

PAN/TILT PRO

Pan/Tilt Head for the Add-A-Cam™ PRO EZCamera™ Cable System for Professional Camcorders

Part Numbers: 999-6520-000 (North America), 999-6520-000 (International)

Overview:

The Pan/Tilt PRO pan/tilt head for the Vaddio™ Add-A-Cam PRO camera system seamlessly integrates with all ProductionVIEW series of camera controllers and switchers (ProductionVIEW, ProductionVIEW FX and ProductionVIEW Super Joystick). The Pan/Tilt PRO is a broadcast quality pan/tilt head with over one million steps of resolution, 354° of total pan and 180° of total tilt, ± 3 arc minutes of repeatability and can accommodate any of the Canon® SD and HD professional camcorders with the provided universal camcorder mounting bracket. The Pan/Tilt PRO is the professional solution for high quality video camcorders with the Add-A-Cam PRO platform.



Figure 1: Vaddio Pan/Tilt PRO pan/tilt head shown with universal camcorder mounting bracket.

Intended Use:

Before operating the product, please read the entire manual thoroughly. The system was designed, built and tested for use indoors, and with the provided power supply and cabling. The use of a power supply other than the one provided or outdoor operation has not been tested and could damage the system and/or create a potentially unsafe operating condition.

Save These Instructions:

The information contained in this manual will help you install and operate your system. If these instructions are misplaced, Vaddio keeps copies of Specifications, Installation and User Guides and most pertinent product drawings for the Vaddio product line on the Vaddio website. These documents can be downloaded from www.vaddio.com free of charge.

Important Safeguards:

Read and understand all instructions before using. Do not operate any device if it has been dropped or damaged. In this case, a Vaddio technician must examine the product before operating. To reduce the risk of electric shock, do not immerse in water or other liquids and avoid extremely humid conditions.



**Use only the power supply provided with the Add-A-Cam Pro System.
Use of any unauthorized power supply will void any and all warranties.**

Important Installation Note:

The Pan/Tilt PRO head is intended to be used with the Vaddio Add-A-Cam PRO system and controlled by the ProductionVIEW series controllers. The range for panning and tilting the camera must not be impeded by any obstruction within the range of the pan/tilt head and camera. Installation is not recommended in areas where there is a potential for the camera or pan/tilt head to come into contact with other objects. Damage to the system can be the result of a poorly positioned system.

UNPACKING:

Carefully unpack and identify the following parts from the packaging.

- One (1) – Pan/Tilt PRO Head
- One (1) – PowerRite™ 24 VDC power supply
- One (1) – Pan/Tilt PRO manual
- One (1) – Pan/Tilt Head Hardware Kit consisting of:
 - Four (4) – ¼”-20 1” Button Cap Screws
 - One (1) – 5/32” Allen wrench
- One (1) – Pan/Tilt PRO Camcorder Bracket Kit, consisting of:
 - One (1) – Camcorder Mounting Arm
 - One (1) – Camcorder Mounting Bracket
 - One (1) -- Cork Pad
 - One (1) -- ¼”-20 brass thumbscrew
 - Two (2) -- #8 lock tooth washers
 - Two (2) – 8-32 x ½” cap head screws
 - Two (2) -- #8 flat washers
 - Four (4) – 6-32 x ½” button head Allen screws
 - Four (4) -- #6 flat washers
 - Four (4) – #6 lock tooth washers
 - One (1) – 5/64” long arm Allen wrench
 - One (1) – 9/64” Allen wrench
 - One (1) – Tension Wire Clip
 - One (1) – 6-32 3/8” pan head screw

INSTALLATION NOTES:

Be sure to mount the Pan Tilt PRO unit near an electrical outlet, as you will need to plug the PowerRite 24VDC power supply into the Pan/Tilt head.



CAUTION: Verify the Cat. 5 cable connected between the Pan/Tilt port on the EZ Camera PRO Shoe and the Pan/Tilt Head is plugged into the correct RJ-45 port. Connecting the wrong Cat. 5 cable or an incorrectly terminated Cat. 5 cable, to the wrong port can result damage to the system, which will void the warranty. Check the continuity of all cabling prior to connection.

System Connectivity (Figure 2):

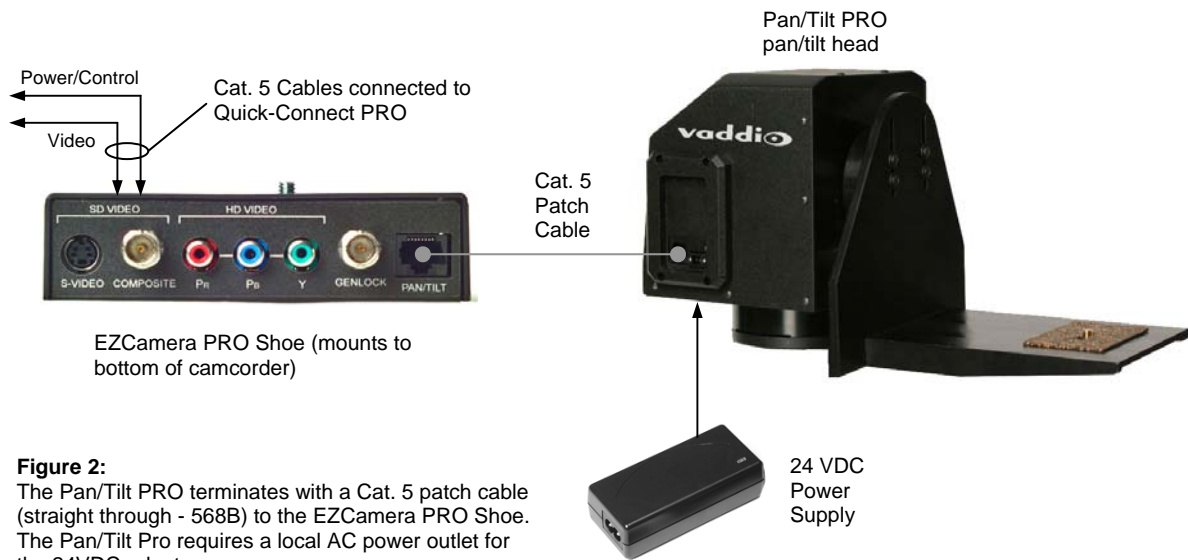


Figure 2:
The Pan/Tilt PRO terminates with a Cat. 5 patch cable (straight through - 568B) to the EZCamera PRO Shoe. The Pan/Tilt Pro requires a local AC power outlet for the 24VDC adapter.

Pan/Tilt PRO Mount and Mounting Options

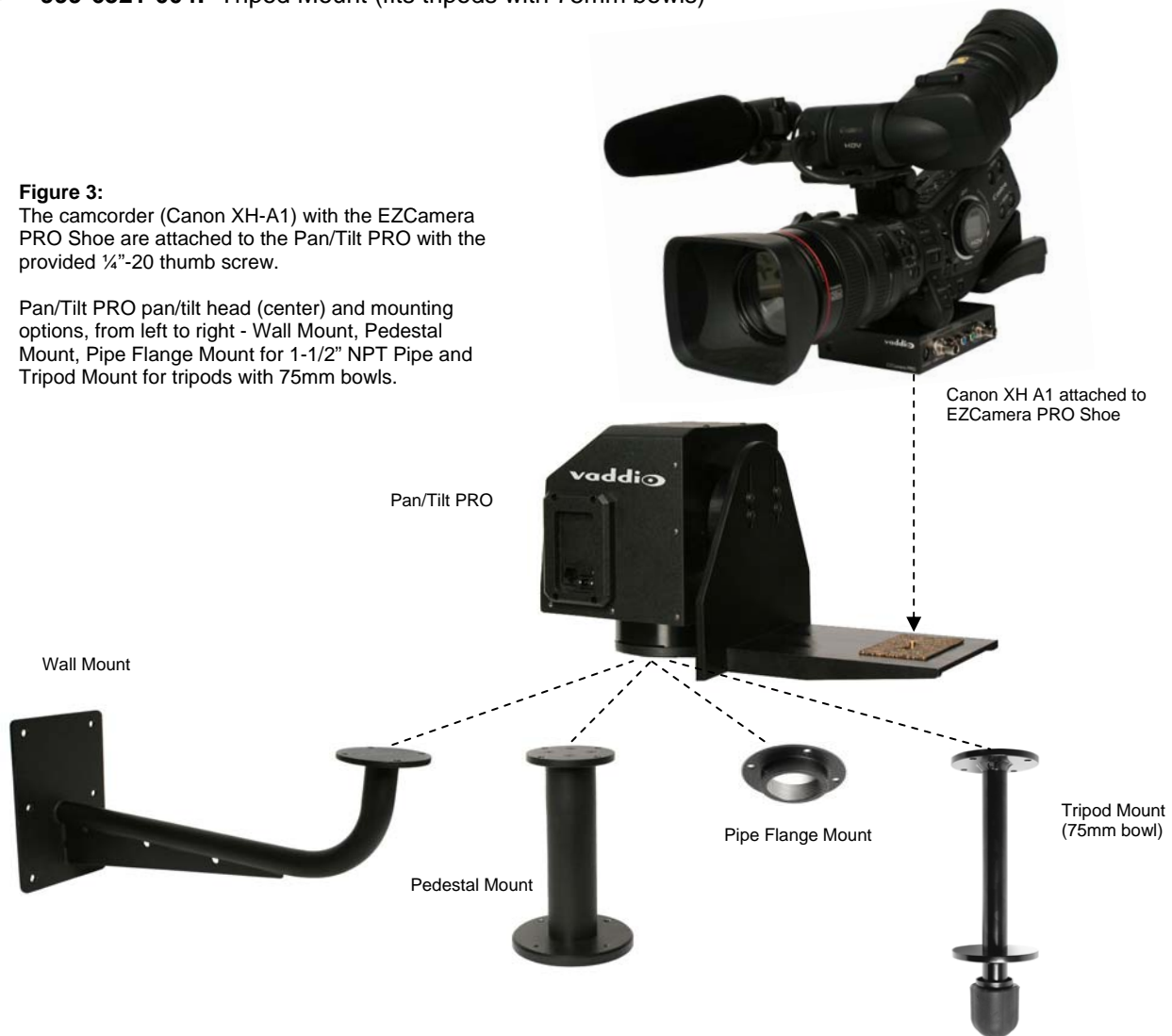
There are several mounting options available for the Pan/Tilt PRO head. Choose the method that best suits the system application. The mounting options are as follows (Figure 3):

- **999-6521-001:** Wall Mount for Pan/Tilt Head (18" from wall to center of mounting flange)
- **999-6521-002:** Pedestal Mount for Pan/Tilt Head (machined, 8" tall)
- **999-6521-003:** Pipe Flange Mount (machined, fits 1-1/2" NPT Pipe)
- **999-6521-004:** Tripod Mount (fits tripods with 75mm bowls)

Figure 3:

The camcorder (Canon XH-A1) with the EZCamera PRO Shoe are attached to the Pan/Tilt PRO with the provided 1/4"-20 thumb screw.

Pan/Tilt PRO pan/tilt head (center) and mounting options, from left to right - Wall Mount, Pedestal Mount, Pipe Flange Mount for 1-1/2" NPT Pipe and Tripod Mount for tripods with 75mm bowls.



Before Installing

- When locating the camera, consider viewing angles, lighting conditions, possible line of site obstructions, check for in-wall obstructions if wall mounting and obstructions that can impede the movement of the camera. Pick a mounting location to optimize the performance of the camera.
- Place the mount near an electrical outlet because the Pan/Tilt PRO requires its own 24 VDC power supply.
- The optional brackets and mounts to be installed on walls, fixtures and other locations must be sturdy enough to handle the weight of the mount, Pan/Tilt head and camcorder. Prior to selecting a mounting location on a wall, check for studs, conduits or obstructions that could interfere with the installation
- Use only high quality mounting hardware that will handle the weight of all of the equipment to be mounted.
- Pre-wire all cabling as required.

Installation Notes (continued):



Mount the Pan/Tilt PRO in a location where the range of motion of the pan/tilt system will not be obstructed by any objects. The Pan/Tilt PRO head should be mounted upright with the base level (use a level when installing the pan/tilt head and mount).



When using the Pan/Tilt PRO in conjunction with one of the Vaddio mounts, it is important to verify that the surface (wall, table, pipe, etc...) can support the weight of the entire assembly (camcorder, Pan/Tilt PRO, mount, power supply and other hardware). Use hardware that will adequately handle the weight of the system and account for additional stress that the system may be subjected to because of the movement of the camera.

STEP BY STEP INSTRUCTIONS:

- **Step A: Canon Camcorders:**

After installing the mount, look at the Pan/Tilt PRO. The white markers on the pan and tilt hubs (round discs protruding from the bottom and side of the head) indicate the home positions. The Pan/Tilt head is shipped with the markers centered on both hubs. If for some reason the white markers on the hubs don't match up with the markers on the Pan/Tilt head, connect the PowerRite power supply to the Pan/Tilt Head. The system will automatically adjust and find the home positions. NOTE: Be sure to disconnect power from the head once you have the hubs in their home position.

- **Step B: Canon Camcorders:**

Carefully set the Pan/Tilt PRO head on the mount. Place the front of the Pan/Tilt head (side with RJ-45 and power ports) facing the primary viewing area. Using the four 1" ¼ - 20 button head machine screws (supplied with the Pan/Tilt PRO) secure the mount from the bottom of the flange and tighten using the supplied Allen wrench (see Figure 4). If installing the Pan/Tilt PRO on a custom mount provided elsewhere, verify that there is enough room to accommodate complete range of motion of the camera when panned and tilted in any direction.

Figure 4:
Pan/Tilt PRO mounted on optional pedestal mount bracket

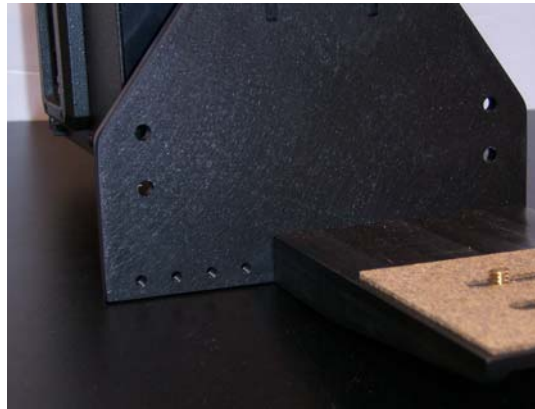


- **Step C: Canon Camcorders:**

After the Pan/Tilt PRO head is installed on the mount, set up the Camcorder Bracket assembly. Find the Mounting Arm and Bracket, along with the two (2) 8-32 1/2" screws, #8 lock tooth and #8 flat washers and the 9/64" Allen wrench.

Place the arm on a flat surface, and set the bracket on the arm so that 4 holes are exposed. Put the lock tooth and regular washers on each of the screws, and place them into the slots tightening them down using the 9/64" Allen wrench (see Figure 4).

Figure 5:
Mounting bracket mounted to arm with 4-holes visible from the front of the arm.



- **Step D: Canon Camcorders:**

Using the four (4) 6-32 1/2" Allen screws, lock tooth and flat washers supplied, place the arm/bracket assembly up against the tilt hub. Place two screws in the top left and right holes of the tilt hub. Place the remaining screws in the holes just below.

For the Canon camcorders, place the screws into the top two sets of screw holes on the tilt hub, at approximately one inch (25 mm) for the upper set of screws and approximately 1/2" for the lower set of screws from the bottom of the slots and tighten all screws, being careful not to strip out the Allen screw heads (Figure 6).

Figure 6:
Mounting position for the Canon camcorders - note the Allen screws are in the top two sets of holes of the tilt hub.



Step by Step for Non-Canon Camcorder Installations

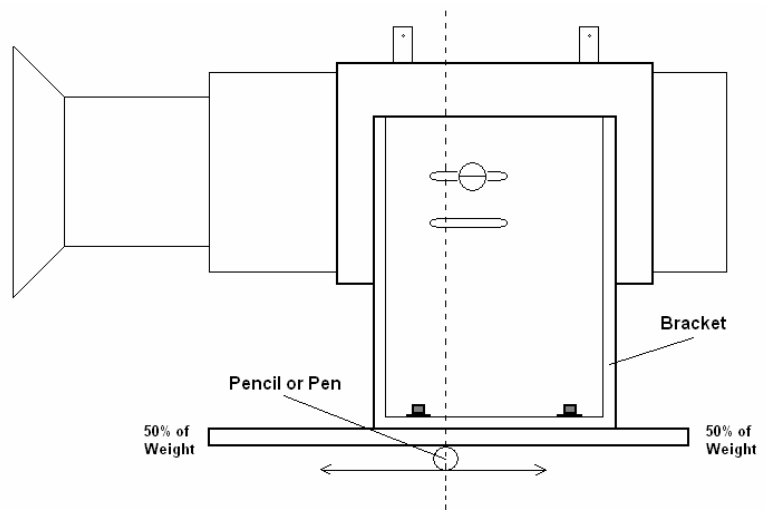
For other camcorders that fit the specifications of Add-A-Cam's power, LANC and weight requirements, set up the mount arm and bracket, based on the instructions in Step C. Install the EZ Camera PRO Shoe to the bottom of the camcorder making sure not to bottom out the EZ Camera PRO Shoe screw inside the camcorder. Bottoming out the screw may damage internal parts of the non-Canon camcorder.

- **Step A: Non-Canon Camcorders:**

Screw the camcorder/Shoe assembly down to the bracket assembly in the outside slot in the middle of the bracket using the brass thumb screw. Place a pencil or pen on a flat, level surface and place the entire assembly (Shoe, camera or camcorder and bracket) on top of the pencil or pen. Move the assembly left to right in order to find the center of gravity of the arm. Move the bracket left or right in order to get the center of gravity in the middle of the assembly. Note that the bracket has been adjusted off-center (Figure 7) to get the entire assembly's center of gravity to the middle point.

Figure 7:

Move the camera mount assembly left to right to find the center of gravity and adjust the bracket left or right in order to get the center of gravity in the middle of the bracket camcorder/bracket assembly.

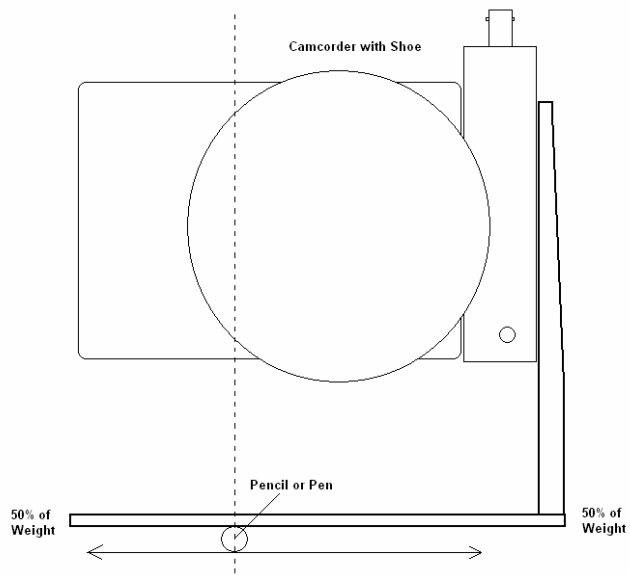


- **Step B: Non-Canon Camcorders:**

Place the entire assembly on the pencil to obtain the other center of gravity (see Figure 8). Move the assembly left to right on the pencil and make note of the center of gravity. From these two positions in Figure 7 and 8, the center point for installing the camera on the tilt hub is established.

Figure 8:

Move the camera mount assembly left to right to find the cross-axis center of gravity. Make the adjustments to put the camera or camcorder at center of gravity for both directions

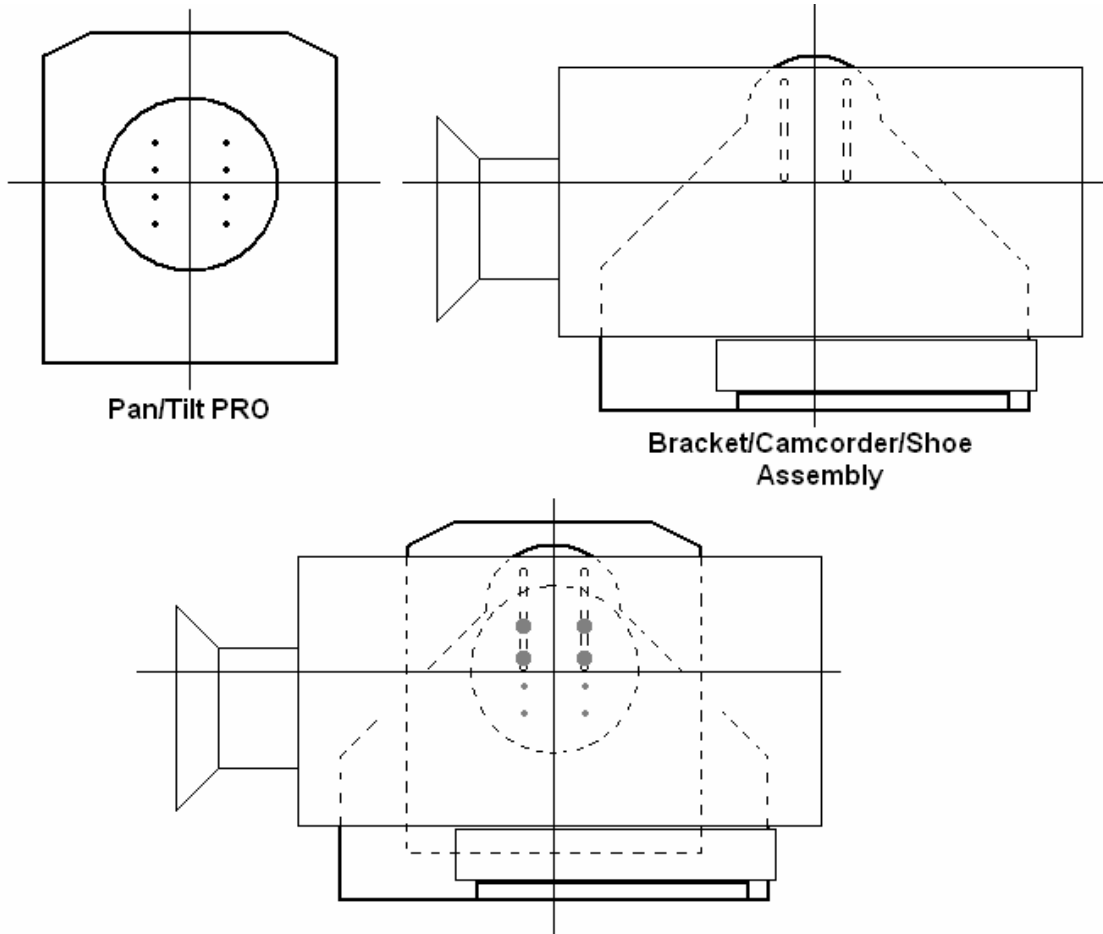


- **Step C: Non-Canon Camcorders:**

The cross point of the two centers of gravity should go through the center point of the tilt hub of the assembly, as is shown Figure 9.

Figure 9:

Match the center of gravity with the center point of the tilt hub of the Pan/Tilt PRO



- **Step D: Non-Canon Camcorders:**

Loosen the thumb screw to remove the EZ Camera Shoe and camcorder from the bracket assembly. Using the four (4) 6-32 1/2" Allen screws, lock tooth and flat washers supplied, place the arm/bracket assembly up against the tilt hub. Place two screws holes of the pan hub that match the center of gravity with the center point of the pan/tilt hub. Place the remaining screws in two other holes of the tilt hub and tighten all four screws. Reattach the camcorder and EZ Camera PRO Shoe assembly to the bracket.



Lifting the Pan/Tilt PRO assembly by the camcorder support bracket can damage internal components and void the warranty. Pick the assembly up only from the main body of the Pan/Tilt head.

Before starting the next step, disconnect power from the Pan/Tilt PRO.

Add-A-Cam PRO Installation and Pan/Tilt PRO Fine Tuning:

The Installation Guide for the Add-A-Cam PRO System explains the installation of the system components. Complete the installation of Add-A-Cam PRO system and return to these instructions for the fine-tuning of the Pan/Tilt Head.

1. To fine tune the Pan/Tilt PRO for smooth movement, start by placing the camcorder/Shoe in the center of the slot on the bracket and tighten the brass thumbscrew on the EZ Camera Shoe.
2. Plug a Cat. 5 cable into the PAN/TILT RJ-45 port of the EZCamera Shoe and connect the other end to the PAN/TILT RJ-45 port on the Pan/Tilt Head. Plug in the PowerRite power connection to the Pan/Tilt Head and then plug the AC cord into an outlet.
3. After the Pan/Tilt Head goes through the standard test movements, it will return home, back to the alignment markers on the Pan/Tilt head. With the ProductionVIEW switcher or Super Joystick controller connected, use the joystick to pan and tilt the camera making sure not to move the camera too far either way in case the Cat. 5 cabling doesn't have enough slack. Confirm cable slack in the cable by panning and tilting all the way up/down and left to right, test the tilt function. Tilting the camera up and down from the maximum tilt up to the maximum tilt down, the camera should not shutter at all during the motion. If the assembly shutters during movement, then additional adjustments are required.
4. First try adjusting the horizontal bracket by loosening the thumb screw and moving it all the way forward or back. Do the full tilt test again (tilt the camera all the way up to down, and down to up in a few different locations). If shuttering persists during the full tilt test, then carefully loosen all four of the Allen screws holding the camcorder bracket to the tilt hub. Move the bracket assembly about ¼" (6 mm) up from the initial position and tighten the screws. Try tilting the camera all the way up or down again. If shuttering still persists, then try moving the bracket ½" down from the current position and again check for shuttering. Move the camcorder both forward and backward on the Shoe and up and down on the tilt hub until the shuttering stops.

COMPLETING THE INSTALLATION

Once the full range of motion of the entire system is confirmed, finish and final dress the cabling. Holes are located in the camcorder arm assembly for wire ties and a threaded hole is provided for installing a tension wire clip on the camcorder bracket. After securing all the cables, check the slack in all cabling for the full range of motion of the camcorder.

GENERAL SPECIFICATIONS

Pan/Tilt PRO - Pan/Tilt Head	
Angular Travel	Pan: + 177° (354° total), Tilt: + 90° (180° total)
Speed	Pan: 55°/sec., Tilt: 55°/sec
Repeatability	± 3 arc minutes
Weight Capacity	15 lbs. (6.80 kg) with balanced load
Connectors I/O	RJ-45 for RS-232 from EZCamera Pro shoe, Power Connector (5.5mm OD x 2.5mm ID positive center)
Power Supply	24VDC, 2.0 AMP
Dimensions (HWD)	6 7/16" x 5 5/8" x 5 3/8" (16.3 cm x 14.3 cm x 13.7 cm) not including camera
Weight	10.51 lbs (4.77 kg) not including camera or bracket
Environmental	32° F to 120° F (0° C to 48.8° C) ambient temperature range
Accessories	Camera Brackets and Mounting options sold separately <ul style="list-style-type: none"> • 999-6521-001: Wall Mount for Pan/Tilt Head (18" from wall to center of mounting flange) • 999-6521-002: Pedestal Mount for Pan/Tilt Head (machined, 8" tall) • 999-6521-003: Pipe Flange Mount (machined, fits 1-1/2" NPT Pipe) • 999-6521-004: Tripod Mount (fits tripods with 75mm bowls)

WARRANTY INFORMATION

Hardware* Warranty - One year limited warranty on all parts. Vaddio warrants this product against defects in materials and workmanship for a period of one year from the day of purchase from Vaddio. If Vaddio receives notice of such defects during the warranty period, they will, at their option, repair or replace products that prove to be defective.

Exclusions - The above warranty shall not apply to defects resulting from: improper or inadequate maintenance by the customer, customer applied software or interfacing, unauthorized modifications or misuse, operation outside the normal environmental specifications for the product, use of the incorrect power supply, improper extension of the power supply cable or improper site operation and maintenance.

Vaddio Customer service – Vaddio will test, repair, or replace the product or products without charge if the unit is under warranty and is found to be defective. If the product is out of warranty, Vaddio will test then repair the product or products. The cost of parts and labor charge will be estimated by a technician and confirmed by the customer prior to repair. All components must be returned for testing as a complete unit. Vaddio will not accept responsibility for shipment after it has left the premises.

Vaddio Technical support - Vaddio technicians will determine and discuss with the customer the criteria for repair costs and/or replacement. Vaddio Technical Support can be contacted through one of the following resources: e-mail support at support@vaddio.com or online at www.vaddio.com.

Return Material Authorization (RMA) number - Before returning a product for repair or replacement, request an RMA from Vaddio's technical support. Provide a technician with a return phone number, e-mail address, shipping address, and product serial numbers and describe the reason for repairs or returns as well as the date of purchase and proof of purchase. Include your assigned RMA number in all correspondence with Vaddio. Write your assigned RMA number on the outside of the box when returning the product.

Voided warranty – The warranty does not apply if the original serial number has been removed or if the product has been disassembled or damaged through misuse, accident, modifications, or unauthorized repair. Cutting the power supply cable on the secondary side (low voltage side) to extend the power to the device (camera or controller) voids the warranty for that device.

Shipping and handling - Vaddio will not pay for inbound shipping transportation or insurance charges or accept any responsibility for laws and ordinances from inbound transit. Vaddio will pay for outbound shipping, transportation, and insurance charges for all items under warranty but will not assume responsibility for loss and/or damage by the outbound freight carrier. If the return shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.

Products not under warranty - Payment arrangements are required before outbound shipment for all out of warranty products.

**Vaddio manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry standard practices.*

Other General Information:

Care and Cleaning

Do not attempt to take this product apart at any time. There are no user-serviceable components inside.

- Do not spill liquids in the product
- Keep this device away from food and liquid
- For smears or smudges on the console, wipe with a clean, soft cloth.
- Do not use any strong or abrasive chemicals.

Operating and Storage Conditions:

Do not store or operate the product under the following conditions:

- Temperatures above 40°C (104°F) or temperatures below 0°C (32°F)
- High humidity, condensing or wet environments
- In inclement weather
- Dusty environments
- Under severe vibration



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www.vaddio.com