V Series Veterinary Endoscope Operation Manual

Warranty

We guarantee that the following products will be free from defects in material and workmanship for:

●Rechargeable Screen Handle: 1 year from the date of purchase

●Flexible insertion tube: 1 year from the date of purchase

●During the designated period, at our option, we will repair or replace any parts or the product found to be defective free of change.

● Service, repair, or modification is carried out by us or any personnel authorized by us.

● Our products are used in proper manner in strict compliance with operating instructions.

1. Product Introduction

1-1 Indication for Use

The product is intended for use as below:

- Aid in endotracheal intubation.
- For ENT observation.
- Teaching purposes.
- Protective intubating from patient.

1-2 Contraindications

The product is not recommended for use in patient with following:

- Foreign body is in the airway.
- Needs for emergency intubation.

2. Description

The whole set consists of the following main parts:

- Outer diameter:
  - ☐ 2.8 mm
  - ☐ 3.8 mm / 1.2mm
  - ☐ 4.8 mm / 2.2mm
  - ☐ 5.2 mm / 2.4mm
  - ☐ 5.8 mm / 2.6mm
- Length: 60cm.
- Material: Aluminum alloy / Medical grade plastic
- Light source: White LED, brightness ≥ 3000 LUX.
- Camera: 160,000 pixels/ 400 x 400.
- Display: 4.0” LCD. 480*480
- Waterproof for probe: IP67.
- Photos, video recording, and record storage.
- Rotation angle: (horizontal) ≥100°/ (vertically) ≥120°.
- Built-in 16G memory card.
- Battery specifications: 3.3V ± 10% lithium 2000mAh.
- Power supply: Input AC 100V~240V / Output DC 5V, 1A

3. Before use

3-1 Unpacking

Take out all items from the case, and carry out the following:

- Check if there are any parts missing. (See Table 1).
- Inspect parts for damage.
- Report damage or shortage to the local distributor, if any.

List of Accessories		
Item	**Description**	**Quantity**
Case	Metal case	1
Rechargeable Screen	4.0'' LCD Screen	1
Flexible Video Intubation	Handle with flexible built-in camera	1
Mini HDMI		1
USB cable		1
Adaptor		1
Sphygmomanometer		1
Cleaning brush		2
Plastic Tee		1
Protect cover		1
Leak proof pressure joint		1
Rubber stopper		1

3-2 Charging

- **Plug the power cord into the USB port on the side of the screen. (Fig. 1).**
- Blue light indicator means charging.
- The green light turns on when fully charged.

Fig.1

3-3 Installation

- Connect the flexible intubation with the screen, and ensure groove alignment (Fig. 2).
- Lock the flexible intubation with spiral ring (Fig.3).

Fig 2

Fig 3

3-4 Function test

- Power button: Power on/off (one second: on/two seconds: off).
- ^/v Up and Down button: Confirm the option.
- Setting Button: Menu mode

- Photo/Video recording button on the handle:

  1). One click to take photo

  2). Press and hold to record

  3). One click again to stop recording

3-5 Setting

After Press Setting button, you will see the Screen on the following:

①Time Setting: select the up/down button and setting button to set the right time

②Auto Shut Down: you can select the time 1minute, 3 minutes, 5 minutes

Automatic shut down when the device without operation

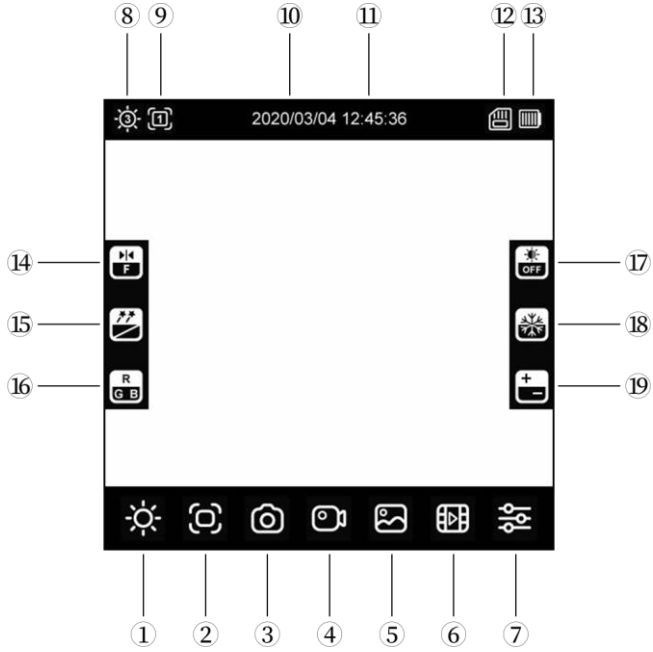
③File Formatting

Caution: please save your file before you selected this function.

④FW updated: You can use this function when update the system

3-6 Menu and Function

When the device is on ad you touch the screen, you will see the following:



①.Lightness Adjusting: Touch icon to adjust the lightness by referring the level from

②.Zoom: touch the icon and zoom by referring the level from

③.Photo Shooting

④.Video Recording

⑤. Image Review

⑥. Video Review

⑦. Setting Icon: Same as setting button

⑧. Lightness states

⑨. Zoom states

⑩/⑪. Date/time

⑫. SD Card

⑬. Battery

⑭. Image mirror

⑮. Image effect

⑯. RGB regulation

⑰. White balance

⑱. Image freeze

⑲. Flash lighting

4. Operating Instructions

Connect the flexible video intubation and the screen, and then lubricate the stylet. (Fig. 4)

Insert the flexible stylet from the oral cavity or nasal cavity slowly and observe the condition. (Fig.5)

Fig. 4

Fig.5

When the epiglottis appears on the screen, adjust the angle of the flexible stylet and then advance the stylet through the vocal cords. (Fig. 6 & 7)

Fig. 6

Fig.7

Observe the condition on the screen, and insert the endotracheal tube. (Fig. 8 & 9)

Fig. 8

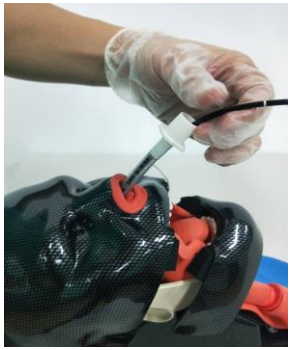


Fig. 9

5. Cleaning and Disinfection

Method	Flexible video intubation
Wipe with a gauze pad with 75% alcohol	O
Enzymatic Cleaning Solution	O
Glutaraldehyde 2% solution - Cidex	O
Ethylene Oxide Gas (E.O.)	X
Autoclave	X

6. Service

There is no user serviceable parts inside the qualified screen handle, which has passed performance tests and quality assurance tests and meet qualification criteria prior to shipment. No calibration is required, and please do not open any part of the products. We will be held responsible for damage only when service, repair, readjustment or modification needs to be carried out by us or any personnel authorized by us.

7. Troubleshooting

Problem	Cause	Solution
Rechargeable Screen Handle failure	Battery level low	Charging
	Oxidation of contact surfaces	Clean the contact
	Poor contact between Stylet/laryngoscope and handle	Tighten both parts

Data transfer failure	Loose connection	Check whether the cable's firmly connected.
Blurred image	Len stains	Clean the lens

Important: After trying all above solutions but the problems remain, please contact the local distributor.

8. Specification

Display part	Display	4 inch IPS Full view display
	Display resolution	480*480
	Operation interface	Capacitive touch and key double-set co-operation
	Image control	Continuous (4 times)
	Image format	JPEG/JPG
	Software upgrade	TF card upgrade
	Video format	AVI
	Function	Photos, videos, playback, etc.
	File management	Picture/video playback, deletion, formatting
	Storage	16G Maximum expansion 32G SD card
	Data I/O port	SD card, HDMI video signal, USB
	Battery working hours	6h
	Brightness adjustment	6 level brightness adjustment
Operation	Camera pixels	30W digital imaging

part	Optional insertion tube	Distal end outer diameter | Channel inner diameter
		2.8mm / none
		3.8mm / 1.2mm
		4.8mm / 2.2mm
		5.2mm / 2.4mm
		5.8mm / 2.6mm
	Insertion tube lens view	Two way adjustment
	Foreign body forceps	700mm/1200mm(Optional)

9. General Information

9-1 Safety Standards

Safety requirements

Meets the requirements of GB9706.1-2007 and GB9706.19-2000

Electromagnetic compatibility (EMC)

Meets the requirements of YY0505-2012 and GB9706.19-2000.

Environmental requirements

Meet the requirements of climatic environmental test group II, mechanical environmental test group II, transportation test and adaptability to power supply.

9-2 Operation/storage/transport conditions

Operating conditions

Ambient temperature: -5ºC ~ 40ºC

Relative humidity: ≤80% (no condensing)

Atmospheric pressure: 700hPa ~ 1060hPa

Never place it in direct sunlight or near any other source of cold or heat.

Storage and transportation conditions

Ambient temperature: -20 ° C ~ +55 ° C

Relative humidity: ≤93%

9-3 Annex

Annex: 1

Guidance and manufacturer's declaration ---electromagnetic emissions		
Video intubation set is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that the device is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment--guidance**
RF emissions GB 4824	Group 1	Video intubation set uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions GB 4824	Class A	Video intubation set can be applied with all establishments other than domestic

Harmonic Emissions GB 17625.1	NA	and those directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.
Voltage Fluctuations/Flicker Emissions GB 17625.2	NA	

Annex: 2

Guidance and manufacturer's declaration—electromagnetic immunity			
Video Intubation Set is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that the device is used in such an environment.			
Immunity Test	**IEC 60601 Test level**	**Compliance level**	**Electromagnetic environment-guidance**
Electrostatic discharge GB/T 17626.2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst GB/T 17626.4	±2kV for power supply lines ±1kV for input/output lines	NA	Mains power quality should be that of a typical commercial or hospital environment.
Surge GB/T 17626.5	±1 kV differential mode ±2 kV common mode	NA	Mains power quality should be that of a typical commercial or hospital environment.

Annex: 3

Guidance and manufacturer's declaration—electromagnetic immunity			
Video Intubation Set is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that the device is used in such an environment.			
Immunity Test	**IEC 60601 Test level**	**Compliance level**	**Electromagnetic environment-guidance**
Voltage dips, short interruptions and voltage variations on power supply input lines GB/T 17626.11	<5 % U_T (>95% dip in U_T) for 0.5 cycle 40 % U_T (60% dip in U_T) for 5 cycles 70 % U_T (30% dip in U_T) for 25 cycles <5 % U_T (>95% dip in U_T) for 5 sec	NA	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a backup battery system.
Power frequency （50/60Hz） GB/T 17626.8	3A/m	3A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
Note: U_T is the AC mains voltage prior to application of the test level.			

Annex: 4

Guidance and manufacturer's declaration—electromagnetic immunity			
Video Intubation Set is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that the device is used in such an environment.			
Immunity Test	**IEC 60601 Test level**	**Compliance level**	**Electromagnetic environment-guidance**
Conducted RF GB/T 17626.6 Radiated RF GB/T 17626.3	3 V(Effective value) 150 kHz ~ 80 MHz 3 V/m 80 MHz ~ 2.5 GHz	NA 3 V/m	Portable and mobile RF communications equipment should not be used any closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: d = [3.5/V1] $\sqrt{p}$ d = 1.2 $\sqrt{p}$ 80 MHz ~ 800 MHz d = 2.3 $\sqrt{p}$ 800 MHz ~ 2.5 GHz P — the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer； d— the recommended

Annex: 4-(continue)

Guidance and manufacturer's declaration—electromagnetic immunity			
Immunity Test	**IEC 60601 Test level**	**Compliance level**	**Electromagnetic environment-guidance**
			separation distance in meters (m). Field strengths from fixed RF transmitters, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following sym 
NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			
a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured filed strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operations. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the device. b. Over the frequency range 150 kHz to 80 MHz, filed strengths should be less than [V1] V/m.			

Annex: 5

Recommended separation distances between portable and mobile RF communications equipment and the device			
Video intubation set is intended for use in an environment in which radiated RF disturbances are controlled. The customer or the user of the device can be help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment(transmitters) and the device as recommended below, according to the maximum output power to the communications equipment.			
Rated maximum output power of transmitter (W)	**Separation distance according to frequency of transmitter(m)**		
	150 kHz ~ 80MHz d = [3.5/V1] $\sqrt{p}$	**80 MHz ~ 800 MHz** $d = 1.2\sqrt{P}$	**800 MHz ~ 2.5 GHz** $d = 2.3\sqrt{P}$
0.01	NA	0.12	0.23
0.1	NA	0.38	0.73
1	NA	1.2	2.3
10	NA	3.8	7.3
100	NA	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

InterTest, Inc.
303 Route 94
Columbia, New Jersey 07832
Tel: 908-496-8008
Fax: 908-496-8004
https://intertest.com
E-mail: info@intertest.com