

RC3

User Manual



www.elektropartner.com

ENGLISH.....5

SUMMARY

Introduction.....	5
General Regulations for Operator Safety.....	8
How the Radio Devices in the Tool work.....	14
Warnings.....	15
Information Regarding Regulations.....	18
How to use the RC3 rev counter correctly.....	19
1 RC3 REV COUNTER DESCRIPTION.....	20
1.1 Image of the Tool.....	21
2 CONNECTING TO THE PROCESSING UNIT (RS232 / USB / BT)	22
3 CONNECTING TO THE VEHICLE.....	23
3.1 OBD cable.....	23
3.2 Analogue measurements.....	25
3.2.1 Battery cable and no sensor connected.....	26
3.2.2 HPC cable.....	27
3.2.3 Battery cable and amp clamp connection (Petrol motors).....	30
3.2.4 Battery cable and PIEZO sensor connection (Diesel motors).....	31
4 TEMPERATURE MEASUREMENTS.....	32
5 HOW TO USE THE TOOL WITH AXONE SERIES OR PEGASO SERIES VIEWING UNITS.....	33
6 USING THE TOOL IN COMBINATION WITH A PC.....	34
7 TECHNICAL CHARACTERISTICS.....	35
8 GLOSSARY - Meaning of terms.....	36

RC3 TECHNICAL MANUAL

Introduction

Dear auto repair technician,

Thank you for choosing one of our devices for your car repair shop. We are sure that you will be completely satisfied with it and that it will be very useful for your work.

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

RC3 is a complete universal device that, thanks to its three acquisition modes, guarantees rpm and temperature detection on almost any petrol and diesel-powered vehicle.

The data, features and the descriptions found in this manual are provided as guidelines. They do not make the manufacturer liable in any way. The manufacturer reserves the right to carry out any changes deemed necessary in order to improve the product, or for any technical or commercial need, at any time, without prior notice.

© **copyright and database rights 2006-2007**. The material included in this publication is protected by copyright and database rights. All rights are reserved according to law and to the international conventions.

This manual shows and describes optional and standard features of the product. The tool you have purchased may not be equipped with certain features or elements described in this document.

This manual is considered part of the device to which it applies; if the device is sold, the manual must be forwarded to the new owner along with the device.

Reading and understanding this manual can avoid damage to things and injury to people due to an improper use of the tool. They cannot, however, replace or complete the skill of the professionals for whom the tool is intended.

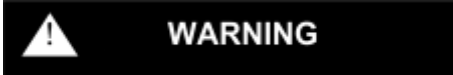
The information within this manual may be modified without prior notice. Please consider them as guidelines. The information given may not be exhaustive.

Texa S.p.A. is not responsible for damage to things or persons resulting from changes performed based on incorrect or incomplete instructions contained in this manual.

Total or partial reproduction of this manual in any form, without authorisation by TEXA S.p.A. is forbidden.



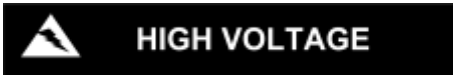
It indicates a hazardous condition which, if not avoided, may cause serious or fatal injuries



Indicates a hazardous condition which if not avoided can cause light or limited damage or injuries



With no alarm symbol, indicates a potentially hazardous condition which, if not avoided, may cause light or limited damage



Indicates general hazardous situations due to the presence of dangerous power supplies which can cause burns and electrocution.

General Regulations for Operator Safety

This product has been designed and developed to be used by technical personnel specialized in the automotive field, such as car electricians, mechanics, technicians and engineers with an automotive specialization.

Do not allow unqualified personnel to use this appliance. This is to avoid accidents to people or damage to the tool or to the electronic systems of the vehicle to which it is connected.

Before operating, connecting and using the RC3, it is essential that you read and fully understand all the safety, installation and user instructions contained in this manual carefully.

Knowing and respecting the operating conditions and procedures described in the manual allow operators to work safely, avoiding injury to themselves and damage to the tool or vehicle on which he/she is working.

WARNING

1. The RC3 system must be exclusively used on 12-32 Volt direct current vehicles with the chassis connected to the negative pole.



DANGER

- Do not position the appliance over an airbag or in the immediate vicinity of its expansion area. Airbags inflate with great force. If you position the
2. device in the airbag expansion area and the airbag inflates, the device may be projected with great force and may cause serious injuries to the people in the vehicle.

WARNING

3. Position the appliance in order to guarantee its correct ventilation. Do not locate the appliance near heat sources or hot surfaces and/or parts.

**DANGER**

Electromagnetic compatibility tests performed on RC3 guarantee compatibility with technologies normally used on vehicles (i.e. engine 4. system, Abs, Airbag, climate control system, Navigator, Radio, Hi-Fi system). Nevertheless, if a malfunction occurs you need to contact the retailer.

**WARNING**

5. Do not use the appliance if the antenna is damaged. If the damaged antenna comes into contact with the skin, it can cause a slight skin burn.

WARNING

6. Do not touch the antenna and do not cover the antenna with any objects during use; this could compromise the correct operation of the appliance and may cause it to be powered more than required.

WARNING

7. Use only with the antenna provided with the product or with another antenna which is authorized by Texa S.p.A.; unauthorized antennas could damage the appliance.

WARNING

8. Do not wet the RC3 device. Rain, moisture and all types of liquids or condensation may damage the electronic circuits.

WARNING

9. Do not open the RC3 device. Any work carried out on the device by non-specialized technicians may damage the device itself. Do not drop, strike or shake your appliance, this could cause irreparable damage to the internal circuits. Do not use corrosive cleaning chemicals, aggressive solvents or detergents to clean the RC3 device.

Work environment



DANGER

The work environment must be dry, sufficiently lit and well-ventilated.

Any diagnosis carried out on the vehicle which requires turning on the engines in particular must be done in a place equipped with an exhaust fan system.

We remind you that the inhalation of carbon monoxide (odourless) can cause serious injury to the organism.

When working on engines or other vehicle parts



- *Wear adequate safety clothes and follow safety regulations in order to prevent accidents.*
- *Before proceeding, be sure that the vehicle is in neutral gear (or in parking position if the vehicle has an automatic transmission). Apply the safety or parking brake of the vehicle tested and be sure that the wheels are locked.*
- *Protect face, hands and feet and avoid contact with hot surfaces such as spark plugs, exhaust pipes, radiators, and cooling system joints.*
- *Do not smoke or light flames when you work on the vehicle.*
- *Make sure that every electrical connection is well insulated and firmly in place.*
- *DO NOT look at the carburetor intake manifold directly or look at it from a close distance when the engine is on.*
- *Keep hands and hair away from the moving parts.*
- *Do not wear ties, wide clothes, wrist jewelry or watches when you are working on a vehicle, in particular if the engine is on.*
- *Keep clear of the fan; the cooling fan is controlled by a thermal switch which works in relation to the coolant temperature: disconnect fan cables while working on a hot engine to prevent the fan from starting unexpectedly even if the engine is off.*
- *Do not pour fuel directly into the carburetor in order to facilitate engine start up.*
- *Do not unscrew the radiator cap before the engine temperature has decreased along with the pressure in the cooling system.*
- *Do not touch the high voltage cables when the engine is on.*
- *Handle the portable lamps with care and only use those with metal protection.*
- *Wear safety glasses to protect eyes against fuel, dust or metals.*
- *Remember that catalytic mufflers reach very high temperatures, and can cause serious burns and even fires.*

Therefore make sure there are no oil stains, pieces of cloth, paper or other inflammable material near the muffler.

When working on ignition systems



DANGER



HIGH VOLTAGE

When working on controlled ignition systems, make sure the engine is off before connecting cables and sampling probes in order to avoid accidental discharges that could seriously injure persons or seriously damage the electronic systems being tested. High voltage discharges, which are typical in ignition systems, may cause fatal injuries, especially to pacemaker patients.

When working on the batteries



DANGER

Car batteries contain sulphuric acid and produce explosive gases; please follow the instructions carefully:

- *Always wear safety glasses.*
- *Never leave tools on the battery; they could cause accidental contacts.*
- *Before proceeding with the test or recharging, cover the openings of the battery with a wet cloth in order to suffocate explosive gases.*
- *Avoid causing sparks when cables are being connected to the battery.*
- *Avoid splashing electrolyte on skin, eyes and clothes, as it is a corrosive and highly toxic compound.*

While working with appliances powered by the mains



DANGER

Make sure the appliance is grounded.

Cut power before connecting or disconnecting cables.

Avoid contact with wet hands.

Make sure you are well insulated from the ground when handling the tools.

How the radio devices in the tool work

WARNING

Position the tool so that the radio devices it is equipped with can work properly. In particular, do not cover it with any shielding material or with any metallic material in general; do not put the tool into the vehicle boot, into the engine compartment or into the glove compartment; if positioned inside the vehicle, make sure that the glasses are not RF shielded.

How the Radio Devices in the Tool work

WARNING



Wireless connectivity with Bluetooth, WiFi and GPRS technology

Wireless connection with Bluetooth, WiFi and GPRS is a technology that supplies a standard, reliable method for information exchange between different devices using radio waves. Not only do TEXA tools use this technology but many other products do as well. Products such as cellular phones, portable devices, computers, printers, cameras, and pocket PCs all use wireless communication.

The Bluetooth, Wi-Fi and GPRS interfaces look for compatible electronic devices according to the radio signal they emit and establish a connection between them. TEXA tools select and only prompt you with compatible TEXA devices. This does not exclude the presence of other sources of communication or disturbance.

THE EFFICIENCY AND THE QUALITY OF THE BLUETOOTH, WiFi AND GPRS COMMUNICATION CAN BE INFLUENCED BY THE PRESENCE OF RADIO DISTURBANCE. THE COMMUNICATION PROTOCOL DOES DEAL WITH COMMUNICATION ERRORS, HOWEVER, DUE TO CERTAIN COMMUNICATION PROBLEMS, THE CONNECTION MAY SOMETIMES REQUIRE SEVERAL ATTEMPTS.

SHOULD THE WIRELESS CONNECTION BE CRITICAL AND COMPROMISE A REGULAR COMMUNICATION, THE CAUSE OF THE ENVIRONMENTAL MAGNETIC DISTURBANCE MUST BE DETECTED AND ITS INTENSITY MUST BE REDUCED.

Position the tool so that the radio devices it is equipped with can work properly. In particular, do not cover it with any shielding materials or with any metallic materials in general.

Warnings

Use of the RC3 device is permitted upon acceptance of the following conditions:

1. Liability

The customer is liable for the use of TEXA tools and software programs purchased from the retailer.

The customer agrees to indemnify TEXA S.p.A. and the retailer from any responsibility or damage resulting from improper use of TEXA S.p.A products and software or use of the same without complying with the instructions described in the programs and in the user manuals.

The customer must use all the data and information provided directly by TEXA S.p.A. or by the retailer or through programs and user manuals, knowing that these may be incomplete and that they must always be used as an integration to her/his own professional knowledge. The customer is also aware of the importance of product update in order to ensure immediate adaptation to the requirements of a continuously evolving market.

2. Copyright

For information regarding software use refer to the user licence that appears on your screen upon installation of the software itself, or go to www.texa.com and click on "Legal Info".

3. Warranty

HARDWARE: The retailer guarantees its product against manufacturing faults and defects, verified and recognised by the TEXA S.p.A's assistance network, for a 24 month period from the date of delivery or date of activation of the software. This warranty consists in the obligation of the retailer and/or of the service centre, to reset the functions of the products by replacing or repairing the faulty components for free.

This warranty does not cover any faults or malfunctions due to a) inadequate calibrations, insufficient/improper maintenance, wrong wiring installations, transformation, changes, tampering, improper mounting or dismounting, bad storage, non-compliant use, accidents caused by third parties ; b) the use of software or interfaces, parts or consumable materials that were not provided by the TEXA network assistance or TEXA S.p.A. official sales; c) use of the products in an environment that do not respect the parameters specified for the product; d) wrong preparation or maintenance of the operating environment where the products are used.

SOFTWARE: Although TEXA S.p.A. has taken all possible precautions to guarantee the accuracy of the information contained in or viewed from the software, they cannot guarantee that the software can always fulfil the customer's needs or that its operation is unlimited. Furthermore, taking into consideration that the data (in various forms) contained in the programs or in the database that they access, may come from different sources, such as manufacturing companies, or software houses, TEXA S.p.A. cannot guarantee that the software is free of inaccuracies. TEXA does however guarantee that the material has been compiled for publishing in Europe and was designed for use of vehicles manufactured according to European standards.

Users should be aware that in non-European countries the names and the descriptions of the models and the specifications related to them may differ from those listed and presented in the programs and in the tools this manual refers to.

The warranty does not cover software conflict problems when the software is installed on hardware platforms different from those produced by Texa S.p.A. (i.e. commercial personal computers, pocket PC's, tablet PC's). Several of the problems this warranty does not cover are, for example, those caused by: Incompatibility between Texa programs and software environments with inadequate requirements or protected by anti-virus systems which prevent correct installation and operation; Environments which are damaged by viruses, environments which are supported by inadequate hardware resources, etc.

WHERE REPAIRS COVERED BY WARRANTY ARE CARRIED OUT: All repairs covered by warranty, if not otherwise established through written agreement, must be done at TEXA S.p.A.'s main office or at the service centre authorized by TEXA S.p.A. The customer is required to pay for the transport of the product to be repaired from the customer's workshop to the service centre. The customer is also expected to pay the intervention of TEXA S.p.A.'s service personnel or service centre personnel in the case they are required to come the customer's workshop.

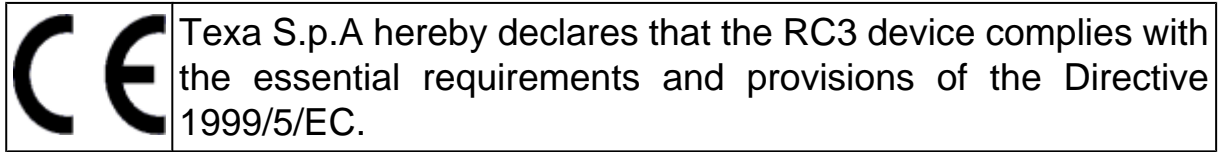
TRANSPORT: TEXA S.p.A. warranty does not cover damage due to transport or breaking caused by careless or improper packaging carried out by the customer when sending goods to be repaired.

MAINTENANCE: Before being delivered to the customer, the products are carefully tested by TEXA S.p.A and by the retailer (if so established). However, products always require regular maintenance. (In the "gas analyzer" product, for instance, a systematic check must be done on the

condensation and smoke filters to guarantee they are in good condition; in the "smoke meter" product the smoke chamber must be checked and kept clean, etc.) The right to repair service under warranty can be lost if not all of the minimum maintenance work described in the user manual provided with the product has been performed.

Information Regarding Regulations

Declaration of conformity



A complete copy of the Declaration of Conformity can be obtained at

Texa S.p.A., Via 1 Maggio 9, 31050 Monastier di Treviso (TV), Italy

Antenna

This product has been designed and tested to operate with the antenna provided.

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

How to use the RC3 rev counter correctly

In order to use the RC3 device correctly it is essential you follow the instructions listed below:

- *The device must be placed in a dry environment away from heat sources.*
- *Avoid bumping or hitting the RC3 device.*
- *Do not wet the RC3 device with water or other liquids.*
- *Do not put any objects on the cables and do not bend them at right angle.*
- *Always power the RC3 using the battery system within the vehicle being tested. External batteries cannot be used.*
- *When using terminal ends and connecting cables to the vehicle, pay special attention to the quality of the connection to avoid false contacts and/or accidental cable connections with metallic parts of the vehicle. If provided, use the rubber caps to protect the terminal ends not used. Strictly follow all the instructions provided by the program.*

1 RC3 REV COUNTER DESCRIPTION

RC3 is an universal rev counter (petrol and diesel motors) with an oil temperature sensor; connect the RC3 to the processing unit either using a cable (RS232 serial cable and USB) or using wireless Bluetooth technology.

This new device works in combination with an emissions analysis unit.



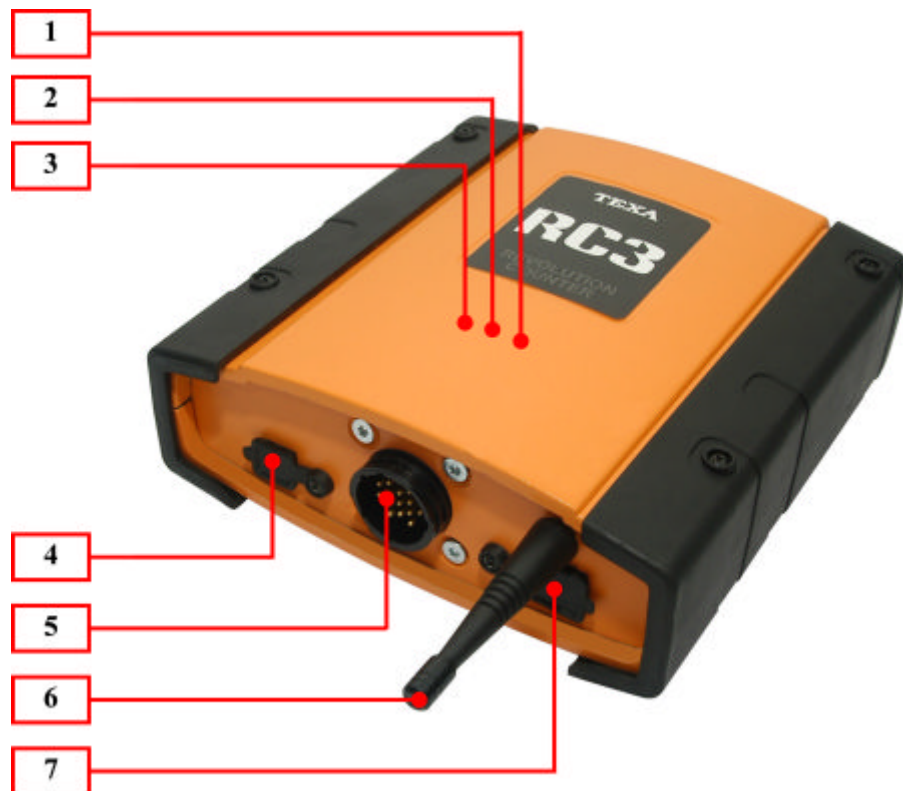
In the image above we can see the basic structure of how the RC3 rev counter works in combination with other devices. In this case the RC3 is used in combination with the GASBOX Autopower analysis chamber and the AXONE 3 MOBILE viewing and processing unit.

All connections can be wireless.

The rev counter can carry out rpm detection using different acquisition functions:

- *Battery signal detection*
- *Battery ripple detection*
- *Detection via amp clamp*
- *Detection via piezoelectric sensor*
- *Detection via OBD connection*

1.1 Image of the Tool



1. **Blue Led Bluetooth communication:** This LED will turn on to indicate that communication has been established between the RC3 and the processing unit via Bluetooth wireless communication.
2. **USB communication red LED:** This light comes on when the RC3 is communicating with other devices via the USB cable.
3. **Green power LED:** When it is on it means that the tool is being powered correctly. When the tool is turned on, it enters an initialisation phase that can last about 2 to 15 seconds. The led will come on only at the end of this phase confirming that the RC3 is ready to communicate with the analysis device and the viewing unit.
4. **USB connection:** The connector that allows you to connect the RC3 to the processing unit using the special serial cable.
5. **Signal detection connection:** Connector AMP 16 used to connect the diagnostic cables that allow you to acquire the various vehicle signals.
6. **Antenna Bluetooth:** Antenna for wireless radio communication (bluetooth technology).
7. **RS232 connection:** The connector that allows you to connect the special serial cable to the processing unit.

2 CONNECTING TO THE PROCESSING UNIT (RS232 / USB / BT)

The tool has three different ways of communication:

- *RS232*
- *USB*
- *Bluetooth*

If you want to communicate via Bluetooth, you do not need to connect any cable (RS232 or USB).

You may then proceed with the normal search procedures that allow you to identify the bluetooth devices, carried out by the processing unit (please refer to the manual of the processing unit you are using).

3 CONNECTING TO THE VEHICLE

3.1 OBD cable

If you are using the rev counter via an OBD cable (see image below), connect the RC3 to the OBD socket in the vehicle using the cable provided. When the tool is turned on the green LED will blink to signal that the tool has identified the OBD cable.

The LED will then remain off until the tool begins to communicate with the vehicle.

When the tool is ready to send the measurements the LED will turn on:

- *Engine rpm*
- *Engine temperature*

The time it takes the tool to connect to the vehicle control unit depends on the communication protocol. It can take anywhere between 4 to 15 seconds.

The EOBD protocols supported are: ISO9141, KWP2000, CAN, J1850PWM, J1850VPW.

In this operating mode the rev counter will not be able to provide information on rpms or temperature until it establishes actual communication with the vehicle control unit (green LED turns on).



3.2 Analogue measurements

In this mode, the RC3 rev counter can use one of the three analogue modes provided.

Based on the cable which is connected, the RC3 automatically determines the measurement mode that the operator wishes to use.

The cable and the sensor you wish to use must be connected to the RC3 before connecting it to the vehicle battery.

The technician can therefore choose between one of the following measurement functions:

1. **Only a battery cable, no other cable or sensor connected:** *When the RC3 is turned on, it goes into the reading mode that allows you to acquire the alternator signal on the battery. The green LED will BLINK TWICE indicating that the tool has recognized the battery cable.*
2. **Battery cable + PIEZO sensor cable:** *When the RC3 is turned on it goes into Piezo mode (detection via a sensor which is applied to the pipes of traditional diesel systems).*
3. **Battery cable + AMP CLAMP cable:** *When the RC3 is turned on it goes into AMP mode (detection via amp clamp applied to the spark plug cable).*

Analogue measurements can also be carried out using the **HPC cable** which we will later describe.

The HPC cable may be suggested as an alternative to the normal cable depending on the operating environment you are working in (CAR - TRUCK) and/or depending on the country the tool traded.

3.2.1 Battery cable and no sensor connected



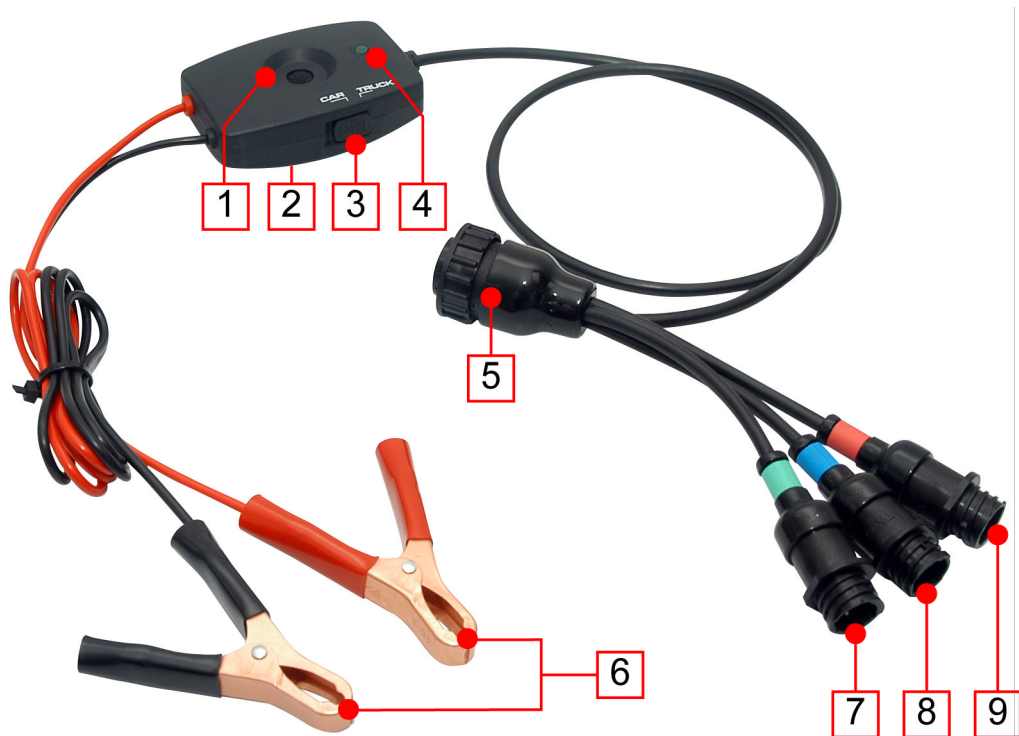
In this case the microphone (junction box on the power cable of the red and black clamps) must be placed inside the engine compartment, ideally near the engine head.

The tool must be turned on while the engine is on and running at idle, with some loads on (for example, lights, fan at its maximum speed, heated rear window, etc).

The initialization phase lasts for about 12-15 seconds, at the end of which the tool switches to measurement mode and **turns on the green LED** to indicate that it is ready to carry out the operations requested and provide engine rpms.

3.2.2 HPC cable

The HPC cable works as an interface between the vehicle battery (car or truck) and the rev counter.



1. *Microphone*
2. *Magnetic fastener*
3. *CAR/TRUCK selector*
4. *LED*
5. *RC3 connector*
6. *Battery clamps*
7. *Piezoelectric sensor connector*
8. *Temperature sensor connector*
9. *Amp clamp connector*

The HPC differs from a normal cable in that it is a multiway cable that allows you to indicate, via a specific selector, the type of vehicle that you will be working on.

Vehicle selection allows the rev counter to read engine RPMs more accurately.

This operation is essential when using the **battery ripple** method to detect engine RPMs.

Proceed as follows:

NOTE: the numbering refers to the previous image.

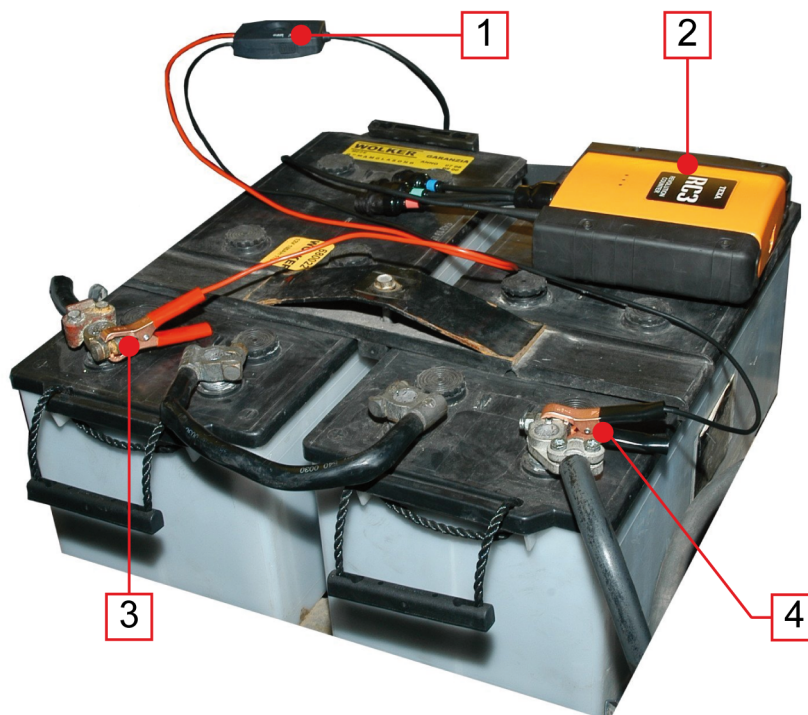
1. Connect the HPC cable to the rev counter via the appropriate **connector (5)**.
2. Select the type of vehicle (car or truck) with the **selector (3)**.
3. Use the **magnetic fastener (2)** to fasten the junction box with the **microphone (1)**. The junction box must be facing the engine head.
4. Connect the **clamps (6)** to the vehicle battery making sure the positive is connected to the positive pole and the negative is correctly connected to the negative pole.



Connect the negative (GND) pole first, then the positive pole.



If you are working on a truck, connect the clamps to the 24 V terminal in the vehicle.



1. *CAR/TRUCK selector*
2. *RC3*
3. *Battery clamp: positive terminal*
4. *Battery clamp: negative terminal*

For further information regarding engine RPM detection using the battery ripple method go to chapter **Battery Cable and No Sensor Connected**.

All other functions for engine RPM detection are described in the following chapters.

3.2.3 Battery cable and amp clamp connection (Petrol motors)

Connect the cable to the amp clamp and the battery cable while the engine is off.



Locate the high voltage cable of a spark plug in the engine compartment and close the amp clamp around it making sure you position it as indicated on the clamp itself. (If you are dealing with a distributorless ignition system (D.I.S) you must specify their use within the software in order to correctly read the number of rpm.)

Turn on the engine, then connect the supply clamps of the tool to the battery.

For this kind of measurement, it is not necessary to turn on the appliance when the engine is running.

The RC3 enters a synchronisation phase which lasts for about 5 seconds at the end of which **the green led** will turn on and the tool is ready to operate (it can transmit rpm and temperature values).

If the value of the reading is particularly unstable, it is possible to improve the quality of the measurement by adjusting the sensitivity of the amp clamps using a special switch.

3.2.4 Battery cable and PIEZO sensor connection (Diesel motors)

Connect the cable to the piezoelectric sensor and the battery cable when the engine is off.

Locate the metal pipe of an injector within the engine compartment and close the piezoelectric sensor around it.

Then fix the crocodile clip to any ground point.



Turn on the engine, then connect the supply clamps of the tool to the battery.

For this kind of measurement, it is not necessary to turn on the tool when the engine is running.

The RC3 enters a synchronisation phase which lasts for about 5 seconds, at the end of which the green led will turn on and the tool is ready to operate (it can transmit rpm and temperature values).

4 TEMPERATURE MEASUREMENTS

The next image shows you the cable used for temperature measurements:



You can connect the cable used to carry out temperature measurements at any time.

Bring the temperature sensor into contact with the engine oil.

If the cable is not connected properly or becomes disconnected the temperature value detected will be 180°C.

WARNING

If you are using the OBD cable for data acquisition the sensor is not required because the engine temperature value is detected via communication with the engine control unit.

WARNING

Adjust the length of the temperature sensor according to the oil gauge dipstick.

5 HOW TO USE THE TOOL WITH AXONE SERIES OR PEGASO SERIES VIEWING UNITS

To use the tool in combination with a viewing and processing unit of the AXONE series or with a work station of the PEGASO series, all you need is the IDC3 software; no other software is required.

Before starting the communication with the viewing unit **you must carry out the appropriate configuration procedure.**

Follow the configuration procedure used specifically for TEXA tools. This procedure is prompted automatically by the program at the first start-up of the IDC3 software.

For further information see the IDC3 software operating manual.



Power, connect and turn the tool on before starting any applications that will interface with it. This should be done in order to avoid communication errors.

6 USING THE TOOL IN COMBINATION WITH A PC

To use the tool in combination with a PC, which will serve as a viewing and processing unit, requires the installation of the TEXA software. The installation is carried out by using the appropriate DVD.

The **operating systems supported** by the software are:

- **Win2000**
- **WinXp**
- **Windows Vista**

Once you have entered the DVD into the PC player, the installation program starts automatically.

If this does not happen it means that the PC it is not configured for the automatic installation. Proceed as follows:

1. *Double click on "**My computer**".*
2. *Place the mouse on the item corresponding to the **DVD player** and double click on the **SETUP** icon.*

To install correctly follow the instructions that appear on your screen throughout all the installation phases of the program. The installation is complete when a new icon is created on the desktop.



The hardware key must always be attached to the PC where the program is installed.

Before starting the communication with the viewing unit, **you are required to carry out the specific configuration procedure.** Follow the guided configuration procedure specific for TEXA tools which you are automatically prompted with at the first start-up of the IDC3 software.

There are three different ways in which you can connect the tool to the viewing unit (PC):

- **Serial connection**
- **USB connection**
- **Radio wireless connection using Bluetooth**

For further information see the IDC3 software operating manual.



Power, connect and turn the tool on before starting any applications that will interface with it. This should be done in order to avoid communication errors.

7 TECHNICAL CHARACTERISTICS

Technical Characteristics:

Main processor:	MB90F591 16MHz
External power supply:	8 ÷ 32 Volt
Serial resources:	1 1.1 USB Connection 1 RS232 standard connection
Wireless connection to the PC:	1.2 Bluetooth technology
Petrol and diesel detection from vehicle battery:	12VDC and 24VDC Systems management
Petrol analogue detection:	Amp clamp
Diesel analogue detection:	Piezoelectric sensor
EOBD detection:	ISO9141-2 ISO14230 SAE J1850 PWM SAE J1850 VPW CAN ISO11898

Operating conditions

Operating temperature:	-5°C / +40°C
Operating moisture:	10% ÷ 80% without condensation

Physical Characteristics:

Storage temperature:	-20°C / +60°C
Dimensions (including antenna):	155(227) x 162 x 63 mm
Weight:	0,8 Kg

8 GLOSSARY - Meaning of terms

- **Click:** *action linked to the pressure of the left button of the mouse*
- **Cursor:** *fixed or flashing indicator, rectangular or vertical line, which shows the user where the letters and digits, which will be entered via the keyboard, will appear.*
- **Default:** *refers to a configuration, a value, a setting which can be considered "basic" or is preset by the program. The default value can be replaced by your choice.*
- **Download:** *the action of transferring programs, information or data in general into the tool. This operation requires an Internet connection*
- **Firmware:** *program (in a low level language) within the hardware elements (microprocessors – memory banks) of an electronic system.*
- **Hardware:** *refers to a diagnostic tool or a processing and viewing system; indicates the electrical, electronic and mechanical components of the device.*
- **Icons:** *small images on your screen representing commands; similar to buttons or keys with symbols that correspond to their function.*
- **Interface:** *term which refers both to a hardware system and to a software system and indicates an element through which two different systems can exchange information.*
- **Mouse:** *selection device allowing you to place a pointer (little arrow) on the screen. Normally provided with two buttons, left and right. With the left button you select or confirm a choice, a selection, an option etc. The right button usually allows you to access auxiliary functions related to the selection you have made.*
- **Browsing or browse:** *the action of moving from one function to another, from one piece of information to another. Generally, it indicates the path that a program follows from the initial screen (where the user activates a search) to the final screen (where search ends).*
- **Peripherals:** *all the secondary devices and tools, with respect to the main unit, that communicate with the latter sending and receiving data. Peripheral examples are: printers, gas analysers self-diagnosis module, DVD player, etc.*
- **Pointer:** *generally represented by a little arrow. The pointer moves on the screen with the movement of the mouse in order to interact with the program functions.*
- **Software:** *refers to a diagnostic tool or a processing and viewing system. It indicates the programs that allow you to use the hardware parts in various different ways.*
- **Wireless:** *a connection mode between two electronic systems established without using electrical cable connections.*