What is a Remote Control Acoustic Hailing Device?

Eltem's unique and innovative technology allows operators to observe the situation on the spot remotely even during day and night and also clear command and highly effective warning broadcasts to be transmitted to long distances (1~3km). It consists of a high-powered Long Range Acoustic Hailing Device that is connected to the equipment via Ethernet and controls all functions remotely using dedicated control software, a motor that can be adjusted vertically and horizontally, a daytime camera and a thermal camera.

FEATURES

- Simultaneous Surveillance and Warning Broadcasting
- Superior Voice Intelligibility and Highly Clear Communication
- Maximum range up to 5000 meters in ideal conditions. Operational range up to 3000 meters over 88dB of background noise. Ranges based on continuous output.
- High output of 161dBA
- -140 ~ +140 degree (left and right) rotation, -60 ~ +60 degree (up and down) rotation 360°(left and right) rotation, 180°(up and down) rotation
- Network sound source and microphone broadcasting
- 32x optical zoom camera
- Network control
- All-weather use
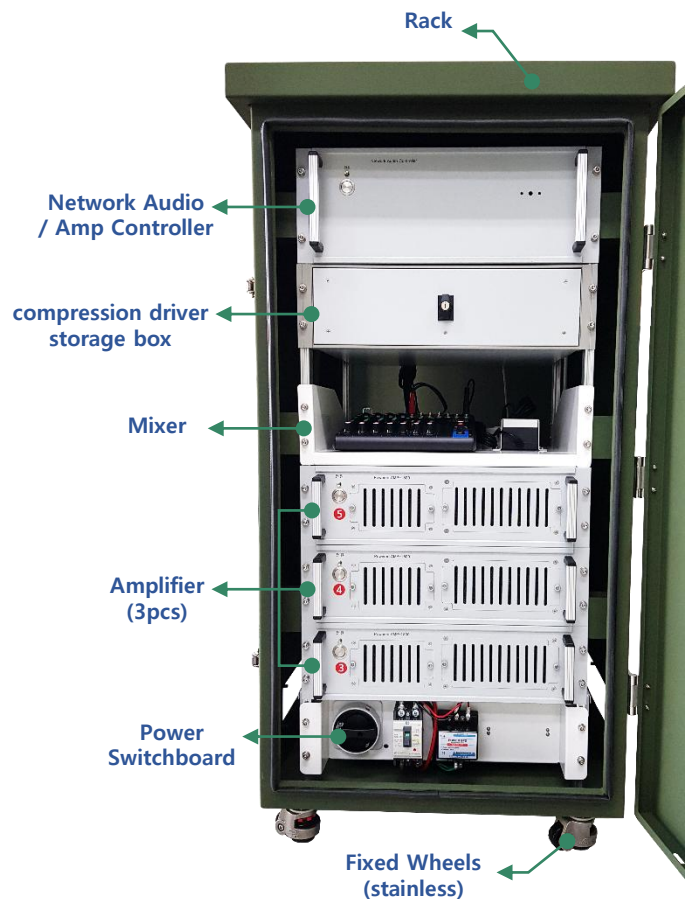- Thermal camera (option)
- Searchlight (option)

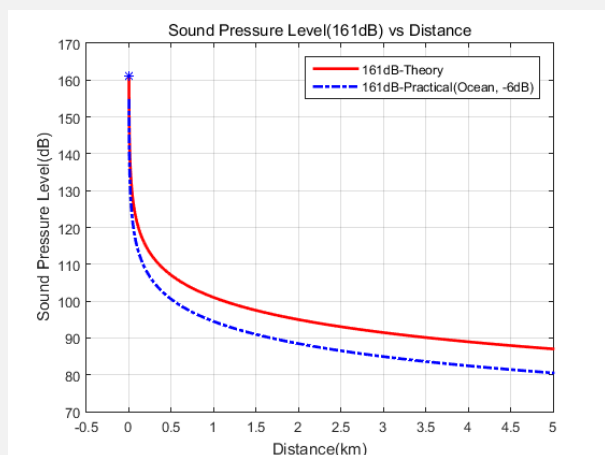## ✔ Operation Concepts & System Components

Acoustic Device
Laser Pointer
Tilt Motor
Day Camera
Ethernet
Speaker Out / Interface
Pan Motor And Power Module
Console (Software)
Power (220VAC, 50~60Hz)

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SPECIPICATIONS

Communications Range	≥3Km (82dB)	
Maximum Output	161dB SPL @1m	
Directivity	≤±15° (2kHz, -3dB)	
Dimensions	1610× 550× 1420mm	
Weight	190kg	
Tilt	Range	-60° ~ +60°
	Speed	15°/s
	Resolution	0.1°
Pan	Range	-140° ~ +140°
	Speed	30°/s
	Resolution	0.1°
Camera	32x Optical Zoom, 1920×1080 pixel, 30 frame/sec	
Thermal Camera (Option)	100mm Optical Zoom, 640×480 pixel, 9 frame/sec	
Laser Pointer	Green Laser, 50mW	
Communication Interface	TCP/IP, Acoustic broadcast, Remote Volume Control, Control Program	
Operating Temperature	-31°C ~ +43°C	
Storage Temperature	-40°C ~ +70°C	
Rack	Fully enclosed stainless enclosure Size : 660×600×1140mm(W×D×H) Weight: 119kg	

Rack

Network Audio / Amp Controller

compression driver storage box

Mixer

Amplifier (3pcs)

Power Switchboard

Fixed Wheels (stainless)

Sound Pressure Level vs Distance

Sound Pressure Level(161dB) vs Distance
- 161dB-Theory
- 161dB-Practical(Ocean, -6dB)

Sound Pressure Level(dB) vs Distance(km)

30~50dB	Quiet library, noise in the woods, bedroom
50~60dB	General office noise
60~70dB	Noise on large ship deck
70~90dB	Small ship engine noise (above deck)
80~100dB	Noisy construction site, road noise
120~130dB	Jet noise (100m)
130dB	Above, we started to feel pain
160dB	Rocket firing noise

Theoretically, we can hear sound at 88dB at 500m, 82dB at 1km and 68dB at 5km.

Equipment Performance

✔ Day Camera

SPECIPICATIONS

| XNZ-6320AG		
Video	Shooting Element	1/2.8" CMOS
	Display Resolution	1920x1080, 1280x1024, 1280x960, 1280x720 외
	Maximum Frame Rate	H.265/H.264: MAX 60fps/50fps(60Hz/50Hz) MJPEG: MAX 30fps/25fps(60Hz/50Hz)
	Lowest illuminance	Color: 0.05Lux (F1.6, 1/30s) Black and White: 0.005Lux (F1.6, 1/30s)
Lens	Focal Length	4.44~142.6mm(32x) Zoom Lens (digital 32x, total 1024x zoom)
	Optical Zoom	32x
	Maximum Aperture Ratio	F1.6(Wide Angle) - F4.4(Telephoto)
	Angle Of View	H: 64.66˚(Wide Angle)~2.29˚(Telephoto) / V: 38.08˚(Wide Angle)~1.30˚(Telephoto)
	Minimum Closest Distance	Wide Angle: 1.5m(4.92ft), Telephoto: 2m(6.56ft)
	Focus Control	Auto, One shot AF
	Lens Type	DC auto iris

✔ Thermal Camera (Option)

SPECIPICATIONS

12μm, 640x512		
Sensor	Image Sensor	Uncooled VOx
	Resolution	640x512
	Pixel Size	12μm
	Spectral Range	8~14μm
Lens	Focal Length	100mm
	Optical Zoom	N/A
	Lens Type(Focus)	Motorized
	Aperture	F1.0
	Field of View	4.4°×3.5°

DRI Range

Object	Conditions	Distances(m)	Object	Conditions	Distances(m)
Human	Detection	2,450	Vehicle	Detection	6,000
	Recognition	650		Recognition	1750
	Identification	330		Identification	900

Detection   Recognition   Identification
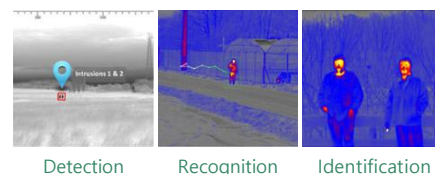
DRI Definition

- Johnson Criteria
- Detection : ability to distinguish an object from the background(1±0.25 line pairs OR 2±0.5 pixels)
- Recognition : ability to classify the object class (animal, human, vehicle, boat ···) (4 ± 0.8 line pairs OR 8 ± 1.6 pixels)
- Identification: ability to describe the object in details (a man with a hat, a deer, a Jeep ···) (6.4± 1.5 line pairs OR 13 ± 3 pixels)
- A line pair is defined as one white line adjacent to a black line.
- https://www.hgh-infrared.com/FAQ/Perimeter-Security/Definition-of-DRI-Detection-Recognition-Identification-ranges

Equipment Performance

✔ Searchlight(Option)

- Two or Three Searchlights(360W) are mounted on PROPA-1000R.

LED	LED 10W (12EA)
Size	180 x 207 x92mm
Divergence Angle	15°
Power Consumption	120W
Power	DC 12~60V
Brightness	10000LUMEN
LED Color	White
Water Proof	IP67

⊘ The beam of a searchlight is arrived to about 1km

✔ Console with Control Program

CONSOLE LAYOUTS AND SPECIFICATIONS

Control Panel

- Joystick for PTZ
- Thermal Power On button
- Laser Pointer On button
- Main Window exchange button
- Motor Speed Control
- Audio File Play/Stop/FWD/FWD
- Toggle Microphone

- Amp Power and Volume Control
- Monitor 17.3inch TFT-LCD
- Resolution : 1920x1080
- Brightness : 400 cd/m²
- CPU Intel 6th Gen i5(2.4GHz)
- 8GB RAM
- SSD 128GB

Equipment Performance
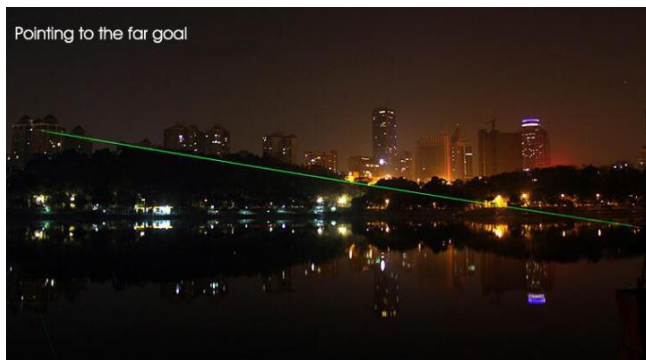
✔ Laser Pointer or Dazzler

✓ 5mW / 50mW Laser Pointer

✓ 500mW Laser Pointer

- 532nm Wavelength Green Laser
- Optical Power for Laser Pointer
  - 5mW / 50mW
  - Effective Distance : 1~2km
- Dazzler
  - 500mW
  - Effective Distance : 2~3km

Pointing to the far goal

✓ Laser Pointer

✓ Laser Dazzler

- NOHD(Nominal Ocular Hazard Distance)
  - It specifies the distance from the laser source at which the intensity of a single laser beam becomes safe by not exceeding the MPE (Maximum Permissible Exposure) any more.
- NOHD is calculated at this site : https://www.laserworld.com
- NOHD as Power
  - Divergence : 1.2mrad, Diameter at aperture : 3mm

| Item	Optical Laser Power	Distances(m)
Laser Pointer	5mW	11
	50mW	39
Dazzler	500mW	129

✔ Equipment Performance

External Connection Layouts

- Can connect external audio devices (MP3 Player, Wireless Microphone etc.) to the back panel of console.

Two USB Ports

LAN Port(100Mbps)

Power 50VDC

Extern Mic

PROPA-250R, PROPA-1000R

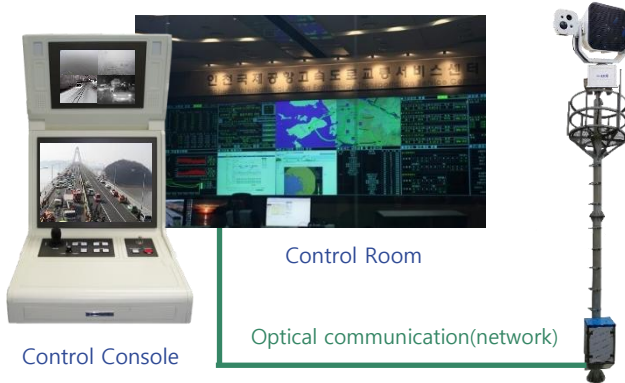Extern Audio Device

Control Program

- Video Recording and Image Saving
- Display of the video of day camera and thermal camera simultaneously
- PTZ control with motor speed control
- Playback and Stop audio files, voice sound out with a toggle microphone
- Laser Pointer Power ON/OFF
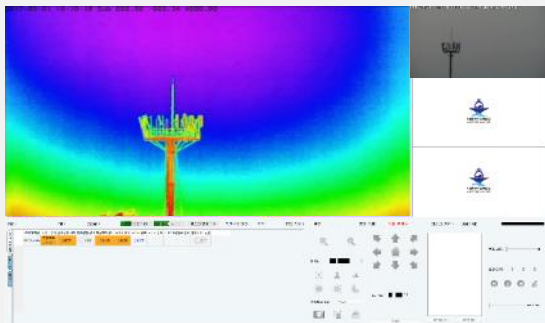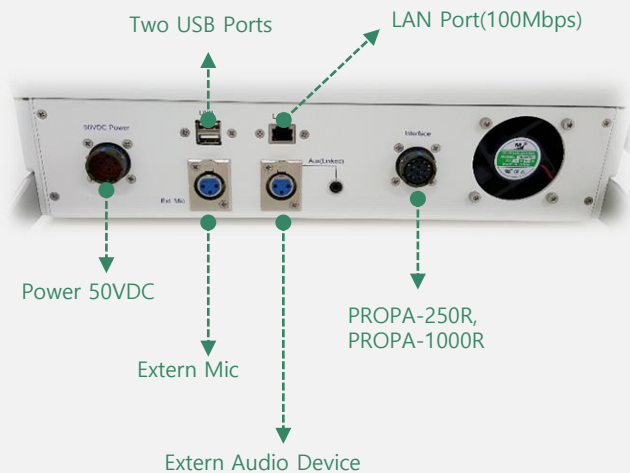
- ① - Main Camera View
- ② - Sub Camera View
- ③ - Status bar
- ④ - Disply and select current equipment status, TTS, Setting
- ⑤ - Camera Control
- ⑥ - Pan-Tilt Control and preset functions
- ⑦ - Show music source list
- ⑧ - Sound source , Microphone broadcast

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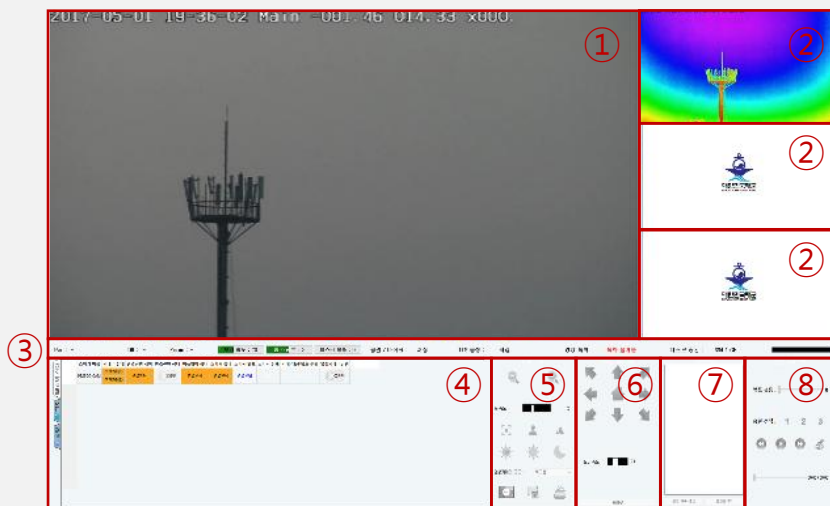
Applications of Acoustic Hailing Devices

Control Room

Optical communication(network)

Control Console

✔ **Emergency Warning & Fire Rescue**

Fire Evacuation Broadcast, Public Place Guide and Evacuation Broadcast, Valley Evacuation Broadcast due to heavy rain, and Coastal Accident Prevention & Evacuation Broadcast

✔ **Law Enforcement, Homeland & Border Security**

Illegal Activity Warning, Beach Announcement, Access Control Broadcast, Crowd Control

✔ **Military, Maritime, Security & Protection**

Military Training control, Anti-Piracy, Major Facility Intruder Warning, Preserving Wildlife & Protecting Assets

✔ **Traffic Accident Broadcasting, Traffic Control**

Traffic Control, Prevention of Secondary Accident, Traffic Accidents and Foggy Broadcast, Emergency Evacuation Broadcast.

✔ **Installation in Ships, Vehicles and Drones**

Mounting on Warships, Ships, Fire Trucks, Ambulances, Police Cars, Helicopters, Drones