

**SAFETY!**



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- 1) Read and understand instructions and heed warnings before beginning installation.
- 2) **Mount rail securely. The lens is heavy, and requires a secure and stable surface. Fasteners in sheetrock alone are not safe. Reciprocal lens motion can and will work them loose. Use a board, plate, or projector mount fixed to ceiling joists or studs.**
- 3) **Ladder caution: Exercise extreme caution when working on a ladder. Do not work directly above another person, particularly a child. Plan all work carefully. Accidentally dropping a drill, hammer, or the lens assembly can cause serious bodily injury.**
- 4) **Unexpected lens movement: Anticipate all lens motion. A malfunction can cause the lens to move unexpectedly. While on a ladder, do not stand in direct path of lens in case of unexpected or accidental movement. Disconnect power when installing, working on, or repositioning the lens.**
- 5) **Indoor use only: Do not install lens in a wet or moist environment, or where the mechanism will be exposed to extreme or external weather conditions.**
- 6) **Object and liquid entry: Never pour any liquid or push any object into the enclosure.**
- 7) **Power Sources: The power adaptor is intended for 100- 220 volt, 50-60 cycle AC power only.**
- 8) **Power Cord: Do not subject power cord to conditions which will wear through or cut the insulation. Avoid excessive tension or chafing of the cord.**
- 9) **Service: Do not service the motor drive or electronics. There are no user serviceable parts. Contact your dealer. Send only to a factory approved facility.**



This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation

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# 1 Introduction

Congratulations, and thank you for purchasing a quality Panamorph product. Your lens motor/sled is outfitted with a custom mechanism designed exclusively for use in the home theater environment. No oil or liquid based lubricants are used to assure the maximum cleanliness for optical components. Both lens and drive will provide years of maintenance free service. The Panamorph system is built and tested in the USA to the strictest quality standards and certifications.

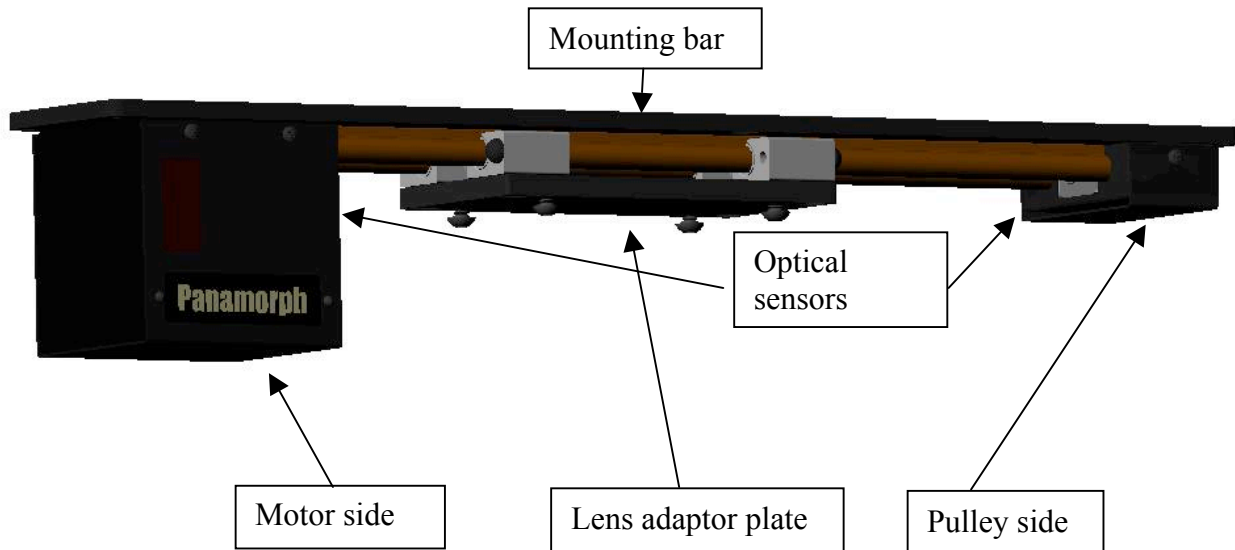
Features and benefits:

- Easy, straight forward installation and operation
- Machined, high grade, anodized aluminum components
- Repeatable precision positioning system
- Flexible mounting options allowing table or ceiling mount
- Speed selector for high or low speed operation
- Configurable “lens in” position
- Extra external IR sensor for remote mounting (if needed)
- Input 12V jack for automatic lens trigger
- Output 12V jack for screen masking trigger
- Non mechanical long life optical stop sensors
- Dry operating precision linear bearings
- Custom built high precision, low current NEMA 23 stepper motor
- Custom built, low noise stepper drive circuitry and firmware
- Endurance tested to over 2,000,000 traversals
- 8 button long range remote control (up to 50 feet) with discrete functions
- Backlit logo with on/off lighting control
- Reversible logo plates
- Completely maintenance free
- USA built and tested
- FCC, CE, and UL certified

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## 2 Motorized Lens Sled Parts

During installation, this manual will refer to the motor side, or the pulley side of the mechanism. Refer to the picture below for a description. As shipped from the factory the “lens-in” side of the unit is at the motor end. Depending on the projector, “Lens in” will either be on the motor or the pulley side of the sled. See Chapter 6 – Setup, to configure the “lens in” orientation of the sled to the pulley side.



## 3 Plan your installation

The lens assembly may be mounted in one of two ways:

- 1) To the ceiling or projector mount above the projector
- 2) To a shelf or table below the projector



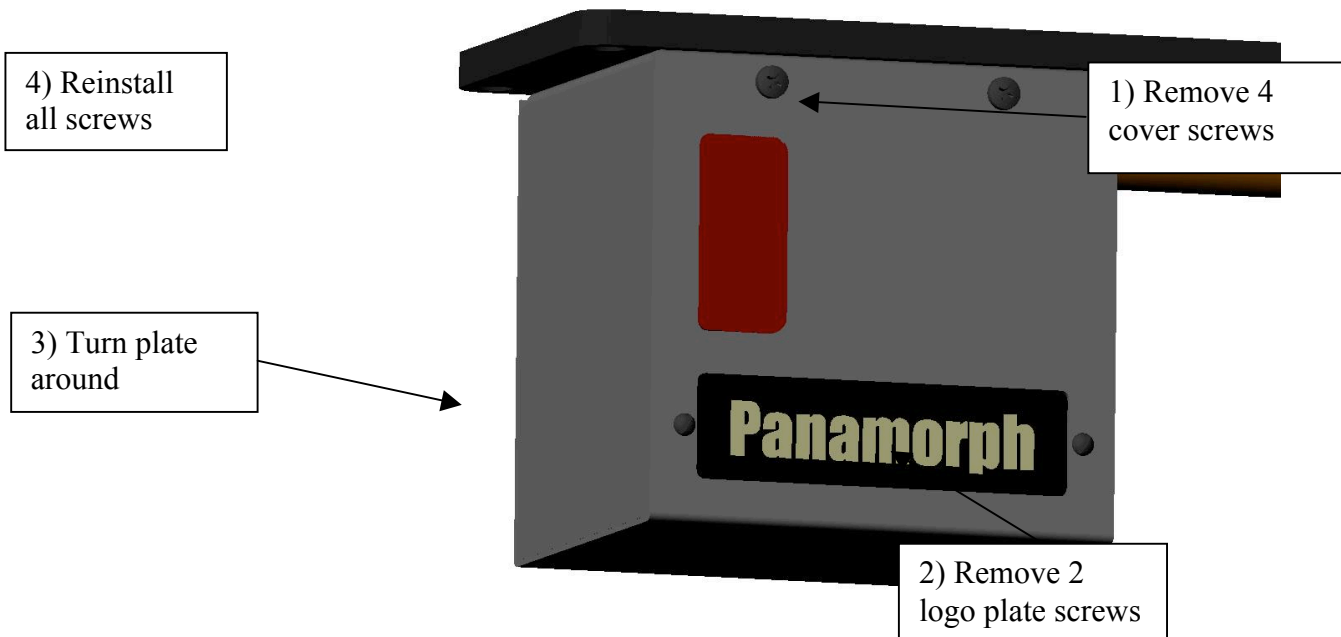
***When attaching motor assembly to the ceiling, use a board, plate, or lens enabled projector mount attached to the ceiling joists or studs. Sheetrock embedded fasteners can and will work loose with repeated lens movement causing the mechanism to fall, resulting in possible severe injury. The Panamorph AKX or AKCPro mounting kit is highly recommended.***

### Changing Orientation of Logo Plate (optional)

As shipped, the lens sled is configured for ceiling mounted operation. As such, the logo reads right side up with the mounting bar on top. If you are using the sled in a table or shelf mounted configuration, you may optionally turn the logo around so that it is right side up with the mounting bar below the projector.

To reverse the logo, remove the 4 screws securing the motor housing cover. Lightly spread the sheet metal cover and lift it off. Once removed, you can easily access the logo plate. Remove the two small plastic screws securing the logo plate, turn the plate around, and re-install the screws. Lightly tighten the screws, as the threads are plastic. Re-install the motor cover housing using the original screws. Make sure the fiber optic light pipe connector is completely inside the housing before reinstalling motor housing screws.

In addition, the logo backlight may be switched off using the remote. An alternative to reversing the logo plate is to turn off the back light, thereby rendering the logo inconspicuous.



## 4 Mount Sled to Projector Plate

**When using the Panamorph AKX or AKXPro system follow directions supplied with the mounting plate and skip to Chapter 5 – Attach Lens Bracket. Otherwise, follow the directions below for a custom fabricated mount.**



**When building a custom mount, mark screw locations using only the sled as shipped, without the lens and/or the lens bracket in place. *Do not rely on fasteners embedded in sheetrock alone. Reciprocal lens movement will work them loose, and cause the mechanism to fall. Mount the ATH-2 to a plate, board, or lens enabled projector mount ultimately affixed to ceiling joists for safety.***

**Recommended procedure:**

### 1) Align mounting to center line of lens

**Before beginning, the projector must be correctly focused with the zoom and iris set in their viewing positions for 16:9 or 4:3 viewing depending on the native mode of the projector.** This will determine correct positioning of the front of the projector lens. Hold the motor/sled up to the projector and decide if the LENS IN position will be at the motor housing or pulley housing side.

Measure 2 1/8 inches from the front of the focused projector lens, and lightly draw a line parallel to the front of the lens. Mark the center line of the projector lens along this parallel line. Now, line up the back of the mounting bar to the parallel line just marked. Align the center of the projector lens to the following locations as appropriate:

“Lens In” position at motor housing side – center of lens is 7.25” from end of mounting bar

“Lens-In” position at pulley housing side – center of lens is 5.375” from end of mounting bar

Refer to dimensioned drawing at back of this manual for clarification (page 15).

Mark the six hole locations using the mounting bar itself as a template. Drill the holes for secure (*never use sheetrock inserts*) fasteners.

### 2) Secure mounting bar



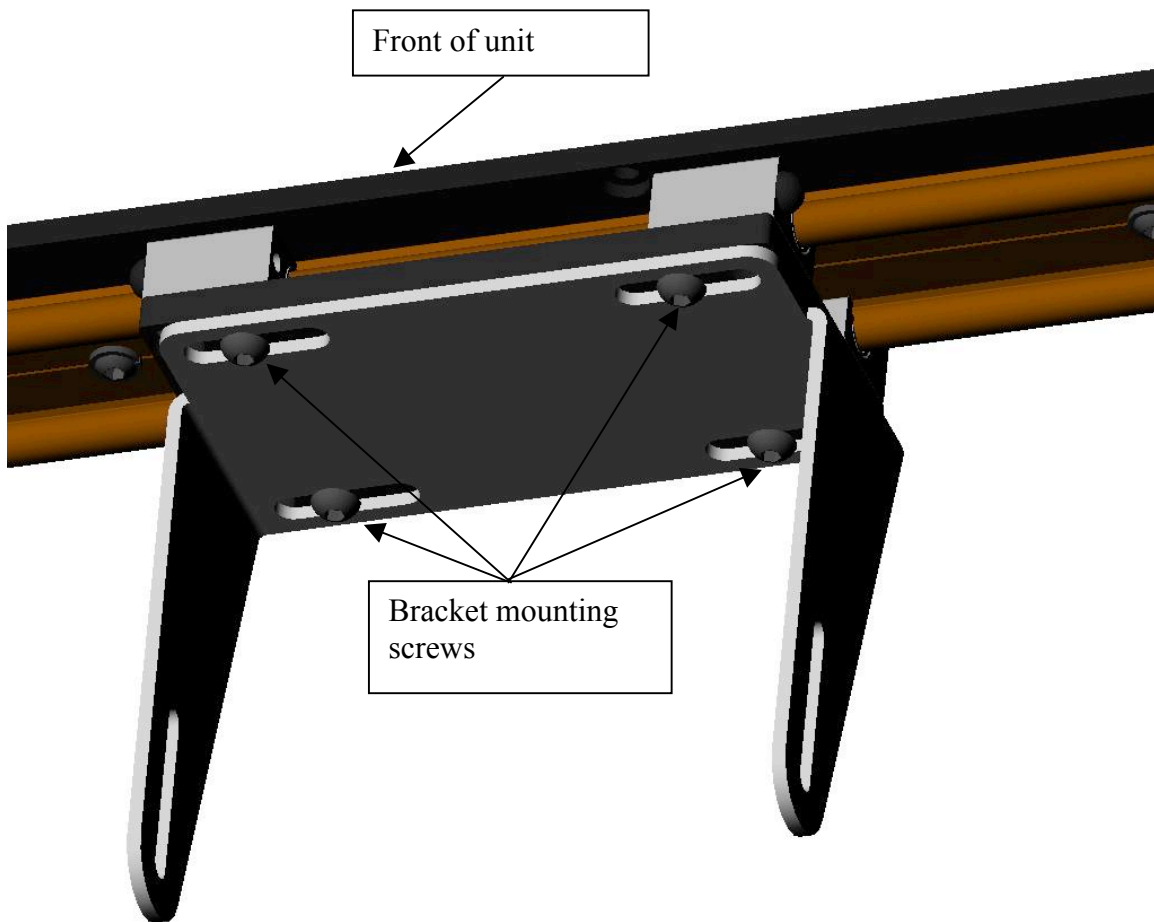
As the mechanism and lens are heavy, make sure the fasteners, and surface are extremely secure. Remember that the sled motor will be starting and stopping a heavy weight thousands of times through normal use. Ceiling mounted lenses require a secure and flat surface. *Sheetrock anchors alone are insufficient and will work loose over time causing potential injury. Secure the mounting bar to a plate, painted board, or lens enabled projector mount securely affixed to the studs or ceiling joists. Periodically re-check the security of the mounting.* Use of a commercial mounting system designed for anamorphic lenses is highly recommended. Use all six screw holes, and tighten fasteners securely. Vibration from the motor and reciprocal lens movement will loosen any fasteners that are not absolutely tight and secure from vibration.

## 5 Attach Lens Bracket

### 1) Attach lens bracket to adaptor plate



Remove the bracket mounting screws and hex key from the parts package and use them to attach the Panamorph lens bracket supplied with the ATH-2. Snug up the bolts with the supplied hex key. Maintain even pressure on each bolt. The angled portion of the bracket fork faces the rear of the mechanism. ***Do not attach the lens or power up the sled just yet! Adjustment and alignment are easier without the lens for now.***



## 6 Setup

### 1) Power up the sled and set LENS IN position

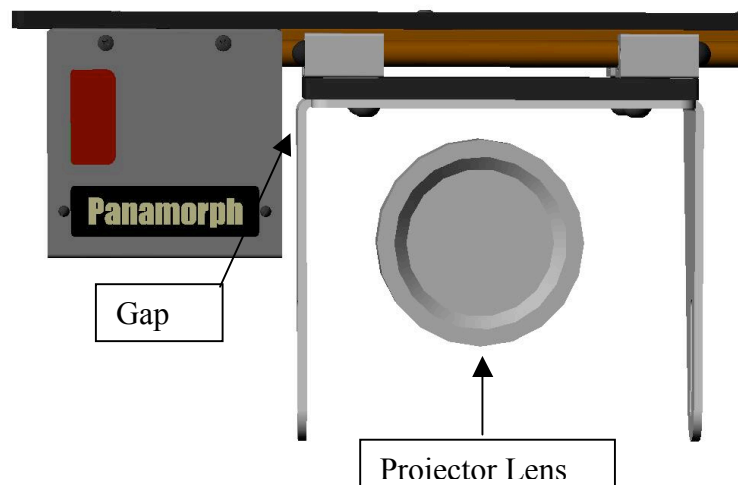


**Bright lights, particularly direct sunlight shining into the optical sensors at either end of the sled will prevent the sled from operating normally. Test the sled under normal or low lighting conditions. Now slide the lens into the middle of the sled before powering up.** Plug the power adaptor into an AC outlet, then into the back of the unit. Put two AAA batteries in the battery compartment of the hand held remote control. **Back away from the lens or descend the ladder.** Hit ON, wait for the LED to flash 3 times, and then hit the LENS IN button on the remote. The lens sled will now position itself into the factory default LENS IN position. The edge of the adaptor plate will land approximately ½ inch from the motor housing side of the sled. **When you then hit LENS OUT, the lens will then move to the middle of the track and then slow down to calibrate itself. The lens will subsequently run at normal speeds after self calibration. If the lens bracket is in front of the projector lens after hitting LENS IN proceed to the next step (Verify centering).**

**If the bracket is not in front of the projector lens, you will need to change the “lens in” position so that “lens in” is at the pulley side of the mechanism.** Simply press the LENS OUT button on the remote, and wait for the bracket to move in front of the projector lens. Press and hold the LENS OUT button again, until the lens begins to move, and release. The sled will confirm the new setting by moving the bracket away from the projector lens, to the new LENS OUT location (now the motor side). You have now re-programmed the sled to reverse the “lens in” side.

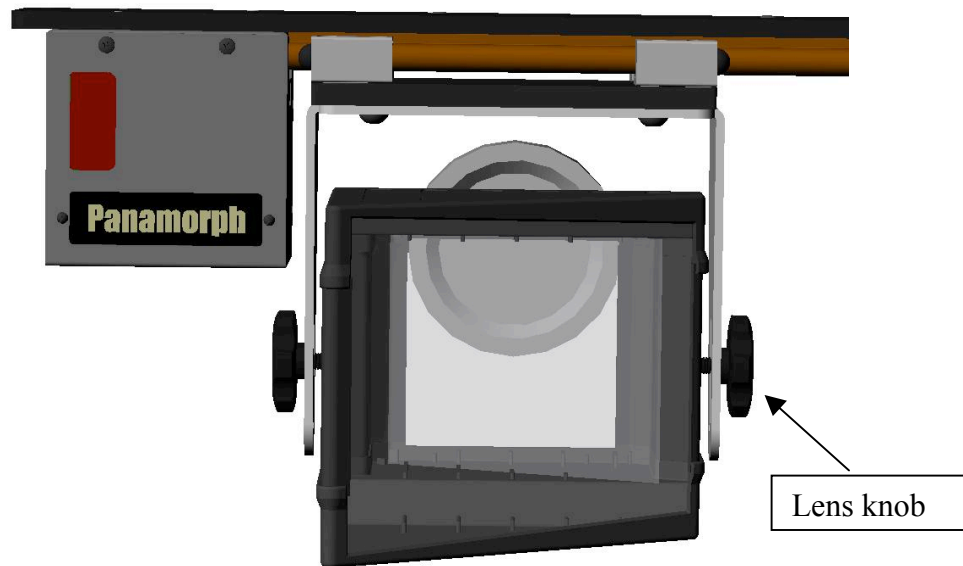
### 2) Verify centering

Press LENS IN and observe where the lens stops. If needed, you may make small adjustments (+ or – ¼ inch) to the lens bracket after disconnecting the power, by loosening the screws and sliding the bracket to the left or right as needed to achieve centering. Reconnect the power and check your work. The optical sensors will stop the edge of the lens adaptor plate approximately ½ inch from the housings on either side of the sled. It will always stop at exactly the same spot. You may use this gap on the motor or the pulley side for fine adjustments.



### **3) Attach anamorphic lens to bracket**

Attach the UH480 lens to the bracket using the lens knobs supplied with the lens. Adjust the anamorphic lens vertically for correct alignment. See the instructions accompanying the UH480 attachment kit for fine tuning the lens position and screen image. Instructions are downloadable from <http://www.panamorph.com>. When the image is correct, tighten the knobs against the bracket. Test run LENS IN and LENS OUT using the remote. *It is important to note that the lens is vertically oriented to the projected beam coming out of the bottom half of the projector lens (assuming ceiling mount).* Usually, the top of the anamorphic lens will lie somewhere near the center of the projector lens as shown below.



### **4) Configure Operating Speed (optional)**

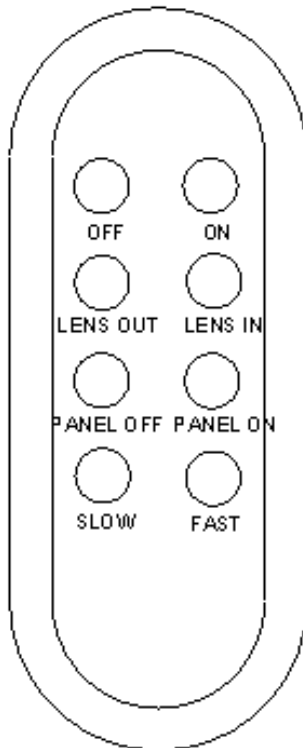
The lens sled has two operating speed modes – FAST and SLOW. FAST is the default from the factory, and is ideal under most circumstances. The slow mode reduces the forces exerted by the lens on the mounting system by accelerating and decelerating very slowly, and by limiting the top speed of the lens as it traverses the sled. Some users set the speed to SLOW when used in conjunction with screen masking systems to synchronize mask traversal time to sled traversal time.

***CONGRATULATIONS!!!! YOU ARE NOW READY TO ENJOY WIDESCREEN CINEMA IN YOUR HOME THEATER.***

## 7 Lens Sled Operation

The status LED indicator behind the plastic window on the ATH-2 will flash three times when the unit is powered ON, and flash when any remote button is pressed. When in standby the LED is off. Once turned ON, the unit remains in the ON state, even if the power fails and is reinstated.

### 8 Button Remote Control



#### Buttons:

**OFF** – Puts the ATH-2 in standby mode.

**ON** – Turns the ATH-2 ON.

**LENS OUT** – Moves to the LENS OUT position.

**LENS IN** – Moves to the LENS IN position.

**PANEL OFF** – Switches the logo back light and status LED off.

**PANEL ON** – Switches the logo back light and status LED on.

**SLOW** – Sets the acceleration/deceleration and maximum speed for slow (low inertia) traversal.

**FAST** – Sets the acceleration/deceleration and maximum speed for rapid traversal.

*Note: If LENS IN does not position the lens to the correct side of the mechanism, see Chapter 5 (middle of page 8) to easily reverse orientation.*

Users of Pronto compatible devices may download an IR code hex file from the following URL:

<http://www.remotecentral.com>

The Panamorph ATH-2 will appear in the FILES section of the website as Panamorph M380.

## 8 Rear Panel –Triggers and Control Port

To use the automatic lens trigger, with a projector or scaler equipped with an external 12V lens trigger, use a standard double-ended 3.5 mm (1/8 inch) male mono or stereo jack cable. Simply plug the cable into the projector or scaler lens trigger jack, and then into the ATH-2 +12V Trigger In jack. Follow projector or scaler instructions to configure the lens trigger to send the lens in when the appropriate aspect ratio is selected on the projector. Any voltage change (12V to 0V, 0V to 12V) will automatically turn the sled on causing it to move to the designated position. When using the trigger, the remote control is not required after configuration.



***NOTE: Be aware that plugging the trigger in will automatically turn the sled on and cause it to move. Stand clear of the lens path when inserting the trigger cable.***

The Trigger In (tip positive) operates as follows:

+12V LENS IN  
0V LENSOUT

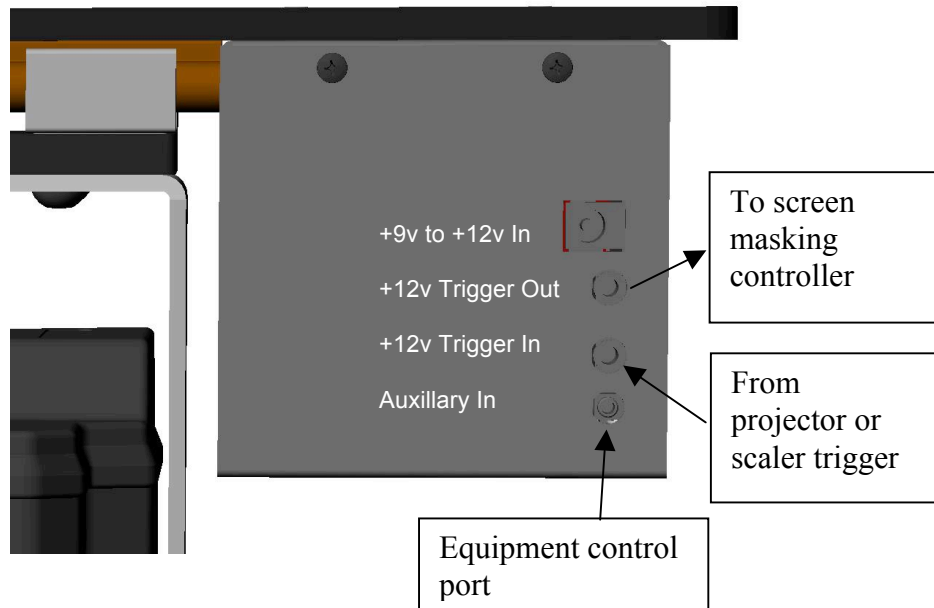
***NOTE: The input trigger jack may be temporarily overridden by the remote control. When the next change of voltage at the trigger occurs (up or down), the projector or scaler will take control of the sled.***

Optionally, you may use the +12V Trigger Out jack on the rear of the device to control motorized screen masking. The output jack is toggled to +12V whenever the sled is in the LENS OUT position. The output trigger voltage is toggled when the lens begins traversal so that masking and lens movement may be overlapped.

The Trigger Out jack (tip positive) operates as follows:

+ 0V Lens is moving to, or in the LENS IN position  
+12V Lens is moving to, or in the LENSOUT position

The optional equipment control port is used by OEM projector manufacturers for custom control options. It can be ignored.



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## 9 Cleaning & maintenance

The Panamorph system is completely maintenance free. It will deliver many years of trouble free service as delivered from the factory.

Clean the outside of the lens prisms occasionally with glass cleaner and an appropriate lens cloth. We recommend cleaning the lens while in the path of the projected beam to clearly observe the surface.

Clean the metal components with a damp cloth, taking care not to drip any water into the enclosure.

The ATH-2 internal drive is permanently lubricated. Keep the rail linear bearing clean, dry, and contaminant free. In case of accidental soiling (i.e. spilled soda), clean all contaminants with water, and finally wipe down with denatured alcohol. The drive mechanism relies upon a clean rail to operate smoothly. The linear bearing, and all enclosed bearings are constructed of specialized material to self lubricate. Lubricants will gum up the mechanism, and possibly produce a film across the projector and lenses.



**Never use lubricants of any nature on any part of the mechanism.**

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## 10 Specifications

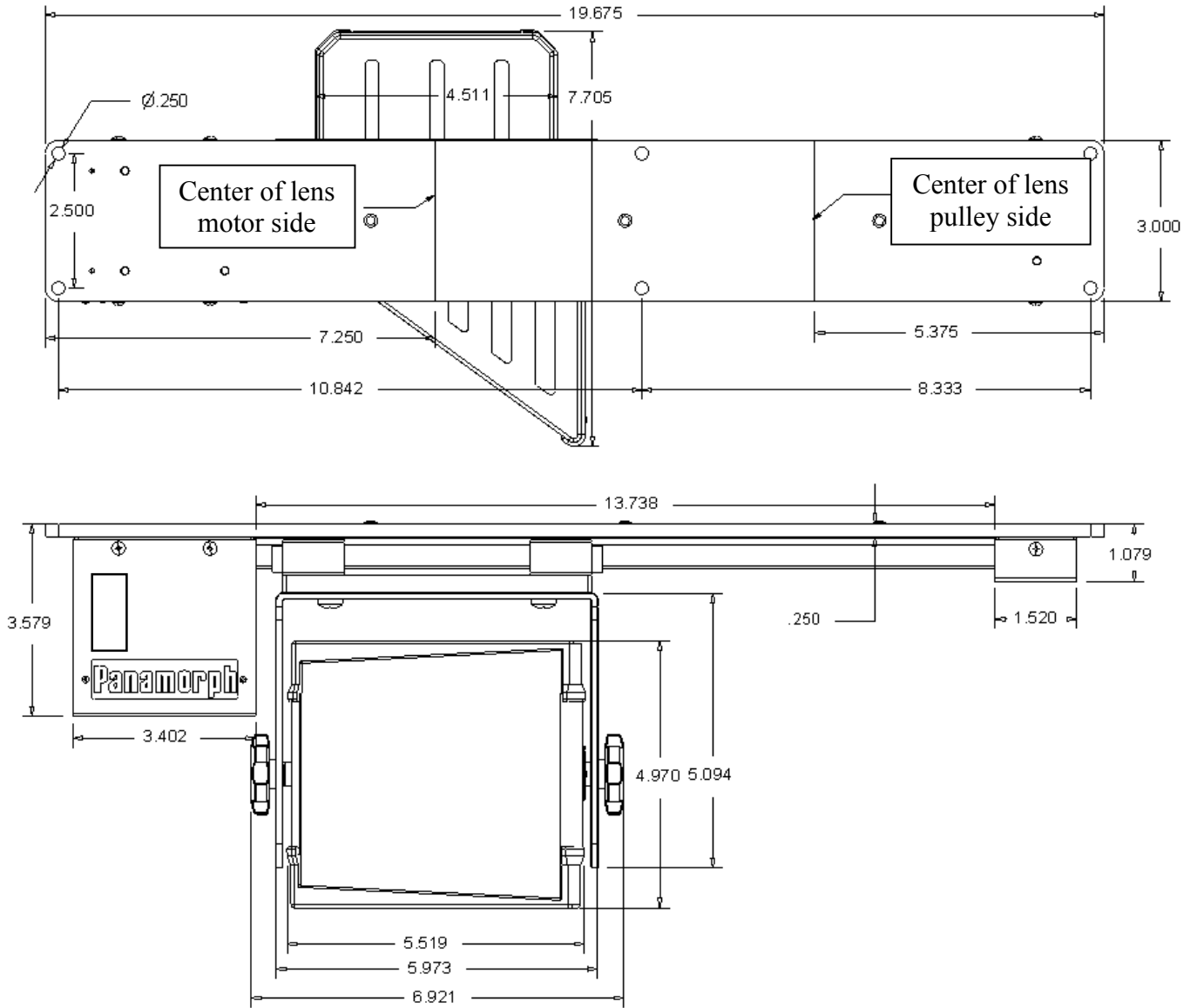
**Electrical Characteristics**

|                        |   |
|------------------------|---|
| Model                  | ATH-2 motorized sled  |
| Power supply           | 100-240VAC, 50-60 cycles  |
| Power Supply Output    | 12V DC -.8A   |
| Operating Voltage      | 9 -18V DC, .5-1.5A  |
| Operating current draw | Avg : 650mA   |
| Standby current draw   | 60mA  |
| Trigger jacks          | 3.5 mm mono or stereo jack, 12V,tip positive, 20mA                  |
| Auxillary jack         | 2.5 mm stereo jack  |
| Remote                 | 3oz, IR emitter   |
| IR Range               | 50ft from IR sensor   |
| IR Carrier Frequency   | 38 kHz  |
| Batteries              | 2 AAA   |
| Certification          | FCC, CE (ATH-2 motor drive unit)<br>UL Class II (power supply only) |
| Design Life            | Greater than 2,000,000 rail traversals                              |

**Physical characteristics**

|            |                           |
|------------|---------------------------|
| Weight     | 7 lbs.                    |
| Dimensions | See accompanying drawings |

## Dimensions





## *Warranty*

**Panamorph Inc, warrants this product to be free of defects in original workmanship and material for a period of eighteen months from the date of manufacture. During this period, a defective unit may be repaired or replaced, at the discretion of Panamorph, Inc., by returning it in its original packaging with a copy of your receipt. This warranty does not cover damage resulting from tampering, lack of prudent care, accident or misuse (including contravention of cautions stated in the instructions), or any cosmetic damage not reported within 15 days of purchase. All liability for damage is limited to the cost of the product and does not include incidental injury or peripheral damage to other equipment, persons, or property. Panamorph Inc. is not responsible for personal injury resulting from faulty installation. A service charge may be applied to any returned product requiring cosmetic attention, or to the repair of any damage not covered under this warranty**

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