DIAMEX SIMULATOR

OBD2-simulator for all standard protocols:

⬛ P1: J-1850 PWM
⬛ P2: J-1850 VPWM
⬛ P3: ISO-9141
⬛ P4: KWP2000 5-baud init
⬛ P5: KWP2000 Fast Init
⬛ P6: CAN 11/500
⬛ P7: CAN 29/500
⬛ P8: CAN 11/250
⬛ P9: CAN 29/250

A 100 percent simulation of existing control units is of course never possible. Due to lack of "live" data from sensors, a simulator is always relatively static and inflexible.

Nevertheless, attempts were made to make the software of Diamex simulator largely realistically. Thus, it is possible to allow two (simulated) control devices respond, as is the case with automatic vehicles. 3 parameters can be set via the existing potentiometer. Maximum 9 error codes can be activated using the keys. Error codes can be deleted via OBD-command.

For P3: ISO 9141 and P4 / 5: KWP2000 exists the famous timeout, the test device for 5 seconds automatically disconnects when there is no communication via the K-Line takes place more. Also note that a new 5-baud or fast-Init is only possible if the Connect LED is off to the right of the display.

Connections of Diamex simulator:
For operation a 12 volt power supply is required. This provides not only the simulation but also an over the OBD2 socket connected tester with power.
The USB port is used to update the simulator operating software and configuration. A connection to the PC is not necessary for the pure simulation mode.
At the OBD2 connector for connecting the test device required for the protocols pins are wired:
PIN 4 + 5 = ground, pin 16 = + 12V
PIN 7 = K-LINE for ISO-9141 and KWP2000 (PIN 15, L-LINE is not connected)
PIN 2 + 10 = J-1850 PWM + and PWM
PIN 2 = J-1850 VPWM
PIN 6 + 14 = CAN-H, CAN-L

Please note:
For technical reasons, also lead pins are not used in the active log voltages.

Displays and operation:
To set the desired protocol and activating the error codes are 3 keys
available.

Set the protocol:
Press the center button for about 1 second. The 3 LEDs next
the buttons start flashing. This all simulator functions are deactivated and the stored
DTCs have been erased. Set the desired protocol with the middle button
(1..9, 1..9). Should respond only 1 control unit, press to activate the protocol right
Button. If 2 control units respond, press the left button. The selected protocol is
stored and made available immediately after separation and re-connecting the power supply again
available.

Activation of the error codes:
 Press the right button for about 1 second. On display
shows a flashing "1" and the MIL indicator lights. This is an error code in the control unit
1 activated. Each further short press on the right button increases the number of error codes
1. The current number is always displayed briefly flash on the display before returning to the
Protocol number is switched. The error codes are completely turned off when the
right button is pressed for about 1 second. The MIL indicator goes off.
Notice! If only one controller is to respond, a maximum of 9 error codes can be activated.
With 2 controllers, the error codes are divided between the two control units, the
Majority appear at ECU 1.

Adjustment control (potentiometer):
In the current software, the following values can be set using the controls:
Poti 1 (left): speed (PID 0D)
Poti 2 (middle): Speed (PID 0C)
Poti 3 (right): cooling temperature (PID 05)

LEDs:
The 3 green LEDs between the keys flash when setting the protocol.
The red LED to the right of the display lights up when a successful connection is established with a
Tester (Connect LED).
The left LED block before the display lights up when MIL is active.
The right LED block before the display flashes during data transfer to / from the tester.
Reset button on the back:
To reset all settings, press the reset button. This removes all
Restored values for the basic setting.

Due to the relatively small memory of the microcontroller used a few limitations in the amount of
stored data had to be made:

⯀ A maximum of 2 control units.
⯀ Service 1: Highest PID = 0x3F only a data table for both controllers
⯀ Service 3: Maximum error code = 10 / control unit
⯀ Service 2 (Freeze Frames): Highest PID = 0x1F As with service 03/07 a maximum of 10 frames /
controller There are no freeze frame data stored. The read values are the same ones that can also be
read at service 1.
⯀ Service 7: Here are always 2 temporary error codes exist, they cannot be changed nor be deleted.
⯀ Service 5.6 and 8: are not currently supported.

Known bugs / problems:
The voltage level for VPWM is only 5 volts instead of the required 8 volts. However, most testers
manage with 5 Volt, only in exceptional cases does not VPWM.
If necessary, we will update the BIOS of DIAMEX simulator. Latest BIOS data are always in the current
version of the PC-Tools, which performs an automatic update to start unless it is necessary.

DIAMEX SIMULATOR
PC tool V1.200
This tool is used for simple setting of some parameters of DIAMEX simulator and to update the simulator Bios.
Start the program DXSimTool_xxxx.exe in any folder, there are no additional files necessary (xxxx = current version number).
Connect the DIAMEX simulator to the power supply and to a USB port on the PC. You may be prompted to load the correct USB drivers.
Since there is a commonly used USB / serial converter from FTDI in DIAMEX simulator, many find the correct driver already installed. If this is not the case, you will find this in the download section on the http://www.obd-diag.com Homepage
The DIAMEX simulator is registered as a virtual COM port on the PC. Which COM port this is, you can easily find out by not connecting the simulator first. Start the Simulator tool and watch the list of COM ports by folding down the COM list. Then plug the simulator to the USB port and once again look into the list. The port is added, is the port of the simulator. You can also simply try all ports, usually they can thus easily find the right port.
If the correct port is set, the simulator will be immediately queried and serial number and version number of the installed BIOS displays. There is a simulator for tool Inadequate BIOS flashing in the simulator, a BIOS update starts automatically. Please do not cancel the update, since the installed BIOS else is incomplete and no new automatic update is possible.
The display shows 3 horizontal bars and the LEDs flash. In this case, the automatic update has failed. It is now no longer possible to automatically update, you need to start a manual update. Here's how it works: Please choose the appropriate COM port, it is now displayed No DIAMEX simulator found Force BIOS update "from" from the Options menu, then select the menu item. ". Then, the update should start, should not be the case, you may need to press once on the simulator the reset button. After the update, it may possibly take up to 20 seconds until the simulator has the new data installed. This can be seen by the flashing decimal point on the display alone. Please do not disconnect the simulator during this time of the power or press the reset button. After the update the current protocol is displayed on the screen of the simulator.
The simulator tool on the PC reads the latest data and displays next to the log and the number of control units and the MIL status and the sum of the active fault codes in all control units.
Note that after starting the simulator tools, the keys are locked in the simulator. An operation is now only possible via the PC. After the simulator tools kill on the PC, the keys are unlocked. ATTENTION! A Disconnect the USB port from the PC unlocks the keys automatically.
Any changes that are made via the PC tool on the simulator shall be canceled by pressing the reset button on the simulator again. If this is the case, you need the simulator tool say it should re-read by the simulator data. This goes beyond the menu item "Reload Data" in the Options menu or by pressing the plug icon next to the COM port display.

Features of the current version:
Setting the protocol and number of ECUs.
By changing the protocol and / or the number of controllers the current log is always deleted, a possibly existing connection with a tester is disconnected (especially the protocols P3-5 ISO / KWP2000). For technical reasons, the error codes and MIL are erased.
Setting Error Codes and MIL status.
For each control unit can be activated a maximum of 10 error codes. You can change the code, and any transfer to the simulator by pressing the button "Send". These are activated immediately in the simulator and can be by changing the protocol or the number of control units, by pressing the Reset button on the simulator or by the OBD2 command (Service 4) to delete the MIL reset.
The simulator status is regularly checked so that changes with a maximum of 1 second delay in the simulator tool are displayed.
Save / Read configuration.

All settings can be saved via the menu item and the button "Save configuration" to file. It will be saved for the next program of values, so as the number of error codes for controller 1 and 2, even if they have been cleared by a tester simulator.

Via the menu item "Open configuration" You can recall a previously saved configuration. All data is immediately sent to the simulator, so that the previous configuration is immediately available.

History:
V1.200
Please be sure to import this version, so a crash of the simulator is prevented, and it can no longer be operated (Minus and spot lights in the display). If this happens despite new version, please all 3 buttons simultaneously and insert the power supply. The simulator now reset itself and cleans up the memory, it can take up to 10 seconds, please do not pull the power cord at this time.
Bios v1.2.0
V1.170
Some OBD2 tester of foreign manufacturers had problems with the connection setup for protocol 5 (KWP2000 Fast Init). Due to changes in the timing of this problem has been fixed.
Bios v1.1.7
v1.161
Program fully in English.
Bios v1.1.6
V1.160
includes DIAMEX simulator Bios v1.1.6
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