AIM LED LIGHT (ceiling mount)

Installation Manual

AIM LED LIGHT (ceiling mount)
INTRODUCTION

Lights in the AIM Series are designed to give the professional health care market superior performance, reliability and value. The lights contain advanced optical and mechanical solutions intended to offering you an optimal working environment for efficient and comfortable procedures, while assisting in enhancing performance.

Built-in features of the AIM lights include intensity, color correction, shadow reduction, light distribution, spot appearance, maneuverability, and focus. The AIM’s solid and durable construction ensures many years of trouble-free professional lighting.

Intended Use

The AIM light is designed to provide the required illumination for surgeries, procedures, and examinations of patients. The AIM light is to be used with various mounting configurations in operating rooms, examination rooms, emergency rooms and all other health care facilities where the need for additional illumination exists.

Effective working distance between patient and light head is from 24-39”. A removable and autoclavable handle (which also serves as bulb-focus control) accepts pre-sterilized covers.

Modular Services Co. recommends using qualified personnel for mechanical/electrical installation. Failure to use qualified personnel may invalidate the warranty of the product due to improper installation.

UNPACKING AND INSPECTION

Carefully unpack the cartons and match the parts received with the parts list enclosed.

Before Reporting Shortages:

• Be sure you have received the correct number of boxes, cartons, etc., as shown on the bill of lading.

• Check the entire shipment against the enclosed packing slip.

• Items indicated in the column headed “Back Order” are not included in the shipment and will follow later.

• Be sure that nothing has been removed from the cartons before they are checked by the individual in charge.

• Empty all boxes completely, open all inside containers, and examine all packing material to ensure small articles are not overlooked.

If a Shortage or Damage Occurs:

1. You, the receiver, are responsible for filing any claim(s) with the delivering carrier within five (5) days after receipt of the shipment.

2. If damage or shortage occurs in transit, the delivering carrier is required by law to make notation of a shortage or damage. This notation is to be made on the bill of lading.

3. If, in your opinion, there may be concealed damage, an agent from the delivering carrier is obligated to make an inspection after the goods are unpacked.

4. Do not destroy packing material until after the agent has made out his report.

5. All claims must be made to the carrier, not Modular Services Co.

6. Written authorization must be obtained from Modular Services Co. before merchandise can be returned.
Tools List
- Drill
- Hacksaw
- Level
- 9/16" open-end or adjustable wrench
- Wire cutter/stripper
- Allen wrench (3/32 in / 2.4 mm)
- Screwdriver, small flat-blade
- Wire nuts and wiring for supply connections

Parts List
The AIM LED lights come equipped with several parts, pieces of hardware, and manuals. Ensure your boxes contain all the parts as listed below:

<table>
<thead>
<tr>
<th>Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Arm with Covers</td>
<td>1</td>
</tr>
<tr>
<td>Assembly Instructions Manual</td>
<td>1</td>
</tr>
<tr>
<td>Operating Manual</td>
<td>1</td>
</tr>
<tr>
<td>4mm Allen Wrench</td>
<td>1</td>
</tr>
<tr>
<td>5mm Allen Wrench</td>
<td>1</td>
</tr>
<tr>
<td>Locking Wrench</td>
<td>1</td>
</tr>
</tbody>
</table>

NOTE: The 4mm and 5mm Allen wrenches are used for operations and maintenance. In addition to the parts above, you should receive:

<table>
<thead>
<tr>
<th>Single Ceiling Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part</td>
</tr>
<tr>
<td>Extension Arm with covers</td>
</tr>
<tr>
<td>Ceiling Mount with Cover</td>
</tr>
<tr>
<td>Safety Washer</td>
</tr>
<tr>
<td>Retaining Ring Washer</td>
</tr>
<tr>
<td>Retaining Ring</td>
</tr>
<tr>
<td>Slip Ring Screws</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Double Ceiling Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part</td>
</tr>
<tr>
<td>Extension Arm with covers</td>
</tr>
<tr>
<td>Ceiling Mount with Cover</td>
</tr>
<tr>
<td>Safety Washer</td>
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</tr>
<tr>
<td>Retaining Ring</td>
</tr>
<tr>
<td>Slip Ring Screws</td>
</tr>
</tbody>
</table>

If you are missing any items, please contact Modular Services Company. See back of manual for contact information.
SAFETY INSTRUCTIONS

Please note that assembly of this product must be carried out by a trained service technician. At some points of assembly you may require the assistance of an additional person.

- Please make sure to follow these instructions when assembling. **DO NOT** modify any parts before, during, or after assembly.

- If problems are encountered when assembling, please contact Modular Services Company. The contact information can be found at the end of this manual.

**CAUTION:** Failure to properly follow installation and preventive maintenance instructions may result in mechanical failure.

**WARNING:** Before undertaking any work, ensure that the main power is off and secured from accidentally being switched on again.

**NOTE:** This light should only be installed by a qualified electrical contractor.

MOUNTING HEIGHT

The proper height of the light should be set by the end user. This depends on the ceiling height, the height of the examination tables, types of procedures, and the user’s preferences. (Figures 2 and 3). Due to the large vertical range of the light head (41”), the standard 20” down tube will fit most normal ceiling heights.

The following table gives some recommendations and shows the range of the light with different length down tubes.

<table>
<thead>
<tr>
<th>Ceiling Height</th>
<th>Down Tube</th>
<th>Pivot Point¹</th>
<th>Lower Limit Light Head</th>
<th>Higher Limit Light Head</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.0 ft.</td>
<td>Short 8”²</td>
<td>66 in.</td>
<td>42 in.</td>
<td>83 in.</td>
</tr>
<tr>
<td>7.5 ft.</td>
<td>Standard 20”</td>
<td>60 in.</td>
<td>36 in.</td>
<td>77 in.</td>
</tr>
<tr>
<td></td>
<td>Short 8”²</td>
<td>72 in.</td>
<td>48 in.</td>
<td>89 in.</td>
</tr>
<tr>
<td>8.0 ft.</td>
<td>Standard 20”</td>
<td>66 in.</td>
<td>42 in.</td>
<td>83 in.</td>
</tr>
<tr>
<td>9.0 ft.</td>
<td>Standard 20”</td>
<td>78 in.</td>
<td>54 in.</td>
<td>95 in.</td>
</tr>
<tr>
<td>10.0 ft.</td>
<td>Standard 20”</td>
<td>90 in.</td>
<td>66 in.</td>
<td>107 in.</td>
</tr>
<tr>
<td></td>
<td>Long 42”³</td>
<td>66 in.</td>
<td>42 in.</td>
<td>83 in.</td>
</tr>
<tr>
<td>11.0 ft.</td>
<td>Long 42”³</td>
<td>78 in.</td>
<td>54 in.</td>
<td>95 in.</td>
</tr>
<tr>
<td>12.0 ft.</td>
<td>Long 42”³</td>
<td>90 in.</td>
<td>66 in.</td>
<td>107 in.</td>
</tr>
</tbody>
</table>

¹Distance from the floor to the pivot point of the spring arm.
²Cut the standard down tube (from the top) and drill two new holes (see instructions below).
³Contact Modular Services Co. to obtain a 42” or 52” down tube (special order).

**Cutting the Down Tube**

If shortening the down tube is required, the following procedure applies:

Cut the down tube from the top to the appropriate length. **NOTE:** The top of the down tube has 2 holes, the bottom has 6 holes.

Drill new holes on the top of the down tube (Figure 1).
RANGES OF MOTION

Figure 2. Single Ceiling

Vertical range of motion (shown for 9 ft. ceiling height)

Figure 3. Double Ceiling

Range of motion (shown for 9 ft. ceiling and 16" down tube)
CEILING MOUNT INSTALLATION

Support and Anchorage
To prevent sway and provide proper support of the light, the ceiling mount must be attached to a structurally sound ceiling. Most ceilings will require adequate reinforcing to hold the weight of the light.

The installing contractor is responsible for providing this reinforcement to suit the individual requirements of each installation. A typical reinforcement consists of a 1/4” steel plate, the bottom surface of which is flush with the inside surface of the finished ceiling (e.g., acoustical tile) and connected firmly to the structural ceiling.

Sway braces (e.g., made of angle iron) are recommended when there is more than 12” between the structural and finished ceilings. Make certain the installed plate is level or the arm(s) may “drift.”

ELECTRICAL CONNECTIONS

Installing the Junction Box
The junction box should normally be placed on top of the support structure. Make sure the screw holes on the junction box plate correspond to the holes in the ceiling casting. When the ceiling plate is installed, the bolts will also hold the junction box.

If there isn’t space for the junction box on top of the support structure, another suitable location in the ceiling can be used. It is also possible to use a different junction box if that is more convenient.

Switch wiring (contractor-supplied) must be three-conductor minimum AWG 18 and no more than AWG 14 from the terminal block to the switch. Both neutral and line connections must be wired to meet UL standards. Wiring and conduit must meet local and national fire protection codes.

Connecting Power Ceiling Versions
The input power (from the wall switch) and the wires out of the down tube should now be connected to the terminal block, which is pre-mounted on the ceiling casting. To connect to the terminal block use the technique shown in Figure 4.

Wiring Diagram – Single Ceiling Version
Wire the ceiling light as shown in Figure 4. Only the installation connections are shown.

a. The terminal block is marked with letters and numbers as follows:
   • Lines up out of the down tube (to light fixture)
   • Connect the green ground wire to the green terminal block.
   • Connect the other two wires to terminals marked “1” and “2”.

b. Input Power:
   • Connect the green/yellow ground wire to the green terminal block.
   • Connect the neutral wire (normally white) to the terminal block marked “N”
   • Connect the live wire (normally black) to the terminal block marked “L”

Figure 4.
c. Connect the ground wire on the bell housing to the green terminal block on the casting.

- Push the bell housing and the lock ring up until it covers the ceiling plate. Tighten the two set-screws on the lock ring using a 3/32” Allen wrench (Figure 5).

Figure 5.

Wall Switch Installation – Single Ceiling Version

120V version: Install wall switch furnished with the product to a standard junction box per local codes. The wires that go to the light fixture are labeled “to transformer”.

100V, 230V, and 240V versions: Wall switch is not furnished with the product. The customer provided switch must disconnect both poles (double pole) and be certified to JEC/EN 60158 (which superseded IEC 528). Install wall switch per local codes.

Connect ground wire from face plate to ground.

Wiring Diagram - Double Ceiling Version

Wire the ceiling light as shown in Figure 7. Only installation connections are shown. The switches are shown out of place for clarity. In reality, the wires to/from the switches will be coming from the junction box where the power input is shown.

a. The terminal block is marked with letters and numbers as follows (wires from the down tube to the head lights):

- Connect the green ground wire to the green terminal block.
- Connect the two wires from light one to terminals marked “1” & “2” on the one terminal block.
- Connect the two wires from light two to terminals marked “1” & “2” on the other terminal block.
- Connect one wire to line and one to neutral on the terminal block and run cable to switch.
b. Switches (see also “Wall Switch Installation” below):
   - Use 3-conductor cable minimum AWG 18. Max AWG 14 for each switch.

c. Input Power
   - Connect the input power neutral wire (normally white) to the blue switch wire.
   - Connect the input power line wire (normally black) to the brown fuse wire.

d. Connect the ground wire on the bell housing to the green terminal block on the casting.
   - Push the bell housing and the lock ring up until it covers the ceiling plate. Tighten the two set-screws on the lock ring using a 3/32” Allen wrench.

   **Figure 8.**
Wall Switch Installation – Double Ceiling Version

**Figure 9.**

NOTE: There is one wall switch for each light head.

**120V version:** Install the wall switch furnished with the product to a standard junction box per local codes. The wires that go to the light fixture are labeled “to transformers”.

**100V/240V versions:** Wall switch is not furnished with the product. The customer-provided switch must disconnect both poles (double pole) and be certified to IEC/EN 60158 (which superseded IEC 328). Install wall switch per local codes.

Connect ground wire from face plate to ground.

**Figure 10.**

**NOTE:** Illustration is for single ceiling version, so only one transformer and a smaller terminal block are shown.

Mount the ceiling casting to the support structure. Make sure the hole in the ceiling casting above the terminal block aligns with the hole in the junction box. Use three (3) 3/8” bolts, plain washers, split lockwashers, and nuts in a triangular pattern.
INSTALLING THE DOWN TUBE (single or double)

NOTE: The down tube is pre-cut and pre-drilled at the factory and will suit most exam rooms with a ceiling height of 8-10 ft. See the section “Mounting Height” for further advice.

NOTE: Be certain to slide the bell housing and locking ring on the down tube before inserting the down tube into the ceiling casting.

Figure 11.

NOTE: Illustration is for single ceiling version, so only one transformer and a smaller terminal block are shown.

Assemble the down tube by sliding it up the center hole in the ceiling casting. Position the tube so that the lower hole (A) in the down tube is matching to the upper hole (B) in the ceiling casting (Figure 11). First fasten the upper set-screw, which is a dog-point screw. (Make sure it fully engages the matching hole in the down tube.) Then fasten the lower set-screw. Use Loctite® Threadlocker or similar on the screws to prevent them from becoming loose.

Figure 12.

Approximately 1" of the down tube should be showing above the ceiling plate (Figure 12). A hole through the down tube will be accessible. Put the clevis pin (B) into the hole. Secure the clevis pin with the hairpin (A).

Feed the wires coming up out of the down tube back down through the hole in the ceiling casting (C). The wires from the wall switch should also go through this hole.
EXTENSION ARM ASSEMBLY

Identification of parts (Figure 13):

<table>
<thead>
<tr>
<th>Part #</th>
<th>Qty.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Extension Arm Assembly</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>Ceiling Mount</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>Slip Ring Screws</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>Safety Washer</td>
</tr>
<tr>
<td>E</td>
<td>1</td>
<td>Retaining Ring Washer</td>
</tr>
<tr>
<td>F</td>
<td>2</td>
<td>Retaining Rings</td>
</tr>
</tbody>
</table>

NOTE: Plastic covers on extension arm and electrical wire to slipring not shown for clarity.

Figure 13.
1. Remove the covers from each end of the extension arm. They will un-clip from each other and the arm. Set the covers aside. Figures 14 through 18 show step by step instructions:

Figure 14: Insert slotted screwdriver into the parting line.
Figure 15: Turn driver 90° to separate the covers.
Figure 16: Supporting the LH cover, unsnap the RH cover off the extension arm by pulling straight out.
Figure 17: RH cover removed.
Figure 18: Pull the LH cover off.

2. Orient the extension arm into the position seen in Figure 19 before beginning any work. The precaution stickers and text should be right side up.

3. Remove the electrical connector on the right by unscrewing the two screws and placing them aside. Slide out the electrical connector from the tube and allow it to hang off to the side. Refer to Figures 20 and 21.

4. Fasten the ceiling mount to your ceiling structure by following the instructions of your end-device manufacturer.

Figure 19.
CAUTION: It is recommended having a second person to assist with assembly of Steps 5-6.

5. Have one person slide the extension arm assembly up onto the wall/ceiling mount and hold it into place (Figure 22).

6. Have the second person install the retaining ring washer, then install the safety washer with the notch facing into the hole, and finally snap the two retaining rings into the groove (Figures 23 and 24).

CAUTION: Always ensure the safety washer tooth is properly inserted into the hole to avoid a potential safety hazard. The safety washer acts as a secondary safety support in case both retaining rings fail.

7. The extension arm is now correctly mounted to the ceiling.

8. Re-position the electrical connector up into the extension arm, and secure it into place using the two screws which were set aside.

9. Reinstall the covers at the end closest to the mount, by reversing the instructions followed for cover removal. Gently snap the two pieces together, and check the parting line to ensure proper fit with no gaps.
SPRING ARM ASSEMBLY

Identification of parts (Figure 25):

<table>
<thead>
<tr>
<th>Part #</th>
<th>Qty.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Mount/Extension Arm Assembly</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td>Spring Arm Assembly</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td>Safety Washer</td>
</tr>
<tr>
<td>D</td>
<td>1</td>
<td>Retaining Ring Washer</td>
</tr>
<tr>
<td>E</td>
<td>2</td>
<td>Retaining Rings</td>
</tr>
<tr>
<td>F</td>
<td>2</td>
<td>Slip Ring Screws</td>
</tr>
</tbody>
</table>

1. The covers should already be removed from the free end of the extension arm.

2. Remove the right hand electrical connector by unscrewing the two screws and placing them aside. Slide out the electrical connector from the tube and allow it to hang off to the side (Figures 26 and 27).

Figure 25.

Figure 26.

Figure 27.
3. Slide the spring arm assembly up into the end of the extension arm (Figure 28).

4. Install the safety washer with the notch facing into the hole, followed by sliding down the retaining ring washer, and finally snap the two retaining rings into the groove (Figures 29 and 30).

**CAUTION:** Always ensure the safety washer is properly inserted to avoid a potential safety hazard. The safety washer acts as a secondary safety support in case both retaining rings fail.

5. The spring arm is now correctly mounted to the extension arm.

6. Re-position the electrical connector down into the extension arm and secure it into place using the two screws set aside.

7. Reinstall the covers by reversing the instructions followed for cover removal above. Gently snap the two pieces together and check the parting line to ensure proper fit with no gaps.

**WARNING:** The spring arm, when pressed downwards, can jump up and cause injuries. During the installation of the light head, no one should be present within swiveling range of the spring arm.

**MOUNTING THE LIGHT HEAD TO THE SPRING ARM (Figure 31)**

**WARNING:** The spring arm, when pressed downwards, can jump up and cause injuries. During the installation of the light head, no one should be present within swiveling range of the spring arm.

**ELECTRIC SHOCK HAZARD:** Do not have the power connected while mounting the light head. Make sure the mains plug is not connected.

**NOTE:** It is best to have two people assembling this product.

1. Unite the connectors (A). Then push the joined connectors partially into the yoke head (B). Do not bend or twist.

2. Make sure the plastic bearing (C) is sitting on the yoke (B).

3. Push the yoke into the spring arm.

4. Put the key (D) completely into the slot, so that the key is engaging in the yoke groove (E).

5. Rotate the collar 180°.

6. Tighten the brake screw (F) until the yoke has the desired friction.

7. Check the secure seating of the yoke by pulling and turning it.
WIRING CONFIGURATIONS

Figure 11.
CLEANING

ELECTRIC SHOCK HAZARD: For all cleaning work, power off the equipment and secure it from being switched on again. Ensure that no cleaning fluid runs into the equipment.

NOTE: Apart from mild detergents and isopropyl alcohol, no other cleaning agents or chemicals should be used on the product.

A soft cloth dampened with a mild detergent solution may be used for basic cleaning of all surfaces on the AIM luminaries. In some cases, a soft cloth soaked in isopropyl alcohol may be used for stubborn stains.

For more thorough cleaning of the light head, the top housing should be removed. This is done by first removing the pods to get access to the three screws holding the top and bottom housing together. Remove the screws that have now become visible under the pod and lift the top housing off.

Use a soft cloth to wipe the corners and surfaces hidden when the parts are assembled. Be careful not to bend any components inside the light head. Damaging parts may affect the operation and light output.

WARRANTY

Modular Services Company warrants that all equipment assemblies shall be free from defects in material and workmanship for a period of 12 months from date of the owner’s acceptance to the installing contractor or the date the equipment is put into service, whichever comes first. Warranty excludes electric lamps and/or any material not furnished by Modular Services. Warranty does not cover damage due to improper installation and/or abuse.

It is the responsibility of the customer to report any noted product deficiencies to Modular Services immediately upon discovery. It is the responsibility of Modular Services to expediently resolve the discrepancy. Any modification made to the product without the written authorization from Modular Services will void this warranty.

Also, in the event product modifications or repairs are made without the written consent of Modular Services, Modular Services shall not be held liable for any cost associated with the modification or repair.

There are no warranties of fitness which extend beyond the description on the face hereof.