

Model PTU-D300-ISM

Precision Pan/Tilt Unit

Low-Cost Stabilized Pointing for Sea, Air, Ground

Rugged, Compact, Feature-rich

The PTU-D300-ISM provides stabilized pointing for virtually any type of payload. The integrated MEMs sensor is used to measure platform motion in real time and the pan/tilt is dynamically controlled to compensate for unwanted motion. It provides line-of-sight stabilization of any type of payload aboard boats, ground vehicles, and aircraft. The D300-ISM provides real-time control while stabilized, enabling applications such as tracking, radar slew-to-cue, and joystick operation.

Key features include:

- Low-cost stabilization of any payload
- Rigid worm gear design (no belts/pulleys) provides steady images in windy environments
- Solid and vibration-tolerant for vehicle-mounted applications
- High holding torque (no sag when powered off)
- Integrated controller—no external box
- Large payload capacity (20 lb top-mount; 40 lb side-mount)
- Wide range of pan speeds ($0.0064^\circ/\text{sec}$ to $50^\circ/\text{sec}</math>)$
- Extremely precise positioning (0.0064° with microstep) allows translating object positions to global coordinates accurately
- 360° continuous-pan including pass-through for many payload types (Video, IR, Microwave, Laser)
- Single connector for all video, control, power interfaces
- Flexible payload mounting (top, side, top+dual-side)
- Precise control of position, speed, and acceleration
- Simple control from host computer via RS-232/-485
- Fully sealed for outdoor/marine applications (IP67)
- CE Mark, FCC, RoHS certification

Options:

- Alternate ranges of motion
- Geo-Pointing Module (GPM)
- Ethernet/IP interface
- C programmers interface
- Joystick/trackball control



Applications

- Maritime camera systems
- Airborne surveillance cameras
- Airborne antenna systems
- Satellite communications systems
- Wheeled vehicle camera systems
- Ship-to-shore/ship-to-ship communications
- Wheeled vehicle camera systems



Surveillance



Military



Remote Sensing



Robotics



Maritime



Antennas



Motion Control Systems

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Technical Specifications

Pan/Tilt Performance (Standard)

	Side Mount	Top Mount
Max Payload ¹	40 lb (18.1 kg)	20 lb (9.0 kg)
Max Speed ²	50°/second	50°/second

¹ Over-the-top payload assumes COG 6" from tilt axis; over the side payload assumes balanced COG.

² Maximum speed may depend on exact payload configuration and dynamics.

Pan/Tilt Features

Approx. Tilt Range	+30° to -90° from upright (120° range) (up to +/-90° with single side mount)
Pan Range	360° continuous
Min. Pan Speed	.0064°/second
Min. Tilt Speed	.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	On-the-fly speed and position changes

Stabilization

Type	2 Axis (3-axis strap-down gyro, no roll compensation)
Sine-wave Stability Error	< 0.25° sine-wave test
Typical Stability Error	< 1° under real platform motion
External Control	Accepts pan/tilt commands while stabilized

Power Requirements

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

Connections & Communications

Base Connectors	PRIMARY: AMP (MIL-C-26482). Includes: PTU-Power (3c) - 9-30 VDC + shield PTU-Control (7c) - RS-232/RS-485 Payload Signals (12c) SECONDARY Gyro (3c) - Gyro RS-232 signals Payload Signals (3c): 30 VDC max. @ 1 A max.
Payload Signal Pass-Through	Power (2c): 30 VDC max. @ 3 A max. Video (4c): 2x Video or 1x Ethernet (10baseT) Other (3-9c): 30 VDC max. @ 1 A max.
Computer Controls	RS-485 (DP Binary to ISM - see ISM Datasheet)
Control Protocols	DP (ASCII, Binary)

Mechanical

Weight	30.75 lb (13.94 kg) (Standard bracket: 1.25 lb)
Dimensions	Pan/Tilt Only: 14.08"(h) x 7.07"(w) x 8.53"(d) (not including brackets)
Payload Mounting	Side, top, dual-side+top
PTU Mounting	Pedestal
Material	Machined aluminum

Packaging & Environmental

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

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