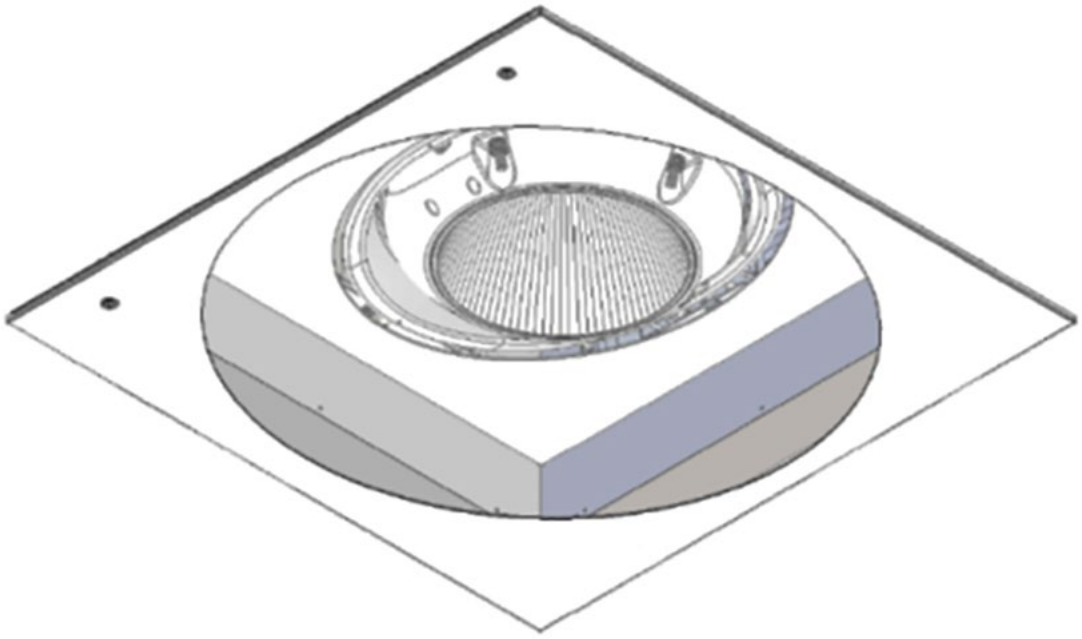
SKYTRON®

OWNER'S MANUAL



Lucina

SERIES EXAMINATION LIGHTS

Read this manual before operating this light! This information is necessary for the safe and efficient operation of the equipment.

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The base language for this document is ENGLISH. Any translations must be from the base language document.

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Although current at the time of publication, SKYTRON'S policy of continuous development makes this manual subject to change without notice. If current manuals are required, contact your local SKYTRON representative or contact SKYTRON directly at the distribution addresses listed above.

Lights manufactured 1-1-2019 and after do not bear the CE mark and do not conform to the CE standard.

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SECTION 1. SAFETY INFORMATION

1-1. Special User Attention

Lucina 4 is a diagnostic/examination light and is not intended to be used as a primary surgical luminaire. Skytron recommends a surgical light (fixed or mobile) be included in clinical settings where surgical illumination may be required.

Initial use should not begin until after the users have been instructed by the manufacturer's authorized representative.

Prior to use, all personnel that will operate the exam light must be instructed in its proper operation by a clinical in-service protocol administered by a Skytron representative.

A routine program should be implemented by the facility for proper usage instructions for all personnel that may operate the exam light.

When operating the examination light, all hospital personnel should be aware that sensible care must be taken to maintain patient safety and keep the light fixture functioning at peak efficiency.

1-2. Safety Precautions

The following is a summary of WARNINGS and CAUTIONS indicated in this manual. These precautions are found throughout the manual where they are applicable. Carefully read the manual before proceeding to operate or service the equipment.

⚠ WARNING

WARNING with a safety alert symbol indicates a hazardous situation that, if not avoided, COULD result in death or serious injury.

No modification of this equipment is allowed.

Equipment is not suitable for use in the presence of an ANESTHETIC FLAMMABLE MIXTURE with oxygen or nitrous oxide.

To avoid personal injury, DO NOT attempt to clean lighthead or wall control unless power is turned off at wall control (power cord disconnected for portable stand light).

DO NOT attempt to perform service or maintenance activities with electrical power supplied to the lighting fixture or wall control. Electrical power must be removed from the wall control at the dedicated circuit breaker.

This equipment/system is intended for use by healthcare professionals only. As with all electrical medical equipment, this equipment may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures such as re-orienting or relocating the Lucina 4 Light unit or shielding the location.

⚠ CAUTION

CAUTION with the safety alert symbol indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Always inspect product prior to use to ensure safe and correct operation. Any product deemed to be malfunctioning should be removed from service and labeled inoperable. Refer all service to a SKYTRON authorized service representative.

DO NOT look directly into the examination lights or place highly reflective surfaces in the path of the light beams. There is a risk of impaired vision.

DO NOT use the control wand with its beam pointing towards the wound area.

Use of incompatible cleaning agents will cause damage to the light fixtures or control wand. Avoid the use of cleaning solutions which contain high concentrations of alcohol, ethylene glycol, phenol, iodophors, or glutaraldehyde based disinfectants. Staining, pitting, discoloration and diffuser cracking or personal injury may occur if these are used.

CAUTION

CAUTION without the safety alert symbol, is used to address practices not related to personal injury but with a possibility of damage to equipment.

DO NOT pour any liquids directly on the fixture or wall control.

DO NOT apply or spray cleaning agents directly on the lighthead or wall control.

When cleaning the diffuser DO NOT use cleaners containing alcohol or ammonia (for example, DO NOT use standard commercial window cleaning solutions). DO NOT use solvents such as acetone. DO NOT use abrasive cleaners.

This fixture requires a properly circuit protected, appropriately sized, dedicated circuit. An isolated power supply circuit must be protected by an appropriately sized double pole, single throw circuit breaker.

If abnormal noise is detected during use, stop using the examination lights and contact a SKYTRON authorize service representative.

The control wand is not sterilizable. Before use in a sterile area, cover the wand with a sterile drape.

Before re-using a Lucina 4 examination light system that has not been used for a long time, service must be performed by a SKYTRON authorized service representative.

DO NOT use steam, extremely hot water (over 150°F [65°C]), or high pressure water sprays to clean the equipment.

DO NOT pour any liquids directly on the fixture or wall control.

DO NOT apply or spray cleaning agents directly on the lighthead, camerahead, or wall control.

Any parts or assemblies not listed in this section must be serviced or replaced by SKYTRON authorized service personnel only. This is necessary to avoid the possibility of damage to the equipment.

NOTICE

Indicates important information not related to personal injury.

SECTION 2. EQUIPMENT SPECIFICATIONS

2-1. Intended Use

SKYTRON Lucina 4 is used to illuminate the body of the patient locally in order to support diagnosis or treatment which could be interrupted without any hazard for the patient in case of failure of the light

2-2. Installation

SKYTRON's installation manual specifies the unpacking, installation and testing of Lucina 4 examination lights. Review the installation manual prior to beginning the installation of the light. Review local electric codes including the Occupational Health and Safety Act for any requirements that pertain to the proper and successful installation of these examination lights.

CAUTION

This fixture requires a properly circuit protected, appropriately sized, dedicated circuit. An isolated power supply circuit must be protected by an appropriately sized double pole, single throw circuit breaker.

2-3. Environmental Conditions

a. During Transport and Storage (in Original Packaging Materials)

Ambient Temperature:	14° to 140°F (-10° to 60°C)
Relative Humidity	10% to 85% (No Condensation)
Atmospheric Pressure	14 in-Hg to 31 in-Hg (500 hPa to 1060 hPa)

b. During Use - For Dry Locations

Ambient Temperature:	60° to 85°F (15° to 30°C)
Relative Humidity	30% to 60% (No Condensation)
Atmospheric Pressure	20.7 in-Hg to 31.3 in-Hg (700 hPa to 1060 hPa)

2-4. Certification

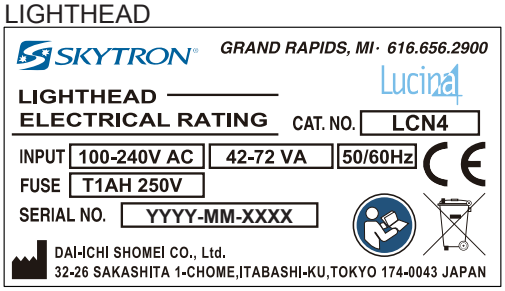
LIGHT FIXTURE CERTIFIED BY ETL TO THESE STANDARDS:

- AAMI ES60601-1 Issued:2005/03/01 (R2012) Medical Electrical Equipment - Part 1: General Requirements for Basic Safety and Essential Performance; Amd. C1: 2009, Amd. 2: 2010
- CSA C22.2#60601-1 Issued: 2008/02/01 Ed: 2 (R2013) Medical Electrical Equipment - Part 1: General Requirements for Basic Safety & Essential Performance; Corr. 2: 2011
- IEC 60601-2-41 Issued:2009/08/12 Ed:2 MEDICAL ELECTRICAL EQUIPMENT - PART 2-41: PARTICULAR REQUIREMENTS FOR THE BASIC SAFETY AND ESSENTIAL PERFORMANCE OF SURGICAL LUMINAIRES AND LUMINAIRES FOR DIAGNOSIS
- CSA C22.2#60601-2-41 Issued: 2011/07/01 Medical Electrical Equipment - Part 2-41: Particular Requirements for the Basic Safety and Essential Performance of Surgical Luminaires and Luminaires for Diagnosis
- IEC 60601-1-6 Issued: 2010/01/27, Ed 3.0, Medical electrical equipment – Part 1-6: General requirements for basic safety and essential performance – Collateral standard: Usability

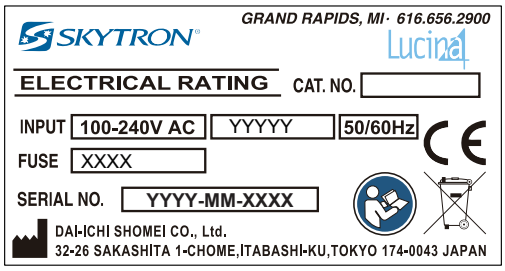
2-5. Equipment Labels and Specifications

The lighthead data labels contain the model number, fuse type, electrical specifications, and product serial number.

LIGHTHEAD



WALL CONTROL*



Label affixed to the inside of the faceplate

*See the Wall Control Fuse Table for configuration specific fuse requirements

Lights manufactured 1-1-2019 and after do not bear the CE mark and do not conform to the CE standard.

Wall Control Fuse Table

Number of Lights	Catalog Number	Input	Safety Fuse
Single	B5-014-98	100-240 VAC 49-102VA 50/60Hz	T2AH 250V
Dual	B5-014-99	100-240 VAC 91-163VA 50/60Hz	T2AH 250V
Triple	B5-014-100	100-240 VAC 137-240VA 50/60Hz	T4AH 250V
Quad	B5-014-101	100-240 VAC 170-312VA 50/60Hz	T4AH 250V

IPX0 RATED, CONTINUOUS OPERATION, CLASS I

Lighthead Fuse Label	T1AH 250V
Wall Control Fuse Label 1 or 2 lights	T2AH 250V
Wall Control Fuse Label 3 or 4 lights	T4AH 250V

2-6. Lighthead Warning Labels

"ACCESS ABOVE CEILING REQUIRED."
"NOT FOR RESIDENTIAL USE.
INSTALL WITH MINIMUM SPACINGS BETWEEN.
(1) CENTERS OF ADJACENT FIXTURES: 48-72 INCHES.
(2) TOP OF FIXTURE AND AN OVERHEAD BUILDING MEMBER: 5 INCHES.
(3) FIXTURE CENTER TO SIDE WALL: 18 INCHES."

"WARNING-RISK OF FIRE. DO NOT INSTALL INSULATION WITHIN 3 INCHES OF FIXTURE SIDES NOR ABOVE FIXTURE IN SUCH A MANNER TO ENTRAP HEAT."
AVERTISSEMENT. Risque de feu. N'en faire rien instalier instalier isolement à moins de trois pouce de côté meuble a demeure ni au-dessus de meuble a demeure en quelque sorte de attraper la chaleur.

CAUTION: CONSULT MANUAL FOR FURTHER INSTRUCTIONS
AVERTISSEMENT: CONSULTER LE MANUAL POUR DE PLUS AMPLES INFORMATIONS

INDICATES DANGEROUS VOLTAGE 100V~240V, 50/60Hz
INDIQUE UN NIVEAU DE TENSION DANGEREUX, 100 V, 240 V, 50/60Hz

WARNING - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH SAME TYPE AND RATING OF FUSE.

AVERTISSEMENT - Pour une protection continue contre les risques d'incendier, replacer seulement avec un fusible de valeur nominale identique.

WARNING - FIRE AND BURN HAZARD.
DO NOT TOUCH SURFACES BECOMING EXTREMELY HOT, AND KEEP ANY FLAMMABLE MATERIALS AWAY.

ATTENTION - RISQUE DE BRÛLURE ET D'INCENDIE
NE PAS TOUCHER LES SURFACES DEVENUES EXTRÊMEMENT CHAUDES ET EN TENIR ELOIGNÉ TOUT MATÉRIEL OU SUBSTANCE INFLAMMABLES.

2-7. Wall Control Warning Labels

WARNING
AVERTISSEMENT:
RISK OF FIRE
REPLACE FUSE AS MARKED
RISQUE D'INCENDIE REMPLACEZ LE FUSIBLE EN RESPECTANT LA VALEUR NOMINALE INDIQUÉE

CAUTION: CONSULT MANUAL FOR FURTHER INSTRUCTIONS
AVERTISSEMENT: CONSULTER LE MANUAL POUR DE PLUS AMPLES INFORMATIONS

INDICATES DANGEROUS VOLTAGE 100V~240V, 50/60Hz
INDIQUE UN NIVEAU DE TENSION DANGEREUX, 100 V, 240 V, 50/60Hz

2-8. Label Symbols

Symbol	Description
	With the word WARNING, indicates a hazardous situation that, if not avoided, could result in death of serious injury.
	With the word CAUTION, indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.
	Indicates waste disposal information.
	Indicates Consult instructions for use.
	Indicates AC power supply.
	Indicates Manufacturer.
EC REP	Indicates authorized representative in the European community.
	Indicates Dangerous Voltage 100-240V ~, 50/60Hz.

SECTION 3. LUCINA 4 EXAMINATION LIGHT SYSTEM

3-1. Introduction

The SKYTRON Lucina 4 examination lighting system consists of between one (1) and four (4) recessed, ceiling mounted LED lightheads, a wall control, and a control wand (Figure 1).

Each LED lighthead has optical sensors and computer circuitry for lighthead positioning. The lighthead is positioned by means of a hand-held wireless remote control unit (control wand). When activated, the control wand emits a bright high frequency LED light (strobe).

Photoelectric elements located in the lighthead sense the signal emitted by the wand and create input signals to the internal computer circuitry. The computer circuitry simultaneously activates two (2) positioning motors until the light beam is focused directly on the control wand.

The main power switch and light intensity control are located on the wall control. The wall control also offers positioning back-up controls for the lightheads. The standard wall control can control up to four (4) lightheads, with lighthead selection controls matching the number of lightheads.

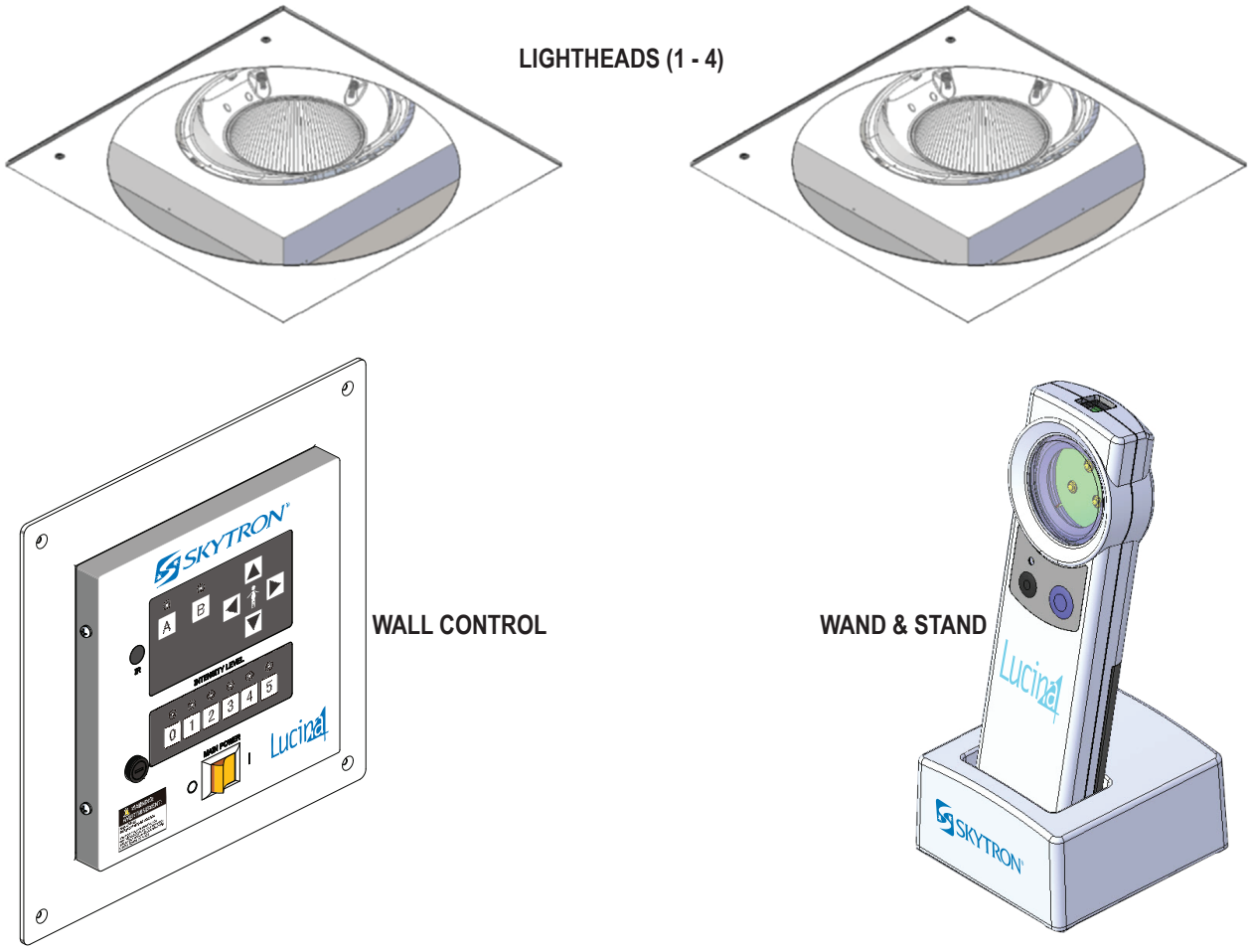


Figure 1. Light Fixture Components

Each lighthead has approximately 82 degrees of articulation and has two (2) options of articulation angle to fit in a limited location:

- At the standard factory default, the lighthead is angled at 6° from horizontal (Figure 2).

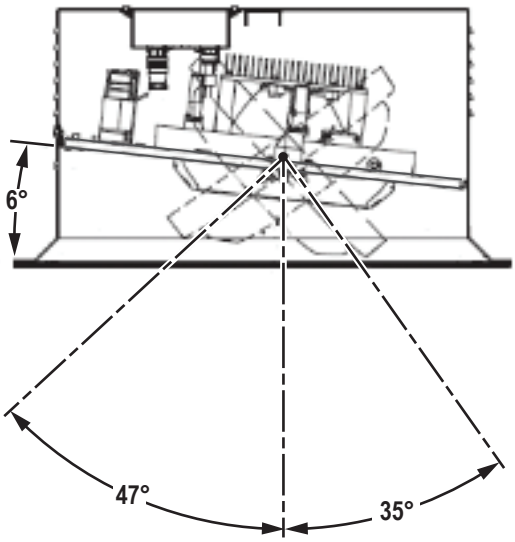


Figure 2. Lighthead Angled Position (Standard)

Optionally, the lighthead can be adjusted to the horizontal position (Figure 3).

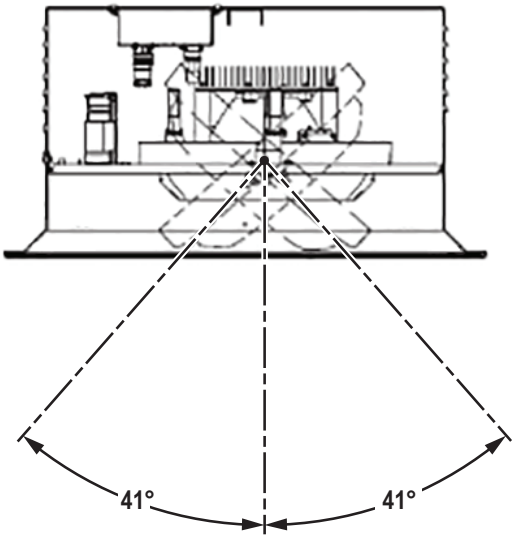


Figure 3. Lighthead Horizontal Position

NOTICE

If adjustment is required, contact an authorized SKYTRON service technician.

3-2. Features

a. Lightheads

A supported installation includes between one and four ceiling mounted lightheads. Each lighthead is equipped with four photo electric eyes evenly spaced out around the rim of the light. These photo electric eyes help the light track the location of the control wand when it is emitting a strobe.

Each lighthead is intended to be installed above a false ceiling, enabling efficient layout without disturbing open space in the exam room. It illuminates the area indicated by the control wand, or where the patient is to be treated.

Each lighthead has a safety fuse (T1AH, 250V 5x20mm). If you suspect a safety fuse is blown on a lighthead (the light does not turn on), contact an authorized SKYTRON service technician to perform an evaluation and replacement.

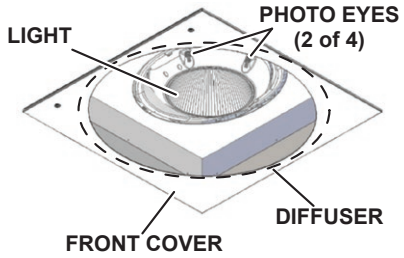


Figure 4. Lighthead Components

Maintenance of lightheads requires special tools and must be done by an authorized SKYTRON service technician.

b. Wall Control

A wall mounted control box (wall control) is located in close proximity to the Lucina 4 lightheads, providing centralized control for operating the lightheads (Figure 5).

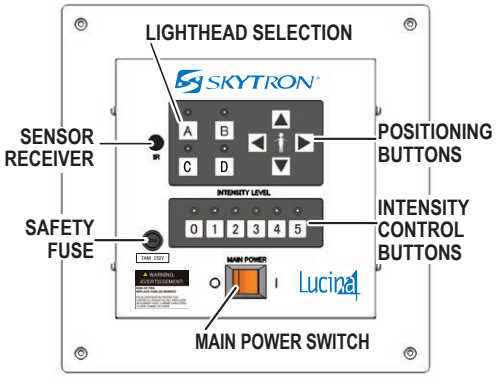


Figure 5. Wall Control (for quad lighthead)

The following controls and indications are located on a wall control:

Control	Function
MAIN POWER Switch	Placing this two (2) position switch in the ON (**I**) position supplies electrical power to the wall control. Placing the switch in the OFF (**O**) position removes power from the wall control.
INTENSITY LEVEL Controls	These touch pads are used to adjust the light intensity to all lightheads. There are six (6) intensity control touch pad buttons (labeled **0** through **5**), each with an LED indicator located above it. When the **MAIN POWER** switch is ON (**I**), an LED will illuminate above the touch pad button where the light intensity is currently set. • Pressing a touch pad button with a higher number will increase light intensity and illuminate the LED above it. The lighthead is at its maximum light intensity setting (100%) when **5** is pressed. • Pressing a touch pad button with a lower number will decrease the light intensity and illuminate the LED above it. The lightheads are at their minimum intensity when **1** is pressed. • Pressing **0** turns off the light at the lightheads.
Safety Fuse	A safety fuse is located on the wall control to protect the internal circuitry in the wall control from an over-current condition: Fuse for Single/Dual WCB - T2AH, 250V 5x20mm Fuse for Triple/Quad WCB - T4AH, 250V 5x20mm If you suspect this safety fuse is blown, contact an authorized SKYTRON service technician for evaluation and replacement.
Sensor Receiver	A sensor receiver is located on the wall control to sense ON/OFF signals emitted from the control wand. **NOTICE:** The sensor receiver must be kept clear of objects (e.g., labels, paper) that could interfere with the receiver collecting signals from the control wand.
Lighthead Positioning Controls	These touch pads provide the ability to independently position each lighthead without the use of the control wand. • Pressing an **A**, **B**, **C**, or **D** touch pad (**A** or **B** on dual lighthead) will select the corresponding lighthead to move. The LED indicator above the selected touch pad will illuminate. • Pressing the ▲, ▼, ►, or ◄ touch pad will move the selected lighthead in the corresponding direction.

c. Control wand

The control wand is a hand-held remote control device using LED strobe lights to position the Lucina 4 lightheads during an examination. The control wand consists of the following controls (Figure 6):

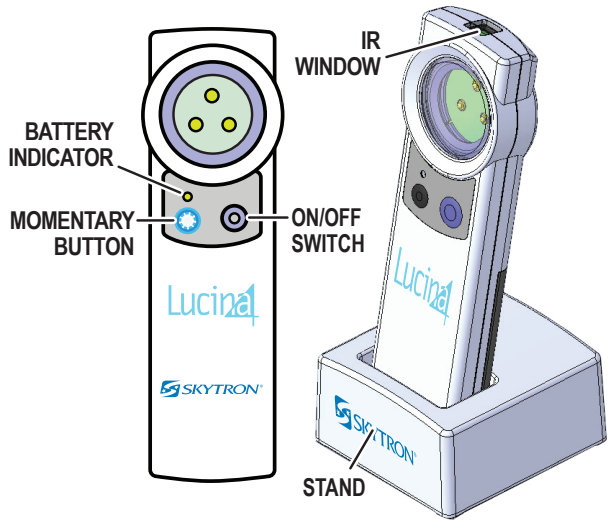


Figure 6. Control wand

NOTICE

When using the control wand, the face of the control wand must be pointed toward the photo eyes for the light to detect and track the position of the wand.

Control	Function
Momentary Button	Pressing and holding this button will activate the LED strobes for re-positioning the lightheads. Release the button after lightheads are focused on the strobes.
ON/OFF Button	When the wall control is switched on, pressing this button will turn on the lightheads. Pressing the button again will turn off the lightheads. During operation, make sure the IR window on the control wand is pointing toward the sensor receiver on the wall control.
Battery Indicator	This amber indicator will illuminate for 2 seconds after pressing the momentary button when the two (2) AA batteries that power the control wand are in need of replacement.

The control wand can be stored in its storage stand when it is not being used.

SECTION 4. OPERATION

4-1. Visual Checks Prior to Start-Up

WARNING

Equipment is not suitable for use in the presence of an ANESTHETIC FLAMMABLE MIXTURE with oxygen or nitrous oxide.

CAUTION

Always inspect product prior to use to ensure safe and correct operation. Any product deemed to be malfunctioning should be removed from service and labeled inoperable. Refer all service to a SKYTRON authorized service representative.

CAUTION

If abnormal noise is detected during use, stop using the examination lights and contact a SKYTRON authorize service representative.

- Check light emission from each lighthead.
- Inspect each lighthead for cracks, damaged, or broken lens. Avoid use if such damage is evident.
- Check the operation of the wall intensity control and positioning controls. Ensure proper operation and emittance of light throughout the range of movement for each lighthead.
- Verify that the lightheads can be turned on and off from the control wand.
- Use the control wand to move the lightheads. Verify all the lightheads move to the control wand location.
- Ensure there are no malfunctions after the lightheads are moved.

4-2. Operation from Wall Control Only

Use the following procedure to operate the light fixture entirely from the wall control (Figure 7):

CAUTION

DO NOT look directly into the examination lights or place highly reflective surfaces in the path of the light beams. There is a risk of impaired vision.

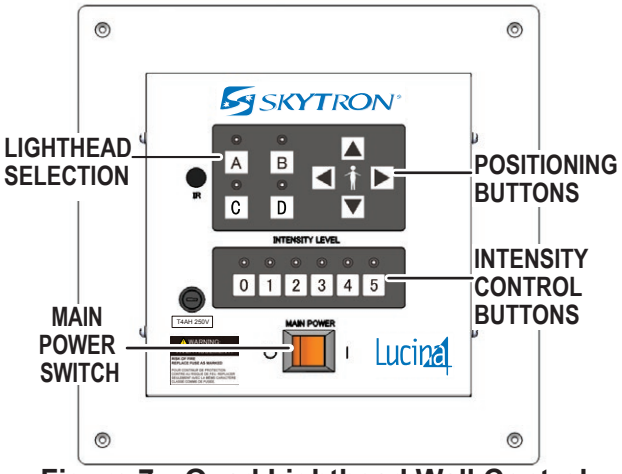


Figure 7. Quad Lighthead Wall Control

1. Place the **MAIN POWER** switch in the ON (**I**) position.
2. Use the **INTENSITY LEVEL** control touch pad buttons to adjust the light intensity of the lightheads as required.

NOTICE

The mid-range position will provide adequate illumination for most procedures.

3. Use the lighthead positioning controls to position the beam of each lighthead as required:
   a. Select the desired lighthead to adjust by pressing the corresponding **A**, **B**, **C**, or **D** touch pad button (only **A** or **B** on dual lighthead).
   b. Press the ▲, ▼, ►, or ◄ touch pad button to move the selected lighthead in the corresponding direction.

4-3. Operation from Control wand

CAUTION

DO NOT look directly into the examination lights or place highly reflective surfaces in the path of the light beams. There is a risk of impaired vision.

CAUTION

The control wand is not sterilizable. Before use in a sterile area, cover the wand with a sterile drape.

Use the following instructions to operate the light fixture using the wall control and control wand:

1. Place the **MAIN POWER** switch in the ON (**I**) position (Figure 8).

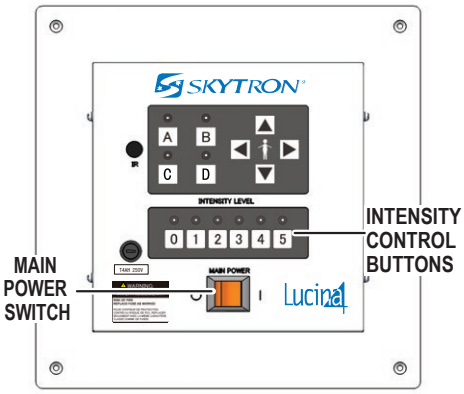


Figure 8. Wall Control

2. Use the **INTENSITY LEVEL** control touch pad buttons to adjust the light intensity of the lightheads as required.

NOTICE

The mid-range position will provide adequate illumination for most procedures.

3. Use the control wand to focus the light beams at a desired location (Figure 9).
   a. Holding the control wand with the face pointed upward toward the lights and visible to the light photo eyes, press and hold the momentary button to activate the strobe on the wand.
   b. Release the momentary button when light beams focus the control wand.

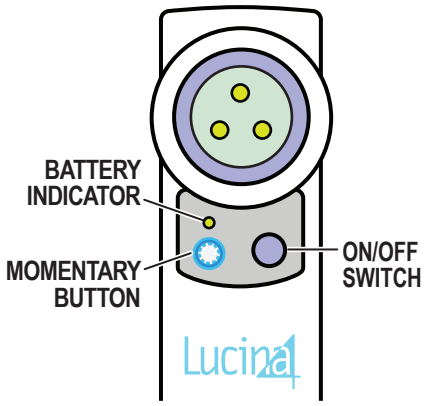


Figure 9. Control wand

CAUTION

DO NOT use the control wand with its beam pointing towards the wound area.

4. With the wall control switched on, use the ON/OFF switch on the control wand to turn the lightheads on or off as required.

4-4. Shutdown

Place the **MAIN POWER** switch on the wall control in the OFF (**O**) position to remove power to the Lucina 4 examination light system.

CAUTION

Before re-using a Lucina 4 examination light system that has not been used for a long time, service must be performed by a SKYTRON authorized service representative.

SECTION 5. MAINTENANCE

Maintenance procedures should be done semi-annually or sooner as needed. This device requires periodic inspection administered by service personnel trained or authorized by SKYTRON.

5-1. Cleaning

It is required practice to maintain the appearance and function of your Lucina 4 lighting fixture by the means of daily cleaning practices. Moving parts and their respective finishes will perform optimally when they are routinely cleaned and dirt or corrosion are removed routinely to avoid build up which may restrict articulation and prohibit ease of movement.

WARNING

To avoid personal injury, DO NOT attempt to clean lighthead or wall control unless power is turned off at wall control (power cord disconnected for portable stand light).

CAUTION

DO NOT use steam, extremely hot water (over 150°F [65°C]), or high pressure water sprays to clean the equipment.

a. Daily or between cases, the lighthead exterior and wall control should be wiped down with a mild cleaning agent which will not affect the painted or polycarbonate parts.

CAUTION

DO NOT pour any liquids directly on the fixture or wall control.

DO NOT apply or spray cleaning agents directly on the lighthead, or wall control.

CAUTION

Use of incompatible cleaning agents will cause damage to the fixture. Avoid the use of cleaning solutions which contain high concentrations of alcohol, ethylene glycol, phenol, iodophors, or glutaraldehyde based disinfectants. Staining, pitting, discoloration and diffuser cracking or personal injury may occur if these are used.

b. Avoid using spray cleaners. Avoid the application of cleaners using methods that produce extreme saturation. Leakage of fluids into the interior of the lighthead or wall control may cause corrosion of electrical components.

a. General Cleaning Instructions

- ***Painted Surfaces:*** Wipe exterior painted surfaces with a cloth dampened with a mild cleaning agent and dried with a soft, lint-free cloth. DO NOT use harsh cleaners on painted surfaces.
- ***Stains:*** Most stains can be prevented by immediately removing the liquid or substance.

b. Disinfecting Instructions

Ensure the power has been turned off to the light unit. Only use disinfectant products that are certified from the manufacturer for compatibility with the following materials:

- Polycarbonate (PC)
- Silicones
- Stainless Steel

Always consult with the manufacturer of the disinfectant product for proper application and use. Always spot test on an inconspicuous area before use.

The following disinfectant products have been shown to be suitable for use on Lucina 4 lights:

In Between Case Disinfection

Country	Product	Registration
United States	Clorox Healthcare® Hydrogen Peroxide Cleaner Disinfectant Wipes	EPA #67619-25
Canada	Clorox Healthcare® Hydrogen Peroxide Cleaner Disinfectant Wipes	DIN #02401983

Special Precautions or Terminal Cleaning

Country	Product	Registration
United States	Clorox Healthcare® Hydrogen Peroxide Cleaner Disinfectant Wipes	EPA #67619-25
Canada	Clorox Healthcare® Hydrogen Peroxide Cleaner Disinfectant Wipes	DIN #02401983

In Between Case Disinfection:

3. Clean all areas where gross debris is evident. Surfaces should be wiped with a disinfecting agent on a wipe in accordance with the manufacturer's instructions.

4. After the disinfecting agent has been allowed the required contact time, wipe the polycarbonate lens surface with a wipe containing clear water to remove residue and prevent staining.

Special Precaution Case Disinfection / Daily Terminal Cleaning:

1. Clean all areas where gross debris is evident. Surfaces should be wiped with a disinfecting agent containing a 1:10 dilution of bleach solution applied on a wipe in accordance with the manufacturer's instructions for use.

2. After the disinfecting agent has been allowed the required contact time, wipe the polycarbonate lens surface surfaces with a wipe containing clear water to remove residue and prevent staining.

c. Clean the Lighthead Diffuser

To maintain the optimal illuminance, the acrylic diffuser (Figure 10) on the lighthead cover should be inspected and cleaned as needed to keep it free of dust and debris.

Remove the front cover, clean the diffuser with an acrylic compatible cleaner, and replace the front cover.

1. **Remove the front cover**
   a. Remove the two screws on the face side of the front cover (Figure 10).
   b. Slide the front cover off the housing, moving it in the direction of the two screw holes (Figure 10).
   c. Pull the front cover off.

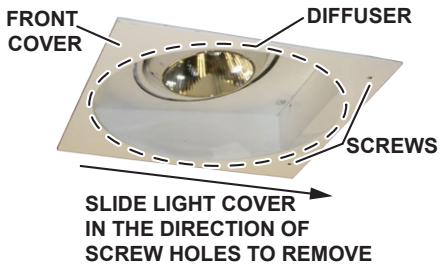


Figure 10. Lighthead Removal

2. **Clean the diffuser.**
   a. Using a soft, clean cloth and a neutral acrylic compatible cleaner (For example: warm water or water and liquid dish detergent), clean both sides of the diffuser.
   b. Dry with a lint free cloth.

CAUTION

When cleaning the diffuser DO NOT use cleaners containing alcohol or ammonia (for example, DO NOT use standard commercial window cleaning solutions). DO NOT use solvents such as acetone. DO NOT use abrasive cleaners.

3. **Replace the front cover.** Attaching the front cover can be challenging, as aligning the clips on the cover with the tabs on the housing must be precise. **If front cover installation proves difficult:** try adjusting the tension on the face cover clips so the face cover slides on to the tabs easier, while still holding the face cover snugly to the light housing.
   a. With the clips facing upward, orient the front cover so the screw holes (Figure 11) on the front cover align with the screw holes on the housing attachment tabs (Figure 12).

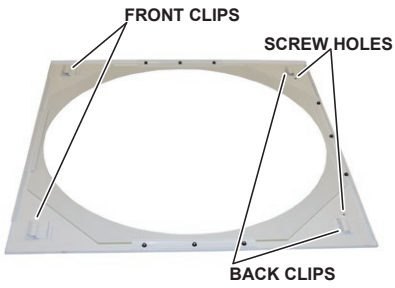


Figure 11. Front cover Attachment Clips

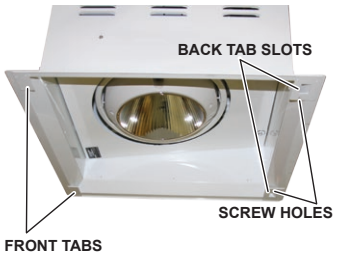


Figure 12. Cover Attachment Tabs

b. Tilt the front cover up toward the housing so the front clips are supported by the front tabs and the side with the screw holes can swing up, but do not push the clips forward to secure them fully on the tab yet.

Figure 13. Swing the Front Cover Up

c. Supporting the full front cover as much as possible, swing the side with the screw holes up so that the back clips fit into the back tab slots (Figure 13).
d. With the clips in position, push the front cover toward the front tabs to lock the clips in place. All four corners should be equally supported. If this proves difficult, try adjusting the tension of the front cover clips just enough so the front cover slides in but is snug.
e. Screw the two Skytron supplied screws into the screw holes to secure face cover into place.

5-2. User Inspections

User's are responsible for the thorough inspection of the equipment prior to and after each use. Should any problems or deficiencies arise, the results must be reported to the facilities maintenance personnel. The safety of personnel and patients relies on the proper and routine maintenance of this equipment.

User performed inspections prior to and after each use should observe for the following conditions or problems and report to the SKYTRON authorized representative.

a. Wall Control

4. Check the **MAIN POWER** switch on the wall control works properly by cycling the switch from OFF (**O**) to ON (**I**) several times. Check the main switch illuminates and turns off.

5. With the **MAIN POWER** switch in the ON (**I**) position:

- Verify that all the lightheads are illuminated.

NOTICE

Lightheads will not illuminate if the **INTENSITY LEVEL** controls are set to "0". Changing the setting will turn on (illuminate) the lightheads.

- Verify the light intensity controls work properly using the **INTENSITY LEVEL** controls on the wall control.
- Verify that each lighthead can be positioned independently using the lighthead positioning controls on the wall control.

b. Control wand

1. Inspect control wand for damage, including cracked LED lens, electrical burns, evidence of temperature traces or ingress of fluid. Avoid use is such damage is evident.

2. With the **MAIN POWER** switch on the wall control in the ON (**I**) position:

- Press the momentary button on the control wand to activate the LED strobe. Verify that the LED strobe activates.
- Press the ON/OFF button repeatedly and verify that the lightheads turn on and off.

c. Lightheads

1. Inspect the lightheads for cracks, damaged, or broken lens. Avoid use is such damage is evident.

2. With the **MAIN POWER** switch on the wall control in the ON (**I**) position:

- Verify that the all the lightheads are illuminated.

NOTICE

Lightheads will not illuminate if the **INTENSITY LEVEL** controls are set to "0". Changing the setting will turn on (illuminate) the lightheads.

- Check the light generated from the lighthead corresponds to the **INTENSITY LEVEL** controls on the wall control.
- Check the lightheads follow the control wand when the momentary switch of the control wand is activated. Lightheads should move smoothly with no erratic movement or binding.

3. If any problem is found during routine inspection, contact service personnel trained or authorized by SKYTRON.

4. Remove the batteries if they will not be used for a long period of time.

5-3. Preventive Maintenance

Users are responsible for the thorough inspection of the equipment prior to and after each use. Should any problems or deficiencies arise, the results must be reported to the facilities maintenance personnel. The safety of personnel and patients relies on the proper and routine maintenance of this equipment. User performed inspections prior to and after each use should observe for the following conditions or problems and report to a Skytron authorized representative.

- Missing warning or usage labels
- Excessive wear, gouges, damaged handles, missing covers, and other physical problems
- Missing or loose screws and fasteners
- Electrical burns
- Evidence of high temperature traces indicating a possible concentration of heat
- Evidence of ingress of fluid

SKYTRON service manuals are available upon requests; however, non-authorized service personnel are required to complete applicable service training. For a syllabus, schedule, availability, cost and overview, log on to www.skytron.us and click TRAINING. If interested in attending a training session, contact your SKYTRON representative for sponsorship.

To obtain SKYTRON authorized service or preventive maintenance contract, contact your nearest SKYTRON representative.

The specific items listed in the MAINTENANCE MATRIX must be inspected and repaired or replaced as necessary. The suggested time intervals are intended as a guideline only and actual maintenance will vary by use and conditions. For optimal usage, safety, and longevity of the product, have it serviced only by a SKYTRON authorized service representative using SKYTRON authorized replacement parts and service.

WARNING

DO NOT attempt to perform service or maintenance activities with electrical power supplied to the lighting fixture or wall control. Electrical power must be removed from the wall control at the dedicated circuit breaker.

CAUTION

This fixture requires a properly circuit protected, appropriately sized, dedicated circuit. An isolated power supply circuit must be protected by an appropriately sized double pole, single throw circuit breaker.

Preventive Maintenance Schedule		
Component	**6 Months**	**Annually**
Visual Check Overall Aesthetic and Installation Condition	X	
Screw, Bolt, Nut fastening condition	X	
Inspect Installation Condition (Lighthead and Wall Control)		X
Inspect Electrical Connection Check / Grounding Check	X	
Serial Number Label, Production Caution & Warning Label		X
Illuminate & Operation Function Check	X	
High Temperature Traces	X	

The LEDs will operate approximately 60,000 hours before illuminance degrades to a level requiring replacement. Continued use of the examination light after the expected operating life expectancy will result in diminished illuminance values, reducing intensity and affecting color temperature.

5-4. Battery Replacement

Replace the batteries whenever the amber battery warning indicator (located above the momentary button on the control wand) illuminates during operation. Use AA-size alkaline batteries that comply with national or local standards (Figure 14).

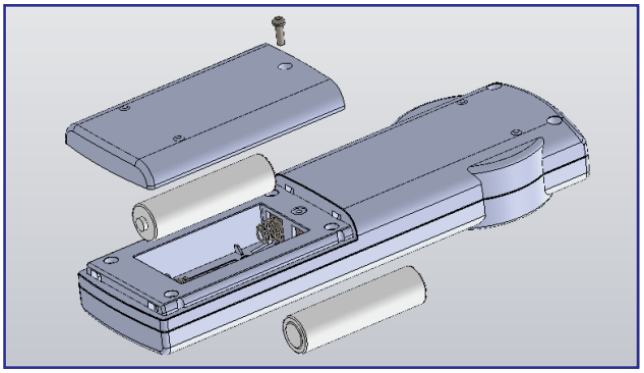


Figure 14. Control wand Battery Replacement

- After the batteries are replaced, inspect the cover for the batteries is installed properly.
- Remove the batteries if they will not be used for a long period of time.

5-5. End of Useful Life and Disposal

The end of the useful life for the SKYTRON examination light is 10 years under normal operating conditions. Service parts are available for this period.

Please contact your SKYTRON authorized representative for disposal of the equipment or parts in accordance with current environmental regulations for medical products.

5-6. Environmental Protection

Ensure the proper disposal methods whenever disposing of old or damaged exam light parts. Always follow compliance to regulatory standards pertaining to federal, state, and local regulations.

SECTION 6. REPLACEMENT PARTS

Lucina 4 exam light replacement parts listed in this section have been identified by SKYTRON as serviceable by facility personnel and are available for purchase. To obtain SKYTRON certified parts and authorized service, contact your SKYTRON representative.

CAUTION

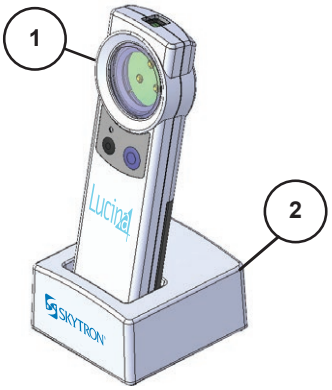
Any parts or assemblies not listed in this section must be serviced or replaced by SKYTRON authorized service personnel only. This is necessary to avoid the possibility of damage to the equipment.

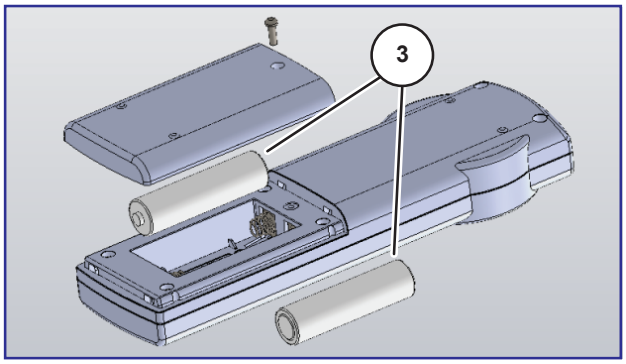
NOTICE

The following abbreviations are used in this section:

- AR = As Required
- NS = Not Shown

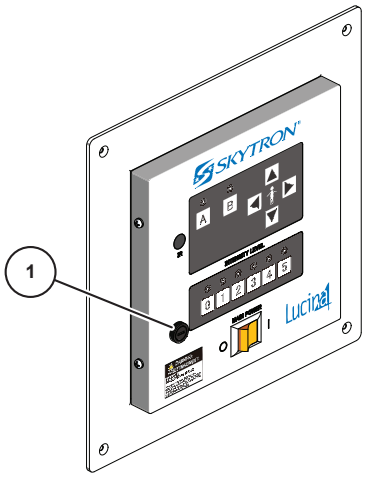
6-1. Control wand





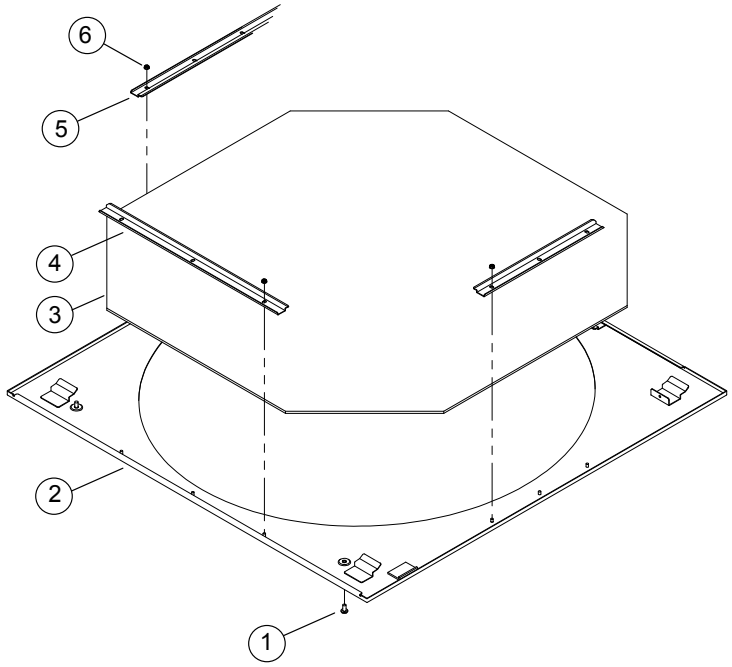
Item	Part No.	Description	Qty.
1	B5-014-39	Control wand	1
2	B5-014-40	STORAGE STAND, control wand	1
3	N/A	BATTERIES, AA (purchase locally)	2
4	B5-010-02 1A	DRAPES, sterile for positioning the wand. 50 per case	NS

6-2. Wall Control



Item	Part No.	Description	Qty.
1	B5-014-06	FUSE, single or dual control, T2AH, 250V, 5 x 20mm	AR
2	B5-014-07	FUSE, triple or quad control, T4AH, 250V, 5 x 20mm	AR

6-3. Lighthead



Item	Part No.	Description	Qty.
1	B5-014-73	SCREW, M4 x 6	2
2	B5-014-14	FRONT COVER, enclosure,white	1
3	B5-014-13	DIFFUSER	1
4	B5-014-15	DIFFUSER RETAINER A	1
5	B5-014-16	DIFFUSER RETAINER B	2
6	B5-013-14	NUT M3	9

SECTION 7. OPTICAL CHARACTERISTICS

7-1. Central Illuminance for Light Configurations

	One Light	Two Lights	Three Lights	Four Lights
Central Illuminance *at 10' Working Distance*	14.16K Lux	28.32K Lux	42.48K Lux	56.64K Lux

7-2. Color Temperature Per Lighthead

- Color Temperature: 4567.8°K at 10' [3.048 Meters] per lighthead
- CRI (Color Rendering Index): 97 per lighthead
- Ee: 3.41 Mw/m^2 per Lux at 10' [3.048 Meters] per lighthead

E_e is the measure of radiant power over a specified area. It is expressed in watts per square meter [W/m^2]

SECTION 8. ELECTROMAGNETIC EMISSIONS

Electromagnetic Compatibility (EMC)

Although this equipment conforms to the intent of the 2004/108/EC EMC Directive, all medical equipment may produce electromagnetic interference or be susceptible to electromagnetic interference. The following are guidance and manufacturer's declarations regarding EMC for the Lucina 4 Light.

- The Lucina 4 Light needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the following pages.

WARNING

This equipment/system is intended for use by healthcare professionals only. As with all electrical medical equipment, this equipment may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures such as re-orienting or relocating the Lucina 4 Light unit or shielding the location.

- Portable and Mobile RF communications equipment can affect the performance of the Lucina 4 Light. Please use the guidelines and recommendations specified in Tables 4 and 6 (IEC 60601-1-2, Edition 3.0).
- Other Medical Equipment or Systems can produce electromagnetic emissions and therefore can interfere with the functionality of the Lucina 4 Light. The Lucina 4 Light should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the Lucina 4 Light should initially be observed to verify normal operation in the configuration in which it will be used.
- The electrical cables, external power supplies, and accessories listed or referenced in this manual have been shown to comply with the test requirements listed in the following tables. Care should be taken to use only manufacturer-recommended cables, power supplies, and electrical accessories with the Lucina 4 Light. If a third-party supplier offers cables, external power supplies, and electrical accessories for use with the Lucina 4 Light and they are not listed or referenced in this manual, it is the responsibility of that third-party supplier to determine compliance with the standards and tests in the following tables.
- The use of electrical cables and accessories other than those specified in this manual or referenced documents may result in increased electromagnetic emissions from the Lucina 4 Light or decreased electromagnetic immunity of the Lucina 4 Light.

Guidance and Manufacturer's Declaration – Electromagnetic Emissions

The Lucina 4 Light is intended for use in the electromagnetic environment specified below. The customer or the user of the Lucina 4 Light should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – guidance
RF Emissions - CISPR 11 (Radiated & Conducted)	Group 1	The Lucina 4 Light uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions - CISPR 11 (Radiated & Conducted)	Class A	The Lucina 4 Light is suitable for use in all establishments other than domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. **WARNING: This equipment/system is intended for use by healthcare professionals only. This equipment/ system may cause radio interference or may disrupt the operation of nearby equipment. It may be necessary to take mitigation measures, such as re-orienting or relocating the Lucina 4 Light or shielding the location.**
Harmonic Emissions EN/IEC 61000-3-2	Class A	
Voltage fluctuations/ Flicker Emissions EN/IEC 61000-3-3	Complies	

Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and Lucina 4 Lights

The Lucina 4 Light is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Lucina 4 Lights can help prevent electromagnetic interference by maintaining a minimum distance between the portable and mobile RF communications equipment (transmitters) and the Lucina 4 Lights as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter in watts (W)	Separation distance according to frequency of transmitter (m)		
	150 kHz to 80 MHz $d = 1.2\sqrt{P}$	80 MHz to 800 MHz $d = 1.2\sqrt{P}$	800 MHz to 2.5 GHz $d = 2.3\sqrt{P}$
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 rated at a maximum output power not listed above, the recommended separation distance ***d*** in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where ***P*** is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Guidance and Manufacturer's Declaration – Electromagnetic Immunity

The Lucina 4 Light is intended for use in the electromagnetic environment specified below. The customer or the user of the Lucina 4 Light should assure that it is used in such an environment.

Immunity Test	EN/IEC 60601 Test Level	Compliance Level	Intended Electromagnetic Environment

Guidance and Manufacturer's Declaration – Electromagnetic Immunity			
Electrostatic Discharge (ESD) EN/IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%
Electrical fast transient/burst EN/IEC 61000-4-4	± 2kV for power supply lines ± 1kV for input/ output lines	± 2kV for power supply lines ± 1kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge EN/IEC 61000-4-5	± 1kV differential mode (line-line) ± 2kV common mode (line-earth)	± 1kV differential mode (line-line) ± 2kV common mode (line-earth)	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines EN/IEC 61000-4-11	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	<5% U_T (>95% dip in U_T) for 0.5 cycle 40% U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95% dip in U_T) for 5 seconds	Mains power quality should be that of a typical commercial or hospital environment. If the user of the Lucina 4 Light requires continued operation during power mains interruptions, it is recommended that the Lucina 4 Light be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) magnetic field EN/IEC 61000-4-8	3A/m	3A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment
Note: U_T is the a.c. mains voltage prior to application of the test level.			

Guidance and Manufacturer's Declaration – Electromagnetic Immunity (Cont'd)			
The Lucina 4 Light is intended for use in the electromagnetic environment specified below. The customer or the user of the Lucina 4 Light should assure that it is used in such an environment.			
Immunity Test	**EN/IEC 60601 Test Level**	**Compliance Level**	**Intended Electromagnetic Environment**

Guidance and Manufacturer's Declaration – Electromagnetic Immunity (Cont'd)			
Conducted RF EN/IEC 61000-4-6 Radiated RF EN/IEC 61000-4-3	3Vrms 150kHz to 80MHz 3V/m 80MHz to 2.5GHz	3Vrms 150kHz to 80MHz 3V/m 80MHz to 2.5GHz	Portable and mobile RF communications equipment should be used no closer to any part of the Lucina 4 Light, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P}$ 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 and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Lucina 4 Light is used exceeds the applicable RF compliance level above, the Lucina 4 Light should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the Lucina 4 Light.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

SECTION 9. REVISION HISTORY

Date	Revision	Revision History
10/2/2015	0	Initial release.
06/20/2019	1	Removed CE from cover. Added to inside cover and Pg 5, “Lights manufactured 1-1-2019 and after do not bear the CE mark and do not conform to the CE standard.”
07/20/2020	2	Pg 18 Changed P/N B5-013-39 to B5-014-39 and P/N B5-013-40 to B5-014-40

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