LED SURGICAL LIGHT

(DOUBLE CEILING MODEL E700/500)

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USER MANUAL

version 2025-07-25

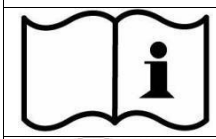
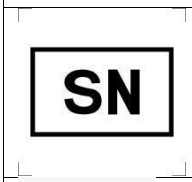
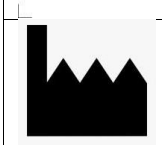
NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD

Add: No.666 Yaohu west 5th, Road hi-tech zone, Nanchang, Jiangxi, China

南昌迈柯尔医疗器械有限公司
NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD
Authorized Signature(s)

Symbol Explanation:

The following symbols are part of these operating instructions and/or the product label.

	**Safety warning symbol** **Caution:** Indicates a situation which, if not avoided, may result in minor or moderate injury. **WARNING:** Indicates a situation which, if not avoided, could result in death or serious injury. **DANGER:** Indicates a situation which, if not avoided, will result in death or serious injury.
Medical device	Medical device
	Instructions for use
	Instructions for use
	MICARE order reference number (item number)
	Serial number
	Manufacturer and date of manufacture
	CE marking
	This product must not be disposed of as normal household waste.

Hotline:

If you have any questions about how to handle a device or product or use it for clinical applications, do not hesitate to contact your Product Manager:
Phone: +0086-0791-88127989

For technical questions and questions regarding maintenance contracts and training, please contact our MICARE service center: sales3@micare.cn

NOTIFICATION:

To best answer your technical questions, our service technicians will require the catalog, reference number (REF), serial number (SN) and date of manufacture of the product. All this information can be found on the Ceiling Enclosure.

Notes for this document:

Possible danger to the lives of patients, users and other persons if these operating instructions are not followed!

This document applies equally to persons of all genders. References to different genders are avoided solely for reasons of readability.

Intended use
Special purpose
Operating lights may only be used to illuminate the operating or examination field.

Risk of serious injury due to electric shock!
To reduce the risk of electric shock, be sure to connect fixtures only to power systems that provide protective earthing.

Risk of injury due to unauthorized modifications to the product!
Any modification to the product may pose a danger to life due to electric shock caused by a malfunction of the luminaire. Moreover, this may cause the light to fall or the spring arm to rise sharply in response to the high spring force! Therefore, unauthorized modifications are strictly prohibited under any circumstances.

Risk of infection through contaminated system components!
Before starting any maintenance work on your lighting system, ensure that all system components have been properly cleaned and disinfected.

NOTIFICATION:
Risk of interference and malfunction:

• As a medical electrical device, the operating light is subject to special precautions regarding electromagnetic compatibility (EMC). The device must be installed and operated in accordance with EMC directives.

• Maintain separation distances.
Using a work light in combination with accessories other than those approved by the manufacturer may result in increased interference emissions and reduced noise immunity of the work light.

• The operating light should not be placed near or on other devices. If proximity to other devices cannot be avoided, be sure to check the functional reliability of the work light before using it in such an installation.

• Do not hang or route cables on or above the work lighting system.

Security Notices
General information:
MALER LED operating lights are quality products, designed and manufactured in accordance with recognized technical guidelines. Products leave the factory in completely safe operating condition. To maintain this status, you, the user, are required to refrain from or prevent any actions that could have a negative impact on the safety performance of the flashlights.

• Please read the safety instructions carefully when carrying out maintenance work!

• Be sure to follow the instructions in this document!

Be sure to follow the instructions in this document!
• Disconnect the flashlight from the power supply!
• Protect the lights and its components from dangerous contact! Place warning signs where necessary!
• Contact the manufacturer or service technician immediately!

Service works
• Any service work must be carried out:
– qualified persons specifically authorized by Micare to perform such tasks.
– in accordance with the instructions given in this manual.
– competently and with maximum accuracy
– in compliance with the relevant technical regulations, safety regulations and accident prevention regulations.

Inspection
• Check all safety related parts according to the inspection plan.

• The results should be documented in the audit plan.
We recommend regularly checking all lights functions, springs/guide arms, ceiling pipe and power supply to ensure they are working properly. Every 24 months an inspection must be carried out by an authorized person. thereby ensuring their serviceability and operational safety!

NOTIFICATION:
Only components or systems approved by MICARE as accessories may be connected, installed or secured to lighting systems.

Personal protection:
Risk of serious injury due to electric shock!


•Before starting any maintenance work, make sure that all power lines are power outage and cannot be live while working on the lights!

• The installation in the building must include a disconnect switch (for example, a circuit breaker) that allows the simultaneous and all-pole disconnection of all electrical circuits of the lights (mains supply 100-240 V, DC supply 24-36 V) from the power source to which the lights is connected. connected The switch or circuit breaker used must comply with IEC60601-1 requirements for distances and clearances or must be CE listed.

• To reduce the risk of electric shock, be sure to connect fixtures only to power systems that provide protective earthing.

• For mobile lights with a removable power plug (power cord), free access to the socket must be provided at any time to ensure that the lights can be easily disconnected from the power source.

• The DC power supply to the lights must comply with Safety Extra Low Voltage (SELV) requirements in accordance with IEC60601-1.

• Be sure to turn off the circuit breaker on the building side before performing any maintenance on the lighting system!

• Power cables must be protected against accidental loosening or breaking at the terminals (strain relief)!

Risk of serious injury due to faulty lights!

Faulty work lights can cause harm or even endanger the lives of users and/or patients!

• Therefore, never use faulty lights!

Explosion hazard!

The operating light may only be used at a safe distance from openings or surfaces emitting or emitting anesthetic gases, oxygen or other flammable or oxidizing gases**.**

Risk of damage or injury due to heavy weight!

Some lighting system components are heavy!

Falling system components can cause personal injury and property damage.

• Never attempt to replace heavy system components that require disassembly alone, but always do so. with an assistant and, if necessary, support such components with a lifting device.

Risk of injury due to high spring force!

Spring arms whose weights (light heads or light head assemblies) are disconnected or whose transport the guard is removed, it can snap upward quickly and with great force and cause serious injury!

• Before removing the load from the spring arm, always lock the spring arm vertically or secure it first!

Risk of injury and damage due to faulty service tools!

• Make sure that the installation and maintenance aids used, such as ladders, scaffolding and lifting frames, comply with current safety regulations!

Observe national/local safety regulations!

The Medical Devices Act (MPG) and the accident prevention regulations (BGV) are important parts of the legal framework that must be observed in Germany. Be sure to comply with applicable local laws, directives and regulations!

Screw lock:

All screws installed during initial installation or replaced during inspection or conversion must be original replacement screws equipped with thread locker.
The replacement screws supplied by MICARE are coated with PA (blue polyamide coating) as a thread locker.

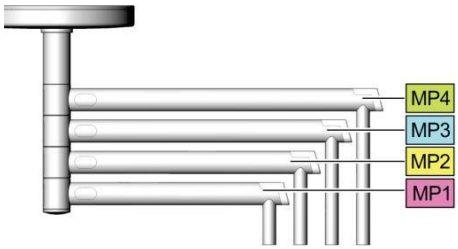
NOTIFICATION:
Danger of loose screw connections coming loose!
If screws are installed without thread locking fluid/paste, they may come out of control. time in the process of using light.

• Observe "Secure the screws with thread locker."
• When reinstalling removed screws, thread locking fluid must be used.
Screws that are susceptible to this risk are marked in this document with the following symbol.

Risk of injury from falling parts!
System parts may fall if safety screws are not tightened to the correct torque.

• Always tighten screws/nuts to the specified torque!
The components that are affected are highlighted in this document with the following symbol.

Declaration of weapons:



• The numbering of mounting locations starts clockwise from the right with MP1, next to the central potential equalization terminal.

• MP1 contains a consumer power supply on the lower tracking arm. In an example, this could be a camera on a separate bracket.

• If the configuration includes additional weapons systems (example: MP2 with illumination), then the power modules for their consumers are assigned the following mounting positions (MP2–MP4).

• The MP3 contains input terminals (120-230V) to supply power to a mains powered device.

The company constantly strives to improve its products and therefore reserves the right to supply, without prior notice, a product structure with characteristics different from those described in this manual; However, the Company guarantees that these improvements comply with applicable regulations and reserves all rights.

【Abstract】

You have just purchased an MICARE E700/500, E700/500+Camera LED operating light. We congratulate you on your choice and hope you are satisfied with its use and performance.

We recommend that you read this manual carefully before using the LED work light, become familiar with its operating method, and fully evaluate its effectiveness.

Please keep this manual in a safe place so that you can read it at any time. Thank you for your trust in our company.

[Quality assurance]

The user is responsible for compliance with applicable laws governing the use and maintenance of the equipment.

The company is not responsible for any malfunction, physical damage, injury or lack of quality caused by misuse or poor maintenance due to the user's failure to follow the suggested diagram.

The LED work light must not be used if the electrical or mechanical safety devices are faulty, or if the instructions for use and maintenance are not followed.

Only the Company or a third party designated by the Company may modify or expand the operating lamp itself. Such modifications must be in accordance with applicable regulations in the country of use and normal trade practice.

If there is any problem with the operating lamp, please contact the distributor or our company. We will do our best to provide you with quality service and assistance.

When you first use a surgical light, the company and your distributor will be happy to help and answer any questions you may have. delivery time is indicated in the invoice.
Under no circumstances may packaging materials manufactured by us be used for any purpose other than transportation.

The instructions in this manual fully explain the use of the LED work light.

Please send the correct warranty card back to the company within one month after installation, so that the company can effectively guarantee a 2-year free warranty on the entire work lamp and a 5-year safety warranty on all equipment. Otherwise, a free warranty period is provided. will start from the date of manufacture.

Attention: The manufacturer is responsible for the safety, reliability and performance of the equipment only if:

(1) Installation and any repairs or modifications must be carried out by qualified personnel.
(2) Job site electrical wiring must comply with all codes in effect at the time of installation.
(3) The product should avoid exposure to strong magnetic field or create strong electromagnetic interference in the environment used.

Follow the instructions:

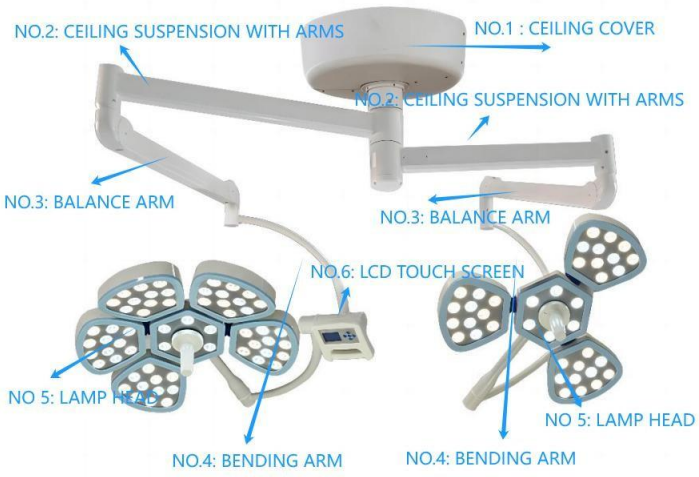
This manual is intended to explain the operation, installation, debugging, operation, maintenance and troubleshooting of LED work lights.

The following is the meaning of this manual or the label on the outside of the equipment:

Note. The main content of the statement should be taken seriously.

Caution: Failure to comply with these instructions before performing certain operations may result in damage to the device. Warning: Failure to comply with these instructions before performing certain operations may result in equipment damage and compromise personal safety.

[Product Appearance Structure]



NO.1 : CEILING COVER NO.2: CEILING SUSPENSION WITH ARMS NO.3: BALANCE ARM NO.4: BENDING ARM NO 5: LAMP HEAD NO.6: LCD TOUCH SCREEN

[Product Name] Micare **E700/500** LED OPERATING LIGHT
[Main technical indicators and reference data]

Specification	**E700/500**
Voltage	95~245V · 50/60HZ
Illuminance at distance of 1 m (LUX)	60,000-180,000/40,000-160,000
Brightness Adjustable	0-100% (10steps)
Lamp Head Diameter	650MM/650MM
Quantity of LEDS	61PCS/39PCS
Color Temperature Adjustable	3500-5500K
Color rendering index Ra	>96
Color rendering index R9 (Red)	98
Light Field Size Adjustable	150-350 MM
Total radiant flux density	364W/m2
Endoscopy Mode	YES
Endoscopy Mode LEDS	6PCS/6PCS
Illumination For Endo-Mode	12%
LED service life	80,000hrs
Working Distance	70-140 CM
Rotating Angle of Arm	>540°
Temperature at Surgeon's Head	< 1° C
Depth of illumination L1+L2	1300 MM
Light head protection rating	IP54+FireProof
Shadow dilution with 1 mask	73%
Shadow dilution with 1 tube	90%
Control panel on each lamp head	YES
Backup Battery (4 – 6 hrs)	YES
Internal / External Sony Camera (20X) resolution 1920x1080	YES
Monitor 24 inches resolution 1920x1080 with possibility to install on a pendant	YES
Flower design lamp heads	YES
Laminar Air Flow Compliancy	YES
Removable and sterilizable handles	YES
Ceiling height (M)	2.9 - 4

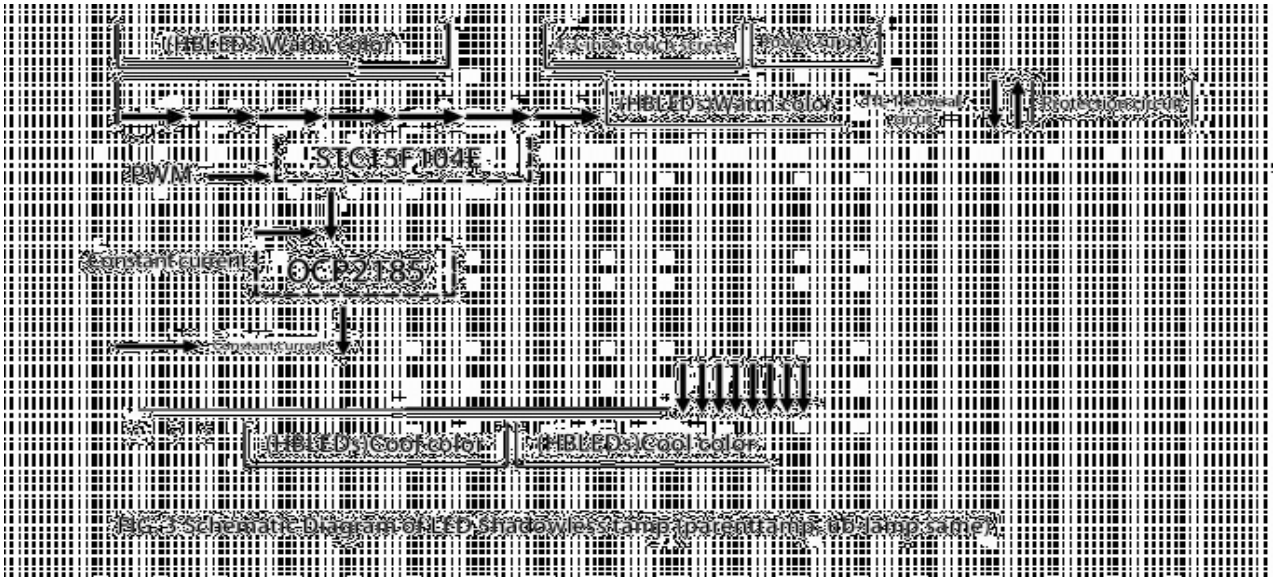


FIG. 3 Electrical circuit diagram of LED work light (main and secondary lamps are the same)

Driver fee

The drive plate is the core of the entire LED work light controller, which is mainly composed of 16 STC15F104E micro controllers and 32-channel OCP2185 DC regulator circuit, as well as TTL communication circuit. The STC15F104E is a low-power micro controller manufactured by Macro Crystal. Technologies. Its supply voltage is 5.5–3.8 V, which allows for low-power operation. It is suitable for many applications that require high integration and low cost, and can meet various performance requirements. All 175℃ 8 hours high temperature baking, guarantee high quality production.

The STC15F100 series micro controller is a single clock/machine cycle (1T) micro controller manufactured by STC. This is a new generation 8051 micro controller with high speed, high reliability, low power consumption and ruggedness.

interference protection. It uses eighth generation encryption technology with strong encryption, and the instruction code is fully compatible with traditional 8051, but the speed is 6-12 times faster. Internal built-in high-precision radio-controlled clock, temperature drift ± 1%, temperature drift at room temperature 5‰, a wide range of 5-35MHz can be set, completely avoiding expensive external crystal vibration. Internal high-reliability reset, 8 levels of optional reset threshold voltage, can completely eliminate the external reset circuit.

The OCP2185 is a buck type constant current LED driver that can drive up to 8 1W white LEDs. The OCP2185's input voltage can range from 6V to 30V, and the output current can be adjusted using an external sampling resistor. The output current can reach up to 1A. OCP2185 can operate at high operating frequencies, up to 1 MHz, which significantly saves peripheral device size and PCB area. In addition, OCP2185 supports two dimming modes: analog dimming mode and PWM mode. OCP2185 is mainly used in MR16 lamp sockets, automotive LED lights and other LED lighting. Characteristics of the OCP2185 chip: 1. Drive output current up to 1 A; 2. 2. High precision DC current; 3. System efficiency up to 98%;

Integration of high voltage MOS with 0.25 ohm resistance; Operating switching frequency up to 1 MHz; Equipped with analog/PWM dimming function.

OCP2185 chip is used for constant current with small current fluctuations, which can fully meet the requirement of surgical light

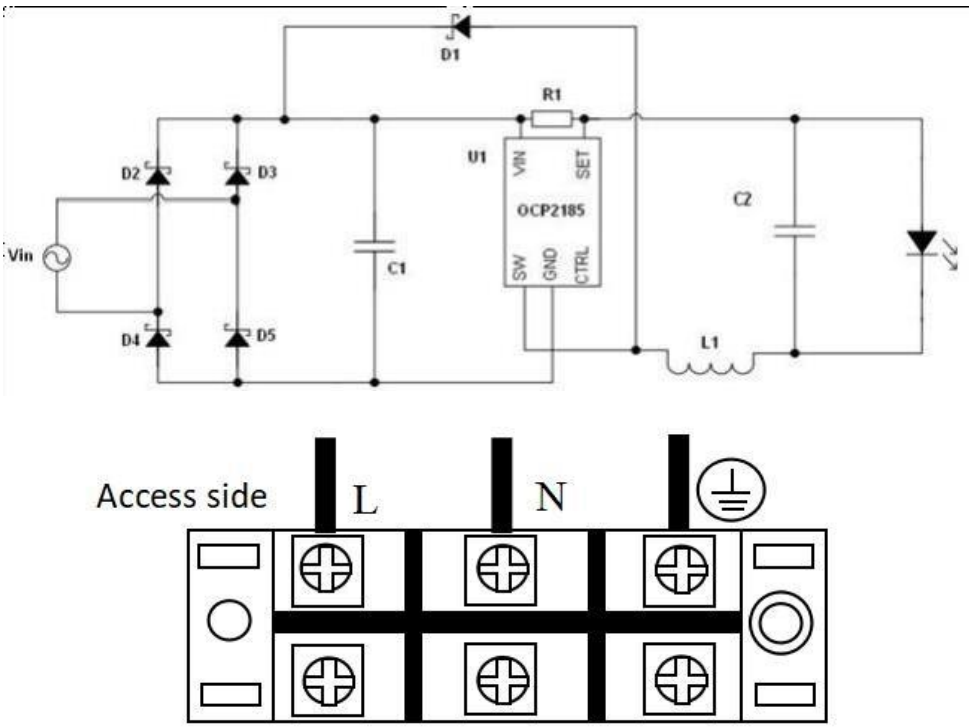


FIGURE. 4. Typical application diagrams for OCP218.

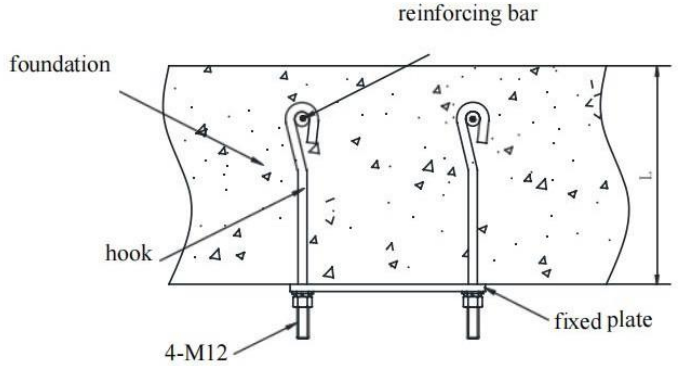
1、Installation and Use

The surgical lamp is suspended from the ceiling of the operating room, with a standard installation height of 3m. Four M12 bolts must be embedded in the reinforced concrete ceiling (note: the diameter is Ø 240mm, divided into four parts at 360 ° on the circumference), exposing the ceiling for more than 150mm to facilitate the installation of fixed plates and rotating base.

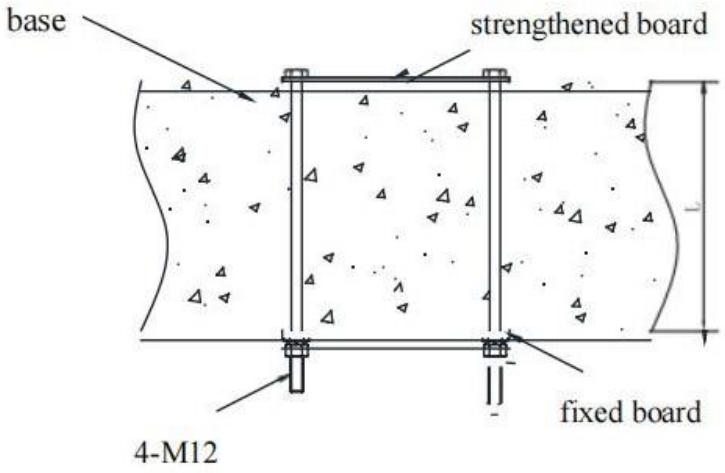
Important reminder: The installation foundation of the Operating lamp must be firm and reliable, and must withstand a load greater than 500 kilograms.

3.1 Installation foundation fixed on the bottom surface of cement floor slab

（1） When the foundation thickness is greater than or equal to 20cm, it is recommended to use the
（2） Pre embedded anchor bolt construction method. During the construction of the floor slab, reserved bolts are used to connect and lift the fixing plate (which can be provided by our company). After tightening the nuts, the surgical lamp can be installed.

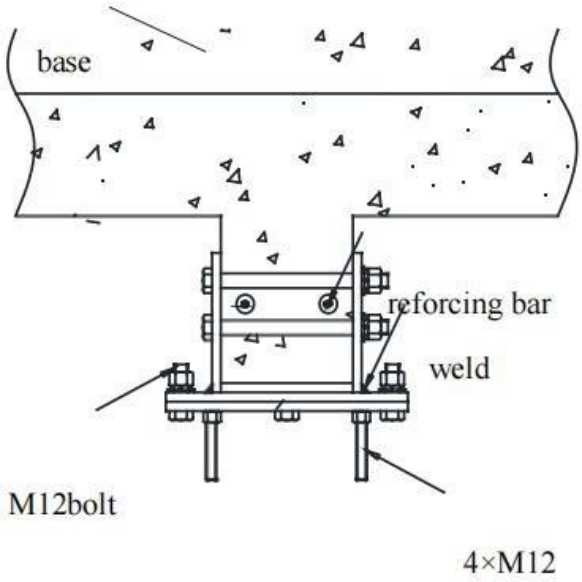


（3） When the foundation thickness L is less than 20cm, it is necessary to request reinforcement plates from our company, which can be pre-embedded or on-site construction. It is necessary to drill through holes on the top of the floor foundation, and connect the reinforcing plate (provided by the user) and the fixing plate (provided by our company) with M12 bolts. After tightening the nuts, the surgical lamp can be installed.



Warning:

Resolutely eliminate the use of expansion screws to fix embedded parts. In specific environments and situations, please promptly install the foundation fixed on the cement crossbeam



It is recommended to use the beam hugging construction method. The clamp plate (10mm thick) installed on the cement crossbeam can be connected with four M12 bolts. When it comes to this structural feature, it is necessary to contact our company's technical personnel to customize a suitable connection frame

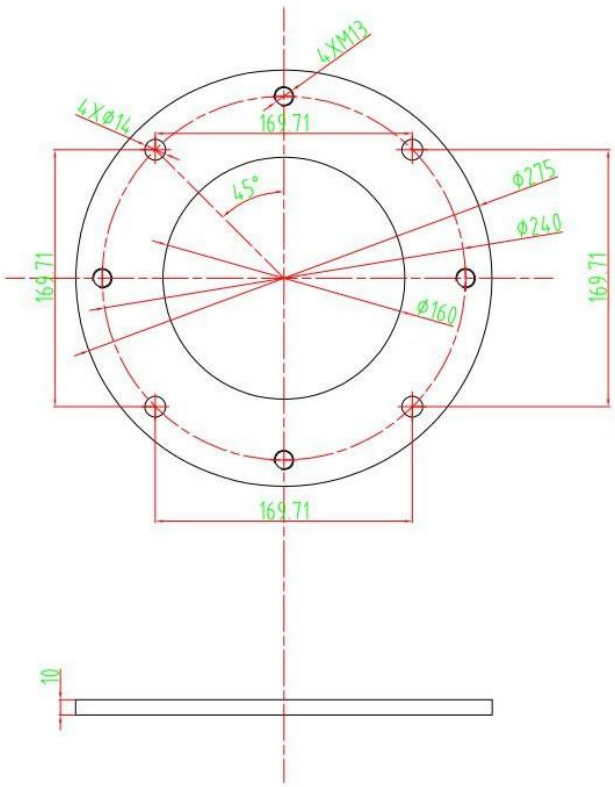
.

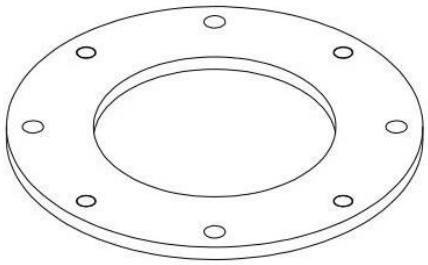
Important reminder:

Please contact our technical personnel for any special requirements other than the structural characteristics mentioned above.

Install fixing plate:

Each Surgical light is equipped with a corresponding fixing plate (with a diameter of Ø 270mm and evenly distributed 4 -Ø 12 holes) for installing the surgical lights. Before installing the led surgical light, users must first firmly install the fixing plate on the foundation directly above the operating table in the operating room. When installing the fixing plate, a spring pad must be added to the connecting bolts to ensure secure installation.





Important reminder:

This installation method is the standard configuration of this product. If the actual environment needs to change the installation method, it needs to be confirmed by our company's professional technical personnel, and ensure that the interface with the rotating body base (with a diameter of Ø 240mm and a circumference of 360 °quartering) is consistent.

Warning:

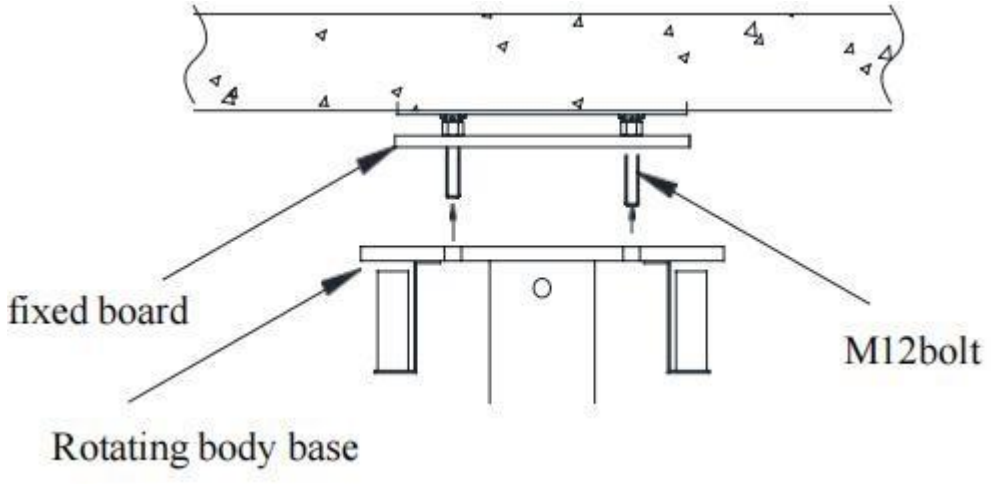
After installing and tightening the fixing plate, ensure that its axis is perpendicular to the horizontal plane, otherwise it will affect the normal operation of the surgical lamp.

Power cord installation:

The device provides a switch mode power supply, which is connected to and AC 100- 240V/50-60Hz power supply. A set of power lines (N+L+PE) is required, and the grounding wire (PE) must be yellow green in color. It should be connected to the embedded chassis through a fixed main power line switch that simultaneously turns on and off two paths, with a margin of about 1m.

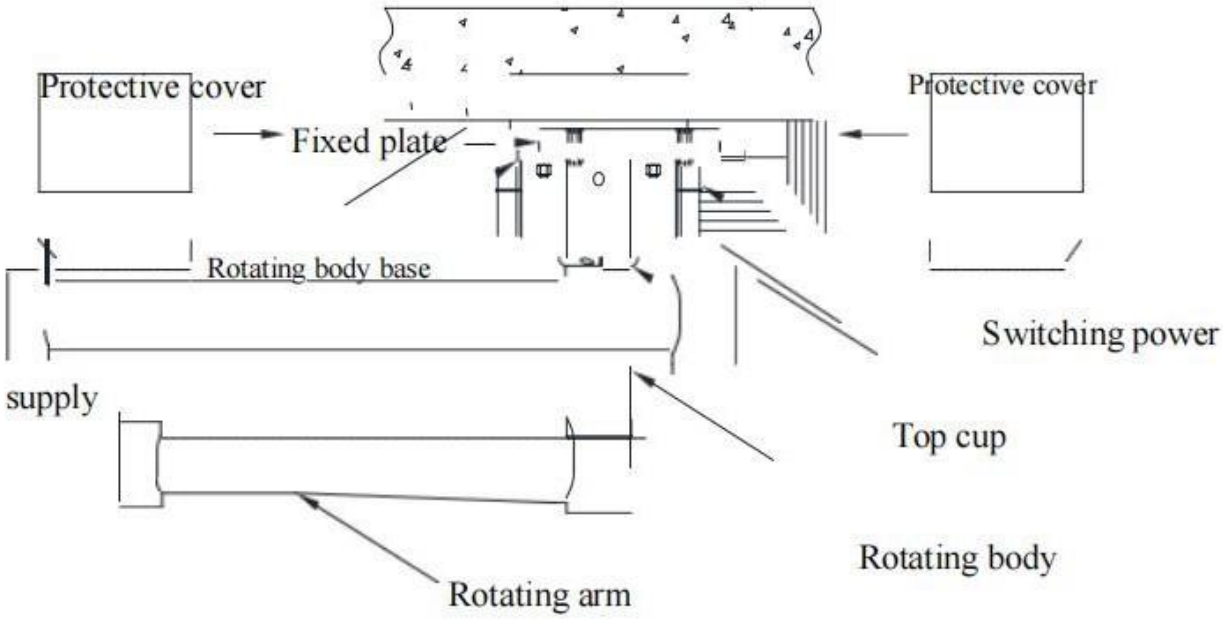
Important reminder:

The disconnecting device between this product and the grid power supply is provided by the user, with specifications ofAC100~240V/50~60HZ



Warning:

The user's grounding wire should be reliably connected to the product's grounding terminal. The user must install a dual cut off wall switch on the wall



Installation of Rotating Bodies

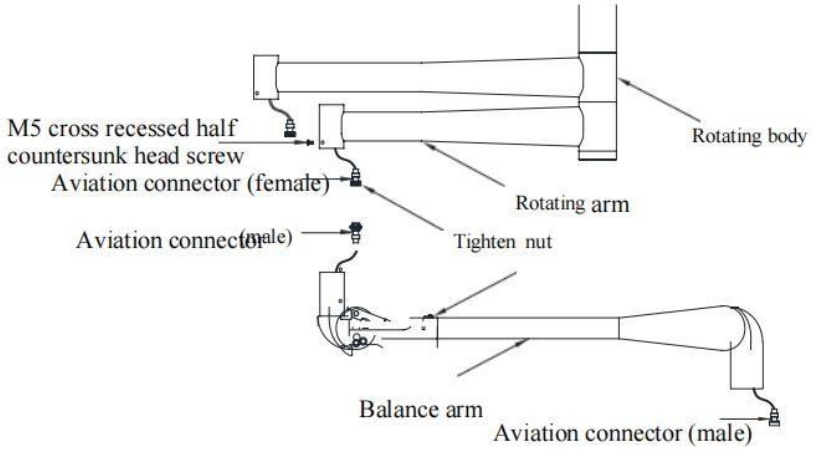
(1) Install four M12 screws into the rotating base with evenly distributed 4-x14 holes and tightly adhere to the fixing plate. Install spring washers and flat washers on the bolts for rotation Preliminary per tighten the M12 nut. During the installation process, the base of the rotating body must be perpendicular to the horizontal plane to avoid collision between structural components when adjusting the position or joint of the lamp head

(2) Adjust the four M12 nuts to ensure the vertical of the axis of the rotating body with the horizontal plane, thereby ensuring the normal operation of the surgical lamp. After adjusting the vertical, tighten the nut. Insert the power cord into the push type wire
connection terminal of the switch power supply, with live wire to live wire, zero wire to zero wire, and ground wire to ground wire (yellow green). Cover the switch power supply and wiring clip with protective covers, secure them with bolts, and then attach the top covering,secure with bolts.

Installation of balance arm:

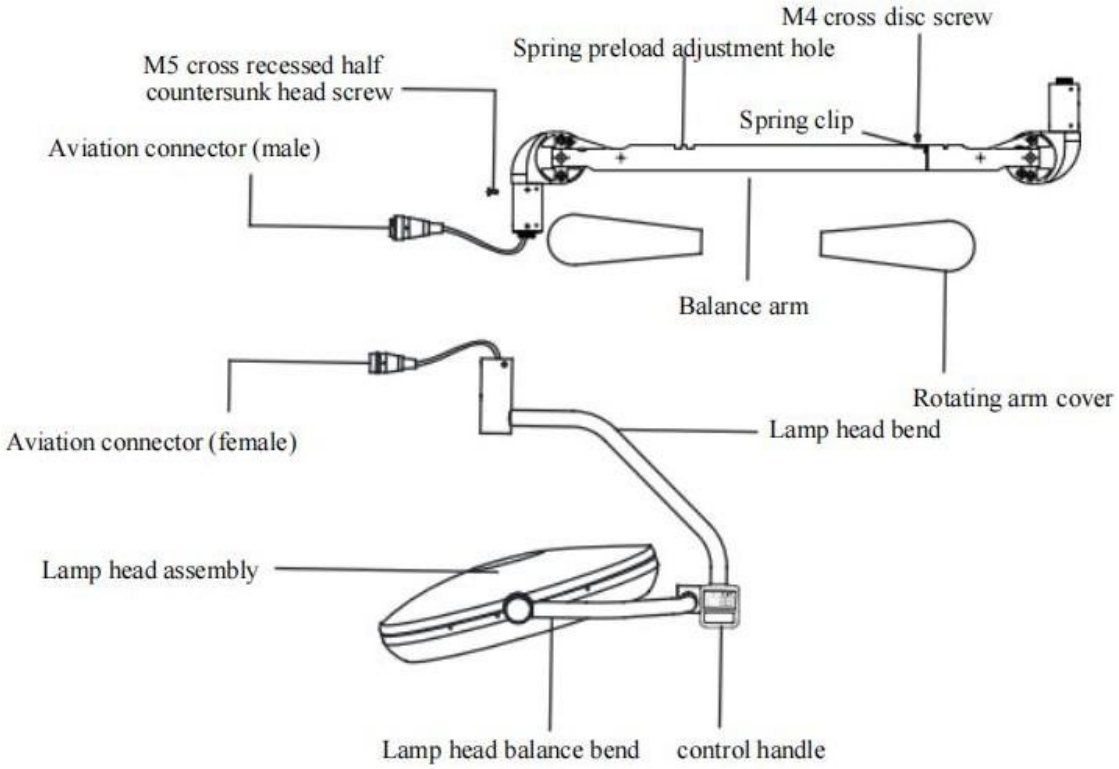
Align and tighten the aviation joint female head below the rotating arm with the aviation joint male head above the balance arm, then insert the upper end of the balance arm into the corresponding

hole of the rotating arm and tighten it with cross groove half countersunk head screws M5.



Take care

Confirm that the type of balance arm to be installed is correct. Align the balance arm at one end of the spring clamp with the rotating arm, insert the aviation joint (male) on the balance arm into the aviation joint (female) on the rotating arm, and tighten the tightening nut. Install the balance arm into the rotating arm and tighten the M5 screw. (Pay attention to the direction of the balance arm) Pull out the balance arm aviation joint (male head) and insert it into the lamp head balance bend aviation joint (female head), tighten the nut, then install the balance arm into the corresponding connection hole of the lamp head bend, and tighten it with M5 screws. After installing the lamp head, remove the spring clip used for positioning on the balance arm, and then close the balance arm cover

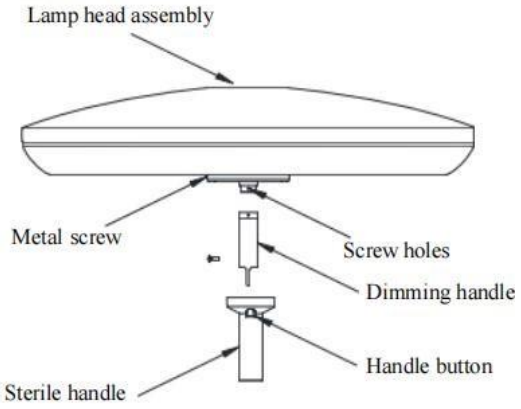


Warning

If you want to disassemble the lamp head, please make sure to install the limit spring clip first to prevent accidents.

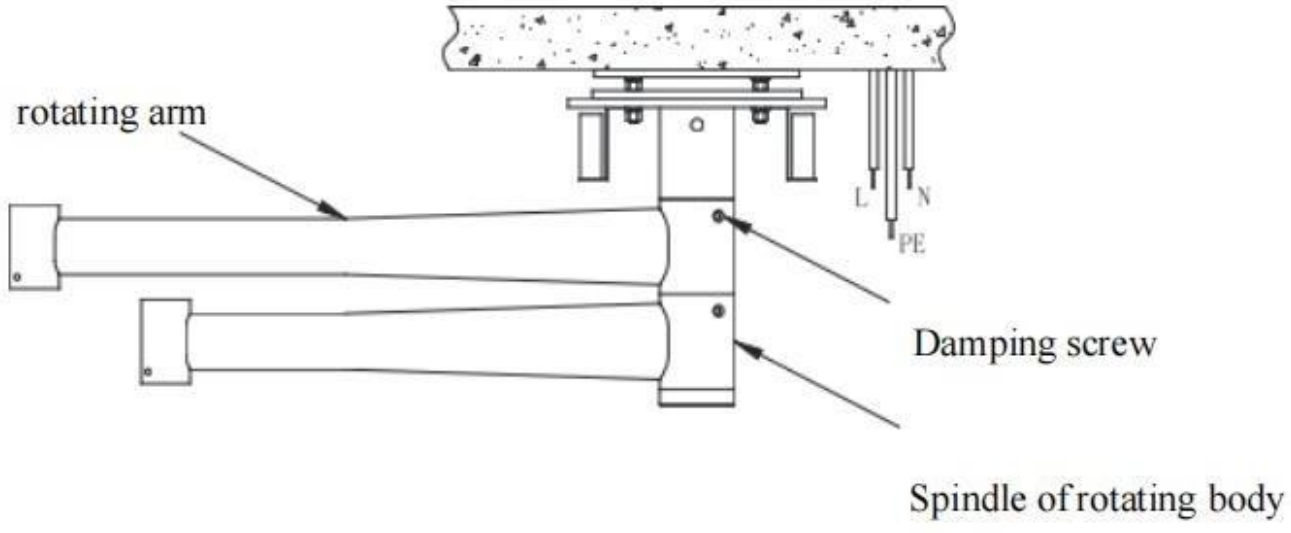
Take care

During the installation process, avoid forcefully pulling on the circuit to avoid damage



First, install the dimming handle and insert it into the lamp head assembly. Tighten the M4 cross recessed countersunk head screw on the metal screw. Hold the sterile handle in your hand, press the handle button with your thumb, and push it into place (making a "click" sound) or pull it out according to the direction shown in the diagram to achieve the installation or disassembly of the sterile handle. Holding the sterile handle and pulling and pushing can adjust the lamp head to the desired position. Pulling the sterile handle can move the lamp head up and down or rotate it around the balance arm. Pushing the sterile handle can flip the lamp head back and Adjustment of Damping for Rotating Bodies

Adjustment of Damping for Rotating Bodies

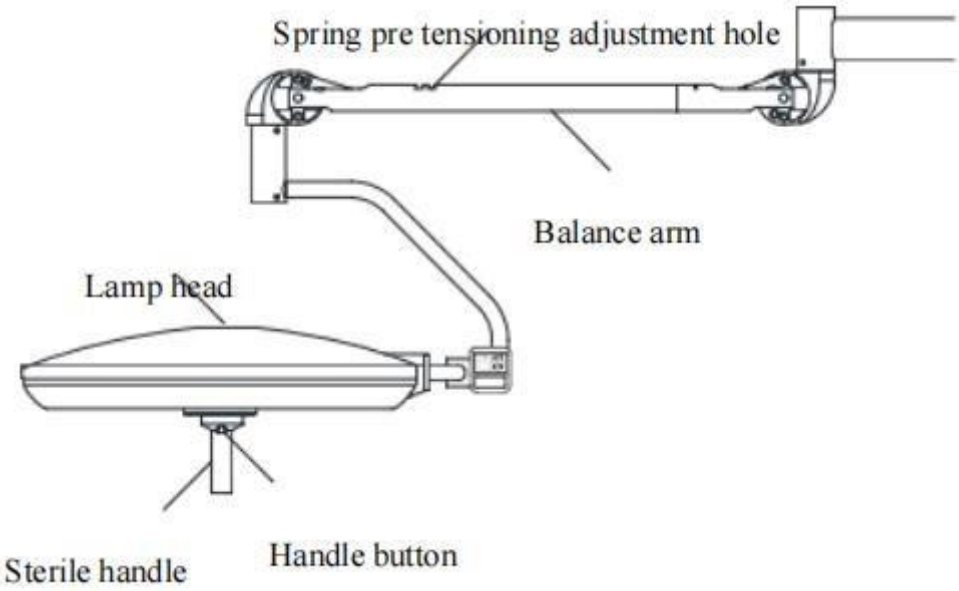


Warning!

The adjustment of damping screws requires professional personnel to operate, and the lamp head can remain stable in different positions after adjustment

Adjustment of balance arm

The force value of the balance arm has been adjusted before leaving the factory, and there are no special circumstances that require further adjustment. If adjustment is required, please refer to the label attached to the balance arm.



Warning

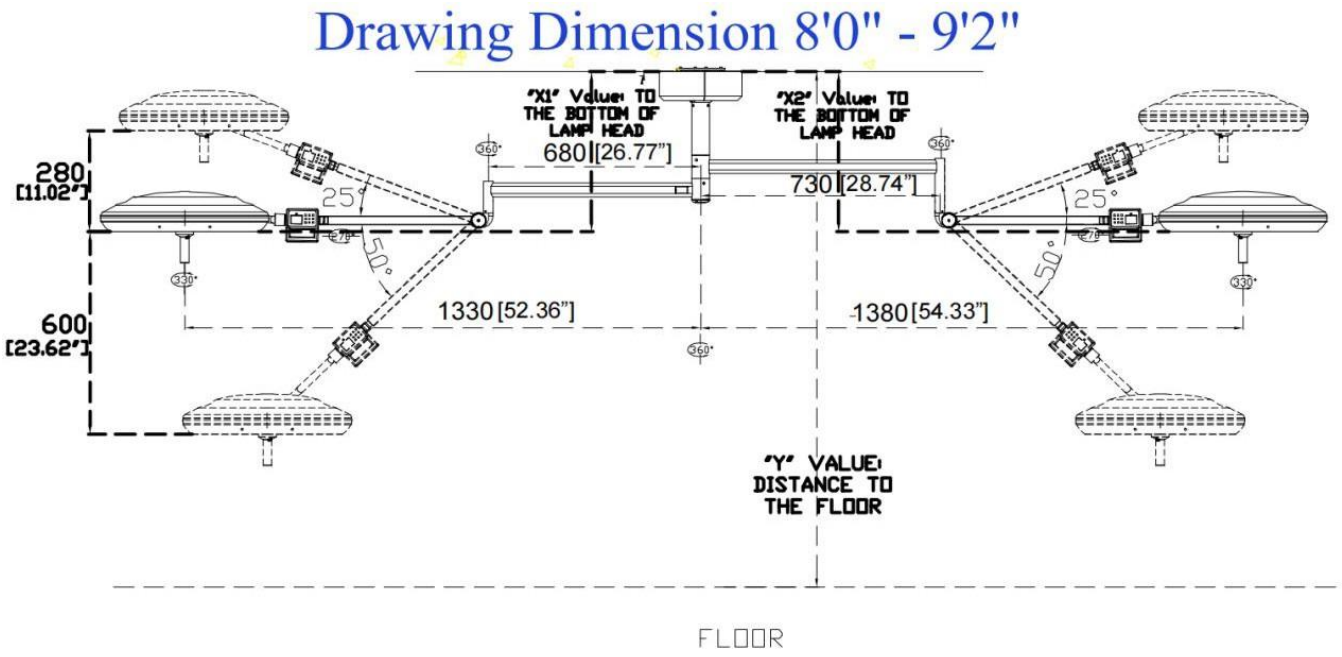
The angle adjustment can be adjusted according to the actual installation environment. After adjustment, the spring arm moves up and down to ensure that it does not interfere with the ceiling or its structure.

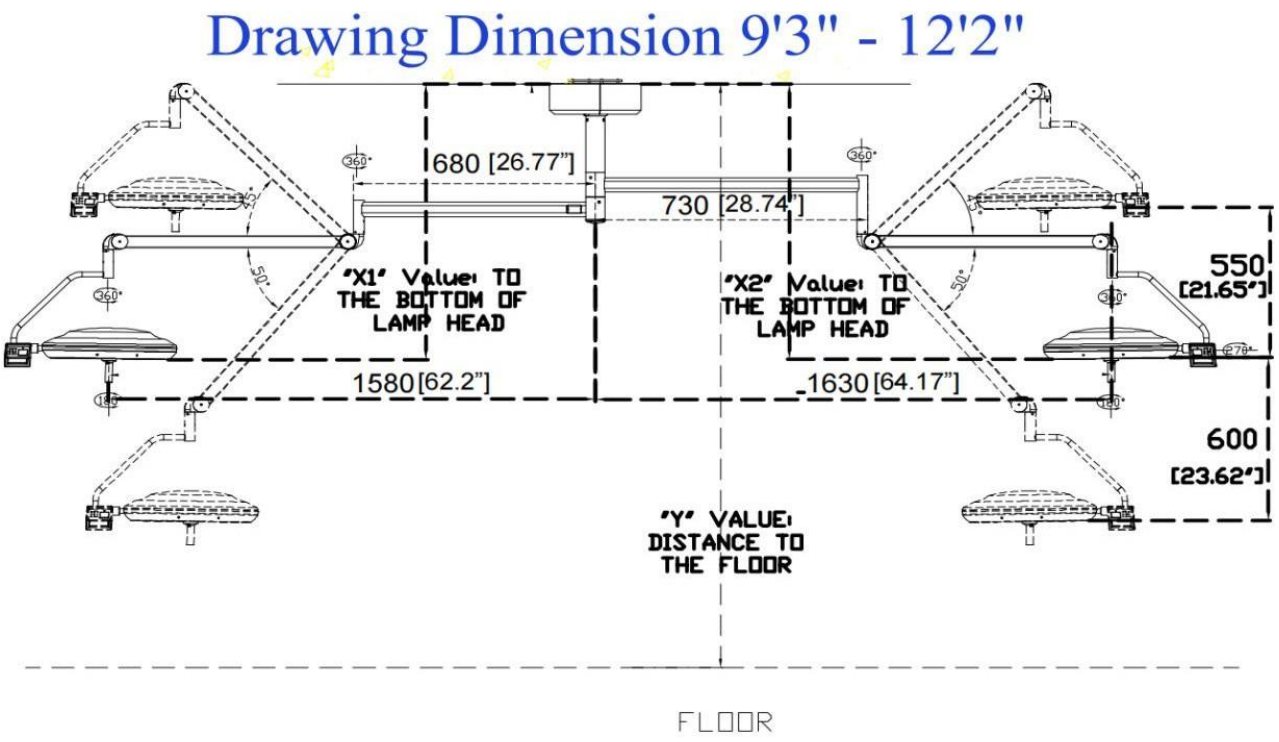
Warning

The adjustment of force or angle should be carried out after the assembly of the lamp head is completed, and the balance arm should be in the downward horizontal position before adjustment.

Warning

When disassembling the lamp head, it is necessary to press down on the spring arm to prevent the balance arm from rebounding, and then slowly place the balance arm in the corresponding balance position. Preparation work before use (adjusting the position and angle of the lamp head)





Ensure that the rotating arm of the rotating body can rotate 360 ° around the main axis.
Ensure that the balance arm can rotate 540 ° around the axis of the rotating body, and the balance arm itself can swing up 45° and down 50 °. Ensure that the lamp head balance bend can rotate 540 ° around the lower axis of the balance arm

Ensure that the lamp head balance bend can rotate 540 ° around the lower axis of the balance arm.
Ensure that the lamp head bend can rotate 240 ° around the lamp head balance bend.
Ensure that the lamp head can rotate 240 ° around the lamp head bend.

Pull the control handle to move the lamp head up and down and rotate around the balance arm, and push the sterile handle to flip the lamp head back and forth or left and right to ensure that the lamp head can remain stable in the desired position.

Turn on the power switch of the surgical lamp network to ensure that the lamp holder
can be used normally. At this point, the screen on the control panel lights up and is in standby mode.
The on/off button has not been operated for 30 seconds, and the screen enters screen saver mode.

Method of use of environmental conditions:

Keep the ambient temperature between 10°C and 40°C during operation

The relative humidity should be between 30% and 75%.

The relative humidity should be between 30% and 75%.

Adjust and focus the light column

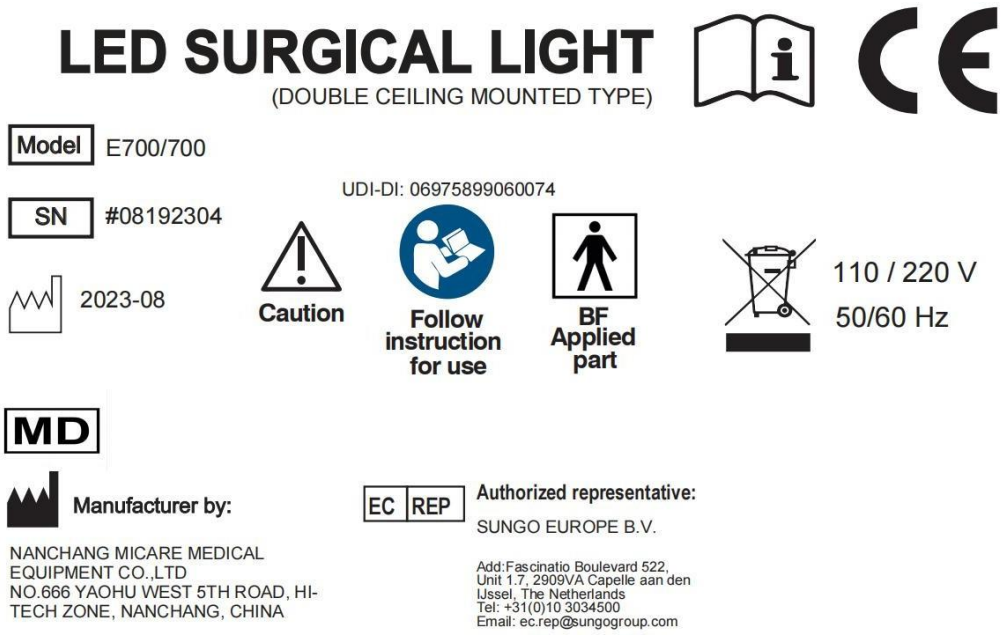
Hold the sterile handle, adjust the position and angle of the lamp head until the light spot shines
on the surgical area, and then turn the sterile handle clockwise or counterclockwise to adjust the lamp spot size.

Sterilization and detachable handles with PE plastic material for quick assembly without thread or string to screw
Installation and removal of disinfection handles:
Lift the holding slot of the disinfection pen with a click Voice, put the disinfection pen in place, press the button under the handle with your thumb and remove the disinfection pen.

COPYRIGHT:

COMPLIANCE WITH QUALITY STANDARDS:

QUALITY SYSTEM CERTIFICATION OF “NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD” certifies that the quality system developed by “NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD” for the design, implementation, sales, installation and after-sales service of surgical lights meets the requirements of the following international standards:
ISO13485:2016 / ISO9001:2015 / FDA Certify
EN60601-1-2:2015+A1:2020 / EN60601- 1:2006+A1:2013+AC:2014+A12:2014+A2:2020
EN 60601-2-41:2009 + A11:2011+A1:2015 / EN ISO20417:2021, EN ISO15223-1:2021, EN ISO14971:2019
Annex II + III of Regulation (EU) 2017/745 Compliance with the requirement of the European Directive
IEC 60601-1:2005 + A1:2012 + A2:2020& EN 60601-1:2006 + A1:2013 + A2:2021
IEC 60601-1 Clause 14 PEMS + Software Evaluation
IEC 60601-2-41:2021 EN IEC 60601-2-41:2021+CSA C22.2 NO. 60601-2-41:23
IEC 62471:2006 EN 62471:2008 IEC 60601-1-6:2010 + A1:2013 + A2:2020 IEC 62366-1:2015 + A1:2020
EN 60601-1-6:2010 + A1:2015 + A2:2021 EN 62366-1:2015 + A1:2020+CAN/CSA C22.2 No. 60601-1-6



Installing and removing disinfection handles:
Lift the disinfectant pen clamp groove, hear a click, put the disinfectant pen in place, press the button under the handle with your thumb and remove the disinfectant pen.

CLEANING / DISINFECTION / STERILIZATION:

Users should contact the healthcare specialists at their hospital. Recommended products and procedures should be applied. If there is any doubt about the compatibility of the active agents to be used, please contact "NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD".

CLEANING AND DISINFECTION OF SURGICAL LAMPS

Make sure the power is off and the lamp has cooled before beginning cleaning.

Make sure the power is off and the lamp has cooled before beginning cleaning.

1) Remove the sterilization handles.

2) Wipe the equipment with a cloth moistened with a surface cleaner. Follow the manufacturer's recommendations for dilution, application time and temperature.

3) Use a cloth to rinse the unit with clean water and dry.

4) Wipe evenly with a cloth moistened with disinfectant. Follow the manufacturer's recommendations.

5) Remove residue (particularly products containing aldehydes, quaternary ammonium or surfactants) by wiping with a cloth moistened with clean water.

6) Wipe with a dry cloth.

Make sure that no liquid residue remains on the device after cleaning.

The lens system (front glass) is made of high quality clear acrylic:

Please pay attention to the following when cleaning:

Never wipe the lens system with a dry cloth (always wipe with a wet/damp cloth).

1) Do not use alcohol disinfectants.

2) In addition, the following disinfectants can be used to clean the lens.

3) Accelerated hydrogen peroxide 0.5%

4) Hospital Cleaner disinfectant wipes with bleach

5) Disinfectant wipes with bleach

6) Wipe the lens system after cleaning with an antistatic, non-fluffy cloth.

WARNING:

1) Solutions containing glutaraldehyde, phenol, iodine, bleach, alcohol or chloride ions should not be used.

2) Fumigation methods are not suitable for disinfecting the unit and should not be used.

Handle cleaning and sterilization.:

BEFORE CLEANING:

1) Use a soft cloth immediately after use to wipe off any dirt on the surface of the handle.

2) Store the handles in a place that keeps them moist for easy cleaning later.

3) Be careful to store them so that the inside does not get dirty.

CLEANING:

1) Soak the handles in a detergent solution.

2) Soak for 15 minutes to allow the solution to work, then clean by hand with a soft brush and lint-free cloth.

3) During cleaning, periodically check that the handles are completely clean and that no dirt remains on the inside or outside.

4) If dirt still remains, repeat cleaning or use an ultrasonic cleaning process.

5) Rinse: Rinse thoroughly with clean water to completely remove the detergent solution.

Dry: Wipe with a clean, lint-free cloth.

DISINFECTION:

Handles can be machine sanitized (NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD) and rinsed at a maximum temperature of 93°.

Typical recommended cycles:

Scenery	Temperature	Time
Pre-cleaning	18-35°C	60 Seconds
Cleaning	46-50°C	5 Minutes
Neutralizesr	41-43°C	30 Seconds
Cleaning 2	24-28°C	30 Seconds
Rinse	92-93°C	10 Minutes
Dry	No Applicable	20 Minutes

STERILIZATION:

After cleaning, the handles should be steam sterilized as follows:

Countries	Sterilization cycle	Temperature (℃)	Time (Min.)	Drying (Min.)
USA & Canada	Pre-vacuum	132-135	10	16
France	ATNC (prion) (prevacuum)	134	18	
Other Countries	Pre-vacuum	Comply with national regulations		

To ensure the sterilization effect, be careful not to leave any stains inside the handle.

According to the above sterilization parameters, the PSX sterilizable handle will no longer guarantee sterility after 50 Times.

It should be disposed of in the same way as other hospital risk products.

1) Check that each handle is clean before continuing with the process.

2) Wrap the handles with sterilization wrapping material (double wrap or equivalent).

3) The handles can also be placed in paper or plastic sterilization bags2, to facilitate their identification and reuse.

4) Place the handles on sterilization trays with the opening facing down.

5) Pack with biological and/or chemical indicators to monitor the sterilization process, in accordance with current regulations.

6) Run the sterilization cycle according to the instructions of the sterilization product manufacturer

Safety and maintenance instructions

Safety tips

 Only authorized facility service personnel should troubleshoot the unit. Troubleshooting by unauthorized personnel may result in personal injury or property damage.

 Only authorized facility service personnel should troubleshoot the unit. Troubleshooting by unauthorized personnel may result in personal injury and/or property damage..

 After completing a repair to the unit, make sure it is in proper working condition. Failure to do so could result in personal injury or property damage.

 Do not touch the LEDs or lenses directly. Body oils can significantly reduce the optical performance of these parts and may cause damage to the equipment.

 Follow the product manufacturer's instructions. Failure to do so may result in personal injury and/or property damage.

 If the unit fails any of the preventive maintenance functional checks, have it repaired before using it on any patient. Failure to do so may result in personal injury or property damage.

 Do not use harsh cleaners, solvents or detergents. Doing so may damage the equipment.

 Do not use silicone-based lubricants. Damage to the equipment may occur.

 Turn off the appliance or unplug the power cord before beginning any repairs. Failure to do so could result in personal injury or property damage.

 Do not pinch any wires during installation or any repairs. Pinched wires can cause a risk of electric shock, which may result in personal injury or property damage.

Do not pinch any wires during installation or any repairs. Pinched wires can cause a risk of electric shock, which may result in personal injury or property damage.

Do not place objects or liquids on the lamp head. Spilled liquids will damage the lamp head and arms, resulting in a risk of electric shock.

Light intensity control with Color temperature

Description:

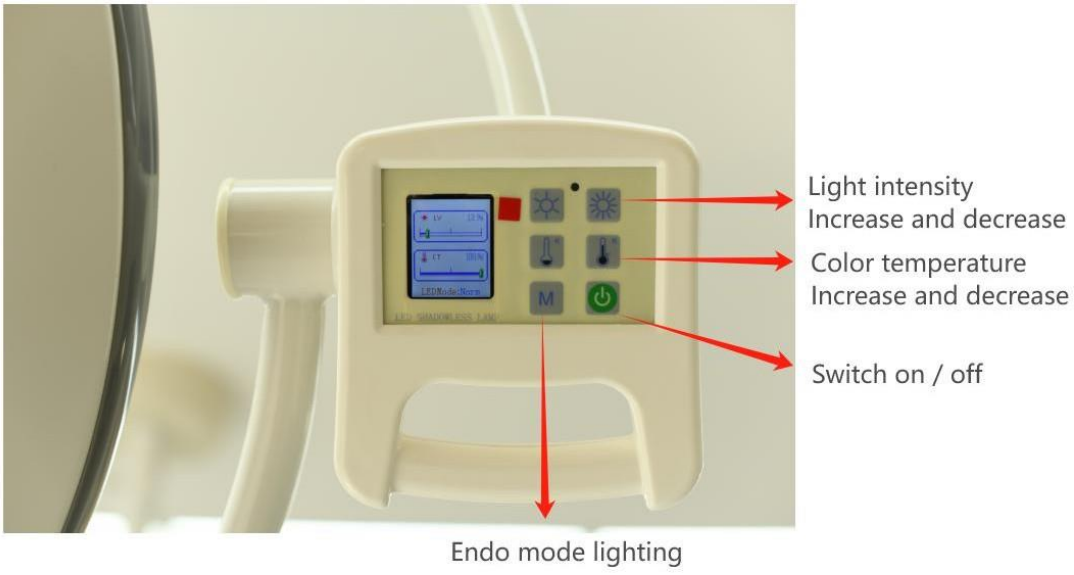
The surgical light control terminal is equipped with a 3.7-inch resistance touch screen with a resolution of up to 480 x 272. The man-machine interface can realize the control functions of LED Operating lamp and HD camera. The operation is simple and convenient, and the performance is stable and reliable.

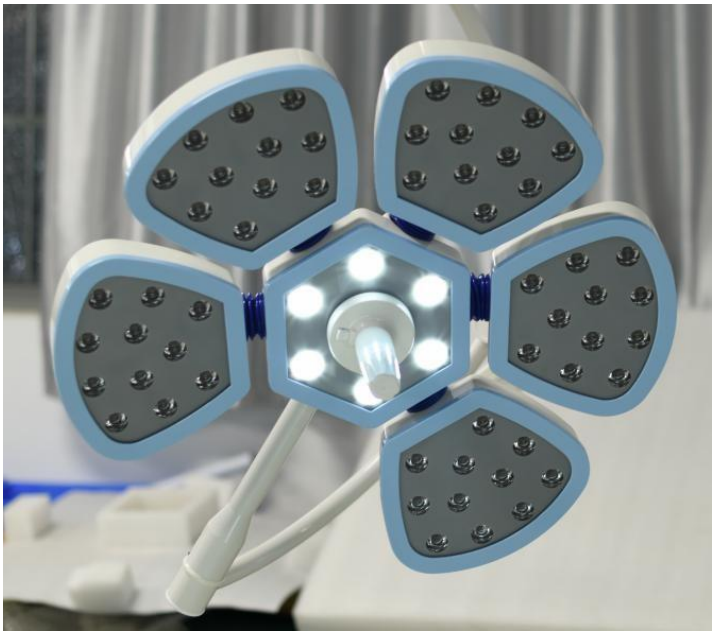
This product must be installed according to the manufacturer's engineer's instructions.

Note:

1. During the installation process, the electrical circuit (power line must be connected to 220V AC power) and the fastening of each connecting part must be tightened (important);
2. During the installation process, the level must be strictly calibrated with a level gauge (very important). 3. Customer must provide 220V/10A switch/circuit before installing the surgical light.

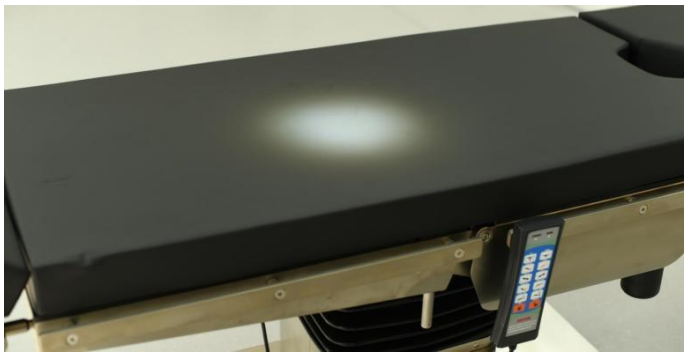
circuit breaker to fully protect the circuit insulation (important).





One-key Cavity Endo lighting. The control panel supports four illumination modes: endoscope, deep cavity, superficial and normal, to meet different surgical illumination requirements. It also supports one-key cavity quick switching adjustment for endoscopy mode. Perfectly compatible with laminar flow, generating turbulence less than 20% according to DIN1946-4 regulations.

Color Temperature Warm Light - Day Light:



Take care:

Surgery completed: Turn off the surgical lamp, then turn off the power, and move the surgical lamp to a fixed position. Touch screen is a resistive screen. Please do not spray alcohol or disinfectant directly on the screen to prevent liquid ingress and multi-function.

Warning:

After the surgery, the lamp head should be pushed up to avoid injury to the head of personnel passing through the surgical lamp head.

Warning:

When adjusting the lamp head, the control handle or sterile handle on the control box can be manually pushed and pulled to avoid collision and interference between the lamp head or lamp arm (rotating arm, balance arm) and other structural components during the adjustment process.

Important:

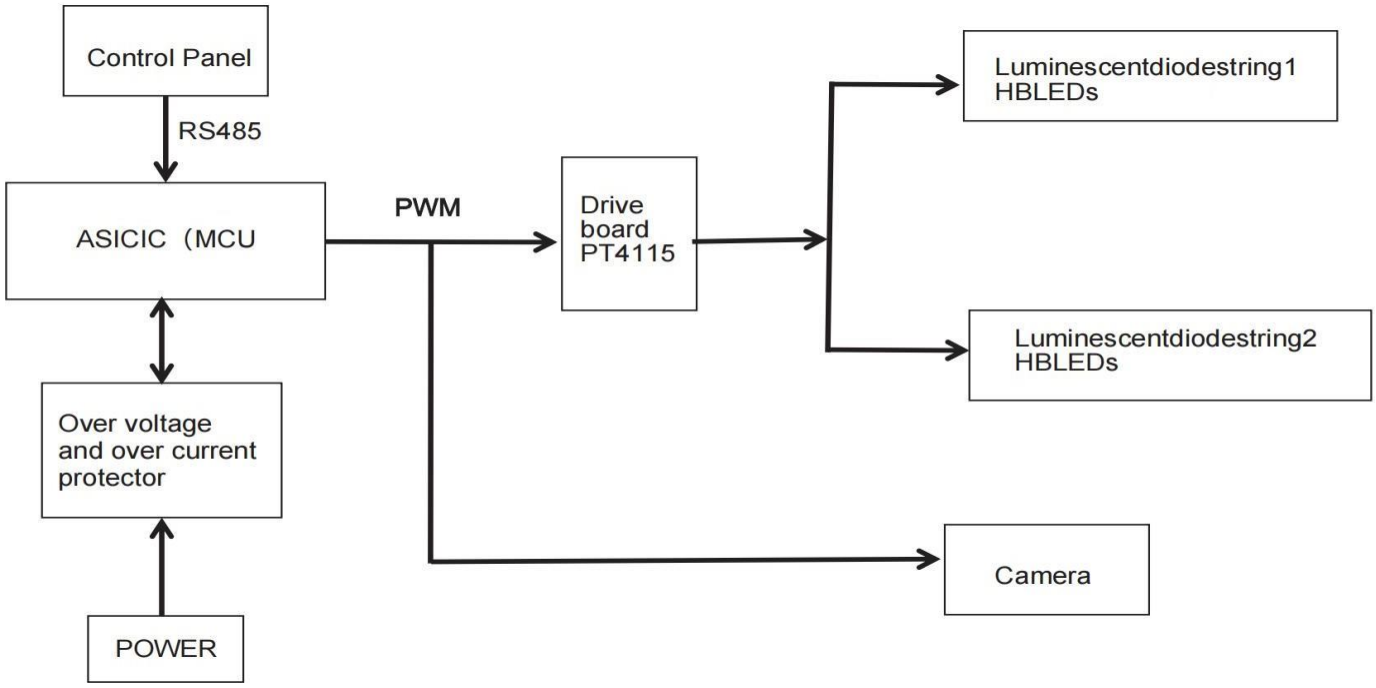
During the surgery, in order to avoid cross infection and facilitate disinfection in the later stage, the angle ofthe lamp head should be adjusted as much as possible through a sterile handle.

Important:

During the surgery, in order to avoid cross infection and facilitate disinfection in the later stage, the angle ofthe lamp head should be adjusted as much as possible through a sterile handle.

Take care:

Press the buttons on the control panel with excessive force to prevent damage and loss of control

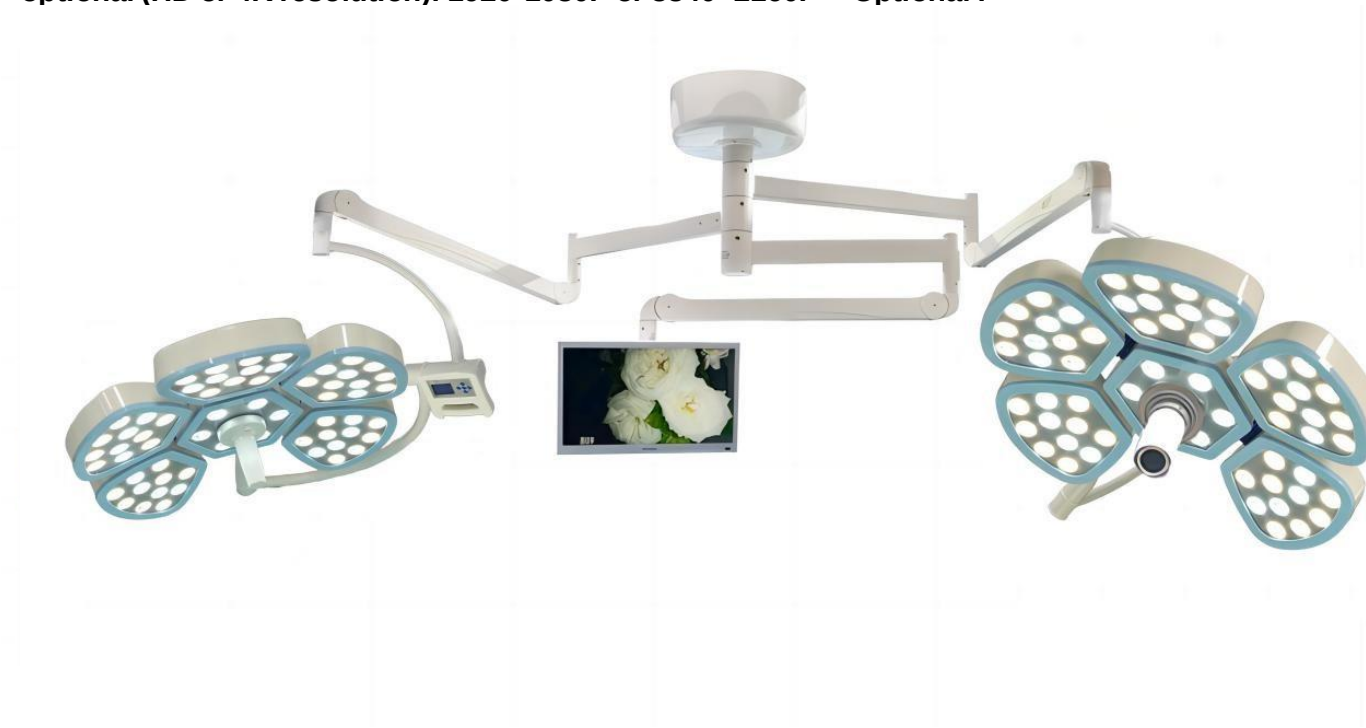


Adjusting the camera zoom:

The keys	Instructions

	The button for 1X to 20X adjustable camera zoom changes widely, it should be optional with the camera function

Sony 20X Internal Camera + 24” Medical Monitor / 27” Medical Monitor optional (HD or 4K resolution): 1920*1080P or 3840×2160P -- Optional :

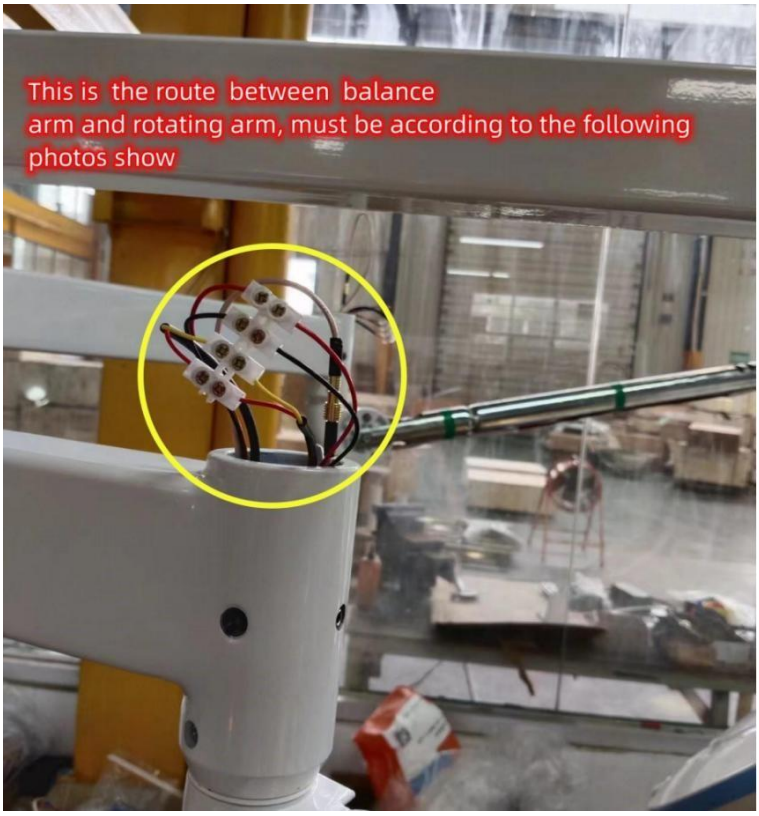


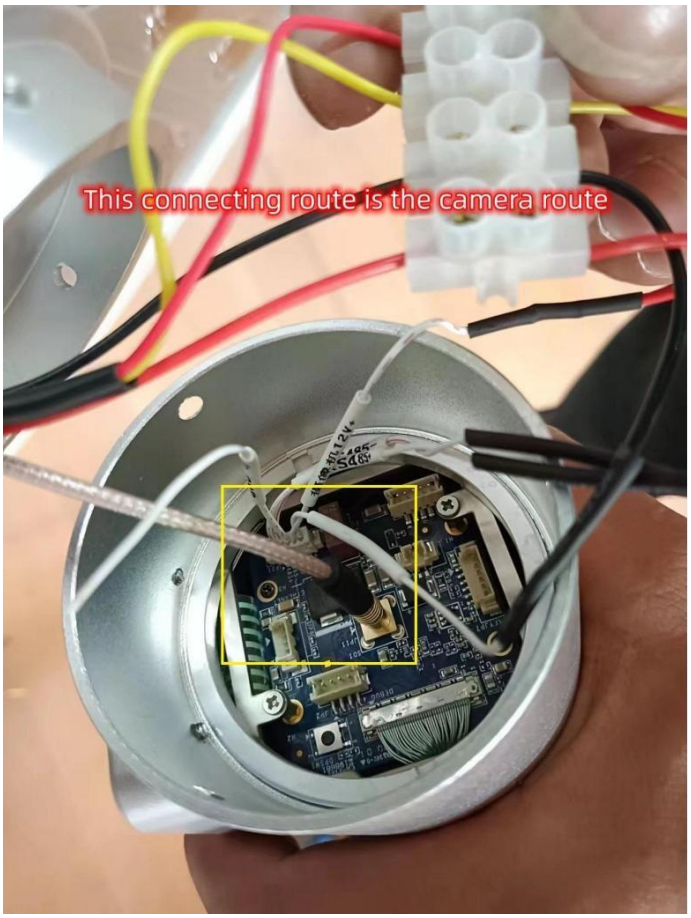
Medical monitor	Medical grade display, standard up to 24" for images and video data. 24" / 27" For option	
Sony 20x CMOS 1/3" Camera (1920*1080P HD / 3840*2160P 4K)	Integrated SD or HD camera: Provides a direct view of the operating field with optimal exposure. Replaces the central handle and includes a picture rotation as well as an adjustment for the illumination radius.	
Remote camera control	Intuitive control panel, Wall panel Handles on the lamp head Remote control independent of the light source.	

Installation Steps Of Camera And Monitor:

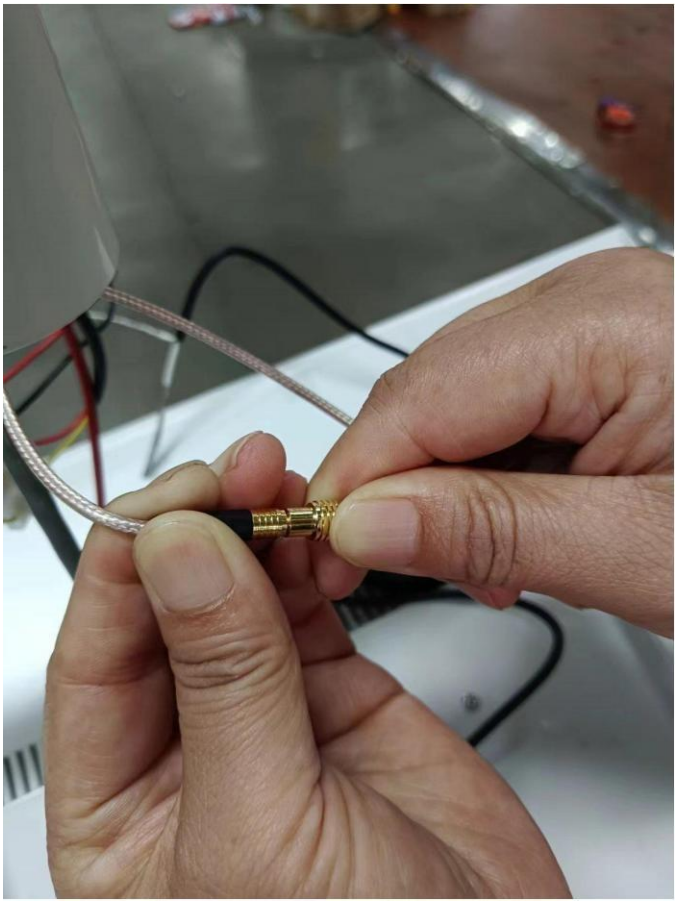
1. Wire connection for power source:

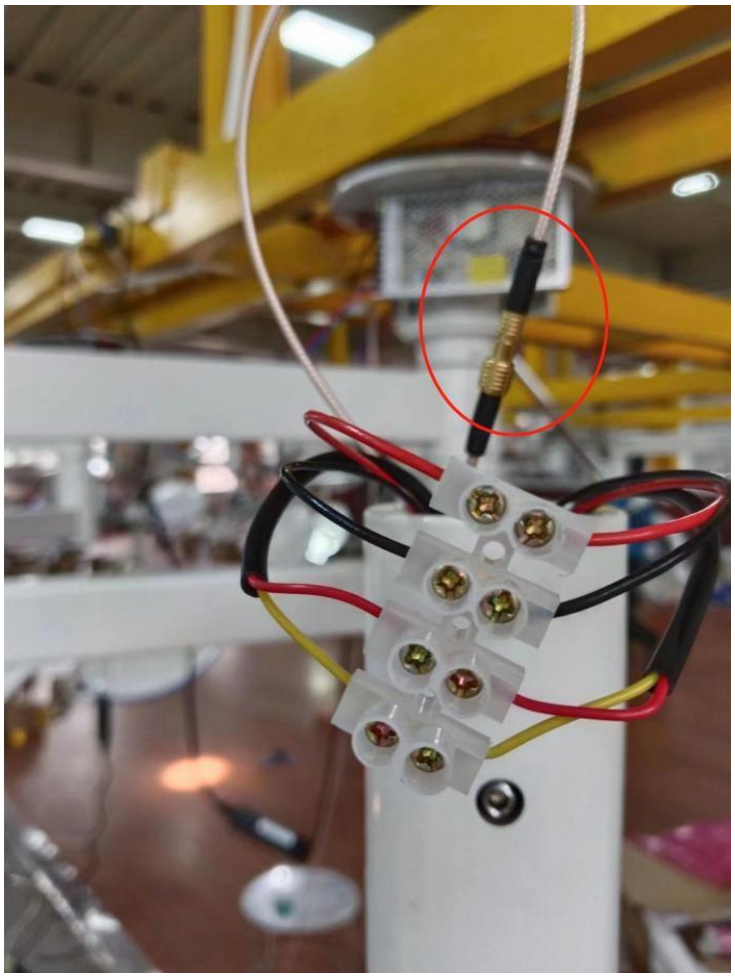
2. Wire connection for Internal Camera:



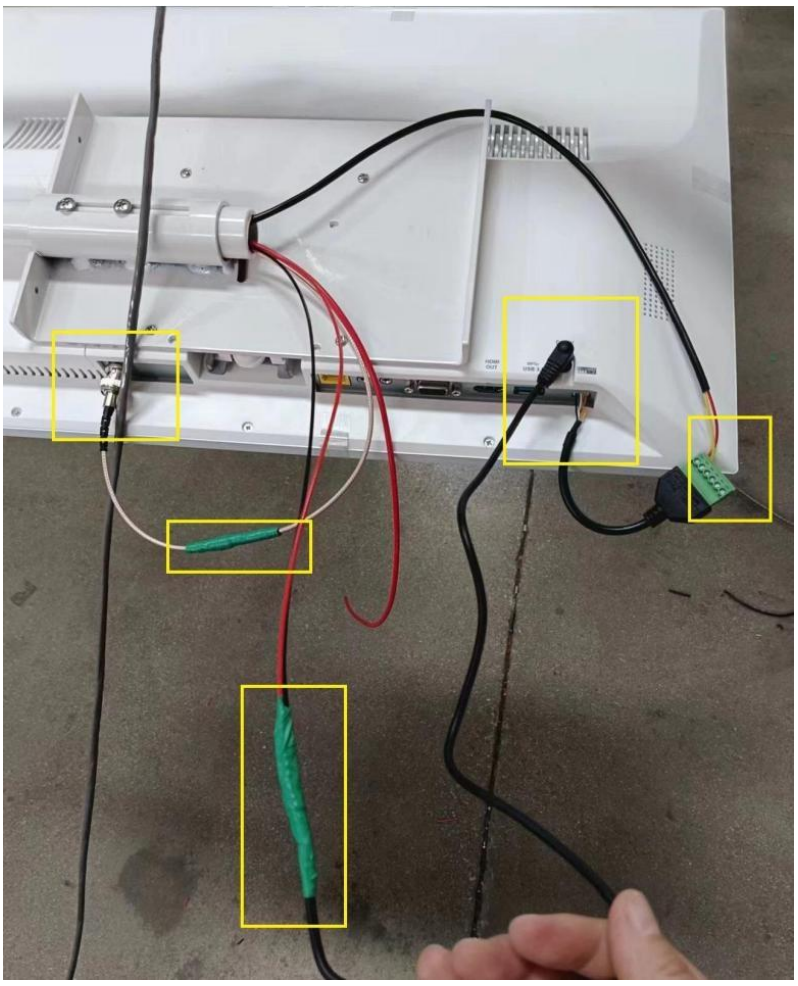


3. Wire connection for Medical Monitor:






HDMI
OUT
USB 3.0



Troubleshooting:

If you encounter problems using the POWER-LED surgical lights, please review the following chart. Find the fault and complete the recommended solution. If the fault is not found or the solution does not correct the problem, Contact with “NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD”

Environmental conditions:

Operation:

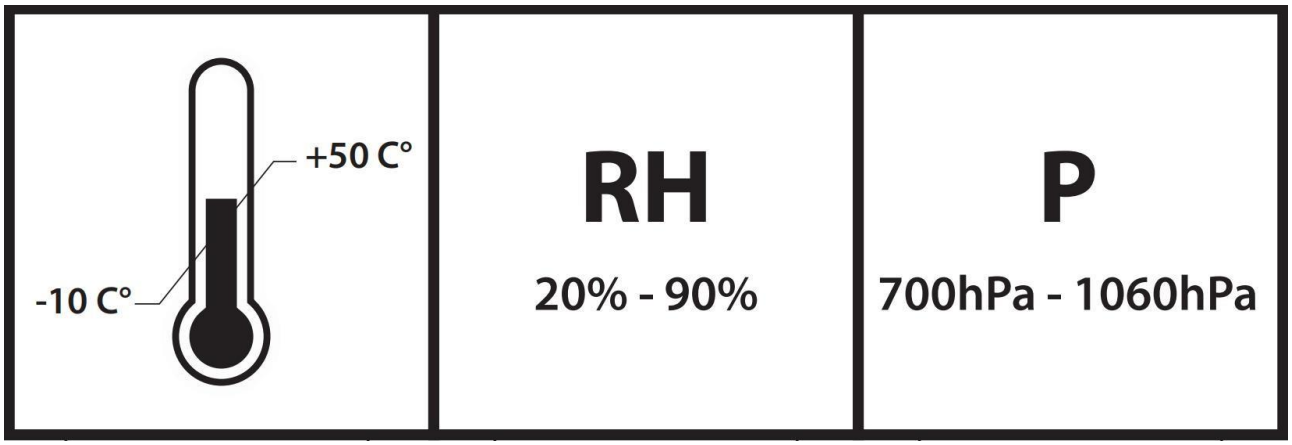
	MIN	MAX
Temperature	+10°C	+40°C
Relative atmospheric humidity	30%	75%
Air pressure	700 hPa	1060 hPa

Transportation / Storage:

	MIN	MAX
Temperature	+10°C	+50°C
Relative atmospheric humidity	20%	90%
Air pressure	700 hPa	1060 hPa

Fall	Recommended Solution
The red emergency light indicator is "On"	• Turn off the emergency switch to cancel Emergency By-Pass mode • If one or two LED modules stop working, the fuse may be blown and will need to be replaced by a qualified technician.
One button mylar main controller has stopped working	• Mylar driver may need to be replaced.
One button on wall mylar controller has stopped working	• The mylar wall controller may need to be replaced.
The lamp is drifting	Tighten the exposed screws on the yokes or center shaft using a 3/8" flat head screwdriver.
The glass is dirty	• Follow the procedure “Operation: Cleaning the MICARE Surgical Light”
An LED does not work	• The capsule must be replaced by a qualified technician.

References on the package:



1)Temperature range for transportation and storage
2)Atmospheric humidity for transport and storage
3)Air pressure for transportation and storage

Electromagnetic compliance data for the POWER-LED series:

Guidance and manufacturer's declaration: electromagnetic immunity

The equipment or system is intended for use in the electromagnetic environment specified below. The client or The user of the equipment or system must ensure that it is used in such an environment.

Immunity test	IEC 60601 test level	Level of compliance	Electromagnetic environment - Orientation
Electromagnetic environment - Orientation	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	The floors must be made of wood, concrete or tiles ceramic. If the floors are covered with synthetic material, The relative humidity should be at least 30%.
Fast electrical transients/bursts IEC 61000-4-4	±2 kV for power lines energy supply ±1 kV for power lines entrance exit	±1 kV for power lines ±0.250 kV for input/output lines	The quality of the electrical network should be that of a commercial environment or typical hospitable.
Surge IEC 61000-4-5	±1 kV line(s) to line(s) ±2 kV line(s) to ground	±1 kV line(s) to line(s) ±2 kV line(s) to ground	The quality of the electrical network must be that of a commercial environment or typical hospitable.
Voltage dips, short interruptions and voltage variations on the input lines of the power supply IEC 61000-4-11	<5% UT (>95% drop in UT) for 0.5 cycles 40% UT (60% drop in UT) for 5 cycles 70%UT (30% drop in UT) for 25 cycles <5% UT	<5% UT (>95% drop in UT) for 0.5 cycles 40% UT (60% drop in UT) for 5 cycles 70%UT (30% drop in UT) for 25 cycles <5% UT	The quality of the electrical network must be that of a commercial or hospital environment typical. If the user of the equipment or system requires continuous operation during power grid outages, recommends that the equipment or system

	(>95% drop in UT) for 5 s	(>95% drop in UT) for 5 s	is powered by a power supply uninterrupted or a battery.
Power Frequency Magnetic Field (50/60 Hz) IEC 61000-4-8	3 amps per minute	Does not apply	Electric Frequency Magnetic Fields should be at levels characteristic of a commercial environment or typical hospitable.

Electromagnetic Compliance Data for MULTI-COLOR LED PLUS Series:

Guidance and manufacturer's declaration: electromagnetic immunity

The ME EQUIPMENT or ME SYSTEM is intended for use in the electromagnetic environment specified below. The customer or user of the ME EQUIPMENT or ME SYSTEM must ensure that it is used in such an environment.

Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment – Guidance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2,5 GHz	3 Vrms 3 V/m	Portable and mobile RF communications equipment should be used no closer to any part of the ME EQUIPMENT or ME SYSTEM, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance: $d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2,5 GHz Where **P** is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and **d** is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey (a) should be less than the compliance level in each frequency range (b) Interference may occur in the vicinity of equipment marked with the following symbol: 

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, land mobile radios, amateur radio, AM and FM radio broadcasts, and TV broadcasts cannot be predicted accurately. To evaluate the electromagnetic environment of fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength at the location where the ME EQUIPMENT or ME SYSTEM is used exceeds the applicable RF compliance level above, the ME EQUIPMENT or ME SYSTEM should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the ME EQUIPMENT or ME SYSTEM.

B. In the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Electromagnetic Compliance Data for POWER-LED Series

Recommended separation distances between portable and mobile RF communications equipment and the equipment or system

The equipment or system is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or user of the equipment or system can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the equipment or system, as recommended below, in accordance with the power maximum output of communications equipment

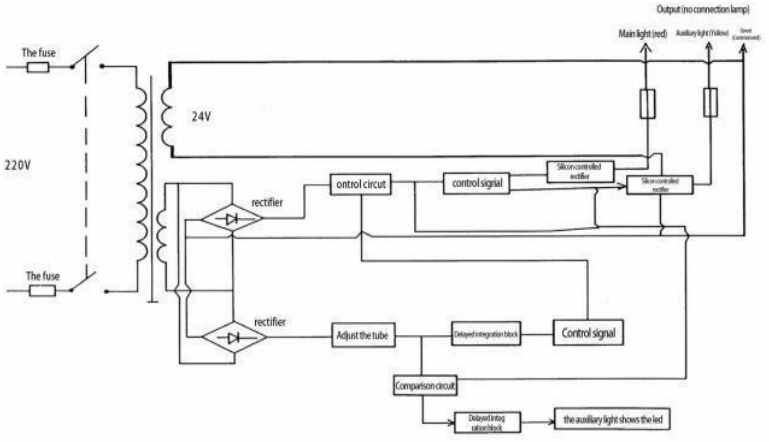
Rated maximum output power of Transmitter **W**	**Separation distance according to frequency of transmitter**		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.5 GHz
	$d=1.2\sqrt{P}$	$d=1.2\sqrt{P}$	$d=2.3\sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23

For transmitters with a maximum output power rating 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 Rated maximum output power 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.

Elimination:

1. The surgical light does not contain any hazardous materials.
2. Surgical light components should be disposed of properly at the end of their useful life.
3. Make sure materials are separated carefully.
4. Electrical conductive plates should be sent to an appropriate recycling facility.
5. The rest of the components must be disposed of using the methods applicable to the materials they contain.



LED work light circuit

The reflector of this product is a losing part. If the reflector cannot provide the required illumination due to aging, it can continue to be used after replacing the reflector; Other components such as mechanical welding parts coated with anti-corrosion paint or anti-corrosion oil to prevent damage caused by rust or destruction, and combined with similar products in the industry, as usual.
During use, it is recommended that the period of safe use does not exceed ten years.

Precautions, warnings and explanations.

Design, installation, debugging and operation must be carried out strictly according to the steps described in the installation manual.

When replacing a lamp, you must purchase a light bulb that matches the specifications, models, and manufacturers specified by the manufacturer. Do not use similar bulbs to avoid explosion. (Before use, please make sure the lamp specifications are correct to avoid damaging the control circuit.)

Please check whether surgical lamps are loosened frequently to prevent accidents.

Please do not remove the surgical lamp and control circuit without factory permission.

This surgical lamp is safe for ten years and comes with a two-years free warranty (except for the bulb, which is susceptible to damage). Damage caused by improper use of the lamp is not covered by the free warranty and the product is provided with lifetime maintenance.

Astral lamp items other than equipment are strictly prohibited.

To ensure the normal use of surgical lamps, non-professional personnel are prohibited from removing or replacing the filter, and the lamp holder body is strictly prohibited from being opened.

Warranty Policy - Surgical Lamps:

NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD. will guarantee its manufactured equipment for up to two (2) years from the date of installation. NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD warranty will not cover any disposable, sterilizable or single-use products.

E700/500 series surgical light heads are warranted against defects for two (2) year from the date of installation.

This warranty is valid only when the equipment has been installed correctly as described in the specifications of NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD The validity of this warranty also depends on the proper use and timely maintenance of our equipment in accordance with the recommendations of NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD. does not cover damage resulting from failure to ship, accident, misuse, abuse, neglect, mishandling, alteration, misapplication, or damage that can be attributed to acts of God.

NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD shall not be liable for incidental or consequential damages resulting from the use or misuse of the equipment.

Packing list (Double Ceiling Mounted+Camera+Monitor+Backup battery)		
	Decription	Quantity
1	Ceiling Rotating Body + Suspension Arm	1 Set
2	Celing Cover	1 set
3	Base round bracket	1 set
4	Balance arm	2 sets
5	Lamp heads	2 sets
6	Sterilizing handles	6 sets
7	Monitor 24 inches resolution 1920x1080	1 pc
8	Internal Sony Camera (20X) resolution 1920x1080	1 pc
9	Instruction manual	1 pc
10	Fixing plate	2 pcs
11	M5×10 screws	2 pcs
12	M4×10 Self-tapping yarn	5 Pcs
13	3mm、4mm、5mm Hexagonal spanner	One each
14	M12×70 bolts	2 pcs
15	M12nuts	10 pcs
16	Phillips, flat-head screwdrivers	One each
17	M8×15 Pushing thread	1 pc
18	Brackets for monitor to install on pendant	1 pc
19	Backup Battery	1 pc

南昌迈柯尔医疗器械有限公司
NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD

Authorized Signature(s)