

# AUGMENTING CCTV SYSTEMS WITH AUDIO SURVEILLANCE

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Up until now, CCTV surveillance has been mostly a Silent World. Without sound, much of what you do see on the monitor screen provides considerably less security value than if you can also hear what is going on. Not only that, a security camera in, say, a public garage can only see what is in front of the lens, whereas a security microphone can hear calls for "help" from any direction. After all, what good is Television without sound?

Augmenting video monitoring with audio surveillance enhances the security provided by the CCTV system. The ability to hear ambient audio in the surveillance zone more than doubles the security of that area. Security personnel will be alerted to danger in the observed area, even if the danger is out of sight of the CCTV camera. Personnel will be alerted to security problems without having to observe them visually. Breaking glass, footsteps where they don't belong or cries for help would instantly alert security personnel even if the camera did not "see" anything. A video camera looks only in one direction at a time, whereas sound surveillance monitors all directions all the time. Furthermore, sound surveillance alerts the operators even when they are not looking at the monitor screen. In certain industrial application, it is vital to hear as well as see machine operations. Often the first indication of trouble are abnormal sounds, often long before a camera will show a problem.

There are many opportunities for a CCTV installation company to augment new CCTV systems or retrofit previous installations with Audio Surveillance capabilities.

Building an entirely separate audio monitoring system in addition to the video monitoring system is feasible, but probably difficult and expensive. In addition, in a system that requires switching cameras to various monitors becomes even more complex, since the audio lines must then be switched in synchronism with the video switches. A better solution is to integrate the audio surveillance system with the CCTV system. An integrated audio/video system should incorporate these parameters

1. The coaxial cables connecting the CCTV cameras to the monitoring location should also carry the audio signal as well. This not only reduces the total cabling job, but also enables video switches to also switch the audio signals.
2. A wide ranging audio volume control must be incorporated so that footsteps and shouts are equally audible at the monitor.
3. The transmitting unit located near the camera must contain a built-in microphone and audio processing system.
4. The Transmitting Unit should operate from the same power source as the camera typically 24VAC.
5. The audio transmission system should not interfere with the video signal, or any signal transmitted on the coaxial cable that is used to control the camera (PTZ camera controls). The transmission system should be able to operate over coax cables at least

as far as CCTV cameras can reach, and even transmit the sound through any video amplifiers that may be used to extend the reach of the CCTV cameras.

6. There should be provisions for recording the audio signals.
7. It should be small, self contained, unobtrusive, easy to install and require no adjustments or periodic maintenance.

All of the above conditions are satisfied in a new audio surveillance system manufactured by FM SYSTEMS, INC. called the CAMERA-COM. The Transmitting Unit, containing the microphone, is the CCT-1 (CAMERA-COM TRANSMITTER) and the Receiving Unit at the monitoring location is called the CCR-1 (CAMERA-COM RECEIVER).

These modules will transmit audio in excess of 2500 feet on RG-59-U cable even if the camera is out of order or the lens is capped. This technology is a new application for CCTV but is a well proven audio transmission system used in the microwave and satellite industry. The audio signal is carried on the coax cable by an RF signal whose frequency is higher than the video signal so that no interference to the picture can occur. This carrier is Frequency Modulated by the audio signal from the microphone. The sounds that are received by the microphone are electronically processed so that all sounds can be heard equally well, whether they be shouts or foot steps.

Any CCTV system may be retro-fitted with audio surveillance simply by connecting a CCT-1 Transmitter module to the camera with a short RG-59-U patch cord, connecting the coax camera cable to the CCT-1 module, and wiring the same 24VAC powering the camera to the Transmit module. At the Monitoring location, connect the CCR-1 Receiving module in the coaxial line feeding the CCTV monitor, connect 24VAC power, and then listen with the Earphones or connect an RCA type patch cord to an Amplified Speaker or the audio connector on the CCTV Monitor. There are no initial field adjustments or periodic maintenance test to make. Just connect and listen!



For further information see our website at: [WWW.FMSYSTEMS-INC.COM](http://WWW.FMSYSTEMS-INC.COM)  
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