

# OPTO-ELECTRONIC TRACKING SYSTEM

## *Mobile Opto-Electronic Tracking System (OETS-204)*



THE MOETS IS DESIGNED TO PROVIDE TEST RANGE INSTRUMENTATION TO OPTICALLY ACQUIRE AND TRACK POWERED AND BALLISTIC PROJECTILES FOR REAL-TIME VIEWING AND FOR RECORDING VIDEO FOR POST MISSION ANALYSIS.

The **Mobile Opto-Electronic Tracking System (MOETS)** is a state of the art Opto-Electronic Tracking System designated OETS-204.

A standard MOETS consists of two local systems and one remote console.

- The local system consists of a truck-mounted operations shelter and one trailer-mounted pedestal. The post-type pedestal has four stations for mounting a suite of optical sensors that can be configured to support different mission requirements. The local operator's console contains the controls, indicators and video recorders necessary for a single operator to control the system. The local MOETS can operate completely independently of other range instrumentation or it may be unmanned and remotely controlled from the remote console. A warning light and GPS time receiver assembly is also part of each local subsystem. The local subsystem console is composed of a two-bay equipment rack with:

VME based, 32-bit computer system for data acquisition and control of the pedestal, cameras, video recording equipment and other peripherals.

Local console connected to the pedestal via a fiber optic link.

Software for target acquisition, automatic target tracking, calibration, data processing and diagnostics.

Video autotracker.

Real-time controls and video displays.

Intelligent Interface to remote console data link system.

Video routing switcher.

SVHS video cassette recorder.

The pedestal may be operated mounted on the trailer or mounted on a prepared surface.

The standard local system is provided with a high resolution color video camera attached to a zoom lens, a high-speed digital camera with selectable frame rates up to 1000 fps attached to a zoom lens (the optics and electronic controller take up two sensor-mount positions on the pedestal) and an IR camera attached to a zoom lens.

An option offered with the MOETS is a post-mission triangulation software module to provide target AER positional data relative to a designated point upon playback from two different local units.

- The remote console is designed to be installed in a permanent facility. It provides the controls, indicators and recording devices required for one operator to remotely control or override two local units.

Video monitor displays

Real time controls, indicators and displays

Remote control computer terminal

VME based, 32-bit processor and interface for console controls, displays and remote communications

Intelligent Interface to a local pedestal fiber optic, hardwire and microwave data link system

Software/firmware for remote control of both pedestal subsystems and the data display

SVHS video cassette recorders

Video routing switcher

The remote console may also be configured to interconnect with range instrumentation radars, optical directors or other devices that may provide slaving control to the local system.

- The local and remote units are designed to be interconnected by fiber optic cable, hardwire or by multi-channel microwave. Data Links are provided between the remote console and the two local consoles to provide data, video and voice transmissions. The standard MOETS is supplied with 2 km fiber optic cables for data links.

**BAE SYSTEMS**



### OETS-204 Characteristics:

Min. Target Range: >15 km in standard clear atmosphere (Typical 2 meters long x 30 cm diameter)

High Speed Camera Detection Range: 5 km (6 inch sphere, frame rate 500fps, clear atmosphere)

Data Precision: 16 Bit

Digital Data Output: Corrected AZ & EL

Operation Modes: TV, Auto-Track, Manual and Designate

Acquisition Aids: Remote Designate via Data Link

Calibration Equipment: Precision Level Meter, Star Calibration and Calibration Targets

Power Requirements: 120V AC +/- 10%, 60 +/- 3 Hz, Single Phase, 3-wire, Grounded neutral

### Infrared Camera

- Optical FOV
  - Wide: 22 deg.
  - Medium: 5.5 deg.
  - Narrow: 1.1 deg.
- Focal Length: 25mm, 100mm, 500mm
- Electronic Zoom: Motorized
- F-Number: 4.1
- Active Pixel Area: 256 x 256
- MRTD < .025K
- MRT: .5/W @ 80K
- Detector Type: InSb
- Cooling Type: Closed Cycle, Stirling
- Cooling MTBF: > 4,000 hours

### Color Video Camera/Lens (Typical)

- Interline transfer 1/2 inch CCD
- 70-700 mm zoom lens with auto iris
- Environmental protective enclosure
- Remote zoom and focus controls

### High Speed Digital Camera/Lens (Typical)

- Variable frame rate 30-1000 fps
- 256 x 256 pixel resolution
- SN > 4:1 at 280 lux f/6.8
- 32.7 sec recording time @ 500 fps
- IRIG Time stamp recorded on each frame
- 4 Gb Removable Hard Drive
- 27-1480 mm zoom lens with auto iris

### 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 +85° Operational
  - 5° to +185° Calibration/Plunge
- Velocity: 60°/second (both axes)
- Acceleration: 60°/second/second
- Accuracy: 16-bit, 20 Arc Sec RMS, both axis

NOTE: A variety of other sensors can be provided to meet specific customer requirements.

For more information, please contact Business Development  
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