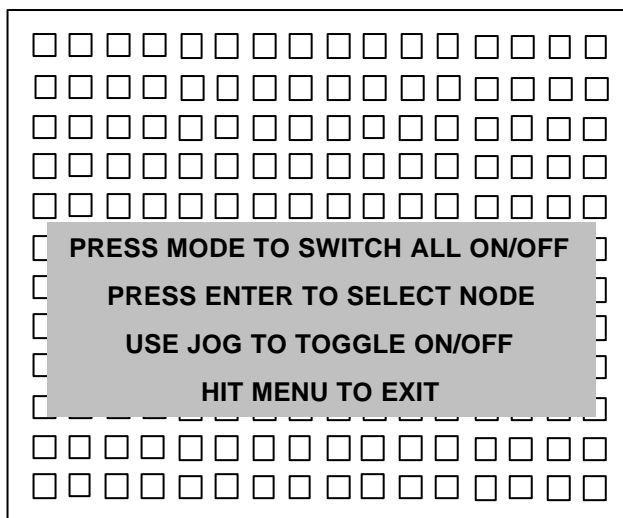Press **ENTER** key to confirm the option and move to next column.

**MENU**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

## 6.5 TITLE SETTING MENU

```
TITLE SETTING MENU

CH   TITLE

1    CH01_ _ _ _ _
2    CH02_ _ _ _ _
3    CH03_ _ _ _ _
4    CH04_ _ _ _ _
5    CH05_ _ _ _ _
6    CH06_ _ _ _ _
7    CH07_ _ _ _ _
8    CH08_ _ _ _ _
9    CH09_ _ _ _ _
10   CH010_ _ _ _ _
11   CH011_ _ _ _ _
12   CH012_ _ _ _ _
13   CH013_ _ _ _ _
14   CH014_ _ _ _ _
15   CH015_ _ _ _ _
16   CH016_ _ _ _ _
```

10 to 16 only valid for EDSR-1600

**In the TITLE SETTING MENU we define:**

The Title Setting Menu allows you to assign a title to each camera input.
Title with up to 12 characters is supported for each channel.

The available alphanumeric characters are:
0,1,2,3,4,5,6,7,8,9,
A,B,C,D,…X,Y,Z.
( ) . , + - / "space"

**Default setting is CH01~CH09 for EDSR 900, CH01~CH16 for EDSR 1600.**

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**

Press **ENTER** key to confirm the option and move to next column.

**MENU**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

## 6.6 COVERT SETTING MENU

```
COVERT SETTING MENU

CH  OP

1    OFF
2    OFF
3    OFF
4    OFF
5    OFF
6    OFF
7    OFF
8    OFF
9    OFF
10   OFF
11   OFF
12   OFF
13   OFF
14   OFF
15   OFF
16   OFF
```

10 to 16 only valid for EDSR-1600

**In the COVERT SETTING MENU we define:**

The covert setting menu allows you to hide the requested camera on the display in a blue background. Change setting to "ON" for covering camera. Camera is invisible in Live and Playback mode unless this function is deactivated in COVERT menu.

**Default setting is "OFF" for all cameras.**

**Note: With network access, a covert camera is visible only for users with "ADMIN" password level. For users with "GENERAL" and "GUEST" level, the covert camera is invisible.**

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**
Press **ENTER** key to confirm the option and move to next column.

**MENU**
Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

### 6.7 ALARM RECORD SETTING MENU

```
ALARM SETTING MENU

CH   OP   TYPE   DURATION

1    ON   N.O    05 SECS
2    ON   N.O    05 SECS
3    ON   N.O    05 SECS
4    ON   N.O    05 SECS
5    ON   N.O    05 SECS
6    ON   N.O    05 SECS
7    ON   N.O    05 SECS
8    ON   N.O    05 SECS
9    ON   N.O    05 SECS
10   ON   N.O    05 SECS
12   ON   N.O    05 SECS
13   ON   N.O    05 SECS
14   ON   N.O    05 SECS
15   ON   N.O    05 SECS
16   ON   N.O    05 SECS
RST       N.O
```

10 to 16 only valid for EDSR-1600

**In ALARM RECORDING MENU, we define**

**(1) CH (Alarm input) :** Select alarm input or RST for alarm reset  input.

**(2) OP (OPERATION) : ON :** Records when alarm occurs.

　　　　　　　　　　**OFF :** No reaction when alarm occurs.

**(3) TYPE :** Select alarm type:

　　　　N.C.  : Normally Closed with time out function counting from  alarm start (set in DURATION)

　　　　N.C. + TRANS : Normal Closed, alarm duration as long  as contacts is active + timeout (set in DURATION)

　　　　N.O. :  Normal Open with time out function counting from  alarm start (set in DURATION)

　　　　N.O. + TRANS: Normal Open,  alarm duration as long  as contact is active + timeout (set in DURATION)

**(4) DURATION :** Timeout duration time for each event. 0~99 seconds adjustable.

| | |
|---|---|
| | Turn the **JOG** dial clockwise or counter-clockwise to select the options. |
| **ENTER** | Press **ENTER** key to confirm the option and move to next column. |
| **MENU** | Press **MENU** key to return to Main Menu, press again to leave Set up Menu. |

## 6.8 MOTION SETTING MENU

```
MOTION SETTING MENU

CH  OP   SEN   DURATION

1    OFF   HIGH   05 SECS
2    OFF   HIGH   05 SECS
3    OFF   HIGH   05 SECS
4    OFF   HIGH   05 SECS
5    OFF   HIGH   05 SECS
6    OFF   HIGH   05 SECS
7    OFF   HIGH   05 SECS
8    OFF   HIGH   05 SECS
9    OFF   HIGH   05 SECS
10   OFF   HIGH   05 SECS
11   OFF   HIGH   05 SECS
12   OFF   HIGH   05 SECS
13   OFF   HIGH   05 SECS
14   OFF   HIGH   05 SECS
15   OFF   HIGH   05 SECS
16   OFF   HIGH   05 SECS

PRESS 1-16 TO MANUAL EDIT
```

10 to 16 only valid for EDSR-1600

**In the MOTION RECORD SETTING MENU we define:**

**(1) CH (Channel):** video input channel
**(2) OP (Operation):** Default: OFF
    **ON:** The device will respond recording when motion occurs.
    **OFF:** The device will not respond recording when motion occurs.
**(3) SEN (Sensitivity):** **HIGH, MIDDLE** or **LOW** adjustable. Default: MIDDLE.

**(4) DURATION:** Duration time for motion record and Alarm Out relay.
    0~99 seconds adjustable. Default: 05 seconds.

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**
Press **ENTER** key to confirm the option and move to next column.

**MENU**
Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

**(5) HIT 1-9/16 TO MANUAL EDIT:**

Use the number keys (1~9 for EDSR-900 / 1~16 for EDSR-1600) to select a camera for setting the detection areas.

The selected camera appears with a 16 x 12 grid (detection zones):

```
□ □ □ □ □ □ □ □ □ □ □ □ □ □
□ □ □ □ □ □ □ □ □ □ □ □ □ □
□ □ □ □ □ □ □ □ □ □ □ □ □ □
□ □ □ □ □ □ □ □ □ □ □ □ □ □
□ □ □ □ □ □ □ □ □ □ □ □ □ □
```

**PRESS MODE TO SWITCH ALL ON/OFF**

**PRESS ENTER TO SELECT NODE**

**USE JOG TO TOGGLE ON/OFF**

**HIT MENU TO EXIT**

```
□ □ □ □ □ □ □ □ □ □ □ □ □ □
□ □ □ □ □ □ □ □ □ □ □ □ □ □
```

**MODE**  switches all detection zones ON/OFF

**ENTER**  jumps to the next detection field.

**JOG wheel**  switches zone ON – active (area filled) or OFF – inactive (area empty) for motion detection.

**MENU**  key exits area setting and jumps back to MOTION SETUP MENU.

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**

Press **ENTER** key to confirm the option and move to next column.

**MENU**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

## 6.9 RECORD SETTING MENU

```
        RECORD SETTING MENU

     NORMAL RECORD
     SPEED         : 50 IPS
     QUALITY       : STANDARD
     DISK FULL     : REWRITE

     ALARM RECORD
     OPERATION       ON
     SPEED         : 50 IPS
     QUALITY       : STANDARD

     PRE-ALARM RECORD
     OPERATION       ON

     PREMANENT RECORD
     OPERATION     : ON
     SPEED         : 0,01 IPS
```

**In NORMAL RECORDING MENU we define**

**(1)      NORMAL RECORD:**
**SPEED :** Choose the normal recording speed. Maximum 60 (NTSC) / 50 (PAL).
**QUALITY:** Define the video picture's quality by selecting a compression rate.
There are six quality levels for recording

> **LOWER       : 15 KB**
> **LOW         : 19 KB**
> **BASIC       : 23 KB**
> **STANDARD  : 27 KB**
> **HIGH        : 31 KB**
> **SUPERIOR  : 35 KB**

**DISK FULL**: Set **REWRITE** or **STOP** when HDD is full.

**(2)      ALARM RECORD (for Alarm In and Motion detection):**
**OP (Operation):** Select **ON** to activate or **OFF** to deactivate alarm recording.
**SPEED :** Choose the alarm and motion recording speed. Maximum 60 (NTSC) / 50 (PAL).
**QUALITY:** Define the video picture's quality by selecting a compression rate.
**NOTE**: The recording rates are for the total system. The single camera recording rate is:
Camera recording rate = System recording rate / Number of connected cameras
**Example:** Recording rate 50 IPS, 6 connected cameras: ~ 8,3 IPS / camera
**NOTE:** For alarm recording, see also remarks in (4) PERMANENT RECORDING.

|  | Turn the **JOG** dial clockwise or counter-clockwise to select the options. |
|---|---|
| **ENTER** | Press **ENTER** key to confirm the option and move to next column. |
| **MENU** | Press **MENU** key to return to Main Menu, press again to leave Set up Menu. |

**(3)**   **PRE-ALARM RECORD: (with Alarm In and Motion)**
Pre-alarm duration is depending on recording quality (about 8-15 seconds).
**OP (Operation):** Select **ON** to activate or **OFF** to deactivate pre-alarm recording.

**(4)**   **PERMANENT RECORDING:**
This recording mode is used for continuous recording in the quality of NORMAL
RECORD settings.
**Permanent record option:**
Operation: ON or OFF
Speed  : 0.01 IPS, 0.3 IPS, 0.5 IPS, 1 IPS, 5 IPS, 10 IPS, 15 IPS, 20 IPS,
30 IPS, and 60 IPS.
**IMPORTANT NOTE:**
This mode is recommended in combination with alarm records (alarm contacts or
motion alarm). If only alarm recording is active, the hard disk capacity is not used
optimal because every alarm record opens a new segment on the hard disk. Depending
on the alarm settings (duration, quality), this segment is not used totally and results in
the total EDSR recording time being less than expected.
By activating a NORMAL or PERMANENT recording with low recording rate - from
version 1.08 the EDSR900/1600 also supports 0,01 IPS (1 picture every 100 seconds) -,
this effect can be avoided. All records will continuously be written in one segment and
the Hard Disk is used up to its full capacity.
When device had been set to be "PERMANENT" recording, and the device will follow
"PERMANENT" setting when Rec bottom not been pushed(Device power on). If users
push the Rec bottom, and it is "Normal" recording type.

|  | |
|---|---|
|  | Turn the **JOG** dial clockwise or counter-clockwise to select the options. |
| **ENTER** | Press **ENTER** key to confirm the option and move to next column. |
| **MENU** | Press **MENU** key to return to Main Menu, press again to leave Set up Menu. |

## 6.10 NETWORK SETTING MENU

```
              NETWORK SETTING MENU

   IP ADDRESS            : 192.168.010.005
   NET MASK ADDRESS      : 255.255.255.000
   GATEWAY ADDRESS       : 192.168.010.001
   MAC ADDRESS           : 00:5A:56:A3:87:1A

   USER-NAME      PASSWORD        LEVEL

   GUEST---       GUEST---        GUEST---
   GENERAL-       GENERAL-        GENERAL-
   ADMNI---       ADMNI---        ADMNI---


   HTTP  PORT: 0080
   CTRL  PORT: 6666
   DATA PORT: 1111 2222 3333 4444
```

**In the NETWORK SETTING MENU, we define**

**(1)IP ADDRESS :** Assign an fixed IP address for this unit, for example:192.168.010.005

**(2)NET MASK ADDRESS:** Assign a subnet mask of the network for this unit, for example:255.255.255.000

**(3)GATEWAY ADDRESS:** Assign a default gateway for this unit, for example:192.168.010.001

**(4)MAC ADDRESS:** Display of fixed hardware address of the network interface.

**Note: Please wait for the warning of OSD disappear and restart of EDSR the new network settings are activated.**

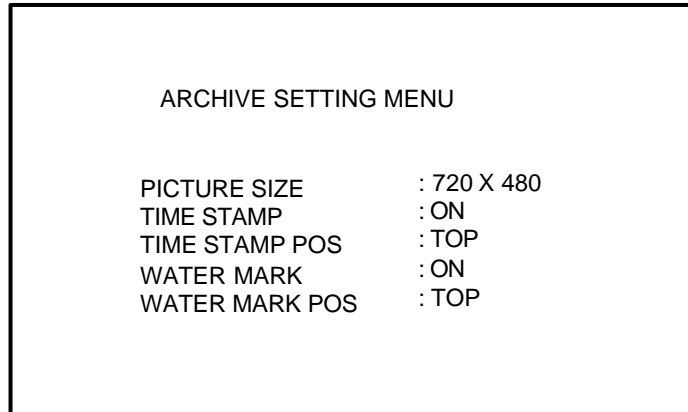|  | Turn the **JOG** dial clockwise or counter-clockwise to select the options. |
|---|---|
| **ENTER** | Press **ENTER** key to confirm the option and move to next column. |
| **MENU** | Press **MENU** key to return to Main Menu, press again to leave Set up Menu. |

**(5)    USER-NAME  PASSWORD  LEVEL**

The Login name and password are used to establish a network connection to the unit.
The PASSWORD setup allows the administrator to set the new Login name and password
with access level  "SUPER","GENERAL" or "GUEST".

The system allows up to four users connected at same time with different access levels.
"**ADMIN** " :        can view live/playback video, covert cameras and control all
                         operation/setup.
"**GENERAL**":      can view live and playback video.
"**GUEST**":         can only view live display.

**(6)    PORT SETTINGS**

New is the possibility of changing the required network ports (if special ports are blocked
by firewall or ISP). The control port 6666 is fixed, no change possible.

**ATTENTION:** If PowerCon Software till Rev. 3.1.1.3 is used, the standard port settings
for Data Port (1111, 2222, 3333, 4444) are required!

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**

Press **ENTER** key to confirm the option and move to next column.

**MENU**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

## 6.11 CONTROL SETTING MENU

```
CONTROL SETTING MENU
  RS232
     BAUD RATE        : 9600 BPS
     STOP BIT         : 1
     PARITY           : NONE
     DATA BIT         : 8

  RS485
     BAUD RATE        : 9600 BPS
     STOP BIT         : 1
     PARITY           : NONE
     DATA BIT         : 8

     RS232/RS485 ID   : 1
```

**In the CONTROL SETTING MENU, we define**

**(1) RS232 BAUD RATE:** There are 6 different speeds that can be used to transmit instruction or information through the RS232 port on the device, 1200 baud,2400 baud,4800 baud,9600 baud, 19200 baud,and 38400 baud. The default setting from the factory is 9600 baud.

**(2) RS232 STOP BIT:** Select stop bit: 1 or 2

**(3) RS232 PARITY:** Select parity mode: NONE/ODD/EVEN

**(4) RS232 DATA BIT:** Select data bit : 8 or 7

**(5) RS485 BAUD RATE:** There are 6 different speeds that can be used to transmit instruction or information through the RS485 port on the device, 1200 baud,2400 baud,4800 baud,9600 baud, 19200 baud,and 38400 baud.

**(6) RS485 STOP BIT:** Select stop bit: 1 or 2

**(7) RS485 PARITY:** Select parity lever: NONE/ODE/EVEN

**(8) RS485 DATA BIT:** Select data bit : 8 or 7

**(9) RS232/RS485 ID:** RS232/RS485 address.The address range  for the DVR: 1~200.

**NOTE: Settings for remote keyboards KS-KBK and KS-KBJ:**

RS-485 Baud rate: 9600, 1 Stop bit, Parity NONE, ID (device number) range: 1~32.

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**

Press **ENTER** key to confirm the option and move to next column.

**MENU**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

### 6.12 BUZZER SETTING MENU

```
BUZZER SETTING MENU

BUZZER        :   ENABLE

RECORD-IN     :   ON
ALARM-IN      :   ON
MOTION-IN     :   ON
DISK FULL     :   ON
VIDEO LOSS    :   ON
TIMER         :   ON
```

**In BUZZER  SETTING  MENU, we define the buzzer ON/OFF for following event:
RECORD-IN, ALARM-IN, MOTION-IN, DISK FULL, VIDEO LOSS AND TIMER.
Please select ON or OFF**

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**

Press **ENTER** key to confirm the option and move to next column.

**MENU**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

## 6.13 ARCHIVE SETTING MENU

```
ARCHIVE SETTING MENU


PICTURE SIZE          : 720 X 480
TIME STAMP            : ON
TIME STAMP POS        : TOP
WATER MARK            : ON
WATER MARK POS        : TOP
```

**In the ARCHIVE SETTING MENU, we define for picture and movie export to CF-card:**

**(1) PICTURE SIZE :**

Selects picture size for copying image to CF card:

Big size:720x480 / 720x576 for NTSC / PAL.

Small size:352x240 / 352x288 for NTSC / PAL.

**(2) TIME STAMP :**

**ON**: Shows the time stamp on the picture when copying image to CF card.

**OFF**: This erases the time stamp on the picture when copying image to CF card.

**(3) TIME STAMP POS (Position):**

**BOTTOM:** The time stamp will show on the bottom of the image.

**TOP:** The time stamp will show on the top of the image.

**(4) WATER MARK:**

**ON:** Shows a water mark on the picture when copying image to CF card.

**OFF:** No water mark on the picture when copy image to CF card.

**(5) WATER MARK POS (Position)**:

**BOTTOM:** Water mark will show on the bottom of the image.

**TOP:** Water mark will show on the top of the image.

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**

Press **ENTER** key to confirm the option and move to next column.

**MENU**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

### 6.14 MATRIX SETTING MENU

```
MATRIX  SETTING MENU

   ┌─────────────────┐
   │  CALL MONITOR   │
   └─────────────────┘
     MATRIX -1
     MATRIX -2
     MATRIX -3
     MATRIX -4
```

**(Dialog 1)**

**ENTER**

```
MONITOR-0  SETTING MENU

   CH   DWELL     EVENT

   1    07 SECS   NONE
   2    07 SECS   NONE
   3    07 SECS   NONE
   4    07 SECS   NONE
   5    07 SECS   NONE
   6    07 SECS   NONE
   7    07 SECS   NONE
   8    07 SECS   NONE
   9    07 SECS   NONE
   …………
```

**(Dialog 2)**  … more

**In the MATRIX SETTING MENU, we define the standard sequences for each matrix monitor and event, which override these sequences.**

Users may set up to 5 call monitors accordingly (Dialog 1).

**Note:** CALL MONITOR is the regular CALL MONITOR. MONITOR-1~4 are additional 4 call monitors for video matrix functions.

Select the desired call monitor and then press **ENTER** key. The SUB-MENU will show as Dialog 2.
**CH, DWELL, EVENT:**

**(1) CH (Channel):** Select the camera to be shown in the standard sequence of this call monitor. With setting "00" the channel will be skipped in the sequence.

**(2) DWELL (Dwelling time):** Set 0~99 seconds for the dwelling time of each camera.

**(3) EVENT**: Set the alarm and correspondent motion to the camera.

NONE: no alarm or motion action is assigned to this camera.

MOTION: If MOTION detection is active for this camera, the camera will be displayed, if motion is detected. After alarm record duration the monitor switches back to standard sequence or spot camera (depending on operation).

A01 ~ A09: The camera will be displayed, if selected alarm input is active.

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

Press **ENTER** key to confirm the option and move to next column.

**ENTER**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

**MENU**

27
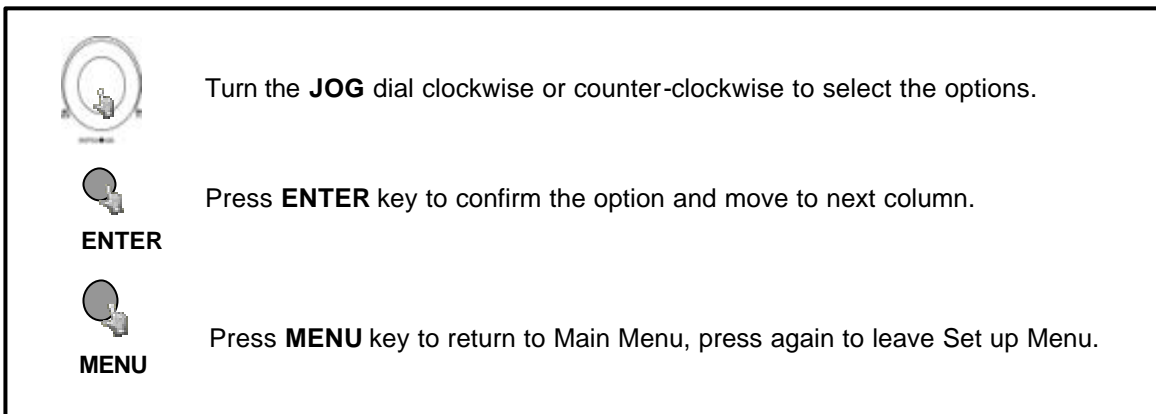
### 6.15 DISK MENU

```
DISK SETTING MENU


DISK USAGE    HDD-1        HDD-2

SIZE (GB)     120          120

RECORD POS    *78,2%       0%

PLAY POS      *39,5%       0%

DISK RENEW    NO           NO
```

In the **DISK** menu, the Hard Disks' capacity and status are displayed. Additionally, the Hard Disks' indexes can be deleted.

**SIZE (GB):** Display of Hard Disk capacity in GB for HDD1 (upper Slot) and HDD2 (lower slot).

**RECORD POS:** Display of current recording position on the Hard Disk. The active Hard Disk is marked with **" * "**

**PLAY POS:** Display of current playback position on the Hard Disk. The active Hard Disk is marked with **" * "**

**DISK RENEW: "YES"** deletes the index of the selected Hard Disk
        **NOTE:** This function only deletes the index of the HDD and is no secure removal of any video data from the Hard Disk.

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

Press **ENTER** key to confirm the option and move to next column.

**ENTER**

Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

**MENU**

### 6.16 PTZ SETTING MENU

```
        PTZ SETTING MENU

    PTZ ENABLE: OFF
    PTZ Port: RS485
    PROTOCOL: PELCO-D
    BAUD RATE: 9600

    PTZ ADDRESS:
    CH1: 001      CH9:   009
    CH2: 002      CH10: 010
    CH3: 003      CH11: 011
    CH4: 004      CH12: 012
    CH5: 005      CH13: 013
    CH6: 006      CH14: 014
    CH7: 007      CH15: 015
    CH8: 008      CH16: 016
```

The  EDSR600/900/1600 Recorder from FW 1.09 provides telemetry control over network. Local device telemetry control at the EDSR recorder is not possible. Telemetry bus may be connected to RS-232 or RS-485.

In the **PTZ SETTING MENU**, we define

**PTZ ENABLE:**  ON activates telemetry function / OFF disable telemetry function.

**PTZ - Port:**    Selection of active telemetry port, RS232 or RS485.
                   **ATTENTION:**    If the EDSR is remote controlled by RS-485 keyboard, and telemetry must  be connected to the RS232 - port (with interface converter)

**PROTOCOL:**    Supported protocols: PELCO-D, PELCO-P, EVERFOCUS* und VPROTECT*
                   (* reserved for future us, currently not supported)

**BAUD RATE:**   There are 6 telemetry transmission rates, selectable 1200, 2400, 4800, 9600, 19200, 38400 baud rate.

**PTZ-ADRESS:**  Telemetry receiver / Dome camera address assignment to the video inputs

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**   Press **ENTER** key to confirm the option and move to next column.

**MENU**   Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

**Example: Connection ED-2250 Dome to EDSR600/900/1600**

Control of EverFocus ED2250 speed dome is possible with setting PELCO - D
or PELCO - P protocol.
Functionality is limited compared to keyboard control with original protocol,
available are PTZ and preset functions (no ED2250 setup menu).

**PELCO - D:  DIP switch 501 at ED2250**
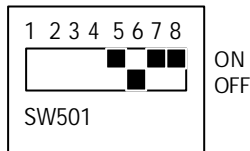
| Baud Rate | SW501-3 | SW501-4 |
|-----------|---------|---------|
| 19200BPS | OFF | OFF |
| 9600BPS | ON | OFF |
| 4800BPS | OFF | ON |
| 2400BPS | ON | ON |

1 2 3 4 5 6 7 8   ON / OFF   SW501

**PELCO-P: DIP switch 501 at ED2250**
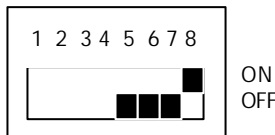
| Baud Rate | SW501-3 | SW501-4 |
|-----------|---------|---------|
| 19200BPS | OFF | OFF |
| 9600BPS | ON | OFF |
| 4800BPS | OFF | ON |
| 2400BPS | ON | ON |

1 2 3 4 5 6 7 8   ON / OFF

**Address setting DIP switch 500**: an offset +1 is required.
Example:        Camera (address) 1 at EDSR > Address 2 at ED2250

**RS-485 - Connection ED-2250 dome**



Definition RJ45(RS485)

PIN3 RS-485+   PIN6 RS-485+

| PIN | FUNCTION |
|-----|----------|
| 1 | GND |
| 2 | NC |
| 3 | RX + |
| 4 | NC |
| 5 | NC |
| 6 | RX - |
| 7 | NC |
| 8 | NC |

TX+  TX-    TX+  TX-
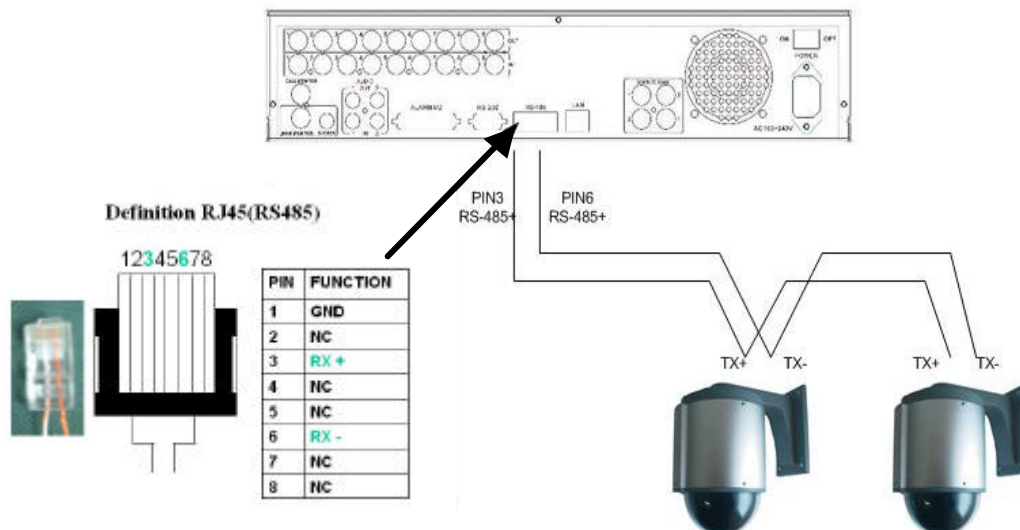
**RS-232 - Connection ED2250 Dome**
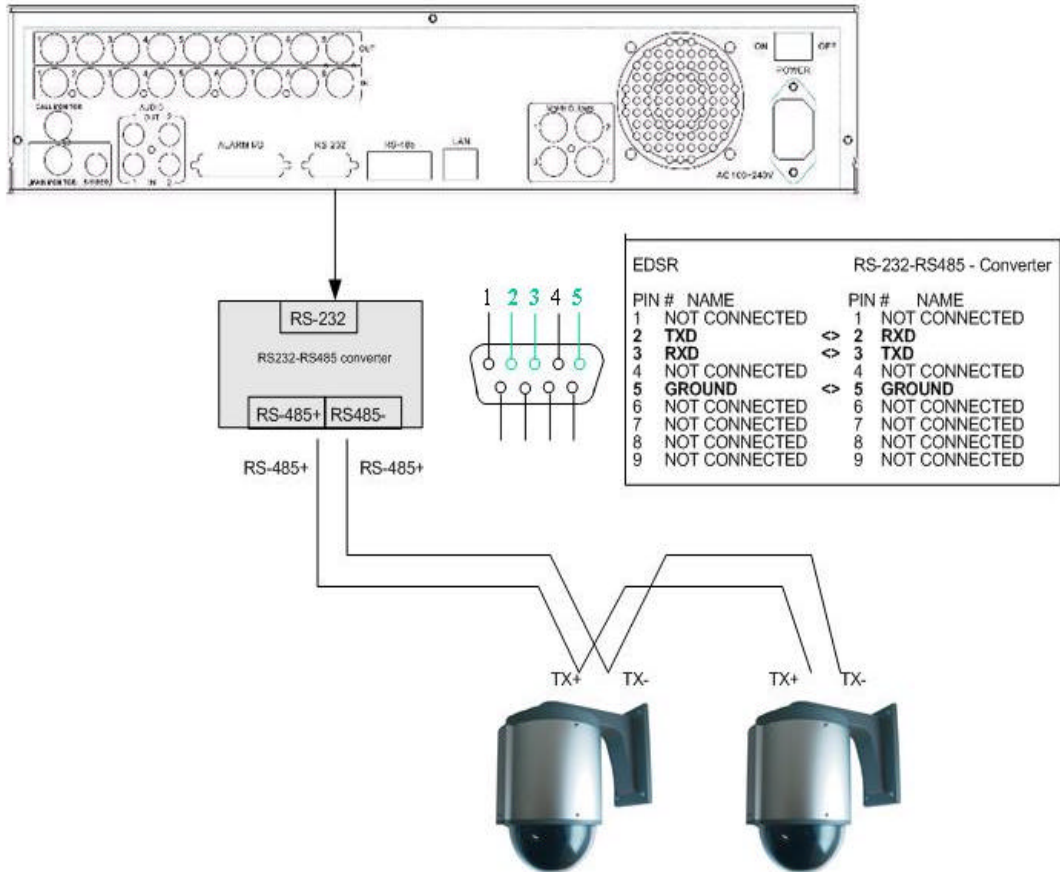
## 6.17 SYSTEM SETTING MENU

```
┌────────────────────────────────────────────┐
│             SYSTEM SETTING MENU             │
│                                             │
│                                             │
│   PLAY WITH AUDIO-1 :    ON                 │
│   PLAY WITH AUDIO-2 :    ON                 │
│   PLAY SPEED        :    50 IPS             │
│   PASSWORD ENABLE :      DISABLE            │
│   PASSWORD LEVEL 2 :     222222            │
│   PASSWORD LEVEL 3 :     333333            │
│                                             │
│                                             │
│   SYSTEM UPDATE:         NO                 │
│   LOAD DEFAULT:          NO                 │
│   CF FORMAT:             NO                 │
│                                             │
│                                             │
└────────────────────────────────────────────┘
```

**In the SYSTEM SETTING MENU, we define**

**(1) PLAY WITH AUDIO: AUDIO-1, AUDIO-2**
   **ON/OFF:** Playback with or without audio.
**(2) PLAY SPEED:** Set the playback speed. Maximum 60 (NTSC) / 50 (PAL).
**(3) PASSWORD ENABLE:** Enable/Disable the password protection.
**(4) PASSWORD LEVEL 2:** Set password with 6 digits, default setting: 222222
**(5) PASSWORD LEVEL 3:** Set password with 6 digits, default setting: 333333
   **LEVEL 1:** Active after start-up, user is allowed to switch live views, no access to
             record, search, playback and menu functions. No password for this level.
   **LEVEL 2:** Access to record, playback, search functions, no set up menu access.
   **LEVEL 3:** Access to all functions incl. set up menu.

**(6) SYSTEM UPDATE:** Select **YES/NO** for update system.
   **YES:** Download the update S/W into CF card via your PC and insert the CF card
          into the DVR front panel CF slot. After that press **ENTER** key to start .
**Notice: After the system is successfully updated, please reboot the system.**
**(7) LOAD DEFAULT:** Select **YES/NO** to load factory default setting, necessary after update.
**(8) CF FORMAT**: **YES** formats the Compact Flash Card in the CF slot

---

Turn the **JOG** dial clockwise or counter-clockwise to select the options.

**ENTER**    Press **ENTER** key to confirm the option and move to next column.

**MENU**     Press **MENU** key to return to Main Menu, press again to leave Set up Menu.

## 7.1 INSTANT RECORDING

Press **REC** key to start continuous recording with setting of "NORMAL RECORD".

**REC**

The recording rate and recording quality are set in the RECORD SETTING MENU.

The LCD screen on the front panel of DVR will display as follows:

| 2003/11/23 | REC      HDD1      70% |
|:-----------|:-----------------------|
| 21:56:47   | 50   IPS      21:56:52 |
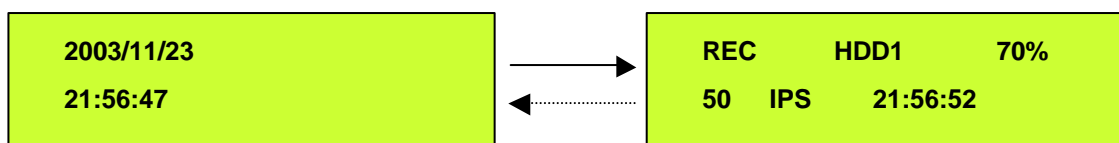
Display shows operation status, active HDD, record position on active HDD, record frame rate ant current time.

REC, Maximum 60 (NTSC) / 50 (PAL) fields will also show on the main monitor display if you press the **DISPLAY** key to show camera title and date/time.

Press **STOP** key to stop recording.

**STOP**

Since the DVR had Duplex feature, STOP key can be activated both in Playing back and Recording. In Duplex mode first STOP will stop playback, second STOP will stop recording.

When the HDD is full, the machine will Stop recording automatically or Auto Overwrite from the beginning of the HDD. It depends on the setting in **RECORD SETTING MENU**.

## 7.2  ALARM RECORDING

When the ALARM OPERATION setting is "ON", the DVR will automatically record when alarm occurs , and will automatically stops recording at the end of the alarm duration period.

As example, we set ALARM RECORDING SPEED on 60 (NTSC) / 50 (PAL) field, the screen will show as below,

| A.       REC (50IPS) |
|:---------------------|
| DISK:   39 GB        |
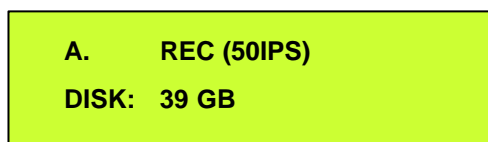
Instant recording and timer recording will stop when an alarm occurs.

Please refer details in RECORD SETTING MENU (page 20).

## 7.3 PERMANENT RECORDING

No manual operation is required, the automatic permanent recording is defined and activated in the RECORD menu.

## 7.4 TIMER RECORDING

No manual operation is required, the settings for TIMER recording is defined in the TIMER menu.

## 8.1 NORMAL PLAYBACK

**(1) Playback**

**PLAY**

Press the **PLAY** key to start playing back the stored video/audio from the last SEGMENT.

**NOTE:** In Duplex mode (simultaneous record and playback) the playback speed is limited to 25 IPS. For real-time display of 50 IPS records stop recording before starting playback.

**(2) Fast Forward/Reverse Playback**
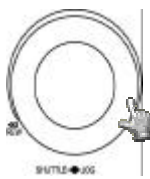
During playing back, turn the **SHUTTLE** ring clockwise to start fast forward playing back.
The speed will be shown on the screen at the bottom of the screen.
>> 2X, 4X, 8X, 16X, 32X, 600X
Turn the SHUTTLE ring counter-clockwise to start fast reverse playing back.
 The speed will be shown on the screen.
<< 2X, 4X, 8X, 16X, 32X, 600X

The **ENTER** key locks the current fast forward/reverse playback mode.

**ENTER**

**(3) Slow Forward/Reverse Playback**

**PAUSE**

During playing back,press **PAUSE** key to freeze the playing back image.
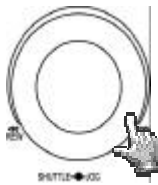
Turn the **SHUTTLE** ring clockwise to start slow forward playing back.
The speed will show at the bottom of the screen.
>> 1/2, 1/4, 1/8, 1/10, 1/16, 1/32

Turn the **SHUTTLE** ring counter-clockwise and slow reverse playback starts.
The speed will show on the SCREEN at the corner of the screen.
<< 1/2, 1/4, 1/8, 1/10, 1/16, 1/32

**(4) Field advance Forward/Reverse**
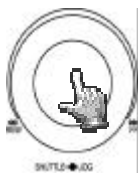
During **PAUSE** mode, turn the **JOG** dial clockwise to advance the still image field by field.

Turn the job dial counterclockwise to rewind the still image field by field.

**(5) Press STOP key to stop playing back.**

**NOTE: Press STOP key again will stop recording. Please check the REC key if it lights or not after your operation.**

## 8.2 SEARCH PLAYBACK

### (1) Segment List search playback

**SEARCH**

Press **SEARCH** key to enter the SEARCH MENU dialog.

```
           SEARCH  MENU

           BY  SEGMENT  LIST
           BY  ALARM   LIST
           BY  DATA   TIME
```
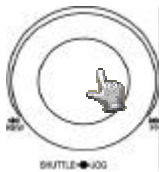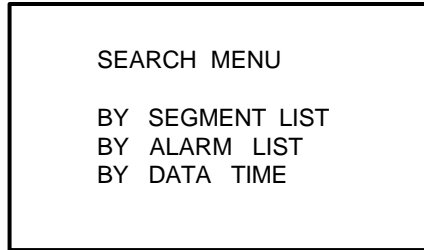
Turn the **JOG** dial to select BY SEGMENT LIST and press **ENTER** key.
A **segment** is a range on the HDD, beginning with record start (manual, alarm, motion or after power loss) and ending with record stop.
**NOTE:** If the recorder starts to overwrite a HDD, also a new segment will be generated.
The submenu will display as follows:

```
                                            ▼
       SEGMENT  SEARCH

       0001 A01  2005/04/24   19:03:29  HDD1
       0002 M02  2005/04/25   12;30:30  HDD1
       0003 M03  2005/04/27   12:00:00  HDD2
```
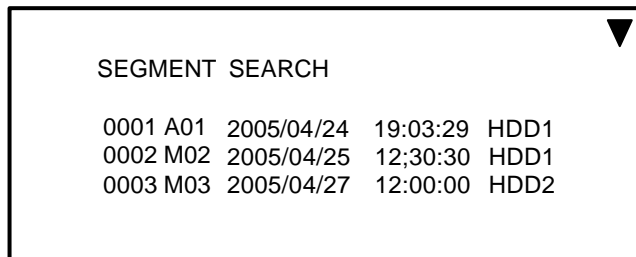
▼ To next page.      ▲ To  previous page.

A01 : Alarm recording by Alarm-in 1.
M03: Motion recording by camera 3.
T : Timer recording.
 PL: automatic record restart after end of power loss
**Notice:  Shuttle can change whole page.**
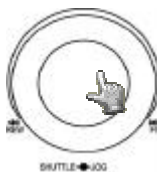
Turn the **JOG** dial to select desired items.

**ENTER**

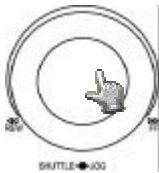Press **ENTER** key to start playing back selected segment.

**STOP**

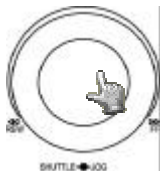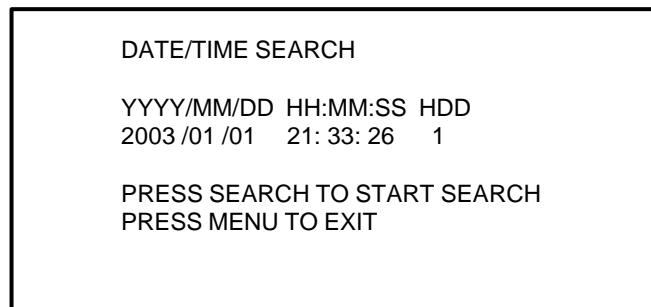Press **STOP** key to end playing back and return to static display.

**(2) Alarm List search playback**

Press **SEARCH** key to enter the SEARCH MENU dialog.

**SEARCH**

```
          SEARCH  MENU

          BY  SEGMENT  LIST
          BY  ALARM   LIST
          BY  DATA   TIME
```
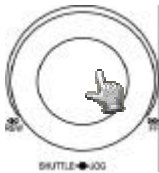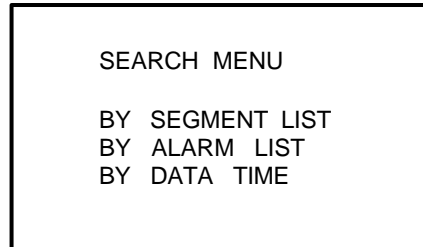
Turn the **JOG** dial to select BY ALARM LIST and press **ENTER** key. The submenu will display as follows:
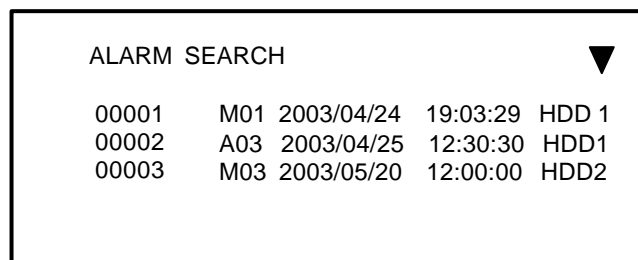
```
     ALARM  SEARCH                    ▼

     00001      M01 2003/04/24  19:03:29  HDD 1
     00002      A03 2003/04/25  12:30:30  HDD1
     00003      M03 2003/05/20  12:00:00  HDD2
```

A01 : Alarm recording by Alarm-in 1.
M03: Motion recording by camera 3.
T : Timer recording.
PL: automatic record restart after end of power loss
▼ : to next page      ▲ : to  previous page.

**Notice:  Shuttle can change whole page.**

Press **ENTER** key to start playing back selected alarm list.

**ENTER**

Press **STOP** key to end playing back and return to static display.

**STOP**

**(3) Date/Time  Search Playback**

Press **SEARCH** key to enter the SEARCH MENU dialog.

**SEARCH**

```
SEARCH  MENU

BY  SEGMENT  LIST
BY  ALARM   LIST
BY  DATA   TIME
```
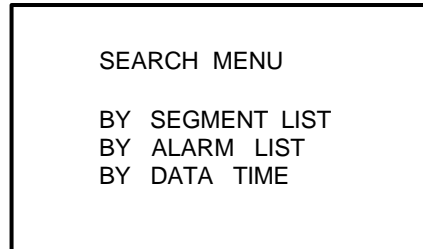
Turn the **JOG** dial to select BY DATA TIME and press **ENTER** key. The submenu and instruction will display as follows:

```
DATE/TIME SEARCH

YYYY/MM/DD  HH:MM:SS  HDD
2003 /01 /01    21: 33: 26      1

PRESS SEARCH TO START SEARCH
PRESS MENU TO EXIT
```

Turn the **JOG** dial to select desired date/time and stored hard disk.

Press **SEARCH** key to start playing back by date/time search or press **MENU** key to exit..

**SEARCH**

**Notice:** If there is no image stored in the date/time specified then the machine will start playing back from the nearest set time automatically.

Press **STOP** key to end playing back and return to static display.

**STOP**

## 9. DATA EXPORT

Insert a Compact Flash card into the Compact Flash slot on the front panel of DVR.
When inserting the Compact Flash card, make sure that insert direction is correct.

**NOTE:** COPY function will interrupt the recording for the duration of copy procedure.
The MAIN monitor displays the message:
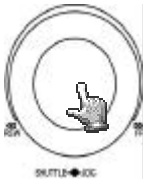**"WARNING: RECORD STOPS FOR COPY FUNCTION"**
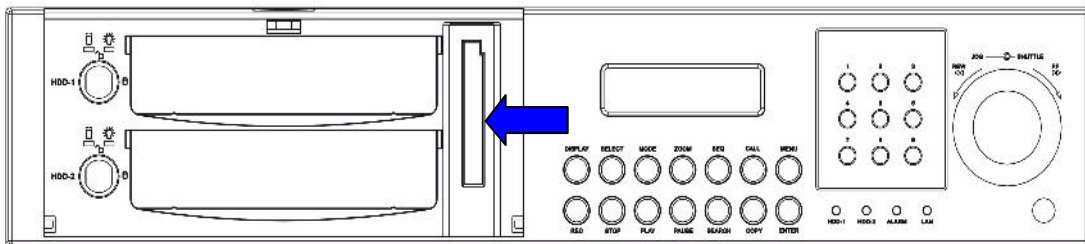


## 9.1 STILL IMAGE COPY

**PAUSE**

The still image copy function is possible in all playback view modes.
Press the **PLAY** key to start playing back.
Press the **PAUSE** key to pause playback.
The Monitor OSD shows "PAUSE ON (1~9 for EDSR-900, 1~16 for EDSR-1600)" . The displayed number shows the active channel for the COPY function.

Turn the **JOG Dial** clockwise to choose your desired image.

**COPY**

While displayed as your desired image of choice ,
press the **COPY** key. The " Copying …" will be shown on the screen during the process.

**Notice:**
Copied images are stored as a single picture. Copied files are saved as .JPG file.

**Notice1:**
Please wait after the message "DONE" about 5 seconds before removing CF-card
for ensure correct finish of write process.
**Notice2:** If system responds "wrong system file format", please go to CF
FORMAT option of SYSTEM menu for renewing CF card.
**Notice3:** Recording stop, when system is copying.

### 9.2 COPY TO MOVIE FILE

**NOTE:** COPY function will interrupt the recording for the duration of copy procedure.
The MAIN monitor displays the message:
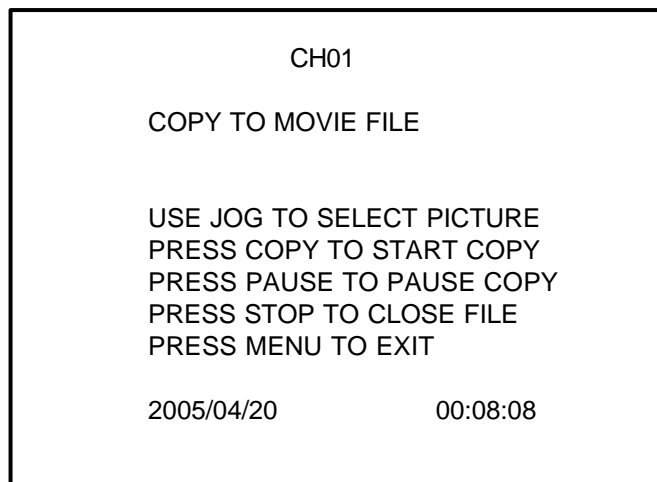"WARNING: RECORD STOPS FOR COPY FUNCTION"

**PLAY**

Press the **PLAY** key to start playing back.

**COPY**

Press **COPY** key and then the copy menu and instruction appears.
The main monitor switches to full screen display with following OSD:

```
                    CH01

        COPY TO MOVIE FILE


        USE JOG TO SELECT PICTURE
        PRESS COPY TO START COPY
        PRESS PAUSE TO PAUSE COPY
        PRESS STOP TO CLOSE FILE
        PRESS MENU TO EXIT

        2005/04/20              00:08:08
```

Turn the **JOG Dial** clockwise to choose your channel for copying.

**COPY**

While displaying as your desired image of choice,
Press **COPY** key to start copying image.

**PAUSE**

Press **PAUSE** key to pause copy image.

**STOP**

Press **STOP** key to finish copy and close file.

**MENU**

Press **MENU** key to return to playback. Press **STOP** to stop playing back.

**Notice:** Please wait after the message "DONE" about 5 seconds before removing CF-card for ensure correct finish of write process.

**Notice:** Copied images are stored as a movie picture. Copied files are saved as .MOV file. Use QuickTime to play the retrieved .MOV files. You may download QuickTime at www.apple.com. The playback version for QuickTime is free.

## 9.3 EXPORT EVENT LOG LIST

This function allows to export the event log list to CompactFlash – Card.
The generated text file in in *.txt format.

**DISPLAY**

Press „DISPLAY" key and hold the key for over 2 seconds.

```
                    EVENT LOG


  TYPE     ID       TIME

  MOTION   2        2004/01/02   12:12:54

  VL       1        2004/01/02   12:12:54

  VL       3        2003/12/29   12:12:54

  VL       1        2003/12/28   12:12:54


  USE JOG TO SWITCH PAGE
  HIT CALL TO TURN OFF BUZZER
  HIT COPY TO SAVE EVENT TO CF CARD
  HIT MENU TO EXIT
```

The event log list will be displayed:

**TYPE**: event type:          **MOTION** : motion detection
                               **ALARM**:  alarm in
                               **VL:**     video loss
                               **PL:**     restart after Power Loss
**ID**:     video input number for motion and video loss, alarm in contact for Alarm
**TIME**: start time of event

Turn the **JOG Dial** to jump to next event list page.

**CALL**

Press **CALL** to switch off buzzer, if active.

**COPY**

Press **COPY** to save the current event list page to Compact-Flash Card.

**MENU**

Press **MENU** to exit event log list.

## 10. MONITOR VIEWS / OPERATION

The EDSR900/1600 digital recorders provide 1 main monitor and 5 matrix monitors (include 1 call monitor).

These monitors have different functionalities:

**Main monitor:**                          - Full screen and multi screen display:

    EDSR-900: Full, 4, 6, 7, 8, 9, PIP, and 2x zoom

    EDSR-1600: Full, 4, 6, 7, 8, 9, 10, 13, 16, PIP, sequence and 2x zoom

    - Live- and Playback display

    - OSD for camera title, status messages, date, and time.

**CALL / Matrix monitors:**      - full  screen display

    - sequence mode or fixed camera display

    - display of motion or alarm cameras

    - OSD for camera title and alarm messages

### 10.1.  MAIN MONITOR

**MODE**

The **MODE** key switches the different multi-screen modes.

The numeric keys switch to full screen mode with the selected camera.

**DISPLAY**

**DISPLAY** switches the OSD for camera titles and status messages ON/OFF.

**ZOOM**

The ZOOM function is only available in full screen mode. Press **ZOOM** to activate the electronics 2 x zoom. Use the **JOG** wheel to move left/right in the picture. **ENTER** switches vertical / horizontal movement.

### 10.2. CALL / MATRIX MONITORS

**CALL**

Press CALL to change settings for CALL / MATRIX monitors.
The Main monitor shows following dialogue:

MATRIX NORMAL STATE SETTING MENU

PRESS CALL TO SET CALL MONITOR

PRESS 1-4 TO SELECT MATRIX

Select the monitor by pressing CALL or the numeric keys 1~4.
The Main monitor shows following dialogue (example with monitor 1):
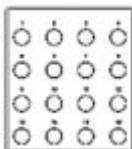
SETTING MATRIX 1…

SEQUENCE

OSD              ON


PRESS 1 – 16 TO SELECT SPOT CAMERA
PRESS SEQ TO SEQUENCE
PRESS DISPLAY TO TURN OSD ON/OFF
PRESS MENU TO EXIT

The current status of the selected monitor is shown in the second and third column

(Sequence / Spot, OSD ON/OFF).

**SEQUENCE**

Press sequence to activate the standard sequence for this monitor (setup for this sequence in menu MATRIX, page 27)

The numeric keys switch to full screen mode with the selected camera.

**MENU**

Press MENU to jump back to monitor selection menu.

**NOTE:**        In menu **MATRIX** defined events for motion and alarm have higher priority and will override the manual settings. After end of any event the monitor switches back to the manual settings.

# 11. REMOTE CONTROL

### 11.1 RS-485 REMOTE CONTROL

The new standard EverFocus EDSR remote control protocol allows sophisticated installations with DVR remote control at different installation sites.

EDSR remote control is supported by the keyboards **KS KBJ** (with 3-axis joystick and 2 additional RS-485 ports for telemetry control with independent telemetry protocols) and **KS KBK** (no telemetry). Up to 32 units are allowed in the RS-485 bus. The RS-485 bus requires serial wiring with 2-wire shielded twisted pair cable ('daisy chain"). Maximum cable length of the bus is 1200 m.

Star wiring is only possible with additional RS-485 distributor.

Mixed installation is possible with following recorder types:

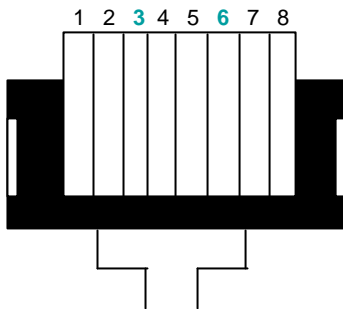EDSR 100 M, EDSR 400 M, EDSR 600, EDSR 900, EDSR 1600

For installation details, please refer to the KS-KBK and KS-KBJ keyboard manuals.

**Installation example (2 remote operators, 1 EDSR 900, 1 EDSR 1600)** :
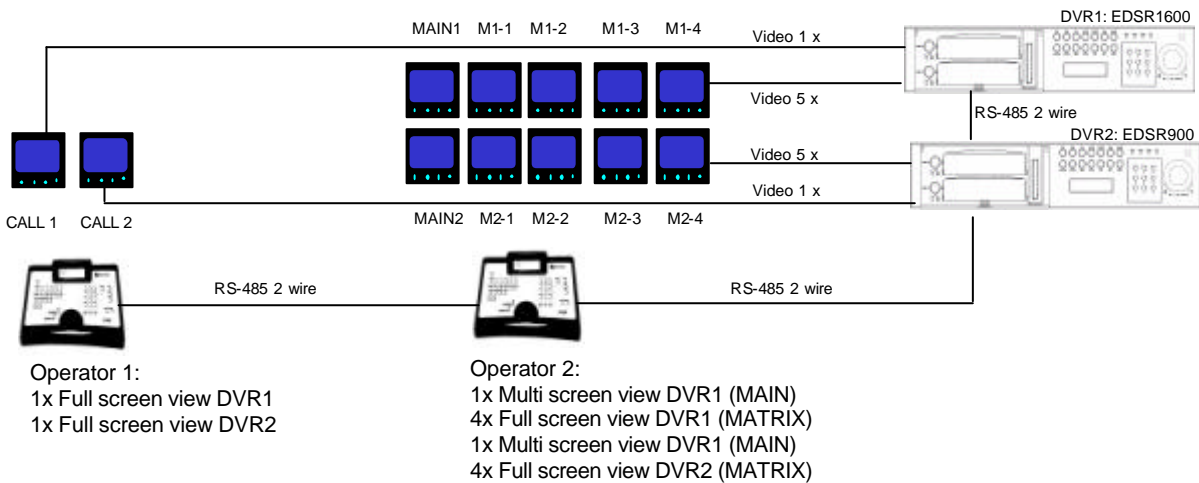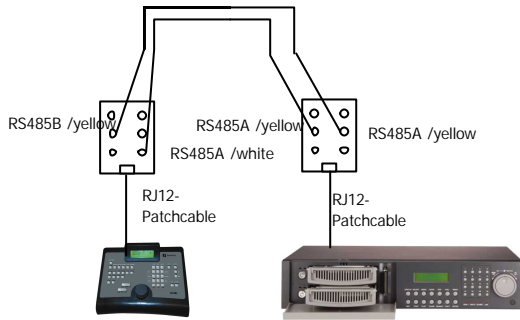


### RJ45 (RS-485) pin assignment

There are two RJ-45 (RS-485) connectors on the back panel of the DVR (loop-through). For application, please refer to the following pin assignment.
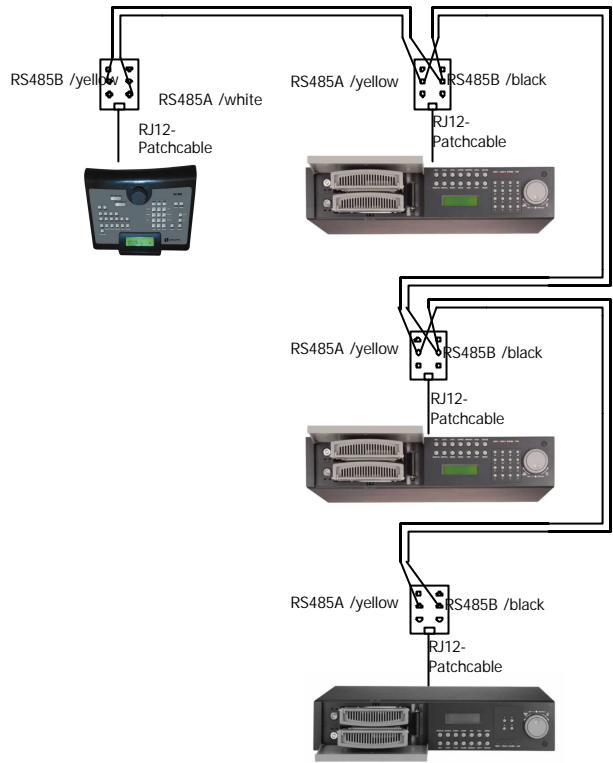


| PIN | FUNCTION |
|-----|----------|
| 1 | GND |
| 2 | NC |
| 3 | RX + |
| 4 | NC |
| 5 | NC |
| 6 | RX - |
| 7 | NC |
| 8 | NC |

**Wiring diagram single EDSR control**

RS485B /yellow

RS485A /yellow
RS485A /white

RS485A /yellow

RJ12-
Patchcable

RJ12-
Patchcable

**Wiring diagram multiple EDSR control**

RS485B /yellow

RS485A /white

RJ12-
Patchcable

RS485A /yellow   RS485B /black

RJ12-
Patchcable

RS485A /yellow   RS485B /black

RJ12-
Patchcable

RS485A /yellow   RS485B /black

RJ12-
Patchcable

**Wiring diagram multiple keyboard control**

RS485B /yellow

RS485A /white

RS485B /yellow

RS485A /white

RS485B /yellow

RS485A /white

RS485A /yellow   RS485B /black

RJ12-
Patchcable

RJ12-
Patchcable

RJ12-
Patchcable
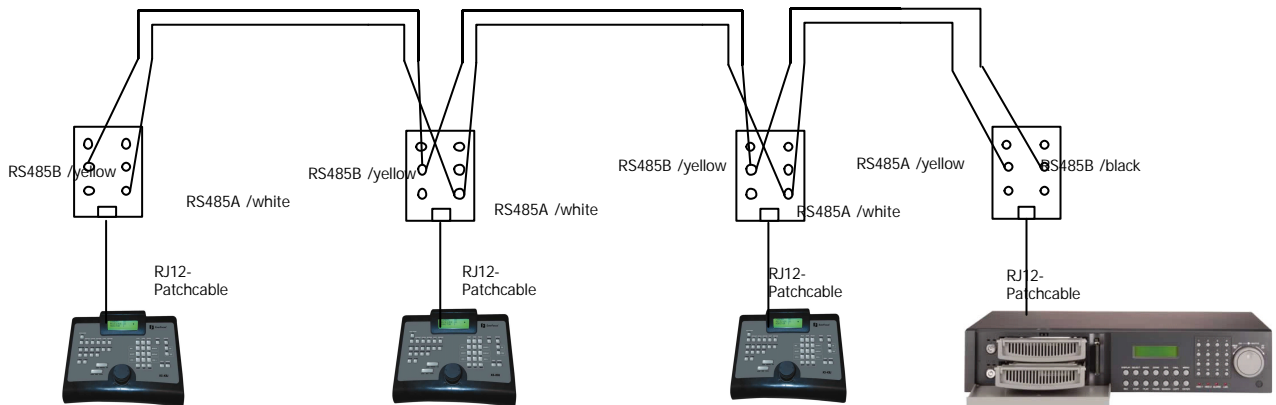
RJ12-
Patchcable

**NOTE:** Do not use the RJ12 patch cable (in KS KBK / KS KBJ packaging) for direct connection keyboard - EDSR. Wiring with connector boxes is compulsory! For further details, please refer to the KS KBK and KS KBJ manuals.

## 11.2 IR Remote Controller (optional)

The remote controller (RC-200, Figure 1) is an accessory to enhance the handy operations of the DVR. You can perform all the settings and operations by the remote controller. The effective distance is up to 10 meters without any obstacle. The keypad functions are same as the front panel key button of the DVR.

There are some replacement keys for JOG and SHUTTLE, definitions are:

JOG ▶ : Same as turning the JOG clockwise.

JOG ◀ : Same as turning the JOG counter-clockwise.

SHUTTLE ▶▶

1: fast forward 2X or slow forward 1/2X.

2: fast forward 4X or slow forward 1/4X.

3: fast forward 8X or slow forward 1/8X.

4: fast forward 16X or slow forward 1/10X.

5: fast forward 32X or slow forward 1/16X.

6: fast forward 600X or slow forward 1/32X.

SHUTTLE ◀◀

1: fast rewind 2X or slow rewind 1/2X.

2: fast rewind 4X or slow rewind 1/4X.

3: fast rewind 8X or slow rewind 1/8X.

4: fast rewind 16X or slow rewind 1/10X.

5: fast rewind 32X or slow rewind 1/16X.

6: fast rewind 600X or slow rewind 1/32X.

**Note: The channel keys #10~16 are only active**
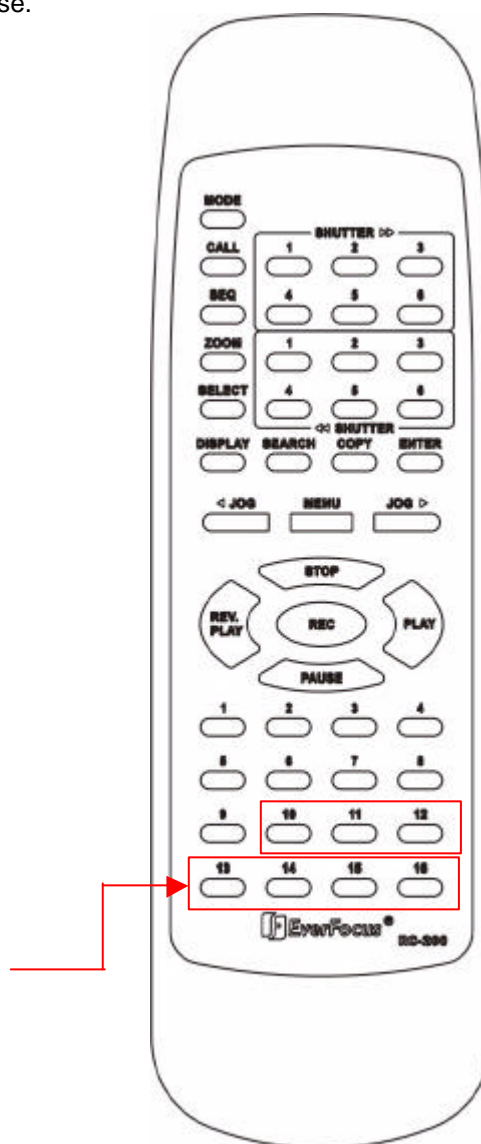
   **with EDSR-1600 recorder**

Figure 1

## 12. View From Internet/Intranet

## Basic Operations and Login Display:

Before you start: Please make sure the service ports 0080, 1111, 2222, 3333, 4444, and 6666 all enable in both of two end point and LAN(control PC and been controlled DVR). Please enable the "ActiveX" for java plug-in (Please refer to Microsoft IE manual ). Please set the NetMask 255.255.255.000 for network configuration of your control PC, when both of them in the same LAN.

Go to the Internet Explorer, key in the network IP address, for example, http://192.168.010.001 (must be the same IP address as the one assigned to the unit from the Network Setting Menu. You need a FIXED IP Address, please contact your ISP for the IP)
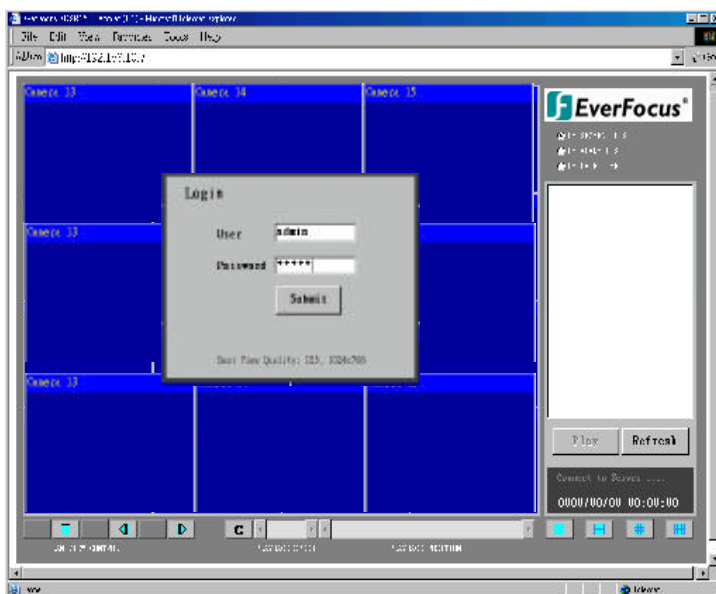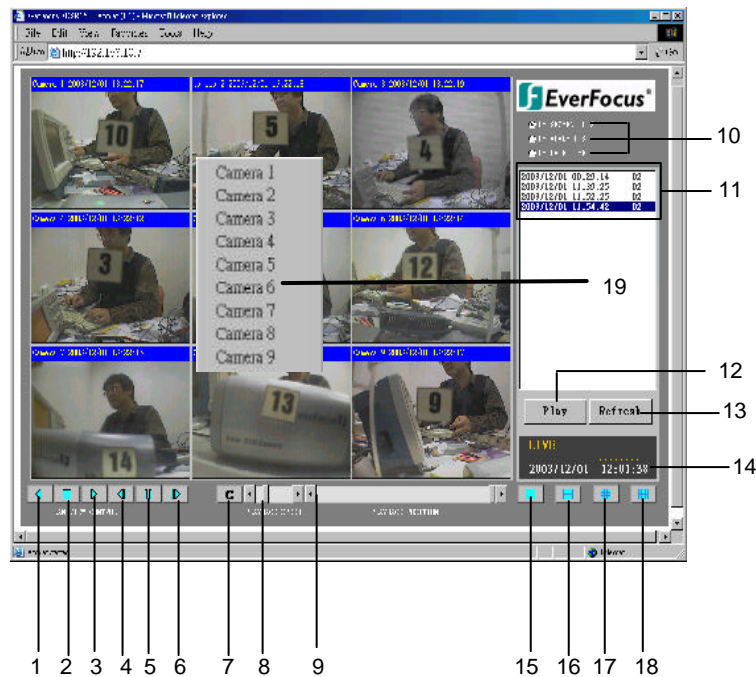


The LOGIN dialog will show on the screen.
User' must enter the correct user-name and password defined in the Network Setting menu.

For example:
Enter ADMIN for user name and ADMIN for password and then Click On "submit" to enter to system.

## Main Screen



Above diagram is the main screen display.

The icons on the lower corner of the screen are mainly for control and Configuration, those on the right corner are for status indication.

If any icon is grayed, it means that the specific function is not accessible in the current mode.

The followings are a brief description for each of the icons.

1. **REV. PLAY :** Reverse Video Playback.

2. **STOP :** Press this key to stop Video Playback.

3. **PLAY:** Play back the Video display.

4. **STEP FORWARD** the Video Playback display.

5. **PAUSE:** To pause the Video Playback display.

6. **STEP BACKWARD** the Video Playback display

7. **CONTROL MODE:** To switch to direct remote control mode.

   **Note: Only allows user with access level "ADMIN".**.

8. **Control for Playback Video Speed**

9. **Control for Playback Position**

**10.** The system allows up to 3 ways playback video, by **SEGMENT, ALARM LIST** and **DATE TIME**.

**(Playback by SEGMENT LIST, click Refresh to show segment list)**
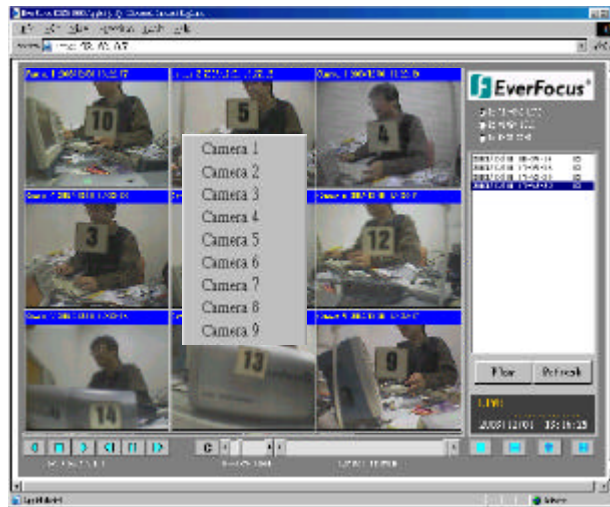


**(Playback by ALARM LIST, click Refresh to show alarm list)**
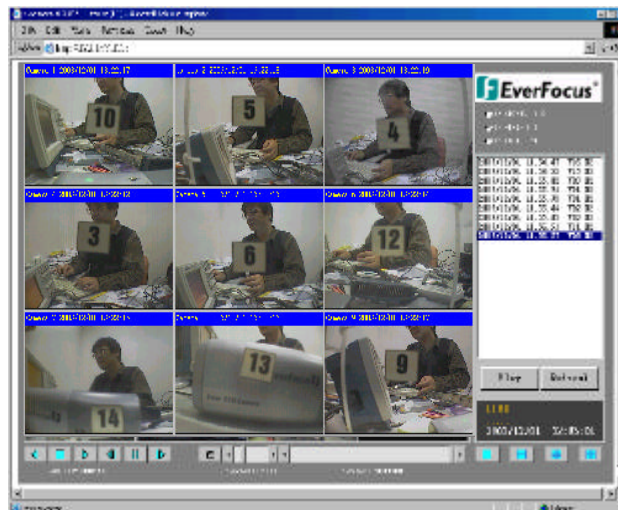


**(Playback by Date time; please enter the date and time you like to play)**



49
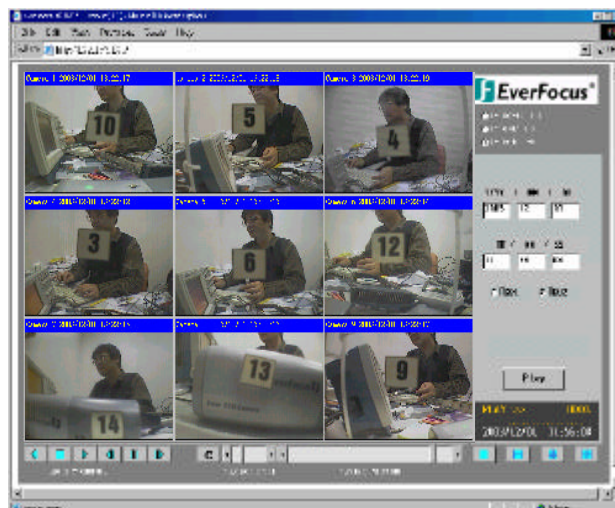
**11.** All available segments are shown in the list. Click to select and highlight.

**12.** Click to playback selected video segment.

**13.** Press this icon to show the segment or list.

**14.** Current connection and playback status is shown along with date and time.

**15.** Full screen view.

**16.** Quad screen view.

**17.** Nine split screen view.

**18.** Sixteen split screen view (only for 16 CH DVR).

**19.** A pop-up menu to select camera to view will be shown by pressing right mouse button.

**PTZ-CONTROL WITH WEB BROWSER (from FW 1.09 only)**

If the checkbox "PTZ CONTROL" is activated in the Web's applet of the EDSR600/900/1600, the screen shows the telemetry control functions.
Please consider the time delay in video network transmission at manual PTZ control!
PTZ network control is not recommended for ISDN or analogue transmission lines due to slow video transmission rate and long video delay.
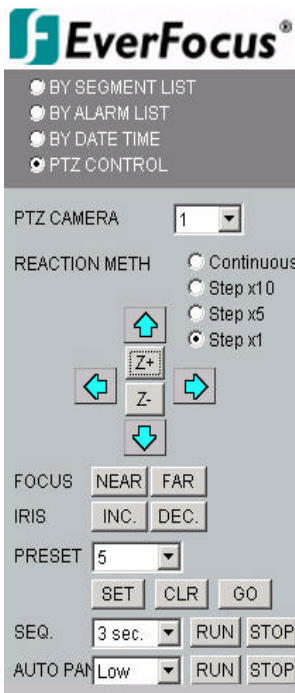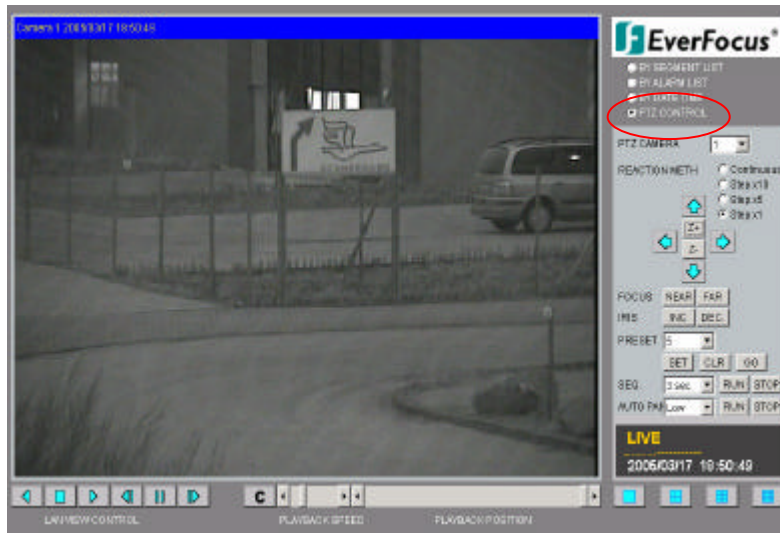




**Control buttons:**

| | |
|---|---|
| **1. PTZ CAMERA:** | Camera selection |
| **2. REACTION METHOD:** | Reaction method of PTZ keys |
| | **Continuous** - commands send permanent if button is pressed |
| | **Step x 10** - 10 command / key press |
| | **Step x 5** - 5 command / key press |
| | **Step x 1** - 1 command / key press |
| **3. Arrow keys**: | Control of pan / tilt |
| **4. Z+ / Z-:** | Zoom function **Z+:** tele, **Z-**: wide |
| **5. Focus:** | manual focus NEAR or FAR |
| **6. IRIS:** | manual iris control **INC**: open iris |
| | **DEC**: close iris |
| **7. PRESET:** | Preset selection |
| | **SET**: Storing of current PTZ position |
| | **CLR**: Deleting of selected preset |
| | **GO**: calls the selected preset position |
| **8. SEQ.*:** | Preset tour |
| | 1 ~ 60 sec.: Dwell period between presets in tour |
| | **RUN**: Start preset tour |
| | **STOP**: Stop preset tour |
| **9. AUTO PAN**:** | Automatic Pan – function |
| | **Low-Fast:** AUTO PAN speed |
| | **RUN**: AUTO PAN Start |
| | **STOP**: AUTO PAN Stop |

\*   function not supported for ED2250 with PELCO - P Protocol
\*\* function not supported for ED2250

## 13. PASSWORD PROTECTION

The EDSR 900/1600 provides 3 levels with different user rights in operating, if password protection is activated in SYSTEM menu.

**USER RIGHTS:**

**LEVEL 1:** Active after start up, user is allowed to switch live views, no access to record, search, playback and menu functions. No password for this level.

**LEVEL 2:** Access to record, playback, search functions, no set up menu access.

**LEVEL 3:** Access to all functions.

**OPERATION:**

Upon starting or restarting EDSR 900/1600, level 1 is active.
If any key requiring a higher password level is pressed (example: pressing *PLAY* key in level 1), a password request appears on the main monitor OSD:

| Password: . . . . . . |
|---|

After entering the password, EDSR 900/1600 keeps the active user level. The current user level is displayed in OSD.

**LOGOFF**: The level 2 or 3 user can switch the recorder back to level 1 by pressing the *SELECT* key for more than 1 second. (This function is not available with keyboards KS-KBJ/KBK!)

**ATTENTION**: If the same password is defined for level 2 and 3, the recorder switches to level 3 after entering the password. In this case, level 2 is not available.

LAN Functional Specification

**Specifications:**

Network Interface:          10Mbits/s Ethernet (10Base T)
LAN controller Chip:        RealTek 8019
LAN Connector:              RJ-45
Protocol:                   HTTP,TCP/IP.ICMP,ARP
Remote Access:              Standard browser such as internet
                            Explorer / Netscape with JAVA support
Image Compression:          JPEG
Used Ports:                 80, 1111, 2222, 3333, 4444, 6666
Max. user number:           4
Frame rate:                 max. 1,5 IPS depending on network conditions

# Time Lapse Mode Recording Time Table

## ✍ When Recording with 160GB HDD

(Estimated with typical image-low noise level)

Lower : 15 kB
Low : 19 kB
Basic : 23 kB
Standard : 27 kB
High : 31 kB
Superior : 35 kB

| NTSC | Unit: Hour | | | system storage(GB): | | 160 |
|---|---|---|---|---|---|---|
| **Recording** | **PICTURE QUALITY (KB)** | | | | | |
| **Speed** | **LOWER** | **LOW** | **BASIC** | **STANDARD** | **HIGH** | **SUPERIOR** |
| **(fps)** | **15** | **19** | **23** | **27** | **31** | **35** |
| **60** | 49.4 | 39 | 32.2 | 27.4 | 23.9 | 21.2 |
| **30** | 98.8 | 78 | 64.4 | 54.9 | 47.8 | 42.3 |
| **20** | 148.1 | 117 | 96.6 | 82.3 | 71.7 | 63.5 |
| **15** | 197.5 | 155.9 | 128.8 | 109.7 | 95.6 | 84.7 |
| **10** | 296.3 | 233.9 | 193.2 | 164.6 | 143.4 | 127 |
| **5** | 592.6 | 467.8 | 386.5 | 329.2 | 286.7 | 254 |
| **1** | 2963 | 2339.2 | 1932.4 | 1646.1 | 1433.7 | 1269.8 |
| **0.5** | 5925.9 | 4678.4 | 3864.7 | 3292.2 | 2867.4 | 2539.7 |
| **0.3** | 9876.5 | 7797.3 | 6441.2 | 5487 | 4779 | 4232.8 |
| **0.2** | 14814.8 | 11695.9 | 9661.8 | 8230.5 | 7168.5 | 6349.2 |

| PAL | Unit: Hour | | | | | |
|---|---|---|---|---|---|---|
| **Recording** | **PICTURE QUALITY (KB)** | | | | | |
| **Speed** | **LOWER** | **LOW** | **BASIC** | **STANDARD** | **HIGH** | **SUPERIOR** |
| **(fps)** | **15** | **19** | **23** | **27** | **31** | **35** |
| **50** | 59.3 | 46.8 | 38.6 | 32.9 | 28.7 | 25.4 |
| **25** | 118.5 | 93.6 | 77.3 | 65.8 | 57.3 | 50.8 |
| **10** | 296.3 | 233.9 | 193.2 | 164.6 | 143.4 | 127 |
| **5** | 592.6 | 467.8 | 386.5 | 329.2 | 286.7 | 254 |
| **2** | 1481.5 | 1169.6 | 966.2 | 823 | 716.8 | 634.9 |
| **1** | 2963 | 2339.2 | 1932.4 | 1646.1 | 1433.7 | 1269.8 |
| **0.5** | 5925.9 | 4678.4 | 3864.7 | 3292.2 | 2867.4 | 2539.7 |
| **0.4** | 7407.4 | 5848 | 4830.9 | 4115.2 | 3584.2 | 3174.6 |
| **0.2** | 14814.8 | 11695.9 | 9661.8 | 8230.5 | 7168.5 | 6349.2 |
| **0.1** | 29629.6 | 23391.8 | 19323.7 | 16460.9 | 14336.9 | 12698.4 |

Reference:24H=1 day.168H=1 week, 720H=1 month,8760H=1 year

## ✍ When Recording with 320GB HDD

(Estimated with typical image-low noise level)

Lower : 15 kB
Low : 19 kB
Basic : 23 kB
Standard : 27 kB
High : 31 kB
Superior : 35 kB

| NTSC | Unit: Hour | | | system storage(GB): | | 320 |
|---|---|---|---|---|---|---|
| Recording | PICTURE QUALITY (KB) | | | | | |
| Speed | LOWER | LOW | BASIC | STANDARD | HIGH | SUPERIOR |
| (fps) | 15 | 19 | 23 | 27 | 31 | 35 |
| 60 | 98.8 | 78 | 64.4 | 54.9 | 47.8 | 42.3 |
| 30 | 197.5 | 155.9 | 128.8 | 109.7 | 95.6 | 84.7 |
| 20 | 296.3 | 233.9 | 193.2 | 164.6 | 143.4 | 127 |
| 15 | 395.1 | 311.9 | 257.6 | 219.5 | 191.2 | 169.3 |
| 10 | 592.6 | 467.8 | 386.5 | 329.2 | 286.7 | 254 |
| 5 | 1185.2 | 935.7 | 772.9 | 658.4 | 573.5 | 507.9 |
| 1 | 5925.9 | 4678.4 | 3864.7 | 3292.2 | 2867.4 | 2539.7 |
| 0.5 | 11851.9 | 9356.7 | 7729.5 | 6584.4 | 5734.8 | 5079.4 |
| 0.3 | 19753.1 | 15594.5 | 12882.4 | 10973.9 | 9557.9 | 8465.6 |
| 0.2 | 29629.6 | 23391.8 | 19323.7 | 16460.9 | 14336.9 | 12698.4 |

| PAL | Unit: Hour | | | | | |
|---|---|---|---|---|---|---|
| Recording | PICTURE QUALITY (KB) | | | | | |
| Speed | LOWER | LOW | BASIC | STANDARD | HIGH | SUPERIOR |
| (fps) | 15 | 19 | 23 | 27 | 31 | 35 |
| 50 | 118.5 | 93.6 | 77.3 | 65.8 | 57.3 | 50.8 |
| 25 | 237 | 187.1 | 154.6 | 131.7 | 114.7 | 101.6 |
| 10 | 592.6 | 467.8 | 386.5 | 329.2 | 286.7 | 254 |
| 5 | 1185.2 | 935.7 | 772.9 | 658.4 | 573.5 | 507.9 |
| 2 | 2963 | 2339.2 | 1932.4 | 1646.1 | 1433.7 | 1269.8 |
| 1 | 5925.9 | 4678.4 | 3864.7 | 3292.2 | 2867.4 | 2539.7 |
| 0.5 | 11851.9 | 9356.7 | 7729.5 | 6584.4 | 5734.8 | 5079.4 |
| 0.4 | 14814.8 | 11695.9 | 9661.8 | 8230.5 | 7168.5 | 6349.2 |
| 0.2 | 29629.6 | 23391.8 | 19323.7 | 16460.9 | 14336.9 | 12698.4 |
| 0.1 | 59259.3 | 46783.6 | 38647.3 | 32921.8 | 28673.8 | 25396.8 |

Reference:24H=1 day.168H=1 week, 720H=1 month,8760H=1 year

## Serial Interface Specifications

**1. RS-232 pin assignment**

The DVR may be controlled by a computer or a terminal via the standard
D-SUB 9-pin RS-232 connector.

■ **The pin assignment of the D-SUB 9-pin connector**
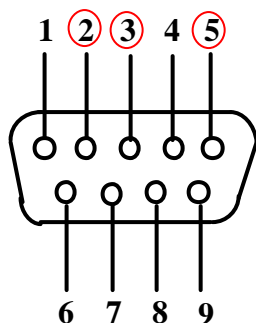


| DVR | | | HOST | |
|---|---|---|---|---|
| **PIN #** | **NAME** | | **PIN #** | **NAME** |
| 1 | NOT CONNECTED | | 1 | NOT CONNECTED |
| **2** | TXD | →  | **2** | RXD |
| **3** | RXD | ←  | **3** | TXD |
| 4 | NOT CONNECTED | | 4 | NOT CONNECTED |
| **5** | GROUND | —  | **5** | GROUND |
| 6 | NOT CONNECTED | | 6 | NOT CONNECTED |
| 7 | NOT CONNECTED | | 7 | NOT CONNECTED |
| 8 | NOT CONNECTED | | 8 | NOT CONNECTED |
| 9 | NOT CONNECTED | | 9 | NOT CONNECTED |

**2. Transmission setting**

There are 6 different speeds that can be used to transmit instruction or information through
the RS232/RS485 port on the device, 1200 baud, 2400 baud, 4800 baud, 9600 baud,
19200 baud and 3840 baud.

The default setting from the factory is 9600 baud.

Please refer to Chart 6.10 (Page21) for details.

## 3. Remote Control Protocol

A computer or a terminal can be used to control the unit by sending the packet as following.

### 1-1. Sample control code packets

Example1 : A packet that send "REC" key to DVR (ID=5)

| | |
|---|---|
| 0x85 | (length) |
| 0x00 | (Receiver ID high byte) |
| 0x05 | (Receiver ID low byte) |
| 0x4B | (OPcode = key ) |
| 0x08 | (DATA1 = "Rec" keycode ) |
| 0x5D | (checksum) |

Example2 : A packet that send "PAUSE" key to DVR (ID=4999)

| | |
|---|---|
| 0x85 | (length) |
| 0x27 | (Receiver ID high byte) |
| 0x07 | (Receiver ID low byte) |
| 0x4B | (OPcode = key ) |
| 0x0C | (DATA1 = "Pause" keycode ) |
| 0x0A | (checksum) |

Example3 : A packet that send "PLAY" key to all DVR (broadcast)

| | |
|---|---|
| 0x85 | (length) |
| 0x7f | (Receiver ID high byte) |
| 0x7f | (Receiver ID low byte) |
| 0x4B | (OPcode = key ) |
| 0x0B | (DATA1 = "Play" keycode ) |
| 0x59 | (checksum) |

**2-1. The format of message packet is as follows:**

Length Byte  (Prefix: 0x86, 0x87, or 0x88 ..... )

Receiver ID high byte

Receiver ID low byte

Opcode Byte

Data Byte1

Data Byte2

Data Byte3

Checksum Byte

**2-2. Length Byte**

This Length Byte is also a prefix. Bit7 must be 1.

EX:    0x87 ==> this packets has 7 bytes length. ( not included Length byte itself )

**2-3. Receiver ID**

2-3. Receiver ID

1). Individual receiver ID

| Decimal | 14bit binary value | Hbyte | Lbyte | Receiver ID (EDSR) |
|---|---|---|---|---|
| 0 | 0000000 0000000 | 00 | 00 | ID = 0 |
| 1 | 0000000 0000001 | 00 | 01 | ID = 1 |
| 2 | 0000000 0000010 | 00 | 02 | ID = 2 |
| .... | | | | |
| 126 | 0000000 1111110 | 00 | 7e | ID = 126 |
| 127 | 0000000 1111111 | 00 | 7f | ID = 127 |
| 128 | 0000001 0000000 | 01 | 00 | ID = 128 |
| 129 | 0000001 0000001 | 01 | 01 | ID = 129 |
| 255 | 0000001 1111111 | 01 | 7f | ID = 255 |
| 256 | 0000010 0000000 | 02 | 00 | ID = 256 |
| .... | | | | |
| 511 | 0000011 1111111 | 03 | 7f | ID = 511 |
| .... | | | | |
| 16382 | 1111111 1111110 | 7f | 7e | ID = 16382 |

2). Broadcast ID

| Decimal | 14bit binary value | Hbyte | Lbyte | Receiver ID |
|---|---|---|---|---|
| 16383 | 1111111 1111111 | 7f | 7f | all EDSR connect to RS485/RS232 |

## 2-4. Opcode Byte & Data bytes

### 2-4-1. OPcode

| OPcode | Data1 | Function |
|--------|-------|----------|
| 0x4B | Keycode | A remote key pressed |
| 0x4D | command | Matrix command |

### 2-4-2. Remote keys (OPcode=0x4B)

--------------------------------------------------------------------------------------------------

| Data1 | Key | Data1 | Key |
|-------|-----|-------|-----|
| 0x00 | CH1 | | |
| 0x01 | CH2 | 0x1e | JOG< |
| 0x02 | CH3 | 0x1f | JOG> |
| 0x03 | CH4 | 0x20 | CH5 |
| 0x04 | MODE | 0x21 | CH6 |
| 0x05 | ZOOM | 0x22 | CH7 |
| 0x06 | SEQ | 0x23 | CH8 |
| 0x07 | MENU | 0x24 | CH9 |
| 0x08 | REC | 0x25 | CH10 |
| 0x09 | REV.PLAY | 0x26 | CH11 |
| 0x0A | STOP | 0x27 | CH12 |
| 0x0B | PLAY | 0x28 | CH13 |
| 0x0C | PAUSE | 0x29 | CH14 |
| 0x0D | SEARCH | 0x2a | CH15 |
| 0x0E | COPY | 0x2b | CH16 |
| 0x0F | DISPALY | 0x2c | SELECT |
| 0x10 | SHUTTLE<<x1 | 0x2d | CALL |
| 0x11 | SHUTTLE<<x2 | 0x2e | ENTER |
| 0x12 | SHUTTLE<<x4 | 0x2f | (reserve) |
| 0x13 | SHUTTLE<<x8 | 0x30 | (reserve) |
| 0x14 | SHUTTLE<<x16 | 0x31 | (reserve) |
| 0x15 | SHUTTLE<<x32 | 0x32 | (reserve) |
| 0x16 | SHUTTLE<<x600 | 0x33 | (reserve) |
| 0x17 | SHUTTLE>>x1 | 0x34 | (reserve) |
| 0x18 | SHUTTLE>>x2 | | |
| 0x19 | SHUTTLE>>x4 | | |
| 0x1a | SHUTTLE>>x8 | | |
| 0x1b | SHUTTLE>>x16 | | |
| 0x1c | SHUTTLE>>x32 | | |
| 0x1d | SHUTTLE>>x600 | | |

**2-4-3. Matrix command**
**(OPcode=0x4D)**

| Data1 | Matrix function | Data1 | Matrix function | Data1 | Matrix function |
|---|---|---|---|---|---|
| 0x00 | Matrix monitor0 - ch01 spot | 0x21 | Matrix monitor2 - ch02 spot | 0x42 | Matrix monitor4 - ch03 spot |
| 0x01 | Matrix monitor0 - ch02 spot | 0x22 | Matrix monitor2 - ch03 spot | 0x43 | Matrix monitor4 - ch04 spot |
| 0x02 | Matrix monitor0 - ch03 spot | 0x23 | Matrix monitor2 - ch04 spot | 0x44 | Matrix monitor4 - ch05 spot |
| 0x03 | Matrix monitor0 - ch04 spot | 0x24 | Matrix monitor2 - ch05 spot | 0x45 | Matrix monitor4 - ch06 spot |
| 0x04 | Matrix monitor0 - ch05 spot | 0x25 | Matrix monitor2 - ch06 spot | 0x46 | Matrix monitor4 - ch07 spot |
| 0x05 | Matrix monitor0 - ch06 spot | 0x26 | Matrix monitor2 - ch07 spot | 0x47 | Matrix monitor4 - ch08 spot |
| 0x06 | Matrix monitor0 - ch07 spot | 0x27 | Matrix monitor2 - ch08 spot | 0x48 | Matrix monitor4 - ch09 spot |
| 0x07 | Matrix monitor0 - ch08 spot | 0x28 | Matrix monitor2 - ch09 spot | 0x49 | Matrix monitor4 - ch10 spot |
| 0x08 | Matrix monitor0 - ch09 spot | 0x29 | Matrix monitor2 - ch10 spot | 0x4a | Matrix monitor4 - ch11 spot |
| 0x09 | Matrix monitor0 - ch10 spot | 0x2a | Matrix monitor2 - ch11 spot | 0x4b | Matrix monitor4 - ch12 spot |
| 0x0a | Matrix monitor0 - ch11 spot | 0x2b | Matrix monitor2 - ch12 spot | 0x4c | Matrix monitor4 - ch13 spot |
| 0x0b | Matrix monitor0 - ch12 spot | 0x2c | Matrix monitor2 - ch13 spot | 0x4d | Matrix monitor4 - ch14 spot |
| 0x0c | Matrix monitor0 - ch13 spot | 0x2d | Matrix monitor2 - ch14 spot | 0x4e | Matrix monitor4 - ch15 spot |
| 0x0d | Matrix monitor0 - ch14 spot | 0x2e | Matrix monitor2 - ch15 spot | 0x4f | Matrix monitor4 - ch16 spot |
| 0x0e | Matrix monitor0 - ch15 spot | 0x2f | Matrix monitor2 - ch16 spot | 0x50 | Matrix monitor0 - sequence |
| 0x0f | Matrix monitor0 - ch16 spot | 0x30 | Matrix monitor3 - ch01 spot | 0x51 | Matrix monitor1 - sequence |
| 0x10 | Matrix monitor1 - ch01 spot | 0x31 | Matrix monitor3 - ch02 spot | 0x52 | Matrix monitor2 - sequence |
| 0x11 | Matrix monitor1 - ch02 spot | 0x32 | Matrix monitor3 - ch03 spot | 0x53 | Matrix monitor3 - sequence |
| 0x12 | Matrix monitor1 - ch03 spot | 0x33 | Matrix monitor3 - ch04 spot | 0x54 | Matrix monitor4 - sequence |
| 0x13 | Matrix monitor1 - ch04 spot | 0x34 | Matrix monitor3 - ch05 spot | 0x60 | Matrix monitor0 - turn OSD on |
| 0x14 | Matrix monitor1 - ch05 spot | 0x35 | Matrix monitor3 - ch06 spot | 0x61 | Matrix monitor1 - turn OSD on |
| 0x15 | Matrix monitor1 - ch06 spot | 0x36 | Matrix monitor3 - ch07 spot | 0x62 | Matrix monitor2 - turn OSD on |
| 0x16 | Matrix monitor1 - ch07 spot | 0x37 | Matrix monitor3 - ch08 spot | 0x63 | Matrix monitor3 - turn OSD on |
| 0x17 | Matrix monitor1 - ch08 spot | 0x38 | Matrix monitor3 - ch09 spot | 0x64 | Matrix monitor4 - turn OSD on |
| 0x18 | Matrix monitor1 - ch09 spot | 0x39 | Matrix monitor3 - ch10 spot | 0x70 | Matrix monitor0 - turn OSD off |
| 0x19 | Matrix monitor1 - ch10 spot | 0x3a | Matrix monitor3 - ch11 spot | 0x71 | Matrix monitor1 - turn OSD off |
| 0x1a | Matrix monitor1 - ch11 spot | 0x3b | Matrix monitor3 - ch12 spot | 0x72 | Matrix monitor2 - turn OSD off |
| 0x1b | Matrix monitor1 - ch12 spot | 0x3c | Matrix monitor3 - ch13 spot | 0x73 | Matrix monitor3 - turn OSD off |
| 0x1c | Matrix monitor1 - ch13 spot | 0x3d | Matrix monitor3 - ch14 spot | 0x74 | Matrix monitor4 – turn OSD off |
| 0x1d | Matrix monitor1 - ch14 spot | 0x3e | Matrix monitor3 - ch15 spot | | |
| 0x1e | Matrix monitor1 - ch15 spot | 0x3f | Matrix monitor3 - ch16 spot | | |
| 0x1f | Matrix monitor1 - ch16 spoz | 0x40 | Matrix monitor4 - ch01 spot | | |
| 0x20 | Matrix monitor2 - ch01 spot | 0x41 | Matrix monitor4 - ch02 spot | | |

**2-5. Checksum Byte**

Checksum is computed as the sum of all previous butye (includeing the length byte), then mask with 0x7f.

## Alarm I/O pin assignment

The alarm connector, **Figure 1**, is used to provide one sensor alarm input for each camera input.
For easy operation, an alarm extension board, **Figure 2**, is provided to connect to the alarm connector.

Each alarm input requires two wires, one wire connects to the desired alarm input pin, the second wire
connects to the ground.The alarm signal assignment is shown at the following.
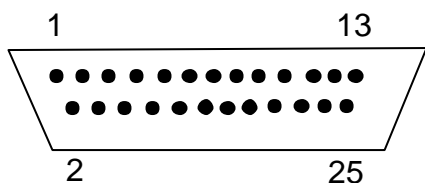
**<Figure 1>**
**D-SUB 25 pin female connector (DVR)**
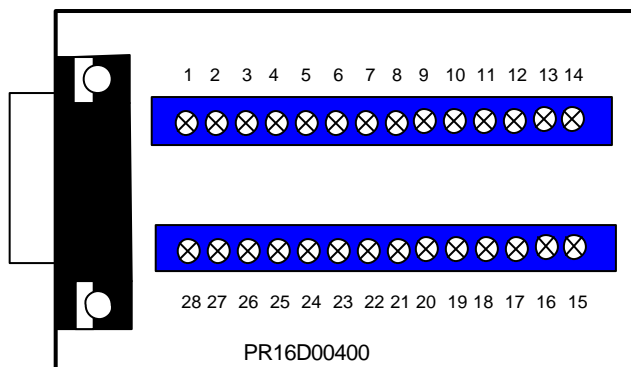
PR16D00400

**<Figure 2>**
**PR16D00400 Alarm extension board**

### DVR

| PIN # | NAME / Function |
|---|---|
| 1 | GND        Ground |
| 2 | ALM 1      Alarm In 1 |
| 3 | ALM 2      Alarm In 2 |
| 4 | ALM 3      Alarm In 3 |
| 5 | ALM 4      Alarm In 4 |
| 6 | ALM 5      Alarm In 5 |
| 7 | ALM 6      Alarm In 6 |
| 8 | ALM 7      Alarm In 7 |
| 9 | ALM 8      Alarm In 8 |
| 10 | ALM 9     Alarm In 9 |
| 11 | ALM 10*   Alarm In 10 |
| 12 | ALM 11*   Alarm In 11 |
| 13 | ALM 12*   Alarm In 12 |
| 14 | ALM 13*   Alarm In 13 |
| 15 | ALM 14*   Alarm In 14 |
| 16 | ALM 15*   Alarm In 15 |
| 17 | ALM 16*   Alarm In 16 |
| 18 | ALMRST    Alarm Reset |
| 19 | REC       Record In |
| 20 | GIN10     Reserved |
| 21 | DISKFULL Disk Full Out |
| 22 | GO1       Reserved |
| 23 | ALM-N.C   Alarm Out N.C. |
| 24 | ALM-N.O   Alarm Out N.C. |
| 25 | ALM-COM   Alarm OUT COM |

| HOST | |
|---|---|
| PIN # | NAME |
| 1 | GND |
| 2 | ALM 1 |
| 3 | ALM 2 |
| 4 | ALM 3 |
| 5 | ALM 4 |
| 6 | ALM 5 |
| 7 | ALM 6 |
| 8 | GND |
| 9 | ALM 7 |
| 10 | ALM 8 |
| 11 | ALM 9 |
| 12 | ALM 10* |
| 13 | ALM 11* |
| 14 | ALM 12* |
| 15 | ALM 13* |
| 16 | ALM 14* |
| 17 | ALM 15* |
| 18 | ALM 16* |
| 19 | ALMRST |
| 20 | REC-IN |
| 21 | GIN |
| 22 | SPARE-IN |
| 23 | DISKFULL |
| 24 | SPARE-OUT |
| 25 | ALM-N.C |
| 26 | ALM-N.O |
| 27 | ALM-COM |
| 28 | GND |

**\* ALM10~ALM16 are active only for EDSR-1600**

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