

BREMI
GERMAN TECHNOLOGY SINCE 1927

EV-Safe



User's Manual and Safety Instructions

Technologie für Sicherheit – Technology for Safety

Thank you for choosing a BREMI product

The **EV-SAFE** electronic device allows the functioning of the charging interface to be verified and secured for maintenance or rescue operations of plug-in hybrid PHEVs and **electric BEVs**.

WARNING!

**Only qualified persons should use EV-SAFE,
after reading the safety instructions in this user manual.**

To use EV-SAFE it is necessary to register and activate the device

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REGISTRATION AND ACTIVATION OF EV-SAFE:

- 1) Visit www.ev-safe.eu and **register** your EV-SAFE **device and user** by entering your data and serial number (see back label of EV-SAFE).
- 2) After registering the device, you will receive **a link to a web page** and **an unlock code** on your e-mail, which will enable you to activate the EV-SAFE device.
- 3) Click on the link in the e-mail, **then read the instructions on the webpage** to connect your smartphone with EV-SAFE's Wi-Fi network (this may take a few seconds).



- 4) The activation page will appear in the browser. Proceed with entering your unlock code in the appropriate window; then click the 'UNLOCK' button (a confirmation sound will be heard).



WARNINGS FOR SAFE USE

Precautions for users and the device



Before using EV-SAFE, read and follow the instructions and safety warnings in this user manual.



If the device is used for slow charging of the electric vehicle, it must be ensured that the socket is earthed.



To keep the safety functions up-to-date, the user must check (even before use) for the latest firmware version (see section "EV-SAFE functions").



Before using EV-SAFE, ensure that the internal battery is fully charged (see "battery" led in section "EV-SAFE functions"). Pay attention when removing the power cable; ensure that the protective cap on the EV-SAFE's rear socket closes automatically after removal.



If the following technical problems occur, do not use the device and contact the authorised BREMI service centre or your dealer:

- Connection cables are damaged.
- A liquid was spilled on the device.
- The device shows anomalous operation.



Do not charge the vehicle outdoors in the rain! Do not use broken or damaged or non-original connecting cables, do not place the device on electrically live terminals.



Do not immerse EV-SAFE in any kind of liquid, do not expose EV-SAFE to high-pressure water jets, do not use EV-SAFE with wet hands.



Do not use EV-SAFE in direct contact with heat sources. Use EV-SAFE in environments with temperatures between 0° and 45°C.



Do not use EV-SAFE in environments with an explosive atmosphere.

WARNINGS FOR SAFE USE - Lithium-Ion Battery

Caution! EV-SAFE has a rechargeable battery:

- Only use the supplied BREMI-approved cable for charging. Do not use damaged vehicle connection adapters and respect the intended connections.
- The replacement of the battery and internal components is the sole responsibility of the authorised BREMI service centre (www.ev-safe.eu). DO NOT open, DO NOT force the container, refer exclusively to service.
- It is necessary to recharge the battery periodically, even if the EV-SAFE is not being used. Complete discharge of the battery will impair its service life.
- Battery performance can be significantly reduced if the device is used outside the temperature range indicated in the warnings.
- Improper use of the battery and non-compliance with the intended conditions of use can lead to fire, deflagration or liquid leakage.

MAIN FUNCTIONS OF EV-SAFE

- Mechanical safety - Starter lock
- Electrical safety - Electrical insulation check by means of in-vehicle self-test systems
- Charging socket interface diagnostics
- Charging (Slow Charge) - For maintenance and/or emergency

SWITCH ON: EV-SAFE switches on automatically as soon as it detects that the vehicle is plugged into the charging socket, or when the button is pressed.



SWITCH OFF: EV-SAFE switches off automatically if it is not connected to the vehicle (switch-off time may vary depending on status or settings).

WIRELESS OPENING OF THE RECHARGE PORT (TESLA VEHICLES ONLY): Tesla vehicles are equipped with an accessory function that allows the recharging port to be opened by sending a radio signal, provided the vehicle is unlocked and/or the "key" (smartphone) is nearby. To send the command to open the flap, press the button on the EV-SAFE instrument.

INTERNAL BATTERY CHARGE STATUS: the EV-SAFE instrument is equipped with a rechargeable lithium-ion battery. The "low battery" warning is indicated by the yellow Battery LED permanently lit when the EV-SAFE is switched on, or when it is plugged into the vehicle socket.



CHARGING THE INTERNAL BATTERY: to recharge the battery of the EV-SAFE, connect it to the power supply with the cable provided. During recharging, the yellow Battery LED flashes quickly and, at the end of the cycle, flashes slowly.



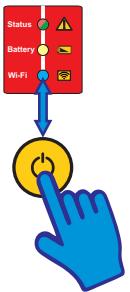
ACCESS TO SMART FUNCTIONS: switch on EV-SAFE and scan the QR-Code with your smartphone, read the instructions for connecting to the wi-fi network of the EV-SAFE device. The list of functions will then be displayed in the browser (see section "Using Smart functions").



CHARGING THE ELECTRICAL VEHICLE: the EV-SAFE with the supplied cable can be used to charge the electric vehicle only in slow-charge mode. Take care when removing the power cable; make sure that the protective cap on the EV-SAFE's rear socket closes automatically after pulling it out.



ENERGY-SAVING FUNCTION: the device's internal battery consumption can be further reduced by setting the Wi-Fi interface to switch off (Smart functions will no longer be available).



- **Deactivation:** switch off the device by pressing and holding the button for at least three seconds, the blue LED will flash and a sound will be heard at the same time.

- **Activation:** switch off the device by pressing and holding the button for at least three seconds, the blue LED will flash twice consecutively and two sounds will be heard simultaneously.

VISUAL AND ACOUSTIC SIGNALS FOR OPERATION AND SAFETY



RED LED FLASHING FAST: communication error with vehicle, vehicle NOT SAFE (isolation test not yet carried out).



RED LED FLASHING SLOWLY: vehicle not detected.



RED AND GREEN LEDS FLASHING ALTERNATIVELY: vehicle detected and engines disabled BUT NOT YET IN TOTAL SAFETY (vehicle consent not received).

N.B. Ensure that the vehicle has completed the operational safety self-test and has been successful. (*)



GREEN LED FLASHING SLOWLY: Vehicle detected, engines disabled and electrical safety self-test passed. (*)



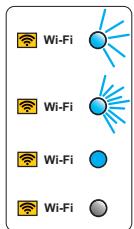
GREEN LED FLASHING FAST vehicle detected, immobilised, and self-test of electrical safety passed, requires ventilation for eventual recharging. (*)



REPETITIVE SOUND ALARM WITH RED LED FLASHING SLOWLY: Device inadvertently disconnected from the vehicle after “securing” (if the device is not reconnected it will automatically switch off after 4/5 minutes).

(*) Check any indications on the on-board instrument display (e.g. “charging in progress...”).

BLUE LED ACTIONS - WI-FI INTERFACE:



Slow flashing - Connection in standby (if Wi-Fi interface is activated)

Fast flashing - Connecting to device (e.g. Smartphone)

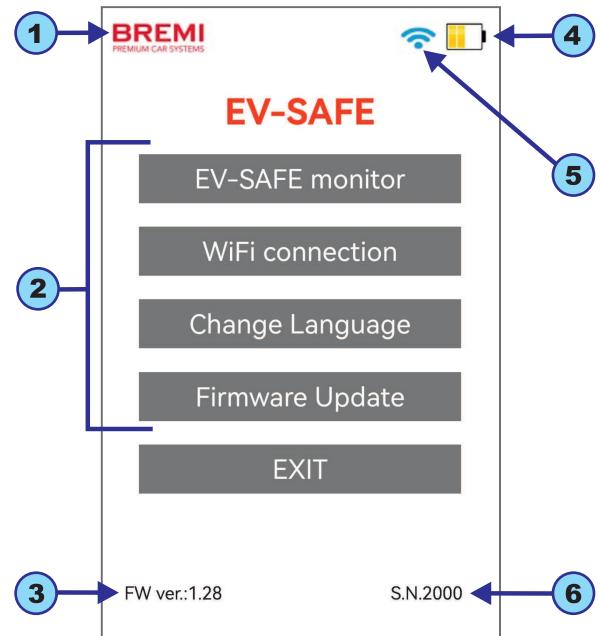
LED steady on - Connection to Wi-Fi WLAN network

LED off - Wi-Fi interface deactivated (energy-saving function)

USING SMART FUNCTIONS WITH THE SMARTPHONE

To access Smart functions, the smartphone must be connected to the Wi-Fi network generated by EV-SAFE (see section "EV-SAFE functions" / "Accessing Smart functions").

- (1) – Click on the BREMI logo to return to the main menu
- (2) – List of **Smartfunctions**
- (3) – Indication of firmware currently set on EV SAFE
- (4) – EV SAFE internal battery level indication
- (5) – Indication of EV SAFE connection to LAN network
- (6) – Serial number of EV SAFE



SMART FUNCTIONS

- **EV-SAFE monitor:** opens the vehicle status monitoring page in real time
- **WiFi connection:** managing the connection to the Wi-Fi LAN
- **Language:** change and set language
- **Update Firmware:** opens the firmware update page (only accessible if connected to the local LAN)
- **EXIT:** closes the connection and exits the APP

EV-SAFE MONITOR FUNCTION

By accessing the "EV-SAFE monitor" function, the central rectangle indicating the status of the EV-SAFE connection to the vehicle can be displayed, the colour represents the safety level (status is defined according to official standard A-B-C-D-E).



The needle indicates the vehicle temperature at the point of connection to the EV-SAFE (chassis). The indication TEMP=N.D. means EV-SAFE disconnected.



POSSIBLE FUNCTIONS AND INDICATIONS:

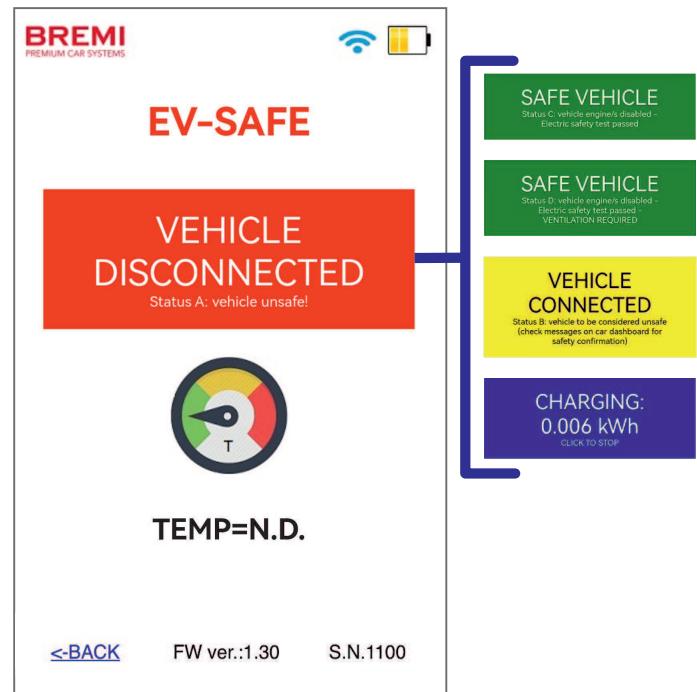
VEHICLE DISCONNECTED - Status A: unsafe vehicle!

VEHICLE SAFE - Status C: Vehicle engine(s) disabled - Electrical safety test passed.

VEHICLE SAFE - Status D: vehicle engine(s) disabled - Electrical safety test passed - VENTILATION REQUIRED.

CONNECTED VEHICLE - Status B: vehicle to be considered unsafe (check the messages on the car's dashboard for confirmation of safety).

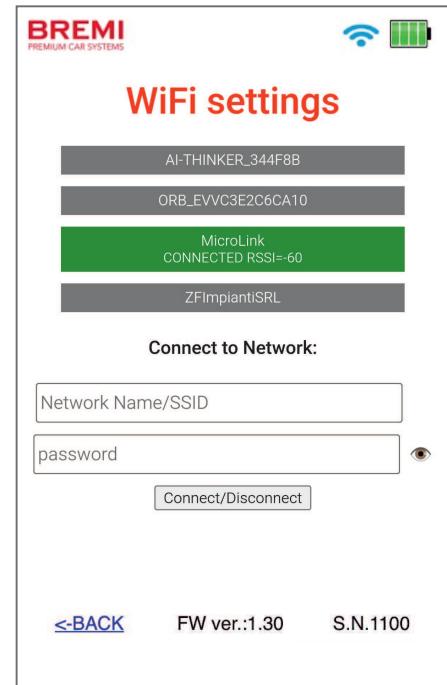
CHARGING - (Click on the rectangle to interrupt).



CONNECTION TO WIFI NETWORK

To access further EV-SAFE functions, a Wi-Fi connection to an external network (local LAN) must be enabled.

On the main menu click on "Wi-Fi connection", then select the local network to which you want to connect the EV-SAFE and enter the network password, then confirm by clicking on "Connect/Disconnect".

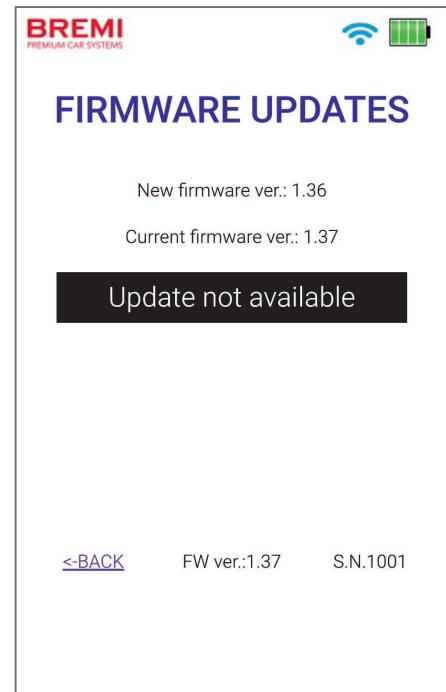


FIRMWARE UPDATE – PROCEDURE

N.B. To update the firmware, an external Wi-Fi network must be set up (see previous section).

On the main menu, click on “Firmware Update”. The device will check for the availability of a more up-to-date firmware and, if necessary, will indicate to carry out the update. If you wish to proceed with the firmware update, press OK and wait.

If the update is successful, the device will turn off after less than a minute, signalling the success of the operation with the lighting of the green LED. Otherwise, check the connection to the external Wi-Fi network and repeat the update procedure.



PERIODIC INSPECTION AND MAINTENANCE OF EV-SAFE

Periodic Inspection

- Periodically EV-SAFE needs a check on the efficiency of the internal circuits to ensure regular "safe keeping" of the vehicle (contact your dealer for regular maintenance).
- The user must keep the EV-SAFE firmware up-to-date by periodically checking for new versions available (see EV-SAFE Smart functions).

Maintenance and cleaning of the device

- The BREMI EV-SAFE device must be kept intact, clean and protected from dust.
 - To clean the device use the BREMI Cleaning Kit (optional). Alternatively, use a soft, clean, dry cloth, spraying it with a small amount of neutral detergent and wipe gently; do not use acid-based or abrasive cleaning agents under any circumstances.
- N.B.** Do not unscrew the screws, do not remove the parts forming the unit, charge the battery regularly.

TECHNICAL SPECIFICATIONS

MAIN FUNCTIONS:

- Domestic/slow charging via 230Vac power supply.
- Internal rechargeable Li-ion battery (for operating without power connection).
- Diagnostics of vehicle charging socket operation.- First level securing (movement lock) of the vehicle (*).
- Second level securing (electrical isolation test) of the vehicle (*).
- Monitoring the contacts temperature of the vehicle charging socket/chassis.
- Wi-Fi interface with ad-hoc network (web server) for real-time display of device status.
- Connecting the EV-SAFE device to the local Wi-Fi network for possible firmware update and data transmission to the remote server/portal.

(*) Safety functions implemented by the vehicle's internal systems;



TECHNICAL DATA:

- Vehicle charging: single-phase AC current max 8A (nominal 6A), tens. Max. 230Vac, freq. 50-60Hz, with earth connection required.
- Electrical safety as a charging station: integrated leakage (differential) sensor; integrated self-diagnostic system for blocked relay recognition.
- Connector compatible with IEC 62196 Type 2 (optional adapter for J1772 Type 1)
- IEC socket for internal battery charging and/or slow charging of the vehicle.
- 600mAh Li-Ion internal battery: estimated autonomy with Wi-Fi interface switched off: approx. 6h; autonomy with Wi-Fi interface switched on: at least 2h (with fully charged internal battery).
- Wi-Fi interface: 802.11 b/g/n - WPA/WPA2 - WEP/TKIP/AES.
- Tesla wireless flap opening control interface: 433MHz freq.
- Protection class: IP55.
- Dimensions: (see indications in the drawing).
- Weight: 523 g (EV-SAFE), 1043 g (whole box contents).

EQUIPMENT AND ACCESSORIES

EV-SAFE equipment

- BREMI EV-SAFE device - Art. no. EVSAFE01
- BREMI EV-SAFE technical bag - Art. no. EVSBAG01
- Power supply cable 220[V] BREMI - Art. no. EVSKAB01
- Quick Start Instructions

Optional accessories of EV-SAFE

- Technical Case with preformed interior EV-SAFE kit - Art. no. EVSBOX01
- Type2/Type1 adapter - Art. no. EVSADA01
- Magnetic led flashing light - Art. no. EVSLED01



EVSBOX01



EVSADA01



EVSLED01

GENERAL TERMS, WARRANTY AND SERVICE

General Terms

- All rights reserved.
- It is not permitted to copy, modify, disassemble, even partially, electronic parts and software (if included or supplied).
- Total or partial reproduction of this manual in any form whatsoever, whether on paper or by computer, is prohibited.
- Printing is permitted for the exclusive use of the user and operators of the equipment to which the manual refers.
- BREMI and the resources employed in the production of the manual do not assume any liability arising from the misuse of both the manual and the device, and guarantee that the information contained in the manual has been thoroughly checked.
- The product may be subject to changes and improvements.
- BREMI reserves the right to change the information contained in the manual without notice.
- BREMI assumes no liability for damage or injury to persons, animals and goods in the following cases:
 - Product damage due to factors external to the product or failure to comply with regulations.
 - Modifications made to the product without the manufacturer's express written authorisation.
 - Use for purposes other than those described in this manual.

Warranty – Definition

Warranty covers the replacement or repair, free of charge, of component parts of the device that are defective at source due to manufacturing defects.

Warranty - Area of application

- The following general warranty terms and conditions apply to contractual relations between BREMI and its resellers if not already regulated by valid specific agreements/contracts.
- These conditions are to be considered inclusive of and in lieu of the legal warranties for conformity defects and exclude any other possible liability of the retailer and manufacturer arising from the supplied products. In particular, the requirements set forth in Legislative Decree 24/2002 (Directive 1999/44/EC) are not applicable to the supply relationship between BREMI and its resellers as they apply to the supply of goods to consumers, i.e. to any natural person who, in the contract, is acting for purposes unrelated to any entrepreneurial or professional activity carried out. The purchaser may therefore make no claims, other than those set out in these guarantee conditions, for compensation for damage, price reduction, or termination of the contract. After the warranty period has expired, no claims may be asserted against the reseller and the manufacturer.

Warranty – Duration

- Warranty of 12 months from the date of activation of the EV-SAFE device.
- Warranty of 6 months on replaced components for repairs.
- Products with extended warranty: see specific documentation.

Warranty – Exclusions

The aforementioned warranty is provided on condition of full payment of the price and, therefore, the purchaser may not claim it if, for any reason, he has suspended payment. The guarantee does not cover any parts that are defective due to:Negligence or carelessness in use (failure to follow the instructions for operating the device);

- 1) Negligence or carelessness in use (failure to follow the instructions for operating the device);
- 2) Incorrect installation or maintenance;
- 3) Repairs or maintenance carried out by unauthorised personnel;
- 4) Damage from transport;
- 5) And all circumstances that cannot be traced back to manufacturing defects in the device.

The following are excluded from warranty / advance replacement:

- consumables (e.g. parts subject to natural wear and tear);
- products / components without a serial number.

The warranty is excluded in all cases of improper use of the device and if the device is not periodically checked in accordance with the instructions.

BREMI is not liable for any damage that may, directly or indirectly, be caused to persons, property or animals as a result of failure to observe all the prescriptions set out in the appropriate instructions and concerning, in particular, warnings on the installation, use and maintenance of the device.

Warranty - Service – Repairs

Any repair of the product must be carried out at a Service Centre or Dealer authorised for this purpose.

Only in the event that such intervention does not solve the problems encountered by the user, BREMI may request direct intervention, in which case the defective product may be returned to BREMI following a request for a return authorisation sent to www.ev-safe.eu and subsequent issue of the authorisation, which must be indicated on the accompanying documents together with the serial number of the device and the type of defect found.

The product must be accompanied by the transport documents required by applicable laws and regulations, otherwise it will not be accepted.

The shipping costs for sending the warranty goods to BREMI are the responsibility of the reseller, while the costs for returning the product to the reseller are the responsibility of BREMI. In the case of non-warranty repairs, the device will be sent back to the reseller at the cost of the repair plus shipping costs.

In the case of repairs not under warranty for an estimated price of less than €200.00, repairs will be carried out without further confirmation by the Reseller; in the case of repairs not under warranty for an estimated price of more than €200.00, a repair quote (including manpower and materials) will be sent to the Reseller, upon acceptance of which repairs will be carried out in accordance with the terms and conditions.

If the quote is not accepted, the goods will be returned to the customer by invoicing a lump sum of €100.00 to cover the costs of diagnosing the fault.

In the event of a request for a repair quote, if not already provided for, BREMI will charge € 50.00 (this value will not be invoiced if the quote is accepted).

Even following the return of equipment under warranty, if no fault or defect is found during repair, the goods shall be returned to the customer by invoicing a lump sum of €50.00 to cover the costs of diagnosing the fault.

Waste Electrical and Electronic Equipment Directive WEEE



In the European Union, this label indicates that this product must not be disposed of with household waste. It must be deposited in a suitable facility that is capable of carrying out recovery and recycling operations. The original declaration can be found at www.ev-safe.eu.

Recycling of packaging



Packaging must be disposed of in accordance with the regulations in force in your country. In this way you will contribute to the protection of the environment.

Note on the EC Declaration of Conformity



We hereby declare that the device complies with the essential requirements contained in the European Directives cited in the original manufacturer's declaration.

The EC Declaration of Conformity can be found at www.ev-safe.eu.

Note on the UKCA Declaration of Conformity



The UKCA (UK Conformity Assessed) marking is the mark representing UK product conformity that currently corresponds to the requirements contained and declared in the device's EC Declaration, which can be found on the website www.ev-safe.eu.

ESD/EF Warning



The product may contain a microcomputer for signal processing and control functions. On extremely rare occasions, it may crash due to intense interference, noise from an external source or static electricity.

The device's declaration of conformity mentions the RF standards that the device has been shown to meet according to the general RF exposure requirements.

Insulation Class



Only for Class II equipment: this symbol indicates that the equipment is a Class II or double-insulated electrical appliance.



Earthing indication

The device must be connected to an electrical socket with a protective earth connection.

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