ADAPTIVE **RECOGNITION**

S1

User Manual

This manual contains instructions on accessing the web interface, system settings and setup guidelines, and usage and maintenance.

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S1
USER MANUAL

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Table of Contents

INTRODUCTION 4
1. SETUP ARH CAM S1 5
2. LOGIN SCREEN 6
3. INFO 7
4. ADMIN 8
4.1. LAN SETTINGS 8
4.2. MODEM SETTINGS 10
4.3. DATA CENTER SETTINGS 11
4.4. SET CERTIFICATE DATE 13
4.5. SAVE LOG FILES 14
4.6. MANUAL TIME SETTINGS 15
4.7. AUTOMATIC TIME REFRESH 16
4.8. USER SETTINGS 17
4.9. ENGINE SETTINGS 19
4.10. LANGUAGE SETTINGS 21

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4.11. DATABASE 22
4.11.1. CLEAR DATABASE 23
4.11.2. DELETE EVENTS 24
4.11.3. RESET UPLOAD 25
4.12. SLEEP SETTINGS 26
5. EVENT MONITOR 27
5.1. INSTALLING EVENT MONITOR 27
5.2. DEVICE MANAGER 29
5.3. DEVICE CONTROL 31
5.4. DATA BROWSER 33
5.5. TOOLS MENU 38
6. ENFORCEMENT 40
7. SETUP ENFORCEMENT 41
8. AUTOMATIC MULTI-LANE SPEED CONTROL 48
8.1. MULTI SPEED LIMIT FOR TWO LANES 49
8.2. MULTI SPEED LIMIT FOR THREE LANES 54
9. STOP ENFORCEMENT 59
10. INTRODUCTION TO THE MAIN SCREEN 60
10.1. ENFORCEMENT MENU 61
10.2. INFORMATION MENU 62
10.3. EVENTS MENU 64
10.4. DEVICES 65
10.5. OPTIONS 66
10.6. CAMERA 67
11. BOTTOM INFORMATION BAR 68
12. UPPER INFORMATION BAR 68
13. DETAILED DESCRIPTION OF THE SPEED MEASUREMENT 70
14. CONTROL FUNCTIONS PAIRING 74
CONTACT INFORMATION 75

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INTRODUCTION

The S1 Portable Speed Camera is a compact and easily deployable device designed for fast and accurate speed enforcement. Thanks to its two-minute setup time, the S1 is ready for use without the need for complex installation procedures.

The device features a built-in laser speed measurement system capable of detecting vehicles from up to 600 m away and providing certified speed measurements up to 300 km/h. Integrated technologies such as Automatic Number Plate Recognition (ANPR), infrared illumination, GPS, and a 4G modem allow for the detection of multiple traffic violations, including illegal overtaking and driving against traffic flow. The system ensures secure real-time data transmission to a central database for evidence collection.

With its rugged IP54-rated housing, the S1 guarantees reliable operation in various weather conditions.

This User Manual provides a detailed guide to setting up, operating the S1 Portable Speed Camera, ensuring that users can maximize the potential of this advanced traffic enforcement tool.

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1. SETUP ARH CAM S1

1. Connect external battery to ARH CAM S1.

> **Hint**
>
> The power cable plug has a red straight sign to indicate the proper connection direction to the camera. It must be on the top.

2. Turn on power on external battery.
3. Turn on the device by pressing and holding (approx. 1-2 seconds) the power switch of the device, located left to the display. If the power switch is on, the green LED on the button indicates it.

> **Note**
>
> If external battery is discharged, green light is flashing on power switch of the camera.

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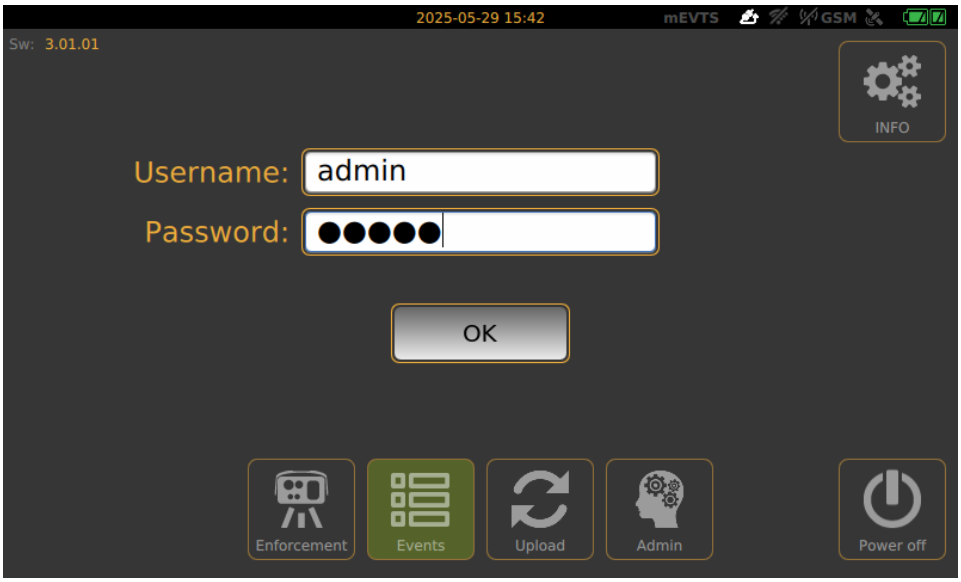
2. LOGIN SCREEN

After turning the device on, it starts the installed software. During the start-up procedure the starting screen will appear with a progress bar, indicating the start.

Default login parameters:

- Username: admin
- Password: admin
- Clicking the OK button submits the entered credentials to log in.
- If the credentials are correct, the user will gain access to the system's main features and configuration options.



Enforcement: Opens the configuration interface of the device.

Events: All reports available after login.

Upload: Allows the user to manually upload recorded data (e.g., events or reports) to the central server.

Admin: Provides access to the administrative interface for device configuration, such as network settings, certificates, and user management.

Info: Provides access to system details.

Software Version: Displayed as Sw: 3.01.01 at the top left corner, indicating the currently installed firmware version.

Date and Time: Shown at the top center (2025-05-29 15:42), confirming that the system clock is synchronized and accurate.

Network Status: Indicates a 2G connection in the top right corner, which is critical for data transmission if a SIM card is installed.

Power Off: Shuts down the device safely.

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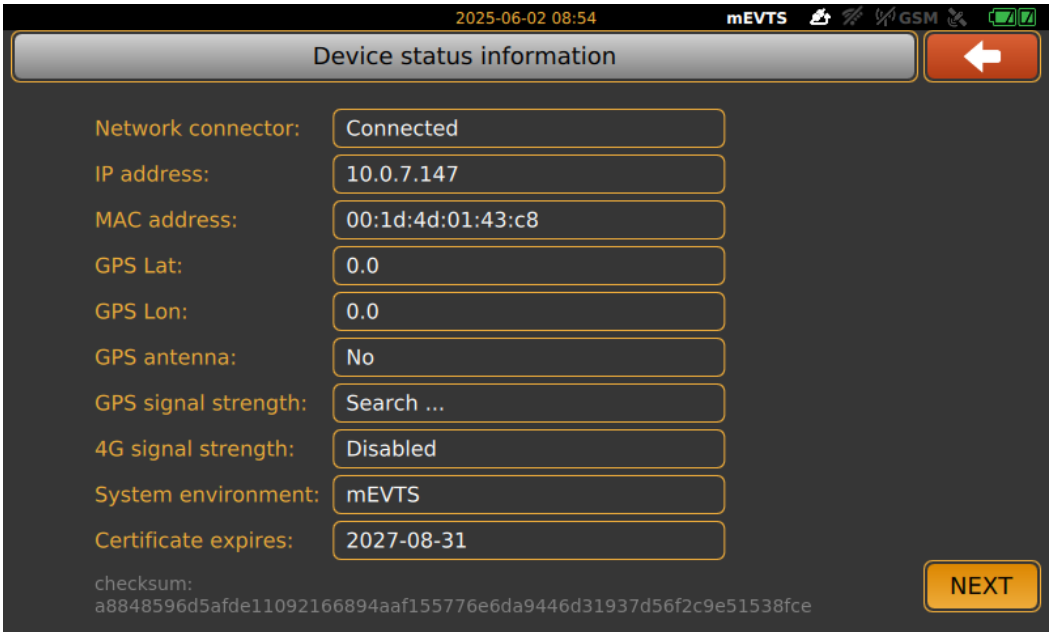
3. INFO

The camera provides detailed device status information, ensuring optimal operation, connectivity, and data integrity. Below is an overview of the key status parameters:

- Network Connector: Indicates whether the device is connected via a wired or wireless network.
- IP Address: Displays the current IP assigned to the device, used for network communication.
- MAC Address: A unique hardware identifier assigned to the network interface.
- GPS Latitude (GPS Lat) & GPS Longitude (GPS Lon): The precise geographical coordinates of the device's location.
- GPS Antenna: Shows the status of the GPS antenna (connected/disconnected).
- GPS Signal Strength: Indicates the quality of the GPS signal, which affects location accuracy.
- 4G Signal Strength: Displays the strength of the mobile network connection, crucial for remote data transmission.
- System Environment – Event Monitor: Confirms if the device is properly integrated with the Event Monitor system for centralized event tracking.
- Certificate Expiration: Displays the expiration date of the system's digital security certificate, ensuring encrypted communication and authentication.
- Checksum: A validation code used to verify data integrity and detect any file corruption or unauthorized modifications.



4. ADMIN

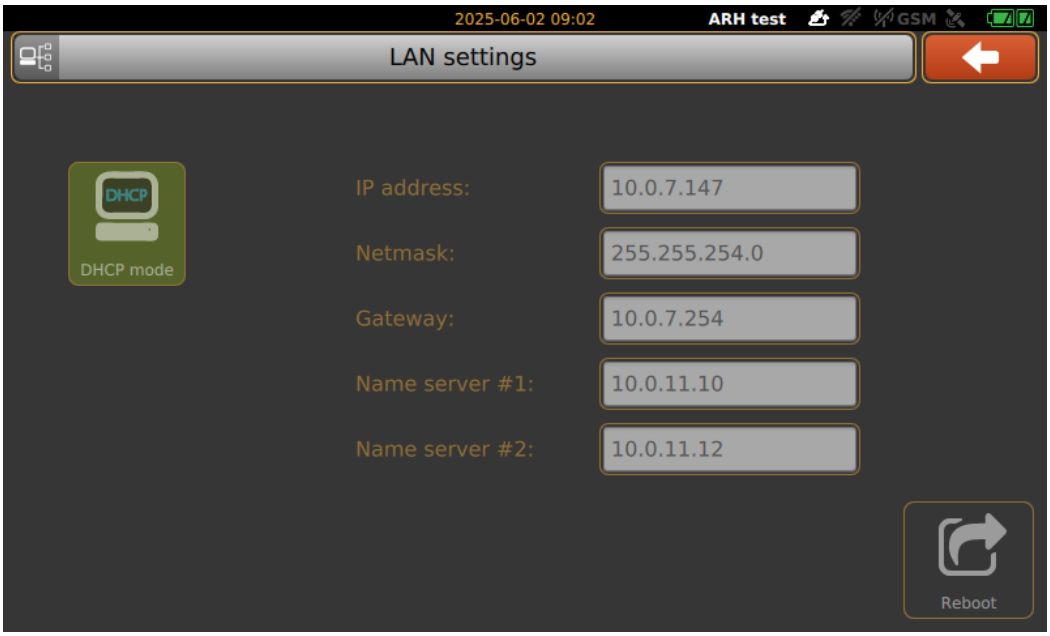
The administration settings allow you to configure network connections, logging processes, time settings, user permissions, and other system parameters.
The administration panel is located in the lower right corner of the interface. Below is a detailed explanation of each administrative function and setting.

Log in by entering the admin username and admin password, then clicking the OK button after switching to the Admin tab.

4.1. LAN SETTINGS

The network settings allow modification of the device's connection to a local network.

- DHCP (Dynamic Host Configuration Protocol): If this setting is selected, the device will automatically receive an IP address from the network's DHCP server. This is a convenient solution if the device is used in different locations, as network settings may vary.



- If DHCP is disabled, manual input of IP address, subnet mask, gateway, and DNS is required.

- Static IP Address: If a static IP address is assigned, the device will always be accessible at the same address on the network. This is useful if the camera is deployed at a permanent monitoring station and other systems need to connect to it.

IP Address:

- Ensure the static IP address of the device does not conflict with the gateway address (e.g., they cannot both be 10.0.6.155).

Subnet:

- The gateway address and the device's static IP must be in the same subnet.

Gateway:

- The gateway is the router's IP address, responsible for routing traffic between the device and external networks.

Name server #1 and #2:

- The DNS (Domain Name Server) fields specify which servers the system uses to resolve hostnames on the network. The secondary DNS is a backup and will be used automatically if the primary fails to respond.

Important!

Important notes:

- Ensure that the device's static IP address is different from the gateway address.
- The gateway must also have a unique IP and should not match the IP address of the GDS server or Event Monitor server to avoid network conflicts.
- The Reboot button saves the entered data and then the device will restart.

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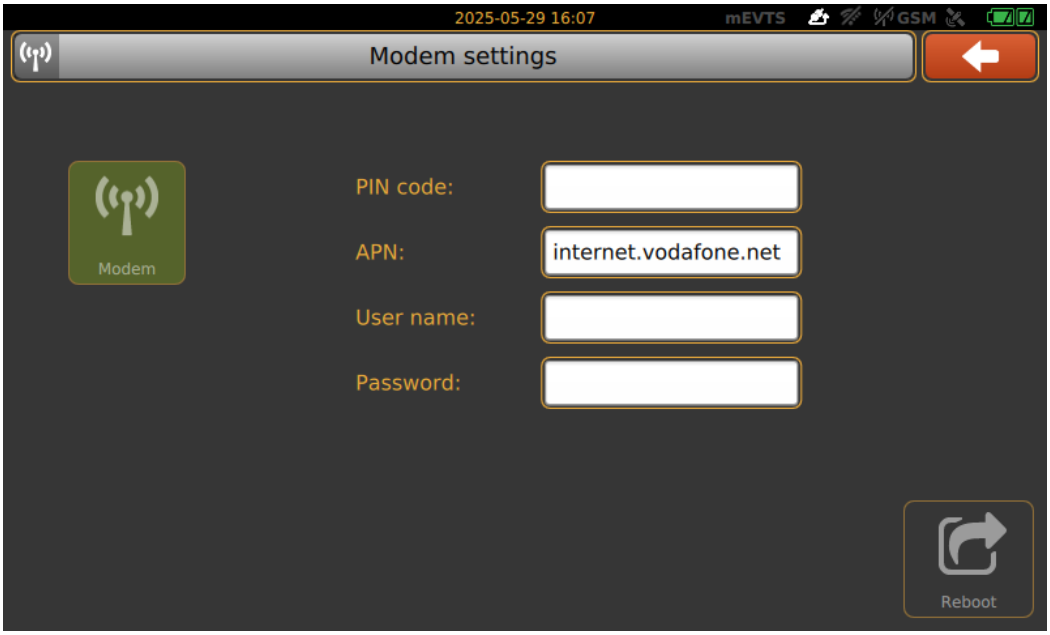
4.2. MODEM SETTINGS

The device has a built-in 4G modem, allowing communication over a mobile network. The administration panel allows the following configurations:

- PIN Code: If the SIM card is protected by a PIN code, it must be entered here to activate the connection.
- APN (Access Point Name): The settings provided by the mobile service provider to enable internet access for the device.
- Network Status: A pictogram shows whether the device is connected to the mobile network, including signal strength and the current service provider on the upper right corner of the display.



- The Reboot button saves the entered data and then the device will restart.

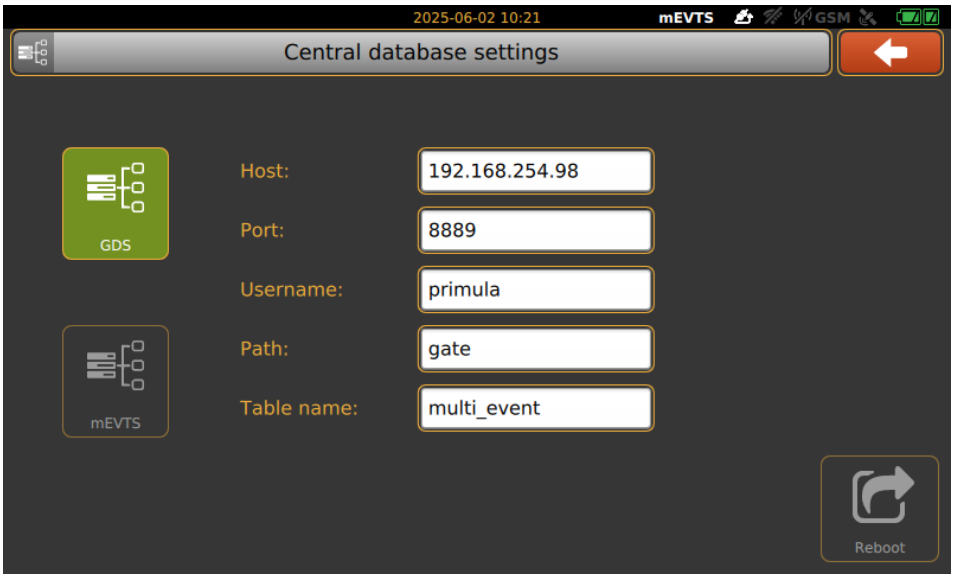
4.3. DATA CENTER SETTINGS

This setting determines how the device connects to the central data collection system. The S1 supports two types of data center access:

- GDS (Global Data System): GDS is a universal traffic and document data collection and visualization middleware for backend system providers and/or Adaptive Recognition ANPR camera users. GDS effortlessly manages, analyzes, and shares large volumes of traffic data regardless of the number of connected endpoints.

The condition for this data storage method is to have a license required for GDS application. You can find more information here: https://adaptiverecognition.com/products/gds-globessey-data-server-for-traffic-data/

- Host: The server address or IP where the camera connects to upload data.
- Port: The GDS Port is a specific network port number that the speed camera uses to communicate with the GDS server. It acts as a gateway for data transmission, allowing the camera to send reports and receive responses from the server.
- Username: Any name given to the device assigned by the user.
- Path: The file directory or network address used to store, transmit, or access data on GDS.
- Table name: the "multi_event" table contains traffic data.

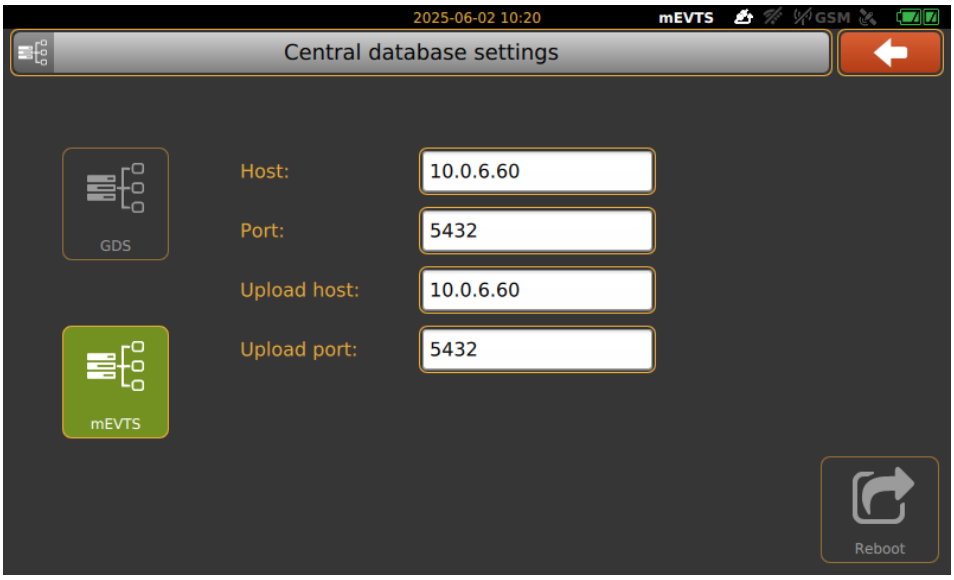


- The Reboot button saves the entered data and then the device will restart.

- Event Monitor: The purpose of the system is to collect, display, monitor, export and print measurement data during ARH CAM S1 operation. Event Monitor can scan data of various S1 devices at the same time and installed database can be used simultaneously from multiple computers. While system is operating, S1 device is continuously connecting to the central database during measurement.

    - IP address and Port number of the database should be entered in the Host and Port fields.

    - If the IP address of the connection and port used during uploading, differ from the entered ones, make sure to update them accordingly or use the same values.



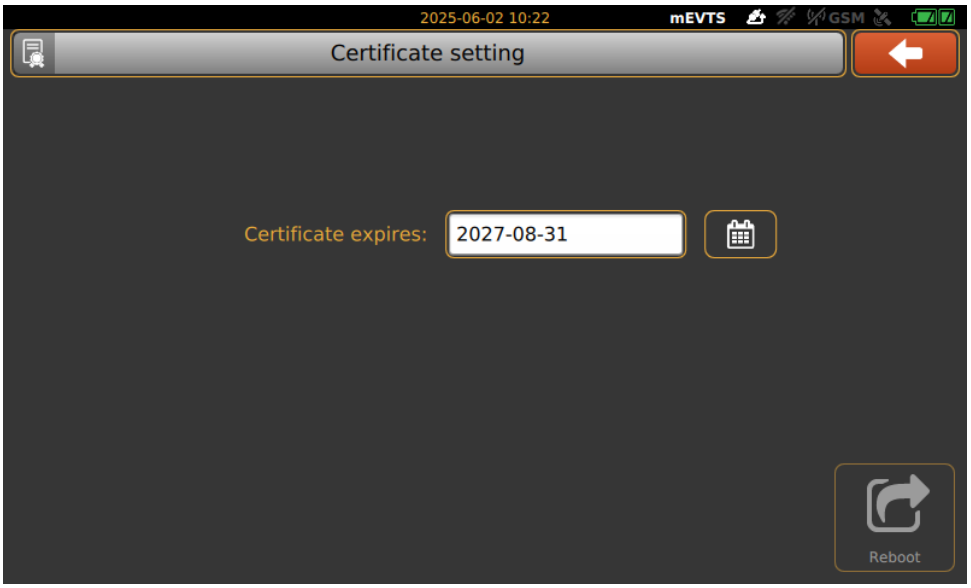
    - The Reboot button saves the entered data and then the device will restart.

You can find a detailed description of the Event Monitor at section 5.

4.4. SET CERTIFICATE DATE

This setting manages the validity period of the device's certificates.

- The device requires certain digital certificates for operation.
- The certificate expiration date can be modified here, or a new certificate can be installed.



- The Reboot button saves the entered data and then the device will restart.

To avoid authentication issues, regularly check the certificate expiration date in the Device Status Information section.
Check the expiration date: If the certificate is near expiration, renew it in time to prevent service interruptions.

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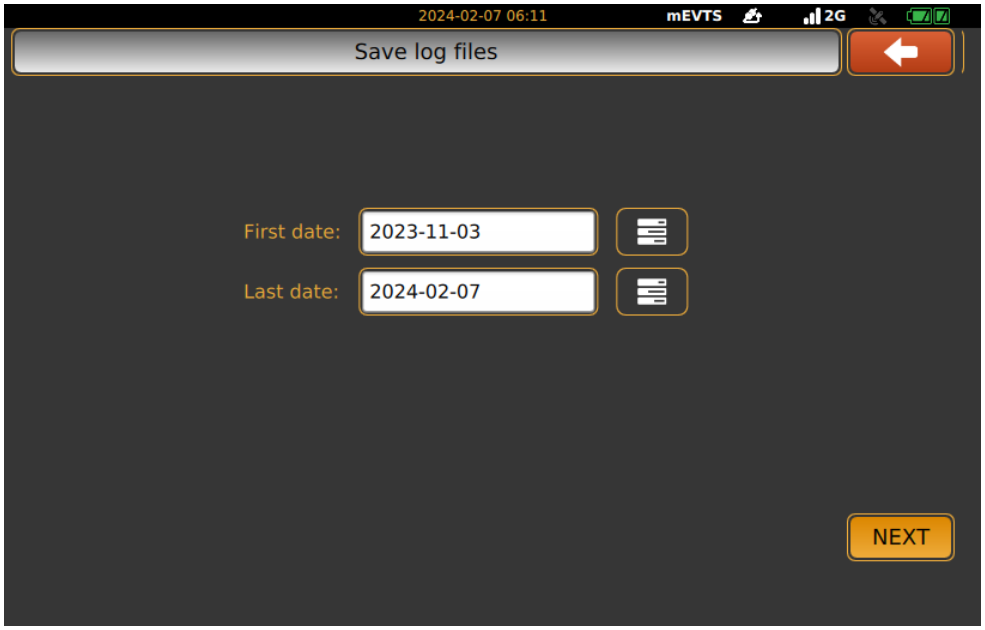
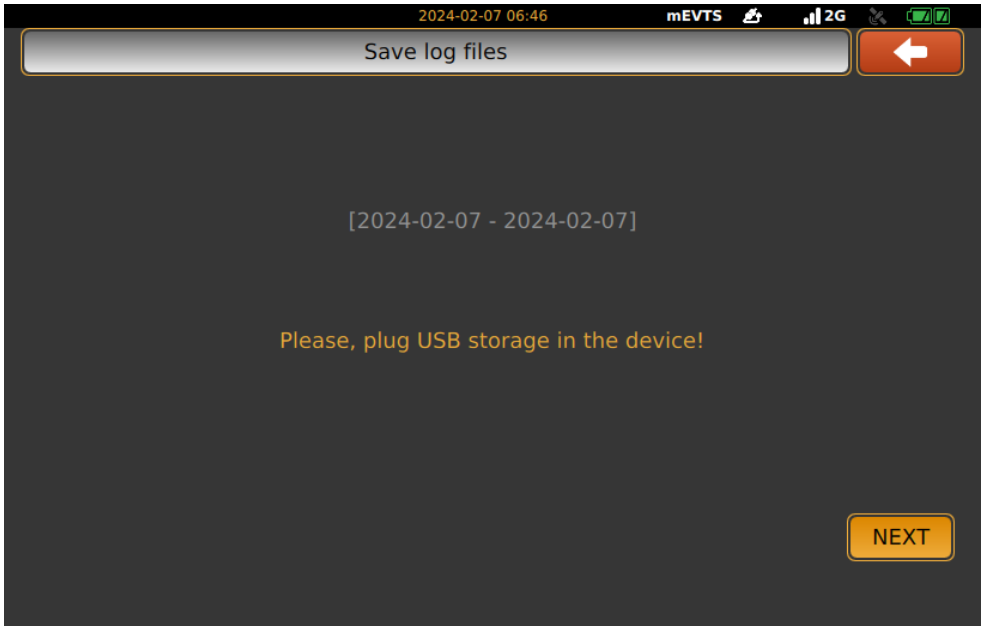
4.5. SAVE LOG FILES

This function allows saving system-generated log files to a USB storage device.

- Before saving, you need to specify:
    - The time range for which you need data (e.g., a specific day, week, or month).
    - The storage device (USB drive) where the files will be saved.



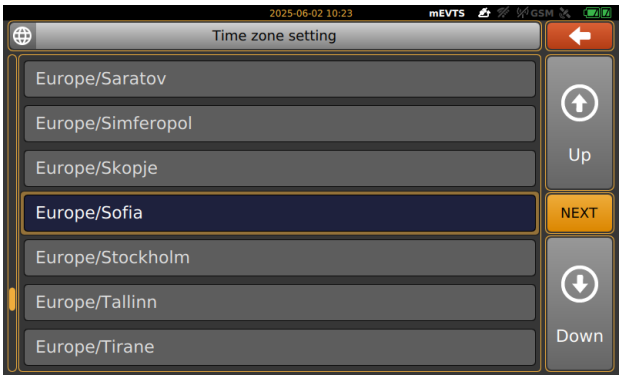
- Log files include network connection history, and system errors.



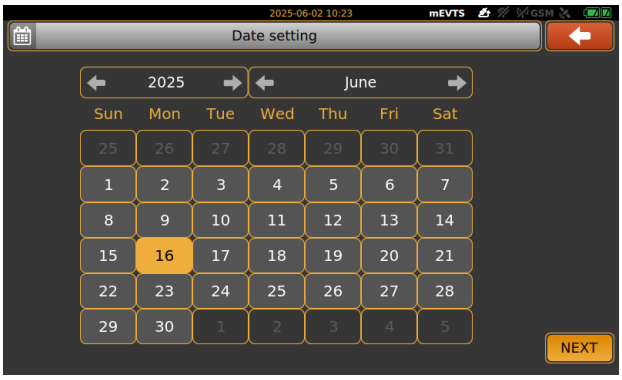
4.6. MANUAL TIME SETTINGS

This option allows manual configuration of the time zone and date settings.

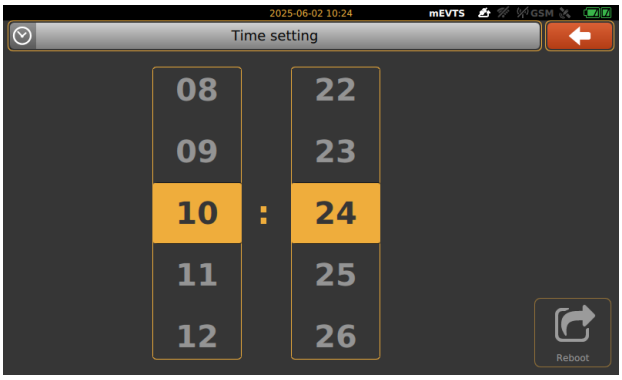
- If automatic time synchronization (NTP) is not available, the time zone, date, and time can be set manually.
- Correct time configuration is crucial since recorded events must have accurate timestamps.
- If automatic time synchronization (NTP) is available, the time zone, date, and time will be set automatically.



- Date also set automatically by NTP.



- Time as well.



4.7. AUTOMATIC TIME REFRESH

This function allows time synchronization with an NTP (Network Time Protocol) server. Enabling automatic time refresh ensures that the device's clock remains accurate at all times.

- The administration panel allows you to set how frequently the time should be updated.
- If manual mode is selected, so none of the three options selected, the system will not automatically refresh the time.
- Several NTP servers can be set up if more precise time synchronization is the goal (can also be GPS-based).

- The Reboot button saves the entered data and then the device will restart.

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4.8. USER SETTINGS

This menu allows management of user accounts.

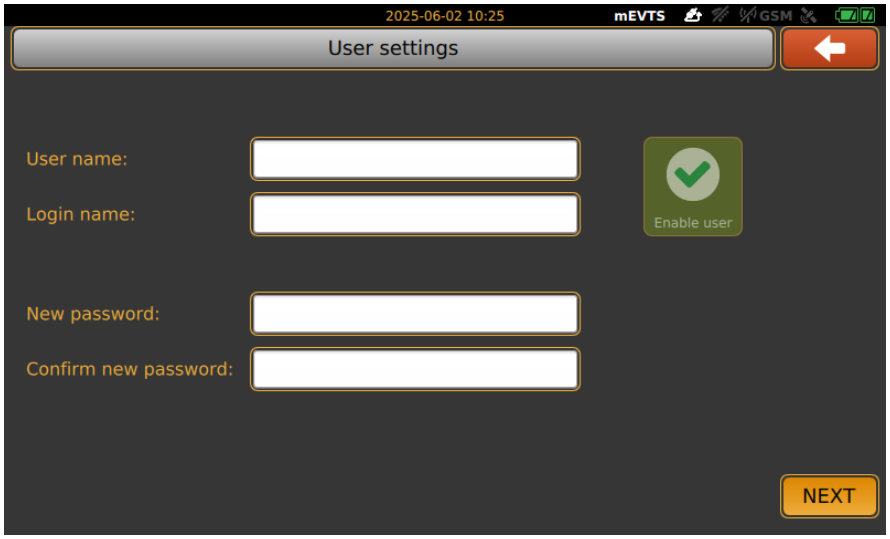
The system defines two main user roles with clearly separated privileges:
Administrator (Admin)

- Access level: Full access to all system functionalities, including:
  - Configuration of system settings (network, engine, database).
  - User management (add, remove, activate/deactivate users).
  - Firmware updates and diagnostics.
- Editable fields: Only the password can be changed.
- Visibility: Admin accounts are clearly marked and have higher access than any regular user.

Standard User (Normal User)

- Access level: Limited access, depending on system configuration.
  - Access to the dashboard or operational views.
  - Restricted from deleting data.
- Editable fields: Password can be changed. Admins can also activate/deactivate or delete the user.

  - Adding New Users: The administrator can create new accounts and set unique passwords.



  - User accounts can be deleted later, allowing administrators to remove any previously added users if necessary.

Enable / Disable User Function

The system allows administrators to enable or disable user accounts without deleting them. This provides flexibility in managing access.

Enabled user

- Can log in and access the system based on their role.
- Active in the system user list.

Disabled user

- Temporarily inactive: cannot log in.
- The account remains in the system with all previous permissions intact.
- Can be re-enabled at any time without re-creating the user.

Modify Existing User:

- Admin selects a user from the list.
- Options include: change password, change role (if allowed), activate/deactivate, or delete.

Delete User:

- Completely removes the user from the system.
- Cannot be undone. Requires full re-creation if needed again.

Password Reset / Change:

- Both Admin and Normal users can change their password from within the interface.

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4.9. ENGINE SETTINGS

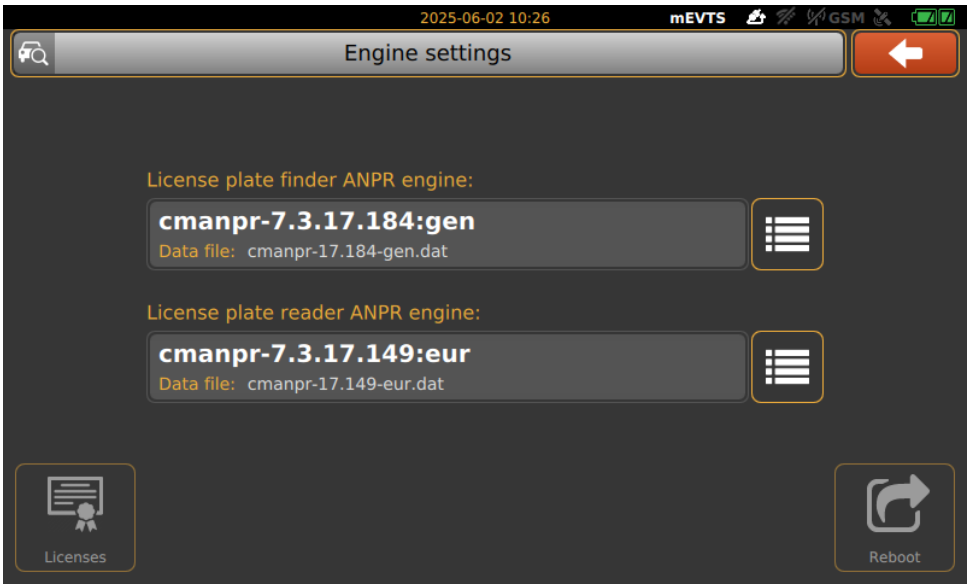
The system supports multiple engine types, each optimized for different detection functions. The two most commonly used engine types are:

License plate finder ANPR engine

- Purpose:
  Acts as a pre-filter or detector. It identifies motion or object presence (e.g., vehicle detection) in the monitored zone.
- Use cases:
  - Activates triggers based on motion detection.
  - Helps initiate events for further analysis (e.g., speed, lane violation).

License plate reader ANPR engine

- Purpose:
  Handles character-level recognition, specifically for license plate reading and classification.
- Use cases:
  - Reading vehicle number plates in still images or video frames.
  - Used in traffic enforcement, tolling, or access control.



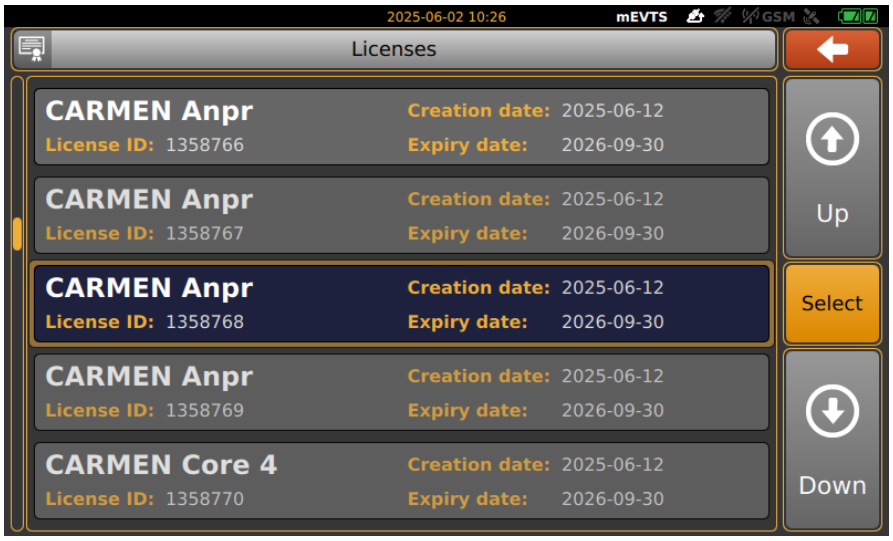
Choose active engine:

- The system allows only one engine to be active at a time per detection stream.
- Choose the button on the right side
- Selection is done via "Select" button.
- Once selected, the engine becomes active and will be used for processing.

License Button

Displays a list of all valid licenses detected on the device.

- Location: Bottom-left corner of the Engine Management screen.
- Purpose:
  - Shows whether the necessary licenses are present for each engine.
  - Helps troubleshoot license-related issues.
  - Licenses are pre-installed or activated during setup. No modification is required unless a license upgrade or replacement occurs.



4.10. LANGUAGE SETTINGS

There are three separate language-related configurations:

- User interface language – for all menus, buttons, and system text.
- Keyboard language – defines the input layout.
- Image label language – textual overlays or labels on captured images.

Each section (interface, keyboard, image label) typically has its own selector at the sides.

Language changes may require a system reboot to fully apply.

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4.11. DATABASE

This section covers the functions available for managing, cleaning, and maintaining the local event database on the camera. These tools ensure the system operates efficiently without unnecessary data build up and help maintain data integrity for export or legal purposes. The camera system periodically saves reports, which need to be deleted as necessary to free up storage space.

Since storage capacity is limited, it is essential to manage and clear old reports to prevent memory overflow and ensure smooth operation. The camera automatically logs events, but older reports may no longer be needed.
Limited storage space requires periodic maintenance to free up memory for new recordings.
Large amounts of stored data can slow down system performance, affecting processing speed and responsiveness.

4.11.1. CLEAR DATABASE

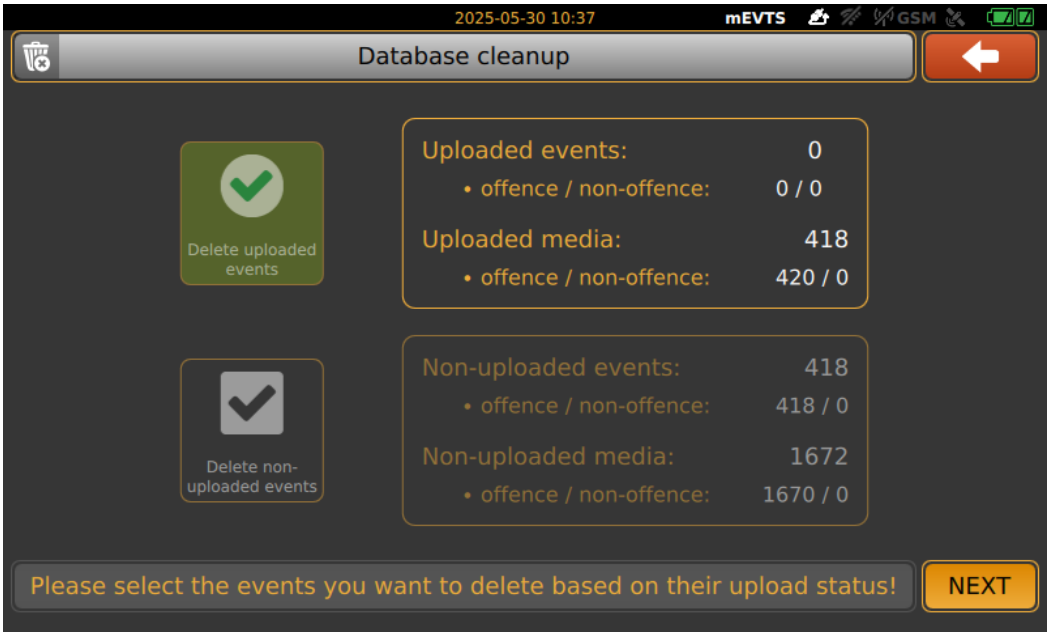
The Clear database feature allows operators to delete uploaded and non-uploaded event data from the device's internal memory. Two deletion options available:

Delete uploaded events

- This will remove only events and media that have already been uploaded.
- Safe to use when you want to free up space without risking data loss.
- Checkbox is green and active when selected.

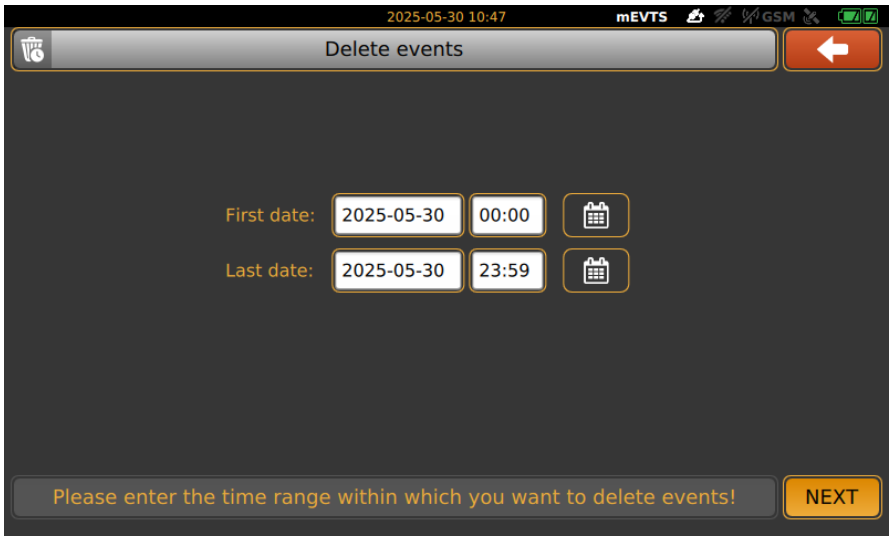
Delete non-uploaded events

- This will remove events and media that have not yet been uploaded.
- Use with extreme caution – this deletes data that may not be stored anywhere else.
- Useful only when:
    - You are resetting the system for a new deployment.
    - The data was recorded for testing.

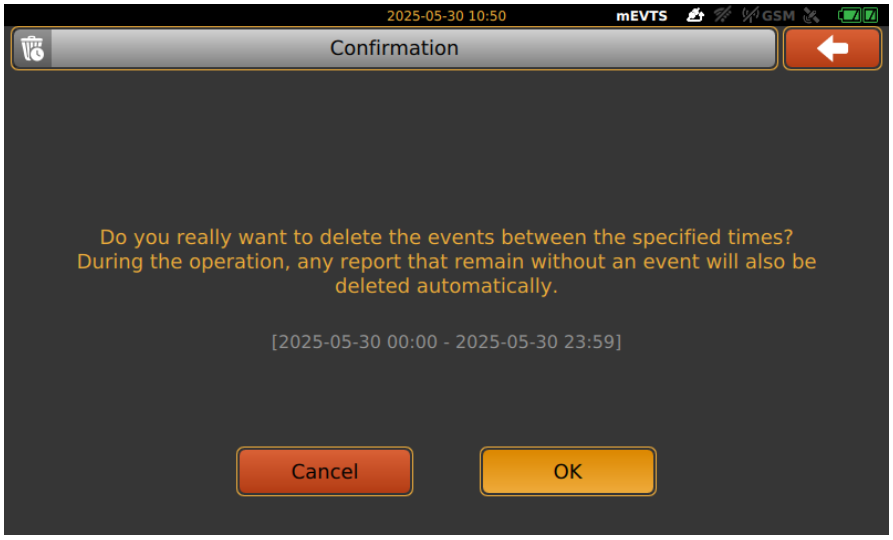


4.11.2. DELETE EVENTS

This screen allows users to delete stored events by specifying a custom date and time range. It is typically used to clean up old or unneeded data in a controlled and precise manner.



Open a calendar/time picker to assist the user in selecting valid dates and times. After that, on the next screen, the final confirmation step before permanently deleting events will appear. The time range selected for deletion is clearly displayed at the bottom of the screen, allowing the user to review it before proceeding.



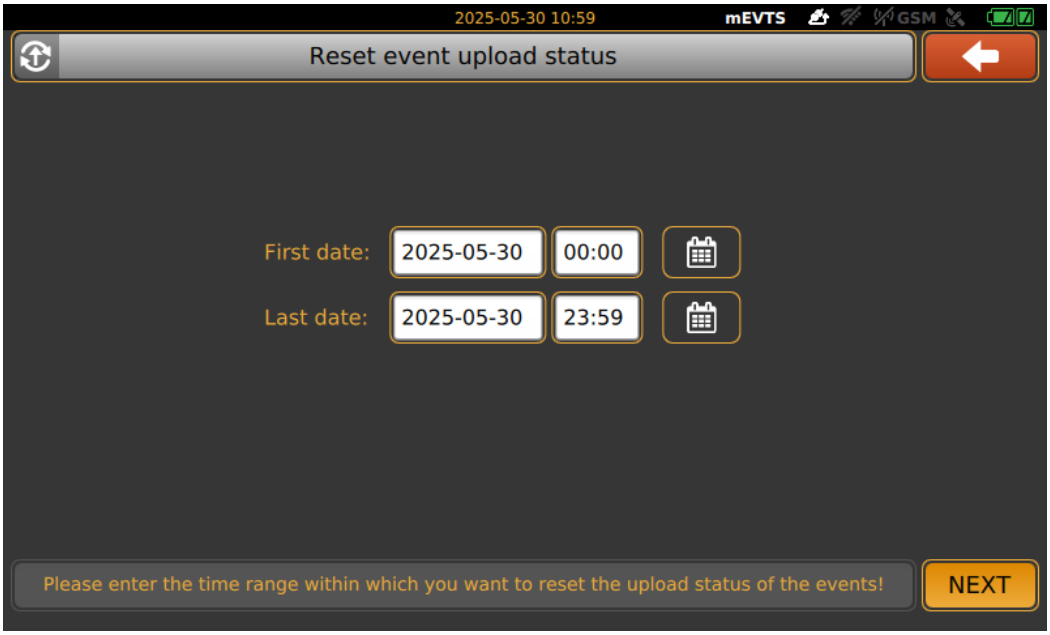
Press OK, if confirms the deletion and executes the cleanup process.

Important!

Events that were not uploaded to the server (due to error, network failure, or system state) will also be permanently deleted if they fall within the selected time range.

4.11.3. RESET UPLOAD

This interface allows the operator to reset the upload status of events that fall within a specified time range. This action is typically used to force the system to re-attempt uploading events that may have previously failed due to network issues or other interruptions.



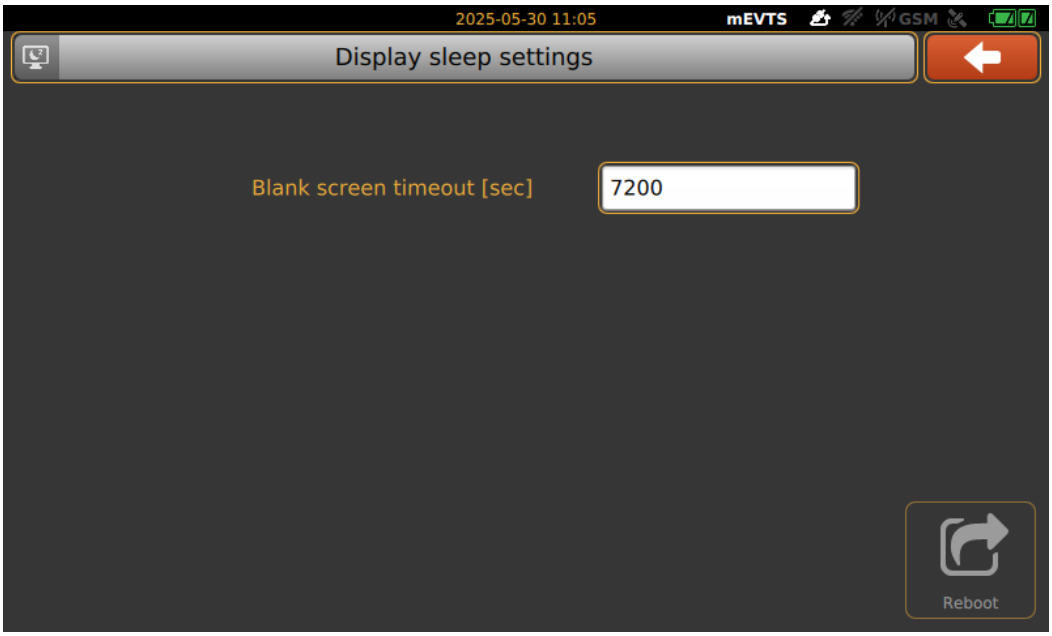
Setup:

- The user must specify a start and end date/time range.
- All events recorded within this time interval will have their upload status reset.
- Once reset, these events will be treated as "not uploaded" and will be automatically queued for upload during the next synchronization cycle.

The calendar icons next to each field open convenient date and time pickers, allowing users to quickly and accurately select the desired time range.
Once the desired range is set, pressing the NEXT button proceeds to the confirmation screen and initiates the reset process for all matching events.

4.12. SLEEP SETTINGS

This setting defines the duration of inactivity (in seconds) after which the screen automatically turns off (goes blank) to save power.



Blank screen timeout (in seconds): This numeric field sets the time (in seconds) after which the screen will go blank if there is no user interaction.

Touching the screen or performing an input action will reactivate the display.

5. EVENT MONITOR

Main features:

- You are able to registering and deleting S1 devices in the central database. Reports can be downloaded from central database.
- Remote function – Start/Stop measurement, uploading to the central database, deleting data from the device, downloading live view and restart S1 device.
- Uploading and sending "Wanted vehicles" data to S1.
- Sending device firmware updates to S1 device.
- Exporting measurement reports from a selected S1 device in PDF format.

5.1. INSTALLING EVENT MONITOR

When you have purchased Event Monitor, you will receive an Event_Monitor_Installer.exe file and `Event_Monitor_PostgreSQL_Installer.exe` file by mail from ARH Technical Support System (ATSS).

Installation Steps:

- Install Event_Monitor_Installer.exe on your computer.
- Install Event_Monitor_PostgreSQL_Installer.exe on your computer.
- Navigate to C:\Program Files (x86)\EventMonitor\bin and open the evtmon.cfg file.

Configuration Settings in evtmon.cfg:

- Line 3 (host = localhost):
- If set to localhost, data will be stored on your computer.
- You can change it to any IP address where you want the data to be downloaded.
- Line 7 (install_database = 1):
- If set to 1, a Central Database Installation Panel will appear, allowing you to configure database parameters.

Important!

In both S1 Portable Speed Camera and Event Monitor software, the host and port settings are essential for establishing a connection to the central database.

Both must be configured with the same host and port information to successfully connect to the central database. If these values are incorrect, the system will be unable to upload or retrieve data.

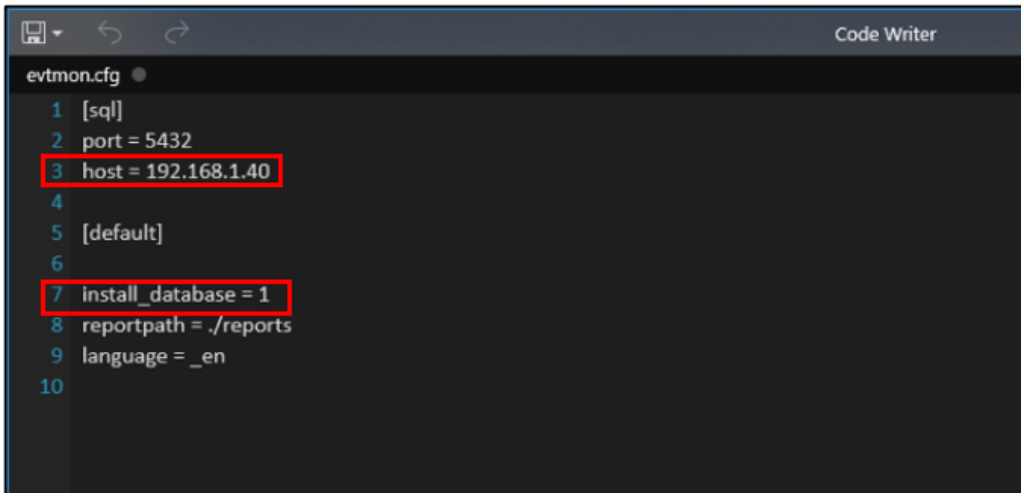
- In S1, enter the host (server IP) and port (5432) in the network or database settings.

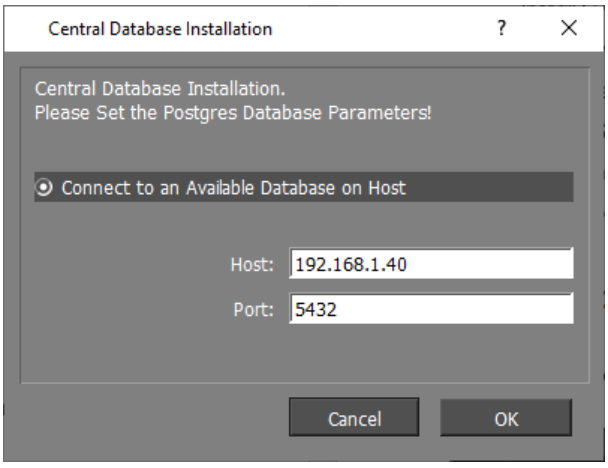
Note

Ensure that port 5432 is allowed through the firewall.

- In Event Monitor, navigate to the evtmon.cfg file and ensure the host and port match the data center server settings.

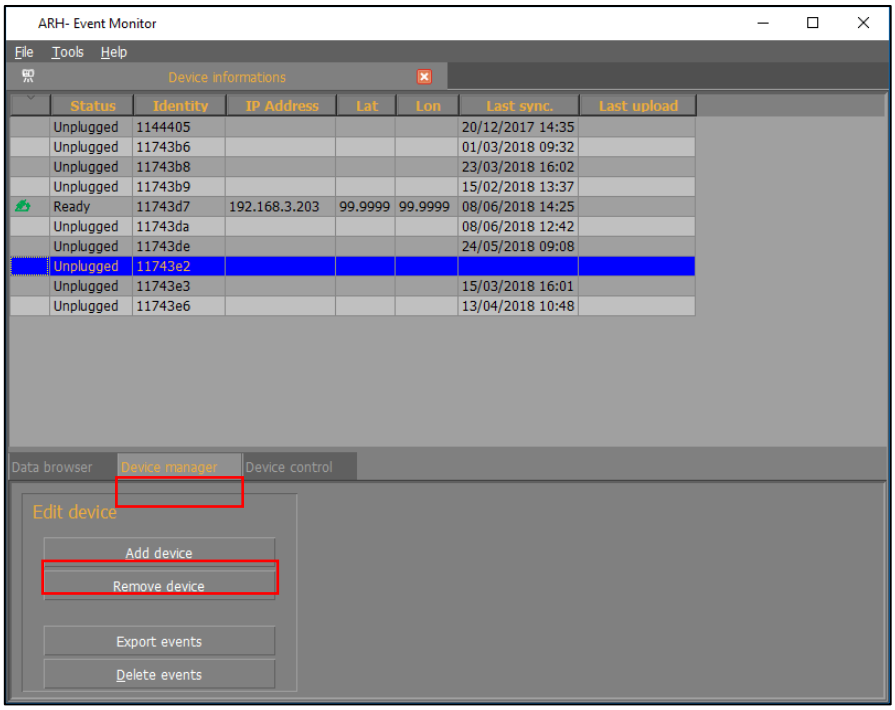
By correctly setting these parameters, both systems can seamlessly communicate with the central database, ensuring efficient data management and access.





5.2. DEVICE MANAGER

First of all, you need to register S1 device you want to use. You can do it by click on Device manager button at the bottom of the Event Monitor panel.

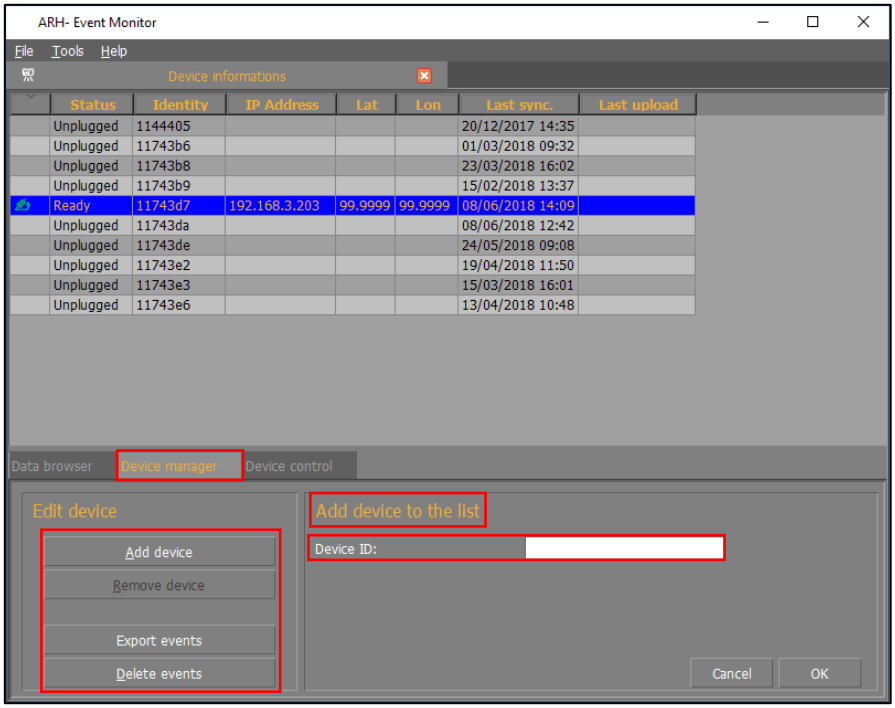


By pressing Add device button, Add device to the list will appear with a Device ID empty column, where you need to fill in the unique device ID of S1. All data will be uploaded to the database after you have synchronized S1 device.

You are able to Remove device by click on its button. It will remove a synced device's database and all data from the system.

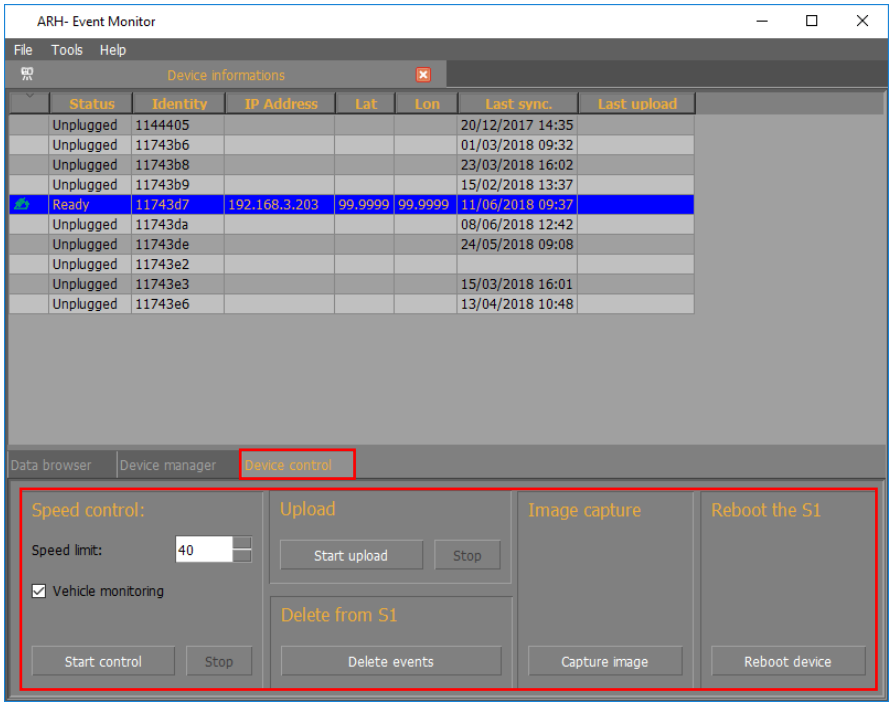
The Export events feature allows you to export uploaded data to CSV file. (A comma-separated values (CSV) file is any file containing text that is separated with a comma but can also be a file separated with any other character. A CSV file can be opened in any program.)

The Delete events feature will clear the database of the synced device.



5.3. DEVICE CONTROL

You are able to control S1 device from Event Monitor. Only basic functions are available from Device control menu.



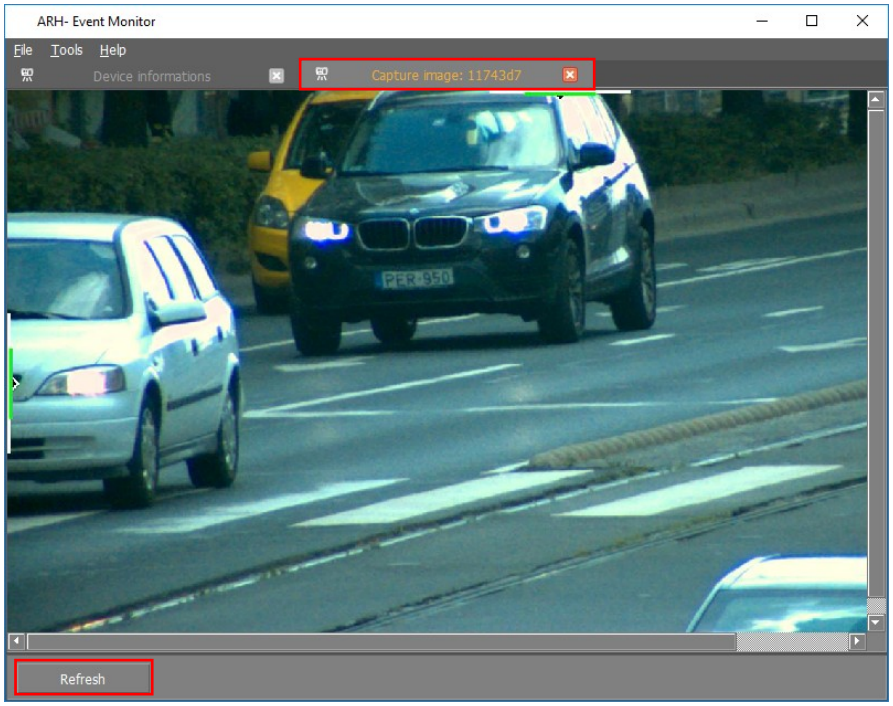
Basic functions of Device Control are:

Speed control – You can start measurement by clicking on „Start control". Press on "Stop" button you can stop measurement. Tick in "Vehicle monitoring" column, passing vehicles will be detected and take into account. You can set speed limit two ways; click into the column and type in or use up and down buttons next to the column.

Upload – All recorded monitoring data from S1 device can be uploaded to the central database by click on „Start upload" button. In any case, you can stop uploading by click on "Stop" button.

Delete from S1 – You are able to remotely delete reports from the device by pressing on "Delete events" button.

Image capture – If you want to capture a current image from the device, use Capture image button. A window will pop-up with the current captured image and you can update it by click on Refresh button.

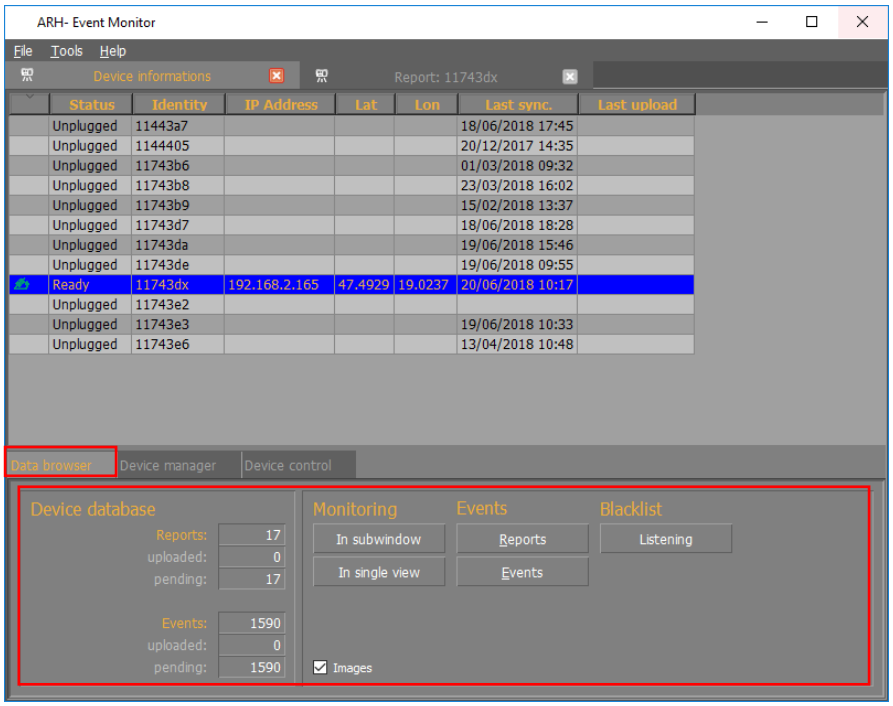


Reboot device – You can remotely reboot S1 device by using Reboot device button.

5.4. DATA BROWSER

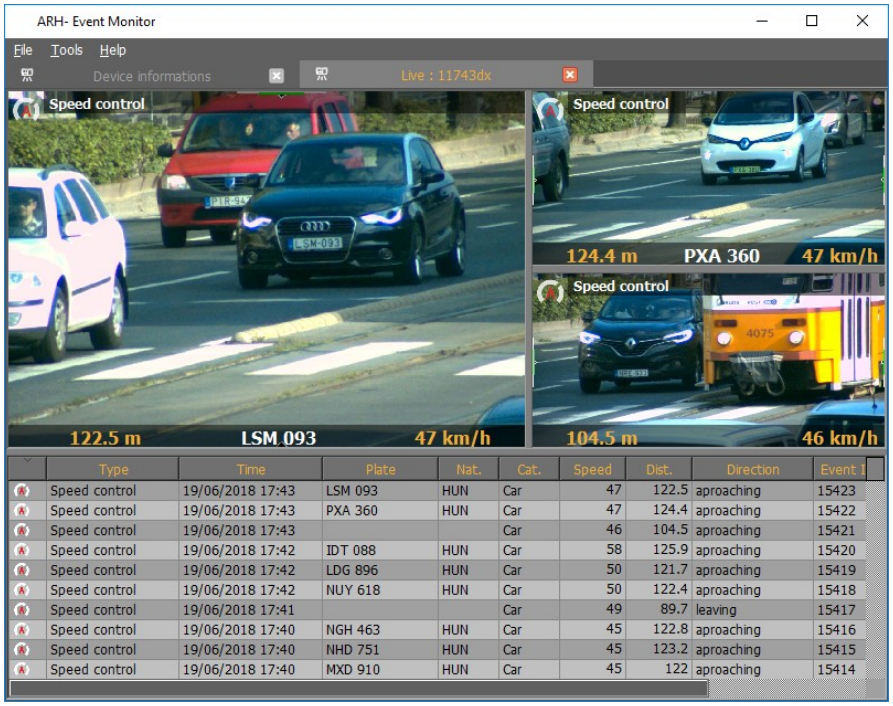
Device database – The window shows the number of Reports, both Uploaded and Pending ones. Events are also detailed with the same method as Report mentioned above.

> **Note**
>
> Device control contains the upload button, which enable you to upload all the pending events and reports to the central database.



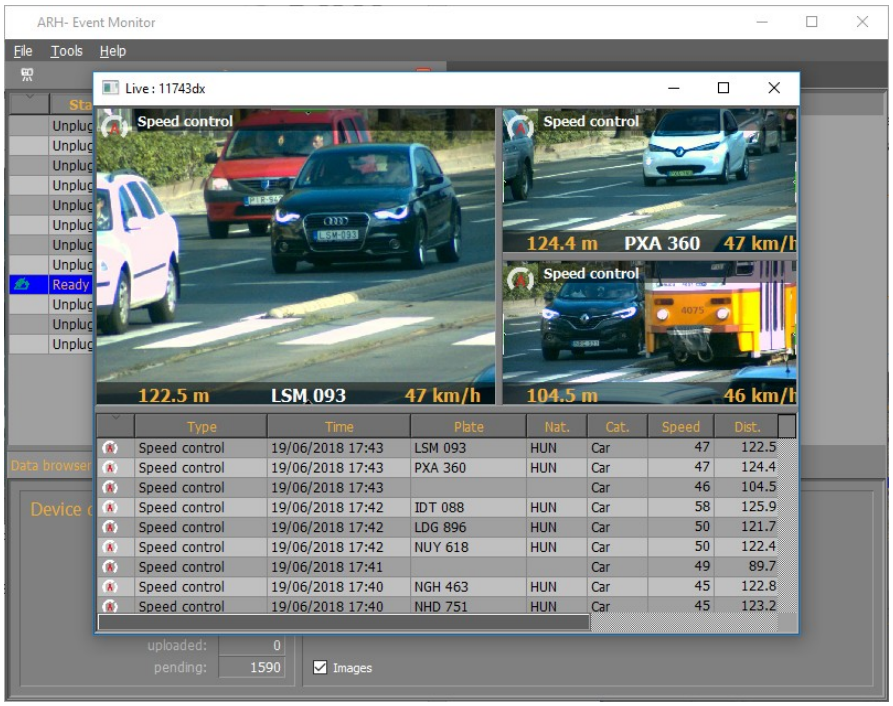
Monitoring – During the measurement, you have the chance to view the uploaded data from the S1 device. You have two options to do so:

- In subwindow:



Type	Time	Plate	Nat.	Cat.	Speed	Dist.	Direction	Event I
Speed control	19/06/2018 17:43	LSM 093	HUN	Car	47	122.5	aproaching	15423
Speed control	19/06/2018 17:43	PXA 360	HUN	Car	47	124.4	aproaching	15422
Speed control	19/06/2018 17:43			Car	46	104.5	aproaching	15421
Speed control	19/06/2018 17:42	IDT 088	HUN	Car	58	125.9	aproaching	15420
Speed control	19/06/2018 17:42	LDG 896	HUN	Car	50	121.7	aproaching	15419
Speed control	19/06/2018 17:42	NUY 618	HUN	Car	50	122.4	aproaching	15418
Speed control	19/06/2018 17:41			Car	49	89.7	leaving	15417
Speed control	19/06/2018 17:40	NGH 463	HUN	Car	45	122.8	aproaching	15416
Speed control	19/06/2018 17:40	NHD 751	HUN	Car	45	123.2	aproaching	15415
Speed control	19/06/2018 17:40	MXD 910	HUN	Car	45	122	aproaching	15414

- In single view:



Type	Time	Plate	Nat.	Cat.	Speed	Dist.
Speed control	19/06/2018 17:43	LSM 093	HUN	Car	47	122.5
Speed control	19/06/2018 17:43	PXA 360	HUN	Car	47	124.4
Speed control	19/06/2018 17:43			Car	46	104.5
Speed control	19/06/2018 17:42	IDT 088	HUN	Car	58	125.9
Speed control	19/06/2018 17:42	LDG 896	HUN	Car	50	121.7
Speed control	19/06/2018 17:42	NUY 618	HUN	Car	50	122.4
Speed control	19/06/2018 17:41			Car	49	89.7
Speed control	19/06/2018 17:40	NGH 463	HUN	Car	45	122.8
Speed control	19/06/2018 17:40	NHD 751	HUN	Car	45	123.2

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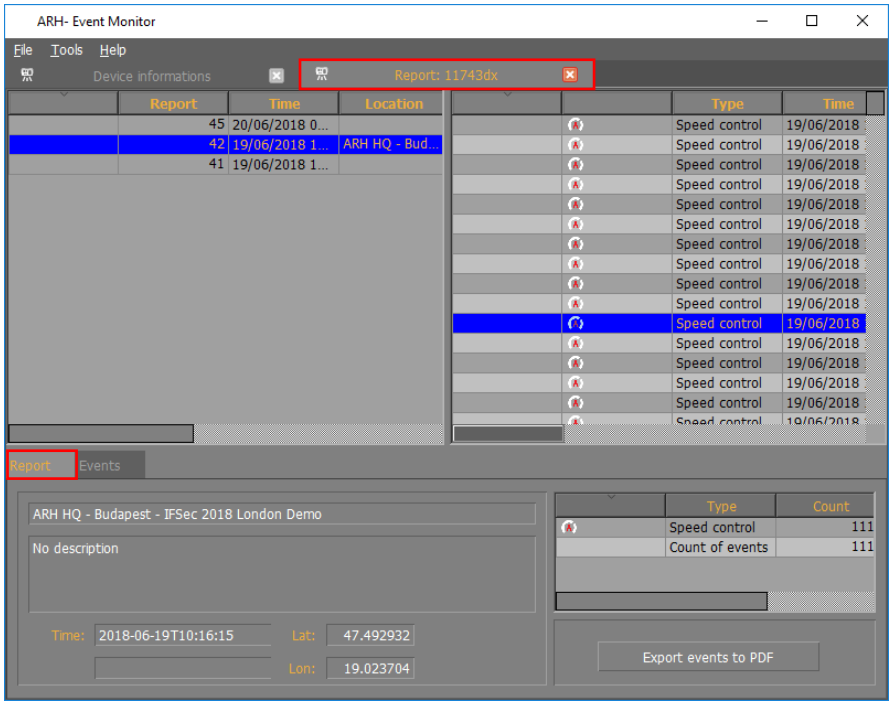
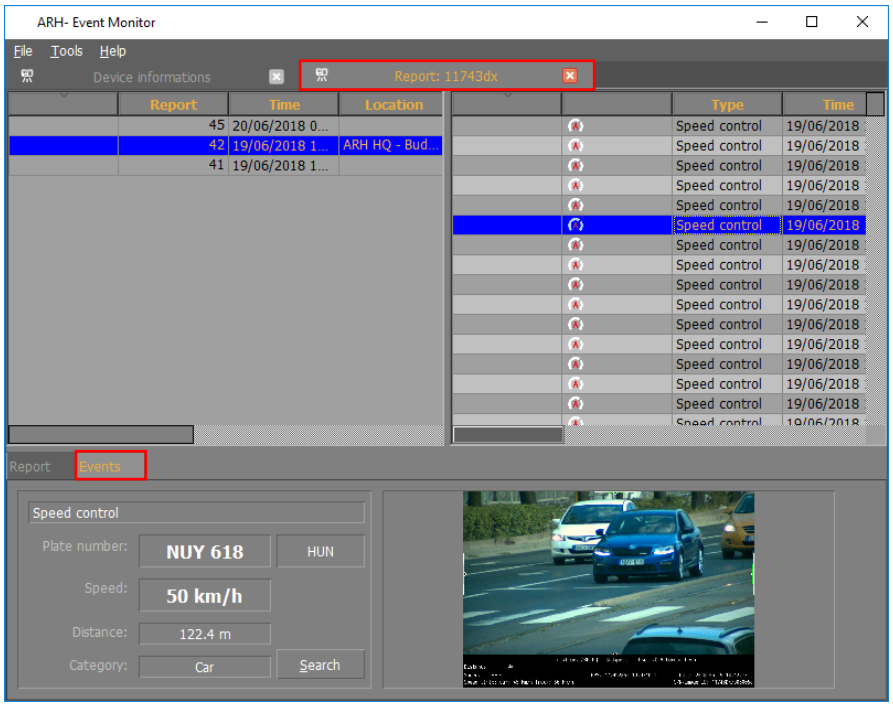
Events – Previously uploaded Reports and Events are available to watch until it is not deleted from the central database.

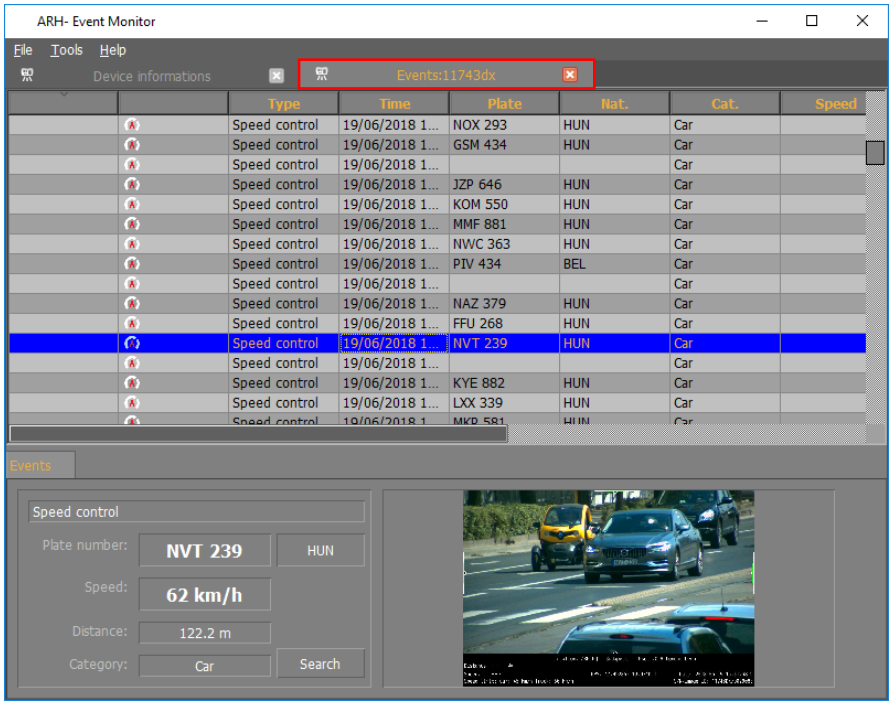
- Reports:



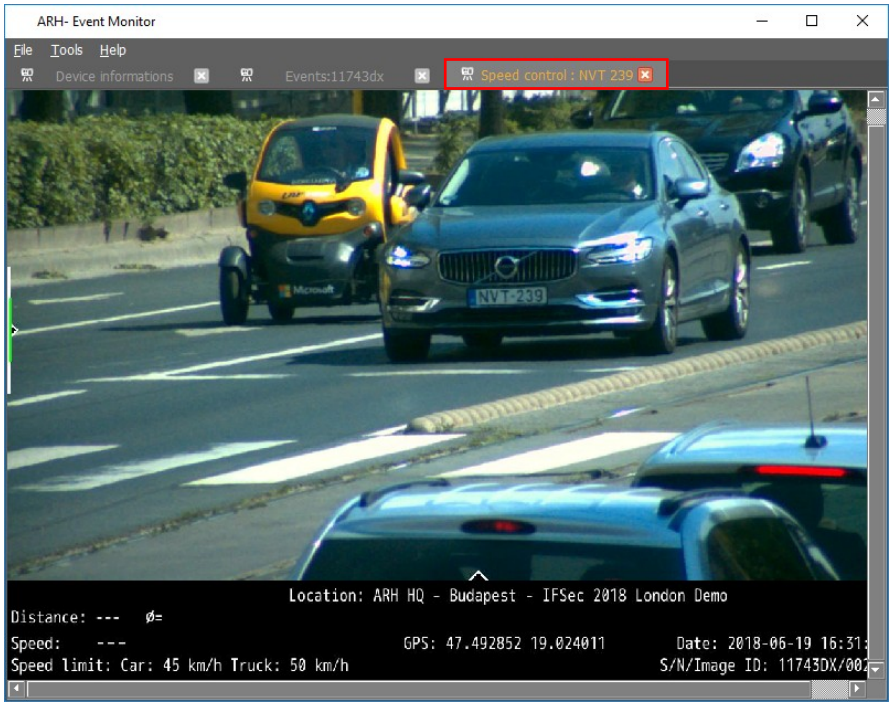
- Reports with events:



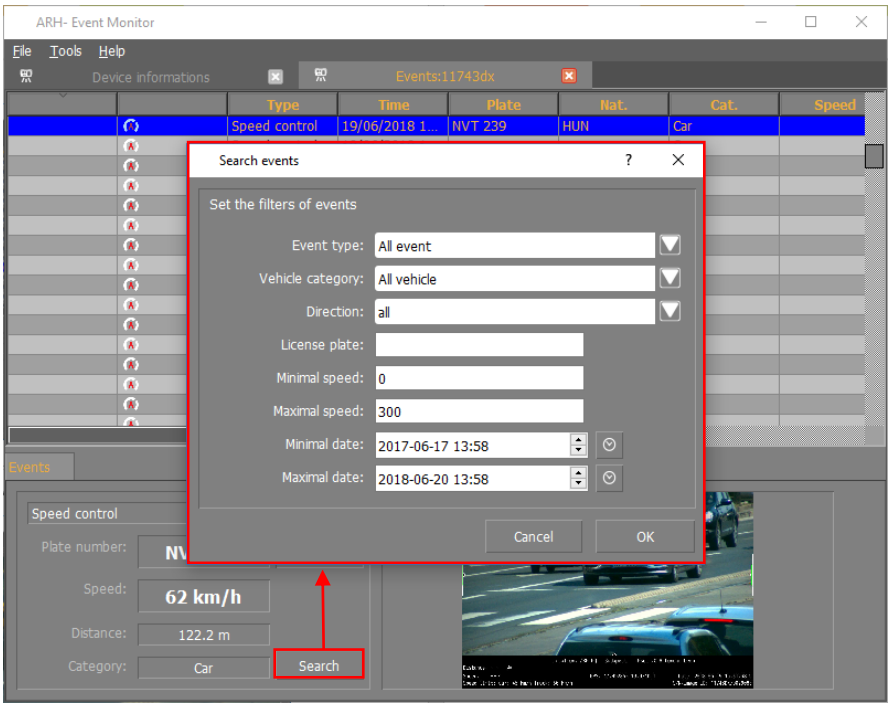
- Events:



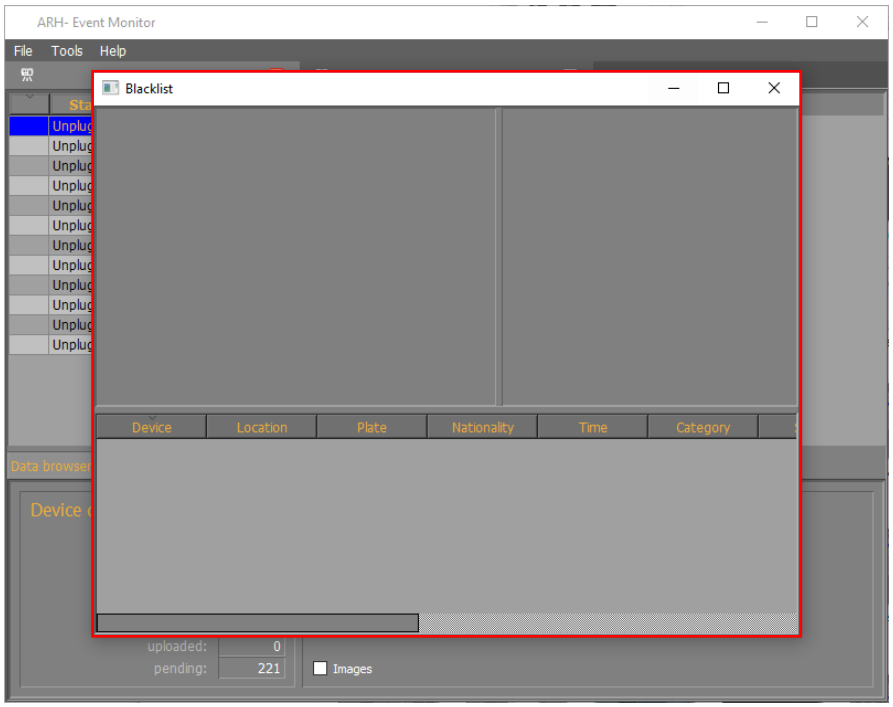
When you are double click on an event from the list (all events from all reports listed in Events window) a Speed control window will pop-up with the recorded measurement and its details.



You are also able to search among the events with many filter options.



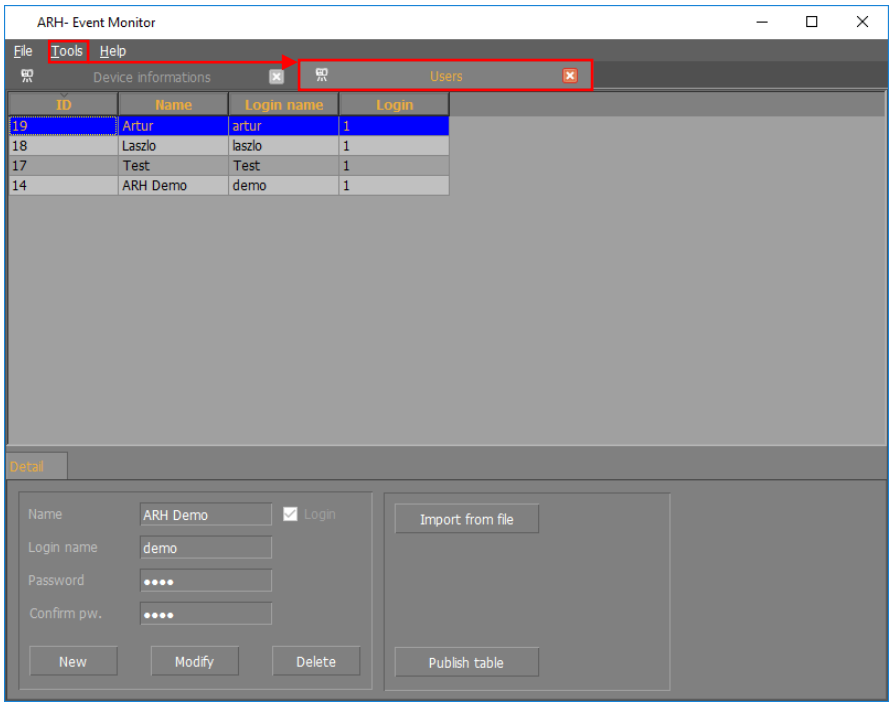
Blacklist – Click on Listening, previously added wanted vehicles can be seen, when it is passing by during the process of measurement, blacklist will store it and a warning window will pop-up to warn about the event.



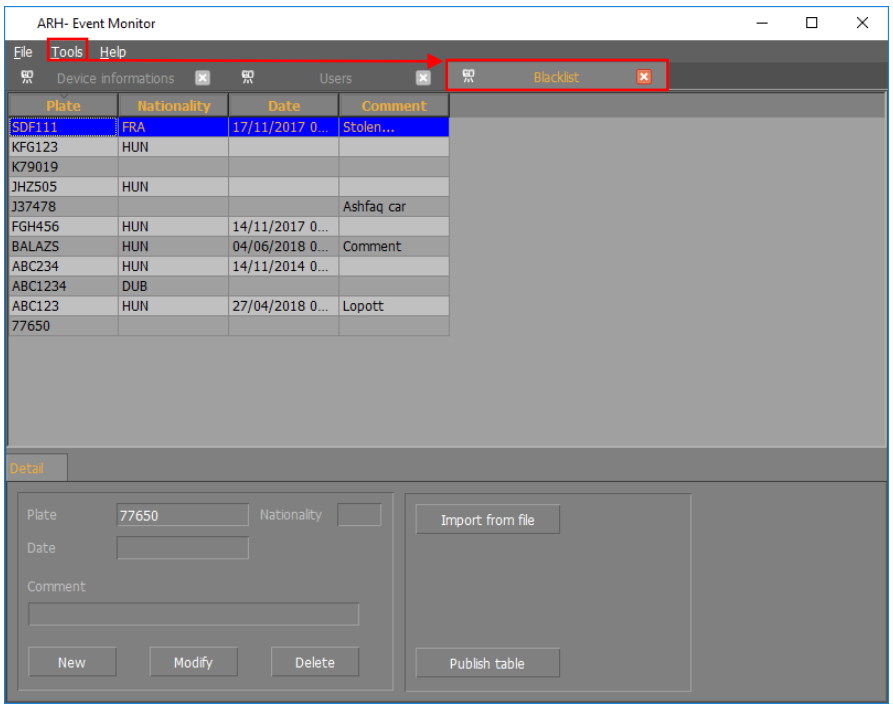
BLACKLIST

5.5. TOOLS MENU

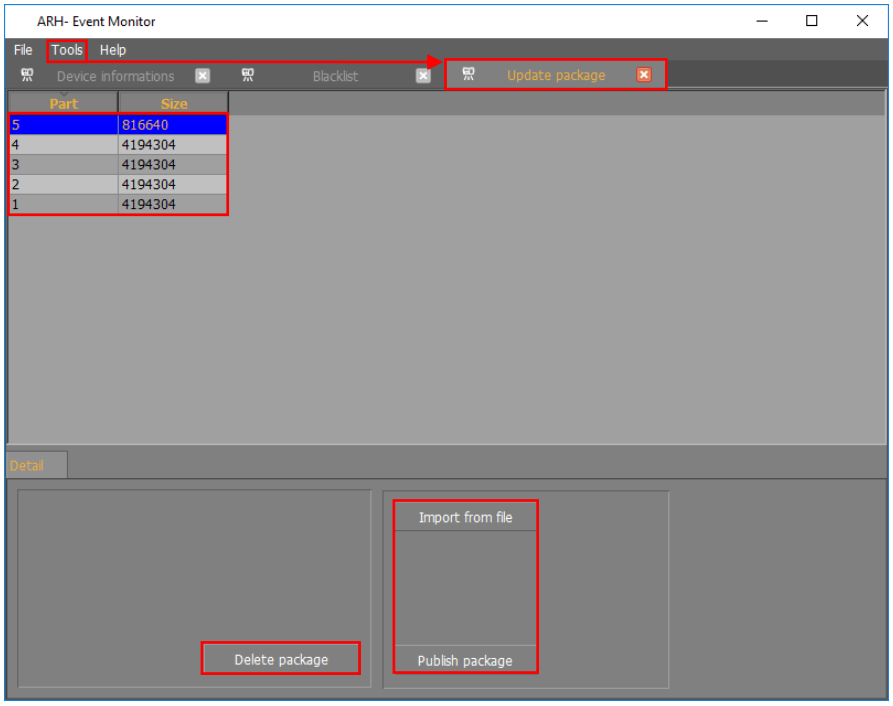
Manage users – Event Monitor allows you to manage users who are able to get permission to login into S1 device. You can give new users, modify existing ones or delete users.



Manage blacklist – You can centrally add number plates that are invalid or wanted. You can give new, modify existing or delete as well.



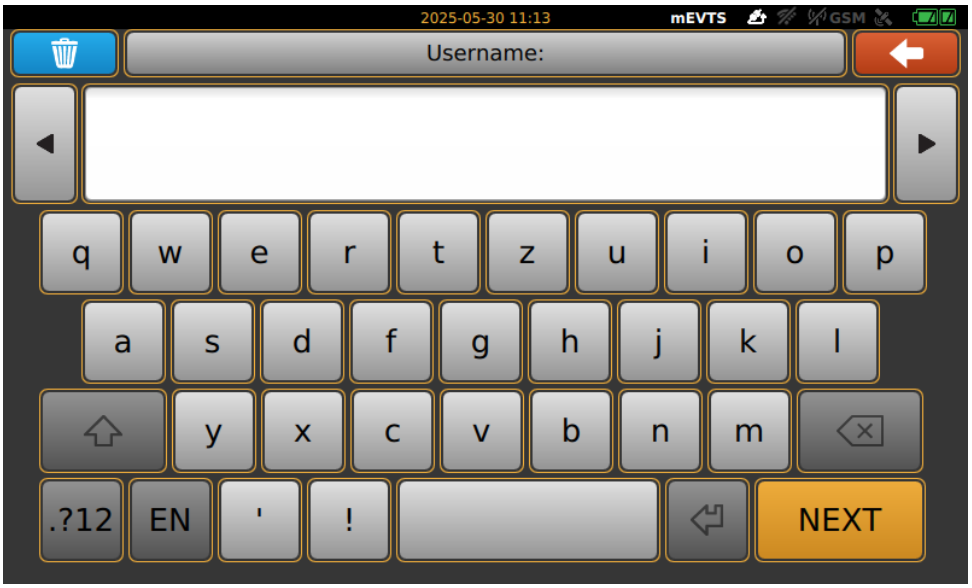
Manage update package – When you want to update your S1 device just click on Import from file and choose file from your computer. By click on Publish package the new update package will be uploaded and installed to the S1 device. If the chosen package is not the proper one, you are able to delete it with the Delete package button.



6. ENFORCEMENT

After the start-up process, Login screen will appear.

On the Login screen, select Data Center icon, type in Username and Password (click in to the empty field, touch-screen keyboard will pop-up, enter necessary characters, then press Next button), press OK, main screen will appear.



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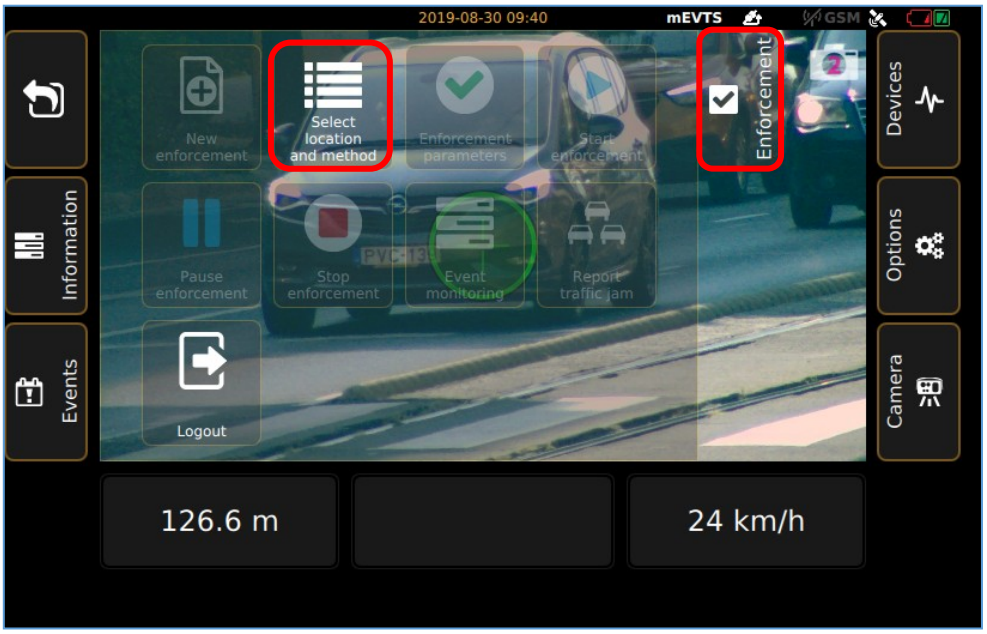
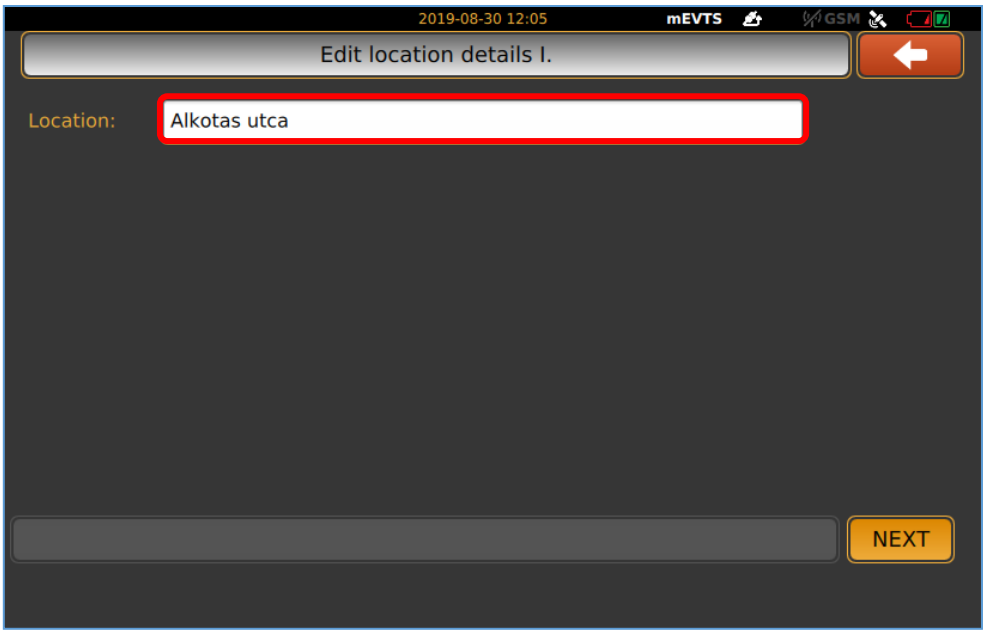
7. SETUP ENFORCEMENT

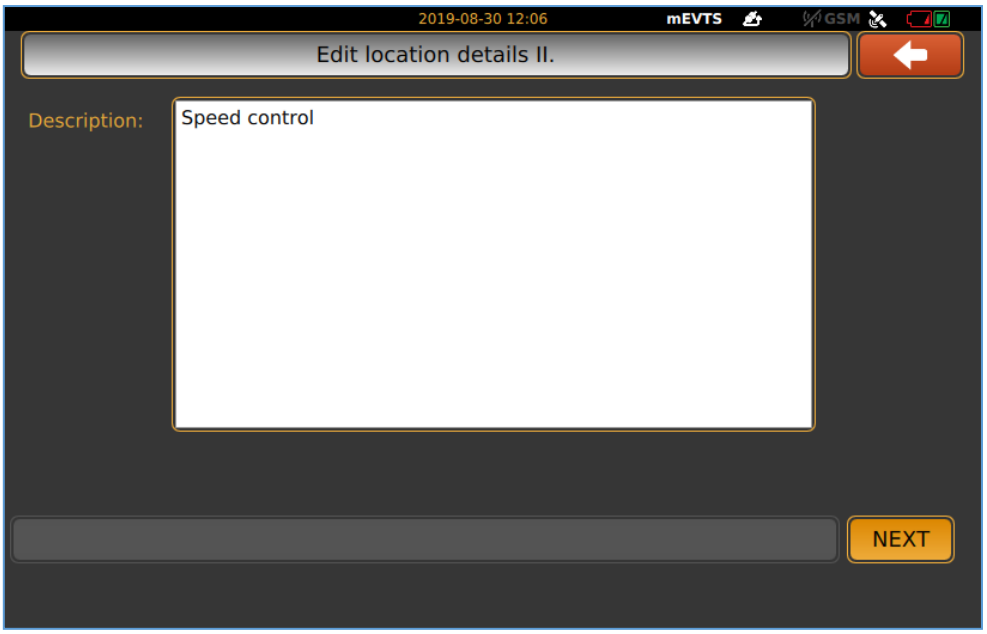
Position camera properly so as to the white or green circle with cross must be in the level of the number plates. Hereinafter we call it marker. On the "Main" screen, click on Enforcement floating menu, located on the upper left side of the screen. Enforcement menu contains Select location and method icon, click on it.



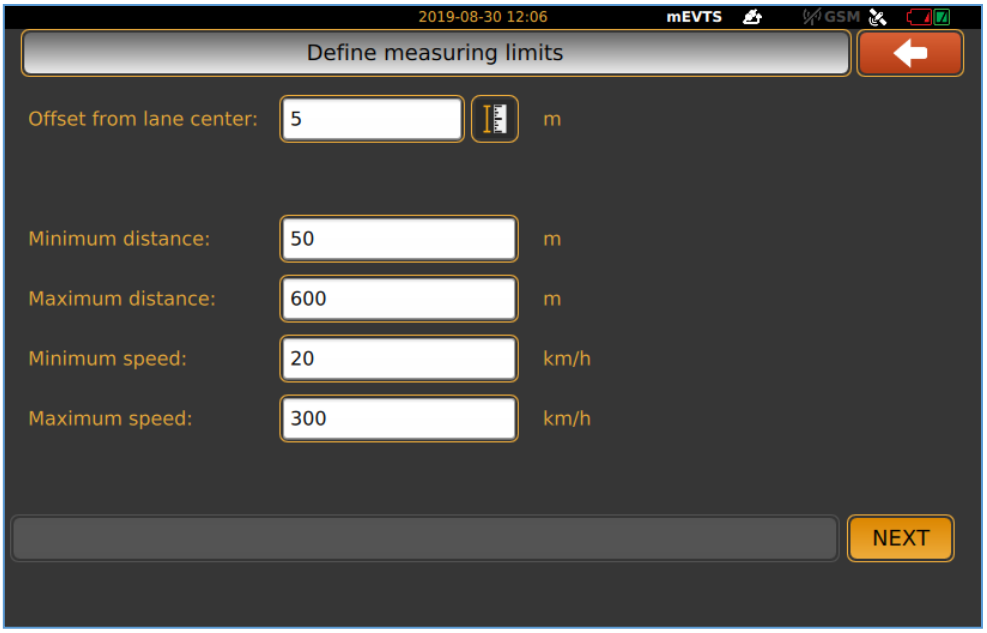
Submenu will appear, where location can be entered, then click on Next icon.



Description can be given to the measurement, after it is done, press Next.



In the Define measuring limits window, set measurement limits, then tap Next icon.



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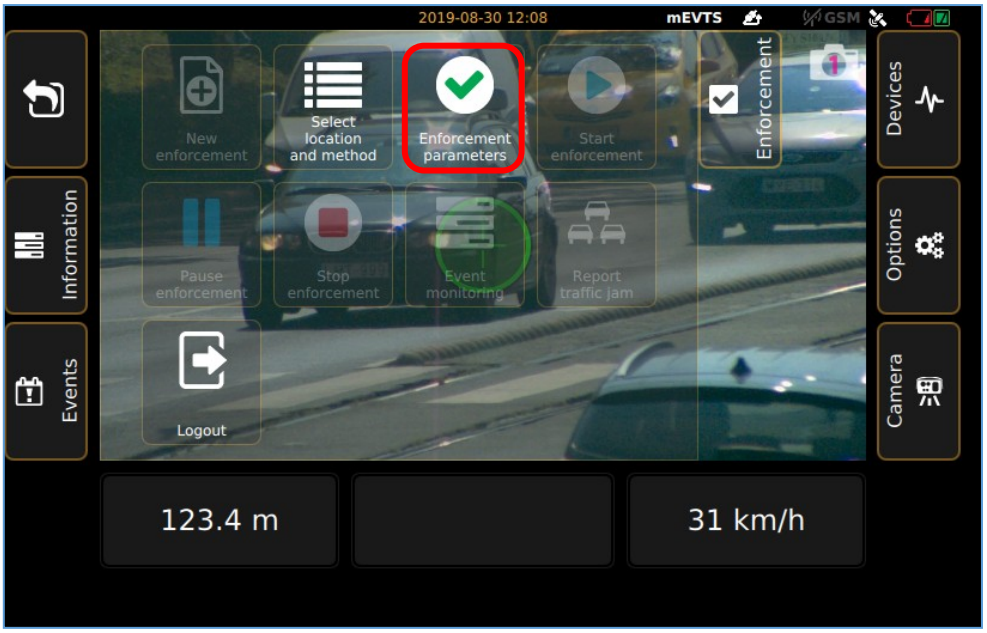
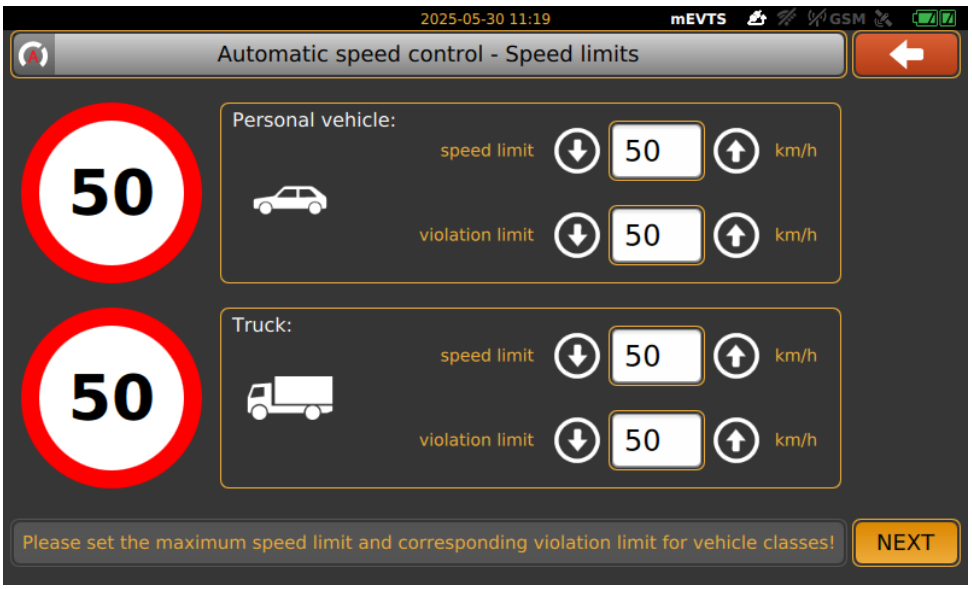
Enforcement floating menu will appear, where Enforcement parameters can be chosen, click on that icon to go further.

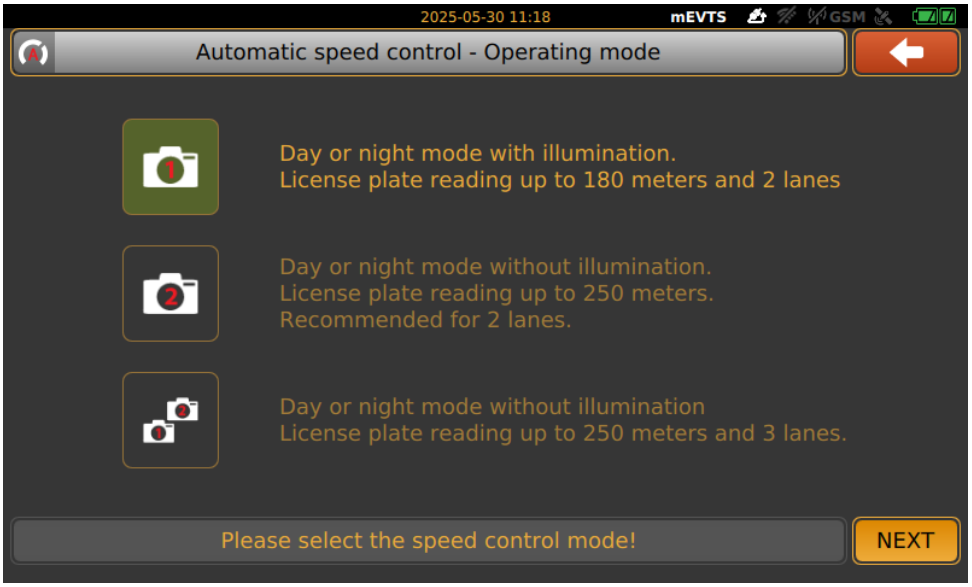


In the Enforcement parameters, optional control function can be chosen (selected functions appear green highlight), clicking on Next button to step on Speed limits. Description of each function will be discussed later.

Actual speed limit values can be given with virtual keyboard by click into the numeric field or tapping the up and down button next to numeric field, when it is done, press Next.



3 options are available to choose from: use one of the 2 sensors in the camera separately or using 2 sensors at the same time. In the second case, you are able to choose between the sensors during measurement.



Note

The two-sensor operating mode is only available in Automatic Speed Control!

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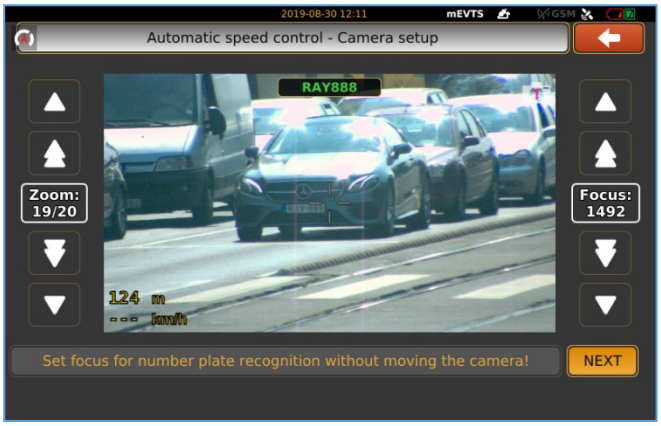
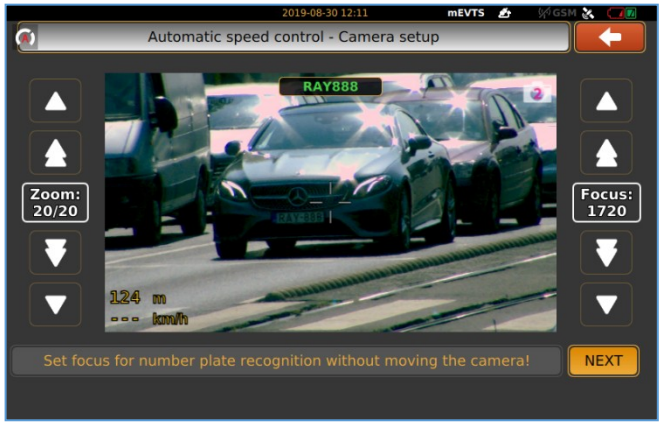
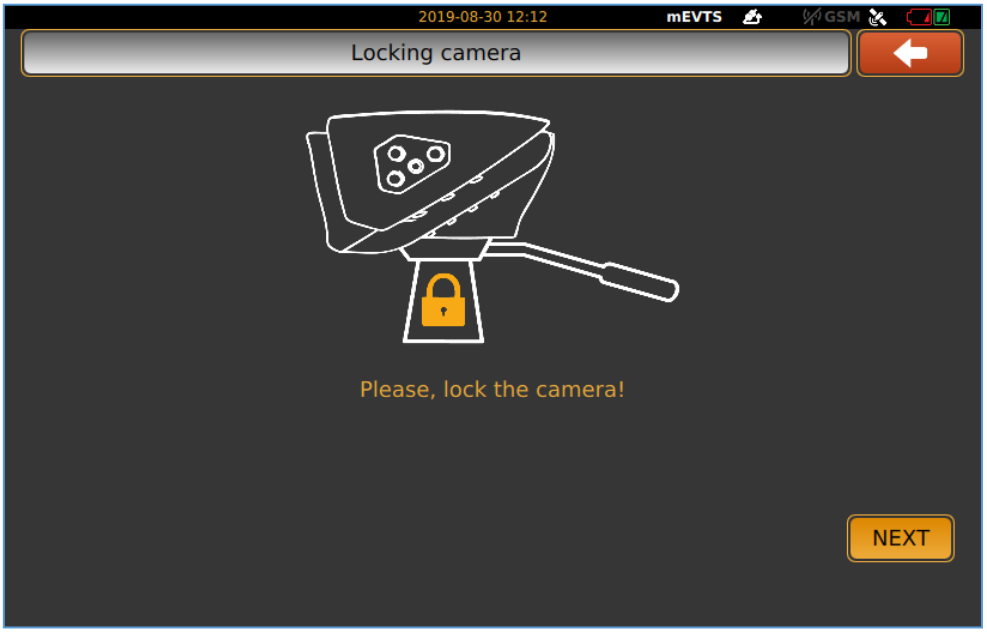
In case of 2 sensors enforcement, it needs to setup 1. and 2. sensor individually. Zoom and Focus can be easily adjusted for the proper setting.





Locking camera will appear to remind tighten tilt lock knob and tap Next.



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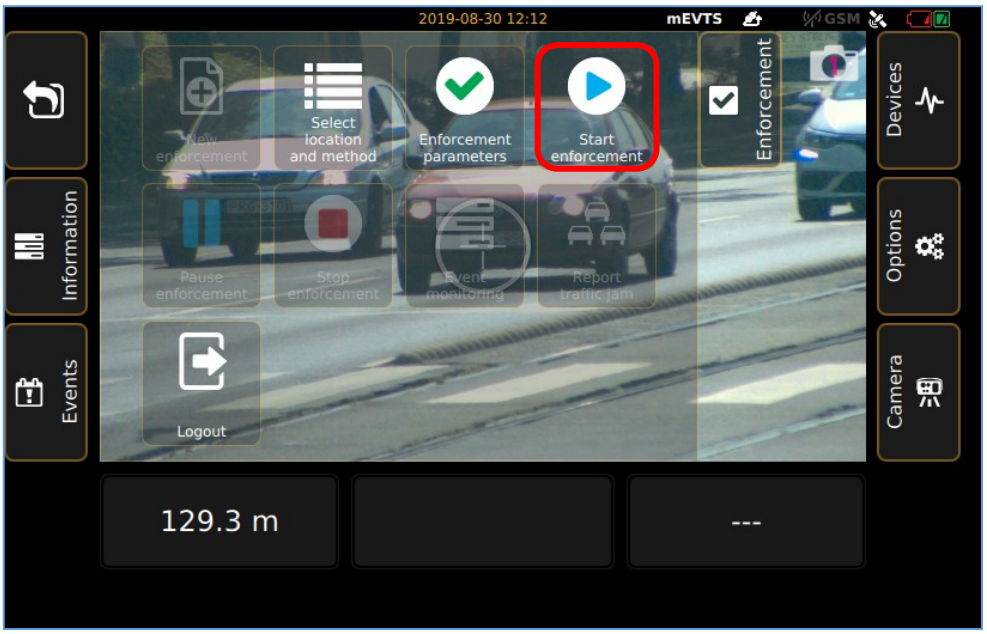
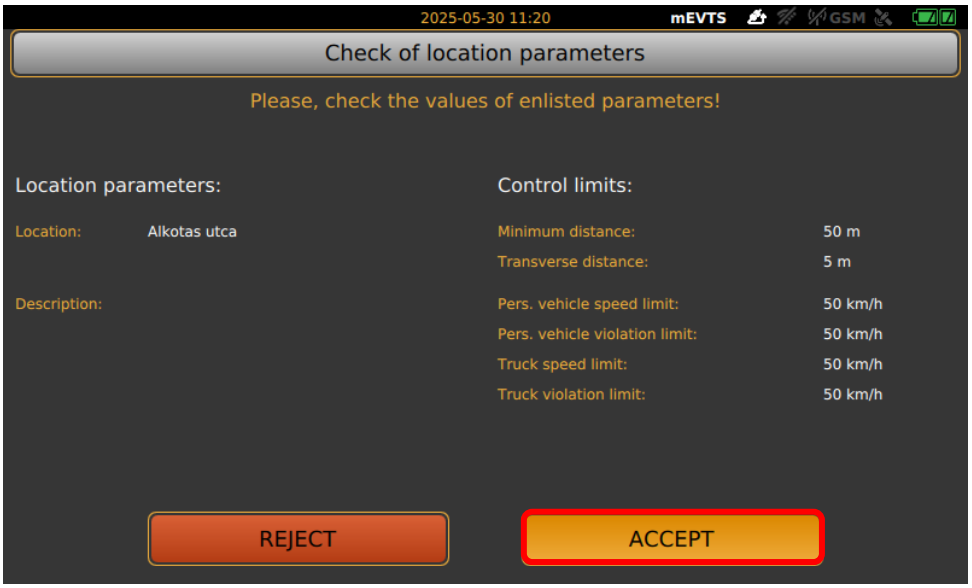
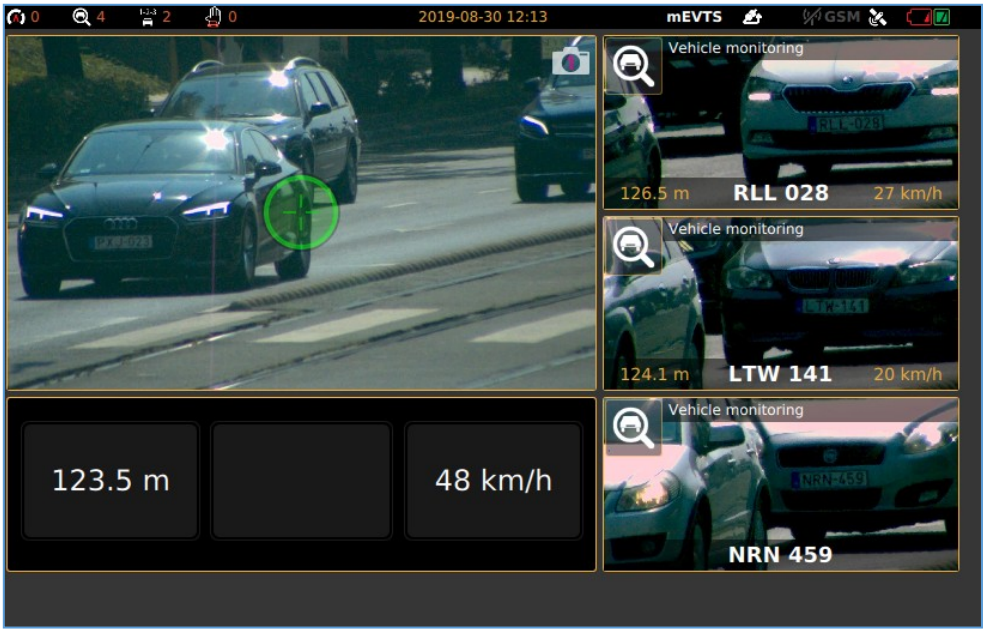
After finished setting of all measurement function and parameters, it will change to main screen again with the Enforcement floating menu, Start enforcement icon is become active.



By click on Start enforcement icon, screen will guide you to the Check of location parameters to verify all values, if it is correct, press Accept and start enforcement. If more adjustments or corrections are needed during setup, you can clear all previous settings and return to the main window.



S1 device is starts measurement. Fist, split window will appear with the live view on the left side and 3 small windows with the last 3 detected events. By tap on the left live view image, it will guide you back to the main window.



8. AUTOMATIC MULTI-LANE SPEED CONTROL

The Multi-lane speed control function enables the system to detect and evaluate vehicles passing across multiple lanes, allowing for lane-specific speed measurement, enforcement, and reporting.

This functionality is essential in high-traffic scenarios such as highways, multi-lane city roads, and intersections, where different lanes may be subject to different speed limits or vehicle restrictions.

The feature supports both manual configuration and automatic calibration, offering flexibility for various deployment conditions. By defining clear lane boundaries and associating each lane with unique speed thresholds, the system ensures precise, lane-aware monitoring that meets legal and operational requirements.

There are two type of speed measurement configurations:

Multi speed limit for two lanes

- User selects the 2-lane mode.
- For each lane:
    - Define A-B-C points (manually or automatically).
    - Set zoom and focus.
    - Select active sensor (Sensor 1 or 2).

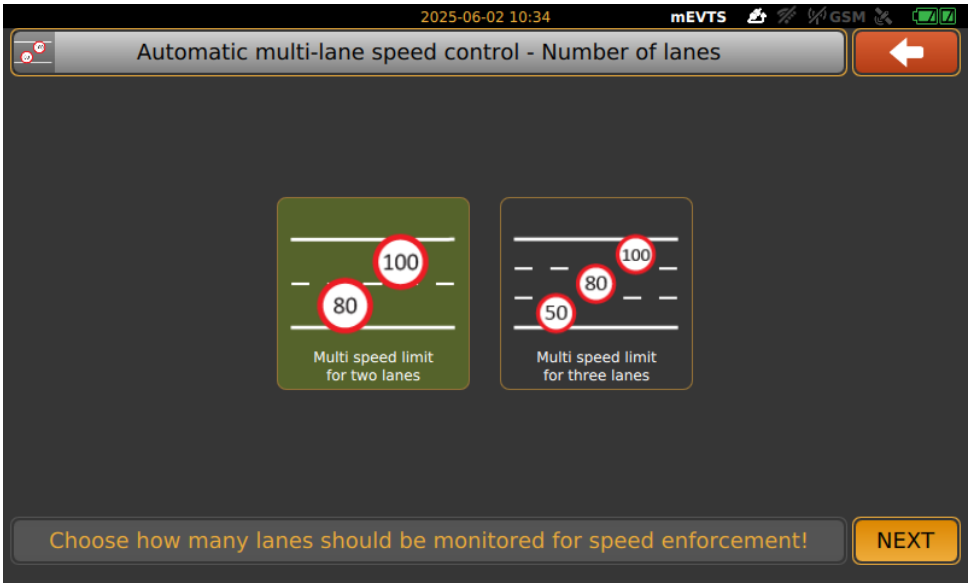
Multi speed limit for three lanes

- Differences from two lane mode:
    - Two sensors are mandatory.
    - Configuration includes 3 separate steps for the three lanes.
    - One sensor should target the farther lane(s), and the other the closer lane(s).

8.1. MULTI SPEED LIMIT FOR TWO LANES

This guide provides a detailed step-by-step overview of how to configure the two-lane automatic speed enforcement system.

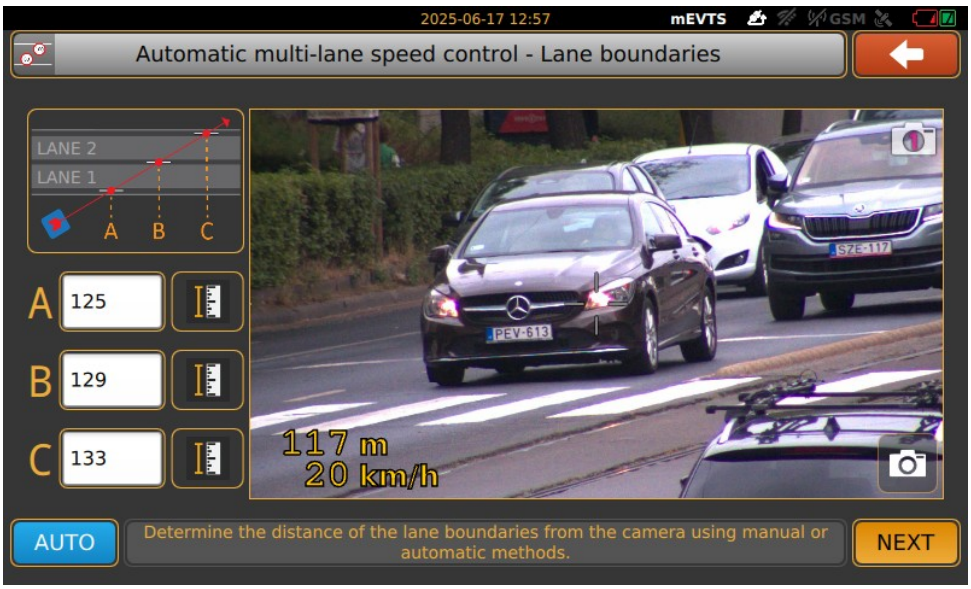
At the "Automatic multi-lane speed control" wizard, choose the configuration with two lanes. This will activate the workflow and user interface tailored to two independent speed-limited lanes.



Define the physical positions of lanes on the road surface as viewed from the camera.

- Use the on-screen buttons to input A, B, and C point distances manually (measured in meters from the camera).
- Alternatively, press AUTO to let the system estimate these points based on vehicle motion.

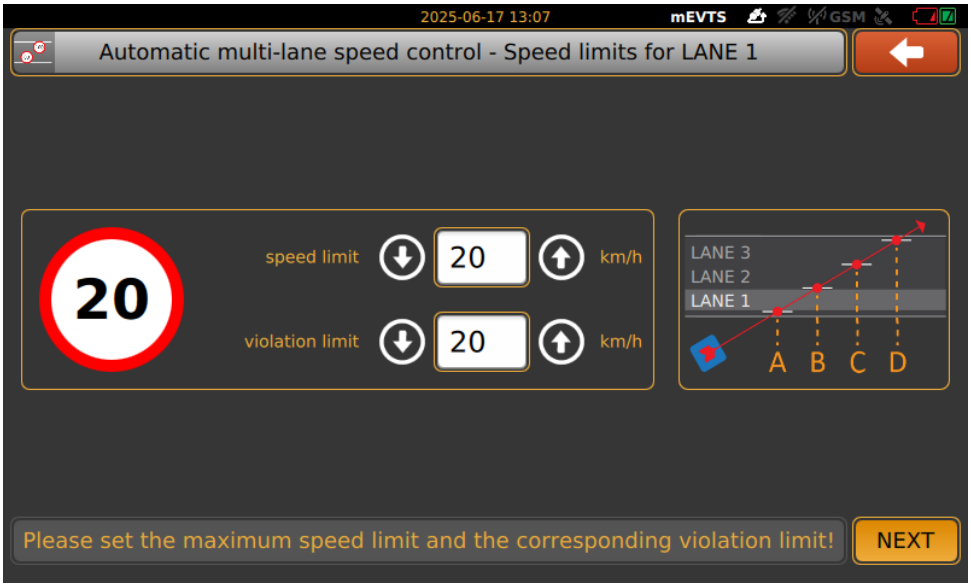
Lane boundaries help the system associate each detected vehicle with its correct lane.



For each lane, configure:

- Speed limit (legal threshold)
- Violation limit (limit at which enforcement is triggered)

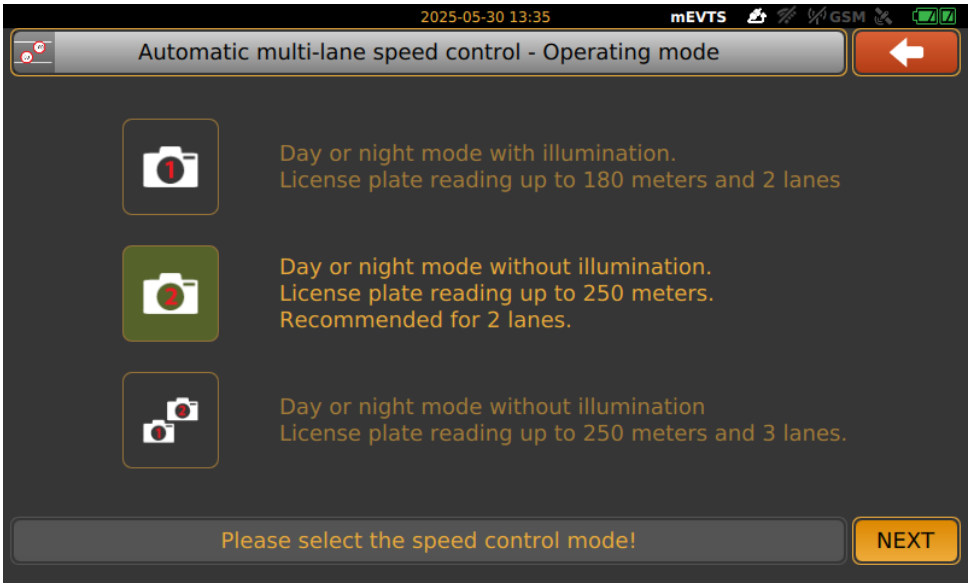
Use the arrow buttons to set the values. Repeat this screen for LANE 1 and then for LANE 2.



Choose the preferred camera operation mode depending on environmental conditions:

- Mode 1: With illumination, 2-lane, up to 180m
- Mode 2: Without illumination, 2-lane, up to 250m
- Mode 3: Without illumination, 3-lane support

For two-lane measurement without night-time IR, Mode 2 is recommended.



Adjust Zoom and Focus settings so that both lanes are sharply captured at typical vehicle distances.

- Use arrow keys on the interface to make incremental adjustments.
- Monitor image clarity and plate sharpness.

Once zoom and focus are finalized, confirm physical camera locking.

- This step prevents accidental shift during enforcement.

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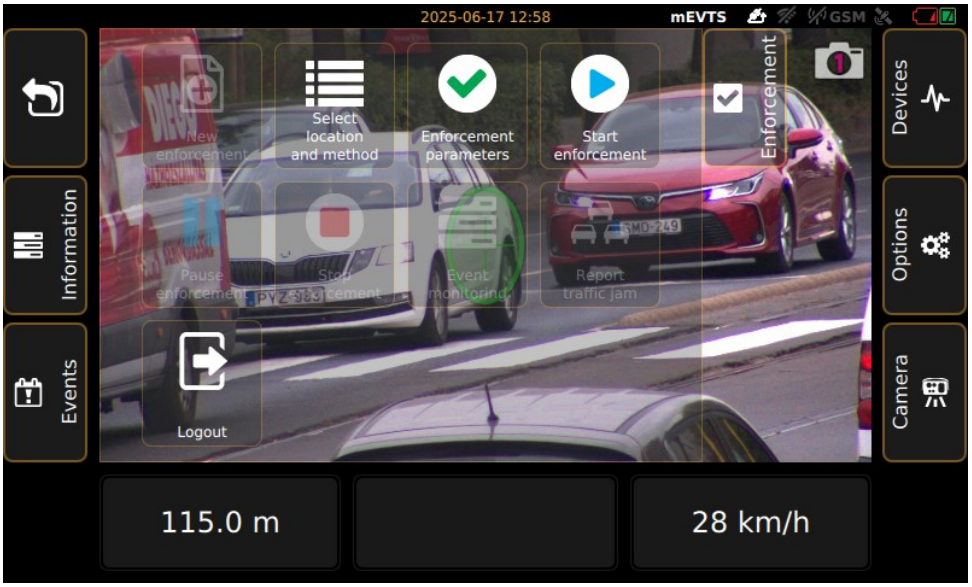
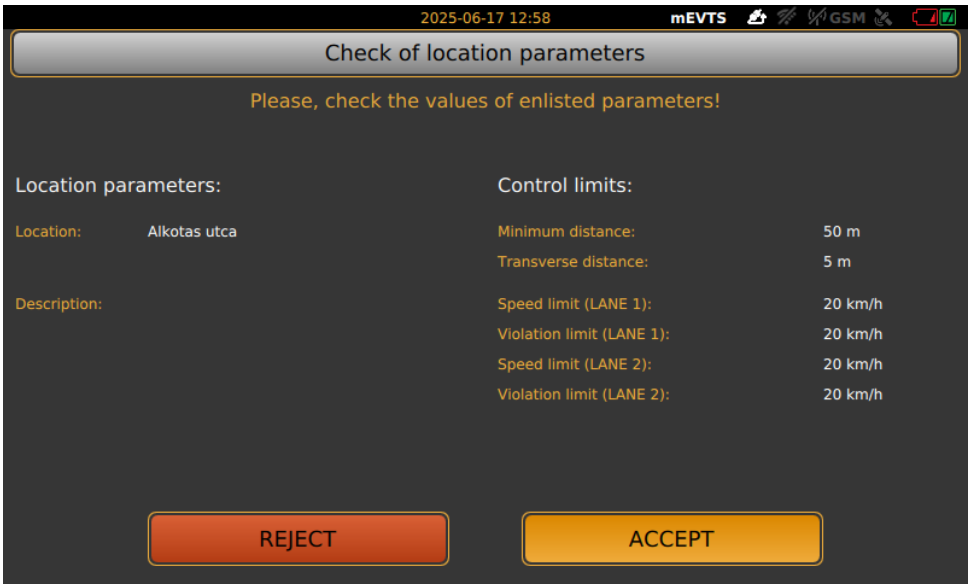
Tap Start enforcement icon.



Verify:

- Location and description
- Control parameters:
  - Minimum/maximum distance
  - Transverse alignment
  - Per-lane speed and violation limits

Click ACCEPT to proceed or REJECT to revise settings.



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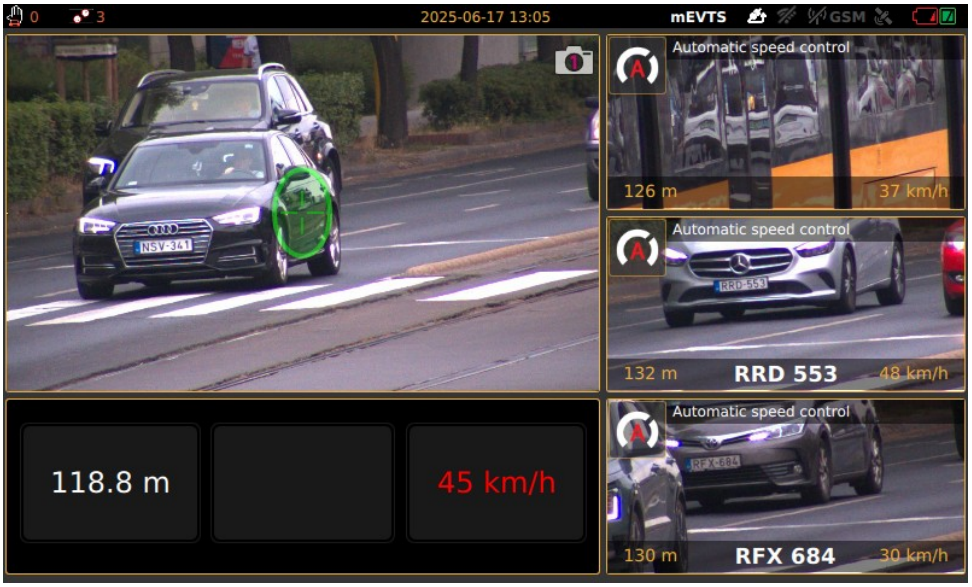
After setup, the system begins active speed enforcement. It detects and highlights vehicles per lane with:

- Plate number
- Measured speed
- Detection distance

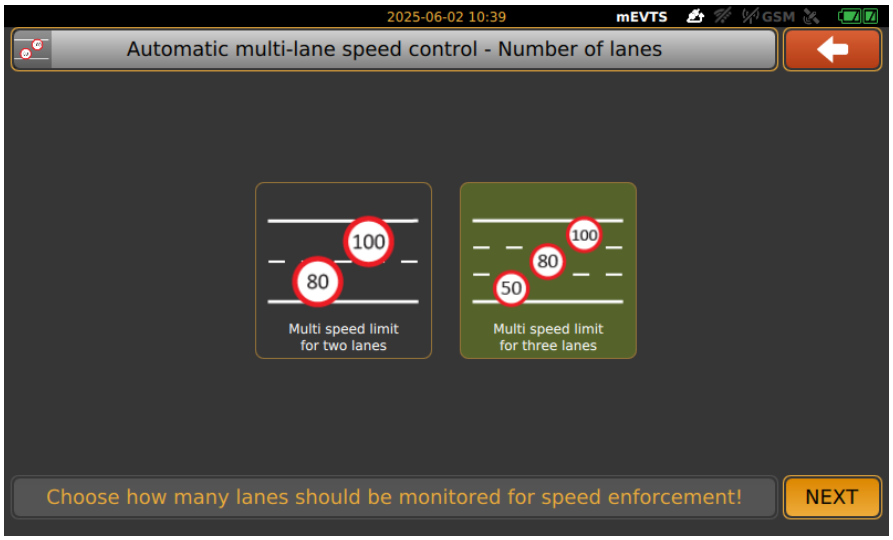
Violations are flagged and logged automatically.



8.2. MULTI SPEED LIMIT FOR THREE LANES

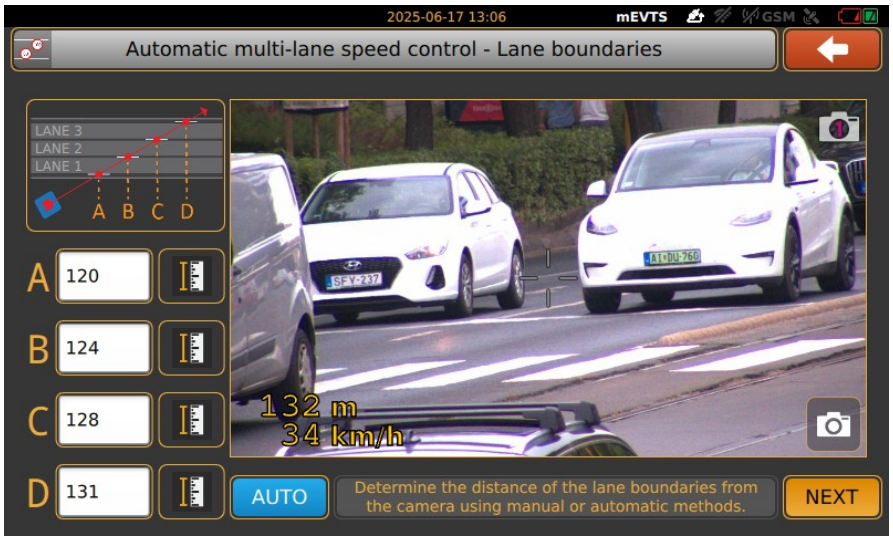
This section provides a complete step-by-step configuration guide for setting up three-lane automatic speed enforcement using the camera interface.

Start by selecting the three-lane setup in the "Automatic multi-lane speed control" wizard. This enables detection and enforcement across three separate traffic lanes with individual speed thresholds.



Configure the lane geometry by marking lane boundary distances:

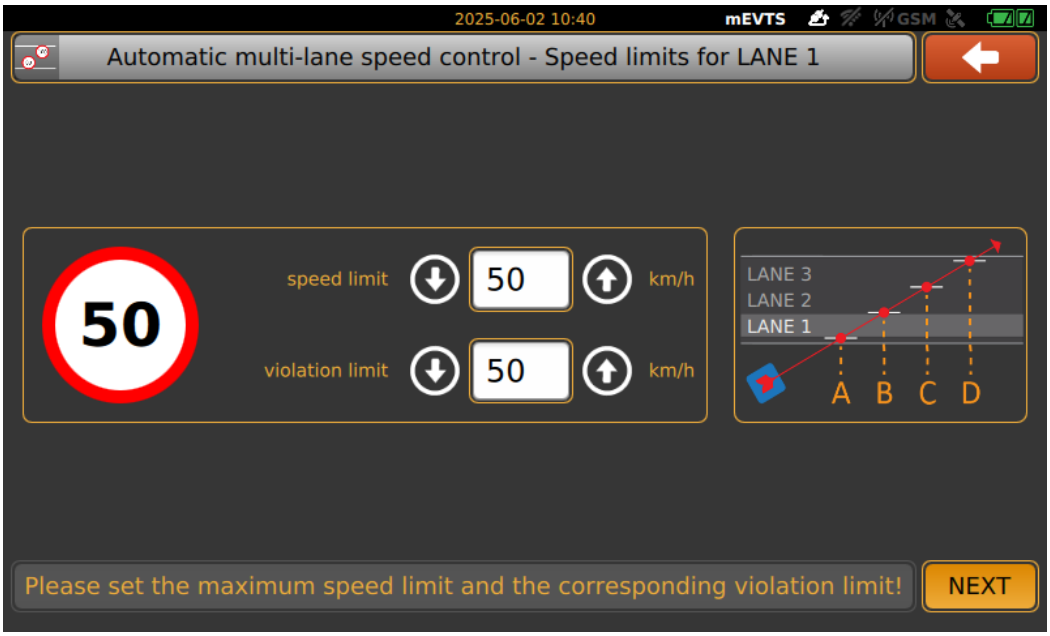
- Input values manually for points A, B, C, and D.
- Or use the AUTO function to detect lane divisions based on observed traffic.
- These values determine how vehicles are assigned to Lane 1, 2, or 3 based on their travel position.



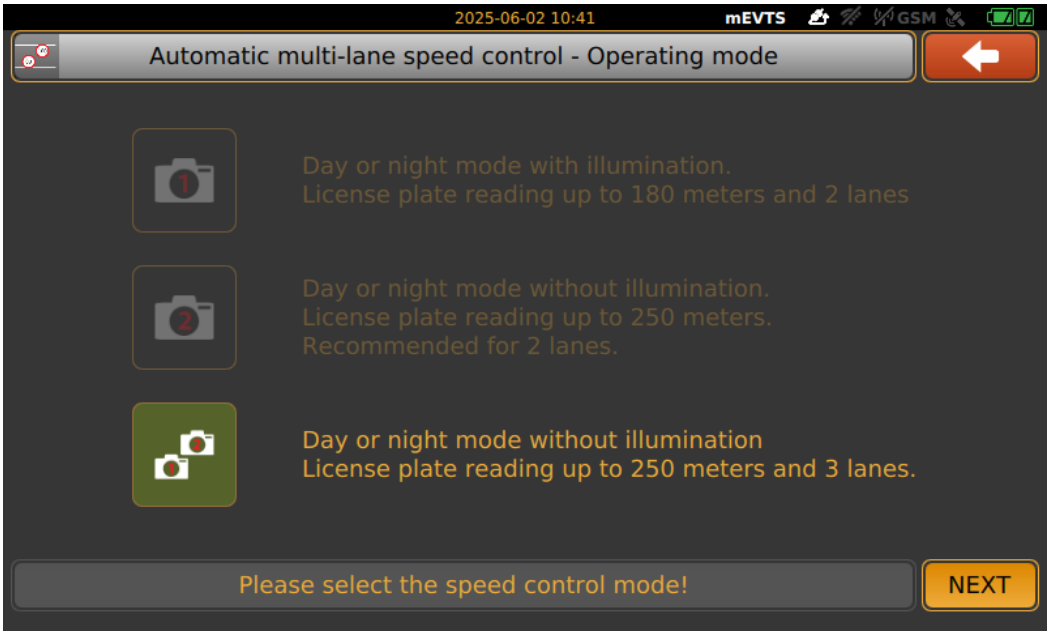
Assign both the legal speed limit and the enforcement violation threshold per lane.

- LANE 1: Set limit and violation threshold.
- LANE 2: Set limit and violation threshold.
- LANE 3: Set limit and violation threshold.

Use arrow buttons to adjust the values or click in the column and add values by the keyboard on each screen.



Only Mode 3 is available for three-lane use without external illumination, with license plate recognition up to 250 meters.



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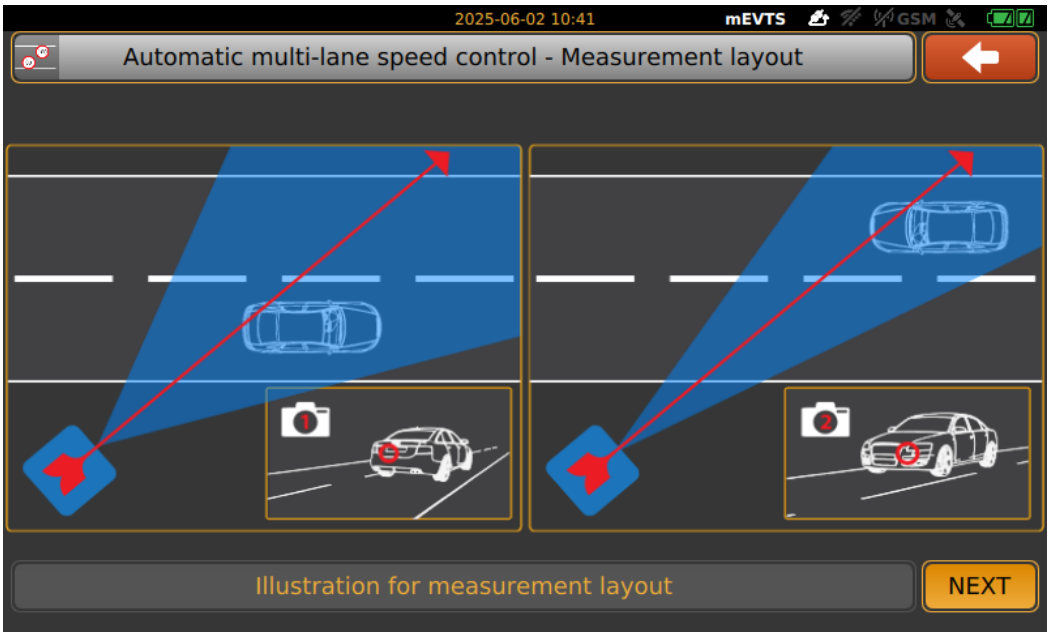
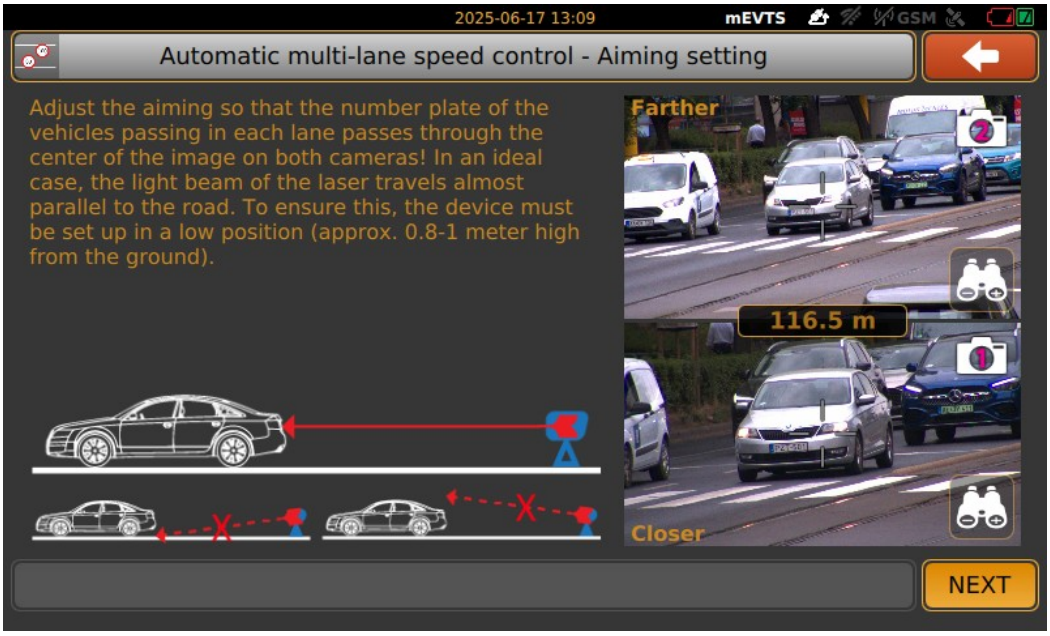
Choose the optimal layout based on camera placement:

- The layout ensures the coverage area spans all three lanes with correct laser alignment.
- Ensure the red aiming vector reaches mid-lane positions.



Align the cameras and laser beam:

- Ensure that number plates pass through the center of the camera image.
- Set the camera between 0.8–1 meter from the ground.
- Avoid angular misalignment — use the visual preview and distance feedback.



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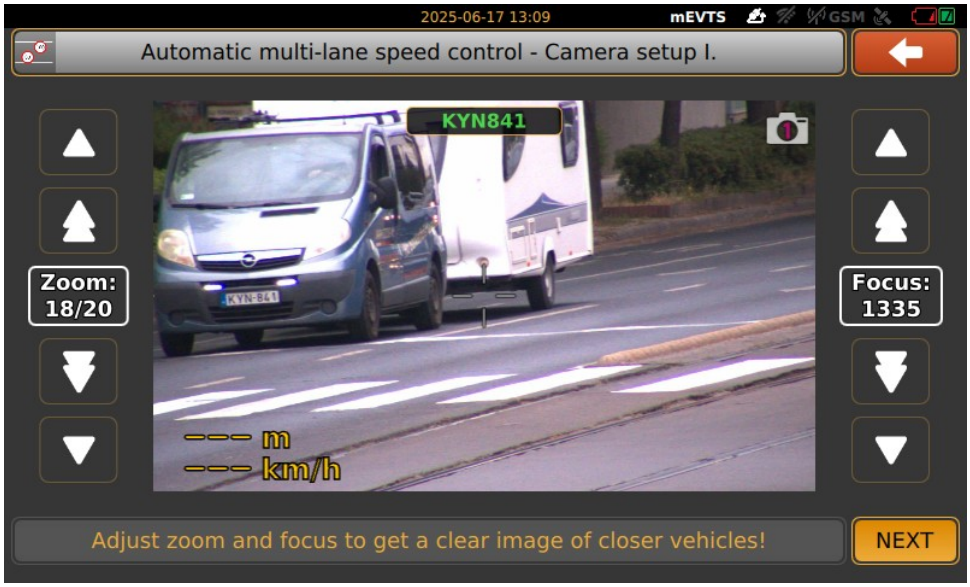
Adjust zoom and focus for both sensors to optimize plate readability across all three lanes:

- Zoom in to reach appropriate distances.
- Focus to sharpen image detail.

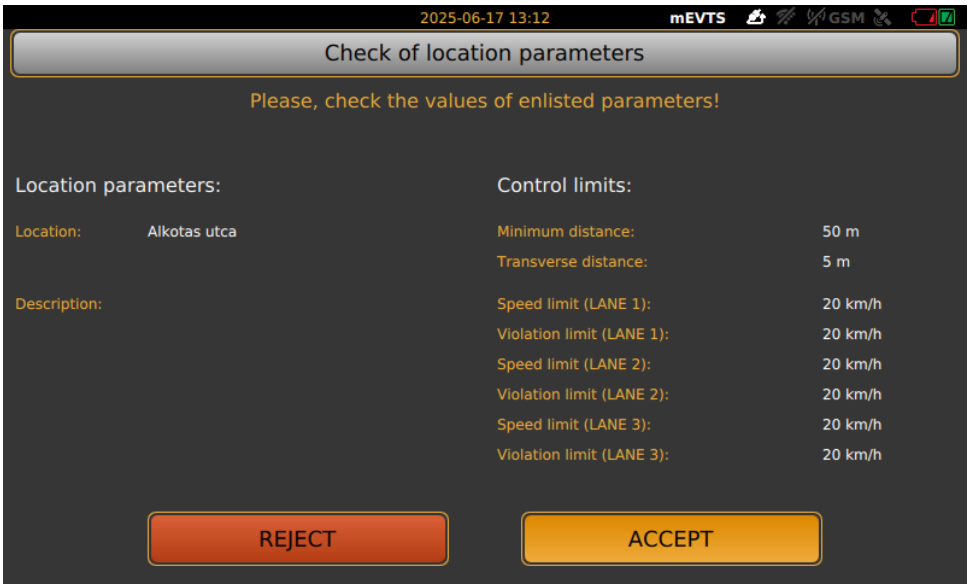


Tap Start enforcement icon

Review and confirm:

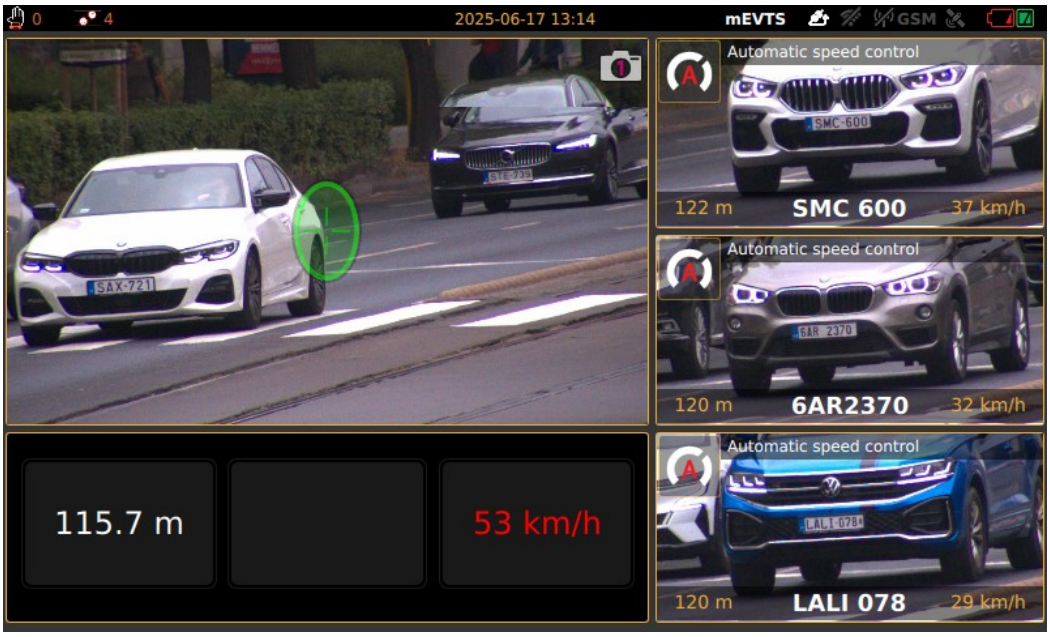
- Site parameters (e.g., street name, alignment distances)
- Speed limits for each lane
- Minimum and transverse distances for accuracy

Use ACCEPT to finalize or REJECT to go back.



After setup, the system enters active enforcement mode:

- Displays real-time vehicle detections in all three lanes
- Shows speed, distance, and license plate for each vehicle
- Flags violations in red



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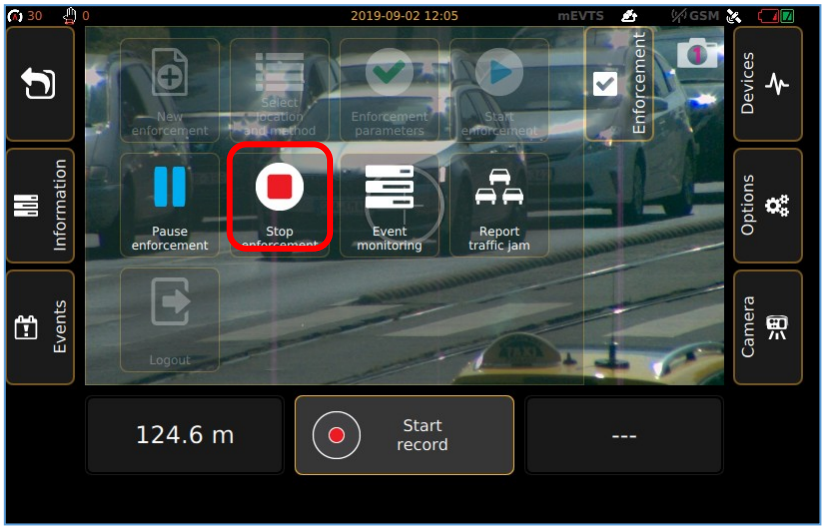
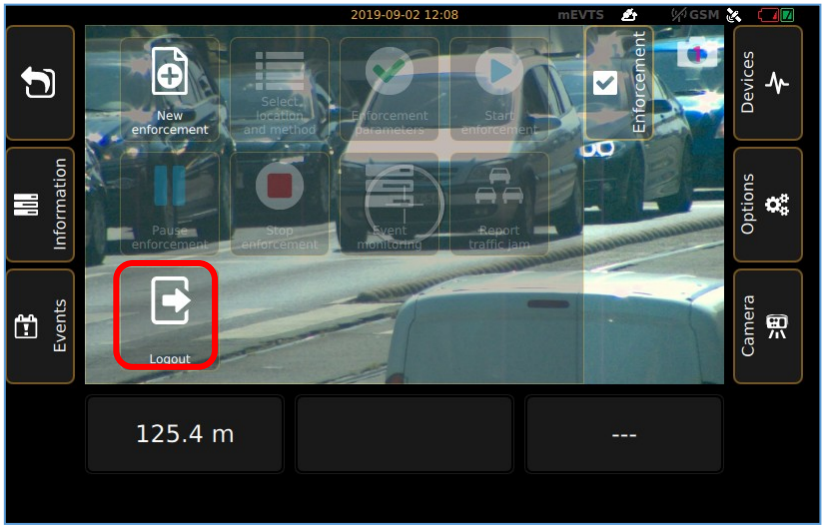
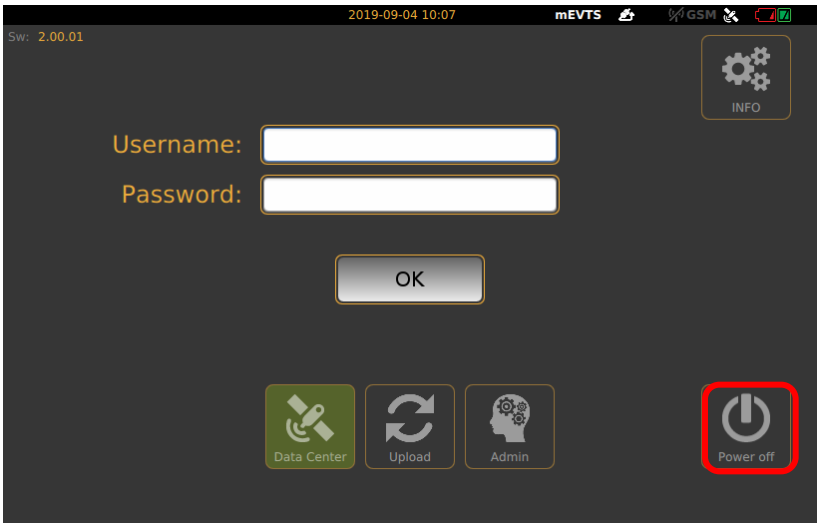
9. STOP ENFORCEMENT

If you have finished the measurement, click on Stop enforcement icon, then Log out icon and finally tap Power off icon on the Login window to switch off the device.







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10. INTRODUCTION TO THE MAIN SCREEN

After login, the Main screen will appear. The live view is situated in the center of the screen with the information bar.

- Marker in the middle of live view show:
    a. Red cross - no reflected signal or targeted object is outside of the adjusted parameters. It is closer or further off
    b. White circle – reflected signal, but no speed value
    c. Green circle – reflected signal and speed value is also detected

The functions and settings of the device can be accessed through the floating menus by clicking the icons on both sides of the screen.
Exit from the displayed floating menu: tap again the icon of the menu or with the back sign on the initial position of the menu.

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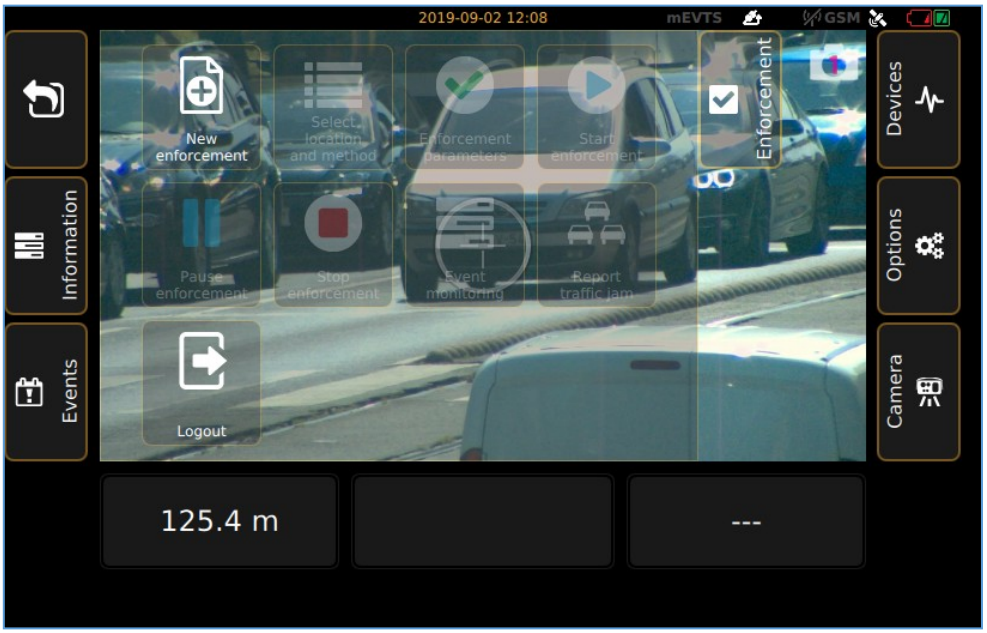
10.1. ENFORCEMENT MENU

Select, add and edit all measurement function which is crucial for the enforcement.

- New enforcement: start adding new measurement parameters after completing an enforcement session
- Select location and method: enter related location and task data to the measurement method
- Enforcement parameters: display the optional control functions
- Start enforcement: start measurement
- Pause enforcement: you can interrupt the enforcement
- Stop enforcement: switch off measurement
- Event monitoring: during measurement, last three events displayed on the right side of the window
- Report traffic jam: During the measurement, the congestion reporting function can be used by tapping the icon
- Log out: quit from the main window to the login screen



10.2. INFORMATION MENU

Enforcement information include the parameters and settings of the actual measurement. The following explanation describes the presentation of the data in the image at the end of the chapter.

Location and Time Details

- This section identifies the time, location, and user responsible for operating the speed camera during the session. The inhabited area classification indicates the speed limits enforced correspond to residential or urban zones.

Speed and Distance Settings

This section outlines the operational parameters of the camera:

- The camera monitors vehicles between 50 and 600 meters from its position.
- Vehicles moving slower than 20 km/h or faster than 300 km/h are excluded from speed tracking.
- The speed limit for all vehicle types in this location is 50 km/h, with violations recorded for exceeding this limit.

Event Summary

The camera tracks different types of events:

- Traffic Jam: A single traffic congestion event was detected.
- Automatic Speed Control: 47 violations of the speed limit were recorded automatically.
- Wanted Vehicle: No flagged vehicles (e.g., stolen or wanted vehicles) were detected.

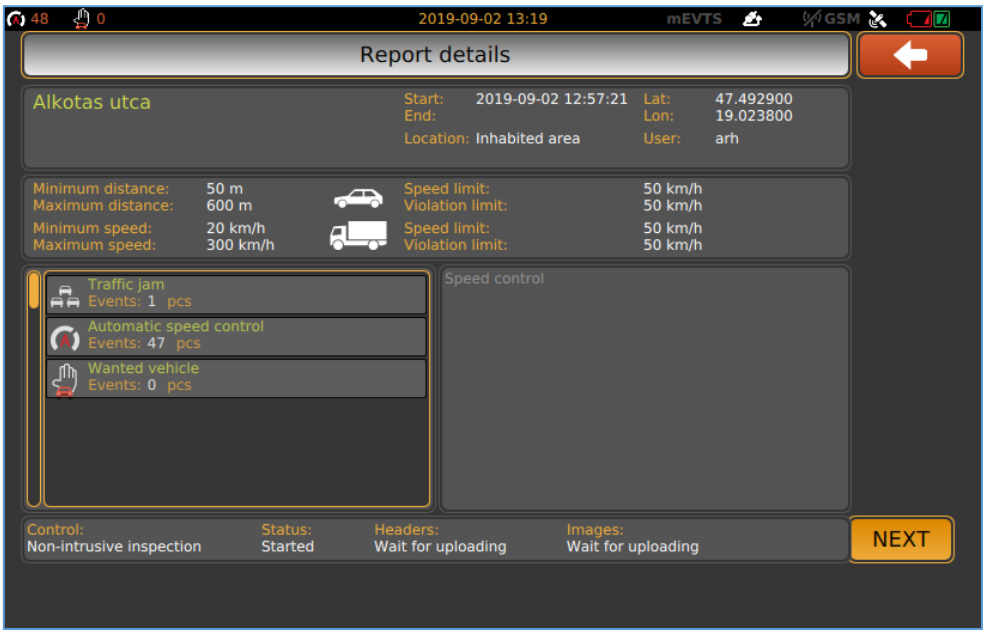
Operational Status

- Control: The system is operating in non-intrusive mode, meaning it monitors traffic without interfering by the operator.
- Status: The status indicates that the session is actively recording data.
- Headers and Images: Both event headers and images are queued for upload, indicating that data transfer to the central system has not yet started.

The screen provides a detailed overview of:

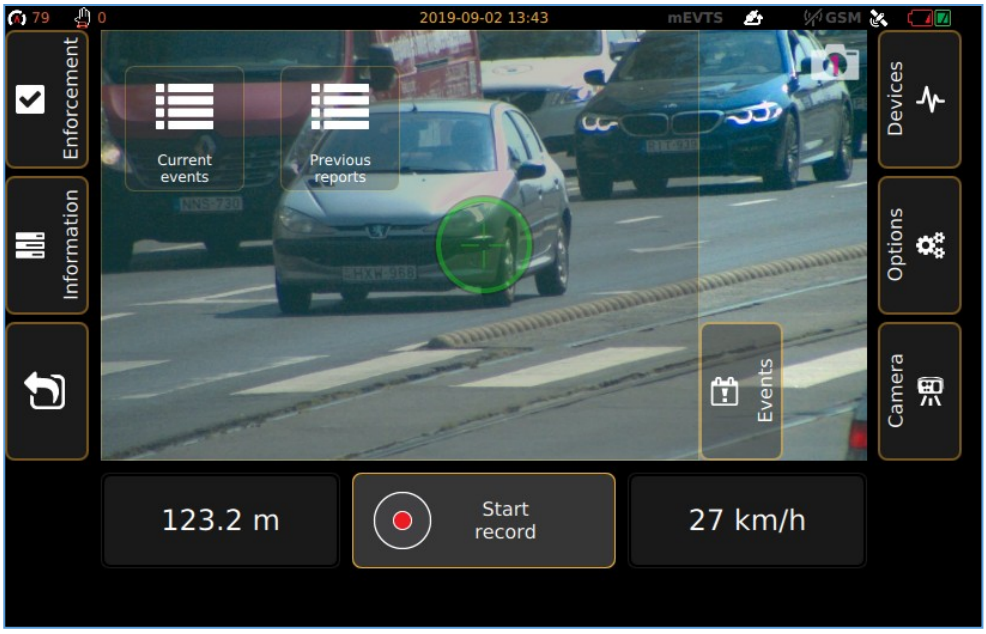
1. The location, time, and user information for the monitoring session.
2. Operational parameters, including speed and distance limits.
3. A summary of recorded traffic events (speeding, congestion, and flagged vehicles).
4. The current operational and data transfer status of the system.

The displayed data ensures that operators can monitor session performance, verify recorded violations, and ensure proper data handling before proceeding to the next stage.



10.3. EVENTS MENU

- Current events: This option displays all event data collected during the ongoing enforcement session. It provides a real-time overview of traffic monitoring and detected violations. Shows events such as speeding violations, traffic congestion, or flagged vehicles as they are recorded.
- Previous reports: This menu allows operators to select and view data from past enforcement sessions. It acts as a database of all previously recorded events for reference or analysis. Operators can choose specific sessions based on date, location, or user to review recorded data. Previous reports are stored either locally on the device or uploaded to a central database for long-term archiving.
    - Each report contains events recorded between the start and end time of a measurement session. By selecting a specific report and accessing its details, you can view all the associated events. For a highlighted event, pressing the Next button will display detailed information about that event.
    - For every event, the camera captures five images, providing visual documentation of the incident. These images are essential for verifying violations and ensuring accurate records of the events during the measurement session.

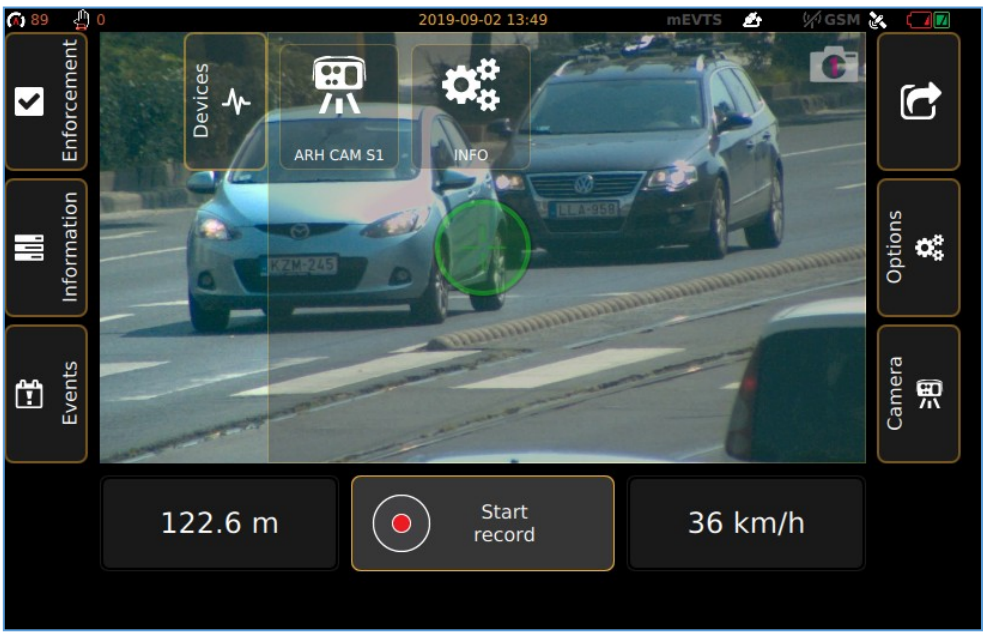


10.4. DEVICES

ARH CAM S1: Device Details screen detailed explanation

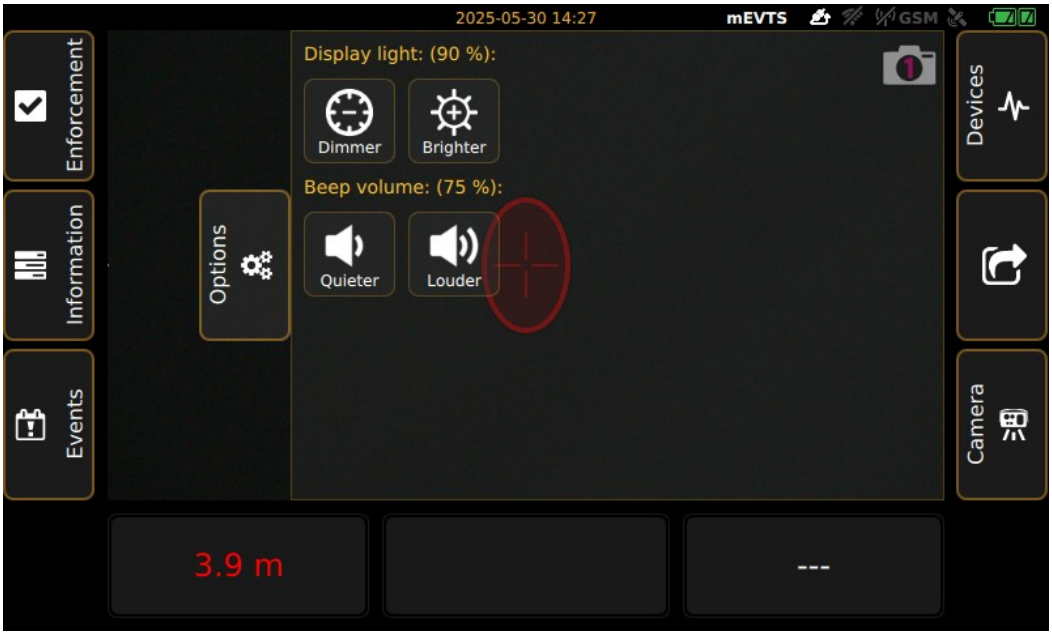
- Model Type: Model of the speed camera.
- Device ID: The Device ID uniquely identifies the specific hardware of device. This field is used to distinguish the camera in central database systems
- Serial Number (S/N): Serial number is a hardware-specific identifier used for warranty purposes, or device registration.
- Software Version: This represents the currently installed firmware or software version on the device.
- SIM ID: The SIM ID is linked to the mobile network's SIM card installed in the device. This allows the camera to connect to 4G networks for data transmission.
- IP Address: This is the local IP address assigned to the camera for network communication.
- MAC Address: The MAC address is the hardware identifier for the device's network adapter. It is unique and allows the device to be identified on a network.
- Certificate Expiration: This is the expiration date of the device's certificate.

INFO: Status of the device is displayed. It has already been explained in the Info section.



10.5. OPTIONS

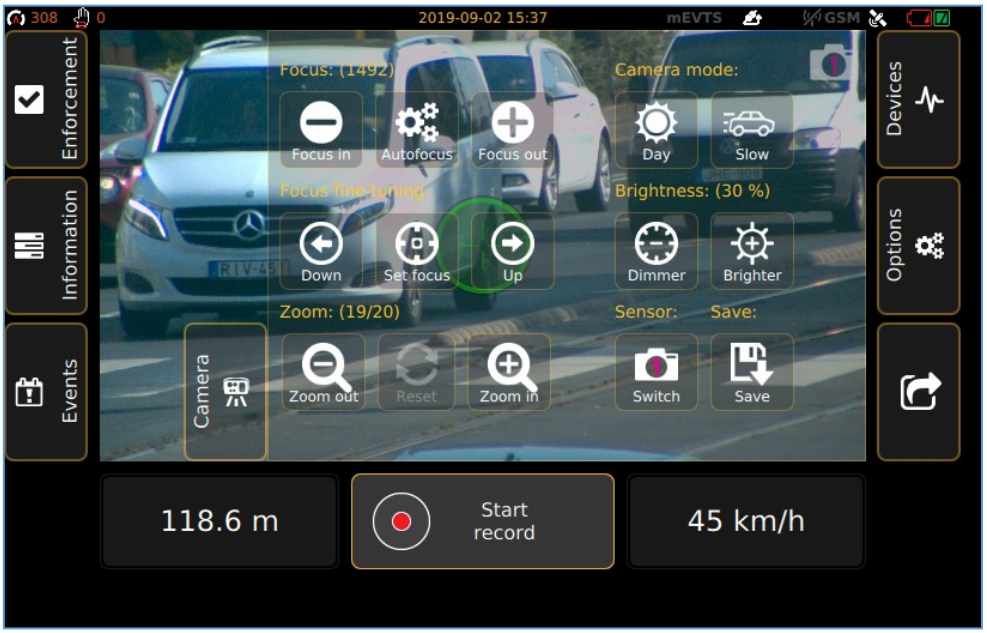
- Image on display can be adjusted according to the environment light conditions. During night measurement, reduce brightness of display is advisable to not be disturbing.
- Antenna settings can be managed
- Increase/decrease beep sounds.



10.6. CAMERA

- Focus: set focus to the required sharpness with automatic focus button, or with the manual focus setting, and the vehicles license plate seen on the livestream should be readable
- Focus fine tuning: adjust focus with finer scale. Tap on "Set focus", to see live stream in a full picture with important settings button (Zoom, Focus, Snapshot, Trigger signal, Live view enlargement, License plate recognition)
- Zoom: Zoom out and Zoom in icons serve for cropping setting of the image
- Camera mode:
    - Day: in day mode, you can adjust brightness in 3 steps: Slow, Normal, Fast – camera set fix shutter max values
    - Night: you can set 3 fix Infra values
- Brightness: the light conditions can be improved with the reduction of the camera brightness
- Sensor: if you set both sensors, you are able to switch between sensor 1 and 2
- Save: after set all parameters, you can save all changes

> **Note**
>
> It is recommended to set the Zoom first and then adjust the Focus for a sharper image to ensure proper license plate reading.

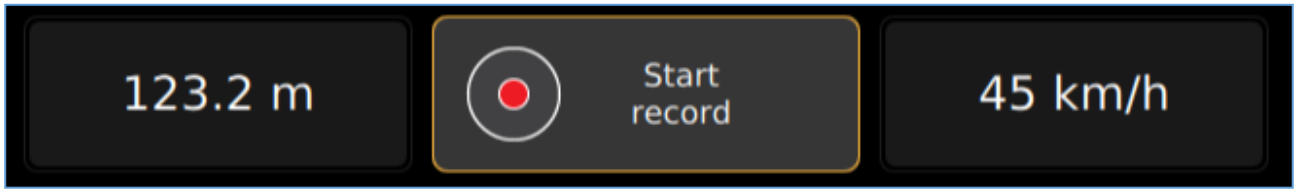


11. BOTTOM INFORMATION BAR

In the bottom information bar, you can see the vehicle's data which got to laser beam: speed, direction, distance.

In case of infringement presumption, the device gives audio-visual signal: if the vehicle exceeded the speed limit, the number showing the speed limit will turn red in the bottom information bar of the screen. Signal sound can be heard.

By tapping on 'Start recording,' you can record a 10-second video of the enforcement. It will guide you next to a "Setting of manually recorded event" window, where you can give vehicle class for the event and playback the video as well. After you have chosen the vehicle class, press "Next" and it will jump to "Feature selection" window, where event type settings are available. Choose one from them and tap "Save" button. The video is available "Events" menu.



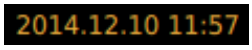
12. UPPER INFORMATION BAR

The small icons in the upper left corner show the active enforcement functions.

Example:

According to the example, the current measurement registered 57 passing vehicles. The automatic speed measurement function recorded 32 presumptive infringement data, the traffic count registers 1 vehicle and with the manual speed measurement 15 presumptive infringement data was recorded on the device.

The date and the current time can be seen on the upper edge of the screen:



** The software version, containing the test and educational profiles, are developed in case of occasional usage!*

Signal strength of the data connection: weak, good, excellent

Speed of the data connection: EDGE, 4G

Display example:
good signal strength

Satellite GPS connection indicator: if there is a connection it is white, if there is not, it is gray

Battery status (external, internal) *

** The battery status indicator on the screen is only indicative. The actual battery level of the external battery has to be checked on the indicator on the battery!*

Display examples:

External power supply / battery is disconnected, internal battery is discharged

External power supply / battery is disconnected, internal battery is good

External power supply / battery is connected, but it is discharged, internal battery is good

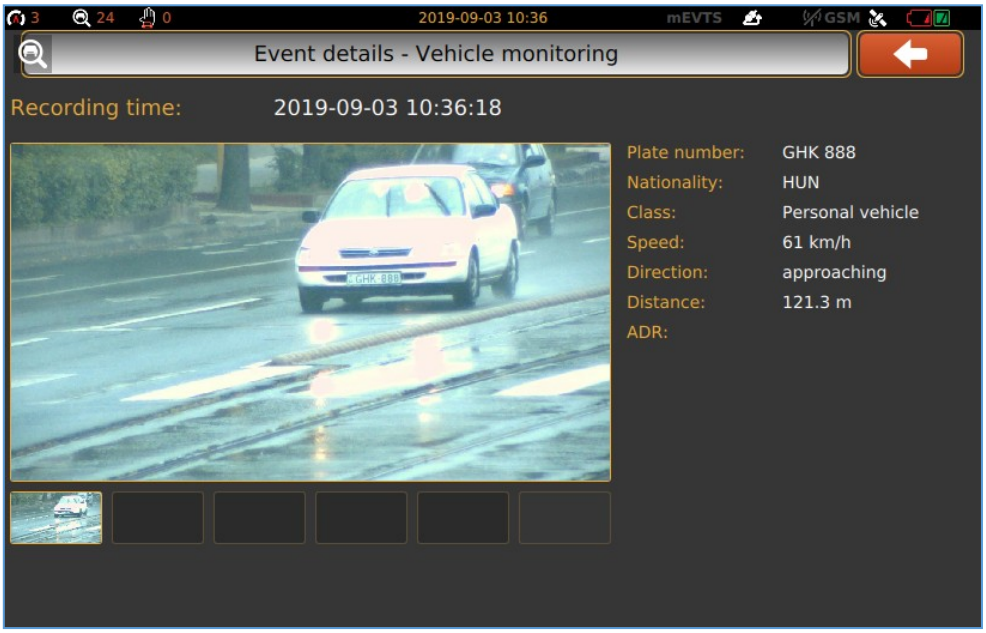
External power supply / battery is connected and it is good, internal battery is good

13. DETAILED DESCRIPTION OF THE SPEED MEASUREMENT

There are three measurement versions:

- Automatic speed measurement: there is no need for the operator during the measurement
- Manual speed measurement: the help of the operator is needed
- Automatic multi-lane speed control: Allows different speed limits to be defined for each traffic lane.

- Vehicle monitoring: creating an event of all passing vehicle with number plate, nationality, vehicle class, speed and distance.



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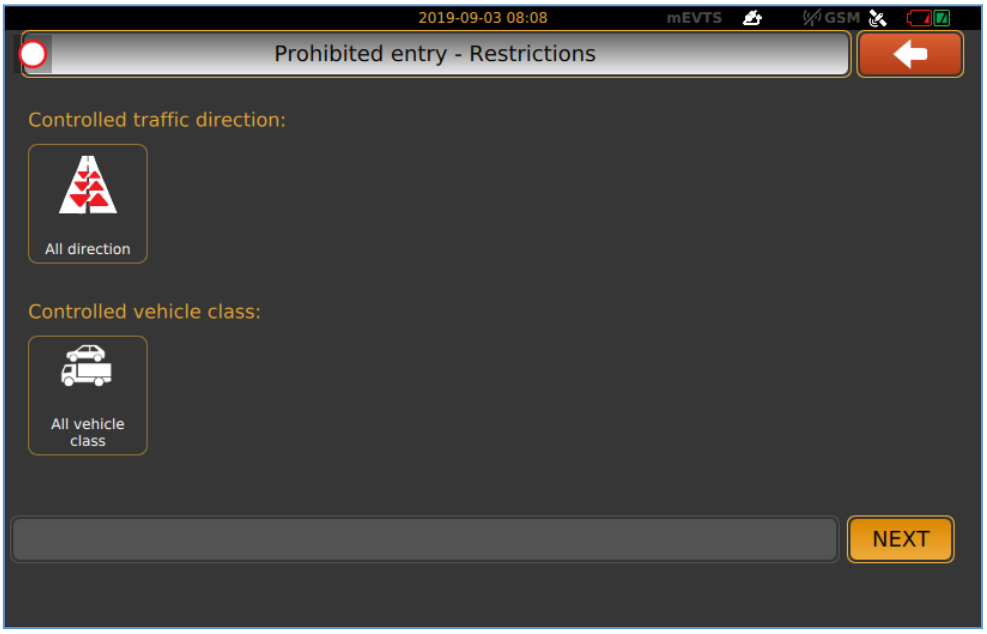
- Vehicle counting: counting all passing vehicle. It can only use together with Vehicle monitoring function.

- ADR: recognize trucks which transport of hazardous materials

- Prohibited entry: monitoring vehicles driving in a restricted area. Controlled traffic direction and vehicle class have to be chosen during the setup of the function.



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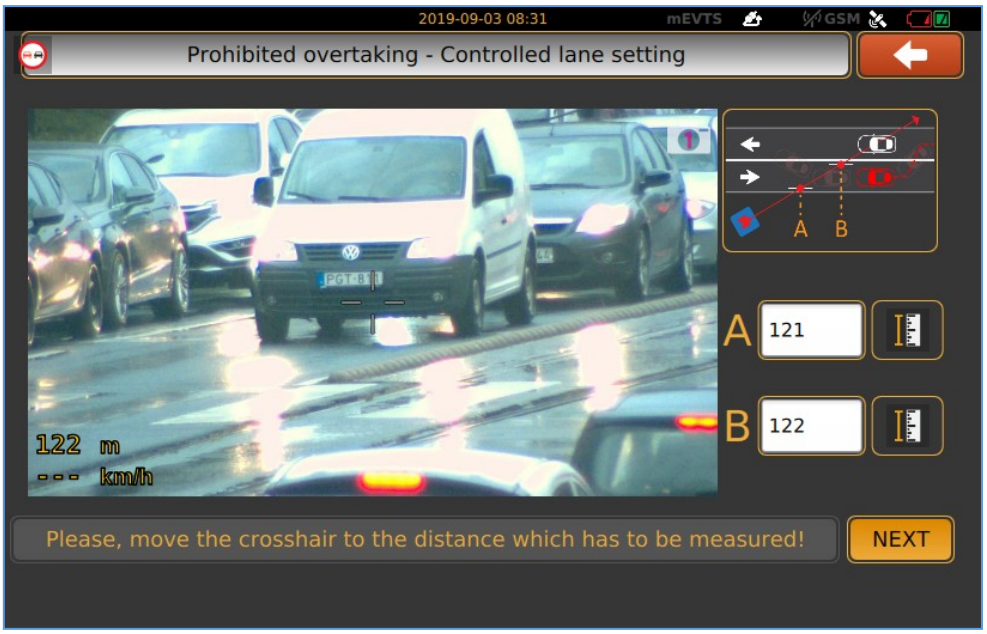
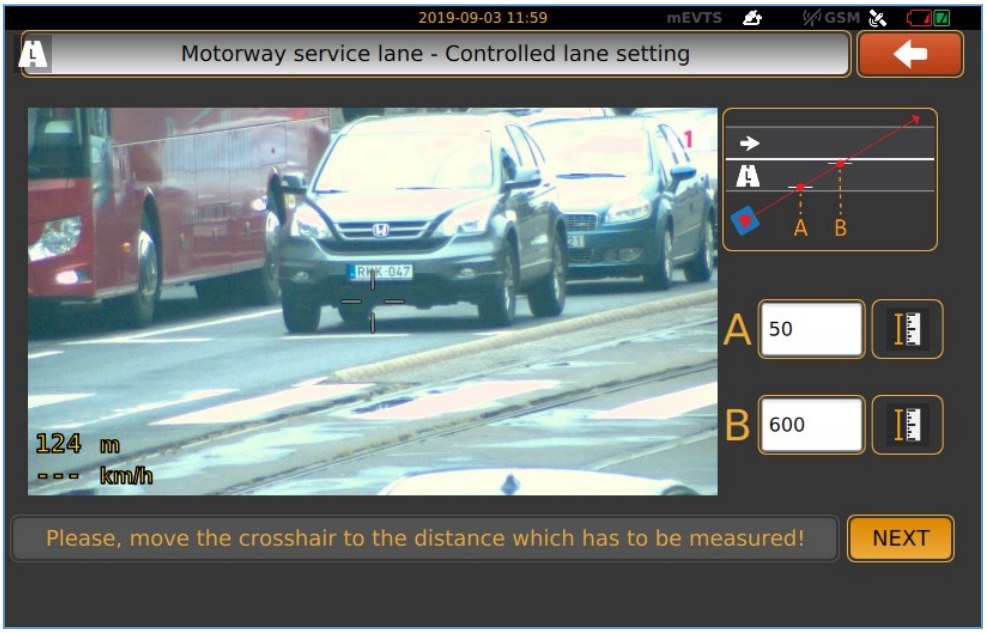
- Prohibited overtaking: monitoring prohibited barrage lane crossing. To set controlled lane, move crosshair to the "A" point as it shown on the figure and press button next to A point to measure distance. Move camera to the B point and press button next B point.



- Motorway service lane: it is inspecting vehicles passing in the service lane. Setup is the same as described for Prohibited overtaking.



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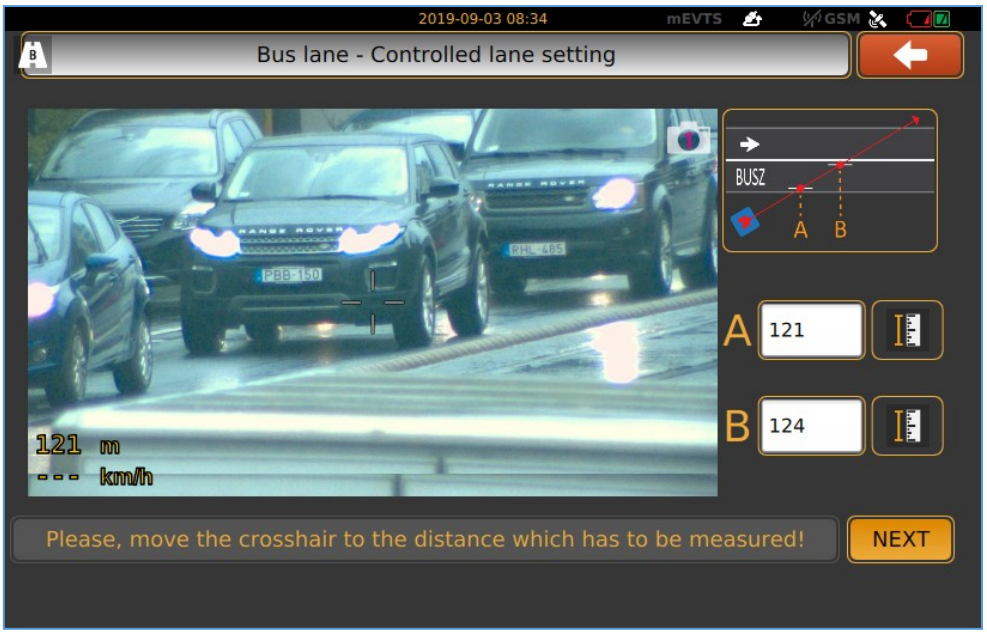
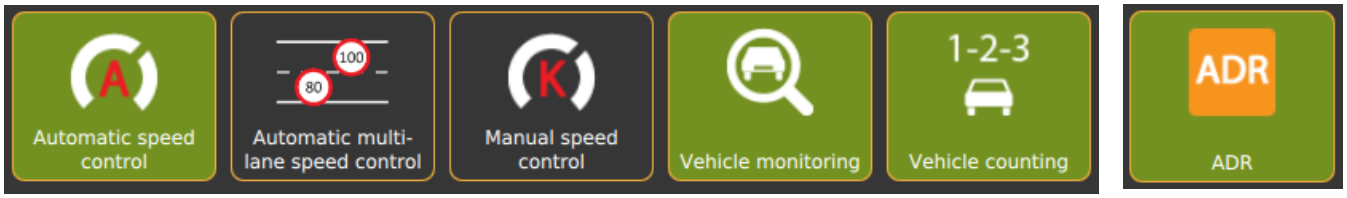
- Bus lane: Same method as Motorway service lane.



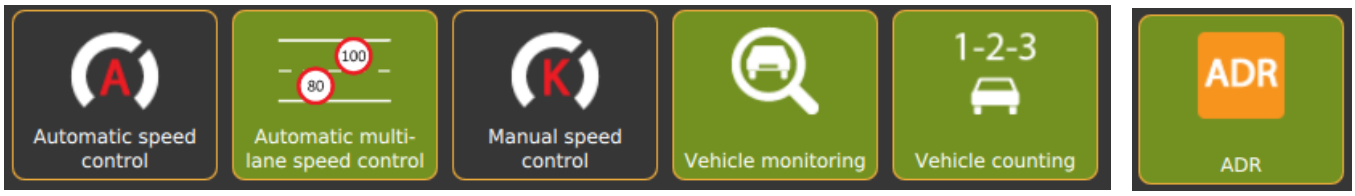
14. CONTROL FUNCTIONS PAIRING

1. Top line + ADR

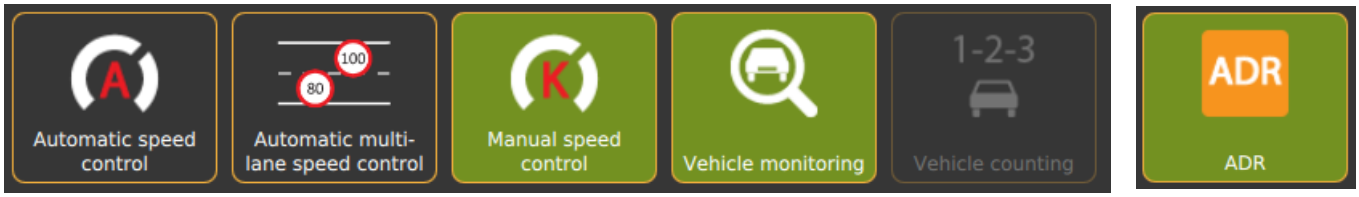
Automatic speed control + Vehicle monitoring + Vehicle counting + ADR



Automatic multi-lane speed control + Vehicle monitoring + Vehicle counting + ADR

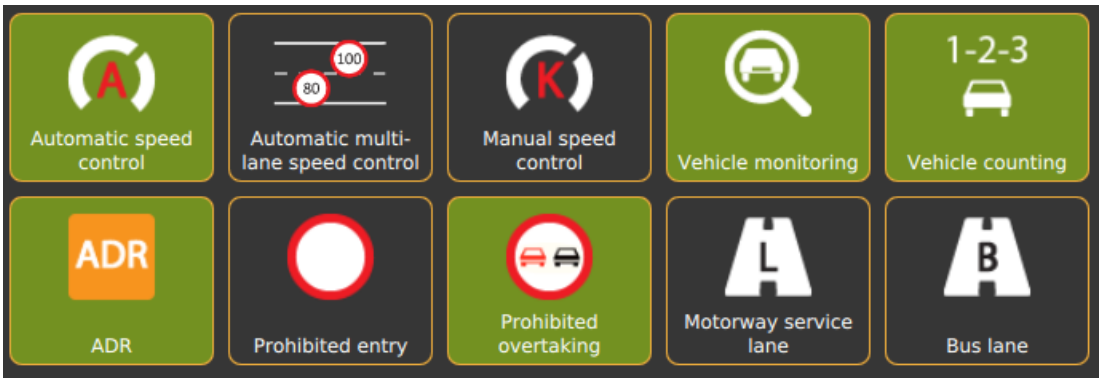


Manual speed control + Vehicle monitoring + ADR



2. Bottom line

Automatic speed control/ Multi-lane speed control + one function from last four



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Adaptive Recognition Hungary Technical Support System (ATSS) is designed to provide you the fastest and most proficient assistance, so you can quickly get back to business.

Information regarding your hardware, latest software updates and manuals are easily accessible for customers via our Documents Site (www.adaptiverecognition.com/doc) after a quick registration.

New User

If this is your first online support request, please contact your sales representative to register you in our Support System. More help here (www.adaptiverecognition.com/support)!

Returning User

All registered ATSS customers receive a personal access link via e-mail. If you previously received a confirmation message from ATSS, it contains the embedded link that allows you to securely enter the support site.