



User Manual / Configuration Guide



JPTH-13M Pan/Tilt Head

Version 2 Feb 2018
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1.0 - GENERAL INFORMATION

The JPTH-13M 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-13M can be used in mobile applications.

The unit is also equipped with externally adjustable limit switches. Interface cables and IP based Pan/Tilt controllers are available - please consult factory.

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-13M 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 plus connector pins.

Qty 1 - This Instruction Manual

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.

Caution: Keep the heads of the bolts close to the bottom of the camera mounting plate to ensure they do not scrap or jam on the outer shell of the pan/tilt head.

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-13M

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

The unit is factory centered before being shipped. The nickel plated 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.

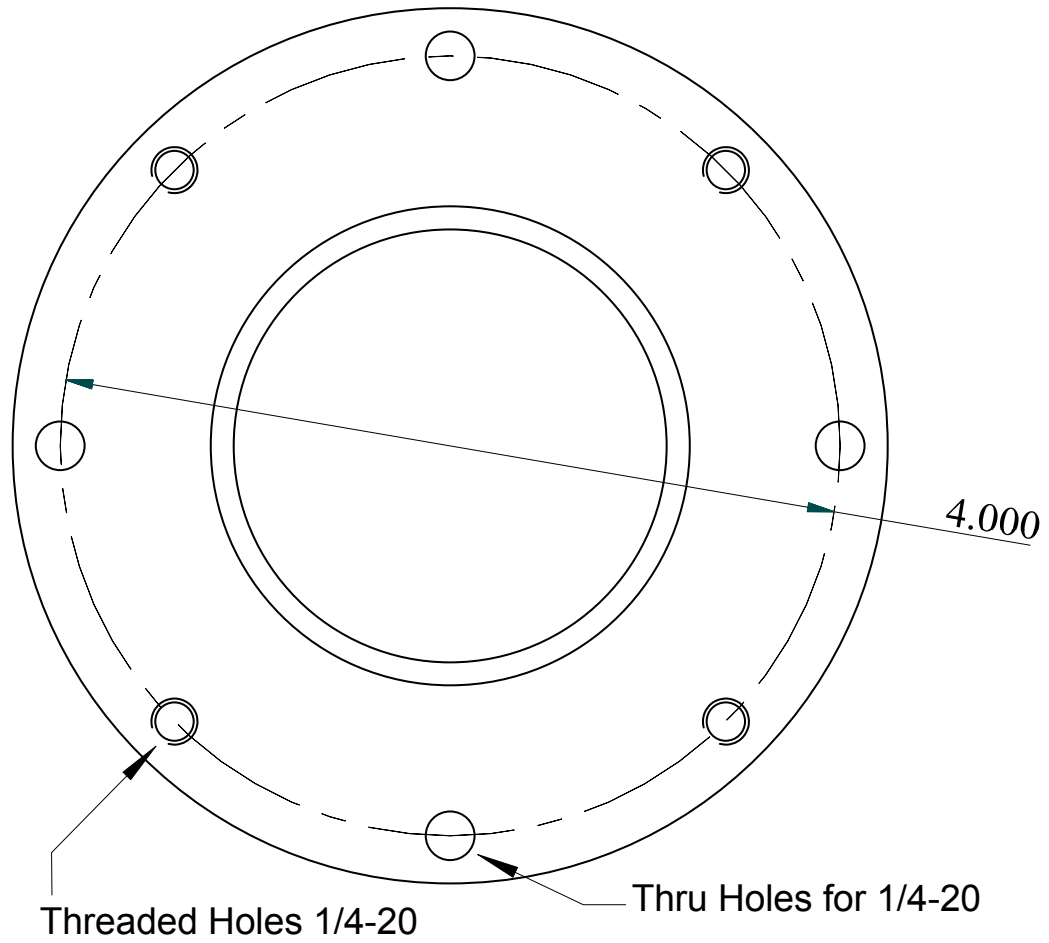
Installation should **ONLY** be accomplished by experienced personnel with proper safety training.

Substantial mounting brackets (strong and rigid) will be required to properly mount this mechanical load and ensure operation in 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 rigidness 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. Consult factory.

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: is a cable with a connector on one end is supplied, the following wire colors 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 | +5VDC (only with pots) | BLK |
| Pin K | Pan Axis Position Feedback | VIO |
| Pin L | Tilt Axis Position Feedback | GRY/PNK |
| Pin M | 0VDC (only with pots) | RED/BLU |
| Pin N | Encoder Gnd | WHT/GRN |
| Pin P | Not Used | |
| Pin R | Encoder +5VDC | BRN/GRN |

CAUTION: Reversing the polarity of Pins N and R will destroy the internal encoders; use extreme caution.

The encoders output is a PWM (pulse width modulated) signal. If an analog DC voltage is required, consult factory for a different encoder that acts like a potentiometer.

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 allow the head to pan in one direction.

7.0 - CONFIGURATION

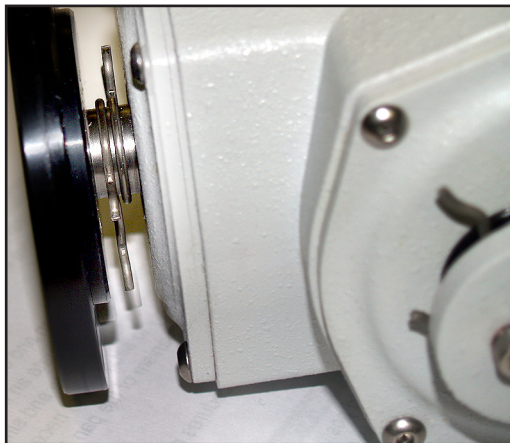
For the purposes of identification, the rear of the pan-tilt head is where the nickel plated circular connector is located. When viewed from the top, clockwise movement is right, and counter-clockwise movement is left.

The JPTH-13M 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.

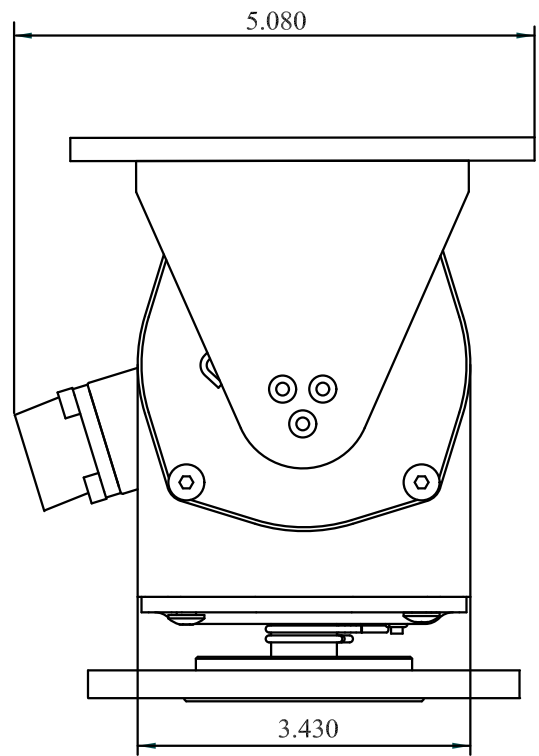
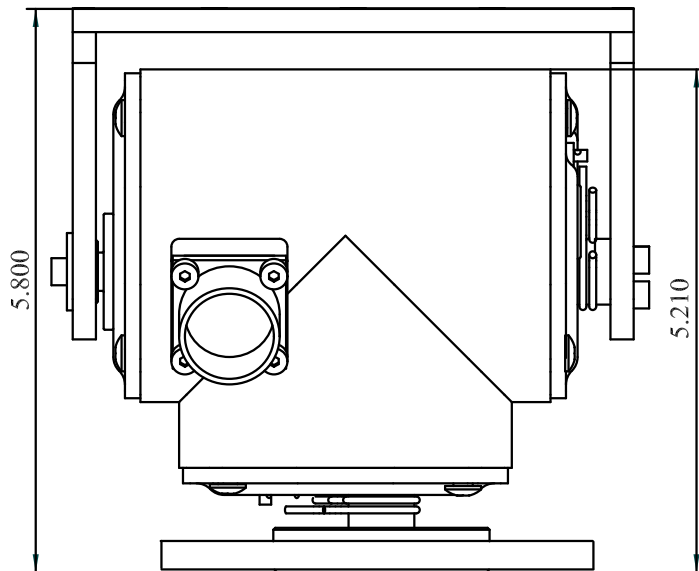
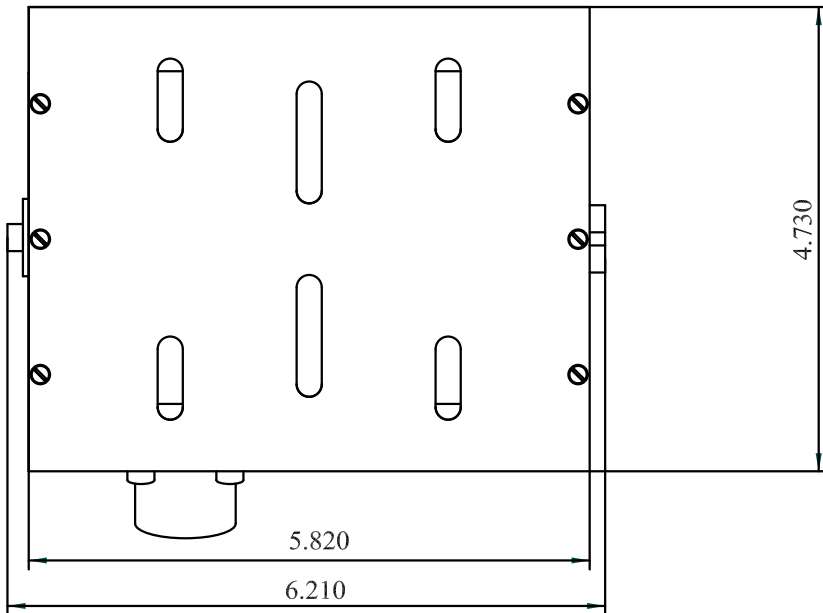
Photo shows tilt actuator tripping the switch lever arm.



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 Axies |
| 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 | PWM Encoders 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 | 1-Year |

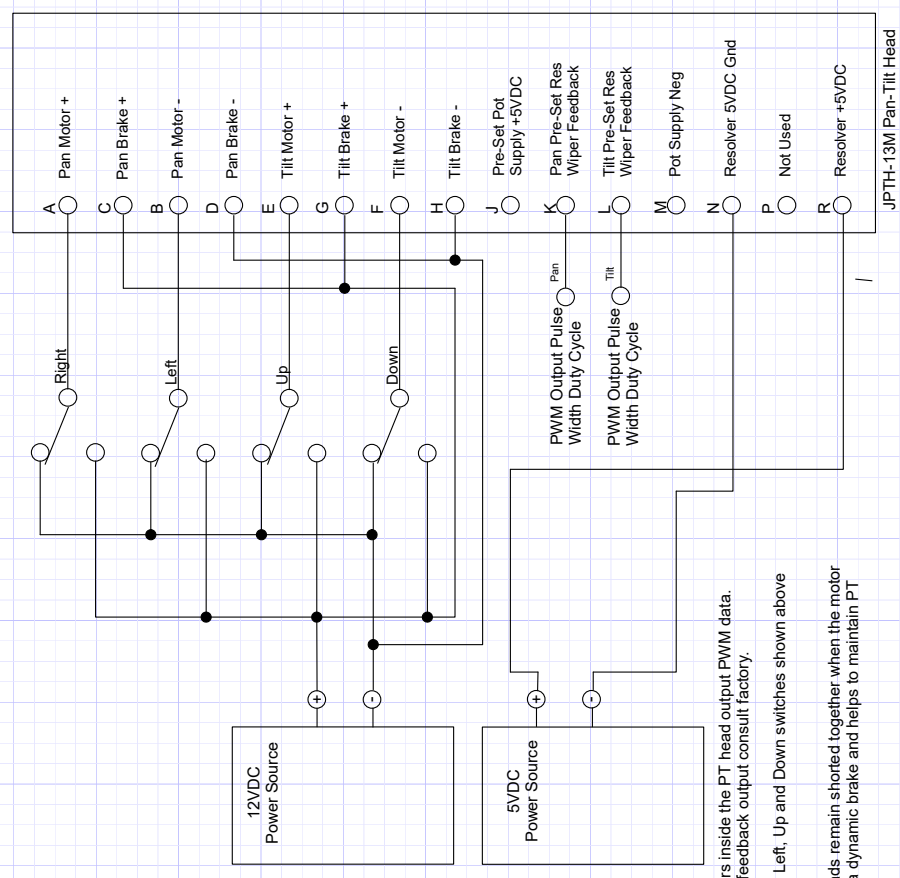
9.0 - DRAWINGS



NOTE:
When using the microprocessor Limit Brake Bd, only two wires need to be run to the P/T head to power both the Pan and Tilt Brake circuits.

IMPORTANT:
This 12VDC remains On all the time and does not need to be switched.

A PWM signal or +12VDC can now be applied to the motor pins to turn the motor. The internal microprocessor limit brake board senses PWM or +12VDC and automatically releases the Brake.



NOTE:
The Pan and Tilt preset encoders inside the PT head output PWM data. If you need Analog DC voltage feedback output consult factory.

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.

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TITLE
PT Head Interconnect Diagram
For Micro Controlled Limit Brake Board

Rev A - 9-7-2017
Switched Dwg from Pot to Resolver feedback
Rev B 2-1-2018
Corrected wording to clarify PWM output from encoders.
Rev C 5-19-2021
Modified Dwg for Micro Ctrl Limit Brake Board

| | | | | |
|-------|---------------|---------|----------|--------|
| SIZE | CAGE CODE | DWG No. | MATERIAL | REV |
| A | | C000051 | N/A | C |
| SCALE | June 12, 2008 | | SHEET | 1 of 1 |