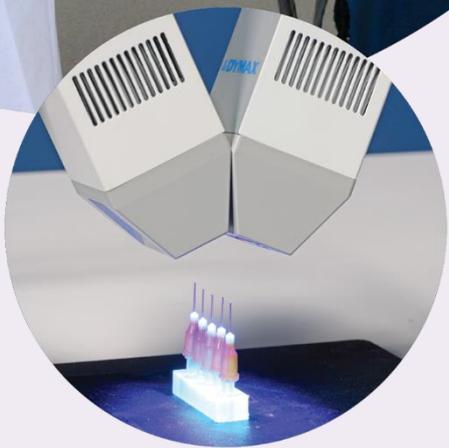


UV Light Shield

For use with EC Flood Systems
User Guide



About Dymax

UV/Visible light-curable adhesives. Systems for light curing, fluid dispensing, and fluid packaging.

Dymax manufactures industrial, light-curable, epoxy, and activator-cured adhesives. We also manufacture a complete line of manual fluid dispensing systems, automatic fluid dispensing systems, and light-curing systems. Light-curing systems include LED light sources, spot, flood, and conveyor systems designed for compatibility and high performance with Dymax adhesives.

Dymax adhesives and light-curing systems optimize the speed of automated assembly, allow for 100% in-line inspection, and increase throughput. System designs enable stand-alone configuration or integration into your existing assembly line.

Please note that most dispensing and curing system applications are unique. Dymax does not warrant the fitness of the product for the intended application. Any warranty applicable to the product, its application, and use is strictly limited to that contained in the Dymax standard Conditions of Sale. Dymax recommends that any intended application be evaluated and tested by the user to ensure that desired performance criteria are satisfied. Dymax is willing to assist users in their performance testing and evaluation by offering equipment trial rental and leasing programs to assist in such testing and evaluations. Data sheets are available for valve controllers or pressure pots upon request.

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Introduction

This guide describes how to assemble, use, and maintain the Dymax UV Light Shield safely and efficiently.

Intended Audience

Dymax prepared this user guide for experienced process engineers, technicians, and manufacturing personnel. If you are new to UV light curing and do not understand the instructions, contact Dymax Application Engineering to answer your questions before using the equipment.

Where to Get Help

Dymax Customer Support and Application Engineering teams are available in the United States, Monday through Friday, from 8:00 a.m. to 5:30 p.m. Eastern Standard Time. You can also email Dymax at info@dymax.com. Contact information for additional Dymax locations can be found on the back cover of this user guide.

Additional resources are available to ensure a trouble-free experience with our products:

- Detailed product information on www.dymax.com
- Dymax adhesive Product Data Sheets (PDS) on our website
- Material Safety Data Sheets (SDS) provided with shipments of Dymax adhesives

Safety



WARNING! *If you use this UV light shield without first reading and understanding the information in this user guide, injury can result from exposure to high-intensity light. To reduce the risk of injury, read and ensure you understand the information in this user guide before assembling and operating a Dymax flood lamp system with light shield.*

General Safety Considerations

All users of Dymax equipment should read and understand this user guide before assembling and using the equipment.

To learn about the safe handling and use of light-curable formulations, obtain and read the SDS for each product. Dymax includes an SDS with each adhesive sold. In addition, fluid product SDS can be requested on the Dymax website.

Specific Safety Considerations

The light shield is designed to maximize operator safety and minimize exposure to light-curing energy. To use the shield safely, it must be set up and operated in accordance with the instructions in this user guide. Please also read and understand the safety considerations unique to flood lamp light-curing systems.

Safety Symbol Index

The following symbols are displayed on the Dymax light shield. Please see below for their meanings.



Refer to Manual



Gloves Required



Eye Protection Required



Warning!



Caution! Hot Surface



Warning! UV Light Hazard

Product Overview

Description of the UV Light Shield

The Dymax light shield is part of a UV flood-lamp light-curing system that incorporates an optional shutter and a light source into a unique system. These systems generate conditioned quality UV light for curing photosensitive adhesives, coatings, and inks applied to various size and shape parts. This light shield can accommodate all Dymax EC silver series flood lamps and can be used with the Dymax ZIP™ Shutter or manual shutter to optimize an application, providing higher throughput at the best curing quality.

NOTE: The 1200-EC flood lamp is not compatible with the Dymax ZIP™ shutter. Curing systems featuring the light shield and the 1200-EC lamp are only compatible with the manual shutter.

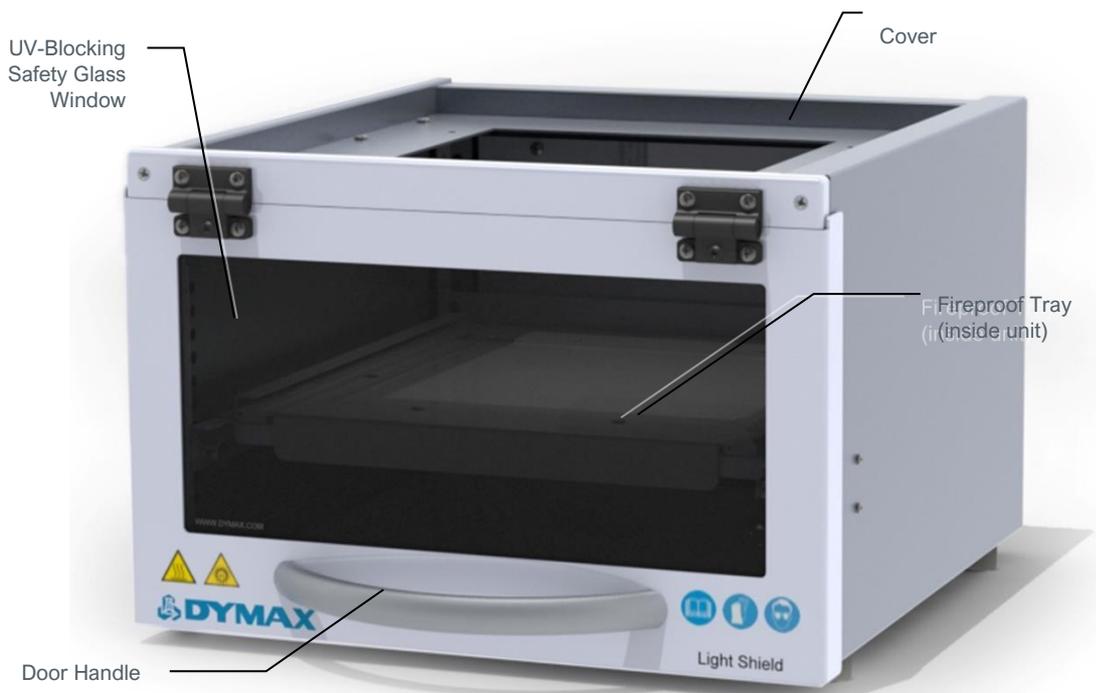
The flood-lamp curing system can also be used without the shutter in rare cases when especially long (several hours) exposure is needed, or timing accuracy is not an issue. If no shutter is used, a bypass connector must be installed on the reflector.

NOTE: Users considering special or customized configurations should contact Dymax Application Engineering for recommendations and/or guidance to prevent equipment malfunction. Dymax cannot foresee every possible use of these light sources and reserves the right to invalidate warranties, expressed or implied, due to non-recommended installation or use of this equipment.

System Components

The light shield serves as the base of a flood-lamp system. It is constructed so the operator can safely observe objects in the curing process. The light shield features a front loading door which swings up and down on dual supporting hinges. The door has an optional interlock switch (PN 41166) that can be installed with a ZIP™ shutter to prevent the shutter from being open when the light shield door is open. The light shield also includes a fireproof tray, which slides along adjustable height rails and can be removed and replaced with ease.

Figure 1.
Main Components of the EC Light Shield



Special Features and Benefits

Key features include:

| Feature | Benefit |
|--|---|
| Accommodates parts for curing up to 7.5" [19.05 cm] high | Can be used with a variety of part configurations |
| Work surface may be adjusted from 2"- 6.5" [3.81 cm – 13.47 cm] from the bottom of the enclosure | The light shield tray can be used with light-curing applications for a variety of size products |
| Optional door interlock | Extra safety precaution preventing the shutter from being open when the light shield door is open |

Assembly and Setup

Unpacking and Inspecting Your Shipment

When your UV Light Shield arrives, inspect the boxes for damage and notify the shipper of box damage immediately.

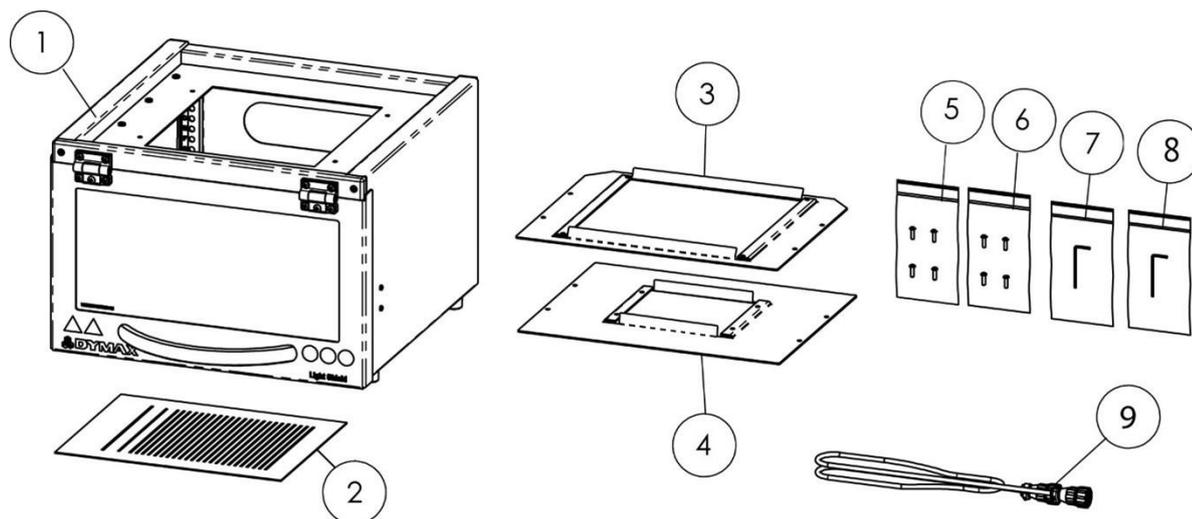
Open each box and check for equipment damage. If parts are damaged, notify the shipper and submit a claim for the damaged parts. Contact Dymax so that new parts can be shipped to you immediately.

Check that the parts included in your order match those listed below. If parts are missing, contact your local Dymax representative or Dymax Customer Support to resolve the problem.

Parts Included in the Light Shield

- Light Shield with Tray (1)
- Light Shield User Guide (2)
- 2000-EC/1200-EC Reflector Support Plate (3)
- 5000-EC Reflector Support Plate (4)
- Screws: 8-32 x 1/2" (5) and 6-32 x 1/2" (6) Socket-Head Screws
- 3/32 (7) & 5/64 (8) Hex Wrenches
- Cable - Reflector to Light Shield (9)

Figure 2.
Light Shield (PN 41175) Components



System Interconnection

Place the Light Shield on the designated workbench. Remove all packaging used for securing the unit during shipping and save it in the event you need to repackage the unit for return.

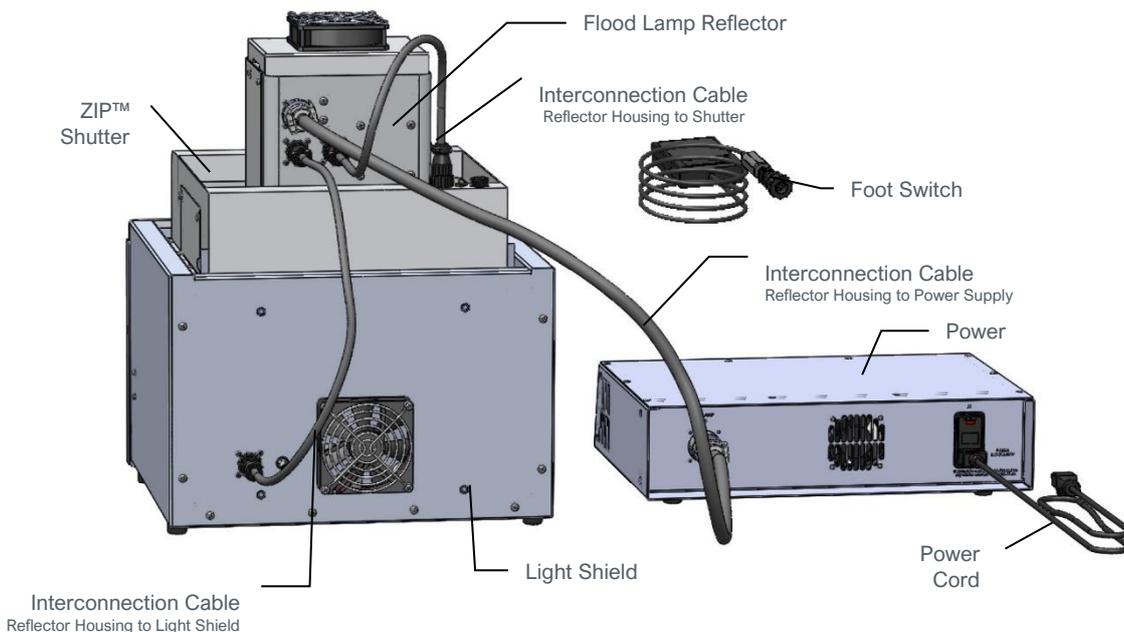
Suggested Sequence of Flood-Lamp Curing System Connection

1. Install the Bulb (included with Flood Lamp) into the Reflector Housing Assembly; follow the installation instructions provided with the Bulb.
2. Connect one end of the Interconnection Cable to the J2 Connector on the rear panel of the Power Supply and the other end to the 8-Pin Receptacle (J3) on the rear of the Reflector Housing Assembly.
3. Connect the Foot Pedal to the 4-Pin Receptacle (J2) located on the right rear of the Shutter (optional).
4. Connect the Cable provided with the Shutter from the 8-Pin Connector (J4) on the rear of the Reflector Housing Assembly to the 8-Pin Connector (J1) on the rear of the ZIP™ Shutter.

NOTE: If no Shutter is being used, install the Bypass Connector in the 4-Pin Receptacle (J4) instead.

5. Connect the Cable provided with the Light Shield from the J5 9-Pin Connector on the rear of Reflector Housing Assembly to the 9-Pin Connector located on back of Light Shield.
6. Plug the female connector of an AC Power Cord into the J1 - Male Receptacle on the rear panel of the Power Supply.

Figure 3.
Suggested Flood-Lamp Curing System Interconnect



WARNING! Do not position the Light Shield on top of the Power Supply. The EC Flood Lamp System requires adequate air circulation. Setting up the system in such a configuration can result in damage to the equipment and unsafe operating conditions.

Figure 4.
Unacceptable Mounting Configuration



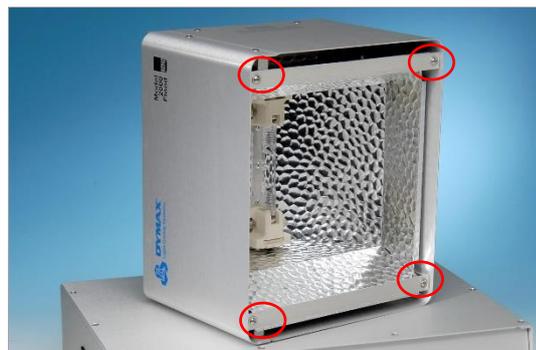
Installing the Reflector Housing Directly to the Light Shield

1. Invert the Reflector and remove the four Screws (Figure 5).

Figure 5.
Remove Four Screws on the Reflector



5000-EC (8-32 x 1/4" Screws)

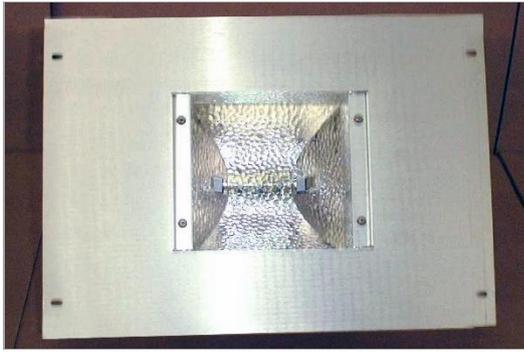


- 2000-EC (6-32 x 1/2" Screws)

2. If using the 2000-EC Reflector, an optional glass filter is available. To install the Glass Filter Plate, remove the two Support Bars and four Spacers from the 2000-EC Reflector. Place the Glass Filter Plate on the Reflector and position the four Spacers around the Glass Filter Plate. Reinstall the two Support Bars.
3. Fasten the appropriate Support Plate to the Reflector with the four screws removed in Step 1 (Figure 6).

NOTE When using a 2000-EC lamp, position the Support Plate so that the end with cropped corners is facing the rear of the Reflector. The Reflector/Support Plate Assembly will not sit flush on the Light Shield if this plate is attached backwards.

Figure 6.
Fasten the Appropriate Support Plate to the Reflector



5000-EC (8-32 x 1/4" Screws)



2000-EC (6-32 x 1/2" Screws)

4. Remove the four M4 x 8-mm screws from the Light Shield's Top Cover (Figure 7).
5. Place the Reflector/Support Plate Assembly onto the Light Shield. Align the holes on the Light Shield Top Plate and the Support Plate and then secure the Reflector/Support Plate Assembly to the Light Shield with the M4 x 8-mm screws.

NOTE: Do not tighten until directed in Step 5.

Figure 7.
Remove Screws from Light Shield Top Cover



Figure 8.
Secure the Reflector/Support Plate Assembly to the Light Shield



6. Center the Reflector Housing on the Light Shield. When the desired position is achieved, tighten the Securing Brackets to the Light Shield (Figure 8).
7. Install cable PN 40878 between the connector on the rear of the Light Shield and J5 on the back of the reflector (this cable is packaged with the Light Shield). Install the larger Cable (PN 37904) between J3 on the back of the Reflector and the back of the Power Supply. Install the Power Cable (PN 35255) to the back of the Power Supply.

Figure 9.
Rear Connections (5000-EC Shown)

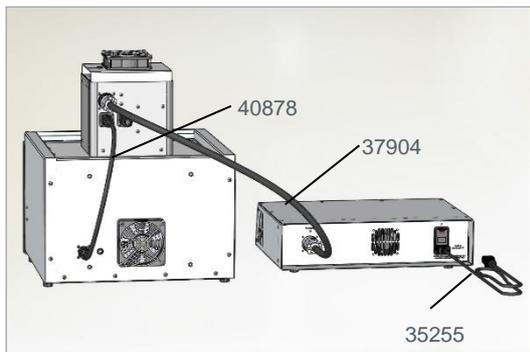
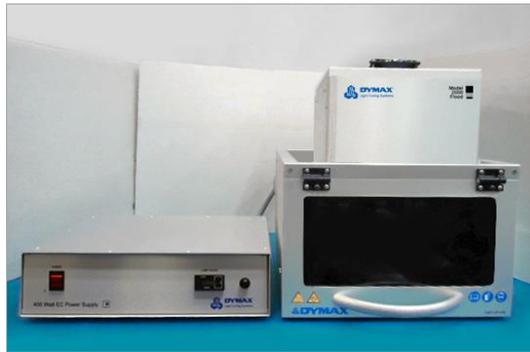


Figure 10.
Complete Installed System (2000-EC Shown)

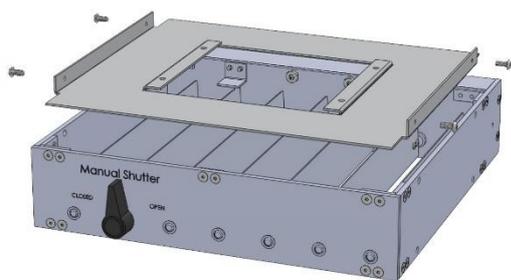


Installing the Light Shield to a Reflector Housing with a Shutter

1. Take a Shutter and carefully place it on the top of the Light Shield.
2. The Shutter is shipped with the 5000-EC Support Plate installed. Remove the four screws to remove the 5000-EC Support Plate from the Shutter (Figure 11).

NOTE: If you are using a 2000-EC lamp, this plate will not be used. If you are using a 5000-EC lamp, the Support Plate will be installed on the Reflector at a later time.

Figure 11.
Remove 5000-EC Support Plate from Shutter



Manual Shutter



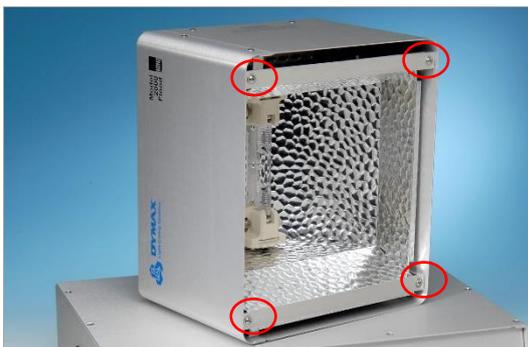
ZIP™ Shutter

3. Invert the Reflector and remove the four Screws (Figure 5).

Figure 12.
Remove Four Screws on the Reflector



5000-EC (8-32 x 1/4" Screws)



2000-EC (6-32 x 1/2" Screws)

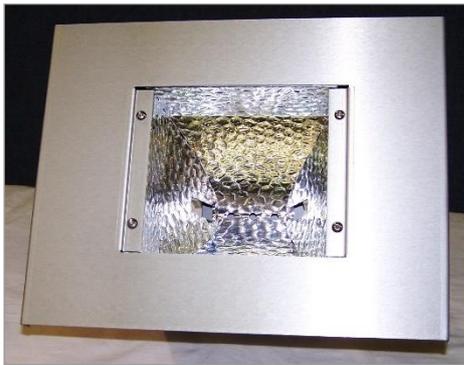
4. Install the Support Brackets to the top of Light Shield with the 8-32 x 3/8" screws provided.

NOTE: Do not tighten until directed to in Step 5.

5. Prepare the Reflector Housing with the appropriate Support Plate(s) for use with the Shutters (Figure 13). Refer to the Shutter User Guide for more details.

NOTE: Do not install the Reflector Housing to the Shutter by installing the four 8-32 x 3/8" screws and fastening the Support Plate(s) to the Reflector Housing until directed.

Figure 13.
Install Appropriate Support Plate



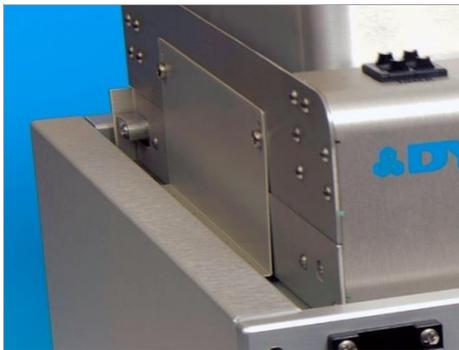
5000-EC



2000-EC

6. Place the Reflector Housing/Support Plate(s) Assembly into the Shutter. Using the 8-32 x 3/8" screws provided with the Shutter, secure the Light Shield and Shutter to the Reflector Housing Support Plate(s). (Figure 14)

Figure 14.
Securing Bracket



ZIP™ Shutter



Manual Shutter

7. Center the Shutter on the Light Shield. When the desired position is achieved, tighten the Securing Brackets to the Light Shield.
8. If using a ZIP™ Shutter, install Cable PN 40879 between the Shutter and the back of the Reflector. There is no Interconnect Cable between the Manual Shutter and the Reflector.
9. Install cable PN 40878 between the connector on the rear of the Light Shield and the back of the Reflector (these two Cables are packaged with the Shutter). These cables are color coded to aid assembly.

Install the large Cable between the back of the Reflector and the back of the Power Supply. Install the Power Cable to the back of the Power Supply.

Figure 15.
Completely Assembled System (ZIP™ Shutter Shown)

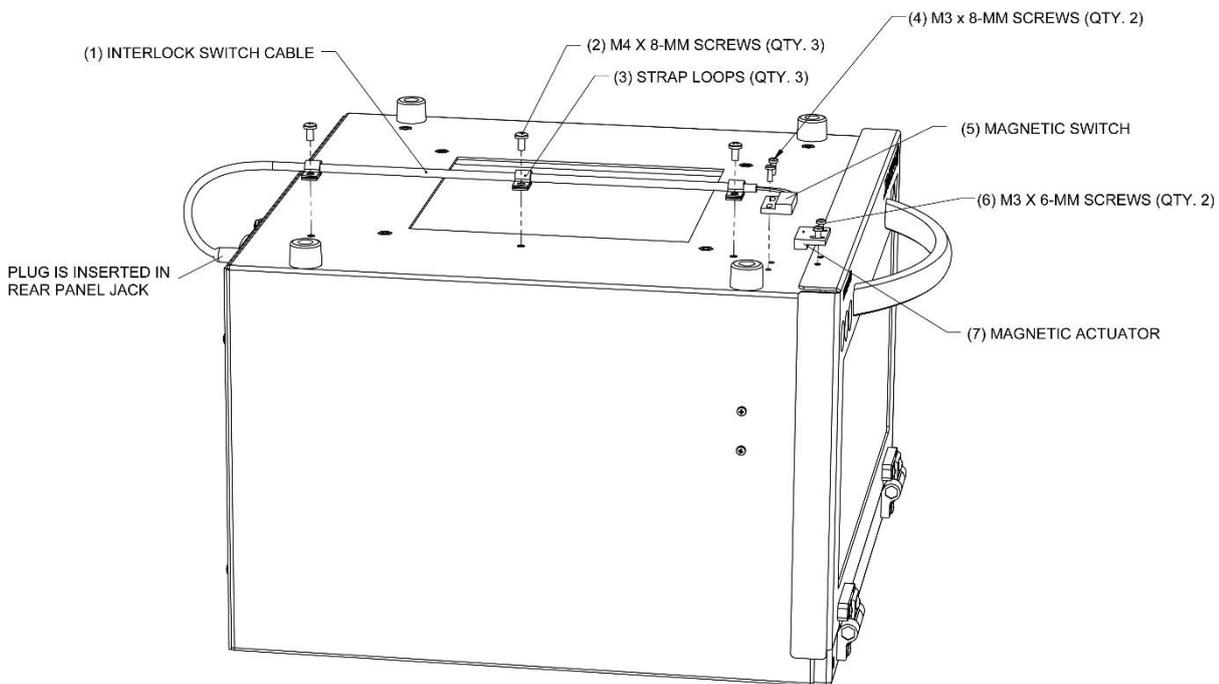


5000-EC

2000-EC

Optional: Assembling the Safety Interlock Switch

Figure 16.
Light Shield (Shown Upside Down)



1. Turn off the power and remove all cables from the Light Shield.
2. Remove the Reflector Housing and Shutter from the top of the Light Shield. Turn the Light Shield upside down (Figure 16).
3. Remove the five screws from the bottom of the unit.
4. Attach the Magnetic Switch (5) to the bottom of the housing using two M3 x 8-mm Screws (4).
5. Fasten the Interlock Switch Cable to the bottom of the unit using the Nylon Strap Loops (3) and M4 x 8-mm Screws (2).

6. Remove the three 10-32 screws (5) from the left side of the Light Shield. Route the Interlock Switch Cable along the left side of the Light Shield and fasten the cable into place by using the three Cable Clamps (4) and longer screws provided in this kit.
7. Attach the Magnetic Actuator (7) to the Light Shield Door using the M3 x 6-mm Screws (6).
Note: Check that the Magnetic Switch and the Magnetic Actuator are aligned.
8. Plug the Connector to the Power Jack at the back of the Light Shield.
9. Turn the Light Shield right side up and reinstall the Shutter and Reflector to the Light Shield.

Operation

For a detailed description of flood lamp operation, maintenance, and troubleshooting, see the appropriate flood lamp operation manual. This is a suggested sequence of activities that can be altered to better match your working conditions, process requirements, and work habits.

Estimate the height of the curing part in respect to its base, or to the base of the part holder (if the object to be cured is not free standing), and then adjust the position of the work surface at a proper distance from the curing part. Use a ruler for setting accuracy.

The recommended working distances for each type of reflector housing assembly is indicated in the appropriate flood lamp manual. You can set this distance differently to optimize your throughput with respect to adhesive properties and irradiant energy required to achieve the best curing quality in the shortest time. Dymax Application Engineering is ready to assist you if needed.

Cleaning and Maintenance

General

For detailed technical assistance, please call Dymax Application Engineering.

UV Light Shield

The UV light shield is designed to be maintenance free. Periodic cleaning will ensure long, trouble-free operation.

Flood Lamps

See the appropriate flood lamp manual for maintenance recommendations.

Shutters

See the appropriate shutter manual for maintenance recommendations.

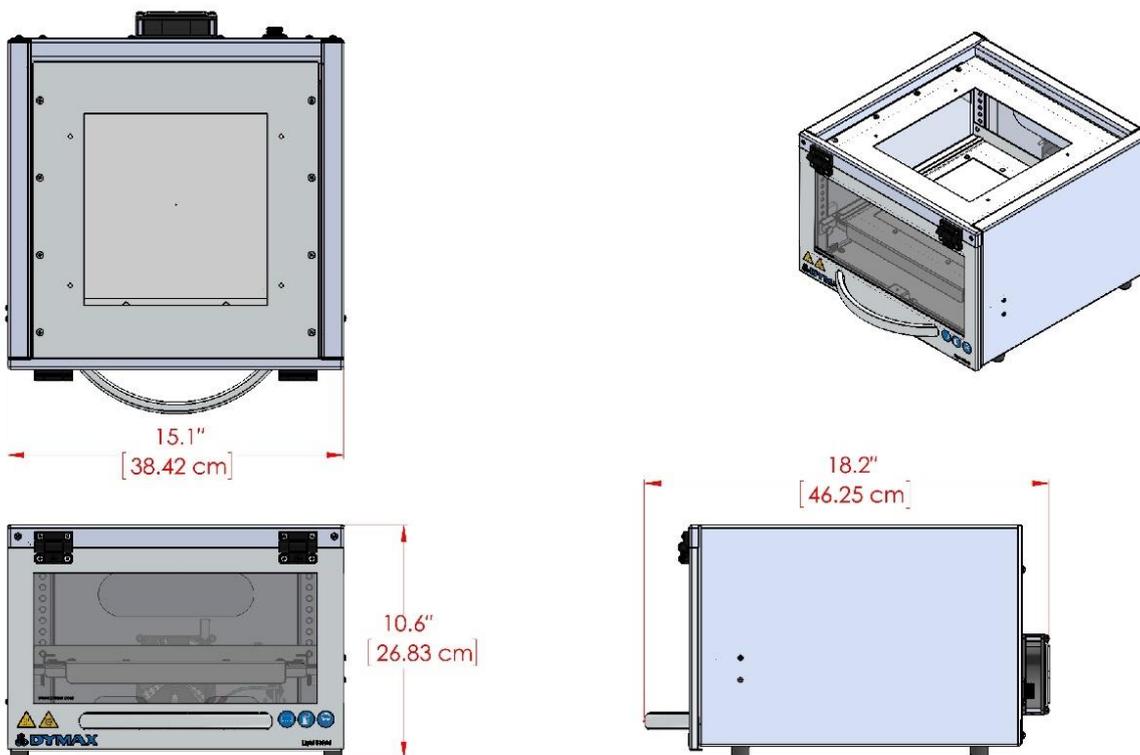
Spare Parts and Accessories

| Item | Part Number |
|--|-------------|
| Cables | |
| Reflector Housing to Light Shield Cable | 40878 |
| Interlock Switches | |
| Interlock Switch | 41166 |
| Interlock Switch – For Light Shield PN 38125 | 38402 |
| Misc. Replacement Parts | |
| Front Door Handle | 40808 |
| Hinge, Friction, Adjustable | 36447 |
| Fan Assembly, 24 Volts | 40823 |
| Work Surface Tray Assembly | 40806 |
| Shields | |
| Door Assembly Shield | 41157 |
| Housing Light Shield | 40793 |
| Plate Top Shield | 40802 |

Specifications

| Property | Specification |
|-----------------------------------|--|
| Part Number | 41175 |
| Compatible Dymax Flood Lamps | 5000-EC, 2000-EC, & 1200-EC |
| Compatible Shutters | 37863 ZIP™ Shutter 35572 Manual Shutter |
| Compatible Dymax Bulbs | Standard – 400 Watt Metal Halide Bulb Optional – 400 Watt Hg Vapor Bulb Optional – 400 Watt Visible Bulb |
| Work Area | 10" x 10" [25.4 cm x 25.4 cm] |
| Work Surface Load Capacity | Up to 5 lbs. [2.27 kg] |
| Overall Dimensions (W x D x H) | 18.2" x 15.1" x 10.6" [46.25 cm x 38.42 cm x 26.83 cm] |
| Interface Cable Length (standard) | 24" [60.96 cm] |
| Weight (Light Shield Only) | 14.5 lbs [6.58 kg] |
| Unit Warranty | 1 year from purchase date |

Figure 17.
EC Light Shield Dimensions



Definition of Terms

Brightness, also known as **Luminance** - description of energy in the visible region of the spectrum (approximately from 400 to 700 nm) and recorded in photometric units. “**Intensity**” (see below) of visible light energy is called Luminance.

Bulb - light source generating ultraviolet, visible, and infrared radiant energy from burning matter stimulated by electrical power conditioned by a proper power supply which is an integral part of a lamp. A light source is usually placed into a reflector (of various geometry) to increase light source efficiency by collecting and directing radiant energy of selected spectra (for a given curing process).

Dose - is irradiance integrated over time, or Irradiance (W/cm^2) x Time (s) = Dose (Joules/cm²). Note: Watt is the power that gives rise to the production of energy at the rate of 1-joule (J) per second(s).

Intensity - a measure of light energy over the unit of surface area (usually surface at the specified working distance from the bottom of a reflector housing) in W/cm^2 or mW/cm^2 . For the UV portion of light, this measure is often called in literature “irradiance”, i.e. radiant energy arriving at a point on a surface per unit area.

Luminance - luminous flux (energy of visible light) incident per unit area, and measured in **Lx** (lux) or **Lumen/cm²**.

Ozone - oxidizing agent (O₃) produced by the action of Ultraviolet radiant energy (below 185 nm) or electrical corona discharge of oxygen on air.

Ultraviolet (UV) - The invisible region of the spectrum just beyond the violet end of the visible region. Wavelength ranges in general from 1.0 to 400 nm. Dymax bulbs (burners) do not radiate energy in deep Ultraviolet; there are very minute amounts below 220 nm and practically nothing can be sensed below 200 nm. This is due to the use of an ozone-blocking quartz bulb envelope (See Ozone).

1. **Ultraviolet A (UV-A)** - UV of long wavelength from within approximately 400 to 320 nm of the spectral band (4000 to 3200 \oplus) - predominately produced by Dymax Flood Lamps.
2. **Ultraviolet B (UV-B)** - UV of medium wavelength from within approximately 320 to 280 nm - Dymax Flood Lamps produce some amount of their energy within this bandwidth.
3. **Ultraviolet C (UV-C)** - UV of short wavelength below 280 nm (we say from 280 to 200 nm) - a large amount of this energy is present in sunlight.
4. **Visible** - Light that can be seen 400-700 nm.

OSHA 1910.145: “Regulation of Accident prevention Signs and Tags” defines the following headers as:

- **WARNING** - is used when there is a hazardous situation that has some probability of severe injury.
- **CAUTION** - is used to indicate a hazardous situation that may result in minor or moderate injury.
- **NOTICE** - is used to convey a message related directly or indirectly to the safety of personnel or protection of property.

Warranty

From date of purchase, Dymax Corporation offers a one-year warranty against defects in material and workmanship on all system components with proof of purchase and purchase date. Unauthorized repair, modification, or improper use of equipment may void your warranty benefits. The use of aftermarket replacement parts not supplied or approved by Dymax Corporation will void any effective warranties and may result in damage to the equipment.

IMPORTANT NOTE: DYMAX CORPORATION RESERVES THE RIGHT TO INVALIDATE ANY WARRANTIES, EXPRESSED OR IMPLIED, DUE TO ANY REPAIRS PERFORMED OR ATTEMPTED ON DYMAX EQUIPMENT WITHOUT WRITTEN AUTHORIZATION FROM DYMAX. THOSE CORRECTIVE ACTIONS LISTED ABOVE ARE LIMITED TO THIS AUTHORIZATION.

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Please note that most dispensing and curing system applications are unique. Dymax does not warrant the fitness of the product for the intended application. Any warranty applicable to the product, its application and use is strictly limited to that contained in Dymax's standard Conditions of Sale. Dymax recommends that any intended application be evaluated and tested by the user to insure that desired performance criteria are satisfied. Dymax is willing to assist users in their performance testing and evaluation by offering equipment trial rental and leasing programs to assist in such testing and evaluations. Data sheets are available for valve controllers or pressure pots upon request.

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