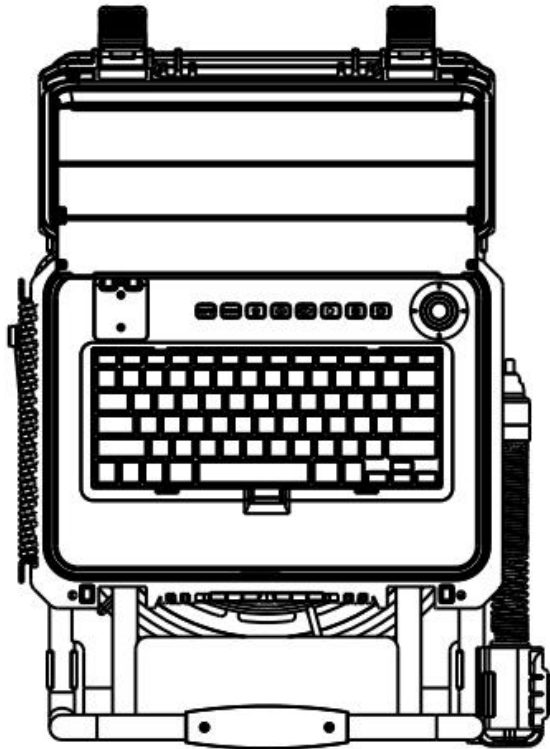


Pipe Inspection Camera system

Operation Manual



Read this Operation Manual carefully before using this tool

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INTRODUCTION

The pipe inspection system is a powerful set of tools that helps you locate and diagnose problems in a pipeline system.

The system is widely used in inspections of sewer, central air conditioning, chimney, plumbing, building, cable pipe and pipe ventilation systems and other places.

GENERAL SAFETY RULES

Precautions

Read all safety warnings and instructions. Failure to follow warnings and instructions may result in electric shock, fire and/or serious injury.

1. Save this operation manual for future reference.
2. Do not operate this device in explosive atmospheres, such as in the presence of flammable liquids, gases, hazardous chemicals, superheated liquid or heavy dust. It may create sparks which may ignite the dust or fumes.
3. The camera head ,the push cable and toolbox are waterproof (when camera installed on rod cable). Do not expose them to water or rain when all connectors are exposed without waterproof slot. This will increase the risk of electrical shock.
4. Avoid using the device in environments of extreme cold, heat or humidity as it may damage the device.
5. Do not drop or press hard on the device.
6. This device supports video recording via U-disk or video storage on a SD card. Always backup your data before inserting your SD memory card to this system. The manufacturer is not responsible for any data loss or damage on your SD memory card for any reason.
7. Do not disconnect the unit while recording or playing back. It may damage the unit and/ or the SD memory card.
8. Service or maintenance performed by unqualified person could result in injury.
9. Do not use this device in places where there is high voltage equipment. It doesn't contain high voltage protection and isolation.

Application

Ability to go through 90° bends in pipe DN45mm (for 23mm camera with 7.0mm rod) and in pipe DN52mm-200mm(for 23mm camera with 7.5mm rod) ;and in pipe DN32mm(for 14mm camera with 4.8mm rod).

PRODUCT OVERVIEW

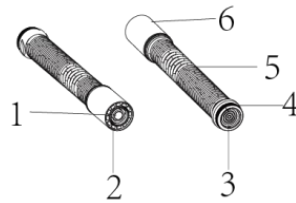
The pipe inspection system includes the following three main parts: Camera Head, Cable Wheel with Reel, Toolbox Unit (including all-in-one DVR monitor, keyboard).

The camera head is equipped with built-in high-brightness LED lights, a scratch-resistant sapphire lens cover. 316L stainless steel housing allow the camera to withstand repeated hits in various pipes. The HDR image sensor expands the camera's dynamic range, allowing to view more clear when in dark or bright pipes, e.g. stainless steel pipes.

Flexible stainless steel spring and associated components make the camera head possible to go through bend pipes. 13.3inch touch screen monitor can record video, take photos ,flip and zoom, wireless transmit via APP. The rain-proof structure is easier to clean.

Camera Head

1. Sapphire Lens
2. LED
3. Gold Connector/New half-moon Connector
4. Camera O-ring
5. Stainless Steel Spring
6. 316L Stainless Steel Case

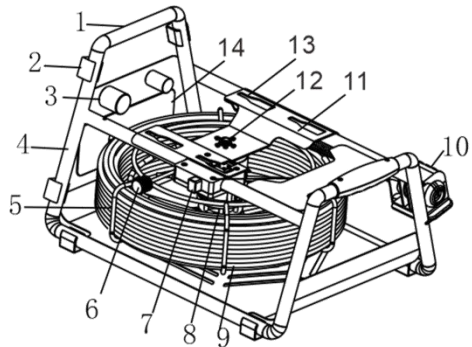


New half-moon connector :



Cable & Reel

1. Soft Handle
2. Foot Pad
3. Camera Skid Holder
4. Cable Frame
5. Coil Reel
6. Cable Brake
7. Release Tool box button
8. Meter Counter
9. Push-rod Cable
10. Camera Holder
11. Toolbox Fixed Seat
12. Cable Connector to Camera
13. Cable Guide
14. Label



Toolbox Unit

- 1. Toolbox lock
- 2. Sunshade
- 3. 13.3inch Touch Screen Display
- 4. Data Cable
- 5. Cable Clip
- 6. Aviation Connector
- 7. DC Input
- 8. Keyboard Buckle
- 9. Handle
- 10. Keyboard
- 11. Joystick
- 12. Function Buttons
- 13. DC 5V Type-C
- 14. Micro SD card
- 15. HDMI Video out
- 16. USB Disk

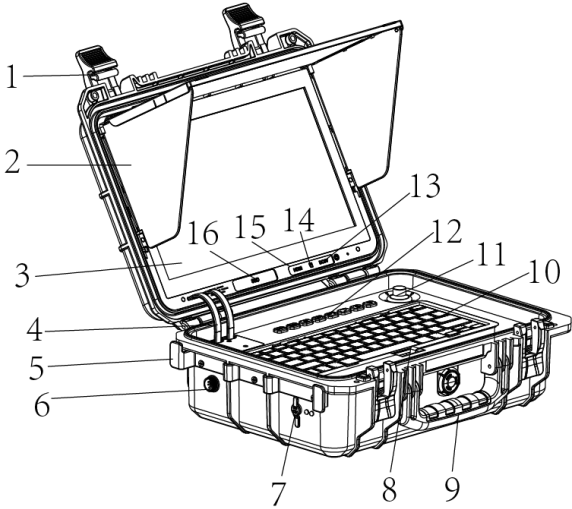
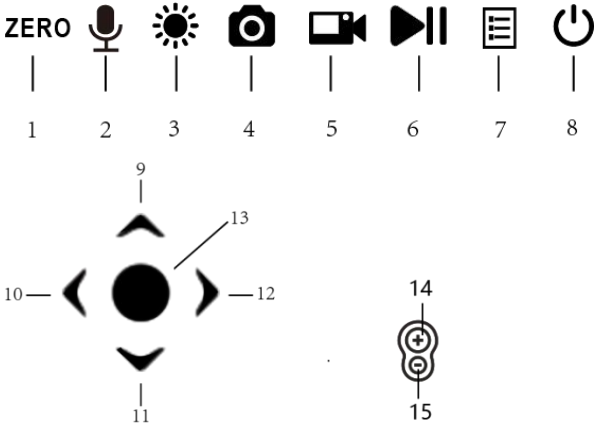


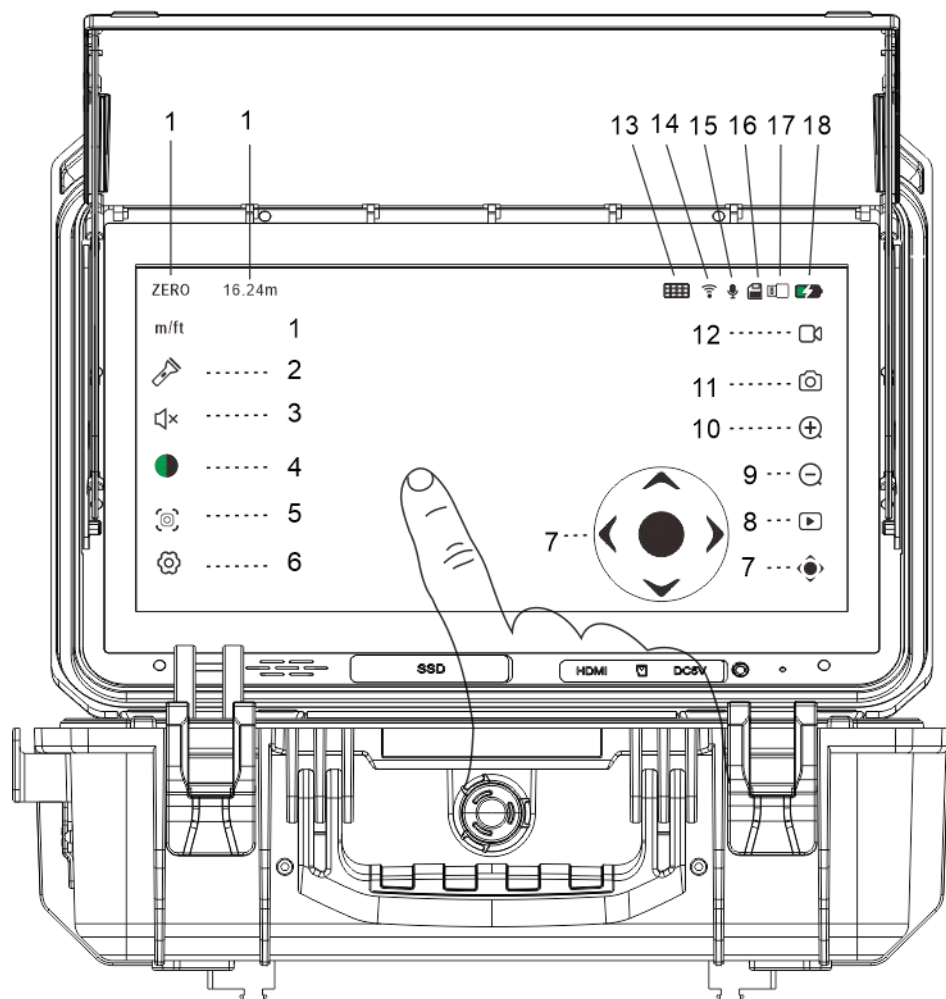
Figure 3.
Toolbox Unit

Function Buttons & Joystick

- 1. Meter Counter Zero-set
- 2. Microphone On/Off
- 3. LED Brightness
- 4. Photo Shoot
- 5. Start/End Video
- 6. Playback/Pause Video
- 7. Main Menu/Return
- 8. ON/OFF
- 9. Upward(Near focus+)
- 10. Left
- 11. Downward (Far focus -)
- 12.Right
- 13.Confirm /Enter focus adjust mode
- 14. Near focus/15. Far focus



Main Button operation



Main Button operation

1. **ZERO**: Clear the current distance and recalculate it.

m/ft: Switch between meter/feet.

2. **LED Brightness Control** : Move the slider to control cam's LED brightness.

3. **Speaker Volume Control** : Move the slider to control the speaker volume.

4. **Display Parameter Adjustment** : Move the sliding block to adjust the parameter.

: Brightness : Contrast : Colourity : Saturation

5. **Joystick manual focus adjustment** 

Touch this to enter into focus  adjustment.

6. **System Setup** : Touch this to enter into system setup.

7. **Pan Tilt Control** : Enter and exit gimbal control. This is only for PTZ camera.

Click , pop up the pan tilt control interface , touch the up, down, left, and right icons to control it.

8. **Playback/Return** : Press it to enter review photos and videos. Press Up-Down-Left-Right to select.

9. **Zoom out** : Touch this to zoom out the screen.

10. **Zoom in** : Touch this to zoom in the screen.

11. **Photo** : Press briefly, flashes once and get a photo.

12. **Record** : Press to record, and the icon turns blue. The video timer can time. Press again to end.

13. **Keyboard for Text** : Click it, the keyboard pup up.

14. **WiFi** : WiFi is on; if crossed, WiFi is off.

15. **Microphone** : Microphone is on. If crossed, Microphone is off.

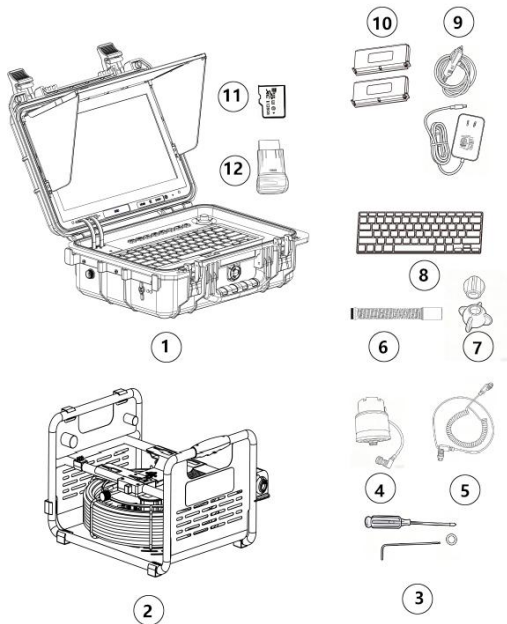
16. **Micro SD card** : Card is Okay. If crossed, abnormal or no card.

17. **U-disk** : U-disk is okay. if crossed, abnormal or no U-disk.

18. **Battery power** : Display battery power, the lighting shows it's charging.

Package Contents

- 1.Toolbox with DVR
- 2. Frame Cable Reel with Cable
- 3.Spanner/Screw +O- ring
- 4. Meter Counter
- 5. Connects Cables
- 6. 23mm Camera
- 7. 1x43mm Skid,1*80mm Skid
- 8 Keyboard
- 9. Adapter/Car Charger
- 10. B attery Pack*2
- 11. Micro SD Card
- 12. U-disk



2592 x 1944

SPECIFICATIONS

Type	Item	3 in 1 Connetor Cameras Parameter		
Camera	Diameter of camera	Φ35mmPT camera	Φ23mm camera	Φ32mm camera
	Resolution	AHD 2592*1944	AHD 2560*1920	AHD 2560*1920
	View Angle	120°(diagonal)	120°(diagonal)	120°(diagonal)
	Depth Of Field	5-100cm(adjust)	3-12cm(approx)	8-30cm(approx)
	Camera Size	Φ35mm×82.5mm (Main body)	Φ23mm×42mm (Main body)	Φ32mm×51mm (Main body)
	Camera Length	216 mm	177mm	184mm
	Front Lens/ Shell material	Sapphire 304#Stainless Steel	Sapphire 316#Stainless Steel	Sapphire 316#Stainless Steel
	Lighting	Built-in 6×White LED	Built-in 12×White LED	Built-in 6× White LED
	Sonde Frequencies	512hz	512Hz	512Hz
	Auto Upright	/	self - leveling design	self - leveling design
	Water -Proof	30m water (Camera fix on Cable)	30m water (Camera fix on Cable)	30m water (Camera fix on Cable)
DVR	Screen Resolution	1920*1080 LCD (13.3")		
	Image	Support Image Flip		
	Video Resolution	AHD 4K/2K/1080P / 720P		
	Video Encoding	High Compression / H.264		
	Photograph Resolution	32MP, 16MP, 8MP,4MP, 2MP		
	Audio Recording	Support Local Sound		
	External Memory	Micro SD Memory Card/USB Disk up to 1TB,default 128GB or USB-disk with 128GB		
	LED Driver	Built-in Dimmer		
	Main Function	Focus Adjustment/Video/Photo/Playback/10*zoom /flip/ WiFi		
	Language	Simplified Chinese, English, Traditional Chinese, Korean, Russian, German, French, Ukrainian etc.		
	Audio input/output	1.0Vp-p (20Hz-20KHz)		
	WiFi Transmission	WiFi Protocol 802.11 a/b,WiFi Channel 5.0Ghz, WiFi power <16dBm		

	APP	Inspection SYS App for monitoring, photo/recording, zoom,sharing;	
	Video Output	HDMI 1080P	
	Power Supply&Currency	DC 12V 5A	
	Battery Capacity	6500mAh Li-on Battery*2	
	A Single Charge Work Time	10 hours	
	Charge Time	About 5-6 hours	
Keyboard	Typing Language	English	
	page	1 Page	
	Characters per page	500	
	Hide Characters	Quick One Key hiding	
	Keyboard Compatibility	Specific PC keyboard	
Cable Reel	Meter counter	Removable and waterproof	
	Cable coil	Easy to removable and exchange	
	Precision of Meter	$\pm(10\text{cm} + 0.5\%) \text{ max}$	
	Cable Diameter	$\Phi 5.0\text{mm}$	$\Phi 7.0\text{mm}/\Phi 7.5\text{mm}$
	Cable Length(m/ft)	20/ 30/ 40 meter (Optional)66/99/132ft	20/ 30/ 40 meter (Optional)66/99/132ft
Tool Box	Waterproof rate	IP68	
	Size	380×260×150mm(L×W×H)	
	Box color	Black	
General	Storage/Operation Temperature	-20~60°C/+4~+140°F	
	MEAS.	53×50×40cm (LxW xH)	
	Weight	21 Kg(Approx)	

INSTALLATION

To reduce the risk of serious injury during use, follow these procedures for proper assembly.

- ① Put the meter counter into the coil reel with three screws.
- ② Connect the connector on the coil reel.
- ③ Insert the cable reel from the brake side (brake must be released) into the frame.
- ④ Pull out some wire through the guide hole and mount the camera onto its holder.
- ⑤ Push upward to align the cable reel with the four screw holes around the frame's connector, then tighten the screws.
- ⑥ Connect the spring wire female connector on the frame.
- ⑦ Secure the connection wire into the connection wire slot.
- ⑧ Push the toolbox into its fixed seat on the frame until it locks automatically. Take off the toolbox just need to press the release button.
- ⑨ Connect the spring wire male connector on the toolbox. The adjust the length and fixed it on the wire clip.

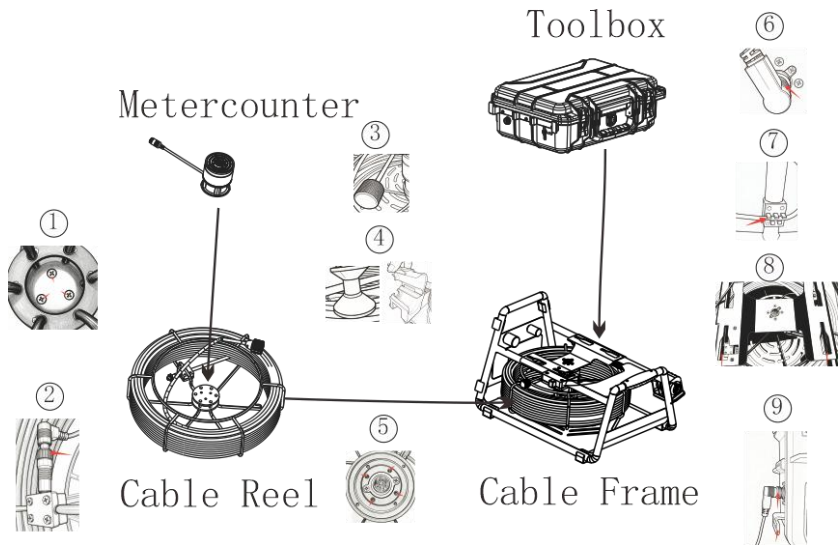


Figure 5.
Installation of the cable reel and toolbox

3. Install Camera Head

Hold the cable connector in one hand, then screw the camera and fix it on the cable tightly.

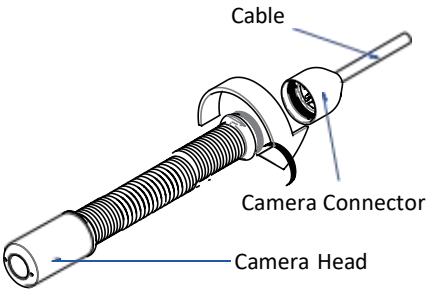
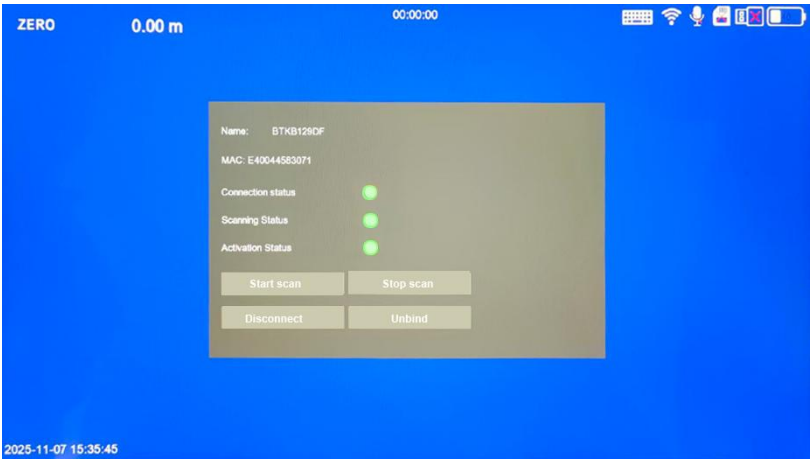


Figure 6. Install Camera Head

4. Keyboard Scanning

Turn on ON/OFF switch on the back of the keyboard.
Click the icon of keyboard on the screen. Then click the Start scan to match the KB.
Then press the Fn+1 key 3 seconds to enter below interface.
Make sure the Connection status is green.
The name of the KB will show on the right top.
Click the name of the KB, you will get the Name and MAC.
If change KB, you have to Unbind the KB first and Disconnect it.
(Note: the KB requires 2 pcs 7# AAA batteries.)



TEXT WRITER OPERATION

The keyboard text writer is used to type characters with the keyboard and display on screen. The characters can be displayed in recorded video or captured photo.

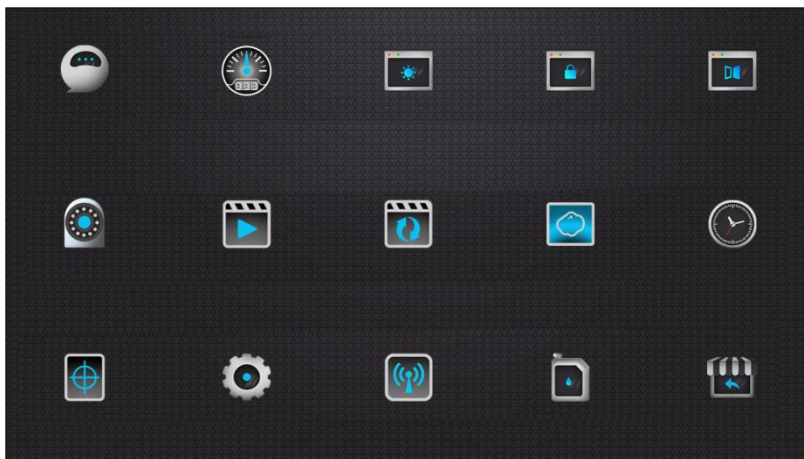
Text Input

1. Click the Esc to start/Hide text input.
2. Typing characters with keyboard. Backspace key to delete, and Enter key to change a new line. Click photo/video icon to save present page to DVR memory.
3. Ctrl+Del key to delete all characters in present page.

You can type and edit characters while recording, the typing and editing will be recorded in the video files.



FUNCTION GUIDE AND OPERATING INSTRUCTIONS



Touch Screen Icon Introduction:

Language  :Show the available languages: English, Chinese, Traditional Chinese, Japanese, Korean,German,Russian,Dutch,French

Meter Counter  : show push rod cable distance

Brightness  :Touch to set the screen brightness.

Screensaver  :Touch to set the time of screen Saver

Mirror  :Touch to set: normal display; flip horizontal; flip vertical; flip horizontal &vertical.

Camera  : Touch to set camera input resolution. According to the resolution & frame rate of the known AHD camera, you can choose: 2K, 1080P, 720P, CVBS. Monitor will reset after switching the resolution.

Record  :Touch to set resolution of recording.

Loop Time  : Touch to set the time of recycle recording: 1s, 5s, 10s, 20s, 30s.

Photo  : Touch to set the size of photo: 32 mega pixels, 16 mega pixels,8 mega pixels, 4 mega pixels,2 mega pixels.

Clock  :Touch to set the system date & time.

Reticle  :Touch to set the types of baseline: off; cross; ruler; roundel.

Device Info  :Touch to enter “Unit” and “Reset”. Touch “ Unit” to show device information: WiFi name and password, memory size & remain storage of micro SD card, firmware version. Touch “Reset” to delete all the settings in the current tablet monitor, and it will be restored to its original factory state and restarted.

WiFi Switch  : Touch to switch WiFi on or off.

Format  :Touch and check format micro SD card. Format will delete all the data in micro SD card. Be sure to do a good job of data backup.

Return  : Touch it to return and exit system setting.

DVR Operation

1. Insert the card

Please insert the SD card before using the device. (Hint: In order to ensure the normal operation of the device, please use a Class 10 high-speed branded SD card. Please format the SD card for the first time using it)

2.Turn On/Off

Press the [⏻] key to turn on/off, and it will automatically enter the real-time image mode when it is turned off.

3.Function Buttons

ZERO: Press it to set meter counter to zero;  **Mic:** Mic. is on. If crossed, Mic. is off.

 **LED control:** Press it to select On-7 brightness cycle-OFF.

 **Photo :** Press briefly, flashes once and get a photo.

 **Record:** Press to record, and the icon turns blue.The video timer can time. Press again to end.

 **Playback/Return:** Press it to enter review photos and videos. Press Up-Down-Left-Right to select. Press  to confirm. Press  Play again to exit;
When record, press  to pause and stop timing; press  again to restore.

 **Menu/Confirm:** Press it briefly to enter. Press Up-Down-Left-Right to select. Press  to confirm.

 **Enter :** Press to confirm and enter.

4. Parameters Settings

Under real-time image mode, press [] to enter the parameter setting; press joystick [] and [] to select the menu you need to change, press [] and [] to select the sub-menu that you need to change, and press [] to confirm the sub-menu you need to change;

4.1 Recording settings

Camera Head: To select the correct camera head type.

Loop recording: 1 min/ 5 min/10min/ 20min/30min, the recorded files are divided according to the set size, and the system will automatically prompt on screen when the card is full.

Sound switch: you can turn on or off the recording sound.

4.2 Display settings:

Screen brightness: You can set the display brightness of the screen.

Screensaver Touch to set the time of screen Saver.

4.3 System settings:

Language: Show the available languages: Chinese, Traditional Chinese, English, French, German, Russian, Korean, Japanese.

Mirror: Touch to set: normal display; flip horizontal; flip vertical; flip horizontal & vertical.

Device Info: Reset and Password Switch / WiFi name and password/ memory size of micro SD card, firmware version.

Reset: It can delete all the settings and restore to factory state and restart.

Password Switch: Switch off, it directly enters working state upon startup; switch on, it needs to enter a password to start working. The default password is 8888.

WiFi Switch : Touch to switch WiFi on or off.

Format: Touch and check format micro SD card. Format will delete all the data in micro SD card. Be sure to do a good job of data backup.

5.File Management

In the real-time image mode, press the [▶] key to enter the folder, and the user can browse, play or delete recorded videos or photos.

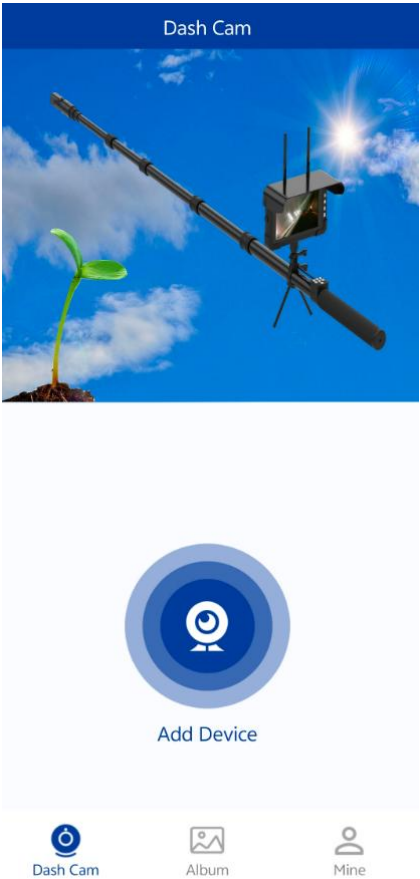
During playing back a file, you can also delete or cancel the deletion of media files.

6.Inspection SYS APP Settings

Before run Inspection SYS App, turn on WiFi of the monitor first. Find the SSID name and password in “Unit”.

Then add the WiFi network of the monitor to the WiFi configuration of the external device.

Run APP, click skip and choose the agreement, then Add Device (not activate) .



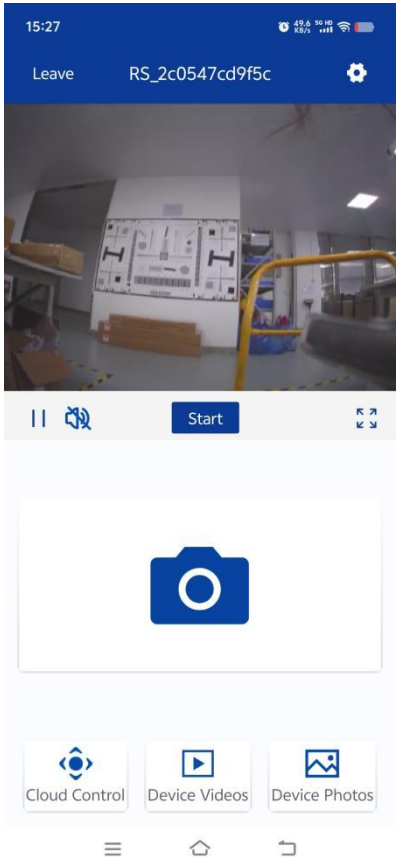
7.APP Monitoring Interface

Run Inspection SYS App, touch device to connect. After successful connection, it automatically jumps to camera interface. You can take photo, recording, play and share.

Save the photo and recording files to monitor.

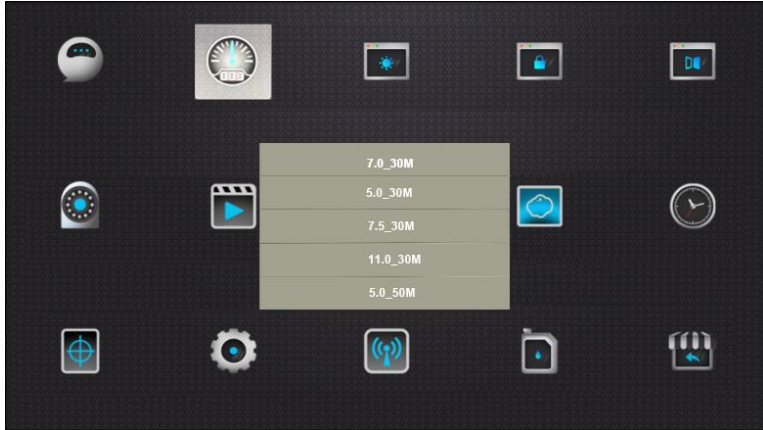
Enter into Video, play and load video locally.

Enter into Photo, play and load photo locally.



METER COUNTER OPERATION

1. Press the meter-zero button to set the meter to zero on screen display.
 2. Touch to(meter/ft) to set the unit of length.
 3. Choose the diameter and length of the cable on the meter counter .
- Deviation in the MC will be elevated if the cable is specified incorrectly.



PUSH CABLE AND CAMERA OPERATION

At the job site

1. Always wear rubber gloves to operate the camera for health and safety reasons.
 - When pushing, the end of your stroke should be as close to the entry as possible. Standing too far back with an excess of cable between your hands and the entry may cause the cable to fold on itself outside the entry and damage the cable.
 - Try to keep the push cable away from sharp edge of a pipe entry because this may cause damage. If the camera does not seem to go any farther, **DO NOT FORCE TO PUSH THE CAMERA!** Try another entry if possible.

Warning: Hands should be close to the line opening. DO NOT catch the cable on the edge of an entry and continue to push.

1. Always try to run water down the pipe under going inspection. This will keep the system much cleaner, and allow you to push noticeably farther with less friction. If the water is preventing you from seeing an area of importance, temporarily turn it off.
2. When push the push cable through the pipeline by steady and slowly, a short distance entry per time, keeps the hands at the entrance, so that can control the push cable and prevent it stuck, bent or scratch.
3. Always try to run water down the pipe under going inspection. This will keep the system much cleaner, and allow you to push noticeably farther with less friction. If the water is preventing you from seeing an area of importance, temporarily turn it off.
4. When push the push cable through the pipeline by steady and slowly, a short distance entry per time, keeps the hands at the entrance, so that can control the push cable and prevent it stuck, bent or scratch.

5. When inspecting a pipe, most of the time a slow steady push through the system works the best. At changes in direction such as P-traps, Tee's, Y's, Elbows, etc. It is usually necessary to give a little extra push in the bends.
6. Make sure the sapphire window is clean prior to entry. Some users claim that a slight film of detergent on the lens minimizes the possibility of grease sticking to the port. If necessary, take advantage of any standing water in the pipe to wash the front of the camera by jiggling it in the water.
7. When you place the camera head into the pipe remember, as the materials of pipe vary, it will be necessary to adjust the lighting settings to maximize picture quality.
9. The system can travel through multiple 45 and 90 degree bends. Do not, however, try to force it through a P-trap or tee if there is a large amount of resistance.



Figure 16. Improper operation

Warning: Do not try to use the camera head to clear obstructions. This System is a diagnostic tool, not a drain cleaner.

Using the camera head to clear obstructions could damage the camera head or cause it to be caught in the obstruction.

9. Do not attempt to remove or stores push cable on the reel solely by turning the reel itself. You can manually push or pull cable from the reel and wind or unwind it.

10. If the camera sits in a pipe, or an enclosed environment, heat will build-up. This may lead to the camera head overheating which will cause fuzzy lines to appear on the monitor. In the event, this happens, turn off the system, remove the camera from the pipe (or enclosed environment) and let the camera head cool for 10 to 15 minutes. Running water into the line will also help cool the camera head. Always use the minimum illumination required to maximize picture quality and to avoid excessive heat build-up.

Warning ! The camera head can get HOT! When finished with your inspection, or if taking a prolonged break in the middle of the inspection, turn off the system.

Retrieving the push cable

1. Once the inspection has been completed, pull the push cable back with slow, steady force. Do not force the push cable or exert excessive force. This could damage the camera or push cable. The push cable may get hung up while being retrieved, and may need to be manipulated as did during insertion.

2. While take back the push cable, running water can be used to flush down the push cable. After recycling, you can wipe the push cable with a towel.

Warning! NEVER USE SOLVENTS to clean any part of the system. Substances like acetone and other harsh chemicals

can cause cracking of the camera ring, which could affect waterproofing.

4. Storing the push cable into the cable reel. One hand holds the push cable, the other hand close to the cable wheel. Slowly and gently push the push cable slide via the hook of the handle, cable reel will rotate and store the push cable inside.

Warning! The hands should be close to the cable wheel when storing the push cable. Push the push cable a small piece

every try. Push a long distance can cause the push cable bend or broken.

BATTERY SAFETY AND USING GUIDE

Using safety

Read the following battery precautions before charger, to reduce the risk of electrical shock.

1. Recharge batteries with accessory charging units.
2. Check the power units every time before using the equipment, be sure no problem, use of unauthorized parts may result in electrical shock, fire and/or serious personal injury or damage other instruments and system.
3. Never connects the car charger to any 24 volt cigarette lighter slot. It will harm the battery and DVR.
4. Do not short circuit, it may cause fire, electrical shock.
5. Do not charge the battery under rain or wet conditions. Water entering the charger will increase the risk of electrical shock.
6. If the charger and battery are damaged, do not use or stop to charge. It may cause electrical shock.
7. Don't disassemble the case, only qualified repair person can repair and maintenance.
8. Properly dispose of the battery. Exposure to high temperatures can cause the battery to explode. So do not dispose of in a fire. Some countries have regulations concerning battery disposal. Please follow all applicable regulations.
9. Do not touch anything which out from battery, which would burn or damage the skin, once touches please flush with water. If in eyes, immediately get medical help fast.

Using Guide

Follow the steps as below to reduce the injury of the electric shock.

1. Power indicator LED will be red during charging, will be turned to green when charged fully. If battery empty for a long term, it will pre-charge the battery automatically in 10 minutes, and LED will be blinking in red.
2. It needs about 10 hours to charge the battery fully. The battery can charge online, charging and supplying of work will not increase charging times.
3. User can use a power adaptor or car charger to charge the battery. If no use in a long term, take a recharge per 6 month, to ensure the battery in normal working status.

OTHERS

Troubleshooting

Problem	Probable fault location	Solution
Confused image show on screen	Wrong Camera Head option	Enter the setup menu and select the correct camera head type
The DVR do not recognize SD memory card.	SD Card is faulty.	Format the SD card using a PC. Change an other SD memory card.
	Gold fingers on the SD card are dirty.	Clean the gold finger on the SD card.
	SD card slot in the DVR may fault.	Check the SD card slot in the DVR .
No image	Cable connection faulty or loosely	Check cable connection, clean and reconnect if necessary
	Camera connector soiled	Clean the camera connector
	Wrong SD memory card	Turn off power and replace SD card
	Wrong setting	Enter the setup menu and select reset
DVR Can not boot	No power	Recharge
	Transient short circuit in the cable cause the battery short circuit protection	Recharge the DVR more than 2 seconds with adaptor or car-charger to activate the battery
Can not input Characters	The keyboard low battery	Chang battery
	Keyboard fault	Check the Keyboard and the keyboard on a PC
The deviation of MC more than 0.5%	select the wrong total length	Press [ZERO] button within 3 seconds after DVR monitor starts to select the total length.
	Pull out cable more than 3 meters before turning on the system	Turn on the system before pulling out the push cable from the cable reel
DVR charging indicator lights up green and cannot be charged	The battery temperature exceeds the range of -5~+48°C	Put the product under normal temperature for 30 minutes to automatically resume charging
When charging, the yellow and green charging indicator lights are not on	Power adapter failure	Replace a power adapter

CAMERA OPTIONS

Camera MP2305/MP3205 : 23mm&32mm camera head with built-in 512Hz Sonde and Self-leveling for 7.0mm or 7.5mm push rod cable

Type	Item	Parameter
Image	Sensor	1/3" CMOS
	Resolution	AHD 2560×1440
	View Angle	120°(diagonal)
	Depth-of-Field	3-12cm(ø23)/8-30cm(ø32)
	Front Lens	Sapphire
Transmitter	Frequency	512Hz
	Transmit Mode	Constant
	Transmission Distance	6 meters open area (max)



Figure 17. Camera MP2305/MP3205

PT Camera MP35: 35mm camera with built-in 512Hz Sonde Focus Adjust 5-100cm 7.0mm or 7.5mm push rod cable

Type	Item	Parameter
Image	Sensor	1/3" CMOS
	Resolution	AHD 2592×1944
	View Angle	120°(diagonal)
	Depth-of-Field	5-100cm(Focus adjustable)
	Front Lens	Sapphire
Transmitter	Frequency	512Hz
	Transmit Mode	Constant
	Transmission Distance	6 meters open area (max)



Figure 19. Camera MP35

Camera MP1410 :14mm camera head for 5.0mm push rod cable

Type	Item	Parameter
Image	Sensor	1/4" CMOS
	Resolution	CVBS 100pixl
	View Angle	100°(diagonal)
	Depth-of-Field	2-8cm(approx)
	Front Lens	Sapphire



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.
- This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.