



# Low Emissions Zone

## Access Management Software

**Functional characteristics:** the System is based on a web application with access to three different functional contexts:

1.- Access control module, which collects the information from the LPR cameras, is where the permits assigned to each of the license plates are managed for each of the accesses and itineraries according to the profiles and includes the sanctions module that exports the files to the police.

2.- Operator management, that manages the documentation and allows the configuration of the permissions. It is used by the staff of the Administration and the operating service to register the authorizations and declarations of responsibility in person.

3.- Module that is securely exposed to the internet through the City Council's corporate website and serves as a manager for exceptions. It is currently used for car parks, hospitals, etc. that have their corresponding authorization, to enter the license plates of the vehicles that have accessed their facilities through the access control points to the historic city center to avoid being sanctioned.

The system also incorporates the control of heavy vehicles and the control of the bus lane.



### Control System Configuration

Through this functionality, the parameters that define the system and the area to be controlled are configured and parameterized. The configuration actions enable the Creation, Modification and Deletion of the elements. The elements to be configured are: Areas, Identification points and Devices.

### Reports

**Violation report:** Transits identified as violations are displayed, regardless of whether they will be violations after review by an operator. By clicking on the selected violation, the detailed information is displayed.

**Event Report:** Visualization of the events that occurred at each identification point based on a series of filters: Temporary: by date range and time, By Username, By Identifier: License Plate, Per group, By Checkpoint, By Event Type

### Validation of violations

The proposed infringements identified in the previous module are reviewed by an authorised operator according to their profile to verify that the infringements have all the necessary information in a truthful and correct manner.

### Special Vehicle Detection

The control system monitors in real time the identification of vehicles previously registered in a list.

The screenshot shows the Simec web application interface. On the left is a navigation menu with options like Management, Areas, Devices, Id points, Calendar, Template Schedules, Profiles, User types, Users, Heavy vehicles, LEZ, and Report. The main area displays a table of records with columns for time, identifier, user, id point, origin area, destination area, and code. The table shows several entries for 'P\_ENTRADA' in the 'external area' with various license plate identifiers. At the bottom, there are pagination controls showing '3,883 records' and a page number '2' selected out of 389.

- time	Identifier	User	Id point	Origin area	Destination area	Code
:023 13:54:59	5932LJC		P_ENTRADA	external area	ZONA ZBE	LEZ access allc
:023 13:55:02	1119MFJ		P_ENTRADA	external area	ZONA ZBE	LEZ access allc
:023 13:55:06	8751JTC		P_ENTRADA	external area	ZONA ZBE	LEZ access allc
:023 13:55:10	6996LVJ		P_ENTRADA	external area	ZONA ZBE	LEZ access allc
:023 13:55:17	10508		P_ENTRADA	external area	ZONA ZBE	Unknown user
:023 13:55:20	4281LMK		P_ENTRADA	external area	ZONA ZBE	LEZ access allc
:023 13:55:22	9372LWW		P_ENTRADA	external area	ZONA ZBE	LEZ access allc
:023 13:55:27	5784JKS		P_ENTRADA	external area	ZONA ZBE	LEZ access allc
:023 13:55:29	3748HKZ		P_ENTRADA	external area	ZONA ZBE	LEZ access allc
:023 13:55:32	7963LYN		P_ENTRADA	external area	ZONA ZBE	LEZ access allc



# Low Emissions Zone

## Access Management devices



### STARE-VS5D2 Multifunctional camera

- 2 Lanes coverage - OCR + COLOR double head camera
- Plate reading up to 250 km/h in free-run - speed estimation
- Integrated IR illuminator with stroboscopic LEDs
- 5 Mpixel OCR camera resolution 2 Mpixel Context Color camera resolution – 75 fps – up to 30 m
- Daytime classification of vehicles by type in 11 + 1 own, by color, brand and model. Night classification
- Gate AID algorithms for traffic control (stationary vehicle, wrong-way vehicle, slow traffic, queue)



### STARE-VS2D2 Multifunctional camera

- 1 Lane coverage - OCR + COLOR double head camera
- Plate reading up to 250 km/h in free-run - speed estimation
- Integrated IR illuminator with stroboscopic LEDs
- 2 Mpixel OCR camera resolution 2 Mpixel Context Color camera resolution – 60 fps – up to 30 m
- Daytime classification of vehicles by type in 11 + 1 own, by color, brand and model. Night classification
- Gate AID algorithms for traffic control (stationary vehicle, wrong-way vehicle, slow traffic, queue)



### STARE-VS1B bispectral camera

- Recognition distance up to 25 m, integrated OCR
- Processes up to 60 fps (frames per second)
- Plate Reading up to 130 km/h in free-run mode
- High resolution color sensor CMOS 2 MP.
- Acquisition modes: Free Run - Triggered
- Working 24/7 in all day-night light conditions
- Simultaneous Dual Streaming
- Streaming OCR: MJPEG. Streaming



### SiBiciP Laser detection

- Detection range of up to 15m in lateral pole location between 2 and 5 meters high
- Precise identification of the profile of the bicycle/person/scooter
- Count of bicycles, people, and others (scooters)
- Discrimination between people and bicycles even when circulating very close together
- Traffic direction detection
- Generation of a 3D PCD file