



Portable Laser Monitoring System

Optical Core Performance Insight



Portable laser monitoring system is a surveillance device that uses a laser beam to detect sound vibrations in a distant object. This adopts innovative achievements such as self-development dual optical path laser technology, matrix detection technology and digital focusing technology. It takes ultra long distance, no preset and non-contact as the application environment, the system can realize the synchronous pickup of target sound information hundreds of meters away, and can effectively meet the acquisition needs of relevant departments for target sound information.

It can receive sound information through multilayer glass windows at wide angles, and materials such as paper, leather, fabric, plastic or metal can be used as the target medium. This device is the perfect choice for professionals requiring reliable and precise tools for the remote collection of sound information.

Main Function

- Sound output and volume adjustment;
- Real-time output of image information;
- Recording and replay functions;
- Display of target range, echo signal strength, battery level and other status.

Main Performance

Detection & Sensitivity

- Ability to detect tiny vibrations (micron or sub-micron level) on a reflective surface (e.g., glass window).
- High signal-to-noise ratio (SNR) for clear audio recovery.
- Works with both diffuse and specular reflective surfaces.

Range

- The unit is used to perform surveillance and record speech of a person who might be up to 400m away, in a vehicle, building, or elsewhere.

Laser & Optics

- Uses infrared or near-infrared lasers (invisible to the naked eye).
- Narrow beam for precision, with telescopic optics for targeting.
- Adaptive focusing for long-range operations.

Signal Processing

- Real-time demodulation of vibration into audio.
- Noise reduction, filtering, and automatic gain control.
- Digital storage and encryption for secure handling.

Advantage

- Covert surveillance: operates without entering the monitored area.
- High precision: capable of picking up small vibrations with clear audio quality.
- Fast deployment: portable setup, usable in field or urban operations.
- Versatility: works on various reflective surfaces like windows, walls, and even lightweight objects.
- Reusable & low maintenance: no physical contact with target surface required.



- **Indoor scenario**

This refers to monitoring family residence, hotel rooms, dining restaurants and cafes of the target, or refer to residences, banks or shopping malls controlled or hijacked by terrorists or criminals. These scenarios are also main operating scenarios of this system.



- **Outdoor scenario**

This scenario is different from indoor ones. The outdoor view is wider and there are fewer available targets around. Therefore, it is required that the listening system should have better concealment and stronger listening capabilities.



- **Public transportation scenario**

Public transportation is also an important scenario in counter-terrorism and emergency-response tasks. Terrorists and criminals may hijack vehicles, airplanes and other modes of transportation and threaten the lives of passengers to demand unreasonable conditions to satisfy their goals of disrupting social stability, threatening public safety and seeking personal gain.

Technical Parameters

Main Host Parameter	
Principle	Doppler
Laser type	Invisible light
Working Distance	Up to 400 meters
Auto focus distance	$\geq 30\text{m}$
Window permeability angle	$\leq \pm 30^\circ$
Sound intensity	$\leq 50\text{dB}$
Transmission mode	Wireless transmission
Reading rate	$\geq 98\%$
Dual vision lens	Wide-angle lens 25mm, Long-focus 300mm
Wave length	1550nm
Interface	Power interface
	Data transmission interface
	3.5mm audio transmission interface
Operation Parameter	
Tablet Display	11 inch, Android system
Weight of system	$\leq 20\text{kg}$
Power supply	$\leq 20\text{w}$, 220V AC
Working Temperature	$-30^\circ\text{C} \sim +60^\circ\text{C}$