



ADVANCED CENTRIC SYSTEMS B.V

TACTICAL AIR DEFENSE RADAR

Product brochure



THE PROBLEM

A generally-accepted definition for “Air Defense” is “all measures designed to nullify or reduce the effectiveness of hostile air action.”

In practical terms, these measures include purpose-specific weapon systems (ground-based, airborne and shipborne), the sensor systems that support these weapon systems, the command and control resources used to employ and manage the air-defense effort, as well as some passive resources. All of these measures are employed to protect the national airspace, vital infrastructures, high-value installations and military forces. Missile defense is a more recent aspect of air defense.

The objective of the over-all air-defense effort is to detect and identify hostile aerial targets (fixed and rotary wing aircraft, UAS, missiles, rockets, etc.), engage these targets and destroy them before they can inflict damage.

In addition to the over-all air-defense effort, deployed military forces and forces operating on the battlefield, at sea or in out-of-area situations require their own air-defense capabilities.

Ground-Based Air-Defense (GBAD) efforts may be divided into the following categories:

- Self-defense, where ground or naval forces employ their own air-defense resources.
- Accompanying air-defense, where dedicated air-defense elements operate in conjunction with and provide close protection to ground forces.
- Point defense, where air-defense elements protect a particular objective or locality, such as a seaport, airport, military base or infrastructure facility.
- Area air-defense, where air-defense elements are deployed to provide a protective umbrella over a specific area.

GBAD systems can also constitute a deterrent, as in some cases they can threaten the enemy’s airspace, thereby deterring the enemy forces from using this airspace for offensive purposes.

Today’s air-defense system category includes an extensive variety of surveillance systems, weapon systems, Command, Control, Communication and Intelligence (C4I) systems and integrated systems.

Tactical air-defense Radars are required in order to support anti-aircraft systems, provide medium-range surveillance for air-defense layouts and support C3I and ATC systems and various point and area air-defense applications.

THE SOLUTION

ACS presents TACADER - Tactical Air Defense Radar.

TACADER is a state-of-the-art, solid-state, L-band medium-range tactical Radar for air-defense applications. It can detect fighter aircraft, helicopters, ultralight aircraft and UAVs.

TACADER differentiates between fixed-wing and rotary-wing aircraft and classifies helicopters according to their rotor characteristics. It provides automatic target detection and accurate range, azimuth and elevation angle measurements.

TACADER may be used as a tactical Radar in the context of a local air-defense system; in conjunction with a surface-to-air weapon system (e.g. MANPADS); as a gap-filler Radar constituting an element in comprehensive C3I systems and as a support Radar for ATC (Air Traffic Control) systems.

TACADER operates efficiently even in high-clutter environments.

KEY FEATURES & MAJOR ADVANTAGES

Key Features & Major Advantages

- Cutting edge L-band medium-range Radar for air-defense applications
- Automatic detection of fighter aircraft, helicopters, ultralight aircraft and UAVs
- Track-while-scan of up to 100 targets simultaneously
- Target differentiation & classification
- Integration with surface-to-air weapon systems & IFF systems
- Multiple Radar units may be integrated to form a comprehensive air-defense surveillance system
- Elaborate BIT (Built-in Test) protocol
- Low power consumption (2500 Watts typical)
- Excellent MTBF (2500 hours) and MTTR (20 minutes)
- Solid-state transmit/receive module
- Active Electronically Steered Array (AESA) for elevation
- Extensive ECCM (Electronic Counter-Countermeasures)
- Digital technologies:
 - Digital beam forming
 - Digital pulse compression
 - Digital receivers
- Installation options: stationary (ground or tower), mobile (truck transportable)
- Typical applications:
 - Support for surface-to-air weapon systems
 - Medium-range (up to 180 km) surveillance for air-defense applications
 - Support for C3I and ATC systems
 - Support for infrastructure/high-value installation protection (point defense)
- Specifications
 - Detection range:
 - Instrumental: 180 km

- Fighter aircraft: 70 – 110 km
- Hovering helicopter: 40 km
- Ultralight aircraft & UAVs: 40 – 60 km
- Range accuracy: 20 meters
- Azimuth accuracy: 0.5°
- Elevation accuracy: 1°
- Elevation coverage: 60°
- Minimum target detection velocity: 36 km/h
- Power requirements: 20-32 VDC
- Peak transmission power: 1600 Watts
- Frequency band: L
- Interface protocol: Asterix
- IFF modes: 1, 2, 3/A, C (mode 4 optional)
- Environmental compliance: MIL-STD-810F
- EMC/EMI compliance: MIL-STD-461C
- Operating temperature range: -30°C to $+50^{\circ}\text{C}$

