

LED Shadowless Operation lamp
LED500 European style wall hanging



Instruction manual



【Precautions, warnings, and instructions】


1. Please read the instruction manual carefully before using this product.
2. Strictly follow the steps described in the installation manual for installation and debugging use, when connecting the power supply of the grid, please use 5A isolator to isolate.
3. Please check frequently whether the fasteners of the LED Shadowless Operating Light are loose to prevent accidents.
4. Personnel not approved by our factory, please do not disassemble this product and control circuit at will.
5. The safe use period of this product is ten years, the free warranty period is one year (except for consumable bulbs). The damage caused by improper use by the user is not within the scope of free warranty. This product provides lifetime maintenance service. It is forbidden for users to repair without permission, otherwise the manufacturer will not provide free warranty. Please use the accessories and parts provided by the manufacturer, otherwise the safety of the LED shadowless light will be reduced.
6. When cleaning the LED Shadowless Operating Light, please use a soft cloth or sponge, wet cloth or dish soap, do not use a hard brush, wire brush. Do not use detergent powder, paint, banana oil, acid, etc.on any surface.
- 7.After using dish soap, wipe the shadowless lamp again with a damp cloth, and then dry it with a dry cloth.
- 8.The glass surface of the front cover is often removed with medical gauze to improve the illumination. Water can be used, It is prohibited to use alcohol or other organic solvents to clean.
- 9.The disinfection handle disinfection: under high temperature disinfection, with 121 °C, 30 minutes;
The surface of the lamp shell and the operation panel were disinfected with 75% alcohol for 3 minutes or 0.1% Xinjier disinfectant solution for 30 minutes.
10. LED shadowless light balancer arm are strictly prohibited from hanging other items.
11. In order to ensure the normal use of this product, non-professionals are prohibited

from opening the lamp head housing.

12. Wearing gloves when adjusts the handle.

13.If the lamp bead does not light up, cut off the power supply firstly, then check whether the power fuse is burned out which the fuse is in an obvious position in the base shield, then deal with it (fuse: Fuse: F2AL250V, Φ 6.3mm, length 32mm).

14.The user grounding wire should be reliably connected to the grounding terminal of the product, and the grounding wire should be clearly located at the grounding symbol.

Such as grounding symbol: 

15.  This symbol indicates a random file lookup.

16. In order to prevent static electricity, lay anti-static floor or carpet, the operator should wear an anti-static hand strap on the wrist, this hand strap should have good grounding performance, avoid wearing chemical fiber clothing that is easy to get electrified.

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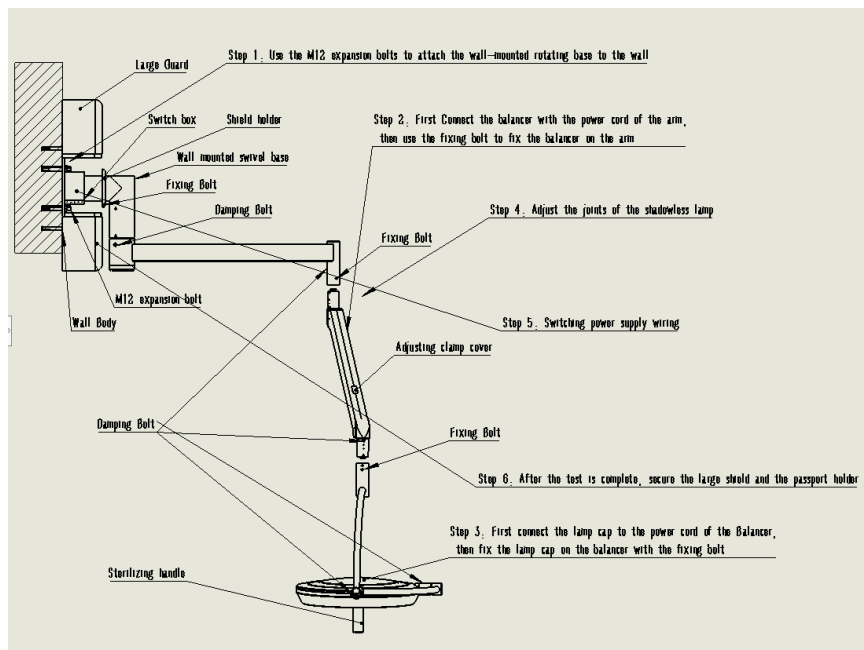
1.Scope of application, contraindications

Scope of application: for surgical lighting.

Contraindications: None.

2. Product structure composition

LED Shadowless Operating Light is composed of three parts: base, balance arm and lamp head, the lamp head has a single lamp head and a double lamp head.



3. Technical parameters

3.1 Usage environment

a) Ambient temperature range: 5°C~40°C;

b) Relative humidity range: ≤80%;

c) Atmospheric pressure range: 700hPa~1060hPa;

★ The place of use of LED Shadowless Operating Light should be free of harmful gases, chemical precipitation and other flammable, explosive, corrosive media or close to heat sources that seriously affect the use of the machine, and should be well ventilated and kept dry in the chassis.

★ LED shadowless Operating lights cannot be used with high-frequency surgical equipment at the same time. Using the device near short-wave and microwave therapy equipment may cause the output of the device to be unstable;








Technical Parameters	LED500
Illumination (Lux)	30,000-160,000Lux
Lamp Bulb Quantity	48

Bulb Type	German OSRAM LED bulb
Bulb Average Life	≥80, 000h
Color Temp (K)	3700K ~ 5000K
Color Rendering Index (CRI)	85~98
Illumination Depth(mm)	50-180cm
Facular Diameter(mm)	120-280mm
Dimming Control	1%-100%
Bulb Power	48
Temp Rise (doctor head)	< 1°C
Input Power	AC100-240V 50/60HZ

Caution: The illuminance of the overlapping irradiation area of multiple lamp heads may exceed 1000W/m², which may cause damage to the user's eyes. Please do not directly face the spotlight of the shadowless lamp, so as not to damage the user's eyes.

4. Symbol of labels, packaging identification

The packaging and labeling symbol are explained as follows:

symbol	meaning	symbol	meaning
	alternating current		Protective earthing
	Fear of rain		Beware of burns
	Fragile items		up
	Note: Please read the attached documents before use DO NOT stare the light directly for a long time		

5. Installation, use, installation trouble-shooting

5.1 Installation

5.1.1 Installation conditions

1) There should be corresponding treatment departments or environments,

with good ventilation and sanitary conditions.

2) Power supply voltage AC 110V~220V 50Hz (Local power supply), the equipment and the grid power connection part must have more than 2 times the capacity.

3) The safety factor of the suspension system of this product is ≥ 20 (4 M12 screws fixed the product, the load of a single screw $\geq 1500\text{kg}$, and the weight of the product is $\leq 120\text{kg}$).

4) The installation base of the LED Shadowless Operating Light must be able to withstand a load of 500kg to prevent the LED Shadowless Operating Light from falling.

5) Confirm that the installation environment meets electromagnetic compatibility requirements.

Installation method:

The installation process is guided by our professional technicians. Or follow the installation instructions or installation video to install

Installation and removal of components:

Installation of disinfection handle: make the positioning hole on the disinfection handle and the snap buckle on the lamp head in a straight line, and directly push the disinfection handle into place.

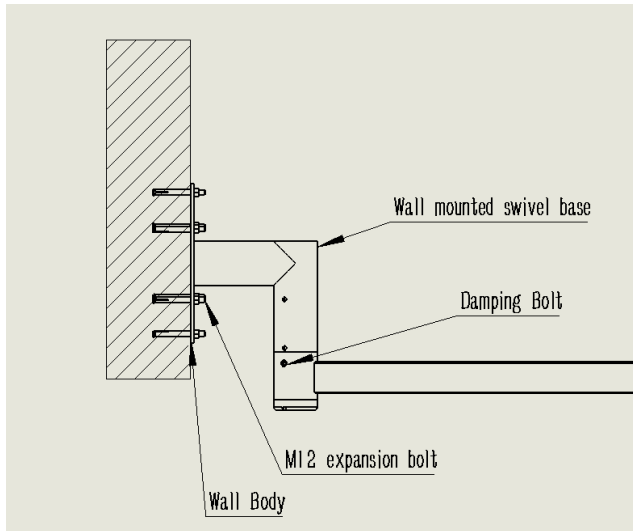
Disassembly of the disinfection handle: Press and hold the buckle of the connection between the lamp head and the disinfection handle, and directly remove the disinfection handle.

Step 1: Wall mounted rotating base mounting

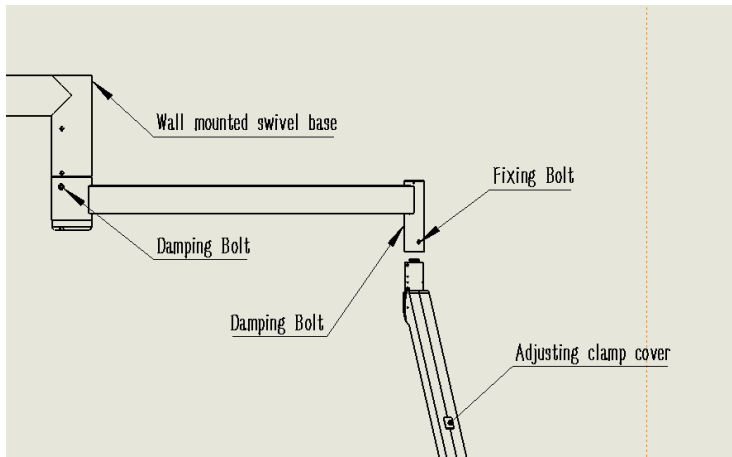
As shown, use The M12 expansion bolts to secure the mounting bracket to the wall .

Requirements:

1. The expansion bolt holes in strict accordance with the specifications for the corresponding $\Phi 16$ alloy bit drilling, which is greater than the specifications of the alloy bit drilling shall be adopted.
2. All the expansion bolts used for fixing the mounting bracket shall be fixed and tightened, without any leakage or non-tightening.
3. After the installation of the bracket, there shall be no unstable, loose or obvious shaking phenomenon.



Step 2: Install the balancer



Lamp holder wiring: note: same color
lamp holder power line

1. The balancer is provided with a quick-connect card slot, make sure that the balancer is

plugged into the boom before installing it.

2. After wiring is inserted, the balancer is docked to the boom and bolted in place.

Demands: 1. Fast wiring insertion, to be reliable, not arbitrary changes in the line, the color of the wire up and down.

2. The fixing bolt must not have the phenomenon of leakage and looseness.

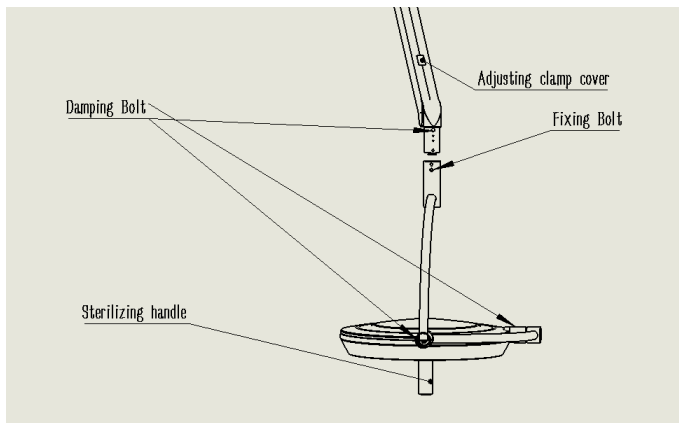
Step 3: Install the headlamp without shadow

1. Remove the shadowless lamp holder and place the lamp holder connecting shaft and the balancer connecting sleeve in a suitable position.
2. Take out the internal quick wiring terminal and plug it in.
3. The BUTT LAMP head connecting shaft and the balancer connecting sleeve are fixed by bolts

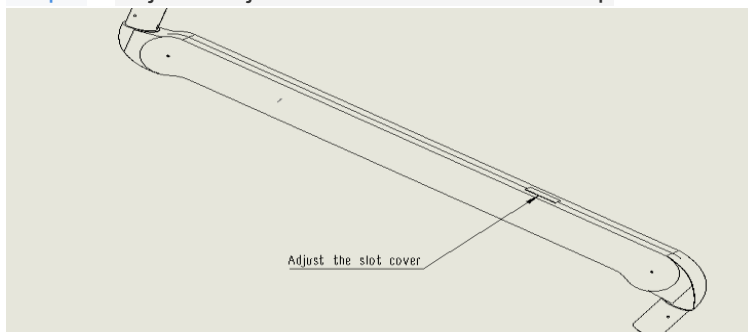
Demands: 1. The fixing bolt must not have problems such as leakage and looseness.

2. Don't forget to wire when installing the lamp cap.

3. Fast wiring insertion, to be reliable, not arbitrary changes in the line, the color of the wire up and down.



Step 4: Adjust the joints of the shadowless lamp





Cylinder limit

Before each equipment leaves the factory, has carried on the complete rigorous debugging.

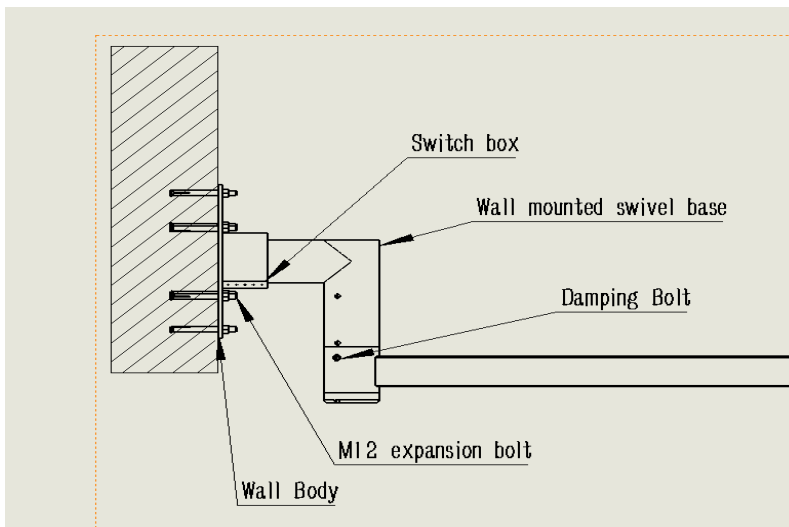
1. Remove the stopper under the counterbalance card slot cover:
 1. Push the card slot cover in the opposite direction. After pushing to the end, pry off the card slot cover with a screwdriver.
 2. Use Pliers to unplug the cylinders (two) on the card slot. Gently press the balancer down when unplugging.

After removing the cylinder in the card slot, the balancer is raised to a certain height and then released to observe whether the lamp head droops freely. It's drooping. See if it's assembled correctly.

3. No problem after the good card slot cover.
2. Move any joints, observe whether there is drift, free droop and other phenomena, if there is, first determine if step 2 is strictly in accordance with the provisions of the installation and commissioning, step 2 is no problem, it can be fine-tuned by adjusting the brake damping bolts of each joint.

Column limit is limited to the use of the installation lamp, no shadow lamp installation is useless after completion.

Step 5: Switching power supply connection





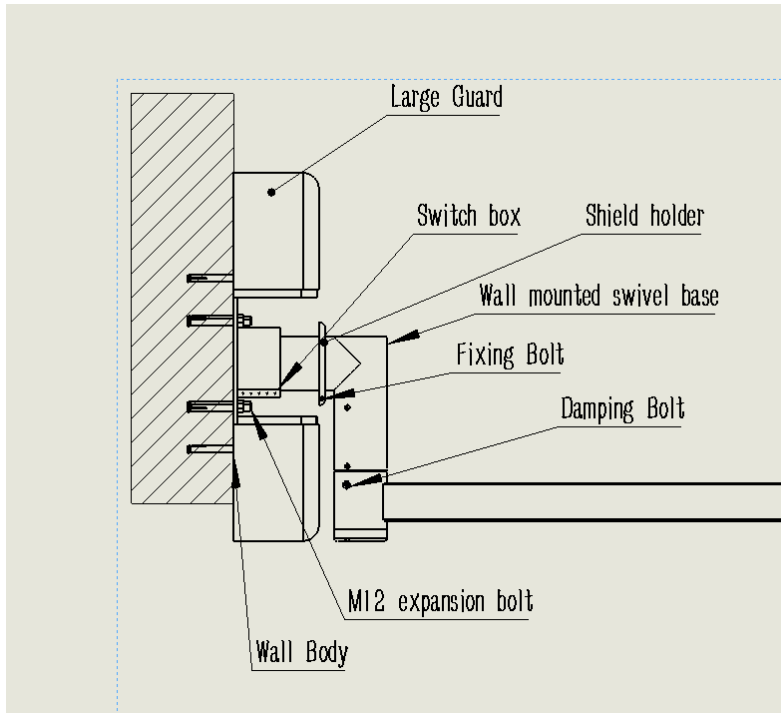
Switch power supply wiring must be strictly in accordance with the first four steps before installation. There are mainly three terminals on the unconnected power cord of the switching power supply box: L N (AC) and \equiv . L STANDS FOR AC (city power)220V fire line, N STANDS FOR AC (City Power)220V zero line, \equiv Stands for ground terminal.

1. Power must be cut off when wiring operation, may not live operation.
2. The AC terminal shall not be connected to the V +/V-/com terminal when wiring.
3. Grounding terminal must be connected to ground wire to ensure good grounding of equipment.

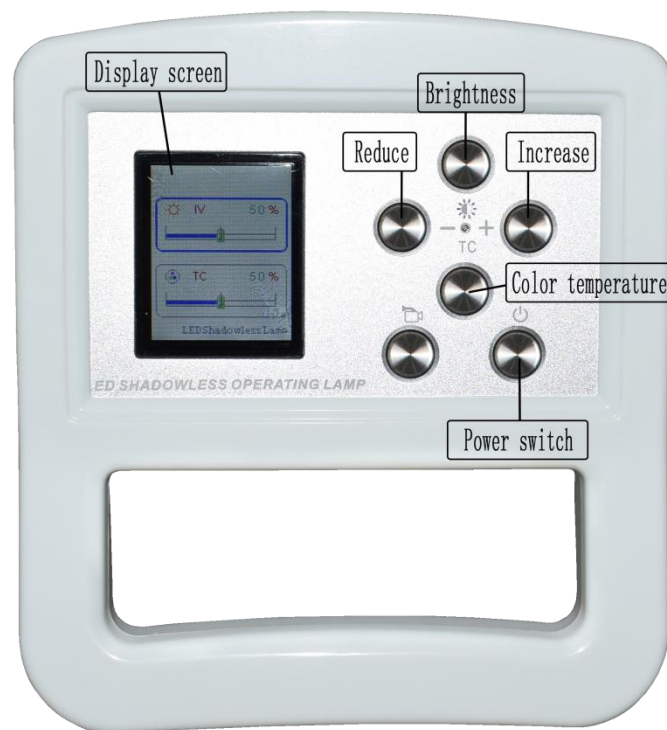
Step 6: Fixed installation of large protective cover

After the installation of the switch power supply, the test light, no problem, turn off the lamp, install the large guard shield and passport holder.

1. The two large shields are sheathed on a rotating base and screwed together.
2. Two Semicircle passport holders are mounted on a rotating base and secured with bolts.
3. The passport is supported by a large protective cover, which is fastened at the bottom of the ceiling, and the bolts are tightened so that they do not drop.



5.1.2 How to use



1. When the power is turned on, according to the needs of surgery, press the power switch button for 3 seconds to turn on, then the LED surgical shadowless light begins to work.

Press brightness, then “+” or “-” to increase or reduce the light brightness.

Press color temperature, then “+” or “-” to increase or reduce the color temperature.

2. Turn the focusing handle to adjust the spot size and focusing depth to achieve the best illumination at the surgical site.

3. After each use, can adjust the brightness and color temperature to the weakest that convenient for next use adjustment. Long press the power switch button for 3 seconds to turn off the shadowless light.

5.1.3 Trouble-shooting

1. When adjusting each part, clockwise tighten it and counter clockwise loosen it, so that each part can rotate freely and can be positioned at a certain position. If you have any questions, please contact the manufacturer.

2. After installation, if it is found that the rotation of 1-balancer arm and 2-upper elbow is not flexible or cannot be positioned, use a 6mm hex wrench to adjust the corresponding damping screw at the connection.

3. If it is found that the rotation of the 2-upper bend and the 8-lower bend is not flexible or cannot be positioned, use a 4mm hex wrench to adjust the damping screw at the connection.

4. If it is found that the rotation of the 8-bend tube and the 3-lamp head is not flexible or cannot be positioned, use 4mm hex wrench to adjust the damping screw at the connection.

5. If it is found that the vertical movement of the 1-balancer is not flexible or cannot be positioned, use a 6mm hex wrench to adjust the balance spring of the balancer.

6. Maintenance and repair

LED shadowless operating light needs to be maintained regularly by professional maintenance personnel, refer to Table 5 for the time, and make records; If you find a problem, please solve it in time according to the product manual, if it cannot be fixed, please contact manufacturer in time.

Table 5 Maintenance intervals

Items	Frequency
Check the fastener status of each connection part of the shadowless light	Every two months
Check whether the shadowless light cable line contact is good	Every two months
Check the flexibility of each moving part of the shadowless lamp	Every two months

7. Cleaning and disinfection

When cleaning and disinfecting shadowless light, you must first cut off the power supply, prevent liquid from penetrating into the light, and do not clean the transparent plate with brushes, steel wire masses and other abrasive materials.

7.1 Cleaning and disinfection of the disinfection handle

The disinfection handle adopts high temperature disinfection, temperature: within 121°C, time 30 minutes.

7.2 Cleaning and disinfection of lamp shell surface and operation panel

Disinfect 75% alcohol for 3 minutes or 0.1% neo-Jiern disinfectant solution for 30 minutes.

8 Storage and transportation

LED Shadowless Operating Lights should be stored in a room with a relative humidity of no more than 80%, a temperature of 5 °C ~ ± 50 °C, and no corrosive gas and good ventilation.

LED Shadowless Operating Lights are fragile, susceptible to scratches or damage to sharp or hard objects, please use the original packaging during transportation and be transported by an experienced transporter.

9. Safe Use Period

Date of manufacture: see label.

The safe use period of this product is 10 years from the date of manufacture.

Disinfection handle service life: 15,000 times of plugging and unplugging.

10. Common troubleshooting

For common faults and treatment methods, see Table 6.

Note: Repairs for any electrical wiring faults must be the responsibility of qualified maintenance personnel

Table 6: Common faults and treatment methods

serial number	Phenomena	Handling methods
1	Turn on the LED surgical shadowless light external power switch, the power indicator of the control panel does not light up.	Check whether power connected to the light. Check the safety device, if the fuse is burnout, replace it with a new fuse of the same specification.

2	Turn on the LED Shadowless Operating Light external power switch, the control panel doesn't work	Inspect the control line and check that the wire color is connected correctly.
3	LED surgery shadowless light does not light up	Whether the lamp life is up, the fuse is blown out Replace the bulb or fuse
4	The LED Shadowless Operating Light rotates non-stop	The installation is not horizontal or the brake area is too loose Adjust the horizontal reinstallation, adjust the brake screws/damping screws
5	The LED Shadowless Operating Light is not bright enough	Low external voltage Check the voltage with a multimeter
6	LED surgery shadowless lamp head movement up and down can not be positioned	The balance spring is loose or tight Open the cap adjustment nut on the balancer and tighten clockwise and loosen counterclockwise.