3M™ Light Pipe Series LPS250
Installation Instructions

Table of Contents
Safety Information ................................................. 1
General Information ............................................. 1
Product Information ............................................. 2
  Product Description .......................................... 2
  Applications ................................................. 2
  Product Configurations ...................................... 2
Pre-installation Checklist ........................................ 2
Supplied Components ........................................... 3
Additional Materials ............................................ 3
Handling .......................................................... 4
Installation ....................................................... 4
Storage ........................................................... 7
Maintenance ....................................................... 7
  Lamp Bulb Replacement .................................... 7
  Cleaning ...................................................... 7
Warranty and Limited Remedy .................................. 7
3M Related Literature ........................................... 7

Safety Information
Please read, understand and follow all safety information contained in this Bulletin prior to installation of this product.

Intended Use
3M™ Light Pipe Series LPS250 is an innovative, modular lighting system that is designed to distribute light for a variety of indoor lighting applications.

This light pipe system is not supplied with a light source. Consult your light source manufacturer to select a suitable light source for your light pipe system and its intended application.

Read and follow all product safety warnings and procedures as documented in this Bulletin and in the light source manufacturer’s manual. It is the installer’s responsibility to know and follow all applicable building codes and workplace regulations.

Warning
Hazardous Voltage Risk
To reduce the risk of death or serious injury, including shock and burns, or property damage from hazardous voltage:

• Only licensed electricians should install and service the electrical components in the lighting system.
• Comply with all local, state and national electrical and building codes.

Caution
High Intensity Light Risk
To reduce the risk of eye damage from high intensity light from the light source bulb or the highly reflective mirrored surface inside the end cap:

• Never look directly at the bulb or any reflected light from the end cap when the system is energized.
• Never look directly into the end cap in sunlight or allow any reflected sunlight from the end cap to be directed towards a person’s eyes.

Caution
Hot Surface Temperature Risk
To reduce the risk of burns from hot surfaces, never touch the surface of an energized light source.

General Information
• The information in this Bulletin is subject to change; be sure you have the most current Instruction Bulletin.
• Please read the entire Bulletin before you begin.
• Call 3M Technical Service at 1-877-891-7806 if you have any questions about the information in this Bulletin.
Product Information

Product Description
Light pipe series LPS250 is a series of cylindrical, interconnected light distribution modules. These modules, known as light pipes, are lined with 3M™ Optical Lighting Film 2301 that is specifically designed to reflect or transmit light depending upon the angle at which a light ray strikes its surface. With this film, up to 65.6 feet (20.0 m) of light pipe can be illuminated from a single light source.

The individual light pipe modules for series LPS250 are 10 inches (254 mm) in diameter. Light pipe series are available in several lengths between 13.1 feet (4 m) and 65.6 feet (20 m), depending upon the aperture selected.

Each light pipe series includes one or more:
- Light pipe modules
- Coupling clamps
- Hanger brackets
- End caps

See Additional Materials Required for a complete list of the components needed to install the light pipe system.

Applications
Light pipe series LPS250 may be used for a variety of indoor lighting applications that demand high-quality lighting and low maintenance. The light emitted from the pipes produces minimal glare, allowing fine details to be viewed with clarity and comfort. Because this system uses a remote light source, it can be used over areas that are difficult to access and maintain.

Depending on the light source used, possible applications for indoor lighting include:
- Commercial and industrial facilities, such as manufacturing factories, assembly plants and warehouses
- Arenas, gymnasiums and swimming pools

Product Configurations
Each light pipe module has a unique interior design to ensure uniform illumination across the entire length of the lighting system. The modules are individually numbered and must be installed in sequential order with the lowest number adjacent to the light source (see Figure 1). The numbering scheme varies depending on the light pipe system.

Please refer to the configuration charts at the end of this Instruction Bulletin for available light pipe configurations.

Pre-Installation Checklist

- Read all installation instructions and safety warnings before installing or using this product.
- Do not unwrap the light pipes until you are ready to install the individual modules. Dust entering the module will reduce the light output.
- Use this lighting system indoors only. See Applications.
- Consult with your light source manufacturer to select a suitable light source for your light pipe system and its intended application. Be sure to use only light sources that are installed and maintained in accordance with the light source manufacturer’s instructions. See Safety Information.
- Obtain the additional materials required for the light pipe system prior to installation. See Additional Materials Required.
- Use care when unpacking and handling the light pipe modules. Never touch the interior of a light pipe module. See Handling.
- Do not attempt to clean the interior of the light pipe modules. Clean the exterior of the light pipe modules with a soft dry or damp cloth. Use water only; do not use any cleaning products or solvents. See Maintenance.
- Light pipe modules must be aligned properly and installed with the correct orientation and order. See Installation.

Figure 1. Light Pipe Module
**Supplied Components**

Note: The quantities supplied vary by the length of the light pipe system ordered.

**Light Pipe Module**

The light pipe module consists of a transparent polycarbonate pipe, mounting rail and a locking collar at each end. Tabs extending from the collars help align and lock adjacent modules together and form a seal when the coupling clamp is installed.

Each module in a system is individually numbered and must be installed in the proper sequence, with the lowest number adjacent to the light source (see Figure 1). The numbering scheme varies depending on the light pipe system.

The interior of the module is lined with 3M™ Optical Lighting Film 2301 and 3M™ Light Enhancement Film 3635-100. It is designed to transport and distribute light uniformly along its entire length.

<table>
<thead>
<tr>
<th>Series</th>
<th>Module Diameter</th>
<th>Module Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPS-250</td>
<td>10 inch (254 mm)</td>
<td>6.6 feet (2 m)</td>
</tr>
</tbody>
</table>

**Coupling Clamp**

The coupling clamp secures adjacent modules together and covers the module collar to seal this interface. It is easily snapped into place.

**End Cap**

The end cap consists of a reflective mirror attached to a white polycarbonate disk with tabs similar to the module collars. The tabs ensure proper alignment of the end cap and lock the cap in place. A coupling clamp seals the end cap and the end of the light pipe.

**Hanger Brackets**

Hanger brackets are used to mount or suspend the light pipe system from a ceiling or support structure. The unique hanger design compensates for thermal expansion by letting the light pipe modules slide freely. Modules are snapped into place and secured by the hanger bracket’s locking arms.
Additional Materials Required

- Light source designed with a coupling adapter; the adapter or light source must have an ultraviolet (UV) filter that blocks all radiation below 340nm.
- 3/8-inch (9-mm) anchoring hardware to attach hanger to the ceiling structure; select hardware that is appropriate for the ceiling’s surface.
- Prefabricated truss system (optional for suspending light pipes from irregular ceiling structures).

Consult your lighting distributor for additional options.

Handling

<table>
<thead>
<tr>
<th>Important Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do NOT touch the interior of the light pipe module. The film lining the inside of the module can be easily damaged if it is touched or if dust or moisture is allowed to penetrate the module.</td>
</tr>
</tbody>
</table>

Handle the light pipe modules with care. Although the exterior housing of the light pipe module is rugged and capable of withstanding an impact, it is susceptible to scratching and should be handled accordingly.

Installation

<table>
<thead>
<tr>
<th>Important Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>The light pipe modules must be installed sequentially with the lowest number adjacent to the light source (lamp). See configuration chart at the end of this bulletin for details.</td>
</tr>
</tbody>
</table>

Step 1: Plan for Clearance

The light pipe system is designed to absorb thermal expansion and transfer it away from the light source. Be sure to install the light pipe system with approximately 6 inches (15 cm) of clearance at the end of the system.

![Figure 3. Allow for Minimum Clearance](image)

Step 2: Install the Light Source

Install the light source per the manufacturer’s instructions. Be sure to leave adequate space around the light source for cooling and servicing the unit.

Step 3: Attach the Hanger Brackets

Two hanger brackets are used for each light pipe module. Hanger brackets must be installed in a straight line, level with one another. Spacers may be required to compensate for uneven support structure.

Attach the hanger brackets to the ceiling or other support structure starting at approximately 19.6 inches (0.5 m) from the end of the light source. Continue spacing hanger brackets at approximately 39.4 inches (1.0 meter) intervals.

![Figure 3. Determine Hanger Locations](image)

Step 4: Hang the First Module

To hang the first module:

1. Ensure that the hanger bracket clips are in an unlocked, upright position.
2. Face the labeled end of the lowest-numbered light pipe module toward the light source.

3. Snap the first module into the first pair of hanger brackets by hooking one edge of the module mounting rail in the hanger bracket clip and rotating the module slightly to snap in place.

4. Rotate the hanger bracket clips down to lock the module in the hanger bracket.

5. The module should be able to slide freely in the hanger bracket clips. If necessary, rotate the hanger bracket so that the module is free to slide.

**Step 5: Attach to Light Source**
Slide the first module up to the light source. The tabs at the end of the module should fit over the end of the light source rim with the module collar O-ring contacting the metal face of the luminaire interface.

**Step 6: Place Coupling Clamp**
Place a coupling clamp (see Figure 3) around the light pipe/source interface by twisting the coupling clamp as shown. To avoid scuff marks, do not allow the ends of the coupling clamp to slide on the outer shell of the module.
Step 7: Align Coupling Clamp
Align notch at bottom of the coupling clamp with 3M logo on the bottom edge of the coupling strap. Push the coupling clamp firmly into place around the module collars.

Figure 11. Align Coupling Clamp
Step 8: Secure Coupling Clamp
1. Grasp the ends of the coupling clamp and push together.

Figure 12. Secure Coupling Clamp Ends
2. Continue pushing coupling clamp ends together until locked in place.

Figure 13. Lock Coupling Clamp Ends in Place
3. Tighten coupling clamp security clip.

Step 9: Attach the Next Module
1. Snap the next sequential module into the next pair of hanger brackets and lock module in place as shown in Step 4.
2. Slide the module up to the previously installed module.
3. Snap the two modules together by aligning the module collars and squeezing the collars together.

Figure 14. Snap the Modules Together
4. Install a coupling clamp as shown in Steps 6, 7 and 8.

Step 10: Install the End Cap
Position end cap at the end of the last light pipe module. The end cap is keyed to fit on the module so that the 3M logo is positioned as shown. Snap the end cap into place.

Figure 15. Snap End Cap into Place
**Maintenance**

### Cleaning

<table>
<thead>
<tr>
<th>Important Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Do NOT clean the interior of the light pipe modules.</td>
</tr>
<tr>
<td>• Do NOT use any cleaning products or solvents.</td>
</tr>
</tbody>
</table>

Clean the exterior of the light pipe modules with a soft dry or dampened cloth. Use water only.

### Lamp Replacement

Please see the luminaire installation manual supplied by the lighting manufacturer for lamp specifications and replacement instructions.

To obtain the highest possible lighting quality, replace lamps before they exceed the manufacturer’s predicted life expectancy. Replace the lamps for all light pipe systems at the same time to ensure uniformity.

**3M™ Light Pipe Series LPS250 Standard Configurations, Single Light Source**

XXX = Aperatures available: 90 degree, 120 degree, 180 degree, 270 degree
NOTE: Not all series start with Mod 1 or end with Mod 12.

### Storage

<table>
<thead>
<tr>
<th>Important Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do not remove the light pipe modules from their protective wrap until just before installation.</td>
</tr>
</tbody>
</table>

- Store the light pipe system in its original packaging until installation.
- Store at 50° to 110°F (10° to 43°C) in a clean, dry area.
- Avoid exposing the film on the interior of the light pipe module to direct sunlight or high intensity UV light. (Once installed, the outer housing of the module and light source filter protect the film.)

**3M™ Light Pipe Series LPS250 Standard Configurations, Double Light Source**

3M™ Light Pipe Series LPS250 can also be used in a double light source configuration where the end cap is replaced by an additional light source. In a double light source configuration, the order consists of 2 series installed in mirror order. All the aperture configurations of a single light source series apply to the double light source series. Refer to the configuration chart on the following page for more information.
### 3M™ Light Pipe Series LPS250 Standard Configurations, Double Light Source

- XXX = Apertures available: 90 degree, 120 degree, 180 degree, 270 degree
- NOTE: Not all series start with Mod 1 or end with Mod 12.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>8M</td>
<td>(2) 4 meter series</td>
</tr>
<tr>
<td>12M</td>
<td>(2) 6 meter series</td>
</tr>
<tr>
<td>16M</td>
<td>(2) 8 meter series</td>
</tr>
<tr>
<td>20M</td>
<td>(2) 10 meter series</td>
</tr>
<tr>
<td>24M</td>
<td>(2) 12 meter series</td>
</tr>
<tr>
<td>28M</td>
<td>(2) 14 meter series</td>
</tr>
<tr>
<td>32M</td>
<td>(2) 16 meter series</td>
</tr>
<tr>
<td>36M</td>
<td>(2) 18 meter series</td>
</tr>
<tr>
<td>40M</td>
<td>(2) 20 meter series</td>
</tr>
</tbody>
</table>

Diagram showing various configurations and light sources.
Warranty Information

Warranty and Limited Remedy
3M warrants that this 3M Product will conform to 3M specifications for the product at the time of shipment to the Buyer. 3M makes no other warranties, express or implied, including, but not limited to, any implied warranty of merchantability or fitness for a particular purpose or implied warranty arising out of a course of dealing, custom, or usage of trade. If a 3M Product is found not to conform to this warranty within one year of date of Product receipt, Buyer’s exclusive remedy, at 3M’s option, shall be to refund the purchase price of, or replace the quantity of 3M Product shown to be nonconforming. 3M has no obligation under this warranty with respect to 3M Product that has been modified or damaged through misuse, abuse, accident, neglect, or mishandling by Buyer.

Limitation of Liability
Except where prohibited by law, 3M shall not under any circumstances be liable to Buyer for any direct, indirect, special, incidental, or consequential damages (including, but not limited to, downtime, loss of profits, revenue, business, opportunity, or goodwill) resulting from or in any way related to 3M Products or the sale of 3M Products. This limitation of liability applies regardless of the legal or equitable theory under which such losses or damages are sought including breach of contract, breach of warranty, negligence, strict liability, or any other legal or equitable theory.

3M Related Literature
Before starting any job, be sure you have the most current Product and Instruction Bulletins.

The information in 3M Product and Instruction Bulletins is subject to change. For a current copy of this Bulletin, contact Technical Service at 1-877-891-7806. Any warranty, if offered, is based on information in the appropriate Bulletin(s) that was current at the time you purchased the 3M products.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Bulletin Code/No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>3M™ Light Pipe Systems LPS100, LPS150 and LPS250 Product Bulletin</td>
<td>LPS</td>
</tr>
</tbody>
</table>

3M is a trademark of 3M.

3M
Light Management Solutions
from Commercial Graphics Division
3M Center, Building 220-12E-04
PO Box 33220
St. Paul, MN 55144-3220 USA
Technical Info. 1-877-891-7806
www.3M.com/lightingproducts

©3M 2007. All rights reserved.
Instruction Bulletin 7.4 - 10