QUANTEX

ScanDoc
COMPACT

Instruction Manual

Contents

Introduction

Use

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

Functionality

- Reading and decoding of error codes.
- Error reset.
- Display of current data both in digital and graphical formats.
- Activation of actuators.
- Systems identification (controlling units).
- Reading and programming of immobilizer device.

Available Interfaces

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

Hardware specification

- CPU: 32bit, 72 MHz.
- RAM: 32 MB.
- Protocols hardware support: KL-Line, 2xCAN, VPW, PWM.
- 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 .

Safety precautions and warnings

Please read this instruction manual before the first use of the device and make sure that you are familiar with the information of this instruction manual. The manufacturer is not responsible for any accidents involving injuries except for accidents which have been caused by manufacturing defects.

Poisoning

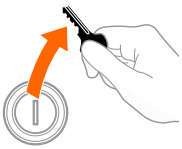
Test an operative vehicle in a well-ventilated work area. The engines emit carbon dioxide, an odourless gas with slow reaction time which can cause serious injuries or death.

Personal injury

Apply the hand break before using the device. Use break shoes for front drive vehicles, as the hand break does not block the front wheels.

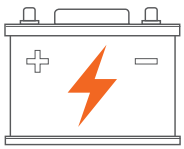
Test during driving

Do not test the car while driving. Carelessness may lead to death. One person must carry out the test while another person is driving the vehicle. Do not place a laptop or a tablet PC ahead when driving a car. The laptop may cause injuries if a safety bag comes into action. Do not scan the safety bag system SRS while driving the car as the safety bag may be triggered unintentionally.



Electrical elements

Unless other special instructions are given, always switch off the ignition by connecting and disconnecting electrical elements.



Battery energy storage (BES)

Do not place the device onto the BES of the vehicle as this may cause short circuits of the battery resulting in personal injury as well as defects of the device and the battery.

Installation

For an initial operation, proceed as follows:

Step 1 - Make sure your PC meets the system hardware requirements.
Step 2 - Install the ScanDoc program on 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 XP / 7 / 8 / 10
- Internet (to update the adapter firmware and to unlock firmware for new cars).
- 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

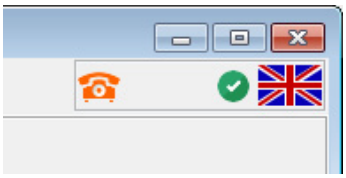
1. Connect **ScanDoc Compact** to the car diagnostic outlet OBD-II.

2. Connect to the PC via the wireless network Wi-FI. Select **S1234** (1234 - serial number of your scanner) in the Wi-FI connections list available on the PC.
3. Enter the password for the connection. The password looks like **scandoc1234**, where 1234 is the serial number of your scanner. (For example, if your scanner has a serial number 6052, the password is **scandoc6052**).

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 using a router

The following connection is used, if it is necessary to work with several devices via wireless connection or if the wireless connection has been already set up according to your requirements. In this case you may need to change the 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.

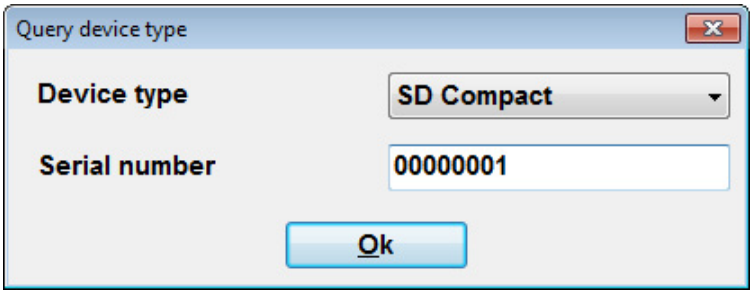
To activate, proceed as follows:

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 has been 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 in the adapter, the program will reload ScanDoc Compact automatically.

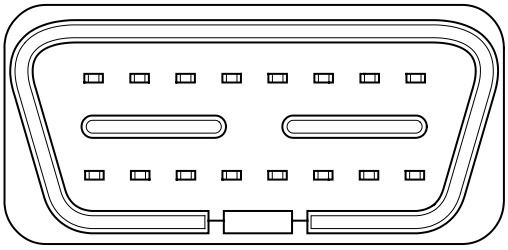
If a PC cannot be connected both to the Internet and to the scanner ScanDoc Compact simultaneously (e.g. the PC has an Internet access via Wi-Fi router), please do the following:

1. Do not connect the PC to the adapter ScanDoc but to the Internet. Start the ScanDoc software. In the software, go to **Options** and click the button **Get key** (or the button **Activation via the Internet**). The following message appears:

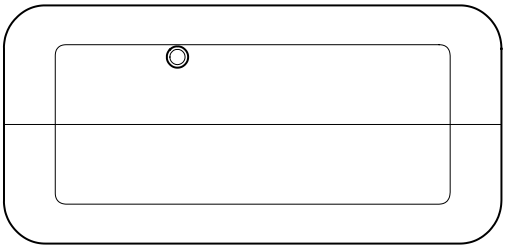


2. Select the adapter type (ScanDoc Compact) and enter the serial number of your ScanDoc adapter in the window. If the program and the remote server are connected successfully, there will be a message saying the key has been received successfully.
3. Disconnect from the wireless network of the router and connect to the adapter **SXXXX** (where XXXX is the serial numer of the adapter).
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 the ScanDoc Compact.

Actuators



Connector view.



End view.

On the back is 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.

Indicator (light) condition	Description
	**When the light is on:** The integral hardware- based test is run. The red indicator should go off in a while after it has 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, you should activate the device. • If the indicator **flashes on and off** and does not go off, then the unit might be defect. Please contact your seller. **When operated on**: • Emergency activity. Do not 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 a lack of power supply:

- 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 defect.

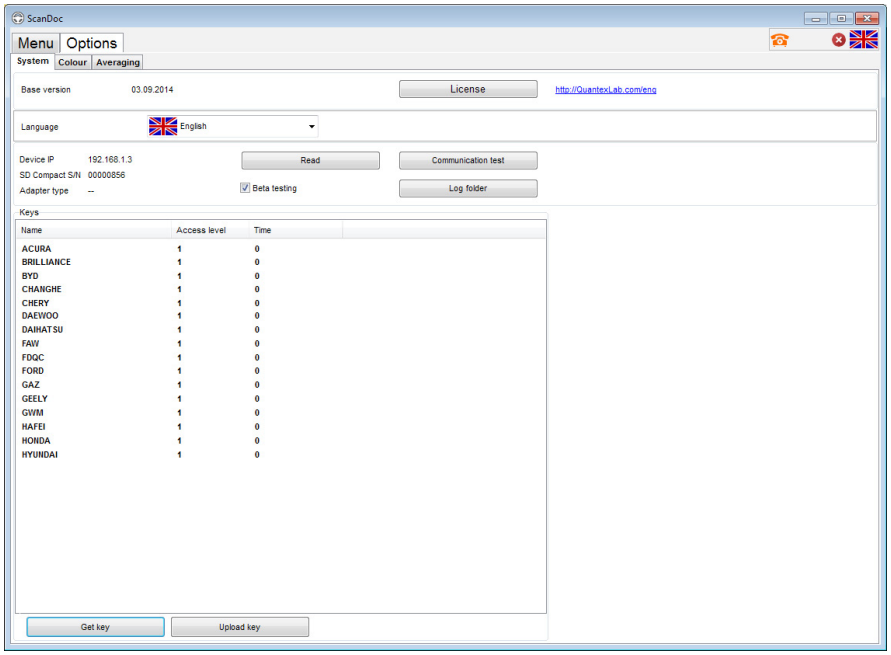
ScanDoc program description

Program settings

The section **Options** contains 3 subsections where several software settings can be made.

System

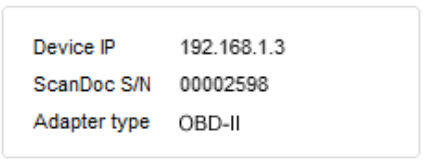
This tab is for the program system settings. It contains the basic information on the scanner connected (the serial number, type, IP-address, database version, etc.), and can update its firmware, run the connection test, view the log-files folder and activate the device.



Database version:

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

Serial number:

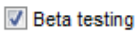


The serial number of the device is read. This number is needed when ordering new car brands with your dealer.

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

Beta-test

This is used by beta-testers. Brands and units which have not been fully tested yet are released. Errors can occur in these units.



Device operation

Connection test

The test checks if the device is connected or not and its quality. When clicking the button **Communication test**, two types of tests are run.

- The Ping-test checks if the device is connected.
- The complete packages test sends the maximum length package and checks the firewall and the network card.

IP-address change

An IP-address can be assigned to a device.

As a rule, it is not necessary to change an IP-address in the device or in the software.

This is only necessary if IP-addresses are assigned statically in your network. The buttons for an IP-address change are shown by selecting the following keys: **Ctrl**+**Alt**+**Y**.

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

Log-files Folder

The folder with the log-files opens.

Read

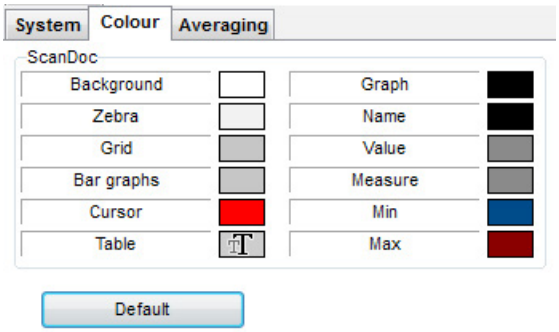
The device serial number, its type and list of open brands are read. Information on opened brands is saved to the device by activation.

Access Level

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

Color

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



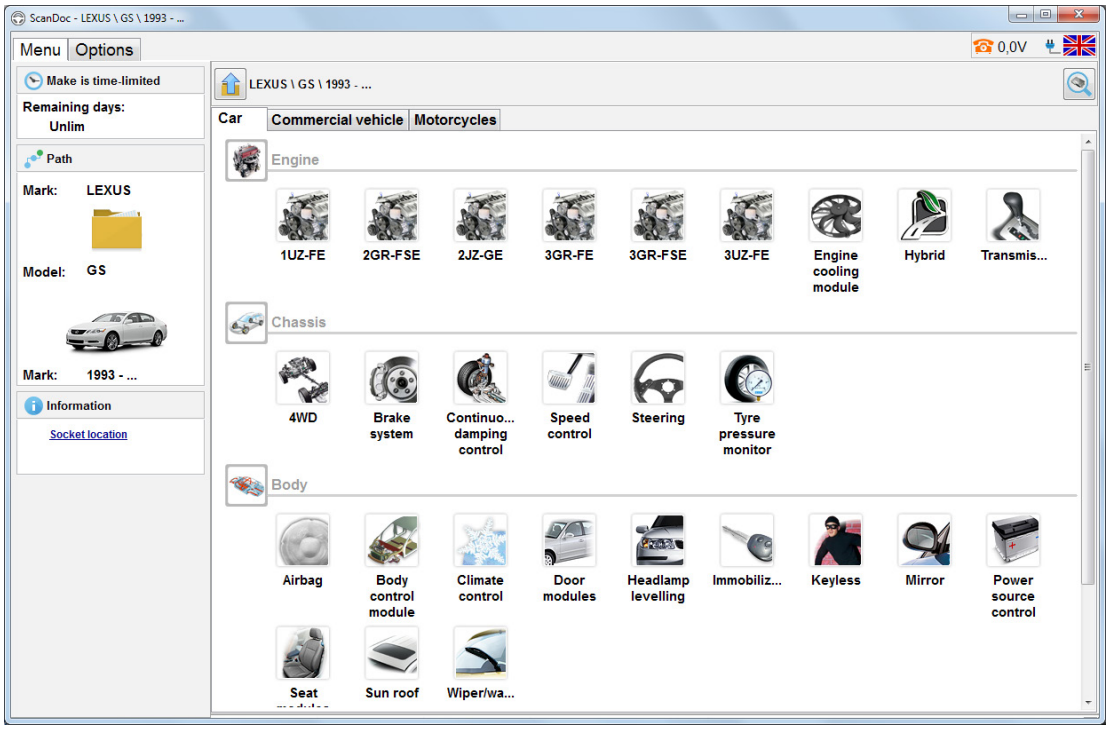
Averaging

The activation of the averaging mode adds the averaged data to the datastream diagram. These data are displayed both in digitalized and graphical form. The average is calculated from the 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, select the car and the system you want 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.



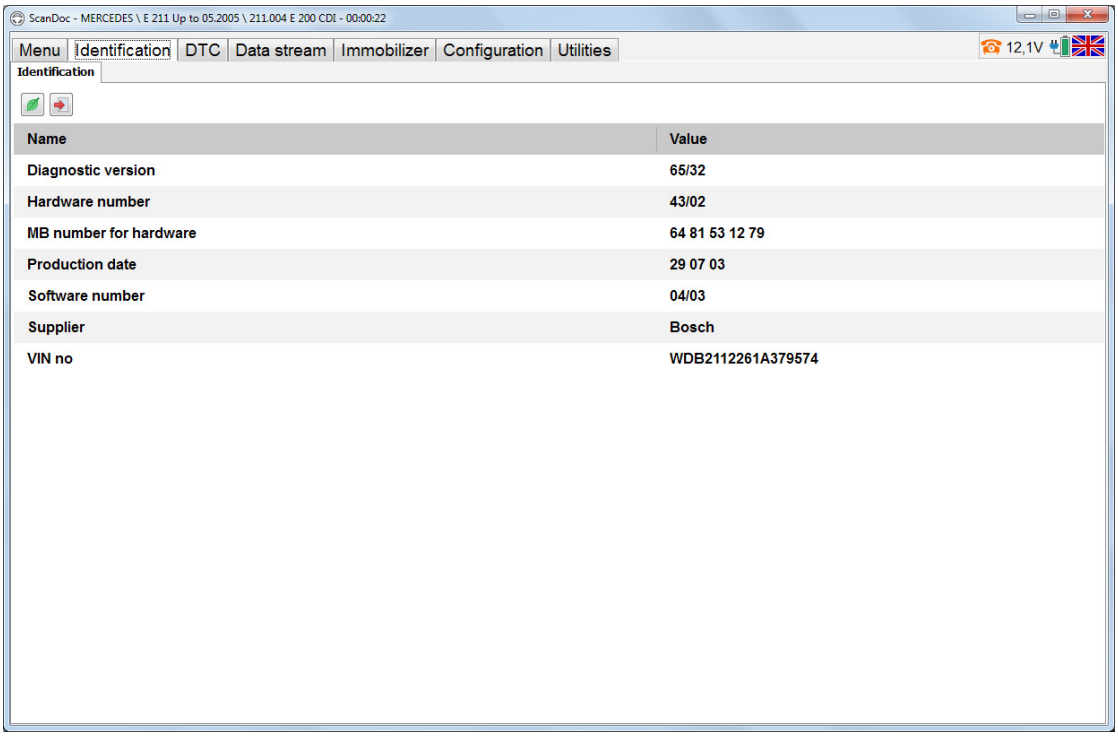
The right field of the “Menu” section contains information on car brands which have been activated, the left one contains the activation time and more detailed data on the car selected.

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

Identification

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

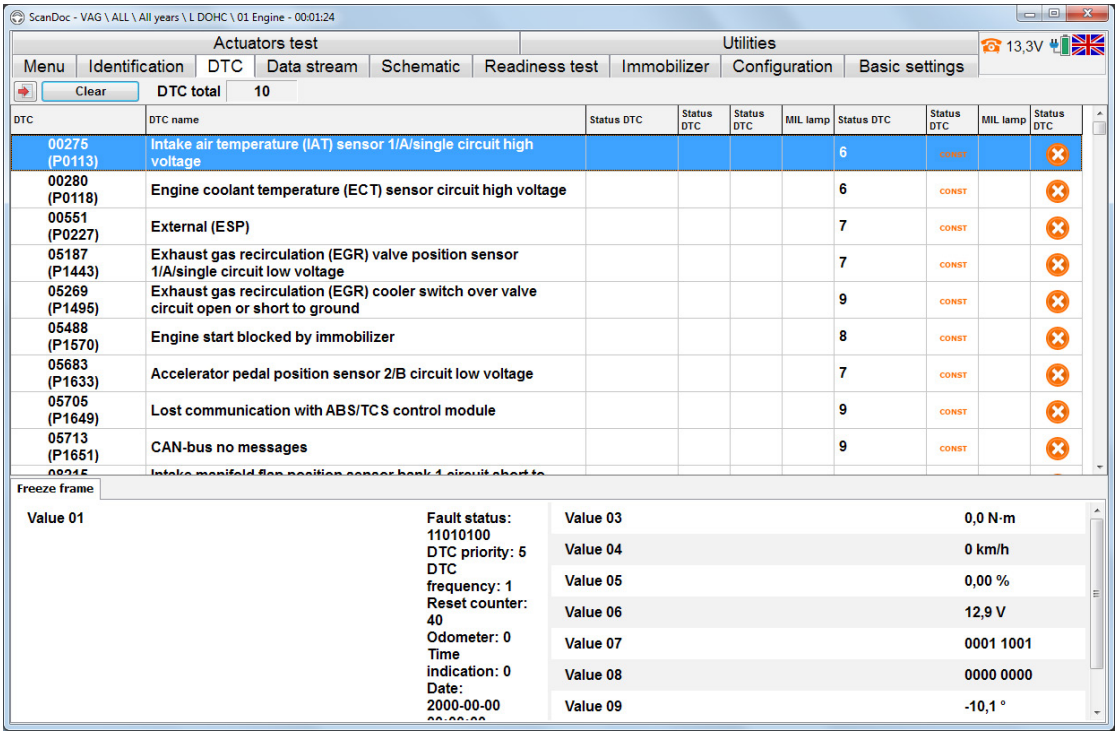
It may take from 0.5 to 15 seconds to get an ECU started depending on the Electronic Control Unit type or the diagnostic protocol. Some ECUs need more time. It can happen because of both diagnostic protocol features or the car configuration reading by the scanner.



Attention! The program controls the software versions and the identifiers of the ECU. If the program detects an unknown ECU, a corresponding message will be displayed. Further operation is then not possible as a rule. In some cases the 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 a number assigned by the manufacturer or by the OBD-II standard. The OBD-II standard also allows codes assigned by a manufacturer. These codes start from 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.

Standards of other manufacturers contain numbers only.

Errors statuses

Most ECUs can display the current error status in addition to the error code. The status gives additional information on the code e.g. if the code is active or not.

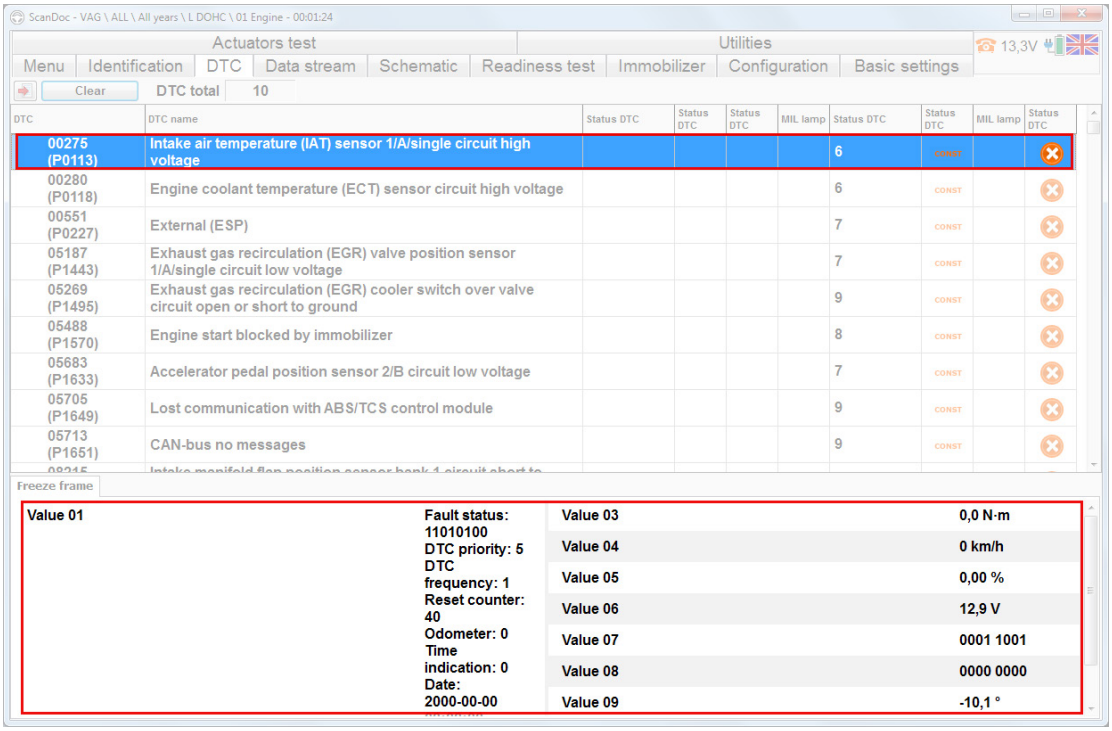
Saved data when there are errors (Freeze frame)

Some units support the Freeze frame mode. When an error appears, information on certain parameters are saved to the memory of the control unit. So it is possible to determine the conditions under which the errors appear. The Freeze frame is saved for each error separately.

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

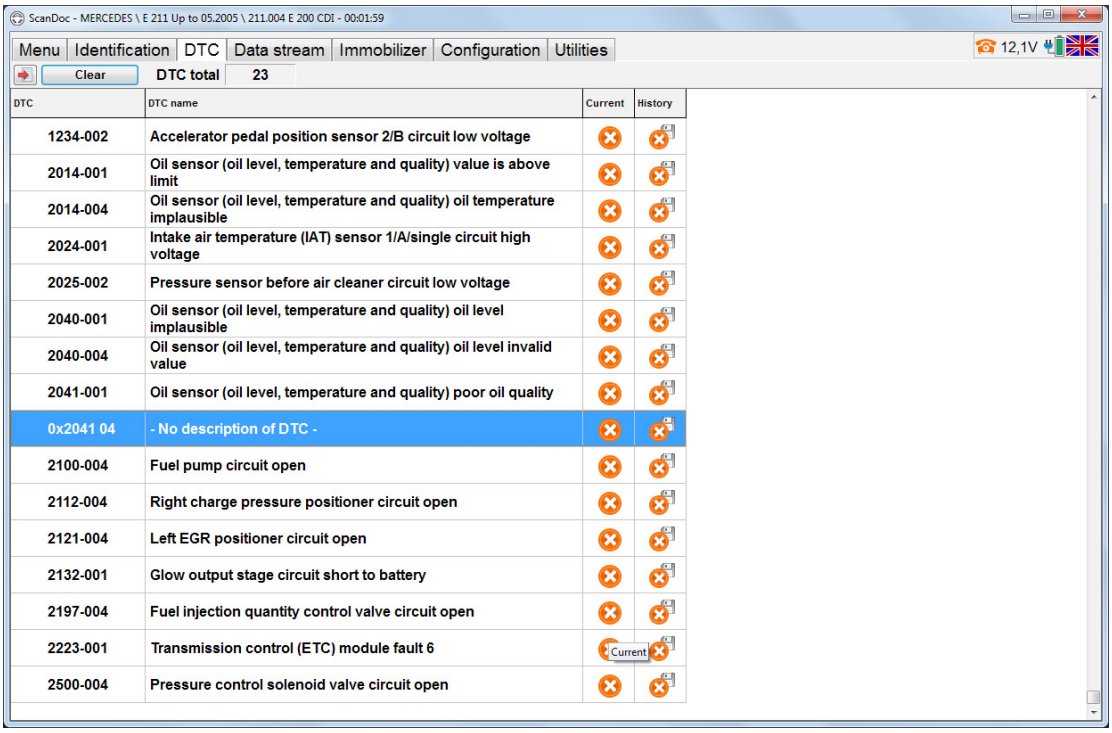
Some ECUs can show several Freeze frames for one error code.

In this case, the data before, during and after the DTC (Diagnostic trouble code) appeared are usually saved.



Additional Information

If the error code does not have any descriptions, please contact support or consult the dealer to get the information for the car repair.



If there is an error additional description in the database, an icon with a question mark will appear before the number of this error. Use the 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.

You can control graphs and tests in the control bar.

Control bar buttons description.

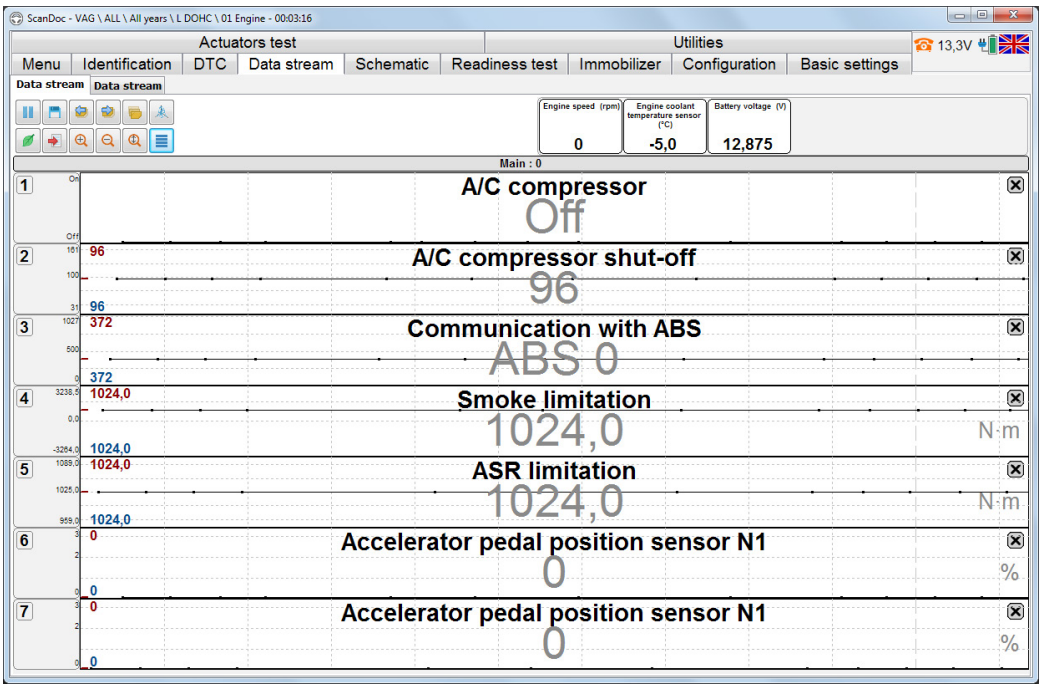
Button	Description	Hot key
	**Start / Stop.** Activates or stops the cycling mapping mode. In the stop-mode the parameters can be changed with the cursor.	Space
	**Save data.** Saves the parameters to the file in the temporary folder in the clients program.	Ctrl+S
	**Previous group.** Shows the previous group of parameters from the list. The parameters are grouped in alphabetical order.	Page Up
	**Next group.** Shows the next group of parameters from the list. The parameters are grouped in alphabetical order.	Page Down
	**Create/select user defined group.** Shows a window with user defined groups of parameters.	
	**3D diagram.** Displays a 3D diagram showing the relation and interdependence of the parameters.	
	**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 automatically.	Ctrl+A
	**Picture view.** View mode of one, two or all parameter groups in the display. To select the active group, press Tab.	Ctrl+V
	**Add the protocol.** Adds the values current parameters to the protocol.	Ctrl+R
	**Exhaust gas tester.** Activates the exhaust gas tester program.	Ctrl+G
	**Tests**. Opens the test list.	Ctrl+T

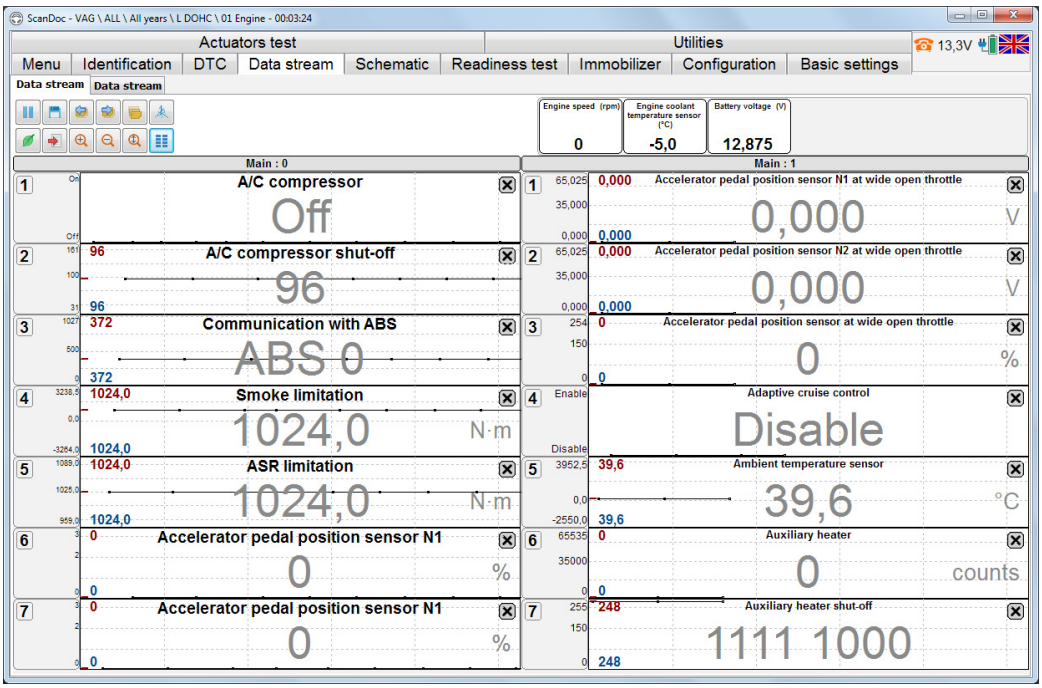
Picture view

The current parameter group can be viewed different:

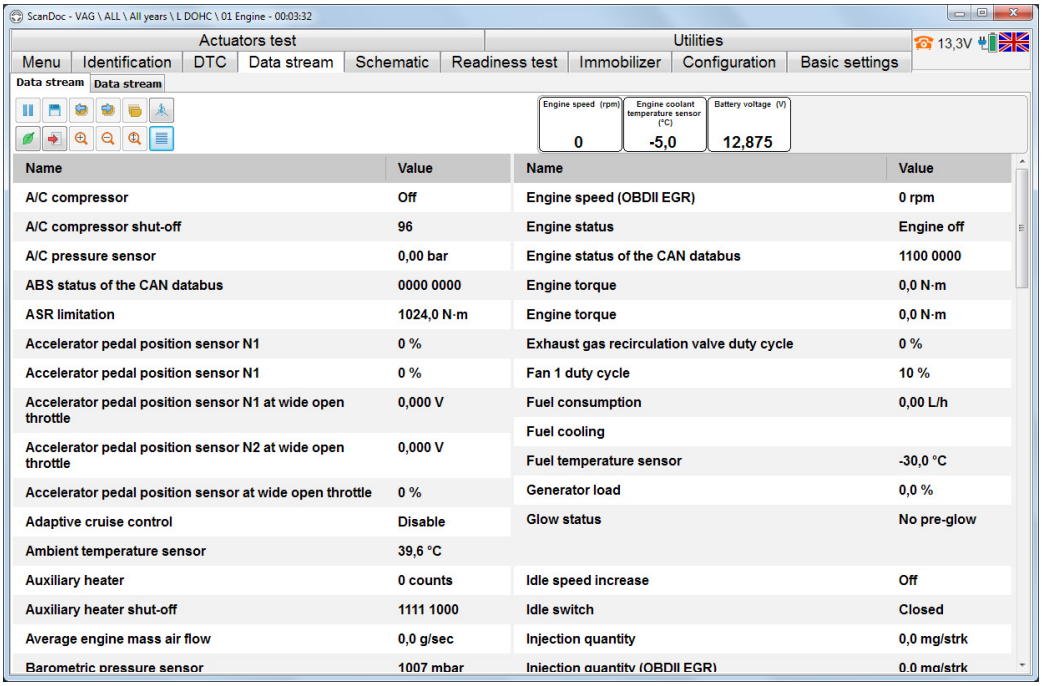
- One group of parameters.
- Two groups of parameters.
- All groups.
- 3D diagram.

Viewing of one or two groups of parameters. The parameters are diplayed in alphabetical order. Click the right mouse button on the graphs to open the corresponding parameter. Each parameter is displayed both in graphical and digital form. Click the left mouse button on the parameter header to change the view.





Viewing all parameters at the same time gives you a quick overview.

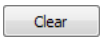


If you want to view a picture in 3D, it is necessary to choose the axes to display the graphs.

If two parameters are indicated, they are displayed in 2D mode and three parameters are diplayed in 3D mode. To view each parameter in detail, you can determine minimum and maximum values on the axes.

Graphs data are displayed as a dotted line.

Buttons description of 3D graph window.

Button	Description
	**Start / Stop** It activates or stops the cycling mapping mode
	**Clear** Deletes the 3D picture. The graph is created again.
	**Move graph axes** Moves the graph axes manually.
	**Graph turn.** Turns the graph around the axes manually
	**Zoom change** Zooms in (with the left mouse button) or zooms out (with the right mouse button) the diagram.
	**Changes reset.** Reset of default diagram settings.
	**Add to the protocol.** Adds the diagram to the protocol.

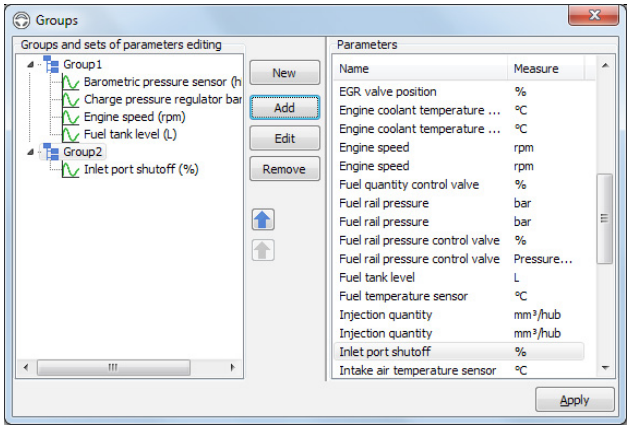
User defined data sets

The program enables the user to make his own list of parameters. This can be set by **Edit groups and parameters.**

Buttons in user group window description

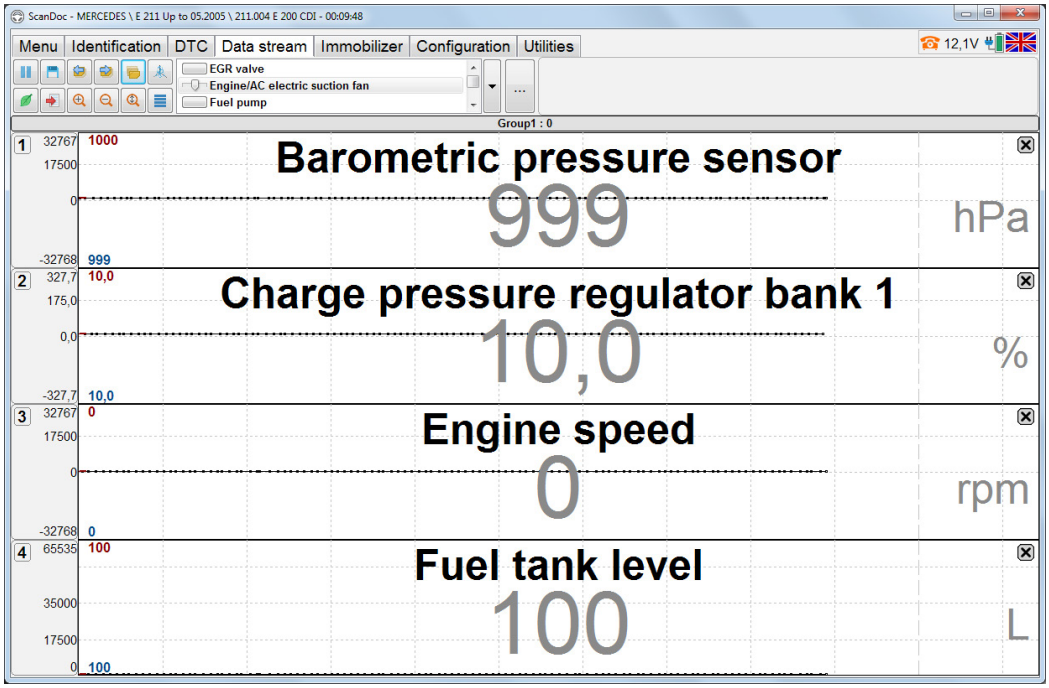
Button	Description
New	**New.** Creates a new user group.
Add	**Add.** Adds the selected parameter to the user data set.
Edit	**Edit.** Edits the user group.
Remove	**Delete.** Deletes the selected group or a parameter.
	**Up.** Moves the current group or parameter one position up.
	**Down.** Moves the current group or parameter one position down.

The window is divided into two parts. The sets of the parameter groups are displayed in the left-hand window part, the list of all parameters currently available is displayed in the right-hand window part. If the parameters that are included in the group are missing in the current electronic control unit (ECU), then they are grayed out.



Only those parameters which are included in the group and which are currently being available in the electronic control unit (ECU) are displayed in the data sets.

If there are more than seven parameters available in the group, subgroups are automatically created when this group is displayed.



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

If the averaging mode is on in the settings, then the parameters of the datastream are also displayed.

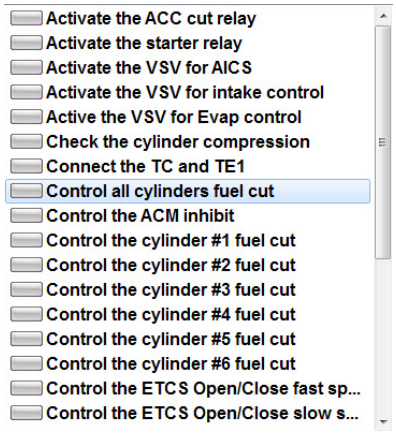
Note: The list is saved to the program settings in the file groups.xml. This file is necessary to save and to restore user group settings in the future, if the ScanDoc program is to be deleted.

Note: If the ECUs operate according to ISO -9141, KW -71 and KW-1284 protocols, each parameter is requested by the scanner separately. Each request is processed about 0.1 sec. Thus it will take about one second to display ten options. The more options are displayed, the more time it will take to display them.

Actuators tests

Many control units can control the actuators (spray jets, engines, solenoid valves) temporarily to check their operability. These tests are done considering cur-rent 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 se-lect an actuator name. If there is a scrollbar in the window, not all the tests are displayed. Please scroll to see them.



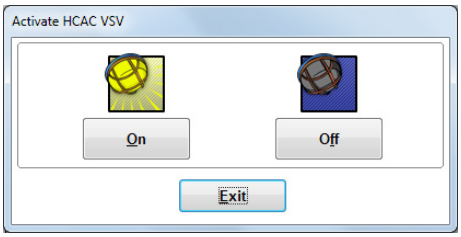
By selecting the button **Tests** there is a drop-down menu with the list of all the tests available. To do the test, click on the right button.

After selecting an actuator it can be controlled using the buttons or control devices.

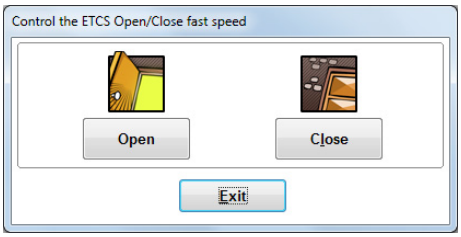
To make it easier, some parameters are sometimes displayed with current values.

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

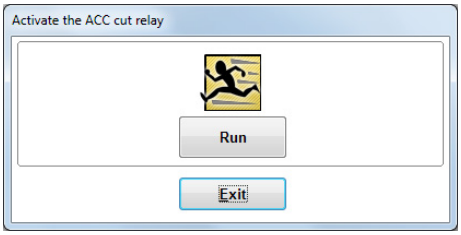
1. Switch on / Switch off.



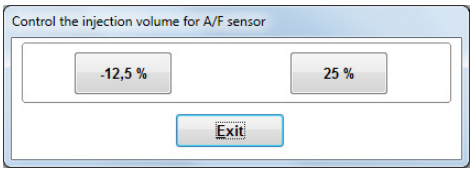
2. Open / Close.



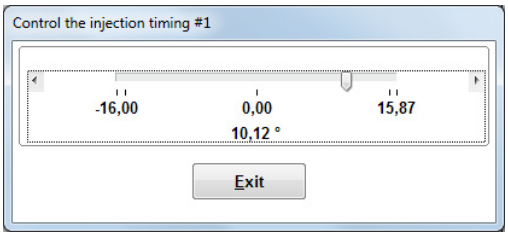
3. Start.



4. Definite value setting.



5. Controlling.

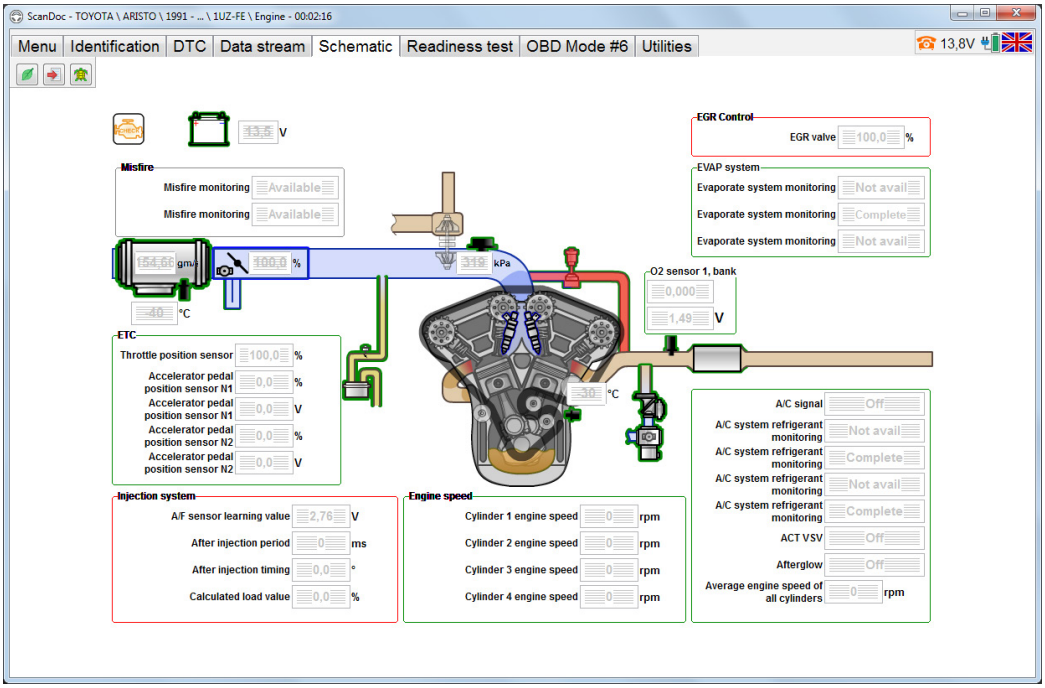


When putting the focus on the control device and selecting the button spacebar, a window for digital input appears. This facilitates a laptop operation should it be difficult to use the mouse.

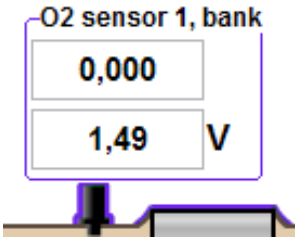
Scheme

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 which is a more convenient data representation.

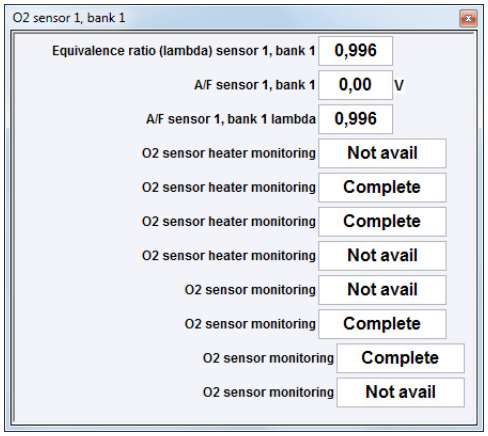
All the diagnostic parameters are divided into groups (e.g. “Injection”, “Ignition” etc.). Each group is in a definite place depending on the engine type. There are also some objects (e.g. MAF, temperature sensors etc.). Every object can have its own parameters and be connected to a definite group.



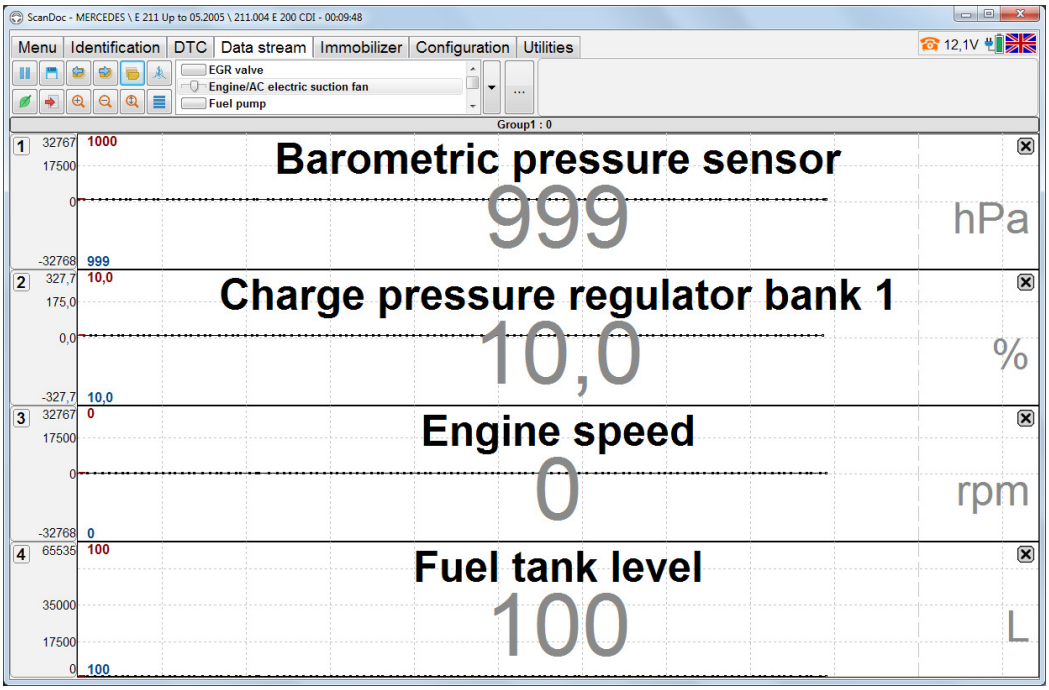
When the mouse is over an object or a group, the edges are highlighted in dark blue. It is helpful if the group of parameters is not close to the object.



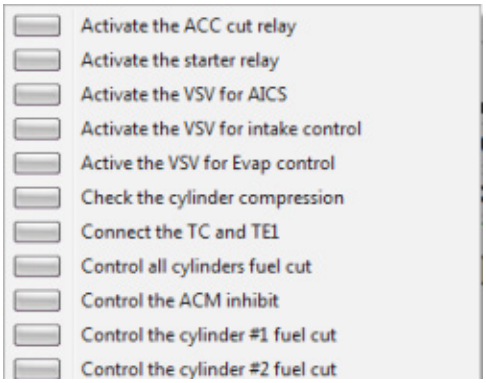
Not all the group parameters can be displayed. If a group or an object has green edges it means that there are parameters available which are not shown in the display. Click on an object or a group with the left mouse button to see the parameteres.



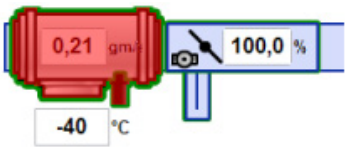
By clicking the left mouse button a diagram is displayed. A new window with a diagram appears. Every time when you click on the digital value a new diagram is added. If you click the left mouse button on the digital value with Ctrl key pressed, it is possible to select several parameters. After the key Ctrl is not pressed any more, a window with several diagrams displaying the parameters appears



By clicking the right mouse button in a free field of the program window, a test menu can be opened. By clicking the right mouse button on the parameter groups, a list of tests belonging to this group is displayed.



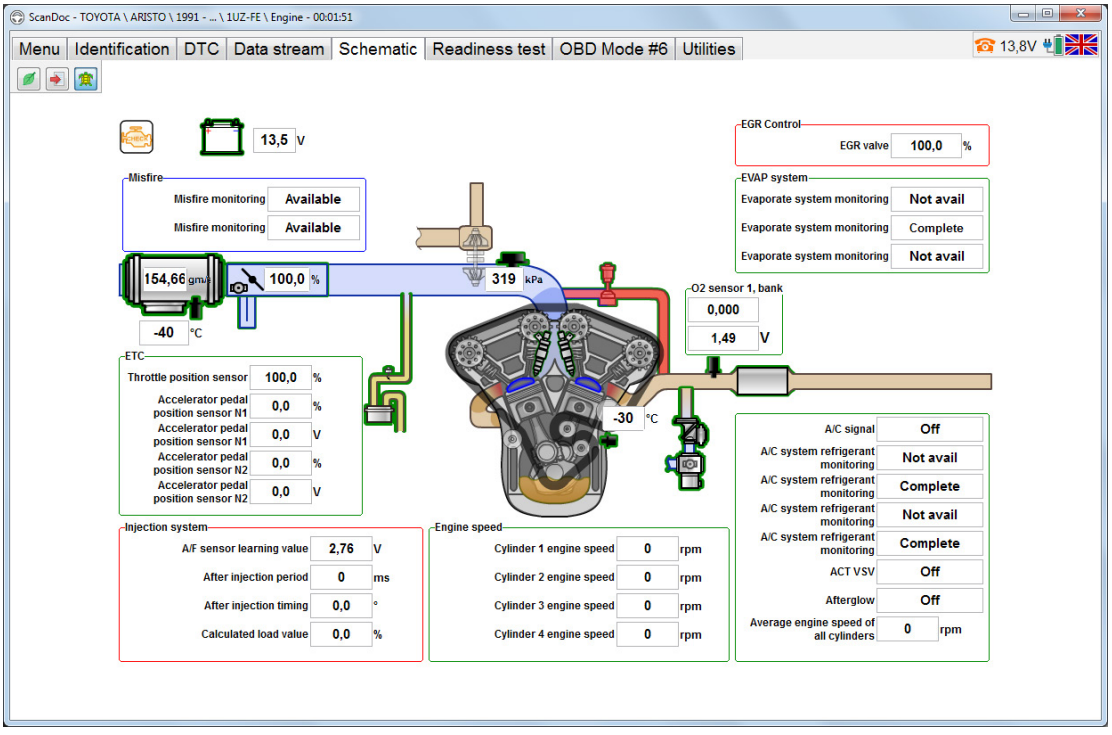
An object starting flashing red on and off indicates that diagnostic trouble codes (DTC) have been detected in this system.



All data simultaneous display mode

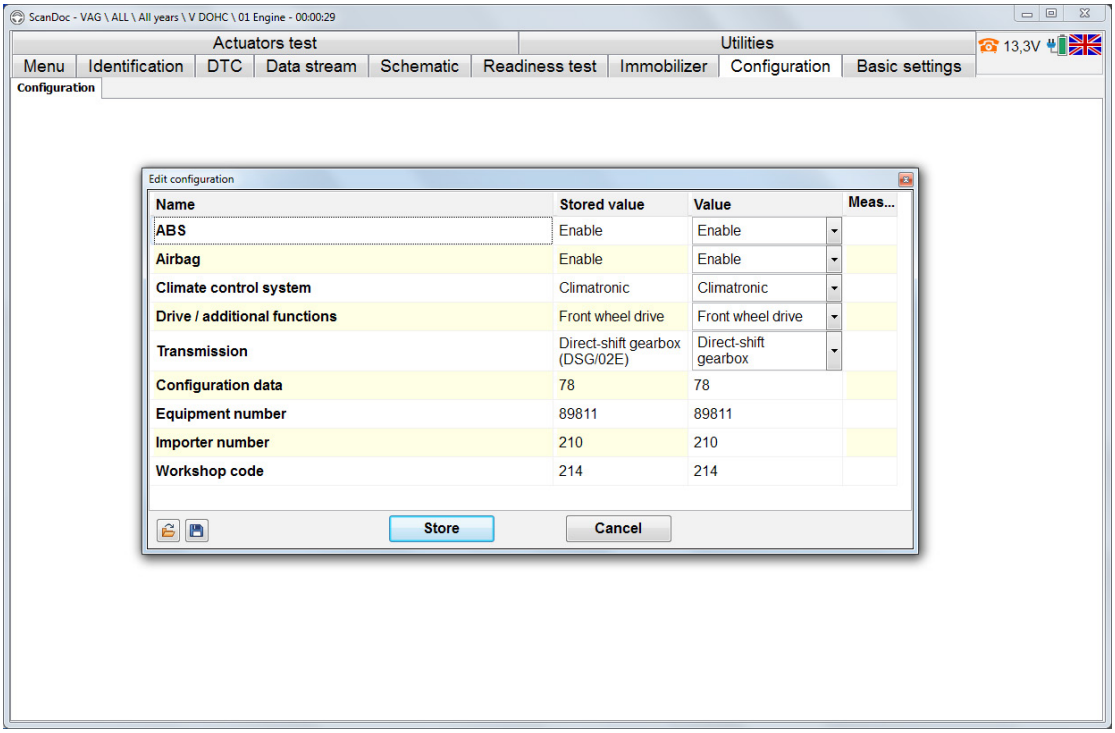
By default no parameter is displayed. Click the left mouse button on the parameter value to activate it. The data will be displayed. The more parameters are available the slower they will be displayed. To make it easier to operate in the alternative mode, an all data simultaneous display mode has been installed in the ScanDoc program.

This mode is used when the speed of the output is not so important but the entire picture is to be represented. In this case all parameters can be displayed by selecting the **Turtle** button. It can take several seconds to update the display.



Configuration

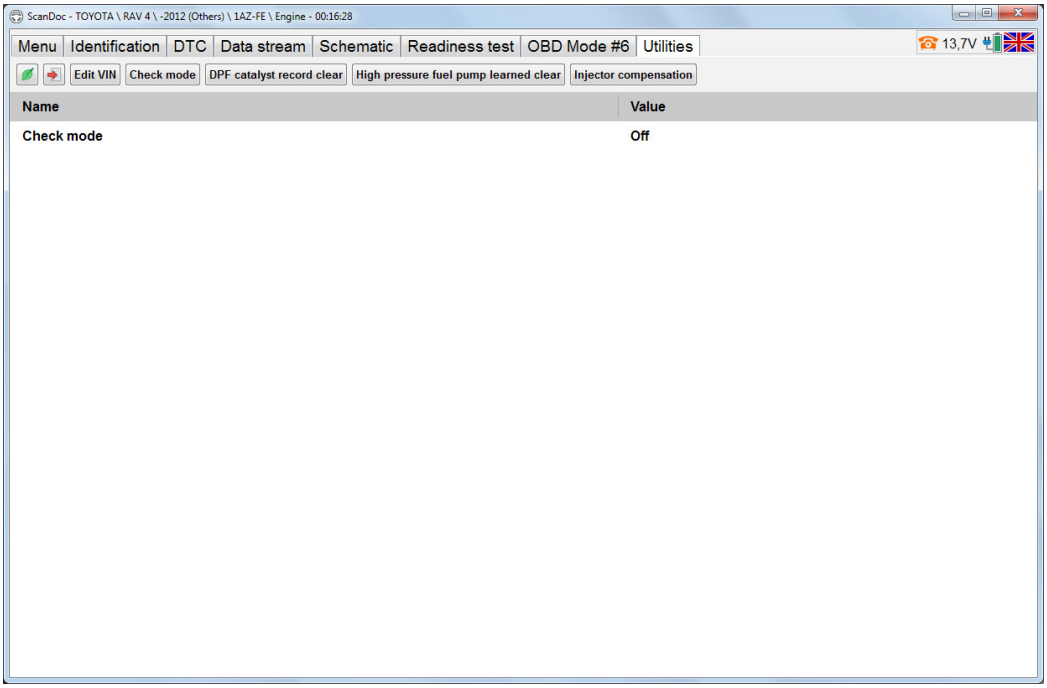
The manufacturers of Electronic Control Units (ECU) produce universal units to reduce the number of ECUs and software variants. These universal units are configured for a definite car trim level. The configuration is often called coding. The ScanDoc scanner enables the user to read the coding out and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



Attention! It is strongly recommended to read out and save the configuration to the PC before changing it.

Utilities

There are special ECUs functions in the tab “Utilities”.



Settings Reset

Engine control system adjusts to the change of sensor parameters. If new spare parts are mounted, corrections saved should be cleared. For this, please reset the settings.

Attention! If you are not sure about a function, please consult the corresponding manual before its activation. Please note, that an engine cannot operate if the settings are reset and the MAF is partially defective.

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 datastream mode.
Ctrl+S	Save data.
Ctrl+G	Run exhaust gas tester program.
Ctrl+R	Parameter transfer to protocol.
“+”	Zoom in by X.
“-”	Zoom out by X.
Ctrl+E	Makes a screen shot and allows entering comments. Information is saved to the folder **Error$**. Should be used for technical support 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	Run actuators tests.
Ctrl+V	Select parameter view mode.
F1	Help Topics run.

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Declaration of conformity

Quantex GmbH hereby declares that the ScanDoc Compact product is in compliance with the RoHS Directive 2011/65/EU, the R & TTE Directive 2014/53/EU and the EMC Directive 2014/30/EU.

Important information on disposal

This electrical appliance does not belong to household waste. For proper disposal, please contact the public collection points in your municipality.

Details of the location of such a collection point and of any available quantity restrictions per day / month / year can be found in the information of the respective municipality.

RoHS
2002/95/EC