

MotionProtect Plus Fibra

Wired IR motion detector with an additional K-band microwave sensor

Precise motion detection in a complex environment

MotionProtect Plus Fibra is a wired motion detector with an additional K-band microwave sensor activating when a PIR sensor is triggered. This ensures accurate motion detection even in areas with complex thermal interference, like air conditioners or fireplaces, minimizing false alarms. Modern design complements any space, and the SmartBracket mounting panel simplifies installation. Configuration in the app removes the need for engineers to make on-site visits to address minor requests.

Up to 12 m motion detection distance ¹	Dual detection technology microwave sensor verifies alarms detected by the PIR sensor	Horizontal viewing angle	Software algorithm to prevent false alarms
Pet immunity	Low power consumption Up to 0.086 W	Vertical viewing angle	Low power consumption Up to 0.086 W
Informative push notifications Critical Warehouse: Motion detected, MotionProtect Plus Fibra in Storage area Office: Lid is closed, MotionProtect Plus Fibra in Hall	Up to 2,000 m communication range with an Ajax hub or a module that extends the Fibra line ²	Fibra wired communication Two-way communication TDMA Encryption Power adjustment	Compliance EN 50131 (Grade 2) PD 6662:2017 INCERT SSF
Temperature compensation for effective detection in heat and cold	Tamper alarm	2 colors of matte enclosure	

MotionProtect Plus Fibra is a device of the wired Fibra product line. Only accredited Ajax Systems partners can sell, install, and administer Fibra products.

Superior, Fibra, and Baseline product lines are mutually compatible. This opens up numerous possibilities for building systems of any configuration.

Wherever there is a risk of intrusion

Office or coworking	Restaurant or cafe	Store	Educational institution	Industrial premises	Car service	Private residence or apartment	Warehouse
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Discover future-proof hardware

- Fresnel lens
- PIR sensor
- K-band microwave sensor
- Fixing point to attach the SmartBracket mounting panel with a screw
- Tamper button
- SmartBracket mounting panel with removable terminal board

No intruder goes unnoticed

PIR sensor

All Ajax motion detectors use PIR sensors by [Excelitas Technologies](#) – a field-leading American manufacturer which specializes in designing and producing optronic components since 1931. Ajax Systems constantly proves the sensor's superior quality at the production stage: **we test 100% of manufactured devices**. Wrapped into Ajax technologies, the sensors bring the utmost accuracy of intrusion detection.

K-band microwave sensor

The K-band microwave sensor scans a room to minimize false alarms triggered by thermal interferences. Operating in conjunction with the PIR sensor, it uses microwave technology

only for PIR sensor alarm verification. Unlike traditional X-band sensors, the K-band sensor offers superior energy efficiency and enhanced precision, resulting in significantly fewer false alarms. Additionally, the sensor is entirely safe and poses no harm to human health.

Special lens

The pattern of the Fresnel lens sections is designed to differentiate between the IR diagrams of a human, animal, and thermal noise. Large lens sections capture radiation at an adult's head and torso level. Smaller sections make the diagram more detailed. The lens provides the detector with accurate information about the thermal object in the detection zone and the nature of its movement.

SmartDetect

Thermal interferences filter

We processed thousands of thermal patterns caused by humans, animals, and the environment to develop the SmartDetect software algorithm. In armed mode, the detector constantly analyzes the thermal diagram from the PIR sensor, including the IR radiation intensity, thermal spot size, movement speed, time spent in the detection zone, and other parameters. The algorithm identifies false alarm markers instantly and with high accuracy. As a result, the detector accurately responds to human movement without false alarms.

Thermal spot size		Movement speed		IR radiation intensity	
False alarm	Real alarm	False alarm	Real alarm	False alarm	Real alarm

Temperature compensation

Temperature compensation is a software mechanism keeping the thermal diagram contrast even if the ambient temperature is close to the temperature of the human body. With each ambient temperature measurement, the detector corrects the PIR sensor data according to the coefficient table stored in its memory. The detector is effective over the entire operating temperature range.

Sensitivity level

The detector can adapt to the conditions of a particular facility, considering possible thermal interference or pets. The sensitivity setting changes the set of markers by which false alarms are filtered. Low sensitivity makes the detector less likely to respond to an active pet. A high sensitivity will raise the alarm in case of any movement in the detection zone.

Professional installation

With the correct installation at the height of 2.4 m and lens direction perpendicular to an alleged intrusion path, the detector provides an accurate thermal diagram and pet immunity. It instantly responds to a real threat, minimizing false alarms caused by animals weighing up to 20 kg and below 50 cm in height.

Unique wired technologies

The Ajax system uses secure two-way communication based on the **Fibra proprietary protocol**. It features **block encryption** and **device authentication** to prevent sabotage, spoofing, or data theft. Fibra lines are **multifunctional** and support connecting different types of devices to one line: sirens, keypads, and detectors with photo verification.

- Up to 2,000 m of wired communication with a hub or a module that extends the Fibra line²
- One line for different types of devices
- Photo delivery by the Fibra line without interference
- Protection against sabotage and spoofing

Energy efficiency as a priority

Fibra communication requires minimum power consumption, with the detector consuming only up to 0.086 W at its peak. This low power consumption allows installers to connect multiple devices to a single Fibra line, extending wired connectivity.

Fibra operates on the TDMA principle. Each device has a short time frame to exchange data with a hub, and its communication module remains inactive the rest of the time. This significantly reduces power consumption and helps avoid interferences even when multiple devices communicate simultaneously.

- TDMA and power-saving modes
- Power consumption of up to 0.086 W

System supervision

All Ajax devices perform automatic self-diagnosis and report their states to the hub. Essential parameters, including tamper, communication, power supply, and sensor statuses, are continuously monitored. The Ajax Cloud server controls communication between the hub and Ajax apps, ensuring instant notifications for ARCs, security companies, and users. In case of any malfunction or communication failure, an engineer is informed immediately to provide necessary services.

- Automatic device self-diagnosis with status report

- Regular polling to display the current devices state on apps
- Instant maintenance notifications

Sabotage-resistant

<p>Tamper alarm</p> <p>The enclosure is hardwired with a tamper button, which notifies the security company and users once the detector is dismantled from the mounting panel.</p>	<p>Protection against short circuit</p> <p>The system instantly detects a short circuit on the line and notifies the security company and the users. And when the problem is fixed, there is no need to replace the fuses: the system will restore operation automatically.</p>
<p>Data encryption</p> <p>All data the system stores and transmits is protected by block encryption with a dynamic key. Encryption makes it extremely difficult to reprogram the detector, replace or steal the data.</p>	<p>Device authentication against spoofing</p> <p>During each communication session, the hub authenticates the device by checking its unique parameters. If any parameter fails the check, the hub ignores device commands.</p>
<p>Regular polling</p> <p>The device regularly exchanges data with the hub. The system controls each device state and reports if there is a malfunction or connection loss. At minimal polling interval settings (3 data packages every 12 seconds), it takes only 36 seconds to detect communication loss and notify the security company and users about the incident.</p>	<p>Data-rich notifications</p> <p>The Ajax system instantly delivers informative notifications about alarms and events. Security companies and users receive precise details about the incident, including the triggered device, along with the time and location.</p>

Automatic checks of all detector components

Introducing LineProtect – a module to protect Ajax hubs and wired devices from sabotage when an intruder causes short circuits, applies 110/230 V~, or uses stun guns.

PRO is king

The myth about wired systems being difficult to install is busted. Ajax minimized an expensive, long, and dusty experience for PROs by developing an ultimate set of tools to

make the process easy and flexible, from project design to client support and system maintenance. There is no need to disassemble the device for installation. Intuitive Ajax apps help quickly make the device a part of the system, and each device can be reconfigured remotely at any moment. No programming required – everything is available out of the box.

Fibra power supply calculator

The online tool provides security engineers with detailed data on devices' power consumption, enabling easy pre-installation assessment of the wired system project. It helps design the project in real time, highlights problem spots, and offers solutions. Upon completion, results can be downloaded as a PDF file.

Installation

With the SmartBracket panel, an installer can effortlessly mount the device on the wall. The installation kit includes all the necessary fasteners. There is no need to disassemble the device: the board with terminals is placed outside the enclosure under SmartBracket to eliminate hardware damage during installation. The board is removable, which makes the whole process more comfortable. For cable management, there are bracings inside SmartBracket to secure the wires with ties.

- No need to disassemble the detector's enclosure
- Removable terminal board
- All the necessary fasteners included in the installation kit
- Holding screw to secure the detector on a mounting panel

Setup

The device is paired with the hub automatically via Fibra line scanning. This tool is available in the desktop or mobile PRO apps. An installer only needs to name the device and assign it to the room and security group. The device can also be added by scanning the QR code or entering its ID manually.

- Pairing with a hub via automatic line scanning or QR code
- Device identification by triggering or LED indication
- Optimal default settings to cover major requests

Configuration

Intuitive Ajax apps provide remote set-up and testing with all device information from anywhere the internet is available, on a smartphone or PC. An installer can remotely change the settings and provide services promptly without visiting the object.

- Apps for iOS, Android, macOS, and Windows
- Remote configuration without site visits
- Accounts for companies and installers

Monitoring

An Ajax system transmits alarms to the PRO Desktop monitoring app or any third-party CMS. The security company receives an alarm notification in less than a second. Notifications include all the necessary information: name of the device, time of the event, and the exact room where the device is located. The security company also receives photo or video verification, capturing the reason for the alarm.

- Full addressability of connected devices
- Informative push notifications in Ajax apps
- Alarm and event monitoring through PRO Desktop or third-party CMS

¹ According to INCERT certification, detection range is up to 10 m.

² With U/UTP cat.5 cable. Other cable types may have different values. Please use the [Fibra power supply calculator](#) to check the wired system project before installation.