

A428 - Running License Plate Recognition and Face Recognition Simultaneously

1 - Frequently Asked Questions

The following questions are frequently raised when the A428 is evaluated for a project that needs both people and vehicle information from a single camera:

- Can the A428 recognise license plates and recognise faces against a face library at the same time?
- Multi-Target-Type Detection is enabled, but only the vehicle type is shown and no license plate number appears. Which setting is missing?

2 - Summary

- Yes. Two modules run together on the camera: **Multi-Target-Type Detection** captures faces and human body attributes and recognises license plates and vehicle attributes, while **Comparison and Modeling** compares the captured faces with a target picture library for face recognition.
- License plate results are generated only when **Vehicle Line Crossing Capture** is enabled in the Rule tab. With this option off, the module reports the vehicle type but no license plate number.
- **Area** and **Country/Region** select the license plate format used by the recognition algorithm, and are best set to the country where the camera is installed.
- Face recognition requires a target picture library containing the face pictures of the persons to be recognised, linked in Comparison and Modeling.
- Results are shown in Application Display: the Vehicle Detection list (plate number and vehicle attributes), the Face and Body list (face and body snapshots), and the Real-Time Analysis panel (face recognition result with similarity and library information).

3 - Applicable Model and Firmware

Item	Description
Model	A428 (4MP Deep Learning AI LightGuard 4.3x Zoom Bullet)
Firmware	V5.9.24 build 260724 (version used in this document)
Analytics modules	Multi-Target-Type Detection; Comparison and Modeling
Interface	Camera web interface, administrator account

4 - Configuration Steps

4.1 Enable the Analytics Modules

1. Log in to the camera web interface and select **VCA** in the left menu.
2. On the **Open Platform** page, switch on **Multi-Target-Type Detection** and **Comparison and Modeling**.
3. Click **Next** and complete the **Set Application** step.

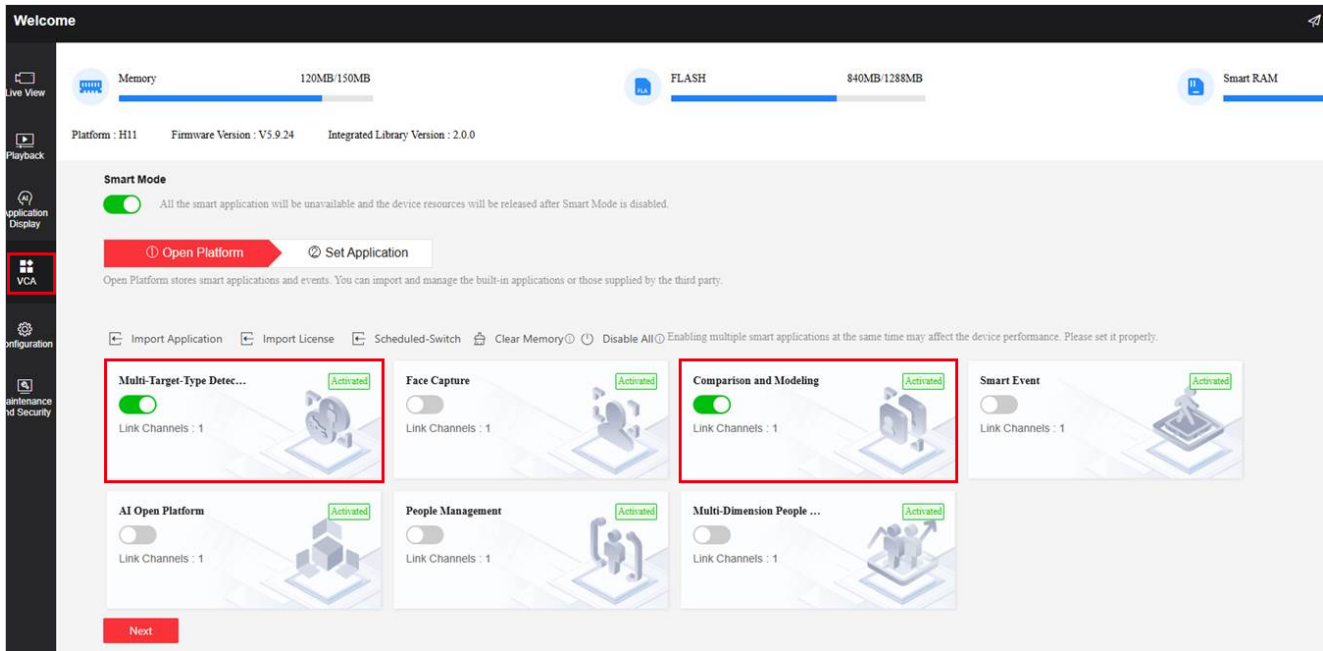


Figure 1. VCA > Open Platform, with Multi-Target-Type Detection and Comparison and Modeling switched on

As noted on this page, enabling several smart applications at the same time may affect device performance, so it is advisable to keep on only the modules the project requires.

4.2 Configure the Rule Tab of Multi-Target-Type Detection

1. Select **VCA > Multi-Target-Type Detection** and open the **Rule** tab.
2. Set the parameters below, then click **Save**.

Parameter	Setting	Description
Enable	On	Activates the module
Vehicle Line Crossing Capture	On (required)	Activates vehicle capture with license plate recognition; when off, no license plate number is produced
Min. Pupil Distance	26 (default)	Minimum face size for capture, expressed as the distance between the two pupils in pixels
Area	Asia Pacific (example)	Region group of the license plate format
Country/Region	Taiwan (example)	License plate format used by the recognition algorithm; set to the installation country
Flow Overlay	Optional	Shows face, body and vehicle counts on the video

Once Vehicle Line Crossing Capture is on, a blue capture line appears on the live view in addition to the red detection area. Both can be adjusted with the drawing tools above the live view; the line is best placed across the vehicle path, where the plate is clearly visible.

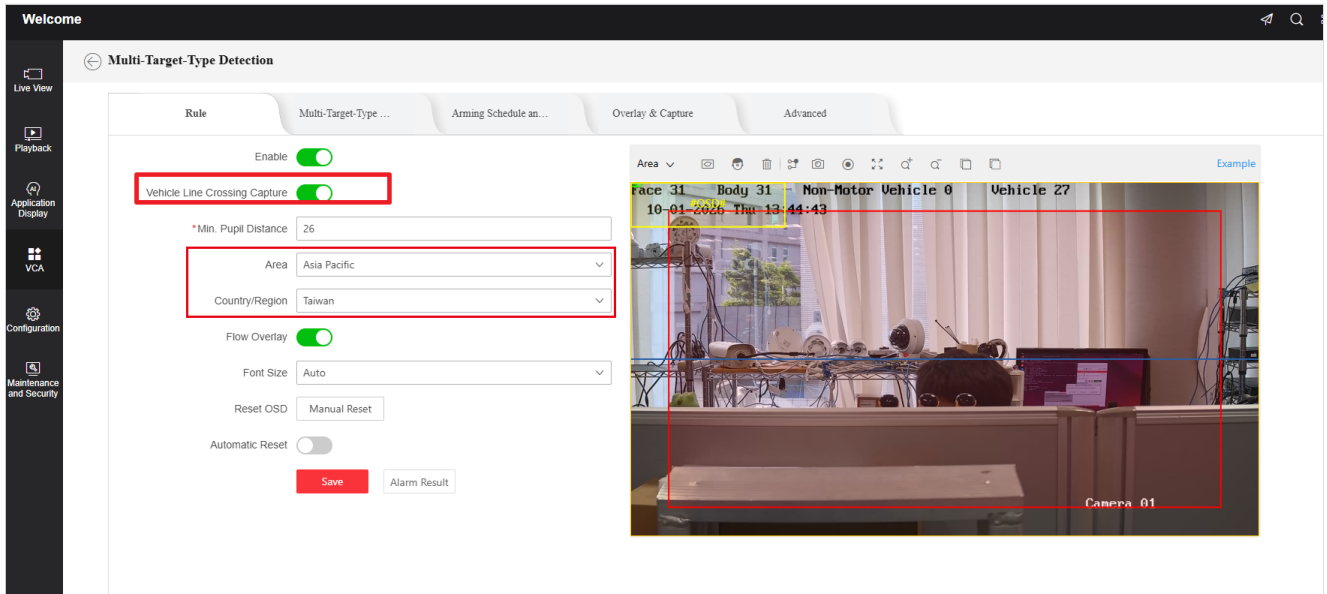


Figure 2. Rule tab: Vehicle Line Crossing Capture on, Area and Country/Region set to the local plate format

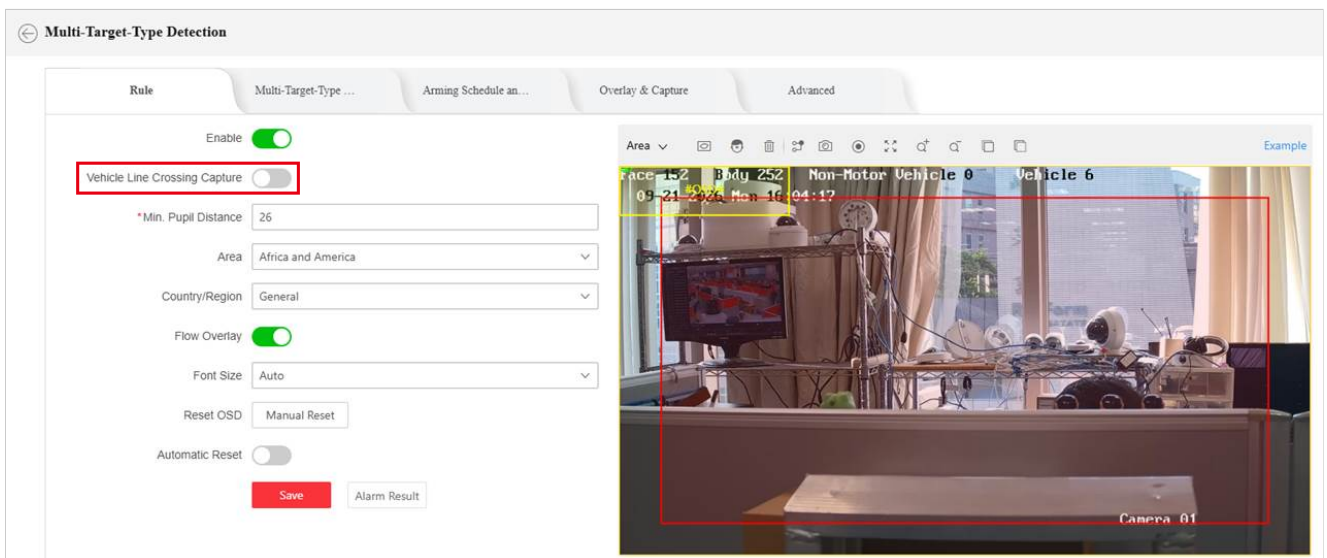


Figure 3. Rule tab with Vehicle Line Crossing Capture off: no capture line on the live view, and no license plate result

4.3 Set the Picture Upload and Text Overlay Options

In **VCA > Multi-Target-Type Detection**, open the **Overlay & Capture** tab. The settings below were used in the test; click **Save** after setting.

Parameter	Setting used in the test
Background Upload	On
Shared Background for Face and Body	On
Face Picture	On
Remove Light Spot	On
Compress Background Picture	On; Compression Level: Medium
Text Overlay (Selected)	Capture Time, GPS, Moving Direction, Tops Color, Bottom Color, Tops Type, Bottoms Type, Carrying Backpack

Multi-Target-Type Detection

Background Upload ☒

Shared Background for Face and Body ☒

Face Picture ☒

Remove Light Spot ☒

Compress Background Picture ☒

Compression Level: Medium

Text Overlay

Text Overlay

To Be Selected

☐ Type

No data.

Selected

Type	Sort
☐ Capture Time	↑ ↓
☐ GPS	↑ ↓
☐ Moving Direction	↑ ↓
☐ Tops Color	↑ ↓
☐ Bottom Color	↑ ↓
☐ Tops Type	↑ ↓
☐ Bottoms Type	↑ ↓
☐ Carrying Backpack	↑ ↓

Save

Figure 4. Picture upload and text overlay options of Multi-Target-Type Detection

4.4 Configure Comparison and Modeling

1. Prepare a target picture library and add the face pictures and information of the persons to be recognised. The library settings can be opened from **Set Target Picture Library>>** on the Comparison and Modeling page.
2. Select **VCA > Comparison and Modeling**, set the parameters below, then click **Save**.

Parameter	Setting	Description
Enable	On	Activates face comparison
Comparison Mode	Best Comparison (used in the test)	Best Comparison continuously captures and compares the target face while it stays in the detection area; Quick Comparison compares once the face picture score exceeds the capture threshold
Capture Threshold	0 (used in the test)	Face picture score threshold for capturing and uploading a face picture
Data Upload	All options on (used in the test)	Uploads comparison information and triggers alarms for successful and failed comparisons
Linked Target Picture Library	Link the library to be used	Libraries listed here are used for comparison; arming schedule and linkage method can be set for each library

←

Comparison and Modeling

Enable ☒

Comparison Mode

☒ Best Comparison
 ☐ Quick Comparison

Capture Threshold

Data Upload

Upload Face Comparison Info. ☒

Triggered by Capture Target with...

Upload Info. of Successful Comparison ☒

Upload Info. of Failed Comparison ☒

Alarm of Succeeded Linked Comparison ☒

Alarm of Failed Linked Comparison ☒

Linked Target Picture Library

Target Picture Library List

Target Picture Library Name	Arming Sche...	Linkage Method
ACTi		
Test		
test		

Set Target Picture Library>>

Save

Alarm Result

Figure 5. VCA > Comparison and Modeling

4.5 View the Results

1. Select **Application Display** in the left menu to open the Display Alarm page, which shows the Vehicle Detection list, the Face and Body list, the live view and the Real-Time Analysis panel.
2. The **Real-Time Analysis** panel shows each face recognition result: the captured face and the matched library picture, similarity, the person's information and library name, and face attributes.

3. Click a vehicle entry to open **Vehicle Capture Info**: License Plate No., Plate Color, License Plate Type, Vehicle Type, Vehicle Color, Vehicle Brand and Speed.
4. Click a face and body entry to open **Linked Face and Body Info**, with attributes such as gender, age, age group, tops colour and type, bottoms type, hairstyle and moving direction.

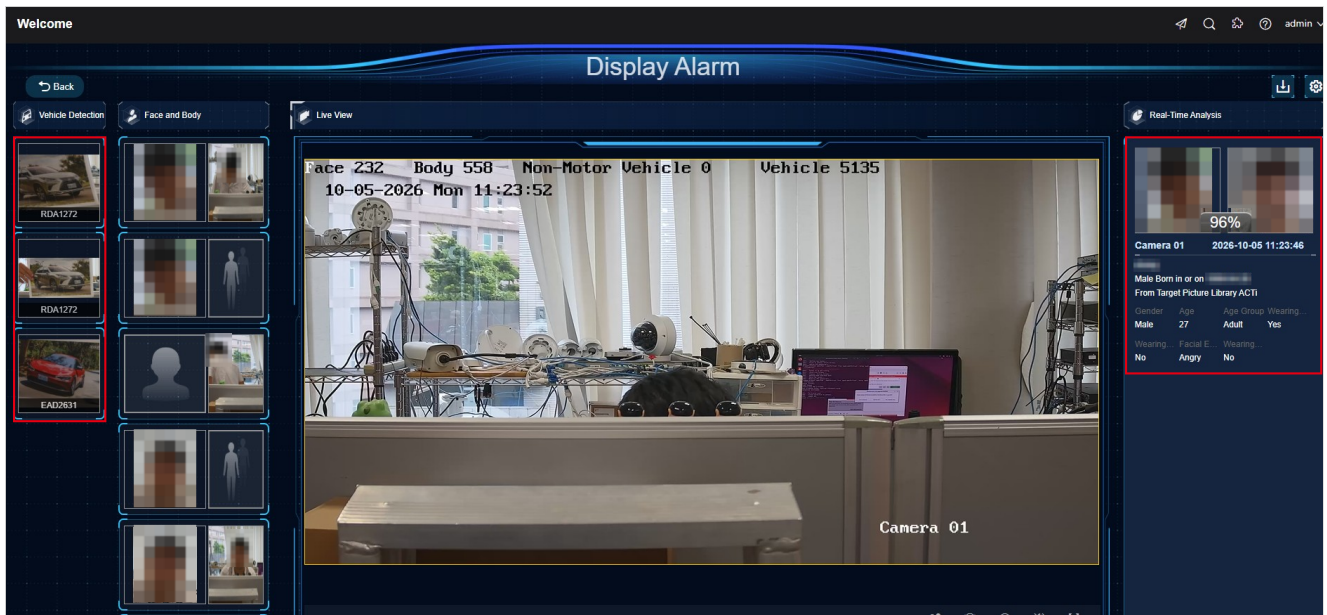


Figure 6. License plate results (Vehicle Detection, left) and a face recognition result (Real-Time Analysis, right) on the same camera at the same time; faces and personal information are blurred for privacy

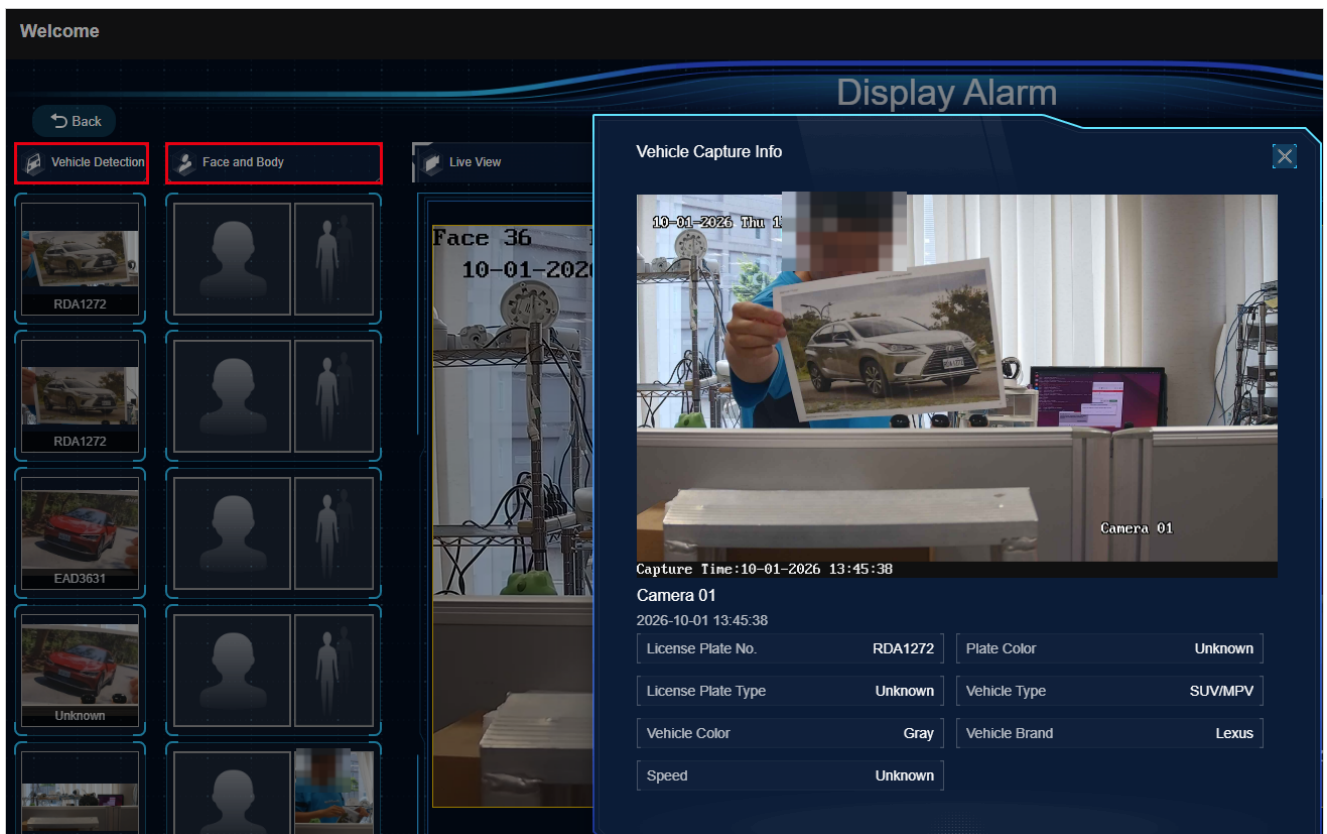


Figure 7. Display Alarm: Vehicle Detection and Face and Body lists, with Vehicle Capture Info open

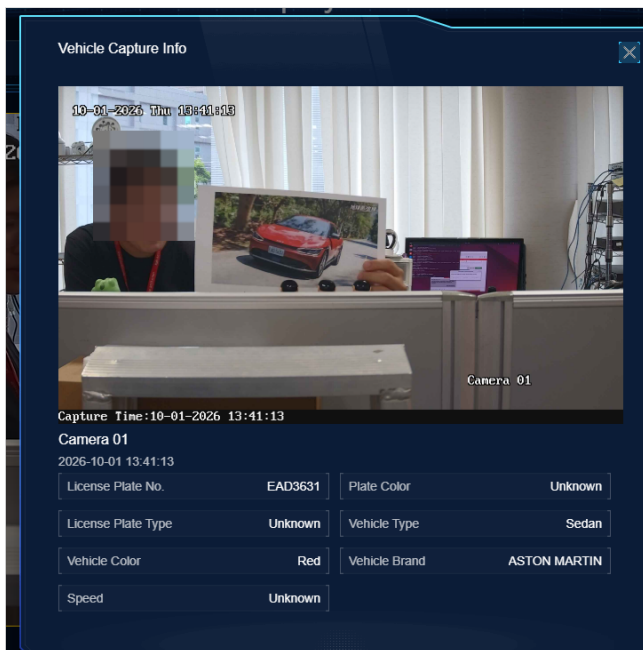


Figure 8. Vehicle Capture Info

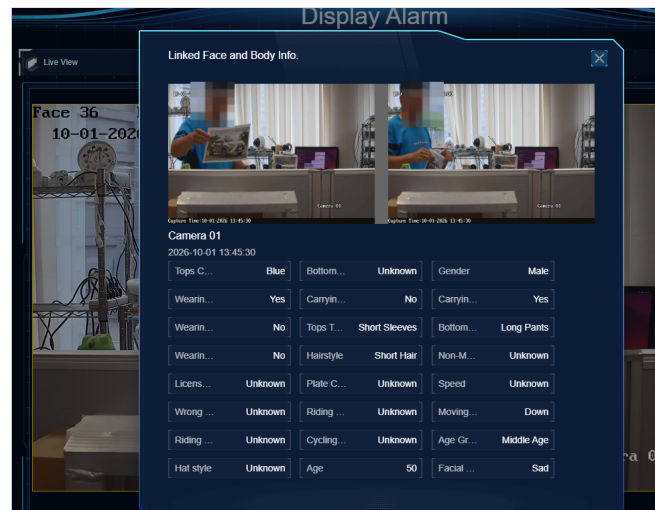


Figure 9. Linked Face and Body Info

5 - Application Notes

- License plate recognition in this mode suits simple scenes such as site entrances and exits, where vehicles approach slowly or nearly stop and the plate is clearly visible. Lane-based and speed-related recognition are not supported, so Speed is reported as Unknown.
- For multi-lane roads, or applications that require higher vehicle speed or recognition accuracy, a dedicated ACTi ALPR camera is the more suitable choice: <https://www.acti.com/products/alpr-cameras>
- Plate Color and License Plate Type may be reported as Unknown, depending on the region and scene.
- Face recognition results depend on the quality of both the library pictures and the captured face pictures, such as face angle, face size and illumination.
- Where faces are the main target, the dedicated Face Capture module offers higher face detection throughput and best-angle face capture. Multi-Target-Type Detection is the better fit when people and vehicle information are both needed from one camera.
- Recognition performance depends on illumination, viewing angle and target size; an on-site pilot test is the most reliable basis for project acceptance.

6 - Test Examples

The screenshots below were captured in an indoor lab with printed vehicle photos held in front of the camera, using the settings in Section 4. Faces are blurred for privacy.

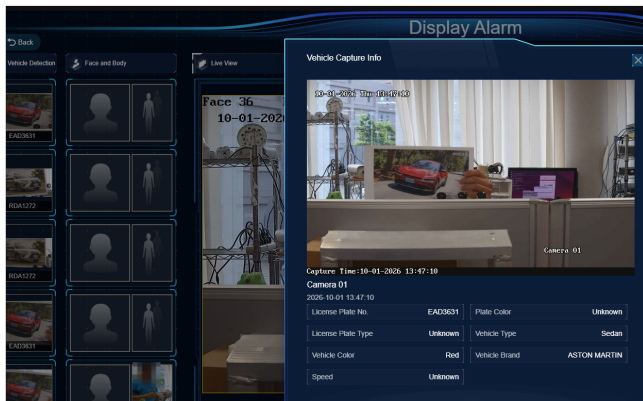


Figure 10. EAD3631, Sedan, Red

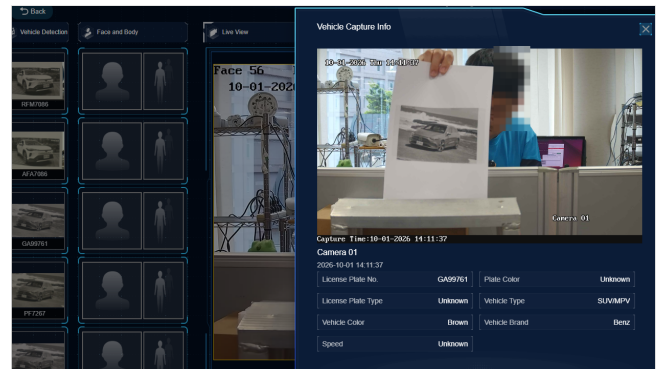


Figure 11. GA99761, SUV/MPV, Brown

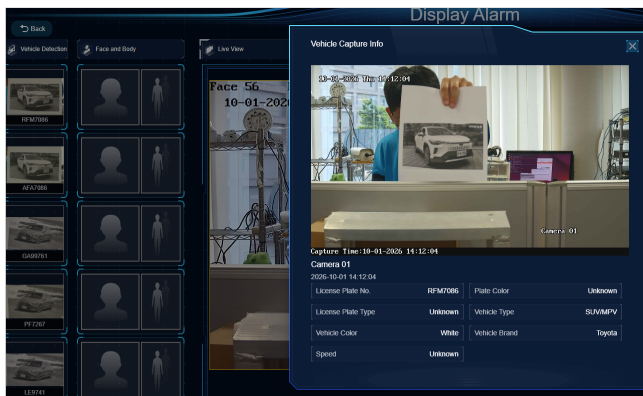


Figure 12. RFM7086, SUV/MPV, White

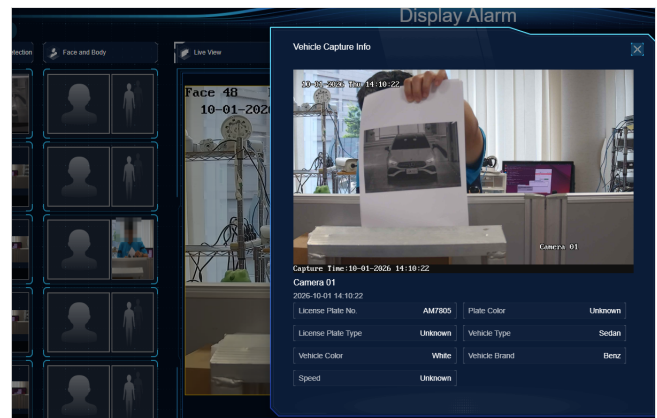


Figure 13. AM7805, Sedan, White

7 - Related Documents

Document	Relevant content	Link
A428 Datasheet	Specifications and built-in video analytics	https://download.acti.com/?id=32791
ACTi ALPR Cameras product page	Dedicated ALPR models for multi-lane and higher-speed applications	https://www.acti.com/products/alpr-cameras