

PIPE INSPECTION CAMERA



Please read the manual carefully before operating the system.

Please charge the battery before use.



MANUAL



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Safety and Notice



Warning

To Avoid electrical shock put the item indoor when Charging











Warning













Use only input AC 100~240V output DC 13.5V 5A charger.
machine can only use the original charger and lithium battery, reminding
the charging time is 5 hours. Please charge the battery before use!

1. Please check the appearance and functionality of the goods upon receipt. In the event of damaged or missing goods, please forward images to us within 3 working days, Otherwise, we will not be able to provide after-sales service
2. Working environment of camera system $-10^{\circ}\text{C}\sim 50^{\circ}\text{C}$ ($14^{\circ}\text{F}\sim 122^{\circ}\text{F}$) $\leq 95\%$ RH; Storage environment: $-20^{\circ}\text{C}\sim 70^{\circ}\text{C}$ ($-4^{\circ}\text{F}\sim 158^{\circ}\text{F}$) $\leq 95\%$ RH.
3. The warranty becomes void if any physical damage is present by user or force majeure factors or if the system is disassembled or connect non-factory parts by the user
4. Do not disconnect the SD card while recording or playing as this may damage the system and/or the SD card
5. Remember to always back up the data on your SD card
6. Before using the SD card for the first time, it is recommended to use the check system to format the SD card.
7. Remember to slide the write protection tab to the unlocked position. Otherwise, all data on the SD card is protected and cannot be edited or formatted.
8. Use only the original accessories to avoid possible risks to health and property, and thus meet all related legal regulations.
9. Keep controller dry.
10. 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.
11. Make sure all accessories are connected before starting up.
12. Do not remove or install camera, keyboard, coil, SD card and other accessories when the machine is turned on. If replacement is required, please replace it in the power off state.

1. Parts list

1.1. Accessories

Item	Image	Description	Optional
Camera Head & Skids		<ul style="list-style-type: none"> ● Camera Head size: $\Phi 28 \times 290\text{mm}$ ● Pixels :1280*720 ● Sensor size:1/4inch CMOS ● FOV: 90° ● Pan&Tilt:Pan 360° Tilt 180° ● Camera lamp: 2PCS bright LEDS (white) adjustable ● Built in transmitter: 512Hz ● Effective launch distance: 4.5M ● Lens material: sapphire glass ● Shell material: stainless steel+aluminum alloy ● Waterproof grade: IP68 1Bar ● Skid size: $\Phi 40\text{mm}$, $\Phi 90\text{mm}$ 	Standard
Camera Head & Skids		<ul style="list-style-type: none"> ● Size:$\Phi 38 \times 200\text{mm}$ ● Pixel: 1280 * 720 ● Sensor size: 1/4inch CMOS ● FOV:105° ● PTZ: Pan 360° Tilt 180° ,Adjust focus ● Focal length: 25~200mm ● Camera light: 2PCS highlight LEDS (white) adjustable ● Built in transmitter: 512Hz ● Effective launch distance: 4.5M ● Lens: Sapphire lens ● Shell material: stainless steel ● Waterproof: IP68 1Bar ● Skid size: $\varnothing 90\text{mm}$ 	Optional
Camera Head & Skids		<ul style="list-style-type: none"> ● Camera Head size: $\Phi 23\text{mm} \times 120\text{mm}$ ● Skid size: $\Phi 40\text{mm}$, $\Phi 80\text{mm}$ 	Standard
Camera Head & Skids		<ul style="list-style-type: none"> ● Camera Head size:$\varnothing 25\text{mm} \times 135\text{mm}$ ● Skid size: $\Phi 40\text{mm}$, $\Phi 100\text{mm}$ 	Optional

Item	Image	Description	Optional
SKID		<ul style="list-style-type: none"> ● Universal skid ● Range :80-180mm 	Optional
Main body and Control terminal		<ul style="list-style-type: none"> ● Main body ● Size:505*419*180mm 	Standard
		<ul style="list-style-type: none"> ● Control terminal ● 10.1 inch LCD high brightness screen ● Monitoring & Video recording & text writing ● Storage medium: 64G SD card (maximum 256G) ● Battery: 11.1V 6000mAh 66.6Wh 	Standard
		<ul style="list-style-type: none"> ● keyboard ● size: 300.8 * 115.8 * 12.25mm ● Waterproof soft keyboard ● Language: English ● Keyboard interface: USB 	Standard
		<ul style="list-style-type: none"> ● Coil ● Coil size: Φ332 * 59mm ● Cable material: fiberglass wire ● Cable length: 30m standard ● Cable diameter: Φ6.3mm 	Standard
		<ul style="list-style-type: none"> ● Charger ● Input: AC100-240V~50/60Hz ● Output: DC 13.5V/5A ● Output plug specification: 5521 	Standard
power cord		<ul style="list-style-type: none"> ● Length: 1.5m 	Standard
Earphone		<ul style="list-style-type: none"> ● Frequency Response: 20-20KHz ● Plug diameter: 3.5mm 	Standard
SD card and card reader		<ul style="list-style-type: none"> ● 64G SD card & card reader 	Standard
Screwdriver		<ul style="list-style-type: none"> ● Specification :2.5/3.0mm 	Standard
Waterproof Ring		<ul style="list-style-type: none"> ● Size: Φ26*1.5mm 	Standard
Manual			Standard





1.2. Controller



1	Battery level indicator	17	Light brightness down
2	Up / ZOOM +	18	Light brightness up
3	Left/volume-/reverse	19	Far focus
4	Photo/OK/ Photo folder	20	Near focus
5	Right/volume+/fast forward	21	M/FT switch
6	Down / ZOOM-	22	Zero count
7	Menu	23	ON/OFF
8	Quick playback	24	USB stick port
9	Back	25	SD Card Slot
10	Record	26	Headphone jack
11	WIFI indicator	27	USB stick port
12	Tilt-down	28	Video input
13	Pan-left	29	Video output
14	Automatic rotation/ Reset	30	HDMI video output
15	Pan-right	31	DC JACK
16	Tilt-up		

2. Quick Start Guide

2.1. Connection

1. Open the bracket; 	2. Open the sun hood; 	3. Lift the keyboard, open the tool box cover and take out the accessories; 
4. Install 2 hooks on the right side of the host; 	5. Loosen the hand screw at the top; 	6. Remove the right baffle, pull out the spring and unscrew the protective cover; 
7. Install camera; 	8. Clip the camera into the hook; 	9. Installation is completed. 

Warning:





- ◆ Do not rotate the rotating part of the camera by hand to avoid damaging the motor.

Be careful:

- ◆ Check the waterproof ring of the camera.
- ◆ Pan tilt camera can't be used in severe blockage and sludge pipeline, otherwise the camera may be damaged. After use, please clean the sediment on the camera with water in time to avoid jamming.
- ◆ Pan tilt camera can't be used for turning right angle bends smaller than 90MM, otherwise the camera may be damaged.

2.2. Battery charging

1. Take out the accessories from the tool box;
2. Charge the host battery;

1. Open the charging port.	2. Insert the power cord into the control terminal.	3. The power cord is plugged into the socket.	4. The green light of battery power flashes, and stops flashing when the battery is fully charged.
			

2.3. Assemble skid



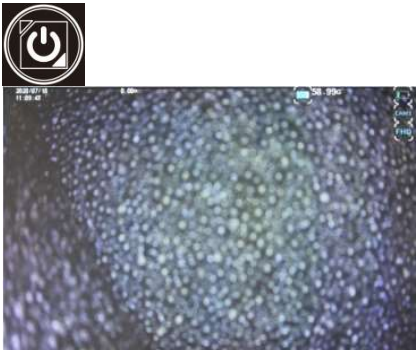
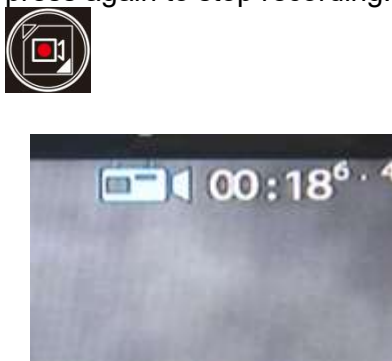
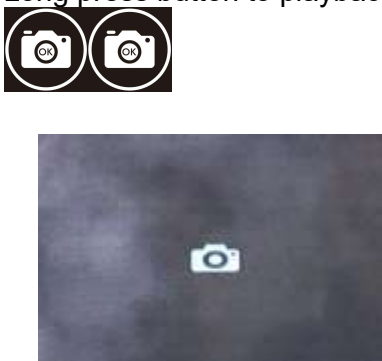
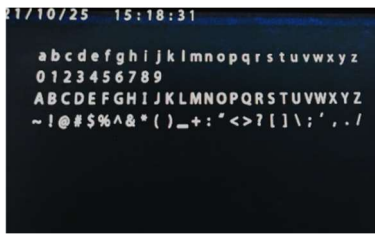






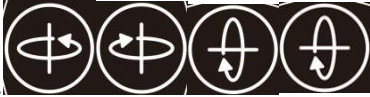

2.3.1. Installation of 40/90 mm skids

1. Put the camera in the stand.	2. Tighten the screws on the outside of the skid to fix the skid	3. The skid is installed.
		

2.3.2. Install universal skids(Optional)

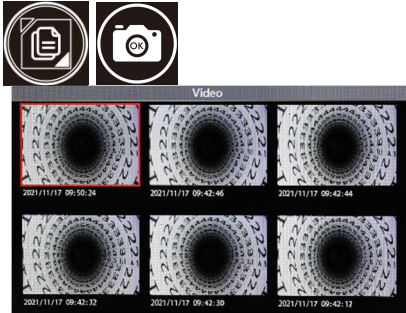
1. Put the camera in the stand.	2. Tighten the screws on the outside of the skid to fix the skid	3. Rotate the middle ring to fit the pipe diameter.
		

2.4. Starting up

<p>1. Insert SD card or card reader&SD card.</p> 	<p>2. Insert the headset.</p> 	<p>3. Starting up Long press the power button for 3 seconds to turn on.</p> 
<p>4. Record video Press this button to record, press again to stop recording.</p> 	<p>5. Take photo & playback Press this button to take photo. Long press button to playback.</p> 	<p>6. Audio and text record Support to record audio by microphone and input text by keyboard when recording video</p> 
<p>7. Meter counter</p>  <p>Press button to reset the counter.</p>  <p>Press button to switch meter/ feet.</p>	<p>8. Zoom in and out Press these two buttons to zoom in and zoom out image when recording.(max 8 levels)</p>  <p>When playing a video, you can use these two buttons to adjust the volume</p>	<p>9. Adjust volume When recording a video, you can use these two buttons to adjust the volume</p>  <p>When play video or photo, also use these two buttons to choose video or photo.</p>
<p>10. Adjust lights of camera Press these two buttons on control handle to adjust lights.</p>  	<p>11. Adjust camera angle Press these 4 buttons to control Pan and Tilt</p> 	<p>12. Adjust manual focus Press these two buttons on control handle to adjust focus of camera.</p> 

13. Play video




Press these two buttons to play video.



14. Delete video

Press these buttons to delete video.



When play back video, press  button to pause the video, and press   buttons to fast forward and backward the video.

Warning:


Do not insert two SD cards at the same time. Pay attention to the direction of the SD card


2.5. WIFI (Optional)

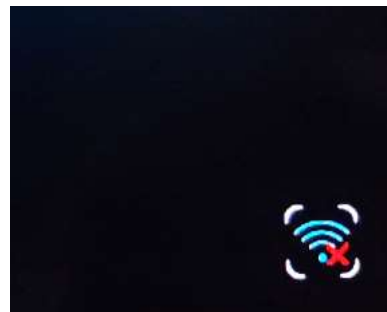
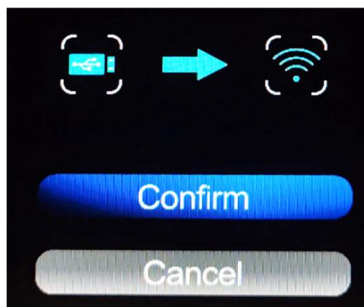
Note: When WIFI mode is turned on, the USB flash disk cannot be used and the SD card is available.

2.5.1. Switch WIFI

1. No WIFI icon in the lower right corner of the display indicates that WIFI is not turned on. Long

press  for 5 seconds to display the transfer in switch between USB flash disk and WIFI,

USB flash disk ->>WIFI or WIFI ->>USB flash disk. After pressing the  key, the automatic restart takes effect. After turning on WIFI, the lower right corner of the display screen displays WIFI icon, and the icon has an "X". At this time, the WIFI power is not turned on.



2. Enter the video settings, select WIFI, select "ON" to open, and return to the main interface. If there is no "X" in the WIFI icon, the WIFI power has been turned on.



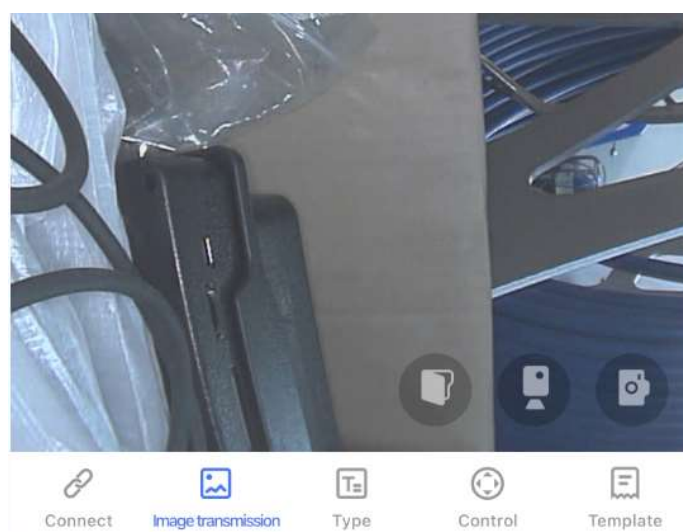
2.5.2. Connect WIFI

1. Install the APP "WPS CAM" on Android/iOS system devices; APP networking and storage permissions must be allowed.



2. Search for WIFI and connect. WIFI name: WPS-HDWIFI; Password: 12345678; The WIFI indicator light at the lower left corner of the controller will change from slow flashing to fast flashing after successful connection;
3. Open the app and select "Image transmission" to view the image; Can perform photo, video, and playback operations. If there are no images, please restart the app; The WIFI transmission distance is about 5 meters.

Note: Other functions of the APP require optional Bluetooth usage.



2.6. CVBS/HDMI output

1. Turn on the external display.



2. CVBS/HDMI interface is connected to external display.



3. Press and hold the menu key for 3 seconds each time to switch the CVBS/HDMI/body display.



2.7. CVBS Input interface

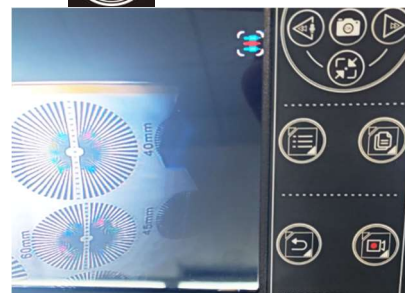
1. Power on the external camera.




2. Insert "VIDEO IN" into RCA terminal.



3. Press and hold the return key for 3 seconds to switch the CVBS/body display.



3. Menu

Press  to enter menu. Press     choose the items. Press  enter submenu. Press  enter upper submenu until to homepage.

Play Video



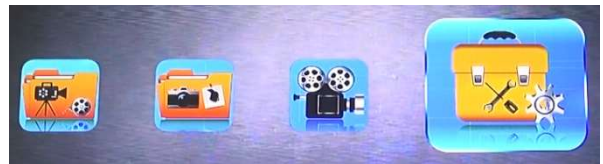
Video settings



Play Photo



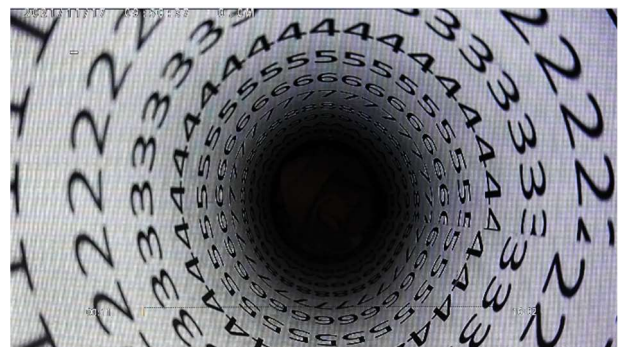
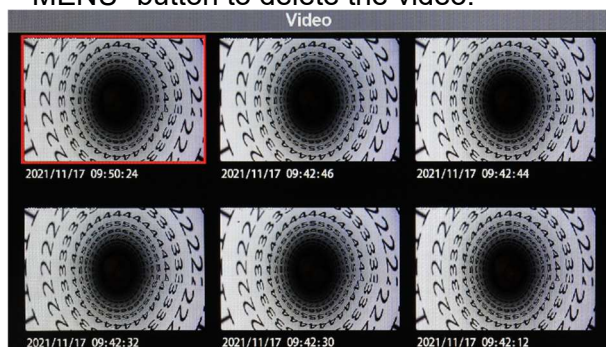
System settings



3.1. Play Video

The video folder can be opened in the menu, or it can be opened quickly by pressing "Quick playback".

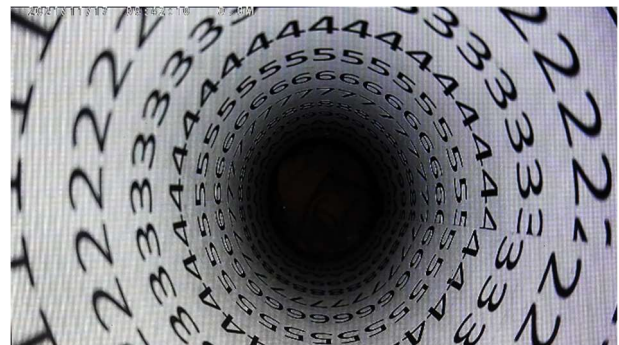
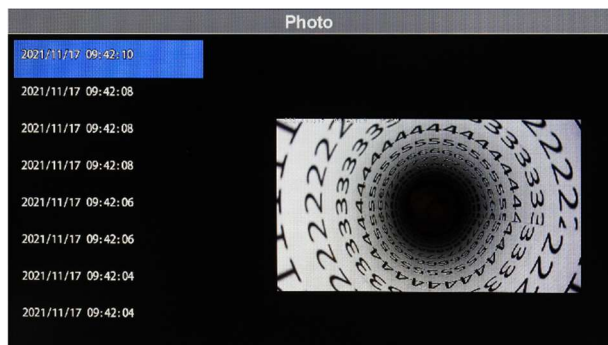
- "OK" button to play the video, "◀▶"backward/ Fast forward , "▲▼"adjust the volume , "MENU" button to delete the video.



3.2. Play Photo

The photo folder can be opened in the menu, or you can press and hold the "OK" button for 3 seconds to quickly open it.

- "OK" button to view photos, "MENU" button to delete photos.



3.3. Video settings

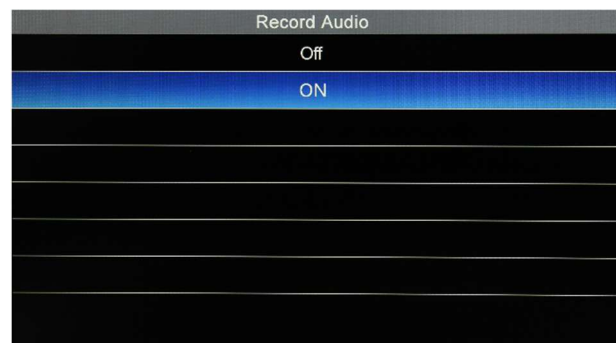
3.3.1. Set the length of time to record video

- 5 minute
- 15 minute
- 30 minute



3.3.2. Record Audio

- ON
- OFF



3.3.3. CVBS output

- NTSC
- PAL



3.3.4. Mic volume

- First press the OK key, press the left and right keys to adjust the volume



3.3.5. Time Stamp

- ON
- OFF



3.3.6. WIFI

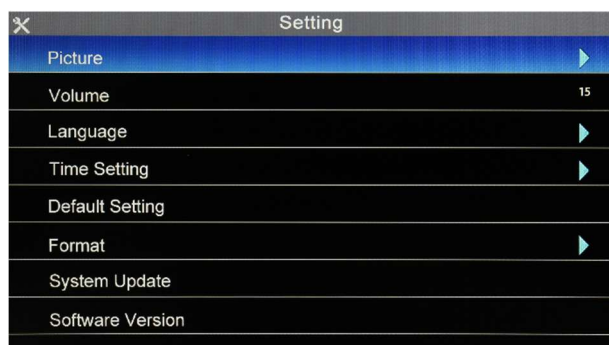
- ON
- OFF



3.4. System settings

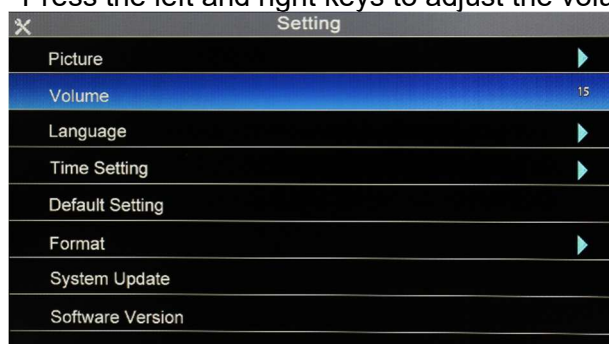
3.4.1. Picture

- Brightness
- Contrast
- Chroma
- Reset



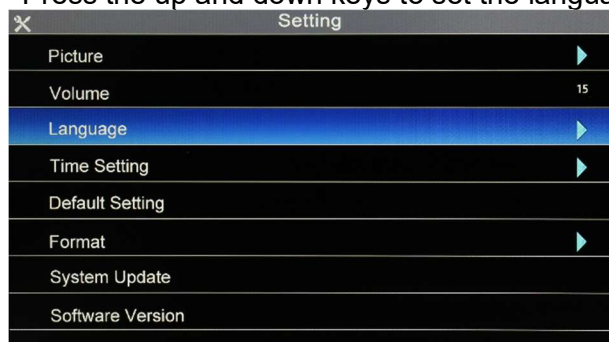
3.4.2. Volume

- Press the left and right keys to adjust the volume



3.4.3. Language

- Press the up and down keys to set the language



3.4.4. Time

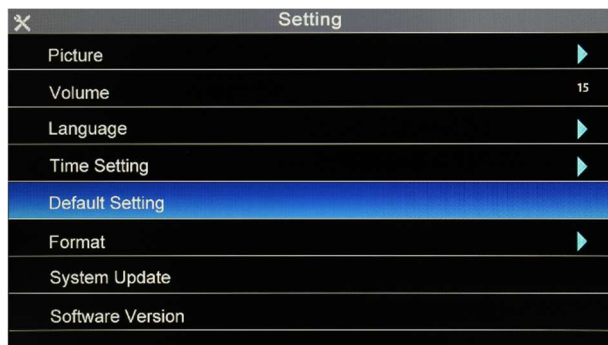
Date and time

Press the up and down keys to set the date and time, and press the left and right keys to select the time and date



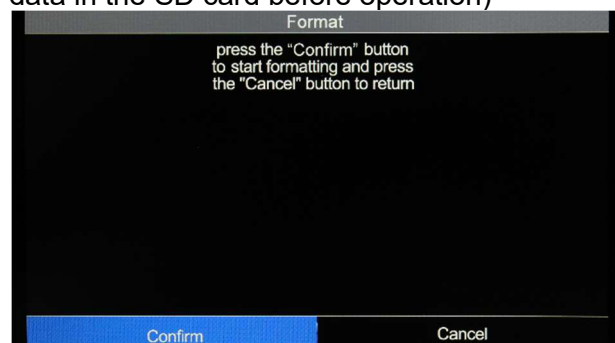
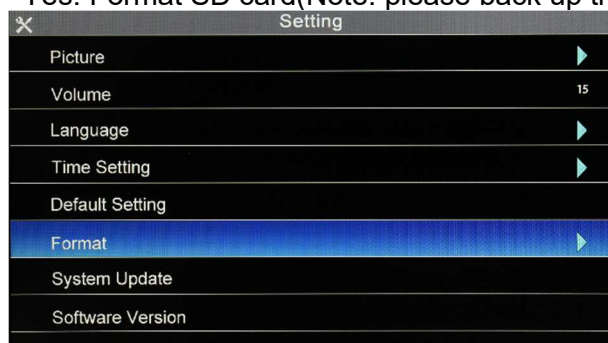
3.4.5. Default Setting

- No: Cancel
- Yes: Confirm



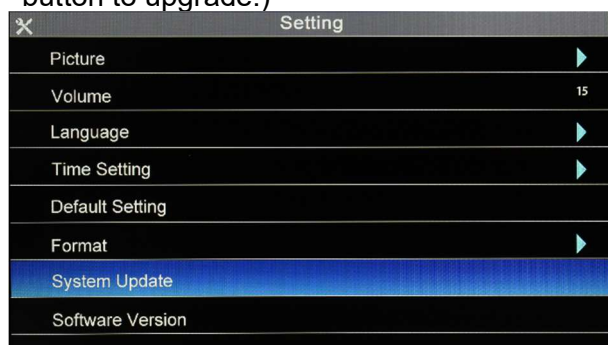
3.4.6. Format

- No: Cancel
- Yes: Format SD card(Note: please back up the data in the SD card before operation)



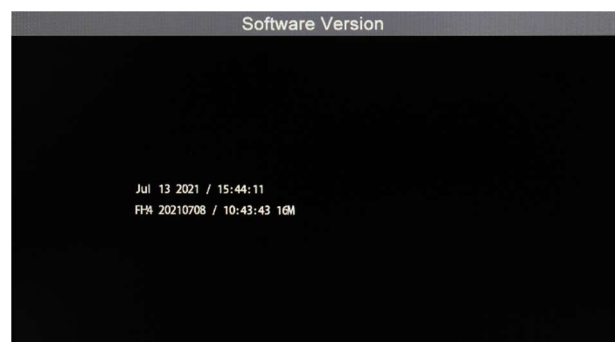
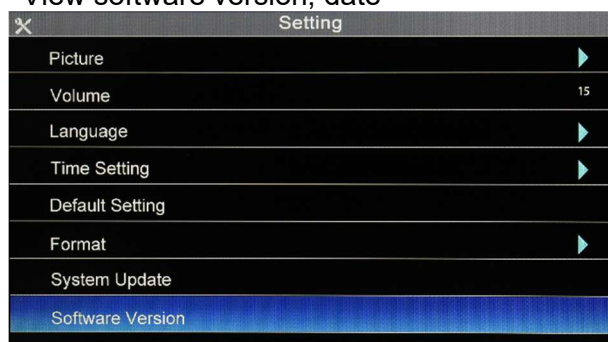
3.4.7. Firmware update

- No: Don't upgrade system
- Yes: Start to upgrade (Need to insert the SD card with the upgrade program, press the "OK" button to upgrade.)

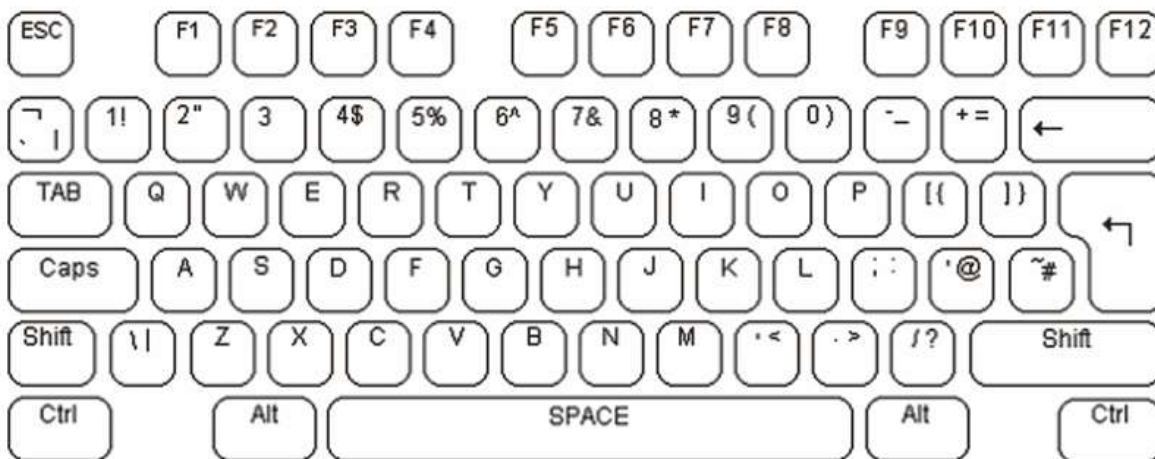


3.4.8. View software version

- View software version, date



4. Keyboard



1. The font and character size have been set and cannot be changed.
2. The basic operation of characters is to automatically push back, covering the input characters on the image.
3. The cursor flashing indicates the current position of the character to be input on the screen. The cursor position can be controlled by the direction key on the keyboard. The cursor will move from left to right, from top to bottom and back. After typing a character, the cursor flashes quickly at the position of the next character, and then disappears. Press F6 to switch between cursor flashing and cursor clearing.
4. Video character overlay input uses a standard American keyboard. The alphabetic characters in the QWERTY area and the numeric characters of the keypad can be directly input to the screen. Normally, lowercase letters are entered. When you press and hold the shift key or press caps lock, you can enter uppercase letters. When exiting uppercase input, press caps lock again. Use the backspace key to move the characters on the screen, which will quickly replace the characters to the left of the cursor with blank characters, and the cursor will move to the left. The delete key on the keyboard does not give any function. Press enter to move the cursor to the start of the next line.

F6	The switch cursor flashes
F9	Clear screen
↑↓←→	Move cursor position
CTRL+1~8	Quick jump page

5. The video text superimposing unit displays it in the current screen page. The text written to these pages will be saved in the local nonvolatile memory until it is overwritten. To move between screen pages, use the page up and page down keys. To quickly jump to page 1 ~ 8, press Ctrl + X (x stands for 1 ~ 8). Supports up to 64 page editing. To clear the screen page of the text, press F9.