User Guide

RADAR SPEED SIGN
The EVOLIS

ELAN CITY
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(646) 878-6259

User Guide
Product : Evolis

1   WARNING

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-    Reorient or relocate the receiving antenna.
-    Increase the separation between the equipment and receiver.
-    Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-    Consult the dealer or an experienced radio/TV technician for help.

(EN) Warning: This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

(1) This device must not cause interference.

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

(FR) Attention: Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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RF Emission

(EN) Warning: This module contains radio-frequency transceivers and antennas which emit and receive in the 24GHz frequency band. This module can interfere with and its functionality can be impacted by other nearby equipment operating in the same frequency band.

(FR) Attention: Ce module contient des émetteurs-récepteurs et antennes qui émettent et reçoivent dans la plage fréquentielle de 24GHz. Ce module peut interférer et ses fonctionnalités peuvent être altérées par de l'équipement avoisinant opérant dans la même plage fréquentielle.

RF Exposure

(EN) Warning: Exposure to Radio Frequency Energy: The radiated power output of the radar module is below the RF exposure limits for uncontrolled exposure. This device should be operated with a minimum distance of at least 20 cm between the antenna and a person's body.

(FR) Attention: Évaluation d'exposition aux RF: L'intensité de champ RF émis par la carte radar est inferieures aux limites d'intensité de champ RF prévues pour l'environnement non contrôlé. Les dispositifs à un élément rayonnant fonctionnant normalement à des distances de séparation entre l'utilisateur et le dispositif supérieures à 20 cm.

Other warnings

(EN) Warning: Changes or modifications made to this equipment not expressly approved by ELANCITE TECHNOLOGIES may void the FCC authorization to operate this equipment.

(FR) ATTENTION : Toute modification sur ce produit, n'étant pas expressément validée par ELANCITE TECHNOLOGIES peut annuler l'autorisation FCC d'utiliser cet équipement.

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Elan City shall not be liable for technical or editorial errors or omissions contained in the document.
Please note that the software is continually being developed and it is advised to update your version on a regular basis.

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Thank you for choosing the EVOLIS Radar Speed Sign!

The EVOLIS Radar Speed Sign is a highly powerful yet budget-friendly, traffic-calming tool, ideal for all road types, and both rural and urban environments. This extremely efficient, pole-mounted radar is legible from over 1,000ft away thanks to its ultra-bright LED speed digits and its simultaneous display of a SLOW DOWN message.

The 99% accurate traffic data collection for both directions of the road, including intuitive traffic analysis software, make this radar not only effective at reducing speed, but an indispensable ally in speed infraction prevention and enforcement.

The Evolis Radar Speed Sign's lightweight design and choice of full power-autonomy or battery-powered options make installation and mobility a breeze! Constructed from highly durable UV resistant ABS injected Resin, the robust yet aesthetic Evolis family of products can be trusted to operate in nearly any environment. With now nearly 17,000 units installed worldwide, the Evolis Radar Speed Sign has become a global favorite!

Through this User Guide, learn how to optimize and adapt your Evolis radar speed sign to your project's specific needs and conditions!

2   DELIVERY

2.1 WHAT'S IN THE BOX

Upon delivery, please verify that the products and quantities noted on the packing list correspond with those delivered. Anomalies and damaged goods must be reported to Elan City within 5 days. (Please read warranty for more details).
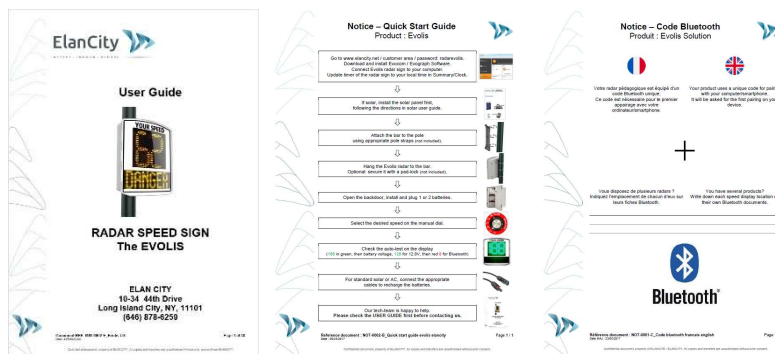
Items included in every Evolis Pack:
- EVOLIS Radar Speed Sign
- Vertical mounting bar
- USB cable (15ft long)
- 2 keys for battery compartment
- User-Guide + Quick-Start Guide + Bluetooth code

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WARNING! **KEEP ALL ORIGINAL PACKAGING.** Elan City radars are covered by a 2 year warranty and in the case that the radar requires in-shop diagnostic testing and or repairs, the original packaging **MUST** be used in the case of transport / delivery towards Elan City. Failure to comply will result in warranty annulment. Customers having discarded or lost the original packaging will need to purchase new packaging from Elan City before sending. Please review the Warranty for more details.

Additional items included in the Evolis Pack (items vary depending on the type of pack ordered):

- **The AC EVOLIS Pack (Street-lighting / Mains powered)**

  - Set of electric plugs for outdoor use (male/female)
  - 1 X battery (12V/22AH)

- **The Solar EVOLIS Pack (Solar powered)**

  - Solar panel
  - Solar panel mounting bracket
  - 2 X batteries (12V/22AH)

- **The AC Mobile EVOLIS Pack (Battery Operated)**

- External charger (12V)
- 4 X batteries (12V/22AH)

Images may differ from actual product. <u>Pole and pole straps not included</u>.
Batteries, solar panel, solar panel fixation, and external chargers are delivered separately. Batteries are delivered with an 80% charge, ready for use.

3 PRODUCT DESCRIPTION

1	LED speed display (amber)
2	SLOW DOWN message display (amber)
3	Backdoor
4	Pole straps (not included)
5	Battery compartment (can hold up to 2 batteries)
6	Dial switch: pre-set speed thresholds and SP mode; Waterproof USB port; Fuse for power supply
7	Electric plug for mains (AC and AC Mobile packs only)
8	Cables and plugs for solar panel connection (Solar packs only)

4   INITIAL POWER UP

4.1   AUTO-TEST AT START UP (IN OFFICE)

We strongly recommend that you conduct an initial start-up and test of your device BEFORE installing it at the desired location. Once you have connected the battery, turn and set the dial switch to any position other than OFF (standby).
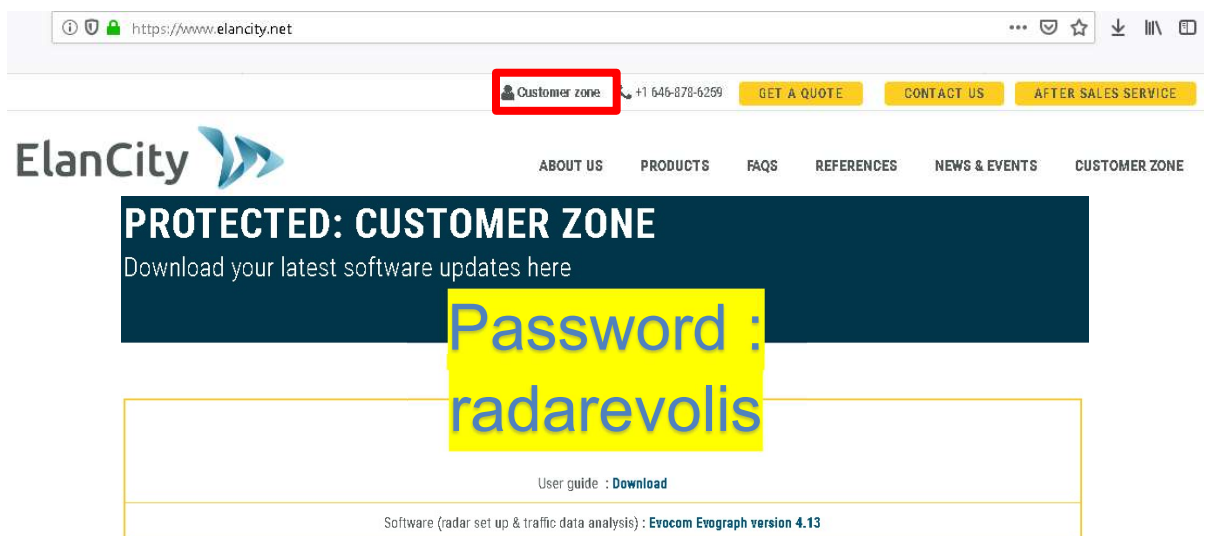The Evolis will run a quick auto-test:

1	Speed display	**188** in amber Speed digit LED test	
2	Speed display	**# # #** in amber Battery Voltage level Test (e.g.: 146 = 14.6 Volts)	
	Text display	**Init…** in amber Message Test	
3	Speed display	**8** in amber Bluetooth Test	

4.2   DATE AND TIME SET-UP

The next step is to download the device software and then make the connection between the software & the Evolis. All our software programs are available for download through our website.
- Go to: www.elancity.net and in the upper right-hand corner click on "Customer Zone".
- You will be asked for a password. The password required is "**radarevolis**."
- Download the Evocom & Evograph software packages.

PROTECTED: CUSTOMER ZONE
Download your latest software updates here

Password : radarevolis

User guide : Download
Software (radar set up & traffic data analysis) : Evocom Evograph version 4.13

- Install using "Setup.exe".
- Follow the instructions that will appear in the pop-up dialogue boxes

- Two shortcuts will appear on your desktop:

- Connect the Evolis radar sign to your computer. (by USB cable or by Bluetooth)
- Launch the EVOCOM software and it will propose an automatic detection of the device: select "YES."


- If this is the first connection with your spped display using Bluetooth, you will be prompted for the Bluetooth pairing code. It can be found on the Bluetooth document joined to the speed display.

- Go to Summary / Clock: **Update the Evolis internal clock to your local time**. All you need to do is click once on the clock symbol.

(See section 6 for further details on installation and advanced use of the software packages)
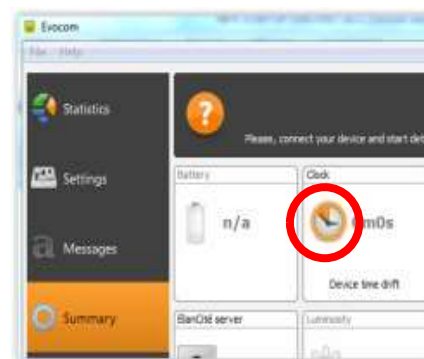
5 START-UP INSTALLATION

5.1 PRE SET-UP

For quick start-up, nearly all of the radar's parameters are pre-set with standard speed thresholds (based on common speed limits) and the pre-programmed message ("SLOW DOWN"). These thresholds can also be programmed if desired.
The following thresholds are pre-programmed but can be re-configured if desired:
- Minimum speed display
- Maximum speed display (anti-racing)
- SLOW DOWN Message

The dial switch, in the battery compartment, allows you to easily select the speed according to the posted speed limit, which will automatically activate the pre-programmed thresholds aka Factory Settings. Chart below.

Factory Settings

| Dial Switch Position	20 mph	25 mph	30 mph	35 mph	50 mph
Minimum speed displayed	9 mph	9 mph	9 mph	9 mph	9 mph
Flashing control	21 mph	26 mph	31 mph	36 mph	51 mph
Maximum speed displayed	31 mph	36 mph	41 mph	46 mph	61 mph
Message	From 21 mph	From 26 mph	From 31 mph	From 36 mph	From 51 mph

5.2 INSTALLATION GUIDELINES

For optimal performance, select the radar's location according to the following criteria:

- A straight road with at least 400ft of open field prior to the radar sign.
  This area and the radar beam should be free of any objects (trees, poles, parked vehicles…) and large road signs as they may disturb the radar's beam.
- Do not install radars at crossings or on bridges to avoid any influence of the radar sign's display and the traffic data.
- Verify that the radar sign does not interfere with the visibility of other road signs.
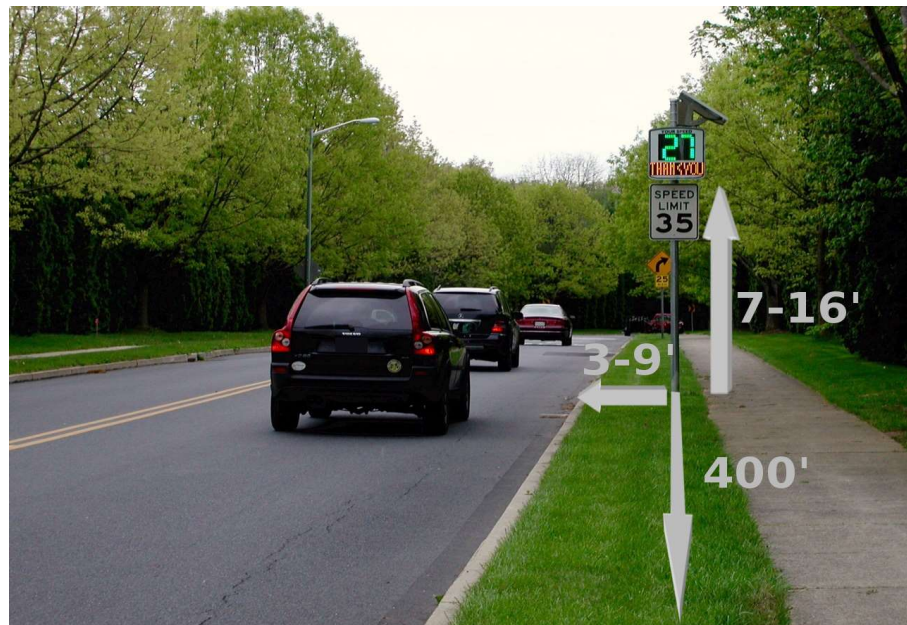
- **Installation height**

Radar placement on pole: between 7ft and 16ft (from the bottom edge of the radar sign).
Radar distance from the road: Anywhere from 3-9ft (no less than 3ft from the road to avoid accidental vehicle collision, and no more than 9ft from the road).

Horizontal orientation	**The Evolis must be perpendicular to the road**, if the sign is installed at the maximum distance of 9ft from the road, the sign should still be placed perpendicular to the road in order to keep a maximum detection accuracy. (e.g., 90° to the road)
Vertical orientation	The sign must be installed straight, unless there is a large gradient (+/- 5°). In this case, the sign can be installed with the same angle (using a wedge) in order to optimize the detection range.
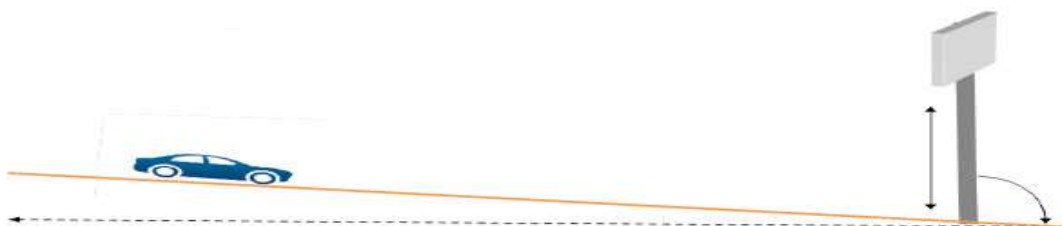
5.3 RADAR MOUNTING

<mark>WARNING!</mark>   **Before installing the radar sign:**
- CHECK and COMPLY with current regulations concerning working at a height, and ALWAYS make safety a priority.
- CHECK and COMPLY with current regulations regarding traffic and road sign installation.
- VERIFY that the designated pole is stable and has a sufficient diameter width.
  (Min. 3inch diameter for AC models, and min. 5inch diameter for Solar models).
  If in doubt, consult our sales or customer service representatives.
- If you intend to secure the radar sign to any high voltage electrical equipment, CHECK and COMPLY with current regulations, as this sort of installation is subject to authorizations.

The radar sign is provided with a mounting bar, which must be fastened to the designated post using pole straps (not included). Refer to the bar's indicated mounting orientation (up/down) and insert the hooks of the radar sign into the mounting bar. When mounting or unmounting the sign, always remove the batteries first. The radar sign can be further secured to the mounting bar using a pad lock (not included) through the eye at the bottom of the radar. For safety reasons, it is highly recommended to install the radar sign using an aerial lift.

For solar-powered radar signs, first install the solar panel, using the provided solar panel fixation kit, to the pole prior to installing the radar sign.
(See Solar-power User Guide)

- **Recommended installation procedure:**

1) Attach the mounting bar to the pole using pole straps. (Caution: do not tighten the straps completely so that the radar sign's position may still be adjusted).
2) Install the sign (without the batteries) onto the mounting bar.
3) Adjust the radar sign's position and fully secure the pole straps.
4) Install the batteries, and / or connect the sign with mains electricity.

5.4 POWER SUPPLY

- **Power source**

The Evolis is 12V powered and designed to operate with either:

- AC: A connection to a permanent mains network or street lighting and a battery (12V/22Ah).
- Solar: A solar panel and 2 batteries (12V22Ah).
- AC Mobile: battery operated (12V22Ah). Pack includes 4 batteries total and an external 12V/4A charger. NOTE: the casing can hold two batteries at one time.

- **Power consumption**

The Evolis is protected against battery deep-discharges. Average consumption and wattage:
- Speed: 0.3 A (3.6 Watts at 12V).
- Speed + Message: 0.8 A (9.6 Watts at 12V).
- Standby: 0.1 A (1.2 Watts at 12V).

- **Power safety / security**

When and if the Evolis radar runs out of power, it has an integrated and intelligent protection process based on battery voltage. The Evolis will automatically shut down different features in this order:
1: At 11.5V: Deactivation of message display
2: At 11.3V: Deactivation of speed display. The radar will display a small square to indicate that the speed display is off. NOTE: the radar will continue to collect traffic data.
3: At 11.1V: The radar will shut down to avoid deep discharge and battery damage

- **Electrical fuses**

To protect the device in case of wrong polarity, a 6.3A fuse is in the battery output. The system is entirely protected by a second fuse, located within the casing.

5.4.1 AC power

For power through the permanent mains network or the street lighting system, the Evolis is equipped with:

- A 4Ah internal charger
- A 12V / 22Ah battery
- IP66 male / female plugs for connection to mains electricity.
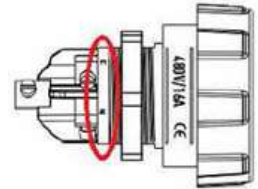
To connect the female, plug to the mains electricity:
- **Plug the neutral cable on "N".**
- **Plug the phase on "1".**
- **Plug the ground on central plot.**

| Phase	1
Neutral	N

WARNING!   **We strongly recommend adding a 30mA caliber 16A type AC breaker upstream the speed sign. ELANCITY cannot be held responsible for damages caused by a poor-quality installation. In the absence of a circuit breaker, the warranty will not apply in case of failure on the internal electrical charger.**

5.4.2 Solar power

Ideally, the solar panel should be positioned south and be secured with a padlock attached through the eye at the bottom (padlock not included). Before connecting the solar panel to the radar sign, the batteries must first be installed and connected to the radar sign. The solar panel's mounting bracket can be adjusted to the desired vertical angle.

25°-65°
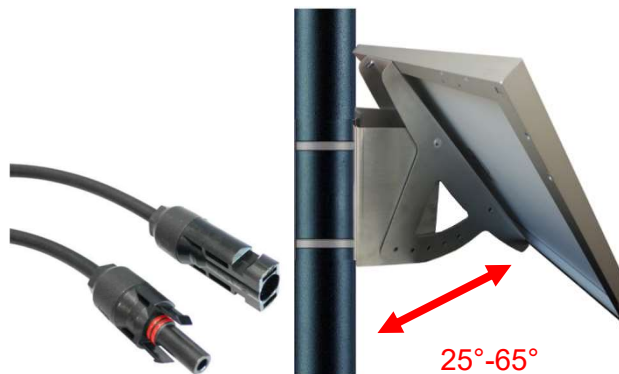
Please connect using the plug cables.

Mounting: please refer to the solar panel user guide.

The solar panel's location must have an unobstructed view of the sky to benefit from maximum charging capacity. Trees and buildings can cast shadows on to the solar panel which can considerably reduce the performance of the solar cells.

5.4.3 Battery operated - AC Mobile

- **Battery operated using two batteries**

In the case of mobile use, the Evolis is designed to function using one or two sealed, 12V / 22Ah batteries. After opening the back door of the unit, install the charged batteries into the slot between the two retaining hooks.

- Check the polarity orientation and connect to the terminals.
- Turn the dial switch to select your speed.
- Check the startup display on the Evolis (self-test: 188 / battery voltage / 8 for Bluetooth version).

Battery lifespan depends on the type of use.

Power autonomy – Two batteries will last an average of 7 days depending on luminosity and traffic flow. Do not mount or un-mount the radar until you have removed the batteries first for both security and weight reasons. The radar will indicate low battery by showing a square on the bottom right corner of the speed display. At this time, the batteries should be replaced with the two charged batteries.

Elan City batteries discharged to 11.1V require approximately 5 hours to charge. The charging time may vary depending on the remaining battery charge and the conditions under which the charge is made. The battery can be charged at any time without having to wait for full discharge.

> A charged battery will gradually discharge even when not in use. Remember to charge the battery before use using the provided battery charger.

NOTE: Problems that may arise by using batteries, chargers or other accessories not provided by Elan City will lead to warranty annulment. Verify Warranty for more details.
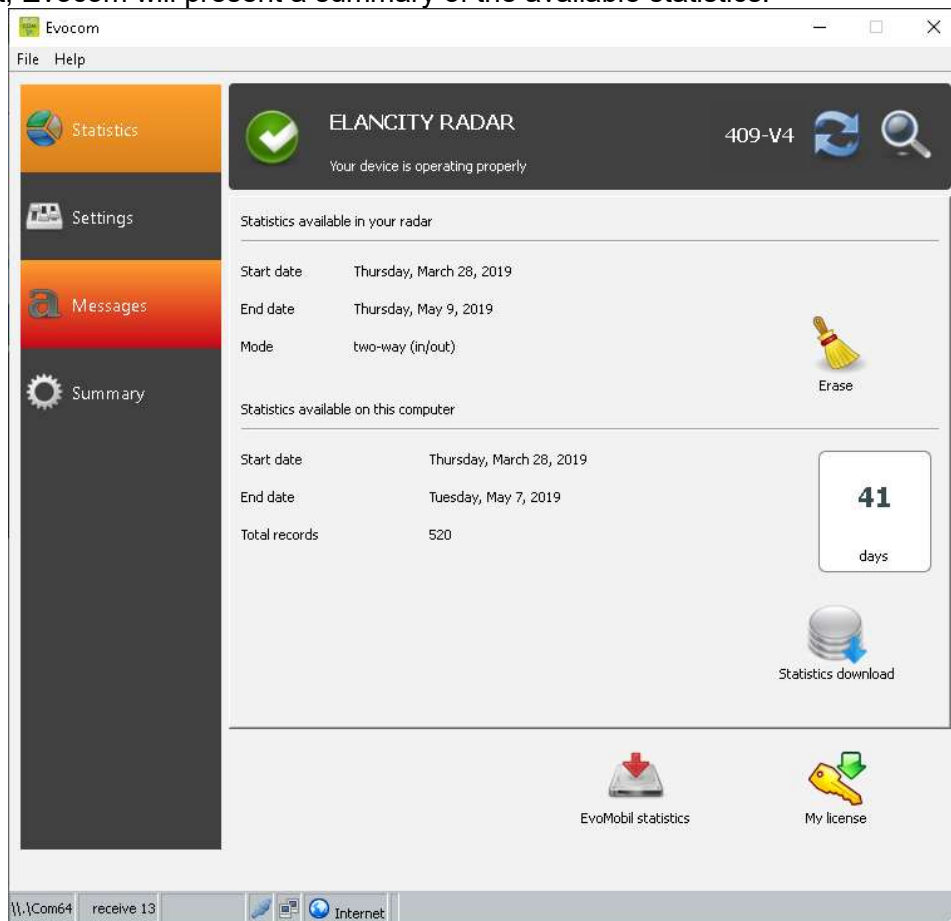
6 SET-UP AND DATA COLLECTION

- **Evocom**

The Evocom software allows you to set-up and program your radar sign. Above, in section 4.2 you will have seen how to install the software and effect your first test.

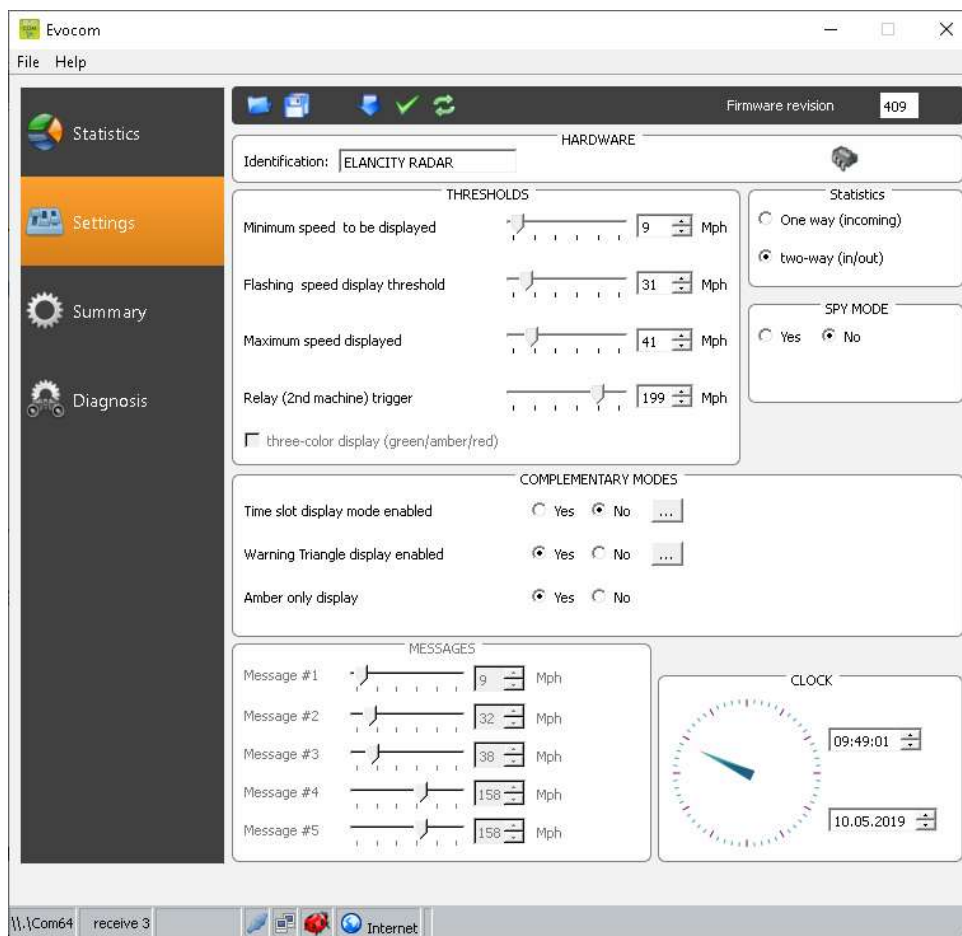By default, Evocom will present a summary of the available statistics.

→ Home page, your statistics and Evomobile

→ Advanced settings, dial switch " SP " mode programming

→ Summary page, details about your radar

- **SETTINGS**

All of the programmable controls and thresholds are displayed on the "SETTINGS" page. The displayed settings are those currently in the Evolis radar's memory. To program or modify these thresholds, select the desired setting, and validate your choice by clicking the blue arrow icon, which will send this information to the Evolis radar's memory.

The message "Device configuration done" indicates that the set-up was completed correctly.

To save your configuration for future use, click the save icon:

WARNING! **Only the speed settings will be saved. The text messages will not be considered.**

- **SPY MODE**

This option allows the radar to continue collecting traffic data as usual, while displaying a blank screen and appearing to be off. This allows you to test the radar's efficiency by comparing the traffic statistics between the ON radar and the seemingly OFF radar.

- **STATISTICS**

This section has to do with traffic data collection from one side of the road or both.

6.1 ICONS

SEND the new settings / configuration from the Evocom software to the Evolis radar

SAVE the configuration for future use (speed settings only)

PREVIEW your new settings / configuration on the Evolis radar

OPEN a previously-saved configuration

RELOAD the parameters into the Evolis radar

6.2 SCHOOL-ZONE MODE (TIME SLOT DISPLAY MODE)

The radar can be configured to switch between two different settings – Ideal for school zones! This can be done through the Evocom software in the section "time slot display mode." The radar will automatically switch the speed threshold at a certain time of day. For example, the radar can be configured to feature a lower speed limit when school is out, and children are present.

- Go to Complementary modes
- Select "yes" for the "time slot display mode enabled".

By selecting "Yes," the following window will appear:

- You can then select specific days and hours.
- Click on OK to confirm.

6.3 MESSAGE DISPLAY

The message display is a 25" X 6" matrix, full-graphic, high-resolution display. The pitch (gap between each LED) is 0.4".
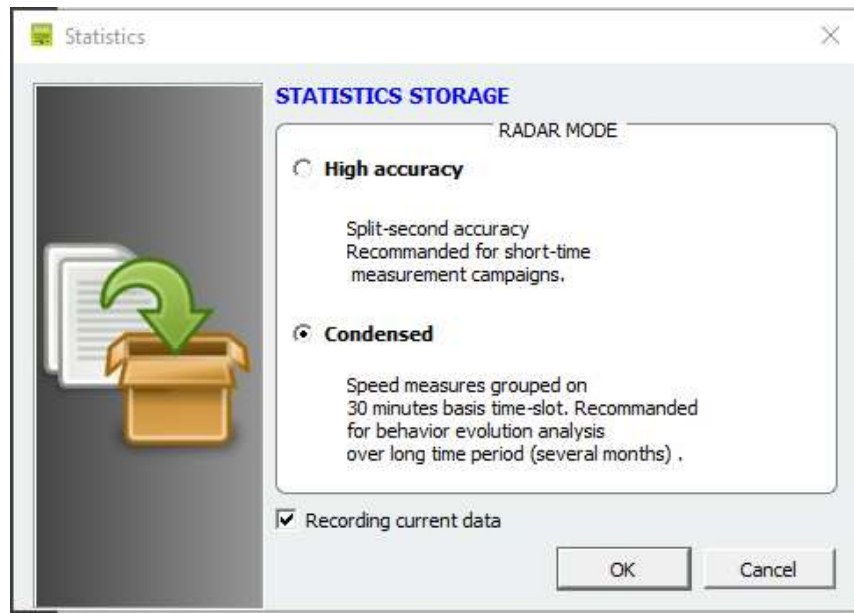
The message displayed is "SLOW DOWN."

6.4 PARAMETERS FOR ADVANCED STATISTICS MANAGEMENT FEATURES

By selecting **Ctrl & M** you will be presented with the 'Statistics Storage' dialogue box that allows you to define the way in which the Evolis will record and store its data.

The factory default setting is 'Condensed' which deals with the statistics in packets of 30 minutes (i.e the average speeds will be calculated over a 30-minute period) but you can also opt for 'High Acuracy mode which details the statistics of each single vehicle.

> **The Evolis radar is not intended to replace a counting and classifying device like the ones used by the Traffic Engineer / Transportation Departments.**

6.5 STATISTICS PAGE

The Evocom home page allows you to collect the statistics recorded by your radar sign. You will also find information on the start and end dates of the statistics, as well as the ones already available on your computer.
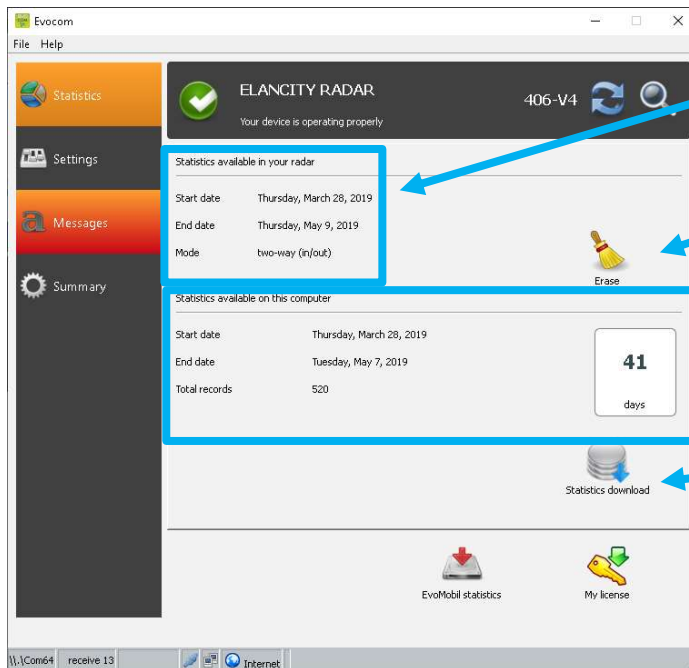
The software will automatically manage the ".db" file.

Select "Statistics download" to initiate the transfer of the statistics from the Evolis radar to the computer. Progress of the transfer will appear in a window on your screen. The transfer may take several minutes.
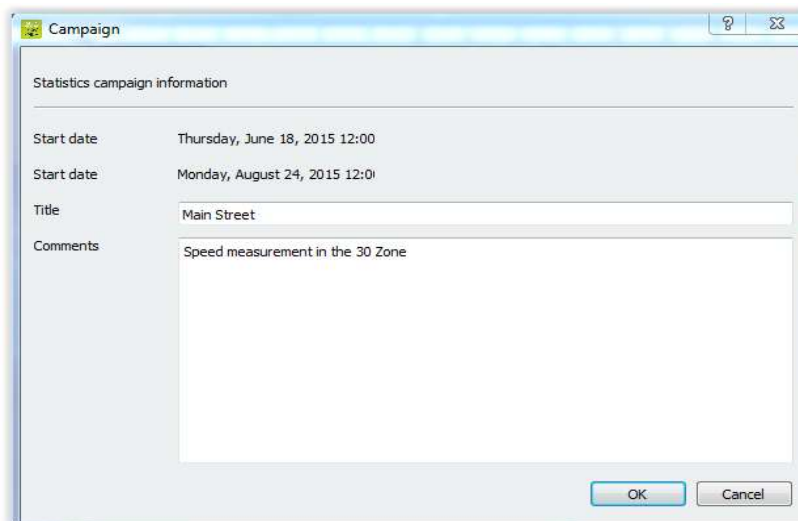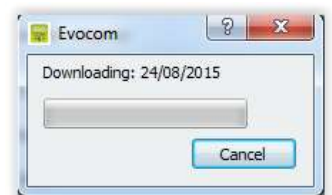
Statistics in the Evolis

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Erase the statistics from the Evolis

Statistics already available in your computer for this radar

Download the statistics

At the end of each download, you can enter a title as well as description.

This information will then be accessible and editable on Evograph.

6.6 SUMMARY PAGE

This page allows you to monitor the main parameters of your radar sign such as the battery level, the date and the time.
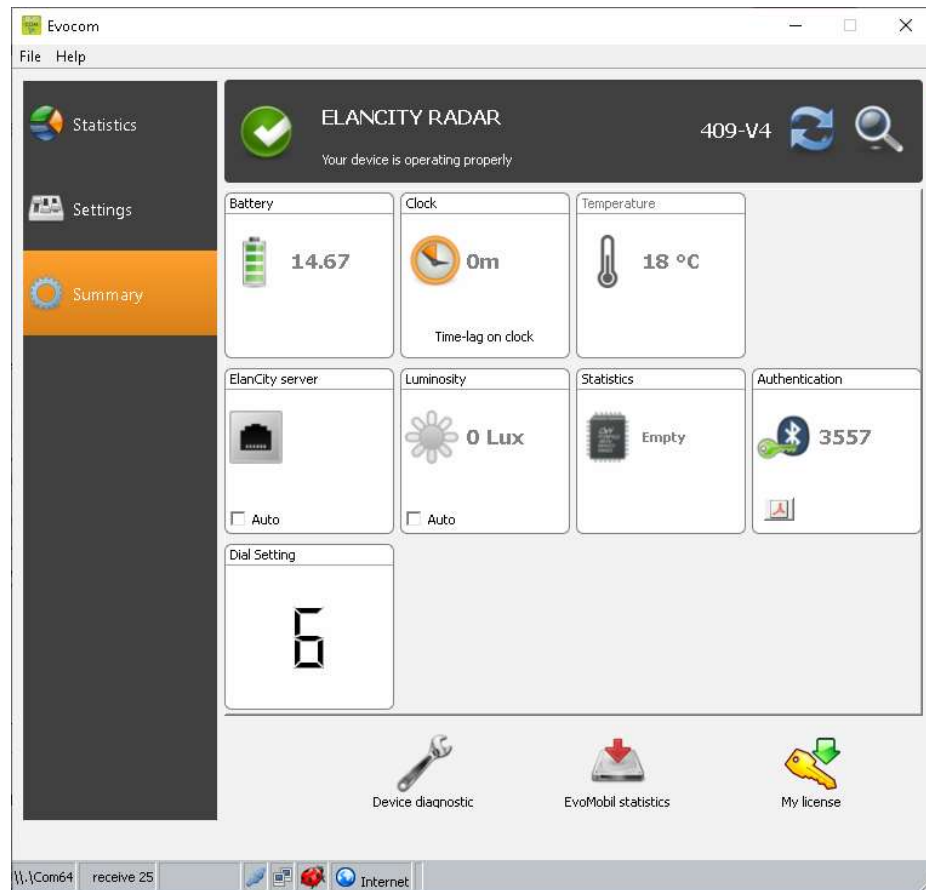
Battery level indicator: In case of low battery, the color of the icon changes. A fully charged battery is between 12.8V and 13.1V

This icon indicates the time drift between the radar and the computer. A simple click on the icon will synchronize both times.
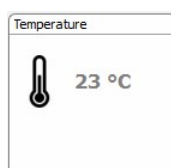
The radar's internal temperature. (Warning, the temperature indicated is not the ambient temperature).

Number of days of statistics in the radar's memory.

Ambient luminosity indication. Click on the icon to obtain the measure.

Bluetooth code indicator

7   DATA ANALYSIS

- **Evograph software**

The Evograph software analyzes and processes the data collected by the radar sign. The software is simultaneously installed with Evocom (see section V of the manual).

In just a few clicks, the Evograph can generate reports and charts (PDF or Excel) using the data collected.

7.1 GRAPHIC VISUALIZATION

To open the EvoGraph software click on the symbol

- **Step 1. Home page**
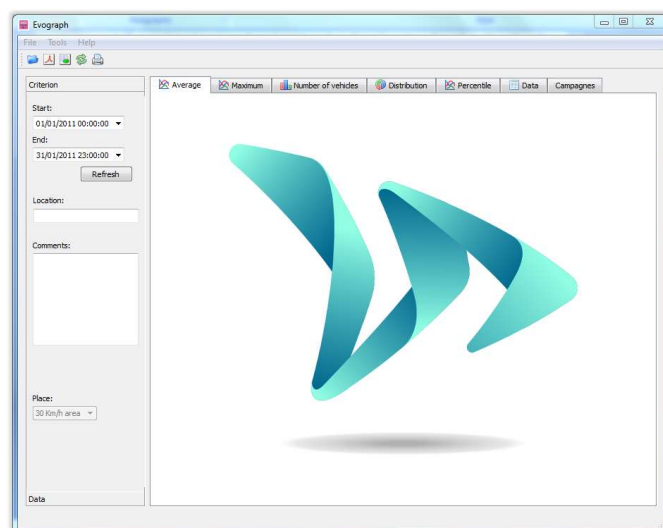
- **Step 2. Selection and loading of the file to proces**

Click on this icon to open the statistics file to process.
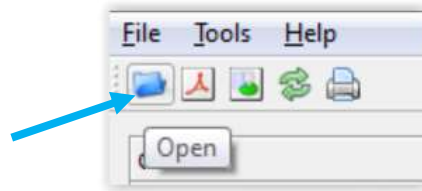
Select the file:

A window will appear, allowing you to visualize all the campaigns available in the database. Evograph enables you to choose one or several campaigns to analyze. You also have the possibility to delete a campaign.

Select OK to download the file.
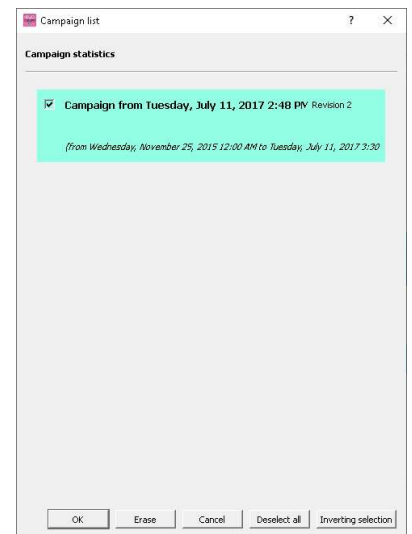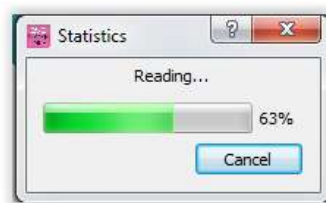
Once the data downloaded, the six graphs are directly processed on the full recording period:
- Evolution of the average and maximal speeds
- Evolution of the number of vehicles
- Distribution of the number of vehicles per speed groups
- Percentiles
- And synthesis of the data

Simply navigate between the tabs to visualize the graphs.

- **Example**

Average speeds evolution
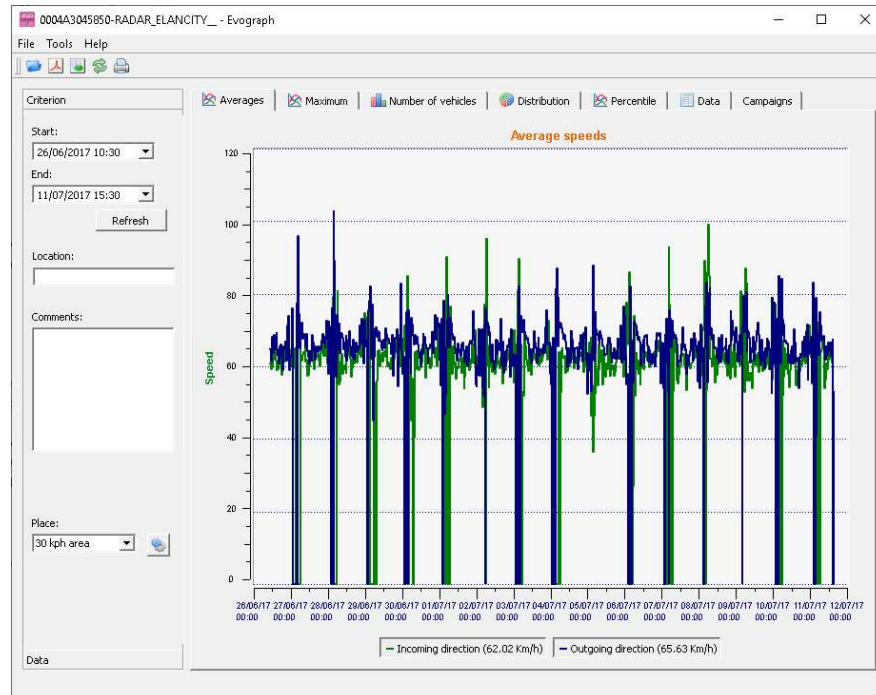
7.2 AVERAGE SPEED

The Average Speeds graph includes two averages:
- An average by time slot, which is displayed as curves on the graph. (1 curve per way : ingoing/outgoing).
- An overall average which is displayed in the lower part of the graph (legend).

The average by time slot corresponds to the arithmetic average calculated on the speeds included between the starting/ending dates and assembled on a default time period of 60 minutes.

The overall speed corresponds to the arithmetic average of all the speeds included between the starting/ending dates on the time period selected. The software sums up all the instant speeds, then divides the result by the number of measures.

7.3 PERCENTILES

The 85% percentile is an important indicator, frequently used to report the behavior of most of the drivers. It is the speed respected by 85% of the drivers. The 85% gives an idea of the speed scattering.
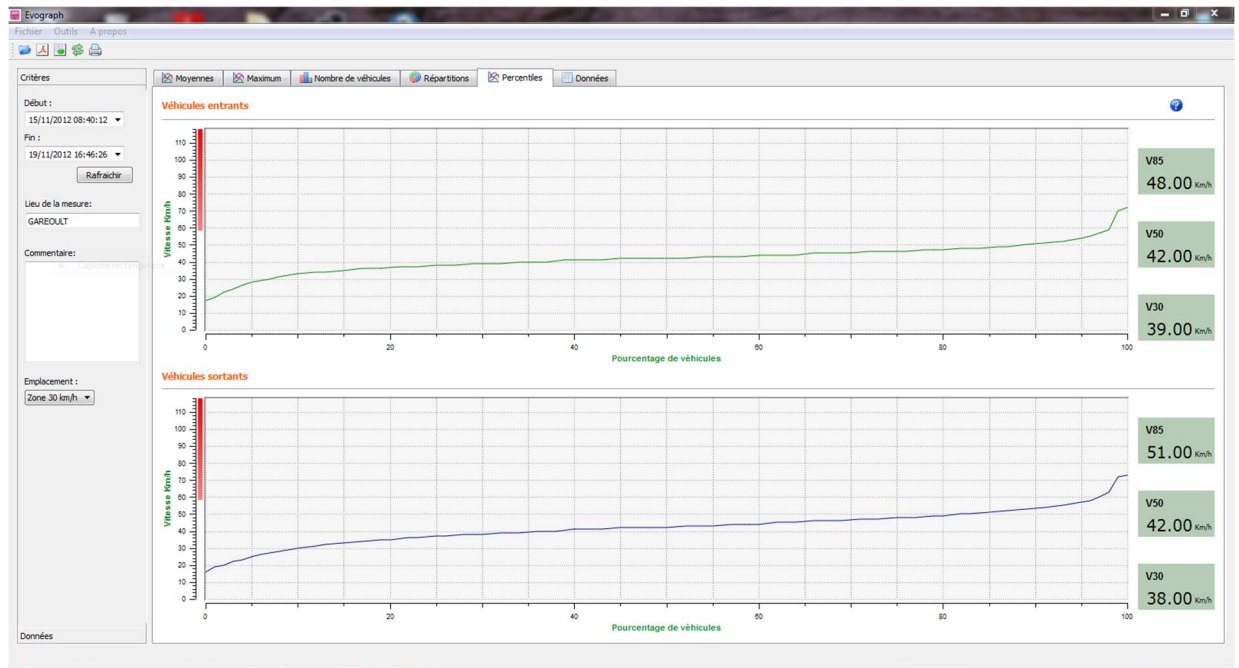
If the 85% is close to the average, this indicates that the speeds observed on a road are consistent. If the opposite is noted, this means that a significant proportion of drivers are above the speed limit.

7.4   FEATURES FOR EVOGRAPH

- **Exporting to PDF file**

This icon 📕 allows you to export the graphs to a PDF format for storage or printing. It will be asked if you want to print the four graphs or only the active view.
The fields "measuring location" and "comments" can be filled in and will appear directly in the footer (PDF or paper).

- **Export to Excel**

Using the icon 📊, you can export your data to an Excel document to make personalized graphs or to compile data (recording periods).

- **Dates selection**

The graphs initially focus on the entire recording period.
In order to generate specific statistics on a given period, select the function "selection by calendar."
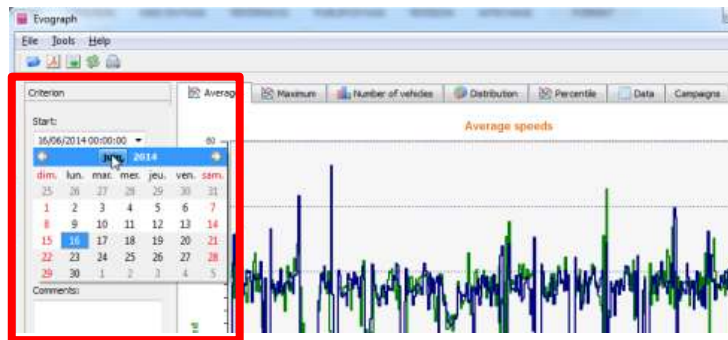
A function "zoom" on the graph allows you also to analyze the statistics on a very specific period.

- **Precision (= Timescale graphs)**
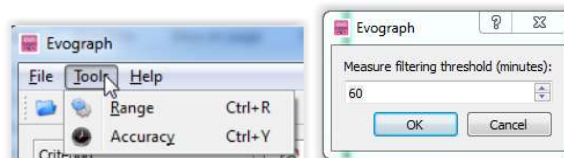
You can select a scale of half an hour or an hour.

- **Change the information of a campaign**

The title and the details can be changed under the tab "Campaigns" as well as the starting/ending dates of the campaign.
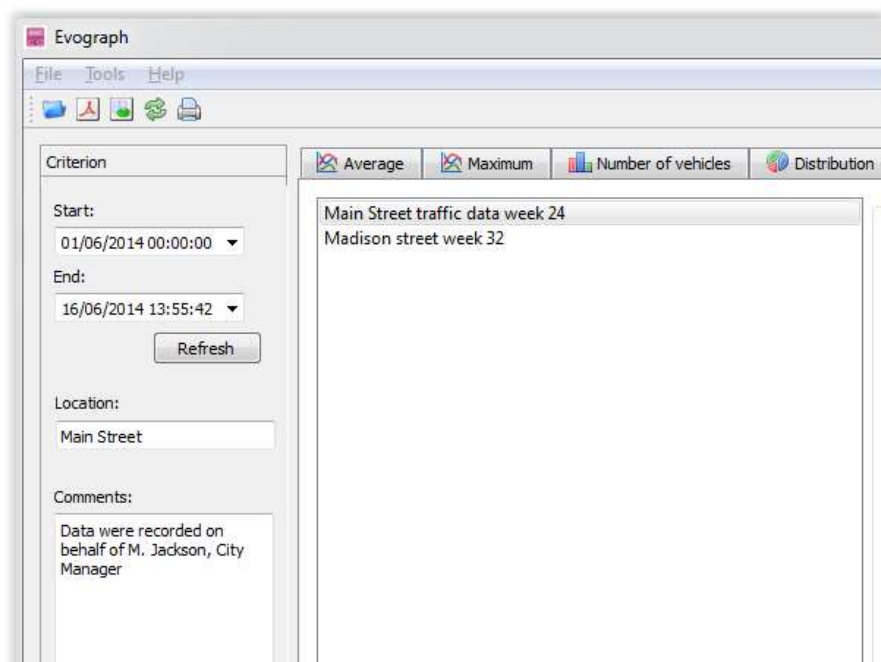
User Guide
Product : Evolis

7.5 BLUETOOTH : PAIRING COMPUTER / EVOLIS

The Evolis radar communicates via Bluetooth directly with your computer (if equipped with Bluetooth) or via a Bluetooth key (an option for a non-equipped computer). The transfer occurs within a maximal range of 32 to 82 feet. The connection can sometimes be blocked in a closed vehicle or in certain weather conditions.

- **Step 1**

On your desktop, select Bluetooth and click on the icon to make sure the Bluetooth is activated.

- **Step 2**

Search for a new device by clicking "Add a Bluetooth Device"; your computer will automatically detect all devices within its range.
Make sure that your Evolis is turned on, and then connect with it by clicking on "ELANCITE_RADAR_XXXX", "ELANCITE_RADAR_V4-XXXX" or "ELAN4-XXXX"
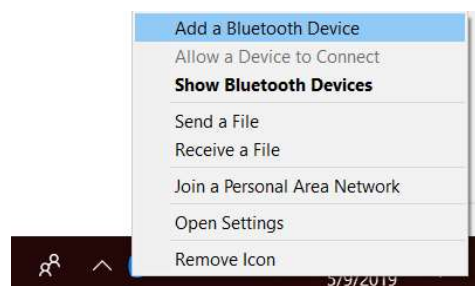
- **Step 3**

Simply click on "Pair".
(Bluetooth code will be asked at the first connection with EVOCOM. After that, the display will be automatically recognized).

If when you select the Evolis, you are asked to enter a pairing code (for old display version), enter the Bluetooth code that can be found on the Bluetooth document or on the keys.
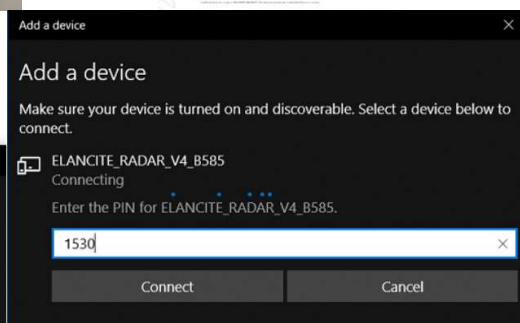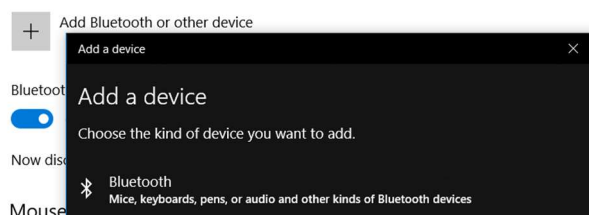
- **Step 4**

Confirm or click on next.
A message will appear to confirm the operation.
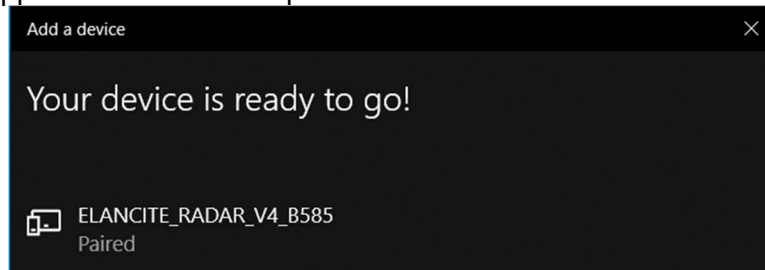
If your computer does not have Bluetooth, make sure you have a Bluetooth® adaptor and connect it to a USB port.

A similar message must appear:
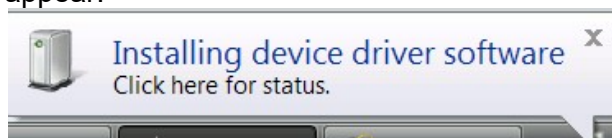
Your computer will automatically process the installation of the pilot.

Once the installation is completed, a message must appear to confirm the installation of the pilot:

If it does not, make sure your USB port is "active" or try to connect your Bluetooth key on another port. If the pilot is not installed, you will not be able to establish a connection with the Evolis radar.

Once the procedure is completed, go to "Control Panel", then "Devices and Printers."

Click on "Add a device".

From now on, you can report to Step #2 of the normal procedure.

NOTE: it is common that the security coupling fails during the first try. If that happens, try again.

Once the pairing between your computer and the Evolis radar is active, the radar will automatically be recognized by Evocom through the automatic detection procedure.

8   MAINTENANCE OF THE DEVICE

- **Batteries and solar panel**

Verify that the solar panel is clear of all obstructions which could prevent luminosity transmission, such as dust or snow; the radar must not be placed in a shaded area such as: under trees, next to high buildings, etc. Regular cleaning of the panel surface is necessary. Regularly check the battery's condition with a digital multimeter.

WARNING! **Electrical connection components such as: plugs, outlets, battery cables, etc. can easily be replaced by a qualified electrician. In case of any issues, contact the Tech Team at tech@elancity.net first.**

- **Vandalism**

The Evolis radar speed sign is designed to withstand vandalism just like traffic signs. In the case of serious damage, a repair or a replacement may be necessary. Before any repairs, please call our Technical Service for an expert assessment.
All damage on external parts (casing, front face, battery door, and fixing bar) must be repaired by a qualified professional.

9   TECHNICAL SPECIFICATIONS

SPEED DISPLAY	
SPEED DIGITS	Height: 12.8 inches, Display: 7 segments
"YOUR SPEED" legend	1.26" Highway-Gothic font
LEDs	Ultra-bright, 3-row thick, Amber
LED ANGLE	30° cone angle, auto-dimming
LEGILITY	1,000+ feet
POWER CONSUMPTION	Ultra-low power consumption. Average <5W
TEXT DISPLAY	
LEDs	Ultra-bright, Amber
MESSAGES	Pre-programmed or entirely personalized
SIZE-FONT / GRAPHICS	Choice of size and font, 1 or 2 lines text, and graphics available (school zone use)
DETECTION	
DOPPLER RADAR	Dual direction, K-Band, 24.125 GHz (FCC part 15 compliant)
ACCURACY	+/- 1 Mph, 99% accuracy
BEAM WIDTH	33° Horizontal – 33° Vertical
SPEED DETECTION	5 – 160 Mph
DETECTION RANGE	500ft to 1,000ft (configurable)
CASING	

MATERIEL	Robust, anti-corrosive ABS / PC injected resin; Curved polycarbonate front face
SIZE / WEIGHT	Dimensions: 27.5"H x 27.5" W x 6"D Weight: 16lbs. (without batteries)
WATERPROOF RATING	NEMA 4R / IP 65
COLOR	UV treated light grey (other colors available)
TEMPERATURE RESISTANCE	-40° F to +140° F (operational in extreme weather conditions)
ELECTRICAL SAFETY FEATURES	Two fuses (internal and external), internal pressure safety valve
BATTERY ENCLOSURE	Capacity to hold up to 2 batteries, manual dial for speed threshold programs
CONFIGURATION	
EVOCOM Software	Software for radar configuration + FREE updates
COMMUNICATION	USB, Bluetooth, EVOMOBILE smart phone application and GPRS (Optional),
THRESHOLDS	Speed (min, limit, max), anti-racing, flashing, color change (if activated)
TIMER MODE (school zone mode)	Alternative speed threshold: up to 2 settings / 4 time slots per day
STEALTH MODE	Continued traffic data collection with radar appearing to be off – blank display
TRAFFIC DATA ANALYSIS	
EVOGRAPH Software	Software for traffic data analysis + FREE updates
SPEED	Average and maximum speed, 85th percentile, distribution per speed group
COUNT	Estimated vehicle count
TYPE	Time-stamped data for both directions of the road
MEMORY STORAGE	Up to 1 million vehicles
FORMAT	Charts and graphs in Excel and/or Pdf form, for easy report printing
POWER OPTIONS	
"SOLAR" (solar-powered)	Internal solar regulator, solar panel, 2 batteries
"AC" (city lighting)	110V AC with internal charger, 1 battery (capacity for 2)
"AC MOBILE" (battery operated)	4 batteries (2 inside casing) + external charger and 110V AC with internal charger
ACCESSORIES	
MOUNTING KITS	Curved, ABS-injected resin, universal mounting-bar; aluminum bracket (for solar)
SOLAR PANEL	32" X 37", 80 watt solar panel
BATTERIES	12V/22AH batteries included: 1(AC pack), 2(Solar pack), 4(AC Mobile pack)
EXTERNAL CHARGER	12V external charger (included in AC Mobile pack)

10 TROUBLESHOOTING

Before contacting customer service.

The Evolis radar's possible failures and/or unexpected performances can be limited and fixed using the following chart of symptoms / solutions. Unidentified and/or unfixed failures must be reported to our Tech Team for assistance: tech@elancity.net

- **Tools / equipment required**

Symptoms	Potential causes	Parts concerned
Absence of display	Power supply	Batteries / Plugs / Solar panel

Solutions :
1. Turn the dial switch to Off then to On and check the auto test of both displays: speed and messages.
2. Try a connection on Evocom either via USB or Bluetooth.
3. Check if the spy mode is activated on Evocom.
4. Control the power supply to the Evolis by checking the battery terminals voltage, solar panel and main supply 220V.
5. Check the primary fuse located in the battery compartment. (Page 14 of the manual).
6. Check the external mobile plugs condition (PNC16 or plugs male/female).

Symptoms	Potential causes	Parts concerned
Late vehicle detection	Installation / Utilization	Topography / Configuration / Setup

Solutions :
1. Check the installation of the device (see page 11-12-13).
2. Check the setup of the device on Evocom (see configuration table page 10 of the manual).
3. Move the device to another location if the current one is not compliant to our recommendations.

Symptoms	Potential causes	Parts concerned
Display of a square	Battery level	Batteries / Plugs / Solar panel

Solutions :
1. Check the battery terminals voltage (if < a 11,1V replace the battery).
2. Wrong connection of the battery cables, plugs or solar panel.
3. Check the external mobile plugs condition (PNC16 or plugs male/female).
4. High traffic volume, use a second battery.
5. Low solar panel power, check if the panel is not in a shaded area, covered with dust, …
6. Try a connection on Evocom either via USB or Bluetooth to reduce the power consumption of the display.

Symptoms	Potential causes	Parts concerned
Problem with the data recording	Installation / Utilization	Setup / Functions management
Solutions :		
1. Vehicles not detected due to wrong use / installation.		
2. Check in the parameters if the option "Save statistics" is activated.		
3. Check the location and the device's mounting.		

Symptoms	Potential causes	Parts concerned
Failure to connect with Evocom	Installation / Software utilization	Software download
Solutions :		
1. Check the software and USB pilot installation (default content in Program Files (x86)\Evocom\outils\ftdi\drivers\windows\CDM21228.Setup.exe) on your computer.		
2. Check if the power is on (battery voltage superior to 11,3V).		
3. Check if the switch dial is not on the Standby position.		
4. Make sure that the USB port on your computer is active. Try with another USB port or another computer.		

11 CUSTOMER SERVICE – TERMS AND CONDITIONS GUARANTEE

Customer Service regarding devices under warranty or not, spare parts management, software and installation / utilization manuals, etc., is managed by our Tech Team. Please refer to contact information below:

ELAN CITY
10-34 44th Drive
Long Island City, NY, 11101
United States

Direct number: +1 646 878 6259 / Fax: +1 646 770 3906
Contact : tech@elancity.net

11.1 WARRANTY

The terms and conditions as cited in this document, apply to all sales of radar speed signs supplied by Elan City Inc. Accessories, such as batteries, are covered by a separate and different warranty labeled "battery warranty", included below. Completion and signature of this document is a binding contract. This document must be completed and signed by buyer / client at the time of initial purchase and each future purchase of Elan City Inc. products.

Delivery of goods

Upon delivery of all goods, the client is required to verify the external condition of each package. The client must refuse the entire delivery if the package(s) are not in good condition and contact Elan City Inc immediately. The client is required to verify that the quantities noted on the packing list are in accord with those delivered. If packages are in good condition but the quantity is incomplete as to the packing list, the client must indicate this anomaly directly on the transporter's copy of the delivery-note and must immediately inform Elan City Inc. The liability of potential damage to delivered goods and / or missing packages cannot be attributed to the carrier nor to Elan City Inc. after delivery and suite to non-conformity of these instructions by the buyer.

Good condition and correct quantity of contents of package must be verified within 5 days of delivery. The device must also be tested within these 5 days of delivery to establish its correct functionality. Beyond the 5 days, the payment cannot be contested by the buyer if the device and its accessories are found to be "dead on delivery" and / or malfunctioning and / or missing. Full payment of the complete order must be fulfilled by the buyer, within the time frame previously established on the signed contract (quote).

Retention of Title

Delivered goods shall fully remain the property of Elan City Inc. until all goods received have been fully paid for by the buyer. Payment must be made within 30 days of receiving the invoice as indicated on the signed contract (quote). In the event of late payment, a certified notice for account delinquency will be sent to the buyer, which will then allow the buyer 8 days to make full payment. Beyond this time frame, Elan City Inc. retains the right to remove the materiel from the buyer.

Warranty

Delivered goods are fully covered by the warranty, including the device and its components as well as the labor and delivery fees associated with its repairs and / or replacement suite to defects approved by Elan City Inc. for a full 24 months from the date of delivery arrival, except for batteries which are not covered by this warranty. (see "Battery Warranty")

In the case of device malfunction, Elan City Inc. will carry out remote diagnostic checks with the client and with their approval, in order to identify any defective components (power supply, software, etc.) prior to proceeding with in-shop repairs, if needed.

Warranty Disclaimer: The Warranty does not apply to any damage caused by but not exclusive to:

- Vandalism, fire, falls or impact.
- Abuse or mishandling
- Unauthorized modifications and / or unauthorized additional / replacement accessories or products
- Damage caused during transportation (see clause "Delivery of Goods")
- Malfunctions due to improper connection or battery cable polarity inversion
- Problems suite to improper installation non-compliant to our recommendations
- Problems suite to wearing parts and / or accessories including the following but not exclusive to: batteries over 6 months old, broken / worn pole straps, broken / worn pole, etc.

Any repairable device, not or no longer covered by the warranty, which is returned to our after-sales service, will automatically undergo a refurbishment / repair quote, which will be submitted to the customer for acceptance or rejection. In case of rejection, the client will be liable for delivery costs and diagnostic testing costs incurred by Elan City Inc.

Returns Procedure: The client must inform the Customer Service department and describe the problem encountered in detail. The Elan City technicians will assist the client and attempt to identify the problem by performing remote diagnostic tests. If remote testing concludes defective device and / or components, the technician will attribute an RMA (Return Merchandise Authorization) or Claim Number to the customer, authorizing product return to the After Sales Service Department. This RMA / Claim number will be confirmed by email, along with a form outlining the *After Sales Service Return Policy*. The form must be completed, signed and dated by the client, and returned to the Elan City logistics department who will then process the request. A transportation request will then be sent by email to the customer and the removal of the package will be organized through an Elan City Inc. authorized carrier.

In the case of customer refusal of the initial remote diagnostic testing, resulting in the independent and unauthorized sending of device / product(s), the devices / product(s) found non-defective, will not be covered by the warranty. The customer will then receive a quote from the After Sales Service Department for the in-shop diagnostic tests and the delivery costs for device / product(s) retrieval, the payment of which will need to be agreed upon before releasing the device / product(s).

Terms of transport : Failure to comply with the terms of transportation below, will cancel the RMA and the package will be returned to sender.

- Batteries must not be present in the device or the device's packaging during the transportation.
- The device must be sent back in its original packaging. This includes properly packaging the device in the original foam and the original box.
- Protective foam must protect all four corners of the device, in accordance to its original packaging when initially received.
- The package must be sealed with security tape at both ends.
- If the original packaging was not kept or was lost, a quote for replacement packaging will be sent to the client.
- If the package is being shipped by pallet, the package must be put upright and film-wrapped before shipment.

Battery Warranty

Batteries are under warranty by Elan City Inc. for 6 months. The same conditions of "delivery of goods" and "retention of title" are true for the batteries as for the device. Replacement batteries must be purchased from Elan City Inc. Use of non Elan City Inc. batteries and / or accessories, can annul the warranty(s), including the device's warranty. (See clause "warranty disclaimer"). Battery wires cannot be sold separately and must be purchased as a battery pack.

Terms & Conditions of Returns and Reimbursement

All sales are final: no returns, exchanges and / or reimbursements. Elan City Inc. is not liable and will not reimburse or exchange goods for the following reasons but not exclusive to these reasons:

- Product's non-accordance with current and / or future local laws and / or regulations regarding the following but not exclusive to radar speed sign specifications, road / zone placement, installation / mounting
- Product's non-accordance with Department of Transportation's regulation or choice of approval / authorization.
- Customer's dissatisfaction with product and / or customer service, company policies, etc.
- Change of personnel (original buyer change of post or title).
- Purchase made by unauthorized personnel.

Warranty activated upon delivery of goods.

11.2 SPARE PARTS

All spare parts and accessories can be ordered directly through your sales representative.

11.3 USER MANUALS / SOFTWARE

All of the user manuals, software, and software updates for the Evolis are available for download on our website https://www.elancity.net in the section " Customer Zone" located in the upper right hand corner of the home page. Enter the password "**radarevolis**" and download the user guide or the software.