Handheld Inspection Scope

User's Manual

Safety recommendations

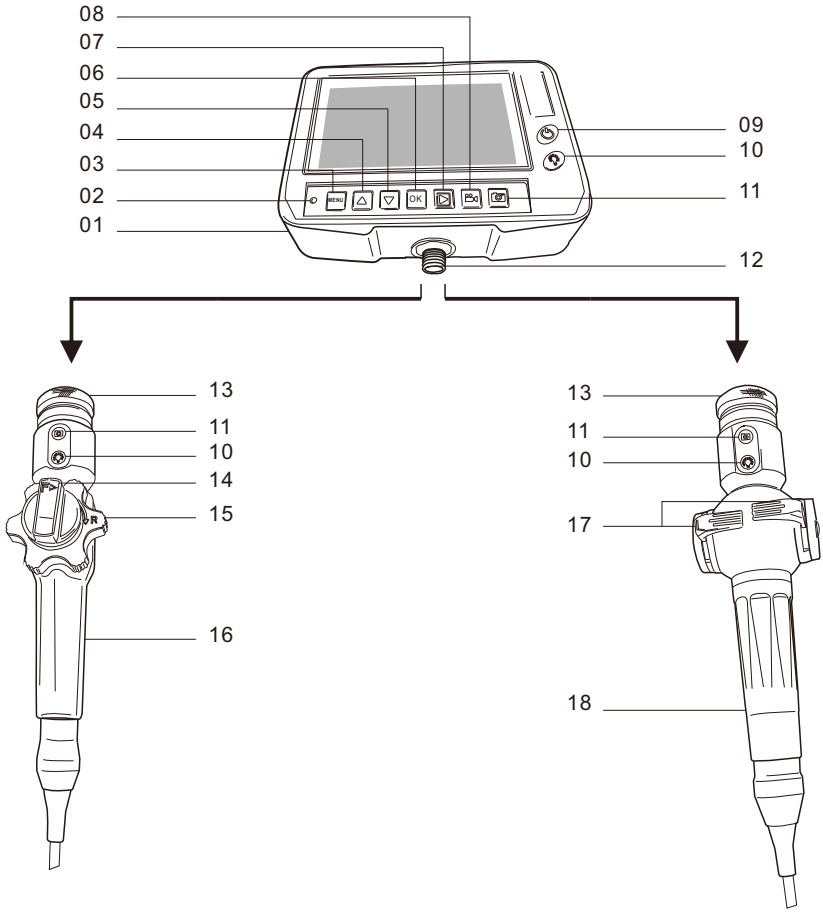
⚠ DANGER

- This device must not be used for medical or veterinary purposes.
- Do not use this item in explosive atmospheres.

WARNING

- Do not modify or disassemble the unit.
- Do not subject the insertion tube or other cables to strong pulling, and do not move the display unit around by holding the cables. Otherwise , the insertion tube or cables may be damaged
- Do not subject the distal end to severe impact or pulling, do not expose the angulation section to severe impact or bending. Otherwise, the precision components that make up of the distal end and the angulaion section may be damaged.
- Do not allow any liquids other than water , saltwater, machine, or diesel oil come into contact with the insertion tube, Otherwise , the insertion tube may be damaged.
- Do not allow water come into contact with parts other then insertion tube , water creates the risk of electric shock , the parts of the instrument other than insertion tube are not watertight, so the instrument should not be used or stored where it is submerged or wet.
- Do not use or store the instrument at a temperature higher than 60° C or lower than −20° C.
- Store the instrument in dry and adequately ventilated environment.

Parts Function



01 Display Unit

02 Charge Indicator

03 MENU

04 Upward Key

05 Downward Key

06 OK Key

07 Play Back

08 Video Key

09 Power On/Off

10 Brightness

11 Snapshot

12 Cable Plug

13 Lock nut

14 Tightening Knob

15 Control Wheel

16 2-Way articulation Unit

17 Control Stick

18 4-Way Articulation Unit

1.Inserting SD card

SD should be inserted as Fig1.

CAUTION If SD card can't be plugged in smoothly, please check orientation

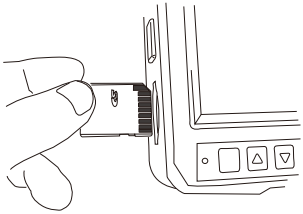


Fig1.

2.Connecting display and articulation unit

⚠ **CAUTION** Be sure of alignment of the Key-Slot as Fig2, then crew in securely.

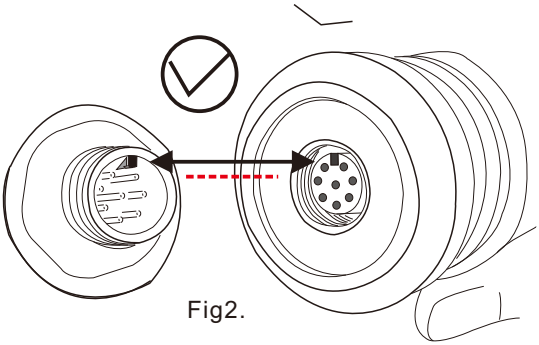


Fig2.

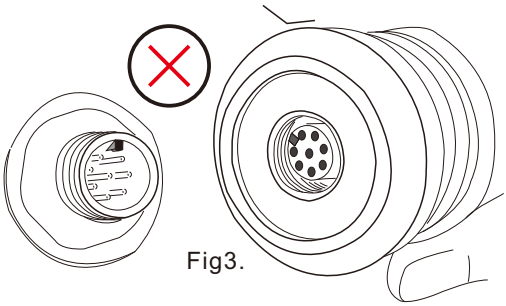


Fig3.

3.Check the display rotatable , to left and right around 160° respectively.

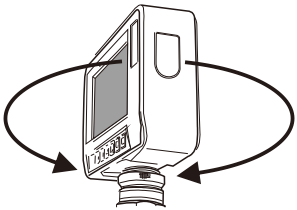


Fig4.

NOTE The display and articulation unit can be connected by soft cable in between .

P.s The soft cable is a standard accessary which can be find in carry case.

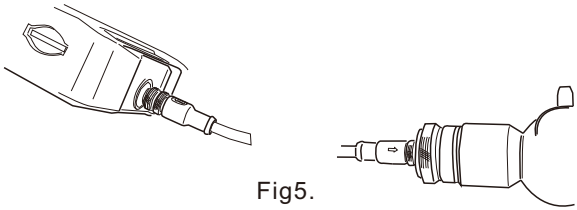


Fig5.

4.Check the turnround of distal end by movements of control wheel(2-way)or control stick (4-way)

CAUTION Please reduce angulation while the cable rolling up , otherwise , damage may be induced to instrument, keep the insertion tube as straight as possible to get best operations.

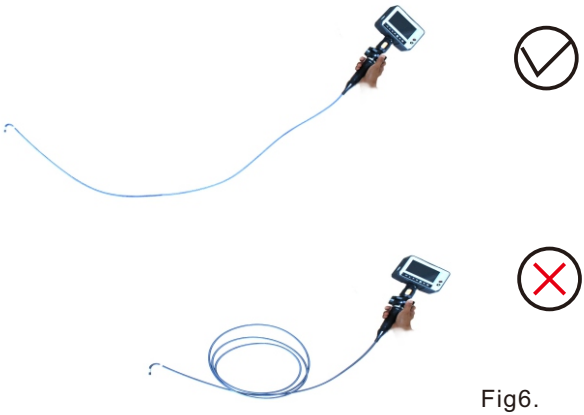
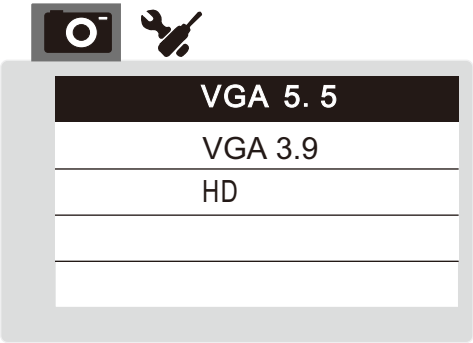


Fig6.

5.Press power on last for 3 seconds to open display ,from menu to select appropriate camera to match relevant the insertion cable and check image performance .



OK Enter MENU Back

Button Description

There are 3 basic modes for easier operations as follows:

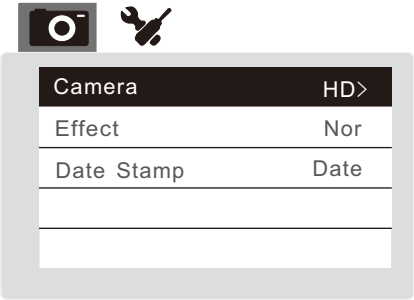
Preview mode	Display summarized optional functions such as: snapshot , video taking etc.
Playback mode	Survey photos and videos in the memory card and maintain.
Meun mode	Includes file maintenance , settings etc.

Button	Preview mode	Playback mode	Menu mode
▲ ▼	▲ Zoom x2 x4 x8 4:3ratio ▼ Image rotation	Switch to previous/ next photo or video	Select previous/next function or option
MENU	Enter to Menu mode	To lock or delete files	Return to the preview mode
OK	Freeze image	To display or pause	Confirm selection or option
📷	Snapshot		
🎥	To start /stop video recording		
▶	Enter playback mode	Return to preview mode	Choose camera or maintenance settings

NOTE Zoom x2 x4 x8 4:3ratio only apply to 3.9,5.5 and HD 8.0mm cameras .

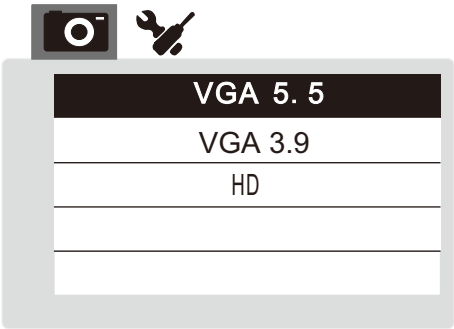
Menu

Under the preview mode: Press MENU button to display options as follows:



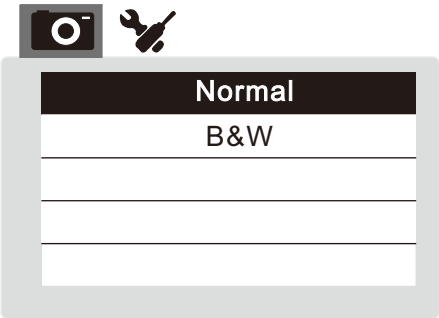
OK Enter MENU Back

Use ▲ Or ▼ To select the item ,and enter the options display as below:



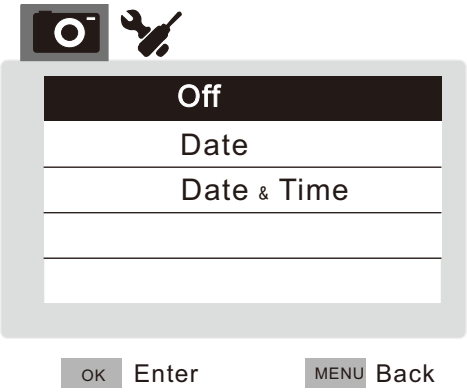
VGA5.5 ,3.9 and HD correspond to camera diameter 5.5mm, 3.9mm and 8mm respectively

OK Enter MENU Back



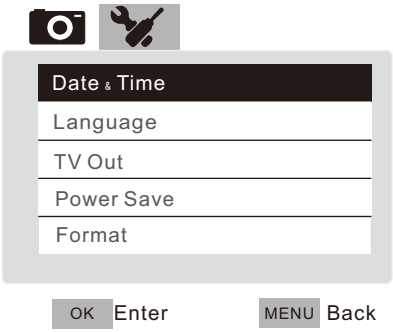
Under the Effect selection , You can choose the image with color or without color.

OK Enter MENU Back



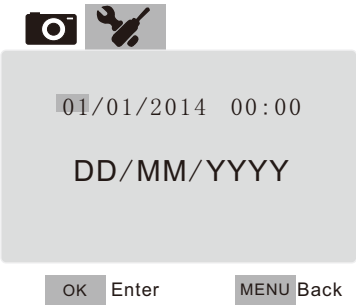
Under Date Stamp,selection Date stamp can be added to recording files or not.

Press Menu button return to menu mode , and by ▸ to set more options as below:



Date&Time Setup

Press ▸ to select year/month/day or hour/minute/second, and press ⬍ for number increasing or decreasing .



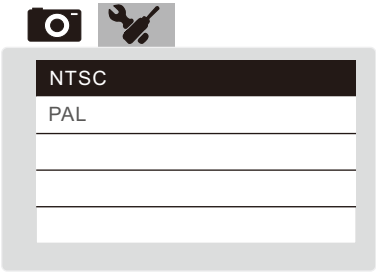
Language Setup

7 languages optional

OK Enter MENU Back

Tvout Setup

Plug in video cable to connect exterior monitor as Fig 7, and set up the TV output format.



OK Enter MENU Back

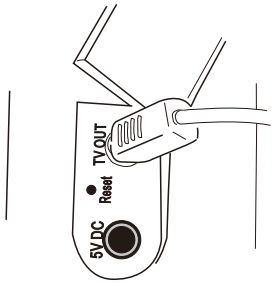
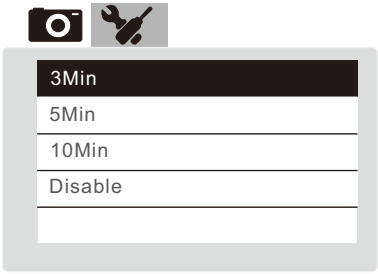


Fig7.

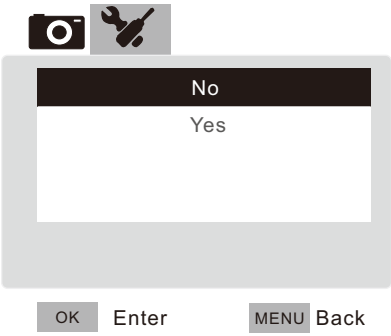
Setup time for auto power off.



OK Enter MENU Back

Format or Reset all

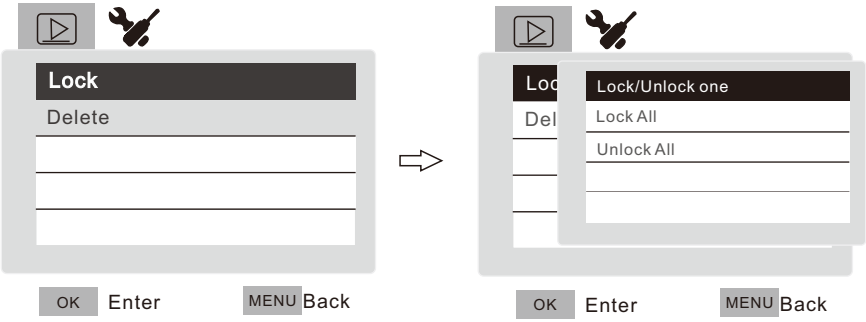
Choose Yes to format storage media SD card or return to original settings



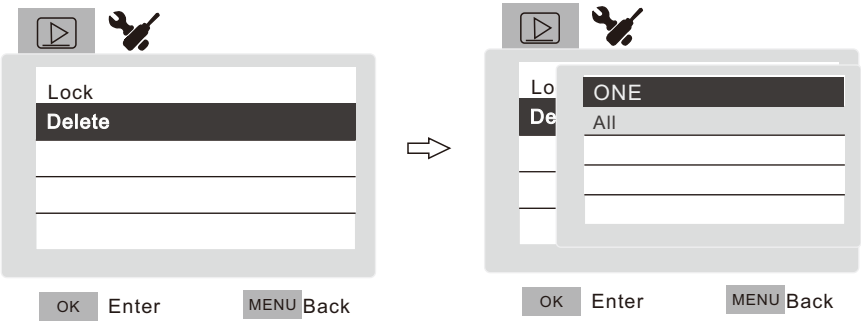
Lock or delete files

Under Playback mode, press MENU , you can delete one file or all files, the file also can be locked to protect from being deleted .

Choose lock ..., you can lock or unlock one or all files



Choose Delete ...to delete one or all files



Operation

Snapshot	Press to take picture, Afterwards , automatically switch back to preview mode.
Video taking	1. Press for video recording . The red dot ● in the lower −left corner to indicate recording status. 2. Press to stop recording. The ● disappears accordingly.
Zoom	In the preview mode, press ▲ to get enlarged x2/x4/x8 &4:3 ratio view of objectives .
Rotation	In the preview mode, press ▼ to get image up side down or mirror image

Storage &Maintenance

1.Rechargeable battery

Charging time around 7 hours till the indicator turn off , the fully charged battery can continuously works up to 8 hours.

2. Cleaning components

Cleaning insertion tube

Wipe thoroughly with a piece of gauze or other material moistened with neutral detergent, next clean by gauze moistened with clear water , and then wipe the insertion tube dry off all moisture.

CAUTION Clear the insertion tube immediately after withdrawing the insertion tube. Leave the very dirty insertion tube for long periods can cause it to be corroded.

Cleaning distal end

Grasping the rigid portion of distal end, use a clean soft piece of gauze or cotton swabs to wipe off dirty and water. Best results may be obtained using commercially available absolute ethanol.

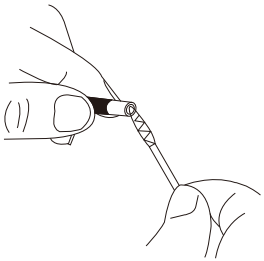


Fig8.

Storage & Maintenance

Cleaning unit body

Wipe with soft cloth dampened with clean water, and wipe with clear and dry cloth.

3. Storage precautions

- Store the instrument under normalroom temperature and humidity.
- Straighten angulation section while lay into carrying case.
- Store the equipment at a clear, dry and stable place.

Q & A

Q: No image on the screen after turning the power on
A: Battery is exhausted. connect the main unit to the power adapter and recharge ,

Q: No image ,only words on the LCD monitor after turning the power on
A: Check that the articulation unit is correctly connected to the display unit.

Q: Unable to take photo or record video
A: SD card absent ,wrongly inserted, full or faulty.

Q: Shut down
A: When all functions freeze or fail, insert an insulated needle into the hole on the side of the main unit ,the system will restart automatically.

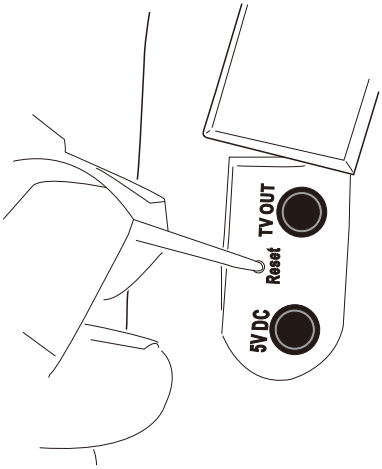


Fig9.

Sepcification

Display Unit

LCD Panel	4.3'' 16:9 TFT LCD
USB Connector	Micro USB
Video Output	Tv out (NTSC/PAL)
Recording Media	SDHC Card , support 32GB
Photo	1600X1200 jpeg
Video	640x480Avi or 1280x720Avi(for HD 8mm camera)
Power source	Lithium battery 3000mAh AC adapter: Input 100-240VAC 50/60Hz, Output 5VDC

Operating Environment

Operating Temperatures	Distal end and insertion tube :0-80° C(for 3.9, 5.5 and 8mm camera)	
	Other parts excepted of above :0-40°C	
Operating Humidity	15-90% RH	
Water proof	Insertion tube	IP58
	Other parts	Not water proof construction

Camera and Optical system

Model No	2.8	3.9			3.9S	5.5			5.5S	8.0	8.5	8.5IR
Diameter	2.8mm	3.9mm			3.9mm	5.5mm			5.5mm	8.0mm	8.5mm	
Rigid portion	10mm	18mm			TBD	23mm			TBD	28mm	30mm	
Housing	Steel Alloy										Copper Alloy	
Field of view	80°	90°								70°	55°	
Direction of view	Forward 0°				90°	Forward 0°			90°	Forward		
Depth of view	5-50 \mm	4-40 mm	8-100 mm	12-200 mm	5-80 mm	4-40 mm	8-100 mm	12-200 mm	5-80 mm	15-200 mm	35mm-infinite	
Illumination	Multi White LEDS											
Image sensor	1/18 inch color	VGA color sensor								1/6 inch color	Low light color	IR B/W
Effective pixels	200,000 Pixels	450,000 Pixels								1M Pixels	450,000 Pixels	
Photo recording	1600x1200Jpg											
Video recording	640x480Avi									1280X720 Avi	640x480Avi	
FPS	30									20	30	