

Mini DVR Module

U S E R M A N U A L



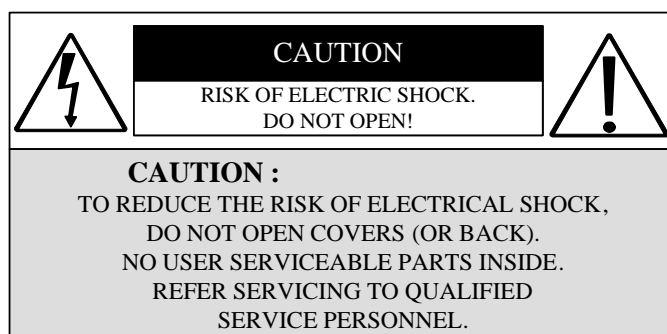
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VER.: 2.0, CD

1. SAFETY PRECAUTIONS



It is advised to read the Safety Precaution Guide through carefully before operating the product, to prevent any possible danger.

 **WARNING:** This symbol is intended to alert the user to the presence of un-insulated “dangerous voltage”.

 **CAUTION:** This symbol is intended to alert the user to presence of important operating and maintenance (Servicing) instructions in the literature accompanying the appliance.



Disposal of Old Electrical & Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems).

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

Do not Plug and unplug the power cord, it may result product malfunction.

Do not install the product in an environment where the humidity is high.

Unless the product is waterproof or weatherproof, otherwise poor image quality may occur.

Do not drop the product or subject them to physical shocks.

Except for vandal-proof or shockproof product, otherwise malfunctions may occur.

Never keep the product to direct strong light.

It can damage the product.

Do not spill liquid of any kind on the product.

If it gets wet, wipe it dry immediately. Alcohol or beverage can contain minerals that corrode the electronic components.

Do not install the product in extreme temperature conditions.


Use the camera under conditions where temperatures are between 5°C(41°F) ~ 45°C(113°F). Be especially careful to provide ventilation when operating under high temperatures.


2. FEATURES

- The Mini DVR Module supports NTSC or PAL video system, and auto detects video loss.
- The Mini DVR Module is built-in with H.264 video and G.711 audio codec. It supports 1 channel video and 1 channel audio recording and playback operation.
- Audio/ Video data are recorded directly on the SD card with FAT32 file system and ASF file format. Simple data backup method to a PC.
- Audio/ Video data are recorded directly as ASF file format. You can view the data straight from your PC, and playback those ASF files with popular media players.
- USB interface that enables data to be transfer to a PC.
- For 1 GB SD card, the record time is about 1 hours at Standard Quality for NTSC: 30 fps @ 704 x 480 and PAL: 25 fps @ 704 x 480.
- The DVR supports: Manual, Schedule Event Detection (Motion/ Alarm), and Schedule Continuous Record mode with independent video size, quality, and frame rate set up.
- Schedule Record (Schedule Record Priority Order: Alarm/ Motion Detection/ Continuous) and IR Illuminator can be setup to ON/ OFF and per hour.
- Support external alarm signal connection to enable alarm trigger recording.
- For motion detection, multiple detection blocks and appropriate motion trigger level set-up.
- Support key lock function.

5. OPERATION

5.1 Power On

1. To power-up, connect to a DC 12V power input connector.
 - ☛NOTE 1: Booting time (does not include SD card checking process) is about thirty seconds.
 - ☛NOTE 2: Booting time may be slightly longer if an image file error occurs, because the system will automatically try and fix this situation.
 - ☛NOTE 3: Implementing SD card checking process, the system will temporarily be busy and may result in delays or short-term operating time display frozen.
2. After power on, the system auto enters live monitoring. When the system is currently under schedule recording, it auto enters record mode.
3. “SD” icon shown on the status line, indicates that SD card is operating normally.
4. When SD card is not inserted or problem occurs on the SD card, “” icon will be shown on the display. Please re-format before proceeding.
5. You can play while the SD card is “read only”, but you cannot record.
6. After power-loss the system auto returns to the previous recording mode.

 Do not withdraw the SD card while booting. It may destroy the data stored within the SD card.




















5.2 Live Mode


Live mode is the default setup after system start-up.



- ① **Time Display:** System Date and Time.
- ② **Key Lock:** Show all buttons have been locked and the functions are ineffective.
- ③ **Video Indicator:** Video icon will circle around as shown by the illustration below.



- ④ **Video Status:** Indicates external camera connection.
-  : Manual Record
 -  : Schedule Continuous Record
 -  : Motion Detection Record
 -  : Schedule Alarm Record
 -  : Continuous Record + Alarm Record + Motion Detection Record
- ⑤ **Camera status:** Indicates external camera connection.
- ⑥ **REC format (resolution)**
-  : CIF resolution in NTSC system
 -  : CIF resolution in PAL system
 -  : D1 resolution in NTSC system
 -  : D1 resolution in PAL system
- ⑦ **REC format (quality)**
-  : High quality
 -  : Medium quality
 -  : Low quality
- ⑧ **Record format (audio on/off)**
-  : Record both audio and video
 -  : Record only video
- ⑨ **SD Card Status:**
-  : SD Card has not been inserted or malfunctioned.
 -  : SD Card is functioning normally.
 -  : Disk full.
 -  : Overwrite prevention status.
 -  : SD Card is proceeding file testing.
- ⑩ **SD Card loop function:** Overwrites the earliest file if SD card has been full while recording. Please refer to **【6.6 SD Card Setup】**
- ⑪ **Low battery signal:** In battery-powered mode, the icon indicates that the batteries are running out. Meanwhile, the POWER indicator flashes.

 When SD card is not inserted, record and playback function is inapplicable, but monitoring is applicable.


5.3 Record Mode

1. Start Record: 3 Types of recording mode.

- (1) **Manual Record:** Suitable to record at anytime. Press 《REC》 button, to enter manual recording status (start recording). For more information, please refer to **【6.5 Manual Record & Schedule Record】** .

- (2) **Schedule Motion Detection Record:** Suitable to record, when there are severe image changes. Motion detection triggers schedule recording, but it will only start recording when the variation exceeds the alarm limitation value. For more information, please refer to【6.4 Motion Detection】and【6.5 Manual Record & Schedule Record】.
- (3) **Schedule Continuous Record:** Suitable for few constant frame recording or on long-term continuous recording. For more information, please refer to【6.5 Manual Record & Schedule Record】.
- (4) **Schedule Alarm Record:** Suitable for external alarm recording. When alarm schedule been setup, alarm icon will be shown on the display status bar (alarm triggered recording is setup).



2. Stop Record:

- Manual Record Press《/■》/《MENU/ OK》button, or stops manual recording when entering playback mode.
- Schedule Record Enter playback mode, all kinds of recordings (Alarm/ Motion Detection/ Continuous) under schedule recording will be stopped.

To continue recording, please follow the methods below to restart recording.

- Manual Record Repress 《REC》 button.
- Schedule Record Stop playback and the system will auto re-check the record schedule setup again.

- 3. System recording is determined according to the recording priority order (Record Priority: Manual/ Alarm/ Motion Detection/ Continuous).
- 4. Different recording modes may have different kinds of setups. Basic setup: video size, recording frames, video quality, and audio recording. When different recording modes are triggered, the system starts recording according to the different setup. This kind of design provides flexibility to ensure efficient recording time and quality. Example: Work hour from 8:00am to 6:00pm, setup 「Schedule Record」 to low video quality with less recording frames to extend the recording time. And off work hour, setup 「Motion Detection Record/ Alarm Record」 to enable high video quality with the highest recording frames, when an event occurs.
- 5. When video input is interrupted, recording automatically stops.
- 6. Video or audio may be recorded into the SD card (SD card is purchased separately).

-  Do not withdraw the SD card while recording. It may destroy the data stored within the SD card.
-  Power loss during recording results incomplete videos or errors.

5.4 Playback Mode

Selectable Playback format: Normal Playback and Search and Playback.

- (1) **Normal Playback:** Press 《▶/||》 button to first playback the final recorded data, and then according to the SD card file recording order.



① Playback Status:

- ▶ : Press 《 ▶ / II 》 button once to playback, press it again to pause.
- ◀▶ : Press 《 ◀ 》 or 《 ▶ 》 button to Fast Rewind or Fast Forward (Speed: x2/ x4/ x8/ x16/ x32). Press 《 ▶ / II 》 button to return to normal speed playback.
- II : During playback, press 《 ▶ / II 》 button to pause playback and press again to return to playback status.

② Playback Speed

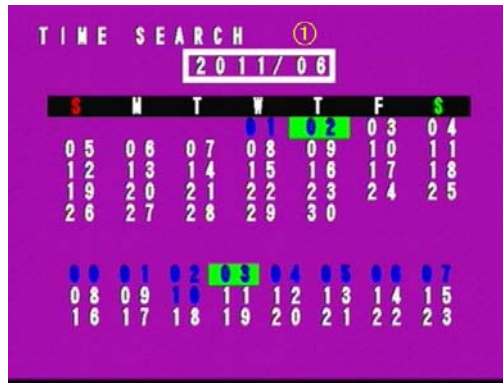
- 2X** : Speed x2
- 4X** : Speed x4
- 8X** : Speed x8
- 16X** : Speed x16
- 32X** : Speed x32

③ Display Record Date and Time



Press 《 ⏪ / ■ 》 button to stop playback function and to return to live status.

(2) Search and Playback: Enter MENU and select item **【SEARCH AND PLAY】** .
【TIME SEARCH】



- ① The user may press 《▲》 or 《▼》 button to move the cursor up or down and setup Year/ Date/ Time. After setup, press 《MENU/OK》 button to enter next setup page.
- ② Year/ Month Setup : Press 《◀》 or 《▶》 button to select the year or month, press 《▲》 or 《▼》 button to adjust the year or month. When a date font color is blue indicates that the date contains recording file. Press《MENU/ OK》button to enter and press 《↶/■》 button return to exit the setting page.
- ③ Date Setup : Press 《◀》 or 《▶》 button to choose a date with recording file. When a date font color is blue indicates that the hour contains recording file. Press 《MENU/ OK》 button to enter and press 《↶/■》 button return to exit the setting page.
- ④ Hour Setup : Press 《◀》 or 《▶》 button to choose an hour with recording file. Press 《MENU/ OK》 button to enter playback mode and playback starting from the hour of the first recording file or press 《↶/■》 button return to exit the setting page.

- ☛NOTE 1 : To avoid confusion of implementing daylight saving time after the end of the recording time, 【TIME SEARCH】 date and time display shows only the date and time without implementing of daylight saving time.
- ☛NOTE 2 : Press 《↶/■》 button to stop playback and the system will return to 【SEARCH and PLAY】 selection and enables the user to select the preferred input source.

【EVENT SEARCH】



- ① Display Page : Display method (Current Page/ All Pages), press 《◀》 or 《▶》

- button to select the previous page or the next page.
- ② Event Setup : According to the date and time of the incident, press《▲》or《▼》 button to select the previous or next event recording to playback. Press 《MENU/OK》 button to enter playback mode and playback the recorded file.
 - ③ Event Type : **【EVENT SEARCH】** The list shows only the event recording (Alarm or Motion Detection).

☛NOTE 1 : To avoid confusion of implementing daylight saving time after the end of the recording time, **【TIME SEARCH】** date and time display shows only the date and time without implementing of daylight saving time.

☛NOTE 2 : Press《■/□》button to stop playback and the system will return to**【EVENT SEARCH】** selection and enables the user to select the preferred input source.

⚠ The device supports playback only to images recorded by our device, other AVI video files are not guaranteed.

5.5 PC Playback

1. The device uses SD card as its main storage. User may read the data stored in the SD card from the computers that supports SD card reader device.
2. All files (under dvr folder) and file names are ordered according to recorded times (sequence).

File Playback: User may use Microsoft®—Media Player or DivX—DivX Player (<http://www.divx.com/>) to playback video files.

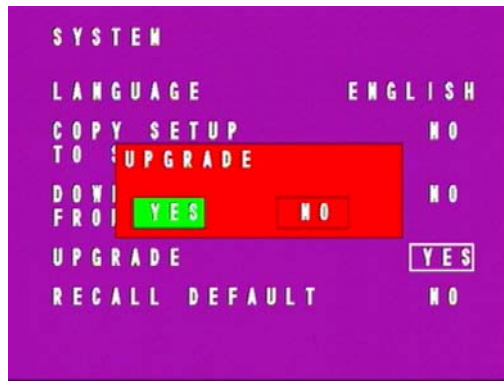
⚠ When first time using Media Player to playback, it requires the most updated decoder from the Microsoft® software website.

5.6 SD Card Maintenance

1. The device supports only FAT32 file system; therefore it is unable to determine other file systems. Please format the SD card (enter**【6.6 SD CARD OPTIONS】**and select “Format”).
2. The system supports only partial SD card file system repair. The system is unable to detect any file system damage, therefore please format the SD card (enter **【6.6 SD CARD OPTIONS】** and select “Format”).

5.7 How to Download the Updated Software

1. Use the SD card to update your system firmware.
2. Please follow the steps below to update the software:
 - (1) Copy the new system firmware into the SD card Firmware directory.
 - (2) Insert the SD card; proceed item **【MENU > SYSTEM > UPGRADE】** and update the software.
 - (3) When the confirmation message appears, select **【YES】** , to start the update.



- (4) After software update has been completed, the system will auto reboot the device.

 Do not withdraw the SD card while booting.

6. MENU SETUP

6.1 Main Menu



MENU Content: Basic Menu Operations.

Press $\langle \blacktriangle \rangle$ or $\langle \blacktriangledown \rangle$ button, to select the item.

Press $\langle \text{MENU/OK} \rangle$ button, to enter the sub menu (\rangle).

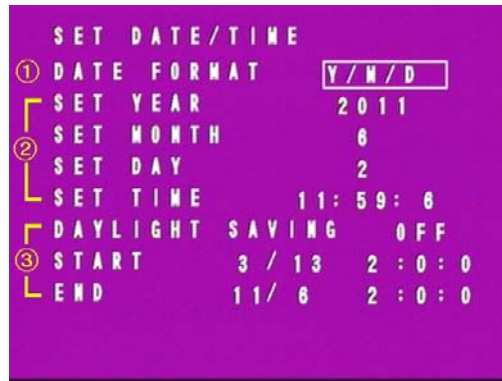
Press $\langle \text{C}/\blacksquare \rangle$ button to return to previous page.

☛ NOTE 1: All words underlined and bold indicates 「Default Value」.

6.2 Search and Play

Please refer to (2) Search and Playback under section **【5.4 Playback Mode】**.

6.3 Set Date / Time



MENU Content: Basic Menu Operations.

Press $\langle \blacktriangle \rangle$ or $\langle \blacktriangledown \rangle$ button, to select the item.

Press $\langle \blacktriangleleft / \blacktriangleright \rangle$ button to return to monitoring mode or to previous page.

Press $\langle \blacktriangleleft \rangle$ or $\langle \blacktriangleright \rangle$ button to increase or decrease setup value.

- ① **Date Format** : Y/M/D M/D/Y D/M/Y
- ② **Date/ Time Adjustment** : Year Setup: 2000 - 2030
Month Setup: 01 - 12
Time Setup: 00 : 00 - 23 : 59
- ③ **Daylight Saving** : Start Date and Time, End Date and Time. Currently the setup is available for setting up Start and End time only in hours, and the Start and End time can not be in the same month.

6.4 Set Motion Detection



MENU Content: Basic Menu Operations.

Press $\langle \blacktriangle \rangle$ or $\langle \blacktriangledown \rangle$ button, to select the item.

Press $\langle \text{MENU/OK} \rangle$ button, to enter the sub menu (\blacktriangleright).

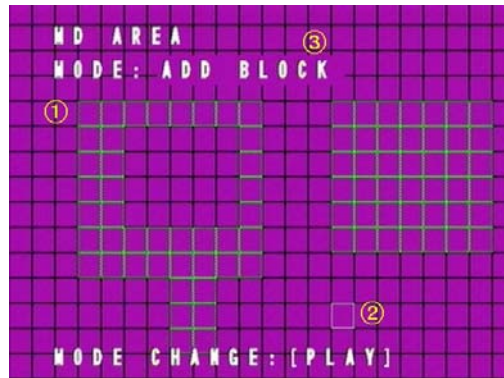
Press $\langle \blacktriangleleft / \blacktriangleright \rangle$ button to return to previous page.

Press $\langle \blacktriangleleft \rangle$ or $\langle \blacktriangleright \rangle$ button to increase or decrease setup value.

- ① **Detection Format** : *MOTION*
- ② **Set Motion Detection Area** : Press 《MENU/OK》 button to enter sub-menu.
- ③ **Set Motion Detection Sensitivity** : (Min) 0 1 2 3 4 5 6 7 8 9 (Max.)

Motion Detection Sensitivity Setup:

Changing the alert value may affect the recording sensitivity of the Motion Detection. Select item **【SET MD SENSITIVITY】** , and then press 《◀》 or 《▶》 button to increase/ decrease sensitivity rate.



Motion Detection Area Setup:

Motion picture page is divided into (NTSC) 22x15 or (PAL) 22x18 small detection blocks.

- ① **Detection Area** : One or more detection blocks forms a detection area.
- ② **Cursor** : Press 《▲》《▼》《◀》《▶》 button to change the position of the cursor.
- ③ **Setup Mode** : Press 《▶/||》 button to edit detection block.

- ADD ALL** Enable all cells
- DEL ALL** Delete all cells
- ADD AREA** Enable detection area
- DEL AREA** Disable detection area

- (1) **ADD ALL and DEL ALL setup method**, press 《▶/||》 button to switch the mode and press 《MENU/OK》 button to complete the setup.
- (2) **ADD AREA and DEL AREA setup method**, press 《▶/||》 button to switch the mode and press《▲》《▼》《◀》《▶》button to move the cursor to setup the starting point of the block, press《MENU/ OK》button. Then move the cursor to setup the ending point of the block, press 《MENU/ OK》 button to complete the setup.
- (3) Detection area is indicated by green block and non-detection region by black block.

☛ **NOTE:** Detection block setting page, if the image changes within the detection area is higher than the warning value, then the detection block turns to color red, and can be used as a reference for setting the sensitivity rate.

6.5 Manul Record & Schedule Record

Selectable manual or schedule recording, basic setups are shown below:

1. MANUAL RECORD: Press 《REC》 button to start recording (NOTE 1).



MENU Content: Basic Menu Operations.

Press 《▲》 or 《▼》 button, to select the item.

Press 《↶/■》 button to return to previous page.

Press 《◀》 or 《▶》 button to increase or decrease setup value.

① Video Size

VIDEO SIZE

NTSC	<u>704x480</u>	352x240
PAL	<u>704x576</u>	352x288

② Frame rate

VIDEO
SIZE

FRAME RATE (fps)

(NTSC) :	1/5	1/3	1	2	3	5	10	15	20	<u>30</u>
(PAL) :	1/5	1/3	1	2	3	5	8	12	17	<u>25</u>

③ Image Quality:

HIGH Using high recording quality (More SD card storage capacity will be required).

MEDIUM Using medium recording quality.

LOW Using low recording quality (Less SD card storage capacity will be required).

④ Audio Record: ON/ OFF , whether to enable or disable audio recording.

☛ NOTE 1: Menu setup is inapplicable during manual recording.

2. SCHEDULE RECORD (Alarm Detection/ Motion Detection/ Continue): Records only within the setup time range.



Press 《MENU/OK》 button to enter **Schedule Setup, Alarm/ Motion Record, and Continuous Record.**

(1) Continue Record : Setup method similar to **Manual Record.**



(2) Alarm Detection Record and Motion Detection Record :



MENU Content: Basic Menu Operations.

Press 《▲》 or 《▼》 button, to select the item.

Press 《↶/■》 button to return to previous page.

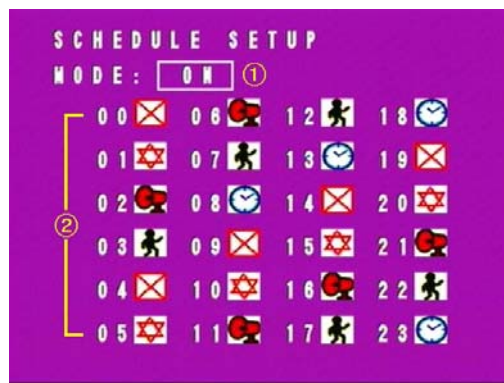
Press 《◀》 or 《▶》 button to increase or decrease setup value.

- ① ~ ④ : Setup method similar to **Manual Record**.
- ⑤ **Duration** : Recording duration triggered by Alarm or Motion Detection. Setup to 5 ~ 60 SEC (increasing by every 5 SEC), Default **10 SEC** (NOTE1).
- ⑥ **Pre-Alarm REC** : Recorded video files contain the length of time before the incident. Setup to 0 ~ 10 SEC, Default: **5 SEC**.
- ⑦ **Alarm Input** : Two types of alarm trigger method **N.O.** (Normal Open) / N.C. (Normal Close).

☛NOTE 1: Pre-recording applies only to [Alarm Recording] and [Motion Detection Recording].

☛NOTE 2: Pre-recording function is temporarily invalid, when proceeding [Alarm Recording] and [Motion Video] while other video recordings are currently undergoing, and the video recording of item ① ~ ④ of [Alarm recording] / [Motion Video] are setup differently. (Example: Schedule recording is set to [Continuous Record + Alarm Record + Motion Detection Record] (hexagon), and [Continuous Record] and [Alarm Record] / [Motion Detection Record] are setup differently, during these moments when switching from [Continuous Record] to [Alarm Record] or [Motion Detection Record], pre-recording function is temporarily invalid.)

(3) Schedule Setup:



① **SCHEDULE SETUP** : Record ON / **OFF** setup (default setup is OFF).

- ② **MODE** : Press 《▲》 or 《▼》 to select
Press 《◀》 or 《▶》 to setup
- ⊗ : Motion Detection Record
- ⌚ : Continuous Record
- ⊗ : Alarm Record
- ☆ : Continuous recording and record motion detection and alarm events
- ⊗ : N/A

6.6 SD Card Options



MENU Content: Basic Menu Operations.

Press $\langle \blacktriangle \rangle$ or $\langle \blacktriangledown \rangle$ button, to select the item.

Press $\langle \blacktriangleleft / \blacktriangleright \rangle$ button to return to previous page.

Press $\langle \blacktriangleleft \rangle$ or $\langle \blacktriangleright \rangle$ button to increase or decrease setup value.

- ① **DISK TOTAL** : SD card total capacity.
- ② **DISK REMAIN** : SD card remaining capacity.
- ③ **CARD FULL** : LOOP (Continuous Record)/ **STOP** (Stop Record)

Stop Record – SD card stops recording when the total capacity of the SD-Card is reached (Default).

Continuous Record -- SD card continues recording and overwrites recording data from the beginning when the total capacity of the SD-Card is reached (NOTE 1 & NOTE 2).

- ④ **MAX FILE SIZE** : The maximum storage capacity of Manual Recording and Continuous Recording of each file, file size that is larger than the setting file is automatically stored. Setup Value: 5/ 10/ **50**/ 100/ 300 MB (NOTE 1).
- ⑤ **FORMAT** : All recordings will be deleted and creates a dvr directory under root directory (NOTE 3).
- ⑥ **SD UNMOUNT** : Switch off the recording and perform the removal process before withdrawing the SD Card.
- ⑦ **REMAIN TIME** : Estimated manual recording period is according to the current SD card remaining space and manual recording format (NOTE 4).

☛ NOTE 1: For continues recording, file is suggested to be setup as smaller size.

☛ NOTE 2: Setting up continuous recording may overwrite old recording data, therefore, confirm beforehand.

☛ NOTE 3: To format, make sure the confirmation message appears, and then select "YES", to format.

☛ NOTE 4: Recordable time is due to the different size of SD Card capacity, different recording modes, and degree of video variation. Therefore, the estimated recording period is just rough estimation.

6.7 System



MENU Content: Basic Menu Operations.

Press $\langle \blacktriangle \rangle$ or $\langle \blacktriangledown \rangle$ button, to select the item.

Press $\langle \blacktriangleleft / \blacksquare \rangle$ button to return to previous page.

Press $\langle \blacktriangleleft \rangle$ or $\langle \blacktriangleright \rangle$ button to increase or decrease setup value.

- ① **LANGUAGE** : Setup menu language.
- ② **COPY SETUP TO SD CARD** : Backup all settings of the device to the SD Card.
- ③ **DOWNLOAD SETUP FROM SD CARD** : Download settings of the device from the SD Card (NOTE).
- ④ **UPGRADE** : Use SD Card to upgrade system software, please refer to **【5.7 How to Update the Downloaded Software】** (NOTE).
- ⑤ **RECALL DEFAULT** : Return all settings back to default value (NOTE).

☛ NOTE: Please wait for the confirm message to appear and then select “YES” to proceed.

6.8 Status



Press $\langle \blacksquare / \blacktriangleright \rangle$ button, exit this screen display and returns to the Main Menu.

- ① **VERSION**
- ② **SD CARD FULL**
- ③ **MANUAL RECORD**
- ④ **MOTION RECORD**
- ⑤ **CONTINUE RECORD**

7. TROUBLE SHOOTING

Q1. Why does the device sometimes suddenly restart?

A1. It is because abnormality has been detected by the SD card reader, the device will start re-initiation control procedure. After rebooting the device will return to the latest status, such as return to manual or schedule recording.

Q2. Does the product support SDHC 32G?

A2. Suggested tested brands are as shown below:

Brand	Capacity	Specification
A-DATA	16G	Class 6
A-DATA	32G	Class 6
Apacer	16G	Class 6
Kingston	4G	Class 4
Kingston	8G	Class 6
Kingston	32G	Class 10
Panasonic	16G	Class 6
SanDisk	4G	Class 4
SanDisk	8G	Class 6
SanDisk	16G	Class 6
SanDisk	32G	Class 10
Transcend	4G	Class4
Transcend	8G	Class 6
Transcend	16G	Class 6
Transcend	32G	Class 10

8. SPECIFICATION

STANDARD FUNCTION		
Video	System	NTSC / PAL Video System and Video Loss Auto Detection
	Codec	H.264 AVI File Format
	Record Frame Rate	1, 2, ... , Maximum fps selectable Maximum: 30 fps@704x480 / 25 fps@704x576
	Record Quality	Low / Medium / High
	Recording Date/Time	Overlay with Video Images in AVI File
	Input	1 CH Composite Video Line In
	Output	1 CH Composite Video Line Out
Audio	Sampling Rate	8 KHz
	Codec	PCM 16 Kbps
	Input	1 CH Audio Line In
	Output	1 CH Audio Line Out
Audio Device	Microphone , Speak , Earphone	
Storage Media	SD Card (FAT 32)	
Serial Port	USB 2.0 (Read-Only)	
Recording Mode	Manual / Schedule (Alarm / Motion Detection / Continue)	
Motion Detection Setting	Multiple Blocks and adjustable sensitivity	
Search Function	Time / Event Search	
Playback Function	Play/Fast Forward/Fast Rewind/Pause	
Playback Speed	x1/ x2/ x4/ x8/ x16/ x32	
Power Supply	DC 12V \pm 10% 0.13A	
Dimensions	38 mm (W) x 17.5 mm (H) x 38 mm (D)	
Operating Environment	30%~80% RH, 5°C ~ 45°C (41°F ~ 113°F)	
Storage Environment	30%~90% RH, 0°C ~ 50°C (32°F ~ 122°F)	

(Note: Design and Specifications are subject to change without notice.)