PIPE INSPECTION CAMERA SYSTEM

Read these instructions completely before operating this system.

Please charge the battery first before use.

C

MANUAL

Catalog

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 ℃.
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 ~ 50℃ (14℉ ~ 122℉). 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		- Size: 60*146mm - Total length: 360mm - Pixel: 1920*1080 - View Angle :105° - Rotation: horizontal 360° vertical 180° - Sensor Size: 1/2.9" SONY CMOS - Manual focus - Focus Distance: 200~1000MM - Camera light: 4PCS highlight LEDS (white) adjustable - Adjustable lamp holder 8 levels Total LED power: 4W - Lens material: sapphire glass - Shell material: aluminum alloy - Waterproof rating: IP68
		Flexible distance : 250~360MM
		S60-80
CONTROL CASE		- Size: 401*240*86.5mm 10.1 inch LCD highlight LCD screen - Total pixels: 1280 * 800 10.1 inch high brightness screen brightness parameters: 800nits - Storage media: SD card (up to 256G) - USB function (up to 256G) - Main functions: video, photo, audio, typing, counting - External speaker 8x digital zoom - Video Format: AVI Picture Format: JPEG - External HDMI (High Definition Interface) - Battery: Polymer lithium battery 6000mAH 12V - Metric and imperial conversion - Reset function

Item	Image	Description
Cable Wheel		• Cable Size: 875*978*406mm • Cable Material: fiberglass rod • Cable Length: 60m standard • Cable Diameter: ø9.5mm, 9cores • Cable Wheel Material: Stainless Steel and Aluminum Alloy • Counter Accuracy: 0.1m • Counter Deviation: ±1% • Metric and imperial conversion • Reset function
		• Keyboard Size:300.8*115.8*12.25mm • Language: English • Keyboard Interface: USB • Text Edit Line: • PAL 24 letter 10line • Edit Page: 4pages
Microphone		• Speaker size:10mm • Frequency range:18-20,000Hz • Sensitivity:116dB • Cable length:1200mm • Plug diameter: 3.5mm
launcher		• Transmitter: built-in512Hz • Effective distance: 4M
Connection Wire		• Input: AC100-240V~50/60Hz • Output: DC 13.5V/5A • DC Plug Diameter: 2.1mm
CABLE CONNECTION		• Size: ø5.3-7* 1500mm • GX12-7 waterproof self-locking connector
SD card and card reader		
Screw Driver		
Waterproof Ring		
Manual		

1.2 Control Box

1	Sunshade	14	Reset
2	10.1 inch screen	15	Metric/Imperial
3	Infrared receiving window	16	Far focus
4	Video/video pause or resume/delete	17	Light brightness up
5	Confirm / one-touch photo / play or pause	18	Near focus
6	Left button / rewind / recording switch	19	Light brightness down
7	Down button / volume -	20	Tilt-up
8	Right click / fast forward	21	Pan-right
9	return	22	Tilt-down
10	Up button / volume +	23	Pan-left
11	Record stop / one-click jump to folder list / replay	24	Speed light / WIFI indicator
12	menu	25	Auto/menu
13	Long press for 3 seconds on/off/power/short press to open WIFI	26	Speed/Step

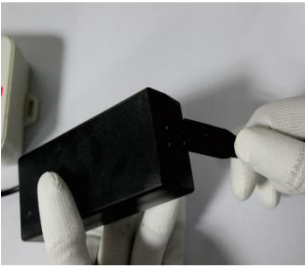| 27	SD card slot	30	Charge jack
28	HDMI-OUT	31	Earphone/ Mic.
29	Video output	32	USB stick port

2. Quick Start Guide

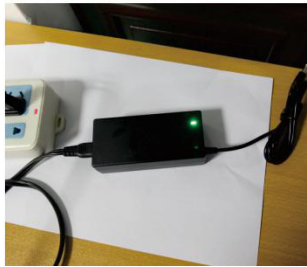## 2.1 Charging the Battery

1. Connect the adapter to the AC cable
2. Plug in the 220V power supply.
3. Connect the plug to the jack of control box.

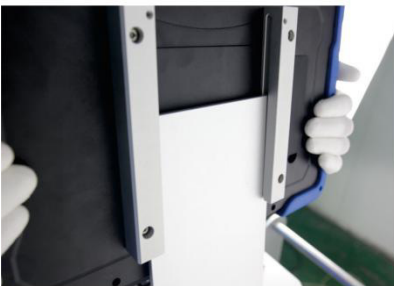4. Blinks while charging, stops flashing when fully charged

① ② ③ ④

2.2 Starting up

1. Take out the control terminal and insert it into the coil
2. Tighten the screws
3. Open the sunshade

① ② ③

4. Connect one end of the cable to the coil
5. Connect the other end to the control box
6. Insert the keyboard plug into the control terminal

④ ⑤ ⑥

7. Camera and connector alignment
8. The camera and connector are tightened
9. The other end is aligned with the coil connector

⑦ ⑧ ⑨

10. Tighten the other end to the coil connector
11. Unlocking coil
12. Fixed caster

⑩ ⑪ ⑫

13.The fiber optic cable is placed in the cable clamp
14.Tighten the screw after adjusting the direction of the calibration handle
15. Adjust the direction of the calibration handle on the other end

⑬ ⑭ ⑮
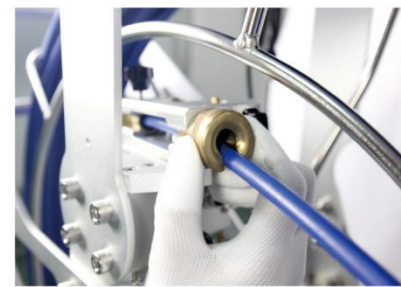
16. Tighten the screws

17. Press and hold for 3 seconds to start
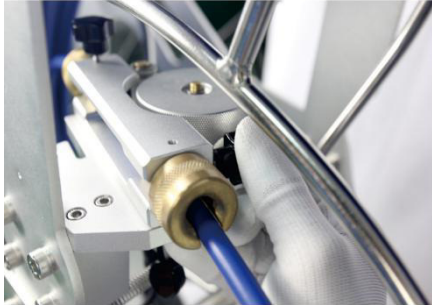
2.3The main function
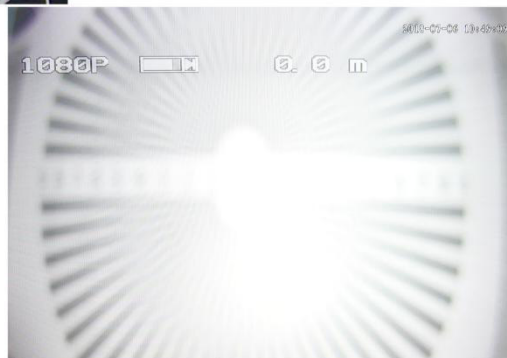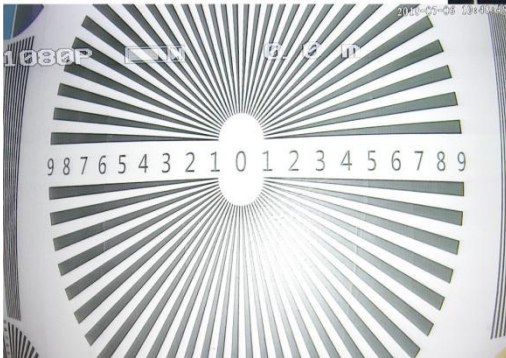
1. Adjust the brightness of the lamp up and down

2.Adjust the camera focal length left and right

3. Press and hold to tilt and tilt the camera

2.3 Checking waterproof ring & Assembling SKID

1. First remove the camera
2. Tighten the screws after loading the bracket
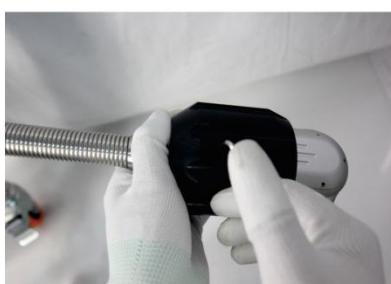3. Tighten the camera and coil connector

① ② ③

1. First remove the camera
2. Tighten the screws after loading the bracket
3. Tighten the camera and coil connector

① ② ③

3.Recording and Menu

3.1Insert the SD card and assemble the microphone and USB flash drive

1. Insert the SD card into the slot and press it gently. Make sure the SD card is in good contact with the finger, then gently press and pull the SD card

2. **Warning**: Pay attention to the direction of the SD card and plug it in reverse will damage the SD card
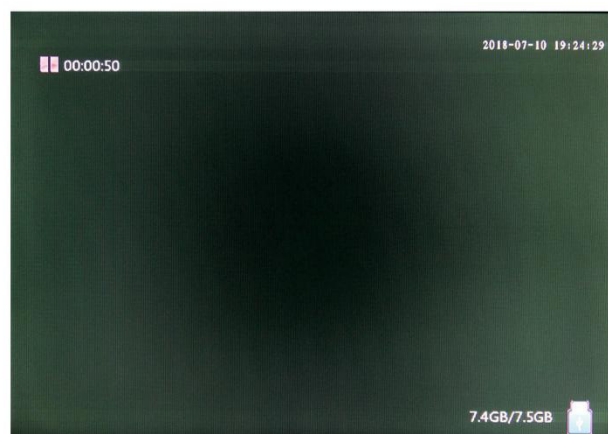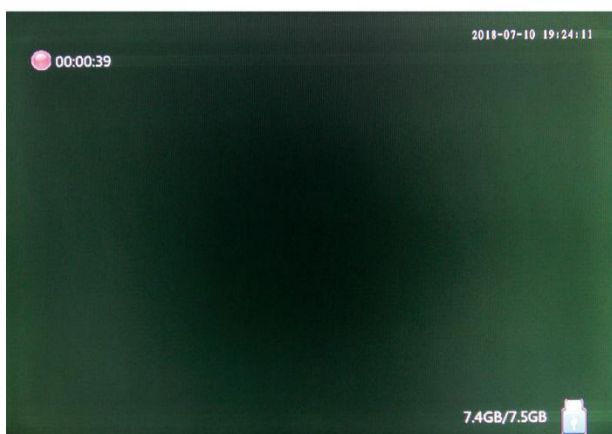
3.2 Recording video

1.Press the " " button to record the video

2.Press the " " button to pause ,

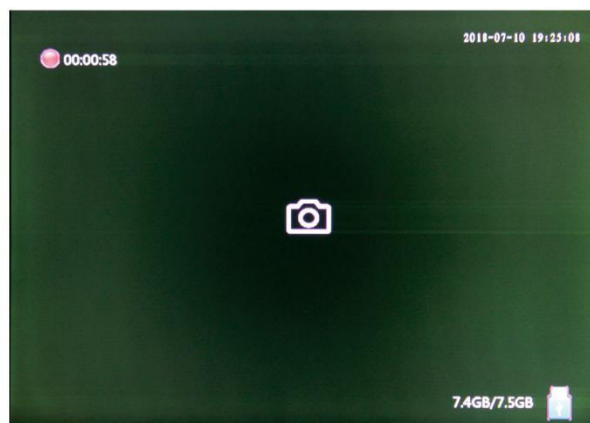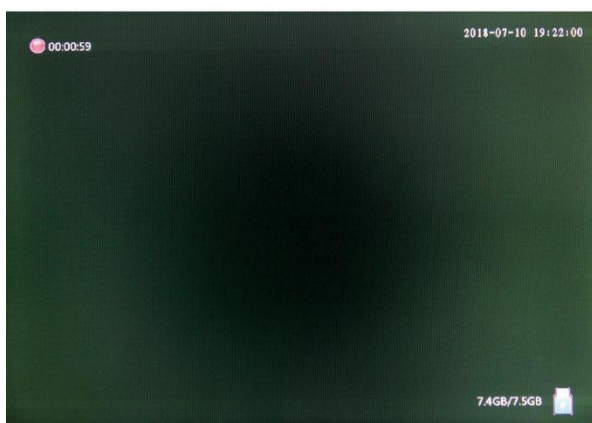

3. press the " " button again to resume recording
4. Record video can take pictures

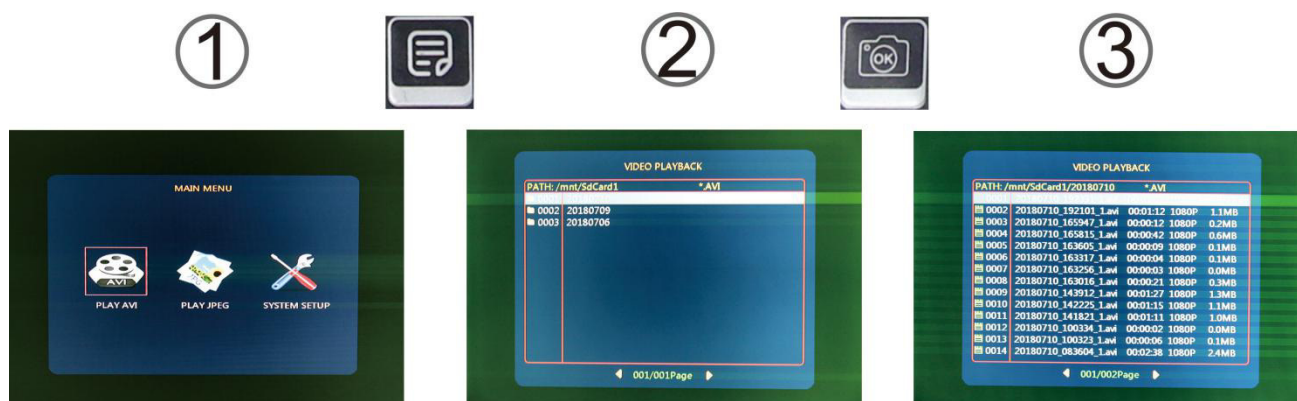

3.3 Recording photo

Press the " "button to snap picture.
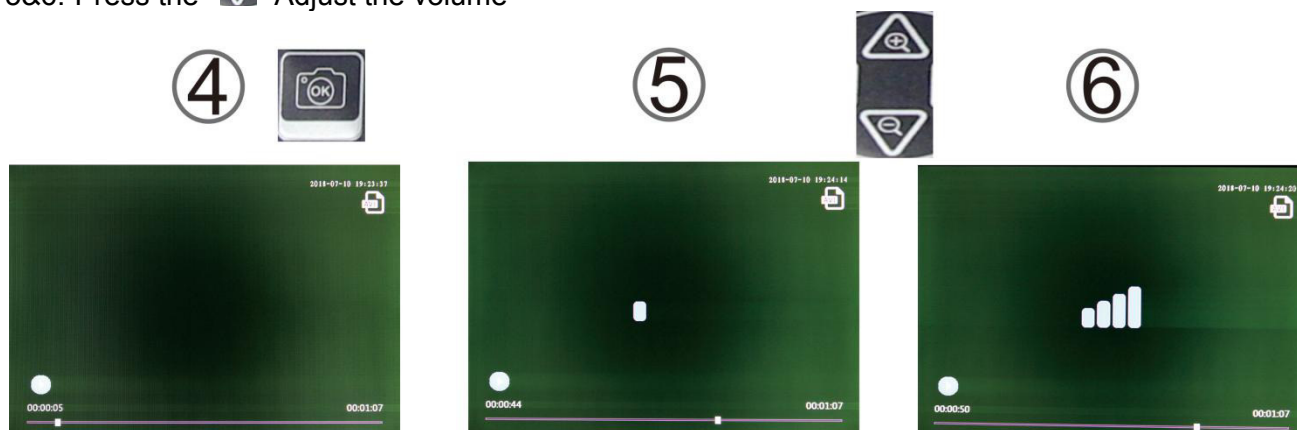
3.4 Playback Video

1. Press the " " button

2. Press the "" "Video Files"
3. Select the file you need

4. The monitor plays the video

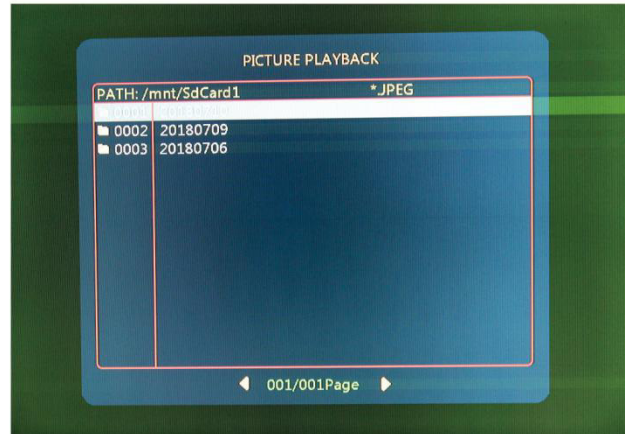5&6. Press the " " Adjust the volume

3.5 Playback Photo

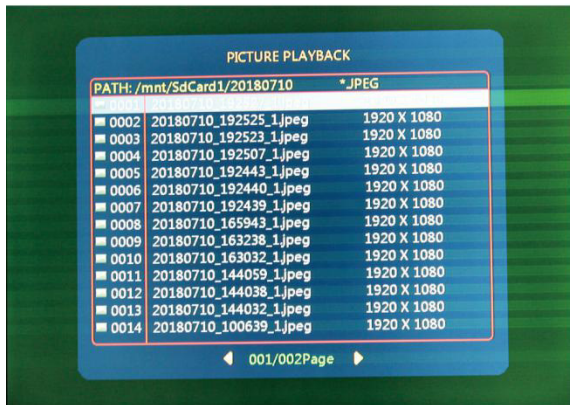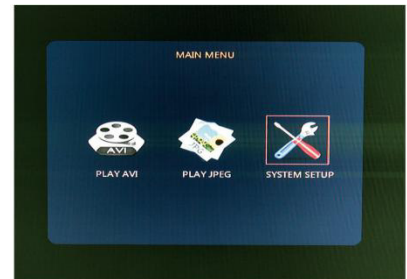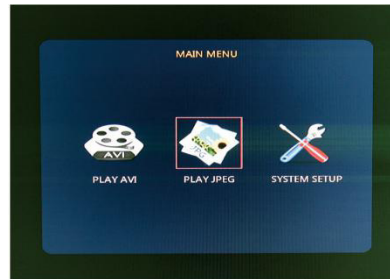Follow the same steps that the "Playback Video" has mentioned.

3.6 Menu

Press "" key enter into main menu.

PLAY AVI   PLAY JPEG SYSTEM SETUP
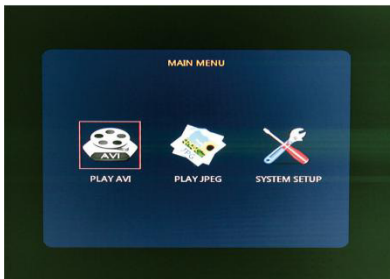
- **Language**
- Select the operating language

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

- **Date format**
- Time format setting

LANGUAGE   DATE TIME   DATE FORMAT
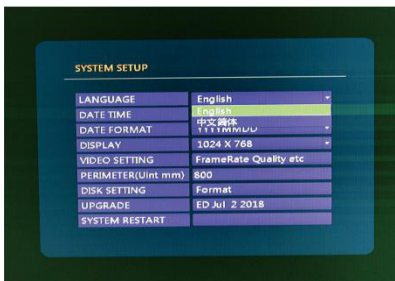
- **Resolution**
- 800X600
- 1024X768
- 1280 X1024
- 1366X768
- 1440 X900
- 1280X720
- 1920X1080

- **Video setting**
- Frame rate quality etc

- **Video system**
- AUTO
- 1080P-PAL
- 1080P-NTSC
- 720P-PAL

- 720P- NTSC
- CVBS-PAL
- CVBS-NTSC

DISPLAY

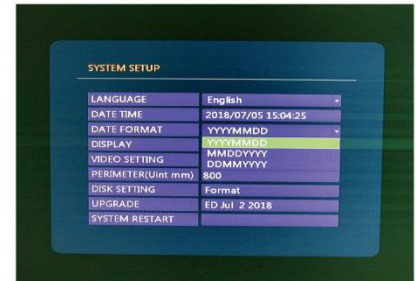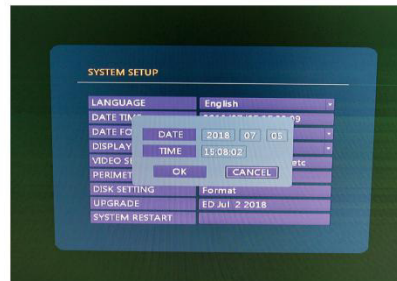## VIDEO SETTING
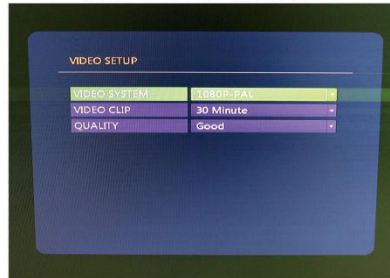
VIDEO SYSTEM

- **Video clip**
- Length of the video recording
- 1minutes
- 5 minutes
- 10 minutes
- 15 minutes
- 30 minutes

- **QUALIT**
- Very Good
- Good
- Normal
- Bad
- Low

- Perimeter(uint mm)

VIDEO CLIP

QUALITY

PERIMETER （UINT MM）
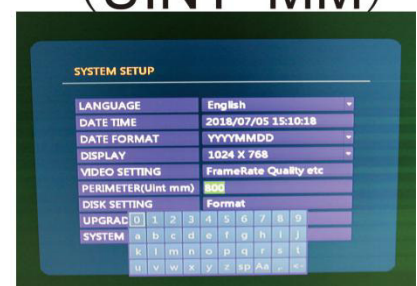
- **Disk select**
- SD1
- SD2

- **Format disk**

- cancel: The system will not format the SD card
- ok: The system will format the SD card.(caution: PLS backup the data of the SD card before operating)

DISK SELECT   FORMAT DISK
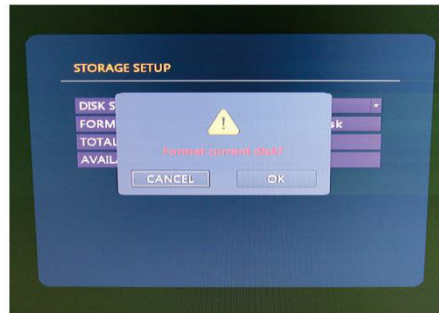
- **Upgrade**
- Softwate Update
- cancel: The system will not update the firmware
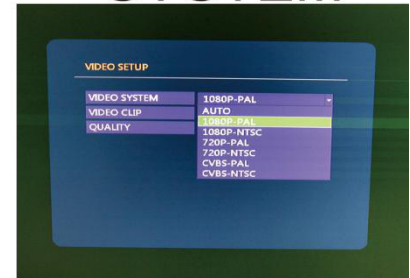- upgrade: The system will update the firmware

- **System restart**
- No: Leaves set up as it is
- Yes: Factory resets the system

UPGRADE
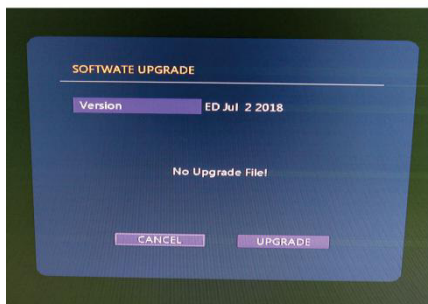
SYSTEM RESTART
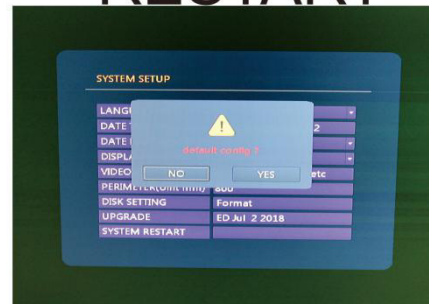
3.7 Delete Files

Please make sure the files you really want to delete, the files won't be found after deleting.
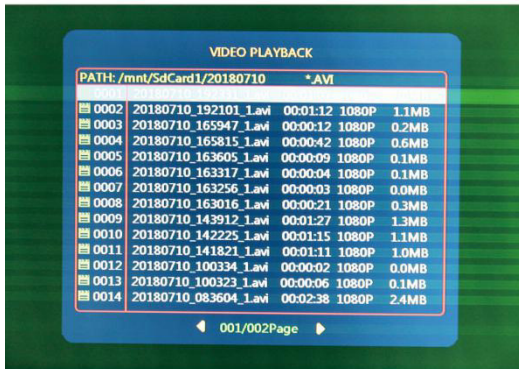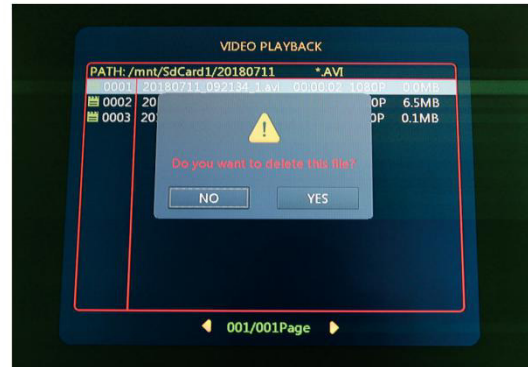
- Press " " to choose the file you want to delete, one and all.
- Press " " to delete it

3.8 Zoom in & Zoom out the image(8x)

1. Press the "up" navigation button to enlarge the image
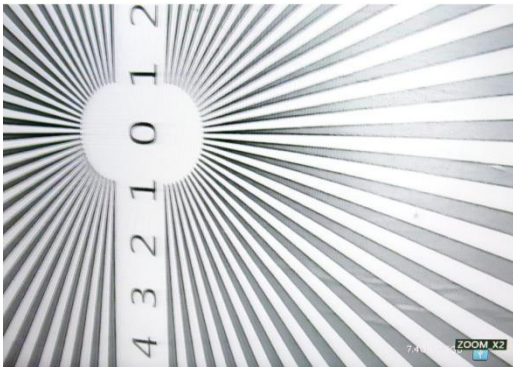
2. Press the navigation button "down" to zoom out the image
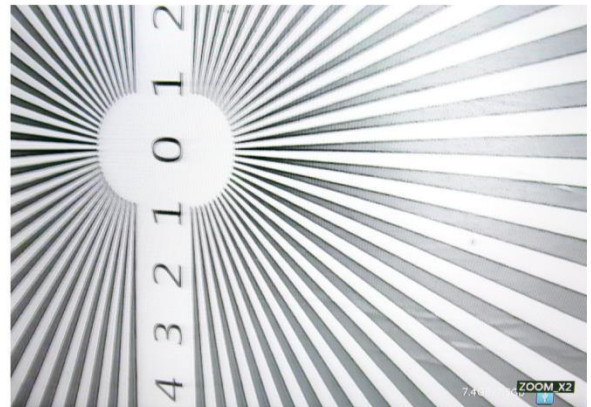
4.Meter Counter

1. Press the " " button to alternate metric and imperial unit

2. Press the " " button to reset the value of cable length

① ② ③

2018.7.10
11:35:27
5M

→

2018.7.10
11:35:27
0M

3. Hold the " ⇄ " button for 3 seconds, the meter count number hide; hold the button again for 3 seconds, the meter count number show.

① ② ③

2018.7.10
11:35:27
5M

→

2018.7.10
11:35:27
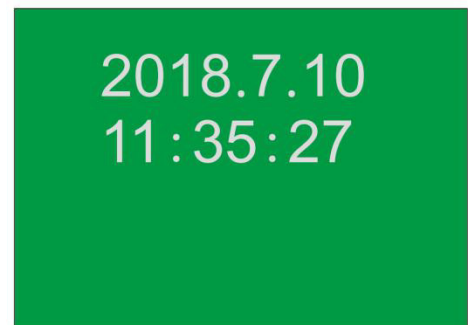
5.Keyboard

5.1 Keyboard assemble

1. Insert the USB plug of keyboard to the "KEYBOARD USB" jack
2. Type the letters on the keyboard
3. The letters will show on the screen

① ② ③
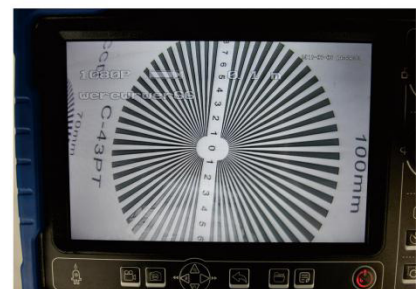
5.2 Keyboard
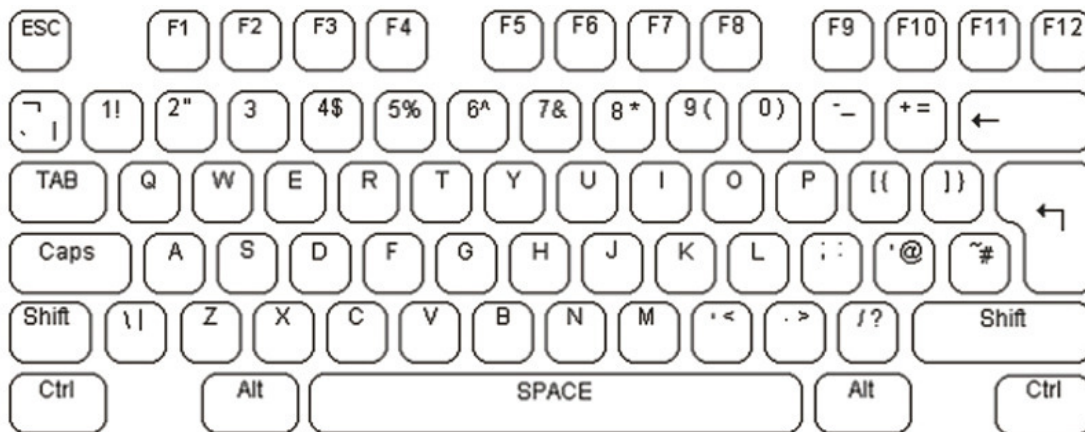
The font and text size are fixed and cannot be changed.
The basic operation of the text overlay unit is straight forward. A flashing underscore cursor indicates the current screen position. This cursor can be moved the screen by the keyboard cursor keys. The cursor will wrap around the screen left and 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

- 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