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iQ-LPR
(License Plate Recognition)

(Data Sheet)

Version 3.5 license plate detection and recognition



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Plate Detection and Recognition

Video-based analysis for moving vehicles and car-park entry

01

Capture

Video cameras capture moving vehicles, including high-speed traffic and car-park access.

02

Detect

IQ-LPD detects the vehicle and locates its plate without a road induction loop.

03

Read

IQ-LPR adds recognition of the plate characters.

04

Use

Save plate data with video or still frames; compare numbers with databases and generate reports.

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Automatic Triggering

The video stream itself starts vehicle detection

NO EXTERNAL ROAD TRIGGER REQUIRED

IQ-LPR detects the vehicle and takes a picture or video without an underground induction loop.

Both analog and IP cameras are supported, subject to camera suitability.

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Road and Enforcement Uses

Plate data supports traffic and law-enforcement tasks

Roads and traffic

- Identify speeding and red-light-violation vehicles
- Match plates to a stolen-vehicle police database
- Track vehicles at highway points and calculate average speed between points

Law enforcement

- Capture plate details for illegal parking or speeding
- Combine with other iQ-Series products for wrong-way or speeding detection

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Parking and Access Uses

Entry, exit and list matching for managed sites

CAR PARKS

Read plates on entry and exit, locate a vehicle in a large car park and support access control.

BUILDING SITES

Permit automated entry for authorized vehicles and alarm on blacklisted cars.

GATE ACTION

Compare plate numbers with blacklists or whitelists and open a barrier gate or initiate another configured action.

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Recognition Envelope

Version 3.5 operating claims depend on image quality

180 km/h

Supports vehicle speeds up to 180 km/h, subject to image quality.

90–95%

Whole-plate accuracy when the image meets the quality specification.

18–32 px

Minimum plate-character height cited for reading; normal or IR light, two-line plates, slow or stopped vehicles are supported.

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Plate and Vehicle Attributes

Recognition can add context beyond the plate number

Plate

- English, Chinese, Arabic and Cyrillic scripts are listed.
- Two-line plates can be read.

Vehicle

- Plate and vehicle colour can be recognized when the camera captures colour.
- Ambient light can distort colour.
- iQ-Driver Match can combine LPR with separately av ailable facial recognition for driver authentication.

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Centralized Architecture

Place the IQ Server and Data Aggregator on one local network

CENTRALIZE WHEN BANDWIDTH ALLOWS

Cameras, iQ Servers and Data Aggregators share a local area network.

Highway LPR uses high-quality, high-frame-rate images, so network bandwidth can be substantial.

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Distributed Architecture

Process near the cameras and read plates centrally

01

Camera

Video captures the vehicle and plate.

02

Super Edge

A nearby iQ-Server detects the vehicle and plate but does not read the number.

03

Transfer

Plate images go over the network to a Data Aggregator.

04

Recognize

The aggregator reads the number and can match it to a database.

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Database and Interfaces

Connect recognition to external lists and systems

MATCH

Compare plate numbers against multiple authorized-vehicle or stolen-vehicle lists.

Matching data must use the required database format.

Other formats may require conversion or customization.

EXPORT

Export plate information to Excel; provide information through XML.

ACTIVATE

An external dry-contact relay can be triggered for physical access control.

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Reports and Search

Review plate events in real time or by period

Core event fields

- Timestamp, plate and plate image
- Vehicle colour and direction
- Recognized plate number

Analysis

- Vehicles passing within a time period; allowed or denied access
- Specific actions, dwell time, traffic flow and peak traffic
- Search for a vehicle and aggregate counts from multiple sources

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Reporting Delivery

Scheduled and live outputs for operational review

Timing

- Real-time reporting is available.
- Reports may be daily, weekly, monthly or yearly, or use 5-, 10-, 15-, 30- or 60-minute intervals.

Access

- Export reports to Excel or PDF and place them on the network.
- iQ-Client configures the system, views cameras and video walls, handles visual and audible alerts, and manages plate lists.

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Server Sizing

Legacy example specifications from the Version 3.5 source

IQ-LPD examples

- 1 camera: Atom 330 at 1.6 GHz, 2 GB ECC memory
- 5 cameras: 2 × Xeon E5506 at 2.13 GHz, 4 GB ECC
- 16 cameras: AR-088-S030MJ, 4 GB ECC

IQ-LPR aggregator

- Example for 6 cameras:
  Xeon E5506 at 2.13 GHz, 4 GB ECC
- Source specifies Windows 2003 Server SP2 or Windows XP Pro SP3 (32-bit) and Intel PRO/1000 LAN.
- An iOmniscient LPR Accelerator is specified for the aggregator.

The LPD hardware examples assume a 1 × CIF M-JPEG stream.
MPEG-4 or H.264 decoding may reduce the number of cameras supported per server.
LPD and LPR can run on the same computer, but separate computers are recommended for large networks.

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Camera and Storage

Image quality and data retention shape infrastructure

Camera

- Analog cameras need an encoder or capture card; IP cameras are supported.
- Forensic or live feeds from NVR and VMS systems are accepted.
- LPR-007: IP camera, 20 m IR, IP66, –20°C to +60°C.

Storage

- Allow separate storage for captured images and matching databases.
- Image capacity depends on size and quantity retained.
- Matching data needs a predefined database format; other formats may require porting.

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Placement and Conditions

Image quality determines achievable recognition performance

DISTANCE

A long camera-to-vehicle distance increases the chance of occlusion; recognition near the camera is advised.

LIGHT

Changing shadows, weather and darkness may require active, oft en infrared, illumination.

Non-reflective plates can requir e special camera and lighting ch oices.

CAPACITY AND HOUSING

Bandwidth depends on image size.
Faster response and heavier traffic increase compute demand and can reduce cameras per server.
Camera housing must suit the installation environment.

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Products and Ordering

Version 3.5 lists separate car-park and highway products

IQ-LRCS

- License plate recognition for car parks
- Listed applications: car parks, building sites and law enforcement

IQ-LRHS

- License plate recognition for highways
- Listed applications: roads, traffic and law enforcement

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About iOmniscient

Partnership

All iOmniscient Products run exclusively on Intel based computing hardware using OpenVINO™

- The use of Advanced AI technology that goes beyond Deep Learning enables iOmniscient to run its systems without the need for 3rd party GPUs.
- This reduces the power required by a factor of 16 – resulting in a 16-fold reduction in the carbon footprint.
- This is just one part of a multi-faceted program to help customers to implement Sustainable Systems.

www.iomni.ai

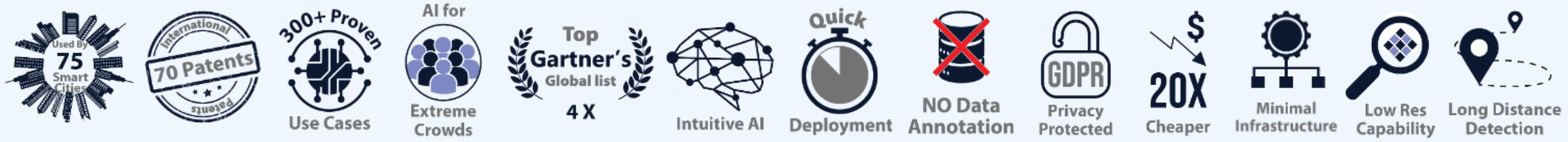
enquiries@iomni.ai

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About iOmniscient

- iOmniscient is an **Ethical AI** company.
- It offers **multi-sensory (video-sound-smell) Artificial Intelligence based analytics for Autonomous Systems.**
- It focuses on ensuring **Outcomes** for its customers.
- With **over 2 decades of experience,** iOmniscient systems have been demonstrated to be **robust,** operating with high accuracy and few false alarms specially in **complex and crowded** environments.
- By design, its systems **reduce the cost of infrastructure** required:
  - they can use existing cameras
  - they require fewer cameras with lower resolution
  - they require 90% less storage and network bandwidth
  - they are computing light and require no GPUs
  - they allow autonomous operations requiring fewer personnel to operate
- iOmniscient has implemented projects in **70 countries.**
- With over **70 international patents** many of its capabilities are unique and unavailable from any other source.





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