Soul EV Spy

The Users' Guide

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Important Disclaimer

This app is communicating with systems in the car, which potentially can cause the car to behave differently from its normal behaviour. This app is not endorsed or approved by Kia and Hyundai or the companies that produce the systems in the car. If you choose to use this app, you alone are responsible for any and all consequences of doing so.

Yes, we will often remind you of the above!

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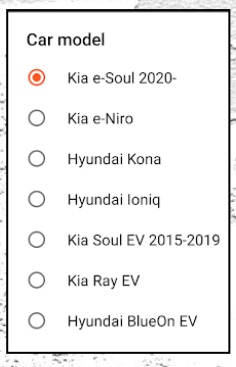
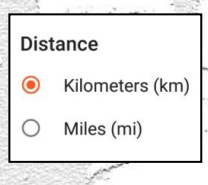
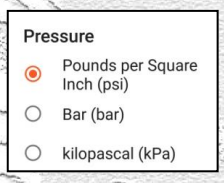
Quickstart

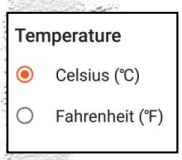
1. Install the software on your Android phone or tablet from Google Play Store.

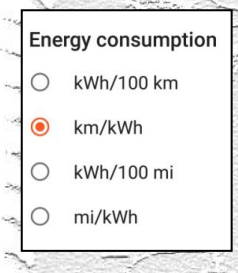
2. Run the app > Settings and select your car model and the units you wish to use.

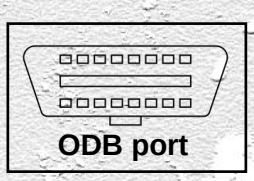












3. Close the app - find the ODB port on your car(see above) It is normally found in an area roughly beneath the steering wheel and has many connecting points for the dongle. It is shaped so that the dongle cannot be inserted incorrectly. It may be pointing down or forward depending on the car.

4. Plug in the OBD dongle and turn on the car as normal. If there is a switch on the dongle turn it on - you should see a red light on the VGate iCar Pro, when it is turned on

5. Pair OBD adapter with the Android device, (Android Settings, under Bluetooth). The pin-code is usually 1234 or 0000. The app does not support BLE (Bluetooth Low Energy), only “classic”.

6. Start the app on your phone/tablet, go to the Settings page and select the paired dongle (e.g. “VGate-Android”). Terminate the app.

7. Turn the car fully on (i.e. press the brake pedal and turn car on)

8. Start the app, and click Bluetooth Connect. Your OBD adapter should light the bluetooth connection LED. When the app is connected, the other lights on the adapter will start flashing. After around 30 seconds, data from the car will be displayed in the app.

Works with KIA: EV6 & 9, e-Soul, e-Niro, Soul EV (all battery sizes), Ray EV, Optima PHEV, Niro PHEV and Hyundai: Ioniq 5 & 6, Kona, Ioniq EV and PHEV, BlueOn. Probably Genesis EV.

Note: If any other software is connected to the adapter, e.g. Torque or Car Scanner, make sure those apps are terminated or disconnected. App connection continues in the background. Their interference causes communication issues for Soul EV Spy, so it keeps connecting and disconnecting. Same goes for other apps or devices connected to the dongle. The Bluetooth LED must be off on the VGate iCar PRO, for Soul EV Spy (or the next app) to connect successfully.

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FAQ

Q: **Where do I get the app?**

From the Google Play Store.

Q: **What are the differences between the free "Soul EV Spy Lite" and the paid "Soul EV Spy" app?**

***The free version is no longer being maintained or improved**,*

Q: **Why is the app rating so low in Google Play?**

The previously recommended OBD Bluetooth adapter KW902 hardware was modified by Konnwei, so it did not work correctly with the car, the phone, and/or the Soul EV Spy app. The issues caused are too fundamental to be possible to fix in the Soul EV Spy app. Due to this, many users has given the app a bad review. See also: Q: Is the Konnwei KW902 not supported anymore?

Q: **Can I get a refund if the app is not working as I expected?**

Yes, within a time limit, you can get your purchase refunded, in Google Play Store.

Q: ***Which version of the Android OS does the app require?***

Android ver 4.4 or newer.

Q: Does the app work on Chromebook?

I believe it does (both the free and the paid app). If not get a refund and inform me soulspy@evranger.com

Q: **Where do I get the app for Iphone?**

It doesn't exist. And there is not likely to be ever either. Instead you can consider getting a cheap or used android phone for this.

Q: **Can I use the app to control or change settings in the car, or start and stop e.g. charging or climate control**?

No. The app is read only, it does not change any values or settings in the car. It only reads data from the car. You might want to check out the UVO app, provided by Kia that can control some items in some models (check out compatibility list) Link to the UVO app.

Q: **Does the app have ads?**

No.

Q: **Will you add support for WiFi OBD-II dongles?**

No. Sorry.
Too much work which will take time from adding features for the current users of the app.

Q: **Where are the files with data from my car?**

The files are in the Download catalog. Data is stored after each scan, the reading of each set of values from the car. The location of the Download folder depends on your device & Android version. On our Android phones, we have found the files either under "Internal storage" or under "SD card".

FAQ

Q: **What is in the data files stored by Soul EV Spy?**

SoulSpyLog.XXXXXXXX_XXXX.txt: Communication between the app and the OBD-II dongle, as well as some status information. SoulSpyData.XXXXXXXX_XXXX.csv: Extracted and processed values from the systems in the car, in a format suitable for import into a spreadsheet, e.g. Excel.

Q: **Which dongles does the Soul EV Spy app work with?**

Only *VGate iCar Pro Bluetooth 4.0* is supported. *The Soul EV Spy app and Kia & Hyundai EV's does not work with most dongles. Most adapters does not filter monitor data correctly and many adapters has too little buffer space to handle the amount of data returned by some commands. Some testers have reported partial / intermittent data with other ELM327 clones, but these are unsupported, so you cannot expect the app to work correctly with those. Random erroneous values are to be expected.*

Please buy a recommended OBD Adapter, this saves you and us troubleshooting efforts. Thanks.

Q: **Is the Konnwei KW902 not supported anymore?**

Konnwei have produced multiple different versions of the KW902 OBD adapter, often without any change of version or appearance. Some versions of the KW902 cannot handle the amount of data from Hyundai and Kia EVs, other versions of the KW902 only work with some phones. It is impossible to see if you have an adapter that works or not, so if you order a KW902, you have no idea if it will work with your car and Soul EV Spy. Due to this, multiple users have given bad reviews for the Soul EV Spy app. Consequently, the VGate iCar Pro BT4.0 adapter is now the adapter supported by the app.

Q: **Why is my DC Chargers page empty?**

You need to grant the app access to your location. The nearby charger locations are retrieved from goingelectric.de, so coverage is best for Western Europe.

Q: **Where can I get a supported OBD dongle for the app (VGate iCar Pro BT4.0)?**

You can purchase the iCar Pro from a number of webshops, .

Q: **Why does the blue light on the Bluetooth adapter not light up, when I touch "Connect via Bluetooth"?**

You selected the wrong "Bluetooth device" in Settings. The VGate iCar Pro is listed as "Android-Vlink", when it has been paired to the android device.

Q: **Why does the blue light on the KW-902 OBD dongle not light up, when I touch "Connect via Bluetooth"?**

You selected the wrong "Bluetooth device" in Settings. The VGate iCar Pro is listed as "Android-Vlink", when it has been paired to the android device.

Q: **Can the app tell me why my car displays a GOM-range of only nn miles/km, when fully charged?**

Maybe. The app can display SOH, either as reported by the BMS in the car, or calculated from battery deterioration from the BMS in the car. If SOH is below 100%, you have less battery

capacity than when the battery was new. SOH below 100% will cause a lower GOM-range.

The remaining distance displayed in the GOM, is estimated by the car based on:
- *Remaining energy in the battery. Indicated by SOH and SOC*
- *Average consumption since the last reset of the GOM*

The remaining energy in the battery is expressed as SOH and SOC. The consumption average that the GOM uses is influenced by many factors.

Basically, the car energy consumption per mile/km is high with:
- *High speed (the difference between 50 Mph and 80 Mph doubles the energy consumption, consequently the range is much less when driving fast)*
- *Rain, snow*
- *Headwind*
- *Low tire pressure*
- *Use of brakes (instead of regen)*
- *Use of regen (instead of coasting)*
- *Hard acceleration*
- *Cabin Climate on during multiple stops in cold or hot/sunny climate, with short distances between stops*
- *A/C low on cooling fluid*
- *Roof rack (breaking the air flow)*
- *Open windows (breaking the air flow)*
- *Hanging brakes*

Q: **How do I tell if a Kia Soul EV has a 27 kWh or a 30 kWh battery?**

On the battery cell map page, you will see the voltage for each cell pair. If it is the 27 kWh battery, it has 96 cell pairs. If it is the 30 kWh battery, it has 100 cell pairs. If it is an e-Soul, e-Niro or Kona EV with the 64 kWh battery, it has 98 cell pairs. Multiple different car models, many with the possibility of different battery sizes. The actual number of cells displayed shoul be displayed correctly, but this may not have been tested on the battery size you have in your car. If you see a wrong number of cell values, please send the SoulSpyLog.XXXXXXXX_XXXX.txt file to soulspy@evranger.com

Q: **Why does the app display my SOH above 100%? Is it a bug?**

SOH percentage is a percentage of the rated, or nominal, capacity; the capacity that can be used, when the car is new: e.g. 27 kWh in Soul EV 2015. But actually, the battery in the car is larger, it has some extra buffer capacity, to ensure that there is 27 kWh available capacity, even after some battery degradation. It is estimated that a new battery in the Soul EV 2015 car has an actual capacity of approximately 30.5 kWh. The BMS limits the usable capacity, to extend battery life

The BMS in the Kia Soul EV 2015-2017 (the model having 27 kWh battery) does not measure SOH for the battery. Instead, it measures battery deterioration: how many percent of the full, original actual battery capacity (including the inaccessible buffer), that has been lost. Soul EV Spy calculates SOH as the original full capacity subtracted the deterioration, expressed as a percentage of the rated capacity (i.e. 27 kWh).

So, for a brand new Soul EV 2017 (or a brand new replacement battery), Soul EV Spy will display SOH at around 110%. Because there is more than 27 kWh remaining capacity in the battery. Only 100% can be accessed. It is confusing to see a number above 100%, I understand. In my opinion, it has value to display how much buffer remains, before the available capacity will be less than

FAQ

100%. That is why I decided to display the SOH value above 100%, when the remaining capacity is larger than the rated capacity of 27 kWh.

Later models have a different BMS, reporting SOH instead. They report 100% SOH, even when the battery is new, and the full battery capacity is larger than the nominal capacity.

Q: **Do you plan to add cars from other brands?**

No. Most other brands have dedicated EV apps already.

Q: **Which languages are supported by the app?**

Currently: English, French, Russian, Norwegian, German, Danish, Swedish, Spanish, Catalan, Dutch, Finnish, Hungarian, Italian, Korean, Norwegian and Russian. Translated by volunteers: See the "Contributors" page, under "Settings", in the app.
The app displays the translations matching the language that the android system is configured for. If you will volunteer for translating the texts to a language that is not yet supported, send an email to soulspy@evranger.com.

Q: **After how many miles / how long in time will the SOH go below 100%?**

When the "extra buffer" battery capacity has been lost to battery deterioration. Lots of factors influence when that happens, primarily time, heat, high charge/discharge power, number of charging cycles. Extended periods at high SOC can also affect SOH negatively. For a point of reference: My Soul EV 2015 had the app report SOH slightly above 100% after 3 years / 50.000 kms, and SOH at 96% after 4 years and 71.000 kms. The car had primarily been slow-charged at 3.6 kW every night, always in a temperate climate zone (Denmark / Northern Europe).

Q: **Can the app display data on the screen inside the car?**

It cannot display data via Android Auto (to my knowledge). I know that the old Soul EV Spy Lite apk has been installed on the head unit of an Ioniq EV! The head unit runs Android, and the app can connect to the OBD-dongle via Bluetooth, and also access the online charging station data via wifi connection to a mobile hotspot. But this is not supported, and requires "rooting" of the head-unit! Not recommended!

Q: **Why are no TPMS values displayed on the "Tire data" page?**

Older models register data from the TPMS valves when the car has been driven for around half a mile / 1 km. Newer models usually display stored values from last drive immediately, when turned on. So just be patient :)

Q: **Why do I get strange or no readings?**

- *Did you set the correct Car Model in the app?*
- *Did you select the paired dongle in the app?*
- *Is the car turned fully on (ready to drive)?*
- *Is the dongle paired to the android device?*
- *Is the dongle turned on?*
- *Is another app connected to the dongle?*
- *Are you using the supported OBD Bluetooth adapter?*

FAQ

Q: **Why does the car show "Unknown SOH" or "Unknown deterioration" under "Battery SOH %", on the "Car" page?**

If the car is new, or the car BMS has been reset or firmware-upgraded, it will take a number of full charge/discharge cycles for the BMS to estimate the battery SOH, or deterioration which the app use for calculating SOH.

If you happen to have one of the models that always has SOH displayed as "Unknown" in the app, and you have an official dealer measure the SOH value as below 100%, then please send an email to soulspy@evranger.com, containing the SOH value reported by the dealer, and the SoulSpyLog.202XXXXX_XXXX.txt file from the Download catalogue.

Q: **Why does the car show 100% SOH" after years of use?**

The BMS data format was changed around 2018-2019, and cars produced since then mostly displays 100% SOH, regardless of mileage and age. Several theories have been suggested:

- *The BMS requires an "unlocking code" to reveal the true SOH?*
- *The BMS reports 100% until the real SOH goes below 70% ?*
- *The battery lifetime has been improved so much that the SOH actually is 100% ?*

If you happen to have one of the models that always has SOH displayed as 100% in the app, and you have an official dealer measure the SOH value as below 100%, then please send an email to soulspy@evranger.com, containing the SOH value reported by the dealer, and the SoulSpyLog.202XXXXX_XXXX.txt file from the Download catalogue.

Q: **How does data recording work?**

Soul EV Spy app data is captured automatically, as soon as the app is reading car data from the OBD. Data is stored as .CSV format in the "downloads" directory of your phone.

You can use "Replay recorded data" to view the csv data in the app. Or you can use MS EXCEL to further display and analyze. The SoulSpyLog .txt files are for debugging.

Q: **What problems may occur and how do I handle them?**

In case of problems, (no data displaying, some data displaying, weird values, app displaying "Disconnected" and "Connecting" every 10th second, app crashing), you can try this:
In the app settings, check that the correct "Car model" is selected, and that the correct OBD Bluetooth device is selected. Terminate the app. Unplug the dongle from the car. Wait 5 seconds, then plug the dongle again, and turn it on. Start the app, and press connect.

Ensure that the Bluetooth light on the OBD adapter is off, before attempting to connect from Soul EV Spy. If it is on, something else is connected to the adapter, and this will cause problems for the Soul EV Spy. Apps in the background (including Soul EV Spy) continues to communicate with the connected dongle, until you disconnect in the app, or the app is terminated.

If this does not work, your dongle is probably malfunctioning, or incompatible with the app. To check, you can try to read EV values using another app, e.g. Torque Pro. (Link here) It might be worth trying unpairing the dongle and pairing again first - that has sometimes helped.

Some phones seem to have problems handling multiple simultaneous Bluetooth connections, so it may help to turn of the car audio, and disconnect your phone from headsets, earplugs, smartwatches, etc., and then try connecting Soul EV Spy to the Bluetooth adapter again.

FAQ

If you have purchased the paid app, you email the SoulEvLog.2020XXXX_XXXX.txt files to soulspy@evranger.com along with your car model, which OBD adapter you are using, a description of what you did and what you observed. You will most likely get a reply from the developer.

Q: **I have found a bug in the app. What can I do to get it fixed?**

Please first check steps 7 and 8 in "Quickstart". If you are using another OBD-dongle than the supported VGate iCar Pro BT4.0, please consider if the "bug" could possibly be due to bad / intermittent / garbled data from the dongle. You can also post a question on this forum: https://www.mykiasoulev.com/forum/viewtopic.php?t=1193

If you still believe there is a bug in the app, you should gather the following info:

- *SoulSpyLog.XXXXXXXX_XXXX.txt and SoulSpyData.XXXXXXXX_XXXX.csv.*
- *Your car's make, model, trim level and model.*
- *Which Bluetooth OBD adapter you use.*
- *What you did (each step in the sequence of events starting with the first of: You inserted the dongle in the car, you turned on the car, you started the app after it was last terminated).*
- *What you observed after each step.*

This information you can email to the developer of the app at: soulspy@evranger.com

Q: **Who is the developer of the app?**

Many people have contributed along the way. See the contributors page in the app (click "About" under "Settings" in the app). The current maintainer of the app is Henrik Scheel, a software developer from Denmark. You can reach him at: soulspy@evranger.com

Q: **Why does EVNotify / Torque Pro / OVMS display a different value for XXX than Soul EV Spy?**

I don't know. Some values are calculated (e.g. the SOH for the Kia Soul EV 27 kWh battery), and different apps may use different algorithms for the calculation. Most of the extracted values and calculations in Soul EV Spy are based on discussions in this forum: https://www.mykiasoulev.com/forum/viewtopic.php?t=135

Q: **I have a question that is not answered by this FAQ. Where can I get an answer?**

See if your question has been answered here:
https://www.mykiasoulev.com/forum/viewtopic.php?t=1193
If it has not, please post your question in the forum first, don't use PMs, as other users of the app, as well as the developer of the app, are following the topic, and may answer. Plus other users may benefit from the answer to your question.

Glossary

Available battery capacity	The capacity of the battery, that is available from the battery when charged to 100% SOC, until discharged to 0% SOC. When the car is new, the available battery capacity is the same as the rated battery capacity.
A	Ampere measures electrical current
AC	Alternating current. The on-board charger use AC current, and converts it to DC current, for charging the main battery.
Ah	Ampere Hours are a measure of electric current for an hour
AUX	The 12V auxiliary battery - yes it still has one!
BMS	Battery Management System: onboard system to monitor the battery system and help protect it from adverse conditions when in use or charging.
DC	Electricity where current only flows in one direction unlike AC (Alternating Current - the type of electricity found in homes). Batteries accept / provide DC current. DC chargers can provide a quick way to charge an EV, delivering higher current than the built-in AC-charger. *DC chargers* are found along highways and shopping centres, etc. Knowing where they are is important when driving long distances.
Dongle	A nickname for the OBD Bluetooth adapter used by the app to communicate with the car
EV	Electric Vehicle, car running only on electric power. Sometimes it appears as BEV, which includes the word Battery.
GOM	Guess-O-Meter, a “special” expression for the estimated remaining mileage/kms being shown in the dashboard. The guessing refers to the fact that the remaining mileage is a bit of guesswork, since consumption depends on how you will be driving the car. Many factors, e.g. speed, weather, terrain and driving style affects consumption. Your actual range can be much better or much worse than the GOM display. A factor of two or more difference in energy consumption, can be expected, between driving back roads at 50 Mph, versus driving on the expressway at 80 Mph. So if the GOM estimate is based on city driving at low speeds, the GOM value is way too optimistic for matching expressway energy consumption.
HEV	Hybrid Electric Vehicle, a combination of EV and ICE that is unable to charge by cable. All energy charged to the battery, is directly or indirectly generated by fuel consumed in the ICE engine.
ICE	Internal Combustion Engine. A fairly common expression for vehicles running on fuel from a pump.
kW	Power measurement unit. The amount of electrical power your motor is using to run your electric vehicle, or the power delivered by a charger.
kWh	Energy measurement unit. For example an electric vehicle battery energy storage capacity, or the amount of energy added during a charge. Think of it as how many kW can be discharged for 1 hour (or for how many hours 1 kW can be discharged). More energy (= more kWh) means reduced need for charging - range is generally greater.

Glossary

OBC	On Board Charger - device that converts AC to DC for charging the main battery, when using Level 1 or Level 2 chargers.
OBD	On Board Diagnostics, an interface required by law: https://en.wikipedia.org/wiki/On-board_diagnostics
OBD adapter	An adapter for connecting to the OBD-port in the car, e.g. via Bluetooth.
PCT	Displayed on various Soul EV Spy screens as pct: percentage (%)
PHEV	Plugin Hybrid Electric Vehicle, like a HEV, but can also be charged by cable
Rated battery capacity	The battery capacity usable when the car is new. The physical battery initially has more capacity than the rated capacity. The BMS limits the capacity available to the user, to best preserve the battery life.
	The capacity available for use, when the car is new. This is the number you see in the ads (e.g. e-Niro 39 kWh / 64 kWh is the rated capacity). The actual battery capacity is larger, in a new car (for Hyundai and Kia - other car makers advertise the total battery capacity)
SOC	SoC shows the State of Charge as a percentage (%) of available battery capacity.
SOH	SoH shows the battery State of Health, i.e. the remaining battery capacity, expressed as a percentage (%) of rated battery capacity.
VMCU	Vehicle Motor Control System: The unit controlling the motor in the vehicle. For some models motor RPM and the depression of the accelerator pedal, as well as other motor control values are displayed. Including which gear the car is in.