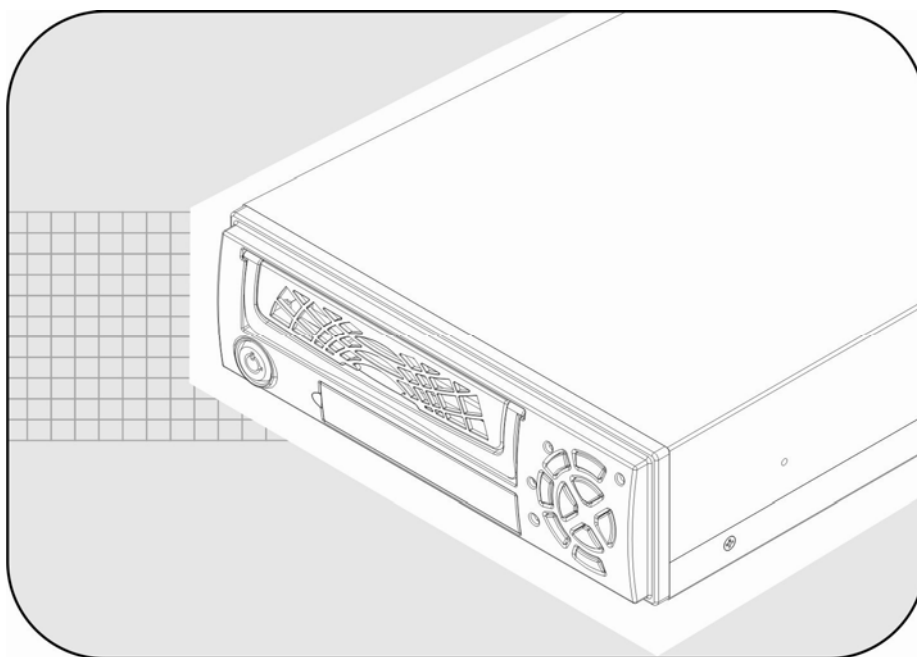


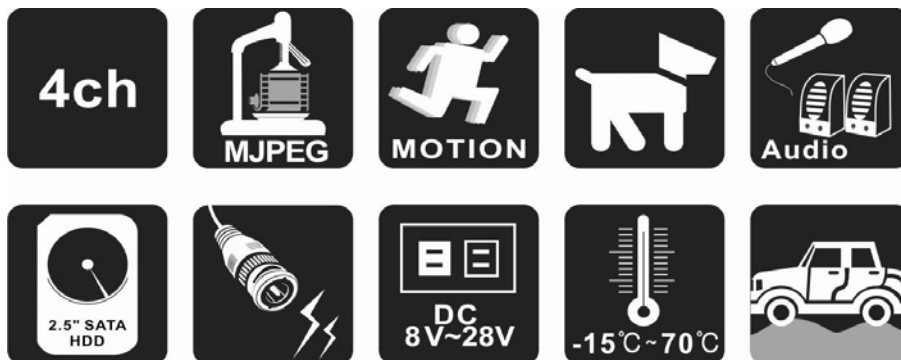
RUGGED MOBILE

4CH STANDALONE DVR SYSTEM



MANUAL

2010 Feb. V1.0



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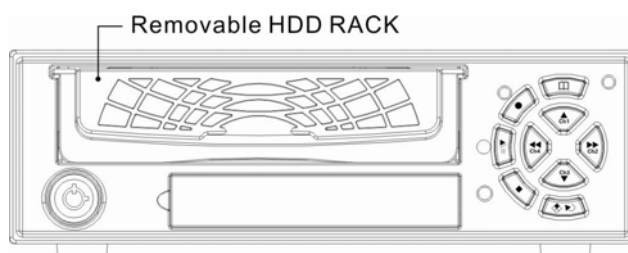
A 、FEATURE

- Complies with Automotive Industry and Voltage Ranges for All.
- Easy Swapped HDD Tray in Front.
- 2.5" SATA HDD and SSD HDD Support.
- Certified 1.0G HDD Anti-Shock Design Patent.
- Extreme Temperature and Ruggedness Approved for Installation in All Cars.
- Most Reliable MJPEG Chip 5 Years Working Guaranty.
- Synchronization Video Recording and Hidden Audio Recording Support.
- Continuous Recording, Motion Recording and Schedule Recording.
- Hard Drive Indicator on Fascia.
- Prompt Recording upon Boot-up.
- Ending File Protection While Unexpected Power Cut.
- Power Restored, Recording Restored.
- FUHO Made Cameras Power Supplied by DVR.

B 、SPECIFICATIONS

Item	Description		
Video Format	NTSC/PAL		
OS	Embedded RTOS		
Video Input	BNC x4 (1Vp-p 75Ω)		
Video Output	BNC x2 (Monitor Output)		
Audio Input	RCA x1		
Audio Output	RCA x1		
Menu Interface	Multi-lingual Option		
Live Frame Rate	NTSC	120 fps (4x30 fps)	
	PAL	100 fps (4x25 fps)	
Recording Frame Rate	NTSC	60 fps	
	PAL	50 fps	
Retrieving Mode	Duplex (Recording & Playback)		
Resolution	Live	NTSC	640 x 480
		PAL	640 x 544
	Recording	NTSC	640 x 240
		PAL	640 x 272
Compression	Modified MJPEG	Normal	12K Bytes / Frame
		High	15K Bytes / Frame
		Highest	20K Bytes / Frame
Hard Drive	2.5" SATA Hard Drive x1		
Search	Mode	Time/Date & Event List	
	Full Screen	Yes	
Alarm Input	Yes		
Motion Detection	Yes		
Video Loss Alert	Yes		
Auto Switching	Yes		
Buzzer Alert	Yes		
Brightness Adjustment	Yes		
Contrast Adjustment	Yes		
Air Connectors	Camera Video Input Cable x4 (DC12V Max. 0.5A)		
System Monitor	Power Restored Recording Restored		
Power Input	DC 8V~28V		
Dimension	195mm X 265mm X 65mm (L X W X H)		
Weight	4.1KG (Including bracket, w/o HDD)		
Shock Factor	1.0 G		
Operating Temperature	-15℃~+70℃		

C 、FRONT PANEL



CONTROL BUTTONS in the VIEW MODE	
	Menu: Enter the MENU MODE for the system setup.
	Record: Activate the recording.(No recording must be set in Record Schedule Setup).
	Play: Event List.
	Auto Switching Channels: Enable / Disable the auto switching function. Quad Display: Monitor will be displayed as a quad display.
	Channel 1: Channel 1 full screen display.
	Channel 2: Channel 2 full screen display.
	Channel 3: Channel 3 full screen display.
	Channel 4: Channel 4 full screen display.

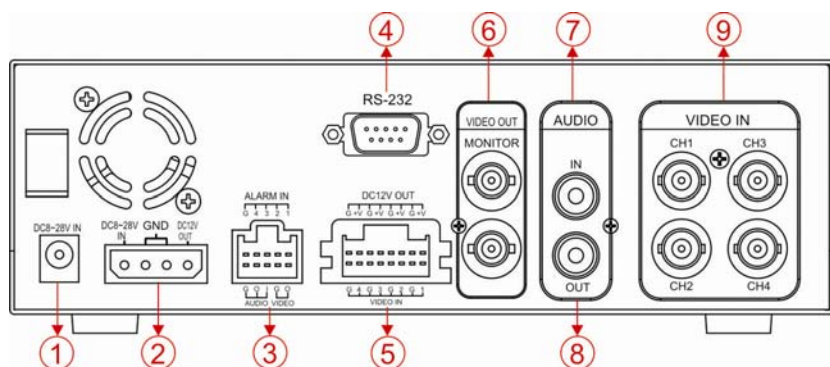
CONTROL BUTTONS in the RECORD MODE	
	Menu: Enter the MENU MODE for the system setup.
	Key lock: Push the button 5 times to lock/unlock the STOP RECORDING key. (While the STOP Key is locked, there will be a letter L showed on the left-down corner).
	Stop: Stop the recording.
	Auto Switching Channels: Enable / Disable the auto switching function. Quad Display: Monitor will be displayed as a quad display.
	Channel 1: Channel 1 full screen display.
	Channel 2: Channel 2 full screen display.
	Channel 3: Channel 3 full screen display.
	Channel 4: Channel 4 full screen display.

CONTROL BUTTONS in the MENU MODE	
	Menu: Exit the MENU setup.
	Select: Select items.
	Up Arrow: Navigate up through menu options.

▶▶ Ch2	Right Arrow: R Navigate right through menu options. Select items: Select items.
Ch3 ▼	Down Arrow: Navigate down through menu options.
◀◀ Ch4	Left Arrow: Navigate left through menu options. Select items: Select items.

CONTROL BUTTONS in the PLAY MODE	
☰	Menu: Enter the MENU MODE for the system setup.
▶	Play: Play the video stream in normal speed. Pause: Pause the playing.
⏹	Stop: Stop the playing, and go to the VIEW MODE.
⏮	Channels Switching: Channels Switching: Switch CH1→CH2→CH3→CH4 as full screen and press again to show the quad display.
▲ Ch1	No function.
▶▶ Ch2	Fast Forward: Playback fast forward.
▼ Ch3	No function.
◀◀ Ch4	Fast Reverse: Playback fast reverse.

D 、 REAR PANEL





1	POWER INPUT: DC8~28V.
2	4P POWER INPUT/OUTPUT: Power input/output. The power cable for car is attached.(providing overcurrent protection) and the cable supplies power to camera.
3	Air 10P connector: Support 4CH ALARM IN 、 Audio output/Input and Video Output.
4	RS-232: RS-232 (Option).
5	Air 16P connector: Find the attached 1S air connector line to connect DVR and cameras of S connector.
6	VIDEO OUT: Video Output.
7	AUDIO IN: Audio Input.
8	AUDIO OUT: Audio Output.
9	VIDEO IN: Video Input.

E 、 OPERATING MANUAL

1 、 Main Menu

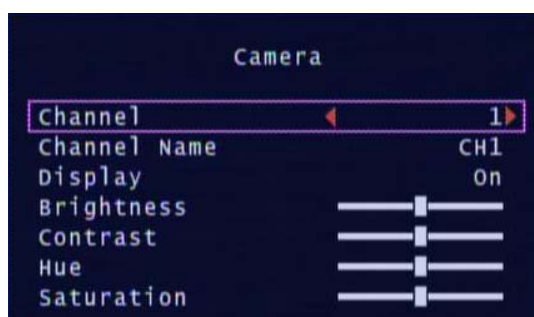


Press   to select items.

Press  to enter.

Press MENU to exit.

2 、 Camera Setup



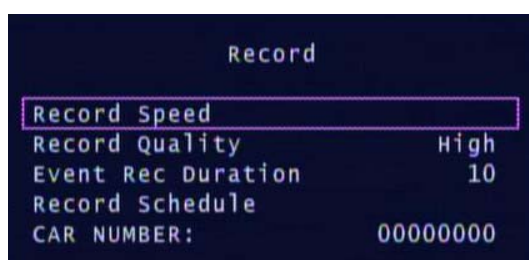
Press   to select items.


Press    to enter.

Press MENU to exit.

- (1) Channel : The diagram above shows Channel 1.
- (2) Display : Turn On/Off the camera signal
- (3) Brightness/Contrast/Hue/Saturation: Adjust brightness, contrast, hue, and saturation of channel display. The center point is factory default.

3 、 Record Setup

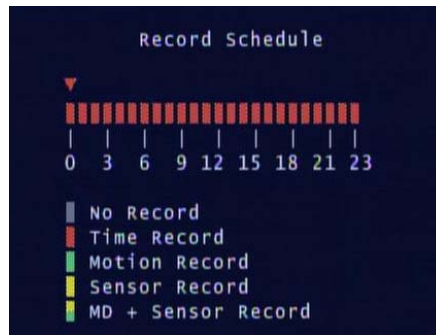


Press   to select items.

Press    to enter.

Press MENU to exit.

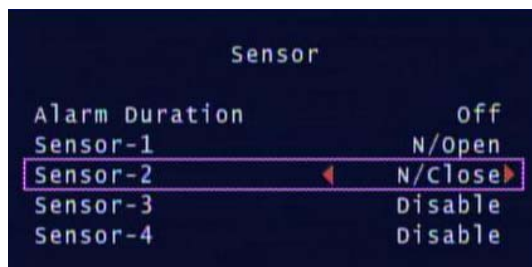
- (1) Record Speed : Set the number of frame per second (fps).
NTSC : default: 15 fps , maximum total frame: 60 fps.
PAL : default: 12 fps , maximum total frame:50 fps.
- (2) Record Quality : Choose video record quality: Highest, High, or Normal.
- (3) Event Rec Duration : 5 、 10 、 15 、 20 、 25 、 30 seconds , default: 10 seconds.
- (4) Record Schedule Setup :



- Press \leftarrow Ch4 \rightarrow Ch2 to select left and right of time, Press \uparrow Ch1 \downarrow Ch3 to change rec. status, Press \leftarrow \rightarrow to change all rec. status.
- Range: 0-24 hours.
- Set "White" for no recording.
- Set "red" for continuous recording.
- Set "green" for motion recording.
- Set "yellow" for sensor.
- Set "yellow + Green" for motion + sensor.

(5) Car No. : The number of car.

4 、 Alarm Setup



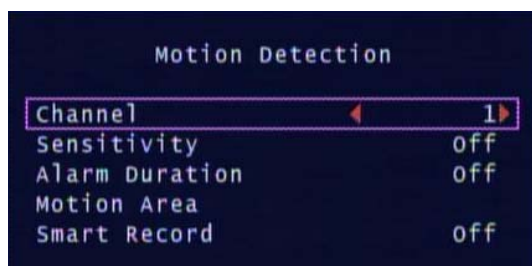
Press \uparrow Ch1 \downarrow Ch3 to select items.

Press \leftarrow \rightarrow Ch2 \leftarrow Ch4 to enter.

Press MENU to exit.

- (1) Alarm Duration : Set alarm duration when alarm is triggered.
- (2) Disable : Disable Alarm trigger.
- (3) N/Open : Alarm device is normal open mode.
- (4) N/Close : Alarm device is normal close mode.

5 、 Motion Detection Setup



Press \uparrow Ch1 \downarrow Ch3 to select items.

Press \leftarrow \rightarrow Ch2 \leftarrow Ch4 to enter.

Press MENU to exit.

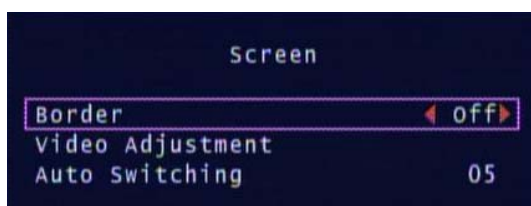
- 1 、 Channel : Select the camera to setup (Default is CH1).
- 2 、 Sensitivity : Set Off, or 1 to 4 , default is Off.
- 3 、 Alarm Duration : Set alarm duration when alarm is triggered by a moving object: Off, 5, 10, 15, 20, 25, 30 seconds, or continuous.
- 4 、 Motion Area : Select motion detection area.
- 5 、 Smart Record : Default is disable. Set enable, system will start recording in 3fps when the motion detection is not triggered. When motion detection is triggered, the recording fps is according to user's setup.

★ If you want to enable motion recording, please finish the setup procedure a and b.

a : Set SENSITIVITY level from 1 to 4 in Motion Detection Setup.

b : Set MOTION RECORDING (Green) in Record Schedule Setup.

6、Screen Setup



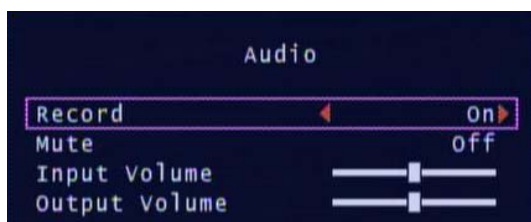
Press to select items.

Press to enter.

Press MENU to exit.

- (1) Border: Turn On/Off, or show divided lines in quad mode.
- (2) Video Adjustment: Adjust the position of screen display shown.
- (3) Auto Switching: Set the duration of each channel: Off, 1 to 10 seconds.

7、Audio Setup



Press to select items.

Press to enter.

Press MENU to exit.

- (1) Audio Record : On / Off.
- (2) Mute : On/Off.
- (3) Input Volume : Adjust input volume.
- (4) Output Volume : Adjust output volume.

8、System Setup

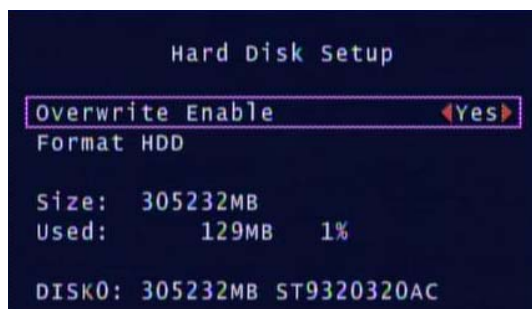


Press to select items.

Press to enter.

Press MENU to exit.

- (1) Hard Disk Setup



- (1.1) Overwrite Enable:
Enable overwrite when HDD capacity is full:
Yes: When HDD overwrite is taking place, the data is stored in duration of 4 hours per event and being recorded continuously.
No: Stop recording
- (1.2) Format HDD: When choose this item, DVR will request for 6 numbers password. If the password is accepted, the DVR will start formatting

the HDD. A message, 'wrong password' would appear in the screen when the password is entered incorrectly.

(1.3) HDD Status

Indicates current HDD status, including total capacity and percentage of space being used.

- * Factory default password setting: 111111
- * The HDD must be formatted when first time in use.

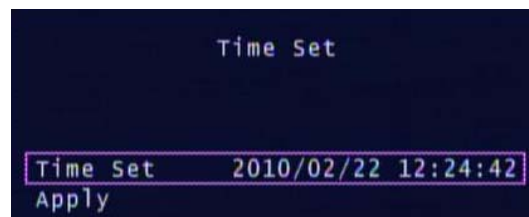
(2) Password Change : Password Setup



Current Password : _____
 New Password : _____
 Confirm Password : _____

- When current password is entered incorrectly, a message, 'Wrong Password' will appear in the screen.
- Factory default Password Setting: 111111.

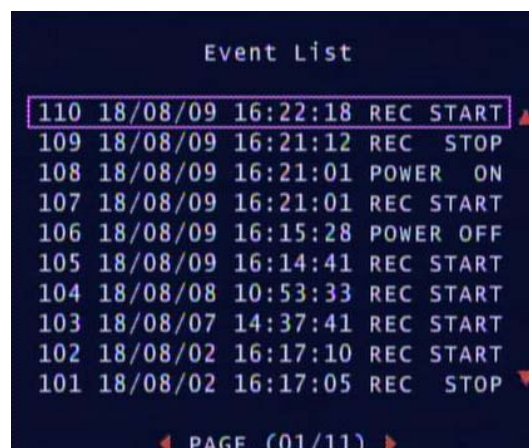
(3) Time Set



(3.1) Time Set : YYYY/MM/DD HH:MM:SS

(3.2) Apply : Update and save all changes.

(4) Event List



(4.1) Playback by searching an event from event list.

(4.2) TIME : Each event is recorded and listed every 4 hours automatically.

(4.3) MOTION : Motion event list.

(5) Password Check

On/Off : System requests or don't request password for entering menu setup.

(6) Buzzer Alarm

On/Off : Video Loss (Motion detected) Buzzer alarms or don't alarm.

(7) F/W Upgrade



Please save updated firmware on a USB flash drive. Stick it into USB port. The screen will show both current version and new version of firmware.





- When update is in progress, please DO NOT operate the unit or remove the USB flash drive to prevent malfunction or system error. After it is completed, turn off and restart the unit.
- There must have a hard drive to store new firmware. Be sure a hard drive must be installed.

9 、 Time Search



(1) Set Search of time,then press "play"button to start playback.

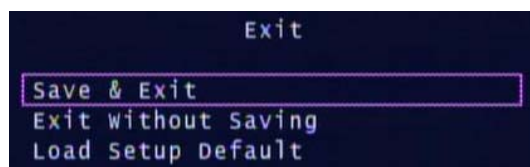
(2) Playback :

- Press  button for fast forward. Press one more time for faster speed. Total three variable speeds.
- Press  button for fast reverse. Press one more time for faster speed and total three variable speeds.
- Press  button to pause.
- Press  button to stop playback.

10 、 Language

Select a language.

11 、 Exit



- (1) Exit & Save Changes : Save all setting and exit menu.
- (2) Exit without saving : Exit without saving changes.
- (3) Load Setup Default: Load factory default setup

F 、 RECORDING PROCEDURE

- 1 、 When DVR is recording by time, motion or sensor, the mark ● will be shown on the up right corner of each channel on screen.
- 2 、 When DVR is recording and system is in live model, if no any operation with keys within 5 minutes, all keys will be locked and there will be a letter L showed on the left-down corner. To unlock the keys, Press ● for 5 times.

Remark : If record is setup in the system, keys will be locked after booting up the DVR.

G 、 4-CH CONTINUOUS RECORDING HOURS ON SATA 400GB HDD

The chart of estimated record time listed below is for reference only. The length of time recorded can be varied due to variation in image size may be somewhat different.

Recording Results in NTSC Standard		60fps	30fps	15fps	1fps
Video Standard	Video Quality				
NTSC	Highest	50 Hrs	100 Hrs	200 Hrs	3,000 Hrs
	High	80 Hrs	160 Hrs	320 Hrs	4,800 Hrs
	Normal	105 Hrs	210 Hrs	420 Hrs	6,300 Hrs
Recording Results in PAL Standard		50fps	25fps	12fps	1fps
Video Standard	Video Quality				
PAL	Highest	45 Hrs	90 Hrs	180 Hrs	2,250 Hrs
	High	75 Hrs	150 Hrs	300 Hrs	3,750 Hrs
	Normal	100 Hrs	200 Hrs	400 Hrs	5,000 Hrs

H 、 DVR VIEWER USER GUIDE

- 1 、 Playback Recorded File



- (1.1) Execute VVF Player.
 - (1.2) Playback : Click the right button of mouse control, select "Auto play". System will choose the HDD for DVR automatically, and then press "Play" for playback.
 - (1.3) Playback : Click the right button of mouse control. Select "Open Disk" and choose HDD, PLEASE CHOOSE THE HDD FOR DVR, NOT HDD FOR PC. If it is wrongly chosen, player won't work and the data in the HDD won't be damaged.
- Remark : It will take some time to examine the data in the HDD by the Player, please wait. The number on the right side of time is Car No. (For example : ZZZ00000)

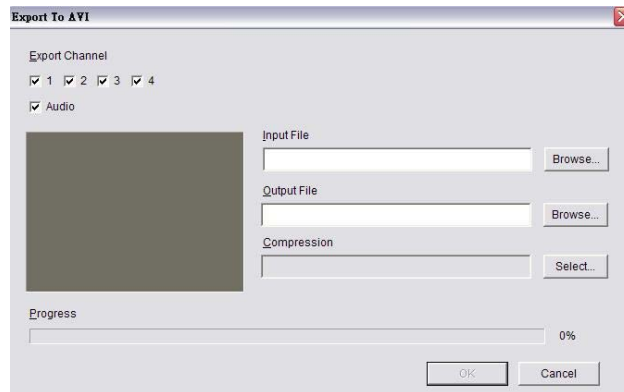
2、 Capture a film

The function is to capture a certain video to .vtf format.



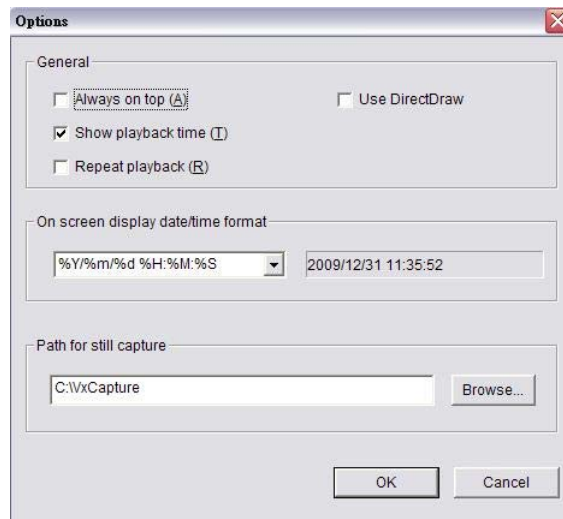
- (2.1) Playback the film and select the video wanted to capture. Click 'Pause' at the video you want to start to capture.
- (2.2) Then click the right button on the mouse and select 「Capture」 / 「Mark In」 as start time.
- (2.3) Press Play and then click Pause at the frame you want to end the capture.
- (2.4) Click the right button on the mouse and select 「Capture」 / 「Mark Out」.to end the capture.
- (2.5) Click the right button on the mouse, and select 「Capture」 / 「Export」
- (2.6) After selecting Export file (.vtf) , press OK, after 100% executive, exit the dialogue.
- (2.7) To playback the film captured, click the right button on the mouse in the Player, select 「Open File」 and select the file to playback.

3、 Convert File to AVI Format



- (3.1) Click the right button on the mouse, and select 「Export」 / 「AVI」
- (3.2) Set Input/Output File 、 Compression 、 Export Channel and Audio.
- (3.3) Click 'OK' to start converting file to AVI format.
- (3.4) It can't be used to convert file in the HDD to AVI format directly. For the function, please refer to 2. Capture a file (above).

4、 Options



- (4.1) Always on top : Screen always keeps on top.
- (4.2) Use DirectDraw : DirectDraw, a part of Microsoft's DirectX is used to render graphics in applications where top performance is important.
- (4.3) Show playback time.
- (4.4) Repeat playback.
- (4.5) On screen display date/time format.
- (4.6) Path for still capture : The film path where the pictures (captures) are saved in your computer.