

YDJ-II LED COLPOSCOPE OPERATION INSTRUCTION

Preface

Thank you for purchasing our YDJ-II LED Colposcope. To prevent damage to your product or injury to yourself or to others, read the following safety precaution completely before using this equipment. Keep the safety precautions in a place where all those who use the product will read them.

The environment for use

a) Transport and Storing

- Ambient Temperature Range: -40°C-55°C
- Relative Humidity Range: 10%-80%
- Barometric Pressure Range: 500 hPa-1060 hPa

b) Operation

- Ambient Temperature Range: 5°C-40°C
- Relative Humidity Range: 30%-80%
- Barometric Pressure Range: 700 hPa-1060 hPa

Symbols

	CE label		Crossed-out wheeled bin
	Consult instructions for use		Date of manufacture
	Serial number		Authorized representative in the European Community
	Manufacturer		Handle With Care
	Keep dry		Upward
	Mind your hand		

Precautions

Although the ME equipment conforms to the intent of the standard EN 60601-1-2 in relation to electromagnetic compatibility, electrical equipment may produce interference. If interference is suspected, move equipment away from sensitive device or contact us.

The portable and mobile RF communication equipment can affect this instrument's normal operation.

Information on potential electromagnetic or other interference and advice on how to avoid or minimize such interference

1. When carrying and unpacking the carton, pay attention that the arrow on the carton shall be at upward position. Handle the instrument with care to prevent it from being damaged.
2. Do not use this instrument in the environment prone to fire and blast or where there is much dust and with high temperature. Use it in the room and simultaneously be careful to keep it clean and dry.
3. Check that all the wires are correctly and firmly connected before using.
4. Please pay attention to all the rated values of the electrical connecting terminal.
5. Use the power adapter supplied with this instrument only.
6. Do not touch the surface of the lens and prism with hand or hard objects.
7. Turn off the main power first before replacing the LED bulb.
8. To prevent the instrument from falling down to floor, it should be placed on the floor where the inclination angle is less than 10°.
9. Turn off the power and cover the instrument with dust cover when it is not in use.
10. In case there is any trouble, please first refer to the trouble-shooting guide. If it still can not work, please contact the authorized distributor.
11. Power supply is specified as a part of me equipment.
12. Direct plug-in plug is considered as disconnect device, please do not place the equipment in a difficultly operation position.
13. Intended service life: 5 years

Warning: No modification of this equipment is allowed

Contents

Preface.....	P1
The environment for use.....	P1
Label and symbols.....	P1
Precautions.....	P2
1. Purpose and features.....	P4
2. The name and function of the main parts.....	P5
3. Assembly.....	P9
3.1. Assembly of the 5-star base and column	
3.3. Assembly of the balancing arm	
3.4. Assembly of the magnification changer	
3.5. Assembly of the beamsplitter, 45° tilted connecting component, CCD camera adaptor ,demonstrator, photo adaptor	
3.6. Assembly of the binocular head	
3.7. Connection of the LED lamp plug	
3.8. Connection of the power adapter	
4. Use of equipment.....	P10
4.1. Necessary working condition	
4.2. Precautions of using	
4.3. Adjusting the colposcope before using	
4.4. Adjusting the CCD adapter	
4.5. Inspection before using	
4.6. Using process	
4.7. Movement and storage after using	
5. Maintenance.....	P12
5.1. Cleaning and disinfection	
5.2. After-sales service	
6. Trouble-shooting Guide.....	P12
7. Technical specifications.....	P13
8. EMC electromagnetic compatibility.....	P14

1. Purpose and features

The YDJ-II LED Colposcope are precise optical instruments designed specially for the gynecologic examination and diagnosis in hospital environment. Due to the 5-step magnification of the instrument, the pathological changes in the vagina, which is impossibly viewed with naked eyes, can be clearly seen with the instrument. Therefore, the correctness of a diagnosis is enhanced significantly. Examination can be performed with vagina cell applied plate and pathological slice.

The YDJ-II LED Colposcope are featured for sharp image, wide field of view, uniform illumination, adjustable brightness and easy operation. They are the essential instruments for gynecologic examination.

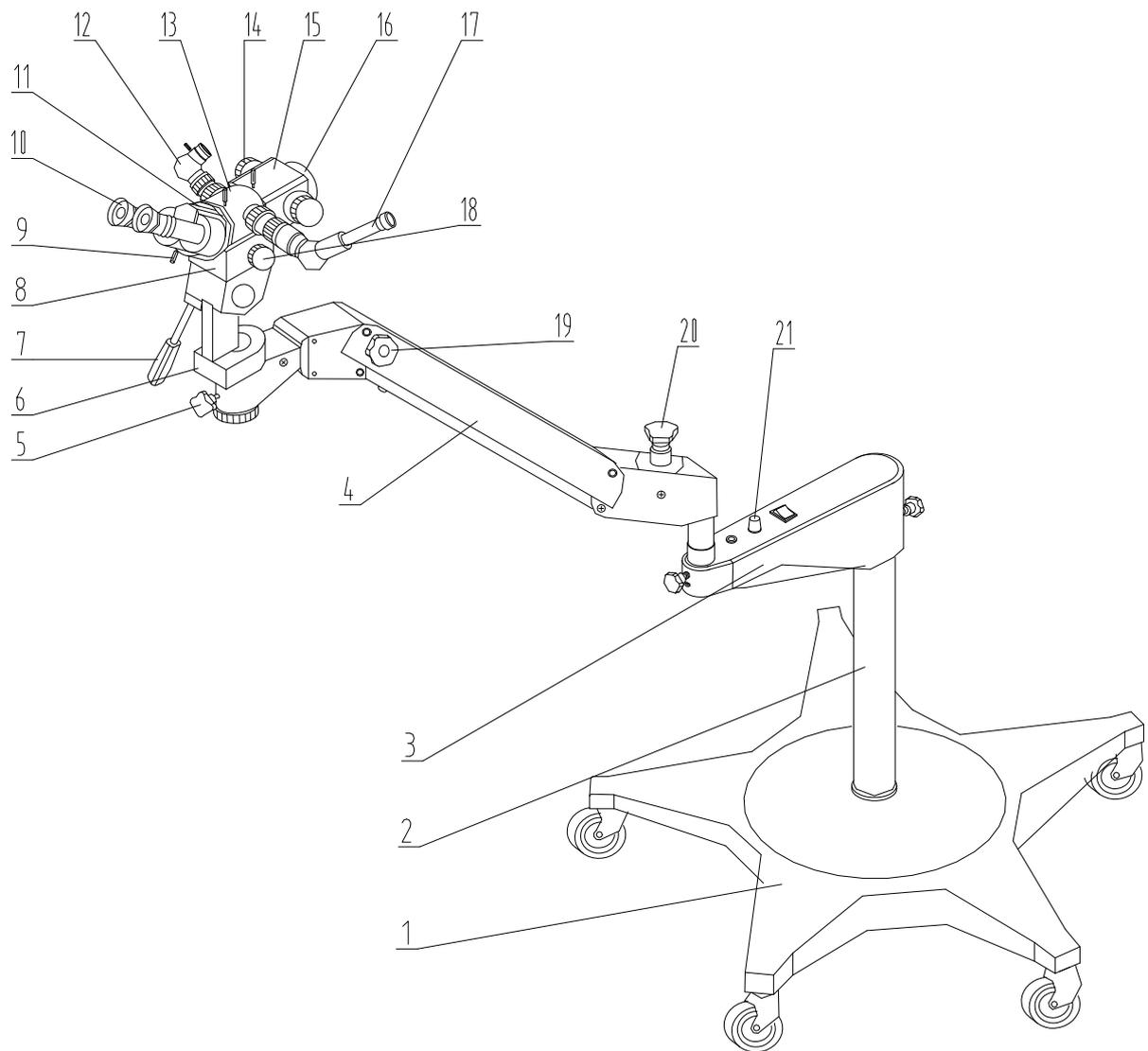


Fig 1 Name of the main parts

1. 5-star base 2. Column 3. Power supply box 4. Balancing arm 5. Clamping hand wheel
 6. Connecting base 7. Operating handle 8. Swallow tail base 9. Fixing screw 10. Binocular head
 11. Tilted 45°connector 12. CCD adapter 13. Beamsplitter 14. 5-step magnification knob
 15. Magnification changer 16. Objective 17. Demonstrator 18. Fine focusing knob
 19. Arm locking knob 20. Arm torque knob 21. Brightness adjusting knob

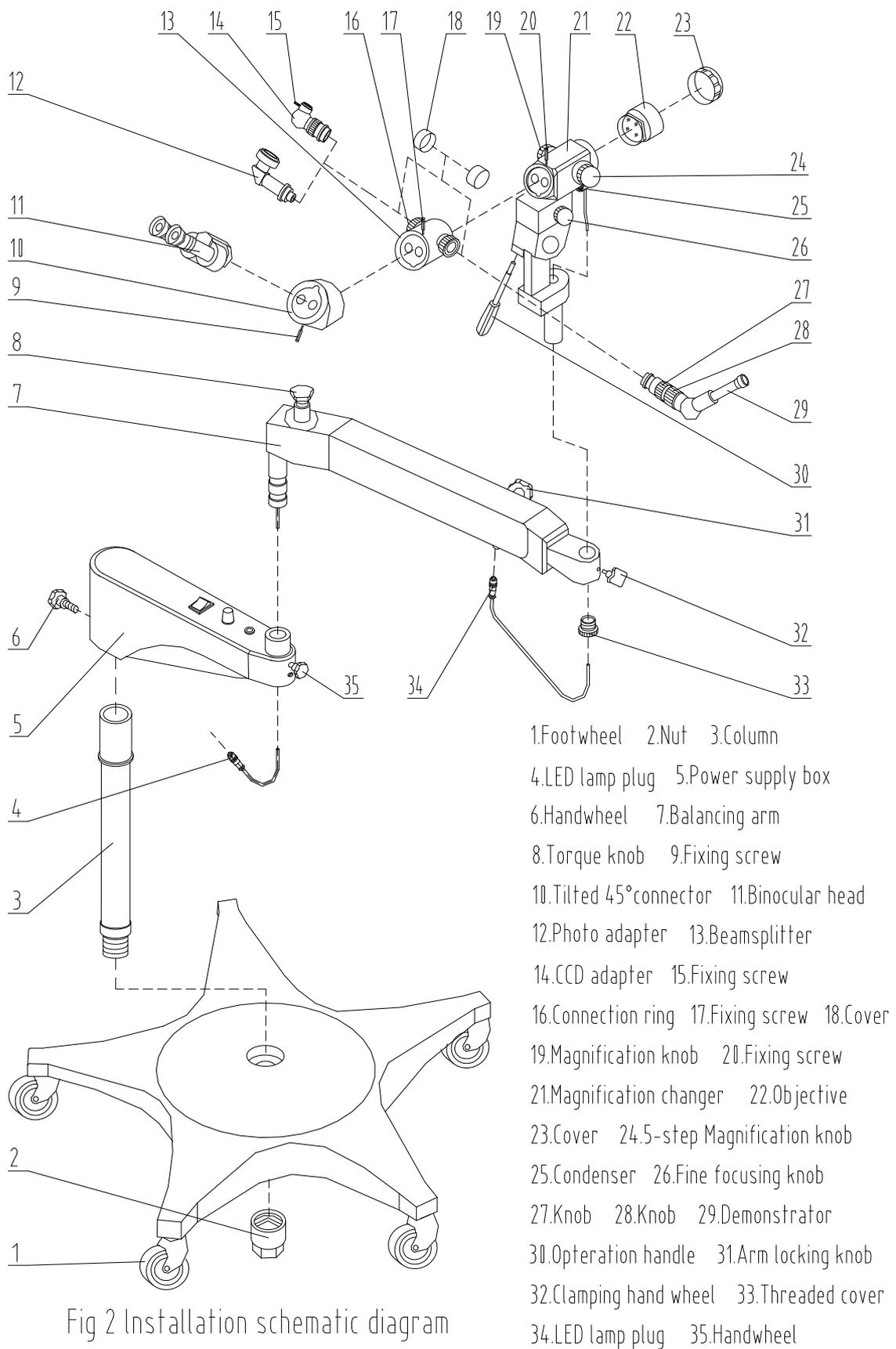


Fig 2 Installation schematic diagram

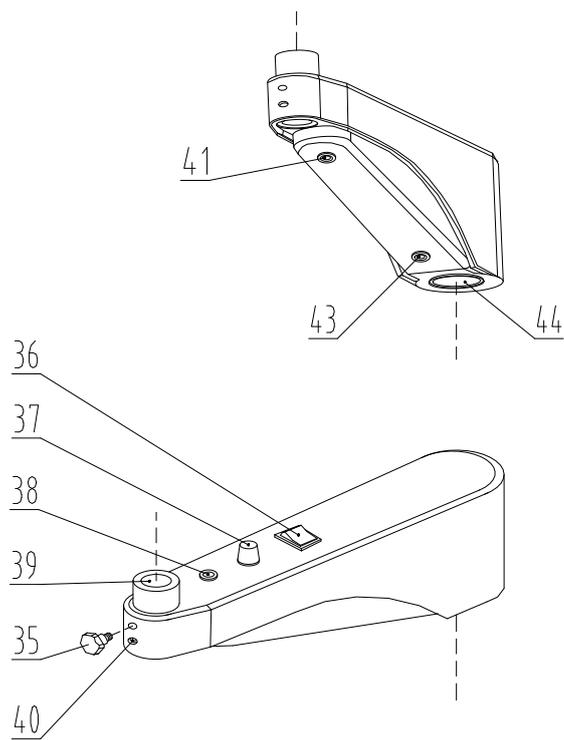


Fig.3 Power supply box

36. Switch 37. Brightness control 38. DC12V socket
 39. Hole 40. Screw 41. Socket
 43. Power socket 44. Hole



Fig.4 Power adapter

2. The Name and function of the main parts (Fig.1)

2.1. 5-star base: It is the groundwork of the colposcope. It is provided with 5 footwheels (two of them with brakes) at the lower end in order to move on the flat ground.

2.2. Column. It is support of the colposcope. The column is connected to the power supply box at the upper end and the base at the lower end.

2.3. Power supply box: Built- in LED lamp power supply.

2.4. Balancing arm.

2.5. Clamping hand wheel: To fix the connecting base.

2.6. Connecting base.

2.7. Operating handle: Loosen this handle to adjust the head obliquity.

2.8. Swallow tail base.

2.9. Fixing screw: To fix the binocular head.

2.10. Binocular head with two 16X eyepieces.

2.11. Tilted 45°connector.

2.12. CCD adapter: It is component connected to the beamsplitter for optical image forming. It is connected to the CCD camera that is connected to the monitor in order to transfer the image to the monitor for better observation and image memory and processing.

2.13. Beamsplitter: It is used to divide the light(50:50). It is provided with connections at left and right side for the connection of demonstrator and TV adapter or photo adapter.

2.14. Magnification knob: Rotate this knob to choose the suitable times.

2.15. 5-step magnification changer: Total magnification of the microscope can be changed by turning the magnification knob (0.4x, 0.625x, 1x,1.6x and 2.5x).

2.16. Objective: $f=300\text{mm}$ or $f=280\text{mm}$.

2.17. Demonstrator (optional components): It is a monocular observation unit connected to the beamsplitter. It can be used for assistant or student observation.

2.18. Fine focusing knob: Rotate this knob to adjust the focus of objective. The fine focusing distance is $\pm 10\text{mm}$.

19. Arm locking knob.

2.20. Arm torque knob.

2.21. Brightness adjusting knob.

2.22 . Condenser (25, Fig.2): Built-in 10W LED lamp.

2.23. Photo adapter (optional components 12, Fig2).

2.24 Power adapter: Input: AC100-240V, 50-60Hz, 1A. Output: DC12V, 3A (Fig. 4).

3. Assembly(Fig.2 & Fig.3)

The equipment is packed in two cartons. When carrying and unpacking the cartons, please pay attention to that the arrow on the carton shall be at upward position. After unpacking the carton, take out all parts one by one and assemble them according to the following procedures:

3.1. Assembly of the 5-star base and column

Take out the column (3, Fig.2) and the 5-star base from the package, turn out the nut (2, Fig.2) from the column, insert the column (3, Fig.2) into the hole of 5-star base, then tighten the nut (2, Fig.2).

3.2. Assembly of the LED power box

Take out the power supply box (5, Fig.2) from the package, insert it into the column (3, Fig.2), then fix it with clamping hand wheel (6, Fig.2).

3.3. Assembly of the balancing arm

Take out the balancing arm (7, Fig.2) from the package, insert it into the power box hole (39, Fig.3) and fix it with clamping hand wheel (35, Fig.2).

3.4. Assembly of the magnification changer (with fine focusing system and connecting base)

Take out the magnification changer (21, Fig.2) from the package, take off the threaded cover (33, Fig.2), insert it into the hole of arm, then tighten this threaded cover(33, Fig.2)

3.5. Assembly of the beamsplitter, 45° tilted connecting component, CCD camera adaptor, demonstrator, photo adaptor

Take out the beamsplitter, install it to the magnification changer and fix it with fixing screw (20, Fig.2). Take out the tilted 45°connector, install it to the beamsplitter and fix it with fixing screw (17, Fig.2). Take out the CCD (14, Fig.2) or photo (12, Fig.2) adapter, insert it into the any end of the beamsplitter and fix it with the connecting ring (16, Fig.2) . Take out the demonstrator, insert it into the other end of the beamsplitter and fix it with the connecting ring (16, Fig.2)

3.6. Assembly of the binocular head

Take out the straight binocular head (11, Fig2) from the package, install it to the tilted 45°connector, then fasten the fixing screw (9, Fig2).

3.7. Connection of the LED lamp plug

Insert the LED lamp plug (34, Fig.2) into the socket under the arm. Insert the plug (4, Fig.2) into the socket(41, Fig.3) under the power supply.

3.8. Connection of the power adapter

Insert output connector of power adapter (Fig.4) into the socket (43, Fig.3) under the power supply, connect the power adapter to power supply.

4. Use of equipment

4.1 Necessary working condition

Please make sure the following items, then enter into the next operation:

- Please check whether the main voltage and frequency comply with what required by the equipment.

Input voltage is AC100-240V and frequency is 50-60Hz.

- Please use the power adapter supplied with this equipment.
- Please make sure that all mechanical parts concerning security should be assembled in the right way.

4.2 Precautions of using

- Please never watch the light source directly through the objective.
- Please do not cover the heat elimination hole of power supply box and LED.
- Please pay more attention to the caution on the equipment.

4.3 Adjusting the colposcope before using

- Adjust the working distance of colposcope and pupil distance first.
- Emmetropia: Adjust the eyepiece to 0 diopter; Operator with glasses: Adjust the eyepiece to 0 diopter;

Ametropia (who know their refractive powers and perform surgery without wearing their glasses):adjust the eyepiece to his/her eyesight.

■ Ametropia (who do not know their refractive powers and perform surgery without wearing their glasses): adjust both eyepieces to +5D, take out the binocular heads with eyepieces from the microscope and observe the distant object, just like using a telescope. Then rotate the diopter adjustment hoop of one eyepiece until the image clear. If necessary, please repeat this process for three times. Use the same method to adjust the other eyepiece. Assemble the binocular heads with eyepieces back to the microscope body.

Caution: It is necessary to make a form if several doctors share an operation microscope. Every doctor's diopter should be filled into the form and keep the form in a place where all those doctors using the colposcope will read them.

4.4 Adjusting the CCD adaptor

■ When using CCD adaptor, first see clear image through the binocular head, then turn the fine focusing ring on CCD adaptor until the image in the screen is seen clearly. If the direction of image viewed with CCD is different from that viewed with the binocular observation unit, screw out the locking screw(15, Fig.2) on the adaptor and turn the camera till the image direction is the same as the image viewed with the binocular observation unit, then tighten this screw(15, Fig.2).

4.5 Inspection before using

Please make the inspection before the operation according to the following requests:

- Check all fixation screws and lock pin have already been tightened.
- Turn on the power switch. Then check the following items:

Illumination:

- The LED lamp should be in good condition.
- The two LED lamp plugs should be connected with the power supply box and the arm.

Microscope:

- All screws have been tightened.
- The operation microscope and eyepieces have been adjusted to the suitable position for operation.
- Pupil distance has been adjusted.
- The diopter has been adjusted.
- The filter selector is in good condition.

Base:

- The foot wheels have been braked.

4.6 Using process

- Please make sure the above steps have been finished.
- The equipment have been inspected according to the requests.

- Turn on the power switch (36, Fig.3).
- Move the arm up and down to a right working position.
- Adjust the illumination.
- Select the filter which will be used.
- Move the colposcope into operation area, then adjust it to a suitable position.
- Adjust the colposcope nearby working distance, then adjust the fine focusing knob (26, Fig.2) to a

suitable position.

- The main power should be switched off if the equipment is not used.

Caution: Make sure the heat elimination holes are not covered.

4.7 Movement and storage after using

- Switch off the main power.
- Loose the brake of the wheel.
- While moving the equipment, move it slowly and carefully to avoid falling and bumping.
- While move to the storage place, stamp the brakes.
- Put on the dust cover while the equipment is not in use.

5. Maintenance

5.1. Cleaning and disinfection

Caution: The dirt on the lens must be cleaned immediately after using. It will be hard to clean when the dirt air-dried.

5.1.1 Cleaning the surface of equipment

The outer surface of the equipment can be cleaned with wet cloth. The remaining stains can be cleaned off with the mixture of 50% distilled water. Do not wipe with any corrosive detergent lest that the surface should be damaged.

5.1.2 Cleaning the surface of optical lens

To prevent the dust stained on the lens, never expose the optical lens to air without objective, eyepiece tube and eyepiece. Please use the dust cover after using.

Cleaning the surface of optical lens: To clean the dirt on lens, such like bloodstain, please use the special paper or absorbent cotton with little bit distilled water and wash, the remaining stains can be cleaned off with the mixture of 50% Ethanol and 50% aether. If there is dust stained on the lens, blow them with a blow ball or brush them with a dust pen. Do not wipe with any corrosive detergent lest that the lens should be damaged.

5.2 After-sales service

If any operator requests more information such as circuit diagrams, parts list and product descriptions, for repairs carried out by qualified technical personnel, please contact us.

6. Trouble-shooting guide

In case there is any trouble, please first refer to the trouble-shooting guide. If it still can not work, please contact the authorized distributor.

Trouble	Possible reason	Remedy
No working	Power adapter is not connected	Connect the power adapter
	No switch on the main power	Switch on the main power
	Main power is broken-down	Contact a local electrician
Illumination does not light	The LED lamp is not connected correctly	Connect again
	No switch on the main power	Switch on the main power
	Main power is broken-down	Contact a local electrician
	Electric parts are broken-down	Contact the authorized distributor
	The LED bulb is burnt	Replace the LED bulb
Temperature rise suddenly	Something covered the heat elimination holes	Take off the cover and clean the heat elimination holes

7. Technical specifications

Tests conducted within the environmental conditions specified in technical description:

Temperature (°C):0°C-40°C

Relative Humidity (%):0%-93%

Atmospheric Pressure (kPa):860-1060hPa- 5.3 permissible environmental conditions of use including conditions for transport and storage:- 7.9.3

IEC60601-1

No application components

Microscope Section (including Binocular microscope, objective, eyepiece)		
Total magnification	2.7-16.6X(f=300mm) , 2.9-17.8X(f=280mm)	
Focal length of objective	f=300mm or f=280mm	
Fine focusing	±10mm	
Binocular	45°inclined	
Adjustable range for pupil distance	55--75mm	
Linear field	15-90mm(f=300mm),13.4-84mm(f=280mm),	
Eyepiece magnification	16X	
Working distance	285mm(f=300mm) or 265mm(f=280mm)	
Coaxial illumination	>20000lx	
TV adapter	C-mount 1/3"CCD attachable	
Filter	Green and blue filter	
Height	720-1200mm adjustable	
Arm length	500mm	
Max. working radius	900mm	
Base	5-star base with 5 jaws	
Rated voltage	AC100-240V	
Bulb	LED 10W	
Photo adapter (optional)	Canon or Nikon connector	
Demonstrator (optional)	Magnification	2-12.5X(f=300mm),2.1-13.4X(f=280mm)
	Field	15-90mm(f=300mm),14-88mm(f=280mm)