QUANTEX

ScanDoc
COMPACT

Instruction Manual

Contents

Introduction

Use

A multi car diagnostic scanner ScanDoc Compact is used for the information readout from the car engine control modules (ECM) via the diagnostic outlet OBD-II.

Functionality

- Reading and error codes decoding.
- Errors reset.
- Display of current data both in digital and graphical formats.
- Final controlling drives actuation.
- Systems identification (controlling units).
- Immobilizer device reading and programming.

Available Interfaces

- Russian.
- English.
- German.
- Greek.

Hardware specification

- CPU: 32bit, 72 MHz.
- RAM: 32 MB.
- Protocols hardware support: KL-Line, 2xCAN, VPW, PWM, J1708.
- Protocols software support: KW71, KW81, KW82, KW1284, DS2, ISO8, ISO14230, ISO9141, ISO15765, J1979, J1850, TP2.0, J1939.
- Integrated electronic commutation: 13 channels.
- Connection with PC: WI-FI IEEE 802.11b 100 mV (54 Mb/s).
- Power supply: 9-30 V DC.

Service and operation conditions

- Operating temperature: 0-50°C.
- Maximum relative humidity: 80% (up to 30°C) and 50% (at 40°C and higher).
- Any liquids inside the device are inadmissible .

General characteristics

- Scanner dimensions: 24x44x93 mm.
- Weight: 67 gram.

Safety precautions and warnings

Read this instruction manual first and then use the device. Make sure you're aware of the instruction manual information. The Manufacturer isn't responsible for accidents involving injuries, except equipment manufacturing defects.

Poisoning

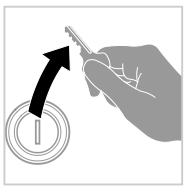
Test an operative vehicle in a well ventilated work area. The engines vent the carbon oxide, it's an odourless toxic gas with slow reaction time that can result in a serious injury or death.

Personal injury

Link on the hand break before using the device. Use break shoes for front drive vehicles, as the hand break doesn't block major front wheels.

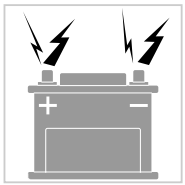
Test during driving

Don't test the car while driving. Carelessness may lead to a fatality. One person must do the test while another one is driving the vehicle. Don't place a laptop or a tablet PC ahead when driving a car. The laptop may cause an injury to you if a safety bag comes into action. Don't scan safety bag system SRS while driving the car, as the safety bag may operate unintentionally.



Electrical elements

Always cut the ignition off by connection and disconnection of electrical elements, if there aren't any other special instructions.



Battery energy storage (BES)

Don't put a device on the BES of a vehicle. It can short the BES terminals out, that may result in a personal injury as well as device and the battery fault.

Installation

To start, do the following:

Step 1 - Make sure your PC meets the system hardware requirements.
Step 2 - Install the ScanDoc program to your PC.
Step 3 - Connect the adapter to the car and the PC.
Step 4 - Activate the device on-line.

The device is ready for service.

Step 1 - Minimum system hardware requirements

- CPU Intel Core 2 Duo 2 GHz.
- RAM 512 MB.
- Display adapter 1024x768, True-Color.
- OS Windows 7 / 8
- Internet (to update the adapter firmware and new firmware unlocking for the cars only).
- Wireless LAN controller 802.11 g/n.

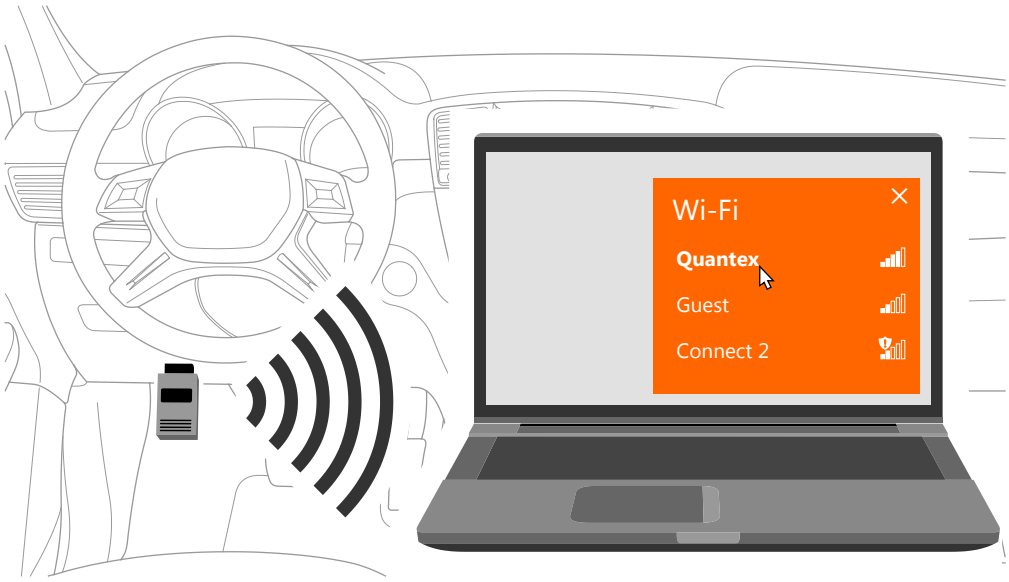
Step 2 - Program installation

To install the program, use USB Flash Drive containing the software and start the file **Setup.exe**.

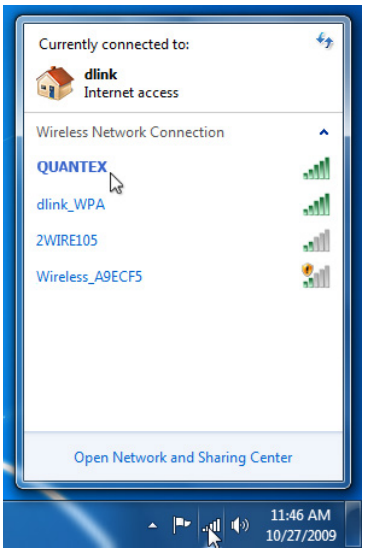
The software is also available at the manufacturer's site at: www.quantexlab.com.

Step 3 - Connection

1. Connect **ScanDoc Compact** to the car diagnostic outlet OBD-II.



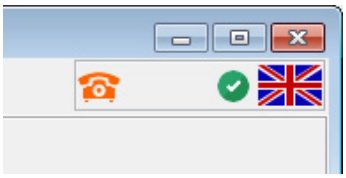
2. Connect to the PC via the wireless network Wi-FI. Select **QUANTEX** in the Wi-FI connections list available on the PC.



This is the easiest way to connect.

Note: This option within the Wi-Fi device unit is default

If the adapter is connected to the PC successfully, there will be a green indicator, showing the robust connection to the adapter. To make sure the scanner ScanDoc Compact is connected to your PC, select the button **Connection Test** in the tab **Options.**



Connection via Wi-Fi with internet access point

If it ‘s necessary to work with several devices via wireless connection or the wireless connection has been already set up, this connection via Wi-Fi with Internet Access Point is used. In this case you may need to change an IP-address of the diagnostic scanner ScanDoc Compact.

For more information on types of connection and additional settings, please visit our web site: www.quantexlab.com

Step 4 - On-line activation.

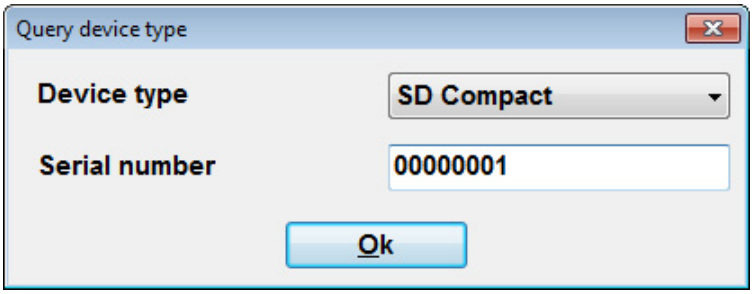
To activate, do the following:

1. Connect ScanDoc Compact to the car diagnostic outlet OBD-II.
2. Connect to the PC via the wireless network Wi-Fi.
3. Select the button **Get key** in the tab **Options** (The PC should be connected to the Internet).

4. If the program and remote server are connected successfully, a message saying the key is received successfully will appear.
5. Press the button **Upload key** to save the information received to the ScanDoc Compact adapter.
6. After the Key is saved into the adapter, the program will reload ScanDoc Compact automatically.

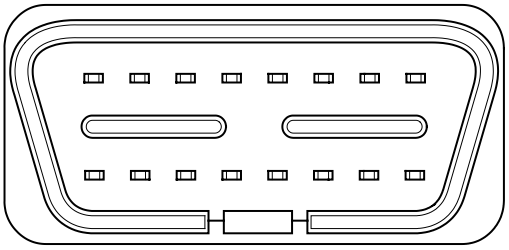
If a PC can't be connected both to the Internet and to the scanner ScanDoc Compact simultaneously (e.g. a PC has an Internet access via Wi-Fi router), please do the following:

1. Don't connect to the adapter ScanDoc via wireless network Wi-Fi and try to start ScanDoc program. Using the PC connect to the Internet and press the button **Get key** (or the button **Activation via the Internet**) in the tab **Options**. You will see this message:

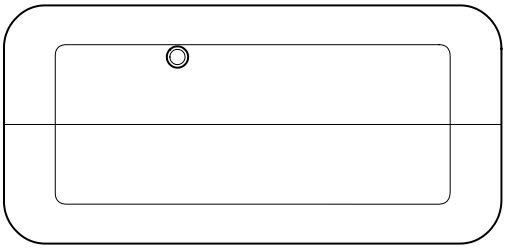


2. Select the adapter type (ScanDoc Compact) and its serial number in the window. If the program and the remote server are connected successfully, there will be a message saying the key is received successfully.
3. Disconnect from the wireless network for the Internet access and connect to the Internet Access Point **QUANTEX**.
4. Select the button **Upload key** to save the received information to the ScanDoc Compact adapter.
5. After the key is saved to the adapter the program will automatically reload ScanDoc Compact.

Actuators



Connector view.



End view.

There are the reset switch to factory settings.

The device condition is shown by inboard LED indicators. They are on after the power is supplied to the device and the integral test is run.

Indicators (light) condition	Description
	The device is switched off.
	The PC is connected to Wi-Fi.
	The data interchange is in process.
	**When it is on:** Integral hardware- based test is run. The red indicator should go off in a while after it's been switched on. • If the indicator **is dull**, then there are not any programs in the adapter or the program is corrupted. To restore it, one should activate the device. • If the indicator **flashes on and off** and doesn't go off, then the unit is out of service. Contact your seller. When operated on: • Emergency activity. Don't switch the power off till the activity is finished.

Device power supply

ScanDoc Compact gets the power supply from the car diagnostic outlet OBD-II.

Possible Reasons for Power Supply Absence:

- The adapter is put in to the car diagnostic socket incorrectly.
- The adapter output connectors are damaged.
- The car wiring before the diagnostic outlet is faulty.

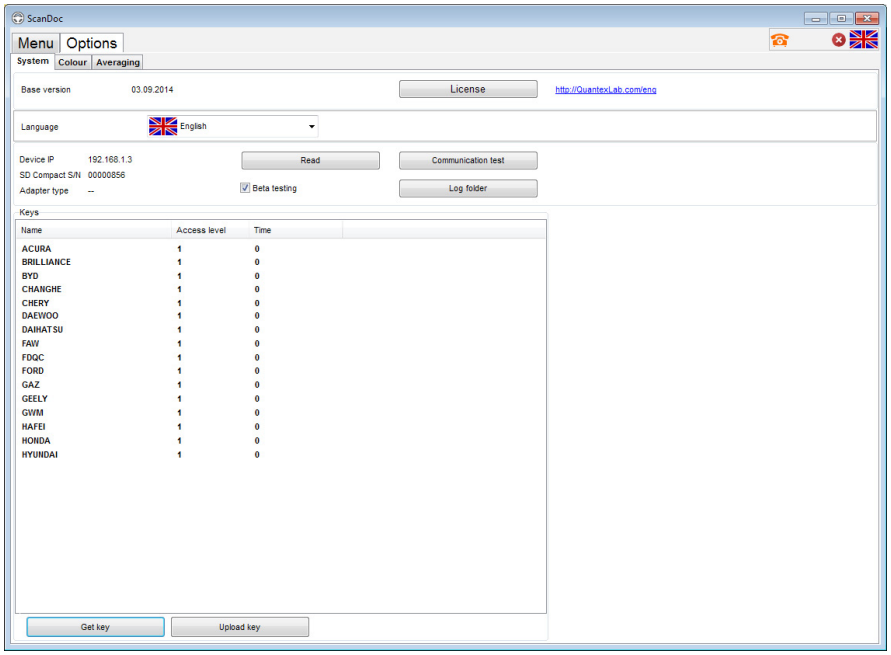
ScanDoc program description

Program settings

The section **Options** contains 3 subsections, connected to the device operation and program settings.

System

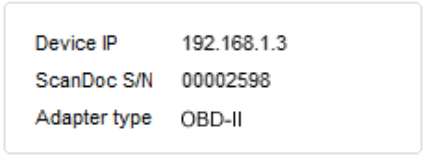
This tab is for the program system settings. It contains the basic information on the scanner connected (the serial number, type, IP-address, database version, etc.), and can update its firmware, run the connection test, view the log-files folder and activate the device.



Database version:

Make sure you use the latest database version. New program version can be always downloaded from the corresponding section at our site: www.quantexlab.com

Serial number:

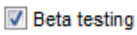


The serial number of the device is read. This number is used by dealers requesting when buying the new brands.

Select the button **Read** to read the device serial number. The program will also read and show the adapter type.

Beta-test

It's used by beta-testers. Brands and units are discovered, which haven't been fully tested yet. Errors can occur in these units.



Device operation

Connection test

The test checks if the device connected or not and its quality. When one presses the button, 2 types of tests are run.

- Ping-test checks if the device can be connected or not.
- Complete packages test sends the maximum length package and controls the surge protector and Ethernet controller properties.

IP-address change

It can assign a device an IP- address.

An IP-address in a device or in a program is not necessary to be changed as a rule. If there is a plant LAN, where IP-addresses have been already assigned, it's necessary to do it. Buttons for an IP-address change are shown by selecting the following keys: **Ctrl**+**Alt**+**Y**.

> **Beware! An expert is the only person to change the IP-address in the device.**

Log-files Folder

It opens the folder containing log-files.

Read

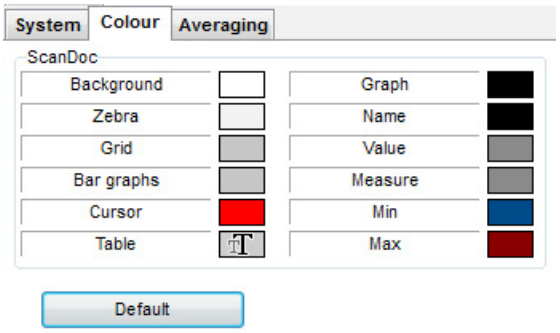
The device serial number, its type and list of open brands are read. Information on opened brands is saved to the device by activation.

Access Level

This is the level, giving additional opportunities when working with a brand (only the first basic level is being currently supported).

Color

In the tab Color one can change the text and diagrams colors displayed by the program.



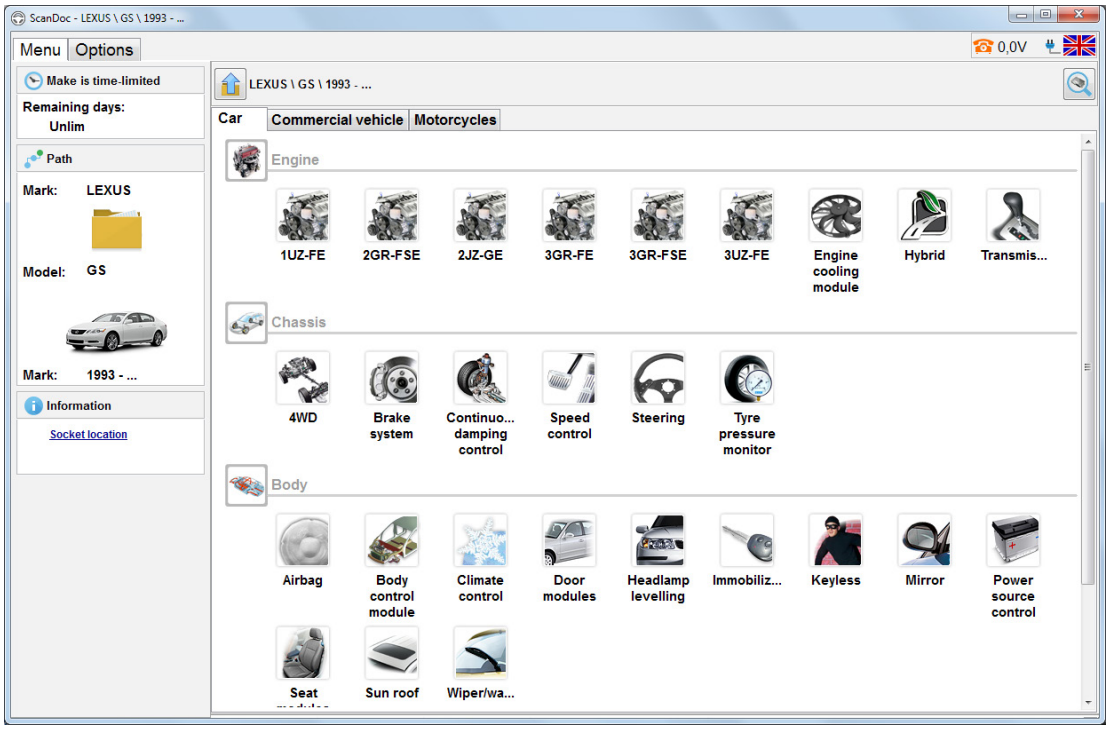
Averaging

The averaging mode engaging adds to the datastream diagram the averaged data. These data are displayed both in the digitalized and graphical forms. The average is calculated from operation start to the current moment.

The above sections are always accessible in the ScanDoc program interface whether the scanner is connected to the car or not. The rest program sections are displayed when the scanner is switched on and the connection to the car is made.

Main menu

To start the work, one should select the car and the system to work with. All the car brands are divided into regions (Europe, Americas, Asia, etc.). Please, double click the left mouse button on the icon and choose the option you need, for example, the car brand or the car model.



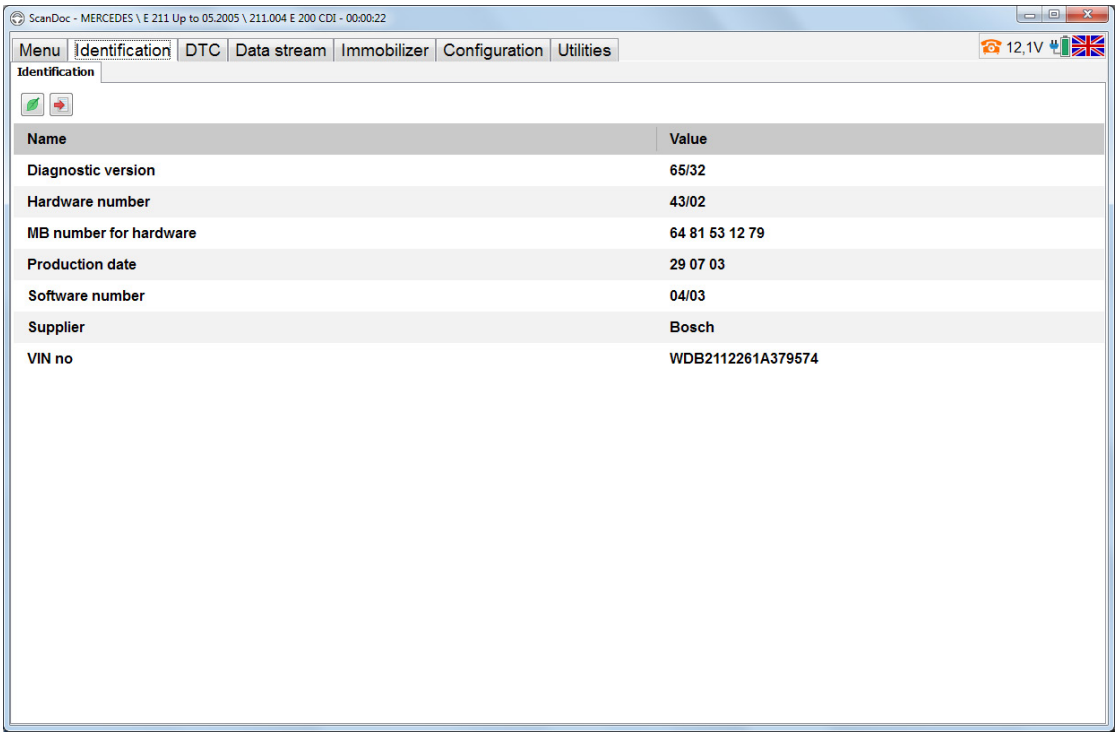
The right field of the “Menu” section contains information on car brands which have been activated, the left one contains the activation time and more detailed data on the car selected.

After the car model is selected, one can either search for units automatically or choose necessary ECU (Electronic Control Unit) manually.

Identification

After the connection to Electronic Control Unit (ECU) is made, the program will display the ECU identity. These data are necessary to determine the software and hardware versions, control units calibration versions. The identity data contain additional information, necessary to test this control unit correctly.

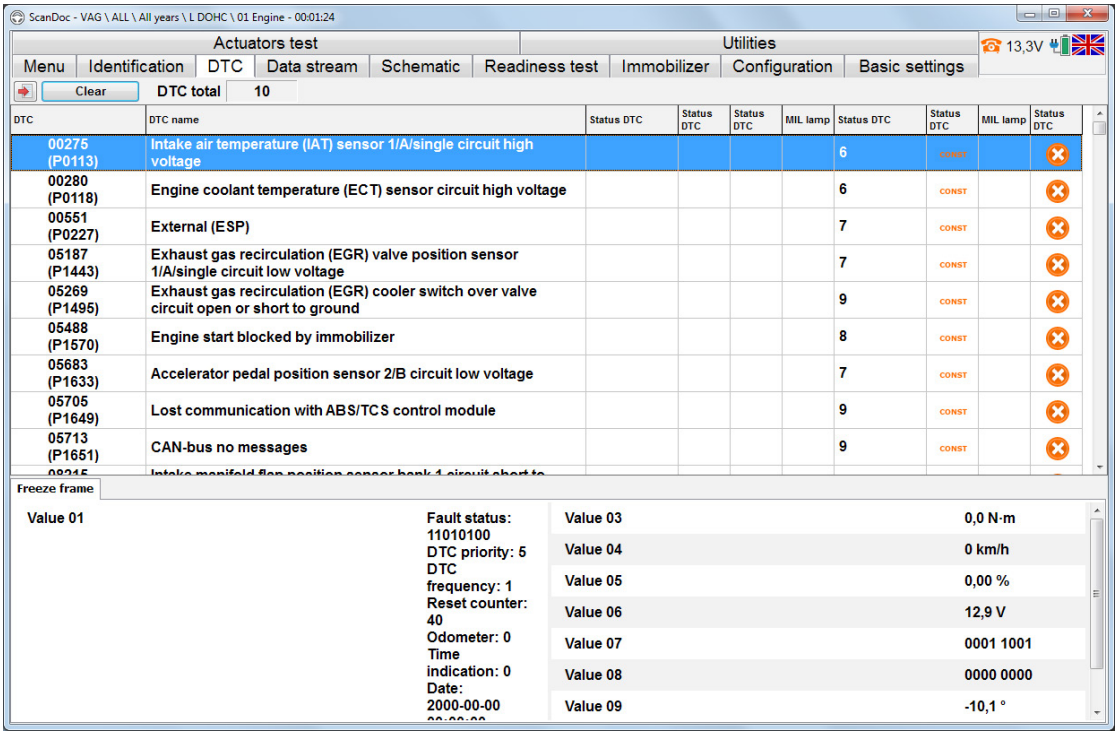
It may take from 0,5 to 15 seconds to get an ECU started depending on the Electronic Control Unit type or the diagnostic protocol. Some ECU-s need more time. It can happen because of both diagnostic protocol features or the car configuration reading by the scanner.



Beware! The program controls software versions within ECU and identities. If the program finds an unknown identity, the message will be displayed. Further operation is then not possible or limited as a rule. In some cases a user can continue operating being fully responsible for the risks.

Diagnostic Trouble Codes (DTC)

The tab “Codes” displays the error codes (DTC), which have been saved to the Electronic Control Unit.



Code and error name

The scanner reads out the error code and decodes it. An error can have numbering assigned by the manufacturer or by the OBD-II standard. The OBD-II standard also admits codes, assigned by a manufacturer. These codes start from the number **P1000.**

Errors in accordance with OBD-II standard:

Symbols	Description
P	P - Powertrain. B - Body. C - Chassis. U - Communication.
0	0 - Codes are assigned by the OBD-II standard. 1 - Codes are assigned by the manufacturer.
1	System or car component code.
1	Error code.
2	Error code.

Some manufacturer’s standards involve the error digital value.

Errors statuses

Most ECU-s can display current error status besides the error saving. Statuses show additional information on the code. For example, the code is active or it has been active but it’s currently not having the code.

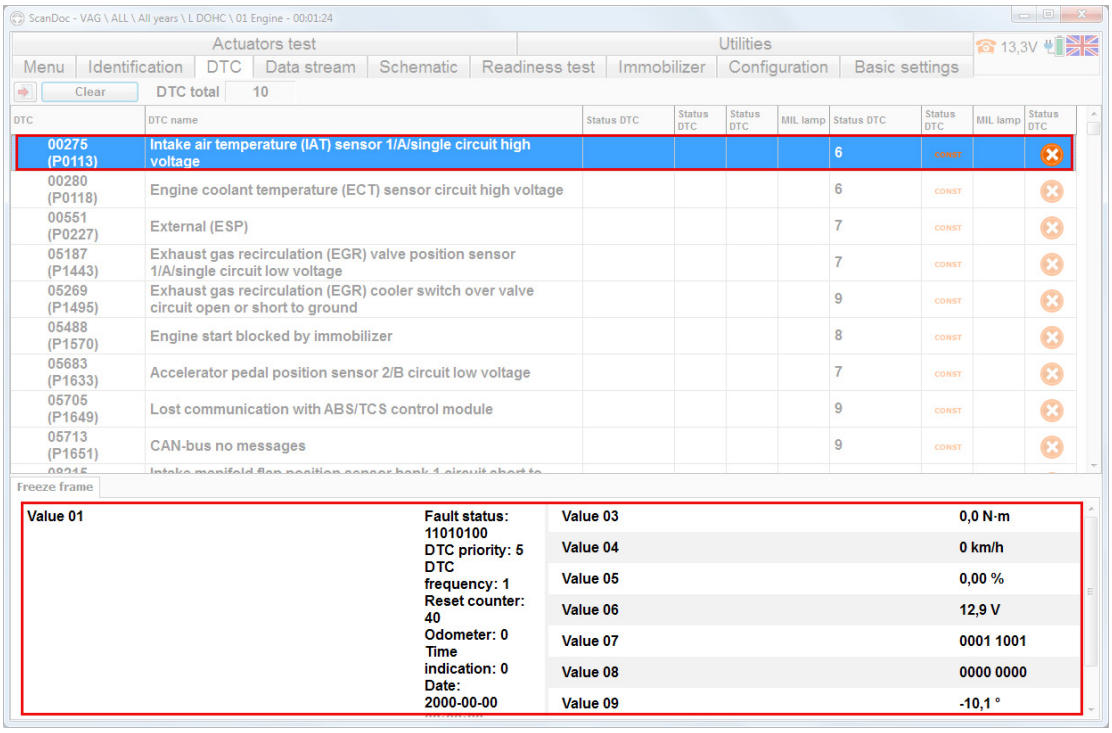
Saved data when there are errors (Freeze frame)

Some units support the Freeze frame mode. When an error appears, information on definite settings is saved to the control unit memory. This enables to determine conditions under which the error appears. Freeze frame is saved for each error separately.

To get the information, use left mouse button and select the error’s name. Freeze frame will be displayed for selected error.

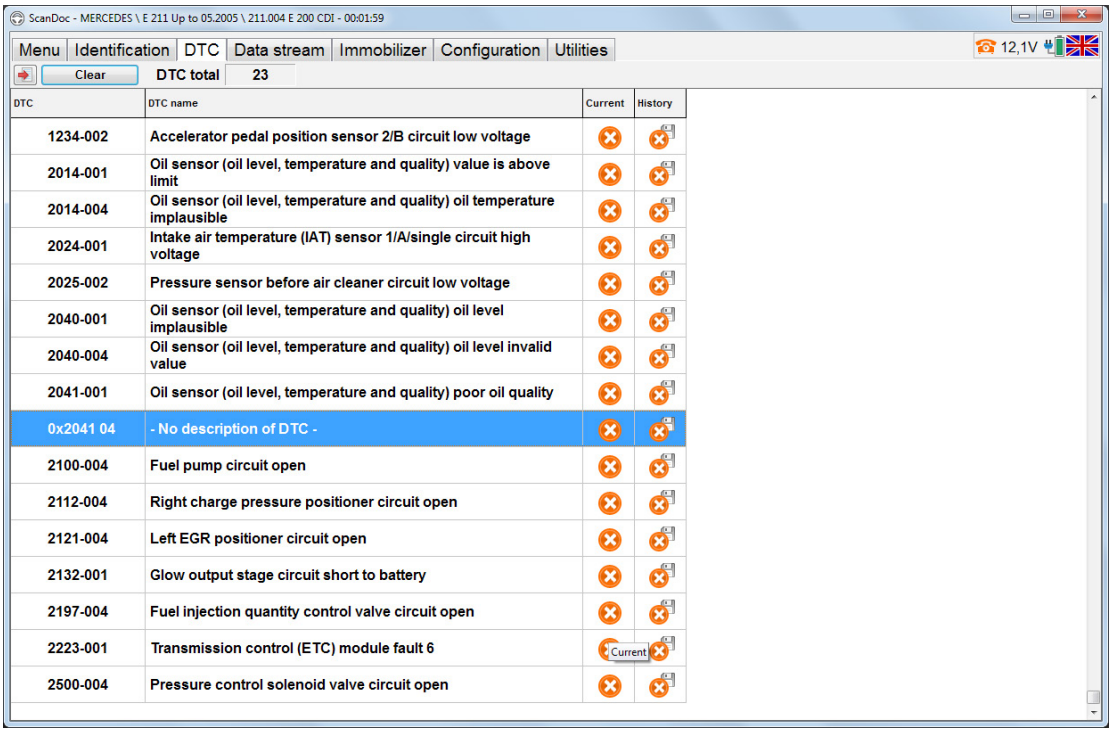
Some ECU-s can show several Freeze frames for one error code.

Data before, during and after DTC (Diagnostic trouble code) appeared are usually saved.



Additional Information

If the error code doesn't have any descriptions, please, contact support or consult the dealer to find the car repair information.



If there is an error additional description in the database, an icon with the question mark will appear before the number of this error. Use left mouse button to select this icon and you will see a window with the additional information.

Datastream

In the tab “Datastream” one can look through the current information, read out from the control units sensors.

The control bar enables to manage graphs and tests.

Control bar buttons description.

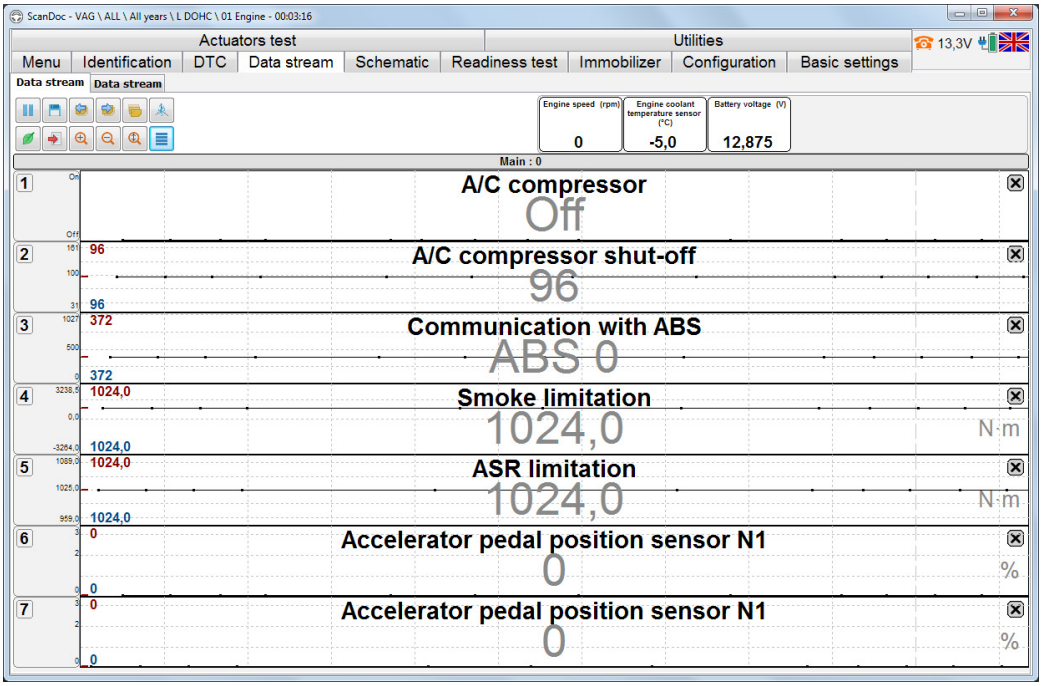
Button	Description	Hot key
	**Start / Stop.** Activates or stops the options cycling mapping mode Options cursory measuring can be made within this mode.	Space
	**Save data.** Options, displayed to the file in a temporary folder of Clients program.	Ctrl+S
	**Previous group.** Determines options previous group according to the list. Groups are generated out of the options in the alphabetical order.	Page Up
	**Next group.** Determines options next group according to the list. Groups are generated out of the options in the alphabetical order	Page Down
	**Install user group**. Calls the control box of options users group.	
	**3D diagram.**Enables to see how options change and influence one another.	
	**Zoom in by X.** Zoom in the oscilloscope picture scale by X.	“+”
	**Zoom out by X.** Zoom out the oscilloscope picture scale by X.	“-”
	**Automatic scale.** Sets the scale when the maximum option value isn’t showed outside the display.	Ctrl+A
	**Picture view.** View mode of one, two or all the options on the display. To install the active group, press Tab.	Ctrl+V
	**Add the protocol.** Adds current options values to the protocol.	Ctrl+R
	**Exhaust gas tester.** Activates the exhaust gas tester program.	Ctrl+G
	**Tests**. Tests list opening.	Ctrl+T

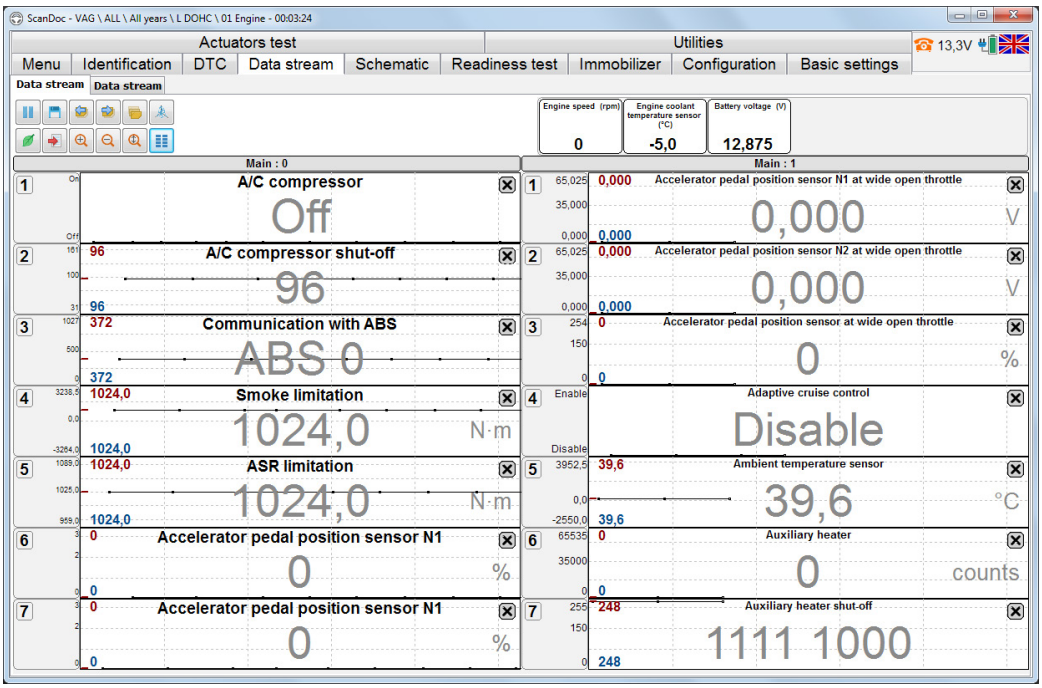
Picture view

Current options groups can be viewed differently:

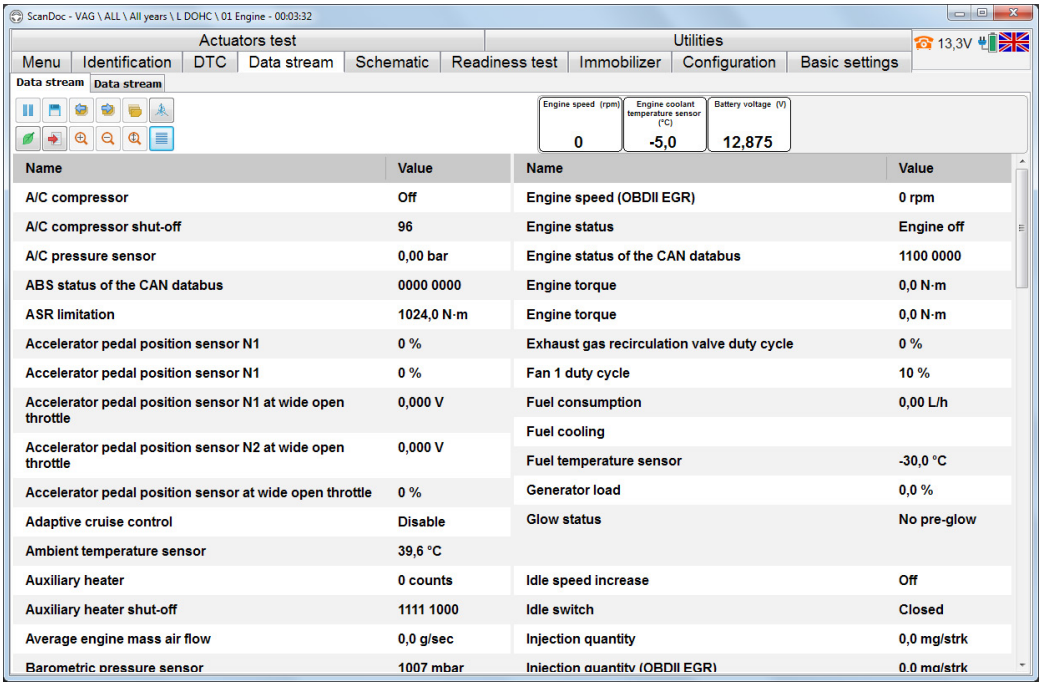
- One options group.
- Two options groups.
- All the options simultaneously.
- 3D diagram.

One or two option groups viewing. Options are displayed in the alphabetical order. Click the right mouse button on the graphs to open any options. Each option is displayed both in graphical and digital forms. Click the left mouse button on the option header and change the form of its view.





Picture view of all the options simultaneously enables to overview quickly.

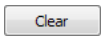


If a picture is 3D viewed, it's necessary to choose the axes to display the graphs.

If two options are indicated, there will be a 2D mode, if 3 options are indicated, then there will be a 3D mode. One can set minimum and maximum values on the axes for each option to view in detail.

Graphs data will be viewed as points linked together by lines.

Buttons Description of 3D Graphs Window.

Button	Description
	**Start / Stop** It activates or stops the options cycling mapping mode
	**Clear** It discards 3D picture. The graphs start drawing again.
	**Graphs axes transfer** It helps to transfer the graphs axes manually.
	**Graph turn.** It helps to rotate the graphs around the axes manually.
	**Zoom change** It helps to zoom in (with the left mouse button) or zoom out (with the right mouse button) the graphs size.
	**Changes reset.** It restores all the graphs settings defaulted. It adds the graphs to the protocol.
	**Add to the protocol.** It adds the graph to the protocol.

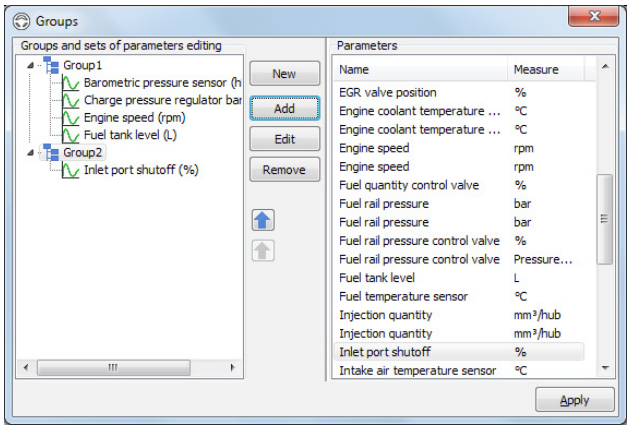
User’s data sets

The program enables the user to make his own list of options. It can be set by selecting **Install / Set a user’s group.**

Buttons in user’s group window description

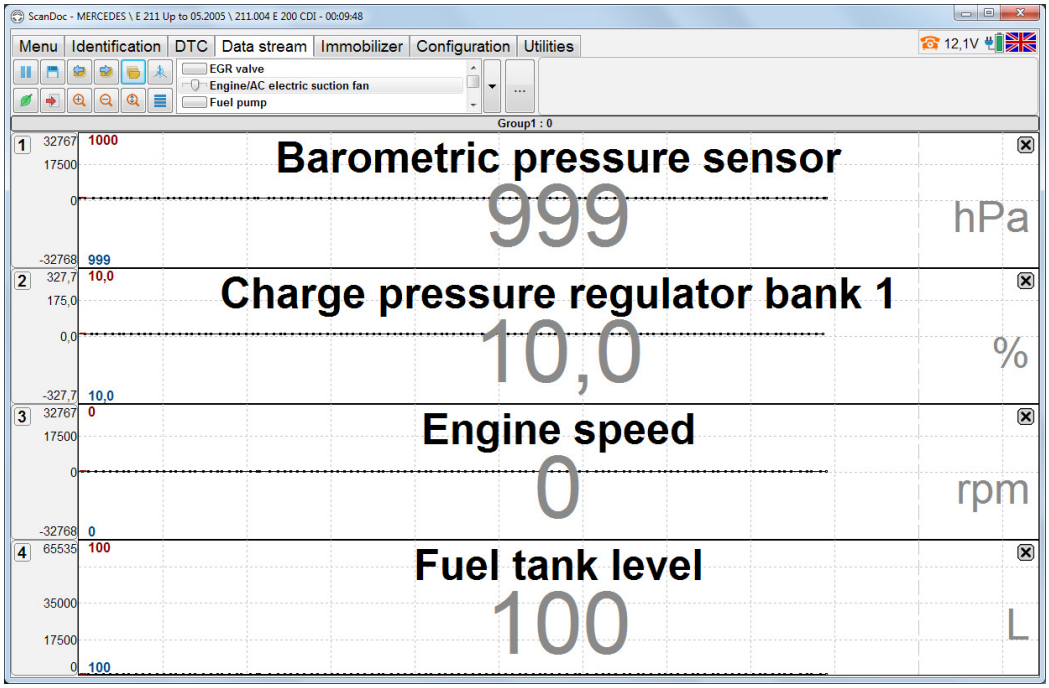
Button	Description
New	**New.** It helps to create new user’s data set.
Add	**Add.** It adds selected option to user’s data set.
Edit	**Edit.** It helps to edit the user’s group.
Remove	**Delete.** It deletes selected group or an option.
	**Up.** It moves the current group or an option by one position up.
	**Down.** It moves the current group or an option by one position down.

The window is divided into 2 parts. Options groups set are displayed in the left-hand window part, the list of all the options currently available is displayed in the right-hand window part. If the option, that is included into the group is missing in the current electronic control unit (ECU), then it’s grayed out.



Those options included into the group and are currently being available in the electronic control unit (ECU) will only be displayed by data sets viewing.

If the number of options, available in the group are more than 7, then subgroups will be created automatically by viewing this group.



Use the buttons **Previous Group** and **Next Group** or the menu to select groups, detected by default and user's groups. To open the menu, use right mouse button and click the graphs headings.

If Averaging mode is on in the settings, then additional options, showing options averaged values will be displayed in the datastream.

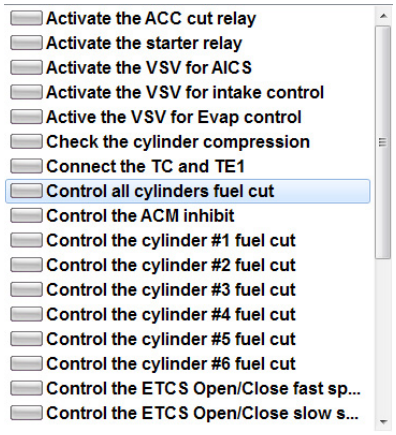
Note: The list is saved to the program settings in the file groups.xml. This file is necessary to save to restore user's groups settings in the future, if ScanDoc program is to be deleted.

Note: If ECU-s operate according to ISO -9141, KW -71 and KW-1284 protocols, each diagnostic option is requested by the scanner separately. Each request is processed about 0,1 sec. Thus it will take about 1 second to display 10 options. The more options are displayed, the more time it will take to display them.

Actuators tests

Many control units enable to control the actuators (spray jets, engines, solenoid valves) temporarily to check their operability. These tests are done considering current data to observe the system or the actuator responses to action created. The list of actuators tests depends on the definite ECU model.

To control the actuators, change to the mode of current data viewing. Then select an actuator name. If there is a scrollbar in the window, then not all the tests are displayed. Please scroll to see them.



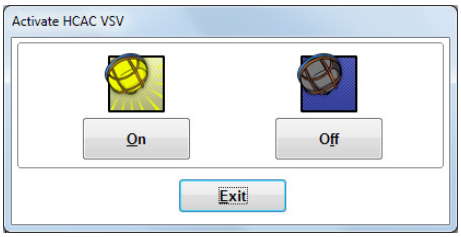
Selecting the button Tests there is a drop-down menu with the list of all the tests available. To do the test, select the button ..., that is located to the right.

When an actuator is selected, it can be controlled using the buttons or control devices.

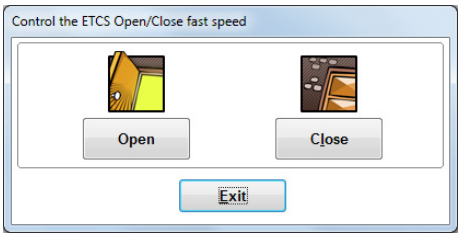
To make it easier, some options current values are displayed sometimes.

Each actuator is tested in its own way. The test type depends on an actuator type:

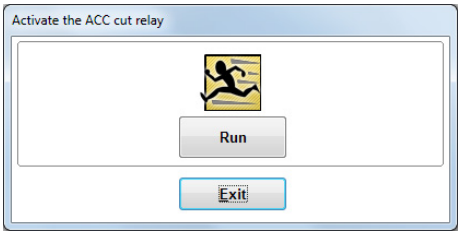
1. Switch on / Switch off.



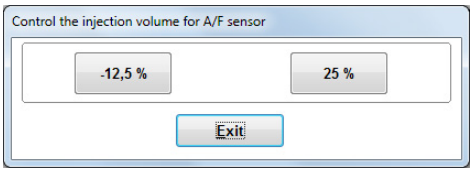
2. Open / Close.



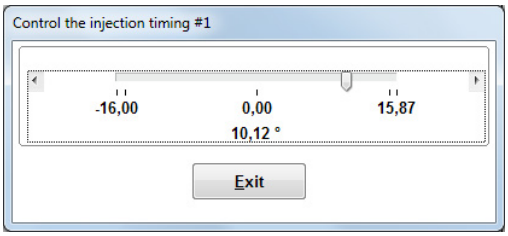
3. Start.



4. Definite option setting.



5. Controlling.

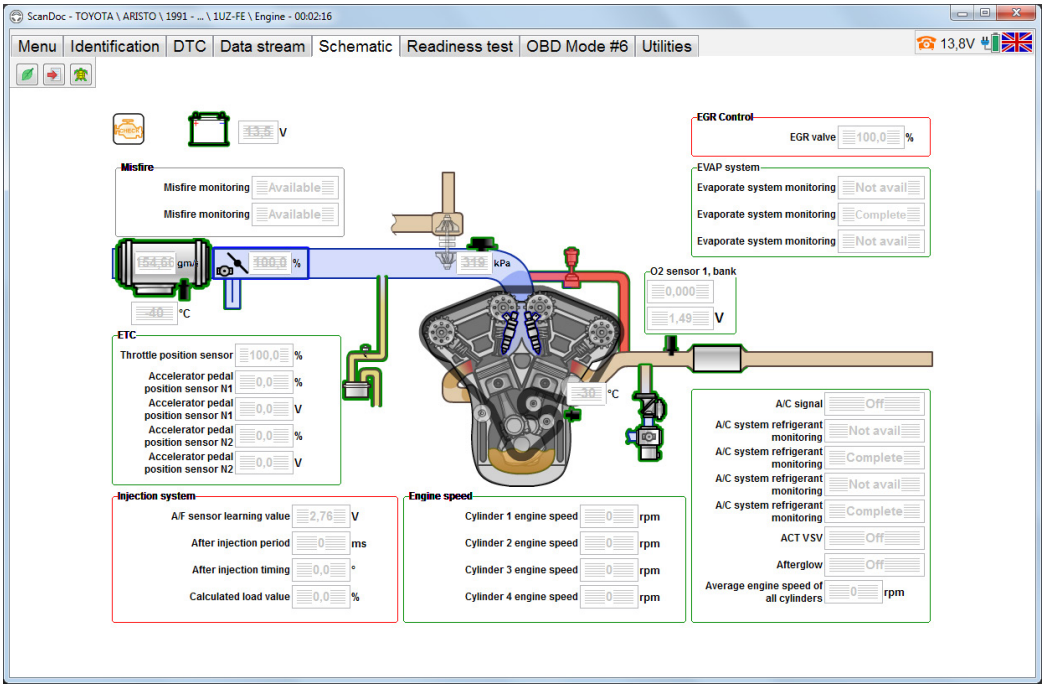


If we relocate the focus to the control device and select the button spacebar, the window with a digital input will be shown. It facilitates the laptop operation when it's difficult to use the mouse.

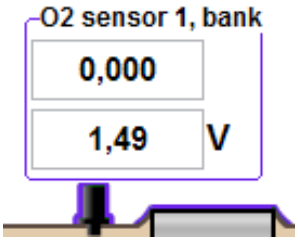
Scheme

There is an alternative view of data sets in the form of the graphical scheme of an engine control in the program. Information in this mode is presented in graphic form and it's more convenient for operation.

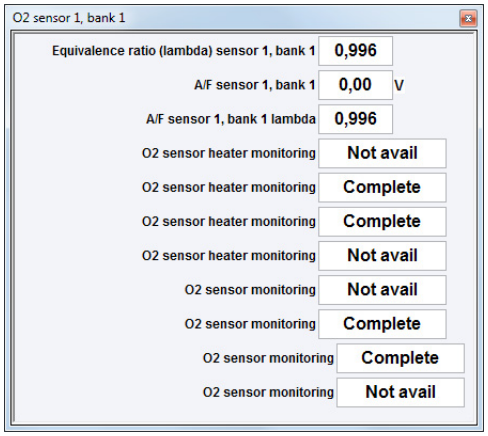
All the diagnostic options are divided into the groups (e.g. "Injection", "Ignition" etc.). Each group is in the definite place depending on an engine type. There are also some objects (e.g. MAF, temperature sensors etc.). Every object can have its own option and be connected to the definite group.



By the mouse is over an object or a group, their edges are highlighted in dark blue. It helps if the group of options is close to the object.

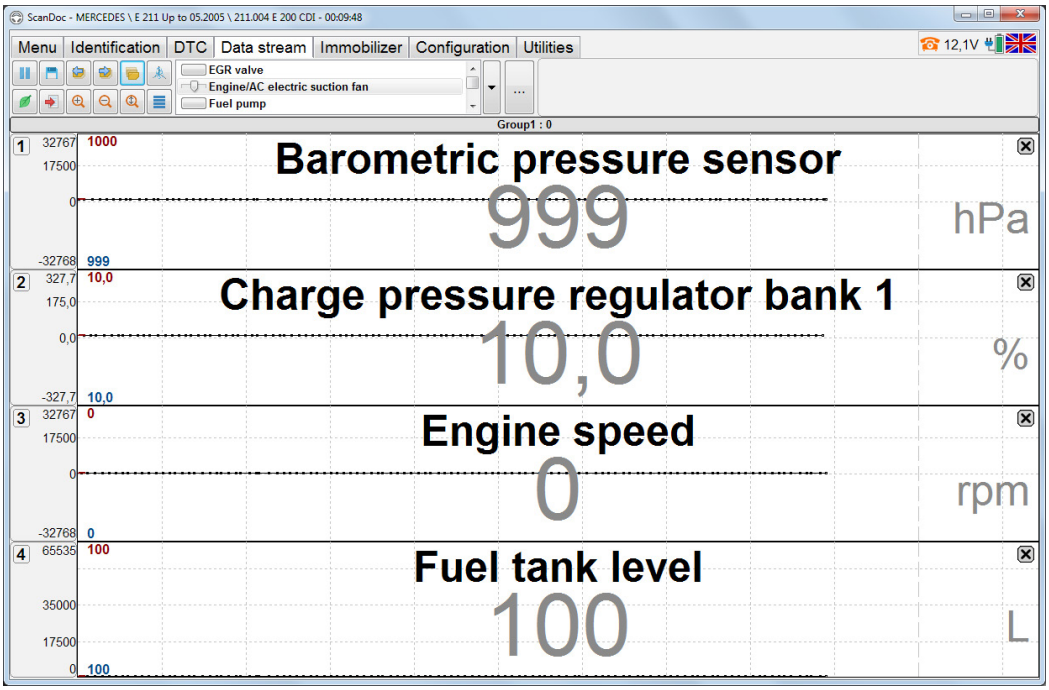


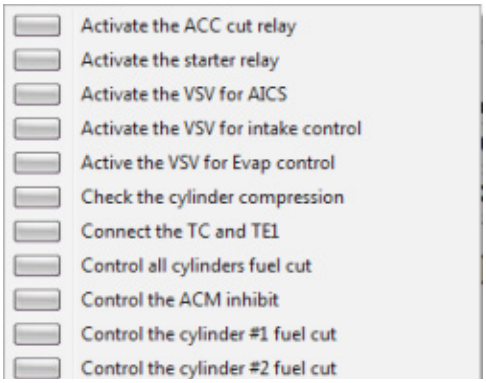
Not all the group options can be displayed. If a group or an object have green edges it means there are options not shown on the display. Click an object or a group with the left mouse button to see the options.



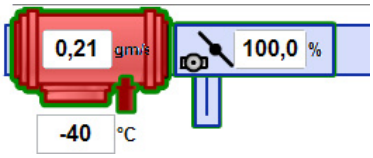
One can see the option value change with time clicking left mouse button on the option digital value. A new window with a diagram will appear. Every time one clicks on the digital value the new diagram is being added. If one clicks the left mouse button on the digital value with Ctrl key pressed on the keyboard, it's possible to highlight several options. After the key Ctrl isn't being pressed any more, a window with several diagrams, displaying options values will appear.

Clicking right mouse button on a free field of the program window, a test menu can be opened. Clicking right mouse button on the options groups, one can see a list of tests, belonging to this very group.



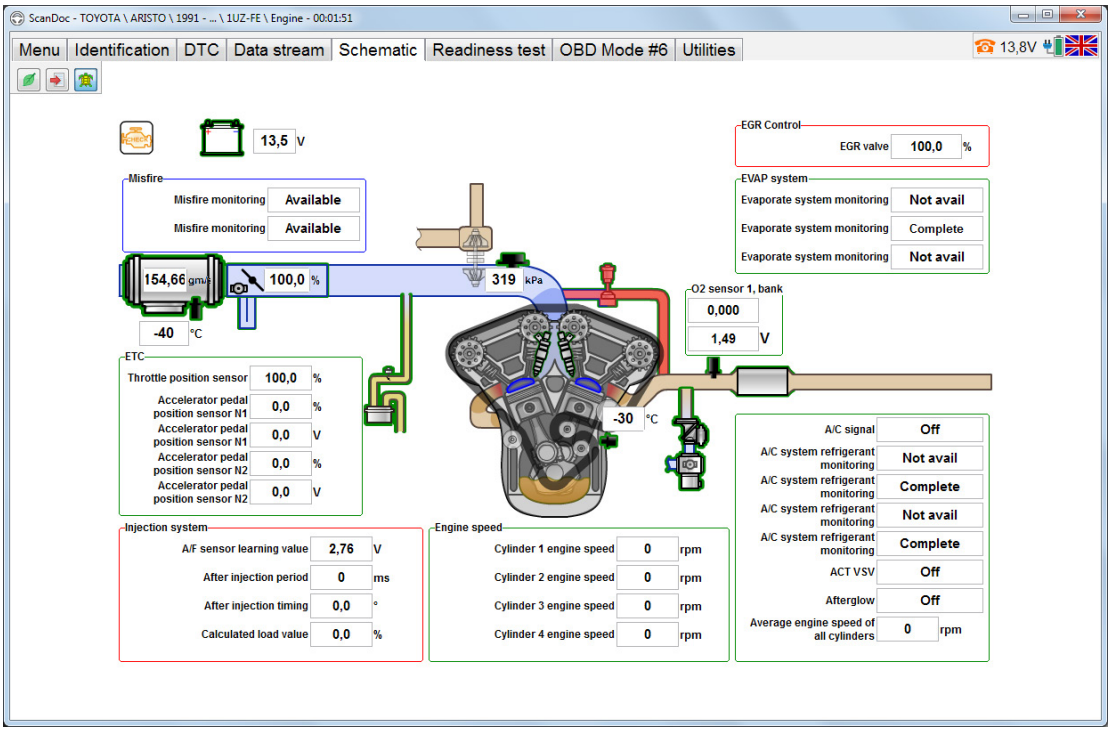


If an object starts flashing on and off redly it means the diagnostic trouble codes (DTC) have been detected in this system.



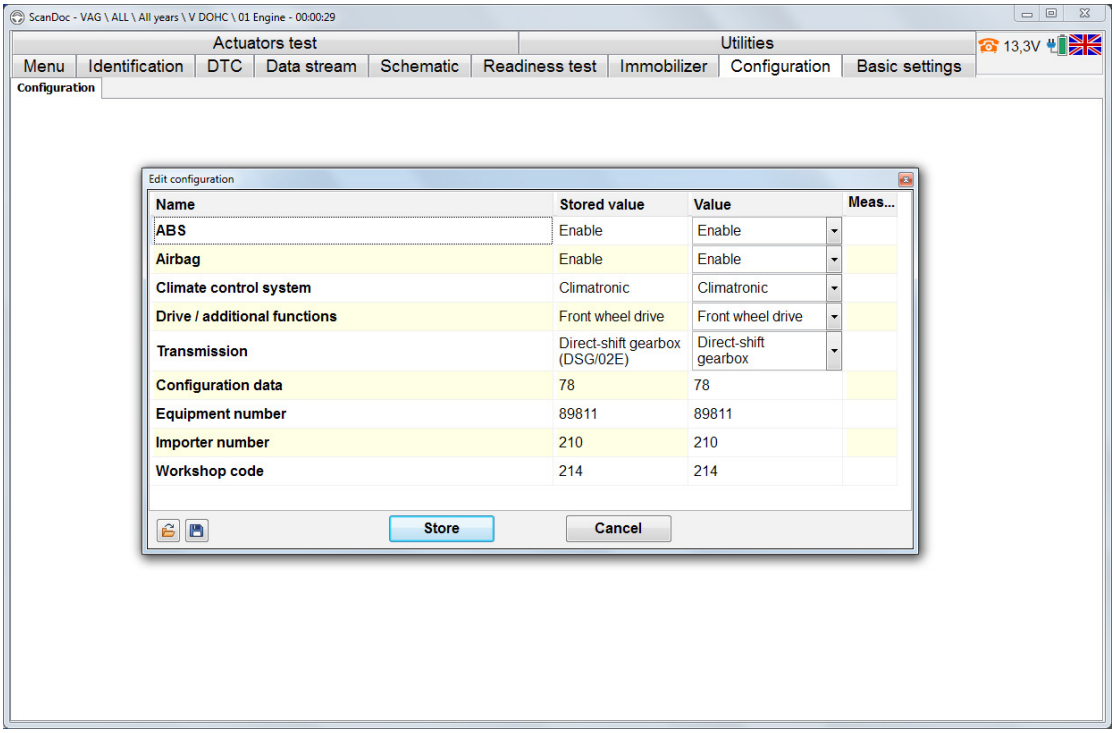
All data simultaneous display mode

Not an option is displayed by default. Use left mouse button on the number of the option to activate this option. The data will start displaying. The more options, the slower they will be displaying. To make it easier to operate in the alternate mode, all data simultaneous display mode have been installed in the ScanDoc program. It's used when the speed of output isn't important but the entire picture is to be reflected. In this case all the options can be displayed, by selecting the button with a **Turtle**. It can take several seconds to update the display.



Configuration

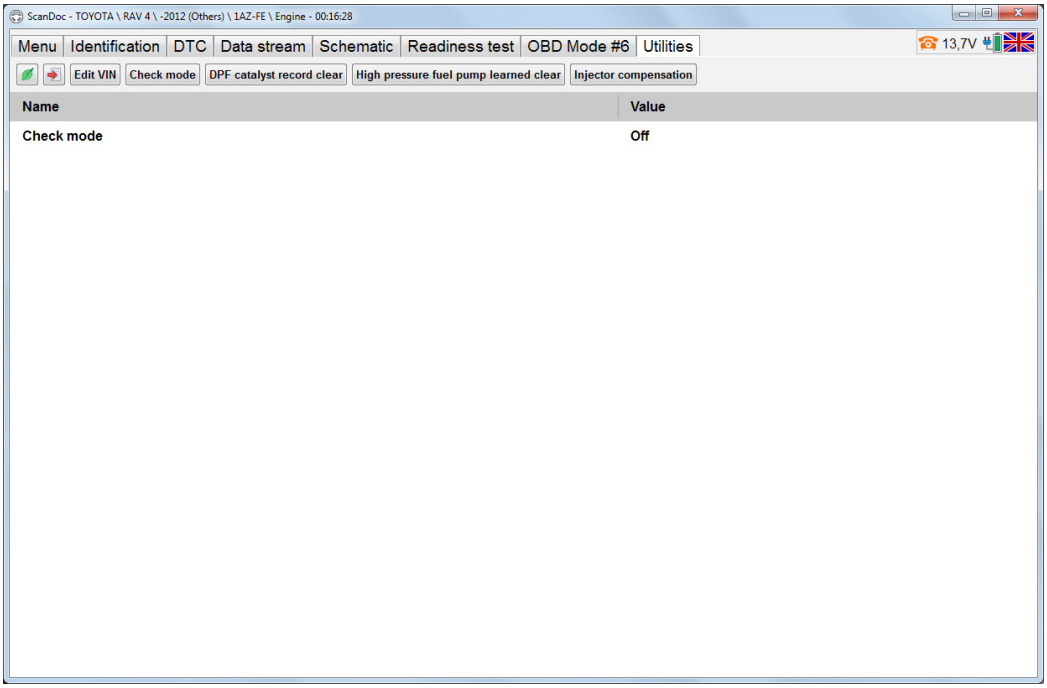
Electronic Control Units (ECU) manufacturers make universal units to reduce the number of ECU-s and software variants. These universal units are configured for a definite car trim level. Configuration is often called coding. ScanDoc scanner enables the user to read the coding out and change it.



Beware! It's strongly recommended that the configuration should be read out to the file and saved to the PC before changing it.

Utilities

Special ECU-s functions are in the tab “Utilities”.



Settings Reset

Engine control system adjusts to the change of sensors parameters. If new spare parts are mounted, corrections saved should be cleared. To do it please reset the settings.

> **Attention! If you aren’t sure about a function, please consult the corresponding manual before its activation. It should be realized the engine cannot operate if the settings are reset and MAF is partially defective.**

Engine oil change interval indicator reset

It’s done by oil change. Reset procedure differs from one manufacturer to another. It can be just one reset button or programming of run interval before the next warning appears. For more detailed description refer to vehicle maintenance documentation.

Hot keys

“Hot” keys list

Key combination	Description
Page Down	The next data set is selected.
Page Up	Previous data set is selected.
Space	Pause in the mode of datastream view. It opens the window with digital input in the tests on regulators. It enables to change the regulator value without using any mouse.
Ctrl+S	To save the data.
Ctrl+G	Exhaust gas tester program run.
Ctrl+R	Options transfer to the program, protocol.
“+”	Zoom in by X.
“-”	Zoom out by X.
Ctrl+E	It makes a screen shot and helps to enter a comment. Information is saved to the folder **Error$**. It’s to be done for helpdesk-if the scanner shows incorrect data or a user would like to point out some uncertainty in the program.
Ctrl+A	Automatic zoom setting by Y.
Ctrl+T	Actuators tests run.
Ctrl+V	Selection of options view mode.
F1	Help Topics run.

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