

OPTO-ELECTRONIC TRACKING SYSTEM

The Optical Electronic Tracking System (OETS) is a long-range surveillance and tracking system which can detect and track targets otherwise hidden in low contrast clouds or darkness. Units have been delivered and integrated into an air defense system.

The OETS is a combination of video, thermal and laser sensors on a small ruggedized, transportable pedestal (or integrated into the customer's larger pedestal), all controlled by an integrated video tracker. The standard configuration includes a modular control and display assembly that can be integrated into a larger system.

Typical sensors include long-range thermal camera, high-resolution video camera with zoom lens, and Class 1M eye-safe laser range finder for generating three dimensional position data. The tracker processor includes a software track loop for local pedestal control and positioning data for slaved pedestals.

MOBILE OPTO-ELECTRONIC TRACKING SYSTEM

The Mobile Opto-Electronic Tracking System (MOETS) is a state of the art Opto-Electronic Tracking System. The MOETS is designed to provide test range instrumentation for optically acquiring and tracking powered and ballistic projectiles for real-time viewing and recording video for post mission analysis.

ABOUT US

At BAE Systems, Inc. in the United States, our employees design and deliver advanced defense, aerospace and security solutions that keep the nation at the forefront of modern technology. Our pride and dedication show in everything we do, from innovative electronic systems to intelligence analysis and cyber operations, from combat vehicles and weapons to the maintenance and modernization of ships, aircraft and critical infrastructure.

FOR MORE INFORMATION

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The standard MOETS consists of two local systems and a remote console:

- The local system is a truck-mounted operations shelter with console, associated electronics, and a trailer mounted pedestal.
- The remote system enables a single operator to remotely control or override two local units.
- Data Links between the remote console and the local consoles to provide data, video, and voice transmissions.
- Characteristics:

Type: OETS-204

Minimum Target Range: >15 km in standard clear atmosphere

High Speed Camera Detection Range: 5 km

Data Precision: 17 Bit

Digital Data Output: Corrected AZ & EL

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

Acquisition Aids: Remote Designate via Data Link

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

Power Requirements: 120 V AC(±10%), 60 (±3) Hz, Single Phase, 3-wire Grounded neutral.



ELECTRO-OPTICS

BAE Systems has an established worldwide reputation for expertise in the design and manufacturing of instrumentation radars, electronic warfare and electro-optic systems.

ELECTRO-OPTICS

As an adjunct to radars, our expertise in electro-optical tracking systems emerged into a standard in test range electro-optical instrumentation. This brochure is an overview of recent applications and developments in Optical, Thermal, and Laser instrumentation, as well as special purpose radars for electrooptical platforms.

The Optical Tracking System (OTS) 200 series is the flagship of the Electro-Optical product line.

The Compact Tracking Radar (CTR) is a full angle and range tracking radar for installation and operation on a wide variety of precision optical platforms.

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

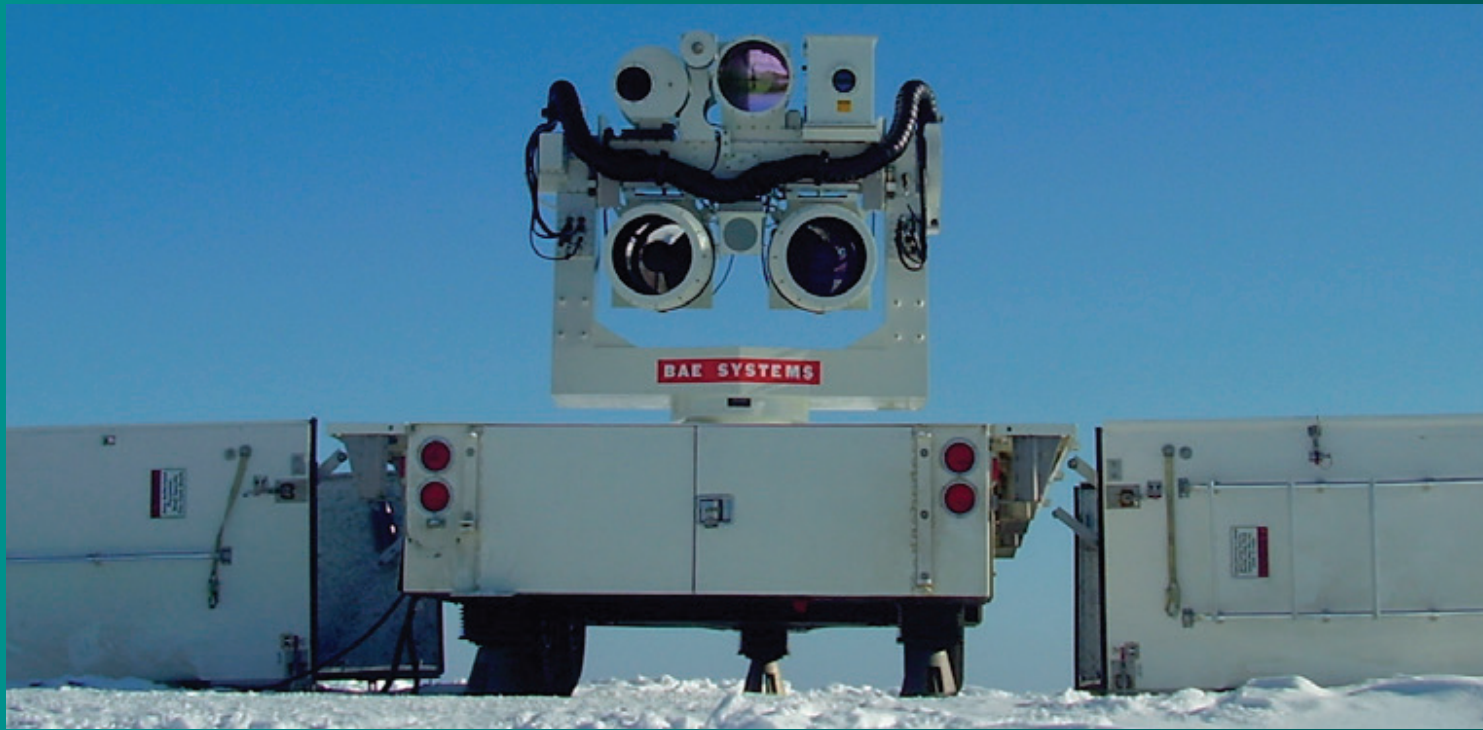
The Range Only Radar (ROR) is a compact, light weight, low cost RF ranging sensor for optical tracking platforms.

Mobile Opto-Electric is the state of the art system for real time viewing and video recording for a full mission analysis.



KEY FEATURES

- The system is highly mobile (4hrs max set up/break down)
- Automatic correction for pedestal mislevel
- Next generation optical tracking systems
- Rapid relocation, setup and auto-calibration
- Local and long range remote control via network
- Slaveable
- High Speed Optics
- Auto Angle Tracker
- Dual FOV IR Camera
- VME bus Architecture
- Local digital video recording
- Real-time digital video streaming and playback
- Encoder, range, time, cal and status per frame
- 150 milliseconds video latency to console
- Quick-look mission data to data center via network



OPTICAL TRACKING SYSTEM

The Optical Tracking System (OTS) has earned its place as the standard by which test range Time Space Position Information (TSPI) instruments are measured. A four platform configuration has been operating at a modern European test range since late 1991.

The OTS is a flexible high performance solution to the demanding problems facing testers of modern weapons systems. The OTS has the accuracy to test today's GPS equipped aircraft and precise guided weapons, the dynamic response to test complex munitions and the flexibility to adapt to a variety of missions.

The most outstanding feature of the OTS is its extraordinary angle accuracy. The high dynamic accuracy is a result of a combination of precision mount construction, encoder accuracy, optical stability, and time tested (but continually evolving) calibration techniques. Add a system design which minimizes data latency, and the result is a high dynamic accuracy. A typical OTS uses the Photo-Sonics CTM (others can be adapted), a 20-bit encoder, and a custom designed multi-focal length lens.

The modularity of the sensor mounting and control architecture allows a variety of sensors (video, thermal, film, and radar) to be interchanged to meet specific mission requirements. A typical sensor array includes: a high power precision multifocal length high MTF tracking video lens, a high resolution broadcast quality zoom acquisition lens, a high speed film or video camera, laser or radar ranging sensor or full angle tracking radar. The flexible control architecture allows remote location of the operations shelter, a wide variety of video formats and data recording and analysis tools. A typical system configuration is depicted at right:

COMPACT TRACKING SYSTEM

The Compact Tracking Radar (CTR) improves the power of an optical platform by adding:

- Simultaneous angle and range autotracking.
- Long-range (all weather) target radar acquisition.
- Centroid tracking of clustered targets.



- Autonomous range for single-station X, Y, Z position, auto-focus of optical sensors, on-axis Cartesian tracking, and real-time AER slaving.
- Greater than 30 dB clutter rejection.
- Improved transportability.
- Eliminates the need for a dedicated radar system.

The CTR consists of a monopulse antenna (typically 1 meter) environmentally protected Transmitter-Receiver and IF Signal Processing enclosures, a remote control panel, and display. Adding the CTR to a mobile, optical tracking system provides the user with a highly efficient, cost effective solution to a wide variety of mission requirements.

It provides the long-range, all-weather features of a radar and the data collection capabilities of a wide variety of electro-optical sensors.

RANGE ONLY RADAR

In response to the demand for a compact, lightweight, low-cost RF ranging sensor for optical tracking platforms, the Range Only Radar (ROR) was developed and is fielded at multiple test ranges. The ROR blends the reliability, flexibility, and cost effectiveness of commercial off-the-shelf (COTS) components and PC based hardware and software to make real-time autonomous range available to an optical platform for the price of an optical sensor.

The ROR is a small parabolic antenna, an environmentally protected Receiver-Transmitter enclosure, and a remote PC.

The R/T unit houses an "X" band pulse radar transmitter and receiver, power supply and controller communication module. The PC is a generic, industry compatible unit containing an a range tracker card with integrated display hardware and software. With a 1 meter dish and a 10kW transmitter generating at 0.5 ms pulse, the ROR can track a 0.1meter² RCS target to 10 km with a 6 dB signal to noise. Various antenna, transmitter and control options are available.