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Model PTU-D48-ISM E-Series

Compact, Stabilized Pan/Tilt Unit

Low-Cost Inertial Stabilization for Sea, Air, Ground

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Fully Integrated, Real-Time Control, Built-in Ethernet

The PTU-D48-ISM E-Series provides high-performance stabilized positioning for payloads up to 10 pounds. Stabilization improves images while on the move and allows communications links to be maintained from air, ground, or sea platforms. The PTU-D48-ISM E-Series is an ideal OEM platform for a wide range of applications including slew-to-cue, video tracking, and antenna tracking.

The PTU-D48-ISM E-Series is based on FLIR's second generation ISM stabilization platform providing superior performance. The compact, all-in-one design simplifies cabling and improves reliability. The PTU-D48 E-Series supports any type of single or multi-part payload through a flexible bracketing system of top and/or side mounting and is simple to integrate. The PTU-D48-ISM E-Series is an open platform to provide flexibility while minimizing your development and integration effort.

The PTU-D48-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-D48-ISM E-Series ensures your project will be completed on-time and correctly the first time.

Key features include:

- Low cost
- 3-axis, integrated gyro
- Rigid worm gear design (no belts/pulleys)
- Solid and vibration-tolerant for maritime and vehicle-mounted applications
- Wide range of pan speeds (< 0.006°/sec to over 100°/sec)
- 360° continuous pan option (with support for multiple payloads)
- Flexible payload mounting (top, sides, or both)
- Real-time control during stabilization - supports video tracking, slew-to-cue
- Simple control from host computer via RS-232/485/422/ Ethernet
- Web interface for configuration
- Single connector for all payload, pan/tilt signals
- Fully sealed for outdoor/marine applications (IP67)
- CE Mark, FCC, RoHS certifications
- ISM starter kit (breakout cable, power supply, configuration software available)
- Alternate colors/finishes available

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 rates, 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
- Expanded I/O for payload control
- On-board stabilization (with ISM option)
- On-board geo-pointing (with GPM option)

Surveillance

Military

Remote Sensing

Robotics

Maritime

Antennas

FLIR® | Motion Control Systems

Model PTU-D48-ISM E-Series

Technical Specifications

Pan/Tilt Performance

	Side Mount	Top Mount
Max. Payload	10 lb	7 lb
Pan Speed Range[1]	0.006°/sec - 100°/sec	0.006°/sec - 100°/sec
Tilt Speed Range	0.003°/sec - 50°/sec	0.003°/sec - 50°/sec
Resolution - Pan	0.006°	0.006°
Resolution - Tilt	0.003°	0.003°

[1] Unloaded. Maximum speed may depend on exact payload configuration and input voltage.

Pan/Tilt Features

Max. Tilt Range	Programmable up to +30° to -90° from level (120° range)
Max. Pan Range	Programmable up to +/-220° range, nx360 with slip-ring option
Duty Cycle	Up to 100% duty cycle
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.]	19.8 W (low move power mode) 26.4 W (regular move power mode) 34.5 W (high move power mode) 3.3 W (hold power off mode)

Connections & Communications

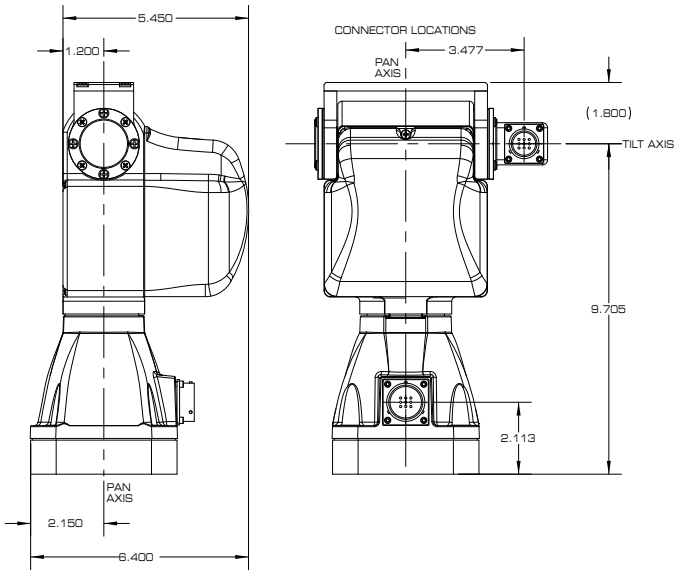
Base Connectors	PRIMARY: Connector: 32-pin (MIL-C-26482) Includes: PTU-Power (3c) - 12-30 VDC + shield PTU-Control (7c) - RS-232 (3c) and RS-485/-422 (4c) Ethernet (4c) pan/tilt configuration/control 10BaseT Payload Pass-Through (9-12c)
Payload Signal Pass-Through	Power (2c): 30 VDC max. @ 3 A Video-1 (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	12.4 lbs (with top bracket)
Dimensions	11.51" (h) x 6.84" (w) x 5.45" (d) (with top bracket)
Payload Mounting	Side and/or top
PTU Mounting	Pedestal
Material	Aluminum

Packaging & Environmental

Standards	Designed to IP67
Operating Temperature	-30°C to 70°C (no heaters)
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	MIL-810F Salt Spray
Color/Finish	Black anodized and powder-coated; custom colors/finishes available
EMI Certifications	CE Mark and FCC Part 15, Subpart B, Class A
Certifications	RoHS Compliant



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