Model PTU-D300-ISM E-Series

Stabilized Heavy-Duty Pan/Tilt Unit

Low-Cost Inertial Stabilization for Sea, Air, Ground

Rugged, Compact, Feature-rich

The PTU-D300-ISM E-Series is a high-performance stabilized positioning system for payloads up to 40 pounds. 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 E-Series provides real-time control while stabilized, enabling applications such as tracking, radar slew-to-cue, and joystick operation.

The PTU-D300-ISM E-Series supports any type of single or multi-part payload through a flexible bracketing system of top and/or side mounting. It has been designed to be simple to integrate. The PTU-D300-ISM E Series is an open platform to provide flexibility while minimizing development and integration effort.

The PTU-D300-ISM E-Series has been proven in a wide range of mission-critical applications for positioning of cameras, lasers, antennas, or other instruments in both fixed and mobile environments. It is designed for high duty cycles and reliable operation 24/7 in harsh all-weather environments. The PTU-D300-ISM E-Series ensures your project will be completed on-time and correctly the first time.

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°/sec to 50°/sec)
- 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/Ethernet
- Fully sealed for outdoor/marine applications (IP67)
- CE Mark, FCC, RoHS certification
- Wide temperature range with no heater required
- Web/Ethernet interface for configuration/control

About the E-Series Pan/Tilt Units

The latest evolution of MCS pan/tilts incorporates a powerful 32-bit core electronics platform and real-time operating system to deliver superior motion control fidelity and improve performance. The E-Series architecture includes:

- Increased command rate and reduced jitter
- Advanced microstep control
- Digital encoders for closed-loop control
- User-programmable ranges of motion
- Integrated Ethernet and Web interfaces
- Slip-ring for 360° continuous pan
- On-board stabilization (with ISM option)
- On-board geo-pointing (with GPM option)

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Surveillance

Military

Remote Sensing

Robotics

Maritime

Antennas

FLIR® Motion Control Systems

Model PTU-D300-ISM E-Series

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, 2 stabilized axes)
Range	Full pan/tilt range of motion
Sine-wave Stability Error	<0.25° per axis @ 1 Hz (unloaded)
Slew Rate	Up to pan/tilt maximum
External Control	Accepts pan/tilt move commands while stabilized

Power Requirements

Input Voltage	Unregulated 12-30 VDC (fastest performance & torque @ 30 VDC)
Input Protection	Over-voltage/over-current protection meets MIL-STD-1275D
Power Consumption (Measured at 30 VDC with loaded axes. May vary with application.)	27.6 W (Low move power mode) 37.5 W (Regular move power mode) 60.0 W (High move power mode) 3.3 W (Hold power off mode)

Connections & Communications

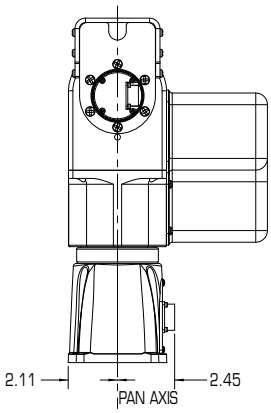
Base Connectors	PRIMARY: Connector: 32-pin (MIL-C-26482) Includes: PTU-Power (3c) - 12-30 VDC + shield PTU-Control (7c) - RS-232 (3c) and RS-485/-422 (4c) Ethernet (4c) pan/tilt configuration/control Payload Pass-Through (9-12c)
Payload Signal Pass-Through	Power (2c): 30 VDC max. @ 3 A Video-1 (2c): NTSC/PAL/RS-170 Video-2 (2c): NTSC/PAL/RS-170 High-Speed Pass-Through (4c): capable of 10baseT Other (3c): 30 VDC max. @ 1 A Connector: 19-pin (MIL-C-26402)
Computer Controls	RS-232, RS-485/422, Ethernet
Control Protocols	DP (ASCII, Binary), Pelco-D compatible (for PTU control), Nexus-compatible

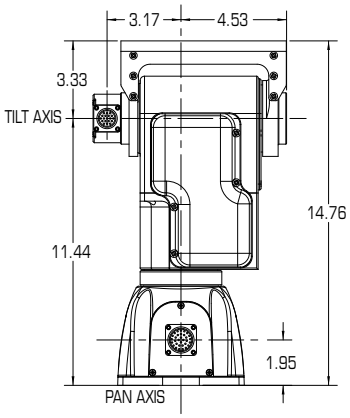
Mechanical

Weight	30.75 lb (13.94 kg) (Standard bracket: 1.25 lb)
Dimensions	Pan/Tilt Only: 14.76"(h) x 7.07"(w) x 8.53"(d) (including top 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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