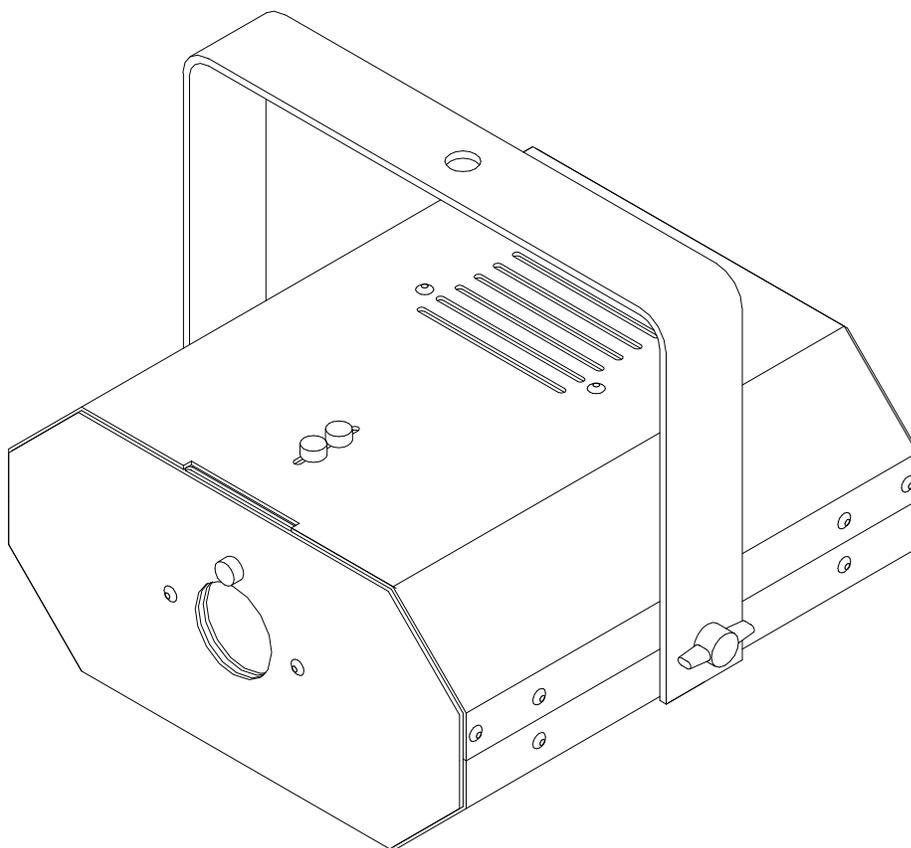




## WAVELIGHT<sup>®</sup>-2 USER INSTRUCTIONS

### **Description:**

The Wavelight-2 is a compact, lightweight AC powered moving pattern projector. The unit is designed to project a moving pattern of light with an irregular character resembling the reflection of light off of the surface of water, or the refraction of light through a water surface. Two pattern wheels rotated by gear reduction motors produce the moving effect pattern. The projection lens mount allows for adjustment of effect focus. Installation of gel or dichroic color filters or aperture plates in the filter slot provided will create further variations in the appearance of the output pattern.



### **Recommended Use**

The Wavelight fixture is intended for use in applications where the appearance or illusion of a nearby water surface or an underwater environment is desired. The fixture is intended to operate from a 120 volt AC power source, or a suitable 120 volt AC lighting dimmer circuit or channel.

## General Precautions

The Wavelight fixture is intended for indoor special effect applications in theme parks, themed attractions, themed restaurants or scenic displays, and for any other specialized lighting application where the illusion, impression, or appearance of a nearby water surface, or underwater environment is desired, without any of the difficulties associated with real water.

### CAUTION

**The fixture is intended only for indoor use in dry locations. The unit is not intended for outdoor use, or for indoor use in close proximity to an actual body of water. The fixture is not rated for, nor protected against water splash, droplets, or mist.**

## AC Power Connections

The Wavelight projector is provided with an AC power cord of 6 foot minimum length ending in a three pin IEC power connector at one end, and a PBG plug at the other. To connect the Wavelight to the power supply, first make sure that the unit is turned off, then install the IEC plug into the socket at the rear of the unit. Once the connector is attached, the other end of the power cord may be connected to the AC supply.

### WARNING

**The Wavelight operates on 120 volt AC line voltage. Application of DC voltage or AC voltages greater than 120 volts to the Wavelight fixture may cause serious damage to the fixture, and may cause increased risk of electrical shock or fire, potentially resulting in serious injury or death. Do not attempt to operate the unit with incorrect or unknown supply voltages.**

## Mounting

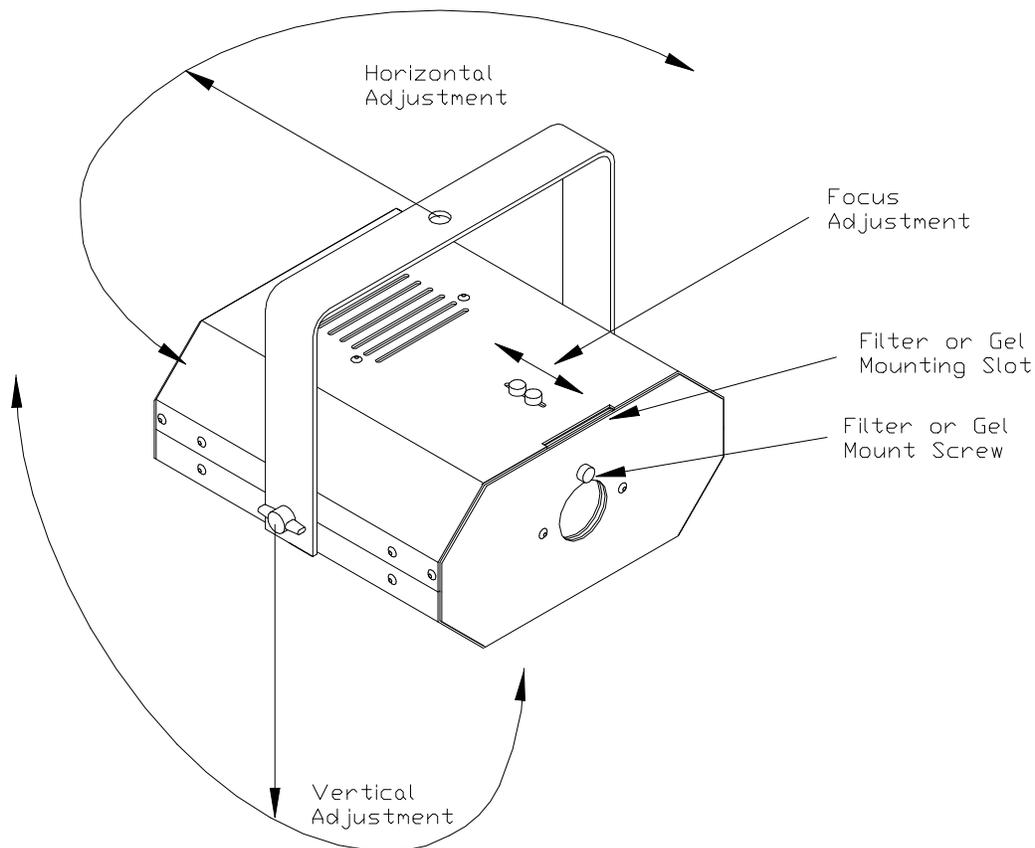
The Wavelight-2 incorporates a mounting yoke with a 1/2" hole at the center for hanging the instrument. The Wavelight is normally attached to a mounting "C-clamp" or other stable means of support using the yoke mounting hole and an appropriate bolt and washer. The unit can be mounted in any orientation, keeping in mind that the ventilation areas at the top and bottom of the unit, and the fan output at the rear must remain unobstructed for proper cooling. The unit should also be positioned for easy access to the door provided for lamp replacement, typically on the bottom when mounted in an overhead location, or on the top when mounted on the floor.

## Operation

The unit may be operated by turning the power switch at the rear of the unit to the "ON" position. The cooling fan and internal motors will begin to operate immediately, with the lamp activating after a brief delay of a few seconds due to the "Soft Start" circuitry incorporated into the electronic ballast which powers the lamp. This feature will extend the typical lamp lifetimes significantly. The unit will project a moving pattern of light with an irregular character resembling the reflection of light off of the surface of water, or the refraction of light through a water surface. The fixture is rated for continuous operation, and in normal use the unit will continue to display the output pattern until power is removed.

## Aiming

The instrument can be pointed using the mounting hole on the yoke as a directional pivot. Tightening the mounting fastener will lock the instrument in that axis. The mounting yoke attaches to the sides of the instrument with two thumbscrews. Loosening the thumbscrews allows adjustment of the instrument in elevation. Tightening the thumbscrews locks the elevation axis. The user is responsible for mounting the instrument in a safe and secure manner. Please consult with local public or workplace safety authorities to determine if any additional safety restraints, such as safety wires or cables may be required.



## Focus Adjustment

The effect focus can be varied by moving the projection lens. This may be accomplished without opening the unit case. Two small thumb screws on the upper or lower surface of the unit secure the lens mount. Loosen both screws slightly, (but do not remove either screw) and use one of them as a handle to slide the lens mount forward or back until the desired focus is achieved, then tighten both thumb screws securely.

## Dimming

The Wavelight is compatible with any dimming system that can accept an electronic ballast, and a small inductive component from the motors and fan as a load. If you are not certain that your dimmer can accept this type of load, consult the dimmer specifications or the manufacturer. The fan and AC motor speeds will remain generally constant, and should not vary as the lamp is dimmed over a large range. The fan and effect drive motors will not operate, and may not start, at low dimmer settings. Some lamp glow may occur at the minimum dimmer settings which will permit the motors and fan to operate normally.

## Filter or Gel Installation

A slot for a filter or color gel is provided at the front of the Wavelight. A thumbscrew at the front of the unit retains the filter or gel. Deep color gels may fade or bleach with time, and may require periodic replacement to maintain the desired color. Color filters or gels should be cut to two inches by two inches or 50mm square in size, and be no thicker than 1/16 inch, or 1.5mm.

To install or change a color filter, disconnect power to the unit, remove the thumbscrew next to the output port, and slide the filter into the slot in the case top or bottom nearest the thumbscrew. The filter or gel should be pushed into the slot until it stops, or at least until the edge of the filter or mount is clear of the thumbscrew hole. Reinsert the thumbscrew and gently tighten it to retain the filter. If it is possible to invert the Wavelight unit when installing a filter or gel, the filter can be simply dropped in or out of the slot after removing the thumbscrew. Be sure to replace the thumbscrew before turning the Wavelight right side up to hold the filter in place. Reconnect power, aim, and focus the unit for normal operation.

## Lamp Replacement

To change the lamp in the Wavelight, first remove power from the unit by switching it off, or by unplugging the power cord from the unit, or at the AC power source. If the unit is mounted close to high wattage fixtures, or if the lamp has recently failed, the housing, lamp door, lamp, and other internal components will be hot. Allow the unit to cool for a while before attempting to change the lamp.

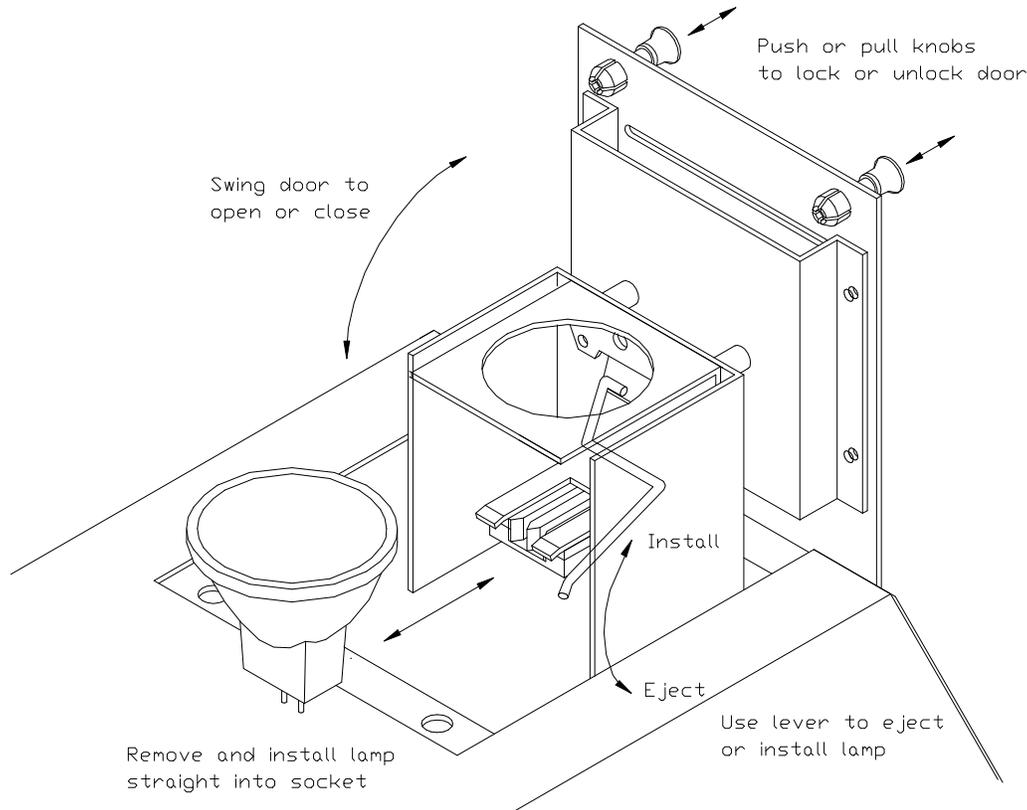
### Caution

**Use of the proper type of lamp is essential to the safe and proper operation of the Wavelight. Do not install any replacement lamps greater than 75 watts at 12 volts, or any lamps rated for other than 12 volt use. For general replacement purposes, use only the recommended 75 Watt narrow beam MR-16 lamps meeting ANSI specification EYF, or 50 Watt narrow beam MR-16 lamps meeting ANSI specification EXT. Other lamp types, such as colored lamps may be acceptable, but for best results use only narrow beam lamps. Never exceed the maximum lamp wattage of 75 watts.**

The lamp is accessible through a hinged door usually located at the bottom of the fixture when mounted in an overhead location, or at the top of the fixture when mounted to the floor. It is usually not necessary to disturb the fixture alignment to change the lamp. Unlatch the door by pulling outward on the two snap latch knobs at the middle of the unit. The latches operate in a pull/push manner, not by rotating the latch pins. After both latches are in the outer unlatched position, use the latch knobs to gently pull the hinged panel open. The access panel will open a maximum of 90 degrees, and should not be forced any further.

The lamp and lamp socket are attached to the lamp door and will be exposed as the door opens. Be sure the lamp is cool before touching or attempting to remove it. Support the lamp door and locate the lamp ejector lever at the side of the lamp reflector. Push the lever towards the lamp base or lamp socket, and remove the lamp by grasping the reflector and gently pulling it straight out of the lamp socket, towards the front of the unit when the lamp door is open. Once the lamp is removed, be sure to push the ejector lever back into the forward position, otherwise it will prevent the replacement lamp from being seated fully into the lamp socket.

## Lamp Replacement



### Warning

**The direct lamp output is very intense, and when powered, the lamp will become hot very rapidly and may cause burns if touched. Flammable material in contact with or in close proximity to the lamp may be ignited by lamp output, causing risk of fire which can potentially result in serious injury or death. For your safety, never attempt to change the lamp unless you are certain that power is not applied, and do not attempt to operate the unit with the lamp door or unit cover open.**

Make certain the unit is not powered before installing a replacement lamp. Remove the replacement lamp from its packaging, and confirm that it is a 12 volt EYF, EXT, or other suitable replacement type. Handle only the outer edges of the reflector, do not touch the lamp capsule inside the reflector. Install the new replacement lamp by aligning the body of the lamp to slide between the face of the metal socket frame and the retaining wires, and the lamp pins to align with the slots in the ceramic lamp socket. Press the lamp straight into the socket until it is fully seated and centered in the aperture at the face of the socket. Do not twist the lamp during installation or the lamp and socket could be damaged.

Before closing the lamp door, make sure that both latch knobs remain pulled out in the unlatched position. The lamp door will not close if either of the latches is in the latched position. Some resistance may be felt as the latches dock into the socket holes on the fixture, but if the door fails to close fully, check that both latch pins are pulled out to the unlatched position. After the door is closed flush with the housing, push in on the latch pins until they snap to the inner and locked position to secure the door. Reconnect the power cord if disconnected, apply power to the unit, and turn the power switch "ON". Observe the unit for normal operation, and make any aim or focus adjustments needed for best operation.

## Fuse Replacement

An overload, voltage surge, or other malfunction may cause the main power fuse in the fixture to open circuit, (or “blow”) to protect the unit and the operator. If this occurs the unit will become completely inoperative, and the fuse must be replaced to restore normal operation. In the event of a fuse failure, the unit should be disconnected from electrical power and inspected for correct lamp installation, improper supply voltage, and for any internal or external damage or failure which may have caused the fuse to open. Do not replace the fuse until any obvious problems are identified and repaired.

### Caution

**The proper type fuse is essential to the safe operation of the Wavelight. Do not install any fuse with a rating greater than 1.6 amperes, or fuses other than 5 x 20 mm in dimension. Installation of incorrect fuses may cause increased risk of electrical shock or fire, potentially resulting in serious injury or death. Do not attempt to operate the unit with incorrect or unknown replacement fuses.**

To replace the fuse, the power cord must be disconnected from the unit. The fuseholder is part of the power module at the rear of the unit, and cannot be removed with the cord in place. Once the cord is detached, the fuse block may be removed with a small flat screwdriver or other similar tool by prying on the notch molded into the fuseholder at the inside edge of the cord socket. The entire fuse block will slide straight out of the power module with moderate pressure or leverage on the notch.

The fuseholder block has two sections. The inner portion of the fuseholder carries the exposed fuse, which should be inspected and replaced if it is blown. The lateral slot in the fuseholder retains the fuse itself during installation and removal from the power module. The outer section of the fuseholder contains a small sliding compartment where a spare fuse can be stored, and a spare is provided during manufacture. If no replacement fuse is readily available, open this compartment by sliding the fuse carrier out of the fuseholder to access the spare fuse, and install the fuse into the inner position of the fuseholder block. Reassemble the fuseholder and the power module, reattach the power cord to the unit, and turn the power switch “ON”. Return the unit for repair service if it does not operate normally.

## Maintenance

The primary maintenance required by the fixture will be lamp replacement. Typical lamp life should be in the range of 5000 hours with the standard 75 watt EYF lamps recommended. Longer lifetimes may be obtained with specialty or lower wattage lamps, but the fixture output may be reduced when lower wattage lamps are used. Colored lamps typically have shorter lifetimes than standard replacements.

The fan and two AC effect drive gearmotors installed in the unit are sealed and permanently lubricated, and should not require maintenance over the lifetime of the fixture. Some minor leakage of oil from the motors may be expected over time, but this is not an indication of motor failure, and is objectionable mainly because of the dust it tends to capture inside the fixture.

Aside from lamp replacement, the only maintenance recommended is a periodic cleaning to remove dust accumulation from the fixture. The cooling fan draws air through the fixture, and dust will eventually build up inside the fixture over time. Heavy accumulations of dust will reduce the fixture output, and may eventually obstruct the airflow through the unit, resulting in increased temperatures and reduced lamp lifetimes. Periodic cleaning with compressed air will remove most light dust contamination. Heavy dust contamination may require removal of the fixture outer cover for more thorough cleaning using compressed air, aided by a soft dry brush or tissue paper. Severe contamination by dust in combination with oil, and fog or smoke fluid residue may require the use of a cleaning cloth or tissue dampened with water, or a water based cleaner to thoroughly remove dirt from the fixtures optical and interior surfaces. Proper cleaning and a fresh lamp will generally restore the fixture to its original performance.

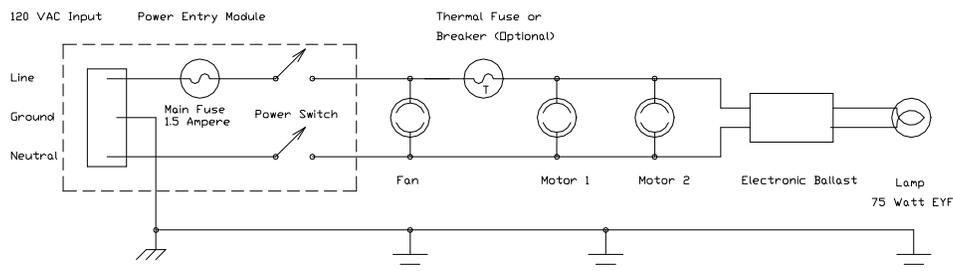
## Warranty

The Wavelight model WVL-2 fixture excluding the lamp has a one year warranty from the date of purchase against defects in materials, components, or construction. Precision Projection Systems will repair or replace any fixture which fails within this period at no cost to the user. This warranty does not cover fixtures which have been damaged by outdoor use, by application of incorrect voltage, or installation of incorrect lamps, nor those which have been modified or mechanically damaged. Refer to the following section to resolve common problems before contacting PPS for warranty service.

## Troubleshooting

<u>Problem</u>	<u>Probable Cause</u>
Fixture completely inoperative	No line voltage power, or dimmer setting at minimum Fixture power switch off or power cord unseated Fixture main AC power fuse blown
Lamp does not light immediately	This is normal for the “Soft Start” ballast
Fan and motors operate normally, but no lamp output	Defective lamp, lamp not properly installed, or defective ballast
Fixture buzz or excessive noise	Some hum and quiet buzzing sound is normal Foreign object in or near cooling fan Motor vibration caused by fixture angle
Weak or uneven output pattern	Incorrect lamp type (wide angle) installed Defective lamp with poor pattern uniformity Fixture optics dirty or damaged
No pattern motion, or directional motion.	Dimmer setting too low for reliable motor operation Fixture effect wheel loose or jammed Defective effect wheel drive motor
Replacement lamp cannot be installed	Lamp ejector lever in wrong position Lamp or lamp socket damaged or defective Incorrect lamp type
Fixture is excessively hot	High ambient temperature at fixture location Cooling fan inoperative or jammed Ventilation slots blocked or obstructed

## Schematic Diagram



## Fixture Specifications

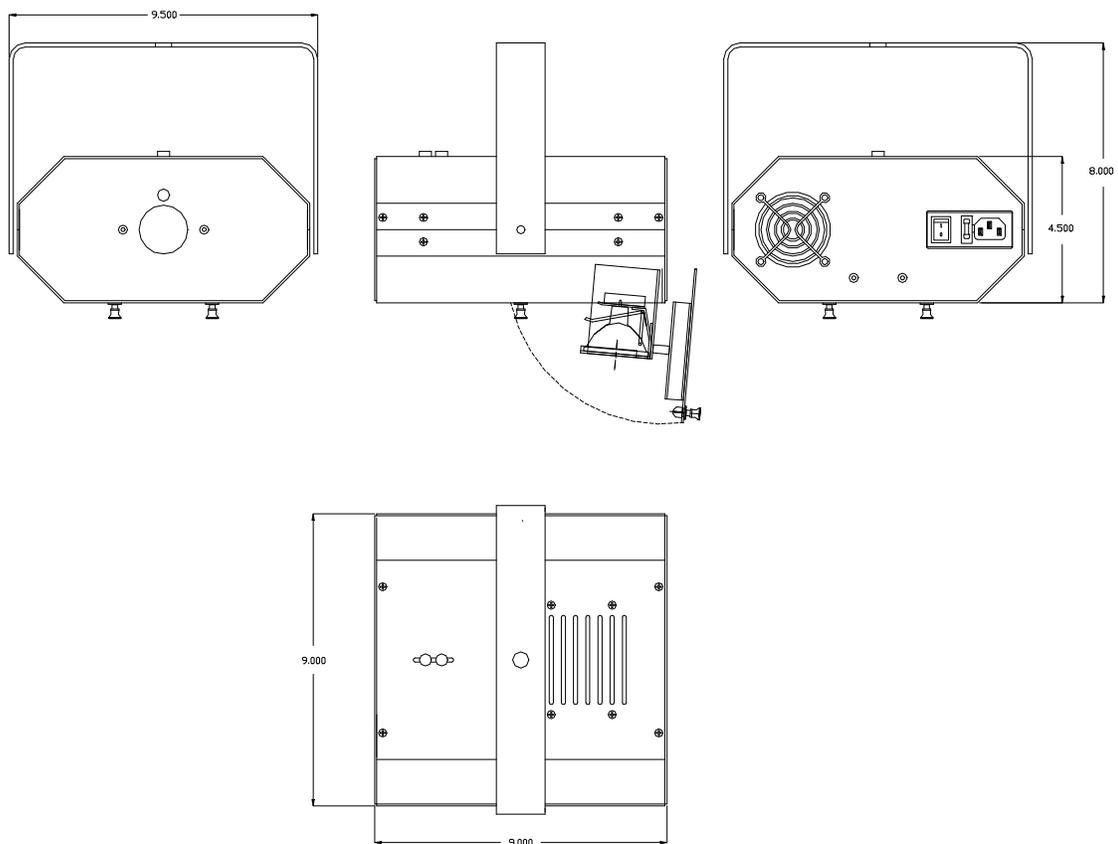
### Mechanical

Length	9 inches, 12 inches with cord clearance at rear
Width	9 inches, 10 inches with yoke and fasteners
Height	4 inches, 8.5 inches with yoke and fasteners
Weight	5 pounds

### Electrical

Input Voltage	120 Volts AC, 60 Hz
Current Draw	1 Ampere
Fuse	1.6 Amp, externally accessible
Ballast	Internal electronic, 12 volt 75 watt maximum, dimmable
Certification	UL 1573 for Stage and Studio Fixtures, ETL listed
Standard Lamp	ANSI type EYF, 12 volt, 75 watt narrow beam only
Lamp Lifetime	5,000 hour typical
Fixture Duty cycle	Continuous Duty

### Outline Drawing



PRECISION PROJECTION SYSTEMS INC.  
17508 STUDEBAKER ROAD  
CERRITOS, CALIFORNIA 90703-3638  
TEL: 562 865-8552 FAX: 562 924-7133  
EMAIL: info@ppsfx.com