

HOW TO USE SOUND TO IMPROVE SECURITY

Almost all security installations use a combination of perimeter protection and interior protection. They use contacts for perimeter doors and movable windows as well as glass break detectors for fixed windows. Small interior spaces are protected by infrared, microwave, and ultrasonic types of motion detection.

Criminals will quite often enter a building by breaking through a wall or ceiling effectively by-passing the perimeter security entirely. Care must be taken to provide detection measures that do not rely on perimeter protection alone.

The video surveillance camera is used throughout to record intrusions. It has a good deterrent effect on crime, both during the day and after hours. Some video cameras are equipped with audio microphones to add sound to the recording. These audio microphones can be used to increase the security in the zone by detecting the sounds made by intruders. These sounds do not have to be recorded when being used for detection.

All moving objects generate sound when they move, unless you're in a vacuum. When any person moves inside a security zone they are disturbing the air and creating sound waves. These sound waves may be undetectable to the human ear but never the less they are created. A microphone placed in the security zone can detect these movements and report the unauthorized movement.

In the case of criminals breaking through a wall or ceiling the sound of breaking is detected before the actual entry is completed. This type of detection would set off an alarm before the criminal had a chance to finish punching the hole through. This would reduce the damage caused by the break in and drive off the criminal before they had a chance cause extensive damage.

Sound detection is a very effective way of protecting an inside area because it doesn't rely on easily by-passed perimeter protection and it is omni directional unlike video cameras that only look in one direction at a time the audio detector can listen in all directions all the time. This type of intrusion detection is very effective at protecting large indoor areas from unauthorized entry.

There are things to consider when selecting sound detection equipment. First of all there are normal sounds that will enter your security zone from the outside world. These sounds are normally muffled by the surrounding walls but can still be detected by the sound equipment, so the sound equipment must have a level control to set the detection threshold. The level is set for normal off hour's sound levels when the alarm panel would be turned on.

The sound from outside the zone will often have an approach volume level change like an approaching car or airplane. A sound that steadily increases in volume and then decreases slowly as the object passes by the building. The sound detection equipment must be able to accommodate this kind of interference.

An audio Automatic Gain Control system is the best way to accommodate changes in ambient audio levels without requiring constant adjustment of the audio detection level. The AGC system constantly adjusts the audio level received from the microphone to maintain the most sensitive audio listening level while adjusting for approach volume level changes like an approaching car or airplane to reduce false alarms.

To connect to your alarm system the equipment must have a contact closure to use on the alarm panel with normally closed or normally open contacts to accommodate all installations. If your customer wants to record the actual sounds that caused the alarm they should be able to take an audio feed from the equipment and connect it to their video recorder.

FM SYSTEMS, INC. has developed a piece of equipment that listens to the sounds made by intruders to report an alarm if unauthorized entry is attempted, it is called SSA474.

The SSA474 SONIC SENTRY ALARM is a four channel audio detection system used to detect the sound caused by movement of any person or object in the monitored area. All movement or contact with surfaces produce sound waves in the air that are received by a local microphone in the monitored area and sent to the SONIC SENTRY ALARM unit by wire. Many video cameras have built in microphones that can be used to provide a higher level of security with this unit.

The unit electronically listens to the audio signal and determines when to close an alarm contact. This alarm contact is Normally Open or Normally Closed and can be used to alert local monitor personnel or activate other alarm equipment. Connect it to a multiplexer and switch the video source to a higher scan rate when an alarm is being received from that area. This will improve picture motion quality on that camera when action is occurring.

A built in audio gain control keeps ambient audio below alarm detection level while maximizing the sensitivity of the alarm trigger level. This allows the system to have maximum sensitivity and operate in relatively noisy environments.

Equipment such as air conditioners, fans, and heaters operating in the monitored area will not trigger the alarm. Slowly changing sounds such as aircraft flying over the building or cars driving by the outside of the building can be ignored by the alarm while still having a very sensitive trigger to sounds inside the monitor area.

The Sonic Sentry Alarm uses audio to detect motion without violating the privacy of any person in the monitor area since no one is listening to or recording the audio. This provides Protection without Intrusion of Privacy.

If monitoring or recording of the audio is desired, the audio signal is available at the rear RCA connectors. There is an RCA connector for each of the four audio channels and one RCA connector that is switched to any channel that is in alarm at the time. This is used when only a single channel of audio may be recorded. Audio will only be recorded if an audio patch cable is connected between the SSA474 and the audio input of the recorder.

The audio detect sensitivity is adjustable from the front panel. Adjust the sensitivity control during normal sound level in the monitor area until the alarm LED goes out and that's it, the unit is ready to detect unwanted intrusions.

Call to order: 800-235-6960.