

### SCREEN 7: CUMULATIVE ENERGY

**Total cumulative energy charged** (CEC) in the battery (recharge and regeneration) in kWh which represents the total energy charged in your vehicle since it was put into service. **Cumulative energy discharged** (CED) that the battery has used (traction / air conditioning / heating) in kWh since commissioning. Note that it is normal for the charged energy to always be greater than the discharged energy since there is always energy loss when using a battery.

### SCREEN 8: ENERGY COUNTER

**Counter measuring the charged and discharged energy** of the battery in kWh. Press **ANY BUTTON at least 4 seconds** to reset the counter. It is useful, for example, to reset the counter before a slow or fast charge, before a short or long trip of several days to see the **energy gained and spent** by the vehicle battery. Note that during a drive the regeneration energy may slightly increase just like a charge of the vehicle. The counter data is kept in non-volatile memory and it is **always possible to change the screens normally** even if the counter is in operation.

### SCREEN 9: STATE OF HEALTH AND OPERATING TIME

The **state of health of the high voltage battery** (SOH) in %. A new battery starts at 100%, then over time the battery will eventually deteriorate and the value will decrease. This screen also displays the **total operating time** of the vehicle in **hours and minutes**.

### OPTIONS AND UNITS CONFIGURATION SCREEN

On any screen, **press a BUTTON for at least 4 seconds then release** to access the **options configuration menu**. The **first option LANGUAGE** will be displayed indicating the interface language used: English or French. To change the interface language, **press a BUTTON for at least 4 seconds then release** and you will see the **new language selected** on the display. To **NOT MODIFY** the option and go to the next option, **press a BUTTON for 1 second then release**.

Repeat these same steps to view or modify all the options:

**Language:** English / French

**Battery:** 64 kWh / 39 kWh

**Temperature:** Celsius / Fahrenheit

**Distance:** km / miles

Contact us

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More information

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Thank you for your purchase!

**Have a nice drive**

EVObd2™ - Designed and built in Quebec - 2020 - v2.02

## **EVObd2 - VERSION 2.0**

### Mini OBDII Bluetooth Display for

Hyundai: Kona Electric

Kia: Niro EV - 2020 & plus Soul EV

This product is used to display **data from your electric vehicle's computer** via **Bluetooth using the OBDII protocol**. Data presented by the display, although **hidden in the vehicle**, is made accessible by this tool in order to help you make better use of your vehicle. The introduction of **smart features with version 2.0** like the new **Recent-Based GOM** and **AverageTrip Info** sets this product apart by offering new value-added features to improve your driving.

### ATTENTION: COMPATIBLE Bluetooth OBDII ADAPTER IS REQUIRED

(See compatible adapters further in this manual)

**SECURE:** This smart display only gets vehicle information and cannot interfere with its operation in any way.

### FEATURES

- Possibility to mount the display **temporarily** or **permanently**
- **Compatibility** with several recent **Bluetooth OBDII adapters**
- **Automatic Adapter Pairing** that searches, finds, deals with necessary PINs to learn and pair with your adapter. Once **connected**, unless you change the adapter, **never** do the pairing process again
- **Plug & Play:** does not require long configuration steps necessary with other systems. Convenient for "geeks and non-geeks"!
- **Alternative solution to mobile / application** like Torque Pro, without battery and low power consumption of 0.7 W (however does not deal with vehicle error or diagnostic codes)
- **Store** your favorite screen, energy meter data and average vehicle consumption according to seasons and types of driving between vehicle uses.

## NEW SCREENS IN VERSION 2.0

- **RECENT-BASED GOM (GUESS-O-METER):** Unlike the vehicle's GOM which indicates the remaining range with a calculation based on hundreds of kilometers, the display's GOM **bases its calculations on the last 50 km or 30 minutes traveled**. The recent-based GOM prediction can thus give a **better idea of the remaining range if vehicle consumption and driving conditions differ or change suddenly**. See more explanations in the corresponding section.
- **TRIP AND AVERAGE SPEED INFO:** Information on the current trip such as the average speed traveled which is not shown in the vehicle dashboard. The vehicle has only an accumulated trip memory, but no single trip info (no "Trip B"). This shortcoming is filled by the display with this trip screen and the information for each individual trip.
- **CELL VOLTAGES:** Maximum, minimum and differential voltage of the high voltage battery cells.
- **OPTIONS AND UNITS CONFIGURATION:** Options configuration screen. Language: French / English. High voltage battery: 64 kWh / 39 kWh. Imperial system units: miles / km, degrees Fahrenheit / Celsius.

EVObd2 will prevent you from regularly **mounting / dismantling your phone and opening an application** each time you use it. One button is enough to view your vehicle data!

### BLUETOOTH OBDII ADAPTERS

Several **OBDII Bluetooth 4.0 adapters** work with the display. As the adapter can remain installed at any time, we recommend that you choose a **small** one (less risk of damaging it with your legs). Also some adapters go **dormant** after a delay and must be woken up by pressing a button. They are **not recommended** for automatic operation.

## RECOMMENDED COMPATIBLE ADAPTERS

Vgate iCar Pro Bluetooth 4.0 BLE OBD2, JUTA α-Driver Bluetooth 4.0. The following adapters are compatible, but not recommended for their lower performance: Veepeak Bluetooth OBDCheck VP11, Veepeak OBDCheck BLE, Panlong OBDII Bluetooth scanner for Android.

## INSTALLATION AND PAIRING

If you **PURCHASED A KIT WITH THE ADAPTOR NO PAIRING IS REQUIRED.**

The OBDII Bluetooth adapter communicates with only **one device at a time**. Make sure that your mobile application such as Torque Pro is not already communicating with the adapter in order to use the display.

- 1 - **Connect the OBDII adapter** to the car port
- 2 - **Connect the display with the supplied USB-C cable to USB power.** (It is preferable to leave the CarPlay / Android USB port for your mobile because it remains powered for a few minutes after switching off the vehicle)
- 3 - **Start the car.** The display will attempt to connect to the adapter. As it is not yet paired with your adapter, it will indicate a connection error. **Wait approximately 40 seconds for the RESET / PAIR screen to show up.**
- 4 - **Press ANY BUTTON for at least 4 seconds then release.** The display will search for the adapter and then attempt to establish the connection. It will then try to connect and present the vehicle data. **Your module is installed and you can start using it!**

The display shows the **MAC address of the compatible OBDII adapter discovered** at pairing at the bottom of the connection screen. If the connection is not established, possibly another device has been detected nearby. In this case, please **turn off all other suspect Bluetooth devices like a smart phone and/or move your vehicle about 50 feet or 20 meters**, then start pairing again.

Once the communication between the display and the OBDII Bluetooth adapter is established, **pairing no longer needs to be redone.** It would be necessary to redo a new pairing **only in case you replace the OBDII adapter.**

During normal use if the display shows the **RESET / PAIRING screen**, it is likely that your **OBDII adapter was disconnected** or that there was occasional communication interference. This situation is rare and in this case make sure that the OBDII adapter is **properly connected, then press ANY BUTTON** to restart the display.

## USING THE DISPLAY

The EVOBD2 display has a series of 9 screens to show you the information. **Press the RIGHT BUTTON to MOVE FORWARD** from one screen to another in a circular fashion (screen 1 -> screen 9 -> screen 1). **Press the LEFT BUTTON to MOVE BACKWARD** in the sequence of screens in a circular fashion as well.

### SCREEN 1: GENERAL INFORMATION

**Battery state of charge (SOC)** in %. **Average battery temperature** in C which is useful to consult because if the temperature is warm enough the fast charging power will be better and higher. **Power** delivered by the battery in kW (positive number in red for discharge, negative number in green for charging or regeneration) **Indoor temperature** of the passenger compartment in C (different from the set temperature in the car's climate control)

### SCREEN 2: RECENT-BASED GOM (GUESS-O-METER)

**Battery state of charge (SOC)** in %. **A mix of average battery consumption for the last 30 minutes of travel and past learned data in kWh/100km** for initial GOM calculation. Unit is shipped in "summer" mode at 15.4 kWh/100km and will adapt to seasons and driving styles after 5 drives longer than 30 minutes. **Remaining vehicle range (GOM)** in km or miles.

**OPERATING PRINCIPLE:** Unlike the vehicle's GOM which indicates the remaining range according to a calculation based on the last few hundreds km traveled, the **recent-based GOM on the display bases its calculations on the last 50 km or 30 minutes traveled.** The recent-based GOM prediction can thus give a better idea of the remaining range if the vehicle's consumption and driving conditions differ from what has been driven in the past. The display analyzes the consumption during the first minutes of the journey while the vehicle's consumption stabilizes. During this period, the **initial GOM displayed is estimated from consumption data of previous trips.** After driving for 5 to 15 minutes, the display has enough information to gauge the vehicle's consumption and adapt the GOM prediction to current conditions. **If consumption is greater than usual, the recent-based GOM will adapt faster than the vehicle's GOM and the remaining**

**range will decrease more quickly.** Conversely, if the fuel consumption is lower, the recent-based GOM will decrease more slowly and the remaining range could even increase, which the vehicle's GOM does not do. Here are 2 examples of real situations to understand the usefulness of the recent-based GOM:

**CASE OF INCREASED CONSUMPTION:** you install **skis and/or a luggage rack on the roof** of your vehicle. As you start to drive, the vehicle obviously cannot account for the headwind and the added friction on the skis. This leads to a significant increase in consumption **compared to the long term history of the GOM of your vehicle.** At the start, the vehicle's GOM indicates 320 km and **290 km after 25 km traveled.** On the other hand, the recent-based GOM detects the increase in consumption and after the 25 km traveled, it indicates a **range of 230 km, which is closer to reality.** You can then change your plans and decide to do an early charging stop if necessary before arriving at your destination.

**CASE OF REDUCED CONSUMPTION:** after a **drive on the highway with high consumption of 16 kWh/100km** you arrive in town, the speed decreases and there is a fair amount of traffic. The vehicle's **consumption then drops to 12 kWh/100km** in the last minutes. The **vehicle's GOM indicates that there are 45 km remaining** while the **recent-based GOM indicates that you have 85 km remaining** at the same pace, which can reassure you. In certain **urban driving situations with very low consumption**, the range can exceed 500 or 600 km (the record being more than 700 km with the Hyundai Kona). **The recent-based GOM may reflect this increase in range unlike the vehicle's GOM.**

**IMPORTANT:** the EVOBD2 display is shipped by default with the **recent-based GOM in "SUMMER" mode with an initial calculation consumption of 15.4 kWh/100km.** If the display starts to be used in winter or in general so that it adapts to the driving style, **it is necessary to make up to 5 drives of at least 30 minutes so that the initial consumption adapts to the new season or driving style and for the data to be realistic.** Note also that the recent GOM is especially designed to be used on **long trips of more than 30 minutes.**

The **vehicle's GOM is of course always useful and essential**, but the **recent-based GOM is complementary** since it is based on recent consumption. Note that it is simple for the user to manually compare the accuracy of the GOMs by noting the odometer and GOMs at the start and finish. You can subtract the departure and arrival GOMs and compare them to the distance actually traveled. This is an objective method to validate the accuracy of each GOM if you so desire.

Note: the **vehicle's GOM varies depending on the driving modes.** You will see that the GOM is higher in eco mode, it decreases in normal mode and is even smaller in sport mode. **The vehicle's GOM anticipates changes in consumption for its predictions. But in fact, there is only one recent-based GOM to have a clear picture of the remaining range, one prediction and not 3 possible scenarios.**

### SCREEN 3: TRIP AND AVERAGE SPEED INFO

**Travel time in hours and minutes. Distance traveled in km or miles. Average consumption of the trip in kWh/100km. Average speed in km/h.** Average speed is calculated using real time and counts stops, a prolonged stop reducing the average speed. This screen fills the shortcoming of the vehicle which only offers cumulative trip information (no "Trip B" for a single trip). The trip information on the **EVOBD2 display can then be viewed as a single trip** and that of the vehicle relates to the **cumulative trips.** At the start of a trip, you must drive at least 1 km before the data is displayed. Note that the start of the trip starts at the first transition of the vehicle odometer and is shown as the distance 0 km from which the trip is counted in distance and time.

### SCREEN 4: HIGH VOLTAGE BATTERY

**Battery voltage in V. Average battery temperature in C. Power** delivered by the battery in kW (positive number in red for discharge, negative number in green for charging or regeneration) **Battery heating temperature** (heater 1) in C. It increases when necessary at fast charging to improve charging and optimize your costs.

### SCREEN 5: 12V AUXILIARY BATTERY

**Auxiliary battery state of charge in %. Auxiliary battery voltage in V. Auxiliary battery current in A** (positive number in red for discharge, negative number in green when charging by the main battery).

### SCREEN 6: BATTERY CELLS VOLTAGES

**Maximum voltage of highest cell in V. Minimum voltage of lowest cell in V. Difference between maximum and minimum cell voltage in V.** The voltage difference should be as small as possible under 0.1 V if the cells of the high voltage battery are well balanced and managed by the vehicle's BMS.