4 Channel Mobile DVR

User's Manual

Safety Precautions

CAUTION

RISK OF ELECTRICAL SHOCK. DO NOT OPEN !

CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER (OR BACK), NO USER SERVICEABLE PARTS REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.
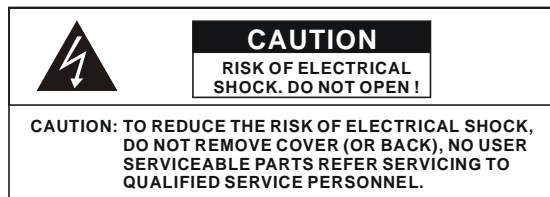
The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of insulated dangerous Voltage within the product's enclosure that may be sufficient magnitude to constitute risk of electrical shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operation 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

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

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

Warranty and Service

There are no serviceable parts for this unit, call for your agent for details.

About this document

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

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

Before reading this document

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

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

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

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

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

   ►Strong recommendation on installation of the DVR unit

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

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

FCC Statement:

WARNING

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

* Federal Communications Commission (FCC) Statement

WARNING

This Equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

* You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.
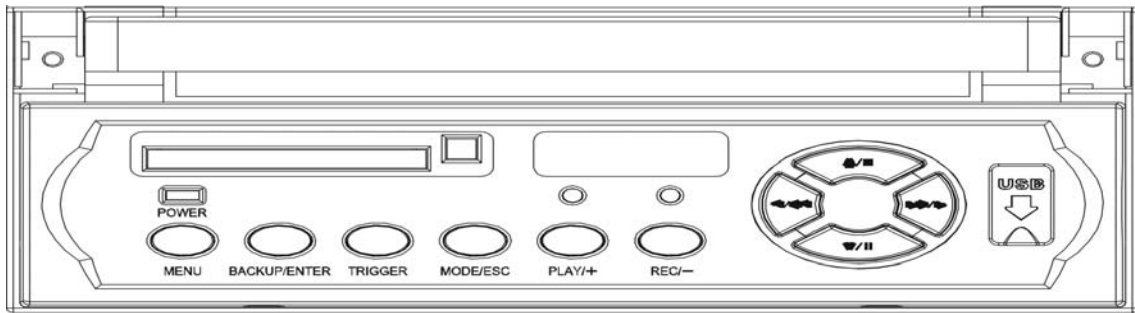
1. MENU BUTTON : Press this button to display the menu setup

2. BACKUP/ENTER : Image backup button / Value change

3. TRIGGER : Emergency record

4. MODE/ESC : To quad mode [⊞] / Full channel select / OSD exit

5. PLAY/+ : Video playback button / Increase values change

6. REC/- : Record button / Reduce values change

7. UP / STOP : Direction button UP / Playback stop button ▲ / ■

8. DOWN / PAUSE : Direction button down / Playback pause ▼ / ▮▮ (Step play)

9. REW : Reverse playback choose button / play speed ◀ / ◀◀

10. FF : Forward playback choose button / play speed ▶ / ▶▶

11. USB 2.0 : Pan Driver slot □

Power and alarm cables

11	9	7	5	3	1
12	10	8	6	4	2
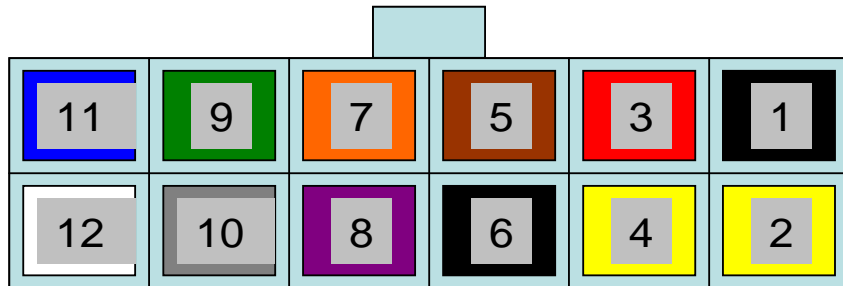
Pin1:BAT_GND	Battery GND	
Pin2:BAT_IN	Battery +	
Pin3:ACC_Power	ACC connection	+ --
Pin4:BAT_IN	Battery +	Vehicle
Pin5:ALARM1	Alarm 1	Battery
PIN6:OGND	Alarm GND	
PIN7:ALARM2	Alarm 2	
PIN8:RLCOM	Alarm COM	
PIN9:ALARM3	Alarm 3	
PIN10:RLNO	Relay NO	
PIN11:ALARM4	Alarm 4	
PIN12:RLNC	Relay NC	

Pin1:BAT_GND (Black)

Pin2:BAT_IN (Yellow)

Pin3:ACC_Power (Red)

Pin4:BAT_IN (Yellow)

Pin5:ALARM1 (Brown)

PIN6:OGND (Black)

PIN7:ALARM2 (Orange)

PIN8: RLCOM (Purple)
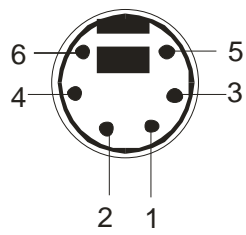
PIN9:ALARM3 (Green)

PIN10: RLNO (Gray)

PIN11:ALARM4 (Blue)

PIN12: RLNC (White)

Notice: System will startup when ACC power connection input is high.

Mini Din Pin definition :

Standard

Option

* TYPE 1 (Standard):

1. -----   4. GND

2. -----   5. +12V

3. Audio   6. Video
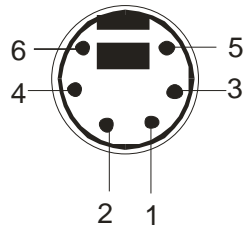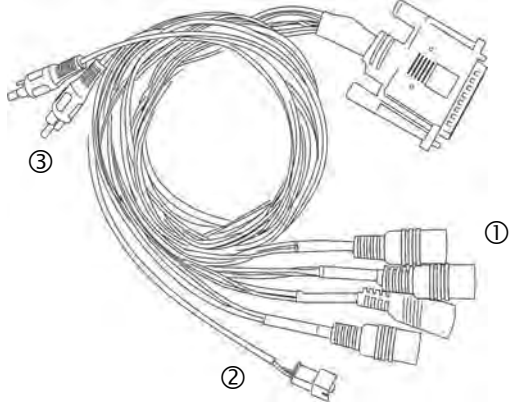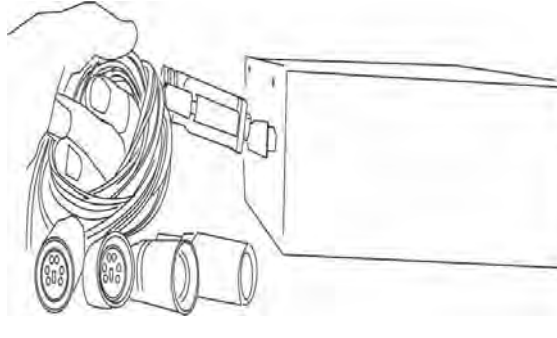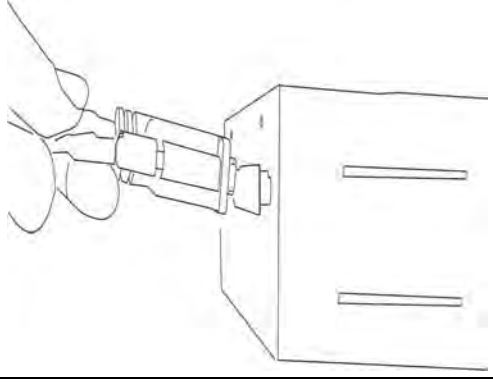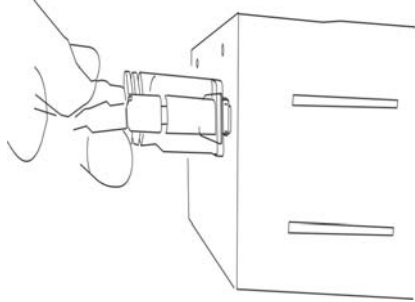
* TYPE 2 (Option):

1. GND   4. +12V

2. ------   5. -----

3. Video   6. Audio

Cables define: Video / Audio / IR sensor extending

	1.	Camera 1 ~ 4 input Mini din **Notice: NTSC or PAL is auto detected by video in channel 1**
	2.	IR sensor extended line
	3.	Video out (RCA) Audio out (RCA)
	Please confirm the direction of cable and DVR D type connector	
	After direction confirmed, please connect the cable	
	To make sure the cable is connect to the rear side of DVR	

DVR

Live mode   **Playback mode**

Indicator:

Live:

Live mode	Video loss	Recording
Overwrite	Motion	Alarm
Relay (Motion / Alarm)	Channel sequence	

 Keypad lock * 111111 is the default password

* Overwrite (Disk usage with record device)

Playback:

Forward	Reverse	Pause

9

Remote controller:

The key on the remote controller function control is same as the front keypad of the unit.

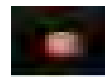|	
TRIGGER	: Emergency record
Number	: Channel select 1 ~ 4
Quad	: ⊞ screen display
UP / STOP	: Direction button up / Playback stop button
REW	: Reverse playback choose button
DOWN / PAUSE	: Direction button down / Playback pause
FF	: Forward playback choose button
ENTER	: Enter button or value change
AUTO	: Full screen auto sequence
MENU	: Menu OSD
REC	: Starts to record
BACKUP	: Image backup
ESC	: OSD exit
PLAY	: To playback mode
LOCK	: To button key lock
AUDIO	: Audio page display
+	: Increase + values change
--	: Reduce - values change

Main Menu – Camera Setup

Right adjustment of each element will increase picture quarterly displayed. We recommend you to adjust each element of cameras and monitor to be connected to the DVR unit.

Main menu – Camera Setup – Display

The function is for channel mask.

Main menu – Camera Setup – Title

Camera title setup function allows 5 characters for each channel.

Select Shift to next page and then Enter to confirm camera title.
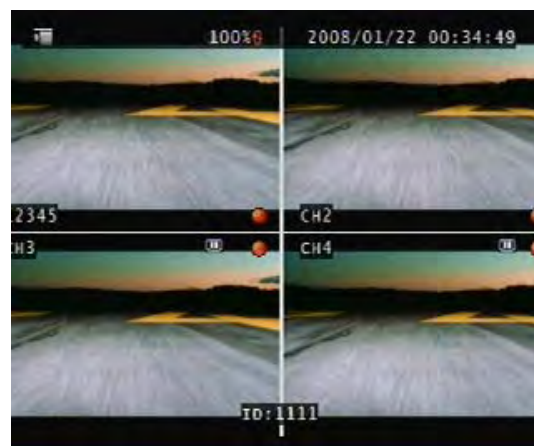
Record Device – User selectable in different record device

N: Normal Record Device
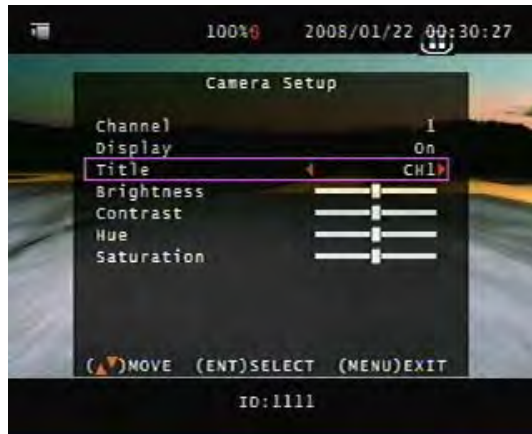
E: Event Record Device

N:Normal Record E:Event Record	Hard disk(HDD)	CF card (CF)	Process
N:E:HDD	Normal / Event record	-------	The video data always record to hard disk
N:E:CF	-------	Normal / Event record	The video data always record to CF card
N:HDD E:CF	Normal record	Event record	Normally the video records to hard disk, but it records to CF card if there is any event happens.

Notice: 1. Power off record :   User have to thing about how much time to record after the car power off , if power off record parameter(time) set too long , it might cause the car battery low .   (Default setting is off) .

2. Pre-Record : Pre-Record frame rate follows the schedule record frame rate .

3. Don't remove CF card when the system is working , it does not support hot swap function .

4. Pre-record function can work normally only when normal record function stop record .

Device & Frame rate set - Schedule Record Frame rate & Motion Record Frame rate

Device & Frame rate set - Alarm Record Frame rate   Record Setup:

Record Setup – Pre-record Set:

OFF / 1MB/2MB/3MB/4MB/5MB/6MB/7MB/8MB pre alarm/motion/trigger record

Record Setup – Power off Record:

OFF / 1 ~ 30 minutes. DVR starts to record automatically after vehicles engine power off

Record Setup – Record Quality:

Low / Normal / High (See record time table page 13)

Record Setup – Event Rec Duration:

OFF / 5 ~ 30 seconds. Duration time recording after event (alarm / motion / trigger)

Record Setup – Auto Record:

When Auto Record is set to "On", the DVR will start recording again after 2 minutes of inactivity after being manually stopped.

Record Setup – Data Retention:

OFF / 1 ~ 15 days selectable

Main menu - Record Setup – Schedule Record

Notice:

1. Each channel has own frame rate adjustment of different recording mode.

2. In 24 hours, user can adjust each channel frame rate of different record mode. Such as schedule, motion detection, and alarm record mode

3. Press "BACKUP/ENTER" button to change different record mode

Record Time Table: 80GB HD

Record Quality: Low. Average: 5 KB;

REC FPS(total)	60	30	15	10
REC Hour	72 hr	148 hr	296 hr	444 hr

Record Quality: Normal. Average 10 KB;

REC FPS(total)	60	30	15	10
REC Hour	36 hr	74 hr	148 hr	222 hr

Record Quality: High. Average 20 KB;

REC FPS(total)	60	30	15	10
REC Hour	18 hr	37 hr	74 hr	111 hr

Actual recording time is base on live environment. This table is only for reference.

20 K x 30 (frame rate) x 60 (mins) x 60 (secs) = 2160000 K = 2160 M / hr

2160 M / hr x 24 = 51840000 K = 51840 M = 51.84 G / (1 Day)

Main Menu – Alarm Detection & Motion Detection

Alarm 1 + GND / Alarm 2 + GND / Alarm 3 + GND / Alarm 4 + GND

The Alarm Signal type depends upon the Alarm Sensor polarity defined as NO (Normal Open) or NC (Normal Close).

Alarm POP UP: Event channel jumps to full screen when alarm triggered. Quad screen with the alarm symbol if more than two cameras triggered.

Relay: NO + COM or NC + COM

Alarm Signal type depends on Alarm Sensor polarity define on NO (N/Open) or NC (N/Close) mode.

NO + COM: Normally, motion relay is NO + COM connector.

Main Menu – Motion Detection – Motion Area

Detected area

Main Menu – Motion Detection – Motion area selection

Direction button Left or Right + ENTER to cancel detection area.

Select start (right-up corner) point and end (left-below corner) point of detect area.

Main Menu – SCREEN: Split border on or off select.

Video Adjustment: Video screen position movement. Use direction button to move.

Main Menu – Audio Setup

- If microphone, audio line in or any how, user please set the audio record mode to on and also adjust volume input or output to right sound effects.

- Mute means live audio is turn on or quiet.

Notice: Audio input is from cam1.

Main Menu – System Setup – Device ID

Totally, the device could be set 1 ~ 4000 for management.

Main Menu – System Setup – Storage Setup

1. Please format hard disk before starting recording

MENU – System Setup – Security Protection – Password Change (Default is 111111)

Menu Protection:
On / Off. User needs to login password before enter to menu.

Auto Key Lock:
After 5 ~ 120 seconds system automatically key lock which means before operate DVR user needs to unlock.
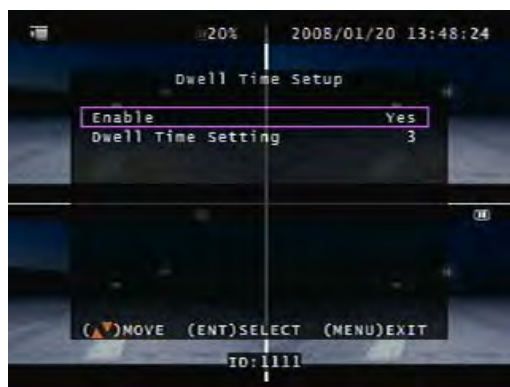
Main Menu – System Setup – Time Setup

1. Press ENTER to login to date and time adjust. 2. Use direction left or right button to change the data. 3. Press ENTER to select date and time.

After time set or daylight mode turns to on, user needs to Apply and confirm. 0 ~ 9 is repeatable with increase + button, and decrease - button is opposite.

Date Format: YYYY/MM/DD; MM/DD/YYY; DD/MM/YYYY

Main Menu – System Setup – Dwell Time setup (Channel auto sequence mode setup)

On live mode, press auto to start full channel sequence. Duration time is base on dwell time 1 ~ 999 seconds.

Main Menu – System Setup – Buzzer Setup

System Buzzer: OS operating
Key Press Buzzer: Button operating
Alarm Buzzer: Alarm triggers warning
Motion Buzzer: Motion detection warning
Video Loss Buzzer: Camera video loss warning

Main Menu – System Set – F/W Upgrade

Stop all hard disk working before update, select F/W upgrade and then press ENTER to search firmware.

1. Searching Firmware

2. Press PLAY upload, press STOP cancel

3. Firmware Reading

4. Firmware uploading
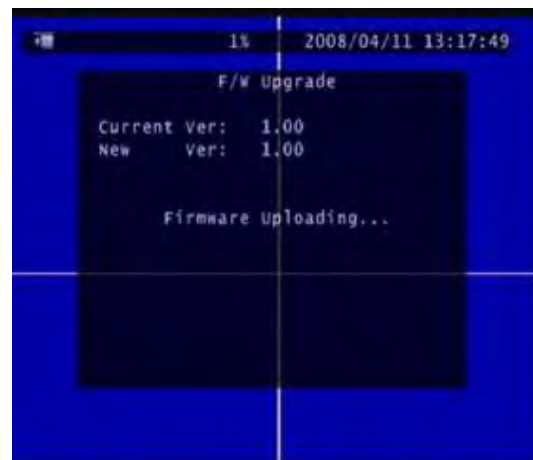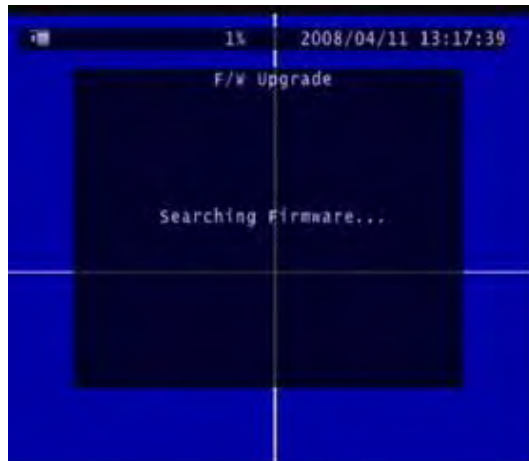
DVR auto reboot after version update.

Main Menu – System Set – Load Player Software

Stop all hard disk working before load Player Software and then press ENTER

After press ENTER, the system will search software file from USB device.

After the file is detected, the system ask user to press ENTER to load file.

After press ENTER button, the system starts to load file from USB. Users please wait until "Done" message appears.

Player Software is loaded in hard disk as factory default. Just in case if user change a new hard disk.
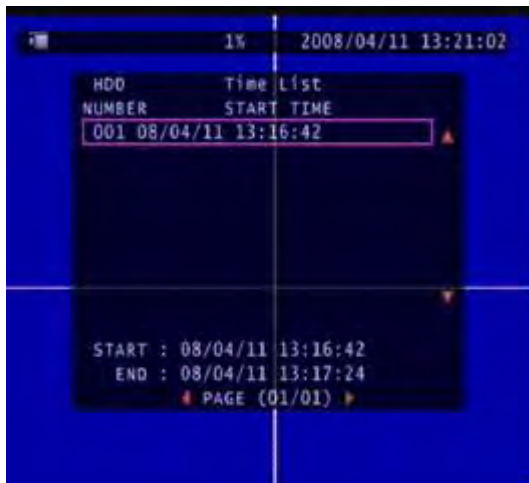
Main Menu – Search & Play button:

Please select HDD or CF device before playback.

Time List search mode & Event List search mode

Use direction button up and down to select date and time section, and then press ENTER to start to playback. Time list 100 / Event list 200 / (HDD)

Event list record way;

EX:

A motion or an alarm event happens on 10:30 AM,

Record Setup – Pre-record (Pre-Alarm) Set: set to 5 seconds

Record Setup – Event Rec Duration (Post-Alarm): set to 5 seconds

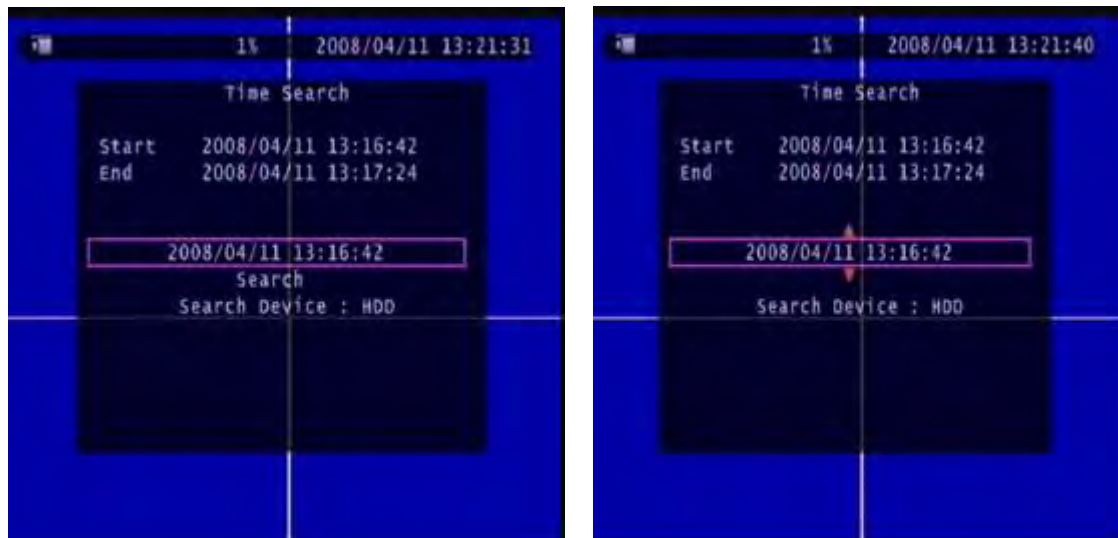User goes to event list search;

```
xxxxxxxxxxx 10:29:55 motion
-    - - - - - -- - -- - -- - -- - - - - - - -
-    - - - - - -- - -- - -- - -- - - - - - - -
-    - - - - - -- - -- - -- - -- - - - - - - -
START: xxxxxx 10:29:55
 END:   xxxxxx 10:30:05
```

Time Search:

1. Press ENTER to login to date and time adjust.

2. Use direction left or right button to change the data.

3. Press ENTER to select date and time.

4. Press ESC to return to the previous screen and move cursor to Search.

5. Press ENTER to start the searching.

6. Wait until the unit starts to playback.

Playback mode

Forward speed: x 2 / x 3 / x 4

(Direction right button)

Reverse speed: x 8 / x 16 / x 32

(Direction left button)

Press STOP to search list, press ESC to live mode.

Backup mode: Before backup, USB pan driver is required. Back up file size can not exceed 3GB, when system reads USB (thumb driver only) device, the system will stop recording about 2 seconds

Mode 1: On live mode, press backup button to file backup page.

Total hard disk data time range

Select start and end time of backup

After select backup time, apply to count data size. After size appears, press backup button to USB page.

Notice: When backup to USB , user can press front panel "Play" key to switch from HDD or CF card backup , it also have a indication show on the left top corner .

After a while, all backup information display on screen, user now can press backup button to start file backup. Data is writing to USB pan drive, users please wait until backup complete. Press menu button to quit USB page.

Mode 2: Press play button to start playback, the playback beginning time is the last one hour record. Press + and – to select backup time. User only can increase seconds in this backup way. Press backup button to USB page which is same as mode 1.
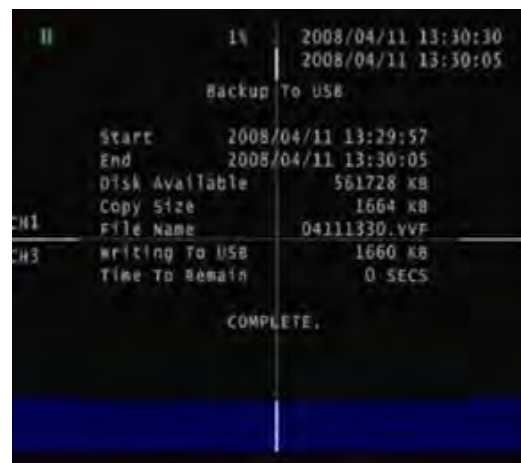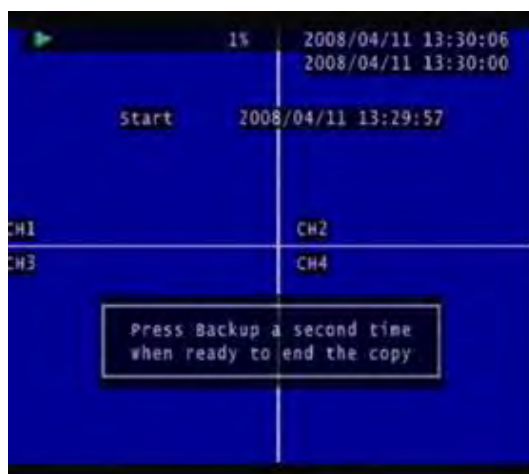
Mode 3: On event list, choose an event record data, and then press backup button.

Pages go to USB page, after data size appears, press backup button to the page which is same as mode 1

USB compatible(Max. 4G)

ADATA / Transcend / San Disk / Kingston

Main Menu – Language: Standard is English / Chinese; English / Optional Language

Main Menu – Exit

User needs to save changes if any function value has changed. And then exit menu.

Trigger Record Function :

When user press the front panel Trigger key , it means active "emergency record" .

It will be saved a event record into event list .

Pre-alarm record frame rate follow schedule record frame rate .

Post-alarm record frame rate follows schedule record frame rate.

Player Software

Open file

Starts to play;

1	Fast Reverse	6	Play
2	Play Reverse	7	Fast Forward
3	Previous Frame	8	Still Capture (Save to C:\ Capture)
4	Pause	9	Full Screen (manual switch)
5	Next Frame	10	Quad Screen

HDD readable in PC. Select hard disk and then click OK to start play.

AVI Button: .vvf files export to .avi format
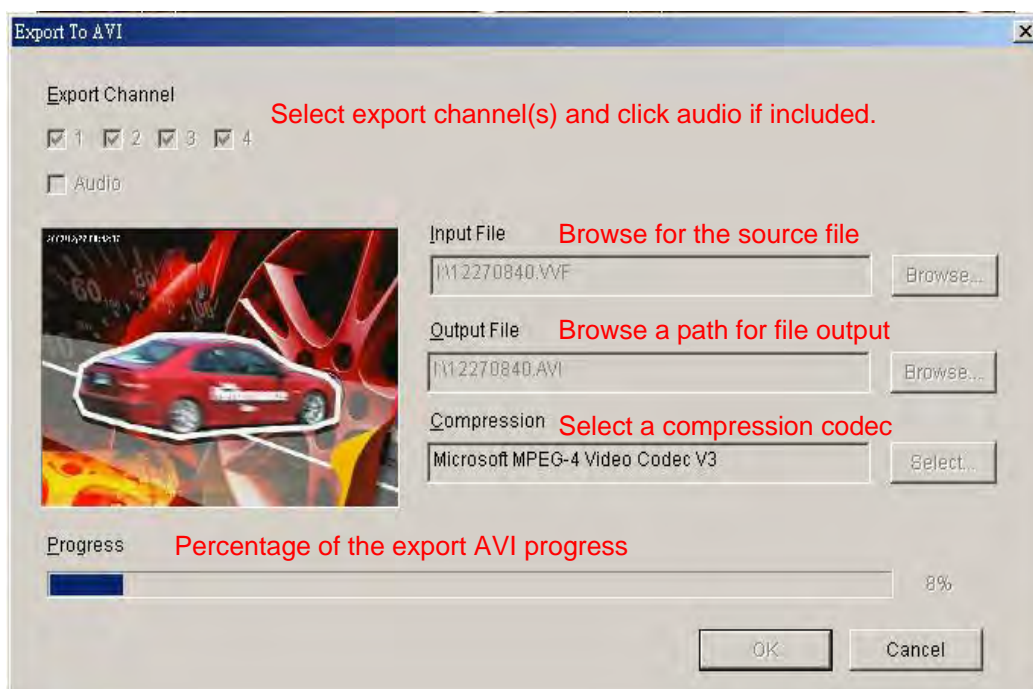
Specifications

Model	4 CH Mobile DVR
Input	4 CH Inputs 1.0Vp-p, 75ohm unbalanced (mini din Type)
Output	Main monitor (mini din type) x 1
S/N Ratio	More than 40dB
Color	6.7 Million
Monitoring Method	
Channel Display	Single / Quad channel
Sequence Display	Available
Screen Quality	704(H)x 448(V) Active Pixels(NTSC); 704(H) x 544(V) Active Pixels (PAL)
Display Rate	120 fps (NTSC) / 100 fps (PAL)
Recording/ Play Function	
Recording (Max) NTSC	Max 60 fps(NTSC); Max 50 fps(PAL)
Recording Resolution	704x224(NTSC); 704x272(PAL)
Record Quality	High, Normal, Low
Compressed Picture	Storage: MJPEG
Recording Control	Normal / Schedule / Event
Pre-Alarm Record	8MB
Post-Alarm Record	5 ~ 30 seconds
Playback Mode	Time list / event list / Date & Time search
Backup and Copy	
Backup	Event Backup / Video Data backup
Copy	Copy media files via memory flash
Backup file play	Client software to play files
Other Function	
Device ID setup	1 ~ 4000 ID set up per DVR management
Power off Record	Off / or after 1 ~ 30 minutes power off recording
Operation Mode	Record / Play
Monitoring	Firmware Watchdog
Recovery	Auto-Reboot by Watchdog
Operation Mode	Duplex (Record +Playback)
Control Device	Front key/ Remote controller
Daylight Saving	Supported
Language	English / Chinese
Motion Detect	16 x16 grids camera for all channel

Alarm	Alarm in x 4 / Relay out x 1
Video Loss	Camera video loss detection and buzzer warning
Back-Up	USB 2.0
Storage	2.5: IDE HDD x 1
CF card	4 GB supported (Sandisk, KingSton,A-DATA)
Max number of event list/ Time file list	Event list 200 / Time list 100 (HDD)
Firmware Upgrade	Support USB firmware upgrade
Shock Protection	Support Hardware Shock Protection
Audio Input	RCA x 1 0.5~1.4Vp-p@20kΩ (mini din)
HDD Record Mode	Full stop / overwrite
Key Lock	Yes
Dwell Time	Programmable with adjustable dwell time. 0 ~ 999 seconds
Real Time clock (RTC)	Correct data and time auto adjustment
Remote Control	Support PHILIPS RC5, NEC
Power Supply	+9V DC & +32V DC
Operating Temperature	5 ºC ~ +55 ºC