

COMPACT TRACKING RADAR



Compact Tracking Radar (CTR)

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.

To meet the requirements of several test ranges in various parts of the world, BAE SYSTEMS designed a Compact Tracking Radar for integration on optical tracking systems. This X-Band radar adds the flexibility of a full angle and range tracking sensor, significantly improving the capabilities of both new and existing optical tracking systems.

The Compact Tracking Radar (CTR) provides the following capabilities:

- Simultaneous angle and range auto-tracking
- Long-range all-weather target acquisition
- Autonomous range data for:
 - Single-station X,Y,Z position
 - Auto-focus of optical sensors
 - On-Axis Cartesian tracking
 - Real-time AER slaving
- Centroid tracking of clustered targets
- >32 dB clutter rejection/suppression
- Eliminates the need for a dedicated radar
- Improved transportability

The CTR uses our proven Digital Moving Target Indicator (DMTI) receiver to provide coherent signal processing. Recorded data (Option) may be used for post-mission pulse Doppler analysis, providing an additional dimension to the angle and range data available from typical radar and optical tracking systems.

The CTR transmitter with a magnetron and solid-state modulator provides 85 kW minimum peak output. Standard metric or IRIG PRFs to 1280 PPS are provided. The 1-meter antenna has a gain of 36 dB, low sidelobes, and a -3 dB beamwidth of 2.5°. The CTR can skin track aircraft beyond 65 km and munitions to 20 km. Beacon tracking capability is included.

The CTR receiver is based on the industry-standard VMEbus architecture for IF and digital processing functions.

Coherent processing is developed by phase-locking a coherent local oscillator to the magnetron pulse. The DMTI receiver serves as a

conventional 3-channel monopulse IF receiver, developing angle error signals by amplitude comparison between the reference channel return and the azimuth and elevation channel returns.

Range tracking is accomplished by a VMEbus-based single-board computer using a Motorola 68030 processor integrated into the DMTI receiver package.

Angle tracking accuracy is better than 0.25 milliradians at SNRs greater than 12 dB. Range accuracy under equivalent conditions is better than 3 meters rms.

When several targets are within the beam and separated by less than 75 meters, the radar will track the centroid of the combined RCS. Recording of I and Q video data (Option) of the combined return allows for resolution of target positions during post-mission processing.

Options available for the CTR are:

- I & Q Doppler Data Recording
- Doppler target-motion-resolution reduction and analysis
- Customized multi-mode remote control panel
- Built-in output data time-tagging and recording
- Remote color A-scope display of radar video
- Radar video superimposed over standard video
- Range and angle processing to produce:
 - Single-station X,Y, and Z
 - On-axis Cartesian tracking
 - Optical sensor auto-focus and zoom
 - Real-time AER slaving

Full technical specifications and a detailed description are available upon request.

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Typical Compact Tracking Radar Installation

The descriptions contained in this brochure are current at time of publication but may be subject to variation as a result of later improvements. Equipment supplied will be in accordance with the company's specification current at the time of manufacture or as otherwise agreed in writing.

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