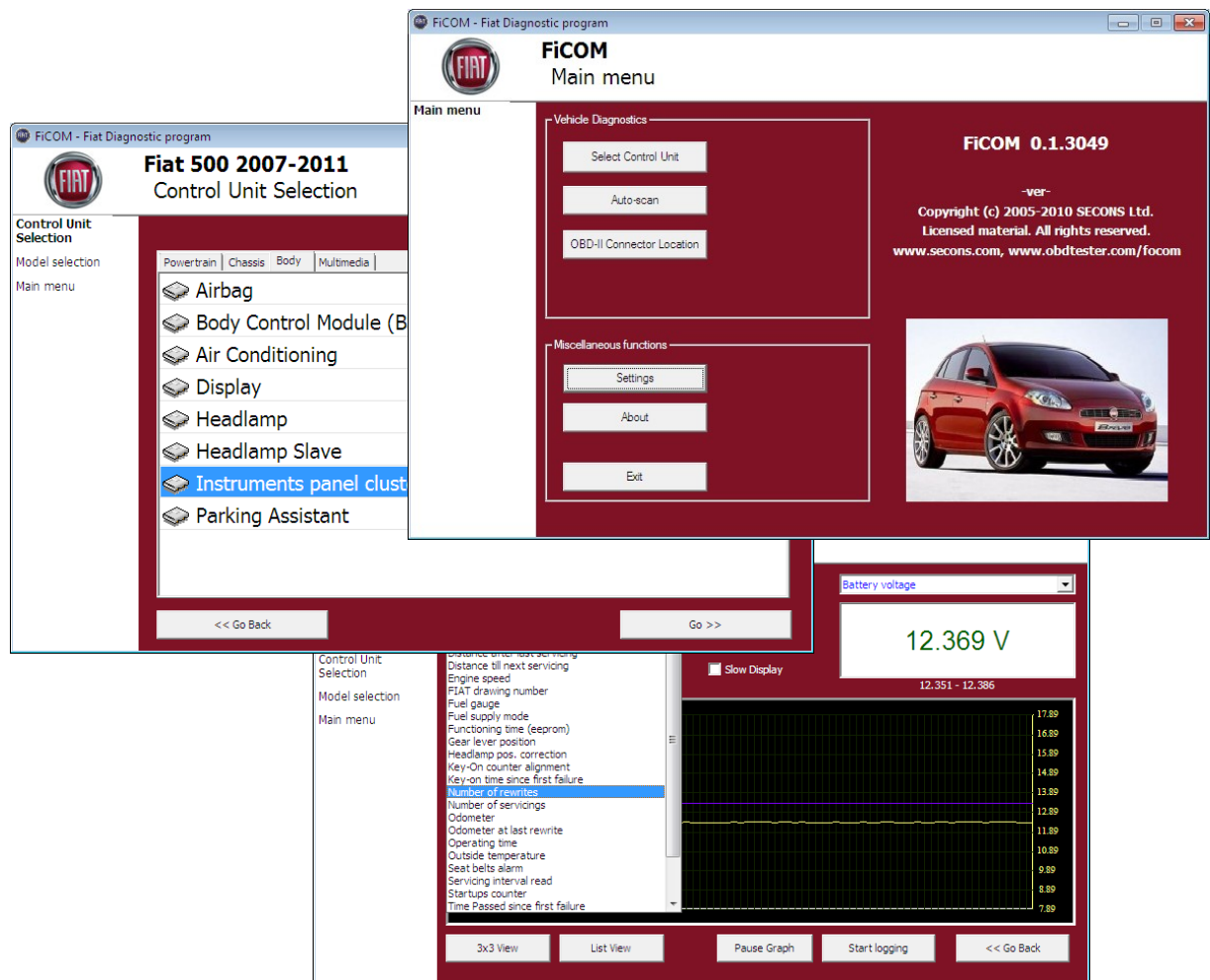


FiCOM

User manual

www.obdtester.com/ficom

PRELIMINARY VERSION



SECONS Ltd. is not connected with *Fiat* S.p.A in any way.

SECONS Ltd. is not liable for damages caused by using of software FiCOM.

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1 Introduction

Thank you for purchasing the FiCOM diagnostic interface and software. FiCOM is professional tool for diagnostics of Fiat vehicles. Please read carefully this User Manual before using the product.

We hope you'll find our products useful. In case you have any questions, problems or feedback please contact as at support@secons.com. We're here to help!

1.1 Key features

- Support for wide range of ECUs and models
- Fully multiplexed all-in-one smart USB2.0 interface
- Wide range of communication protocols and buses covered: KW71, IAW, KWP2000, FIAT9141, ISO15765, UDS, ...
- Automatic ECU recognition
- Automatic vehicle scan
- ECU Identification
- Fault code (DTC) reading
- Fault freeze frame reading
- Fault code clearing
- Measured vaules / live data
- Live data recording
- Diagnostic protocol printing
- Actuator tests
- Control unit coding such as:
 - Immobilizer key matching
 - Injector coding
 - Parameters resetting

The FiCOM system works with Fiat vehicles. (It works as well with Fiat subsidiaries vehicles such as Ford Ka 2008+, Peugeot Boxer, etc.) The rule of thumb is: tasks related to fault code memory and identification are reliable everywhere, but measured values and other functions may not be fully supported.

1.2 Software update

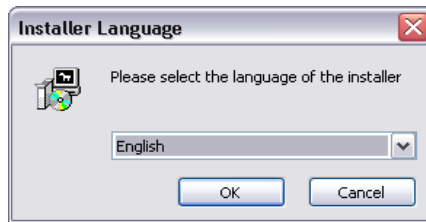
Software updates in diagnostic version are available for free. You can download them from <http://www.obdtester.com/downloads>. Use serial number of interface (on the tag or in the menu *Settings*) as login and let password empty. We recommend you to maintain software up-to-data, because updates provides support for new ECUs and fix various FiCOM issues.

We recommend you to update firmware in diagnostic interface by clicking on *Settings* → *Upgrade firmware* every time you update the software.

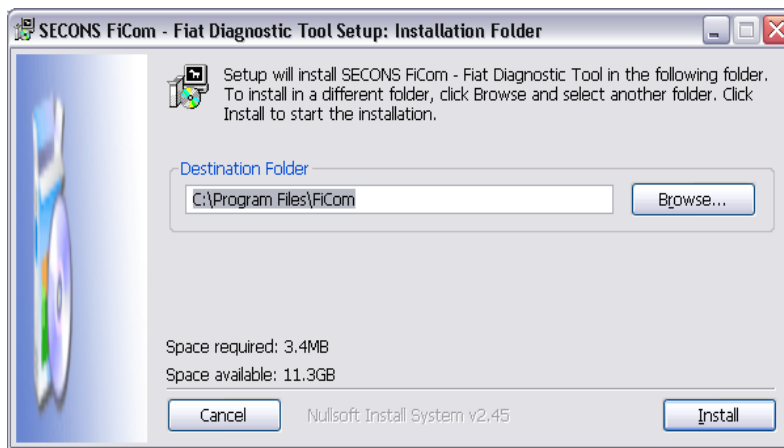
2 FiCOM software and driver installation

2.1 Microsoft Windows operating System

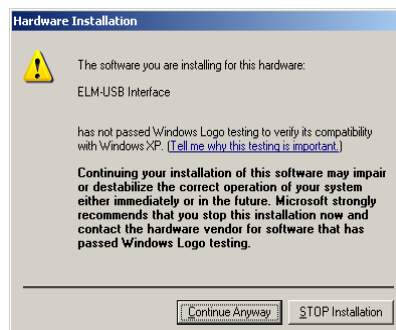
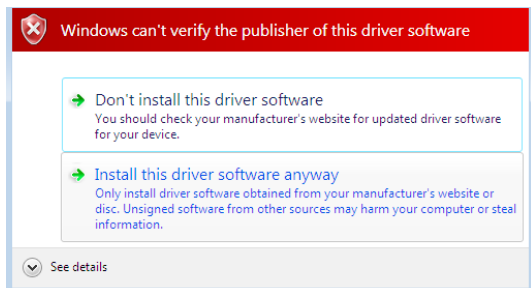
1. Insert FiCOM installation CD to your CD-ROM drive
2. Run installation file FiComSetup.exe
3. Choose language for the installer



4. Choose your destination folder for the FiCOM and click *Install* button and after successful installation click *Close* button.



FiCOM drivers are automatically updated during the FiCOM installation. When prompted to install „unsigned“ drivers, click on *Install this driver software anyway* (Microsoft® Windows® 7) or *Continue Anyway* (Microsoft® Windows® XP).



Microsoft® Windows® will automatically install drivers when you plug-in the FiCOM to USB port. Driver installation isn't required for operation on GNU/Linux system.

2.2 GNU/Linux System

Our diagnostic application are tested to work under Linux. No native Linux binary is available, however we have created our programs to work under Linux and other systems using Wine.

2.2.1 Requirements

- Linux 2.6.x with USB support (or FreeBSD)
- USB CDC Driver
- Wine 1.0.1

Recent Debian Linux or Ubuntu meet the above requirements.

2.2.2 Setting up devices

Driver installation isn't required for operation on GNU/Linux system. Diagnostic applications require access to /dev/ttyACMx devices from Wine environment. This can be set-up very easily using these commands:

```
ln -s /dev/ttyACM0 ~/.wine/dosdevices/com5
ln -s /dev/ttyACM1 ~/.wine/dosdevices/com6
ln -s /dev/ttyACM2 ~/.wine/dosdevices/com7
ln -s /dev/ttyACM3 ~/.wine/dosdevices/com8
```

Diagnostic interface should be then visible from the FiCOM diagnostic application.

2.2.3 Installation

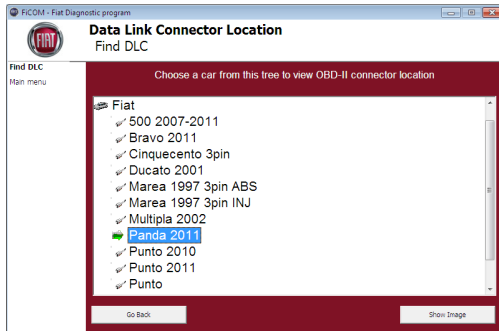
Programs can be installed by launching setup .exe file using wine, e.g. wine FiCOMSetup.exe.



You can download the latest version of FiCOM from www.obdtester.com/downloads

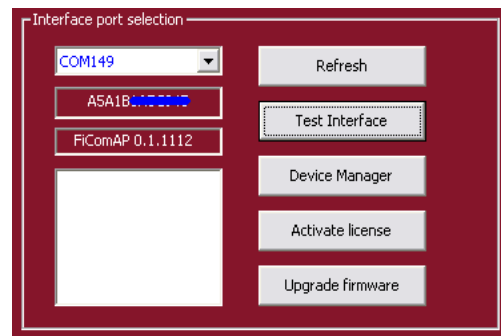
3 First steps

1. Connect the FiCOM interface to your computer.
2. Connect the FiCOM interface to OBD-II connector in the vehicle. You can use picture gallery for find it, available from main menu – *OBD-II Connector Location* button

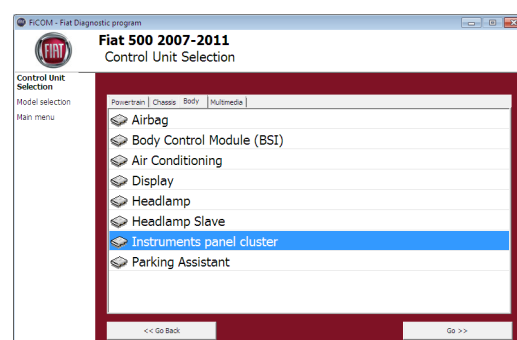
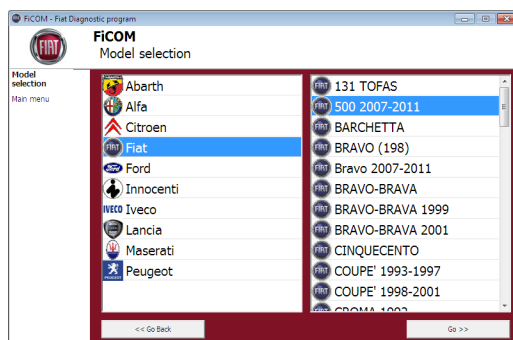


3. Set-up FiCOM application

Select *Settings* from OBDTester main menu and configure interface port. After click *Refresh* button software should find port to which is FiCOM interface connected. Choose these port. Click *Test Interface* to make sure everything is OK, you should see fulfilled *Serial number* (now hidden in blue line).



4. Save settings and return to main menu.
5. Turn ignition ON, but don't start an engine.
6. Select control unit by clicking on *Select Control Unit* button.
7. Select vehicle model.
8. In new window choose unit from list.



9. If unit was recognized, you can use diagnostic functions now. In other case, you must select the type of control unit. (chapter *Unrecognized Control Unit*)

4 Diagnostic connectors used in Fiat vehicles

Location of OBD2, OBD1 or 3pin diagnostic connectors is available in DLC location database available from the FiCOM main menu.

4.1 3-pin

Some older vehicles (up to 2003) may use 3pin connectors. Every system (Injection, ABS, Airbag, ...) use separate connector. Special OBD2 to 3pin reduction is available for such diagnosis.

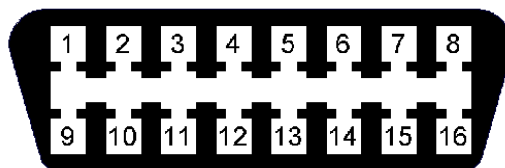
The 3pin reduction cable has to be connected to battery positive voltage in order to work with FiCOM (the 3pin connector does not provide battery voltage).

| Pin | Description |
|-----|--------------------|
| A | L-Line ISO9141 |
| B | Chassis (uzemnění) |
| C | K-Line ISO9141 |

4.2 OBD-II

Standard OBD2 connector is used since 1997 to present (please note that some models manufactured after 1997 still may use 3pin connector).

| | | | |
|-------------------------------|---|----|------------------------------|
| FT CAN High ISO9141 K Line | 1 | 9 | FT CAN Low ISO9141 K Line |
| - | 2 | 10 | - |
| ISO9141 K Line | 3 | 11 | ISO9141 K Line |
| Ground (GND) | 4 | 12 | ISO9141 K Line |
| Signal ground (GND) | 5 | 13 | ISO9141 K Line |
| HS CAN High | 6 | 14 | HS CAN Low |
| ISO9141 K Line | 7 | 15 | ISO9141 L-Line |
| ISO9141 K Line | 8 | 16 | Battery voltage |



5 Connecting to control units

5.1 Fiat ECU naming terminology

Injection – Engine ECU control unit

Code – immobilizer control unit

Body – Body Computer (central electronics)

5.2 Communication protocols

| Protocol | Diagnostic bus | Production |
|-----------------|---------------------|----------------|
| KW71 (Bosch) | ISO9141 | 1991-2001 |
| Marelli IAW | Marelli | 1991-2001 |
| KWP2000, | ISO9141 | 1996 – 2011 |
| FIAT9141 | ISO9141 | 1996 - 2007 |
| ISO15765 | CAN-BUS (ISO 11898) | 2003 - present |
| UDS (ISO 14229) | CAN-BUS (ISO 11898) | 2005 – present |

5.3 Diagnostics of Fiat Scudo, Fiat Ulysse, Lancia Z, Lancia Phedra

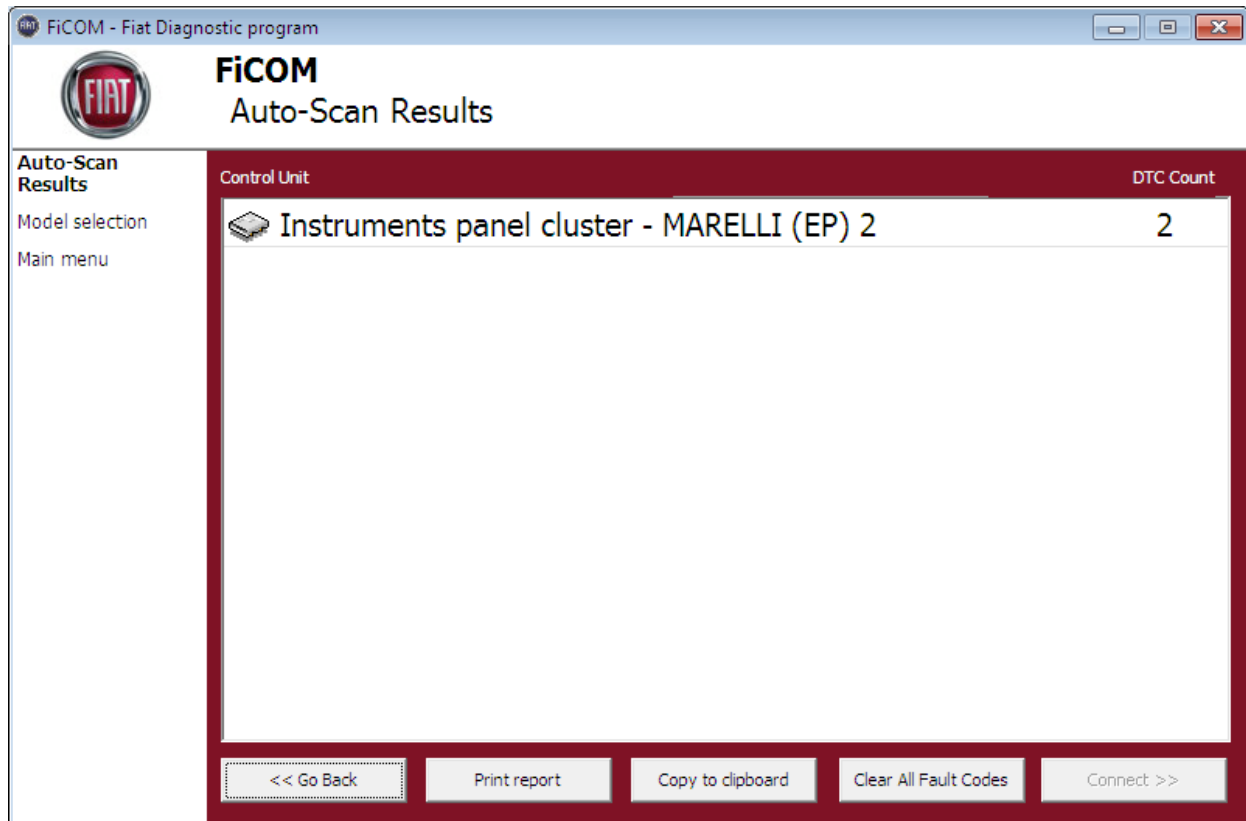
Fiat Scudo, Fiat Ulysse, Lancia Z, Lancia Phedra are not supported by FiCOM. Special diagnostic software for Peugeot / Citroen (PSA) must be used.

Fiat Sedici is based on Suzuki platform and is not supported.

Some ECU's in Fiat Ducato may require diagnostics PSA.

6 Auto-Scan

This function scans for all known ECUs in selected vehicle, and shows the list of ECUs present in vehicle along with number of diagnostic trouble codes.

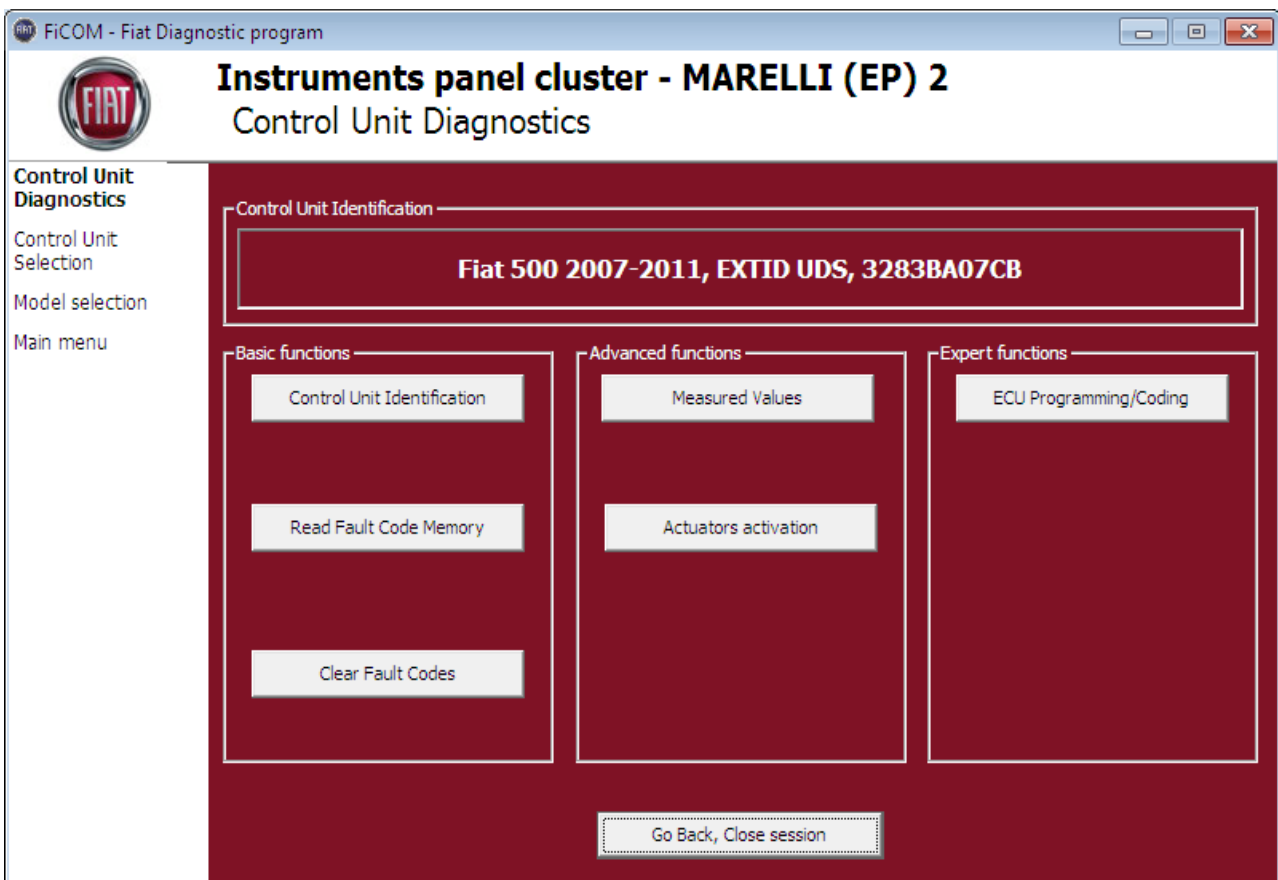


7 Diagnostic functions

You can connect with ECU by choosing unit from list of ECUs in selected vehicle or Auto-Scan menu, after *Model selection*.

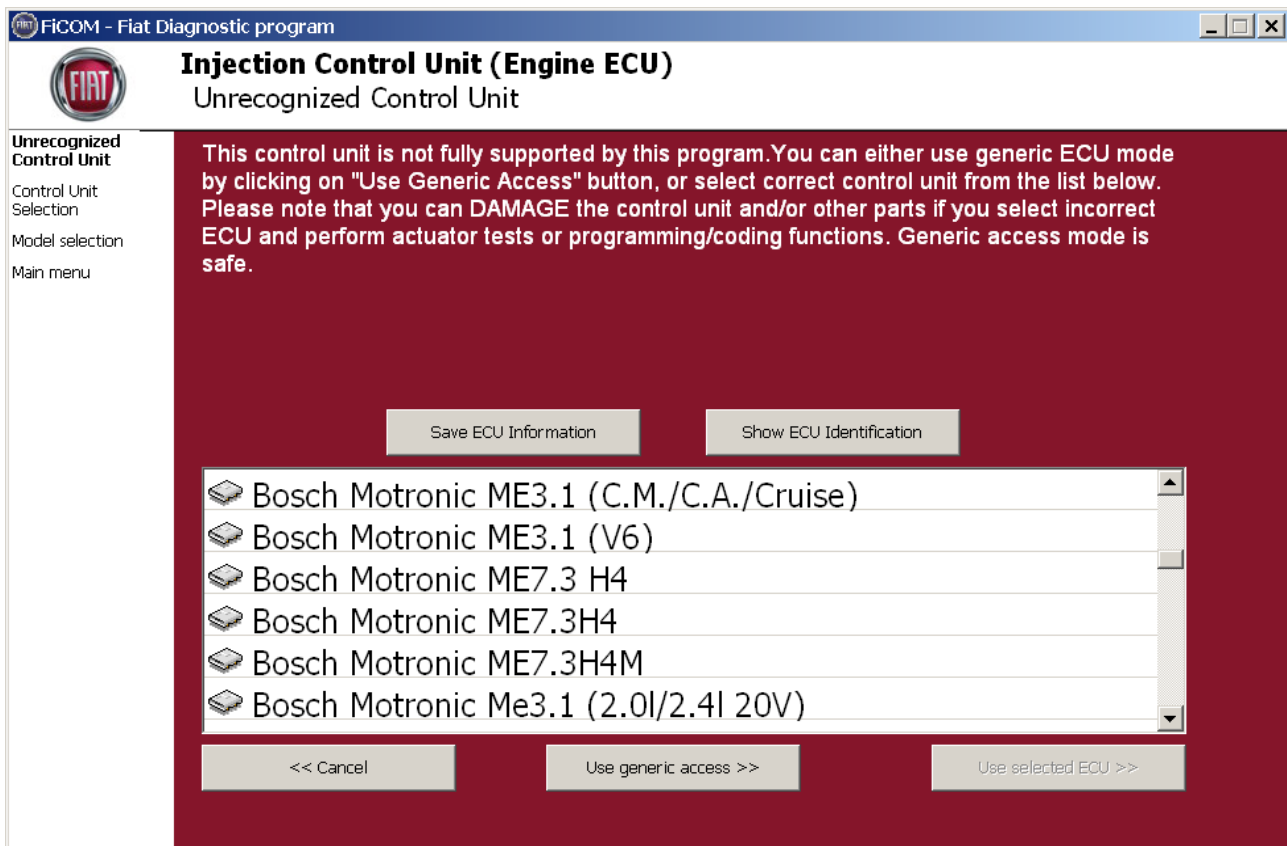
If control unit was identified uniquely, diagnostic menu will be available. If control unit wasn't identified uniquely, you have to choose concrete ECU from list.

Diagnostic menu is divided into three parts. Basic functions, Advance functions and Expert functions.



7.1 Unrecognized Control Unit

Unfortunately control units in Fiat vehicles in exceptional cases do not return unique identification or FiCOM may not correctly identify control unit. In such case is it necessary to choose right type of control unit from list. In this situation, you can either use generic ECU mode by clicking on *Use Generic Access* button, or select correct control unit from list below. In Generic Access you can only read identification or work with fault memory.



You can get more information about ECU by clicking *Show ECU Identification* button.



- It is important choose correct ECU for proper display of measured values.
- If you make a mistake in identification, you shouldn't perform any of programming functions.

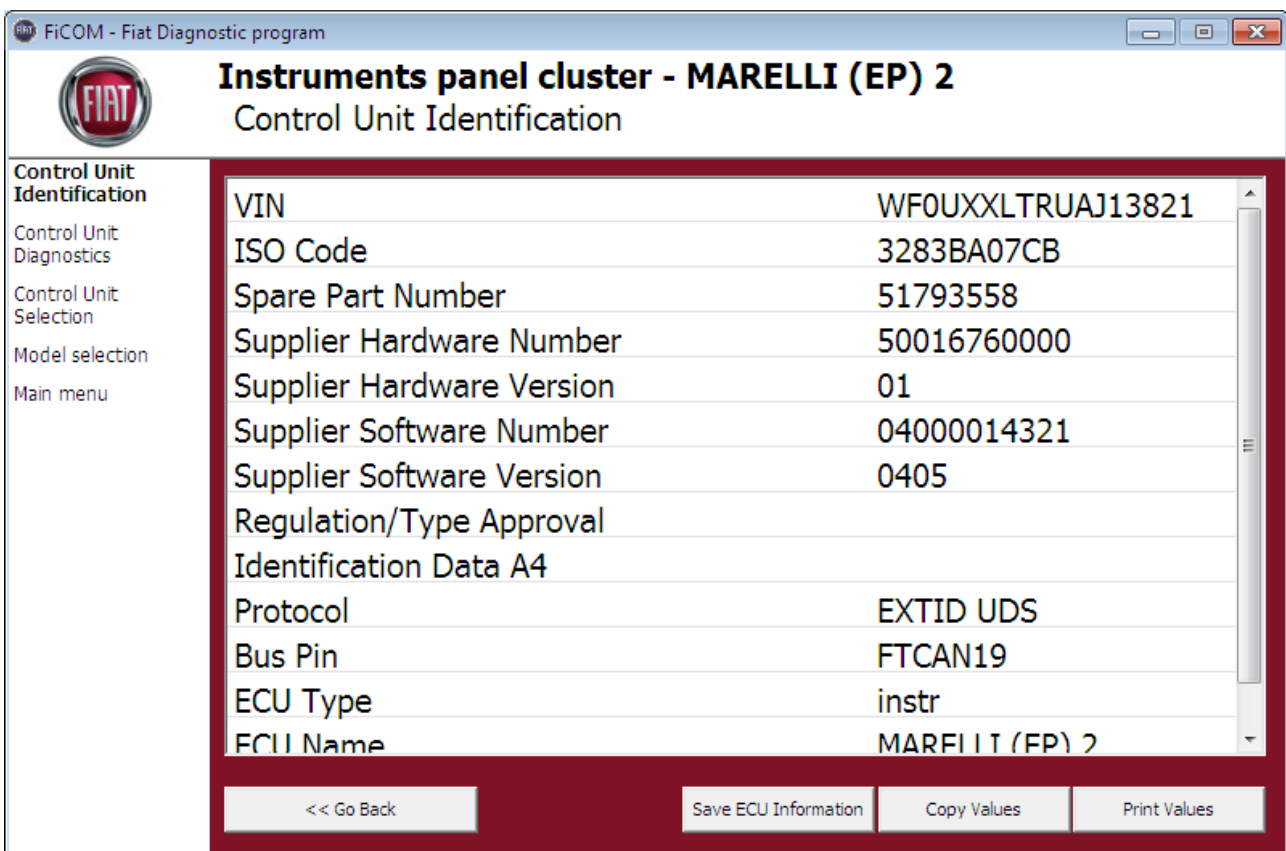
Function *Save ECU information* make possible to save all development information about ECU to hard disc. We asking users to send these files to us. We would like to add support to these ECU to next version of FiCOM.

7.2 Control Unit Identification

This function can display only identification data accessed by ECU, for example:

- Identification data
- ECU part number
- serial number

Incomplete identification are very common mainly for older ECUs that do not provide full part number or VIN code.

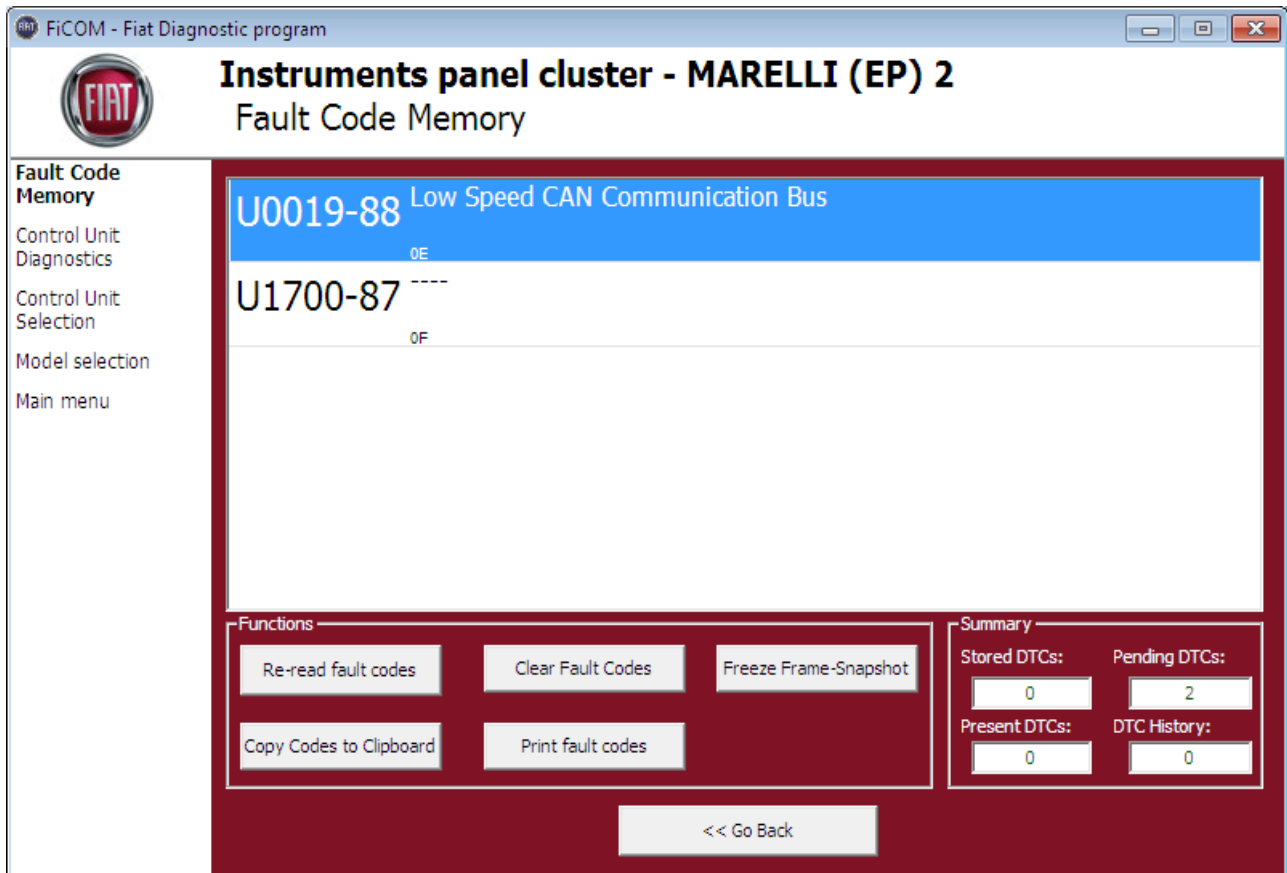


Each ECU should contain valid VIN code.

You can print identification by clicking *Print Values* button or you can copy to clipboard by clicking *Copy Values*.

7.3 Read fault code memory

This function allows to read and display diagnostic trouble codes saved in memory of control unit (so called CMDTC).



7.4 Clear Fault Codes

This function clears fault code stored in ECU memory.

Clearing memory isn't guaranteed. Fault codes might appear again or under some conditions isn't possible to clear fault codes at all. Its possible that in the presence of some faults control unit doesn't allow to clear fault codes or fault is in no time written back to memory.

Is recommended to read memory by clicking *Re-read fault codes* button again.

7.5 Freeze Frame

Freeze Frame function combines the reading fault codes and displaying measured values function. It displays the measured parameters assigned to fault code.

The screenshot shows the 'Freeze Frame' window in the FiCOM diagnostic program. The window title is 'FiCOM - Fiat Diagnostic program' and the main heading is 'Instruments panel cluster - MARELLI (EP) 2 Freeze Frame'. On the left, there is a navigation menu with options: 'Freeze Frame', 'Fault Code Memory', 'Control Unit Diagnostics', 'Control Unit Selection', 'Model selection', and 'Main menu'. The main area displays a table of parameters and their values:

| | |
|----------------------|---------------------|
| FaultPresenceTime | 7809.000000 Minutes |
| TimeElapsedWithMilOn | 1020.000000 sec. |
| StartupsCounter | 43.000000 |
| CodeError | 136.000000 |
| FaultPresenceTime | 7909.000000 Minutes |
| TimeElapsedWithMilOn | 7035.000000 sec. |
| StartupsCounter | 43.000000 |
| CodeError | 136.000000 |

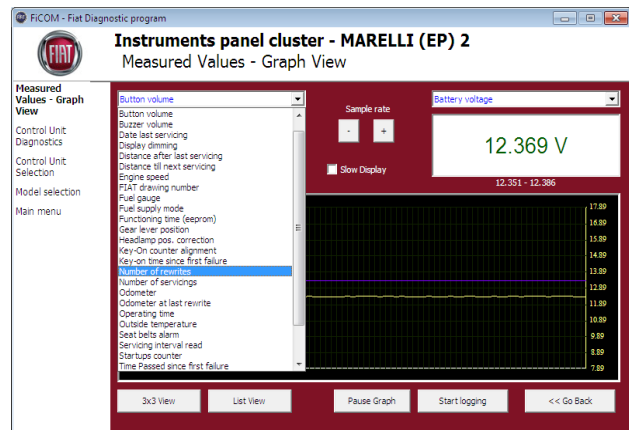
At the bottom of the window, there are three buttons: '<< Go Back', 'Copy Values', and 'Print Values'.

7.6 Measured values

7.6.1 Graph display

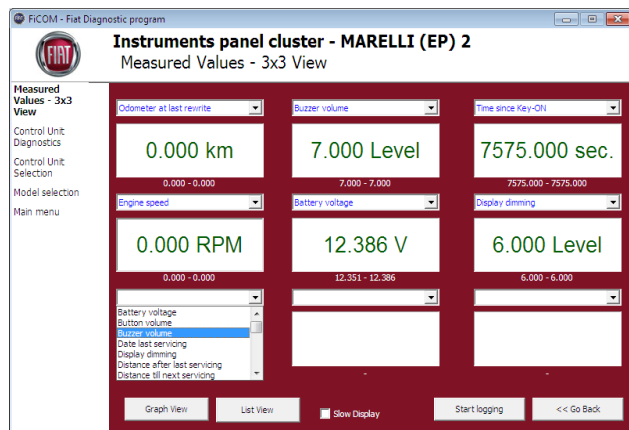
This function displays two measured values (also known as live data or sensor values) simultaneously. Measured parameters can be chosen from selectors at the top of the window.

Buttons + and – allow to accelerate or decelerate speed of graph.



7.6.2 Display 3x3

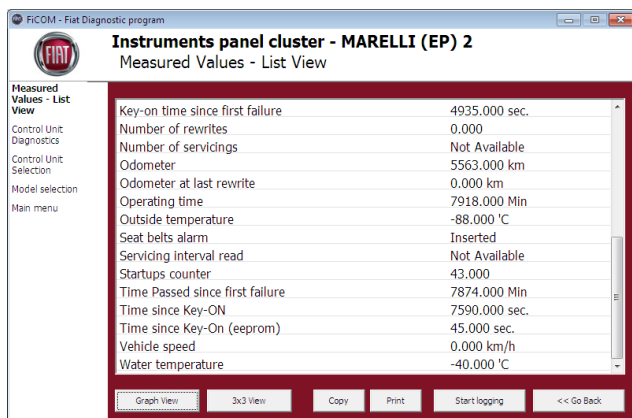
For measuring 9 value simultaneously, click on *3x3 View* button.



7.6.3 Display list

To measure all available values simultaneously, click *List view* button.

Please note values means slower refresh rate.

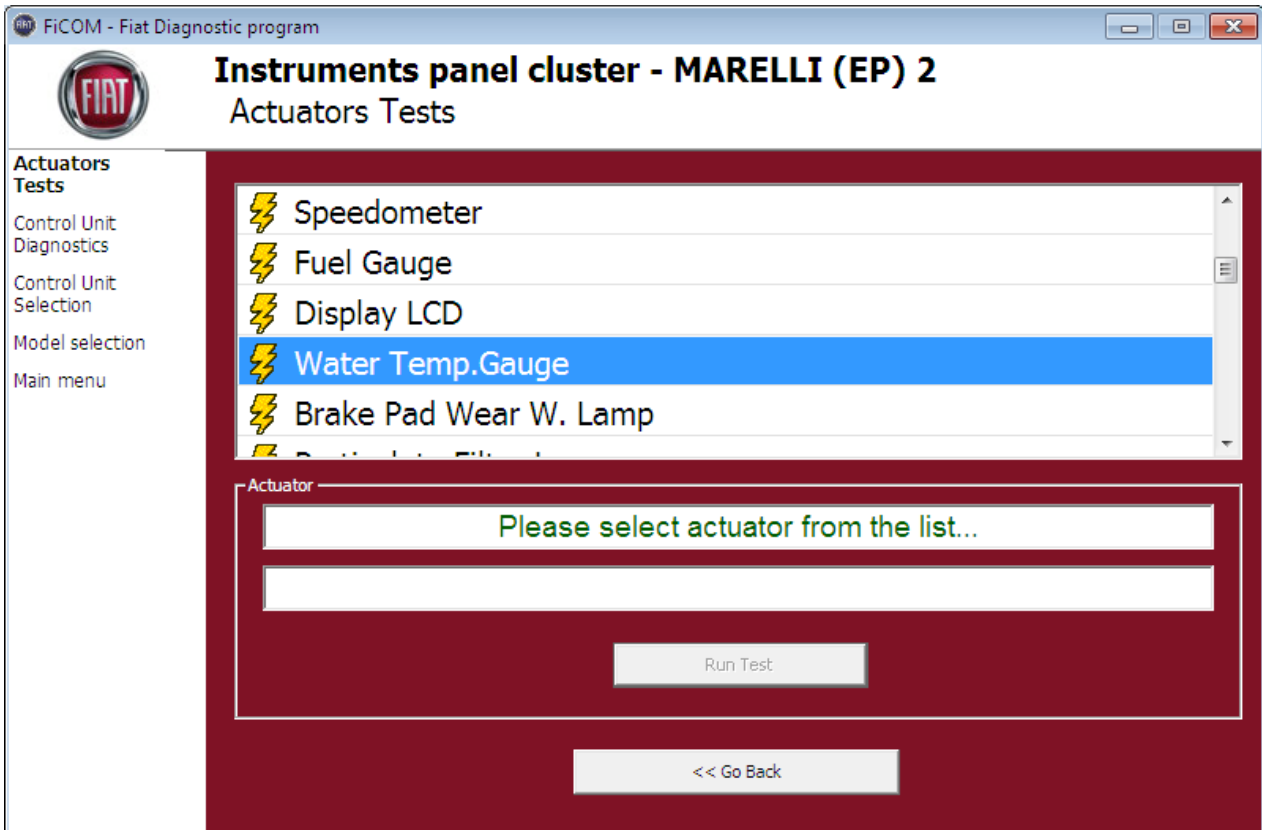


7.6.4 Save to log

Measured values can be saved/logged to a file by clicking *Start logging* button. The logfile is standard csv file and it is compatible with VagScope or can be imported to Microsoft Excel or OpenOffice Calc.

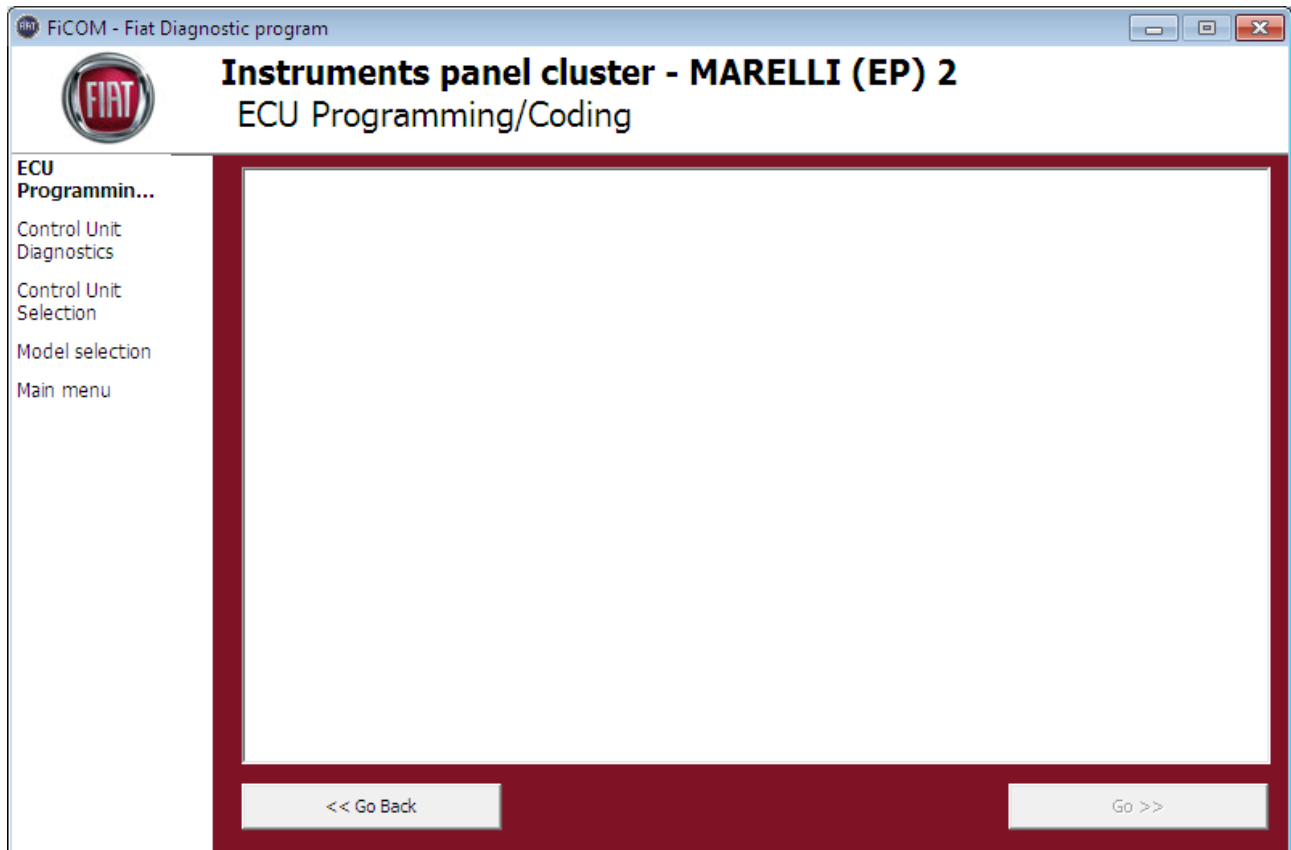
7.7 Actuators activation

This function can activate actuators and perform some actuators actions.



7.8 Programming functions

More information about programming functions is available at www.obdtester.com/downloads



8 Known problems

- Missing support for EDC15C7 injector classification coding will be available as a free update.