PT Pipe Camera Kit
Model： CAT10992



Read instructions carefully before operating this system.

Read these instructions completely before operating the device

OPERATOR'S MANUAL

CAMTEK
SURVEILLANCE PRODUCTS
For all your drain camera needs

⚠ WARNING

1. Do not use the device in flammable and explosive environments.
2. Avoid using the device in extremely cold, hot or humid environments; Otherwise, the device may be damaged, and the damage caused by this behavior is not covered by the warranty.
3. Use it with care to prevent the device from falling from a height. Do not throw, beat or press the device.
4. Avoid using parts from other manufacturers, so as not to damage the device due to incompatibility.
5. If the user disassembles the device without permission, the damage caused by such behavior is not covered by the warranty.
6. Save the data before connecting the USB/TF card. The manufacturer/seller is not responsible for data loss for any reason.
7. Do not disconnect when recording or playing, keep the device in normal working state, otherwise it will damage the device.
8. Do not mix battery charging cables and power cables, otherwise the battery will be damaged or the system will not work properly.
9. The push cable of the system is made of fiberglass and has a certain toughness, but it cannot be bent significantly or forced too hard, otherwise it will be broken.
10. After use, the cable must be retracted into the cable rack and wiped clean.
11. Do not splash water onto the device.
12. Do not overcharge the lithium battery, otherwise it may cause damage.
13. Please only use our company's dedicated charger for charging.
14. There are restrictions on the use of the device. Observe whether the device is in a high-intensity magnetic field environment. For example, the magnetic field generated during the operation of an electric screwdriver can significantly affect the accuracy of the meter. Please keep the device away from high-intensity magnetic field environments for use or storage.

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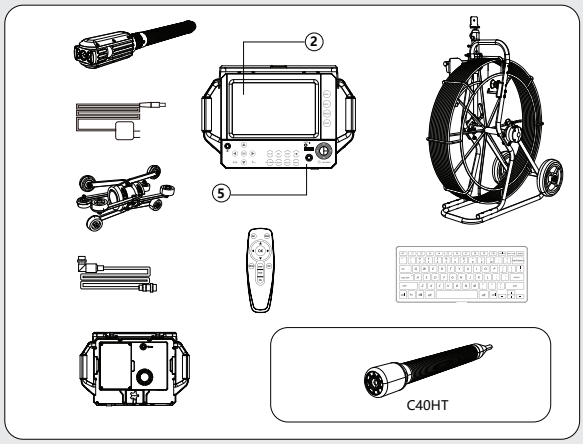
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Product Structure Diagram And Parts List



(1) Camera: C360D
(2) 8-inch Highlight Display Screen
(3) Cable Reel: 9mm 60~120m
(4) Power Adapter
(5) Controller
(6) Camera Skid
(7) 10-core High-definition Video Cable
(8) Remote Control
(9) Keyboard
(10) Optional: Video transmission WIFI module (installed in the controller)
(11) Camera: Camera: Compatible with C40HT

Specifications

Item	Descriptive
Adapter	AC: 110V~240V DC: 12.9 V 3A
Lithium Battery	12V 8000MA/H
Cable Length Of Cable Rack	60M~120M
Camera Light Source	4pcs Highlight White LEDS
Camera Angle Of View	360°
Angle Of Lens	Horizontal Angle 360°,Vertical Angle 180°
Lens Focus	10CM
Lens Thread	M12*P0.5
Lens Operating Temperature	-30°C ~ +70°C
Camera Resolution	Color,2 Million Pixels
Monitor size	8 " TFT/LCD Color LCD Screen
LCD Screen Clarity	1280*800 pixel
LCD Screen Operating Voltage	DC 5V
Storage Device	USB drive or TF card (supports up to 512GB) USB exFAT format
DVR Encoding Format	H.264
System Operating Temperature	-20°C~+55°C

Application Area

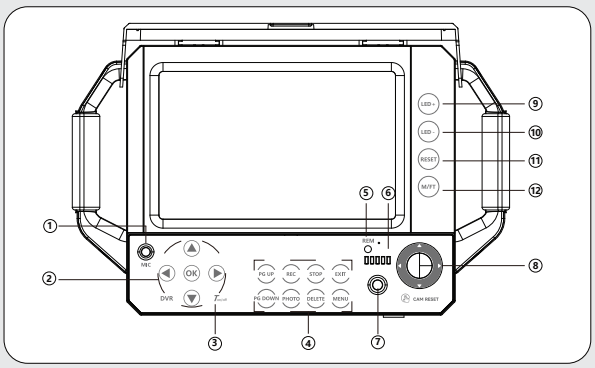
1. WATER SUPPLY
2. WASTE WATER
3. ELECTRICAL AIR CONDITIONER
4. CABLE DUCTING
5. DUCTED VACCUM SYSTEMS
6. PLUMBING
7. BUILDINGS

WARNING:

NEVER USE THIS DEVICE IN AN ENVIRONMENT WITH EXPLOSIVE MATERIALS SUCH AS GAS, OIL, ETC

Understanding The Device

Keyboard And Function Keys



① MIC On/Off: Microphone (voice) button. When recording a voice during a video,press the button to start recording.
② DVR/CRAWLER Control Buttons
◄: Left ►: : Right
▲: UP ▼: Down OK: Confirm
(In real-time screen,
◄: Zoom Out Screen ►: Enlarge the screen)
③ T On/Off: Display and hide the text on the display screen.
④ DVR Control Buttons
PG UP: Last page PG DOWN: Next page.

(The PG UP and PG DOWN are only used as page flipping functions when using keyboard text input)
REC: Record video button
PHOTO: Quick Screenshot
STOP: Stop Video Playback
DELETE: Delete video or photo file
EXIT: Exit video playback or return to the previous menu
MENU: Function Menu Keys

⑤ REM: Remote control receiving window

⑥ Battery: Battery indicator
Discharge command status: When the battery is continuously discharging, the green indicator lights will turn off one by one. When the green light turns into a flashing red light, it means that the battery is low in power. Please charge the battery.
Charging indicator status: As the amount of battery charge increases, the green lights will be turned on one by one until the battery is fully charged.

⑦ Control Box Power Button

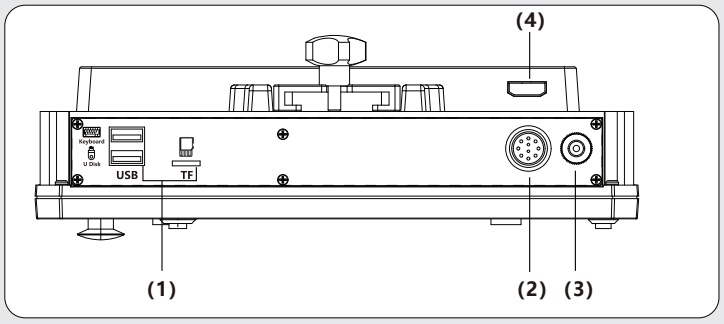
⑧ 360° Rotating Camera Control Button
Left Dial: Rotate the camera to the left
Right Dial: Rotate the camera to the right
Up Dial: Look up
Down Dial: Look down
Button: Reset the camera
(The above functions are only used by 360° rotating cameras)

⑨ LED+: Brighten the camera lights

⑩ LED-: Dim the camera lights

⑪ RESET: Reset cable count length to 0

⑫ M/FT: Count unit (meters/feet) conversion button



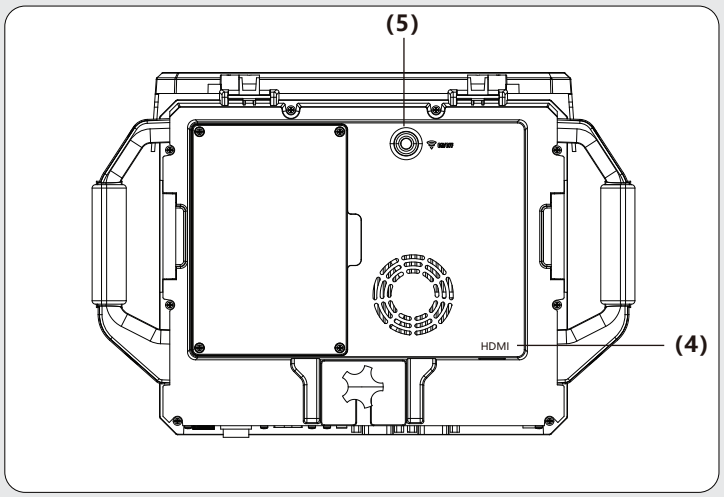
(1) USB and TF Port: When using USB flash drives and TF cards as storage devices, insert them into correct ports. U disk format to exFAT format, otherwise affect storage.

(2) Video Cable Port

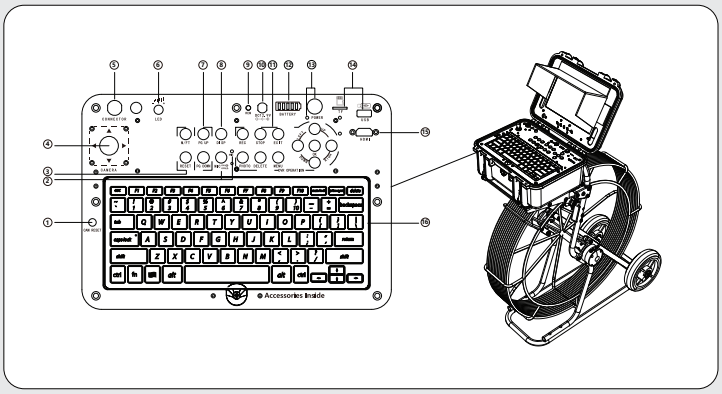
(3) Power Port: DC 12.9V 3A (Do not mix battery charging cables and power cables, otherwise the battery will be damaged or the system will not work properly.)

(4) HDMI: High Definition Multimedia Interface.

(5) WIFI Module: Controller WIFI switch. Turn on the WiFi switch to connect the controller to WiFi, and the mobile phone can connect to the controller to view the content captured by the camera.If the mobile phone viewing function is not used, the WiFi function can be turned off to save electricity.



Keyboard And Function Keys（Optional）



① CAM RESET：After resetting the camera and rotating it, press the switch to restore the camera to its original position.

② MIC ON/OFF: Microphone (voice) switch. When inputting voice during the video process.Press the switch and the indicator light will be on.

③ M/FT: Counting unit (meter/foot) toggle button.
RESET:Reset cable count length to 0.

④ Pan & Tilt camera control button
Left : Rotate Left Dial
Right : Rotate Right Dial
Up : Look up
Down: Look down
Button: Return to Home Position.
(The above functions are only used by 360 degree rotating cameras)

⑤ CONNECTOR: Video cable connector

⑥ LED INDICATOR：
Turning clockwise increases the brightness of the camera, while turning counterclockwise decreases the brightness of the camera.

⑦ PG UP：last page
PG DOWN：Next page
(When using keyboard text input)

⑧ DISP：Outgoing Speed And Distance Display

⑨ REM：Remote Control Receiving Window

⑩ Power Button

⑪ DVR Control buttons
REC：Start Recording
PHOTO：Take a picture button
STOP：Stop Video Playing
DELETE：Delete
EXIT：Exit video playing or return to the previous menu.
MENU：Function Menu Keys
◄ ：Left ►：Right ▲：UP
▼：Down OK：Confirm

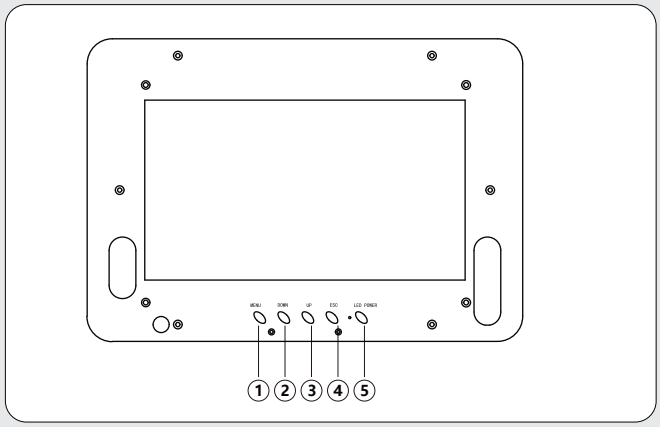
⑫ Battery: battery indicator
Discharge command status: When the battery is continuously discharging, the green indicator lights will turn off one by one. When the green light turns into a flashing red light, it means that the battery is low in power. Please charge the battery.
Charging indicator status: As the amount of battery charge increases, the green lights will be turned on one by one until the battery is fully charged.

⑬ POWER: Controller Power Switch

⑭ USB and TF connectors: When using a USB disk and TF card as storage devices, please insert the correct ports. (Format USB disk as ExFAT format, otherwise it will affect storage.)

⑮ HDMI: High Definition Multimedia Interface.

⑯ Keyboard input: Use the keyboard to input text (English letters, numbers, and symbols). This is a new device that can overlay text on videos.



Display Buttons

① MENU：Function Menu Keys

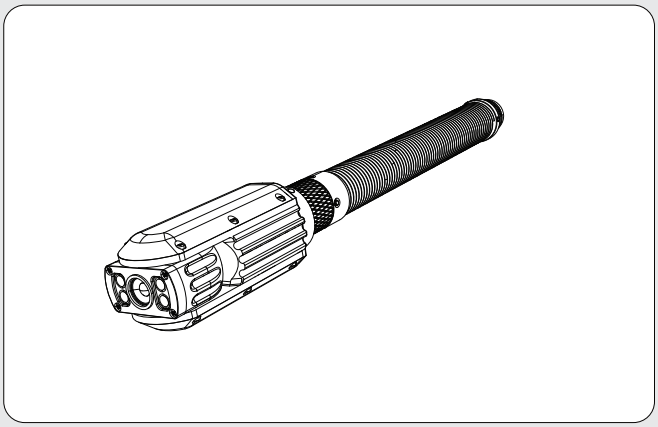
② DOWN：When the MENU is not entered, its function is to switch the image up and down mirror image with the button; Enter the MENU and press the value decrease function button.

③ UP：When the MENU is not entered, its function is to switch the left and right mirror images of the image with the button; Enter the MENU and add the value function button.

④ ESC：Escape/Back

⑤ LED POWER：Display Power Switch

PAN&TILT HD CAMERA MODEL NO. C360D



Working environment:

1. Temperature：-30℃～+70℃
2. Humidity：90%RH (non-condensation)

Technical specifications:

(1) Power input: DC 9~13V，13W（max）

(2) Camera module:

1) Image sensor：1/3 inch CMOS
2) Effective pixel array：1920(H)x1080(V)
3) White Balance: Automatic
4) Gain Control: Automatic
5) Signal-to-noise ratio：>52dB(AGC OFF)
6) Video output：1.0Vp-p/75R
7) Input voltage：DC3.3-5V
8) Current consumption: 110mA
9) Video format: NTSC/PAL
10) Frame rate：30FPS/25FPS

(3) Dynamic Balance：

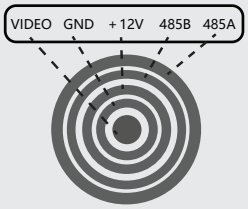
1) Electronic dynamic balance

(4) Light Source:
1) LED quantity: 4PCS
2) Luminous flux: 200LM
3) LED current: 0~300mA
4) Lamp cup angle: 120°
(5) Rotary Motor:
1) Camera swing angle: 180
(6) Rotary Motor:
1) Camera rotation angle: 360
(7) Camera tilt detection:
1) Measuring range: -90°~+90°
2) Pixe: 1°
(8) 485 Communication:
1) Baud rate: 9600 Bit/S, 8 data bits, 1 stop bit, no parity
2) Isolation voltage: 560V
3) ESD protection: ±15KV
4) Transient simulation capability: 25KV/us
5) Improved protection: Fault (open Circuit, Short Circuit) Protection, Thermal Shutdown Protection

(9) Emitter: Positioning of the camera (with built-in transmitter) (optional). If the camera modelis set to T, it indicates that the camera has a built-in transmitter. The positioning range is about 4 meters deep in non-metallic pipe or 3 meters deep in cast iron pipe. All cameras can be equipped with emitter according to your needs.

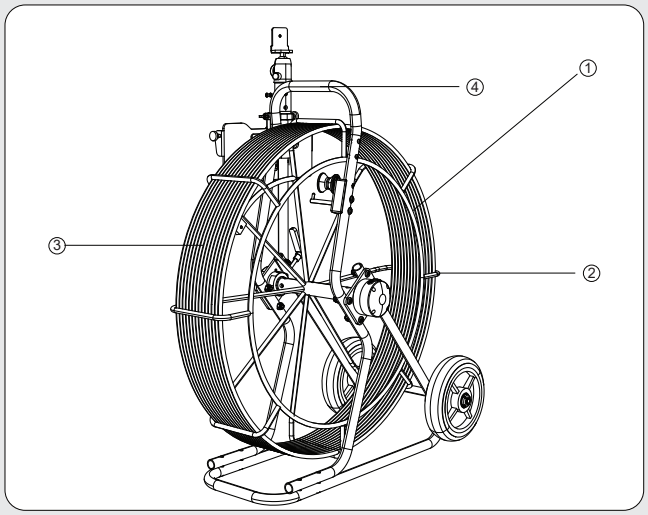
External Interface

External Interface CAM: Pins 1 to 5 are connected from inside to outside, respectively received VIDEO, GND, +12V, 485B, 485A



CABLE

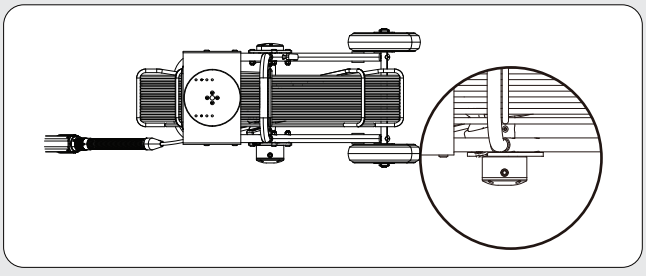
1. Counter
2. Video Cable Port
3. Cable (Diameter: 9MM)
4. Handle



Multi Core Camera Switching

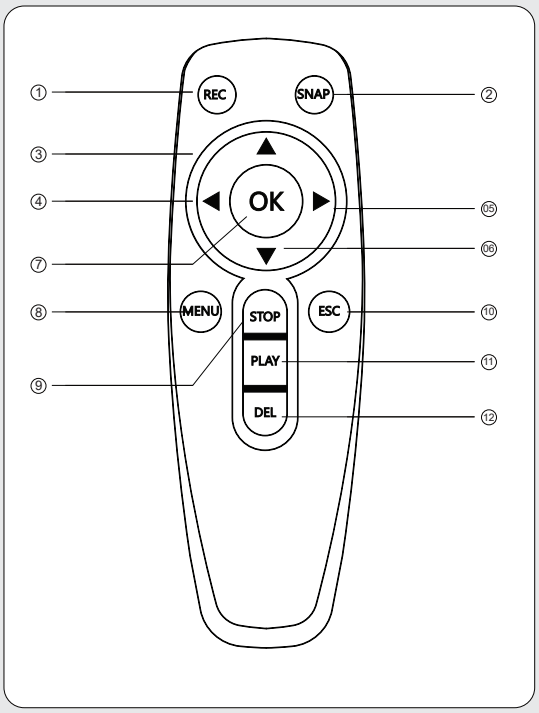
Switch button for C40mm series camera and pan tilt camera

A. Use a pan tilt camera when in a raised state.
B. When in a concave state, use a 40mm series camera.
C. After switching, it is necessary to restart the control box to identify and use it again.



Remote Control

1. REC: Record button
2. SNAP: Take a picture button
3. ▲: Up button
(record key in real-time state)
4. ▼Down button
(camera key in real-time state)
5. ◀Left button (when playing back video)
6. ▶Right button
(under playback video status)
7. OK: Confirm button
8. MENU: Menu button (enter menu setting)
9. STOP: Stop button
10. ESC: Return key
11. PLAY: Play button
12. DEL: Delete key



Equipment Connection And Installation

1. Important Note:cting the camera to the monitor you must firstly turn off thX: 1.23 in he device being damaged

2. Equipment Inst: Y: 1.01 in eps:

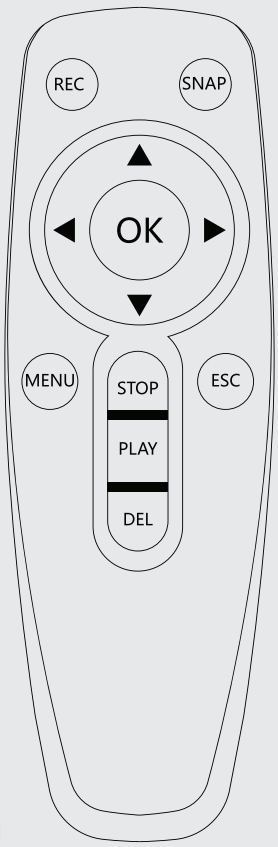
1) Tighten the camera to the corresponding connector on the cable reel.
2) Connect the video cable on the cable reel to the video interface of the controller.
3) Press the power button to start the controller
4) Put the camera connected to the cable into the pipeline to be tested, and release the cable until the camera reaches the location to be tested.
5) Detection (the brightness can be adjusted by the "LED+" and "LED-" buttons on the controller).
6) Video recording (please refer to video recording operation).
7) After completing the inspection, retract the camera and wipe it clean, then place it back in its original position.

System Menu Settings

Video Playback: Play previously recorded video	
Photo Playback: Show previously taken photos	
System Settings	
Language Settings	English, Chinese, French, Spanish, German Polish, Korean, Italian, Turkish, Russian
OSD Settings	Upper left center text, lower left center text
Save Setting	Disk status, remaining capacity, total capacity DISK1 and 2. Format Disk
Restore Factory Settings	Press the "Yes" button again to achieve a master reset(Restore factory settings)
About	Solid Compilation Date, Solid Version
Time Setting	24-hour system, date format, month, day, hour, minute, second
Image Settings: CVBS, HDMI resolution, brightness, chroma, contrast, noise reduction	
Video Settings: Video packaging duration, video frame rate, video image quality, video compression method Photographic quality, video mode, video coverage	

Video Recording Operation

1. Install No. 7 battery on the remote control.
2. Insert the USB disk/removable hard drive into the USB port, or insert the TF card into the corresponding slot. If the connection is successful, you can see a capacity prompt for the USB disk/TF card in the lower right corner of the screen.



4. Press the REC button on the remote control to enter the recording system; At this point, you can see a new file naming prompt on the screen.
5. If you need to record, you can press the MIC button on the controller to start recording.
6. If you need to take a photo, please press the SNAP button on the remote control, then edit the file name, select "Confirm", and the photo will be successfully taken.
7. Press the PLAY button on the remote control to quickly enter the file management interface, select the file to play, or delete the file.
8. If you need to manage your video content, you can press the MENU button on the remote control, go back to the menu page, and select the playback section to edit and manage the video content.

Attention:

1. If you have already inserted a USB disk/TF card before starting the device, the device may not recognize the USB disk/TF card. In this case,please unplug and reinsert.
2. The system needs to wait for 10-20 seconds each time it starts up.
3. Supports a maximum memory of 512GB for USB disk and TF cards.
4. The recorded video files will be found in the USB disk or TF card directory. You can use the display menu, press the REC button to start recording, and press the STOP button to stop recording. During the recording process, the screen will display the recording time and time limit.

Recording Time Limit

Sometimes you may forget to press the stop button after turning on the recording. This module will set a time limit of 30 minutes. If the recording time exceeds 30 minutes, the system will continue recording with a new file name. This section is available in 1/5/10/15/30/60 minutes and can be selected for debugging in the settings.

USB Disk Or TF Card Recording

The device can record through USB disk or TF card, and the recorded video is stored in USB disk or TF card, and can be played on the screen. USB disk and TF card format exFAT.

Video Recording Format

The default video recording resolution is 1920*1080. A 30-minute recording will take up storage of 800MB. The video recorded by the device is MP4 format.

Note: The video player of the device may not support some downloaded videos.

Sound Recording

Press the MIC button on the panel to record voice while recording; Press again to turn off sound recording.

Video Playing

You can press the MENU button on the screen to enter the Video mode. The module can display recorded videos or other compatible videos stored into a USB disk or TF card. Incompatible video's types cannot be displayed.

Select Video File

Enter "VIDEO" mode, the set will display all of the available video files on the screen. You can use the or button to select desired video and press OK button to play. Use OK/STOP button to start or pause the playing. Use ESC/STOP button to stop or go back to previovs menu.

Fast Forwarding And Rewinding

You can use or button on the remote control to fast forwarding or rewinding (1X, 2X,4X or 8X). Press the Ok button to pause the video playing, and press the OK button again to return to normal speed.

How To Use The Keyboard (Optional)

1. Keyboard Functions

1) The keyboard has a 0-9 numeric input.
2) Use the Caps key to switch between uppercase and lower case English.
3) Moving the cursor is controlled by the four arrow keys on the keyboard.



2. How to operate

1) After the device starts up normally, plug the receiver into the USB port of the controller.
2) Long press fn+RF for three seconds, and if you see three flashing lights, the connection is successful.
3) At this point, you can pre edit the text information and then record a video; Text information can also be edited during the video recording process.
4) The flashing cursor *_* is usually located in the upper left corner of the screen.

Appendix 1: Punctuation Symbols

'	°	(	)	?
:	;	*	/	@
-	<	>		

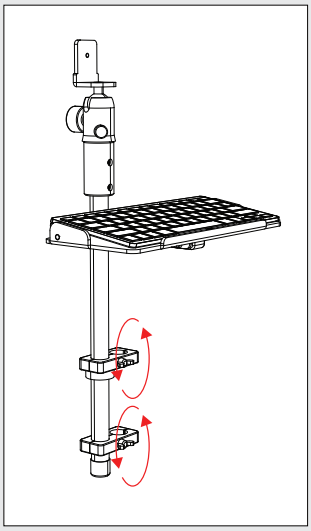
Appendix 2: Function Keys

Caps lock	English Case Toggle Key
Four arrow keys	Up, Down, Left, And Right
Backspace. Delete	Delete
Enter	Carriage Return
Space Key	Spacebar

The use of keyboard stand

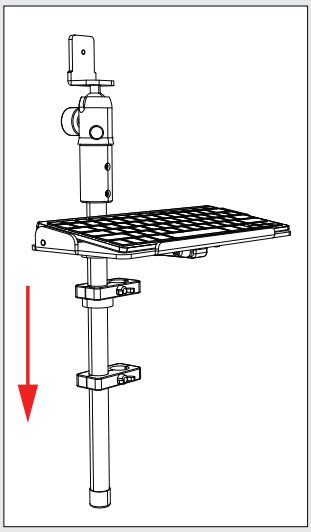
Step:01

As shown in the figure, turn the elastic screw counterclockwise to loosen the buckle.



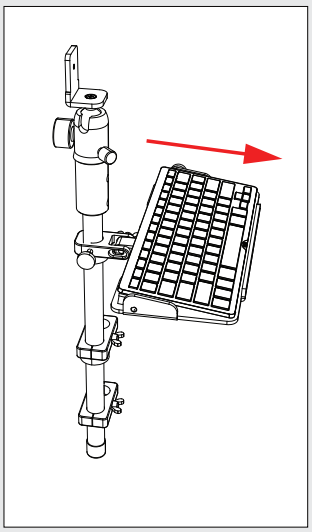
Step:02

The buckle is released, and the height can be adjusted up and down freely.



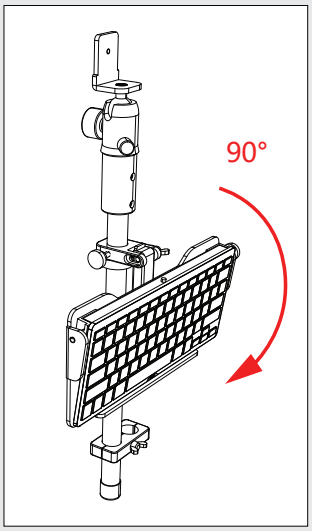
Step:03

Pull the keyboard outward to unlock it.



Step:04

The keyboard can be flipped down and folded.



Mobile Phone Viewing App Function (Optional)

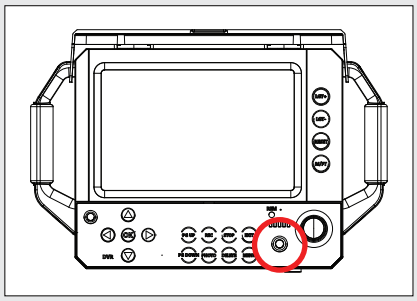
Android/Apple iOS operating process:

1. Connect the power supply to the control box, press the "POWER" button, and start the display screen of the control box.
2. Open the WIFI switch button on the back shell of the control box.
3. Open the app store, search for the "ulinkCamera" app, and click to download and install it.

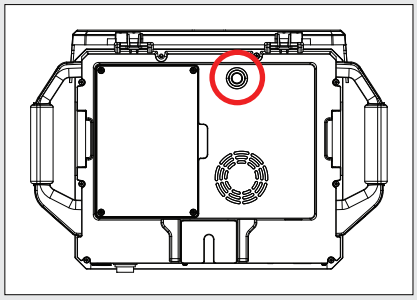
4. Open your phone, enter the "Settings" interface, select "WLAN", find the WiFi "WiFi _XXXXXX" corresponding to the device, and enter the WiFi password "12345678" .
5. Open the app and click "Enter Now" to view the real-time screen.

Note: Please refer to Attachment 1 for specific operations.

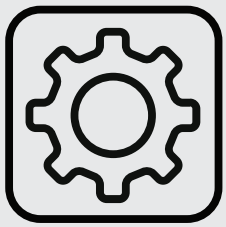
① Turn on the power



② Turn on the WIFI switch



③ Click on Settings to enter WIFI connection settings, select the device, enter the password to connect successfully.





Battery Precautions

1. Machine Charging Precautions:

1) Charge in flammable and explosive environments is strictly prohibited.
2) Avoid charging in extremely cold, hot, or humid environments.
3) Please use a dedicated charger, 12.9V 3A adapter. Do not mix battery charging cables and power cables, otherwise the battery will be damaged or the system will not work properly.
4) When fully charged, cut off the power supply. Do not overcharge to avoid damage to the controller and battery.
5) The controller allows to be used while charging under normal operating voltage.
6) The controller battery takes 8 hours to be fully charged, and can work for 5-6 hours on a full charge.

Simple Troubleshooting

Trouble	Reason / Solution
No Signal	1. Read this product manual again and connect again according to the instructions
	2. Recheck whether the camera is tightened
	3. Check whether there is any debris inside the copper thimble on the camera or the camera female connector on the wire rack, If yes, please clean it up.
	4. Check whether each connector is intact.
The camera light is dim or no light	Click the LED+/LED - button on the right side of the control box to increase the brightness of LED+and decrease the brightness of LED -
Unable To Record	1. Check if the USB disk format is in exFAT format on the computer. No, please format it in exFAT format
	2. Try replacing a USB disk or TF card of another brand and recording again.
	3. After closing the recording in sequence, follow the correct operating steps to restart.
Recording Abnormality	After closing the recording in sequence, follow the correct operating steps to restart
Image Flicker	The battery is too low, please charge it in a timely manner
Battery cannot be charged	Please check carefully against the instructions and contact after -sales customer service if unable to resolve the issue
The right side of the HDMI video output image is not full screen	The issue is that the refresh rate is incorrect, and the control box needs to match the refresh rate of the camera. When turned on, the control box will display the transmission frame rate of the camera. Based on this display, set the corresponding refresh rate in the MENU/IMAGE control box. This way, HDMI will be displayed in full screen.
Keyboard crashes and does not work	When inserting USB disk, TF cards, and Bluetooth keyboards, it is necessary to strictly follow the interface identification instructions.
Counter count invalid	There are restrictions on the use of the device. Observe whether the device is in a high-intensity magnetic field environment. For example, the magnetic field generated by the operation of an electric screwdriver can significantly affect the accuracy of the meter. Please keep the device away from the high-intensity magnetic field environment in a timely manner.
Unable to charge, short usage time after charging	Choose a suitable charger. The 12.9V charging port should use a 12.9V charger and cannot be used with a 13.5V charger, and vice versa. Different chargers have different voltages and currents. Please choose the standard adapter.
Controller panel operation button failure	The failure of control panel operation buttons has randomness, and the probability of failure varies from person to person. If the button fails, multiple attempts can be made.
When connecting to a phone via WiFi, the real-time image is not clear	After logging into the APP, in the real-time operation interface, the APP will default to standard definition mode, and parameter settings need to be manually adjusted to adaptive high-definition or high-definition mode.

Attachment 1
WIFI System Operation Guide
Quick Start of WiFi System



① Camera operation interface: Up, Down, Left, Right, Rst(Reset).

② Brightness adjustment of LED lights: increase (slide right), decrease (slide left).

③ The camera pull distance value is displayed. Display overlay in the video.

④ Horizontal/vertical screen switching. (Not supported on iOS system)

⑤ Switch between metric and imperial systems.

⑥ Reset the meter count to zero.

⑦ You can choose to eliminate text and graffiti.

⑧ You can do graffiti freely.

⑨ Text overlay editing. Display overlay in the video.

⑩ Display the date and time recorded in the video.

⑪ Power level display.

⑫ Video recording function. After clicking on it, there are recording pause and recording end functions.

⑬ Take screenshots of the video.

⑭ MIC icon. Click on it to turn the microphone on or off

⑮ File management: After opening, you can replay recorded videos and view saved images after taking photos and screenshots. Click 'Manage' to choose to delete or share the corresponding files.

⑯ Settings: Click to adjust the graffiti line width and color, as well as the text size and color. You can choose to show or hide the camera's operation interface.

⑰ Return button to exit the page.

Android

iOS