K-TAG Master

Instruction manual and User's guide

This user manual has been specially designed to guide you through the functions and features of K-TAG, the Engine Control Units and Gearbox Control Units programmer via a direct interface to the microcontroller.

This guide provides basic information about how to download the K-Suite software and program an ECU. The guide also includes warnings and precautions for safe and proper use of the product as well as warranty terms and conditions and software license.

Warnings

Please note: The registration and subsequent use of the Product constitutes acceptance by the user of the license and warranty terms contained in the section Hardware Warranty and Software License (page 43 and following).

Important notices about the use of the K-TAG tool

To avoid electrical shock, do not open the case when the tool is connected. Refer any required servicing of product to Alientech Srl only.

- The product and its accessories are suitable for professional use only.
- This product is intended only for the tuning of vehicles for competitions or to be used on closed circuit not open to public.
- The product allows having access to operating engine management parameters: the subsequent modification of these parameters may make the vehicle not in line with the requirements and standards of your Country about power, speed and emissions. It may also cause a different or greater wear and tear of mechanical and electrical components of the vehicle and could void the warranty provided by the manufacturer/sellers of the vehicle.

Alientech Srl, its subsidiaries and affiliates make no warranties of any kind about any extra wear or deterioration of the engine or other electrical or mechanical parts of the vehicle or as to the compliance with exhaust emission standards and regulations required by your Country.

- The tool and its accessories shall be used only after a thorough reading of this guide and the Operating Manuals dedicated to the several protocols, and only in compliance with guidelines and suggestions.
- The product may enable modifying the operation of the vehicle; therefore, the vehicle may have different reactions when compared to standard conditions specified by the manufacturer. The greatest attention must be paid when driving a vehicle which has its engine parameters modified.

Important notices about the contents in this guide

- Alientech Srl owns and administers some or all the rights to the images and other copyrighted content in this manual. Use of the images and other copyrighted content (including copying, reproducing, modifying, uploading on a network, displaying, transmitting, distributing, licensing, selling and publishing) except as used herein, is prohibited to the extend allowed by law.
- This guide and the screen images representing K-Suite software and Alientech Data Bank used throughout this guide are subject to change without notice.

CE - FC Regulatory Information

- The marks are located on the rear side of the tool.
- The product meets the essential requirements of the Directive 2004/108/EC and 2006/95/EC and therefore carries the CE mark.
- The tool has been tested in accordance with harmonized standards EN 60950-1:2006+A11:2009+A1:2010+A12:2011, EN 61000-3-2:2006+A1:2009+A2:2009, EN 61000-3-3:2008, EN 55022:2006+A1:2007, and EN 55024:1998+A1:2001+A2:2003.
- The product complies with FCC part 15.197, 15.109 and therefore carries the FCC mark.
- The product is in conformity with EC and FCC standards only if used with cables and accessories supplied and according to what specified in the instructions for use.

Glossary

Before you begin, you should become familiar with some technical terms used in this guide.

Term	Explanation
Positioning frame	Support on which you can place the ECU for an easier connection (sold separately).
Board Adapter for positioning frame	Adapter to place on some of the ECUs when using the positioning frame (sold separately).
Backup	Backup copy of the data stored in the engine control unit, made to prevent an accidental total loss of these data.
Restore	Procedure to write the backup file to the engine control unit, thus returning the engine control unit to the state it was in when it was backed up.
Patch	Procedure to enable / disable serial communication on the engine control unit.
Checksum	Operation that serves to verify the integrity of data in the engine control unit. The checksum correction is performed on each modified file before loading it into the engine control unit, to ensure its functioning. K-TAG always performs the checksum correction automatically.
ECU	*Electronic Control Unit*. It is usually a synonymous for engine control unit.
EEPROM	*Electrically Erasable and Programmable Read Only Memory.* Reprogrammable memory. Writing, erasing and rewriting take place electrically, even in-circuit.
Flash	Reprogrammable memory, with operation similar to the EEPROM but in Flash technology.
Micro (Microcontroller)	Electronic processing and control device integrated on a single integrated circuit.
LOG file	File to which the tool records chronologically all reading and programming activities during the communication with the engine control unit.
Original file	File containing data (including maps) for engine management, stocked in the engine control unit.
Modified file	Files created from the original file by making variations on engine management data; to be rewritten to the engine control unit
Firmware	Program embedded in the tool that allows its working.
ID (Identification)	Procedure to obtain the identification data of the engine control unit.
Operating Manuals	Manuals embedded in the K-Suite software, automatically displayed each time a Family of communication is selected. They provide indications about cables needed, connection instructions, and warnings and cautions that must be followed to correctly carry out the programming of the engine control unit.

Term	Explanation
Master (tool)	To read and write files (not encoded) of the ECU.
Slave (tool)	To read encoded files from the ECU, and to write only encoder files received from a Master.
Master (single user)	• It reads the original file (not encoded) stocked in the ECU. • It modifies the file using a tuning software. • It writes the modified file (not encoded) to the ECU
Master (user associated to one or more Slave user)	• It receives the encoded file from his Slave. • It decodes the file through the appropriate procedure in the Alientech Data Bank. • It modifies the file using a tuning software. • It encodes the file through the appropriate procedure in the Alientech Data Bank. • It sends the encoded file to his Slave.
Slave (user)	• It reads the encoded file stocked in the ECU. • It sends the file read to his Master. • It receives the encoded modified file from his Master. • It writes the file to the ECU. **Note**: Even when the Slave user wants to overwrite the original file or restore the backup file, it must ask his Master for the validation of these files..
OBDII diagnostic connector	Standardized hardware interface connector that provides access to the state of health information for various vehicle sub-systems to perform *On-Board Diagnostics*.
ECU programming	The tuning of engine management parameters stocked in an ECU. It can be carried out in serial communication or in Boot mode, and it substantially consists in three operations: • Reading the original file stocked in the ECU. • Modifying the original file using a tuning software. • Writing the modified file to the ECU.
Serial communication	Communication mode with the electronic control unit through the diagnostic connector of the vehicle (often called *OBDII connector*). It can be done: • Via diagnostic connector: with the ECU mounted on the vehicle, simply by connecting to the diagnostic connector typically located in the cockpit. • On bench: by disconnecting all original wiring and removing the ECU from the vehicle to connect to its external connector using an appropriate instrumentation, with no need to open the ECU. **Note:** Not all ECUs can be reprogrammed on bench in serial communication.

Term	Explanation
Boot mode communication	Communication mode with the electronic control unit in which the ECU system is started in a particular operating mode; this allows performing operations normally not possible in serial communication (for ex. read the original file, read/write the EEPROM memory, etc.). Usually performed on the bench, as it is often necessary to bring suitable voltages on certain pin of the ECU board (for ex. Soldering wires on some programming pads).
Communications protocol	Language of communication between the tool and the electronic control unit.
Plug-in	Set of communication protocols used by K-TAG to dialog with engine control units communicating in a similar manner.
Family	Name given by Alientech Srl to a set of one or more communication protocols.

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Precautions

Before using this product, carefully read this manual and retain it for future reference.

Safety

This product has been designed with the highest concern for safety. However, any electrical device, if used improperly, has the potential for causing fire, electrical shock or personal injury. To help ensure accident-free operation, follow these guidelines:

- Observe all warnings, precautions and instructions.
- Regularly inspect the AC adaptor and AC power cord for damage and for dust build-up around the power plug or electrical outlet.
- Stop use, unplug the AC Power Cord from the electrical outlet, unplug the USB cable from the computer and disconnect any other cables immediately if the device functions in an abnormal manner, produces unusual sounds or smells or becomes too hot to touch.
- Never disassemble the product or accessories provided. Use the K-TAG and accessories according to the instructions in this guide and following the connection instructions provided in the Operating Manuals dedicated to the various protocols, available within the K-Suite software. No authorization for the analysis or modification of the product, or the analysis or modification of the K-Suite software, or of its circuit configurations, is provided. Disassembling will void the system warranty and it may be dangerous.

Use and handling

- Keep the product and all accessories out of the reach of small children or animals. Small parts may cause choking or serious injury if swallowed (for ex. board adapters or interchangeable connectors of the connecting cables).
- Do not use the tool near water.
- Use only cables/accessories provided by Alientech Srl, its subsidiaries and affiliates or an authorized dealer.
- Do not expose the products or accessories to high temperatures, high humidity, or direct sunlight.
- Do not leave the product or accessories in a car with the windows closed (particularly in summer).
- Do not expose the product or accessories to dust, smoke or steam.
- Do not allow liquid or small particles to get into the product or accessories.
- Do not place the product on surfaces that are tilted, unstable or subject to vibration.
- Do not drop the product or accessories, and do not subject the device to strong physical shock.
- Do not put heavy objects on the product or accessories.
- Do not touch or insert foreign objects into the connectors of the product or accessories.

AC Adaptor and AC Power Cord use

- Do not touch the plug of the AC power cord with wet hands.
- Do not touch the AC Power Cord or the AC Adaptor, if connected to an electrical outlet, during an electrical storm.
- Use only AC Adaptor and AC Power Cord supplied or provided by Alientech Srl, its subsidiaries and affiliates or an authorized dealer.
- Do not allow dust or foreign matter to build up around the product or accessory connectors. If there is dust or foreign matter on the product's connectors or the AC Power Cord, wipe it off with a dry cloth before connecting. Dust or other matter on the connectors may result in fire or electrical shock.
- Unplug the AC Power Cord from the electrical outlet and disconnect the tool from your computer before cleaning.
- Protect the AC Power Cord from being walked on or pinched particularly at plugs, convenience receptacles and the point where they exit from the product.
- When disconnecting the AC Power Cord, hold it by the plug and pull straight out from the electrical outlet. Never pull by the cord and do not pull at an angle.
- Do not connect the AC Power Cord to a voltage transformer or inverter. Connecting the AC Power Cord to a voltage transformer for overseas travel or an inverter for use in an automobile may cause heat to build up in the AC Adaptor and may cause burns or a malfunction.

WEEE Directive

This symbol on the product or its packaging indicates that this product shall not be treated as household waste. In line with EU Directive 2002/96/EC for waste of electrical and electronic equipment (WEEE), this product must not be disposed of as unsorted municipal waste. Please dispose of this product by returning it to the point of sale or to your local municipal collection point for recycling.

Risks associated with operations to Read or Reprogram data

When reading or programming data via K-TAG, if the communication between the tool and the electronic control unit were to be interrupted problems may occur, also of serious entity and which may extend to the complete failure of the ECU itself, with consequent need for its replacement.

Therefore, during these operations:

- **DO NOT** disconnect the communication cable between the tool and the ECU.
- **DO NOT** unplug the USB cable between the tool and the computer.
- **DO NOT** turn off your computer.
- **DO NOT** use the tool in a location that is exposed to static electricity or electrical interference.

> If, for any reason, a damage to the ECU or a data loss or corruption (even partial) occurs and it is not possible to make a restoration, Alientech Srl, its subsidiaries and affiliates will not be will not be held liable for any damages, costs or expenses coming from this loss or corruption.

Cleaning

For safety reasons, unplug the AC Power Cord from the electrical outlet and disconnect any other cables before cleaning the product.

- **Cleaning the exterior surface:** Wipe gently with a soft cloth. Do not use solvents or other chemicals to clean the exterior surface of the K-TAG.
- **Cleaning the connectors:** Do not use the product if the connectors, the AC Adaptor or the AC Power Cord are not clean. Remove the dirt with a dry cloth.

Checking the package contents

The basic kit supplied with K-TAG includes:

□ 1 K-TAG tool in Master or Slave version

*Slave* version (left) and *Master* version (right)

□ 1 AC adaptor with interchangeable international plugs 1400SWALIM

□ 1 Jumper cable 144300K218   □ 1 10-pin female polarized IDC connector

□ 1 USB Cable   □ 1 Cable 14P600KT02   □ 2 Ribbon cables 144300T100

□ 2 Ribbon cables 144300T101   □ 2 Ribbon cables 144300T102

□ 2 Ribbon cables 144300T103   □ 2 Rainbow ribbon cables 144300T104

□ 2 Rainbow ribbon cables 144300T105   □ 2 Rainbow ribbon cables 144300T106

□ 1 Adapter 14AS00T01S   □ 1 Adapter 14AS00T03S   □ 1 Adapter 14AS00T04S

□ 8 male pin header (1.27mm pitch)   □ 8 female pin header (2.54mm pitch)

□ 1 kit AT3401001 with 2 male pin header (2.54mm) and 10 female pin header (2.54mm)

□ 1 K-TAG case

If any items are missing, please contact Alientech Srl by writing an email at info@alientech.to, providing your Customer Code and Serial Number of the tool, or your dealer providing the Serial Number of the tool.

Always keep the original packaging. In case of repair, the tool must be returned in its suitcase, complete with all accessories.

Parts name and functions

Right side of the tool
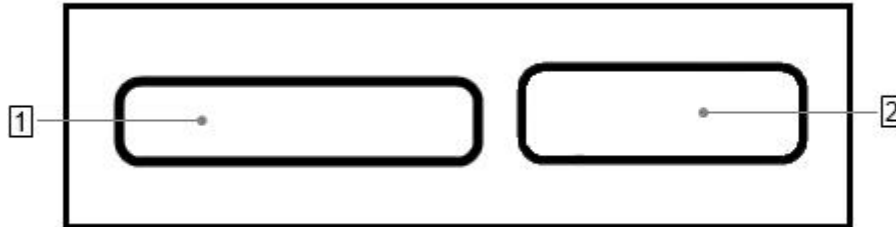
1 IDC 26 Connector (BDM/JTAG)

To connect the cables supplied with the tool. Refer to the Operating Manuals dedicated to the various protocols available in the K-Suite software to know which cable to connect to the type of ECU on which you want to work.

2 DB15 Connector (Boot Mode)

To connect the cables supplied with the tool. Refer to the Operating Manuals dedicated to the various protocols available in the K-Suite software to know which cable to connect to the type of ECU on which you want to work.

Left side of the tool
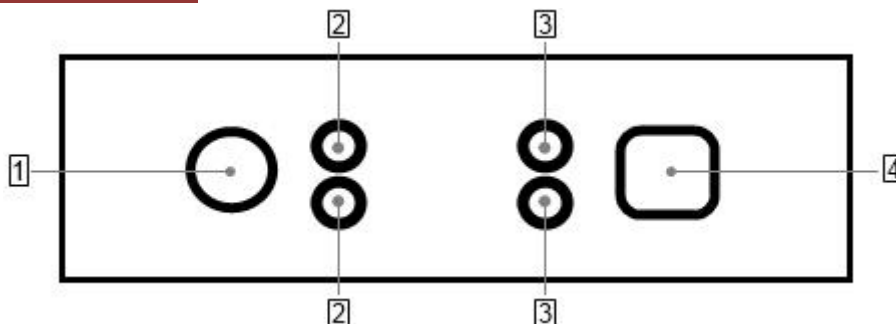
1 AC Adaptor connector

2 Status LEDs

The **blue** LED (ECU/ON, top) lights up when the tool is communicating with the ECU. The **orange** LED (KEY/ON, bottom) lights up when the tool simulates Key on/Key off.

3 Status LEDs

The **red** LED (POWER, top) lights up when the tool is connected to AC Adaptor. The **green** LED (DATA, bottom) lights up when the tool is connected to the computer through the USB cable.

4 USB port

To connect the tool to the computer.

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Basic operations

Installing the K-Suite software

1. Download the K-Suite software from the *Download* section of our website www.alientech.to and save the *file Setup.exe* on your computer.
2. Double-click the *Setup.exe* file to install the K-Suite software.
3. Follow the on-screen instructions. The K-suite software installs also the drivers of K-TAG.
4. When the security warning saying it is not possible to verify the authenticity of the software or drivers is displayed, confirm the installation and continue.

> **Note:** When installing K-Suite, you may be required to install additional software, such as Microsoft Visual C++ 2005 SP1 Redistributable Pack. In the event that this request appears, follow the on-screen instructions to install any additional software.

1. Select the language to use the software, and download any proposed updates.
2. When installation is complete, close the K-Suite software.

Installing the K-TAG

1. Connect the K-TAG to your computer using the USB cable supplied.
2. Wait until it is displayed the message confirming that the new device has been properly recognized by the operating system. Usually this message is displayed at the bottom right of the screen.
3. Run the K-Suite software, without pressing **SKIP** on the loading screen to complete the proper installation of the tool.
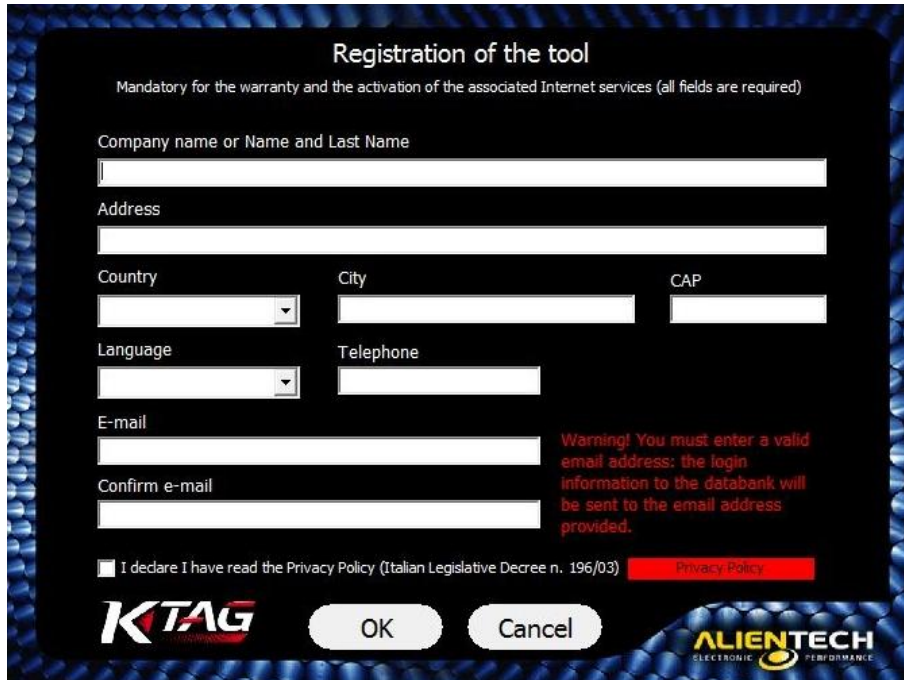

K-Suite loading screen

Tool registration

From the first run of K-Suite software and until the form is not fulfilled, the registration of the product is required to activate the warranty and the services provided by Alientech Data Bank.

**An active e-mail address is required to validate the registration. All fields are required.**

Tool registration screen

After registering, a validation e-mail with the password to access the Alientech Data Bank https://databank.alientech.to/ is sent to the address provided. At first login you will be prompted to set a new password.

> **The registration of the tool is required to activate the warranty** and make use of the online services associated with K-TAG.

In case of changing the email address or phone number provided, it is possible to replace these data by accessing the section *Your Profile* of the Alientech Data Bank.

K-Suite software main screen
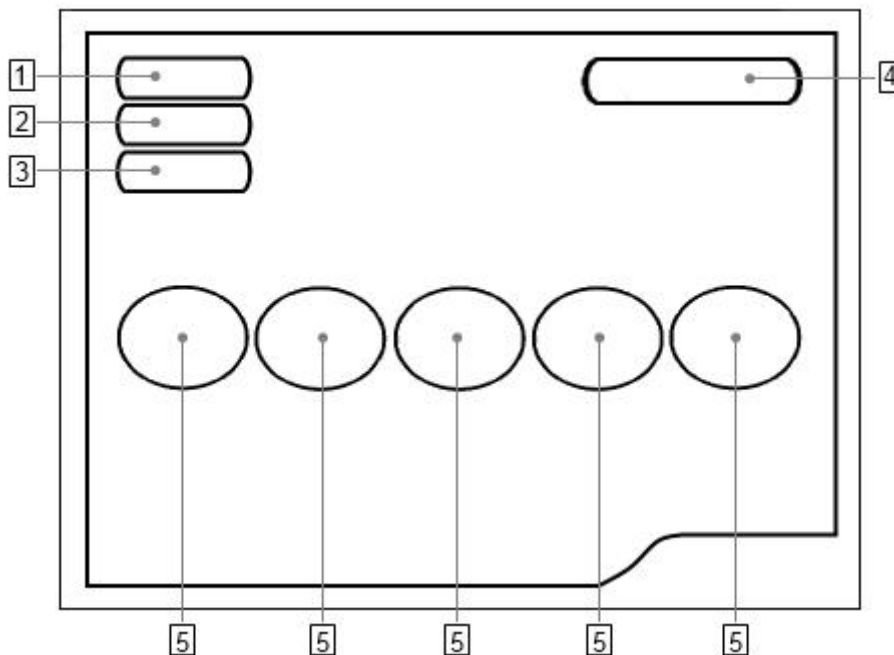
1 Info Button

To view information about the tool and its owner, and download the LOG file with the last activities performed by the tool.

2 Options Button

To set the window size and the language of K-Suite software, and display the vehicle list.

3 Help Button

To download the Operating Manuals dedicated to the various protocols.

4 Protocols Button

To view and select the protocol list partitioned by set.

5 Vehicles buttons

To view and select the vehicle to work on.

> **Info, Help**, **Protocols** and **Vehicles** buttons are only active when the tool is connected to the computer.

Configuring K-TAG for the use

To properly configure the tool, we remind you that K-TAG must be connected to the computer via the supplied USB cable and your computer must be connected to the Internet.

How to set the screen resolution

1. Click on the **Options** button in the main window of the K-Suite software.
2. In the *Size of the vehicle selection windows* pane, select the window size that best suits your computer screen.

When possible, we recommend using 1024x768 resolution, to see better the pictures of connection instruction in the Operating Manuals.

> It is possible to change the window size of the K-Suite software at any time, even if the tool is not connected to your computer and / or the computer does have an active Internet connection..

How to set the language of the software

1. Click on the **Options** button in the main window of the K-Suite software.
2. In the *Language* pane, click **Select.**
3. Select the language you want to use the K-Suite software.

It is possible to change the language of the K-Suite software at any time, even if the tool is not connected to your computer and / or the computer does have an active Internet connection.

How to view the list of vehicles supported by K-TAG

1. Click on the **Options** button in the main window of the K-Suite software.
2. In the *Available vehicles* pane, click **View**.
3. Select the Brand of the vehicle.
4. Select the Model of the vehicle.

At the bottom of the window, a list of all versions of the selected vehicle is then displayed. For each version is detailed:

- **Type**: The type of engine installed.
- **kW:** The engine power expressed in kilowatt.
- **HP**: The engine power expressed in horsepower.
- **Fuel**: The type of fuel: *Petrol* or *Diesel*.
- **MY**: The year when the vehicle's version has been launched on the market (short for *Model Year*)
- **ECU:** The type of ECU installed on the vehicle.
- **Mode:** The connection mode to the ECU.
- **FAM:** The number of the Family to use to communicate with the ECU.
- **CHK**: Check mark indicates that checksum correction is carried out automatically by all the Families of K-TAG, but only for the file containing the maps.
- **RD**: The check mark indicates that the ECU supports the reading.

> It is possible to consult the list of vehicles supported by K-TAG at any time, even if the tool is not connected to your computer and / or the computer does have an active Internet connection.

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How to download the Operating Manuals

It is **required** to download Operating Manuals to work with **K-TAG**, as they provide information on which cables to use for the vehicle to program and how to connect them. It is also advisable to periodically check for and download any updates of these Operating Manuals, which may have important corrections and / or improvements.

1. Click on the **Help** button in the main window of the K-Suite software.
2. Click on **Check** and wait until the tool connects to the Alientech Data Bank.
3. Click on **Download** to download the Operating Manuals in the desired language and depending on the package purchased.

If the green check mark is displayed, the download has been successful, otherwise click again on **Download**.

It is possible to download the Operating Manuals only if the tool is connected to a computer with an active Internet connection.

How to display the information about your tool

By clicking on the **Info** button in the main window of the K-Suite software, you can view information about your instrument.

- **Device type**: It indicates whether the tool is in Master (M) or Slave (S) version.
- **FW version**: It indicates the version of the Firmware installed on the tool.
- **Serial Number**: It indicates the serial number of the tool, to report in any request to the Technical Support Service.
- **Customer Code**: It indicates your Customer Code, to access to the Alientech Data Bank and report to any request to the Technical Support Service.
- **Group Code**: It indicates the Code of the Master user associated to your Slave tool. In the event that your tool is a Master, this coincides with the Customer Code.
- **Subscription Expiration Date**: It indicates the expiration date of your subscription, if active.
- **LOG**: To save on your computer the LOG file containing the last 32 activities performed by the tool.
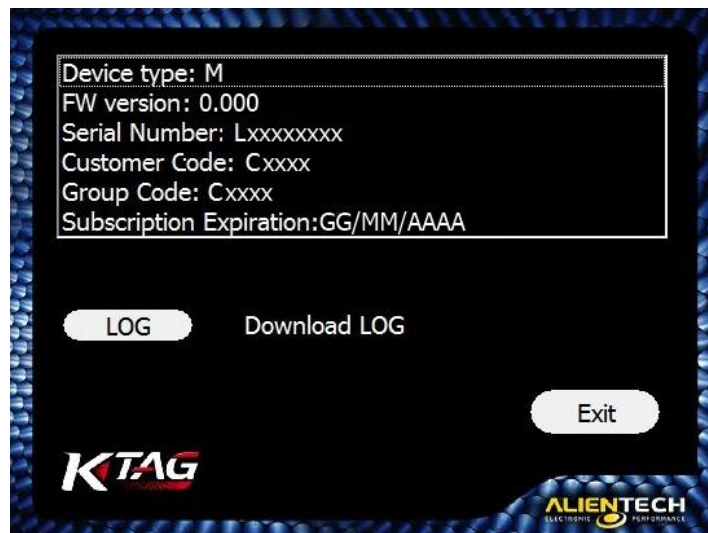
To view this information the tool must be connected to your computer.

Operating procedures

How to connect the tool

Before connecting the tool, it is important to make sure that the AC Adaptor is set to 12V.

1. Connect K-TAG to your computer by using the supplied USB cable.
2. Connect K-TAG to the supplied AC Adaptor.
3. Plug the AC Adaptor to a an electrical outlet.
4. Connect K-TAG to the ECU following the instructions provided in the Operating Manual of the selected the Family.

> The computer connected to the K-TAG must function properly and be defect-free, or it may damage the tool. As with all electrical products, connection to defective parts, or connecting to an electrical outlet not wired correctly, can cause a spark and start a fire.

Choosing a Family of communication

To be able to program a vehicle, it is necessary to choose the correct Family, i.e. the communication protocol. It is possible to choose a Family in two different ways:
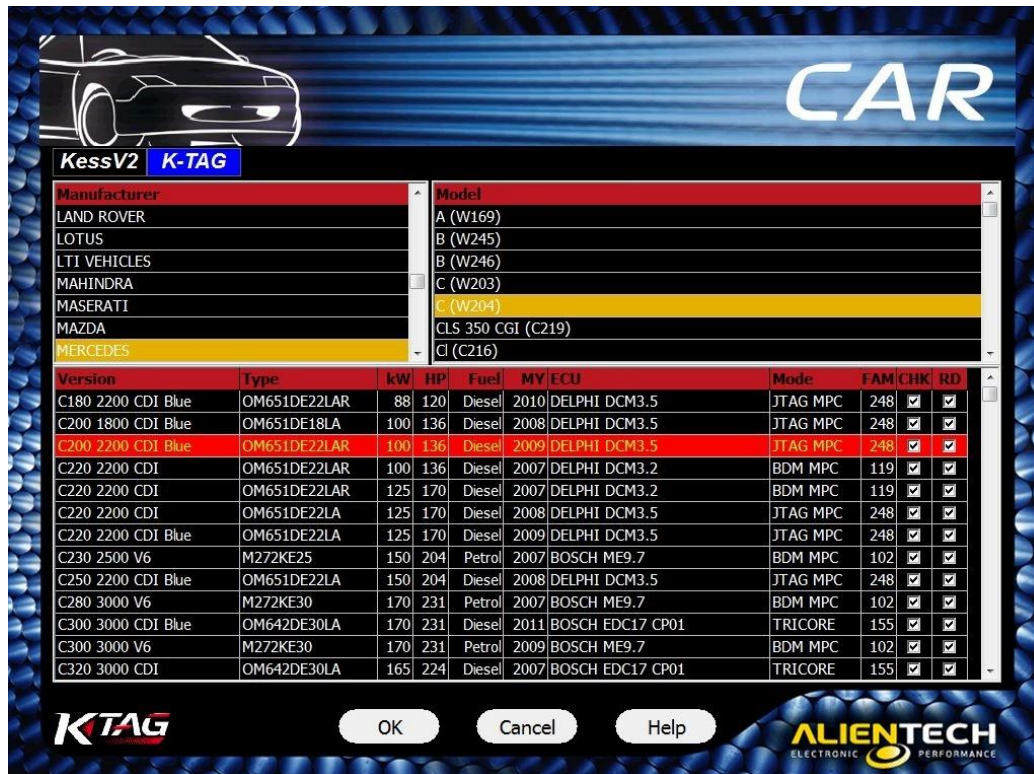
a) Using the **Vehicles** buttons in the main window of the K-Suite software.
b) Using the **Protocols** button in the main window of the K-Suite software (recommended for advanced users).

How to choose a Family using the Vehicles buttons

Vehicles buttons

1. Select the button corresponding to the kind of vehicle to program.
2. Select the Brand of the vehicle.
3. Select the Model of the vehicle.
4. Select the version of the vehicle according to the data displayed in the lower part of the window:

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- **Type**: The type of engine installed.
- **kW:** The engine power expressed in kilowatt.
- **HP**: The engine power expressed in horsepower.
- **Fuel**: The type of fuel: *Petrol* or *Diesel*.
- **MY**: The year when the vehicle's version has been launched on the market (short for *Model Year*)
- **ECU:** The type of ECU installed on the vehicle.
- **Mode:** The connection mode to the ECU.
- **FAM**: The number of the Family to use to communicate with the ECU.
- **CHK**: Check mark indicates that checksum correction is carried out automatically by all the Families of K-TAG, but only for the file containing the maps.
- **RD**: The check mark indicates that the ECU supports the reading.

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How to choose a Family using the Protocols button

PROTOCOLS button

1 Select the communication mode in which you want to program.
2 Select the type of ECU.

Click on **ECU** to sort the list of protocols in alphabetical order from A to Z, or click on **Family** to sort the list of protocols in ascending numerical order .

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Backup, Restore, Reading and Writign

After selecting the proper Family:

1. Click **Help** for the see the connection instructions.
2. Connect to the ECU following the connection instructions provided in the Operating Manual.
3. Once back to the previous window, click **OK** to display the programming menu.
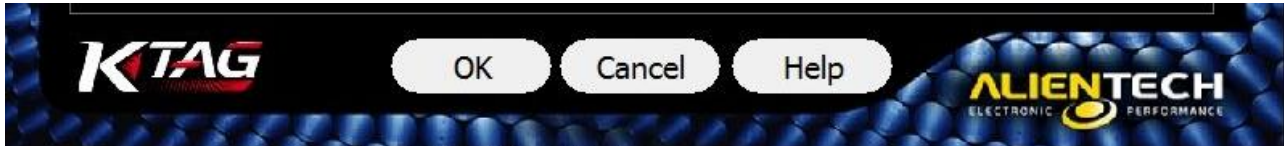
> It is important to keep the Operating Manuals updated: periodically check for updates, particularly after each release of the K-Suite software (for more details refer to the section **Updating the Operating Manuals – page 33)**.

Programming menu items
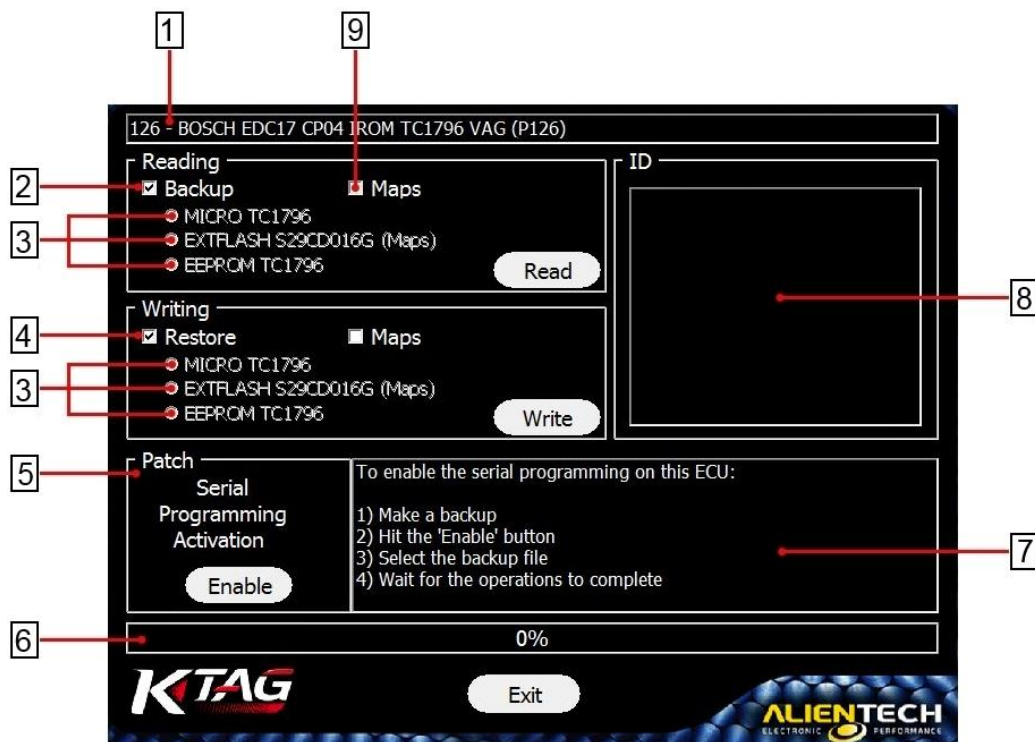
1 **Information about the Family in use**

2 **Backup –** To make a full backup of the ECU data. In addition to the whole file, you can also save a file for each component on the ECU and/or the file containing the maps for engine managements.

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3 **MICRO/EXTFLASH/EEPROM –** Components on the ECU. To read/write a single component, remove the check mark from the Backup/Restore box and select the component. It is possible to read/write only the components in green. For more clarity, the words "*Maps*" in parentheses is indicated next to the component containing the maps.

4 **Restore –** To restore the backup file on the ECU.

5 **Patch –** To enable the serial programming via OBDII on some ECUs (only available for some plug-ins Tricore).

6 **Status bar –** Percentage of progress of the read / write procedure.

7 **Status window –** To display messages about the ongoing operations.

8 **ID –** To display information about the identification of the ECU.

9 **Maps –** In some cases, if allowed by the protocol, you can see a white check box labeled "Maps". This box allows you to save a special file <u>which must be used</u> if you wish to modify the vehicle performance, on pain of improper operation of the vehicle and a possible failure and block of the ECU.

> It is possible to perform reading / writing operations even if your computer does not have an active Internet connection..

In case of problems or if communication with the ECU is not carried out successfully, before contacting the Technical Support Service refer to the section **Troubleshooting (page <u>34</u>).**

Backup

1. Choose the right family by using the **Vehicle** buttons or the **Protocols** button.
2. Connect to the ECU following the connection instructions provided in the Operating Manual.
3. Click **Read** to get a backup file of all ECU data.

> As first step, even before read/write the single components of the ECU, you should always make a backup copy of the ECU. After the Backup, the K-Suite software in addition to saving the whole backup file, will also propose you to save separate files for each single component so that you do not need to re-read the ECU.

Read

4. Choose the right family by using the **Vehicle** buttons or the **Protocols** button.
1. Connect to the ECU following the connection instructions provided in the Operating Manual.
2. Remove the check mark from the Backup box.
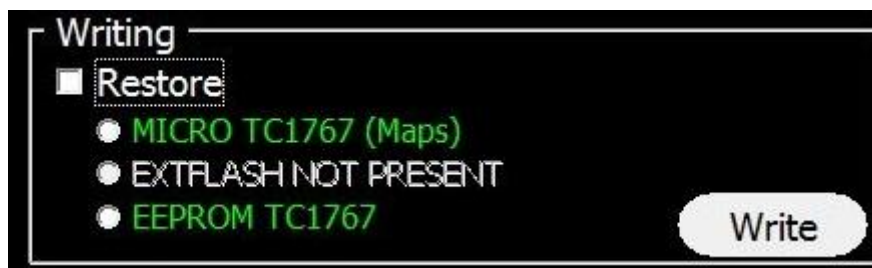3. Choose the component you want to read.
4. Click **Read**.

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It is only possible to read the components shown in green. In case you want to work only on the engine management files, refer to the component with "Maps" written next to it or, when available, check the white box Maps.

Restore

1. Choose the right family by using the **Vehicle** buttons or the **Protocols** button.
2. Connect to the ECU following the connection instructions provided in the Operating Manual.
3. Click **Write** to restore the backup file to the ECU.

Write

1. Choose the right family by using the **Vehicle** buttons or the **Protocols** button.
2. Connect to the ECU following the connection instructions provided in the Operating Manual.
3. Remove the check mark from the Restore box.
4. Choose the component to which you want to write the modified file.
5. Click **Write**.

It is only possible to write the components shown in green. In case you want to write only on the engine management files, refer to the component with "Maps" written next to it or, when available, check the white box Maps.

File management

Decoding / Encoding files for Salve tools associated to your Master user

> The Decoding / Encoding service through the Alientech Data Bank is provided free of charge to all owners of K-TAG in Master version that have Slave tools associated to their user.

How to decode a file

1. Login to the Alientech Data Bank https://databank.alientech.to/ with your Customer Code and password.
   You can find your Customer Code clicking on the **Info** button on the main window of the K-Suite software, when the tool is connect to your computer. The password for the first login is provided via e-mail upon completion of product registration.
2. Enter the *Manage K-TAG Master / Slave* section in the *Your User Account* box.
3. In the *Select File* panel, click *Browse* and select the encoded file received from your Slave.

4. Select *Decode* and wait for the loading of the file in the database.

The backup file received from your Slave is thus decoded and split into single files for the components of the ECU (Micro file, EEPROM file and Flash file). You can use these files in the **Original Slave File** box (on the left, on a green background).

> If the *Download File* buttons are not enabled, the file containing the data for that component is not present in the encoded file received from your Slave.

In case the map zone is shared between Flash and Micro, there is only one file called Maps File. When available, <u>always</u> download the Maps File and use it to perform the mapping of the vehicle. If Maps File is not available, use the files of the single components.

In the ID box (in the middle, on white background), ECU data are displayed.

5. In the **Original Slave File** box (on the left, on a green background), click on *Download File* to save the file on your computer.
For example, to save the Micro file click on *Download Micro File*.

To decode a new file, select *Clear Cache* and repeat the above procedure from step n. 3.

How to encode a file

1. Login to the Alientech Data Bank https://databank.alientech.to/ with your Customer Code and password.
   You can find your Customer Code clicking on the **Info** button on the main window of the K-Suite software, when the tool is connect to your computer. The password for the first login is provided via e-mail upon completion of product registration.
2. Enter the *Manage K-TAG Master / Slave* section in the *Your User Account* box.
3. In the *Select File* panel, click *Browse* and select the encoded file received from your Slave

4. Select *Decode* and wait for the loading of the file in the database.

5. In the **Modified Slave File** box, (on the right, on an orange background), click on *Browse* next to the desired component and select the modified file to send to your Slave.

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6. Click on *Load Modified XXX File*.
7. Repeat for each modified file you want to send to your Slave.

> You have to load one file at a time: for each component you have to click on Browse and then on Load File before moving on to the next component.

8. If in the backup file to send to your Slave you wish to include the original file of the component, click on the `>>` button next to the component to be added to the modified file. To remove a file from the modified file, click on the `X` button.

> **Manage K-TAG Slave**
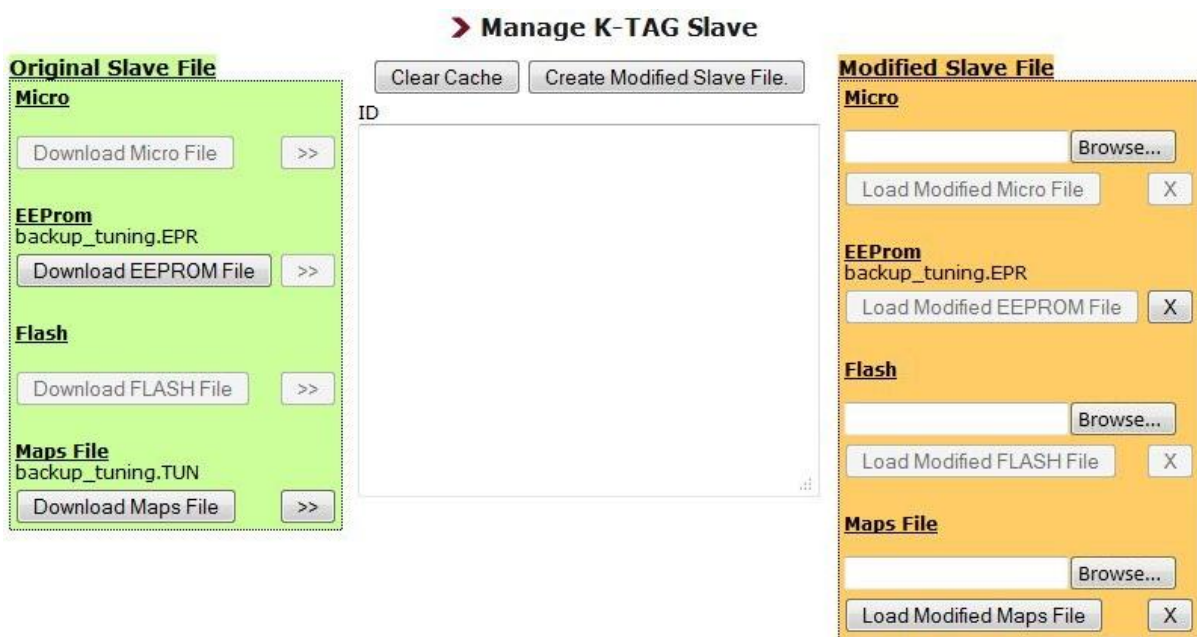
Example of an EEPROM original file loaded in the modified Slave file (left)

9. Click on *Create Modified Slave File* to encode the file to send to your Slave and save it on your computer.

To encode a new file, select *Clear Cache* and repeat the above procedure from step n. 3.

Warning: Depending on the type of ECU, this operation may take up to a maximum of 20 minutes. Do not close the window, or perform any other operations while the encoding of the file is being processed.

Technical Support

Updates

Software updates may include security patches, new or revised settings and features, and other items. It is recommended that you always maintain updated the K-Suite software in order to use the latest and safest version.

Notice
During a download/update: • **DO NOT** unplug the Usb cable   • **DO NOT** turn off your computer

The time taken to download updates may vary depending on your Internet connection and traffic on the band of Alientech Data Bank.

Updating the K-Suite software and K-TAG

If your computer is connected to the Internet, when launched the K-Suite software automatically searches for available software updates. To update the K-Suite software and download any new protocols published

1. Connect the K-TAG to your computer using the supplied USB cable.
2. Start the K-Suite software and do not press **SKIP** on the loading screen of the software.
1. Follow any onscreen instructions.
2. Wait until the update is complete.

K-Suite software updates distributed by Alientech Srl include:

- K-Suite software updates, available for free for any owner of K-TAG.
- Updates to the protocols enabled at the time of purchase of the tool, available for free even after expiration of your subscription.
- New protocols developed and distributed by Alientech Srl, available only for users with an active subscription.

Updating the Operating Manuals

It is important to periodically check if new Operating Manuals have been released and / or updated. To check the availability of new Operating Manuals and download them:

1. Connect K-TAG to your computer by using the supplied USB cable.
2. Launch the K-Suite software.
3. Click on the **Help** button in the main window of the K-Suite software.
4. Click on **Check**.
5. .

If the green check mark is displayed it means that the manuals are updated; if there is no green check mark, click on **Download** to download the latest manuals

Always check the availability of new Operating Manuals and possibly download them after an update of the K-Suite software.

The Operating Manuals can be download free of charge by all the owners of K-TAG, even if there is no subscription active.

Troubleshooting

Before requesting services, read this section if you experience difficulty in operating the KESSv2 tool and follow the recommended procedures.

The K-Suite software does not recognize the tool	➢ If the red LED is not lit, check that the tool is correctly connected to your computer with the supplied USB cable. ➢ Make sure that the USB cable is not damaged, and if possible try again using another suitable USB cable. **Use the USB cable supplied in the standard kit to connect the tool to the computer. We do not recommend using extension cords or other USB cables. In case you need to use a USB cable other than that supplied in the standard kit, make sure to use a shielded USB cable. USB cables not supplied by Alientech Srl may cause problems.** If the problem persists, contact the Technical Support Service.
How to check the serial number of your tool	➢ The serial number can be read on the label with the bar code located on the underside of the tool. ➢ As an alternative, connect the tool to your computer, start the K-Suite and click on **Info** in the main screen of the software.
How to get the LOG file	➢ Connect the tool to your computer, click on the **Info** button in the main screen of the K-Suite software and select **LOG** to get the file with the last 32 activities performed by the tool.
You forgot your Customer Code	➢ Connect the tool to your computer, start the K-Suite and click on the **Info** button in the main screen of the software.

You forgot your password to access to the Alientech Data Bank	➢ You have to ask for a new password directly from the main page of the Alientech Data Bank by clicking on *» Forgot your password? Click here! «*. A new password will be sent by e-mail **at the address stored in the Data Bank**, provided during the registration of the tool. **Note:** Alientech Srl does not know the password you set to access to Alientech Data Bank. In case of need you will be provided with a new password.
The Operating Manuals are not displayed correctly	➢ Make sure that the K-Suite software is compatible with your operating system (see section **Specifications – page 42**). ➢ Make sure that the Active-X controls of Internet Explorer browser are enabled and set correctly. ➢ Make sure you have downloaded the latest version of the Operating Manuals from the **Help** button on the main page of the K-Suite software.
The Operating Manuals are not available from the Help button, nor are displayed automatically when launching the Communication Family	➢ Make sure you have downloaded all the Operating Manuals from the **Help** button on the main page of the K-Suite software.
The K-Suite software does not function properly	➢ Make sure you have downloaded the Windows®.NET Framework 3.5 update. ➢ Restart the K-Suite software installation (see section **Installing the K-Suite software – page 14**). If the problem persists, contact the Technical Support Service.
Some of the Families you are entitled, are displayed with a gray background and are not enabled	➢ Re-launch the K-Suite software without pressing SKIP on the main window. ➢ If you have a subscription, check that it has not expired and that the Family belongs to the package purchased, otherwise put in contact with your sales rep. ➢ Il the K-Suite software is updated, the subscription is valid, and the Family is included in the package purchased, contact the Technical Support Service.

The tool cannot perform the reading and / or writing	➢ Re-launch the K-Suite software without pressing SKIP on the main window. ➢ Make sure that the green LED on the left side of the tool is lit. If it is not lit, please contact the Technical Support Service to arrange the return of the tool for repair. ➢ Make sure of using the correct cable and accessories between K-TAG and vehicle or ECU. ➢ Make sure that any cables and accessories are intact and properly connected. ➢ Make sure your soldering are well done and possibly re-solder them. ➢ Make sure you supplied power to K-TAG and the ECU. ➢ Make sure you have selected the correct Family for the ECU connected. ➢ Make sure that the blue LED on the left side of the tool is lit while attempting to communicate with the ECU. If the problem persists, contact the Technical Support Service providing the error code displayed and a detailed description of the operations performed
Error messages: "Checksum error" or "Correction Checksum Error "	➢ Make sure of using the correct cable and accessories between K-TAG and vehicle or ECU. ➢ Make sure that any cables and accessories are intact and properly connected. ➢ Make sure your soldering are well done and possibly re-solder them. ➢ Reinstall the K-Suite software, making sure to confirm the installation of Microsoft Visual C + + (see section **Installing the software K-Suite - page 14**) If the problem persists, send the file read from the vehicle and the LOG file to the Technical Support Service.
Error message: "Micro protection type not supported. It's impossible to work on this ECU"	➢ You are trying to communicate with an ECU equipped with a protected Microprocessor. If available for the ECU of interest, use one of the Families dedicated to this type of ECUs, identifiable by the initials "TPROT" in the name.

Error message: "ECU not identified	➢ Re-launch the K-Suite software without pressing SKIP on the main window and try again. If the problem persists, send the file read from the ECU, all data related to the vehicle and the LOD file to the Technical Support Service to have them check the original file and possibly enable the recognition of the ECU.

Contacts

After sale business service

For the purchase of cables and accessories, purchase and activation of single Families or packages of Families, subscriptions or renewal, please contact our Sales Department:

By mail	info@alientech.to
By phone	(+39) 0161 801025

Technical Support Service

To contact the Technical Support Service you must provide:

- Your Customer Code
- Description and identification data of the vehicle and ECU on which you are working
- Detailed description of the operations performed
- Any error code displayed on the screen
- If possible, a screenshot of the error
- Any pictures of the connections on the ECU
- The LOG File

The Technical Support Service is available:

By mail	support@alientech.to assistenza@alientech.to drivers@alientech.to
By phone	(+39) 0161 801025

Additional information

Optional accessories

Never use cables or accessories manufactured by companies other than Alientech Srl.

❖ BDM Motorola MPC5xx (14KTMA0001)

Accessories available for communication with ECUs of the group BDM Motorola MPC5xx

14AS00T01S	Board to be soldered for Delphi DCI ECUs (4 pin header)
14AS00T02S	Board to be soldered for TRW Truck ECUs
14AS00T03S	Board to be soldered for Siemens and Marelli ECUs (8 pin header)
14AS00T04S	Board to be soldered for Delphi DCM ECUs (4 pin header)
14AM00T00M	Adapter board for positioning frame on Delphi DCI ECUs
14AM00T01M	Adapter board for positioning frame on BOSCH ECUs
14AM00TBAS	Multi-function adapter board for Positioning Frame for 1,27 thread pull-out tips
14AM00TB01	Pull-out tip for multi-function adapter board for Siemens ECUs
14AM00TB02	Pull-out tip for multi-function adapter board for Marelli ECUs
14AM00TB03	Pull-out tip for multi-function adapter board for BOSCH EDC7 ECUs
14AM00T02M	Adapter board for positioning frame on Delphi DCM ECUs

❖ JTAG Nexus MPC5xxx (14KTMA0002)

Accessories available for communication with ECUs of the group JTAG Nexus MPC5xxx

14AST00T05S	Board to be soldered for TRW Truck ECUs
14AM00T13M	Adapter board for positioning frame on TRW Truck ECUs
14AM00T05M	Adapter board for positioning frame on Marelli ECUs equipped with MPC5xxx microprocessor
14AM00T06M	Adapter board for positioning frame on Delphi ECUs equipped with MPC5xxx microprocessor
14AM00T14M	Adapter board for positioning frame on EFI ECUs equipped with T6 microprocessor

❖ JTAG Renesas SH705x (14KTMA0003)

Accessories available for communication with ECUs of the group JTAG Renesas SH705x

14AM00T07M	Adapter board for positioning frame to write Denso ECUs
14AM00T10M	Adapter board for positioning frame to read Denso ECUs
14AM00T09M	Adapter board for positioning frame to read and write Denso ECUs
14AM00T08M	Adapter board for positioning frame to write Denso ECUs
14AM00T11M	Adapter board for positioning frame to read Denso ECUs

❖ Bootloader Infineneon Tricore - ST10Fxxx (14KTMA0005)

Accessories available for communication with ECUs of the group Bootloader Infineon Tricore - ST10Fxxx

14AM00T03M	Adapter board for positioning frame on BOSCH ECUs equipped with ST10Fxxx microprocessor
14P600KT04	Adapter board for positioning frame on BOSCH ECUs equipped with Infineon Tricore microprocessor

❖ BDM Motorola 68000HC (14KTMA0006)

Accessories available for communication with ECUs of the group BDM Motorola 68000HC

14AS00T06S	Board to be soldered for ECU equipped with Motorola 68000HC microprocessor

❖ Bootloader Renesas M32R (14KTMA0008)

Accessories available for communication with ECUs of the group Bootloader Renesas M32R

144300T107	Adapter to write Denso ECUs mounted on Kawasaki – Suzuki vehicles

❖ Accessories for K-TAG

Accessories available for communication with all ECUs

14P800ADBO	Positioning Frame for ECU connection
14P800ADB1	Positioning Frame with upper illumination deck and programming probes
14P800ABD2	Upgrade kit for positioning frame: Upper illumination deck and programming probes
14P800ABD3	Spare part kit for positioning frame: 4 Programming probes
144300KTST	Replacement Kit with Boards and wire in the basic kit: 2 ribbon cables 1400300T106, 2 ribbon cables 1400300T104, 2 ribbon cables 1400300T103, 2 ribbon cables 1400300T102, 2 ribbon cables 1400300T101, 2 ribbon cables 1400300T105,2 ribbon cables 1400300T100, 1 kit female pin header AT3401001, 1 10-pin female polarized IDC connector

The accessories listed on this guide may be subject to change without notice. In order to have an updated list of accessories it is always advisable to refer to our website www.alientech.to.

Specifications

K-TAG

Interface	DB15 Connector
	ICD26 Connector
	Power Socket
	USB 2.0 connector
Compatible Operating Systems	Windows Vista 32bit and 64bit, Windows 7 32bit and 64bit, Windows 8 32bit and 64bit
Minimum System Requirements	256 MB RAM
	USB port
	Active Internet connection for installation and subsequent updates of the software (communication with the ECU is available also offline)
Power supply	AC - DC Adaptor 12.0 V
External dimensions	Approx. cm. 18 x 10,8 x 3,5 / 7.08 x 4.25 x 1.37 in (width × depth × height)
Weight	Approx. 300 g / 10.58 oz.
Operating temperature	5°C - 35°C / 41°F - 95°F

AC Adaptor

Input AC	100-240 V, 50/60 Hz
Output DC	12.0 V, 1500 mA (1.5 A) ⊖──◉──⊕
External dimensions (maximum overall dimensions excluded)	Approx. 80 × 40 × 37 mm / 3.15 × 1.57 × 1.46 in (width × height ×depth)
Weight	Approx 165 g / 5.82 oz

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Hardware Warranty and Software License

Product warranty

Thank you for purchasing our Product. From here on, the term "Product" shall mean the tool K-TAG. This warranty does not cover the K-Suite software provided with the Product.

Alientech Srl warrants to the original purchaser that the hardware of the Product shall be free from defects in assembly, or defect that can be otherwise attributable to Alientech Srl, for a period of **two (2) years from the date of purchase**, provided that the hardware is used in accordance with the instructions provided in this guide and the Operating Manuals integrated into the K-Suite software.

To enable the warranty, you must register the tool as described in the section Tool registration (page <u>15</u>).

You shall report to Alientech Srl, on pain of forfeiture of the Product warranty, any hardware defects covered under warranty within 15 (fifteen) days from their discovery, by registered mail with acknowledgment of receipt or by certified e-mail, stating the reasons of your complaint.

You may ask Alientech Srl, at your own choice, the repair or replacement of the Product purchased, unless the solution you propose is impossible or too onerous.

Alientech Srl shall repair or replace the Product within a reasonable time and without causing you significant inconvenience.

If repair or replacement are impossible or too onerous, or Alientech Srl has failed to accomplish the repair or replacement within a reasonable time, or has caused you significant inconvenience, you can ask for an adequate price reduction or rescission of the purchase contract and refund of your money.

Under no circumstances will the amount reimbursed be higher than that paid for the purchase of the product.

A minor defect shall not give you, under any circumstances, right to cancel the purchase contract.

In case of repair or replacement of the Product, the Warranty Period shall not be extended.

Without derogating from the foregoing, Alientech Srl, its subsidiaries and affiliates shall under no circumstances be liable to the user for any loss, damage, claim or cost of any kind, including any special, indirect, incidental or consequential damages or loss of profits or earnings, resulting from the interruption of your business, personal injury or breach of duty of care, or third-party claims, even if a representative of Alientech Srl has been advised of the possibility of such loss, damage, claim or cost.

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The foregoing limitations and exclusions apply to the fullest extent permitted by law in your jurisdiction.

This warranty does not apply to a Product that, upon inspection, Alientech Srl determines it is defective, damaged or non-conforming due to external causes, including – but not limited to – accident, abuse, misuse, alteration, negligence, improper installation, problems with electrical power, interference with other hardware or software, usage not in accordance with the information and precautions described in the user's guide and / or documentation provided by Alientech.

Riparazione o sostituzione del prodotto con RMA

In the event of malfunction, damage or breakage of the Product, <u>always</u> contact the Technical Support Service for authorization to return the tool. Alientech Srl will send by e-mail an RMA form (Return Merchandise Authorization).

The RMA form shall always be included in the package with the tool. In addition, the tool must be returned in his suitcase, complete with all its accessories.

Alientech Srl reserves the right not to inspect and / or repair tools that are not accompanied by the RMA form filled out in all its parts.

Software License

All the rights to the hardware and software (including, without limitation, any images, photographs, animations, video, audio, music, text, "applets", update) constituting the Product, the accompanying printed materials, as well as the graphical layout of packaging of the Product are owned by Alientech Srl and are protected by Italian and International laws on the subject.

All the documentation provided with the K-Suite software (including but not limited to Operating Manuals, user's guides and instruction manuals) is subject to copyright and may not be copied, photographed, reproduced, translated or reduced on electronic media, in whole or in part, without the prior written permission of Alientech Srl.

All rights to the Product and what accompanies it, or complete it, that are not expressly granted to you in this manual are exclusive property of Alientech Srl.

Your use of the Hardware and Software shall not give you any rights or claims of any kind on them.

You shall provide your full cooperation, where there was need, in order to ascertain Alientech ownership rights, meeting all obligations and fulfilling all formalities that may be appropriate for a better protection of Alientech rights.

The K-Suite software may contain a copy protection technology to prevent unauthorized copying of the Software.

Making unauthorized copies of the K-Suite software or circumventing copy protection technology contained in it is illegal. Users declare to be knowledgeable of such facts and will not claim otherwise in the event of a violation of the this License.

The K-Suite software is licensed non-exclusively and non-transferable, but not sold.

You shall use the K-Suite software in accordance with the purpose for which it has been manufactured and marketed, and in respect of the recommendations for use and technical specifications provided by Alientech Srl, and to the extent set forth in this License.

You are expressly forbidden to sell the Hardware and / or the Software covered by this user's guide, for any reason whatsoever, to any third party.

You are also forbidden to copy, reproduce, distribute, disclose, make available for any reason, or allow the use of the K-Suite software, as well as to disassemble, decompile, reverse engineer, alter, all or in part, add or embed the K-Suite into other software except to the extent expressly permitted by the rules in force.

Except for any warranty, condition, representation or imperative term that cannot be excluded or limited under applicable law in your jurisdiction, Alientech Srl provides the software/firmware in its current condition and potential defects (*"AS IS"*) for the exclusive use provided in and with the Product. Alientech Srl expressly disclaims all other warranties, conditions, representations, or terms – express or implied – as provided by law, common law, custom, usage or otherwise, including (but not limited to) warranties of integration, merchantability, quiet enjoyment, satisfactory quality or fitness for a particular purpose.

Alientech do not warrant and make no representation 1) that the functions included in the K-Suite software will meet your requirements, 2) that the operation of the K-Suite software will be correct, 3) that the K-Suite software will perform uninterrupted or error-free 4) that the K-Suite software will not damage any other software or hardware you use 5) regarding the use or the results of the use of the K-Suite software in terms of its correctness, accuracy, reliability, or otherwise.