

# OPEN: BRAKE



Device for disc brake calliper  
opening and closing

Operative manual

**Ver. 2.0**

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## CHAP. 2 - GENERAL INFORMATION

### 2.1 GENERAL NOTES

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BRAIN BEE SPA and the resources involved in the making of this manual disclaim all responsibility in relation to the use of the manual itself, guaranteeing that all information contained therein has been accurately verified.

Any suggestion concerning possible mistakes or improvements will be highly appreciated.

Since the products are subject to continuous checks and improvements, BRAIN BEE SPA reserves the right to modify the information contained in the manual without previous notice.

### 2.2 IDENTIFICAZIONE DEL COSTRUTTORE

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OPEN:BRAKE is an equipment being manufactured by:

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internet <http://www.brainbee.com>

### 2.3 TECHNICAL SERVICE CENTERS

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As to the technical service centers, please contact your reseller or directly Technical Service.

### 2.4 MARKING

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OPEN:BRAKE has been made in compliance with the Community Directives concerning and applicable to the product being put on the market.

Specific conformity declaration can be requested to Brain Bee S.p.A.

Data concerning the equipment features are indicated on the specific identification label applied on the equipment rear part.



**Removal, damage or modification of the equipment identification label is forbidden.**

## CHAP. 3 - SAFETY CONDITION

### 3.1 IMPORTANT INFORMATION ON PERSONAL SAFETY

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#### 3.1.1 Definitions

##### DANGEROUS AREAS:

Any area within or close to the equipment implying risk for the safety and health of exposed persons.

##### EXPOSED PERSON:

Any person completely or partially standing in a dangerous area.

##### OPERATOR:

The person/s in charge of operating the appliance for the set purpose.

##### OPERATORS CLASSIFICATION

The operator can be classified according to two main categories, which, in some cases, refer to one single person:

- The operator charged with the equipment operation has the duty to:
  - Start and check the machine automatic operation;
  - Carry out simple setting operations;
  - Remove the causes of equipment stop not implying breakings of members but simple operation anomalies.
- The operator charged with the machine maintenance is a qualified technician who can intervene on the machine, with guards open, and on mechanic and electrical members to carry out setting, maintenance and repair operations.

##### USER

Body or person legally responsible for the equipment.

### **3.1.2     *Precautions For Operators Safety***



#### **GENERAL PRECAUTIONS**

- All the operators shall not be under the effect of tranquillizers, drugs or alcohol when performing their job
- Before starting their job, operators shall be perfectly aware of the position and operation of all the controls indicated on the use manual.
- Always pay attention to any danger sign affixed on the installation and within the company of the user.
- The employer is responsible for the spreading of this document to the whole personnel that is going to work on the equipment.
- Besides the obligation to strictly comply with the instructions contained in this manual, the operators shall inform their heads on any deficiency or potentially dangerous situation that might occur.
- In case of machine malfunctioning, check the procedures outlined in the various chapters.
- Always refer to the safety standards adopted by the company employing the equipment with a view to avoiding useless risks.

**RISK OF ASPHYXIA****GASOLINE ENGINES**

Exhaust gases of gasoline vehicles contain carbon monoxide, a colourless and odourless gas which, if inhaled, can cause serious physical problems.

Special attention is always required when working within pits, as exhaust gases components are heavier than air and consequently deposit on the bottom of the pit.

Attention shall be paid to natural gas vehicles as well.

**DIESEL ENGINES**

Diesel engine exhaust gas composition is not always the same. It can change according to: type of engine, intake, conditions of use and fuel composition.

Diesel exhaust is made up of gases (CO, CO<sub>2</sub>, NO<sub>x</sub> and HC) and particulate (soot, sulphates, etc.); the small particles of carbon making up soot remain suspended in the air and can thus be breathed. Toxic components, albeit in small quantities, are present as well.

***SAFETY MEASURES:***

- Always ensure good ventilation and air aspiration (especially in the pits).
- In closed premises, always start the exhaust gas aspiration system.

**RISK OF SMASHING**

If the vehicles are not correctly secured by means of mechanic devices, the operator might get smashed against a working bench or against a wall. Even the equipment placed on unstable supports might fall and squash the operator's limbs.

***SAFETY MEASURES:***

- Make sure the vehicle has been secured by pulling the hand brake and locking the wheels.
- Make sure the equipment has been positioned on a stable support and, in case of trolley, that its wheels have been locked before use.





### **RISK OF INJURY**

Engines, both working and in standstill, include moving parts (belts or other parts) which might injure hands and arms. In the vehicles, the cooling fan starts automatically by means of a temperature sensor even when the engine is off; always pay attention when operating close to it and disconnect it if needed.

#### ***SAFETY MEASURES:***

- When the engine is turned on, do not put hands into the moving parts area.
- When operating close to electrically started fans, let the engine cool down beforehand and then remove the fan plug from the engine.
- Keep the testing tools connection cables far from the engine moving parts.



### **RISK OF BURN**

When intervening on the engine, protect face, hands and feet with suitable protective devices, avoid contact with hot surfaces, such as sparking plugs, radiators, pipings of the cooling system and electromechanic sensors. Catalytic mufflers reach extremely high temperatures and can cause burns or fires.

Attentions shall thus be paid to avoid touching these objects without suitable precautions.

#### ***SAFETY MEASURES:***

- Wear protective gloves.
- Let cool down the engine and other independent accessories, if any.
- Do not install testing tools connection cables over or close to hot parts
- Do not keep the engine turned on once checks have been completed.

**RISK OF FIRE OR EXPLOSION**

When carrying out operations on the fuel system (injectors, fuel and gasoline pump, etc.) there is risk of fire or explosion due to the fuels employed and/or vapours formed by them.

***SAFETY MEASURES:***

- Disable start.
- Let the engine cool down.
- Do not use free flames or sparks sources.
- Do not smoke.
- Collect the outflowing fuel.
- Start the aspiration units in closed premises.

**RISK RELATING TO NOISE LEVEL**

During measurements on the vehicle, noise levels can exceed 90dB. If a person is exposed to such noise sources for a long period of time, this can cause irreversible hearing damage.

**SAFETY MEASURES:**

- The operator shall adopt personal protective equipment (safety ear muffs).
- The operator shall also protect from noise the working stations close to the areas where test on the vehicle.



### **RISK RELATING TO DANGEROUS VOLTAGE**

Civil or industrial electric power distributions, as well as vehicles electric systems, do imply dangerous voltages. When an operator is in contact with testing tools or live parts of the engine, risk of electrocution exists. For instance, this might be caused by cables with damaged insulation (ex. Bites of animals on power cords). This is especially true of the vehicle starting system and testing tools connections.

#### ***SAFETY MEASURES:***

- Connect the testing tools to an electric socket safety relay and correctly grounded.
- For the testing tool connection, use exclusively the cables provided with the tool itself, making sure insulation is not damaged.
- Make sure the testing tool is grounded before turning it on.
- When carrying out interventions on the electrical system of a vehicle (connection of testing tool, replacement of starting system parts), supply voltage shall be unplugged (ex. battery).
- During checks and setting operations with the engine turned on, attention shall be paid to avoid touching those vehicle live components (for instance the starting system) without the suitable precautions (for instance insulating gloves).



### **RISK OF INTOXICATION**







The pipes that are used for exhaust gases sampling if subject to high temperatures (exceeding 250 °C or due to fires) release a highly toxic gas which, in case of inhalation, can be harmful for health.

#### ***SAFETY MEASURES:***

- In case of inhalation, immediately contact a doctor.
- To remove combustion residues wear neoprene or PVC gloves.
- Fire residues can be neutralized with a calcium hydroxide solution. This leads to the formation of calcium fluoride that can be removed with water.

## 3.2 IMPORTANT INFORMATION ON TOOL SAFETY

When using the tool, the following operations are not allowed as they might cause, under certain circumstances, danger for persons and cause permanent damage to the tool itself.

	- Do not remove or make unreadable labels, signs and/or dangers signs placed on the tool and in the area nearby.
	- Do not disable the machine safety devices
	- Use exclusively original fuses with the required ampere capacity! In case of electric supply anomalies, the machine shall be powered off immediately. Defective fuses shall not be repaired or excluded but replaced with fuses of the same type.
	- The machine electrical connections shall be inspected at regular intervals. Defects, such as slackened connections or burnt cables or cables with damaged insulation, shall be immediately removed and replaced.
	- Non authorized personnel must not open the equipment. Within the tool there are parts that, if touched, can cause electrocution: power off before opening the tool to carry out repair operations.
	

## CHAP. 4 - MANUAL STRUCTURE AND USE

### 4.1 MANUAL USE

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**Carefully read this manual before starting the equipment.**

- This manual is aimed at providing the user with all the information required for a correct use of the equipment and to enable the user to manage it in the safest and most independent way.
- It includes information concerning the technical side, operation, machine stop, maintenance, spare parts and safety.
- Before carrying out any operation on the equipment, operators and qualified technicians shall carefully read the instructions outlined in this manual.
- In case of doubts on the correct interpretation of the instructions, please contact our technical service to obtain the required clarifications.



**This manual is integral part of the equipment; the purchaser shall keep it with the utmost care; it shall be placed closed to the equipment, within a specific container and, above all, it shall be protected from anything that might jeopardize its readability.**

- This manual shall accompany the equipment in case this is passed on to a new user.
- The content of this manual has been drawn up in compliance with the guide lines of the UNI standard 10893:2000.
- Diffusion, modification or use of this manual for own aims is forbidden.
- When drawing up the manual, few but clear warning symbols have been selected for an easier and simpler consultation.

	<p>The operations that might result in situations potentially harmful for the operators are highlighted by means of the symbol alongside</p> <p>Such operations can cause serious physical damage.</p>
	<p>Operations requiring particular attention are highlighted by means of the symbol alongside.</p> <p>Such operations shall be carried out correctly to avoid causing damage to objects or to the surrounding environment. This symbol also highlights which information special attention shall be paid to.</p>
	<p>Operations requiring careful reading of the instructions outlined in the use and maintenance manual are highlighted by means of the symbol alongside.</p>

## 4.2 SYMBOLS

This paragraph describes the safety-related symbols that might be present on the external part of the equipment.

### 4.2.1 Safety

	ALTERNATING CURRENT
	SAFETY GROUNDING
	CONSULT THE INSTRUCTION MANUAL
	WARNING! RISK OF ELECTROCUTION
	<p>WARNING!: DO NOT TRY REMOVING THE COVER</p> <p>(this operation can be carried out exclusively by qualified technicians)</p>

### 4.2.2 Marking

	EC CONFORMITY MARKING
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## CHAP. 5 - GENERAL DESCRIPTION



OPEN:BRAKE is a practical and economic device for brake systems with SBC electro-hydraulic brakes and EPB electric parking brakes, capable of carrying out all the necessary operative phases for the replacement of the brake pads, the discs and other service interventions.

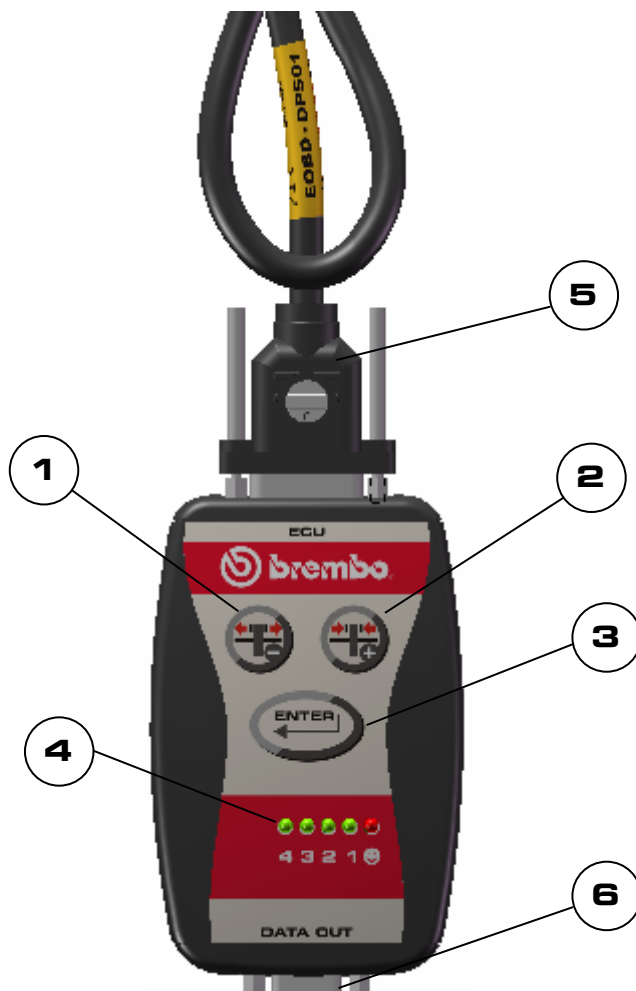
Nowadays, it is more frequent that vehicles be equipped with these type of brake systems, but in order to carry out any maintenance work in a safe way, it is necessary the use of a Scan Tool or device that may interact with the brake system in place of the ECU. For example, before carrying out operations such as changing of pads, discs and fluids, the deactivation of the SBC system is absolutely necessary. At the end of maintenance, it can be activated again. The EPB electric parking brake is connected and disconnected with the aid of an electric motor integrated into the disc brake calliper: even in this case, the opening and closing of the disc brake calliper must necessarily be performed using a Scan Tool or device that, by establishing contact with the car's ECU, may be able to move the electric motor.



OPEN:BRAKE is a universal device: thanks to its on-board software, it is possible to select the desired vehicle simply by selecting it using the three-button keyboard. The 4 GREEN LEDS on the front display the selection carried out. The RED LED views the state of the brake calliper opening/closing operations and the activation/deactivation of the SBC system. Moreover, thanks to the selector incorporated into the EOBD cable, it is possible to switch to a connection suitable to the car selected: a practical table placed at the back of the device shall guide the operator into making the appropriate selections.

Through an optional programming Kit and a PC with serial port, it is possible to update the software.





## **5.1 Front view**

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1. OPEN BUTTON: depending on the phase during which it is pressed, it can open the disc brake callipers, deactivate the SBC system or it can decrease the selection of a vehicle
2. CLOSE BUTTON: depending on the phase during which it is pressed, it can close the disc brake calliper / reactivate the SBC system or increase the selection of a vehicle
3. ENTER BUTTON: it confirms the selection of a car
4. STATE LED of the OPEN: BRAKE.
  - a. The GREEN LEDS indicate the selection state according to the table placed on the rear panel:
    -  GREEN LED ON: vehicle being selected
    -  GREEN LED BLINKING: vehicle selected
  - b. The RED LED indicates the state of the disc brake callipers opening / closing procedures and of the activation / deactivation of the SBC system:

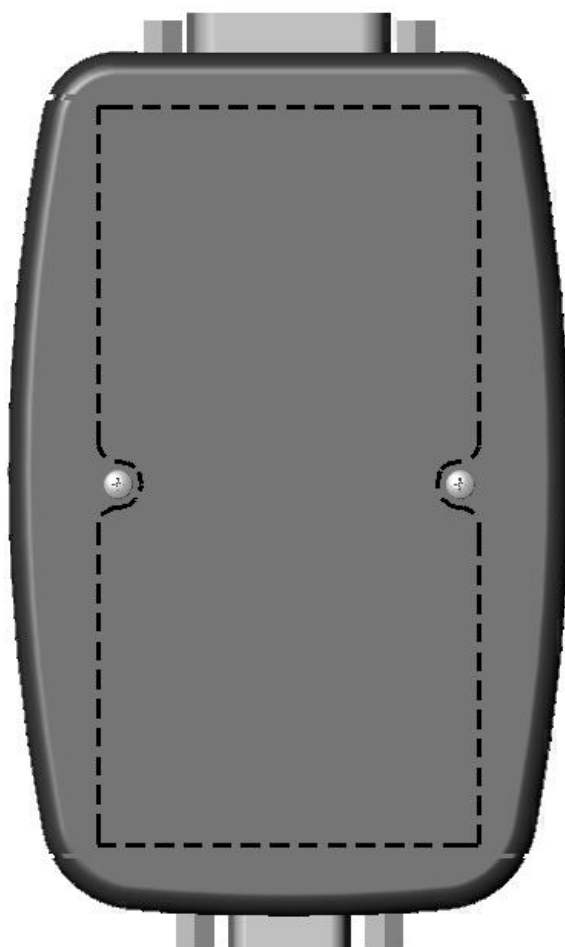


-  RED LED OFF: no procedures being executed
-  BLINKING SLOWLY: procedure in execution
-  RED LED ON: procedure executed correctly
-  BLINKING RAPIDLY: procedure blocked by the ECU

1. SELECTOR: it selects the proper connection to the EOBD socket, depending on the vehicle to be connected
2. female DB9 socket for PC connection

## 5.2 Rear view

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On the back side of the device, there is a table containing data on the vehicle selection and the connection to the cable EOBD: depending on the car in which the activation /deactivation of the brake system shall be applied, the cable shall be selected through the selector inserted on the connector DB15 of the cable EOBD. Then, select the car desired using the opening and closing buttons: during selection, the green LEDs will be on, press ENTER to confirm the selection: the green LEDs relative to the selection performed will start blinking slowly.

### 5.3 Accessories supplied

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CABLE EOBD FOR OPEN:BRAKE (DPS01 - DPS02)

### 5.4 TECHNICAL FEATURES

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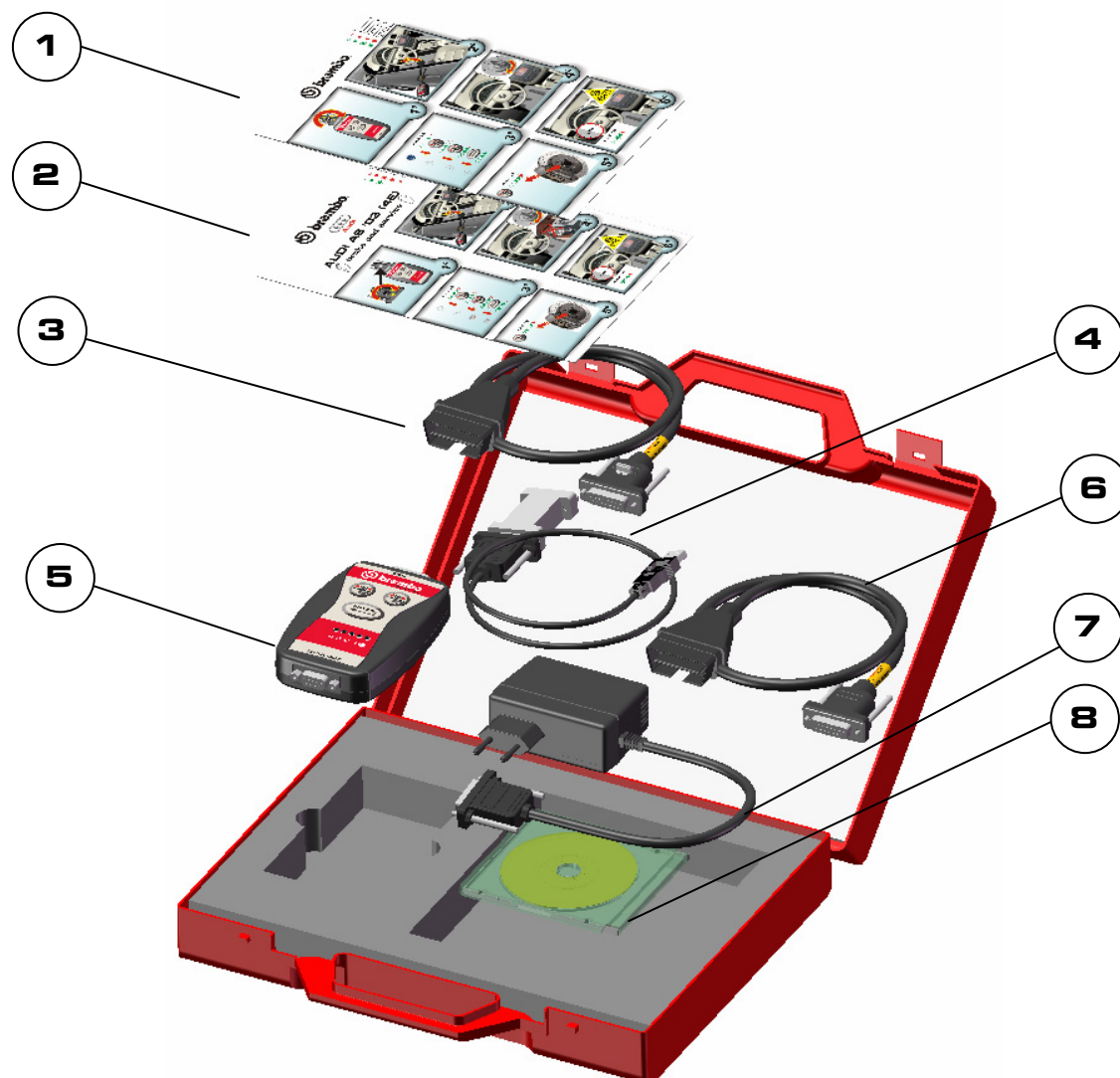
The table reports the main technical features for the OPEN:BRAKE

<b>Communication</b>	ISO9141, J1850, CAN-BUS
<b>Power supply</b>	8/30 Vdc @ 2W max
<b>Functioning Temperature</b>	from 5 to 40 °C
<b>Dimensions</b>	74 X 26 x 114 mm (L x H x D)
<b>Weight</b>	0,2 Kg

## CHAP. 6 - INSTALLATION

### 6.1 EQUIPMENT INSTALLATION




#### 6.1.1 Unpacking



Carefully unpack the equipment as shown in the figure above.




1. Quick guide
2. Quick guide for AUDI A8
3. EOBD cable for OPEN: BRAKE (DPS01)
4. Programming cable
5. OPEN: BRAKE
6. EOBD cable for OPEN: BRAKE (DPS02)
7. Power supply unit
8. User manual






### 6.1.2 Preparation for use

	<b>POSITIONING:</b> Protect the equipment from rain or humidity to avoid irreparable damage to the equipment itself. Besides, the equipment shall never be exposed to sun rays nor to an excessive amount of dust.
	<b>INSTALLATION:</b> The installation shall be carried out by specialized personnel, strictly complying with the instructions contained in this manual. <b>The use of the equipment in explosive atmosphere is forbidden.</b>
	<b>CONNECTIONS:</b> this being an electric equipment connected to the mains supply, correct use of the ground pin, placed on the supply plug, is compulsory. If the ground pin is willingly not being used or in case of connection of the supply plug to a supply socket not provided with suitable grounding, this might damage the tool. These procedures are forbidden and put the operator's life at risk.



## 6.2 IMPORTANT INFORMATION ON ELECTRIC STORAGE BATTERIES (Batteries, etc.)

Even if the equipment does not use electric storage batteries (rechargeable or not), this general safety information is included as a battery is always present on the vehicle.



	<b>SMONTAGGIO:</b> Mai tentare di smontare il contenitore delle batterie o di modificarlo in qualche modo. Il contenitore ha meccanismi di sicurezza e protezione che assicurano operazioni sicure. Danneggiando questi meccanismi si incorre nel rischio di emissioni di calore, emissioni di fumo, perdita di liquidi, esplosione del contenitore delle batterie e incendio.
	<b>ELECTRICAL CONTACTS:</b> Never allow the positive and negative terminals of the batteries container to be connected by metal parts. Never transport or deposit the batteries container together with metal objects (necklaces, hairpins, etc.) which might cause short circuit and allow for a large quantity of energy to flow through the metal, thus leading to the risk of container explosion, heat emission, smoke emission, as well as burning of the metal object connecting the two terminals.
	<b>TEMPERATURE:</b> never use nor leave the batteries container close to flames, stoves, or any other place exposed to high temperatures (80 °C or higher). This might damage the batteries container seal, thus leading to risk of short circuit, container explosion and fire

	<b>CLEANING:</b> never damp the batteries container with soft water, nor salty water or other types of fluid. Water can damage the batteries container safety device, thus leading to the risk of heat emission, smoke emission, container explosion and fire.
	<b>CONTAINER:</b> Never use the batteries container the external part of which is extremely damaged or deformed. The use of such containers leads to the risk of heat emission, smoke emission, container explosion and fire.
	<b>CHARGE:</b> When charging rechargeable batteries, use exclusively the battery-charger provided with the equipment and recharge in premises with a temperature ranging between 10 °C and 40 °C. The use of a battery-charger different from the recommended one can lead to batteries overload.
	<b>FLUID:</b> In case the batteries fluid comes in contact with your eyes, do not rub them. Rinse with tap water and then see a doctor immediately. In case the fluid is not completely removed, this can seriously damage the eyes.
	<b>REPLACEMENT:</b> In case of batteries replacement, use batteries of the same type and shape of the replaced ones. Otherwise, this might damage the equipment and lead to the risk of heat emission, smoke emission, container explosion and fire.

### 6.3 DURING USE

	<b>EQUIPMENT USE:</b> The use of the equipment is clearly described in this manual: anything differing from what is explicitly stated is to be considered as IMPROPER USE. The manufacturer disclaims all responsibility for damage to objects, persons or to the machine itself resulting from accidents caused by non compliance with the equipment instructions.
	<b>WORK STATION:</b> The operator shall stand in front of the machine, in a comfortable position to reach the equipment controls and parts.

### 6.4 WHEN THE TOOL IS NOT USED

	<b>SUPPLY VOLTAGE:</b> Disable all the supply switches and power off when the equipment is not used for a long period of time.
	<b>PROTECTION:</b> If the equipment is not used for a long period of time, it is advisable cover it with a protective sheet.

## 6.5 CLEANING - DISMANTLING AND DISPOSAL



**CLEANING:** the equipment cleaning can be performed even by unskilled personnel provided they have been previously informed about the main controls to cut the equipment from the mains. When the outer surfaces need to be cleaned, avoid using detergents containing alcohol, ammonia or gasoline; only use neutral detergents with slightly moistened soft cloths.



**DISMANTLING AND DISPOSAL:** The product was designed and assembled with high quality materials and components that may be recycled and reused.



If one product displays a symbol showing a bin with wheels barred by an "X", this means that the product meets the requirements of the Community Directive 2002/96/CE.



For the disposal no particular devices are needed since the equipment is not made with noxious materials.



The disposal shall have to be carried out by complying with the local regulations for the disposal of waste: do not throw the product into the ordinary domestic waste but bring it to the special collection centres present over the territory according to what is provided for by the current regulations in force.



An adequate disposal of the products helps preventing environmental pollution as well as possible damage to health.

## 6.6 HARDWARE INSTALLATION

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Connect the cable EOBD DPS01 to the device's connector DB15 and tighten the fixing screws.

## CHAP. 7 - USE OF THE DEVICE

1. Before connecting the device to the EOBD socket of the car, place the cable EOBD selector according to the indications reported on the selection table.



The manufacturer does not accept any responsibility for a mistaken configuration of the selector.

2. Connect the device to the EOBD socket of the car: the green LEDs of the last car selected will turn on.



3. Press the OPEN or CLOSE buttons to select the desired car: the position of the GREEN LEDs turned on will either decrease or increase.



The LEDs ignition sequence occurs with BCD coding.



4. Press the ENTER button to confirm the selection: the GREEN LEDs that were previously on, will now start blinking in the position confirmed.



5. Turn on the car's dashboard and press the OPEN button to open the EPB parking brake callipers and deactivate the SBC brake system: the RED LED shall start blinking slowly (once per second approximately) to confirm that the procedure is in execution.
6. Wait until the procedure is completed: the RED LED will remain on if the procedure is completed correctly; however, if it has been interrupted by the ECU because of an error, then the red LED will start blinking quickly.



On the vehicle's dashboard there will appear some error messages concerning the brake system: that is normal

7. Turn the car's dashboard off, remove the ignition key and disconnect the device from the EOBD socket: at this instance, it shall be possible to carry out some maintenance or repair operations on the brake system.



**ATTENTION !!! RISK OF SMASHING:** to prevent accidents or an unplanned closing of the disc brake callipers from happening during the maintenance or repair interventions of the brake system, the OPEN:BRAKE must be disconnected from the diagnosis socket; under no reason should the brake pedal be pressed on, and neither people nor animals should be inside the car.



8. At the end of the maintenance or repair operations of the brake system, connect again the OPEN: BRAKE to the car's EOBD socket: it will be possible to verify that the selected car is still saved in the memory.



9. Press the ENTER button to confirm the vehicle: the GREEN LEDs that were previously on, will now start blinking in the position confirmed.



10. Press the CLOSE button to close the EPB parking disc brake callipers and to activate the SBC brake system: the RED LED will blink slowly (once per second) as a confirmation that the procedure is in execution.



**ATTENTION !!! RISK OF SMASHING:** before executing the closing of the disc brake callipers procedure and the activation of the brake system, make sure that nobody is working on the brake system.




11. Wait until the procedure is completed: the RED LED will remain on if the procedure is completed correctly: however, if it has been interrupted by the ECU because of an error, then the red LED will start blinking quickly.





















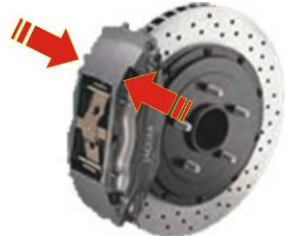
If the procedure is completed correctly, then the errors memorised in the car's ECU will be eliminated







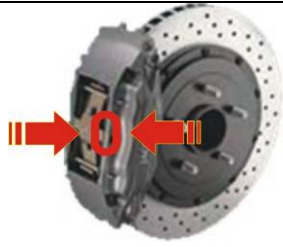
12. At last, turn off and on the vehicle's dashboard to complete the brake system reactivation procedure.

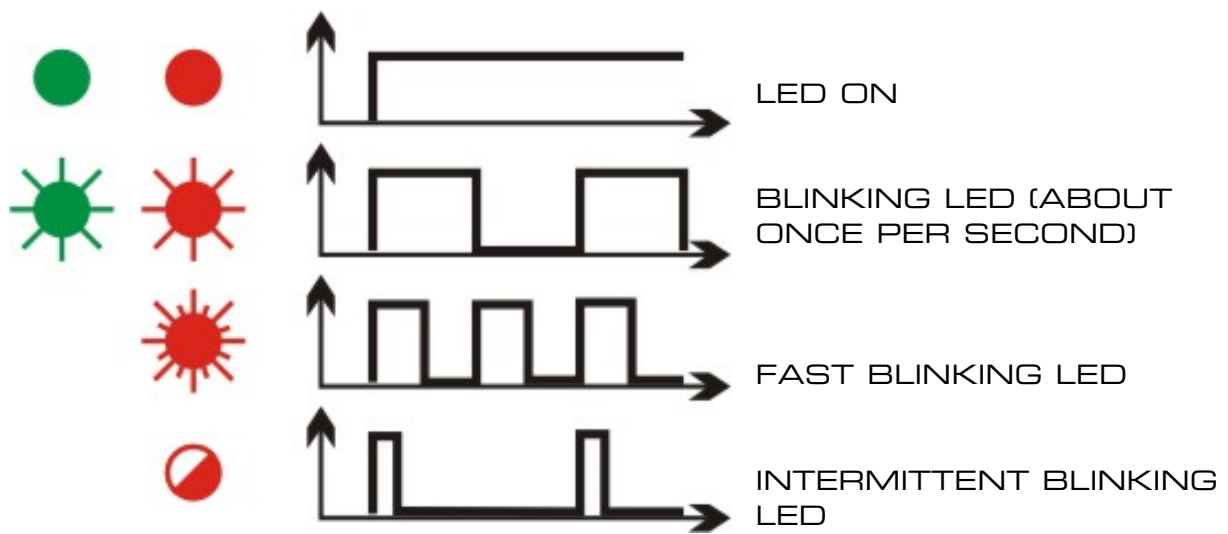
Following, there is a description of the sequence of operations to be performed when opening and closing the disc brake callipers for the Audi A8 '03 (4E).

N°	OPERATIONS	LED CONFIGURATION 4 3 2 1 ☺	DISC BRAKE CALLIPERS STATE
1	Before connecting the device to the vehicle's EOBD socket, place the EOBD cable's selector on   The manufacturer does not accept any responsibility for a mistaken configuration of the selector.	.	.
2	Connect the device to the EOBD socket of the car: the green LEDs of the last car selected will turn on.		.

3	<p>Press the OPEN button </p> <p>or the CLOSE button  to configure the GREEN LEDS as indicated in the side column: the Audi A8 shall be selected.</p> <p> The LEDs ignition sequence occurs with BCD coding.</p>		-
4	<p>Press the ENTER  button to confirm the selection: the GREEN LEDs that were previously on, will now start blinking in the position confirmed.</p>		-
5	<p>Turn on the vehicle's instrument cluster and verify that the parking brake is not engaged.</p> <p>press the OPEN  button to open the EPB parking brake callipers: the RED LED shall start blinking slowly (once per second approximately) to confirm that the procedure is in execution.</p> <p> On the vehicle's dashboard there will appear some error messages concerning the brake system: that is normal.</p>		 <p><b>Disc brake callipers opening</b></p>
6	<p>Wait until the procedure is completed: the RED LED will remain on if the procedure is completed correctly; however, if it has been interrupted by the ECU because of an error, then the red LED will start blinking quickly (in this case, repeat the procedure starting from point 1)</p>		<p><b>Open disc brake callipers</b></p>
7	<p>Turn the car's dashboard off, remove the ignition key and disconnect the device from the EOBD socket: at</p>	-	<p><b>Perform the maintenance or repair operations on</b></p>

	<p>this instance, it shall be possible to carry out some maintenance or repair operations on the brake system.</p> <p> <b>ATTENTION !!! RISK OF SMASHING:</b> to prevent accidents or an unplanned closing of the disc brake callipers from happening during the maintenance or repair interventions of the brake system, the OPEN:BRAKE must be disconnected from the diagnosis socket; under no reason should the brake pedal be pressed on, and neither people nor animals should be inside the car.</p>		<p><b>the brake system.</b></p>
8	<p>At the end of the maintenance or repair operations of the brake system, connect again the OPEN:BRAKE to the car's EOBD socket: it will be possible to verify that the selected car is still saved in the memory.</p>		<p>.</p>
9	<p>Press the ENTER  button to confirm the vehicle: the GREEN LEDs that were previously on, will now start blinking in the position confirmed.</p>		<p>.</p>
10	<p>Turn on the instrument cluster and press the CLOSE  button to close the EPB parking disc brake callipers: the RED LED will blink slowly (once per second) as a confirmation that the procedure is in execution.</p> <p> <b>ATTENTION !!! RISK OF SMASHING:</b> before executing the closing of the disc brake callipers procedure and the activation of the brake system, make sure</p>		 <p><b>Disc brake callipers closing</b></p>

	that nobody is working on the brake system.		
11	Wait until the procedure is completed: if finished correctly, the RED LED shall turn on intermittently, with one fast blink and a slow one; however, if it has been interrupted by the ECU because of an error, then the red LED will start blinking quickly (in this case, repeat the procedure starting from point 1)		-
12	Turn off the vehicle's instrument cluster and remove the key.		<b>Closed Disc brake callipers</b>
13	Insert again the key into the instrument cluster and start the vehicle by turning the key to position 1. Manually unblock the parking brake.		<b>Open disc brake callipers</b>
14	Press the CLOSE button  and wait until the RED LED remains on all the time.		-
15	Remove the key from the instrument cluster and wait until the brakes calibration procedure is finished: the opening and closing of the disc brake callipers shall be heard three times.		 <b>Disc brake callipers calibration procedure.</b>
16	Insert again the key into the instrument cluster and start the vehicle by turning the key into position 1: if the procedure is completed correctly, then the errors memorised in the car's ECU will be deleted, and the blinking warning lights and the error messages on the instrument cluster will be set to zero (if that was not the case, repeat the procedure starting from point 1)	-	-

**LEDS' STATUS LEGEND**

## CHAP. 8 - MAINTENANCE



Before carrying out any maintenance operation, be sure the appliance is disconnected from the mains socket.



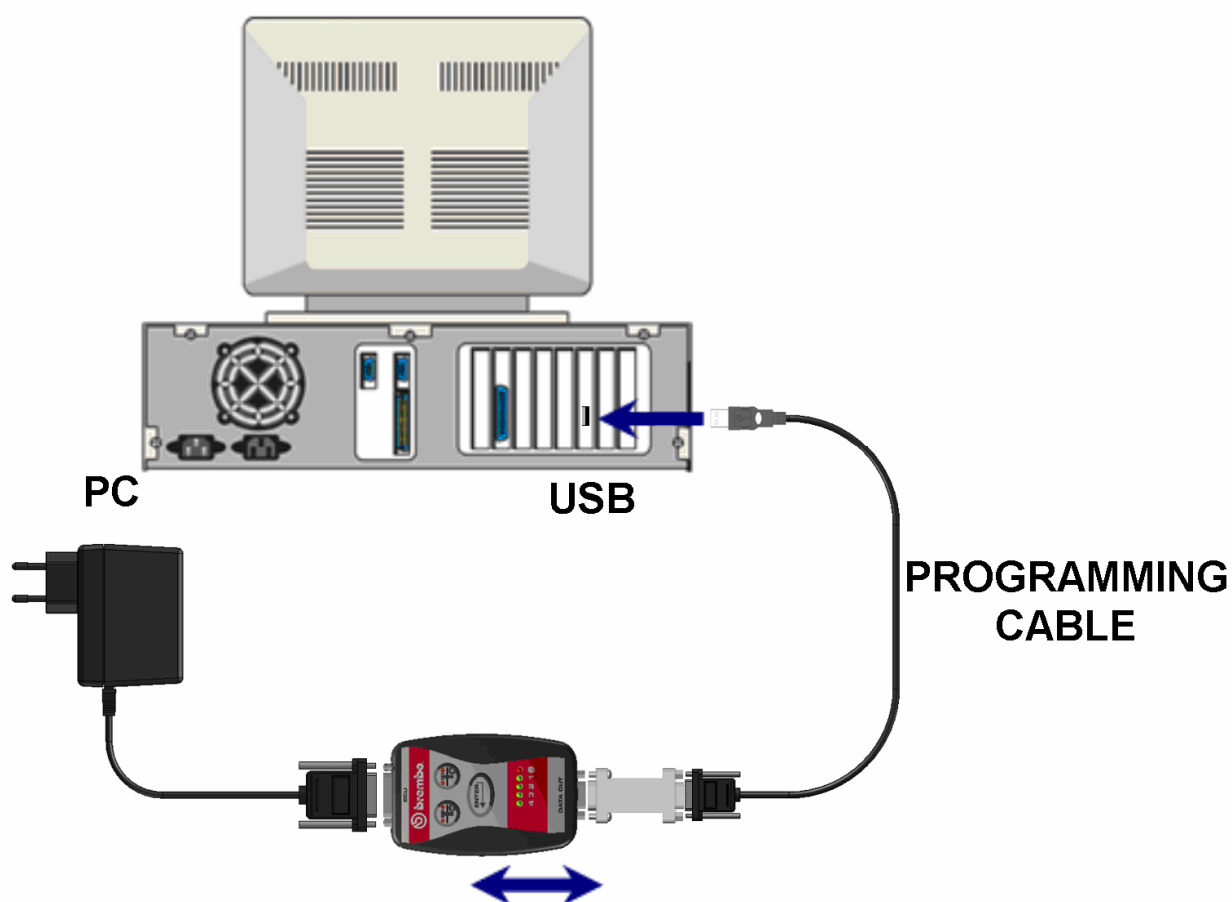
In case of appliance malfunction (i.e. the mains switch does not light on when put to the "I" position), perform the necessary check and, if it is the case, replace the mains fuses (see §10.1).



In case the appliance stops functioning (there is no serial communication through the RS-232 or USB ports), exit and then access again from the communication software or from the Suite Sw-800.

### 8.1 SOFTWARE UPDATE

To update the equipment, make the connections as shown in the figure.



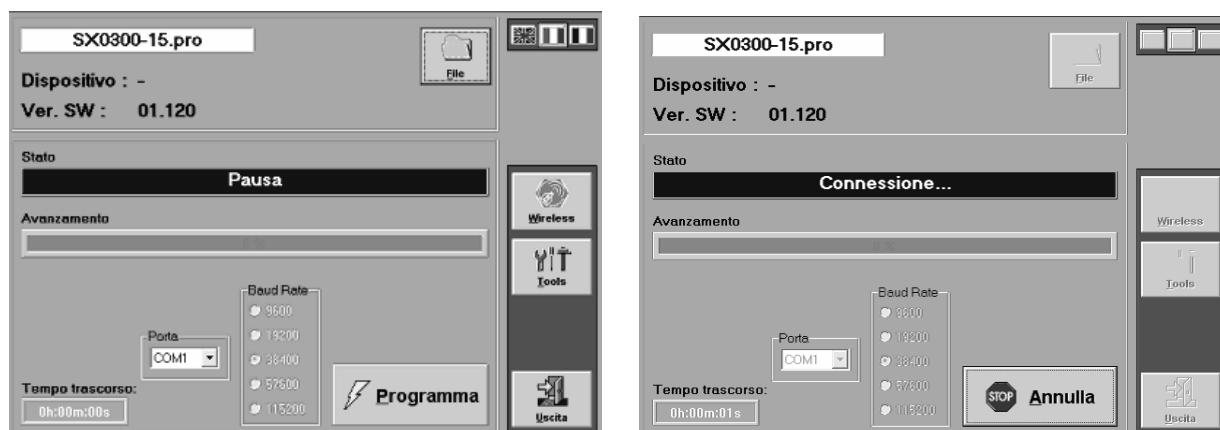
Connect the power supply unit to the mains and to the DB15 connector of the equipment

Connect the programming cable to a USB port of the PC; install the related drivers if needed.

Connect the programming cable to the equipment.

Make the connections required, turn on the PC and launch the GLOBALPROG program, only after selecting the file the update is to be made with.

Select the COM port the programming cable has been connected to and push "Program".



Now, place the programming box switch into the PRG position (if not done yet) and wait for a few seconds until the programming is completed.

At the programming completion, place the programming box switch into the RUN position, and verify that the power led on the OPEN:BRAKE is on.

## **CHAP. 9 - SPARE PARTS**

As far as the spare parts for the OPEN:BRAKE, are concerned, please apply to your Agent for all of the necessary indications.