Gun Detection: A Serious Challenge for Security, Risk Management and Law Enforcement Personnel.

OVERVIEW

The Exigent®-GR gun detection capability is based on the latest AI technology. This capability was originally developed to detect both drones and guns, based on the concept that a larger operational space allows more reaction time.

TECHNICAL

Current security camera systems require a human to identify gun threats. Even dedicated security professionals using the best camera system cannot provide 100% real-time observation.

An effective, pro-active solution is needed to identify guns before they enter the building and shots are fired.

The Exigent-GR offers that solution. Exigent-GR offers the capability to:

Detect — autonomously detects people with guns as early as possible, before shots are fired.

Identify — instantly analyzes imagery using AI algorithms to determine type of gun (long gun vs. pistol).

Alert — automatically notifies security officials via text message or email showing person with the gun, their location and type of gun.

Track — follow the suspect's location in real-time, even if the gun has been discarded.

Stop — If a gun is detected a signal can be sent to lock a door with electronic locks or magnetic locks. If an electronic or magnetic lock is not available a pin can be released to drop into a pre-drilled hole that would place a barrier to opening the door.

Exigent-GR combines state-of-the-art camera technology with sophisticated computer vision in a single robust device that autonomously scans and processes images to identity guns.

Exigent®-GR AI GUN DETECTION

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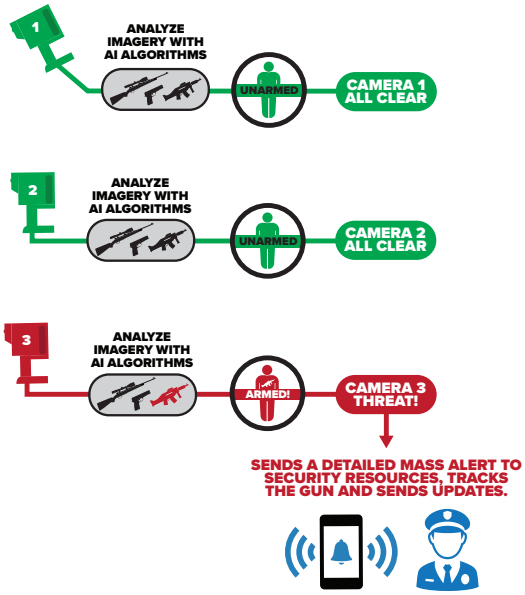
How Exigent-GR Works



PRODUCT DETAILS

Manufacturer	Arcarithm
Product Name	Exigent®-GR
Version	2020
Manufacturer Part Number	A2020EXGR
Product Type	SAAS
Delivery Method	Hand delivered for installation. Updates provided via remote digital upload, requires access to the internet

SECURITY / OPERATION

Exigent®-GR security features include role-based login, application authentication and message encryption. Further, the Exigent-GR Application Programmer's Interface (API) operates inside a docker container isolating the API from the rest of the system as an extra layer of security, while ensuring the software does not conflict with other required system dependencies.

Arcarithm provides required training on how to operate Exigent-GR, and how to understand the output, with onsite training available. A training manual is provided, and Arcarithm provides call center support as well.

SYSTEM REQUIREMENTS

Power	Exigent-GR operates off of facility 110V power
Internet Access	Exigent-GR connects to the Internet via the facility WiFi
Alert Access	Alerts are sent to computers and/or smart phones via the internet

Exigent-GR is installed by Arcarithm trained technicians.

SYSTEM ARCHITECTURE & LIMITATIONS

Exigent-GR is a probabilistic AI detection system with built-in human verification. When the system detects a potential firearm, it generates a thumbnail alert delivered via a secure, access-controlled smart phone app to your authorized personnel. Your authorized reviewer assesses the alert and determines whether escalation (e.g., contacting law enforcement, initiating lockdown protocols) is warranted. No alerts are sent to any party unless authorized by your administrator through the app's permission system.

Detection confidence varies based on environmental and deployment conditions. Users should be aware of the following:

False positive alerts (alerts triggered in the absence of an actual firearm) are an inherent characteristic of AI-based gun detection and should be expected during normal operation. The frequency of false positives may increase under the following conditions: low or variable lighting environments; acute camera angles or limited fields of view; partial obstructions of the detection zone; and the presence of objects with visual characteristics similar to firearms (e.g., tools, high-pressure washer wands, umbrellas, dark rectangular objects). The human review step is designed to filter false positives before any escalation occurs.

False negative events (failure to detect an actual firearm) are also possible and may occur when firearms are concealed, heavily occluded, or presented in orientations not well-represented in the system's training data.

Proper camera placement and adequate lighting are essential to optimal detection performance. This system is not a substitute for comprehensive security planning and should be deployed as one element of a layered security approach.

ABOUT ARCARITHM

Arcarithm delivers a depth of understanding and operational maturity beyond the capability of most companies. Our experience with every aspect of algorithm design, training, deployment and evaluation allows Arcarithm to produce quality products quickly and effectively, with the highest levels of reliability and accessibility. Arcarithm has been developing and providing services to the U.S. Military for more than seven years.

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