

## EVZenith – Electric Vehicle autonomy after charge - For iPhone & iPad

EVZenith calculates how much mileage an electric vehicle earns during charging, depending on the charging point used and the charging time. EVZenith uses mode to account for progressive charge speed reduction at the end of charge.

EVZenith has a database of the most common vehicles in Europe; you can also create a custom vehicle, or customize the features of an existing model.

You also define your driving preferences that influence consumption and autonomy.

EVZenith is available in 4 languages: English, French, Spanish, and automatically adjusts to the setting of your iPhone or iPad.

It requires iOS 11 at least, on the iPhone or iPad. Dark mode is available on iOS 13 or more recent.

Home screen gives access to main functions.

<p>? : quick online help</p> <p>The Preferences (Prefs) button gives access to the user's settings.</p>		<p>Tap EVZenith to see the version number Tap on Flag to change language</p> <p>If you have registered a vehicle as your current vehicle or a favorite point of charge, they appear on this homepage.</p> <ul style="list-style-type: none"><li>- Calculate the autonomy gained during a recharge or time needed to gain some range.</li><li>- Create a custom vehicle.</li></ul>
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### Mileage earned during a charge

On home screen, tap on « Gained autonomy ...»

Select the electric vehicle (EV) to be charged, the type of charging point (PoC) used and the expected charging time.

The calculation of the autonomy gained by this recharging takes into account vehicle's characteristics (charge power, consumption), your driving mode, the power that the charging point can provide, the battery State of Charge (SoC) and charging profile.

You can also find how much time will be needed to reach some autonomy.

EVZenith signals any incompatibility (such as charging an EV with only an AC charger to a DC charging point); it also calculates the real power delivered according to the adaptation of the VE to the charging

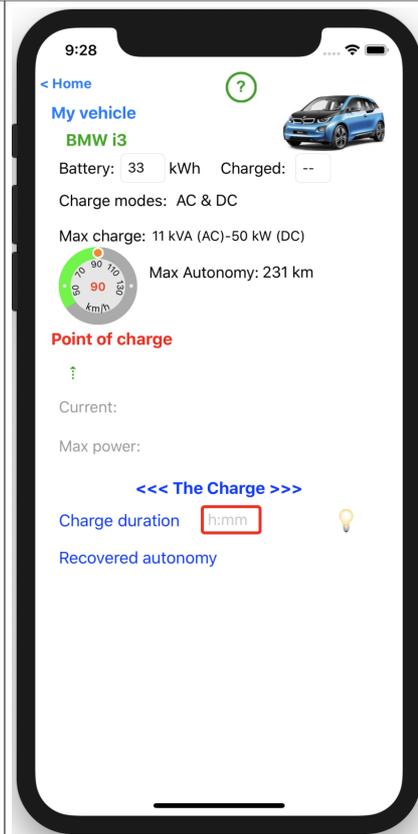
point: if the VE only loads in single phase, it will not be able to use the maximum power of a 3-phase charging point for example. EVZenith knows that charge speed reduces when battery is close to full load. For DC charging, takes into account 400 V and 800 V charging.

<**Home**, to return to the Home screen  
? : fast online help.

**My Vehicle:** button to choose the vehicle to load (see later "Choose another vehicle").  
If a vehicle is already selected, or if you have defined your favorite vehicle, it shows here; the same for the point of charge.

**Recharge Point:** choose the type of charging point used.

💡 See best practices to optimize charging.



For the chosen vehicle, you get its full name, its photo, the capacity of the battery, the modes of charge which it has (AC or DC) with the maximum power, the consumption expressed in Wh / km; the speedometer lets you choose between slow, calm and fast driving; the consumption is adapted accordingly (Note: according to an average **estimate** of the consumption variation).

The maximum range of the vehicle as well as autonomy before charge (if defined), depending on the driving mode. If heating or A/C limits autonomy, a sun emoji ☀️ will remind you.

If the vehicle has a fixed cord (like Twizy), the information appears.

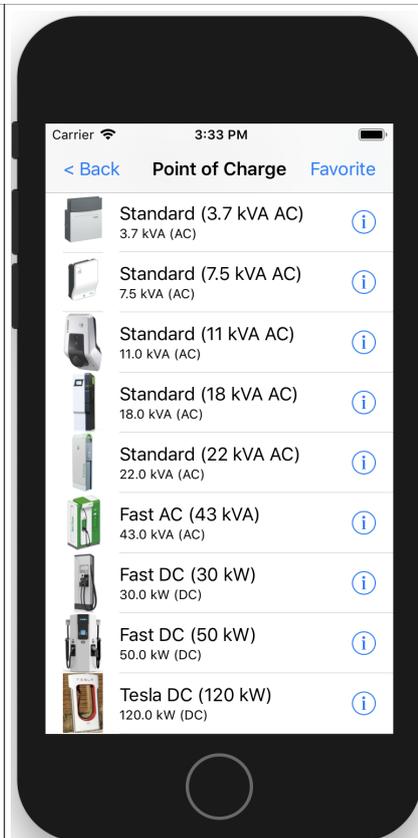
**Tap on « Point of charge » to select the type of charge point.**

<**Back**, to return to the calculation screen without selection.

**Favorite** let you declare the point of charge as your favorite, or clear it if already defined.

As soon as you have chosen a type of charging point, "**Validate**" button is displayed in red: tap this button to validate your choice.

Or simply, tap 2 times on the type chosen to validate directly.



For each type of charging point, the essential characteristics are displayed; power and type of current and a typical photo of such a charging point.

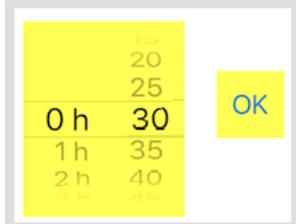
If the chosen EV cannot use this charging point (for example, if it only charges in AC power while the charging point is DC), a logo ⚡ is displayed

The information button allows to detail this information and gives some statistics on these charging points.

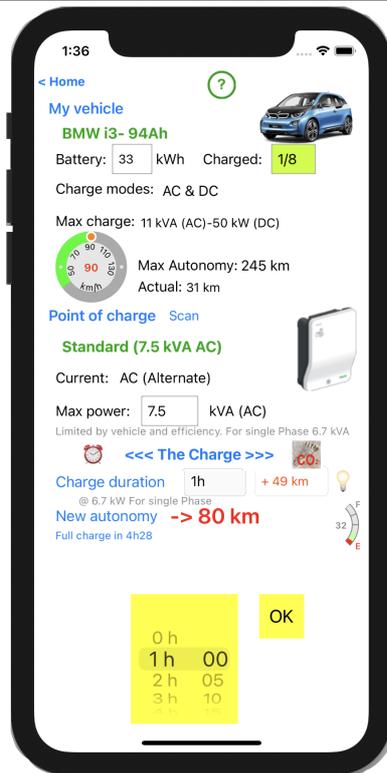
The selected charging point is displayed with its characteristics.

You instantly get the recovered autonomy (within the limit of the maximum autonomy) as well as the effective power of charge and the time necessary for a total recharge of an empty battery.

For this vehicle,  
For this charging point.  
**Set the recharge duration** by tapping in the duration area or on 'Charge duration' label and set the number of hours (up to 48) and minutes (5 minute steps) in the rolodex.



Duration is then displayed in minutes.  
Tap 'OK' to validate.  
You can change the power of the charging point (if it is not that of the predefined list): example, a terminal that would deliver only 6 kVA.

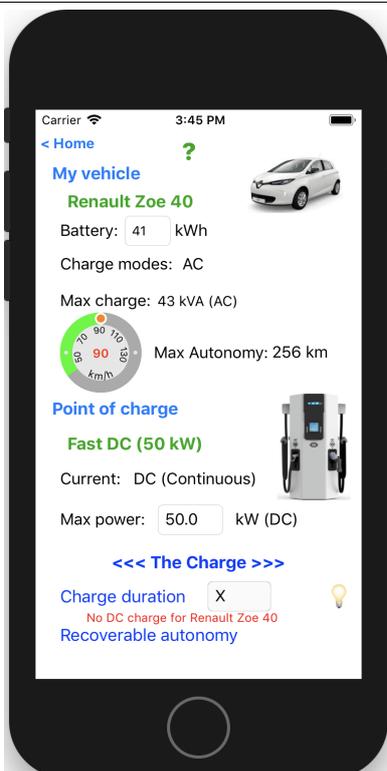


Depending on your driving style (you can change here with the speedometer) and the present state of charge (tap on 'Charged')  
Depending on the charging point and EV (one in single phase, the other in three phase), the max power is computed accordingly (eg: an 7.5 kVA EV on an 18 kVA station can charge only at 6 kVA)  
If the vehicle charges in DC CHAdeMO, a warning asks to check whether the charging point is compatible.  
And the defined recharge time.  
You get the new range (79 kms), in kilometers (or miles, depending on preferences) as well as gained range (+ 50 kms).  
The alarm clock è notification at the end of charge (see further).  
Lamp 💡 : détails computation.  
Gauge 📊 : final charge level.  
Footprint 🏠 CO<sub>2</sub> gives CO2 balance.

### Checking vehicle / charging point compatibility.

You can adjust the power of the terminal.

**If EV and Point of Charge are not compatible, duration cannot be defined.**



EVZenith performs compatibility checks: if the vehicle can only charge in AC and you have chosen a DC point, charging is not possible; or if you have chosen a mode 3 station with Type 2 socket outlet for Twizy whilst its fixed cable fits only with with domestic plug  
Here, a Zoe (AC charger only), cannot charge on a DC charging point.

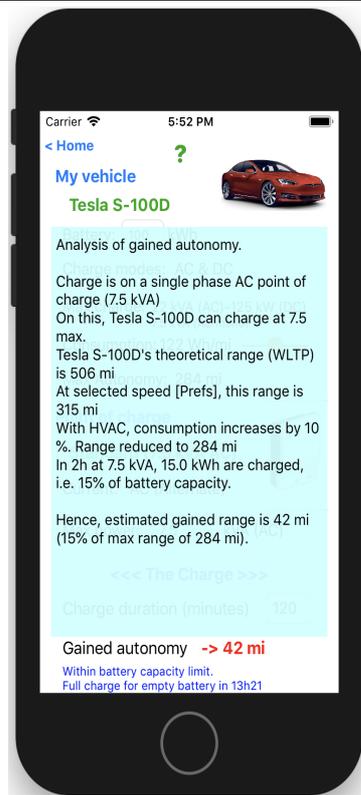
Note : All units are expressed in metric system (km and km/h). You can change in preferences (miles and mph).

You can choose another type of charging point, by tapping « Point of Charge » and immediately get the new earned autonomy.

## Explaining the gained autonomy

If you wish to understand how autonomy has been evaluated, tap twice on the red figure at the bottom of the screen (here 42 miles).

Tap on text to dismiss it.



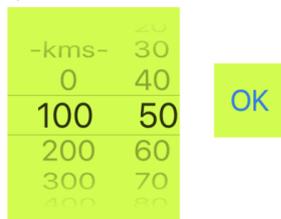
Step by step explanation of autonomy computation, taking into account :

- point of charge type
- vehicle
- mono / tri or DC, both for charging point and EV
- your preferences
- charge slowdown at end of charge, if ever
- charge duration.

Finally, EVZenith reminds you that during very cold weather, charge may be significantly slower.

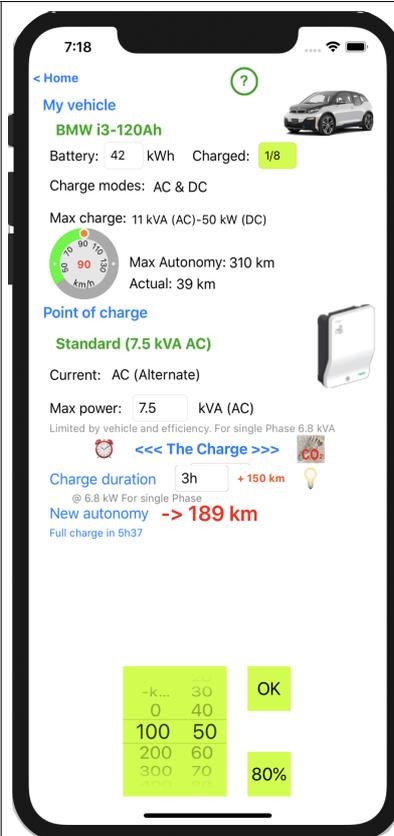
## Calculate the time needed to gain autonomy

indicate the desired autonomy by typing 'Recoverable Autonomy' and setting the number of kilometers (or miles); set the hundreds to the left and the units to the right (increments of 10) in the rolodex.



Tap 'OK' to validate and hide the rolodex.

Note : requested autonomy cannot exceed vehicle maximum autonomy.



Set the state of charge by tapping on 'Charged' and select value by turning the Rolodex (steps of 1/8 of total capacity)



The time required is displayed in minutes. A + or - sign may indicate if the duration is a little longer or shorter (up to 30 seconds).

The alarm clock button let you ask for a notification at the end of charge (see further).

Footprint gives CO2 balance.

## Taking into account initial State of Charge

If you know the state of charge of the battery, indicate it. The information on the autonomy gained will be

more precise. Tap on '**Charged**' to set the value;



the gained autonomy is then indicated (here 50 km) as well as the new total autonomy (79 km) which takes into account the remaining reserve of 28 km.

## Taking into account the slowdown at the end of the charge

At the end of the charge of the battery (beyond 80%), the charging speed decreases; it becomes very weak when you reach almost 100%. EVZenith takes into account this slowdown for the calculation of the recharge time or the autonomy gained.

## Compute CO2 footprint

An electric vehicle does not emit CO2. But the electricity used for its recharge has contributed to emit CO2 (because it is produced partly from fossil fuels ; even nuclear, solar, wind, hydro-electric production emit some CO2). This value strongly depends on the country or region where the recharge is done.

Note: CO2 data are average values over a recent period (for solar IPCC 2014). These values may vary depending on the time of day or year

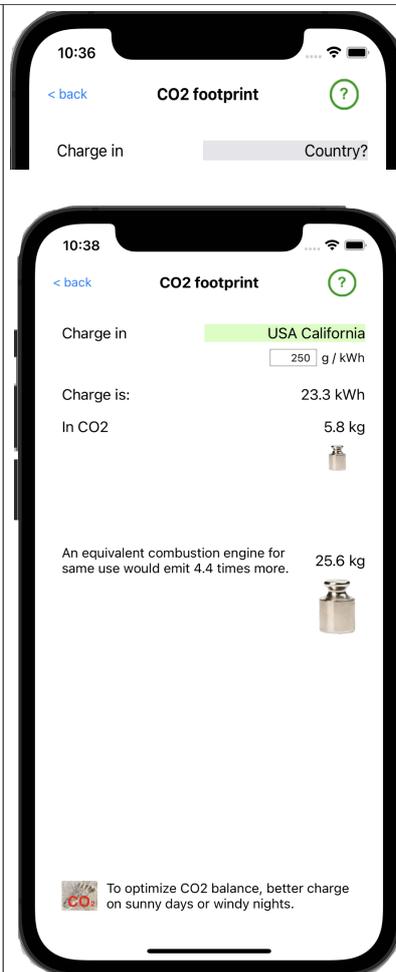
What is the comparative balance?

Once the recharge is calculated, tap on the 'CO2 footprint' button to get an accurate estimate.

If no country is defined yet, or if you want to change country, tap on the country name, to choose a country from the list of more than 40 countries. You can also create a new country, or indicate that you are charging on a local photovoltaic installation.

The help button  explains this indicator in detail.

Tap on '**Back**' to return to the autonomy calculation.



If you know (via the web for example) a more precise carbon rate of electricity, enter it.

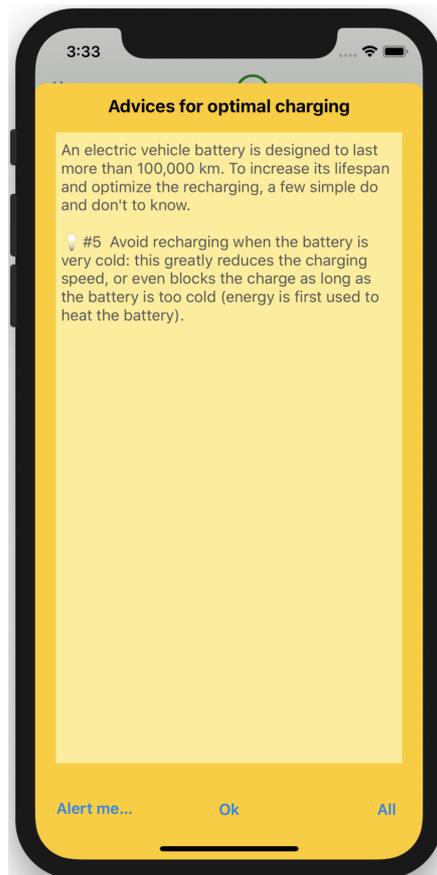
The content of the recharge (in kWh) is recalled and the carbon footprint calculated. Represented by a scaled weight.

The amount of carbon emitted by an equivalent gasoline or diesel vehicle (same type of vehicle) is calculated as well as the emission ratio.

For most countries (depending on their type of electricity production), a tip to reduce the footprint of the recharge is indicated.

## Best practices for charging

With  button, display advices to optimize charging and its cost.



If you want to see complete list of advices at once, tap on 'All'.

The 'Alert me...' button allows you to request a notification at the end of charging.

## Be alerted at the end of charging

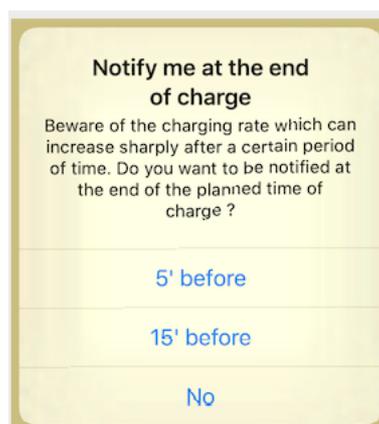
You have specified a certain charging time. It may be interesting or necessary to come and unplug the charging cable or move the car at the end of this time (for example to avoid excessive billing).

The 'Alert me...' button (just like the alarm clock button seen before) allows you to program an alert on your iPhone a few minutes before the end of charging.

If your iPhone is turned off and you have an Apple Watch, the alert will show on your Watch.

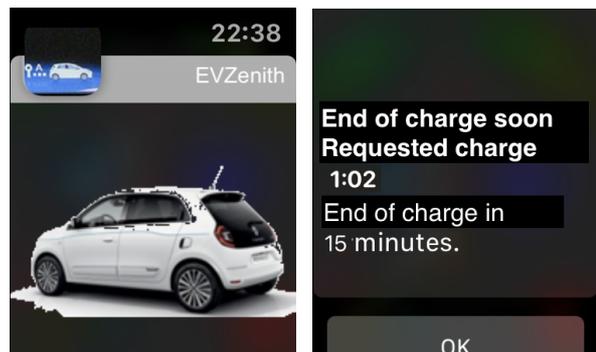
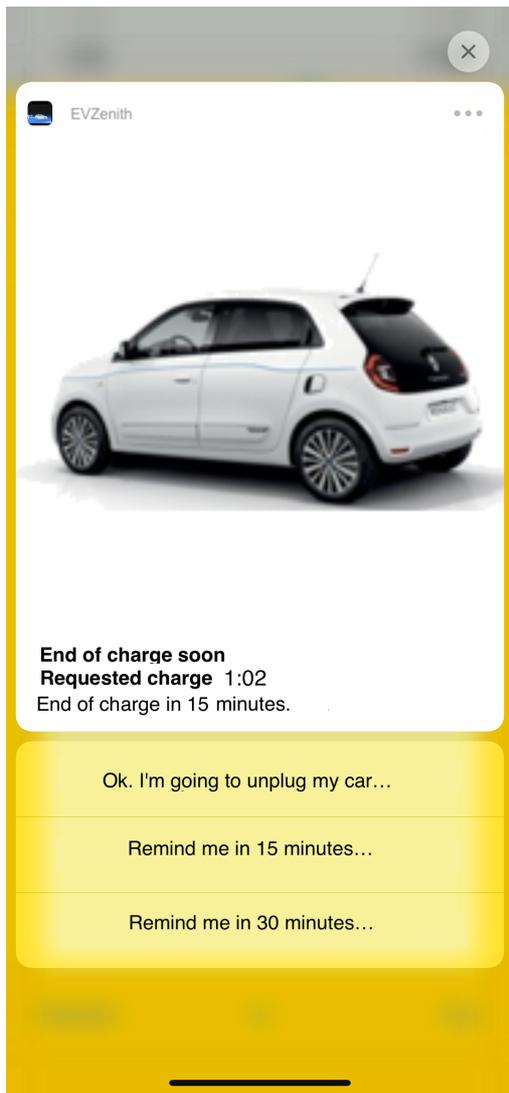
Click on 'Alert me...' an alert asks you to choose the duration

Ici, la durée était de 1h02. Vous serez donc averti dans 47 ou 57 minutes selon votre choix avec cette notification sur votre iPhone (ou sur votre Apple Watch)



Here, the duration was 1h02. You will therefore be notified in 47 or 57 minutes depending on your choice

with this notification on your iPhone (or on your Apple Watch)



## Select another vehicle

Return to the Home screen. To choose another vehicle, tap "**My Vehicle**" or the name of the currently selected vehicle; the selection screen allows you to choose from the predefined vehicles or custom vehicles that you have created yourself.

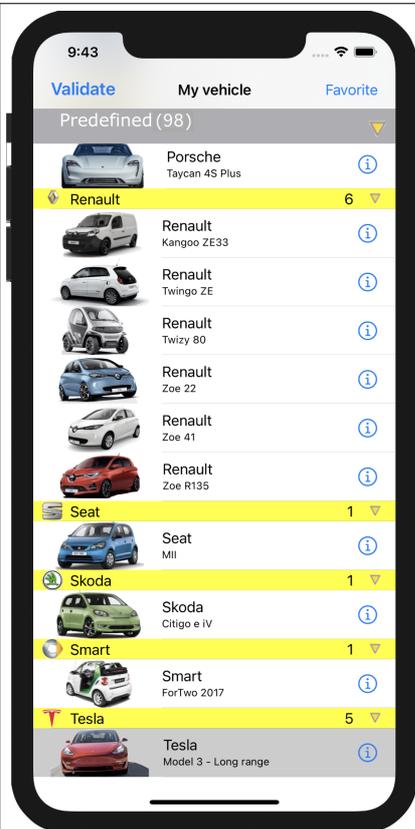
Database contains 98 vehicles.

Once you have chosen a vehicle, the "Validate" button is displayed in red: tap this button to validate your choice.

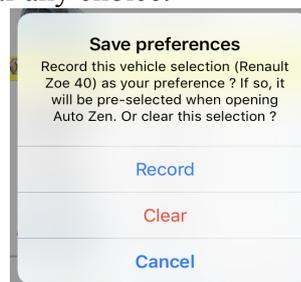
Or simply, tap 2 times on the type chosen to validate directly.

If you have registered a current vehicle, its name is written in blue.

In the Preferences, you can filter the list of displayed vehicles. The number is displayed e.g. 20/98.



**Record** this vehicle as preferred choice (will be used as default when you open EVZenith); in the confirmation dialog, you can also clear any choice.



An information button to the right of each line gives you the main features of the vehicle. You can also access a temporary view by long press on the VE line (only if your iPhone has 3D touch)

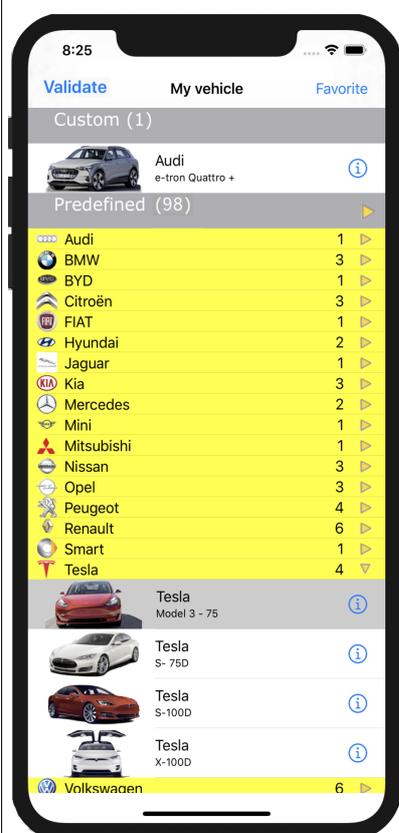
You can adapt the display of these lists:

<Back, or **Validate** to return to the calculation screen

The custom vehicle

The predefined vehicles, grouped by brand.

Some brands are detailed and others condensed



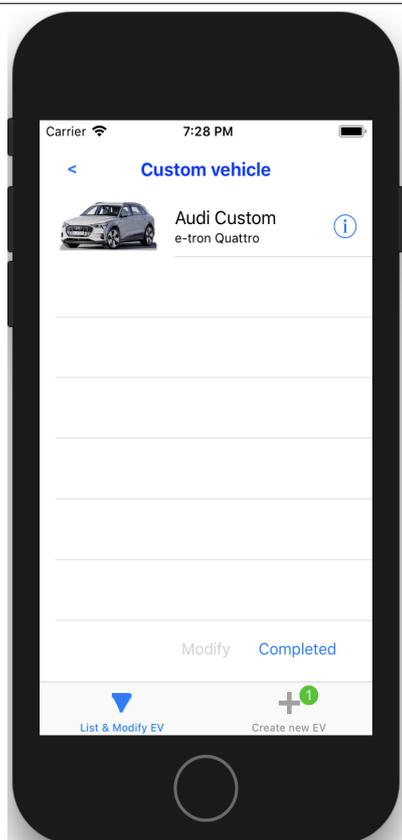
You can also choose a custom vehicle that you have created.

Or hide the detail, mark by mark, to reveal only the ones that interest you, by typing in the name of a mark in yellow.

Or even hide them all by tapping on the yellow arrow of "Predefined" ; after, select the brand you want to expand and click its disclosure triangle.

**To create and manage your custom vehicles** (not included in the predefined vehicles), return to the Home screen and tap "Custom Vehicles":

The list of custom vehicles is displayed (if there is one)



- the information button  to access detailed information about the vehicle, without modifying it.
- Swipe the vehicle row to the left to remove it.

« **Completed** », to quit Custom vehicles and return to the home screen.

- Two functions:
- manage the list: reorder, delete ...
  - create a new custom vehicle

The number of vehicles created is written in the green badge. In the Pro version, you can create an unlimited number [ : ] of vehicles (only 1 in the basic version)

## Create a custom vehicle

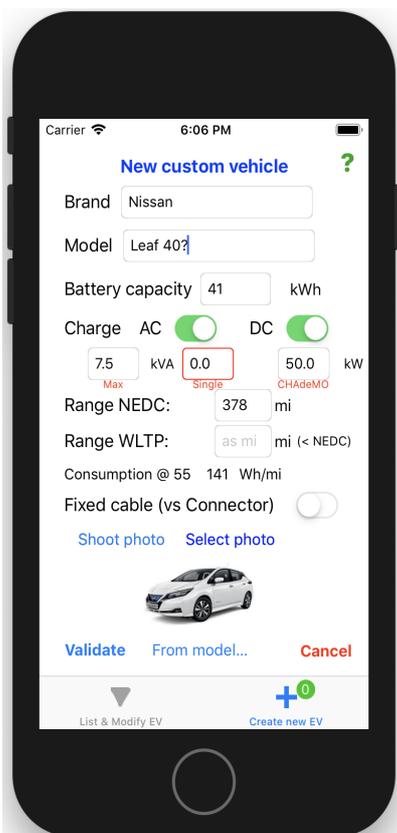
Create a new vehicle completely or adapt a predefined model with "**From model**"

Tap "**Shoot photo**" to get a picture of your vehicle. Or use an existing photo (**Select Photo**)

The photo taken or chosen is displayed here.

When all the data are filled in, **Validate** button is enabled.

Or **Cancel** to give up the creation.



Fill all data fields

- The brand
- The model (the name you want to give, it can be your favorite nickname)
- The capacity of the battery, in kWh
- AC and / or DC charge? Max power?
- If charge is available in AC single, in triphased, in DC, give the values. In DC, specify Combo or CHAdeMO (tap on **kW**)



- 'Mono on Tri 2X' : for a single-phase vehicle, if it can pull a higher power on a three-phase AC terminal;

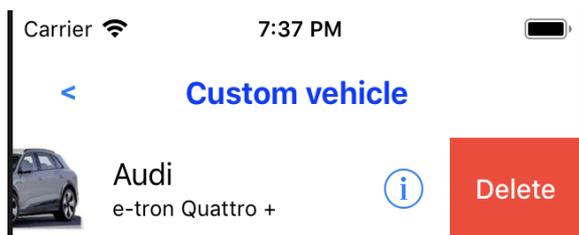


- 'Tri on Mono' : for a three-phase vehicle, the maximum power on a single-phase AC terminal 7.5 kVA (at least 1/3 of the three-phase value); these values depend on the electrical architecture of the vehicle.

- Consumption at 90 km/h, in Wh/km (look at the EV user manual, or adjust according to the actual autonomy measured)
- The charging cable is fixed on the VE (as for Twizy) or free (the general case); the button is selected (green) only for the fixed cable.

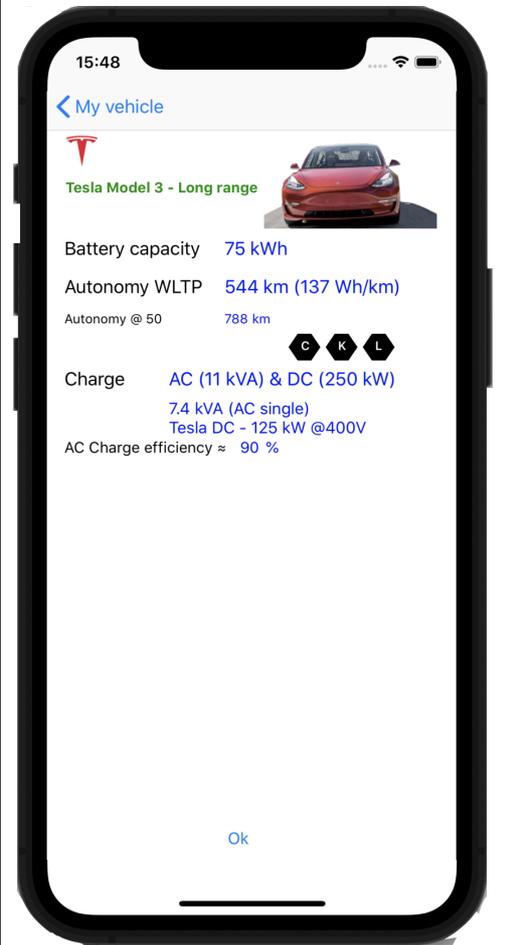
## Delete a custom vehicle

In the list of custom vehicles, swipe the box containing the vehicle to the left to display a "Delete" button. Take care, once accepted, the deletion is final, cannot be undone.



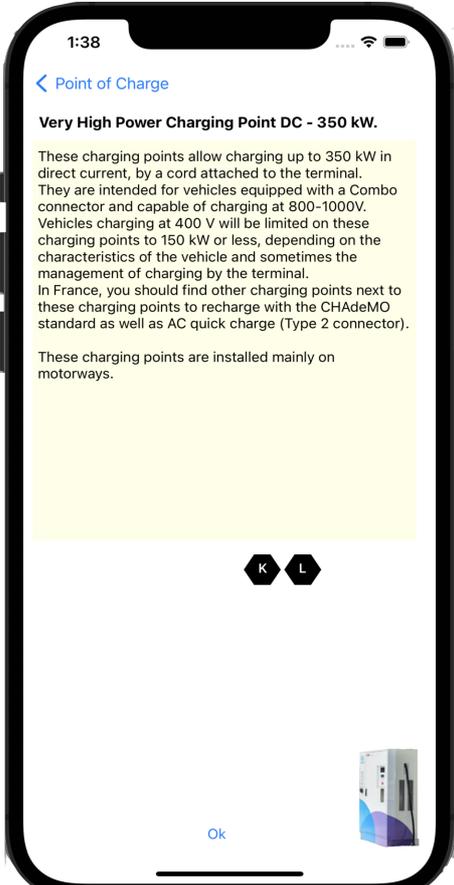
## Get information about a vehicle

When you tap on information button  of a vehicle in the list (Here, a Tesla 3, long range), an information page gives you all its characteristics. You can also access to a glance display with a long press on the vehicle cell in the list (only if your iPhone has 3D touch).

	<p><a href="#">&lt; My Vehicle</a>, to return to the list</p> <p>The vehicle, its brand, its photo.</p> <p>Consumption and autonomy information.</p> <p>The charging technologies available and the charging station compatibility logos: C: for T2 connector, up to 22 kVA K: for Combo connector, DC fast charge L: for Combo connector, DC fast charge 800V</p> <p>See details in Preferences.</p> <p>Charging efficiency: what goes into the battery in relation to the total consumption (taking into account all conversion losses).</p> <p>Possible options of this model.</p> <p>The <b>Ok</b> button closes this view.</p>
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## Get information about point of charge

When you tap on the information button  of a charging point in the list of charging points (here, case of terminal 22 kVA AC), an information page, informs you about its characteristics. You can also access to a glance display with a long press on the point of charge line (only if your iPhone has 3D touch).

	<p>&lt; <b>Point of charge</b> to return to the list.</p> <p>Information about the charging point.</p> <p>Compatibility logos to vehicles :          K: for Combo connector, DC fast charge          L: for Combo connector, DC fast charge 800V.          Black only (attached cable)</p> <p>A typical 'Very high power' charging point.</p> <p><b>Ok</b> to close the view.</p>
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## Your driving preferences

Return to the Home screen.

Tap on the '**Prefs**' button at the bottom left. A page displays the preferences you can adjust:

These preferences affect consumption and therefore calculated autonomy.

**Driving style**, either very slow, slow, medium, fast or very fast. This corresponds to speeds of 50 km/h (city), 70, 90 km/h (road), 110 km/h or 130 km/h (highway).

In the database, 2 consumptions are indicated: NEDC ((New European Driving Cycle, old norm, optimistic because corresponding to an urban cycle mainly) and, if available, the new standard WLTP (Worldwide harmonized Light vehicles Test Procedures), more representative.

The consumption taken into account is based on this new WLTP standard if the data has been published: it is the basis of the "average" consumption; slow speed consumption is WLTP reduced by 30%, fast speed consumption WLTP increased by 40%.

To adjust the speed, move the speed-o-meter dot; the value being set is displayed above and in the center of speed-o-meter.

**ATTENTION:** these values are **indicative only**, not contractual.

**Heating and Air Conditioning:** If you indicate an intensive use of heating or air conditioning, the consumption increases from 5% (if heat pump) to 10%.

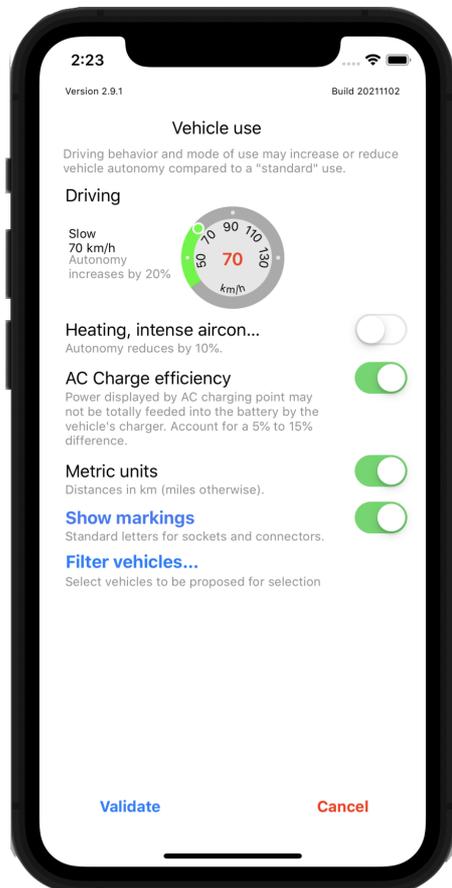
**Yield:** Finally, you can take into account the slight yield losses of the different converters between the point of charge and the EV (in AC) as well as "cos(phi)" ; this value ranges from 10 to 15% depending on vehicle, which corresponds to a maximum: on a point of charge of 10 kVA, the EV will only get between

8.5 and 9 kVA of power. This is different from slow charging when the battery is almost full. You can disable this option, but this is strongly discouraged because the results would be much less realistic.

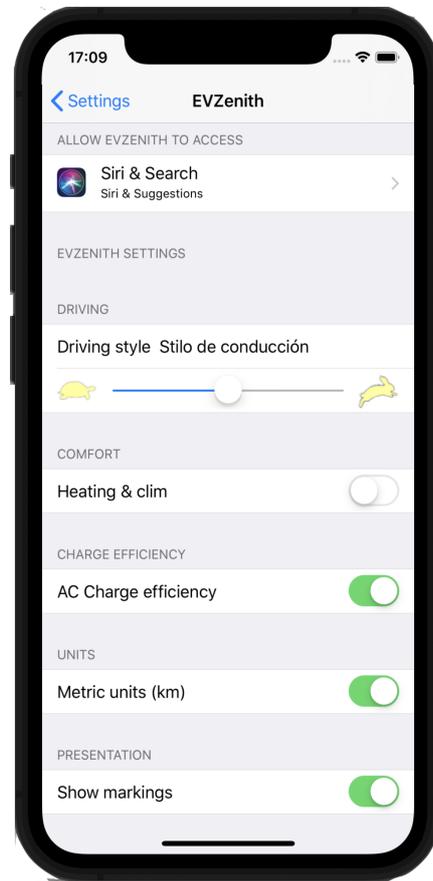
## Other preferences

These settings are also available in the iPhone preferences (in Settings, choose EVZenith).

**Units:** you can use the metric system (km and km / h) or the english system (miles and mph)



Settings by Apps Prefs

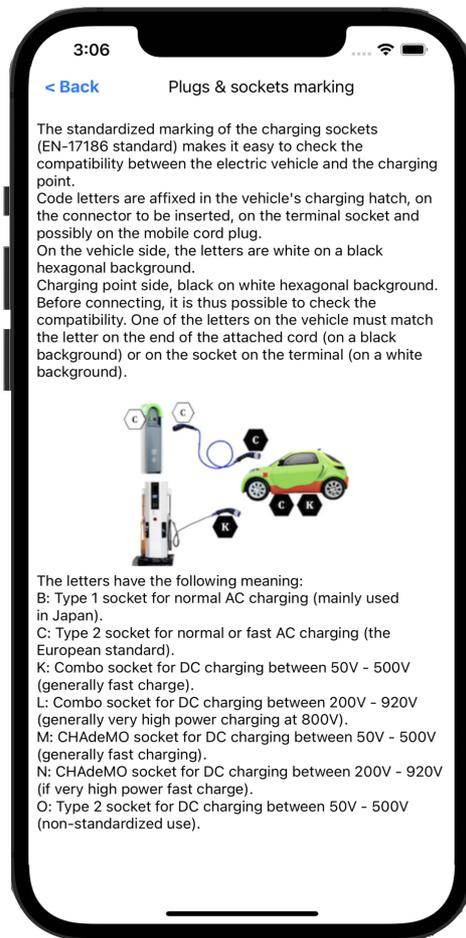


Settings in iPhone

## Show markings

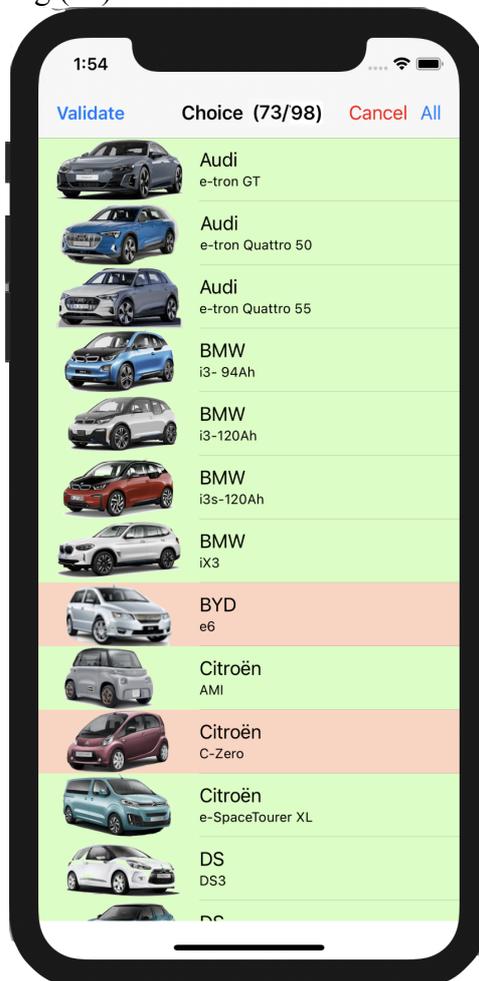
Display the standardized markings of plugs, sockets and connectors when you look at details of an EV or charging point.

Click on «[show markings](#)» to get detailed information about their meaning.



### Filter vehicles to display.

The list of vehicles in the base is long (98).



If you don't need to show them all when making a selection, you can '**filter vehicles**'.

Click on a vehicle to remove / return it to the list. The vehicle models to be displayed are in green, those not to be displayed in red. The number of vehicles kept is indicated at the top of the screen (you must keep at least 2 vehicle models).

## **IMPORTANT NOTICE**

The results provided by EVZenith are given as an indication, they do not constitute in any way a commitment of precision.

The data used to evaluate the mileage gained during refills, to know the characteristics of the vehicles, are derived from the available public information and estimates of the variations of consumption according to the mode of driving.

Their accuracy and accuracy are not guaranteed.

In the event of a significant discrepancy, Alphanums should be informed using the contact details indicated in the Appstore or written directly to [support@alphanumsoft.com](mailto:support@alphanumsoft.com).

## **PROTECTION OF PERSONAL DATA**

EVZenith does not collect any user data. The choices you make, the terminals you scan the QR code, the vehicles you create, your driving preferences ..., all that remains in the personal environment of your iPhone or iPad.