EVZenith Pro – 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 model 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 multiple custom vehicles, or customize the features of an existing model.
You also define your driving preferences that influence consumption and autonomy.

EVZenith is available in 5 languages: English, French, Spanish, German, Italian and automatically adjusts to the setting of your iPhone or iPad (and your Apple Watch).
It requires iOS 13 at least, on the iPhone or iPad. Dark mode is available.

? : provides quick online help; can be spoken The Preferences (Prefs) button gives access to the user's settings.		Home screen gives access to main functions. Tap EVZenith to see the version number (here 5.0.1). Tap on Flag to change language If you have registered a vehicle as your current vehicle or a favorite point of charge, they appear on this homepage. Otherwise, a link gives you direct access to selection of a favorite vehicle. - Calculate the autonomy gained during a recharge or time needed to gain some range. - Create a custom vehicle.

Mileage earned during a charge

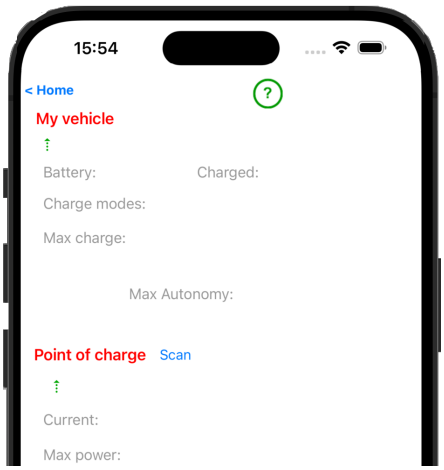
On home screen, tap on 'Gained autonomy …'

The view that appears lets you define all the parameters needed to calculate the charge, starting with the choice of vehicle to charge.

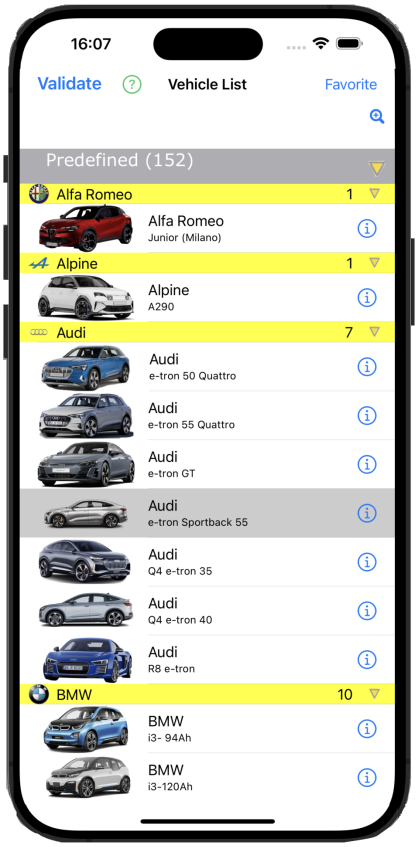
Tap on '**My vehicle**' to choose your vehicle.

< Home

My vehicle

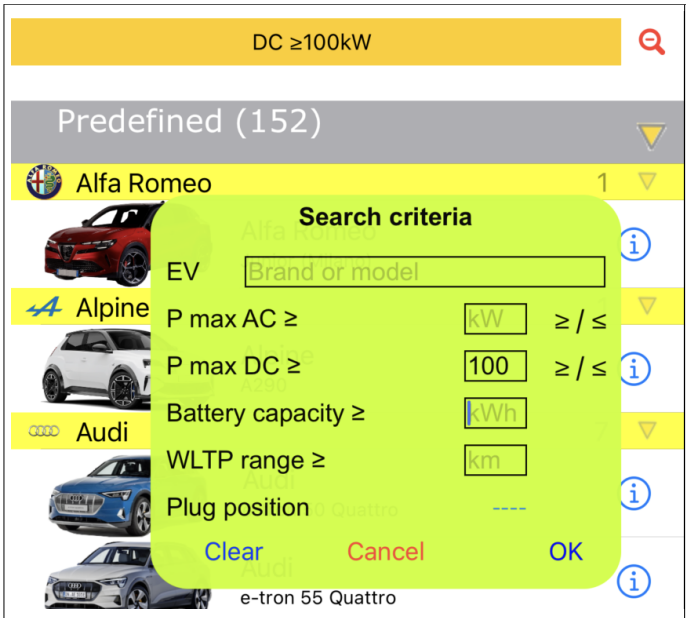


Then choose the electric vehicle (EV) from the list.

< Home, to return to the home screen, or Validate to confirm selection. ? Quick online help. Select vehicles on criteria.		All predefined vehicles in the database (152 in Version 4.9.5) are listed, along with any custom vehicles. The number of vehicles is indicated. Vehicles are sorted by make, with photo and name. Click on a vehicle. The 'Back' button becomes 'Validate'; and the 'Favorite' button is activated (see below). 7 In each brand title, next to the number of vehicles in the database, a triangle allows you to choose whether or not to display the vehicles, facilitating navigation through the list. The same button in the title allows you to hide all vehicles, leaving you to expand the brand you're interested in. The information button displays detailed vehicle information.

Search vehicles on criteria

The button displays the criteria definition window and returns to the complete list.

	Selected criteria are displayed in the banner. Only vehicles matching the criteria will be displayed, and their number indicated in the title. Predefined (100/152) • Vehicle name or brand • Max AC load power, either lower limit (power greater than or equal to the value) or upper limit (power less than or equal to the value). • Max DC power • Battery capacity of at least one value • Autonomy at least equal to • Position of charging socket on vehicle, via drop-down menu) Once the criteria have been defined, click **OK** to take them into account, or **Clear** to remove all criteria, or **Cancel** to keep the previous criteria.

Tap on 'Point of charge' to choose the type of recharging point

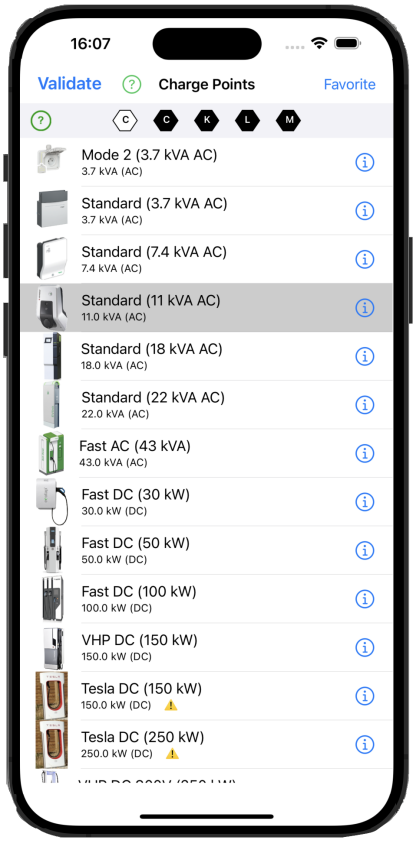
Point of charge, then choose from the list

<**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 (12 predefined), the essential characteristics are displayed; power and type of current and a typical photo of such a charging point.

At the top of the view, the bar with the letters corresponds to the type of socket on the terminal (you will find this letter in the vehicle's charging hatch): you can choose the only charging points suitable for your vehicle (see '**Show markings**').
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 chosen recharging point and its characteristics, together with the vehicle, are now displayed in the calculation view. A check is made to ensure that the charging point is compatible with the vehicle (see below). If it's correct, you can define the charging session.
You can modify the battery capacity (if different from that of the predefined model) and the terminal power (for example, for a DC 20 kW terminal).

<**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 (editable), the present State of Charge (editable), the modes of charge it supports (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 autonomy of the vehicle as well as autonomy before charge (if defined), depending on the driving mode and weather conditions ( ) - See '**Taking into account weather conditions**'.
If heating or Aircon are used and limit autonomy, a sun emoji will tell you.
If the vehicle has a fixed cord (like Twizy), the information appears.

Calculating the range gained

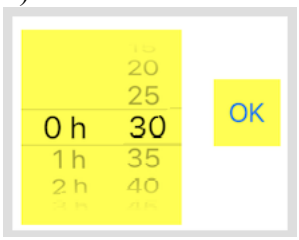
At the bottom of the view, you define the recharge time (to calculate the autonomy gained) by tapping on the duration Charge duration 1:25 or autonomy you wish to obtain to calculate the necessary recharge time to complete the initial recharge (if not defined, it is considered zero, with a warning message), by tapping on New autonomy .

If the initial charge is defined, when a range request is made, the 80% and 100% buttons are used to calculate the time needed to reach 80% charge (considered the optimum level) or 100% charge.

The calculation of the range gained by this recharge takes into account the vehicle's characteristics (charging power, consumption), your driving style, the power that can be supplied by the recharge point, the battery's state of charge and climatic conditions. This calculation takes into account the charging profile (reduction in charging speed beyond a certain charge level).

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.



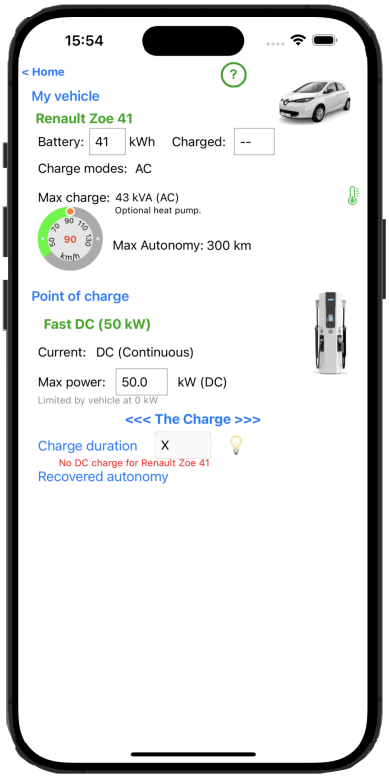
Duration is then displayed in minutes.
Tap '**OK**' to validate.
You can change the power of the charging point (if it is not that of the predefined list): example, a terminal that would deliver only 6 kVA.

• The alarm clock button ≥ : to be notified at end of charge (see later).

Duration or range depends on multiple parameters:
• The driving style (turn the speedometer to change) and charge level (tap on '**Charged**') in %.
• Weather conditions (very cold weather or use of aircon or heating increase consumption). Use the thermometer button to define it: its color is green if nothing, orange if very cold or aircon, red if both.
• If heating/air-conditioning is activated, a small sun reminds you.
• If terminal or EV are single-phase and the other 3-phase, the max power is calculated accordingly (e.g.: a 7.5 kVA EV on 18 kVA terminal can only charge at 6 kVA).
• If your vehicle charges in DC CHAdeMO mode, check that the terminal is compatible.
• On planned charging time : the new autonomy, and the autonomy gained , in km (or miles, depending on your preference) are displayed.
• Lamp : détails computation.
• Gauge : final charge level.
• CO2 gives CO2 footprint.
• € to estimate charge cost

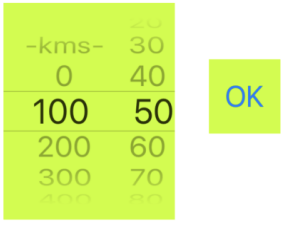
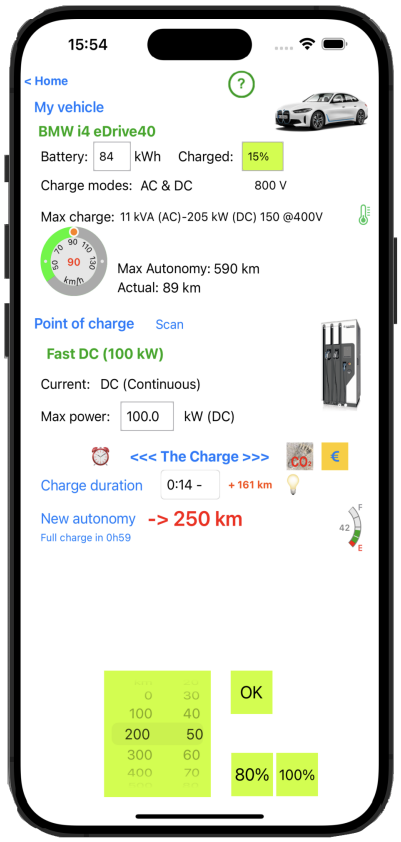
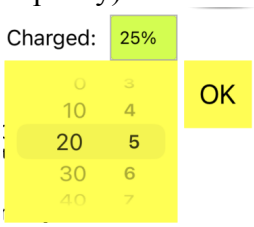
EVZenith signals any incompatibilities (such as charging an EV with only an AC charger on a DC charging point); it also calculates the actual power delivered according to the adaptation of the EV to the charging point: if the EV only charges in single-phase, it won't be able to use the maximum power of a three-phase terminal, for example. EVZenith knows that charging speed drops off at the end of the charge. In DC charging, the 400V / 800V load is taken into account.
The instantaneous calculation gives the range recovered (within the limit of the maximum range) as well as the effective charging power (depending on the terminal and vehicle capacity, and on the AC charging efficiency) and the time required to fully recharge an empty battery.

Checking vehicle / charging point compatibility.

You can adjust the power of the terminal. **If EV and Point of Charge are not compatible, duration or autonomy need cannot be defined.** If the vehicle's maximum recharging power is lower than that of the terminal (50 kW vs. 150 kW, for example), recharging is possible, but at limited power (50 kW in this example).		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 domestic plug Here, a Zoe (AC charger only), cannot charge on a DC charging point. On a DC terminal, EVZenith checks whether the load can be carried out at 400V or 800V and calculates the effective power accordingly. 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.

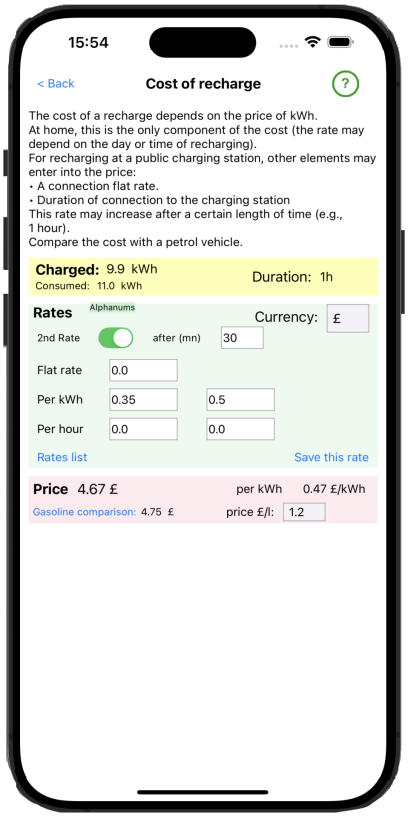
Calculate the time needed to gain autonomy

Enter the desired autonomy by typing on '**New autonomy**' or '**Recovered Autonomy**' by setting the number of kilometers (or miles); set the hundreds to the left and the units to the right (increments of 10).  Tap '**OK**' to validate and hide the rolodex. 80%: if you have specified an initial charge, calculates the time to reach 80% charge. 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). • CO2 gives CO2 footprint. • € to estimate of charge cost

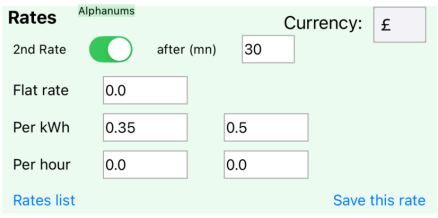
Estimate recharge cost

Tap on the € button to open the refill cost view. The price is a non-binding estimate. The actual price may be different if, for example, the vehicle is left plugged in when charging is complete.

Charging rates vary from supplier to supplier. But the structure is similar.
The cost of recharging depends on the price per kWh; at home, this is the only cost component (the rate may depend on the day or time of recharging).
For recharging at a public charging station, three components can be included in the price. These are indicated on the charging station or in your contract with the mobility operator:
- A connection fee, regardless of the quantity charged or the duration.
- consumption in kWh.
- The length of time you are connected to the charging station (even if you have finished charging).
These rates may also vary after a certain period (e.g. 1 hour).

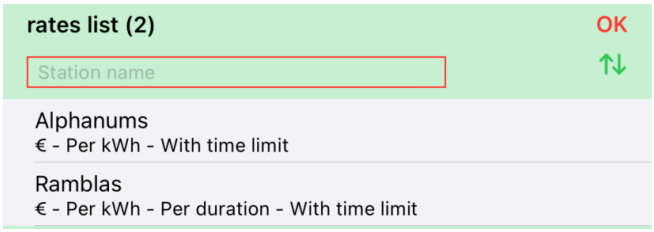
< Back, to return to the autonomy calculation screen. ? : quick online help. **Read rates**: this button appears as soon as you have saved some rates.		The view has 3 zones: • charging session information : • kWh charged (what you have charged in the battery). • charging session duration. • for recharging at an AC charging station, the kWh consumed (and paid for) are greater than those charged, due to the efficiency of the on-board charger. - The rate values on the charging station, to be filled in - The price (here in £) and a comparison with a refill of gasoline from an equivalent internal combustion vehicle.

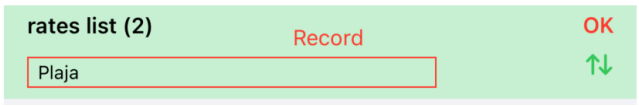
Enter the rates read on the terminal or on the operator's application, in each of the relevant fields:

		
At least one rate component must be entered. If a different rate applies after a certain period, activate the '**2nd rate**' button, indicate the period after which this second rate applies, then enter the values for the second period. Double tap on the rate name at top to see it in rates list.	If required, specify the currency by typing in the '**Currency**' field, then validate with '**OK**'. Please **note**: Values should be expressed in currency units, not cents. The '**Per hour**' price is for 1 hour (not per minute).	Once the rates have been set, the price of the recharge is displayed, with the price per kWh charged. You can compare this with the '**gasoline**' price, by clicking on '**Gasoline comparison**' and entering the price per liter. Tap on '**per kWh**' to see price per km (or mile).

If a value is missing, the input box is circled in red, allowing you to save the tariff for future use.
Click on '**Validate this rate**'.

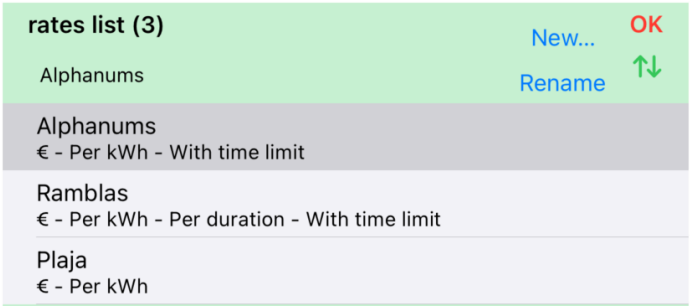
A table of rates already saved is displayed, offering you the option of saving a new rate, by first entering a name (the terminal reference):





Enter a title in the red box, type 'Return', then press '**Record**'. Close the table by typing '**OK**'.

Once you've saved one or more rates, a 'rates list' button appears in the 'rates' section. Tap this button to display all rates. For each, an indication of the rate's currency and structure.
Select a rate, then tap '**Apply**', or simply double-tap on the rate to select it.
Once done, you can close the table with the 'OK' button.

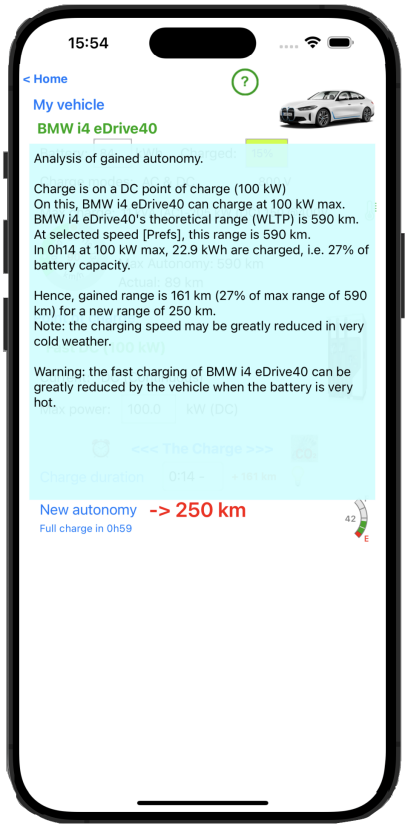


Two buttons appear at top right:
- '**New...**': to create a new rate, to which you can give a name. Enter the values for this rate; you can then save it.
- **Rename...**' if you have selected a rate in the table, you can edit it: change values, rename it.

The ↑↓ button is used to modify the list: change the order of the rates (by moving them with the handle to the right of each line) or delete them by tapping ⊖:

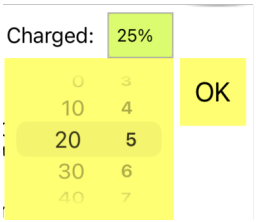
Tap again on ↑↓ to leave Edition mode.

Explaining the gained autonomy

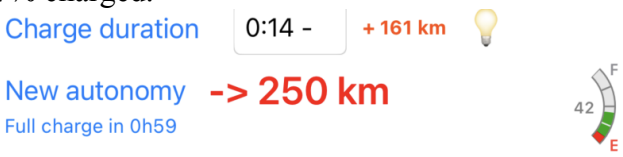
If you wish to understand how autonomy has been evaluated, tap twice on the red figure at the bottom of the screen (here 42 miles). Tape on text to hide it.		Step by step explanation of autonomy computation, taking into account : • point of charge type • vehicle • initial State of Charge • mono / tri oor DC, both for charging point and EV • your preferences • charge slowdown at end of charge, if ever • charge duration. Finally, EVZenith reminds yoiu that during very cold weather, charge may be significantly slower.

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 161 km) as well as the new total autonomy (250 km) which takes into account the remaining reserve of 89 km. Charge has lasted a little less than 14'. The gauge indicates that you are now 97% charged.

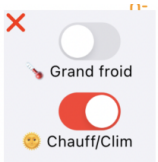


Taking into account weather conditions

Weather conditions (extreme cold) and the use of air conditioning or heating have a strong influence on consumption and therefore autonomy.

- Intensive heating or aircon: +5 or +10% depending on whether EV has a heat pump or not
- extreme cold: + 10%.

These parameters are set using the thermometer button, which opens a mini view:



The X button closes it and validates the settings.

If the vehicle has no heating, the Heat/Clim button is deactivated.

Taking into account the slowdown at the end of the charge

As the charge of the battery progresses and depending on the requested power, the charging speed decreases; it becomes very slow when it approaches 100%. EVZenith takes into account this slowdown in its algorithm for the calculation of the recharge time or the autonomy gained.

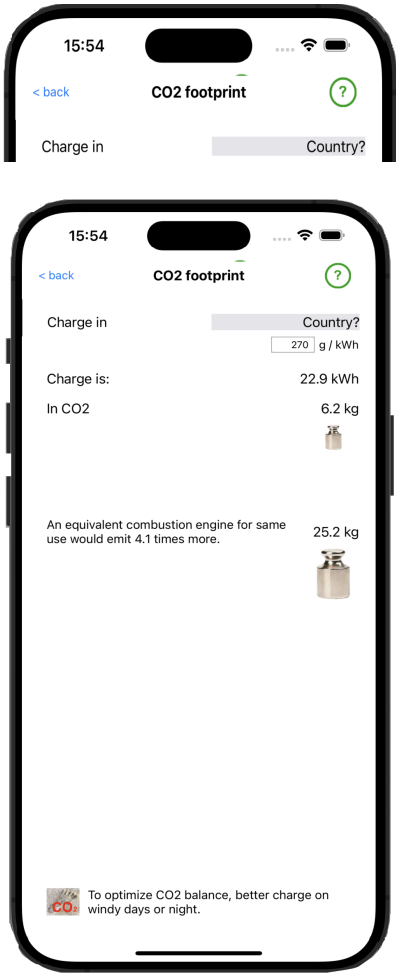
Compute CO2 footprint

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.

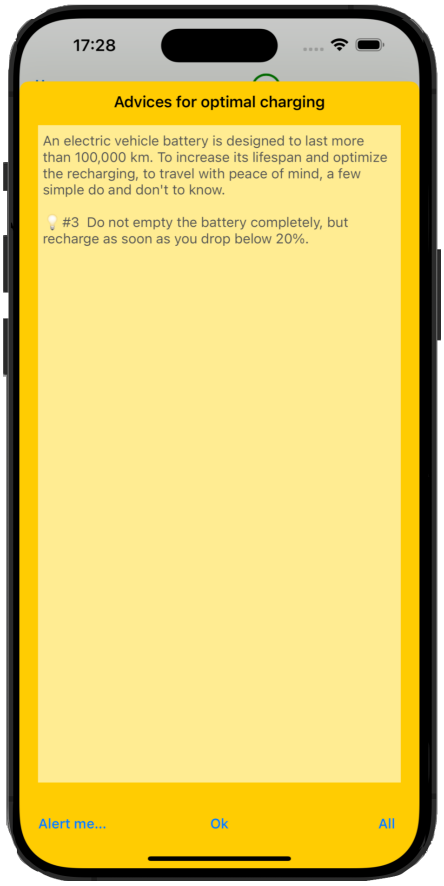
For most countries (depending on their type of electricity production), a tip to reduce the footprint of the recharge is indicated.

Best practices for charging

With (💡) button, display an advice to optimize charging and its cost.

If you want to see all tips, tap on 'All'.

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



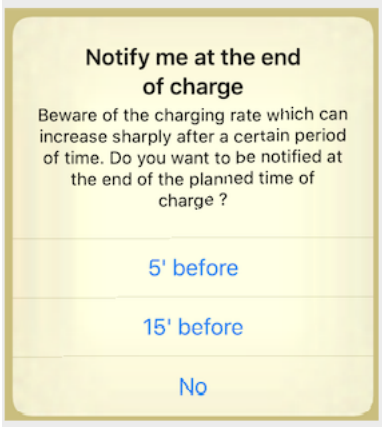
The '**Alert me…**' button allows you to request a notification at the end of charging (just as 'Alarm clock' button in Autonomy view).

Be alerted at the end of charging

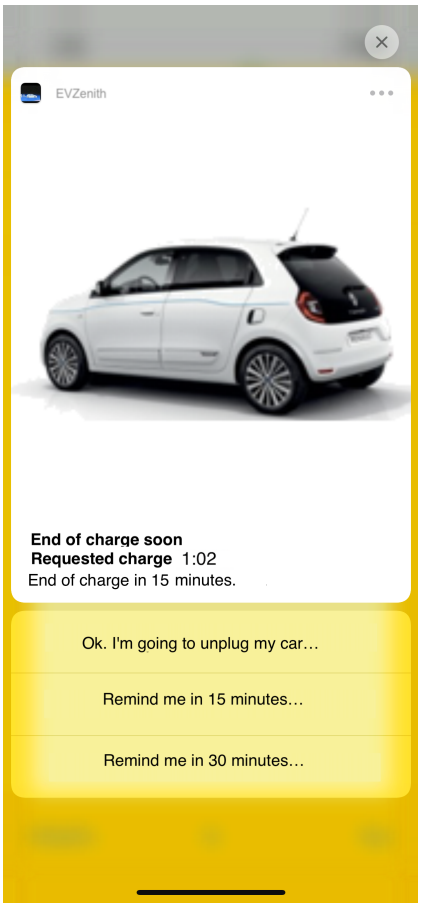
You have specified a certain charging time. It may be interesting or necessary to come and unplug the charging cable or move the car at the end of this time (for example to avoid excessive billing).

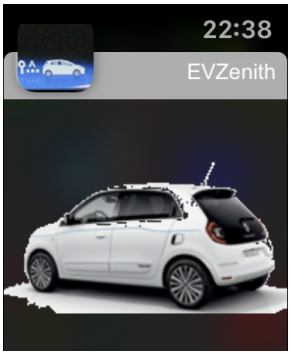
The '**Alert me…**" button (just like the alarm clock button seen before) allows you to program an alert on your iPhone a few minutes before the end of charging.
If your iPhone is turned off and you have an Apple Watch, the alert will show on your Watch.

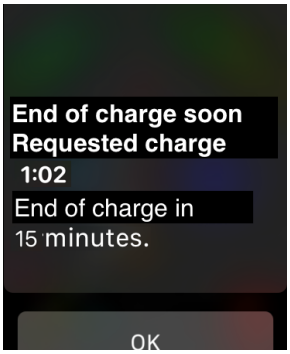
Click on '**Alert me…**' an alert asks you to choose the duration.



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 on "**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.

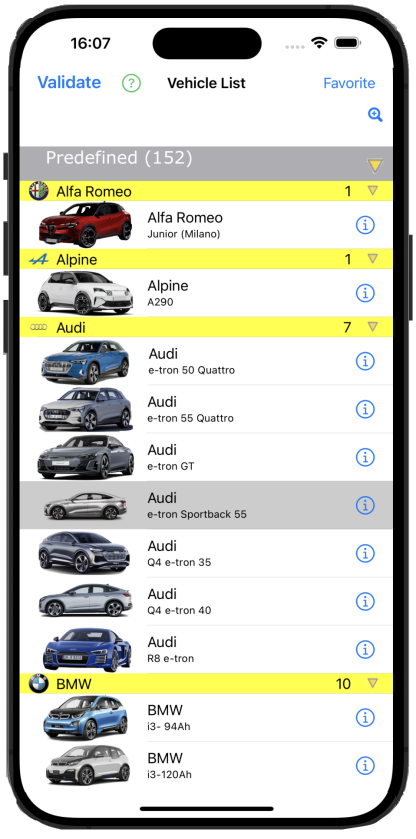
Database (version 4.9.5) contains 152 vehicles.

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

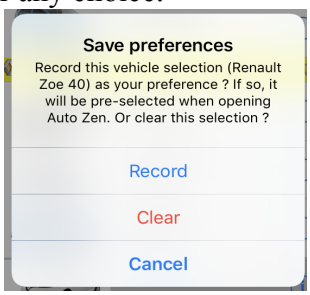
Or simply, tap twice on the chosen EV to validate directly.

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. 120/152.

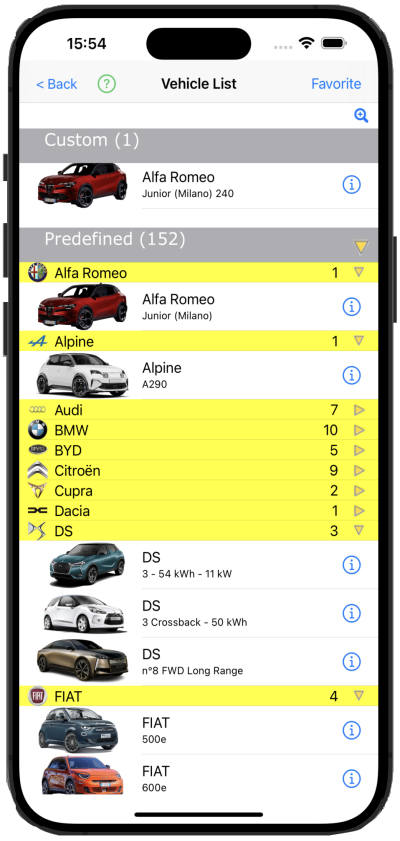


Record this vehicle as preferred choice (will be used as default when you open EVZenith); in the confirmation dialog, you can also clear any choice.

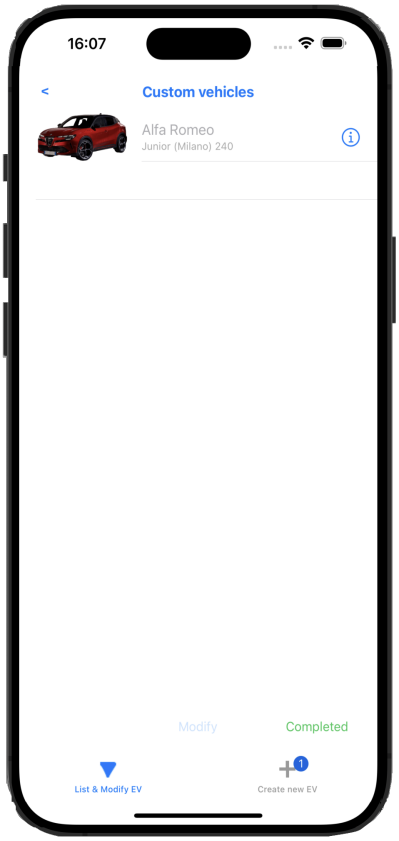


An information button to the right of each line gives you the main features of the vehicle. You can also access a temporary view by long press on the VE line (only if your iPhone has 3D touch)

You can adapt the display of these lists with the yellow triangles on the right of each brand name:

<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, brand by brand, to show only the ones you're interested in, by typing in the yellow mark in brand name. 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. Vehicles not displayed remain in the database, they simply don't appear in the list. This is different from Vehicle Filtering (Preferences).

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 any). Otherwise, a jalopy is displayed: click on it to create the customized vehicle. « **Completed** », to quit Custom vehicles and return to the home screen.		- the information button ⓘ to access detailed information about the vehicle, without modifying it. - Swipe the vehicle row to the left to remove it. 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.

Create a new custom vehicle

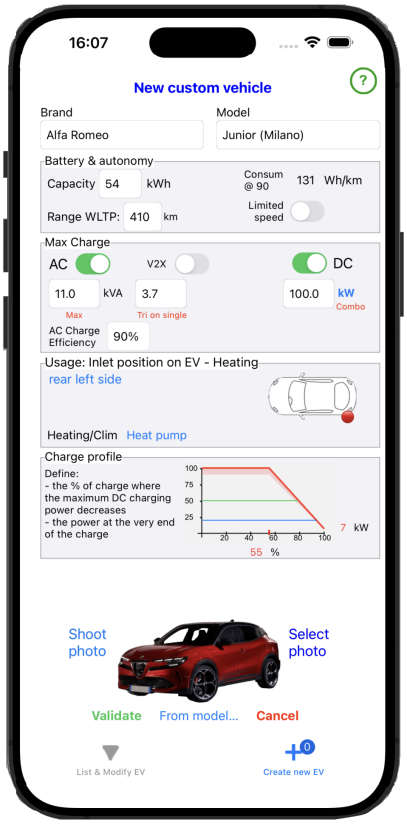
Create a new vehicle completely or adapt a predefined model with "**From model**"

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.



Please fill in all fields:

Identity

• Brand name

• Model (the name you want to give, it can be your favorite nickname)

Brand + Model must not already exist

Battery and range

• Battery capacity, in kWh

• WLTP range

• If the vehicle has a reduced speed (less than 130 km/h), indicate this.

• Consumption at 90 km/h in Wh/km (see vehicle manual, or adjust according to actual range)

Maximum charge

• Does it charge in AC and/or DC? At what power? If it can charge in AC mono, tri or DC, give the values. For DC, specify Combo or CHAdeMO (type kW).

• AC Mono / Tri settings: see below

• V2X if the vehicle can do reversible charging.

Usage: Plug & heater position

• Indicate where the socket is located on the vehicle by tapping on the text and choosing from the menu. The drawing illustrates the choice.

• Is the charging cable fixed to the EV (as for Twizy) or free (the general case); the button is selected (green) only for the fixed cable. This setting only appears if the AC power is less than 7 kVA.

• What is the heating system? Heat pump, standard or none? Tap on Heating/Clim to choose from the list that appears.

Charging profile

Sets the charging performance according to the charge level achieved.

Photo

See further in document

AC settings - Mono / Tri and 800V

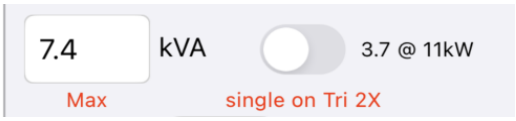
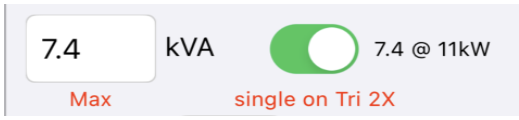
AC charging can be either single-phase or three-phase, depending on the vehicle and charging point. Single-phase charging can reach 7.4 kVA, while three-phase charging can reach 22 (or even 43).
But what happens when a single-phase vehicle (3 to 7.4 kW) is charged at a three-phase charging point (11 to 22 kW)?
What happens if a vehicle capable of charging at 11 kW AC (i.e. 16 Amps) charges on a mono 7.4 kW terminal?

Several cases are possible, depending on the vehicle's charging architecture.
Note that AC power ratings are standardized above 7.4 kVA: 11, 22 or 43.

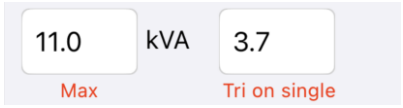
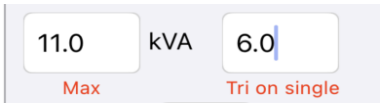
• Vehicle limited to mono on three-phase terminal

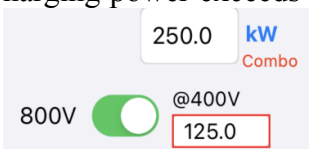
• normally, it uses only one phase, i.e. 1/3 of the power: a 7.4 kVA EV on an 11 kVA terminal is therefore

limited to 3.7; on a 22 kW terminal, it charges at 7.4 kVA.
• Some charger topologies allow the EV to combine 2 phases, charging at 2 * 3.7 or 7.4 kVA.
• This setting is indicated by the Mono button on Tri 2X, which appears when the AC load is less than or equal to 7.6 kVA.

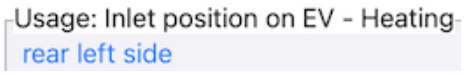
	
No 2X Mono on Tri: 7.4 kVA EV will only charge at 3.7 on 11 kW terminal	With 2X Mono on Tri: 7.4 kVA EV will charge at 7.4 on 11 kW terminal

• Three-phase vehicle 11 kVA on Mono 7.4 terminal
- Normally, it can only charge at 16 A, so limited to 3.7 kVA on a 7.4 kW mono terminal.
- Some charger topologies allow the EV to share the current on 2 phases of the on-board charger (which is 3-phase), calling for up to 2 times 16A, i.e. 2 * 3.7, i.e. up to 7.4 kVA.
- The value of this setting is indicated in the 'Tri sur Mono' field, which appears when the AC load exceeds 7.7 kVA (tri limit) kVA

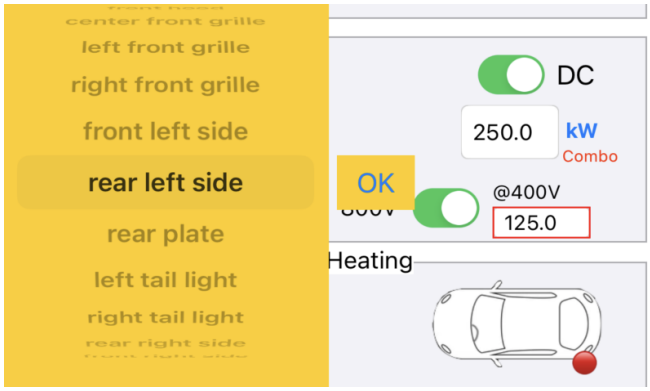
	
Max. default value for Tri (11) on Mono: 3.7 kVA	Set value if different (up to 7.4 max and at least 3.7 here)

If the DC charging power exceeds 150 kW, you are asked to indicate whether the vehicle also charges at 800 Volts:  and, if so, what is its charging power when the terminal is 400 volts only.
The default value is half, but some vehicles have been optimized to charge up to 150 kW or even a little more. Check the value in your vehicle documentation.

Vehicle inlet position on car



Click on the text in blue (if position defined) or red if unknown. This information is useful when you rent or lend your vehicle, to avoid searching for the socket hidden in the back plate...

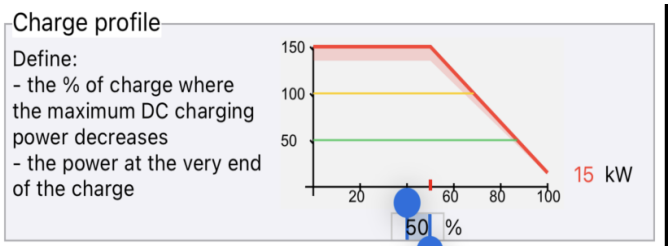


Enter the position in the drop-down list (it immediately appears on the vehicle), then confirm with OK

Charging Profile

This information is essential for a good estimate of charge time, especially when you want to charge beyond 50%. This is particularly true of DC fast charging.
This is because the charging power decreases above a certain threshold (around 50%) and then drops to a very low value at the very end of the charge (99%).
This means that full recharging of a vehicle with a 50 kWh battery, capable of 100 kW, which should take 30', often takes close to 1 hour. Hence the frequent advice not to charge beyond 80-85%.

This profile is characterized by 3 values:
- maximum charging power (DC), defined above
- the charge level at which recharge speed is reduced
- power at the very end of charging

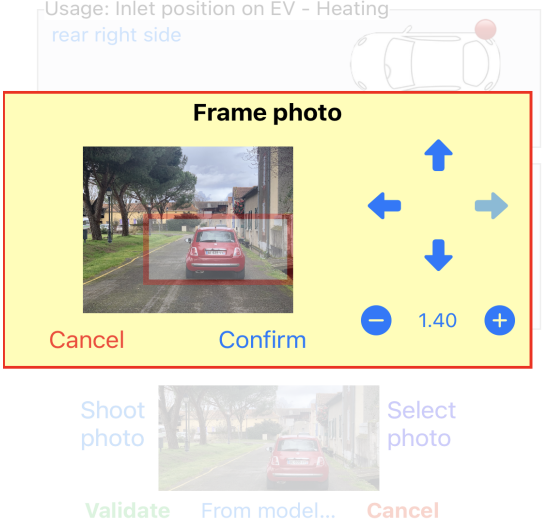


The last 2 values can be adjusted on the graph by tapping on the value to modify it.

Vehicle photo

The final touch to personalize your file.
- Either by taking a photo of the vehicle: photos should be close to the 2/1 format (double the height for width); click on 'Take Photo', then frame the photo as you take it and validate.
- Or by choosing a photo from your photo library, by clicking on 'Choose Photo'.
- The photo is displayed at the bottom of the view, in 2/1 format.

- If you wish to crop the photo (this is only possible when creating the photo from the photo library: otherwise, you'll have to start loading the photo again from the photo library), tap on the photo.



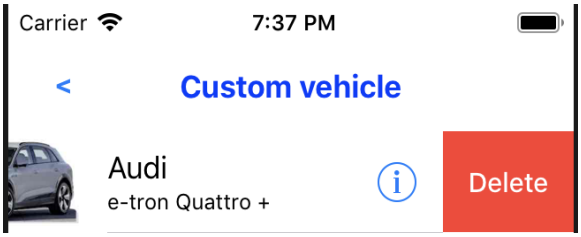
- use the arrows to move the red frame on the photo to the desired position and zoom in (from 1.0 to 4.0) to frame the vehicle exactly.
- Once you have obtained the desired framing, tap on Validate in the yellow frame.

You're done. Validate the new vehicle by tapping on 'Validate' at the bottom left of the screen.

Validate From model... Cancel

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 an Alfa Junior), or on the photo of the vehicle in the range calculation page, 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).

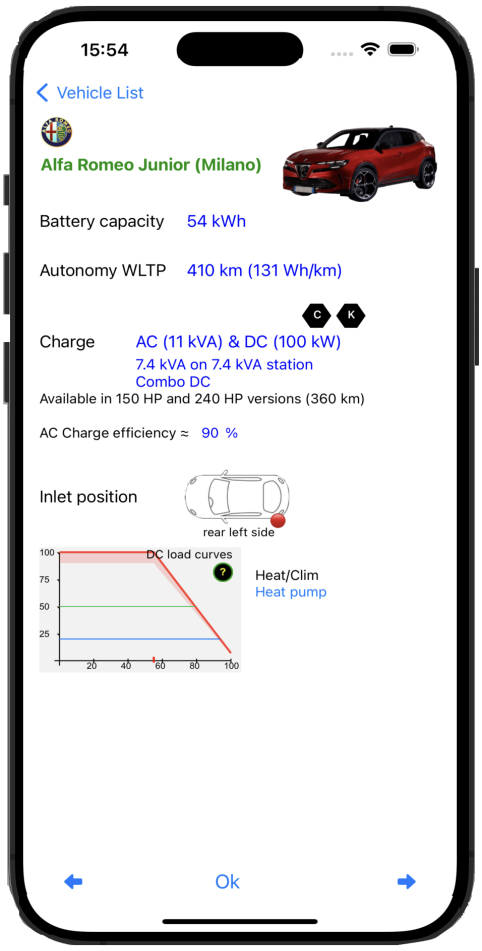
< My Vehicle, to return to the list (if you come from ⓘ button).

Double-tap on the photo to see the vehicle at full size.

Tap again to return to normal size.

The 'OK' button closes this view.

Use the arrows ← → to navigate within the base, to the previous or next vehicle.



The vehicle, its brand, its photo.

Consumption and autonomy information.

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
See details in Preferences.

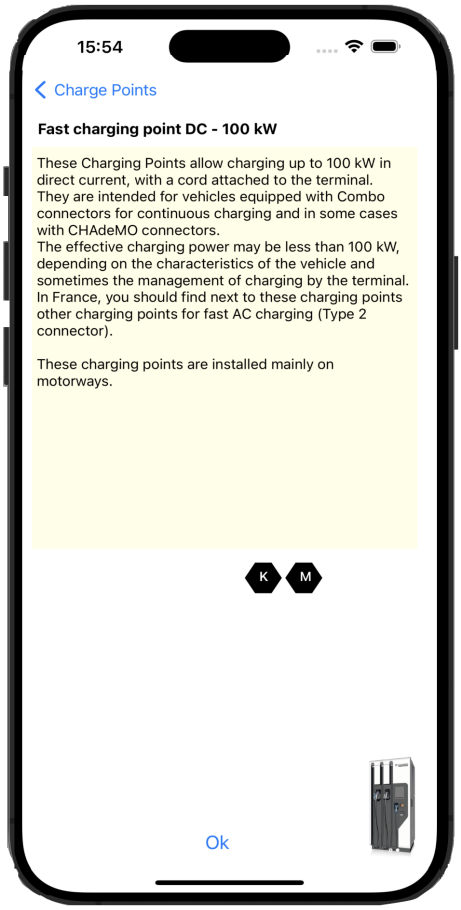
Charging efficiency: what goes into the battery in relation to the total consumption (taking into account all conversion losses).

The position of the plug on the EV.
Load profile and heating system.

Possible options of this model.

Get information about point of charge,

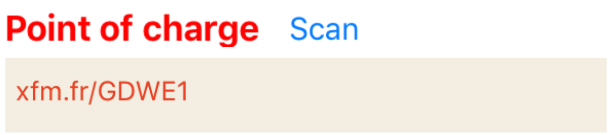
When you tap on the information button ⓘ of a charging point in the list of charging points (here, case of terminal 22 kVA AC), or on the photo of the vehicle in the range calculation page, an information page, informs you about its characteristics. You can also access to a glance display with a long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

< Le Point de charge , to return to the list (if you come from ⓘ button). The 'OK' button closes this view.		Information on this type of charging station. Here, a typical DC 100 kW charging point: - technical details - informùation on where to find such charging point Vehicle compatibility logos: C: T2 socket, up to 22 kVA; black on an attached cable, white on the socket base (see Preferences).

Scan the QR Code

Most charge points now have a QR Code. You can read it with EVZenith: tap Scan, point the iPhone or iPad, holding it vertically, to the QR Code; the scan will be done automatically and its contents will be displayed in red under the Scan button; it's usually a link to a website that you can click. If the scan does not work, simply tap the screen to quit.

Le QR Code sur une borne (Marciac, Gers)



Scan result is displayed within a second by EVZenith Pro

Scan button immediately turns red. Tap on it to dismiss the scan message.

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 vehicules 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%.

AC/DC Converter efficiency: 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.

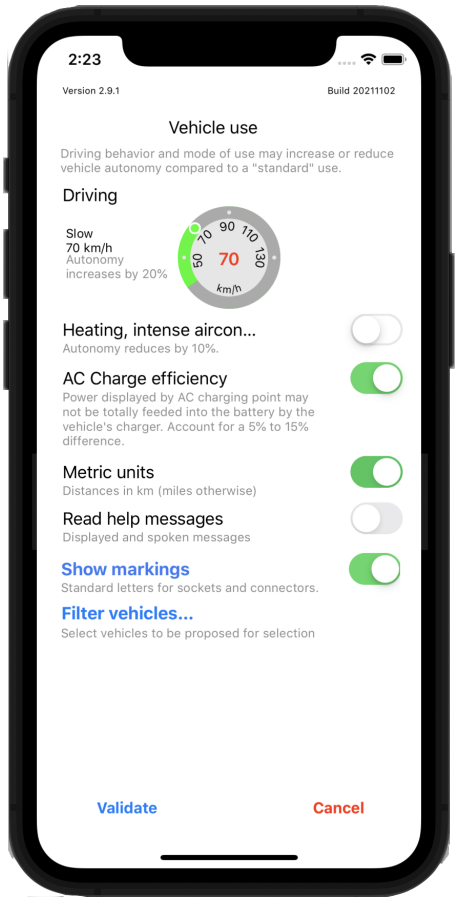
Other preferences

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

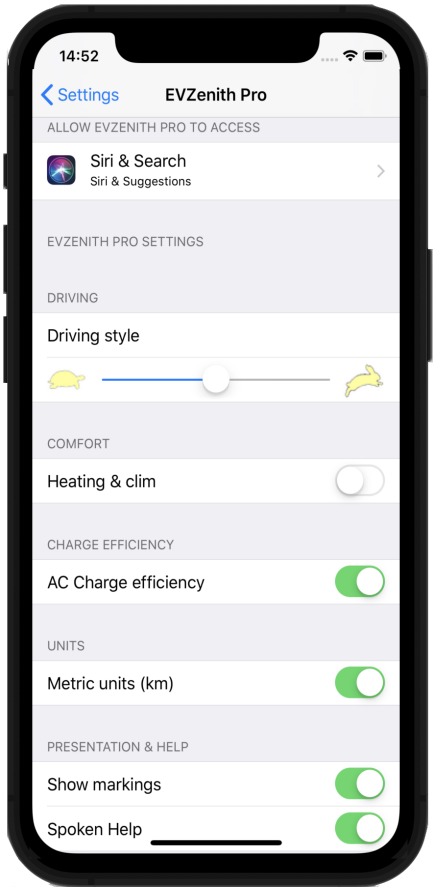
Units: you can use the metric system (km and km / h) or the english system (miles and mph)

Spoken help messages.

On this Pro version, messages displayed on screen may be spoken by iPhone or iPad.



Settings by Apps Prefs

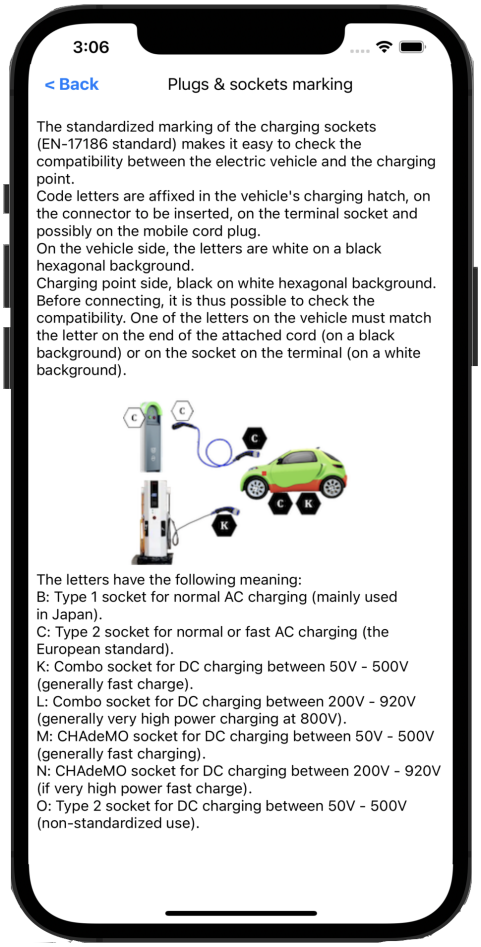


Settings in iPhone

Show markings

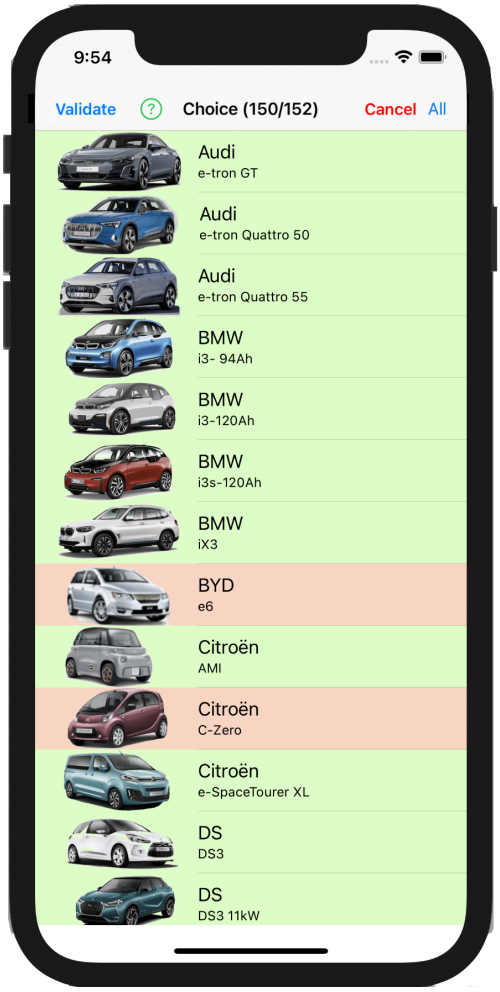
Click on «show markings» to get detailed information about their meaning.

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



Filter vehicles to display.

The list of vehicles in the base is long (152).



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).

This does not delete vehicles, but it does not display them. This filtering should not be confused with choosing a favorite vehicle (in vehicle selection).

IMPORTANT NOTICE

The results provided by EVZenith Pro 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.

PROTECTION OF PERSONAL DATA

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

EVZenith for Apple Watch [Version Pro]

You can use EVZenith Pro on your Apple Watch (after downloading it from your iPhone) : open the « Watch » App on the iPhone, look at the bottom of the list for "EVZenith Pro", and click "Install").

Warning: The Apple Watch app cannot be loaded from an iPad.

Once installed, open EVZenith Pro by tapping its icon

Start by choosing a vehicle and a type of charging point.

If you have defined a preferred vehicle on the iPhone, it is automatically selected, accompanied by his photo. This name is written in yellow if it is part of the standard list without being your preferred vehicle, in green if it is your preferred vehicle in the standard list, in purple if it is a custom vehicle, in red if it is a preferred custom vehicle. Custom and preferred vehicles are known as soon as you have synchronized with the iPhone.

If the Apple Watch is connected to the iPhone, an icon tells you  . This icon will allow you to ask to reload the settings stored on the iPhone to the Watch (see below).

If the application is active on the iPhone, any changes in your preferences will be automatically transmitted to the Watch.

Tap on "**Select EV**" to choose a vehicle or on the displayed name to choose another.

The list of all defined vehicles is displayed:
- on a purple background if it is a vehicle that you have defined in your custom vehicles,
- on a black background otherwise.

For each one, the name is displayed, with its picture, as well as the capacity of the battery and the maximum power of charge, in AC and / or DC.

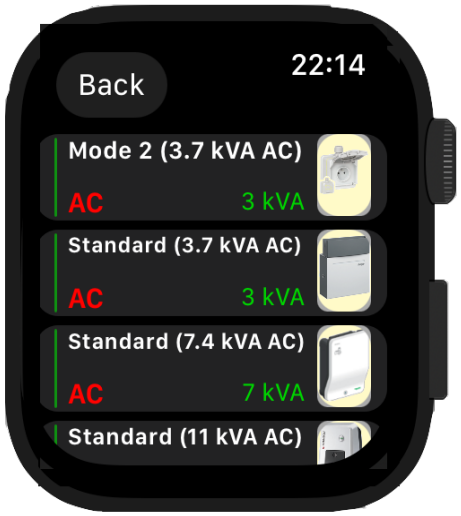
The usual vehicle (preferred), if any, is marked with a green line on the left. A brighter left line marks the current choice.

Scroll the list with your finger (or with the wheel) to the EV of your choice, then tap it; the selection is taken into account and you return to the home screen where the name of the vehicle is now indicated.
Tap on "**Back**" to cancel the choice.
You can then view detailed vehicle information by tapping its image twice (see below).

Indicate the type of charging point you will connect to, by tapping '**Define Point of Charge**'

The list of all possible charging points is displayed.
For each one, the name, the photo, the type of current (AC or DC), the maximum power (kVA in AC, kW in DC).

The charging points are bordered by a green line if they are compatible with the chosen EV, with a yellow line otherwise. (Here, the EV can charge only AC, so the DC terminals are marked with a yellow line to alert you). A brighter left line marks the current choice.



Tap on the charging point corresponding to your choice; your selection is taken into account and you return to the home screen where the type of point of charge is now indicated.
Tap on "**Back**" to cancel the choice.

Compute gained autonomy.

You now have to define the charging time to know the autonomy gained during this recharge to come.

Tap "**Charge**" or the time in orange to display the time setting.
Two roll zones appear for hours (from 0 to 23 and 36 and 48) and minutes (in 10 minutes increments).

Set the hours and minutes by rotating with your finger in the area, or with the wheel of the watch if the hour or minute zone is selected (the title is written in green).

When the setting is complete, tap the charging time to display the extra mileage you have earned at the end of charge. Or tap the 'OK » button.
Note : if you want to display distances in miles, change the setting on the iPhone.

You can adjust your driving style from very slow (V. Slow) to Cool and very fast (V. Fast), through Slow, Cool and Fast, with the + and - buttons. The mileage earned is recalculated accordingly.

At the bottom right, an icon  shows the current charge level of the battery if you know it (here indefinite). Tap this icon to set this level (graduated from 0 to 7/8 charge).
The calculation of the new autonomy then takes into account this initial load (see Taking into account the initial state of charge).
Note: If you change the preference settings on the iPhone (for example, heat and air conditioning), the value is adjusted immediately.

Compute time needed to gain an autonomy

In the same way you can reduce the charging time required to gain a certain autonomy, taking into account the characteristics of the vehicle, the charging point, your preferences ...

Tap on the number of the displayed range, here '**+ 104 kms**' or the time in orange to display the time setting.
Two roll zones appear, for hundreds of kilometers (from 0 to 9) and kilometers (from 0 to 90, 10 by 10).

Adjust the values by rotating with your finger in the area, or with the wheel of the watch if the area of hundreds or kms is selected (the title is written in green).

When the setting is complete, tap '**OK**' to display the required time. Note that the range value may differ slightly from the initial value because the duration is rounded up to one full minute.
Note: If you want to display distances in miles, change the settings on the iPhone.

Taking into account the 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 the charge level icon to adjust the value; the gained autonomy is indicated (131 kms) as well as the new total autonomy (163 kms) which takes into account the remaining reserve of 32 kms.

Taking into account the slowdown at the end of 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.

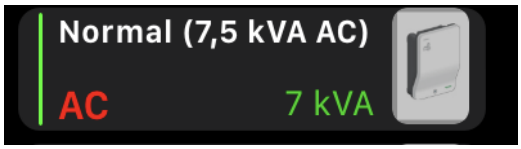
View the details of a vehicle

Once a vehicle has been chosen from the home screen, tap twice on its image to display the main information: battery capacity, max available recharging power, normalized maximum autonomy (WLTP if known, otherwise NEDC). At the bottom of the screen, a button to temporarily change the heating and cooling mode (if you have synchronized with the settings on the iPhone).
If the vehicle uses DC CHAdeMO, a small logo signals it.

Tap **Back** to return to the previous screen.

View the details of a Charge Point

In the load point selection list, you type in the text box on the left to validate the selection of this load point.



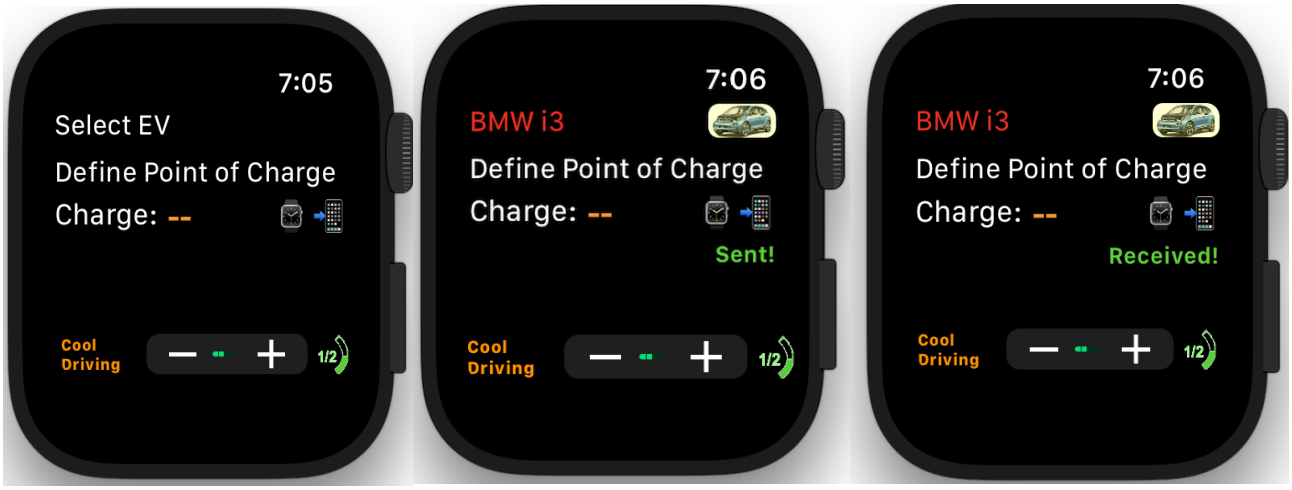
If you tap the image on the right, you'll see more detailed information about this charging point:

Tap **Back** to return to the previous screen.

Synchronizing settings between Apple Watch and iPhone

To sync iPhone and Apple Watch (Load custom vehicles, preference settings, current vehicle,)

- 1st solution: when launching the application: everything is automatic; so you can force to restart the apps:
    1. Launch first App on watch
    2. Then Launch app on iPhone
    3. Custom vehicles will download
- 2nd solution: ask for a sync from the Apple Watch by tapping ®



Type **2 times** on the icon connection	If the connection is established with the iPhone, a message confirms the sending of the request	Once the sync is complete (which may require several seconds), confirmation of the reception: the data is up to date on the Watch.