PIPE INSPECTION CAMERA SYSTEM

Read these instructions completely before operating this system.

Please charge the battery first before use.

C

MANUAL

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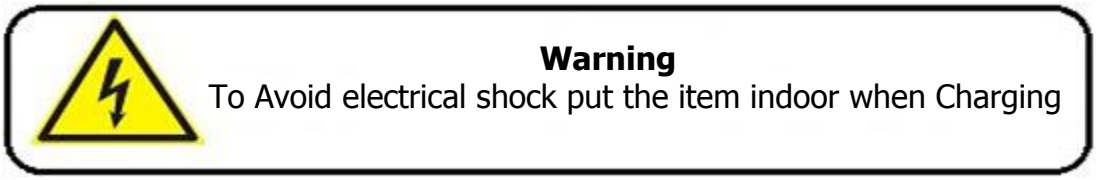
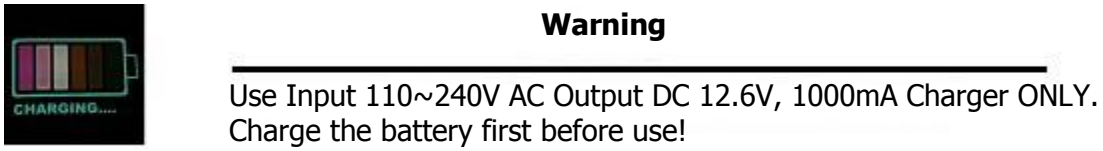
Warning





Read this manual carefully before operating this system
Avoid using the device in extreme humidity or temperatures as this may cause damage to the device
Do not drop or press on the system as this may cause damage to the device
The warranty becomes void if any physical damage is present or if the system is disassembled by the user
Do not disconnect the SD card while recording or playing as this may damage the system and/or the SD card
Remember to always back up the data on your SD card

Safety and Notice

For your safety

1. Do not attempt to insert, use, or charge a battery not designed for this inspection system.
2. Use the power supply only on even surfaces, without any cover. Open air and circulation around the product must be available. The maximum ambient temperature is 50 ºC.
3. Risk of explosion may occur if an incorrect battery type is inserted or used. Dispose of used batteries according to their instructions.
4. Keep the inspection system and its accessories out of the reach of babies, toddlers, and children. In particular, small parts such as memory cards and battery could be easily dismantled and swallowed.
5. Use only the original accessories to avoid possible risks to health and property, and thus meet all related legal regulations.
6. When using the LED lights, do not use to close to human or animal eyes (particularly for babies, toddlers, and children) to avoid injury.

7. In very rare occasions, Li-ion Batteries such as the one provided with this inspection system could explode if a conductive material such as jewelry, keys or beaded chains touch exposed terminals. The material may complete an electrical circuit and become quite hot. Exercise care in handling any batteries, particularly when placing it inside your pocket, purse, or other container with metal objects. In such an event, this could result in property damage, injury or burns. Do not dispose of batteries in fire as they may explode.

Warranty

1. Warranty is void if damage or system failure occurred due to outside factors such as collision, fire, flood, dirt, sewage, earthquake, and other force majeure events as well as incorrect usage of electricity or use of non-original accessories.
2. It is the sole responsibility of the user if problems (such as data loss and system failure) occurred due to non-factory installed software, parts, and/or non-original accessories.

Taking care of your inspection system

1. Always keep the inspection system in the pouch provided or other suitable cases for increased protection against splashes, dust, and collision.
2. The only way of replacing the battery and the memory card is to open the Battery / Memory cover. Use care when opening this cover to avoid damage the inspection system.
3. Dispose of unwanted batteries and inspection systems as permitted by the laws in your country.
4. Water may cause a fire or electric shock. Therefore, store your battery in a dry place.
5. If your control component becomes wet, wipe it with a dry cloth as soon as possible.
6. Do not drop, knock, or shake the inspection system. Inappropriate behavior when using the camera system may damage the internal electronic circuit board or deform the lens shape.
7. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the inspection system.
8. To avoid unclear images, be sure to clean the inspection system lens before taking pictures or recording videos. Use a lens brush or soft cloth to clean the lens.
9. To avoid the loss of video and photos on the memory card, you should make a backup copy to a computer or optical disc as soon as possible. Memory cards should not be considered as a long term storage device.
10. Before initial use of a memory card, it is recommended to use the inspection system to format the card first.
11. Remember to slide the write-protect tab (if available) to the unlock position. Otherwise, all data (if any) on the memory card is protected and the card cannot be edited or formatted.

Operating environment

1. The camera system operating temperature is between -10ºC ~ 50ºC (14ºF ~ 122ºF). It is normal for the operating time to be shortened when the temperature is low.
2. The capacity of your inspection system battery will reduce each time it is charged/emptied.
3. Storage at too high or low temperatures will also result in a gradual capacity loss. As a result, the operating time of your inspection system may be considerably reduced.
4. It is normal for the camera system to become warm during operation, because the inspection system casing can conduct heat.

1 Parts list

1.1 Accessories

Item	Image	Description
Camera Head & Skids		Camera size: ø23X140mm Sensor size:1/4 inch View angle:105° Camera work current:100MA ; Camera power supply:DC 12V Camera light:12PCS white LEDS Leds adjustable Total Pixels: PAL:720X576 ; NTSC:720X480 Camera glass material:sapphire glass Camera shell material:aluminum alloy Waterproof:IP68 Camera color:black and silver
		S23-40 size: ø40mm Material: PC
Control Box		DVR power supply:12V DVR work current:200MA Storage medium:SD card(max 32G) Digital clock and digital calendar Battery level indicator function DVR Total Pixels:720X576 (D1) Picture snap and movie record Movie format:AVI AV1 and AV2 manually USB keyboard interface Support USB storage
Cable Wheel		Cable size: ø320X105(h) mm Wire material:fiberglass rod Fiberglass length:20m(max 50m) Fiberglass diameter: ø5mm Fiberglass color:yellow red black blue
CHARGER		Input:AC100-240V~50/60Hz Output:DC 12.6V/1000MA DC plug diameter:2.1mm

MONITOR		Monitor size:7inch TFT color monitor Monitor Total Pixels:800x480 Monitor power supply:DC 12V Osd language: English Battery level display Up,down,left,right adjustable 16:9&4:3 model Sunshade include
Keyboard		Keyboard size:220X118X18mm Language: English Keyboard interface: USB Import Text edit line: PAL 27 letter 14 line NTSC 27 letter 12 line Max edit page:4pages
Microphone		Frequency respose:20-20KHz Sensitivity:-47DB±2DB Output impedance: ≤2.2KΩ Line Length:1m
LI-ION BATTERY		battery(18650) 12.6V 2200MAH li-ion Total Power:7W Charge time:3hours Protective voltage:8.1V Work time: ≧240minutes
Cable connection		Size:Φ5*1500mm GX16-4 and GX16-6 Elbow air head
CASE		Size: L480XW415XH200mm Material: fire board+Aluminum alloy Empty case weight:3.4kg
Carton		Size: 490*210*465mm Carton material:A=A paper

1.2 Control Box

1	AV1/AV2 switch	12	Menu left
2	Camera signal cable connector	13	Reset
3	Video output	14	Menu back
4	Recorded directory	15	Metric/Imperial
5	Record/stop recording	16	Menu
6	Menu up/USB switch	17	Power control
7	Menu OK/pause/snap	18	Charge jack
8	Menu right	19	Microphone jack
9	Menu down	20	Earphone jack
10	USB keyboard	21	USB stick jack
11	LED brightness adjuster	22	SD card slot

Operation order:

- Press ▲ to switch on “USB STICK”, shows up.
- Press ▲ again to switch off “USB STICK”, disappears.

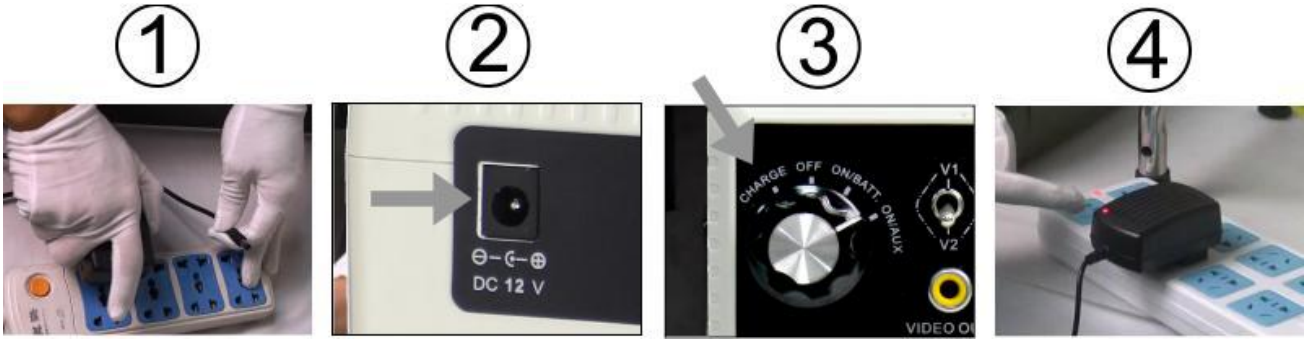
Attention:

- Turn off the unit before pull out the “USB STICK”.
- Do not use the “USB STICK” and “SD card” at the same time.

2 Quick Start Guide

2.1 Charging the Battery

1. Connect the charger to the socket, the indicator of charger will turn into green.
2. Connect the plug to the jack of control box.
3. Turn the switch knob to “CHARGE” position.
4. The indicator of charger will turn into red. When the Li-ion battery is full of power, the indicator of charger will turn into green.

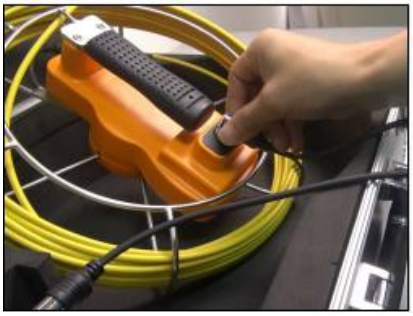


2.2 Starting up

1. Open the suitcase and spread the sunshade
2. Connect the camera to the cable wheel
3. Connect one end to the control box

4. Connect the other end of connection wire to the cable wheel
5 Turn the switch knob to “ON/BATT” position
6. Switch to “AV1”

④ ⑤ ⑥



2.3 Checking waterproof ring & Assembling SKID

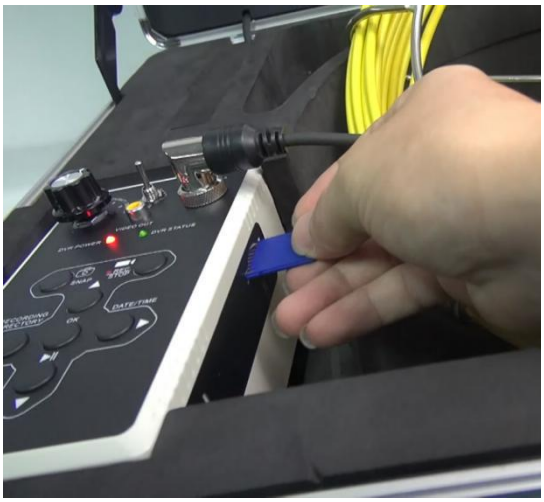
2.3.0 Check waterproof rubber ring on the bottom of camera head

2.3.1 40mm SKID and 23mm camera head
1. Set the SKID in the camera head
2. Fasten the SKID with a screwdriver by tightening its screws.
3. The SKID assemble completed

① ② ③

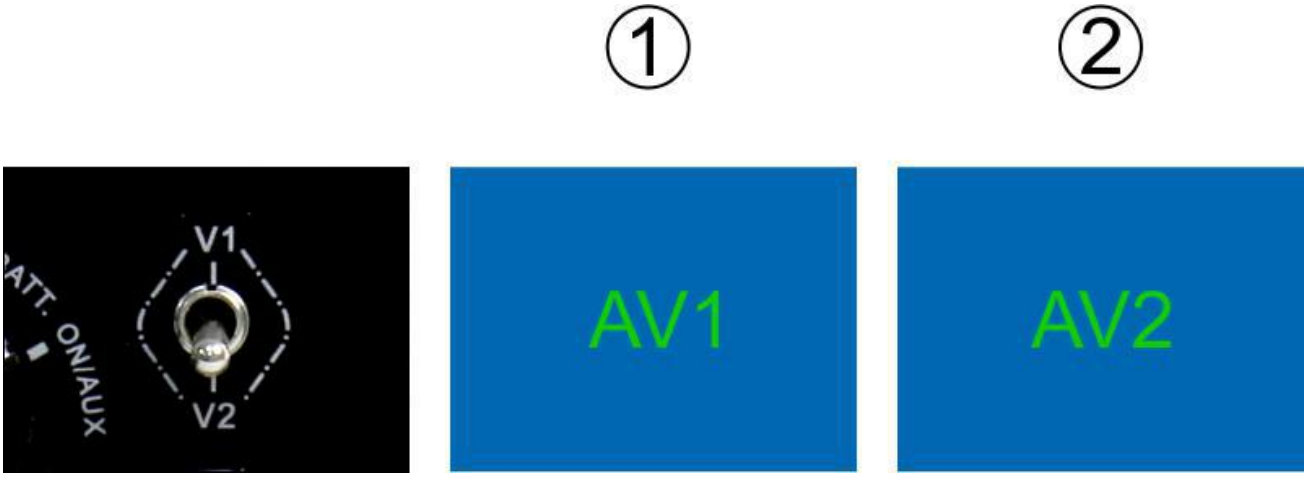
3 Recording and Menu(Control Box-1)

3.1 Inserting SD Card



3.2 AV1&AV2 Switch

Press the “AV1/AV2” key on screen to switch the AV1 and AV2 mode.
In AV1 mode, can both take picture and record video, in AV2 mode, can only monitor.

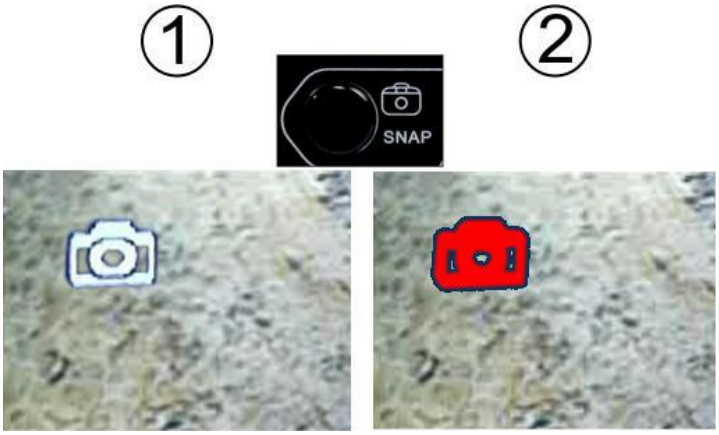


3.3 Recording video

1&2.Press the “REC” button to start record video
3. Press the “REC” button again to finish the recording

3.4 Recording photo

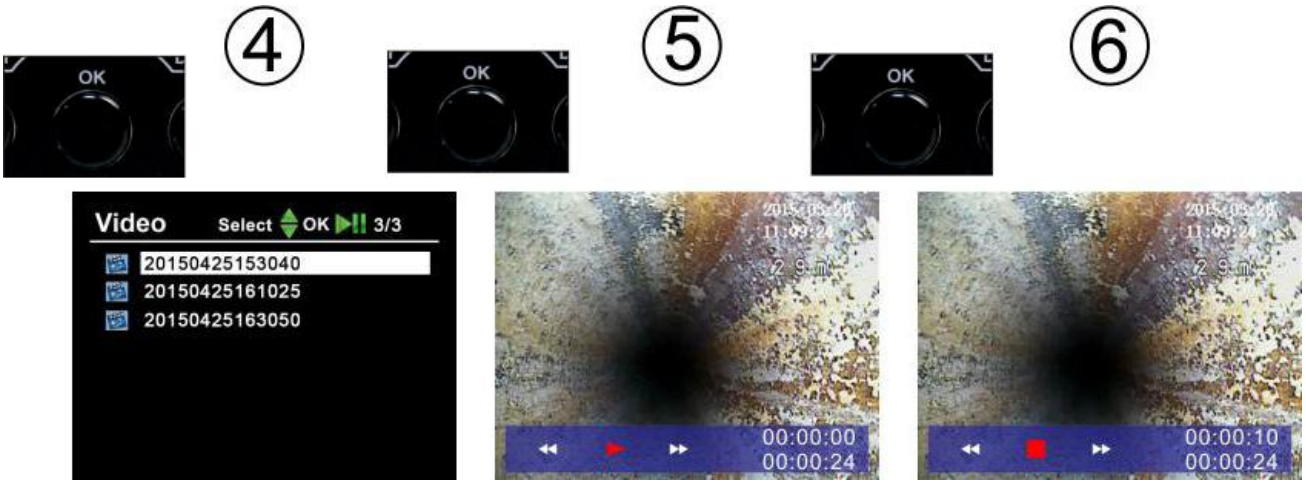
1. Press “MENU”, choose “Recording Mode”, enter “Work Mode”, select ”Photo”, then press “REC” back to the homepage
2. Press the “REC” button to snap picture



3.5 Playback Video

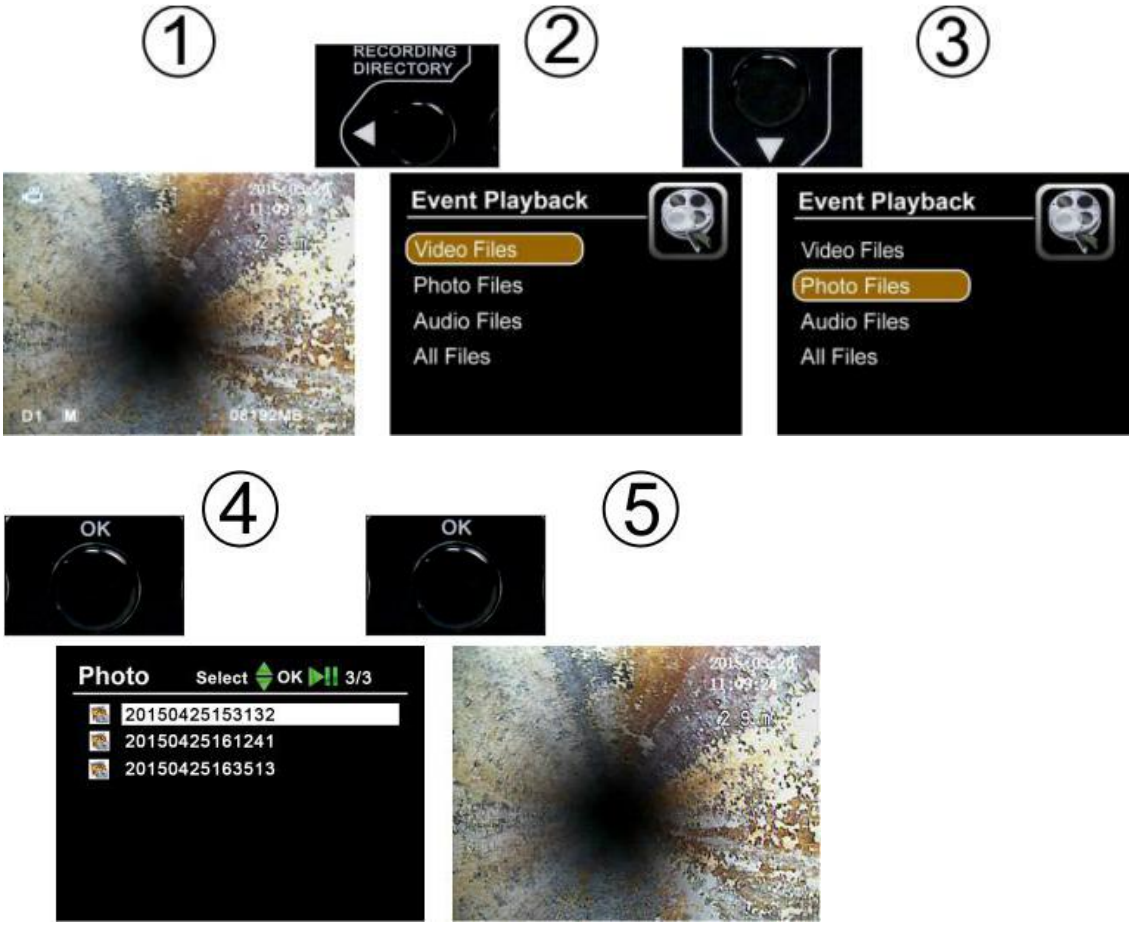
1&2. Press the “PLAYBACK” button
3. Press the “OK” button to enter the “Video Files”

4. Select the file you need
5. The monitor plays the video
6. Press the “OK” button to pause the video



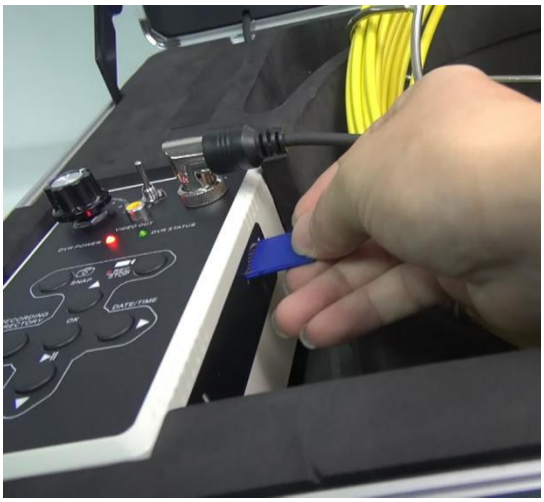
3.6 Playback Photo

Follow the same steps that the “Playback Video” has mentioned.



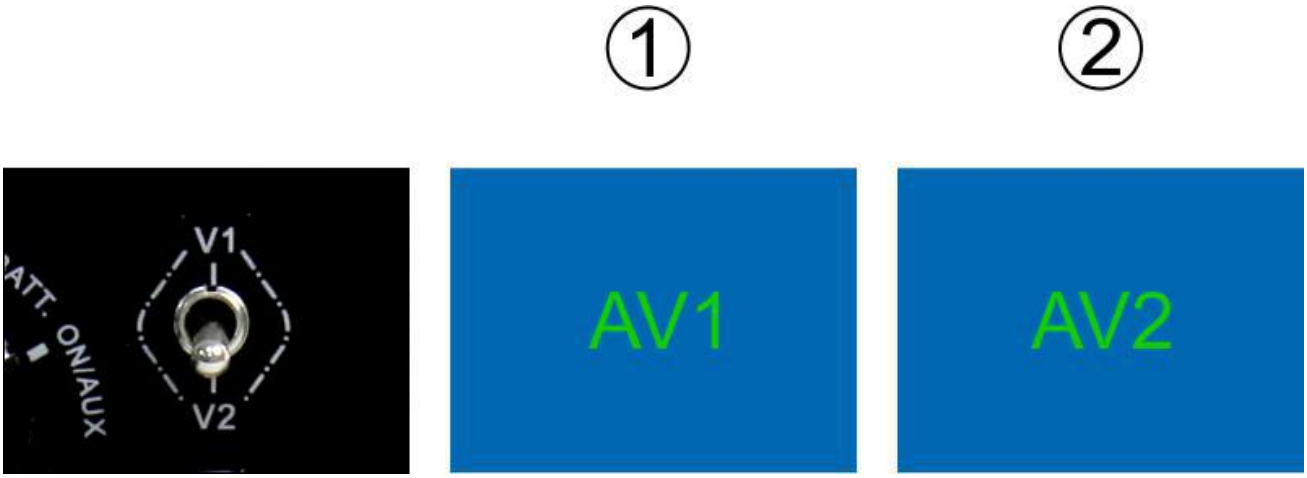
4 Recording and Menu(Control Box-2)

4.1 Inserting SD Card



4.2 AV1&AV2 Switch

Press the “AV1/AV2” key on screen to switch the AV1 and AV2 mode.
In AV1 mode, can both take picture and record video, in AV2 mode, can only monitor.

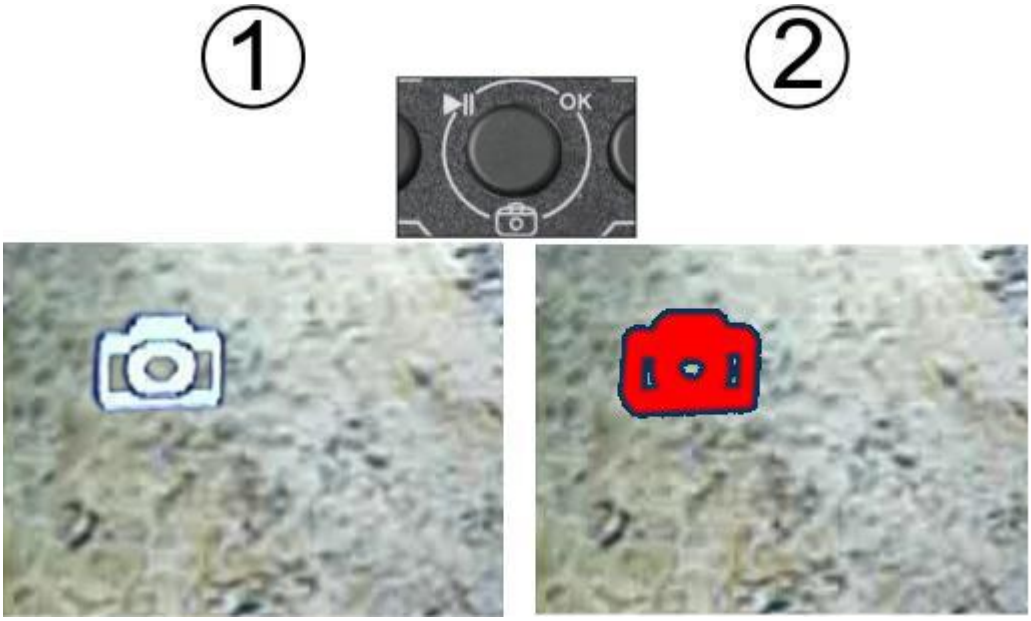


4.3 Recording video

1&2.Press the “REC” button to start record video
3. Press the “REC” button again to finish the recording

4.4 Recording photo

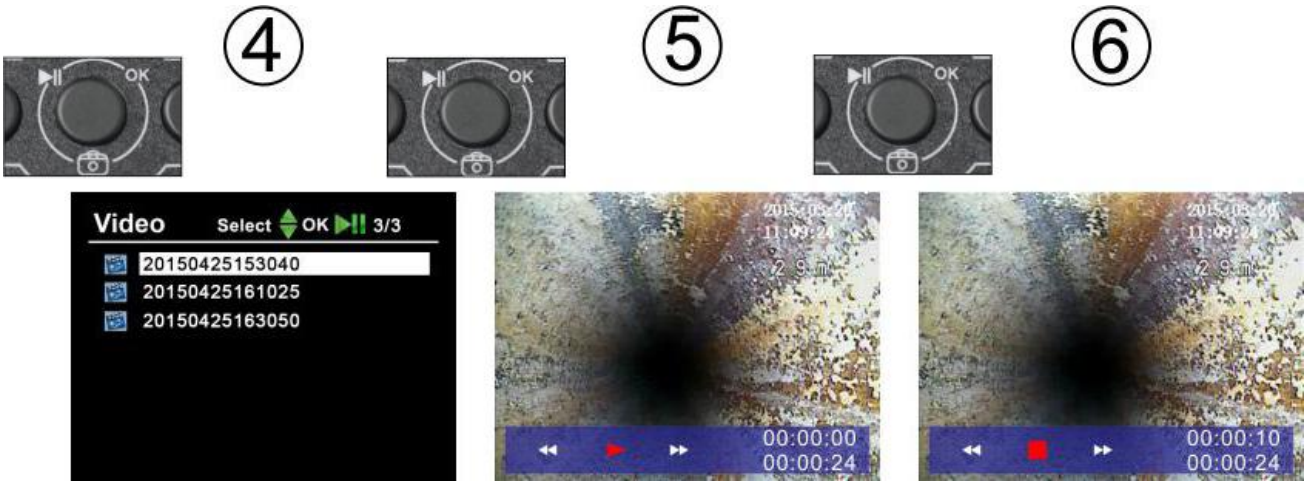
1. Press the “REC” button to snap picture



4.5 Playback Video

1&2. Press the “PLAYBACK” button
3. Press the “OK” button to enter the “Video Files”

4. Select the file you need
5. The monitor plays the video
6. Press the “OK” button to pause the video



4.6 Playback Photo

Follow the same steps that the “Playback Video” has mentioned.

OK

④

OK

⑤

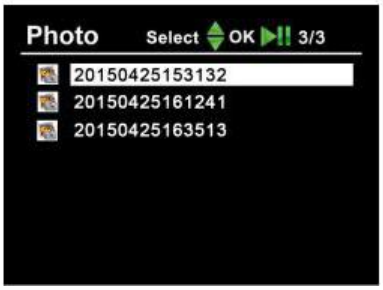


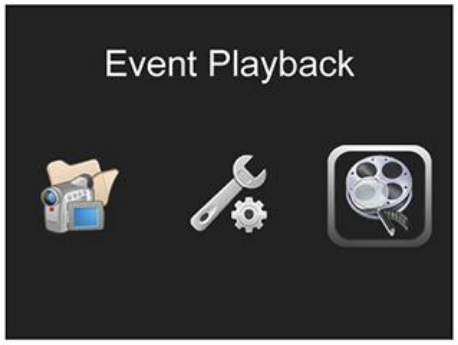
Photo
Select OK 3/3
20150425153132
20150425161241
20150425163513

4.7 Menu

Press “menu” key enter into main menu.

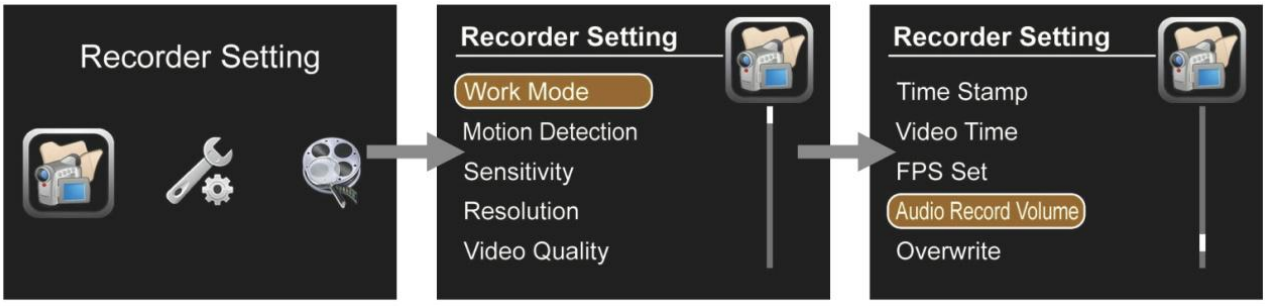
Recorder Setting

System Setting



Event Playback

4.8 Recorder Setting



Work Mode
- Video: Record videos
- Photo: Snapshot photos
- Audio: Record audio

Motion Detection
- Off: Stop the motion detection
- On: Start the motion detection

Sensitivity
- High: Highest sensitivity
- Medium: Standard sensitivity
- Low: Lowest sensitivity

Resolution
- 720X576
- 720X480
- 640X480

Video Quality
- High: High resolution
- Medium: Standard resolution
- Low: Low resolution

Time Stamp
- Off: Time stamp will not be showed on the screen
- On: Time stamp will be shown on the screen

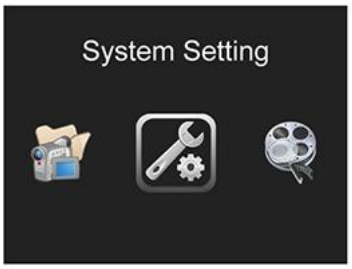
Video Time
Length of the video recording
- 5 minutes
- 10 minutes
- 15 minutes
- 30 minutes
- 60 minutes

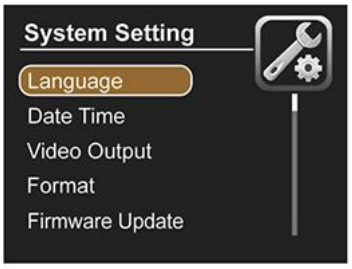
FPS Set
- 15 FPS: 15 frames per second
- 30 FPS: 30 frames per second

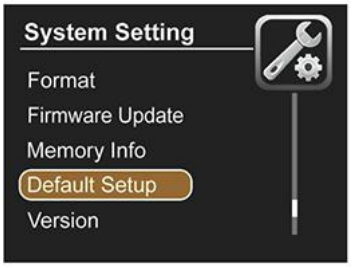
Audio record volume
Work with audio record mode
- 10 level can be adjusted

Overwrite
- Off: The recording will be stop when the disk full
- On: The recording will overwrite old video files when the disk full

4.9 System Setting







Language
Select the operating language

Date Time
Set the date and time, press OK to confirm

Video Output
Choose whether PAL or NTSC to suit your monitor and TV Video Output

Format
- No: The system will not format the SD card
- Yes: The system will format the SD card.(caution: PLS backup the data of the SD card before operating)

Firmware Update
- No: The system will not update the firmware
- Yes: The system will update the firmware

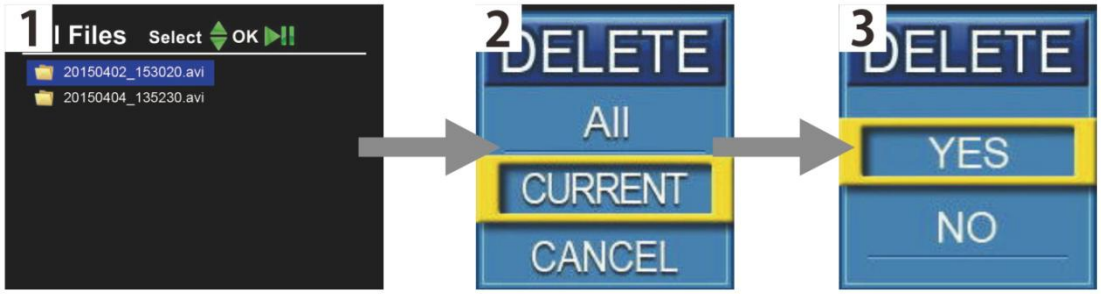
Memory info
- All: The SD full capacity
- Free: The SD free capacity

Default Setup
- No: Leaves set up as it is
- Yes: Factory resets the system

Version
- Booc: 12.11.05(soft version)

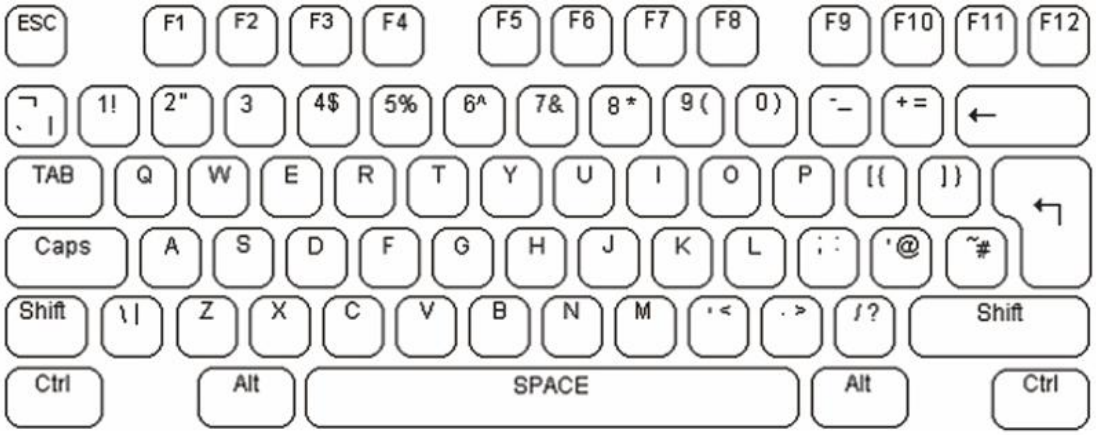
4.10 Delete Files

Please make sure the files you really want to delete, the files won't be found after deleting.



- Press "Playback" key to find the files
- Press "menu" to choose the file you want to delete, one and all.
- Press "OK" to delete it

5 Keyboard(optional)



The font and text size are fixed and cannot be changed.
The basic operation of the text overlay unit is straight forward. A flashing underscore cursor indicates the current screen position. This cursor can be moved the screen by the keyboard cursor keys. The cursor will wrap around the screen left and right, top and bottom. If no key is pressed then the cursor will disappear after approximately ten seconds. The video text overlay unit uses the standard US keyboard mapping.
Standard US keyboard mapping used by the video text overlay unit. By default all US units are supplied with this.
The alphanumeric characters in the QWERTY section of the keyboard and the keys of the numeric keypad can be typed directly to the screen as would normally be expected. Each alphabetic character key is normally lowercase. Uppercase characters can be typed by holding down the shift key or pressing the CAPS LOCK key. The keyboard's LED indicators will be lit by the unit. To exit CAPS LOCK mode press the key again.
To remove a character from the screen use the backspace key and delete key. This will replace the character immediately to the left of the current cursor position with a blank space and move the cursor to that position. The Delete key has no function. The Home and End keys move the cursor position to the left and right of the current line on the screen. The Return key moves the cursor to the beginning of the next line.
The video text overlay unit operates in two modes. In the first mode the text is overlaid over the video input signal. When the video signal is removed the unit automatically switches to generating its own internal dark grey background video signal and will switch back to the external video when this is reconnected. In the second mode the unit generates its own video signal internally, but ignores the external video signal. All keyboard commands operate in the same way in both modes. To switch between modes use the F3 key as shown in the command table below. Each page can have this mode set independently.

Esc	Clear the cursor current settings back to the first line and the first position
F1	the cursor from any page back to the first line and the first position
F2	Select text over internal video
F3	Select text over external video signal

F4	Shift display up
F5	Shift display down
F6	Shift display left
F7	Shift display right
F8	Reset display X-Y position (defaults)
F9	Clear the screen

The video text overlay unit divides its display between four on screen pages. Text written to each of these pages will be stored in the unit's non-volatile memory until overwritten. These is no default on screen indication of which page is currently selected. To move between the screen pages use the page up and page down keys or Page up moves toward page1. Page down moves toward page 4.To clear the screen page of text press F9.

6 Troubleshooting Guide

Common Faults & Repair
If the system fails, please refer to the troubleshooting guide.

Video without sound
- Didn't connect microphone or there are faults in microphone
- Didn't connect earphone or there are faults in earphone
- Control box DVR abnormal

Unable to input letter
- Too quick to restart control box
- There are faults in Control box USB plug
- There are faults in keyboard
- There are faults in control box PCB

Able to input, but no image
- 1.5M connect wire disconnects
- There are faults in camera installation or Camera damage
- When press F2, the image has already switch to no-image type mode, press F3 return to type mode
- Control box PCB board abnormal

Time display error
- Control Box DVR board abnormal

AV1 no image, AV2 display normally
- Control Box DVR abnormal

AV1 no image, AV2 no image
- If 1.5m connect wire connect between cable wheel and control box
- Does camera head screw tightly
- The aviation jack of control box that connected to monitor looses
- There are faults in monitor
- There are faults in control box DVR

Battery is unable to be charged
- Charger didn't insert correctly or there are faults in AC plug
- Please don't use non-original charger
- There are faults in charger
- Li-ion battery damage

The power of battery run out quickly
- Use the full power battery
- The capability of battery is low

SD card can't work
- Didn't insert SD card correctly
- The write protection switch of SD card is open
- SD card is full, please replace SD card or transfer the files to free the space
- DVR SD card slot damage

Turn on but no power

- Battery disconnects
- Fuse didn’t install or Fuse broke down
- There are faults in control box DVR

Display normally, Camera LED can’t light

- Camera didn’t install correctly
- There are faults in camera head
- There are faults in cable wheel
- There are faults in Control box PCB board

Monitor can’t display

- Didn’t turn on monitor
- Monitor disconnects
- There are faults in monitor
- There are faults in control box