

EAGLE[®]

PT-220 Series Pan Tilt Head

Installation and Operations Manual

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WHAT'S INCLUDED WITH YOUR PAN TILT?

- 1 EACH PT-220 PAN TILT HEAD
- 1 EACH ALUMINUM CAMERA MOUNTING BRACKET
- 2 EACH TILT MOUNTING DISCS
- 4 EACH 1/4-20" X 3/4" FLAT HEAD MOUNTING BOLTS FOR DISC
- 4 EACH 1/4-20" X 1.25" SOCKET HEAD MOUNTING BOLTS FOR CAMERA BRACKET / DISC TO SIDE OF HEAD
- 1 EACH TRIPOD MOUNTING ADAPTER PLATE
- 4 EACH 5/16"-18 X 3/4" HEX BOLTS, LOCK, AND FLAT WASHERS TO MOUNT PT-220 BASE TO TRIPOD ADAPTER PLATE
- 1 EACH POWER/DATA CONNECTOR PACK
- 1 EACH CAMERA POWER/CONTROL CABLE
- 2 EACH MINI HI-RES VIDEO CABLES TO GO FROM HEAD TO REAR OF CAMERA
- 1 EACH INSTRUCTION MANUAL

1. PRECAUTIONARY STATEMENT

Improper settings and connections may cause damage to the PT-200 pan tilt, the camera, and the lens being used. Please read all of the following documentation before attempting the installation and configuration of these systems. If any of the instructions are unclear to you, call your servicing dealer or Hitachi before proceeding for clarification. Failure to correctly configure and install these systems may cause damage to the equipment, and will void the warranties. Please make sure before connecting or disconnecting any cables that the power supplies are turned OFF.

2. WARRANTY

Hitachi Denshi America, Ltd. warrants to the original customer that each unit shall be free from malfunction due to defective workmanship or component failure for a period of ONE YEAR from the original date of delivery to the customer. For service under the warranty period, return authorization must be obtained before returning the product. This warranty does not apply to finish or appearance items, to malfunction due to abuse or operation in violation of published operating specifications or to failures caused by improper connections, modifications, alterations, or other unauthorized repairs. Under no circumstances shall Hitachi Denshi America, Ltd. or Display Devices, Inc., their owners or employees be liable to you for any special damages, including any lost profits, lost savings, or other incidental or consequential damages, labor for removal for warranty service, or for any claim by any other party.

3. HARDWARE INSTALLATION

Before starting installation, make certain that all power supplies to equipment are turned OFF.

Attach PT-220 to wall arm or tripod mount using mounting adapter as needed. Make sure that the mounting position is capable of securely handling weights of 50 pounds (23kg). Ensure that the mount is level in both directions.

Attach camera mounting bracket to PT-220 head using supplied 1/4-20 x 1" socket head hex screw fasteners. The bracket may be attached on either side of the head, dependent on installation conditions and camera configurations. Use one of the supplied spacer discs between the bracket and the head; the other disc is mounted on the opposite side of the shaft as a cover using the 1/4-20 x 3/4" flat head fasteners.

Assemble camera/lens combination. It is recommended that ENG style cameras are mounted with the cameras' accessory quick release tripod mounting plate for greatest strength. This may or may not be included with your camera. Check with the manufacturer to make sure. Estimate the rough balance position of the assembly from front to rear, and note where this position is.

Place camera/lens system onto the mounting cradle using supplied 3/8-16 x 3/4"

fasteners. Do not completely tighten the fasteners until after the next step.

Move the camera/lens assembly to the front or rear of the cradle until its' approximate balance point lines up with the center of the tilt pivot point. Now securely tighten the camera/lens mounting fasteners. Centering the weight of the camera/lens assembly on the mounting platform is mandatory to insure the accuracy and smooth performance of the pan-tilt system.

Attach connecting cables from controllers and power supply to the pan-tilt head. Use the two short video cables to connect the video and genlock lines from the rear of the head to your camera. Use the provided camera power/control cable between the rear of the head and your camera. Use cable ties and mounts to insure that cables from the rear of the pantilt head to the camera are not restricted, yet will not obstruct operation. Make sure that the cables will not snag or catch on the pantilt head or other obstructions!! The motors in the head are very strong, and can easily destroy a delicate cable if snagged.

DO NOT ATTEMPT TO PAN OR TILT THE UNIT BY HAND!! Gear reductions on the motors make this impossible to do, and damage can result if this is attempted. Always use the Eagle PT-C or PT-TSC controller or the Windows® compatible software to control the movement of the pan tilt systems.

Follow the detailed instructions in the PT-C or PT-TSC controller manual or the PT-PCS software manual for usage of the PT-220 pan-tilt head.

4. ADDITIONAL SETUP INSTRUCTIONS IF USING PT-PCS SOFTWARE CONTROL INSTEAD OF HARDWARE CONTROL

If using PT-PCS software to control the pan-tilt head via computer, follow these instructions.

NOTE: Software is for use with Windows 95®, Windows 98®, or Windows NT® / 2000 compatible computer systems only

Insert PT-PCS software disc into your computers' 3.5" floppy drive

Click on Start on the Windows menu bar, and choose Run. Type in a: setup

Press ENTER key and follow the instructions that appear on the screen.

Connect communication cable from PT-220 pan-tilt head to PT-RSA RS-485 adapter. Plug PT-RSA adapter into an available COM port of the computer.

POWER REQUIREMENTS AND PIN CONFIGURATIONS

The PT-220 series of pan tilt heads require 24 volts DC power. Maximum draw is approximately 3 amps; average current draw in operation is 0.5 A for the motors, with the balance required for the camera. In operation with the recommended Eagle PT-PS-3 power supply, the head will provide power for camera / lens combinations drawing up to 3 amp @

12 VDC. If the camera / lens combination draws more than this, an external camera power supply is required. To help reduce power drop, it is common practice to run 4 conductors for power, with two for power and two for ground. Here is a chart with recommended AWG for different distances (at 77°F)

Distance in feet	AWG
up to 200	18
201-500	16
501-1000	12

Here are listing of pin configurations for the connectors on the pan tilt head BASE:

5 pin connector on base of PT head	MAIN PAN TILT CONTROL INTERFACE
PIN 1	RS-485 GROUND
PIN 2	RS-485 LINE 1
PIN 3	RS-485 LINE 2
PIN 4	+24VDC FROM MAIN POWER SUPPLY PIN 1 OR 2
PIN 5	GROUND TO 24VDC MAIN POWER SUPPLY PIN 3 OR 4

The pin connector is labeled pins 1-5 as above; simply insert the stripped wires into the connector and tighten the terminal screws. Holding the connector with the wires in place, snap the two halves of the backshell around the connector (the shell will only fit correctly in one direction) and screw the shell together. A small cable tie is provided to go around the cables inside the shell to align them as needed. A couple of knockout plugs can be inserted into the unused openings in the backshell.

The two BNC connectors on the head and exiting the base are provided to loop the video and genlock signals from your camera through the base without worrying about coaxial cables tangling. They are merely looping circuits; the top BNC connector on the head loops to the left connector exiting the base. The bottom BNC connector on the head loops to the right connector exiting the base.

5. RS-485 COMMUNICATIONS SETUP

Commands for all Eagle pantilt heads are transmitted via RS-485 serial, a common multidrop network configuration. Three wires are required for RS-485 communications, two for signal and one for ground. It is a "balanced" communications system, and is much more resistant to outside interference than RS232. Using 22 AWG shielded twisted pair cable, maximum communication length for the total system, without a repeater, is 4,000 feet. Most installers choose to use a standard 22AWG pair cable with drain wire all in one jacket;

this is standard audio microphone type wire, and is commercially available in many types and grades. No special communications grade or high end audio wire needs to be used; standard cable is fine.

To connect multiple units to the same communication line, you may connect the three wires in parallel from unit to unit, or run in a star configuration from the control room to each head individually. On each of the pan tilt heads and on the pan tilt controller is a 120 ohm terminating resistor. The two units at the far ends of the communication line should have the terminating resistor in place; all other units on the line must have the resistor disconnected. The resistor is connected in series to a switch for easy configuration; this switch for termination is located on the rear of the unit below a COMM status LED; with the switch towards the right, the head is terminated; with the switch to the left, the head is unterminated. Heads are shipped with the termination turned ON. The LED provides visual feedback to the status of the head; if the head is called up on a controller, the LED should be lit solid; if the head is merely on the RS-485 line and listening to a command for another head, it will flicker. If the LED is not illuminated, it means that the head has just been turned on and hasn't been sent a command yet, or, something is wrong with the head or the communications line. If using a controller other than the Hitachi PT-C pan tilt controller, such as a Panja or Crestron control system, termination should be provided at the controller end.

6. BASIC CONFIGURATION DIAGRAM

See attached diagrams.

