



Command Without Exposure: Remotely Operated Acoustic Systems for Critical Incidents

A Guide for Emergency Managers
and Public Safety Leaders

Remotely operated Acoustic Hailing Devices (AHDs) enable clear, authoritative broadcasts across perimeters, facilities, and communities without leaving protected positions.

For decades, LRAD® has set the global benchmark for focused, long-range clarity, and Genasys ACOUSTICS has powered wide-area alerts when entire populations need to hear and act. These systems are widely deployed on vehicles, vessels, and aircraft for mobile operations with onsite users, but in this eBook, we focus on their remotely operated capabilities.

From protests to disaster zones, fixed-location, remotely operated AHDs transform how agencies manage high-stakes incidents. They enable faster coordination, safer operations, and unified communication when it matters most.



Executive Summary - Command Without Exposure

Emergencies don't wait. Officers, soldiers, and first responders are pulled into volatile situations where hesitation or unclear instructions cost lives. Yet most agencies still rely on outdated sirens, radios, and bullhorns, leaving communities confused, evacuations delayed, and personnel exposed.

Remotely operated Genasys ACOUSTICS and LRADs allow leaders to project authority, deliver instructions, and de-escalate incidents without leaving the safety of a command center.

- **Extend control without exposure.** Broadcast authoritative voice commands across bases, campuses, and communities from protected positions
- **Layer wide-area and pinpoint coverage.** ACOUSTICS replaces vague sirens with intelligible community alerts; LRAD cuts through chaos with focused clarity across kilometers
- **Stay operational when others fail.** Solar, battery, and satellite support keep systems broadcasting when power and networks collapse
- **Turn surveillance into response.** Cameras, sensors, and access control can trigger instant, automated voice instructions

- **Support Unmanned Operations.** LRADs mounted on unmanned vehicles and vessels empower agencies to extend their operations without endangering personnel
- **Built for the Future.** With unmanned vehicles and vessels becoming more prevalent, LRAD and ACOUSTICS systems ensure today's investment meets tomorrow's demands for adaptive, integrated, emergency communication

The outcome: faster decisions, safer personnel, and clearer compliance across every mission.

For defense, public safety, and critical infrastructure, remote acoustic systems deliver what legacy tools cannot: real-time clarity, command-level control, and the confidence to lead without exposure.

From the First LRAD® to Remote Command

On October 12, 2000, a small boat packed with explosives struck the USS Cole in Yemen, killing 17 sailors and injuring more than 40. At the time, the crew had no way to project clear, authoritative warnings at distance. That communication gap cost lives.

In response, Genasys developed the world's first Long Range Acoustic Device® (LRAD), giving militaries and governments a tool to deliver unmistakable voice commands across thousands of meters. It set a new global benchmark for clarity in crisis, opening a new market for critical communication systems.

That same drive to eliminate communication gaps now extends further. Building on two decades of proven deployments, Genasys has advanced its systems with remote operability, allowing LRAD and ACOUSTICS units to be controlled, synchronized, and monitored from secure locations. The result: the same clarity trusted worldwide, now combined with greater safety, versatility, and command-level control.

How Remote Command Works

Remote Operability: Command Without Exposure

Reach Technology (RT) takes the proven clarity of LRAD and the wide-area power of ACOUSTICS and extends their impact through digital control. From command centers, precincts, or mobile ops hubs, operators can:

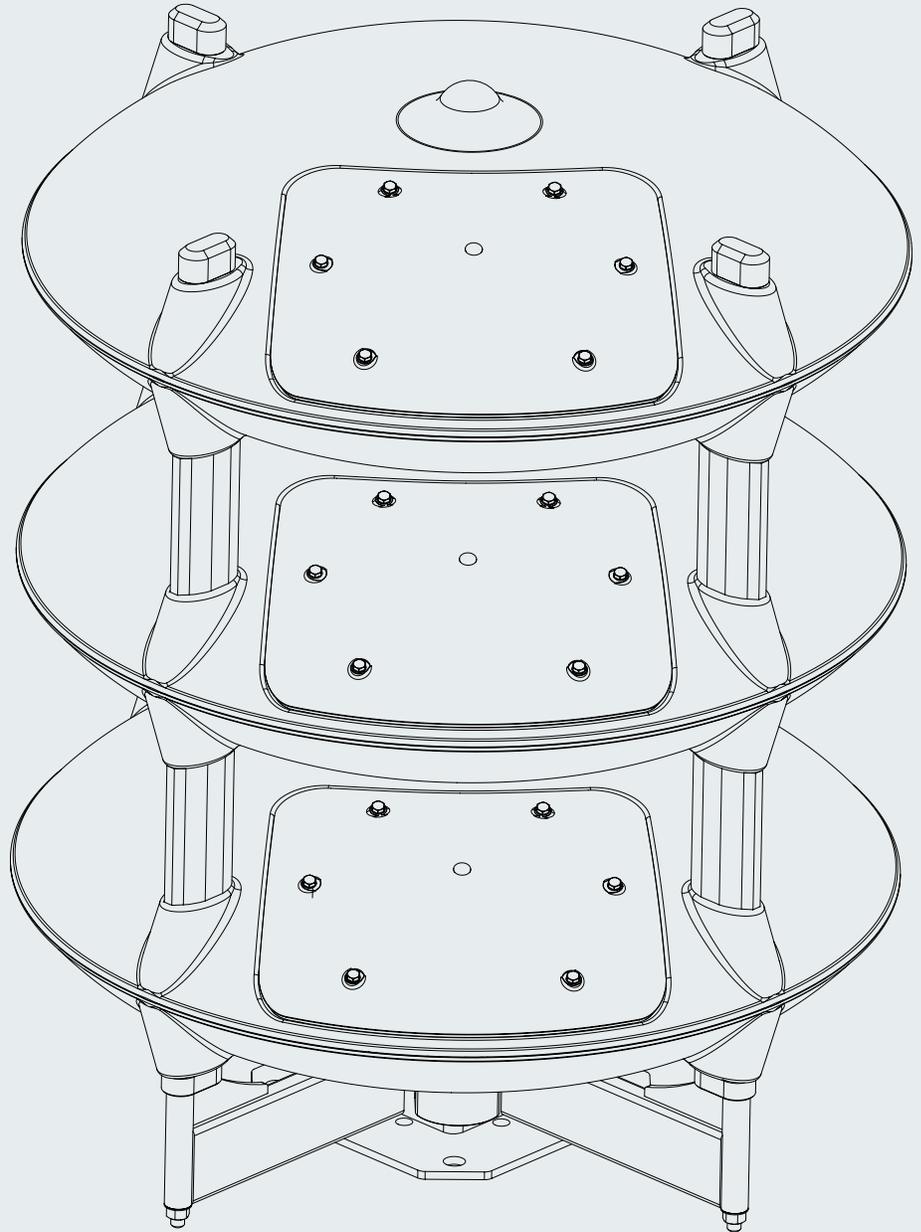
- Activate and synchronize units across multiple sites
- Run automatic diagnostics at power-up
- Adjust volume, direction, or playback in real time
- Integrate seamlessly with surveillance, access control, and sensor systems

Additionally, LRAD units can be mounted on unmanned vehicles and vessels. This enables operators to project instructions or warnings into areas that are inaccessible or unsafe for personnel, such as active conflict zones, hazardous spill sites, or restricted maritime approaches, while retaining full remote control of volume, direction, and messaging.

This seamless integration of remote operability, mobile deployment, and unmanned platforms ensures Genasys AHDs are ready for any mission today and future-proofed for the growing shift toward unmanned and autonomous systems that keep personnel out of harm's way while still delivering critical communications.

LRAD: Targeted Clarity

LRAD projects tightly focused audio beams up to 5 km (16,404 ft), cutting through noise, physical barriers, and chaos to ensure every word is heard and understood. LRAD systems can be mounted for land, sea, and air operations, enabling personnel to deliver rapid broadcasts wherever they are needed. This flexibility makes LRAD indispensable for missions requiring mobility, speed, and precision.



ACOUSTICS: Wide-Area Coverage

ACOUSTICS systems broadcast clear, intelligible voice alerts 60° to 360°, over local and large areas. ACOUSTICS can be mounted on trailers for rapid deployment wherever communication coverage is needed.

Built-in solar charging, battery backups, and satellite connectivity keep systems online even when power grids, networks, or other critical infrastructure are down. They replace outdated sirens with actionable instructions that help keep populations safe.

Where Remote Acoustic Control Makes the Difference

From military bases to city centers, agencies relying on legacy sirens or PA systems face the same risks: unclear instructions, slower compliance, and unnecessary exposure. Remotely operated acoustic systems solve this by delivering clear, authoritative voice messages from a distance, reducing risk while maintaining control.

Defense & Military

Maintain control of volatile environments without putting soldiers in harm's way. Secure perimeters, manage checkpoints, and broadcast instructions directly from protected positions. The outcome: safer personnel, clearer intent recognition and EOF control, and stronger mission outcomes.

Increasingly, armed forces pair LRADs with unmanned ground vehicles (UGVs) or unmanned sea vehicles (USVs) to broadcast audible warnings and commands and initiate escalation of force at standoff distances, allowing operators to establish and maintain control over dispersed areas, such as roadblocks or forward positions, and keep personnel out of hot zones.

Border Security

Reduce false confrontations and de-escalate situations before they spiral. Integrated with cameras and sensors, operators identify intent and issue instructions across vast terrain from central command. UGV mounted, LRADs allow operators to engage directly with individuals or groups in remote or rugged areas and scale communications coverage across long stretches of border where manpower is limited. The outcome: safer agents, clearer encounters, and more effective border control.

Maritime Security

Keep ports and coastlines secure without exposing crews. Mounted on USVs, LRADs give harbor authorities the ability to project clear, authoritative instructions at sea, whether intercepting suspicious craft or directing vessels during emergencies, without pulling personnel away from other critical posts. LRAD voice broadcasts cut through wind, engine, and language barriers so operators enforce exclusion zones and direct USVs from control centers. The result: safer waters, faster compliance, and fewer boarding risks.

Law Enforcement

Protect officers while maintaining authority in volatile environments. From protests to courthouse lockdowns, dispersal orders and public safety instructions are issued without face-to-face confrontation. The result: fewer injuries, stronger public trust, and more controlled outcomes.

Local Government & Public Safety

Ensure your community always hears what matters during emergencies and in daily life. From evacuation orders to civic updates, leaders can reach everyone clearly from central command, even when networks fail. The outcome: calmer citizens, stronger trust, and faster notifications when it counts.



Critical Infrastructure

Protect workers, assets, and surrounding communities with instant, automated alerts. When integrated with sensors and access control, voice warnings can be activated automatically during leaks, breaches, or equipment failures. The result: less downtime, fewer accidents, and stronger resilience for critical operations.

Higher Education

Keep students informed and protected across campus. Whether delivering lockdown notifications, event guidance, or daily campus updates, teams can broadcast clear instructions instantly in certain areas or campus wide. The outcome: safer operations, more engaged students, and greater confidence in campus leadership.

Large Events & Stadiums

Guide tens of thousands of event attendees with a single, unified voice. Pre-positioned systems at gates, concourses, and surrounding streets are controlled from joint operations centers. The outcome: less confusion, faster movement, and safer experiences for everyone.

Messages From a Distance



Jacques Chevallier French Navy Supply Ship



LRAD 500X w/ Military unit



LRAD 500X w/ NYPD

Remote Genasys ACOUSTICS & LRAD in Action

Modern security and safety challenges demand more than eyes on screens or boots on the ground. By enabling remote operability, acoustic systems extend communication and control beyond physical presence. Agencies can now broadcast clear, authoritative voice instructions directly from secure command centers, transforming surveillance into response, improving scalability, and reducing the risks of exposure.

Access Control & Perimeter Security

When facilities rely only on cameras and passive barriers, intrusions can escalate before personnel even arrive. That delay leaves operators blind and security forces exposed.

Gain greater control over who approaches and enters secure areas. Remotely operated systems transform cameras and sensors into first-response tools, enabling live voice engagement without deploying personnel.

- Issue clear commands at checkpoints or fence lines to stop intrusions before they escalate
- Establish intent at distance, buying critical time for decisions and measured escalation
- Synchronize instructions across multiple entry points from a single command hub

Facilities that once relied only on cameras can now actively intervene, warning intruders to stop or directing vehicles where to go, all before security arrives on scene. Mounted on UGVs and USVs, LRADs can be deployed to reinforce perimeter security at temporary checkpoints, remote fence lines, or pop-up cordons, giving operators control without having to dispatch personnel to every location.

International Conflict & Defense

Maintain command presence without exposing soldiers.

In conflict zones or humanitarian corridors, clear communication reduces risk and prevents missteps.

- Direct civilians or suspects from protected command posts instead of vulnerable manned checkpoints
- Control movements in and out of bases or FOBs through integrated security networks
- Deploy multilingual or prerecorded messages for PSYOPS and aid operations at scale

In high-risk missions, remote systems allow militaries to maintain authority and control across entire areas of operation without frontline exposure.



Civil Unrest & Mass Gatherings

Keep crowds safe and officers out of harm's way. In protests, celebrations, or packed festivals, noise and chaos overwhelm bullhorns and vehicle PAs.

- Cities can pre-install systems along known protest corridors and public squares
- Command centers issue synchronized dispersal orders across multiple zones instantly
- Event organizers and law enforcement share one unified communication channel

Case Study

Columbia, SC controlled rowdy post-game crowds with minimal arrests using vehicle-mounted LRADs. Today, those same messages can be broadcast remotely across an entire downtown corridor simultaneously and without deploying officers into the crowd.

Critical Infrastructure Protection

In critical facilities, hesitation costs lives. A gas leak, fire, or radiation breach leaves no time for manual response; relying on alarms or radios alone can mean workers and affected communities evacuate too late, or not at all. Automate protection when seconds matter most. Dams, refineries, and power plant emergencies often do not give time for manual responses and require sensors to trigger alarms.

- Link voice alerts directly to gas, fire, or radiation sensors for instant evacuation messages
- Manage multiple sites from one command dashboard for regional coverage
- Keep communication intact with blast-protected units even in high-risk scenarios

Case Study

37 dams in Puerto Rico are being equipped with remotely controlled ACOUSTICS systems that issue automated voice warnings downstream during potential flooding and other emergencies, protecting communities without waiting for manual activation.

Maritime & Remote Operations

Maintain secure, efficient operations at sea and shore. High noise and harsh conditions require durable systems that get messages through, and remote operability enables port-wide scalability.

Operators address approaching vessels directly from the harbor master's office.

Coastal surveillance networks integrate with remote systems to warn off intruders.

Remote activation ensures continuity even during storms or inaccessible conditions.

Case Study

Port Houston now ties fixed acoustic units into storm protocols, broadcasting remote evacuation and safety instructions simultaneously to ships and dockworkers.

Disaster Zone Communication & Evacuations

Direct communities to safety even when infrastructure fails. Power grids and cell towers may go dark, but Genasys systems keep broadcasting.

- Activate evacuation routes directly from an EOC, not the roadside
- Replace vague siren tones, that leave communities wondering what's expected of them, with clear evacuation or shelter in place instructions followed by actionable life-safety information
- Combine wide-area alerts with targeted remote commands for layered evacuation strategies

Case Study

During Colorado's 416 Fire, local fire service deployed truck-mounted LRADs to issue evacuation instructions across neighborhoods. Today, strategically placed, fixed remote units could guide traffic at multiple intersections simultaneously, coordinated entirely from the command center.

Search & Rescue

Extend communication to the unreachable. Survivors in disasters are often cut off from radios, phones, or responders. Remote acoustic systems bridge the gap.

- Broadcast instructions from fixed towers in remote terrain or flood zones when digital networks fail
- Deliver multilingual prerecorded messages to direct survivors toward aid stations
- Integrate with UGVs and USVs to reach missing persons or broadcast instructions across flooded or unstable terrain, extending responder reach without increasing risk

Case Study

After the 2011 Japan tsunami, truck-mounted PA systems were used. Today, remote acoustic towers provide centralized coverage across entire coastlines, enabling stronger, faster, and safer responses.

Public Updates & General Communications

Build trust through clarity in both crisis and daily life. Communities expect actionable instructions, not vague alarms.

- Cover town squares, transit hubs, and campuses with reliable remote messaging
- Deliver consistent, multilingual updates for emergencies and civic life alike
- Automate alerts through integration with local sensor networks

Case Study

Towns in Japan commonly use municipal loudspeaker networks to push national J-ALERT warnings. In Ando Town, those alerts are now delivered via Genasys ACOUSTICS towers that replaced roaming PA trucks, providing clear, town-wide voice messaging and direct J-ALERT integration from the control center.







Active Shooter & Armed Suspect Incidents

Control standoffs from a safe distance. Proximity puts officers at risk; remote systems let them lead from outside the danger zone.

- Pre-installed units at schools, campuses, and public buildings deliver instant lockdown or surrender orders
- EOCs can override facility speakers with clear instructions during lockdowns
- Officers maintain standoff distance while retaining authority and communication control

Case Study

In Pittsburgh, police used an acoustic system to play a suspect's mother's voice, ending a standoff peacefully. Today, such interventions could be run from a command center and unmanned ground vehicles.

Why Remote Control Is Now Essential

Emergencies move faster than ever. Crowds form in minutes, disasters escalate in seconds, and threats strike without warning. Agencies relying on traditional sirens, PA systems, or bullhorns face the same outcome: confusion, slower compliance, and unnecessary danger for personnel.

Remotely operated Genasys ACOUSTICS and LRADs close those gaps. From a command center, a single operator can direct perimeters, guide evacuations, or calm a crowd across multiple sites at once. Integrated with sensors and cameras, they don't just sound alarms, they inform, direct, and de-escalate before situations spiral.

The result: faster decisions, safer personnel, and clearer outcomes for the communities and assets under your protection.

Make the shift from presence to projection, from exposure to protection. The future of audible voice broadcast systems is remote, integrated, and always ready.

By combining fixed installations with mobile unmanned vehicles and vessels, agencies can now scale their voice broadcast communications across wider areas with fewer personnel, maintaining control during fast-moving emergencies and adapting in real time as situations shift.

See how it works. Schedule a demo or consultation today and learn how Genasys ACOUSTICS® and LRAD® systems can strengthen your operations, protect your people, and deliver clarity when it matters most.





Long-Range Clarity, When it Matters Most.

