GASBOX2

TEXA

Rev. 05

en

SUMMARY

GASBOX2 TECHNICAL MANUAL

1 REVISION OF THE MANUAL

This document is the technical manual for the product:GASBOX2

Document Review Number:05

Date of Issue:27/06/2022

INFORMATION 	*Read this manual before using the product.* *Read the documents carefully whenever the General Risk symbol is shown.*

INTRODUCTION

Dear Customer,

We would like to thank you for choosing a TEXA product for your workshop.

We are certain that you will get the greatest satisfaction from it and receive a great deal of help in your work.

Please read through the instructions in this manual carefully and keep it for future reference.

Reading and understanding the following manual will help you to avoid damage or personal injury caused by improper use of the product to which it refers.

TEXA S.p.A reserves the right to make any changes deemed necessary to improve the manual for any technical or marketing requirement; the company may do so at any time without prior notice.

This product is intended for use by technicians specialised in the automotive field only. Reading and understanding the information in this manual cannot replace adequate specialised training in this field.

The sole purpose of the manual is to illustrate the operation of the product sold. It is not intended to offer technical training of any kind and technicians will therefore carry out any interventions under their own responsibility and will be accountable for any damage or personal injury caused by negligence, carelessness, or inexperience, regardless of the fact that a TEXA S.p.A. tool has been used based on the information within this manual.

Any additions to this manual, useful in describing the new versions of the program and new functions associated to it, may be sent to you through our TEXA technical bulletin service.

This manual should be considered an integral part of the product to which it refers. In the case it is resold the original buyer is therefore required to forward the manual to the new owner.

The original manual was written in Italian, every other language is a translation of the original manual.

2 LEGEND OF THE SYMBOLS USED

	Toxic material hazard		Risk of crushing hands
	Explosive material hazard		Floor level obstacle warning
	Electric shock hazard		Laser beam hazard
	Electromagnetic field hazard		Low temperature danger - freezing
	Flammable material hazard		General Risk
	Hot surface hazard		Obligation to read the instructions
	Corrosive substance hazard		Safety glasses required
	Risk of noise level above 80 dB(A)		Protective gloves required
	Moving Parts Risk		Disconnect mains plug from electrical outlet

DANGER	This is not a safety symbol. It indicates a hazardous situation which, if not avoided, will result in serious permanent injury or death.
WARNING	This is not a safety symbol. It indicates a hazardous situation which, if not avoided, may result in serious permanent injury or death.
CAUTION	This is not a safety symbol. It indicates a hazardous situation which, if not avoided, may result in minor injury.
NOTICE	This is not a safety symbol. It indicates a hazardous situation which, if not avoided, may result in material damage.
INFORMATION	This is not a safety symbol. It indicates important information.

3 SAFETY RULES

The technology used for the design and manufacturing control of the **GASBOX2** tools makes them reliable, simple and safe to use.

Personnel in charge of using the tools are required to follow the general safety rules and use the **GASBOX2** devices for their intended use only. Furthermore, they are required to carry out the maintenance as described in this manual.

All the requirements based on the following must be assessed and applied:

- *Labor inspectorate.*
- *Trade associations.*
- *Vehicle manufacturers.*
- *Anti-pollution regulations.*

3.1 Intended Use

Product	Intended Use
GASBOX2	emissions analysis for petrol engines.

3.2 Glossary

Tool:GASBOX2

Operator:qualified person responsible for using the tool.

INFORMATION *The definition of "operator" cannot be applied to minors or to people with reduced physical, sensory or mental capabilities or without any experience or knowledge required.*

3.3 General Rules

The operator must have carefully read and fully understood all the information and instructions in the technical documents provided with the tool.If the operator is not able to read this manual, the operating instructions and safety indications must be read and discussed in the operator's native language.

- *The operator must have adequate knowledge on performing emission analysis and Official Tests and of the potential dangers that may arise during these operations.*
- *The operator that works on vehicles must have basic qualifications and knowledge of mechanics, automotive engineering, vehicle repairing and of the potential dangers that may arise during self-diagnosis operations.*
- *The operator must be completely clear-headed and sober when using the tool; taking drugs or alcohol before or when operating the tool is strictly forbidden.*
- *The operator must follow all the instructions provided in the technical documents.*
- *The operator is required to wear adequate Personal Protective Equipment (PPE) when using the tool.*
- *The operator must monitor the tool during the operating phases wherever this is possible in compliance with the safety measures indicated below.*
- *The operator must periodically check the electrical connections of the tool, making sure they are in good condition and immediately replacing any damaged cables.*

- *The operator must periodically check the parts that are subject to wear and replace them if necessary, using only original spare parts or spare parts approved by the manufacturer.*
- *The operator must stop using the tool immediately should any failure occur, and promptly contact the technical assistance.*
- *Contact your retailer for any non-scheduled maintenance.*
- *Do not remove or damage the labels and the warnings on the tool; do not in any case make them illegible.*
- *Do not remove or tamper with any safety devices the tool is equipped with.*
- *Only use spare parts and accessories that are approved by the manufacturer.*

3.4 *Operator Safety*

⚠ CAUTION

The tool has been ergonomically designed and developed, allowing the operator to work easily and efficiently.

Moving and handling the tool inappropriately can cause the operator discomfort and physical strain.

Safety Measures:

- *Make sure the tool and any devices connected to it are securely fastened to the trolley before moving it around the workshop.*
- *To move the tool use the handles the tool and the trolley are equipped with.*
- *If the tool-trolley unit must be lifted, use the handle on the tool.*

⚠ WARNING

The sampling probe has been designed and developed to provide a thermally insulated handle.

Handling the probe incorrectly may cause serious burns.

Safety Measures:

- *Protect your hands by using suitable protection.*
- *Use the specific handle to extract the probe from the exhaust pipe after performing a test*
- *Handle the sample probe with care.*
- *Make sure the probe is cold before putting it back.*

⚠ CAUTION

The tool was designed to be electrically safe and to work with specific supply voltage levels.

Improper use may expose the operator to the risk of electric shock, even though of low intensity.

Safety Measures:

- *Wear adequate personal protective equipment during all the operating phases.*
- *Do not handle or touch the tool or any accessories (e.g. cables) with wet hands.*

WARNING

The current used during the operating phases generates Electro-Magnetic Fields (EMF) near the tool.

Even though of low intensity, these fields may interfere with medical prostheses, such as pacemakers.

Safety Measures:

- *Keep away from the tool after launching the operating phases.*
- *If you have a medical prosthesis (e.g.: pacemaker), check with your doctor as to the appropriateness of using the tool or being near it.*

3.5 *Tool Safety*

NOTICE

The tool was designed to be used in specific environmental conditions.

Using the tool in environments with temperature and humidity values that differ from those specified may impair its efficiency.

Safety Measures:

- *Place the tool in a dry place.*
- *Do not expose or use the tool near heat sources.*
- *Position the tool making sure it can be properly ventilated.*
- *Do not use corrosive chemicals, solvents or harsh detergents to clean the tool.*
- *Always restore the tool after use.*

NOTICE

The tool was designed to be mechanically sturdy and suitable for use in the workshop.

Careless use and excessive mechanical strain may impair its efficiency.

Safety Measures:

- *Do not drop, shake or bump the tool.*
- *Do not place objects over the cables and do not bend them.*
- *Do not perform any kind of intervention that may damage the tool.*
- *Do not open or dismantle the tool.*
- *Do not bend the antenna of the tool.*
- *Use the tool only with the provided antenna or with another one authorised by the manufacturer of the tool.*
- *Make sure the tool and any devices connected to it are securely fastened to the trolley before moving it around the workshop.*
- *To move the tool use the handles the tool and the trolley are equipped with.*

NOTICE

The tool was designed to be electrically safe and to work with specific supply voltage levels.

Failure to comply with the specifications related to the power supply may impair the tool's efficiency.

Safety Measures:

- *Do not wet with water or other liquids.*
- *The power supply of the tool must be always connected according to the procedures indicated in the present manual.*
- *Never use external batteries to power the tool.*

WARNING

The electromagnetic compatibility tests carried out on the tool guarantee that it can be adapted to the technologies normally used on vehicles (e.g.: engine check, ABS, airbag, etc.). Nevertheless, if malfunctions occur you should contact the vehicle's dealer.

4 FUNCTIONING OF THE RADIO DEVICES

Wireless connection with Bluetooth®technology

The wireless connectivity with Bluetooth technology is a technology that supplies a standard and reliable method to exchange information between different devices, using radio waves. Other than TEXA products, even products such as cellular phones, portable devices, computers, printers, cameras, pocket PCs etc. use this type of technology.

The Bluetooth interface searches for compatible electronic devices according to the radio signal they generate and establishes a connection between them. TEXA tools operate a selection suggesting only TEXA compatible devices. This does not exclude the presence of other sources of communication or disturbance.

THE EFFICIENCY AND THE QUALITY OF THE BLUETOOTH COMMUNICATION MAY BE INFLUENCED BY THE PRESENCE OF RADIO DISTURBANCE SOURCES. THE COMMUNICATION PROTOCOL HAS BEEN DEVELOPED TO MANAGE THESE TYPES OF ERRORS; HOWEVER, IN THESE CASES COMMUNICATION MAY BECOME DIFFICULT AND CONNECTION MAY REQUIRE SEVERAL ATTEMPTS.

SHOULD THE WIRELESS CONNECTION ENCOUNTER SERIOUS PROBLEMS THAT MAY COMPROMISE A REGULAR COMMUNICATION, THE SOURCE OF THE ENVIRONMENTAL ELECTROMAGNETIC DISTURBANCE MUST BE IDENTIFIED AND ITS INTENSITY REDUCED.

Position the product in order to gaurantee the correct funtioning of its radio devices. In particular, do not cover it with any shielding or metallic materials in general.

5 ENVIRONMENTAL INFORMATION

	Do not dispose of this product with other undifferentiated solid waste. For information regarding the disposal of this product please see the pamphlet supplied.

6 NORMATIVE INFORMATION

Simplified EU Declaration of Conformity

CE	The manufacturer, TEXA S.p.A., declares that the radio equipment type **GASBOX2** is compliant with the following directives: • *RED 2014/53/UE* The complete text of the EU declaration of conformity is available at the following Internet address **https://www.texa.it/download**.

Antenna

This product was designed and tested to operate with the antenna it is provided with.

In order to guarantee compliance with the above-mentioned regulations, use the product only with the antenna provided or with another antenna authorised by Texa S.p.A.

7 GASBOX2

GASBOX2 is the new emissions analysis tool for petrol engines.

GASBOX2 allows carrying out emissions tests to verify if values are within those permitted by law and possibly also for diagnostic purposes (engine not working properly, high consumptions, diagnosis warning light on, cold start check, catalyst test, etc.).

Thanks to Bluetooth technology, **GASBOX2** can communicate, without the need for cumbersome wires, with all the display units:

- *PC*
- *PEGASO series*
- *AXONE series*
- *GAS MOBILE*

Thanks to the practical trolley and **Power Pack** (external battery pack), bulky supply cables are no longer a problem and the tool can be easily moved from one work area to another.

7.1 Legally Relevant Aspects

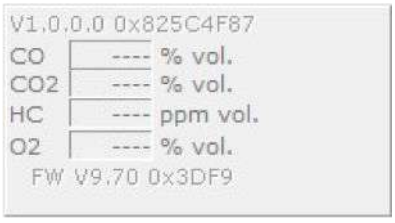
GASBOX2 complies with M.I.D. 2014/32/EC.

Compliance with the directive is guaranteed by type certification (Module B) and production process certification (Module D).

GASBOX2 works in combination with its software by an homologated communication DLL.

Communication between software and instrument is only possible if the homologated software communication library and the homologated firmware are compatible with each other.

The following figure shows the default view mode.



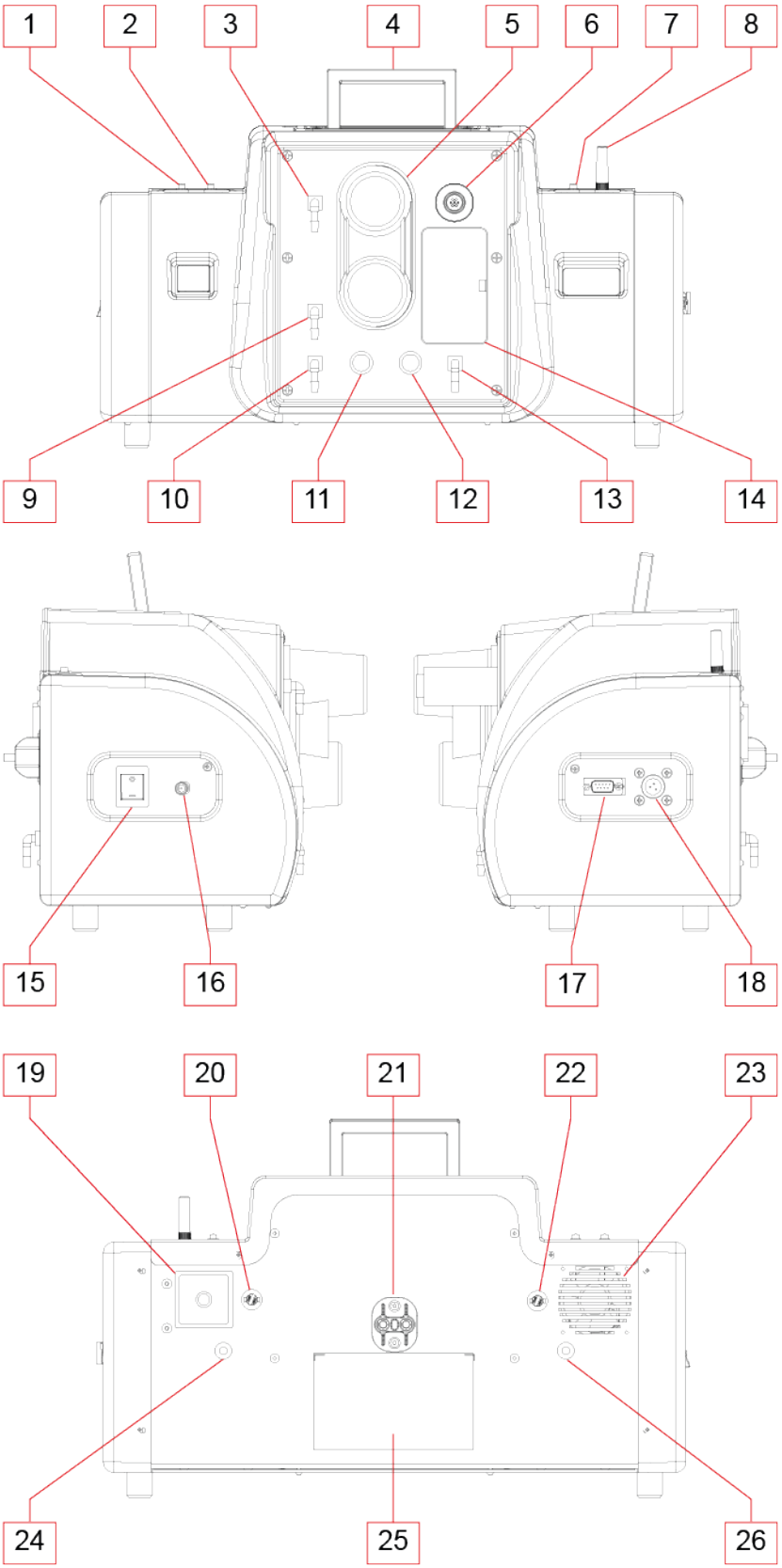
The "DLL measured value display" window shows the version of the homologated communication library and its checksum in the upper area. The measured values for CO, CO2, HC and O2 are shown in the middle. The version and the checksum of the **GASBOX2** firmware are displayed in the lower part.

These objects will be visible throughout the gas detection software and related applications that use the homologated communication library.

Default position:

The readings of CO, CO2, HC and O2 carried out by the **GASBOX2** measuring chamber are presented with the correct rounding and resolution by the homologated communication library.

8 DESCRIPTION



1. *Green LED*
2. *Red LED*
3. *CAL GAS*
4. *Handle*
5. *Filter holder:*
   - *Water filter*
   - *Gas particulate filter*
6. *Air filter*
7. *Blue LED*
8. *Antenna*
9. *OUT GAS*
10. *OUT H_2O*
11. *TEMP °C*
12. *RPM*
13. *GAS IN*
14. *Gas sensors[1]*
15. *Switch*
16. *Connector for external power adapter*
17. *RS232*
18. *Auxiliary output[2]*
19. *Air intake*
20. *12 V power supply connector*
21. *Recharge connector*
22. *12 V power supply connector*
23. *Cooling fan*
24. *Threaded insert*
25. *Data plate*
26. *Threaded insert*

([1])optional

([2])only for CS9000

INFORMATION

The after-sales installation of the optional NOx sensor may require specific technical assistance.

For further information, contact your retailer.

9 TECHNICAL FEATURES

Manufacturer:	TEXA S.p.A.
Product name:	GASBOX2

9.1 Electrical Features

Batteries (external Power Pack battery pack):	2 STANDHBS- 12 V, 9 A/h batteries
Automatic notice for battery voltage variations out of the expected range:	11.3 ÷ 14.5 V
Power adapter:	External power adapter: • *Model:TRH70A190* • *Input:100 - 240 V, 47 - 63 Hz (EU certified for use up to 230 V).* • *Output:19 Vdc – 3.7 A* • *Socket:IEC60320 – C14* • *Cable:H05 VV-F* Temporary overvoltages that may occur between the line conductor and the ground in the system: • **short:** *they may have a neutral-line voltage value +1200 V and may last up to 5 sec.* • **long:** *they may have a neutral-line voltage value + 250 V and last more than 5 sec.*
Consumption:	19 V ⎓ 1.8 A

9.2 Operating Conditions

Temperature:	5 ÷ 40 °C
Pressure:	850 ÷ 1060 hPa
Humidity:	0% ÷ 85% RH* *(*) without condensation*
Environmental conditions:	• *Use:internal* • *Altitude (up to):2000 m* • *Supply voltage fluctuations:± 10%* • *Overvoltage category:II* • *Pollution degree:2* • *Maximum relative humidity 80& for temperatures up to 31 °C, linearly decreasing to 50% at 40 °C*

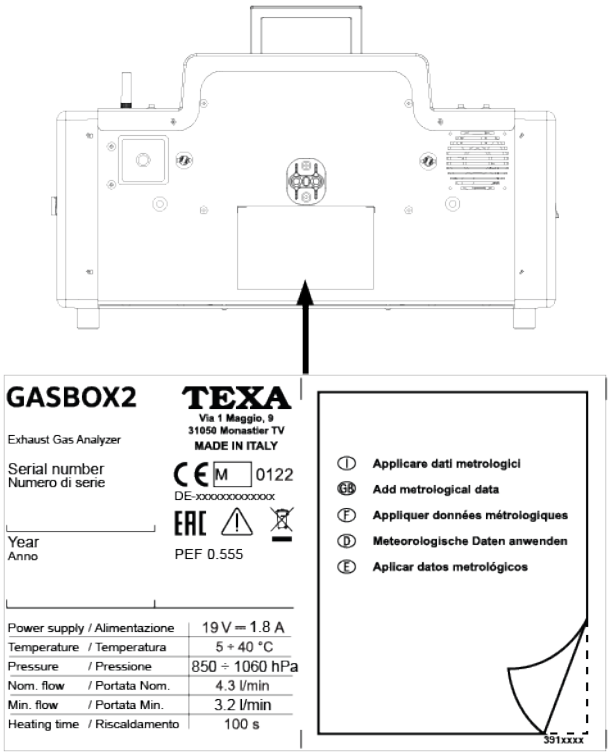
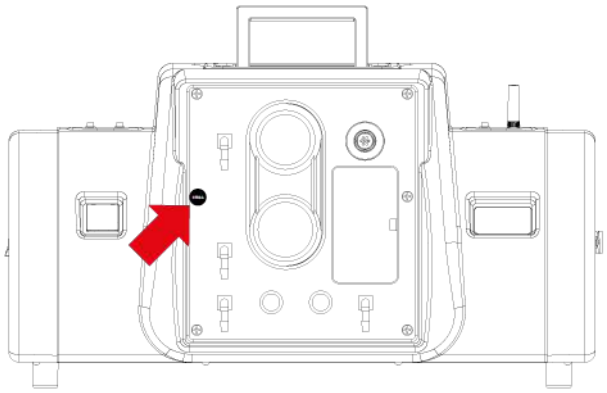
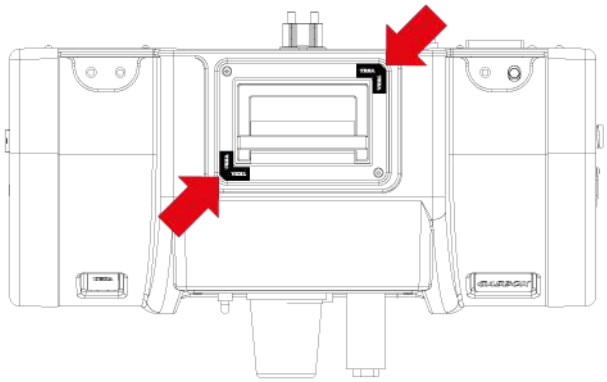
9.3 Physical Features

Storage temperature:	-20 ÷ 60 °C

Physical dimensions:	without trolley:460 x 260 x 250 mm with trolley*470 x 290 x 1020 mm *(*) handle completely extracted*
Weight:	tool without Power Pack: 6 kg* Power Pack:6 kg* *(*) approximately*

9.4 *Other Data*

Intake of gas for measurement:	3.2 l/min (min)
Condensate discharge	Continuous and automatic
Response time (CO, CO_2, HC):	≤15 s Probe length:6 m
Response time (O_2)*: *(*) from concentration in free air to tank with concentration equal to 0*	≤60 s
Heating time:	100 s ≤ max.
Pressure compensation:	Automatic in 850 ÷ 1060 hPa interval
Resetting:	Electronic and automatic
Calibration:	Electronic and automatic (with sample gas cylinder)
Serial port:	Sub-F 9 pin RS232 standard
Wireless port:	Bluetooth Operating frequency band:2400 ÷ 2483.5 MHz Maximum radio frequency power transmitted:10 dBm
Control system:	SW "BLACK CD" and ETS Win PC-compatible
Directives:	RoHs 2011/65/EU RED 2014/53/EU Delegated directive2015/863
Electromagnetic compatibility:	ETSI EN 301 489-1 ETSI EN 301 489-17 EN 61326
Radio systems:	ETSI EN 300 328 EN 62311
Electrical Safety:	EN61010-1

Data plate:	
Tamper-proof seals:	In compliance with Directive 2014/32/EC (MID), the tool is provided with physical seals to prevent any tampering attempt on metrologically relevant parts.   

9.5 *Metrological Characteristics*

Measurement	Measurement range:	Unit of measure	Visualization field	Resolution
CO	0 ÷ 10	% Vol.	0 ÷ 10	0.01
CO_2	0 ÷ 20	% Vol.	0 ÷ 20	0.1
$HC_{(n\text{-}hexane)}$	0 ÷ 10000	ppm Vol.	0 ÷ 10000	1
O_2	0 ÷ 22	% Vol.	0 ÷ 22	0.01 (O_2<10 %) 0.1 (O_2>10 %)
NO_x (optional)	0 ÷ 5000	ppm Vol.	0 ÷ 5000	1
Lambda*	0 ÷ 5	--	0 ÷ 5	0.001
RPM	0 ÷ 9999	rpm	0 ÷ 9990	10
Engine oil temp.	0 ÷ 200	°C	0 ÷ 200	1

(*) The **Lambda** value is calculated based on the CO_2, HC, O_2 values according to the following standardised formula:

$$\lambda = \frac{[CO_2] + \frac{[CO]}{2} + [O_2] + \left\{\left(\frac{H_{cv}}{4} \times \frac{3{,}5}{3{,}5 + \frac{[CO]}{[CO_2]}} - \frac{O_{cv}}{2}\right) \times ([CO_2] + [CO])\right\}}{\left(1 + \frac{H_{cv}}{4} - \frac{O_{cv}}{2}\right) \times \{([CO_2] + [CO]) + (K_1 \times [HC])\}}$$

Where:

- **K_1 :** *conversion factor for HC concentration expressed in ppm vol n-hexane equivalent, equal to 6 x 10^{-4}.*
- **H_{CV}***: atomic hydrogen to carbon ratio in the fuel:*
  - **Petrol:***1,7261*
  - **LPG:***2,53*
  - **Methane gas:***4*
  - **Ethanol:***3*
- **O_{CV} :** *atomic ratio of oxygen to carbon in the fuel, equal to 0,0176.*

10 PRELIMINARY OPERATIONS

Before using the product you may have to carry out some preliminary operations.

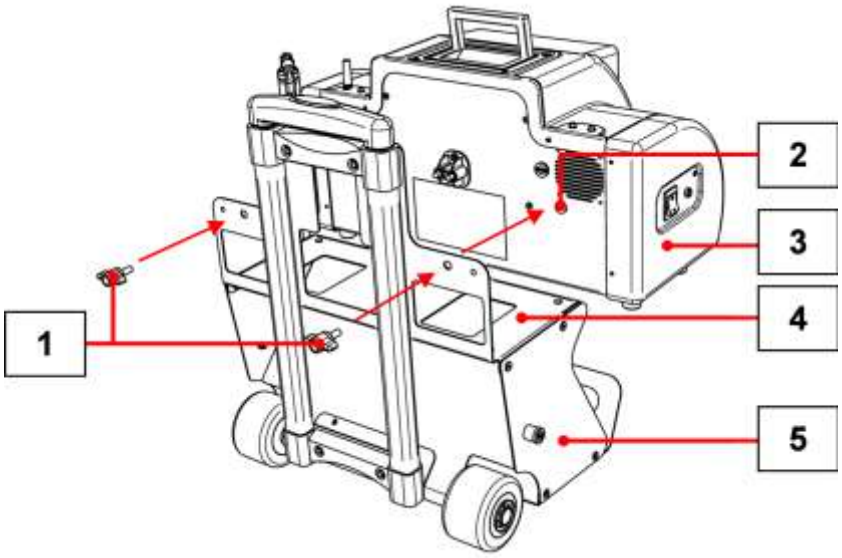
10.1 Mounting the Tool on the Trolley (Optional)

The tool can be mounted on a specific trolley (optional).

The trolley has various functions:

- *allows you to move the tool easily*
- *allows you to attach the tool to the recharging stations*
- *provides a practical housing for the sample probe and various hoses required for the measurements*
- *it allows installing the* **Power Pack** *(optional)*

INFORMATION *Without the trolley the tool can only be powered using the external power adapter.*



Proceed as follows:

1. *Place the* **tool** *[3] onto the* **trolley** *[5] making sure you position it securely and steadily on the* **resting surface** *[4].*
2. *Centre the* **threaded inserts** *[2] on the* **tool** *[3] with the designated holes located on the back side of the* **trolley** *[5].*
3. *Fasten the* **bolts** *[1] provided with the trolley.*

INFORMATION *The safety of a system that includes the tool object of the manual is responsibility of who assembles the system itself.*

⚠ CAUTION

The trolley was designed and developed to be used with this tool only and allows moving it properly and safely. However an improper use may expose to the risk of injuries.

Make sure the tool is securely fastened before moving it.

Extend the retractable arm on the trolley before moving the tool, then recline the tool-trolley unit to allow the wheels to start moving.

Do not lift the tool-trolley unit using the handle on the trolley but only using the handle on the tool.

⚠ CAUTION

The tool is intended for a stationary use.

Running a test while moving the trolley on which the tool is installed will expose the operator to the risk of injury and may lead to unreliable test results.

Do not carry out any test while the trolley is moving.

11 POWER SUPPLY

The tool can be powered:

- *from the mains using an external power adapter*
- *via workstation (Pegaso Series or charging station for AUTOPOWER tools)*
- *by Power Pack*

INFORMATION

The green LED will turn on when the tool is being powered.

If you are powering your tool with Power Pack the green LED and the red LED are used to indicate the state of charge of the batteries.

11.1 Power supply from the Mains

It is possible to power the tool by connecting it to the mains via a specific power adapter provided with the tool.

CAUTION

The use of different power adapters other than the one indicated can damage the tool and expose the operator to the risk of injuries.

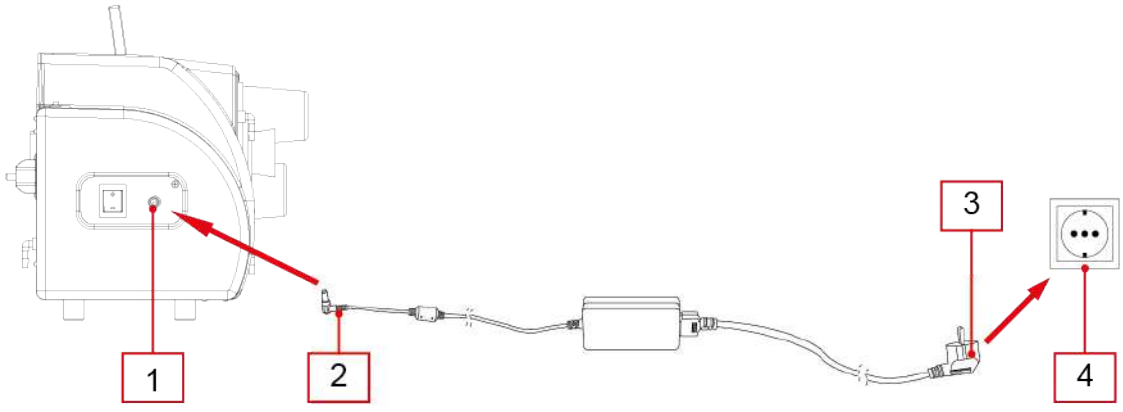
If the tool is not used as specified by the manufacturer, the protection provided by the tool may be altered.

The mains plug must be used to disconnect from the mains.

Do not position the tool so that it becomes difficult to disconnect it from the mains.

Only use the power adapter:

- **Model:***TRH70A190*
- **Code:***390688*



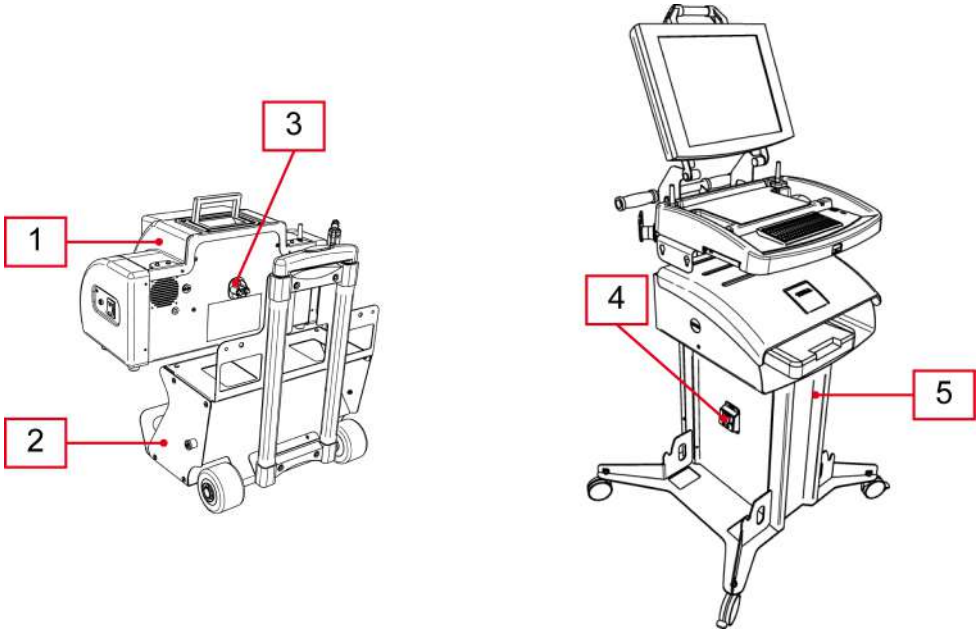
Proceed as follows:

1. *Connect the jack connector on the power adapter [2] to the connector for powering the tool [1].*
2. *Connect the plug on the power adapter [3] to the mains socket [4].*

11.2 *Powering via a Workstation*

It is possible to power the tool by placing it on the specific support brackets at the bottom of the Pegaso Series workstations and of the charging station for AUTOPOWER tools.

INFORMATION *To power the tool in this mode it must be mounted on the specific trolley (optional).*



Proceed as follows:

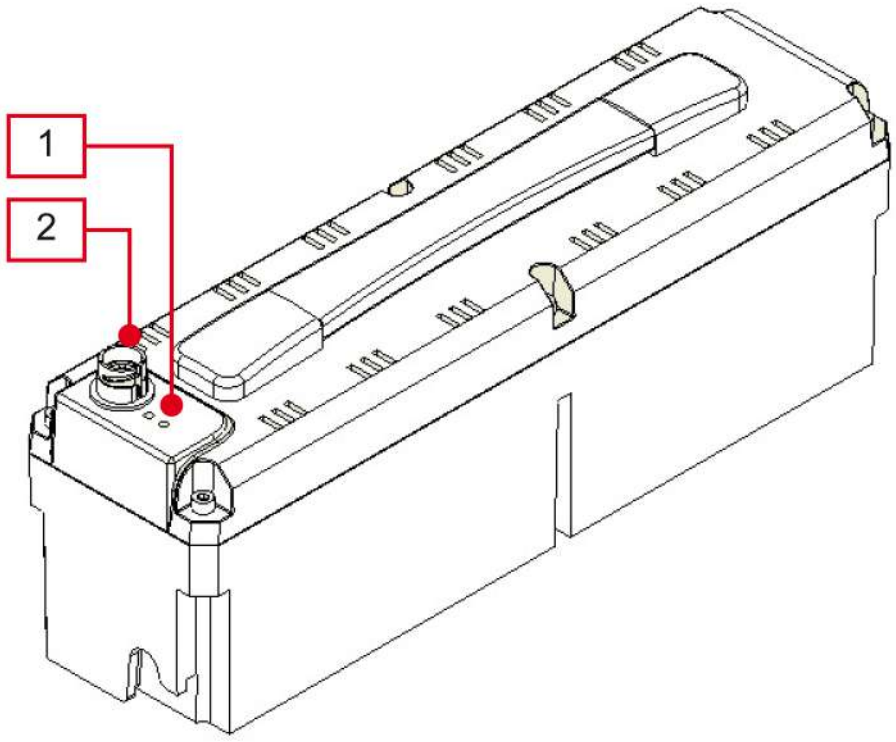
1. *Fasten the tool [1] to the trolley [2].*
2. *Insert the tool [1] - trolley [2] unit into the specific support brackets so that the charging connector on the tool [3] coincides with the charging connector [4] on the workstation/ charging station [5].*

11.3 *Power supply from Power Pack (Optional)*

It is possible to power the tool by connecting it to the Power Pack (optional).

The Power Pack is an external battery pack that allows powering the tool without the use of cables, making it therefore easy to move the tool from one work area to another.

The Power Pack is equipped with two green LEDs, one for each battery, that indicate the state of charge if the device is being charged via an external power adapter.



1. *Green LEDs*
2. *Recharge connector*

The charge provided by the Power Pack provides allows using the tool continuously a complete working day.

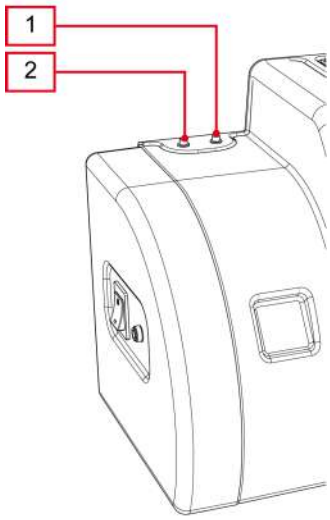
INFORMATION

To power the tool in this mode it must be mounted on the specific trolley (optional).

For further information see the Power Pack installation manual.

For further information refer to the Power Pack installation manual.

When the Power Pack is connected to the tool the state of charge of the batteries is indicated by the red LED [1] and green LED [2] located on the top part of the tool.



When the tool is in operation the LEDs indicate the following:

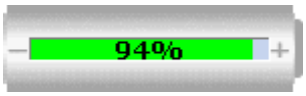
GREEN LED	RED LED	PERCENTAGE OF BATTERY CHARGE
on	off	75% ÷ 100%
blinking	off	50% ÷ 75%
off	blinking	25% ÷ 50%
off	on	carica < 25%

INFORMATION *If the Power Pack is disconnected and the tool is powered, the green LED will remain on.*

Any problem will be indicated on the viewing unit.

The state of charge of the Power Pack batteries is constantly monitored by the software in the display unit.

The level of the charge is indicated graphically and numerically via a specific icon.



The icon appears when the tool is connected using the specific analysis and service software programs.

When the charge level drops below 25% a message informs the user that the measurement will stop and requests the user to recharge the tool.

For more information consult the software operating manual.

11.3.1 Power Pack Recharging

It takes approximately 12 consecutive hours to charge the Power Pack completely.

INFORMATION

Once the Power Pack is being charged, make sure the green LED starts to flash (recharging in progress).

Be sure not to turn off the power supply in the workshop while the Power Pack is recharging.

The Power Pack can be recharged:

- *from the mains using an external power adapter*
- *from the tool connected to the mains through external power adapter*
- *via workstation (Pegaso Series or charging station for AUTOPOWER tools)*

The LEDs on the Power Pack remain off if it is being charged through the analysis tool or a workstation.

The table below illustrates the information provided by the LEDs according to the charging mode selected.

CHARGING MODE	POWER PACK LED	GREEN LED ON TOOL	STATE OF CHARGE
from the mains using an external power adapter	blinking	off	charging
	on	off	charged
from the tool connected to the mains through external power adapter	off	blinking	charging
	off	on	charged
via workstation (Pegaso Series or charging station for AUTOPOWER tools)	off	blinking	charging
	off	on	charged

The tool is able to work normally while the Power Pack is being recharged.

INFORMATION

To store the Power Pack correctly and when storing it for longer than one month, we recommend charging it completely.

We recommend charging the Power Pack completely any time it has not been used for 2-3 months.

Once charged, disconnect the Power Pack from the tool and restore it.

CHARGING FROM THE MAINS

It is possible to charge the Power Pack by connecting it directly to the mains via a specific external power adapter.

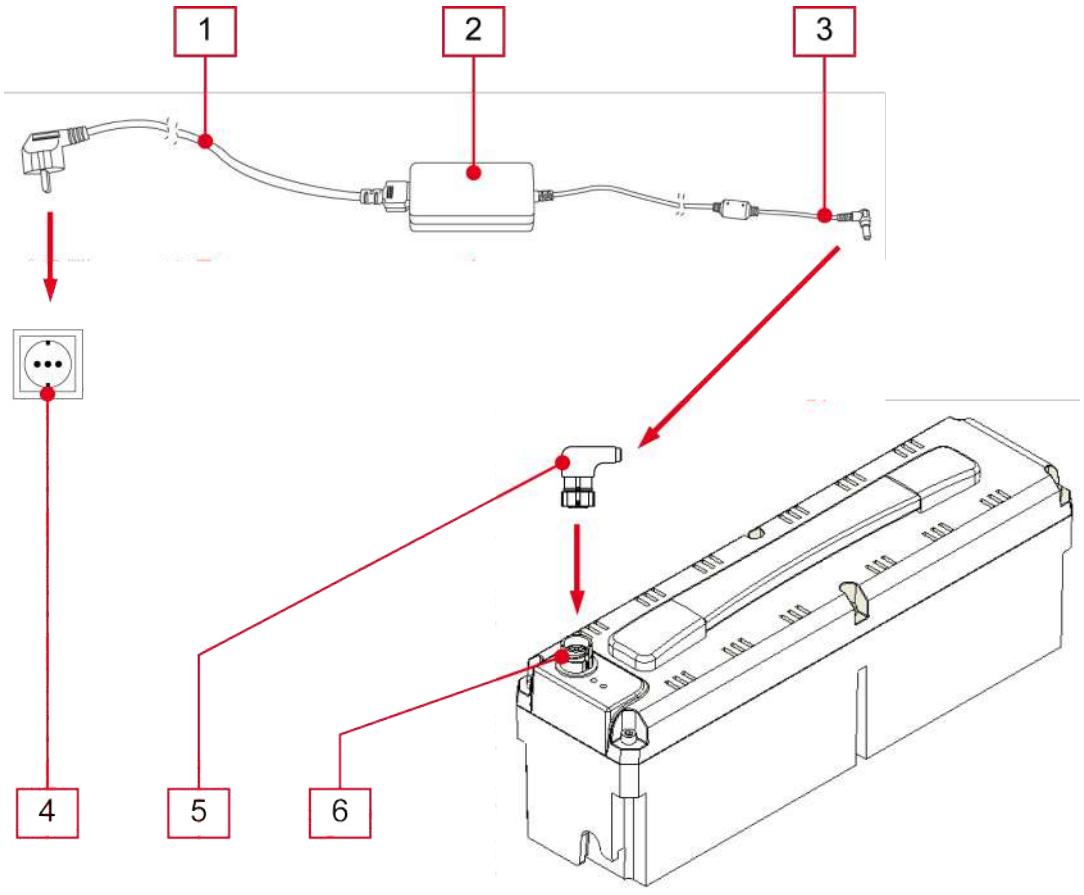
This type of charging allows having more than one Power Pack charged and ready for use.

INFORMATION *In order to use this recharging mode, the Power Pack must be disconnected from the tool and removed from the trolley.*

⚠ CAUTION **The use of different power adapters other than the one indicated can damage the tool and expose the operator to the risk of injuries.**

Only use the power adapter:

- **Model:***TRH70A190*
- **Code:***390688*



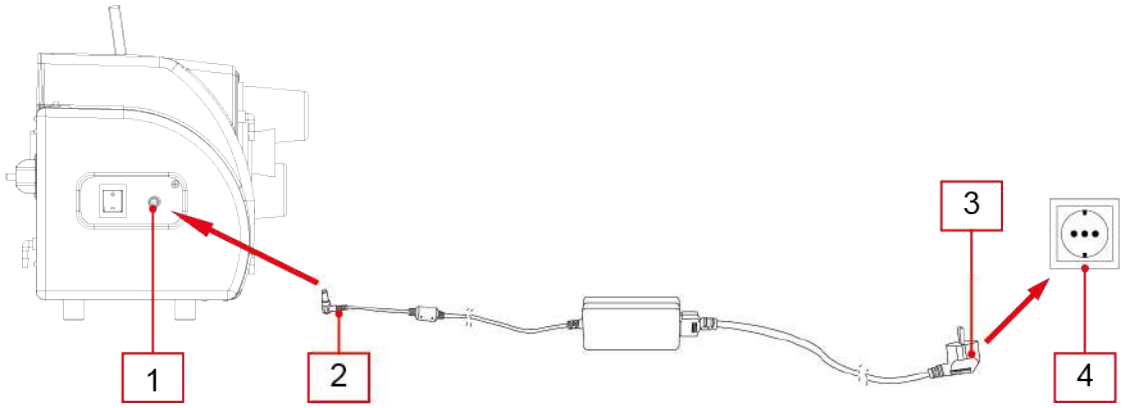
Proceed as follows:

1. *Disconnect the Power Pack from the tool.*
2. *Remove the Power Pack from the trolley.*
3. *Connect the adapter connector [5] to the charging connector [6].*
4. *Connect the jack on the power adapter [3] to the adapter connector.*
5. *Connect the power cable [1] to the power adapter.*
6. *Connect the power cable [1] to a mains socket [4].*

CHARGING VIA THE TOOL

It is possible to charge the Power Pack by connecting the external power adapter to the tool.

INFORMATION *The Power Pack must be placed in the trolley and be correctly wired to the tool.*



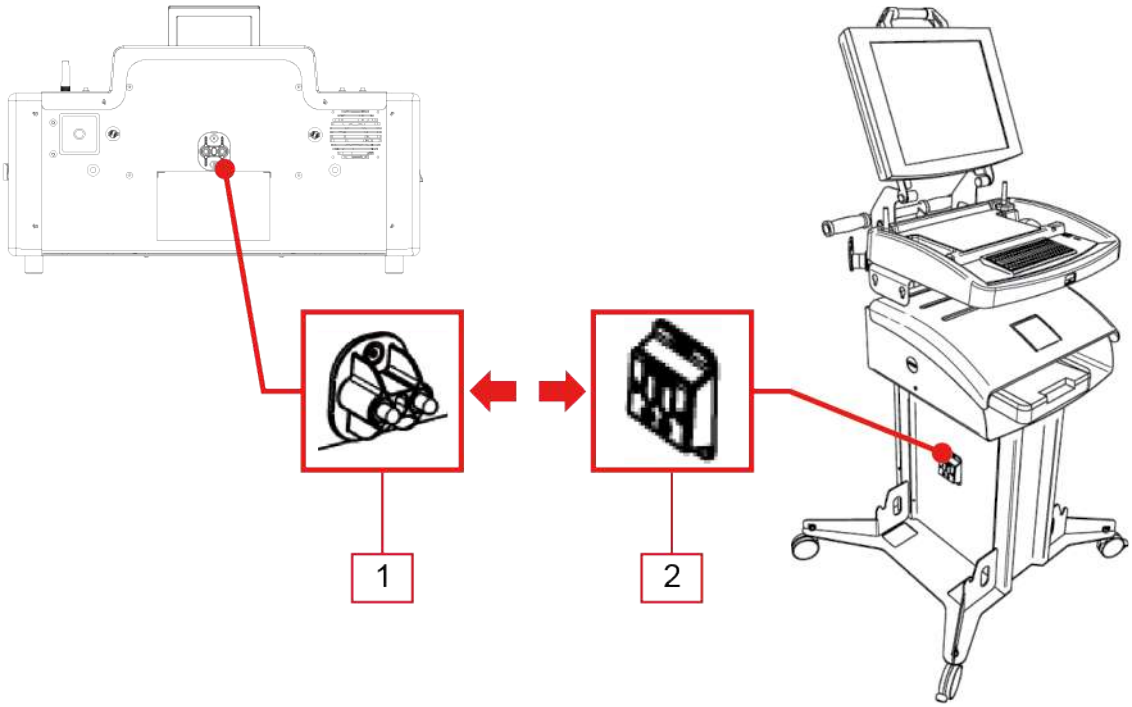
Proceed as follows:

1. *Connect the jack on the power adapter [2] to the connector for the tool's external power adapter [1].*
2. *Connect the power cable [3] to a mains socket [4].*

CHARGING VIA A WORKSTATION

It is possible to charge the Power Pack by placing the tool on the specific support brackets at the bottom of the Pegaso Series workstations and of the charging station for AUTOPOWER tools.

INFORMATION *The Power Pack must be placed in the trolley and be correctly wired to the tool.*

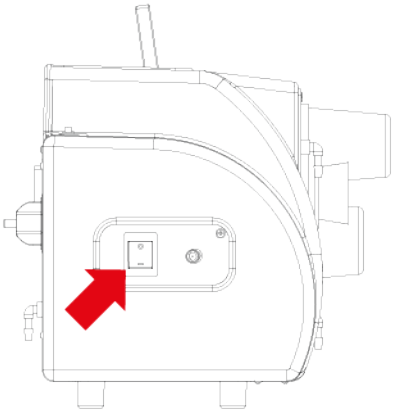


Proceed as follows:

1. *Make sure the workstation or the charging station is powered and turned on.*
2. *Place the tool, secured to the trolley, onto the specific support brackets so that the charging connector on the tool [1] coincides with the charging connector on the workstation or on the charging station [2].*

12 POWER ON/OFF

To turn on the tool set the switch located on the left side of the tool to the "**I**" position.



The analyzer launches a heating procedure that lasts approximately 1 minute.

INFORMATION

During the heating procedure you cannot carry out any type of measurement; the software will block all the operations not permitted.

Once the heating procedure has come to an end, the analyzer will carry out the **autozero procedure** and set up with the pump on. The software will enable all the functions that have been blocked up until now.

A message will appear informing you that the tool is carrying out the autozero procedure.

This procedure lasts approximately 30 seconds.

If the analyzer does not detect gas within the next 4 minutes (CO_2 values less than 5%) the pump will shut off.

The pump remains on as long as the analyzer detects gas in its interior, periodically carrying out an autozero procedure.

To turn off the tool set the switch located on the left side to the "**O**" position.

NOTICE

Turning off in other ways rather than the ones indicated may damage the tool.

Do not turn off the tool by disconnecting it from the mains.

13 COMMUNICATION

The tool is not equipped with a user interface and the acquired data is sent to a specific display unit.

INFORMATION *The display unit must always be installed with appropriate TEXA S.p.A. software that supports emissions analysis.*

The tool can be connected to the display unit the following ways:

- *Bluetooth*
- *USB*
- *Serial*

To best exploit the potential of the tool, you must use the Bluetooth connection.

INFORMATION *Before starting the communication with the display unit, you must perform the specific configuration procedure.*

INFORMATION *Power, connect and turn on the tool before launching the applications that will be used to interface with it. If this procedure is not followed communication errors could occur.*

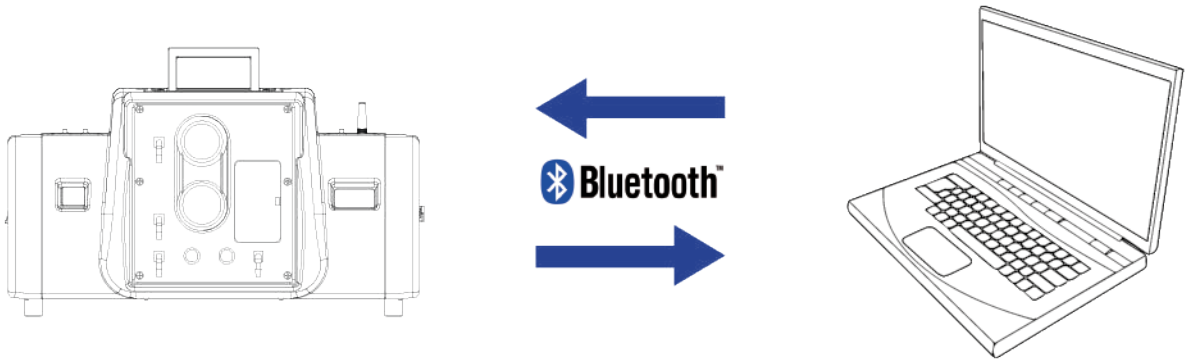
While the tool is turning on it automatically recognizes the communication mode through which it is connected to the display unit.

For example: the Bluetooth communication mode (active by default) is disabled when the serial cable is connected.

INFORMATION *To change the communication mode between the tool and the display unit you must first turn off the tool and then choose the mode you prefer.*

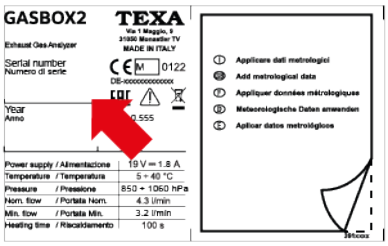
13.1 *Bluetooth*

The wireless connection eliminates the communication cable with the viewing unit, making the tool more practical to use.



The external antenna for the Bluetooth communication is clearly visible on the top part of the tool.

The serial number to use in order to configure the Bluetooth communication can be found on the plate located on the back of the tool.



The blue LED provides information on the status of the Bluetooth communication:

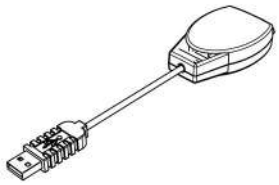
BLUE LED	STATUS OF THE COMMUNICATION
off	no Bluetooth communication
on	not managed
blinking	the tool is communicating with the display unit via BLUETOOTH

INFORMATION *In order to configure properly we recommend turning on the device before turning on the display unit and only after proceed with the configuration procedure.*

For more information consult the software operating manual.

13.2 USB

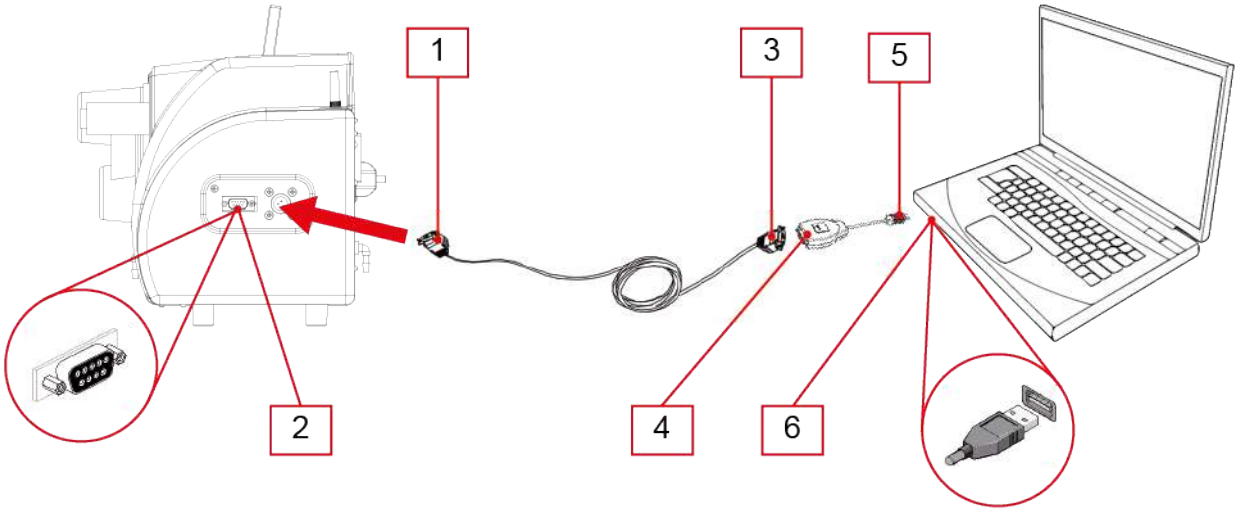
In order to connect the analyzer to the PC via USB you must be equipped with a USB/serial adapter.



INFORMATION *In order to use the USB/SERIAL adapter you must install specific drivers developed by TEXA S.p.A in the PC.*

INFORMATION *You cannot power the tool using the USB port.*

For further information on the installation of the drivers see the manual provided with the adapter.



Proceed as follows:

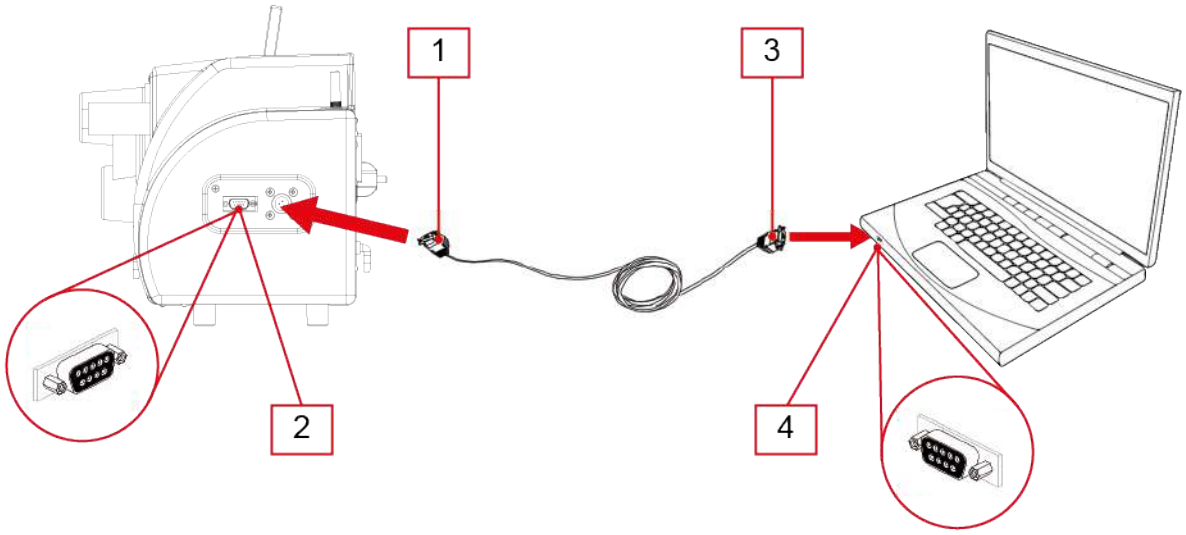
1. *Connect the serial cable [1] to the RS232 connector on the tool [2].*
2. *Connect the serial cable [3] to the RS232 connector on the adapter [4].*
3. *Connect the USB connector on the adapter [5] to a USB port in the PC [6].*

For more information consult the software operating manual.

13.3 *RS232 serial*

The serial communication is required in order to update the tool firmware but may also be used if you are having problems communicating via Bluetooth.

INFORMATION *The firmware update must be carried out by qualified personnel only.*



Proceed as follows:

1. *Connect the serial cable [1] to the RS232 connector on the tool [2].*
2. *Connect the serial cable [3] to a RS232 port in the PC [4].*

14 ACCESSORIES

The tool can detect both engine temperature and engine RPM using:

- *rev counter external module*
- *direct connection*
- *exhaust gas measurement system for motorcycles*

14.1 *Rev counter external module*

Using this method, the probes required for engine temperature and engine RPM detection are connected to a TEXA S.p.A. external rev counter.

The external rev counter acquires the data related to the engine temperature and engine RPM and sends them to the display unit.

INFORMATION *The external rev counter must be appropriately configured using the TEXA S.p.A. software.*

For further information see the technical manual of the rev counter used.

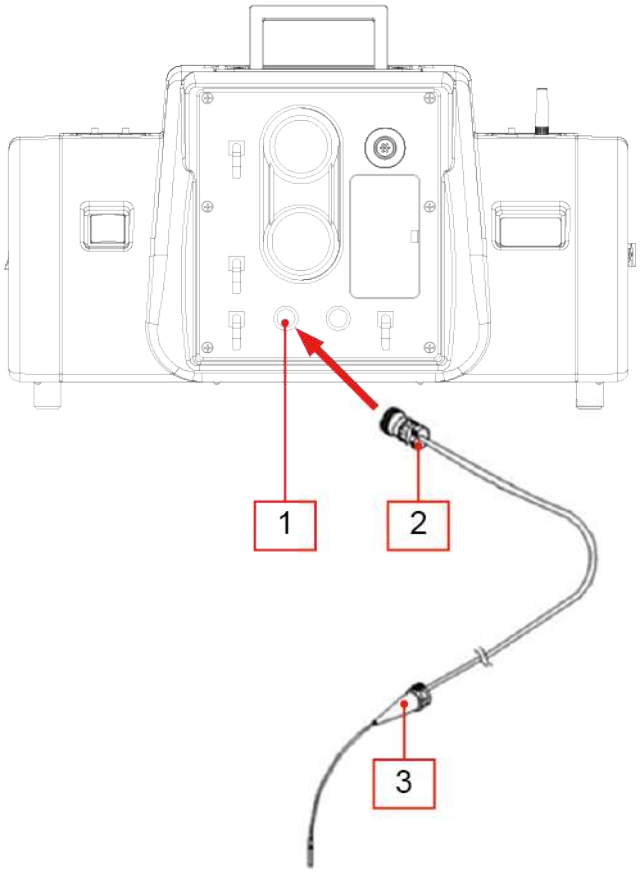
14.2 *Direct Connection*

The use of the types of connection described below apply exclusively to certain vehicle categories, engine types and/or devices.

TEMPERATURE MEASUREMENT

Using this method the probe required for engine temperature detection is connected directly to the tool.

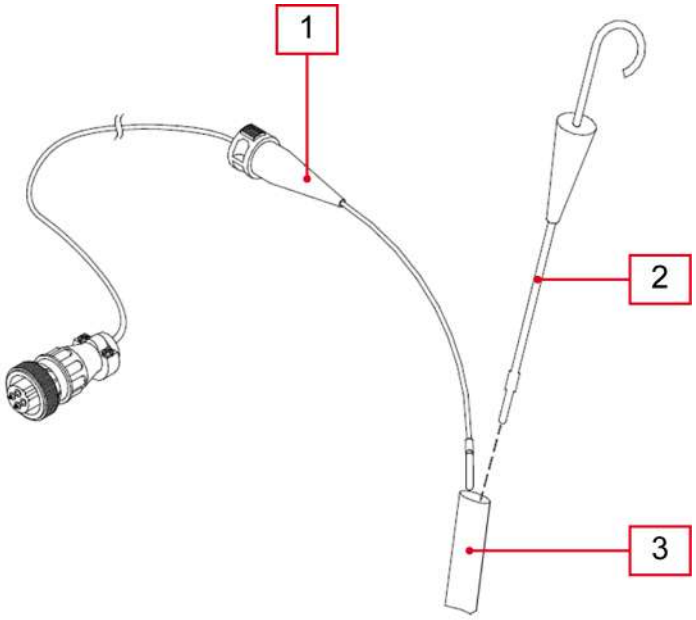
INFORMATION *The temperature measurement range is between 5 °C and 200 °C.*



Proceed as follows:

1. *Connect the connector on the probe [2] to the TEMP connector [1] on the tool.*
2. *Insert the temperature probe [3] where the oil dip-stick is normally inserted.*

The temperature probe is equipped with a sliding rubber tap that allows adjusting the length of the probe as needed.



Proceed as follows:

1. *Adjust the sliding rubber tap [1] using the oil dip-stick [2] as a reference.*
2. *Insert the probe into the engine oil inspection [3] where the oil dip-stick [2] normally inserted.*

NOTICE

The temperature probe was designed and developed for the specific use indicated in this manual; however, an improper use and carelessness may compromise its integrity and efficiency.

Make sure the temperature probe does not come into contact with the exhaust manifolds. These may reach temperatures over 700 °C and may damage the probe.

Do not twist the cables in the engine compartment.

Do not place the connection cable close to components that may cause interferences (coil, distributor, spark plug cables).

MEASURING RPMs

Using this method the amp clamp required for engine rpm detection is connected directly to the tool.

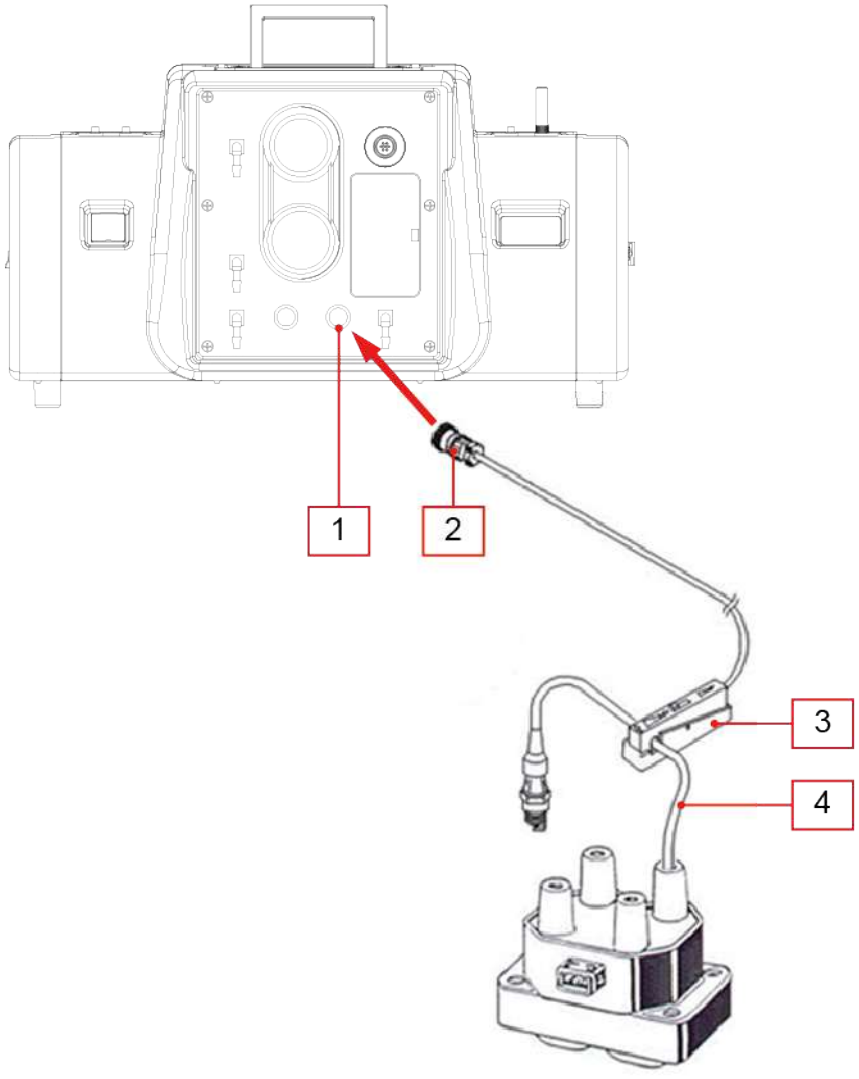
INFORMATION

This method for engine temperature detection can only be used on motorcycles.

INFORMATION

Some spark plug cables are securely shielded and may prevent the analyzer from correctly detecting the RPM.

If you encounter an inconvenience of this type you must make use of a spark plug cable that is not shielded to replace the shielded one during the test.



Proceed as follows:

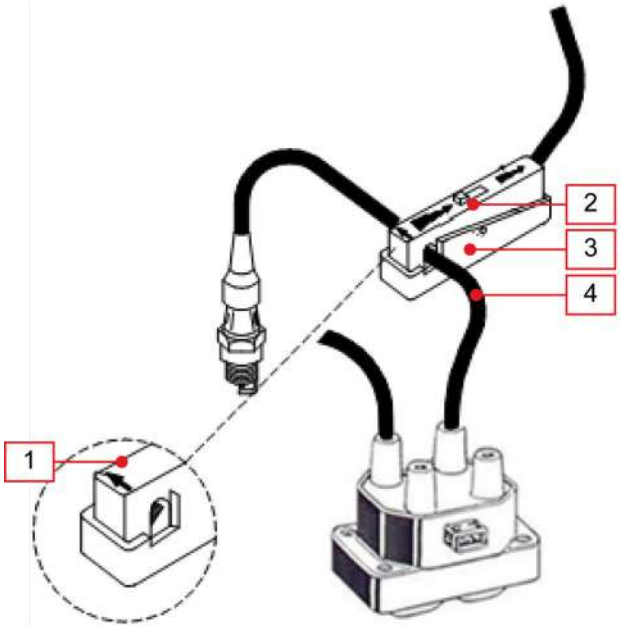
1. *Connect the amp clamp connector [2] to the RPM connector [1] on the tool.*
2. *Close the amp clamp [3] around the spark plug cable [4].*

INFORMATION

When working on certain types of engines you may need to use a standard sensitivity at high RPM while carrying out the check whereas at low RPM you may need a lower sensitivity.

This is due to the notable reduction of the maximum value of the pulse in the high-voltage coil that occurs when the RPM increase.

For this is reason the amp clamp is equipped with a switch that is used to select the measurement mode (standard sensitivity or lower sensitivity).



To connect the amp clamp to the vehicle proceed as follows:

1. *Close the amp clamp [3] around the spark plug cable [4] on one of the cylinders making sure to follow the direction indicated by the arrow [1].*
2. *If necessary use the selector [2] to adjust the sensitivity of the clamp.*

NOTICE

Electric shocks between the spark plug cable and the clamp may damage the tool severely.

Make sure they do not occur.

Keep the amp clamp cable away from the glow plug cables not being used for the measurement.

14.3 *Exhaust Gas Measurement System for Motorcycles*

CS9000 is an exhaust gas measurement system for motorcycles to be combined with the tool.

Use CS9000 to collect the exhaust gas from motorcycles when required by the procedure in force in the country of use.

To connect the CS9000 with the tool, follow the indications in the dedicated manual.

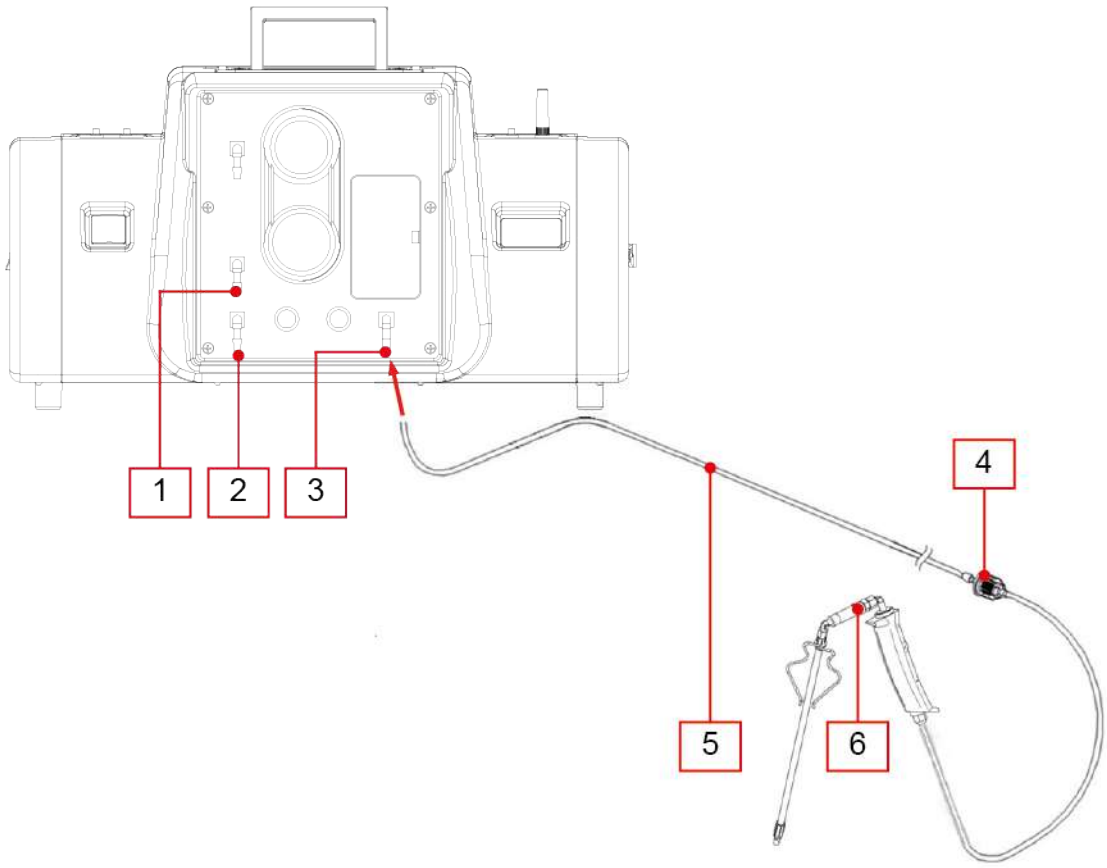
15 SAMPLING PROBE

The exhaust gas is extracted from the vehicle exhaust pipe via a specific probe.

The gas analyzed and the water generated from the test are extracted from the tool via specific service hoses.

The tool comes with two probe connection hoses of different lengths: one is 1.5 m long and the other 4 m long.

INFORMATION *Use the 4 m length probe if the tool is powered directly from the mains.*



Proceed as follows:

1. Connect the probe connection hose [5] to the GAS IN connection [3].
2. Connect the probe connection hose [5] to the net filter [4].
3. Connect the sampling probe hose [6] to the net filter [4].
4. Connect the specific water drain hose to the H_2O connection [2].
5. Run the drain hose through the specific hole in the trolley.
6. Secure the drain hose to the hose fastener located on the back of the trolley.

CAUTION

Position the hose in such a way to guarantee that the water is carried safely away from the tool; it should not come into contact with the electrically powered devices and/or mains sockets.

7. Connect a hose of adequate diameter to the GAS OUT connection [1].
8. Make sure the hose is placed in such a way to guarantee that the analyzed gases are released away from the work area.

15.1 *Probe for Motorcycles*

If **GASBOX2** needs to be used to measure the exhaust gases on motorcycles, the probe dedicated to motorcycles can be used, available separately.

Code:7490724

The way to connect it to the tool is the same indicated above.

16 USE

In order to carry out a correct detection pay particular attention to the following general conditions:

- *The cold start devices (automatic and manual) must be deactivated.*
- *Carry out two quick wide open throttle accelerations and bring the engine back to the rpms required, wait for the values to stabilise.*
- *Verify that the data related to the engine speed at idle is as established by the manufacturer.*
- *The outside temperature must be between 5 °C ±2°C and 40 °C ±2°C.*
- *The temperature of the engine oil must be greater than 60 °C (for some Official tests the temperature of the engine oil must be greater than 80 °C).*
- *The exhaust of the vehicle must be properly sealed.This condition must be verified by sealing the exhaust making it airtight while the engine is running at idle.In this condition there should not be any gas leaks in the hose joints.*

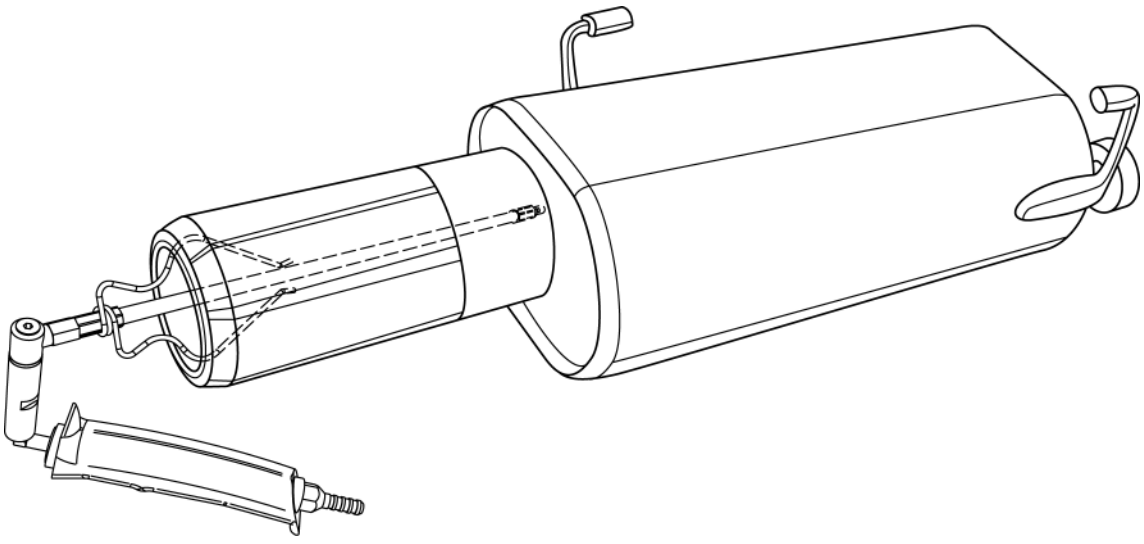
In order to carry out a reliable detection you must insert the sampling probe correctly.

INFORMATION

The sampling probe must be inserted as deeply as possible inside the muffler.

The minimum depth required for a reliable detection is 300 mm.

If the end part of the muffler does not allow you to completely insert the probe, add a suitable extension hose that guarantees a sealed fit.



Proceed as follows:

1. *Insert the probe far down into the exhaust pipe in order to optimize the sample of gas.*
2. *Use the specific fastening methods to keep the probe well-fastened to the exhaust pipe during the test.*

CAUTION

The probe and the vehicle's muffler reach high temperatures during the test and stay very hot at the end of the test.

Careless during the test and an improper use of the sampling probe may expose the operator to the risk of severe injuries.

Always wear proper PPE.

Handle the sampling probe using the specific handle only, particularly at the end of the test.

Wait for the probe to cool down before restoring it.

CAUTION

The tool is intended for a stationary use.

Running a test while moving the trolley on which the tool is installed will expose the operator to the risk of injury and may lead to unreliable test results.

Do not carry out any test while the trolley is moving.

The specific software installed in the display unit guides the operator throughout the entire test procedure.

The values detected by the analyzer are sent to the display unit.

The following values are indicated:

- *CO [% Vol.]*
- *CO_2 [% Vol.]*
- *O_2 [% Vol.]*
- *HC [ppm Vol.]*
- *NOx [ppm Vol.]*
- *Lambda factor*
- *engine RPM*
- *engine oil temperature*
- *internal analyzer temperature*
- *barometric pressure*

17 METROLOGICAL CHECK

The tool is subject to an annual metrological check based on the regulations in force in the country it is used in.

This check is needed to guarantee the tool's proper operation in compliance with the indicated regulations.

The check must be carried out by a technician authorised by the authority competent in the country of use.

INFORMATION

Before carrying out the annual metrological check we recommend having the general conditions of the tool checked by a TEXA S.p.A. authorized retailer.

Each TEXA S.p.A. authorised retailer can verify if the tool and its built-in devices are in perfect efficiency conditions and eventually calibrate the tool.

The retailer can also verify the software/firmware versions that are installed and eventually update them.

Having the latest versions is essential in obtaining the best performance from the tool purchased.

You can see the list of authorised retailers at the following address:**https://www.texa.com/sales-network**

18 MAINTENANCE

Below the ordinary maintenance and cleaning operations that can be carried out by the operator are described.

Component	Operation	Frequency	Warning
Gas particulate filter	replacement	when black-colored	--
		when indicated by the software	"LOW FLOW" via software
Water filter	cleaning	when visibly dirty	"LOW FLOW" via software
	replacement	based on wear	"LOW FLOW" via software
Air filter	replacement	once a year	--
O_2 sensor	replacement	once a year	Near-wear indication via software
Gas sampling circuit	leak test	once a day	Request via software
Gas sampling pipeline net filter	cleaning	when visibly dirty	--
	replacement	based on wear	--
Gas sampling pipeline	cleaning	based on how frequently the tool is used	--

CAUTION

The tool works with internal voltage levels that are not a risk for the operator's life; however, they may expose the operator to the risk of minor injuries.

Carry out all the maintenance operations with the tool switched off and disconnected from the mains, except if indicated differently.

NOTICE

The use of spare parts and accessories that are not approved by the manufacturer may compromise the tool's efficiency and safety.

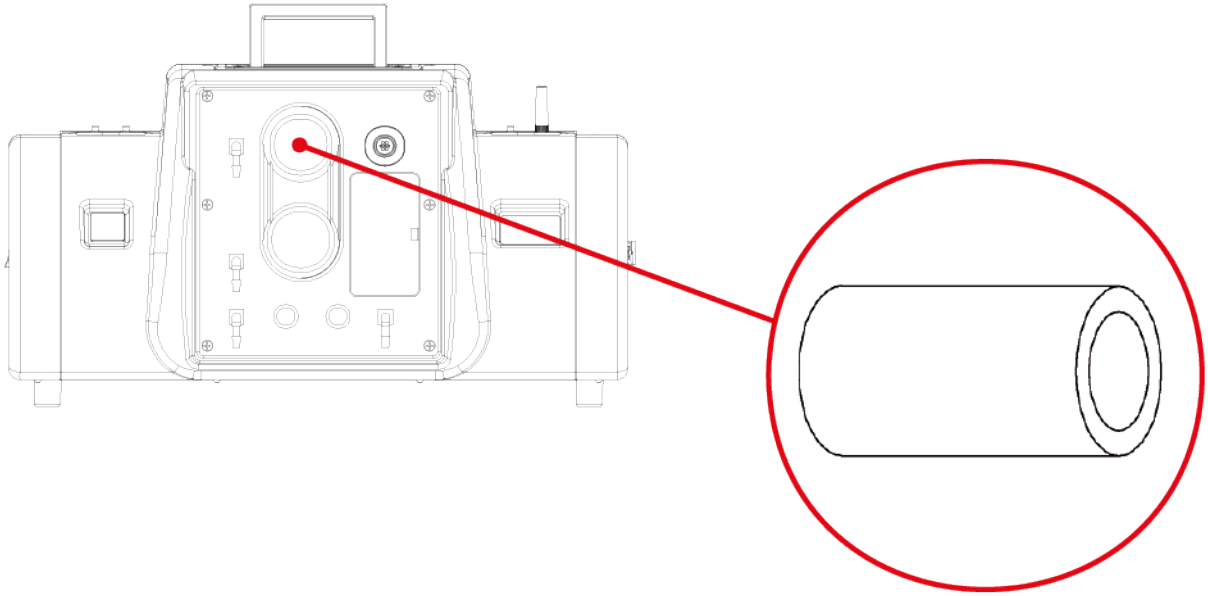
Only use spare parts and accessories that are approved by the manufacturer.

Contact you retailer for any maintenance operation that is not described below.

You can see the list of authorised retailers at the following address:**https://www.texa.com/sales-network**

18.1 Replacing the Gas Filter Cartridge

This filter cannot be cleaned but must be replaced every time it appears to have blackened or when the software prompts you with the message"**LOW FLOW**".



Proceed as follows:

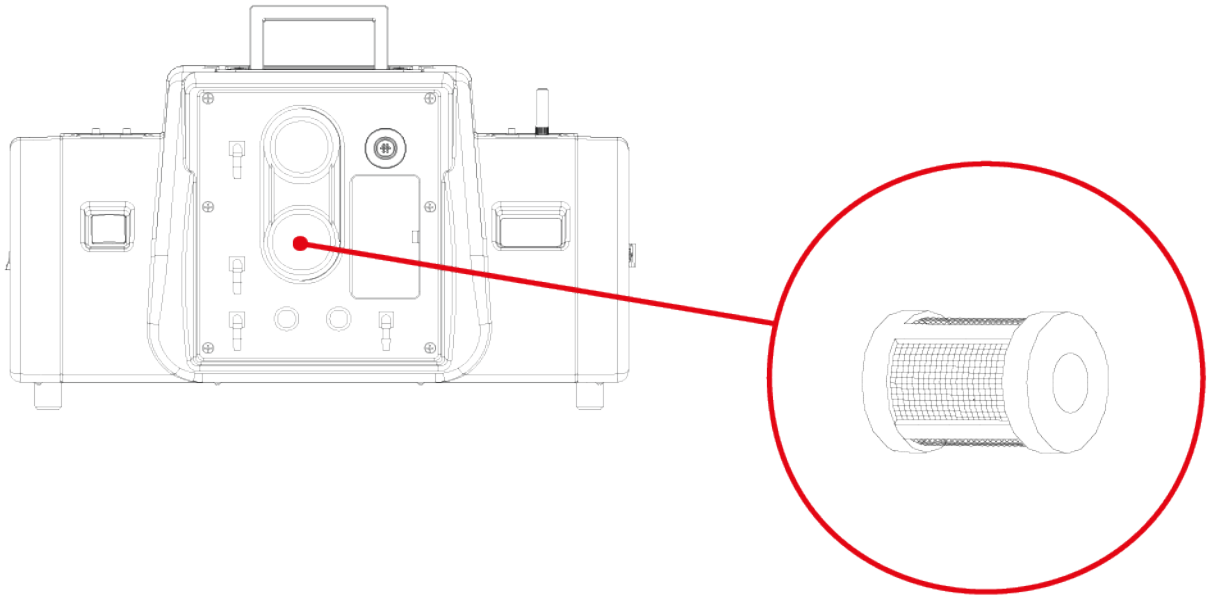
1. *Remove the fastening screw from the filter holder.*
2. *Remove the holder.*
3. *Remove the worn filter.*
4. *Position the new filter.*
5. *Reposition the holder.*
6. *Secure the holder with the screw removed previously.*

18.2 *Replacing the Water Filter*

This can be cleaned; however, it must be replaced once it has been cleaned a certain number of times.

The software displays the message "**LOW FLOW**" frequently when this filter is so dirty that it is unable to work properly.

NOTICE **Make sure not to damage the filter during the cleaning operations.**



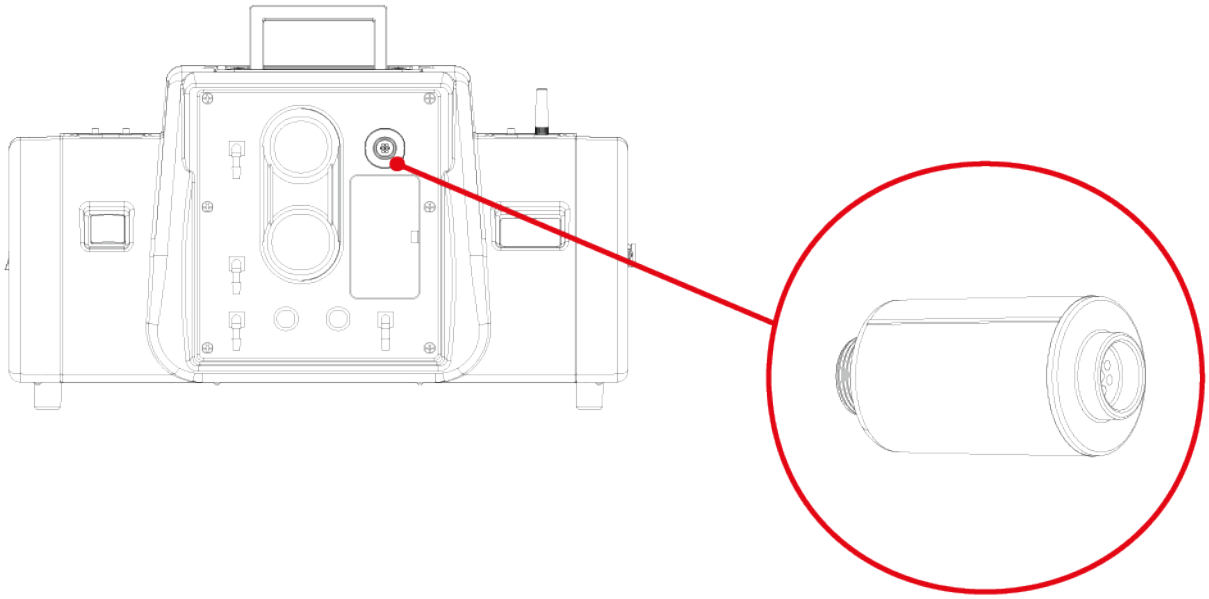
Proceed as follows:

1. *Remove the fastening screw from the filter holder.*
2. *Remove the filter holder.*
3. *Remove the filter.*
4. *Rinse the filter with running water being careful not to damage it.*
5. *Let the filter dry.*
6. *Reposition the filter.*
7. *Reposition the holder.*
8. *Secure the holder with the screw removed previously.*

If the software continues displaying the message "**LOW FLOW**" frequently even after the cleaning, replace the filter.

18.3 *Replacing the Air Filter*

This filter must be replaced every year.



NOTICE

The filter's outer casing is made of plastic.

The use of wrenches or other tools to replace it may damage it making it difficult to remove it and compromise its functionality.

Proceed as follows:

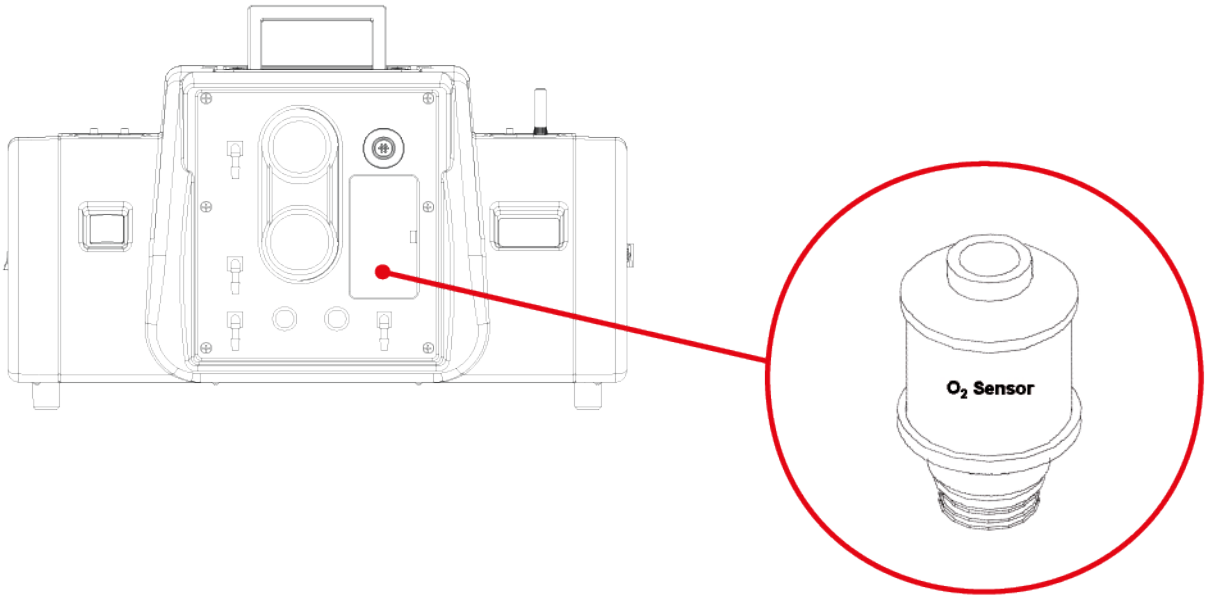
1. *Unscrew the filter manually.*
2. *Screw in the new filter manually being careful not to tighten it excessively.*

18.4 *Replacing the O_2 Sensor*

The O_2 sensor has a limited life and its features deteriorate over time.

The software constantly checks the voltage value coming from the O_2 sensor and, based on this, indicates its near-wear.

The sensor may need to be replaced during annual maintenance checks.



Proceed as follows:

1. *Open the gas sensor compartment.*
2. *Disconnect the electricity from the sensor.*
3. *Replace the sensor.*
4. *Re-establish an electrical connection on the new sensor being careful to insert the connector the same way it was before disconnecting.*
5. *Close the gas sensor compartment.*

18.5 *Leak Test*

The seal test is essential in preventing air leaks that could alter tool measurements.

This is why the software prompts you to carry out the leak test once a day.

The tool performs the leak test automatically and the software provides indications on the operations that must be carried out.

If the test is negative, a series of other checks is required.

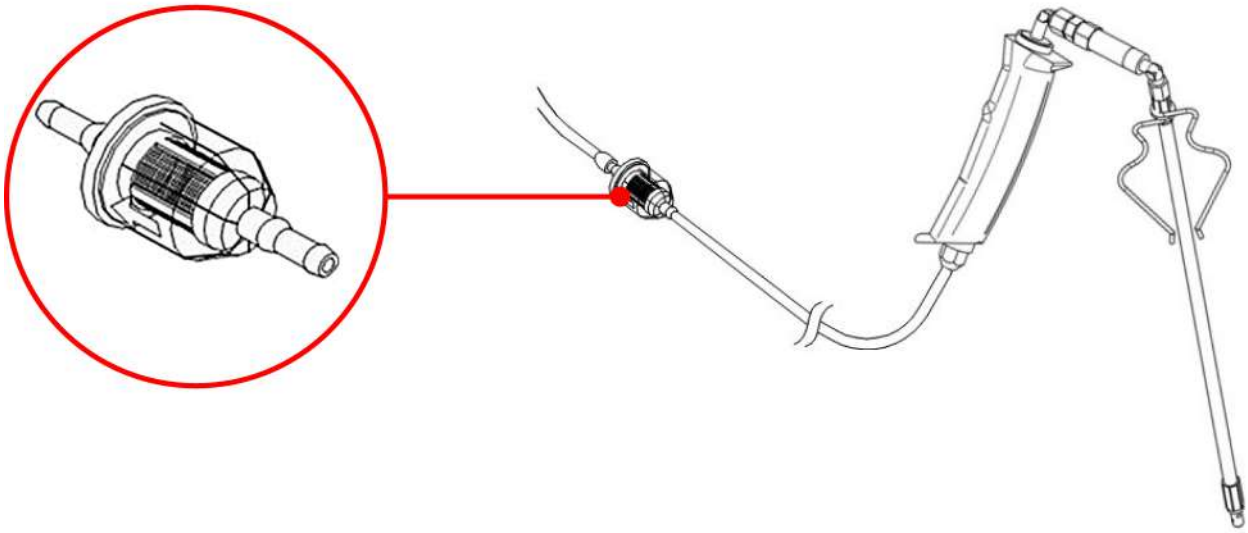
Proceed as follows:

1. *Check for any holes or tears in the sampling hose.*
2. *Make sure the sampling hose is properly fastened to the GAS IN connection and to the gauze filter.*
3. *Make sure the filter holder is properly sealed. If it does not hold, try turning the gasket around or replace if necessary.*

18.6 *Cleaning the Gas Sampling Pipeline Net Filter*

The net filter inside the transparent container along the gas sampling pipeline must be cleaned each time it is visibly dirty.

The filter must be replaced when the cleaning is not sufficient to eliminate all the impurities accumulated.



Proceed as follows:

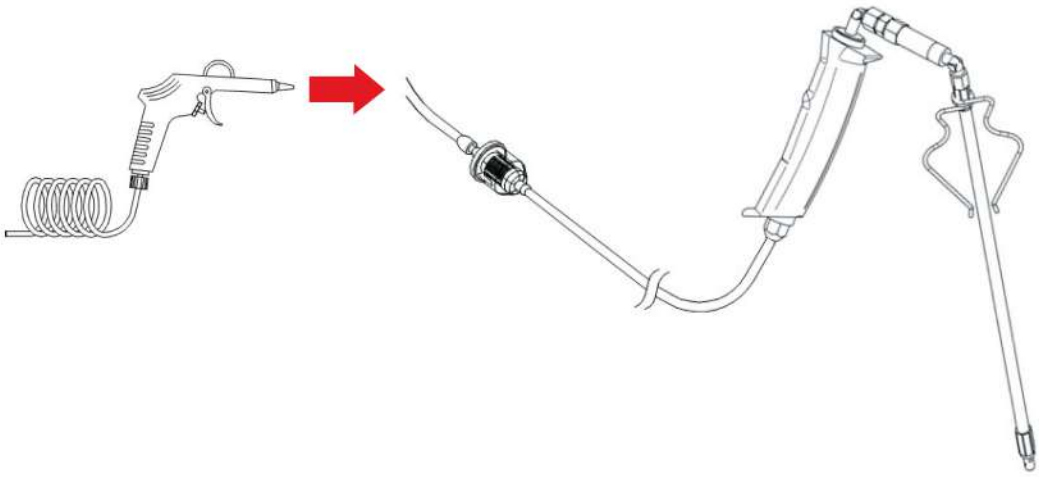
1. *Open the transparent container.*
2. *Extract the filter.*
3. *Wash the filter with soapy water.*
4. *Thoroughly rinse the filter with clean water.*
5. *Dry the filter with compressed air.*
6. *Reposition the filter inside the transparent container.*
7. *Close the transparent container.*

INFORMATION

If the filter-transparent container unit must be replaced, be careful to install the new unit with the arrow on the container in the direction of the flow, that is facing the tool.

18.7 *Cleaning the Gas Sampling Pipeline*

The sampling pipeline must be cleaned periodically in order to free it from any unburned carbon deposits or condensation built up inside.

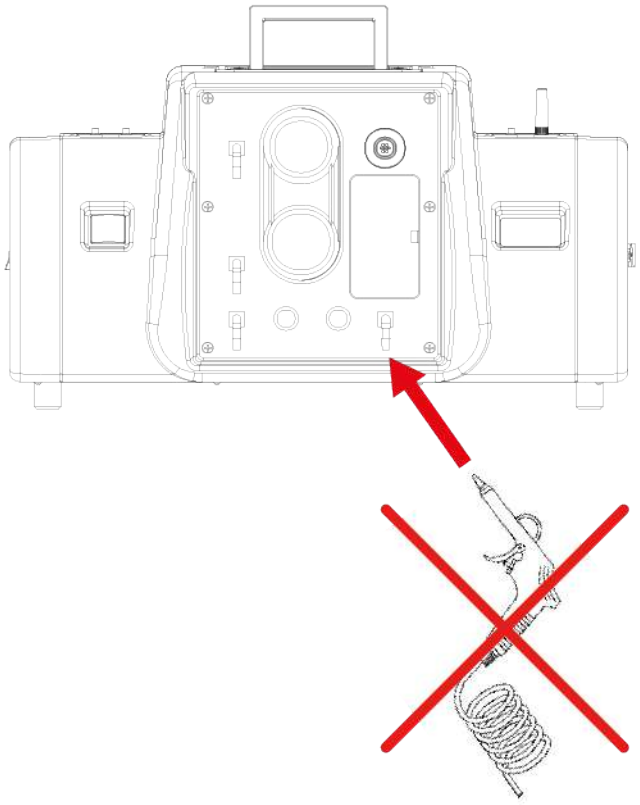


Proceed as follows:

1. *Disconnect the gas sampling pipeline from the tool.*
2. *Blow compressed air inside the pipeline for a few minutes or until deposits and condensation stop coming out.*
3. *Reconnect the pipeline to the tool.*

NOTICE

Do not blow compressed air inside the tool, in particular through the connections: this operation may damage the tool itself.



18.8 *General Cleaning of the Tool*

The tool must be kept clean.

Use a moist cloth to clean the tool.

NOTICE **Do not use corrosive chemicals, solvents or harsh detergents to clean the tool.**

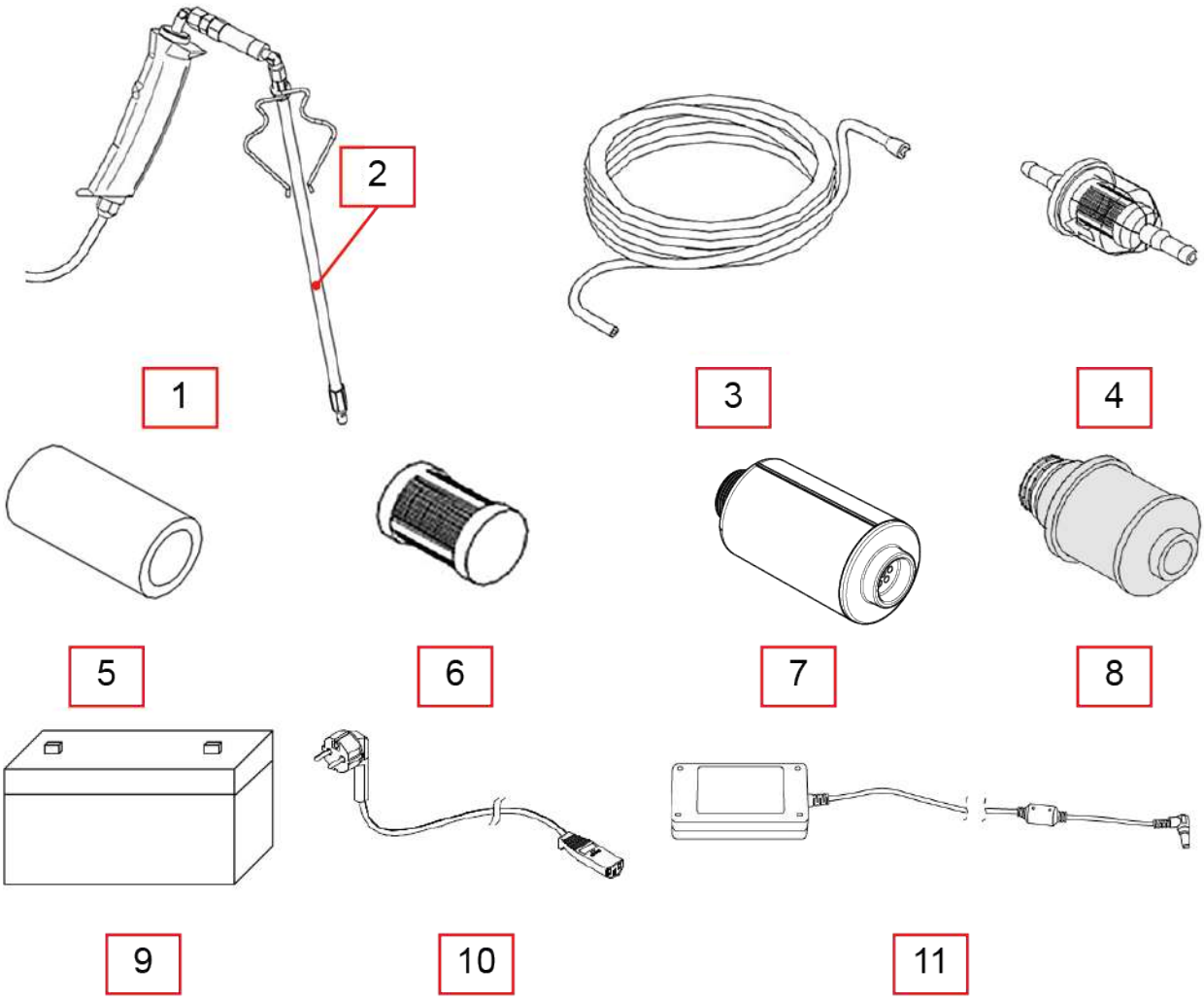
19 SPARE PARTS

You can order the spare parts from your retailer using the codes in the table below as a reference.

NOTICE

The use of spare parts and accessories that are not approved by the manufacturer may compromise the tool's efficiency and safety.

Only use spare parts and accessories that are approved by the manufacturer.



1.	Complete gas sample probe	3900372
2.	Gas sample probe hose	7490205
3.	Gas sampling neoprene hose	4260806
4.	Net filter (transparent container)	5123008
5.	Particulate hose filter	51230132
6.	Net water filter	SL51044
7.	Air filter (mat black color)	3911325
8.	Oxygen sensor	32P00100

9.	9 Ah rechargeable battery (for Power Pack)	3904817
10.	Power cable	1260320
11.	Power adapter	3906885

20 SOLUTIONS TO PROBLEMS

For any technical problem contact your retailer/distributor.

Below you will find a list of simple instructions that the client can carry out without having to ask for technical assistance.

PROBLEM	PROBABLE CAUSE	POSSIBLE SOLUTION
No battery LED lights up once the tool is on.	The external power adapter is not connected to the mains.	Connect the power supply to the mains.
	The external adapter is not properly connected to the tool.	Connect the power adapter to the tool.
	The tool is not properly placed on the workstation/charging station	Make sure the tool is positioned correctly and that the charging connectors on the tool and on the workstation/charging station touch.
	Power Pack is not properly connected to the tool.	Check the wiring and make sure that the connections are correct.
	Power Pack is flat.	Charge Power Pack for approximately 12 hours.
The tool and the viewing unit do not communicate with each other correctly.	The Bluetooth antenna is not properly mounted.	Check the Bluetooth antenna and make sure it is tightly screwed onto the tool.
	The tool/viewing unit is off.	Turn on the Bluetooth peripheral/display unit.
	The tool and the viewing unit are out of Bluetooth operating range.	Check the distance between the tool and the display unit.

PROBLEM	PROBABLE CAUSE	POSSIBLE SOLUTION
The tool and the viewing unit do not communicate with each other correctly.	The tool/viewing unit has been placed near shielding material.	Place the tool/viewing unit away from shielding material.
	The presence of other wireless communications disturbs the signal.	Move away from possible sources of interference.
		If possible, turn off the devices that cause interference.
		Wait and repeat the communication attempt.
Power Pack discharges quickly.	Power Pack has not been charged completely.	Charge Power Pack for approximately 12 hours.
	Power Pack is not connected to the power source correctly.	Check the wiring and make sure that the connections are correct.
	The Power Pack batteries have expired.	Contact your retailer to replace the batteries.
Power Pack will not charge.	The external power adapter is not connected to the mains.	Connect the power supply to the mains.
	The external adapter is not properly connected to the tool.	Connect the power adapter to the tool.
	The external power adapter is not properly connected to Power Pack.	Connect the power adapter to Power Pack.
	The tool is not properly placed on the workstation/charging station	Make sure the tool is positioned correctly and that the charging connectors on the tool and on the workstation/charging station touch.
	Power Pack is not properly connected to the tool.	Check the wiring and make sure that the connections are correct.