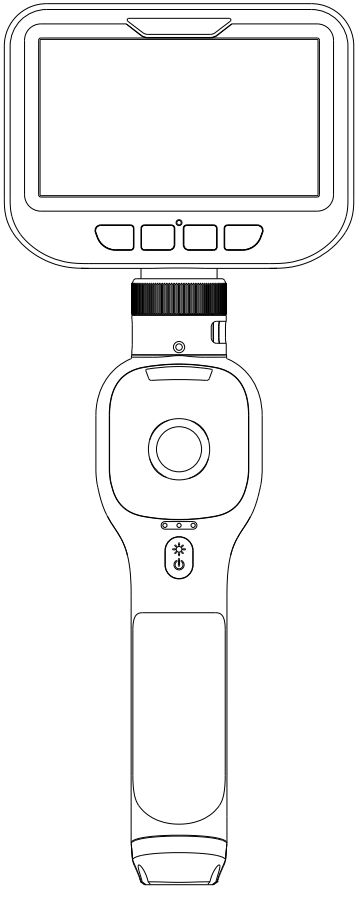
RALCAM

NDTKALA.co
Non-Destructive Test (NDT) Equipment
تامین تجهیزات و مواد مصرفی تست های غیر مخرب ایران
۰۹۱۲۰۲۴۶۲۷۰ ۰۲۱-۷۱۰۵۳۸۸۸

F6B-SERIES

USER GUIDE



SHENZHEN RALCAM CO., LTD.

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COMPANY PROFILE

The brand Ralcam belongs to Shenzhen Ralcam Co, Ltd. We were established in 2010 and based in Shenzhen. Ralcam is a professional high-tech manufacturer and exporter that Specialize in the design, R&D and production of high resolution and small diameter industrial endoscope. More than 30 of our models are FCC CE ROHS certified that compliant with GS regulations. We have a 26-person R&D team, with well-equipped testing facilities, strong technical force and excellent quality control. ralcam borescope is committed to providing the best inspection tool for our customer to make our customer no worry about the problem of blind angle anymore. At present our research and development directions are small diameter industrial endoscope, HD endoscope, wireless endoscope, semi-rigid endoscope and wide-angle HD endoscope.

Our mission: Let visual products enter thousands of households and enhance family happiness and security.

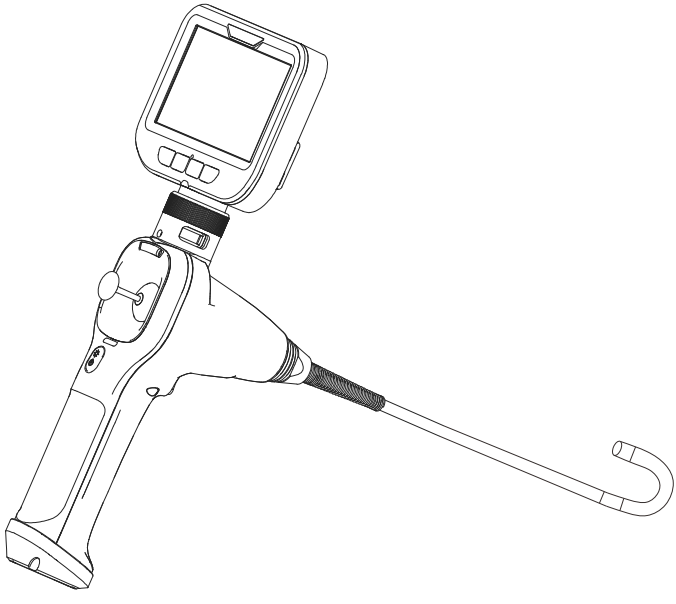
Take you to explore all the unknown!

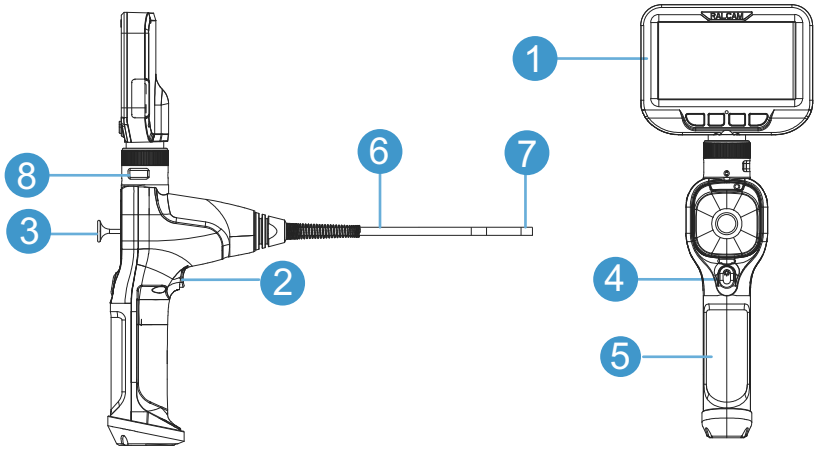
RALCAM

INFORMATION ABOUT THE DEVICE

The automotive steering borescope of F6-B series is an important product and newly launched for the global automotive aftermarket. It is specifically used to detect narrow and small curved spaces which are diffcult to enter or hard-to-reach,such as automotive evaporator boxes, dew chambers, three-way catalytic sensors,etc.

This articulating borescope has a unique temperature protection function and is equipped with a four-way 360° steering detection function, which is convenient for users to put small probes into a small space, and then transmit vivid, clear, all-round videos and difficult films through the cable to show on the screen. Meet your diversified inspection needs with advanced extended accessories and real-time temperature display.

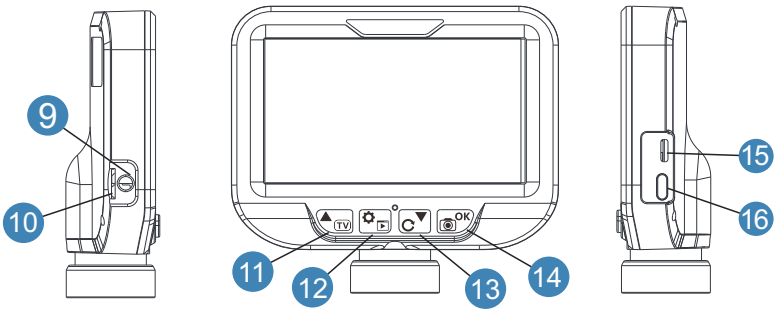




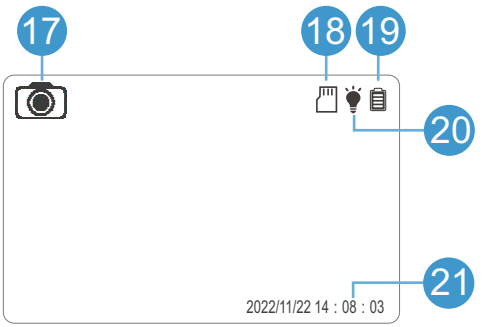
APPEARANCE INTRODUCTION

1	Host
2	Snap/Video
3	Joystick
4	LED Adjust
5	Handle
6	Flexible Snake Tube
7	Megapixel HD Probe
8	USB interface

CONTROL PANEL



DISPLAY



9	Headphone Socket
10	TF Card Slot
11	UP/TV
12	Setting/Album
13	Down/ Image Rotate
14	Confirm/ Photo
15	Type-C Charging Interface
16	Power Button

17	Image Mode
18	TF card
19	Battery
20	LED Brightness
21	Time/date stamp

PRODUCT SPECIFICATIONS

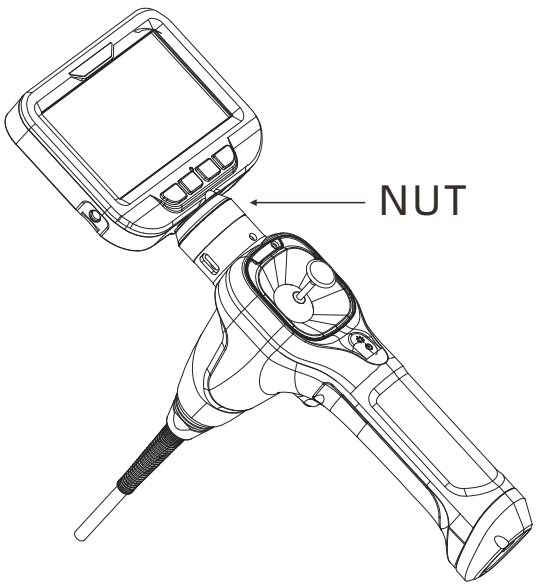
Specification Parameters

	Model	F608B	F606B
System	LCD display	4.3" IPS (480x272)	
	Menu language	Chinese Simplified, Chinese Traditional, Japanese, English, Korean, French, Spanish, German, Italy	
	Snap resolution	JPG：640*480/1280*720/1920*1080	
	Video recording Resolution	AVI：640*480/1280*720/1920*1080	
	Basic Functions	Taking photos, videos recording, playback, Image rotation/ Camera temperature, TV out, etc	
	Memory	Slot for removable TF card (max 32GB)	
probe	Steering Radius	≈ 40mm	≈ 32mm
	Steering	Steering angle: Up/down/ left/ right ≈ 180°; Steering life ≥10000 time	
	Snake Tube Material	Flexible Metal Tube	
	Snake Tube Length	1M / 2M / 3M / Customizable	
Camera	Camera Lens Diameter	Φ8.5 × 11.5mm	Φ6.2 × 16mm
	Sensor	1/6"COMS, 1920×1080; 20FPS	1/9"CMOS, 1280×720; 20FPS
	FOV	80°	90°
	DOF	20 ~ 100mm	20 ~ 100mm
	Lens Struc.	F/No.: 3.8; 3P+1IR	F/No.: 4.7; 3P+1IR
	Adjustable LED light	4 Level, 10 PCSLED	4 Level, 6 PCSLED
	AWB/AGC	AWB: ON; AGC: ON	
	Camera head IP Grade	IP67	
Power	Battery Capacity	Charging: DC5V*1A; 3.7V/5200mAh; About 6 hours	
Operating environment	Temperature & relative humidity	-10℃ — 50℃; Less than 90%	
Package	Box Size	34*28*9CM 1.50kg	
	Carton Size	10PCS/Carton, 58*47*36CM, 16.5kg	
	Certification	CE / FCC	

OPERATIONAL GUIDANCE

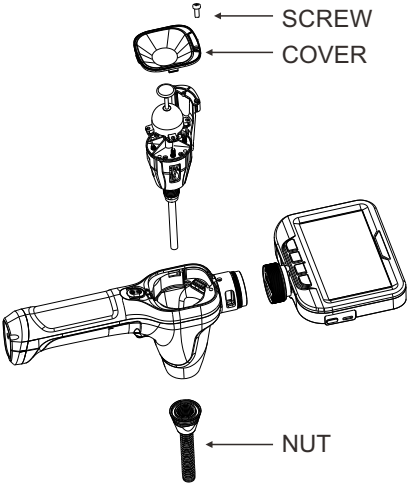
Switching on and off

1. Connect the host to the handle then lock the Nut.
2. Press the Power button for 3 seconds.The display will switched on .The device is ready for operation.
3. Press the Power button for 3 seconds. The device switches off
4. After power on, the LED light is the brightest by default setting, press the button to adjust the brightness.



REPLACE THE PROBE

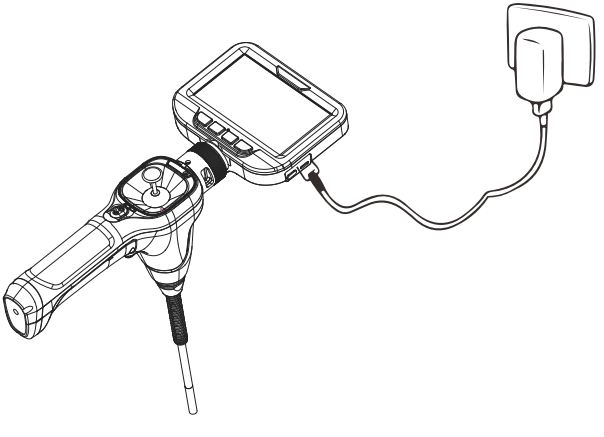
1. Unscrew the handle SCREW, take out the COVER, and loosen the NUT, then take out the probe
2. Insert another probe, close the COVER, tighten the SCREW and the NUT



CHARGE:

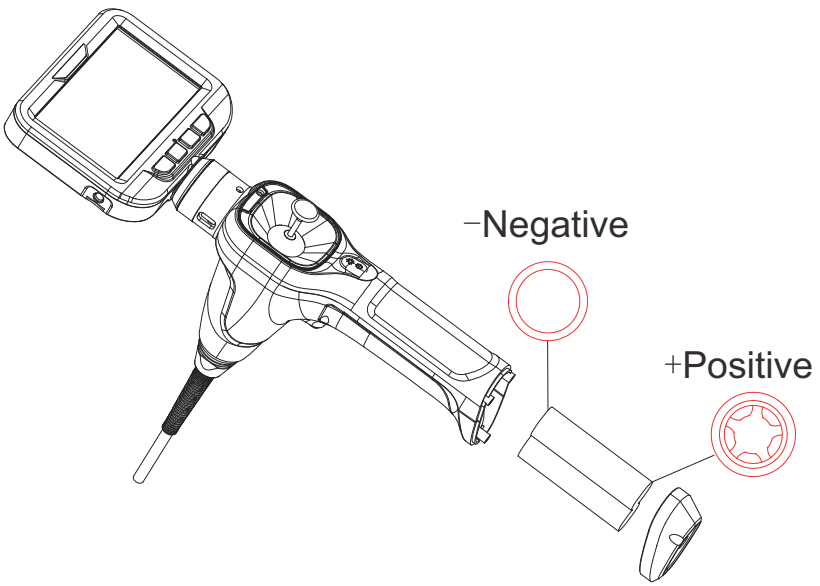
1. Connect the endoscope to a 5V adapter (self-prepared) with a Type-C cable to charge the battery

Note: Please only use the power adapter with identical specifications. The device will most likely be burned out once use the substandard power adapter.



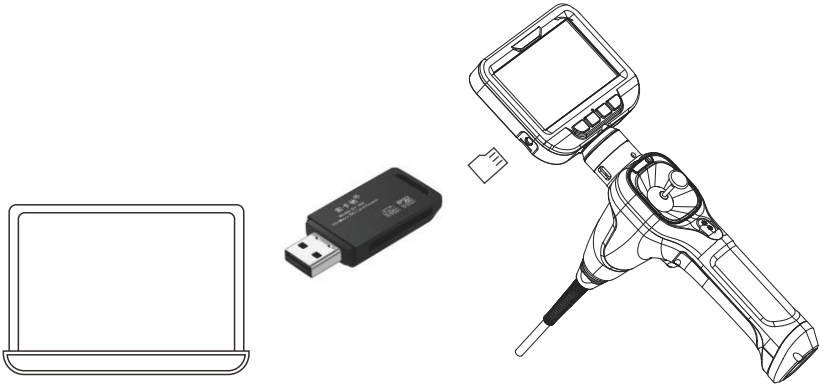
BATTERY INSTALLATION

1.Unscrew the handle battery screw cover and take out the 18650 batteries.
2.Please pay special attention that the positive and negative poles of the 18650 batteries correspond to the positive and negative poles on the endoscope handle. After fixed, close the battery cover and screw on the screws.



HOW TO DOWNLOADING RECORDINGS TO MY COMPUTER?

Down loading recording via TF card reader to the computer. The Charger port can't Transfer Data.

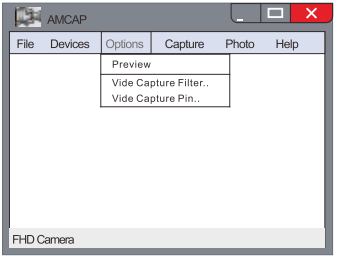


CAN IT CONNECT TO MY COMPUTER AS A BORESCOPE?

Connect to the computer operation instructions: (please remove the host before connecting)Support computer system Window XP/8/9/10/11, Download methods:

1. Use your mobile phone to scan the QR to download the software and send it to the computer to install
2. Enter the URL in the browser: http://www.ralcam.com/upload/file/20210419/amcap.exe
   Use the data cable to connect the computer and the device USB data interface, the camera LED light is on; double -click the file icon "AMCAP" to pop up the right picture operation window

Scan the QR to download the software

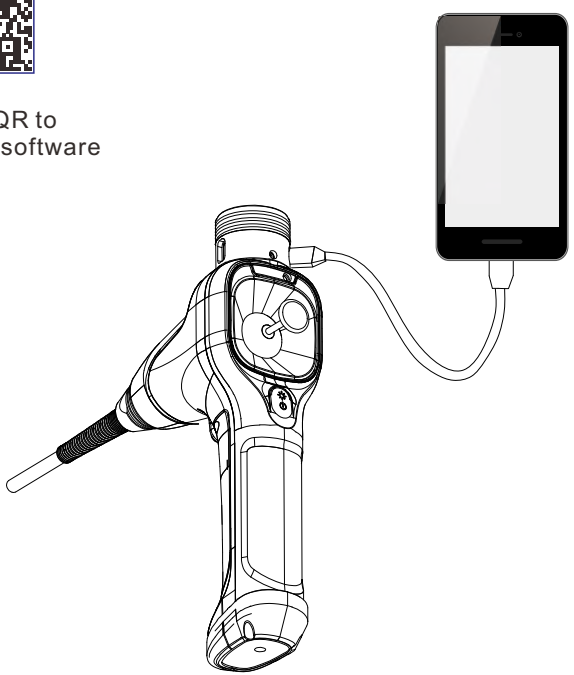


CAN IT CONNECT MY PHONE AS AN BORESCOPE?

Connect to Android phones operation instructions:
(please remove the host before connecting)
Due to the system settings of the iOS, it can't connect to iPhone as an borescope.
Due to the open source of Android, It can only support some Android phones.

1. Use your phone to scan the following QR to download the APP and install it (please open the phone's OTG function before installation)
2. Use OTG data cable to connect Android phone and the USB data interfaces, (open App: OTG SEE) mobile phone will automatic pop-up image

Scan the QR to download the software



ALIGNING / MOVING THE CAMERA

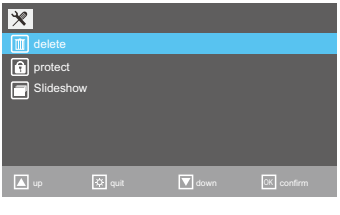
Please note that the surface of the netting at the probe exterior may fray over time depending on the mechanical stress (e . g . When in contact with sharp-edged objects) . This does not constitute a defect of the device but normal wear and tear , which cannot be avoided
Use the joystick to move the camera in the desired direction.

TAKING A PICTURE AND RECORDING A VIDEO

1 . Switching on
2 . Press / ,the picture is taken.
3 . Press / for 2 seconds,the recording is started.
4 . Press / again,the recording is stopped.

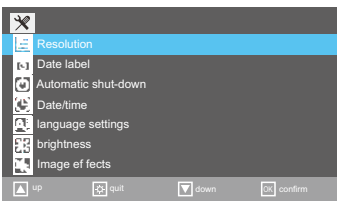
VIEWING AND DELETING RECORDINGS .

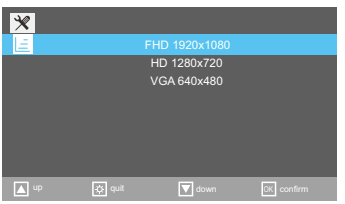
1. Press for 3 seconds, the Borescope switches to recordings view.
2. Press , the different recordings will be displayed on the screen.
   Press to play a video .
3. Press to Delete/Protect a recording.
4. Press for 3 seconds back live preview.



RESOLUTION （THE RESOLUTION OF RECORDINGS）

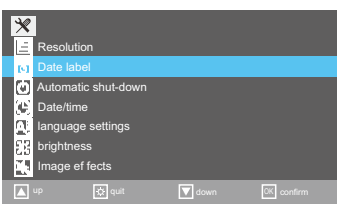
1. Press , the selection menu will be displayed.
2 .Select the menu item Resolution by pressing .
3 .Confirm the selection by pressing , the sub-menu will be displayed.
4. Confirm the selection by pressing , the Resolution will be set and the selection menu will be displayed.

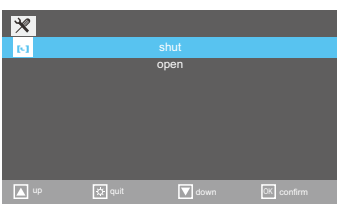




DATE LABEL

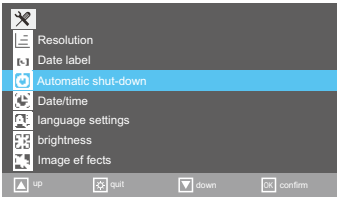
1. Press , the selection menu will be displayed
2. Select the menu item Date label by use of .
3. Confirm the selection by pressing , the sub-menu will be displayed.
4. Confirm the selection by pressing , the Date label will be set and the selection menu will be displayed.

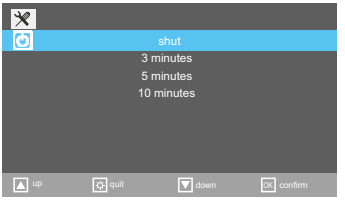




AUTOMATIC SHUT-DOWN

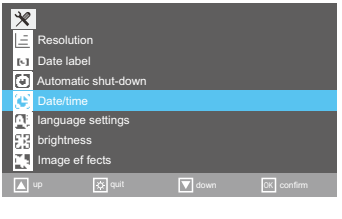
1. Press , the selection menu will be displayed.
2. Select the menu item Automatic shut-down by pressing .
3. Confirm the selection by pressing , the sub-menu will be displayed
4. Press , the Automatic shut-down will be saved and the selection menu be displayed.

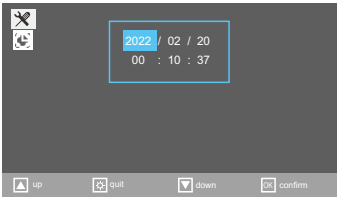




DATE/TIME

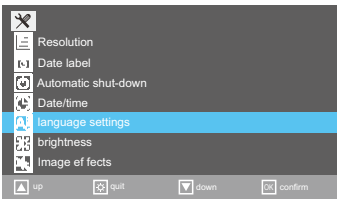
1. Press , the selection menu will be displayed.
2. Select the menu item Date / Time by use of .
   The sub-menu Set Date / Time will be displayed
   The date is indicated in year / month / day format
3. Confirm the selection by pressing , the sub-menu will be displayed
4. Use the to set the Date/Time
5. Press , the settings will be saved.
   Press to quit and the selection menu be displayed.





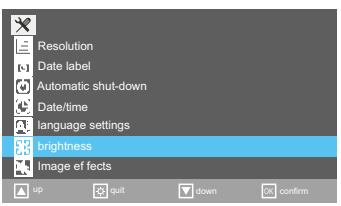
LANGUAGE SETTINGS

1. Press , the selection menu will be displayed.
2. Select the menu item Language settings by pressing .
3. Confirm the selection by pressing , the sub-menu will be displayed.
4. Confirm the selection by pressing , the desired language will be set and the selection menu be displayed.



SCREEN BRIGHTNESS

1. Press , the selection menu will be displayed.
2. Select the menu item brightness by use of .
3. Confirm the selection by pressing , the sub-menu will be displayed.
4. Press , the settings will be saved and the selection menu be displayed.



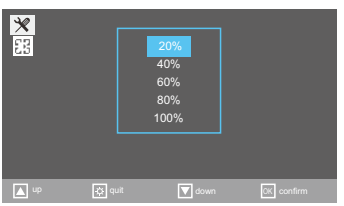
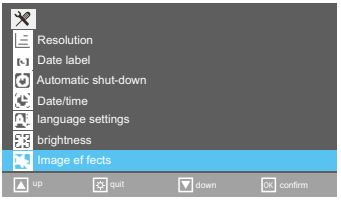
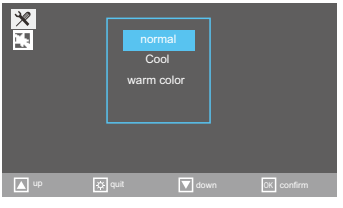


IMAGE EFFECTS

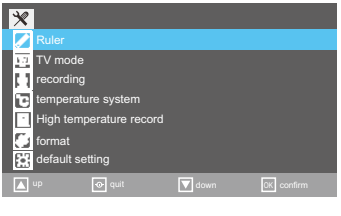
1. Press , the selection menu will be displayed.
2. Select the menu item Image effects by use of .
3. Confirm the selection by pressing , the sub-menu will be displayed.
4. Press , the Image effects will be saved and the selection menu be displayed.

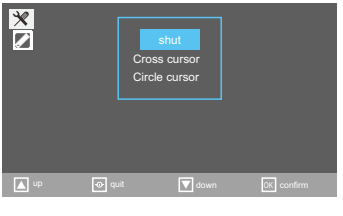




RULER (GUIDES LINE ON SCREEN)

1. Press , the selection menu will be displayed.
2. Select the menu item Ruler by use of .
3. Confirm the selection by pressing , the sub-menu will be displayed.
4. Press , the Ruler will be saved and the selection menu be displayed.



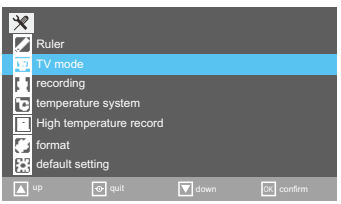


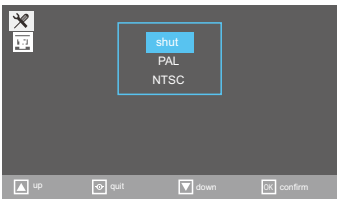
TV MODE

Connect TV and the device with a TV cable (self-prepared)

1. Press , the selection menu will be displayed.
2. Select the menu item TV mode by use of .
3. Confirm the selection by pressing , the sub-menu will be displayed.
4. Press , the TV mode will be activated and the monitor will shut off

   p.s. long press the to exit the TV mode

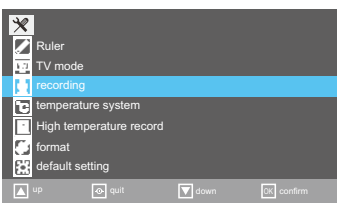


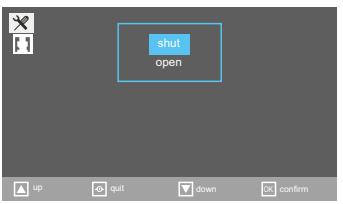


RECORDING (VOICE)

1. Press , the selection menu will be displayed.
2. Select the menu item Recording by use of .
3. Confirm the selection by pressing , the sub-menu will be displayed.
4. Press , the Recording will be saved and the selection menu be displayed.

Note: insert microphone (self-prepared) to use this function

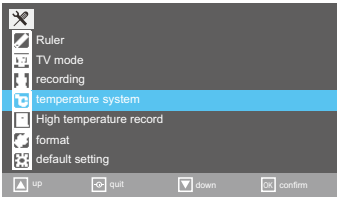


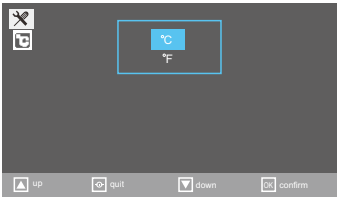


TEMPERATURE SYSTEM

1. Press , the selection menu will be displayed.
2. Select the menu item Temperature system by use of .
3. Confirm the selection by pressing , the sub-menu will be displayed
4. Press , the Temperature system will be saved and the selection menu be displayed.

Note: The camera will shut down when it exceeds 90° C.

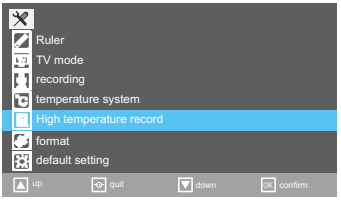


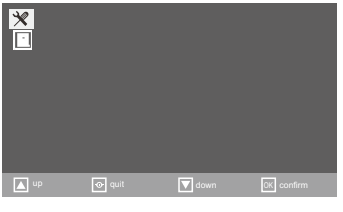


HIGH TEMPERATURE ABNORMAL RECORD

1. Press , the selection menu will be displayed.
2. Select the menu item High temperature abnormal record by use of .
3. Confirm the selection by pressing , to check the records

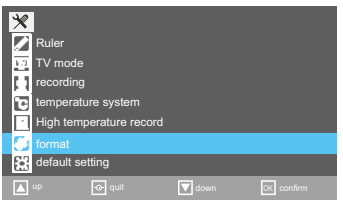
Note: High temperature alarms are recorded whenever it occurs.

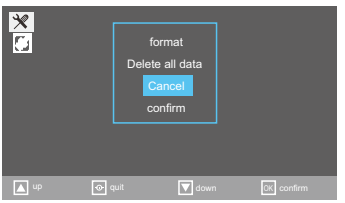




FORMAT

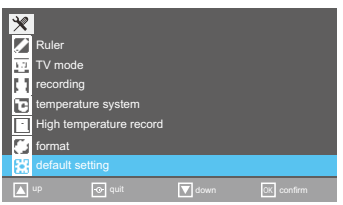
1. Press , the selection menu will be displayed.
2. Select the menu item Format by use of .
3. Select the Cancel/ Confirm by use of button.Confirm the selection by pressing .

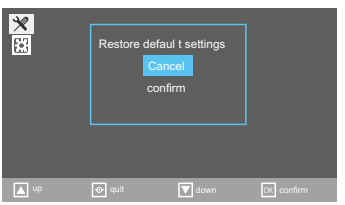




DEFAULT SETTING

1. Press , the selection menu will be displayed.
2. Select the menu item Format by use of .
3. Select the Cancel/ Confirm by use of button.Confirm the selection by pressing .





VERSION

1.Version information

TROUBLESHOOTING

Fault	Possiblecauses	Method
Unable to Power-on	1.Dead Battery 2.Incorrect Installation	1.Please recharge or replace the battery. 2.Please check the battery and battery compartment contact if it is dirt or deformation then reinstall the battery
Auto Power -off	Low Battery	Please recharge or replace the battery.
Boot screen stuck	1.Failed to start the system. 2.Low Battery.	1.Reassemble the battery and restart it,then charge it. 2.Reinstall the host
Image cannot be recorded or found	SD card capacity is insuf ficient.	1.Replace the SD card or delete unnecessary files. 2.Formatting the SD Card.
"SD card error " or "Format" when inserting	The position of the card is deviated.	1.Clean the SD card contact. 2.Reinstall the SD card.
Can't charge	1.The charging interface is dirty. 2.Damaged charging cable.	1.Clean the charging interface and replug it. 2.Replace the charging cable or charger
Blurry Imag	1.The probe is dirty. 2.Probe is not within the range of the depth-of-field. 3.Damaged lens due to high temperature.	1.Clean the probe with the lint-free cloth within the package. 2.Please place the probe within the depth of field range of 20-100mm. 3.Do not place the probe in a high temperature environment (below 70°C).
The probe steering range is too small	Snake tube is distorted	Please place the snake tube straight

APPLICATION ENVIRONMENT

For professional maintenance personnel, this portable articulating car endoscope can be used to detect places where the human eye can't see without disassembling the machine or damaging the instrument. It can be applied to precision instrument testing, engine overhaul, auto repair, pipe line overhaul, building maintenance, air conditioning overhaul, and so on.

Operating Temperature	Snake Tube	-10°C-70°C
	Whole Machine	-10°C-50°C
Input Voltage	Whole Machine	DC5V
Humidity	Whole Machine	15%-90%
Waterproof Level	Whole Machine	No Operating Under the Water

WARRANTY LIMITATIONS

Join the Ralcam family, Enjoy a No-Worry Warranty policy:

1. 6-month warranty for quality-related issues.After checked the root cause is caused by defective manufacturing process or component damage via our professional maintenance engineer.
2. We take care of all quality-related issues with a REPLACEMENT

REMINDER: Be sure to use your product as directed.

Free services will not be available in the following situations:

1 . Damage caused by improper storage.
2 . Damage caused by the customer's own disassembling.
3 . Damage caused by the customer's own modification.
4 . Damage caused by other irresistible factors.

CAUTIONS

Please read this manual carefully before using this product, and follow the instructions to avoid the damage caused by improper use.

1. Please don’t use our snake tube camera with other manufacturers' endoscope parts without authorization, even if the interfaces are the same.

2. Please don’t use the product in areas where it may be exposed to wire or charged objects, as the exposed metal parts can be electrically conductive and may cause unexpected accidents.

3. Please don’t allow minors to operate this endoscope separately, and it’s forbidden to use this borescope for medical or human and animal testing.

4. Please keep the product clean, avoid exposure to the sun, or direct contact with water, oil and corrosive liquids.

5. NOTE: The whole endoscope is **NOT WATERPROOF!** But IP67 Waterproof lens, please dry the lens water stains after use.

6. Please take it lightly, don’t over-tugging the tube,the maximum bending of the snake tube is one circle.

7. Please make sure that the Joystick is returned to the neutral position before pulling out the snake tube. It is strictly forbidden to turn the Joystick roughly.

8. Please use the original USB cable for charging.

RoHS