



## USER MANUAL



# JPTH-13 Pan-Tilt Head 12VDC Model

Original Instructions  
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## TABLE OF CONTENTS

1.0	General Information.....	1
2.0	Items Supplied.....	2
3.0	Mounting a Camera Enclosure.....	3
4.0	Mounting the JPTH-13.....	4
5.0	Safety Precautions.....	6
6.0	Control Connections .....	7
7.0	Configuration .....	8
8.0	Specifications.....	10
9.0	Drawings.....	11

### DISCLAIMER

J-Systems, Inc. makes no warranties, either express or implied, regarding the enclosed JPTH-13 Pan-Tilt Head, its merchantability or its fitness for any particular purpose. Further, J-Systems, Inc. assumes no responsibility for any damages, losses or claims resulting from the use or misuse of this equipment. The extent of any liability is expressly limited to the original purchase price of the equipment.

## 1.0 - GENERAL INFORMATION

The JPTH-13 is a rugged outdoor pan tilt unit which operates from 12VDC. The unit is extremely robust and designed to provide IP68 protection from the elements (-30C to +70C operation). The JPTH-13 provides a rugged, stable mobile camera platform for use in IP or CCTV camera installations, where a smaller, more discreet pan-tilt head is required.

The unit is also equipped with simple but effective, externally adjustable limit switches and heavy duty bearings.

### IP (Ingress Protection) & NEMA Protection Rating Information

An IP number contains two numbers (i.e. IP68) in most instances which relate to the level of protection provided by an enclosure or housing.

The first number relates to protection from solids as follows:

- 0: No Special Protection
- 1: Protected against solid objects up to 50 mm in diameter
- 2: Protected against solid objects up to 12 mm in diameter
- 3: Protected against solid objects up to 2.5 mm in diameter
- 4: Protected against solid objects up to 1 mm in diameter
- 5: Dust protected
- 6: Dust tight

The second number relates to protection from liquids as follows:

- 0: No special protection
- 1: Protected against dripping water
- 2: Protected against dripping water when tilted up to 15 Deg. from normal position
- 3: Protected against spraying water
- 4: Protected against splashing water
- 5: Protected against water jet spray
- 6: Protected against heavy jet spray
- 7: Protected against the effects of immersion
- 8: Protected against submersion

Example: IP68 = Dust tight and protected against the effects of immersion.

NEMA (National Electrical Manufacturers Association) ratings can be approximately compared to those of the IP system as shown below. Other factors such as corrosion protection are involved in the NEMA system.

- NEMA 1 = IP10
- NEMA 2 = IP11
- NEMA 3 = IP54
- NEMA 4 = IP56
- NEMA 4X = IP66
- NEMA 6 = IP67
- NEMA 12 = IP52
- NEMA 13 = IP54

## 2.0 - ITEMS SUPPLIED

Qty 1 - JPTH-13 outdoor Pan-Tilt Head

Qty 1 - Mating connector - nickel plated MIL-C-26482 connector, sealed backshell, and an EMI/RFI liquid tight strain relief fitting.

Qty 3 - Stainless steel 1/4 20 bolts and split lock washers for mounting

Qty 1 - Instruction Manual in PDF format on a CD

### 3.0 - MOUNTING A CAMERA ENCLOSURE to the PAN-TILT HEAD

The camera mounting plate of the pan-tilt head is provided with slots. The slots are designed for ¼" hardware or smaller to allow the mounting of a camera enclosure.

Appropriate locking hardware should be used to insure that the camera enclosure will not move as a result of wind gusts.

Please remember that the total weight of the camera and it's enclosure must not exceed 13 lbs.

Note:

Some cameras do not require a camera enclosure. Mounting brackets for these cameras may have already been designed; please consult the factory for your specific camera.

#### 4.0 - MOUNTING THE JPTH-13

The unit has a base which requires 3 x 1/4 20 bolts and split lock washers (supplied) in 4" bolt-hole pattern (see the drawing on the next page). When mounting a JPTH-13, please remember that a fully loaded pan-tilt camera assembly may weigh considerably more than 13 lbs.

The unit is factory centered before being shipped. The nickel plated power connector is located at the rear of the pan-tilt head.

#### **CAUTION**

Exercise extreme caution when mounting the pan-tilt head with attached camera enclosure. The assembly is heavy and difficult to hold in one hand. It should be secured with a safety line to prevent it from falling to the ground if dropped.

Make sure that you are wearing an appropriate safety harness and follow all applicable safety guidelines when working with ladders, man-lifts, scaffolds or bucket truck lifts. Those on the ground should be wearing hard hats as a minimum.

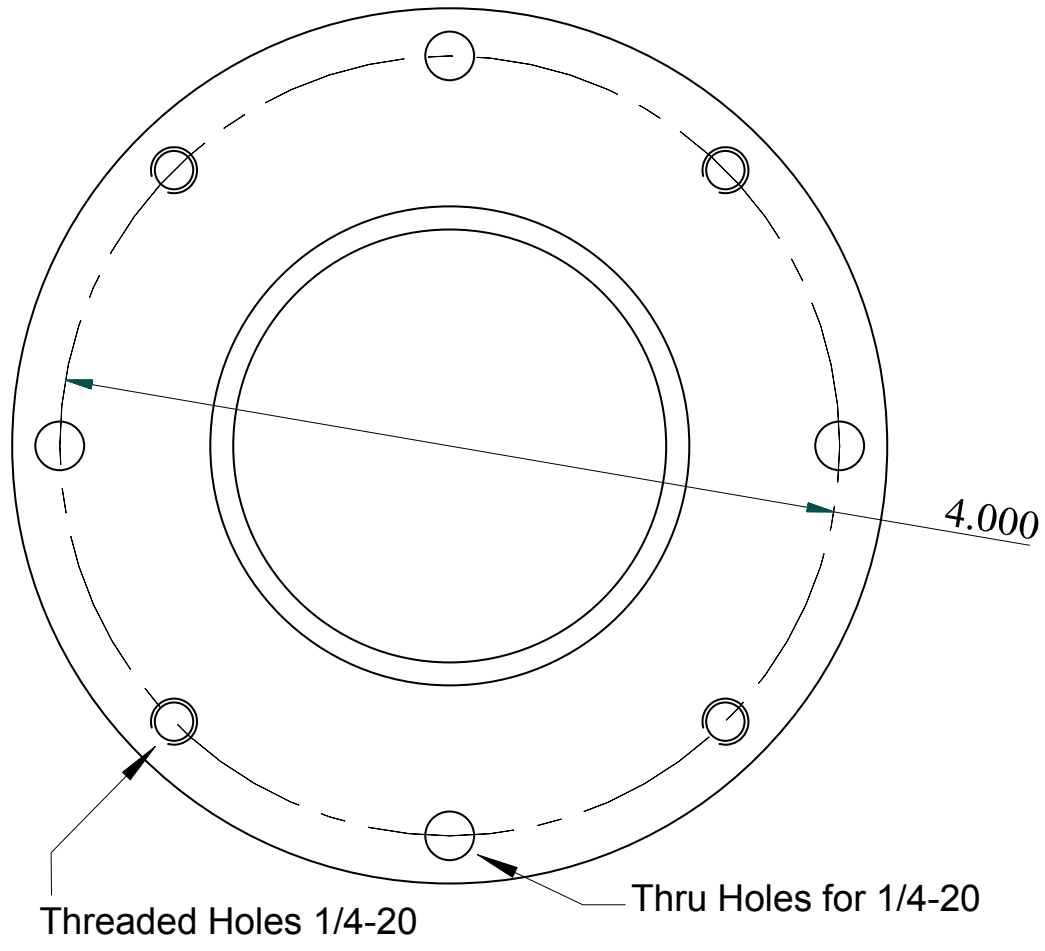
Installation should **ONLY** be accomplished by experienced personnel with proper safety training.

Substantial mounting brackets (strong and rigid) will be required to handle this mechanical load and allow for adverse weather conditions. Bad weather can result in ice and snow build up as well as high wind loading. Consult the factory if you are unsure as to what type of bracket to use or to purchase factory available brackets

Stability and rigidity are important as the pan-tilt head with camera and enclosure exerts inertia when it starts and stops. If the mounting mechanism is not rigid enough, some back and forth motion may be seen when the head starts and stops.

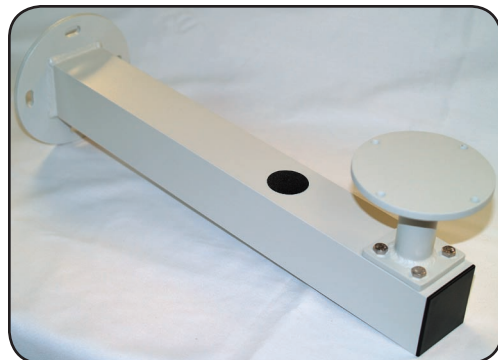
Once the camera location has been specified the mounting bracket should be attached to the mounting surface with suitable heavy duty hardware to assure a safe and secure installation. Make sure the mounting surface is in good condition; crumbling bricks or cracked concrete are not to be used.

The camera enclosure must also be given sufficient clearance to ensure that it does not hit any obstructions when rotated. The motor and gearbox assemblies of the pan-tilt head are designed to be "stalled" but continuous abuse will cause damage which is not covered under the factory warranty.



Mounting Hole Locations

**NOTE:** A 3" pedestal is available as an option which mates to a Pelco WM2000 bracket allowing the ability to mount the unit on a wall, pole or a corner with matching Pelco brackets.



## 5.0 - SAFETY PRECAUTIONS

The pan-tilt head and camera enclosure are very heavy and difficult to hold in one hand. This equipment should be secured by a safety line to prevent it from falling on someone below if dropped by the installer.

Also, once operational, this equipment is subject to remote control and may be operated at any time while you are working on it. Persons working on this equipment should take appropriate precautions to ensure that any unexpected movement does not occur as this could lead to finger / hand injury or startle you causing you to fall or slip.

Always leave the power off to the control system and make sure someone is at the control who will make certain it is not activated without your express knowledge.

A pair of wireless radios are beneficial during installation and / or maintenance so the installer and the operator can communicate directly.



## 6.0 - CONTROL CONNECTIONS

Listed below are the pin letters and functions attached to them for the factory installed MIL-C-26482 14-15 connector.

Note: If a cable with a connector on one end is purchased with the head, the following wire color codes apply.

Pin A	Pan motor +	WHT
Pin B	Pan motor -	BRN
Pin C	Pan brake +	GRN
Pin D	Pan brake -	YEL
Pin E	Tilt motor +	GRY
Pin F	Tilt motor -	PNK
Pin G	Tilt brake +	BLU
Pin H	Tilt brake -	RED
Pin J	Pre-set supply +5V	BLK
Pin K	Pan pre-set feedback	VIO
Pin L	Tilt pre-set feedback	GRY/PNK
Pin M	Pre-set supply 0V	RED/BLU
Pin N	Not Used	WHT/GRN
Pin P	Not Used	NO WIRE
Pin R	Not Used	BRN/GRN

Using conventional multi-conductor cable to control the pan-tilt head, control a zoom lens, or connect IP equipment is not advised. This is especially true in cold weather environments where ice and snow can build up on the cable. For long term reliability, highly flexible specialized cable is needed.

J-Systems offers highly flexible (-30C to +70C) cable assemblies designed specifically for rotating equipment environments. These cables come in various lengths and are terminated on both ends with the appropriate connectors; call factory for pricing and availability.

### **OPERATIONAL NOTE**

Please be aware that power must be supplied to both the motor and corresponding brake circuit at the same time to allow rotation. Example: apply +12VDC to Pan Motor+ and Pan Brake + at the same time to cause the head to pan in one direction.

## 7.0 - CONFIGURATION

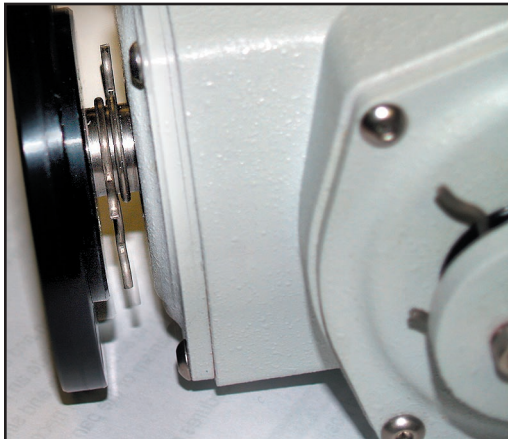
For the purposes of identification, the rear of the pan-tilt head is where the nickel plated power connector is mounted. When viewed from the top, clockwise movement is right, and counter-clockwise movement is left.

The JPTH-13 contains internal pan and tilt limit switches that are controlled by shaft mounted actuators (2-per shaft). As the head rotates, one actuator trips an externally mounted switch lever arm which causes the pan-tilt head to stop moving in that direction. This system provides an accurate and simple method of applying pan and tilt limit stops. It is not necessary to power down or gain access to the inside of the unit to set limits.

### Setting the Pan Limit Switch

Drive the pan-tilt head to the extreme left hand position you require. Slide the top actuator until it engages and trips the switch lever arm. This is best done using a flat blade screwdriver (**keep your fingers out of this area**). This limit is now set. In a similar manner, drive the pan-tilt head to the extreme right hand position you require. Adjust the bottom actuator until it engages and trips the switch lever arm. This limit is now set. Drive the pan and tilt mechanism to the extreme limits of travel in both directions

Photo shows two limit switch actuators mounted on the pan shaft.



### Setting the Tilt Limit Switch

Drive the pan-tilt head to the upper most position required (camera would be pointed upward). Slide the rear actuator until it engages and trips the switch lever arm. This is best done using a flat blade screwdriver (**keep your fingers out of this area**). This limit is now set. Drive the unit to the lowest point required (camera pointed downward) and slide the front actuator until it engages and trips the switch lever arm. This limit is now set. Drive the pan-tilt unit to the extreme limits of travel in both directions and check operation for the limit switches. Re-adjust if necessary.

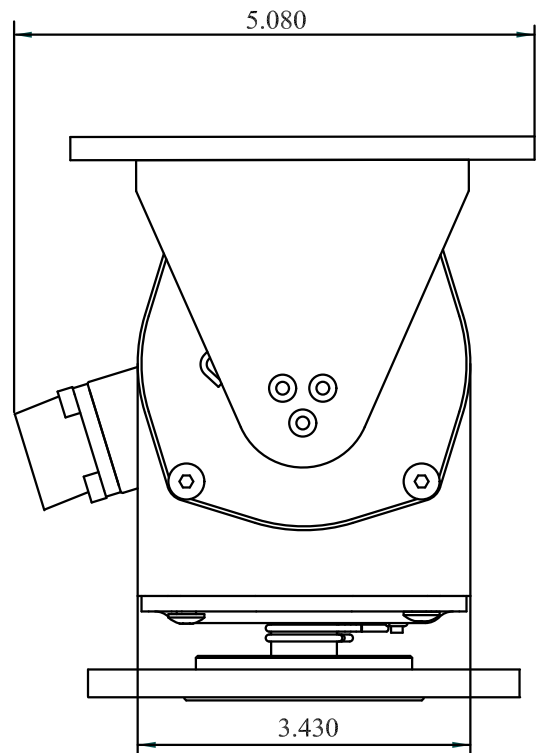
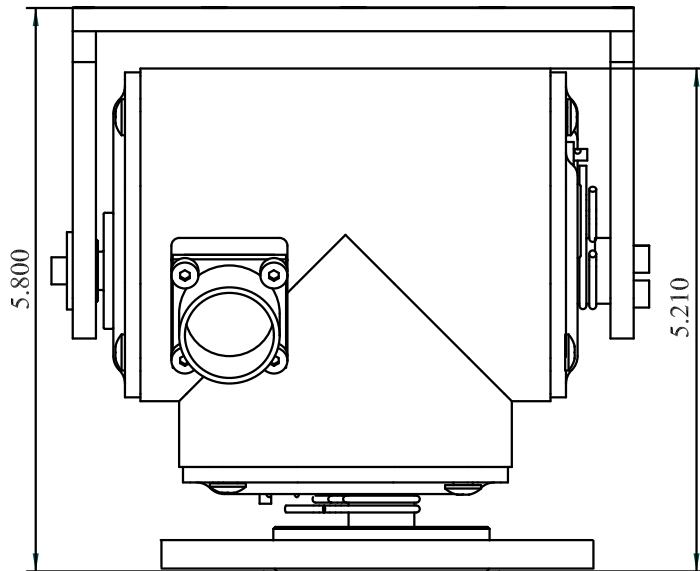
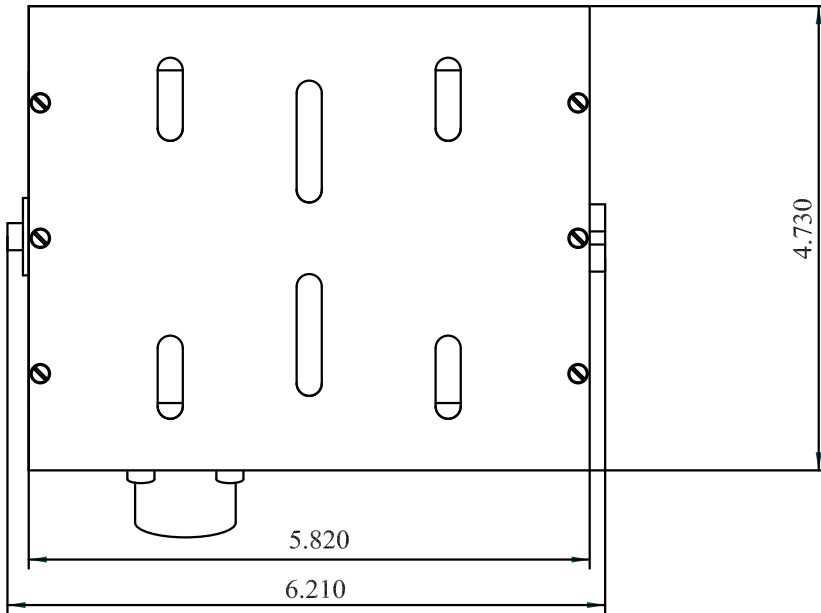
Photo shows tilt actuator tripping the switch lever arm.

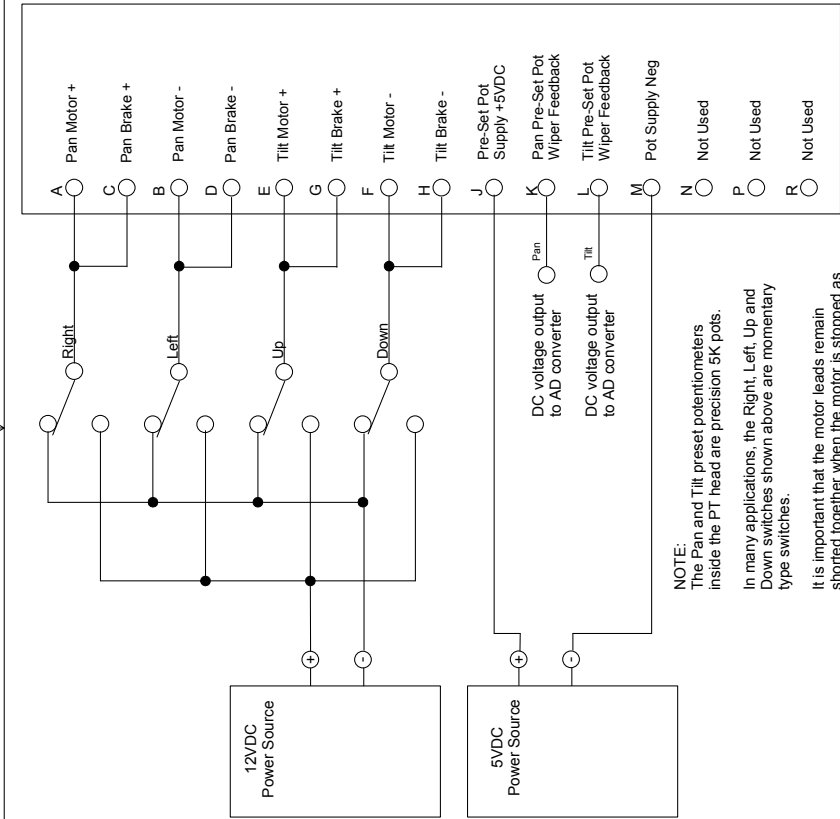


## 8.0 - SPECIFICATIONS

Height	5.800"
Width	6.210"
Depth	5.08." with connector
Materials	Macined Aluminum with Stainless Steel Fastners Anodized Aluminum Mounting Ring Polymer Bearings for Quiet Operation Ball Bearings on Major Axes
Paint	Powder coated
Mounting Plate	Width - 5.820" Depth - 4.730" Slots - 1/4" hardware or smaller
Weight	5 lbs
Voltage	12VDC +/- 5%
Power	Less than 1.5 watts per axis 0 watts with no motion
Braking	Regenerative
Feedback	Precision 5K pot (1 for Pan axis, 1 for Tilt axis) Requires 5VDC reference voltage
Connector	Nickel Plated MIL-C-26482 14-15
Speed	Pan 28 deg/sec Tilt 8 deg/sec
Capacity	13 lbs or less
Rotation Limits	Pan 0 to 350 degs Tilt -90 deg Down to +30 deg Up
Color	Similar to RAL 9018
Backlash	<0.15 deg
Maintenance	None required
Operating Temp.	-30C to +70C No heating or cooling required
Weatherproof	IP68
Warranty	2-Years

9.0 - DRAWINGS





**NOTE:**  
 The Pan and Tilt preset potentiometers inside the PT head are precision 5K pots.  
 In many applications, the Right, Left, Up and Down switches shown above are momentary type switches.  
 It is important that the motor leads remain shorted together when the motor is stopped as this functions as a dynamic brake and helps to maintain PT head position under load.

Example wiring diagram to provide simple manually operated pan-tilt head control

<b>J-Systems, Inc.</b> 1S678 School Ave. Lombard, IL 60148 T 630-627-3458 F 630-620-0960	
PT Head Interconnect Diagram	
TITLE	
SIZE <b>A</b>	CAGE CODE   DWG No. C000051
SCALE	June 12, 2008
	MATERIAL N/A
	REV 0
	SHEET 1 of 1