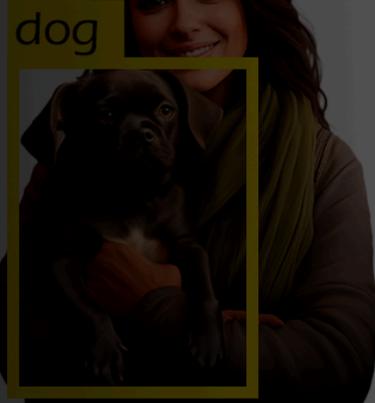


TECHNICAL SPECIFICATIONS

IPXAnalytics is a software that uses artificial intelligence to learn and detect events from surveillance cameras. The artificial intelligence is based on neural networks and LLMs, which are algorithms designed to mimic human brain behavior. Compared to existing video analytics software on the market today, IPXAnalytics significantly reduces the number of false alarms.



STANDARD MODULES

IPXAnalytics offers specialized modules for different scenarios, meeting the specific demands of each client:

✓ General Module

Detects and classifies various objects, including people, vehicles, animals, and everyday items, providing a broad approach to monitoring.

✓ Crime

Advanced solution for public and private security, identifying suspicious behaviors and potential threats in real time, enabling immediate response.

✓ Industrial

Specialized monitoring for industrial environments, including presence detection in hazardous areas, use of PPE, and proximity to moving machinery.

✓ Head Detection

Advanced technology for accurate tracking of human presence, useful for people counting.

✓ Fire & Smoke

Detection of fires and smoke in the early stages, reducing risks and enabling quick responses to protect lives and property.

PRO MODULES

✓ Highways

Identifies vehicles, trucks, and pedestrians on highways, monitoring different scenarios to ensure safety and traffic optimization.

✓ People in Industries

Detects the presence of workers in high-risk industrial environments, helping prevent accidents and ensuring compliance with safety regulations.

✓ Ports

Optimized library to detect people and vessels.

✓ Custom Libraries

We offer specialized modules developed to meet specific scenarios, providing tailored solutions based on client needs.

● Standard ● Professional

PRO CUSTOMIZATIONS

In addition to the various features mentioned here, the software can also assist in numerous other situations. It is designed to be customized to meet the client's requirements. For example, in a production environment, the software can identify errors and critical failures in a specific part. To request a customization proposal, please contact us through our website: www.ipextreme.com.br.

LIBRARIES	STANDARD EDITION	PRO EDITION
GENERAL	✓	✓
CRIME	✓	✓
INDUSTRIAL	✓	✓
HEAD DETECTION	✓	✓
FIRE/SMOKE	✓	✓
HIGHWAYS		✓
PEOPLE IN INDUSTRIES		✓
PORTS		✓
CUSTOM LIBRARIES		✓

TYPES OF ALGORITHMS

The IPXAnalytics algorithms enable various types of analysis to meet the specific needs of each application:

- 
Moving Objects
Tracks and analyzes movements, allowing for the identification of anomalous or suspicious patterns.
- 
Loitering (Suspicious Stay)
Detects objects that remain in an area for a configurable period of time.
- 
Stopped
Identifies objects that remain stationary beyond a predefined time, useful for queue control, illegally parked vehicles, and more.
- 
Color Filter
Detects objects based on specific colors, useful for tracking uniforms, identifying vehicles, and other applications.
- 
Direction
Monitors if an object is moving in a specific direction, triggering alerts if the trajectory changes.



Non Presence

Triggers alerts when an expected object is not present in the scene for a set time.



Consecutive Directions

Identifies movement patterns based on sequential trajectories, useful for route analysis or detecting suspicious movements.



Heatmap

Generates heat maps to analyze movement and the concentration of people in monitored environments.



Distance Between Objects

Measures the proximity between two or more objects, triggering alerts if they get too close or too far apart. Example: Social distancing control.



Distance to Line

Calculates the separation between an object and a reference line, enabling monitoring of distances and angles.



Contain

Verifies if an object is inside another, allowing for complex logic between objects. Example: Identifying the use of personal protective equipment (PPE) such as helmets or safety vests.



Pose Estimation

Detects specific body postures, such as raised arms or sitting position.



Counting Line

Counts objects as they cross a virtual line, registering entries and exits. Applicable in people or vehicle flow control.



Crossing Line

Monitors specific directions when crossing predefined lines, distinguishing between entries and exits.



Random Counting Alarm

Selects an object within a random range for quality checks or inspection. The system generates a random number within the configured range and triggers an alert when the value is reached. Example: Random selection of packages for inspection on a production line.



Object Detection

Identifies and classifies objects in motion or stationary, within a zone based on quantity, size, and orientation.



Camera Tampering

Image Obstruction – Detects camera blockages and can generate alarms and snapshots.

PRO ALGORITHMS



OCR, LPR, Barcodes, and QR Codes

The software has character recognition capabilities and can read labels, vehicle plates, barcodes, and QR codes in real-time, sending alerts or integrating with other systems.



Integration with IPX Monitor

Centralizes and manages events and alarms from IPXAnalytics, sensors, cameras, and IoT devices.



Integration with IPXCopilot

Allows scheduled automation with LLM.

TYPES OF ALGORITHMS	STANDARD EDITION	PRO EDITION
Object Detection	✓	✓
Loitering	✓	✓
Stopped	✓	✓
Direction	✓	✓
Color Filter	✓	✓
Non Presence	✓	✓
Consecutive Directions	✓	✓
Heatmap	✓	✓
Moving Object	✓	✓
Distance Between Objects	✓	✓
Distance to Line	✓	✓
Contain	✓	✓
Pose Estimation	✓	✓
Counting Line	✓	✓
Crossing Line	✓	✓
Random Counting Alarm	✓	✓
Camera Tampering	✓	✓
Bar Code/QRCode		✓
OCR		✓
LPR		✓
Integration with IPX Monitor		✓
Integration with IPX Copilot		✓

CONFIGURATION OPTIONS

- ✓ **Rearm Time** – Defines an inactivity period after an alarm to avoid repetitive alerts.
- ✓ **Quantity** – Triggers an alert only when the minimum number of objects in the area is reached.
- ✓ **Exact Quantity** – Generates an alert only if the exact number of objects matches the defined value.
- ✓ **Minimum and Maximum Object Size on Screen** – Sets size limits for objects to avoid false alarms.
- ✓ **Detection Sensitivity** – Adjusts how long an object needs to remain in the area to trigger an alert.
- ✓ **Exclusion Area** – Allows ignoring specific regions of the scene to prevent unwanted detections.
- ✓ **Detection Point** – Defines whether the alert is triggered by the top or bottom of the object.
- ✓ **Join** – Advanced Area Combination – Requires activation in multiple zones to generate an alert, increasing accuracy.
- ✓ **Object Tracking** – Tracks moving objects with a unique ID to prevent monitoring loss.
- ✓ **PTZ Presets** – Integrates PTZ cameras via API to adjust detection according to different settings.
- ✓ **Scheduling** – Allows defining specific times for analysis operation.



INTEGRATIONS

Open API

With the REST API, all information can be extracted in JSON format in real-time, allowing integration with any system.

IPXAnalytics offers an open HTTP REST API for integration with any third-party system, in addition to compatibility with the leading Video Management Systems (VMS) on the market, such as Digifort, D-Guard, Milestone, and Avigilon.

Note: Some integrations may require additional licenses. Please consult our team for more details.

Telegram and Email Integration

IPXAnalytics allows automation of alerts via:

- Telegram – Sending real-time messages and images.
- Email – Detailed notifications with captured images.

Customizable configuration for sending individual or combined alerts (Telegram + Email).

Use Cases:

- Generating graphs and statistics on open IoT platforms.
- Monitoring through custom dashboards.
- Sending automated alerts to different systems.

Example: Integration with the ThingSpeak platform, displaying counts and data analysis.

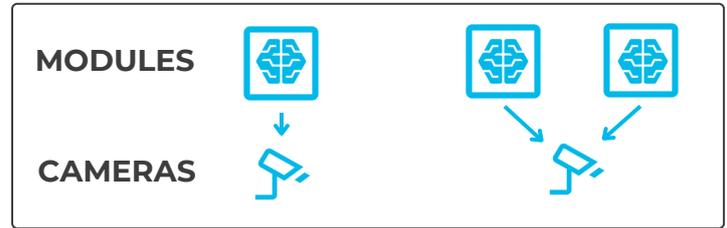
INTEGRATED SYSTEMS



*The OpenVINO technologies use Intel XEON and Intel CORE processors.

LICENSES

Each module has a corresponding license. Each camera requires a license, or if multiple modules are needed for a single camera, you must acquire two or more licenses.



Demo License

It is always recommended that the client tests the software before purchase to ensure it meets their needs and functions properly in their environment.

MINIMUM HARDWARE REQUIREMENTS

Each video card has its processing capacity in frames per second (FPS). IPXAnalytics needs just 1 frame to identify whether an object is present in the image or not. For example, a card that can process 15FPS will process 1FPS for 15 cameras simultaneously.

For motion detection functions such as counting line, consecutive direction, and moving object detection, IPXAnalytics requires at least 5FPS to process object movement. Dividing the number of FPS by 5, the table below shows the maximum number of cameras supported for each configuration.

Minimum Server Specifications:

- ✓ Windows 10/11 e Windows Server 2022
- ✓ 6 GB RAM
- ✓ HD/SSD 480GB

FPS	Processor	Graphics Cards
90	Intel Core i9-10900K / Intel Xeon Silver 4108	RTX4090 / 2x NVIDIA L4 Tensor Core
60	Intel Core i9-10900K / Intel Xeon E-2278G @3.40GHz	RTX3090 / 2x RTX4000
50	Intel Xeon E-2278G @3.40GHz	A16
40	Intel i7-8700 @3.2GHz / Intel Xeon E-2278G @3.40GHz	RTX3080 / L4 Tensor Core
35	Intel i7-8700 @3.2GHz	A4500
30	Intel i7-8700 @3.2GHz	RTX2080Ti / RTX3060 / T4 / A4000
25	Intel i5-8400 @2.8 GHz	RTX 2060 SUPER
20	Intel i5-8400 @2.8 GHz	RTX 2060
10	Intel i5-8400 @2.8 GHz	NVIDIA 1050Ti



BENEFITS

- **Real-Time Monitoring:** Continuous event analysis 24/7.
- **Process Optimization:** With automation features.
- **Significant Reduction in False Positives:** Advanced algorithms minimize incorrect alerts.
- **High Customization:** Flexible configuration for different scenarios.
- **Simple Integration:** Compatible with various monitoring platforms. Connect with your IP Camera, DVR, or NVR and generate alerts to Telegram, email, or integrate with your VMS.
- **Enhanced Security:** Effective prevention of incidents with agile detection.



ARCHITECTURE AND TECHNOLOGIES

- **On-Premises Deployment:** The application is installed directly on the client's internal network, providing greater control over infrastructure and security.



LIMITATIONS AND CONSIDERATIONS

- **We understand the importance of reliability in critical applications. Therefore, it is important to note that no artificial intelligence software can guarantee 100% accuracy. Our solution offers robust and fast detection, but we always recommend maintaining backup systems and additional security protocols to ensure a comprehensive response in emergency situations.**



LICENSING AND SUPPORT

- **License Models:** Monthly or Lifetime (with optional support).
- **Technical Support:** Email, phone, and WhatsApp, with SLAs according to the contracted plan.
- **Training:** Full configuration and usage manual, plus online training.