X2000 Mitcorp
VIDEOSCOPE SYSTEM

TABLE OF CONTENTS

Safety & Cautions	3
[Part I] Product Outlook	7
1.1 X2000	
1.2 Joystick Console	9
[Part II] Main key function	11
2.1 Main UI	
2.2 Live view Screen Overlays	12
Full Screen	
2.3 Zoom in / Out	
2.4 Brightness Control	
2.5 Snapshot	
2.6 Video Recording	13
2.7 Album	
2.8 Album-Photo annotation function	14
2.9 Album-Compare function	15
[Part III] Touch-screen key functions	17
3.1 Function list	
3.2 Wireless function	18

[Part IV] Main MENU settings	20
4.1 Main UI	
4.2 Info	21
4.3 SD card status	
4.4 Language	22
4.5 Time setting	
4.6 Auto power off	23
4.7 Watermark	
4.8 OSD	24
4.9 Resolution	
4.10 USB	25
Specifications	26

Safety & Cautions

► Safety Conformances

CE NOTICE

The Videoscope System is in conformance with the following standards:

- 2014/30/EU Electromagnetic Compatibility Directive

RoHS NOTICE

The X2000 Videoscope System is in conformance with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive. This means that our product is both lead-free and without the hazardous substances either in the manufacturing process or in the final product

FCC NOTICE

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT
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.
CAUTION:
Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF exposure warning
This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

SAFETY CAUTIONS

SAFETY GUIDE

USER MUST PAY ATTENTION TO THE INFORMATION PROVIDED HERE TO ENSURE SAFETY.

We suggest you read the following statements carefully before using the system.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

CAUTION BATTERY

- Risk of explosion if battery is replaced by an incorrect type.
- Dispose of used batteries according to the instructions.
- Never replace the battery by yourself.

WARNING If this product is used without observing the information given under this symbol, it might cause injuries or loss of life.

CAUTION If this product is used without observing the information given under this symbol, it might cause damage to this product.

WARNING HAZARD ENVIRONMENT

- Do not use this system in explosive environments such as gasoline or alcohol storage tank.

WARNING FLAMMABLE GASES

- Do not use this system near flammable gases.

WARNING INDUSTRIAL USAGE ONLY

WARNING INTENSIVE LIGHT MAY CAUSE EYE INJURY

- Avoid looking at the probe head while LED is on.

CAUTION CERTAIN SUBSTANCES MAY DAMAGE THE PROBE

- Please refer to Chemical resistance below. Contact the store you purchased for unsure chemical solutions for further information.

Chemical Resistance

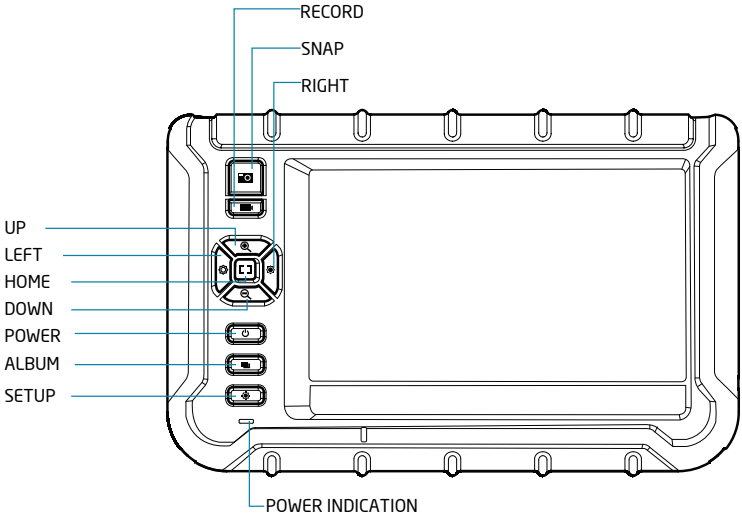
- Water
- Brake fluid
- Gasoline
- Diesel fuel
- Transmission fluid

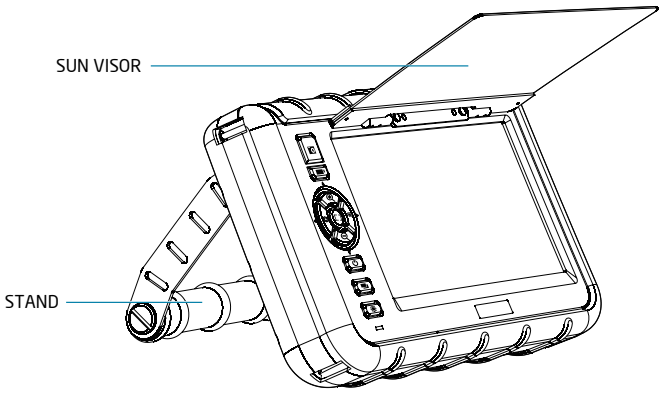
CAUTION- Camera High Temperature warning

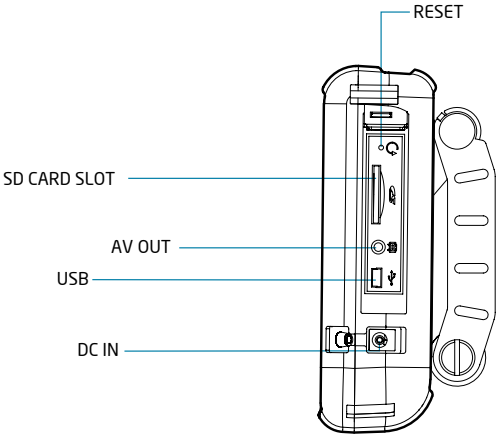
- Prevent using the camera head in over 100oC environment.
- The base unit shows 3 levels (60oC/80oC/100oC) camera temperature warning signals. Take out the tube when the 100oC warnings signal pop up.

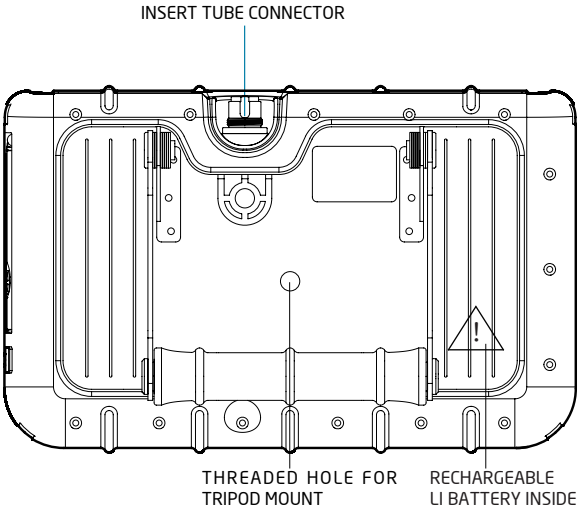
[Part I] Product Outlook

• 1.1 X2000 Base unit

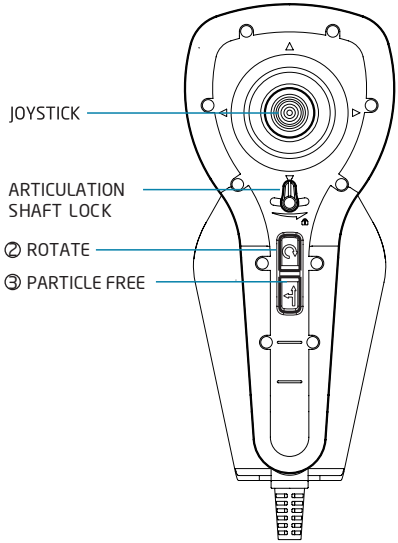


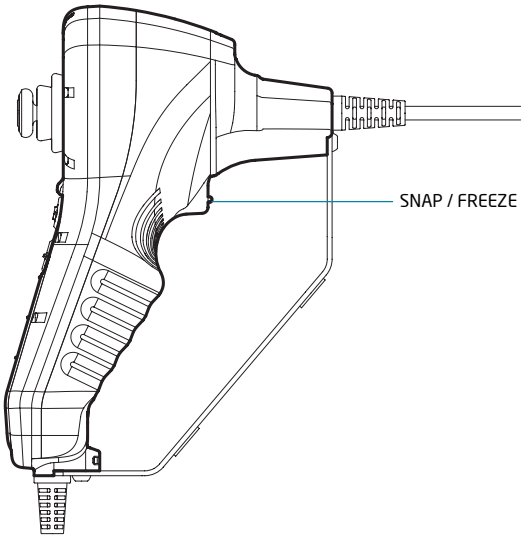



RESET
SD CARD SLOT
AV OUT
USB
DC IN


INSERT TUBE CONNECTOR
THREADED HOLE FOR
TRIPOD MOUNT
RECHARGEABLE
LI BATTERY INSIDE

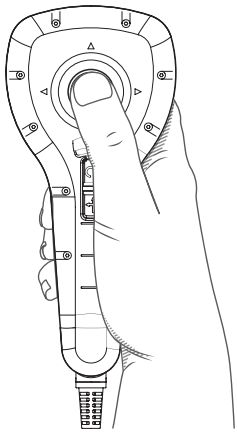
• 1.2 Joystick Console

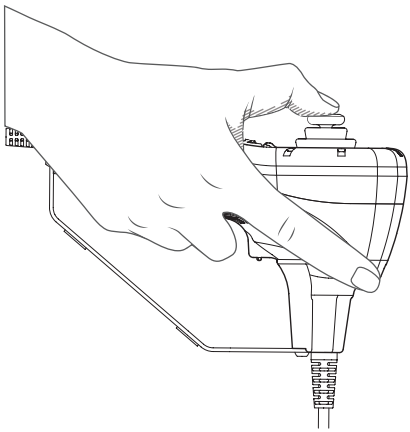




Frequent operations

Generally, use your thumb to control the joystick, and use other fingers to grip the handle.





The joystick operations

Lock mode: The articulation angle can be fixed by every joystick movement.

Capture images

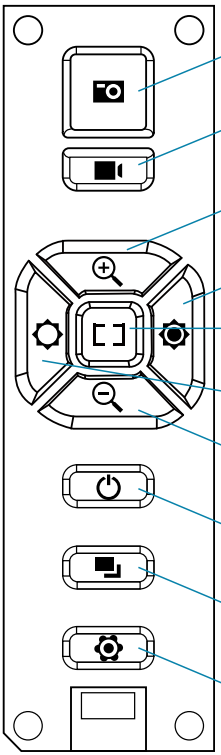
- Press to capture desired image.
- Hold to keep freezing the frame.

Adjust brightness

- Press increase brightness.
- Press decrease brightness.

[Part II] Main key function

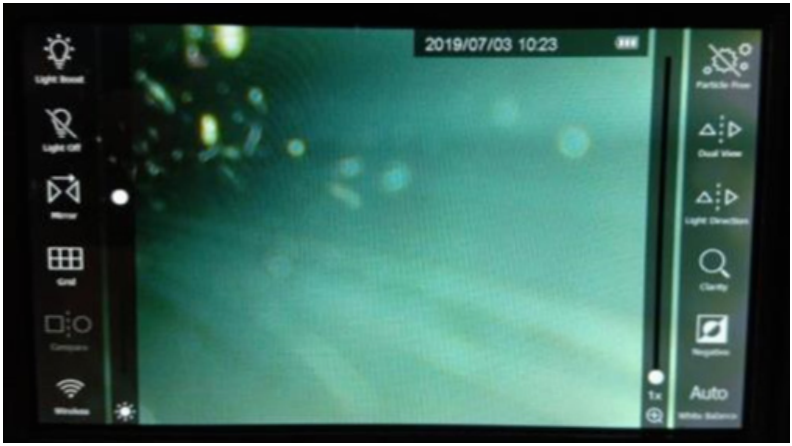
• 2.1 Main UI



SNAP	Take pictures
RECORD	Video record
UP	Zoom in
RIGHT	Increase brightness
HOME	Switch to full screen / back to live view
LEFT	Decrease brightness
DOWN	Zoom out
POWER	Turn on / off the system
ALBUM	Quick enter album mode
SETUP	Change language, date, and other system settings

Live View screen UI

- 2.2 Live view Screen Overlays



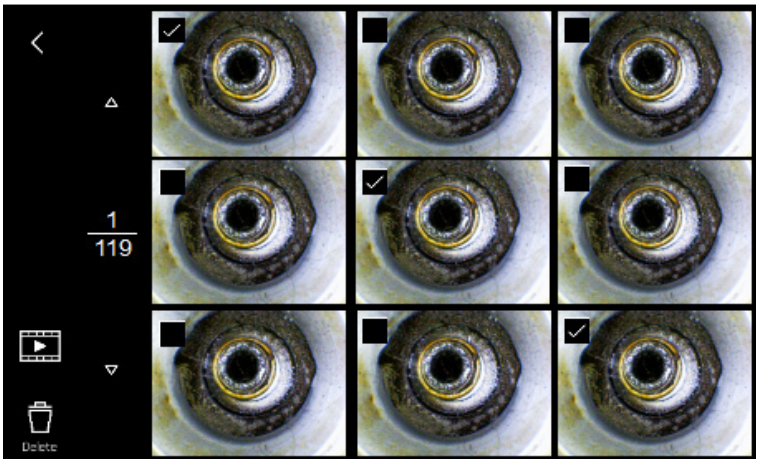
- 2.2 Full Screen
  Press the <Home> button.
- 2.3 Zoom in/Out
  Press the <up> / <down> button. Digital zoom 3x adjustment.
- 2.4 Brightness Control
  Press the <right> / <left> button. 10 levels adjustment.
- 2.5 Snapshot
  Press the <Snap> button.

• 2.6 Video Recording

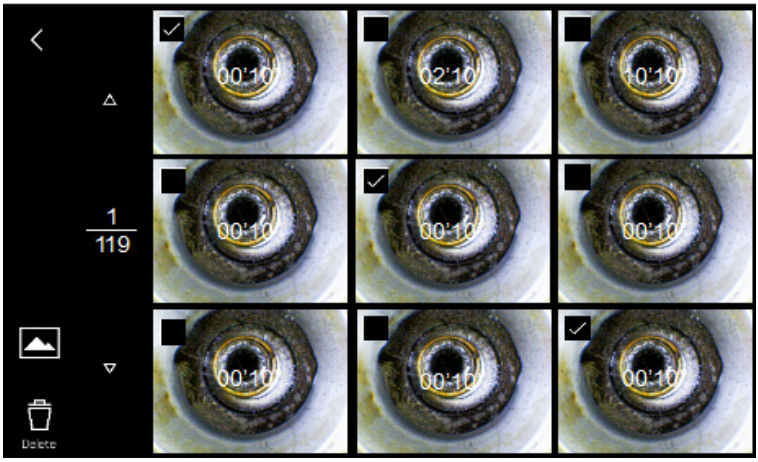
Press the <Record> button to start/stop recording video.
During recording, press the <Snap> button can take and save the real time screenshot image photo.

• 2.7 Album

• 2.7.1 Photo Gallery: touch [video] button to view video gallery.

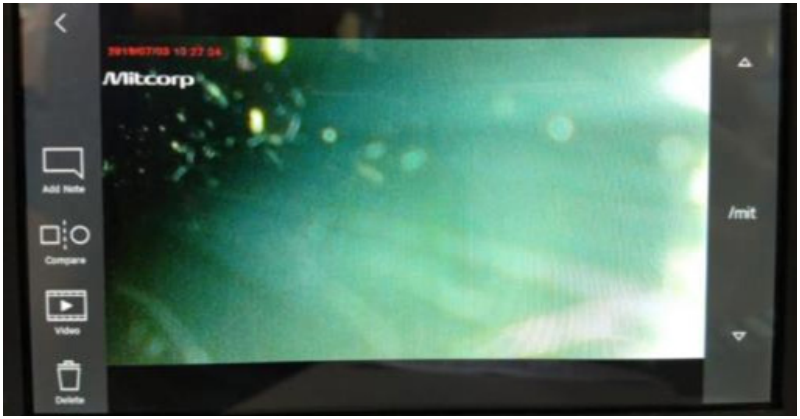


• 2.7.2 Video Gallery: touch [photo] button to view video gallery



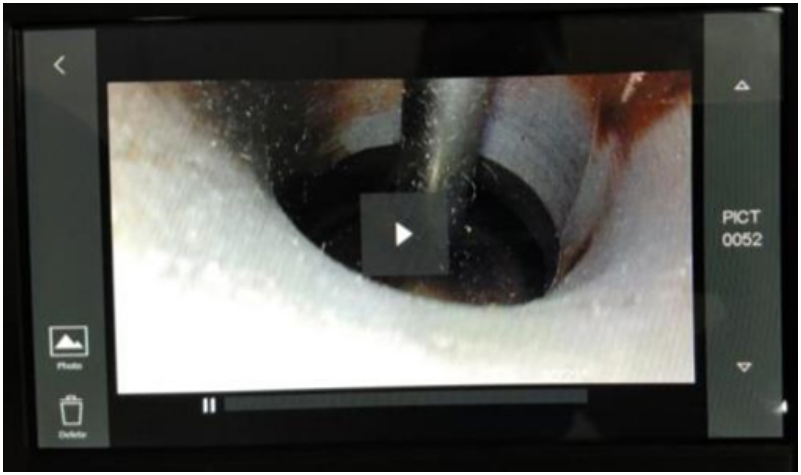
• 2.7.3 Single photo view:

touch [video] button to view single video file.
The [Add Note] and [compare] instruction is in next section.



• 2.7.4 Single video view:

touch [photo] button to view single photo file. Touch any position of the screen to play / pause.

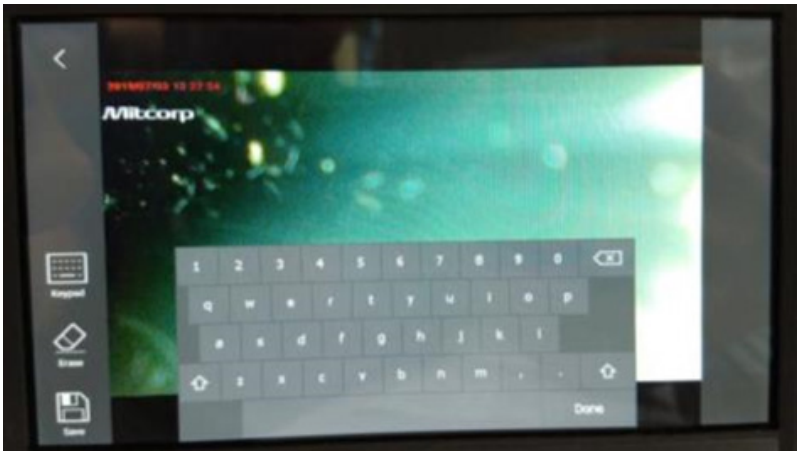


• 2.8 Album --Photo annotation function

The X2000 system allows user add maximum 10 notes on a photo. Each note can key in maximum 24 characters. The edit steps as follow:

• 2.8.1 Add one note:

[Add Note] -> [key in]-> [Done]. Then a note can be done.



• 2.8.2 Add more note:

[Keypad] -> [key in]-> [Done].

- 2.8.3 Move note position.

  Touch any note been made on screen then it shows a green frame. The note frame can be dragged to any position you want to mark on the photo.
- 2.8.4 Erase note

  Touch any note been made on screen then it shows a green frame. Touch the [Erase] to delete the note frame.

  During keying any note, use the [Erase] function to erase all characters.
- 2.8.5 Save

  [Save] Please make sure saving the photo with notes you made. The system creates a new file in the album. The original photo will not be covered.

• 2.9 Album -Compare function

Touch the "Compare" key to compare the live view with any stored image file.

To move the compared photo to target position.

To switch the left / right side viewing window.

To replace another compared photo.

Note:

Push the [Home] key to go back to live view.

Note:

Concerning the necessarily usage of accessing stored images files, the [wireless] and [compare] functions will be disable when there is no SD card installed in console.

[Part III] Touch-screen key functions

• 3.1 Function list

Function	Button	Description
Boost		Light enhanced Mode
Light Off		LED off
Mirror		Mirror image
Dual View		The screen will display both front view and side view (when using dual view mirror)
Compare		Compare stored image with live view
Compare Move		Moving the stored pic
Compare Switch		Switching compared windows position
Compare Replace		Replace the photo in the comparison window from SD card
Rotate		Rotate image
Anti Glare		Anti reflection
Particle Free		Dust elimination (when using side view mirror)
Grid		To measure the size of object
Clarity		Sharpening image edge
Negative		Image contrast
White Balance		Hue adjustment

• 3.2 Wireless function

• 3.2.1 Enable wireless

Touch

→

In a few seconds, the indicator shows up, then the system is ready to be searched and connected by mobile devices.

• 3.2.2 Wi-Fi connection with mobile devices

Open your mobile Wi-Fi setting and search the system SSID. The SSID and password can be found in the <MENU> / <info.>.

Connect the system with your mobile device.

Note:

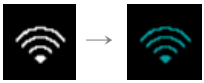
- Typically, the Wi-Fi system will be added to your favorite Wi-Fi network list after first time connecting. The favorite Wi-Fi network will remember the SSID/password.
- The main system allows 1 console to 1 mobile connection simultaneously.

  When use a new mobile device to connect the system, please check there is not any existing mobile device enabling Wi-Fi and connect to the system. It may cause the connecting step being rejected then fail.

• 3.2.3 Live share and access the image of the system.

Launch the “VideoscopeNow” APP.

When the system start streaming image to mobile APP, the wireless indicator change will to blue color .



Note:

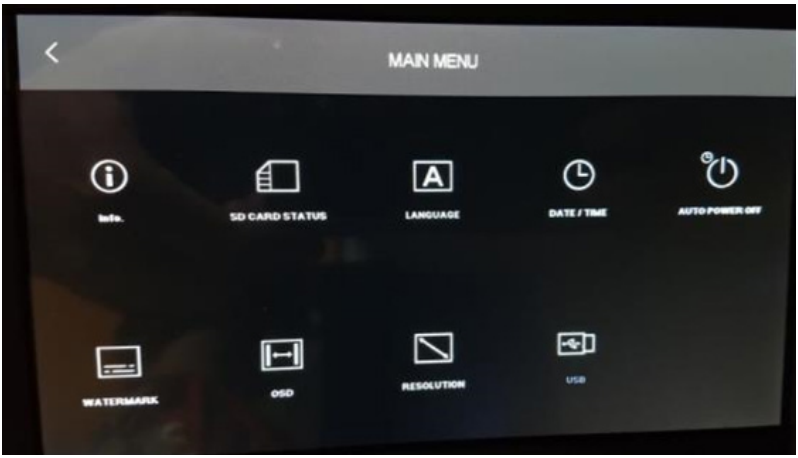
- MITCOPR provide the "VideoscopeNow" APP for X2000 wireless usages.

  'VideoscopeNOW' is a tool specifically designed industrial videoscopes that can share the live view from the main portable console system through Wi-Fi connection. It can also act as a remote controller to make the console taking photos or recording clips. In the APP, user can link to the system to access the album and download the photos/clips on the local mobile devices.

- Learn detail instruction by the <VideoscopeNow user guide>
- In APP preview / album mode, the main system will shut down the console's live view image and main key functions to avoid control operation conflicts and keep data download performance. The monitor show a data transfer status.

[Part IV] Main MENU settings

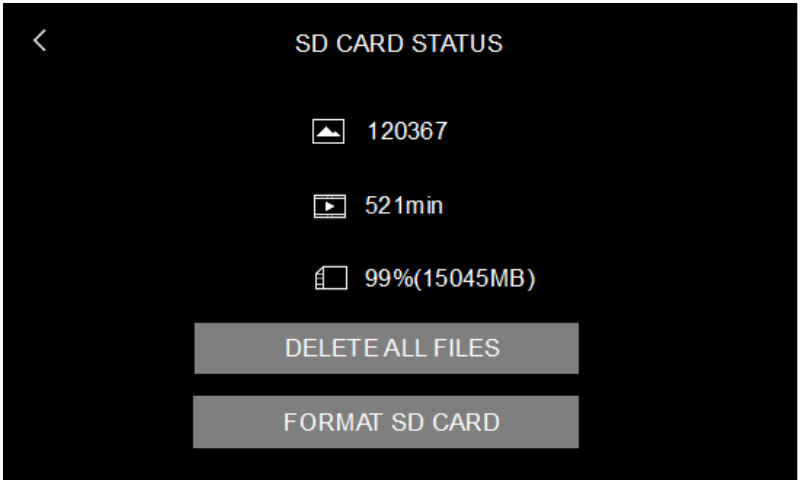
- 4.1 Menu



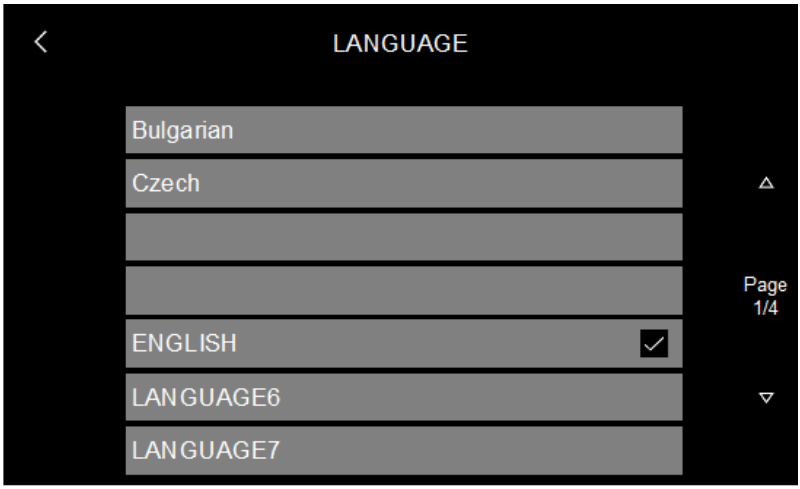
• 4.2 Info.

Include firmware information.
- Current version
- Wi-Fi SSID
- Wi-Fi password
- Insert tube type

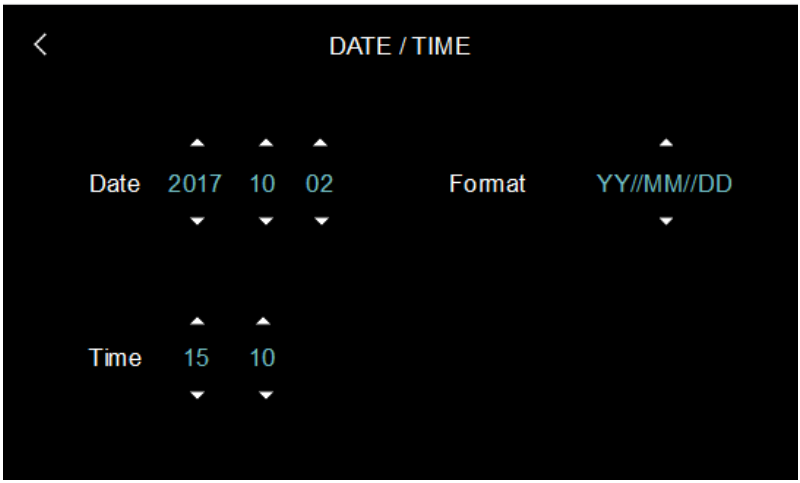
• 4.3 SD card status



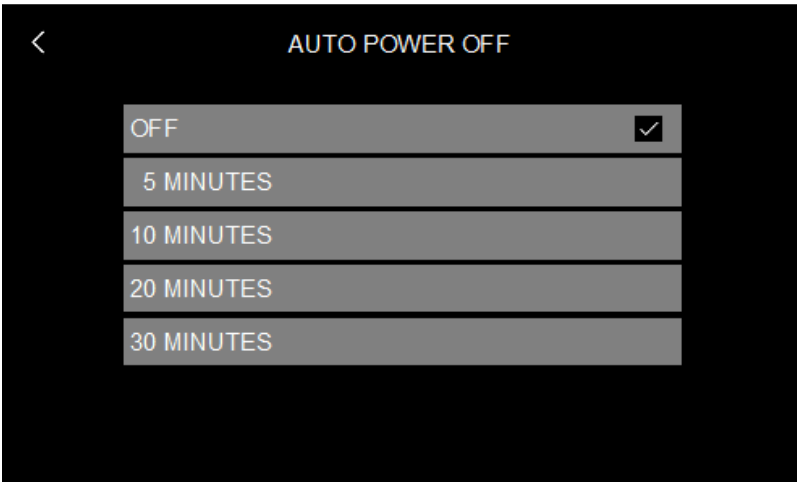
• 4.4 Language



• 4.5 Time setting



• 4.6 Auto power off



• 4.7 Watermark

- On/off switch for timestamp and watermark on snap shot photos.
- Timestamp and Watermark position are adjustable to 4 corners of the photos.
- The Watermark logo can be replaced. (*Put the logo file in SD card. *File format: 160*160, .JPG)

• 4.8 OSD

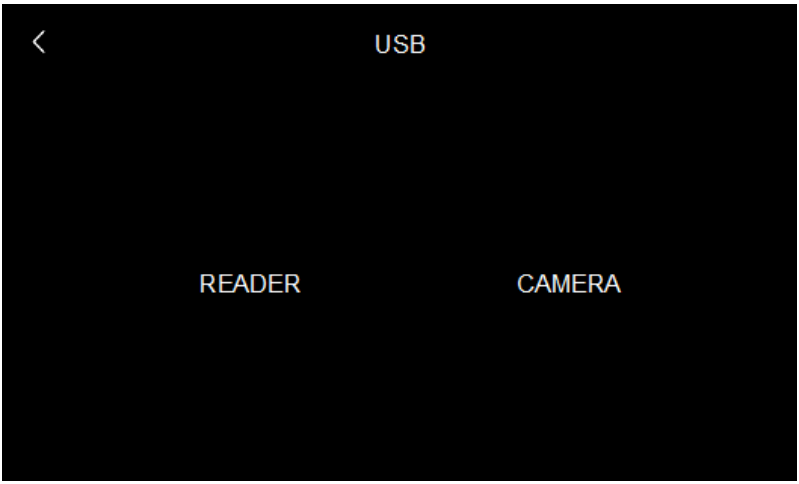
- AUTO HIDE of the OSD (On-Screen Display) function bars on 2 sides.
- The transparency of the function bars are 4 levels adjustable.

• 4.9 Resolution

- Snap shot photo resolution options:
  (1)FINE mode: 2560*1440 ; (2)STANDARD mode:1280*720

• 4.10 Auto power off

- When the USB port is connected to PCs, choose output to be:
  (1)SD card reader ; (2) Camera.



Specifications

X2000		
Display		7" LCD, Resolution 1024x600
Power Supply	AC adapter:	100V~240V, 12V 2.5A. 50~60Hz
	BATTERY	Rechargeable Li Battery 3.6V 9800mAH, approximately operation time: 4hrs, charging time: 2.5hrs. Quick charge: 12V, 2A approximately 2hrs (80% capacity)
Video Output	HDMI	TYPE D; HDMI 1.4 transmitter with 3D format and CEC support
	USB	USB TYPE C, supporting USB full-speed and high-speed data transmission
	Wi-Fi	IEEE802.11B/G/N
Operating temperature		in air 0~45°C with AC power adapter: 0~40°C charging temp: 0~45°C
Drop resistance		1m
Relative humidity		Max 95% non-condensing
Operating temperature		in air 0~45°C with AC power adapter: 0~40°C charging temp: 0~45°C
Relative humidity		Max 95% non-condensing
Dust proofing and water proofing		IP57
Insert Tubes interchangeability		6.0mm HD series; MX3.9mm series

Software Features	
Image features	Digital zoom 3X, 10 steps brightness control
Sharpness control	Clarity - on/off
Annotation	10 text annotation (24 characters)
Timestamp / watermark	For snapshot / video recording (on/off)
Image management	User define pic / video folder available
Image display functions	Light boost, light off, mirror, grid, compare, wireless, particle free, dual view, light direction, negative, auto whie balance
White balance	- Manual adjustable (default, warm, cold, custom) - Auto calibration

Recording Management		
Storage media		SDHC up to 32G
Overlay		YY/MM/DD h:m, battery capacity
Thumbnail image display		9 grids album mode
Still image	Resolution	2560x1440 (S-HD); 1280x720 (HD)
	Recording format	.jpg
Video	Resolution	1920x1080
	Recording format	.mov/H2.264
	Audio input	Built-in microphone (on/off)
Frame rate		30FPS

6.0mm 360 Articulation Probe	
Joystick console Dimensions (WxDxH)	139.4x193x84.2mm (w/o SR and insert tubes)
Net weight	2m:770g/ 3m:866g (approximately)
Joystick console buttons	Brightness +, Brightness -, snapshot / record
Lock and move	Lock / unlock switch on console
Probe head diameter	6.0mm
Probe length	2m / 3m
Probe head material	Stainless Steel
Probe material	Tungsten braid
Prove head length	19.3mm
Direction of View	Front view
Field of View (FOV)	90°
Depth of Field (DOF)	10mm~100mm
Illumination	Front / Side LEDs
Articulation angle (up/down/right/left)	2m, 3m full ways ≥120°
Operating temperature	In air: -10~100℃ In water: 10~30℃
Dust proofing and water proofing	Joystick console: IP 54 Insert Tube: under water 1m for 30 minutes
Relative humidity	Max 95% non-condensing
Liquid resistance	Operable when exposed to machine oil, light oil or 5% salinne solution

Specifications

<table>
<tr><th colspan="3">Accessories</th></tr>
<tr><td>HDMI cable (AV-out)</td><td colspan="2">1.8m, HDMI 1.4a, D TYPE</td></tr>
<tr><td>USB cable (data transfer)</td><td colspan="2">1m, type C to standard type A</td></tr>
<tr><td>trolley case</td><td colspan="2">HDPE EVA with storage reel</td></tr>
<tr><td>SD card</td><td colspan="2">16G</td></tr>
<tr><td>DC power adapter</td><td colspan="2">100V~2401V, 12V 2.5A 50~60 Hz</td></tr>
<tr><td>DC-in cable</td><td colspan="2">1m, USB-DC jack</td></tr>
<tr><td rowspan="3">Rigid sleeve</td><td colspan="2">Grip material: Rubber/ Aluminum/ Plastic
Tube material: Stainless steel</td></tr>
<tr><td>for 6.0mm probe:</td><td>for 3.9mm probe:</td></tr>
<tr><td>OD: 8mm / ID: 7mm
Protection ring: OD: 10mm
extension joint ringL OD: 11.2mm</td><td>OD: 6mm / ID: 5mm
Protection ring: OD: 8mm
extension joint ringL OD: 10mm</td></tr>
<tr><td>Side-view mirror</td><td colspan="2">6.0mm</td></tr>
<tr><td>Shoulder strap</td><td colspan="2">Polyester</td></tr>
<tr><td>Hand strap</td><td colspan="2">Polyester</td></tr>
<tr><td>Sun visor</td><td colspan="2">Steel / Plastic</td></tr>
</table>

NOTE

08-19-EN

Mitcorp

2F., No.75, Wenhua 1st Rd., Guishan, Taoyuan 333, Taiwan
T +886-3-328-7177 F +886-3-328-7176

e-mail: sal@mitcorp.com.tw
@ website: www.mitcorp.com.tw