

Considerations on Using External Microphones in Security Systems

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An external microphone paired with a security camera will generally provide a more intelligible audio feed than will a microphone built into camera housing.

Placement

Security cameras are often installed elevated in a corner in order to provide a wide field of view. The camera's placement is determined by considering the location in which the camera can visually capture as much physical space as possible while maintaining sufficient image resolution and clarity for the security objectives of its user. While ideal for video coverage, the placement of a camera to maximize the field of view also creates additional distance from sounds emanating from the coverage area. This placement thereby increases the likelihood that these sounds will not be heard by the camera's built-in microphone. Sounds that occur during a security event such as aggressive speech, key words and phrases, or gunfire and breaking glass are critical to investigating and resolving security events.

An external microphone placed closer to the area being monitored provides improved sound quality over a microphone placed farther away. Consider two sounds of the same volume, one of which is close to a microphone and the other of which is far away. The microphone will hear the closer sound clearly and will hear the farther sound faintly or not at all. Placing an external microphone within approximately ten feet of the area being monitored will provide improved sound intelligibility over what a microphone built into a camera will hear.

Intelligibility

Second, if a camera is installed in a corner, its location will create echo and reverberation, both of which will distort the sound and reduce intelligibility. When sounds reach the corner they will reflect off the walls and ceiling, making it more difficult to clearly hear the sounds from a security event described above. This effect may be recreated by loosely placing your hands over your mouth while speaking. An external microphone located within the field of view of the camera will preclude the sound degradation when properly placed.

When including sound in a security system, proper microphone placement will provide improved intelligibility. An external microphone will therefore improve the system's ability to capture actionable information for use in review and investigation of security events.