



## CP Pan/Tilt Head – PT-CP-S4



### Features:

- » Smooth slow or high speed “camera operator” like moves
- » Programmable timed presets start and stop all axes simultaneously
- » Serial camera control interface for most Sony, Panasonic, Ikegami and Hitachi cameras
- » Cable management system
- » Auxiliary controls interface for optionally available trolley, elevating pedestal, elevating wall mount
- » Electronic and mechanical field adjustable end stops
- » Multiprocessor architecture with flash based RISC servo controllers
- » Camera power

The Telemetrics PT-CP-S4 is a precision pan/tilt head with smooth variable operating speed. Heavy duty cross roller bearings and servo motors with isolation mounts provide quiet operation. The lens connector provides direct link and interface to lens functions. The unit is available with either inverted or upright camera mounting platform options. Manual smooth motion is accomplished using velocity servo controls. 255 presets are available; Presets are called using shot convergence technology, allowing for smooth motion like presets. Tally light indicates camera is effectively “On Air”. DC-DC converter at the base converts 48 volts to appropriate voltage levels for the head, auxiliary robotics devices, camera, lens and viewfinder.



## CP Pan/Tilt Head – PT-CP-S4

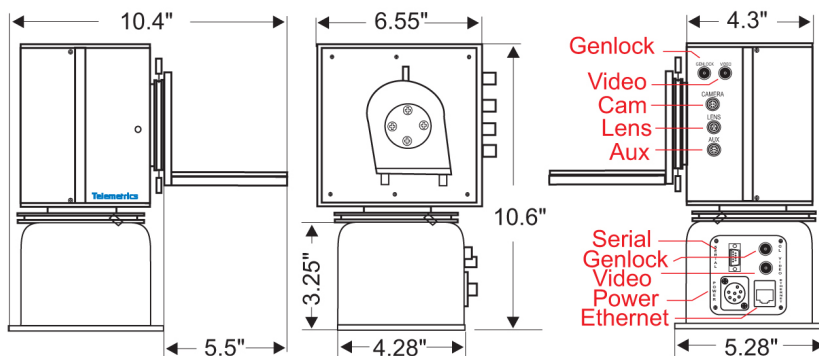
### Specifications

Pan Travel (Max)	340° w/endstops (360° w/o end-stops)
Tilt Travel (Max)	150° Up, 150° Down w/endstops 180° Up, 180° Down w/o endstops
End Stop Resolution	Electronic: Smooth Stop
Min/Max Pan/Tilt Velocity	.04° - 35°/sec
Stopping Accuracy	±5 arc minutes/0.08°
Audible Noise	31 dB(A) max, IEC free field
Operating Modes	32 Bit Velocity and Positional Servo Control Preset Position with Multi-axis convergence
Mounting	Upright or inverted
Dynamic Load	15 lbs. (6.8 kg)
Dimensions	Side Mount - 9.7" W x 10.6" H x 6.55" D
Weight	14 lbs. (6.34 kg) w/o extended base
Input Voltage/Current	38-53 VDC/3.0 A max
Compatible Cameras	Grass Valley, Hitachi, Ikegami, JVC, Panasonic, and Sony. Consult Sales for exact model compatibility.
Communication - Control	Ethernet/RS-232 Serial Interface/RS-422 Serial Interface

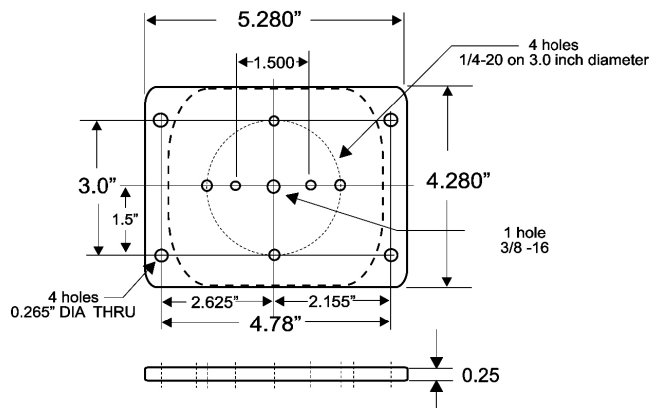
Specifications and features subject to change without notice



### Dimensions



### Mounting Plate



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## HP Pan/Tilt Head – PT-HP-S4



### Features:

- » Smooth slow or high speed “camera operator” like moves
- » Programmable timed presets start and stop all axes simultaneously
- » Serial camera control interface for most Sony, Panasonic, Ikegami and Hitachi cameras
- » Camera power option
- » Auxiliary controls interface for optionally available trolley, elevating pedestal, elevating wall mount
- » Electronic and mechanical field adjustable end stops
- » Multiprocessor architecture with flash based RISC servo controllers

The Telemetrics PT-HP-S4 is a precision pan/tilt head with smooth variable operating speed. Heavy duty cross roller bearings and servo motors with isolation mounts provide quiet operation. The lens connector provides direct link and interface to lens functions. The unit is controlled through serial data using RS-232/422 or 10/100 BASE-T ethernet connections. Manual smooth motion is accomplished using velocity servo controls. Two hundred and fifty five presets are available. Presets are called using shot convergence technology, allowing for gradual transitions. Tally light on front panel indicates camera is successfully “On Air”. Receives power from the rack mount power supply (PS-RM-48-2). DC-DC converter at the base converts 48 volt to appropriate voltage levels for the head, auxiliary robotics devices, camera, lens and viewfinder.



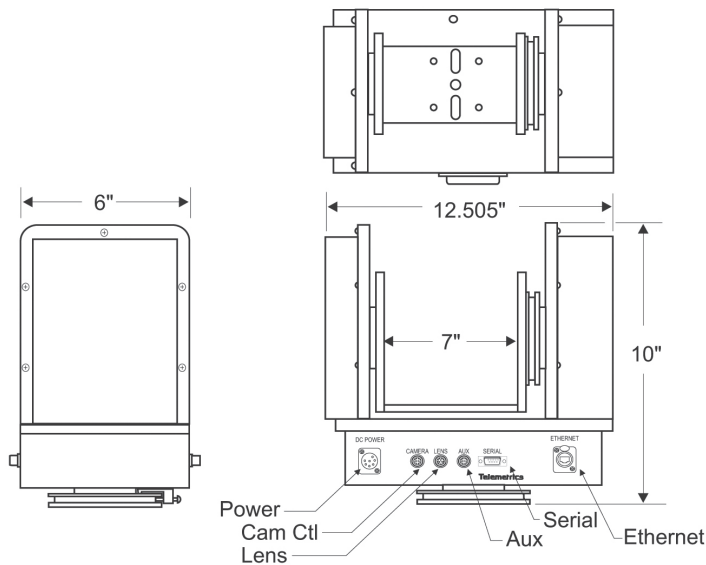
## HP Pan/Tilt Head – PT-HP-S4

### Specifications

Pan Travel (Max)	340° w/endstops (360° w/o end-stops)
Tilt Travel (Max)	±35° (+35°, -90° PTO-HP-S2-EA)
End Stop Resolution	Electronic: Smooth Stop
Min/Max Pan Velocity	0.01°-25°/sec(40°/secHighSpeed(PTO-HP-S4-HS,37dB)
Min/Max Tilt Velocity	0.01°-25°/sec(40°/secHighSpeed(PTO-HP-S4-HS,37dB)
Stopping Accuracy	±5 arc min/0.08°
Audible Noise	31 dB(A) max, IEC free field
Operating Modes	32 Bit Velocity and Positional Servo Control Preset Position with Multi-axis convergence
Mounting	Upright or inverted
Dynamic Load	35 lbs. (16 kg)
Weight	14 lbs. (6.3 kg)
Input Voltage	38-53 VDC
Max Input Current	6.8 A max
Input Power Connector	7-pin Male XLR
Camera Power	40 W (13.5 VDC, 3 A max)
Communication - Control	Ethernet/RS-232 Serial Interface/RS-422 Serial Interface
Compatible Cameras	All GVG (Serial)

Specifications and features subject to change without notice

### Dimensions



### Options/Accessories

PTO-HP-S4-EY	Extended Yoke*
PTO-HP-S4-EA	Extended Arms**
PTO-HP-S4-EX/CC	Extender/Contact Closure
TL-A-12V	Tally Light with Adjustment(A)
TL-S-12V	Tally Light Sensor(A)

\* Use when head is inverted with a full-size camera.

\*\* Give the camera clearance to point directly downward.

(A) - Accessory

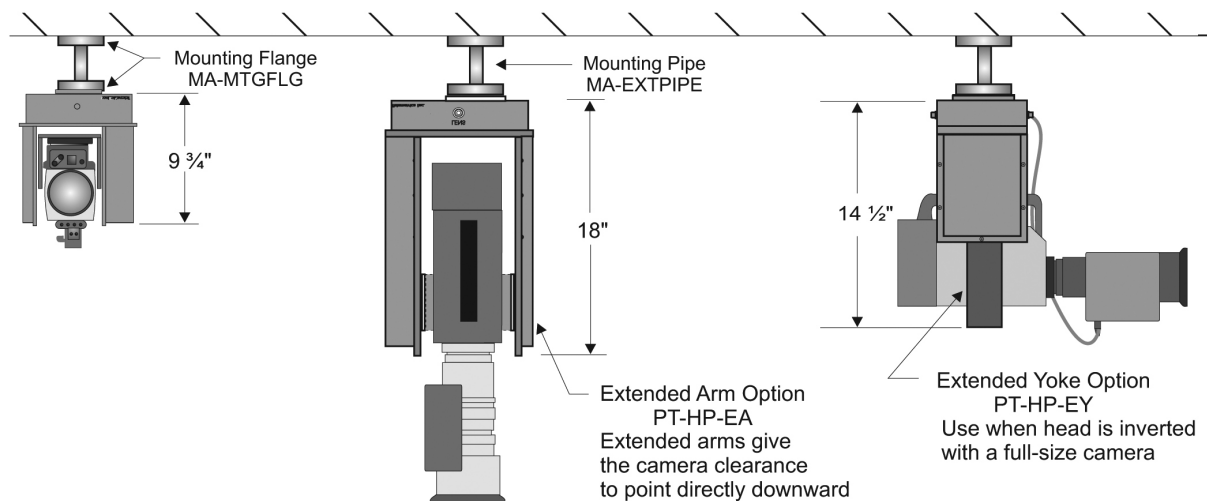




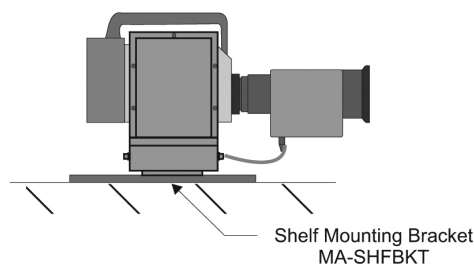
# HP Pan/Tilt Head – PT-HP-S4

## Servo Pan/Tilt Head Mounting Arrangements

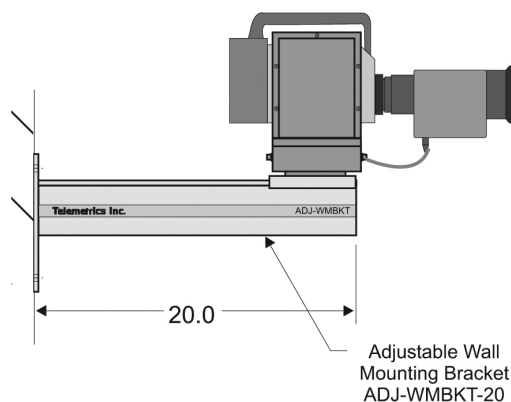
### Ceiling Mountings



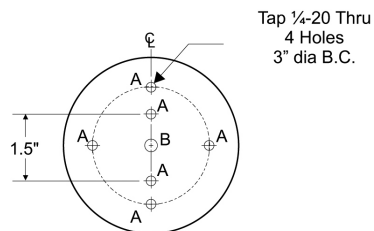
### Shelf Mounting



### Wall Mounting



### Mounting Pattern



### Hole Dimensions

"A" Holes: 1/4-20 Tapped

"B" Hole: 3/8-16 Tapped (Tripod mounting)

**(Important Note: Ensure proper screw length is used. Excessive screw length may interfere with the bottom of the unit and hinder pan motion.)**

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## LP Servo Pan/Tilt Head – PT-LP-S4



### Features:

- » Smooth slow or high speed “Camera Operator” like moves.
- » Programmable timed presets.
- » Serial camera control interface for most Sony, Panasonic, Ikegami, JVC and Hitachi cameras.
- » Camera power option.
- » Aux Controls interface for optional Trolley, Elevating Pedestal, Elevating Wall Mount.
- » Optional teleprompter mounting (consult factory).
- » Teleprompter power option.
- » Cable management system.
- » Serial control through RS-232, RS-422, 10/100 Base-T Ethernet.
- » More power delivered at longer distances (see PS-RM-48V Datasheet for details).<sup>2</sup>
- » Enough teleprompter power to operate large screen, high brightness teleprompters (80 W).<sup>2</sup>
- » Video and power for confidence monitor (optional).<sup>2</sup>

<sup>2</sup> New feature

The Telemetrics PT-LP-S4 is a precision pan/tilt head with smooth variable operating speed. Heavy duty bearings and motors with isolation mounts provide steady and quiet operation. Manual smooth motion is accomplished using digital servo controls. The unit is controlled through serial data using RS-232, RS-422 or Ethernet. Two hundred and fifty-five presets are available, memorizing pan, tilt, zoom, focus, track/televator, dolly, iris and master pedestal.<sup>1</sup> An optional camera control feature is available for certain cameras. The lens connector provides direct connection and interface to lens functions. Tally connector is provided to interface with optional Tally box (PT-LP-TL and PT-LP-TL12) and deliver video and power to a teleprompter. Extender/CC connector provides lens extender and contact closure interface. Optional video and power for a confidence monitor are provided through the same connector. The internal cable management system provides cable connections at the base of the pan/tilt to ease cable installation and operation. The PT-LP-S4 receives power from the PS-RM-48V Rack Mount Power Supply. A powerful DC-DC converter at the base of the Pan/Tilt head converts 48V to appropriate voltage levels for the head, auxiliary robotics devices, camera, lens, viewfinder, optional teleprompter and confidence monitor. Manual control option with adjustable drag without requiring power from the Pan/Tilt head is also available.

<sup>1</sup> Available only with camera control option.



# LP Servo Pan/Tilt Head – PT-LP-S4

## Specifications

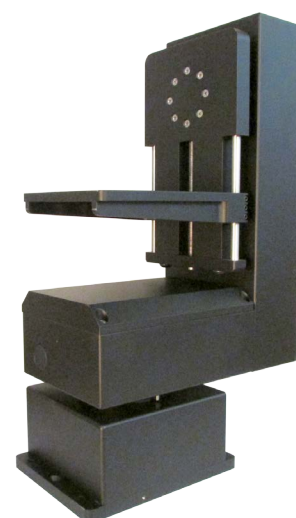
Pan Travel (Max)	340° w/endstops (360° without end-stops)
Tilt Travel (Max)	±170° (+15°, -10° with teleprompter)
End Stop Resolution	Electronic Smooth Stop
Velocity (Min/Max)	Pan 0.01° - 25°/sec; Tilt 0.01° - 25°/sec Pan 0.01° - 55°/sec; Tilt 0.01° - 55°/sec (PT0-LP-S4-HS, 37 dB)*
Stopping Accuracy	±3 arc minutes/0.05°
Acceleration	60°/sec. <sup>2</sup> (PT0-LP-S4-HS)*
Audible Noise	31 dB(A) max, IEC free field
Operating Modes	32 Bit Velocity and Positional Servo Control Preset Position with Multi-axis convergence
Dynamic Load	67 lbs. (30 kg) load on center of mass
Weight	31 lbs. (14 kg)
Input Voltage	38-53 VDC
Max Input Current	6.8 A max
Input Power Connector	7-pin Male XLR
Camera Power	40 W (13.5 VDC, 3 A max)
Teleprompter Power (opt.)	80 W (13.5 VDC, 6 A max)
Conf. Monitor Power (opt.)	40 W (13.5 VDC, 3 A max)
Compatible Cameras	All GVG (Serial)

\* Velocity and acceleration are load dependent  
Specifications and features are subject to change without notice

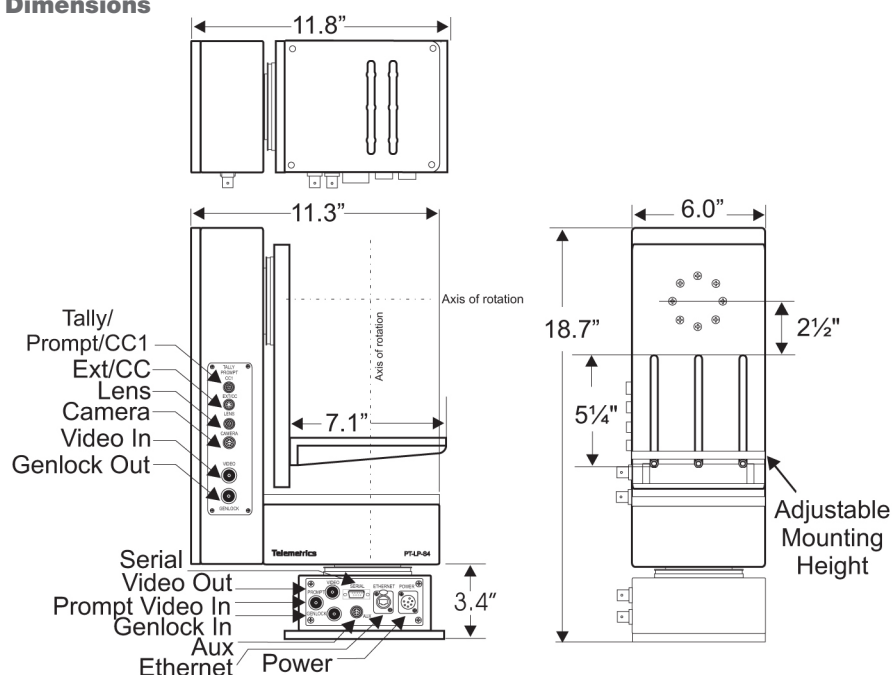
## Options

PT0-LP-S4-TC-VS	LP Virtual Studio Option
PT0-LP-S4-CMTP	LP Teleprompter & External Monitor Power
MA-CMM	MA Confidence Monitor Mount
TL-A-12V	Tally Light with Adjustment (A)
CA-PTP-048	Cable S4 Prompt/Tally-12V

(A) - Accessory



## Dimensions

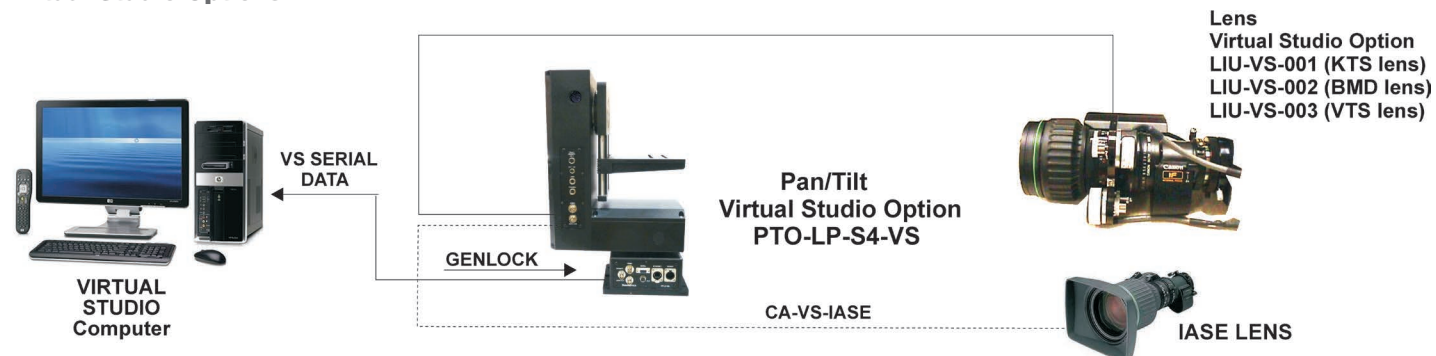


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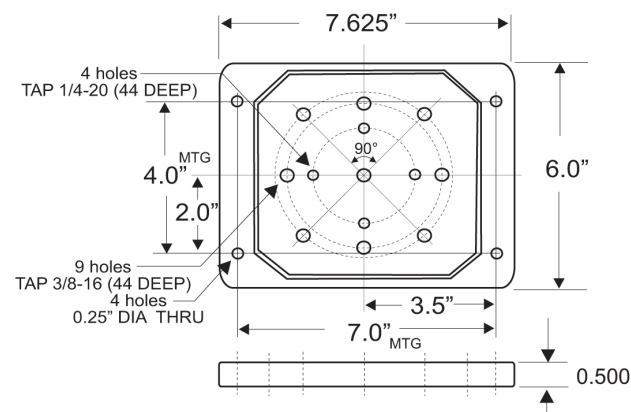
# LP Servo Pan/Tilt Head – PT-LP-S4

## Virtual Studio Options

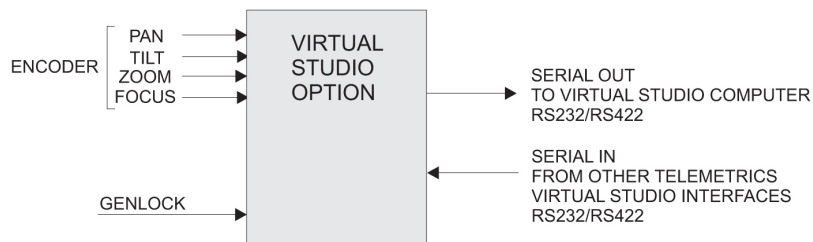


The Virtual Studio Option incorporates precision Quadrature Encoders on the Pan/Tilt Axis of the PT-LP-S4. The encoder outputs are combined with lens zoom and focus encoders, processed into a serial data format and sent to the Virtual Studio Computer. A serial connection is available to connect to the Virtual Studio Computer. The encoder rates of 250 KHz provide interpolated counts of 800,000. The lens Zoom/Focus uses a 10,000 interpolated encoder. Encoder zeroing along with Genlock synchronization is included. Protocol can be made available as required for the different Virtual Studio. ORAD protocol is available immediately.

## Mounting Plate



## Virtual Set Block Diagram





## LP Servo Pan/Tilt Head – PT-LP-S5



### Key Features:

- » Full integral servo with support for Key-frame motion and on-the-fly motion time changes.
- » High Load Capacity up to 85lb.
- » Fast and Quite, up to 90Deg/Sec
- » LED Status indicators for power & health.
- » Local buttons to drive any axis and set Soft-Limits.
- » Innovative Dual-Cradle design for easy Integration
- » Embedded Red & Green Tally
- » Virtual Set ready
- » Web app for: Simple Control, Configuration, & Health Monitoring.
- » Redundancy for Camera Controls & Robotics Control capable.
- » Clean Cable Management
- » Embedded Network Switch with 3x Network ports.

The new PT-LP-S5 robotic pan tilt head is the latest evolution of the widely successful PT-LP-S4 series and represents the 5th generation of robotic camera systems from the award winning Engineering team at Telemetrics, which has more than 100 years combined experience in the broadcast industry. The new S5 line includes Telemetrics advanced servo technology enabling higher payloads and smooth, quiet on-air operation delivering breath-taking results.

Our new “snap-in” modular design enables quick, easy, and accurate setup and commissioning. The S5 line can automatically detect and warn when load balancing and power issues are detected — preventing costly down time. The revolutionary new construction and streamlined design enables greater max payloads and a tremendously stable and reliable platform.

The S5 head is perfectly suited for studio applications where mid to heavy weight payloads of up to 85 pounds are required. The PT-LP-S5 supports mounting prompts, preview monitors, camera, lens, tally, and count down clocks all powered by our integrated cable and power management feature. The system supports both robotic and manual control over-rides where certain studio applications demand the versatility.

The S5 series continues the long-standing support of high-resolution encoders for use in virtual reality applications where robotic cameras are desired.



## LP Servo Pan/Tilt Head – PT-LP-S5

### Specifications

Pan Travel (Max)	+360° w/endstop (720° without end-stops)
Tilt Travel (Max)	+180° -180° ** (+25°, -15° with teleprompter)**
End Stop Resolution	Electronic Smooth Stop
Velocity (Min/Max)	Pan 0.01° - 90°/sec; Tilt 0.01° - 90°/sec*
Stopping Accuracy	60arc sec (0.016°)
Position Resolution	5,625Mil counts per 360° (23-bit)
Acceleration	90°/sec. <sup>2</sup> *
Audible Noise	31 dB(A) max, IEC free field at Velocity 60°/sec
Operating Modes	Velocity, Position Cut & Fade w/convergence, Motion Key Frame, Manual w/Option
Payload	85lbs. (38.5kg) load on center of mass
Weight	38 lbs. (17 kg)
Power In	38-53 VDC (10A Max)
Input Power Connector	7-pin Male XLR
Camera Power Output	50 W (13.5 VDC, 3.7 A max)
Teleprompter & Talent Monitor Power Output	120W (13.5 VDC, 8.9 A max)
Temperature Range	Operating: 4 to 50°C (40 to 120°F) Storage: -30 to +60°C (-22 to 140)
Tally	Red & Green Integrated & Output IO Support
Virtual Data Output	Ethernet UDP, RS232, 422
Compatible Lenses	Analog Teleconference & Digi Full Servo lenses
Camera Direct Control of CCU function	Most Broadcast Manufactures cameras and Models. (Contact Telemetrics for Full list of supported models)

### Options

PTO-LP-S5-MAN	LP Manual Pan/Tilt Drag Modules
PTO-LP-S5-TC-VS	LP Virtual Studio Option

### Accessories

PTO-LP-S5_MAN	Pan Bars for Manual Control
TL-A-12V	Tally Light with Adjustment
CA-PTP-TM-S-048	Cable S4 Prompt/Tally-12V
Auxiliary Axis	TG4, TG4M, EP6
Dolly	EP-FFD

\*\*Dependent on Equipment Make and Model  
Specifications and features are subject to change without notice



Embedded Red & Green Tally



Manual Operation Configuration

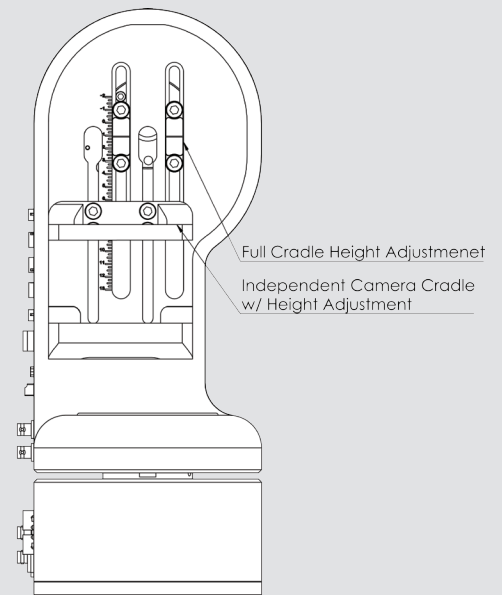
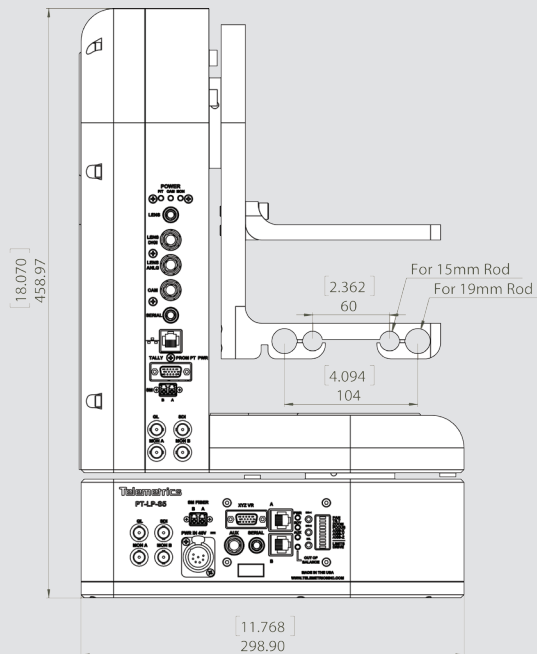
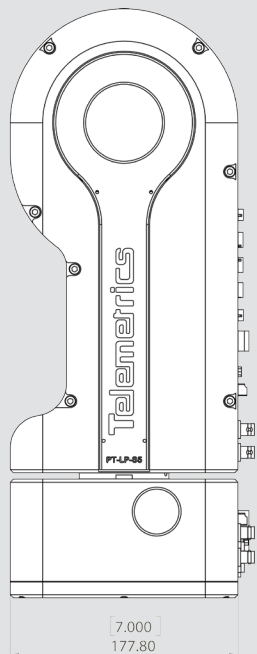
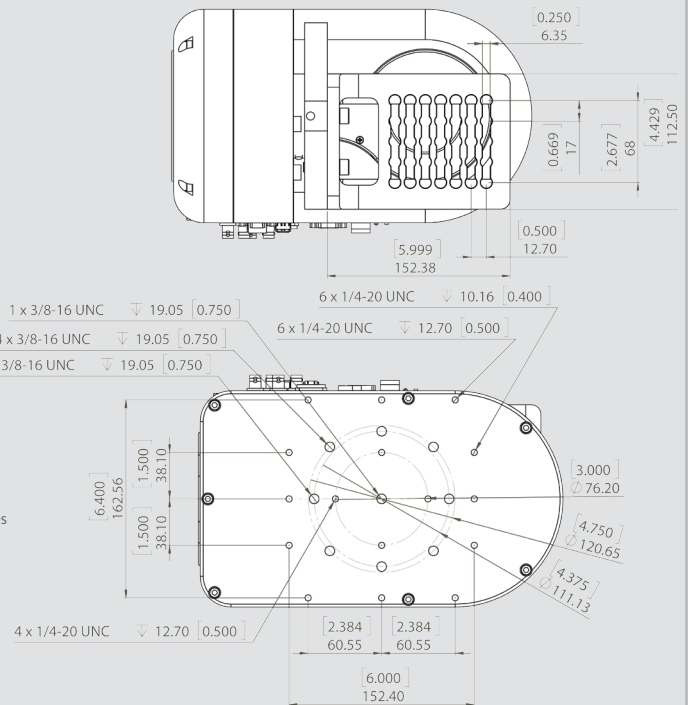
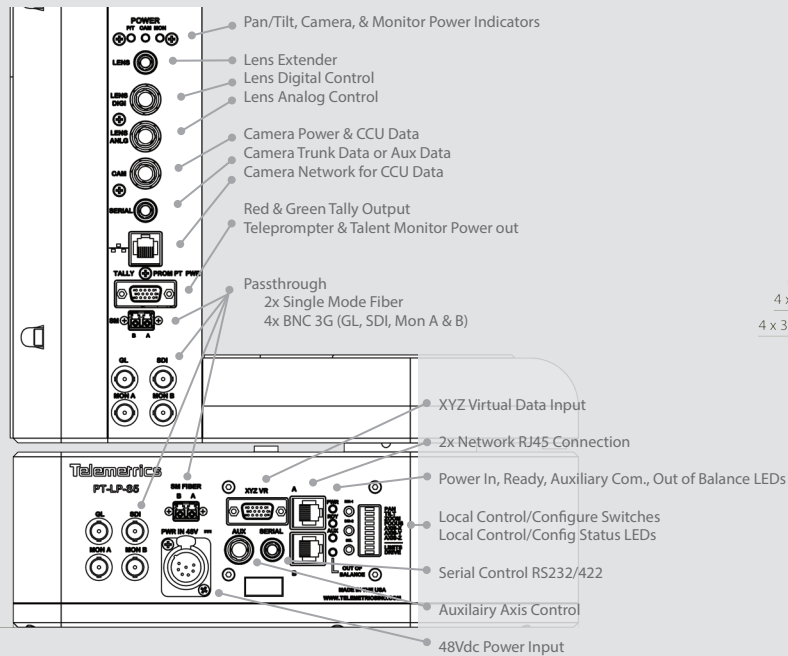


Robotic Head  
Teleprompter  
Talent Monitor  
Column

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## LP Servo Pan/Tilt Head – PT-LP-S5





## RM Servo Pan/Tilt Head – PT-RM-1



### Features:

- » Smooth slow or high speed “Camera Operator” like moves
- » Programmable on the fly timed presets start and stop all axes simultaneously
- » Lens control via analog or digital serial
- » Serial Control through RS232, RS422, or 10/100 Base-T Ethernet
- » Serial camera control interface for most Sony, Panasonic, JVC, Ikegami and Hitachi cameras
- » Internal cable management system
- » Camera Power with optional redundant backup input
- » Optional Teleprompter mounting and power
- » Dual Tally Control (Red/Green)
- » Aux Controls interface for optionally available Trolley, Elevating Pedestal, Elevating Wall Mount
- » Drag Option with Pan Bars: Backup Operation
- » Slip Ring Option provides unrestrained pan rotation
- » Fiber Optic Option: Ethernet, 3G/HD/SD SDI and Genlock

The Telemetrics PT-RM-1 Pan/Tilt Head is a precision pan/tilt head with smooth variable operating speed. Heavy duty bearings and belt drive system provides smooth and quiet operation. Multi-axis control includes pan, tilt, zoom, focus, track, televotor, dolly, iris and master pedestal. Manual smooth motion is accomplished using advanced digital servo control. The unit's motion profiles are field adjustable. Parameters for maximum and minimum velocities acceleration are standard. Preset recall is provided with a time parameter where all axes start and stop simultaneously using preprogrammed acceleration parameters. Camera and lens control is provided via direct serial or analog connections.

Cables are easily managed using the management system at the base of the pan/tilt. Facility for power, Ethernet/serial control, video, genlock and prompter video is provided at the base. The tilt yoke provides a direct interface to the camera, lens and teleprompter so that cables do not get twisted when rotating the pan/tilt. The power input is from a 48V DC source. A powerful and efficient DC-DC converter provides the appropriate voltage levels to power the pan/tilt head, camera, lens, teleprompter and auxiliary robotic devices. The 48VDC input provides for greater cable lengths up to 1500 feet depending on power draw.

The head is capable of backup control. The unit can be used manually by a camera man in case of electronic failure.

## RM Servo Pan/Tilt Head – PT-RM-1

## Specifications

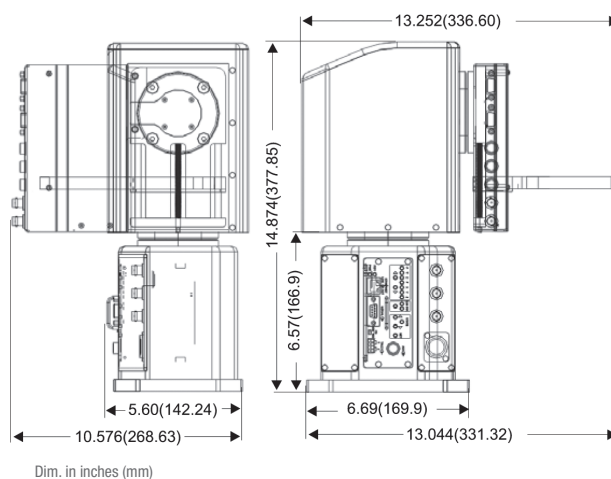
Pan/Tilt Travel (Max)	360° +
Velocity Pan/Tilt	0.005° – 90°/sec
Acceleration Pan/Tilt	90°/sec <sup>2</sup>
End Stops	Electronic: Smooth Stop
Stopping Accuracy	± 15 arc sec / 0.0042°
Feedback Accuracy	3.6 arc sec / 0.001°
Audible Noise	31 dB(A) max, IEC free field
Input Voltage/Current:	38-53 VDC / 4.0 A max
Dynamic Load	35 lbs. (15.9 kg)
Operating Modes	32-bit Velocity and Positional Servo Control for all axes Preset Position with Multi-axis convergence
Mounting	Upright or inverted
Weight	25 lbs. (11.3 kg)
Dimensions	13.252" W x 14.874" H x 10.576" D
Compatible Cameras	All GVG (Serial)

specifications and features subject to change without notice

## Options

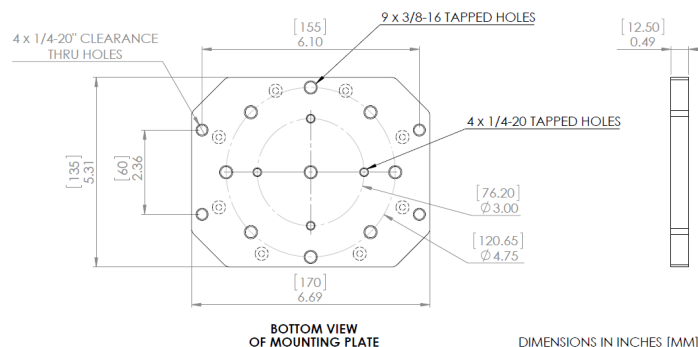
PTO-RM-1-SR	RM Slip Ring Option
PTO-RM-1-CB	RM Counter-Balance Kit
PTO-RM-1-ED	RM Electronic Drag Option with Manual Pan Bars
PTO-RM-1-FO-GL*	RM Fiber Module Video/Control/Genlock*

\*Requires PT-RM-FB Fiber Base Station and PTO-RM-FBM or PTO-RM-FBGM Module



Dim. in inches (mm)

### Mounting Plate Detail



DIMENSIONS IN INCHES [MM]

## Manual Override Accessories



PTO-RM-1 ED Pan Bars

PTO-RM-1-CB RM Counter Balance Kit  
Ref # 57336

PT-RM-1 with RM Drag Kit option. Full System Picture with EP-5, Cable Management, Folding Dolly and Studio Kit

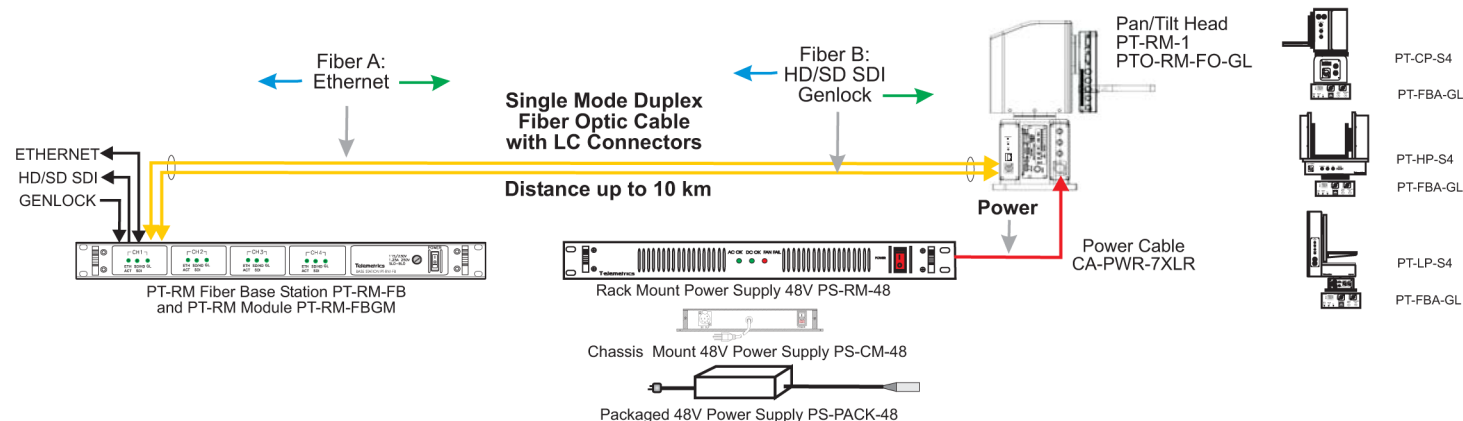
# Telemetrics

## Camera Control Systems

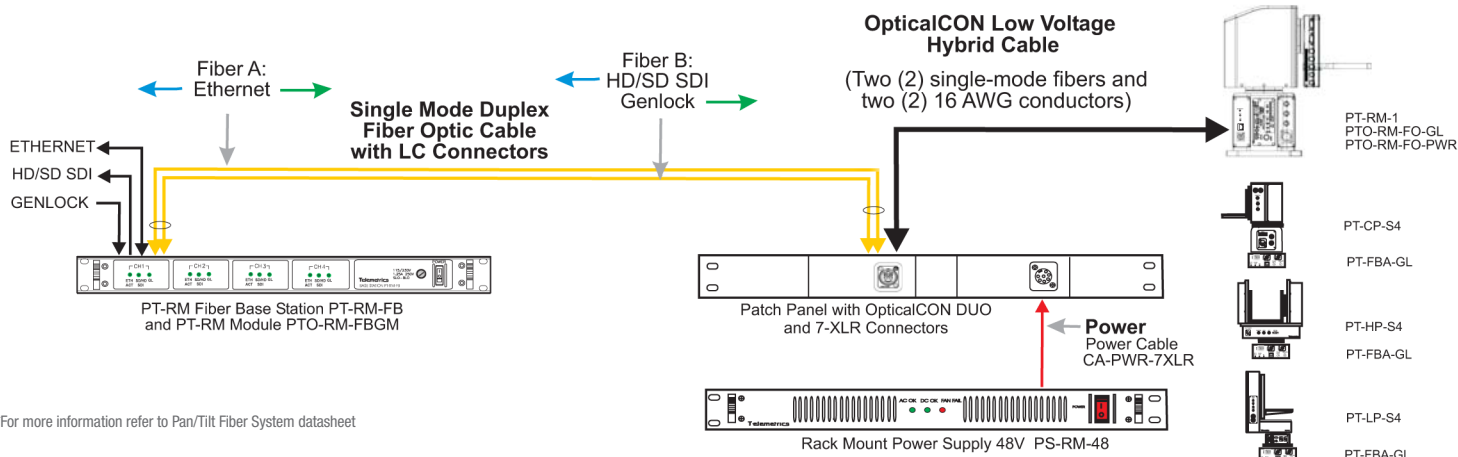


# RM Servo Pan/Tilt Head – PT-RM-1

## Fiber Option Hook-up Diagram using Duplex Fiber Optic Cable with LC Connectors\*



## Fiber Option Hook-up Diagram using OpticalCON Low Voltage Hybrid Cable\*



\*For more information refer to Pan/Tilt Fiber System datasheet



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