

Automotive Diagnostic Software

**ScanMaster**  
**ELM**

# User Manual

Version 1.0

2005

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## Basic Features

- § Supports:
  - 1. SAE J1850 PWM (41.6 Kbaud)
  - 2. SAE J1850 VPW (10.4 Kbaud)
  - 3. ISO 9141-2 (5 baud init, 10.4 Kbaud)
  - 4. ISO 14230-4 KWP (5 baud init, 10.4 Kbaud)
  - 5. ISO 14230-4 KWP (fast init, 10.4 Kbaud)
  - 6. ISO 15765-4 CAN (11 bit ID, 500 Kbaud)
  - 7. ISO 15765-4 CAN (29 bit ID, 500 Kbaud)
  - 8. ISO 15765-4 CAN (11 bit ID, 250 Kbaud)
  - 9. ISO 15765-4 CAN (29 bit ID, 250 Kbaud)
- § Automatically determines and identifies to the user the vehicle communication protocol under test.
- § Supports generic SAE J1979 (Mode \$01) parameter identifiers (PIDs) \$00 through \$4E.
- § Displays all or custom list of diagnostic data parameters supported by the vehicle's OBD II controller with line graphs and meters.
- § View the condition of the vehicle system at the time when an emission related diagnostic trouble code was stored with Freeze Frame mode.
- § Read emission DTCs (and their common SAE descriptions) that cause the MIL to be illuminated. Plus, display the DTC number for the non-SAE defined DTC numbers and descriptions that are reported by OBD II emission ECUs.
- § Supports over 4200 generic diagnostic trouble codes descriptions from SAE J2012 and over 3600 enhanced OBD-II codes, or a codes defined by the Original Equipment Manufacturer (OEM).
- § Clear all emissions-related diagnostic information. (Mode \$04)
- § Review the results of the oxygen sensor testing performed by the vehicle's powertrain control module with "Oxygen Sensors" mode (Mode \$05).
- § Displays non-continuous diagnostic test results specific to the vehicle manufacturer (Mode \$06 data) with the "Monitoring Tests Results" mode.
- § Reports vehicle's continuously monitored emissions-related tests that have failed during a drive cycle and have not matured to indicate a diagnostic trouble code with "Pending Diagnostic trouble Codes" mode.
- § Displays specific information applicable to the vehicle under test (VIN, Calibration ID, Calibration Verification Number, In-Use Performance Tracking).
- § Metric and English units of measure.

## Minimum Platform and Software Requirements

You must have Microsoft Windows 98/ME/2000/XP with Microsoft Internet Explorer 5.01 or later installed on your computer.

Minimum hardware requirements:

- § Pentium 200MHz or faster
- § 64MB of RAM or higher
- § CD-ROM or DVD-ROM Driver
- § Free COM or USB Port

## What is OBD-II?

OBD-II stands for On-Board Diagnostics II generation, a computer-based system built into all model year (MY) 1996 in USA and newer light-duty cars and trucks. OBD-II monitors the performance of some of the engines' major components, including individual emission controls. The system provides owners with an early warning of malfunctions by way of a dashboard "Check Engine" light (also known as a Malfunction Indicator Light or MIL, for short). By giving vehicle owners this early warning, OBD-II protects not only the environment but also consumers, identifying minor problems before they become major repair bills.

## EOBD - European On-Board Diagnostic

EOBD is a standard that is issued by the European Community. The main goal with the standard is to give the authorities a tool to control the exhaust emission from vehicles. The EOBD standard has been implemented in petrol cars throughout the European Union from 01.01.2001 (EU directive 98/96/EC). For LPG and Diesel vehicles the implementation of applicable regulations is scheduled to take place before 2005. The EOBD standard includes five different communication protocols: ISO 9141-2, ISO 14230-4(KWP2000), SAE J1850 VPW, SAE J1850 PWM and ISO 15765-4 CAN.

If the car supports EOBD you have the possibilities to read out stored information from the ECU in the car, including:

- § Read fault codes
- § Erase fault codes
- § Read freeze frame data
- § Get real-time data (displayed as numbers or graphs)
- § Get monitoring results from oxygen sensors
- § Get result from readiness test

To read out the information you require an OBD-II/EOBD diagnostic tool such as the ScanMaster.

## How do I know the OBD system is working correctly?

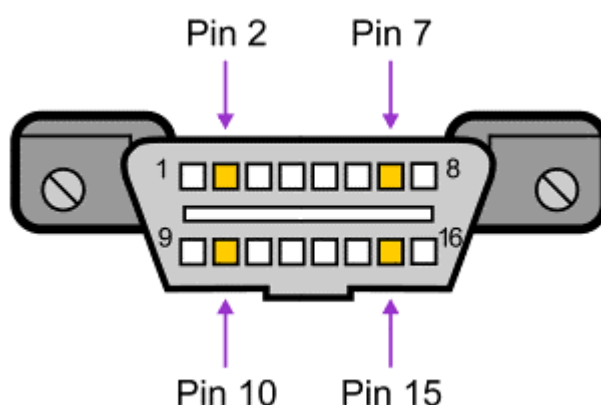
When you turn on the ignition, the "Service Engine Soon" or "Check Engine" light should flash briefly, indicating that the OBD system is ready to scan your vehicle for any malfunctions. After this brief flash, the light should stay off while you drive as long as no problems are detected. If so, you'll be glad to know that your vehicle is equipped with an early warning system that could save you time, money, and fuel in addition to helping protect the environment!

## Which OBD-II protocol is supported by vehicle?

All cars and light trucks built for sale in the United States after 1996 are required to be OBD-II compliant. The European Union adopted a similar law in 2000 for gasoline-powered vehicles, and in 2003 for cars with diesel engines.

An OBD-II compliant vehicle can use any of the five communication protocols: J1850 PWM and VPW, ISO9141, ISO14230 (also known as Keyword Protocol 2000), and more recently, CAN (ISO15765/SAE J2480). Car manufacturers were not allowed to use CAN until model year 2003.

As a general rule, you can determine which protocol your vehicle is using by looking at the pinout of the DLC:



The following table explains how to determine the protocol:

| Pin 2                                                                                            | Pin 6     | Pin 7                                 | Pin 10    | Pin 14    | Pin 15*                               | Standard      |
|--------------------------------------------------------------------------------------------------|-----------|---------------------------------------|-----------|-----------|---------------------------------------|---------------|
| J1850 Bus+                                                                                       | CAN High  | ISO 9141-2 K Line and ISO/DIS 14230-4 | J1850 Bus | CAN Low   | ISO 9141-2 L Line and ISO/DIS 14230-4 |               |
| must have                                                                                        | -         | -                                     | must have | -         | -                                     | J1850 PWM     |
| must have                                                                                        | -         | -                                     | -         | -         | -                                     | J1850 VPW     |
| -                                                                                                | -         | must have                             | -         | -         | may have                              | ISO9141/14230 |
| -                                                                                                | must have | -                                     | -         | must have | -                                     | CAN           |
| The connector should have: Pin 4 - Chassis Ground, Pin 5 - Signal Ground, Pin 16 - Battery power |           |                                       |           |           |                                       |               |

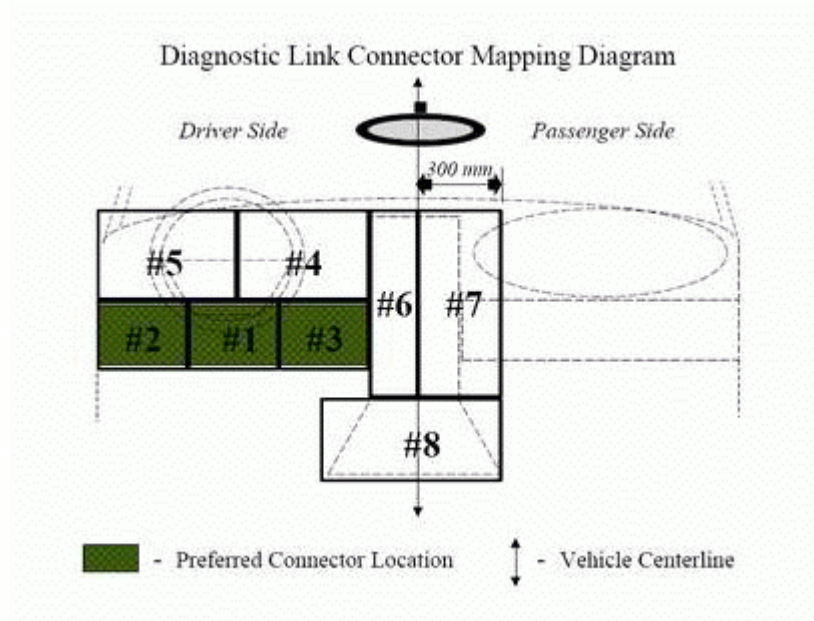
This means that:

| <b>Protocol</b> | <b>The connector must have pins</b>                       |
|-----------------|-----------------------------------------------------------|
| PWM             | 2, 4 and/or 5, 10, and 16                                 |
| VPW             | 2, 4 and/or 5, and 16, but not 10.                        |
| ISO             | 4 and/or 5, 7, and 16. Pin 15 *may or may not be present. |
| CAN             | 4 and/or 5, 6, 14 and 16                                  |

\*For ISO communications, pin 15 (L-line) is not always required. Pin 15 was used on earlier ISO/KWP2000 cars to "wake-up" the ECU before communication could begin on pin 7 (K-Line). Later cars tend to communicate using only pin 7 (K-Line).

## Diagnostic Link Connector (DLC) Mapping Diagram Explanation

The mapping diagram of DLC locations contains a divided instrument panel (IP) with numbered areas. Each numbered area represents specific sections of the IP where manufacturers may have located DLCs. This document briefly clarifies the numbered locations on the mapping diagram. We will use this mapping diagram to catalog manufacturer responses to the recent 208 letter requesting OBD DLC locations for 96MY and future vehicles. Areas 1-3 fall within the preferred DLC location while the remaining areas, 4-8, fall into the allowable DLC location according to EPA requirements. Areas 4-8 require that manufacturers label the vehicle in the preferred location to notify parties of the alternate connector location.



### Preferred Location(s)

**Location #1:** This location represents a DLC positioned on the underside of the IP directly under the steering column (or approximately 150mm left or right of the steering column). Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment, this represents the center section.

**Location #2:** This location represents a DLC positioned on the underside of the IP between the steering column and the driver's side passenger door. Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment, this represents the left section.

**Location #3:** This location represents a DLC positioned on the underside of the IP between the steering column and the center console. Visualizing the underside of an IP divided into three equal parts from inside the passenger compartment, this represents the right section.

### Allowable Location(s)

**Location #4:** This location represents a DLC positioned on the upper part of the IP between the steering column and the center console (but not on the center console, see location #6).

**Location #5:** This location represents a DLC positioned on the upper part of the IP between the steering column and the driver side, passenger door.

**Location #6:** This location represents a DLC positioned on the vertical section of the center console and left of the vehicle center line.

**Location #7:** This location represents a DLC positioned 300 mm right of the vehicle centerline either on the vertical section of the center console or on the passenger side of the vehicle.

**Location #8:** This location represents a DLC positioned on the horizontal section of the center console either left or right of the vehicle center line. This does not include the horizontal section of the center console that extends into the rear passenger area (see location #9).

**Location #9:** This location, not shown, represents any DLC positioned in an area other than those mentioned above (e.g., in the rear passenger area on the driver side armrest).

## OBD-II Diagnostic Protocol

The diagnostic protocol for OBD-II is SAE J1979. A diagnostic request or response message has a maximum of seven data bytes. The first byte following the header is the test mode. It is also called the service identifier (SID or PID). The following bytes vary depending on the specific test mode.

There are nine diagnostic test modes:

**Mode \$01 – Request Current Powertrain Diagnostic Data** - This service gives access to current emission-related data values, including analogue inputs and outputs, digital inputs and outputs and system status information.

**Mode \$02 – Request Powertrain Freeze Frame Data** - This service gives access to current emission-related data values in a freeze frame. A freeze frame consists of data values stored at a specific event; such as an engine malfunction of some kind.

**Mode \$03 – Request Emission-Related Powertrain Diagnostic Trouble Codes** - The purpose of this service is to enable the external test equipment to obtain “confirmed” emission-related DTCs.

**Mode \$04 – Clear/Reset Emission-Related Diagnostic Information** - The purpose of this service is to provide a means for the external test equipment to command ECUs to clear all emission-related diagnostic information.

**Mode \$05 – Request Oxygen Sensor Monitoring Test Results** - The purpose of this service is to allow access to the on-board oxygen sensors monitoring test results.

**Mode \$06 – Request On-Board Monitoring Test Results for Non- Continuously Monitored Systems** - This service gives access to the results for on-board diagnostic monitoring tests of specific components/systems that are not continuously monitored. Examples of this are catalyst monitoring and the evaporative system monitoring.

**Mode \$07 – Request On-Board Monitoring Test Results for Continuously Monitored Systems** - Through this service, the external test equipment, can obtain test results for emission-related Powertrain components/systems that are continuously monitored during normal driving conditions.

**Mode \$08 – Request Control of On-Board System, Test or Component** - This service enables external test equipment to control the operation of an on-board system, test or component.

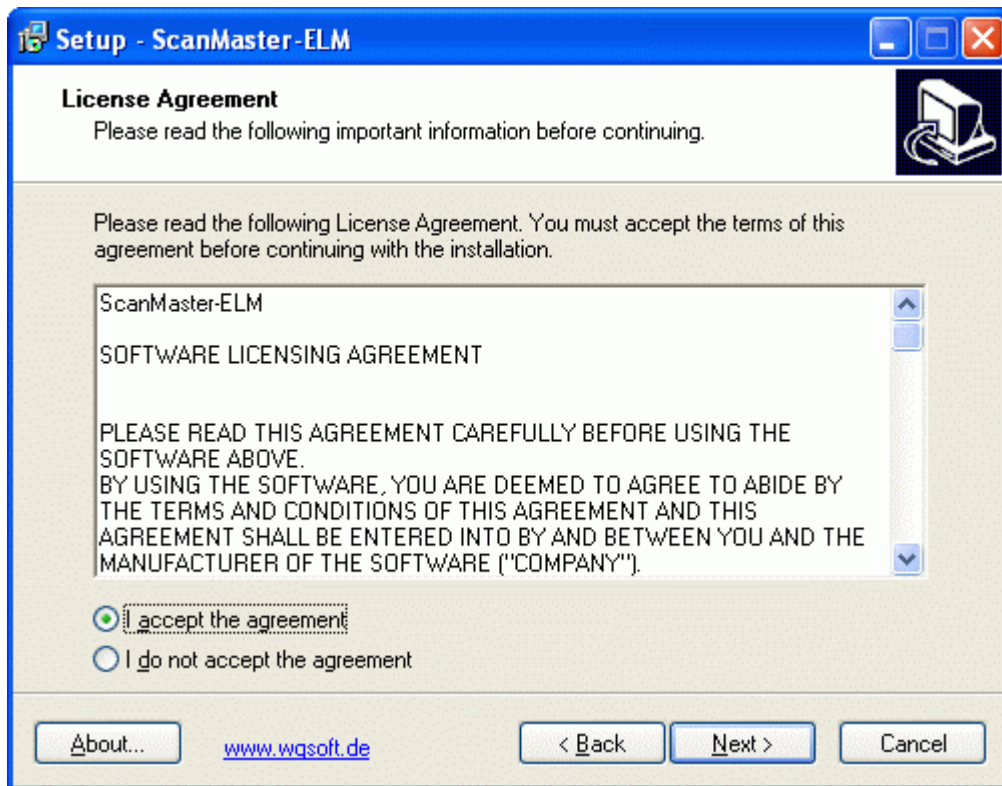
**Mode \$09 – Request Vehicle Information** - This service gives access to vehicle specific vehicle information such as Vehicle Identification Number (VIN) and Calibration IDs.

## Installation

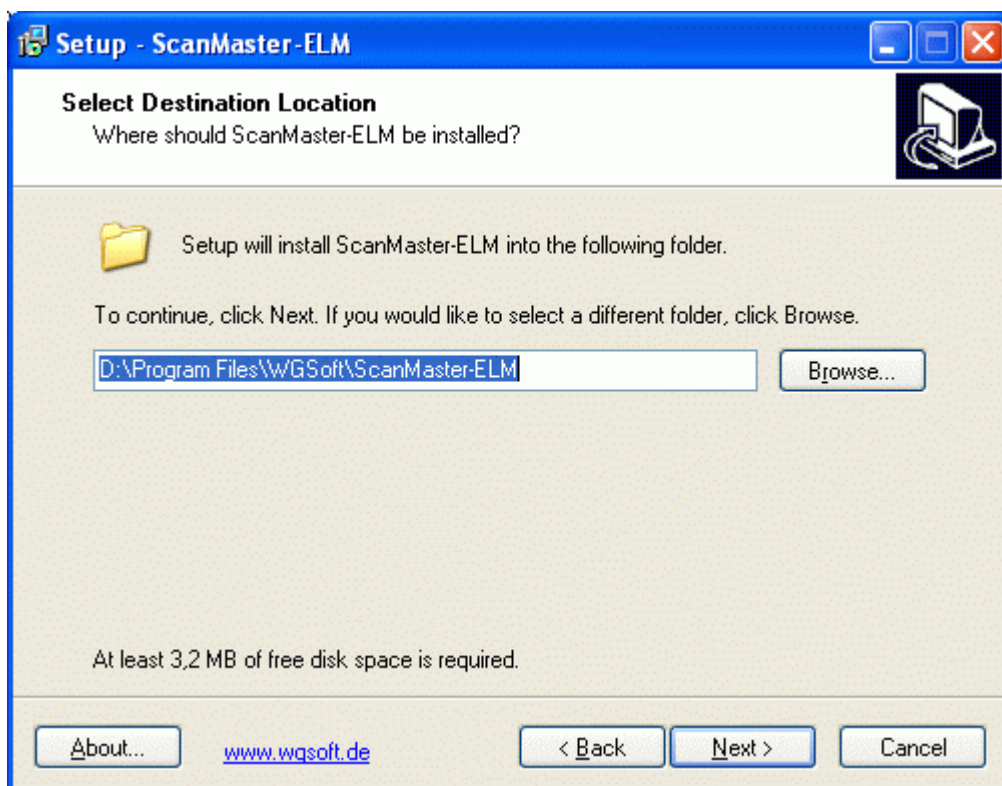
Start the ScanMaster-ELM installation by double clicking the installation file. The installation wizard will provide instructions for how to complete the installation.



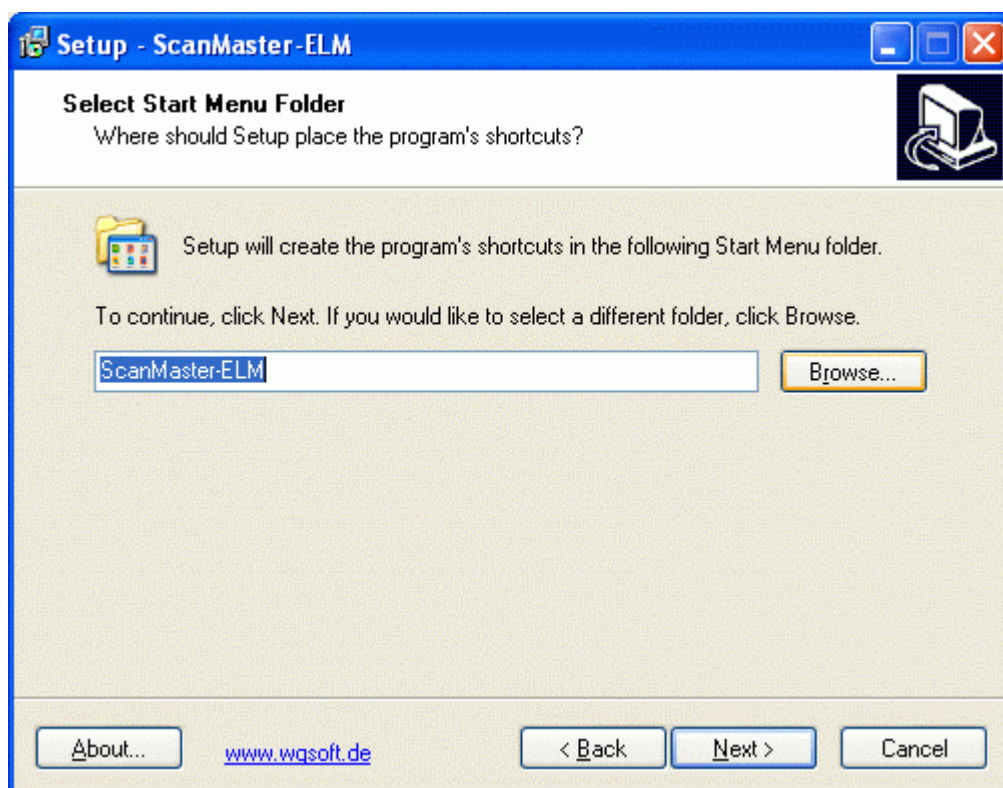
Installation start up



Accept the License Agreements



Select Destination Location



Select Start Menu Folder



Setup has finished installing ScanMaster on your computer.

## Product Activation

To be able to use ScanMaster-ELM permanently, you must register the product with your dealer within 21 days after you install it. You will then receive an activation code with which you can activate the program license.

As long as the ScanMaster-ELM license is not activated, you will be asked to register the program each time you start it.

### Notes

Registration is bound to the PC on which ScanMaster-ELM is installed by means of a hardware code. The activation code you receive from your dealer when registering ScanMaster-ELM can therefore only be used on the PC on which you perform the registration. If you want to install ScanMaster-ELM on another PC or if you reinstall the program after changing the hardware configuration of your PC, you must register the program again.

### Note the following concerning the hardware code

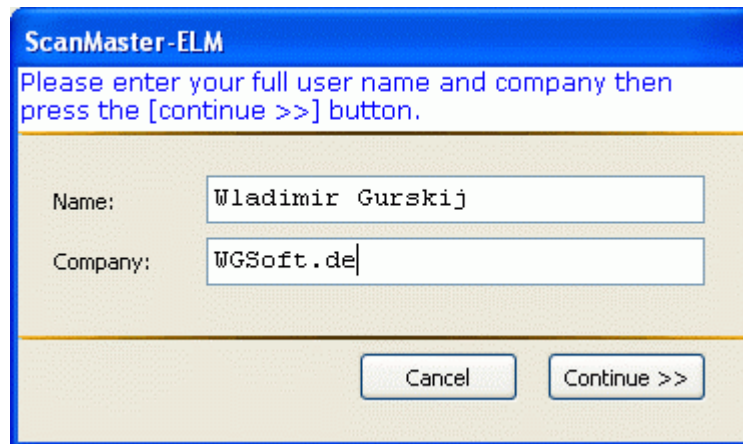
The hardware code is used exclusively to generate a valid activation code for your PC.

Software or personal data on the PC are not taken into account for the hardware code. Only general hardware components are used for generating the code.

The hardware code cannot be decoded, so it is not possible to see from the hardware code which components are installed in a PC.

## Registration

Following successful installation this screen will appear.

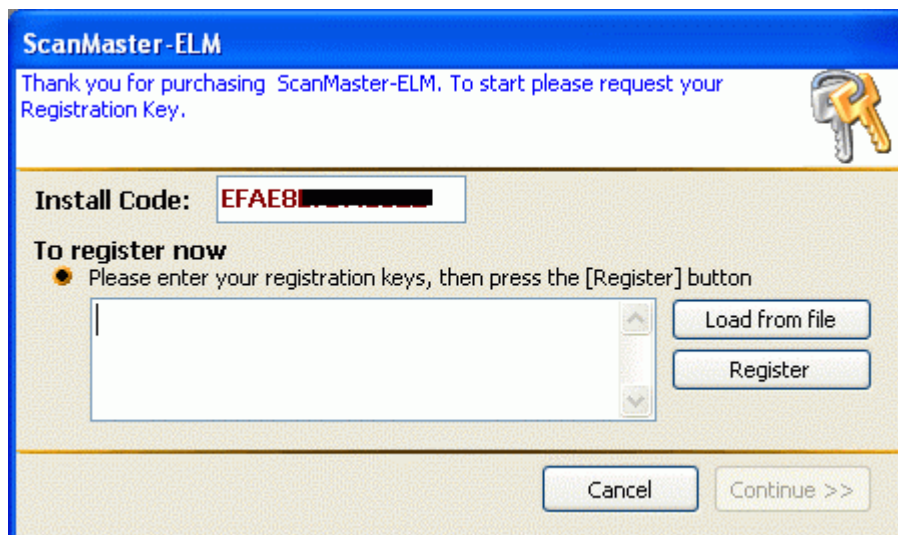


The image shows a Windows-style dialog box titled "ScanMaster-ELM". The text inside says "Please enter your full user name and company then press the [continue >>] button." Below this, there are two text input fields. The first is labeled "Name:" and contains the text "Wladimir Gurskij". The second is labeled "Company:" and contains the text "WGSoft.de". At the bottom right of the dialog, there are two buttons: "Cancel" and "Continue >>".

Now you need to enter your name and company on which you would like to register the program.

Then click "Continue >>"

The following window appears.



The image shows a Windows-style dialog box titled "ScanMaster-ELM". The text inside says "Thank you for purchasing ScanMaster-ELM. To start please request your Registration Key." in blue. There is a small icon of a key in the top right corner. Below the text, there is a label "Install Code:" followed by a text box containing "EFAE8" and a redacted area. Below this, it says "To register now" followed by a radio button (which is selected) and the text "Please enter your registration keys, then press the [Register] button". There is a large empty text box for entering the registration key. To the right of this box are two buttons: "Load from file" and "Register". At the bottom right of the dialog, there are two buttons: "Cancel" and "Continue >>".

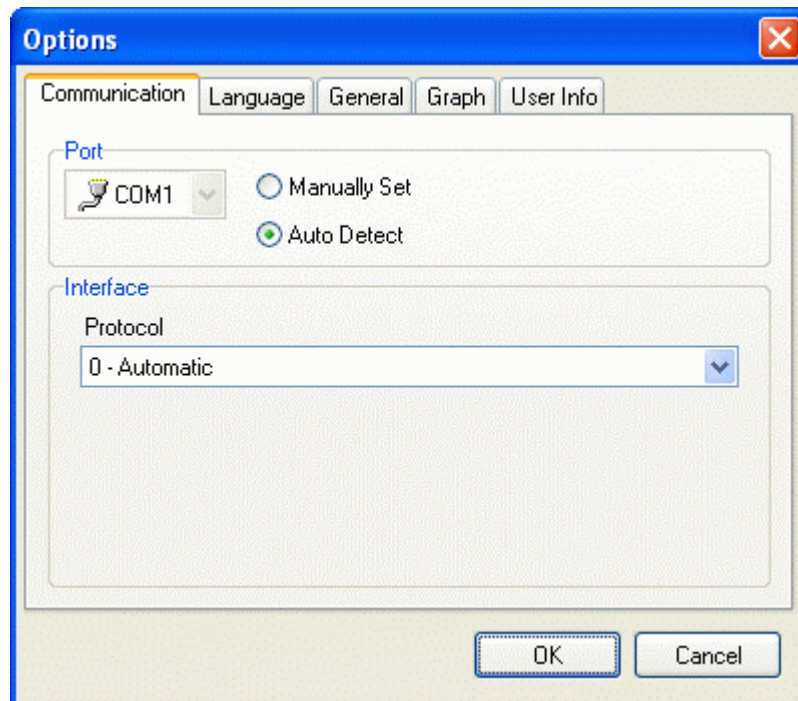
You inform your dealer about the "Install Code" and you get a registration key of him which you enter in this window. Then click on "Register" to complete the activation.

If you have carried out the procedure correctly you will see the confirmations screen. Congratulations! You have now installed and registered ScanMaster-ELM Software. Click "OK" and you are finished.

## Options

Before you start to work with the program, it is recommended to carry out the most important program options.

### Communication



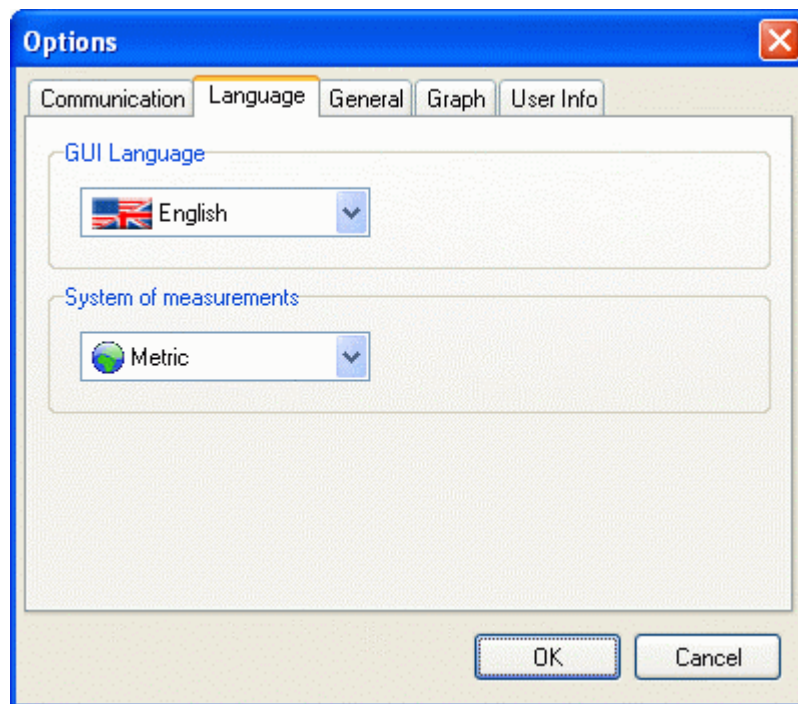
### Port

You can select between "Manually Set" and "Auto Detect". In the case "Manually set" you adjust right COM Port at which the interface is attached. the right COMPort must be found automatic

### Interface/Protocol

Select right diagnostic protocol which is supported by the vehicle. If you do not know the protocol or work with several vehicles with different protocols, select "0 - Automatic". In this case the interface will look for the right protocol and build up the connection with the vehicle.

## Language



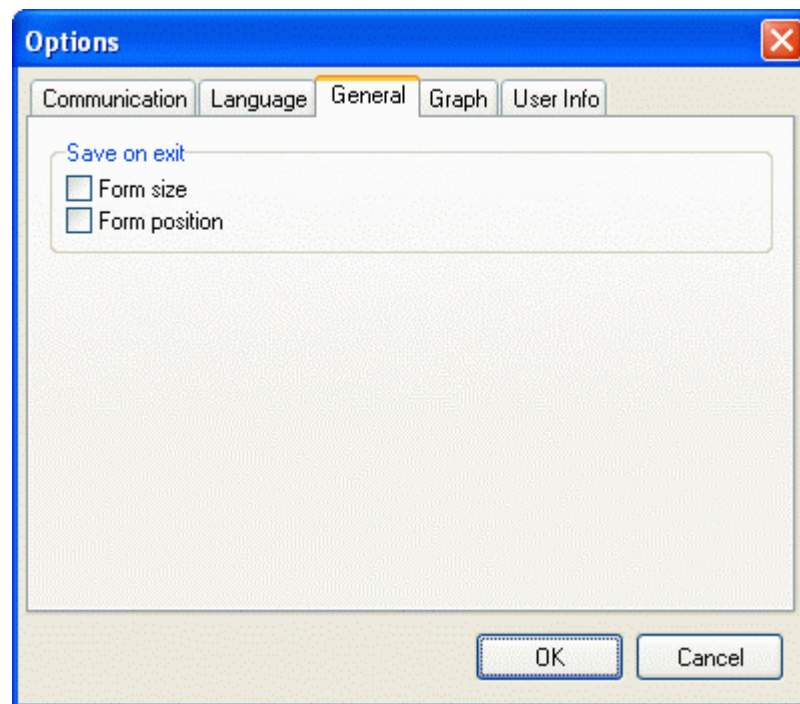
### GUI Language

Select desired language of the program GUI. So that this attitude gets valid, the program must be started newly.

### System of measurements

It is possible with the program to work with metric and English system of measuring. You can determine this in the selection box.

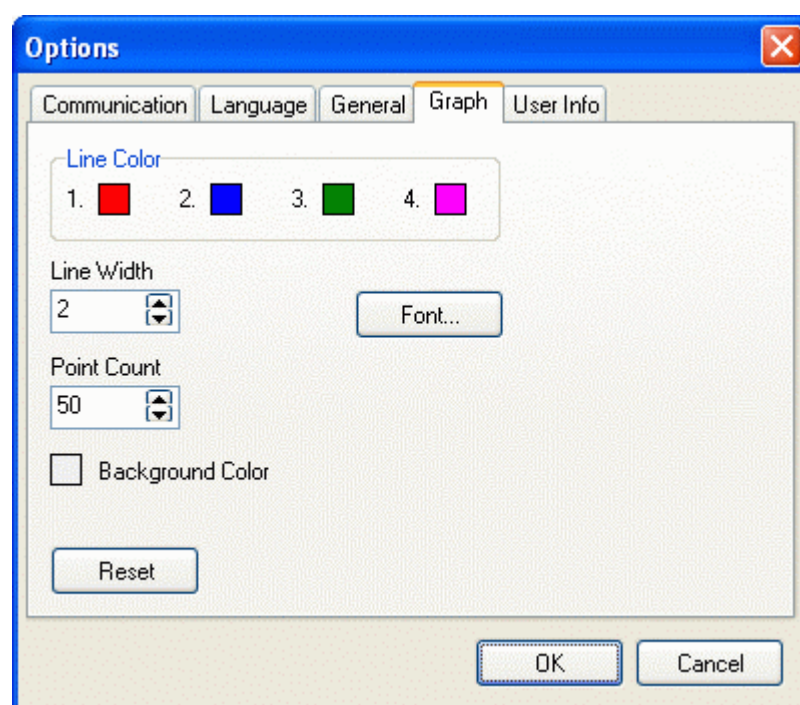
## General



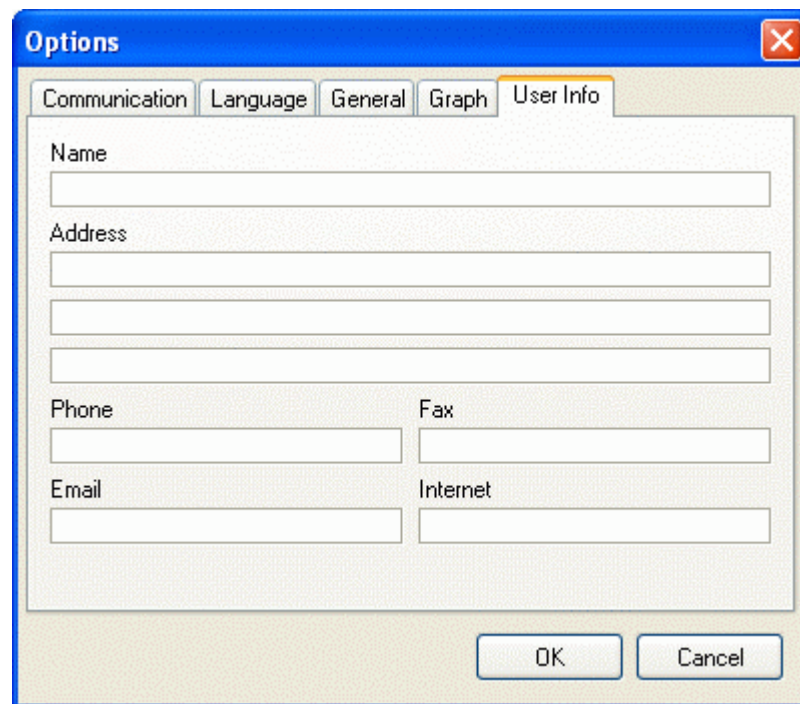
### Save on exit

Check "Form size" and "Form position" if you wanted that these attitudes are stored.

## Graph



If you do not like the attitude for the graphic data representation, you can adapt it in this window.

**User Info**

The image shows a Windows-style dialog box titled "Options" with a blue title bar and a close button (X) in the top right corner. The dialog has five tabs: "Communication", "Language", "General", "Graph", and "User Info". The "User Info" tab is currently selected and highlighted. Inside the "User Info" tab, there are several text input fields arranged as follows:

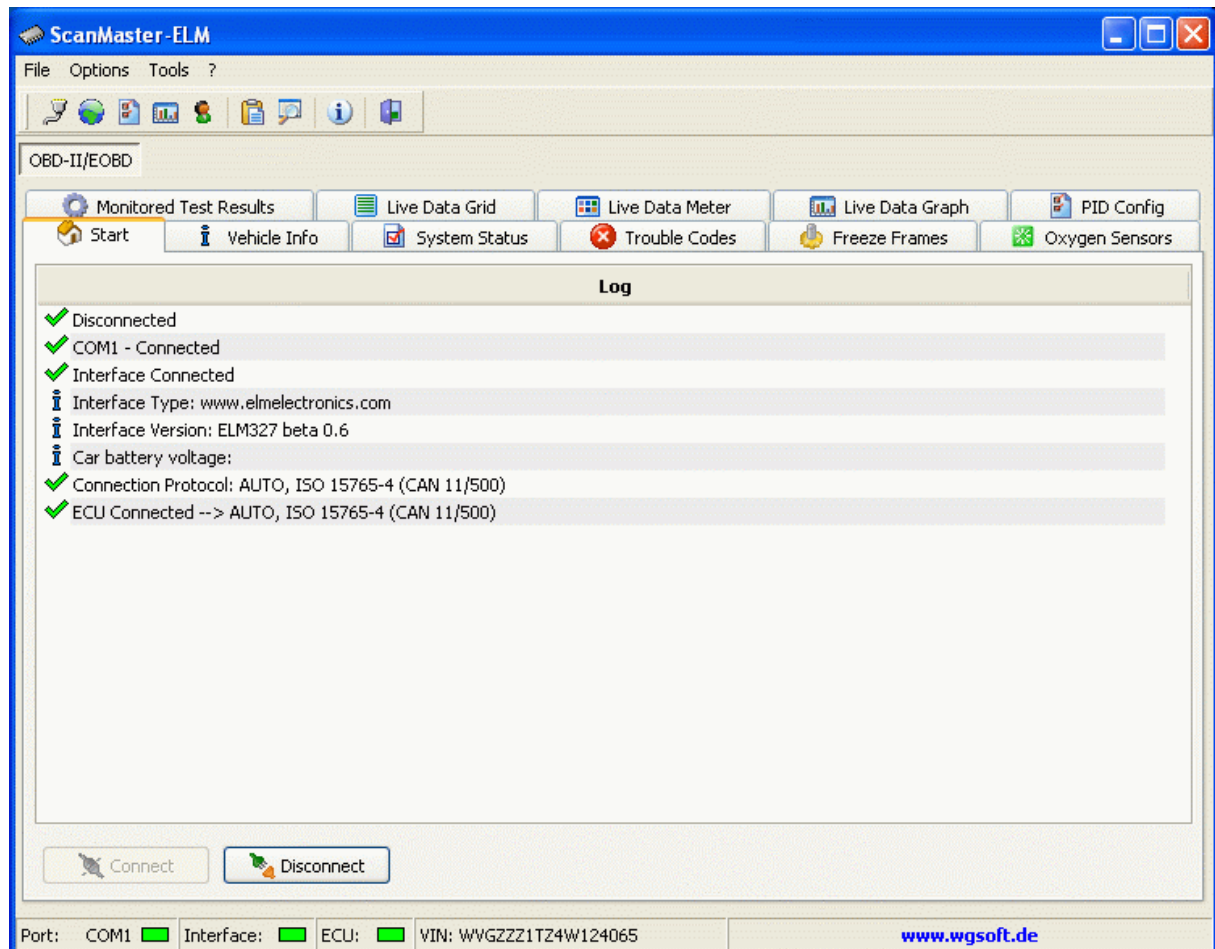
- A single-line text field for "Name".
- A three-line text area for "Address".
- A single-line text field for "Phone".
- A single-line text field for "Fax".
- A single-line text field for "Email".
- A single-line text field for "Internet".

At the bottom right of the dialog, there are two buttons: "OK" and "Cancel".

Type your own data in here. These data are used for the diagnosis report.

## Start Form

This is the start screen. It has a Connect button and a Disconnect button. The Connect button starts the communication with the vehicle and the Disconnect button breaks off the communication.



## Vehicle Info

**ScanMaster-ELM**

File Options Tools ?

OBD-II/EODB

Monitored Test Results Live Data Grid Live Data Meter Live Data Graph PID Config

Start Vehicle Info System Status Trouble Codes Freeze Frames Oxygen Sensors

**Vehicle Information (Mode 09)**

| ECU#  | Data                    |
|-------|-------------------------|
| \$7E8 | VIN: WVGZZZ1TZ4W124065  |
| \$7E8 | CALID: 03G906016BB 5693 |
| \$7E8 | CVN: 1791BC82           |
| \$7E8 | CVN: 16ED62BE           |

Make

Model

Year

Registration-No

**In-use Performance Tracking**

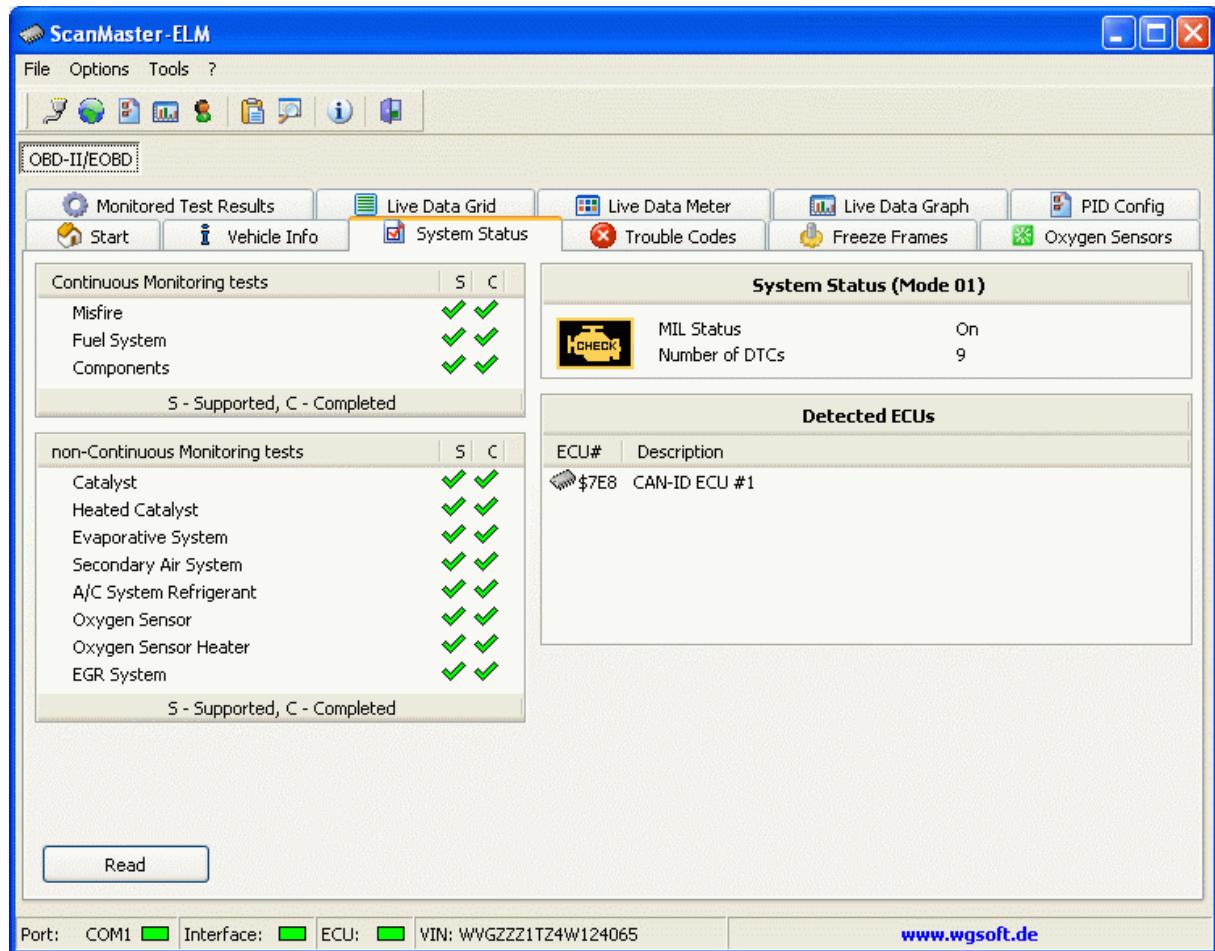
| Description                                           | Count |
|-------------------------------------------------------|-------|
| OBID Monitoring Conditions Encountered Counts         | 1024  |
| Ignition Counter                                      | 3337  |
| Catalyst Monitor Completion Counts Bank 1             | 824   |
| Catalyst Monitor Conditions Encountered Counts Bank 1 | 945   |
| Catalyst Monitor Completion Counts Bank 2             | 711   |
| Catalyst Monitor Conditions Encountered Counts Bank 2 | 945   |
| Catalyst Monitor Completion Counts Bank 1             | 722   |

Read

Port: COM1 Interface: ECU: VIN: WVGZZZ1TZ4W124065 [www.wgsoft.de](http://www.wgsoft.de)

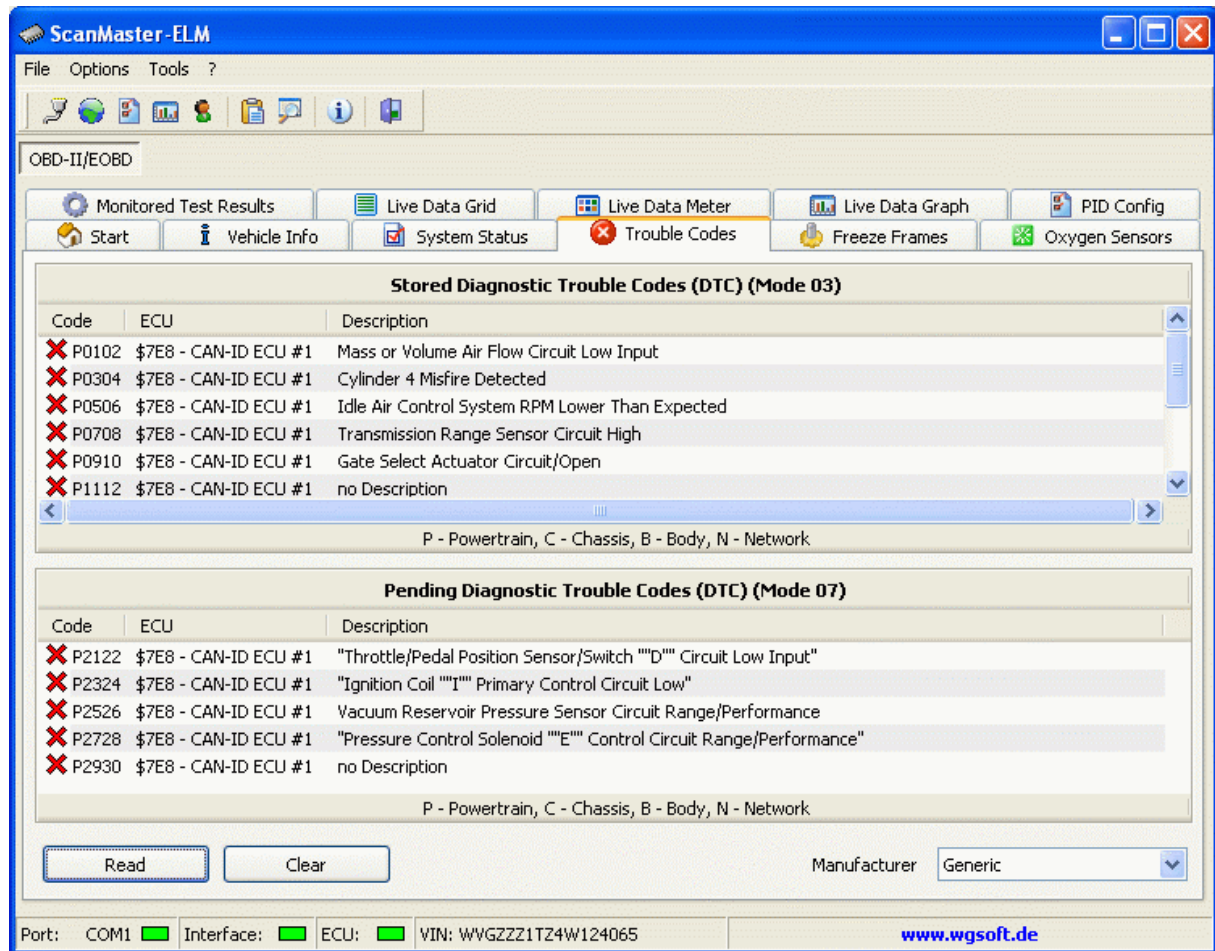
This screen shows the general information about the vehicle (VIN, CALID, CVN, IPT).

## System Status



This screen shows the MIL Status, number of stored DTCs and the readiness tests. All available ECUs will be presented in this form.

## Trouble Codes



This screen shows the Stored (Mode \$03) and Pending (Mode \$07) DTCs.

Press "Read" to read the codes. Two categories of trouble codes exist: Generic and enhanced. Generic codes are standard for all vehicle manufacturers. Enhanced codes are not unique and may overlap with another manufacturer, or even the same manufacturer on different models. Select "Manufacturer" from the dropdown menu to show the right manufacturer-specific codes.

Check your vehicle's service manual for DTC meaning if you think the codes you are getting do not make sense.

Remember:

- Visual inspections are important!
- Problems with wiring and connectors are common, especially for intermittent faults.
- Mechanical problems (vacuum leaks, binding or sticking linkages, etc.) can make a good sensor look bad to the computer.
- Incorrect information from a sensor may cause the computer to control the engine in the wrong way. Faulty engine operation might even make the computer show a known good sensor as being bad!

To clear the diagnostic information, click 'Clear' and follow the prompt's.

### **Stored Diagnostic Trouble Codes**

This mode displays emission related Diagnostic Trouble Code (DTC) number, ECU number and description and text description for DTCs that are currently stored in the vehicle ECU. The software will display the quantity of stored DTCs as well as the ECU storing them.

### **Pending Diagnostic Trouble Codes**

Pending DTCs mode enables you to obtain test results for emissions-related components and systems that are continuously monitored. This mode reports tests that have failed during the driving cycle and have not matured to indicate a DTC. Results are displayed in DTC format together with the reporting ECU.

### **Clear Diagnostic Information**

The "Clear" mode clears all MIL illuminating DTCs that are emission related. This function also clears additional diagnostic information that the controller has saved.

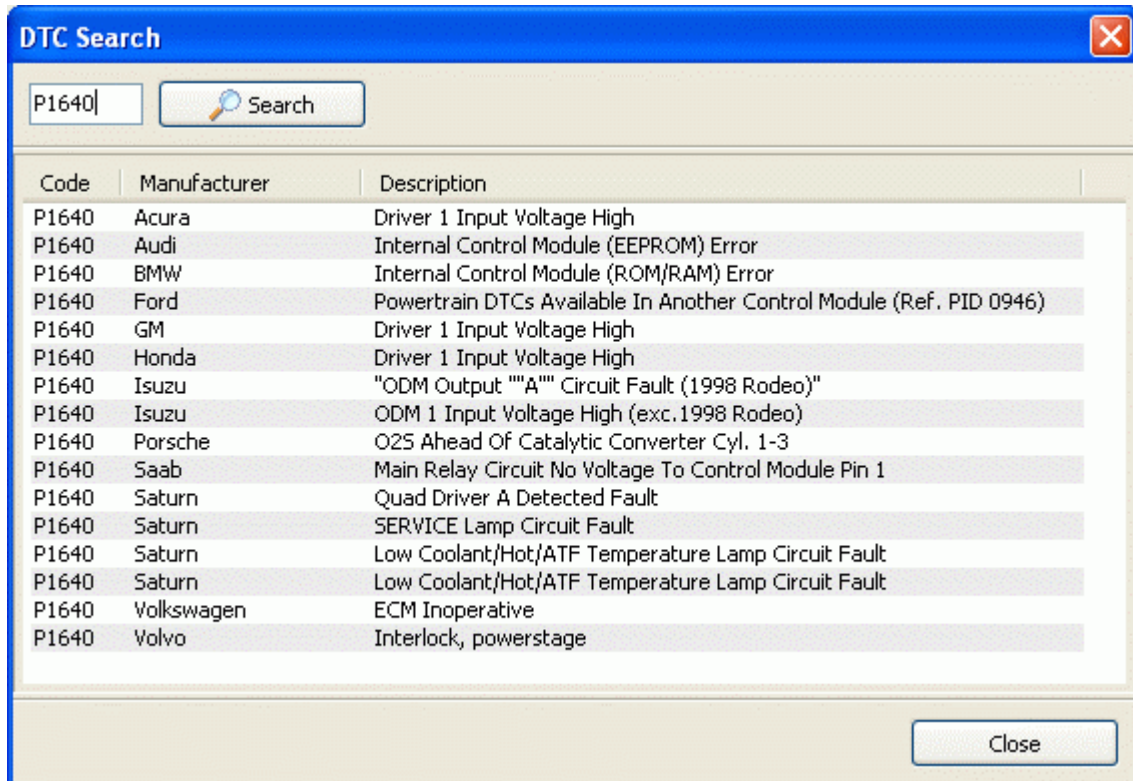
This includes:

- Number of diagnostic trouble codes
- Diagnostic trouble codes
- Trouble code for freeze frame data
- Freeze frame data
- Oxygen sensor test data
- Status of system monitoring tests
- On-board monitoring test results
- Distance traveled while MIL is activated
- Number of warm-ups since DTC cleared
- Distance since diagnostic trouble codes cleared
- Minutes run by the engine while MIL activated
- Time since diagnostic trouble codes cleared

## DTC Search

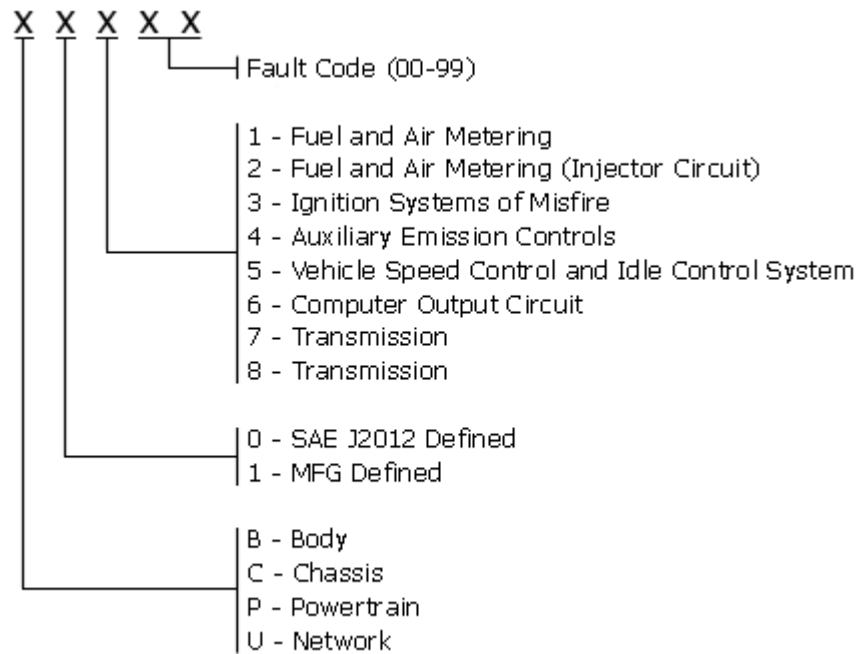
The program has an integrated database with trouble codes of different manufacturers.

If you liked to find a text description to a code, you click on the  symbol. A window appears where you can enter the code. The descriptions of all manufacturers who are stored in the program are shown to this code.

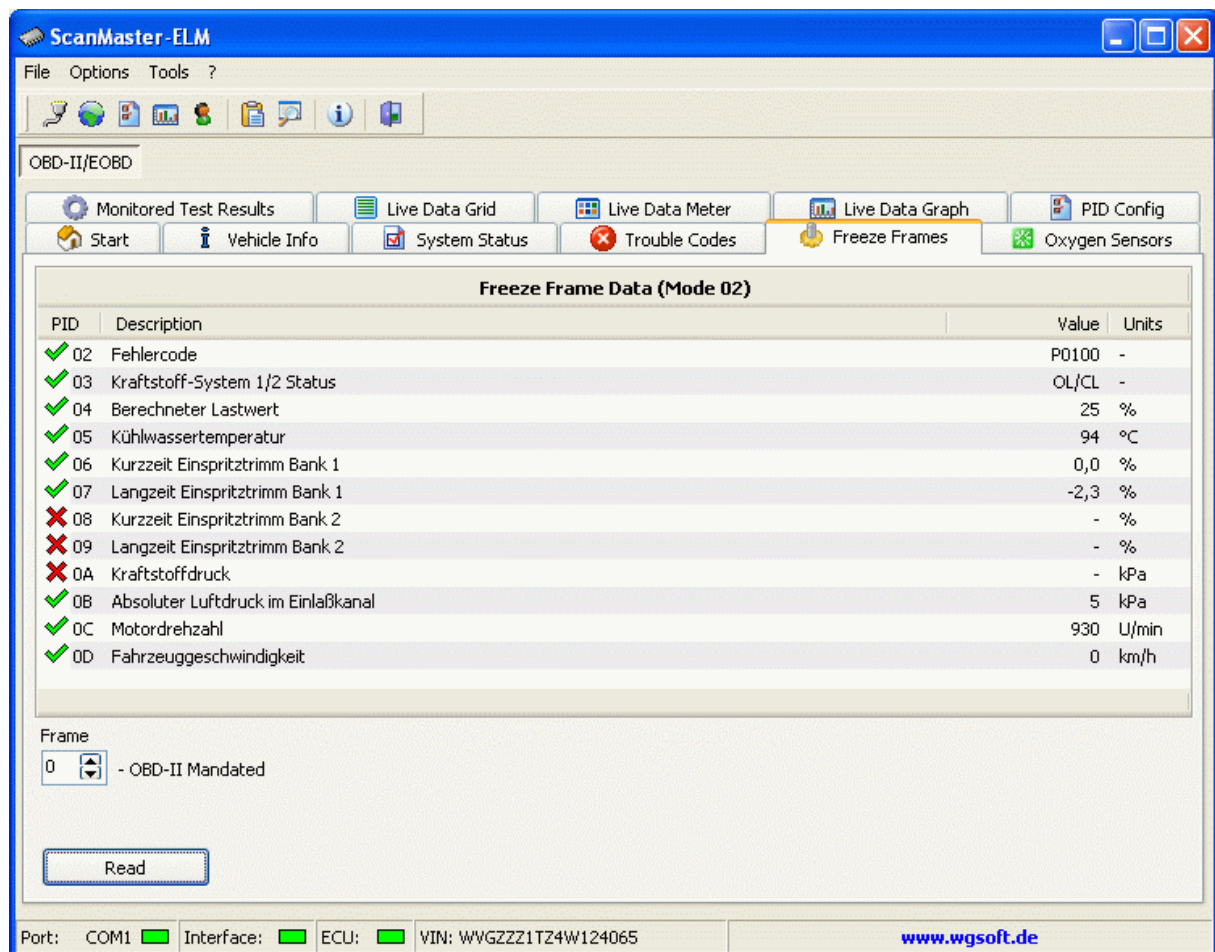


## Anatomy of the DTC

A DTC is made up of 5 digits. The figure below demonstrates the composition of a DTC. With this information it is easier to trouble shoot a DTC without knowing the description of the code.



## Freeze Frame

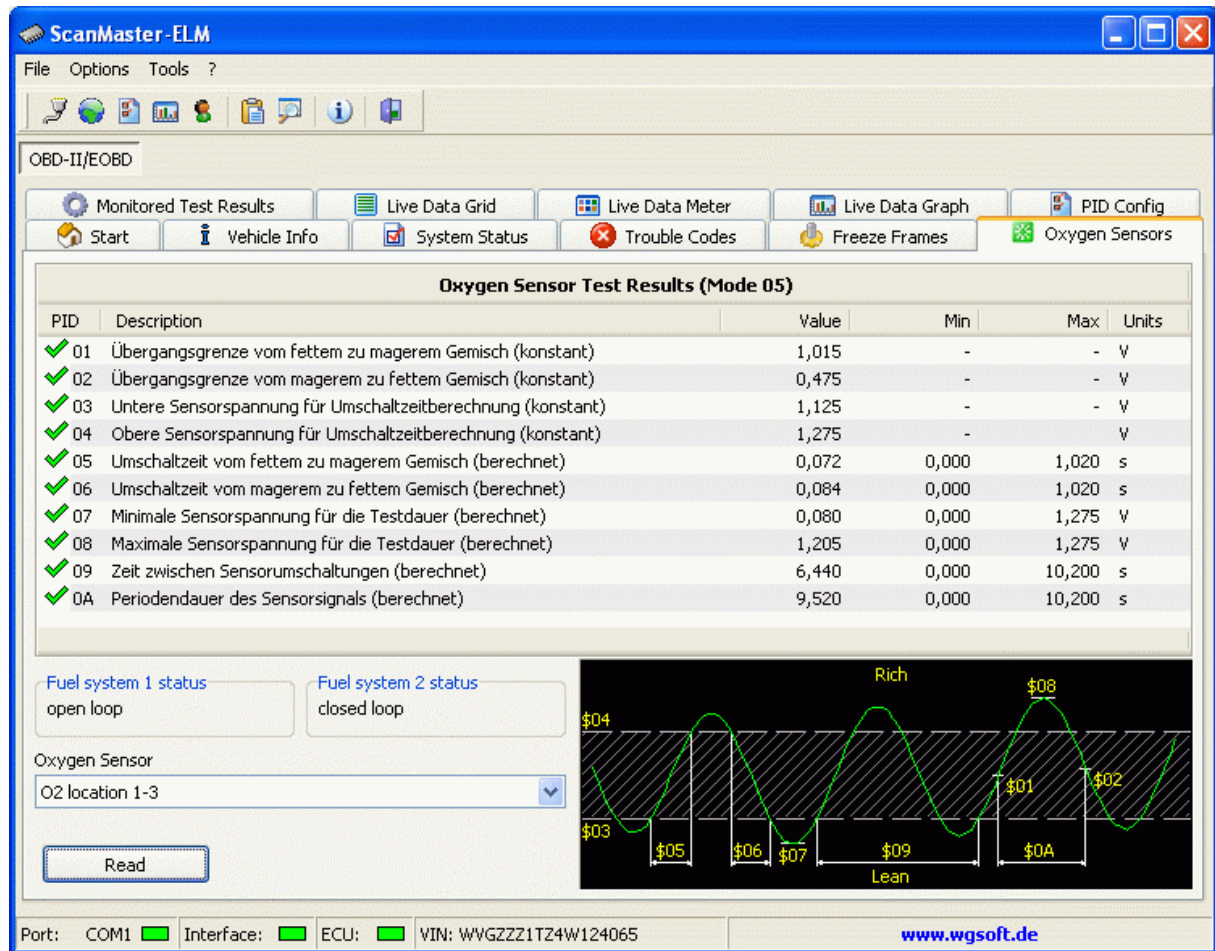


Press "Read" to read the Freeze Frame. The Freeze Frame screen displays the freeze frame log as stored by the car ECU. When a Diagnostic Trouble Code occurs that illuminates the Check Engine light, the vehicle's computer saves the current values of the vehicle sensors at the instant the error occurred. If a freeze frame exists, it will displayed. Each vehicle supports a different complement of sensors. The freeze frame screen displays only sensors appropriate for the vehicle under test. This screen will remain blank if no freeze frame information is available from the vehicle.

### Frame selection box

A left mouse click on up-down arrow will change the requested frame number. The frame number byte will indicate 0 for the mandated freeze frame data. Manufacturers may optionally save additional freeze frames.

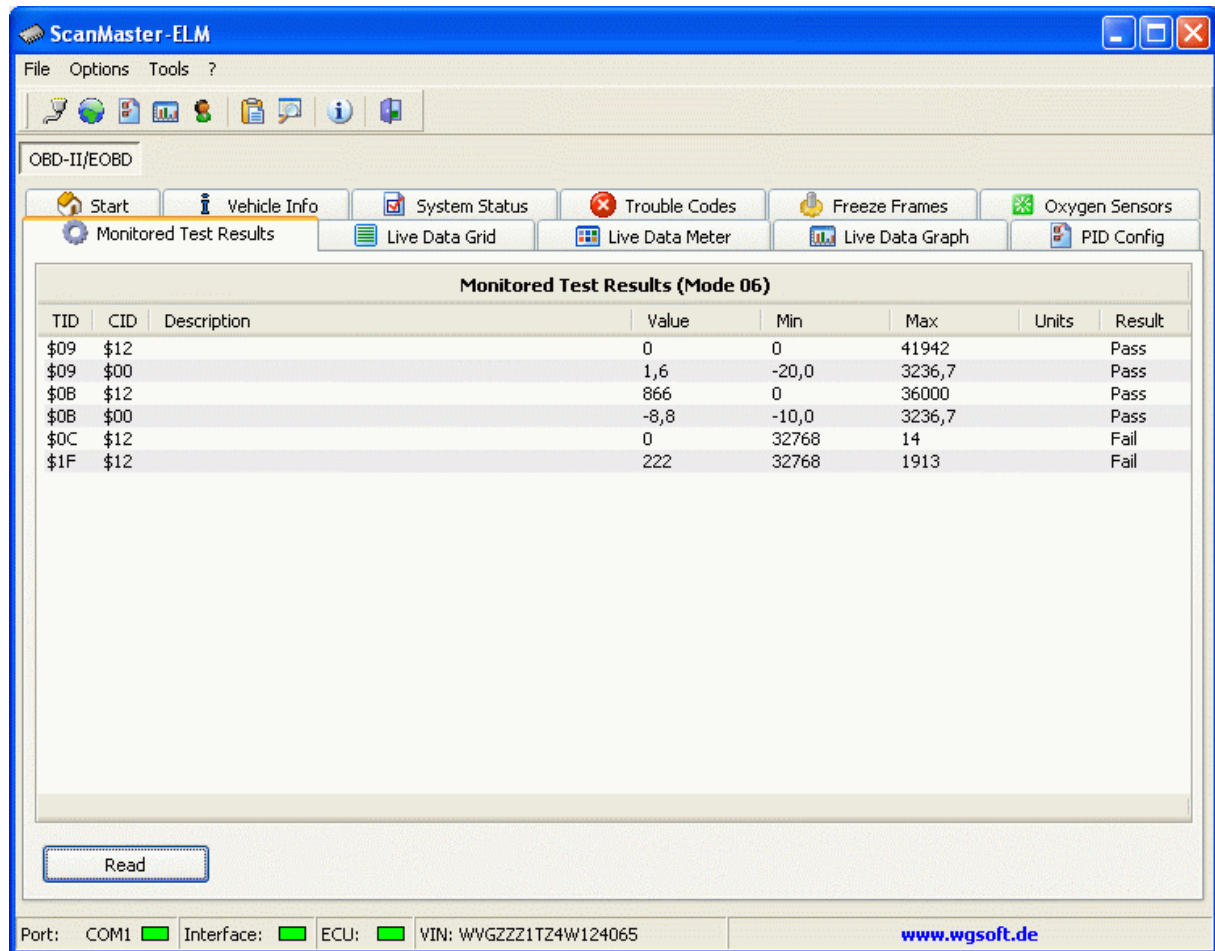
## Oxygen Sensor Test Results



Select the sensor from the “Oxygen Sensor” select box and press “Read”.

The Oxygen Sensor screen displays the vehicle's oxygen sensor test results. The results displayed here are measured by the vehicle's on-board computer (ECU) and not the scan tool. These are not live values but instead the results of the ECU's last O2 sensor test.

## Monitored Test Results



This mode allows access to the results for on-board diagnostic monitoring tests of specific components and systems that are not continuously monitored. Test results are requested by test ID.

The vehicle manufacturer is responsible for assigning “Manufacturer Defined Test IDs” for different tests of a monitored system. The latest test values (results) are to be retained, even over multiple ignition OFF cycles, until replaced by more recent test values (results). Test values (results) are requested by On-Board Diagnostic Monitor ID. Test values (results) are always reported with the Minimum and Maximum Test Limits.

If an On-Board Diagnostic Monitor has not been completed at least once since Clear/reset emission-related diagnostic information or battery disconnect, then the parameters Test Value (Results), Minimum Test Limit, and Maximum Test Limit shall be set to zero (0) values.

The ScanMaster has a built-in database of descriptions and scaling values derived directly from the manufacturers. If the Test Results data reported from your vehicle is listed in the database, ScanMaster will translate it for you. Keep in mind that not all Test Results data is documented by the manufacturer, and not all manufacturers even support Test Results.

## Sensor Data

The ScanMaster displays sensor measurements in either English or Metric units. The default units of measure are located on the Options / Language Form.

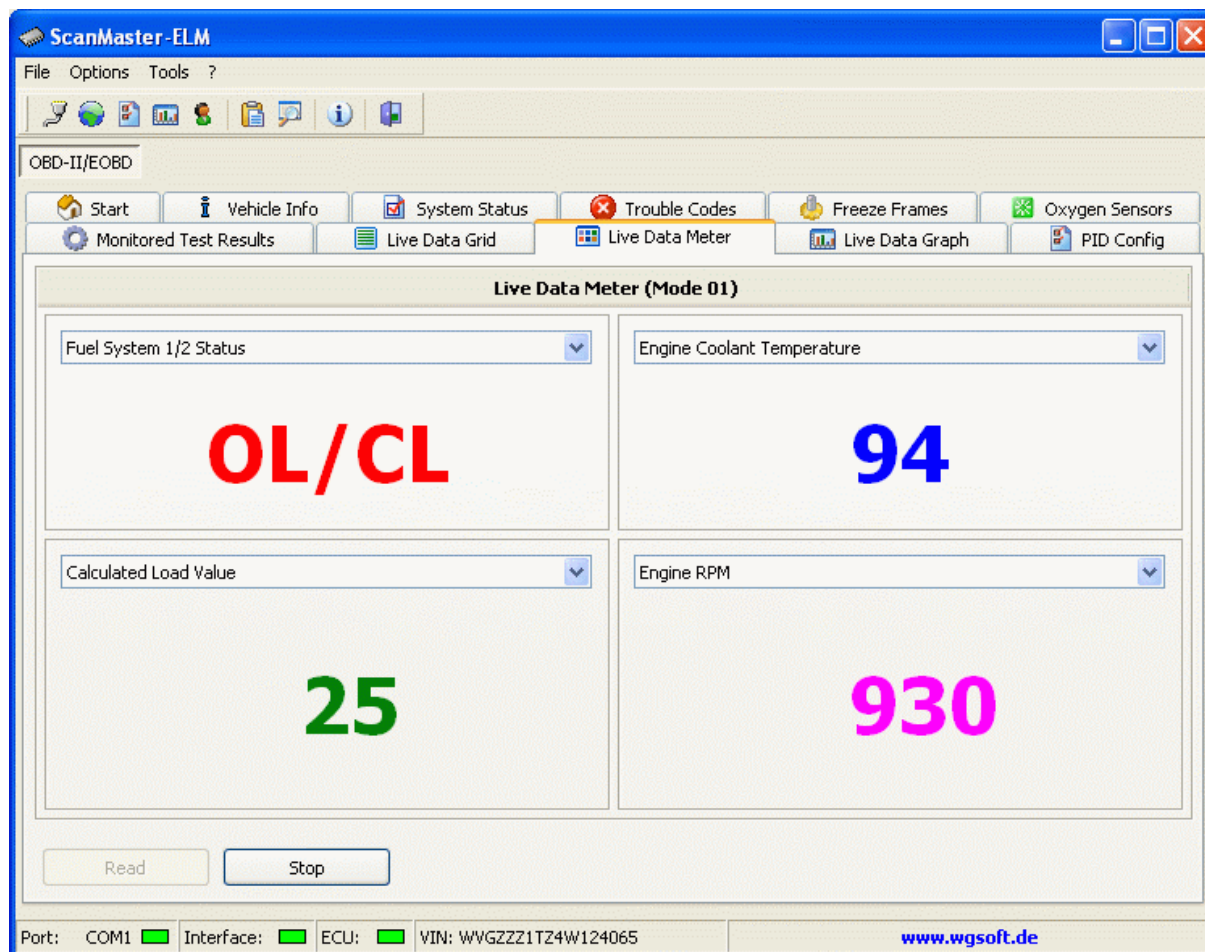
**Live Data Grid** - This screen shows a list of the available data parameters that the car supports. To read the data press "Read" button.

**Live Data (Mode 01)**

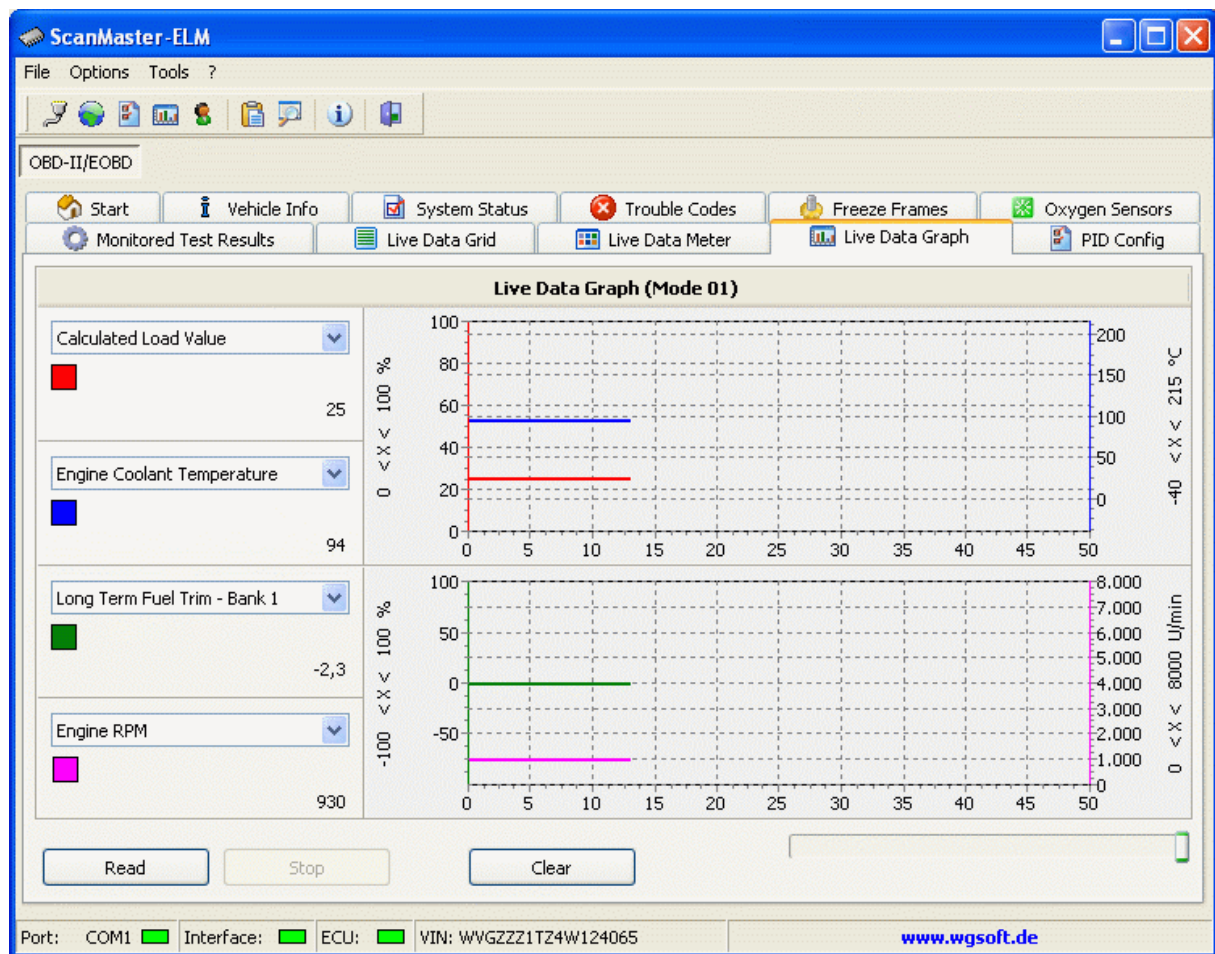
| PID  | Description                             | Value  | Units | Min    | Average | M    |
|------|-----------------------------------------|--------|-------|--------|---------|------|
| ✓ 03 | Fuel System 1/2 Status                  | OL/CL  | -     | -      | -       |      |
| ✓ 04 | Calculated Load Value                   | 25     | %     | 25     | 25      |      |
| ✓ 05 | Engine Coolant Temperature              | 94     | °C    | 94     | 94      |      |
| ✓ 06 | Short Term Fuel Trim - Bank 1           | 0,0    | %     | 0,0    | 0       | 0    |
| ✓ 07 | Long Term Fuel Trim - Bank 1            | -2,3   | %     | -2,3   | -2,3    | -2   |
| ✓ 08 | Short Term Fuel Trim - Bank 2           | -100,0 | %     | -100,0 | -100,0  | -100 |
| ✓ 09 | Long Term Fuel Trim - Bank 2            | -100,0 | %     | -100,0 | -100,0  | -100 |
| ✓ 0A | Fuel Rail Pressure                      | 0      | kPa   | 0      | 0       |      |
| ✓ 0B | Intake Manifold Absolute Pressure       | 5      | kPa   | 5      | 5       |      |
| ✓ 0C | Engine RPM                              | 930    | U/min | 930    | 930     | 930  |
| ✓ 0D | Vehicle Speed                           | 0      | km/h  | 0      | 0       |      |
| ✓ 0E | Ignition Timing Advance for #1 Cylinder | 4      | °     | 4      | 4       |      |
| ✓ 0F | Intake Air Temperature                  | 74     | °C    | 74     | 74      |      |
| ✓ 10 | Air Flow Rate                           | 0,00   | g/s   | 0,00   | 0,00    | 0,1  |
| ✓ 11 | Absolute Throttle Position              | 17,3   | %     | 17,3   | 17,3    | 17   |

Port: COM1 Interface: [green] ECU: [green] VIN: WVGZZZ1T24W124065 [www.wgsoft.de](http://www.wgsoft.de)

**Live Data Meter** - This screen can display the parameters in digital format. Four parameters can be shown at the same time.

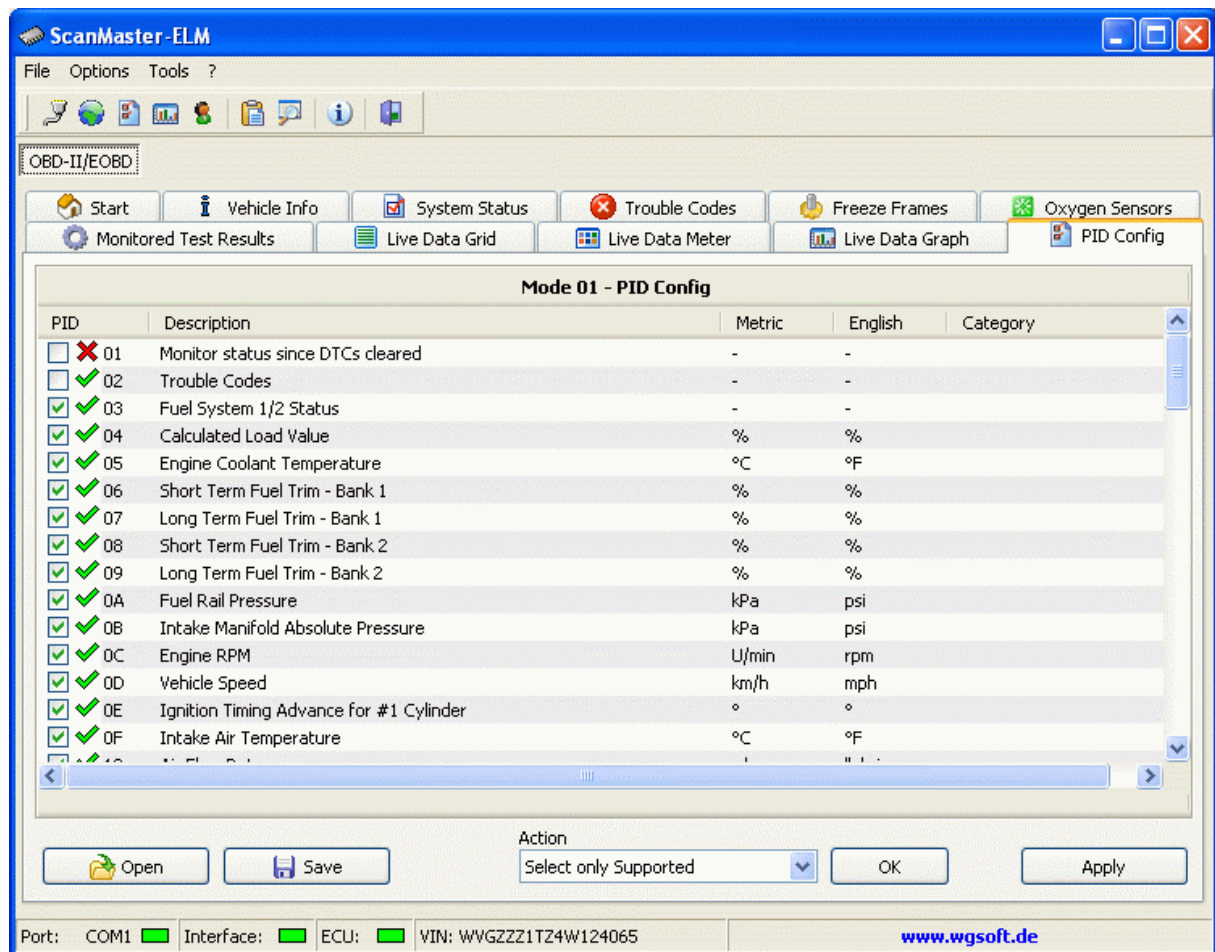


**Live Data Graph** - This screen can display the parameters in graphical format. Four parameters can be shown at the same time.



## PID Config

Here you can decide which sensors are displayed.



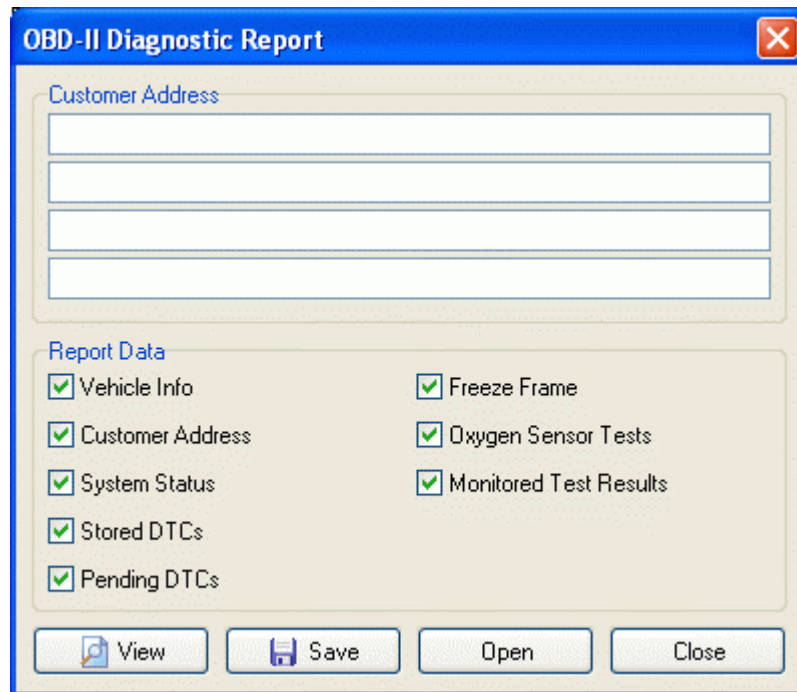
The attitudes can be stored and opened when required again.

NOTE: Not all cars can supply data for all sensors

## Diagnostic Report

### Report Options

The program made possible preparing and printing a diagnosis report. Click for this on the  symbol.



**OBD-II Diagnostic Report**

Customer Address

Report Data

- ☒ Vehicle Info
- ☒ Freeze Frame
- ☒ Customer Address
- ☒ Oxygen Sensor Tests
- ☒ System Status
- ☒ Monitored Test Results
- ☒ Stored DTCs
- ☒ Pending DTCs

View Save Open Close

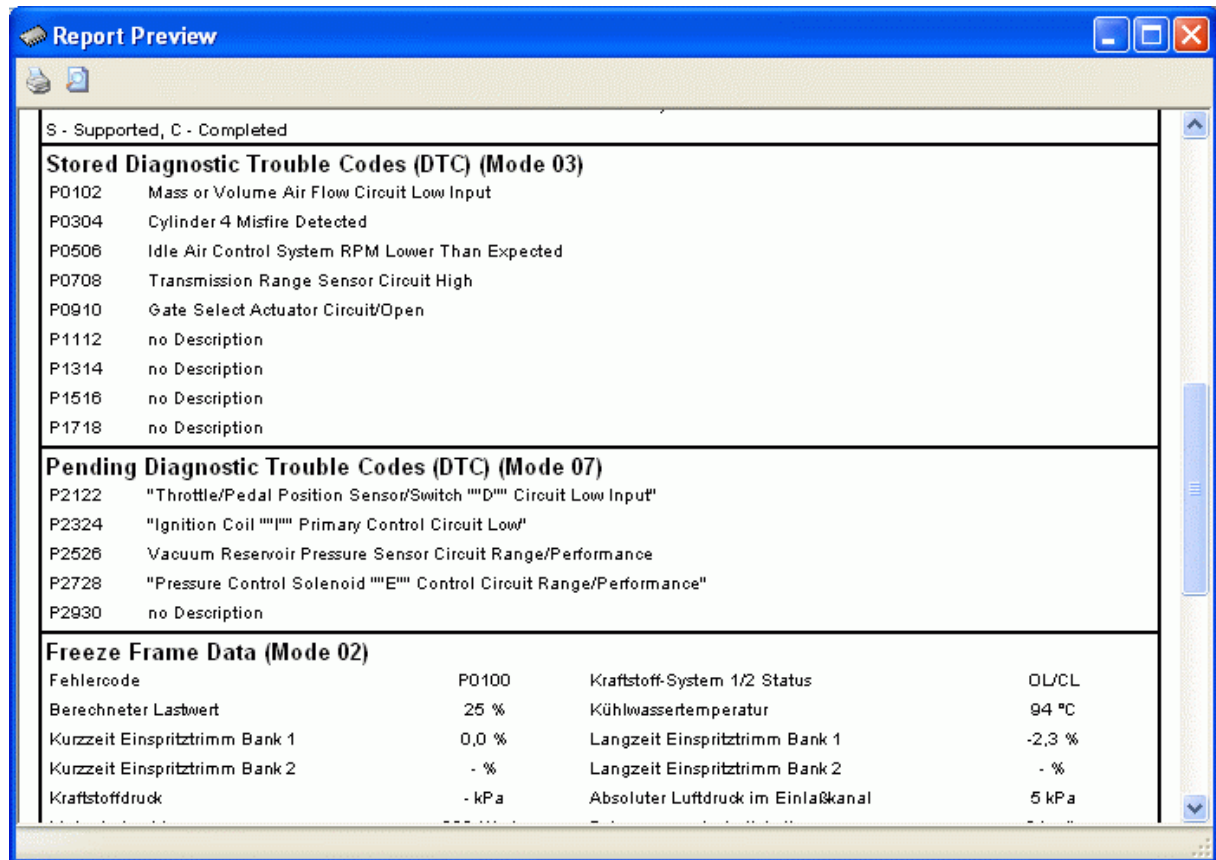
Type the customer data in here and select the data which shall be printed.

**View** – A preview window opens where the report can be looked at and printed.

**Save** – Save the report on the hard disk.

**Open** – Open the stored report of the hard disk. The open report can be looked at and printed.

## Report Preview



Diagnosis report can be looked at and printed in this window.

## Glossary

|                 |                                                                                       |
|-----------------|---------------------------------------------------------------------------------------|
| <b>CAN</b>      | Controller Area Network                                                               |
| <b>CARB</b>     | California Air Resources Board                                                        |
| <b>DLC</b>      | Data Link Connector                                                                   |
| <b>DTC</b>      | Diagnostic Trouble Code                                                               |
| <b>ECM</b>      | Engine Control Module                                                                 |
| <b>ECU</b>      | Engine Control Unit                                                                   |
| <b>EEC</b>      | Electronic Engine Control                                                             |
| <b>EGR</b>      | Exhaust Gas Recirculation system                                                      |
| <b>EOBD</b>     | European On-Board Diagnostics                                                         |
| <b>EPA</b>      | Environmental Protection Agency                                                       |
| <b>KWP2000</b>  | Key Word Protocol 2000, also known as ISO 14230-4                                     |
| <b>MIL</b>      | Malfunction Indicator Lamp. The "Check Engine Light" on your dash.                    |
| <b>O2</b>       | Oxygen                                                                                |
| <b>OBD</b>      | On-Board Diagnostic                                                                   |
| <b>OBD II</b>   | Updated On-Board Diagnostics standard effective in cars sold in the US after 1-1-96   |
| <b>PCM</b>      | Powertrain Control Module, the on-board computer that controls engine and drive train |
| <b>PID</b>      | Parameter Identification                                                              |
| <b>PWM</b>      | Pulse Width Modulation                                                                |
| <b>SAE</b>      | Society of Automotive Engineers                                                       |
| <b>ScanTool</b> | Computer based read-out equipment to display OBD II parameters                        |
| <b>SID</b>      | Service Identification                                                                |
| <b>VIN</b>      | Vehicle Identification Number                                                         |