

The logo features the word "EVolution" in a stylized, italicized font. The "E" is large and bold, while "Volution" is in a lighter weight. The text is white and centered within a circular, glowing blue ring that has a metallic, reflective appearance. The background is a dark blue gradient with glowing blue circuit lines and dots, giving it a high-tech, futuristic feel.

EVolution

Service & Battery Center

WHERE ELECTRIC VEHICLES FEEL AT HOME

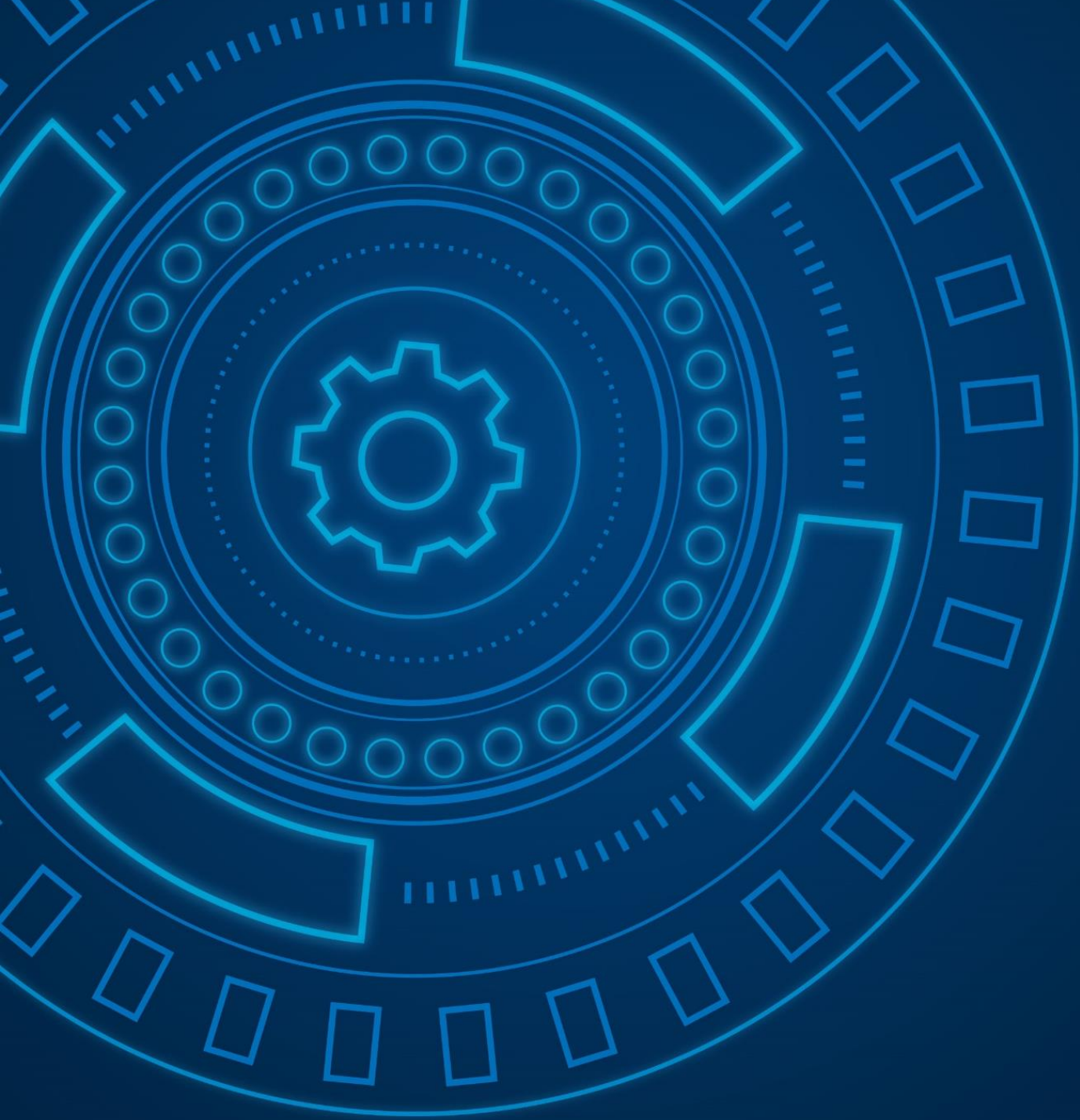


EVolution

Service & Battery Center

Established in 2017, we are an engineering company specialized in the development of high-tech hardware and software for electric vehicles and HV batteries. Integrated in the O&M business unit, we also provide specialized service and repair through a franchised network of service centers

The Service Centers are able to repair, update and re-engineer motors and batteries, extending the lifetime of the vehicle, and reuse the 2nd-life batteries for vehicle conversion or stationary systems integrated with solar panels.



Mission

Create the necessary conditions for to help the **EV**olution of electric and sustainable mobility, through reusable and integrated batteries, promoting a circular economy and a cleaner environment.

Why we do it?

Sustainability is not about planting trees, it is about reducing tree cuts and avoid waste.

Recycling HV batteries is a waste of trillions of usable kWh available in most of these batteries for several years. It means that we consume energy on recycling to destroy energy storage capacity. A absolute nonsense.

Reusing HV batteries, at least doubles the life of a battery. It reduces waste of materials and reduces cost when compared to a new battery for the same application.

Reusing electric motors enables conversions at very low costs with very high quality equipments.

In order to make it possible we have engineered and developed all the necessary electronics and software.



About us

We develop activities in three main areas:



➤ **R&D** - product and software development for electric cars and HV batteries conversion



➤ **Conversion projects** – engineering, design and conversion of combustion cars to electric or plug-in, and 2nd life batteries re-engineering for static use



➤ **Service and repair** – Through a franchise network of service centers, we are provide specialized multi-brand repairs of high-voltage electronics and batteries.

Product engineering

BMS - Battery Management System

TECHNICAL SPECIFICATIONS

Architecture: Master-slave/distributed
Operating voltage: 10-15V
Stand-by consumption: 30/360 mA/mW
Maximum cells in series: Up to 256
Battery voltage: M&M 1000V
Battery maximum current: 2000 A
Maximum battery capacity: Virtually unlimited
Minimum balancing threshold: 5 mV
Communication via 3G and Bluetooth
Data Store Webservice/NSD Card



DESCRIPTION

The BMS is an electronic equipment that controls each cell in a lithium battery, its charge, discharge, safety, amongst other parameters. The abilities go beyond the control of a battery and include other important accessories essential to a stationary battery or an electric vehicle, eliminating other important electronic equipment. The BATT BMS V1 was built to be used with the majority of OEM automotive batteries.

VCU - Vehicle Control Unit

TECHNICAL SPECIFICATIONS

Communication via Bluetooth
Connection to the CAN bus of the BATT components
Operation voltage 10-15 (Vdc)
Stand by consumption (mA/mW): 30/360



DESCRIPTION

Built from the same platform of our BMS to ensure the same reliability and performance, the VCU is a key if you want to retrofit your car with electric propulsion. The VCU and BMS are used together in EV conversions that use high voltage traction systems and other components such as an LCD display, type 2 charge port, etc. It is now able to control TCcharger on board chargers (OBC), OVARTECH OBC, TC charger DC-DC converters, Lianglu motor and controller, with more products being programmed everyday.

Product engineering

Kit Stationary Battery



This includes

- Contactors
- DC-DC converter
- Buttons, switches, relays and indicator
- Current sensor
- Pre-charge system
- NTC for ambient temperature detection
- BMS V1

DESCRIPTION

This kit was designed to ensure a simple and efficient build of stationary battery assuming only that the inverter or your system can be controlled by two inputs (charge enable and discharge enable, supporting different inverters). The BMS can control the SOC of the battery. It includes all components (cables not included).

Iso Meter

TECHNICAL SPECIFICATIONS

- Measures the total voltage of systems
- Measures isolation (MOHM)
- Works via CAN, using the same CAN bus-EVolution BMS
- Working voltage range 10-15Vdc



DESCRIPTION

For lithium electric storage systems working at more than 60Vdc in electric vehicles, it is necessary to measure not only the HV system voltage (after the contactors) but also the isolation resistance to the chassis. The BMS requires the use of Iso Meter when applied in an electric vehicle with voltages of more than 60Vdc, or any device working with more 100Vdc respectively.

Product engineering

Battery Capacity Analyzer

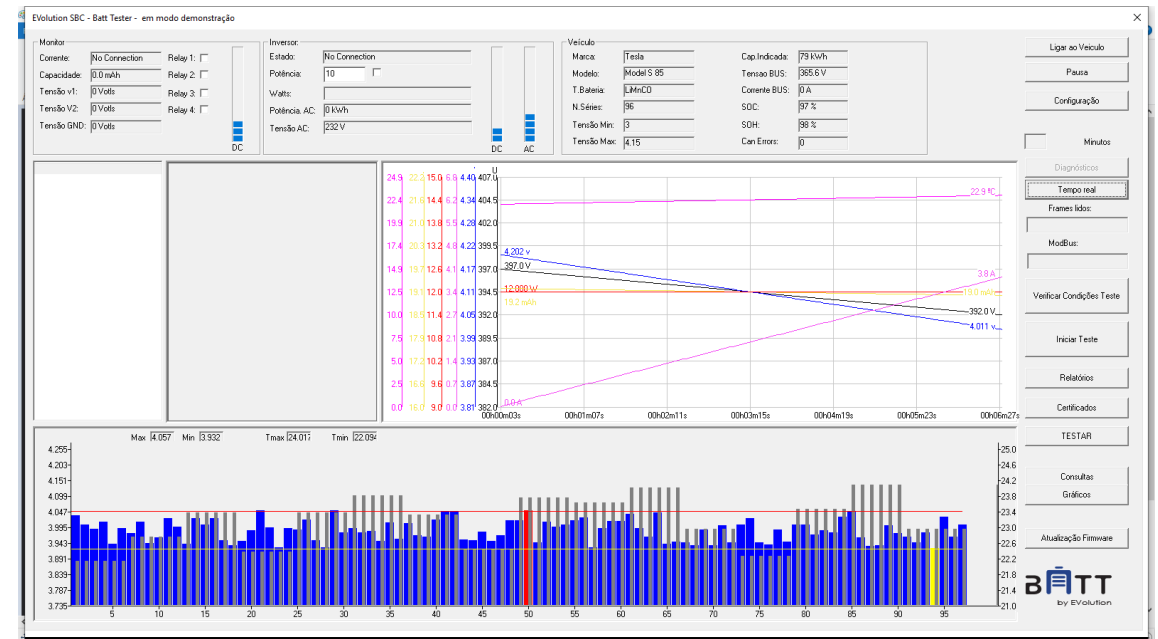
TECHNICAL SPECIFICATIONS

- Modular 3 phase system (upgradable)
- Variable power depending on the vehicle
- Any voltage available
- CAN BUS and power electric connection
- Select the vehicle and start the test
- Touch screen for easy of use
- Produces a typical discharge graph



DESCRIPTION

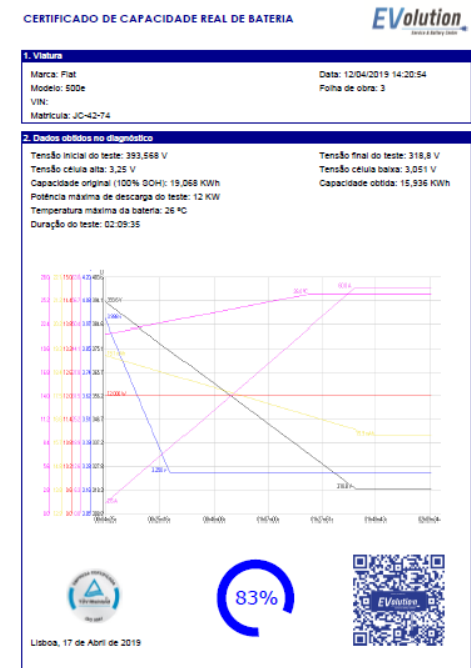
The Battery Capacity Analyzer is a modular diagnostics equipment for EV HV batteries, that can test batteries of vehicles such as Nissan Leaf, Renault Zoe, Tesla, etc. It tests the main components to detect faults of electronic parts such as the BMS and electromechanical components, individual cells and tests the capacity with little intervention on the vehicle. In the end, it produces a certificate with the known faults and the state of health (SOH) relative to a new battery.



Battery capacity certificates

We provide a service for battery capacity certification responding to market opportunity, with many advantages:

- For the seller of pre-owned car it gives more transparency and more value to the car.
- For the buyer it gives a guarantee on the battery health which has the most uncertainty when buying a used car.
- Independence of the car manufacturer and from its ECU.
- Can be used for warranty dispute.
- Price of certificate varies from 60€ until 154€ (vat excl).
- Each car will generate more than one certificate during its lifecycle.
- Certificates are stored in a secure server owned by EVolution.
- QR code can be used to validate the certification integrity.
- Big data is stored centrally for future datawarehouse & business intelligence.



The big questions

- Any type of vehicle can be converted?

In practise the answer is no. Long-course ships, airplanes and some cars that have specific requirements of range and permanent availability.

- Is it worth to convert a car?

Yes but it is not straight forward to all cars. Today is still for some niches like convertibles, coupés, SUV, classic cars, buses and race cars.

- What about power, it is the same as new OEM electric cars?

Depending on the motor used, your car will receive a new heart and soul.

- Li-ion is the best option?

With the existing technology today it is. But most likely it will not be the technology of the future.



The big questions

- If I make a conversion with Li-ion, can I upgrade technology in the future?

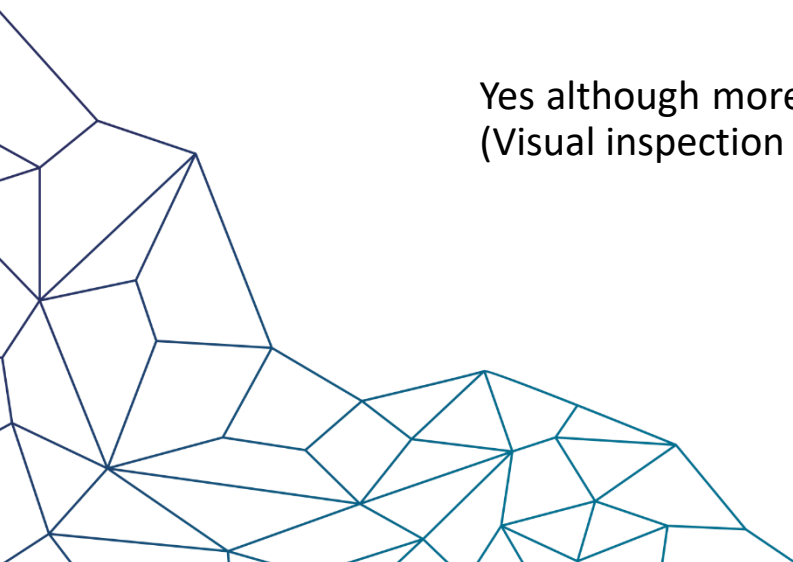
Yes with minor changes on the electronics.

- Homologation is a nightmare?

We believe not. However the conversion must comply with all automotive standards, electric rules and mechanical principles. Use of proper materials and equipments is mandatory

- Annual inspection is the same as ICE?

Yes although more simple. But some points should be checked after some years to ensure electric safety (Visual inspection of battery box, cable connection to the motor, etc)



Some projects



Some projects



Awards

EVolution was the first specialized service and battery center network. Focused the high-tech part of the vehicle, we aim to become the selected supplier for HV battery and electronics repair for car manufacturers.

EVolution as been distinguished in 2017 as the “Most innovative project of car service in Iberia”





www.evolutionsbc.pt
hello@evolutionsbc.pt



Lisboa | Batalha | Almada