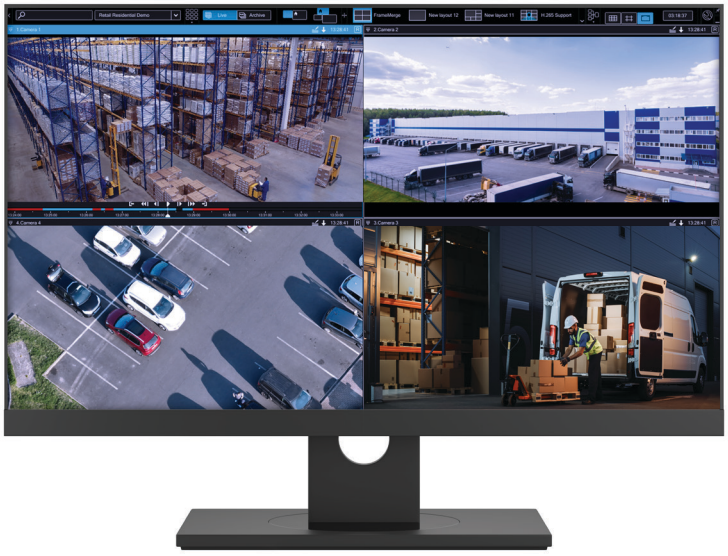
LumiCenter LPR Channel Add-On Module

LCE-LPR



NDAA COMPLIANT

Key Features

- Read license plates using any camera
- Convert license plate characters into text
- Compare license plate against positive lists and negative lists
- Search license plate in stored video

Certifications and Compliance

- NDAA Compliant

Applications

- Identify vehicle by license plate
- Monitor parking and track vehicles using license plates

Supported by LumiCenter

- Plus
- Max

Overview

This add-on module enables LumiCenter Plus and Max to perform real-time vehicle license plate recognition from any surveillance camera. The system sends notification alerts (UI, Text, Email, API) when a license plate from the positive or negative lists is detected. The module can trigger actions, such as opening a gate or running a macro to automate tasks. It also allows searching for license plates in the archive. This add-on includes the LPR Search module (LCE-LPRS).

Key Technologies

LumiCenter can use nearly any brand of surveillance camera to capture vehicle license plates, applying preprocessing to address issues like lighting, angle, or weather. OCR (Optical Character Recognition) converts the plate's characters into searchable text, which is then compared to whitelist and blacklist databases to trigger alerts or grant access. Recognized plate data is indexed with recorded video, enabling users to search archived footage for specific plates for investigations and retrospective analysis.

System Requirements and Technical Specifications

Consult the information below to verify the specifications and conditions the add-on module requires to perform properly.

Region

Only license plates from North America (USA and Canada) can be read and recognized.

Operating System and Software

Below are the OS and software requirements for the add-on module to perform properly.

- Microsoft Windows 10 or Higher
- Microsoft Visual C++ 2015 Redistributable Package (x64)
- .NET Framework 4.5.2

RAM Usage

Each camera requires at least 500 MB of RAM. For example, a configuration of 16 cameras will require a minimum of 8 GB of RAM.

CPU

Below are the OS and software requirements for the add-on module to perform properly.

- Intel i7 or i9 processor of the latest generation with a clock speed of at least 3.0 GHz.
- One core should be allocated per camera at 2MP resolution (since the detection tool operates at 1MP resolution, a 20-camera setup does not require 20 cores), plus two additional cores for operating system tasks. The CPU must support AVX2. For example, For example, a 20-camera setup requires 16 GB of RAM and a CPU with the specified characteristics, including at least 16 cores

Cameras

Below are the camera requirements for the add-on module to perform properly.

- The minimum required camera resolution is 640 × 360 pixels. The optimal resolution is 1280 × 720.
- The camera's video stream must have a frame rate of at least 15 fps to handle standard tasks effectively. The recommended frame rate is 25 to 30 fps.
- It is recommended for the caemra to have auto-focus and zoom functionality enabled.

Lighting

Below are the lighting requirements for the add-on module to perform properly.

- The minimum lighting required is 50 lux. Artificial lighting may be used. If there is insufficient or excessive lighting, stable operation of the analytics is not guaranteed.
- Abrupt lighting changes may cause operational disruptions.

Scene and Camera Angle

Below are the scene and camer angle requirements for the add-on module to perform properly.

- For optimal accuracy, position the camera to capture a single lane of traffic—ideally the one closest to the camera. Dual-lane coverage is possible if the camera is centered between two lanes.
- The camera's horizontal tilt angle from the road to the capture point must not exceed 15°.
- The recommended working distance to the capture point is as follows:
  - 15–20 meters for low-speed, urban environments.
  - 20–30 meters for higher-speed conditions.
- The camera should be installed four (4) to six (6) meters above ground level.
- The angle between the bottom edge of the license plate and the horizon should be 0° to 20°.
- Avoid installing cameras near bends, speed bumps, junctions, traffic lights, or roundabouts, where vehicles frequently change speed. The detection zone must be located on a straight section of the road.

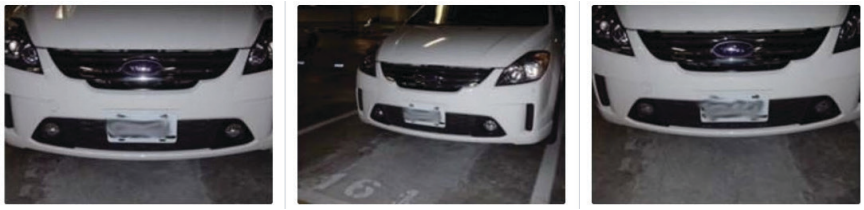
Image Tilt

Below are the recommended tilt limits for the add-on module to perform properly.

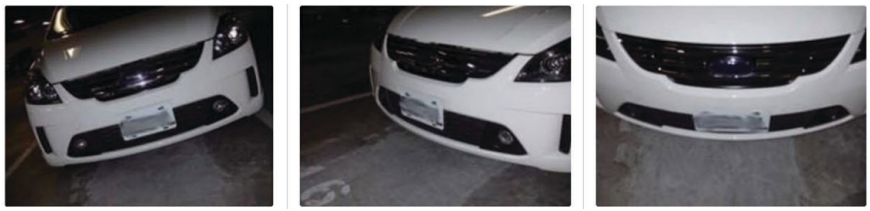
- X-Axis Rotation (Pitch): ± 35°
- Y-Axis Rotation (Yaw): ± 40°
- Z-Axis Rotation (Roll): ± 35°

Image Tilt (Cont.)

The images below show the correct and incorrect image tilts for proper operation.



Correct Tilt



Incorrect Tilt

Object Images

Equipment detection (PPE) identifies individuals entering or remaining in restricted areas without required protective equipment or wearing PPE incorrectly. For optimal accuracy, use the detection tool in gateway conditions such as at entry points where employees pause and remain for a period of time to allow the system to verify proper equipment use.

Neural Networks

Below are the object image requirements for the add-on module to perform properly.

- The license plate should appear clearly with no camera distortion or blurring.
- The license plate image must have minimal noise in low light conditions.
- The size of license plate must be 15% to 70% of the total image size.
- The license plate cannot have more than two rows of characters.
- The optimal height of license plate characters is 20 to 30 pixels.

Ordering Information

LumiCenter License

Each license enables video capture, display, record, transmit and playback of one video channel from an IP camera or IP device. Additional functionality is included (I/O, audio, PTZ).

SKU	Product
LSC-PLSV	LumiCenter Plus Version
LSC-MAXV	LumiCenter Max Version

LumiCenter Add-On Modules

Each video channel requires a LumiCenter license to support add-on modules.

SKU	Add-On Module	Description
LCE-LPR	LPR Channel	Enables LumiCenter Plus and Max to run vehicle license plate analysis in real time from any surveillance cameras and send notification alerts (UI, Text, Email, API) when a certain license plate is detected from positive/negative lists. The module can initiate opening gates or other actions running a macro to automate tasks. It also allows searching for license plates in the archives. A LumiCenter video license is required for each camera in addition to this add-on module. This add-on module includes the LPR Search add-on module capabilities (LCE-LPRS). ⓘ It is recommended to use LumiCenter Net for each camera channel.