

Intrusion Detection for ^{kisi} the Modern Workplace

How to keep your spaces safe in
modern times with *modern tools*

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Intrusion Detection for the Modern Workplace

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Introduction

Intrusion alarms are a topic that's very close to our hearts at Kisi. In fact, Kisi's goal is to connect people and spaces and, in order to do so, we are striving to become a comprehensive physical security platform. Reaching this goal without getting informed about intrusion detection is virtually impossible.

This guide will cover everything that's intrusion-alarm-related, from the components of intrusion systems to their functioning, with some tips for who's about to purchase a new system.

If after finishing this document you still have some unanswered questions, feel free to reach out and ask our sales team through this link. We hope you find this resource useful and we wish you a great read,

The Kisi Team

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Intrusion Alarm Systems

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What is an Intrusion Alarm System?

An intrusion alarm system is a system whose aim is to monitor and detect unauthorized access to a building. These systems are used for different purposes and in different contexts, both residential and commercial. The main purpose of an intrusion alarm system is to protect from burglary, vandalism, property damage, and, of course, the security of the individuals inside the building.

As we will see later in the guide, there are many different types of intrusion alarm systems that can be standalone elements (like a glass-break sensor) or fully incorporated security ecosystems with CCTV cameras and access control. However, for the sake of clarity, we have dedicated separate overviews to access control and video surveillance systems. By doing so we will be able to focus better on the smaller components that help to keep your building safe.

If you are looking for more information about video surveillance systems, check our dedicated guide

Types of Intrusion Alarm Systems

Basically, we have two types of intrusion alarms available: Do-it-yourself security systems and security systems by professional firms. Home security pundits warn that DIY alarms make you responsible for contacting the police or other emergency services in case of an accident, while professional security firms usually bear that responsibility themselves in exchange for a monthly fee.

Nonetheless, manufacturers of DIY security systems offer complete security suites that feature window and door sensors, locks, motion and glass break detectors, sirens, and other vital components of a reliable intrusion prevention system for your home or small office. A limited number of security firms also provide monitoring services that, in contrast to contracts by established companies, have no fixed term and do not bind you with a two- or three-year service contract.

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Types of systems

Wireless vs. Hardwired Intrusion System

Hardwired home and office alarm systems are considered to provide a higher level of security overall. However, the latest wireless systems are as reliable as their cable-powered counterparts are. Plus, wireless technologies offer a growing number of advantages in the field of home and office security. You cannot tell which of these two alternatives is the best intrusion detection system without taking into account additional factors.

Monitored and Unmonitored Alarms

A monitored or unmonitored burglar alarm can be either hardwired or a wireless system. An unmonitored intrusion alarm usually activates a siren or another noisy device once a sensor within the security system has detected an intrusion. It is not a very suitable solution for remote properties and real estate in rural areas, though.

Monitored home alarms are connected to a third party for monitoring. The sensors both trigger an alarm and send an alert to the monitoring party. Modern-day security systems are also able to connect and alert you to any events on your smartphone or another mobile device.

Obviously, this type of home and/or office security solution is more expensive since you usually get a 24/7/365 monitoring service for your property.

Dummy Intrusion Alarms

These are the cheapest intrusion protection tools, but they work only as a sort of decoy. It is quite debatable whether a possible burglar will be stopped by such a visible dummy

alarm and if a professional thief would ever be misguided enough to take it for a professional security system, but it sometimes works.

Auto-dialing Security Systems

Security systems that feature an autodialer are able to connect to a preset phone number or numbers in case of emergency. For example, you can have a pre-recorded voice message sent to the police, to a security firm of your choice, or to the local firefighters. You can complement such functionality with in-house motion sensors that detect whether there is someone inside the property, helping the local security authorities assign a proper priority to the accident.

Arm Alarm

Arming your access control system's alarm is an important and necessary feature that works to protect your space. When a home has a security system, for example, the system is not always on — it's only armed when the owner is gone. This logic can easily be applied to your own security system. During a normal workday, you might not need to have your alarm armed because you and your team will be present.

At other times, though, it's necessary to have your system's alarms ready to go. During the evening or on days with high foot traffic, you should consider arming your alarm, which will immediately alert your entire operations team with a message or email as soon as someone attempts to access one of those spaces without the proper security clearance. You'll be able to protect your restricted amenities even when you're not around, which is an incredibly powerful tool for protecting your office's assets.

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Intrusion Alarms Systems

Components

As mentioned previously, there are various components that can make up an intrusion alarm system. Many of these components work autonomously, while others work in the context of an ecosystem. In general, we recommend working with components that function well together and that integrate easily with your video surveillance or access control systems. For businesses, in general it's very helpful to manage your whole security from an individual dashboard, as it makes life easier for the security specialists/office managers and, at the same time, reduces the chances of human error.

Motion Sensors

Motions sensors will detect movement within your facility and trigger the alarm consequently. There are many types of motion sensors. Here we take a look at infrared, microwave, and ultrasonic sensors.

Infrared Sensors (or IR Sensors)

Infrared sensors are a specific type of motion sensor that use infrared radiation. The main use-case of this device is within physical security and, in particular, for intrusion detection purposes. The two types of infrared sensors are active infrared sensors and passive infrared sensors, with these last ones being the preferred ones in the context of physical security.

In the next paragraphs, we will dive into how these sensors work, what the ideal use-cases are, and how to choose the best infrared sensor for your business or home.

How do Infrared Sensors Work?

Infrared sensors, as mentioned above, work with infrared radiation. The functioning depends on if the sensor is active or passive (PIR).

Active infrared sensors work with radar technology, and they both emit and receive infrared radiation. This radiation hits the objects nearby and bounces back to the receiver of the device. Through this technology, the sensor can not only detect movement in an environment but also how far the object is from the device. This is especially useful in robotics to detect proximity.

For the physical security use case, however, passive infrared sensors (PIR sensors) are definitely more widespread. The PIR sensors do not emit radiation but simply receive the one that the objects nearby are naturally emitting. The basic functioning is that the passive infrared sensors trigger the alarm when there is an anomaly in the infrared waves measured in the room. This happens if, for example, a warm object (like an intruder) crosses ways to the signal of the device. More about the functioning of PIR in the later paragraphs.

PIR Sensors Components

The PIR motion sensor is made from a pyroelectric component (a combination of metal and crystal) and additional electrical elements, such as circuitry, resistors, and capacitors. The passive IR sensor is typically protected by a metal shell and has a silicone window to let the radiation pass through it. Most PIR sensors are rectangular in shape and have a sensitivity range of up to 20 feet. In terms of power supply, they belong in the range of 3.3V - 5V input voltage.

The sensor in the PIR motion detector consists of two halves, because its purpose is not only to detect infrared

waves but also to indicate a change as a signal for motion. The sensor is idle when there is no motion in the detection field. However, when a person or another living thing that radiates heat, such as an animal, passes in the field range, it produces a positive differential change in the first half on its way in and a negative differential change in the second half of the sensor on its way out. To be able to detect and pass subtle signals, the PIR motion sensor includes a lens, or concretely, more lenses integrated as smaller sections in a larger component called fresnel lenses.

PIR sensors can be used to detect the movement of people, animals, and objects.

Microwave and Ultrasonic Sensors

Microwave sensors and ultrasonic sensors work similarly to the infrared ones, meaning that they also use some kind of frequency to detect motion changes in a room. Instead of using infrared radiations, however, the microwave sensors emit and receive microwave radiations, and the ultrasonic sensors receive sound waves.

Whereas ultrasonic sensors are comparable in terms of pricing and performance to the PIR sensors, the microwave sensors come with a slightly higher price tag and are mostly used by businesses. Take this into account while looking for the best intrusion system.

Contact Sensors (or Contact Switches)

Another category of sensors is contact sensors. As the name suggests, they do focus on contact rather than motion, making them especially effective as perimetral defense for an office as they detect if something comes in contact with a door or a window.

Door and Window Sensors

Door and window sensor alarms are actually the same device. The basic functioning is a contact sensor that triggers an alarm when a door or a window is opened without authorization. This type of alarms represents the ultimate perimetral defense for your facility, and it is widely used in companies and residential buildings.

Before diving into the types of alarms, let's take a look at how these sensors work.

How do Door Sensors Work?

Door and window sensors are contact sensors composed of two main parts, a magnet and a sensor. This is also called a magnetic switch. The magnet itself is generally placed on the door, while the sensor is installed on the door frame. The alarm is triggered when the door or window is opened without authorization (door-open alarm) or when the door is forced open (door-forced-open alarm).

There is a third type of alarm regarding doors and windows that is triggered when the glass is broken, but, as the functioning is slightly different, we have dedicated a separate paragraph below called "Glass-break sensors."

Types of Door Sensors

Door-Open Alarms

Door-open alarms activate when a door is opened by an intruder and held open for a certain period of time. The door-held-open time is programmable and used to monitor if a door is opened by an authorized access requestor. The door alarm warns the owner by emitting a chime, a loud siren sound or a flashing light, or both.

Door-open alarms are also called door-left-open alarms or door-held-open alarms. Door alarms of this type are made of two components: a magnetic stripe fixed on the door panel and an input sensor fixed at the door frame. When the contact between the magnet and the sensor is interrupted, the door alarm generates the warning signal.

Door-Forced-Open Alarms

Door-forced-open alarms activate when a door is opened by force, activating the switch contact.

An example of forced behavior is trying to get through a door without using a valid access card. Instead, the intruder uses physical force to get the door open.

All types of door alarms can be used for combination in comprehensive door alarm systems.

Glass-break sensors

A glass break sensor is a sensor that detects the vibrations in the glass surface it is connected to. The device will trigger an alarm in case an intruder breaks the glass and consequently tries to enter your facility. This solution is extremely widespread for businesses and it can be used as part of a broader security ecosystem that connects intrusion detection sensors, security cameras, and access control.

In the next paragraphs, we will dive into how these sensors

work, how to purchase the best solution for your needs, and what the best glass break sensor manufacturers are.

How Does a Glass Break Sensor Work?

A glass break sensor provides an additional layer of security by monitoring sound and/or vibrations on a glass surface. These devices are activated by shock waves or sounds originating from glass being shattered.

The main concept is that a narrow microphone, installed in the device, detects either the sound breaking a certain noise threshold (that, in the more modern solutions, can be customized by the customer) or recognizes a sound pattern typically associated with a glass breaking. Even if this functioning might seem easy, it really relies on very advanced technology to filter out all the noises that are not related to a glass breaking.

Nowadays, glass break detectors come in both hardwired and wireless forms. Choose wisely if you prefer the tranquility of a hardwired solution or the easy setup of a wireless detector. Wireless detectors are easier to install and more esthetically pleasing as they do not require cables hanging around in your home/company. Hardwired glass break detectors, however, are a bit more reliable (as they're less subject to interference) and do not require maintenance like the wireless ones (that rely on batteries that need to be changed periodically).

Glass Break Detectors vs Motion Sensors

Motion sensors and glass break sensors are both pieces of hardware that enhance your security. They can be used at the same time and work together to create an additional layer of safety. The differences between the two are pretty huge, as the motion sensors work with ultrasonic, microwave, or infrared radiation, whereas the glass break sensors, as we've just seen, work with acoustic waves.

This means that motion sensors detect interference in the physical composition of a room, whereas glass break sensors detect interference in the audio waves.

Another difference is that you can leave your glass break detectors armed all the time, which is not the case with motion sensors. Obviously, you will need to switch off motion sensors while at home or at the office. This creates a chance that you might occasionally fail to activate the motion detectors, leaving your property unprotected.

You get enhanced security using both motion sensors and glass break sensors. Security experts suggest using motion sensors before glass break detectors, and then securing locations that are hard to secure using a glass break sensor. Those may include your rooftop or windowless basement. In both cases, an intruder can make a hole to penetrate your property. These are not common methods to break into the average home but are options you should consider.

If you want to know more about motion sensors, do not hesitate to check out our [motion sensor alarms guide](#).



An infrared motion sensor you can use to secure both your home and office.

Intrusion Alarm Manufacturers

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Intrusion Alarm Manufacturers

Now that we have covered what the main types and components of intrusion alarm systems are, it's time to go through what different brands offer with regards to these systems. There are several brands across the world that focus on delivering high-quality devices and support services to install and maintain optimal security solutions for businesses.



Kisi

Kisi has released its Intrusion Detection solution in 2021, with the intention of solving the most common customer complaints when it comes to intrusion detection systems. The main complaints were that:

- The majority of the systems work with outdated technology, making it difficult to maintain and scale. This also has a big impact on the price tag, as maintenance is more frequent (and, consequently, more expensive).
- Many companies offer great intrusion hardware but it is not always clear if it is compatible with what the company already has in place.
- Having access policies separated from alarm policies facilitates false alarms, poor user experience, and more complex maintenance processes.

With Kisi, all of this disappears thanks to the native Intrusion Detection feature. You can get your sensors from third-party suppliers or directly order them with Kisi to create an environment in which access control and intrusion alarm policies are managed from the same platform, working hand in hand.

Having this kind of solution not only helps you with the maintenance and setup (that our customer service guides you through) but also offers you a great chance to save tons of expenses in the future as Kisi grows with your company. Plus, Kisi is an individual platform instead of the two or three you would otherwise have to work with.

If you want to learn more about our feature, you can check out our [product page](#) or get in [contact with our sales team](#).

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SimpliSafe™

Simplisafe

[Simplisafe](#)'s technology has gathered many great reviews in recent years thanks to the perfect match of inexpensive hardware and great performance. You can possibly get a full security system (minus access control) from Simplisafe, and you won't be disappointed.

Their product offerings range from motion sensors to security cameras, all of which are compatible with each other, allowing you to create a great security ecosystem within your company.

The usual critiques for Simplisafe solutions are the lack of many smart home features (especially bothering private customers) and the need to purchase the hardware upfront. Purchasing the hardware upfront makes you more dependent on their solution from a certain point of view, but it also means that there are no big legal obstacles in case you want to completely move away from Simplisafe in the future.

Lastly, it is important to mention that the Simplisafe hardware is wireless and this makes the maintenance cost a bit higher, as the batteries need to be changed periodically. Overall, Simplisafe is tough to beat if you're looking for a security system and you are on a budget.



BOSCH

[BOSCH](#) is a well known security solution across the world, providing a wide range of access control and intrusion alarm products. Some of BOSCH's offerings include security cameras, intrusion sensors, security monitoring software, and access control options.

Overall, BOSCH is a reliable security solution, although some customers do complain that the company is not as technologically advanced as competitors. On the other hand, this can be partially overcome by using BOSCH with 3rd party systems that easily integrate with their cameras and alarms. For example, BOSCH integrates with Kisi's access control software, allowing users to combine BOSCH products with more innovative security solutions.

Keep in mind BOSCH products can be a bit pricier than some other providers, because they are a German-based company, meaning all their products must be imported to the U.S. But for companies willing to pay the higher price, BOSCH offers highly competitive intrusion alarm systems.



Johnson Controls

[Johnson Controls](#) offers a number of products, from HVAC to building automation to security. They offer perimeter protection, alarm systems, surveillance cameras, and panic devices. Each piece of their security offerings can work well together, allowing customers to craft a custom solution for their business. While their line of products may seem impressive, security is just one of the many things the company is focused on, meaning it does not specialize in intrusion solutions like many of its competitors.

Compared to other intrusion alarm manufacturers, Johnson Controls is slightly lesser known. A number of customers also complain of poor customer service and slow reaction to on-site issues from the company, despite 24/7 customer service.

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Honeywell

Honeywell

[Honeywell](#) security systems are a reliable form of security for home and business alike. They provide all the usual offerings, like security cameras, alarms, and access control. Unlike Simplisafe, a number of Honeywell's security products require a professional to come out to your site to price and install, but this is because of advanced features that allow you to build a fairly complex and well-rounded system.

Honeywell is especially appealing to modern businesses because much of their equipment can be monitored and controlled remotely. The systems can also easily be upgraded and scaled as a business grows, and it integrates with a number of other products and services, making it fairly customizable to your needs.



ADT

[ADT](#) provides comprehensive commercial security solutions, starting with physical options like cameras and intrusion alarms and extending all the way to monitoring, data collection, and access control.

While ADT is very well known and reliable, it's also one of the pricier security solutions on the market. From the physical products, to installation fees, to monitoring fees, these costs can add up quickly. For the price, though, you're getting a well thought out, thorough intrusion alarm system from a company that has been trusted for over 100 years. ADT provides a full-service security system, but this comes with some caveats.

'Unlike some other providers, ADT needs to be installed by a professional, even if you're only looking for something at the home security level. They also offer very few integration opportunities, which can limit businesses from streamlining business operations.

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LINEAR™

Linear

[Linear](#) focuses on access control as their primary security measure. They offer door readers that simplify access to facilities as well as telephone-operated access control. Their offerings extend to physical perimeter control, as well, with gate operators for commercial spaces.

Linear access control products are easily scalable as a business grows, making them an ideal pick for smaller companies looking to expand. Linear also integrates with Kisi, which can help you build a seamless security system for your space.

ASSA ABLOY

Assa Abloy

[Assa Abloy](#) provides access control and security solutions like sliding doors, automatic locks, and software for property management. These products integrate with Kisi to help you protect your space with premium access control measures.

With Assa Abloy, you can be confident knowing the entrances to your spaces are securely locked when necessary and will only open when access is granted. Products like sliding and revolving doors that are motion activated also help you keep an eye on who enters your business, helping you secure the perimeter of your space.

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How to Choose an Intrusion Alarm

While there are many different ways to secure your business, it is clear that no matter what kind of business you're in, how big it is, or where you're based, there will always be a need for optimal security. There are many different components to a good security system, and intrusion detection is just one of them.

Our two criteria for choosing the best intrusion detection system components are *trust* and *integrability*. Obviously, you should trust the company that you choose your security system from. It should be a business that has reliable products and a history of satisfied customers. Kisi, for example, has the highest app ratings within all access control companies, and this is one of the reasons why people trust us with their safety.

With regards to integrability, we love systems that integrate with other components of the security ecosystem. Intrusion alarms are good, but intrusion alarms that seamlessly integrate with your access control and cameras are next level. If you're interested in knowing more about security brands, we have created an extensive guide about the [best commercial security alarms](#).

Below, we've collected some questions you should ask yourself when choosing an alarm system for your company.

Project Management

Before starting the project, ask yourself these questions:

How much am I willing to spend upfront?

This will help you decide if you want your hardware hardwired or wireless. Hardwired has higher upfront costs for installation but lower maintenance costs (they don't work with batteries) and wireless hardware has lower upfront costs, with the maintenance cost of the batteries through the years.

How does my current security hardware integrate with intrusion alarms?

In case you do have security cameras or an access control solution in place, we suggest you look for a solution that can easily integrate with them. Remember: the lower the amount of dashboards, the less time spent on maintenance and the lower the risk of human error from the admins. More about integrating intrusion alarms and access control can be found in the last paragraph.

What is my timeline?

Some alarms require more time to be installed. If you have no time restrictions, try to focus on a solution that can last for years and that can grow with you.

Product Features

Questions you should consider when looking for a product.

Is the motion sensor/contact sensor wireless or hardwired?

We've covered the differences in the [previously here](#)

Is the dashboard clear and easy to use?

If your company does not work with a dedicated security team, you want to make sure that working and maintaining the alarm system is something an admin can do securely. This is why compatibility and a clear and easy dashboard are crucial criteria.

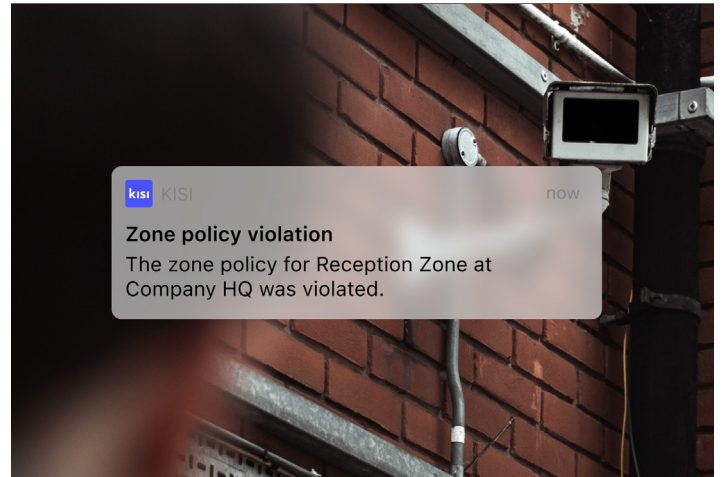
Kisi's Intrusion Alarms Product Offering

Kisi has recently published its Intrusion Alarm feature that allows you to work seamlessly with native contact sensors in order to create the ultimate cloud-based security ecosystem. With our solution you will be able to use Kisi as the brain of your security system, with access control and intrusion detection working out-of-the-box and a native security camera integration. You will be able to control everything from your Kisi dashboard and from every device, whether a laptop, tablet, or even mobile.

The Kisi Advantage

In terms of security, Kisi has the advantage of being extremely scalable. Our solution really is flexible and allows you to scale without worrying about security. Kisi grows with your company and lets you easily incorporate more contact sensors, cameras, and access control hardware without needing to have separate reporting and dashboards.

Plus, Kisi minimizes false positive alarms by ensuring our intrusion policies take precedence over access policies. Just one more advantage of running your intrusion detection and access control on the same platform! Our pricing plan also makes it more convenient for you to scale up as the cost of the software remains the same.



These are some of the features that set Kisi Intrusion Detection apart from any other system:

- *Seamless experience: security rules that take precedence over members' access rights, reducing false positives.*
- *Customization: get notified about security events only when it's relevant.*
- *Remote management: see and change the arming status from anywhere with the Kisi mobile app.*
- *Smart automation: set alarm modes automatically based on activity in the building.*
- *Simplicity of setup: no additional hardware or installation required.*
- *Simplicity of use: manage physical security all from one dashboard.*

For more information about our native solution, you can visit our [product page](#) or [contact our sales team](#).

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