H.264 Micro DVR

User's Manual

Version 1.0.0

2011-02-20

CAUTION!!!

Read this User Manual carefully. There are no user serviceable parts inside. Removing the end plate screws will void your warranty. If your H.264 Micro DVR requires servicing, please contact your authorized distributor or factory.

Do not use the 1 Channel H.264 Micro DVR to power other devices other than a single camera!!

Do not use the 2/3/4 Channels H.264 Micro DVR to power other devices other than two cameras!!

If external environment temperature is higher than 35 degree of centigrade & without well convection for cool, please add optional Heat Sink/Mounting for 2/3/4 Channel H.264 Micro DVR to ensure stability & reliability of device.

If external environment temperature is higher than 40 degree of centigrade & without well convection for cool, please add optional Heat Sink/Mounting for 1 Channel H.264 Micro DVR to ensure stability & reliability of device.

This document is a work in progress and reflects only the version of the H.264 Micro DVR device.

Contents

1. Introduction

1.1 Introduction of H.264 Micro DVR

H.264 Micro DVR is a dedicated battery powered Digital Video Recorder designed for portable, mobile Video and Audio Recording applications. The H.264 Micro DVR hardware system uses embedded processor and advanced hardware H.264 Base Profile video encoder, SD/SDHC slot, charging circuit, vibration/alarm circuit, video capture, Multi-Connect camera/microphone interface and MCU designed on board. The MCU is used to process remote control, push buttons, power management, LANC and alarm. SD/SDHC slot can support CF with FAT32 files system. Recorded video on SD/SDHC card can be replayed on a PC instantly.

The OS of H.264 Micro DVR is Linux. It handles multiple tasks in real time, for example; driver, recording, AV synchronization, file management and external events etc.

The common SD/SDHC Flash card is used as a storage medium. The SD/SDHC card is a solid small storage media with the best anti-shock capability available today. It is also low powered and provides fast speed with multiple diversity options. It is very good choice for mobile DVR applications.

H.264 Micro DVR offers standard H.264 base profile format video/audio for archive and streaming video.

1.2 Standard H.264 Format Video

H.264 is a new standard for generic coding of video and audio. It is widely used in consumer electronics, such as DVD video disc, DVD player, DVB television broadcasting etc. The H.264 Micro DVR can record in H.264 Base Profile format which can be edited by any video editing software or replayed by DVD player.

The standard H.264 format video can be playback on DVR directly; it can be replayed on PC using VLC Player too.

1.3 Features

✧ Battery powered for portable, mobile DVR applications
✧ Intelligent and uninterrupted battery and AC power swap in real time
✧ Capture Video & Audio live from any composite video output
✧ Support H.264 base profile video format for longest record time
✧ Video Bit Rate : 1M~3Mbps
✧ Frame Rate : PAL(25fps), NTSC(30fps)

✧ Support PAL/NTSC standard
✧ Resolution : Full-D1, CIF/SIF (1M Bitrates)
✧ Supports ADPCM Audio Format
✧ Supports Volume Gain adjust of Microphone
✧ Audio Sampling : 8/16/32/48KHz
✧ On-board IR remote controller
✧ LANC remote controller support
✧ AC adapter or Internal Rechargeable Li-Ion Polymer Battery
✧ On-board battery charging circuit
✧ Offers power for camera & MIC
✧ Changeable SD/SDHC Flash Card to save video
✧ Multi-Color LED for status
✧ Beep status warning
✧ OSD and RTC
✧ Optional Lap Timer
✧ Multi Record Trigger option for recording automatically
✧ Palm sized
✧ Only 160g weight with battery and SD/SDHC card
✧ Video/Audio input
✧ Linux OS and upgradeable firmware
✧ Support Windows 98/ME/NT/2000/XP/Vista for Playback

1.4 Product and Accessories

H.264 Micro DVR /w Internal Recharge Li-ion Polymer Battery	1pcs
AC Power Adapter	1pcs
IR Remote Control	1pcs
Network Sync Cable	1pcs
Lockable CAM/AV Adapter Cable	1pcs
Buckle for H.264 Micro DVR	1pcs
External Beacon Receiver (Only for Lap Timer Edition)	1pcs

* Power adapter and battery are for H.264 Micro DVR only and don't use any other power adapter and battery instead in case of damage.

* When you connect AC power adapter to charge internal Li-Ion battery but don't record, please enable Power-Off option to decrease heat of H.264 Micro DVR & protect H.264 Micro DVR.

2. Installation - 3 -

2.1 Preparation

Please read user's manual careful before installation. Check the minimum requirements of system and recommended system configuration.

2.1.1 PC configuration for replay

- ✓ CPU : Pentium III 1G and above
- ✓ RAM : 512MB and above
- ✓ DVD Recorder : DVD±R/RW
- ✓ OS : Windows 2000 (SP4), Windows XP (SP2), Vista, Windows 7
- ✓ HDD : 7200RPM, 10G free space
- ✓ Display : 1024x768 and above, 24/32 bit color depth
- ✓ Graphic Adapter : Support DirectX 9.0c
- ✓ USB : One free USB 2.0 host interface
- ✓ Card Reader : one high speed USB 2.0/IEEE 1394 card reader

2.2 Installation Guide

2.2.1 Before Installation

1) Check all accessories and SD/SDHC card
2) Format SD/SDHC card with FAT32 file system if it is new
3) Check power adapter and battery
4) Check whether PC and peripherals match the recommended configuration

2.2.2 Installation

1) Make sure power switch is in off position
2) Insert SD/SDHC card into SD/SDHC slot on H.264 Micro DVR
3) Connect camera properly

2.2.3 Startup

1) Connect AC power adapter
2) H.264 Micro DVR will start self-diagnostics when power on
3) The LED is red in self-diagnostics and will turn yellow on start-up. The LED turns to green once start-up successful.
   It takes about 30 seconds to startup
4) The power LED will displays RED during startup, after startup successful, the LCD

5) You will hear a beep one time once H.264 Micro DVR start-up successfully.
6) The battery will be charged automatically when power on and LED turns on red

The battery should be fully charged before first use. The charging LED goes out once charge finished.

Please charge the internal Li-Ion Polymer battery over night & until the charging LED goes out. Li-ion Polymer rechargeable battery is expendable.

The battery should be replaced after 500 charge cycles. The used battery should be disposed properly.

2.2.4 Safety and Warning

* Never connect Multi-Connect Cable Power output to any power adapter. It may be damage the interface and board.
* There are no user serviceable parts, please do not open the unit. Doing so can damage the unit and will void your warranty.
* Restrict input voltage to range from 9V to 15DC, 12V DC is recommended. Never apply DC voltage beyond this range or AC voltage to the H.264 Micro DVR.
* Only use AC power adapter supplied with the unit. Do not use third party AC power adapter, it may cuase unexpected problems or damage.
* Restrict powering devices drawing more than 200mA current for 1CH H.264 Micro DVR.
* Restrict powering devices drawing more than 700mA current for 4CH H.264 Micro DVR.
* When H.264 Micro DVR powered by internal battery, don't connect camera more than 1pcs for 1CH Micro DVR. And don't connect cameras more than 2pcs for 2CH/3CH/4CH H.264 Micro DVR.
* Never insert and remove SD/SDHC card while power is on.

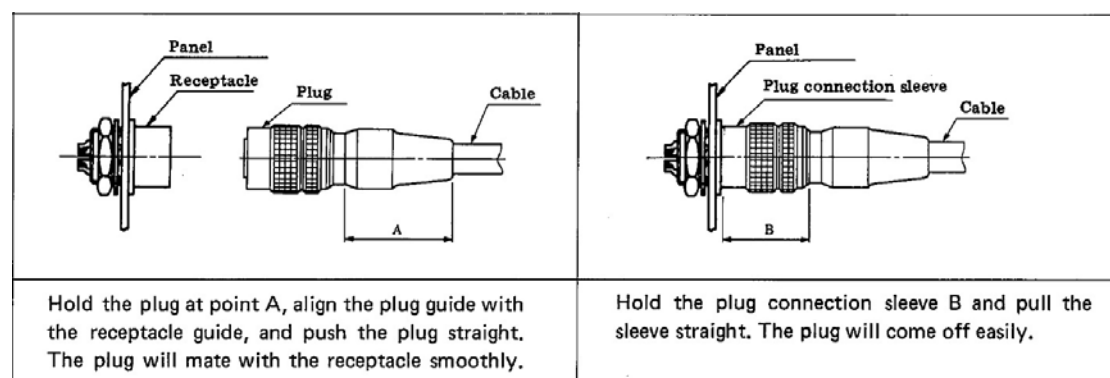## 2.3 Connect Video/Audio signal & Monitor to H.264 Micro DVR

2.3.1 H.264 Micro DVR

CAM/AV Adapter Cable /w Lockable Connector
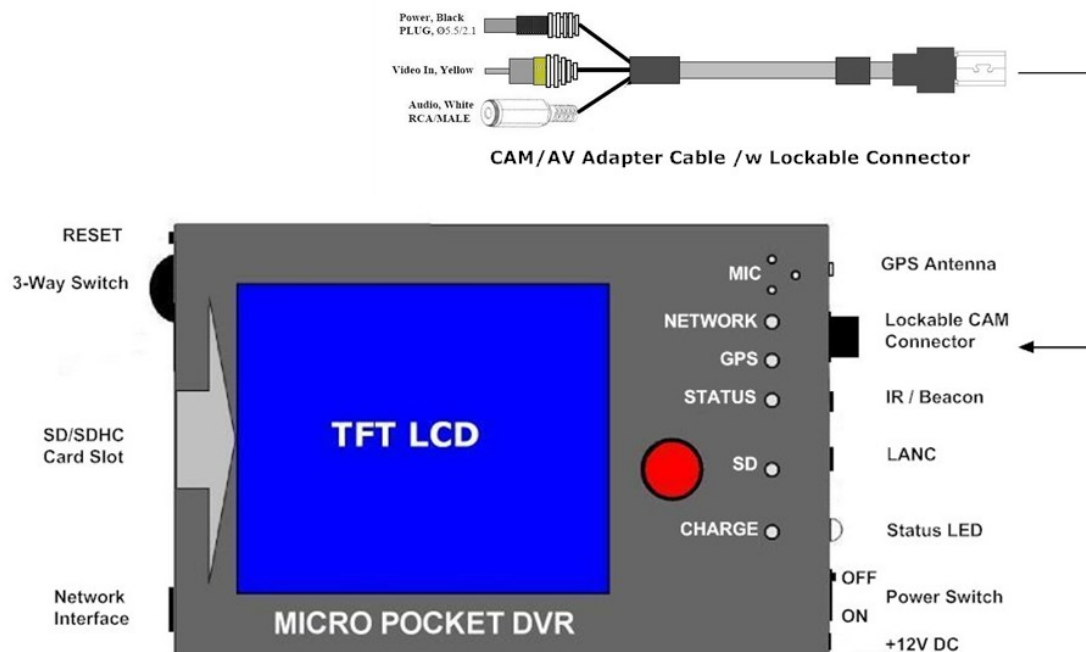
H.264 Micro DVR has no enough power for external LCD or monitor when it connect external camera or video input because it has large TFT LCD, you can preview real-time recording video & adjust angle of view via camera on TFT LCD on H.264 Micro DVR.

When you connect cable with lockable connector to your H.264 Micro DVR, please note don't circumgyrate lock connector to avoid connection be disconnected.

Please plug & unplug lock connector cable according to follow scheme!

Hold the plug at point A, align the plug guide with the receptacle guide, and push the plug straight. The plug will mate with the receptacle smoothly.

Hold the plug connection sleeve B and pull the sleeve straight. The plug will come off easily.

2.4 Video and Audio Interface

If the H.264 Micro DVR is configured RCA video interface & standard 3.5mm audio jack, the colors correspond to:

<div>

Yellow RCA Interface   -   Video Input/Output

Black 3.5mm Jack   -   Audio/Microphone

Black 3.5mm Plug   -   Power Output

</div>

The composite A/V connector of H.264 DVR are multiplex, you can connect external camera or video input through yellow RCA interface, and connect external microphone & line audio input to DVR through black 3.5mm audio jack.

When you playback recording video, you can connect external monitor/speaker through RCA connector & 3.5mm audio jack.

2.5 Button/Bullet Camera Interface

Some button cameras can connect to H.264 Micro DVR directly without the jump cable if the interface of button camera conforms to the lockable connector on DVR.

2.6 Eject SD/SDHC card

1) Wait until the LED turns green
2) Disconnect power adapter & Switch off power from the internal battery
3) Eject SD/SDHC card

3. Operation of H.264 Micro DVR
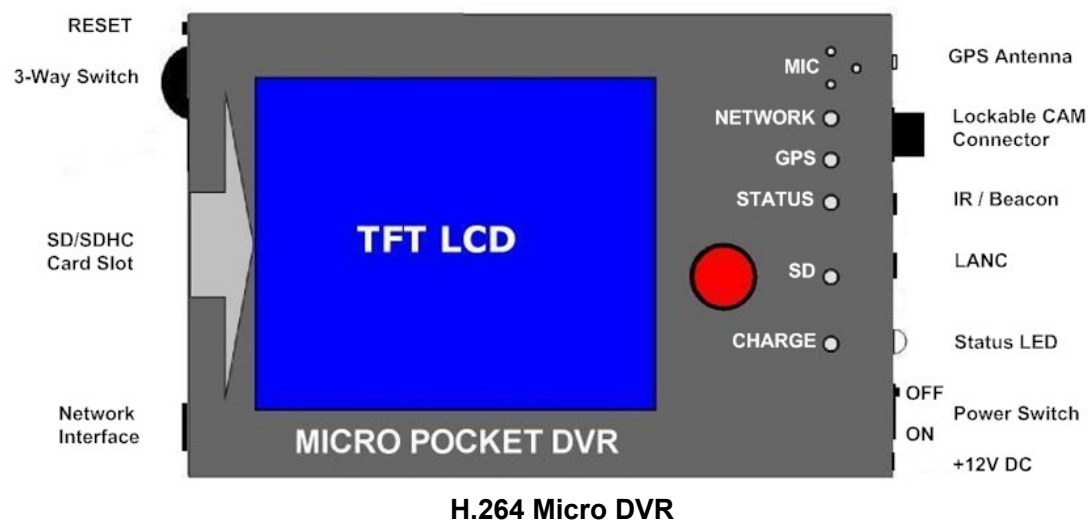
H.264 Micro DVR

3.1 Quick Start

No configuration is required to start recording with the H.264 Micro DVR.

The operation of the H.264 Micro DVR is quiet simple. There are two push buttons, **REC** button and 3-Way Switch. An LED is used to indicate the status of operation.

3.2 Push Button

3.2.1 RECORD

Press the ⬤ (**REC**) button on top of H.264 Micro DVR for at least one second to start recording.

The LED will flash red and you will hear three beeps.

The flash frequency is about 3 times per second. Slower flash frequency means no video signal is connected.

NOTE : The video input signal must be connected to H.264 Micro DVR before recording, Lost video signal maybe cause H.264 Micro DVR with error operation.

3.2.2 STOP

Press the ◖ (**STOP**) 3-Way button for at least three seconds to stop recording. The LED turns to green & you will hear 2 beeps.

It will take a short while to save buffered data after stopped. The power can not be turn off until the LED changes to green. Early eject the SD/SDHC card will cause destroy of video file integrity. Disconnect AC power adapter and switch off battery before eject SD/SDHC card.

3.2.3 SNAPSHOT

Press the ⬤ (**REC**) button on top of H.264 Micro DVR for at least five seconds to capture picture.

The LED will flash red and you will hear three beeps.

The flash frequency is about 3 times per second. Slower flash frequency means no video signal is connected.

3.3 Infrared Remote Control

Infrared remote control is optional for H.264 Micro DVR.
Three buttons are defined currently:

REC	Start recording / snapshot
■	Stop recording
⏻	Keep pressing to make H.264 Micro DVR in Standby/Wakeup mode

3.4 LANC Remote Control

The H.264 Micro DVR support multi-version LANC Remote Control, please power off H.264 Micro DVR & unplug AC Power adapter, then plug LANC remote control into LANC jack with 🕒 logo.

NOTE: SkyTools CamEYE SPORT LANC Remote Control V1.4 & V1.6 are supported by the H.264 Micro DVR.

Power on the H.264 Micro DVR, after booting is finished, you can control the H.264 Micro DVR start/stop recording using LANC remote control. And you can power off H.264 Micro DVR & power on it again.

After the H.264 Micro DVR starts successfully, the status LED on LANC remote control will display green. Press the button on the center of LANC to start recording, and the status LED on LANC will flash red & the unit beeps 3 times once started successfully.

Press button again, the H.264 Micro DVR will stop recording; the status LED on LANC turns to green.

Holding the button on LANC for approx 3 seconds until the status LED on LANC flashes red. This will power down the H.264 Micro DVR, when the H.264 Micro DVR powers down, the status LED on LANC turns to yellow.

In power off status, press button on LANC to power up the H.264 Micro DVR again.

NOTE: DO NOT PLUG OR UNPLUG LANC REMOTE CONTROL WHEN H.264 MICRO DVR POWER ON & AC POWER ADAPTER IS CONNECTED!! YOU MUST POWER DOWN THE H.264 MICRO DVR, UNPLUG AC POWER ADAPTER, AND THEN PLUG/UNPLUG LANC REMOTE CONTROL.

3.5 Power Off/On TFT LCD on H.264 Micro DVR

To save the battery power, you can enable the H.264 Micro DVR TFT LCD off automatically depend on the timer that you set.

The default status of **LCD OFF** is disabling.

You can enable **LCD OFF** function & set feat timer under LCD configuration menu.

When you enable **LCD OFF** function & set timer, the TFT LCD on H.264 Micro DVR will power off automatically at once special timer that you set finish.

To power on TFT LCD again, please turn ◖ 3-Way switch to **UP** or **DOWN** to power on TFT LCD again.

3.6 Video Quality

H.264 DVR offer three different video quality for recording, you can select feat video quality that depend on your application or requirement.

The details bitrates of three level video qualities correspond to follow:

EP: Record video using 1Mbits/s.

LP: Record video using 2Mbits/s.

SP: Record video using 3Mbits/s.

The recorded file size is dependent on the complexity of movement objects. The following is the estimated recording time:

EP: 100 min/GB

LP: 80 min/GB

SP: 60 min/GB

Larger storage cards can yields longer recording time and better video quality. For example, current capacities of SD/SDHC card on the market are from 512MB to 32GB. 4GB SD/SDHC cards can record 6 hours in EP mode.

EP mode is recommended for slower moving or still background scene with some moving objects in front. SP mode is recommended for fast moving background scenes.

3.7 Recording Video File Name

Recording video file name starts with **DVR_** by default.

H.264 Micro DVR can support standard H.264 format video.

The file name of standard H.264 format video will be **DVR_xxx.mp4, XXX** is incremental from 001 to 999.

For details of change filename, please refer **Chapter 12: Configure H.264 Micro DVR using LCD Menu**.

3.8 Recording Automatically

H.264 Micro DVR support five different recording automatically trigger:

Manual	**:**	Start/Stop recording manually
Car Mode	**:**	Start recording when DVR detect external power
Power Up	**:**	Start recording after DVR power on

H.264 Micro DVR support only one automatically recording setting at the same time, whether you select what auto recording function, please disable other setting of auto recording.

Please refer corresponding chapter for details of different auto recording configuration.

4. H.264 Micro DVR Status

4.1 Status of H.264 Micro DVR

- ☻ Power up: LED is yellow for less then 1 second.
- ☻ Self diagnostics: LED is red for about 10 seconds.
- ☻ Normal: LED is green. Means it is ready to record.
- ☻ Recording: red LED will flash about 6 times/second.
- ☻ SD/SDHC card full: yellow LED will flash.
- ☻ Battery Low: DVR will stop recording & save recording video automatically. LED flash 4 times and enters sleep mode
- ☻ Standby: LED is yellow. Only the 🔴 (**POWER**) button or LANC & IR remote control can wake it up.
- ☻ No Video: LED will slowly flash red whilst trying to record.

4.2 Preview System Information via Shortcut Key

When H.264 Micro Pocket DVR starts successfully, you can turn ◖ 3-Way switch to **UP/DOWN** to preview system information of H.264 Micro DVR.

Turn ◖ 3-Way switch to **UP** once to preview current available storage space on SD/SDHC card & the details capability of internal Li-Ion Polymer battery of H.264 Micro DVR.

```
12:30:00                    [    ]

CARD SPACE:        12.5 G
BATTERY :          90%
FILE COUNT:        8
```

Turn ◖ 3-Way switch to **DOWN** once to display current date & time, output power voltage for external camera, current boot loader & firmware information on H.264 Micro DVR.

```
┌─────────────────────────────────────┐
│  12:30:00      - 12 -        ▐████▌  │
│                                      │
│  DATE :          2010-10-01          │
│  TIME :          12:30:00            │
│  CAM VOLTS :     12V                 │
│  BOOTLOAD :      V1.0.2 (8M)         │
│  FIRMWARE :      2010-09-02          │
│                                      │
│                                      │
│                                      │
└─────────────────────────────────────┘
```
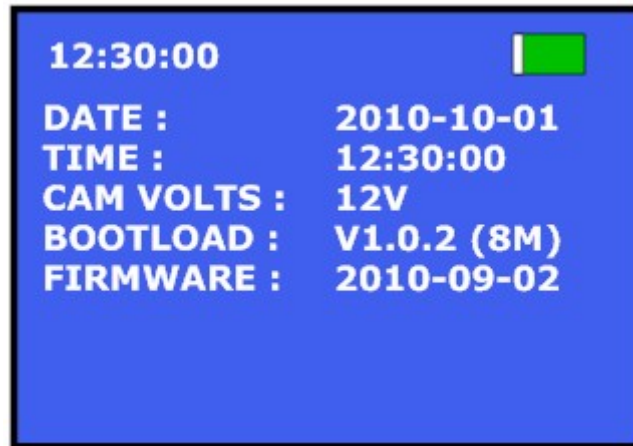
The system information will display on screen 5 seconds without any operation.

5. Replay Video

It is simple to replay recording video & picture that be captured.

5.1 Replay video on H.264 Micro DVR

You can replay recording video on H.264 Micro DVR directly after you finish recording.

Standard H.264 format video that you record by H.264 DVR can be playback on DVR directly. You can find **Reply** menu from DVR menu, select it & press **OK** key, you will find all recording video on **Video** folder of SD/SDHC card, select the standard H.264 format video that you want to reply using **UP** or **DOWN** key, then press **OK** key, the video will be reply directly.

During replay, you can modify replay speed quickly or slower, turn **UP** key, the replay speed will increase by double. The valid replay speed is normal (1X) & 2X.

During quickly or replay status, press **OK** key to return normal replay.

5.2 Replay & Edit video on PC

The standard H.264 format video is compatible with VLC player, after you download video from H.264 Micro DVR to PC via flash card reader, you can play video via double click video in file explorer on PC, or you can connect SD/SDHC card to PC via card reader, then double click video on SD/SDHC card.

High speed card readers are recommended for read and replay of recorded video. If the card reader is fast, your PC can replay video instantly from the SD/SDHC card without coping video file to PC hard disk first.

The video locate on **Video** folder on SD/SDHC card.

5.3 View photo on PC

The H.264 Micro DVR support snapshot, you can capture current photo anytime by hold **REC** button 5 seconds, the capture picture be saved on **Photo** folder on SD/SDHC card.

Copy photos from SD/SDHC card to PC through card reader, they display photo using picture viewer software.

6. Configure H.264 Micro DVR by LCD Menu

6.1 Configure H.264 Micro DVR
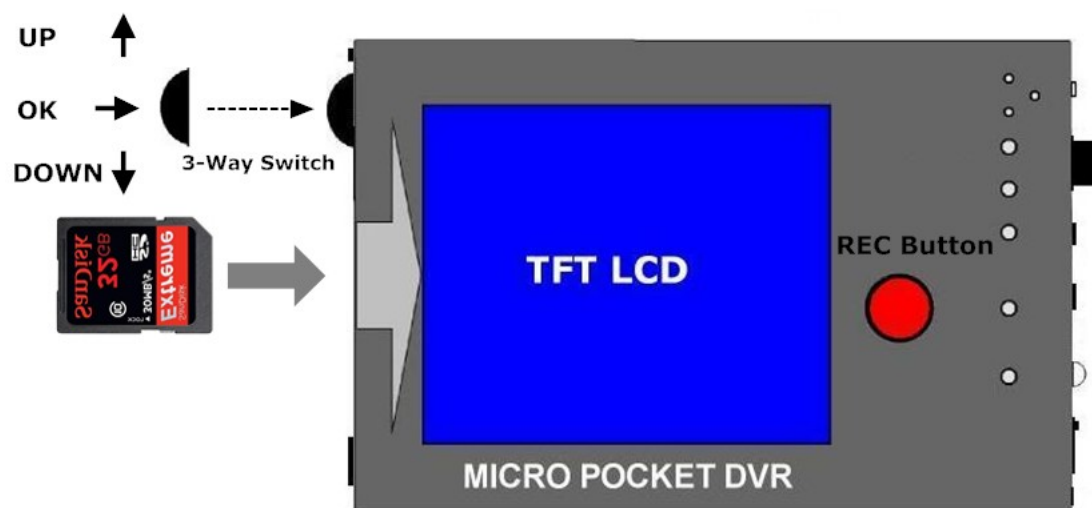
The Define of function Key for configuration

Function Key	Location	Operation
UP		***Turn*** 3-Way switch upwards
DOWN	3-Way switch	***Turn*** 3-Way switch downwards
OK		***Press*** 3-Way switch entad
ESC	⬤ (**REC**) button	***Press* REC** button

* If the LCD direction of DVR had been flip, the UP & DOWN key will be exchange automatically along with the LCD direction.

6.1.1 Enter/Quit LCD Configuration Menu

Hold push the **OK** Key at least 3 seconds to enter LCD configuration menu, once you enter LCD configuration menu successfully, the LCD will display valid menu/menu item & parameter of these menu item depend on your H.264 Micro DVR model.

After finish configuration, press **ESC** key or ◀ Key on IR remote control to quit to upper level menu.

You may need press **ESC** key or ◀ Key on IR remote control one or two times once depend on your position in menu.

Once you enter the LCD configuration menu, the system will wait for you to select item & configure, if you not do any operation, the system will quit the LCD configuration menu after 10 sec automatically.

6.1.2 Configure H.264 Micro DVR

You can configure H.264 Micro DVR in LCD menu via push switch/button or IR remote control.

You can switch **DOWN** & **UP** Key or using ▲ ▼ Key on IR remote control to navigate these menus. And use **OK** key to select & configure menu item or parameter.

Press **ESC** Key or ◀ Key to quit configuration menu return to ready status.

Configure H.264 Micro DVR using Switch/Button

Once you enter LCD configuration menu, you can switch menu using **DOWN** & **UP** Key, then press **OK** Key to select the menu/menu item which you want to configure, using **DOWN** & **UP** Key to select the parameter value & parameter area that you want to configure, and then press **OK** Key to save new configuration.

You can hold **UP** or **DOWN** key to switch menu quickly until **UP/DOWN** key be loosened.

After finish configuration, press **ESC** Key one or two times once to quit the configuration menu.

Configure H.264 Micro DVR using IR Remote Control

Once you enter LCD configuration menu, you can switch menu using ▲ & ▼ Key on IR remote control, then press OK Key to select the menu/menu item which you want to configure, using ▲ ▼ Key to select the parameter value & parameter area that you want to configure, and then press OK Key to save the configuration.

After you finish configuration, press OK Key one or two times once until to quit the LCD

configuration menu.

6.2 LCD Configuration Menu Details

The valid configuration menu of H.264 Micro DVR is:
- **Video**
- **Audio**
- **Record Setting**
- **Replay**
- **System Setting**
- **SD Manager**
- **OSD**
- **Lap Timer ***

* Lap Timer menu is only valid on special Lap Timer model H.264 DVR:

In LCD configuration menu, current value of menu item & parameter is reverse display.

6.2.1 VIDEO Menu
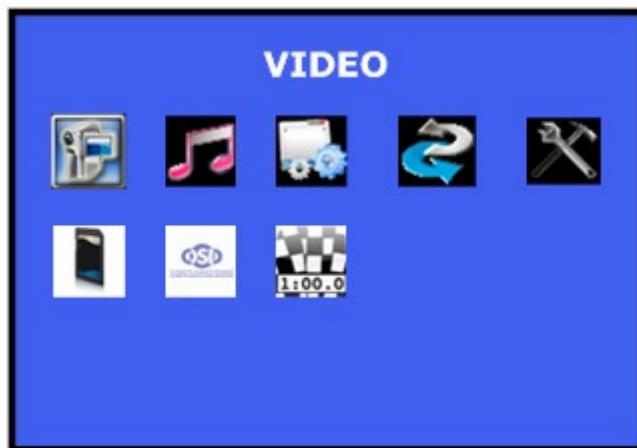
● **VIDEO / Video Standard**
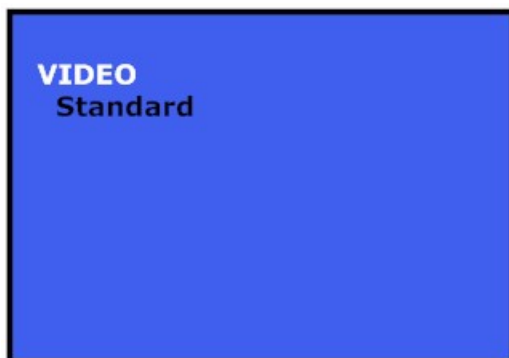
Set video standard in this menu that depend on your local video standard or external camera/video input that you connect to H.264 DVR.

You can select **PAL** or **NTSC** video standard that based on your video source, the default parameter is **PAL**.

Please exit setting menu & restart H.264 Micro DVR for correct screen display.

6.2.2 AUDIO Menu
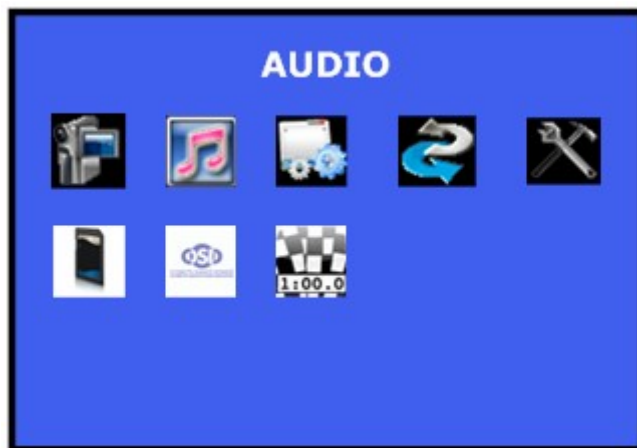
● **AUDIO / Audio Source**

Default parameter is **Line In**, please select **Ext MIC** if you use external microphone input, or select **Int MIC** if you use internal microphone in the H.264 Micro DVR.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to switch **Line In**, **Ext MIC** & **Int MIC** input, then press ◖ button or 🆗 Key to save the current configuration, press 🔴 button or ◀ Key to quit the **AUDIO / Source** menu.

● **AUDIO / Audio Gain**

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If you record audio from internal or external microphone, you can set different volume gain depend on the sensitivity of microphone to get the best audio quality.
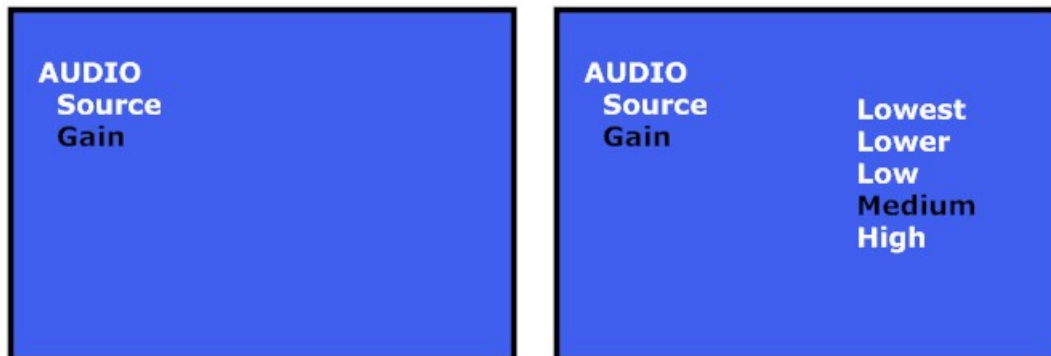
If you record audio from line in signal, the volume gain is invalid.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to switch **Low**, **Medium** & **High** volume gain when you using internal microphone or connect external microphone, then press ◖ button or (ok) Key to save the current configuration, press 🔴 button or ◀ Key to quit the **AUDIO / Gain** menu.

After you finish all audio configuration, press 🔴 button or ◀ Key to quit the **AUDIO** menu.

6.2.3 RECORD SETTING Menu
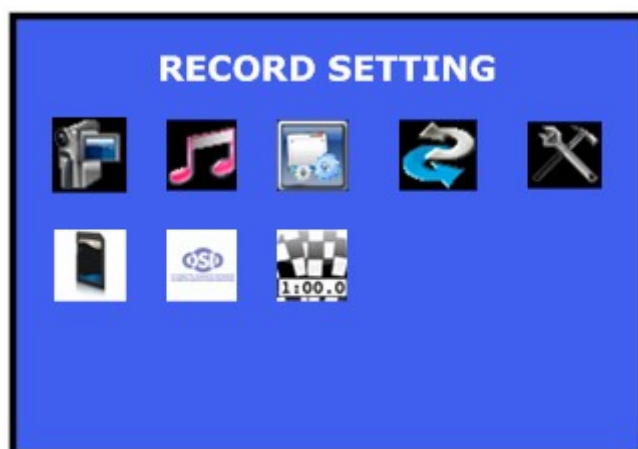
● **Menu Item – RECORD / Quality**

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Default parameter is **SP**, please select proper video quality to suit.
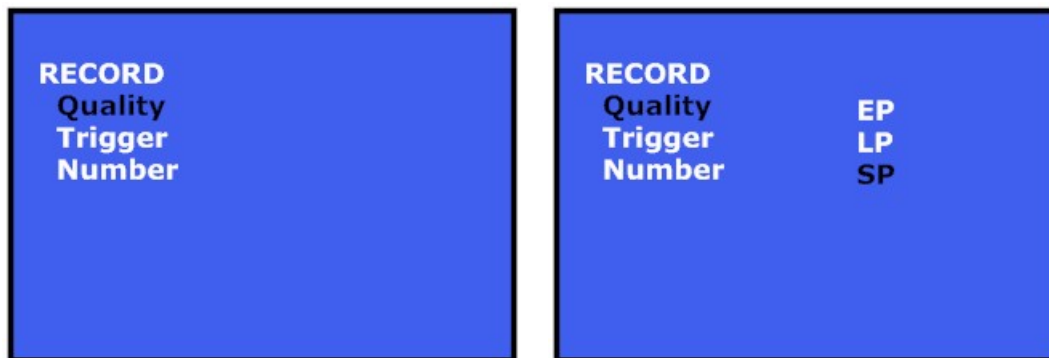
Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to switch **EP**, **LP** &

SP quality, then press ◖ button or 🟢 Key to save the current configuration, press 🔴

button or ◀ Key to quit the **RECORD / QUALITY** menu.

● **Menu Item – RECORD / Trigger**

Default value of **Auto Recording Trigger** is **Manual**; please switch setting to select feat
Auto Recording Trigger option that depend on your requirement.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to switch **Manual,**

Card Mode & **Power Up** option, then press ◖ button or 🟢 Key to save the current

configuration, press 🔴 button or ◀ Key to quit the **RECORD / Trigger** menu.

Manual

If you want to start/stop recording manually, please set **Trigger** to **Manual** option, under
Manual mode, you can start/stop recording via button on DVR, IR remote controller or

optional LANC remote control.

Car Mode

If you set **Auto REC Trigger** to **Car Mode**, you need power H.264 Micro DVR using power in car through optional Car Cigarette Lighter Adapter, and you need power on H.264 Micro DVR using power switch on DVR before you connect Car Cigarette Lighter Adapter.

Under **Car Mode**, system will start recording when it detect you turn on car, and it will stop recording & save video when it detect you turn off car.

Power Up

If you set **Auto REC Trigger** to **PowerUP** mode, system will start recording when H.264 Micro DVR power up.

● **Menu Item – RECORD / Number**

H.264 Micro DVR uses continuous filename from DVI_000.mp4, you can renumber filename momentarily, after you renumber filename, it will begin from DVR_000.mp4 again.

You can reset number to renumber filename in **RECORD / Number** item. If you want to

renumber filename, press ◖ button or ⊙ox Key to renumber it.

6.2.4 REPLAY Menu

● **Menu Item – REPLAY / Video**

You can replay standard H.264 recording video on DVR directly, entry **REPLAY** menu, then select Video menu item, you will find the list of recording video.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to select recording

video to replay, then press ◖ button or (ok) Key to replay it on H.264 Micro DVR, press

⬤ button or ◄ Key to quit the **RECORD / QUALITY** menu.

● **Menu Item – RECORD / Speaker**
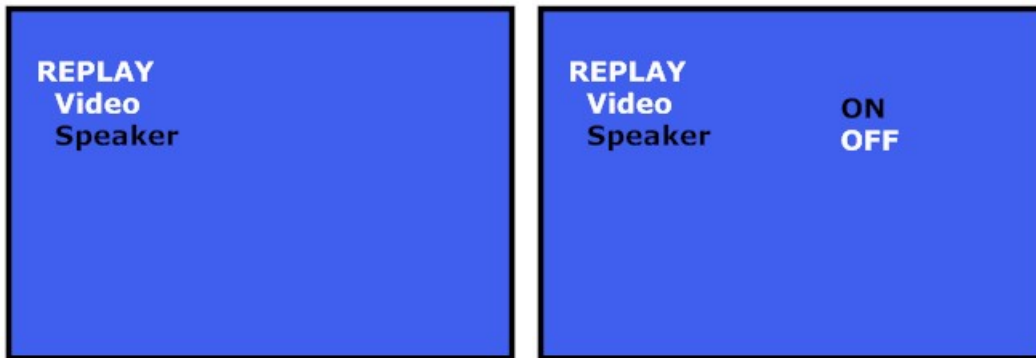
Default value of **RECORD / Speaker** is **ON**; if you to close audio to save power, you can disable internal speaker on H.264 Micro DVR. To disable internal speaker, please set **RECORD / Speaker** menu item to **OFF**.

6.2.5 SYSTEM SETTING Menu
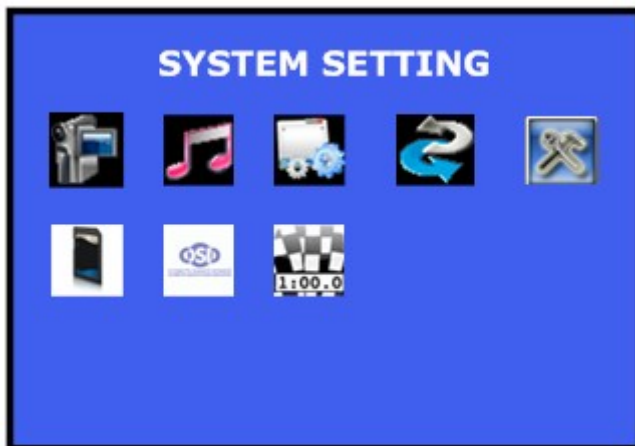
● **Menu Item – SYSTEM / Date/Time**

The parameter format of date is yy-mm-dd, and the parameter format of time is hour-minute-second, please set correct date & time.
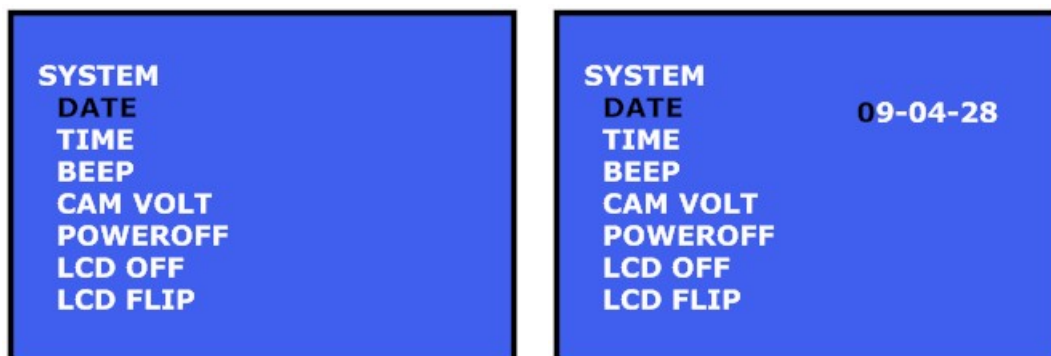
Switch **UP** or **DOWN** key of ◖ 3-Way switch or use ▲ or ▼ Key to select area of

year & time that you want to set; then press ◖ button or 〔ok〕 Key to enter setting status,

in setting, you can switch **UP/DOWN** Key or ▲ / ▼ Key to change value, you can

hold **UP/DOWN** Key to change value quickly, when you loosen **UP/DOWN** Key, the

change of value will be stopped. Finish setting the correct date & time, press ◖ button or

〔ok〕 Key to save the current configuration, press ● button or ◀ Key to quit **SYSTEM
/ Date/Time** menu.

● **Menu Item – SYSTEM / Beep**

H.264 Micro DVR will beep to warn you when it starts or stops recording, in some special
applications or occasion/environment, you may want to turn this function off, and you can
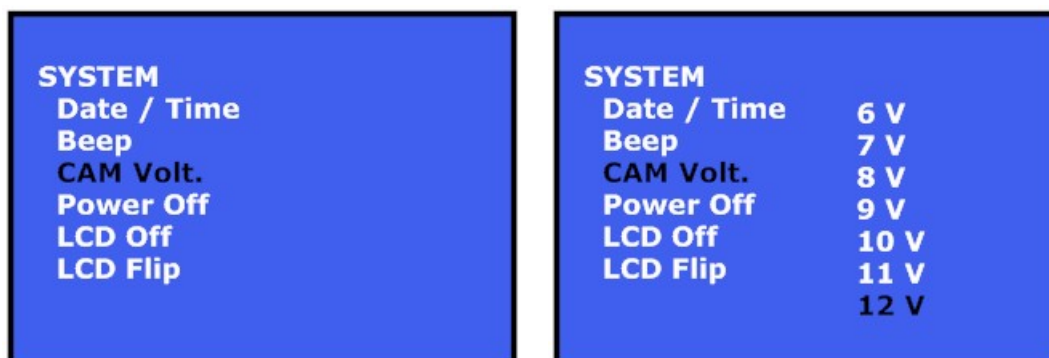disable **Beep** function.

The default configuration is **Enable Beep**; you can disable it by switch setting to **Disable**
to operate H.264 Micro DVR in silent mode.
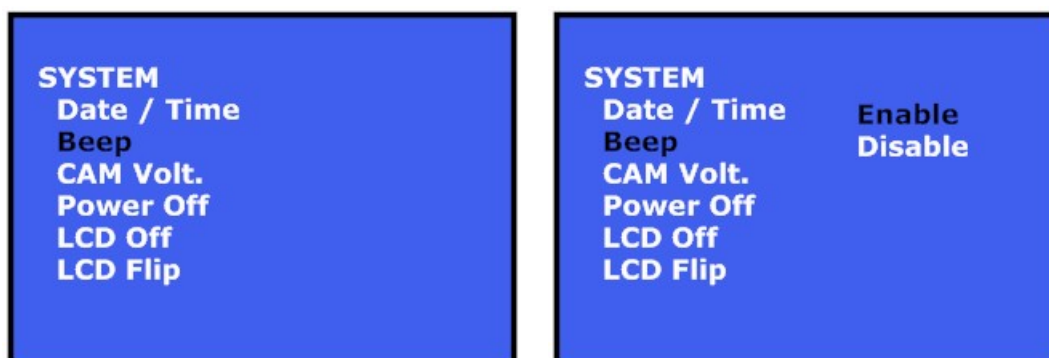
Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to switch **Disable** &

Enable option, then press ◖ button or 〔ok〕 Key to save the current configuration, press

● button or ◀ Key to quit the **SYSTEM / Beep** menu.

● **Menu Item – SYSTEM / CAM Volt**

H.264 Micro DVR can power external device via power output adapter on Multi-Connect
jump cable, you can power external bullet camera or external LCD monitor, you can adjust
output voltage from 6V to 12V.

SYSTEM
  Date / Time
  Beep
  CAM Volt.
  Power Off
  LCD Off
  LCD Flip

SYSTEM
  Date / Time   6 V
  Beep   7 V
  CAM Volt.   8 V
  Power Off   9 V
  LCD Off   10 V
  LCD Flip   11 V
               12 V

If you want to power external bullet cameras more than one, please set the output voltage lower than 11V, and you need connect AC power adapter for H.264 Micro DVR.

The parameter voltage of output power is 12V; please select feat output voltage for external camera.

Switch **DOWN** & **UP** key of 3-Way switch or press ▲ ▼ Key to select feat output voltage for external camera, then press button or OK Key to save the current configuration, press ● button or ◄ Key to quit the **SYSTEM / CAM VOLT** menu.

● **Menu Item – SYSTEM / Power Off**

To save the battery power, you can enable the H.264 Micro DVR power off automatically depend on the timer that you set.

The default status of Power-Off Timer is **Disable**.

SYSTEM
  Date / Time
  Beep
  CAM Volt.
  Power Off
  LCD Off
  LCD Flip

SYSTEM
  Date / Time   Disable
  Beep   1 Min
  CAM Volt.   5 Min
  Power Off   10 Min
  LCD Off   15 Min
  LCD Flip

Switch **DOWN** & **UP** key of 3-Way switch or press ▲ ▼ Key to Disable Power Off or select feat timer (5/10/15 Minutes) depending on your actual requirements, then press button or OK Key to save the current configuration, press ● button or ◄ Key to

quit the **SYSTEM / POWEROFF** menu.

● **Menu Item – SYSTEM / LCD Off**

To save the battery power, you can enable the H.264 Micro DVR TFT LCD off automatically depend on the timer that you set.

The default status of **LCD OFF** is **disabling**.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to Disable LCD Off or select feat timer (15/30 Second or 1 Minute) depending on your actual requirements, then press ◖ button or OK Key to save the current configuration, press ⬤ button or ◄ Key to quit the **SYSTEM / LCD OFF** menu.

When you enable **LCD OFF** function & set timer, the TFT LCD on H.264 Micro DVR will power off automatically at once special timer that you set finish.

To power on TFT LCD again, please hold ◖ button 2 second to power on TFT LCD under normal status; if Micro Pocket DVR under recording status, please hold ⬤ button 2 second to power on TFT LCD again.

● **Menu Item – SYSTEM / LCD Flip**

When you clip H.264 Micro DVR to waistband using buckle, or clip DVR on arm, maybe the screen of H.264 Micro DVR is reversed, you can flip LCD to view screen correctly.

Press ◗ button or 🟢OK Key to flip LCD, press 🔴 button or ◀ Key to quit the **SYSTEM / LCD FLIP** menu.

After you finish all system configuration, press 🔴 button or ◀ Key to quit the **SYSTEM** menu.

6.2.6 SD CARD Menu

You can delete recording video on H.264 Micro DVR directly.

● **Menu Item – SD CARD / Explorer**

You can delete recording video on H.264 Micro DVR directly that needn't do it on PC.

Enter menu, select **SD CARD** option, then select **EXPLORER** item, H.264 Micro DVR will display current recording video that on SD card.

Select recording video that you want to delete using Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key, when confirm message be display on screen, using Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to select **OK**, press ◖ button or ⬤ok Key to delete it.

After you delete video file that you select, H.264 Micro DVR will return main explorer screen. You will find the file that you select had been deleted.
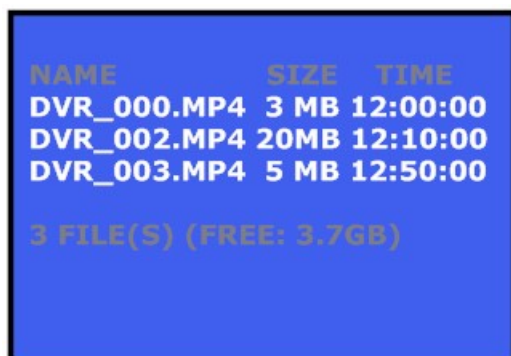
6.2.7 OSD Menu

● **Menu Item – OSD / Time Stamp**

Default parameter is **Disable**, please select **Enable** if you want to display date & time stamp on screen of recording video, if you set stamp option to **Disable**, the date & time stamp will disappear on screen.
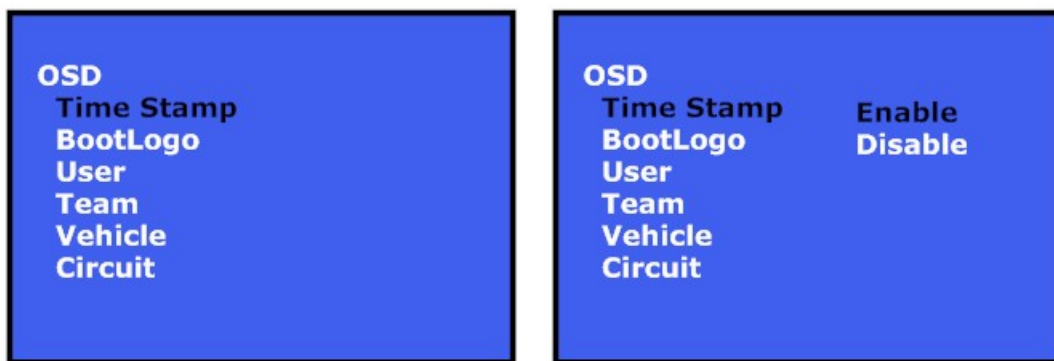
Switch **DOWN** & **UP** position of ◖ 3-Way switch or press ▲ ▼ Key to switch **Disable**

& **Enable** option, then press ◖ button or ⊙ Key to save the current configuration,

press ⬤ button or ◀ Key to quit the **OSD / STAMP** menu.

● **Menu Item – OSD / Bootlogo**

Default parameter is **Enable**, when it be enabled, H.264 Micro DVR will display default logo on screen after power up, please set it to **Disable** if you want to not display logo on screen.
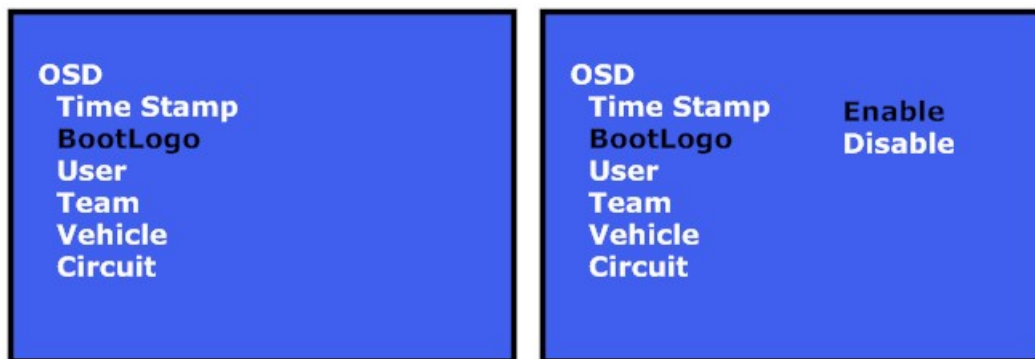
● **Menu Item – OSD / User**
● **Menu Item – OSD / Team**
● **Menu Item – OSD / Vehicle**
● **Menu Item – OSD / Circuit**

These four item are only for special Lap Timer model H.264 Micro DVR, you can set correct username, team, vehicle & circuit information that depend on your details information.
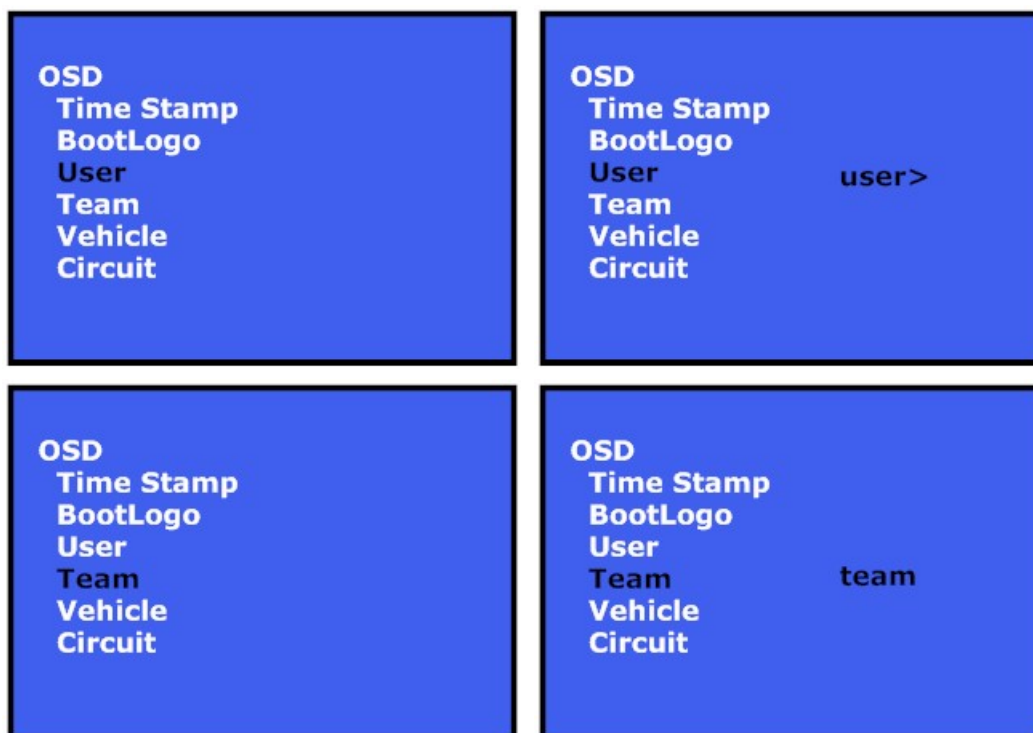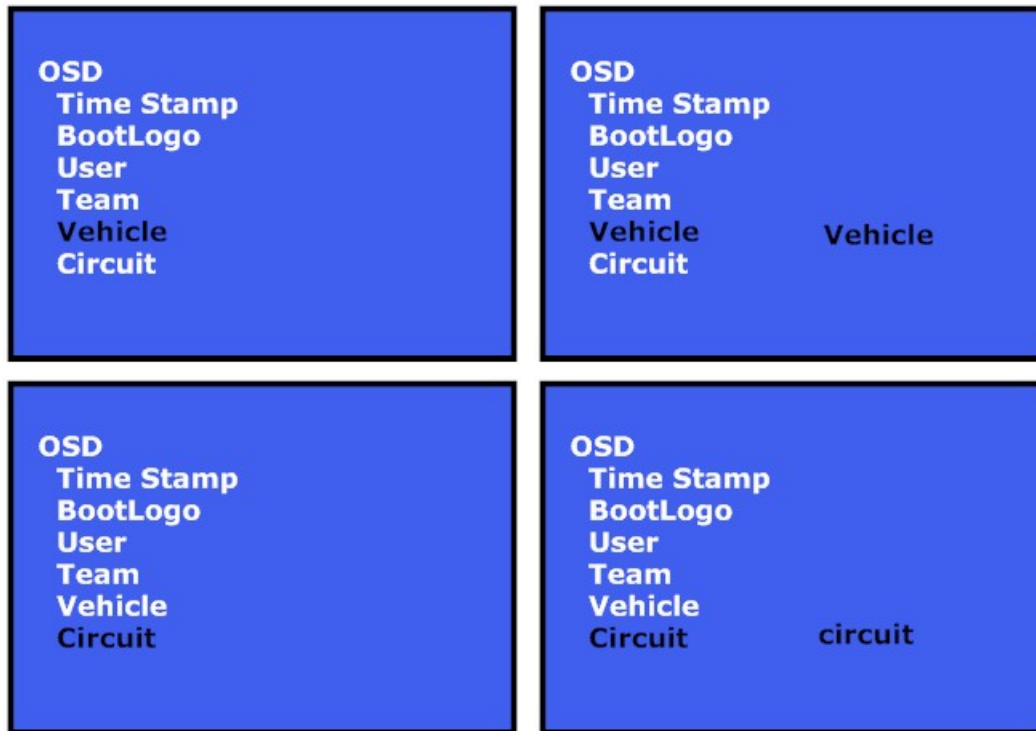
When you press ◖ button or ⊙ Key to enter menu item that you select, you will find the initialization, Switch **UP** or **DOWN** key of ◖ 3-Way switch or use ▲ or ▼ Key to select area of character in value of User/Team/Vehicle/Circuit that you want to set; then press ◖ button or ⊙ Key to enter setting status, in setting, you can switch **UP/DOWN** Key or ▲ / ▼ Key to change value, you can hold **UP/DOWN** Key to change value quickly, when you loosen **UP/DOWN** Key, the change of value will be stopped. Finish setting the correct date & time, press ◖ button or ⊙ Key to save the current configuration, press ⬤ button or ◀ Key to quit menu.

6.2.8 LAP TIMER Menu

BEACON option is only for special LAP Timer model H.264 Micro DVR.

● Menu Item – LAP TIMER / Lap Timer

Default status of Lap Timer is **Disable**, please select proper beacon status to suit.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to switch **Disable** &

Enable option, then press ◖ button or 🟢 Key to save the current configuration, press

🔴 button or ◀ Key to quit the **BEACON / Lap Timer** menu.

● Menu Item – LAP TIMER / Mask Time

Default parameter of beacon mask delay is **10 Sec**, please select proper delay time to suit.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to set proper value of

beacon mask delay, then press ◖ button or 🟢 Key to save the current configuration,

press 🔴 button or ◀ Key to quit the **BEACON / Mask Time** menu.

● **Menu Item – LAP TIMER / Split**

Sometimes, maybe you want to use standard Beacon emitter as split emitter temporarily on racing, you can set DVR to explain the signal from standard beacons emitter except the first beacon as special Split Emitter, the first beacon emitter will be regard as standard beacon emitter.

If you use standard beacon emitter as split on racing, please select **Beacon** option, if you use special split beacon emitter on racing, you must select **Split**.

The default setting is **Beacon**.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to switch **Beacon** &

Split option, then press ◖ button or 🟢 Key to save the current configuration, press

🔴 button or ◀ Key to quit the **BEACON / Split** menu.

● **Menu Item – LAP TIMER / Split No.**

You can select the amount of Split Beacon for every loop; the maximum amount of Split Beacon is four on every loop.

If you don't use Split Beacon emitter on racing, please set the amount of Split Beacon emitter to zero or disable **Split Signal same as Beacon** option directly.

The default configuration of the amount of Split Beacon is **zero**.

Switch **DOWN** & **UP** key of ◖ 3-Way switch or press ▲ ▼ Key to switch amounts of

split beacon from **0** to **4**, then press ◖ button or 🟢 Key to save the current

configuration, press 🔴 button or ◀ Key to quit the **BEACON / Split No.** menu.

● **Menu Item – LAP TIMER / Calibrate**

The system clock of the H.264 Micro DVR need to be calibrated for accurate time recording, it is important for the Lap Timer. If you need to calibrate the system clock, press

◖ button or 🟢 Key to calibrate the system clock.

After you confirm **True Up** operate, the H.264 Micro DVR will begin to calibrate system

clock.

After the system clock of H.264 Micro DVR is calibrated successfully, please restart H.264 Micro DVR.

● **Menu Item – LAP TIMER / Review**

After you enable LAP Timer function on special LAP Timer model H.264 Micro DVR, you can set H.264 Micro DVR to review Lap Timer information on screen.

You can set **Review** option to **Enable** to active LAP Timer Review function, the default is **Disable**.

Under default status, the LCD will display real-time video still, after you active Review function, the real-time LAP Timer information will be displayed.

6.3 LCD Configuration Menu Structure

Menu	Menu Item	Parameter
Video	Video Standard	- NTSC - PAL
Audio	Audio Source	- Line In - Ext. MIC - Int. MIC
	Audio Gain	- Lowest - Lower - Low - Medium - High
Record Setting	Video Quality	- EP - LP - SP
	Record Trigger	- Manual - Car Mode - Power Up
	Number	Reset
Replay	Video	*Replay*
	Speaker	- ON - OFF
System Setting	Date & Time	09-12-01 12:30:00
	Beep	- Enable - Disable
	CAM Voltage	- 12 V - 11 V …… - 6 V
	Power Off	- Disable - 1 Min - 5 Min - 10 Min - 15 Min
	LCD Off	- Disable - 15 Sec - 30 Sec - 1 Min
	LCD Flip	Flip
SD Manager	File Manager	Explorer
OSD	Time Stamp	- Enable - Disable
	BootLogo	- Enable

|		- Disable
	User	OSD information for LAP Timer model
	Team	
	Vehicle	
	Circuit	
LAP Timer	Lap Timer	- Enable - Disable
	Mask Time	10 Sec
	Split	- Beacon - Split
	Split No.	- 0 - 1 - 2 - 3 - 4
	Calibrate	True Up
	Review	- Enable - Disable

7. Firmware Upgrade

NOTE: Please don't connect camera & other external device to Micro DVR when you upgrade Micro DVR!

The firmware of the H.264 Micro DVR can be upgraded if necessary. The H.264 Micro DVR will check the core image file on SD/SDHC card while power up. If image & OSD file is found then the firmware of the H.264 Micro DVR will be upgraded automatically. Please follow below instructions to upgrade.

1) Format SD/SDHC card in FAT32 file system.
2) Copy new firmware file to the root of SD/SDHC card.
3) Power off and then insert SD/SDHC card into H.264 Micro DVR.
4) Turn on the power of H.264 Micro DVR.
5) The firmware will be upgraded after power on. The LED turns to red, then yellow and alternately flashes red and yellow several times. It takes about two minutes to upgrade. At the same time, LCD will display schedule of upgrade process if you upgrade from Firmware V1.0.4 or newer.
   When the H.264 Micro DVR upgrades successfully, it will reboot automatically.
   Update H.264 Micro DVR
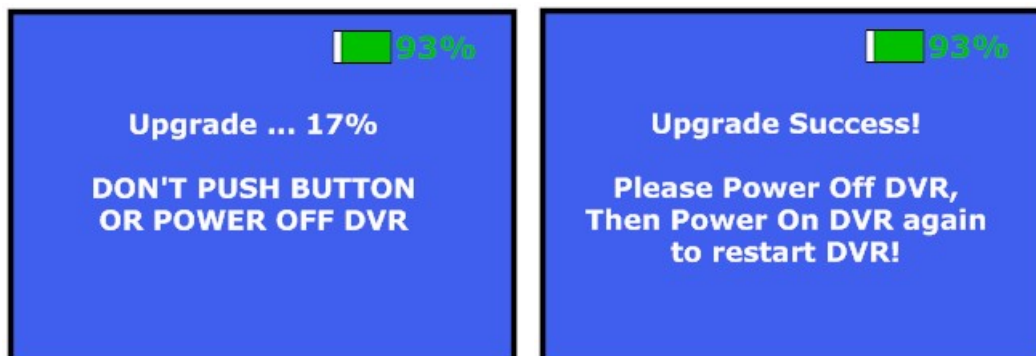
   * DON'T TURN OFF POWER DURING THIS PERIOD!!
6) After H.264 Micro DVR be updated successfully, system will prompt you power & on DVR to restart.

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* Power supply has to be guaranteed normal while upgrading. H.264 Micro DVR can not be restored if upgrade fails.

* Wait at least 4-5 minutes till reboot successful. LED keeps constant green if reboot successful.

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1) LED yellow flash

SD/SDHC card is full. Change SD/SDHC card.

2) LED is red

Failure or battery is low. Use the AC power adapter or external battery pack.

3) Charging period

It takes 5-8 hours to charge a fully discharged battery. The charge indicator LED will go out once fully charged.

4) File is not accessible or H.264 Micro DVR can't startup

File system is wrong. This can happed after abnormal power off and long time usages of SD/SDHC card. Format SD/SDHC card in FTAT32 file system.

5) H.264 Micro DVR is hot when it on recording & recharge

When you record video & recharge H.264 Micro DVR at the same time, it maybe become hot because recharge bring large quantity of heat, overheating maybe cause H.264 Micro DVR faulty.

If external environment temperature is higher than 35 degree of centigrade & without well convection for cool, please add optional Heat Sink/Mounting for 2/3/4 Channel H.264 Micro DVR to ensure stability & reliability of DVR.

If external environment temperature is higher than 40 degree of centigrade & without well convection for cool, please add optional Heat Sink/Mounting for 1 Channel H.264 Micro DVR to ensure stability & reliability of DVR.

6) The Recording video can't be replayed on DVR

H.264 Micro DVR can playback standard H.264 format video currently, if you want to replay recording video on DVR directly, please record video in standard H.264 format. You can set video format in configuration menu.

Appendix

Appendix A: Details of connector

Lockable Cable

Audio, White
RCA/MALE

Video In, Yellow

Power, Black
PLUG, Ø5.5/2.1
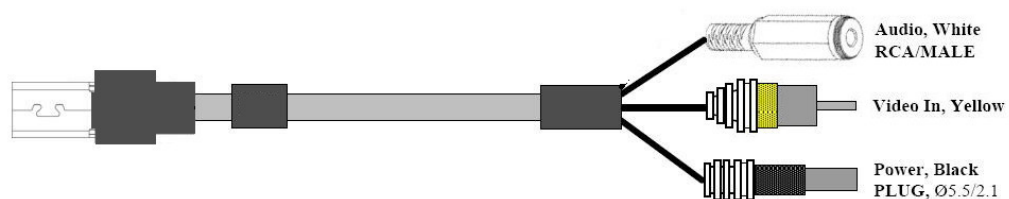
Lockable cable for H.264 Micro DVR