

Precision Pan-Tilt Unit

High-speed positioning of heavy payloads

Rugged, Compact, Feature-rich

The PTU-D300 is a family of modular computer-controlled pan-tilt units designed for fast, accurate positioning of heavy payloads. It provides high torque for payloads up to 70 lbs while maintaining speed, precision, and a small form-factor. It offers multiple mounting options and a single connection point. It is designed for demanding applications that require up to 100% duty-cycles and long-life in harsh all-weather environments. Key features include:

- Rigid design provides steady images in windy environments
- Solid and vibration-tolerant for vehicle-mounted applications
- Large payload capacity (35 lbs. top-mount; 70 lbs. side-mount)
- Wide-range of pan speeds ($0.0064^\circ/\text{sec}$. to $100^\circ/\text{sec}</math>)$
- Extremely precise positioning (0.0064° with microstep) allows translating object positions to global coordinates accurately
- Wide-range of pan speeds ($0.0064^\circ/\text{sec}$. to $100^\circ/\text{sec}</math>)$
- 360° continuous-pan including pass-through for many payload types (Video, IR, Laser)
- Single connector for all video, control, power
- Flexible payload mounting (top or sides)
- Precise control of position, speed & acceleration
- Simple control from host computer via RS-232/485
- Fully sealed for outdoor/marine applications (IP67)



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Applications

- Long-range surveillance
- Airborne Sensors & Communications
- Antenna positioning systems
- Satellite communications systems
- Laser ranging systems
- Automated video detection & tracking systems
- Industrial automation
- Port security
- Vehicle & shipboard surveillance systems



General Features

- Rigid worm gear design. No belts/pulleys.
- Solid and vibration-tolerant
- 360° continuous-pan with pass-through for any payload
- Single connector for all video, control, power
- Flexible payload mounting (top or side)
- Precise control of position, speed & acceleration
- CE Mark & FCC certified
- Single DC power input

Options

- Expanded Payload pass-through wiring
- Side mount or top-mount bracket, dual-side+top bracket
- Alternate ranges of motion
- Geo-Pointing Module
- Ethernet/IP Interface
- Inertial Stabilization Module (ISM)

Pan-Tilt Performance (Standard)

	Side Mount	Top Mount
Max Payload ^a	70 lbs. (31.7 kg)	35 lbs. (15.8 kg)
Max Speed ^b	50°/second	50°/second

^a Over-the top payload assumes COG 6" from tilt axis; over the side payload assumes balanced COG.

^b Max speed may depend on exact payload configuration and dynamics.

Pan-Tilt Performance (High-Speed Pan)

	Side Mount	Top Mount
Max Payload	35 lbs. (15.8 kg)	17.5 lbs. (17.9 kg)
Max Pan Speed	100°/second	100°/second
Max Tilt Speed	50°/second	50°/second

Pan-Tilt Features

Tilt Range (approx)	+30° to -90° from upright (120° range) (up to +/-90° with single side mount)
Pan Range (approx)	360° continuous
Pan Speed Min	.0064° /second
Tilt Speed Min	.0064° /second
Pan Position Resolution	.0064° (with microstepping)
Tilt Position Resolution	.0064° (with microstepping)
Duty Cycle	Up to 100% duty cycle, or 3-5 million cycles
Acceleration/Deceleration	Trapezoidal. On-the-fly speed and position changes

Power Requirements

Input Voltage	Unregulated 12-30VDC (fastest performance & torque @ 30VDC)
Power Consumption (Measured at 30VDC)	49.2W avg, peak 2.25A (high power mode) 34.2W avg, peak 1.60A (regular power mode) 18.2W avg, peak 0.78A (low power mode(default)) 1.6W (holding power off mode)

Connections & Communications

Base Connectors	PRIMARY: AMP (MIL-C-26482). Includes: PTU-Power (3c) - 9-30VDC + shield PTU-Control (7c) - RS-232/RS-485 Payload Signals (9-15c) SECONDARY - Reserved
Payload Signal Pass Through	Power (2c): 30VDC max @ 3A max Video (4c): Other (3-9c): 30VDC max @ 1A max Microwave: (DC-18GHz) (Optional) Custom: Various (Optional)
Computer Controls	RS-232 standard (not on all wiring options): Built-in multidrop RS-485 networking
Control Protocols	DP (ASCII, Binary)

Mechanical

Weight	26 lbs. (11.8 kg) (Standard bracket: 1.25 lbs.)
Dimensions	Pan Tilt Only: 11.61" H x 5.53" W x 8.53" D w/top mount bracket: 13.12" H w/side mount bracket: 13.16" W
Payload Mounting	Side-mount, top-mount, dual-side+top mount
PTU Mounting	Pedestal mount
Material	Machined aluminum

Packaging & Environmental

Standards	Designed to IP67
Operating Temperature	-30°C to 70°C
Non-Operating Temperature	-30°C to 70°C
Humidity	100% relative humidity, non-condensing
Ice (Operating)	Sustain operation with 0.25" ice buildup
Dust/Sand (Operating)	Sustain exposure to blowing dust/sand
Wind/Rain/Fog	IP67
Salt Spray	Sustain operation in salt spray environments
Color/Finish	Black anodized
EMI	FCC Part 15, part B Class B
Certifications	RoHS Compliant

Specifications subject to change without notice.



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