

# OPTO-ELECTRONIC TRACKING SYSTEM



***The Optical Electronic Tracking System (OETS) is a long range surveillance and tracking system that can locate and track targets day or night.***

- DAY AND NIGHT LONG-RANGE SURVEILLANCE AND TRACKING
- INFRARED CAMERA WITH INTERNAL TELESCOPE AND ELECTRONIC ZOOM
- EYESAFE LASER RANGEFINDER
- VIDEO CAMERA AND ZOOM LENS
- AUTOMATIC VIDEO TRACKER
- TWO-AXIS PEDESTAL
- VMEBUS ARCHITECTURE
- HIGH ACCURACY DATA OUTPUT
- REMOTE CONTROL AND DISPLAYS

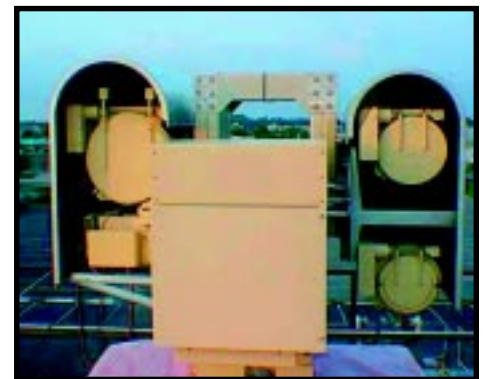
The Opto-Electronic Tracking System Model 203 (OETS-203) provides the capability to locate and track targets day or night that would normally be hidden in low contrast backgrounds or lost in darkness. The OETS-203 combines the passive target detection capability of a long range infrared camera and a video camera with automatic video tracking and laser ranging.

- The infrared camera system includes an internal dual field of view telescope with built-in electronic zoom. The camera creates a high fidelity thermal video image for display on standard video monitors. During demonstration trials, a fighter aircraft was passively detected at 65 kilometers, autotracked at 45 kilometers, and manually tracked to over 100 kilometers.
- The OETS-203 can be delivered with a variety of broadcast quality video cameras and zoom lens combinations. Passive automatic angle tracking capabilities are available using either the video camera or infrared camera.
- The Video Tracker electronics and software process digitized video to provide target location information. The tracker processor generates an internal track loop for OETS-203 pedestal control as well as positioning data for remote (slaved) pedestal systems.
- The laser rangefinder operates at 1.57

microns and is eyesafe at the aperture. The high-power laser transmitter combined with a 300 millimeter receiver aperture provides a range capability of 20 kilometers on a four square meter non-cooperative target under normal atmospheric conditions.

## Operational Modes

- Remote pedestal(s) slaved to OETS pedestal. Manual control of OETS pedestal with joystick(s) or handwheels. Autotrack when initiated by operator.
- OETS pedestal slaved to remote pedestal. Enables monitoring of infrared or video camera targets while tracking with a remote pedestal.
- Independent operation of the OETS and remote pedestals. Permits operation of each pedestal for maintenance and calibration or to track separate targets.



***OETS with sensor covers***

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## Infrared Camera

- Optical FOV
  - Wide (4X): 5.25" V x 7.00" H
  - Narrow (15X): 1.40" V x 1.87" H
- Instantaneous FOV
  - 4X: 0.50 mr
  - 15X: 0.13 mr
- Electronic Zoom 1:1, 2:1, 4:1
- F-Number: 1.0
- Minimum Detectable Temperature 0.06°C (Typical)
- Minimum Resolvable Temperature
  - 4X: 0.5°C
  - 15X: 0.3°C
- Detector
  - Type: 4 element HgCdTe
  - Spectral Range: 8-12 microns
  - Cooling: Closed Cycle

## Video Camera/Lens (Typical)

- Interline transfer 1/2 inch CCD
- 25-350 mm zoom lens with auto iris
- Environmental protective enclosure
- Remote zoom and focus controls

## Laser Rangefinder

- Pulse Energy: 30 mJoule @ 40°C
- Pulse Width: 10 ns (nominal)
- PRF: 20 PPS
- Rise Time: 10 ns (nominal)
- Beam Divergence: 0.5 mr/4.0 mr
- Receiver FOV: 4.0 mr (typical)
- Receiver Aperture: 300 mm
- SNR (25% good returns): 3.1:1
- Wavelength: 1.57 microns (Eyesafe)

## Automatic Video Tracking System (AZ & EL)

- Microprocessor based automatic video tracker
- High Precision Single Gate Tracker
- RS170A and CCIR-I (50 Hz/60 Hz) auto operation
- Centroid Tracking Algorithms
- Manual Window Sizing (2% to 50% FOV)
- Selectable Polarity Independent, Positive Contrast or Negative Contrast Tracking
- Reliable Decoy Evasion using Intelligent Breaklock (Coast) and Re-acquisition Algorithms
- Flexible Interfaces
- Video Output with Symbology Overlay of Track Windows, Boresight Market, Status, etc.

## Pedestal

- Travel
  - Azimuth: 360° continuous
  - Elevation: -5° to +95°
- Velocity: 30°/second (both axes)
- Acceleration: 30°/second/second
- Static Accuracy: 0.18 mr
- Dynamic Accuracy: 0.266 mr

NOTE: The above described pedestal and sensor suite has been tested for shock, vibration, and temperatures for -20°C to +70°C. A variety of other sensors can be provided to meet specific customer requirements.

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