

LED SURGICAL LIGHT E700/500 MODEL

(DOUBLE CEILING MODEL E700/500)



USER MANUAL (version 05-03-2025)

NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD








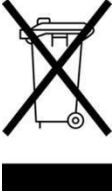
Add: No.666 Yaohu west 5th, Road hi-tech zone, Nanchang, Jiangxi, China

Email: sales3@micare.cn

Web: www.micare-med.com / www.surgicallight.com / www.ledoperatinglamp.com

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:

E700/500 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.

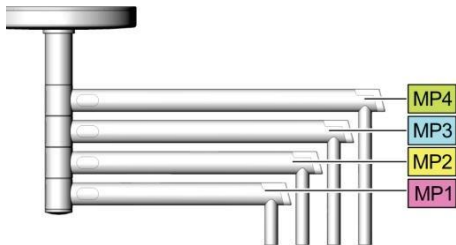


Risk of injury from falling parts!

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 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:

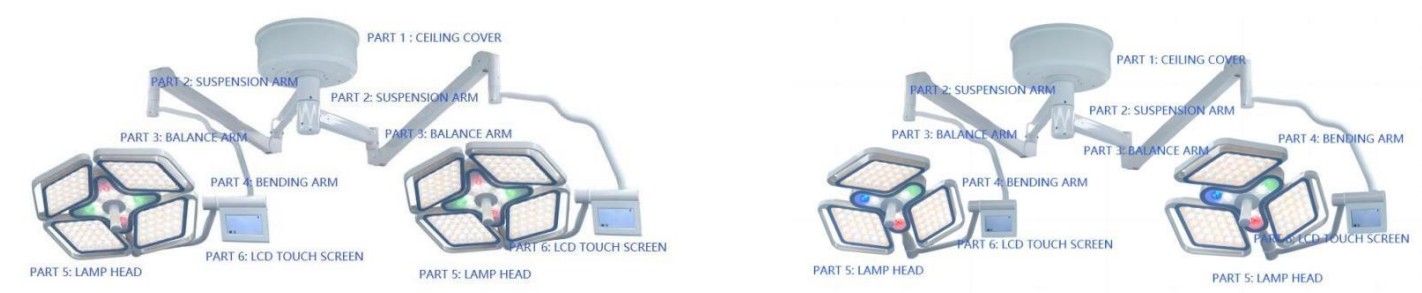
This manual is intended to explain the operation, installation, debugging, operation, maintenance and troubleshooting of LED work lights.

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]

TECHNICAL DATA SHEET	E700/500
Central illuminance at a distance of 1 m	60,000 - 160.000LUX / 40,000 - 140.000LUX
Light field diameter (Electrical Control)	150-350MM
Color temperature (10Steps)	3,000 - 5,800 K (Adjustable)
Color rendering index (RA)	≧ 96
Red rendering index (R9)	≧ 98
Light Intensity Control (10Steps)	0-100%
Total irradiance	364 - 5 0 0 W/ m²
Depth of illumination L1+L2	1300MM
Endo Mode	Green + Red Leds 12PCS / 6PCS
Vertical movement (degrees)	≥85°
Class Of Protective	IP55
Lamp Head Diameter	650MM / 650MM
LED Bulb Quantity	112 / 82PCS
LED Bulb Life Span	80,000Hrs
Back Up Battery	4 - 6HRS
Remote Control / Wall Control	Optional
Synchronize Control	Optional
Voltage	95-245V, 50/60HZ
Removable Sterilizable Handles	Yes
Active Shadow Management. Dynamic Obstacle Shadow Compensation	Yes
Sony 20X Internal Camera + 24Inches Monitor	Yes

Basic structure and performance characteristics of the product

The basic structure of an LED work light consists of a base, a rotating arm, a balance, an elbow and a lamp cover. The lamp head is fixed on the balance suspension system by several lamp beads, has a stable position, can make vertical or circular movement, can meet the needs of working at different heights and angles. The elbow is an important structural part that connects the lamp base and the equalizer. The elbow can rotate on its own, creating the effect of a lamp body. The role of the balance is to ensure that the lamp at different angles can achieve stable balance and meet the actual use. The rotary arm can change the position of parts to other positions through its own rotation to suit the operator's ease of use.

The brightness of the two types of beads can be controlled by PWM mode respectively to realize the adjustment of the overall brightness and color temperature. Each module is independent from each other. If one module is damaged, the others can continue to operate, reducing the impact on operation. Each module's lamp bead (warm color, cool color) is driven by one OCP2185 for constant current, and receives PWM according to the user's needs.

STC15F104E microprocessor unit (MCU) pulse width adjustment control, which can be continuously adjusted. The current flowing through each LED is about 120~320mA. The electrical circuit diagram of the LED work lamp is shown in the figure

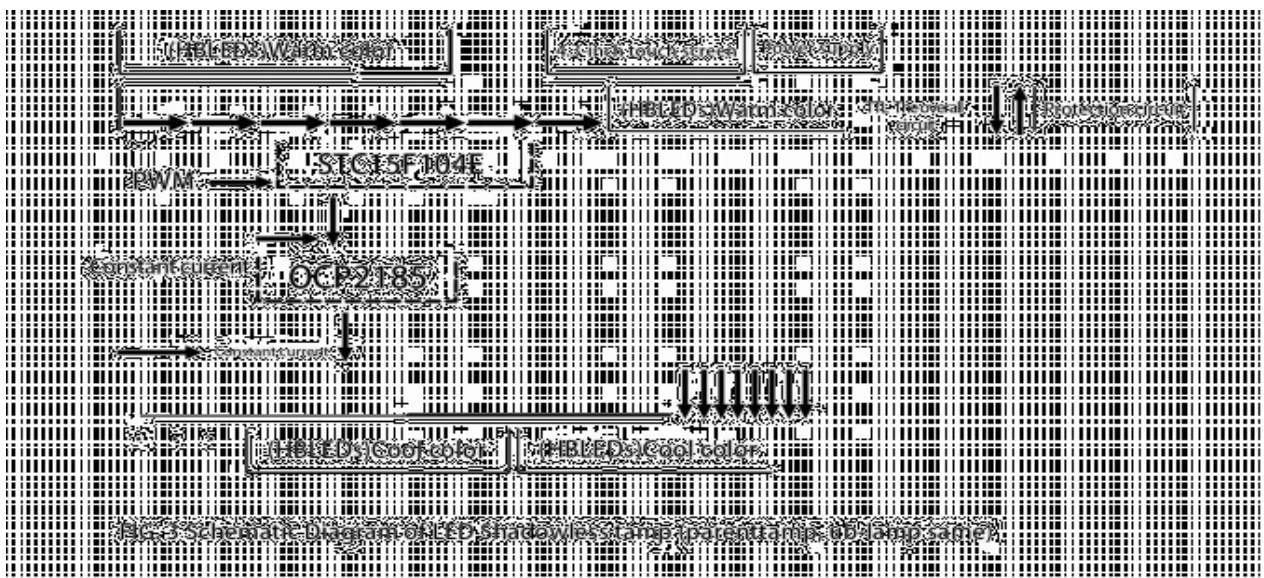


FIG. 3 Electrical circuit diagram of LED work light (main and secondary lamps are the same)

1、Installation and Use

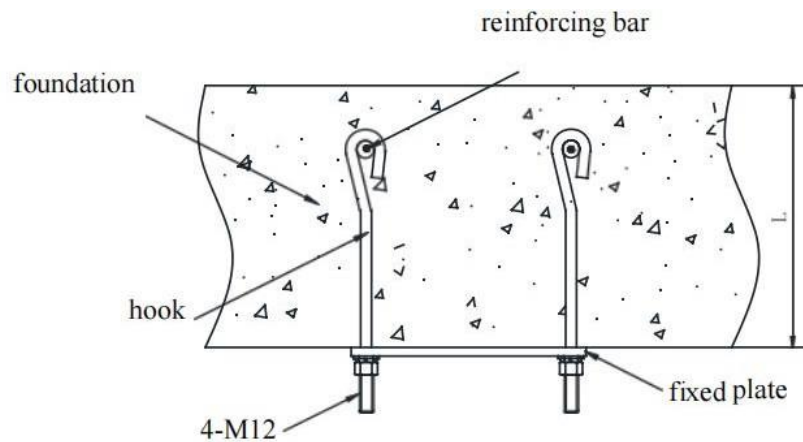
The surgical lamp is suspended from the ceiling of the operating room, with a standard installation height of 2.9-3m. Four M12 bolts must be embedded in the reinforced concrete ceiling (note: the diameter is Ø 240mm, divided into four parts at 360 ° on the circumference), exposing the ceiling for more than 150mm to facilitate the installation of fixed plates and rotating base.



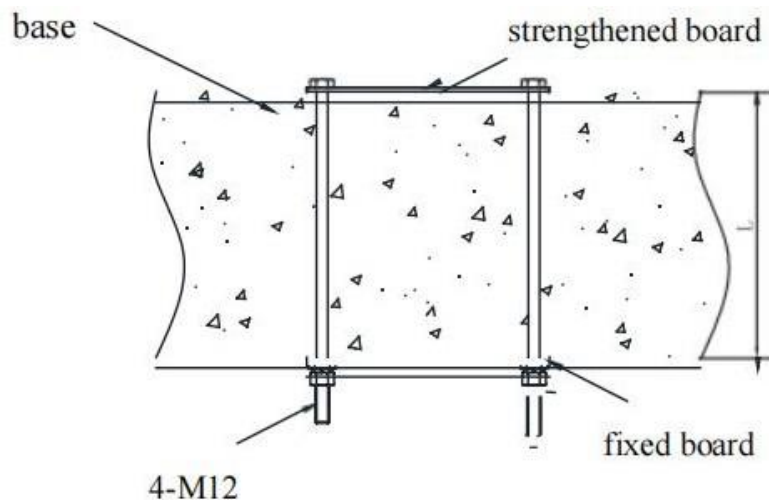
Important reminder: The installation foundation of the Led Operating lamp must be firm and reliable, and must withstand a load greater than 500 kilograms.

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 pre embedded anchor bolt construction method. During the construction of the floorslab, 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.

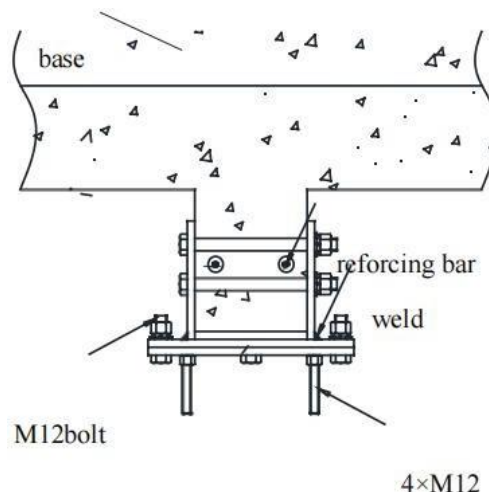


(2) When the foundation thickness L is less than 20cm, it is necessary to request reinforcement plates from our company, which can be pre-embedded or on-site construction. It is necessary to drill through holes on the top of the floor foundation, and connect the reinforcing plate (provided by the user) 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



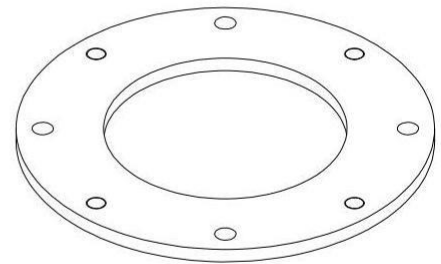
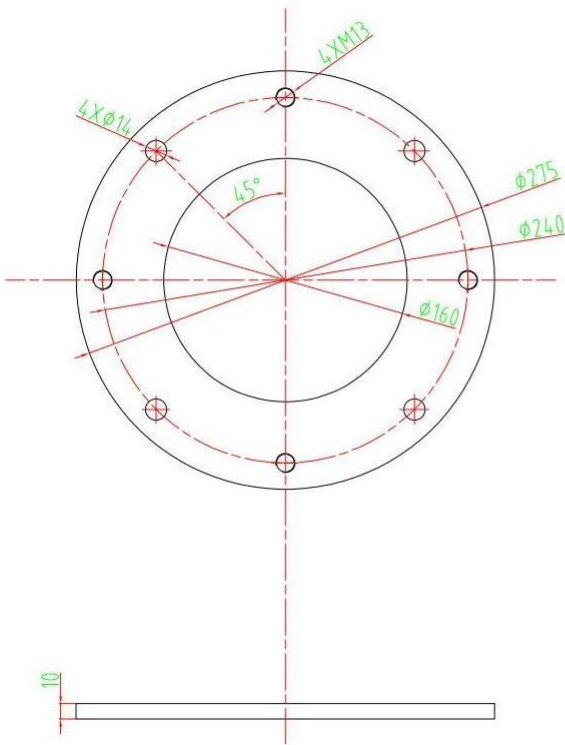
It is recommended to use the beam hugging construction method. The clamp plate (10mm thick) installed on the cement crossbeam can be connected with four M12 bolts. When it comes to this structural feature, it is necessary to contact our company's technical personnel to customize a suitable connection 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 $\varnothing 270\text{mm}$ and evenly distributed 4- $\varnothing 12$ holes) for installing the surgical lights. Before installing the 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 $\varnothing 240\text{mm}$ 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.

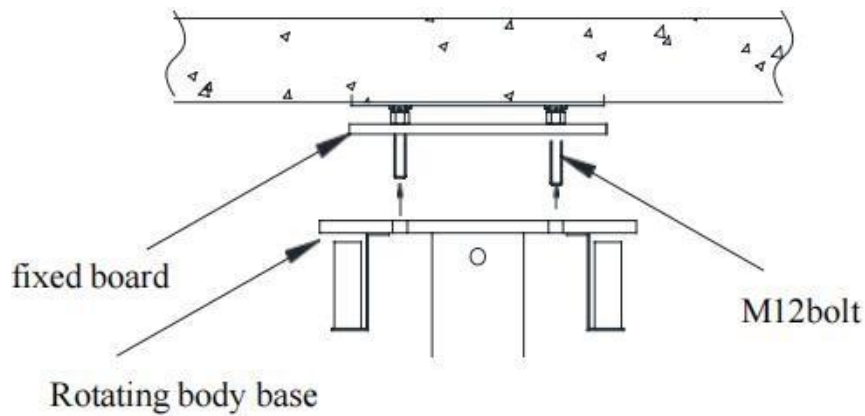
Power cord installation:

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.

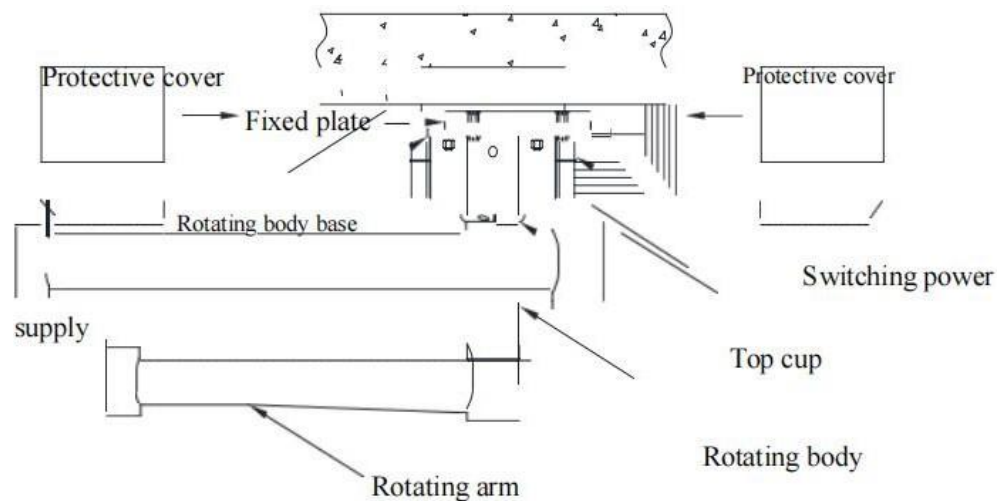
Important reminder:

The disconnecting device between this product and the grid power supply is provided by the user, with specifications of AC100~240V/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



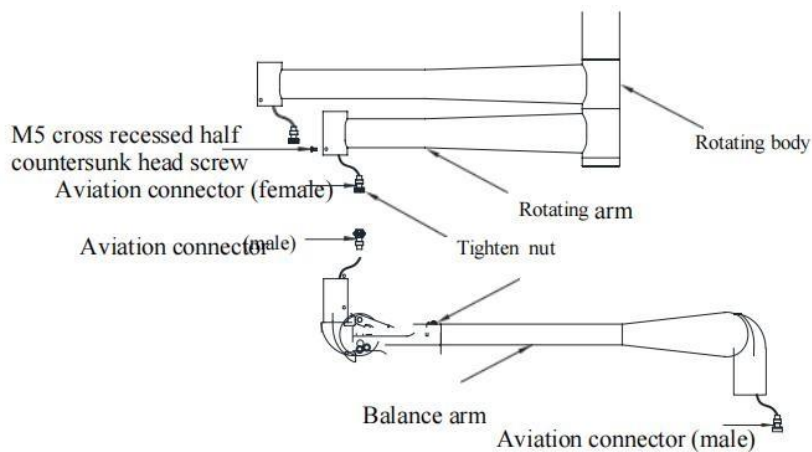
Installation of Rotating Bodies

(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 cover ring, 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.

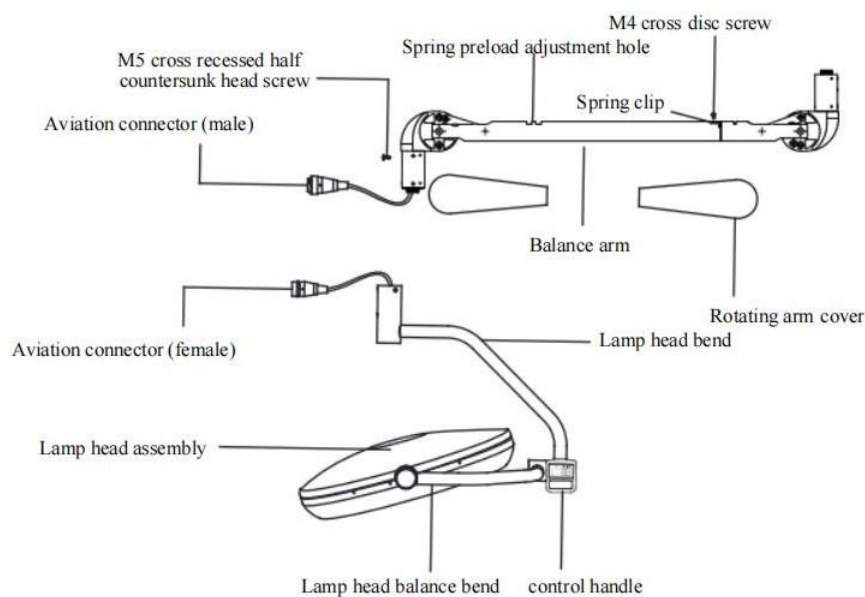


Take care

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

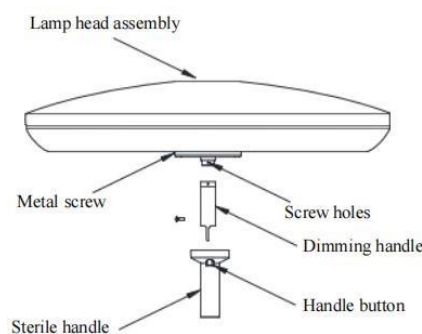


Warning

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

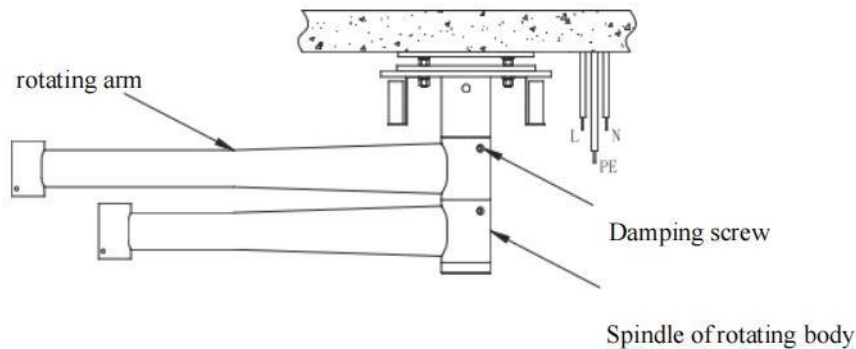
Take care

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

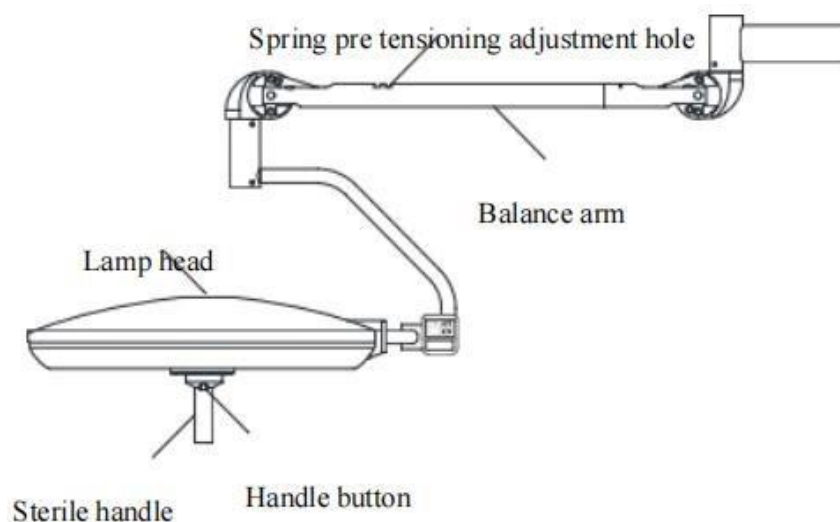


Warning!

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 540° around the main axis.

Ensure that the balance arm can rotate 540° around the axis of the rotating body,

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 360° around the lower axis of the balance arm.

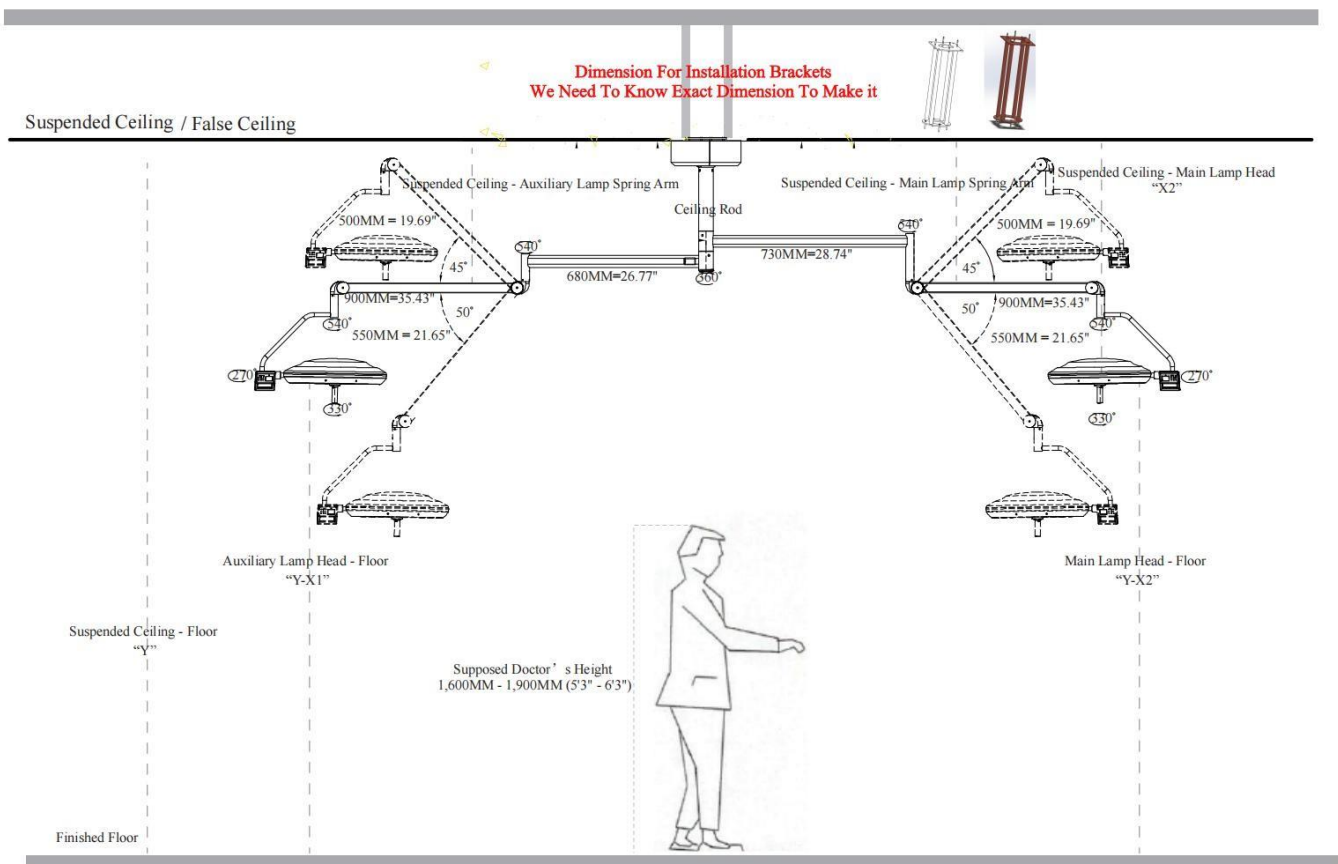
Ensure that the lamp head bend can rotate 180° around the lamp head balance bend.

Ensure that the lamp head can rotate 180° 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.

Structural Ceiling / Concrete Ceiling



Operating environment conditions

Transportation and storage:

Ambient temperature: $-15^{\circ}\text{C} \sim 60^{\circ}\text{C}$

Relative humidity: 10% ~ 85%

Atmospheric pressure: 500 - 1060 hPa

Working:

Ambient temperature: 10° C ~ 35° C

Relative humidity: 30% ~ 75%

Atmospheric pressure: 860 - 1060 hPa

Altitude ≤ 2000M.

Network power overvoltage category is Class II, and secondary circuit overvoltage category is Class I.

Pollution degree is 2.

This product should be installed and used in accordance with the electromagnetic compatibility (EMC) information given in this document.

Portable mobile radio frequency communication equipment may affect the normal operation of this equipment.

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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



LED SURGICAL LIGHT

(POWER-LED DOUBLE CEILING MOUNTED TYPE)



Model E700/700

SN #04032501

2025 -04

UDI-DI: 06975899060074



Caution



**Follow
instruction
for use**



**BF
Applied
part**



220 V

50/60 Hz



Manufacturer by:

NANCHANG MICARE MEDICAL
EQUIPMENT CO.,LTD
NO.666 YAOHU WEST 5TH ROAD, HI-
TECH ZONE, NANCHANG, CHINA



Authorized representative:

SUNGO EUROPE B.V.

Add:Fascinatio Boulevard 522,
Unit 1.7, 2909VA Capelle aan den
IJssel, The Netherlands
Tel: +31(0)10 3034500
Email: ec.rep@sungogroup.com



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 (°C)	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). The handles
- 3) 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.³
- 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.

Troubleshooting:

If you encounter problems using the 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"

Fall	Recommended Solution
The red emergency light indicator is "On"	<ul style="list-style-type: none">• 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	<ul style="list-style-type: none">• 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.

Environmental conditions:

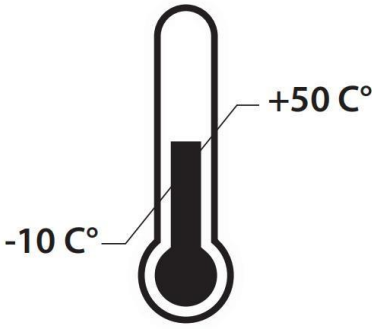
Operation:

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

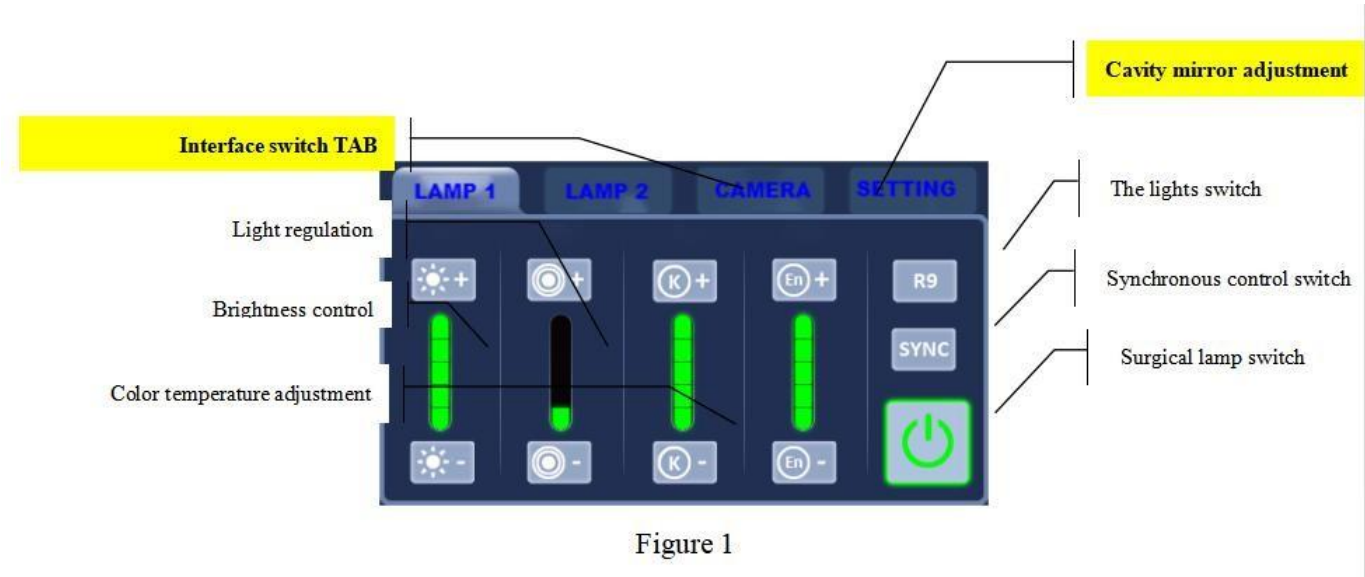
Transportation / Storage:

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

References on the package:

	<p>RH</p> <p>20% - 90%</p>	<p>P</p> <p>700hPa - 1060hPa</p>
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LED Surgical Lamp Control:



After the LED Surgical lamp control terminal is powered on, the lamp control interface (FIG. 1) will enter by default, which can adjust the switch, Light Intensity, color temperature, Spot Size Field Diameter, cavity Endoscopy position of the main lamp, Red and green balance switch and synchronous control switch of main lamp and auxiliary lamp

Synchronization control switch (Optional)

By clicking the button to realize the quick switch between the mode of automatic control and the mode of co-control. After switching the interface through the interface switch TAB, the synchronization control switch is automatically turned off.

The key state	State that
	Automatic control mode: the control terminal only controls the head of the auxiliary lamp
	Co-control mode: the control terminal controls the main lamp and the child lamp at the same time. The parameters of the control board of the parent lamp in this control mode will be modified synchronously.



Lamp Switch

By clicking the button can turn on/off the lights, the control board will remember the lights on and off state.

The key state	State that
	Lamp closed, Red and Green balance Leds open state operation.
	Lamp closed, Red and Green balance Leds open state operation.

LED Surgical lamp switch

Click the button to turn on or off the Surgical lamp, and the control board remembers the Surgical lamp switch status. The next power-on will maintain the switch status before the last power off.

The key state	State that
	LED Surgical lamp open, at this time can operate lights, synchronous control switch and adjust the gear.All tap ICONS are green and adjustable, as shown in FIG. 2.
	LED Surgical lamp closed, do not operate lights, synchronous control switch and adjust gear.All tap ICONS are gray and untunable, as shown in FIG. 3.

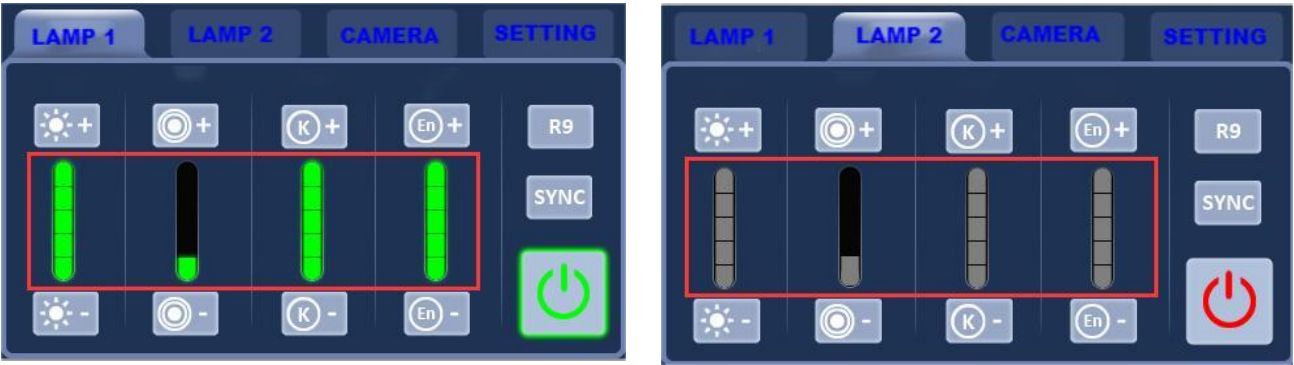




Figure 2, figure 3


Brightness adjustment

The keys	instructions
	When the lighting mode is normal, it can adjust the brightness of 1-10 gears.This button is unavailable when the lighting mode is deep cavity or shallow surface mode.When the lighting mode is mirror mode, click this button to switch to normal mode.

Spot adjustment

The keys	instructions
	When the lighting mode is normal, deep cavity or shallow surface mode, it can realize the adjustment of 1-4 light spot;When the lighting mode is mirror mode, click this button to switch to normal mode.

Color temperature adjustment

The keys	instructions
	<p>The lighting mode is normal and shallow, which can adjust the color temperature of 1-10 taps. The tap parameters in the two modes can be remembered separately.When the lighting mode is mirror mode, click this button to switch to normal mode.</p> <p>This button is unavailable when the lighting mode is deep cavity.</p>

Endoscopic adjustment


The keys	instructions
	When the lighting mode is normal, shallow and deep cavity mode, one-click switch to the cavity endoscopy mode can be realized. At this time, the ICONS of brightness, light spot and color temperature are gray and untunable, as shown in Figure 4. When the lighting mode is the cavity mirror mode, click this button to adjust the cavity mirror at 1-10 positions.
	can be realized. At this time, the ICONS of brightness, light spot and color temperature are gray and untunable, as shown in Figure 4. When the lighting mode is the cavity mirror mode, click this button to adjust the cavity mirror at 1-10 positions.



Figure 4.

Interface switch TAB:

In the control interface of lamp holder 1, you can switch to the control interface of lamp holder 2, camera control interface and setting interface through the interface switching TAB.

Lamp holder 2 control interface:







Figure 5

LED Surgical lamp control terminal Can enter lamp cap 2 control interface (FIG. 5) through interface switching TAB, which can adjust the switch, brightness, color temperature, light spot, cavity mirror position and lamp switch of sub-lamp lamp head. The parameters of the parent lamp do not change when operating the Auxiliary lamp cap.



Adjusting the camera zoom:

The keys	Instructions
	<p>The button for 1X to 20X adjustable camera zoom changes widely, it should be optional with the camera function</p>

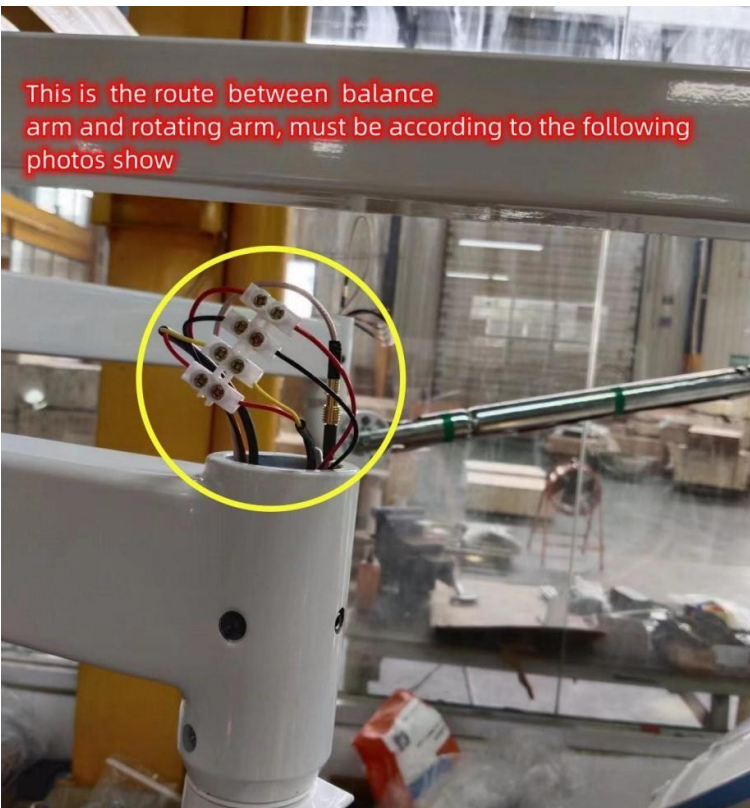
Medical monitor	Medical grade display, standard up to 24" for images and video data. 24" / 27" Resolution 1920*1080	
Sony 20x CMOS 1/3" Camera (1920*1080P HD / 3840*2160P 4K)	Integrated SD or HD camera: Provides a direct view of the operating field with optimal exposure. Replaces the central handle and 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:

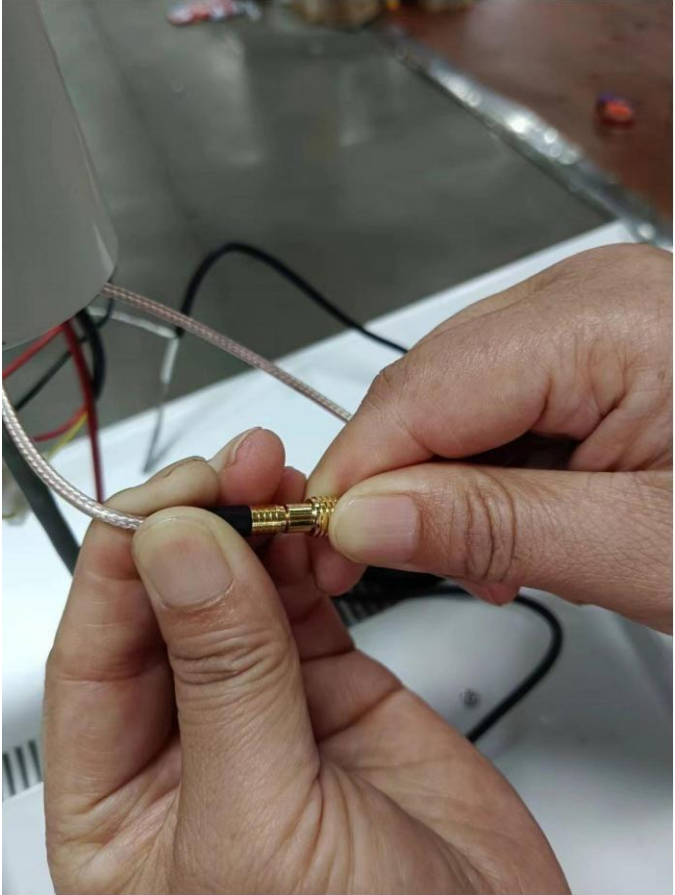
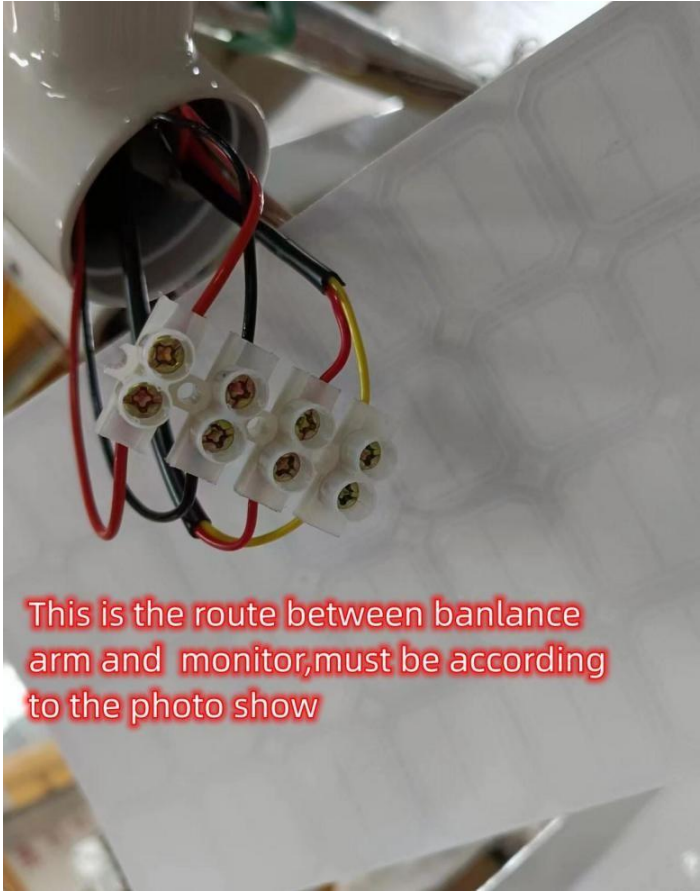


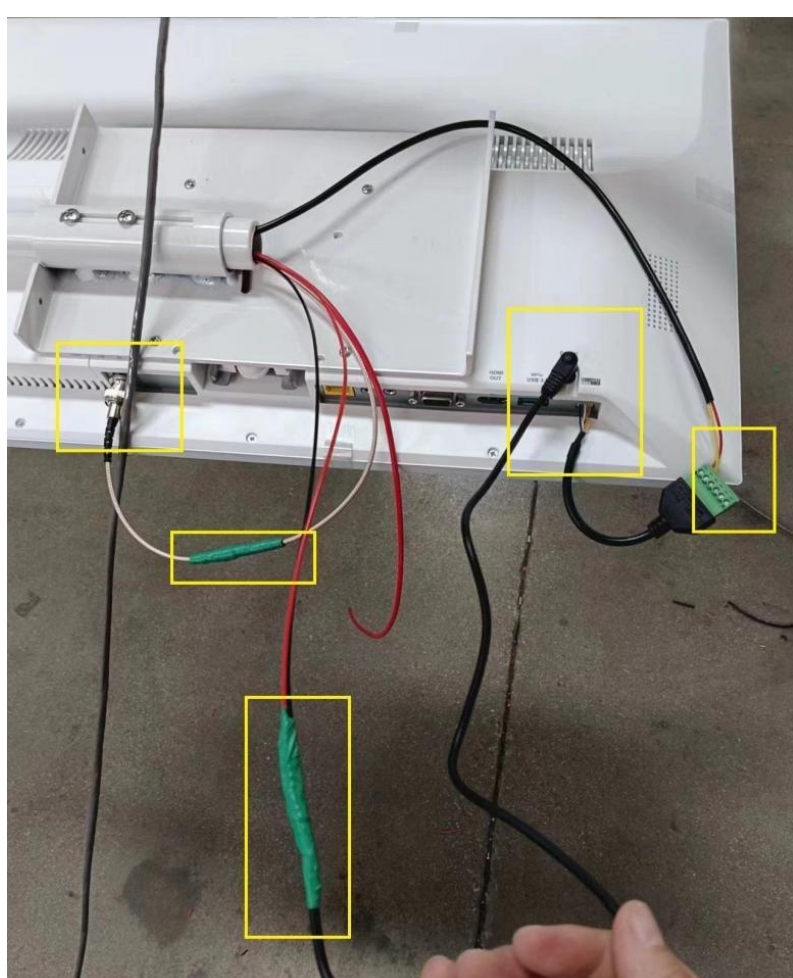
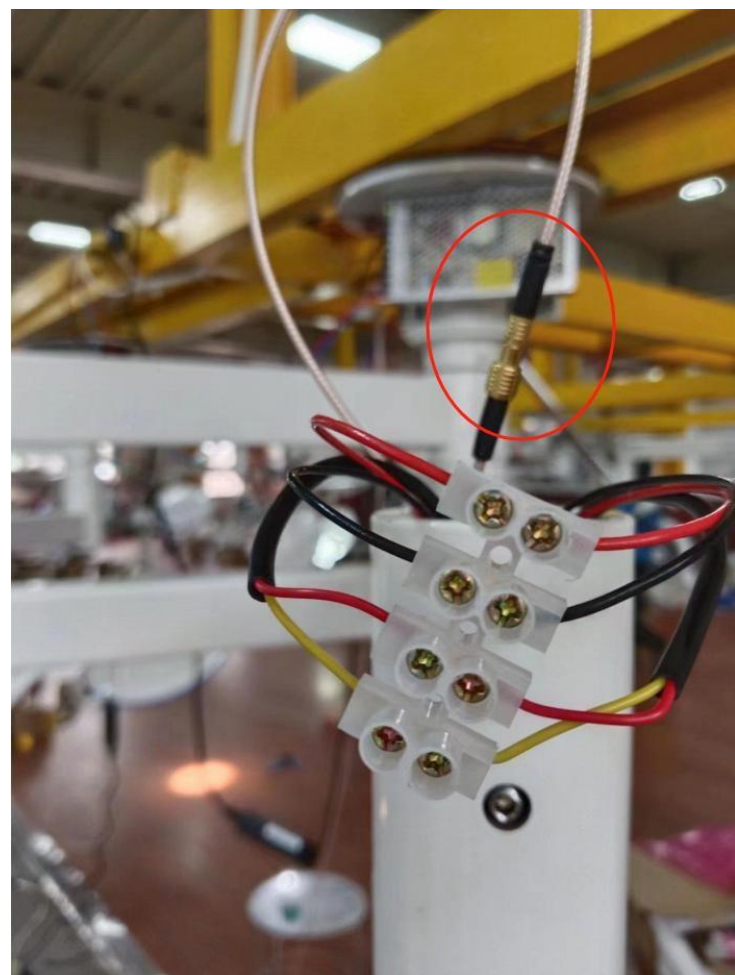
2. Wire connection for Internal Camera:





3. Wire connection for Medical Monitor:





Camera control page:

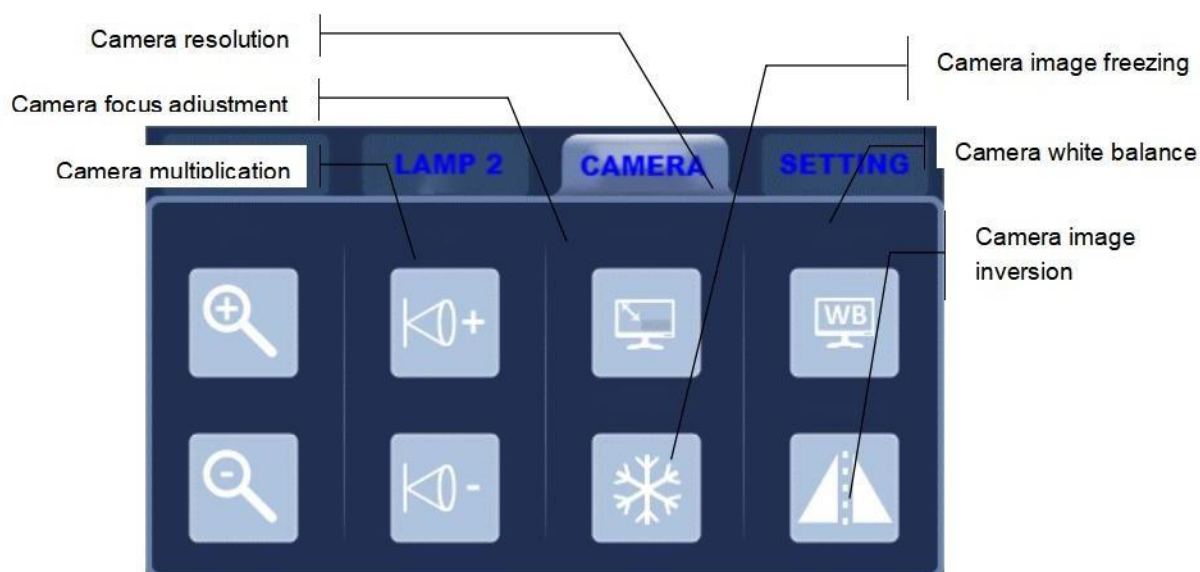


Figure 6.



LED Surgical lamp control terminal can enter camera control interface (FIG. 6) through interface switching TAB, which can adjust camera focusing, zoom, resolution, image freezing/thawing, white balance and image inversion parameters

The keys	instructions
	Press the button and the camera keeps zooming in Lift the button and the camera doubles to stop
	Press the button and the camera keeps doubling and shrinking Lift the button and the camera doubles to stop
	Press the button and the camera zooms in continuously Lift the button to stop camera zoom
	Press the button and the camera keeps zooming out Lift the button to stop camera zoom
	The camera can switch resolution by pressing the button
	Press the key to switch between image freezing and image unfreezing
	Press the button to switch the camera to white balance mode
	Press the button to switch the camera to image inversion mode

Lighting mode Selection:



The control panel supports four lighting modes: normal mode, mirror mode, deep cavity mode and shallow surface mode.

The ICONS	Model is introduced
	Normal lighting mode
	Cavity mirror lighting mode

	Deep cavity lighting mode
	Shallow illumination mode

Shading compensation switch:

Click this key to switch on and off the function of shading compensation. The shading compensation function shall be used with the constant current source board of our company.

The keys	instructions
	Shading compensation is off
	Shading compensation on

Troubleshooting:

If you encounter problems using the 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"

Fall	Recommended Solution
The red emergency light indicator is "On"	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Mylar driver may need to be replaced.
One button on wall mylar controller has stopped working	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Follow the procedure "Operation: Cleaning the MICARE Surgical Light"
An LED does not work	<ul style="list-style-type: none"> • The capsule must be replaced by a qualified technician.

Environmental conditions:

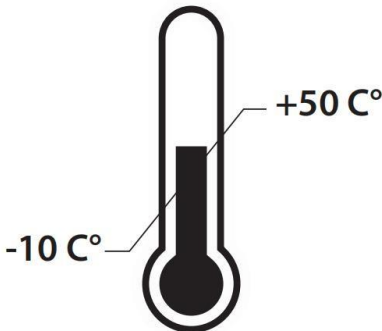
Operation:

	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

References on the package:

	RH 20% - 90%	P 700hPa - 1060hPa
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- 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 E700/500 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 (>95% drop in UT) for 5 s	<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 (>95% drop in UT) for 5 s	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 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 E700/500 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

			<p>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:</p> 
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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.

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.

Warranty Policy - Surgical Lamps:

NANCHANG MICARE MEDICAL EQUIPMENT CO.,LTD. will guarantee its manufactured equipment for up to 3 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 3 years 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)		
Serial number	Name	quantity
1	Ceiling Rotating Body + Suspension Arm	1 Set
2	Celing Cover	1 set
3	Base round bracket	1 set
4	Balance arm	2 set
5	Lamp heads	2 set
6	Sterilizing handles	6 set
7	Instruction manual	1 Pcs
8	M5×10 screws	2 Pcs
9	M4×10 Self-tapping yarn	5 Pcs
10	3mm、4mm、5mm Hexagonal spanner	One each
11	M12×70 bolts	4 Pcs
12	M12nuts	10 Pcs
13	Phillips, flat-head screwdrivers	One each
14	M8×15 Pushing thread	1 Pc
15	Sony 20X Internal Camera	1 Pc
16	24Inches Monitor	1 Pc