

# AXIS

PAN / TILT SYSTEM



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**AXIS System  
Motorized Pan & Tilt Head**



Proudly manufactured  
in the USA!

Rev 1 July 2008

## Underslung Mode

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**For underslung use of the AXIS System, perform the following without a camera attached.**

1. With the power on, move the thumbstick to bring camera plate right side up (as shown) To reverse polarity and direction of joystick, remove connectors at motors and reconnect after turning 180 degrees, as needed.
2. Remove the camera hold down bolt and remount camera per instructions from “Mounting your camera to your AXIS System.”

## Safety Tips

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**Always:** *Secure cameras or other devices with safety straps or gaffer’s tape.*

**Always:** *Protect Control Box against weather, moisture or contaminants.*

**Never:** *Allow cables to get caught in gears, the metal gears will cut through most cables.*

**Never:** *Operate over people or valuables.*

## Operating your AXIS System

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The new digital control of the AXIS System offers more control options. The AXIS System thumbstick is a two axis proportional speed servo controller. The further you move in one direction, the faster the output to that motor. This may seem a little tricky at first, but with a small amount of practice you'll become a pro in no time. Practice makes perfect. Once all connections have been made and the unit has power its time to take a test drive.

1. Press the Power switch to turn it on. (The LED will light)
2. On power up the controller initiates a program to digitally center the joystick. Be certain that nothing is touching the joystick on power up. Should the joystick be hit or deflected in any way on power up, turn power off and back on again for re centering.
3. Move joystick to see that the camera is moving in the direction of your preference. If not, go back to Mounting & Connecting Step 3.
4. Now you are ready for 'action'!

### Drive gear resetting

Both pan and tilt brass drive gears on the end of the gearmotor shaft are attached by special shaft cement. However, a gel super glue is a good substitute. There is no set screw in these gears.

Replacement: Lay the pan/tilt down so that the motor is laying horizontal. This way no glue will run into the gearbox. Loosen two motor screws and turn motor away from large gear and snug up screws to hold in place. Put a small amount of gel super glue on the output shaft of the gearmotor. Immediately put the gear on the shaft and spin gear slowly to cause glue to distribute evenly between gear and shaft. Align with large gear and leave for one hour if possible.

## Mounting your camera to your AXIS System (Very important)

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*Task time (approximately 5 minutes)*

The goal here is to balance your camera in the center of gravity for both the pan and the tilt axis. This is more critical for heavier cameras (8 lbs.) than for lighter cameras. This will insure smooth movement of your camera in any attitude.

1. Loosen the two wing nuts securing the tilt motor and move motor gear away and snug up wingnuts to hold in place. This disengages it from the large tilt gear, so that the tilt axis moves freely.
2. Attach camera (or quick release plate) by centering it horizontally, directly above the pan pivot bolt, and by threading the hold down bolt through the bottom of the AXIS System camera platform and into the camera's quick release threads or directly into the base of your camera. Then securely tighten the lock nut up to the bottom of camera bracket.
3. Loosen the camera bracket vertical adjustment wingnuts (4) (below camera plate) and slide it up or down on the vertical rail so that the mid point of camera's height is even with pivot point of the rail. (the bolt and bearings above the tilt motor) Then tighten the wingnuts.
4. Loosen the camera hold down bolt and slide the camera forward or backward along the slot in the camera plate until balanced. Manually tilt the camera upside down with your hand. If it is balanced, it should stay in any orientation without swinging back to the bottom. Repeat Step 4 until you achieve balance. When you achieve perfect balance the camera will remain in any tilt attitude you position it in. (You may also need to slide the camera up or down on the rail slightly to achieve perfect balance.)
5. Adjust the tilt motor back against the gears, insuring the teeth properly mesh and tighten the two wingnuts securing the tilt motor.

*Note: There is a small area of play in the gearing system caused by the accumulated matching of all the gears in the gear box. This may be overcome by moving the camera slightly forward after balancing to make it lean against the space.*

6. Connect your camera's video cable, power cable and control cables if applicable.

## Mounting & Connecting your AXIS System

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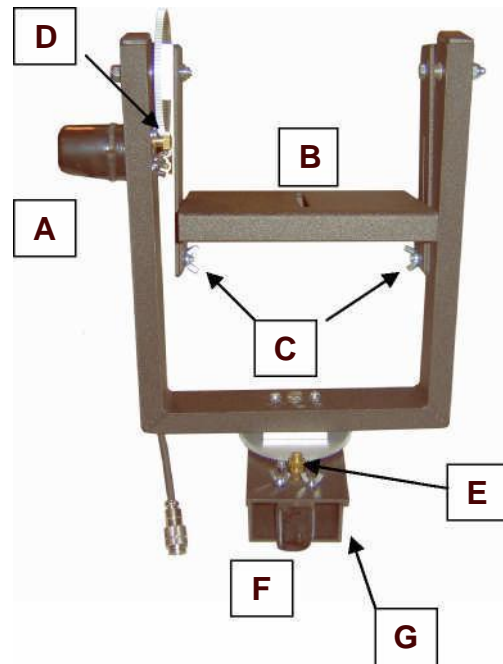
Task time (approximately 5 minutes)

1. Mount the AXIS System Control Unit to the rear of your camera crane / jib on the left or right side of the jib's weight bar.
2. Mount the AXIS System Pan & Tilt Head to the camera basket of the camera crane. You may orient it "over-slung" (above the mounting head) or "under-slung" (below the mounting head). Use a 3/8 bolt and nut to make the connection. Be sure to use a lock nut on permanent set ups.
3. Mate the two 'two pin' connectors from the control cable to the AXIS System motors. The longer tail connects to the tilt motor while the shorter straight tail connects to the pan motor. These connectors will plug in with either polarity. In other words, the polarity will determine which way the motors turn when activated with the thumbstick. When you thumbstick 'left' the camera lens should move 'left'. When you thumbstick 'back' the camera lens should move 'up'. This is similar to controlling an airplane. If you prefer the opposite of either, then plug either cable in the opposite polarity. Finger-tighten each threaded collar to secure the connector.
4. Attach the Control Cable to the jib arm, securing and making your way to the rear of the jib..
5. Mate the 'four pin' female connector from the Control Cable to the male plug on the Control Unit labeled PAN/TILT. Finger-tighten the threaded collar to secure the connector. The connector has a key that lines up the pins properly.
6. Connect the 5.5 mm x 2.1 mm type power connector to the plug on the control unit labeled and the power transformer into a 120 VAC electrical outlet.

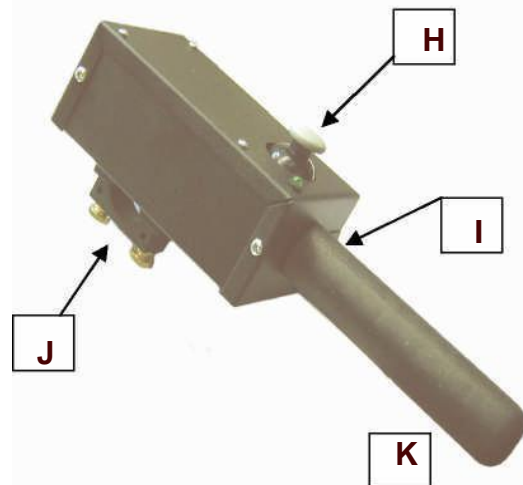
**Note: The maximum voltage that should be applied to the Control Unit is 24 volts DC. The supplied power pack is a 120-230 volt AC to 12 volt DC regulated power supply. If you use a different power supply, determine it's output voltage before connecting to the Control Unit. Supplies of over 24 volts can damage the unit! Supplies over 12 volts may burn the on/off diode.**

- A Tilt Motor & Tilt Axis
- B Camera Platform
- C Camera Vertical Adjust
- D Tilt Motor Connection
- E Pan Motor Connection
- F Pan Motor & Axis
- G Mounting Plate
- H Thumb stick
- I Power Switch
- J Mounting Assembly
- K Handle

**AXIS System  
Pan & Tilt Head**



**AXIS System  
Control Unit**



<b>AXIS System Specifications</b>	
Material	<b>Aluminum</b>
Camera Support Type	<b>U-style</b>
Pan Radius (degrees)	<b>360+</b>
Tilt Radius (degrees)	<b>360+</b>
Voltage	<b>12-24 VDC</b>
Power Connector	<b>5.5 x 2.1 mm</b>
Max. Camera Weight	<b>10 lbs.</b>
Max. Camera Width	<b>6.5 in.</b>
Max. Camera Length	<b>19 in. (for 360° rotation)</b>
Controls via	<b>Thumbstick</b>
Dead Spot Control	<b>n/a</b>
Speed Control	<b>n/a</b>
Mounts via	<b>3/8" bolt</b>
Unit Weight	<b>4 lbs.</b>
Cables Included	<b>20' Control Cable</b>