PIPE INSPECTION CAMERA SYSTEM

Read these instructions completely before operating this system.

Please charge the battery first before use.

C

MANUAL

Catalog

Warning

Warning

To Avoid electrical shock put the item indoor when Charging

Warning

Use only input 110~240V AC output DC 12.6V, 1000mA charger. This machine can only use the original charger and lithium battery, reminding the charging time is 5 hours. Please charge the battery before use!

Warning

Item contains battery, dispose according local legal requirements properly

Warning

Please check the appearance and functionality of the goods after receive it. Any damage or loss of goods, please take pictures and contact us within 3 work days, or else take the consequences by self.

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	Optional

Camera Head		• ø17mmX115mm camera size • ø24mm skid	
		• ø23X134mm Camera Head • ø40，ø80 skid •	
		• ø23X134mm Camera Head • ø40，ø80 skid •	
		• ø23X240mm Camera Head • 512Hz transmitter • **Self-balancing** • ø40，ø80 skid	
		• ø28X156mm Camera Head • 512Hz transmitter • **Self-balancing** • ø40，ø90 skid	
		• ø28X260mm Camera Head • 512Hz transmitter • **Self-balancing** • ø40，ø90 skid	
		• ø40mmX76mmCamera Head • **Self-balancing** • ø100mm, ø140mm，ø220mm skid	

Item	Image	Description		Optional
		● ø40mmX200mm		

Item	Image	Description		Optional
Control Box		● Monitoring & Video recording & text writing ● Storage medium: 8G SD card & card read or USB stick **(max 256G)**		√
			● Hard Keyboard ● Size: 220(L)X118(W)X19.2(H)mm	
Li-ion Battery		● Battery (18650) 12.6V 4400MAH Li-ion Battery ● Total Power: 14W		
		● Battery (18650) 12.6V 13200MAH Li-ion Battery ● Total Power:30W		
Cable Wheel		● Coil size: 460(L)X270(W)X560(H) ● Metal material: fiberglass rod ● Material: Stainless steel ● Diameter: ø7.0mm ● Counter: Metric & Imperial Counter		√

Item	Image	Description	Optional
Suitcase		• 460(L)X370X180(H)mm • Engineering Plastics	
		• 511(L)X430X200(H)mm • Engineering Plastics	
Monitor		• 9 inch digital Color	

		● 15 inch TFT Color	
Charger		● Input: AC100-240V~50/60Hz ● Output: DC 12V/1000MAH ● DC plug diameter: 2.1mm	
		● Input:AC100-240V~50/60Hz ● Output:DC 12V/3A ● DC plug diameter:2.1mm	
Microphone		● Frequency response: 20-20KHz ● Sensitivity: -47DB±2DB ● Output impedance: ≤2.2KΩ ● Line Length:1m	√
Connection Wire			√
SD card and card reader			√
Screw Driver			√
Waterproof Ring			√
Manual			√

1.2 Control Box

①

V2

⑰ CHAN /BATT ON/AUX

② ◯ 📟━

VIDEO OUT

DVR POWER

⑯ METRIC/ IMPERIAL

DVR STATUS

③

④

RECORDING DIRECTORY

⑮ MENU

📹 REC. STOP ▲⊕

⑤

⑭ BACK

⑥

⑬ RESET

▶❚❚ OK

⑦

⑫ ◀

▶

⑧

📷

⑪ MIN. MAX. LED BRIGHT

▼⊖

⑨

KEYBOARD

⑩

⑱ ⑲ ⑳ ㉑ ㉒

⊖–◖–⊕ DC 12 V

MIC.

EARPHONE

⬸ USB STICK

SD

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 ZOOM+	17	Power control
7	Confirm/Stop/Take photo/Long press to enter the photo catalog	18	Charge jack
8	Menu right	19	Microphone jack
9	Menu down ZOOM-	20	Earphone jack
10	USB keyboard	21	USB stick jack
11	LED brightness adjuster	22	SD card slot

note:

- ☐**Please insert the USB flash drive before booting. If you cannot read it, restart the system.**

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.
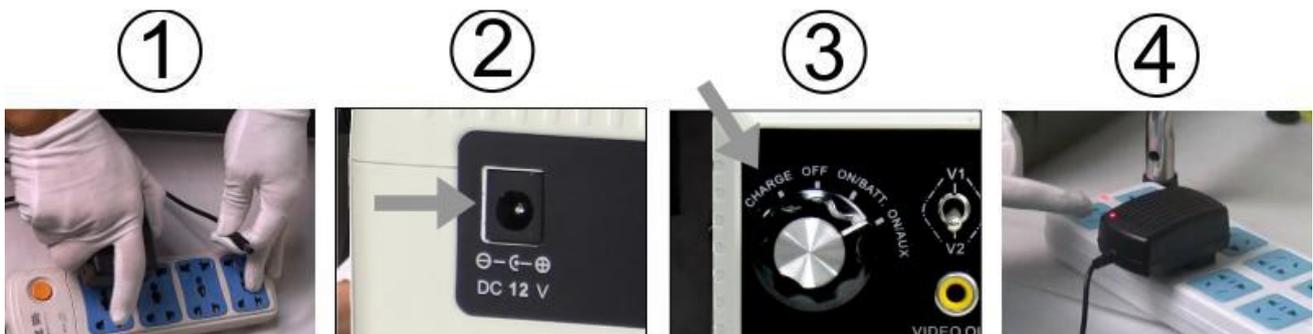
2.2 Starting up

1. Open the carrying case and unfold the sunshade

2. Connect one end of the cable to the control box

3. Connect the camera to the coil

4. Release the coil brake

5. Clamp the fiber optic cable into the clamp.

6. Correct the handle after fixing

7. Correction handle before fixing

8. Tighten the camera

9. Boot

⑦

⑧

⑨

10. Adjust the lights

11.AV1 and AV2

⑩

⑪

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

2.3.2 80mm SKID and 23mm camera head

1. Set the SKID in the camera head

2. Fasten the SKID with a screw rod by tightening its screws.

3. The SKID assemble completed

2.3.3 40mm SKID and 28mm camera head

1. Set the SKID in the camera head

2. Fasten the SKID with a screw rod by tightening its screws.

3. The SKID assemble completed

2.3.4 90mm SKID and 28mm camera head

1. Set the SKID in the camera head

2. Fasten the SKID with a screw rod by tightening its screws.

3.The SKID assemble completed

3.Recording and Menu

3.1 Inserting SD Card & Assembling microphone

1. Insert the SD card to the slot, then press it slightly. Make sure the SD card connecting finger contact nicely, then press it slightly and pull out 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 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.

① ②
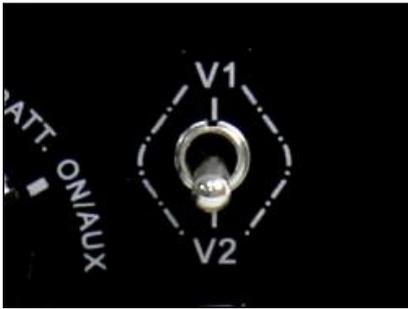
3.3 Record video

1. Insert the SD card.

2. Press the "" button to record video, the green indicator flashes.

① ②

2020/06/28 14:54:40

2020/06/28 14:54:53
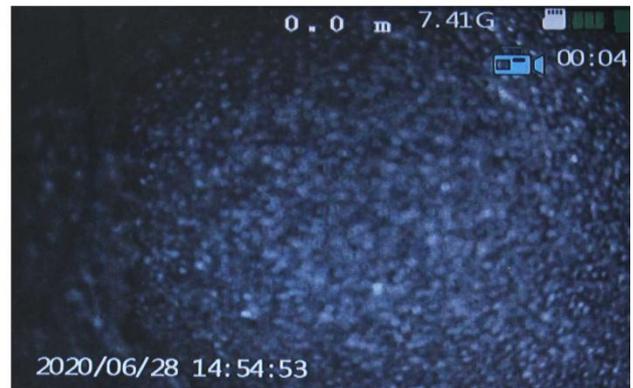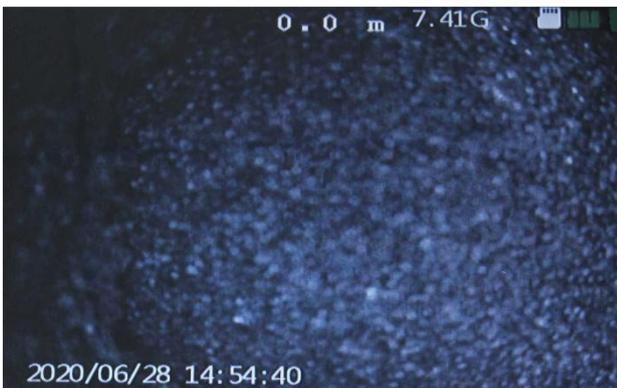
3. To record video, you can press "" button to take a picture

4. Press the "" key ZOOM +
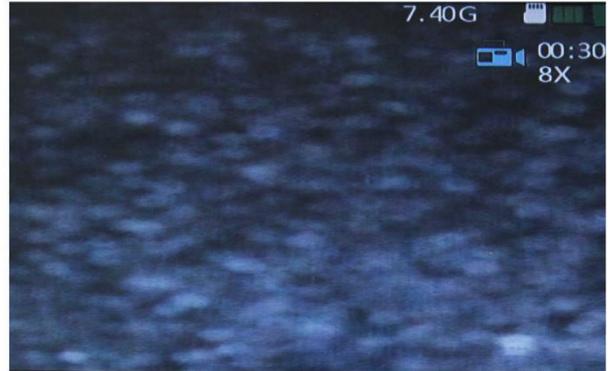
5. Press the "" button ZOOM-

6. Press the "" button again to end the recording.
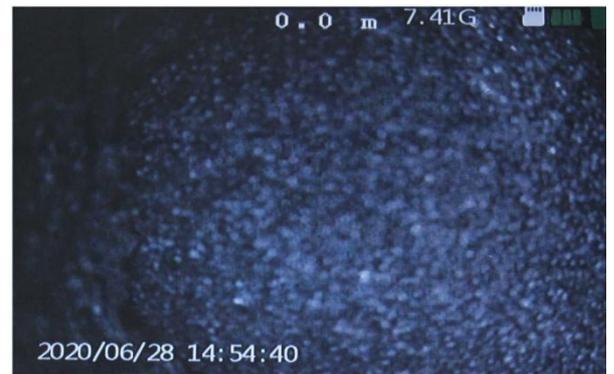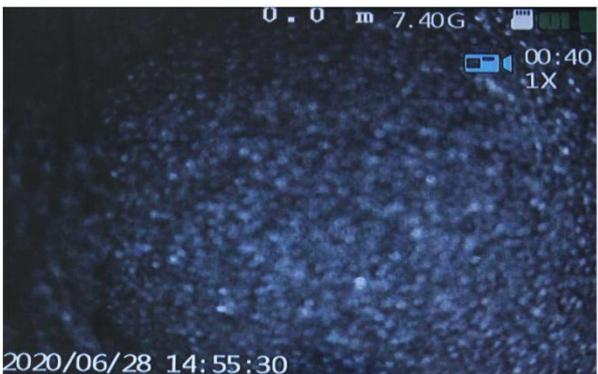
3.4 Playback Video

After inserting the SD card, press the "" button to take a photo.
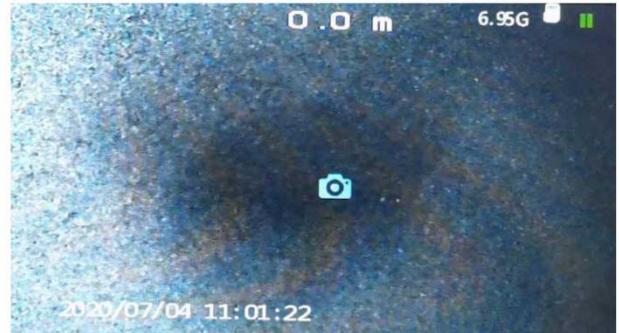
3.5 Play video

1. Press the "RECORDING DIRECTORY" button to enter the video directory.

2. Press the "" button to enter the video.

① RECORDING DIRECTORY   ②

Video

06/28 14:37	06/28 14:35	06/28 14:35

00:03
2020/06/28 14:55:40   00:40
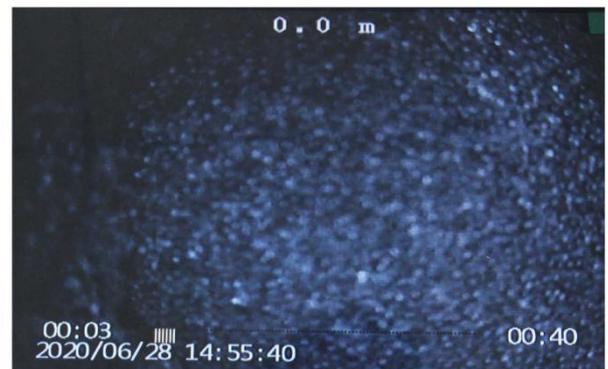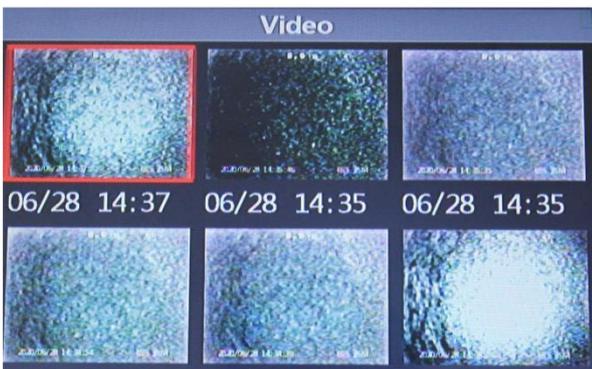
3. Press "" to pause the video playback.

4. Press the left and right buttons to fast forward and rewind the video playback.

③
④
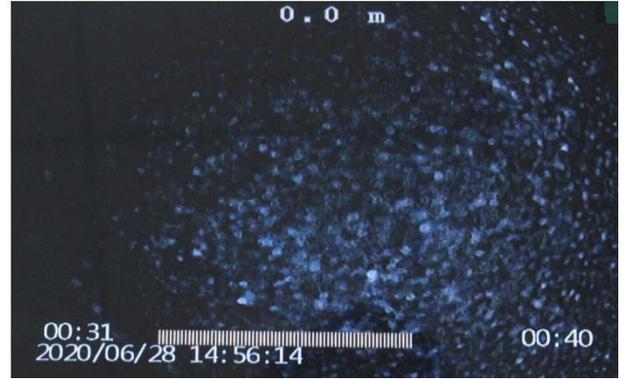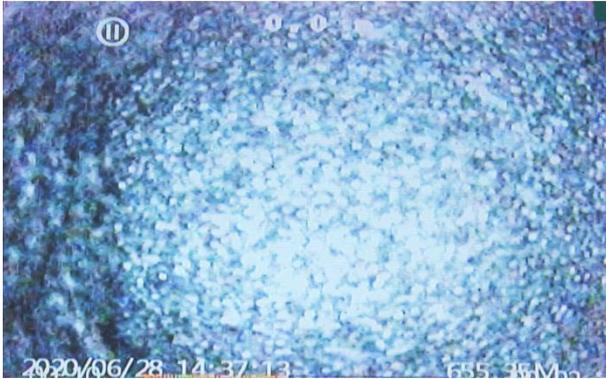
5. Back to the video catalog.

6. Press " MENU " to delete the video.

⑤
⑥ MENU
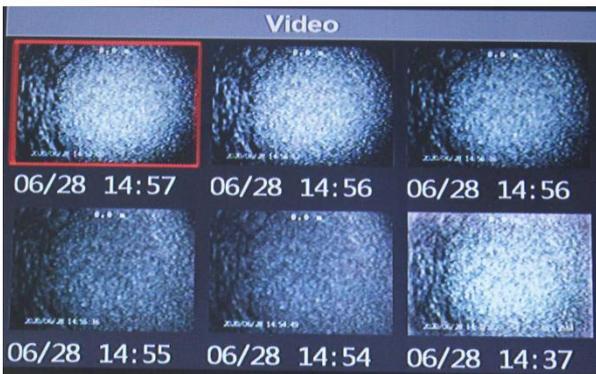
3.6 Playback Photo

1. Long press the " " key for three seconds to enter the photo library.

2. Press " " to view the photo.

①

②
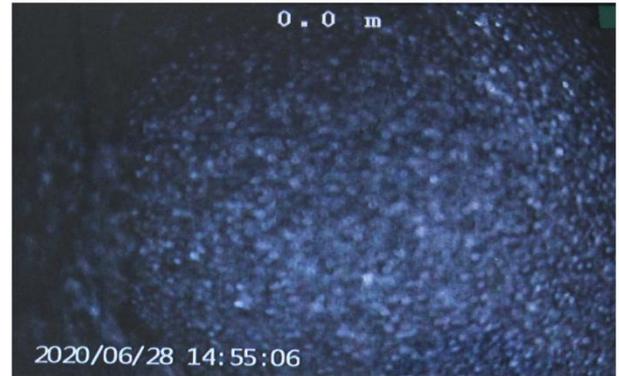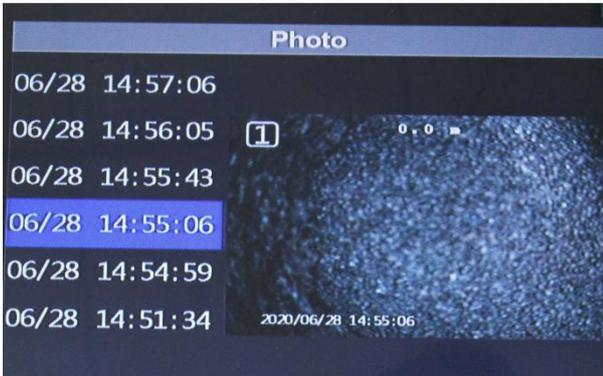
3 Press the " " key to go to the previous picture.

4. Press the " " key for the next picture.

③

④
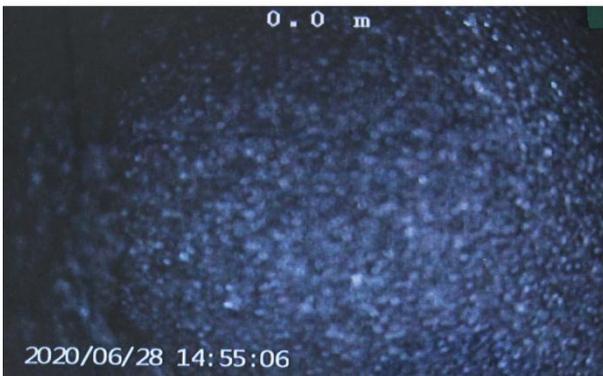
5. Return to the main photo catalog
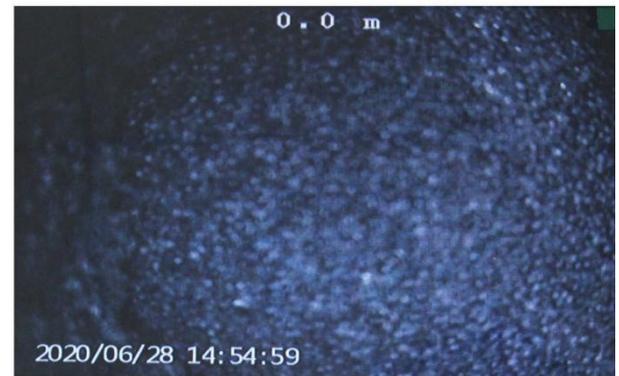
6.Press the " " key to delete the video.

⑤
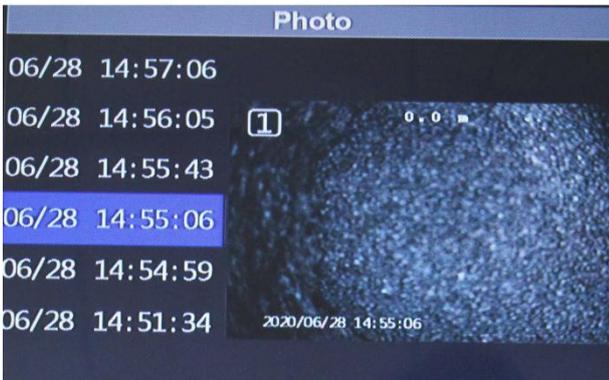
⑥
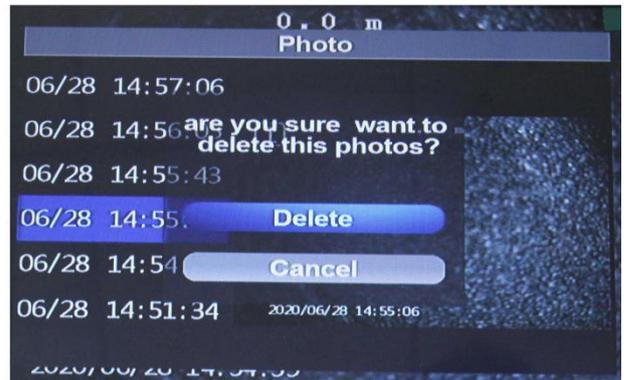
3.7 Menu

Press the " MENU " key to enter the main menu.

VIDEO
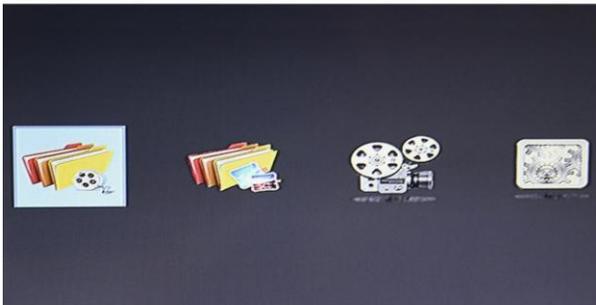
PHOTO
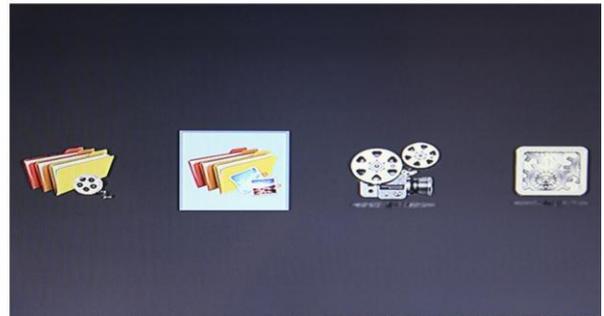
VIDEO
SETTINGS
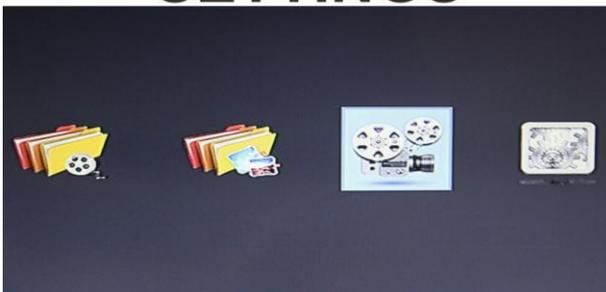
SETTOMGS
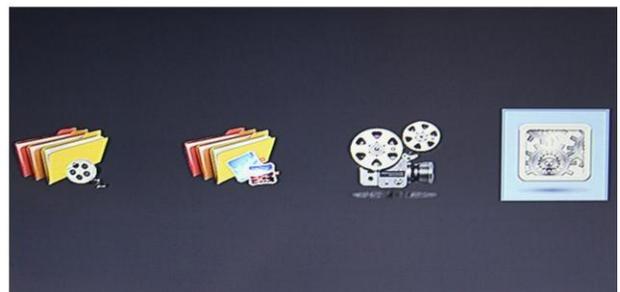
4. Video settings

4.1. Set the length of time to record video

- 5 minutes
- 15 minutes
- 30minutes

4.2. Recording

- Off
- ON

4.3. CVBS output

- NTSC
- PAL

4.4. Microphone volume

- First press the OK button, press the left and right buttons to adjust the volume

4.5 watermark Settings

- Open
- Off

5.System settings

5.1. Picture

- Brightness

- Contrast
- Color
- Reset

5.2. Volume

- Press the left and right keys to adjust the volume

5.3. Language settings

- Chinese
- English
- Spanish
- French
- Italian

5.4. Time setting

Date and time

● Key to set date and time, left and right keys to adjust time and date
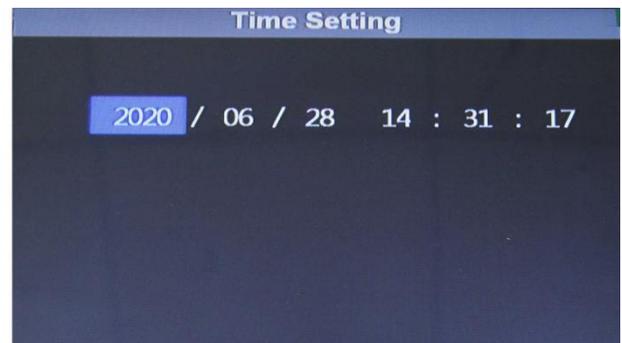
5.5 Default setting

● No: Cancel

● Yes: Confirm
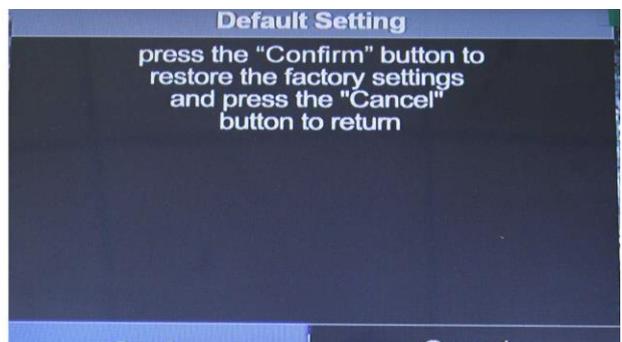
5.6. Default setting

● No: The system does not format the SD card

- Yes: The system can format the SD card (Note: Please back up the data in the SD card before operation)
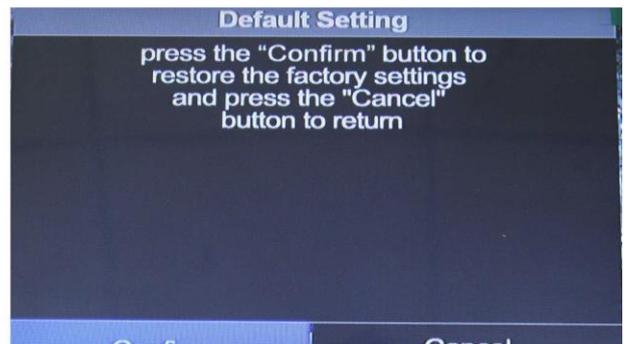
5.7. Firmware upgrade

- No: Unupgradable system

- Yes: You can upgrade the system

5.8. Version

- WPS 1.0 20191229

6.Meter Counter

1. Press the " " button to alternate metric and imperial unit
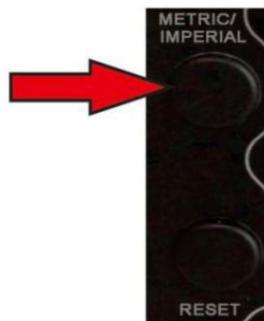
2. Press the " " button to reset the value of cable length
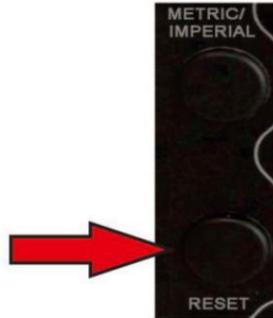
3. Hold the " " button for 3 seconds, the meter count number hide; hold the button again for 3 seconds, the meter count number show.
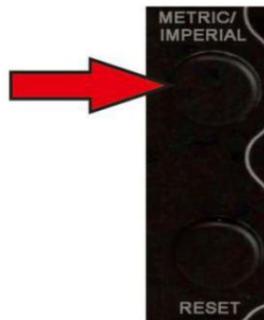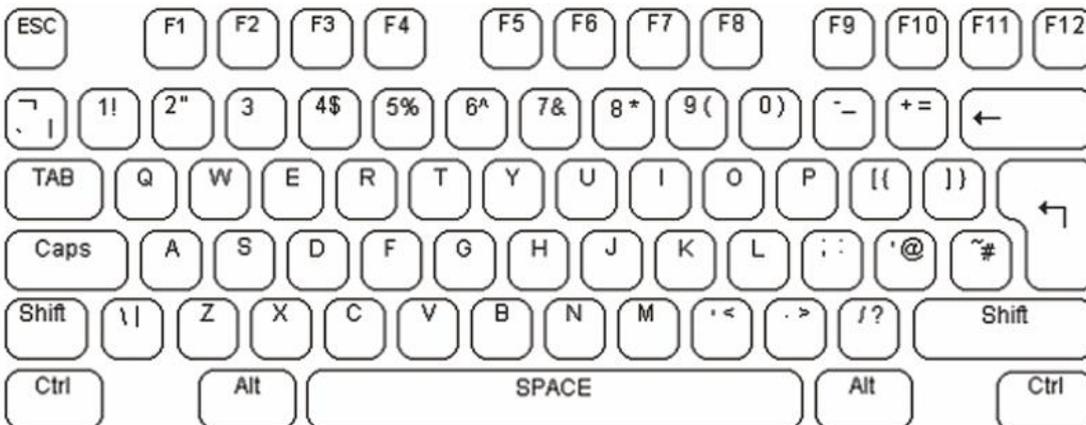
7.Keyboard

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.

8.Troubleshooting Guide

Common faults and maintenance

● ☐If the system fails, please refer to the troubleshooting guide.

● Video without sound

● ☐The microphone is not connected or the microphone is faulty

● ☐ The headset is not connected or the headset is faulty

● The control box DVR is abnormal

● Ability to enter, but no image

● ☐1.5M connection is disconnected

● ☐The camera is installed or the camera is damaged

● ☐Press the F2 key, the image has been switched to no image type mode, press F3 to return to the typing mode

● ☐ Abnormal PCB board of control box

● Wrong time display

● ☐The DVR board of the control box is abnormal

● No image

● The control box DVR is abnormal

● ☐If the 1.5 meter cable connects the cable wheel to the control box

● ☐ Whether the camera is tightened

● ☐The air jack of the control box connected to the monitor is loose

● The display is faulty

● ☐The control box DVR is faulty

● The battery cannot be charged

● ☐The charger is not inserted correctly or the AC plug is faulty

- ☐ Do not use non-original chargers
- ☐The charger is faulty
- ☐The lithium ion battery is damaged
- ☐The battery runs out quickly
- ☐ Low battery capacity

- SD card does not work
- ☐The SD card is not inserted correctly
- ☐ The SD card write protection switch is turned on
- ☐SD card is full, please replace the SD card or transfer files to free up space
- ☐DVR SD card slot is damaged

- Open, but not showing
- ☐Battery disconnected
- ☐The control box DVR is faulty

- Normal display, the camera indicator is off
- ☐The camera is not installed correctly
- ☐The camera is faulty
- ☐The cable wheel is faulty
- ☐The PCB board of the control box is faulty

- The monitor cannot display
- ☐The monitor is not turned on
- ☐The monitor is disconnected
- ☐The display is faulty
- ☐The control box is faulty