



Long Range Acoustic Device



The Long Range Acoustic Device (LRAD) represents the new generation of wildlife control devices. The LRAD system is capable of providing controlled delivery of bioacoustics at variable volumes in a tight beam at ranges to 1000 meters. LRAD for bird and wildlife control is supported by DeTect, the industry leader in airfield wildlife control and detection technologies and systems.

Birdstrikes to civilian and military aircraft worldwide cause over \$1 billion in damages annually ... over 400 lives have been lost

The Long Range Acoustic Device

The LRAD technology was originally developed by the American Technology Corporation (ATC) for military and civilian force protection and security applications. DeTect and ATC partnered to expand the system's applicability into bird and wildlife control and the LRAD-B was developed as a dual purpose technology to support airfield and airport bird/wildlife control and security. The technology has been extensively tested and proven at airfields, airports, landfills and other sites with wildlife management issues (such as mines, tailing ponds, retention basins and wind farms).

LRAD-B offers a new level of control capabilities allowing bird and wildlife to be deterred at extended ranges on, around and in the airspace above sites. The system is available in two power ranges in manual and automatic configurations. The technology can also be integrated with DeTect's MERLIN™ Avian Radar System to provide automatic

tracking and deterrence of birds both on and above site, including critical control zones (e.g. the airspace above a wind turbine).

LRAD-B is supported by the industry leading experts at DeTect and ATC that include a former Chief of the US Air Force BASH team, the former head of USAF Bird Control Europe and force protection experts. LRAD is dual use technology supporting:

- ❖ Bird control for airports, airfields, landfills, mines & wind farms
- ❖ Waterside force protection
- ❖ Crowd & riot control
- ❖ Building clearing operations
- ❖ Psychological operations
- ❖ Visit board search & seizure
- ❖ Remote-operation infrastructure force protection
- ❖ Ground/mechanized offense/defense operations



LRAD-B OVERVIEW



The LRAD-B

These same features that have made the LRAD the "tool of choice" for force for non-lethal force protection make the technology ideal for bird and wildlife control applications at airfields, landfills, wind farms, mines and impoundment sites. The LRAD-B was jointly developed by DeTect, the world leader in bird and wildlife radar detection and control technologies, and the American Technology Corporation. The unit has been extensively tested for operational safety and wildlife control efficacy and is delivered with wildlife control protocols and operator training provided by DeTect's wildlife control experts.

The LRAD-B offers capabilities not available with conventional bird control devices (e.g. gas cannons, speakers, pyrotechnics, etc.). Benefits of the LRAD-B for bird and wildlife control include:

- ❖ Extended range over conventional deterrent devices (horizontally and vertically)
- ❖ Reduced risk of habituation
- ❖ Variable sound sources
- ❖ Manual or automatic operation
- ❖ Durable, rugged MILSPEC design
- ❖ Dual purpose (supports facility security)

The Long Range Acoustic Device (LRAD)

LRAD is a breakthrough long-range hailing and warning, directed acoustic beam device. LRAD was originally developed to communicate at operational ranges with authority and superior intelligibility in high ambient noise environments. LRAD is already known throughout the Department of Defense as "The Sound of Force Protection," LRAD systems are currently in operational use or evaluation in maritime, check point, vehicular, airborne, and integrated system applications by the USN, USMC, US Army, and USCG. LRAD also supports applications for the Department of Homeland Security, other government and law

enforcement agencies, plus high value commercial infrastructure.

LRAD is a flat panel, multi-transducer, phase coherent emitter. Designed for highly-directional communication at 300+ meters over land and 500+ meters over water. LRAD can also issue a wide range of warning tones that influence behavior and determines intent at safe standoff distances. Thereby, the LRAD operator can execute proactive responses under existing rules of engagement. Addressing the critical "danger close" capability gap, LRAD can save lives on both sides of the device. In the remote-operation pan/tilt configuration, LRAD provides a first responder capability for large infrastructure force protection.



To view a video of the LRAD-B in operation for bird control online see www.detect-inc.com/LRADB.html



GENERAL SPECIFICATIONS

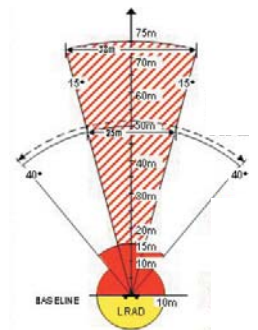
Performance Characteristics:

- ❖ Operationally effective 30° high energy acoustic beam
- ❖ Clear and intelligible voice communications effective 300 to 500+ meters depending on environmental conditions
- ❖ Attention-getting and highly irritating warning tone effective 500 to 800+ meters
- ❖ All-weather operation & rugged construction
- ❖ Manual, man-portable operations with optional vehicle mount options available
- ❖ Pan/tilt remote operation for integrated automatic tracking and firing with the MERLIN or HARRIER radar systems
- ❖ Flexible mounting (stand-alone tripod/50 Cal mount/ship rail/vehicle/building)
- ❖ Minimal power requirement of 4 Amps, operates on 120VAC, battery, inverter, or generator
- ❖ Flexible audio input/user interface supporting microphone, MP3, wav, CD and voice inputs
- ❖ Dual purpose system can be used for site security and force protection



SPECIFICATION DATA:

WEIGHT:	45 lbs
DIAMETER:	33" diameter x 5" thickness
MAXIMUM SPL TONE:	146dB sustained, 151dB burst at 1 meter
MAXIMUM SPL VOICE:	Less than 120dB sustained, based on individual voice frequencies & harmonic characteristics
REGULATED POWER MODE:	Normal operations, tone limited to 120dB at 1 meter
DURABILITY:	Thermal conditions have minimal effect on system performance.
EMITTER, HARMONIC DISTORTION:	System meets MIL-STD 810 environmental specifications; Less than 1% THD at 126dB at 1 meter at 2.5kHz
MAXIMUM POWER HANDLING:	500 watts; 100-240VAC at 50-60Hz, 5 amps at 115VAC
NORMAL POWER USAGE (TONE):	240 watts, 2 amps at 115VAC
DIRECTIONALITY:	-20dB at +/- 15° at 2.5kHz



COMPANY & CONTACT INFORMATION

DeTect specializes in development and deployment of advanced radar detection technologies for meteorology, aviation safety, force protection and environmental applications. DeTect's products are supported by highly experienced former US Air Force and NOAA engineers, scientists, programmers, biologists, and planners who are experts in remote sensing, radar engineering, system integration and project management.

DeTect products include:

- ✦ Aircraft Birdstrike Avoidance Radars
- ✦ Bird & Bat Survey & Monitoring Radars
- ✦ Airspace, Marine & Ground Security Systems
- ✦ Aircraft Detection & Surveillance Radars
- ✦ Marine Surveillance Radar Networks
- ✦ NEXRAD Environmental Data Products
- ✦ Radar Wind Profilers, weather radars, visibility sensors, & lightning detectors
- ✦ LRAD-B systems for bird & wildlife control

DeTect services include:

- ✦ Bird-Aircraft Strike Hazard (BASH) Management
- ✦ Airfield & Industrial Bird & Wildlife Control
- ✦ Wind Energy Project Wildlife (Bird & Bat) Impact Assessment
- ✦ Radar System Solutions Engineering, Design & Development
- ✦ Environmental Planning & Analysis (NEPA) support
- ✦ Avian Radar Survey & Risk Assessment
- ✦ Data Management & Geographical Information Systems (GIS)

DeTect systems have been deployed at facilities and projects worldwide - including sites in the US, Canada, England, Europe, the Middle East, Asia & Africa - with a proven record of exceptional performance & reliability. Customers include the US Air Force, Army, NASA, USGS, and the governments of Canada and the UK.



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