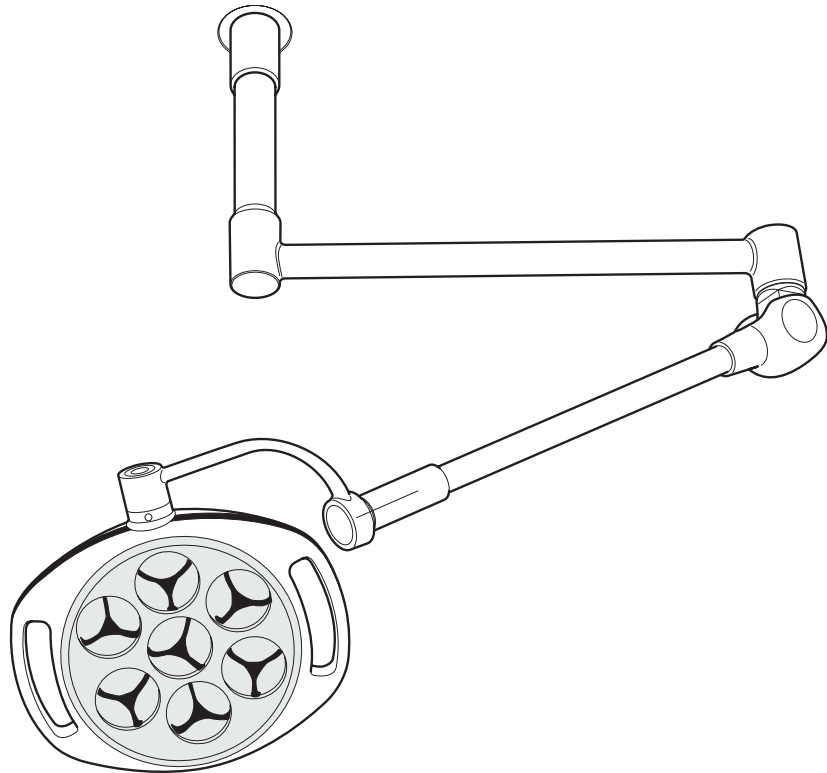




## AUT1B OWNER'S MANUAL



# spectra<sup>\*</sup>AUT<sup>1</sup>

## SERIES

## EXAMINATION LIGHTS

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

Distributed by:

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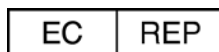
Manufactured by:



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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

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 examination light must be instructed in its proper operation.

A routine program should be implemented by the facility for proper usage instructions for all personnel that may operate the examination 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 examination light fixture functioning at peak efficiency.

### 1-2. Safety Precautions

The following is a summary of DANGERS, WARNINGS, and CAUTIONS denoted 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.



#### DANGER

**Indicates a hazardous situation that, if not avoided, will result in death or serious injury.**



#### WARNING

**Indicates a hazardous situation that, if not avoided, could result in serious injury.**

No modification of this equipment is allowed.

This equipment 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 AUT1B light unit or shielding the location.



#### CAUTION

**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 qualified SKYTRON service representative.

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

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.

When replacing a fuse on boom mounted lighthead, make sure you have a good foothold and use appropriate fall protection measures in accordance with OSHA standards.

#### 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 use steam, extremely hot water (over 150°F), or high pressure water sprays to clean the equipment.

DO NOT pour any liquids directly onto the fixture.

DO NOT apply or spray cleaning agents directly onto the lighthead.



### **CAUTION (CONT'D)**

The design of the Spectra Series AUT1B lighting fixture does not utilize internal user serviceable parts. Service must be performed by SKYTRON authorized service technicians using SKYTRON authorized replacement parts and service techniques.

Prior to replacing the fuse, make sure the facility circuit breaker is turned off on boom mounted light. Replace the fuse with 1Amp timelag only.

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 Spectra Series AUT1B Examination Lights are intended to be used by medical personnel for examinations.

### 2-2. Installation

SKYTRON's installation/service manual specifies the unpacking, installation, and testing of the Spectra Series AUT1B examination light. Review the 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 this light.

### 2-3. Environmental Conditions

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

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

#### b. During Use - For Dry Locations

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

### 2-4. Certification

Certified by ETL to these standards:

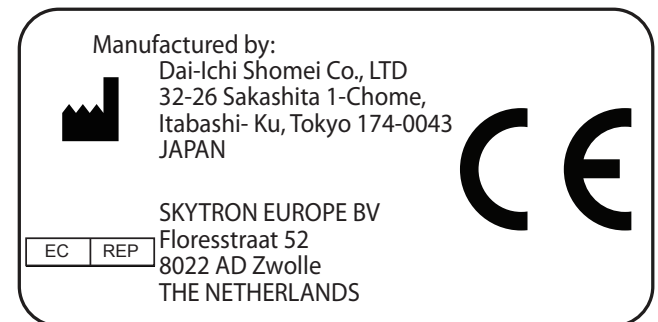
Medical electrical equipment - Part 1: General requirements for basic safety and essential performance - ANSI/AAMI ES60601-1: 2005 / C1: 2009 / A2: 2010;

Medical electrical equipment - Part 1: General requirements for basic safety and essential performance - CAN/CSA-C22.2 No. 60601.1: 2008 COR 2 2011;

Medical electrical equipment - Part 2-41: Particular requirements for the basic safety and essential performance of surgical luminaires and luminaires for diagnosis - IEC 60601-2-41 (2nd Ed. 2009-08);

Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance – Collateral standard: Usability - IEC 60601-1-6 ( 3rd Ed. 2010-01);

Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance – Collateral standard: Electromagnetic compatibility – Requirements and tests- IEC 60601-1-2 (3rd Ed. 2007-03)

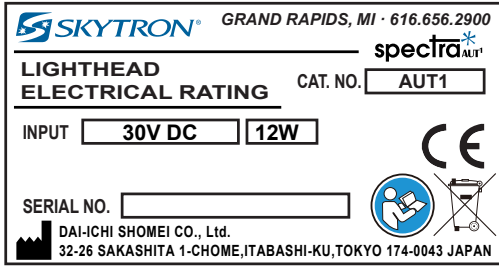


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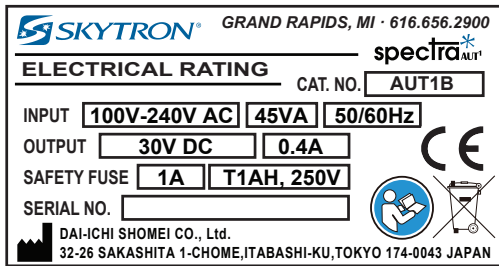
2-5. Equipment Labels and Specifications

The Data Labels contain the model number, fuse type, electrical specifications, and product serial number.

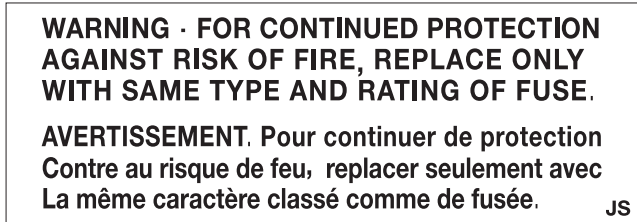
LIGHTHEAD:



MOUNT LABEL:



OTHER LABELS:



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

IPXO RATED, CONTINUOUS OPERATION

2-6. Label Symbols

Symbol	Description
	With the word DANGER, indicates a hazardous situation that, if not avoided, will result in death or serious injury.
	With the word WARNING, indicates a hazardous situation that, if not avoided, could result in death or 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 authorized representative in European community.
	Indicates Manufacturer
	Indicates Dangerous Voltage 100-240V ~ 50/60Hz



## SECTION 3. BOOM MOUNTED AUT1B LIGHT FIXTURE

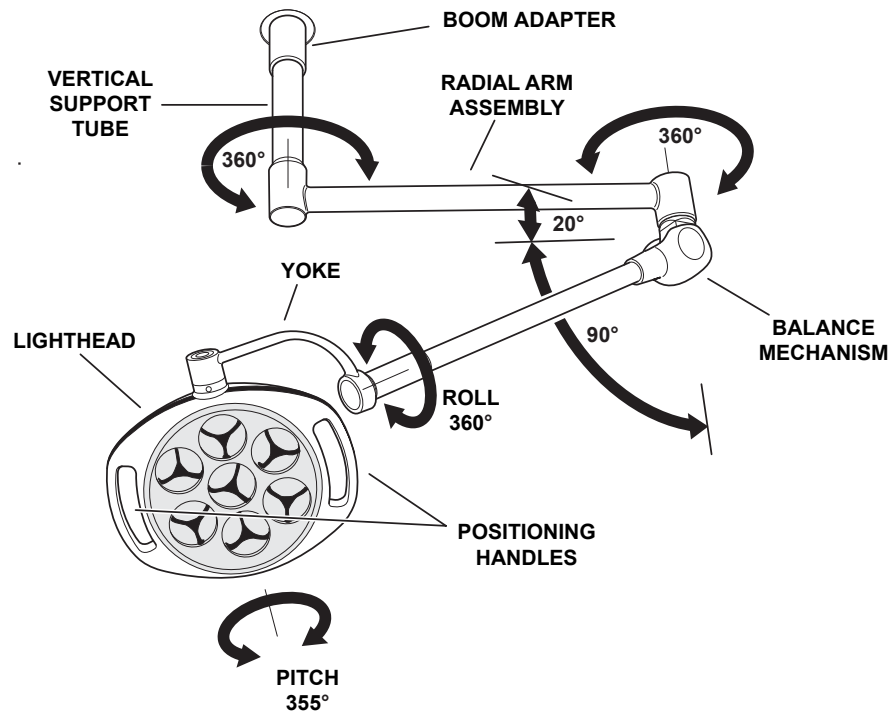


Figure 1. AUT1B Light Fixture

**3-1. Introduction**

The lighthouse consists of seven (7) LEDs (Light Emitting Diodes) and optical color corrective reflectors. The light intensity is adjustable from 0% - 100%. LEDs offer low heat radiation and increased illumination longevity.

This fixture is mounted on a Skytron Ergon boom fixture with an continuous 360° rotation capability at the mount end of the radial arm assembly (RAA) (Figure 1).

The balance mechanism provides the lighthouse an additional continuous 360° rotation point. The balance mechanism is an enclosed spring tension system. This allows vertical movement of the lighthouse while maintaining the lighthouse position without drifting. The yoke provides the lighthouse with an additional 355° of pitch and 360° of roll.

The AUT1 fixture has a lighthouse vertical travel capability of 110°.

**3-2. Electrical Requirements**

SKYTRON Spectra Series AUT1B Lights require that electrical connections are made by a licensed electrician in accordance with state, local and national electrical codes using UL (Underwriters Laboratory) recognized materials.

**3-3. Visual Checks Prior to Start Up****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 qualified SKYTRON service representative.**

- Check for cracks, damaged or broken lens. Avoid use if such damage is evident.
- Check mechanical movements by rotating and articulating each joint.
- Ensure proper operation and emittance of light.

**3-4. Operation**

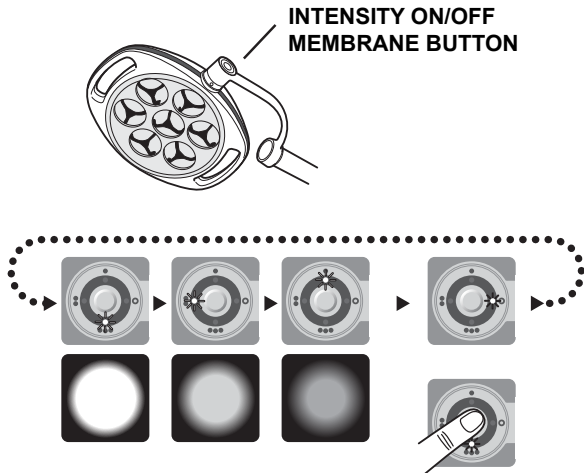
Use the following instructions to operate the AUT1B light fixture:

- a. Position the lighthouse as required by grasping the positioning handles and moving the lighthouse to the desired position (Figure 1).

**!** CAUTION

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

b. Use the Intensity ON/OFF membrane pushbutton to turn on and cycle the light fixture to the desired intensity (Figure 2):



**Figure 2. Intensity ON/OFF Button**

- Initially pressing the Intensity ON/OFF button will turn on the light fixture at the maximum intensity setting.
- Pressing the Intensity ON/OFF button again will select the medium intensity setting.
- Pressing the Intensity ON/OFF button again will select the minimum intensity setting.
- Pressing the Intensity ON/OFF button again will turn off the light fixture.

**NOTICE**

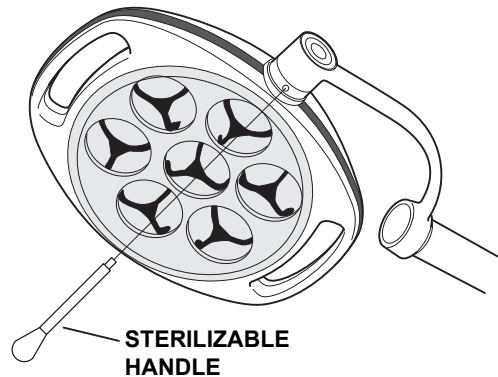
The light fixture can be cycled through the ON/OFF and intensity settings by continuing to press button.

**3-5. Shutdown**

When the light is no longer required, cycle to the OFF position using the Intensity ON/OFF button (Figure 2).

**3-6. Optional Sterilizable Handle**

An optional sterilizable handle (PN B4-242-02) is available for the AUT1B lighthead (Figure 3).



**Figure 3. Sterilizable Handle**  
**NOTICE**

The threaded hole that the sterilizable handle threads into has a set screw installed from the factory. The set screw will have to be removed prior to installing the sterilizable handle.

- Install the handle by inserting the threaded portion into the lighthead and turning it clockwise until it is secured.
- Remove the handle by turning it counter-clockwise until it disengages from the lighthead.

**NOTICE**

The sterilizable handle is available for light positioning to be done by sterile personnel. **DO NOT** allow non-sterile personnel to touch the handle. SKYTRON products are guaranteed for proper performance with the use of genuine SKYTRON HANDLES. After-market competitive handles and other disposable handles will have varying results that could ultimately affect the proper performance and secure engagement of the handle. Such applications are at the discretion of the user to ensure patient safety.

## SECTION 4. MAINTENANCE

**4-1. Cleaning and Disinfecting**

It is required practice to maintain the appearance and function of your Spectra Series AUT1B 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 lighthouse, camerahead, 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), or high pressure water sprays to clean the equipment.

- a. Daily or between cases, the lighthouse exterior, camerahead, 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 lighthouse, camerahead, 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 lighthouse, camerahead, 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.
- **Rubber and Plastic Components:** Clean rubber moldings, grips, covers, and plastic handles with a mild soap and water solution. Rinse with clear water and dry with a soft, lint-free cloth.

**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 SKYTRON® Spectra Series Examination 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:**

1. 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.
2. 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.

**4-2. Sterilization**

The sterilizable focus/positioning handles and sterilizable camera cover are constructed of heat resistant, impact resistant plastic. They should be cleaned with mild alkaline cleaning products WITHOUT active chlorine. Thoroughly rinse off all cleaners with water. Ensure that the open side of handles are face down.

Recommended sterilization parameters for sterilizable focus/positioning handle and sterilizable camera cover:

Steam Sterilization:

132°C (270°F) for 4 minutes

**NOTICE**

Always follow the AAMI and sterilizer manufacturer recommendations for proper sterilization procedures. Prior to use, confirm no irregularities after sterilization.

**4-3. Ultraviolet (UV) Radiation**

Surface disinfection of surfaces using UV-C radiation devices can cause damage to the optical polycarbonate diffuser lenses resulting in discoloration, opacity, surface cracks, and crazing. Discoloration of fixture construction materials and finishes may also occur from heavy concentrations and prolonged usage. Consult with the UV-C radiation device for proper material compatibility.

If UV-C radiation devices are in use, the following precautions will reduce the likelihood of damages:

- a. Follow the above instructions in Section 4-1 for disinfecting the polycarbonate diffuser lens.
- b. Rotate the light fixture so the polycarbonate lens is facing the ceiling prior to turning on the UV-C radiation device.
- c. DO NOT place the UV-C device directly under the OR light. Ensure the recommended distance from source to surface is being followed.

**4-4. Operator Maintenance**

**CAUTION**

The design of the Spectra Series AUT1B lighting fixture does not utilize internal user serviceable parts. Service must be performed by SKYTRON authorized service technicians using SKYTRON authorized replacement parts and service techniques.

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 the SKYTRON authorized representative.

- Missing warning or usage labels

- Excessive wear, gouges, damaged handles, missing covers, and other physical problems
- Drifting out of position
- Difficulty during routine positioning requiring excessive push/pull force
- Missing or loose screws and fasteners
- Electrical burns
- Evidence of high temperature traces indicating a possible concentration of heat
- Accumulation of lint
- Evidence of ingress of fluid

#### 4-5. Routine Inspections

- Check all attaching hardware (e.g., screws, nuts, bolts) for tightness. Any missing hardware **MUST** be replaced.
- Inspect Main Power ON/OFF Switch operation and Intensity ON/OFF button operation.
- Articulate the Balance Mechanism and rotate each articulation point while observing for lighthead function and the ability of the arm to remain in any position throughout the entire range of movement.
- Inspect polycarbonate diffuser for damage or scratches.
- Clean and disinfect according to cleaning instructions.

#### 4-6. Preventive Maintenance

This device requires periodic inspection administered by a SKYTRON authorized service representative. There are no user serviceable components inside the AUT1B light fixture. Service of the AUT1B light fixture must be performed by SKYTRON authorized service technicians using SKYTRON authorized replacement parts and service techniques.

### CAUTION

Prior to replacing the fuse, make sure the facility circuit breaker for the boom mounted light is turned off. Replace the fuse with 1Amp timelag only.

SKYTRON Service Manuals are available upon request; however, non-authorized service personnel are required to complete applicable service training. For a syllabus, schedule, availability, cost and overview; logon to [www.skytron.us](http://www.skytron.us) and click on TRAINING. If interested in attending a training session, contact your SKYTRON representative for sponsorship.

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

The specific items in the MAINTENANCE MATRIX must be inspected and repaired 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 techniques.

### MAINTENANCE MATRIX

Component	6 Mo.	1 Yr.
Mounting Hardware (Tighten)		X
Inspect Electrical Connections		X
Covers & Attachment Hardware	X	
Overall Aesthetic Condition	X	
Product Caution & Warning Labels		X
Fixture Ground Test	X	

Degradation of LED life begins from the date of first use. However, the need for LED replacement should not be experienced until the LED usage has reached 40,000 hours (with the average intensity at it's highest setting).

Based on an 8 hour daily usage the expected operating life of the LED's will be approximately 13.5 years. Light usage will vary depending on facility and amount of daily use. Continued use of the examination luminaire after the expected operating life expectancy will result in diminished illuminance values, reducing intensity, and affecting color temperature. If diminished light output is noticed with the light please contact your Skytron representative immediately.

#### 4-7. End of Useful Life and Disposal

The end of 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 examination light products or parts in accordance with environmental regulations for medical products.



#### 4-8. Environmental Protection

Ensure that proper disposal methods are followed whenever disposing of old or damaged examination light parts. Always follow compliance to regulatory standards pertaining to Federal, State, and Local regulations.

**SECTION 5. REPLACEMENT PARTS**

Spectra Series AUT1B examination 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 authorized SKYTRON representative.

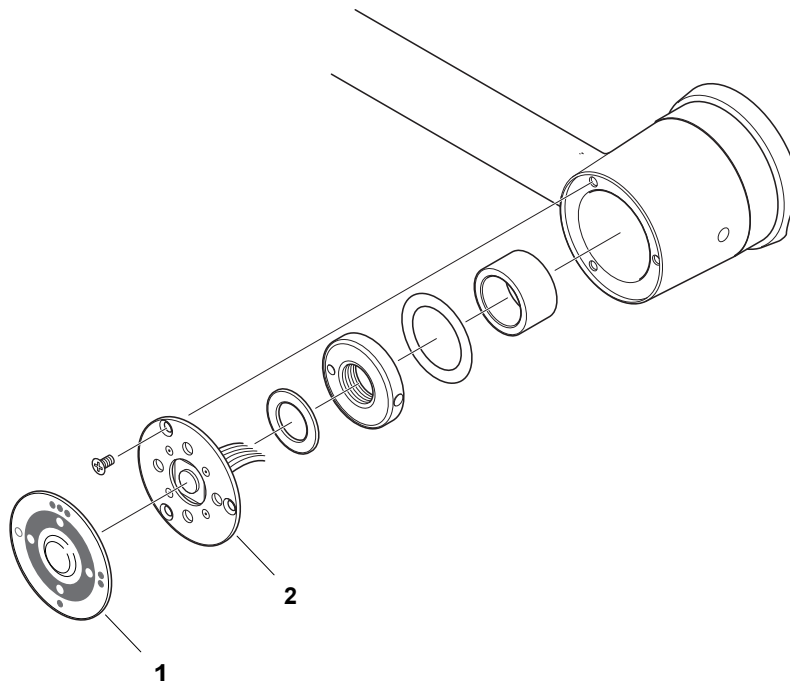


**CAUTION**  
 When replacing a fuse on boom mounted lighthoods, make sure you have a good foothold and use appropriate fall protection measures in accordance with OSHA standards.

**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.

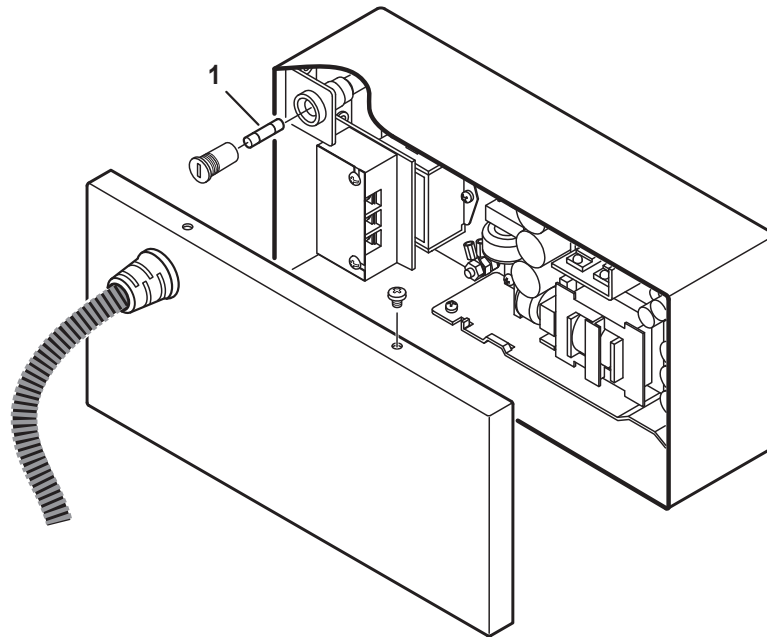
**5-1. Lighthouse Assembly**



Item	Part No.	Description	Qty.
1	B4-440-20	DECAL, ON/OFF - INTENSITY .....	1
2	B4-440-02	INTENSITY CONTROL ASSEMBLY .....	1
NS	B4-242-02	STERILIZABLE HANDLE .....	opt

5-2. Power Supply Assembly

---



---

Item	Part No.	Description	Qty.
1	B4-442-64	FUSE, 1A timelag.....	1

---



## SECTION 6. OPTICAL CHARACTERISTICS

<b>Lighthouse Model Color Temperature</b>	<b>AUT1 4317K</b>
CRI	96
CRI R9	89
Central Illuminance $E_c$	51,200 lux
Total Irradiance (watts/m <sup>2</sup> )	208.5
UV Energy (watts/m <sup>2</sup> )	0.0098
Chromaticity	X
Coordinates	Y
	0.362
	0.340

**SECTION 7. 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 Spectra Series AUT1B light.

- The AUT1B lght needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the following pages.



**This equipment 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 AUT1B light unit or shielding the location.**

- Portable and Mobile RF communications equipment can affect the performance of the AUT1B 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 AUT1B light. The AUT1B light should not be used adjacent to or stacked with other equipment. If adjacent or stacked use is necessary, the AUT1B 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 AUT1B light. If a third-party supplier offers cables, external power supplies, and electrical accessories for use with the AUT1B 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 AUT1B light or decreased electromagnetic immunity of the AUT1B light.

<b>Guidance and Manufacturer’s Declaration – Electromagnetic Emissions</b>		
The AUT1B light is intended for use in the electromagnetic environment specified below. The customer or the user of the AUT1B light should assure that it is used in such an environment.		
<b>Emissions test</b>	<b>Compliance</b>	<b>Electromagnetic environment – guidance</b>
RF Emissions - CISPR 11 (Radiated & Conducted)	Group 1	The AUT1B 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 B	The AUT1B lght is suitable for use in all establishments including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. <b>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 AUT1B light or shielding the location.</b>
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 Spectra AUT1B Lights

The AUT1B light is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the AUT1B lights can help prevent electromagnetic interference by maintaining a minimum distance between the portable and mobile RF communications equipment (transmitters) and the AUT1B 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.

<b>Guidance and Manufacturer's Declaration – Electromagnetic Immunity</b>			
The AUT1B light is intended for use in the electromagnetic environment specified below. The customer or the user of the AUT1B light should assure that it is used in such an environment.			
<b>Immunity Test</b>	<b>EN/IEC 60601 Test Level</b>	<b>Compliance Level</b>	<b>Intended Electromagnetic Environment</b>
Electromagnetic 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 AUT1B light requires continued operation during power mains interruptions, it is recommended that the AUT1B 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
<b>Note:</b> $U_T$ is the a.c. mains voltage prior to application of the test level.			

### Guidance and Manufacturer's Declaration – Electromagnetic Immunity (Cont'd)

The AUT1B light is intended for use in the electromagnetic environment specified below. The customer or the user of the AUT1B light should assure that it is used in such an environment.

Immunity Test	EN/IEC 60601 Test Level	Compliance Level	Intended Electromagnetic Environment
<p>Conducted RF EN/IEC 61000-4-6</p> <p>Radiated RF EN/IEC 61000-4-3</p>	<p>3Vrms 150kHz to 80MHz</p> <p>3V/m 80MHz to 2.5GHz</p>	<p>3Vrms 150kHz to 80MHz</p> <p>3V/m 80MHz to 2.5GHz</p>	<p>Portable and mobile RF communications equipment should be used no closer to any part of the AUT1B light, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p><b>Recommended separation distance</b></p> $d = 1.2\sqrt{P}$ $d = 1.2\sqrt{P} \quad 80 \text{ MHz to } 800 \text{ MHz}$ $d = 2.3\sqrt{P} \quad 800 \text{ MHz to } 2.5 \text{ GHz}$ <p>where <math>P</math> is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and <math>d</math> is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, <sup>a</sup>should be less than the compliance level in each frequency range. <sup>b</sup></p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 

**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.

<sup>a</sup> 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 AUT1B light is used exceeds the applicable RF compliance level above, the AUT1B 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 AUT1B light.

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



## SECTION 8. REVISION HISTORY

Date	Revision	Revision History
08/07/2015	0	Initial release.
04/13/2016	1	Revised Equipment Labels page 6
06/20/2019	2	Removed CE from cover. Added to inside cover, and Pg. 5 and 6, " 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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