Midsize, Inertially Stabilized Pan/Tilt Unit

The PTU-D100-ISM E-Series integrates a powerful MEMs gyro to provide active inertially stabilized pointing with real-time control for payloads up to 20 pounds. Stabilization improves images while on the move and allows communications links to be maintained from air, ground, or sea platforms. The PTU-D100-ISM E-Series is an ideal OEM platform for a wide range of applications including slew-to-cue, video tracking, antenna tracking, and more.

The PTU-D100-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 latest evolution of FLIR pan-tilts incorporates a powerful 32-bit core electronics platform and real-time operating system to deliver superior motion control fidelity and improve performance.

**KEY FEATURES INCLUDE:**

- Smooth, repeatable motion and rigid design provide steady images in windy environments and excellent visual tracking
- Powerful command set supports absolute angle, relative angle, and velocity control with low latency and low jitter
- Extremely precise positioning (0.0075°) allows translating object positions to map coordinates accurately
- 3-axis strap-down gyro design
- Rigid worm gear design (no belts/pulleys)
- High holding torque (no sag when powered off)
- Solid and vibration-tolerant for vehicle-mounted applications
- Wide range of pan speeds (< 0.0075°/sec to 120°/sec)
- Integrated Ethernet and Web interfaces
- Increased command rates, reduced jitter
- Increased torque and speed
- Advanced microstep control

www.flir.com/MCS
Specifications

Pan/Tilt Performance

<table>
<thead>
<tr>
<th>Side Mount</th>
<th>Top Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Max. Payload</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>20 lb (balanced)</td>
</tr>
<tr>
<td><strong>Pan Speed Range</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.0075°/sec – 120°/sec</td>
</tr>
<tr>
<td><strong>Tilt Speed Range</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.0075°/sec – 120°/sec</td>
</tr>
<tr>
<td><strong>Resolution – Pan</strong></td>
<td>0.0075° (with microstep)</td>
</tr>
<tr>
<td><strong>Resolution – Tilt</strong></td>
<td>0.0075° (with microstep)</td>
</tr>
</tbody>
</table>

Pan/Tilt Features

- **Tilt Range**: +30° to -90° from level (120° range)
  (up to +/-90° with side mount if specified at time of order.)
- **Pan Range**: +/-180° or 360° continuous
- **Duty Cycle**: Up to 100% duty cycle, or 3-5 million cycles
- **Acceleration/Deceleration**: On-the-fly speed and position changes

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)
  - Low move power mode: 33.0W
  - Regular move power mode: 45.0W
  - High move power mode: 63.0W
  - Hold power off mode: 3.3W

Connections & Communications

Base Connectors

- PRIMARY: 32-pin (MIL-C-26482). Includes:
  - PTU-Power (3c) - 12-30 VDC + shield
  - PTU-Control (7c) - RS-232 (3c) & 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 (option), Nexus-compatible

Mechanical

- **PTU Weight**: 19 lb
- **PTU Dimensions**: Pan/Tilt only: 12.56” (h) × 8.2” (w) × 7.9” (d)
- **Payload Mounting**: Single/dual-side mount, top mount
- **PTU Mounting**: Pedestal
- **Material**: Machined aluminum, stainless fittings

Packaging & Environmental

- **Standards**: IP67 Certified
- **Operating Temperature**<sup>3</sup>: -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-810G Salt Spray
- **Color/Finish**: Black anodized, custom colors/finishes available
- **Shock/Vibration Certifications**: MIL-STD-810G Method 514 & Vibration, Method 516.6 Drop Test, Method 516.6 Shock
- **EMI**: CE Mark and FCC Part 15, Subpart E, Class A

<sup>1</sup>Over-the-top payload assumes COG < 6” from tilt axis; over the side payload assumes balanced COG.

<sup>2</sup>Maximum speed may depend on exact payload inertia and input voltage.

<sup>3</sup>Reduced speeds may be required for low temperature operation.

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